



Bulletin HY14-2000/US

Distributor Valve Program

Effective: June 1, 2003
Supersedes: DL101 dated 10/00



DVG18

DVA20

DVG20

DVA35

DVG35

DVG80

DVA / DVG Accessories

In-Line Accessories

Hand Pumps

Hydraulic Remote Controls

Pneumatic Remote Controls

Hydraulic Overspeed Control

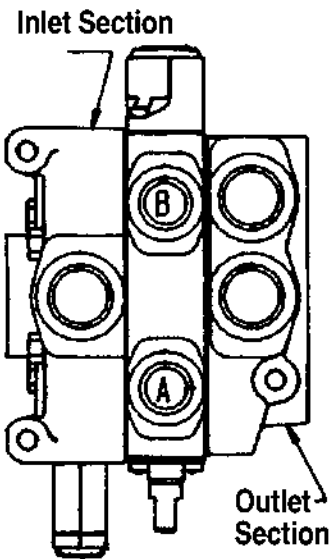
Valve Assembly Form

Inlet

Model _____
Main R/V
 Yes No
 Set at _____ psi
 @ _____ gpm

Porting
 Note Thread & Size
TOP
 High Press _____
 Low Press _____

SIDE
 High Press _____
 Low Press _____



Clevis at Port A
 Left Hand

 Clevis at Port B
 Rt Hand

HANDLES
 None
 Bracket
 Vertical

KA18 Only
 Horizontal
Mechanical Joystick
 Left Hand Rt Hand

 On Section #s _____

Section Information and Description

		Stacking Order					
		1	2	3	4	5	6
Circuit							
<input type="checkbox"/> Parallel							
<input type="checkbox"/> Series	S.A. Port B						
<input type="checkbox"/> Tandem	D.A. Cylinder						
	D.A. Motor						
	4way/4pos Float (DTT)						
	Other _____						
A & B Port Size _____ SAE <input type="checkbox"/> NPT <input type="checkbox"/>							
Spool							
Spring Return							
Actuator							
3-Pos Detent							
Hyd Remote Meter							
Hyd Pilot On/Off							
Air Remote							
Solenoid 12 Vdc							
Other _____							
Port							
None A or B							
Accessory							
A							
A/C							
B							
R/V + A/C _____ psi @ A							
Setting _____ psi @ B							
R/V _____ psi @ A							
Setting _____ psi @ B							
Plug							
A							
B							
Restrict Out							
A							
B							
Restrict In							
A							
B							
Restrict Fix							
A							
B							
D.A. Lock							
A							
B							
S.A. Lock							
Split Flow							
Mid-Section							
Comb Flow							
Inlets							
Main R/V							
Main R/V Plug							
Port Size SAE <input type="checkbox"/> NPT <input type="checkbox"/>							

Outlet

Type
 Tank Ret'n
 Press Beyond

Porting
 Note Thread & Size
TOP
 High Press _____
 Low Press _____

SIDE
 High Press _____
 Low Press _____

Customer _____ Model No. _____
 City _____ State _____ Zip _____
 Application _____
 Comments _____
 Assembly _____

Brief Circuit Descriptions

Series Circuit

Available in DVA20 sections only.

If a machine's work cycle requires simultaneous as well as separate operation of individual hydraulic work functions, a series circuit is right for the job.

As with the other circuits, the oil flows through the open center when all spools are in neutral. There is no parallel passage in standard series sections because they feed directly from the open center passage. If more than one spool is operated, pump flow goes first to the section closest to the inlet. Return flow from the first section is fed back into the open center for use by downstream sections.

Downstream sections can be series, parallel or tandem and will operate in series with the upstream section.

In series circuits, operating pressure is cumulative. Therefore, the sum of the pressures in the circuits can not exceed the circuit or main relief valve setting.

Parallel Circuits

Parallel circuits are the most common on mobile equipment because more than one function can be operated simultaneously and at random. If two or more functions are fully operated at the same time, the one with the lightest load will assert priority because the fluid will take the path of least resistance. However, the operator can divide the flow between functions by metering the spools.

Movement of the spool meters or shuts off the flow of oil thru the open center passage and pressurizes the parallel passage. Oil is then available, at the operator's discretion, to all work ports connected to the parallel passage.

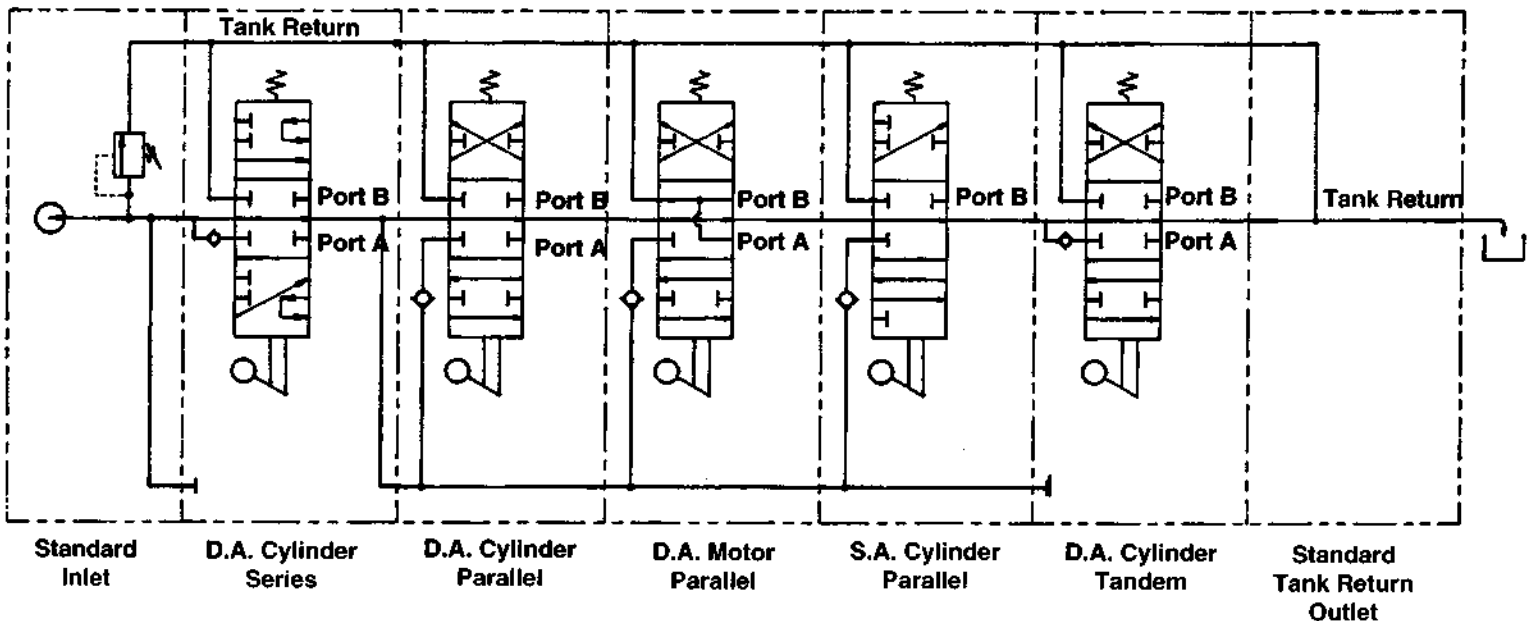
Tandem Circuits

(Not available in the program)

Tandem circuits are sometimes called priority or standard circuits by other manufacturers. Tandem sections feed from the open center passage like series sections but the return flow is directed to the tank return passage and is not available downstream.

If a tandem section is followed by a series or tandem section, operating the tandem section nearest the inlet will assert priority and downstream sections will not function.

Typical Work Section Schematics



Contents

Pages

Section A	DVG18 • 22 gpm • 3500 psi	1 thru 7
Section B.....	DVA20 • 40 gpm • 2500 psi.....	8 thru 13
Section C.....	DVG20 • 40 gpm • 3500 psi.....	15 thru 17
Section D.....	DVA35 • 70 gpm • 2500 psi	18 thru 23
Section E.....	DVG35 • 70 gpm • 3500 psi.....	25 thru 27
Section F.....	DVG80 • 120 gpm • 3500 psi.....	28 thru 30
Section G.....	DVA / DVG Accessories	32 thru 34 <i>(Relief Valves & Actuator Kits)</i>
Section H.....	In-Line Accessories	35 thru 36 <i>(Selector Valves & In-line Relief Valves)</i>
Section I.....	Hand Pumps	37
Section J.....	Hydraulic Remote Controllers & Kits.....	38
Section K.....	Pneumatic Remote Controllers & Kits	39
Section L.....	Hydraulic Overspeed Control	40

Code Prefix Explanation

Code Used in:
DV20..... **DVA20 & DVG20 Valves**
DV35..... **DVA35 & DVG35 Valves**
DV80..... **DVG80 Valves**

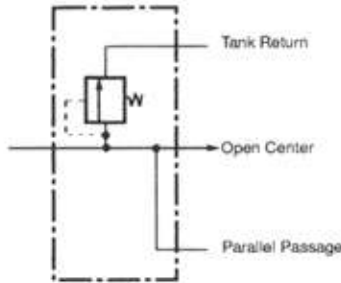
DVG18
DVA20
DVG20
DVA35
DVG35
DVG80



Can be used in respective series designation only

Combination Inlet-Outlet

This standard inlet includes a tank return outlet port which is used with the "TRB" outlet cover.



Schematic shown with main R/V

Inlets are machined for a main R/V or R/V plug and are furnished with plastic closures. See Section G, Page 32 for inlet port plugs.

Code	Top Port		End Port	
	HP	LP	HP	LP
DVG18-A0055	SAE-10 Plugged	SAE-10 Plugged	SAE-12	SAE-12
DVG18-A0088	1/2"NPT Plugged	1/2"NPT Plugged	3/4"NPT	3/4"NPT
DVG18-A0550	SAE-10 Plugged	SAE-12	SAE-12	None
DVG18-A5005	SAE-12	SAE-12 Plugged	None	SAE-12
DVG18-A5500	SAE-12	SAE-12	None	None
DVG18-A7008	1/2"NPT	1/2"NPT Plugged	None	3/4"NPT
DVG18-A7700	1/2"NPT	1/2"NPT	None	None
DVG18-A3333	SAE-8	SAE-8	SAE-8	SAE-8
DVG18-A4444	SAE-10	SAE-10	SAE-10	SAE-10
DVG18-A7777	1/2"NPT	1/2"NPT	1/2"NPT	1/2"NPT
DVG18-A0000	Not Ported			

Mid-section Inlets

Split Flow

Code	Top Port Size HP & LP
DVG18-SFA88	3/4" NPT
DVG18-SFA55	SAE-12
DVG18-SFA00	NO PORTS

Combined Flow

DVG18-CFA88	3/4" NPT
DVG18-CFA55	SAE-12
DVG18-CFA00	NO PORTS

Combined flow with backflow check
DVG18-CFAC88 3/4" NPT

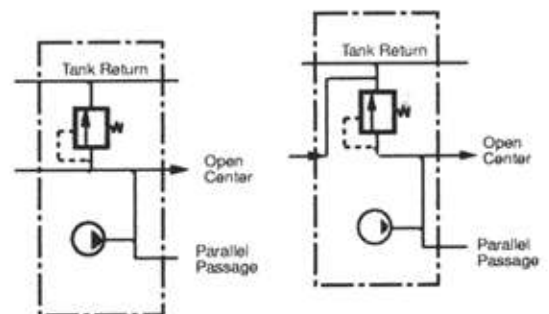
Flow Control

Pressure Compensated - Adjustable
DVG18-MFC No Ports

Mid-section inlets are machined for a main R/V or R/V plug and are furnished with plastic closures. See Section G, Page 32 for inlet port plugs.

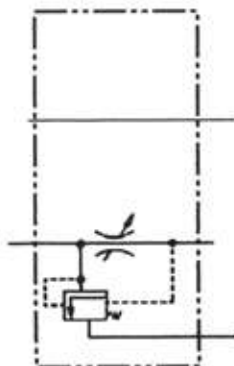
Separates primary and secondary pump flows which allows one valve bank to operate like two.

Split Flow



Combined Flow

Combines primary and secondary pump flows for faster operating speed of downstream functions





Adjustable R/V Cartridges For Inlets and Mid-section Inlets

Inlet Codes
 DVG18-MRV-1 Main R/V range 500 to 1450 psi. Factory set @ 1000 psi @ 15 gpm
 DVG18-MRV-2 Main R/V range 1450 to 3500 psi. Factory set @ 2500 psi @ 15 gpm.
 DVG18-MRVP Main Relief Valve Plug



Mid-Inlet Codes
 DVG18-MMRV-1 Main R/V range 500 to 1450 psi. Factory set @ 1000 psi @ 15 gpm
 DVG18-MMRV-2 Main R/V range 1450 to 3500 psi. Factory set @ 2500 psi @ 15 gpm.
 DVG18-MMRVP Main Relief Valve Plug

Outlets

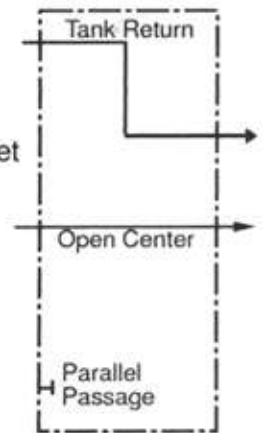
Code	End Port		Top Port
	HP	LP	LP
DVG18-TRC087		3/4 NPT	1/2 NPT
DVG18-TRC055		SAE-12	SAE-12
DVG18-TRC000	Unported Outlet		
DVG18-TRB	Outlet Cover ONLY. For use with combination Inlet/Outlet		
DVG18-PBS10	SAE-10	Pressure beyond sleeves convert tank return outlets to pressure beyond	
DVG18-PBS75	3/4" NPT		

All TRC outlets are machined to accept PBS sleeves.



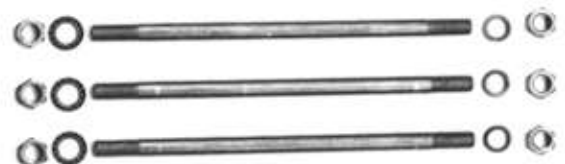
TRC055 Tank Return Outlet Shown with DVG18-PBS10 Pressure Beyond Sleeve

Pressure
Beyond Outlet



Stud Kits TORQUE TO 240 INCH POUNDS

Code	Number of Sections Between Inlet and Outlet							
	1	2	3	4	5	6	7	8
DVG18-	SK-1	SK-2	SK-3	SK-4	SK-5	SK-6	SK-7	SK-8



Work Sections with Additional Features

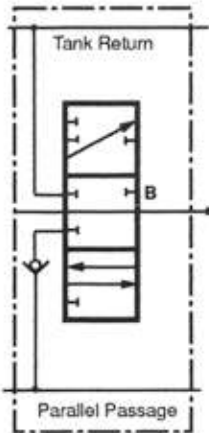
Code	Product Description
Parallel Circuits	
DVG18-HK455	4-Way, 3-Position, Hold in Neutral, Double ended 12VDC Solenoid Operated. SAE 10 Ports with port relief valve machining.
DVG18-HKR455	4-Way, 3-Position, Hold in Neutral, Kickout Release Valve SAE-10 Ports with port relief valve machining.
DCG18-HV400	4-Way, 3-Position, Hold in Neutral, Air actuated SAE-10 Ports without port relief valve machining.
DVG18-HV455	4-Way, 3-Position, Hold in Neutral, Air Actuated SAE-10 Ports with port relief valve machining.
DVG18-HV755	4-way, 3-Position, Hold in Neutral, Air Actuated. 1/2" NPT Ports with port relief valve machining.
DVG18-HX400	4-Way, 3-Position, Hold in Neutral, Metered hydraulic Remote control. SAE-10 Ports without port relief valve machining.
DVG18-HX455	4-Way, 3-Position, Hold in Neutral, Metered hydraulic Remote control. SAE-10 Ports with port relief valve machining.
DVG18-HX755	4-Way, 3-Position, Hold in Neutral, Metered hydraulic Remote control. 1/2" NPT Ports with port relief valve machining.
DVG18-JLA405	3-Way, 3-Position, Float in Neutral, Spring Return. SAE-10 Ports with port relief valve machining.
DVG18-JLA705	3-Way, 3-Position, Float in Neutral, Spring Return. 1/2" NPT Ports with port relief valve machining.
DVG18-JLB405	3-Way, 3-Position, Float in Neutral, with 3-Position Detent. SAE-10 Ports with port relief valve machining.
DVG18-JLB705	3-Way, 3-Position, Float in Neutral, with 3-Position Detent. 1/2" NPT Ports with port relief valve machining.
DVG18-JLA505	Same as JLA705 except work port is machined for Lock Valve.
DVG18-LK455	4-Way, 3-Position, Float in Neutral, Double ended 12 vDC Solenoid Operated. SAE 10 Ports with port relief valve machining.
DVG18-LX455	4-Way, 3-Position, Float in Neutral, Metered hydraulic Remote control. SAE-10 Ports with port relief valve machining.
DVG18-LX755	4-Way, 3-Position, Float in Neutral, Metered hydraulic Remote control. 1/2" NPT Ports with port relief valve machining.
Tandem Circuits	
DVG18-HKRT455	4-Way, 3-Position, Hold in Neutral, Double ended 12VDC Solenoid Operated. SAE 10 Ports with port relief valve machining.
DVG18-QHA455	4-Way, 3-Position, Hold in Neutral, Spring Return SAE-10 Ports with port relief valve machining
DVG18-QHA755	4-Way, 3-Position, Hold in Neutral, Spring Return 1/2" NPT Ports with port relief valve machining

Many of the above work sections can be made from codes on page A4 and kits on page A7

Work Sections -- Parallel Circuit (3500 psi)

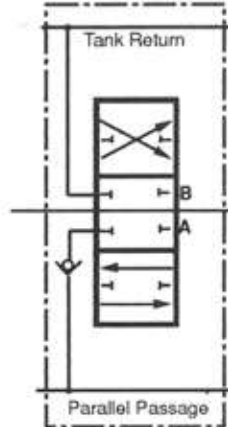
Sections with port relief valve machining are furnished with plastic closures

CODE	4-Way 3-Pos Hold In Neutral	3-Way 3-Pos Hold In Neutral	4-Way 3-Pos Float In Neutral	4-Way 4-Pos Float Pos Detented	1/2" NPT Ports	SAE-8 Ports	SAE-10 Ports	Work Port NOT Machined	Spring Return	3-Pos Detent	Female Clevis Spool	Port R/V Machined
DVG18-HA000	.							.	.			
DVG18-HA055	.							.	.			.
DVG18-HA300	.					.		.	.
DVG18-HA355	.					.		.	.			.
DVG18-HA400	.						.	.	.
DVG18-HA400-FCL	.						.	.	.		.
DVG18-HA455	.						.	.	.			.
DVG18-HA455-FCL	.						.	.	.		.	.
DVG18-HA700	.				.			.	.			.
DVG18-HA700-FCL	.				.			.	.		.
DVG18-HA755	.				.			.	.			.
DVG18-HA755-FCL	.				.			.	.		.	.
DVG18-JA000		.						.	.			
DVG18-JA005		.						.	.			.
DVG18-JA300		.				.		.	.			.
DVG18-JA300-FCL		.				.		.	.		.
DVG18-JA305		.				.		.	.			.
DVG18-JA400		.					.	.	.			.
DVG18-JA405		.					.	.	.			.
DVG18-JA405-FCL		.					.	.	.		.	.
DVG18-JA700		.			.			.	.			.
DVG18-JA705		.			.			.	.			.
DVG18-JA705-FCL		.			.			.	.		.	.
DVG18-JB305		.				.		.	.	.		.
DVG18-LA000			.					.	.			
DVG18-LA055			.					.	.			.
DVG18-LA300			.			.		.	.
DVG18-LA355			.			.		.	.			.
DVG18-LA400			.				.	.	.
DVG18-LA400-FCL			.				.	.	.		.
DVG18-LA455			.				.	.	.			.
DVG18-LA455-FCL			.				.	.	.		.	.
DVG18-LA700			.		.			.	.			.
DVG18-LA700-FCL			.		.			.	.		.
DVG18-LA755			.		.			.	.			.
DVG18-LA755-FCL			.		.			.	.		.	.
DVG18-HB355	.					.		.	.	.		.
DVG18-HB455	.						.	.	.	.		.
DVG18-HB755	.				.			.	.	.		.
DVG18-LB400			.				.	.	.	.
DVG18-LB700			.		.			.	.	.
DVG18-LB355			.			.		.	.	.		.
DVG18-LB455			.				.	.	.	.		.
DVG18-LB755			.		.			.	.	.		.
DVG18-GC355				.		.		.	.			.
DVG18-GC455				.			.	.	.			.
DVG18-GC755				.	.			.	.			.
DVG18-LA555	SAME AS LA755 EXCEPT WORK PORTS ARE MACHINED FOR LOCK VALVE											
DVG18-LA555-FCL	SAME AS LA555 EXCEPT WITH FEMALE CLEVIS SPOOL											



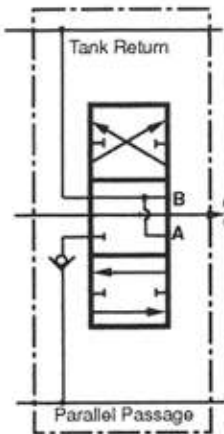
JA405

Single-Acting Section
3-Way, 3-Position, Hold in Neutral
Cylinder Spool



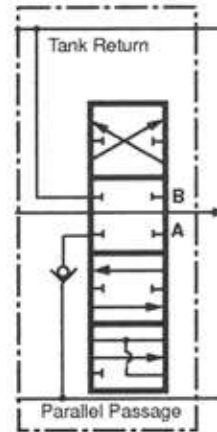
HA400

Double-Acting Section
4-Way, 3-Position, Hold in Neutral
Cylinder Spool



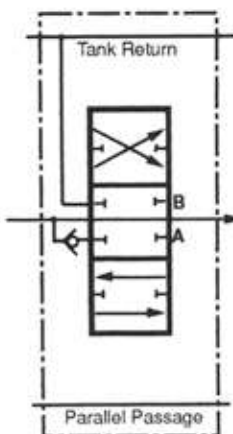
LA400

Double-Acting Section
4-Way, 3-Position, Float in Neutral
Motor Spool



GC455

Double-Acting Float Section
4-Way, 4-Position, Detent in Float
Hold in Neutral, Float in 4th Position



QHA455

Double-Acting Tandem Section
4-Way, 4-Position, Spring Return.
Hold in Neutral



R/v, A/C and Plugs

NOTE: All port relief valves are FULL-FLOW. See inlet section for main relief valve codes.

