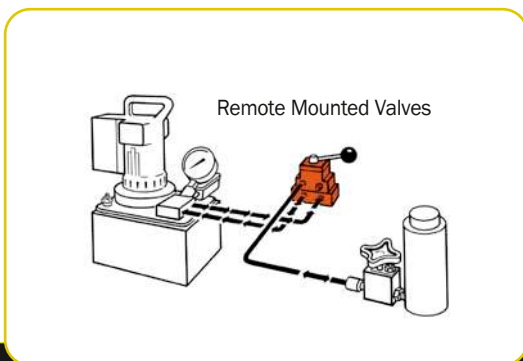




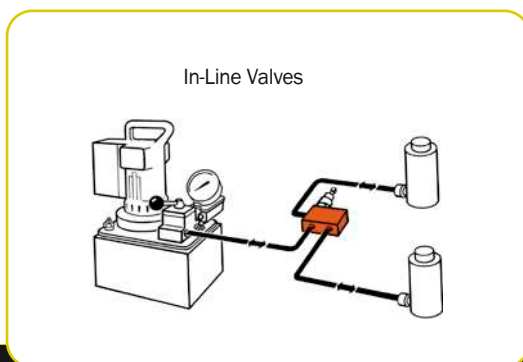
Valves

HYDRAULIC REMOTE/IN-LINE

Valve selection chart



Order No.	Page No.	*Cylinder Application	Operation	Valve Type	Volt	Advance/Return	Advance/Hold Return	Posi-Check Feature
9508	131	S.A. & D.A.	Manual	4-way, 3 Pos. Closed Center	—	no	yes	yes
9509	131	S.A. & D.A.	Manual	4-way, 3 Pos. Tandem Center	—	no	yes	yes
9514	131	D.A.	Solenoid	4-way, 3 Pos. Tandem Center	115	no	yes	yes
9524	130	S.A. & D.A.	Solenoid	3/4-way, 2 Pos.	230	no	yes	no
9525	131	D.A.	Solenoid	4-way, 3 Pos. Tandem Center	230	no	yes	yes
9526	131	S.A.	Solenoid	3-way, 2 Pos.	230	no	yes	no
9554	130	S.A. & D.A.	Solenoid	3/4-way, 2 Pos.	24	no	yes	no
9555	131	D.A.	Solenoid	4-way, 3 Pos. Tandem Center	24	no	yes	yes
9556	131	S.A.	Solenoid	3-way, 2 Pos.	24	no	yes	no
9559	131	S.A.	Solenoid	3-way, 2 Pos.	115	no	yes	no
9593	130	S.A. & D.A.	Solenoid	3/4-way, 2 Pos.	115	no	yes	no
9595	130	S.A. & D.A.	Air	3/4-way, 2 Pos.	—	no	yes	no



Order No.	Page No.	*Cylinder Application	Operation	Valve Type	Volt	Advance/Return	Advance/Hold Return	Posi-Check Feature
9575	132	S.A.	Manual	Shut-Off Valve	—	—	—	—
9580	133	S.A.	Automatic	One-way Check Valve	—	—	—	—
9581	133	S.A. & D.A.	Automatic	Pilot Op. Check Valve	—	—	—	—
9596	132	S.A.	Manual	Load Lowering Valve	—	—	—	—
9597	132	S.A. & D.A.	Automatic	Sequence Valve	—	—	—	—
9608	132	S.A. & D.A.	Automatic	Pressure Reducing Valve	—	—	—	—
9623	133	S.A. & D.A.	Automatic	Pressure Relief Valve	—	—	—	—
9631	133	S.A. & D.A.	Automatic	Metering Valve	—	—	—	—
9633	133	S.A. & D.A.	Automatic	Pressure Regulator Valve	—	—	—	—
9720	132	S.A. & D.A.	Automatic	Counter Balance Valve	—	special	—	—
9721	132	S.A. & D.A.	Automatic	Counter Balance Valve	—	special	—	—
RV21278	133	—	Automatic	Relief Valve	—	—	—	—

“S.A.” represents single-acting cylinders, “D.A.” represents double-acting cylinders.
For pump-mounted valves, see pages 51-57.

