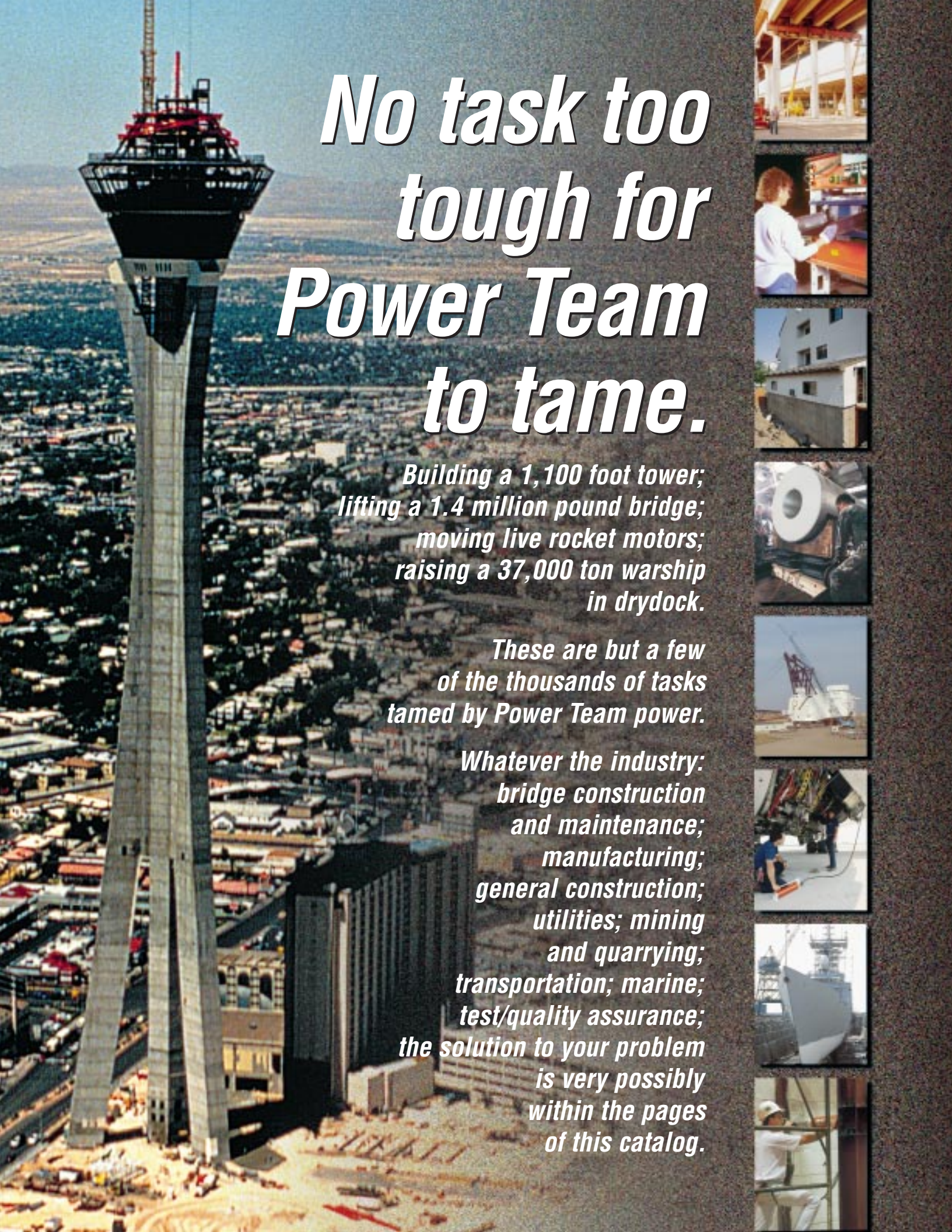


SPX POWER TEAM.



*Manufacturing
hydraulic solutions
for a global market...*



No task too tough for Power Team to tame.

*Building a 1,100 foot tower;
lifting a 1.4 million pound bridge;
moving live rocket motors;
raising a 37,000 ton warship
in drydock.*

*These are but a few
of the thousands of tasks
tamed by Power Team power.*

*Whatever the industry:
bridge construction
and maintenance;
manufacturing;
general construction;
utilities; mining
and quarrying;
transportation; marine;
test/quality assurance;
the solution to your problem
is very possibly
within the pages
of this catalog.*



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(pages 175-178) for complete
product listing.**

NOTE: All weights listed in this catalog indicate product weights. For shipping weights, see Power Team price list or consult factory.

Hydraulic Cylinders

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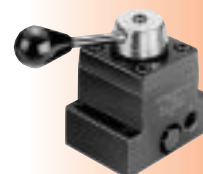
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Lifting and Jacking

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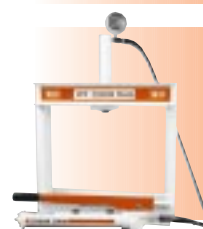
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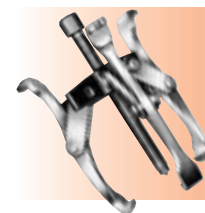
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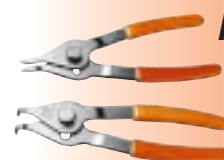
Pulling Systems

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Why insist on Power Team

A heritage of creative problem solving

Power Team's roots go back nearly 75 years. The founder of its predecessor company created the gear and bearing puller line that was copied worldwide when patents expired. In the 1950's, the company entered the field of high-pressure fluid power, and today supplies world class manufacturers with Power Team designed hydraulic components to power their own products in diverse industries. But the Power Team focus isn't on the past, but on the future. We hope you'll share it with us as a valued customer.

NEW!
55 and 150 ton
double-acting
cylinders with
18.13" stroke

See page 21

Commitment to quality

Power Team's commitment to quality is evident in everything we do, from raw material receipt to the way we support our customers after they purchase our products. Power Team is registered for the coveted ISO 9001 international quality standard. ISO 9001 is the most stringent of the quality standards developed by the ISO Technical Committee, and requires compliance with standards for management, administration, product development, and manufacturing.

Registration verifies that Power Team has adopted and maintains documentation for processes ranging from suppliers to customers, inspection, handling and training. ISO 9001 also requires periodic internal and external audits to ensure that all aspects of work affecting quality control are monitored. This always has been and will continue to be, our philosophy. That's our guarantee to you.

NEW!
Telescoping
bottle jacks

See page 96

NEW!
Hydra
Grip-O-Matic®
gear and
bearing pullers
See pages 140-141



NEW!
"Economy"
toe jacks
See page 95

NEW!
60 ton,
4.00" stroke
aluminum
double-acting
cylinder
See page 17

products...

Power Team products comply to exacting standards

Our hydraulic cylinders fully comply with the criteria set forth in the American Society of Mechanical Engineers standard ASME B30.1, and our heavy duty pressure gauges comply with ASME B40.1, Grade B. Hydraulic hoses meet the criteria of the Material Handling Institute's specification IJ100.

Power Team supplies a Letter of Incorporation or a Declaration of Conformity and CE marking for all products that conform with European community directives. Where specified, electric pump assemblies meet the design, assembly and test requirements of the Canadian Standards Association. And, where specified, electric pump assemblies meet the design, assembly and test requirements of NEMA 12, a National Electrical Manufacturer's Association standard relating to electrical components used to resist moisture and dust.

Product innovation

The list of products which were introduced to industry by Power Team is a lengthy one. Lightweight aluminum hydraulic cylinders, battery-operated portable hydraulic pumping units, Roll-Bed® hydraulic presses, railroad axle journal bearing replacers and hydraulic system testers are but a few examples of ongoing Power Team innovation.

Your problem solver

Our highly trained staff of application specialists can analyze your specific hydraulic power requirement. Using our unique PowerBase II software, they can produce a detailed circuit diagram customized to your needs. Many of Power Team's authorized distributors now have PowerBase capabilities, and can provide you with the same information, plus first hand consultation.

As near as your phone

A worldwide network of Authorized Power Team distributors assures local availability of our products. To ensure that parts and service are available locally for the user of Power Team products, we maintain a global network of Authorized Service Centers. Power Team's ongoing training programs keep these key people up to date on our latest developments.

NEW!
Post tension/stressing
jacks and pumps
See pages 102-106

NEW!
PA9 Series
air/hydraulic pumps
See pages 36-37

NEW!
5 ton
Mini Jack
See page 96

NEW!
Hydraulic
rebar benders
See pages 107-110

SPX

POWER TEAM®

Build Your Own Power Team To Tame Tough Tasks

STEP 1: SELECT THE HYDRAULIC CYLINDER THAT BEST SUITS THE JOB.

**STEP 2: SELECT THE HYDRAULIC PUMP YOU WILL NEED.
(SEE PAGES 28-31)**

**STEP 3: CHOOSE THE RIGHT HYDRAULIC VALVE OPTIONS.
(SEE PAGES 66-79)**

**STEP 4: SELECT THE HYDRAULIC ACCESSORIES YOU NEED.
(SEE PAGES 80-90)**

Power Team offers you a complete selection of cylinder styles, tonnages and stroke lengths:

“C” Series

Pages 8 thru 9, 12

“C” Series locking collar cyl. Page 26.



“RLS” Series

Page 13



“RSS” Series

Page 14



“RH” Series

Pages 16 thru 17



“RT” Series

Pages 18 thru 19



“RP” Series

Page 19



“RD” Series

Pages 20 thru 21



“R” Series

Pages 22 thru 24



“RA” Series

Pages 16, 25-26



What type of cylinder do you need?

1. To determine a cylinder's force capacity

Force pounds	Cylinder Effective Area (sq. in.)	X	PSI from Pump
------------------------	--------------------------------------------	----------	------------------

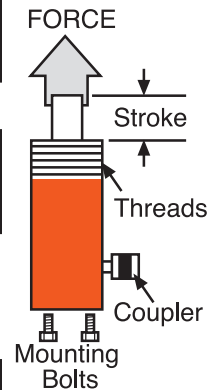
2. To determine oil capacity of a cylinder

Oil Capacity (cu. in.)	Cylinder Effective Area (sq. in.)	X	Cylinder Stroke (in.)
--------------------------------------	--------------------------------------------	----------	-----------------------------

Note: For double-acting cylinders, oil in rod end of cylinder must be subtracted to determine capacity.

3. To determine reservoir capacity needed for a multiple cylinder system

Usable Oil	Oil Cap. of Cyl. (cu. in.)	X	Number of Cyl. in System
-----------------------	----------------------------------	----------	--------------------------------



It's easy to select the components you'll need.

If you've used Power Team hydraulics before, and know the components you need, you may wish to simply consult index at rear of catalog to locate the page containing specifications and ordering information. If not, we think you'll find the following step-by-step information helpful.

Considerations:

- 1 What **push or pull** tonnage is required per cylinder in your application?
- 2 What is the **push or pull** stroke length required?
- 3 Does the cylinder need to **push or pull**? Or both? (Single-acting cylinders extend the piston under hydraulic pressure; double-acting cylinders extend and retract the piston under pressure).
- 4 Does the application require **multiple cylinders**?
- 5 Is the application **stationary** or must the components be light in weight for easy **portability**?
- 6 Do you need to **extend a rod or cable through the center** of the cylinder for the application, as in a **tensioning** operation?

- 7 Does the application require that the cylinder fit within **limited-clearance** work areas?
- 8 Does the application require that the cylinder be **“dead-ended”** at the end of its work stroke?
- 9 Will the cylinder need to withstand **off-center loads**? Cylinders with swivel caps are available.
- 10 Does the application require that the lifted load be supported for extended periods? **Locking Collar** cylinders are ideal for such jobs, as are cribbing blocks.
- 11 Is **corrosion resistance** required? Our unique Power Tech surface treatment is standard on many Power Team cylinders, and optional on any of our cylinders which feature steel construction.
- 12 Will the application involve high cycles (over 2,500 in the cylinder's lifetime)? Our “RD”, “RH”, “RP” and “C” series cylinders are ideal choices.

See pgs. 5-6 for capabilities of each cylinder type.

Choosing The Right Cylinder For YOUR Task

"C" Series

Single-acting Cylinders



(Listed on pages 8-9, 12
Locking Collar models listed
on page 26)

Capacity range of from 5 to 150 tons, stroke lengths from 1.00" to 16.00". Over 40 models to choose from.

On 5 to 25 ton cylinders, **adapters** and **accessories** are available for attachment to the cylinder's base or piston, to apply force for spreading, lifting or other tasks. Swivel caps are available for 10, 15, 25, 55 and 75 ton cylinders

Collar threads permit mounting cylinders in a fixture or attachment. Base mounting holes and threaded piston rod ends also provided for versatility of application.

Locking collar models are ideal for jobs in which the lifted load will remain supported for extended periods of time.

"RLS" Series

Single-acting Cylinders



(Listed on page 13)

Capacity range from 5 to 150 tons, stroke lengths from 0.44" to 0.63".

These are **low profile** "pancake" cylinders for use where clearances are limited. A unique heavy duty return spring provides rapid return of the piston.

Swivel caps reduce the effects of **off-center loading**.

Unique Power-Tech surface treatment for **corrosion resistance**.

"RSS" Series

Single-Acting Cylinders



(Listed on page 14)

Capacity range from 10 to 250 tons, stroke lengths from 1.50" to 3.00".

"Shorty" cylinders have a heavy duty **return spring** for rapid piston return and **low collapsed height** for limited-clearance jobs. Large capacity models have removable carrying handles.

Optional swivel caps minimize effects of **off-center loading**. **Cribbing block accessories** available for use with these cylinders give stable load support and increase cylinder stroke.

"RT" Series

Single & Double- acting Cylinders



(Listed on pages 18-19)

Capacities of 17 1/2 to 100 tons, stroke lengths of 2.00" to 4.88".

"Center-Hole" allows jacking screws, puller screws, cables, etc., to be extended through the cylinder for application versatility.

A record of proven **reliability** for over 40 years!

"RH" Series

Single and Double- acting Cylinders



(Listed on pages 16-17)

Capacity range of 10 to 200 tons, stroke lengths of 0.31" to 10.13".

"Center-Hole" design enables you to run cables, screws, etc, through the center of the cylinder, enabling cylinder to push or pull, if a pull rod is used.

Withstand full "dead-end" loads, **double-acting** models provide rapid piston return. Standpipe has unique Power-Tech surface treatment for **corrosion resistance**.

Threaded, plain or solid head inserts are available for most models. Cylinders have removable carrying handles.

Lightweight aluminum models now available. These have high corrosion resistance and are one half the weight of a steel cylinder.

"RP" Series

Pull Cylinders



(Listed on page 19)

In **capacities** of 2 and 5 tons, stroke lengths of 5.00" and 5.50".

Designed for **pulling** and **tensioning** applications.

Heavy duty compression spring provides long cycle life and rapid extension of piston; **spring automatically extends piston rod** when pump pressure is released.

See pg. 6 for additional
cylinder type capabilities.

Superior Features of Power Team Hydraulic Cylinders:

Good reasons to specify Power Team hydraulic cylinders:

We build our own cylinders in our ISO 9001 registered manufacturing facility, honored by Industry Week magazine as one of the 10 best plants in the United States.

All Power Team cylinders are date-coded and maximum pressure rating and capacity are metal stamped on the cylinder.

All cylinders comply to the demanding ASME B30.1 standard.

All cylinders are proof tested to 125% of capacity before leaving our factory.

Cylinder bores are roller burnished to harden surface and make it smoother, increasing seal life by 30%.

Base mounting holes withstand full capacity of cylinder.

Typical cylinder burst pressures range from 25,000 to 35,000 psi.

Cylinders with gland nuts may be "dead-ended" at 10,000 psi.

Cylinders are assembled and tested by certified assemblers.

Eddy current and mag particle inspection detects flaws in the steel.

Cylinder bodies are solid steel, not welded like some competitive cylinders. Material is removed from surface, to assure that any flaws are removed. Others use material just as it is rolled at the mill.

Choosing The Right Cylinder For YOUR Task

Only Power Team provides the Power Tech surface treatment:

High corrosion and wear resistance, anti-galling properties. Significantly increases the life expectancy of a cylinder.

Retains lubricants, prevents bronze and other materials from sticking to surface.

Increases fatigue strength and impact strength.

Increases surface yield and tensile strength.

Provides improved abrasion and scratch resistance.

Causes no appreciable dimensional change.

56 Rc minimum surface hardness. Passes ASTM B117-85 100 hour salt spray corrosion resistance tests.

The Power Tech surface treatment is standard on the gland nut and cylinder body of the following cylinders: C556CL, C1006CL and C1506CL.

The Power Tech surface treatment is standard on the gland nut and cylinder body and piston/piston rod of the following cylinders: RLS50, RLS100, RLS200, RLS300, RLS500S, RLS750S, RLS1000S, RLS1500S, and RSS1002.

NOTE: Bronze plating may be used in place of the Power Tech surface finish for the piston/piston rod of any of the above cylinders.

The Power Tech surface treatment is standard on the standpipe of all "RH" series single and double-acting cylinders.

The Power Tech surface treatment is standard on the piston/piston rod of the RT172, RT302 and RT503 cylinders.

"RD" Series

Double-acting Cylinders



(Listed on pages 20-21)

In capacities of 10 to 500 tons, stroke lengths of 6.00" to 20.13".

Ideally suited to **severe applications**, high cycle usage, various mountings, production fixturing, cabling.

Accessory swivel caps on some models reduce the effects of **off-center loads**.

Ideal for bridge lifting, building reconstruction, shipyard, utility, mining equipment maintenance and high cycle production applications.

"R" Series

Double-Acting Cylinders



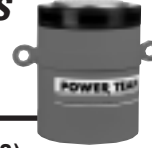
(Listed on page 22)

In capacities of 100 to 565 tons, stroke lengths of 2.00" to 10.00".

Swivel caps reduce the effects of **off-center loading**; cylinders may be "dead-ended" without damage. Removable carrying handles.

"R" Series

Load Return Cylinders



(Listed on page 23)

In capacities of 150 to 565 tons, stroke lengths of 2.00" to 10.00". Feature an improved **overflow port design** for stroke limiting. Optional swivel caps reduce effects of **off-center loading**.

Load Return, Locking Collar Cylinders

(Listed on page 24)

In capacities of 55 to 565 tons, stroke lengths of 2.00" to 10.00".

Ideal for certain applications, allowing pump to be disconnected from cylinder while retaining lifted load on **locking collar**.

Optional swivel caps reduce the effect of **off-center loading**.

"RA" Series

Aluminum Single- Acting Cylinders



(Listed on pages 16, 25-26)

In capacities of 20 to 100 tons, stroke lengths of 2.13" to 10.00".

Half the weight of steel cylinders of comparable capacity! Ideal for applications in which **portability** is a key factor.

Designed for jacking and other non-production applications.

Special **corrosion resistant** finish.

Optional swivel caps reduce the effects of **off-center loading**; models with **locking collars** allow load to be supported without the pump being pressurized.

Locking Collar

Cylinders



Spring Return

(Listed on
page 26)

Locking collar enables cylinder to support load indefinitely with hydraulic pressure released.

Aluminum models available in **55 and 100 ton capacities**, stroke lengths of 6.13" and 6.25"; **steel** models available in **55, 100 and 150 ton capacities**, 6.00" and 6.25" stroke lengths.

Special **corrosion resistant** finish.

CYLINDERS BY TONNAGE, STROKE AND RETRACTED HEIGHT

All Power Team cylinders are furnished with cylinder half couplers.

Cyl. Cap. (tons)	Cyl. Stroke (in.)	Retracted Height (in.)	ORDER NUMBER
2 ton pull	5.00	9.19	RP25
5 ton pull	5.50	11.88	RP55
5	0.56	1.63	RLS50
	1.00	4.38	C51C
	3.25	6.50	C53C
	5.25	8.50	C55C
		10.50	C55CBT
	7.25	10.75	C57C
	9.25	12.75	C59C

10	0.44	1.75	RLS100
	1.00	3.63	C101C
	1.50	3.50	RSS101
	2.13	4.75	C102C
	2.50	5.25	RH102
	4.13	6.75	C104C
	6.13	9.75	C106C
		11.50	C106CBT
	6.25	11.69	RD106
	8.00	11.31	RH108
	8.13	11.75	C108C
	10.00	15.69	RD1010
	10.13	13.75	C1010C
		15.50	C1010CBT
	12.13	15.75	C1012C
	14.13	17.75	C1014C

12	0.31	2.19	RH120
			RH121
	1.63	4.81	RH121T

15	1.00	4.88	C151C
	2.13	5.88	C152C
	4.13	7.88	C154C
	6.13	10.69	C156C
	8.13	12.69	C158C
	10.13	14.69	C1510C
	12.13	16.69	C1512C
	14.13	18.69	C1514C
	16.00	20.56	C1516C

17.5	2.00	6.88	RT172
------	------	------	-------

20	0.44	2.00	RLS200
	1.75	3.75	RSS202
	2.00	6.13	RH202
	2.13	6.38	RA202
	3.00	6.06	RH203
	4.13	8.38	RA204
	6.00	12.13	RH206
	6.13	10.38	RA206

25	1.00	5.50	C251C
	2.00	6.50	C252C
	4.00	8.50	C254C
		10.75	C256C
	6.25	13.38	C256CBT
		12.38	RD256
	8.25	12.75	C258C
	10.25	14.75	C2510C
	12.25	16.75	C2512C
		18.75	C2514C
	14.25	21.38	C2514CBT
		20.38	RD2514

30	0.50	2.31	RLS300
	2.13	7.38	RA302
	2.44	4.63	RSS302
		6.25	RH302
	2.50	8.44	RT302
	3.00	7.06	RH303
	4.13	9.38	RA304
	5.88	11.13	RHA306
	6.00	9.75	RH306
		11.06	RH306D
	6.13	11.38	RA306
	10.13	17.25	RH3010

50	.063	2.63	RLS500S
	2.38	5.00	RSS502
		7.13	RH503
	3.00	10.56	RT503

55	2.00	6.38	R552L
		6.88	C552C
	2.13	6.75	RA552
	4.13	8.75	RA554
	4.25	9.13	C554C
	6.00	10.38	R556L
		12.63	C556CL
	6.13	10.75	RA556
		12.50	RA556L
	6.25	11.13	C556C
		12.97	RD556
	10.00	14.38	R5510L
		15.13	RA5510
	10.25		C5510C
	13.13	19.84	RD5513
	13.25	18.13	C5513C
	18.13	25.88	RD5518

60	3.00	9.25	RH603
	4.00		RHA604D
	5.00	9.50	RH605
	6.00	12.50	RH606
	10.13	18.06	RH6010

75	0.63	3.13	RLS750S
	6.13	12.38	C756C
	13.13	19.38	C7513C

Cyl. Cap. (tons)	Cyl. Stroke (in.)	Retracted Height (in.)	ORDER NUMBER
80	13.13	20.38	RD8013

100	0.63	3.38	RLS1000S
		5.69	RSS1002D
	1.50	6.50	RH1001
		6.64	R1002D
	2.00	7.25	R1002L
		8.63	C1002C
	2.13	7.75	RA1002
	2.25	5.50	RSS1002
	3.00	10.00	RH1003
	4.88	15.13	RT1004
		10.64	R1006D
	6.00	11.25	R1006L
		12.38	RH1006
		11.75	RA1006
	6.25	13.38	RA1006L
		14.13	C1006CL
	6.63	13.25	C1006C
		13.78	RD1006
	10.00	14.64	R10010D
		15.25	R10010L
	10.13	19.81	RH10010
	10.25	16.88	C10010C
	13.13	20.28	RD10013
	20.13	28.28	RD10020

150	0.56	4.00	RLS1500S
		6.38	R1502C
	2.00	7.44	R1502D
		8.13	R1502L
	5.00	12.13	RH1505
		10.38	R1506C
	6.00	11.44	R1506D
		12.13	R1506L
		15.38	C1506CL
	6.63	14.88	RD1506
	8.00	13.75	RH1508
		14.38	R15010C
	10.00	15.44	R15010D
		16.13	R15010L
	13.13	21.38	RD15013
	18.13	26.53	RD15018

200	2.00	7.50	R2002C
		8.14	R2002D
		9.50	R2002L
		11.50	R2006C
	6.00	12.14	R2006D
		13.50	R2006L
	6.63	16.00	RD2006
	8.00	16.06	RH2008
		15.50	R20010C
	10.00	16.14	R20010D
		17.50	R20010L
	13.13	22.50	RD20013

Cyl. Cap. (tons)	Cyl. Stroke (in.)	Retracted Height (in.)	ORDER NUMBER
250	3.00	11.44	RSS2503

280	2.00	7.50	R2802C
		9.20	R2802D
		9.75	R2802L
	6.00	11.50	R2806C
		13.20	R2806D
		13.75	R2806L
	10.00	15.50	R28010C
		17.20	R28010D
		17.75	R28010L

300	6.00	17.28	RD3006
	13.00	24.28	RD30013

355	2.00	9.13	R3552C
		11.50	R3552L
		13.66	R3552D
	6.00	13.13	R3556C
		15.50	R3556L
		17.66	R3556D
	10.00	17.13	R35510C
		19.50	R35510L
		21.66	R35510D

400	6.00	18.63	RD4006
	13.00	25.63	RD40013

430	2.00	10.38	R4302C
		13.13	R4302L
		14.83	R4302D
	6.00	14.38	R4306C
		17.13	R4306L
		18.83	R4306D
	10.00	18.38	R43010C
		21.13	R43010L
		22.83	R43010D

500	6.00	19.66	RD5006
	13.00	26.66	RD50013

565	2.00	11.50	R5652C
		14.63	R5652L
		16.59	R5652D
	6.00	15.50	R5656C
		18.63	R5656L
		20.59	R5656D
	10.00	19.50	R56510C
		22.63	R56510L
		24.59	R56510D

Single-Acting Hydraulic Cylinders

100 ton
(3 models)
2.00"-10.25"
stroke
Most 55,
75 & 100
ton
models
have
removable
lifting handle.



75 ton
(2 models)
6.13"-13.13"
stroke

55 ton
(5 models)
2.00"-13.25"
stroke



25 ton
(8 models)
1.00"-14.25"
stroke



15 ton
(9 models)
1.00"-16.00"
stroke



10 ton
(8 models)
1.00"-14.13"
stroke



5 ton
(5 models)
1.00"-9.25"
stroke

"C" Series

Single-Acting, Spring Return Cylinders

For working pressures
to 10,000 psi.
Capacities of 5 to 100
tons, stroke lengths of
1.00" to 16.00".

Fully comply with
ASME B30.1 standards.
Have a 2 to 1 safety
factor on material yield.

Solid bronze bearing
reduces scoring caused
by off-center loads.

Return springs have
extra coils to speed
piston return, extend
operating life.

Chrome plated piston
rod resists wear and
corrosion.

Wide range of acces-
sories available to
increase application
versatility (see pages
10-11). Accessories
thread onto piston rod
end or collar, or into
cylinder base. Base
mounting holes standard
on 5 through 55 ton
cylinders, optional on
75 and 100 ton cylinders.

Interchangeable
cylinder cap lets you
choose from several
styles to suit your appli-
cation (see pages 10-11).

A 9796 3/8" NPTF female
half coupler is standard
with each cylinder. Oil
ports are 3/8" NPTF.

Are you using your cylin-
ders in high temperature
applications or do you use
fire-resistant hydraulic
fluid in your application?
If your application calls
for fire-resistant
hydraulic fluid, you can
replace the seals in your
"C series cylinder with
Viton seals to permit this.
See page 90 for details.

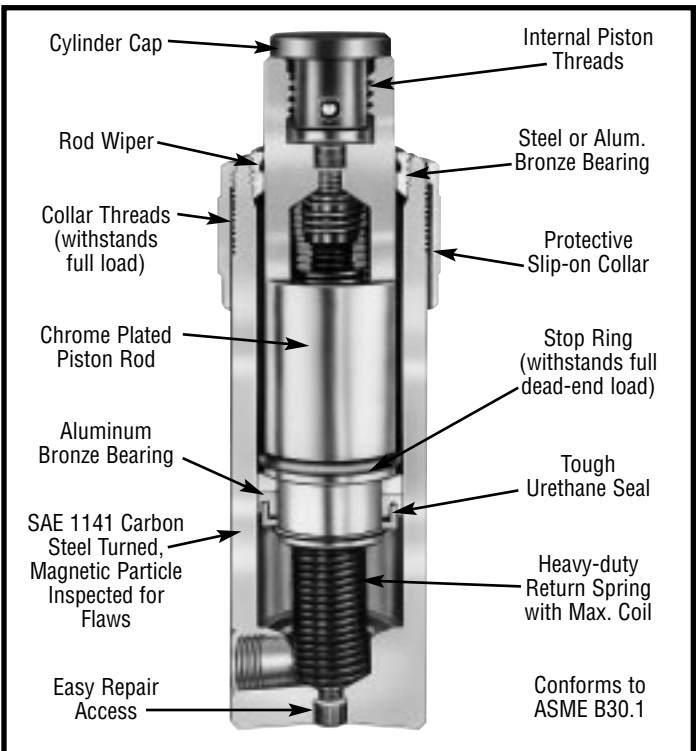
Cyl. Caps furnished with "C Series Cylinders:

5 ton cylinders	No. 201375
10 ton cylinders	No. 201362
15 ton cylinders	No. 201362
25 ton cylinders	No. 201412
55 ton cylinders	No. 36161
75 ton cylinders	No. 36161
100 ton cylinders	No. 36161

NOTE: See page 12 for thread-
ed "C" series cylinders and
page 26 for "C" Series 55,
100 and 150 ton Locking
Collar Cylinders.



No. 4206550R9 — Lifting
handle accessory for 25 ton
cylinders.



BASE MOUNTING HOLES

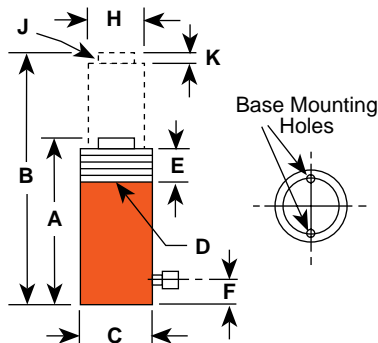
Cylinder Tonnage	No. Holes	Thread Size	Thread Depth	Bolt Circle Diameter (in.)
5	2†	¼-20	0.38	1.00
10		5/16-18	0.50	1.56
15		¾-16		1.88
25		½-13	0.75	2.31
55				3.75
*Optional 75	4	¾-10	1.00	4.50
*Optional 100		1-8		4.75

* Consult Factory (45° from coupler)

† 90° from coupler.

ORDERING INFORMATION

See current price list for shipping weights



Cyl. Cap. (tons)	Stroke (in.)	Order No.	Oil Cap. (cu. in.)	A Re-tracted Height (in.)	B Ex-tended Height (in.)	C Outside Dia. (in.)	D Collar Thread (in.)	E Collar Thread Length (in.)	F Base to Port (in.)	H Piston Rod Dia. (in.)	J Piston Rod Int. Thread and Depth (in.)	K Piston Rod Protru-sion (in.)	Bore Dia. (in.)	Cylinder Effective Area (sq. in.)	Internal Press. at Cap. (psi)	Tons at 10,000 psi	Prod. Wt. (lbs.)
5	1.00	C51C	1.1	4.34	5.44	1.50	1 ½-16			1.00	¾-16 x 0.63		1.13	0.99	10,061	5.0	2.25
	3.25	C53C	3.2	6.50	9.75												3.26
	5.25	C55C	5.2	8.50	13.75												4
	7.25	C57C	7.2	10.75	18.00												5
	9.25	C59C	9.2	12.75	22.00												5.8
10	1.00	C101C	2.2	3.63	4.63	2.25	2 ¼-14	1.13	0.75	1.50		0.25	1.69	2.24	8,948	11.2	4
	2.13	C102C	4.8	4.75	6.88												5
	4.13	C104C	9.2	6.75	10.88												6.7
	6.13	C106C	13.7	9.75	15.88												9.4
	8.13	C108C	19.9	11.75	19.88												11
	10.13	C1010C	22.6	13.75	23.88												13
	12.13	C1012C	27.1	15.75	27.88												14.6
	14.13	C1014C	31.6	17.75	31.88												16.2
15	1.00	C151C	3.1	4.88	5.88	2.75	2 ¾-16			1.75	1-8 x 0.75		2.00	3.14	9,549	15.7	7.5
	2.13	C152C	6.7	5.88	8.00												8.9
	4.13	C154C	12.9	7.88	12.00												11.5
	6.13	C156C	19.2	10.69	16.81												15.3
	8.13	C158C	25.5	12.69	20.81												17.9
	10.13	C1510C	31.8	14.69	24.81												20.7
	12.13	C1512C	38.1	16.69	28.81												23.2
	14.13	C1514C	44.4	18.69	32.81												26
	16.00	C1516C	50.3	20.56	36.56												28.2
25	1.00	C251C	5.1	5.50	6.50	3.38	3 ⅝-12	1.94	1.00	2.25	1 ½-16 x 1.00	0.38	2.56	5.15	9,699	25.8	11.9
	2.00	C252C	10.3	6.50	8.50												13.9
	4.00	C254C	20.6	8.50	12.50												17.6
	6.25	C256C	32.2	10.75	17.00												21.7
	8.25	C258C	42.5	12.75	21.00												25.6
	10.25	C2510C	52.8	14.75	25.00												29.3
	12.25	C2512C	63.2	16.75	29.00												33.1
	14.25	C2514C	73.5	18.75	33.00												36.8
55	2.00	C552C	22.1	6.88	8.88	5.00	5-12	2.19	1.38	3.13		0.13	3.75	11.04	9,959	55.2	32.5
	4.25	C554C	46.9	9.13	13.38												41.3
	6.25	C556C	69.0	11.13	17.38												51
	10.25	C5510C	113.2	15.13	25.38												67
	13.25	C5513C	146.3	18.13	31.38												78
75	6.13	C756C	97.4	12.38	18.50	5.75	5 ¾-12	1.75	1.25	3.75			4.50	15.90	9,434	79.5	73.5
	13.13	C7513C	208.7	19.38	32.50												109.5
100	2.00	C1002C	41.2	8.63	10.63	6.25	6 ¼-12	2.25	1.63	4.13			5.13	20.62	9,695	103.1	63
	6.63	C1006C	137.0	13.25	19.88												91
	10.25	C10010C	211.5	16.88	27.13												113

Single-Acting Hydraulic Cylinders

Cylinders

Hydraulic Cylinder Accessories

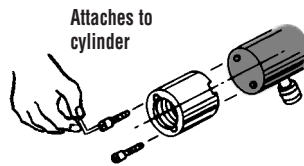
Cylinder Mounting Accessories for "C" Series Cylinders

The accessories permit additional flexibility in the application of Power Team hydraulic cylinders to perform a wide variety of tasks.

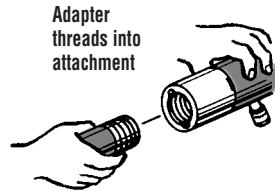
Rated for full capacity (10,000 psi) of cylinders, making them more versatile than they are already.

• Accessories attach directly onto cylinder top or bottom.

Cylinder base or body attachment

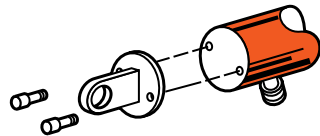


Attaches to cylinder



Adapter threads into attachment

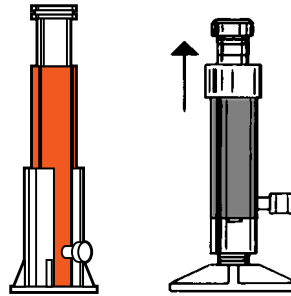
Cap screws attach this accessory to base of cylinder. Allows you to thread many male adapters into this attachment.



Cap screws attach the body clevis accessory to base of cylinder for clevis attaching applications.

Lifting applications

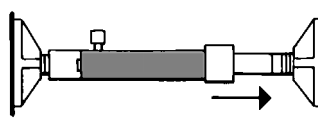
Illustration below shows lifting application using cylinder flat base, cylinder base attachment and threaded tube coupling.



Support base helps hold cylinder in an upright position by increasing the flat base area. Swivel cap tilts 5° to help reduce the effect that off-center loading will have on a hydraulic cylinder.

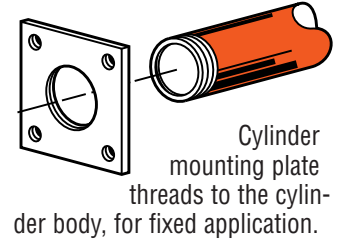
CAUTION: Lifting loads where the base of the cylinder is not parallel with the surface of the load engaged by the cylinder lifting cap is NOT recommended. If you must lift such a load, be aware that even with the use of a swivel cap, the cylinder can "kick out" from beneath the load and cause serious personal injury and/or property damage.

Spreading applications



Spreading application with two cylinder flat bases, threaded adapter, cylinder base attachment and threaded connector/ or extension rod.

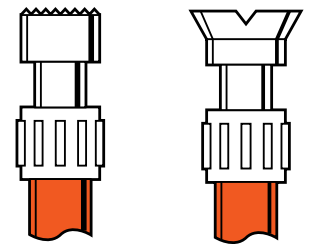
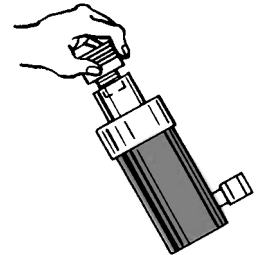
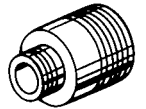
Fixed applications



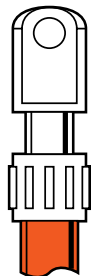
Cylinder mounting plate threads to the cylinder body, for fixed application.

Threaded adapter

Easily threads into threaded plunger end of cylinder. You are now ready to attach the saddles shown.



Piston clevis threads into piston rod for clevis attaching application.



Extension Rod

1



Swivel Cap

3



Cylinder Base Attachment

2



90° "V" Base

4



Cylinder Flat Base

5



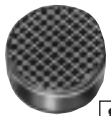
Threaded Adapter

7 a



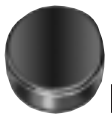
Plain Adapter

7 b



Serrated Saddle

8 a



Smooth Saddle

8 b



Threaded Connector

9



Piston Clevis

11



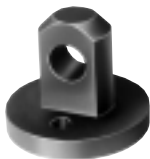
Support Base

10



Cylinder Mounting Plate



13



Body Clevis

12

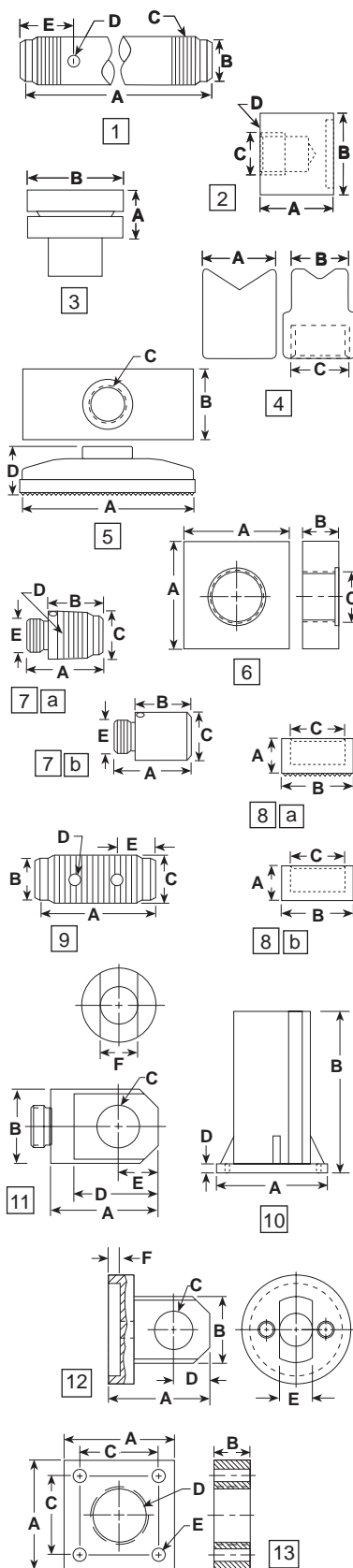
ORDERING INFORMATION

Item No.	Cyl. Tonnage	Order No.	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	F (in.)	
1	5	350895	5.00	0.88 Dia.	¾—14 NPT	0.33 Dia.	2.00		
		38908	10.00						
		350896	18.00						
	10	350897	5.00	1.44 Dia.	1 ¼—11 ½ NPT				
		38909	10.00						
		350898	18.00						
2†	5	208380	1.63	1.75 Dia.	¾—14 NPSM	0.28 Dia. (2)¼—20 UNC x 0.75 Lg. Socket Head Cap Screws			
	10	208381	1.88	2.50 Dia.	1¼—11½ NPSM	0.34 Dia. (2)⅝—18 UNC x 0.75 Lg. Socket Head Cap Screws			
	25	208382	2.38	3.88 Dia.	2—11½ NPSM	0.53 Dia. (2)½—13 UNC x 1.00 Lg. Socket Head Cap Screws			
3	10 or 15	350144	0.88	1.38	—	—	—	—	
	25	350145	1.13	2.00					
	55 or 75	350376	1.25	2.81					
	 100	351574	1.91	3.47					
4	5	25388*	1.38	1.06	¾—14 NPSM	—	—	—	
	10	25395*	2.13	2.13	1 ¼—11 ½ NPSM				
5	5	25750*	4.50	2.50	¾—14 NPSM	1.34	—	—	
	10	32325*	6.56	3.50	1 ¼—11 ½ NPSM	1.44			
6	25	25652	6.00	1.25	2—11 ½ NPSM	—	—	—	
7a**	5	202178	1.63	1.13	1.06 Dia.	¾—14 NPT	¾—16 UNF-2A		
	10 or 15	202179	1.81	1.06	1.63 Dia.	1 ¼—11 ½ NPT	1—8 UNC-2A		
	25	202180	2.75	1.88	2.38 Dia.	2—11 ½ NPT	1 ½—16 UN-2A		
7b**	10 or 15	350724	2.00	1.25	1.48 Dia.	—	1—8 UNC-2A	—	
	25	350723	2.13		2.25 Dia.		1 ½—16 UN-2A		
8a	5	25746*	1.13	1.31 Dia.	¾—14 NPSM	—	—	—	
	10 or 15	31772*		2.00 Dia.	1 ¼—11 ½ NPSM				
	25	31776*		1.31	3.00 Dia.				2—11 ½ NPSM
 8b	5	351575*	1.13	1.31 Dia.	¾—14 NPSM	—	—	—	
	 10	24016*		2.00 Dia.	1 ¼—11 ½ NPSM				
	 25	351576*		1.31	3.00 Dia.				2—11 ½ NPSM
9	5	25748	1.75	0.88 Dia.	¾—14 NPSM	0.19 Dia.	0.50	—	
	10	25664	1.63	1.44 Dia.	1 ¼—11 ½ NPSM	0.31 Dia.	0.56		
	25	25654	2.25	2.13 Dia.	2—11 ½ NPSM	0.38 Dia.	0.63		
10	10	420062	7.00	5.00	—	0.44	—	—	
	25	420063							
11**	5	350095	1.75	1.13	0.63	1.44	0.63	0.56	
	10 or 15	350094	2.56	1.69	0.88	2.31	1.00	1.00	
	25	420059	2.94	2.25	1.25	2.69	1.25	1.50	
12†	5	350096	2.06	1.13	0.63	0.63	0.56	0.25	
	10	350097	3.00	1.69	0.88	1.00	1.00		
	15	350098	3.06						
	25	420061	3.56						2.25
13	5	350099	3.00	1.00	2.13	1 ½—16 UN-2B	0.34	—	
	10	350100	3.50		2.63	2 ¼—14 UNS-2B			
	15	350184				2 ¾—16 UN-2B			
	25	420064	5.00		2.00	3.66	3 ⅝—12 UN-2B		0.66

* Items require threaded adapter (item No. 7a) when used with "C" series cylinders. They may be used on threaded "CBT" cylinders without the use of an adapter.

† Mounting screws are included.

** Can be used with RD106, RD1010 Cyl.



Single-Acting Hydraulic Cylinders

C2514CBT



C1010CBT



C55CBT



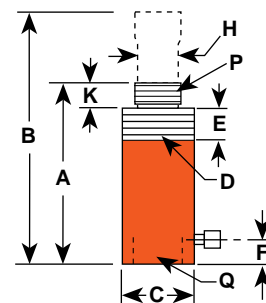
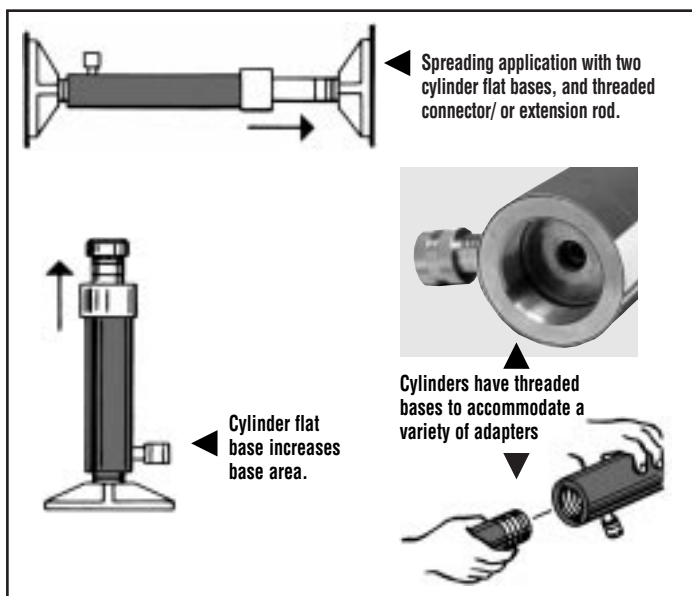
Threaded "C" Series Cylinders

For working pressures to 10,000 psi. Capacities of 5 to 25 tons, stroke lengths of 5.25" to 14.25".

Same superior internal construction as "C" series cylinders on pages 8-9. Comply fully with ASME B30.1 standard. Have a 2 to 1 safety factor on material yield.

Threaded cylinder collars and piston rod ends, and internal base threads simplify mounting. Accessories thread onto cylinder piston rod end or collar, or into cylinder base. See pages 10-11 for accessory listings.

A 9796 3/8" NPTF female half coupler is standard with each cylinder; oil port threads are 3/8" NPTF.



ORDERING INFORMATION

See current price list for shipping weights

Cyl. Cap. (tons)	Stroke (in.)	Order No.	Oil Cap. (cu. in.)	A	B	C	D	E	F	H	K	P	Q	Bore Dia. (in.)	Cyl. Eff. Area (sq. in.)	Internal Press. at Cap. (psi)	Tons at 10,000 psi	Prod. Wt. (lbs.)
				Re-tracted Height (in.)	Ex-tended Height (in.)	Outside Dia. (in.)	Collar Thread (in.)	Collar Thread Length (in.)	Base to Port (in.)	Piston Rod Dia. (in.)	Piston Rod Protrusion (in.)	Piston Rod Thread* (NPT)	Internal Base Thread (NPSM) (in.)					
5	5.25	C55CBT	5.2	10.50	15.75	1.50	1 1/2-16		1.88	1.00	1.13	3/4-14	3/4-14	1.13	0.99	10,061	4.97	4.4
10	6.13	C106CBT	13.9	11.50	17.63	2.25	2 1/4-14	1.13	1.69	1.50	1.06	1 1/4-11 1/2	1 1/4-11 1/2	1.69	2.24	8,948	11.20	10.3
	10.13	C1010CBT	22.9	15.50	25.63													13.9
25	6.25	C256CBT	32.2	13.38	19.63	3.38	3 5/16-12	1.94	1.88	2.25	1.88	2-11 1/2	2-11 1/2	2.56	5.16	9,699	25.80	24.6
	14.25	C2514CBT	73.5	21.38	35.63													40.2

* For complete dimensions, see item 7a in chart on page 11.

Single-Acting Hydraulic Cylinders

"RLS" Series Low Profile, Spring-Return Cylinders

For working pressures to 10,000 psi. Capacities of 5 to 150 tons, stroke lengths of 0.44" to 0.63".

Low profile for limited-clearance lifting jobs. Couplers on all cylinders except RLS50 are angled upward for extra clearance.

A 9796 $\frac{3}{8}$ " NPTF female half coupler is standard with each cylinder. Oil ports are $\frac{3}{8}$ " NPTF.

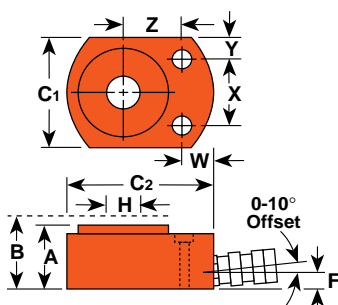
Unique heavy duty spring provides fast piston return.

Standard domed piston rod (on 5-30 ton) or swivel cap (on 50-150 ton) minimize effects of off-center loading.

Fully comply with ASME B30.1 standard.

Cylinder bodies, pistons and gland nuts have Power Tech surface treatment for corrosion and abrasion resistance (see page 6).

On 50 to 150 ton cylinders, swivel cap on rod end of piston reduces effects of side loading; maximum tilt: 5°. The 5 to 30 ton cylinders have domed piston rod ends.



MOUNTING HOLES

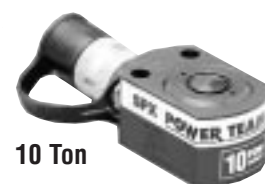
RLS50	0.34" C'bore x 0.25" deep, 0.22" thru hole
RLS100	0.42" C'bore x 0.34" deep, 0.28" thru hole
RLS200	0.61" C'bore x 0.41" deep, 0.41" thru hole
RLS300	0.61" C'bore x 0.44" deep, 0.41" thru hole
RLS500S	0.70" C'bore x 0.50" deep, 0.47" thru hole
RLS750S	0.80" C'bore x 0.56" deep, 0.53" thru hole
RLS1000S	0.80" C'bore x 0.56" deep, 0.53" thru hole
RLS1500S	0.81" C'bore x 0.56" deep, 0.53" thru hole



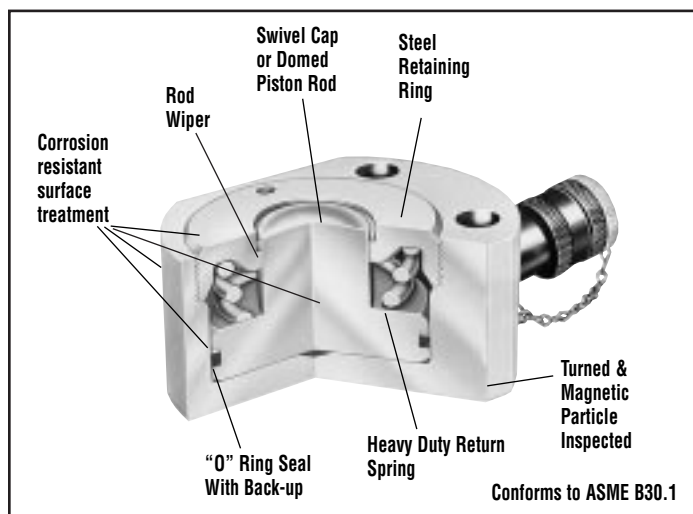
100 Ton



50 Ton



10 Ton



ORDERING INFORMATION

See current price list for shipping weights

Cyl. Cap. (tons)	Stroke (in.)	Order No.	Oil Cap. (cu. in.)	A Re-tracted Height (in.)	B Ex- tended Height (in.)	C1 & C2 Outside Dia. (in.)	F Base to Port (in.)	H Piston Rod Dia. (in.)	W	X	Y	Z	Bore Dia. (in.)	Cyl. Eff. Area (sq. in.)	Int. Press. at Cap. (psi)	Tons at 10,000 psi	Prod. Wt. (lbs.)
5	0.56	RLS50	0.6	1.63	2.19	1.63 x 2.56	0.75	0.63	0.75	1.13	0.25	1.00	1.13	0.99	10,061	5.0	2.2
10	0.44	RLS100	1.0	1.75		2.19 x 3.25	0.63	0.75	0.69	1.44	0.38	1.31	1.69	2.24	8,943	11.2	3.3
20		RLS200	2.0	2.00		3.00 x 4.00	0.66	1.13	0.72	1.94	0.53	1.56	2.38	4.43	9,029	22.2	5.6
30	0.50	RLS300	3.2	2.31	2.81	3.75 x 4.50	0.72	1.38	0.81	2.06	0.84	1.75	2.88	6.49	9,242	32.5	8.6
50	0.63	RLS500S	6.0	2.63	3.25	4.50 x 5.50	0.84	1.75	0.94	2.63	0.94	2.13	3.50	9.62	10,394	48.1	14.0
75		RLS750S	9.9	3.13	3.75	5.53 x 6.50	1.00	2.13		3.00	1.27	2.59	4.50	15.90	9,431	79.5	23.3
100		RLS1000S	12.3	3.38	4.00	6.00 x 7.00		2.50	0.81		1.50	2.81	5.00	19.64	10,186	98.2	30.0
150		RLS1500S	17.2	4.00	4.56	7.50 x 8.50	1.31	3.00	1.31	4.63	1.44	3.13	6.25	30.68	9,778	153.4	52.0

See pages 80-90 for hydraulic accessories.

For other lifting devices, see catalog pages 91-101.

"Shorty"***Hydraulic******Cylinders******"Shorty" Spring Return Cylinders***

For working pressures to 10,000 psi. Capacities of 10 to 250 tons, stroke lengths of 1.50" to 3.00".

Heavy duty return spring on all models except RSS1002D (which is double-acting) provides fast piston return; low collapsed height of this series is ideal for jobs having limited clearance. Coupler on 10 thru 50 ton models is angled upward 5° for added clearance.

Grooved piston top keeps load from sliding.

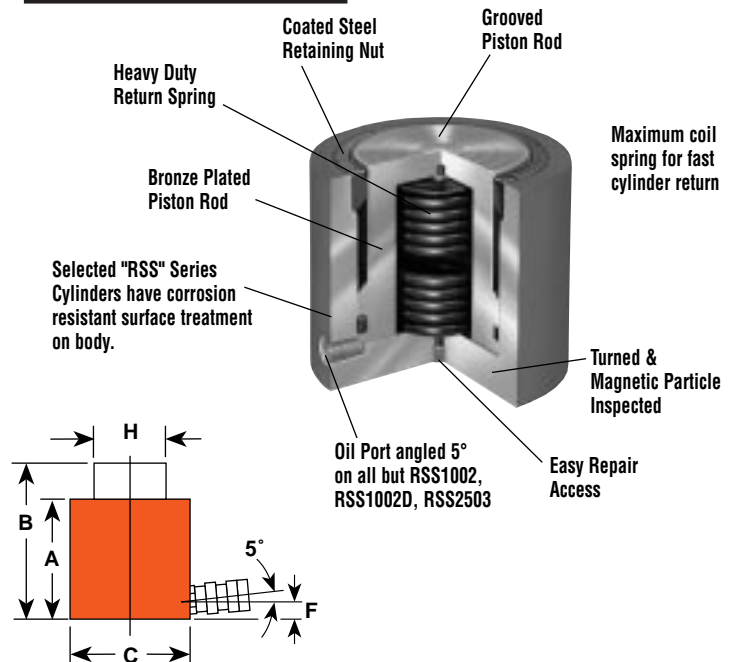
Fully comply with ASME B30.1 standard.

Bronze plated piston rods and gland nuts resist scoring and corrosion. Cylinders can be "dead-ended" at full capacity.

Optional swivel caps (see page 15) reduce the effects of off-center loading. Cribbing block accessories also available (see page 15) to give stable load support and increase cylinder stroke.

Removable carrying handles on 100 and 250 ton models.

Selected "RSS" series cylinders have the exclusive Power Tech surface treatment, providing corrosion and abrasion resistance. See page 6 for details.

***ORDERING INFORMATION***

See current price list for shipping weights

Cylinder Capacity (Tons)	Stroke (in.)	Order No.	Oil Cap. (cu. in.)		A	B	C	F	H	Bore Dia. (in.)	Cylinder Effective Area (sq. in.)	Internal Press. at Cap. (psi)	Tons at 10,000 psi	Prod. Wt. (lbs.)
			Push	Return	Retracted Height (in.)	Extended Height (in.)	Outside Dia. (in.)	Base to Port (in.)	Piston Rod Dia. (in.)					
10	1.50	RSS101	3.4	-	3.50	5.00	2.75	0.63	1.50	1.69	2.24	8,943	11.2	6.0
20	1.75	RSS202	7.7		3.75	5.50	3.56		2.16	2.38	4.43	9,029	22.1	9.9
30	2.44	RSS302	15.8		4.63	7.06	4.00		2.50	2.88	6.49	9,243	32.5	14.7
50	2.38	RSS502	22.8		5.00	7.38	4.88	0.75	3.13	3.50	9.62	10,393	48.1	23.2
100	2.25	RSS1002	44.2	12.9	5.50	7.75	6.63	0.94	4.38	5.00	19.63	10,186	98.2	47.3
	1.50	RSS1002D	29.4		5.69	7.19	6.88	0.94*	3.75					54.6
250	3.00	RSS2503	150.6	-	11.44	14.44	9.88	1.81	5.50	8.00	50.22	9,956	251.1	220.0

*Cylinder top to port is 1.56"

See pages 80-90 for hydraulic accessories.

Cribbing Block Sets

Convert Power Team "Shorty" cylinders to mechanical cribbing devices; more stable than timber or other awkward, makeshift methods. Ideal for lifting applications such as structure moving. Reduce cribbing time dramatically.

In effect, increases the stroke of the cylinder; stacking pads act as cylinder extensions:

1. Extend cylinder and insert lower supporting ring.
2. Retract cylinder, insert a stacking pad.
3. Extend cylinder again; pad increases cylinder stroke.
4. Repeat process until all rings and pads are used.

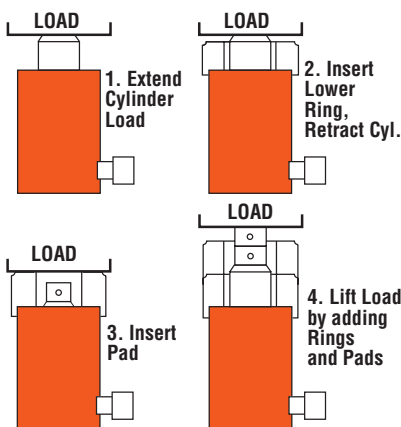
Insertion handle is used for inserting rings and pads.

Sets available for 30, 50 and 100 ton capacity cylinder models RSS302, RSS502 and RSS1002.



Cribbing blocks are shown here in use with a 30 ton RSS302 "Shorty" cylinder.

Each cribbing block set includes rings, pads and insertion handle. (See table below.)



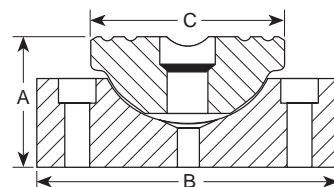
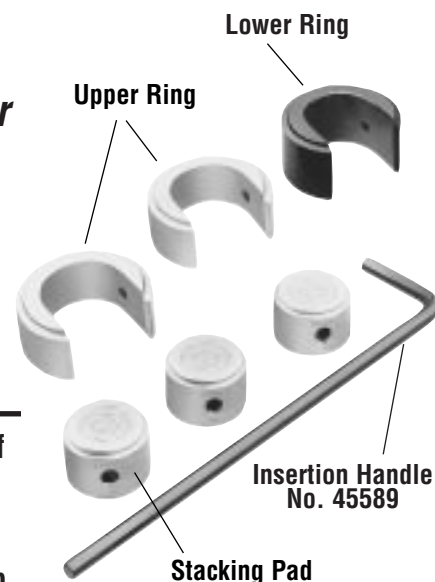
Swivel caps for RSS Series Power Team hydraulic cylinders

Designed to tilt a maximum of 5°. Help reduce the effects of off-center loading.

Radial grooves in top of swivel cap lessen tendency of an off-center load to slip; notch across face of each cap helps keep loads having a protruding or round shape centered.

NOTE: Swivel caps cannot be used with cribbing blocks.

CAUTION: Lifting loads where the base of the cylinder is not parallel with the surface of the load engaged by the cylinder lifting cap is NOT recommended. If you must lift such a load, be aware that even with the use of a swivel cap, the cylinder can "kick out" from beneath the load and cause serious personal injury and/or property damage.



Use with Cyl. No.	Order No.	A (in.)	B (in.)	C (in.)	Wt. lbs.
RSS101	350320	1.00	1.44	1.44	.5
RSS202	350321	1.38	2.13	2.13	1.3
RSS302	350322		2.50		1.6
RSS502	350331	1.44	3.25	3.38	2.7
RSS1002	350332	1.81	4.38		6.6

Mounting screws included

ORDERING INFORMATION

For Use with ➡	30 ton Cylinder No. RSS302			50 ton Cylinder No. RSS502			100 ton Cylinder No. RSS1002		
Order Number ➡	30 ton Set No. CB30			50 ton Set No. CB50			100 ton Set No. CB100		
	Lower Ring	Upper Ring	Stacking Pad	Lower Ring	Upper Ring	Stacking Pad	Lower Ring	Upper Ring	Stacking Pad
No. Included in Set	1	2	3	1	2	3	1	3	4
Outside Diameter (in.)	4.50	4.50	2.75	5.50	5.50	3.38	7.39	7.39	4.75
Inside Diameter (in.)	2.81	2.81	—	3.45	3.45	—	4.81	4.81	—
Height, each (in.)	2.28	1.80	1.78	2.22	1.72	1.69	2.13	1.75	1.72
Total Stacked Height of Rings in Set (in.)	5.44			5.19			6.88		
Weight of Set (lbs.)	20			28			64		

Each set includes one Insertion Handle No. 45589 - 0.50" Hex. X 18.00" Long, 4.00" Bend

Single-Acting Hydraulic Cylinders



12, 20, 30,
50, 60 Ton
Single-Acting
Threaded Collar



10, 20, 100 Ton
Single-Acting
Plain Collar

Single-Acting "Center-Hole" Cylinders

For working pressures up to 10,000 psi. Capacities of 10 to 100 tons, stroke lengths of 0.31" to 8.00".

"Center-Hole" design allows you to run cables, screws, etc., through the center of the cylinder, enabling cylinder to push or pull, if a pull rod is used.

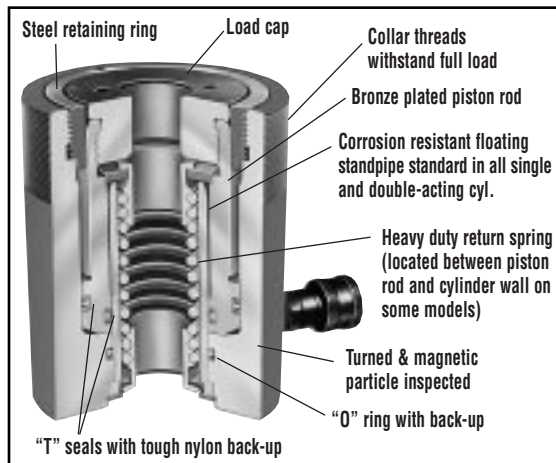
Interchangeable piston head inserts (see page 19) provide versatility of application, tapped base mounting holes simplify installation. Plain head inserts standard on all cylinders.

Cylinders comply with ASME B30.1 standard. Withstand full "dead-end" loads.

Corrosion resistant floating standpipe has Power Tech surface treatment (see page 6).

Aluminum cylinder body and piston rod are featured on the RHA306 cylinder. Half the weight of a steel cylinder of comparable capacity!

All cylinders except RH120 are furnished with a 9796 3/8" NPT female half coupler. The 60 and 100 ton cylinders are supplied with removable carrying handles.



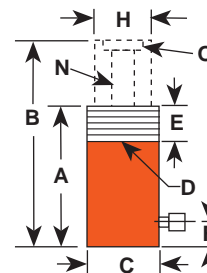
See page 19 for listing of threaded inserts and accessories for center-hole cylinders.



No. 4213120R9—Optional lifting handle for RH302 and RH306 cylinders.



No. 252215—Lifting handle for RHA306 cylinder.



ORDERING INFORMATION

See current price list for shipping weights

Cylinder Cap. (tons)	Stroke (in.)	Order No.	Oil Cap. (cu. in.)	A	B	C	D	E	F	H	N	O	Mounting Holes and Bolt Circle (in.)	Cylinder Effective Area (sq. in.)	Internal Press. at Cap. (psi)	Tons at 10,000 psi	Prod. Wt. (lbs.)	
				Re- tracted Height (in.)	Ex- tended Height (in.)	Outside Dia. (in.)	Collar Thread (in.)	Collar Thread Length (in.)	Base to Port (in.)	Piston Rod Dia. (in.)	Center Hole Dia. (in.)	Insert Thread Size (in.)						
10	2.50	RH102	5.5	5.31	7.81	3.00	None	None	1.00	2.06	0.77	1 ¾-12	¼-20 x 2.38	2.21	9,054	11.0	9.0	
	8.00	RH108	17.7	11.31	19.31												18.7	
12	0.31	RH120**	0.9	2.19	2.50	2.75	2 ¾-16	1.25	0.38	1.38	0.69	¾-16	⅝-18 x 2.00	2.76	8,692	13.8	3.0	
	1.63	RH121	4.5	4.81	6.44						0.80	None	None				6.6	
		RH121T**									0.69	¾-16						
20	2.00	RH202	9.5	6.13	8.13	3.88	3 ⅞-12	1.50	1.00	2.13	1.08	1 ⅞-16	¾-16 x 3.25	4.72	8,466	23.6	20.0	
	3.00	RH203	11.8	6.06	9.06	4.00	None	None		2.75	1.05	2 ¼-12		3.92	10,186	19.6	16.1	
	6.00	RH206	28.4	12.13	18.13	3.88	3 ⅞-12	1.50		2.13	1.08	1 ⅞-16		4.72	8,466	23.6	30.2	
30	2.50	RH302	15.9	6.25	8.75	4.75	4 ¾-12	1.16	1.25	3.25	1.28	2 ¾-12	⅞-20 x 3.63	6.34	9,457	31.7	25.6	
	5.88	RHA306	38.1	11.16	17.03	5.13	None				None	1.27	2 ⅝-8				None	21.9
	6.00	RH306		9.75	15.75	4.75	4 ¾-12				1.50	1.16	1.28				2 ¾-12	⅞-20 x 3.63
50	3.00	RH503	32.6	7.13	10.13	6.00	6-12	2.00	1.25	4.13	1.64	3 ¼-12	⅝-18 x 4.75	10.86	9,208	54.3	46.6	
60	3.00	RH603*	37.0	9.25	12.25	6.25	6 ¼-12	2.50	1.00	3.59	2.13	3-12	½-13 x 5.13	12.31	9,750	61.6	60.0	
	6.00	RH606*	73.9	12.25	18.25												78.0	
100	3.00	RH1003*	61.8	10.00	13.00	8.38	None	None	1.25	5.00	3.13	4 ⅛-12	None	20.62	9,700	103.1	115.0	

*These cylinders supplied with carrying handles.

** RH120 and RH121T do not have an internal threaded insert, but do have a 3/4-16 internal thread. The RH120 inlet port is 1/4" NPTF.

“RH” Series Double-Acting “Center-Hole” Cylinders

For working pressures to 10,000 psi. Capacities of 30 to 200 tons, stroke lengths of 1.50" to 10.13".

“Center-Hole” design allows you to run cables, screws, etc., through the center of the cylinder, enabling cylinder to push or pull, if a pull rod is used.

Built-in safety feature prevents over-pressurization of the retract circuit. Cylinders withstand full “dead-end” loads, comply with ASME B30.1 standard.

Interchangeable piston head inserts (see page 19) provide versatility of application, tapped base mounting holes simplify installation. Plain head inserts are standard.

Plated piston rod resists wear, superior packings provide high cycle life without leakage.

Corrosion-resistant standpipe has Power Tech surface treatment (see page 6).

New aluminum cylinder (No. RHA604D) is light in weight for portability.

Each cylinder has two 9796 3/8" NPTF female half couplers. The 60 thru 200 ton models are equipped with removable carrying handles.

See page 19 for listing of threaded inserts and accessories for center-hole cylinders.

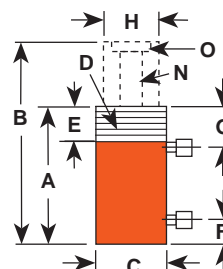
No. 4213120R9—Optional lifting handle for RH303 and RH306D cylinders.



30, 60, 100, 150, 200 Ton Double-Acting Plain Collar



30, 60, 100 Ton Double-Acting Threaded Collar



ORDERING INFORMATION

See current price list for shipping weights

Cyl. Cap. (tons)		Stroke (in.)	Order No.	Oil Cap. (cu. in.)		A	B	C	D	E	F	G	H	N	O	Mounting Holes and Bolt Circle (in.)	Cylinder Effective Area (sq. in.)		Internal Pressure at Cap. (psi)		Tons at 10,000 psi (in.)		Prod Wt. (lbs.)							
						Re-tracted Height (in.)	Ex-tended Height (in.)	Outside Dia. (in.)	Collar Thread (in.)	Collar Thread Length (in.)	Base to Port (in.)	Cylinder Top to Port (in.)	Piston Rod Dia. (in.)	Center Hole Dia. (in.)	Insert Thread Size (in.)		Push	Pull	Push	Pull	Push	Pull								
Push	Pull			Push	Pull												Push	Pull	Push	Pull	Push	Pull								
30	15	3.00	RH303	17.6	10.2	7.06	10.06	4.75	None	None	1.00	1.63	2.50	1.28	2-12	3/8-16 x 3.63	5.89	3.38	10,200	8,876	29.5	16.9	29.8							
		6.00	RH306D	35.3	20.3	11.06	17.06									7/16-20 x 3.63							45.0							
	20	10.13	RH3010	66.0	41.0	17.25	27.38	4.50	4 1/2-12	1.63	1.75	3.19	2.38	1.31	1 7/8-16	None	6.54	4.04	9,174	9,901	32.7	20.2	61.0							
60	25	4.00	RHA604D	49.2	20.6	9.50	13.50	7.00	None	None	1.56	2.25	4.00	2.13	3-12	None	12.31	5.15	9,750	9,709	61.5	25.7	35.6							
		5.00	RH605*	61.6	25.8		14.50	6.53			1.00	1.75											1/2-13 x 5.13	73.0						
	40	10.13	RH6010*	133.0	87.0	18.06	28.19	6.25	6 1/4-12	1.88	2.13	3.22	3.63	2.14	3-16	None	13.14	8.59	9,132	9,313	65.7	42.9	120.0							
100	45	1.50	RH1001*	32.1	14.2	6.50	8.00	8.38	None	None	1.25	2.31	5.00	3.13	4-16	None	21.39	9.43	9,350	9,544	106.9	47.1	85.0							
	50	6.00	RH1006*	120.2	65.6	12.38	18.38	7.25			1.47	2.33	4.38	2.06	None								1/2-13 x 5.50	20.03	10.93	9,986	9,150	100.1	54.7	95.0
	45	10.13	RH10010*	216.6	95.5	19.50	29.63	8.50			8 1/2-12	2.25	2.50	3.61	5.50								3.14	4 1/2-12	21.39	9.43	9,350	9,544	106.9	47.1
150	70	5.00	RH1505*	150.9	73.6	12.25†	17.25	8.50	None	None	1.47	2.69	6.00	3.14		2.56	None	None	30.10	14.70	9,937	9,524	150.9	73.6	148.0					
	75	8.00	RH1508*	239.6	127.2	13.75	21.75	9.75			1.55	2.41		6.00	3.14	5 - 12	29.95		15.90	10,015	9,434	149.8	79.5	227.0						
200																														

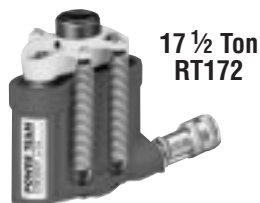
* These cylinders supplied with carrying handles.

† Measured with 0.75" high serrated insert installed.

For other lifting devices, see catalog pages 91-101.

“Center-Hole”**Hydraulic
Cylinders****100 Ton
RT1004**

Quick Change Inserts
Switch from a tapped hole to a plain hole quickly with these cylinder head inserts. They are held in place with a socket screw. Plain hole permits use of a speed nut for readjusting cylinder after extension.

**50 Ton
RT503****17 1/2 Ton
RT172****30 Ton
RT302****“Center-Hole”
Power-Twin®
Cylinders**

For working pressures up to 10,000 psi. Capacities of 17 1/2 to 100 tons, stroke lengths of 2.00" to 4.88".

“Center-Hole” allows jacking screws, puller screws, cables, etc., to be extended through the cylinder for application versatility.

A proven design; used throughout industry for over 40 years! Cylinder body is a ductile iron casting. Cylinders fully comply with ASME B30.1 standard.

Withstand full “dead-end” loads (double-

acting RT1004 cylinder has a bypass at full stroke, preventing over-pressurization).

Twin-cylinder design permits compact size; ideal for applications in which space is limited. Light in weight for easy portability.

Basic head allows you to change from a tapped hole to a plain hole by simply changing the head insert.

Pistons have Power Tech surface treatment for corrosion and abrasion resistance.

Quick-Change Inserts		
For Use With:	Threaded Order No.*	Plain Order No.
RT172	21669	21714
RT302	21873	21872
RT503	22274	22275
RT1004	24197	24196

* Provided with cylinder

ORDERING INFORMATION

See current price list for shipping weights

Single-Acting, Spring-Return Cylinders										Double-Acting Cylinder (RT1004)							
Cylinder Capacity (Tons)	Stroke (in.)	Order No.	Oil Cap. (cu. in.)		A Retracted Height (in.)	B Extended Height (in.)	C1 Outside Dia. (in.)	C2 Outside Dia. (in.)	L Load Cap Dia. (in.)	M Load Cap Thread (in.)	N Center Hole Dia. (in.)	Z Mounting Hole Location (in.)	Mounting Hole (in.)	Cyl. Eff. Area (sq. in.)	Int. Press. at Cap. (psi)	Tons at 10,000 psi	Prod. Wt. (lbs.)
Push			Push	Return													
17.50	2.00	RT172	7.1		6.88	8.88	3.75	5.75	1.75	1"-8	1.06	1.50	0.34	3.53	9,915	17.7	14.6
30	2.50	RT302	15.7	—	8.44	10.94	4.25	7.50	2.25	1 1/4"-7	1.30	1.81	0.47	6.28	9,554	31.4	28.2
50	3.00	RT503	29.4		10.56	13.56	5.88	9.38	2.88	1 5/8"-5 1/2	1.67	2.38	0.66	9.81	10,193	49.1	56.0
100	4.88**	RT1004	96.5	63.2	15.13	20.00	10.50	13.25	4.75	2 1/2"-8	2.56	2.88	0.78	19.24*	10,395	96.2	160

* Push side only.

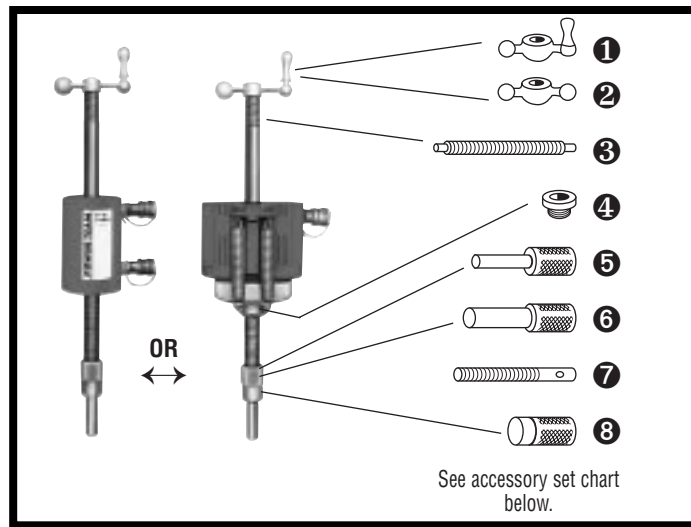
** The RT1004 has a bypass when full stroke is reached, preventing over-pressurization of the cylinder.

NOTE: Each cylinder complete with threaded cylinder head insert, cylinder half coupler and cylinder attaching screws.

"Center-Hole" Cylinder Accessories

Cylinder head inserts and attachments for RH and RT series center-hole cylinders.

Provides added versatility of application.



ACCESSORY SETS

	To use with Cyl. No. →	RT172, RH203	RT302, RH302 RH303, RH306	RT503, RH503, RH603 RH605, RH606	RT1004
No.	Order Set No. →	RHA20	RHA30	RHA50	RHA100
①	Speed Crank	24814	27198	29595	303785
②	Speed Nut	302482 1"-8 thd.	302483 1¼"-7 thd.	33439 1½"-5 ½ thd.	34136 2½"-8 thd.
③	Adjusting Screw	32118 1"-8 thd. 20.00" lg.	34758 1¼"-7 thd. 24.00" lg.	32698 1½"-5 ½ thd. 30.00" lg.	32699 2½"-8 thd. 34.25" lg.
④	Threaded Insert	Order threaded insert for RH series cylinders with the accessory set. (See table to right). Threaded insert supplied with RT series cylinders			
⑤	Pushing Adapter	201923 1"-8 thd. 0.50" dia. shank	34510 1¼"-7 thd. 0.75" dia. shank	34755 1½"-5 ½ thd. 1.00" dia. shank	—
⑥	Pushing Adapter	201454 1"-8 thd. 0.75" dia. shank	34511 1¼"-7 thd. 1.00" dia. shank	34756 1½"-5 ½ thd. 1.25" dia. shank	—
⑦	Jack Screw	24813 1"-8 thd. 7.00" lg.	25931 1¼"-7 thd. 9.00" lg.	32701 1½"-5 ½ thd. 11.00" lg.	32702 2½"-8 thd. 16.00" lg.
⑧	Screw Cap	28228 1"-8 thd. 1.50" dia.	28229 1¼"-7 thd. 1.75" dia.	28230 1½"-5 ½ thd. 2.25" dia.	—

Hydraulic Cylinders And Accessories

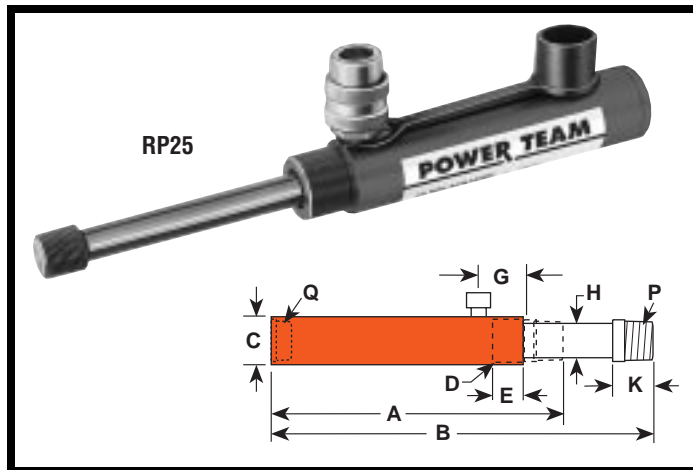
Cylinders

Head Inserts For RH Series Cylinders



For Use With:	Threaded Order No.	Inside Dia. of Plain Insert* (in.)
RH102, RH108	28632 ¾"-16	0.77
RH203	28612 1"-8	1.05
RH302, RH306	38904 1 ¼"-7	1.30
RH303	28644 1 ¼"-7	1.28
RH503	38855 1 ⅝"-5 ½	1.67
RH603, RH605 RH606	34251 1 ⅝"-5 ½	2.13
RH1006	—	2.06
RH1505	—	2.06

* Comes standard with cylinder.
** Provided with and only available for RH1006 and RH1505 cylinders.

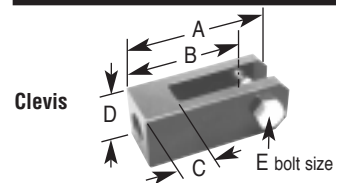


"RP" Series Pull Cylinders

For working pressures to 10,000 psi. Capacities of 2 and 5 tons, stroke lengths of 5.00" and 5.50".

Designed for pulling and tensioning applications.

Heavy duty compression spring provides long cycle life and rapid extension of piston; spring automatically extends piston rod when pump pressure is released.



Use with Cyl. No.	Order No.	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)
RP25	421057*	5.13	4.31	1.31	2.00	0.75
RP55	421056**	6.00	5.00	1.50	2.50	0.88

* For base mounting, extension rod 351106 is required.

** For base mounting, extension rod 351075 is required.

ORDERING INFORMATION

See current price list for shipping weights

Cyl. Cap. (Tons)	Stroke (in.)	Order No.	Oil Cap. (cu. in.)	A Re-tracted Height (in.)	B Ex-extended Height (in.)	C Outside Dia. (in.)	D Collar Thread (in.)	E Collar Thread Length (in.)	G Cylinder Top to Port (in.)	H Piston Rod Dia. (in.)	K Piston Rod Protrusion (in.)	P Piston Rod Thread (NPTF)	Q Base Thread (NPTF)	Bore Dia. (in.)	Cyl. Eff. Area (sq. in.)	Internal Pressure at Cap. (psi)	Tons at 10,000 psi	Prod. Wt. (lbs.)
Pull																		
2	5.00	RP25	2.8	9.56	14.56	1.75	1 ½-16	1.00	1.69	0.75	1.00	¾-14	¾-14	1.13	0.55	7,250	2.75	4.0
5	5.50	RP55	6.2	11.88	17.38	2.25	2 ¼-14			1.19	1.38	1 ¼-11 ½	1 ¼-11 ½	1.69	1.13	8,850	5.65	11.0

For other lifting devices, see catalog pages 91-101.

Double-Acting Hydraulic Cylinders



**RD Series
300, 400 & 500 Ton**

Includes removable lifting strap with eye hooks for moving cylinder from one site to the next.



**RD Series
150 Ton**



**RD Series
25 Ton**

“RD” Series Double-Acting Cylinders

For working pressures up to 10,000 psi. Capacities of 10 to 500 tons, stroke lengths of 6.00" to 20.13".

Ideally suited to severe applications, high cycle usage, various mountings, production fixturing, cabling.

“RD” series cylinders are perfect for bridge lifting, building reconstruction, shipyard, utility and mining equipment maintenance, and high cycle production applications. The 55 ton and larger cylinders have adjustable lifting straps.

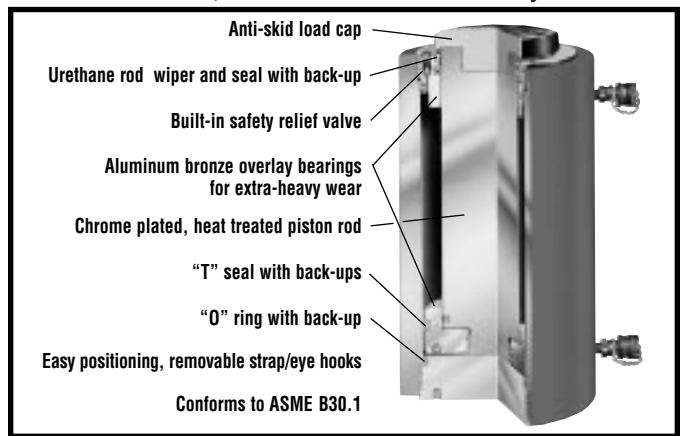
Aluminum bronze overlay bearings provide long life, chrome plated piston rods resist corrosion. In full compliance with ASME B30.1 standard.

Load cap snaps out to expose internal piston rod threads for pulling applications; threads withstand full tonnage.

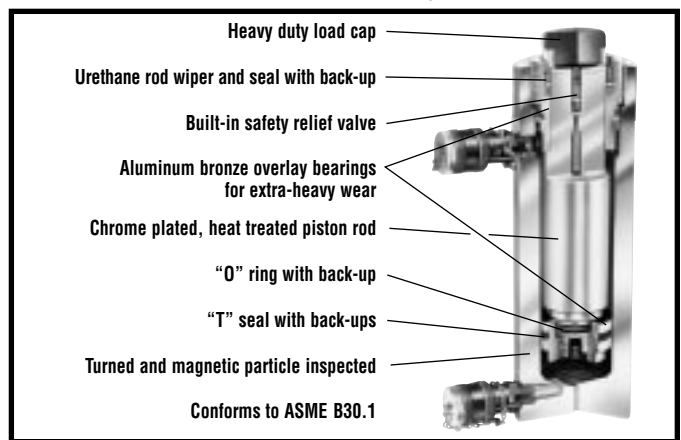
Grooved ring pattern in load cap guards against load slippage.

Each cylinder has two 9796 $\frac{3}{8}$ " NPTF female half couplers.

Features of RD300, RD400 and RD500 Series Cylinders



Features of RD10 thru RD200 Series Cylinders



Built-in safety relief valve prevents accidental over-pressurization of the retract circuit.

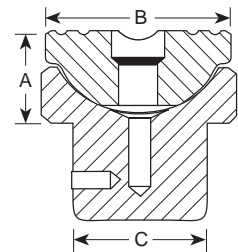
NOTE: When choosing a pump to operate these cylinders, be sure that its reservoir capacity is sufficient to fully extend the piston of the cylinder being used.

⚠ CAUTION: Lifting loads where the base of the cylinder is not parallel with the surface of the load engaged by the cylinder lifting cap is NOT recommended. If you must lift such a load, be aware that even with the use of a swivel cap, the cylinder can “kick out” from beneath the load and cause serious personal injury and/or property damage.

OPTIONAL SWIVEL CAPS

Reduce the effect of off-center loads. Tilt a maximum of 5 degrees.

Radial grooves on top of swivel cap lessen tendency of off-center loads to slip; notch across face of cap keeps loads having a protruding or round shape centered.



Cyl. Tonnage	Order No.	A (in.)	B (in.)	C (in.)	Prod. Wt. (lbs.)
10	350144	0.88	1.44	0.86	.8
25	350145	1.13	2.13	1.44	1.3
55	351325	2.44	2.50	1.55	4.2
100	351324	2.95	3.75	2.66	11.2
150	351334	2.63	4.38	3.06	12.8

For other lifting devices, see catalog pages 91-101.

Double-Acting Hydraulic Cylinders

Cylinders

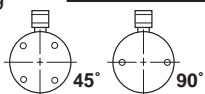
PERFORMANCE

The table at right gives you an idea of what to expect when coupling RD series cylinders to a Power Team pump. Actual performance will vary according to job conditions.

BASE MOUNTING HOLES

NOTE: Base mounting holes are standard on all RD cylinders. (See chart below for specifications).

Orientation of base mounting holes to coupler. Orientation on RD300, RD400 & RD500 series is random.

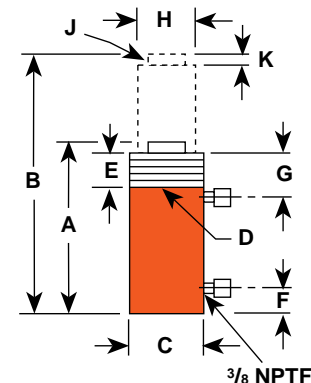
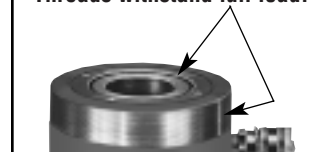


All dimensions listed below are in inches. ▼

Tonnage	10	25	55	80	100	150	200	300	400	500
No. of Holes	2	4	4	4	4	4	4	4	4	6
Thread Size	3/8-16	1/2-13	5/8-11	5/8-11	3/4-10	1-8	1 1/4-7	1 1/4-7	1 1/2-12	1 3/8-12
Depth	0.63	0.75	0.88	0.88	1.00	1.00	1.25	1.75	1.88	2.00
B.C. Dia.	2.00	2.75	3.50	4.50	5.50	6.00	6.50	6.25	7.25	8.00
Orientation	90°	45°	45°	45°	45°	45°	45°	Random	Random	Random

Note: Threads on cyl. collars are std. on RD series cylinders.

Threads withstand full load.