Screw Adjusted Port Relief Valve With A/C

Code	500-1450 psi	1450-4000 psi
DVG18-	*PRVAC-1	**PRVAC-2



NOTE: *Factory set @ 1000 psi @ 10 gpm ** Factory set @ 2000 psi @ 10 gpm

Screw Adjusted Port Relief Valve Without A/C

Code	500-1450 psi	1450-4000 psi
DVG18-	*PRV-1	**PRV-2



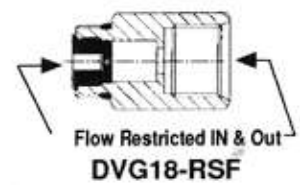
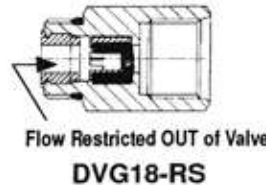
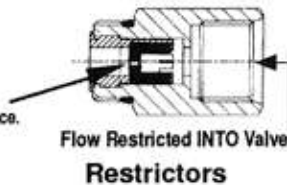
Port Relief Valve Plug
DVG18-PRVP



Anti-cavitation Check
DVG18-AC



Restrictors furnished without orifice. See Chart for Orifice drill Size.



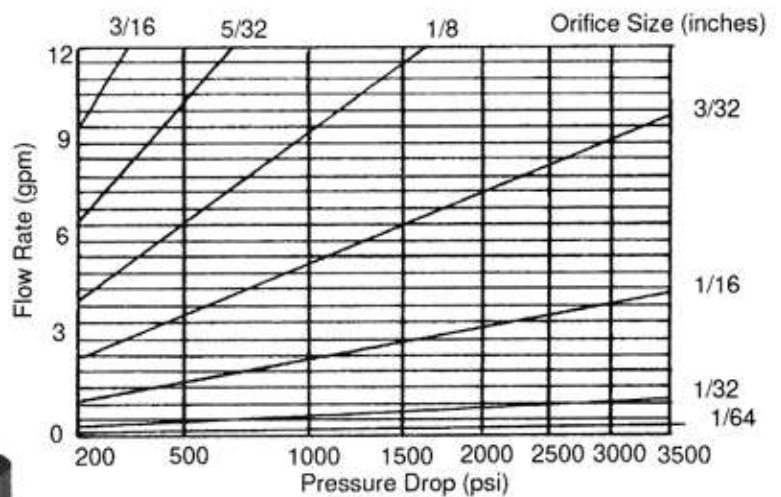
Work Port Restrictors and Lock Valves

DVG18 Lock Valve

Single-Acting DVG18-LVSA
use with JLA505 code



Double-Acting DVG18-LVDA
Use with LA555 codes



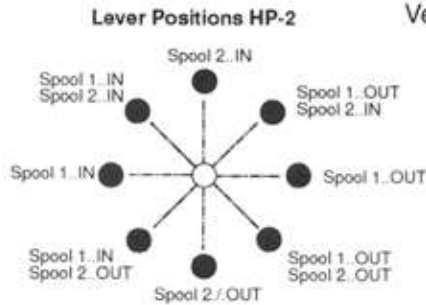
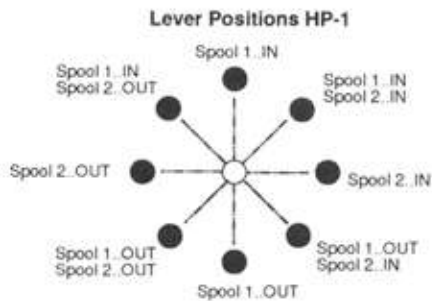
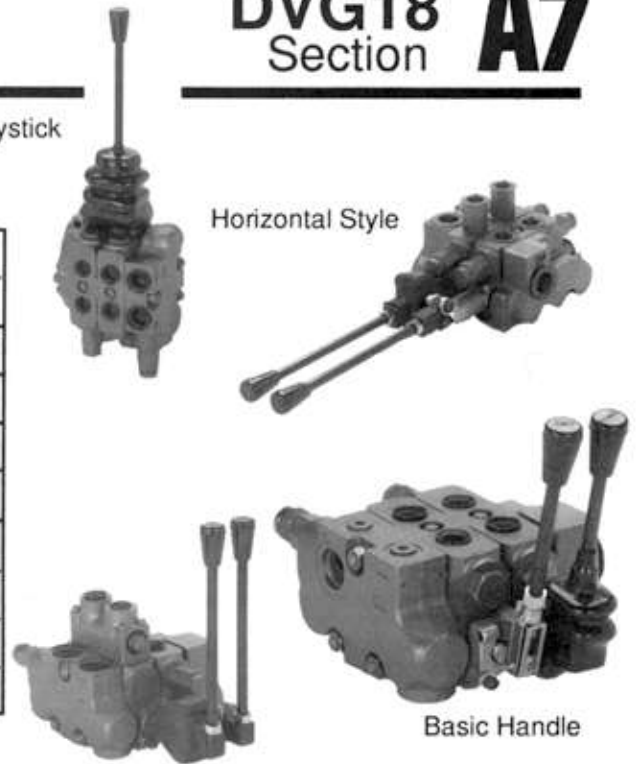
This graph is based on this formula: $Q = 24.12 \times A \times \sqrt{\Delta P}$
 Q = Gallons per minute
 A = Orifice area in inches squared
 ΔP = Pounds per sq. inch

DVG18 Section A7

Handle Assemblies

Mechanical Joystick WITH BOOT

Code			Description
Approximate Lever Length			
8 1/4"	10 3/4"	13"	
HH-1	HH-2	HH-3	DVG18 Horizontal (Industrial)
HV-1	HV-2	HV-3	DVG18 Vertical (Industrial)
HIB			DVG18 Boot (Industrial)
HDL			DVG18 Basic Handle
HDLB			DVG18 Basic Handle w/Boot
HP-1 Left Hand			DVG18 Mechanical Joystick
HP-2 Right Hand			DVG18 Mechanical Joystick
HPB			DVG18 Boot for Joystick



Work Section -- Spool Actuation Kits

Code	Spring Return	3-Pos Detent	Air Shift	Detent In Spr Ret'n Out	Detent Out Spr Ret'n In	Metered Remt Cont	Double-Ended Solenoid 12V	Rotary Control	Dbl Clevis End Cap	Microswitch Cap
DVG18	K-300	K-301	K-303	K-307	K-308	K-309	K-310	K-311	K-312	K-314

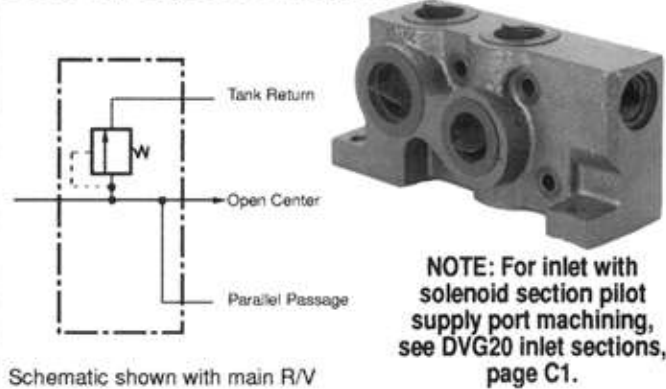
Seal Kits

	Work Section Assembly Kit	Work Section Repair Kit
Code	DVG18-K-1	DVG18-K-2
KIT CONTAINS:	SECTION SEALS	SECTION, SPOOL, and CHECK SEALS

Inlets (2500 psi)

NOTE: Inlets are machined for a main R/V or R/V plug and are furnished with plastic closures. See Section G, Page 32 for inlet port plugs

Code	End Port HP	Top Port HP	End Port LP	Top Port LP
DVA20-A440	1" NPT	1" NPT	N/A	N/A
DVA20-A880	SAE-16	SAE-16	N/A	N/A
DVA20-A000	NON-PORTED HOUSING			
Combination Inlet - Outlet				
DVA20-N4444	1" NPT	1" NPT	1" NPT	1" NPT
DVA20-N8888	SAE-16	SAE-16	SAE-16	SAE-16
DVA20-N0000	NON-PORTED HOUSING			



NOTE: For inlet with solenoid section pilot supply port machining, see DVG20 inlet sections, page C1.

Mid-section Inlets

Split Flow

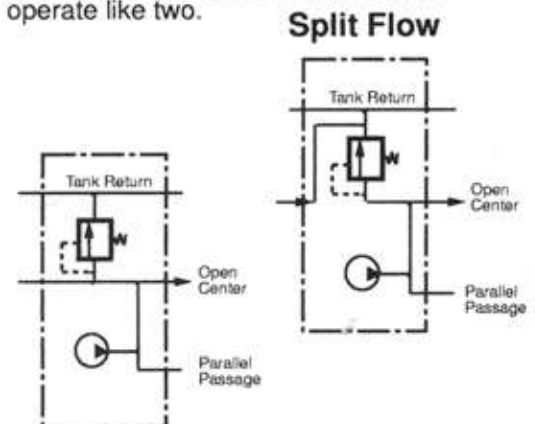
Code	Top Port
DVA20-SFA30	3/4" NPT
DVA20-SFA70	SAE-12
DVA20-SFA00	Non-Ported

Combined Flow

DVA20-CFA30	3/4" NPT
DVA20-CFA70	SAE-12
DVA20-CFA00	Non-Ported

NOTE: Mid-section inlets are machined for a main R/V or R/V plug and are furnished with plastic closures. See Section G, Page 32 for inlet port plugs

Separates primary and secondary pump flows which allows one valve bank to operate like two.



Combined Flow

Combines primary and secondary pump flows for faster operating speed of downstream functions

Schematics shown with main R/V

Adjustable Relief Valve Cartridges

For Inlets and Mid-section Inlets

Code	Description
DVA20-MRV	Main R/V pressure range 800-2500 psi. Factory set @ 2000 psi @ 30 gpm
DVA20-MRVP	Main relief valve plug



For Code N Combination Inlet / Outlets

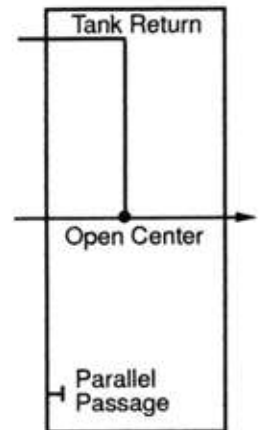
DV-PRVAC	Main R/V, Screw Adj., 500 to 2500 psi
DV-PRV-1	Main R/V, Slug Adj., 500 to 1000 psi
DV-PRV-2	Main R/V, Slug Adj., 1000 to 2500 psi
DV-PRVP	Main R/V, Plug

Outlets

Tank Return Type

Code	End Port	Top Port
DVA20-TR44	1" NPT	1" NPT
DVA20-TR88	SAE-16	SAE-16
DVA20-TR00	NON-PORTED HOUSING	

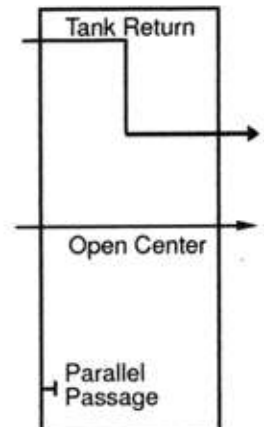
See section G, Page32 for port plugs



Pressure Beyond Type



	End Port LP	End Port HP	Top Port LP	Top Port HP
DVA20-PB44	1" NPT	1" NPT	1" NPT	1" NPT
DVA20-PB80	SAE-16	SAE-16		
DVA20-PB08			SAE-16	SAE-16
DVA20-PB00	Non-Ported Housing			



Stud Kits

Torque to 350 inch pounds

Number of Sections Between Inlet and Outlet

Code	1	2	3	4	5	6	7	8
DVA20-	SK-1	SK-2	SK-3	SK-4	SK-5	SK-6	SK-7	SK-8
Code N - Combination Inlet / Outlet Studs								
DVA20-	NSK-1	NSK-2	NSK-3	NSK-4	NSK-5	NSK-6	NSK-7	NSK-8

Lo-Boy Work Sections -- Parallel Circuits

Code	4-Way 3-Position Hold In Neutral	3-Way 3-Position Hold In Neutral	4-Way 3-Position Float In Neutral	4-Way 4-Position Float Position Detented	Port Size	Work Port NOT Machined	Spring Return	3-Position Detent	Metered Hydraulic Remote Control	Solenoid Operated	Air Shift		
DVA20-DAO	•					•	•						
DVA20-DA3	•				3/4" NPT		•						
DVA20-DA7	•				SAE-12		•						
DVA20-SAO		•				•	•						
DVA20-SA3		•			3/4" NPT		•						
DVA20-SA7		•			SAE-12		•						
DVA20-MAO			•			•	•						
DVA20-MA3			•		3/4" NPT		•						
DVA20-MB3			•		3/4" NPT			•					
DVA20-MA7			•		SAE-12		•						
DVA20-MB7			•		SAE-12			•					
DVA20-FC3				•	3/4" NPT		•						
DVA20-FC7				•	SAE-12		•						
DVA20-DK7-12V	•				SAE-12					• 12VDC			
DVA20-DK7-24V	•				SAE-12					• 24 VDC			
DVA20-DX3	•				3/4" NPT				•				
DVA20-DX7	•				SAE-12				•				
DVA20-DV3	•				3/4" NPT						•		
DVA20-DV7	•				SAE-12						•		
DVA20-MX3			•		3/4" NPT				•				
DVA20-MX7			•		SAE-12				•				
DVA20-DB3	•				3/4" NPT				•				
DVA20-DB7	•				SAE-12				•				
DVA20-WDA7	Series				SAE-12		•						
DVA20-WMA7			• Series		SAE-12		•						

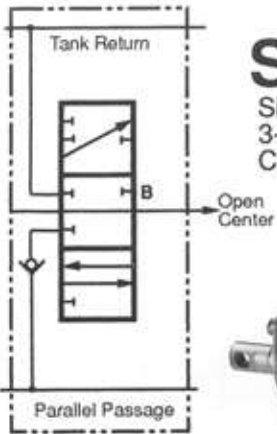
Note: See Section G, Page 33 for section seal kits.

Codes outside of the shaded area may require increased lead time.

Most codes outside the shaded area can be made from codes inside the area and kits on page 33.

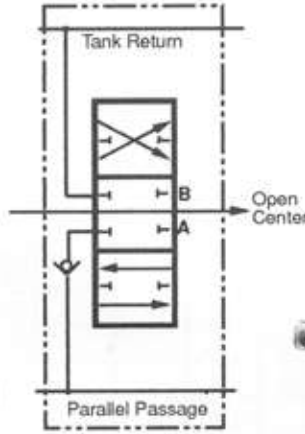
Solenoids are furnished with spade connectors

Machining instructions for standard housings are included in solenoid kits.



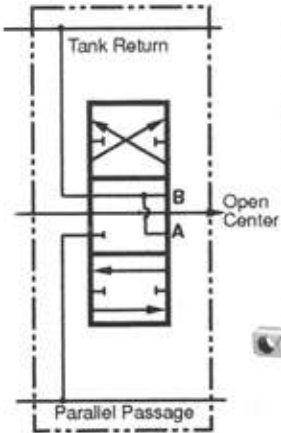
SA7

Single-Acting Section
3-Way, 3-Position, Hold in Neutral
Cylinder Spool



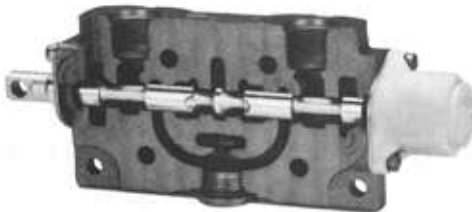
DA7

Double-Acting Section
4-Way, 3-Position, Hold in Neutral
Cylinder Spool



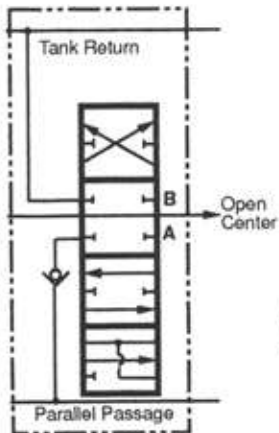
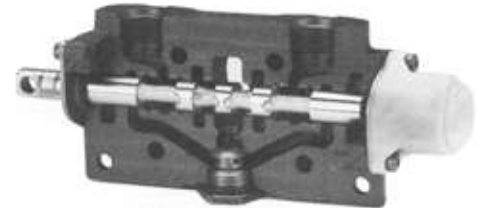
MA7

Double-Acting Section
4-Way, 3-Position, Float in Neutral
Motor Spool



WDA7

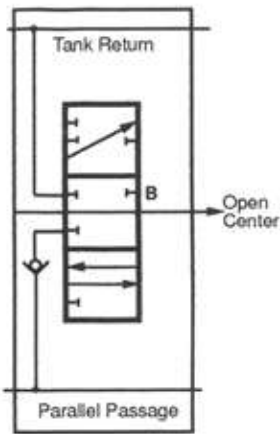
Double-Acting Section
Series Circuit
4-Way, 3-Position, Hold in Neutral
Cylinder Spool



FC7

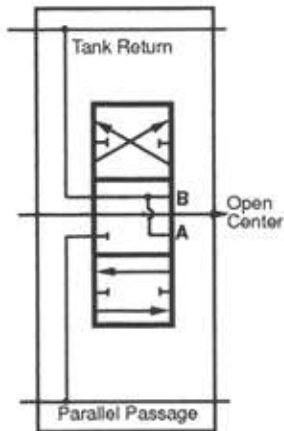
Double-Acting Float Section
4-Way, 4-Position, Detent in Float
Hold in Neutral, Float in 4th Position





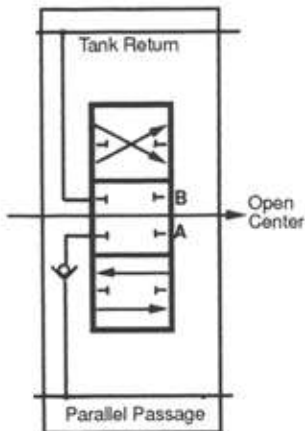
JA705

Single-Acting Section
3-Way, 3-Position, Hold in Neutral
Cylinder Spool



LA755

Double-Acting Section
4-Way, 3-Position, Float in Neutral
Motor Spool



HA755

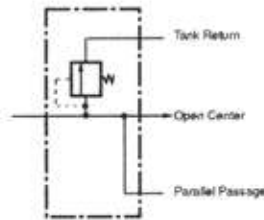
Double-Acting Section
4-Way, 3-Position, Hold in Neutral
Cylinder Spool



Inlets (3500 psi)

Code	End Port	Top Port
DVG20-A770	SAE-12	SAE-12
DVG20-A770-SM	SAE-12	SAE-12 Machined for solenoid sections pilot supply SAE-6 pilot Port
DVG20-A000	NON-PORTED	

Note: Inlets are machined for a main R/V or R/V plug and are furnished with plastic closures. See Section G, Page 32 for inlet port plugs



Schematic shown has main R/V

Mid-section Inlets

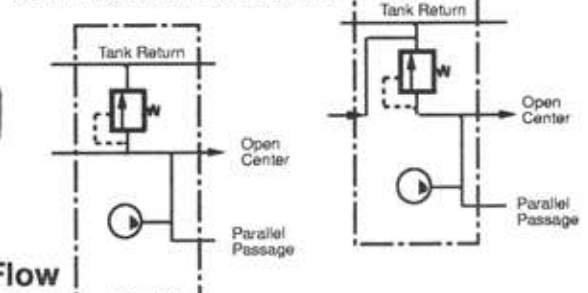
Split Flow

Code	Top Port
DVG20-SFA70	SAE-12
DVG20-SFA00	NON-PORTED



Separates primary and secondary pump flows which allows one valve bank to operate like two.

Schematics shown have main R/V



Combined Flow

Combines primary and secondary pump flows for faster operating speed of downstream functions

Combined Flow

Code	Top Port
DVG20-CFA70	SAE-12
DVG20-CFA00	NON-PORTED

Adjustable Relief Valves

Code DVG20-HMRV	Screw - adjusted main relief valve Pressure range 2800 - 3500 psi Factory set @ 3000 psi @ 30 gpm
DVA20-MRVP	Main relief valve plug



Outlets (Thru Stud Type)

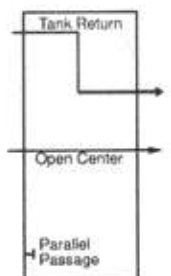
Tank Return Type

Code	End Port	Top Port
DVG20-TTR88	SAE-16	SAE-16
DVG20-TTR00	NON-PORTED	



Pressure Beyond Type

Code	End Port LP	Top Port HP
DVG20-TPB80	SAE-16	SAE-16
DVG20-TPB00	NON-PORTED	



Parallel Circuits (3500 psi) Low-boy Work Sections

CODE	4-Way 3-Pos Hold In Neutral	3-Way 3-Pos Hold In Neutral	4-Way 3-Pos Float In Neutral	Port Size	Work Port NOT Machined	Spring Return	3-Pos Detent	Metered Hydraulic Remote Control	Solenoid Operated	Air Shift
DVG20-DA0	•				•	•				
DVG20-DA7	•			SAE-12		•				
DVG20-DB7	•			SAE-12			•			
DVG20-MA7			•	SAE-12		•				
DVG20-MB7			•	SAE-12			•			
DVG20-SA7		•		SAE-12		•				
DVG20-DX7	•			SAE-12				•		
DVG20-MX7			•	SAE-12				•		
DVG20-DK7	•			SAE-12					• 12vDC	
DVG20-MK7			•	SAE-12					• 12vDC	
DVG20-DV7	•			SAE-12						•

Hi-boy Work Sections

CODE	4-Way 3-Pos Hold In Neutral	3-Way 3-Pos Hold In Neutral	4-Way 3-Pos Float In Neutral	Port Size	Work Port NOT Machined	Spring Return	3-Pos Detent	Metered Hydraulic Remote Control	Solenoid Operated	Air Shift	Port R/V Machined
DVG20-HA055	•				•	•					•
DVG20-HA755	•			SAE-12		•					•
DVG20-HB755	•			SAE-12			•				•
DVG20-LA755			•	SAE-12		•					•
DVG20-LB755			•	SAE-12			•				•
DVG20-JA705		•		SAE-12		•					•
DVG20-HX755	•			SAE-12				•			•
DVG20-LX755			•	SAE-12				•			•
DVG20-HK755	•			SAE-12					• 12vDC		•
DVG20-LK755			•	SAE-12					• 12vDC		•
DVG20-HV755	•			SAE-12						•	•

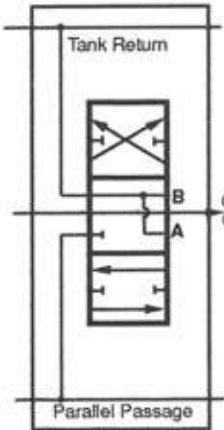
Note: See section G, pages 32 and 33, for section seal kits and R/V port accessories.

Codes outside the shaded area may require longer lead time.

Most codes outside the shaded area can be made from codes inside the area and the kits on page 33.

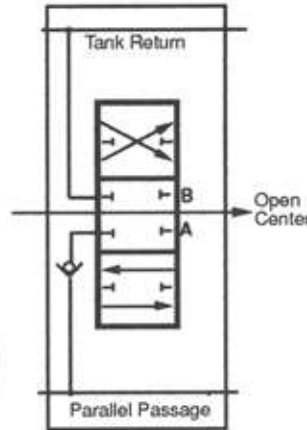
Solenoids are furnished with spade connectors.

Machining instructions for standard housings are included in solenoid kits.