HYDRAULIC ACCESSORIES



Valves

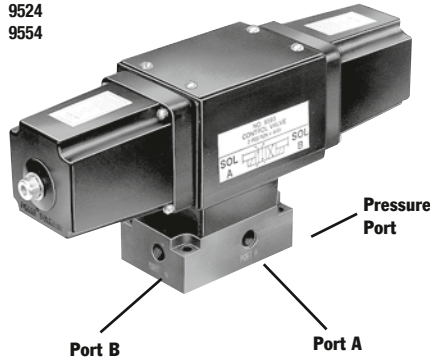
HYDRAULIC REMOTE MOUNTED

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

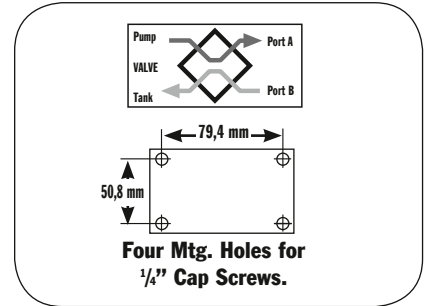
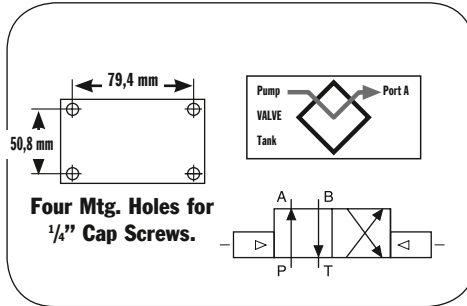
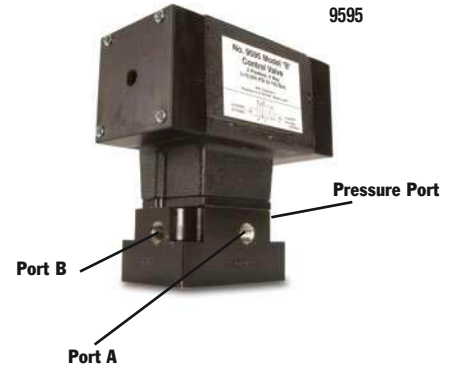
3/4-way/2-position solenoid
and air actuated valves

HYDRAULIC ACCESSORIES

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.

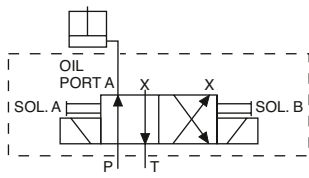
No. 9554 – Same as 9593 except with 24 volt, 50/60 Hz.

No. 9595 – Same as 9593 except is air operated (minimum of 3,5 bar air pressure required). Wt., 5,2 kg.

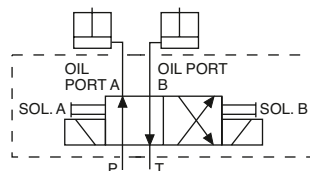
NOTE: Valves above are shipped without controls. The 9524, 9554 and 9593 can be used with the 304718 remote hand control (see page 106). The 9595 can be used with the 209593 remote hand control (see page 106).

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

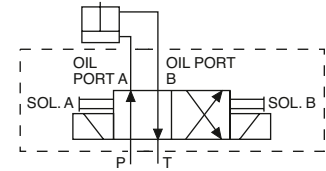
NOTE: Maximum tank line pressure for remote mounted valves is 35 bar.



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 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.

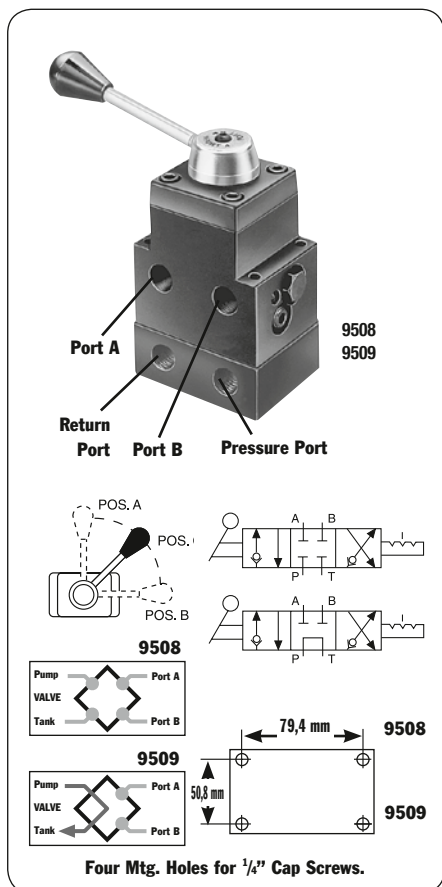


Valves

HYDRAULIC REMOTE MOUNTED

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

HYDRAULIC ACCESSORIES



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."

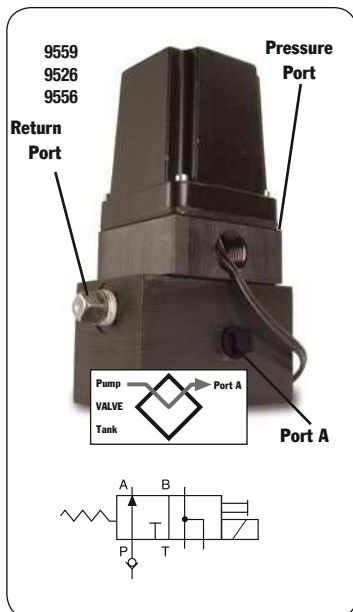
No. 9508 - 4-way/3-position (closed center) manual valve, including subplate for remote mounting. Wt., 2,9 kg.

