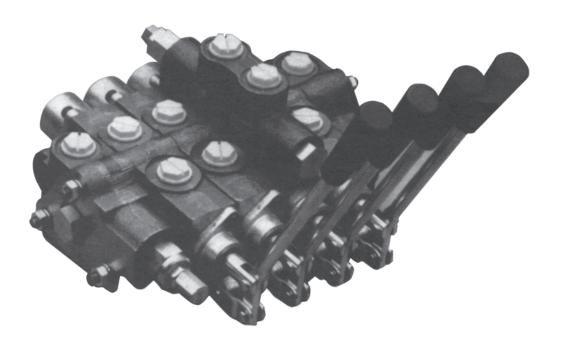
Directional Control Valves

SECTIONAL BODY



Model SV

STANDARD FEATURES

- 1-10 Sections Per Valve Bank
- Load Checks On Each Section
- Hard Chrome Plated Spools
- Compact Construction
- Enhanced Metering Section Available in both the High and Low Sections

the 18/16/13 fluid cleanliness level is recommended.

- Differential Poppet Style Relief, Adjustable from 1500 to 3000 psi (Also available in Low Pressure Version Adjustable from 500 to 1500 psi)
 Power Beyond Capability
- Reversible Handle
- Mid-Inlet and Lock Valve Section available
- Flow Control Inlet

SPECIFICATIONS

SF LOII	ICATIONS	
Parallel or Series Circuit Construction	Foot Mounting	
Pressure Rating	Maximum Operating Temp	180°F
Maximum Operating Pressure 3000 psi	Weight Per Section	
Maximum Tank Pressure 500 psi	Inlet Section	Approx 3.75 lbs
Nominal Flow Rating12 GPM	Outlet Section	Approx 3.75 lbs.
Refer to Pressure Drop Curves.	Work Section (Standard)	Approx 5.50 lbs.
Filtration: For general purpose valves, fluid	Work Section (High)	
cleanliness should meet the ISO 4406 19/17/14	, ,	
level. For extended life or for pilot operated valves		

CATV 21-07-13-02

ORDERING INFORMATION:

The following is a listing of valve sections available from stock on a standard basis.

STANDARD SECTIONS AVAILABLE:

INLET SECTIONS ALL HAVE BOTH TOP AND SIDE INLET PORTS

PART NO.	RELIEF TIPE AND SETTING	PURI SIZE
SVI21	No Relief	#10 SAE ORB (7/8-14 THD)
SVI24	Adjustable Low Pressure Relief Set at 1000 PSI	#10 SAE ORB (7/8-14 THD)
SVI15	Adjustable High Pressure Relief Set At 2000 PSI	#8 SAE ORB (3/4-16 THD)
SVI25	Adjustable High Pressure Relief Set at 2000 PSI	#10 SAE ORB (7/8-14 THD)

WORK SECTIONS ALL HAVE #8 SAE ORB (3/4-16 THD) PORTS, LOAD CHECK AND STANDARD LEVER HANDLE

PART NO. SPOOL TYPE AND ACTION SVW1AA1 3-Way Single Acting w/ Spring Center SVW1BA1 4-Way Double Acting w/ Spring Center (Work Ports Blocked in Neutral) SV/W1RR1

4-Way Double Acting w/ 3 Position Detent (Work Ports Blocked in Neutral) SVW1CA1 4-Way Motor Spool w/ Spring Center (Work Ports Open to Tank in Neutral SVW1CB1 4-Way Motor Spool w/ 3 Position Detent (Work Ports Open to Tank in Neutral) SVW1DD1 4-Way 4 Position Float w/ Spring Center and Float Detent

4-Way Spool w/ Spring Center (with Pilot Operated Checks on Both Work Ports) SVL1CA1

SPOOL TYPE AND ACTION

4-Way Meter Spool w/ Spring Center (Work Ports Blocked in Neutral) SVM1ES1

PORT RELIEF WORK SECTIONS ALL HAVE #8 SAE ORB (3/4-16 THD) PORTS, LOAD CHECK AND STANDARD LEVER HANDLE. MODELS WITH RELIEF FACTORY SET AT 2000 PSI AT 3 GPM.

I AILI IIO.	31 OOL 111 LAND ACTION	I OKI KELILI S
SVH1BA1AA	4-Way Double Acting w/ Spring Center	Port Relief Plugged
SVH1BA1GG	4-Way Double Acting w/ Spring Center	Adjustable 1500-3000 PSI
SVH1DD1AA	4-Way 4 Position Float w/ Spring Center and Float Detent	Port Relief Plugged
SVH1DD1BB	4-Way 4 Position Float w/ Spring Center and Float Detent	Shim Adjustable 1500-3000 PSI
SVR1ES1AA	4-Way Meter Spool w/ Spring Center	Port Relief Plugged
SVR1ES1GG	4-Way Meter Spool w/ Spring Center	Adjustable 1500-3000 PSI
SVS1GA1GG	4-Way Double Acting Series w/ Spring Center	Adjustable 1500-3000 PSI
SVS1GA1AA	4-Way Double Acting Series w/ Spring Center	Port Relief Plugged

OUTLET SECTIONS ALL HAVE BOTH TOP AND SIDE OUTLET PORTS

PART NO.	EXHAUST OPTIONS	PORT SIZE
SVE11	Open Center Outlet w/ Conversion Plug	#8 SAE ORB (3/4-16 THD
SVE21	Open Center Outlet w/ Conversion Plug	#10 SAE ORB (7/8-14 TH
SVE22	Power Beyond Outlet w/ #8 SAE Beyond Port	#10 SAE ORB (7/8-14 TH
SVE23	Closed Center Outlet	#10 SAE ORB (7/8-14 TH
SVE26	Open Center Outlet Pressure Build-up Valve	#10 SAE ORB (7/8-14 TH
SVE27	Power Beyond Pressure Build-up Valve	#10 SAE ORB (7/8-14 TH
	DARTNO	DADT NO

TIE ROD KITS

PART NO

TIE ROD TORQUE 150in-lbs ± 6in-lbs (12 1/2 ft-lbs ±1/2)

PART NO.

660401001 1 Section* 660401002 2 Sections* 660401003 3 Sections* 660401004 4 Sections* 660401005 5 Sections* *Number of Work Sections

HĎ) HD) HD) HD) HD)

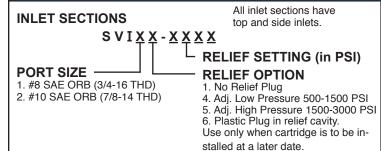
PORT RELIEFS

PART NO.

660401006 6 Sections* 660401007 7 Sections* 660401008 8 Sections* 660401009 9 Sections* 660401010 10 Sections*

SPECIAL INLET AND OUTLET SECTIONS AVAILABLE:

Sections other than standard models listed can be made to order. Use order code Matrix below to generate a model number that meets your requirements. If you prefer, contact your Sales Representative with your specific requirements and a model number will be assigned for you. This model number can be used for future orders. A minimum order quantity will apply to special valves. Please consult Sales Representative.



OUTLET SECTION SVEXX

PORT SIZE -

1. #8 SAE ORB (3/4-16 THD) 2. #10 SAE ORB (7/8-14 THD)

All outlet sections have top and side outlets.

EXHAUST OPTION

- 1. Std. Open Center Outlet w/Conversion Plug
- 2. Power Beyond Outlet w/#8 SAE Beyond Port
- 3. Closed Center Outlet 0
- Open Center Outlet Pressure Build-up
- 7. Power Beyond Pressure Build-up #8 SAE Beyond Port
- Often used with no relief. Review application

VALVE ASSEMBLIES

The Model SV sectional body directional control valve can be ordered as separate sections or as a complete factory tested assembly. This will need to be specified with each order. An assembly number will be assigned at the time of the order. This assembly number can then be used for future orders.