ORDERING INFORMATION

See current price list for shipping weights

Cyl. Cap. (tons)		Stroke (in.)	Order No.	Oil Capacity (cu. in.)		A	B	C	D	E	F	G	H	J	K	Load Cap Dia. (in.)	Bore Dia. (in.)	Cyl. Eff. Area (sq. in.)		Int. Press. at Cap.		Tons at 10,000 psi		Prod. Wt. (lbs.)
						Re-tracted Height (in.)	Ex-tended Height (in.)	Outside Dia. (in.)	Collar Thread Size (in.)	Collar Thread Length (in.)	Base to Port (in.)	Cylinder Top to Port (in.)	Piston Rod Dia. (in.)	Piston Rod Int. Thread and Depth (in.)	Piston Rod Pro-trusion (in.)			Push	Pull	Push	Pull	Push	Pull	
Push	Pull			Push	Pull													Push	Pull	Push	Pull	Push	Pull	
10	4	6.25	RD106	13.9	5.5	11.69	17.94	3.00	2¾-12	1.00			1.31	1-8 x 1.00	0.25	1.38	1.69	2.23	0.88	8,943	9,055	11.2	4.4	22.0
		10.00	RD1010	22.3	8.8	15.69	25.69																	28.0
25	8	6.25	RD256	32.2	10.1	12.38	18.63	4.00	4-12				2.13	1½-16 x 1.00	0.38	2.13	2.56	5.15	1.61	9,695	9,934	25.8	8.0	39.8
		14.25	RD2514	73.5	22.9	20.38	34.63																	65.0
55	28	6.25	RD556	69.0	35.2	12.97	19.22	5.00	5-12	1.31		2.50	2.63	1¹¹⁄₁₆-8 x 1.19	0.63	2.63	3.75	11.04	5.63	9,959	9,941	55.2	28.2	61.4
		13.13	RD5513	144.9	73.9	19.84	32.97																	90.0
		18.13	RD5518	200.0	102.0	25.88	44.00																	142.0
80	44	13.13	RD8013	208.6	115.9	20.38	33.50	5.75	5¾-12	1.63			3.00	2-4½ x 1.50	0.56	2.88	4.50	15.90	8.84	10,060	9,954	79.5	44.2	118.0
		6.63	RD1006	136.7	58.5	13.78	20.41	126.0																
100	44	13.13	RD10013	270.7	116.0	20.28	33.41	6.88	6⅞-12				3.88	2¾-12 x 1.16	0.63	3.88	5.13	20.63	8.84	9,695	9,959	103.1	44.2	181.0
		20.13	RD10020	415.2	178.0	28.28	48.41																	260.0
		6.63	RD1506	203.3	97.9	14.88	21.50																	188.0
150	73	13.13	RD15013	402.7	193.9	21.38	34.50	8.25	8¼-12	2.00		4.50	3¼-8 x 1.50	0.81		6.25	30.68	14.78	9,779	9,880	153.4	73.8	272.0	
		18.13	RD15018	556.8	267.8	26.53	44.66																376.0	
		6.63	RD2006	273.5	149.8	16.00	22.63							9.50	9½-12	2.50	2.69	4.88	3¼-8 x 2.25	1.06		7.25	41.28	22.62
13.13	RD20013	541.8	296.9	22.50	35.63	356.0																		
300	147	6.00	RD3006	361.0	177.0	17.80	23.80	10.75	10½-12	2.38	3.38	3.38	6.25	2½-12 x 3.25		6.88	8.75	60.13	29.45	9,978	10,000	300.7	147.3	380.0
		13.00	RD30013	782.0	383.0	24.29	37.29																	654.0
400	186	6.00	RD4006	471.0	247.0	19.27	25.27	12.63	12½-8	2.75	3.84	3.84	7.25	3-12 x 3.75	1.03	7.81	10.00	78.54	37.26	10,185	10,000	392.7	186.3	585.0
		13.00	RD40013	1021.0	536.0	26.27	39.27																	770.0
500	245	6.00	RD5006	596.0	295.0	20.54	26.54	14.75	14¾-8	3.13	4.16	4.16	8.00	3¼-12 x 4.25		8.50	11.25	99.40	49.14	10,060	10,000	497.0	245.6	819.0
		13.00	RD50013	1292.0	639.0	27.54	40.54																	1092.0

Double-Acting Hydraulic Cylinders



"R" Series Double-Acting Cylinders

For working pressures up to 10,000 psi. Capacities of 100 to 565 tons, stroke lengths of 2.00" to 10.00".

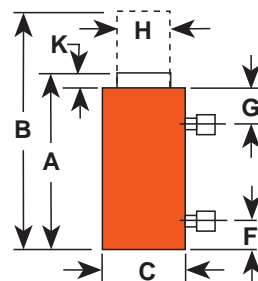
Swivel caps reduce the effects of off-center loading; have 5° maximum tilt. Radial grooves on swivel cap can reduce load slippage. Cylinders may be "dead-ended" without damage.

Hard chrome plated, heat treated piston rod provides reduced wear on both piston and gland nut.

Built-in safety relief valve prevents accidental over-pressurization of the retract circuit.

Each cylinder has two 9796 3/8" NPTF female half couplers.

In full compliance with ASME B30.1 standard.



ORDERING INFORMATION

See current price list for shipping weights

Cyl. Cap. (tons)	Stroke (in.)	Order No.	Oil Capacity (cu. in.)		A	B	C	F	G	H	K	Bore Dia. (in.)	Cylinder Effective Area (sq. in.)	Internal Press. at Cap.	Tons at 10,000 psi	Prod. Wt. (lbs.)
			Push	Return	Re-tracted Height (in.)	Ex-tended Height (in.)	Outside Dia. (in.)	Base to Port (in.)	Cylinder Top to Port (in.)	Piston Rod Dia. (in.)	Piston Rod Protrusion (in.)		Push	Push	Push	Push
100	2.00	R1002D	41.2	19.2	6.64	8.64	6.50	1.00	2.20	3.75	0.28	5.13	20.60	9,695	103.0	54.0
	6.00	R1006D	123.6	57.6	10.64	16.64										81.0
	10.00	R10010D	206.0	96.0	14.64	24.64										108.0
150	2.00	R1502D	61.4	29.6	7.44	9.44	8.06	1.25	2.25	4.50	0.30	6.25	30.70	9,778	153.4	95.0
	6.00	R1506D	184.2	88.8	11.44	17.44										136.0
	10.00	R15010D	307.0	148.0	15.44	25.44										177.0
200	2.00	R2002D	82.6	39.2	8.14	10.14	9.25	1.63	2.31	5.25	0.34	7.25	41.30	9,690	206.4	136.0
	6.00	R2006D	247.8	117.6	12.14	18.14										187.0
	10.00	R20010D	413.0	196.0	16.14	26.14										239.0
280	2.00	R2802D	113.4	47.2	9.20	11.20	10.88	1.88	2.58	6.50	0.41	8.50	56.70	9,870	283.7	219.0
	6.00	R2806D	340.2	141.6	13.20	19.20										297.0
	10.00	R28010D	567.0	236.0	17.20	27.20										376.0
355	2.00	R3552D	141.8	47.4	11.41	13.41	11.75	2.13	2.75	7.75	0.44	9.50	70.90	10,017	354.4	324.0
	6.00	R3556D	425.4	142.2	15.41	21.41										421.0
	10.00	R35510D	709.0	237.0	19.41	29.41										517.0
430	2.00	R4302D	173.2	59.6	12.33	14.33	13.00	2.50	2.95	8.50	0.47	10.50	86.60	9,932	433.0	439.0
	6.00	R4306D	519.6	178.8	16.33	22.33										558.0
	10.00	R43010D	866.0	298.0	20.33	30.33										673.0
565	2.00	R5652D	226.2	76.8	13.59	15.59	14.88	2.75	3.20	9.75	0.55	12.00	113.10	9,991	565.5	619.0
	6.00	R5656D	678.6	230.4	17.59	23.59										772.0
	10.00	R56510D	1131.0	384.0	21.59	31.59										926.0

Single-Acting Hydraulic Cylinders

Load Return Cylinders

For working pressures up to 10,000 psi. Capacities of 150 to 565 tons, stroke lengths of 2.00" to 10.00". Fully comply with ASME B30.1 standard.

Visible indicator band alerts operator when stroke limit is reached; overflow port ("weep hole") stroke limiter insures that load will not be lost if piston is inadvertently overextended.

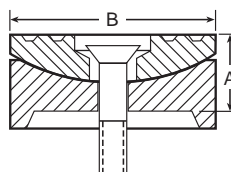
Plated piston resists corrosion and abrasion. Alloy steel heat treated body and piston.

OPTIONAL SWIVEL CAPS

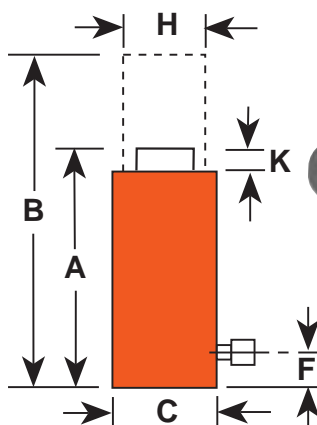
Reduce the effects of off-ter loading. Tilts up to 5 degrees.

Radial grooves on top of cap reduce load slippage.

Use with Cyl. Cap.	Swivel Cap Order No.	A (in.)	B (in.)	Wt. (lbs.)
150-200 ton	420867	1.50	5.13	8.8
280 ton	420868	1.75	5.88	13.5
355 ton	420869	2.75	7.69	37.0
435 ton	420870	3.13	8.88	52.0
565 ton	420871	3.63	9.88	78.0



R3552C



R56510C



R1502C

NOTE: Not intended to support additional dynamic loads, such as those applied by moving vehicles. Fully supported bases required.

ORDERING INFORMATION

See current price list for shipping weights

Cyl. Cap. (tons)	Stroke (in.)	Order No.	Oil Cap. (cu. in.)	A	B	C	F	H	K	Bore Dia. (in.)	Cylinder Effective Area (sq. in.)	Internal Pressure at Cap. (psi)	Tons at 10,000 psi	Product Wt. (lbs.)
				Retracted Ht. (in.)	Extended Ht. (in.)	Outside Dia. (in.)	Base to Port (in.)	Piston Rod Dia. (in.)	Piston Rod Protrusion (in.)					
150	2.00	R1502C	61.4	6.38	8.38	8.06	1.25	6.25	0.13	6.25	30.68	9,778	153.4	92.0
	6.00	R1506C	184.1	10.38	16.38									151.0
	10.00	R15010C	306.8	14.38	24.38									210.0
200	2.00	R2002C	82.6	7.50	9.50	9.25	1.63	7.25		7.25	41.28	9,690	206.4	145.0
	6.00	R2006C	247.7	11.50	17.50									221.0
	10.00	R20010C	412.8	15.50	25.50									297.0
280	2.00	R2802C	113.5	7.50	9.50	10.88	1.63	8.50		8.50	56.74	9,870	283.7	201.0
	6.00	R2806C	340.4	11.50	17.50									300.0
	10.00	R28010C	567.4	15.50	25.50									401.0
355	2.00	R3552C	141.8	9.13	11.13	11.75	2.13	9.50		9.50	70.88	10,017	354.4	302.0
	6.00	R3556C	425.3	13.13	19.13									434.0
	10.00	R35510C	708.8	17.13	27.13									565.0
430	2.00	R4302C	173.2	10.38	12.38	13.00	2.50	10.50		10.50	86.59	9,932	433.0	440.0
	6.00	R4306C	519.5	14.38	20.38									609.0
	10.00	R43010C	865.9	18.38	28.38									778.0
565	2.00	R5652C	226.2	11.50	13.50	14.88	2.75	12.00		12.00	113.10	9,991	565.5	638.0
	6.00	R5656C	678.6	15.50	21.50									858.0
	10.00	R56510C	1131.0	19.50	29.50									1078.0

For other lifting devices, see catalog pages 91-101.

Single-Acting Hydraulic Cylinders



R56510L



Locking collar feature permits non-hydraulic support of load

Load Return, Locking Collar Cylinders

For working pressures to 10,000 psi. Capacities of 55 to 565 tons, stroke lengths of 2.00" to 10.00".

Locking collar provides positive mechanical lock to support lifted load for extended periods of time with hydraulic pressure released.

Visible indicator band alerts operator when stroke limit is reached; overflow port ("weep

hole") stroke limiter insures that load will not be lost if piston is inadvertently overextended.

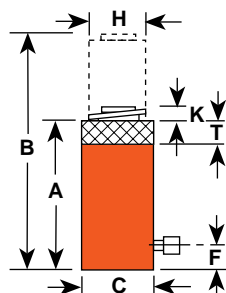
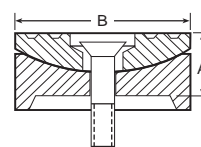
Bronze plated piston resists corrosion and abrasion. Cylinders fully comply with ASME B30.1 standard.

OPTIONAL SWIVEL CAPS

Reduce the effect of off-center loads. Tilt a maximum of 5 degrees.

Radial grooves on top of swivel cap lessen tendency of off-center loads to slip.

NOTE: Supported loads not to exceed the rated capacity of the cylinders. Not intended to support additional dynamic loads, such as those applied by moving vehicles. Fully supported bases required.



Use with Cyl. Cap.	Swivel Cap Order No.	A (in.)	B (in.)	Wt. (lbs.)
55-100 ton	420866	1.00	2.81	1.8
150-200 ton	420867	1.50	5.13	8.8
280 ton	420868	1.75	5.88	13.5
355 ton	420869	2.75	7.69	37.0
435 ton	420870	3.13	8.88	52.0
565 ton	420871	3.63	9.88	78.0

ORDERING INFORMATION

See current price list for shipping weights

Cyl. Cap. (tons)	Stroke (in.)	Order No.	Oil Cap. (cu. in.)	A	B	C	F	H	K	T	Bore Dia. (in.)	Cylinder Effective Area (sq. in.)	Internal Pressure at Cap. (psi)	Tons at 10,000 psi	Product Wt. (lbs.)
				Retracted Ht. (in.)	Extended Ht. (in.)	Outside Dia. (in.)	Base to Port (in.)	Piston Rod Dia. (in.)	Piston Rod Protrusion (in.)	Nut Thickness (in.)					
55	2.00	R552L	22.10	6.38	8.38	4.94	1.00	3.75	0.13	1.44	3.75	11.04	9,964	55.2	33.7
	6.00	R556L	66.30	10.38	16.38										58.0
	10.00	R5510L	110.40	14.38	24.38										80.0
100	2.00	R1002L	41.30	7.25	9.25	6.50	5.13	1.75		5.13	20.63	9,695	103.0	66.0	
	6.00	R1006L	123.80	11.25	17.25									103.0	
	10.00	R10010L	206.30	15.25	25.25									142.0	
150	2.00	R1502L	61.40	8.13	10.13	8.06	1.25	6.25		6.25	30.68	9,778	153.4	117.0	
	6.00	R1506L	184.10	12.13	18.13									177.0	
	10.00	R15010L	306.80	16.13	26.13									235.0	
200	2.00	R2002L	82.60	9.50	11.50	9.25	1.63	7.25		2.00	7.25	41.28	9,690	206.4	183.0
	6.00	R2006L	247.70	13.50	19.50										259.0
	10.00	R20010L	412.80	17.50	27.50										335.0
280	2.00	R2802L	113.50	9.75	11.75	10.88	8.50	2.25		8.50	56.74	9,870	283.7	261.0	
	6.00	R2806L	340.40	13.75	19.75									359.0	
	10.00	R28010L	567.40	17.75	27.75									459.0	
355	2.00	R3552L	141.80	11.50	13.50	11.75	2.13	9.50		2.38	9.50	70.88	10,017	354.4	381.0
	6.00	R3556L	425.30	15.50	21.50										512.0
	10.00	R35510L	708.80	19.50	29.50										643.0
430	2.00	R4302L	173.20	13.13	15.13	13.00	2.50	10.50		2.75	10.50	86.59	9,932	433.0	556.0
	6.00	R4306L	519.50	17.13	23.13										725.0
	10.00	R43010L	865.90	21.13	31.13										894.0
565	2.00	R5652L	226.20	14.63	16.63	14.88	2.75	12.00		3.13	12.00	113.10	9,991	565.5	811.0
	6.00	R5656L	678.60	18.63	24.63										1031.0
	10.00	R56510L	1131.0	22.63	32.63										1251.0

Single-Acting Aluminum Cylinders

For working pressures to 10,000 psi. Capacities: 20 to 100 tons, stroke lengths: 2.13" to 10.00".

Half the weight of steel cylinders of comparable capacity! Fully comply with ASME B30.1 standard. Aluminum body resists sparking in explosive environments.

Designed for jacking and other non-production operations.

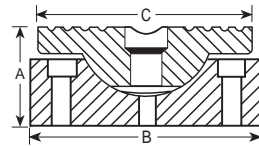
Hard coated aluminum piston rod and cylinder bore resist wear and corrosion.

Grooved piston top keeps load from sliding on top of piston.

OPTIONAL SWIVEL CAPS

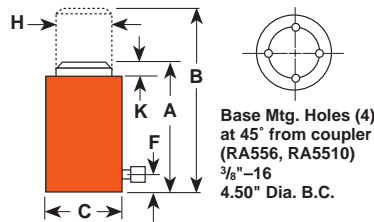
Reduce the effect of off-center loads. Tilt a maximum of 5 degrees.

Radial grooves on top of swivel cap lessen tendency of off-center loads to slip. Notch across face of each cap helps keep a load having a protruding or round shape centered.



Use with Cyl. Cap.	Swivel Cap Order No.	A (in.)	B (in.)	C (in.)	Wt. (lbs.)
55	350376	1.25	2.81	2.81	2.0
100	350984	1.94	3.75	3.13	5.6

NOTE: Mounting screws included with swivel caps.



CAUTION: Lifting loads where the base of the cylinder is not parallel with the surface of the load engaged by the cylinder lifting cap is not recommended. If you must lift such a load, be aware that even with the use of a swivel cap, the cylinder can "kick-out" from beneath the load and cause serious injury and/or property damage.

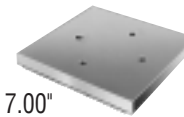
No. 4204960R9 – Lifting handle for 55 ton cylinder.



No. 4204980R9 – Lifting handle for 100 ton cylinder.

Aluminum Cylinder Base – For use when an enlarged cylinder base is needed or advantageous. Attaches to bottom of RA556 and RA5510 with four 3/8"-16 screws (included). Serrated base for extra stability.

No. 208406 – Aluminum cylinder base, 7.00" square. For use with RA556 and RA5510 cylinders.



RA1006



RA556



RA306



RA206

See page 26 for "RA" Series 55 and 100 ton locking collar cylinders.

ORDERING INFORMATION

See current price list for shipping weights

Cyl. Cap. (tons)	Stroke (in.)	Order No.	Oil Cap. (cu. in.)	A	B	C	F	H	K	Bore Dia. (in.)	Cylinder Effective Area (sq. in.)	Internal Pressure at Cap. (psi)	Tons at 10,000 psi	Product Wt. (lbs.)
				Retracted Ht. (in.)	Extended Ht. (in.)	Outside Dia. (in.)	Base to Port (in.)	Piston Rod Dia. (in.)	Piston Rod Protrusion (in.)					
20	2.13	RA202	9.41	6.38	8.50	3.75	1.25	2.00	0.31	2.38	4.43	9,030	22.2	7.7
	4.13	RA204	18.27	8.38	12.50									9.3
	6.13	RA206	27.13	10.38	16.50									11.3
30	2.13	RA302	13.79	7.38	9.50	4.25	1.25	2.50	0.38	2.88	6.49	9,250	32.5	11.1
	4.13	RA304	26.77	9.38	13.50									13.1
	6.13	RA306	39.75	11.38	17.50									15.1
55	2.13	RA552	23.50	6.75	8.88	5.25	1.38	3.13	0.25	3.75	11.04	9,960	55.2	16.2
	4.13	RA554	45.50	8.75	12.88									19.6
	6.13	RA556*	67.60	10.75	16.88									24.0
	10.00	RA5510*	110.40	15.13	25.13									31.8
100	2.13	RA1002	43.80	7.75	9.88	7.38	1.19	4.13	0.13	5.13	20.62	9,696	103.1	33.4
	6.25	RA1006*	129.00	11.75	18.00									49.9

* Cylinders equipped with carrying handle. NOTE: Aluminum cylinders are designed for jacking and other non-production applications.

Single-Acting Hydraulic Cylinders



RA1006L



C1006CL

Spring Return, Locking Collar Cylinders

For working pressures to 10,000 psi. Comply fully with ASME B30.1 standard.

Locking collar provides positive mechanical lock to support lifted load for extended periods of time with hydraulic pressure released.

Aluminum cylinders (RA556L and RA1006L) in capacities of 55 and 100 tons, have stroke lengths of 6.13" and 6.25".

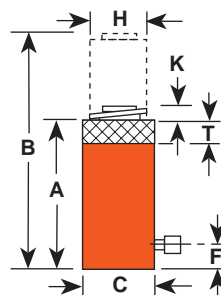
Steel cylinders (C556CL, C1006CL and C1506CL) in capacities of 55, 100 and 150 tons, have stroke lengths of 6.00" and 6.25".

Aluminum cylinders have hard coated aluminum piston rod and

cylinder bore to resist wear and corrosion. At half the weight of steel cylinders of comparable capacity, aluminum cylinders are ideal when portability is a key factor.

Steel cylinders feature bronze plated piston rod to resist wear and corrosion. Have 4 to 1 safety factor on locking collar and piston rod threads. Cylinder body, gland nuts and locking collar have Power Tech surface coating treatment (see page 6) to resist corrosion and abrasion.

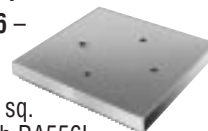
All cylinders are spring return except C1506CL which features load return.



ALUMINUM CYLINDER BASE

For use when an enlarged cylinder base is needed or advantageous. Attaches to bottom of RA556L with four 3/8"-16 screws (included). Serrated base for extra stability.

No. 208406 – Aluminum cylinder base, 7.00" sq. For use with RA556L cylinder. Wt., 4 lbs.



Locking collar feature permits non-hydraulic support of load.

NOTE: Supported loads not to exceed the rated capacity of the cylinders. Not intended to support additional dynamic loads, such as those applied by moving vehicles.



ORDERING INFORMATION

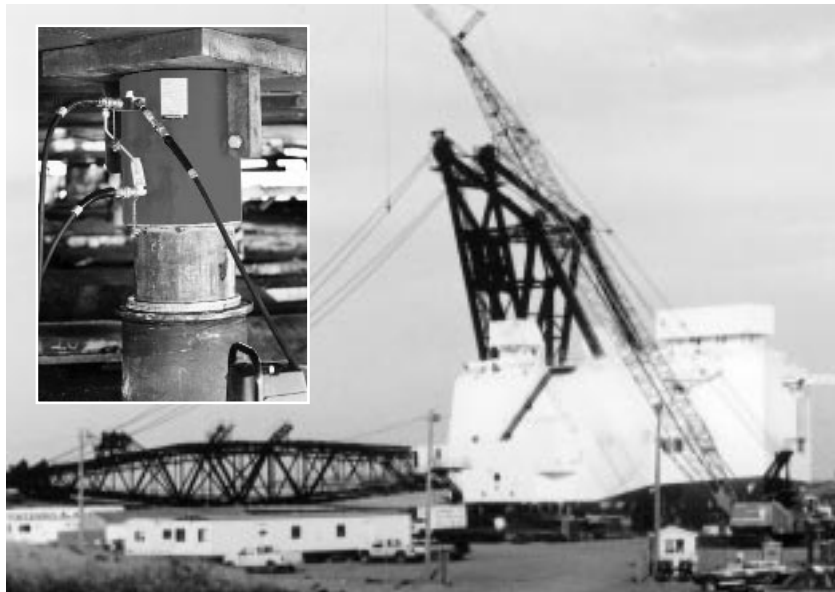
See current price list for shipping weights

Cyl. Cap. (tons)	Stroke (in.)	Order No.	Oil Cap. (cu. in.)	A	B	C	F	H	K	T	Bore Dia. (in.)	Cylinder Effective Area (sq. in.)	Internal Pressure at Cap. (psi)	Tons at 10,000 psi	Product Wt. (lbs.)
				Retracted Ht. (in.)	Extended Ht. (in.)	Outside Dia. (in.)	Base to Port (in.)	Piston Rod Dia. (in.)	Piston Rod Protrusion (in.)	Nut Thickness (in.)					
55	6.13	RA556L*	67.60	12.50	18.63	5.25	1.38	3.25	0.50	1.50	3.75	11.04	9,960	55.2	29.6
100	6.25	RA1006L*	129.00	13.38	19.63	7.38	1.19	4.50	0.25		5.13	20.62	9,696	103.1	64.0
55	6.00	C556CL*	66.30	12.63	18.63	5.00	1.31	3.25	0.19	2.00	3.75	11.04	9,960	55.2	60.0
100	6.25	C1006CL*	128.90	14.13	20.38	6.88	1.19	4.50		2.25	5.13	20.62	9,695	103.1	130.0
150	6.00	C1506CL*	184.10	15.38	21.38	8.25	2.00	5.50		2.50	6.25	30.68	9,778	153.4	211.0

* Cylinders equipped with carrying handle. **NOTE:** Aluminum cylinders are designed for jacking and other non-production applications.



The Grand Casino tower in Las Vegas used Power Team hydraulics to counteract deflection and control twist in the tower fabrication. They used six Power Team C1506CL 150 ton locking collar cylinders powered by Power Team PE553 pumps.



Seventeen Power Team 500 ton "RD" series cylinders were used in a massive lifting operation necessary to perform maintenance on one of the world's largest draglines. From a single control panel, an operator observed the force at each of 17 lifting points, adjusting the lift and lower cycles accordingly.



Bulged ends and sides of railway boxcars, caused by load shifts, are successfully repaired with Power Team hydraulics as the power source. Using a coupled boxcar as a push point, an RD10013 hydraulic cylinder with custom-built fixtures and extensions, powered by a gasoline engine PG1204S pump, applies the needed force to straighten car ends. I-beams are imbedded in concrete beside the rails to serve as anchors for the cylinder's base during straightening of boxcar sides.

The newly constructed 256 ft. 1000 ton Branson Belle Showboat was launched into Table Rock Lake, MO. with the help of Power Team hydraulics. The hull was lifted using 10 Power Team C7513C 75 ton spring-return cylinders connected to a single manifold and powered by a PE553 electric pump.



STEP 1: SELECT THE HYDRAULIC CYLINDER THAT BEST SUITS THE JOB. (SEE PAGES 4-27).

STEP 2: SELECT THE HYDRAULIC PUMP YOU WILL NEED.

STEP 3: CHOOSE THE RIGHT HYDRAULIC VALVE OPTIONS. (SEE PAGES 66-79).

STEP 4: SELECT THE HYDRAULIC ACCESSORIES YOU NEED. (SEE PAGES 80-90).

Hydraulic Pump Considerations:

1 What maximum system **operating pressure** (psi) is required?

2 What **volume of oil** delivery is required? (For manual pumps, cu. in. of oil per handle stroke; for powered pumps, cu. in./min. of oil).

3 Is a **single-** or **2-speed** pump required? (2-speed pumps deliver high oil volume at low pressure for rapid cylinder piston advance, then shift to the high pressure, low volume stage under load).

4 What is the **preferred source of power**?

a) Manual (hand or foot operated). Provides portability, can be used where electricity or shop air are not available.

b) Air/Hydraulic. Uses shop air or a portable air compressor.

c) Electric/Hydraulic. What voltage is available? Is a battery operated pump preferred?

d) Gasoline Engine/Hyd. Powers high-output pumps at remote job sites where air or electricity are unavailable.

5 Is **portability** of the pump a factor to consider?

6 Will the pump be used **intermittently**, or will it need to provide high-cycle operation? Does the application require that the pump be capable of starting under load?

7 Is **fluid heat build-up** a factor in your application? High cycle applications may require a larger capacity oil reservoir for cooling. Also, if you are using large displacement cylinders, the reservoir capacity must be sufficient to fully extend the piston of the cylinder.

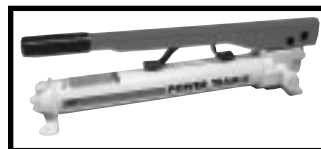
8 Will the application require **large displacement** or **multiple cylinders**? Reservoir size and pump output levels will be factors to consider.

9 Does the working environment require a pump having a **low operating noise** (dBA) level?

10 Must the pump operate in a **spark-free** environment?

POWER TEAM OFFERS YOU AN EXTREMELY WIDE SELECTION OF HYDRAULIC PUMPS

Manually-operated hydraulic pumps



P12, P23, P55. These single-speed pumps are for use with single-acting cylinders. **See pages 34-35.**

P19, P59, P59F, P157, P159, P300, P460. These 2-speed pumps are used with single-acting cylinders. The 2-speed feature provides high oil volume for fast cylinder piston approach to the work; pump automatically shifts to the high pressure stage. This reduces the number of pump handle strokes required. **See pages 34-35.**

P157D, P159D, P300D, P460D. These 2-speed pumps are used with double-acting cylinders. **See pages 34-35.**

Air/Hydraulic pumps



Used where air is the preferred energy source or where electricity is not available. Ideal for use in petrochemical, mines or other inflammable or explosive environments.

PA4 Series. These single-speed pumps drive single-acting cylinders. **See pages 40-41.**

PA6 Series. These single-speed pumps drive single- or double-acting cylinders. **See pages 38-39.**

PA9 Series. These new single-speed pumps drive single-acting cylinders and are ideal for powering portable hydraulic tools. **See pages 36-37.**

Continued on next page

PA50 Series. These single-speed pumps drive single- or double-acting low pressure (3,200 psi) cylinders.
See pages 40-41.

PA60. This 2-speed pump is equipped with a manifold to operate multiple cylinders, and provides a 2-gallon reservoir capacity.
See pages 40-41.

PA64. Similar to PA60, this 2-speed pump drives single- or double-acting cylinders.
See pages 40-41.

PA172 and PA174. These "economy" 2-speed pumps drive single- or double-acting cylinders, depending on the model chosen. Provide a low weight to output ratio.
See pages 42-43.

PA462 and PA464 Series. These 2-speed pumps drive single or double-acting cylinders, depending on the model selected. They offer high speed cylinder piston advance.
See pages 42-43.

PA554. This 2-speed pump drives single- or double-acting cylinders, delivering a high volume of oil.
See pages 42-43.

One of two Power Team Electric/Hydraulic Pumps (foreground) that powered 16 100-ton cylinders to support tunnel boring machine in transport.



Electric/Hydraulic Pumps



All of the following pumps are 2-speed models, and can be used to drive single- or double-acting cylinders.

"Quarter Horse" Series. As their name implies, these pumps feature a ¼ hp electric motor. A battery-powered version is available. Having a low noise level and weighing just 20 lbs., they are ideal for powering portable hydraulic spreaders, nut splitters, pipe flange spreaders and other tools.
See pages 44-45.

PE17 and PE84 Series. CSA rated for intermittent duty, these feature a ½ hp, single phase induction motor with a low noise level (67-81 dBA). Smaller generators and low amperage circuits can be used as a power source.
See pages 46-47.

PE46 Series. Powered by a 1½ hp, single phase induction motor, operate at a moderate noise level of 77-81 dBA. CSA rated for intermittent duty.
See pages 48-49.

PE18 Series. CSA rated for intermittent duty, these feature a ½ hp, single phase universal motor with a noise level of 85-90 dBA. Provide high performance at a low price. Has low amperage draw.
See pages 50-51.

PE30 Series. Equipped with a 1 hp, single phase permanent magnet motor, have a noise level of only 82-87 dBA. CSA rated for intermittent duty, and require a relatively low voltage; ideal for use in general construction applications. Roll cage/handle protects the motor and controls.
See pages 52-53.

PE55 and PED25 Series. The famous Vanguard® pumps have been continually upgraded for 40 years; some of the originals are still in service! Equipped with a 1½ hp, single phase universal motor, have a high noise level (90-95 dBA). Offer the best weight to performance ratio of any Power Team electric/hydraulic pump. CSA rated for intermittent duty. The PED25 versions are "dual flow" pumps which deliver the same low and high pressures to both valves, and have a noise level of 80-85 dBA. They have a 1½ hp induction motor.
See pages 54-55.

PE60 Series. The Vanguard® Supreme® pumps provide trouble-free service in the most severe working environments. Powered by a 1½ hp, single phase motor, has a moderate noise level of 80-85 dBA. Start well under load even at the reduced voltages encountered on construction sites. High-output pumps, ideal for use with post-tensioning/pre-stressing jacks and other high-pressure hydraulic tools.
See pages 105-106.

Continued on page 30...

Choosing The Right Pump For YOUR Task

Pumps

Continued from page 29...

"Custom-built" pumps. Power Team offers you "assemble to order" electric/hydraulic pumps to suit unique applications. You can choose from pre-engineered, off the-shelf components to customize your pump. **See pages 56-59.**

PE21 Series. Ideal for heavy-duty, extended-cycle applications. Powered by a 1 hp, single phase motor, pump operates at a very low noise level of 70 dBA. Pump automatically shuts down in the event of a power failure. CSA rated for intermittent duty. **See pages 60-61.**

"Quiet" Pumps. Our PQ60 and PQ120 series operate at a very low noise level of between 73-78 dBA. The PQ60 has a 2 hp (single phase) motor; the PQ120 has a 3 hp (3-phase) motor. These pumps are designed for heavy-duty, extended cycle operations. CSA rated for intermittent duty. **See pages 60-61.**

PE200 and PE400 Series. High-flow units deliver a large volume of high pressure oil for heavy construction and maintenance operations employing high tonnage cylinders. The PE200 has a 7½ hp, 3-phase motor; the PE400 is powered by a 10 hp, 3-phase motor. Low noise rating of 73-80 dBA. **See pages 62-63.**

Gasoline-driven hydraulic pumps



These two-speed pumps are ideal for use in remote applications, such as construction sites. May be used with single- or double-acting cylinders.

PG30 Series. Powered by a 2-cycle, 2 hp Tecumseh engine, these have an integral, protective "roll cage" and adequate reservoir capacity for cylinders up to 100 tons capacity or more. Readily portable; popular in the railroad, rescue and construction markets. **See pages 64-65.**

PG55 Series. With a 4-cycle, 4 hp Briggs & Stratton engine, this pump is based on our popular Vanguard® Series. It has a generous five gallon reservoir capacity. **See pages 64-65.**

PG120 Series. Powered by a 4-cycle, 5.5 hp Honda engine. Has a five gallon reservoir; capable of handling multiple-cylinder lifting tasks. Ideal for the structure moving, pier setting, bridge lifting and concrete contracting industries. **See pages 64-65.**

PG4004. Featuring a 4-cycle, 18 hp Briggs & Stratton engine, this unit has a big 20 gallon reservoir. Rugged steel "roll cage" has a hook on top and swivel casters for ease of mobility. Popular for concrete stressing applications. **See pages 64-65.**

Hydraulic Intensifier



HB Series. Turns low pressure hydraulic pumps into high pressure power sources to operate single-acting or double-acting cylinders and tools such as crimpers, spreaders, cutters, etc. Compact and portable for use inside a utility vehicle aerial bucket or stowing in a vehicle. **See page 33.**

CYLINDER AND PUMP SPEED* CHART

* Hand Pumps = Number of Strokes Required to Move Piston 1.00 in. Air, Electric and Gasoline Engine/Hydraulic Pumps = Number of Seconds Required To Move Piston 1.00 in.

10,000 psi Maximum Working Pressure		Page No.	PRESSURE STAGE		Cylinder Capacity (Tons)														
			▼	5	10	15	20	25	30	55	75	100	150	200	300	400	500		
Hand Pumps	P12‡	34-35	Single	14	32	44	65	72	93	–	–	–	–	–	–	–	–		
	P19‡		Low	4	8	10	15	17	21										
	High		13	30	42	59	68	86											
	P55‡		34-35	Single	6	14	19	28	31	40	71	–	–	–	–	–	–	–	
	P59F				1.8	4.1	5.7	8	9	12	20								29
	8				17	24	34	40	50	85	122								
	P59‡/ P157‡				1.5	3.2	4.7	7	7.7	9.7	16.7	23.9							
	P159‡/ P300‡				6	14	19	28	31	40	71	101							
P460‡	5	1		1.3	1.9	2.2	2.8	5	7	9	13	18	8.4	11.2					
7	15	21		30	34	43	77	110	143	200	250								
	.1	.3		.6	.6	.7	.9	1.5	2.2	2.8	4.2	5.6	8.4	11.2					
	3.3	7.7	9	14	17.5	22	37	55	71	105	143	213	284						
Electric/ Hydraulic Pumps	PE10	44-45	Low High	.5	1.2	1.6	2.2	2.6	3.2	5.5	–	–	–	–	–	–	–		
		6		13.4	18.9	27	31	39	66.2	–	–	–	–						
	PE17‡	46-47		.2	.5	.7	.9	1.1	1.4	2.3	3.3	4.3	6.5	8.7	–	–	–		
		3.5		7.9	10.9	16	18	23	39	56.3	73	109	146						
	PE18	50-51		.4	.8	1.2	1.6	1.8	2.3	3.9	5.7	7.3	10.8	14.6	21.9	29.2	–		
		3.3		7.5	10.3	15	17	21	37	53	69	102	136	207	276				
	PE21‡	60-61		.2	.5	.7	1.0	1.1	1.4	2.5	3.6	4.6	6.8	9.2	13.8	18.4	–		
		2.8		6.4	9	13	15	19	32	45.5	59	88	118	177	236				
	PE30‡	52-53		.2	.45	.6	.9	1	1.3	2.2	3.2	4.1	6	–	–	–	–		
		2		4.5	6	9	10	13	22	32	41	60	–	–	–				
	PE46‡	48-49		.1	.3	.4	.5	.6	.7	1.3	1.8	2.4	3.5	4.7	7.2	9.6	–		
		1.3		2.9	4.1	5.9	6.8	8.6	14	22	28	42	56	84	112				
	PE55‡/ PE60‡	54-55		.1	.2	.3	.4	.4	.6	.9	1.4	1.8	2.6	3.5	5.4	7.2	–		
	105-106	1.1		2.4	3.4	4.8	5.6	7.1	12	17.8	23	34	45	69	92				
	PE200	62-63		.1	.1	.2	.2	.3	.3	.6	.8	1	1.5	2.1	3	4	5		
				.3	.7	1.0	1.3	1.6	2	3.3	4.8	6.2	9.2	12	18.6	24.8	31.0		
	PE400			.1	.1	.2	.2	.3	.3	.6	.8	1	1.5	2.1	3	4	5		
	.1	.3	.4	.6	.7	.9	1.6	2.2	2.9	4.4	5.9	8.7	11.6	14.5	–				
PED25	54-55	.2	.4	.6	.9	1.0	1.3	2.2	3.2	4.1	6.1	8.3	12.0	15.7		19.9			
		2.4	5.4	7.5	10.6	12.4	15.6	26.5	38.2	49.5	73.6	99.1	144.3	188.5	238.6				
PQ60	60-61	.1	.2	.3	.4	.4	.5	.9	1.3	1.7	2.5	3.4	5.1	6.8	8.5				
		1	2.2	3.3	4.4	5.2	6.5	11	16.2	21	31	41	63	84	105				
PQ120		.1	.2	.3	.4	.4	.5	.9	1.3	1.7	2.5	3.4	5.1	6.8	8.5				
		.5	1.1	1.6	2.2	2.6	3.2	5.5	7.7	10	15	21	30	40	50				
Air/ Hydraulic Pumps	PA6‡/ PA9‡	38-39	Single	Low High	10	22.4	31	44.4	51.3	65.2	–	–	–	–	–	–	–		
	36-37																		
	PA17‡	42-43			.2	.5	.7	.9	1.1	1.4	2.3	3.3	4.3	6.5	8.7	–	–	–	
					3.5	7.9	10.9	16	18	23	39	56	73	109	146				
PA46‡	.1		.3		.4	.5	.6	.7	1.3	2	2.4	3.5	4.7	7.2	9.6	–			
	1.3	2.9	4.1		5.9	6.8	8.6	14	22	28	42	56	84	112					
PA55‡	64-65	.1	.3		.4	.6	.7	.9	1.5	2.2	2.8	4.1	5.5	8.4	11.2	–			
		1.1	2.4		3.4	4.8	5.6	7.1	12	18	23	34	45	69	92				
PG30		.3	.7		1	1.3	1.6	2	3.3	4.8	6.2	9.3	12.4	18.1	–	–	–		
	2	4.5	6.3		8.9	10.3	13	22	31.8	41.3	61.4	83	121	–	–				
PG55‡	64-65	.1	.3		.4	.6	.7	.8	1.4	2	2.6	3.9	5.2	7.6	9.9	12.5	–		
		1.1	2.5		3.5	4.9	5.6	7.1	12.1	17.3	22.5	33.5	45	66	86	109			
PG120‡		.1	.3		.4	.6	.7	.8	1.4	2	2.6	3.9	5.2	7.6	9.9	12.5	–		
	.5	1.0	1.5		2.0	2.4	3.0	5.1	7.3	9.5	14.2	19.1	27.8	36.3	46.0				
PG400		.1	.1		.2	.2	.3	.3	.6	.8	1.0	1.5	2.0	3.0	3.8	4.9	–		
		.2	.3		.5	.7	.8	1.0	1.7	2.4	3.1	4.6	6.2	9.0	11.8	15.0			

‡ Some Power Team pumps are available in special configurations not listed in this catalog. Power Team can “Assemble to Order” pumps with special seals, voltages, valves, relief valve settings, etc. For your special requirements please consult your local distributor or the Power Team factory.

Power Team

Pumps

In Action

Pumps



Seattle, Washington floating bridge uses fifty-two PE174 electrically powered hydraulic pumps for adjusting cables between 20 concrete pontoons. Cable tensioning is adjusted at seasonal “low water” and again at “high water” to hold tethered bridge decks together.



Radioactive MRT tracers injected into vessel using PA50 hydraulic air pump. Radioactive tracer materials are injected to determine how long it takes for fluids to dissipate in a specific chemical reactor. This chemical diagnostic process was accomplished by Power Team's PA50 and could safely deliver a variety of materials.



Iowa State University measures the strength and stiffness of hollow clay tile infilled walls using Power Team P460D hand pumps and RD5513 cylinders. This research will help develop guidelines to retrofit structures to withstand lateral force created during earthquakes.



University of Arkansas' Business Administration building had 2000 sq. ft. of foundation slab sinking. PQ603 hydraulic pumps operated C256C cylinders that drove steel piers through sinking back-fill until they reached weathered shale. The slab was then jacked up to original height using P159 hand pumps connected to the cylinders. Permanent steel plates under the slab secure it to the plates. All this took place without disrupting any of the classes in the building.



Five Power Team electrically driven hydraulic pumps powered forty 55 ton cylinders to raise 1.4 million pounds of highway bridge in less than a day. This operation raised the interstate bridge to meet the new standards for interstate highway overpasses.

Some Power Team pumps are available in special configurations not listed in this catalog. Power Team can “Assemble to Order” pumps with special seals, voltages, valves, relief valve settings, etc. For your special requirements please consult your local distributor or the Power Team factory.

Hydraulic Intensifier

Converts low pressure (2,000 psi) portable pumps or on-board hydraulic systems of utility trucks, etc., into high pressure (10,000 psi) power sources. Applications include utilities, railroads, construction, riggers and others.

Operates single- or double-acting cylinders, jacks, and tools such as crimpers, spreaders, cable cutters, tire tools.

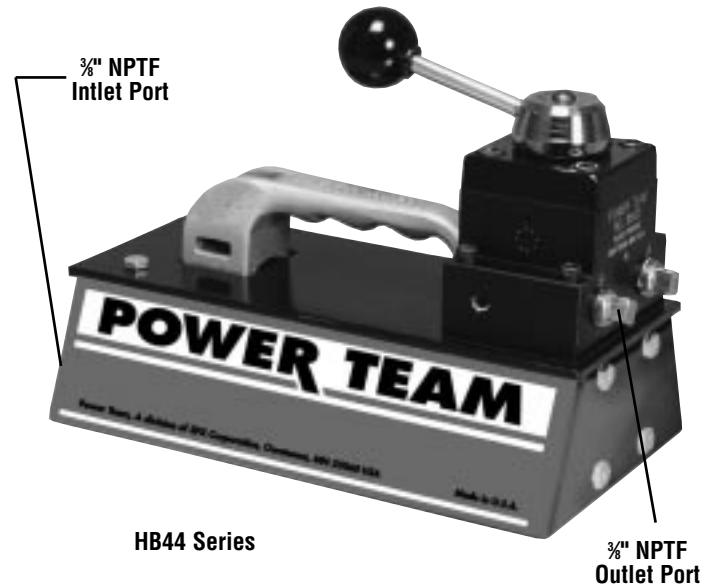
May be used to operate two separate, single-acting tools (with integral valves) independently, without need for additional manifold.

Compact and rugged for use inside a utility vehicle aerial bucket or stowing in a vehicle.

Control valve included. Other Power Team valves available as an option to suit your specific application, if needed; consult factory.

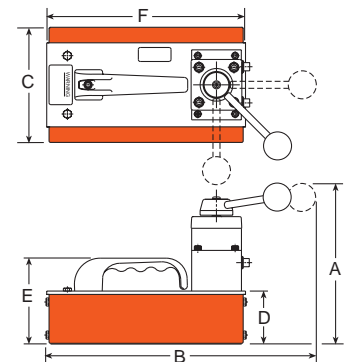
No reservoir level to maintain; uses low pressure system as oil supply.

Has 3/8" NPTF ports; compatible with standard fittings for low and high pressure systems.



DIMENSIONS (INCHES)

No.	A	B	C	D	E	F
HB44 Series	8.63	14.50	6.13	2.75	4.50	10.50



ORDERING INFORMATION AND SPECIFICATIONS

See current price list for shipping weights.

For Use With	Order No.	Type	Valve No.	Function	Input Flow Range†	Operating Pressure	Max. Output Pressure	Output Flow Range	Output Flow @ 10,000 psi	Prod. Weight (lbs.)
Single-Acting Cylinders	HB443	3-Way/ 3-Position	9520*	Advance Hold Return	0 - 10 gpm	300 - 2,000 psi	10,000 psi	0 - 2.5 gpm	44 cu. in./min.	16
Single- or Double-Acting Cylinders	HB444	4-Way/ 3-Position	9506*	Advance Hold Return	0 - 10 gpm	300 - 2,000 psi	10,000 psi	0 - 2.5 gpm	44 cu. in./min.	16

† For maximum efficiency, recommended input flow is 5 gpm at a maximum pressure of 2,000 psi. Higher flows and/or pressures must be compensated for at the system pump (e.g., relief valve, variable flow devices, etc.).

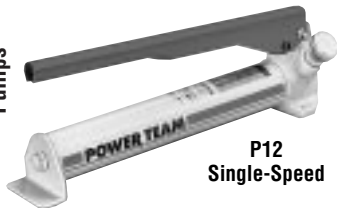
* "Posi-Check" valve design, "Posi-Check" guards against pressure loss when valve is shifted from "advance" position to "hold" position.

Power Team

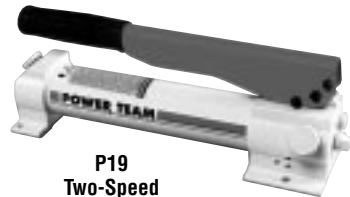
Hydraulic

Hand Pumps

Pumps



P12
Single-Speed



P19
Two-Speed



P23
Single-Speed
3,000 psi



P55
Single-Speed



P59
Two-Speed



P59F
Two-Speed



P157/P159
Two-Speed

Hydraulic Hand Pumps

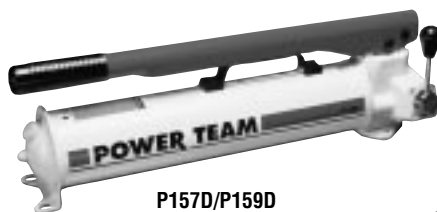
10,000 psi capacity.

Choice of single- or 2-speed versions to power single- or double-acting cylinders.

Up to 2½ gal. reservoir capacity. Internal relief valve.

All pumps except P460 Series can be operated horizontally or vertically with pump in the head-down position.

U.S. Patent
No. 3,822,966



P157D/P159D
Two-Speed



P300
Two-Speed

For operating single-acting cylinders:

Single-speed pumps

No. P12—Has finger tip control valve. Non-vented reservoir. Max. handle effort: 75 lbs.

No. P55—Has finger tip control valve. All metal construction, carrying handle and large oil fill port. Non-vented reservoir. Max. handle effort: 145 lbs.

No. P23—Compact size with a 3,000 psi relief valve setting. Max. handle effort: 70 lbs.

Two-speed pumps

No. P19—All-metal light-weight and compact pump has maximum handle effort of 99 lbs.

No. P59—All metal construction, carrying handle and large oil fill port. Non-vented reservoir. Max. handle effort: 145 lbs.

No. P59F—Foot-operated pump with foot- or hand-operated press-to-release valve. Aluminum body and lever; steel non-vented reservoir. Max. handle effort: 145 lbs.

Nos. P157 and P159—All metal construction, carrying handle and large oil fill port. Non-vented reservoir. Max. handle effort: 140 lbs.

No. P300—Same as P159 except has large 1½ gal. reservoir with sight gauge.

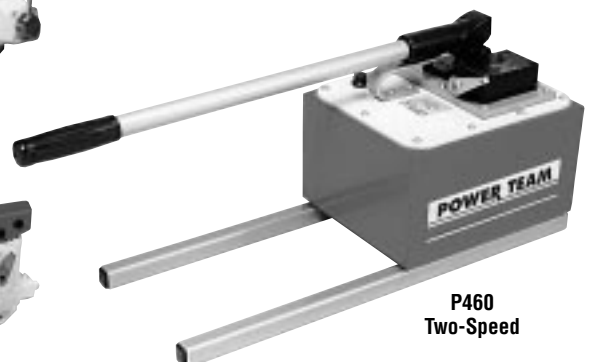
No. P460—All metal construction, carrying handle and large 2½ gal. reservoir. Max. handle effort: 90 lbs.

For operating double-acting cylinders:

Nos. P157D and P159D—Same features as P157 and P159, except have 4-way, tandem center valves. Max. handle effort: 140 lbs.

No. P300D—Same as P159D except has 1½ gal. reservoir with sight gauge.

No. P460D—Same as P460, but has a 4-way valve.



P460
Two-Speed



Accessories for hand pumps are shown on pages 80 thru 90.



Power Team Hydraulic Hand Pumps

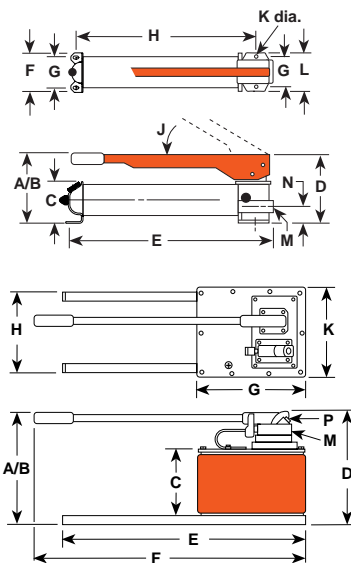
DIMENSIONS (INCHES)

Pump No.	A	B	C	D	E	F	G	H	J	K	L	M	N	P
P12	4.00	—	—	4.00	13.50	3.38	2.19	—	45°	0.19	3.38	—	1.13	—
P19	5.50	14.63	2.88	4.56	13.69	4.00	3.25	11.06	53°	0.31	4.00	¾" NPTF	1.41	
P23	6.25	13.00	3.50	5.56	13.63	4.25		10.31	38°		4.75		1.63	
P55	6.50	21.00			23.00			19.75						
P59	7.00			5.00										
P59F	3.50	16.75		6.00	23.25			39°	3.75					
P157/ P159	7.75	20.50	4.88	6.88	22.75	3.88	3.00	19.75	2.25					
P300	8.25	21.00	4.50		22.63	8.50	7.50 3.00	20.72						
P460	11.13	31.00	6.75	11.38	24.00	29.25	11.00	9.00	80°	9.50	—	—	—	0.25

ORDERING INFORMATION

See current price list for shipping weights.

For Use With	Order No.	Volume & Pressure			Handle Effort (lbs.)	Reservoir (cu. in.)		Oil Port	Product Weight (lbs.)			
		Stage	Volume per Stroke (cu. in.)	Maximum Pressure (psi)		Oil Capacity	Usable Oil Capacity					
Single-Acting Cylinders (Pump includes 2-Way Valve)	P12	1	0.069	10,000	75	12.0	9.0	3/8" NPTF	5.7			
	P19	1 2	0.305 0.076	325 10,000	99	24.4	20.0		6.6			
	P23	1	0.160	3,000	70	23.8	20.3		12.0			
	P55			10,000	145	55.0	45.0		15.8			
	P59	0.662 0.160	325 10,000	140					152.0	137.0	17.2	
	P59F	0.550 0.130	26.00 0.160		325 10,000	1.5 gal.	310.0				14.0	
	P157	0.650 0.160		26.7								
	P159	2		26.00 0.160					140	2.5 gal.	460.0	26.2
	P300											55.3
	P460	7.350 0.294	90	2.5 gal.	460.0	54.9						
Double-Acting Cylinders (Pump includes 4-Way Valve)	P157D	1 2	0.650 0.160	1,400 10,000	140	152.0	137.0	3/8" NPTF	28.8			
	P159D		26.00 0.160	325 10,000					27.9			
	P300D								1.5 gal.	310.0	57.0	
	P460D		7.350 0.294	90	2.5 gal.	460.0	57.9					



No. FK159B foot pump conversion kit for use on P157/P159 and P300/P300D pumps. 6 lbs.

No. FK59 foot pump conversion kit for use on P55/P59 pumps. (Not shown) 6 lbs.

New PA9 series single-speed pumps are ideal for powering single-acting cylinders and portable hydraulic tools for lifting, crimping/coupling, fastening, positioning and cutting/bending.

Easier to operate than a hand pump, giving you the speed you need at an affordable price.

A time-tested design constructed totally of metal (not plastic!) for years of dependable on the job service. Easy and economical to service; not a "throwaway" unit.

Unique bladder design offers maximum application versatility, operating either vertically or horizontally.

Operates on 40-120 psi shop air, at 20 cfm.

PA9 Features

1 Heavy-duty, hard-coat anodized aluminum housing, distinctive styling

Extremely rugged and durable, yet light weight.

2 Extra large fill port

Easy, no-mess filling of reservoir. Easy access to relief valve for adjustment by service technician.

3 Oil filler with integral safety relief

In case of operator error resulting in over-filling of reservoir, relief valve on cap releases. Minimizes chance of damage to reservoir bladder. Valve is reset by simply opening and closing filler port.

4 Sealed reservoir for all-position operation and storage

Pump operates in any position. No vent on reservoir - so no leaks, no contamination of oil from ambient air. 33.5 cu. in. usable oil.

5 Swivel outlet port

Hydraulic pressure port swivels 360° to conveniently run hose where it works best for you.

6 Release detent

On pedal-equipped pump, detent holds pedal in release position, freeing operator.

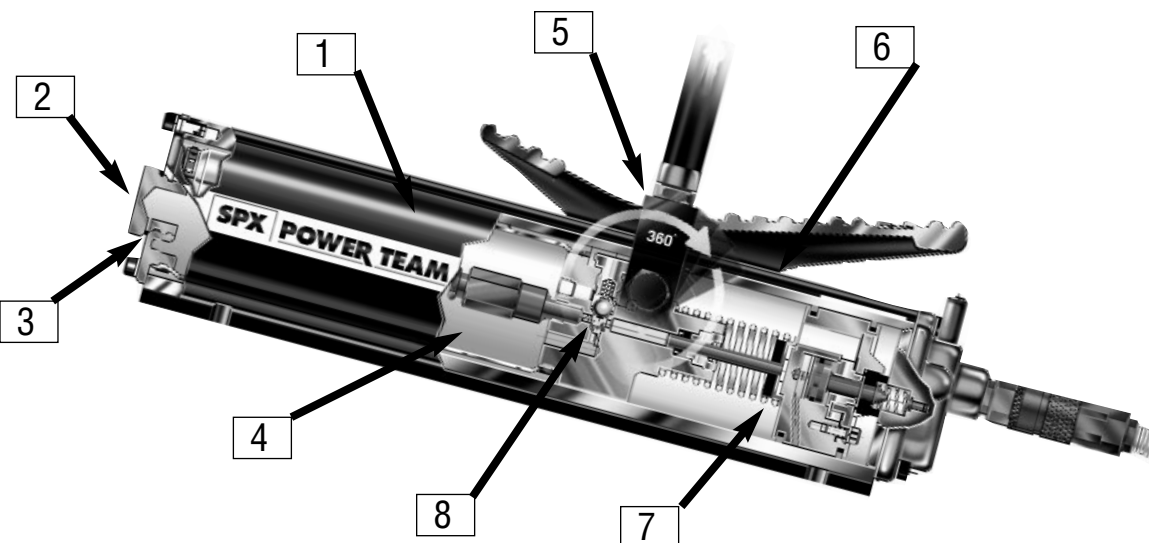
7 All metal, easily serviceable air motor

Durable, time-tested design (nearly 30 years). Economical to service, NOT a throwaway unit.

8 Exclusive rotary-style release mechanism

Gives operator better control when releasing pressure.

9 Covered by Power Team's exclusive Lifetime Marathon Warranty

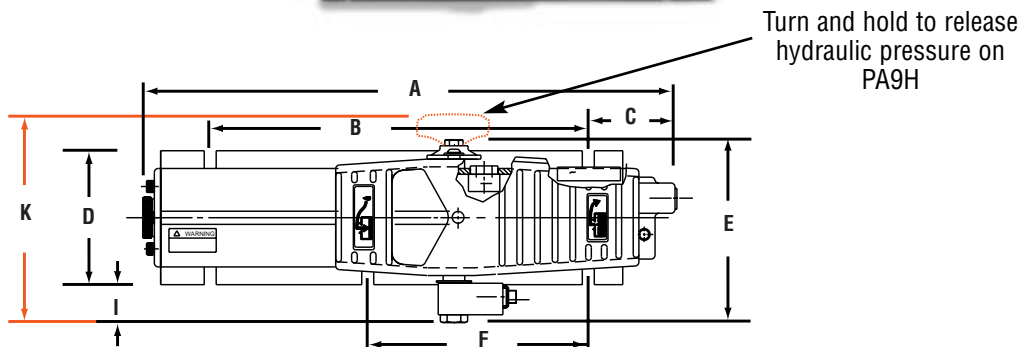
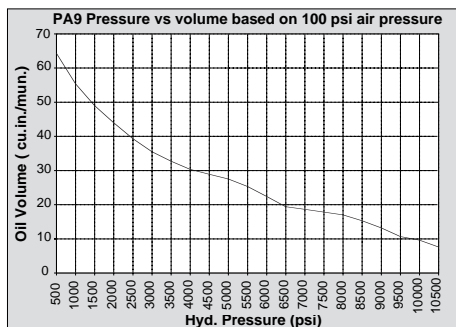




PA9 (Foot/Hand Operated) and PA9H (Hand Operated) Pumps operate in any position.

PERFORMANCE

Pressure vs volume based on 100 psi air pressure:

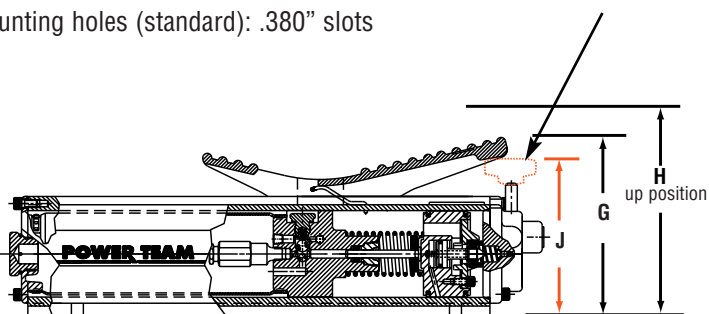


PA9	A	16.95"
	B	12.00"
	C	2.81"
	D	4.25"
	E	5.94"
	F	7.00"
	G	5.64"
	H	7.00"
	I	1.11"
PA9H	J	5.83"
	K	6.66"



Relief valve settings: up to 10,000 psi
Mounting holes (standard): .380" slots

Press and hold to run motor on PA9H



ORDERING INFORMATION

See current price list for shipping weights.

For Use with Cyl. Type	Order No.	Air Supply Req'd	Reservoir		Oil Port	Max. Pressure Output	Prod. Weight
			Cap.	Usable			
Single-Acting	PA9	40-120 psi	35 cu. in.	33.5 cu. in.	3/8" NPTF	10,000 psi	15 lbs.
	PA9H						

NEW

Power Team

Air/Hydraulic

Pumps

Pumps



PA6, PA6A,
PA6M, PA6AM

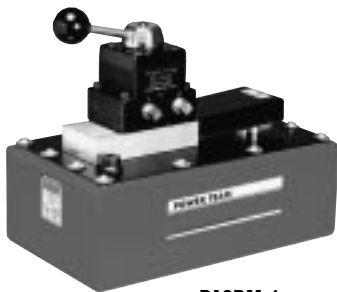
U.S. Patent No.:
4,352,644 and
3,788,781



PA6D
PA6DM



PA6M-1



PA6DM-1

Single-speed pumps drive single-acting or double-acting cylinders, are compact, light-weight and portable. For operating pressures to 10,000 psi.

A quarter century record of proven reliability. The OEM power unit of choice for major manufacturers of auto body and frame straighteners and other equipment.

Operate at 40-100 psi shop air pressure at the pump.

Internal relief valves protect circuit components, air inlet filter protects motor.

All metal air motor, ductile iron pump.

Permanently vented reservoir cap.

For operating single-acting cylinders:

No. PA6—Highly efficient power unit has 98 cu. in. oil (usable), high density polyethylene reservoir.

No. PA6M—Same as PA6, except has metal reservoir.

No. PA6M-1—Same as PA6, except has 1 gallon metal reservoir.

No. PA6-2—Same as PA6 except has 2 gallon, high density polyethylene reservoir.

No. PA6M-2—Same as PA6 except has 2½ gallon metal reservoir.

No. PA6A—Same as PA6 with an externally adjustable relief valve.

No. PA6AM—Same as PA6A except has metal reservoir.

For operating single- or double-acting cylinders:

No. PA6D—Has 9504 3-way/4 way valve, 98 cu. in. oil (usable), high density polyethylene reservoir.

No. PA6DM—Same as PA6D except has metal reservoir.

No. PA6DM-1—Same as PA6D except has 1 gallon metal reservoir.

No. PA6D2—Same as PA6D except has 2 gallon, high density polyethylene reservoir.

No. PA6DM-2—Same as PA6D, except has 2½ gallon metal reservoir.

Metal reservoir conversion kits

Metal reservoirs are available to convert these pumps from high density polyethylene to metal reservoirs.

No. 213896 – Metal reservoir, (for PA6, PA6A, PA6D) 105 cu. in. capacity. Includes gas-ket and fasteners. Wt., 3 lbs.

No. 213895 – Steel reservoir, (for PA6-2 and PA6D2); 2½ gallon capacity. Includes gas-ket and fasteners. Wt., 9 lbs.

9531 filter/regulator/lubricator, air

Recommended for use with single-speed air/hydraulic pumps found on this page.



See pages
80 thru 90 for hydraulic
accessories.



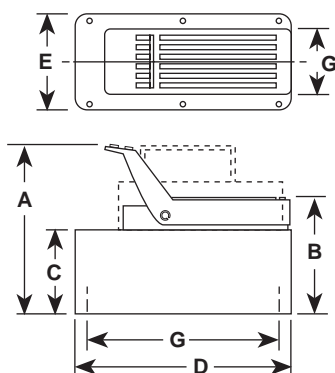
PA6-2
PA6M-2



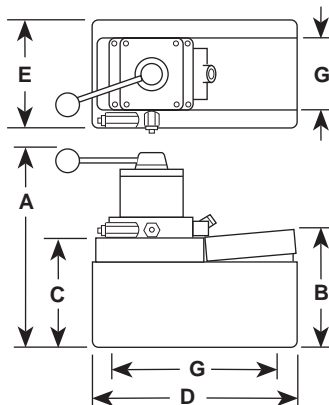
PA6D2
PA6DM-2

dBa 85 at 10,000 psi for all PA6 series pumps.

PA6, PA6A, PA6AM, PA6M,
PA6M-1, PA6-2, PA6M-2



PA6D, PA6DM, PA6D2,
PA6DM-1, PA6DM-2



DIMENSIONS (INCHES)

Pump No.	A	B	C	D	E	G
PA6/PA6M, PA6A, PA6AM	7.75	5.88	4.38	9.50	5.00	4.00x9.00
PA6M-1	7.88	6.00		12.63	7.38	none
PA6M-2	10.00	7.75	6.75	11.50	9.50	8.00x10.00
PA6D, PA6DM	10.38	5.88	4.38	9.50	5.00	4.00x9.00
PA6DM-1	11.00	5.75		12.63	7.38	none
PA6-2	10.25	8.00	7.00	11.50	9.50	5.13x7.13
PA6D2	12.75			11.31	9.25	
PA6DM-2	12.50	7.75	6.75	11.50	9.50	8.00x10.00

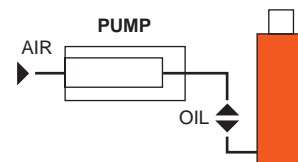
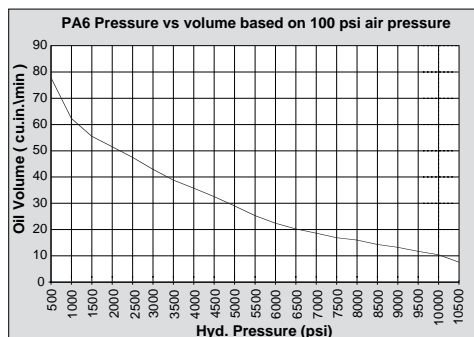
Pumps

PERFORMANCE

Pressure vs. Volume based on 100 psi air pressure

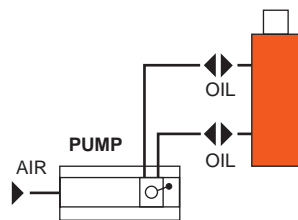
Performance

The performance curve right indicates oil delivery at various pressure levels.



Typical Set-up

Hook-up for single-acting cylinders



Hook-up for double-acting cylinders

ORDERING INFORMATION

See current price list for shipping weights.

For Use With Cyl. Type	Order No.	Valve No.	Air Supply Req'd (psi)	Reservoir (cu. in.)		Oil Port	Prod. Wt. (lbs.)
				Cap.	Usable		
Single-Acting	PA6	-	40-120	105	98	3/8" NPTF	14
	PA6A, PA6AM						15*
	PA6M						18
	PA6M-1			1 gal.	185		23.7
	PA6-2			2 gal.	454		24.5
	PA6M-2			2.50 gal.	570		32.1
Double-Acting	PA6D, PA6DM	9504 3-way 4-way	40-120	105	98	3/8" NPTF	18.4*
	PA6DM-1			1 gal.	185		28.1
	PA6D2			2 gal.	454		28.6
	PA6DM-2			2.50 gal.	570		36.2

* Add 2 lbs. for metal reservoir.

NOTE: For PA6, PA6A and PA6D, use reservoir mounting screws No. 211060.

For PA6-2 and PA6D2, use reservoir mounting screws No. 252168.

For PA6M, PA6AM and PA6DM, (metal reservoir) use reservoir mounting screws No. 215952.

For PA6M-2 (2½ gallon metal reservoir), use reservoir mounting screws No. 252952. For cover plate, bottom mounting holes are ½"-20 UNF.

Power Team

Air/Hydraulic

Pumps

Pumps



9531

PA4R –
dBA 76 @
10,000 psi
PA50 –
dBA 85 @
3,200 psi

Single- and 2-speed pumps drive single- or double-acting cylinders, are compact, light-weight and portable. For operating pressures to 10,000 psi. Models for 3,200 psi cylinders available.

Operate at 40-120 psi shop air pressure at the pump.

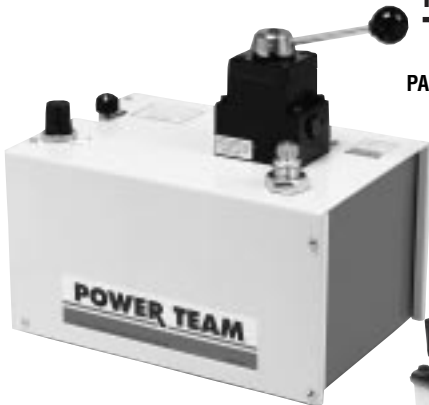
Internal relief valves protect circuit components, air inlet filter protects motor.

All metal air motor.

Permanently vented reservoir cap.



PA50D



PA64

U.S. Patent No.:
4,352,644 and
3,788,781

PA50, PA50M



PA4R, PA4RM, PA50R,
PA50RM, PA50R2

For operating single-acting cylinders:

Single-speed pumps

No. PA4R—12 foot remote control allows two-stage release for fast cylinder return. Requires 9 cfm at 100 psi shop air pressure at the pump. Has 98 cu. in. (usable) oil in a high density polyethylene reservoir.

No. PA4RM—Same as PA4R except has metal reservoir.

For operating low pressure single-acting cylinders:

No. PA50—For 3,200 psi systems. Has 98 cu. in. (usable) oil in a high density polyethylene reservoir. Requires 20 cfm at 100 psi shop air pressure at the pump.

No. PA50M—Same as PA50 except has metal reservoir.

No. PA50R—Same as PA50 except has 12 foot remote control.

No. PA50RM—Same as PA50R except has a metal reservoir.

No. PA50R2—Same as PA50R except has a 2-gallon reservoir.

For operating low pressure single- or double-acting cylinders:

No. PA50D—For 3,200 psi systems. Has 9504 3-way/4-way valve, 98 cu. in. (usable) oil in a high density polyethylene reservoir. Requires 20 cfm at 100 psi air pressure at the pump.

For operating single- or double-acting cylinders:

Two-speed pumps

No. PA60—Manifold model for use with one or more remote valves to operate multiple cylinders. Delivers 425 cu. in. of usable oil and has an integral air pressure regulator, air filter and lubricator and a 1/4" NPTF air inlet port. Requires 20 cfm at 100 psi air pressure at the pump.

No. PA64—Same as PA60 except has 9507 3-way/4-way valve for use with single- or double-acting cylinders.

Metal reservoir conversion kits

Metal reservoirs are available to convert these pumps from high density polyethylene to metal reservoirs.

No. 213896 — Metal reservoir, (for PA50, PA50R, PA4R) 105 cu. in. capacity. Includes gasket and fasteners. Wt., 3 lbs.

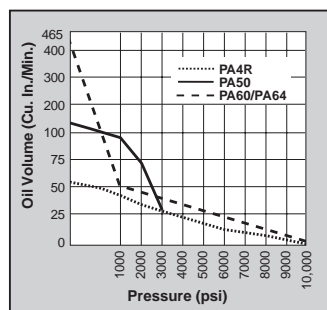
No. 213895 — Metal reservoir, (for PA50R2) 2½ gallon capacity. Includes gasket and fasteners. Wt., 9 lbs.

9531 filter/regulator/lubricator, air

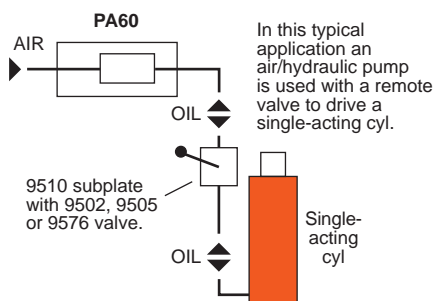
Recommended for use with single-speed air/hydraulic pumps found on this page. Is an integral part of PA60 and PA64.

See pages 66-79 for details on valves supplied with pumps listed here.

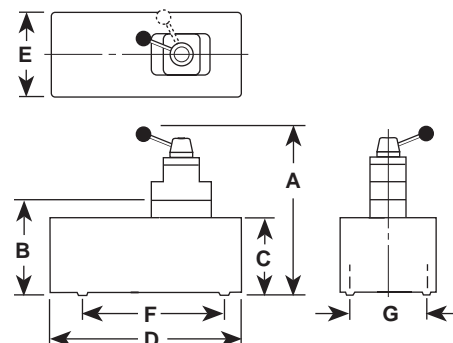
PERFORMANCE



Typical Set-up



PA60, PA64, PA50D



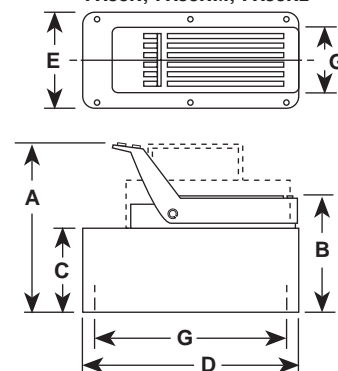
SPECIFICATIONS AND DIMENSIONS

Pump No.	Dimensions (in.)							Max. Pressure Output (psi)	Oil Del. * (cu. in./min. @)				
	A	B	C	D	E	F	G		0 psi	100 psi	1,000 psi	5,000 psi	10,000 psi
PA4R, PA4RM	8.00	8.00	4.25	10.00	5.00	—	4.00x9.00	10,000	54	46	40	13	2
PA50, PA50R, PA50M, PA50RM	7.75	5.88	4.38	9.50		—		3,200	128	110	88	28†	—
PA50R2	10.25	8.00	7.00	11.50	9.50	—	5.13x7.13						—
PA50D	10.38	5.88	4.38	9.50	5.00	9.00	4.00						—
PA60	—	9.44	8.13	14.25	9.63	7.13	5.13	10,000	390	350	50	12	6
PA64	14.25	—											

* Typical delivery. Actual flow will vary with field conditions.

† PA50 series measured at 3,200 psi.

PA4R, PA4RM, PA50, PA50M, PA50R, PA50RM, PA50R2



ORDERING INFORMATION

See current price list for shipping weights.

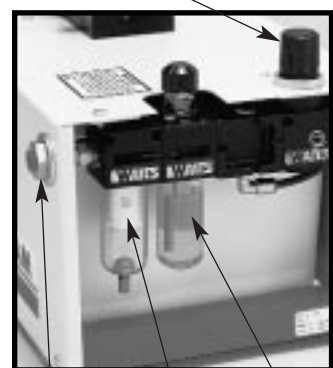
For Use With Cyl. Type	Order No.	Valve			Air Supply Required (psi)	Reservoir (cu. in.)		Oil Port	Prod. Weight (lbs.)
		Type	No.	Function		Cap.	Usable		
Single- Acting	PA4R, PA4RM†	—	—	—	40-120	105	98	3/8" NPTF	18.2†
	PA50*, PA50M*†	—	—	—					14.2†
	PA50R*, PA50RM*†	—	—	—					18.5†
	PA50R2*	—	—	—		2 gal.	454		28.5
Single- & Double- Acting	PA50D*	3-Way/ 4-Way	9504	Advance Return	40-120	105	98	3/8" NPTF	18.4
	PA60	Manifold	—	—		2 gal.	425		54
	PA64	3-Way/ 4-Way	9507	Advance Hold Return					56

* Maximum operating pressure: 3,200 psi.

† Add 2 lbs. for metal reservoir.

Rear view of PA60/PA64

Air Pressure Regulator



Air Inlet Port 1/4" NPTF Air Filter Air Lubricator

Power Team

Air/Hydraulic

Pumps

Pumps



PA172
dBA 85/90 at
10,000 psi

Used where air is the preferred source of energy, where electricity is unavailable, or where sparks are a concern. For operating pressures to 10,000 psi.

Two-speed operation for high speed cylinder advance.

For operating single-acting cylinders:

No. PA172—Has 9517 2-way/2-position valve; holds pressure in “advance” position when motor is shut off. In “return” position with motor running, pump will build pressure. When motor is shut off, oil automatically returns to reservoir.

Has 2 gallon thermoplastic reservoir, requires 20 cfm at 80 psi shop air pressure at pump.

U.S. Patent
Nos.: 4,352,644;
3,788,781;
3,992,131



PA462 & PA464
dBA 85/90 at
10,000 psi



PA554
dBA 87/88 at
10,000 psi



PA464R
dBA 85/90 at
10,000 psi

No. PA462—Has 9584 3-way/2-position valve; provides “advance”, “hold” and “return” positions. “Hold” can be achieved by placing valve in “advance” position, running pump to desired cylinder position and stopping pump. Has 3 h.p. rotary air motor capable of starting and running pump under full load.

Has 2½ gallon steel reservoir. Requires 50 cfm at 80 psi shop air pressure at the pump.

For operating single- or double-acting cylinders:

No. PA174—Same as PA172 except has 9500 4-way/3-position (tandem center) valve for use with single- or double-acting cylinders..

No. PA464—Same as PA462 except has 9500 4-way/3-position (tandem center) valve for two single-acting cylinders or one double-acting cylinder. Valve provides “advance”, “hold” and “return” positions without stopping pump.

No. PA464R—Has 9594 air-actuated valve; gives operator full remote control over “advance” and “return”. Pressure is held when “advance” button is released. Has 3 h.p. air motor capable of starting and running pump under full load. Has 2½ gallon steel reservoir. Includes 12 ft. remote control. Requires 50 cfm at 80 psi at pump.

No. PA464RA—Same as PA464R except has “automatic dump” feature that releases pressure when control buttons are released. Has 25 ft. remote control.

No. PA554—Has 9500 4-way/3-position (tandem center) valve which holds the load when pump is shut off or when valve is shifted to center position. Features 3 hp. air motor that starts under full load, a 2½ gallon reservoir, ⅜" NPTF oil ports and ⅜" NPTF air inlet port. Requires 50 cfm at 80 psi air pressure at the pump.

Steel reservoir conversion kit

No. 213895 — Steel reservoir, for PA172 and PA174, 2½ gallon capacity. Includes gasket and fasteners.

See pages 66-79 for details on valves supplied with pumps listed here.

SPECIFICATIONS AND DIMENSIONS

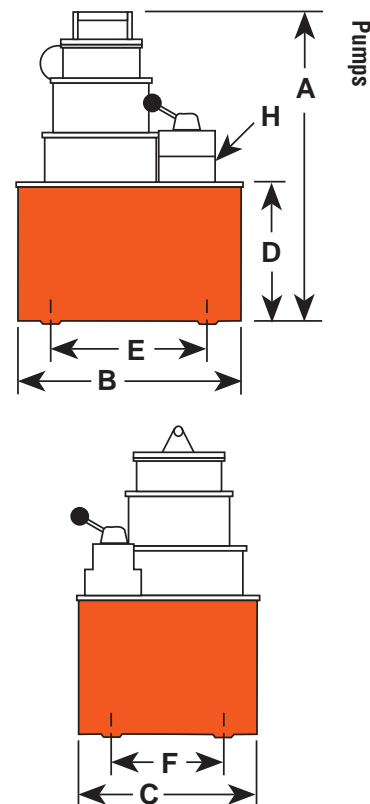
Pump No.	Oil Del.† (cu. in./min. @)					Max. Pressure Output (psi)	Dimensions (in.)						
	0 psi	100 psi	1,000 psi	5,000 psi	10,000 psi		A	B	C	D	E	F	H
PA172	290	240	24	23	17	10,000	14.13	11.38	9.25	7.00	7.13	5.13	3/8" NPTF
PA462*	465	450	53	51	46		15.00	11.50	9.50		10.00	8.00	
PA174	290	240	24	23	17		14.13	11.38	9.25		7.13	5.13	
PA464*	465	450	53	51	46		15.00	11.50	9.50	7.00	10.00	8.00	
PA464R*													
PA464RA*													
PA554*			80	70	55		19.00						

* Four mounting holes 1/2 in.-20.

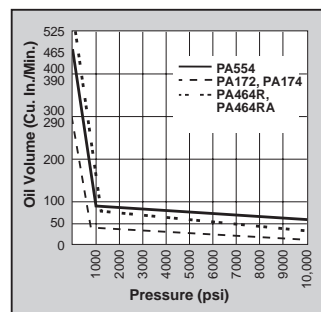
† Typical delivery. Actual flow will vary with field conditions.

Powered by a PA554 air-driven pump, RH2008 200 ton cylinders tension tower cables in the suspension roof of the Kansas City Convention Center.

Using two systems, workers tensioned the cables in opposing pairs.



PERFORMANCE



‡ Some Power Team pumps are available in special configurations not listed in this catalog. Power Team can "Assemble to Order" pumps with special seals, voltages, valves, relief valve settings, etc. For your special requirements please consult your local distributor or the Power Team factory.

ORDERING INFORMATION ‡

See current price list for shipping weights.

For Use With	Order No.	Valve			Air Supply Required (psi)	Reservoir (cu. in.)		Prod. Weight (lbs.)	
		Type	No.	Function		Cap.	Usable		
Single-Acting Cyl.	PA172	2-Way	9517	Advance Return*	40-120	2 gal.	295	40	
	PA462		9584	Advance Hold Return*		2.50 gal.	590	60	
Single- & Double-Acting Cyl.	PA174	4-Way	9500	Advance Hold Return*	40-120	2 gal.	295	41	
	PA464					2.50 gal.	590	61	
	PA464R		9594	Advance Hold Return†				78	
	PA464RA [∞]							79	
	PA554		9500	Advance Hold Return*			525	49	

* Holds when motor is shut-off and valve is in "advance" position.

† The PA464RA has an "automatic dump" feature. Pressure is **not** held when operator releases "advance" or "return" button. PA464R will "hold" only in the "advance" position with the motor shut off.

∞ Not to be used for lifting.

Power Team

Quarter Horse

Electric Pumps

Pumps



PE102



PE102A

The Quarter Horse® is a perfect portable power source for hydraulic cylinders, spreaders, punches, nut splitters, pipe flange spreaders and other tools. Weighs just 20 lbs.

Powered by a ¼ h.p., 6,000 rpm, permanent magnet motor that starts easily under load, even with reduced voltage conditions.



PR104

For operating pressures to 10,000 psi. Pumps for 3,000 psi and 5,000 psi operating pressures also available: consult factory.

Battery-operated models have 8 foot power cord with alligator clips to connect to any 12 volt battery. Optional rechargeable battery pack with shoulder strap for maximum portability also available. Pump typically delivers 15 minutes of continuous operation at 10,000 psi on a single battery charge, or 20 minutes of continuous operation at 5,000 psi.

Bladder type reservoir (60 cu. in. usable) enables pump to be operated in any position.

For operating single-acting cylinders:

No. PE102—Has 2-way valve. “Advance” position holds pressure with motor shut off; “return” position advances cylinder with motor running, automatically returns cylinder with motor shut off.

No. PE102A—Has manifold. Cylinder advances with motor running and automatically returns with motor shut off.

For operating double-acting cylinders:

No. PR104—Has 4-way valve and 8 foot alligator clip cord; for 12 volt DC use only. Provides cylinder “advance”, “hold” and “return” positions.

See “Ordering Information” on opposite page for listing of all Quarter Horse® pump versions available.

Example of Quarter Horse® work capability:

Using a fully charged battery pack with a PR102 pump and a Power Team HP35 hydraulic punch, eighty 0.75" dia. holes can be punched in 0.38" mild steel plate in less than one hour!

PE10 Series Quarter Horse®

- The optional, externally-adjustable pressure regulator can be easily installed on all pumps
- Two speed high performance in a compact package
- Light in weight (Only 20 lbs. with oil)
- Low noise level (68-74 dba at 3 ft.)
- Optional 24 volt hand and foot switches available for all AC powered pump models
- Bladder-type oil reservoir allows pump to operate in any position.
- High-impact housing with flame-retardant construction. Has base mounting holes for fixed installation if desired.



ACCESSORIES

BP12VQ – Optional 12 volt battery pack. Includes sealed lead acid battery, 115V charger, 4 ft. cord, carrying case and shoulder strap. Wt., 17.7 lbs.



BP12INT – Battery with cord and carrying case. Wt., 11.1 lbs.

RB12V – Replacement battery only. Wt., 10.4 lbs.

RC12V – Replacement 4 ft. battery cord only. Wt., .5 lbs.



Battery Charger Only – Will recharge RB12V battery in 1½ hr. See below for part nos.

BC12 – Battery charger for U.S.A. Wt., 6.6 lbs.

BC12EUR – Battery charger for Europe. Wt., 6.6 lbs.

BC12AUS – Battery charger for Australia. Wt., 6.6 lbs.

9560 – Pressure regulator. Adjustable from 1,000 to 10,000 psi.

All mounting hardware included. Wt., 3 lbs.

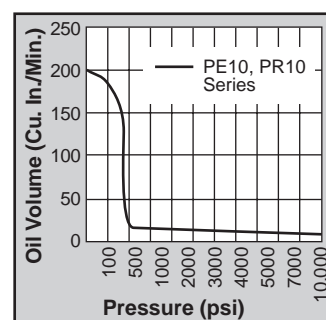


25017 – Remote hand control with 10 ft. cord. Wt., 0.8 lb.

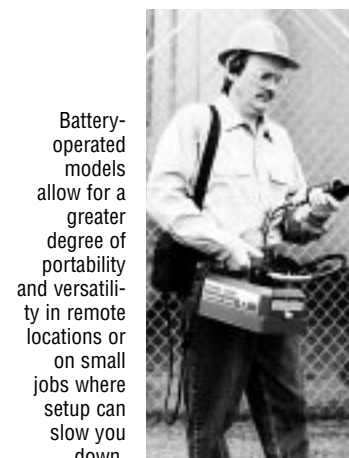


251660 – Foot switch with 10 ft. cord. Single pole, double throw, 15 amp @ 125-250 VAC. Wt., 1 lb.

PERFORMANCE



The Quarter Horse pump has a maximum operating pressure of 10,000 psi, which handles a wide variety of hand held hydraulic tools.



Battery-operated models allow for a greater degree of portability and versatility in remote locations or on small jobs where setup can slow you down.

SPECIFICATIONS AND DIMENSIONS

Pump No.	Max. Pressure Output	dBA at idle and 10,000 psi	Oil Delivery (cu. in./min.)		Overall Dimensions	Prod. Weight with Oil (lbs.)
			0-400 psi	10,000 psi		
PE10 Series PR10 Series	10,000 psi	68-74*	120	10	13.00"Lx7.75"W x8.00"H	20

NOTE: PR10 rechargeable model is equipped with 8 ft. cord with alligator clip. Order optional battery pack No. BP12VQ or use with any 12 volt battery.

* Measured at 3 ft. distance, all sides.

NOTE: High pressure flow on 5,000 psi unit is 20 cu. in./min. Flow on 3,000 psi unit is 30 cu. in./min. Consult factory for further information.

ORDERING INFORMATION

See current price list for shipping weights.

For Use With	Order No.	Valve			Control Switch	Motor	Reservoir Cap.
		Type	No.	Function			
Single-Acting Cylinders	PE102	2-Way/Auto. Dump	9561	Advance Return (Auto.)*	Rocker Type off, Momentary on	¼ hp, 110/115V 50/60 Hz, Single Phase	(60 cu. in. usable)
	PE102A	Auto. Dump	9562	Advance Return			
	PE102-220	2-Way/Auto. Dump	9561	Advance Return (Auto.)*		¼ hp, 220/230V 50/60 Hz, Single Phase	
	PE102A-220	Auto. Dump	9562	Advance Return			
	PR102	2-Way/Auto. Dump	9561	Advance Return (Auto.)*		¼ hp, 12V	
	PR102A	Auto. Dump	9562	Advance Return			
Double-Acting Cylinders	PE104	4-Way	9563	Advance Hold Return	Rocker Type off, Momentary on	¼ hp, 110/115V 50/60 Hz, Single Phase	(60 cu. in. usable)
	PE104-220					¼ hp, 220/230V 50/60 Hz, Single Phase	
	PR104					¼ hp, 12V	

* "Advance" position holds pressure with motor shut off. "Return" position advances cylinder with motor running and returns cylinder with motor shut off.

Note: Amp draw at 10,000 psi; 6 amp at 115 volt, 3 amp at 230 volt, and 25 amp at 12 volt.

PE17, PE84
Series

PE17 and PE84 Series Pumps

Two-speed high performance at a low price.

For use with single-acting or double-acting cylinders at operating pressures to 10,000 psi.

PE17 series is for intermittent duty; PE84 is capable of continuous duty. All start under full load.

Equipped with ½ h.p., 3,450 rpm, single phase, thermal protected induction motor; 10 ft. remote control cord (PE172S has 25 ft. cord); PE84 has 1,725 rpm motor.

Low amperage draw; small generators and low amperage circuits can be used as power source.

All have 2 gallon thermoplastic reservoir except PE172M, PE172AM, PE172SM and PE174M which have 2½ gallon metal reservoirs.

IMPORTANT: Oil temperatures in excess of 150° F. may cause permanent failure of the thermoplastic reservoir of PE17 series pumps.

For operating single-acting cylinders:

No. PE172 —Has 2-way/2-position valve which holds pressure in closed position, builds pressure to 10,000 psi in release position with motor running; automatically releases pressure when motor is shut off. For intermittent duty.

No. PE172M —Same as PE172, except has aluminum reservoir.

No. PE172S —Similar to PE172 except has 3-way/2-position solenoid valve providing “advance”, “hold” and “return” functions. Has 25 ft. remote motor and valve control.

No. PE172SM —Same as PE172S except has aluminum reservoir.

For operating single- or double-acting cylinders:

No. PE172A —Similar to PE172 except has automatic dump valve for use with single-acting cylinders. Its 45554 manifold is equipped with a return port which can be used with a remote mounted valve to operate either single or double-acting cylinders. For intermittent duty.

No. PE172AM —Same as PE172A, except has aluminum reservoir.

No. PE174 —Has 4-way/3-position valve for use with single- or double-acting cylinders. Provides “advance”, “hold” and “return” functions; “advance” position holds pressure with motor shut off. For intermittent duty.

No. PE174M —Same as PE174 except has aluminum reservoir.

No. PE84 —Has 4-way/3-position valve for use with single- or double-acting cylinders. Provides same functions as PE174, but is capable of continuous duty..

Optional Steel Reservoir

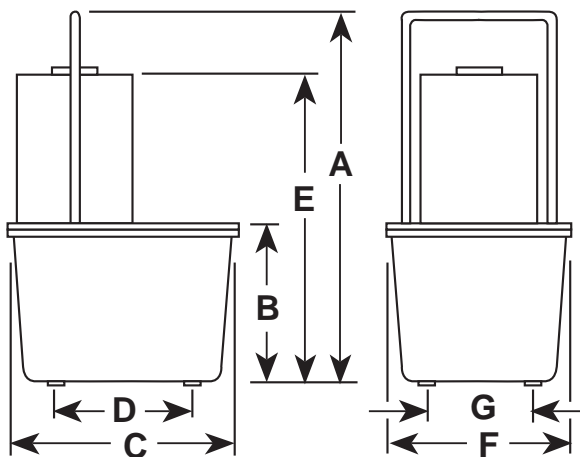
No. 213895 —Steel reservoir for PE84, PE172, PE172A, PE172S and PE174. Includes gasket and fasteners.

See pages 66-79 for details on valves supplied with pumps listed here.

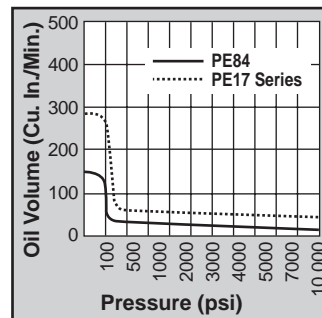
See pages 80-90 for gauges and other hydraulic access.