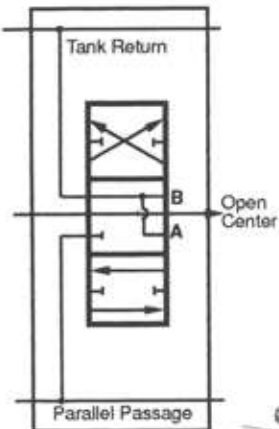
MA7

Double-Acting Section
4-Way, 3-Position, Float in Neutral
Motor Spool



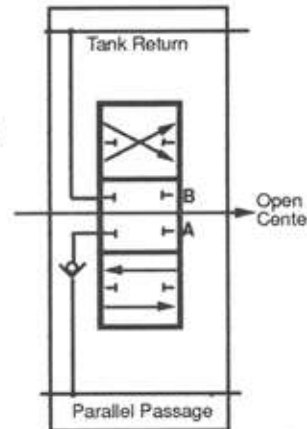
DA7

Double-Acting Section
4-Way, 3-Position, Hold in Neutral
Cylinder Spool



LA755

Double-Acting Section
4-Way, 3-Position, Float in Neutral
Motor Spool



HA755

Double-Acting Section
4-Way, 3-Position, Hold in Neutral
Cylinder Spool



Stud Kits for Thru-Stud Outlets

Code	Number of Sections Between Inlet and Outlet							
	1	2	3	4	5	6	7	8
DVG20-	TSK-1	TSK-2	TSK-3	TSK-4	TSK-5	TSK-6	TSK-7	TSK-8

Torque to 500 inch pounds

Stud Specifications are Grade 8

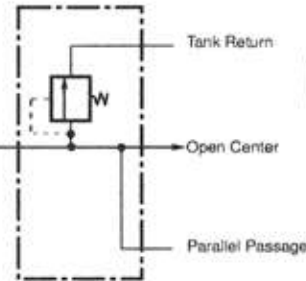


Inlets (2500 psi)

End Inlet

Code	End Port	Top Port
DVA35-A440	1" NPT	1" NPT
DVA35-A880	SAE-16	SAE-16
DVA35-A980	SAE-20	SAE-16
DVA35-A000	NON-PORTED HOUSING	

NOTE: Inlets are machined for a main R/V or R/V plug and are furnished with plastic closures. See Section G, Page 32 for inlet port plugs



Note: For inlets with solenoid section pilot supply machining, see DVG35 inlet section E1

Schematic shown with main R/V

Mid-section Inlets

Split Flow

Code	Top Port
DVA35-SFA40	1" NPT
DVA35-SFA80	SAE-16
DVA35-SFA00	Non-Ported

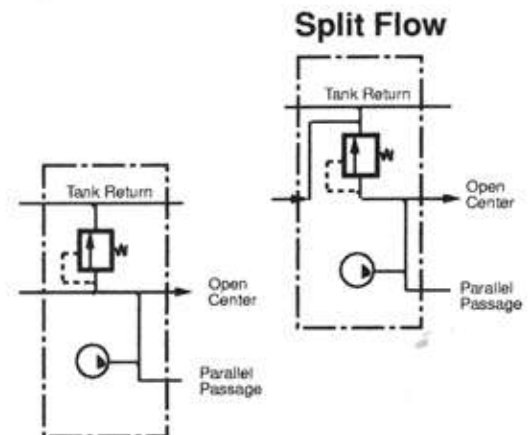
Combined Flow

Code	Top Port
DVA35-CFA40	1" NPT
DVA35-CFA80	SAE-16
DVA35-CFA00	Non-Ported

NOTE: Mid-section inlets are machined for a main R/V or R/V plug and are furnished with plastic closures. See Section G, Page 32 for inlet port plugs



Separates primary and secondary pump flows which allows one valve bank to operate like two.



Combined Flow

Combines primary and secondary pump flows for faster operating speed of downstream functions

Schematics shown with main R/V

Adjustable Relief Valve Cartridges

For Inlets and Mid-section Inlets

Code	Description
DVA35-MRV-1	Main R/V pressure range 800-2000 psi. Factory set @ 1500 psi @ 50 gpm
DVA35-MRV-2	Main R/V pressure range 2001-2500 psi. Factory set @2500 psi @ 50 gpm.
DVA35-MRVP	Main relief valve plug

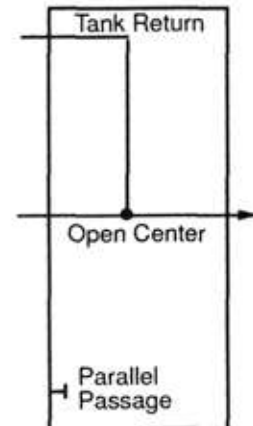


Outlets

Tank Return Type

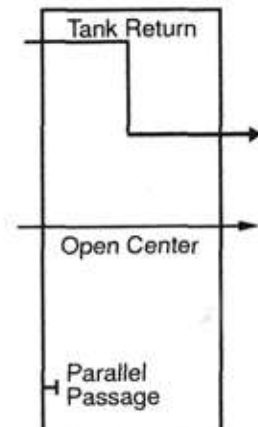
Code	End Port	Top Port
DVA35-TR55	1 1/4" NPT	1 1/4" NPT
DVA35-TR99	SAE-20	SAE-20
DVA35-TR00	NON-PORTED HOUSING	

NOTE: See Section G, Page 32 for Port Plugs



Pressure Beyond Type

	End Port LP	End Port HP	Top Port LP	Top Port HP
DVA35-PB55	1 1/4" NPT	1 1/4" NPT	1 1/4" NPT	1 1/4" NPT
DVA35-PB90	SAE-20	SAE-20		
DVA35-PB09			SAE-20	SAE-20
DVA35-PB00	NON-PORTED HOUSING			



Stud Kits

Number of Sections Between Inlet and Outlet

Code	1	2	3	4	5	6	7	8
DVA35-	SK-1	SK-2	SK-3	SK-4	SK-5	SK-6	SK-7	SK-8

Torque to 400 inch pounds



Lo-Boy Work Sections -- Parallel Circuits

Code	4-Way 3-Position Hold In Neutral	3-Way 3-Position Hold In Neutral	4-Way 3-Position Float In Neutral	4-Way 4-Position Float Position Detented	Port Size	Work Port NOT Machined	Spring Return	3-Position Detent	Metered Hydraulic Remote Control	Solenoid Operated	Air Shift		
DVA35-DAO	•					•	•						
DVA35-DA4	•				1" NPT		•						
DVA35-DA8	•				SAE-16		•						
DVA35-SAO		•				•	•						
DVA35-SA4		•			1" NPT		•						
DVA35-SA8		•			SAE-16		•						
DVA35-MA0			•			•	•						
DVA35-MA4			•		1" NPT		•						
DVA35-MA8			•		SAE-16		•						
DVA35-DK8-12V	•				SAE-16					12 VDC			
DVA35-DK8-24V	•				SAE-16					24 VDC			
DVA35-DX4	•				1" NPT			•					
DVA35-DX8	•				SAE-16			•					
DVA35-DV4	•				1" NPT						•		
DVA35-DV8	•				SAE-16						•		
DVA35-MX4			•		1" NPT			•					
DVA35-MX8			•		SAE-16			•					
DVA35-DB4	•				1" NPT			•					
DVA35-DB8	•				SAE-16			•					
DVA35-SB4		•			1" NPT			•					

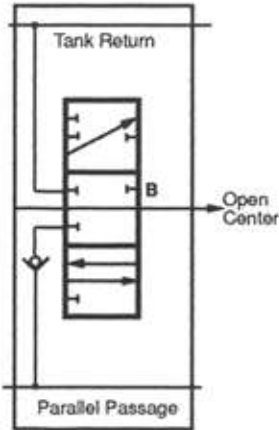
Note: See Section G, Page 33 for section seal kits.

Codes outside of the shaded area may require increased lead time.

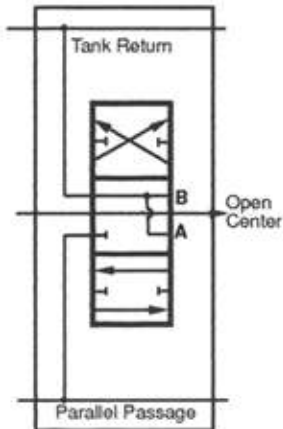
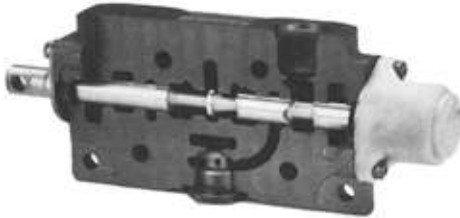
Most codes outside the shaded area can be made from codes inside the area and kits on page 33.

Solenoids are furnished with spade connectors

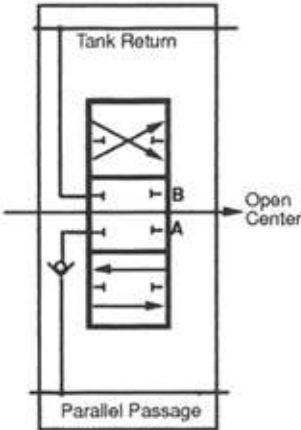
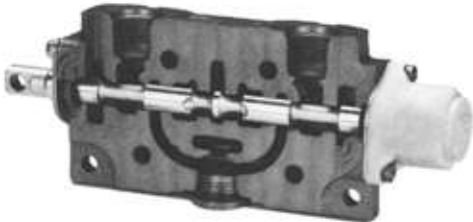
Machining instructions for standard housings are included in solenoid kits.



SA8
Single-Acting Section
3-Way, 3-Position, Hold in Neutral
Cylinder Spool



MA8
Double-Acting Section
4-Way, 3-Position, Float in Neutral
Motor Spool



DA8
Double-Acting Section
4-Way, 3-Position, Hold in Neutral
Cylinder Spool



Hi-Boy Work Sections -- Parallel Circuit

Sections with port relief valve machining are furnished with plastic closures

CODE	4-Way 3-Pos Hold In Neutral	3-Way 3-Pos Hold In Neutral	4-Way 3-Pos Float In Neutral	4-Way 4-Pos Float Pos Detented	Port Size	Work Port NOT Machined	Spring Return	3-Pos Detent	Metered Hydraulic Remote Control	Solenoid Operated	Air Shift	Port R/V Machined
DVA35-HA000	*					*	*					
DVA35-HA055	*					*	*					*
DVA35-HA455	*				1"NPT		*					*
DVA35-HA400	*				1"NPT		*					
DVA35-HA855	*				SAE-16		*					*
DVA35-HA800	*				SAE-16		*					
DVA35-HB800	*				SAE-16			*				
DVA35-HB455	*				1"NPT			*				*
DVA35-HB855	*				SAE-16			*				*
DVA35-JA005		*				*	*					*
DVA35-JA405		*			1"NPT		*					*
DVA35-JA805		*			SAE-16		*					*
DVA35-JB405		*			1"NPT			*				*
DVA35-JB805		*			SAE-16			*				*
DVA35-LA055			*			*	*					*
DVA35-LA455			*		1"NPT		*					*
DVA35-LA855			*		SAE-16		*					*
DVA35-LB400			*		1"NPT			*				
DVA35-LB800			*		SAE-16			*				
DVA35-GC455				*	1"NPT		*					*
DVA35-GC855				*	SAE-16		*					*
DVA35-HK855-12V	*				SAE-16					*12vDC		*
DVA35-HK855-24V	*				SAE-16					*24vDC		*
DVA35-HX455	*				1"NPT			*				*
DVA35-HX800	*				SAE-16			*				
DVA35-HX855	*				SAE-16			*				*
DVA35-HV455	*				1"NPT						*	*
DVA35-HV855	*				SAE-16						*	*
DVA35-LV400			*		1"NPT						*	
DVA35-LV800			*		SAE-16						*	
DVA35-LV855			*		SAE-16						*	*
DVA35-LX800			*		SAE-16			*				
DVA35-LX855			*		SAE-16			*				*

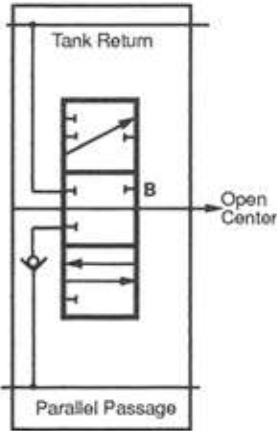
Note: See section G, pages 32 and 33, for section seal kits and R/V port accessories.

Codes outside the shaded area may require longer lead time.

Most codes outside the shaded area can be made from codes inside the area and the kits on page 33.

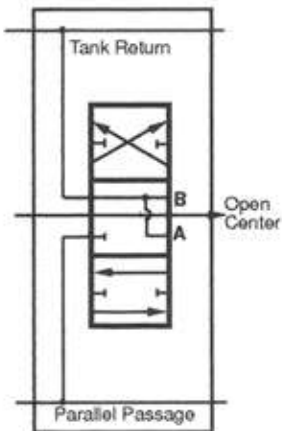
Solenoids are furnished with spade connectors.

Machining instructions for standard housings are included in solenoid kits.



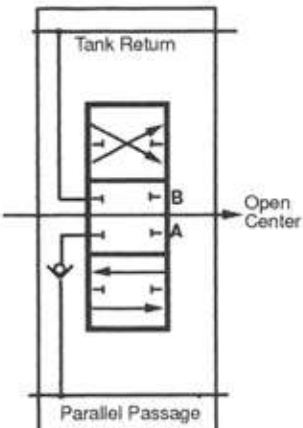
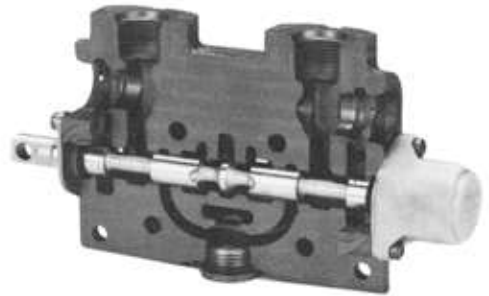
JA805

Single-Acting Section
3-Way, 3-Position, Hold in Neutral
Cylinder Spool



LA855

Double-Acting Section
4-Way, 3-Position, Float in Neutral
Motor Spool



HA855

Double-Acting Section
4-Way, 3-Position, Hold in Neutral
Cylinder Spool

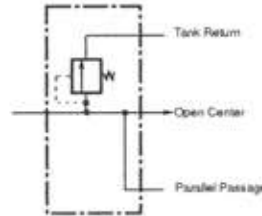


Notes

Inlets (3500 psi)

Code	End Port	Top Port
DVG35-A880	SAE-16	SAE-16
DVG35-A880-SM	SAE-16 Machined for solenoid sections pilot supply. SAE-6 pilot port.	SAE-16
DVG35-A980	SAE-20	SAE-16
DVG35-A990	SAE-20	SAE-16
DVG35-A000	NON-PORTED	SAE-20

Note: Inlets are machined for a main R/V or R/V plug and are furnished with plastic closures. See Section G, Page 32 for inlet port plugs



Sections shown have main R/V

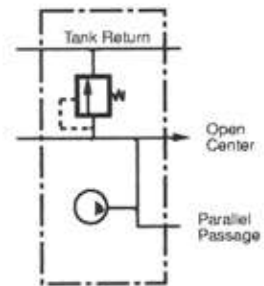
Mid-section Inlets

Split Flow

Code	Top Port
DVG35-SFA80	SAE-16
DVG35-SFA00	NON-PORTED

Separates primary and secondary pump flows which allows one valve bank to operate like two.

Note: Mid-section inlets are machined for a main R/V or R/V plug and are furnished with plastic closures. See Section G, Page 32 for inlet port plugs



Adjustable Relief Valves

DVG35-HMRV	Screw - adjusted main relief valve Pressure range 2800 - 3500 psi Factory set @ 3000 psi @ 30 gpm
DVA35-MRVP	Main relief valve plug



Outlets (Thru Stud Type)

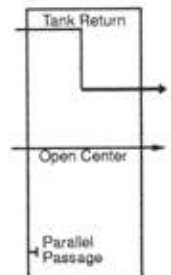
Tank Return Type

Code	End Port	Top Port
DVG35-TTR99	SAE-20	SAE-20
DVG35-TTR00	NON-PORTED	



Pressure Beyond Type

Code	End Port LP	Top Port HP
DVG35-TPB99	SAE-20	SAE-20
DVG35-TPB00	NON-PORTED	



See Section G, Page 32 for Outlet plugs

Parallel Circuits (3500 psi)

Low-boy Work Sections

CODE	4-Way 3-Pos Hold In Neutral	3-Way 3-Pos Hold In Neutral	4-Way 3-Pos Float In Neutral	Port Size	Work Port NOT Machined	Spring Return	3-Pos Detent	Metered Hydraulic Remote Control	Solenoid Operated	
DVG35-DA0	•				•	•				
DVG35-DA8	•			SAE-16		•				
DVG35-MA8			•	SAE-16		•				
DVG35-DX8	•			SAE-16				•		
DVG35-DK8	•			SAE-16					•	
DVG35-SA8		•		SAE-16		•				

Hi-boy Work Sections

CODE	4-Way 3-Pos Hold In Neutral	3-Way 3-Pos Hold In Neutral	4-Way 3-Pos Float In Neutral	Port Size	Work Port NOT Machined	Spring Return	3-Pos Detent	Metered Hydraulic Remote Control	Solenoid Operated	Air Shift	Port R/V Machined
DVG35-HA055	•				•	•					•
DVG35-LA055			•		•	•					•
DVG35-HA855	•			SAE-16		•					•
DVG35-HB855	•			SAE-16			•				•
DVG35-LA855			•	SAE-16		•					•
DVG35-LB855			•	SAE-16			•				•
DVG35-JA805		•		SAE-16		•					•
DVG35-HX855	•			SAE-16				•			•
DVG35-LX855			•	SAE-16				•			•
DVG35-HK855	•			SAE-16					• 12vDC		•
DVG35-LK855			•	SAE-16					• 12vDC		•
DVG35-HV855	•			SAE-16						•	•
DVG35-LV855			•	SAE-16						•	•

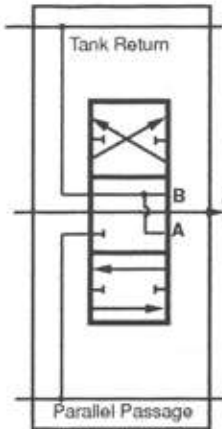
Note: See section G, pages 32 and 33, for section seal kits and R/V port accessories.

Codes outside the shaded area may require longer lead time.

Most codes outside the shaded area can be made from codes inside the area and the kits on page 33.

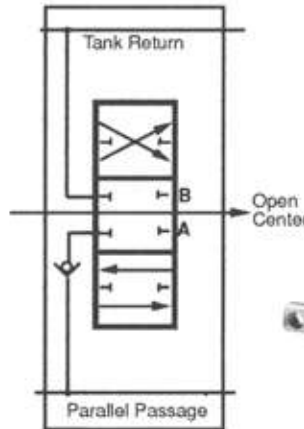
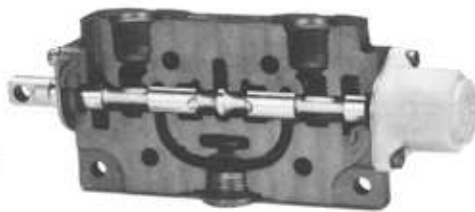
Solenoids are furnished with spade connectors.

Machining instructions for standard housings are included in solenoid kits.



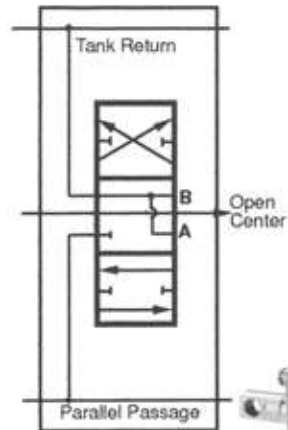
MA8

Double-Acting Section
4-Way, 3-Position, Float in Neutral
Motor Spool



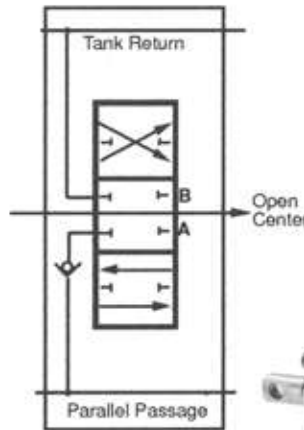
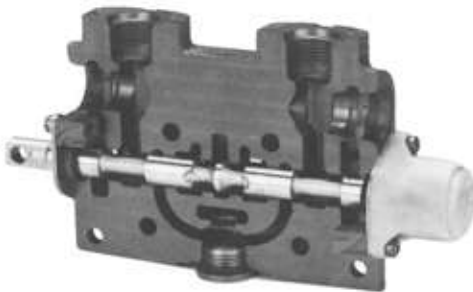
DA8

Double-Acting Section
4-Way, 3-Position, Hold in Neutral
Cylinder Spool



LA855

Double-Acting Section
4-Way, 3-Position, Float in Neutral
Motor Spool



HA855

Double-Acting Section
4-Way, 3-Position, Hold in Neutral
Cylinder Spool



Stud Kits for Thru-Stud Outlets

Code	Number of Sections Between Inlet and Outlet							
	1	2	3	4	5	6	7	8
DVG35-	TSK-1	TSK-2	TSK-3	TSK-4	TSK-5	TSK-6	TSK-7	TSK-8

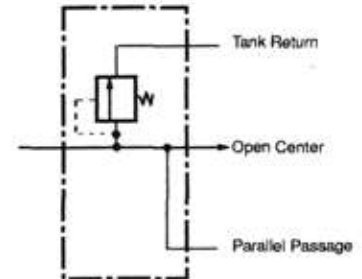
Torque to 900 inch pounds

Stud Specifications are Grade 8



Inlets (3500 psi)

Code	End Port HP	Top Port HP	End Port LP	Top Port LP
DVG80-A0404	NONE	1 1/2"SF	NONE	1 1/2"SF
DVG80-A0808	NONE	SAE-24	NONE	SAE-24
DVG80-A4040	1 1/2"SF	NONE	1 1/2"SF	NONE
DVG80-A8080	SAE-24	NONE	SAE-24	NONE
DVG80-A0000	NON-PORTED HOUSING			



Schematic shown has main R/V

NOTE: Inlets are machined for a main R/V or R/V plug and are furnished with plastic closures

See Section G for inlet port plugs... Page 32



Adjustable Relief Valves

Code	Description
DVG80-MRV	Main R/V pressure range 500-3500 psi. Factory set @ 2000 psi @ 80 gpm
DVG80-MRVP	Main relief valve plug

Outlet Sections

Code	End Port LP	Top Port LP	End Port HP	Top Port HP
DVG80-TRC0404	NONE	1 1/2"SF	NONE	1 1/2"SF
DVG80-TRC0808	NONE	SAE-24	NONE	SAE-24
DVG80-TRC4040	1 1/2"SF	NONE	1 1/2"SF	NONE
DVG80-TRC8080	SAE24	NONE	SAE-24	NONE
DVG80-TRC0000	Non-Ported housing			
DVG80-PBS	PRESSURE BEYOND SLEEVE			

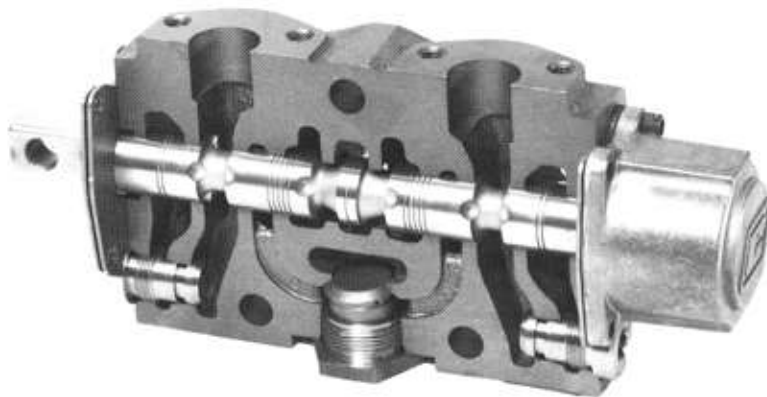
Note: The PBS Sleeve converts a tank return outlet to pressure beyond.
All TRC outlets are machined to accept PBS sleeves.

