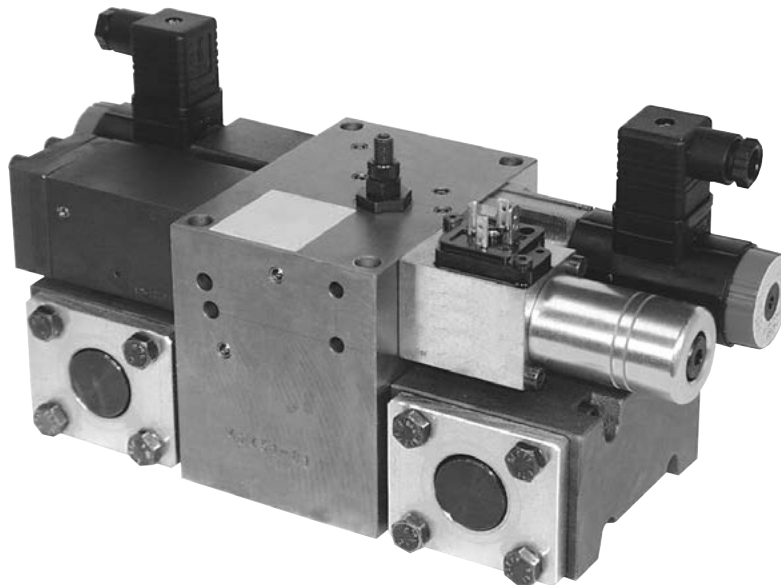




# INSTALLATION MANUAL FOR **MONITORED DUAL-SOLENOID HYDRAULIC VALVE**



**IMPORTANT: PLEASE REVIEW THIS ENTIRE  
PUBLICATION BEFORE INSTALLING, OPERATING,  
OR MAINTAINING THE DUAL VALVE.**

5795 Logistics Parkway • Rockford, Illinois 61109 • Toll-Free 1-800-922-7533 • Phone (815) 874-7891  
Fax (815) 874-6144 • Web Site: [www.rockfordsystems.com](http://www.rockfordsystems.com) • E-Mail: [customerservice@rockfordsystems.com](mailto:customerservice@rockfordsystems.com)

**Manual No. KSL-269**

# TABLE OF CONTENTS

*Monitored Dual-Solenoid Hydraulic Valve*

---

**SECTION 1—IN GENERAL ..... 3-5**

**SECTION 2—VALVE OPERATION..... 6-7**

**SECTION 3—INSTALLATION ..... 8-10**

**SECTION 4—VALVE SPECIFICATIONS ..... 11**

**SECTION 5—RETURN MATERIALS AUTHORIZATION REQUEST FORM & ORDER FORM ..... 12**

### Safety Precautions

#### **DANGER**

**DANGER** indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



This safety alert symbol identifies important safety messages in this manual. When you see this symbol, be alert to the possibility of personal injury, and carefully read the message that follows.

#### **CAUTION**

**CAUTION** used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

Efficient and safe machine operation depends on the development, implementation and enforcement of a safety program. This program requires, among other things, the proper selection of point-of-operation guards and safety devices for each particular job or operation and a thorough safety training program for all machine personnel. This program should include instruction on the proper operation of the machine, instruction on the point-of-operation guards and safety devices on the machine, and a regularly scheduled inspection and maintenance program.

Rules and procedures covering each aspect of your safety program should be developed and published both in an operator's safety manual, as well as in prominent places throughout the plant and on each machine. Some rules or instructions which must be conveyed to your personnel and incorporated in to your program include:

 **DANGER** Never place your hands or any part of your body in this machine.



Never operate this machine without proper eye, face and body protection.



Never operate this machine unless you are fully trained and instructed and unless you have read the instruction manual.



Never operate this machine if it is not working properly—stop operating it and advise your supervisor immediately.



Never use a foot switch to operate this machine unless a point-of-operation guard or device is provided and properly maintained.



Never operate this machine unless two-hand trip, two-hand control or presence- sensing device is installed at the proper safety distance. Consult your supervisor if you have any questions regarding the proper safety distance.



Never tamper with, rewire or bypass any control or component on this machine.

A company's safety program must involve everyone in the company, from top management to operators, since only as a group can any operational problems be identified and resolved. It is everyone's responsibility to implement and communicate the information and material contained in catalogs and instruction manuals to all persons involved in machine operation. If a language barrier or insufficient education would prevent a person from reading and understanding various literature available, it should be translated, read or interpreted to the person, with assurance that it is understood.



