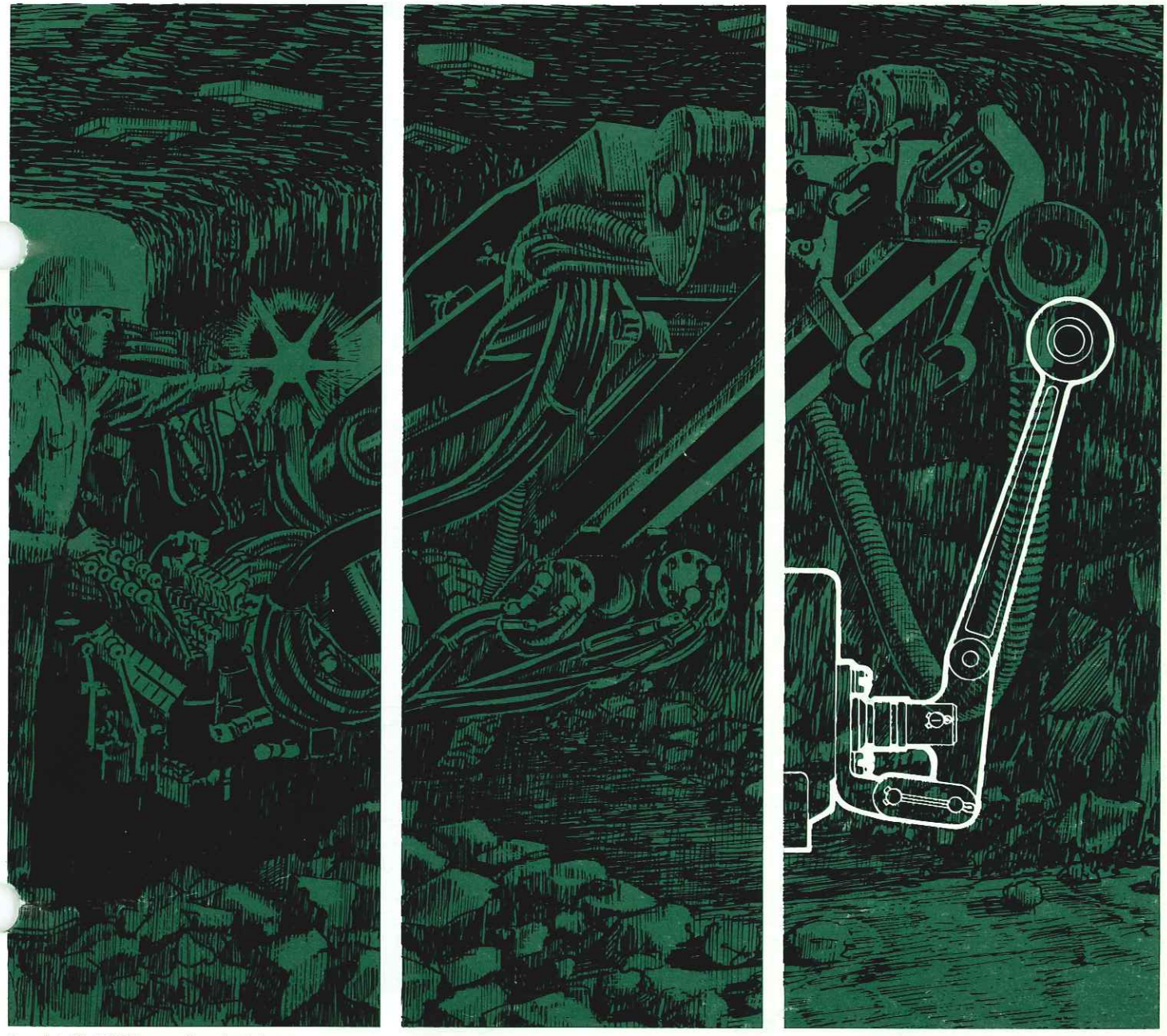
PC-1201

GRESEN®

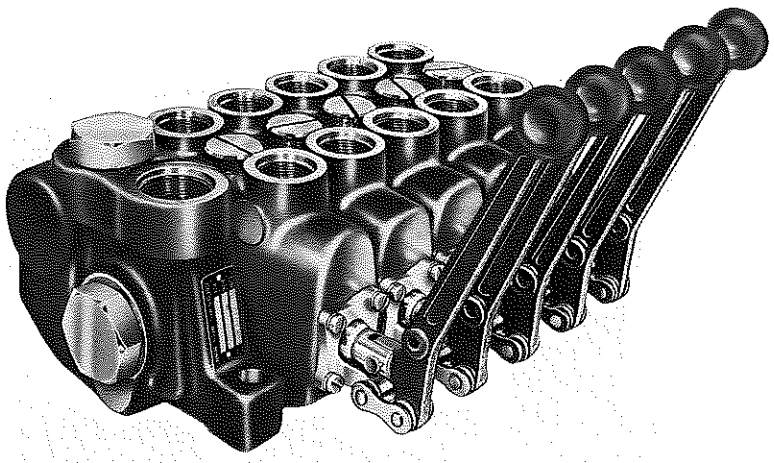
DANA

# MODEL V42
# SECTIONAL BODY
# DIRECTIONAL CONTROL VALVES
## FOR MOBILE AND INDUSTRIAL HYDRAULIC SYSTEMS



GRESEN®

DANA



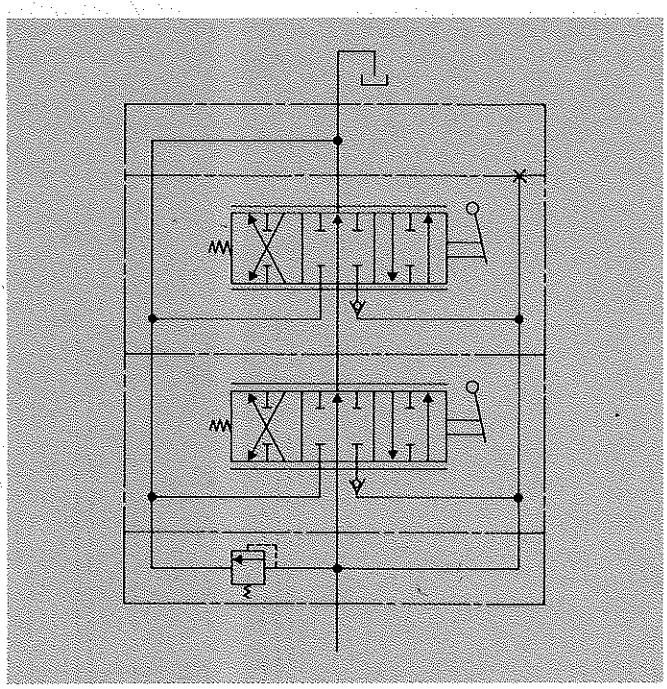
# MODEL V42 SECTIONAL BODY DIRECTIONAL CONTROL VALVE

Gresen's Model V42 Directional Control Valve is designed for parallel hydraulic circuit applications, up to 3500 PSI [242 bar] continuous operating pressure. Pressure is limited to 2000 PSI [136 bar] if NPT pipe ports are required. For pressures beyond 2000 PSI, SAE straight thread O-ring ports or BSP ports are required.

Service or conversion is simple since individual sections can be added, removed or replaced in the field. Individual service or field conversion sections, rather than complete valve assemblies, can be stocked thus reducing inventories.

The Model V42 is a parallel circuit valve. Two or more spools may be actuated at the same time and the oil will follow the path of least resistance. If a 2-spool Valve is used to control two hydraulic cylinders, each with a different load, the cylinder with the lightest load will operate first if both spools are fully actuated at the same time. If the spool controlling the cylinder with the light load is metered (spool not fully actuated), then both cylinders may be operated at the same time.

When a spool is fully actuated, the open center core is blocked and oil is directed into the power core. Oil is then available to the work ports of all sections in the valve assembly.



# FEATURES

**Exact Work Port Control** . . . is achieved with smooth, positive metering valve spools. Spools are precisely hone-fitted to a matching work section for excellent spool-hold characteristics.

**Built-In Safety** . . . Hydraulic system and equipment protection incorporated at each work port eliminates need for any additional external plumbing. Main relief valves, work port relief valves, anti-cavitation checks and work port restrictors are available for safety, equipment protection and positive control.

**Construction** . . . All valve housings are made of high tensile cast iron for durability and resistance to shock loads. Spools are hard, chrome-plated for long life and resistance to corrosion.

## Additional Features Are:

- Minimal spool actuating effort
- Minimum pressure drops through open center and through work ports
- Float section may be installed at any point within the Valve assembly
- Mid-inlet sections available

# SPECIFICATIONS

Parallel Hydraulic Circuit

Pressure Rating:

Continuous Operating ..... *3500 PSI [242 bar] max.

*Limited to 2000 PSI [136 bar] when NPT pipe ports are used.

Capacity ..... Refer to Flow Rate Chart on Page 19. Flow rate is determined by the maximum pressure drop acceptable for the application.

Filtration Required (Min.) ..... 33 micrometer

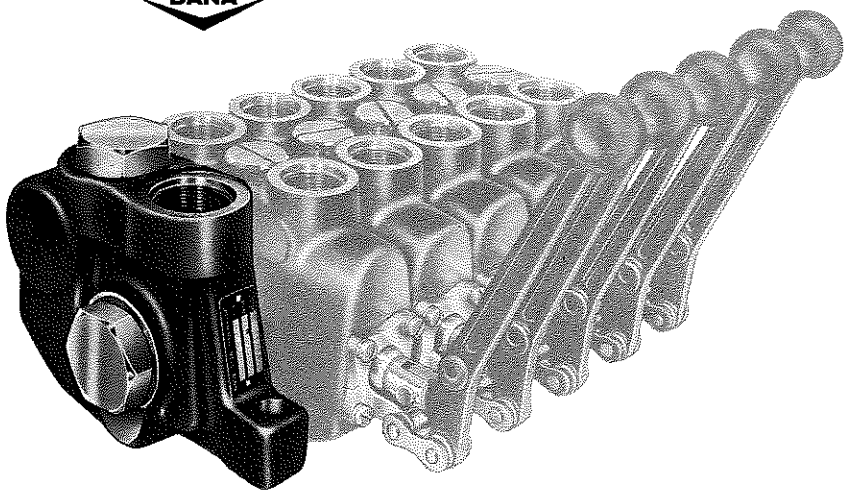
Weight:

Inlet Cover ..... Approx. 12 lbs. [5,4 kg]
Outlet Cover ..... Approx. 6 lbs. [2,7 kg]
Work Section, Each ..... Approx. 15 lbs. [6,8 kg]

# CONTENTS

GRESEN®

DANA



# INLET COVER
## Part No. 8089

The inlet cover provided with the V42 Valve Assembly can be machined to provide either top or end inlet ports. The outlet port, normally located in the outlet cover, may be optionally located in the inlet cover with either top or end porting. If power beyond is specified, the power beyond port must be located in the outlet cover and the outlet port must be located in the inlet cover

Inlet covers are machined to accept Model KC ball/spring type relief valves or Model RP60 pilot-operated type relief valves.

If the addition of a secondary hydraulic pump is desireed, a mid-inlet conversion section can be installed between two work sections to provide an inlet port for the secondary pump. See page 8.