Floating I-90 bridge in Seattle, Washington uses 52 center-hole cylinders and PE174 pumps for adjusting bridge anchor cables.



PERFORMANCE



Electric Hydraulic Pumps

Pumps

SPECIFICATIONS AND DIMENSIONS

Pump No.	Max. Press. Output	rpm	dBA at Idle and 10,000 psi	Amp Draw 115 V - at 10,000 psi	Oil Del. (cu. in./min. @)†				Dimensions (in.)							Prod. Wt. With Oil (lbs.)
					0 psi	100 psi	5,000 psi	10,000 psi	A	B	C	D	E	F	G	
PE17 Series	10,000 psi	3,450	67/81*	10					18.50	7.00	11.38	7.13	14.88	9.25	5.13	45
PE17M Series					290	190	20	16	18.13	6.63	11.50	N/A	14.50	9.50	N/A	53
PE84		1,750			145	120	12	8	18.50	7.00	11.38	7.13	15.38	9.25	5.13	47

* Measured at 3 ft. distance, all sides.

† Typical delivery. Actual flow will vary with field conditions.

ORDERING INFORMATION ‡

See current price list for shipping weights.

For Use With	Order No.	Valve			Control Switch ††	Motor	Cap.	Reservoir (Usable)
		Type	No.	Function				
Single-Acting Cyl.	PE172A∞	Auto/Dump Manifold	45554	Advance Return	Remote Motor Control (10 ft.) on/off	½ hp 110/115 V* 50/60 Hz, Single Phase	2 gal. **	295 cu. in.
	PE172AM∞						2.50 gal. **	375 cu. in.
	PE172	2-Way	9517	Advance Return (Auto†)			2 gal. **	295 cu. in.
	PE172M						2.50 gal. **	375 cu. in.
	PE172S	3-Way	9579	Advance Hold Return	Remote Motor & Valve (10 ft.)	½ hp 110/115 VAC 50/60 Hz, Single Phase	2 gal.**	295 cu. in.
	PE172SM						2.50 gal.**	375 cu. in.
Double- or Multi Single-Acting Cyl.	PE84	4-Way	9500	Advance Hold Return***	Remote Motor Control (10 ft.) on/off	½ hp 115 V* 60 Hz, Single Phase	2 gal.**	295 cu. in.
	PE174					½ hp 110/115 V* 50/60 Hz, Single Phase		
	PE174M						2.50 gal.**	375 cu. in.

* Available with 220 V., 50 Hz motor (to order, place suffix "50-220" behind pump order number).

** Usable oil is calculated with the oil fill at the recommended level of 1.50" below reservoir cover plate.

*** "Advance" position holds pressure with motor shut off.

† "Advance" position holds pressure with motor shut off. "Return" position advances cylinder with motor running and returns cylinder with motor shut off.

†† Control switch on PE17 series wired with line voltage.

∞ Not to be used for lifting.

NOTE: The remote motor control switch on 220V., 50 cycle PE17 series pumps is 24 volt.

‡ Some Power Team pumps are available in special configurations not listed in this catalog. Power Team can "Assemble to Order" pumps with special seals, voltages, valves, relief valve settings, etc. For your special requirements please consult your local distributor or the Power Team factory.

Electric Hydraulic Pumps

Pumps



SPX
LR19814

PE464

Two-speed high performance in a lightweight, compact package.

For use with single- or double-acting cylinders at operating pressures to 10,000 psi.

Equipped with a 1½ hp, 3,450 rpm single phase, 60 Hz thermal protected induction motor that starts under full load. Noise level of 77-81 dBA.

CSA rated for intermittent duty.

All equipped with a 10 foot remote control except PE462S which has a 25 foot remote control.



SPX
LR19814

PE462A

U.S. Patent No. 3,053,186



SPX
LR19814

PE462S

For operating single-acting cylinders:

No. PE462—Has 9584 3-way/2-position valve providing “advance” and “return” functions.

No. PE462S—Similar to PE462 but has solenoid operated 9579 3-way/2-position valve that controls “advance” and “return” functions. Equipped with a 24 volt, 25 foot remote motor and valve control.

No. PE462A—Has 9610 3-way/2-position, pilot-operated “dump” valve. When pump is started, pilot oil automatically closes valve and oil is directed to cylinder. When pump is stopped, valve automatically opens and oil returns to reservoir.

For operating single- or double-acting cylinders:

No. PE464—Has 9500 4-way/3-position valve providing “advance”, “hold” and “return” functions on double-acting or multiple single-acting cylinders.

No. PE464S—Has a solenoid operated 9592 3/4way/2-position valve which controls the “advance” and “return” functions.

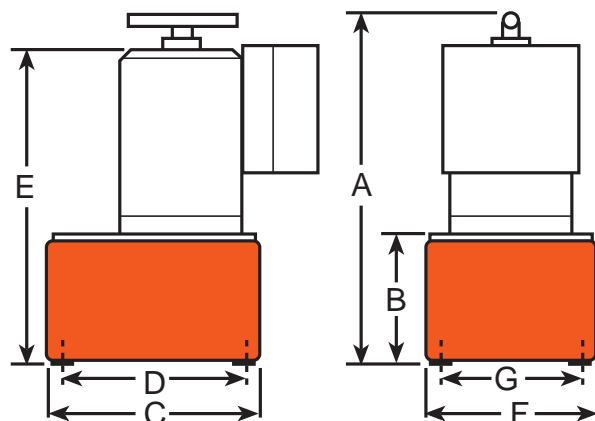
See pages 66-79 for details on valves supplied with pumps listed here.

Super-conducting electromagnets of the type used in levitating trains and in high-power scientific apparatus must be cooled to -452° F. in order to work. When turned off, they must be warmed to room temperature.

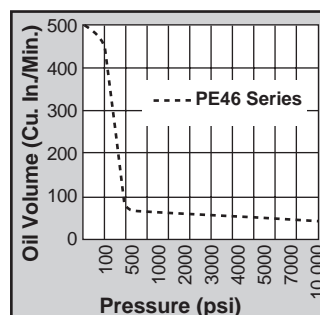
The firm that manufactures strip heaters which warm the magnets tests them on a custom-built fixture under operating level mechanical stress for insulation integrity. A failure in the heater's insulation could short the magnets.

The successful test fixture uses a Power Team RLS1500S 150 ton hydraulic cylinder powered by a PE464S pump. A timing circuit helps automate the tests. Under 10,000 psi mechanical pressure, the strip is subjected to 2,000 volts. Heaters that fail are rejected.





PERFORMANCE



SPECIFICATIONS AND DIMENSIONS

Pump No.	Maximum Pressure Output	rpm	dBA at Idle and 10,000 psi	Amp Draw 115 V - at 10,000 psi	Oil Del. (cu. in./min. @)†				Dimensions (in.)							Prod. Wt. With Oil (lbs.)
					0 psi	100 psi	5,000 psi	10,000 psi	A	B	C	D	E	F	G	
PE46 Series	10,000 psi	3,450	77/81*	25**	500	450	51	46	19.63	6.81	11.50	10.00	18.13	9.50	8.00	79

* Measured at 3 ft. distance, all sides.

** Requires 20 amp circuit.

† Typical delivery. Actual flow will vary with field conditions.

ORDERING INFORMATION ‡

See current price list for shipping weights.

For Use With	Order No.	Valve			Control Switch †††	Motor	Reservoir	
		Type	No.	Function			Cap.	Usable
Single-Acting Cylinders	PE462	3-Way	9584	Advance Return †	Remote Motor Control (10 ft.) On/Off	1½ hp 115/230 VAC* 60 Hz, Single Phase	2.50 gal. ***	590 cu. in.
	PE462S ††		9579	Advance Return **	Remote Motor/Valve (25 ft.)			
	PE462A ∞	Auto/Dump 3-Way	9610	Advance Return	Remote Motor Control (10 ft.) On/Off			
Double- or Multi Single-Acting Cylinders	PE464	4-Way	9500	Advance Hold Return †	Remote Motor Control (10 ft.) On/Off	1½ hp 115/230 VAC* 60 Hz, Single Phase	2.50 gal. ***	590 cu. in.
	PE464S ††	3/4-Way	9592	Advance Return **	Remote Motor/Valve (10 ft.)			

* Available with 220 V., 50 Hz motor (to order, place suffix "50-220" behind pump order number). Specify voltage when ordering.

** "Advance" position holds pressure with motor shut off.

*** Usable oil is calculated with the oil fill at the recommended level of .50 in. below reservoir cover plate.

† "Advance" position holds pressure with motor shut off. "Return" position returns cylinder.

†† 115 volt, 60 Hz.

††† The remote motor control switch on PE46 series pumps is 24 volt.

∞ Not to be used for lifting.

‡ Some Power Team pumps are available in special configurations not listed in this catalog. Power Team can "Assemble to Order" pumps with special seals, voltages, valves, relief valve settings, etc. For your special requirements please consult your local distributor or the Power Team factory.



Vanguard Jr.® Pumps

Vanguard Jr.® pumps provide two-speed high performance in a lightweight, compact package. Ideal for use with small hydraulically powered tools.

For use with single- or double-acting cylinders at operating pressures to 10,000 psi. Gauge port provided on pump. Metal reservoir on all models.

Equipped with a ½ hp, 110/115 volt, 60/50 Hz single phase motor that starts under load, even at reduced voltage. Low amperage draw permits use with smaller generators and low amperage circuits.

All pumps have a 10 foot remote control except PE183C which has 25 foot remote control.

CSA rated for intermittent duty. High noise level of 85-90 dBA.



U.S. Patent No. 3,380,392

NOTE: These pumps are available for 220 volt, 50 cycle operation. Specify when ordering.

For operating single-acting cylinders:

No. PE182—Has 2-way valve for “advance” and “return” functions. Turn motor off for “hold” with valve in “advance” position. Has ½ gallon reservoir.

No. PE183—Same as PE182 except has a 3-way valve providing “advance”, “hold” and “return” functions.

No. PE183-2—Same as PE183 except has a 2½ gallon reservoir.

No. PE183A—Similar to PE182 except has an automatic “dump” valve providing “advance” and “return” functions. Not for lifting applications.

For operating double-acting cylinders:

No. PE184—Has 4-way valve providing “advance”, “hold” and “return” functions. Has ½ gallon reservoir.

No. PE184-2—Same as PE184 except has 2½ gallon reservoir.

For operating hydraulic crimping, cutting or other tools:

No. PE183C—For crimping or pressing applications. Has special electrical circuitry to pulse/advance, hold at full pressure, build to a predetermined pressure, release and reset circuit. Has a 24 volt control and dual switch housing containing a pump control switch and separate emergency return switch. Has ½ gallon reservoir.

No. PE184C—Allows you to alternately operate a spring-return cutting and/or crimping tool without disconnecting either tool. Select port connection with manual 4-way valve, start pump with remote control hand switch and extend connected tool. When hand switch is switched to off, pump stops and automatic valve opens, allowing tool to return. In center (neutral) position, manual control valve holds tool in position it's in at time valve is shifted. Has 10 foot heavy duty remote switch.

DC conversion kit*

Order kit No. 205601 to convert PE18 series pumps from 115/230 volt AC to 115/230 volt DC. Kit includes a heavy-duty ON/OFF switch for both AC and DC voltage hook-ups.

* For use only with PE182, PE183, PE184 and PE184-2 when no remote control is used.

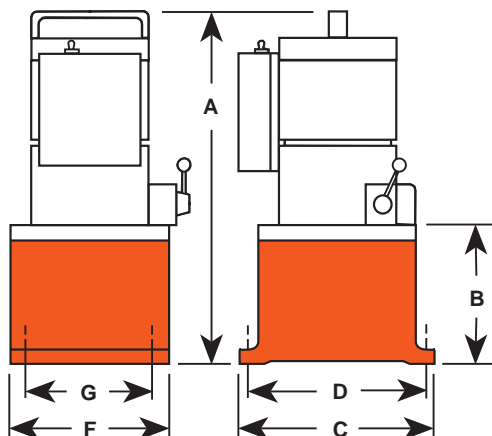
See page 86 for optional pump cart and pages 80 thru 90 for hydraulic accessories.

Electric Hydraulic Pumps

Vanguard Jr.®

Speed comparison — Electric vs. Hand Pump

To fully extend a Power Team 10-Ton cylinder with 10" stroke	PE18 Series Power Unit	P55 Hand Pump
5" of cylinder travel under no load	4 seconds	140 strokes
5" of cylinder travel under load	34 seconds	of pump handle
Total time required	38 seconds	4 to 5 minutes



SPECIFICATIONS AND DIMENSIONS

Pump No.	Maximum Pressure Output	rpm	dBA at Idle & 10,000 psi	Amp Draw 115V at 10,000 psi	Oil Del. (cu. in./min. @) †				Dimensions (in.)						Prod. Weight with Oil (lbs.)
					0 psi	100 psi	5,000 psi	10,000 psi	A	B	C	D	F	G	
PE182, PE183, PE183A, PE184	10,000 psi	12,000	85/90**	10.2 Amps	230	190	25	18	16.00	4.75	8.00	7.13	6.00	5.13	30
PE183-2*, PE184-2*									18.50	7.25	11.50	10.00	9.50	8.00	42
PE183C ††									16.00	4.75	8.00	7.13	6.00	5.13	30
PE184C ††									16.00	4.75	8.00	7.13	6.00	5.13	30

* 2.50 gal. reservoir.

** Measured at 3 ft. distance, all sides.

† Typical delivery. Actual flow will vary with field conditions.

†† Special application pumps for cutting, crimping or pressing.

ORDERING INFORMATION

See current price list for shipping weights.

For Use With	Order No.	Valve		Control Switch	Motor**	Reservoir	
		Type	Function			Cap.	Usable
Single-Acting Cyl.	PE182	2-Way	Advance Return †	Remote Motor Control (10 ft.) On/Off	½ hp 110/115 VAC 50/60 Hz A.C., Single Phase	.50 gal.	104 cu. in.
	PE183	3-Way	Advance Hold Return	Remote Control (10 ft.)		2.50 gal. ††	525 cu. in.
	PE183-2					Remote Control (10 ft.)	.50 gal.
	PE183A ∞	Auto Dump Pump	Advance Return	Remote (10 ft.)		2.50 gal. ††	525 cu. in.
Double-Acting Cyl.	PE184	4-Way	Advance Hold Return†	Remote Motor Control (10 ft.) On/Off		.50 gal.	104 cu. in.
	PE184-2					2.50 gal. ††	525 cu. in.
Special Appl. w/Single-Acting Cyl.	PE183C ∞	Special (for crimping only)	Advance Hold Return	Remote Motor Control (25 ft.) On/Off		.50 gal.	104 cu. in.
Double-Acting Cyl.	PE184C*	4-Way	Advance Return	Remote Control (10 ft.) On/Off			

* Also for use with special single-acting cylinder applications.

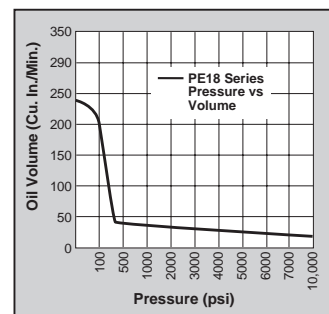
** Available with 220 Volt, 60/50 Hz motor (to order, place suffix "50-220" behind pump order number). Specify voltage when ordering.

† Holds when motor is shut off and valve is in "advance" position.

†† Pumps supplied with 2 gal. oil (usable oil is 355 cu. in.), will hold 2.50 gal. when filled to within .50 in. below reservoir cover plate.

∞ Not to be used for lifting.

PERFORMANCE



With these pumps, the low-pressure, high-volume stage provides fast cylinder piston travel. When high force is needed, the high-pressure, low-volume stage takes command. The performance curve indicates the oil delivery at various pressure levels.

See page 86 for optional pump cart and pages 80 thru 90 for hydraulic accessories.



Portable – all metal hydraulic pump weighs only 41 lbs. with oil. (1½ gallon reservoir)

PE30 Series Electric Pumps

Two-speed Vanguard® 30 series pumps deliver a powerful punch to operate single-acting or double-acting cylinders. Rugged all metal construction; integral roll cage protects pump from abuse.

Equipped with a 1 hp, single phase, permanent magnet motor. Choice of 110/115 volt or 220/230 volt, 50/60 Hz.

Require a relatively low voltage, making them ideal for use in general construction applications. Amp draw at 10,000 psi only 13 amps @ 110/115 volts and 6.5 amps @ 220/230 volts.

Pump will start under full load even when voltage is reduced to 50% of nominal rating.

High performance to weight ratio. Deliver up to 30 cu. in. of oil per minute at maximum operating pressure of 10,000 psi.

Choice of 1½ gallon or 1 gallon aluminum reservoirs.

Whisper quiet operation: 82 dBA @ 10,000 psi and 87 dBA @ 0 psi. CSA rated for intermittent duty.

For faster cylinder return, the 9520 “Posi-Check” style manual valve has improved porting.

All models having remote controls and/or solenoid valves feature 24 volt controls. An internal pressure regulator is optional on all pumps.

NOTE: A range of valve options is available to suit your application. See “Ordering Information” on following page to review the full Vanguard® 30 pump selection.

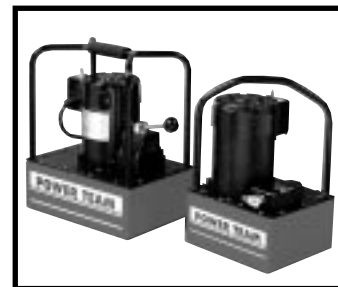
See pages 66-79 for details on valves supplied with pumps listed here.

Vanguard® 30 Series

- Pictured at the right: Vanguard PE302S with 1½ gallon reservoir
- Delivers 30 cu. in. of oil at 10,000 psi
- 1 hp totally enclosed motor
- Whisper-quiet operation
- Your choice of a 1½ gallon or 1 gallon reservoir
- Large, 1.19" diameter fill port
- Numerous valve options
- Roll cage/carry handle to protect pump
- Two-speed, high performance pump




LR19814
CSA approved

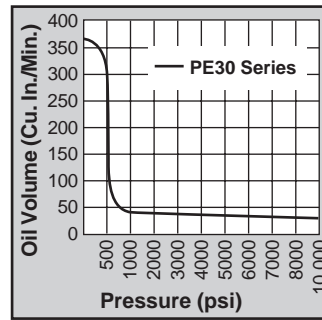
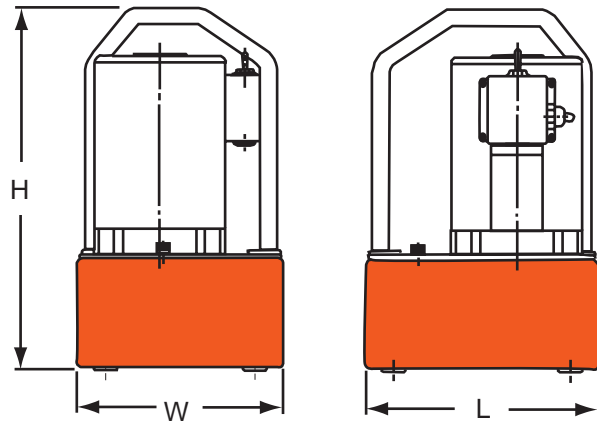


PE30 with 1½ gallon reservoir (L) and PE30 with 1 gallon reservoir (R). With these pumps, the low-pressure, high-volume stage provides fast cylinder piston travel. When high force is needed, the high-pressure, low-volume stage takes command.

Vanguard® 30 Series

PERFORMANCE

Electric Hydraulic Pumps



The performance curve above indicates the oil delivery at various pressure levels.

SPECIFICATIONS AND DIMENSIONS

Pump No.	Maximum Pressure Output	dBA at Idle & 10,000 psi	Amp Draw 115V at 10,000 psi	Oil Del. (cu. in./min. @)					Overall Dimensions	Prod. Wt. With Oil (lbs.)
				100 psi	500 psi	1,000 psi	5,000 psi	10,000 psi		
PE30 Series w/1.25 gal. res.	10,000 psi	87/82	13	300	200	44	38	30	10.00"L x 9.00"W x 16.00"H	41
PE30 Series w/1.75 gal. res.									13.50"L x 9.50"W x 16.50"H	49

ORDERING INFORMATION

See current price list for shipping weights.

For Use With	Order No.	Valve			Control Switch	Motor (4,000 rpm) ††	Reservoir	
		Type	No.	Function			Cap.	Usable
Single-Acting Cylinders	PE302A ∞	Auto Dump	9610	Automatic Pilot Oper.	Remote Motor Control (10 ft.)	1 hp 110/115 VAC 50/60 Hz, Single Phase	1.25 gal. **	280 cu. in.
	PE302	3-Way, 2 Pos.	9584	Advance Return	On/Off/Pulse Switch			
	PE303	3-Way, 3 Pos.	9520 *	Advance Hold Return				
	PE302R	3-Way, 2 Pos.	9584	Advance Return				
	PE302S †		9579 (115V solenoid)		Remote Motor & Valve (10 ft.)			
	PE303R	3-Way, 3 Pos.	9520 *	Advance Hold Return	Remote Motor Control (10 ft.)		1.75 gal. ***	380 cu. in.
	PE302A-2 ∞	Auto Dump	9610	Automatic Pilot Oper.				
	PE302-2	3-Way, 2 Pos.	9584	Advance Return	On/Off/Pulse Switch			
	PE303-2	3-Way, 3 Pos.	9520 *	Advance Hold Return				
	PE302R-2	3-Way, 2 Pos.	9584	Advance Return				
	PE302S-2 †		9579 (115V solenoid)		Remote Motor & Valve (10 ft.)			
	PE303R-2	3-Way, 3 Pos.	9520 *	Advance Hold Return	Remote Motor Control (10 ft.)			
Double-Acting Cylinders	PE304	4-Way, 3 Pos. Tandem Ctr.	9506 *	Advance Hold Return	On/Off/Pulse Switch	1 hp 110/115 VAC 50/60 Hz, Single Phase	1.25 gal. **	280 cu. in.
	PE304R				Remote Motor Control (10 ft.)			
	PE304-2				On/Off/Pulse Switch		1.75 gal. ***	380 cu. in.
	PE304R-2				Remote Motor Control (10 ft.)			

* "Posi-Check" valve design, "Posi-Check" guards against pressure loss when valve is shifted from "advance" to "hold" position.

** Shipped with 1 gal. of oil (231 cu. in., 210 usable).

*** Shipped with 2 gal. of oil.

∞ Not to be used for lifting.

† 115 volt, 60 Hz.

†† For 220/230 volt, 50/60 Hz. add suffix "- 220" (example PE302-220).

Electric Hydraulic Pumps

Pumps



PE55 Series

U.S. Patent No. 3,053,186



PED Series
Dual Flow

Vanguard® Pumps

Two-speed high performance. Forty years of reliability and constant improvement make Vanguard® pumps a mainstay worldwide. Some original pumps are still in service!

Designed for operating pressures to 10,000 psi. CSA rated for intermittent duty. High noise level of 90-95 dBA.

PE55 Series

Has 1½ hp, 12,000 rpm, 110/115 volt, 50/60 Hz universal motor; draws 25 amps at full load, starts at reduced voltage.

Internal relief valve preset at 10,000 psi, 2½ gallon metal reservoir. All have 10 foot remote motor control except PE552S which has a 25 foot remote motor and valve control.

For operating single-acting cylinders:

No. PE552—Has 9582 3-way/2-position valve for “advance” and “return”.

No. PE552S—Same as PE552 except has 9579 3-way /2-position solenoid operated valve.

No. PE552A—Same as PE552 except has an automatic “dump” valve. Not for lifting jobs.

No. PE553—Has 9520 3-way/3-position tandem center valve with “Posi-Check” for “advance”, “hold” and “return”. “Posi-Check” guards against pressure loss when shifting from “advance” to “hold” position.

For operating double-acting cylinders:

No. PE554—Has 9506 4-way/3-position tandem center valve with “Posi-Check” which guards against pressure loss when shifting from “advance” or “return” positions to “hold”.

No. PE554T—Same as PE554 except has 9500 4-way/3 position tandem center valve for “advance”, “hold” and “return” functions.

No. PE554PT—Same as PE554T, except has a 9628 valve for pre-stressing and post tensioning.

No. PE554S—Has 9592 3/4-way/2-position solenoid valve; holds pressure in the extend position with pump motor shut off.

For operating hydraulic crimping and cutting tools:

No. PE554C—Has 9511 4-way/3-position valve which allows alternate and independent operation of two different spring return tools. Holds pressure only while valve is in “A” or “B” port position with pump motor shut off.

PED25 Series

Have the same low pressure and high pressure flows from both valves. Flows and pressures of each pump are independent.

Both pumps deliver 300 cu. in./min. of oil @ 100 psi and 25 cu. in./min. @10,000 psi.

Have 1½ hp, 110/115 volt, 60 Hz universal motor, 10 foot remote control and 5 gallon steel reservoir.

For operating single-acting cylinders:

No. PED253—Has 9520 3-way/3-position tandem center valve with “Posi-Check”.

For operating double-acting cylinders:

No. PED254—Has 9506 4-way/3-position tandem center valve with “Posi-Check”.

No. PED254S—Same as PED254 except has 9512 4-way/3-position tandem center solenoid operated valve.

NOTE: PED25 Series pumps do not start under full load unless valve is in “neutral” (requires open or tandem center valve) and are not recommended for frequent starting and stopping.

See pages 66-79 for details on valves supplied with pumps.

Accessories

All pumps can be equipped with remote control foot switch, larger reservoirs, pressure gauges, etc. See pages 80 thru 90 for hydraulic accessories.

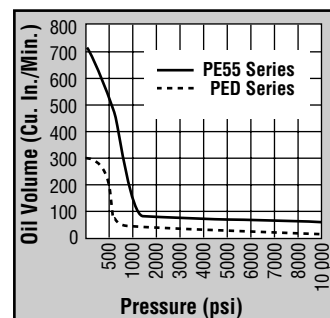
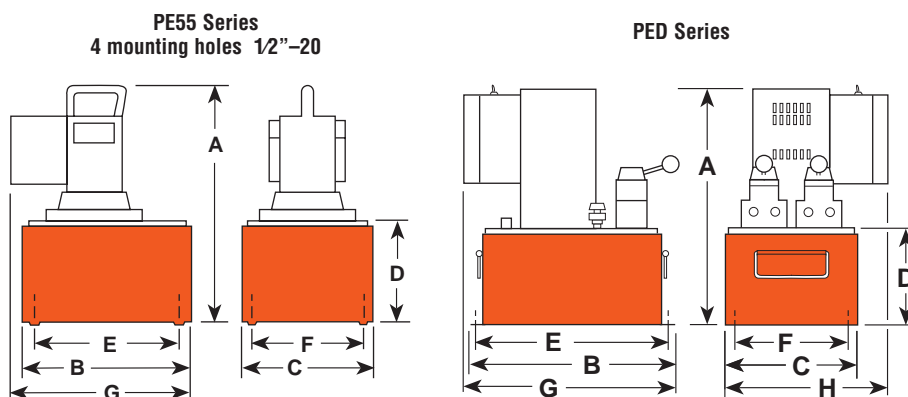


“Assemble to Order” System

There are times when a custom pump is required. Power Team’s “Assemble to Order” system allows you to choose from a wide range of pre-engineered, off-the-shelf components to build a customized pump to fit specific requirements. By selecting standard components you get a “customized” pump without “customized” prices. All pumps come fully assembled, less oil and ready for work. See pages 56-59.

Vanguard® Pumps

PERFORMANCE



The performance curve above indicates the oil delivery at various pressure levels.

SPECIFICATIONS AND DIMENSIONS


Pump No.	rpm	Maximum Pressure Output	dBA at Idle and 10,000 psi	Amp Draw at 10,000 psi (115 V.)**	Oil Delivery (cu. in./min. @)				Dimensions (in.)								Product Weight With Oil (lbs.)
					100 psi	700 psi	5,000 psi	10,000 psi	A	B	C	D	E	F	G	H	
PE55 Series	12,000	10,000 psi	90/95*	25	704	440	74	56	18.25	11.50	9.50	7.00	10.00	8.00	14.00	—	65
PED Series	3,450		80/85*	22	300	40	35	25	20.75	18.00	11.50	8.50	16.50	9.00	18.00	13.00	170

* Noise level reading (dBA) measured at a 3 ft. distance, all sides.

** Amp draw at 10,000 psi, 230 Volts 50/60 Hz is 15 Amps.

ORDERING INFORMATION

See current price list for shipping weights.

For Use With	Order No. ***	Valve			Control Switch ††	Motor	Reservoir	
		Type	No.	Function			Cap.	Usable
Single-Acting Cylinders	PE552	3-Way	9582	Advance Return **	Remote Motor	1½ hp *, 110/115 VAC, 50/60 Hz, Single Phase	2.50 gal.	525 cu. in.
	PE552S		9579		Remote Motor & Valve			
	PE552A ∞	Auto/Dump	9610	Advance Return	Remote Motor			
	PE553	3-Way †	9520	Advance Hold Return				
	PED253							
 Double-Acting Cylinders	PE554	4-Way †	9506	Advance Hold Return	Remote Motor	1½ hp *, 110/115 VAC, 50/60 Hz, Single Phase	2.50 gal.	525 cu. in.
	PE554T	4-Way	9500					
	PE554PT		9628					
	PE554C		9511					
	PE554S	3/4-Way	9592		Remote Motor & Valve			
	PED254	4-Way †	9506	Remote Motor	1½ hp, 115/230 VAC, 60 Hz, Single Phase	5 gal.	1,000 cu. in.	
	PED254S		9512	Remote Valve				

* Pumps available with 230 volt, 60/50 Hz motors. Specify voltage when ordering. See “Assemble to Order” pump options on pages 56-59.

** Holds with motor shut off.

*** To order PE55 series pumps with CSA approval, add “-C” to the Order No.

† Valves have “Posi-Check” feature.

†† Control switch wired with line voltage. All remotes are 10 ft. long except for PE552S which is 25 ft. long.

∞ Not to be used for lifting.



Vanguard® Supreme® High Performance Pumps

Designed especially for pre-stressing and post tensioning applications, these PE60 series pumps are listed on pages 105-106.

Electric Hydraulic Pumps

Pumps



1
PE55A
PE55B
PE90A
PE90B

The "Assemble to Order" System

Order a "custom built" hydraulic pump

"Assemble to Order" means you can choose a basic pump with gas, air or electric motor. Then select the proper valve, gauge, pressure control, motor control and reservoir. You get a two-stage pump that gives high oil volume for fast cylinder approach (and return with double-acting cylinders) in the first stage and high pressure in the second stage.



2
PE55C
PE55D
PE55F
PE90C
PE90D
PE90F



3
PE120M



4
PA55A
PA90A



5
PG55A

1 1½ hp universal motor

These motors start under full load and are suitable for operation up to 5,000 or 10,000 psi. The motor is 1½ hp, 12,000 rpm, 115 or 230 volt (specify), 50/60 cycle A.C. sgl. phase (25 amp draw at 115V.). With proper valve they can be used with single- or double-acting cylinders. Remote control available.

2 1½ hp jet motor, single & three phase

Feature low noise level, moderate speed for long service and are ideal for fixed applications. Motor is 1½ hp, 3,450 rpm, 115 or 230 volt, 50 or 60 cycle (specify), A.C. sgl. phase with thermal overload switch. Can be used with single- or double-acting cylinders and equipped with remote control. Also available in 230/460 volt, three phase (specify).

NOTE: These do not start under full load unless valve is in "neutral" (requires open or tandem center valve) and are not recommended for frequent starting and stopping.

3 3 hp jet motor, three phase

Gives low noise level and long life due to its moderate operating speed. Ideal for fixed installations. Consists of basic 10,000 psi pump, jet pump motor: 3 hp, 3,450 rpm, 230/460 volt, 60 or 50 cycle (specify). A.C. three phase, with thermal overload switch. Equipped with internal and external relief valve. Will start under load.

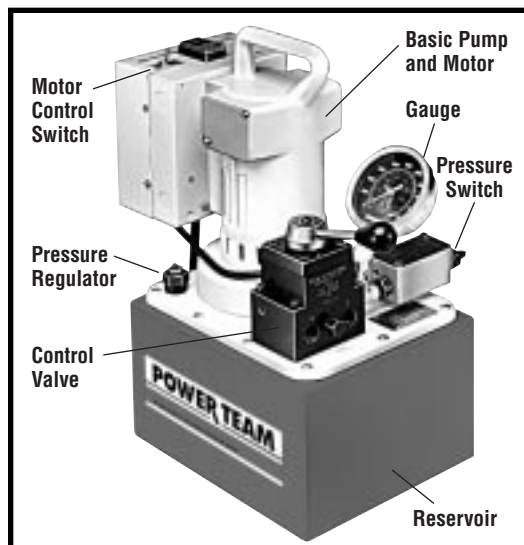
4 3 H.P. air motor

This pump is ideal for use where electricity is unavailable or cannot be used. The 5,000 or 10,000 psi pump has a 3 hp air driven motor at 3,000 rpm (optimum performance based on 80 psi air pressure and 50 cfm at the pump). You can drive single- or double- acting cylinders with the correct valve.

NOTE: 80 psi air supply required to start under full load.

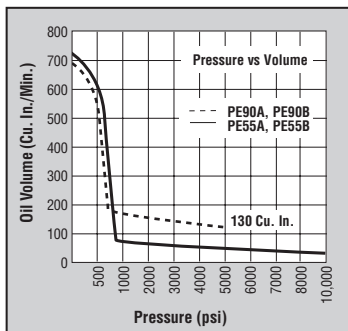
5 Gasoline engine

This version is perfect when electricity and air are unavailable. It is capable of continuous operation at full pressure. Consists of basic 10,000 psi pump, 4-cycle Briggs & Stratton gasoline engine, developing 4 hp at 3,600 rpm. As with all these pumps, this unit can be valved for use with either single- or double-acting cylinders.



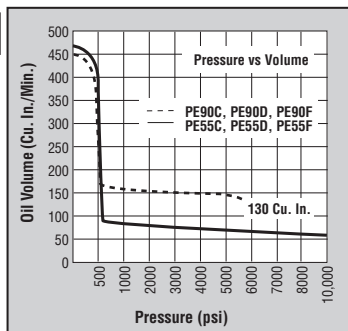
PERFORMANCE

1



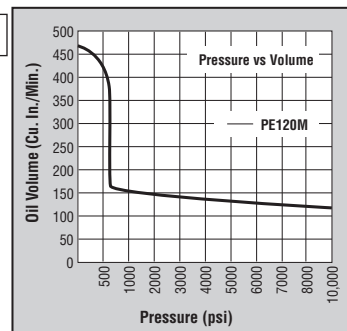
dBA @ idle and 10,000 psi – 90/95
dBA @ idle and 5,000 psi – 90/95

2



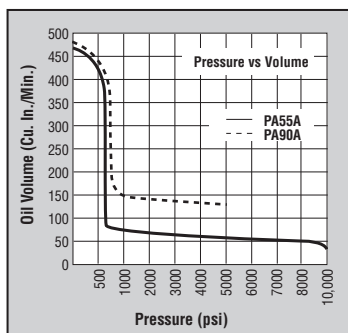
dBA @ idle and 10,000 psi – 80/85

3



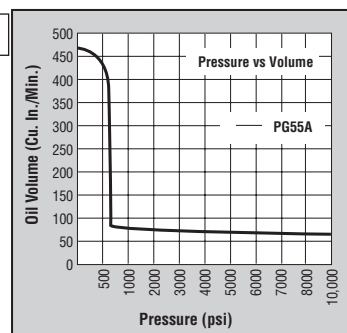
dBA @ idle and 10,000 psi – 80/85

4



dBA @ idle and 10,000 psi – 83/88
dBA @ idle and 5,000 psi – 83/88

5

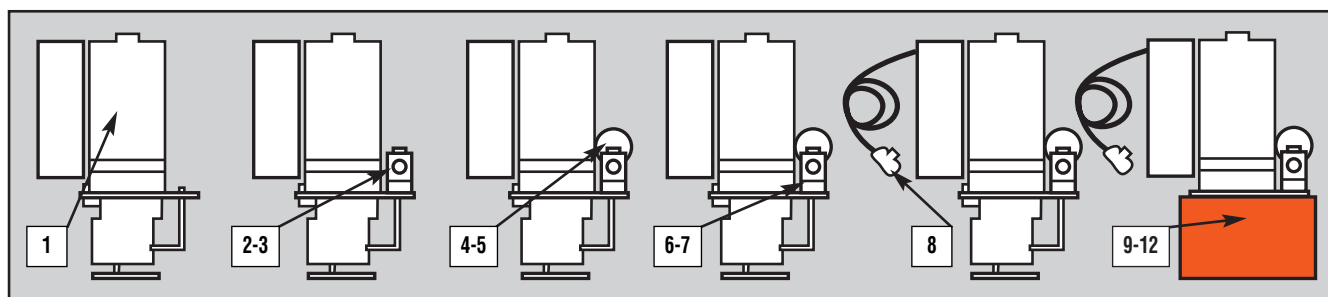


“Assemble to Order” System

How to order your “Custom” hydraulic pump. . .

You can choose from pre-engineered, off-the-shelf components to customize your pump. All the components are listed in table form, with key letters or numbers. on pages 58

and 59. Complete instructions guide you through so you can determine what is needed to complete a pump assembly. Shown below is an example of a custom-built pump.



1	2-3	4-5	6-7	8	9-12
Basic Pump	Valve & Valve Control	Gauge & Gauge Accessories	Pressure Control & Switch	Motor Control	Reservoir, Level/Temp Gauge, Casters, Oil
PE55A-	VV-Z-	G-A-	A-A-	A-	D-BB-C-2F

Pump No. PE55A-VV-Z-G-A-A-A-D-BB-C-2F is a 10,000 psi 2-speed pump with a 115 volt, 50-60Hz, single phase, 1½ hp, 12,000 rpm motor; a 9512 4-way solenoid valve with a 202778 remote hand control, a 9041 pressure gauge, no gauge accessories, standard pressure control,

standard On-Off-Pulse motor control, 400630R9 2-gallon reservoir, a 350431 oil level/temperature gauge, 10494 casters, and 2 gallons of standard hydraulic oil.

See next two pages for pump components

"Assemble to Order" Pump Component Specification Chart

To build your pump, fill in key letters from charts

1 Basic Pump	2 Select Valve	3 Select Valve Control	4 Select Gauge	5 Select Gauge Accessories	6 Pressure Control
7 Pressure Switch	8 Motor Control	9 Reservoir	10 Level/Temp Gauge	11 Choose Casters	12 Select Oil

Use the charts numbered from 1-12 below to select the pump, valve, gauge and other miscellaneous accessories to suit your needs. For the pump, fill in the basic number plus key letter in block 1 above and the key

letter only in the blocks 2-12 above for any of the other items. Refer to the appropriate pages in this catalog for more specific information on the products you need.

1 BASIC PUMP (See pages 56 & 57)

BASIC PUMP NUMBERS						SPECIFICATIONS		
PE55	PE90	PE120	PA55	PA90	PG55	NOTE: Customer must specify voltage required.		
10,000 psi	5,000 psi	10,000 psi	10,000 psi	5,000 psi	10,000 psi	Power Source	rpm	hp
A or AC*	A or AC*					115V-60 Hz, 1Ø 110V-50 Hz, 1Ø	12,000	1½
B or BC*	B or BC*					230V-60 Hz, 1Ø 220V-50 Hz, 1Ø		
† C or CC*	† C or CC*					115V-60 Hz, 1Ø	3,450	1½
† C50	† C50					110V-50 Hz, 1Ø	2,850	
† D or DC*	† D or DC*					230V-60 Hz, 1Ø	3,450	
† D50	† D50					220V-50 Hz, 1Ø	2,850	
† F60 **	† F60 **					208, 230/460V-60 Hz, 3Ø	3,450	
† F50 **	† F50 **					220/380V-50 Hz, 3Ø	2,850	3
		M60 **				208, 230/460V-60 Hz, 3Ø	3,450	
		M50 **				220/380V-50 Hz, 3Ø	2,850	
			A	A		Air Motor	3,000	4
					A	Gas Engine	3,600	

* Suffixes AC, BC, CC & DC indicate pumps for Canadian orders only.

NOTE: All electric units have 24 volt secondary circuit.

**Specify voltage required.

† These pumps do not start under full load unless valve is in "neutral" position (requires open or tandem center valve) and are not recommended for frequent starting and stopping.

2 VALVE (See pages 66-79)

Manifold/Manual/Air Operated Directional Valves			Function	Manifold/Manual/Air Operated Directional Valves			Function
AB	9628 manual, tandem center		4-way, 3 pos. valves	O	9609 manual, pressure compensated flow control		3-way, 4 pos.
AC	9632 manual "twin" tandem and open center			R	9506 manual, tandem center "Posi-Check"		4-way, 3 pos. valves
A	None		—	RR	9511 manual, open center		
B	9626 manifold		Manifold	S	9500 manual, tandem center		
C	9584 manual		3-way,	T	9507 manual, closed center "Posi-Check"		
D	9582 manual		2 pos. valves	U	9501 manual, closed center		
E	9610 automatic, pilot operated			Solenoid Operated Directional Valves			
G	9504 manual		3/4-way,	FF	9569 solenoid operated - 24 volt		3-way, 2 pos.
JJ	9594 air operated		2 pos. valves	HH	9572 solenoid operated - 24 volt		3/4-way, 2 pos.
L	9502 manual, closed center "non-interflow"		3-way,	PP	9599 solenoid operated - 24 volt		3-way, 3 pos.
M	9520 manual, tandem center "Posi-Check"		3 pos. valves	VV	9512 solenoid operated - 24 volt		4-way,
N	9576 manual, metering tandem center			WW	9615 solenoid operated - 24 volt		3 pos. valves

3 VALVE CONTROL (See page 89)

Valve Remote Control		Use with Valve	Valve Remote Control		Use with Valve
A	None	—	Z	202778 remote hand control, 10 ft.	9512 or 9615
X	304718 remote hand control, 10 ft.	9572	ZF	309653 remote foot control, 10 ft.	9512, 9615,
XF	309652 remote foot control, 10 ft.	9572			9569 or 9599
Y	202777 remote hand control, 10 ft.	9569 or 9599	ZZ	209593 remote hand control, 12 ft.	9594

“Assemble to Order” Pump Component Specification Chart

4 GAUGE (See page 84)

Pressure Gauges	
A	None
B	Other – Specify
G	9041 0-10,000 psi – 0-689 Bar (2.50" dia.)
H	9040 0-10,000 psi – 0-689 Bar (Liquid) (2.50" dia.)
J	9051 0-10,000 psi – 0-689 Bar (4.00" dia.)
K	9087 0-6,000 psi (4.00" dia.)
M	9052 0-10,000 psi – 0-689 Bar (Liquid) (4.00" dia.)

6 PRESSURE CONTROL (See page 79)

NOTE: Pressure controls are factory pre-set at 10,000 psi unless otherwise specified.

Pressure Controls	
A	With standard external pressure regulator
C	Other – specify
D	350199 premium external pressure regulator. See Power Team Catalog product No. 9633 for details.

8 MOTOR CONTROL (See page 89)

Electric Motor Controls	
A	Standard On/Off/Pulse control (does not include remote switch) for A, B, C, D, F and M electric pumps. Also used for remote controlled solenoid valves.
B	None
C	25017 remote motor hand switch, 10 ft.
D	203225 remote motor hand switch, 10 ft. (heavy duty)
E	10461 remote motor foot switch, 10 ft.
Air Motor Controls	
AA	Other
B	None
P	27876 hand motor control (for PA55 & PA90 series)
Q	27877 foot motor control (for PA55 & PA90 series)

10 OIL LEVEL/TEMPERATURE GAUGE (See page 90)

Oil Level/Temperature Gauge	
A	None
BB	350431 oil level/temperature gauge

11 CASTERS (See page 90)

Casters	
A	None
C	10494 caster for use with 400630R9 reservoir (Specify quantity of four)

5 GAUGE ACCESSORY (See page 84)

Gauge Accessories	
A	None
N	9049 pulsation dampener – All dry gauges

7 PRESSURE SWITCH (See page 81)

Pressure Switch	
A	None
B	9625 electric pressure switch (500-10,000 psi) NOTE: Pressure switch is factory pre-set at 10,000 psi unless otherwise specified.
C	9641 pilot operated air control valve – N.C.
D	9643 pilot operated air control valve – N.O.

9 RESERVOIR (See page 90)

Reservoirs	Capacity
A	None
B	Other – Specify
D	400630R9 – PE55, PE90, PE120, PA55 and PA90 series
E	61165† – PE55, PE90, PE120, PA55 and PA90 series (Oil temperatures in excess of 150° F. may cause permanent failure of the thermoplastic reservoir)
F	RP22‡ – PE55, PE90, PE120, PA55 and PA90 series
H	617990R9 Same as D except with drain port
J	RP50 – PE55, PE90, PE120, PA55 and PA90 series
K	401370R9 – PG55 series
P	209124 – PE55, PE90, PE120, PA55 and PA90 series
V	RP100 – PE55, PE90, PE120, PA55 and PA90 series
W	RP101 – PG55 series

NOTE: Includes cover adapter and misc. accessories when applicable.

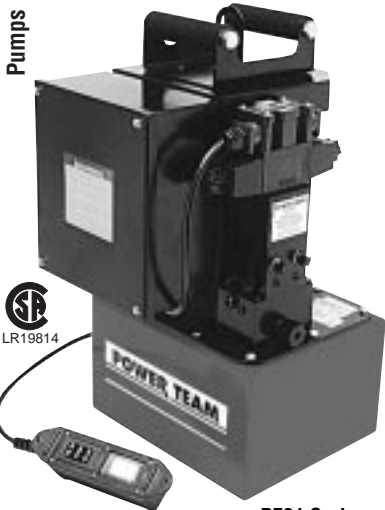
† High density polyethylene.

‡ Aluminum.

12 OIL (See page 88)

Oil	
E	Ship pump without oil
F	9637 1 gal. standard hydraulic oil
G	9638 2.50 gal. standard hydraulic oil
Q	9639 1 gal. Flame-Out hydraulic oil
R	9640 2.50 gal. Flame-Out hydraulic oil
U	9645 1 gal. biodegradable hydraulic oil
V	9646 2.50 gal. biodegradable hydraulic oil

NOTE: Select type of hydraulic oil and specify quantity.



PE21 Series



U.S. Patent No. 3,992,131



PQ60 Series

Quiet Pumps

For operating single- or double-acting cylinders. Two-speed, high performance pumps are ideal for heavy duty, extended cycle operation at operating pressures to 10,000 psi.

Pumps operate below maximum OSHA noise limitation.

Start and operate under full load, even with voltage reduced 10%.

Electrical shut-down feature prevents unintentional restarting of motor following an electrical service interruption.

Internal relief valve limits pressure to 10,000 psi. External relief valve is adjustable from 1,000 to 10,000 psi.

Custom designed press is used to straighten parts after machining because of variances in the stock received from the mills.

A Power Team C106C 10 ton cylinder is powered by a "Quiet" pump. A 9576 metering valve provides the required precise control of the cylinder to .001" tolerance for "advance", "hold" and "return" positions.

PE21 Series

Totally enclosed, fan cooled induction motor: 1 hp, 1,725 rpm, 60 Hz, single phase. Thermal overload protection.

Remote controls with 10 foot cord are on pumps with solenoid valves only. Manual valve pumps have "Stop", "Start" and "Run/Off/Pulse" switches. Pump controls are moisture and dust resistant. Electrical controls comply with new NEMA 12 standards.

"Posi-Check" valve provides positive load holding.

All metal unit has motor drip cover with carrying handles and lifting lug.

"PQ" Series

Available in 2 hp (single phase) or 3 hp (3 phase) motor versions with thermal overload protection. Motor starter and heater element supplied as standard equipment; no hidden charges!

Metal shroud keeps dirt and moisture out of motor and electrical components.

"Posi-Check" feature means load won't drop when shifting from "advance" to "hold", making pump ideal for fixed applications and longer operational cycles.

NOTE: A range of valve options is available to suit your application. See "Ordering Information" on following page to review the full "Quiet" pump selection.

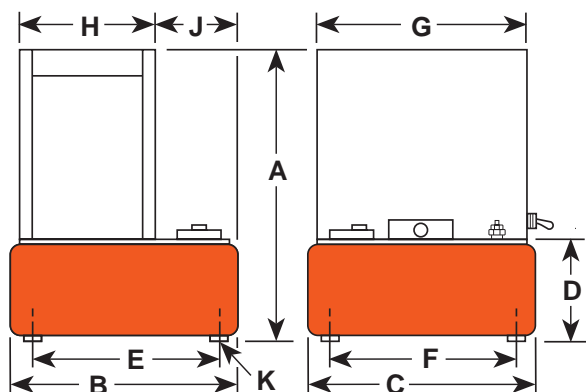
5 and 10 gallon reservoirs

For extra oil capacity there is available a 5 and 10-gallon reservoir for the PE series pumps and a 10-gallon reservoir for the PQ series pumps.

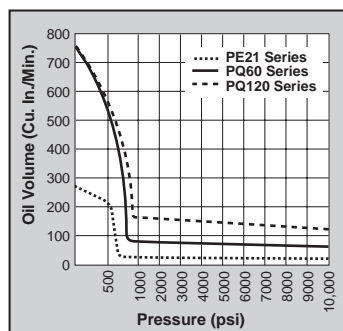
See pages 80 thru 90 for hydraulic accessories.



"Quiet" Pumps



PERFORMANCE



SPECIFICATIONS AND DIMENSIONS

Pump No.	Max. Press. Output	rpm	dBA at Idle and 10,000 psi	Amp Draw at 10,000 psi	Oil Delivery (cu. in./min. @)				Dimensions (in.)									Prod. Wt. w/Oil (lbs.)
					100 psi	1,000 psi	5,000 psi	10,000 psi	A	B	C	D	E	F	G	H	J	
PE21 Series			70 *	See Chart Below	270	29	27	22	21.38	11.50	9.50	6.50	10.00	8.00	14.13	9.50	3.25	98 †
PQ60 Series	10,000 psi	1,725	74/76 *		730	70	65	60	25.13	14.25	15.50	7.25	12.13	13.31	4.69	9.31	4.81	1/2 -20 UNF
PQ120 Series			73/78 *			160	130	120										

* Measured at a 3 ft. distance, all sides.

** Total weight with oil and 3-way solenoid valve. Subtract 10 lbs. to obtain weight of pump with manual valve.

*** For 2.00" dia. swivel casters, order (4) No. 10494.

† Shipping weight with manual valve; add 14 lbs. for pump with solenoid valve.

ORDERING INFORMATION‡

See current price list for shipping weights.

For Use With	Order No.	Valve		Function	Reservoir		Motor
		Type	No.		Cap.	Usable	
Single-Acting Cylinders	PE213	3-Way	9520*	Advance Hold Return	2.50 gal.	590 cu. in.	1 hp 115/230 Volt 60 Hz ††, Single Phase
	PE213S		9599†				
Double-Acting Cylinders	PE214	4-Way	9506*				
	PE214S		9512†				
Single-Acting Cylinders	PQ603	3-Way	9520*		5.70 gal.	1,250 cu. in.	2 hp 230 Volt 60Hz ††, Single Phase
	PQ603S		9599†				
Double-Acting Cylinders	PQ604	4-Way	9506*				
	PQ604S		9512†				
Single-Acting Cylinders	PQ1203	3-Way	9520*				3 hp 460 Volt 60Hz ††, 3 Phase
	PQ1203S		9599†				
Double-Acting Cylinders	PQ1204	4-Way	9506*				
	PQ1204S		9512†				

	Max. Amp Draw @ 10,000 psi	Max. dBA @ 10,000 psi
PE21 Series	(115V)–15 amps (230V)–7.5 amps	70
PQ60 Series	(115V)–22 amps (230V)–11 amps	76
PQ120 Series	(230V)–10.5 amps (460V)–5.3 amps	78

* Manual valve. Pump is equipped with RUN/OFF/PULSE switch for control of motor.

† Solenoid valve. Pump is equipped with a remote control switch with 10 ft. cord.

†† Prewired at factory for this voltage. PE21 series available in 230V 60Hz or 220V 50Hz. Please specify when ordering. Example: for 60Hz order PE213-230; for 50Hz order PE213-50-220.

‡ Some Power Team pumps are available in special configurations not listed in this catalog. Power Team can "Assemble to Order" pumps with special seals, voltages, valves, relief valve settings, etc. For your special requirements please consult your local distributor or the Power Team factory.

PQ60 series available in 115V 60Hz or 220V 50Hz. Please specify when ordering. Example: for 60Hz order PQ603-115; for 50Hz order PQ603-50-220.

PQ120 series available in 230V 60Hz or 220/380V 50Hz. Please specify when ordering. Example: for 60Hz order PQ1204S-230; for 50Hz order PQ1204S-50-220 or PQ1204S-50-380.

PQ120 series also available in 575V 60Hz. Consult the factory.

Electric Hydraulic Pumps

Pumps

U.S. Patent No.
4,105,369



PE2004

NOTE: Casters
are included as
standard equip-
ment.



PE2004S

Dual Voltage Motor
Pre-wired for 460 volt service —
consult factory for 230 volt unit.

Two Speed, High Flow Pumps

Deliver up to 5 gpm of oil per minute. Ideal for powering high tonnage double-acting cylinders, either singly or in multiple cylinder applications. For operating pressures to 10,000 psi.

Low noise level of 73-78 dBA.

Integral electrical shut-down feature prevents unintentional restarting of motor following an electrical service interruption. Over-current protection prevents damage to motor as a result of overheating.

“Stop” and “Start” control buttons are 24 volt. The PE2004 and PE4004 have a 4-way/3-position manual valve. The PE2004S and PE4004S have a 4-way/3-position solenoid valve with a 24 volt remote hand switch.

Valves feature “Posi-Check” which holds the load when shifting from “advance” or “return” to “hold” position. External pressure relief valve is adjustable from 1,500 to 10,000 psi.

Heavy duty 4.00" dia. casters assure easy maneuvering.

20 gallon (3,927 cu. in. usable) reservoir has a low oil level sight gauge.

PE2004 and PE2004S

Powered by a dual voltage 7½ hp, 3 phase, 1,725 rpm motor.

Deliver 1,200 cu. in./min. of oil @ 200 psi, 200 cu. in./min. of oil @ 10,000 psi.

PE4004 and PE4004S

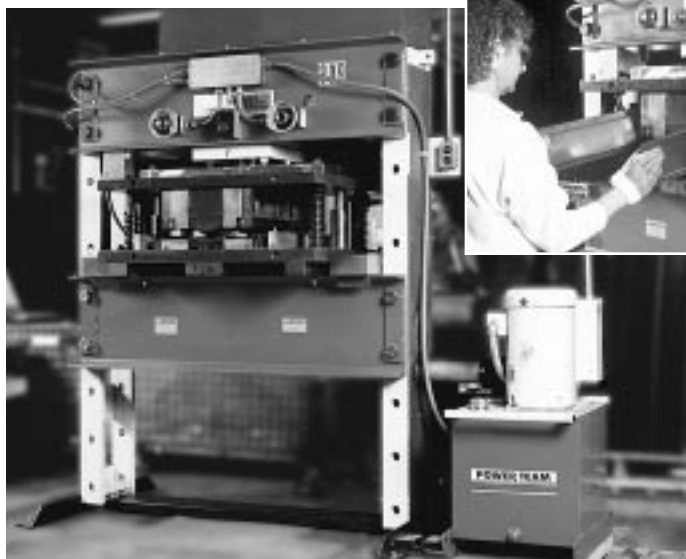
Powered by a dual voltage 10 hp, 3 phase, 1,725 rpm motor.

Deliver 1,200 cu. in./min. of oil @ 200 psi, 420 cu. in./min. of oil @ 10,000 psi.

Motor controls

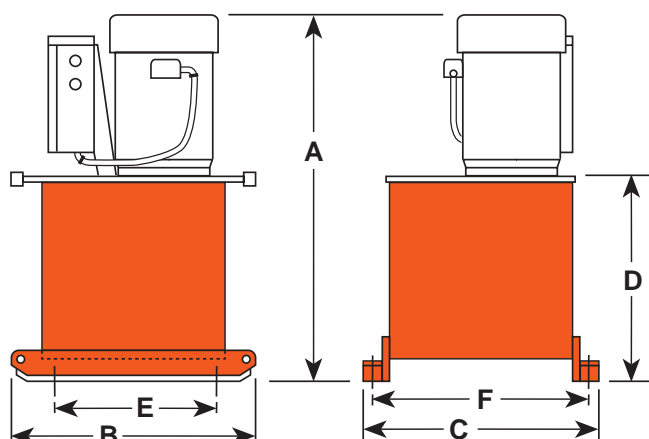
The PE200 and PE400 series pumps are equipped with a 24 volt start and stop button on the control panel. These buttons are used during routine operation to restart the pump following a power failure.

See pages 80 thru 90 for hydraulic accessories.



A manufacturer of office furniture uses a Power Team SPE10013DS hydraulic press powered by a PE4004S pump, and equipped with a custom fixture.

The application shown involves making a critical bend in a drawer part for file cabinets. Converting from the mechanical press formerly used for the operation has resulted in a \$20,000 per year saving.



Oil level sight gauge

This feature enables the operator to quickly determine hydraulic oil level in the reservoir.



SPECIFICATIONS AND DIMENSIONS

Pump No.	Maximum Pressure Output	rpm	dBA at Idle and 10,000 psi	Amp Draw at 10,000 psi	Oil Delivery (cu. in./min.@)				Dimensions (in.)						Prod. Wt. w/Oil (lbs.)*
					200 psi	1,200 psi	5,000 psi	10,000 psi	A*	B	C	D	E Caster Mtg.	F Caster Mtg.	
PE2004	10,000 psi	1,725	74/79	22 @ 230 V.	1,200	1,050	230	200	36.38	25.00	24.00	21.25	15.50	21.50	472
PE2004S				11 @ 460 V.											486
PE4004			73/80	34 @ 230 V.			450	420							492
PE4004S				17 @ 460 V.											506

* Add 5.00" and 8 lbs. when casters are mounted. (Units are supplied with four 4.00" dia. swivel casters.)

ORDERING INFORMATION

See current price list for shipping weights.

For Use With	Order No.	Valve			Reservoir		Motor ††
		Type	No.	Function	Cap.	Usable	
Double-Acting Cylinders	• PE2004	4-Way	9506	Advance Hold Return	20 gal.	3,927 cu. in.†	7½ hp 230/460 volt* 60 Hz, 3 Phase
	• PE2004S		9512**				
	PE4004		9506				10 hp 208/230/460 volt* 60 Hz, 3 Phase
	PE4004S		9512**				

• Product to be discontinued when existing stocks are depleted.

* Factory wired for this voltage. For 230V, 60Hz order PE2004-230 or PE4004S-230.

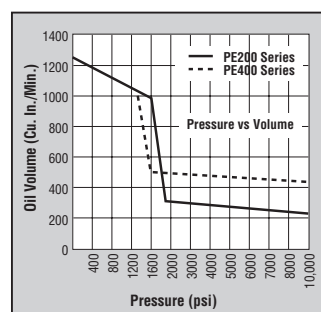
** Solenoid valve with remote control.

† Usable oil is calculated with oil fill at recommended level at 2.25" below cover plate.

†† PE200 series available in 220/380V, 50Hz. PE400 series available in 220/380V, 50Hz and 575V, 60Hz. Please specify when ordering. Example: PE2004S-50-220 or PE2004-50-380; PE4004-50-380 or PE4004-575.

NOTE: Valves for spring return cylinders are available upon request. Consult the factory.

PERFORMANCE



The performance curve indicates the oil delivery at various pressure levels for the PE200 and PE400 series pumps.

Gasoline Engine

Hydraulic

Pumps

Pumps



PG1204S



PG303
PG304



PG55 Series

Ideal for construction, structure moving and rigging applications.

A logical choice at work sites where electricity or compressed air are unavailable. For single- or double-acting cylinders at operating pressures to 10,000 psi.

All gasoline engine/hydraulic pumps feature "Posi-Check" valve to guard against pressure loss when valve is shifted from "advance" to "hold".

PG303 and PG304

Powered by a 2-cycle, 2 hp Tecumseh engine. Has an aluminum reservoir with 375 cu. in. of usable oil, making pumps suitable for cylinders of 100 tons or more.

PG303 is for single-acting cylinders, has a 9520 valve with separate internal return line; allows oil from running pump to return to reservoir, independently of cylinder return oil, when valve is in "return" position.

PG304 is for double-acting cylinders, has a 9506 4-way (tandem center) valve.

PG553 and PG554

Powered by a 4 hp, 4-cycle Briggs & Stratton engine. Has a 5 gallon reservoir.

PG553 has a 9520 3-way valve for single-acting cylinders.

PG554 has a 9506 4-way valve for double-acting cylinders.

High output Hydraulic Power Packages (PG120 series)

Powered by a Honda 4-cycle, 5.5 hp engine with automatic decompression and electronic ignition. Deliver over ½ gallon (130 cu. in.) of oil at 10,000 psi. A 5 gallon reservoir means adequate capacity for multi-cylinder applications. Dual element air cleaner protects engine from dusty environments.

Heavy duty "roll cage" provides pick-up points for lifting. Horizontal bars on PG1203, PG1204 and PG1204S protect unit, provide hand holds for carrying. Rubber anti-skid insulation on bottom of reservoir resists skidding, dampens vibration. PG1200M-4 and PG1200M-4D include a pump cart with 12.00" wheels.

Adjustable external pressure regulator is featured.

PG1203, PG1204 and PG1204S

PG1203 has 9520 3-way/3-position (tandem center) valve for single-acting cylinders. PG1204 has a 9506 4-way/3-position (tandem center) valve for double-acting cylinders. PG1204S has a 9516 4-way solenoid valve with 25 foot remote control cord, and is for double-acting cylinders.

PG1200M-4

For single-acting cylinders. Has 9520 3-way/3-position (tandem center) valve, 9596 load lowering valve and 9644 4-port manifold with individual needle valves at each port.

Has a 9796 coupler and 9797 dust cap at each port. Valving permits precise individual control of up to four cylinders.

A 9052 heavy duty, fluid filled pressure gauge (0-10,000 psi) is included.

PG1200M-4D and PG120HM

For single- or double-acting cylinders with precise individual control of up to four cylinders possible. Equipped same as PG1200M-4, except has 9506 4-way/3-position (tandem center) valve, and second 4-port manifold without needle valves mounted beneath 9644 manifold for operating double-acting cylinders.

PG120HM has same functional features, but without "roll cage" and cart. A compact unit developed especially for the house mover industry.

PG4004 Maximum output Hydraulic Power Package

Ideal for single or multiple cylinder applications. Has a 4-cycle, 18 hp Briggs & Stratton engine and 20 gallon reservoir (17 gallons usable) with low oil level sight gauge. Steel "roll cage" protects pump, has a lifting hook; 4.00" dia. swivel casters provide mobility.

Delivers 400 cu. in. of oil at maximum operating pressure.

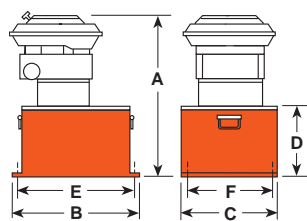
Has a 9506 4-way valve. On/off switch and speed control are protected by a panel. Sturdy molded case protects battery (not included).



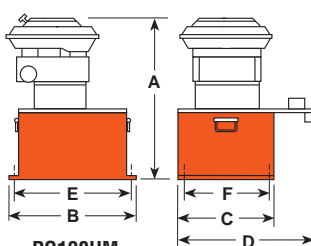
PG1200M-4D



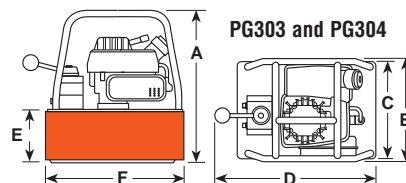
PG4004



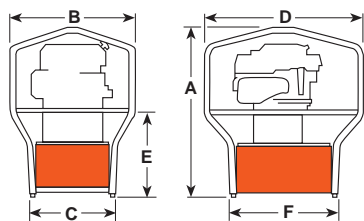
PG553 and PG554



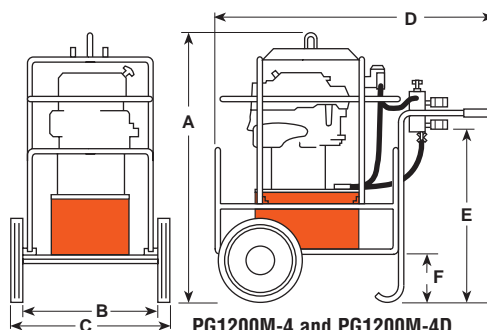
PG120HM



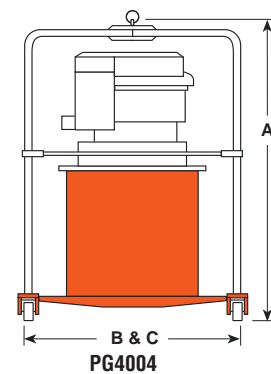
PG303 and PG304



PG1203, PG1204,
PG1204S



PG1200M-4 and PG1200M-4D



PG4004

Pumps

SPECIFICATIONS AND DIMENSIONS

Pump No.	rpm	Maximum Pressure Output	Oil Delivery (cu. in./min.@)				Dimensions (in.)						Prod. Wt. With Oil (lbs.)
			100 psi	1,000 psi	5,000 psi	10,000 psi	A	B	C	D	E	F	
PG303, PG304	6,000	10,000 psi	275*	40	35	30	14.00	10.50	9.50	16.00	5.25	13.50	32
PG553, PG554	3,600		480	75	70	55	20.75	18.00	12.50	8.63	16.63	9.00	120
PG120HM				175	150	130	23.00	15.50	14.25	19.00	13.31	12.13	150
PG1203,PG1204							27.88	20.25		26.25	13.50	18.25	154
PG1204S							42.13	18.00		42.50	26.25	7.25	161
PG1200M-4													260
PG1200M-4D													280
PG4004			1,240	1,120	475	400	50.25	39.50	52.00	—	—	—	435
PG4004S													440

* First stage oil delivery from 0-400 psi @ 230 cu. in. per minute minimum.

ORDERING INFORMATION

See current price list for shipping weights.

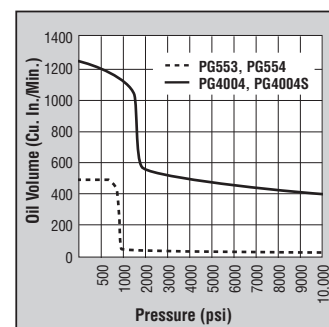
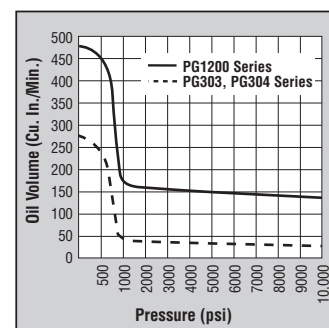
For Use With	Order No.	Valve		Function	Reservoir		hp	Cycle
		Type	No.		Capacity	Usable		
Single-Acting Cyl.	PG303	3-Way	9520	Advance Hold Return	2 gal.	375 cu. in.	2	2
Double-Acting Cyl.	PG304	4-Way	9506					
Single-Acting Cyl.	PG553	3-Way	9520		5.7 gal.	1,300 cu. in.**	4	4
Double-Acting Cyl.	PG554	4-Way	9506					
Single-Acting Cyl.	PG1203	3-Way	9520					
Double-Acting Cyl.	PG1204	4-Way	9506					
	PG1204S	4-Way Solenoid***	9516					
Single- & Double-Acting Cyl.	PG120HM	4-Way Manifold	9506 9642	Advance Hold Return (Control up to 4 cylinders independently)		1,300 cu. in.	5.5	
Single-Acting Cyl.	PG1200M-4	3-Way Manifold	9520 9644					
Double-Acting Cyl.	PG1200M-4D	4-Way Manifold	9506 9644					
	PG4004	4-Way	9506	Advance Hold Return	20 gal.	3,927 cu. in.*	18	
	NEW PG4004S	4-Way Solenoid***	9516					

* Usable oil is calculated with oil fill at recommended level at 2.25" below cover plate.

** Usable oil is calculated with oil fill at recommended level at .50" below cover plate.

*** Has 25 ft. remote control cord.

PERFORMANCE



STEP 1: SELECT THE HYDRAULIC CYLINDER THAT BEST SUITS THE JOB.
(SEE PAGES 4-27)

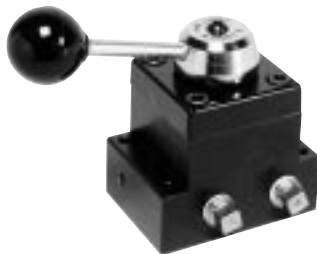
STEP 2: SELECT THE HYDRAULIC PUMP YOU WILL NEED.
(SEE PAGES 28-65)

STEP 3: CHOOSE THE RIGHT HYDRAULIC VALVE OPTIONS.

STEP 4: SELECT THE HYDRAULIC ACCESSORIES YOU NEED.
(SEE PAGES 80-90)

Hydraulic Valves

Valves control fluid flow direction, pressure or flow rate. Power Team provides a very wide variety of valve options which will enable you to tailor the hydraulic pump of your choice to perform the specific functions you require.



Considerations:

- 1 Will the valve be used for **single-** or **double-acting** cylinders?
- 2 Should the valve be **mounted on the pump, away from the pump** or **directly into the lines** of the hydraulic system?
- 3 Should the valve be manually-operated, or is remote control preferred?
- 4 Is **independent control** of several cylinders (or hydraulic tools) required?
- 5 What **directional control** and **pressure control** valve **functions** are needed for the application?

Directional Control Valves

Basic types include manually operated, air or solenoid operated and pilot operated. Special application valves for pre-stressing and post tensioning are also offered. Consult selection chart on page 68 for listing of all Power Team valves.

2-way, 2-position (For control of single-acting cylinders):

Pos. 1. Oil goes from pump to cylinder; pressure is held from valve to cylinder when pump is shut off.



Pos. 2. Oil returns to reservoir, cylinder retracts.



3-way, 2-position (For control of single-acting cylinders):

Pos. 1. Oil goes from pump to cylinder and holds when pump is shut off. Return line to reservoir is blocked.



Pos. 2. Cylinder retracts, oil returns to reservoir.



3-way, 3-position (For control of single-acting cylinders):

Pos. 1. Oil goes from pump to cylinder and holds when pump is shut off. Return line to reservoir is blocked.



Pos. 2. All oil is open to reservoir through return line.



Center Pos. Cylinder pressure is held; pump can remain running and oil returns to reservoir.



3/4-way, 2-position (For control of single- or double-acting cylinders):

Pos. 1. Oil goes to the "extend" side of the cylinder. The oil from the "retract" side returns to reservoir. Cylinder holds with pump shut off.



Pos. 2. Oil goes to the "retract" side of the cylinder, oil from the "extend" side returns to reservoir.



4-way, 3-position (For control of double-acting cylinders):

Pos. 1. Oil goes to the "extend" side of the cylinder, oil from the "retract" side returns to reservoir. Cylinder holds with pump shut off.



Pos. 2. Oil goes to "retract" side of cylinder. Oil from the "extend" side returns to the reservoir.



Center Pos. Holds pressure even if pump is running. Oil from pump goes through valve, back to reservoir.



**OTHER VALVE
CHARACTERISTICS:**

Tandem Center - Cylinder ports are blocked, oil from pump goes to reservoir. Used when pump remains running.



Example:
gasoline-driven pumps.

Closed Center - Generally used when running multiple valves in series from one pump.



Open Center - Used when holding is not a requirement, as when running two separate hydraulic tools such as cutters and crimpers.



***In-line
Hydraulic Valves***

Load Lowering Valve - Provides precision metering for controlled return of the cylinder piston.

Sequence Valve - Used when a cylinder in a multiple cylinder application must advance before any other.

Pressure Reducing Valve - Permits independent pressure control to two or more clamping systems operated by a single power source.

Shut-off Valve - For fine metering of hydraulic oil. Several may be used to control multiple single-acting cylinders.

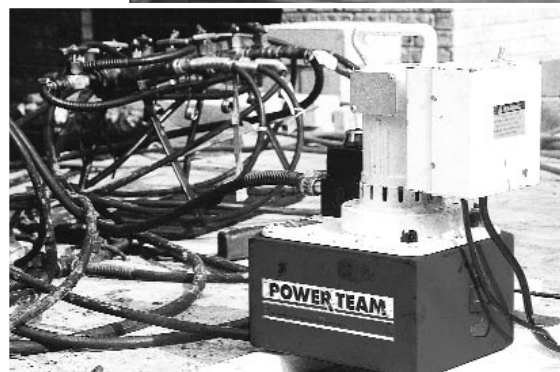
Check Valve - Permits flow of hydraulic oil in one direction only.

Pressure Relief Valve - Used at remote locations in a hydraulic circuit where maximum pressure requirements are less than the setting of the basic overload valve in the pump.

Metering Valve - Restricts surges by restricting flow to a certain level; when flow subsides, valve reopens automatically. For systems using large cylinders or extended lengths of hose.

Pressure Regulator Valve - Permits adjustment of operating pressures at various values below the relief valve setting of the pump.

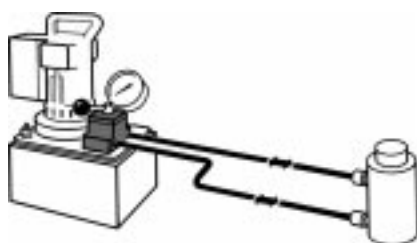
Relief Valve - Protects a hydraulic system against over pressurization.



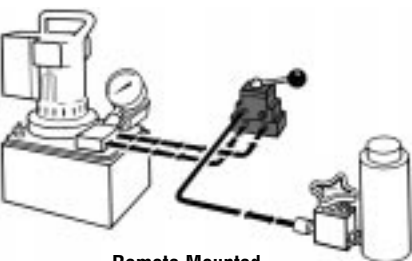
Valve Selection Chart

Looking for a specific type of valve? Consult the chart below and you'll find what you're looking for. There are 60 in all: 2- or 3-position, 3- or 4-way, open, closed or tandem center, manual or automatic, pump or remote mounted, pilot or solenoid operated. And they are available in every conceivable combination. For complete details, refer to the pages referenced in the chart.

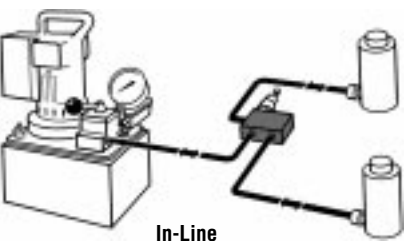
Valves



Pump Mounted



Remote Mounted



In-Line

Mounting Style	Cylinder Appl.	Operation	Volt.	Valve Type	Order No.	Page No.	Advance Return	Advance Hold Return	“Posi-Check” Feature					
Pump	Single-Acting Cylinders	Manual		3-Way, 3 Pos. Closed Center	9502	70		X	X					
				3-Way, 3 Pos. Tandem Center	9520	69								
				2-Way, 2 Pos.	9517									
				2/3 Way, 2 Pos.	9610A									
				3-Way, 2 Pos.	9582									
				3-Way, 2 Pos.	9584									
				3-Way, 3 Pos. Metering Tandem Center	9576					70				
		3-Way, 4 Pos. Tandem Center	9609	72										
		Auto Pilot Op.		3-Way, 2 Pos.	9610	69	X							
		Pilot Operated Solenoid		115	3-Way, 2 Pos.	9589	74	X						
				230		9523								
				24		9553								
				24		9599								
			Solenoid		115	3-Way, 3 Pos. Tandem Center	9599	72		X	X			
					115	3-Way, 2 Pos.	9605	71	X					
					230		9579							
		24	9570											
		Double-Acting Cylinders	Manual		4-Way, 3 Pos. Tandem Center	9506	73		X	X				
					4-Way, 3 Pos. Closed Center	9507								
			Solenoid	12DC	4-Way, 3 Pos. Tandem Center	9516	74		X	X				
						230					9519			
	115					9513								
	24					9512								
	Solenoid			115	4-Way, 3 Pos. Open Center	9590					X			
						230								9522
						24								9615
	Single- & Double-Acting Cylinders		Manual		3/4-Way, 2 Pos.	9504	69	X						
					4-Way, 3 Pos. Tandem Center	9500	73							
					4-Way, 3 Pos. Closed Center	9501								
					4-Way, 3 Pos. Open Center	9511								
					Post Tensioning	9628					75	Special		
			Solenoid	115	3/4-Way, 2 Pos.	9632	71	X						
		9592												
		230				9552								
		24				9572								
		Air			3/4-Way, 2 Pos.	9594							X	
Remote	Single-Acting Cylinders	Solenoid	115	3-Way, 2 Pos.	9559	77		X						
					230					9526				
					24					9556				
	Double-Acting Cylinders		230	4-Way, 3 Pos. Tandem Center	9525						X	X		
					24V								9555	
					115V								9514	
	Single- & Double-Acting Cylinders	Manual		4-Way, 3 Pos. Closed Center	9508	76		X	X					
				4-Way, 3 Pos. Tandem Center	9509									
		Air		3/4-Way, 2 Pos.	9595									
					9593									
		Solenoid	115V	3/4-Way, 2 Pos.	9524									
					230V					9554				
In-Line	Single-Acting Cylinders	Automatic		One-Way Check Valve	9580	79	—	—						
		Manual		Load Lowering Valve	9596	78	—	—						
				Shut-off Valve	9575	79	—	—						
	Single- & Double-Acting Cylinders	Automatic		Pilot Op. Check Valve	9581	78								
				Sequence Valve	9597									
				Pressure Reducing	9608									
				Pressure Relief Valve	9623	79								
				Metering Valve	9631									
				Pressure Regulator Valve	9633									
				Counter Balance Valve	9720	78	Special							
			9721											
	—		Automatic		Relief Valve	RV21278	79	—	—					

Valves

PUMP MOUNTED VALVES, MANUAL AND PILOT OPERATED

For operating pressures
to 10,000 psi.

Valves have 3/8" NPTF
ports.

Maximum flow rate is 5
gpm.

9582 and 9584 3-way/ 2-position manual valves

Application: Single-acting
cylinders.

Actuation: Lever operated.

Functions: Cylinder piston
“advance”,
“hold” and
“return”.



Used on these pumps: P460,
PE17, PE21, PE30, PE46,
PE55, PE84, PE90, PE120,
PQ60 and PQ120 series.

NOTE: A pressure switch or gauge
may be attached to these valves if
desired (see pages 81 and 83-84).

No. 9582 – 3-way/2-position
manual valve. Wt., 2.5 lbs.

No. 9584 – Same as 9582, but
has “flipper” control. Wt. 1.8 lbs.

9610 3-way/2-position, pilot operated automatic valve

Application: Single-acting
cylinders.

Actuation: Pilot oil.

Functions: When pump is
started, pilot
oil automati-
cally closes
valve and directs oil to cylin-
der; when pump is stopped,
valve automatically opens and
oil returns to reservoir.



Used on these pumps:

Furnished with pilot lines and
adapters for PA55, PA90, PE30,
PE55, PE90 and PE120 series.

NOTE: A pressure switch or gauge
may be attached to this valve if
desired (see pages 81 and 83-84).

No. 9610 – 3-way/2-position
pilot operated automatic valve.
Wt., 4.2 lbs.

9610A 2/3-way/2-position manual/pilot operated automatic valve

Application: Manual operation
for load lifting and holding
with single-acting cylinders;
automatic “dump” for oper-
ating hydraulic tools.

Actuation: Flipper lever/pilot oil.

Functions:

With lever in
closed posi-
tion, valve will
hold the load. When lever is
“open”, valve functions as a
true automatic “dump” valve.



Used on these pumps:

Furnished with pilot lines and
adapters for PA55, PA90, PE30,
PE55, PE90 and PE120 series.
For application on other
pumps, consult factory.

NOTE: A pressure switch or gauge
may be attached to this valve if
desired (see pages 81 and 83-84).

No. 9610A – 2/3-way/2-posi-
tion manual/pilot operated
automatic valve. Wt., 4.4 lbs.

9517 2-way/2-position manual valve

Application: Single-acting
cylinders.

Actuation: Flipper lever operated.

Functions:

Cylinder piston
“advance”,
“hold” and
“retract”.



Used on these pumps: PE172,
PA172 and PE84 series.

NOTE: A pressure switch and/or
gauge may be attached if desired
(see pages 81 and 83-84).

No. 9517 – 2-way/2-position
manual valve. Wt., 3.2 lbs.

9504 3/4-way/2-position manual valve

Application: Single- or double-
acting cylinders.

Actuation: Lever operated,
detent positioned.

Functions: Pos. 1 – Oil is
directed to
“advance”
side of cylin-
der, oil from
“retract” side goes to reser-
voir; cylinder “holds” with
pump shut off. Pos. 2 – Oil
goes to “retract” side of cylin-
der; cylinder “holds” with
pump shut off. When using
as a 3-way valve for single-
acting cylinders, port “A” or
“B” is plugged.



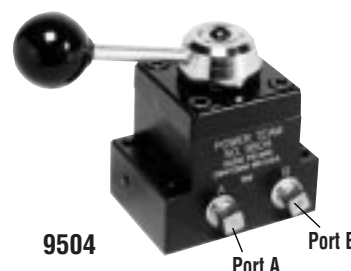
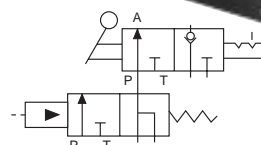
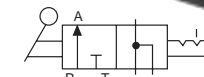
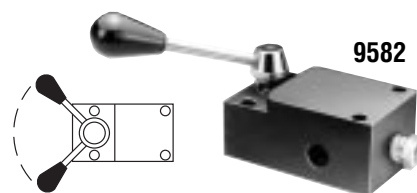
See note on page 70 regarding
plugging of ports and resulting
heat build-up.

Used on these pumps: P460,
PA6D, PA17, PA46, PA55, PA60,
PE17, PE21, PE30, PE46, PE55,
PE84, PE90, PE120, PE200,
PE400, PQ60 and PQ120 series.

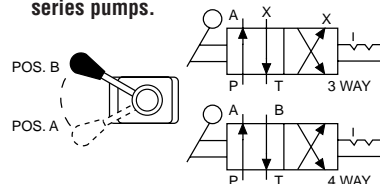
NOTE: A pressure switch and/or
gauge may be attached if desired
(see pages 81 and 83-84). Also,
the 9504 can be remote mounted
with a 9510 subplate (see page 81).

No. 9504 – 3/4-way/2-position
manual valve. Wt., 4.2 lbs.

IMPORTANT: When ordering any valve
for a PE30 or PG30 series pump,
0.50" longer mounting screws are
required. For valves 9504, 9584,
9610 and 9610A, order four 12001
cap screws. For valve 9582, order
two 12001 and two 10856 cap
screws.



IMPORTANT: Conversion kit 251528
must be used when mounting the
9504 valve on PA17 or PE17
series pumps.



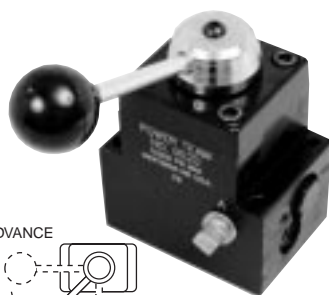
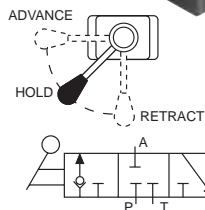
CAUTION: To prevent sudden, uncontrolled descent of a load as it is being lowered,
use a No. 9596 Load Lowering Valve or No. 9720 Counter Balance Valve (see page 78) in
conjunction with the directional valve used in your application.

Pump Mounted Hydraulic Valves

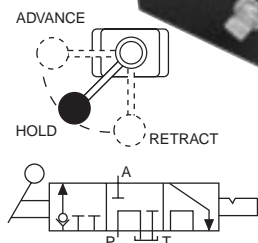
Valves



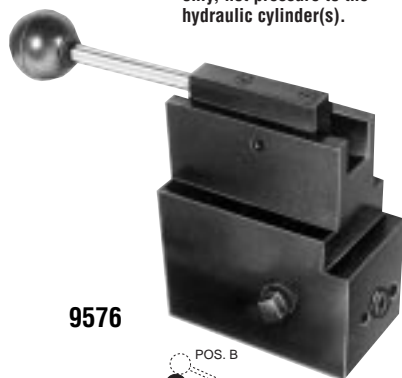
9502



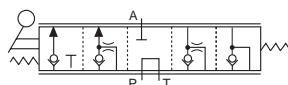
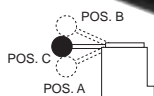
9520



NOTE: Gauge ports monitor pump pressure only, not pressure to the hydraulic cylinder(s).



9576



Patent No. 3,967,646

Valves

PUMP MOUNTED VALVES, MANUAL

For operating pressures
to 10,000 psi.

Valves have $\frac{3}{8}$ " NPTF
ports.

Maximum flow rate is 5
gpm

9502 3-way/3-position (closed center) non- interflow manual valve with "Posi-Check"

Application: Single-acting
cylinders.

Actuation: Lever operated,
detent positioned.

Functions: Pos. 1 – Oil is
directed from pump to cylinder
and "holds" with pump shut
off; line to reservoir is blocked.
Pos. 2 – All oil is open to
reservoir through tank line.
Center pos. – Cylinder pressure
is held; pump can remain
running and
oil returns to
reservoir.



Used on these pumps: P460,
PA17, PA46, PA55, PA60, PE17,
PE21, PE30, PE46, PE55, PE84,
PE90, PE120, PE200, PE400,
PQ60 and PQ120 series.

NOTE: A pressure switch and/or
gauge may be attached if desired
(see pages 81 and 83-84). Also,
the 9502 can be remote mounted if a
9510 subplate is used (see page 81).

No. 9502 – 3-way/3-position
(closed center) manual valve.
Wt., 4.2 lbs.

9520 3-way/3-position (tandem center) manual valve with "Posi-Check"

Application: Single-acting
cylinders.

Actuation: Lever operated,
detent positioned.

Functions: "Advance" "hold"
and "return".
When shifted to "return"



position,
pump and cylinder return oil
through their own separate
return lines, allowing faster
retraction of piston. The
"Posi-Check" feature guards
against pressure loss when
shifting from "advance" to
"hold" position.

Used on these pumps: P460,
PA17, PA46, PA55, PE17, PE21,
PE30, PE46, PE55, PE84, PE90,
PE120, PQ60, PQ120, PE200,
PE400, PG30, PG55, PG120
and PG400 series.

No. 9520 – 3-way/3-position
(tandem center) manual valve.
Wt., 5.1 lbs.

9576 3-way/3-position (tandem center) metering valve

Application: Single-acting
cylinders.

Actuation: Lever operated.

Functions:

Cylinder piston
metered
"advance", "hold" and
metered "return".



Used on these pumps: PA17,
PA46, PA55, PE17, PE21,
PE30, PE46, PE55, PE84,
PE90, PE120, PQ60, PQ120,
PE200, PE400, PG30, PG55,
PG120 and PG400 series.

NOTE: A pressure switch and/or
gauge may be attached if desired
(see pages 81 and 83-84). Also,
the 9576 can be remote mounted
with a 9510 subplate (see page 81).

No. 9576 – 3-way/3-position
(tandem center) metering
valve. Wt., 8.5 lbs.

IMPORTANT: When ordering any
valve for a PE30 or PG30 series
pump, 0.50" longer mounting screws
are required. For valves 9502 and
9520, order four 12001 cap screws.
For valve 9576, order four 17428
cap screws.

NOTE: Valves 9501, 9502, 9504 and
9507 can have a port blocked or have
a closed center position. When a
port is blocked and the valve is
shifted to the blocked port, the pump
will generate excessive heat. An
electric or rotary air pump can either
be turned off manually or with a
pressure switch. Reciprocating air
pumps may be adjusted to stall out
and stop.

IMPORTANT: Conversion kit 251528 must be used when
mounting any of the valves on this page on PA17 or PE17
pumps.

CAUTION: To prevent sudden, uncontrolled descent of a load as it is being lowered,
use a No. 9596 Load Lowering Valve or No. 9720 Counter Balance Valve (see page 78) in
conjunction with the directional valve used in your application.

Valves

PUMP MOUNTED VALVES, SOLENOID OR AIR OPERATED

For operating pressures
to 10,000 psi.

Valves have $\frac{3}{8}$ " NPT
ports, or are supplied
with $\frac{3}{8}$ " to $\frac{1}{4}$ " NPTF
adapters.

Maximum flow rate is 5
gpm.

9579 3-way/2-position solenoid valve

Application: Single-acting
cylinders.

Actuation: Solenoid operated,
115 volt, 50/60 Hz.

Functions:

Cylinder piston
advances
when solenoid
is de-energized and pump is
running. When solenoid is
energized, oil is directed to
reservoir, and piston returns.
For "hold" position, pump is
stopped with solenoid de-ener-
gized.



Used on these pumps: PE17,
PE21, PE30, PE46, PE55, PE84,
PE90, PE120, PE200, PE400,
PQ60 and PQ120 series.

No. 9579 – 3-way/2-position
solenoid valve, 115 volt,
50/60 Hz. Wt., 9.6 lbs.

No. 9569 – Same as 9579,
except with 24 volt, 50/60 Hz
solenoid.

No. 9570 – Same as 9579
except with 230 volt, 50/60 Hz
solenoid.

NOTE: Valves above are shipped
without control switch. Use 202777
remote hand switch (see page 89).

CAUTION: To prevent sudden, uncontrolled descent of a load as it is being lowered, use a No. 9596 Load Lowering Valve or No. 9720 Counter Balance Valve (see page 78) in conjunction with the directional valve used in your application.

