

Valve Selection

Choosing the Right Valve

- Step 1 -** Select the hydraulic cylinder that best suits the application. See pages 6-8.
- Step 2 -** Select the series of hydraulic pump with adequate oil output and reservoir capacity to power cylinder. See pages 42-45. Check speed chart on page 6.
- Step 3 -** Select pump within series with the valve option that best matches cylinder, pump and application. See pages 122-127.

CONSIDERATIONS:

- Will the valve be used with single or double-acting cylinders?
- Will the valve be mounted on the pump, away from the pump or directly into the hydraulic lines?



- Will the valve be manually operated or is remote control preferred?
- Is independent control of multiple cylinders, or hydraulic tools preferred?
- What directional control and pressure control valve functions are needed for the application?

Basic valve 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 50 for listings of all Power Team valves.

DIRECTIONAL CONTROL VALVES



2-WAY, 2-POSITION

(FOR CONTROL OF SINGLE-ACTING CYLINDERS):

POSITION 1	CENTER POSITION	POSITION 2
 <p>Oil goes from pump to cylinder; pressure is held from valve to cylinder when pump is shut off.</p>	None	 <p>Oil goes from cylinder to pump; pressure is released to reservoir when motor is turned off.</p>




3-WAY, 2-POSITION

(FOR CONTROL OF SINGLE-ACTING CYLINDERS)

POSITION 1	CENTER POSITION	POSITION 2
 <p>Oil goes from pump to cylinder and holds when pump is shut off. Return line to reservoir is blocked.</p>	None	 <p>Cylinder retracts, oil returns to reservoir.</p>

3-WAY, 3-POSITION

(FOR CONTROL OF SINGLE-ACTING CYLINDERS)

POSITION 1	CENTER POSITION	POSITION 2
 <p>Oil goes from pump to cylinder and holds when pump is shut off. Return line to reservoir is blocked.</p>	 <p>Cylinder pressure is held; pump can remain running and oil returns to reservoir.</p>	 <p>All oil is open to reservoir through return line.</p>

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. Protects a hydraulic system against over pressurization.



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 external adjustment of operating pressures at various values below the internal relief valve setting of the pump.

DIRECTIONAL CONTROL VALVES




4-WAY, 2-POSITION

(FOR CONTROL OF SINGLE OR DOUBLE-ACTING CYLINDERS):




POSITION 1	CENTER POSITION	POSITION 2
 <p>Oil goes to the "extend" side of the cylinder. The oil from the "retract" side returns to reservoir. Cylinder holds with pump shut off.</p>	None	 <p>Oil goes to the "retract" side of the cylinder, oil from the "extend" side returns to reservoir.</p>

4-WAY, 3-POSITION

(FOR CONTROL OF DOUBLE-ACTING CYLINDERS)

POSITION 1	CENTER POSITION	POSITION 2
 <p>Oil goes to the "extend" side of the cylinder, oil from the "retract" side returns to reservoir. Cylinder holds with pump shut off.</p>	 <p>Holds pressure even if pump is running. Oil from pump goes through valve, back to reservoir.</p>	 <p>Oil goes to "retract" side of cylinder. Oil from "extend" side returns to the reservoir.</p>

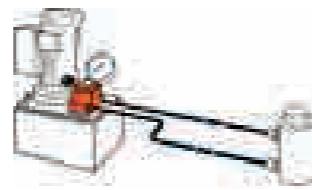
TYPICAL CENTERS

TANDEM CENTER	CLOSED CENTER	OPEN CENTER
 <p>Cylinder ports are blocked, oil from pump goes to reservoir. Used when pump remains running. Example: gasoline-driven pumps.</p>	 <p>Generally used when running multiple valves in series from one pump.</p>	 <p>Open Center used when holding is not a requirement, as when running two separate hydraulic tools such as cutters and crimpers.</p>