### PORTING OPTIONS AVAILABLE FOR INLET COVER, NO. 8089

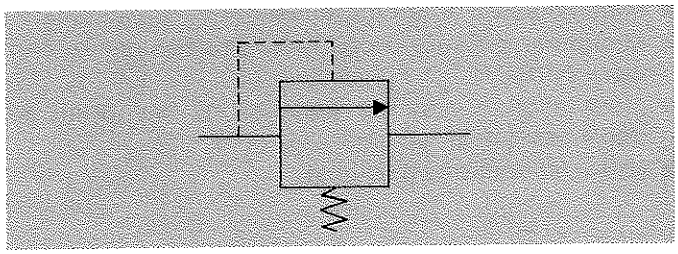
| LOCATION | SAE STRAIGHT THREAD PORTS | | **NPT PIPE PORTS | BSP PIPE PORTS |
|---|---|---|---|---|
| | STANDARD | OPTIONAL | OPTIONAL | OPTIONAL |
| TOP OR END INLET AND OUTLET PORTS | SAE 16 (1-5/16"—12 UN) | SAE 12 (1-1/16"—12 UN) | 1"—11-1/2 | 1" BSP |
| | | SAE 20 (1-5/8"—12 UN) | 1-1/4"—11-1/2 | 1-1/4" BSP |
| GAGE PORT | ——— | SAE 4 (7/16"—14 UNF) | ——— | ——— |

*End inlet, top inlet and top outlet ports are cored openings. If not specified they will be plugged.

**Ports with NPT pipe threads are limited to 2000 PSI [136 bar] max.

**NOTE:** All ports in a casting must be the same type. SAE, NPT and BSP ports cannot be intermixed.

# MAIN RELIEF VALVES



The primary function of a main system relief valve is to prevent excessive system pressures. Normally, this relief valve is installed in the inlet cover.

Relief valves for the V42 Valve Assembly are designed and fabricated in cartridge form to permit easier servicing and allow minimum interchangeability time. They feature quiet operation and are virtually trouble free and highly tolerant of foreign material in the hydraulic system.

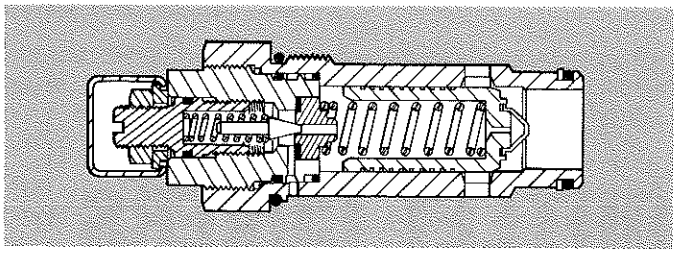
Standard relief valve springs for model KC are of a spring steel material. Stainless steel springs are optional for Model KC and standard for Model RP60. Stainless steel springs are recommended where hydraulic systems tend to run above 160°F (71°C).

For best system performance and longest oil life, the ideal oil temperature range in a hydraulic system should be approximately 100°F to 130°F (38°C to 54°C), when measured at the oil reservoir.

Either of these relief valves may also be installed in a split or combined flow mid-inlet conversion section but cannot be used in a two-position selective mid-inlet conversion section.

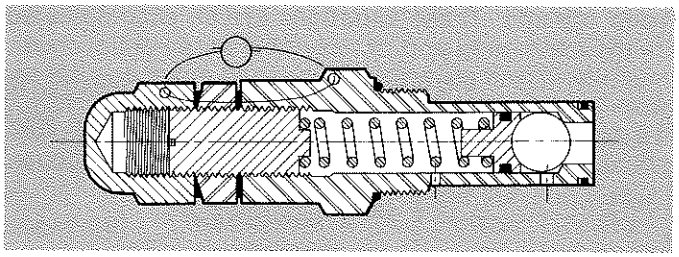
Relief valves are available in adjustable or tamperproof/non-adjustable configurations.

# Model RP60



Pilot-operated (tamperproof configuration shown)

# Model KC



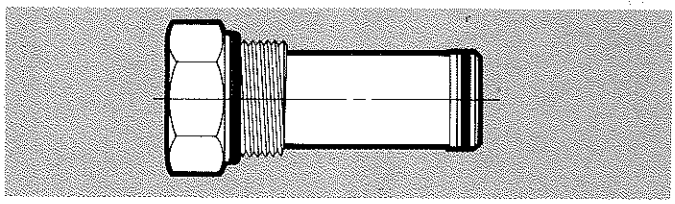
Ball/spring type (tamperproof, configuration shown)

## SPECIFICATIONS

| | KC | RP60 |
|---|---|---|
| **MAXIMUM GPM [LITRES/MIN]** | 38 [144] | 60 [227] |
| **ADJUSTMENT CONFIGURATIONS** | | |
| **ADJUSTABLE** | STD. | RP60A |
| **TAMPERPROOF/ NON-ADJUSTABLE** | KC-NJ | RP60N |

Model RP60 recommended for pressures over 2000 PSI [138 bar].

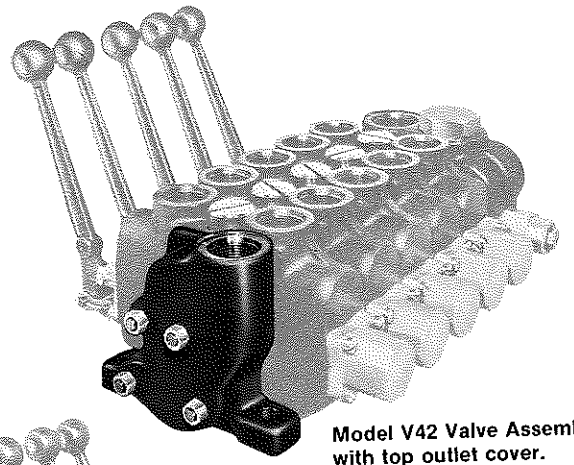
# No Relief Plug, NR, Optional



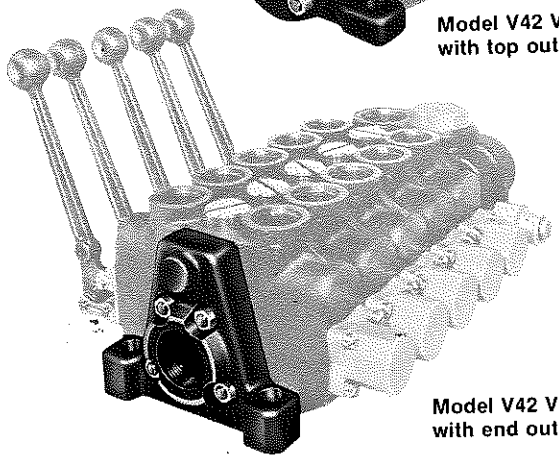
When a system main relief valve is not required, a "No Relief Plug" is installed in the inlet cover. Cover is machined to accept a Model KC or RP60 relief valve if field conversion is required.

GRESEN®

DANA



Model V42 Valve Assembly with top outlet cover.



Model V42 Valve Assembly with end outlet cover.

# OUTLET COVERS

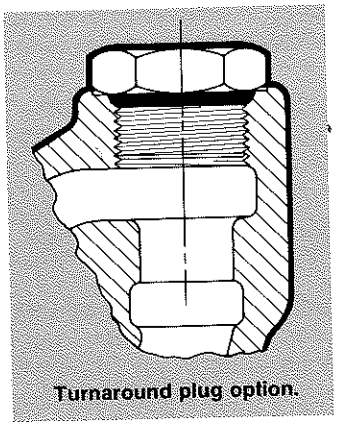
A choice of two outlet covers is offered for the Model V42 Valve Assembly. One has a top outlet port and the other has an end outlet port. Each cover can be machined to provide either closed center or power beyond options. These variations are all accomplished by the machining and/or assembly of the outlet cover. Machining and assembly of the inlet cover and center work sections do not affect these variations. However, if a power beyond port or a closed center option is specified, the outlet port must be located in the inlet cover.

## TOP OUTLET COVER
### Part No. 8090

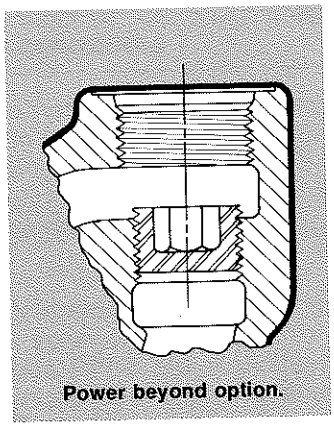
Standard machining provides a top outlet port for open center applications. When the top outlet port is plugged to provide a turnaround outlet flow, the outlet port must be located in the inlet cover.

Two options are available for the no. 8090 top outlet cover . . . power beyond and closed center applications. For power beyond, the core between the open center and exhaust passages is tapped and plugged. The top outlet port becomes the power beyond port. The tank outlet port must be located in the inlet cover.

When the top power beyond port is plugged, the Valve Assembly may be used in a closed center application. For future conversion from standard open center to either power beyond or closed center applications, the outlet cover may be ordered with the core tapped but not plugged (for field conversion machining).



Turnaround plug option.



Power beyond option.

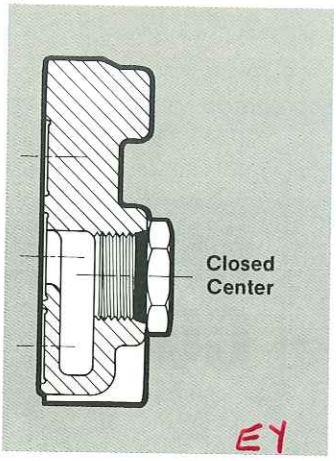
### PORTING OPTIONS AVAILABLE FOR TOP OUTLET COVER, NO. 8090

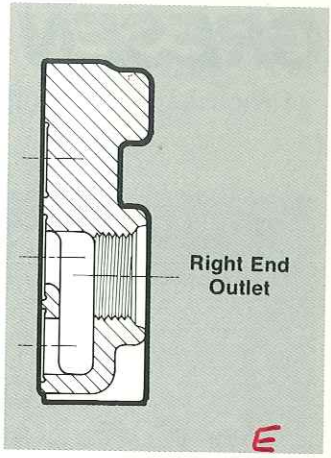
| LOCATION | SAE STRAIGHT THREAD PORTS | | NPT PIPE PORTS | BSP PIPE PORTS |
|---|---|---|---|---|
| | STANDARD | OPTIONAL | OPTIONAL | OPTIONAL |
| TOP OUTLET OR POWER BEYOND PORT | SAE 16 (1-5/16"—12 UN) | NONE | 1"—11-1/2 | 1" BSP |

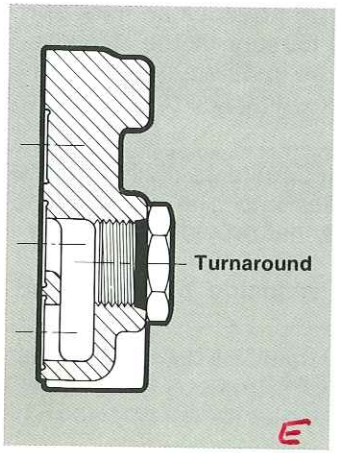
# END OUTLET COVER
## Part No. 8091

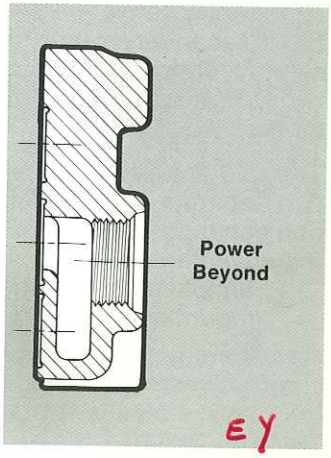
Standard machining provides an end outlet port for open center applications. When the end port is plugged to provide for a turnaround outlet flow, the outlet port must be located in the inlet cover.

Two options are available for the no. 8091 end outlet cover . . . power beyond and closed center applications. When the lower 13/16 inch hole, located on the inside, connecting the open center and exhaust passage is eliminated, the outlet port may be used for power beyond. When the power beyond port is plugged, the cover may be used for closed center applications.




