Hoses

Polyurethane Rubber Non-Conductive

- **3/8" NPTF fittings on both ends.**
- **Operating pressure is 700 bar. All comply with SAE 100R10 standard.**

A **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 of 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 2.800 bar.

B **Rubber hose**

6 spiral (R13 specification) rated hose reinforced with two braids of high tensile steel wire and have a tool 4:1 safety factor. The rubber covering is oil and weather resistant.

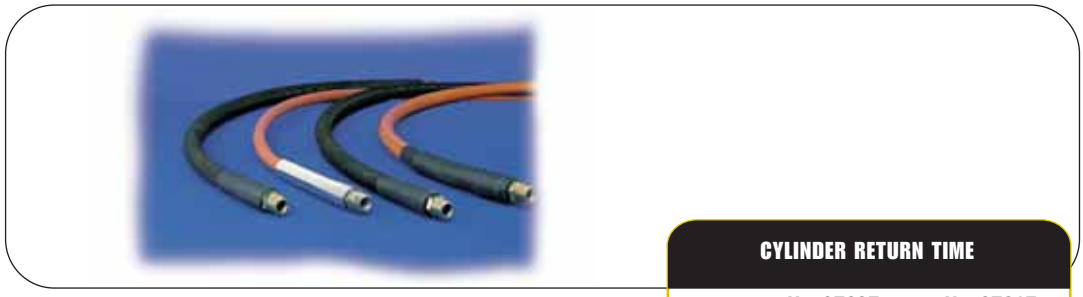
C **Polyurethane hose**

Made with Nylon core and then one braid of Aramid and one braid of wire reinforcement with a orange polyurethane cover (Conductive). 4:1 safety factor standard 700 bar WP / 2800 bar BP.

D **Hydraulic hose assembly**

No. 9764E – Hose assembly consisting of 9767E (1,8 m hose), 6,4mm I.D. polyurethane with 9798 hose half coupler and 9800 dust cap.

No. 9754 – Hose assembly consisting of 9756 (1,8 m hose), 6,4 mm I.D. rubber with 9798 hose half coupler and 9800 dust cap.



The figures show the relative effect two styles of hose can have on return time. Actual times may vary.

CYLINDER RETURN TIME

Cylinder	No. 9769E 3,1 m Hose 6,4 mm I.D.	No. 9781E 3,1 m Hose 9,5 mm 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.

Hose Type	Hose I.D.	Hose Length	Burst Rating	Order No.
Polyurethane	6,4 mm	0,6 m	2 800 bar	**9765E**
Polyurethane	6,4 mm	0,9 m	2 800 bar	**9766E**
Polyurethane	6,4 mm	1,8 m	2 800 bar	**9767E**
Polyurethane	6,4 mm	1,8 m	2 800 bar	**9764E***
Polyurethane	6,4 mm	2,4 m	2 800 bar	**9768E**
Polyurethane	6,4 mm	3,1 m	2 800 bar	**9769E**
Polyurethane	6,4 mm	3,7 m	2 800 bar	**9770E**
Polyurethane	6,4 mm	6,1 m	2 800 bar	**9771E**
Polyurethane	6,4 mm	15,3 m	2 800 bar	**9772E**
Polyurethane	6,4 mm	22,9 m	2 800 bar	**9750E**
Polyurethane	6,4 mm	30,5	2 800 bar	**9751E**
Polyurethane	9,5 mm High Flow	1,8 m	2 100 bar	**9780E**
Polyurethane	9,5 mm High Flow	3,1 m	2 100 bar	**9781E**
Polyurethane	9,5 mm High Flow	6,1 m	2 100 bar	**9782E**
Polyurethane	9,5 mm High Flow	15,3 m	2 100 bar	**9783E**
Rubber, Wire-braid	6,5 mm	0,9 m	2 800 bar	**9755E**
Rubber, Wire-braid	6,5 mm	1,8 m	2 800 bar	**9756E**
Rubber, Wire-braid	6,5 mm	1,8 m	2 800 bar	**9754E***

Hose Type	Hose I.D.	Hose Length	Burst Rating	Order No.
Rubber, Wire-braid	6,4 mm	2,4 m	2 800 bar	**9757E**
Rubber, Wire-braid	6,4 mm	3,1 m	2 800 bar	**9758E**
Rubber, Wire-braid	6,4 mm	3,7 m	2 800 bar	**9759E**
Rubber, Wire-braid	6,4 mm	6,1 m	2 800 bar	**9760E**
Rubber, Wire-braid	6,4 mm	9,1 m	2 800 bar	**9761E**
Rubber, Wire-braid	6,4 mm	15,3 m	2 800 bar	**9762E**
Rubber, Wire-braid	9,5 mm High Flow	0,9 m	2 800 bar	**9733E**
Rubber, Wire-braid	9,5 mm High Flow	1,8 m	2 800 bar	**9776E**
Rubber, Wire-braid	9,5 mm High Flow	3,1 m	2 800 bar	**9777E**
Rubber, Wire-braid	9,5 mm High Flow	4,6 m	2 800 bar	**9734E**
Rubber, Wire-braid	9,5 mm High Flow	6,1 m	2 800 bar	**9778E**
Rubber, Wire-braid	9,5 mm High Flow	9,1 m	2 800 bar	**9735E**
Rubber, Wire-braid	9,5 mm High Flow	12,2 m	2 800 bar	**9736E**
Rubber, Wire-braid	9,5 mm High Flow	15,3 m	2 800 bar	**9779E**
Non-Conductive	6,4 mm	1,8 m	2 800 bar	**9773**
Non-Conductive	6,4 mm	3,1 m	2 800 bar	**9774**
Non-Conductive	6,4 mm	6,1 m	2 800 bar	**9775**

CE

NOTE: Polyurethane hoses not recommended for use where heat or weld splatter conditions exist. *Furnished with 9798 hose half coupler and 9800 dust cap.