**FOR MAINTENANCE AND INSPECTION ALWAYS REFER TO THE OEM'S (ORIGINAL EQUIPMENT MANUFACTURER'S) MAINTENANCE MANUAL OR OWNER'S MANUAL. If you do not have an owner's manual, please contact the original equipment manufacturer.**

# SECTION 1—IN GENERAL

## Monitored Dual-Solenoid Hydraulic Valve

### Safety References

#### OSH ACT AND FEDERAL REGULATIONS

Since the enclosed equipment can never overcome a mechanical deficiency, defect or malfunction in the machine itself, OSHA (Occupational Safety and Health Administration) has established certain safety regulations that the employers (users) must comply with so that the machines used in their plants, factories or facilities are thoroughly inspected and are in first-class operating condition before any of the enclosed equipment is installed.

#### 1. U.S. Government—An Act—Public Law 91-596, 91st Congress, S. 2193, December 29, 1970:

##### Duties

SEC. 5. (a) Each employer—

(1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;

(2) shall comply with occupational safety and health standards promulgated under this Act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

#### 2. OSHA 29 CFR Sections that an employer (user) must comply with include:

1910.211 Definitions.

1910.212 General requirements for all machines.

1910.217 Mechanical power presses.

1910.219 Mechanical power-transmission apparatus.

#### 3. OSHA 29 CFR 1910.147 The control of hazardous energy (lockout/tagout).

#### 4. OSHA Publication

"General Industry Safety and Health Regulations Part 1910," Code of Federal Regulations, Subpart O

This publication can be obtained by contacting:

Superintendent of Documents  
U.S. Government Printing Office  
P.O. Box 371954  
Pittsburgh, PA 15250-7954  
Phone: (202) 512-1800  
Fax: (202) 512-2250  
[www.gpo.gov](http://www.gpo.gov)

#### ANSI SAFETY STANDARDS FOR MACHINES

The most complete safety standards for machine tools are published in the ANSI (American National Standards Institute) B11 series. The following is a list of each ANSI B11 Standard available at the printing of this publication.

B11.1	Mechanical Power Presses
B11.2	Hydraulic Power Presses
B11.3	Power Press Brakes
B11.4	Shears
B11.5	Iron Workers
B11.6	Manual Turning Machines (Lathes)
B11.7	Cold Headers and Cold Formers
B11.8	Milling, Drilling, and Boring Machines
B11.9	Grinding Machines
B11.10	Metal Sawing Machines
B11.11	Gear and Spline Cutting Machines
B11.12	Roll Forming and Roll Bending Machines
B11.13	Automatic Screw/Bar and Chucking Machines
B11.14	Coil Slitting Machines/Systems
B11.15	Pipe, Tube and Shape Bending Machines
B11.16	Metal Powder Compacting Presses (Withdrawn)
B11.17	Horizontal Hydraulic Extrusion Presses
B11.18	Coil Processing Systems
B11.19	Performance Criteria for Safeguarding
B11.20	Safety Requirements for Manufacturing Systems/Cells
B11.21	Lasers
B11.22	CNC Turning Machines
B11.23	Machining Centers
B11.24	Transfer Machines
B11.TR1	Ergonomics
B11.TR2	Mist Control
B11.TR3	Risk Assessment
R15.06	Robotic Safeguarding

These standards can be purchased by contacting:

American National Standards Institute  
25 West 43rd Street  
New York, New York 10036  
Phone: (212) 642-4900  
Fax: (212) 398-0023  
[www.ansi.org](http://www.ansi.org)

OR

AMT—The Association for Manufacturing Technology  
7901 Westpark Drive  
McLean, Virginia 22102  
Phone: (703) 893-2900  
Toll-Free: 1-800-524-0475  
Fax: (703) 893-1151  
E-Mail: [AMT@amtonline.org](mailto:AMT@amtonline.org)  
[www.amtonline.org](http://www.amtonline.org)

(Continued on next page.)