### PORTING OPTIONS AVAILABLE FOR END OUTLET COVER, NO. 8091

| LOCATION | SAE STRAIGHT THREAD PORTS | | NPT PIPE PORTS | BSP PIPE PORTS |
|---|---|---|---|---|
| | STANDARD | OPTIONAL | OPTIONAL | OPTIONAL |
| END OUTLET OR POWER BEYOND PORT | SAE 16 (1-5/16"—12 UN) | SAE 20 (1-5/8"—12 UN) | 1-1/4"—11-1/2 | 1-1/4" BSP |

# APPLICATION VARIATIONS

## Power Beyond

This option allows the installation of another valve downstream from the first valve.

In a power beyond application, the open center core and exhaust core are separated at the outlet cover. This allows hydraulic oil under pressure to be carried thru the upstream valve, thus making it available for a downstream function. A separate tank line is required from each control valve in the circuit.

Hydraulic oil is available to the downstream valve only when all spools in the upstream valve are in the neutral position.

If pressure requirements for both valves are the same, only one relief valve is required. It must be installed in the upstream valve.

Each valve in the circuit may have a different relief setting, but the highest setting must be upstream.

## Open Center

Hydraulic oil is directed from the inlet port, thru the open center core to the outlet port of the Directional Control Valve when all spools are in the neutral position. Shifting the valve spool directs oil flow to the desired work port. The inlet port is open to the tank port. Both work ports are blocked when the control valve spool is in neutral position thereby holding the cylinder or hydraulic motor in position.

## Closed Center

Hydraulic oil flow from the pump is blocked at the power beyond outlet port with valve spools in neutral position.

GRESEN®

DANA

# MID-INLET CONVERSION SECTION

A mid-inlet conversion section provides an inlet port for a secondary pump downstream in the valve assembly. These sections can be installed between any two work sections thereby providing two different flow paths.

The addition of a mid-inlet section actually combines two separate valve assemblies into one giving them one common tank return line that provides the following advantages:

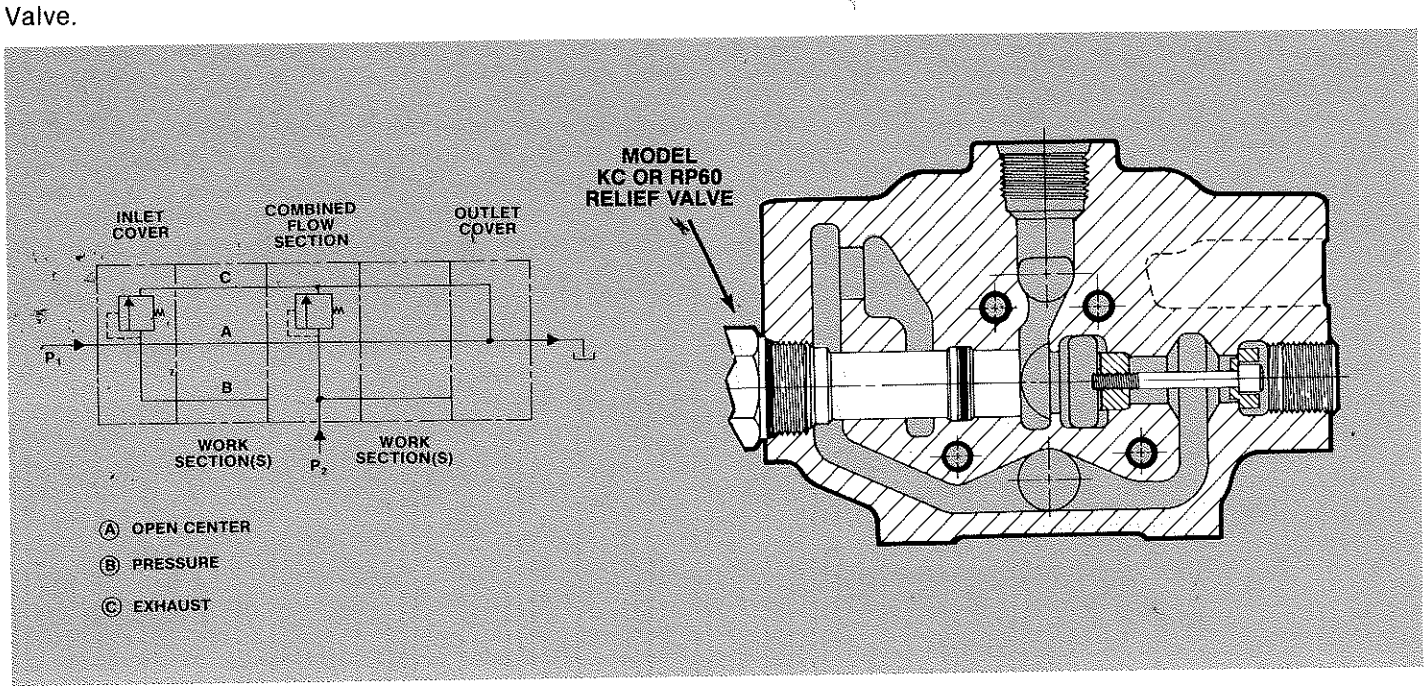
1. Simplifies installation, reducing plumbing and mounting costs.
2. All valve control handles can be mounted within easy reach.
3. Overall assembly costs are lower than for two separate control valves.

Mid-inlet conversion sections are available in the following configurations.

1. Combined Flow Section.
2. Split Flow Section.
3. Two-position Selective Section (combined flow or split flow).

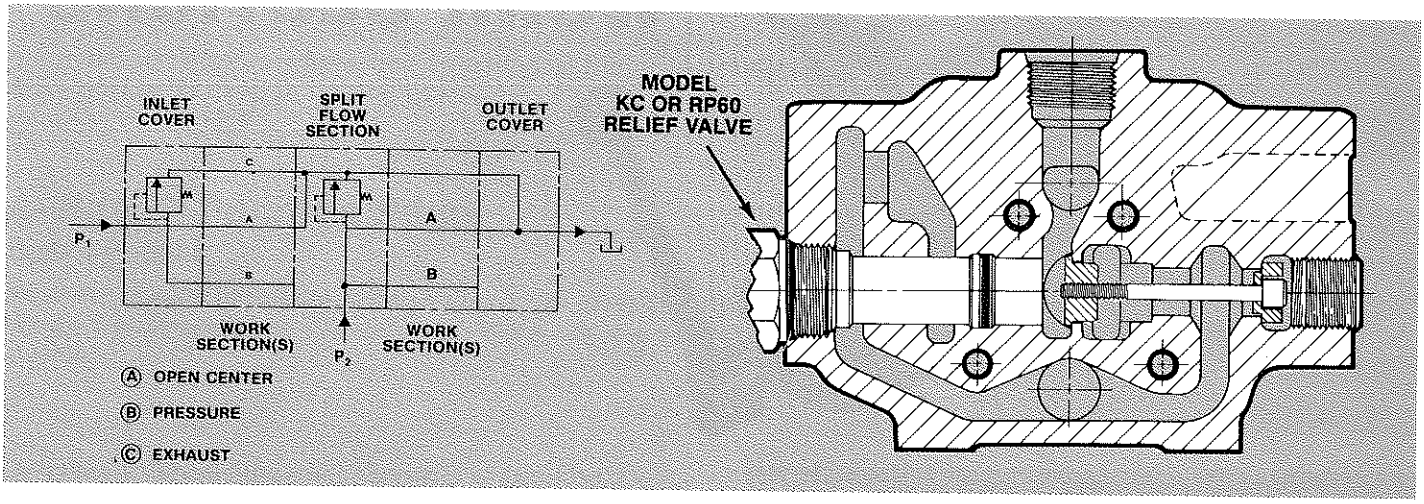
## Combined Flow Section

When upstream work sections are in the neutral position, the combined flow from both pumps is available to the downstream sections. Combined flow of both pumps cannot exceed the flow capacity of the entire Valve.



# Split Flow Section

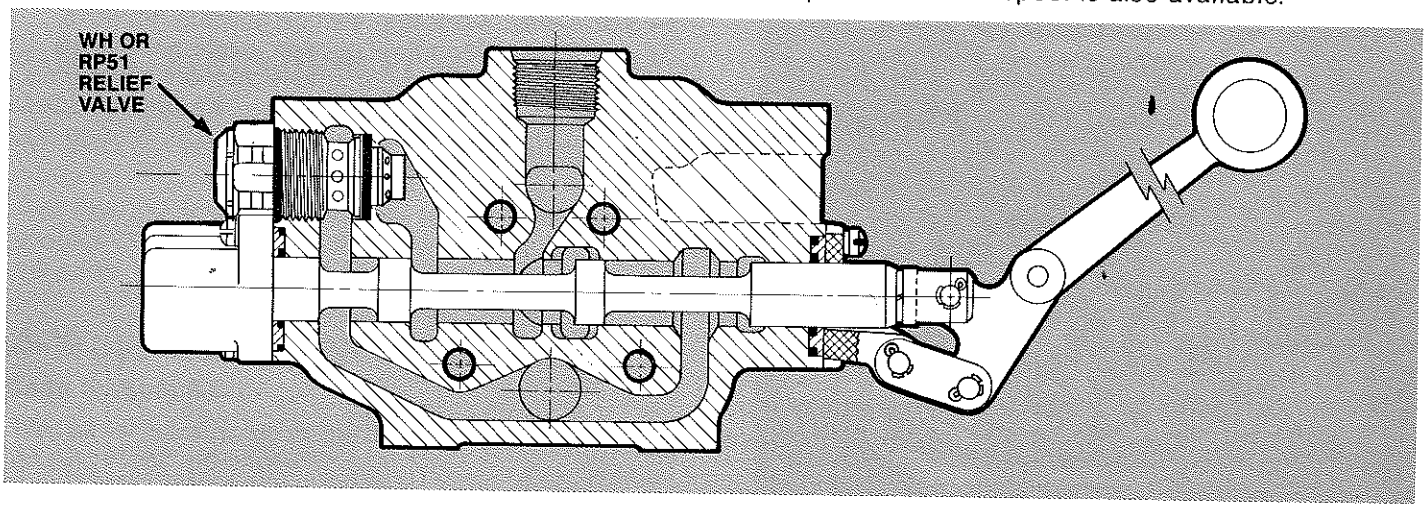
Except for a common tank return passage, the split flow section completely separates upstream and downstream work sections. Upstream sections are fed by the primary pump, downstream work sections by the secondary pump.




# 2-Position Selective Section

## FOR TWO-SPEED OPERATION

The 2-position selective section allows an operator to manually select and operate a work function at two different speeds at system pressure. The section spool can be provided so that it is normally spring-loaded to the split flow position or to the combined flow position. A 2-position detent spool is also available.




# Mid-Inlet Section Relief Valves

Split flow and combined flow mid-inlet sections use the same relief valves as are available for the inlet covers. These are relief valve Models KC and RP60. For information regarding these relief valves, refer to page 4.

The 2-position selective section is machined to accept Model WH differential poppet type relief valves or Model RP51 pilot-operated type relief valves. For information regarding these relief valves, refer to page 16.

## PORTING OPTIONS AVAILABLE FOR MID-INLET CONVERSION SECTIONS

| LOCATION | STANDARD | OPTIONAL |
|---|---|---|
| TOP INLET | SAE 16 (1-5/16"—12UN) | 1"—11-1/2 NPT* 1" BSP |

*Ports with NPT pipe threads are limited to 2000 PSI [136 bar] max.