ASSEMBLY MODEL NUMBER SVA-XXXX-

XXXX = Sequence of Numbers. This number will be assigned to final valve to be assembled and tested at the factory. Each new order or quote willbe assigned a new assembly model number. Please use quotation sheet at the end of SV section.

SPECIAL WORK SECTIONS AVAILABLE: Work Sections other than standard models listed can be made to order. Use order code Matrix below to generate a model number that meets your requirements. If you prefer, contact your Sales Representative with your specific requirements and a model number will be assigned for you. This model number can be used for future orders. A minimum order quantity will apply to special valves. Please consult Sales Representative.

WORK SECTIONS SVXXXX HANDLE OPTION **SECTION TYPE** 1. Standard Lever Handle W-Std. Work Section 2. Less Handle Only M-Metering Work Section² 3. Less Complete Handle Assembly L-Work Section with Double P.O. Checks1 F-Fine Metering³ 4. Adjustable Handle 5. Tang Spool End Only **PORT SIZE** 6. Clevis Spool End Only 1. #8 SAE ORB (3/4-16 THD) 2. #6 SAE ORB (9/16-18 THD) 7. Vertical Handle 8. Straight Handle SPOOL TYPE 9. Blank for Optional Joystick Handle A-3-Way 3-Position B-4-Way 3-Position 11. Enclosed Handle 12. Extended Enclosed Handle C-4-Way 3 Position Motor 13. Locking Handle D-4-Way 4 Position Float L-4-Way 3 Position Hoat E-4-Way 3 Position Metering (SVM only) F-3-Way 3 Position Metering (SVM only) J-4-Way 3 Position Fine Metering (SVF only) K-4-Way 3 Position Counterbalance Drain/Motor (SVM) M-4-Way 3 Position Counterbalance Drain/Motor (SVM) **SPOOL ACTION** A-Spring Center (SVW & SVL only) B-3 Position Detent C-Friction Detent D-Spring Center w/Float Detent (SVW only) 1. Lock Valve Section available only with Spool Option C. E-Light Spring Center 2. Metering Section available only with Spool Options E or F. F-2 Position Detent Neutral and Out (No IN Position) 3. Fine Metering available only with Spool Options J. G-2 Position (Center and Spool Out) - Spring Loaded to Spool Out (Pressure to B Port) Position PORT RELIEF WORK SECTIONS H-2 Position (Center and Spool In)-Spring Loaded SVXXXXXXX to Spool In (Pressure to A Port) Position **SECTION TYPE** J-S/C with MicroSwitch Bracket 2-Position (MicroSwitch not provided) K-S/C with MicroSwitch Bracket 1-Position (MicroSwitch not provided) H-Port Relief Section (activates on spool out only) R-Port Relief Metering Section² M-Spring Center Detent In N-Spring Center Detent Out S-Series Circuit Port Relief Section G-Port Relief Fine Metering Section3 R-Spring Center Pneumatic Actuator **PORT SIZE** S-Spring Center (SVM & SVF) 1.#8 SAE ORB (3/4-16 THD) 2.#6 SAE ORB (9/16-18 THD) **PORT RELIEF "B" OPTION SPOOL TYPE** A-Relief Cavity Plugged A-3-Way 3-Position B-Non-Adjustable Direct Acting Relief 1500-3000 PSI B-4-Way 3-Position C-Non-Adjustable Direct Acting Relief 500-1500 PSI C-4-Way 3 Position Motor D-Anti-Cavitation Check D-4-Way 4 Position Float D-4-Way 4 Position Float E-4-Way 3 Position Metering (SVR only) F-3-Way 3 Position Metering (SVR only) G-4-Way 3 Position Series (SVS only) H-4-Way 3 Position Motor Series (SVS only) J-4-Way 3 Position Float Metalogue (SVG only) E-Adjustable Combination Port Relief/Anti-Cavitation Check 1000-2500 PSI** F-Non-Adjustable Combination Port Relief/Anti-Cavitation Check 1000-2500 PSI** G-Adjustable Direct Acting Relief 1500-3000 PSI K-4-Way 3 Position Counterbalance Drain (SVH) H-Adjustable Direct Acting Relief 500-1500 PSI M-4-Way 3 Position Counterbalance Drain/Motor (SVR) PORT RELIEF "A" OPTION **SPOOL ACTION** A-Spring Center (SVH & SVS only) B- 3 Position Detent A-Relief Cavity Plugged B-Non-Adjustable Direct Acting Relief 1500-3000 PSI C-Friction Detent C-Non-Adjustable Direct Acting Relief 500-1500 PSI D- Spring Center w/ Float Detent (SVH only) D-Anti-Cavitation Check E-Light Spring Center F-2 Position Detent Neutral and Out (No In Position) **E-Adjustable Combination Port Relief/Anti-Cavitation Check 1000-2500 PSI*** G-2 Position Neutral and Out Spring Offset to Out F-Non-Adjustable Combination Port Relief/Anti-Cavitation H-2 Position Neutral and In Spring Offset to In Check 1000-2500 PSI** J-S/C with Micro Switch Bracket 2-Position* **G-Adjustable Direct Acting Relief 1500-3000 PSI K-S/C with MicroSwitch Bracket 1-Position* M-Spring Center Detent In **H-Adjustable Direct Acting Relief 500-1500 PSI N-Spring Center Detent Out R-Spring Center Pneumatic Actuator S-Spring Center (SVR & SVG) ** Cannot be used on work sections with float option due to interference with handle. *** Do not use in applications that require low work port leakage. *MicroSwitch not provided Max allowable leakage 5 in³/min @1000 psi. HANDLE OPTION For Work Port Relief Settings Other Than Standard Standard Lever Handle SVH1BA1GG-<u>18</u>-<u>25</u> 2. Less Handle Only B PORT RELIEF PRESSURE IN HUNDREDS 3. Less Complete Handle Assembly EXAMPLE: 25=2500 PSI at 3 GPM 4. Adjustable Handle 5. Tang Spool End Only All Port Reliefs set at 3 GPM Clevis Spool End Only A PORT RELIEF PRESSURE IN HUNDREDS 7. Vertical Handle EXAMPLE: 18=1800 PSI at 3 GPM 9. Blank for Optional Joystick Handle 12. Extended Enclosed Handle All Port Reliefs set at 3 GPM

CUSTOM SECTION: For OEM application custom sections can often be designed to meet your specifications. Special handles, spool, and spool actions are often easily made because of the SV valve's flexible design. Consult your sales representative with your specifications.

FIELD CONVERSION KITS, REPAIR KITS AND RELIEF CARTRIDGES

SPOOL ATTACHMENT KITS

Spring Center Kit (except SVM) 660180001 3 Position Detent Kit 660180002 660180003 Friction Detent Kit 660180051 Float Detent Kit Spring Center Detent In 660180036 Spring Center Detent Out 660180037 S/C w/Micro-Switch, 2 Position* 660180015 S/C w/Micro-Switch, 1 Position* 660180016

HANDLE KITS

660180011 Std. Handle Kit 660180032 Clevis Sub-Assy Complete Handle Kit 660180005 660180031 Pin Kit 660180026 Vertical Handle Kit

660180028 Straight Handle Kit Complete Adjustable Handle Kit 660180007 Adjustable Handle Kit 660180006

660180055 Joystick Handle Kit Less Handle

*Bracket only, Micro-Switch is not provided

660180234 Locking Handle Kit 660180033 Bent Joystick Handle Kit 660180017 Straight Joystick Handle Kit Offset Joystick Handle Kit 660180018