Hi-Boy Work Sections -- Parallel Circuits

Sections have port relief valve machining.
Furnished with plastic closures

Code	4-Way 3-Position Hold in Neutral	3-Way 3-Position Hold in Neutral	4-Way 3-Position Float in Neutral	Port Size SAE-20	Port Size 1" SF	Port Size 1 1/4" SF	Work Port NOT Machined	Spring Return	3-Position Detent	Metered Hydraulic Remote Control
DVG80-HA055	•						•	•		
DVG80-HA255	•				•			•		
DVG80-HA355	•					•		•		
DVG80-HA755	•			•				•		
DVG80-HB755	•			•					•	
DVG80-HX355	•					•				•
DVG80-HX755	•			•						•
DVG80-LA055			•				•	•		
DVG80-LA255			•		•			•		
DVG80-LA355			•			•		•		
DVG80-LA755			•	•				•		
DVG80-LB755			•	•					•	
DVG80-LX355			•			•				•
DVG80-LX755			•	•						•
DVG80-JA205		•			•			•		
DVG80-JA305		•				•		•		
DVG80-JA705		•		•				•		

DVG80
Manually controlled
Spring returned section
4-Way – 3-Position
Hold in neutral



Port Relief Valves

Code	Screw Adjustable Port R/V With A/C	A/C Only	Plug
DV	-PRVAC	-AC	-PRVP



Stud Kits

Code	Number of sections between inlet and outlet					
	1	2	3	4	5	6
DVG80-	SK-1	SK-2	SK-3	SK-4	SK-5	SK-6

Torque to 1800 inch pounds

Stud Specifications are Grade 8



Work Section Spool Actuator Kits

Code	Spring Return	3-Position Detent	Metered Hydraulic Remote Control
DV80-	K-300	K-301	K-309

Seal Kits

Code	Work Section Assembly Kit	Work Section Repair Kit	Main RV Repair Kit
DV80-	K-21	K-22	K-24
Kit Contains	Section Seals	Section, Spool and Check Seals	All Replaceable Seals



Bulletin HY14-2700/US

Master Distributor Stock Components

Effective: May 1, 2003

Supersedes: Catalog No. DSC-7000 dated 7/1/01



Model V10

Model V11

Model V12

Model V20

Model 25P

Model V40

Model V42

Model V50

Model V70

Model V90

Models HCJ, HCS, HCF

Models SP, SPK, SSK

Models 300/400

Port Plugs

Solenoid Cartridge and Coil Kits

V10 INLET COVERS (Housing No. 23613)



23613 Left Cover

Item No.	Model Number	Part Number	End Inlet	End Outlet	Top Inlet	Top Outlet	SAE 10	SAE 8	Pressure Reducing Valves [Ⓞ]
1	10-LC-10	13650709	•	•	•	•	•		
2	10-LC-08	13650710	•	•	•	•		•	
3	10-LC-10-PRV	26157001			•	•	•		•

All inlet covers machined to accept main relief cartridges. Two SAE port plugs are furnished loose with Items 1 and 2.

[Ⓞ] Used for Solenoid Valve Assemblies. Only top ports are available with this cover.

V10 Main Relief Cartridges



No Relief Cavity Plug

Item No.	Model Number	Part Number	Pressure Range and Setting						
			500-1249 Set @ 1200 PSI c/p	1250-1749 Set @ 1700 PSI c/p	1750-1999 Set @ 1950 PSI c/p	2000-2599 Set @ 2550 PSI c/p	2600-3000 Set @ 3000 PSI c/p	3001-3500 Set @ 3500 PSI c/p	
1	RCM-1200	13650712	•						
2	RCM-1700	13650713		•					
3	RCM-1950	13650714			•				
4	RCM-2550	13650715				•			
5	RCM-3000	13650716					•		
6	RCM-3500	13650774						•	
7	K-10-NR	13650718	No Relief Cavity Plug for V10 Inlet Covers						

Model RCM relief cartridges are internal shirn adjustable.

Relief External Adjustment Kit



External Adjustment Kit

Item No.	Model Number	Part Number	Description
1	K-WH-A	8650381	External Screw Adjustment Option for RCM Relief Cartridges

V10 OUTLET COVERS (Housing No. 23627)



23627 Outlet Cover

Item No.	Model Number	Part Number	SAE 8	SAE 10	Top Outlet	End Outlet	Machined for Power Beyond	With Mechanical Pressure Control Cartridge [Ⓞ]
1	10-RC-08-EY	13650719	•		•	•	•	
2	10-RC-10-EY	13650720		•	•	•	•	
3	10-RC-10-P-MECH	26157002		•	•	•		•

All outlet covers machined to accept (top) Option Cartridges. Two SAE port plugs furnished loose with each cover.

[Ⓞ] Used for Solenoid Valve Assemblies.

The pressure control cartridge must be located in the downstream valve if using the optional power beyond feature in the solenoid-operated upstream valve.

V10 Outlet Cover Conversion Kits



Closed Center Plug

Item No.	Model Number	Part Number	Description
1	K-10-C	13650722	Closed Center Plug
2	K-10-08-Y	13650723	SAE 8 Power Beyond Sleeve
3	K-10-10-Y	13650724	SAE 10 Power Beyond Sleeve
4	K-10-P (MECH)	26157055	Pilot Control Cartridge (for Solenoid Valves)

The power beyond sleeves listed here are required for (top) power beyond part only.

To power beyond out the (end) of the valve, requires installation of the K-10-C plug in the (top) option port. Refer to the V10 Service Manual for procedures on selecting Closed Center and Power Beyond options. Pilot control cartridge not required in closed center systems.

V10

V10 Parallel Work Sections with Machined Upper Option Cavities (Housing No. 24990)

Item No.	Model Number	Part Number	SAE 8 [8]	3-Way 3-Pos [3]	4-Way 3-Pos [4]	4-Way 3-Pos Free Flow [F4]	4-Way 4-Pos Float [K4]	Spring Return to Neutral [0]	3-Pos Detent [D]	1-Pos. Detent (Spool In) [R]
1	10-08-03	13650776	•	•				•		
2	10-08-R3	13650971	•	•						•
3	10-08-04	13650973	•		•			•		
4	10-08-F4	13650975	•			•		•		
5	10-08-DF4	13650977	•			•			•	
6	10-08-K4	13650979	•				•			

The work sections listed above all have the upper work port relief option cavities machined and plugged. V10 work sections do not include handles or brackets. They are supplied (LCHA) Less Complete Handle Assembly.



24990 Work Section

V10 Parallel Work Sections Without Upper Option Cavities (Housing No. 24990)

Item No.	Model Number	Part Number	SAE 8 [8]	3-Way 3-Pos [3]	4-Way 3-Pos [4]	4-Way 3-Pos Free Flow [F4]	4-Way 4-Pos Float [K4]	Spring Return to Neutral [0]	3-Pos Detent [D]	1-Pos. Detent (Spool In) [R]
1	10-08-N-03	13650726	•	•				•		
2	10-08-N-R3	13650970	•	•						•
3	10-08-N-04	13650972	•		•			•		
4	10-08-N-F4	13650974	•			•		•		
5	10-08-N-DF4	13650976	•			•			•	
6	10-08-N-K4	13650978	•				•			

The 'N' in the work sections listed above designates that the upper work port relief option cavities are NOT machined. If the application requires the use of work port option cartridges, (i.e. reliefs or anti-cavitation checks), do not select work section from this group. V10 work sections do not include handles or brackets. They are supplied (LCHA) Less Complete Handle Assembly.

V10 Tandem Work Sections with Machined Upper Option Cavities (Housing No. 24990)

Item No.	Model Number	Part Number	SAE 8 [8]	3-Way 3-Pos [3]	4-Way 3-Pos [4]	4-Way 3-Pos Free Flow [F4]	4-Way 4-Pos Float [K4]	Spring Return to Neutral [0]	3-Pos Detent [D]	1-Pos. Detent (Spool In) [R]
1	10T-08-03	13650782	•	•				•		
2	10T-08-R3	13650981	•	•						•
3	10T-08-04	13650983	•		•			•		
4	10T-08-F4	13650985	•			•		•		
5	10T-08-DF4	13650987	•			•			•	
6	10T-08-K4	13650989	•				•			

The work sections listed above all have the upper work port relief option cavities machined and plugged. V10 work sections do not include handles or brackets. They are supplied (LCHA) Less Complete Handle Assembly.

V10 Tandem Work Sections Without Upper Option Cavities (Housing No. 24990)

Item No.	Model Number	Part Number	SAE 8 [8]	3-Way 3-Pos [3]	4-Way 3-Pos [4]	4-Way 3-Pos Free Flow [F4]	4-Way 4-Pos Float [K4]	Spring Return to Neutral [0]	3-Pos Detent [D]	1-Pos. Detent (Spool In) [R]
1	10T-08-N-03	13650738	•	•				•		
2	10T-08-N-R3	13650980	•	•						•
3	10T-08-N-04	13650982	•		•			•		
4	10T-08-N-F4	13650984	•			•		•		
5	10T-08-N-DF4	13650986	•			•			•	
6	10T-08-N-K4	13650988	•				•			

The 'N' in the work sections listed above designates that the upper work port relief option cavities are NOT machined. If the application requires the use of work port option cartridges, (i.e. reliefs or anti-cavitation checks), do not select work section from this group. V10 work sections do not include handles or brackets. They are supplied (LCHA) Less Complete Handle Assembly.



24990 Work Section

V10 'Parallel' Solenoid-Operated Work Sections with Machined Upper Option Cavities (Housing No. 23962)

Item No.	Model Number	Part Number	SAE 8 [8]	3-Way 3-Pos [3]	4-Way 3-Pos [4]	4-Way 3-Pos Free Flow [F4]	12 VDC On/Off Solenoid [SOL-I-12]	12 VDC Proportional Solenoid [EPC-I-12]
1	10-08-03-SOL-I-12	26157003	•	•			•	
2	10-08-03-EPC-I-12	26157005	•	•				•
3	10-08-04-SOL-I-12	26157007	•		•		•	
4	10-08-04-EPC-I-12	26157009	•		•			•
5	10-08-F4-SOL-I-12	26157011	•			•	•	
6	10-08-F4-EPC-I-12	26157013	•			•		•

The solenoid-operated work sections listed above all have the upper work port relief option cavities machined and plugged. These sections do **NOT** offer the handle override feature. Contact the Gresen factory in Minneapolis for solenoid sections with handle.

Solenoid Cartridges & Coil Kits

Refer to page 83 in the Electronics Section

V10 Spool Positioner Option Kits



Positioner Kit

Item No.	Model Number	Part Number	Description
1	K-10-A	13650746	Spring Extended Spool Positioner [Ⓞ]
2	K-V10-A	26157056	Spring Extended Spool Positioner (For Use With 24990 Housing) [Ⓞ]
3	K-10-D	13650747	3-Position, 'D' Detent Spool Positioner
4	K-V10-D	26157057	3-Position, 'D' Detent Spool Positioner (For Use With 24990 Housing)
5	K-10-M	13650748	Manual 'M' Spool Positioner
6	K-V10-M	26157058	Manual 'M' Spool Positioner (For Use With 24990 Housing)
7	K-10-S	13650749	Spring Center to Neutral Spool Positioner
8	K-V10-S	26157059	Spring Return to Neutral Spool Positioner (For Use With 24990 Housing)
9	K-10-RI	13650750	1-Position, 'R' Detent Spool 'IN' with Spring return to Neutral
10	K-V10-RI	26157060	1-Position, 'R' Detent Spool 'IN' with Spring return to Neutral (For Use With 24990 Housing)
11	K-10-RO	13650751	1-Position, 'R' Detent Spool 'OUT' with Spring return to Neutral [Ⓞ]
12	K-V10-RO	26157061	1-Position, 'R' Detent Spool 'OUT' with Spring return to Neutral (For Use with 24990 Housing) [Ⓞ]

The Above K-V10-(Kits) are for use with the new style 24990 work section housings. The internal working parts are **NOT** interchangeable with the equivalent K-10-(Kits).

Ⓞ K-10-A and K-V10-A Spool Positioners holds the spool in the 'B' port power (Spool Out) position and will limit the shifting of the spool to the neutral position only.

Ⓞ K-10-RO and K-V10-RO Spool Positioner detent sleeve may be reversed for 'RIO' (Detent 'In' and 'Out') applications. Refer to the V10 Service and Parts manual for procedures.

V10 Mechanical Joysticks

Fits V10 '24990' Work Section Housings. Includes two Spool Clevis Adapters.

Item No.	Model Number	Part Number	Description
1	MJA2-10L-NB	13650968 [Ⓞ]	V10 Mechanical Joystick, 'LH' Assembly
2	MJA2-10R-NB	13650969 [Ⓞ]	V10 Mechanical Joystick, 'RH' Assembly
3	K-MJA-O	13650691	Mechanical Joystick 'Offset' Handle Assembly
4	K-MJA-S	13650690	Mechanical Joystick 'Straight' Handle Assembly

Ⓞ Includes boot assembly.

V10

V10 Handle Option Kits

Item No.	Model Number	Part Number	Description
1	K-10-VH	13650752	Vertical Handle Assembly
2	K-10-HH	13650753	Horizontal Handle Assembly
3	K-10-VH-EXT	13650786	Extended Vertical Handle Kit - For use in V10/V11 valves using port reliefs on handle end
4	K-10-HH-EXT	13650948	Extended Horizontal Handle Kit - For use in V10/V11 valves using port reliefs on handle end

Refer to Model V10 Service Catalog No. GSD-1010 for information regarding handle installation.



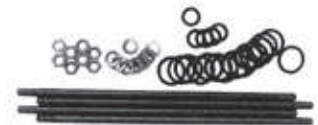
Extended Vertical Handle Assembly



Vertical Handle Assembly



Horizontal Handle Assembly



Assembly Stud Kit

V10 Section Stud Assembly Kits

Item No.	Model Number	Part Number	Description
1	K-10-1	13650755	Stud Kit for One (1) Work Section
2	K-10-2	13650756	Stud Kit for Two (2) Work Sections
3	K-10-3	13650757	Stud Kit for Three (3) Work Sections
4	K-10-4	13650758	Stud Kit for Four (4) Work Sections
5	K-10-5	13650759	Stud Kit for Five (5) Work Sections
6	K-10-6	13650760	Stud Kit for Six (6) Work Sections
7	K-10-7	13650761	Stud Kit for Seven (7) Work Sections
8	K-10-8	13650762	Stud Kit for Eight (8) Work Sections
9	K-10-9	13650763	Stud Kit for Nine (9) Work Sections
10	K-10-10	13650764	Stud Kit for Ten (10) Work Sections
11	K-10-11	13650765	Stud Kit for Eleven (11) Work Sections
12	K-10-SECT-SEAL	13650767	Section Seal Kit
13	K-10-SOL-BRACKET	26157088	(Tall) Mounting Bracket - For use with V10 Solenoid Valve Assemblies
14	K-10-SOL-SEAL	26157030	Section Seal for Solenoid Pilot Passage (25 pieces of 21866001 Seal).

Each Stud Kit includes (4) Studs, (8) Nuts, (2) Mounting Brackets and the required number of Section Seals.

V10 Work Port Relief/Anti-Cav Options

Item No.	Model Number	Part Number	(A) Screw Adjustable	(N) Non-Adj. Tamper Resistant	Anti-Cav Check	Relief Valve	Relief Valve A/C Check	500-5000 Set @ 3000 PSI c/p
1	K-10-AC	13650770			•			
2	RP10A-3000	13650768	•			•		•
3	RP10N-3000	13650769		•		•		•
4	RP10A-AC 3000	13650771	•				•	•
5	RP10N-AC 3000	13650772		•			•	•

Model RP10A (-AC) relief cartridges are externally adjustable. Model RP10N (-AC) relief cartridges are preset at specified setting and offer a 'tamper resistant' cover.



RP10A Relief Cartridge



No Relief Cavity Plug

V10 Work Port No Relief 'NR' Plug Kit

Item No.	Model Number	Part Number	Description
1	K-10-NR-WP	13650773	Work Port Relief Cavity 'NR' Plug (Not for use in V10 Inlet Covers)



Model V11 Control Valve Porting

SAE 10

SAE 8

Inlet Ports

Work Ports

Outlet Ports

V11

V11 1-Spool Valves with Machined Upper Option Cavities (Housing No. 23438)

Item No.	Model Number	Part Number	Model RCM Main Relief Set @ 2500 PSI C/P	4-Way, 3-Position (4)	4-Way, 3-Position Free Flow (F4)	4-Way, 4-Position Float [K4]	Spring Return to Neutral [0]	3-Pos Detent (D)
1	V11XT-4-2500	13650792	•	•			•	
2	V11XT-F4-2500	13650794	•		•		•	
3	V11XT-D4-2500	13650796	•	•				•
4	V11XT-DF4-2500	13650798	•		•			•
5	V11XT-K4-2500	13650800	•			•		

V11 valve assemblies do not include handles or brackets. They are supplied (LCHA) Less Complete Handle Assembly.

The valve assemblies listed above all have the upper work port relief option cavities machined and plugged. Also machined are the top outlet and end conversion port. The end conversion port may be used as and optional end outlet.

V11 1-Spool Valves Without Upper Option Cavities (Housing No. 23438)

Item No.	Model Number	Part Number	Model RCM Main Relief Set @ 2500 PSI C/P	4-Way, 3-Position (4)	4-Way, 3-Position Free Flow (F4)	4-Way, 4-Position Float [K4]	Spring Return to Neutral [0]	3-Pos Detent (D)
1	V11XT-N-4-2500	13650791	•	•			•	
2	V11XT-N-F4-2500	13650793	•		•		•	
3	V11XT-N-D4-2500	13650795	•	•				•
4	V11XT-N-DF4-2500	13650797	•		•			•
5	V11XT-N-K4-2500	13650799	•			•		

V11 valve assemblies do not include handles or brackets. They are supplied (LCHA) Less Complete Handle Assembly.

The 'N' in the valve assemblies listed above designates that the upper work port relief option cavities are NOT machined. If the application requires the use of work port option cartridges, (i.e. reliefs or anti-cavitation checks), do not select valve assemblies from this group. Machined are the top outlet and end conversion port. The end conversion port may be used as an optional end outlet.

V11 2-Spool Valves with Machined Upper Option Cavities (Housing No. 23537)

Item No.	Model Number	Part Number	Model RCM Main Relief Set @ 2500 PSI C/P	4-Way, 3-Position (4)	4-Way, 3-Position Free Flow (F4)	4-Way, 4-Position Float [K4]	Spring Return to Neutral [0]	3-Pos Detent (D)
1	V11XT-4-4-2500	13650808	•	Both Spools			•	
2	V11XT-K4-4-2500	13650810	•	Spool #2		Spool #1	•	
3	V11XT-DF4-DF4-2500	13650812	•		Both Spools			•

V11 valve assemblies do not include handles or brackets. They are supplied (LCHA) Less Complete Handle Assembly.

The valve assemblies listed above all have the upper work port relief option cavities machined and plugged. Also machined are the top outlet and end conversion port. The end conversion port may be used as and optional end outlet.

V11 2-Spool Valves Without Upper Option Cavities (Housing No. 23537)

Item No.	Model Number	Part Number	Model RCM Main Relief Set @ 2500 PSI C/P	4-Way, 3-Position (4)	4-Way, 3-Position Free Flow (F4)	4-Way, 4-Position Float [K4]	Spring Return to Neutral [0]	3-Pos Detent (D)
1	V11XT-N-4-4-2500	13650807	•	Both Spools			•	
2	V11XT-N-K4-4-2500	13650809	•	Spool #2		Spool #1	•	
3	V11XT-N-DF4-2500	13650811	•		Both Spools			•

V11 valve assemblies do not include handles or brackets. They are supplied (LCHA) Less Complete Handle Assembly.

The 'N' in the valve assemblies listed above designates that the upper work port relief option cavities are NOT machined. If the application requires the use of work port option cartridges, (i.e. reliefs or anti-cavitation checks), do not select valve assemblies from this group. Machined are the top outlet and end conversion port. The end conversion port may be used as an optional end outlet.

V11

V11 3-Spool Valves with Machined Upper Option Cavities (Housing No. 23146)

Item No.	Model Number	Part Number	Model RCM Main Relief Set @ 2500 PSI C/P	4-Way, 3-Position [4]	4-Way 3-Position Free Flow [F4]	4-Way 4-Position Float [K4]	Spring Return to Neutral [0]	3-Pos Detent [D]
1	V11XT-4-4-4-2500	13650816	•	All 3 Spools			•	
2	V11XT-DF4-DF4-DF4-2500	13650818	•		All 3 Spools			•
3	V11XT-K4-4-4-2500	13650820	•	Spools 2 & 3		Spool #1	•	

V11 valve assemblies do not include handles or brackets. They are supplied (LCHA) Less Complete Handle Assembly.

The valve assemblies listed above all have the upper work port relief option cavities machined and plugged. Also machined are the top outlet and end conversion port. The end conversion port may be used as an optional end outlet.

V11 3-Spool Valves Without Upper Option Cavities (Housing No. 23146)

Item No.	Model Number	Part Number	Model RCM Main Relief Set @ 2500 PSI C/P	4-Way, 3-Position [4]	4-Way 3-Position Free Flow [F4]	4-Way 4-Position Float [K4]	Spring Return to Neutral [0]	3-Pos Detent [D]
1	V11XT-N-4-4-4-2500	13650815	•	All 3 Spools			•	
2	V11XT-N-DF4-DF4-DF4-2500	13650817	•		All 3 Spools			•
3	V11XT-N-K4-4-4-2500	13650819	•	Spools 2 & 3		Spool #1	•	

V11 valve assemblies do not include handles or brackets. They are supplied (LCHA) Less Complete Handle Assembly.

The 'N' in the valve assemblies listed above designates that the upper work port relief option cavities are NOT machined. If the application requires the use of work port option cartridges, (i.e. reliefs or anti-cavitation checks), do not select valve assemblies from this group. Machined are the top outlet and end conversion port. The end conversion port may be used as an optional end outlet.