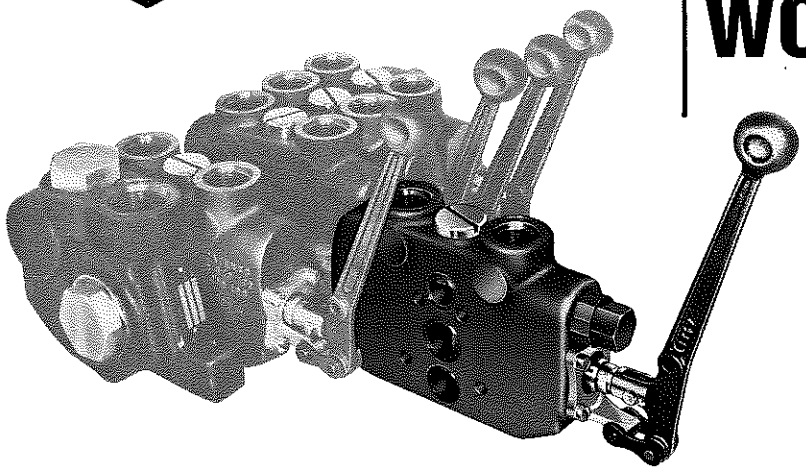
When ordering a mid-inlet conversion section, be sure to specify:

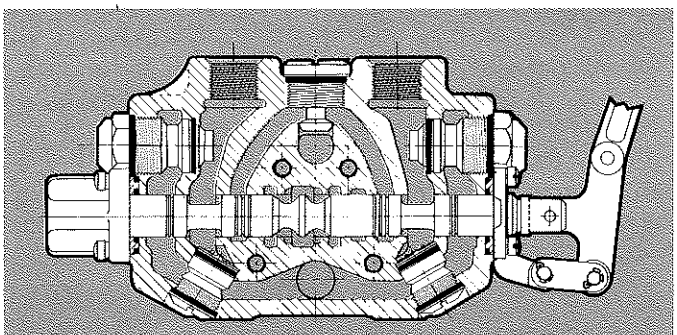
- Port size
- Relief valve type
- Relief valve setting

GRESEN®

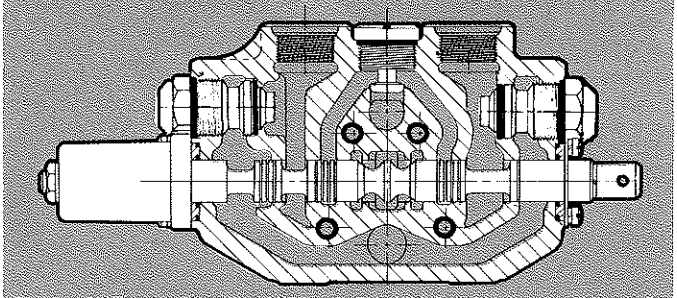
DANA

# WORK SECTIONS

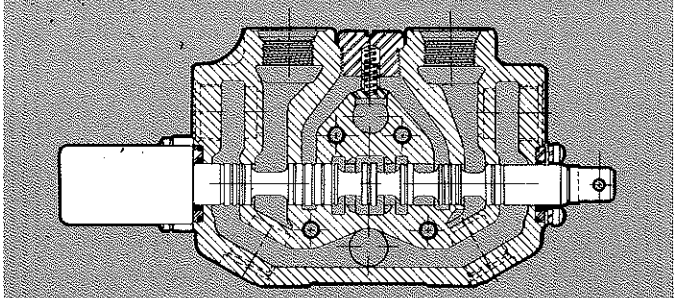




3 OR 4-WAY, 3-POSITION WORK SECTION



4-WAY, 4-POSITION FLOAT WORK SECTION



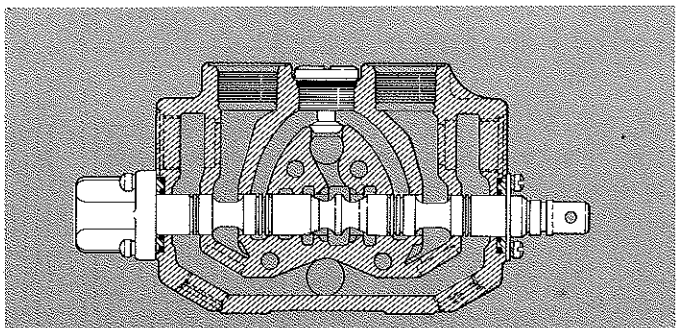
4-WAY, 4-POSITION REGENERATIVE WORK SECTION

Work sections in Gresen's Sectional Body Directional Control Valves are precisely machined from high tensile cast iron housings.

Valve spools may be manually, hydraulically, mechanically or electrically operated. All valve spools are select hone-fitted at the factory for minimum internal leakage and are not field replaceable.

Four types of basic work sections are available:

- 3 or 4-way, 3-position section, casting no. 8045
- 4-way, 4-position float section, casting no. 8046
- 4-way, 4-position regenerative section, casting no. 8138
- 3 or 4-way, 3-position tandem section, casting no. 8675



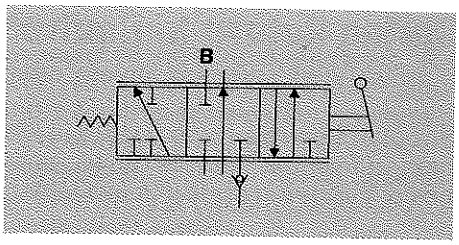
3 OR 4-WAY TANDEM WORK SECTION

# SPOOL VARIATIONS

## 3-Way, 3-Position Spool

**Code Symbol 3**

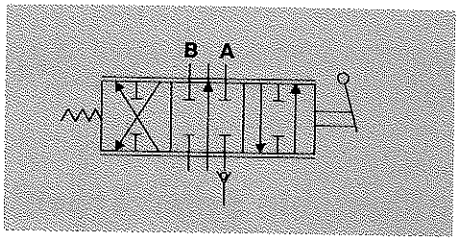
Provides control of single acting cylinders or start and stop of non-reversible hydraulic motors where free-wheeling of motor is not required. The work port is blocked in neutral position.




## 4-Way, 3-Position Spool

**Code Symbol 4**

Provides control of double-acting cylinders or reversible hydraulic motors where free-wheeling is not required. Work ports are blocked in neutral position.



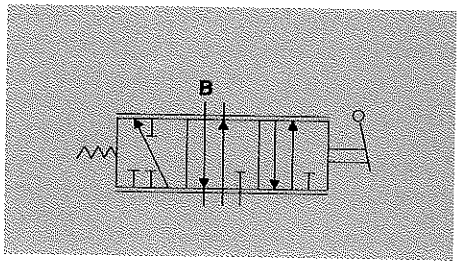

## 3-Way, 3-Position Free Flow Spool

**Code Symbol F3**

Provides control of single acting cylinders or start and stop of non-reversible hydraulic motors.

Allows a cylinder to drift or a motor to coast when the valve spool is in the neutral position.

The work port is open to tank port when the spool is in neutral.

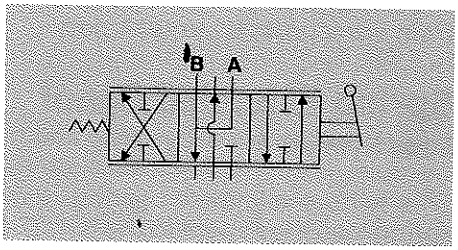



## 4-Way, 3-Position Free Flow Spool

**Code Symbol F4**

Provides for control of double-acting cylinders or reversible hydraulic motors.

Free flow spool allows a cylinder to drift or a motor to coast when the valve spool is in the neutral position. Work ports are open to the tank port when the spool is in neutral.



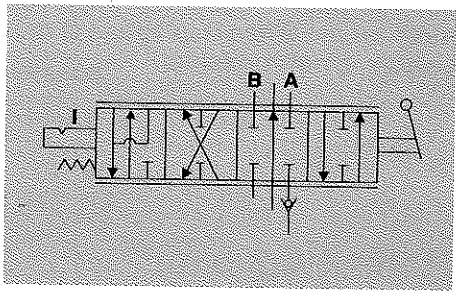

## 4-Way, 4-Position Float Spool

**Code Symbol K4**

This spool is the same as the 4-way, 3-position spool, with the addition of a fourth "Float" position.

This spool is spring-centered to neutral from the "A" or "B" work port power position. The fourth position is the detented "Float" position which allows a cylinder to float or a motor to free wheel.

The handle end must be on the "A" port end of the valve.

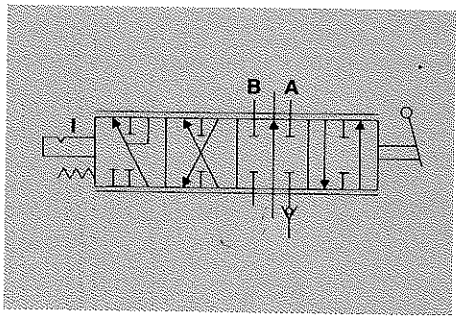



## 4-Way, 4-Position Regenerative Spool

This spool is the same as the 4-way, 3-position spool, with the addition of a fourth "Regeneration" position. The regeneration position (spool out) provides a large volume of oil for fast cylinder action, but with little force. The oil is the combined volume of pump flow and oil returning from the rod end of the cylinder.

The rod area replaces the piston area for working force. Flow is directed thru work port "B" to the cylinder head end.

Spring returns spool to neutral from all positions.

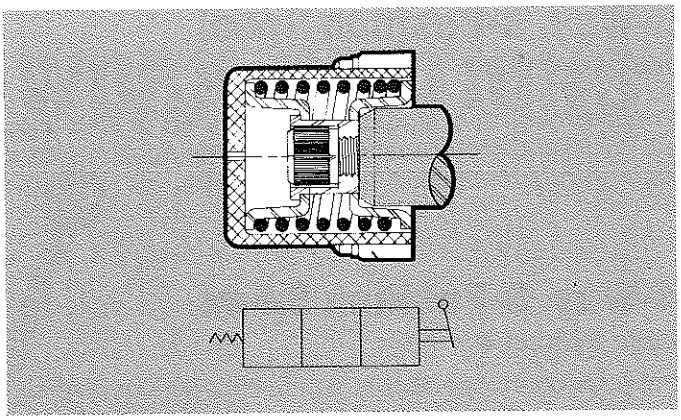


# SPOOL ACTION OPTIONS

## Spring Return to Neutral

(Furnished as standard, unless otherwise specified.)

Spool action has three positions with spring return to neutral from "A" and "B" power positions. An optional heavy centering spring is available.

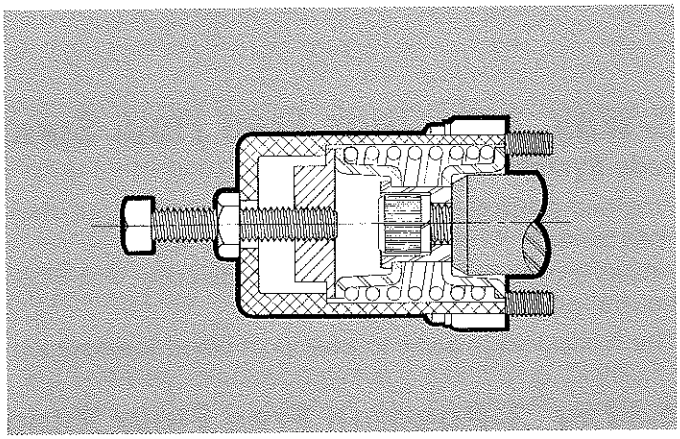


## Adjustable Spool Travel Limiter

### Code Symbol L

With this assembly, the operator may adjust the forward spool travel only (spool "IN") to a very fine degree, allowing a restricted amount of pressurized oil to pass through "A" port of the control valve to the cylinder or motor. This makes possible a regulated speed of operation. Used with standard spring return to neutral assembly or spring extended spool option.