9795 Cylinder and Hose Couplers

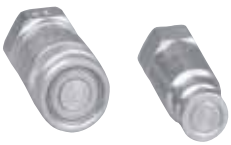
9794 No-Spill Hose Couplers

9796

9798

9793

9792



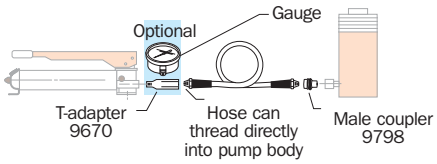
9794 Flush-Face couplers

9797

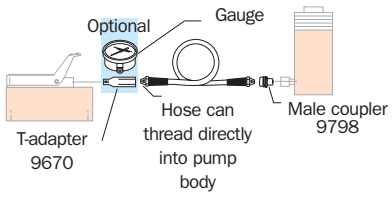
9799

9800

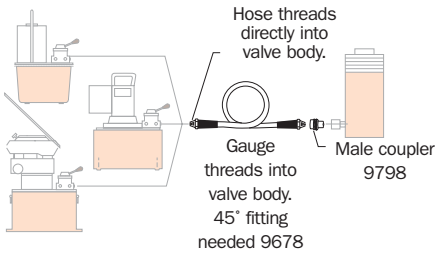
Hand pump system hook-up
T-adapter necessary for P12, P19, P23, P59 & P59F pumps.
All other hand pumps have a gauge mounting port.



Single-acting air pump system hook-up



Air, Electric & Gas Pumps with valve system hook-up



CYLINDER AND HOSE COUPLERS
Designed for use up to 700 bar 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, 3/8" NPTF. (Includes two 9800 dust caps.)
No. 9798 – Male (hose) half coupler (less hose half dust cap), 3/8" NPTF.
No. 9796 – Female (cylinder) half coupler with No. 9800 dust cap, 3/8" NPTF.
No. 9796-V – Same as 9796, but with Viton seals.
No. 9796-E – Same as 9796, but with EPR seals.
No. 9799 – Optional metal dust cap (hose half).
No. 9797 – Optional metal dust cap (cylinder half).

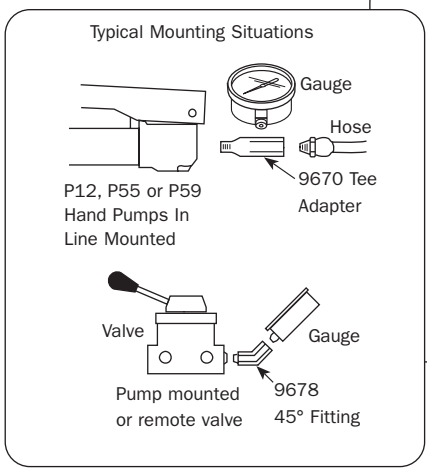
NO-SPILL, PUSH-TO-CONNECT HYDRAULIC HOSE COUPLERS
High flow, no-spill, push-to-connect couplers with locking collar and flush face designed for high pressure applications. The flush-face concept makes it easy to clean both coupler ends before connecting. Our unique push-to-connect, "dry-break" design eliminates oil spillage. The locking collar makes accidental disconnects a thing of the past. For 700 bar operation. Designed to permit high oil flow.
No. 9792 – Female (cylinder) half quick coupler only. Wt., 0.1 kg.
No. 9793 – Male (hose) half quick coupler only. Wt., 0,1 kg.
No. 9794 – Complete quick coupler (male and female). Dust caps not included. Wt.,0,2 kg.

HYDRAULIC COUPLER DUST CAP
Dust cap fits either male or female half couplers.
No. 9800 – Dust cap. For male or female 3/8" NPTF half couplers. Wt., 0,1 kg.

Gauges

Analog & Digital

ASME B40.1
GRADE B



Heavy-duty Hydraulic Pressure Gauges

- Gauges feature an easily readable and highly visible, red day-glo needle.
- High strength steel bourdon tube ensures high cycle life.
- Stainless steel cases and lens locking rings.
- Have 1/4" NPT connections.

Digital Pressure Gauges

- Accurate to within 1%.
- Larger display characters than ordinary digital gauges.
- Long-life pressure transducer.
- 1/4" NPTF male threads for the pressure connection.
- 1,8 m signal input cable connects to back of display unit.

FEATURES

- Pressure values are displayed on large red LEDs in 10 psi 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 if limit is exceeded.
- High and low limit relays are rated to 5 amps at 115 volts.
- Operating temperature of – 18 to 60 °C for the electronic display and -29 to 82 °C 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.

Digital Pressure Gauge

No. DG100 – Digital pressure gauge, pressure range 0-10.000 psi. Note: Serviced only at factory. Wt.,1 kg.

Digital Pressure Gauge Accessories

No. 420778 – Gauge stand for DG100. Has angled base mounting to hold gauge at a convenient viewing angle. Wt., 0,5 kg.

No. 37045 – Auxiliary power cord for use with any 12 or 24V battery. Wt., 0,1 kg. Caution: For use on negative ground systems only.

Standard Pressure Gauge Accessories

No. 9046 – Silicone fill kit. 0,2 kg Requires one bottle to fill 100 mm gauge; four bottles to fill 150 mm gauge.

No. 9049 – High performance pulsation dampener. 1/4 " NPTF male x 1/4" NPTF female.