V11 Main Relief Cartridges

Item No.	Model Number	Part Number	Pressure Range and Setting					
			500-1249 Set @ 1200 PSI c/p	1250-1749 Set @ 1700 PSI c/p	1750-1999 Set @ 1950 PSI c/p	2000-2599 Set @ 2550 PSI c/p	2500-3000 Set @ 3000 PSI c/p	3001-3500 Set @ 3500 PSI c/p
1	RCM-1200	13650712	•					
2	RCM-1700	13650713		•				
3	RCM-1950	13650714			•			
4	RCM-2550	13650715				•		
5	RCM-3000	13650716					•	
6	RCM-3500	13650774						•
7	K-10-NR	13650718	No Relief Cavity Plug					

The above RCM relief cartridges are shim adjustable. Installing K-WH-A (listed below) will modify these relief cartridges to offer an external adjustment.



No Relief Cavity Plug

Relief External Adjustment Kit

Item No.	Model Number	Part Number	Description
1	K-WH-A	8650381	Screw Adjustment Option for RCM Relief Cartridges



External Adjustment Kit

V11 Right End Conversion Port Option Kits

Item No.	Model Number	Part Number	Description
1	K-10-C	13650722	Closed Center Plug
2	K-10-08-Y	13650723	SAE 8 Power Beyond Sleeve
3	K-10-10-Y	13650724	SAE 10 Power Beyond Sleeve



Closed Center Plug

Refer to the Model V11 Service Manual for procedures on selecting Closed Center and Power Beyond options.



Positioner Kit

V11 Spool Positioner Option Kits

Item No.	Model Number	Part Number	Description
1	K-10-A	13650746	Spring Extended Spool (Spool Biased to "B" Port Power)Ⓢ
2	K-10-D	13650747	3-Position Detent
3	K-10-M	13650748	Manual Positioner (No Spring Centering)
4	K-10-S	13650749	Spring Center to Neutral
5	K-10-RI	13650750	Spool "In" Detent With Spring Return to Neutral
6	K-10-RO	13650751	◆ Spool "Out" (also 'RIO' Spool 'In' and 'Out') Detent With Spring Return to NeutralⓈ

Ⓢ The K-10-RO positioner detent sleeve may be reversed for 'RIO' ('In' and 'Out') detented positions.

◆ This positioner holds the spool in the 'B' Port Power (Spool 'Out') position and will limit the shifting of the spool to the neutral position only.

V11 Work Port Relief/Anti-Cav Options



RP10A Relief Cartridge

Item No.	Model Number	Part Number	(A) Screw Adjustable	(N) Non-Adj. Tamper Resistant	Relief Valve	Relief/Anti-Cav	Anti-Cav Check	500-5000 Set @ 3000 PSI c/p
1	RP10A-3000	13650768	•		•			•
2	RP10N-3000	13650769		•	•			•
3	K-10-AC	13650770					•	
4	RP10A-AC-3000	13650771	•			•		•
5	RP10N-AC-3000	13650772		•		•		•

Models RP10A (-AC) relief cartridges are externally adjustable.

Models RP10N (-AC) relief cartridges are preset at the specified setting and offer a tamper resistant cover.



No Relief Cavity Plug

V11 Work Port No Relief 'NR' Plug Kit

Item No.	Model Number	Part Number	Description
1	K-10-NR-WP	13650773	No Relief (NR) Cavity Plug (For use in the workport relief cavity only).



Vertical Handle Assembly



Horizontal Handle Assembly



Extended Vertical Handle Assembly

V11 Handle Option Kits

Item No.	Model Number	Part Number	Description
1	K-10-VH	13650752	Vertical Handle Assembly
2	K-10-HH	13650753	Horizontal Handle Assembly
3	K-10-VH-EXT	13650786	Extended Vertical Handle Kit — For use in V10/V11 valves using port reliefs on handle end.
4	K-10-HH-EXT	13650948	Extended Horizontal Handle Kit — For use in V10/V11 valves using port reliefs on handle end.

Refer to Model V11 Service Catalog No. GSD-1111 for information regarding handle installation.

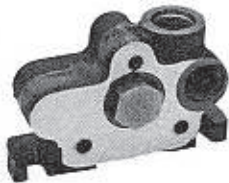
V12



V12P Left Cover



Model CRV-15B
Pilot Operated Relief
Valve Cartridge



V12E Right Cover

V12 INLET COVERS

Item No.	Model Number	Part Number	SAE 10 Port Size [2]	SAE 8 Port Size [1]	Top & End Inlet [U]	Plastic Relief Cavity Plug [N]	Relief Position "B" [B]
1	V12P-2UNB	8650584	•		•	•	•
2	V12P-1UNB	8650974		•	•	•	•

All Left Covers are machined to accept Main Relief Cartridge.

V12 Main Relief Options

Item No.	Model Number	Part Number	Description
1	RCP-15A	8650585	No Relief Plug Kit (NR Option)
2	CRV-15B-2500	8650586	Pilot Operated Relief Valve Cartridge set at 2500 PSI. Crack at 1 GPM
3	CRV-15F-2500	8650608	Direct Acting Relief Valve Cartridge set at 2500 PSI. Crack at 1 GPM

Above Relief Valves are screw adjustable from 500 to 3000 PSI.

V12 OUTLET COVERS

Item No.	Model Number	Part Number	SAE 10 Port Size [2]	SAE 8 Port Size [1]	Top & End Outlet [U]	Machined from Opened Center [O]
1	V12E-2UO	8650587	•		•	•
2	V12E-1UO	8650972		•	•	•

Open Center port may be converted to Closed Center or Power Beyond using Option Kits below.

One SAE Port Plug is furnished with each outlet cover.

V12 Outlet Cover Option Kits

Item No.	Model Number	Part Number	Description
1	CBP-15C	8650588	Closed Center Plug
2	PBS-15N	8650589	SAE 8 Power Beyond Sleeve
3	PBS-15P	8650590	SAE 10 Power Beyond Sleeve

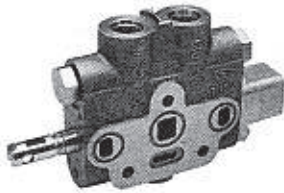
V12 'PARALLEL' WORK SECTIONS

Item No.	Model Number	Part Number	Spring Centered [C]	4-Way 3-Position [A]	3-Way 3-Position [E]	4-Way 4-Position Float [F]⊕	4-Way 3-Position Free Flow Spool [J]	Standard Low Section [S]	Relief Option Section [R ♦]	Lockout Section [L ♦ ♦]
1	V12W-1FBC-ES	8650591	•		•			•		
2	V12W-1FBC-ERNN	8650971	•		•				•	
3	V12W-1FBC-AS	8650593	•	•				•		
4	V12W-1FBC-ARNN	8650970	•	•					•	
5	V12W-1FBC-JS	8650806	•				•	•		
6	V12W-1FBC-FS ⊕	8650973	•			•		•		
7	V12W-1FBC-FRNN ⊕	8650969	•			•			•	
8	V12W-1FBC-JLEE	8650807	•				•			•

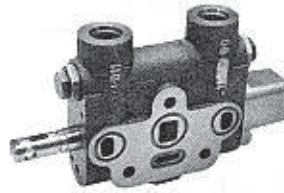
All work ports are SAE B.

All spools include female spool end located on "B" port end - Handle bracket and handle assembly not included.

- ♦ All relief option sections [R] include machined and plugged (plastic plugs) work port options [NN].
 - ♦ ♦ All lockout sections [L] include cylinder lock valves [EE].
- ⊕ Float Section(s) must be stacked next to the Inlet Cover to allow proper operation.



Relief Option Section [R]



Lockout Section [L]



Standard Low Section [S]

V12 Vertical Handle Kit

Handle Kit includes necessary hardware.

Item No.	Model Number	Part Number	Description
1	LVR-15-HDA	8650598	Vertical Handle (includes bracket)



Vertical Handle

V12 Section Stud Assembly Kits

Includes Section Seals and Nuts.

Item No.	Model Number	Part Number	Number of Work Sections
1	TRK-15-3 ♦	8650599	One Section
2	TRK-15-4 ♦	8650600	Two Section
3	TRK-15-5 ♦	8650601	Three Section
4	TRK-15-6 ♦	8650602	Four Section
5	TRK-15-7 ♦	8650603	Five Section
6	TRK-15-8 ♦	8650604	Six Section
7	TRK-15-9 ♦	8650605	Seven Section
8	TRK-15-10 ♦	8650606	Eight Section

♦ Total number of sections including inlet, work section(s) and outlet.



Spool Action Assembly (Bonnet)

V12 Spool Positioner Option Kit

Item No.	Model Number	Part Number	Description
1	K-12-D	8650607	3-Position Detent

Cannot be used on Float Spool.

V12 Work Port Relief/Anti-Cav Options

Item No.	Model Number	Part Number	Pressure Range PSI 500 to 3000 Set at 2500	Description
1	CRV-15F-2500	8650608	•	Direct Acting Relief
2	CRV-15B-2500	8650586	•	Pilot Operated Relief
3	CRV-15C-2500	8650609	•	Combination Relief & Anti-Cav
4	CRA-15H	8650610		Anti-Cavitation Check
5	RCP-15A	8650585		No Relief Plug Kit (NR Option for "R" Body)
6	LCP-15P	8650612		Lock Cavity Plug (for "L" Body)

All above Relief Valves are screw adjustable.
Crack Pressure set at 1 GPM.



Model CRV-15B
Pilot Operated Relief
Valve Cartridge



8398 Left Cover



7736 Left Cover

V20 INLET COVERS (Housing No.'s 8398 & 7736)

Item No.	Model Number	Part Number	End Inlet	End Outlet	Top Inlet	Top Outlet	3/4" NPT Ports [75]	SAE 12 Ports [BSP]	(7736 Only) With 5-25 GPM Flow Control [FC]
1	20-LC-75	8650030	•	•	•	•	•		
2	20-LC-12	8650029	•	•	•	•		•	
3	20-LC-12-FC	8650028	•	•	•			•	•

All the above inlet covers are machined to accept the main relief cartridges listed below.
Two part plugs are furnished loose with each cover, one is machined for 1/4" NPTF gauge port.
Excess flow plug is furnished with all 7736 housings.

V20 Main Relief Options

All set at "crack" pressure of 1 GPM.



Model WH Relief Valve Cartridge



Model RP51 Relief Valve Cartridge

Item No.	Model Number	Part Number	Pressure Range and Setting				
			500-1249 Set @ 1200 PSI c/p	1250-1749 Set @ 1700 PSI c/p	1750-1999 Set @ 1950 PSI c/p	2000-2599 Set @ 2550 PSI c/p	500-3500 Set @ 3000 PSI c/p
1	WH-1200	8650417	•				
2	WH-1700	8650418		•			
3	WH-1950	8650419			•		
4	WH-2550	8650420				•	
5	RP51A-3000 ♦	8650421					•
6	K-20-NR	8650382					Relief Plug Kit (NR Option)

All above Relief Valves have stainless steel springs.
WH Relief Valves are internal shim adjustable.
♦ RP51A Relief Valves are external screw adjustable.

Relief External Adjustment Kit

Item No.	Model Number	Part Number	Description
1	K-WH-A	8650381	External Screw Adjustable Option for WH Relief

V20 OUTLET COVERS For Open Center (Housing No.'s 6770 & 8644)

Item No.	Model Number	Part Number	SAE 10 Ports [10]	SAE 12 Ports [12]	3/4" NPT Ports [75]	Hsg. 6770 End Outlet [E]	Hsg. 8644 Top Outlet [T]	Solenoid Pilot C'bores Machined [P]	Machined for End Power Beyond (6770 Only) [MY]	① Machined for Top Power Beyond (8644 Only) [MY]	② Includes 12 VDC Pressure Control Cartridge [SOL-12]	③ Includes 24 VDC Pressure Control Cartridge [SOL-24]
1	20-RC-10-E	13650145	•			•						
2	20-RC-12-E	13650146		•		•						
3	20-RC-75-E	13650147			•	•						
4	20-RC-12-E-MY	8650024		•		•			•			
5	20-RC-12-E-MY-P ①	26157054		•		•		•	•			
6	20-RC-75-E-MY	8650027			•	•			•			
7	20-RC-12-ET-12-MY ①	8650022		•			•			•		
8	20-RC-75-ET-75-MY ①	8650023			•		•			•		
9	20-RC-12-E-SOL-12 ②	8650026		•		•					•	
10	20-RC-12-E-SOL-24 ③	13650307		•		•						•

① 8644 covers are supplied with the internal power beyond conversion plug installed. Plugging the top power beyond port will convert the valve to closed center with the internal plug installed.

② (SOL) covers are used in the downstream (V20) valve if a power beyond sleeve is used in the utility section of a solenoid upstream valve.

③ The Solenoid Pilot C'bores machined, designation letter [P], indicates that the pilot seal counterbores have been machined into the upstream side of the right end cover. This outlet cover must be used in V20 valve assemblies when having a solenoid work section next to the outlet cover (i.e. using an upstream Unloading Utility Section).



8644 Right Cover



Right Cover with Pressure Control Cartridge



6770 Right Cover

V20 OUTLET COVERS for Load Sensing (Housing No. 6770)

Item No.	Model Number	Part Number	SAE 12 Ports [12]	End Outlet [E]	Includes Load Sense Bleed-Off Cartridge [LS]	SAE 4 Load Sense Port & Pilot Seal Cbores [P-NB]
1	20-RC-12-E-LS	8650025	•	•	•	
2	20-RC-12-E-LS-P-NB ①	13650169	•	•		•

① Covers having the Load Sense Bleed-Off Cartridge [LS] may be converted to No-Bleed-Off. No Bleed-Off covers, however, may NOT be converted to Bleed-Off.

V20 Open Center Option Kits for 6770 'MY' Outlet Covers

Item No.	Model Number	Part Number	Description
1	K-20-C	8650099	Closed Center Plug
2	K-20-X	8650100	Conversion Plug
3	K-20-50-Y	8650101	1/2" NPT Power Beyond Sleeve
4	K-20-08-Y	8650102	SAE 8 Power Beyond Sleeve
5	K-20-10-Y	8650103	SAE 10 Power Beyond Sleeve

These option kits may not be used with 6770 LS (Load Sense) or 8644 covers.



Model V20P
(8072 Section)

V20P 'PARALLEL' WORK SECTIONS (Housing No. 8072) Manually Operated

Item No.	Model Number	Part Number	3-Way 3-Pos [3]	4-Way 3-Pos [4]	4-Way 3-Pos Free Flow [F4]	4-Way 4-Pos Float [K4]	1/2" NPT Ports [50]	SAE 8 Ports [08]	SAE 10 Ports [10]	Spring Return to Neutral	Knock Out [K04]	Rotary Spool Act. [W]	3-Pos Detent [D]	Stainless Steel Spool [SS]
1	20-50-03	8650017	•				•			•				
2	20-08-03	13650149	•					•		•				
3	20-10-03	8650016	•						•	•				
4	20-50-04	8650021		•			•			•				
5	20-08-04	13650148		•				•		•				
6	20-10-04	8650020		•					•	•				
7	20-50-F4	8650019			•		•			•				
8	20-08-F4	13650151			•			•		•				
9	20-10-F4	8650018			•				•	•				
10	20-08-DF4	13650838			•			•					•	
11	20-10-DF4	8650009			•				•				•	
12	20-50-K4	8650015					•	•						
13	20-08-K4	13650150					•		•					
14	20-10-K4	8650014					•			•				
15	20-10-K04-2000	8650011							•		•			
16	20-10-W4 ⊕	8650010		•						•		•		
17	20-10-W4-SS ⊕	8650638		•						•		•		•
18	20-10-WF4-SS ⊕	8650639			•					•		•		•

⊕ Bracket assembly not furnished with [W] Rotary Spool Options, Items 16, 17 & 18.



Solenoid Control
(SOL-E)



Hydraulic Remote Control
(HRO)

V20P 'PARALLEL' WORK SECTIONS (Housing No.8072) External Solenoid and Remote Pilot-Operated

Item No.	Model Number	Part Number	3-Way 3-Pos [3]	4-Way 3-Pos [4]	4-Way 3-Pos Free Flow [F4]	SAE 10 Ports [10]	Pneumatic Remote [PA1]	Hydraulic Remote with Override [HRO]	Hydraulic Remote with Handle [HRH]	12 VDC External Pilot Solenoid [SOL-E]
1	20-10-03-PA1	13650963	•				•			
2	20-10-04-PA1	13650964		•			•			
3	20-10-04-HRO ⊕	8650578		•				•		
4	20-10-F4-HRO	13650965			•			•		
5	20-10-04-HRH	8650579		•					•	
6	20-10-03-SOL-E-12	13650280	•							•
7	20-10-04-SOL-E-12	8650013		•						•
8	20-10-F4-SOL-E-12	13650529			•					•

⊕ Bracket assembly not furnished with [HRO] or [HRH] Hydraulic Remote Spool Option, Items 3, 4 & 5.

V20



Model V20R
10954 Section)

V20R 'PARALLEL' WORK SECTIONS (Housing No. 10954) Manually-Operated

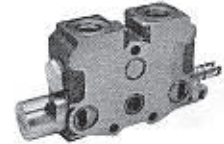
Item No.	Model Number	Part Number	3-Way 3-Pos [3]	4-Way 3-Pos [4]	4-Way Free Flow [F4]	4-Way 4-Pos Float [K4]	SAE 10 Ports [10]	SAE 12 Ports [12]	Spring Return to Neutral	Knock Out (Set @ 2000 PSI) [K04]	3-Pos Detent [D]	Hydraulic Remote with Override [HRO]	'R' Detent [R]	Internal Pilot Thru-Passage [PILOT]	Pilot Seal Counter Bore [CBORE]
1	20R-10-03	13650856	•				•		•						
2	20R-12-03	13650857	•					•	•						
3	20R-10-R3	13650855	•				•						•		
4	20R-12-R3	13650858	•					•					•		
5	20R-10-04	8650613		•			•		•						
6	20R-12-04	13650859		•				•	•						
7	20R-10-F4	13650276			•		•		•						
8	20R-12-F4	13650860			•			•	•						
9	20R-10-DF4	13650861			•		•				•				
10	20R-10-K4	13650862				•	•								
11	20R-10-04-PILOT⊙	13650863		•			•		•					•	
12	20R-10-04-CBORE⊙	13650962		•			•		•						•

- ⊙ The 'PILOT' code designates that the internal through-passages have been machined for use when intermixing solenoid and manual work sections.
- ⊙ The 'CBORE' designates that the pilot seal counterbores have been machined into the upstream side of the work section. This section must be used as the first manual section in V20 valve assemblies using an upstream Unloading Utility Section when having solenoid and manual sections downstream.

V20T 'TANDEM' WORK SECTIONS (Housing No. 10762) Manually-Operated

Item No.	Model Number	Part Number	3-Way 3-Pos [3]	4-Way 3-Pos [4]	4-Way 3-Pos Free Flow [F4]	4-Way 4-Pos Float [K4]	SAE 10 Ports [10]	SAE 12 Ports [12]	Spring Return to Neutral	Knock Out [K04]	'R' Type Detent [R]
1	20T-10-03	13650851	•				•		•		
2	20T-12-03	13650966	•					•	•		
3	20T-10-R3	13650852	•				•				•
4	20T-12-R3	13650853	•					•			•
5	20T-10-04	8650008		•			•		•		
6	20T-10-K4	13650854				•	•				
7	20T-10-K04-2000	13650967		•			•			•	
8	20T-10-04-PILOT⊙	13650943		•			•		•		
9	20T-10-F4	26157027			•		•		•		

- ⊙ The 'PILOT' code designates that the internal through-passages have been machined for use when intermixing solenoid and manual work sections.

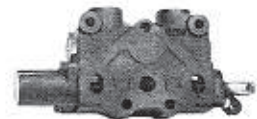


Model V20RT
(10762 Section)

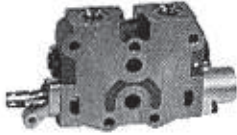
V20S 'SERIES' WORK SECTIONS (Housing No. 11483) Manually-Operated

Item No.	Model Number	Part Number	SAE 10 Ports [10]	4-Way 3-Pos. [4]	4-Way 3-Pos. Free Flow [F4]	Spring Return to Neutral	4-Way 4-Pos. Float [K4]
1	20S-10-04	8650637	•	•		•	
2	20S-10-F4	13650850	•		•	•	
3	20S-10-K4	8650640	•				•

V20S (Series) sections may be stacked with V20P (Parallel) and V20 T (Tandem) sections. Refer to V20S product literature for stacking sequence restrictions.



Model V20S
(11483 Section)



Model V20LO
(11571 Section)

V20LO 'LOCKOUT' WORK SECTIONS (Housing No. 11571) Manually-Operated

Item No.	Model Number	Part Number	Pilot-Operated Checks [L]	4-Way 3-Pos [04]	1/2" BSP Ports [BSP]	SAE 10 Ports [10]	Spring Return to Neutral
1	20-10-LO4	8650007	*	*		*	*



Model V20C
(8364 Section)

V20C 'CLOSED CENTER' WORK SECTIONS (Housing No. 8364) Manually-Operated

Item No.	Model Number	Part Number	3-Way 3-Pos. [3]	4-Way 3-Pos. [4]	4-Way 3-Pos. Free Flow [F4]	4-Way 4-Pos. Float [K]	Spring Return to Neutral	3-Pos. Detent [D]	R-Type Detented [R]	SAE 10 Ports [10]	Internal Pilot-Thru Passage [PILOT]
1	20C-10-R3	13650839	*						*	*	
2	20C-10-04	8650006		*				*		*	
3	20C-10-F4	13650840			*			*		*	
4	20C-10-DF4	13650841			*			*		*	
5	20C-10-K4	13650842				*				*	
6	20C-10-04-PILOT	13650843		*				*		*	*

The "Pilot" code designates that the internal pilot through-passages have been machined for use when intermixing solenoid and manual sections.



Model V20LS
(8364 Section)

V20LS 'LOAD SENSING' WORK SECTIONS (Housing No. 8364) Manually-Operated

Item No.	Model Number	Part Number	3-Way 3-Pos [3]	4-Way 3-Pos [4]	4-Way 3-Pos Free Flow [F4]	3-Pos Detent [D]	4-Way 4-Pos Float [K]	Spring Return to Neutral	'R' Type Detent [R]	SAE 10 Ports [10]	SAE 12 Ports [12]	O-Ring C'bore Machined [CBDR]	Internal Pilot Thru Passage [PILOT]
1	20LS-10-03	13650844	*					*		*			
2	20LS-12-03	13650575	*					*			*		
3	20LS-10-R3	13650572	*						*	*			
4	20LS-12-R3	13650954	*						*	*			
5	20LS-10-04	8650005		*				*		*			
6	20LS-12-04	13650576		*				*		*			
7	20LS-10-F4	13650277			*			*		*			
8	20LS-12-F4	13650845			*			*		*			
9	20LS-10-DF4	13650846			*	*		*		*			
10	20LS-12-DF4	13650847			*	*		*		*			
11	20LS-10-K4	13650848					*			*			
12	20LS-12-K4	13650849					*			*			
13	20LS-10-04-CBDR	13650574		*				*		*		*	
14	20LS-10-04-PILOT	13650170		*				*		*			*

NOTES: The "Cbore" code designates that the pilot seal counterbores have been machined into the upstream side of the work section. This section must be used as the first manual section in V20 valve assemblies using an upstream Unloading Utility Section when having V20LS solenoid and manual sections downstream.