9552, 9572, 9592 3/4-way/2-position solenoid valves and 9594 air actuated valve

Application: Single- or double-
acting cylinders. When used
with single-acting cylinders,
one port should be plugged.

Actuation: 9552, 9572 and
9592 are solenoid operated;
9594 is air operated.

Functions: Oil
is directed to
"extend" side



of cylinder, oil from "retract"
side goes to reservoir; cylinder
"holds" with pump shut off.
Oil is directed to "retract" side
of cylinder; oil from "extend"
side goes to reservoir.

NOTE: Cylinder will not "hold" in
the "return" position with motor
running or shut off.

Used on these pumps: 9552,
9572 and 9592 are used with
PE17, PE30 (with carrying
handles removed), PE46, PE55,
PE84, PE90, PE200, PE400,
PQ60 and PQ120 series. The
9594 is used with the PA17,
PA46 and PA55 series.

No. 9592 – 3/4-way/2-posi-
tion solenoid valve, 115 volt,
50/60 Hz. Wt., 14.6 lbs.

No. 9552 – Same as 9592,
except with 230 volt, 50/60 Hz
solenoid.

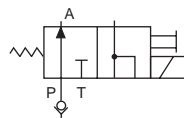
No. 9572 – Same as 9592,
except with 24 volt, 50/60 Hz
solenoid.

No. 9594 – Same as 9592,
except is air operated (mini-
mum of 50 psi air pressure
required). Wt., 11 lbs.

NOTE: Valves above are shipped
without controls. The 9552, 9572
and 9592 can be used with the
304718 remote hand control; the
9594 can be used with the 209593
remote hand control (see page 89).

IMPORTANT: When ordering any
valve for a PE30 or PG30 series
pump, 0.50" longer mounting

screws are required. For valves
9569, 9570 and 9579, order four
10856 cap screws. For valves
9552, 9572 and 9592, order four
12001 cap screws.



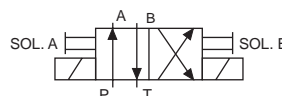
NOTE: When this valve
is mounted, the pump
must be equipped with
an outlet check valve.



9579
9569
9570



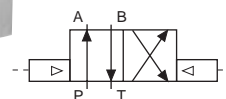
9552, 9572, 9592
for electric actuation



U.S. Patent No. 4,351,362



9594
for air
actuation

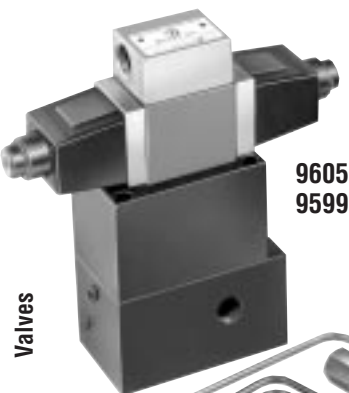


NOTE: See page 76
for remote mounted
models of this valve.

U.S. Patent No. 4,351,362

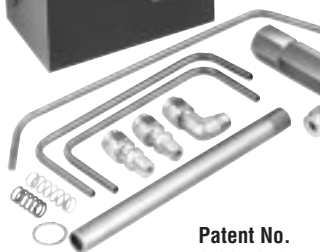
IMPORTANT: Conversion kit 251528 must be used when
mounting any of the valves on this page on PA17 or PE17
pumps.

Pump Mounted Hydraulic Valves

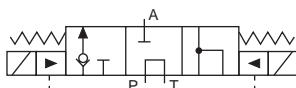


9605
9599

Valves



Patent No.
3,967,646



Valves

PUMP MOUNTED VALVES, SOLENOID AND MANUAL PRESSURE COMPENSATED

For operating pressures
to 10,000 psi.

Valves have $\frac{3}{8}$ "
NPTF ports.

Maximum flow rate is 5
gpm.

9605 and 9599 3-way/ 3-position (tandem center) solenoid valves with "Posi-Check"

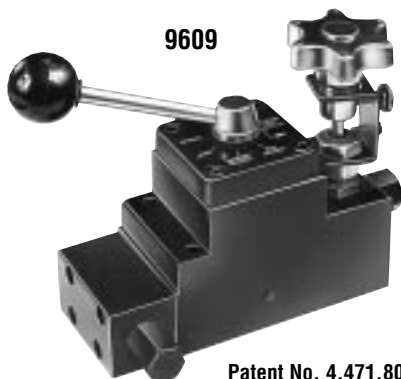
Application: Single-acting
cylinders.

Actuation: Solenoid operated:
9605 is 115 volt, 50/60 Hz;
9599 is 24 volt, 50/60 Hz.

Functions: "Advance", "hold"
and "return"
positions. When in
"advance",
solenoid "B" is energized and
oil goes from

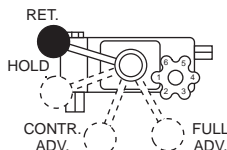


9609



Patent No. 4,471,805

IMPORTANT: Conversion kit
251528 must be used when
mounting the 9609 valve
on PA17 or PE17 series
pumps.



Flow:
Full flow position — 5 gpm (Ref.)
Metered advance position — 65 cu.
in./min. (Max.)

Pressure:
Min. working pressure - 1,000 psi.
Max. working pressure - 10,000 psi.
Max. valve case pressure - 500 psi.

pump to cylinder through pressure port. In "return" position, solenoid "A" is energized and oil is directed from cylinder and pump to reservoir. With both solenoids de-energized, in "hold" position, oil from pump is directed back to reservoir while oil is checked in cylinder. The "Posi-Check" feature holds load when shifting from "advance to "hold" position.

Used on these pumps:
Furnished with pilot lines and adapters for PE55, PE30 (carrying handles must be removed) and PE120 series. For application on other models, consult factory.

No. 9605 — 3-way/3-position (tandem center) solenoid valve, 115 volt, 50/60 Hz. Wt., 14.0 lbs.

No. 9599 — Same as 9605 except for 24 volt, 50/60 Hz circuits.

NOTE: Valves above are shipped without controls. Use 202777 remote hand control (see page 89). Consult factory for field installation.

9609 3-way/4-position manual pressure com- pensated valve

Application: Single-acting
cylinders. Primarily for use
in testing soil, rock, con-
crete, asphalt and related
engineering materials.

Actuation: Lever and
adjustable, pressure compen-
sated flow control valve.

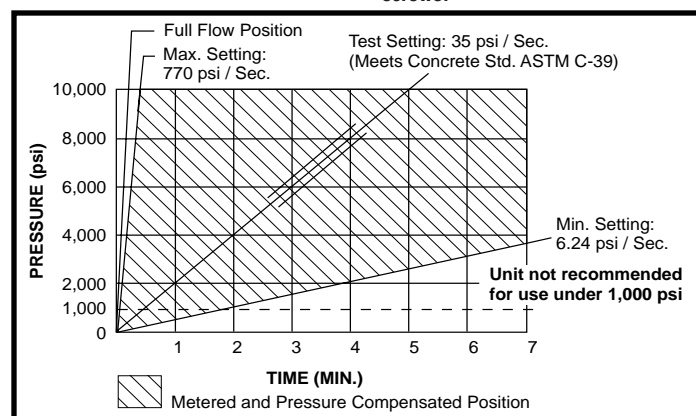
Functions: Cylinder piston
"return", "hold", "controlled
advance" (pressure compen-
sated) and "advance" (full
flow). Will deliver a relatively
constant flow regardless of
pressure between 1,000 and
10,000 psi.

Used on these pumps: PA17,
PA46, PA55, PE17, PE21,
PE30*, PE46, PE55, PE90,
PE200, PE400, PG30*, PG55,
PG120, PG400, PQ60 and
PQ120 series. * **NOTE:** Adapter
kit 252161 is required for
mounting this valve to a PE30
or PG30 series pump.

NOTE: This valve can be remote
mounted with a 9510 subplate
(see page 81).

No. 9609 — 3-way/4-position
manual pressure compensated
valve. Wt., 8.7 lbs.

IMPORTANT: When ordering any valve
for a PE30 or PG30 series pump,
0.50" longer mounting screws are
required. For valves 9599 and 9605,
order four 251078 cap screws. For
valve 9609, order four 10855 cap
screws.



CAUTION: To prevent sudden, uncontrolled descent of a load as it is being lowered, use a No. 9596 Load Lowering Valve or No. 9720 Counter Balance Valve (see page 78) in conjunction with the directional valve used in your application.

Valves

PUMP MOUNTED VALVES, MANUAL

For operating pressures
to 10,000 psi.

Valves have $\frac{3}{8}$ " NPTF
ports.

Maximum flow rate is 5
gpm.

9506 4-way/3-position (tandem center) valve with "Posi-Check"

Application: Double-acting
cylinders.

Actuation: Lever operated,
detent positioned.

Functions: "Advance", "hold"
and "return".
The "Posi-
Check" feature
guards against
pressure loss when shifting
from "advance" to "hold"
position.



Used on these pumps: P460,
PA6D, PA17, PA46, PA55, PE17,
PE21, PE30, PE46, PE55, PE84,
PE90, PE120, PE200, PE400,
PED, PG30, PG55, PG120,
PG400, PQ60 and PQ120 series.

NOTE: A pressure switch and/or
gauge may be attached to this valve
if desired (see pages 81 and 83-84).
Consult factory for pressure switch
application. Also, the 9506 can be
remote mounted with a 9510 subplate
(see page 81).

No. 9506 – 4-way/3-position
(tandem center) manual valve.
Wt., 5.1 lbs.

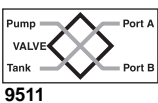
9500 4-way/3-position (tandem center) and 9511 (open-center) manual valves

Application: Single- or double-
acting cylinders.

CAUTION: To prevent sudden, uncontrolled descent of a load as it is being lowered, use a No. 9596 Load Lowering Valve or No. 9720 Counter Balance Valve (see page 78) in conjunction with the directional valve used in your application.

Actuation: Lever operated,
detent positioned.

Functions: The
9500 provides
"advance",
"hold" and
"return". The
9511 (open
center) valve
can be used if
holding is not a requirement,
as when running two separate
hydraulic tools. Provides
"advance" and "return" only.



Used on these pumps: P460,
PA17, PA46, PA55, PE17, PE21,
PE30, PE46, PE55, PE84,
PE90, PE120, PE200, PE400,
PG30, PG55, PG120, PG400,
PQ60 and PQ120 series.

NOTE: A pressure switch and/or
gauge may be attached if desired
(see pages 81 and 83-84). Also, the
valves may be remote mounted with
a 9510 subplate (see page 81).

No. 9500 – 4-way/3-position
(tandem center) manual valve.
Wt., 4.2 lbs.

No. 9511 – Same as 9500,
except has an open center.

9507 4-way/3-position (closed center) manual valve with "Posi-Check"

Application: Single- or double-
acting cylinders.

Actuation: Lever operated,
detent positioned.

Functions:
Similar to 9506,
but is a closed
center valve
with "Posi-Check". Generally
used to operate multiple cylin-
ders with a single pump.
Provides "advance", "hold" and
"return". The "Posi-Check"
feature guards against pressure
loss when shifting from the
"advance" to "hold" position.
See note on page 70 regarding
plugging of ports and resulting
heat build-up.



Used on these pumps: P460,
PA17, PA46, PA55, PA60, PE17,
PE21, PE30, PE46, PE55, PE84,
PE90, PE120, PE200, PE400,
PQ60 and PQ120 series.

NOTE: The 9507 can be remote
mounted with a 9510 subplate
(see page 81).

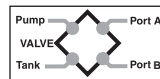
No. 9507 – 4-way/3-position
(closed center) manual valve.
Wt., 5.0 lbs.

9501 4-way/3-position (closed center) manual valve

Application: Single- or
double-acting cylinders.

Actuation: Lever operated,
detent positioned.

Functions:
"Advance",
"hold" and
"return".



Closed center design makes
valve suitable for operating
multiple cylinders from
a single pump. See note on
page 70 regarding plugging of
ports and resulting heat build-up.

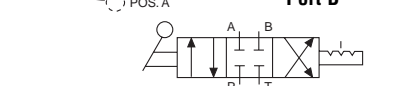
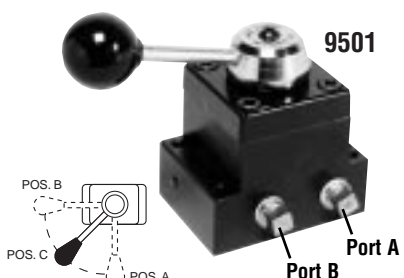
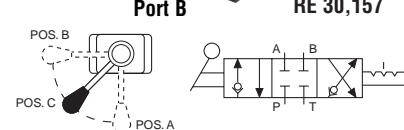
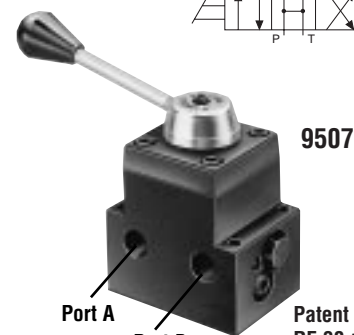
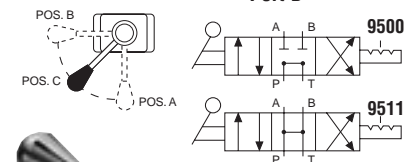
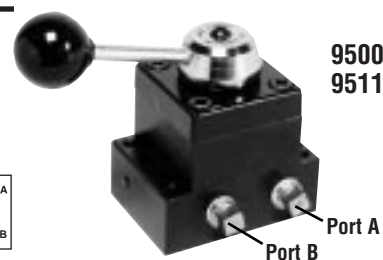
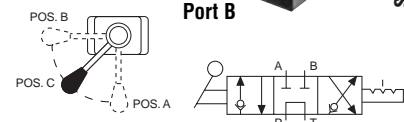
Used on these pumps: P460,
PA17, PA46, PA55, PA60, PE17,
PE21, PE30, PE46, PE55, PE84,
PE90, PE120, PE200, PE400,
PQ60 and P120 series.

NOTE: A pressure switch and/or
gauge may be attached if desired
(see pages 81 and 83-84). Also, the
9501 can be remote mounted with
a 9510 subplate (see page 81).

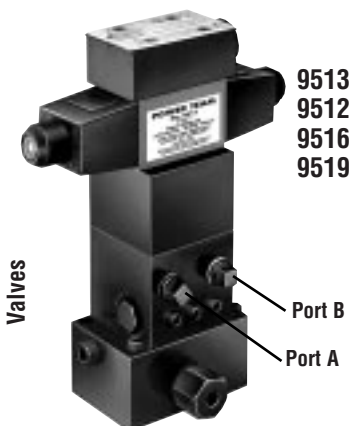
No. 9501 – 4-way/3-position
(closed center) valve. Wt., 4.2 lbs.

IMPORTANT: When ordering any
valve for a PE30 or PG30 series
pump, 0.50" longer mounting screws
are required. For valves 9500, 9501
and 9511 order four 12001 cap
screws. For valves 9506 and 9507,
order four 11956 cap screws.

IMPORTANT: Conversion
kit 251528 must be used
when mounting any of the
valves on this page on
PA17 or PE17 pumps.

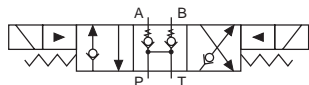


Pump Mounted Hydraulic Valves

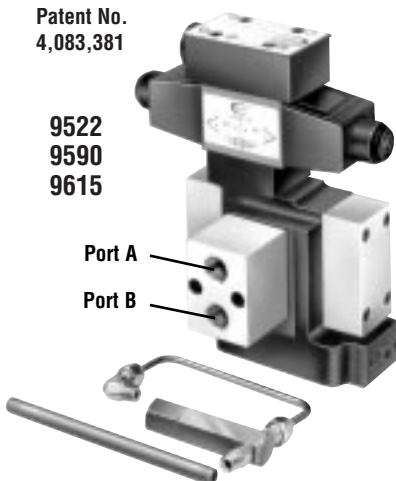


9513
9512
9516
9519

Valves

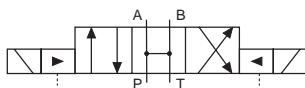


Patent No.
4,083,381



9522
9590
9615

Port A
Port B



9523
9553
9589

Valves

PUMP MOUNTED VALVES, SOLENOID OPERATED

For operating pressures
to 10,000 psi.

Valves have $\frac{3}{8}$ " NPTF
ports.

Maximum flow rate is 5
gpm.

9513 4-way/3-position (tandem center) pilot operated solenoid valve

Application: Double-acting
cylinders.

Actuation: Solenoid operated,
115 volt, 50/60 Hz.

Functions:

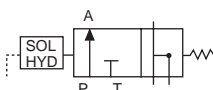
"Advance",
"hold" and
"return". The
"Posi-Check"
feature holds the load when
shifting from the "advance" to
the "hold" position.

Used on these pumps: PE17,
PE21, PE30 (with carrying
handles removed), PE46, PE55,
PE84, PE90, PE120, PE200,
PE400, PQ60 and PQ120 series.

NOTE: A gauge may be attached if
desired (see pages 83-84).

No. 9513 – 4-way/3-position
(tandem center) solenoid
valve, 115 volt, 50/60 Hz.
Wt., 18.1 lbs.

No. 9512 – Same as 9513
except for 24 volt, 50/60 Hz
circuits.



No. 9516 – Same as 9513
except for 12 volt DC. Suitable
for use on the PG1204S and
PG400 series pumps only.

No. 9519 – Same as 9513
except for 230 volt, 50/60 Hz
circuits. Consult factory for
field installation.

NOTE: Valves above are shipped
without control switch. Use 202778
remote hand switch (see page 89).

IMPORTANT: Conversion kit 251528
must be used when mounting 9513,
9512, 9516 or 9519 valves on PE17
series pumps.

9590 4-way/3-position (open center) solenoid valve

Application: Double-acting
cylinders.

Actuation: Solenoid operated,
115 volt, 50/60 Hz.

Functions:

"Advance",
open center and
"return" positions. Cylinder
ports and pump port are open
to reservoir in "neutral".

Used on these pumps:
Furnished with pilot lines and
adapters for PE30 (with carry-
ing handles removed), PE55,
PE90 and PE120 series. For
other pump models, consult
factory.

NOTE: A pressure switch and/or
gauge may be attached if desired
(see pages 81 and 83-84).

No. 9590 – 4-way/3-position
(open center) solenoid valve,
115 volt, 50/60 Hz. Wt., 15.5 lbs.

No. 9522 – Same as 9590
except for 230 volt, 50/60 Hz.

No. 9615 – Same as 9590
except for 24 volt, 50/60 Hz.

NOTE: Valves above are shipped
without control switch. Use 202778
remote hand switch (see page 89).



9589 3-way/2-position (pilot operated) solenoid valve

Application: Single-acting
cylinders.

Actuation: Solenoid operated,
115 volt, 50/60 Hz.

Function:

"Advance"
and "return".



Used on these pumps:

Furnished with pilot lines
and adapters for PE30 (with
carrying handles removed),
PE55, PE90 and PE120
series. For other pump
models, consult factory.

NOTE: A pressure switch and/or
gauge may be attached if desired
(see pages 81 and 83-84).

No. 9589 – 3-way/2-position
(pilot operated) solenoid
valve, 115 volt, 50/60 Hz.
Wt., 8.2 lbs.

No. 9523 – Same as 9589
except for 230 volt, 50/60 Hz.

No. 9553 – Same as 9589
except for 24 volt, 50/60 Hz.

NOTE: Valves above are shipped
without control switch. Use 202777
remote hand switch (see page 89).

IMPORTANT: When ordering any
valve for a PE30 or PG30 series
pump, 0.50" longer mounting screws
are required. For valves 9513 and
9519, order four 11956 cap screws.
For valves 9523, 9553 and 9589,
order four 10855 cap screws. For
valves 9522, 9590 and 9615, order
four 10854 cap screws.

CAUTION: To prevent sudden, uncontrolled descent of a load as it is being lowered, use a No. 9596 Load Lowering Valve or No. 9720 Counter Balance Valve (see page 78) in conjunction with the directional valve used in your application.

Valves

PUMP MOUNTED VALVES FOR PRE-STRESSING AND POST TENSIONING

**For operating pressures
to 10,000 psi.**

**Valves have 3/8" NPTF
ports.**

**Maximum flow rate is 5
gpm.**

9628 4-way/3-position (tandem center) manual valve

Application: Single strand,
single-acting stressing jacks.

Actuation: Lever operated,
detent positioned.

Operation:

1. With valve in center position, pump is started.
2. Cable is inserted into stressing tool, valve is placed in "A" position. "Pull" portion of stressing tool is pressurized to specified level for proper cable tensioning ("A" port is checked internally, can only be released by building pressure in "B" position).
3. Valve is placed in "B" position, which is pressure controlled and will not exceed 6,400 psi. "Return" portion of stressing tool is pressurized and will release "A" port when pressure reaches approximately one-half the "A" port pressure. "A" port remains open as long as this pressure differential is maintained.
4. Pump is stopped, valve is placed in "A" position, releasing "B" port pressure.

Used on these pumps: PA17*, PA46*, PA55, PE17*, PE21*, PE30, PE46*, PE55, PE60, PE84, PE120, PE200, PE400, PG30*, PG55, PG120, PG400, PQ60 and PQ120 series.

* These pumps may have reduced first flow stage characteristics due to internal valve restrictions.

No. 9628 – Post tensioning valve for 10,000 psi (max.) single-acting/spring return systems. Wt., 5.4 lbs.

NOTE: Check the operating pressures of your stressing tool. If different than above, consult tool manufacturer.

9632 "twin" 4-way/3-position (tandem center) manual valve

Application: Multistrand, double-acting stressing jacks with an auxiliary seating cylinder.

Actuation: Dual lever operated, detent positioned.

Operation:

1. With valves "A" and "B" in center position, pump is started; cable is inserted into stressing tool.
2. Valve "A" is placed in "Stress" position; cylinder extends to tension cable. Pump pressure controls force exerted by tensioning cylinder in this position. "Stress" port is checked internally, and can only be released by building pressure in the valve "B" return position.
3. When desired cable tension is achieved, valve "A" is placed in valve "B" position and valve "B" in "Seat" position. Seating portion of cylinder will be pressurized to seating pressure controlled by "Seat" relief valve (factory set to 3,900 psi).
4. Valve "B" is shifted to "Return" position, which is pressure controlled and will not exceed 2,200 psi.

"Return" portion of stressing tool should be pressurized and will release "Stress" port when pressure reaches 15% of "Stress" port pressure.

5. "Stress" port will remain open and cylinder will return as long as pressure differential is maintained. "Stress" and "Seat" ports are open to reservoir.
6. When cylinder has fully returned, both valves are shifted to "Center" position and oil will be directed to reservoir. Maximum pressure setting for the "Seat" relief valve is 6,000 psi.

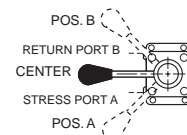
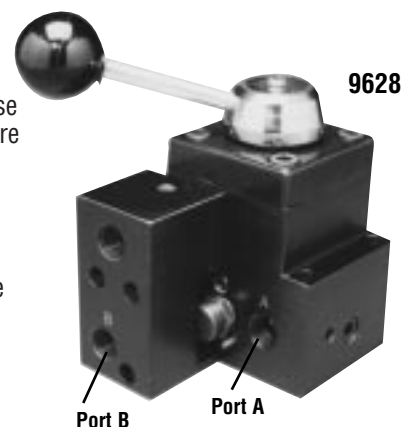
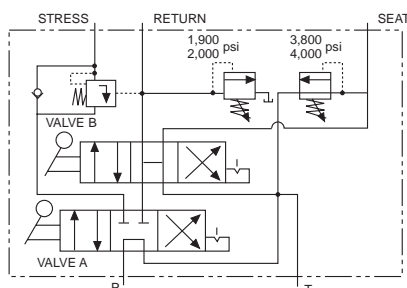
Used on these pumps: PA17*, PA46*, PA55, PE17*, PE21*, PE30, PE46*, PE55, PE84, PE120, PE200, PE400, PG30*, PG55, PG120, PG400, PQ60 and PQ120 series.*

* These pumps may have reduced first flow stage characteristics due to internal valve restrictions.

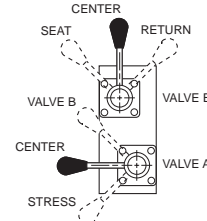
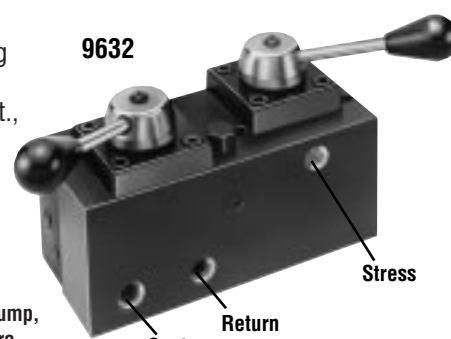
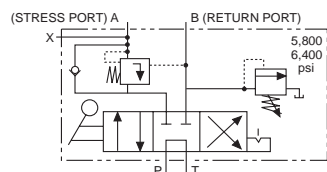
No. 9632 – Post tensioning valve for 10,000 psi (max.) double-acting systems. Wt., 13.6 lbs.

NOTE: Check the operating pressures of your stressing tool. If different than above, consult tool manufacturer.

IMPORTANT: When ordering any valve for a PE30 or PG30 series pump, 0.50" longer mounting screws are required. For valve 9628, order four 11956 cap screws. For valve 9632, order four 216234 cap screws.



Designed for use with Power Team air, gasoline and electric powered hydraulic pumps.



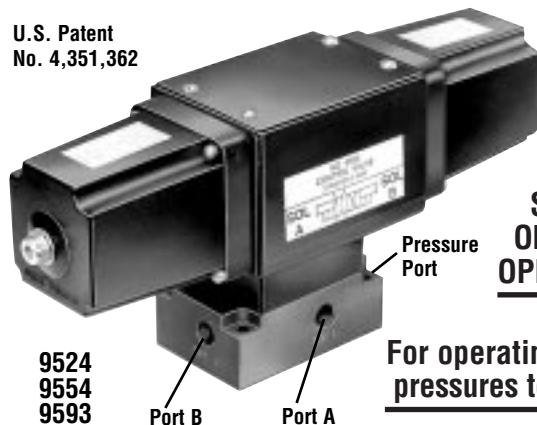
Pump mounted, 6-position detented 5-way manual dual valve. Rated pressure to valve "A" is 10,000 psi and valve "B" is 6,000 psi. Case pressure is 500 psi max.

IMPORTANT: Conversion kit 251528 must be used when mounting any of the valves on this page on PA17 or PE17 pumps.

Remote Mounted Hydraulic Valves

U.S. Patent
No. 4,351,362

Valves



9524
9554
9593

Port B

Port A

Valves REMOTE MOUNTED VALVES, SOLENOID OR AIR OPERATED

For operating
pressures to 10,000 psi.

Valves have 1/4" NPTF
ports (3/8" to 1/4" NPTF
adapters provided).

Maximum flow rate
is 5 gpm.

If pump is equipped
with an internal outlet
check, a "hold" position
can be maintained with
pump shut off.

9595

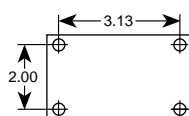


Port B

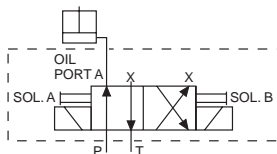
Port A

Pressure Port

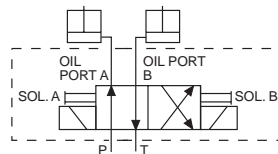
NOTE: Maximum tank line pressure for
remote mounted valves is 1,000 psi.



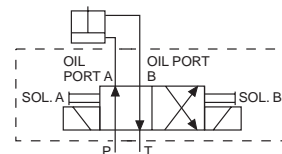
Four Mtg. Holes for
0.25" Cap Screws.



1. To actuate one single-acting
cylinder.



2. To actuate two single-acting
cylinders.



3. To actuate one double-acting
cylinder.

9593, 9524 and 9554 3/4-way/2-position solenoid valves and 9595 air actuated valve

Application: Single- or
double-acting cylinders.

Actuation: 9593, 9524 and
9554 are solenoid operated,
9595 is air operated.

**Operation with single-acting
cylinder:**

Either oil
port "A" or
"B" must be
plugged on valve. With port
"B" plugged, solenoid is
energized to position "A"; oil
port "A" becomes pressurized.
When solenoid is energized to
position "B", oil port "A"
becomes the return port.



**Operation with multiple
single-acting cylinders:**

A pressure
line from
one bank
can be con-
nected to oil port "A" and the
other to oil port "B" on the
valve. Sequence: When ener-
gized to position "A", oil port
"A" becomes pressurized and
clamps the fixture connected
to oil port "A"; oil port "B"
becomes a "return" port for
cylinder connected to oil port
"B", and retracts it. The
opposite happens when sole-
noid "B" is energized.



**Operation with double-acting
cylinder:** Port "A" is connected
to "advance" port of cylinder,
oil port "B" connects to cylin-
der "return" port. Solenoid is
energized to position "A", oil
port "A" becomes pressurized
to extend cylinder piston. The
opposite happens when solenoid
"B" is energized. Valve does
not hold in "retract" position.

NOTE: When using more than one
valve on a pump, the tank port may
require a check valve to permit inad-
vertent, momentary extension of a
retracted cylinder.

No. 9593 — 3/4-way/2-posi-
tion, remote mounted sole-
noid valve, 115 volt, 50/60 Hz.
Wt., 15.4 lbs.

No. 9524 — Same as 9593
except with 230 volt, 50/60 Hz.

No. 9554 — Same as 9593
except with 24 volt, 50/60 Hz.

No. 9595 — Same as 9593
except is air operated (mini-
mum of 50 psi air pressure
required). Wt., 11.4 lbs.

NOTE: Valves above are shipped
without controls. The 9524, 9554
and 9593 can be used with the
304718 remote hand control (see
page 89). The 9595 can be used
with the 209593 remote hand control
(see page 89).

CAUTION: To prevent sudden, uncontrolled descent of a load as it is being lowered, use a No. 9596 Load Lowering Valve or No. 9720 Counter Balance Valve (see page 78) in conjunction with the directional valve used in your application.

Valves

REMOTE MOUNTED VALVES, SOLENOID AND MANUAL

For operating pressures
to 10,000 psi.

Valves have 3/8"
NPTF ports.

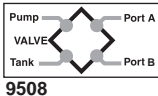
Maximum flow rate
is 5 gpm.

9508 4-way/3-position (closed center) and 9509 (tandem center) manual valves

Application: Single- or double-acting cylinders. When used with single-acting cylinders, one port must be plugged. For double-acting cylinders, either port can be used for "advance" or "return".

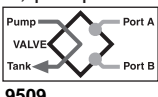
Actuation: Lever-operated, detent positioned.

Functions: The 9508 provides "advance", "hold" and "return" positions with all ports blocked (closed center) in the "hold" position. The 9509 has



9508

"advance" "hold" and "return" with tandem center (cylinder ports are blocked, pump remains running). Both valves have "Posi-Check" feature to guard against pressure loss when shifting from "advance" to "hold".



9509

No. 9508 – 4-way/3-position (closed center) manual valve, including subplate for remote mounting. Wt., 6.3 lbs.

No. 9509 – Same as 9508, except is tandem center.

9514 4-way/3-position (tandem center) solenoid valve

Application: Double-acting cylinders.

Actuation: Solenoid operated, 115 volt, 50/60 Hz.

Functions: Push button control of "advance", "hold" and "return". The "Posi-Check" feature guards against pressure loss when shifting from "advance" to "hold". With valve in "hold" position, cylinder ports are blocked and oil is directed from pump to reservoir.



NOTE: Do not allow return tank pressure to exceed 500 psi at the valve.

No. 9514 – 4-way/3-position (tandem center) solenoid valve, 115 volt, 50/60 Hz. Remote hand control included. Wt., 10.1 lbs.

No. 9525 – Same as 9514 except for 230 volt, 50/60 Hz.

No. 9555 – Same as 9514 except for 24 volt, 50/60 Hz.

NOTE: Consult factory before installing a pressure switch on any of these valves.

9559 3-way/2-position solenoid valve

Application: Single-acting cylinders.

Actuation: Solenoid operated, 115 volt, 50/60 Hz.

Function: Advances cylinder piston when solenoid is de-energized, and pump is running. When solenoid is energized, oil



is directed back through valve "return" port and cylinder piston returns. To place cylinder in "hold" position, pump must be stopped or its flow held at the valve "pressure" port with the solenoid de-energized.

NOTE: Valve is equipped with a 9631 snubber valve in port "A". The line from the "return" port of the valve must be unrestricted (100 psi back pressure maximum) back to the reservoir.

IMPORTANT: A 9580 in-line check valve (see page 79) must be installed in the "pressure" port if the supply pump is not equipped with an outlet check valve.

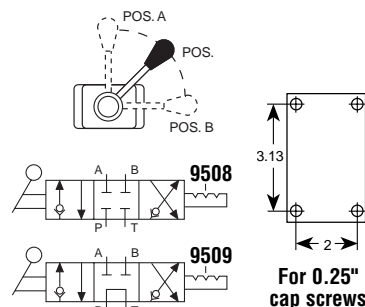
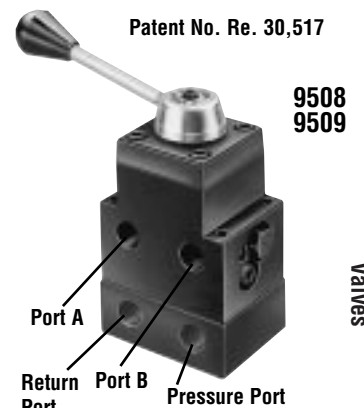
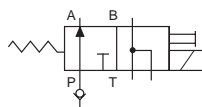
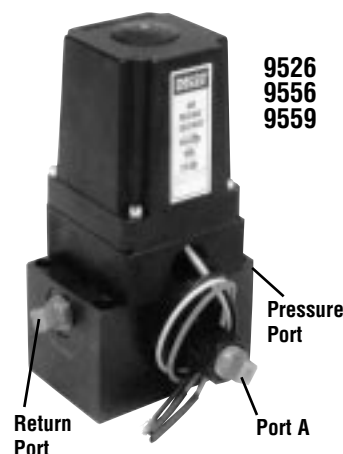
No. 9559 – 3-way/2-position solenoid valve, 115 volt 50/60 Hz. Includes a remote mounting subplate. Wt., 9.7 lbs.

No. 9526 – Same as 9559 except for 230 volt, 50/60 Hz.

No. 9556 – Same as 9559 except for 24 volt, 50/60 Hz.

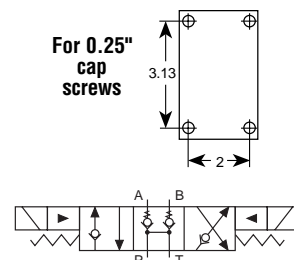
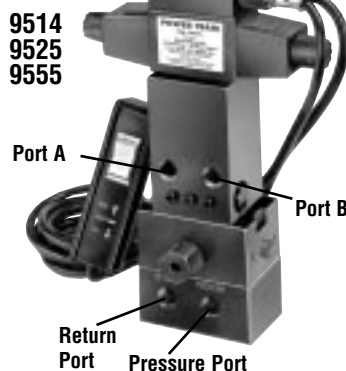
NOTE: The 9559, 9526 and 9556 are shipped without control switch. Use 202777 remote hand switch (see page 89). Other switches also available; consult factory.

NOTE: Maximum tank line pressure for remote mounted valves is 500 psi.



Valves

Patent No. 4,083,381



CAUTION: To prevent sudden, uncontrolled descent of a load as it is being lowered, use a No. 9596 Load Lowering Valve or No. 9720 Counter Balance Valve (see page 78) in conjunction with the directional valve used in your application.

9596



In-Line Valves

For operating pressures to 10,000 psi.

Maximum flow rate is 5 gpm.

9596 load lowering valve

Application: Precision metering for controlled cylinder piston return.

Operation: Permits free flow when extending cylinder, built-in pressure relief and "Posi-Check" locks and holds load in raised position until operator opens valve. May be pre-set to provide consistent metered return, or operator may select rate of return with each actuation. Has 3/8" NPTF ports.

NOTE: Pressure relief valve setting is 12,000 psi. Operating pressure is 10,000 psi and max. flow rate is 5 gpm.

No. 9596 – Load lowering valve. Wt., 2.1 lbs.

9597 sequence valve

Application: Used when one cylinder in a multi-cylinder application must advance before any other.

Operation: Pump is connected to port "P" and separate cylinders to ports "A" and "B". When pressure is applied to port "P", cylinder "A" advances. Cylinder "B" will not advance until a predetermined pressure

setting is reached in cylinder "A". Pressure setting is adjustable from 500 to 5,000 psi with adjustment screw; factory preset at 1,000 psi. Has 3/8" NPTF ports.

No. 9597 – Pressure control sequencing valve. Wt., 5.6 lbs.

9608 pressure reducing valve

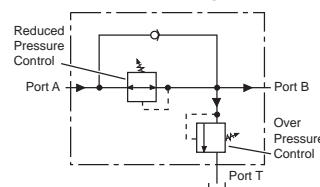
Application: Provides complete, independent pressure control to two or more clamping systems operated by a single power source.

Operation: Can be used to provide different pressures in various stages of a single system. Virtually zero leakage across valve means each system can be operated by a single continuous pressure source. Adjustable from 1,000 to 5,000 psi at outlet port "B" (secondary). Has 1/4" NPTF ports.

No. 9608 – Pressure reducing valve. Wt., 5.8 lbs.



9608



9720 counter balance valve

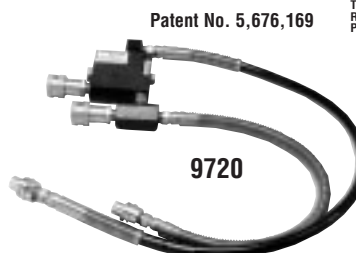
Application: Double-acting cylinders. Provides positive holding and controlled, "chatter-free" lowering of a load.

Operation: Load is raised at flow rate of pump, and held when pump is shut off. When the pump is shifted to "retract", the counter balance valve will continue to hold the load until system pressure exceeds pressure caused by load. The load can then be lowered smoothly to the flow rate of the pump. The counter balance valve is designed to operate with pumps having a high pressure flow rate of up to 120 cu. in./min. and cylinder ratios of 3 to 1.

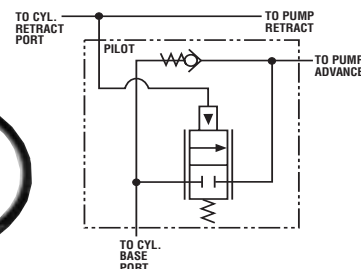
CAUTION: This patented counter balance valve has a pilot pressure as high as 3,000 psi. Because this pressure is applied to the rod end of the cylinder while it is already under load, the system should not be sized for loads greater than 80% of cylinder rated capacity.

No. 9720 – Counter balance valve, including two male and two female half couplers, two hydraulic hoses, fittings and dust caps. Wt., 10 lbs.

No. 9721 – Same as 9720, but does not include couplers, hoses, fittings and dust caps. Wt., 9.2 lbs.



9720



CAUTION: To prevent sudden, uncontrolled descent of a load as it is being lowered, use a No. 9596 Load Lowering Valve or No. 9720 Counter Balance Valve in conjunction with the directional valve used in your application.

In-Line Valves

For operating pressures to 10,000 psi.

Maximum flow rate is 5 gpm (No. 9633 has flow range of 17 cu. in./min. to 6 gpm).

9575 shut-off valve

Application: This needle valve permits fine metering of hydraulic oil.

Operation: Can be used for controlling multiple single-acting cylinders.

No. 9575 – Shut off valve with $\frac{3}{8}$ " NPTF ports. Wt., 1.4 lbs.

9580 check valve

Application: Permits flow of hydraulic oil in one direction only.

Operation: Installs right in hydraulic line.

No. 9580 – Check valve with $\frac{3}{8}$ " NPTF male ends. Wt., .4 lb.

9581 pilot operated check valve

Application: For use with open or tandem center valves. Permits free flow of fluid in one direction.

Operation: Flow is blocked in opposite direction until pilot oil pressure is applied. This prevents the loss of pressure if the valve is inadvertently shifted or the pump line is broken. Minimum cracking pressure is 60 psi. Required pilot pressure is approximately 16% of checked system pressure.

No. 9581 – Pilot operated check valve with $\frac{3}{8}$ " NPTF ports. Wt., 3.8 lbs.

9623 "in-line" pressure relief valve

Application: Single- or double-acting cylinders. For remote locations in a hydraulic circuit where maximum pressure requirements are less than basic overload valve setting in pump.

Operation: Adjustable from 1,000 to 10,000 psi. Valve is spring-loaded and direct-acting.

No. 9623 – Pressure relief valve with $\frac{3}{8}$ " NPTF ports. Wt., 2 lbs.

9631 metering valve

Application: For systems using large cylinders or extended lengths of hydraulic hose.

Operation: Controls surges by restricting flow if it exceeds 7 gpm. When flow subsides, valve reopens automatically. Has $\frac{3}{8}$ " NPTF male end to thread into return port of system control valve, and a $\frac{3}{8}$ " NPTF female end, permitting return hose to be directly connected.

No. 9631 – Metering valve. Wt., .2 lb.

9633 "in-line" pressure regulator valve

Application: Single- or double-acting cylinders. Permits adjusting operating pressures at various values below relief valve setting of pump.

Operation: Regulator valve is easily adjusted to maintain pressures between 300 and 10,000 psi. Maintains a given pressure setting within 3% over repeated cycles. Flow range is 17 cu. in./minute to 6 gpm.

No. 9633 – In-line pressure regulator valve with two $\frac{3}{8}$ " NPTF inlet ports and one $\frac{1}{8}$ " NPTF tank port. Includes 3 foot drain line kit. Wt., 1.9 lbs.

RV21278 series relief valves

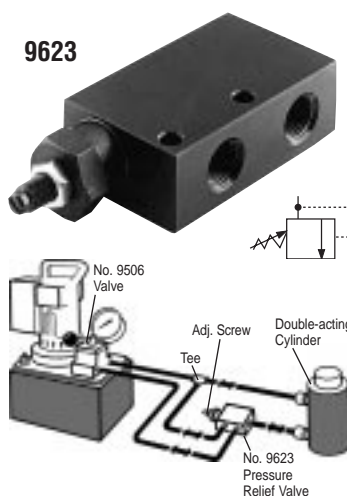
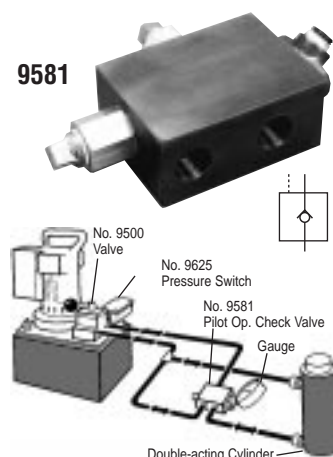
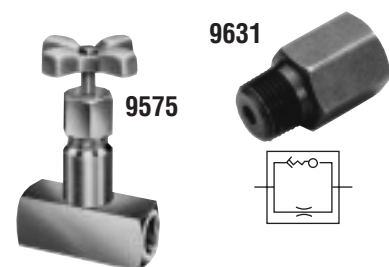
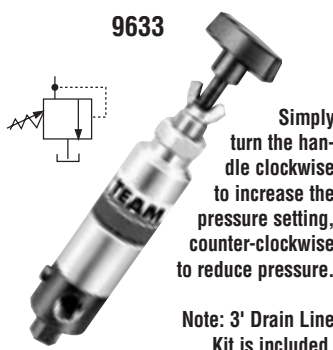
Application: Provide an economical means of protecting an hydraulic circuit against over pressurization.

Operation: These factory preset valves are designed for maximum flow rate of 5 gpm. Furnished with $\frac{1}{8}$ " NPT male port. All valves weigh .2 lb.

NOTE: Care should be exercised to protect workers from hot, pressurized hydraulic oil. Install these valves only in an enclosed or shielded area.

Valve Part No.	Pressure Setting (psi)
RV21278	10,100 / 10,700
RV21278-6	600 / 640
RV21278-10	900 / 1,000
RV21278-15	1,500 / 1,700
RV21278-20	1,900 / 2,200
RV21278-28	2,700 / 3,000
RV21278-30	3,000 / 3,400
RV21278-32	3,100 / 3,300
RV21278-35	3,500 / 3,800
RV21278-40	4,100 / 4,500
RV21278-43	4,400 / 4,800
RV21278-48	4,900 / 5,300
RV21278-50	5,100 / 5,700
RV21278-52	5,300 / 5,900
RV21278-55	5,600 / 6,200
RV21278-57	5,800 / 6,400
RV21278-60	6,100 / 6,700
RV21278-65	6,600 / 7,200
RV21278-70	7,100 / 7,700
RV21278-75	7,600 / 8,200
RV21278-80	8,100 / 8,700
RV21278-83	8,400 / 9,000
RV21278-86	8,700 / 9,300
RV21278-88	8,900 / 9,600
RV21278-90	9,100 / 9,700

Preset — Non-Serviceable



Completing

YOUR

Power Team

STEP 1: SELECT THE HYDRAULIC CYLINDER THAT BEST SUITS THE JOB.
(SEE PAGES 4-27)

STEP 2: SELECT THE HYDRAULIC PUMP YOU WILL NEED.
(SEE PAGES 28-65)

STEP 3: CHOOSE THE RIGHT HYDRAULIC VALVE OPTIONS.
(SEE PAGES 66-79)

STEP 4: SELECT THE HYDRAULIC ACCESSORIES YOU NEED.

Accessories

Hydraulic Pressure Gauges

A wide variety of gauges with standard or metric calibrations to choose from. See pages 83-84.



Hydraulic Hose and Couplings

Polyurethane, rubber and non-conductive hoses are offered. See pages 85-86.



Hydraulic Fittings

You will need these to "plumb" your hydraulic system. See page 87.



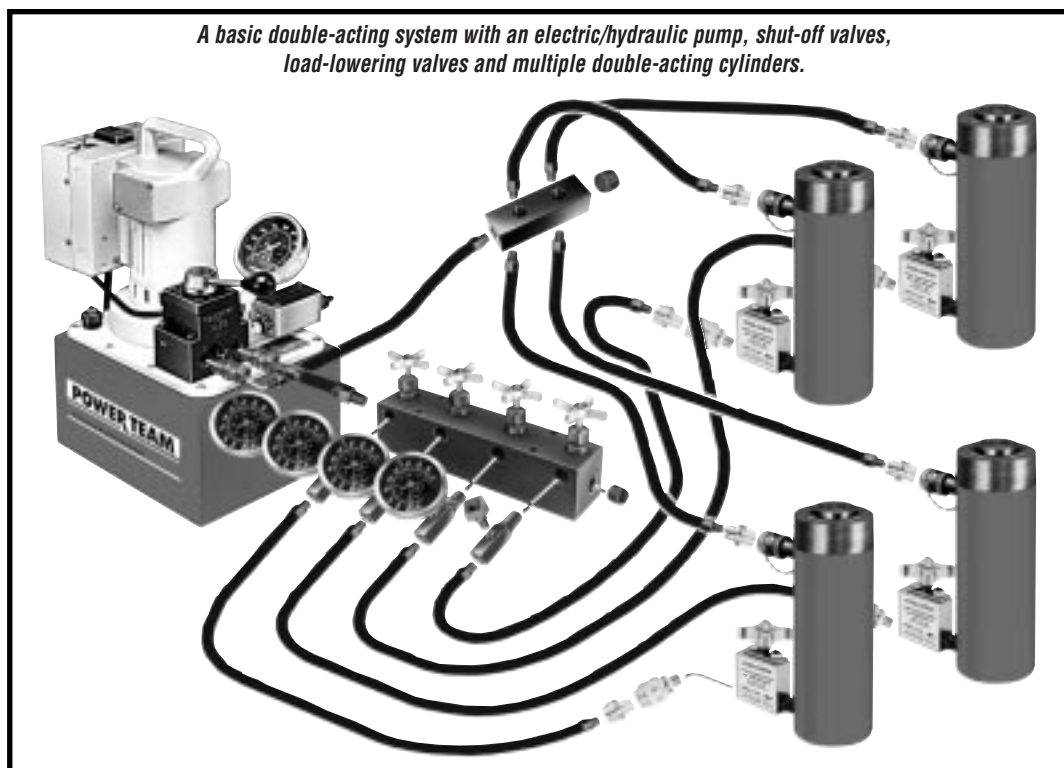
Hydraulic Oil

Standard, fire-resistant and environmentally-friendly hydraulic fluids are available. See page 88.



Pump Motor Controls

Several types of remote hand or foot controls are available. See page 89.



Subplates

For operating pressures to 10,000 psi.

Maximum flow rate is 5 gpm.

9510 AND 9620 SUBPLATES

For remote mounting of control valves. They convert pump mounted valves to remote mounted valves quickly and easily.

No. 9510 – Subplate for remote mounting the following valves; 9500, 9501, 9502, 9504, 9506, 9507, 9511, 9552, 9572, 9575, 9576, 9592, 9594 and 9609. Wt., 1.5 lbs.

No. 9620 – For use with 9500, 9501, 9502, 9552, 9572, 9592 and 9594. Same as No. 9510 but has integral pressure regulating valve. Wt., 3.8 lbs.

9515 AND 9521 PUMP-MOUNTED SUBPLATES

When fitted between pump cover plate valve mounting flange and control valve, provides a separate $\frac{3}{8}$ " NPTF female port, open to "return" regardless of position of valve. Also provides a separate $\frac{3}{8}$ " NPTF female pressure port.

This subplate can be useful when you desire to use one pump with a deck-mounted control valve, plus a separate remote-mounted valve to control another function.

For use with the following valves: 9500, 9501, 9502, 9504, 9506, 9507, 9511, 9552, 9572, 9575, 9576, 9592, 9594 and 9609.

No. 9515 – Subplate, Wt., 1.3 lbs.

No. 9521 – Subplate for use under most pump mounted valves to provide adjustable pressure control on units not equipped with an external pressure regulator. Wt., 3.8 lbs.

9531 FILTER/REGULATOR/LUBRICATOR, AIR

Recommended for use with single speed air/hydraulic pumps found on pages 38-41.

No. 9531 – Filter/regulator, $\frac{1}{4}$ " NPTF inlet and outlet. Wt., .8 lb.

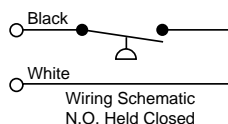
9625 PRESSURE SWITCH

Application: Used in a hydraulic circuit where system pressure must be "held". Automatically (electrically) turns off pump motor when predetermined system pressure is reached.

Attaches directly to control valve manifold or can be mounted "in-line" to read system pressure. Has a $\frac{1}{4}$ " NPTF male thread, and a $\frac{1}{4}$ " NPTF fitting for gauge mounting if required. Adjustable from 1,000 to 10,000 psi. Can also be used to actuate other electrical devices in the system. Wired "normally open" and held closed by spring pressure.

IMPORTANT: Electrical rating of switch is 5 amps at 250 volts max. To prevent permanent damage to switch, a control relay must be installed to handle currents or voltage exceeding these limits. Pressure switch should never be used to directly actuate the electrical motor.

No. 9625 – In-line pressure switch with $\frac{1}{4}$ " NPTF gauge port. Wt., 1.1 lbs.



9641 AND 9643 PILOT OPERATED AIR CONTROL VALVES

Application: For use when an air pilot signal is required at a set hydraulic pressure. Can be used to shift valves, and start or stop pneumatic pumps.

Attaches directly to control manifold or can be mounted "in-line" to read system hydraulic pressure. Automatically turns on an air pilot signal when a predetermined system pressure is reached. Has $\frac{1}{4}$ " NPTF male thread and $\frac{1}{4}$ " NPTF fitting for gauge mounting if required. Adjustable from 500-10,000 psi. Maximum rating of 25 scfm at 100 psi.

No. 9641 – Pilot operated control valve, normally closed, with $\frac{1}{4}$ " NPTF male thread. Wt., 1 lb.

No. 9643 – Same as 9641 except normally open. Wt., 1 lb.

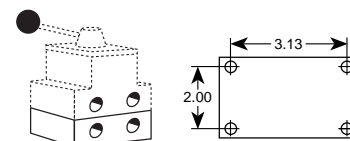
9510
9515



9620



9521

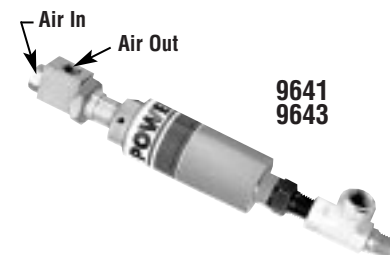


9510 and 9620 attach to the bottom of valve for remote mounting. The 9515 and 9521 mount between the pump cover plate and valve.

9531

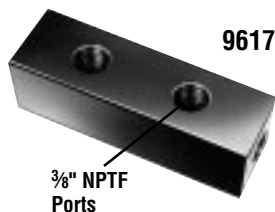


9641
9643



9625





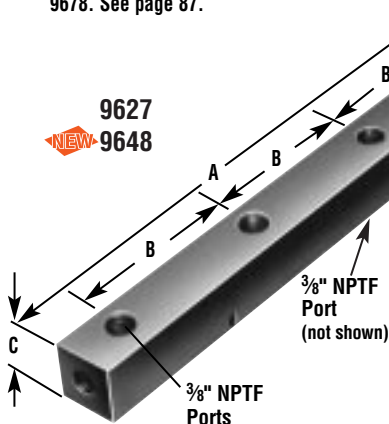
9617

3/8" NPTF Ports



9626

9626 converts pump for use with remote mounted valve. When attaching a gauge you must order fitting No. 9678. See page 87.



9627

NEW 9648

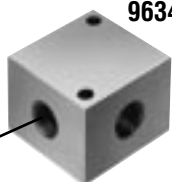
3/8" NPTF Port (not shown)

3/8" NPTF Ports

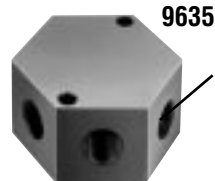
Manifold No.	A (In.)	B (In.)	C (In.)
9627	16.00	4.50	1.50
9648	7.00	1.50	1.50

2.00" Square
1.50" Thick

3/8" NPTF Ports



9634



9635

3/8" NPTF Ports

2.50" Hex x
1.50" Thick

Manifolds

9617 MANIFOLD BLOCK

When a multiple-cylinder installation is required, this manifold is invaluable. Has six 3/8" NPTF ports to handle larger multiple-cylinder systems. Wt., 3 lbs.

9626 MANIFOLD BLOCK

It converts Power Team pumps with pump mounted valves for use with remote mounted valves. This manifold block is subplate mounted on the pump cover plate and provides 3/8" NPTF pressure and return ports. Maximum operating pressure is 10,000 psi and maximum recommended flow rate is 5 gpm.

Note: If used on PE30 or PG30 series pump, 0.50" longer mounting screws are required. Order four (4) No. 11956 screws separately.

9627 MANIFOLD BLOCK

This 16.00" long manifold block allows you to mount the 9575 or 9596 valves without interference. Has seven 3/8" NPTF ports and two 0.25" mounting holes. Wt., 6 lbs.

9648 MANIFOLD BLOCK

This 7.00" long manifold block has seven 3/8" NPTF ports and two 0.25" mounting holes. Wt., 2.7 lbs.

9634 MANIFOLD BLOCK

This manifold is for multiple-cylinder installation, has four 3/8" NPTF ports and two 0.25" mounting holes. Wt., 1.5 lbs.

9635 MANIFOLD BLOCK

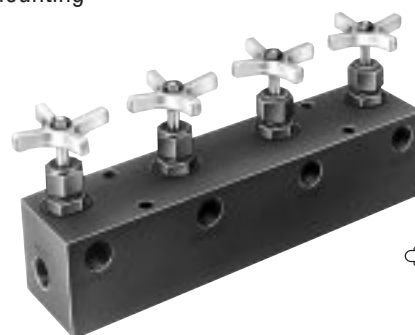
This hex-shaped manifold offers extra versatility. It has six 3/8" NPTF ports and two 0.25" mounting holes. Wt., 2 lbs.

9642 AND 9644 MANIFOLD BLOCKS WITH NEEDLE VALVES

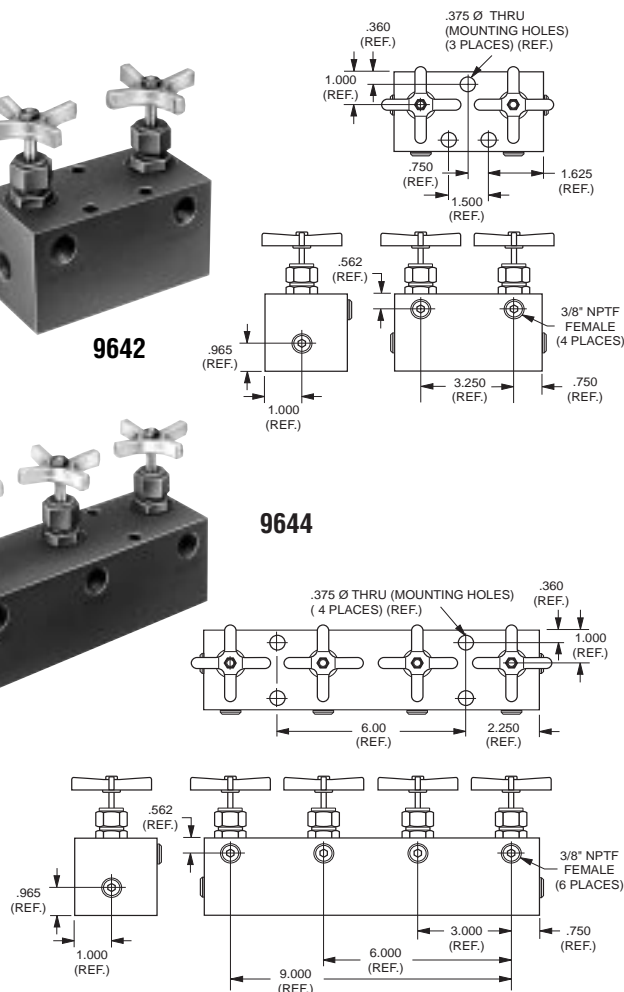
For independent multiple-cylinder operation, feature needle valves for precise manual control. Designed for remote-mounted applications, they can be used with all Power Team gas, air or electrically driven hydraulic pumps.



9642



9644



No. 9642 – Manifold with two needle valves for control of two cylinders. Has four 3/8" NPTF ports. Wt., 8.2 lbs.

No. 9644 – Manifold with four needle valves for control of four cylinders. Has six 3/8" NPTF ports. Wt., 16.2 lbs.

9691 "Y" MANIFOLD

Extremely useful when connecting two hydraulic cylinders to a single line. Has three 3/8" NPTF ports. Wt., 1 lb.



3/8" NPTF Ports

9691

Gauges

DIGITAL PRESSURE GAUGES

Accurate to within 1%, these new gauges feature larger display characters than ordinary digital gauges. Each gauge includes a long-life pressure transducer with 1/4" NPTF male threads for the pressure connection and a 6 foot signal input cable to connect to back of display unit.

FEATURES

- Pressure values are displayed on large red LED's in 10 psi or Bar increments.
- "Peak" hold feature with reset toggle switch and "Peak On" indicator; Hi/Low set point feature with relay outputs for Hi/Low alarms and/or control signals.
- A slow flashing display indicates pressure below the low limit; fast blinking display alerts you if high limit is exceeded.
- High and low limit relays are rated to a full 5 amps at 115 volts, compared to 1.5 amp rating of some competitive gauges.
- Operating temperature of 0-140°F for the electronic display and -20 to 180°F for the transducer. Gauge housings are extruded aluminum 1/8" DIN enclosures (NEMA 1 rating).
- When power cable is connected to gauge, display will scroll all characters, performing a self-diagnostic routine.

No. DG100 – Digital pressure gauge, pressure range 0-10,000 psi. **Note:** Serviced only at factory. Wt., 2.3 lbs.

No. DG100B – Metric digital pressure gauge, pressure range 0-690 Bar. **Note:** Serviced only at factory. Wt., 2.3 lbs.

No. VC220 – 220 voltage converter with plug adapters. Converts 220V 50/60 cycle to 110V 50/60 cycle. Wt. .8 lb.

No. 420778 – Gauge stand for DG100 or DG100B. Has angled base mounting to hold gauge at a convenient viewing angle. Wt., 1.2 lbs.

No. 37045 – Auxiliary power cord for use with any 12 or 24V battery. **Caution:** For use on negative ground systems only. Wt., .2 lb.

PHOTO TACHOMETER

- Infrared light source, micro-processor controlled liquid crystal display with memory.
- Strong magnetic base is included.

Machine speed: It is critical for proper machining operations. Speeds too fast or too slow can shorten tool life and cause expensive, unnecessary machine downtime. This digital photo tach can take readings from revolving shafts on drill presses, grinders, lathes and other machines. It can also be used to check engine operation on in-plant vehicles like fork lifts. The 3344 is accurate to within ± 1 rpm. The .4 in. high liquid crystal display is easily visible even in high ambient light areas.

No. 3344 – Digital Photo Tachometer. With memory, photo probe assembly, magnetic base and 108.00" of reflective tape. In plastic case. Wt., 4.5 lbs.

No. 204666 – Replacement retro-reflective indicator tape, 108.00" long x 0.50" wide. Wt., .1 lb.

No. 39811 – Replacement magnetic base assembly. Wt. .3 lb.

No. 45329 – Replacement photo probe assembly. Wt., .4 lb.

SPECIFICATIONS

Readout: Liquid crystal display; 4 (.4" high) digits, low battery indicator, memory mode indicator, high and low RPM memory mode indicator.

Range: 200 to 9999 rpm.

Accuracy: $\pm .25\%$, ± 1 rpm.

Update time: 3/4 second.

Power switch: Membrane switch (automatic shut-off after one minute of no signal input).

Power source: 9 volt alkaline battery.

Light source: Infrared with 15 foot plug-in cable.

Light holder ass'y: 30 lb. rated magnet; 2.00" dia. X 0.25" high (4.00" high overall with post).

Size: 3.38" wide, 6.00" high X 1.50" deep.

Carrying case: 13.50" wide, 10.00" high X 4.00" deep.

Weight: 4.5 lbs.

VC220



420778



37045



DG100



3344



Hydraulic Pressure Gauges

Gauges

HEAVY-DUTY HYDRAULIC PRESSURE GAUGES

These gauges feature an easily readable and highly visible adjustable, red day-glo needle. A high strength steel bourdon tube ensures high cycle life. With stainless steel cases and

lens locking rings, all 4.00" and 6.00" dry gauges can be filled with silicone (Kit #9046). All gauges have 1/4" NPT bottom connections. Designed to meet ASME B40.1 grade B standards.

Note: Gauges 9040-9085 are available in Europe with readings in bar. To order, add the letter 'E' to the part number (example 9075E) or contact your nearest Power Team facility.

GAUGE ACCESSORIES

No. 9047 – Replacement lens and pointer for 2.50" dia. gauge.

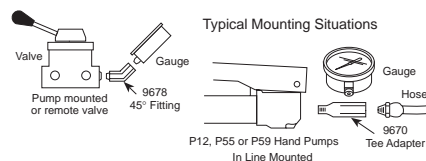
No. 9048 – Replacement lens and pointer for 4.00" dia. gauge.

No. 9049 – High performance pulsation dampener. 1/4" NPTF male X 1/4" NPTF female.

No. 9046 – Silicone fill kit. 7.5 fl. oz. Requires one bottle to fill 4.00" gauge; four bottles to fill 6.00" gauge.



Accessories



Face Dia.	psi	Bar	Tons	Major Graduations	Minor Graduations	Silicone Filled	Use With Power Team Cylinder Series	Gauge No.			
2.50"		0-690	—	2500 psi, 100 Bar	500 psi, 20 Bar	No	All	9041			
					Yes	9040					
				1000 psi, 100 Bar	200 psi, 10 Bar	No*		9051			
					Yes	9052					
4.00"	0-10,000	—	0-17.5, 0-30 and 0-50	2000 psi, 5 Ton	200 psi, .5 Ton on 30, 50 Ton Scales; .2 Ton on 17.5 Ton Scale	No*	RT172, RT302, RT503	9059			
			0-5	2000 psi, 1 Ton	200 psi, .1 Ton	No	C & RLS	9053			
			0-10		200 psi, .2 Ton	No*	C, RD, RH, RLS & RSS	9055			
			0-15				C	9057			
			0-20	2000 psi, 5 Ton	RH†, RLS, RSS		9061				
			0-25		C & RD		9063				
			0-30		RH†, RLS & RSS		9065				
			0-50		RH†, RLS & RSS		9067				
			0-55	200 psi, 1 Ton	C, R, RA & RD		9069				
			0-60		RH		9071				
			0-80		C, RLS & RD8013		9073				
			0-100	2000 psi, 10 Ton	C, R, RA, RD, RH, RLS†, RSS† & RT1004†		9075				
			0-150	2000 psi, Initial 10 Then 20 Ton	200 psi, 2 Ton		C, R, RD & RLS	9077			
			0-200	2000 psi, 20 Ton			R, RD & RH†	9079			
			0-300	2000 psi, 25 Ton	200 psi, 5 Ton		RD	9081			
			0-400	2000 psi, 50 Ton				9083			
			0-500					9085			
				0-6,000	0-400		—	1000 psi, 100 Bar	200 psi, 10 Bar		All
					0-690	100 psi, 10 Bar			9089		
			6.00"	0-10,000	—	0-150	2000 psi, Initial 10 Then 20 Ton	200 psi, 2 Ton	Yes	RH	9091
4.00"											

* Shipped "dry." User can convert to "wet" using liquid silicone No. 9046.

† The tonnage scale on the gauge is based on a different effective area. A slight error in tonnage reading will occur relative to the different effective area.

Hoses

HYDRAULIC HOSE

There are five styles in lengths from 2 to 100 ft. All have plastic hose guards except for the 0.25" I.D. polyurethane hoses which have spring guards. All have 3/8" NPTF fittings on both ends. Operating pressure is 10,000 psi. Minimum burst pressure is 20,000 psi (except for the non-conductive hoses and 0.38" high flow polyurethane hoses), and all comply with MHI standard IJ100.

■ Polyurethane hose

Offered in two sizes: 0.25" or 0.38" I.D. It is made up of nylon core tube with polyester fiber reinforcement which will withstand the minimum SAE bend radius without shortening service life. These hoses last up to seven times longer than rubber hose, and are suitable for continuous service at temperatures from -40° to 150° F.

■ Rubber hose

Offered in two sizes: 0.25" or 0.38" I.D. It is 2-ply rated hose reinforced with two braids of high tensile steel wire. The

rubber covering is oil and weather resistant. These hoses are MSHA approved.

■ Non-conductive hose

For applications requiring electrical isolation by the hose, "non-conductive" hose has a leakage factor of less than 50 microamperes, considered a safe level on conductivity by SAE standards. The covering is polyurethane and colored orange for easy identification as non-conductive hose. The covering is not perforated, preventing moisture from entering the hose and affecting its overall conductivity. All non-conductive hoses have a minimum burst pressure of 40,000 psi.



0.25" I.D. Polyurethane



0.38" I.D. Polyurethane



0.25" and 0.38" I.D. Rubber



0.25" I.D. Non-Conductive

All hoses comply with MHI standard IJ100

with a fast curing anaerobic sealant. Seals all metal fittings, plugs and threaded joints quickly and easily. Cures to form a permanent seal which is inert to hydrocarbons, most acids, chemicals, solvents and steam. Allows adjustment up to 16 hours after assembly; cannot loosen under vibration. Prevents galling of mating parts upon disassembly. Withstands temperatures from -65° F to +375° F.

No. HTS50 – Sealant, 50 ml. tube. Wt., 4 lb.



HTS50

Teflon is a registered trademark of duPont Co.

HYDRAULIC HOSE ASSEMBLY

No. 9764 – Hose ass'y consisting of 9767 (6' hose), 0.25" I.D. polyurethane with 9798 hose half coupler and 9800 dust cap assembled.

No. 9754 – Hose ass'y consisting of 9756 (6' hose), 0.25" I.D. rubber with 9798 hose half coupler and 9800 dust cap assembled.

HTS50 HEAVY-DUTY PIPE SEALANT WITH TEFLON®

■ Seals new or damaged threads; resists water, chemicals and oils.

■ Replaces conventional tape methods; forms a clog-free seal. Effective at 10,000 psi.

When "plumbing" a hydraulic system, there's now a better answer than tapes which can tear or shred, possibly plugging filters, valves or gauges. This compound combines the lubricating qualities of Teflon

CYLINDER RETURN TIME

The figures below show the relative effect two styles of hose can have on return time. Actual times may vary.

Cylinder	No. 9769 10 Ft. Hose 0.25" I.D.	No. 9781 10 Ft. Hose 0.38" I.D.
C2514C	51 sec.	14 sec.
C556C	1 min., 30 sec.	24 sec.
C5513C	4 min., 12 sec.	59 sec.
C10010C	6 min., 56 sec.	1 min., 3 sec.

ORDERING INFORMATION

Hose I.D.	Hose Type	Hose Length	Hose Ends	Order No.
0.25"	Polyurethane Nylon Core Synthetic Fiber Reinforced* (20,000 psi burst rating)	2 ft.	3/8" NPTF Male	9765
		3 ft.		9766
		6 ft.		9767
		6 ft.		9764**
		8 ft.		9768
		10 ft.		9769
		12 ft.		9770
		20 ft.		9771
		50 ft.		9772
		75 ft.		9750
		100 ft.		9751
0.38" High Flow	Polyurethane Nylon Core Synthetic Fiber Reinforced* (30,000 psi burst rating)	6 ft.	3/8" NPTF Male	9780
		10 ft.		9781
		20 ft.		9782
		50 ft.		9783
0.25"	Rubber, Wire-braid (2-Ply, 20,000 psi burst rating)	3 ft.		9755
		6 ft.		9756
		6 ft.		9754**
		8 ft.		9757
		10 ft.		9758
		12 ft.		9759
		20 ft.		9760
		30 ft.		9761
0.38" High Flow	Rubber, Wire-braid (2-Ply, 20,000 psi burst rating)	50 ft.		9762
		3 ft.		9733
		6 ft.		9776
		10 ft.		9777
		15 ft.		9734
		20 ft.		9778
		30 ft.		9735
		40 ft.		9736
0.25"	"Non-Conductive" (40,000 psi burst rating)	50 ft.		9779
		6 ft.		9773
		10 ft.		9774
		20 ft.		9775

* NOTE: This hose not recommended for use where heat or weld splatter conditions exist.

** Furnished with 9798 hose half coupler and 9800 dust cap.



9795 Set



9796



9799



9797



9794 Connected



9792

Disconnected



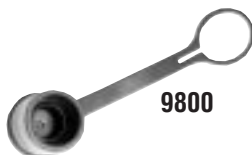
9793



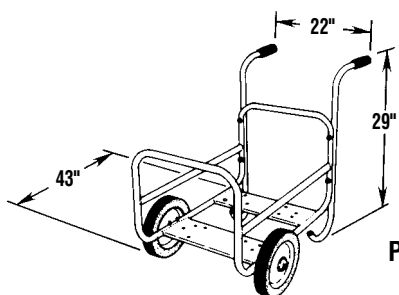
9790



9791



9800



PC200



PC200RC



RC5

CYLINDER AND HOSE COUPLERS

Designed for use up to 10,000 psi with hydraulic jacks, cylinders, etc. They are the threaded union type for interchanging cylinders in seconds. Each half is valved with a precision ball for a tight shutoff when disconnected. These couplers also permit the separation of cylinders or hose from pump when at 0 psi with minimal oil loss.

No. 9795 – Complete quick coupler, $\frac{3}{8}$ " NPTF. (Includes two 9800 dust caps.)

No. 9798 – Male (hose) half coupler (less hose half dust cap), $\frac{3}{8}$ " NPTF.

No. 9796 – Female (cylinder) half coupler with dust cap, $\frac{3}{8}$ " NPTF.

No. 9799 – Optional metal dust cap (Hose half.)

No. 9797 – Optional metal dust cap (Cylinder half.)

NO-SPILL, PUSH-TO-CONNECT HYDRAULIC HOSE COUPLERS

High flow, no-spill, push-to-connect couplers with locking collar and flush face designed for high pressure applications. The flush-face concept makes it easy to clean both coupler ends before connecting. Our unique push-to-connect, "dry-break" design eliminates oil spillage. The locking collar makes accidental disconnects a thing of the past. For 10,000 psi operation. Designed to permit high oil flow.

No. 9792 – Female (cylinder) half quick coupler only. Wt., .3 lb.

No. 9793 – Male (hose) half quick coupler only. Wt., .3 lb.

No. 9790 – Metal dust cap for 9792 female half coupler. Wt., .1 lb.

No. 9791 – Metal dust cap for 9793 male half coupler. Wt., .1 lb.

No. 9794 – Complete quick coupler (male and female). Dust caps not included. Wt., .5 lb.

HYDRAULIC COUPLER DUST CAP

Dust cap fits either male or female half couplers.

No. 9800 – Dust cap. For male or female $\frac{3}{8}$ " NPTF half couplers. Wt., .3 lb.

UNIVERSAL PUMP CART

Mobilize your hydraulic pumps with the PC200. The rugged tubular frame can easily handle pumps weighing up to 200 lbs. With 12 in. wheels, the cart rolls easily. Just load the pump onto the cart and wheel it right to the job. The universal mounting hole pattern lets you handle a wide variety of Power Team pumps.

No. PC200 – Universal pump cart with 12 in. wheels. Cart can be used with the following pumps: PA60, PA64 and PA554 air/hydraulic pumps; PE55 series, PE183-2 and PE184-2 electric/hydraulic pumps; PE21, PQ60 and PQ120 series "Quiet" pumps; PG55 series gas engine/ hydraulic pumps; and pumps with optional 5- and 10-gallon reservoirs Nos. RP50, RP51, RP101 and RP103. Wt., 27 lbs.

No. PC200RC – Roll cage for use with PC200. (Cannot be used on pumps with 10 gallon reservoirs.) Wt., 36 lbs.

PROTECTIVE PUMP ROLL CAGE

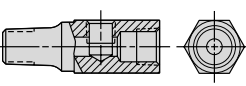
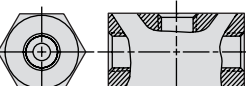
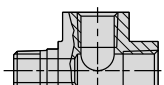
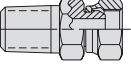
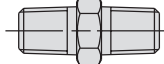
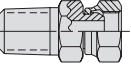
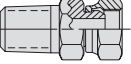
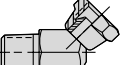
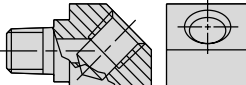
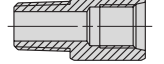
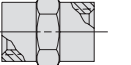
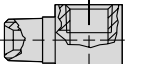



Safeguards pump, gas engine and valves on the job site. Horizontal bars provide convenient hand holds for carrying pump, a pick-up point permits lifting unit with an overhead crane or other device. Standard equipment on PG1203 and PG1204. Can be ordered as an option with any other gas, air, or electrically driven hydraulic pump equipped with a 5-gallon reservoir.



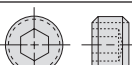
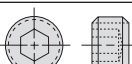







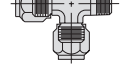

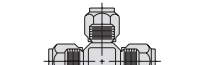

Note: Refer to PG1203/PG1204 specification chart for dimensions of roll cage.

No. RC5 – Roll cage. Wt., 19.5 lbs.

Hydraulic Fittings – 10,000 psi

Power Team's fittings include a wide range of types and sizes. Ideal for many hydraulic applications.

Order No.	Description
	9670 Tee adapter. For installing gauge between pump and hose coupling. Has 1/4" and 3/8" NPTF female and 3/8" NPTF male ports. Wt., .5 lb.
	9671 Double tee adapter. Permits use of more than one cylinder in series with one pump. Three 3/8" NPTF female ports. Wt., 1 lb.
	9672 Service tee. Two 3/8" NPTF female internal, one 3/8" NPTF male external. Wt., .6 lb.
	9673* Swivel connector, 3/8" NPSM male, 1/4" NPSM female. Wt., .2 lb.
	9674 Male connector, 1.69" long, 1/4" x 3/8" NPTF. Wt., .2 lb.
	9675* Swivel connector. 3/8" NPTF male, 3/8" NPSM female. Wt., .2 lb.
	9676* Swivel connector. 1/4" NPTF male, 3/8" NPSM female. Wt., .2 lb.
	9677* 45° swivel connector. 3/8" NPTF male, 3/8" NPSM female. Wt., .3 lb.
	9678 45° fitting. Used when mounting gauge at an angle on connection such as 9670. Male and female 1/4" NPTF ends. Wt., .3 lb.
	9679 Connector. 1/4" NPTF female and 3/8" NPTF male. Wt., .1 lb.
	9680 Coupling. Both ends 3/8" NPTF female. Wt., .2 lb.
	9681 Street elbow. Male and female 3/8" NPTF ends. Wt., .3 lb.
	9682 Male connector. 1.69" long, 3/8" NPTF male ends. Wt., .1 lb.
	9683 Male connector. 2.25" long, 3/8" NPTF male ends. Wt., .2 lb.
	9684 Male connector. 2.25" long, 1/4" NPTF male ends. Wt., .2 lb.

	9685 Coupling. 1/4" NPTF female and 3/8" NPTF female. Wt., .2 lb.
	9686 90° elbow. 3/8" NPTF female ends. Wt., .4 lb.
	9687 Pipe plug. Heat-treated, 3/8" NPTF. Wt., .1 lb.
	9688 Pipe plug. Heat-treated, 1/4" NPTF. Wt., .1 lb.
	9689 Connector. 1/4" NPTF male and 3/8" NPTF female. Wt., .2 lb.
	9690 Male connector. 1.69" long, 1/4" NPTF male ends. Wt., .1 lb.
	9692 Straight connector, 3/8" tube x 3/8" male NPTF. Wt., .2 lb.
	9693 90° elbow, 3/8" tube x 3/8" male NPTF. Wt., .2 lb.
	9694 45° elbow, 3/8" tube x 1/4" male NPTF. Wt., .2 lb.
	9695 Tee, 3/8" tube. Wt., .3 lb.
	9696 Male run tee, 3/8" tube x 1/4" male NPTF. Wt., .3 lb.
	9697 Male branch tee, 3/8" tube x 1/4" male NPTF. Wt., .3 lb.
	9698 Cross, 3/8" tube. Wt., .4 lb.
	9699 45° gauge fitting. 3/8" NPTF male and female, and 1/4" NPTF female at 45°. Wt., .6 lb.
	9190 Hyd. tubing. 0.38" O.D. x .065" wall 50 ft. (10 pieces 5 feet long.) Wt., 12 lbs.

Accessories

NOTE: Power Team hydraulic fittings are intended for use with our high pressure hydraulic products and are suitable for use at max. working pressures of 10,000 psi unless otherwise noted.

* **CAUTION:** On part numbers 9673, 9675, 9676 and 9677 the female swivel end of these adapters is a straight pipe thread (NPSM) with a 30° seat. All male pipe fittings that are used with these female swivel adapters must have an internal 30° seat in order to effect a proper seal. All Power Team male fittings are manufactured with a 30° seat except 9687 and 9688.

Power Team

Hydraulic

Fluids

Accessories



9637



9639



9646



9645



Hydraulic Fluids

STANDARD HYDRAULIC OIL

For dependable performance of all your hydraulic pumps and cylinders you need this specially formulated, high grade hydraulic fluid. It contains foam suppressant additives and has a high viscosity index. Refer to table below for specifications.

No. 9636 – Standard hydraulic fluid, 1 qt. (57 cu. in.).

No. 9637 – Standard hydraulic fluid, 1 gal. (231 cu. in.).

No. 9638 – Standard hydraulic fluid, 2½ gal. (577 cu. in.).

No. 9616 – Standard hydraulic fluid, 55 gal. drum.

FLAME-OUT® 220 FIRE RESISTANT HYDRAULIC FLUID

This synthetic hydraulic fluid contains anti-rust, anti-foam and anti-sludge additives while providing fire resistant protection. It provides maximum lubrication and heat transfer and can be used in a wide operating temperature range. With Flame-Out fluid you do not have to change seals in your Power Team equipment. When you need this fluid, just drain the standard oil and replace it with Flame-Out 220.

(Note: Fire resistant fluids will burn if heat source is extreme enough. They will not, however, propagate the flame and are self-extinguishing when there is no ignition source.)

No. 9639 – Flame-Out fire resistant hydraulic fluid, 1 gal. (231 cu. in.) container.

No. 9640 – Flame-Out fire resistant hydraulic fluid, 2½ gal. (577 cu. in.) container.

9645, 9646 “ENVIRONMENTALLY FRIENDLY” HYDRAULIC FLUID

■ Biodegradable, non-toxic fluid withstands moderate to severe operating conditions; provides excellent protection against rust.

■ Balanced formulation prevents corrosion, offers superior anti-wear properties, has excellent multi-metal compatibility.

Developed to meet stringent performance requirements and satisfy growing environmental needs for hydraulic fluids which are readily biodegradable and non-toxic. Can be used with all Power Team pumps, cylinders, valves and other accessories using our standard seals. Depending on the contamination or degradation levels which might be present in used fluid, small amounts of this substance, if spilled, will not affect ground water or the environment. Acceptable methods of

disposal include use as a fuel supplement. Since this fluid will not typically be hazardous waste, additional disposal options may be available, including land farming or processing through sewage treatment facilities, if necessary approvals are obtained from appropriate regulatory authorities. This fluid has been tested against EPA 560/6-82-003 and OECD 301 for biodegradability, and toxicity has been tested against EPA 560/6-82-002 and OECD 203: 1-12. Not recommended for operation in temperatures below 20°F (-7°C) or above 160°F (71°C). Recommended storage temperatures not below -10°F (-23°C) or above 170°F (77°C). For additional technical information or to order a Material Safety Data Sheet call 1-800-477-8326.

No. 9645 – Biodegradable hydraulic fluid, 1 gal. (231 cu. in.).

No. 9646 – Biodegradable hydraulic fluid, 2½ gal. (577 cu. in.).

LOW-TEMPERATURE OIL

Provides smooth, reliable operation in the coldest climate conditions.

No. 9647 – Low-temperature hydraulic fluid, 1 gal. (231 cu. in.).

SPECIFICATIONS

Description	Grade (ASTM)	Specific Gravity @ 60°F (16°C)	Color (ASTM)	Flash Point	Fire Point	Pour Point	Viscosity		Viscosity Index	Foam Test (ASTM)
							SUS @ 100°F (38°C)	SUS @ 210°F (99°C)		
Standard Oil	215	.88	2.0	400°F (204°C)	430°F (221°C)	-30°F (-34°C)	215	48	100 min.	Pass
Flame Out®	220	.91	Light Amber	500°F (260°C)	550°F (288°C)	-15°F (-26°C)	220	55	140 min.	Pass
Biodegradable	—	.92	2.0	432°F (224°C)	NA*	-22°F (-30°C)	183	53	213 min.	Pass
Low-Temp.	—	.87	6.5 (Red)	356°F (180°C)	399°F (204°C)	-48°F (-45°C)	183	52	190 min.	Pass

*Not available

Pump Controls

ON/OFF MOTOR CONTROL

The following remote control switches will give you momentary "ON" control of your hydraulic pump. These switches are deadman type, spring loaded to the "OFF" position. They can be used with any Power Team electric hydraulic pumps.

No. 25017 – Remote hand control. Has a rocker style switch, with a 10 foot cord. Wt., .8 lb.

No. 203225 – Remote hand control. Heavy-duty with single push button switch, in a neoprene housing with 10 foot cord. Housing seals out dust, lint and liquids (unit is not submersible). Wt., .8 lb.

No. 10461 – Remote foot control, with 10 foot cord. Wt., 3 lbs.

No. 251660 – Remote foot control, with 10 foot cord. For use with the PE10 style pumps. Wt., 1 lb.

SOLENOID & MOTOR CONTROL

For use on solenoid valves that are used on single-acting cylinders:

No. 202777 – Remote hand control. Has rocker style switch that is momentary advance, spring center hold and detented retract. It comes with a 10 foot cord, for use with 3-way/2 or 3-position valves. Wt., .9 lb.

For use on solenoid valves that are used on double-acting cylinders:

No. 202778 – Remote hand control. Has rocker style switch that is momentary advance, spring center hold and momentary retract. It comes

with a 10 foot cord, for use with 4-way/3-position valves. Wt., .9 lb.

No. 309653 – Remote foot control. Can be used in place of either of the above hand controls to control the same type of valves. The switch is momentary on both the advance and retract position and is spring centered to the hold position. This foot switch comes with 10 foot cord. Wt., 4 lbs.

No. 17627 – Remote foot control. Same as the No. 309653 but without a cord. Wt., 2 lbs.

No. 304718 – Remote hand control. Has a rocker style switch that is momentary advance, spring center hold and momentary retract. The switch is wired to start and stop the motor when the valve is energized. It comes with a 10 foot cord. To be used with 4-way/2-position valves. Wt., .9 lb.

No. 309652 – Remote foot control. Has the same function as the No. 304718. It comes with a 10 foot cord. To be used with 4-way/2-position valves. Wt., 4 lbs.

No. 216209 – Remote foot control. Same as the No. 309652 but without a cord. Wt., 2 lbs.

NOTE: See valves listing to determine which remote to use.

REMOTE AIR MOTOR CONTROLS

No. 209593 – Remote hand control. Has two momentary push buttons, one for advance and one for retract, spring offset to hold. To be used with 4-way/2-position air pilot valves. It comes complete with 12 foot hose. Wt., 2 lbs.

ACCESSORIES

No. 207762 – Magnetic strip. Can be added to No. 25017, 202777, 202778 and 304718 hand controls. The strip has an adhesive back and provides a 6 lb. holding force. Wt., .1 lb.

No. 16339 – Guard, for use with 10461 and 251660 foot controls. Wt., 4.5 lbs.



25017
202777
202778
304718



203225



251660



10461



309652
309653



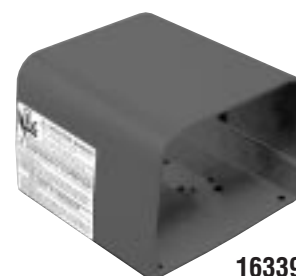
17627
216209



209593



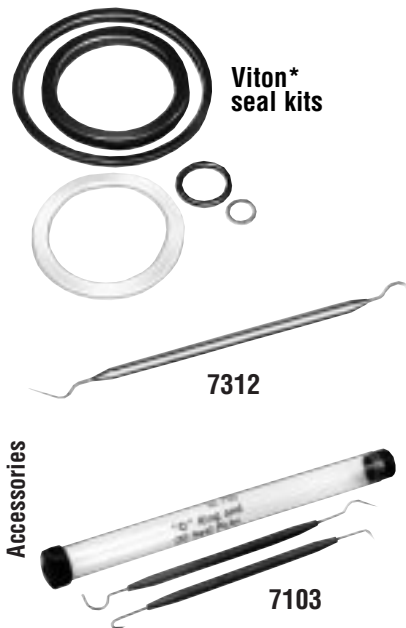
207762



16339

Accessories

Seal Kits And Hydraulic Reservoirs



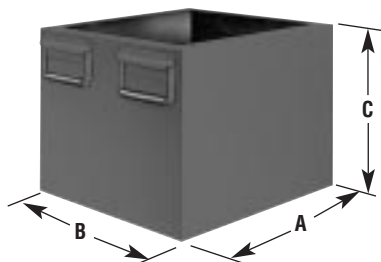
NOTE: All necessary conversion items are included.

NOTE: Hydraulic oil is not included with reservoir kits. Please order separately. See page 88.

VITON* SEAL KITS

Can be used in all "C" and "RH" series cylinders and in the P12, P55, P59, P157/P159, P157D/ P159D and P300/ P300D series hand pumps. These seals are required when fire resistant hydraulic fluids are used in the cylinders or pumps. For use with phosphate ester fluids. Not required with Flame-Out fluid.

*VITON IS THE E.I. DUPONT DE NEMOURS & CO., INC, TRADE NAME FOR FLUOROELASTOMERS.



NOTE: All metal reservoirs are equipped with drain plugs.

"O" RING SEAL PICKS

Even the seemingly simple job of removing and installing "O" ring seals can be difficult without the aid of the proper tool. The 7312 all metal "O" ring seal pick does the job with ease. Two special picks in set No. 7103 get right to the trouble areas.

No. 7312 – "O" ring seal pick. Wt., .1 lb.

No. 7103 – "O" ring seal pick set of 2 picks. Wt., .1 lb.

RESERVOIR BREATHER KITS

Kit No. 206767 is designed for use on PA17, PA55, PE17, PE55, PE84, PE90, PE120, PG55, PG120, PQ60, and PQ120 series pumps.



206767
250175

Kit No. 250175 is designed for use on PE21 and PE46 series pumps. These kits replace the reservoir filler cap when the pump is used in dusty and dirty environments.

No. 206767 – Reservoir breather kit. Wt., 1.3 lbs.

No. 250175 – Reservoir breather kit. Wt., 1.3 lbs.

CASTERS

No. 10494 – 2.00" dia. casters attach to bottom of RP21 reservoir for portability. Sold individually, order the number you need. Wt., .3 lb.

FLUID LEVEL/ TEMPERATURE GAUGE

No. 350431 – Shows fluid level and temperature of hydraulic oil in reservoir. 32-212°F, 0-100°C. 1.25" wide and 6.38" high.