Valves

SELECTION INFORMATION

Pump Mounted Valves



PUMP MOUNTED VALVES

Order No.	Page No.	*Cylinder Application	Operation	Valve Type	Volt	Advance/Return	Advance/Hold Return	Posi-Check Feature
9500	53	S.A. & D.A.	Manual	4-way, 3 Pos. Tandem Center	—	no	yes	no
9501	53	S.A. & D.A.	Manual	4-way, 3 Pos. Closed Center	—	no	yes	no
9502	52	S.A.	Manual	3-way, 3 Pos. Closed Ctr.	—	no	yes	yes
9504	51	S.A. & D.A.	Manual	3/4-way, 2 Pos.	—	yes	yes	no
9506	53	D.A.	Manual	4-way, 3 Pos. Tandem Center	—	no	yes	yes
9507	53	D.A.	Manual	4-way, 3 Pos. Closed Center	—	no	yes	yes
9511	53	S.A. & D.A.	Manual	4-way, 3 Pos. Open Center	—	yes	yes	no
9512	56	D.A.	Solenoid	4-way, 3 Pos. Tandem Center	24	no	yes	yes
9513	56	D.A.	Solenoid	4-way, 3 Pos. Tandem Center	115	no	yes	yes
9516	56	D.A.	Solenoid	4-way, 3 Pos. Tandem Center	12DC	no	yes	yes
9517	51	S.A.	Manual	2-way, 2 Pos.	—	no	yes	no
9519	56	D.A.	Solenoid	4-way, 3 Pos. Tandem Center	230	no	yes	yes
9520	52	S.A.	Manual	4-way, 3 Pos. Tandem Center	—	no	yes	yes
9522	56	D.A.	Solenoid	4-way, 3 Pos. Open Center	230	yes	no	no
9523	56	S.A.	Pilot Operated Solenoid	3-way, 2 Pos.	230	yes	no	no
9552	55	S.A. & D.A.	Solenoid	3/4-way, 2 Pos.	230	yes	no	no
9553	56	S.A.	Pilot Operated Solenoid	3-way, 2 Pos.	24	yes	no	no
9569	56	S.A.	Solenoid	3-way, 2 Pos.	24	no	yes	no
9570	56	S.A.	Solenoid	3-way, 2 Pos.	230	no	yes	no
9572	56	S.A. & D.A.	Solenoid	3/4-way, 2 Pos.	24	yes	no	no
9576	52	S.A.	Manual	3-way, 3 Pos. Metering Tandem Ctr.	—	no	yes	no
9579	55	S.A.	Solenoid	3-way, 2 Pos.	115	no	yes	no
9582	51	S.A.	Manual	3-way, 2 Pos.	—	no	yes	no
9584	51	S.A.	Manual	3-way, 2 Pos.	—	no	yes	no
9589	56	S.A.	Pilot Operated Solenoid	3-way, 2 Pos.	115	yes	no	no
9590	56	D.A.	Solenoid	4-way, 3 Pos. Open Center	115	yes	no	no
9592	55	S.A. & D.A.	Solenoid	3/4-way, 2 Pos.	115	yes	no	no
9594	55	S.A. & D.A.	Air	3/4-way, 2 Pos.	—	no	yes	yes
9599	54	S.A.	Pilot Operated Solenoid	3-way, 3 Pos. Tandem Center	24	no	yes	yes
9605	54	S.A.	Pilot Operated Solenoid	3-way, 3 Pos. Tandem Center	115	no	yes	yes
9609	54	S.A.	Manual	3-way, 3 Pos. Tandem Center	—	no	yes	no
9610	51	S.A.	Auto Pilot Operated	3-way, 2 Pos.	—	yes	no	no
9610A	51	S.A.	Manual	2/3-way, 2 Pos.	—	no	yes	no
9615	56	D.A.	Solenoid	4-way, 3 Pos. Open Center	24	yes	no	no
9628	57	S.A. & D.A.	Manual	Post Tensioning	—	special	no	no
9632	57	S.A. & D.A.	Manual	Post Tensioning	—	special	no	no

* "S.A." represents single-acting cylinders, "D.A." represents double-acting cylinders



Valves

HYDRAULIC PUMP MOUNTED

Manual and Pilot Operated

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

3-WAY/2-POSITION MANUAL VALVES

Applications – 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, and PE120 series.

No. 9582 – 3-way/2-position manual valve. Wt. 1,13 kg.

No. 9584 – Same as 9582, but has "flipper" control. Wt., 0,8 kg.