STANDARD PRESSURE GAUGE ORDERING INFORMATION

Face Dia.	psi/Bar	Tons	Major Graduations	Minor Graduations	Silicone Filled	Use With Cylinder Series	Gauge No.
63,5 mm	0-10,000 /.0-690	–	2500 psi, 100 Bar	500 psi, 20 Bar	No	All	**9041**
63,5 mm	0-10,000 /.0-690	–	2500 psi, 100 Bar	500 psi, 20 Bar	Yes	All	**9040**
100 mm	0-10,000 /.0-690	–	1000 psi, 100 Bar	200 psi, 10 Bar	No	All	**9051**
100 mm	0-10,000 /.0-690	–	1000 psi, 100 Bar	200 psi, 10 Bar	Yes	All	**9052**
100 mm	0-10,000 /.0-690	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**
100 mm	0-10,000 /.0-690	0-5	2000 psi, 1 Ton	200 psi, .1 Ton	No	C & RLS	**9053**
100 mm	0-10,000 /.0-690	0-10	2000 psi, 1 Ton	200 psi, .1 Ton	No	C, RD, RH, RLS & RSS	**9055**
100 mm	0-10,000 /.0-690	0-25	2000 psi, 5 Ton	200 psi, .5 Ton	No	C & RD	**9063**
100 mm	0-10,000 /.0-690	0-30	2000 psi, 5 Ton	200 psi, .5 Ton	No	RH†, RLS & RSS	**9065**
100 mm	0-10,000 /.0-690	0-50	2000 psi, 5 Ton	200 psi, .5 Ton	No	RH†, RLS & RSS	**9067**
100 mm	0-10,000 /.0-690	0-55	2000 psi, 5 Ton	200 psi, .5 Ton	No	C, R, RA & RD	**9069**
100 mm	0-10,000 /.0-690	0-60	2000 psi, 5 Ton	200 psi, 1 Ton	No	RH	**9071**
100 mm	0-10,000 /.0-690	0-100	2000 psi, 10 Ton	200 psi, 1 Ton	No	C, R, RA, RD, RH, RLS†, RSS† & RT1004†	**9075**
100 mm	0-10,000 /.0-690	0-150	2000 psi, Initial 10 Then 20 Ton	200 psi, 2 Ton	No	C, R, RD & RLS	**9077**
100 mm	0-10,000 /.0-690	0-200	2000 psi, 20 Ton 10 Then 20 Ton	200 psi, 2 Ton	No	R, RD & RH†	**9079**
150 mm	0-10,000 /.0-690	0-690	1000 psi, 100 Bar	100 psi, 10 Bar	No	All	**9089**

† 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.

Note: Gauge 9040-9079 are available with readings in bar. To order, add the letter "E" to the part number (example 9075E).

Fluids
HYDRAULIC

Standard, Flame Out®, Biodegradable and Low Temp.


9639


9637


9645


9647

Oil Description	Qty.	Order No.
Standard Oil	0,9 l	**9636**
Standard Oil	3,8 l	**9637**
Standard Oil	9,5 l	**9638**
Standard Oil	20,8 l	**9616**
Flame-Out®	3,8 l	**9639**
Flame-Out®	3,8 l	**9640**
Biodegradable	3,8 l	**9645**
Biodegradable	9,5 l	**9646**
Low Temp.	3,8 l	**9647**

SPECIFICATIONS

Description	Grade (ASTM)	Spec. Gravity at 16°C (kg / l)	Color (ASTM)	Flash Point	Fire Point	Pour Point	Viscosity SUS @ (38°C)	Viscosity SUS @ (99°C)	Viscosity Index	Foam Test (ASTM)
Standard Oil	215	0.88	2.0	204°C	221°C	-34°C	215	48	100 min.	Pass
Flame-Out®	220	0.91	Light Amber	260°C	288°C	-26°C	220	55	140 min.	Pass
Biodegradable	—	0.92	2.0	224°C	NA*	-30°C	183	53	213 min.	Pass
Low Temp.	—	0.87	6.5 (Red)	180°C	204°C	-45°C	183	52	190 min.	Pass

*Not available.

Standard Hydraulic Oil
- For dependable performance of all your hydraulic pumps and cylinders.
- Contains foam suppressant additives and has a high viscosity index.

Flame-Out® 220 fire resistant hydraulic fluid
- Contains anti-rust, anti-foam and anti-sludge additives.
- Provides fire resistant protection.
- Provides maximum lubrication and heat transfer.
- Offers a wider operating temperature range.
- No need to change seals in your Power Team equipment. Just drain the standard oil and replace it with Flame-Out 220.

Biodegradable Hydraulic Fluid
- Biodegradable, non-toxic fluid withstands moderate to severe operating conditions; provides excellent protection against rust.
- Offers superior anti-wear properties, has excellent multi-metal compatibility.