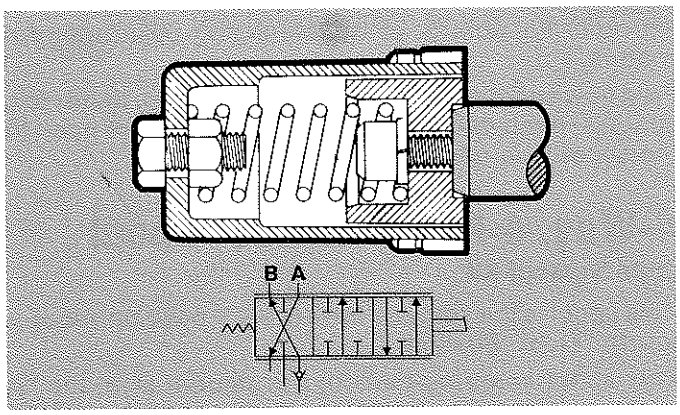
For 3-way (single-acting cylinder) operation, "A" port is plugged and "B" port only is used. Therefore, the spool travel assembly would restrict exhausting oil from work port "B" to tank port.



## Spring Extended Spool

### Code Symbol A

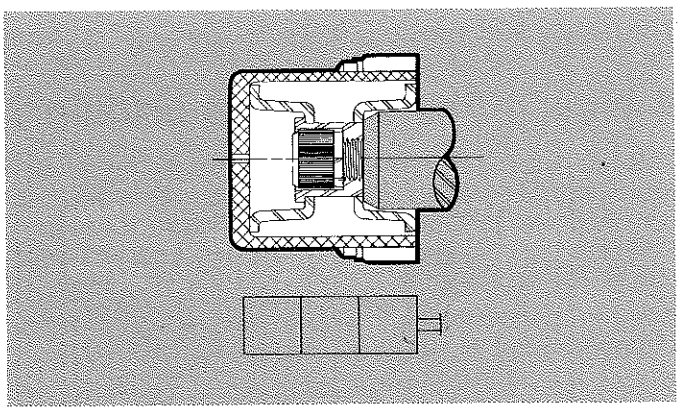
This feature eliminates spring-return to neutral, and spring loads the spool to the "OUT" position only (port "B" power position). Usually used for "Cam-Operation" of spool. Customer must supply cam-follower mechanism. When this option is ordered, a handle assembly is not furnished.




## Manual Actuator

### Code Symbol M

The manual spool permits full spool travel without spring centering or detent assemblies.



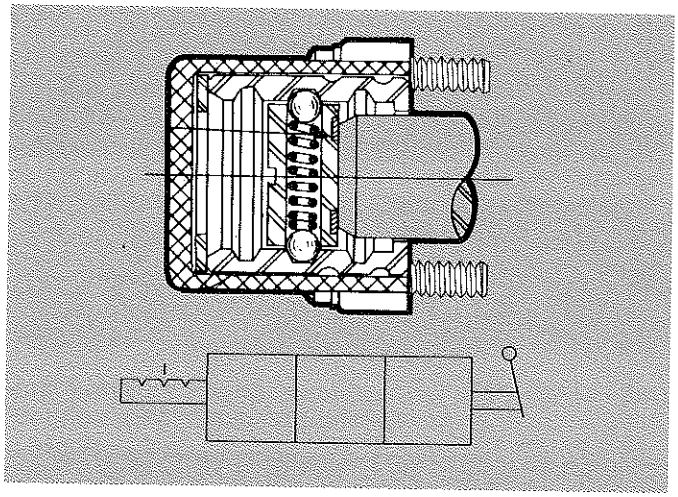
## 3-Position Detent

### Code Symbol D

With this option the valve spool will remain in any of the three detented positions in which it is manually placed. No spring return to neutral.

Detent stop, 6115-001, is available to limit spool travel to neutral and spool "OUT."

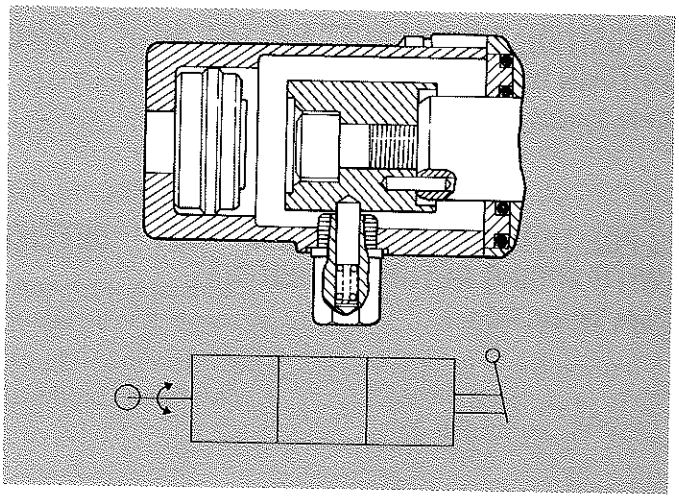
**NOTE:** The detent position is designed to provide operator "FEEL." It is NOT intended for use as a positive spool locking device against excessive external forces or machine vibration.



## Rotary Spool Actuator

### Code Symbol W

With this option, the movement of the spool is controlled by a rotary movement of the handle. Allows for 90° rotation of the spool each direction from center, making 180° total handle rotation with detent position in neutral. There is no spring-centering, therefore the spool will stay in any position placed. Handle assembly option not available with rotary actuator. (Customer must furnish his own handle mechanism.)



## Internal Hydraulic Detent Release

### Code Symbol KO

Automatically returns the spool to a neutral position as soon as the work cycle is completed.

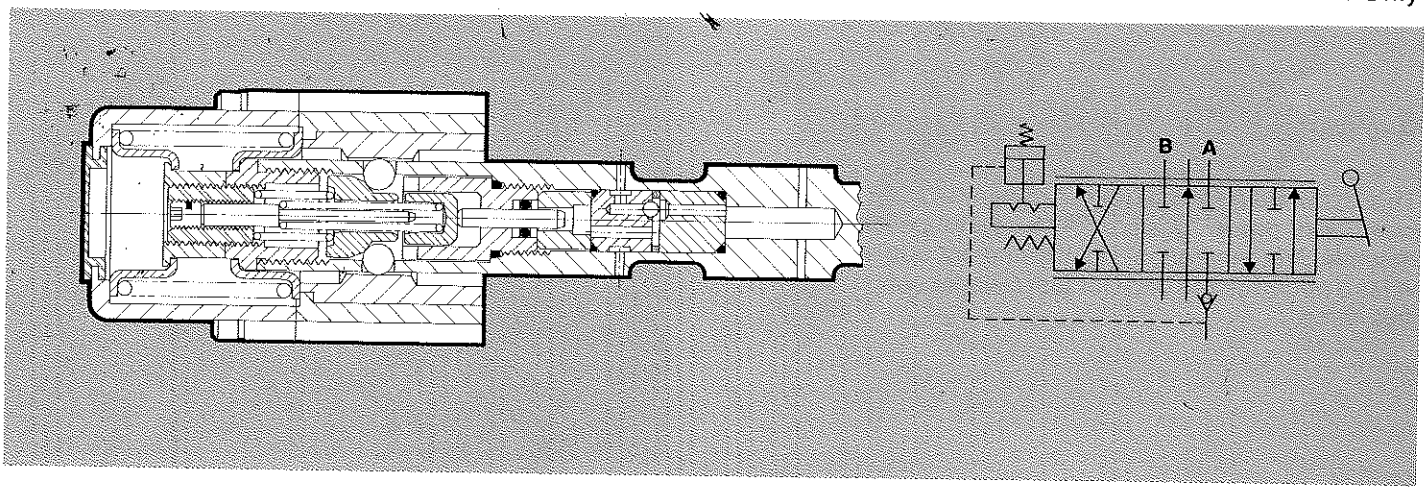
The standard 4-way, 3-position section has a 2-position detent with the spool spring loaded to the neutral position. The spool is held in either power position by the detent assembly. When pressure in the power circuit reaches a predetermined setting, the detent assembly releases and the centering spring returns the spool to neutral. Pressure detent release is field adjustable. Release pressure must be a minimum of 200 PSI [13,6 bar] below main relief setting.

As many valve sections with hydraulic detent release as are required may be assembled into one valve assembly.

Operating Range ..... 300-3500 PSI [20,4-238 bar]

Normal Setting Tolerance ..... ±100 PSI [±6,9 bar]

Handles ..... "A" Port End Only

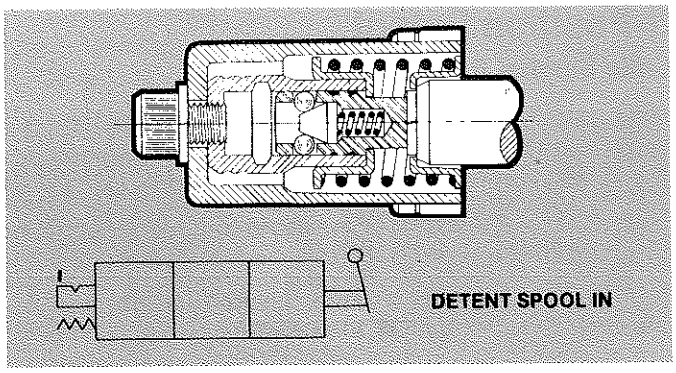


# Optional Spool Detent Positions

## 1-POSITION SPOOL "IN" DETENT WITH SPRING RETURN to NEUTRAL

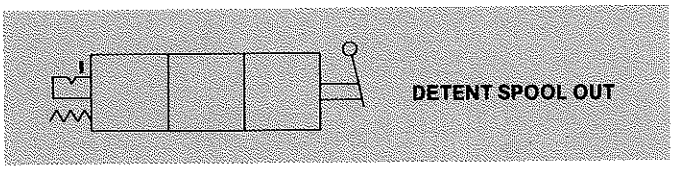
**Code Symbol R**

Work port "B" remains open to tank in detent position. Allows a single-acting cylinder to "Float."



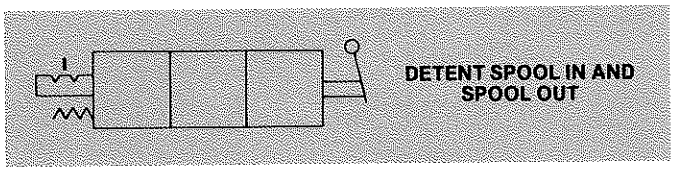

## 1-POSITION SPOOL "OUT" DETENT WITH SPRING RETURN to NEUTRAL

**Code Symbol RO**




## 2-POSITION SPOOL "IN" and "OUT" DETENT WITH SPRING RETURN to NEUTRAL

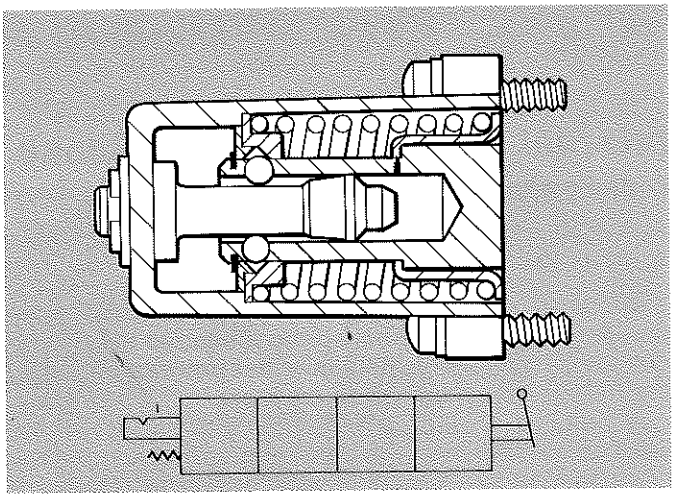
**Code Symbol RIO**




## 4-Position Float Assembly

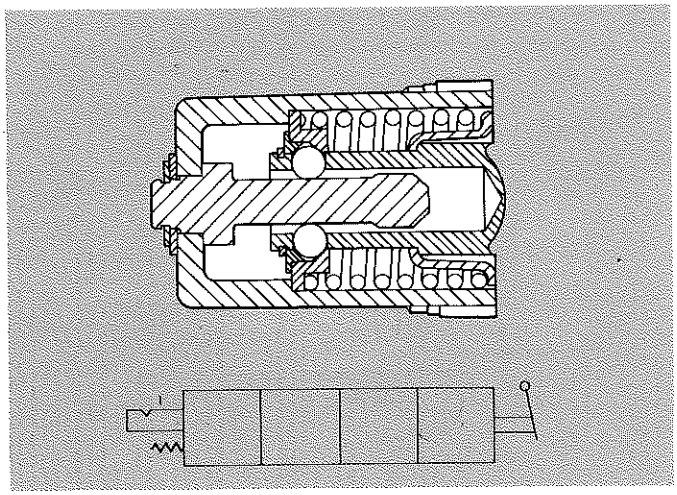
**Code Symbol K4**

This option is spring-centered to neutral from the "A" or "B" work port power position. The fourth position is the detented "Float" position, which allows a cylinder to "Float" or a motor to "Free Wheel."