3-WAY/2-POSITION, PILOT OPERATED AUTOMATIC VALVE

Application – Single-acting cylinders. Actuation: Pilot oil.

Functions – When pump is started, pilot oil automatically closes valve and directs oil to cylinder; 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.

No. 9610 – 3-way/2-position pilot operated automatic valve. Wt., 1,9 kg.

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 operating hydraulic tools.

Actuation – Flipper lever/pilot oil.

Functions – With lever in closed position, 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.

No. 9610A – 2/3-way/2-position manual/pilot operated automatic valve.

Wt., 2 kg.

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.

No. 9517 – 2-way/2-position manual valve. Wt., 1,45 kg.

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 cylinder, oil from "retract" side goes to reservoir; cylinder "holds" with pump shut off. Pos. 2 – Oil goes to "retract" side of cylinder; 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 52 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.

No. 9504 – 3/4-way/2-position manual valve. Wt., 1,9 kg.

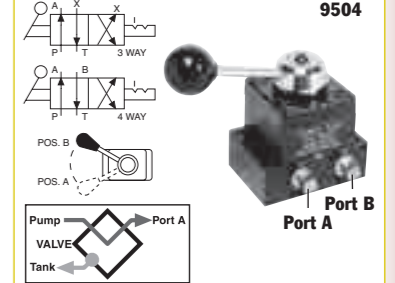
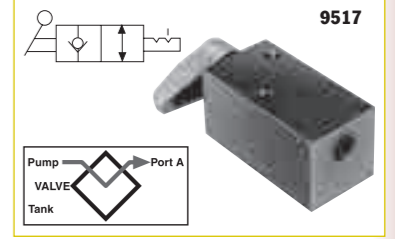
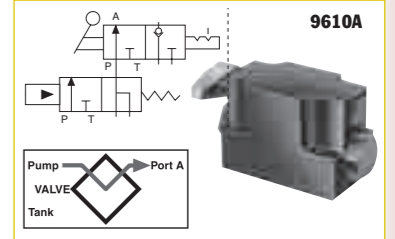
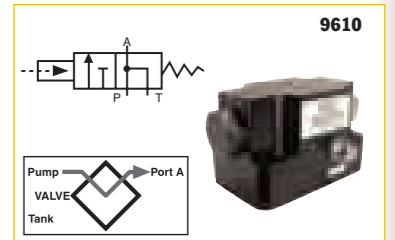
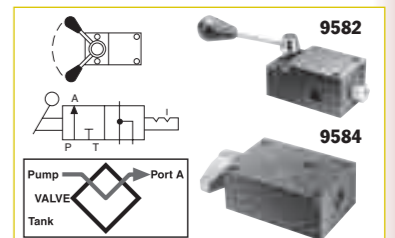
NOTE: 9504 can be remote mounted with a 9510 subplate (see page 107).

NOTE: A pressure switch and/or gauge may be attached to any valve on this page. (refer to pages 117, 124-125)

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 132) in conjunction with the directional valve used in your application.

IMPORTANT: Conversion kit 251528 must be used when mounting any of the valves on this page on PA17 or PE17 pumps.

IMPORTANT: When ordering any valve for a PE30 or PG30 series pump, 1/2" 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.



PUMPS/VALVES

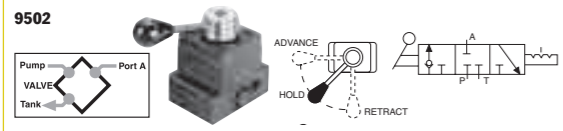
Valves

HYDRAULIC PUMP MOUNTED

3 Way/3 Position Manual

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

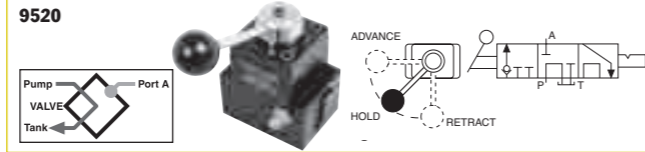
PUMPS/VALVES



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 should be shut off.
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 124-125, 117). Also, the 9502 can be remote mounted if a 9510 subplate is used (see page 117).
No. 9502 – 3-way/3-position (closed center) manual valve. Wt., 1,9 kg.