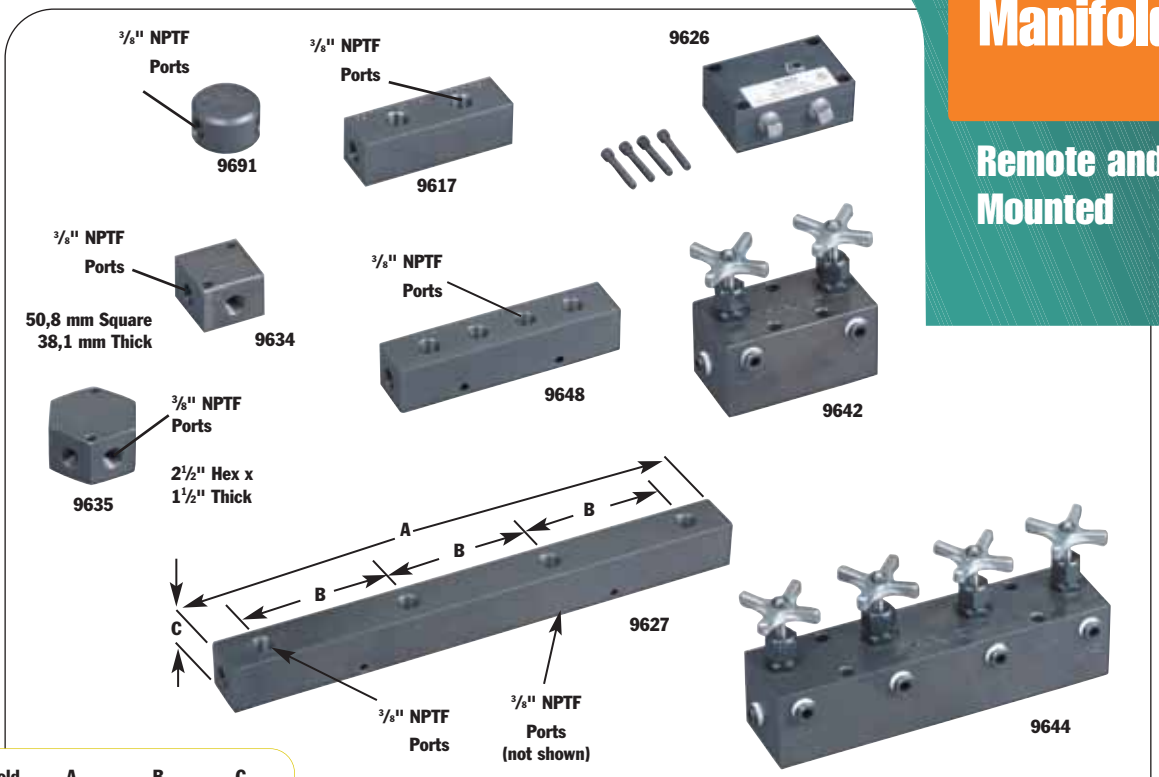
Developed to meet stringent performance requirements and satisfy growing environmental needs for hydraulic fluids which are readily biodegradable and non-toxic. Can be used with all Power Team pumps, cylinders, valves and other accessories using standard seals. Depending on the contamination or degradation 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 -7°C or above 71°C. Recommended storage temperatures not below -23°C or above 77°C.
For additional technical information or to order a **MATERIAL SAFETY DATA SHEET** call **1-800-477-8326**

Low–Temperature Oil
Provides smooth, reliable operation in the coldest climate conditions.

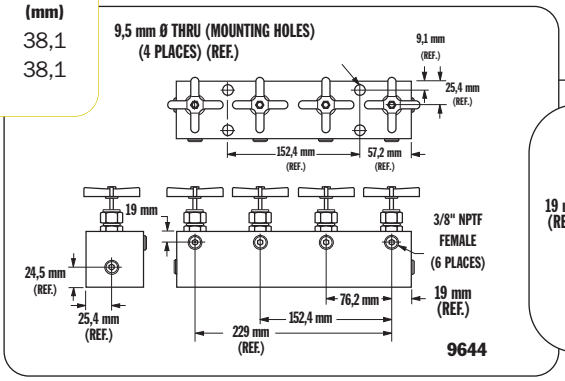
(Note: Will burn if heat source is extreme enough. Will not, however, propagate the flame and is self-extinguishing when there is no ignition source.)

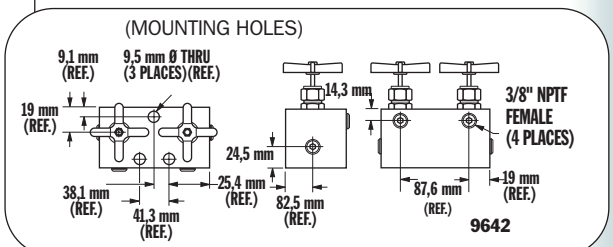
Manifolds

Remote and Pump Mounted



Manifold No.	A (mm)	B (mm)	C (mm)
9627	406,4	114,3	38,1
9648	177,8	38,1	38,1





No. 9691 – "Y" Manifold
Extremely useful when connecting two hydraulic cylinders to a single line. Has three 3/8" NPTF ports.
Wt. 0,45 kg.

No. 9634 – Manifold block
This manifold is for multiple-cylinder installations, has four 3/8" NPTF ports and two 1/4" mounting holes.
Wt. 0,7 kg.

No. 9635 – Manifold block
This hex-shaped manifold offers extra versatility with six 3/8" NPTF ports and two 1/4" mounting holes.
Wt. 0,9 kg.

No. 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. 1.4 kg.

No. 9648 – Manifold block
This 178 mm long manifold block has seven 3/8" NPTF ports and two 6,4 mm mounting holes. Wt.1,2 kg.

No. 9627 – Manifold block
This 406,4 mm long manifold block allows you to mount the 9575 or 9596 valves without interference. Has seven 3/8" NPTF ports and two 6,4 mm mounting holes. Wt. 2,7 kg.

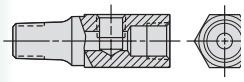
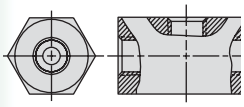
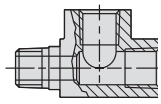
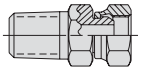
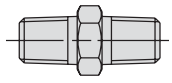
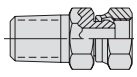
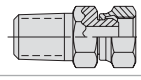
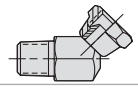
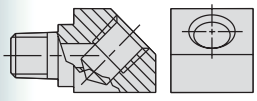
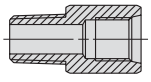
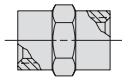
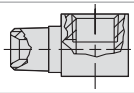
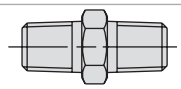
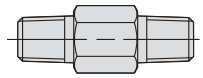
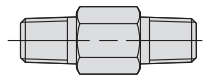
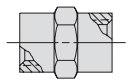
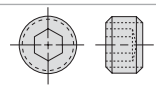
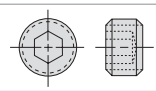
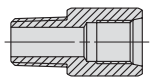
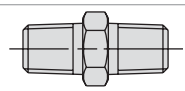
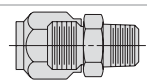
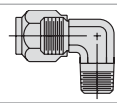
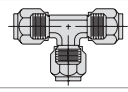
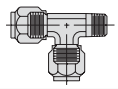
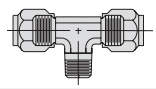
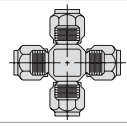
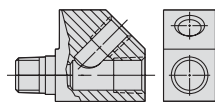
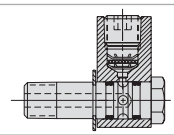
No. 9626 – Pump mounted manifold block
Converts pumps with pump mounted valves for use with remote mounted valves. This manifold block is subplate mounted on the pump cover plate and provides 3/8" NPTF pressure and return ports. Maximum recommended flow rate is 19 l/min. Note: If used on PE30 or PG30 series pump, 12,7mm longer mounting screws are required. Order four (4) No. 11956 screws separately.