## 4-Position Regenerative Assembly

This option is spring-centered to neutral from "A" or "B" work port power position. The fourth position is the detented "Regeneration" position (spool out) which provides a large volume of oil for fast cylinder action, but with little force.



# Remote Valve Control

Two remote control capabilities are available for the V42 Directional Control Valve Assembly:

## Hydraulic Control

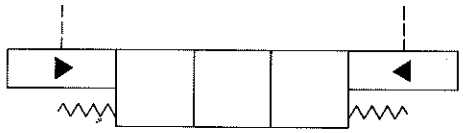
**Code Symbol HR, HRO, and HRH**

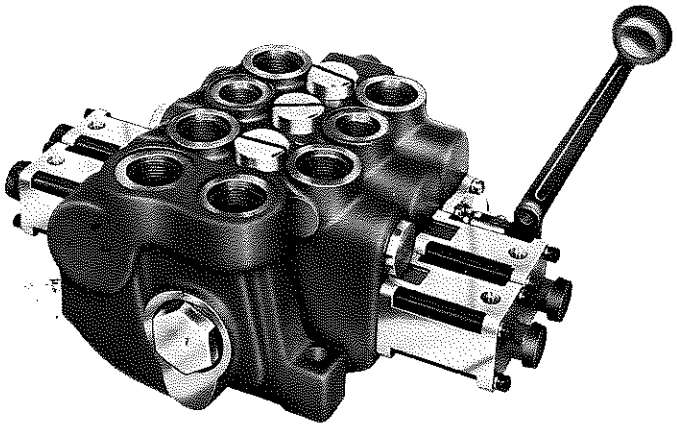
Hydraulic Remote Spool Actuators, Option Code HR, provide for remote operation of the Model V42 Directional Control Valve with two or three-position spools. An external adjustment screw override. Option Code HRO, is available as an option. The screw provides for emergency manual operation in case of pilot pressure failure or permits lowering a load with the pump shut down. A handle override feature is also available. Option Code HRH. This option allows full manual control at the valve with remote hydraulic control at a remote location. This option is ideal for applications where two control stations are required. For more information, request Catalog No. PC-1203.

### HYDRAULIC ACTUATOR

For two or three-position spool functions only. Four-position float operation not available

Max. Pressure Rating ..... 500 PSI [34 bar]
Pilot Pressure to Initiate Spool
Movement ..... 55 PSI [3,8 bar]
Pressure Control Range ..... 55 - 205 PSI
(metering portion of spool stroke) [3,8 - 14,1 bar]
Pilot Pressure to Compensate for
Spring Tension at Full Stroke .... 300 PSI [20 bar]
Pilot Flow ..... 2 to 4 GPM [7.5 to 15 litres/min]



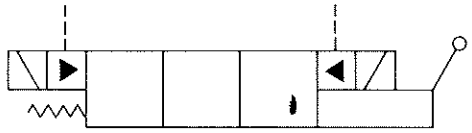


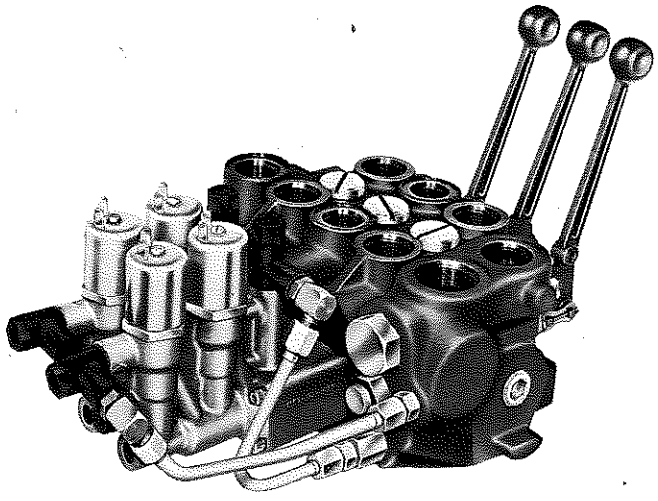
## Solenoid Control

Gresen's on-off, solenoid-controlled, pilot operated actuators are designed to provide remote operation of Model V42 Hydraulic Directional Control Valves. Any 3-position spool will accept a solenoid-controlled actuator. Each valve section may be solenoid-controlled, manually-controlled or both. For more information request Catalog No. PC-1202.

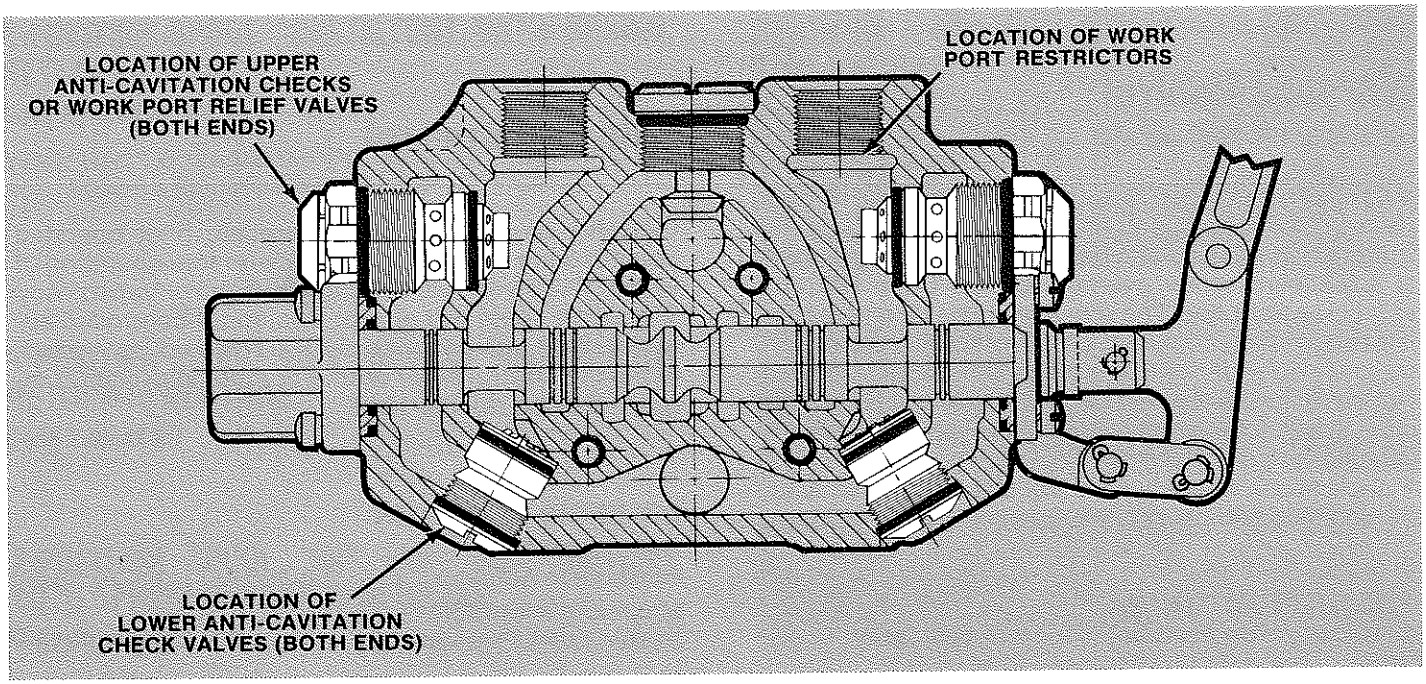
### SOLENOID ACTUATOR

Differential Pilot
Pressure to Actuator ..... 200-300 PSI [13,8-20,7 bar]
Maximum Allowable
System Back Pressure ..... 300 PSI [20,7 bar]
Pilot Flow to Actuator .. 2-4 GPM [7,6-15,1 litres/min]
Solenoid Power Req. ..... 1.7-1.9 amps, 12 VDC
0.6-0.7 amps, 24 VDC





# WORK SECTION RELIEFS, CHECK and RESTRICTORS




Work sections may be machined for work port options in two or four locations

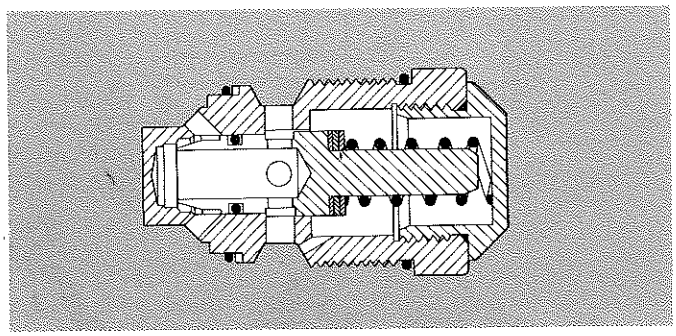
1. Upper locations, both "A" and "B" work ports. Relief valves or anti-cavitation checks may be specified.
2. Lower locations, both "A" and "B" work ports. Only available when upper options are specified. For anti-cavitation checks only.

When machined cavities are not utilized for a port option they are plugged.

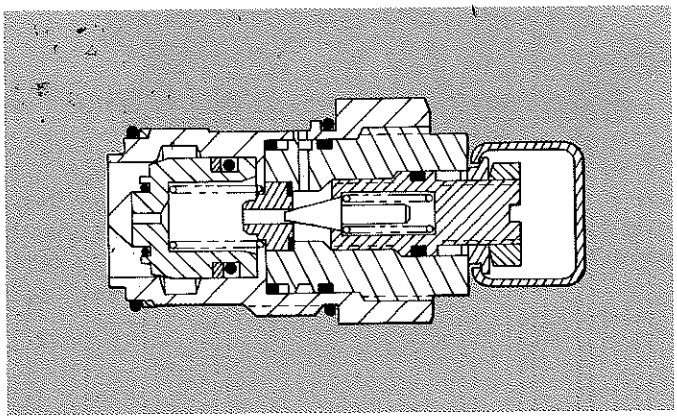
## Work Port Relief Valves

Work port relief valves are installed in the upper optional opening location only. They limit the maximum pressure in that work port. They also prevent pressure build up in a work port when the valve spool is in neutral position.

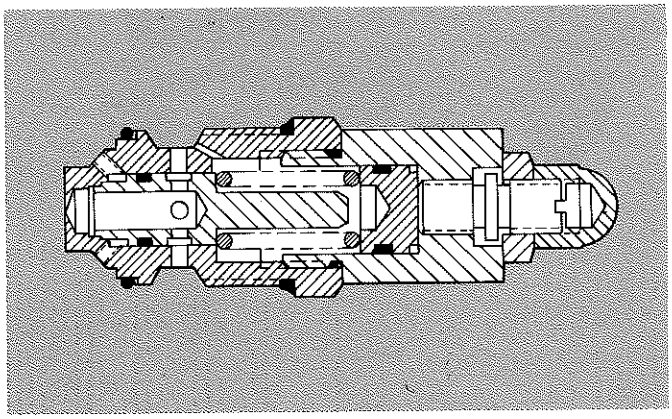
Two work port relief valve models are available: Model WH differential poppet type and Model RP51 pilot-operated type. Both are available in adjustable or non-adjustable configurations.