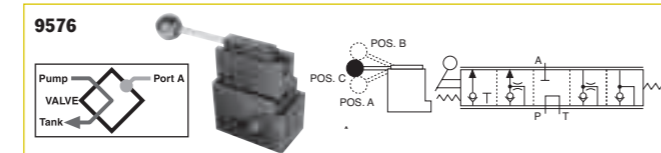
CAUTION: To prevent sudden, uncontrolled descent of a load as it is being lowered, use a No. 9596 Load Lowering Valve or No. 9720 Counter Balance Valve (see page 132) in conjunction with the directional valve used in your application.
NOTE: Valves 9501, 9502, 9504 and 9507 can have a port blocked or 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.
NOTE: Gauge ports monitor pump pressure only, not pressure to the hydraulic cylinder(s).
IMPORTANT: Conversion kit 251528 must be used when mounting any of the valves on this page on PA17 or PE17 pumps.
IMPORTANT: When ordering any valve for a PE30 or PG30 series pump, 1/2" longer mounting screws are required. For valves 9502 and 9520, order four 12001 cap screws. For valve 9576, order four 17428 cap screws.



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., 2,3 kg.

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 124-125, 117). Also, the 9576 can be remote mounted with a 9510 subplate (see page 117).
No. 9576 – 3-way/3-position (tandem center) metering valve. Wt., 3,9 kg.

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
No. 9506 – 4-way/3-position (tandem center) manual valve. Wt., 2,3 kg.

4-WAY/3-POSITION (TANDEM CENTER) AND (OPEN-CENTER) MANUAL VALVES

Application – Single- or double-acting cylinders.
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. *Does not mount without 251528
No. 9500 – 4-way/3-position (tandem center) manual valve. Wt., 1,9 kg.
No. 9511 – Same as 9500, except has an open center.

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 cylinders 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 46 regarding plugging of ports and resulting heat build-up.
Used on these pumps – P460, PA17, PA46, PA55, PA60, PA6D, PE17, PE21, PE30, PE46, PE55, PE84, PE90, PE120, PE200, PE400, PQ60 and PQ120 series.
No. 9507 – 4-way/3-position (closed center) manual valve. Wt., 2,3 kg.

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 52 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.
No. 9501 – 4-way/3-position (closed center) valve. Wt., 1,9 kg.

NOTE: A pressure switch and/or gauge may be attached to valves 9500, 9501, 9506, 9511 if desired (see pages 124-125, 117). Also, all valves on this page may be remote mounted with a 9510 subplate (see page 117).

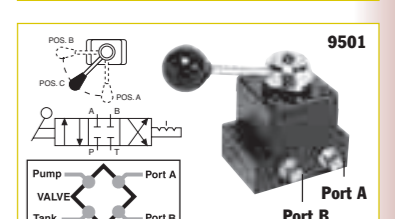
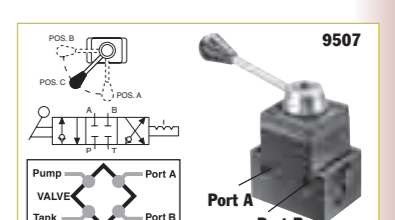
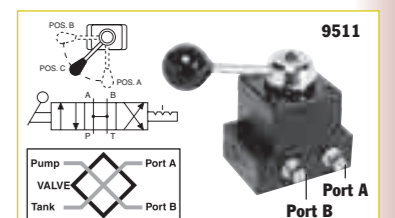
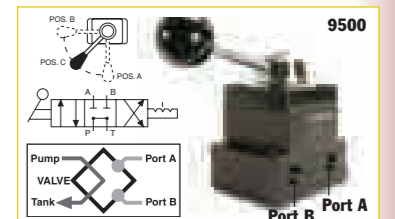
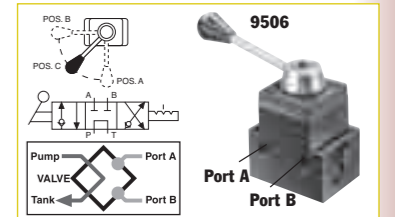
Valves