The "Pilot" code designates that the internal pilot through-passages have been machined for use when intermixing solenoid and manual sections.

Solenoid Cartridges & Coil Kits

Refer to page 83 in the Electronics Section

V20PC 'PRESSURE COMPENSATED' WORK SECTIONS (Housing No. 8364) Manually-Operated

Load Checks not available with V20PC Work Sections.

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Work Ports [10]	Maximum Flow (GPM)		
							[05]	[10]	[15]
1	20PC-LS-10-04-05	13650001		•		•	•		
2	20PC-LS-10-04-10	13650002		•		•		•	
3	20PC-LS-10-04-15	13650003		•		•			•
4	20PC-LS-10-03-05	13650004	•			•	•		
5	20PC-LS-10-03-10	13650005	•			•		•	
6	20PC-LS-10-03-15	13650006	•			•			•
7	20PC-LS-10-F4-05	13650007			•	•	•		
8	20PC-LS-10-F4-10	13650008			•	•		•	
9	20PC-LS-10-F4-15	13650009			•	•			•

Load sensing sections may be used for closed center or load sensing applications. When used for non-load sensing applications, the load sensing passage must be blocked off at the right outlet cover.

V20PC 'PRESSURE COMPENSATED' WORK SECTIONS (Housing No. 8364) Solenoid-Operated

Proportional Solenoids (EPC)

Load Checks not available with V20PC Work Sections.

Item No.	Model Number	Part Number	3-Way 3-Pos [03]	4-Way 3-Pos [04]	4-Way 3-Pos Free Flow [F4]	2-Way 2-Pos. [2]	2-Way 2-Pos. Free Flow [F2]	SAE 10 Work Ports [10]	SAE 12 Work Ports [12]	Maximum Flow (GPM)			12 VDC EPC Actuator [EPC-I-12]
										[05]	[10]	[15]	
1	20PC-LS-10-04-05-EPC-I-12	13650010		•				•		•			•
2	20PC-LS-10-04-10-EPC-I-12	13650011		•				•			•		•
3	20PC-LS-10-04-15-EPC-I-12	13650012		•				•				•	•
4	20PC-LS-10-03-05-EPC-I-12	13650013	•					•		•			•
5	20PC-LS-10-03-10-EPC-I-12	13650014	•					•			•		•
6	20PC-LS-10-03-15-EPC-I-12	13650015	•					•				•	•
7	20PC-LS-10-F4-05-EPC-I-12	13650016			•			•		•			•
8	20PC-LS-10-F4-10-EPC-I-12	13650017			•			•			•		•
9	20PC-LS-10-F4-15-EPC-I-12	13650018			•			•				•	•
10	20PC-LS-10-02-05-EPC-I-12	13650058				•		•		•			•
11	20PC-LS-10-02-10-EPC-I-12	13650059				•		•			•		•
12	20PC-LS-10-02-15-EPC-I-12	13650060				•		•				•	•
13	20PC-LS-12-02-15-EPC-I-12	13650865				•		•		•			•
14	20PC-LS-10-F2-05-EPC-I-12	13650866					•	•		•			•
15	20PC-LS-10-F2-10-EPC-I-12	13650867					•	•			•		•
16	20PC-LS-10-F2-15-EPC-I-12	13650868					•	•				•	•
17	20PC-LS-12-F2-15-EPC-I-12	13650869					•	•		•			•

Load sensing sections may be used for closed center or load sensing applications. When used for non-load sensing applications, the load sensing passage must be blocked off at the right outlet cover.

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20PC 'PRESSURE COMPENSATED' WORK SECTIONS (Housing No. 8364) Solenoid-Operated

On/Off Solenoids (SOL)

Load Checks not available with V20PC Work Sections.

Item No.	Model Number	Part Number	3-Way 3-Pos [03]	4-Way 3-Pos [04]	4-Way 3-Pos Free Flow [F4]	SAE 10 Work Ports [10]	Maximum Flow (GPM)			12 VDC SOL [SOL-I-12]
							[05]	[10]	[15]	
1	20PC-LS-10-04-05-SOL-I-12	13650061		•		•	•			•
2	20PC-LS-10-04-10-SOL-I-12	13650062		•		•		•		•
3	20PC-LS-10-04-15-SOL-I-12	13650063		•		•			•	•
4	20PC-LS-10-03-05-SOL-I-12	13650064	•			•	•			•
5	20PC-LS-10-03-10-SOL-I-12	13650065	•			•		•		•
6	20PC-LS-10-03-15-SOL-I-12	13650066	•			•			•	•
7	20PC-LS-10-F4-05-SOL-I-12	13650067			•	•	•			•
8	20PC-LS-10-F4-10-SOL-I-12	13650068			•	•		•		•
9	20PC-LS-10-F4-15-SOL-I-12	13650069			•	•			•	•

Load sensing sections may be used for closed center or load sensing applications. When used for non-load sensing applications, the load sensing passage must be blocked off at the right outlet cover.

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20PC 'PRESSURE COMPENSATED' WORK SECTIONS (Housing No. 8364) Solenoid-Operated

Proportional Solenoids With Handle (EPC-IH)

Load Checks not available with V20 PC Work Sections.

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Work Ports [10]	Maximum Flow (GPM)			12 VDC EPC with Handle [EPC-IH-12]
							[05]	[10]	[15]	
1	20PC-LS-10-04-05-EPC-IH-12	13650225		•		•	•			•
2	20PC-LS-10-04-10-EPC-IH-12	13650226		•		•		•		•
3	20PC-LS-10-04-15-EPC-IH-12	13650227		•		•			•	•
4	20PC-LS-10-03-05-EPC-IH-12	13650228	•			•	•			•
5	20PC-LS-10-03-10-EPC-IH-12	13650229	•			•		•		•
6	20PC-LS-10-03-15-EPC-IH-12	13650230	•			•			•	•
7	20PC-LS-10-F4-05-EPC-IH-12	13650231			•	•	•			•
8	20PC-LS-10-F4-10-EPC-IH-12	13650232			•	•		•		•
9	20PC-LS-10-F4-15-EPC-IH-12	13650233			•	•			•	•

Load sensing sections may be used for closed center or load sensing applications. When used for non-load sensing applications, the load sensing passage must be blocked off at the right outlet cover.

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20PC 'PRESSURE COMPENSATED' WORK SECTIONS (Housing No. 8364) Solenoid-Operated

On/Off Solenoids With Handle (SOL-IH)

Load Checks not available with V20 PC Work Sections.

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Work Ports [10]	Maximum Flow (GPM)			12 VDC SOL with Handle [SOL-IH-12]
							[05]	[10]	[15]	
1	20PC-LS-10-04-05-SOL-IH-12	13650234		*		*	*		*	
2	20PC-LS-10-04-10-SOL-IH-12	13650235		*		*	*	*	*	
3	20PC-LS-10-04-15-SOL-IH-12	13650236		*		*	*	*	*	
4	20PC-LS-10-03-05-SOL-IH-12	13650237	*			*	*		*	
5	20PC-LS-10-03-10-SOL-IH-12	13650238	*			*	*	*	*	
6	20PC-LS-10-03-15-SOL-IH-12	13650239	*			*	*	*	*	
7	20PC-LS-10-F4-05-SOL-IH-12	13650240			*	*	*		*	
8	20PC-LS-10-F4-10-SOL-IH-12	13650241			*	*	*	*	*	
9	20PC-LS-10-F4-15-SOL-IH-12	13650242			*	*	*	*	*	

Load sensing sections may be used for closed center or load sensing applications. When used for non-load sensing applications, the load sensing passage must be blocked off at the right outlet cover.

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20R 'PARALLEL' WORK SECTIONS (Housing No. 10954) Solenoid-Operated

On/Off Solenoids (SOL)

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Work Ports [10]	SAE 12 Work Ports [12]	12 VDC SOL Actuator [SOL-I-12]
2	20-10-03-SOL-I-12	8650988	*			*	*	
3	20-10-F4-SOL-I-12	8650990			*	*	*	
4	20-12-03-SOL-I-12	13650879	*			*	*	
5	20-12-04-SOL-I-12	13650880		*		*	*	
6	20-12-F4-SOL-I-12	13650881			*	*	*	

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20T 'TANDEM' WORK SECTIONS (Housing No. 10762) Solenoid-Operated

On-Off Solenoids (SOL)

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Ports [10]	SAE 12 Ports [12]	12 VDC SOL Actuator [SOL-I-12]
2	20T-12-03-SOL-I-12	13650871	*			*	*	
3	20T-10-04-SOL-I-12	13650873		*		*	*	
4	20T-12-04-SOL-I-12	13650874		*		*	*	
5	20T-10-F4-SOL-I-12	13650876			*	*	*	
6	20T-12-F4-SOL-I-12	13650877			*	*	*	

Because of the internal porting of V20T tandem solenoid work sections, they may only be used in valve assemblies using an upstream Unloading Utility Section.

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20R 'PARALLEL' WORK SECTIONS (Housing No. 10954) Solenoid-Operated

Proportional Solenoids (EPC)

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Work Ports [10]	SAE 12 Work Ports [12]	12 VDC EPC Actuator [EPC-I-12]
1	20-10-04-EPC-I-12	8650987		*		*		*
2	20-10-03-EPC-I-12	8650989	*			*		*
3	20-10-F4-EPC-I-12	8650991			*	*		*
4	20-12-03-EPC-I-12	13650891	*				*	*
5	20-12-04-EPC-I-12	13650892		*			*	*
6	20-12-F4-EPC-I-12	13650893			*		*	*

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20T 'TANDEM' WORK SECTIONS (Housing No. 10762) Solenoid-Operated

Proportional Solenoids (EPC)

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [03]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Work Ports [10]	SAE 12 Work Ports [12]	12 VDC EPC Actuator [EPC-I-12]
1	20T-10-03-EPC-I-12	13650882	*			*		*
2	20T-12-03-EPC-I-12	13650883	*				*	*
3	20T-10-04-EPC-I-12	13650885		*		*		*
4	20T-12-04-EPC-I-12	13650925		*			*	*
5	20T-10-F4-EPC-I-12	13650927			*	*		*
6	20T-12-F4-EPC-I-12	13650889			*		*	*

Because of the internal porting of V20T tandem solenoid work sections, they may only be used in valve assemblies using an upstream Unloading Utility Section.

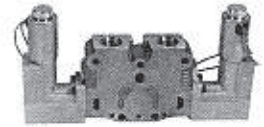
All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20

V20LS 'LOAD SENSING' WORK SECTIONS (Housing No. 8364) Solenoid-Operated

On/Off Solenoids (SOL)

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Work Ports [10]	12 VDC On-Off SDL Actuator [SOL-I]
1	20LS-10-04-SOL-I-12	8650992		•		•	•
2	20LS-10-03-SOL-I-12	8650994	•			•	•
3	20LS-10-F4-SOL-I-12	8650996			•	•	•



V20 EPC Load Sensing Valve

Load Sensing sections may be used for Closed Center or Load Sensing applications. When used for non-load sensing applications, the load sensing passage must be blocked off at the right outlet cover.

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20LS 'LOAD SENSING' WORK SECTIONS (Housing No. 8364) Solenoid-Operated

Proportional Solenoids (EPC)

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Work Ports [10]	12 VDC EPC Actuator [EPC-I-12]
1	20LS-10-04-EPC-I-12	8650993		•		•	•
2	20LS-10-03-EPC-I-12	8650995	•			•	•
3	20LS-10-F4-EPC-I-12	8650997			•	•	•

Load Sensing sections may be used for Closed Center or Load Sensing applications. When used for non-load sensing applications, the load sensing passage must be blocked off at the right outlet cover.

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20R 'PARALLEL' WORK SECTIONS (Housing No. 10954) Solenoid-Operated

On/Off Solenoids with Handle (SOL-IH)

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Work Ports [F4]	SAE 12 Work Ports [12]	12 VDC SOL with Handle [SOL-IH-12]
1	20-10-04-SOL-IH-12	13650183		*		*		*
2	20-10-03-SOL-IH-12	13650185	*			*		*
3	20-10-F4-SOL-IH-12	13650187			*	*		*
4	20-12-03-SOL-IH-12	13650903	*				*	*
5	20-12-04-SOL-IH-12	13650904		*			*	*
6	20-12-F4-SOL-IH-12	13650905			*		*	*

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20T 'TANDEM' WORK SECTIONS (Housing No. 10762) Solenoid-Operated

On/Off Solenoids with Handle (SOL-IH)

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Ports [10]	SAE 12 Ports [12]	12 VDC SOL with Handle [SOL-IH-12]
1	20T-10-03-SOL-IH-12	13650894	*			*		*
2	20T-12-03-SOL-IH-12	13650895	*				*	*
3	20T-10-04-SOL-IH-12	13650897		*		*		*
4	20T-12-04-SOL-IH-12	13650898		*			*	*
5	20T-10-F4-SOL-IH-12	13650900			*	*		*
6	20T-12-F4-SOL-IH-12	13650901			*		*	*

Because of internal porting of V20T tandem solenoid work sections, they may only be used in valve assemblies using an upstream Unloading Utility Section.

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20

V20R 'PARALLEL' WORK SECTIONS (Housing No. 10954) Solenoid-Operated

Proportional Solenoids with Handle.

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Work Ports [10]	SAE 12 Work Ports [12]	12 VDC EPC with Handle [EPC-IH-12]
1	20-10-04-EPC-IH-12	13650184		*		*		*
2	20-10-03-EPC-IH-12	13650186	*			*		*
3	20-10-F4-EPC-IH-12	13650188			*	*		*
4	20-12-03-EPC-IH-12	13650915	*				*	*
5	20-12-04-EPC-IH-12	13650916		*			*	*
6	20-12-F4-EPC-IH-12	13650917			*		*	*

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20T 'TANDEM' WORK SECTIONS (Housing No. 10762) Solenoid-Operated

Proportional Solenoids With Handle.

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Ports [10]	SAE 12 Ports [12]	12 VDC EPC with Handle [EPC-IH-12]
1	20T-10-03-EPC-IH-12	13650906	*			*		*
2	20T-12-03-EPC-IH-12	13650907	*				*	*
3	20T-10-04-EPC-IH-12	13650909		*		*		*
4	20T-12-04-EPC-IH-12	13650910		*			*	*
5	20T-10-F4-EPC-IH-12	13650912			*	*		*
6	20T-12-F4-EPC-IH-12	13650913			*		*	*

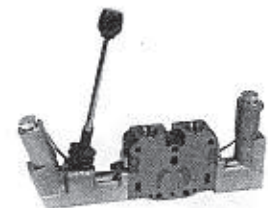
Because of the internal porting of V20T tandem solenoid work sections, they may only be used in valve assemblies using an upstream Unloading Utility Section.

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20LS 'LOAD SENSING' WORK SECTIONS (Housing No. 8364) Solenoid-Operated

On/Off Solenoids with Handle.

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	SAE 10 Work Ports [10]	12 VDC SOL with Handle [SOL-IH-12]
1	20LS-10-04-SOL-IH-12	13650243		*		*	*
2	20LS-10-03-SOL-IH-12	13650245	*			*	*
3	20LS-10-F4-SOL-IH-12	13650247			*	*	*



V20 Load Sensing Valve with Handle and Manual Override

Load Sensing sections may be used for Closed Center or Load Sensing applications. When used for non-load sensing applications, the load sensing passage must be blocked off at the right outlet cover.

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20LS 'LOAD SENSING' WORK SECTIONS (Housing No. 8364) Solenoid-Operated Proportional Solenoids with Handle.

Item No.	Model Number	Part Number	3-Way 3-Pos. [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow (F4)	SAE 10 Work Ports (10)	12 VDC EPC with Handle (EPC-IH-12)
1	20LS-10-04-EPC-IH-12	13650244		•		•	•
2	20LS-10-03-EPC-IH-12	13650246	•			•	•
3	20LS-10-F4-EPC-IH-12	13650248			•	•	•

Load Sensing sections may be used for Closed Center or Load Sensing applications. When used for non-load sensing applications, the load sensing passage must be blocked off at the right outlet cover.

All V20 internally piloted Solenoid Valve Bonnets are machined to accept the V20 Travel Limiter/Manual Override Kits.

V20 Travel Limiter/Manual Overrides

May be added to above Solenoid/EPC positioners

Item No.	Model Number	Part Number	Description
1	K-20-MO-P	13650080	Push type manual override for use with [SOL] and [EPC] Sections
2	K-20-TL-MO-S	13650081	Screw type travel limiter/manual override for use with [SOL] and [EPC] Sections
3	K-20-TL-IH	13650937	Screw type travel limiter for use with [SOL-IH] and [EPC-IH] sections, handle end only

Each kit includes one assembly for one end of valve.



V20 Valve Utility Section

V20 UTILITY SECTIONS For Use With Internally Piloted Valves (Housing No. 7820)

For use with V20 Internally Piloted Solenoid Work Sections. (Not compatible with Externally Piloted Sections)

Item No.	Model Number	Part Number	Description
1	20-SOL-I-UT-12	13650056	Utility Section with 12 VDC Pressure Control Cartridge Installed.
2	20-SOL-I-UT-24	13650308	Utility Section with 24 VDC Pressure Control Cartridge Installed.
3	20-SOL-I-UT-LS	13650057	Utility Section for use with Closed Center/Load Sensing valve assemblies.
4	20-SOL-I-UT-MECH	13650920	Utility Section with Continuous-On Pressure Control Cartridge
5	20-SOL-I-UT-PB	13650921	Utility Section for use with SAE #12 Power Beyond Sleeve

Utility Section must be stacked directly upstream from the right outlet cover.



V20 Utility Section for Solenoid Option

V20 UTILITY SECTIONS For Use With Externally Piloted Valves (Housing No. 7820)

(Not for Use in Internally Piloted Valve Assemblies)

Item No.	Model Number	Part Number	Description
1	20-SOL-E-UT-12	8650031	Utility Section with 12 VDC Pressure Control Cartridge Installed.
2	20-SOL-E-UT-24	13650309	Utility Section with 24 VDC Pressure Control Cartridge Installed.
3	20-SOL-E-UT-MECH	13650922	Utility Section with Continuous-On Pressure Control Cartridge
4	20-SOL-E-UT-PB	13650923	Utility Section with SAE #12 Power Beyond Sleeve

Tube Kit for Externally-Piloted Utility Sections

1	K-20-TUBE	8650086	Tube assembly between Utility Section and Solenoid Spool Actuator
---	-----------	---------	---

V20

Fitting Kits For Externally Piloted V20 and V42 Solenoid Valves

Item No.	Model Number	Part Number	Description
1	K-20-S1	8650085	For single spool solenoid valve
2	K-20-S2	8650082	For First section (closest to valve inlet) in a multi-spool solenoid valve. (Last section for Model V42)
3	K-20-S3	8650083	For the center section(s) in a multi-spool solenoid valve.
4	K-20-S4	8650084	For the last section (closest to utility section) in a multi-spool solenoid valve. (First section for Model V42)

Each kit contains one adjustable speed control fitting assembly and one non-adjustable fitting assembly for one actuator assembly.



External Tubing Kit

Optional Cartridges for the Utility Section

Item No.	Model Number	Part Number	Description
1	K-20-CONT-ON	8650430	Mechanical Pressure Control Cartridge
2	K-20-12-CNTRL	13650938	12 VDC Pressure Control Cartridge
3	K-20-24-CNTRL	13650939	24 VDC Pressure Control Cartridge
4	K-20-S12Y	8650115	Power Beyond Sleeve, SAE 12
5	K-20-SC	8650114	Closed Center Plug

V20 UNLOADING UTILITY SECTIONS (Housing No. 22952)

Allows closed center, load sensing and pressure compensated work sections to be used with a fixed displacement pump.

Item No.	Model Number	Part Number	Description
1	20-UV-12-LS	13650683	V20 Unloading Valve Section without Internal Pilot Pressure (Manual Valves)
2	20-UV-12-PRV-LS	13650684	V20 Unloader Valve Section with Internal Pilot Pressure (Solenoid Valves)
3	K-20-UNL-PLUGS	13650775	Option Plugs for Utility Section with Unloading Valve (See Note 2)

NOTE 1: The Unloading Valve section should be stacked next to the inlet cover unless priority sections are required. When priority is required, install unloading valve section downstream of priority pressure compensated sections. Open center, tandem and parallel sections should be stacked downstream of the unloading valve section.

NOTE 2: The following parts will be included to cover several application requirements:

Part No.	Quantity	Description
21866001	3	Pilot Hole Seals
21857001	2	Section Seals
21733001	2	Section Seals
00017001	1	1/4" NPTF Plug
22962001	3	Expansion Plugs 6 mm – Old Style
26095006	3	Expansion Plugs 6 mm – New Style
26291001	1	Form No. 3933

} **K-20-UNL-PLUGS**

V20 Spool Positioner Option Kits

Will not fit Float [F] or Internal Hydraulic Detent Release [KO] Spools.

Item No.	Model Number	Part Number	Description
1	K-20-A	8650104	Spring Extended Spool Positioner Kit
2	K-20-D	8650105	3-Position Detent Kit
3	K-20-R	8650106	Spool "IN" Detent w/Spring Return to Neutral Positioner Kit
4	K-20-R0	26157043	Spool "OUT" Detent w/Spring Return to Neutral Positioner Kit
5	◆◆K-20-SOL-E-12	8650098	12VDC Solenoid Actuator (External Pilot Design)
6	◆◆K-20-SOL-E-24	13650531	24 VDC Solenoid Actuator (External Pilot Design)
7	K-20-E	8650119	Electro Magnetic Spool Release Positioner Kit
8	◆K-20-HR	8650575	Hydraulic Remote Spool Actuator Kit
9	◆K-20-HR0	8650574	Hydraulic Remote w/Override Spool Actuator Kit
10	K-20-PA1	8650630	Pneumatic Spool Actuator Kit
11	K-20-PA2	8650631	12V DC Solenoid Operated Pneumatic Spool Actuator Kit

◆ Contains both Bonnets needed.

◆◆ Cannot be used with Float Spool (K4) or Standard Free Flow Spool (F4)



Spool Action Assembly
(Bonnets)

V20

V20 Handle End Options

Handle Kits Contain Necessary Links and Pins.

Item No.	Model Number	Part Number	Description
1	K-20-VH-B	8650151	Vertical Handle (Black)
2	K-20-VH-P	8650153	Vertical Handle (Plain)
3	K-20-HH-B	8650154	Horizontal Handle (Black)
4	K-20-HH-P	8650156	Horizontal Handle (Plain)
5	K-20-RET	8650107	Standard Seal Retainer Plate
6	K-20-RET-HD	8650108	Heavy Duty Seal Retainer
7	K-20-WIPER	8650097	Sec. Spool Wiper
8	K-20-HBO-CI	8650113	Complete Bracket (Cast Iron) less Handle and Links
9	K-20-BOOT	8650112	Spool Boot Assembly



Vertical Handle Assemblies



Horizontal Handle Assemblies

V20 Mechanical Joysticks

Includes the Spool Adapter Clevis.