**Model WH Differential Poppet Type Relief Valve (standard shim-adjustable configuration shown).**



**Model RP51 Pilot-Operated Type Relief Valve (tamperproof configuration shown).**



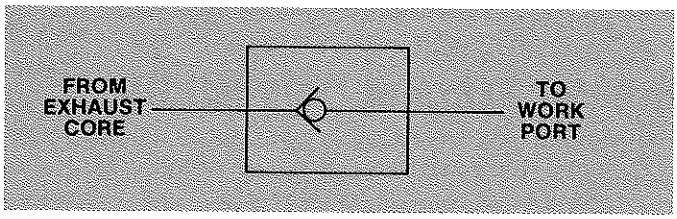
**Model WHA Differential Poppet Type Relief Valve (adjustable configuration shown).**

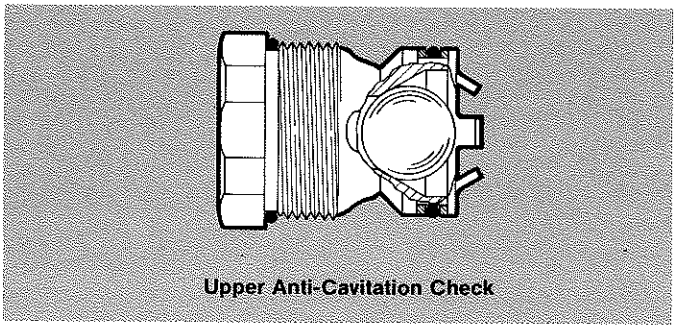
# Anti-Cavitation Checks

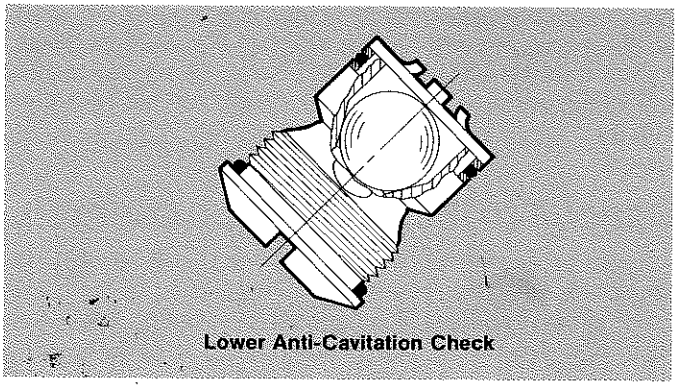
The anti-cavitation check is used in the work section and prevents cylinder or motor cavitation. It allows cavitating work ports to refill from the exhaust core, supplementing pump flow. Anti-cavitation checks are non-adjustable and designed to operate whenever the work port pressure is lower than the exhaust core pressure.

If a relief valve is specified for a work port, the anti-cavitation check will be installed in the corresponding lower optional location. If a relief valve is not specified, the anti-cavitation check will be located in the upper option location.

Both upper and lower anti-cavitation checks can be furnished for the same work port if required.





Upper Anti-Cavitation Check


Lower Anti-Cavitation Check

## PERFORMANCE

| PRESSURE DIFFERENTIAL PSI [bar] | LOWER ANTI-CAVITATION CHECK (Will Pass) GPM [litres/min] | UPPER ANTI-CAVITATION CHECK (Will Pass) GPM [litres/min] |
|---|---|---|
| 10 [,68] | 6.3 [23,8] | 8.7 [32,9] |
| 20 [1,36] | 9 [34,1] | 14 [53,0] |
| 40 [2,72] | 14.6 [55,3] | 25 [94,6] |

# Work Port Restrictors

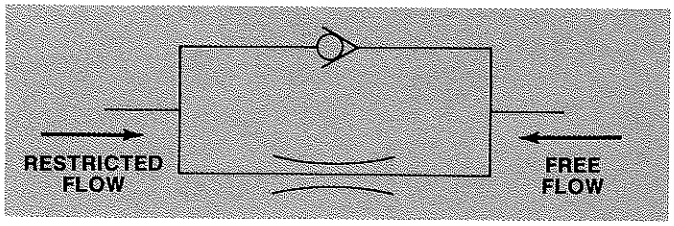
**(For SAE 12 [1-1/16″—12 UN] or SAE 16 [1-5/16″—12 UN] work ports only.)**

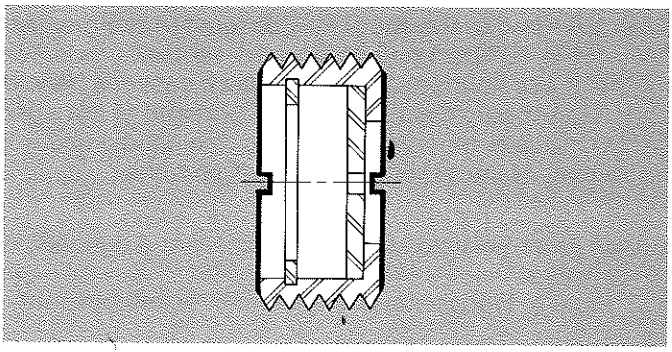
Restrictors may be inserted directly into any work port and will limit oil flow in one direction while allowing free flow in the opposite direction. When restricting flow in the return port, restrictors will:

1. Prevent cylinder or motor cavitation having an inertia load.
2. Provide accurate control of double-acting cylinder by pressurizing both sides of cylinder piston.
3. Restrict oil flow from a hydraulic motor for smoother operation.

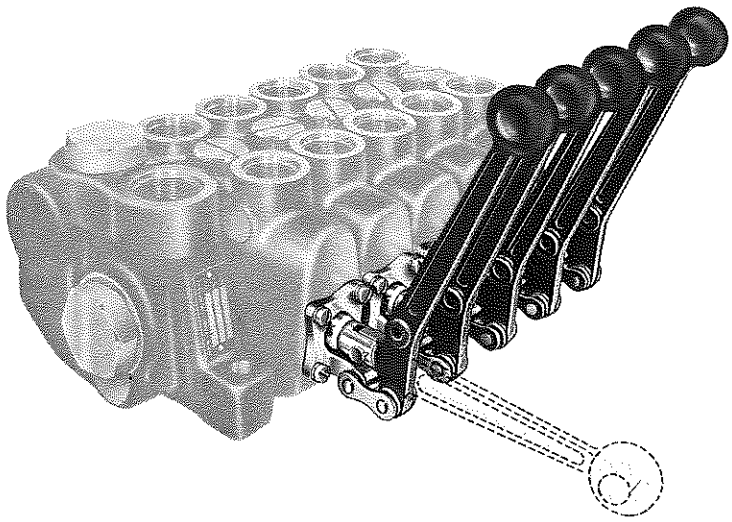
When restricting flow in a pressure port, restrictors will meter oil flow to provide proper speed of operation.

Specify restrictor hole size from .015 to .220 inch diameter and whether restrictor should be installed to restrict flow out of the work port, or into the work port.



# HANDLE-END OPTIONS



The clevis end of the spool may be located at either the "A" port or "B" port end of the work section . . . except for the 4-way float option (K4), in which case the handle end of the spool must be on the "A" port end of the work section. Unless otherwise specified, the handle end will be located at the "A" port end for all sections.

The following handle options are available:

- Complete Vertical Handle and Bracket Assembly (CVHA)
- Complete Horizontal Handle and Bracket Assembly (CHHA)
- Less Handle Only (LHO)
- Less Complete Handle Assembly (LCHA)
- Handle Bracket Only (HBO)

## Complete Handle and Bracket Assembly (CVHA or CHHA)

When handles are required, choose between a vertical and horizontal ductile iron handle.

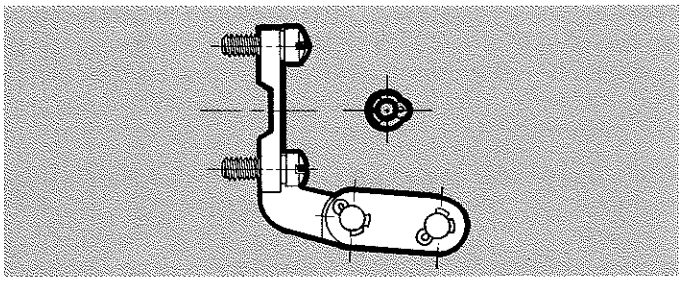
Handles and handle brackets should be specified as follows:

- Vertical Handle Assembly
- Horizontal Handle Assembly
- Handle Bracket Assembly

If a complete handle and bracket assembly is ordered without specifying part numbers for vertical or horizontal handles, a vertical handle will be furnished. The bracket may be rotated 180° to reverse handle movement or allow handle to extend below the valve.

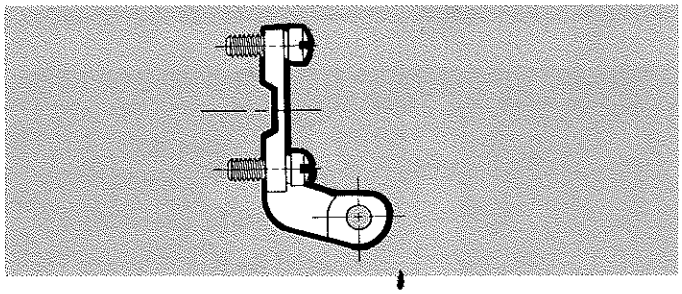
## Less Handle Only (LHO)

When the application requires a complete bracket and linkage assembly, without a handle, then the designation "LHO" should be specified. A die-cast bracket will be furnished as standard. Link assembly is included.



## Handle Bracket Only (HBO)

Handle and link assembly is omitted. Only a bracket is installed. Link assembly is not included.

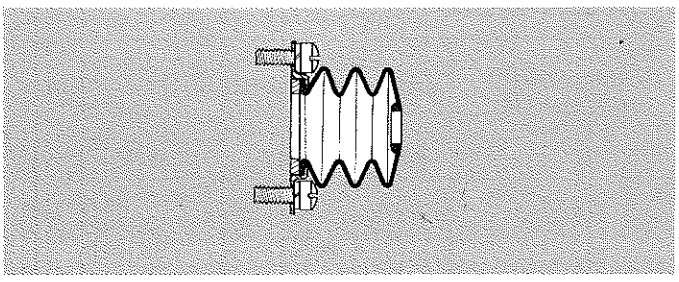


## Less Complete Handle Assembly (LCHA)

When a valve work section is specified to be furnished LCHA, the complete handle and bracket assembly will be omitted. When this is done, a spool seal retainer assembly is installed to hold the spool seal assembly in place.

## Spool Protective Boot Assembly

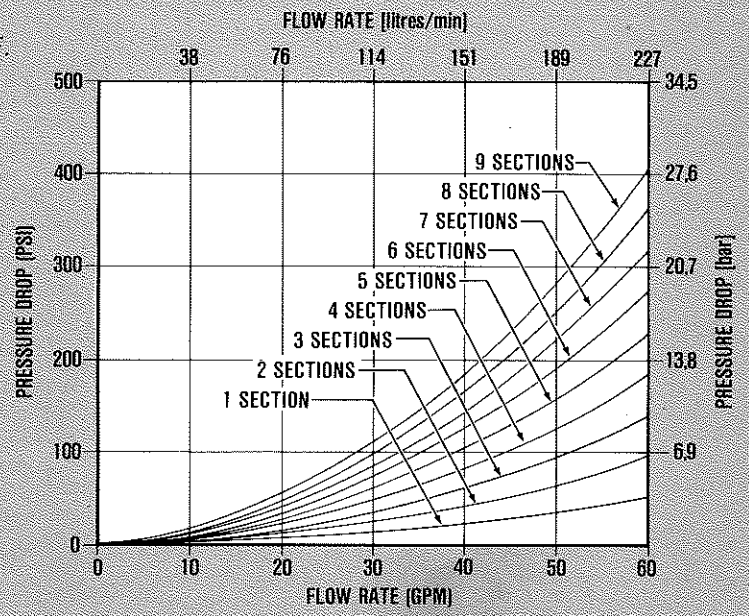
A spool protective boot assembly may be used with the standard retainer assembly. The boot completely covers the spool seal assembly protecting the area from contamination thereby providing longer seal life.