HYDRAULIC PUMP MOUNTED

4 Way/3 Position Manual

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

PUMPS/VALVES

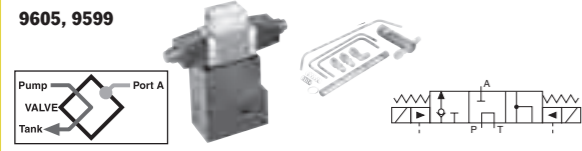
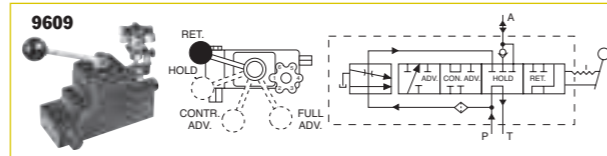


Valves

HYDRAULIC PUMP MOUNTED

Manual and Pilot Operated

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

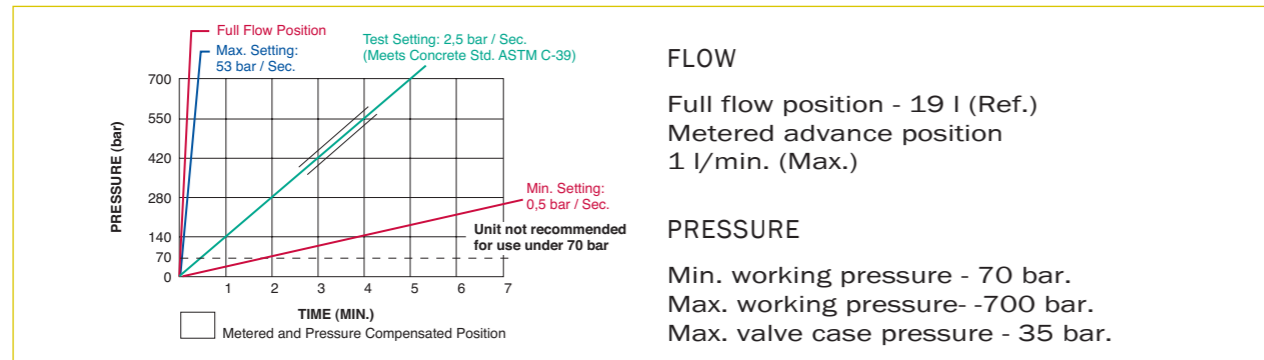


3-WAY/3-POSITION (TANDEM CENTER) SOLENOID VALVES WITH "POSI-CHECK"

Application – Single-acting cylinders.
Actuation – Solenoid operated: 9605 is 115 volt, 50/60 Hz; 9599 is 24 volt, 50 Hz.
Functions – “Advance”, “hold” and “return” positions. When in “advance”, solenoid “B” is energized and oil goes from 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 Hz. Wt., 6,4 kg.
No. 9599 – Same as 9605 except for 24 volt, 50 Hz circuits.
NOTE: Valves above are shipped without controls. Use 202777 remote hand control (see page 116). Consult factory for field installation.

3-WAY/4-POSITION MANUAL PRESSURE COMPENSATED VALVE

Application – Single-acting cylinders. Primarily for use in testing soil, rock, concrete, asphalt and related engineering materials.
Actuation – Lever and adjustable, pressure compensated flow control valve.
Functions – Cylinder piston “return”, “hold”, “controlled advance” (pressure compensated) and “advance” (full flow). Will deliver a relatively constant flow regardless of pressure between 70 and 700 bar.
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 117).
No. 9609 – 3-way/4-position manual pressure compensated valve. Wt., 4 kg.
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 132) in conjunction with the directional valve used in your application.
IMPORTANT: Conversion kit 251528 must be used when mounting the 9609 valve on PA17 or PE17 pumps.
IMPORTANT: When ordering any valve for a PE30 or PG30 series pump, 1/2" longer mounting screws are required. For valves 9500, 9501 and 9511, order four 12001 cap screws. For valve 9552, 9506, and 9507, order four 11956 cap screws. For valves 9599 and 9605, order four 251078 cap screws. For valve 9609, order four 10855 cap screws.