Item No.	Model Number	Part Number	Description
1	MJA2-20L-NN	13650688	V20 Mechanical Joystick, Left-Hand Kit
2	MJA2-20R-NN	13650689	V20 Mechanical Joystick, Right-Hand Kit
3	K-20-MJA-O	26157200	V20 Mechanical Joystick 'Offset' Handle Kit
4	K-20-MJA-S	26157201	V20 Mechanical Joystick 'Straight' Handle Kit

V20 Standard Section Stud Assembly Kits

Includes Section Seals and Nuts. (Stud Kits **Do Not include** 21866-001 Load Sensing and Solenoid Pilot Passage Section Seals. These seals must be purchased separately if required.)

Item No.	Model Number	Part Number	Description
1	K-20-1	8650087	One Section
2	K-20-2	8650088	Two Section
3	K-20-3	8650089	Three Section
4	K-20-4	8650090	Four Section
5	K-20-5	8650091	Five Section
6	K-20-6	8650092	Six Section
7	K-20-7	8650093	Seven Section
8	K-20-8	8650094	Eight Section
9	K-20-9	8650095	Nine Section
10	K-20-10	8650096	Ten Section
11	K-20-SECT-SEAL ♦	13650405	Section seal for load sensing and/or solenoid pilot passages.



Stud Assembly Kit

When using an 8644 Right End Cover add one section to assure proper stud length.

♦ Kit includes 25 pieces of seal number 21866001.



Model RC
Work Port Relief Valve



CRA Combination
Relief Anti-Cavitation
Check Valve



Anti-Cavitation
Check Valve

Work Port Options for use in V20P, V20R, V20T, V20C & V20LS Work Sections

Item No.	Model Number	Part Number	Relief Valve	Combination Relief & Anti-Cav Check	Anti-Cavitation Check Assembly	Pressure Range and Setting				
						500-1249 Set @ 1200 PSI c/p	1250-1749 Set @ 1700 PSI c/p	1750-1999 Set @ 1950 PSI c/p	2000-2599 Set @ 2550 PSI c/p	500-3500 Set @ 2500 PSI c/p
1	RC-1200	8650394	•			•				
2	RC-1700	8650395	•				•			
3	RC-1950	8650396	•					•		
4	RC-2550	8650397	•						•	
5	RP20A-2500	8650975	•							•
6	CRA-1200	8650387		•		•				
7	CRA-1700	8650388		•			•			
8	CRA-1950	8650389		•				•		
9	CRA-2550	8650390		•					•	
10	K-20-AC	8650380			•					

Work Port Options for use in V20S Work Sections

Item No.	Model Number	Part Number	Relief Valve	Anti-Cavitation Check Assembly	Pressure Range and Setting			
					500-1249 Set @ 1200 PSI c/p	1250-1749 Set @ 1700 PSI c/p	1750-1999 Set @ 1950 PSI c/p	2000-2599 Set @ 2550 PSI c/p
1	RCS-1200	8650632	•		•			
2	RCS-1700	8650633	•			•		
3	RCS-1950	8650634	•				•	
4	RCS-2550	8650635	•					•
5	K-20-ACS	8650636		•				

For use in V20S Series sections only.

Work Port Options for use in V20PC Work Sections

Item No.	Model Number	Part Number	Relief Valve	Pressure Range and Setting			
				500-1249 Set @ 1200 PSI c/p	1250-1749 Set @ 1700 PSI c/p	1750-1999 Set @ 1950 PSI c/p	2000-2599 Set @ 2550 PSI c/p
1	RCPC-1200	13650930	•	•			
2	RCPC-1700	13650931	•		•		
3	RCPC-1950	13650932	•			•	
4	RCPC-2550	13650933	•				•

All above Relief Valves have stainless steel springs. Crack Pressures (c/p) set at 1 GPM.

RC, CRA, RCS, and RCPC Relief Valves are internal shim adjustable. RP20A Relief Valve is external screw adjustable.

Relief External Adjustment Kit

Item No.	Model Number	Part Number	Description
1	K-WH-A	8650381	External Screw Adjustable Option for RC, CRA, RCS, and RCPC Relief Valves

V20

V20 MID-INLET SECTIONS (Housing No. 6825)

Item No.	Model Number	Part Number	Split Flow [SF]	Combined Flow [CF]	3/4" NPT Inlet Ports [75]	SAE 12 Inlet Ports [12]	Internal Pilot Thru-Passage Machined [PILOT]
1	20-75-SF	8650002	•		•		
2	20-75-CF	8650001		•	•		
3	20-12-SF	8650004	•			•	
4	20-12-CF	8650003		•		•	
5	20-12-SF-PILOT	13650918	•			•	•
6	20-12-CF-PILOT	13650919		•		•	•



V20
Mid-Inlet Section

Housing No. 6825 is rated to a maximum pressure of 2500 PSI.
Contact the factory with higher pressure requirements.

V20 TRANSITION SECTIONS (Housing No.'s 24707 and 12138)

Item No.	Model Number	Part Number	Split Flow [SF]	Combined Flow [CF]	SAE 16 Inlet Port [16]	SAE 20 Outlet Port	Load Sense and Pilot Drain [LS]	Unloading Valve [UNL]	Pressure Reducing Cartridge [PRV]	Housing No.
1	20/40-16-SF	26157015	•		•	•				24707
2	20/40-16-CF	26157017		•	•	•				24707
3	20/40-16-CF-PRV	26157018		•	•	•		•		24707
4	20/40-16-LS	26157019		•	•	•	•			24707
5	20/40-16-LS-PRV	26157020		•	•	•	•	•		24707
6	20/40-16-LS-UNL	26157021		•	•	•	•	•		24707
7	20/40-16-LS-UNL-PRV	26157022		•	•	•	•	•	•	24707
8	20/50-16-SF	8650798	•		•					12138
9	20/50-16-CF	8650797		•	•					12138

All of the above Mid-Inlet and Transition Sections are machined to accept main relief cartridges.

V20/V40 and V20/V50 mid-inlet sections combine V20 work sections (upstream) with V40 or V50 work sections (downstream).

Standard V40 or V50 section stud kits are used for downstream V40 or V50 work sections.

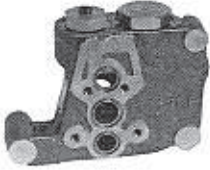
Special V20 section stud kits listed below are used for upstream V20 work sections.

V20/V40 & V20/50 Section Stud Assembly Kits

For use with upstream V20 work sections in V20/V40 and V20/V50 Mid-Inlet Valve Assemblies. Includes section seals.

Item No.	Model Number	Part Number	Number of Work Sections
1	K-20/50-1	8650800	One Section
2	K-20/50-2	8650801	Two Section
3	K-20/50-3	8650802	Three Section
4	K-20/50-4	8650803	Four Section

V40

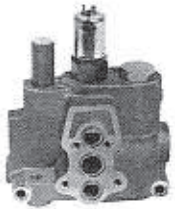


8089 V40 Left Cover

V40 INLET COVER (Housing No. 8089) For Manual Operation

Item No.	Model Number	Part Number	End Inlet	End Outlet	Top Inlet	Top Outlet	SAE 16 Ports (16)	SAE 20 Ports (20)
1	40-LC-16	8650057	•	•	•	•	•	
2	40-LC-20	13650085	•	•	•	•		•

Two Port Plugs are furnished with No. 8089 Covers, one Plug is machined for 1/4" NPT Gauge port. Gauge Port will be plugged. All 8089 Inlet Covers machined to accept the Main Relief Cartridge or NR Plug.



20929 V40 Left Cover with Pressure Reducing Valve

V40 INLET COVERS (Housing No. 20929) For Solenoid Operation

Item No.	Model Number	Part Number	End Inlet	End Outlet	Top Inlet	Top Outlet	SAE 16 Ports (16)	SAE 20 Ports (20)	SAE 4 Gauge Port Machined (Plugged)	With Pressure Reducing Valve and 12 VDC Pressure Control Cartridge (P-12)	With Pressure Reducing Valve and 24 VDC Pressure Control Cartridge (P-24)	With Pressure Reducing Valve and Mechanical Pressure Control Cartridge (P-MECH)
1	40-LC-16-P-12	13650086	•	•	•	•			•	•		
2	40-LC-20-P-12	13650087	•	•	•	•			•			
3	40-LC-16-P-24	13650287	•	•	•	•					•	
4	40-LC-20-P-24	13650288	•	•	•	•					•	
5	40-LC-16-P-MECH	13650944	•	•	•	•						•
6	40-LC-20-P-MECH	13650945	•	•	•	•						•

One Port Plug is furnished with No. 20929 Covers. All 20929 Inlet Covers machined to accept the Main Relief Cartridge or NR Plug.

No. 20929 Pilot Inlet Cover Options

Item No.	Model Number	Part Number	Description
1	K-40-CONT-ON	13650108	Mechanical Pressure Control Cartridge
2	K-40-24-CNTRL	13650109	24 VDC Pressure Control Cartridge
3	K-40-12-CNTRL	13650940	12 VDC Pressure Control Cartridge
4	K-40-LC-CC-PLUG [Ⓞ]	13650947	Closed Center Plug - For use in Closed Center and Load Sensing Systems

For use in place of the standard 12 VDC pressure control cartridge.
[Ⓞ] In addition to this plug, the 20931 Right End Cover must also be converted to closed center.



Continuous-On Pressure Control Cartridge

V40 INLET COVERS (Housing No.'s 8089 & 20929) For Load Sensing

Item No.	Model Number	Part Number	End Inlet	Top Inlet	End Outlet	Top Outlet	SAE 16 Ports (16)	SAE 20 Ports (20)	SAE 4 Gauge Port (Plugged)	With PRV Cartridge (P)	SAE 6 External Pilot Ports (WEP)
1	40-LC-16-LS	13650584	•	•	•	•	•				
2	40-LC-20-LS	13650585	•	•	•	•		•			
3	40-LC-16-P-LS	13650586	•		•	•	•		•	•	
4	40-LC-20-P-LS	13650587	•		•	•		•	•	•	
5	40-LC-16-LS-WEP [Ⓞ]	26157086	•	•	•	•	•				•
6	40-LC-20-LS-WEP [Ⓞ]	26157087	•	•	•	•		•			•

[Ⓞ] These [WEP] covers may be used in load sense and open center applications where an external pilot source is available. (2) SAE 6 Pilot Ports are machined into this cover for external pilot connection. These covers also include the seal counterbores for both solenoid pilot and load sense passages.

Main Relief Options for 25P, V40 and V42 Inlet Covers

Item No.	Model Number	Part Number	Pressure Range and Setting 500-3500 Set @ 2500 PSI c/p
1	RP60A-2500	8650393	•
2	K-40-NR	8650379	Relief Plug Kit (NR Option)

For use in 25P, V40 and V42 Inlet Covers.



RP60 Relief Cartridge

V40 OUTLET COVERS for Open Center, Closed Center or Power Beyond Applications (Housing No.'s 8090 & 20931)

Item No.	Model Number	Part Number	SAE 16 Ports [16]	SAE 20 Ports [20]	End Outlet (20931 Only) [E]	Top Outlet (8090 Only) [T]	End Power Beyond (20931 Only) [EY]	Machined for Top Power Beyond (8090 Only) [MY]
1	40-RC-16-TMY [Ⓢ]	8650328	•			•		•
2	40-RC-16-E	13650960	•		•			
3	40-RC-20-E	13650088		•	•			
4	40-RC-16-EY	13650961	•				•	
5	40-RC-20-EY	13650089		•			•	

Ⓢ A 3/4" NPT Plug is furnished with 8090 Covers for internal conversion to Power Beyond or Closed Center. If Power Beyond or Closed Center options are utilized, the outlet port must be located in the inlet cover. 8090 Covers are NOT intended for use in SOL/EPC valves.

V40 OUTLET COVERS (Housing No. 20931) For Load Sensing

Item No.	Model Number	Part Number	End Outlet [E]	SAE 16 Port [16]	SAE 20 Port [20]
1	40-RC-16-LS-E	13650588	•	•	
2	40-RC-20-LS-E	13650651	•		•

With load sensing port.



8090 Right Cover (No trepan grooves, for use with 25P and V40 Valves.)



20931 Right Cover (No trepan grooves, for use in V40 Valves.)

NOTE: Two internal holes identifies a turnaround or outlet cover. One hole identifies a power beyond or closed center cover.

V40P 'PARALLEL' WORK SECTIONS with machined and plugged upper option cavities (Housing No. 20645 and 21105) Manual and Hydraulic Remote Piloted

Item No.	Model Number	Part Number	3-Way, 3-Pos. [03]	4-Way, 3-Pos. [04]	4-Way, Free Flow [F4]	4-Way, 4-Pos. Float [K4]	4-Way, Regenerative [R4]	SAE 12 Ports [12]	SAE 16 Ports [16]	Spring Return to Neutral	3-Pos. Detent [D]	Rotary Spool Act. [W]	Knock Out Set @ 2000 PSI [K04-2000]	Hydraulic Remote Actuator w/Over-ride [HRO]	Stainless Steel Spool [SS]
1	40-12-03	13650653	*					*		*					
2	40-16-03	13650090	*						*	*					
3	40-12-04	13650654		*				*		*					
4	40-16-04	13650091		*					*	*					
5	40-12-F4	13650655			*			*		*					
6	40-16-F4	13650092			*				*	*					
7	40-16-DF4	13650093			*				*		*				
8	40-12-K4	13650656				*		*							
9	40-16-K4	13650094				*			*						
10	40-16-K04-2000	13650095		*					*				*		
11	40-12-04-HRO	13650657		*				*						*	
12	40-16-04-HRO	13650096		*					*					*	
13	40-16-W4-SS	13650098		*				*				*			*
14	40-16-WF4-SS	13650099			*			*				*			*
15	40-16-RG4	13650100					*		*						

Bracket assembly not furnished with Rotary Spool Option [W], Items 13 & 14.

V40P 'PARALLEL' WORK SECTIONS without upper option cavities (Housing No. 20645 and 21105) Manual and Hydraulic Remote Piloted

Item No.	Model Number	Part Number	3-Way, 3-Pos. [3]	4-Way, 3-Pos. [4]	4-Way, Free Flow [F4]	4-Way, 4-Pos. Float [K4]	SAE 12 Ports [12]	SAE 16 Ports [16]	Spring Return to Neutral	3-Pos. Detent [D]	Knock Out Set @ 2000 PSI [K04]	Hydraulic Remote Actuator w/Over-ride [HRO]
1	40-12-N-03	26157028	*				*		*			
2	40-16-N-03	26157029	*					*	*			
3	40-12-N-04	26157031		*			*		*			
4	40-16-N-04	26157032		*				*	*	*		
5	40-12-N-F4	26157034			*		*		*			
6	40-16-N-F4	26157035			*			*	*			
7	40-16-N-DF4	26157037			*			*		*		
8	40-12-N-K4	26157038				*	*					
9	40-16-N-K4	26157039				*	*					
10	40-16-N-K04-2000	26157040		*				*			*	
11	40-12-N-04-HRO	26157041		*			*					*
12	40-16-N-04-HRO	26157042		*				*				*

The 'N' in the valve assemblies listed above designates that the upper work port relief option cavities are NOT machined. If the application requires the use of work port option cartridges (i.e. reliefs or anti-cavitation checks), do not select valve assemblies from the group.

V40 'PARALLEL' WORK SECTIONS With Machined And Plugged Upper Option Cavities (Housing No. 20645) Solenoid-Operated

On/Off Solenoids (SOL)

Item No.	Model Number	Part Number	3-Way, 3-Pos. [03]	4-Way, 3-Pos. [04]	4-Way, 3-Pos. Free Flow [F4]	SAE 12 Work Ports [12]	SAE 16 Work Ports [16]	12 VDC SOL Actuator [SOL-12]
1	40-12-04-SOL-12	13650659		*		*		*
2	40-16-04-SOL-12	13650102		*			*	*
3	40-12-03-SOL-12	13650661	*			*		*
4	40-16-03-SOL-12	13650104	*				*	*
5	40-12-F4-SOL-12	13650663			*	*		*
6	40-16-F4-SOL-12	13650106			*		*	*
7	40-12-04-SOL-12	13650665		*		*		*

Because of the internal pilot porting, these sections must be stacked directly downstream from the No. 20929 Inlet Cover.

V40 'PARALLEL' WORK SECTIONS With Machined And Plugged Upper Option Cavities (Housing No. 20645) Solenoid-Operated

Proportional Solenoids

Item No.	Model Number	Part Number	3-Way, 3-Pos. [03]	4-Way, 3-Pos. [04]	4-Way, 3-Pos. Free Flow [F4]	SAE 12 Work Ports [12]	SAE 16 Work Ports [16]	12 VDC EPC Actuator [EPC-12]
1	40-12-04-EPC-12	13650660		*		*		*
2	40-16-04-EPC-12	13650103		*			*	*
3	40-12-03-EPC-12	13650662	*			*		*
4	40-16-03-EPC-12	13650105	*				*	*
5	40-12-F4-EPC-12	13650664			*	*		*
6	40-16-F4-EPC-12	13650107			*		*	*

Because of the internal pilot porting, these sections must be stacked directly downstream from the No. 20929 Inlet Cover.



V40 EPC Work Section

Solenoid Cartridges & Coil Kits

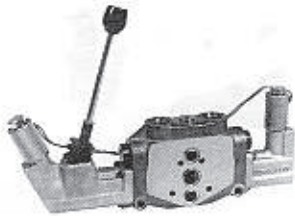
Refer to page 83 in the Electronics Section

V40 'PARALLEL' WORK SECTIONS With Machined And Plugged Upper Option Cavities (Housing No. 20645) Solenoid-Operated

(On/Off Solenoids with Handle)

Item No.	Model Number	Part Number	3-Way, 3-Pos. [03]	4-Way, 3-Pos. [04]	4-Way, 3-Pos. Free Flow [F4]	SAE 12 Work Ports [12]	SAE 16 Work Ports [16]	12 VDC SOL with Handle [SOL-12-H]
1	40-12-04-SOL-12-H	13650671		•		•		•
2	40-16-04-SOL-12-H	13650295		•			•	•
3	40-12-03-SOL-12-H	13650673	•			•		•
4	40-16-03-SOL-12-H	13650297	•				•	•
5	40-12-F4-SOL-12-H	13650675			•	•		•
6	40-16-F4-SOL-12-H	13650299			•		•	•

Because of the internal pilot porting, these sections must be stacked directly downstream from the No. 20929 Inlet Cover.



V40 EPC Work Section with Handle

V40 'PARALLEL' WORK SECTIONS With Machined And Plugged Upper Option Cavities (Housing No. 20645) Solenoid-Operated

(Proportional Solenoids with Handle)

Item No.	Model Number	Part Number	3-Way, 3-Pos. [03]	4-Way, 3-Pos. [04]	4-Way, 3-Pos. Free Flow [F4]	SAE 12 Work Ports [12]	SAE 16 Work Ports [16]	12 VDC EPC with Handle [EPC-12-H]
1	40-12-04-EPC-12-H	13650672		•		•		•
2	40-16-04-EPC-12-H	13650296		•			•	•
3	40-12-03-EPC-12-H	13650674	•			•		•
4	40-16-03-EPC-12-H	13650298	•				•	•
5	40-12-F4-EPC-12-H	13650676			•	•		•
6	40-16-F4-EPC-12-H	13650300			•		•	•

Because of the internal pilot porting, these sections must be stacked directly downstream from the No. 20929 Inlet Cover.

V40LS 'LOAD SENSING' WORK SECTIONS (Housing No. 24054) Manually-Operated

Item No.	Model Number	Part Number	3-Way, 3-Pos. [03]	4-Way, 3-Pos. [04]	4-Way, 3-Pos. [F4]	Spring Return to Neutral	SAE 12 Work Ports [12]	SAE 16 Work Ports [16]
1	40LS-12-03	26157089	•			•	•	
2	40LS-16-03	26157090	•			•		•
3	40LS-12-04	26157091		•		•	•	
4	40LS-16-04	26157092		•		•		•
5	40LS-12-F4	26157093			•	•	•	
6	40LS-16-F4	26157094			•	•		•

V40LS 'LOAD SENSING' WORK SECTIONS (Housing No. 24054) Solenoid-Operated (On/Off Solenoid-SOL)

Item No.	Model Number	Part Number	3-Way, 3-Pos. [03]	4-Way, 3-Pos. [04]	4-Way, 3-Pos. [F4]	SAE 12 Work Ports [12]	SAE 16 Work Ports [16]	12VDC On-off Solenoid Actuator [SOL]
1	40LS-12-04-SOL-12	13650596		•		•		•
2	40LS-16-04-SOL-12	13650597		•			•	•
3	40LS-12-03-SOL-12	13650600	•			•		•
4	40LS-16-03-SOL-12	13650601	•				•	•
5	40LS-12-F4-SOL-12	13650604			•	•		•
6	40LS-16-F4-SOL-12	13650605			•		•	•

V40

V40LS 'LOAD SENSING' WORK SECTIONS (Housing No. 24054) Solenoid-Operated

Proportional Solenoid-EPC

Item No.	Model Number	Part Number	3-Way, 3-Pos. [03]	4-Way, 3-Pos. [04]	4-Way, 3-Pos. [F4]	SAE 12 Work Ports [12]	SAE 16 Work Ports [16]	12 VDC EPC Actuator [EPC-12]
1	40LS-12-04-EPC-12	13650598		*		*		*
2	40LS-16-04-EPC-12	13650599		*			*	*
3	40LS-12-03-EPC-12	13650602	*			*		*
4	40LS-16-03-EPC-12	13650603	*				*	*
5	40LS-12-F4-EPC-12	13650606			*	*		*
6	40LS-16-F4-EPC-12	13650607			*		*	*

V40 'PARALLEL' WORK SECTIONS, (Housing No. 20645) Solenoid-Operated

On/Off Solenoids with Handle (SOL-H)

Item No.	Model Number	Part Number	3-Way, 3-Pos. [03]	4-Way, 3-Pos. [04]	4-Way, 3-Pos. [F4]	SAE 12 Work Ports [12]	SAE 16 Work Ports [16]	12 VDC SOL with Handle [SOL-12-H]
1	40LS-12-04-SOL-12H	13650620		*		*		*
2	40LS-16-04-SOL-12H	13650621		*			*	*
3	40LS-12-03-SOL-12H	13650624	*			*		*
4	40LS-16-03-SOL-12H	13650625	*				*	*
5	40LS-12-F4-SOL-12H	13650628			*	*		*
6	40LS-16-F4-SOL-12H	13650629			*		*	*

V40LS 'LOAD SENSING' WORK SECTIONS (Housing No. 24054) Solenoid-Operated

Proportional Solenoids-EPC with Handle (EPC-H)

Item No.	Model Number	Part Number	3-Way, 3-Pos. [03]	4-Way, 3-Pos. [04]	4-Way, 3-Pos. [F4]	SAE 12 Work Ports [12]	SAE 16 Work Ports [16]	12VDC EPC with Handle [EPC-12-H]
1	40LS-12-04-EPC-12H	13650622		*		*		*
2	40LS-16-04-EPC-12H	13650623		*			*	*
3	40LS-12-03-EPC-12H	13650626	*			*		*
4	40LS-16-03-EPC-12H	13650627	*				*	*
5	40LS-12-F4-EPC-12H	13650630			*	*		*
6	40LS-16-F4-EPC-12H	13650631			*		*	*

V40 TRAVEL LIMITER/MANUAL OVERRIDE

May be added to above Solenoid/EPC Positioners.