## NATIONAL SAFETY COUNCIL SAFETY MANUALS

Other good references for safety on machine tools are the National Safety Council's Safety Manuals. These manuals are written by various committees including the Power Press, Forging and Fabricating Executive Committee. Copies of the following publications are available from their library:

- Power Press Safety Manual - 5th Edition
- Safeguarding Concepts Illustrated - 7th Edition
- Forging Safety Manual

These manuals can be obtained by contacting:

National Safety Council  
1121 Spring Lake Drive  
Itasca, IL 60143-3201  
1-800-621-7619 ext. 2199  
Fax: (630) 285-0797  
[www.nsc.org](http://www.nsc.org)

## OTHER SAFETY SOURCES

National Institute of Occupational Safety and Health (NIOSH)  
4676 Columbia Parkway  
Cincinnati, OH 45226  
Toll-Free: 1-800-35-NIOSH (1-800-356-4674)  
Phone: (513) 533-8328  
Fax: (513) 533-8573  
[www.cdc.gov/niosh](http://www.cdc.gov/niosh)

## OTHER SAFETY SOURCES (continued)

Robotic Industries Association (RIA)  
900 Victors Way, Suite 140  
P.O. Box 3724  
Ann Arbor, MI 48106  
Phone: (734) 994-6088  
Fax: (734) 994-3338  
[www.roboticonline.com](http://www.roboticonline.com)

NEMA (National Electrical Manufacturers Association)  
1300 North 17th Street, Suite 1847  
Rosslyn, VA 22209  
Phone: (703) 841-3200  
Fax: (703) 841-5900  
[www.nema.org](http://www.nema.org)

NFPA (National Fire Protection Association)  
1 Batterymarch Park  
Quincy, MA 02269-9101  
Phone: (617) 770-3000  
Fax: (617) 770-0700  
[www.nfpa.org](http://www.nfpa.org)

For additional safety information and assistance in devising, implementing or revising your safety program, please contact the machine manufacturer, your state and local safety councils, insurance carriers, national trade associations and your state's occupational safety and health administration.

## Warranty, Disclaimer and Limitation of Liability

### WARRANTY

Rockford Systems LLC warrants that this product will be free from defects in material and workmanship for a period of 12 months from the date of shipment thereof. ROCKFORD SYSTEMS LLC'S OBLIGATION UNDER THIS WARRANTY IS EXPRESSLY AND EXCLUSIVELY LIMITED to repairing or replacing such products which are returned to it within the warranty period with shipping charges prepaid and which will be disclosed as defective upon examination by Rockford Systems LLC. This warranty will not apply to any product which will have been subject to misuse, negligence, accident, restriction and use not in accordance with Rockford Systems LLC's instructions or which will have been altered or repaired by persons other than the authorized agent or employees of Rockford Systems LLC. Rockford Systems LLC's warranties as to any component part is expressly limited to that of the manufacturer of the component part.

### DISCLAIMER

The foregoing Warranty is made in lieu of all other warranties, expressed or implied, and of all other liabilities and obligations on the part of Rockford Systems LLC, including any liability for negligence, strict liability, or otherwise, and any implied warranty of merchantability or fitness for a particular purpose is expressly disclaimed.

### LIMITATION OF LIABILITY

Under no circumstances, including any claim of negligence, strict liability, or otherwise, shall Rockford Systems LLC be liable for any incidental or consequential damages, or any loss or damage resulting from a defect in the product of Rockford Systems LLC.

## SECTION 2—VALVE OPERATION

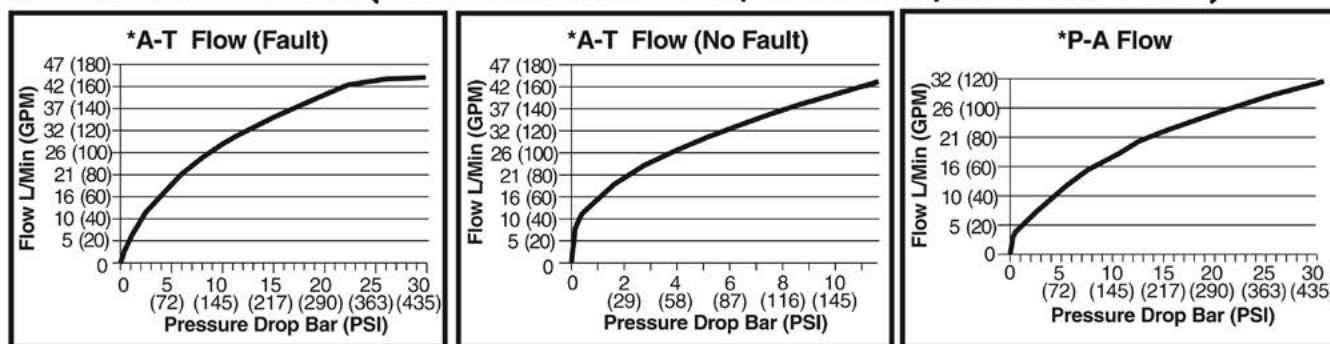
### Monitored Dual-Solenoid Hydraulic Valve