350431

ORDERING INFORMATION

Order No.	For Use With	Model	Page
300210	5 ton "C" Series	All	9 & 12
300211	10 ton "C" Series		9
300471	15 ton "C" Series		9 & 12
300213	25 ton "C" Series		9
300215	55 ton "C" Series		9
300846	75 ton "C" Series		9
300216	100 ton "C" Series		16
300221	RH102, RH108		17
300222	RH203		16
300223	RH302, RH306		17
300224	RH303	A	16
300225	RH503		17
300226	RH605		16
300476	RH603, RH606		17
300585	RH1003		34 & 35
300227	RH1006		34 & 35
300228	RH1505		34 & 35
300507	P12		34 & 35
300472	P23, P55		34 & 35
300510	P59		34 & 35
300508	P157, P159, P300	B	34 & 35
300690	P157, P159		34 & 35
300696	P300	A	34 & 35
300508	P157D, P159D, P300D		34 & 35
300693	P157D, P159D	B	34 & 35
300699	P300D		34 & 35

LARGE CAPACITY RESERVOIRS

Cap.	Order No.	Usable Oil	For Use On	Size		
				A	B	C
2 gal.	RP20**	442 cu. in.	PA4, PA6, PA50 series (models A-E)	11.50"	9.50"	6.50"
	RP20-F**		PA4, PA6 series (model F) PA50 series (model F & G)			
	RP20M*	450 cu. in.	PA4, PA6, PA50 series (models A-E)			
	RP20M-F*		PA4, PA6 series (model F) PA50 series (model F & G)			
	RP21*		PE18 series			
	RP22†	442 cu. in.	PE55, PE90, PE120, PA55			
5 gal.	RP50	1,150 cu. in.	PE55, PE90, PE120, PA55	15.00"	12.50"	8.00"
	RP51		PA46, PE46, PE21			
10 gal.	RP100	2,194 cu. in.	PE55, PE90, PE120, PA55			14.00"
	RP101		PG55			
	RP103*	2,310 cu. in.	PQ60, PQ120	15.44"	14.25"	12.31"
	RP104	2,194 cu. in.	PA46, PE46, PE21	15.00"	12.50"	14.00"

* Four mounting holes: 1/2"-20, for 2.00" Dia. swivel casters (No. 10494)

** High density Polyethylene reservoir.
† Aluminum reservoir.

Lifting And Jacking Equipment



Lifting tasks having clearances as limited as one inch are easily performed with Power Team hydraulic toe-lift jacks.



Hydraulic Maintenance Sets offer a complete lifting, pushing, pulling, pressing, straightening, spreading, or clamping set contained in a sturdy box for use at those remote job sites.



Power Team now offers the most durable monostrand stressing jacks in the industry.

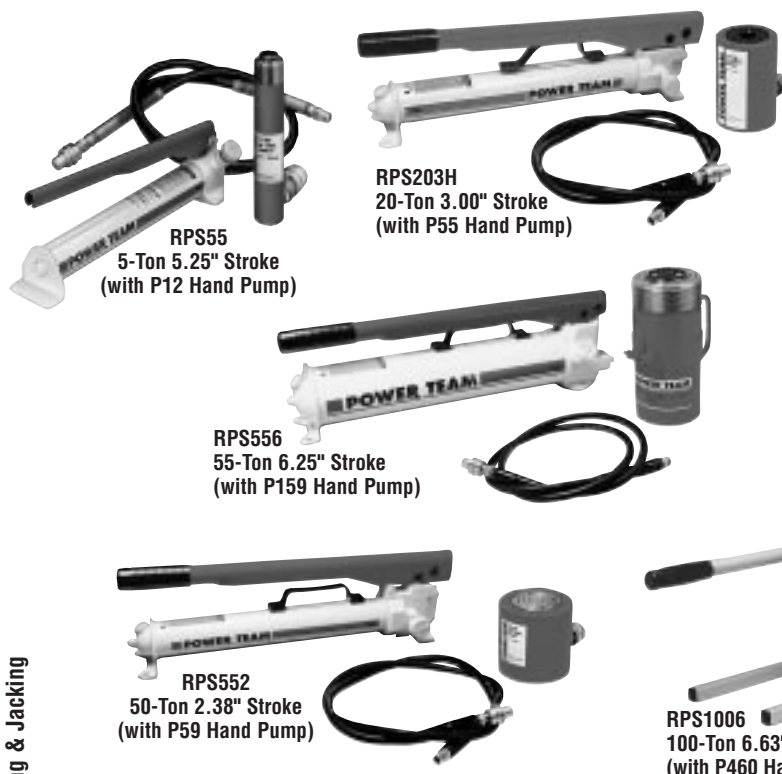


An Inflatable jack is shown lifting an industrial forklift, which has limited clearance for jacking.



Moving machinery is a lot easier with inflatable jacks and their ability to handle off center loads and limited access.

Hydraulic Cylinder And Pump Sets



Precision matched power components to tame countless tasks.

Four styles of cylinders providing positive, leak resistant operation.

Sets feature single- or 2-speed hydraulic hand pumps. Cylinders of various tonnages with long, medium or short stroke.

Each set includes the necessary fittings, coupler and 6 foot hose.

NOTE: See appropriate catalog pages for additional details on pumps and cylinders supplied with these sets. Consult numerical index to locate pages.



No. 251220
Storage Box – Rugged industrial strength material, strong as steel, never needs painting, won't rust, dent or chip. Weatherproof lid is self sealing and lockable. Molded-in handles and removable heavy duty utility tray. Water-tight, one piece bottom and side construction. Strong enough to stand on. (35.00"L x 14.00"H x 13.50"W)

ORDERING INFORMATION

See current price list for shipping weights

“C” Series Cylinders											
Style of Cyl.	Cyl. Cap. (tons)	Stroke (in.)	Order No.	Retracted Height (in.)	Handle Strokes Required to Fully Extended Cylinder	Cyl. No.	Pump No.	Hose No.	Coupler No.	Pump Speed	Prod. Wt. (lbs.)
“C” Series Cyl.	5	5.25	RPS55	8.50	75	C55C	P12	9756	9798	Single	12
	10	2.13	RPS102**	4.75	32	C102C	P55				26
		6.13	RPS106**	9.75	93	C106C					32.1
		10.13	RPS1010**	13.75	154	C1010C					35.6
		4.13	RPS154**	7.88	81	C154C					29
	15	6.13	RPS156**	10.69	118	C156C	34				
		25	6.25	RPS256**	10.75	219	C256C				42.7
			14.25	RPS2514**	18.75	285*	C2514C				P159
	55	6.25	RPS556**	11.13	268*	C556C	82.7				
	100	6.63	RPS1006	13.25	428*	C1006C	P460			128.7	
“Shorty” Cylinders											
“Shorty” Cyl.	30	2.44	RPS302**	4.63	61*	RSS302	P59	9756	9798	Two	40
	50	2.38	RPS552**	5.00	89*	RSS502					50
	100	2.25	RPS1002**	5.50	172*	RSS1002					81
“Center-Hole” Cylinders											
“Center-Hole” Cyl.	20	3.00	RPS203H**	6.06	80	RH203	P55	9756	9798	Single	40.5
Aluminum Jacking Cylinders											
Alum.	55	6.13	RPS556A**	10.75	262*	RA556	P159	9756	9798	Two	47

* Based on 50% of the strokes being made at low-pressure and 50% of the strokes at high pressure.

**Add suffix "B" to order set with optional storage box (example: RPS102B, RPS203HB, etc.)

Matched hydraulic system components, adapters and hydraulic spreader, contained in a rugged carrying and storage case.

Portable sets are ideal for pushing, pulling, lifting, straightening, or clamping at remote job sites.

Cylinders in set are rated at 10 tons at 10,000 psi. Set components are designed for full rated capacity of cylinders

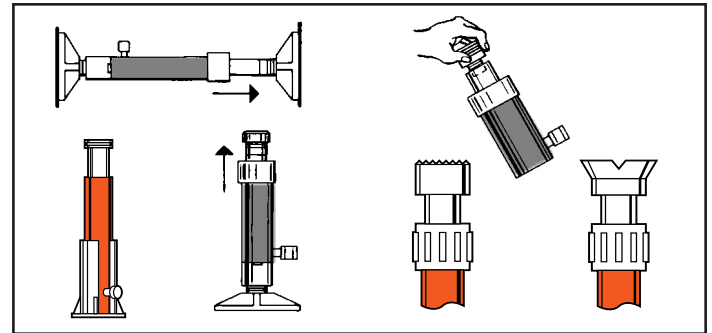
Set IM10H includes hand operated pump. Set IM10E includes the Quarter Horse® electrically-driven portable power unit.



IM10H



IM10E



Lifting & Jacking

ORDERING INFORMATION

See current price list for shipping weights

Order No.	Quantity	Equipment No.	Description	Order No.	Quantity	Equipment No.	Description
IM10H	1	HS2000	Hydraulic Spreader	IM10E	1	HS2000	Hydraulic Spreader
		P59	Hand Pump			PE102	Hydraulic Pump (elec.)
		9041	10,000 psi Hyd. Gauge			9041	10,000 psi Hyd. Gauge
		9670	Tee Adapter			9670	Tee Adapter
		9754	Hose & Coupler assembly			9754	Hose & Coupler assembly
		25395	90° V Base			25395	90° V Base
		25664	Threaded coupler			25664	Threaded coupler
		31772	Serrated saddle			31772	Serrated saddle
		32325	Flat Base			32325	Flat Base
		350897	Extension Rod – 5.00" lg.			350897	Extension Rod – 5.00" lg.
		38909	Extension Rod – 10.00" lg.			38909	Extension Rod – 10.00" lg.
		350898	Extension Rod – 18.00" lg.			350898	Extension Rod – 18.00" lg.
		420062	Cyl. Support Base			420062	Cyl. Support Base
		C106CBT	Cyl. ass'y, 10 ton 6.13" stroke			C1010CBT	Cyl. ass'y, 10 ton 10.13" stroke
		251220	Storage Box			C106CBT	Cyl. ass'y, 10 ton 6.13" stroke
-	-	-	Prod. Weight – 89 lbs.	-	-	251220	Storage Box
						-	Prod. Weight – 106 lbs.

Power Team

Hydraulic

Bottle Jacks

9130A



Ruggedly built, self-contained jacks offer portable hydraulic power in a lightweight, reliable unit. Comply with ASME B30.1 standard.

Many models feature screw extensions. Serrated caps help stabilize the load for a safer lift.

Oil leakage is greatly reduced by welding the jack's pressure cylinder, oil reservoir, pump housing and base into one integrated unit.

Fewer working parts, internally machined oil passages and close tolerances set these apart from ordinary bottle jacks.

Base is hot forged steel, not cast iron! Greater strength!

May be used in vertical, angled and horizontal positions.

Oil bypass system limits stroke of jack by routing

oil back to reservoir. Other jacks require the high pressure seals on the piston to cross over a bleed hole. Result? Shorter seal life.

The 9015B, 9022B, 9033B and 9110B jacks have a unique beveled base which allows jack to "follow" the load laterally as it is raised, greatly reducing side-loading of the piston.

"Low profile" models are perfect for "close quarters" lifting. Pump handle operates parallel to the base of the jack; ideal for horizontal applications.

9022B

9030A



9110B



ORDERING INFORMATION

See current price list for shipping weights

Cap. Tons	Stroke (in.)	Order No.	Retracted Height Min. (in.)	Length of Screw Ext. (in.)	Height with Screw Ext. (in.)	No. Pump Strokes to Ext. piston 1 in.	Saddle Dia. (in.)	Base Size Beveled Base: † (in.)	Pump Handle Length (in.)	Handle Effort at Rated Cap. (lbs.)	Carry Handle	Product Weight (lbs.)
2	4.50	9002A	7.13	1.94	13.56	5	1.00	4.34 X 2.56	12.25	75	No	4.8
3		9003A	7.50	2.38	14.38	10	1.13	4.50 X 2.84	19.25	45		5.8
5	4.75	9005A	7.88	2.75	15.38	12	1.38	5.19 X 3.00	21.44	55		8.0
8		9008A				18	1.50	6.00 X 3.50	23.81	75		12.1
12	5.88	9112A	9.50	3.13	18.50	26	1.88	6.50 X 4.19		60	Yes	17.5
NEW 15	6.13	9015B	9.06	4.50	19.88	27	2.38	5.13 X 5.50 †	27.56	90	No	18.3
20	6.25	9120A	10.63	3.75	20.50	22	2.00	7.19 X 5.06	31.50	70	Yes	28.5
NEW 22	6.13	9022B	9.44	4.31		36	2.38	6.50 X 6.31 †	27.56	90		23.6
30	6.25	9030A	11.00	—	17.25	35		7.56 X 5.56	39.38	50	No	41.2
NEW 33	5.63	9033B	9.44	4.19	19.75	56	2.56	7.25 X 6.94 †	27.56	88		32.0
50	6.75	9050A	12.00	—	18.75	35	3.00	9.31 X 7.38	39.38	85	Yes	78
NEW 110	6.13	9110B	11.81		17.94	40/160 ††	4.38	13.38 X 11.44 †	27.56	79		154.3

Low Profile Bottle Jacks:

†† 2 Speed: Rapid advance=40 strokes; Lift mode=160 strokes

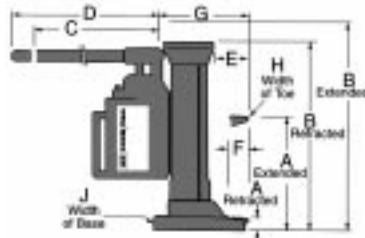
12	3.75	9012A	6.75	3.00	13.50	26	1.88	6.50 X 4.19	23.81	60	Yes	14.0
20	3.38	9020A	7.13	1.56	12.00	22	2.00	7.19 X 5.06	31.50	70		22.2
30	3.13	9130A		—	10.25	35	2.38	7.56 X 5.56	39.38	50		30.2

Hydraulic Toe Jacks

Get under and lift equipment with only 1.06" of ground clearance. A new 27.5 ton model is now offered.

With lifting points on the toe and on the top, these rugged jacks are ideal for machine rigging, lift truck service and much more.

All jacks operate both vertically and horizontally. Base, toe and pump assembly swivel independently of each other, allowing the jack to fit in confined lifting spaces. Jacks comply with ASME B30.1 standard.



An integral lowering speed control and a pressure relief valve which prevents overloading are featured.



Lifting & Jacking

ORDERING INFORMATION

See current price list for shipping weights

Cap. Tons	Max Lift Stroke	Order No.	A		B		Strokes to ext. piston 1 in.	C (in.)	D (in.)	E (in.)	F (in.)	G (in.)	H (in.)	J (in.)	Handle Effort at Max. load (lbs.)	Carry Handle	Product Wt. (lbs.)
			Ret. (in.)	Ext. (in.)	Ret. (in.)	Ext. (in.)											
5.5	8.25	J58T	1.06	9.00	14.75	22.50	8	16.00	19.00	2.81	2.19	6.94	1.63	5.13	83.9	Yes	43.0
11	9.25	J109T		10.00	16.50	25.75	13			3.00		7.22	2.50	6.75			64.0
27.5	9.19	J259T	2.13	11.38	19.88	29.06	21	8.25	29.75	5.75	4.00	10.50	3.50	10.63			203.0

Economy Hydraulic Toe Jacks

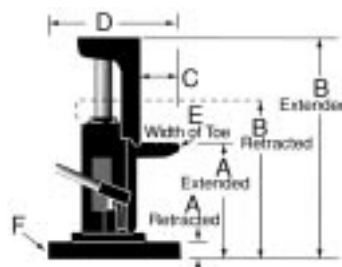
Provide many of the features of our standard toe jacks. Meet ASME B30.1 standard.

An internal pressure relief adds safety by limiting the jack's lifting capability to the capacity of the toe.

Spring return is featured on the larger jacks.

The 5 and 10 ton models have a swiveling

pump handle assembly which allows you to access and pump the unit from numerous positions.



ORDERING INFORMATION

See current price list for shipping weights

Cap. Tons	Max Lift Stroke	Order No.	A		B		Strokes to ext. piston 1 in.	C (in.)	D (in.)	E (in.)	F (in.)	Handle Effort at Max load (lbs.)	Carry Handle	Product Wt. (lbs.)
			Ret. (in.)	Ext. (in.)	Ret. (in.)	Ext. (in.)								
2	4.88	J24T	0.63	5.50	9.25	14.00	14	1.87	7.13	2.00	4.94	42	Yes	18.3
5		J55T	1.00	5.88	11.50	16.38	22		10.13	3.00	7.25	60		53.0
10	5.88	J106T	1.25	7.13	12.88	18.75	31	2.50	11.50	3.94	9.50	73		83.8

Hydraulic Telescoping Jacks And Mini Jack

9011X



9013X



Hydraulic Telescoping Jacks

The quality and reliability of our standard bottle jacks, but with a super long stroke. Eliminates the need to lift-crib-lift, etc. This saves job time and effort. Usually, you only have to place the jack once to complete the lift.

The 9015X offers very low clearance capability, making it the ideal choice for forklift maintenance or machine lifting.

The 9006X, 9011X and 9013X all feature a unique beveled base which allows the jack to "follow" the load laterally as it is raised, greatly reducing side-loading of the piston.

Jacks comply with the ASME B30.1 standard.

ORDERING INFORMATION

See current price list for shipping weights

	Cap. Tons	Stroke (in.)	Order No.	Retracted Height Min. (in.)	Length of Screw Ext. (in.)	Height with Screw Ext. (in.)	No. Pump Strokes to Ext. piston 1 in.	Saddle Dia. (in.)	Base Size Beveled Base: † (in.)	Pump Handle Length (in.)	Handle Effort at Rated Cap. (lbs.)	Carry Handle	Product Weight (lbs.)
NEW	6	12.00	9006X	8.50	—	20.50	14	1.75	4.75 X 5.25 †	27.56	79	No	14.0
NEW	11	10.30	9011X	7.88	2.69	20.88	25	1.63	6.31 X 6.50 †		88		19.5
NEW	13	10.00	9013X	9.06	3.31	22.38	35	1.88	6.94 X 7.31 †		79	Yes	25.0
NEW	15	7.13	9015X	6.69	2.75	16.56	32	2.06	5.63 X 7.63	23.63	95		26.5

9105A



Hydraulic Mini Jack

Here's 5 tons of power in the palm of your hand! Use it vertically or horizontally as a jack or spreader to apply force with just over 2.50" of clearance needed. This little task tamer weighs only 4.2 lbs.

Use it to turn your mechanical gear puller of five tons or larger into an hydraulic puller.

Handle operation is especially convenient for horizontal positioning, though you can use the jack at any angle.

Complies with ASME B30.1 standard.

ORDERING INFORMATION

See current price list for shipping weights

	Cap. Tons	Stroke (in.)	Order No.	Retracted Height Min. (in.)	Max Height (in.)	No. Pump Strokes to Ext. piston 1 in.	Saddle Dia. (in.)	Base Size (in.)	Pump Handle Length (in.)	Handle Effort at Rated Cap. (lbs.)	Carry Handle	Product Weight (lbs.)
NEW	5	0.81	9105A	2.56	3.38	4	1.13	2.94 Dia.	9.44	16.75	No	4.2

High Tonnage Portable Jacks

Portable and compact; ideal for railcar, construction, mining and other heavy equipment maintenance.

55, 100 and 150 ton models. Air/hydraulic or electric/hydraulic power source options; choice of manual, or 20 foot remote controls for maximum operator safety. Choose "motor only" or "motor and valve" control.

Uses standard, proven Power Team hydraulic power components, giving you the most reliable jack on the market.

Three retracted height options: 26.00", 33.00" and 45.00". Exclusive load control system provides positive, chatter-free control when lowering load.

Modular design; pump and cart separates from cylinder and base. Alternate jack modules available for varying tonnage and height requirements. Swivel load caps provide more secure load holding.

Pump module may be used as a portable power station for other double-acting, 10,000 psi cylinders.

Shielded and sheltered hydraulic lines for safer, longer, trouble free service.

Large, urethane filled tires provide ease of maneuverability; small "footprint" enables jack to fit into tight quarters to reach desired lifting position. Adjustable handle provides maximum operator control in positioning, can also be used to transport jack to job site with a forklift.

Optional cribbing blocks provide full rated mechanical load holding capability. Must be used with jack module extension accessory, which also extends jack's reach. Extension included with each cribbing block set, and also available separately.

Low temperature oil (optional) provides smooth, reliable operation in the coldest climate conditions.



Manual valve with remote operated motor or remote motor/valve options are available.

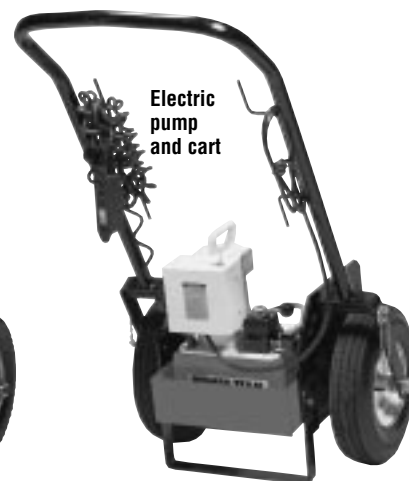
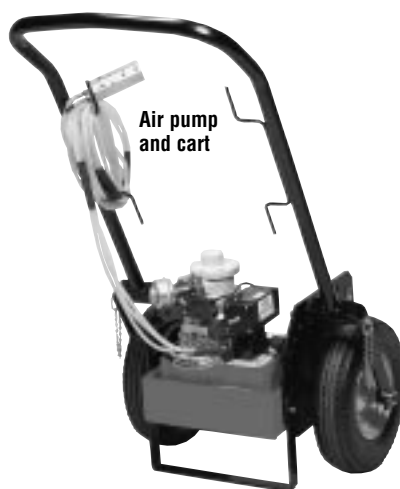
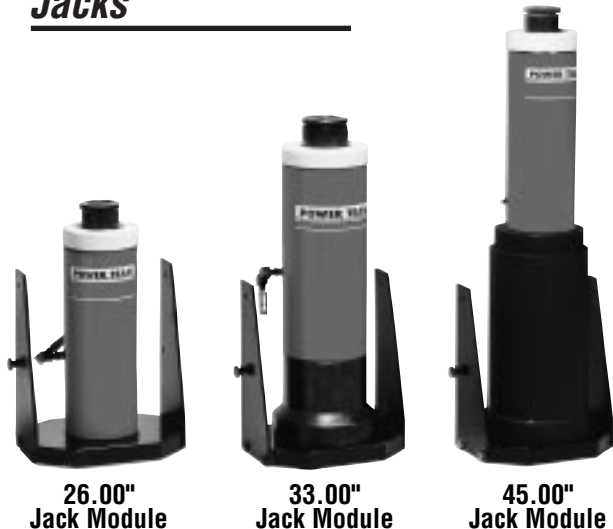


Pump and cart module easily separates from jack module. Order extra jack modules for a variety of lifting needs.

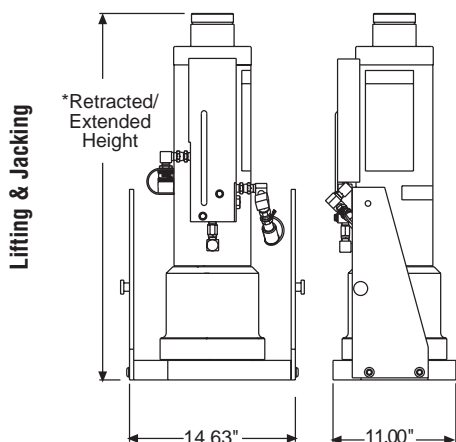
High Tonnage

Portable

Jacks



JM Model Shown



JACK MODULES

Capacity (tons)	Stroke (in.)	Order No.	* Retracted Ht. (in.)	* Extended Ht. (in.)	Prod. Wt. (lbs.)
55	13.13	JM25	26.00	39.13	197.0
		JM35	33.00	46.13	224.0
		JM45	45.00	58.13	252.0
100		JM210	26.00	39.13	291.0
		JM310	33.00	46.13	346.0
		JM410	45.00	58.13	406.0
150	18.13	JM215	26.00	39.13	384.0
		JM315	33.00	51.13	466.0
		JM415	45.00	63.13	554.0

PUMP & CART MODULES

Pump and cart modules contain hydraulic pump, cart, remote control and all hoses and fittings required to connect to a jack module.

Jack modules easily separate from the pump and cart module. Extra jack modules may be

purchased for a wide variety of lifting applications.

Pump Type	Order No.	Valve		Power Required	Remote Control	Prod. Wt. (lbs.)
		Type	No.			
Air PA55 Series	PMA55	manual	9500	50 cfm @ 80 psi	motor 20 ft.	180
	PMA55S	air pilot	9594		motor & valve 20 ft.	185
Electric PE55 Series	PME55	manual	9500	1 1/8 hp 115V, 50/60 Hz 25 amps	motor 20 ft.	195
	PME55S	solenoid	9592		motor & valve 20 ft.	200

DIMENSIONS

Model Series	A	B	C	D	E	F	G	H
PMA & PME	57.63"	29.63"	53.25"	30.00"	34.31"	23.38"	*70°	16.00" Tire Dia.

* Total range with varying degree increments.



Cribbing Block Set



Jack Module Extension



HIGH TONNAGE PORTABLE JACKS

Select a jack module and pump and specify by order number as shown in "Order Number" chart. Complete jack assemblies can also be purchased by ordering a jack module and pump and cart module separately.

Pump and Cart Module				
Air/Hydraulic Pump		Electric Pump		
Manual	Air Pilot	Manual	Solenoid	Valve Type
50CFM @ 80 psi		115 V. 50/60Hz.		
PMA55	PMA55S	PME55	PME55S	Power Requirements Pump and Cart #

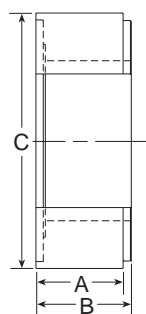
Capacity (tons)	Stroke (in.)	Ret. Ht. (in.)	Jack Module	ORDER NUMBER	▼ ORDER NUMBER ▼				
55	13.13	26.00	JM25		JAM5526	JAR5526	JEM5526	JER5526	
		33.00	JM35		JAM5533	JAR5533	JEM5533	JER5533	
		45.00	JM45		JAM5545	JAR5545	JEM5545	JER5545	
26.00		JM210	JAM10026		JAR10026	JEM10026	JER10026		
33.00		JM310	JAM10033		JAR10033	JEM10033	JER10033		
45.00		JM410	JAM10045		JAR10045	JEM10045	JER10045		
150		18.13	26.00		JM215	JAM15026	JAR15026	JEM15026	JER15026
			33.00		JM315	JAM15033	JAR15033	JEM15033	JER15033
			45.00		JM415	JAM15045	JAR15045	JEM15045	JER15045

For heavy-duty lifting in railroad, construction, mining and industrial applications.



CRIBBING BLOCK SETS - Includes One Jack Module Extension

Order No.	55 Ton		100 Ton		150 Ton	
	CBS55		CBS100		CBS150	
No. in Set	1	4	1	4	1	4
A	1.50"	3.00"	1.50"	3.00"	1.50"	3.00"
B	1.75"	3.25"	1.75"	3.25"	1.75"	3.25"
C	5.50"	5.50"	7.38"	7.38"	8.75"	8.75"
Jack Module Ext.	6.81"		7.00"		6.63"	
Total Stack Ht.	20.31"		20.50"		20.13"	
Product Wt. (lbs.)	36.0		68.0		85.0	

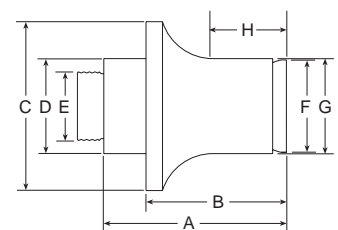


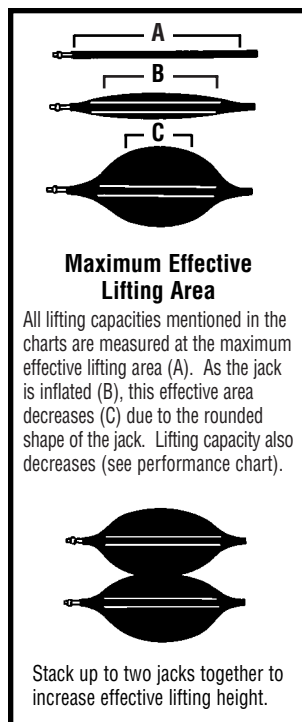
- Convert jack module into stable mechanical cribbing device.
- Increase retracted height up to 20.50 inches.

- Increases jack's reach.
- Swivel cap (5° max.) provides more secure load holding.

JACK MODULE EXTENSIONS

Capacity (tons)	Order No.	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	F (in.)	G (in.)	H (in.)	Prod. Wt. (lbs.)
55	421365	8.81	6.81	5.00	2.63	1 11/16-8UN	2.50	2.63	3.63	21.0
100	421366	9.00	7.00	6.88	3.88	2 3/4-12UN	3.75	3.88	3.75	40.0
150	421367	8.63	6.63	8.00	4.50	3 1/4-8UNC	4.38	4.50	3.50	50.0





Inflatable Jacks

Tough enough to lift a bridge or machine, thin enough to lift in tight places where other jacks just can't be used. Ideal for structure moving, rescue work, lifting round tanks, maintaining pipelines, rerailling mine locomotives and performing countless other tasks.

Available in 1.1, 3.6, 7, 12, 23.8, 34, 46.3 and 74.6 ton capacities.* Require a compressed air source of only 116 psi. Any non-explosive gas or water can also be used for inflation.

* 1.1, 3.6 and 7 ton models will be available during the first quarter of 1999.

Space age reinforced aramid construction. Reinforcement widely overlaps on both sides of bag. Bonded to neoprene rubber and a unique air inlet fitting. In rugged testing, jacks withstood tens of thousands of inflate/deflate cycles at 116 psi.

Highly flexible and light in weight. Non-conductive, safe for applications where there is a risk of electrical shock. Unaffected by oil, ozone and chemicals which are compatible with neoprene.

Can be used to lift a load from an uneven surface; tolerant of side-loaded applications. Thanks to large surface area and material flexibility, jacks can lift loads on soft or compressible surfaces without support cribbing being necessary. Surface of jack has a non-skid pattern; assures that jack won't "walk away" from the job.

Safety? The controller, shut-off and air hoses are all equipped with USA industrial interchange style air couplers. Female half coupler bodies have a locking collar, protecting operator from accidentally disconnecting jack while under load.

Single jack controller with "dead man" control (350090) can be used individually, or in multiples to regulate any number of jacks desired.

ACCESSORIES

No. 350090 – Air controller. Single jack controller with "dead man" control. Equipped with separate pressure relief valve and pressure gauge. Wt., 1.9 lbs.

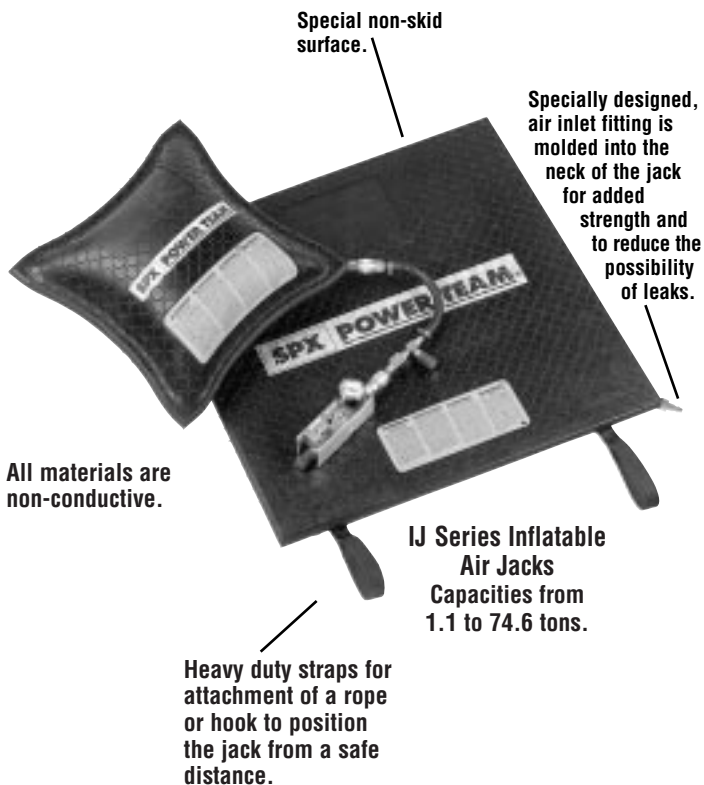
No. 350207 – Shut-off hose. White, 13.00" long. Built-in shut-off valve and pressure relief valve. Includes No. 250341 female quick coupler and No. 250353 male quick coupler. Wt., .7 lb.

No. 350208 – Air hose. Red, 30' long. Includes No. 250341 female quick coupler and No. 250342 male quick coupler. Wt., 6 lbs.

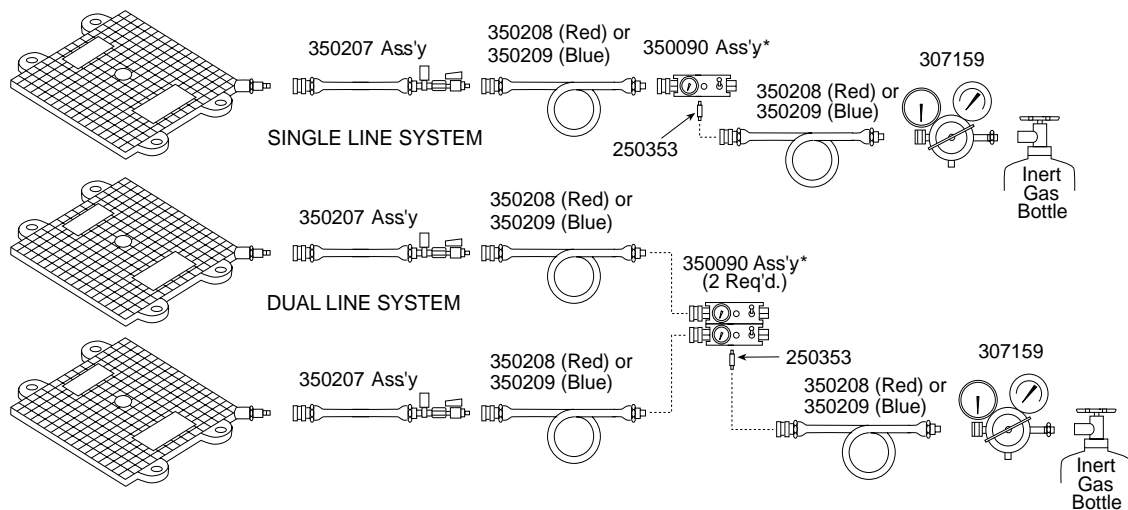
No. 350209 – Air hose. Blue, 30' long. Includes No. 250341 female quick coupler and No. 250342 male quick coupler. Wt., 6 lbs.

No. 250341 – Female quick coupler. 0.25" industrial interchange x 0.38" I.D. hose. Wt., .5 lb.

No. 250342 – Male quick coupler. 0.25" industrial interchange x 0.38" I.D. hose. Wt., .1 lb.



Power Team inflatable jacks raise a 33,000 lb. modular home section, providing clearance for installation of temporary wheels for transport.



* NOTE: 350090 air controller may be used individually to control one jack (see single line system), or in multiples to control additional jacks (see dual line system).



Lifting & Jacking



250341



250342

250343



250353

250682



15235



307159

No. 250343 – Female quick coupler. 0.25" industrial interchange x 1/8" NPT female. Wt., .1 lb.

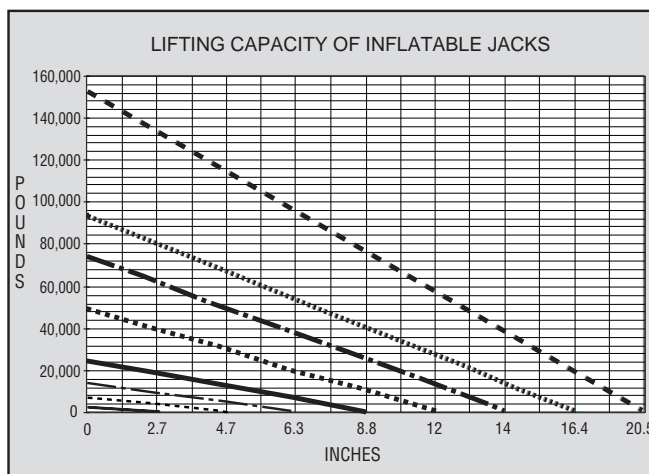
No. 250353 – Male quick coupler. 0.25" industrial interchange x 1/8" NPT male. Wt., .1 lb.

No. 250682 – Female quick coupler. 0.25" industrial interchange x 1/4" NPT male. Wt., .1 lb.

No. 15235 – Connector 0.13" NPT male x 1/4" NPT female. Wt., .1 lb.

No. 307159 – Pressure reducing valve. Allows use of bottled gases to operate jacks (works on CGA-580 Nitrogen/Argon/ Helium bottles). Contains standard bottle fitting on inlet and 0.25" industrial interchange (female) outlet. Wt., 4 lbs.

PERFORMANCE



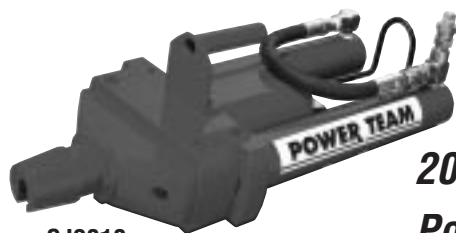
- IJ7320 – 74.6 ton capacity
- IJ4416 – 46.3 ton capacity
- IJ3213 – 34 ton capacity
- IJ2211 – 23.8 ton capacity
- IJ128 – 12 ton capacity
- IJ76 – 7 ton capacity
- IJ45 – 3.6 ton capacity
- IJ13 – 1.1 ton capacity

ORDERING INFORMATION

See current price list for shipping weights

Lifting Cap. (tons)	Lifting Height (in.)	Order No.	Air Contents at 116 psi (cu. ft.)	Max. Working Pressure (psi)	Length (in.)	Width (in.)	Collapsed Height (in.)	Product Weight (lbs.)
NEW 1.1	2.70	IJ 13	.08	116	5.50	5.10	1.00	1.0
NEW 3.6	4.70	IJ 45	.50		10.00	7.90		3.0
NEW 7	6.30	IJ 76	1.48		12.00	12.00		4.0
12	8.80	IJ 128	3.40		15.70	15.70		8.0
23.8	12.00	IJ 2211	9.50		21.70	21.70		16.0
34	14.00	IJ 3213	16.40		25.60	25.60		22.0
46.3	16.40	IJ 4416	25.70		29.50	29.50		29.0
74.6	20.50	IJ 7320	51.40		37.40	37.40	1.20	58.0

Post Tension/Stressing Jacks



**SJ2010
SJ3010**
20 or 30 ton
single-acting
spring-seater



20 and 30 ton Post Tension/ Stressing Jacks

Power Team Monostrand Stressing Jacks are the most durable in the industry.

Ideally suited for work on slab-on-grade where dirt, heat and high volume use take their toll. Available in single- or double-acting models.

A full line of Grippers and Nose Pieces is available to adapt strand jacks to .375", .437", .500" and .600" dia. strand that may be used with various types of anchors, wedges and pocket styles.



**SJ2010P
SJ3010P**
20 or 30 ton
single-acting
power wedge seater



**SJ2010DA
SJ3010DA**
20 or 30 ton
double-acting
power wedge seater

Post Tension/Stressing Jack, Single-Acting, Spring Seater or Power Wedge Seater:

- Available for up to 0.60" dia. strand in power seater and spring seater models.
- Standard 10.00" stroke; other stroke lengths available on special order.
- A full line of nose pieces.
- Dead-end seaters for production and field work available on special order.
- Service repair is simple; components are long lasting and easily replaced.
- 3.00" detachable seater nose assembly easily replaced with optional 6.00" nose assembly.

Post Tension/Stressing Jack, Double-Acting, Power Seater:

- The jack of choice for high-rise and elevated work, thanks to fast return time and light weight.

- Built of a single piece of hardened steel, machined to an exacting standard.
- 3.00" detachable power seat nose assembly easily replaced by optional 6.00" nose assembly.
- All hydraulic fluid controls are interior designed; more efficient and safer operation during tensioning, retraction, power lock circuits.
- Standard 8.50" stroke; others available on special order.
- Available for up to 0.60" dia. strand applications.
- Service repair is simple; components are long lasting and easily replaced.

No. SJ2010 – 20 ton post tension jack, single-acting, spring seater, 0.50" strand.

No. SJ2010P – 20 ton post tension jack, single-acting, power seater; 0.50" strand.

No. SJ2010DA – 20 ton post tension jack, double-acting, power seater, 0.50" strand.

No. SJ3010 – 30 ton post tension jack, single-acting, spring seater; 0.60" strand.

No. SJ3010P – 30 ton post tension jack, single-acting, power seater; 0.60" strand.

No. SJ3010DA – 30 ton post tension jack, double-acting, power seater; 0.60" strand.

Control Valves: Specially designed Power Team valves for controlling post tensioning stressing jacks are available. See page 75.



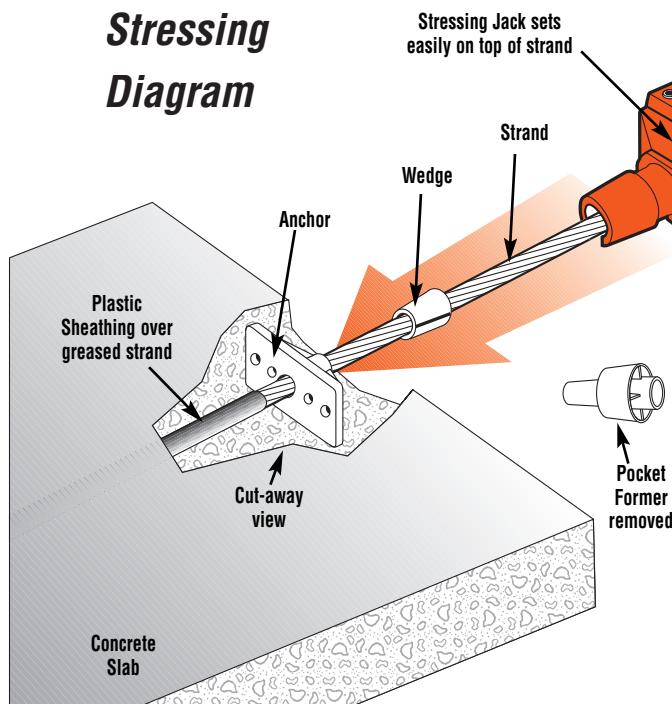
For nearly 40 years, Power Team's Vanguard Pump has been used in the post-tension industry. Today you can obtain the "Vanguard Supreme", the latest version of our extremely rugged and reliable pump.

Post Tension/Stressing System available from Power Team

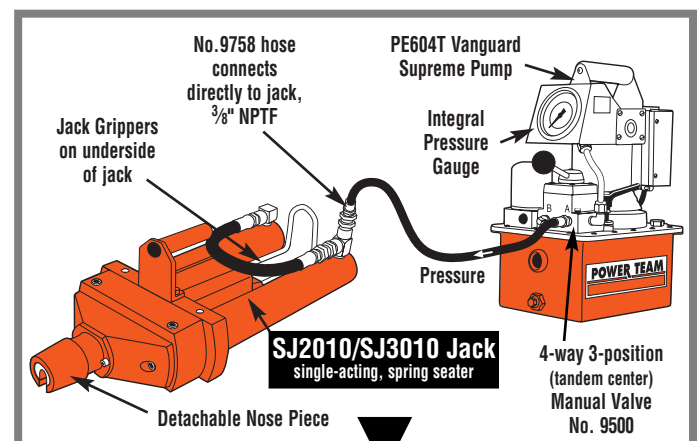
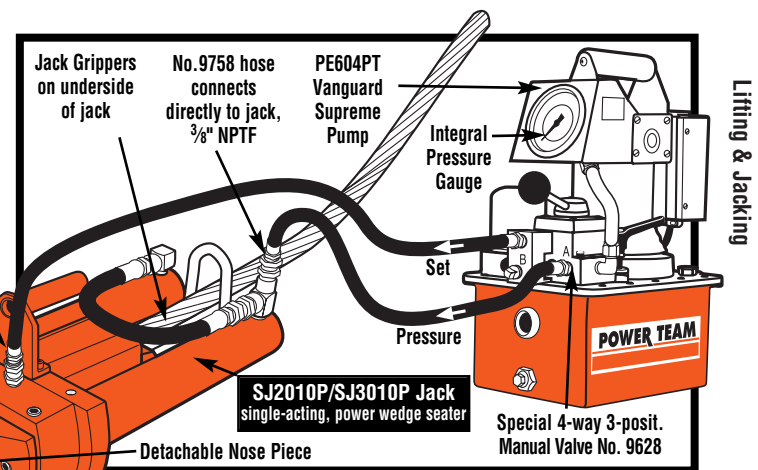
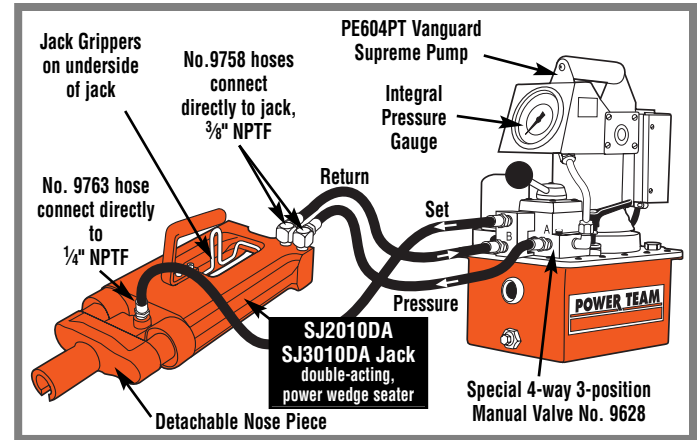
A combination of our lightweight PE60 Vanguard Supreme hydraulic pump, and the heavy duty Post Tensioning/Stressing Jack gives you ease of use, durability and portability in your post tensioning/stressing operations. Contact your Power Team Distributor for more details about a system that can save you money.



Basic Stressing Diagram



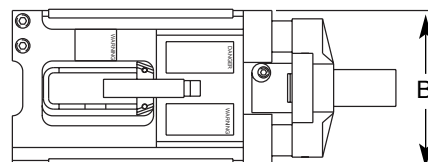
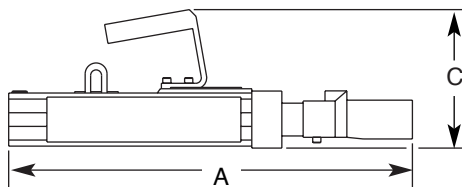
Pick the system that's right for you



The SJ2010 or SJ3010 jacks make slab-on-grade stressing simple, safe and quick

Post Tension/Stressing Jacks

20 or 30 ton Post Tension/Stressing Jacks



ORDERING INFORMATION

See current price list for shipping weights

Lifting & Jacking

Cyl. Cap. (tons)	Stroke (in.)	Order No.	Recommended Pump for this Stressing Jack	Strand Diameter (in.)	Seater Type	Oil Capacity (cu. in.)	Cyl. Effective Area (sq. in.)	Internal Pressure at Cap. (psi)	Tons at 10,000 psi	A (in.)	B (in.)	C (in.)	Weight (lbs.)
20	10.00	SJ2010	PE604T	.375-.50	Spring	45.2	4.5	8,948	22.4	21.00	9.00	6.50	55.0
		SJ2010P	PE604PT		Power								
30		SJ3010	PE604T	.375-.60	Spring	63.6	6.3	9,549	31.4	22.00	10.20	7.00	76.0
		SJ3010P	PE604PT		Power								
20	8.50	SJ2010DA		.375-.50		53.0	5.3	7,575	26.4	18.50	7.50	6.50	42.0
30		SJ3010DA		.375-.60		67.6	7.9	7,554	39.7		8.50		52.0

ACCESSORIES AND HOSES ORDERING INFORMATION

Used with Stressing Jack	3.00" Nose Piece	3.00" Wedge Seater	6.00" Nose Piece	6.00" Wedge Seater	.38" Diameter Gripper Set	.44" Diameter Gripper Set	.50" Diameter Gripper Set	.60" Diameter Gripper Set	Replacement Gripper Handle	Gripper Retainer Plate (2 used)
SJ2010	252564	252562	252759	252763	252568	252761	252567	NA	252570	252565
SJ2010P										
SJ2010DA	252543	252542	252760	252764	252650	252762	252555		252556	252544
SJ3010	252564	252562	252759	252763	252568	252761	252567	252569	252570	252565
SJ3010P										
SJ3010DA	253363	253361	253364	253362	253390	NA	253391	253365	252556	252544
No. 9758	Hose - 10 ft. rubber, wire-braid (2-ply, 20,000 psi burst rating) 3/8" NPTF male hose ends									
No. 9763	Hose - 10 ft. rubber, wire-braid (2-ply, 20,000 psi burst rating) 0.38" x 1/4" NPTF male hose ends									

Tinted blocks indicate parts originally supplied with tool.

Vanguard®
Supreme
PE60 Pumps



Vanguard®
Supreme Pumps

The Vanguard® tradition of reliability, two-speed high performance and ease of maintenance has reached a new standard.

Long, trouble free life in the most demanding work environments. For operating single- or double-acting cylinders, or stressing jacks at operating pressures to 10,000 psi.

Powered by 1 1/8 hp, 115 volt, 60/50 Hz single phase motor. Improved motor insulation extends motor life and is in full CSA compliance. Starts under load, even at the reduced voltages at construction sites.

Quiet operation: 80 to 85 dBA at 3 foot distance with 54 dBA background.

Optional fan driven external oil cooler includes rollover guard.

Insulated carrying handle. Pump weighs only 50 lbs. without oil cooler option: 18 lbs. less than similar competitive units!

Integral 4.00" dia. fluid filled pressure gauge with steel bezel complies with ASME B40.1 Grade A. With 0 to 10,000 psi pressure range in 100 psi increments.

Sealed 3/4 gallon (usable) reservoir. Reservoir drain port is standard.

Standard oil level sight gauge for accurate oil level monitoring.

External spin-on filter removes contaminants from circulating oil to maximize pump, valve and cylinder/tool life.

The 9500 and 9628 "Model C" valves make pumps ideal for post tensioning and other rugged applications.



Refer to the following page for specifications and ordering information.

Vanguard®

Supreme

PE60 Pumps



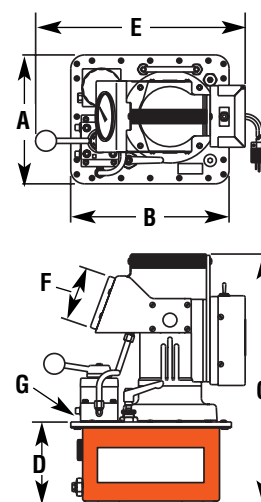
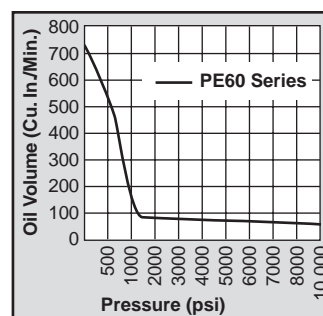
PE60 Series Pumps

Well suited for use with Post Tension Stressing Jacks or other high pressure hydraulic tools. These pumps start well under load even at the reduced voltages often encountered on construction sites. Also excel-

lent for use in dusty/dirty conditions and where high performance and portability are a concern. When equipped with an optional oil cooler kit, the PE60 series pumps are suitable for use at high temperatures in heavy usage applications.

VANGUARD® Supreme PE60 Series Pump

PERFORMANCE



SPECIFICATIONS AND DIMENSIONS

Pump No.	rpm	Maximum Pressure Output	dBA at idle and 10,000 psi	Amp draw at 10,000 psi	Oil Delivery (cu. in./min. @)				A	B	C	D	E	F	G	Prod. Wt. with Oil (lbs.)
					100 psi	700 psi	5,000 psi	10,000 psi								
PE604T	12,000	10,000	80/85	25	704	440	74	56	9.31"	11.50"	18.25"	6.00"	15.00"	4.00"	3/8" NPTF	50.0
PE604PT																51.0

NOTE: Unloading pressure is 1,000 psi.
Consult factory for PE60 pump models with other control and valve options.
For 220/230 volt, 50/60 Hz, single-phase models, add -220 suffix

ORDERING INFORMATION

See current price list for shipping weights

For Use With	Order No.	Valve			Control Switch	Motor	Reservoir	
		Type	No.	Function			Cap.	Usable
Single-Acting, Spring Seat, Stressing Jack or Double-Acting Cylinder	PE604T	4-way 3-position	9500	Advance Hold Return	On/Off/Pulse control switch	1 1/8 hp 115 VAC 60/50Hz Single Phase	.75 Gal.	157 cu. in.
Single-Acting or Double-Acting, Power Seat, Stressing Jacks ONLY	PE604PT		9628 model C	Advance Hold Sequenced Return				
Optional	252511	Oil Cooler Kit for PE604T or PE604PT, 115 VAC						Weight 5 lbs.
	252512	Oil Cooler Kit for PE604T or PE604PT, 220 VAC						

Hydraulic Rebar Benders



For rebar work on pilings, caissons, bridge decking, retrofits, columns, cages, walls and straightening.

Bend rebar at correct ACI bending radius with rebar in place. Make 90°, 135° or 180° bends in seconds at the correct elevation, after the forms are stripped away. Bending rebar after the pour reduces the need to straighten rebar that is bent in handling, run over on the job site or poured in place at the wrong elevation.

Saves substantial money by reducing need for couplers, bar locks and/or butt welded joints. Eliminates the delay and cost of inspecting welds. Your "secret weapon" to win those bids!

No waiting for specially bent rebar to arrive from the supplier in order to fix a problem. You can just couple on a piece of straight rebar, bend the correct angle and position in seconds.

For additional information on Power Team hydraulic rebar benders, obtain brochure PT9704 from your nearby Power Team distributor or contact the factory.



Pilings



Caissons



Bridge and Decking



Retrofits



Columns



Straightening



Spirals/Cages



Walls

Power Team

Jimmy Rebar

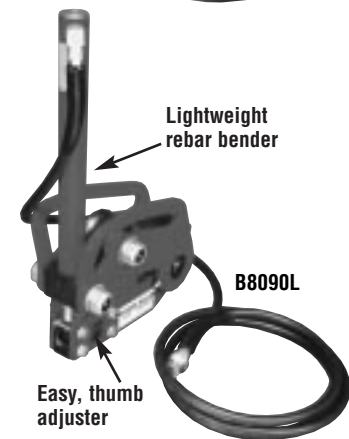
Benders



B5090



B7090



B8090L



B8090

ACI/CRSI approved #5 Rebar Bender

Applications

- Standard hook applications (90°)
- Off-set "dog-leg" bends in all rebar sizes to #7
- Straightens rebar sizes #4 to #7 (from less than 30°)
- Suitable for heavy/light bending

Minimum Bend

- 5.00" from bottom of machine to top of 90° angle
- Works on rebar spaced as close as 3.00" on center

ACI approved for bending #5 rebar to 90°. Meets CRSI requirements for #5 rebar. Also bends #4, #6, #7 rebar to 90°.

No. B5090 – Power Team's "Jimmy" 90° Rebar Bender with 10,000 psi capacity, 5 ton, 9.00" stroke hydraulic cylinder, 10 foot hose with No. 9795 complete coupler, and two bending wheels. Dimensions; 17.00"x9.00" x4.50". Wt., 31 lbs.

ACI/CRSI approved #7 Rebar Bender

Applications

- Standard hook applications (90°)
- Off-set "dog-leg" bends in all rebar sizes to #11
- Straightens rebar sizes #6 to #11 (from less than 30°)
- Suitable for heavy/light bending

Minimum Bend

- 8.00" from bottom of machine to top of 90° angle
- Works on rebar spaced as close as 3.00" on center

ACI approved for bending #7 rebar to 90°. Meets CRSI requirements for #7 rebar. Also bends #6, #8, #9 rebar to 90°.

No. B7090 – Power Team's "Jimmy" 90° Rebar Bender with 10,000 psi capacity, 10 ton, 10.00" stroke hydraulic cylinder, 10 foot hose with No. 9795 complete coupler, and two bending wheels. Dimensions; 17.00"x9.00" x4.50". Wt., 60 lbs.

ACI/CRSI approved #8 Rebar Bender

Applications

- Standard hook applications (90°)
- Off-set "dog-leg" bends in all rebar sizes to #9
- Straightens rebar sizes up to #9 (from less than 30°)
- Suitable for heavy/light bending

Minimum Bend

- 7.00" from bottom of machine to top of 90° angle
- Works on rebar spaced as close as 3.00" on center

ACI approved for bending #8 rebar to 90°. Meets CRSI requirements for #8 rebar. Also bends #6, #7, #9 rebar to 90°.

No. B8090L – Power Team's "Jimmy" 90° Rebar Bender with 10,000 psi capacity, 5 ton, 12.00" stroke hydraulic cylinder, 10 foot hose with No. 9795 complete coupler. Dimensions; 19.25"x12.00" x4.63". Wt., 47 lbs.

ACI/CRSI approved #8 Rebar Bender

Applications

- Standard hook applications (90°)
- Off-set "dog-leg" bends in all rebar sizes to #11
- Straightens rebar sizes up to #9 (from less than 30°)
- Suitable for heavy/light bending

Minimum Bend

- 8.00" from bottom of machine to top of 90° angle
- Works on rebar spaced as close as 3.00" on center

ACI approved for bending #8 rebar to 90°. Meets CRSI requirements for #8 rebar. Also bends #6, #7, #9 rebar to 90°.

No. B8090 – Power Team's "Jimmy" 90° Rebar Bender with 10,000 psi capacity, 10 ton, 14.00" stroke hydraulic cylinder, 10 foot hose with No. 9795 complete coupler, and two bending wheels. Dimensions; 27.00"x14.00" x5.50". Wt., 55 lbs.

Covered by the following patents:
U.S. Patent No. 5,653,139
U.S. Patent No. 5,724,852
U.S. Patent No. 5,782,124

ACI/CRSI
approved #5
Rebar Bender

Applications

- Caisson spirals, standard hook, stirrup and tie hook applications

- Works on rebar spaced as close as 2.00" on center

ACI approved for bending #5 rebar to 135°. Meets CRSI requirements for #5 rebar. Also bends #4 rebar to 135°.

No. B5135 – Power Team's "Jimmy" 135° Rebar Bender with 10,000 psi capacity, 2 ton hydraulic cylinder, 10 foot hose with No. 9795 complete coupler. Comes with wheel and accessory hook. Dimensions; 23.00"x11.00"x3.50". Wt., 22 lbs.

ACI/CRSI
approved #7
Rebar Bender

Applications

- Caisson spirals, standard hook, stirrup and tie hook applications

- Works on rebar spaced as close as 2.00" on center

ACI approved for bending #7 rebar to 135°. Meets CRSI requirements for #7 rebar. Also bends #6 rebar to 135°.

No. B7135 – Power Team's "Jimmy" 135° Rebar Bender with 10,000 psi capacity, 5 ton hydraulic cylinder, 10 foot hose with No. 9795 complete coupler, wheel and hook combination. Dimensions; 19.00"x9.00"x3.00". Wt., 40 lbs.

ACI/CRSI
approved #9
Rebar Bender

Applications

- Standard hook applications (90°)

Minimum Bend

- 11.00" from bottom of machine to top of bend
- Works on rebar spaced as close as 3.50" on center

ACI approved for bending #9 rebar to 90° or 180°. Meets CRSI requirements for #9 rebar. Also bends #6, #7, #8, and #10 rebar to 180°.

No. B9180 – Power Team's "Jimmy" 90° and 180° Rebar Bender with 10,000 psi capacity, 10 ton, 14.00" stroke hydraulic cylinder, 10 foot hose with No. 9795 complete coupler. Dimensions; 19.00"x17.00"x6.00". Wt., 108 lbs.

ACI/CRSI
approved #11
Rebar Bender

Applications

- Standard hook applications (90°)

Minimum Bend

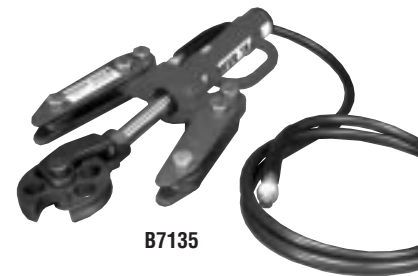
- 14.00" from bottom of machine to top of bend
- Works on rebar spaced as close as 3.50" on center

ACI approved for bending #11 rebar to 90°. Meets CRSI requirements for #11 rebar. Also bends #6, #7, #8, #9 and #10 rebar to 90°.

No. B11090 – Power Team's "Jimmy" 90° Rebar Bender with 10,000 psi capacity, 10 ton, 9.00" stroke hydraulic cylinder, 10 foot hose with No. 9795 complete coupler. Dimensions; 27.00"x19.00"x6.00". Wt., 115 lbs.



B5135



B7135



B9180



B11090



Eliminating welding and subsequent inspections previously required to build spirals is possible with Power Team "Jimmy" rebar benders on the job. The likelihood of a cage being damaged prior to positioning is also reduced.

Hydraulic Tools

Covered by the following patents:

U.S. Patent No. 5,653,139

U.S. Patent No. 5,724,852

U.S. Patent No. 5,782,124






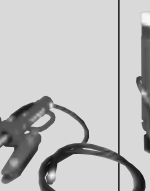
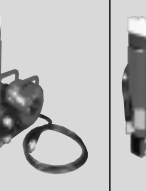


Power Team

Jimmy Rebar

Benders

Power Team Jimmy Bender/Rebar Compatibility Chart

ORDERING INFORMATION and SPECIFICATIONS

	ACI/CRSI Approved for this size Rebar.		Bend radius acceptable for ACI/CRSI requirements.		Capable of bending rebar, but does not meet ACI/CRSI requirements		NOT CAPABLE of bending this size rebar	
Bending Angles	0-90°	0-90°	0-90°	0-90°	0-135°	0-135°	0-180°	0-90°
ORDER NO.	B5090	B7090	B8090L	B8090	B5135	B7135	B9180	B11090
REBAR Size: Std. 0.13" Increments/ (Metric Hard/Soft Conversion)								
#4 (10M/#13)								
#5 (15M/#16)	ACI/CRSI Approved for this size				ACI/CRSI Approved for this size			
#6 (20M/#19)								
#7 (NA/#22)		ACI/CRSI Approved for this size				ACI/CRSI Approved for this size		
#8 (25M/#25)			ACI/CRSI Approved for this size	ACI/CRSI Approved for this size				
#9 (30M/#29)							ACI/CRSI Approved for this size	
#10 (NA/#32)								
#11 (35M/#36)								ACI/CRSI Approved for this size
PUMP RECOMMENDATIONS								
 PE552S	Recommended Pump	Recommended Pump	Recommended Pump	Recommended Pump	Acceptable Pump	Recommended Pump	Recommended Pump	Recommended Pump
 PE302S	Acceptable Pump	Acceptable Pump	Acceptable Pump	Acceptable Pump	Recommended Pump	Acceptable Pump	Acceptable Pump	Acceptable Pump

Hydraulic Tools

Hydraulic Spreaders

Use to lift machines or as a clamp; spread concrete forms or rebar or perform straightening jobs. It's a hydraulic pry bar!

Conform to ASME B30.1 standard.

High strength alloy steel forged upper and lower jaws on HS2000.

Jaws are spring-return; retract automatically when pressure is released.

HS2000 1 ton capacity spreader

Full 2,000 lbs. capacity at 10,000 psi.

Can be "dead-ended" at 4.00" spread under full load.

Needs only 0.56" clearance to engage jaws.

No. HS2000—1 ton capacity hydraulic spreader. Wt., 4.8 lbs.

HS3000 1½ ton capacity spreader

Full 3,000 lb. capacity at 10,000 psi. Greater than competitive units.

Spread range: 1.25" to 11.50".

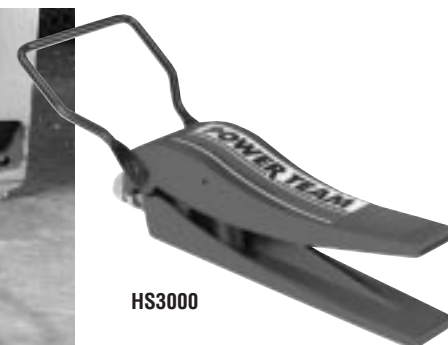
Can be "dead-ended" at 11.50" spread at full pressure.

No. HS3000—1½ ton capacity hydraulic spreader. Wt., 22 lbs.



HS2000

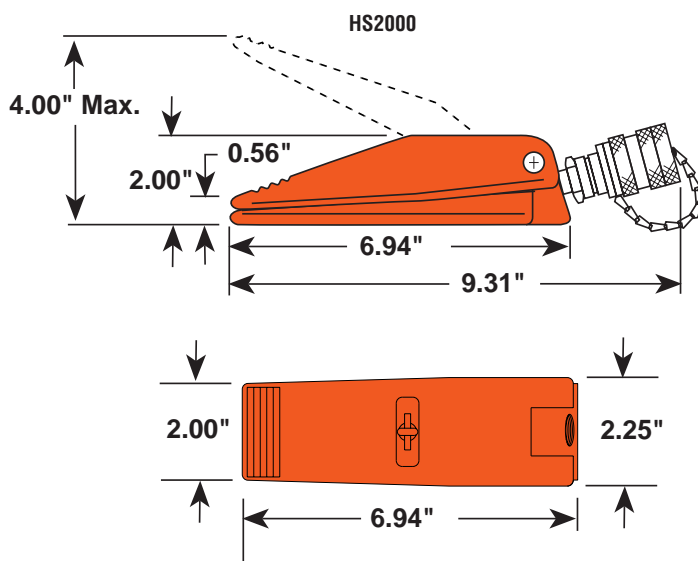
Tested to conform to ASME B30.1 standard



HS3000

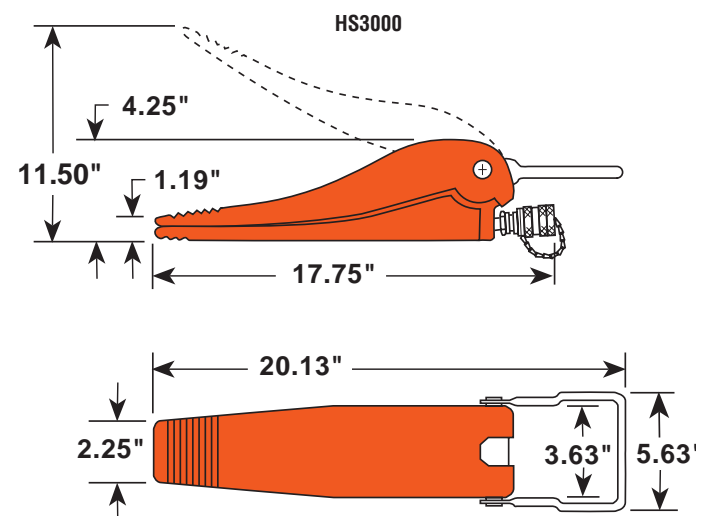
SPECIFICATIONS

Maximum rated capacity 1 ton @ 10,000 psi
Maximum spread 4.00"
Minimum clearance required 0.56"
Jaw material forged alloy steel
Cu. in. oil required63



SPECIFICATIONS

Maximum rated capacity 1½ ton @ 10,000 psi
Maximum spread 11.50"
Minimum clearance required 1.19"
Jaw material high strength alloy material
Cu. in. oil required 3.50





Align mark on cutter blade with scale.

Hydraulic Nut Splitters

Hydraulic nut splitter, 15 ton capacity

Now you can simply “dial-in” the size of the nut you want to split, without the worry of damaging the bolt. Just align the mark on the cutter blade with the scale on the frame of the splitter. The specially designed “tool” steel cutter blade penetrates the nut to the precise point where it cracks. And because the cutter blade is preset, it mechanically stops short of the bolt threads. The nut splitter features a dramatically improved cutter blade with an 800% greater resistance to chipping and breaking over previous models. The new design allows you to rotate the blade 180° within the frame. This allows you to use both sides of the cutter blade, and in fact, doubles the life of the cutter blade. The HNS150 features a rugged one-piece

cutting frame coupled to a heavy-duty swiveling hydraulic cylinder. With its compact size, you can use it in confined areas where it will deliver up to 15 tons of force, enough to split the toughest “fused” or rusted-on grade 2H nuts used on up to 0.75" dia. bolts (1.13" hex size). The softer SAE grade 2 nuts up to 1.00" bolt size (1.50" hex size) are easily cut.

No. HNS150 – 15 ton hydraulic nut splitter. Comes with a No. 9796 half coupler. Wt., 8.1 lbs.

No. 308840 – Replacement cutter blade for HNS150 (not covered by warranty). Wt., .7 lb.

Pump recommendations for HNS225

For field or irregular use, we recommend the use of the P19 hydraulic hand pump (pages 34-35). For repetitive applications, the PA6 air/hydraulic pump (pages 38-39) or the PE172 electric/hydraulic pump (pages 46-47) are suggested.

Hydraulic nut splitter, 25 ton capacity

For use on 1.13" to 2.25" hex nuts, this splitter has the power to crack the toughest big nuts. The specially designed heat-treated blade is pushed into the nut, cracking it and expanding it. A second cut opposite from the first may be used to separate the nut into halves for easy removal. When job is completed, the blade returns to the starting position.

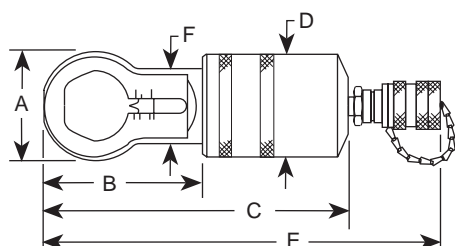
No. HNS225 – 360° swivel body, 25 ton capacity nut splitter with blade. Comes with a C252C hydraulic cylinder. For use on 1.13" to 2.25" hex nuts. Length: 14.50". Wt., 29 lbs.

No. 308022 – Replacement cutter blade (not covered by warranty). Wt., 1 lb.

SPECIFICATIONS

HNS150, 15 ton and HNS225, 25 ton at 10,000 psi (max.)

Nut Grade-English → (Nut Class-Metric) →	2 or A (5)		5 or B (9)		8 or C (10)		2H (12)	
Nut Splitter Cap. →	15 ton	25 ton	15 ton	25 ton	15 ton	25 ton	15 ton	25 ton
Hex Size, Max.	1.50 (36)	2.25 (55)	1.50 (36)	2.25 (55)	1.31 (33)	2.06 (46)	1.13 (29)	1.69 (36)
Bolt Size, Max.	1.00 (24)	1.50 (36)	1.00 (24)	1.50 (36)	0.88 (22)	1.38 (30)	0.75 (19)	1.13 (29)
Nut Thickness, Max.	1.00 (32)	1.50 (33.9)	0.86 (20.8)	1.28 (30.2)	0.88 (26)	1.17 (25)	0.75 (19)	0.97 (20.9)
Hex Size, Min.	0.50 (13)	1.13 (29)	0.50 (13)	1.13 (29)	0.50 (13)	1.13 (29)	0.50 (13)	1.13 (29)



DIMENSIONS

Order No.	A	B	C	D	E	F	Head Thickness
HNS150	2.88"	3.38"	7.88"	2.75"	10.38"	2.06"	1.00"
HNS225	4.25"	6.00"	14.38"	3.88"	N/A	3.25"	1.50"



CC5,
CC10,
CC25



Pipe Flange Spreaders And "C" Clamps

Hydraulic "C" Clamps

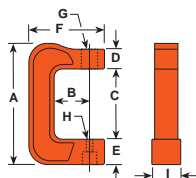
In 5, 10 and 25 ton capacities. For use with Power Team "C" series cylinders of comparable capacity.

For clamping, pressing and bending. Ideal for welding and metal fabrication for fit-up of sheet or plate steel.

Clamps withstand full rated capacity of the cylinders for which they are intended.

To minimize the effects of off-center loading, the CC5, CC10 and CC25 should be used with the optional 350144 and 350145 swivel caps.

NOTE: On the CC10 and CC25, swivel caps can be



DIMENSIONS

	A	B	C	D	E	F	G	H	I	Wt.
CC5	12.38"	3.75"	7.31"	2.00"	2.50"	7.75"	1½"-16 UN	0.88"	3.00"	25
CC10	15.88"	6.00"	9.44"	2.00"	3.00"	10.75"	2¼"-14 UNS	0.88"	3.50"	50
CC25	21.00"	6.00"	12.50"	3.00"	4.00"	12.31"	3¾"-12 UNS	1.44"	4.63"	65

mounted in the base of the "C" clamp, in the end of the piston rod or both locations. On the CC5, the base is designed to accept the 350144 swivel cap. No swivel cap is available to fit the rod end of the 5-ton cylinder.

No. CC5—"C" clamp, 5 ton capacity, less hydraulic cylinder. Wt., 25 lbs.

No. CC10—"C" clamp, 10 ton capacity, less hydraulic cylinder. Wt., 50 lbs.

No. CC25—"C" clamp, 25 ton capacity, less hydraulic cylinder. Wt., 65 lbs.

Hydraulic Pipe Flange Spreaders

You'll never again have to resort to "hammer and chisel" methods that waste time and effort. Flange spreaders should be used in pairs to provide even spreading force.

Standard 60° wedge is suitable for most flanges; 30° "thin" and 60° "blunt" wedges are optional.

The HFS3A is designed for applications where total thickness of flanges and max. spread gap is 3.00" or less and flange bolts are a min. of 0.69" dia.

Use HFS6A if total thickness of flanges and max. spread gap is 6.00" or less, and flange bolts are a min. of 0.81" dia.

No. HFS3A—5 ton flange spreader with 60° sharp wedge. Wt., 9 lbs.

No. 350822—60° blunt-end wedge for HFS3A. Wt., .9 lb.

No. 350823—30° wedge for HFS3A. Wt., .9 lb.

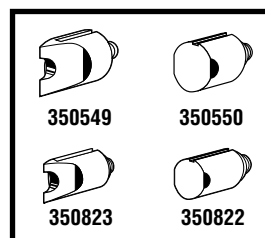
No. HFS6A—10 ton flange spreader with 60° sharp wedge. Wt., 18 lbs.

No. 350550—60° blunt-end wedge for HFS6A. Wt., 1.9 lbs.

No. 350549—30° wedge for HFS6A. Wt., 1.5 lbs.



HFS3A



350549

350550

350823

350822

ORDERING INFORMATION

See current price list for shipping weights.

Order No.	HFS3A		HFS6A	
	60° (std)	30° (Blunt optional)	60° (std)	30° (Blunt optional)
Wedge Angle				
Min. Flange Opening	.06"	1.00"	.06"	1.50"
Max. Flange Opening	1.25"	0.72"	2.00"	.970"
Max. Total Combined Flange Thickness	3.50"	3.50"	6.56"	6.56"
Pin Diameter	0.69"	0.69"	0.81"	0.81"

Optional accessories for use with CC5 & CC25

* May be used with CC5 ** Must be used with a threaded adapter.

Swivel Caps		Threaded Adapters		Pushing Adapters		Pushing Adapters		V Pushing Adapters		Pushing Adapters	
10 ton	25 ton	10 ton	25 ton	10 ton	25 ton	10 ton	25 ton	10 ton	25 ton	10 ton	25 ton
350144*	350145	38597	38953	201923**	34510**	201454**	34511**	34806**	34807**	28228**	28229**
A-1.38"	A-2.00"	A-1 - 8	A-1¼-7	A-3.13"	A-3.25"	A-3.06"	A-3.25"	A-2.63"	A-3.13"	A-2.38"	A-2.88"
B-0.75"	B-1.00"	B-1 - 8	B-1½-16	B-2.25"	B-2.63"	B-2.63"	B-2.63"	B-1 - 8	B-1.25-7	B-1 - 8	B-1¼-7
		C-0.75"	C-2.75"	C-5.38"	C-5.88"	C-5.69"	C-5.88"	C-1.50"	C-1.75"	C-1.50"	C-1.75"
		D-2.00"	D-4.38"	D-0.50"	D-0.75"	D-0.75"	D-1.00"	D-1.00"	D-1.25"		
				E-1 - 8	E-1¼-7	E-1 - 8	E-1¼-7				

20 Ton Hydraulic Punch



HP20FS
Optional foot switch



252000
Optional Coupling
Nut Wrench



HP20HS
Hand switch
included with
HP20SP

20 Ton Hydraulic Punch

The fastest, easiest way to make round, square or oval holes in a variety of metals up to 0.50" thick. Punches aluminum, brass, copper and stainless steel. Fully complies with ASME B30.1 standard.

Suitable for punching up to 0.53" dia. in 0.50" thick mild steel or 0.81" dia. in 0.31" thick mild steel.

Double-acting. Fully portable, or can be bench mounted using holes in frame.

Punch mounted 4-way valve. The PE102AR "Quarter Horse" electric/hydraulic pump is an ideal power source. For increased speed, the PE172A or PE172A-50-220 electric/hydraulic pumps may also be used.

A selection of beveled dies to accommodate channel iron flanges is available.

No. HP20—Basic punch frame with cylinder, valve, handle assembly and two coupling nuts (252001 and 252002). Wt., 33.0 lbs.

No. HP20S—Basic punch frame with cylinder, valve, handle, two coupling nuts, plus five punch and die sets in 0.25", 0.31", 0.38", 0.44", and 0.53" dia. Wt., 35.0 lbs.

No. HP20SP*—Complete punch set with PE102AR pump (115V, 50/60 Hz), HP20HS hand switch, 9682 nipple, two 9792 female couplers and two 9793 male couplers. Also includes two 9758 10' hoses, 9680 coupling, and same punch and die sets as in HP20S (above). Tool is completely assembled and pre-filled with oil. In storage box. Wt., 83.0 lbs.

* Available with 220/230 V, 50/60 Hz motor. Order number HP20SP-220.

Punch set HP20SP

Includes the PE102AR pump, HP20HS hand switch, hoses, couplers, punch and die sets in sizes 0.25", 0.31", 0.38", 0.44", 0.53" diameter, all packed in a handy storage box.



Accessories

No. HP20HS—Replacement hand switch with 10 foot cord and male remote connector. Wt. 2 lbs.

No. HP20FS—Optional foot switch mounted in foot switch guard with 10 foot cord and male remote connector. Wt. 2 lbs.

No. 252000—Optional coupling nut wrench. Makes punch/die changes easier, doesn't round off coupling nuts. Wt. .5 lbs.

NOTE: See pages 116 and 117 for specifications and punch and die sets.

Hydraulic Tools

Special Order Punch & Die Shapes*

Max. .810 	Max. .813 	Max. .813
Rectangle Type N	Single "D" Type N	Double "D" Type P
Max. .703 	Max. .688 	
Hexagon Type T	Triangle Type S	

*Consult factory

35 Ton Hydraulic Punch

Punches a smooth, precise hole in seconds; much faster than drilling. Can handle mild steel up to 0.50" thick.

Fully portable for construction, maintenance and service applications, or can be mounted on a workbench for production jobs. Has carrying handle for precise locating.

Rugged, forged steel "C" frame for great strength and durability.

Dual action, spring loaded stripper holds material during punching operation, strips material from punch on return. Scribe lines on stripper aid in locating the punch.

The PE172 electric/hydraulic pump is an ideal power source.

No. HP35—Hydraulic punch only. Includes metal carrying case and die change tools. Wt., 42.5 lbs.

No. HP35S—Hydraulic punch with punches and dies. Includes HP35 punch, metal carrying case and 250459 punch and die set. Wt., 44 lbs.

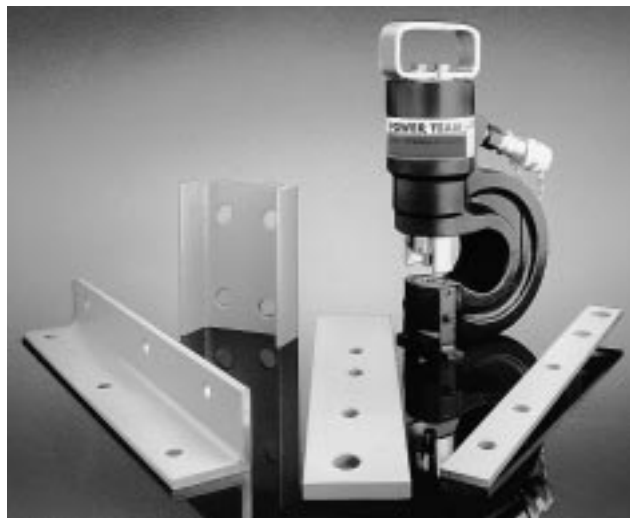
No. HP35P—Hydraulic punch set with hydraulics. Same contents as HP35SP, but does not include punch and die set. **NOTE:** Available in 220 volt, 50 Hz. To order, add suffix "-220" to Order No. Wt., 86.3 lbs.

No. HP35SP—Hydraulic punch set with hydraulics. Includes HP35 hydraulic punch, PE172 electric/hydraulic pump, 9756 hose, 9798 hose half coupler, 250459 punch and die set, metal carrying case. **NOTE:** Available in 220 volt. To order, add suffix "-220" to Order No. Wt., 87.8 lbs.

No. 250459—Punch and die set for round holes. Consist of one each: PD437 0.44" punch/die, PD562 0.56" punch/die, PD688 0.69" punch/die, PD812 0.81" punch/die. Each punch/die size is also available separately. Wt., 1.5 lbs.

Special punches - Square, oval, metric and special punch/die sets are also available. Consult factory for additional information.

NOTE: See pages 116 and 117 for specifications and punch and die sets.



Hydraulic punching makes holes in a variety of materials much faster than drilling. Ideal for use in construction, maintenance or service applications.

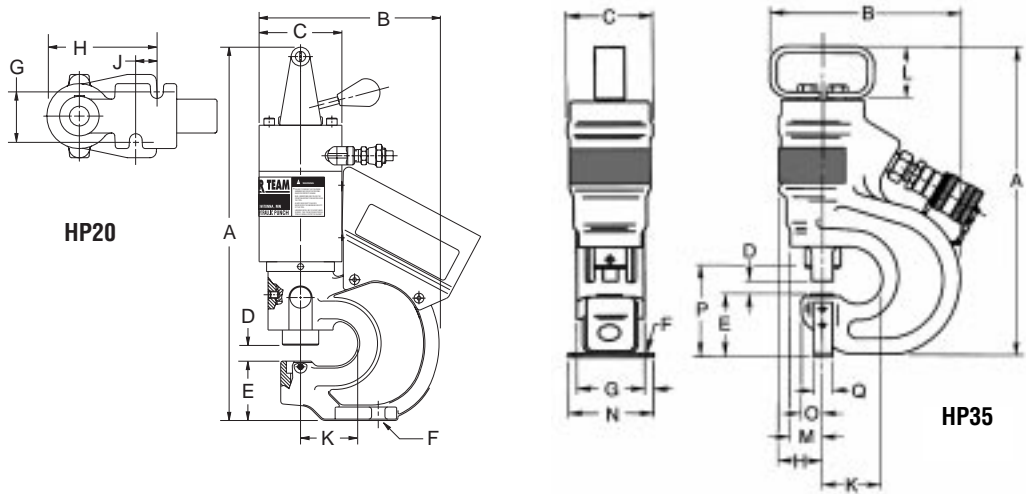
No. HP35SP



Power Team

Hydraulic

Punches



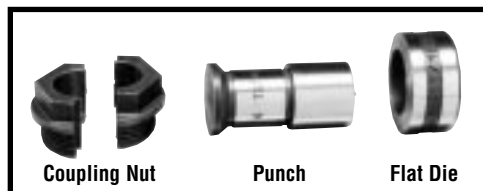
SPECIFICATIONS and DIMENSIONS

Cap.	Order No.	Max. Oper. Press.	Oil Cap.	Max. Material Thickness	A	B	C	D	E	Mtng. Holes F	G	H	J	Max. Throat Depth K	L	M	N	O	P	Q
20	HP20	10,000 psi	3.9 cu. in.	0.50"	16.50"	7.95"	3.66"	0.63"	2.59"	0.56"	2.13"	4.88"	0.94"	2.25"	—	—	—	—	—	—
35	HP35		4.6 cu. in.		13.75"	9.00"	3.75"	0.56"	2.88"	0.25"	3.00"	1.81"	—	2.81"	2.25"	1.50"	3.50"	0.88"	4.00"	0.75"

ORDERING INFORMATION – Punch/Die Sets

		HP20 Punch/Die/Coupling Nut Order Nos.				HP35 Punch/Die Set Order Nos.	
Punch Size (in.)	Punch Style	Punch No.	Flat Die No.	Bevel Die No.	Coupling Nut No.	Punch/Die Set w/Flat Die	Punch/Die Set w/Bevel Die
0.25	Round	251970	251983		252001		
0.31		251971	251984			PD313	
0.38		251972	251985	251996		PD375	PD375B
0.44		251973	251986	251997		PD437	PD437B
0.53		251974	251987	251998		PD531	PD531B
0.56		251975	251988	251999		PD562	PD562B
0.69		251976	251989			PD688	
0.78		251977	251990			PD781	
0.81		251978	251991		252002	PD812	
0.50	Square	251979	251992				
0.53		251980	251993				
0.25 X 0.75	Obround	251981	251994			Not Available On Special Order	
0.38 X 0.75		251982	251995				

Typical 20 ton style tooling



Punch Size (in.)	INCHES		MM	
	Hole Dia.	Bolt	Hole Dia.	Bolt
0.25	0.25	#10	6.3	—
0.31	0.31	0.25	7.9	—
0.38	0.38	0.31	9.5	M8
0.44	0.44	0.38	11.2	M10
0.53	0.53	0.44	13.5	M12
0.56	0.56	0.50	14.3	—
0.69	0.69	0.63	17.5	M16
0.78	0.78	—	19.8	M18
0.81	0.81	0.75	20.6	—

Selecting a Punch

The following information is provided as a convenient general reference guide for metal punching operations.

Hole Size vs. Material Thickness

Punching holes in metal is the fast, economical way to get precise hole size, smoothness and minimum burr. Compressive strength of the punch steel determines that the thickness of the metal being punched must not exceed the diameter of the punch. This relationship varies with the type of material. For example: the minimum hole diameter will be 0.25" in 0.25" mild steel, 0.25" in 0.19" stainless steel, and 0.25" in 0.31" aluminum.

Maximum Rated Capacity

All punching tools have their maximum capacity for safe, dependable operation over a long life span. The hydraulic punches listed in this catalog have a "rated capacity" based on their design strength. Before selecting a tool, use the following charts to determine the specific tonnage required to punch the size and shape holes through the type and gauge metal considered.

Determining Tonnages For Round Holes

To determine tonnages for hot rolled mild steel (typically used in bar size angle iron, channels, tees and zeos) with a 50,000 PSI shear strength, read directly from chart #1.

Example: To punch a 0.38" diameter hole thru 0.38" thick mild steel, chart #1 shows 11.1 tons are required.

For ASTM A-36 steel (typically used for structural size wide flange, H and I beams, tees and zeos) with a 60,000 PSI shear strength, read direct from chart #2.

Example: To punch a 0.25" round hole in 0.25" thick A-36 steel, chart #2 shows 5.9 tons of force is needed.

Determining Tonnages For Irregular Shape Holes

When punching irregular shaped holes (square, obround, etc.) multiply the length of metal to be cut by the multiplier given for a 1.00" length of cut in chart #3.

Example: The shear length (or total distance around a 0.50" square hole) is 2.00". To punch

such a hole in 0.25" thick mild steel multiply 2.00" x 6.25 (from chart #3) = 12.5 tons. For stainless steel this would be 2.00" x 9.5 = 19 tons.

Die Clearance

The relationship of the larger die hole size to the punch size is die clearance and is stated as a percentage of the thickness of the material being punched. The range of clearances varies from 10% for thin materials to 20% for thicker materials. For 0.75" material the total die clearance is .150". Clearance should always be specified when there is any reason for doubt (see illustrations at bottom). Effects of die clearance are more noticeable in thicker materials (such as 0.50") than in thinner materials (such as 0.19"). When ordering die sets, specify the type and thickness of material being punched (see chart #4).

CHART #1

Tons of Pressure Required to Punch Mild Steel

Round Hole Dia.	0.13"	0.19"	0.25"	0.31"	0.38"	0.44"	0.50"	0.56"	0.63"	0.69"	0.75"	0.81"
Gauge Inches												
20	.036	.4	.5	.7	.9	1.1	1.2	1.4	1.6	1.8	1.9	2.1
18	.048	.5	.7	.9	1.2	1.4	1.6	1.9	2.1	2.4	2.6	2.8
16	.062	.6	.9	1.2	1.5	1.8	2.1	2.3	2.6	2.9	3.2	3.5
14	.075	.7	1.1	1.5	1.8	2.2	2.6	2.9	3.3	3.7	4.0	4.4
12	.105	1.0	1.5	2.1	2.6	3.1	3.6	4.1	4.6	5.1	5.7	6.2
11	.120	1.2	1.8	2.4	2.9	3.5	4.1	4.7	5.1	5.9	6.2	7.1
10	.135	1.3	2.0	2.6	3.3	4.0	4.6	5.3	5.9	6.6	7.3	7.9
0.19"	.188	—	2.8	3.7	4.6	5.5	6.4	7.4	8.3	9.2	10.1	11.0
0.25"	.250	—	—	4.9	6.1	7.4	8.6	9.8	11.1	12.3	13.5	14.7
0.31"	.312	—	—	—	7.8	9.2	10.7	12.3	13.9	15.4	17.0	18.5
0.38"	.375	—	—	—	—	11.1	12.8	14.8	16.5	18.5	20.2	22.1
0.50"	.500	—	—	—	—	—	—	19.7	22.0	24.6	26.9	29.5

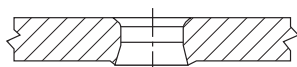
CHART #2

Tons of Pressure Required to Punch ASTM-A36 Structural Steel

Round Hole Dia.	0.13"	0.19"	0.25"	0.31"	0.38"	0.44"	0.50"	0.56"	0.63"	0.69"	0.75"	0.81"
Gauge Inches												
12	.105	1.2	1.9	2.5	3.1	3.7	4.3	4.9	5.6	6.2	6.8	7.4
0.13" or 11	.120	1.4	2.1	2.8	3.5	4.2	4.9	5.7	6.4	7.1	7.8	8.5
10	.135	—	2.4	3.2	4.0	4.8	5.6	6.4	7.2	7.9	8.7	9.5
0.19"	.187	—	3.3	4.4	5.5	6.6	7.7	8.8	9.9	11.0	12.1	13.2
0.25"	.250	—	4.4	5.9	7.4	8.6	10.3	11.8	13.2	14.7	16.2	17.7
0.31"	.312	—	—	7.4	9.2	11.0	12.9	14.7	16.5	18.4	20.2	22.0
0.38"	.375	—	—	8.8	11.0	13.3	15.5	17.7	19.9	22.1	24.3	26.5
0.50"	.500	—	—	—	—	—	—	23.6	26.5	29.4	32.4	35.3

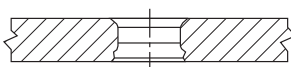
Die clearance has the following effects:

Too much clearance



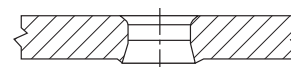
1. Extra roll-in at top of the hole.
2. Too much burr at bottom of the hole.