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. Can be used with all Power Team pumps.
No. 9642 – Manifold with two needle valves for control of two cylinders. Has four 3/8" NPTF ports. Wt. 3,7 kg
No. 9644 – Manifold with four needle valves for control of four cylinders. Has six 3/8" NPTF ports. Wt. 7,4 kg

Fittings

700 bar

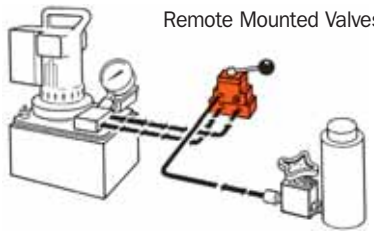
Power Team fittings:
All applications.

	**9190**	Hyd. tubing. 3/8" O.D. x .065" wall, 15,3 m. (10 pieces 1,53 m long.) Wt. 5,5 kg.
	**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. 0,2 kg.
	**9671**	Double tee adapter. Permits use of more than one cylinder in series with one pump. Three 3/8" NPTF female ports. Wt. 0,5 kg.
	**9672**	Service tee. Two 3/8" NPTF female internal, one 3/8" NPTF male external. Wt. 0.3 kg.
	**9673***	Swivel connector. 3/8" NPSM male, 1/4" NPSM female. Wt. 0,1 kg.
	**9674**	Male connector. 43 mm long, 1/4" x 3/8" NPTF. Wt. 0,1 kg.
	**9675***	Swivel connector. 3/8" NPTF male, 3/8" NPSM female. Wt. 0,1 kg.
	**9676***	Swivel connector. 1/4" NPTF male, 3/8" NPSM female. Wt. 0,1 kg.
	**9677***	45° swivel connector. 3/8" NPTF male, 3/8" NPSM female. Wt. 0,1 kg.
	**9678**	45° fitting. Used when mounting gauge at an angle on connection such as 9670. Male and female 1/4" NPTF ends. Wt. 0,1 kg.
	**9679**	Connector. 1/4" NPTF female and 3/8" NPTF male. Wt. 0.1 kg.
	**9680**	Coupling. Both ends 3/8" NPTF female. Wt. 0.1 kg.
	**9681**	Street elbow. Male and female 3/8" NPTF ends. Wt. 0,1 kg.
	**9682**	Male connector. 43 mm long, 3/8" NPTF male ends. Wt. 0,1 kg.
	**9683**	Male connector. 57 mm long, 3/8" NPTF male ends. Wt. 0,1 kg.
	**9684**	Male connector. 57 mm long, 1/4" NPTF male ends. Wt. 0,1 kg
	**9685**	Coupling. 1/4" NPTF female and 3/8" NPTF female. Wt. 0.1 kg.
	**9686**	90° elbow. 3/8" NPTF female ends. Wt. 0.2 kg.
	**9687**	Pipe plug. Heat-treated, 3/8" NPTF. Wt. 0.1 kg.
	**9688**	Pipe plug. Heat-treated, 1/4" NPTF. Wt. 0.1 kg.
	**9689**	Connector. 1/4" NPTF male and 3/8" NPTF female. Wt. 0.1 kg.
	**9690**	Male connector. 43 mm long, 1/4" NPTF male ends. Wt. 0.1 kg.
	**9692**	Straight connector. 3/8" tube x 3/8" male NPTF. Wt. 0.1 kg.
	**9693**	90° elbow. 3/8" tube x 3/8" male NPTF. Wt. 0.1 kg.
	**9694**	45° elbow. 3/8" tube x 1/4" male NPTF. Wt. 0.1kg.
	**9695**	Tee. 3/8" tube. Wt. 0.1 kg.
	**9696**	Male run tee. 3/8" tube x 1/4" male NPTF. Wt. 0.1 kg.
	**9697**	Male branch tee. 3/8" tube x 1/4" male NPTF. Wt. 0.1 kg.
	**9698**	Cross. 3/8" tube. Wt. 0.2 kg.
	**9699**	45° gauge fitting. 3/8" NPTF male and female, and 1/4" NPTF female at 45°. Wt. 0.3 kg.
	**9705**	Fitting, swivel. 3/8" NPTF male to 3/8" NPTF female. 90° fitting with internal 370 micron screen. May be rotated 360° about male thread axis.

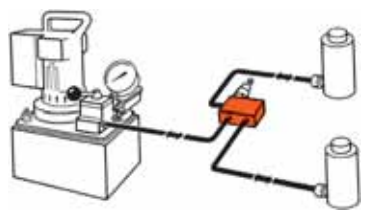
NOTE: Power Team hydraulic fittings are intended for use with our high pressure hydraulic products and are suitable for use at max. working pressures of 700 bar unless otherwise noted.