## General Features of the Series IM Valve

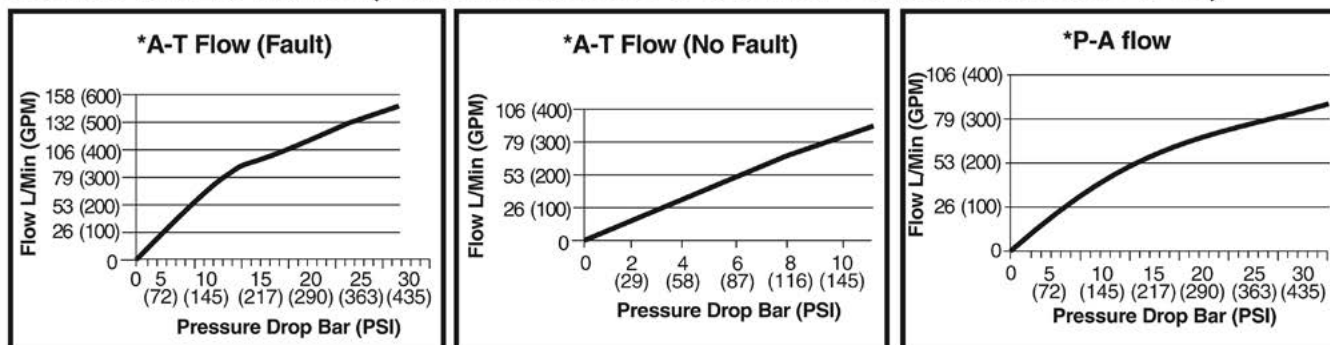
- Superior flow capabilities
- 100% dynamic monitoring
- Automatic lockout upon detection of a fault
- Monitoring during actuation as well as deactuation
- An independent, sole purpose, reset solenoid
- No accidental reset by removal of hydraulic pressure or electrical power
- Two (2) sizes, IM-12 and IM-20

## Performance Graphs

### Series IM-12 Valve (Part Nos. RCD-540, RCD-541, and RCD-542)



### Series IM-20 Valve (Part Nos. RCD-543, RCD-544, and RCD-545)

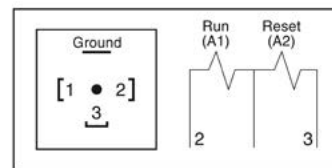
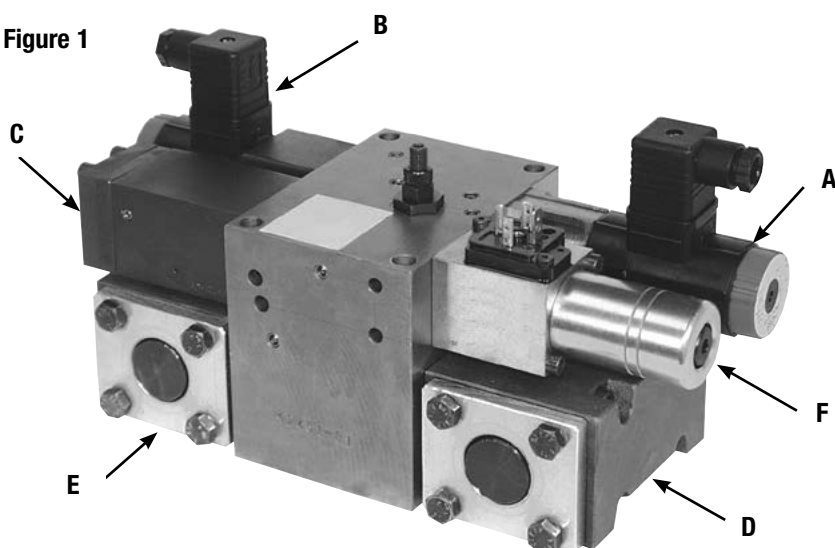


\* P = Pressure — A = Actuator — T = Tank

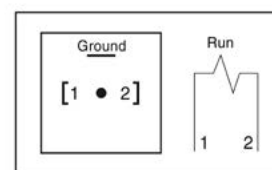
(Continued on next page.)