SEAL KITS

660580001 SVW/SVM Replacement Seal Kit 660580002 Inlet Seal Kit

660580003 Outlet Seal Kit

Between Section Seal Kit 660580004 660580010 SVH/SVR Replacement Seal Kit 660580009 SVL Replacement Seal Kit SVS Replacement Seal Kit 660580011

PORT RELIEFS

660280004 Port Relief Plug

660280003 Shim Adj. Port Relief 1500-3000 PSI Shim Adj. Port Relief 500-1500 PSI 660280010

660280012 Adj. Combination Port Relief/Anti-Cav Check 1000-2500 PSI 660280008 Shim Adj. Combination Port

Relief/Anti-Cav Check 1000-2500 PSI

660280005 Anti-Cavitation Check 660280009 Adj. Port Relief 1500-3000 PSI Adj. Port Relief 500-1500 PSI 660280011

672000101 .015 SHIM .033 SHIM 672000102 672000103 .060 SHIM Shim Assortment 660180215

INLET RELIEFS

660250006 Inlet Relief Plug

660250003 Adj. Low Pressure Inlet Relief 660250002 Adj. High Pressure Inlet Relief

OUTLET CARTRIDGES

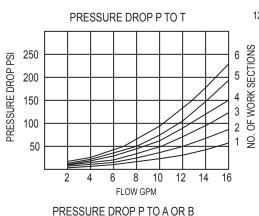
200400030 Open Center Plug

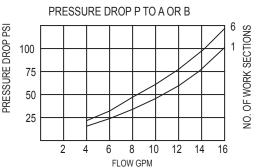
#8 SAE Power Beyond Cart. 660280001 660280002 Closed Center Plug Open Center Build-Up Cart. 660280018 660280019 Power Beyond Build-Up Cart.

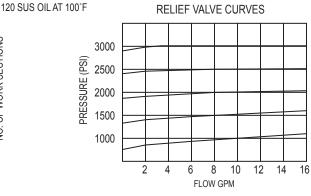
MISC. KITS

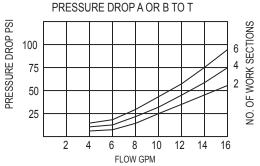
660180052 Load Check Kit

PERFORMANCE CURVES

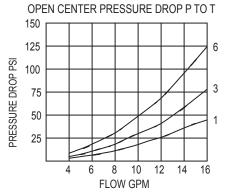




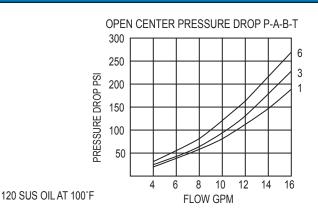




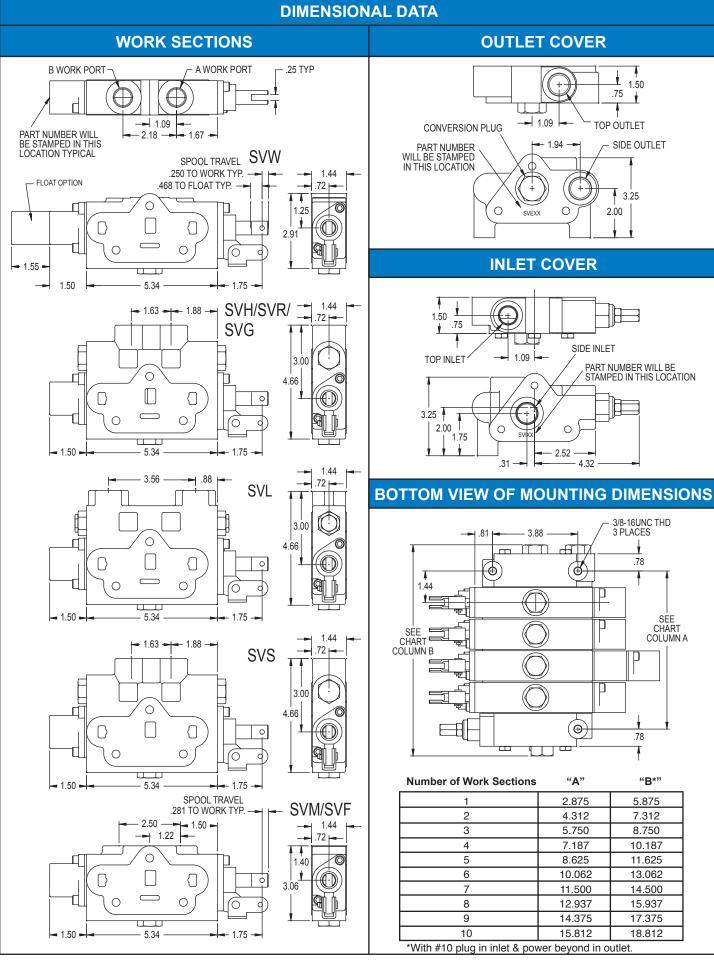
SVS SERIES SECTION TEST DATA







OF WORK SECTIONS 9



7 66

TYPICAL STACK DIMENSIONAL DATA 2.00 2.00 9.30 260 POWER BEYOND PORT 3.71 SIDE OUTLET TOP OUTLET SVE 1.47 $^{\left(igotimes} ight)$ SVL THE ROD TORQUE 1.44 150 in-lbs +6 in - lbs SVH\SVS (12 1/2 ft - lbs +1/2 1.44 (\oplus) SVM ⊕ SVW -S12L

ENCLOSED HANDLE, OPTIONS 11 AND 12

3.86

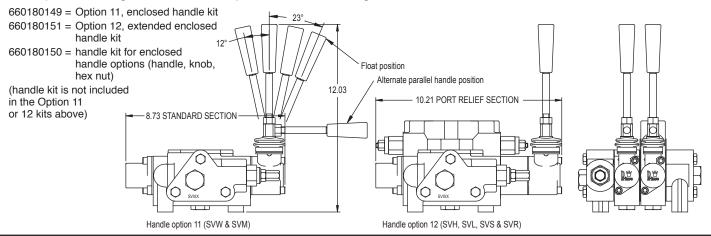
3.06

| -T12Q

5.88 5.00

SVI

Durable die cast metal housing. Weather and oil resistant rubber boot. Reversible handle can be mounted in either a vertical or horizontal position. The extended handle option provides the necessary clearance for work port relief and lock cartridges. The extended handle option can also be used on the SVW and SVM, work sections when it is desired to keep handles aligned in an assembly with both low and high sections.

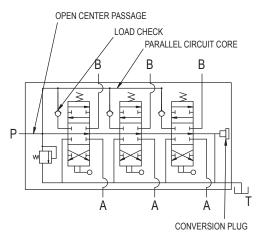


PARALLEL CIRCUIT SVW, SVM, SVF, SVH, SVR, SVG AND SVL WORK SECTIONS

Parallel circuit sections are by far the most common. The SVW, SVM, SVF, SVH, SVR, SVG and SVL are all of parallel circuit construction. They can be combined together in any order in an assembly. When any one of the spools is shifted, it blocks off the open center passage through the valve. The oil then flows into the parallel circuit core making oil available to all spools. If more than one spool is fully shifted, the oil will go to the spool with the lowest pressure requirements. However, it is possible to meter the flow to the spool with the lease load and provide flow to two unequal loads.

ENHANCED METERING SECTIONS

The SVM, SVF, SVR and SVG sections have metering notches machined P into the spool to allow for better "feathering" of a load. The spool travel for these sections is also a little longer at .281" vs. .250" for the standard sections. In addition to the metering notches in the spool, the lands in the SVF and SVG bodies have been machined to give more precise control over the flow. The metering notches in the SVF and SVG have been optimized for flows of 10 gpm or less. For enhanced metering on higher flows, it is recommended that the SVM or SVR be used.