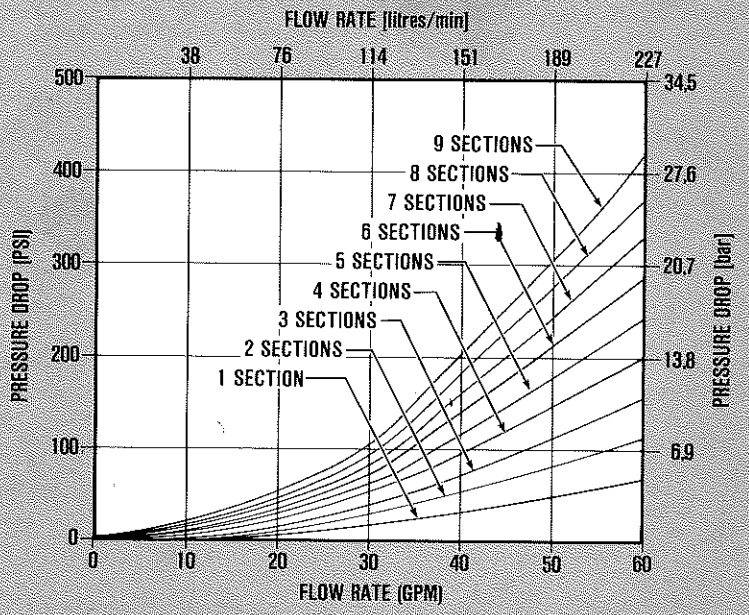
## FLOW RATES and PRESSURE DROP DATA

Curves are typical results derived from actual laboratory tests run with 150 SUS oil, at 100° F. and SAE 16 ports.

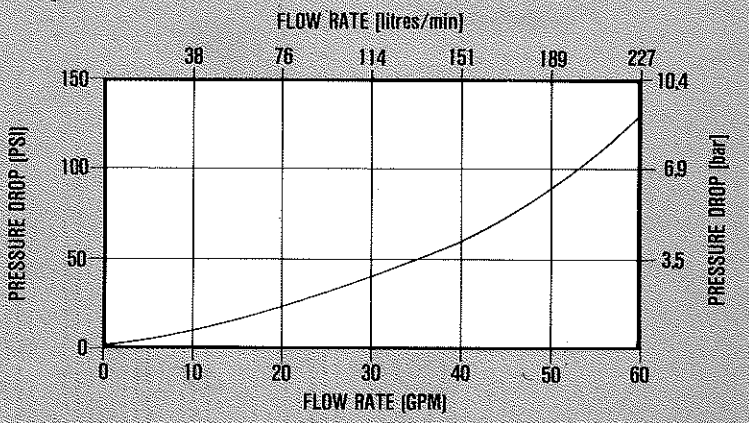
**OPEN CENTER PRESSURE DROP**
VALVE INLET END OPPOSITE OUTLET END



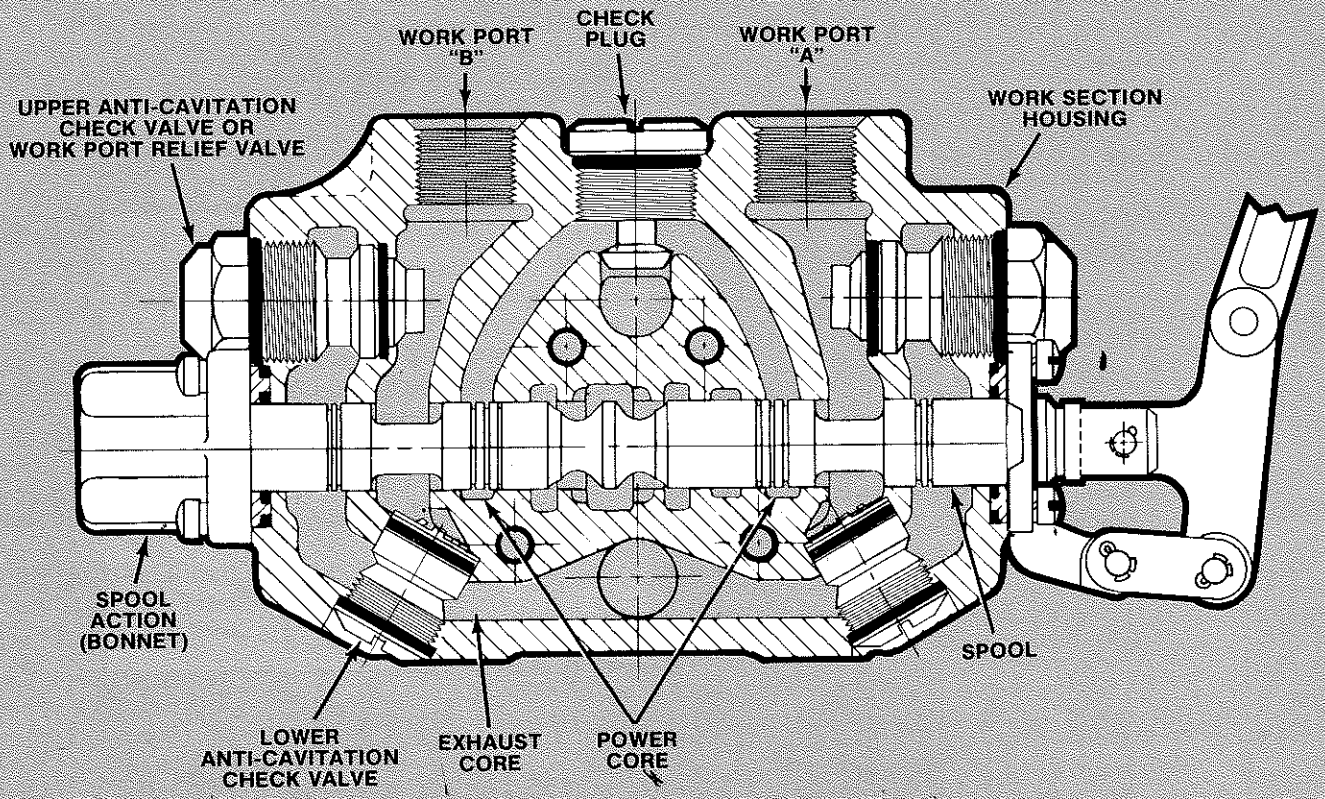

**OPEN CENTER PRESSURE DROP**
VALVE OUTLET ON SAME END AS INLET




**WORK PORT PRESSURE DROP**
INLET TO WORK PORT
OR
WORK PORT TO RIGHT END OUTLET



# ORDERING OPTIONS FOR MODEL V42 WORK SECTIONS



| WORK SECTION HOUSING (PARALLEL CIRCUIT) | PART NO. |
|---|---|
| 3 or 4-WAY, 3-POSITION | 8045 |
| 4 WAY, 4-POSITION FLOAT | 8046 |
| 4-WAY, 4-POSITION REGENERATIVE | 8138 |

| WORK SECTION HOUSING (TANDEM CIRCUIT) | PART NO. |
|---|---|
| 3 or 4-WAY, 3-POSITION | 8675 |

| SPOOL ACTION OPTIONS (BONNET) | ORDER CODE |
|---|---|
| Spring Return to Neutral | Furnished as Standard |
| 3-Position Detent, No Spring Centering | D |
| Detent Stop for Neutral and Spool "OUT" | 6115 Stop |
| Hydraulic Detent Release from "A" or "B" Port | KO |
| Electro-Magnetic Detent Release | E |
| 4-Way, 4-Position Float Spool | K4* |
| Spring Extended Spool | A |
| Manual, Spool, No Spring Centering or Detent | M |
| Rotary Spool Action, Less Clevis | W |
| Spool Travel Limiter, Adjustable | L |
| Solenoid Remote Control (Request Catalog No. PC-1202) | |
| Hydraulic Remote Control (Request Catalog No. PC-1203) | |

*On 4-Way, 4-Position Float Section, handle end must be on "A" port end.

| SPOOL OPTIONS Spool option must be specified | ORDER CODE |
|---|---|
| 3-Way, 3 Position | 3 |
| 4-Way, 3-Position | 4 |
| 3-Way, 3-Position Free Flow | F3 |
| 4-Way, 3-Position Free Flow | F4 |
| 4-Way, 4-Position Float | K4* |

*On 4-Way, 4-Position Float Section, handle end must be on "A" port end.

**HANDLE END OPTIONS**

Handle end may be located at either "A" or "B" port end. "A" port handle location is furnished as standard. Handles and brackets may be rotated 180° from standard shown. Handle options must be specified.

| | ORDER CODE |
|---|---|
| Standard Steel Retainer Assembly | LCHA |
| Vertical Handle | CVHA |
| Horizontal Handle | CHHA |
| Spool Boot Assembly | Spool Boots |
| Less Handle Only — Includes Link Assembly | LHO |
| Handle Bracket Only — Less Link Assembly | HBO |

**WORK PORT SIZE OPTIONS**
(Both ports must be same size)

When a 3-way spool is specified, work port nearest handle is plugged.

| SAE STRAIGHT THREAD PORTS | | NPT* PIPE PORTS | BSP PIPE PORTS |
|---|---|---|---|
| STANDARD | OPTIONAL | OPTIONAL | OPTIONAL |
| SAE 12 (1-1/16"—12 UN) | SAE 16 (1-5/16"—12 UN) | 3/4"—14<br>1"—11-1/2 | 3/4" BSP<br>1" BSP |

*Ports with NPT pipe threads are limited to 2000 PSI [136 bar]

**WORK PORT RELIEF VALVES and ANTI-CAVITATION CHECKS** (Refer to page 16)

The following relief valves and anti-cavitation checks are installed in "A" and/or "B" work ports.

| | ORDER CODE |
|---|---|
| Load Check Assembly (Not provided with free flow spools) | Furnished as Standard |
| Work Port Relief, Diff. Poppet, Shim Adjust. | WH |
| Work Port Relief, Diff. Poppet, Screw Adjust. | WHA |
| Work Port Relief, Diff. Poppet, Non-Adjust. | WHN |
| Work Port Relief, Pilot-Operated, Adjust. | RP51A |
| Work Port Relief, Pilot-Operated, Non-Adjust. | RP51N |
| Anti-Cavitation Check | AC |
| Upper Option Plug | 6119-001 |
| Lower Option Plug | 6120-001 |

Specify pressure setting for all relief valves.

**Standard Buna-N Seals**

All standard Gresen products utilize Buna-N seals which are compatible with petroleum base, water-in-oil emulsions, and water-glycol fluids. Phosphate ester type fire-resistant fluids will cause Buna-N seals to swell. This swelling is not normally detrimental to static seals, but will be a problem for dynamic seals such as valve spool seals. Swelling of these seals can result in binding spools.

**Optional Viton Seals**

Viton seals are recommended for most applications that use phosphate-ester type fluids. Viton seals will not swell when in contact with phosphate-ester type fluids.

# DIMENSIONS: Typical Model V42 Valve Assembly