### Main Components & Valve Wiring

Figure 1



Solenoid A Wiring



Solenoid B Wiring

A—Integral pilot and reset solenoid A (dual-function solenoid with two coils A1 & A2). The pilot solenoid coil A1 is used in conjunction with pilot solenoid B to energize main valve spools. Coil A2 is used solely for reset.

B—Pilot Solenoid B

C—Time differential chamber

D—Main spool valve (hydraulically piloted)

E—Main spool valve 2 (hydraulically piloted)

F—Pressure switch for lockout feedback signal

### NORMAL OPERATION

The general function of the Series IM hydraulic dual valve is that of a 3-way, 2-position (3/2), internally monitored dual-solenoid valve. After installation, the valve is operated by energizing both pilot solenoids simultaneously. This causes both main valve spools to open so that hydraulic fluid flows from valve inlet (port P) to outlet (port A). Deenergizing both solenoids closes both main valve spools. Hydraulic fluid no longer flows from inlet to outlet, but downstream fluid flows from the outlet to the tank port (port T).

### DETECTING A MALFUNCTION

The internal-monitoring design of the valve requires that both main spools shift in unison to allow the flow of hydraulic fluid from inlet to outlet. When the main spools are not shifted in unison, downstream hydraulic fluid is diverted to the system reservoir (tank) via port T. Any time that the main valve elements do not shift in unison, the valve will lock out and further operation of the valve is inhibited until the valve (monitor) is reset.

### RESETTING THE MONITOR

Energizing the reset solenoid actuates the hydraulic reset function.

*Note: The valve is designed so that the reset function will not operate when a run signal is present. The run signal from your control system must be deenergized in order for the reset function to operate.*

### PRESSURE SWITCH

The pressure switch (F) may be installed to provide a signal to the main press controls when the valve has locked out.

## SECTION 3—INSTALLATION

### Monitored Dual-Solenoid Hydraulic Valve

## Valve Installation



**Installation should be performed by persons trained and experienced in hydraulic installations. All wiring should be performed by a qualified electrician.**



**Before servicing a valve or other hydraulic component, be sure all energy sources are turned off, all stored energy is relieved, and all energy sources are locked out (reference OSHA 29 CFR 1910.147).**



**Because any installation can be tampered with or may need servicing after installation, persons responsible for the safety of others or the care of equipment must check every installation on a regular basis and perform all necessary maintenance.**



**The valve should be used within its specifications limits. Failure to follow these directions can adversely affect the performance of the product or result in the potential for human injury.**

*Note: Ensure that all equipment safety requirements are followed during installation and that the hydraulic power source is properly locked out. Follow all valve specifications such as fluid type, fluid temperature, and filtration. After installation, the fluid conditions should be checked on a regular basis and filters changed as recommended by the manufacturer. Good piping practices should be observed to ensure that the system is free from contamination.*

## PIPE SIZING

Pipe, tubing, or hoses should be sized for an appropriate pressure safety factor and should provide for line velocities that adhere to good hydraulic engineering practices. Inlet lines should be sized for flow velocities of 15 to 20 feet per second and the tank line should be sized for a flow rate of 10 to 15 feet per second.

## PIPE INSTALLATION

To install pipe in valve ports, engage pipe one turn, apply pipe thread sealant (tape is not recommended), and tighten pipe. This procedure will prevent sealant from entering and contaminating the valve. Use tube and fittings which are compatible with the porting of the sub-base.

## VALVE TO BASE INSTALLATION

After piping to the sub-base is completed, apply a light coating of oil to the valve mounting surface. Also, apply a light coating of grease to the interface O-rings to help hold them in their recesses during installation. Evenly torque the valve mounting bolts to 17.7 ft-lb (24 Nm) for Series IM-12 valves and 61 ft-lb (83 Nm) for Series IM-20 valves.

## TANK LINE PORT

Do not restrict the flow from the tank port as this can adversely affect the operation of the clutch. The tank line should be kept as open as possible with a limited amount of fittings to reduce back pressure. Fluid-conditioning devices (filters or heat exchangers) must never be placed in the tank line.

## CHECK VALVE

For applications where the hydraulic power source is located lower than the piping system, it is recommended to install a back-pressure check valve in the tank line as close as possible to the tank to prevent draining of the tank line when the valve is not in operation. This check valve should have a cracking pressure of 3 psi and should be properly sized so as not to restrict flow to the tank during valve operation.