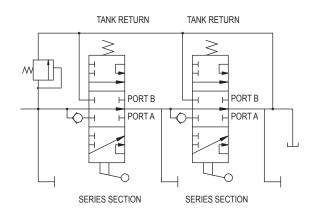


LOCK SECTIONS

The SVL section combines both a 4-way directional valve and a double pilot operated check valve. This provides very low leakage when the spool is in neutral. When the spool is shifted, oil is directed through a work port check to the cylinder. Pressure on the work port applies pressure to the shuttle spool, opening the opposite check valve and allowing oil to return into the valve. Depending on load pressures, the metering of the spool may be affected. In some cases a one way restrictor in a work port may be beneficial.

SERIES CIRCUIT SVS WORK SECTIONS

A series circuit valve is most commonly used to control more than one hydraulic component simultaneously. The entire circuit flow is available to each valve section that is actuated. In a two spool series valve with both spools actuated, the oil flows from the inlet to the work port of the first section. The return flow of the first section is directed to the open center core of the second section. (In a parallel valve the return oil from the work port is directed to the tank core.) From the open center core of the second section, the oil flows to the work port with the return oil going to the outlet. In a series circuit valve, the summation of the pressures required for each work section will equal the total pressure required for the circuit. The total pressure required must not exceed the system relief setting or the pump pressure rating. It is not required to have a SV Series section as the last section, unless series flow is required to a downstream valve. In this application, a power beyond plug must be used in the outlet section.



COMBINED SERIES / PARALLEL CIRCUITS

The SV Series circuit valve sections may be stacked with SV parallel circuit valve sections. This allows both series and parallel control in the same valve assembly.

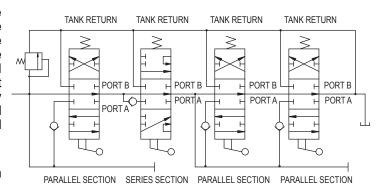
In the valve assembly shown below, the first, third and fourth sections are parallel. The second section is series. The first parallel section has priority over all downstream valves. When the spool of the first parallel section is actuated, the return oil from the work port is directed to the tank core, thus oil flow to downstream sections is cut off. The second and third sections are in series with each other as is the second and fourth sections. The third and fourth sections are in parallel with each other.

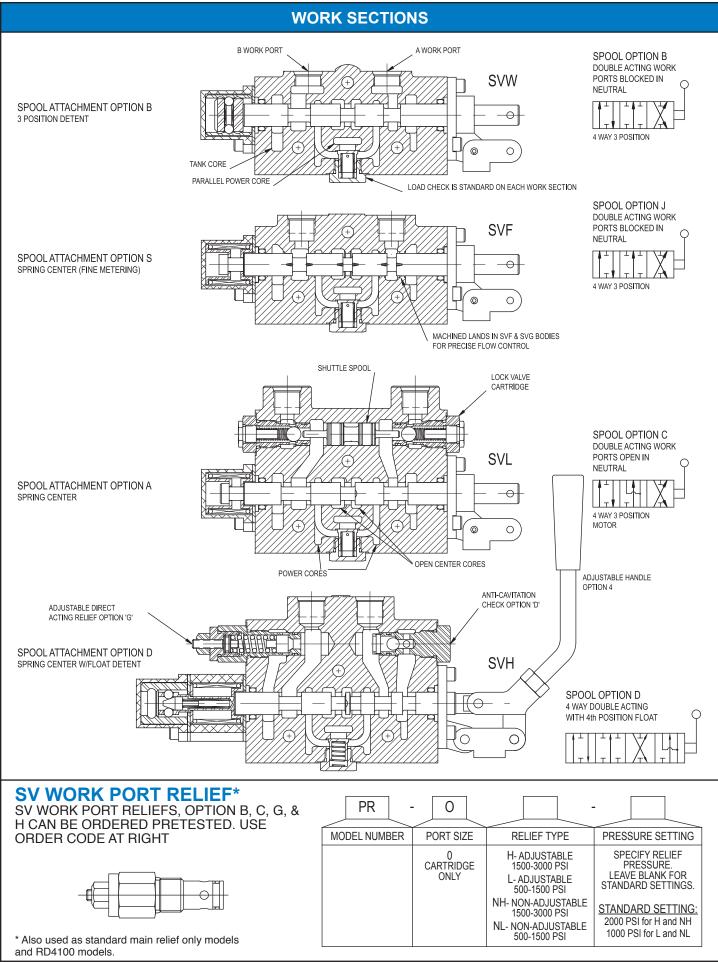
SERIES MOTOR SPOOL

The SV Series Motor Spool provides control of reversible hydraulic motors. Both work ports are connected to the open center core in the neutral position. It should be noted that in the neutral position, the work ports will be equally pressurized to the same pressure that is required of any downstream valve sections and that a work port relief in the section will also limit the pressure of any other sections in the valve. The series motor spool should not be used to control a hydraulic cylinder as unwanted cylinder drift may occur in the neutral position.

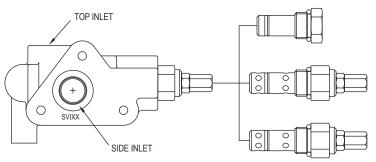
CLOSED CENTER APPLICATIONS

The SV Series Circuit Valve sections cannot be used in a closed center valve assembly.





SV INLET RELIEF OPTIONS



OPTION 1 NO RELIEF

This option provides no built in relief. This is used when a relief is provided elsewhere in the system or in a closed center application. This plug can be replaced with a relief cartridge at a later date.

OPTION 4 LOW PRESSURE ADJUSTABLE RELIEF

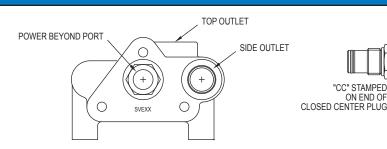
This option provides for a differential poppet relief adjustable from 500-1500 PSI. Set at 1000 PSI @ 10 GPM.

OPTION 5 HIGH PRESSURE ADJUSTABLE

This option provides for a differential poppet relief adjustable from 1500-3000 PSI. Set at 2000 PSI @ 10 GPM. The differential poppet relief provides smooth quiet operation with high cracking pressure.

RELIEF CARTRIDGES CAN BE ORDERED PRETESTED SEE RV-OX RELIEF. PAGE V67.

SV OUTLET COVER OPTIONS



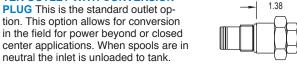
"CC" STAMPED ON END OF

OPTION 3 CLOSED CENTER OUTLET

This option provides for closed center operation. This is typically used with a variable displacement pressure compensated pump or in a system with an unloading valve. When the spools are in neutral the inlet port is blocked. Closed center can also be accomplished by plugging the power beyond port of option 2.

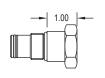
PLEASE NOTE that this closed center option does not provide for the drain off of standby spool leakage. This can allow a very small amount of oil to enter the work ports when





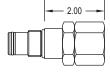
OPTION 6 OPEN CENTER OUTLET PRESSURE BUILD-UP VALVE FOR SOLENOID OPTION

This option directs oil from open center core thru pressure build-up valve and then to tank. See solenoid section for description of operation.



OPTION 2 POWER BEYOND OUTLET WITH #8 SAE BEYOND PORT

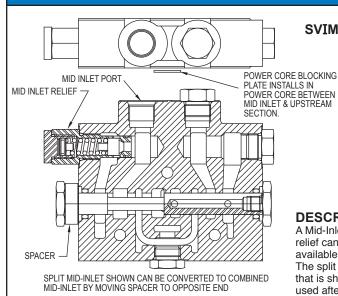
This option provides for a high pressure power beyond port. This would be used if a valve is to be added down stream. THE OUTLET PORT MUST STILL BE CONNECTED TO TANK. When spools are in neutral the inlet is connected to the power beyond port.