*** ⚠ 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.**

Valve selection chart


Remote Mounted Valves

Order No.	Page No.	*Cylinder Application	Operation	Valve Type	Volt	Advance / Return	Advance / Hold / Return	Posi-Check® Feature
9508	121	S.A & D.A.	Manual	4-way, 3 Pos. Closed Center	—	no	yes	yes
9509	121	S.A. & D.A.	Manual	4-way, 3 Pos. Tandem Center	—	no	yes	yes
9514	121	D.A.	Solenoid	4-way, 3 Pos. Tandem Center	115	no	yes	yes
9524	120	S.A. & D.A.	Solenoid	3/4-way, 2 Pos.	230	no	yes	no
9525	121	D.A.	Solenoid	4-way, 3 Pos. Tandem Center	230	no	yes	yes
9526	121	S.A.	Solenoid	3-way, 2 Pos.	230	no	yes	no
9554	120	S.A. & D.A.	Solenoid	3/4-way, 2 Pos.	24	no	yes	no
9555	121	D.A.	Solenoid	4-way, 3 Pos. Tandem Center	24	no	yes	yes
9556	121	S.A.	Solenoid	3-way, 2 Pos.	24	no	yes	no
9559	121	S.A.	Solenoid	3-way, 2 Pos.	115	no	yes	no
9593	120	S.A. & D.A.	Solenoid	3/4-way, 2 Pos.	115	no	yes	no
9595	120	S.A. & D.A.	Air	3/4-way, 2 Pos.	—	no	yes	no


In-Line Valves

Order No.	Page No.	*Cylinder Application	Operation	Valve Type	Volt	Advance / Return	Advance / Hold / Return	Posi-Check® Feature
9575	122	S.A.	Manual	Shut-Off Valve	—	—	—	—
9580	123	S.A.	Automatic	One-way Check Valve	—	—	—	—
9581	123	S.A. & D.A.	Automatic	Pilot Op. Check Valve	—	—	—	—
9596	122	S.A.	Manual	Load Lowering Valve	—	—	—	—
9597	122	S.A. & D.A.	Automatic	Sequence Valve	—	—	—	—
9608	122	S.A. & D.A.	Automatic	Pressure Reducing Valve	—	—	—	—
9623	123	S.A. & D.A.	Automatic	Pressure Relief Valve	—	—	—	—
9631	123	S.A. & D.A.	Automatic	Metering Valve	—	—	—	—
9633	123	S.A. & D.A.	Automatic	Pressure Regulator Valve	—	—	—	—
9720	122	S.A. & D.A.	Automatic	Counter Balance Valve	—	special	—	—
9721	122	S.A. & D.A.	Automatic	Counter Balance Valve	—	special	—	—
RV12178	123	—	Automatic	Relief Value	—	—	—	—

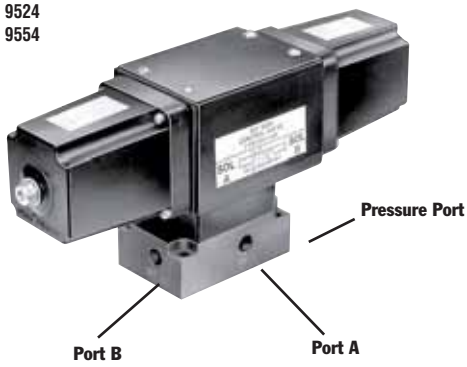
"S.A." represents single-acting cylinders, "D.A." represents double-acting cylinders.
For pump-mounted valves, see pages 45-51

Valves
HYDRAULIC REMOTE MOUNTED

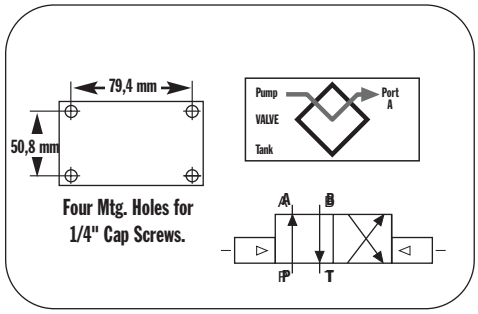
700 bar, 1/4" ports
19 l / min max flow

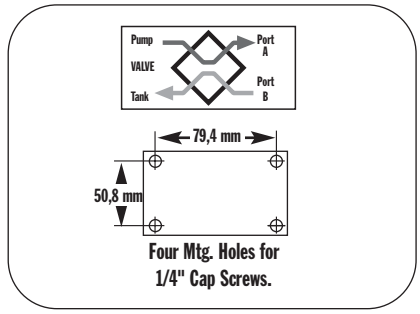
3/4-way/2-position solenoid and air actuated valves

9593
9524
9554



9595





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 connected to oil port "A" and the other to oil port "B" on the valve. Sequence: When energized 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 solenoid "B" is energized.

Operation with double-acting cylinder: Port "A" is connected to "advance" port of cylinder, oil port "B" connects to cylinder "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 inadvertent, momentary extension of a retracted cylinder.

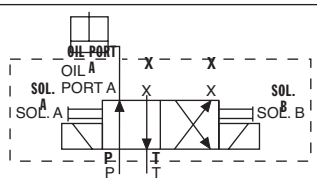
NOTE: If pump is equipped with an internal outlet check, a "hold" position can be maintained with the pump shut off.

No. 9593 – 3/4-way/2-position, remote mounted solenoid valve, 115 volt, 50/60 Hz. Wt., 7 kg.
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 (minimum of 3,5 bar air pressure required). Wt.,5,2 kg.

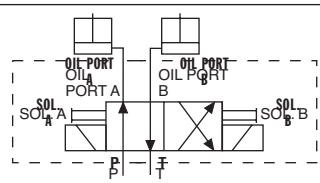
NOTE: Valves above are shipped without controls. The 9524, 9554 and 9593 can be used with the 304718 remote hand control (see page 106). The 9595 can be used with the 209593 remote hand control (see page 106).

NOTE: Valves have 1/4" NPTF ports. 3/8" to 1/4" adapters are included.

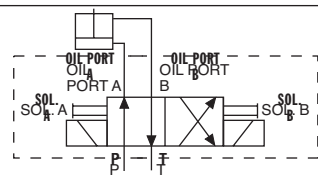
NOTE: Maximum tank line pressure for remote mounted valves is 35 bar.