Too little clearance



1. More punching pressure needed. Can reduce tool life.
2. High stripping force causes part distortion and extra punch wear.

Correct Clearance



1. Straighter hole thru material.
2. Minimum distortion at top of hole.
3. Minimum burr at bottom of hole.

CHART #3

Tons of Press. Required to Shear 1.00" Length

Material Thickness	Mild Steel	Stainless Steel	Brass
0.19"	4.25	7.00	3.25
0.25"	6.25	9.50	4.50
0.31"	8.00	12.00	5.50
0.38"	9.50	14.25	6.25
0.44"	11.00	16.50	7.75
0.50"	12.50	18.75	8.75

CHART #4

Clearance for Mild Steel

Material Thickness	Approx. Decimal Thickness	Overall Clearance – Add to Punch Size
7 gauge	.1793	.021
0.19"	.1875	.023
0.25"	.250	.037
0.31"	.3125	.047
0.38"	.375	.057
0.50"	.500	.075

NOTE: Most grades of half hard aluminum use the same clearance as shown above. In many cases, your own experience may dictate that you call for clearances different from the above, especially when punching other materials such as stainless steel. Special clearances may be ordered for that purpose.



50, 75 and 200 GPM In-Line Hydraulic Testers

Accurately measure oil flow, pressure and temperature on in-plant equipment, fork lifts, machine tools and more.

Temperature and flow readings are in metric and English, accurate to within $\pm 2\%$ of full scale.

Dual pressure gauges for high and low pressure readings; low pressure gauge is automatically shut off and protected as pressure rises beyond its maximum reading.

Automatic pressure compensating feature lets you increase flow without affecting pressure setting.

Reverse flow through tester will not cause damage; replaceable safety disc ruptures if pressure exceeds upper limit.

Solid state voltage regulator eliminates errors caused by voltage change during testing.

Use the tester to simulate actual operating conditions of the system under test

Testing a pump: Operator runs engine at a specific rpm and adjusts tester's pressure compensating valve to simulate a work load. By comparing meter readings with manufacturer specs, proper operation of pump can be confirmed. If oil flow and pressure do not meet specs, the pump is faulty. Or, if test results and specifications agree, the operator will know that the problem is elsewhere in the system and that other tests, such as those shown on opposite page, must be performed. Regardless of the component being tested, hookup and testing is accomplished in minutes.

NOTE: These hydraulic testers should always be used with the owner's manual/manufacturers' specifications for the system under test.



The HT75 and HT200 models feature toggle switches, low battery light and "ON/OFF" switch, are easy to use and give highly accurate readings.

50 gpm Hydraulic Tester

Troubleshoots systems with capacities to 50 gpm at pressures less than 5,000 psi.

Accurately measure oil flow to $\pm 5\%$, pressure to within 2% and temperature readings within 1%.

Pressure gauge is liquid filled to dampen system pulsation.

For more precise low pressure readings, an optional dual pressure gauge kit is available (see page 119).

No. HT50A—Hydraulic circuit tester with single liquid filled pressure gauge, 0-5,000 psi, 0-354 bar. Includes two adapter unions for 3/4" male NPTF fittings. Wt., 37 lbs.

Calibrator

No. HT2545—Confirms 75 and 200 gpm tester meter readings. Simply plugs into the "CAL" jack on tester panel. Powered by internal battery. Other hydraulic tester accessories appear on pages 119 and 120.



50 gpm tester
HT50A

Power Team Hydraulic Testers



307281

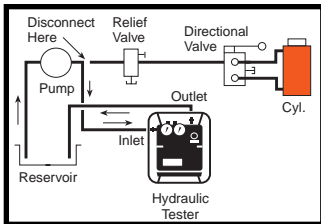
Low pressure gauge
calibrated 0-600 psi 0-42 bar.



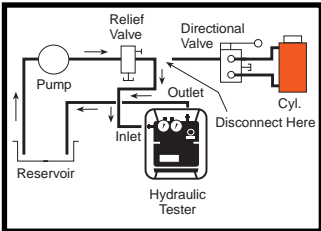
Hose

50, 75 and 200 GPM In-Line Hydraulic Testers

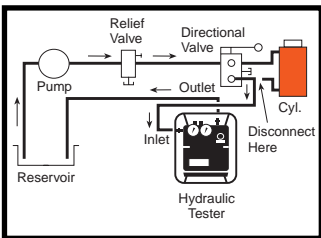
Testing a pump



Testing a relief valve



Testing a directional valve

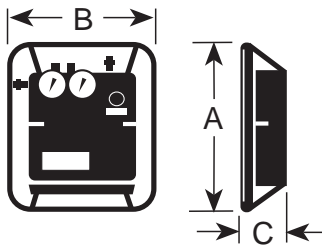


Accessories for Hydraulic Testers

Dual gauge conversion kit for use with 50 gpm tester

Provides more precise low pressure readings. Remove pressure gauge block and gauge from the tester and replace it with this block. Install high pressure gauge from tester (0-5,000 psi) onto this new block.

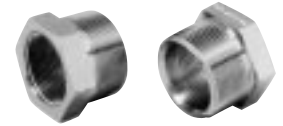
No. 307281 – Dual gauge conversion kit. Consists of gauge mounting block, pulsation dampener, thermal overload protector, low pressure gauge and gauge protector. Wt. 1 lb.



Accessories for use with 75 and 200 gpm testers

No. 37045 – Auxiliary power cord. For use with any 12 or 24 volt battery to remotely power tester. CAUTION: For use on negative ground systems only. Wt. .1 lb.

No. 204990 – Auxiliary power converter. Permits use of 120/230 volt outlet to power tester. Wt. 1 lb.



203264



204990

Hoses

No. 9785 – Hose, 0.75" I.D. X 3/4" NPTF male both ends X 10' long. 2,250 psi working pressure. (2 req'd on 50 and 75 gpm testers) Wt., .7 lb.

The following hose assemblies are all 4-ply spiral wound wire, 10 feet long. For use with 200 gpm testers.

No. 9786 – Hose, 1.00" I.D. X 1 1/4" NPT male both ends. Recommended max. flow 90 gpm, with a working pressure of 4,000 psi. Wt., 14 lbs.

No. 9787 – Hose, 1.25" I.D. X 1 1/4" NPT male both ends. Recommended max. flow 140 gpm, with a working pressure of 3,000 psi. Wt., 21 lbs.

No. 9788 – Hose, 1.50" I.D. X 1 1/2" NPT male both ends. Recommended max. flow 200 gpm, with a working pressure of 2,500 psi. Wt., 25 lbs.

No. 203264 – Consists of two hose reducer bushings, 1 1/4" NPT female X 1 1/2" NPT male end. Needed to adapt No. 9786 1.00" I.D. hose and No. 9787 1.25" I.D. hose to tester. Wt., 2.2 lbs.



37045

Hydraulic Tools

SPECIFICATIONS, DIMENSIONS AND ORDERING INFORMATION – HT Series

Order No.	Maximum Flow (gpm)	Flow Ranges			Max. Oper. Pressure		Temp. Scale Range		Port Sizes	Weight		Dimensions	
		Scale	U.S.gpm	l/min.	psi	BAR	°F	°C		lbs.	kg.	in.	mm
HT50A	50	—	0-50	0-200	5,000	345	20-240	-6 to 114	1 1/16-12UN Female "O" Ring with Union Adapt. 3/4" Female NPTF	30.3	16.8	A = 12.25" B = 6.25" C = 10.00"	A = 311 B = 159 C = 255
HT75	75	High Low	15-75 3-15	50-300 10-60			100-250	40-120	3/4" NPT Swivel	18.2	8.6	A = 13.75" B = 11.88" C = 5.75"	A = 349.25 B = 301.62 C = 146.05
HT200	200	High Low	25-200 5-40	100-750 20-150					1 1/2" SAE Split Flange	28.2	13.6	A = 15.88" B = 13.25" C = 6.75"	A = 403.47 B = 336.55 C = 171.45

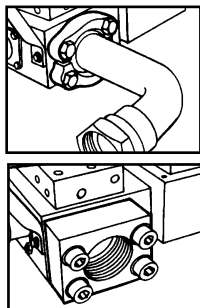
For a complete listing of accessories for the HT series of hydraulic system testers, see pages 119 and 120.

* Not included, must be ordered separately, see page 120.



Accessories for Hydraulic Testers

Accessories for use with 200 gpm hydraulic tester



The inlet and outlet hose assemblies are attached to the HT200 hydraulic tester by the use of flanged-head adapters and split flanges, or by a set of female straight adapters.

Flanged head adapter unions and split flange kit

A. No. 203154 – Straight flange adapter. 1.50" flanged-head to 1½" NPSM female swivel. Wt., 2.2 lbs.

B. No. 203155 – 45° flange adapter. 1.50" flanged-head by 1½" NPSM female swivel. Wt., 3.2 lbs.

C. No. 203156 – 90° flange adapter. 1.50" flanged-head by 1½" NPSM female swivel. Wt., 4.2 lbs.

D. No. 203017 – Split flange kit. Consists of four flange halves and attaching bolts to permit use of 1.50" I.D. flange adapters listed at left. Wt., 2.9 lbs.

Female straight flange adapter

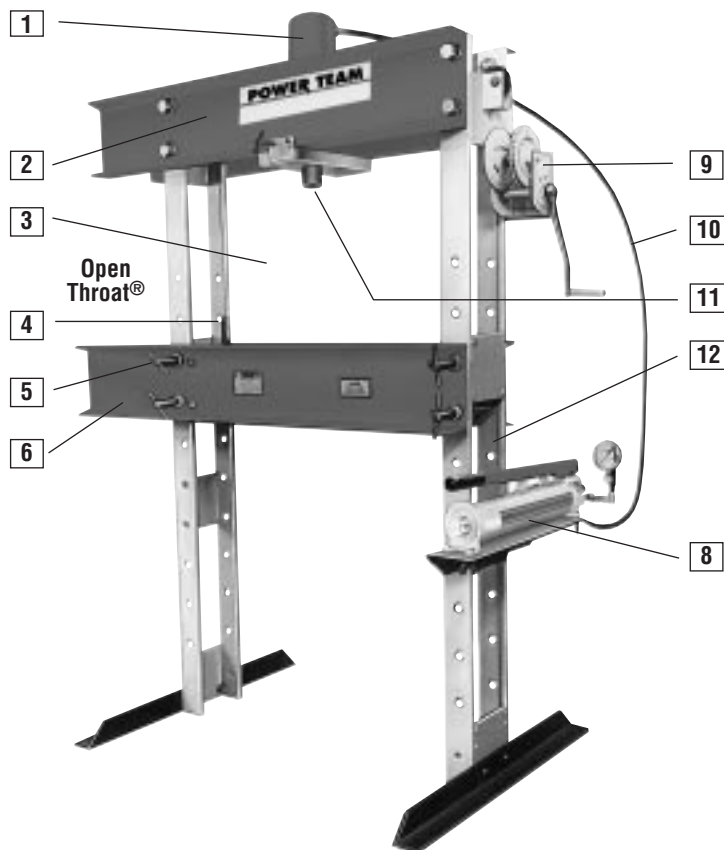
E. No. 203003 – Consists of two female straight flange adapters with attaching bolts. When attached to inlet/outlet ports, allows connection of 1½" NPT male hose ends to tester. Wt., 8.5 lbs.

Hydraulic fittings for use with all testers.

	No. 16954 – 90° swivel adapter, ¾" NPTF male x ¾" NPSM female. Wt., .8 lb.		No. 26073 – Swivel adapter, ¾" NPTF female x ½" NPSM female. Wt., .3 lb.
	No. 22041 – Coupler, ¾" NPTF male x ¾"-16 female ORB. Wt., .5 lb.		No. 26074 – 45° swivel adapter, ¾" NPSM female x ¾" NPTF male. Wt., .6 lb.
	No. 22042 – Coupler, ¾"-16 female ORB x 1½"-12 female 37° JIC. Wt., .4 lb.		No. 26075 – Swivel adapter, ¾" NPSM female x ¾" NPTF female. Wt., .4 lb.
	No. 22043 – Coupler, ¾"-16 female ORB x ¾"-18 female 37° JIC. Wt., .4 lb.		No. 26076 – Swivel adapter, ¾" NPTF male x ¾" NPSM female. Wt., .4 lb.
	No. 22044 – Coupler, ¾"-16 female ORB x ½"-20 female 37° JIC. Wt., .4 lb.		No. 26077 – Cap, ¾" NPTF. Wt., .6 lb.
	No. 27737 – Swivel adapter, ¾"-16 male x ¾" NPSM female. For use with No. 9785 hose, which has ¾" NPTF male thread. Wt., .3 lb.		No. 26078 – Plug, ¾" NPTF. Wt., .3 lb.
	No. 27287 – Coupler, ¾"-16 UNF female ORB x ¾"-14 UNF female 37° JIC. Wt., .4 lb.		No. 26079 – Adapter, ¾" NPTF female x 1½"-12 male ORB. Wt., .4 lb.
	No. 13449 – Cap, 1½"-12 UNF female, ¾" O.D. tube, 37° flare. Wt., .2 lb.		No. 208402 – 45° union adapter, ¾"-14 UNF male 37° JIC x ¾" NPTF female. 3,000 psi working pressure. Wt., .6 lb.
	No. 26068 – 45° swivel adapter, 1" NPTF male x ¾" NPSM female. Wt., .8 lb.		No. 208401 – 45° union adapter, ¾"-14 UNF male 37° JIC x ¾" NPTF female. Wt., .7 lb.
	No. 26069 – Swivel adapter, 1" NPTF female x ¾" NPSM female. Wt., .5 lb.		No. 206753 – Coupler, 1½"-12 UNF female 37° JIC x ¾" NPTF female. Wt., 1.1 lbs.
	No. 26070 – Adapter, 1" NPTF male x ¾" NPTF female. Wt., .3 lb.		No. 26666 – Connector, 1½"-12 UNF male 37° JIC x ¾" NPTF male. Wt., .4 lb.
	No. 26071 – Service tee, ¾" NPTF female (2) x ¾" NPTF male. Wt., .9 lb.		No. 28984 – Straight adapter, ¾" NPTF female x 1½"-12 UN male 37° JIC. Wt., .6 lb.
	No. 26072 – Swivel adapter, ¾" NPSM female x ½" NPTF male. Wt., .4 lb.		No. 28985 – Straight adapter union, 1½"-12 UN female 37° JIC x ¾" NPTF female. Wt., 1.3 lbs.

NOTE: The recommended maximum working pressure on the above fittings is 5,000 psi except the 208402.

Powerful Power Team Shop Maintenance Presses

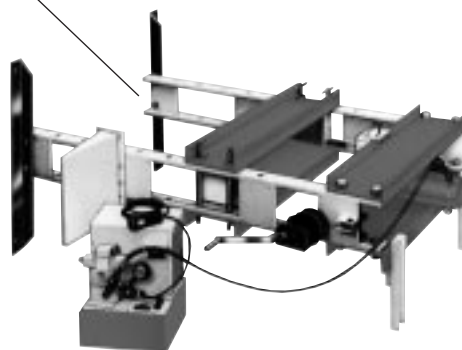


NOTE: Certain press applications may require guarding. Because of the multitude of possible press uses, it is impossible to design a guard that will meet every customer need. The end user must provide his own guarding where the situations dictate.

IMPORTANT SAFETY INFORMATION:

Power Team has protective blankets available which may afford protection from injury to users and others should part breakage occur. Power Team recommends the use of these blankets for all pushing, pulling, pressing, and lifting applications. See page 169 for additional information.

7 Horizontal pressing capabilities



1 2 TO 1 SAFETY FACTOR on hydraulic cylinders and they meet ASME B30.1 standards. Cylinders are easily removed for other applications. Single- or double-acting cylinders are available; built-in relief valve on double-acting cylinders.

2 FULL RATED CAPACITY across width of upper frame, even with workhead moved to one side. (Heavy-duty presses only.)

3 LARGER WORK AREA than most competitors' models.

4 ALIGNMENT LEVER for simple pin replacement after raising or lowering the bed.

5 CLOSE MANUFACTURING TOLERANCE allows even load distribution over four alloy steel pins; not two, like some competitors. (Heavy-duty presses only.)

6 OPEN THROAT® FEATURE on 25 ton press provides additional work area by mounting cylinder on outside for C-frame advantage.

7 FRAMES CAN BE USED HORIZONTALLY for pressing jobs on extra-long shafts (see photo above).

8 ELECTRIC, AIR OR HAND HYDRAULIC PUMPS are available. All are standard Power Team pumps.

CSA approved electric pumps are standard on all presses.

Externally adjustable relief valve for precise operator control of working pressure is standard on all electric pumps except PE10 and PE17 series.

24 volt hand switch for remote control on pumps equipped with solenoid valves.

9 ONE-MAN OPERATION for bed adjustment. Winch unit quickly raises or lowers bed to desired height. Self-locking winch mechanism prevents bed from dropping when handle is released.

10 0.38" I.D. HOSE on spring return cylinders on heavy-duty presses provides up to six times faster cylinder return than standard 0.25" I.D. hose.

11 FAST CYLINDER APPROACH to work provided by 2-speed hand, air or electric pumps.

12 RUGGED UPRIGHTS, 50 percent stronger than channel iron. Four post design means open side for easy loading of long material.

NOTE: Certain features do not apply to Power Team 10 ton, Roll-Bed, or economy presses.

10 Ton

Maintenance

Presses



10 Ton Bench and Floor Presses

Ideal for low force pressing jobs; repairing small motors, armatures, removing and installing gears, bearings, other press-fit parts.

Bench press has 15.38" x 18.00" work area; floor press bed height is adjustable from 5.00" to 41.00" with horizontal "daylight" of 21.00".

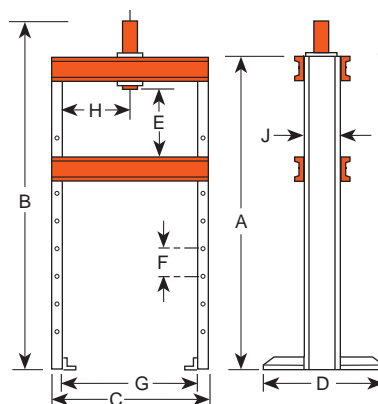
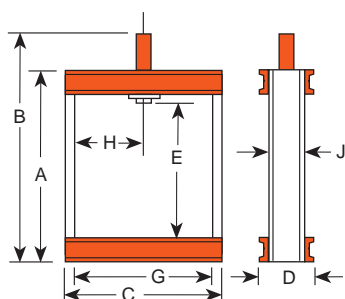
Hydraulic power choices of single-speed hand pump or Quarter Horse® electric/hydraulic hand pump.

Hydraulic gauges, hoses and fittings included.

PUMP ELECTRICAL SPECIFICATIONS

PE10 Series – ¼ hp, 115 volt, 60 cycle, single phase. Also available in 230 volt, 50 cycle, add suffix "-220" to order no.

NOTE: Accessories are available; see page 132 for complete information about press plates, V-blocks and adapters.



DIMENSIONS

Frame	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	F (in.)	G (in.)	H (in.)	J (in.)	K (in.)	L (in.)	Bench Space (in.)	Floor Space (in.)
Bench	24.50	33.13	25.25	7.18	15.38	—	22.00	11.00	4.00	1.58	4.00	7.18 X 25.25	—
Floor	59.00	67.63		28.00	5.00-41.00	6.00		2.50-18.50*				—	28.00 X 28.25

* Lateral head movement

ORDERING INFORMATION

Frame	Cap. (tons)	Type Cyl. Used	Stroke	Cyl. Model	Order No.	Speed (min./in.)†††		Type Pump	Pump Model †	Prod. Wt (lbs.)			
						Advance	Pressing						
222481 Bench	10	Single- Acting	10.13"	C1010C	SPM1010	.06 in./stroke		Hand	P55	91			
					SPH1010					171			
222480 Floor								SPE1010	0.2	2.2	Elec. ††	PE102	175
								SP1010A	0.3	3.7	Air	PA9	162
			Double- Acting	10.00"	RD1010	SPE1010D	0.2	2.2	Elec. ††	PE104	192		

† Optional air/hydraulic pumps available on request.

†† "Advance" position holds pressure with motor shut off. "Return" position advances cylinder with motor running and returns cylinder with motor shut off.

††† Typical performance based on 100 psi and 10,000 psi pump specifications. Actual speeds may vary with operating conditions.

25 Ton "C" Frame Maintenance Presses

25 Ton "C" Frame Maintenance Press

Can be bench mounted or mounted on optional pedestal base.

Bench mounted version requires less than 1.5 sq. ft. of space; on optional pedestal, only 4 sq. ft. of floor space is needed.

"Open Throat" design makes loading and unloading of work easy.

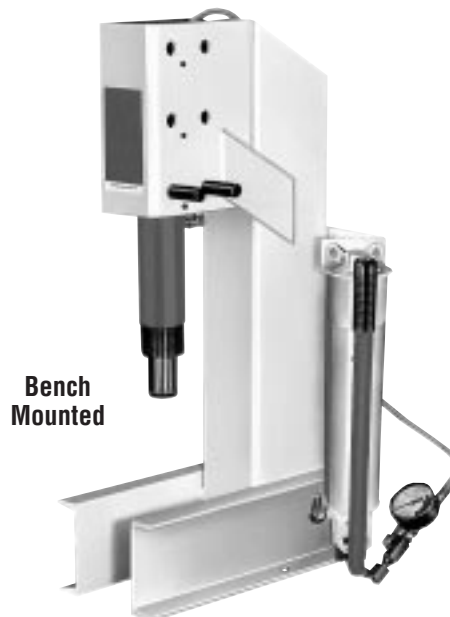
Cylinder head adjusts to three convenient working positions, providing up to 20.25" of "daylight."

Hydraulic cylinder delivers a 6.25" stroke, is driven by a P59 hand pump.

PEDESTAL BASE NO. 60846

This optional pedestal provides a stable base for your SPM256C. It takes up only about 4 sq. ft. of space and includes a bracket for mounting the pump on the side of pedestal press. It must be ordered separately. Wt., 76 lbs.

NOTE: Accessories are available; see page 132 for complete information about press plates, V-blocks and adapters.



Bench Mounted



Pedestal Mounted

DIMENSIONS

A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	F (in.)	G (in.)	H(Cyl. Retracted) (in.)
77.63	24.50	24.00	41.63	36.00	6.00	5.00	10.25, 15.25, 20.25

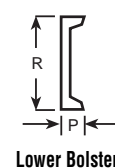
J (in.)	K (in.)	L (in.)	M (in.)	N (in.)	P (in.)	R (in.)	Floor Space (in.)
6.50	12.50	1½-16	8.00	43.00	2.00	7.00	24.00 X 24.50

ORDERING INFORMATION

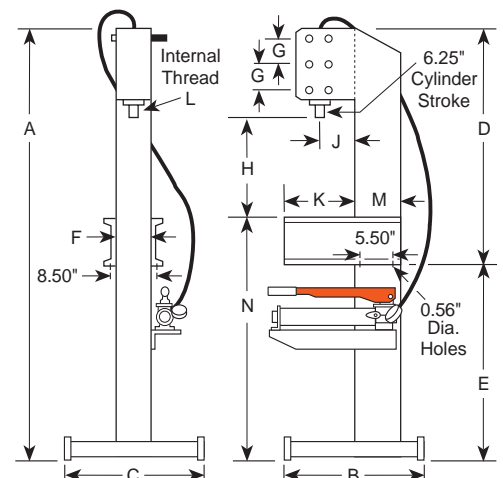
Cap. (tons)	Type Cyl. Used	Stroke	Cyl. Model	Order No.	Speed**		Type Pump	Pump Model	Prod.Wt. (lbs.)
					Advance	Pressing			
25	Single-Acting	6.25"	C256C	SPM256C*	.129 in./stroke	0.03 in./stroke	Hand	P59	240

* SPM256C does not include No. 60846 pedestal base.

** Typical performance based on pump specifications. Actual speeds may vary with operating conditions.



Lower Bolster



Shop Equipment

25 Ton "Economy"

Maintenance

Presses



Hydraulic gauge and hydraulic fittings are included with presses.

U.S. Patent
No. 4,169,412

25 Ton "Economy"

Maintenance

Presses

Rugged, yet reasonably priced. Handles many "big press" tasks, and perfect for many of the "in-between" jobs you see almost daily.

Large working area under cylinder (46.50" max. x 30.00" wide) makes positioning of even bulky work easy.

Choice of hydraulic hand pump or remote control electric/hydraulic pump to power spring-return cylinder which has a 6.25" stroke. Rapid cylinder piston advance and return speeds jobs.

Press bed is raised or lowered to desired working height with winch and cable mechanism, locks in place.

PUMP ELECTRICAL SPECIFICATIONS

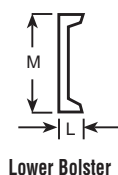
PE17 Series – ½ hp, 115 volt, 60 cycle, single phase. Also available in 230 volt, 50 cycle, add suffix "-220" to order no.

NOTE: Accessories are available; see page 132 for complete information about press plates, V-blocks and adapters.

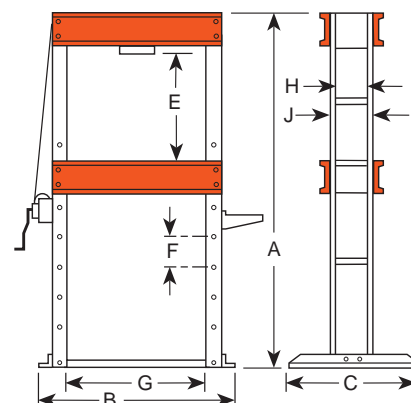
Shop Equipment

DIMENSIONS

A (in.)	B (in.)	C (in.)	E (in.)	F (in.)	G (in.)	H (in.)	J (in.)	L (in.)	M (in.)	Floor Space (in.)
69.50	40.50	28.00	5.75 - 46.50	4.00	30.00	5.75	6.50	2.25	8.00	40.50 X 28.00



Lower Bolster



ORDERING INFORMATION

Cap. (tons)	Type Cyl. Used	Stroke	Cyl. Model	Order No.	Speed (in./min.)††		Type Pump	Valve Type	Pump Model	Prod.Wt. (lbs.)
					Advance	Pressing				
25	Single Acting	6.25"	C256C	SPA256	9.8	1.2	Air	2-Way Foot	PA6	435
				SPM256	.129 in./stroke	0.03 in./stroke	Hand	Load- Release	P59	452
				SPE256	46.6	3.3	Elect.	2-Way†	PE172	464

† Holds pressure with motor shut off. Also has an automatic dump setting. Furnished with a 10' remote motor control.

†† Typical performance based on 100 psi and 10,000 psi pump specifications. Actual speeds may vary with operating conditions.

25 Ton Heavy Duty Open-Throat® Presses

25 Ton Heavy Duty Open-Throat® Maintenance Presses

“Open Throat” design permits use as both an “H” frame and “C” frame press; hydraulic cylinder can be mounted on frame extensions to handle jobs which won’t fit between uprights.

Generous 43.38" x 32.00" work area lets you position bulky jobs easily. Press may be used horizontally for special applications.

Movable workhead for off-center pressing; loads of full capacity can be applied across entire width of frame.

Press bed height easily adjusted with winch; bed will not drop when handle is released.

Choice of power sources for rapid cylinder advance: 2-speed hydraulic hand pump, electric/hydraulic or air/hydraulic. Models with remote control enable operator to view work from all sides with fingertip control of cylinder piston travel.

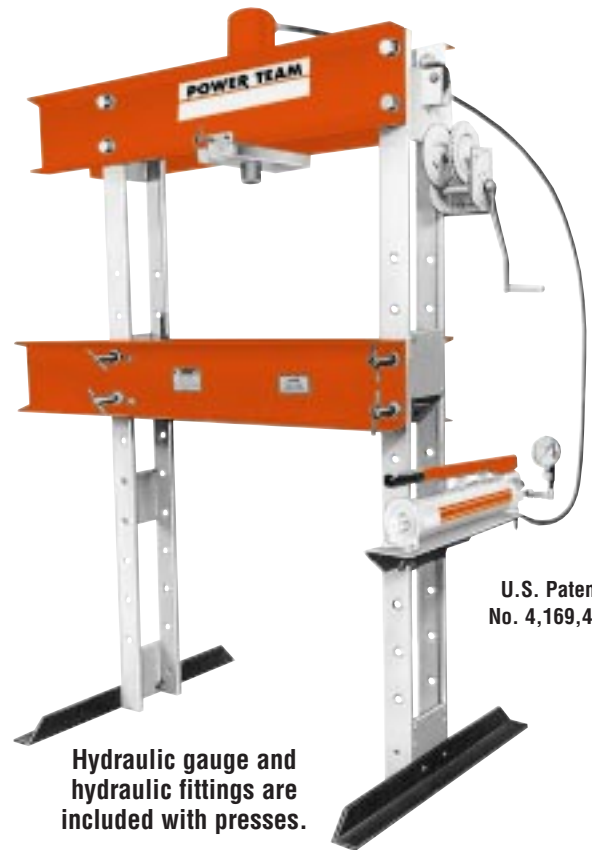
PUMP ELECTRICAL SPECIFICATIONS

PE17 Series – ½ hp, 115 volt, 60 cycle, single phase.

PE21 Series – 1 hp, 115 volt, 60 cycle, single phase.

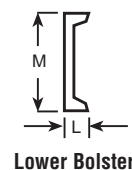
Both pumps available in 230 volt, 50 cycle, add suffix “-220” to order no.

NOTE: Accessories are available; see page 132 for complete information about press plates, V-blocks and adapters.

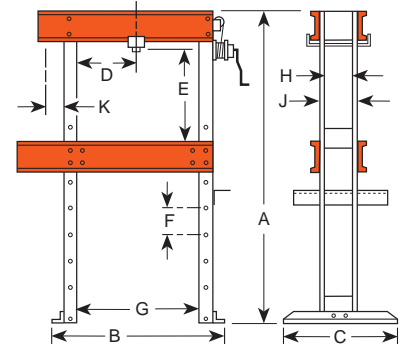


U.S. Patent
No. 4,169,412

Hydraulic gauge and hydraulic fittings are included with presses.



Lower Bolster



Shop Equipment

DIMENSIONS

A (in.)	B (in.)	C (in.)	D* (in.)	E (in.)	F (in.)	G (in.)	H (in.)	J (in.)	K (in.)	L (in.)	M (in.)	Floor Space (in.)
68.00	43.00	28.00	3.00 - 29.00	6.88 - 43.38	4.50	32.00	5.50	6.50	7.00	2.50	8.00	43.00 X 28.00

* Lateral head movement

ORDERING INFORMATION

Cap. (tons)	Type Cyl. Used	Stroke	Cyl. Model	Order No.	Speed (in./min.)†††		Type Pump	Valve Type	Pump‡ Model	Prod. Wt. (lbs.)
					Advance	Pressing				
25	Single- Acting	14.25"	C2514C	SPA2514	9.8	1.2	Air	2-Way Foot	PA6	683
				SPM2514	.49 in./stroke	.03 in./stroke	Hand	Load- Release	P159	693
				SPE2514	46.6	3.3	Elec.	2-Way††	PE172	665
				SPE2514S	52	4.0		3-Way†	PE213S	759
	Double- Acting		RD2514	SPE2514DS				4-Way†	PE214S	787

† Solenoid valve with 24 volt remote control hand switch.

†† Holds pressure with motor shut off. Also has an automatic dump setting. Furnished with a 10' remote motor control.

††† Typical performance based on 100 psi and 10,000 psi pump specifications. Actual speeds may vary under operating conditions.

‡ Pump standard with press. Other Power Team pumps can be substituted.

dBA at idle and 10,000 psi: PE172-67/81 dBA; PE21-70 dBA measured at 3 foot distance, all sides.



Open Throat feature enables cylinder to be mounted on outside of press frame for fast bearing removal and more.

55 Ton "Economy"

Maintenance

Presses



Hydraulic gauge and hydraulic fittings are included with presses.

55 Ton "Economy" Maintenance Presses

Speed and high tonnage at an affordable price to perform a variety of heavy duty maintenance tasks.

Durable steel frame resists buckling and bending.

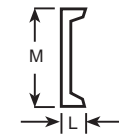
Lower bolster is easily raised and lowered by a hand operated winch and cable mechanism. Bolster is secured in place with pins.

Choice of 2-speed hand operated, air/hydraulic or electric/hydraulic pumps to provide rapid advance of the 55 ton capacity cylinder.

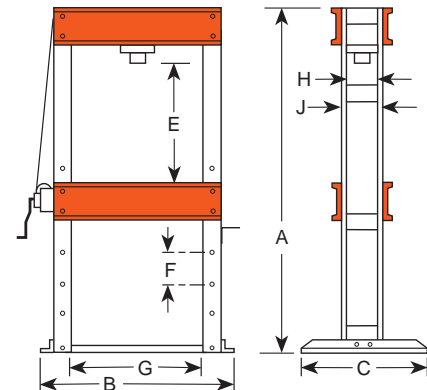
PUMP ELECTRICAL SPECIFICATIONS

PE17 Series – ½ hp, 115 volt, 60 cycle, single phase. Also available in 230 volt, 50 cycle, add suffix "-220" to order no.

NOTE: Accessories are available; see page 132 for complete information about press plates, V-blocks and adapters.



Lower Bolster



DIMENSIONS

A (in.)	B (in.)	C (in.)	E (in.)	F (in.)	G (in.)	H (in.)	J (in.)	L (in.)	M (in.)	Floor Space (in.)
70.75	47.50	28.00	6.13 - 41.13	5.00	35.00	7.06	7.81	3.00	12.00	47.50 X 28.00

ORDERING INFORMATION

Cap. (tons)	Type Cyl. Used	Stroke	Cyl. Model	Order No.	Speed (in./min.)††		Type Pump	Valve Type	Pump ‡ Model	Prod. Wt. (lbs.)
					Advance	Pressing				
55	Single- Acting	6.25"	C556C	SPA556	4.5	.5	Air	2-Way Foot	PA6	702
				SPM556	.23 in./stroke	.015 in./stroke	Hand	Load- Release	P159	712
				SPE556	21.7	1.5	Elec.	2-Way†	PE172	734

† Holds pressure with motor shut off. Also has an automatic dump setting. Furnished with a 10' remote motor control.

†† Typical performance based on 100 psi and 10,000 psi pump specifications. Actual speeds may vary under operating conditions.

‡ Pump standard with press. Other Power Team pumps can be substituted.

55 Ton Heavy Duty Maintenance Presses

U.S. Patent
No. 4,169,412

55 Ton Heavy Duty Maintenance Presses

Movable workhead for full off-center pressing at full rated capacity across width of upper frame without buckling or bending.

Maximum "daylight" is 42.00" x 36.00", making positioning of even bulky work pieces easy.

Height of press bed is easily adjusted with winch; friction brake prevents bed from dropping and handle from spinning upon release.

55 ton cylinder has chrome plated piston rod and wiper seals to keep out corrosion and contamination in a shop environment.

Presses with single-acting cylinder offer choice of 2-speed hand operated or electric/hydraulic pump. Models with double-acting cylinder have an electric/hydraulic pump. Press model equipped with remote control enables operator to view work from all sides with fingertip control of cylinder piston travel.

Press can be used horizontally for special applications with user-supplied support legs.

PUMP ELECTRICAL SPECIFICATIONS

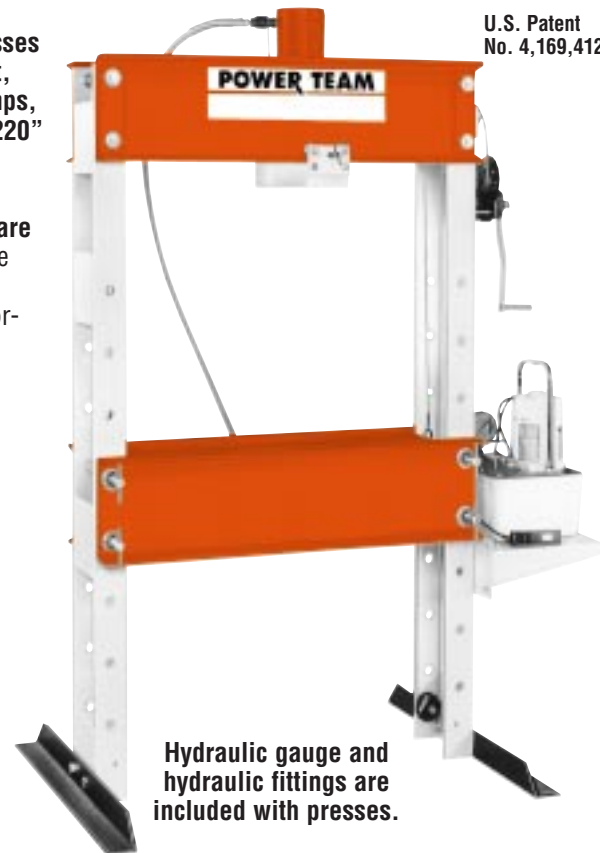
PE17 Series – ½ hp, 115 volt, 60 cycle, single phase. Also available in 230 volt, 50 cycle.

PE21 Series – 1 hp, 115 volt, 60 cycle, single phase. Also available in 230 volt, 50 cycle.

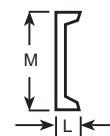
PQ60 Series – 2 hp, 230 volt, 60 cycle, single phase. Also available in 230 volt, 50 cycle.

To order presses with 230 volt, 50 cycle pumps, add suffix "-220" to order no.

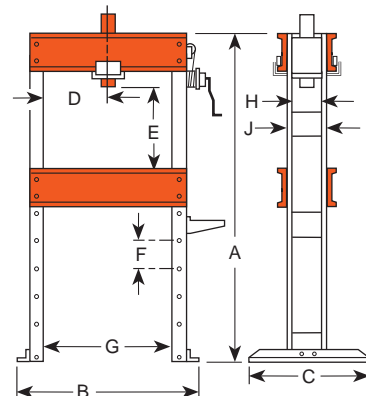
NOTE: Accessories are available; see page 132 for complete information about press plates, V-blocks and adapters.



Hydraulic gauge and hydraulic fittings are included with presses.



Lower Bolster



Shop Equipment

DIMENSIONS

A (in.)	B (in.)	C (in.)	D* (in.)	E (in.)	F (in.)	G (in.)	H (in.)	J (in.)	L (in.)	M (in.)	Floor Space (in.)
72.00	48.50	36.00	3.25 - 32.75	6.00 - 42.00	6.00	36.00	6.75	8.00	3.00	12.00	48.50 X 36.00

* Lateral head movement

ORDERING INFORMATION

Cap.* (tons)	Type Cyl. Used	Stroke	Cyl. Model	Order No.	Speed (in./min.)†††		Type Pump	Valve Type	Pump‡ Model	Prod. Wt. (lbs.)
					Advance	Pressing				
55	Single- Acting	13.25"	C5513C	SPM5513	.665 in./stroke	.026 in./stroke	Hand	2-Way	P460	960
				SPE5513	21.7	1.5	Elec.	2-Way††	PE172	980
				SPE5513S	24.4	1.9		3-Way†	PE213S	1,056
	Double- Acting	13.13"	RD5513	SPE5513D	21.7	1.5		4-Way	PE174	993
				SPE5513DS	66.1	5.4		4-Way†	PQ604S	1,114

* Frame is shipped assembled.

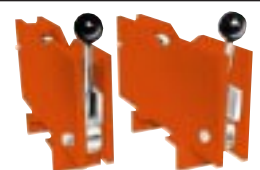
† Solenoid valve with 24 volt remote control hand switch.

†† Holds pressure with motor shut off. Also has an automatic dump setting. Furnished with a 10' remote motor control.

††† Typical performance based on 100 psi and 10,000 psi pump specifications. Actual speeds may vary with operating conditions.

‡ Pump standard with press. Other Power Team pumps can be substituted. dBA at idle and 10,000 psi: PE172—67/81; PE21 Series—70;

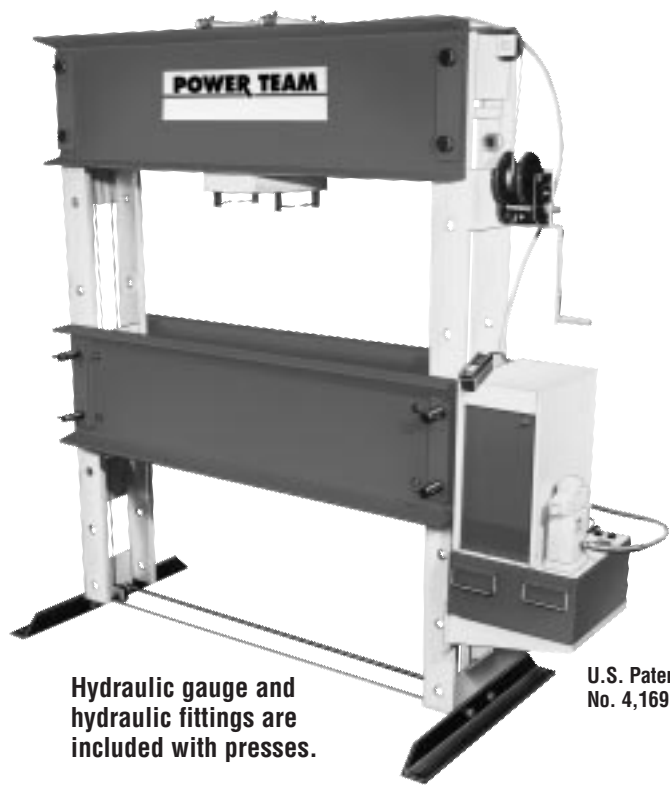
PQ60—74/76; measured at 3 foot distance, all sides.



SF50

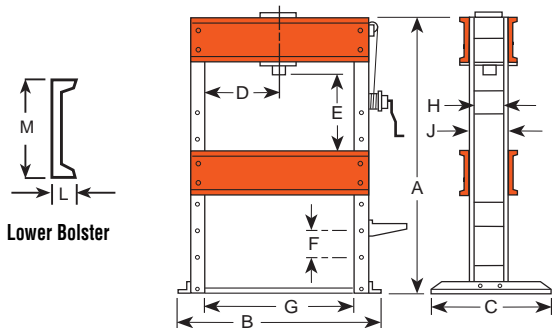
No. SF50 – Straightening fixtures for use with 55-ton shop or 80-ton Roll-Bed® presses (2 ea.). Wt., 104 lbs. **Not part of press assembly – order separately.**

100 Ton Heavy Duty Maintenance Presses



Hydraulic gauge and hydraulic fittings are included with presses.

U.S. Patent
No. 4,169,412



Lower Bolster

DIMENSIONS

A (in.)	B (in.)	C (in.)	D* (in.)	E (in.)	F (in.)	G (in.)	H (in.)	J (in.)	L (in.)	M (in.)	Floor Space (in.)
77.25	64.00	36.00	7.00 - 43.00	2.00 - 42.00	8.00	50.00	8.00	10.00	3.38	15.00	36.00 X 78.25

* Lateral head movement

ORDERING INFORMATION

Cap. (tons)†	Type Cyl. Used	Stroke	Cyl. Model	Order No.	Speed (in./min.)††		Type Pump	Valve Type	Pump‡ Model	Prod. Wt. (lbs.)
					Advance	Pressing				
100	Single-Acting	10.25"	C10010C	SPM10010	.356 in./stroke	.01 in./stroke	Hand	3-way	P460	1,698
				SPE10010	35	2.9			PQ603	1,795
				SPE10010R	11.5	.8	Elec.	2-way	PE172	1,690
	Double-Acting	13.13"	RD10013	SPE10013DS	35	5.8		4-Way*	PQ1204S	1,886

† Frame is shipped assembled. *Solenoid valve with 24 volt remote control hand switch.
†† Typical performance based on 100 psi and 10,000 psi pump specifications. Actual speeds may vary under operating conditions.
‡ Pump standard with press. Other Power Team pumps can be substituted. dBA at idle and 10,000 psi:
PE172—67/81; PQ60—74/76; PQ120—73/78. Measured at 3 foot distance, all sides.

100 Ton Heavy Duty Maintenance Presses

Cylinder workhead glides across upper frame on rollers, locks in place for off-center pressing jobs. Press may be used horizontally for special pressing applications with user-supplied supports.

Press bed is raised and lowered by winch which locks in place for insertion of bed retaining pins. Upper bolster can be lowered 8.00" for convenient positioning on repetitive jobs.

Generous "daylight" of 42.00" x 50.00" accommodates bulky work pieces, uprights are placed for easy side entry of bars or shafts for straightening or bending.

Choice of single- or double-acting cylinder. Hydraulic pump options include: 2-speed hand pump with large 2 gal-lon reservoir, PE172 electric/ hydraulic pump or "PQ" series "Quiet" electric/hydraulic pump with low noise level.

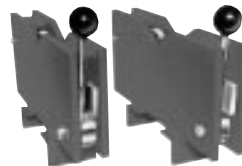
PUMP ELECTRICAL SPECIFICATIONS

PE17 Series – ½ hp, 115 volt, 60 cycle, single phase. Also available in 230 volt, 50 cycle, add suffix "-220" to order no.

PQ60 Series – 2 hp, 230 volt, 60 cycle, single phase. Available in 115 volt, 60 cycle and 230 volt, 50 cycle. To order 230 volt, 50 cycle, add suffix "-220" to order no. For 115 volt consult factory.

PQ120 Series – 3 hp, 460 volt, 60 cycle, three phase. Available in 220/380 volt, 50 cycle. To order 380 volt, 50 cycle, add suffix "-380" to order no.

NOTE: Accessories are available; see page 132 for complete information about press plates, V-blocks and adapters.



SF150

No. SF150 – Straightening fixtures for use with 100 ton shop press and 100, 150, and 200-ton Roll-Bed® presses (2 ea.). Wt., 196 lbs. Not part of press assembly – order separately.

150 And 200 Ton Heavy Duty Presses

150 and 200 Ton Heavy Duty Maintenance Presses

Standing 7½ feet tall, these giants handle the really big jobs. May be used horizontally for special pressing applications with user-supplied supports.

Workhead has wide horizontal travel; rugged press frame withstands load of rated capacity across full width of frame.

Winch mechanism provides easy positioning of press bed, locks in place for insertion of retaining pins. Upper bolster can be lowered 11.00" for convenient positioning on repetitive jobs.

Uprights are placed for easy side entry of bars

or shafts for straightening or bending.

Fast cylinder approach is provided by PQ1204S "Quiet" electric/hydraulic pump. Has remote control hand switch, enabling operator to view work from all sides with fingertip control of cylinder piston travel.

PUMP ELECTRICAL SPECIFICATIONS

PQ120 Series – 3 hp, 460 volt, 60 cycle, three phase. Also available in 220/380 volt, 50 cycle, add suffix "-380" to order no.

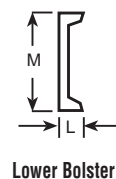
NOTE: To order press with 230 volt, 60 cycle, single phase pump, order press less PQ1204S. Order pump No. PQ604S separately.

NOTE: Accessories are available; see page 132 for complete information about press plates, V-blocks and adapters.

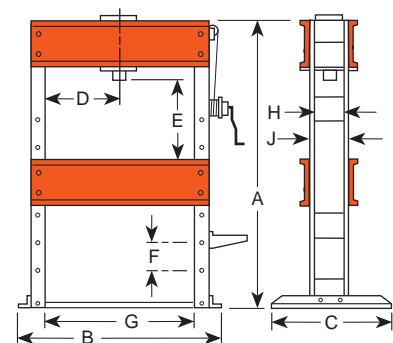


U.S. Patent
No. 4,169,412

Hydraulic gauge and hydraulic fittings are included with presses.



Lower Bolster



Shop Equipment

DIMENSIONS

A (in.)	B (in.)	C (in.)	D* (in.)	E (in.)	F (in.)	G (in.)	H (in.)	J (in.)	L (in.)	M (in.)	Floor Space (in.)
90.00	71.00	44.00	11.00 - 39.00	9.00 - 43.75	11.00	50.00	12.50	15.00	4.13	18.00	44.00 X 71.00

* Lateral head movement

ORDERING INFORMATION

Cap. (tons)†	Type Cyl. Used	Stroke	Cyl. Model	Order No.	Speed (in./min.)††		Type Pump	Valve Type	Pump Model***	Prod. Wt. (lbs.)
					Advance	Pressing				
150	Double- Acting	13.13"	RD15013	SPE15013DS	24	3.9	Electric*	4-way**	PQ1204S	3,015
200			RD20013	SPE20013DS	18	2.9				3,276

† Frame is shipped assembled.

†† Typical performance based on 100 psi and 10,000 psi pump specifications. Actual speeds may vary under operating conditions.

* Pre-wired at factory for 460V.

** Solenoid valve with 24 volt remote control hand switch.

*** Pump standard with press. Other Power Team pumps can be substituted. dBA at idle and 10,000 psi: 73/78, measured at 3 foot distance, all sides.

80, 100, 150

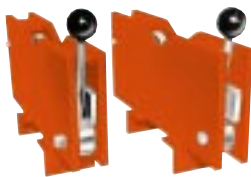
And 200 Ton

Roll-Bed® Presses



Hydraulic gauge and hydraulic fittings are included with presses.

Heavy-duty Straightening Fixtures



SF50
SF150

No. SF50 – Fixtures for use with 80 ton Roll-Bed presses or 55 ton heavy-duty shop presses. (2 ea.). Wt. 104 lbs. **Not part of press assembly – order separately.**

No. SF150 – Fixtures for use with 100, 150 and 200-ton Roll-Bed presses and 100 ton shop presses only (1 pr.). Wt. 196 lbs. **Not part of press assembly – order separately.**

80, 100, 150, and 200 Ton Roll-Bed® Presses

The original, patented Roll-Bed® design. Bed rolls out for easy loading and unloading with a crane or other lifting device.

Movable workhead glides easily side-to-side for full off-center load capacity across width of upper frame.

“Daylight” is 50.50" x 60.00" for 80 and 100 ton models; 51.25" x 64.00" on 150 and 200 ton presses.

Fast approach of double-acting, 13.13" stroke cylinder is provided by PQ1204S “Quiet” electric/hydraulic pump with remote control hand switch. Operator can view work from all sides with fingertip control of cylinder piston travel.

PRESS FEATURES:

Roll-Bed® design

Bed glides in or out on bearings to make loading and unloading fast, easy.

Adjustable lower bed width

For secure balancing and centering of heavy jobs. Loosen adjusting bolts to adjust bed from 4.00" to more than 27.00". See dimension “H”.

Movable workhead

For off-center pressing jobs, workhead moves on bearings across upper bolster. Presses can be used at full capacity, regardless of where workhead is placed.

Lifting mechanism

Simply turn crank handle to raise or lower upper bolster. Screw mechanism raises or lowers both sides evenly (a heavy duty 0.50" drill motor can replace handle for automatic adjustment). Four locking pins hold bolster in place for pressing.

Optional heavy-duty straightening fixtures

Make straightening jobs easy and accurate to within .004"! Rollers are ball bearing mounted and handle raises or lowers for easy turning of the work.

NOTE: Accessories are available; see page 132 for complete information about press plates, V-blocks and adapters.

PUMP ELECTRICAL SPECIFICATIONS

PQ120 Series – 3 hp, 460 volt, 60 cycle, three phase. **Available in 220/380 volt, 50 cycle, add suffix “-380” to order no.**

NOTE: To order press with a 230 volt, 60 cycle, single phase pump, order press less PQ1204S. Order pump No. PQ604S separately.

NOTE: Different voltage and valve options can be obtained by substituting certain PA, PE or PQ series pumps. Consult the factory.

80, 100, 150
And 200 Ton
Roll-Bed® Presses



Width adjusts from 4.00" to over 27.00"; is secured with locking bolts.



Lifting screw and locking pins make bolster raising a one-man job.



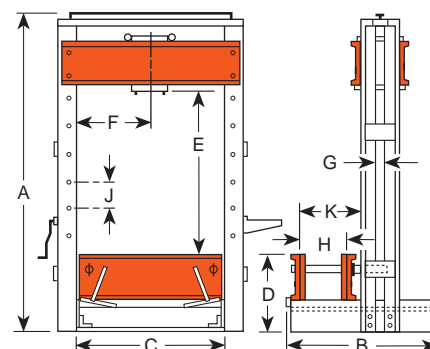
Cylinder is easily moved across width of upper bolster.



Bearings make bed positioning smooth and easy.

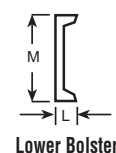


Lever lowers bed for pressing, raises it for rolling.



DIMENSIONS

Cap. Tons	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	F (in.)	G (in.)	H (in.)	J (in.)	K (in.)	L (in.)	M (in.)	Floor Space (in.)
80	112.63	64.25	50.50	27.00	12.00 - 60.00	14.50 - 36.00	3.00	4.00 - 27.25	8.00	36.50	3.38	15.00	64.25 X 60.50
100													
150	123.25	68.25	51.25	30.00	9.00 - 64.00	13.88 - 37.38	3.00	4.00 - 27.13	11.00	37.25	4.13	18.00	68.25 X 63.25
200						15.13 - 36.13							



Lower Bolster

ORDERING INFORMATION

Cap. (tons)†	Type Cyl. Used	Stroke	Cyl. Model	Order No.	Speed (in./min.)††		Type Pump	Valve Type	Pump‡ Model	Prod. Wt. (lbs.)
					Advance	Pressing				
80	Double-Acting	13.13"	RD8013	RB8013S	46	7.5	Elec.	4-way*	PQ1204S	2,886
100			RD10013	RB10013S	35	5.8				2,944
150			RD15013	RB15013S	24	3.9				4,458
200			RD20013	RB20013S	18	2.9				4,546

* Solenoid valve with 24 volt remote control hand switch.

† Frame is shipped assembled.

‡ Pump standard with press. Other Power Team pumps can be substituted. dBA at idle and 10,000 psi: PQ120-73/78; measured at 3 foot distance, all sides.

†† Typical performance based on 100 psi and 10,000 psi pump specifications. Actual speeds may vary with operating conditions.

Power Team

Hydraulic Press

Accessories



SOLID RUBBER TIRE REMOVING/INSTALLING SET FOR 55- THRU 200-TON SHOP PRESSES

Now an easy way to press solid rubber tires. The TPP200 uses plates instead of combination rings to press a rim from an old tire into a new one. Plates are stacked so none is more than 2 in. smaller than the one under it to keep the plates from bending. They can

Set No. TPP200

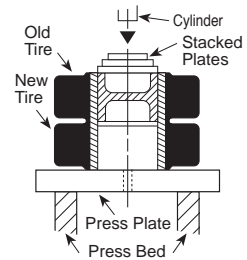
Part No.	Tire Size I.D.	Plate O.D.
TPP1	4.00"	3.88"
TPP2	5.00"	4.88"
TPP3	6.00", 6.25"	5.88"
TPP4	6.50"	6.38"
TPP5	8.00"	7.88"
TPP6	10.00"	9.88"
TPP7	10.50"	10.38"
TPP8	11.25"	11.13"
TPP9	12.00", 12.13"	11.88"
TPP10	14.00"	13.88"
TPP11	15.00"	14.88"
TPP12	16.00"	15.88"
TPP13	17.75"	17.63"
TPS6	Spacer/Pushing Adapter	3.75" X 6.00"
TBP1622	Bed Plate	16.00" X 22.00" X 2.00"

be used on any Power Team press with 55 ton capacity or more. **NOTE:** Many tires require 100 tons of force or more, depending on tire size and condition. These plates withstand max. force of 150 tons.

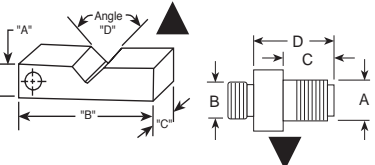
No. TPP200 — Tire press plate set. Includes 13 press plates, spacer pushing adapter and press bed plate. For use on solid rubber tires from 4.00" to 17.75" I.D.



Pressing rim into new tire on Power Team Press.



V-BLOCKS (in.)				
Part No.	Width A	Length B	Thick C	Angle D
1890	2.00	9.00	1.25	120°
1891	2.50	11.50	1.75	
1892	3.50	14.00	2.00	
1893	5.00		1.50	
207395	5.75	23.00	2.50	



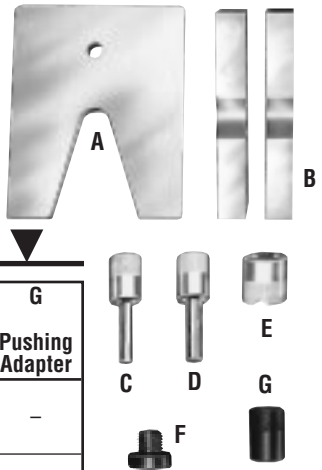
THREADED ADAPTER DIMENSIONS (in.)				
Adapter No.	A	B	C	D
38597	1- 8	1- 8	0.75	1.31
38953	1 1/4 - 7	1 1/2 - 16	2.75	4.38
37368	1 5/8 - 5 1/2		1.69	2.50
43562	2 1/4 - 12		2.25	3.00
38954	1 5/8 - 5 1/2	1 1/16 - 8	3.25	4.19
43563	2 1/4 - 12	2 3/4 - 12	2.25	3.19
46070		2 - 4 1/2		

ACCESSORIES

Press Accessory Kit

Make your Power Team press even more versatile with one of these accessory sets. These sets will eliminate makeshift set-ups. Many of these items can be used with pullers you already have.

Press Accessories



CAUTION: Pushing adapters are designed for use with specific shaft sizes, and depending on the condition of the shaft ends, the adapter may not withstand the full press tonnage. Always use a protective blanket or other suitable guard when pressing.

ORDERING INFORMATION

Use With Press:	Order No.	A V-Throat Press Plate	B V-Blocks	C ▲ Pushing Adapter	D ▲ Pushing Adapter	E V-Pushing Adapter	F Threaded Adapter		G Pushing Adapter
							Single- Acting Cyls.	Double- Acting Cyls.	
10 Ton	SPA10	1888	1890 (Pr.)	201923 0.50" dia. shank	201454 0.75" dia. shank	34806	Included in Set 38597 1" – 8 38597 1" – 8		–
25 Ton	SPA25	1889	1891 (Pr.)	34510 0.75" dia. shank	34511 1.00" dia. shank	34807	Included in Set 38953 1 ¼" – 7 38953 1 ¼" – 7		–
55 Ton	SPA55	–	1892 (Pr.)	34755 1.00" dia. shank	34756 1.50" dia. shank	34808	Not Included Order Separately 37368 38954 1 ⅝" – 5 ½" 1 ⅝" – 5 ½"		–
80/100 Ton	SPA100	–	1893** (Pr.)	–	–	36469	Not Included Order Separately 43562 43563 2 ¼" – 12 2 ¼" – 12 46070*** 2 ¼" – 12		21332
150/200 Ton	SPA200	–	207395 (Pr.)	–	44458 2.25" dia. shank	44457	None* – –		–

* Pushing adapters thread directly into RD15013 and RD20013 cylinders.
 ** V-blocks, No. 1893, are recommended for use with 80-ton Roll-Bed press. Not recommended for use with 100 ton Roll Bed.
 ***For 80-ton Roll-Bed press.
NOTE: Individual press accessories may be ordered separately.

Mobile Floor Cranes, 6,000 lb. Capacity

Working capacities of 4,000, 5,000 and 6,000 lbs. Boom swings a full 3 feet in 4,000 lb. position; 26.00" in 6,000 lb. position.

For stability, legs extend to nearly 130.00" with maximum spread of 59.75". Steering dolly provides mobility, acts as a floor lock by lifting rear wheel off the floor.

FC6000 has 2-speed hand pump which fully extends boom with 120 strokes under no load; with 480 strokes under load.

FC6000E has electric/hydraulic pump which fully extends boom in 16.2 seconds under no load; in 4.6 minutes under load.

HYDRAULIC PUMP



Electric/hydraulic pump with remote motor control for lifting and lowering. The 61399 also has a manual load lowering valve for precise operator control.

HAND PUMP

2-speed hand pump 64663 for fast boom travel and precise operator controlled descent.

ORDERING INFORMATION

No. FC6000 – 6,000 lb. capacity mobile floor crane with retractable legs. Comes equipped with a 2-speed hand pump (64663). Wt., 1,300 lbs.

No. FC6000E – 6,000 lb. capacity mobile floor crane with retractable legs. Comes equipped with a 115V, 50/60 HZ electric/hydraulic pump (61399) with remote motor control and a manual load lowering valve. Wt., 1,300 lbs. **For 220 volt version, part No. FC6000E-220.**

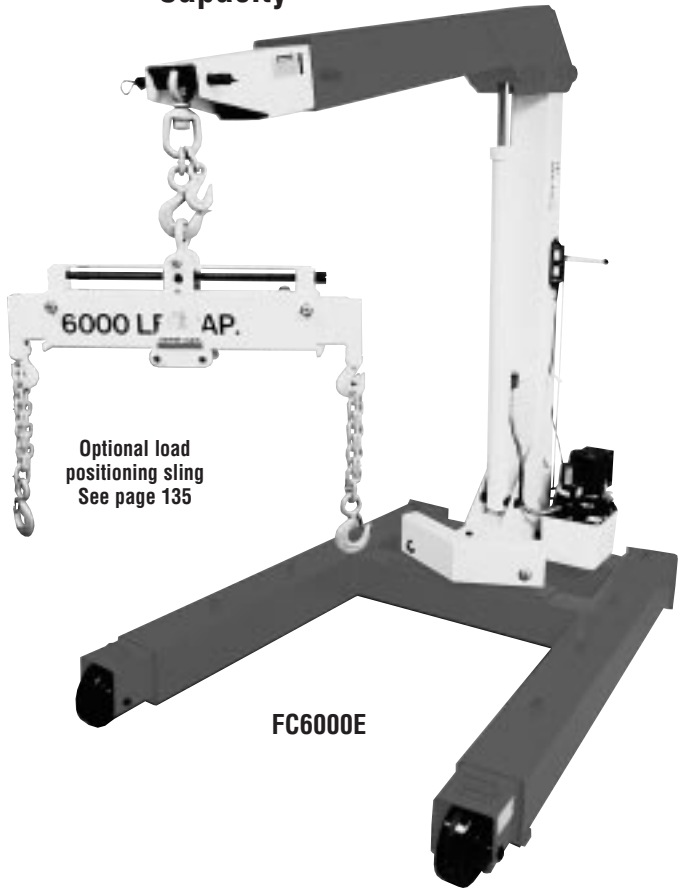
DIMENSIONS (in.)

Boom Capacity (lbs.)	Ext. 4,000	Center 5,000	Ret. 6,000
A Max. Boom Hgt.	161.88"	150.69"	139.50"
B Min. Boom Hgt.	6.00"	17.38"	28.75"
C Overall Hgt. (Boom horiz.)	87.00"	87.00"	87.00"
D Overall Length*	129.13"	113.88"	98.25"
E Inside Leg Length	91.69"	76.13"	43.25"
F Eff. Boom Horiz. Reach	94.25"	78.75"	63.25"
G Outside Leg Width**	59.75"	57.75"	55.75"
H Boom Swing	36.00"	31.00"	26.00"
J Inside Leg Width	35.75"		
K Leg Height	9.06"		
M Wheel dia.	8.00"		
Dolly Wheel Dia.	5.00"		

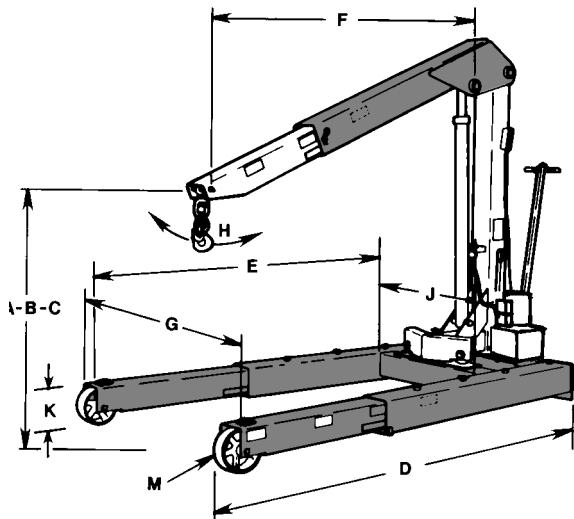
* Legs in storage position: 80.88"

** Legs in storage position: 53.50"

**6,000 lb.
Capacity**

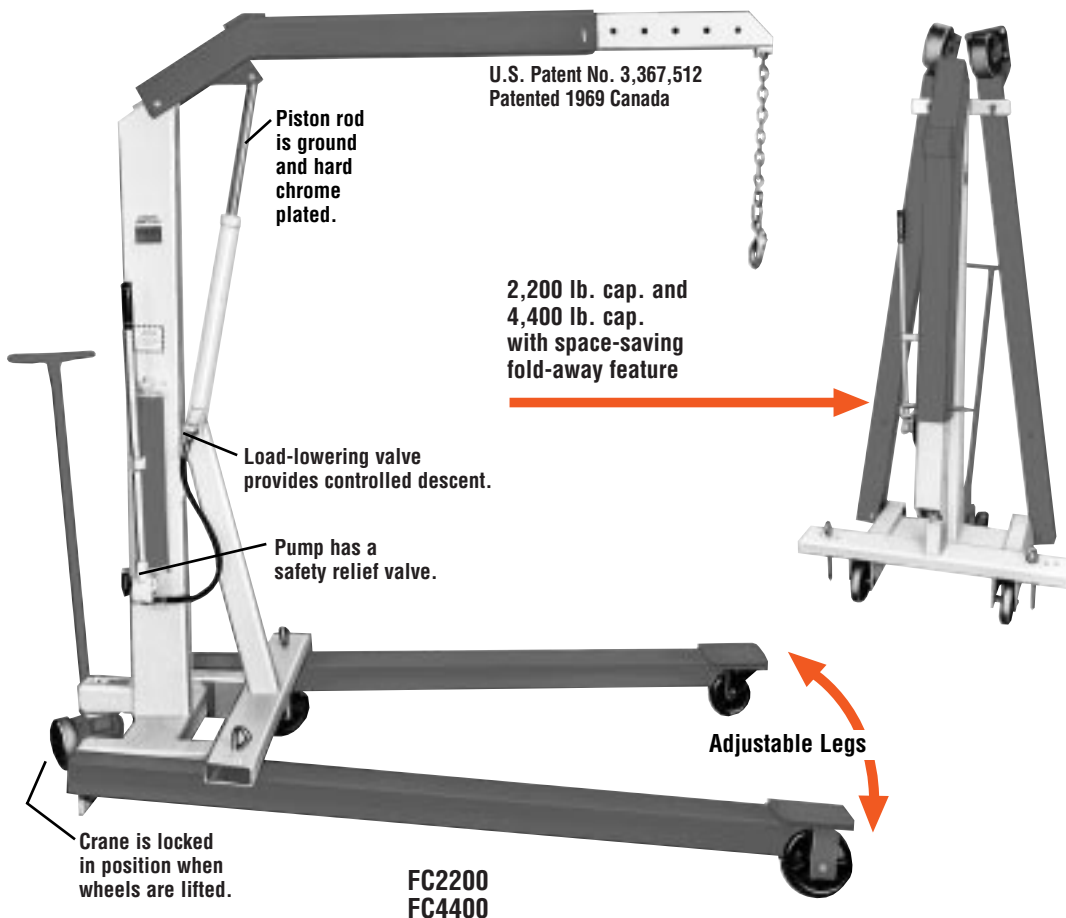


Optional load positioning sling
See page 135



Shop Equipment

Mobile Floor Cranes



Mobile Floor Cranes, 2,200 and 4,400 lb. Capacities

Adjustable leg spread to clear obstacles, telescoping boom for extra reach. Rugged construction, reliable hydraulics.

Boom collapses completely and legs fold for compact storage.

2-speed hydraulic hand pump provides fast boom travel and precise operator controlled descent.

Roller bearing wheels and a steering dolly provide ease of mobility. Lifting chain is included.

ORDERING INFORMATION

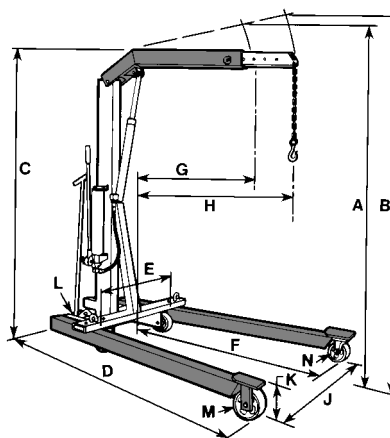
No. FC2200 – 2,200 lb. cap. crane with fold-away feature, adj. leg spread, lifting chain and 2-speed hand pump. Wt., 471 lbs.

No. FC4400 – 4,400 lb. cap. crane with fold-away feature, adj. leg spread, lifting chain and 2-speed hand pump. Wt., 646 lbs.

DIMENSIONS (in.)

	FC2200*	FC4400*
Cap., boom ret. (lbs.)	2,200	4,400
Cap., boom ext. (lbs.)	1,650	3,300
A Max. boom hgt., (ret.)	107.00"	111.00"
B Max. boom hgt., (ext.)	117.00"	122.00"
C Overall hgt., boom horiz.	80.00"	82.00"
D Overall length	83.00"	89.00"
E Min. throat width	24.00"	25.00"
F Inside leg length	54.00"	57.50"
G Eff. boom reach (ret.)	33.00"	35.50"
H Eff. boom reach (ext.)	48.00"	50.50"
J Inside leg width	24.00" - 36.00" - 48.00" (3-position)	26.00" - 40.00" - 52.50" (3-position)
K Leg height	8.00"	9.50"
L Dolly wheel diameter	5.00"	5.00"
M Wheel diameter	6.00"	8.00"
N Caster diameter	6.00"	6.00"
Floor space, folded	27.00" X 38.00"	31.00" X 42.00"
Height, folded	79.00"	86.00"

* Frame shipped unassembled.



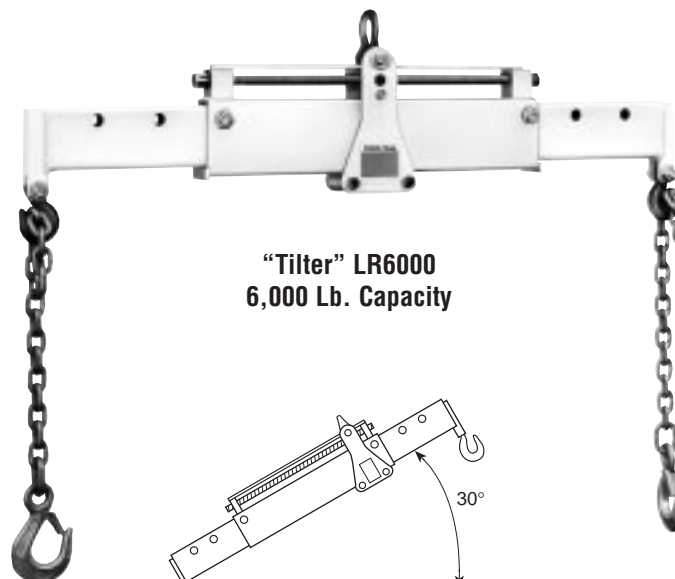
Load Positioning Slings

For lifting or positioning components, Power Team's heavy duty lifting slings are just right.

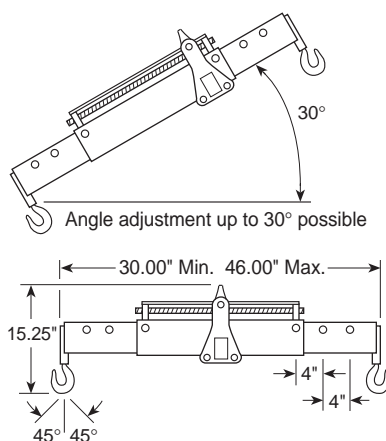
The heavy duty Load-Rotors, when used with a crane or hoist, greatly reduce time and effort.

A self-locking worm and gear set in the Load-Rotor head permits rapid angle adjustment of the component being handled.

Whenever you have big, heavy components to move or position, nothing helps you get the job done easier and faster than the 6,000 lb. "Tilter".



"Tilter" LR6000
6,000 Lb. Capacity



The working length is adjustable in three positions from 30 in. to 46 in. Maximum chain angle is 45°.

Load-Rotors®



2,000 Lb.
Cap.

LR2000



4,000 Lb.
Cap.

LR4000

ORDERING INFORMATION

No. LR2000 – 2,000 lb. cap. Load-Rotor®; 0.25" chain, 56.00" long with swivel hooks. Pair of mounting brackets included. 0.63" hex drive end. 34:1 gear ratio. Lifting eye has a 1.25" opening. Wt., 9 lbs.

No. LR4000 – 4,000 lb. cap. Load-Rotor®; 0.31" chain, 65.00" long with eye hooks. Pair of mounting brackets included. 0.63" hex drive end. 82:1 gear ratio. Lifting eye has 1.75" opening. Wt., 23 lbs.

No. LR6000 – 6,000 lb. cap. load Tilter; two 0.31" alloy chains, 2 ft. long with eye hook on each end. Lifting eye has 1.63" opening. Wt., 73 lbs.



Reduce your time and effort with Power Team's load positioning slings. Nothing gets the job done faster and easier.

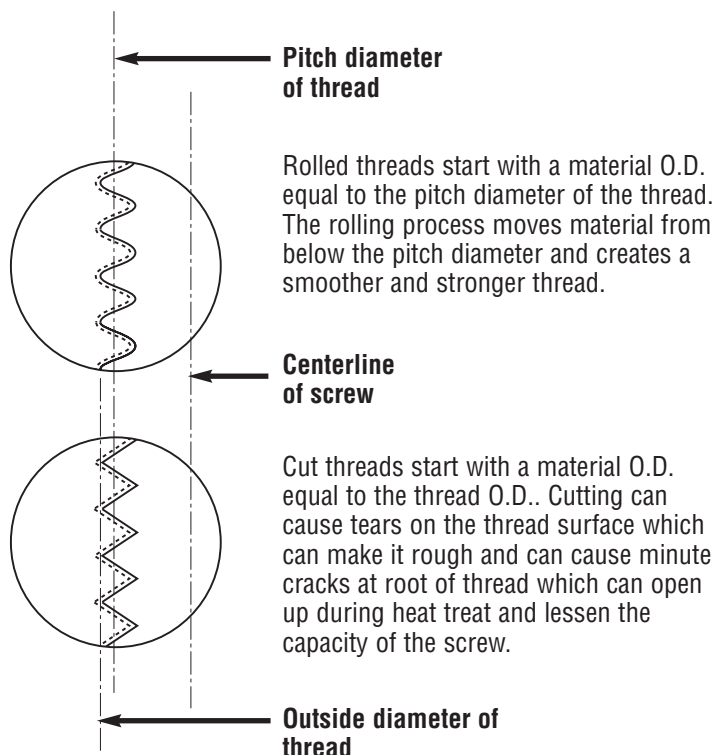


Shop Equipment



SGH153CR with a bearing pulling attachment was used to take a bearing off a utilities well pump motor.

Why our rolled puller threads are superior:



Pitch diameter of thread

Rolled threads start with a material O.D. equal to the pitch diameter of the thread. The rolling process moves material from below the pitch diameter and creates a smoother and stronger thread.

Centerline of screw

Cut threads start with a material O.D. equal to the thread O.D.. Cutting can cause tears on the thread surface which can make it rough and can cause minute cracks at root of thread which can open up during heat treat and lessen the capacity of the screw.

Outside diameter of thread

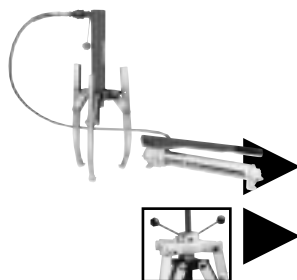
Features:



- Grip-O-Matic® feature on jaw type pullers
- 2-way, 3-way and 2/3-way combination pullers
 - 1 to 37 ton mechanical pullers
 - 5 to 50 ton hydraulic pullers
 - 2.13" (54 mm) to 27.63" (702 mm) reach
 - 3.25" (83 mm) to 44.00" (1,118 mm) of spread



- Forged alloy steel jaws
- Alloy steel heads (forged or flame cut)



- Rolled "V" threads
- Special coating on threads
- Heat treated alloy steel cross bolts
- Standard hydraulic cylinders on Grip-O-Matic® series
- Adjusting nut on Super Grip-O-Matic® series
- Machined puller jaw toes

Benefits:

- The harder the pulling force, the tighter the jaws grip
- A wide variety of pullers; select a specific puller for a specific application or select one or more pullers for general applications
- Strongest possible part; the grain of the material follows the contour of the part.
- Heat treated and designed for maximum strength
- Stronger and smoother than cut threads
- Resists corrosion, traps lubrication better than black oxide
- Designed for max. shear strength
- Cylinder can be removed from puller and used in other hydraulic applications
- Allows for controlled jaw spread adjustment
- Larger and stronger pulling toe than most competitors

NOTE: The puller application photos shown in this catalog are shown without protective blankets for clarity of photos. Power Team strongly recommends you always make your pull with a protective device in place.

Operator Safety Comes FIRST!

Tons of force are being exerted with your Pulling System. You must respect this force, and observe safety precautions at all times

⚠ CAUTION

It is impossible to predict the exact force required for every pulling job: setup requirements and the size, shape and condition of the parts being pulled vary a great deal. In addition, the Power Team Pulling System is so versatile, it is possible that components in a pulling setup may have different tonnage ratings. The lowest “capacity” component, then, determines the capacity of the setup. For example: When an accessory with a 1 ton capacity is used with a 10 ton capacity puller, the setup can be used only at a force of one ton.

These tools should be used only by trained personnel familiar with them. Always wear eye protection during a job since work parts, or the pulling tool itself, may break and parts may fly. It is recommended to cover the work with a Power Team Protective Blanket or use a shield while force is being applied.

If you are at all unsure which tool or attachment to select, contact the Power Team factory.

A FEW EASY TIPS TO REMEMBER:

1. Wear safety glasses at all times!

You have only one set of eyes, so protect them from possible flying parts.

2. Keep your pulling tools in shape!

Clean and lubricate the puller's forcing screw frequently, from threads to tip, to assure long service life and proper operation.

3. Cover work with a protective blanket!

With high forces being exerted on the part being pulled, breakage may sometimes result. By covering the work with a protective blanket, the mechanic reduces the danger of flying parts.



4. Apply force gradually!

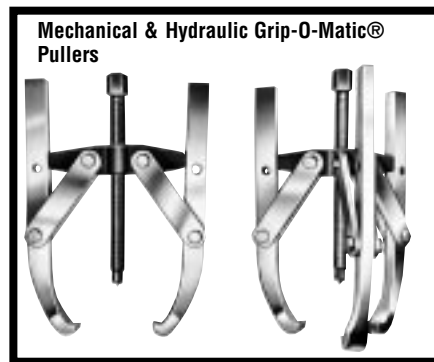
The component should give a little at a time. Do not try speed removal by using an impact wrench on the puller screw.

5. Use the right size puller!

If you have applied maximum force and the part has not moved, go to a larger capacity puller. Resist sledging.

6. Align puller legs and jaws!

Be sure the setup is rigid and that the puller is square with the work.



Power Team

Pulling

System

7. Mount puller so grip is tight!

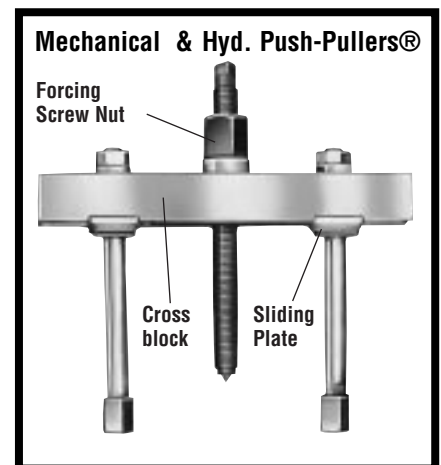
Tighten the adjusting strap-bolts when using a jaw type puller.

- Always use a 3-jaw puller whenever possible. A 3-jaw puller gives a more secure grip, more even pulling power.
- Apply force gradually.
 - Never use an extension on a wrench.
 - Never use an impact wrench.
 - Never strike the end of the forcing screw.
- Always cover work with a protective blanket.

8. Do not couple puller legs!

The tonnage capacity of a Push-Puller® is reduced when longer than standard legs are used, or when legs are in compression. The chance of breaking, bending or misaligning legs increases.

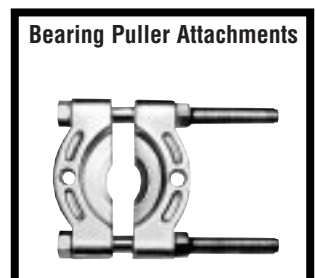
- Keep reach to a minimum. Use shortest legs possible to reach workpiece.
- Thread legs into workpiece, pulling attachment or adapters evenly. Uneven legs will cause greater pull or push on one side, creating a bending action which could cause damage to work piece or cause a leg to break.
- The sliding plates must always be on the opposite side of the cross block from the forcing screw nut or hydraulic cylinder.
- Always cover work with a protective blanket.



Bearing pulling attachments

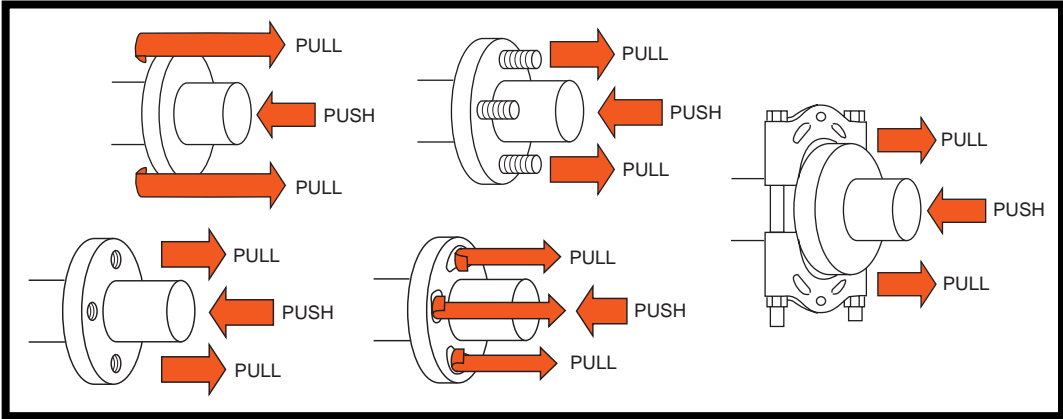
These attachments may not withstand the full tonnage of the pullers with which they are used. The shape and condition of the part being pulled affects the tonnage at which the puller blocks and/or studs may bend or break. Always select the largest attachment which will fit the part to be pulled.

Bearing Puller Attachments



Solving the 3 basic pulling problems

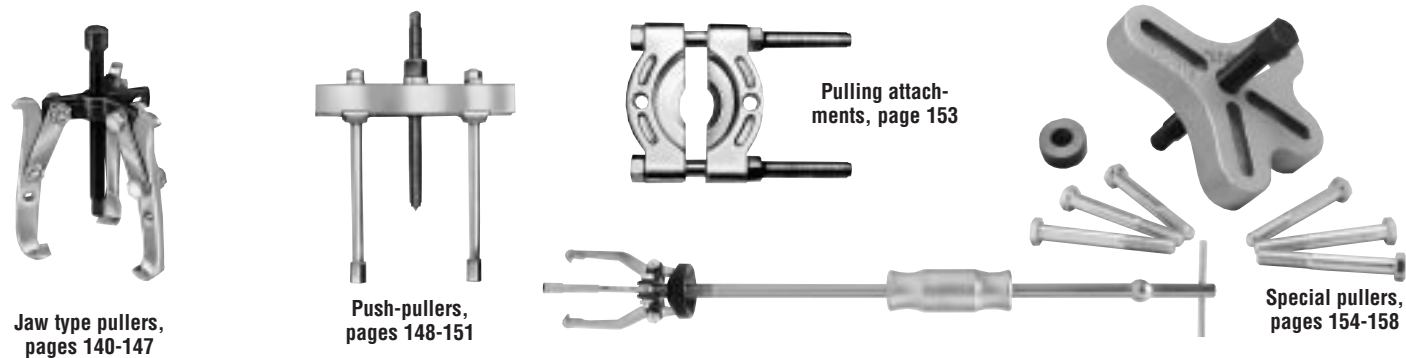
1. To grip and pull a gear, bearing, wheel, pulley, etc., from a shaft.



In order to perform a proper pull, make sure you firmly grip the gear, bearing, wheel, etc., and apply force to the shaft.

Depending on the job, Power Team offers one of the most complete lines of manually and hydraulically powered pullers to be found anywhere. Available in all capacities, there's a size and style to fit every need.

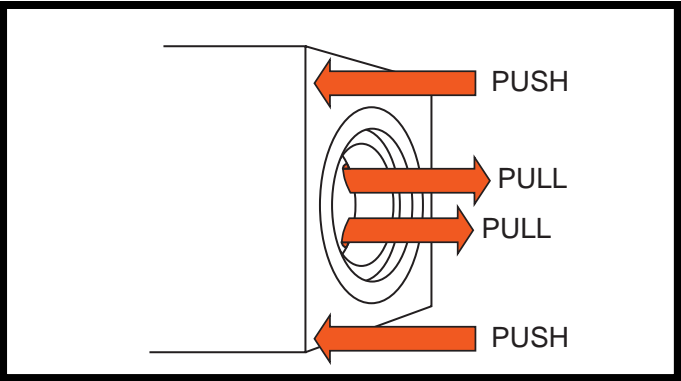
Pullers to use



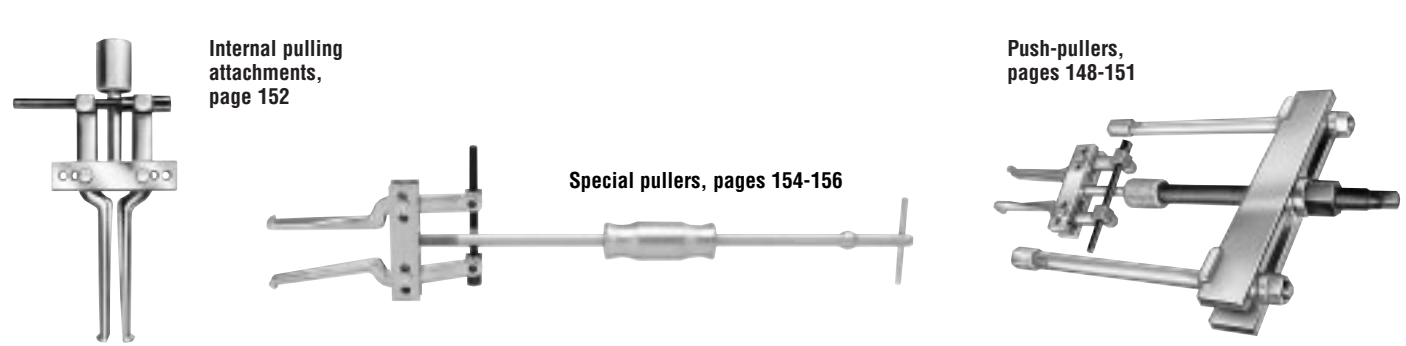
2. To grip and pull an internal bearing race, retainer, oil seal, etc.

By extending the narrow jaws of an internal pulling attachment through the center of the part to be pulled, a straight pull is insured, and damage to the housing is avoided.

While parts within a “blind hole” in a housing do present a problem, Power Team has the internal pulling attachment or a combination of an internal pulling attachment and puller to handle the situation.