OPTION 7 POWER BEYOND PRESSURE BUILD-UP VALVE FOR SOLENOID OPTION

This option directs oil from inlet thru pressure build-up valve and then downstream. This pressure build-up valve provides a #8 SAE power beyond port. The outlet must be connected

SV MID-INLET SECTION



SVIM 1XX-XXXX Last Four Digits Specify A Non-Standard Relief Pressure. When blank, refer to standard setting 1-No Relief 2-SHIM Adjustable 500-1500 PSI Std. Setting 1000 PSI @ 10GPM

3-SHIM Adjustable 1500-3000 PSI Std. Setting 2000 PSI @ 10 GPM 4-Adjustable 500-1500 PSI Std. Setting 1000 PSI @ 10 GPM

5-Adjustable 1500-3000 PSI Std. Setting 2000 PSI @ 10 GPM

C-Combined Flow Mid-Inlet

S-Split Flow Mid-Inlet (not available after a series section) See Section View at left. Note

Location of Spacer, Part Number 671200035

- 1. Port Size #8 SAE ORB (3/4-16 THD)

DESCRIPTION:

A Mid-Inlet provides an inlet port for a second pump mid stream in the valve stack. A relief can be provided in this section. With the combined flow the flow from both pumps is available to the downstream sections when all the work sections upstream are in neutral. The split flow completely separates the two pump flows. The common tank passage is all that is shared between the two pump flows. Note: Split flow mid inlet is not available when used after a series section and the core block plate is not used after a series section.

SV FLOW CONTROL INLET SECTION

PORT SIZE

1- Side and End Inlet #10 SAE ORB

SVIFXXXXXX

2- Side and End Inlet #10 SAE ORB, with #8 SAE ORB External EF Circuit

RELIEF VALVE -

- 1- No Relief
- 2- Direct acting non-adjustable 500-1500 psi set at 1000 psi*
- 3- Direct acting non-adjustable 1500-3000 psi set at 2000 psi*
- 4- Direct acting adjustable 500-1500 psi set at 1000 psi*
- 5- Direct acting adjustable 1500-3000 psi set at 2000 psi* *for other settings please specify, i.e. SVIF15P12Q2700 is set at 2700 psi

SOLENOID OPTION

Omit for Flow Control Option M 12Q-12VDC Double Spade Coil 24Q-24VDC Double Spade Coil 12H-12VDC DIN 43650 Coil 24H - 24VDC DIN 43650 Coil

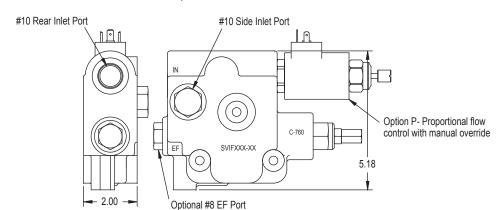
12L-12VDC Double Lead Wire Coil 24L - 24VDC Double Lead Wire Coil

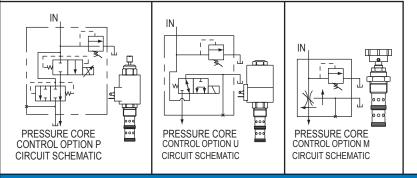
12W -12VDC Double Lead Wire w/ Weatherpak

24W - 24VDC Double Lead Wire w/ Weatherpak Connector Coil

FLOW CONTROL OPTION

- M- Manual Flow Control
- P- Electro-Proportional
- U- Solenoid Unloading





The SVIF Flow Control Inlet is interchangeable with the standard SV inlet section.

FLOW CONTROL OPTIONS:

P OPTION incorporates a solenoid operated, electrically variable pressure-compensated flow control cartridge. With the solenoid de-energized, all of the inlet flow is diverted to the tank core/EF port. By increasing the current through the solenoid, the flow directed to the power core and downstream sections will be proportionally increased, (the maximum rating of the cartridge is 16 gpm at 1500 mA) Control current is normally provided via a controller card providing, a PWM signal.

U OPTION incorporates a solenoid operated, unloader cartridge. With the solenoid de-energized, all of the inlet flow is diverted to the tank core/EF port. With the solenoid energized all the inlet flow is directed to the power core and downstream sections.

M OPTION incorporates a manually operated pressure-compensated flow control cartridge. With the control knob turned fully in (clockwise), all of the inlet flow is diverted to the tank core/ EF port. By turning the flow control knob counter clockwise, the inlet flow directed to the power core and downstream sections is proportionally increased. Approximately 5 revolutions varies flow from no flow to full flow,

PORT OPTION 2 The flow being directed to the tank core/EF port may be utilized by a second circuit by inserting a 1/4 pipe plug into the tank core passage on the seal side of the casting and then connecting the EF port to the second circuit.

PROPORTIONAL CONTROLLER BOX (for use with SVIFP flow control inlet), PART NO. 671300048

The proportional controller box is used to provide an adjustable electrical signal to a proportional solenoid on the SVIFP inlet. Once the dial is set, the regulated flow through the valve should remain approximately constant regardless of pressure. Within the operating range, flow varies approximately linearly with dial rotation.

CONNECTIONS AND OPERATION:

*Connect leads to the power supply and solenoid. Power supply should be between 9 and 32 VDC.

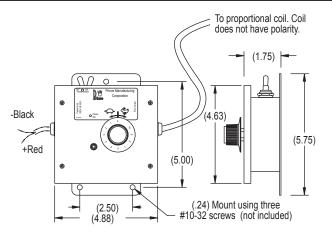
*With the power off, the inlet flow is directed to the tank (or excess flow port).

*To provide power to the control, move the power switch to ON. (Green LED is ON when control is powered).

*Minimum flow is directed into the valve when 0 on the dial is aligned with the center mark. Maximum flow is directed into the valve when 10 on the dial is aligned with the center mark.

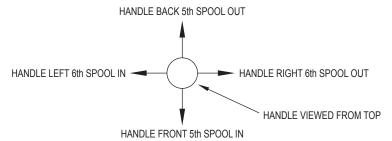
*Clockwise rotation increases flow.

*Typically, no adjustments are needed for operation, (I-min and I-max pots are preset for the normal maximum and minimum flows)



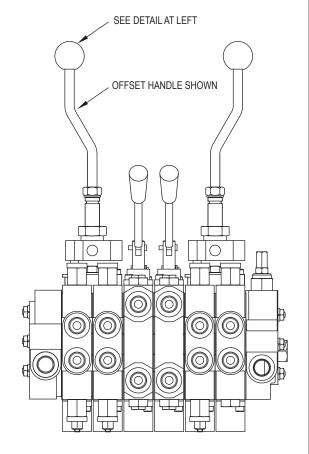
Control comes with 6 ft of cable for power leads and 6 ft of cable for coil leads. Control box protection rating is IP67.

JOYSTICK HANDLE FOR MODEL SV STACK VALVE



This is a special handle for the model SV stack valve that allows the spools of two adjacent sections to be operated by one common handle. The spools can be operated independently or simultaneously depending on handle movement. The option is normally used on spring center to neutral sections, but can also be used on other sections such as float sections. This handle is normally installed on valves assembled at the factory but can be installed on work sections that have handle option 3 or 9. The drawing at right shows two joy-sticks with offset handles installed on a six section valve. When two joysticks are installed on the same valve assembly it is recommended that there be two standard sections between them to prevent handle interference. A two section spacer is available, part no. 660380002.

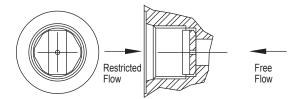
Please refer to these part numbers and state which sections the handle is to be installed on when ordering a valve assembly. This handle can be installed in the field to work sections with handle option 3 (no handle).



A molded rubber boot (671300011) is available for the joystick.