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

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.

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.



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.

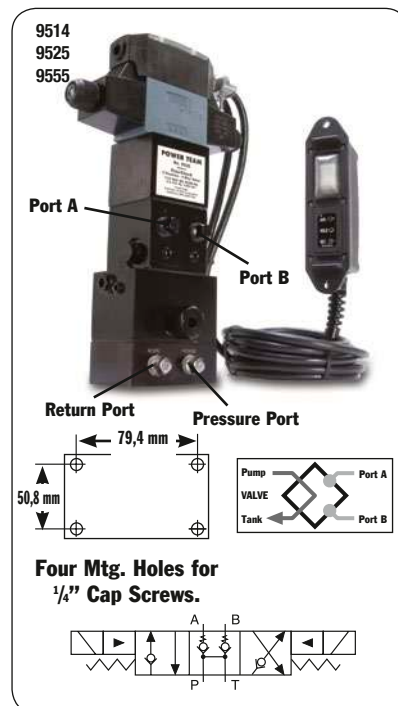
IMPORTANT: A 9580 in-line check valve (see page 123) must be installed in the "pressure" port if the supply pump is not equipped with an outlet check valve.

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).



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.

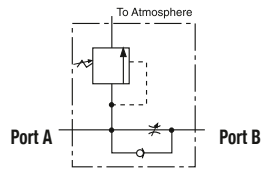
NOTE: Consult factory before installing a pressure switch on any of these valves.



Valves

HYDRAULIC IN-LINE

700 bar,
19 l / min max flow rate



9596



LOAD LOWERING VALVE

Application: Precision metering for controlled cylinder piston return.

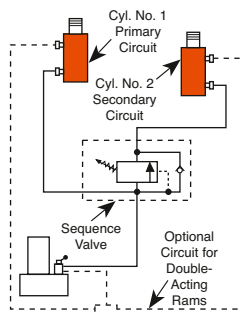
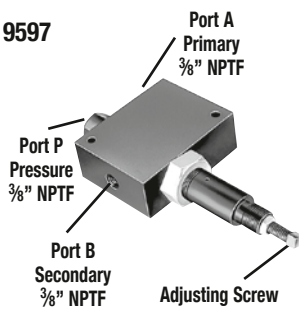
Operation: Permits free flow when extending cylinder, built-in pressure relief and "Posi-Check®" locks and holds load in raised position until operator opens valve. May be pre-set to provide consistent metered return, or operator may select rate of return with each actuation. Has 3/8" NPTF ports.

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.

HYDRAULIC ACCESSORIES

9597



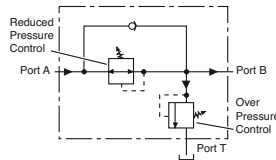
SEQUENCE VALVE

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).

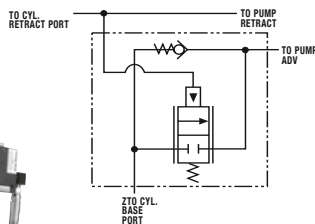
Has 1/4" NPTF ports.

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

CAUTION: Over Pressure control must be set at a higher value than operating pressure.

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

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.



9575

Check valve

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.



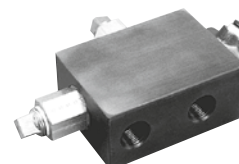
9580

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 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.



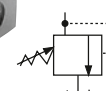
9581

"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 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.



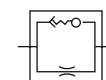
9623

Metering valve

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.



9631

"In-line" pressure regulator valve

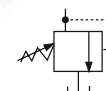
Application: Single- or double-acting cylinders. Permits adjusting operating pressures at various values below relief valve setting of pump.

Operation: Regulator valve is easily adjusted to maintain pressures between 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.

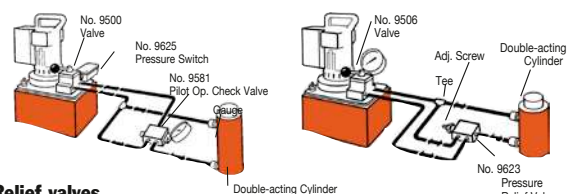
No. 9633 – In-line pressure regulator valve with two 3/8" NPTF inlet ports, one 1/8" NPTF tank port and 1 m drain line kit.

Simply turn the handle clockwise to increase the pressure setting, counter-clockwise to reduce pressure.

Note: 1 m Drain Line Kit is included.



9633

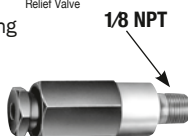


Relief valves

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.