1. To actuate one single-acting cylinder.



2. To actuate two single-acting cylinders.

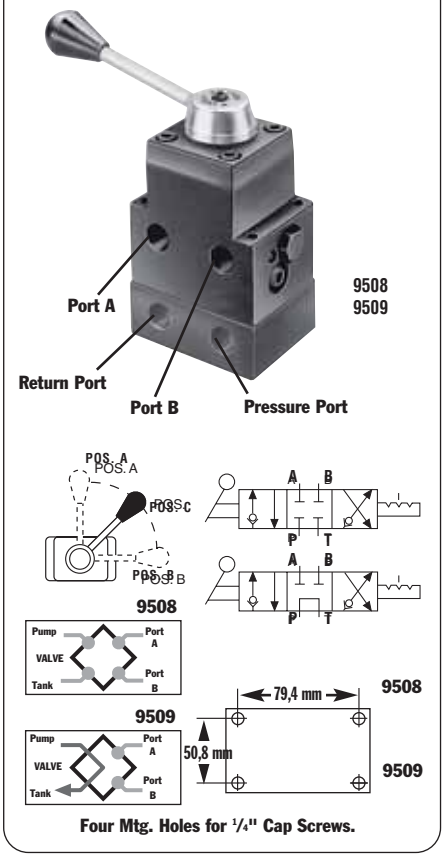


3. To actuate one double-acting cylinder.

NOTE: Valves above are shipped without control switch. Use 202777 remote hand switch (see page 106).

⚠ **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 122) in conjunction with the directional valve used in your application.**

700 bar, 3/8" ports
19 l / min max flow



Four Mtg. Holes for ¼" Cap Screws.

4-way/3-position (closed center) and (tandem center) manual valves with Posi-Check®

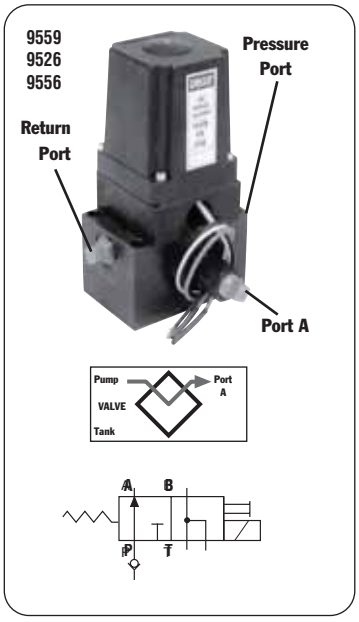
Application: Single- or double-acting cylinder. When used with single-acting cylinders, one port must be plugged. For double-acting cylinders, either port can be used for "advance" or "return."

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 "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."

No. 9508 – 4-way/3-position (closed center) manual valve, including subplate for remote mounting. Wt., 2,9 kg.

No. 9509 – Same as 9508, except is tandem center.



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 (7 bar back pressure maximum) back to the reservoir.

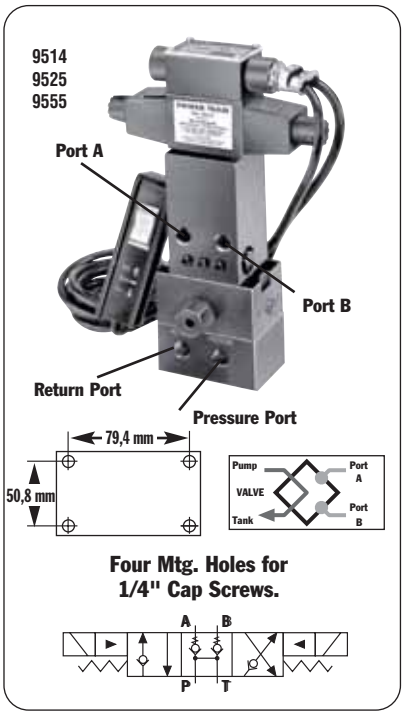
IMPORTANT: A 9580 in-line check valve (see page 123) must be installed in the "pressure" port if the supply pump is not equipped with an outlet check valve.

No. 9559 – 3-way/2-position solenoid valve, 115 volt 50/60 Hz. Includes a remote mounting subplate. Wt., 4,4 kg.

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: Valves above are shipped without control switch. Use 202777 remote hand switch (see page 106).



Four Mtg. Holes for 1/4" Cap Screws.

4-way/3-position (tandem center) solenoid valve with Posi-CHeck®

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 35 bar at the valve.

No. 9514 – 4-way/3-position (tandem center) solenoid valve, 115 volt, 50/60 Hz. Remote hand control included. Wt., 4,6 kg.

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.

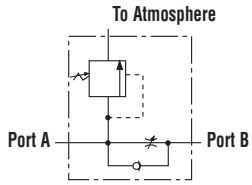
⚠ **CAUTION: To prevent sudden, uncontrolled descent of a load as it is being lowered, use a No. 9596 Load Lowering Valve or No. 9720 Counter Balance Valve (see page 122) in conjunction with the directional valve used in your application.**

⚠ **CAUTION: The Posi-Check® feature will not hold the load when shifted directly A to B-B to A or from hold to A or B.**

NOTE: Maximum tank line pressure for remote mounted valves is 35 bar.

Valves
HYDRAULIC IN-LINE

700 bar, 19 l / min max flow rate



9596

LOAD LOWERING VALVE

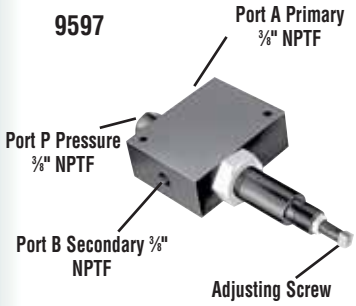
Application: Precision metering for controlled cylinder piston return.

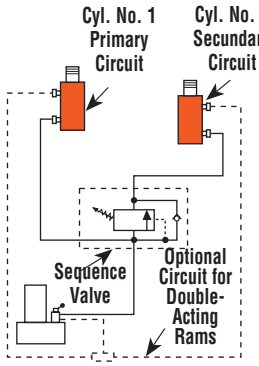
Operation: Permits free flow when extending cylinder, built-in pressure relief and "Posi-Check® " locks and holds load in raised position until operator opens valve. May be pre-set to provide consistent metered return, or operator may select rate of return with each actuation. Has 3/8" NPTF ports.