Item No.	Model Number	Part Number	Description
1	K-40-MO-P	13650118	Push Type Manual Override
2	K-40-TL-MO-S	13650119	Screw Type Travel Limiter/Manual Override
3	K-40-TL-IH	13650936	Screw Type Travel Limiter for use with Manual Handle Option (Handle End Only)

Each kit includes one assembly for one end of valve.



K-40-TL-MO-S
Manual Override

25P and V40 MID-INLET SECTIONS (Housing No. 3953)

Item No.	Model Number	Part Number	SAE 16 Ports [16]	Combined Flow with Top Inlet [CF]	Split Flow with Top Inlet [SF]	Select Flow with Top Inlet [SF/CF] ①
1	40-16-CF	8650056	•	•		
2	40-16-SF	13650166	•		•	
3	40-16-SF/CF	26157025	•			•

① The 40-16-SF/CF Select Flow Mid-Inlet is spring loaded to Split Flow as ordered above. Shifting the spool will select Combined Flow. The internal spool positioner parts may be repositioned so that the Mid-Inlet is spring-loaded to Combined Flow.



3953
Mid-Inlet Section

V40 Mid Inlet Option Kits

Also used with 25P and V42 Valves.

Item No.	Model Number	Part Number	Description
1	K-40-SF	8650080	Mid-Inlet Conversion Kit to Split Flow
2	K-40-CF	13650929	Mid-Inlet Conversion Kit to Combined Flow

V40 Work Port Relief Cartridges and Anti-Cavitation Check Kits

Model RD30 differential poppet type relief valves are best suited for flows below 25GPM. Model RP30 pilot operated Relief Valves are recommended for applications requiring flows greater than 25GPM.



RD30



RP30A

Item No.	Model Number	Part Number	Relief Valve	Combination Relief Valve & Anti-Cav. Check	Anti-Cav. Check	Pressure Range and Setting				
						500-1249 Set @ 1200 PSI c/p	1250-1749 Set @ 1700 PSI c/p	1750-1999 Set @ 1950 PSI c/p	2000-2599 Set @ 2500 PSI c/p	500-3500 Set @ 2500 PSI c/p
1	RD30-1200	8650779	•			•				
2	RD30-1700	8650780	•				•			
3	RD30-1950	8650781	•					•		
4	RD30-2550	8650782	•						•	
5	RP30A-2500	8650776	•							•
6	RP30A-AC-2500	8650777		•						•
7	K-30-AC	8650778			•					
8	K-30-NR	8650733	No Relief Plug Kit (NR OPTION)							

Model RD30 not available with Anti-Cavitation Check.
Above Relief Valves set at crack pressure (c/p) of 1 GPM.



3-Position Detent

V40 Spool Positioner Option Kits

Item No.	Model Number	Part Number	Description
1	K-40-A	13650112	Spring Extended Spool Positioner Kit
2	K-40-D	13650113	3-Position Detent Kit
3	K-40-R	13650114	Spool "IN" Detent w/Spring Return to Neutral Positioner Kit
4	K-PA100-40	13082001	Pneumatic Spool Actuator Kit
5	K-40-HR [Ⓢ]	13650953	Hydraulic Remote Actuator Kit

The above kits will not work with Float, Hydraulic Detent Release (KD), or Regenerative Spools.

Ⓢ K-40-HR actuators are not interchangeable with factory ordered sections having hydraulic remote positioners. The spools are different as well as some of the positioner parts.

V40 Handle End Options

Handle Kit contains necessary Links and Pins.

Item No.	Model Number	Part Number	Description
1	K-40-VH	13650115	Vertical Handle
2	K-40-HH	13650116	Horizontal Handle
3	K-40-IH	13650117	Inverted Handle
4	K-30-RET	8650757	Standard Seal Retainer Plate
5	K-30-BOOT	8650758	Spool Boot Assembly



Vertical & Horizontal Handles

V40 Section Stud Assembly Kits

Includes Section Seals, Studs and Nuts. Also used with 25P and V42 Valves. (Stud Kits do not include 9000112 Solenoid Pilot Passage Seals. This seal must be purchased separately, if required. (See Below.)

Item No.	Valve with 20931 Right End Outlet	Part Number	Number of Valve Spools & Mid-Inlet Sections	Valve with 8090 Right Top Outlet	Part Number
1	K-40-LRE-1	8650280	One Section	K-40-LRT-1	8650288
2	K-40-LRE-2	8650281	Two Sections	K-40-LRT-2	8650289
3	K-40-LRE-3	8650282	Three Sections	K-40-LRT-3	8650290
4	K-40-LRE-4	8650283	Four Sections	K-40-LRT-4	8650291
5	K-40-LRE-5	8650284	Five Sections	K-40-LRT-5	8650292
6	K-40-LRE-6	8650285	Six Sections	K-40-LRT-6	8650293
7	K-40-LRE-7	8650286	Seven Sections	K-40-LRT-7	8650294
8	K-40-LRE-8	8650287	Eight Sections	K-40-LRT-8	8650295



Stud Kit

Item No.	Model Number	Part Number	Description
1	K-40-SECT-SEAL	13650406	Section Seal for Solenoid Pilot Passages

Kit Includes 25 pieces of Seal Number 9000112.

V42



8089 Left Cover



8288 Left Cover
Trepan grooves not machined.
Use with V42 Valves



RP60A
Relief Valve Cartridge

V42 INLET COVERS (Housing No.'s 8089 & 8288)

Item No.	Model Number	Part Number	Top Inlet & Outlet	End Inlet & Outlet	SAE 20 [20]	With Pressure Reducing Valve for Solenoid Option
1	42-LC-20	8650032	•	•	•	
2	42-LC-20-P	8650033	•	•	•	•

Two Port Plugs are furnished with each cover.
One Plug is machined for 1/4" NPT gauge port.
Gauge port will be plugged.
All inlet Covers machined to accept Relief Cartridges.

Main Relief Options for 25P, V40 and V42 Inlet Covers

Item No.	Model Number	Part Number	Pressure Range and Setting 500-3500 Set @ 2500 PSI c/p
1	RP60A-2500	8650393	•
2	K-40-NR	8650379	Relief Plug Kit (NR Option)

Above Relief Valve has stainless steel spring and is external screw adjustable.
Crack Pressure (c/p) set at 1 GPM.

Note: Two internal holes identifies a turnaround or outlet cover.
One internal hole identifies a Power Beyond or Closed Center Cover.



20931 Right Cover
Trepan grooves machined
for use with V42 Valves



8287 Right cover
Trepan grooves machined
for use with V42 Valves

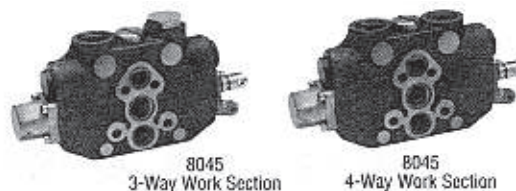


8090 Right Cover
Trepan grooves machined
for use with V42 Valves

V42 OUTLET COVERS (Housing No.'s 8090, 20931 & 8287)

Item No.	Model Number	Part Number	SAE 16 Port [16]	SAE 20 Port [20]	20931 End Outlet [E]	8287 & 8090 Top Outlet [T]	20931 End Power Beyond [EY]	(8090) Machined for Conversion Top Power Beyond or Closed Center [MY]	(8287) With 12 VDC Pressure Build-Up Valve for Solenoid [P-12]	(8287) With 24 VDC Pressure Build-Up Valve for Solenoid [P-24]	(8287) With Mechanical Pressure Build-Up Valve for Solenoid [PM]
1	42-RC-20-E	8650034		•	•						
2	42-RC-20-EY	8650036		•			•				
3	42-RC-16-MY [Ⓞ]	8650582	•					•			
4	42-RC-16-TP-24	13650282	•			•				•	
5	42-RC-16-TP-12	8650583	•			•			•		
6	42-RC-16-TPM	8650964	•			•					•

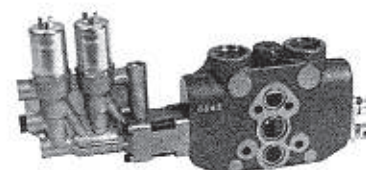
[Ⓞ] A 3/4" NPT Plug is furnished with 8090 Covers for Internal Conversion to Power Beyond or Closed Center.
If the Power Beyond or Closed Center Option is utilized, the Outlet Port must be located in the Inlet Cover.



V42 'PARALLEL' WORK SECTIONS (Housing No. 8045) Manually-Operated

Item No.	Model Number	Part Number	3-Way 3-Pos [03]	4-Way 3-Pos. [04]	4-Way 3-Pos. Free Flow [F4]	4-Pos. Float [K4]	4-Way 4-Pos. Regenerative- [R4]	3-Pos. Detent [D]	Hydraulic Detent (Set at 2000 PSI) [K0]	Rotary Spool Pos [W]	Spring Return to Neutral	SAE 12 Work Port [12]	SAE 16 Work Port [16]	Upper Options Machined & Plugged [U]	Upper & Lower Options Machined & Plugged [UL]	Stainless Steel Spool [SS]
1	42-12-03	13650138	•								•	•				
2	42-12-U-03	13650142	•								•	•		•		
3	42-16-U-03	08650038	•								•		•	•		
4	42-12-04	13650137		•							•	•				
5	42-12-U-04	13650140		•							•	•		•		
6	42-12-UL-04	13650141		•							•	•			•	
7	42-12-F4	13650139			•						•	•				
8	42-12-K4	13650143				•						•				
9	42-16-F4	8650040			•						•		•			
10	42-16-UL-04	8650041		•							•		•		•	
11	42-16-DF4	8650050			•			•					•			
12	42-16-U-K04-2000	8650616							•				•	•		
13	42-16-UL-DF4	8650047			•			•					•		•	
14	42-16-04	8650481		•							•		•			
15	42-16-U-04	8650617		•							•			•		
16	42-16-UL-W4-SS⊙	8650511		•						•			•		•	•
17	42-16-WF4-SS⊙	8650510			•					•			•			•
18	42-16-W4⊙	8650642		•						•			•			
19	42-16-U-F4	13650284			•						•		•	•		
20	42-16-UL-F4	13650285			•						•		•		•	

⊙ Handle Bracket assembly not furnished with Rotary Spool Option[W] Sections (Items 16, 17 and 18).



8045 External Solenoid Controlled Work Section

V42 'PARALLEL' WORK SECTIONS (Housing No. 8045) Remote-Operated

Item No.	Model Number	Part Number	4-Way, 3-Pos. [04]	SAE 16 Work Ports [16]	Hydraulic Remote with Override [HRO]	Hydraulic Remote with Handle [HRH]	12 VDC Solenoid Cartridge [SOL-12]	24 VDC Solenoid Cartridge [SOL-24]
1	42-16-04-HRO	8650581	•	•	•			
2	42-16-04-HRH	8650580	•	•		•		
3	42-16-04-SOL-12	8650044	•	•			•	
4	42-16-04-SOL-24	13650281	•	•				•

V42 SPECIAL WORK SECTIONS, (Housing No.'s 8046, 8138 & 8675)

Includes Handle Bracket.



8138 Regenerative Work Section
or
8046 Float Section

Item No.	Model Number	Part Number	4-Way, 3-Pos. [4]	4-Way, 4-Pos. [K4]	4-Way 4-Pos Regenerative [RG4]	SAE 16 Work Ports [16]	Parallel Circuit	Tandem Circuit [T]	Upper Options Machined & Plugged [U]	Upper & Lower Options Machined & Plugged [UL]
1	42-16-UL-K4	8650045		•		•	•			•
2	42-16-RG4	8650046			•	•	•			
3	42T-16-U-04	8650039	•			•		•	•	

V42 MID-INLET SECTIONS (Housing No. 3953)



3953 Mid Inlet Section

Item No.	Model Number	Part Number	SAE 16 Ports [16]	Combined Flow with Top Inlet [CF]	Split Flow with Top Inlet [SF]	Select Flow with Top Inlet [SF/CF] ①
1	42-16-CF	8650048	•	•		
2	42-16-SF	8650049	•		•	
3	42-16-SF/CF	26157026	•			•

① The 42-16-SF/CF Select Flow Mid-Inlet is spring loaded to Split Flow as ordered above.

Shifting the spool will select Combined Flow. The internal spool positioner parts may be repositioned so that the Mid-Inlet is spring-loaded to Combined Flow.

V42 Spool Positioner Option Kits



Spool Action Assembly
(Bonnet)

Item No.	Model Number	Part Number	Description
1	K-42-A	8650162	Spring Extended Spool Positioner Kit
2	K-42-D	8650163	3-Position Detent Kit
3	K-42-R	8650164	Spool "IN" Detent w/Spring Return to Neutral Positioner Kit
4	K-42-W	8650165	Rotary Spool Positioner Kit
5	K-42-SOL-12	8650166	12VDC Solenoid Actuator
6	K-42-SOL-24	13650283	24VDC Solenoid Actuator
7	K-42-HR	8650576	Hydraulic Remote Spool Actuator Kit ②
8	K-42-HRO	8650577	Hydraulic Remote Spool Actuator Kit w/Override ②
9	K-PA100-42	13028001	Pneumatic Spool Positioner Kit

The above kits will not work with Float, Hydraulic Detent Release (KD), or Regenerative spools.

② Contains both Bonnets Required.

Work Port Relief Cartridges for 25P and V42 Control Valves Relief Model 'YC'

Item No.	Model Number	Part Number	Pressure Range and Setting		
			500-1000 Set @ 1000 PSI c/p	1001-1500 Set @ 1500 PSI c/p	1501-3000 Set @ 3000 PSI c/p
1	YC-1000	8650399	•		
2	YC-1500	8650400		•	
3	YC-3000	8650401			•

'WH' and 'RP51' Relief Cartridges

Item No.	Model Number	Part Number	Pressure Range and Setting					
			500-1249 Set @ 1200 PSI c/p	1250-1749 Set @ 1700 PSI c/p	1750-1999 Set @ 1950 PSI c/p	2000-2599 Set @ 2550 PSI c/p	2501-3000 Set @ 3000 PSI c/p	500-3500 Set @3000 PSI c/p
1	WH-1200	8650417	•					
2	WH-1700	8650418		•				
3	WH-1950	8650419			•			
4	WH-2550	8650420				•		
5	WH-3000	8650398					•	
6	RP51A-3000	8650421						•
7	K-20-NR	8650382	Relief Cavity Plug Kit (NR Option)					



WH Relief Valve Cartridge

The above Relief Valves have stainless steel springs.
Model 'WH' Relief Valves are internal shim adjustable. Model 'RP51' Relief Valves are external screw adjustable.
Crack Pressure (c/p) set at 1 GPM.

Anti-Cavitation Check Kits

Item No.	Model Number	Part Number	Description
1	K-42-UAC	8650378	Upper Anti-Cavitation Check Assembly (For use in the "upper" option cavity only)
2	K-42-LAC	8650377	Lower Anti-Cavitation Check Assembly (For use in the "lower" option cavity only)



Upper Anti-Cavitation Check

Relief External Adjustment Kit

Item No.	Model Number	Part Number	Description
1	K-WH-A	8650381	External Screw Adjustable Option for WH Relief



Lower Anti-Cavitation Check



Vertical Handle



Horizontal Handle

V42 Handle End Option

Handle Kit contains necessary Links and Pins.

Item No.	Model Number	Part Number	Description
1	K-42-VH-B	8650174	Vertical Handle Assembly (Black)
2	K-42-VH-P	8650172	Vertical Handle Assembly (Plain)
3	K-42-HH-B	8650171	Horizontal Handle Assembly (Black)
4	K-42-HH-P	8650169	Horizontal Handle Assembly (Plain)
5	K-42-RET	8650175	Standard Seal Retainer Plate
6	K-42-BOOT	8650176	Spool Boot Assembly
7	K-42-MA	8650177	Male Spool Clevis

V42 Section Stud Assembly Kits

Includes Section Seals, Studs and Nuts.



Section Stud Assembly Kit

Item No.	Valve with 8089 Left Cover and 20931 Right End Out	Part Number	Number of Valve Spools & Mid-Inlet Sections	Valve with 8090 or 8287 Right Top Out	Part Number
1		8650280	One Section	K-40-LRT-1	8650288
2		8650281	Two Sections	K-40-LRT-2	8650289
3		8650282	Three Sections	K-40-LRT-3	8650290
4		8650283	Four Sections	K-40-LRT-4	8650291
5		8650284	Five Sections	K-40-LRT-5	8650292
6		8650285	Six Sections	K-40-LRT-6	8650293
7		8650286	Seven Sections	K-40-LRT-7	8650294
8		8650287	Eight Sections	K-40-LRT-8	8650295
9		13650957	Nine Sections		
10		13650958	Ten Sections		

Solenoid Tubing Kit

Item No.	Model Number	Part Number	Description
1	K-42-TUBE	8650486	Tubing assembly between Utility Section and Solenoid Spool Actuator



8916 Left Cover

V50 INLET COVERS (Housing No. 8916)

Item No.	Model Number	Part Number	End Inlet [E]	Top Inlet [T]	End Outlet [E]	Top Outlet [T]	1/4" NPT Gauge Port Plugged	SAE 20 Port Size [20]
1	50-LC-20-E	8650535	•		•		•	•
2	50-LC-20-T	8650536		•		•	•	•

All Left Covers are machined to accept Main Relief Valve, Model RP50A.



Model RP50A Relief Valve Cartridge

V50 Main Relief Options

Item No.	Model Number	Part Number	Description
1	K-50-NR	8650561	No Relief Plug Kit (NR Option)
2	RP50A-2500	8650560	500 to 3500 PSI Pilot-Operated Relief Cartridge (Set @ 2500 PSI)



22691 Right Cover

V50 OUTLET COVERS (Housing No. 22691)

Item No.	Model Number	Part Number	End Outlet [E]	Top Outlet [T]	SAE 20 Port Size [20]	Machined for Power Beyond [Y]
1	50-RC-20-ETY	13650650	•	•	•	•

Top Port plugged. End port may be converted to Closed Center or Power Beyond using Option Kits below.

V50 Outlet Cover Conversion Kits

Item No.	Model Number	Part Number	Description
1	K-SAE-20	8650302	Conversion Plug
2	K-50-C	8650563	Closed Center Plug
3	K-50-16Y	8650564	SAE 16 Power Beyond Sleeve

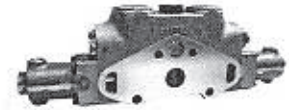
V50

V50 WORK SECTIONS (Housing No.'s 8917 & 8918)

3-Way or 4-Way Sections include Handle Brackets ♦ and drilled and plugged work port options.

Item No.	Model Number	Part Number	3-Way 3-Pos. [3]	4-Way 3-Pos. [4]	Free Flow Motor Spool [F4]	4-Way Float [K4]	SAE 16 Work Ports [16]	3-Position Detent [D]	Hydraulic Remote Spool Actuator [HR]	Tandem Circuit [T]	Series Circuit [S]	Parallel Circuit
1	50-16-03	8650538	•									•
2	50-16-04	8650540		•								•
3	50-16-F4	8650541			•							•
4	50-16-DF4	8650542			•		•					•
5	50-16-K4	8650543				•						•
6	50-16-04-HR	8650544		•					•			•
7	50-16-F4-HR	8650545			•				•			•
8	50T-16-03	8650546	•							•		
9	50T-16-04	8650547		•						•		
10	50T-16-K4	8650548				•				•		
11	50T-16-04-HR	8650549		•					•	•		
12	50S-16-04	13650144		•							•	

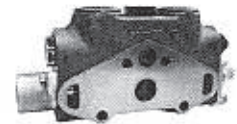
Items 6, 7 and 11 do not include handle brackets.



Section with Hydraulic Remote Spool Actuator (HR)



8918 3-Way, 4-Way or 4-Way Float Tandem Section



8917 3-Way, 4-Way or 4-Way Float Parallel Section

V50 MID-INLET SECTIONS (Housing No.'s 12138, 8918 & 8917)

Item No.	Model Number	Part Number	Split [SF]	Combined [CF]	SAE 16 Inlet [16]	Description	Housing No.
1	20/50-16-SF	8650798	•		•	V20/V50 Split Flow Transition Mid Inlet	12138
2	20/50-16-CF	8650797		•	•	V20/V50 Combined Flow Transition Mid Inlet	12138
3	50-16-SF	13650941	•		•	V50 Split Flow Mid Inlet	8917
4	50-16-CF	13650942		•	•	V50 Combined Flow Mid Inlet	8918

Sections machined to accept RP50 main relief cartridges.

V20/V50 mid-inlet sections combine V20 work sections (upstream) with V50 work sections (downstream)

Standard V50 section stud kits are used for downstream V50 work sections. Special V20/V50 section stud kits are listed in the V20 section.

V50 Handle End Options

Handle Kits contain necessary Links and Pins.

Item No.	Model Number	Part Number	Description
1	K-50-VH	8650567	Vertical Handle
2	K-50-HH	8650566	Horizontal Handle
3	K-50-BOOT	8650565	Spool Boot Assembly



Horizontal Handle



Vertical Handle

V50 Section Stud Assembly Kits

Includes Section Seals and Nuts.

Item No.	Model Number	Part Number	Number of Work Sections
1	K-50-1L	13650644	One Section
2	K-50-2L	13650645	Two Section
3	K-50-3L	13650646	Three Section
4	K-50-4L	13650647	Four Section
5	K-50-5L	13650648	Five Section
6	K-50-6L	13650649	Six Section



Spool Action Assembly (Bonnet)

V50 Spool Positioner Option Kits

Item No.	Model Number	Part Number	Description
1	K-50-D	8650562	3-Position Detent
2	K-PA100-50	13044001	Pneumatic Spool Positioner Kit
3	K-50-HR	13650949	Hydraulic Remote Spool Actuator Kit [Ⓞ]
4	K-50-HRO	13650950	Hydraulic Remote with Override Spool Actuator Kit [Ⓞ]

Cannot be used on Float Spool.
[Ⓞ] Contains both bonnets needed.



Model RP50A Relief Valve Cartridge

V50 Work Port Relief and Anti-Cavitation Cartridges

Item No.	Model Number	Part Number	Pressure Range, 500-3500 PSI Set @ 2500 PSI c/p	Description
1	RP50A-2500	8650560	•	Pilot-Operated Relief Cartridge
2	RP50A-AC-2500	8650966	•	Combination Relief & Anti-Cav.
3	K-50-AC	8650558		Anti-Cavitation Check
4	K-50-NR	8650561		No Relief Plug Kit (NR Option)

All above Relief Valves have stainless steel springs and are external screw adjustable. Crack Pressure (c/p) set at 1 GPM.