ONE WAY WORK PORT RESTRICTOR FOR SVH, SVM, SVR, SVF, SVS, SVG& SVL WORK SECTIONS

This restrictor will restrict oil in one direction and allow free flow in the opposite direction. This restrictor consists of an orifice plate that simply drops into the #8 SAE work port of a SVH, SVM, SVR, SVF, SVS, SVG & SVL work section.



ORDERING INFORMATION

HEX BRASS RESTRICTOR

#6 SAE 9/16-18 #8 SAE 3/4-16 670806XXX 670805XXX

SQUARE STEEL RESTRICTOR 661181XXX CONICAL SPRING

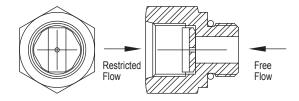
The last three digits of part number are the orifice size in thousandths of an inch. **EXAMPLE:**

#6 SAE 9/16-18THD #8 SAE 3/4-16THD

670806062 670805062 .062 ORIFICE 670806125 670805125 .125 ORIFICE 670806000 670805000 NO ORIFICE

ONE WAY WORK PORT RESTRICTOR FOR SVW WORK SECTIONS

This restrictor will restrict oil in one direction and allow free flow in the opposite direction. This restrictor consists of the orifice plate as described at left and an adapter fitting that allow use in the standard SVW #8 SAE work port.



ORDERING INFORMATION

ADAPTER W/HEX BRASS RESTRICTOR

#6 SAE 9/16-18 #8 SAE 3/4-16 661280XXX 661180XXX ADAPTER WITH SQUARE STEEL 661182XXX

RESTRICTOR AND CONICAL SPRING

The last three digits of part number are the orifice size in thousandths of an inch. **EXAMPLE**:

	#6 SAE 9/16-18THD	#8 SAE 3/4-16THD
--	-------------------	------------------

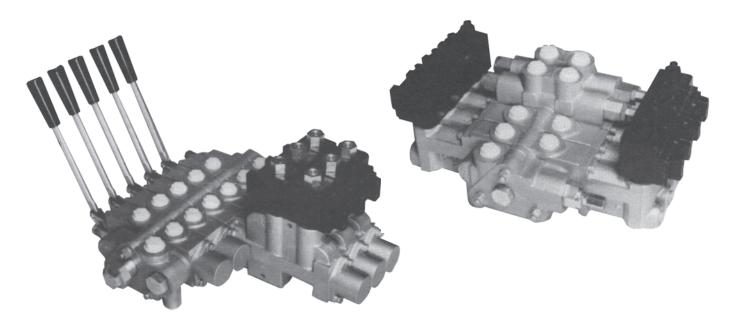
661280062	661180062	.062 ORIFICE
661280125	661180125	.125 ORIFICE
661280000	661180000	NO ORIFICE

Directional Control Valves

SV SOLENOID OPERATED

Work Sections

- Type "-T" Solenoid Operated
 Type "-S" Solenoid and Manual Operation



STANDARD FEATURES

- Open center or closed center applications
- Port relief options available
- Internal pilot supply and drain
 12VDC, 24VDC and 120VAC

- Power beyond capability
- · Load checks on each section
- May be stacked with Manual SV Sections

SPECIFICATIONS

Parallel or Series Circuit Construction	Foot Mounting
Pressure Rating	Maximum Operating Temp180°F
Maximum Operating Pressure 3000 psi	Weight Per Section
Maximum Tank Pressure 150 psi	Inlet Section Approx. 3.75 lbs.
Nominal Flow Rating12 GPM	Outlet Section Approx. 3.75 lbs.
Differential Pressure	Solenoid Operated
Required to ActuatorApprox. 150 PSI	Type "-T" Work SectionApprox. 11.0 lbs.
Filtration: For general purpose valves, fluid	Type "-S" Work Section Approx. 14.5 lbs.
cleanliness should meet the ISO 4406 19/17/14	
level. For extended life or for pilot operated valves,	
the 18/16/13 fluid cleanliness level is recommended.	

CATV 32-07-13-02

TYPE "-T" SOLENOID DESCRIPTION OF OPERATION

The Type "-T" Solenoid Operated SV Work Section allows remote electrical on-off control. This solenoid operated SV section may be assembled with other standard SV manual sections, or type "-S" solenoid and manual sections.

The Type "-T" Solenoid Operated SV Section contains two 3-way 2-position solenoid cartridge valves, one at each end of the main valve body. When both solenoids are de-energized, both ends of the control valve spool are open to tank pressure and the spool remains spring centered. When solenoid "A" is energized, pilot pressure is applied to one end of the control valve spool causing the spool to shift from neutral to full stroke on "A" work port. When solenoid "B" is energized, pilot pressure is applied to the other end of the control valve spool causing the spool to shift to full stroke on "B" work port.

Internal pilot lines provide pilot pressure to the solenoid actuators. Pilot pressure is generated by a "Pressure Build-Up Valve" that is installed in the standard outlet section. Two versions of the pressure build-up valve are offered. The open center pressure build-up valve and the power beyond pressure build-up valve. Both versions supply 150-200 PSI pilot pressure to the solenoid actuators.

TYPE "-S" SOLENOID AND MANUAL DESCRIPTION OF OPERATION

The Type "-S" Solenoid and Manual Operated SV Work Section allows remote electrical on-off or manual control. This solenoid operated SV section may be assembled with other standard SV manual sections, or type "-T" solenoid sections.

The Type "-S" Solenoid and Manual Operated SV Section contains two, 3-way 2-position solenoid cartridge valves and a pilot operated piston attached to the main control spool. When both solenoids are de-energized both sides of the pilot piston are open to tank pressure and the spool remains spring centered. When solenoid "A" is energized, pilot pressure is applied to one side of the pilot piston causing the spool to shift from the neutral position to work port "A". When solenoid "B" is energized, pilot pressure is applied to the other side of the pilot piston causing the spool to shift to work port "B".

Internal pilot lines provide pilot pressure to the solenoid actuator. Pilot pressure is generated by a "Pressure Build-Up Valve" that is installed in the standard outlet section. Two versions of the pressure build-up valve are offered. The open center pressure build-up valve and the power beyond pressure build-up valve. Both versions supply 150-200 PSI pilot pressure to the solenoid actuator.

APPLICATION INFORMATION

For over center or light load applications if the required work port load pressure drops below 200 PSI, the pilot pressure to the spool will drop to the same pressure causing the spring to move the control spool back towards the neutral position. The spool will end up in an intermediate position between neutral and fully shifted. A restrictor installed in the work port or line may be required for this type of application.

For closed center applications the Pressure Build-Up Valve is not required. However, a system pressure of 200 PSI must be maintained in the closed center position to actuate the valve properly.

Proper operation of the solenoid actuators requires a pressure differential of 150-200 PSI above tank pressure. The maximum tank port pressure should not exceed 150 PSI. Excessive tank pressure will increase "Seal Drag" and may prohibit, the spool from shifting.

The solenoid operated SV section may be converted to accept an external hydraulic pilot supply to the solenoid actuators. Please consult a Sales Representative for information.

On Line Information Available

Additional valve information is available on line at www.princehyd.com Information available includes:

- · Parts manuals for many common Prince valves.
- CAD drawing files for many common Prince valves.
- Instruction sheets.
- Updated Prince catalog pages.
- Prince catalog in electronic format.