Pullers to use

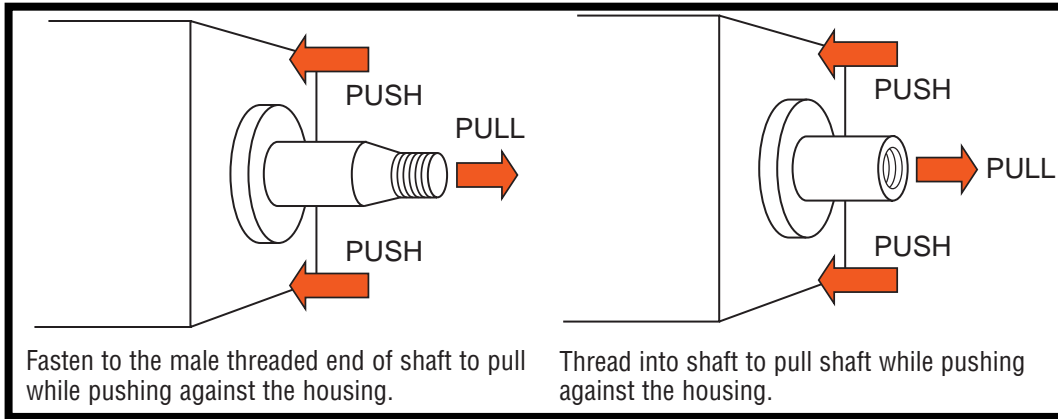


3. To grip and pull a press-fit shaft from a housing.

Solving the

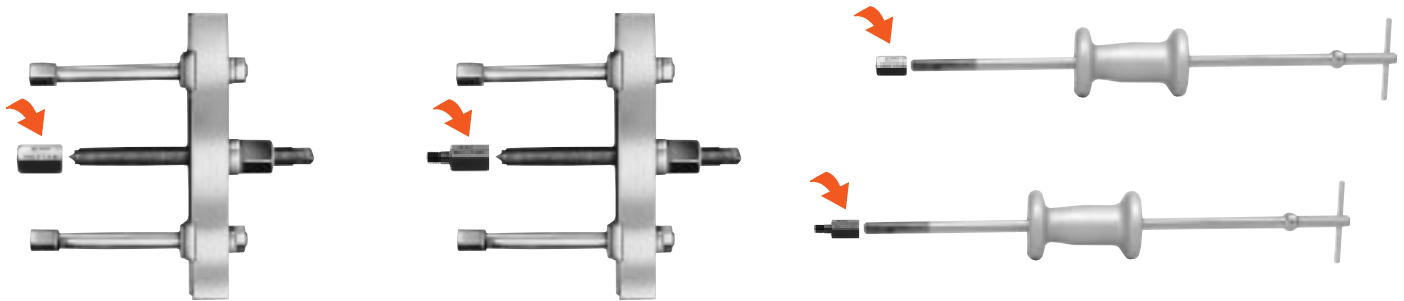
3 basic

pulling problems



Pullers to use

Adapters come in a variety of sizes to fit most any tapped hole or threaded end.



Thumb rules

1. The "area of resistance" or "area of press fit" can vary greatly between seemingly similar jobs. Study each pulling job before you select the puller.
2. For manual, screw-powered pullers: The puller screw must be at least half as large (in dia.) as the shaft of the job.
3. For hydraulic pullers: The maximum force exerted in tons should be 7 to 10 times the diameter of the shaft in inches.

IMPORTANT SAFETY INFORMATION:

Power Team has protective blankets available which may afford protection from injury to users and others should part breakage occur. Power Team recommends the use of these blankets for all pushing, pulling, pressing, and lifting applications. See page 169 for additional information.



Mechanical Parts Catalog PC97

Piece part identification for Power Team mechanical and hydraulic tools.

Write: SPX Power Team
2121 West Bridge St.
P.O. Box 993
Owatonna, MN 55060-0993 USA

Examples:

For shaft dia.	Use hydraulic puller with:
0.00"-1.00"	10 ton cylinder
1.00"-2.00"	17½ ton cylinder
2.00"-3.50"	30 ton cylinder
3.50"-5.50"	50 ton cylinder

Hydra

Grip-O-Matic®

Pullers

A self contained pulling system in a compact package! You get a 2/3way combination puller, hydraulic cylinder and built-in hand pump in one integral, lightweight unit with its own carrying case.

You get the world's most copied puller design; the harder the pulling force, the tighter the jaws grip for secure holding force. Power Team pullers are tested for top performance and reliability at maximum capacity and jaw spread. Use them with confidence!

Removing a wide variety of gears, bearings, bushings, pulleys and other press-fitted parts becomes a routine task.

Compare these Power Team features and benefits with any other pullers on the market!

1 Bright chrome finish
Resists corrosion.

2 Integral safety relief valve Prevents overloading puller.

3 Heat treated forged alloy steel head Provides much more strength and durability than a casting.

4 2/3-way combination puller head
Provides the stability of a 3-jaw puller plus the 2-jaw option when space is limited. Three jaws give a more secure grip and more even pulling force. It's like getting two pullers for the price of one!

5 Rapid adjustment Acme thread and knurled adjusting nut provide for rapid adjustment of the hydraulic cylinder to the work surface.

6 Heat treated and chrome plated cylinder piston rod provides linear force. Eliminates torque and friction forces encountered with conventional screw type pullers.

7 Spring loaded live centering cone (removable)
Centers puller on shafts with drilled centers and automatically retracts when pressing

against plain or rusted shaft ends. Helps keep puller on the shaft when attaching and adjusting it to the part to be pulled.

8 Pump handle rotates 360°, is removable Flexibility in positioning handle at the most convenient pumping location. Handle is removed for compact storage of puller in the furnished, tough plastic carrying/storage case.



9 Bladder type oil reservoir Allows unit to be operated in any position/orientation.

10 Easily metered release valve control knob For retraction of cylinder rod.

11 Multiple cross bolt mountings Provide additional setup versatility.

12 Spring return hydraulic cylinder Provides rapid retraction of cylinder rod upon completion of the pull.

13 Heat treated alloy steel cross bolts For maximum shear strength.

14 Heat treated, forged alloy steel jaws are machined and serrated You get maximum durability, and an improved grip on the part being pulled.

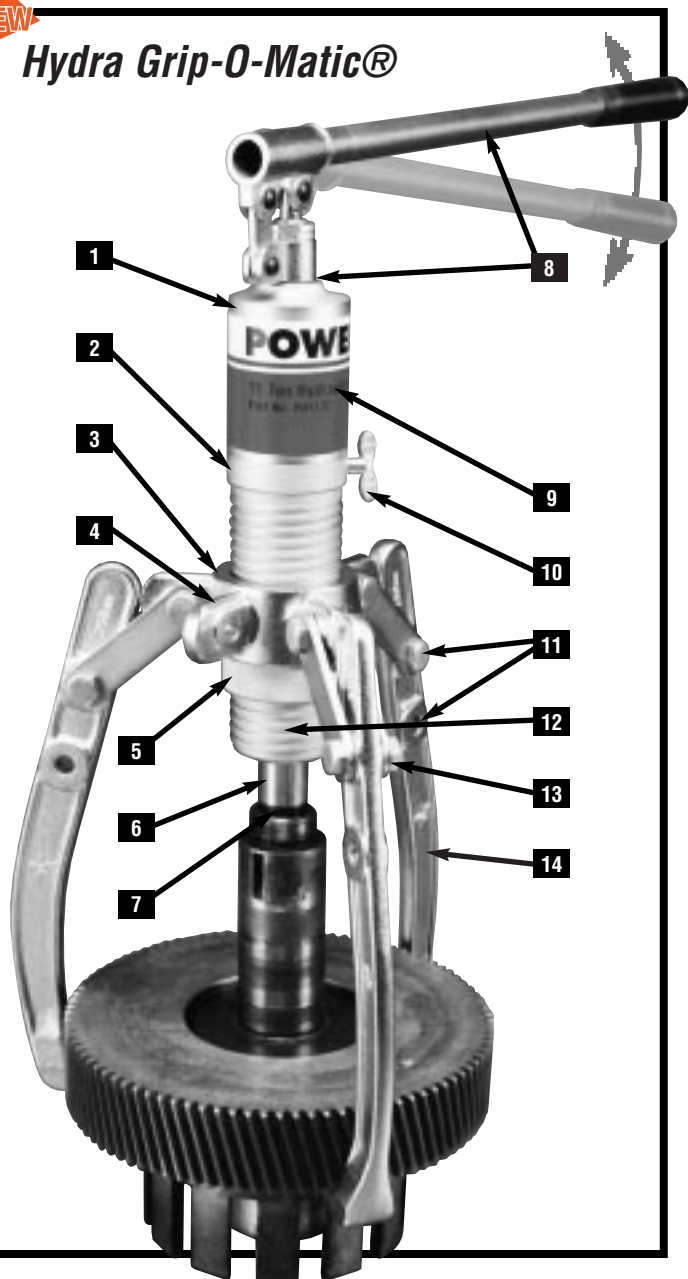


IMPORTANT SAFETY INFORMATION:

Power Team recommends the use of protective blankets for all pulling operations. For ease of visual clarity, we have shown the puller action photos without these safeguards.

NEW

Hydra Grip-O-Matic®



Pulling Systems

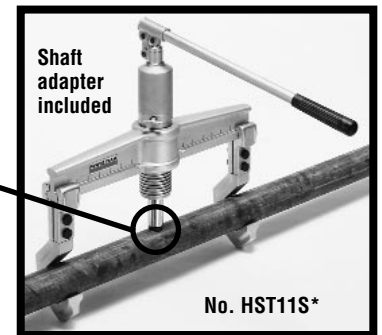


No. HST11
 Use with pump and cylinder assembly from PH113C (not included)

Puller accessory converts PH113C into a Hydraulic Straightening Tool

A perfect portable tool for straightening shafts, bars, etc. Simply remove pump and cylinder from puller head and insert into the HST11 straightening tool accessory (see photo). Widely used in steel mills, wire roll companies, wire extruding firms, the textile industry and anywhere portable straightening capability is needed. Contoured heat treated shaft adapter included.

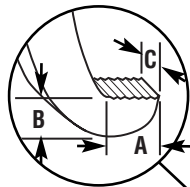
The new No. HST11S set includes straightening tool, pump and cylinder assembly and shaft adapter.



Shaft adapter included

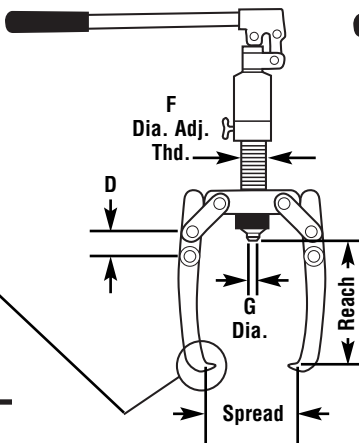
No. HST11S*

*Includes pump and cylinder assembly.

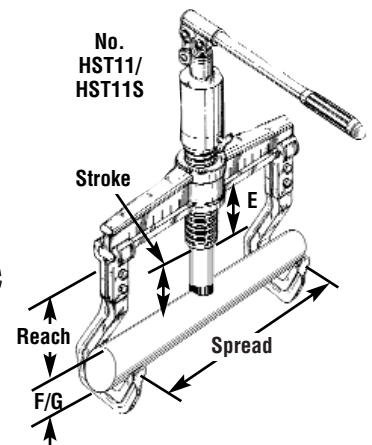
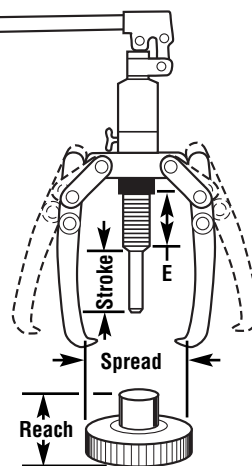


ORDERING INFORMATION

See current price list for shipping weights.



PH Series



No. HST11/HST11S

					Puller Jaw Tip								
Cyl. Cap.	Order No.	Reach	Spread	Stroke	A	B	C	D	E	F	G	Puller Weight	Puller Weight (w/case)
6 tons	PH63C	6.00"	7.88"	3.13"	0.44"	0.25"	0.88"	1.25"	3.25"	1.66"	0.88"	10.8 lbs.	13.7 lbs.
8 tons	PH83C	7.50"	9.81"			0.38"	1.00"	2.00"		1.97"		14.5 lbs.	18.6 lbs.
11 tons	PH113C	9.00"	11.00"		0.56"		1.13"			2.38"	1.13"	17.6 lbs.	20.6 lbs.
11 tons	HST11*	5.91"	3.50" to 16.13"	3.34"	—	—	—	—	2.56"	Min. 1.56"	Max. 2.38"	21 lbs.	—
	HST11S											32 lbs.	

PATENT Nos. : USA No. 5,233,740; Canada No. 2052729; Germany No. G9114718.2; Korea No. 79208607 and No. 95-16522; Taiwan No. 40137 and No. 60151; P.R.C. No. ZL 93211036.3; Japan No. 3-106430; other patents pending.

* Use with pump and cylinder assembly from PH113C (Not Included)

Optional Long Jaws (Set of 3, not shown) for PH83C or PH113C

Cyl. Cap.	Order No.	Reach	Spread
8 tons	1188	12.50"	11.00"
11 tons			12.50"

Super

Grip-O-Matic®

Jaw Type Pullers

U.S. Patent No.
5,224,254

The leader in pulling tools for over 70 years brings new speed, ease and safety to the removal of gears, bearings and other press-fitted parts...

Compare these Power Team advantages with any pullers on the market:

- Fast, safe and easy one-man operation. Knurled adjusting nut allows precise closing and opening of jaws.

- Super Grip-O-Matic® design... the harder the pulling force, the tighter the jaws grip for worker safety.

- Combination 2 jaw/3 jaw puller design gives you two pullers for the price of one!

- Power Team pullers have been rigorously tested for safety at maximum capacity and jaw spread. They can't spring off the work at maximum spread like some competitive pullers.

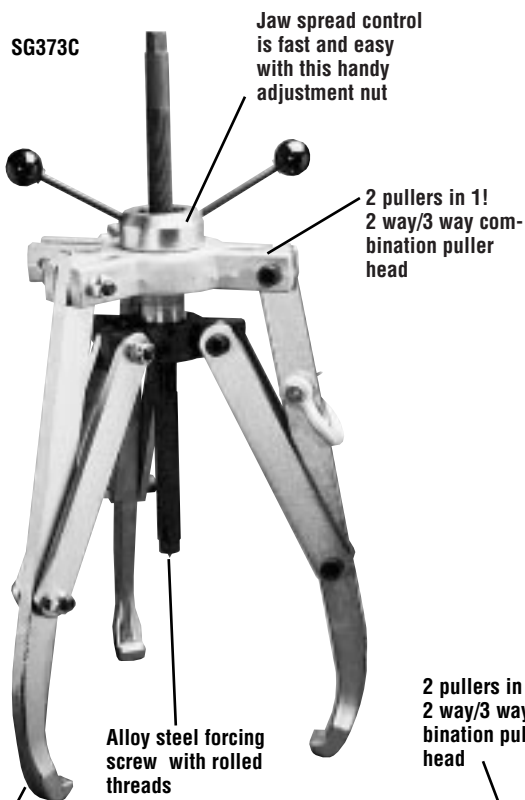
- Puller jaws are made of tough forged alloy steel, heat treated for maximum strength and durability.

- Heat treated, alloy steel forcing screws have rolled threads with a special coating for corrosion resistance, lubrication and smooth pulling operation.

- Lower puller heads are heat treated alloy steel for maximum strength. Upper heads and adjusting nuts are aluminum, reducing weight of tool.

- For increased versatility, pullers can be used with standard Power Team puller accessories (step plates, shaft protectors, bearing pulling attachments).

- Covered by exclusive Lifetime Marathon™ Warranty.

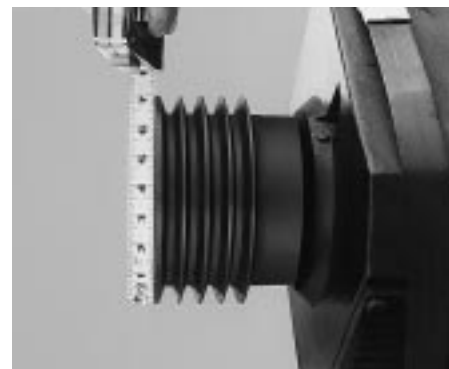


For puller piece part identification order Power Team parts catalog PC97

SGH153CR with a bearing pulling attachment was used to take a bearing off of a utilities well pump motor.

Important Safety Information

Power Team recommends the use of protective blankets for all pulling operations. For clarity of photo, we have shown the puller without these safeguards.



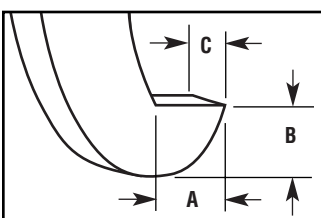
1 Select the puller of the proper size and capacity for the job by measuring “reach” and “spread” of the part to be pulled.



2 Just turn the knurled adjusting nut to close the puller jaws down on the part. An easy one-man operation!



3 Turn the forcing screw (or actuate the pump if using a hydraulically powered puller). As force increases, the jaws grip progressively tighter and the part is removed.



DIMENSIONS AND SPECIFICATIONS

	Cap. Tons	Puller Jaw Tip			Cross Bolts		No. of Turns to Adjust Min.— Max. Spread
		A	B	C	Dia.	Hardness Rc	
2/3 Jaw Mech. Pullers	13	0.38"	0.34"	1.00"	0.38"	37-45	8.50
	20	0.56"	0.56"		0.50"		24
	37	0.63"	0.81"	1.28"	0.56"		17
2/3 Jaw	15						16
Hyd. Puller	25						0.94"

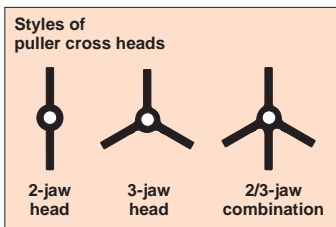
ORDERING INFORMATION

	Cap. (Tons)	Order No.	Reach	Spread	Forcing Screw Size	Hex Size	Cylinder Stroke	Prod. Wt. (lbs.)
2/3 Jaw Mechanical Pullers	13	SG133C	7.00"	1.00-7.00"	¾" - 16UNF x 12.00" lg.	0.63"	—	12.0
	20	SG203C	12.75"	0.00-15.00"	1⅜" - 16UN x 16.00" lg.			25.0
	37	SG373C	16.50"	0.00-23.00"	1" - 14UNS x 21.00" lg.	0.75"		50.0
2/3 Jaw Hyd. Pullers	15	SGH153CR	12.00"	2.00-16.00"	—	—	8.13"	76.0
	25	SGH253CR	17.00"	2.00-18.00"			14.25"	143.0

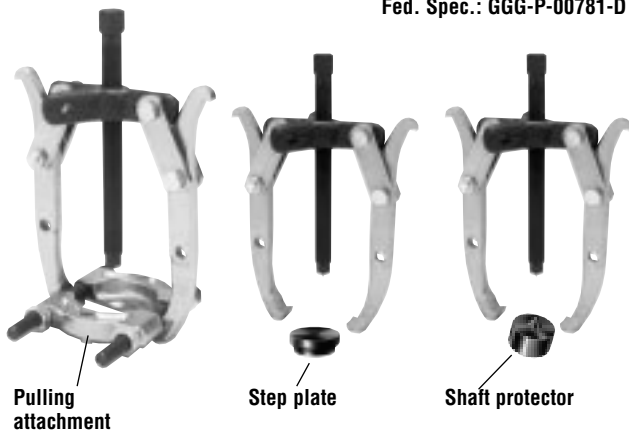
Mechanical

Grip-O-Matic®

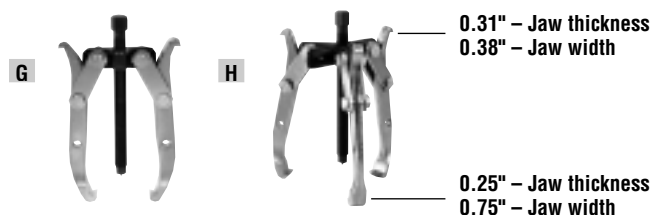
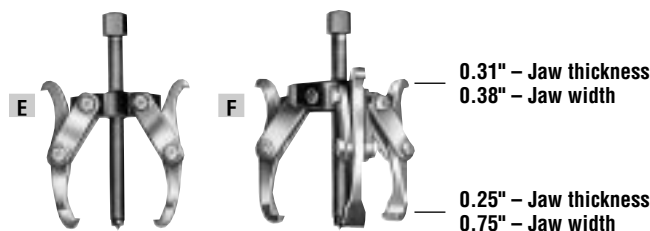
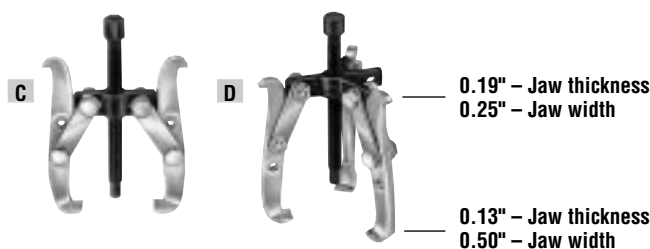
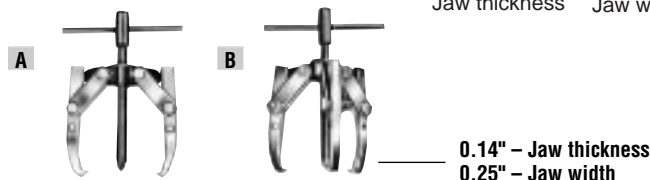
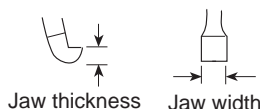
Jaw Type Pullers



Fed. Spec.: GGG-P-00781-D



For puller piece part identification order Power Team parts catalog PC97



The world's most copied (but unequalled) puller design! Over 70 years of continuous improvement. Insist on the original!

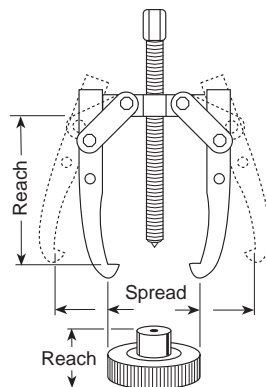
The harder the pull, the tighter the grip for removing gears, bearings and countless other press-fitted parts.

Forged from high quality steel, heat treated and subjected to rigorous tests which exceed rated puller capacity.

Can be used in combination with Power Team puller adapters and accessories to solve almost any pulling problem you'll face.

Choosing the right size puller:

Compare the "reach" and "spread" of the pulling job with that of the pullers listed. The puller selected must have dimensions greater than those of the job.



1 ton capacity, standard jaw puller

2 Jaw

A No. 1020 – Wt., .3 lb.
Reach: 2.13" max.
Spread: 3.25" max.
Screw Size: 5/16"-24 X 3.88" lg.

3 Jaw

B No. 1021 – Wt., .5 lb.
Reach: 2.13" max.
Spread: 3.25" max.
Screw Size: 5/16"-24 X 3.88" lg.

2 ton capacity, reversible jaw puller

2 Jaw*

C No. 1022 – Wt., .9 lb.
Reach: 3.38" max.
Spread: 4.00" max.
Screw Size: 3/8"-24 X 4.88" lg.

2/3 Jaw*

D No. 1023 – Wt., 1.3 lbs.
Reach: 3.38" max.
Spread: 4.75" max.
Screw Size: 3/8"-24 X 4.88" lg.

5 ton capacity, reversible jaw puller

2 Jaw*

E No. 1024 – Wt., 1.8 lbs.
Reach: 3.25" max.
Spread: 6.00" max.
Screw Size: 5/8"-20 X 6.94" lg.

2/3 Jaw*

F No. 1026 – Wt., 2.8 lbs.
Reach: 3.25" max.
Spread: 7.00" max.
Screw Size: 5/8"-20 X 6.94" lg.

5 ton capacity, reversible jaw puller

2 Jaw*

G No. 1025 – Wt., 2 lbs.
Reach: 5.50" max.
Spread: 6.00" max.
Screw Size: 5/8"-20 X 6.94" lg.

2/3 Jaw*

H No. 1027 – Wt., 3.3 lbs.
Reach: 5.50" max.
Spread: 7.00" max.
Screw Size: 5/8"-20 X 6.94" lg.

* With double-end, reversible jaws.

7 ton capacity, reversible jaw puller

2 Jaw*

J No. 1035 – Wt., 4.5 lbs.
Reach: 5.00" max.
Spread: 9.00" max.
Screw Size: $\frac{1}{8}$ "-18 X 9.00" lg.

* With double-end, reversible jaws.

2/3 Jaw*

K No. 1037 – Wt., 6.3 lbs.
Reach: 5.00" max.
Spread: 10.50" max.
Screw Size: $\frac{1}{8}$ "-18 X 9.00" lg.

7 ton capacity, long jaw puller

2 Jaw

L No. 1036 – Wt., 5 lbs.
Reach: 8.75" max.
Spread: 9.50" max.
Screw Size: $\frac{1}{8}$ "-18 X 9.00" lg.

2/3 Jaw

M No. 1038 – Wt., 7.3 lbs.
Reach: 8.75" max.
Spread: 11.00" max.
Screw Size: $\frac{1}{8}$ "-18 X 9.00" lg.

13 ton capacity, standard and long jaw pullers

Std. 2 Jaw

N No. 1039 – Wt., 10.5 lbs.
Reach: 11.00" max.
Spread: 12.50" max.
Screw Size: $\frac{3}{16}$ "-16 X 12.00" lg.

Long 2 Jaw

N No. 1040 – Wt., 13 lbs.
Reach: 15.25" max.
Spread: 15.50" max.
Screw Size: $\frac{3}{16}$ "-16 X 12.00" lg.

Std. 2/3 Jaw

O No. 1041 – Wt., 14.8 lbs.
Reach: 11.00" max.
Spread: 14.00" max.
Screw Size: $\frac{3}{16}$ "-16 X 12.00" lg.

Long 2/3 Jaw

O No. 1042 – Wt., 18.3 lbs.
Reach: 15.25" max.
Spread: 17.00" max.
Screw Size: $\frac{3}{16}$ "-16 X 12.00" lg.

17½ ton capacity, standard and long jaw pullers

Std. 2 Jaw

P No. 1043 – Wt., 23 lbs.
Reach: 14.50" max.
Spread: 14.00" max.
Screw Size: 1"-14 X 13.50" lg.

Long 2 Jaw

P No. 1044 – Wt., 26 lbs.
Reach: 18.75" max.
Spread: 16.00" max.
Screw Size: 1"-14 X 13.50" lg.

Std. 3 Jaw

Q No. 1045 – Wt., 33 lbs.
Reach: 14.50" max.
Spread: 14.00" max.
Screw Size: 1"-14 X 13.50" lg.

Long 3 Jaw

Q No. 1046 – Wt., 37 lbs.
Reach: 18.75" max.
Spread: 16.00" max.
Screw Size: 1"-14 X 13.50" lg.

25 ton capacity, standard and long jaw pullers

Std. 2 Jaw

R No. 1047 – Wt., 37.5 lbs.
Reach: 15.50" max.
Spread: 16.00" max.
Screw Size: $1\frac{1}{4}$ "-12 X 16.63" lg.

Long 2 Jaw

R No. 1048 – Wt., 42.8 lbs.
Reach: 22.25" max.
Spread: 20.00" max.
Screw Size: $1\frac{1}{4}$ "-12 X 16.63" lg.

Std. 3 Jaw

S No. 1049 – Wt., 54 lbs.
Reach: 15.50" max.
Spread: 16.00" max.
Screw Size: $1\frac{1}{4}$ "-12 X 16.63" lg.

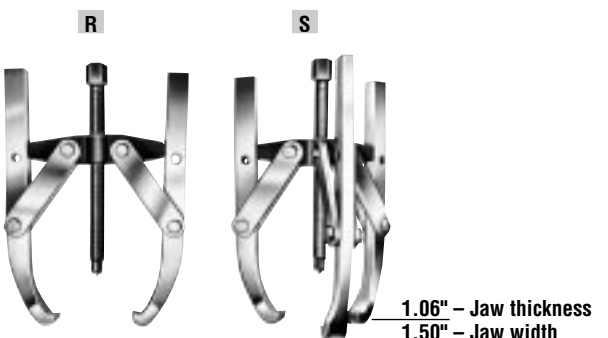
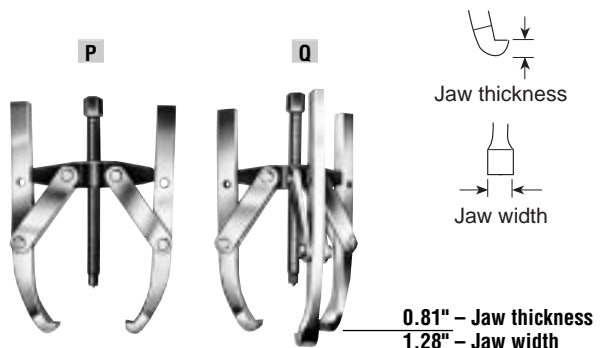
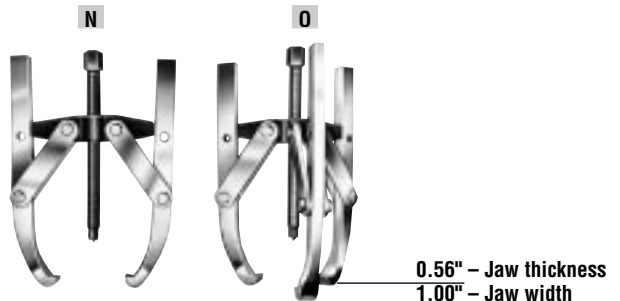
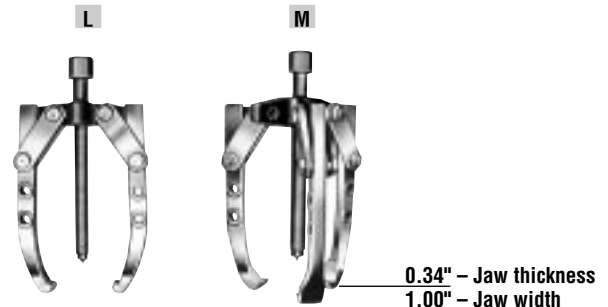
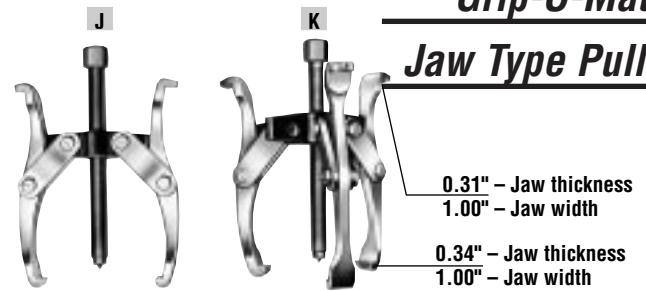
Long 3 Jaw

S No. 1050 – Wt., 60 lbs.
Reach: 22.25" max.
Spread: 20.00" max.
Screw Size: $1\frac{1}{4}$ "-12 X 16.63" lg.

Mechanical

Grip-O-Matic®

Jaw Type Pullers



For puller piece part identification
order Power Team parts catalog PC97

Hydraulic

Grip-O-Matic®

Pullers



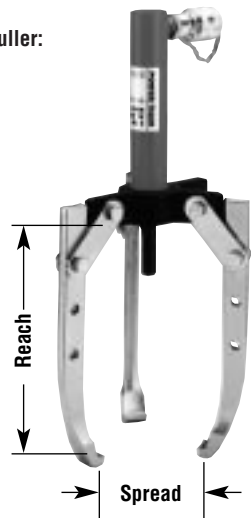
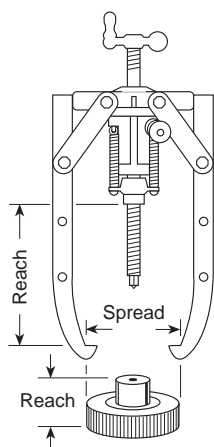
5 Ton Grip-O-Matic
Max. reach — 8.75"
Max. spread — 11.50"

10 Ton Grip-O-Matic
Max. reach — 15.00"
Max. spread — 17.00"

No. PH103C
(Shown)



Choosing the right size puller:



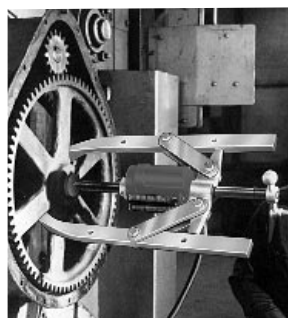
202179
Threaded adapter



34602
Pushing
adapter



47997
2-way/
3-way head



Power Team's hydraulically powered puller is shown removing a drive gear from an industrial shot-blasting machine.

309874
Pushing adapter



309875
Pushing adapter



Remove gears, bearings and other press-fitted parts with speed and ease. The famous Grip-O-Matic® design has been solving pulling problems for over 70 years! It's the world's most imitated puller design. Insist on the original!

Broad capacity range of 5, 10, 17½, 30 and 50 tons. Choice of 2-jaw, 3-jaw or combination 2/3-jaw puller models.

5 and 10 ton sets include: single-acting, spring return hydraulic cylinder with hose, coupler and dust cap; single-speed hydraulic hand pump; puller.

17½, 30 and 50 ton sets include: Power-Twin® single-acting, spring return hydraulic cylinder with hose, coupler and dust cap; single-speed hydraulic hand pump; puller, adjusting screw and crank.

Hydraulic cylinder of all models is readily removable from puller for use with pump in other hydraulic power applications. You get maximum maintenance versatility for your investment.

5 ton capacity, 2/3 jaw puller

No. PH53C – Combination 2-jaw/3-jaw puller set. Includes 1057 5 ton puller, RPS55 hydraulic set (C55C cylinder, P12 10,000 psi hand pump, fittings, coupler, and 6 ft. hose), and 309874 pushing adapter. Wt., 20 lbs.

No. PH53CR – Combination 2-jaw/3-jaw puller set. Includes 1057 5 ton puller, C55C cylinder, and 309874 pushing adapter. Wt., 12 lbs.

No. 1057 – 5 ton cap. 2-jaw/3-jaw puller only. Wt., 7.8 lbs.

No. 309874 – 0.63" diameter pushing adapter. (Included with PH53C and PH53CR hydraulic puller sets.) Wt., .3 lb.

No. 309875 – 0.88" diameter pushing adapter. Wt., .8 lb.

No. 47997 – 2-way/3-way puller head. (Can be used to convert No. 1038 7 ton manual puller into a 5 ton hydraulic puller.) Wt., 2.3 lbs.

10 ton capacity, 2/3 jaw puller

No. PH103C – Combination 2-jaw/3-jaw puller; 10 ton capacity. Set includes 1060 10 ton puller, RPS1010 cylinder and pump set, 202179 threaded adapter, and 34602 pushing adapter. Wt., 52 lbs.

No. PH103CR – Combination 2-jaw/3-jaw puller, 10 ton capacity. Set includes 1060 10 ton puller, 202179 threaded adapter, 34602 pushing adapter, and C1010C cylinder only. (Pump and hose not included.) Wt., 32 lbs.

No. 1060 – Combination 2-jaw/3-jaw puller only; 10 ton capacity. (Cylinder and pump set, hose, coupler, and adapter No. 202179 not included.) Wt., 17 lbs.

NOTE: This puller may be used with any 10 ton single-acting cylinder having a 2¼"-14 straight collar thread.

▲ CAUTION: Always use a 3-jaw puller where clearance permits in order to provide a more stable setup and a more even pulling force.

For puller piece part identification order Power Team parts catalog PC97

17½ ton capacity, 2-jaw puller

No. PH172 – 2-jaw puller with RT172 center-hole Power-Twin® cylinder, cylinder half coupler, P55 pump, 6-ft. hose, hose half coupler, 1"– 8 X 20.00" lg. adjusting screw, and adjusting crank. Wt., 61 lbs.

No. 1064 – Puller only. (Cylinder, pump, hose, coupler, screw, and crank are not included.) Wt., 22 lbs.

17½ ton capacity, 3-jaw puller

No. PH173 – 3-jaw puller with RT172 center-hole Power-Twin® cylinder, cylinder half coupler, P55 pump, 6-ft. hose, hose half coupler, 1"– 8 X 20.00" lg. adjusting screw, and adjusting crank. Wt., 75 lbs.

No. PH173R – 3-jaw puller with screw and crank, and RT172 center-hole twin cylinder. Wt., 56 lbs.

No. 1066 – Puller only. (Cylinder, pump, hose, coupler, screw, and crank are not included.) Wt., 36 lbs.

30 ton capacity, 3-jaw puller

No. PH303 – 3-jaw puller with RT302 center-hole Power-Twin® cylinder, cylinder half coupler, P55 pump, 6-ft. hose, hose half coupler, 1¼"– 7 X 24.00" lg. adjusting screw, and adjusting crank. Wt., 149 lbs.

No. PH303R – 3-jaw puller with screw and crank, and RT302 center-hole twin cylinder. Wt., 130 lbs.

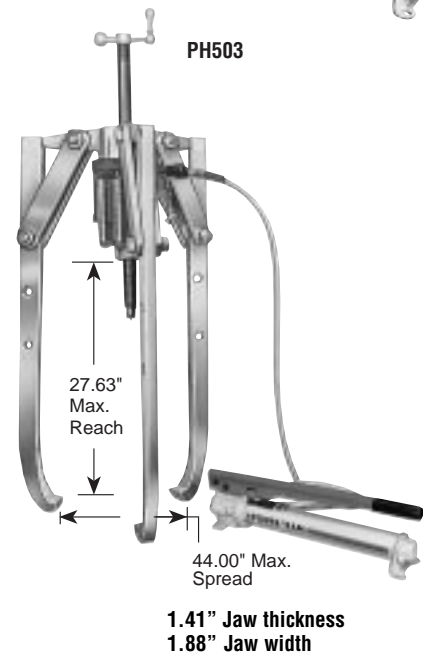
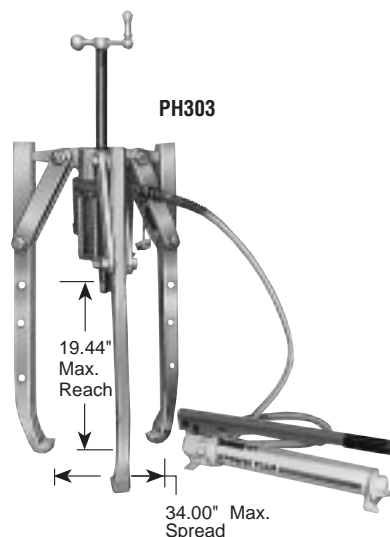
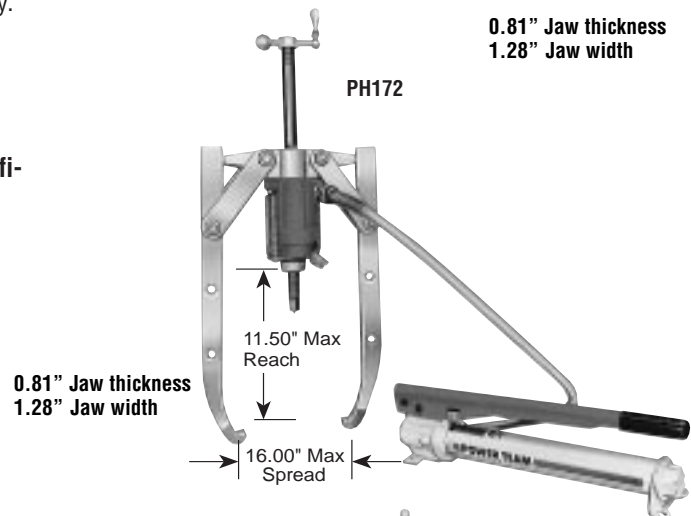
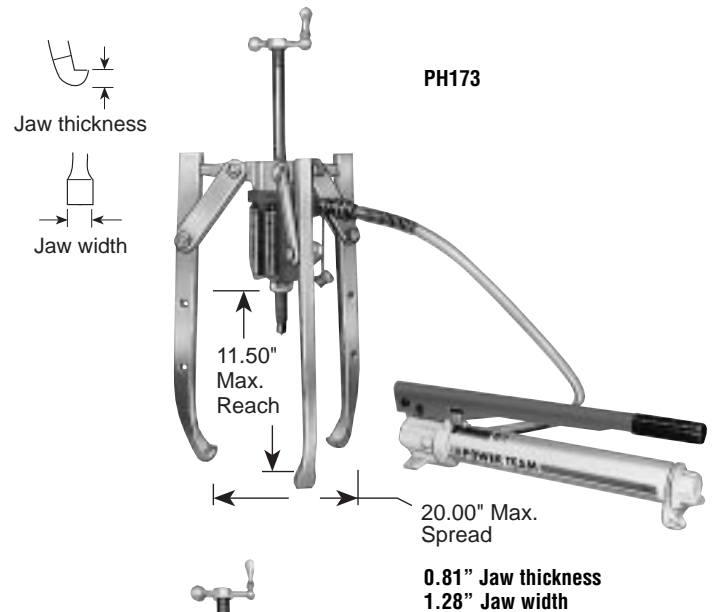
No. 1074 – Puller only. (Cylinder, pump, hose, coupler, screw, and crank are not included.) Wt., 90 lbs.

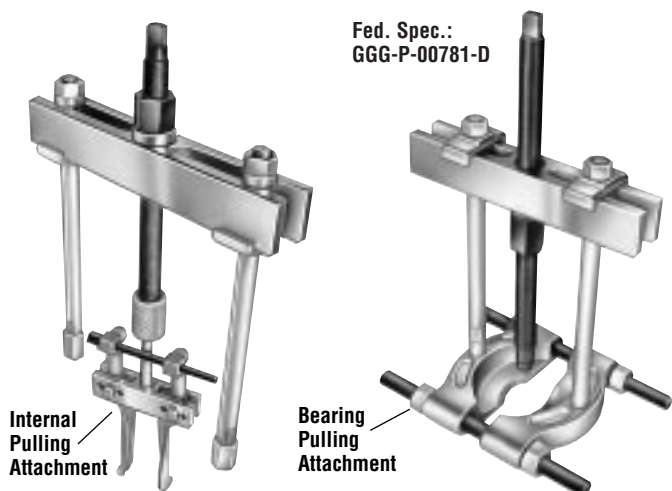
50 ton capacity, 3-jaw puller

No. PH503 – 3-jaw puller with RT503 center-hole Power-Twin® cylinder, cylinder half coupler, P55 pump, 6-ft. hose, hose half coupler, 1½"– 5½ X 30.38" lg. adjusting screw, and adjusting crank. Wt., 286 lbs.

No. 1080 – 3-jaw puller only. (Cylinder, pump, hose, coupler, screw, and crank not included.) Wt., 191 lbs.

For puller piece part identification order Power Team parts catalog PC97.





For removing and installing gears, bearings, pulleys, couplings, sprockets, shafts and other press-fitted parts.

Can apply a pushing or pulling force, depending on how the puller is set up. Optional leg kits adapt your Push-Puller® to extra long or short reach.

A wide variety of threaded adapters, bearing pulling attachments and internal pulling attachments can be used in combination with a Push-Puller® to handle nearly every pulling task imaginable.

Selection and capacity rating:

Each Push-Puller's specified tonnage "capacity" is determined using its standard legs in tension. Using longer legs or a setup in which the legs are in compression will reduce the "capacity". Always select the largest capacity puller and the shortest legs that will fit the job.

Adapters available



Assembling the tool to apply pulling or pushing force:

1. Determine if you want the tool's forcing screw to pull or push.
2. To exert pushing force, the forcing nut is installed beneath the cross block, as shown at left.
3. To cause the forcing screw to pull, the forcing nut is placed on top of the cross block.
4. The sliding plates must always be placed on the opposite side of the cross block from the forcing nut.

10 ton capacity Push-Puller®

No. 927 – Mechanical Push-Puller®, complete with forcing screw, forcing nut, cross block, sliding plates (pr.), washers (3), 6.75" legs (pr.), and leg end caps (2). 10-ton capacity. Wt., 7 lbs.

USE WITH:

Bearing pulling attachment **No. 1123**.

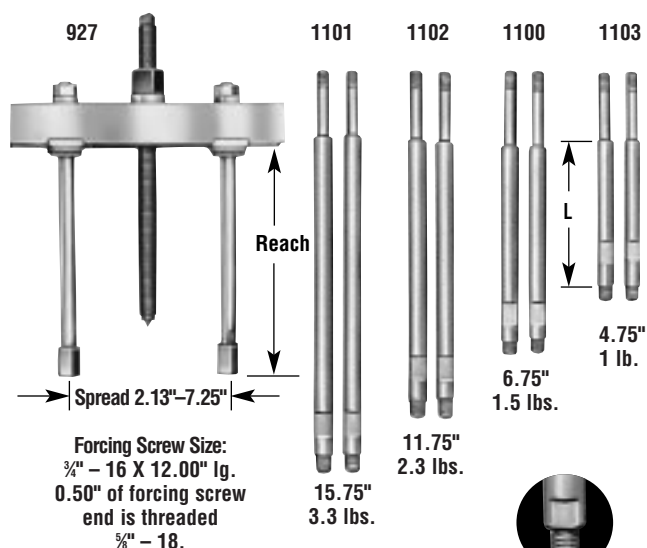
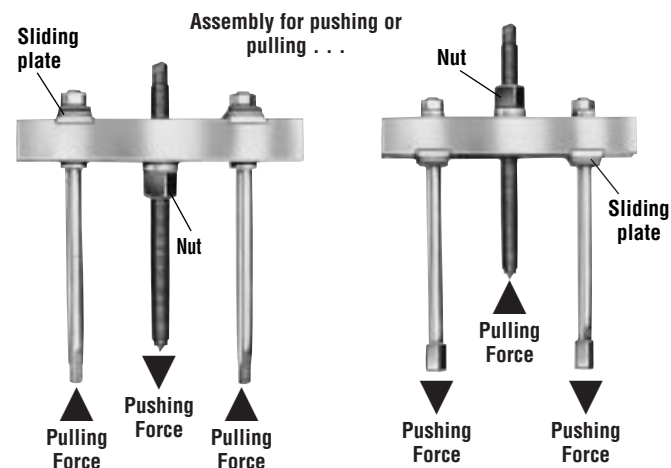
Pulley pulling attachment **No. 679**.

Internal pulling attachments **Nos. 1150, 1151, and 1153**.

LEGS:

Nos. 1100, 1101, 1102, and 1103 – Pair of legs for 10-ton capacity Push-Puller®.

For puller piece part identification order Power Team parts catalog PC97



NOTE: L = leg length: 4.75", 6.75", 11.75", 15.75"; add 1.50" to leg length to determine reach when using leg end caps.

Leg ends
Upper leg ends are threaded
1/2" - 20. Lower leg ends are threaded
3/8" - 18 X 0.63" lg.

17½ ton capacity Push-Puller®

No. 938 – Mechanical Push-Puller® complete with forcing screw, forcing nut, cross block, sliding plates (pr.), washers (3), 9.50" legs (pr.), leg end caps (2). 17½ ton capacity. Wt., 20.8 lbs.

USE WITH:

Bearing pulling attachments
Nos. 1124 and 1130.

Pulley pulling attachment **No. 680**

Internal pulling attachments
Nos. 1150, 1151, and 1153.

LEGS:

Nos. 1104, 1105, 1106, 1107, and 1108 – Pair of legs for 17½ ton capacity Push-Puller®.

30 ton capacity Push-Puller®

No. 939 – Mechanical Push-Puller® complete with forcing screw, forcing nut, cross block, sliding plates (pr.), washers (3), 8.00" legs (pr.), leg end caps (2). 30 ton capacity. Wt., 44 lbs.

USE WITH:

Bearing pulling attachments
Nos. 1126 and 1127.

Pulley pulling attachment **No. 680**

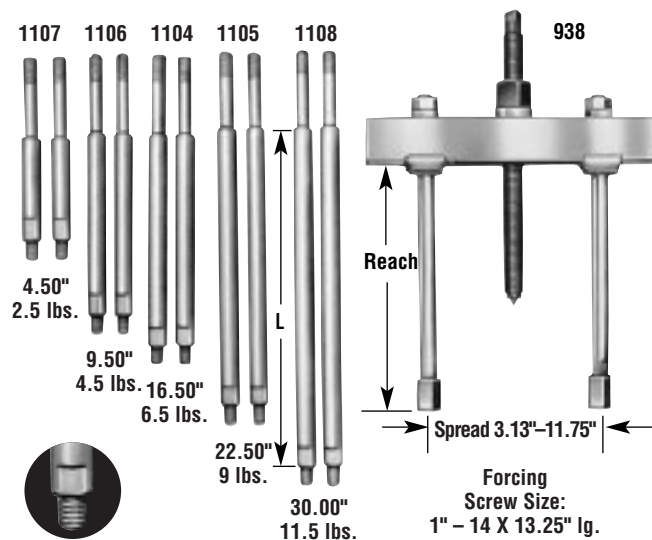
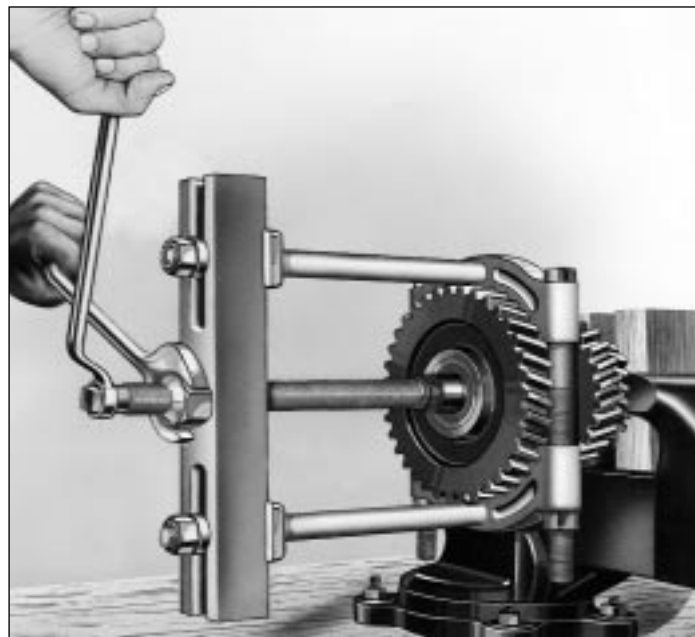
(Use two 8012 adapters to connect attachment to puller.)

Internal pulling attachment
No. 1165.

LEGS:

Nos. 1109, 1110, and 1111 – Pair of legs for 30 ton capacity Push-Puller®.

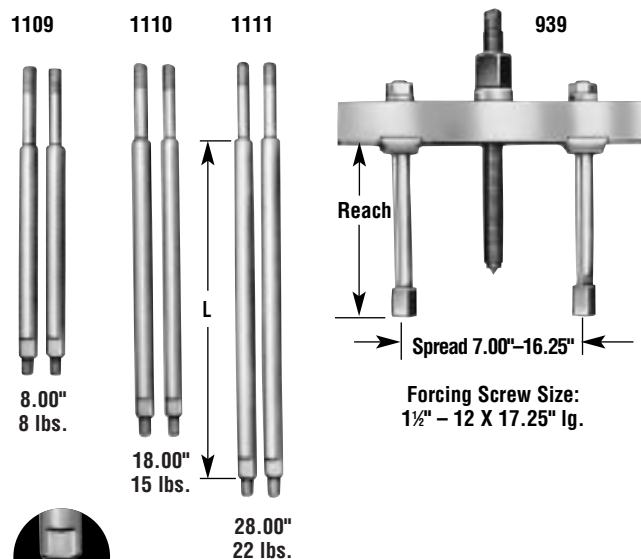
For puller
 piece part
 identification order
 Power Team parts catalog
 PC97



Leg ends

Upper leg ends are threaded ¾" – 16.
 Lower leg ends are threaded 5/8" – 18 X 1.00" lg.

NOTE: L = leg length: 4.50", 9.50", 16.50", 22.50", 30.00"; add 2.00" to leg length to determine reach when using leg end caps.



Leg ends

Both leg ends are threaded 1" – 14 X 1.25" lg.

NOTE: L = leg length: 8.00", 18.00", 28.00"; add 2.63" to leg length to determine reach when using leg end caps.

Power Team

Hydraulic

Push-Pullers®

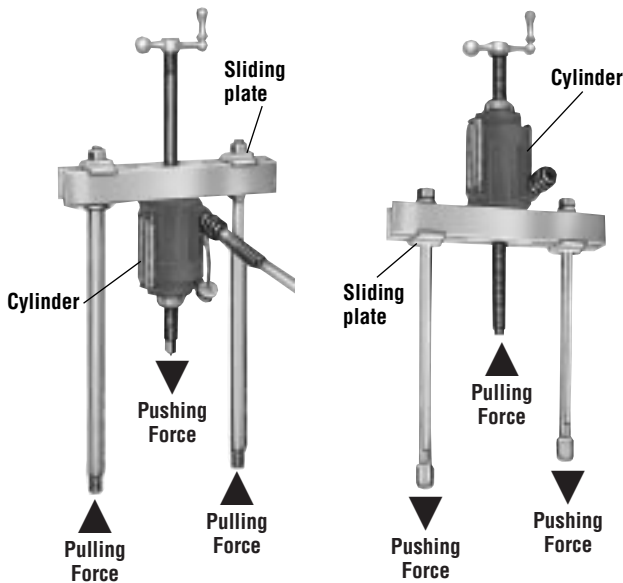


Depending on how you set it up, these versatile Push-Pullers can be used to apply either pushing or pulling force.

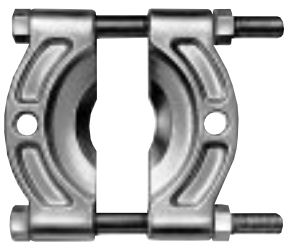


Fed. Spec.: GGG-P-00781-D

Assembly for pushing or pulling . . .



Adapters available



Bearing pulling attachment



Internal pulling attachment

Apply hydraulic force, either pushing or pulling, to remove press-fitted parts quickly and easily. The “impossible” jobs become routine!

Each unit includes perfectly matched hydraulic components that can be detached from the Push-Puller® for other tasks requiring dependable Power Team power. Maximum return on your investment.

Power-Twin® cylinder

This unique center-hole hydraulic cylinder powers each Push-Puller®. Puller screw runs right between the twin, spring-return cylinders. A basic head allows you to change from a tapped hole to a plain hole by merely changing the head insert. Added versatility.



Selection and capacity rating:

Each Push-Puller's specified tonnage “capacity” is determined using its standard legs in tension. Using longer legs or a setup in which the legs are in compression will reduce the “capacity”. Always select the largest capacity puller and the shortest legs that will fit the job.

Assembling the tool to apply pulling or pushing force:

1. Determine if you want the tool's forcing screw to pull or push.
2. To exert pushing force, the hydraulic cylinder is installed beneath the cross block, as shown at left.
3. To exert pulling force, the hydraulic cylinder is installed on top of the cross block.
4. The sliding plates must always be placed on the opposite side of the cross block from the hydraulic cylinder.

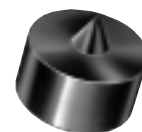
For puller piece part identification order Power Team parts catalog PC97



Male/female adapter



Female adapter



Shaft protector



Step plate

17½ ton capacity Push-Puller®

No. PPH17 – Push-Puller® with RT172 center-hole Power-Twin® cylinder, cylinder half coupler, P55 pump, 9767 6-ft. hose, 9798 hose half coupler, 16.50" legs, 24827 leg ends, 1"-8 X 20.00" lg. adjusting screw, and adjusting crank. Wt., 59 lbs. **NOTE:** Upper leg ends are threaded ¾"-16, bottom leg ends are threaded ¾"-18.

No. PPH17R – Push-Puller® with RT172 center-hole Power-Twin® cylinder, cylinder half coupler, 16.50" legs, 1"-8 X 20.00" lg. adjusting screw, and adjusting crank. Wt., 40 lbs.

No. 1062 – Puller only. (Cylinder, pump, hose, coupler, screw, and crank not included.) Wt., 20 lbs.

USE WITH: Bearing pulling attachments **Nos. 1124 and 1130.**

Pulley pulling attachment **No. 679.**

Internal pulling attachment **No. 1154.**

LEGS: **Nos. 1104, 1105, 1106, 1107, and 1108** – Pair of legs for 17½ ton capacity Push-Puller®.

30 ton capacity Push-Puller®

No. PPH30 – Push-Puller® with RT302 center-hole Power-Twin® cylinder, cylinder half coupler, P55 pump, 9767 6-ft. hose, 9798 hose half coupler,

18.00" legs, 28390 leg ends, 1¼"-7 X 24.00" lg. adjusting screw, and adjusting crank. Wt., 102 lbs.

NOTE: Upper leg ends and bottom leg ends are threaded 1"-14.

No. PPH30R – Push-Puller® with RT302 center-hole Power-Twin® cylinder, cylinder half coupler, 18.00" legs, 1¼"-7 X 24.00" lg. adjusting screw, and adjusting crank. Wt., 82 lbs.

No. 1070 – Puller only. (Cylinder, pump, hose, coupler, screw, and crank not included.) Wt., 42 lbs.

USE WITH: Bearing pulling attachments **Nos. 1126 and 1127.**

Pulley pulling attachment **No. 680.** (Use two 8012 adapters to connect to puller.) Internal pulling attachment **No. 1166.**

LEGS: **Nos. 1109, 1110, and 1111** – Pair of legs for 30 ton capacity Push-Puller®.

50 ton capacity Push-Puller®

No. PPH50 – Push-Puller® with RT503 center-hole Power-Twin® cylinder, cylinder half coupler, P55 pump, 9767 6-ft. hose, 9798 hose half coupler, 24.00" legs, 1½"-5½ X 30.38" lg. adjusting screw, and adjusting crank. Wt., 201 lbs.

NOTE: Upper leg ends and bottom leg ends are threaded 1¼"-12.

No. PPH50R – Push-Puller® with RT503 center-hole Power-Twin® cylinder, cylinder half coupler, 24.00" legs, 1½"-5½ X 30.38" lg. adjusting screw, and adjusting crank. Wt., 181 lbs.

No. 1076 – Puller only. (Cylinder, pump, hose, coupler, screw, and crank not included.) Wt., 106 lbs.

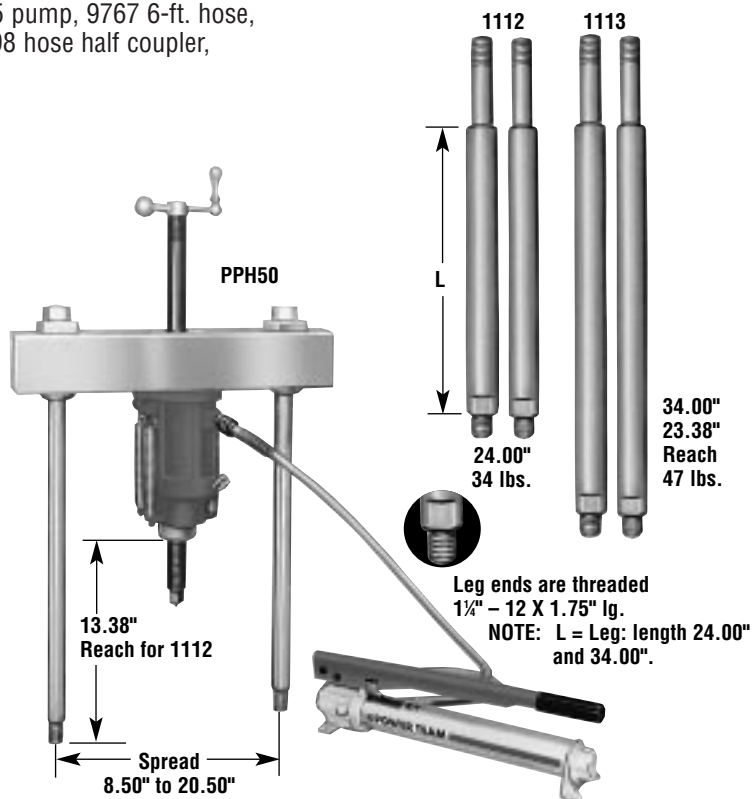
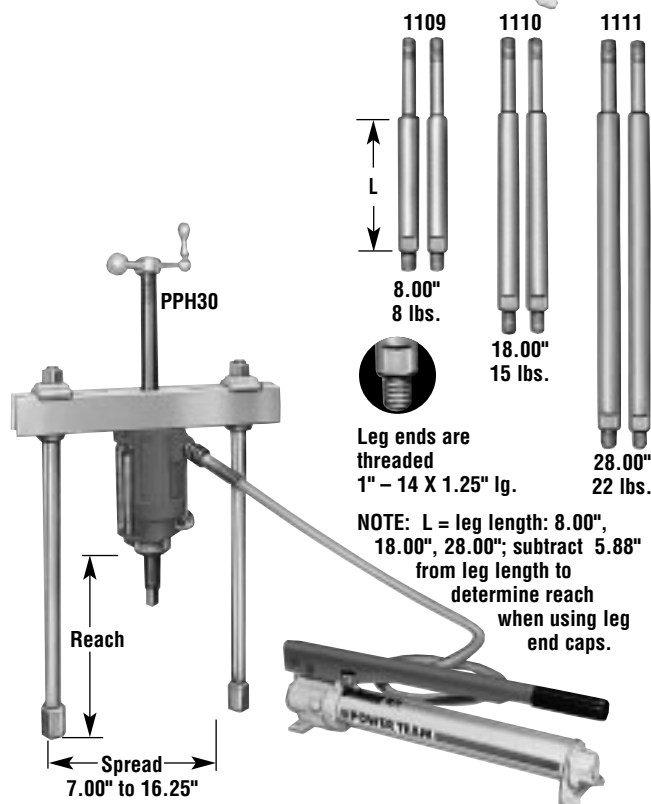
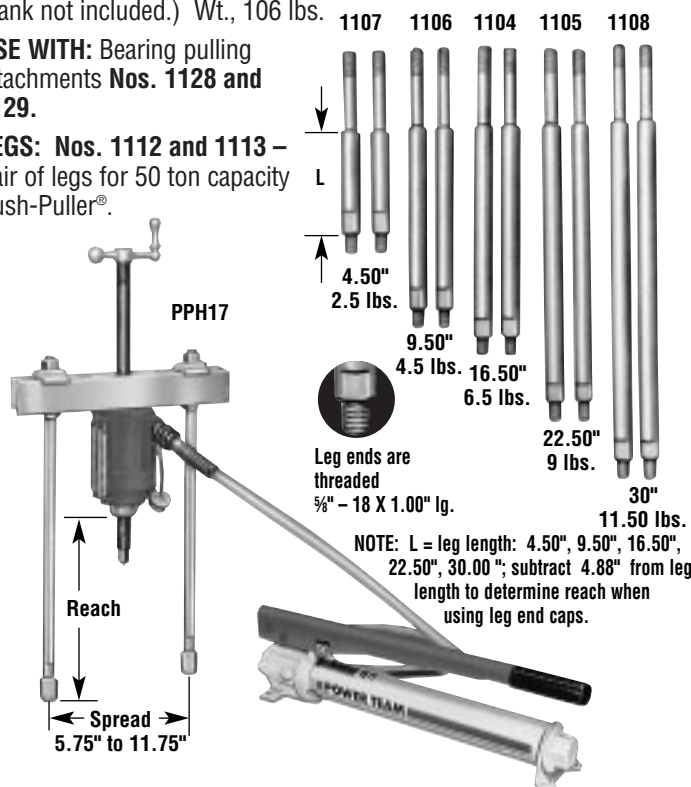
USE WITH: Bearing pulling attachments **Nos. 1128 and 1129.**

LEGS: **Nos. 1112 and 1113** – Pair of legs for 50 ton capacity Push-Puller®.

Power Team

Hydraulic

Push-Pullers®

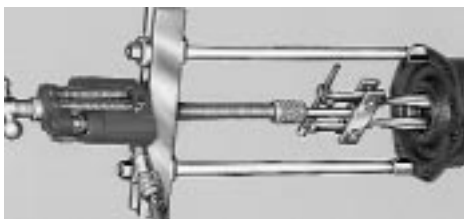
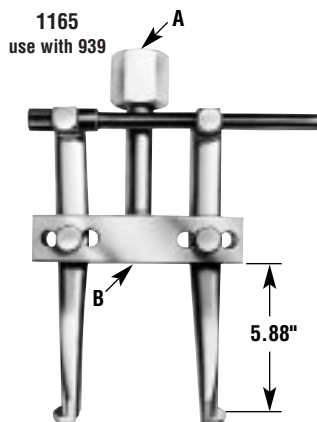
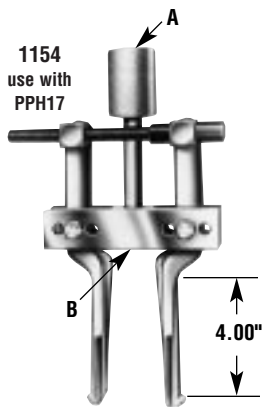
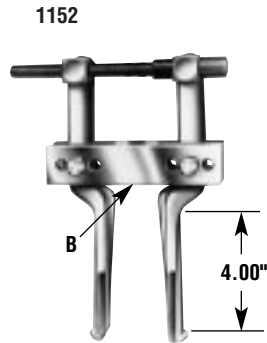
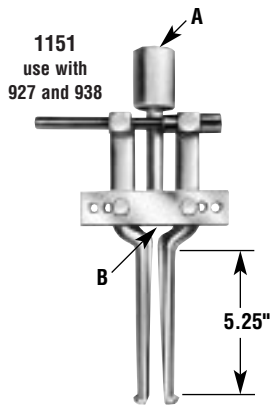
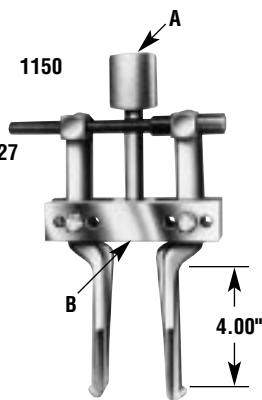
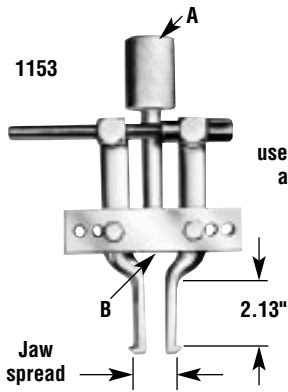


Pulling Systems

Internal Pulling Attachments

Use information below to determine proper attachment to use with slide hammer or Push-Puller®.

Fed. Spec.: GGG-P-00781-D



Here's an internal pulling attachment being used with a Power Team hydraulic Push-Puller.

Handle internal pulling jobs such as the removal of bearing cups, oil seals, bushings and other parts from blind holes easily, and without damage to costly parts.

For use with a corresponding size of Power Team slide hammer or Push-Puller®.

Attachments are adaptable, through adjusting screw and jaw positions, to fit various diameters.

No. 1153 – Jaw spread:
1.50" to 5.00"
A - Internal: 1"– 14 thd.
B - Internal: 5/8"– 18 thd.
Wt., 4.3 lbs.

No. 1150 – Jaw spread:
1.50" to 6.00"
A - Internal: 1"– 14 thd.
B - Internal: 5/8"– 18 thd.
Wt., 4.5 lbs.

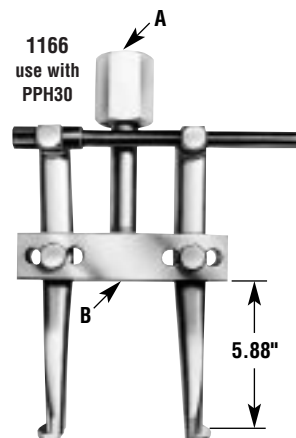
No. 1152 – Jaw spread:
1.50" to 6.00"
B - Internal: 5/8"– 18 thd.
Wt., 3.5 lbs. Use with 927 and 938 Push-Puller®, 1155 and 1156 slide hammers or 24832 or 24833 puller screws.

No. 1151 – Jaw spread:
1.50" to 7.00"
A - Internal: 1"– 14 thd.
B - Internal: 5/8"– 18 thd.
Wt., 4.5 lbs.

No. 1154 – Jaw spread:
1.50" to 6.00"
A - Internal: 1"– 8 thd.
B - Internal: 5/8"– 18 thd.
Wt., 4.5 lbs.

No. 1165 – Jaw spread:
3.00" to 9.00"
A - Internal: 1 1/2"– 12 thd.
B - Internal: 1"– 14 thd.
Wt., 13.5 lbs.

No. 1166 – Jaw spread:
3.00" to 9.00"
A - Internal: 1 1/4"– 7 thd.
B - Internal: 1"– 14 thd.
Wt., 13.5 lbs.



CAUTION: These attachments may not withstand the full tonnage of the pullers they are used with. The shape and condition of the part being pulled affects the tonnage at which the jaws may slip off. Always select the largest attachment which will fit behind the part being pulled. Refer to page 137.



For puller piece part identification order Power Team parts catalog PC97

“Knife-like” edges fit behind bearings and other hard-to-grip parts for easy removal, even where clearance is limited.

Used where space does not permit hooking puller jaws directly on the part to be pulled. Usable with both Grip-O-Matic® jaw type pullers and Push-Pullers®.

No. 1121 – Spread: 0.25" to 0.88"

Wt., .8 lb. Use with puller Nos. 1020, 1022, and 1023.

No. 1122 – Spread: 0.13" to 2.00"

Wt., 1.3 lbs. Use with puller Nos. 1024, 1025, 1026, 1027, 7392, and 7393.

No. 1123 – Spread: 0.38" to 4.63"

Wt., 5 lbs. Use with puller Nos. 927, 1035, 1036, 1037, and 1038.

No. 1124 – Spread: 0.50" to 5.25"

Wt., 12 lbs. Use with puller Nos. 938, 1039, 1040, 1041, 1042, PH172, and PPH17.

No. 1130 – Spread: 0.50" to 8.63"

Wt., 12 lbs. Use with puller Nos. 938, 1039, 1040, 1041, 1042, PH172, and PPH17.

No. 1126 – Spread: 0.63" to 8.00"

Wt., 19.8 lbs. Use with puller Nos. 939, 1043, and 1047.

No. 1127 – Spread: 0.75" to 13.38"

Wt., 41.8 lbs. Use with puller Nos. 939, 1047, PH302*, and PPH30.

No. 1128 – Spread: 5.00" to 12.88"

Wt., 100 lbs. Use with puller Nos. PH302*, PH502*, PH553C and PPH50. (When using 1128 with PPH50, two 8024 adapters are required to connect PPH50 to the puller tees.)

No. 1129 – Spread: 6.00" to 16.75"

Wt., 197 lbs. Use with puller Nos. PH502*, PH553C and PPH50. (When using 1129 with PPH50, two 8024 adapters are required to connect PPH50 to the puller tees.)

V-belt pulley pulling attachments

No. 679 – Spread: 1.75" to 5.88"

Wt., 4.3 lbs. Use with puller Nos. 927, 1035, 1036, 1037, and 1038.

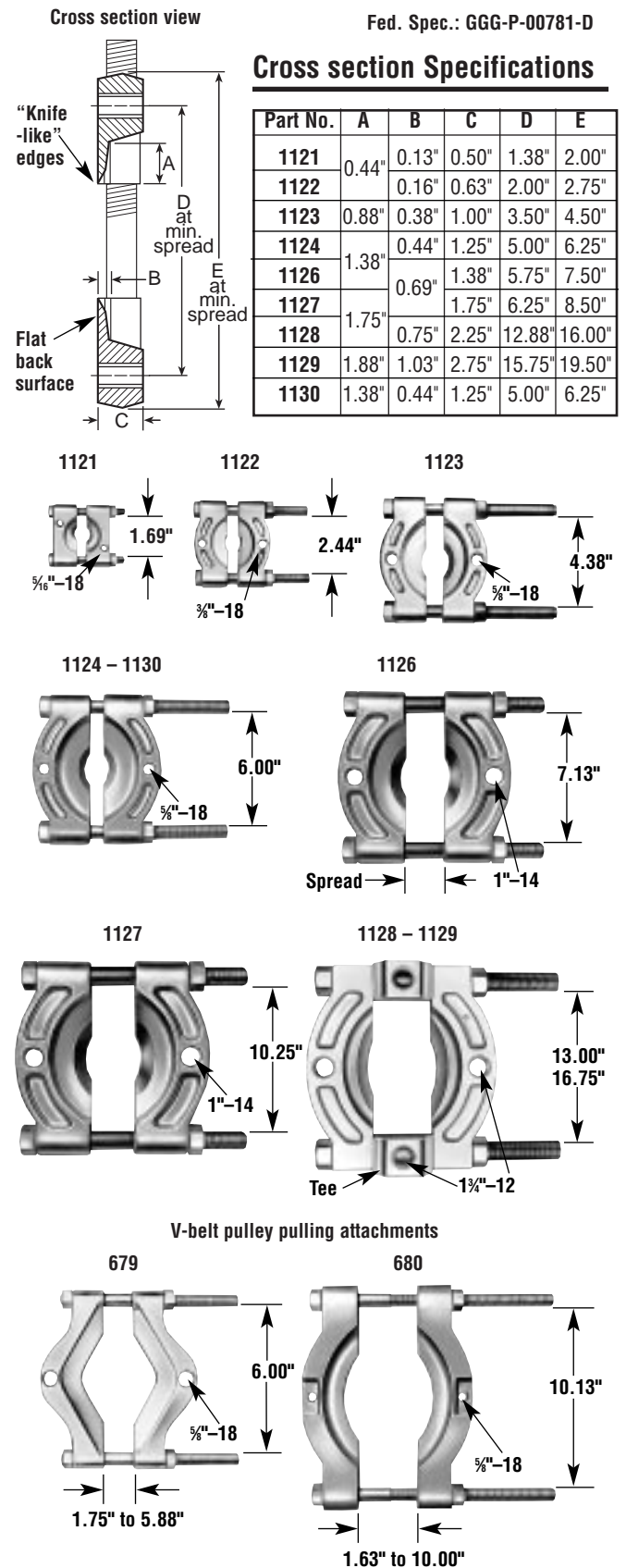
No. 680 – Spread: 1.63" to 10.00"

Wt., 22.3 lbs. Use with puller Nos. 938, 1039, 1040, 1041, 1042, 1047, PH172 and PPH30. (When using 680 with PPH30, two 8012 adapters are required.)

CAUTION: These attachments may not withstand the full tonnage of the pullers they are used with. The shape and condition of the part being pulled affects the tonnage at which the jaws may slip off. Always select the largest attachment which will fit behind the part being pulled. Refer to page 137.

For puller piece part identification order
Power Team parts catalog PC97

* Indicates discontinued puller models.

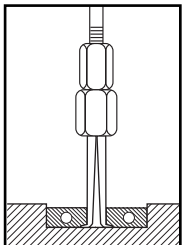


Power Team

Slide Hammer

Pullers

Set No. 981



blind hole puller example



Contents of Set No. 981

Part No.	Description	Part No.	Description	Part No.	Description
24835	Forcing screw	208627	Shank & tee bar ass'y	28256	Actuator pin (0.50" dia.)
24836	Forcing screw nut	28250	Actuator pin (0.13" dia.)	41331	Bridge
22185	Hammer, 2½ lbs.	28253	Actuator pin (0.19" dia.)	28323GY8	Metal box

Collets					
Part No.	Inch Range	MM Range	Part No.	Inch Range	MM Range
33856*	0.31" to 0.38"	8 to 9.5	33861**	0.75" to 0.88"	19.1 to 22.2
33857*	0.38" to 0.44"	9.5 to 11.1	33862**	0.88" to 1.00"	22.2 to 25.4
33858**	0.44" to 0.50"	11.1 to 12.7	33863***	1.00" to 1.25"	25.4 to 31.7
33859**	0.50" to 0.63"	12.7 to 15.9	33864***	1.25" to 1.50"	31.7 to 38.1
33860**	0.63" to 0.75"	15.9 to 19.1	33865***	1.50" to 1.75"	38.1 to 44.4

* Use with 0.13" actuator pin.

** Use with 0.19" actuator opin.

*** Use with 0.50" actuator pin.

Blind hole puller set

Removal of bearings, bushings, sleeves and other friction-fitted parts from blind holes can now be accomplished with ease. Set provides selection of expanding collets 0.31" to 1.75" I.D. Collet is placed through bore of part to be removed, then expanded with actuator pin so that lips of collet secure a positive grip for pulling. Pulling force is exerted by means of a forcing screw and bridge assembly or with a slide hammer.

No. 981 – Blind-hole puller set with slide hammer, forcing screw, bridge, actuator pins, collets, and storage box. Wt., 21 lbs.

Slide hammer puller set

This very handy set is ideal for those close-quarter, inside pulling jobs. Very practical for pulling motor, generator, and magneto bearings. Also good for removing small-bore bushings, bearings, and oil seals.

No. SS2 – Slide hammer puller set. Wt., 5.8 lbs.

Slide hammer puller set

This useful set contains a reversible-jaw slide hammer puller with a 2.5 lb. sliding hammer plus an assortment of special jaws and adapters. In this set, you get all the versatility you demand of a slide hammer puller.

No. 1178 – Slide hammer puller set with 2.5-lb. sliding hammer. Wt., 13.8 lbs.

Sliding hammers only

No. 22185 – 2.5 lb. sliding hammer.

No. 34331 – 5 lb. sliding hammer.

Bearing cup remover

Ideal for many internal pulling jobs. The cone holds the jaws in place during pulling. The 7136 is perfect for pulling internal bearing cups, seals, bushings, etc. Jaw spread - 0.31" to 3.25", reach to 3.50". Use with any slide hammer having ⅝"-18 thread (Power Team 1155 or 1156 or the 927 Push-Puller).

No. 7136 – Universal bearing cup remover. Wt., 1.5 lbs.

Set No. SS2

JAW SET	INSIDE SPREAD	
	Min.	Max.
D	0.50"	2.00"
E	0.50"	1.38"

1172



1174

D

Set No. 1178

27315

27241

36578

A – 44195*
T=0.31" W=0.44"

D – 34698*
T=0.25" W=0.44"

B – 32054*
T=0.19" W=0.44"

C – 44148*
* One jaw, order 3



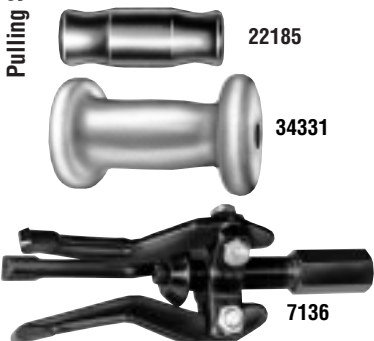
Jaw thickness 4.50"

Jaw width

T=0.31" W=0.56"

1178 Specs.

Jaw Set	2-Jaw Spread				3-Jaw Spread			
	Inside Min.	Inside Max.	Outside Min.	Outside Max.	Inside Min.	Inside Max.	Outside Min.	Outside Max.
A	1.50"	4.50"	0.75"	5.00"	1.50"	4.75"	1.00"	4.50"
B	0.75"	2.38"	—	—	1.00"	2.75"	—	—
C	2.75"	5.50"	0.75"	7.50"	3.25"	6.25"	1.00"	6.25"
D	1.25"	3.50"	1.00"	4.50"	1.50"	4.25"	1.50"	4.50"



Pilot bearing pullers

These very versatile pullers are built especially for inside pulling jobs, and particularly for removing flywheel pilot bearings on machines and construction vehicles. Also very practical for pulling motor, generator and magneto bearings.

Order No.	Reach	I.D. Spread		Prod. Wt. (lbs.)
		Min.	Max.	
1170	0.75"	0.50"	1.50"	4.9
1171	1.00"	0.88"	2.13"	
1172	1.75"	0.50"	2.00"	

Special slide hammer puller

Ideal for pulling jobs in very close quarters, as in removal of small-bore bushings, bearings, oil seals, etc. Internal pulling attachment has jaw spread of 0.50" to 1.38", adjusted by turning slide hammer handle. Handle end has a 1/2"-20 thread.

No. 1173 – Slide hammer puller. Wt., 3.5 lbs.

No. 1174 – Puller head, less slide hammer.

Basic slide hammer units

May be used with an internal pulling attachment (see page 152). Also, with female or male-female threaded adapters (see page 157).

No. 1155 – Basic slide hammer unit with 5 lb. hammer. 24.00" in length, 5/8"-18 threaded end. Wt., 7.3 lbs.

No. 1156 – Basic slide hammer unit with 2.5 lb. hammer. 24.00" in length, 5/8"-18 threaded end. Wt., 4.8 lbs.

Reversible-jaw slide hammer pullers

Ideal for pulling gears, bearings, outer races, grease retainers, oil seals, etc. Two or three jaws may be used and they can be positioned for 'inside' or 'outside' pulling jobs. Both have 5/8"-18 threaded end so attachments and adapters may be used.

No. 1176 – Slide hammer puller with 2.5 lb. hammer, 27241 two-way head and 34698 jaws. Wt., 8 lbs.

No. 1177 – Same as 1176 but with 5 lb. hammer. Wt., 10.5 lbs.

Slide hammer pullers with cup pulling attachments

These combine a basic slide hammer with No. 1152 internal pulling attachment. They are for use when removing oil seals, outer races, and bearing cups from blind holes.

No. 1157 – Slide hammer puller consisting of 1156 slide hammer and 1152 internal pulling attachment. Wt., 9.8 lbs.

No. 1158 – Same as 1157 but with 1155 slide hammer. Wt., 12.3 lbs.

Order No.	Min. Spread	Max. Spread	Max. Reach	Overall Length
1157	1.50"	6.00"	4.00"	28.00"
1158				

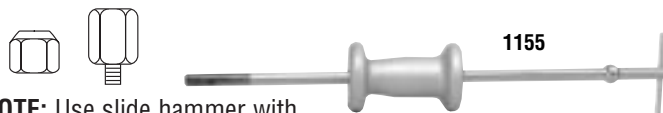


For puller piece part identification order
 Power Team parts catalog PC97

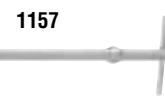
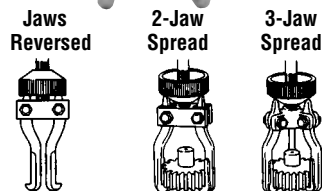
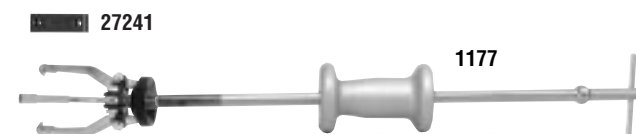
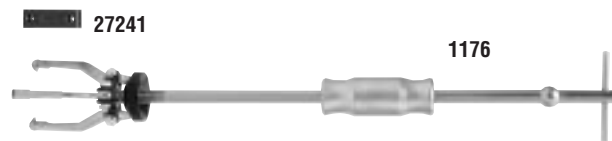
Reversible-jaw slide hammer pullers

Order No.	2-Jaw Spread				3-Jaw Spread				Overall Length
	Inside		Outside		Inside		Outside		
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
1176	1.25"	3.50"	1.00"	4.50"	1.50"	4.25"	1.50"	4.50"	27.00"
1177									

Fed. Spec.: GGG-P-00781-D



NOTE: Use slide hammer with threaded adapters to pull parts having threaded holes or studs.



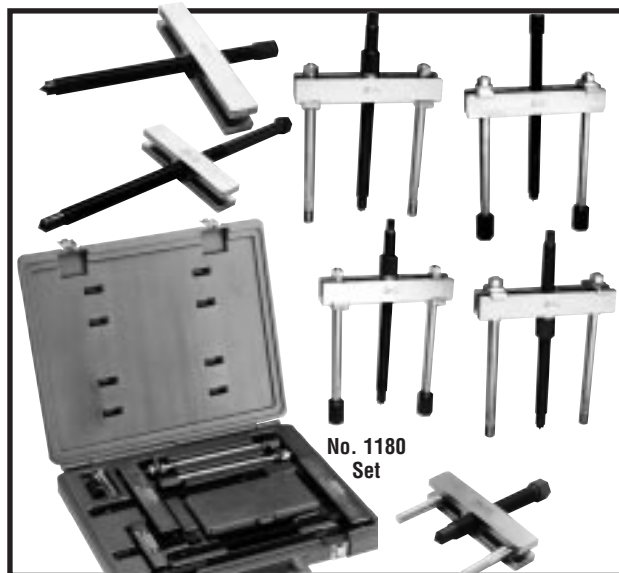
Power Team

Puller

Sets

10-Ton Capacity Push-Puller® Set

Contains three popular Power Team bar-type pullers in one versatile set, packed in a handy plastic storage case. Tools included permit damage-free pulling of gears,



No. 1180 Set

bearings, harmonic balancers, and other parts having tapped holes. Ideal for servicing off-road construction equipment, and machinery.

Set No. 1180 consists of:

No. 927 – 10 Ton Push-Puller®; 8.25" reach, 2.13" to 7.25" spread.

Comes with 6.75" puller legs, other leg sizes are available separately (See page 148).

No. 522 – Gear and pulley puller; spread range when used with 0.50" cap screws: 2.00" to 7.75". Cap screws not included.

No. 7393 – Gear and pulley puller with standard 5.50" forcing screw, plus special 13.00" forcing screw. Includes two hex head cap screws, 3/8"-16 x 3.00" long. Spread range: 1.50" to 4.25".

No. 1180 – 10 ton Push-Puller® set, in plastic storage case. Wt., 25 lbs.

No. 7208 – Hub puller. Includes a spare locknut which permits use with No. 1177 slide hammer.

No. 1023 – 2 ton combination 2- or 3-jaw Grip-O-Matic® puller. Has 3.38" max. reach, 4.75" max. spread.

No. 1027 – 5 ton combination 2- or 3-jaw Grip-O-Matic® puller. Has 5.50" max. reach, 7.00" max. spread.

No. 7393 – Bar-type gear and pulley puller with 5.50" long screw. Includes two hex head cap screws, 3/8"-16 x 3.00" long. Spread range: 1.50" to 4.25".

No. 1122 – Bearing pulling attachment for use with No. 1027 and No. 7393 pullers. Has 2.00" max. spread, 0.13" min. spread.

No. 1181 – Multi-purpose puller set. Wt., 25 lbs.

Lock-on, Jaw-type Puller Set

Components can be assembled to create several versatile puller versions. The puller head is turned to securely lock the jaws onto the part being removed. Both a 2-way and 3-way puller head are included, plus three long-reach and three short-reach puller jaws. In plastic storage box. Easily removes gears, bearings and other press-fitted parts. *Can be used for internal pulling tasks when used with a slide hammer.

No. 1182 – Jaw-type puller set. Wt., 6.8 lbs

Multi-purpose Puller Set

This new assortment of pulling tools gives you a wide range of job versatility. You get a 5 lb. slide hammer puller, hub puller, two sizes of Power Team Grip-O-Matic® jaw-type pullers, a bearing pulling attachment plus a cross-bar gear and pulley puller, all contained in a handy plastic storage case.

Set No. 1181 consists of:

No. 1177 – Slide hammer puller with 5 lb. hammer, 2-way and 3-way heads. Reversible: either two or three jaws may be used to handle both "inside" and "outside" pulling jobs.



No. 1182 Set

Jaw spreads of No. 1182 Set:

Puller Jaws only Order No.	2-Jaw Spread				3-Jaw Spread			
	Inside*		Outside		Inside*		Outside	
44195	1.50"	4.50"	0.75"	5.00"	1.50"	4.75"	1.00"	4.50"
44148	2.75"	5.50"	0.75"	7.50"	3.25"	6.25"	1.00"	6.25"

Male-female threaded adapters

These adapters are used on ends of Push-Puller® legs, with forcing screws, or slide hammers to assist in pulling shafts, bearing caps, pinions, and many other parts.

Female End	Male End	Lg.	Order No.	Female End	Male End	Lg.	Order No.
5/8"-18	1/4"-20	2.25"	8000	1"-14	5/8"-18	3.19"	8012
	5/16"-18		8001		5/8"-11		8011
	7/16"-14		8002		3/4"-16	2.50"	8014
	7/16"-20		8003		3/4"-10		8016
	3/8"-24		8004	1"-8	5/8"-18		8020
	3/8"-16		8005		1"-14	3.00"	8021
	1/2"-20		8006		1"-14	4.50"	8023
	1/2"-13		8007	1 1/4"-12	1 1/4"-12	4.75"	8024
	5/16"-18		8008		5/8"-18		8025
	5/16"-12		8009	1 1/4"-7	1"-14		8027
	5/8"-11		8010		1"-14	4.00"	8029
	3/4"-16		8013	1 5/8"-5 1/2	1"-14		8028
	3/4"-10		8015		1"-8		
	7/8"-14		8017				
	7/8"-9		8018				
	1"-14		8019				
	1"-pipe		8022				

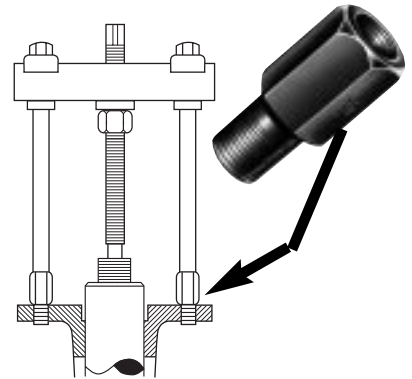
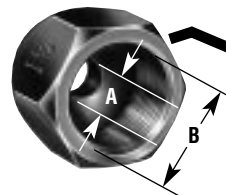
Female threaded adapters

Use these adapters on the ends of Push-Puller® forcing screws, legs, or slide hammers in the removal and installation of shafts, axles, and housings.

Female End "A"	Female End "B"	Order No.
1/2"-20	5/8"-18	8035
5/8"-18	5/8"-18	8037
	3/4"-16	8038
	7/8"-14	8039
	1"-14	8040
	1 1/8"-12	8041
	1 1/4"-12	8042
1"-14	1 1/2"-12	8043
	1"-14	8036

Fed. Spec.: GGG-P-00781-D

Set No. 8044

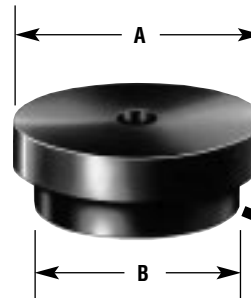


Step plate adapter sets

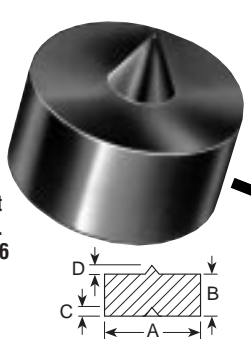
Power Team step plate adapters are necessary for pulling and installing bearings, gears, or other parts on hollow shafts or housings. Puller screw forces against step plate adapter, as shown at right. May be used with Power Team jaw-type pullers and Push-Pullers®, also shop presses.