NOTE: Pressure relief valve setting is 830 bar. Operating pressure is 700 bar and max. flow rate is 19 l /min.

No. 9596 – Load lowering valve. Wt., 1 kg.

9597





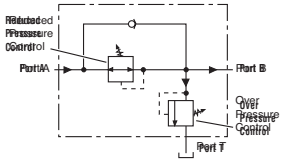
SEQUENCE VALVE

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 35 to 550 bar with adjustment screw; factory preset at 70 bar. Has 3/8" NPTF ports.

No. 9597 – Pressure control sequencing valve. Wt., 2,5 kg.

9608



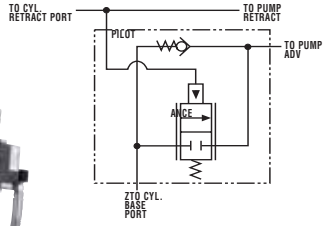
PRESSURE REDUCING VALVE

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 70 to 350 bar at outlet port "B" (secondary). Has 1/4" NPTF ports.

No. 9608 – Pressure reducing valve. Wt., 2,6 kg.

9720
9721



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 1,9 l /min. and cylinder ratios of 3 to 1.

No. 9720 – Counter balance valve, including two male and two female half two hydraulic hoses, fittings and dust caps. Wt., 4,5 kg.

No. 9721 – Same as 9720, but does not include couplers, hoses, fittings and dust caps. Wt.,4,2 kg.

⚠ **CAUTION:** The 9720 patented counter balance valve has a pilot pressure as high as 210 bar. 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.

⚠ **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. See above, this page.

Shut-off valve — **9575**

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 3/8" NPTF ports. Wt., 0,6 kg.

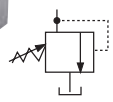
Check valve — **9580**

Application: Permits flow of hydraulic oil in one direction only.
Operation: Installs right in hydraulic line.
No. 9580 – Check valve with 3/8" NPTF male ends. Wt., 0,2 kg.

Pilot operated check valve — **9581**

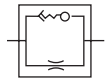
Application: For use with open or tandem center valves. Permits free flow of fluid in one direction.
Operation: Flow is blocked in opposite direction until pilot oil pressure is applied. This prevents the loss of pressure if the valve is inadvertently shifted or the pump line is broken. Minimum cracking pressure is 4,1 bar. Required pilot pressure is approximately 16% of checked system pressure.
No. 9581 – Pilot operated check valve with 3/8" NPTF ports. Wt., 1,7 kg.

"In-line" pressure relief valve — **9623**



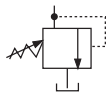
Application: Single- or double-acting cylinders. For remote locations in a hydraulic circuit where maximum pressure requirements are less than basic overload valve setting in pump.
Operation: Adjustable from 70 to 700 bar. Valve is spring-loaded and direct-acting.
No. 9623 – Pressure relief valve with 3/8" NPTF ports. Wt., 0,9 kg.

Metering valve — **9631**

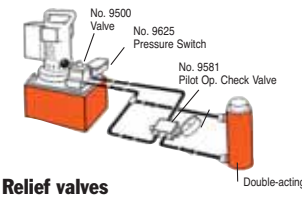


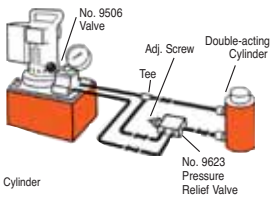
Application: For systems using large cylinders or extended lengths of hydraulic hose.
Operation: Controls surges by restricting flow if it exceeds 26,5 l / min. When flow subsides, valve reopens automatically. Has 3/8" NPTF male end to thread into return port of system control valve, and a 3/8" NPTF female end, permitting return hose to be directly connected.
No. 9631 – Metering valve. Wt., 0.1 kg.

"In-line" pressure regulator valve — **9633**

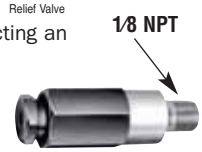


Application: Single- or double-acting cylinders. Permits adjusting operating pressures at various values below relief valve setting of pump.
Operation: Regulator valve is easily adjusted to maintain pressures between 20 and 700 bar. Maintains a given pressure setting within 3% over repeated cycles. Flow range is 0,3 l/ min to 23 l / min.
No. 9633 – In-line pressure regulator valve with two 3/8" NPTF inlet ports, one 1/8" NPTF tank port and 1 m drain line kit. Wt., 0,9 kg.
Simply turn the handle clockwise to increase the pressure setting, counter-clockwise to reduce pressure.
Note: 1 m Drain Line Kit is included.





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 19 l / min. Furnished with 1/8" NPTF male port. All valves weigh 0.1 kg. See chart to the right for ordering information.



RV21278 Series

Valve Order No.	Pressure Setting (bar)	Valve Order No.	Pressure Setting (bar)
RV21278	697/738	RV21278-52	366/407
RV21278-6	41/44	RV21278-55	386/428
RV21278-10	62/69	RV21278-57	400/442
RV21278-15	103/117	RV21278-60	421/462
RV21278-20	131/152	RV21278-65	455/497
RV21278-28	186/207	RV21278-70	490/531
RV21278-30	207/235	RV21278-75	524/566
RV21278-32	214/228	RV21278-80	559/600
RV21278-35	241/262	RV21278-83	580/621
RV21278-40	283/310	RV21278-86	600/642
RV21278-43	304/331	RV21278-88	614/662
RV21278-48	338/366	RV21278-90	628/669
RV21278-50	352/393		

Preset — Non-Serviceable

NOTE: Care should be exercised to protect workers from hot, pressurized hydraulic oil. Install these valves only in an enclosed or shielded area.