ORDERING INFORMATION:

The following is a listing of valve sections available from stock on a standard basis. STANDARD SECTIONS AVAILABLE:

SOLENOID OPERATED SVW WORK SECTIONS ALL HAVE #8 SAE PORTS AND LOAD CHECK

SPOOL TYPE/VOLTAGE PART NO. SVW1BA-T12Q 4 WAY-3 POSITION/12 VDC

SVW1AA-T12Q 3 POSTION/12 VDC

4 WAY-3 POSITION MOTOR/12 VDC SVW1CA-T12Q

4 WAY-3 POSITION/120 VAC SVW1BA-T11C

For Inlets, Outlets and Tie-rod Kits, please refer to SV Section

SOLENOID OPERATED

SVH WORK SECTIONS ALL HAVE #8 SAE PORTS AND LOAD CHECK. MODELS WITH RELIEF, FACTORY SET AT 2000 PSI AT 3 GPM

PART NO. SPOOL TYPE/VOLTAGE

SVH1BAGG-T12Q 4 WAY-3 POSITION/12 VDC SVH1BAAA-T12Q 4 WAY-3 POSITION/12 VDC SVH1CAGG-T12Q

4 WAY-3 POSITION MOTOR/12 VDC

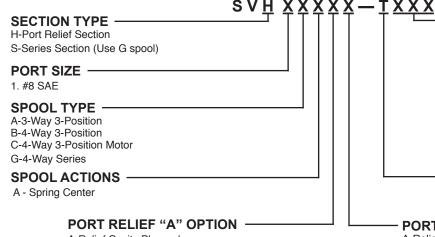
PORT RELIEFS

ADJUSTABLE 1500-3000 PSI PORT RELIEF PLUGGED ADJUSTABLE 1500 - 3000 PSI

SPECIAL SECTIONS AVAILABLE:

Sections other than the standard models listed can be made to order. Use the order code Matrix below to generate a model number that meets your requirements. If you prefer, contact your Sales Representative with your specific requirements and a model number will be assigned for you. This model number can then be used for future orders. A minimum order quantity will apply to special valves. Please contact your Sales Representative.

SOLENOID OPERATED PORT RELIEF WORK SECTION



COIL VOLTAGE & TERMINATION *

12Q, 12 VDC Double Spade 12L, 12 VDC Double Wire 12H, 12 VDC DIN 43650 12W, 12 VDC Weather Pack ® 24Q, 24 VDC Double Spade 24L, 24 VDC Double Wire 24H, 24 VDC DIN 43650 11C, 120 VAC Conduit 11H, 120 VAC DIN 43650

SOLENOID OPERATION

A-Relief Cavity Plugged

B-Non-Adjustable Direct Acting Relief 1500-3000 PSI

C-Non-Adjustable Direct Acting Relief 500-1500 PSI

G-Adjustable Direct Acting Relief 1500-3000 PSI

H-Adjustable Direct Acting Relief 500-1500 PSI

PORT RELIEF "B" OPTION

A-Relief Cavity Plugged

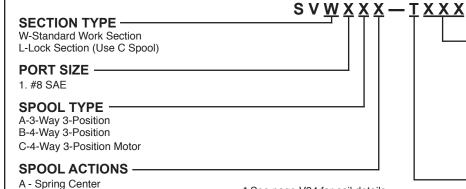
B-Non-Adjustable Direct Acting Relief 1500-3000 PSI

C-Non-Adjustable Direct Acting Relief 500-1500 PSI

G-Adjustable Direct Acting Relief 1500-3000 PSI

H-Adjustable Direct Acting Relief 500-1500 PSI

SOLENOID OPERATED SVW AND SVL WORK SECTIONS



COIL VOLTAGE & TERMINATION *

12Q, 12 VDC Double Spade 12L, 12 VDC Double Wire 12H, 12 VDC DIN 43650 12W, 12 VDC Weather Pack ® 24Q, 24 VDC Double Spade 24 L, 24 VDC Double Wire 24H, 24 VDC DIN 43650

11C, 120 VAC Conduit

11H, 120 VAC Din 43650

SOLENOID OPERATION

* See page V34 for coil details

ORDERING INFORMATION: "-S" SOLENOID AND MANUAL WORK SECTIONS

The following is a listing of valve sections available from stock on a standard basis. STANDARD SECTIONS AVAILABLE:

SOLENOID OPERATED SVW WORK SECTIONS ALL HAVE #8 SAE PORTS, LOAD CHECK AND STANDARD LEVER HANDLE

 PART NO.
 SPOOL TYPE/VOLTAGE

 SVW1AA1-S12Q
 3 WAY-3 POSITION/12 VDC

 SVW1BA1-S12Q
 4 WAY-3 POSITION/12 VDC

 SVW1CA1-S12Q
 4 WAY-3 POSITION MOTOR/12 VDC

 SVW1BA1-S24Q
 4 WAY-3 POSITION/24 VDC

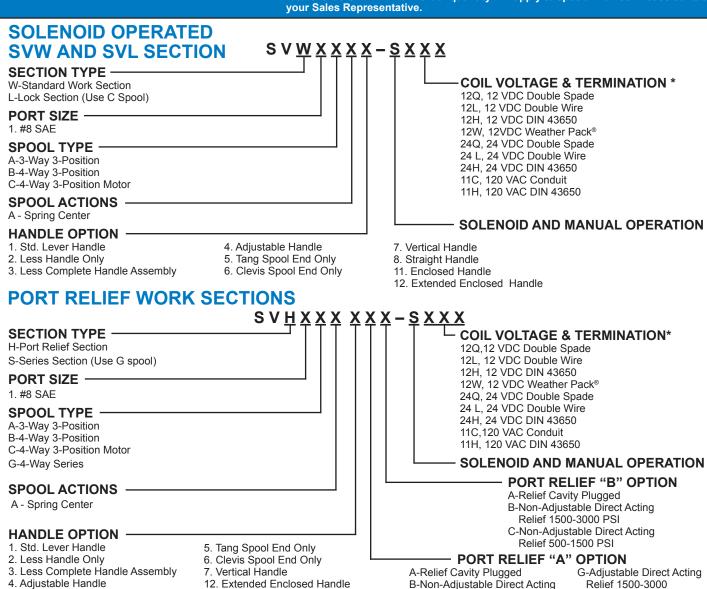
For Inlets, Outlets and Tie-rod Kits, please refer to SV Section

SOLENOID OPERATED SVH WORK SECTIONS ALL HAVE #8 SAE PORTS, LOAD CHECK AND STANDARD LEVER HANDLE MODELS WITH RELIEF, FACTORY SET AT 2000 PSI AT 3 GPM

PART NO.	SPOOL TYPE/VOLTAGE	PORT RELIEFS
SVH1BA1AA-S12Q	4 WAY DOUBLE ACTING/12 VDC	PORT RELIEF PLUGGED
SVH1BA1AA-S24Q	4 WAY DOUBLE ACTING/24 VDC	PORT RELIEF PLUGGED
SVH1BA1BB-S12Q	4 WAY DOUBLE ACTING/12 VDC	SHIM ADJ. 1500-3000 PSI
SVH1BA1BB-S24Q	4 WAY DOUBLE ACTING/24 VDC	SHIM ADJ. 1500-3000 PSI

SPECIAL SECTIONS AVAILABLE:

Sections other than the standard models listed can be made to order. Use the order code Matrix below to generate a model number that meets your requirements. If you prefer, contact your Sales Representative with your specific requirements and a model number will be assigned for you. This model number can then be used for future orders. A minimum order quantity will apply to special valves. Please contact your Sales Representative.