Diameter "A" (in.)	Diameter "B" (in.)	Order No.
1.00	0.75	8057
1.13	0.88	8058
1.25	1.00	8059
1.38	1.13	8060
1.63	1.25	8061
1.75	1.38	8062
1.88	1.50	8063
2.00	1.63	8064
2.13	1.75	8065
2.38	1.88	8066
2.50	2.00	8067
2.63	2.13	8068
2.75	2.25	8069
2.88	2.38	8070
3.00	2.50	8071
3.25	2.75	8072
3.50	3.00	8073

Set No. 8075



Set No. 8076



Shaft protector set

Power Team shaft protectors are designed to protect shaft centers from distortion when extreme pressures are applied with jaw-type pullers or Push-Pullers®. Shaft protectors are inserted between the end of the puller screw and the shaft.

"A"	"B"	"C" (60°)	"D" (60°)	Order No.
1.50"	0.75"	0.38"	0.44"	8050
1.25"			0.38"	8051
1.00"			0.31"	8052
0.75"			8053	
0.63"	0.63"	0.25"	0.25"	8054
		0.19"	0.19"	8055

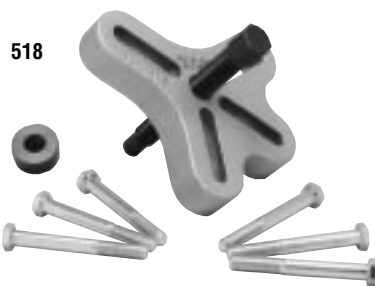
Set No. 8056

No. 8056 – Complete set, Nos. 8050 thru 8055.

CAUTION: All the items shown may not withstand the full tonnage of the pullers they may be used with. Refer to page 137.

Power Team Puller Adapters

Special Purpose Pullers And Metric Adapters



Forcing Screw $\frac{5}{8}$ "-18 x 5.00" Long



522

Forcing Screw
 $\frac{5}{8}$ "-16 x
11.63" Long



7393

Forcing Screw
 $\frac{5}{8}$ "-18 x
5.50" Long



7392

Forcing Screw
 $\frac{5}{8}$ "-18 x
13.00" Long

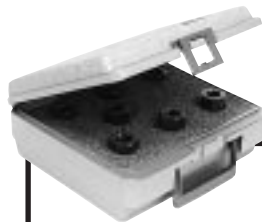


PA7

For puller piece part identification order
Power Team parts catalog PC97

Metric Puller Adapter Sets

Storage/organizer case is included with each set.
One adapter per size included in kit.



No. 8110 – Male Metric Adapter Kit. Wt., 3 lbs.			
Female End	Male End	Lgth.	Order No.
$\frac{5}{8}$ "-18	M6X1.0	2.25"	8111
	M8X1.0		8112
	M8X1.25		8113
	M10X1.25		8114
	M10X1.50		8115
	M12X1.25		8116
	M12X1.75		8117

No. 8120 – Male Metric Adapter Kit. Wt., 3 lbs.			
Female End	Male End	Lgth.	Order No.
$\frac{5}{8}$ "-18	M14X1.5	2.25"	8121
	M14X2.0		8122
	M16X1.5	2.75"	8123
	M16X2.0		8124
	M20X1.5		8125
	M20X2.5		8126



No. 8130 – Female Metric Adapter Kit. Wt., 2.8 lbs.			
Std. Female End	Metric Female End	Lgth.	Order No.
$\frac{5}{8}$ "-18	M6X1.0	1.63"	8131
	M8X1.25		8132
	M10X1.5		8133
	M12X1.75		8134
	M14X2.0		8135
	M16X2.0		8136
	M20X2.5		8137

No. 8140 – Male Metric Adapter Kit. Wt., 5.3 lbs.			
Female End	Male End	Lgth.	Order No.
1"-14	M16X1.5	3.00"	8141
	M16X2.0		8142
	M18X1.5		8143
	M20X1.5		8144
	M20X2.5		8145
	M22X1.5		8146
	M24X2.0		8147
	M24X3.0		8148

Adapters one each in kits 8110, 8120, 8130, 8140 are also available individually.

Gear and pulley pullers

Ideal for pulling many small parts having tapped holes. The Nos. 7392 and 7393 may be used with the No. 1122 pulling attachment to remove bearings, etc. Pullers include two hex head cap screws, $\frac{5}{8}$ " – 16 NC x 3.00" long. Spread: 1.50"–4.25". Width of puller block is 4.88". Cap screws are not included with the No. 522, but any cap screws up to 0.50" diameter may be used. No. 522 spread, when used with 0.50" dia. cap screws, is 2.00"–7.75". Width of the No. 522 puller block is 8.25".

No. 7392 – Puller with 13.00" long screw. Wt., 2 lbs.

No. 7393 – Puller with 5.50" long screw. Wt., 1.5 lbs.

No. 522 – Puller with 11.63" long screw. Wt., 4.3 lbs.

Flange type puller

Slotted holes in puller body permit cap screws to be positioned to handle bolt-circle diameters from 1.50" to 4.63".

No. 518 – Flange type puller. Includes 3 cap screws, $\frac{5}{8}$ " – 24 NF X 3.00" lg. and 3 cap screws $\frac{5}{8}$ " – 16 NC X 3.00" lg. Wt., 3.4 lbs.

PA7 4-in-1 puller set

You can quickly assemble a 2- or 3-jaw puller with standard or long reach jaws.

No. PA7 — Four-In-One puller set, 7 ton cap. Standard jaw max. reach: 5.00"/ max. spread: 10.50". Long jaw max. reach: 8.75"/ max. spread: 11.00". Wt., 10.8 lbs.

Metric adapters

Four separate metric kits available with a variety of sizes for your Push- Puller® legs or forcing screws! Each packaged in a convenient plastic organizer case. Adapters also available separately.

Have the puller you need on hand, when you need it, protected from unauthorized or casual borrowers!

10 ton capacity Strong Box puller set

Here's a set of pullers that gives you almost unheard of versatility. This rugged, lockable metal storage cabinet

contains pullers, attachments and extra puller jaws good for a variety of applications. Cabinet may be mounted on a wall, stand, or workbench.

No. IPS10B – Cabinet (25.75" X 29.50" X 10.00") with tool board, adapter board, and tool set. Wt., 98 lbs.

No. 212867 – Cabinet, tool board, and adapter board only. Wt., 48 lbs.



IPS10B



IPS10HB

CONTENTS OF SET NO. IPS10B

Description	No.
10 ton capacity Push-Puller® with 6.75" legs	927
5 ton comb. 2/3-jaw puller	1027
7 ton comb. 2/3-jaw puller	1037
Gear and pulley puller	7393
15.75" puller legs (pair)	1101
Bearing pulling attachment	1122
Bearing pulling attachment	1123
Internal pulling attachment	1152
Male/female threaded adapters (2 ea.)	8005, 8006, 8007, 8010 8013, 8015, 8019
Female threaded adapters	8035, 8037, 8038, 8039, 8040
Shaft protectors	8050 thru 8053
Step plate adapters	8057 thru 8062
Long jaws for 1037 (3)	43892

10 ton capacity hydraulic/manual puller set in Strong Box

This lockable metal strong box contains both hydraulic and manual pullers, plus attachments. The rugged storage cabinet keeps the tools organized and secure from unauthorized borrowers!

*PH103C hyd. puller includes one each of the following:

1060 2/3-jaw puller; P55 hand pump; C1010C 10 ton, 10.00" stroke cylinder; 9767 6' hyd. hose; 9798 hose half coupler; 34602 pusher adapter; 202179 threaded adapter.

No. IPS10HB – Cabinet (25.75" X 29.50" X 10.00") with tool board, pullers, and hydraulics. Wt., 119 lbs.

No. 215315 – Cabinet and tool board only. Wt., 44 lbs..

CONTENTS OF SET NO. IPS10B

Description	No.
10 ton comb. 2/3-jaw hyd. puller	PH103C*
5 ton comb. 2/3-jaw puller	1027
13 ton comb. 2/3-jaw puller	1042
Slide hammer puller	1177
3 jaws for slide hammer puller	44148
3 jaws for slide hammer puller	44195
Slotted cross head for slide hammer puller	36578
Seal hook for slide hammer puller	27315
Internal pulling attachment (1.50" to 6.00" spread)	1152
Forcing screw for 1152	24832

For puller piece part identification
order Power Team parts catalog PC97

10 and 17½ Ton

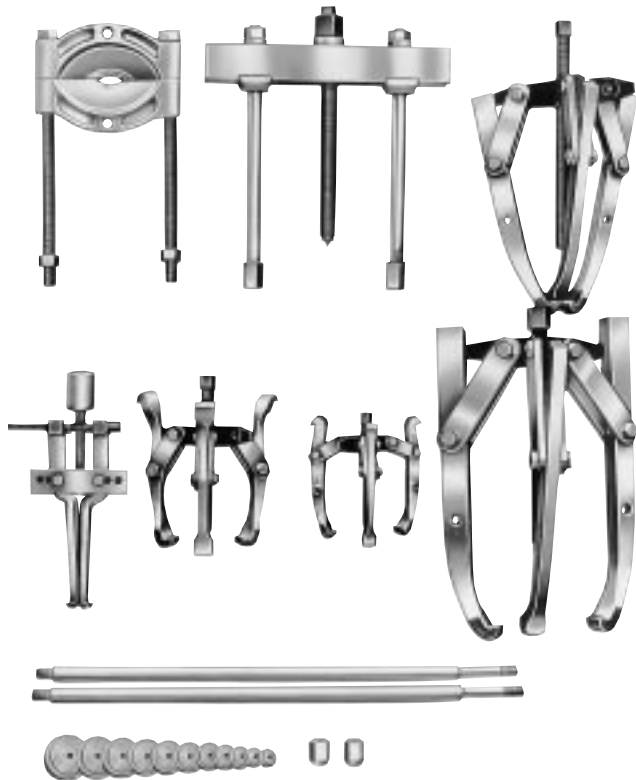
Manual

Puller Sets



IPS10M

For puller piece part identification order
Power Team parts catalog PC97



IPS17M

CAUTION: All the items shown may not withstand the full tonnage specified. Example: When an accessory with a 1 ton capacity is used with a 7 ton puller, the setup can be used only at a force of one ton.

10 ton manual puller set

This puller set is just what you need for removing gears, bearings, etc. Includes pullers, attachments, and many accessories.

No. IPS10M – 10 ton capacity manual puller set. Includes the pullers and accessories listed below. Wt., 53 lbs.

No. DB10M – Board for storing IPS10M set. Must be ordered separately. Size 0.38" X 3' X 4' high. Wt., 24 lbs.

CONTENTS OF SET NO. IPS10M

Pullers	No.
10 ton capacity Push-Puller® with 6.75" legs	927
2 ton comb. 2/3-jaw puller	1023
5 ton comb. 2/3-jaw puller	1026
5 ton comb. 2/3-jaw puller	1027
7 ton comb. 2/3-jaw puller	1037
Slide hammer set	1178
Accessories	No.
Step plate adapter set	8075
Female threaded adapter set	8044
Female threaded adapter: ½"-20X½"-18	8035
Bearing cup pulling attachment	1151
Bearing pulling attachment	1121
Bearing pulling attachment	1122
Bearing pulling attachment	1123
15.75" long puller legs for 927 (pr.)	1101

17½ ton manual puller set

The pullers and accessories in this set can be used for hundreds of applications including quick and easy maintenance involving removal and replacement of press-fit parts.

No. IPS17M – 17½ ton capacity manual puller set. Includes the pullers and accessories listed below. Wt., 116 lbs.

No. DB17M – Board for storing IPS17M set. Must be ordered separately. Size 0.38" X 3' X 4' high. Wt., 25 lbs.

CONTENTS OF SET NO. IPS17M

Pullers	No.
17½ ton capacity Push-Puller® with 9.50" legs	938
22.50" legs for 938	1105
5 ton comb. 2/3-jaw puller, with long jaws	1027
7 ton comb. 2/3-jaw puller	1037
13 ton comb. 2/3 jaw puller	1041
17½ ton 3-jaw puller	1045
Accessories	No.
Step plate adapter set	8075
Bearing cup pulling attachment	1151
Bearing pulling attachment	1130
Female threaded adapter: ¾"-18 F. X ¾"-16 F. (2)	8038

17½ ton hydraulic master puller sets

Having this Power Team puller set at your fingertips will not only reduce your downtime, but also increase your profits.

No. IPS17 – 17½ ton capacity puller set. Includes hydraulics, pullers, and accessories listed below. Wt., 191 lbs.

(Wooden storage box No. 308435OR9 is included with the set.)

No. IPS17B – Puller set with MB5 metal box. Wt., 213 lbs.

No. DB17 – Board for storing IPS17 set. Must be ordered separately. Size: 0.63" X 4' X 6' long. Wt., 68 lbs.

17½ Ton Capacity Hydraulic Puller Set

CONTENTS OF SET NO. IPS17			
Hydraulics	No.	Accessories	No.
Single-stage hyd. hand pump ass'y.	P55	Bearing cup pulling attach.	1154
17½ ton cylinder with threaded insert	RT172	Bearing pulling attachment	1122
Hose half coupler	9798	Bearing pulling attachment	1123
Hydraulic hose – 6'	9767	Bearing pulling attachment	1130
Tee adapter	9670	Shaft protector set	8056
Pressure gauge	9059	Step plate adapter set	8075
Pullers	No.	Pulley pulling attachment	679
17½ ton cap. Push-Puller® with 16.50" legs	1062	Threaded Adapters	No.
Speed crank	24814	½" – 18 F. X ¾" – 16 M. (2)	8005
Adjusting screw	32118	¾" – 18 F. X ½" – 20 M. (2)	8006
Pushing adapter	201923	¾" – 18 F. X ½" – 13 M. (2)	8007
22.50" legs (pr)	1105	¾" – 18 F. X ¾" – 11 M. (2)	8010
17½ ton 3-jaw hyd. puller	1066	¾" – 18 F. X ¾" – 16 M. (2)	8013
Combination 2/3-jaw puller	1027	¾" – 18 F. X ¾" – 10 M. (2)	8015
17½ ton 2-jaw puller head	41224	¾" – 18 F. X ¾" – 14 M. (2)	8017
Puller screw	24832	¾" – 18 F. X ¾" – 9 M. (2)	8018
Combination 2/3-jaw puller	1037	¾" – 18 F. X 1" – 14 M. (2)	8019
Combination 2/3-jaw puller	1041	1" – 8 F. X ¾" – 18 M. (1)	8020
Cylinder cap	28228	1" – 8 F. X 1" – 14 M. (1)	8021
		Female threaded adapter set	8044
		¾" – 18 F. X ¾" – 16 F. (2)	8038

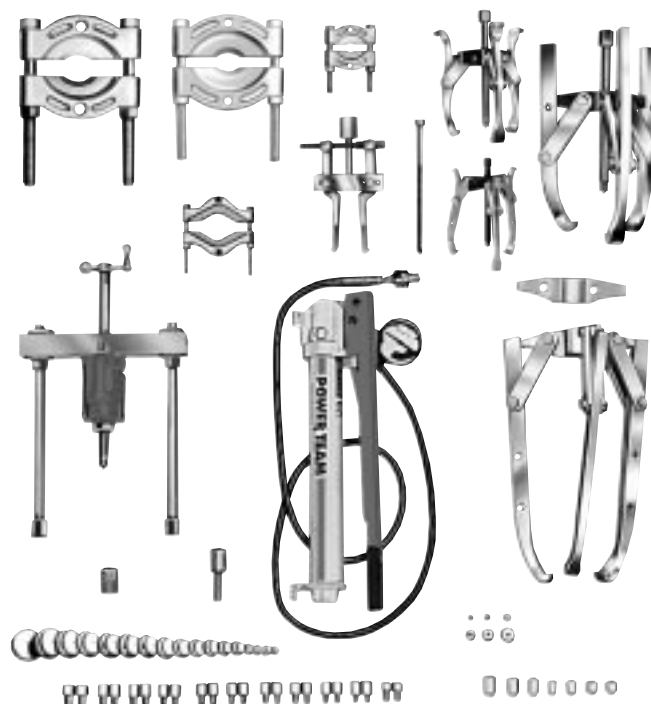
17½ ton hydraulic puller set

This set includes a 3-jaw puller and a Push-Puller®. Ideal for heavy duty applications; put this set to work wherever large gears, bearings, wheels, pulleys, etc. are found.

No. IPS17H – 17½ ton capacity hydraulic puller set. Includes hydraulics, pullers, and accessories listed below. Wt., 137 lbs. (Wooden storage box No. 308435OR9 is included with the set.)

No. DB17H – Board for storing IPS17H set. Must be ordered separately. Size 0.63" X 4' X 4'. Wt., 30 lbs.

CONTENTS OF SET NO. IPS17H			
Hydraulics	No.	Accessories	No.
Single-stage hydraulic hand pump ass'y.	P55	Bearing cup pulling attach.	1154
17½ ton cylinder with threaded insert	RT172	Bearing pulling attachment	1130
Hose half coupler	9798	22.50" legs (pr)	1105
Hydraulic hose – 6'	9767	Speed crank	24814
Tee adapter	9670	Screw cap	28228
Pressure gauge	9059	Adjusting screw	32118
Pullers	No.	Pushing adapter	201454
17½ ton cap. Push-Puller with 16.50" legs	1062	2-jaw head for 1066	41224
17½ ton 3-jaw hyd. puller	1066	Threaded Adapters	No.
		1" – 8 F. X ¾" – 18 M. (1)	8020
		¾" – 18 F. X ¾" – 16 F. (2)	8038

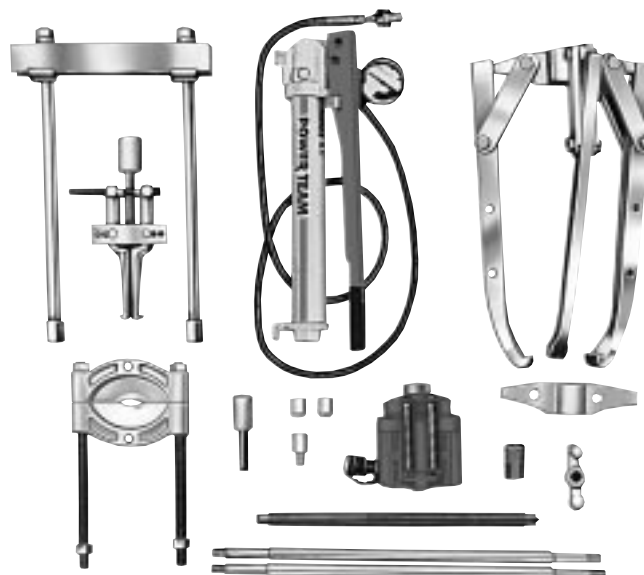


IPS17

NOTE: A wooden storage box is provided with each of these sets. (36.00"L x 17.50"H x 14.00"D)

For puller piece part identification order
Power Team parts catalog PC97

CAUTION: All the items shown may not withstand the full tonnage specified. Example: When an accessory with a 1 ton capacity is used with a 7 ton puller, the setup can be used only at a force of one ton.

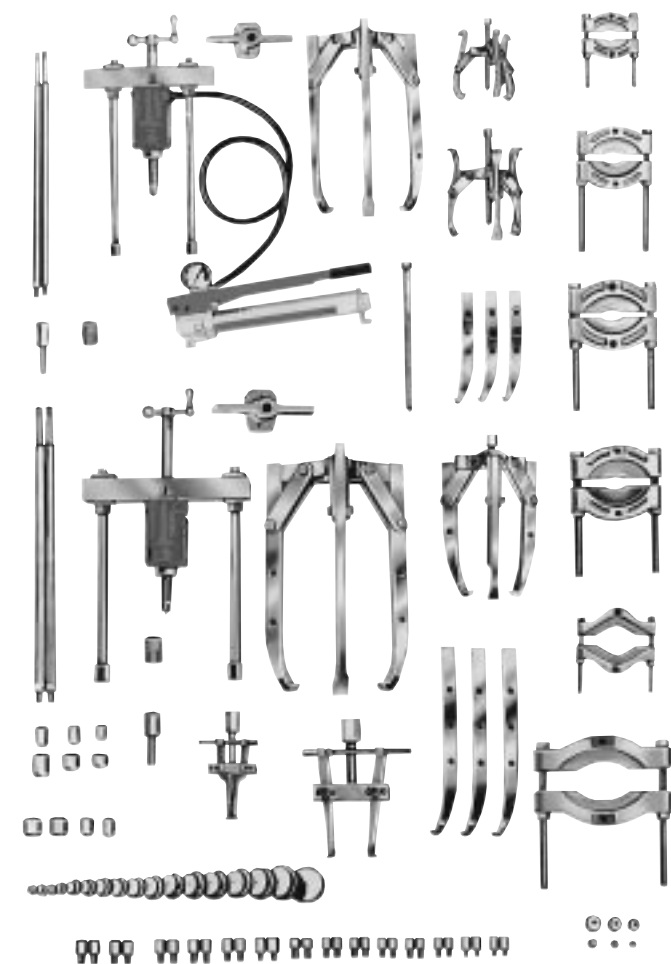


IPS17H

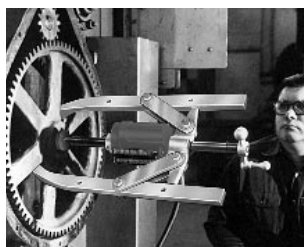
17½ And 30 Ton

Hydraulic

Puller Sets



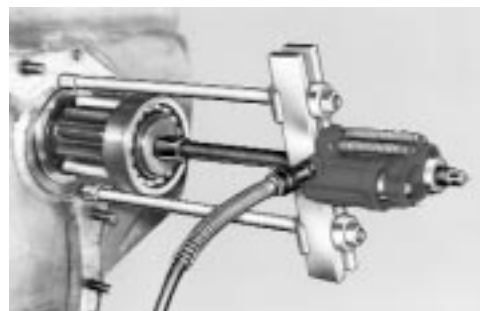
IPS3017



2-jaw puller reaches through spokes of gear to grip hub. Hand pump supplies hydraulic power.



Flexible coupler is removed from electric motor shaft with 2-jaw puller.



Typical setup for removing sprocket drive pinion shaft. Puller screw is attached to shaft by threaded adapter. Shaft is now ready to be pulled out hydraulically.

17½ and 30 ton capacity puller sets

These heavy-duty maintenance sets will more than pay for themselves, especially in saving you costly damage to parts. Lets you tackle hundreds of applications where pulling and pushing are required.

For puller piece part identification order
Power Team parts catalog PC97

CAUTION: All the items shown may not withstand the full tonnage specified. Example: When an accessory with a 1 ton capacity is used with a 7 ton puller, the setup can be used only at a force of one ton.

No. IPS3017 – 17½ and 30 ton capacity manual and hydraulic puller set. Includes the pullers and accessories listed below. Wt., 537 lbs.

No. IPS3017B – Puller set with MB8 metal box. Wt., 563 lbs.

(Wooden storage box No. 3084360R9 is included with the set IPS3017. (40.00"L x 17.00"H x 24.00"D).)



CONTENTS OF SET NO. IPS3017

Hydraulics	No.	Accessories	No.
Single-stage hydraulic hand pump ass'y.	P55	Special puller forcing screw	24832
17½ ton center-hole twin cyl. with threaded insert	RT172	Step plate adapter set	8075
30 ton center-hole twin cyl. with threaded insert	RT302	Step plate adapter set	8076
Hose half coupler	9798	Shaft protector set	8056
Hydraulic hose – 6'	9767	Pulley pulling attachment	679
Tee adapter	9670	Pulley pulling attachment	680
Pressure gauge	9059	Bearing cup pulling attach.	1154
Pullers	No.	Bearing cup pulling attach.	1166
17½ ton cap. hydraulic Push-Puller® with 16.50" legs	1062	Bearing pulling attach.	1122
17½ ton 3-jaw hyd. puller	1066	Bearing pulling attachment	1123
22.50" legs for 1062	1105	Bearing pulling attachment	1126
Speed crank	24814	Bearing pulling attachment	1130
Cyl. cap	28228	Threaded Adapters	No.
Adjusting screw	32118	½" – 18 F. X ¾" – 16 M. (2)	8005
Pushing adapter	201923	½" – 18 F. X ½" – 20 M. (2)	8006
30 ton capacity hydraulic Push-Puller® with 18.00" legs	1070	½" – 18 F. X ½" – 13 M. (2)	8007
28.00" legs for 1070	1111	½" – 18 F. X ½" – 11 M. (2)	8010
Speed crank	27198	½" – 18 F. X ¾" – 16 M. (2)	8013
Screw cap	28229	½" – 18 F. X ¾" – 10 M. (2)	8015
Pushing adapter	34510	½" – 18 F. X ¾" – 14 M. (2)	8017
Adjusting screw	34758	½" – 18 F. X ¾" – 9 M. (2)	8018
17½ ton 2-jaw puller head	41224	½" – 18 F. X 1" – 14 M. (2)	8019
30 ton 3-jaw hyd. puller	1074	1" – 8 F. X ¾" – 18 M. (1)	8020
30 ton 2-jaw puller head	41226	1" – 8 F. X 1" – 14 M. (1)	8021
Combination 2/3-jaw puller	1027	1" – 14 F. X ¾" – 18 M. (2)	8012
Combination 2/3-jaw puller	1037	1¼" – 7 F. X ¾" – 18 M. (2)	8025
Combination 2/3-jaw puller	1041	1¼" – 7 F. X 1" – 14 M. (2)	8027
Long jaws for 1037 (3)	43892	Female threaded adapter set	8044
Long jaws for 1041 (3)	30902	½" – 18 F. X ¾" – 16 F. (2)	8038
		1" – 14 F. X 1" – 14 F. (2)	8036

30 And 50 Ton

Hydraulic

Puller Sets

30 ton capacity puller set

Just what you need for those big jobs. Not only do you get a 30 ton hydraulic Push-Puller®, you also get a 2-jaw and a 3-jaw hydraulic puller. Also, many popular accessories and the hardware needed to tackle the big jobs right away.

No. IPS30H – 30 ton capacity hydraulic maintenance puller set. Includes the pullers and accessories listed below. Wt., 330 lbs. (Wooden storage box No. 3084370R9 is included with the set. 40.00"L x 16.00"H x 16.00"D)

No. DB30H – Board for storing IPS30H set. Must be ordered separately. Size: 0.63" x 4' x 6' wide. Wt., 78 lbs.

CONTENTS OF SET NO. IPS30H			
Hydraulics	No.	Pullers	No.
Single-stage hydraulic hand pump ass'y.	P55	30 ton 3-jaw hydraulic puller	1074
30 ton cylinder with threaded insert	RT302	2-way head for 1074	41226
Hose half coupler	9798	30 ton cap. hydraulic Push-Puller® with 18.00" legs	1070
Hydraulic hose – 6'	9767	28.00" legs for 1070	1111
Tee adapter	9670	Speed crank	27198
Pressure gauge	9059	Screw cap	28229
ACCESSORIES	No.	Pushing adapter	34510
Female threaded adapters 1" – 14 F. X 1" – 14 F. (2)	8036	Adjusting screw	34758
Bearing cup pulling attach.	1166		
Bearing pulling attachment	1127		

50 ton capacity puller set

For those really big jobs this 50 ton puller set is what you need. Just think of the jobs you can do with a 50 ton capacity hydraulic Push-Puller® and a 2-jaw and a 3-jaw puller, both with a 50 ton capacity. Of course, you also get many versatile accessories and attachments.

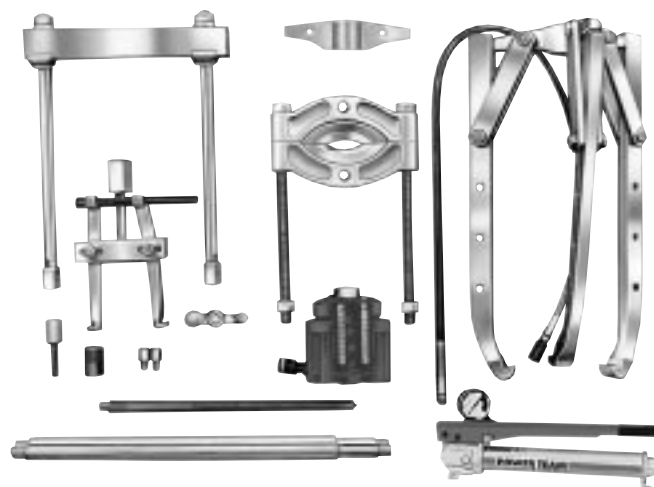
No. IPS50H – 50 ton capacity hydraulic maintenance puller set. Includes the pullers and accessories listed below. Wt., 576 lbs.

(Wooden storage box No. 3084380R9 is included with the set. 46.50"L x 24.00"H x 22.50"D)

No. IPS50HB – Puller set with MB16 metal box.

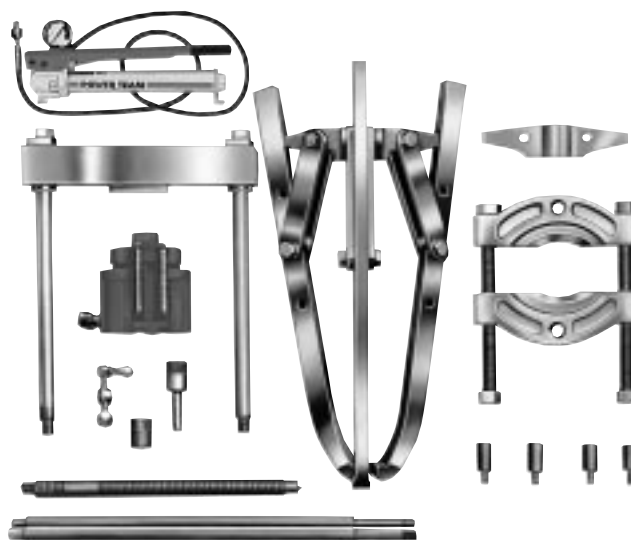
▲ CAUTION: All the items shown may not withstand the full tonnage specified. Example: When an accessory with a 1 ton capacity is used with a 7 ton puller, the setup can be used only at a force of one ton.

CONTENTS OF SET NO. IPS50H			
Hydraulics	No.	Pullers	No.
Single-stage hydraulic hand pump ass'y.	P55	Pushing adapter	34755
50 ton cylinder with threaded insert	RT503	2-way head for 1080	50449
Hose half coupler	9798	50 ton cap. hydraulic Push-Puller® with 24.00" legs	1076
Hydraulic hose – 6'	9767	34.00" legs for 1076	1113
Tee adapter	9670	Screw cap	28230
Pressure gauge	9059	Accessories	No.
Pullers	No.	Bearing pulling attachment	1128
50 ton 3-jaw hydraulic puller	1080	Threaded Adapters	No.
Speed crank	29595	1¼"–12 F. X 1¼"–12 M. (2)	8024
Adjusting screw	32698	1½" – 5½ F. X 1" – 8 M.	8028
		1½" – 5½ F. X 1" – 14 M.	8029



IPS30H

NOTE: A wooden storage box is provided with each of these sets.



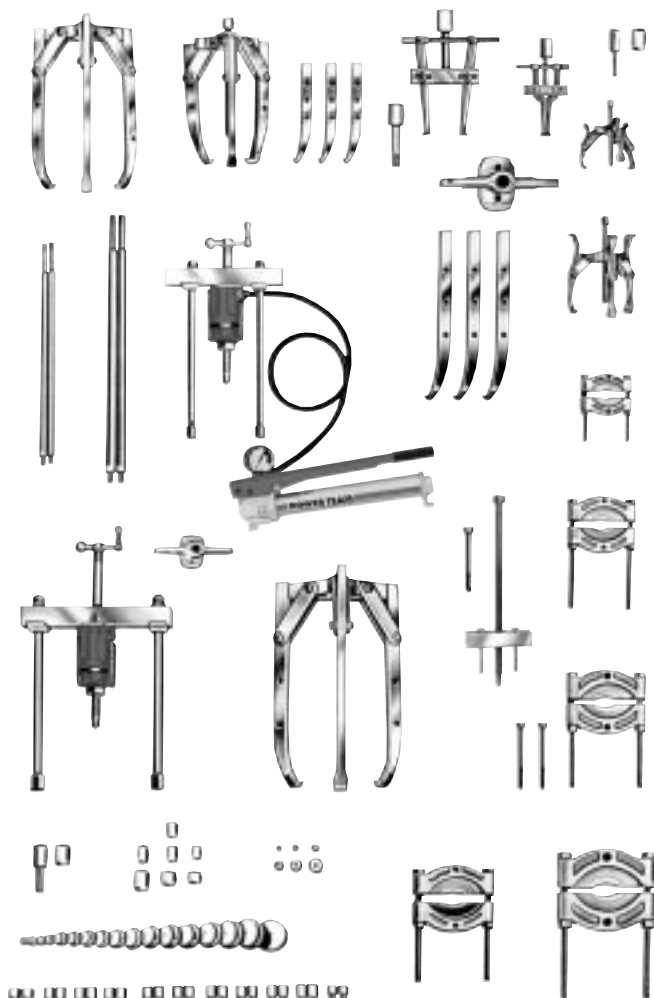
IPS50H

For puller piece part identification order
Power Team parts catalog PC97

17½ And 50 Ton

Hydraulic

Puller Sets

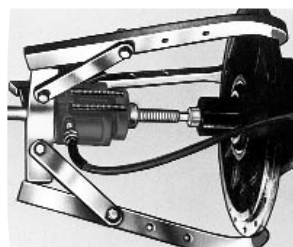


IPS5017



Combination of 50 ton capacity Push-Puller and cup pulling attachment simplifies the removal of a final drive axle seal.

Hydraulically powered Push-Puller removes drive wheel. Pulling attachment is used to provide gripping surface.



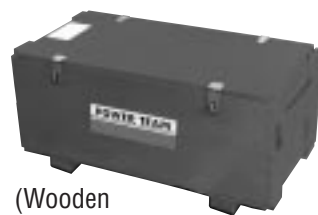
3-jaw puller provides grip while hydraulic hand pump provides power to push shaft from housing. Shaft protector is used on end of puller screw.

17½ and 50 ton puller set

If you're looking for a maintenance puller set that will handle a wide variety of applications, this is the one for you. The mechanical and hydraulic pullers and attachments are designed to handle most removing and installing jobs with a minimum of effort.

No. IPS5017 – 17½ and 50 ton capacity manual and hydraulic puller set. Includes the pullers and accessories listed below. Wt., 892 lbs.

No. IPS5017B – Puller set with MB16 metal box. Wt., 915 lbs.



(Wooden storage box No. 308439OR9 is included with the set IPS5017, 45.00"L x 22.50"H x 30.00"D.)

For puller piece part identification order Power Team parts catalog PC97

▲ CAUTION: All the items shown may not withstand the full tonnage specified. Example: When an accessory with a 1 ton capacity is used with a 7 ton puller, the setup can be used only at a force of one ton.

CONTENTS OF SET NO. IPS5017

Hydraulics	No.		
Single-stage hydraulic hand pump ass'y.	P55	Long jaws for 1041 (3)	30902
17½ ton center-hole twin cyl. with threaded insert	RT172	Gear and pulley puller	7392
50 ton center-hole twin cyl. with threaded insert	RT503	Forcing screw for 7392	24833
Hose half coupler	9798	Accessories	No.
Hydraulic hose – 6'	9767	Step plate adapter set	8075
Tee adapter	9670	Step plate adapter set	8076
Pressure gauge	9059	Shaft protector set	8056
Pullers	No.	Bearing cup pulling attach.	1154
17½ ton capacity hydraulic Push-Puller® with 16.50" legs	1062	Bearing cup pulling attach.	1166
22.50" legs for 1062	1105	Reducing adapter for 1166	34479
Pushing adapter	201923	Bearing pulling attachment	1122
Speed crank	24814	Bearing pulling attachment	1123
Screw cap	28228	Bearing pulling attachment	1126
Adjusting screw	32118	Bearing pulling attachment	1130
50 ton capacity hydraulic Push-Puller® with 24.00" legs	1076	Bearing pulling attachment	1127
34.00" legs for 1076	1113	Hex nut: ¾" – 16 (2)	10215
Cylinder cap	28230	Short bolt (2)	24829
17½ ton 3-jaw hyd. puller	1066	Threaded Adapters	No.
17½ ton 2-jaw puller head	41224	½" – 18 F. X ¾" – 16 M. (2)	8005
50 ton 3-jaw hyd. puller	1080	¾" – 18 F. X ½" – 20 M. (2)	8006
Speed crank	29595	½" – 18 F. X ½" – 13 M. (2)	8007
Adjusting screw	32698	¾" – 18 F. X ¾" – 11 M. (2)	8010
Pushing adapter	34755	¾" – 18 F. X ¾" – 16 M. (2)	8013
50 ton 2-jaw puller head	50449	¾" – 18 F. X ¾" – 10 M. (2)	8015
Combination 2/3 -jaw puller	1027	¾" – 18 F. X 1" – 14 M. (2)	8019
Combination 2/3-jaw puller	1037	1" – 8 F. X ¾" – 18 M.	8020
Long jaws for 1037 (3)	43892	1" – 8 F. X 1" – 14 M.	8021
Combination 2/3-jaw puller	1041	1¼" – 12 F. X 1" – 14 M. (2)	8023
		1½" – 5½ F. X 1" – 8 M.	8028
		1½" – 5½ F. X 1" – 14 M.	8029
		¾" – 18 F X ¾" – 16 F (1)	8038
		Female threaded adapter set	8044

17½, 30 and 50 ton capacity puller set

Here's the ultimate in industrial puller sets. You'll find a puller for just about every job. Included in this "master set" are 17½, 30 and 50 ton hydraulics along with an extensive assortment of pullers, attachments, and adapters.

No. IPS5317 – 17½, 30 and 50 ton capacity manual and hydraulic puller set. Includes pullers and accessories listed below. Wt., 1,260 lbs. (Wooden storage box No. 3084400R9 is included with the set, 46.00"L x 22.50"H x 36.00"D.)

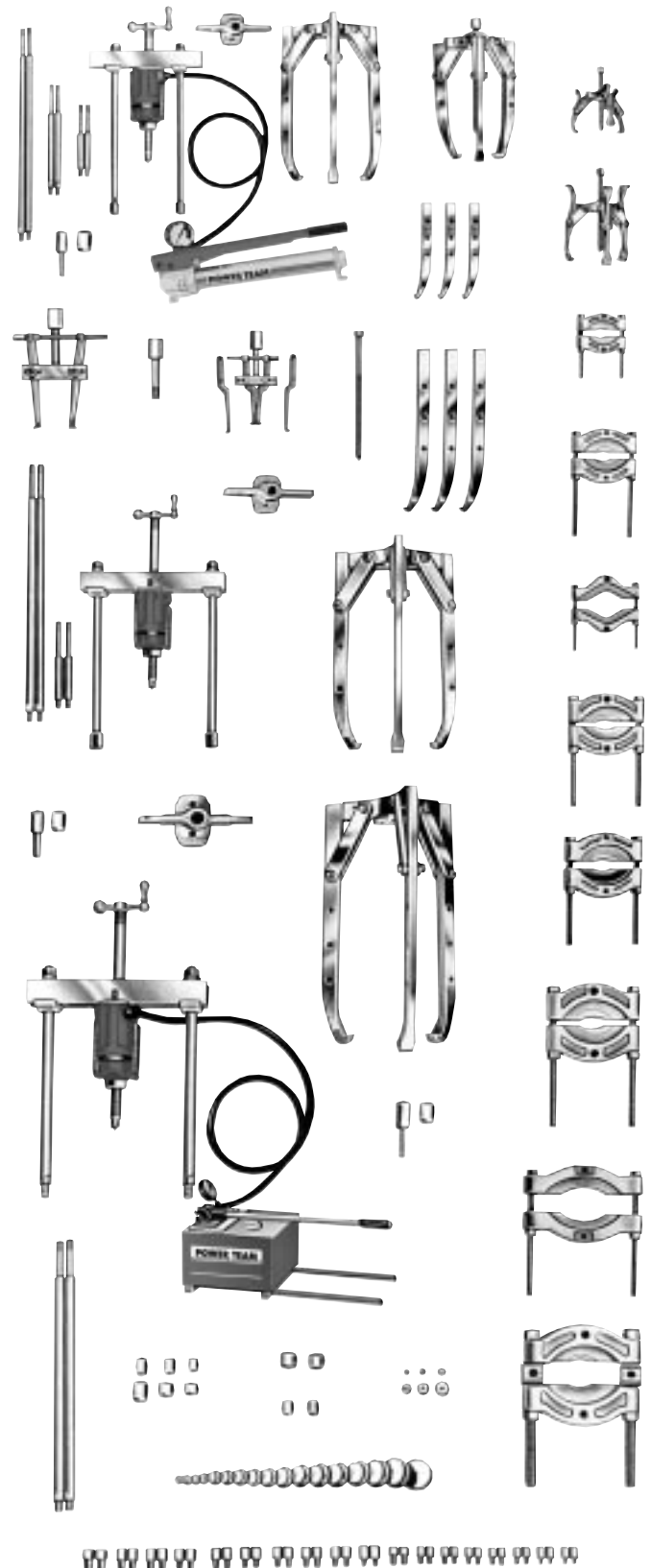


For puller piece part identification order Power Team parts catalog PC97

CAUTION: All the items shown may not withstand the full tonnage specified. Example: When an accessory with a 1 ton capacity is used with a 7 ton puller, the setup can be used only at a force of one ton.

17½, 30 And 50 Ton Hydraulic Puller Set

CONTENTS OF SET NO. IPS5317		
Hydraulics	No.	
Single-stage hydraulic hand pump ass'y.	P55	Bearing cup pulling attach. 1154
Two-stage hyd. hand pump with 3-way control valve	P460	Long jaws for 1154 (2) 32136
Pressure gauge (2)	9059	Bearing cup pulling attach. 1166
Hose half coupler (2)	9798	Reducing adapt. for 1166 34479
Hydraulic hose – 6' (2)	9767	Bearing pulling attachment 1122
Tee adapter	9670	Bearing pulling attachment 1123
17½ ton center-hole twin cyl. with threaded insert	RT172	Bearing pulling attachment 1126
30 ton center-hole twin cyl. with threaded insert	RT302	Bearing pulling attachment 1127
50 ton center-hole twin cyl. with threaded insert	RT503	Bearing pulling attachment 1128
		Bearing pulling attachment 1130
		Speed crank 24814
		Speed crank 27198
		Speed crank 29595
		Screw cap 28228
		Screw cap 28229
		Screw cap 28230
		Adjusting screw 32118
		Adjusting screw 32698
		Pushing adapter 34510
		Pushing adapter 34755
		Adjusting screw 34758
		Pushing adapter 201923
Pullers	No.	Threaded Adapters No.
17½ ton cap. hydraulic Push-Puller® with 16.50" legs	1062	⅝" – 18 F. X ⅜" – 16 M. (2) 8005
22.50" legs for 1062	1105	⅝" – 18 F. X ½" – 20 M. (2) 8006
9.50" legs for 1062	1106	⅝" – 18 F. X ½" – 13 M. (2) 8007
4.50" legs for 1062	1107	⅝" – 18 F. X ⅝" – 11 M. (2) 8010
30 ton capacity hydraulic Push-Puller® with 18.00" legs	1070	⅝" – 18 F. X ¾" – 16 M. (2) 8013
8.00" legs for 1070	1109	⅝" – 18 F. X ¾" – 10 M. (2) 8015
28.00" legs for 1070	1111	⅝" – 18 F. X ⅞" – 14 M. (2) 8017
50 ton capacity hydraulic Push-Puller® with 24.00" legs	1076	⅝" – 18 F. X ⅞" – 9 M. (2) 8018
34.00" legs for 1076	1113	⅝" – 18 F. X 1" – 14 M. (2) 8019
17½ ton 3-jaw hyd. puller	1066	1" – 8 F. X ⅝" – 18 M. (1) 8020
17½ ton 2-jaw puller head	41224	1" – 8 F. X 1" – 14 M. (1) 8021
30 ton 3-jaw hyd. puller	1074	1" – 14 F. X ⅝" – 18 M. (2) 8012
30 ton 2-jaw puller head	41226	1¼" – 7 F. X ⅝" – 18 M. (2) 8025
50 ton 3-jaw hyd. puller	1080	1¼" – 7 F. X 1" – 14 M. (2) 8027
50 ton 2-jaw puller head	50449	1¼" – 12 F. X 1" – 14 M. (2) 8023
Combination 2/3-jaw puller	1027	1¼" – 12 F. X 1¼" – 12 M. (2) 8024
Combination 2/3-jaw puller	1037	1½" – 5½ F. X 1" – 8 M. (1) 8028
Long jaws for 1037 (3)	43892	1½" – 5½ F. X 1" – 14 M. (1) 8029
Combination 2/3-jaw puller	1041	1" – 14 F. X 1" – 14 F. (2) 8036
Long jaws for 1041 (3)	30902	⅝" – 18 F. X ¾" – 16 F. (2) 8038
Accessories	No.	Female threaded adapter set 8044
Spec. puller forcing screw	24832	
Shaft protector set	8056	
Step plate adapter set	8075	
Step plate adapter set	8076	
Pulley pulling attachment	679	
Pulley pulling attachment	680	



IPS5317

55 Ton Capacity

Universal

Puller

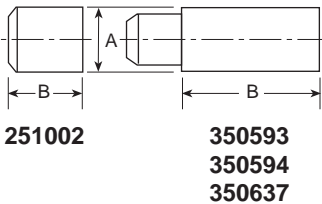


Enforcer 55

Pushing Adapters

Order No.	A	B	Qty.*
251002	2.75"	2.75"	1
350593		6.00"	2
350594		3.00"	1
350637		10.00"	1

* Number of adapters supplied with each Enforcer.



ORDERING INFORMATION

* Cart and Puller (cart width = 32.00")

Order No.	Min. Spread	Reach at Min. Spread	Max. Spread	Reach at Max. Spread	* Overall Length	Cyl. Stroke	Power Source Req'd	Prod. Weight Lbs.
PH553C	4.00"	22.00"	48.00"	14.00"	90.00"	6.25"	115V	749
PH553C13		15.00"		7.00"		13.25"	60Hz	776
PH553CL	2.50"	32.63"	45.25"	29.00"	102.00"	6.25"	25 Amp	809
PH553CL13		25.63"		22.00"		13.25"	Capacity	836
PH553C-220	4.00"	22.00"	48.00"	14.00"	90.00"	6.25"	230V	749
PH553C13-220		15.00"		7.00"		13.25"	50/60Hz	776
PH553CL-220	2.50"	32.63"	45.25"	29.00"	102.00"	6.25"	15 Amp	809
PH553CL13-220		25.63"		22.00"		13.25"	Capacity	836

Turns challenging heavy duty pulling jobs into routine tasks.

Super Grip-O-Matic® jaws: The harder the pull, the tighter the grip!

Unique, multifunction hydraulic system controls jaw adjustment and actual pulling. Provides self-centering feature.

Operation is this easy:

1. Wheel the portable puller up to the job. Position puller with a few easy strokes of the manual hydraulic pump, and plug in the electric/hydraulic pump.
2. Actuate pump to bring jaws securely into engagement with part to be pulled, and install proper pushing adapter.
3. Make sure the part being removed is supported using a sling, crane or other lifting device.
4. Wrap the work in one of Power Team's protective blankets and apply force.
5. Enforcer 55 has a self-centering characteristic. As puller jaws are hydraulically closed and pushing cylinder contacts end of shaft, puller assembly begins to be pushed away from shaft and puller jaws grip edge of work-piece, automatically centering the puller.

Conversion Kit

No. 251468 – Kit converts PH553C series to PH553CL series. Jaws are 12.00" longer. Kit contains three jaws and six straps with guards. Wt. 250 lbs.

1 Puller cart with hydraulic lift system for easy, precise positioning of puller. Vertical height adjustment: 12.00" to 42.00".

2 Unique dual pump arrangement; low pressure pump operates a standard double-acting cylinder which precisely positions jaws. Then, pump provides just enough clamping power to ensure puller will center itself.

A specially designed circuit then starts the PE55 series pump to advance the pushing cylinder. Solenoid operated valve allows you to retract pushing cylinder without releasing clamped jaws.

When pull is complete, jaws are powered open by low pressure pump, and pushing cylinder is allowed to retract.

Unique hydraulic pump also has heavy duty remote control pendant with 20 foot coiled cord, allowing you to perform the job from a safe distance. A tonnage/pressure gauge is provided on pump to monitor job progress.

3 Hydraulically-actuated jaws. Cylinder moves jaws in or out to provide a safe, secure grip on workpiece.

4 Puller can be assembled in 2- or 3-jaw configurations. Permits pulling wheels or other parts with an odd or even number of spokes.

5 Available models offer choice of cylinder with 6.25" or 13.25" stroke.

6 Self-centering: Center cylinder on work; puller jaws will automatically grip work evenly.

7 Super Grip-O-Matic® feature means the harder the pull, the tighter the puller jaws grip. No chains or cages required to keep puller jaws from slipping or springing off the part being pulled.

8 Guards at pinch points protect operator.

9 Cart's swivel casters give ease of mobility.

10 Large wheels make movement of cart easy.

11 Puller can be mounted on cart 90 degrees to right or left of puller cart centerline, permitting use in tight quarters such as between machines.

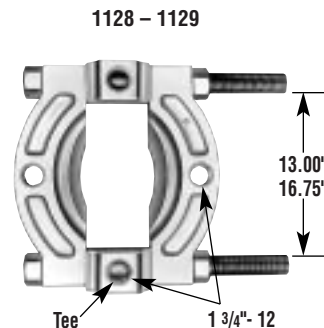
NOTE: Four cylinder extensions (not pictured) are included. Lifting eyes (not pictured) permit use of an overhead crane to raise entire assembly.

Pulling Attachment Accessory

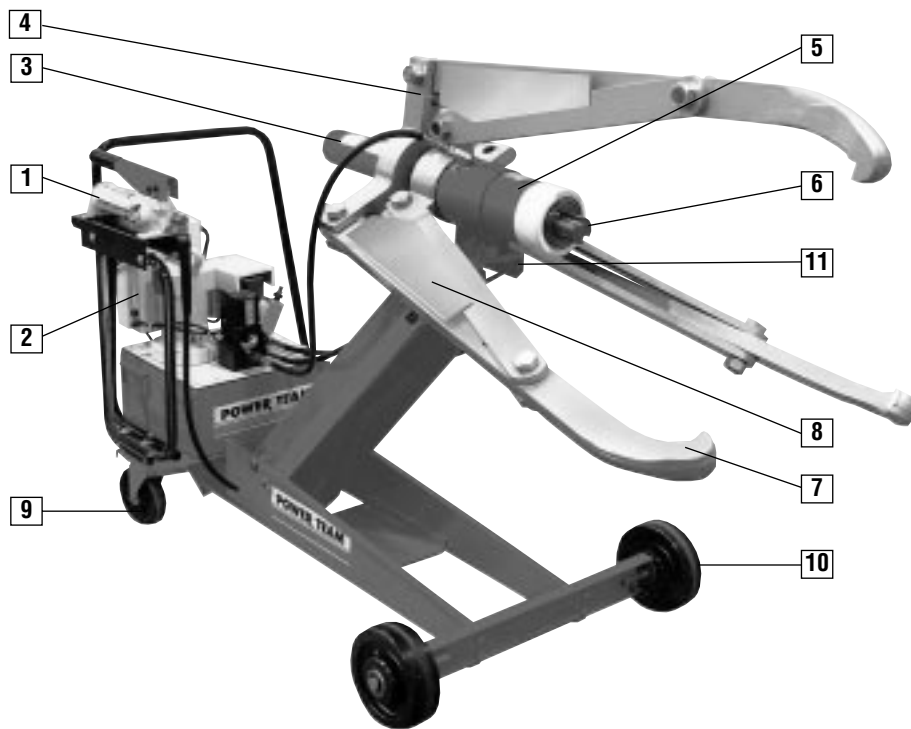
"Knife-like" edges of attachment fit behind bearings or other parts for easy removal with Enforcer 55, even if space does not permit hooking puller jaws directly to part being pulled. See page 153 for additional details.

No. 1128—Spread: 5.00" to 12.88". Wt., 100 lbs.

No. 1129—Spread: 6.00" to 16.75". Wt., 197 lbs.

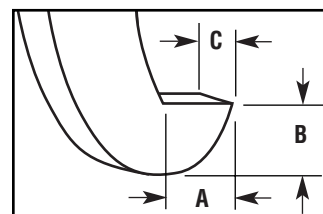


See page 153 for additional details.



Puller Jaw Tip

A	B	C
0.88"	1.25"	1.88"



100 Ton Capacity Universal Puller

Enforcer 100



Enforcer 100: The only high tonnage hydraulic puller with the patented Grip-O-Matic® feature. It handles the tasks you couldn't tackle with ordinary pullers.

This is what you need for the really big pulling jobs! In steel mills, mines, oil fields, utility projects, paper mills, construction sites, railroads, airline shops and shipyards. Or anywhere else large equipment and machinery pose tough maintenance challenges.

Reduces downtime, and eliminates possible damage to costly and hard to replace components.

Check out these features and benefits:

Adjustable jaws mean they always pull on a flat surface. Retaining chain holds jaws in place during positioning.

Grip-O-Matic® feature means jaws grip progressively tighter as more pulling force is applied.

100 ton hydraulic cylinder is single-acting, spring return type with a maximum working pressure of 10,000 psi.

Lifting bracket allows puller to be lifted if the workpiece center is more than 36.00" off the floor.

Adjusting screw allows operator to move vertical position of puller.

Spring loaded feature means Enforcer 100 will align itself on uneven pulls.

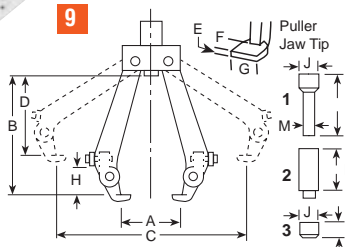
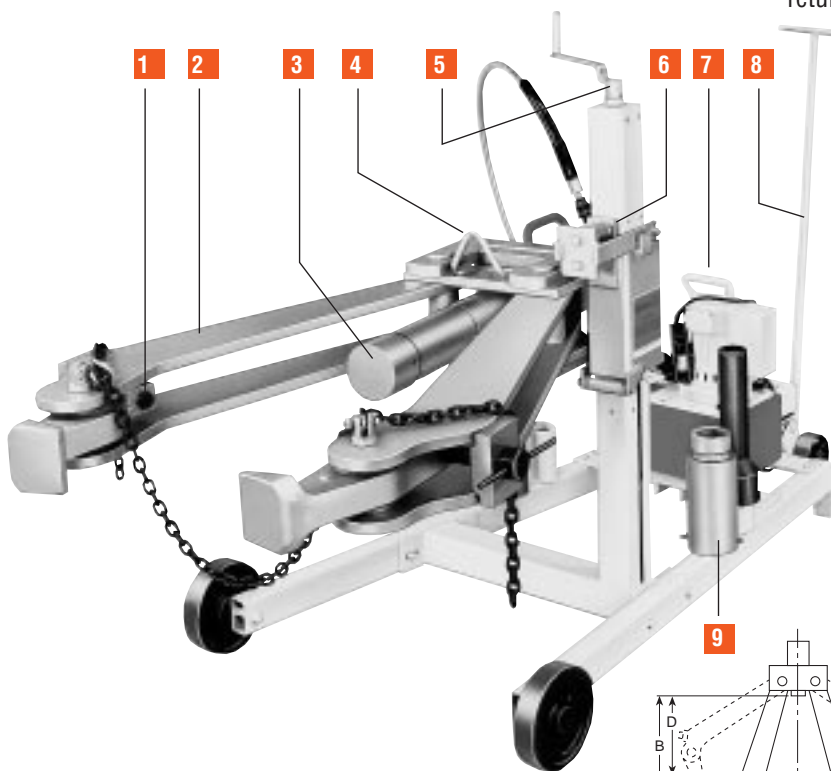
Hydraulic pump is a 2-stage, high pressure unit controlled by remote hand switch with 25 foot cord.

Tow bar provides puller with plenty of mobility.

Pushing adapters have a diameter of 4.13" and 2.50".

Pump Electrical Specifications—

PE552S...



RAM EXTENSIONS

Order No.	J (in.)	K (in.)	L (in.)	M (in.)	N (in.)
Push Adapter 44745			13.50"	2.50"	—
Ext. Adapter 44766	4.13"	—			8.00"
Push Adapter 303045		3.13"	—	—	—

ORDERING INFORMATION

See current price list for shipping weights.

	A	B	C	D	E	F	G		*		H			
Order No.	Min. Spread	Reach at Min. Spread	Max. Spread	Reach at Max. Spread	Puller Jaw Tip			Cart Size	Vertical Height Adjust.	Overall Length	Max. Thickness Workpiece	Wheel Size Dia.	Cyl. Stroke	Power Source Required
PH1002	15.00"	42.00"	48.00"	34.00"	1.00"	2.25"	5.00"	36.50"W x 69.00"L x 44.25"H	12.00"-36.00"	94.00"	12.00"	8.00"	10.25"	115V 50/60Hz 25 amps capacity
PH1002J														—

Effectively contain broken or flying parts from most extreme force pulling, pressing, pushing or stressing in maintenance or production jobs. Ideal for use with pullers and forcing presses.

Made of ballistic nylon or see-through, high-tensile, tear-resistant material.

Unlike rigid, fixed guards, these blankets can be wrapped and strapped around a job. The clear blankets allow you to visually monitor the job from start to finish.

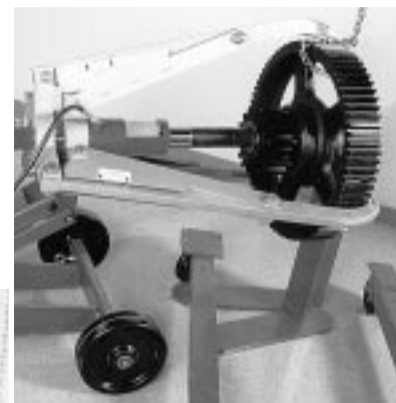
Clear versions come in a carrying/storage pouch to reduce aging caused by prolonged exposure to light.

Testing results:

In our lab, each style of blanket held the parts of a necked-down grade 8 bolt shattered in a 100 ton center-hole hydraulic cylinder. And blankets sustained no visible damage when shot with a force and impact that shattered safety glasses!

⚠ CAUTION: Always reduce the force from the workpiece prior to removing the blanket for observation of adjustment of the workpiece. Protective blankets may afford protection from injuries to users and others should part breakage occur. Because of the variety of situations that require guarding, it is the user's responsibility to determine the best method of protection.

55 ton hydraulic puller being set up for job.



Protective blanket completely encloses the work in this application.

Protective blanket wrapped and strapped around the work.



ORDERING INFORMATION

Order No.	Size**	No. of Straps	Prod. Wt. (lbs.)
PB1230	12.00" X 30.00"	2	1.5 lbs.
PB1230C*			2.8 lbs.
PB2036	20.00" X 36.00"	2	2.3 lbs.
PB2036C*			4.2 lbs.
PB2860	28.00" X 60.00"	3	5.2 lbs.
PB2860C*			9.3 lbs.
PB3372	33.00" X 72.00"	3	6.8 lbs.
PB3372C*			11.7 lbs.
PB44120	44.00" X 120.00"	4	14.3 lbs.
PB44120C*			24.2 lbs.
PB51156	51.00" X 156.00"	4	20.3 lbs.
PB51156C*			34.4 lbs.

* Indicates clear blanket which is furnished with carrying/storage case.

** Special sizes are available on a special order basis. Please consult factory before ordering.



PB1230 PB3372
PB2036 PB44120
PB2860 PB51156

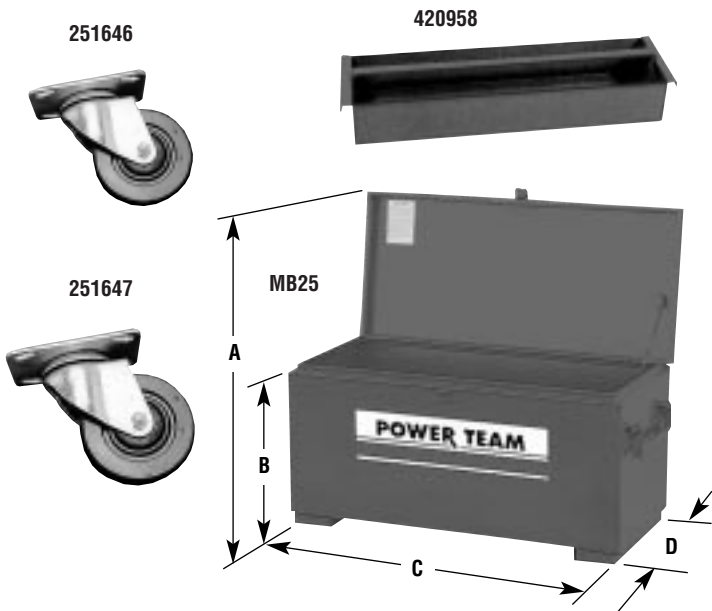


PB1230C PB3372C
PB2036C PB44120C
PB2860C PB51156C

Railroad Bearing Replacer, Tool Security Chests



PR2100J



ORDERING INFORMATION

See current price list for shipping weights.

Chest No.	A	B	C	D	Storage Capacity	Weight (lbs.)
MB5	34.75"	14.00"	32.00"	19.00"	5 cu. ft.	66
MB8	39.75"	19.00"	42.00"		8.8 cu. ft.	90
MB16	49.75"	24.00"	48.00"	24.00"	16 cu. ft.	126
MB25*		30.00"		30.00"	25 cu. ft.	165

* Product to be discontinued when existing stocks are depleted.

Railroad Bearing Service

Universal axle journal roller bearing puller/installer

For years the standard in most wheel shops. Power Team now has four models for greater flexibility. With sling and jack models available and two pumps to choose from, you can tailor the unit to match your needs. With the proper equipment and know-how, removal and installation of axle journal roller bearings takes an absolute minimum of time and effort. Each unit will service a full line of bearings

with rotating end caps, from Class B thru GG. No other method can match Power Team's simplicity: Remove the end caps, slip the pulling shoe between the bearing and wheel, actuate the pump, and in seconds, 100 tons of pulling force removes the bearing; and installing new ones is just as easy. Each unit comes complete with a heavy-duty 100 ton hydraulic cylinder, 10,000 psi pump with remote control solenoid valve, a pulling shoe, and installing tube.

Bulletin PT9707 will tell you the complete story of Power Team's Railroad Bearing Service Equipment. Ask your local distributor for a copy or write to Power Team.

Job-site And Maintenance Security Chests

Protect your valuable tools and equipment from theft and weather

When the day's work is finished, you want to rest assured that your tools and equipment will be present for duty the next day. In these times, security is a very real issue. These rugged, lockable chests are the answer that many of our customers have been asking for.

Here's what these chests have to offer:

- Rugged, 16 gauge steel construction. Seams are fully arc welded for extra strength and weather protection.
- Full length piano hinges, mating cover to body design for weather and theft protection.

- Single or double latch security tabs for padlocks.
- Mechanical cover supports, two 2.25" high skids.
- Fold-down 0.75" pipe handles on each end of chest.
- Pre-drilled for optional casters to enhance mobility.
- Durable baked enamel finish.

ACCESSORIES

No. 420958* – Accessory tool tote tray for No. MB25 chest. Size: 8.00" wide x 4.00" high x 27" long. Wt., 11 lbs.

No. 251646 – Set of four 4.00" casters (two swivel and two rigid) for use on MB5 or MB8 chests. Furnished with mounting screws. Wt., 12.5 lbs.

No. 251647 – Set of four 6.00" casters (two swivel and two rigid) for use on MB16 or MB25 chests. Furnished with mounting screws. Wt., 15.3 lbs.

* Product to be discontinued when existing stocks are depleted.

Bearing, Bushing and Seal Drivers

Universal bearing cup installer

This installer adjusts to fit bearing cups from 3.63" to 6.50" O.D. Replaces over two dozen plates and drivers. Simply adjust the jaws to fit the cup I.D., lock the jaws, slip the new cup on and drive it home with a hammer. Will not damage new bearings.

No. 7180 – Univ. bearing cup installer. Wt., 10 lbs.

Assemble your own “custom-made” driver tools

These sets include discs and handles for custom seal driver assembly to provide a pilot (to prevent cocking), a spacer (so force is applied on the proper area) and a driver (for even force dist.). Discs range from 0.50" thru 4.50" in diameter in 0.06" increments. Each set includes a handy plastic box with pre-cut tool tray.

No. 27793 – Starter Set.
Contains handle and discs
especially selected to provide
the driver sizes most frequently
needed. Maximum utility at a
modest investment! Wt., 4 lbs.

No. 27794 – Basic Set. Wide coverage, low investment! Includes 41 discs and two handles. Size range: 0.50" thru 3.00" diameter. Wt., 22 lbs.

No. 27795 – Big Job Set.
Used for servicing large components. You get coverage of 3.06" thru 4.50" diameter with the 24 discs and handle provided. Wt., 45 lbs.

No. 27797 – Master Set. For maximum coverage. Three handle sizes and all 65 discs listed in chart at right are included. Range: 0.50" thru 4.50" diameter. Wt., 68 lbs.

No. 212377 – Tool organizer board. Will accommodate all components of 27797 Master Set. Tools not included. Wt., 5 lbs.



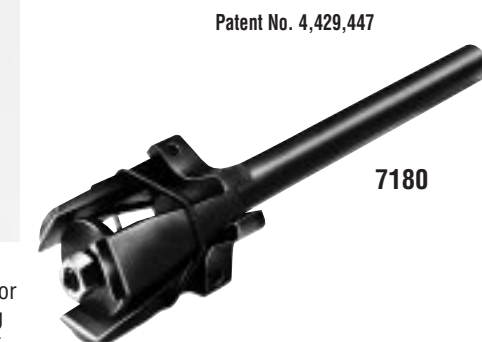
**212377 Storage board
(tools not included)**



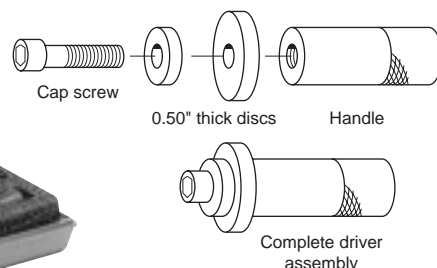
With these handy sets you have the proper-size driver for any seal, bearing or bushing installing job. Simply select the proper-size discs, attach to handle with cap screws and strike with hammer.



No. 27793
Starter Set



Patent No. 4,429,447



Set Components

Part No.	Description	Part No.	Description	Part No.	Description			
10012	¼"-20 UNC X 0.88"*†	12001	¼"-20 UNC X 2.25"*†	27490	Extension Tube			
10020	¼"-20 UNC X 1.25"*†	27487	Small Handle† 5.00" X 0.75" Dia.	7350	Allen Wrench†			
10854	¼"-20 UNC X 1.75"-†	27488	Med. Handle 6.00" X 1.25" Dia.					
10855	¼"-20 UNC X 2.75"*†	27489	Large Handle 6.00" X 1.63" Dia.					
Discs								
Part No.	Inch	MM	Part No.	Inch	MM	Part No.	Inch	MM
27491	0.50	12.7	27513†	1.88	47.6	27535	3.25	82.6
27492	0.56	14.3	27514	1.94	49.2	27536	3.31	84.1
27493†	0.63	15.9	27515	2.00	50.8	27537	3.38	85.7
27494	0.69	17.5	27516	2.06	52.4	27538	3.44	87.3
27495†	0.75	19.0	27517	2.13	54.0	27539	3.50	88.9
27496	0.81	20.6	27518	2.19	55.6	27540	3.56	90.5
27497†	0.88	22.2	27519	2.25	57.2	27541	3.63	92.1
27498	0.94	23.8	27520	2.31	58.7	27542	3.69	93.7
27499†	1.00	25.4	27521	2.38	60.3	27543	3.75	95.3
27500	1.06	27.0	27522	2.44	61.9	27544	3.81	96.8
27501†	1.13	28.6	27523	2.50	63.5	27545	3.88	98.4
27502	1.19	30.2	27524	2.56	65.1	27546	3.94	100.0
27503†	1.25	31.8	27525	2.63	66.7	27547	4.00	101.6
27504	1.31	33.3	27526	2.69	68.3	27548	4.06	103.2
27505†	1.38	34.9	27527	2.75	69.8	27549	4.13	104.8
27506	1.44	36.5	27528	2.81	71.4	27550	4.19	106.4
27507†	1.50	38.1	27529	2.88	73.0	27551	4.25	108.0
27508	1.56	39.7	27530	2.94	74.6	27552	4.31	109.5
27509†	1.63	41.3	27531	3.00	76.2	27553	4.38	111.1
27510	1.69	42.9	27532	3.06	77.8	27554	4.44	112.7
27511†	1.75	44.4	27533	3.13	79.4	27555	4.50	114.3
27512	1.81	46.0	27534	3.19	81.0			

†Contents of Set No. 27793. *Socket head cap screw.

Fed. Spec.: GGG- W-665b (pertains to 7307, 7308, 7309 and 885).

Mechanical Tools

Ratcheting chain wrenches

7400

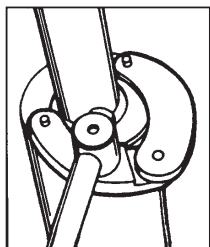
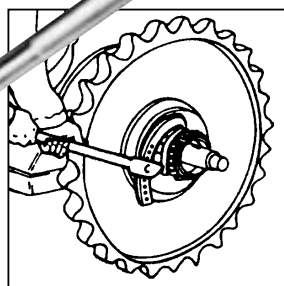
7401

Special head design allows you to turn wrench in either direction. Ratcheting action makes it possible to re-grip without removal. For parts of most any size and shape.

885

7307
7308

7309



1266



7162

7163
7164
7165

7166 7420
7167 7421
7168

No. 7400 – Chain wrench, cap. 0.50" to 4.75" O.D. (Capacity= 333 ft. lbs.) Wt., 2 lbs.

No. 7401 – Chain wrench, cap. 3.00" to 6.75" O.D. (Capacity= 666 ft. lbs.) Wt., 5 lbs.

No. 209199 – Replacement chain with pin for No. 7400 chain wrench (16.00" long).

No. 209200 – Replacement chain with pin for No. 7401 chain wrench (24.00" long).

Adjustable hook spanner wrench

Needed wherever turret adjusting nuts or packing gland nuts are used. Cap.: 1.50" to 4.00". Handle overall length: 19.00".

No. 885 – Adjustable hook spanner wrench. Wt., 3 lbs.

Adjustable hook spanner wrenches

Replace many fixed-size wrenches... cover range of capacities needed to service industrial tractors and other equipment. Drop-forged jaws adjust to eleven positions for a capacity of 4.75" to 12.75" O.D. Handle overall length: 24.00"; diameter: 1.00".

No. 7307 – Spanner wrench with one 0.38" thick jaw. Wt., 7.3 lbs.

No. 7308 – Spanner wrench with two interchangeable jaws: one 0.38" thick, one 0.75" thick. Wt., 11 lbs.

Heavy-duty adjustable spanner

Extra heavy construction. Has one 0.75" thick, eleven-position hook-jaw for a capacity of 4.75" to 12.75" O.D. Drop-forged. Handle length: 25.75"; handle dia.: 1.31"

No. 7309 – Heavy duty adjustable hook spanner wrench. Wt., 13.3 lbs.

Adjustable gland nut wrench

Designed to handle 2.00" to 6.00" dia. gland nuts on hydraulic cylinders on many construction vehicles. Fits 0.25" and 0.31" dia. pin holes; features a 0.75" sq. drive.

No. 1266 – Adjustable gland nut wrench. Wt., 3 lbs.

No. 204928 – Replacement pin for No. 1266.

Pry bars

These rolling head pry bars are an extremely popular and useful tool. Head may be used for almost any prying job since a great deal of leverage can be obtained. Long tapered body may be used as a lining-up drift.

No. 7162 – Pry bar; 0.38" round, 6.00" long. Wt., .3 lb.

No. 7163 – Pry bar; 0.44" round, 12.00" long. Wt., .6 lb.

No. 7164 – Pry bar; 0.56" round, 16.00" long. Wt., 1.1 lbs.

No. 7165 – Pry bar; 0.75" round, 18.00" long. Wt., 2.2 lbs.

Jimmy bars

Ideal for general lifting or prying. Heat treated chrome alloy steel to resist bending or breaking.

No. 7166 – Jimmy bar; 0.63" round, 18.00" long. Wt., 1.4 lbs.

No. 7167 – Jimmy bar; 0.75" round, 24.00" long. Wt., 2.5 lbs.

No. 7168 – Jimmy bar; 0.88" round, 30.00" long. Wt., 4.3 lbs.

"Major Persuader" jimmy bars

Two big jimmy bars for big jobs. Forged from chrome alloy steel.

No. 7420 – Jimmy bar; 0.88" round, 46.00" long. Wt., 7.5 lbs.

No. 7421 – Jimmy bar; 1.00" round, 54.00" long. Wt., 11.3 lbs.

Horseshoe lock ring plier

For removing horseshoe lock rings used on hydraulic brakes, differentials, etc. Plier is 8.00" long; max. spread: 0.94"

No. 714 – Horseshoe lock ring plier. Wt., .4 lb.

No. 7313 – External snap ring plier easily removes snap rings used to retain bearings on shafts. Max. spread = 1.44".

Retaining ring plier kits

Choose from four sets; internal ring, external ring and convertible pliers for either internal or external rings.

No. 7053K – Replaceable tip pliers kit. This versatile kit contains (1) internal and (1) external pliers with (8) tip sets. Two sets each: .038" dia. 90° bend, .047" dia. straight, .047" dia. 90° bend, .070" dia. straight. Recommended for 0.25"–2.00" rings. Packaged in plastic storage case. Wt., .8 lb.

No. 15702 – Replaceable tip kit (only) for No. 7053K.

No. 7123K – Convertible pliers

kit. Contains No. 1120 (.038" dia./straight tip) and No. 1340 (.070" dia/straight tip). Each pliers "converts" to handle both internal and external rings. Packaged in a reusable plastic storage case. Wt., .8 lb.

No. 7125K – Convertible pliers kit. Contains No. 1125 (.038" dia./45° bent tip) and No. 1345 (.070" dia/45° bent tip). Each pliers "converts" to handle both internal and external rings. Packaged in a reusable plastic storage case. Wt., .8 lb.

No. 7406K – Professional pliers kit. Contains (6) retaining convertible pliers to handle both internal and external rings from 0.25"–2.00". Includes straight and 90° off-set pliers with .038", .047", and .070" tip diameters. Includes Nos. 1120, 1131, 1320, 1329, 1340 and 1349. Packaged in an impact resistant storage case. Wt., 2 lbs.

Replacement tips for 7300 and 7301 pliers:

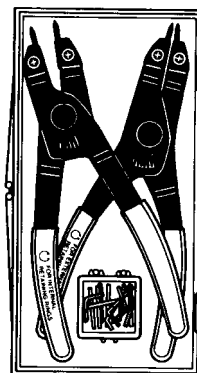
No. 209201 – Replacement tips (pr.) for the 7300 and 7301 pliers. Wt., .1 lb.



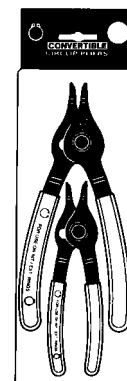
7313



714
Fed. Spec.:
GGG-P-480



7053K
internal & external
plier, 4 sizes of tips.



7123K



7406K

Retaining Ring Pliers Selection Guide

Plier No.	Tip Bend	Tip Size Dia. (in.)	For Int'l Rings* Bore Dia. (in.)	For External Rings* Shaft Dia. (in.)
0100	Str.	.038	.375 – 1.023	–
0200			–	.250 – .875
0300		.070	1.062 – 1.750	–
0400			–	.938 – 1.438
0500		.090	1.812 – 3.500	–
0600		.115	–	1.500 – 3.500
7300		.120	3.062 – 6.000	–
7301			–	3.543 – 6.500
Convertible Pliers				
1120	Str.	.038	.375 – .562	.250 – .672
1125	45°			
1131	90°			
1320	Str.	.047	.625 – 1.023	.687 – .875
1329	90°			
1340	Str.			
1345	45°	.070	1.062 – 1.750	.938 – 1.438
1349	90°			
Always wear Safety Goggles when using Pliers				

Always wear Safety Goggles when using Pliers

* Capacities are shown for basic style rings.

External		Internal		Convertible
Nos.	No. 7301	Nos.	No. 7300	Nos.
0200		0100		1125*
0400		0300		1345*
0600		0500		1320
				1329**
				1340
				1349**

* 45° Angled Tips

** 90° Angled Tips



7402



7395

Universal outside thread chaser

Restore damaged threads on shafts, housings, cages, etc., for re-assembly of matching parts. Eliminates need for thread-cutting equipment. Will not harm threads. V-pads and dies can be replaced. Cap. 1.25" to 5.00" O.D.

No. 7402 – Thread chaser, complete (with 6 dies: threads per inch – 4, 5, 6, 7, 7½, 8, 9, 10, 11, 11½, 12, 14, 16, 18, 20 and 24). Wt., 4.5 lbs.

No. 202817 – Metric thread chaser dies (3 dies: mm per thread: 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, and 4). Wt., .2 lb.

Magnetic pick-up tool

Has permanent magnetic head for retrieving parts from otherwise inaccessible places.

No. 7395 – Pick-up tool with pocket clip. 6.00" lg. Wt., .1 lb.



LIFETIME MARATHON™ WARRANTY EFFECTIVE 4-1-84

All Power Team products and parts with the exception noted below, are warranted against defects in materials and workmanship for the life of the product or part. (The life of the product or part is defined as that point in time when it no longer functions due to normal wear.) This warranty does not cover any product or part that has been worn out, abused, heated, ground or otherwise altered, used for a purpose other than that for which it was intended, or used in a manner inconsistent with any instructions regarding its use. Chains, batteries, electric motors, gas engines, knives and cutter blades which are sold with

Power Team products are not covered by this warranty. All electric motors and gas engines are separately warranted by their manufacturer under the conditions stated in their separate warranty.

Power Team's electronic products are warranted against defects in material and workmanship for one year.

To qualify for warranty consideration, return the Power Team product, freight prepaid, to a Power Team authorized repair center or to the Power Team factory. If any product or part manufactured by Power Team is found to be defective by Power Team, in its sole judgement, Power Team will, at its option, either repair or replace such defective product or part and return it via best ground transportation, freight prepaid. THIS REMEDY SHALL BE THE EXCLUSIVE REMEDY AVAILABLE FOR ANY DEFECTS IN THE PRODUCTS OR PARTS MANUFACTURED AND SOLD BY POWER TEAM OR FOR DAMAGES RESULTING FROM ANY

OTHER CAUSE WHATSOEVER, INCLUDING WITHOUT LIMITATION, POWER TEAM'S NEGLIGENCE. POWER TEAM SHALL NOT, IN ANY EVENT, BE LIABLE TO ANY BUYER FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES OF ANY KIND, WHETHER FOR DEFECTIVE OR NON-CONFORMING GOODS, NEGLIGENCE, ON THE BASIS OF STRICT LIABILITY, OR FOR ANY OTHER REASON.

Power Team's warranty is expressly limited to persons who purchase Power Team's products or parts for the resale or use in the ordinary course of the buyer's business.

THIS WARRANTY IS EXCLUSIVE, AND POWER TEAM MAKES NO OTHER WARRANTY OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, WITH RESPECT TO THE PRODUCTS MANUFACTURED AND SOLD BY IT, WHETHER AS TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ANY OTHER MATTER. No agent, employee or representative of

Power Team has any authority to bind Power Team to any affirmation, representation, or warranty concerning Power Team products or parts, except as stated herein.

The purpose of this exclusive remedy shall be to provide the buyer with repair or replacement of products or parts manufactured by Power Team found to be defective in materials or workmanship or negligently manufactured. This exclusive remedy shall not be deemed to have failed of its essential purpose so long as Power Team is willing and able to replace said defective products or parts in the prescribed manner.

Warranty effective 4-1-84

Copies of this warranty are available from the factory upon request.



Service Availability

A world-wide network of Authorized Service Centers assures prompt, local parts and service access to the owner of Power Team products.



Distributor Network

Power Team considers the industrial distributor as the vital link in factory-to-customer communications and product availability. As a marketing-oriented manufacturer, Power Team is constantly seeking out industry's needs for work-saving new products

and regards the industrial distributor as an important member of Power Team. Our trained force of factory representatives is at the disposal of distributor and customer alike.

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9733-9736	85	34331	154	216209	89	351324, 351325	20
9750-9783	85	34510, 34511	19, 113, 132	250175	90	351334	20
9785-9788	119	34602	146	250341-250343	100-101	351574, 351575	11
9790-9800	86	34698	154	250353	100-101	351576	11
10461	89	34755, 34756	19, 132	250459	115	420059	11
10494	90	34758	19	250682	100-101	420061-420064	11
13449	120	34806, 34807	113, 132	251002	166	420496OR9-420498OR9	25
15235	100-101	34808	132	251220	92	420655OR9	8
15702	173	36161	8	251468	166	420778	83
16339	89	36469	132	251646, 251647	170	420866	24
16954	120	36578	154	251660	45, 89	420867-420871	23, 24
17627	89	37045	83, 119	251970-251999	116	420958	170
21332	132	37368	132	252000	114	421056, 421057	19
21669	18	38597	113, 132	252001-252002	116	421312OR9	16-17
21714	18	38855	19	252215	16	421365-421367	99
		38904	19				

SI* Conversion Formulas

APPROXIMATE CONVERSION				
MULTIPLY	BY	TO GET OR MULTIPLY	BY	TO GET
SI* UNIT	CONV FACTOR	NON-SI UNIT	CONV FACTOR	SI* UNIT
LENGTH				
millimeter (mm) (1 inch = 25.4 mm exactly)	X 0.03937	= inch	X 25.4	= mm
centimeter (cm) 10 mm	X 0.3937	= inch	X 2.54	= cm
meter (m) 1000 mm	X 3.28	= foot	X 0.305	= m
meter (m)	X 1.09	= yard	X 0.914	= m
kilometer (km) 1000 m	X 0.62	= mile	X 1.61	= km
AREA				
millimeter ² (mm ²)	X 0.00155	= inch ²	X 645	= mm ²
centimeter ² (cm ²)	X 0.155	= inch ²	X 6.45	= cm ²
meter ² (m ²)	X 10.8	= foot ²	X 0.0929	= m ²
meter ² (m ²)	X 1.2	= yard ²	X 0.836	= m ²
hectare (ha) 10,000 m ²	X 2.47	= acre	X 0.405	= ha
kilometer ² (km ²)	X 0.39	= mile ²	X 2.59	= km ²
VOLUME				
centimeter ³ (cm ³)	X 0.061	= inch ³	X 16.4	= cm ³
liter (l)	X 61	= inch ³	X 0.016	= l
milliliter (ml) = 1 cm ³)	X 0.034	= oz-liq	X 29.6	= ml (1 ml
liter (l) 1000 ml	X 1.06	= quart	X 0.946	= l
liter (l)	X 0.26	= gallon	X 3.79	= l
meter ³ (m ³) 1000 l	X 1.3	= yard ³	X 0.76	= m ³
MASS				
gram (g)	X 0.035	= ounce	X 28.3	= g
kilogram (kg) 1000 g	X 2.2	= pound	X 0.454	= kg
metric ton (t) 1000 kg	X 1.1	= ton (short)	X 0.907	= t

APPROXIMATE CONVERSION				
MULTIPLY	BY	TO GET OR MULTIPLY	BY	TO GET
SI* UNIT	CONV FACTOR	NON-SI UNIT	CONV FACTOR	SI* UNIT
FORCE (N = kg • m/s ²)				
newton (N)	X 0.225	= pound	X 4.45	= N
kilonewton (kN)	X 225	= pound	X 0.00445	= kN
TORQUE				
newton meter (N•m)	X 8.9	= lb. in.	X 0.113	= N•m
newton meter (N•m)	X 0.74	= lb. ft.	X 1.36	= N•m
PRESSURE (Pa = N/m ²)				
kilopascal (kPa)	X 4.0	= in. H ₂ O	X 0.249	= kPa
kilopascal (kPa)	X 0.30	= in. Hg	X 3.38	= kPa
kilopascal (kPa)	X 0.145	= p.s.i.	X 6.89	= kPa
megapascal (MPa)	X 145	= p.s.i.	X 0.00689	= MPa
Bar	X 14.5	= p.s.i.	X .0689	= Bar
POWER (w = J/s)				
kilowatt (kw)	X 1.34	= hp	X 0.746	= kw
kilowatt (kw)	X 0.948	= Btu/s	X 1.055	= kw
watt (w)	X 0.74	= ft. lb/s	X 1.36	= w
TEMPERATURE				
°C = (°F - 32) ÷ 1.8	°F = (°C X 1.8) + 32			
FLOW				
cu. cm./min.	X .061	= cu. in./min.	X 16.4	= cu. cm./min.
liters/min.	X .2642	= GPM	3.785	= liters/min.
* System International (Modern Metric System)				

Decimal & Millimeter Equivalents

DECIMALS MILLIMETERS			DECIMALS MILLIMETERS			DECIMALS MILLIMETERS		
1/64	.015625	— 0.397	23/64	.359375	— 9.128	45/64	.703125	— 17.859
1/32	.03125	— 0.794	3/8	.3750	— 9.525	23/32	.71875	— 18.256
3/64	.046875	— 1.191	25/64	.390625	— 9.922	47/64	.734375	— 18.653
1/16	.0625	— 1.588	13/32	.40625	— 10.319	3/4	.7500	— 19.050
5/64	.078125	— 1.984	27/64	.421875	— 10.716	49/64	.765625	— 19.447
3/32	.09375	— 2.381	7/16	.4375	— 11.113	25/32	.78125	— 19.844
7/64	.109375	— 2.778	29/64	.453125	— 11.509	51/64	.796875	— 20.241
1/8	.1250	— 3.175	15/32	.46875	— 11.906	13/16	.8125	— 20.638
9/64	.140625	— 3.572	31/64	.484375	— 12.303	53/64	.828125	— 21.034
5/32	.15625	— 3.969	1/2	.5000	— 12.700	27/32	.84375	— 21.431
11/64	.171875	— 4.366	33/64	.515625	— 13.097	55/64	.859375	— 21.828
3/16	.1875	— 4.763	17/32	.53125	— 13.494	7/8	.8750	— 22.225
13/64	.203125	— 5.159	35/64	.546875	— 13.891	57/64	.890625	— 22.622
7/32	.21875	— 5.556	9/16	.5625	— 14.288	29/32	.90625	— 23.019
15/64	.234375	— 5.953	37/64	.578125	— 14.684	59/64	.921875	— 23.416
1/4	.2500	— 6.350	19/32	.59375	— 15.081	15/16	.9375	— 23.813
17/64	.265625	— 6.747	39/64	.609375	— 15.478	61/64	.953125	— 24.209
9/32	.28125	— 7.144	5/8	.6250	— 15.875	31/32	.96875	— 24.606
19/64	.296875	— 7.541	41/64	.640625	— 16.272	63/64	.984375	— 25.003
5/16	.3125	— 7.938	21/32	.65625	— 16.669	1	1.000	— 25.400
21/64	.328125	— 8.334	43/64	.671875	— 17.066			
11/32	.34375	— 8.731	11/16	.6875	— 17.463			

1 mm = .03937"

.001" = .0254 mm

1 mm = .03937"
.001" = .0254 mm

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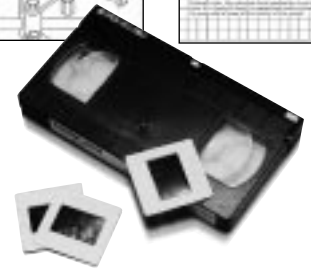
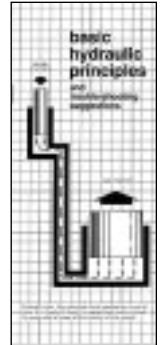
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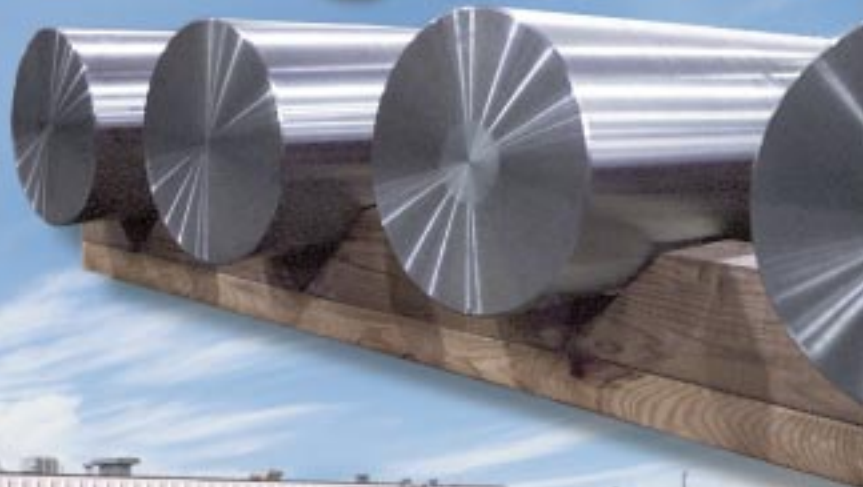
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