Valves

HYDRAULIC PUMP MOUNTED

Solenoid or Air Operated

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

3-WAY/2-POSITION SOLENOID VALVE

Application – Single-acting cylinders.
Actuation – Solenoid operated, 115 volt, 50 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-energized.
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 Hz. Wt., 4,4 kg.
No. 9569 – Same as 9579, except with 24 volt, 50 Hz solenoid.
No. 9570 – Same as 9579 except with 230 volt, 50 Hz solenoid.
NOTES: Valves above are shipped without control switch. Use 202777 remote hand switch (see page 116). When this valve is mounted, the pump must be equipped with an outlet check valve.

3/4-WAY/2-POSITION SOLENOID VALVES

Application – Single- or double-acting cylinders. When used with single-acting cylinders, one port should be plugged.
Actuation – Solenoid 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.
No. 9592 – 3/4-way/2-position solenoid valve, 115 volt, 50 Hz. Wt., 6,6 kg.
No. 9552 – Same as 9592, except with 230 volt, 50 Hz solenoid.
No. 9572 – Same as 9592, except with 24 volt, 50 Hz solenoid.
NOTE: Valves above are shipped without controls. The 9552, 9572 and 9592 can be used with the 304718 remote hand control. (see page 116)
 Note: Ports are 1/4" NPTF.

AIR ACTUATED VALVE

Application – Single- or double-acting cylinders. When used with single-acting cylinders, one port should be plugged.
Actuation – 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 – PA17, PA46 and PA55 series.
No. 9594 – 3/4-way/2-position solenoid valve, air operated (minimum of 4 bar air pressure required). Wt., 5 kg.
NOTES: Valve above is shipped without controls. 9594 can be used with the 209593 remote hand control (see page 116). See page 132 for remote mounted models of this valve.

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 132) in conjunction with the directional valve used in your application.
IMPORTANT: Conversion kit 251528 must be used when mounting any of the valves on this page on PA17 or PE17 pumps.
IMPORTANT: When ordering any valve for a PE30 or PG30 series pump, 1/2" 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.



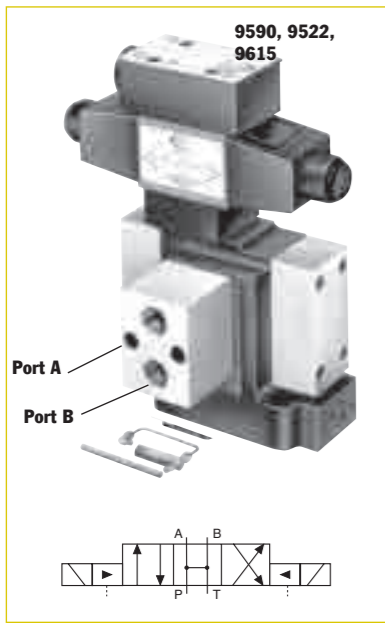
Valves

HYDRAULIC PUMP MOUNTED

Solenoid or Air Operated

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

PUMPS/VALVES



4-WAY/3-POSITION (OPEN CENTER) SOLENOID VALVE

Application – Double-acting cylinders.
Actuation – Solenoid operated, 115 volt, 50 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 carrying handles removed), PE55, PE90 and PE120 series. For other pump models, consult factory.

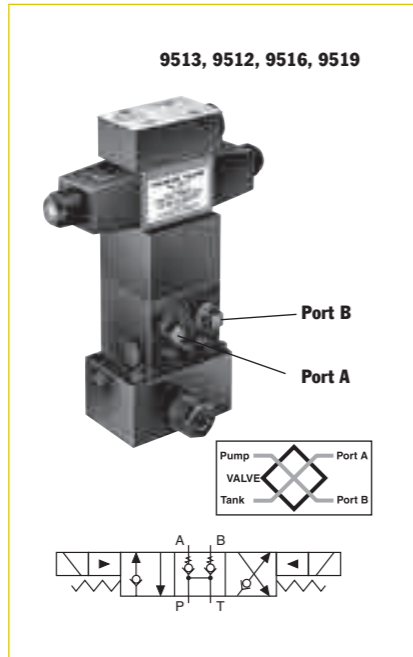
NOTE: A pressure switch and/or gauge may be attached if desired (see pages 117, 124-125).

No. 9590 – 4-way/3-position (open center) solenoid valve, 115 volt, 50 Hz.