Relief 1500-3000 PSI C-Non-Adjustable Direct Acting

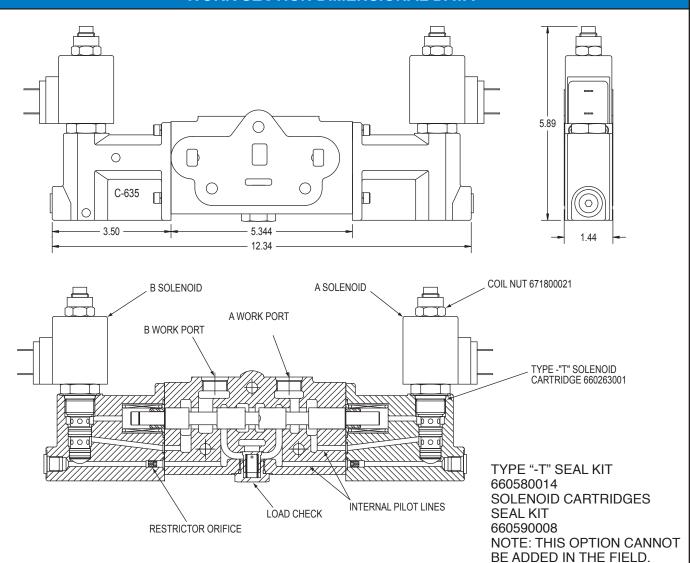
Relief 500-1500 PSI

H-Adjustable Direct Acting

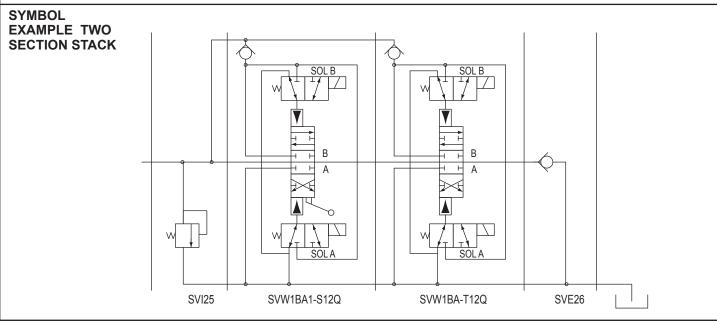
Relief 500-1500 PSI

*See page V34 for Coil details

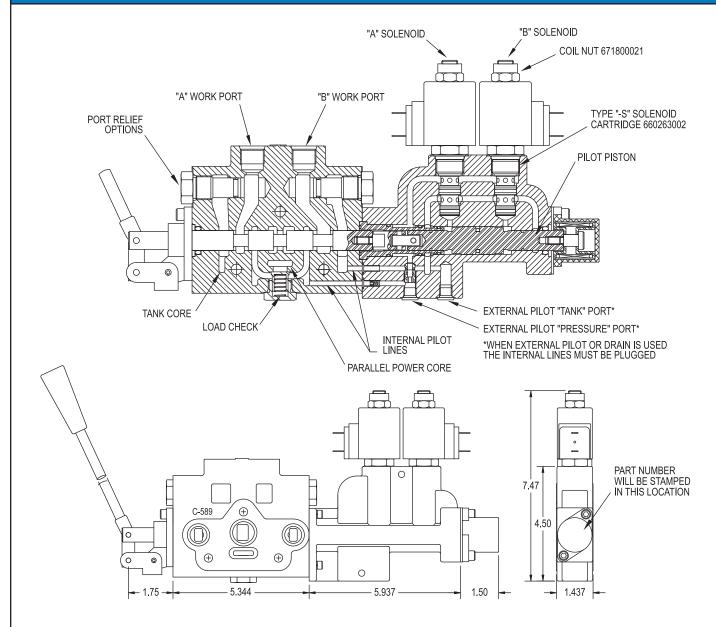
SOLENOID OPERATED TYPE "-T" WORK SECTION DIMENSIONAL DATA



NOTE: For additional data on inlet and outlet sections, valve assemblies, etc. Please refer SV information in this catalog.



SOLENOID AND MANUAL OPERATED WORK SECTION TYPE "-S" **DIMENSIONAL DATA**



TYPE "-S" SEAL KIT 660580005 SOLENOID CARTRIDGES SEAL KIT 660590008 NOTE: THIS OPTION CANNOT BE ADDED IN THE FIELD

NOTE: For additional dimensional data on inlet and outlet sections, valve assemblies, etc. please refer SV information in this catalog.

SOLENOID COILS - ALL SOLENOID OPERATED SPOOLS

COIL PART NUMBERS

671302002 12 VDC H TYPE COIL DIN 43650

671302003 12 VDC L TYPE COIL DOUBLE WIRE

671322004 12 VDC Q TYPE COIL DOUBLE SPADE

671302013 12 VDC W TYPE COIL WEATHER PACK®

671302006 24 VDC H TYPE COIL DIN 43650

671302007 24 VDC L TYPE COIL DOUBLE WIRE

671322008 24 VDC Q TYPE COIL DOUBLE SPADE

671302009 120 VAC C TYPE COIL CONDUIT

671302010 120 VAC H TYPE COIL DIN 43650

COIL SPECIFICATIONS

DUTY RATINGCONTINUOUS AT 100% VOLTAGE INGRESS PROTECTION RATING IP65

WATTAGE20 WATTS

STABILIZED TEMPERATURE 217°F WITH 77°F AMBIENT AMP DRAW AT 77°

12VOLT 1.70 AMPS

24 VOLT83 AMPS 120 VOLT......18 AMPS

LEAD WIRE LENGTH 18 GAUGE 12" LONG

AC COILS ARE INTERNALLY RECTIFIED WITH A FULL WAVE

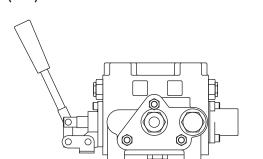
BRIDGE (NO IN RUSH CURRENT).

DIN STYLE COILS ARE DIN 43650 TYPE A.

USE WEATHER PACK ® TYPE COILS WITH MALE PACKARD CONNECTOR #12015792 "WEATHER PACK CONNECTORS"

PRINCE MANUFACTURING
P.O. BOX 7000
N. SIOUX CITY, SD 57049-7000
PHONE (605) 235-1220
FAX (605) 235-1082





STACK VALVE ASSEMBLY QUOTATION REQUEST FORM

DATE	
SUBMITTED BY	
CUSTOMER	
ADDRESS	
PHONE	
FAX	
YEARLY REQUIREMENTS	
CURRENT SUPPLIER	

VALVE ASSEMBLY MODEL NUMBER. ASSIGNED UPON RECEIVING REQUEST.

FILL IN THE CHART BELOW USING ORDER CODE FROM SERIES 20 OR MODEL SV SECTION NOTE ANY PORT RESTRICTORS, JOYSTICKS HANDLES, ETC. IN SPACE PROVIDED

ITEM	SECTION NUMBER	SECTION NOTES			LIST		
INLET SECTION		RELIEF:		PSI @	GPM		
WORK SECTION 1		A RELIEF:	PSI @	GPM B RELIEF:	PSI @	GPM	
WORK SECTION 2		A RELIEF:	PSI @	GPM B RELIEF:	PSI @	GPM	
WORK SECTION 3		A RELIEF:	PSI @	GPM B RELIEF:	PSI @	GPM	
WORK SECTION 4		A RELIEF:	PSI @	GPM B RELIEF:	PSI @	GPM	
WORK SECTION 5		A RELIEF:	PSI @	GPM B RELIEF:	PSI @	GPM	
WORK SECTION 6		A RELIEF:	PSI @	GPM B RELIEF:	PSI @	GPM	
WORK SECTION 7		A RELIEF:	PSI @	GPM B RELIEF:	PSI @	GPM	
WORK SECTION 8		A RELIEF:	PSI @	GPM B RELIEF:	PSI @	GPM	
WORK SECTION 9		A RELIEF:	PSI @	GPM B RELIEF:	PSI @	GPM	
WORK SECTION 10		A RELIEF:	PSI @	GPM B RELIEF:	PSI @	GPM	
OUTLET SECTION							
TIE ROD KIT				T			
SPECIAL INSTRUCTIONS ASSEMBLY CHARGE (SV ONLY)							
TOTAL							