Wt., 7 kg.

No. 9522 – Same as 9590 except for 230 volt, 50 Hz.

No. 9615 – Same as 9590 except for 24 volt, 50 Hz.



4-WAY/3-POSITION (TANDEM CENTER) PILOT OPERATED SOLENOID VALVE

Application – Double-acting cylinders.
Actuation – Solenoid operated, 115 volt, 50 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 124-125).

No. 9513 – 4-way/3-position (tandem center) solenoid valve, 115 volt, 50 Hz. Wt., 8,2 kg.

No. 9512 – Same as 9513 except for 24 volt, 50 Hz circuits.

No. 9516 – Same as 9513 except for 12 volt DC. For use on the PG1204S and PG400 series pumps only.

No. 9519 – Same as 9513 except for 230 volt, 50 Hz circuits. Consult factory for field installation.

NOTE: Valves above are shipped without control switch. Use 202777 remote hand switch (see page 116).

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 132) in conjunction with the directional valve used in your application.

IMPORTANT: Conversion kit 251528 must be used when mounting the 9609 valve on PA17 or PE17 pumps.

IMPORTANT: When ordering any valve for a PE30 or PG30 series pump, 1/2" 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.



3-WAY/2-POSITION (PILOT OPERATED) SOLENOID VALVE

Application: Single-acting cylinders.

Actuation: Solenoid operated, 115 volt, 50 Hz.

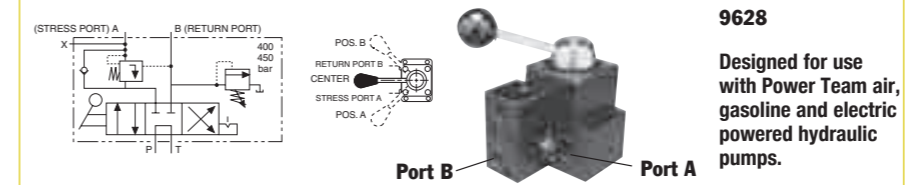
Function: “Advance” and “return”.

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 117, 124-125).

No. 9589 – 3-way/2-position (pilot operated) solenoid valve, 115 volt, 50 Hz. Wt., 3,7 kg.

No. 9523 – Same as 9589 except for 230 volt, 50 Hz.

No. 9553 – Same as 9589 except for 24 volt, 50 Hz.



9628

Designed for use with Power Team air, gasoline and electric powered hydraulic pumps.

4-WAY/3-POSITION (TANDEM CENTER) MANUAL VALVE

Application – Single strand, double-acting stressing jacks with Power Wedge seater.

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 440 bar. “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 700 bar (max.) single-acting/Power Wedge seater. Wt., 2,5 kg.

“TWIN” 4-WAY/3-POSITION (TANDEM CENTER) MANUAL VALVE

Application – Multi-strand, 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

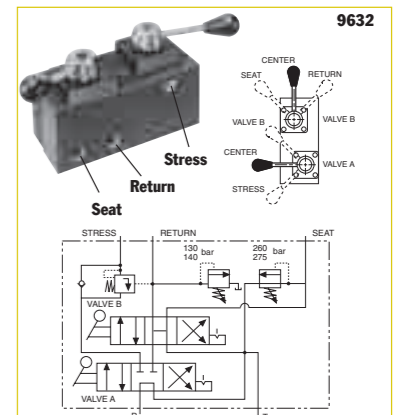
controlled by “Seat” relief valve (factory set to 275 bar).

4. Valve “B” is shifted to “Return” position, which is pressure controlled and will not exceed 155 bar. “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 420 bar.

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.



Pump mounted, 6-position detented 5-way manual dual valve. Rated pressure to valve “A” is 700 bar and valve “B” is 420 bar. Case pressure is 35 bar max.

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 132) in conjunction with the directional valve used in your application.

IMPORTANT: Conversion kit 251528 must be used when mounting any of the valves on this page on PA17 or PE17 pumps.

IMPORTANT: When ordering any valve for a PE30 or PG30 series pump, 1/2" 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.



Valves

HYDRAULIC PUMP MOUNTED

Manual

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

PUMPS/VALVES