## ELECTRICAL SUPPLY

Wire the valve in accordance with your press schematics. The reset signal should be provided by a key-operated electric switch.

The voltage of the valve solenoids are shown on the pilot housing. The electrical supply must correspond to these ratings. Otherwise, the solenoids are subject to early failure. See page 11 for information on power consumption.

## OPERATING PRESSURES AND TEMPERATURES

See page 11 for allowable ranges for pressure and temperatures. Exceeding the values listed can shorten the valve life and possibly cause personal injury and equipment damage.

## BLEEDING LINES

After installation is complete, the system must be bled of all air following established hydraulic procedures and the recommendations of the clutch and power unit manufacturers. Before beginning, apply pressure to the system and then apply and remove the reset signal to the valve to ensure it is ready for normal operation. When required by the

*(Continued on next page.)*



### BLEEDING LINES (continued)

bleeding procedures, apply the run signal to shift the valve and to supply oil to the clutch forcing the air out. It is likely that the valve will lock out during this operation because of entrapped air. If a lockout occurs, remove the run signal. Continue to exercise the valve in this manner until all of the air is removed.

### TEST PROCEDURE

After installation and prior to normal use, the Series IM valve must be tested for proper functioning. Take normal press operation safety precautions during these tests to avoid personal injury or damage to equipment. Perform this test after following the recommended procedures of the press manufacturer.

1. Disconnect one of the pilot valve electrical connectors and apply a run signal to the valve. There should be no pressure applied to the clutch and, if the pressure switch is installed, a fault signal should be present at the main press controls.
2. Remove the run signal and reattach the electrical connector. Reapply the run signal and again there should be no pressure applied to the clutch and, if the pressure switch is installed, a fault signal should still be present at the main press controls.
3. Remove the run signal and electrically reset the valve by energizing the reset solenoid.
4. Reapply the run signal. Pressure should be present at the clutch and there should not be a fault signal present.
5. Disconnect the other pilot valve electrical connector and repeat steps 1 through 4, then proceed to step 6.
6. With the clutch engaged, disconnect one of the pilot valve electrical connectors simulating a fault condition occurring upon sending a stop signal to the valve. There should be no pressure at the clutch and, if the pressure switch was incorporated in the valve, a fault signal should be present at the main press controls.
7. Reattach the electrical connector. There should still be no pressure at the clutch.

8. Remove the run signal and electrically reset the valve by energizing the reset solenoid. There should be no pressure at the clutch and no fault signal present.

9. Reapply the run signal. Pressure should now be present at the clutch and no fault signal present.

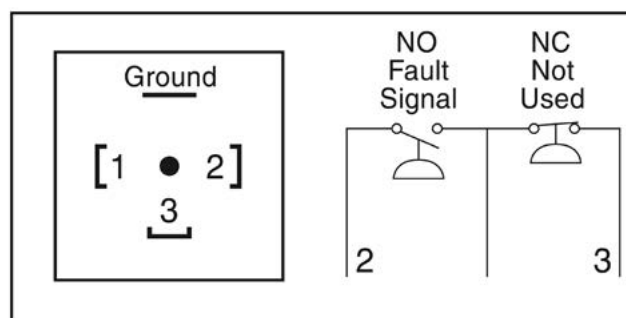
10. Disconnect the other pilot valve electrical connector and repeat steps 6 through 9.

If the valve fails to perform as described above, ensure that all installation procedures were properly followed. Otherwise, after satisfying these tests, energizing both run solenoids simultaneously should result in normal valve operation.

### PRESSURE SWITCH INSTALLATION

Refer to Figure 1 on page 7 for switch location. Remove the port plug installed at the factory and with the switch oriented so that the terminal plug is facing up, attach the switch with the provided bolts. Evenly torque the bolts to 71 in-lb (8 Nm). The pressure switch should be wired using the normally open contacts (terminal 1 and 2). A fault condition will be indicated to the control system by the absence of a signal. The pressure switch setpoint is adjustable. Adjust the setpoint by turning the bolt located in the end of the housing. Turn the bolt counterclockwise to lower the setpoint and turn it clockwise to increase the setpoint. The switch should be set to change state at a pressure between 45 and 70 psig (3 to 5 bar). Adjusting the setpoint of the pressure switch can be done at the time of system start up by controlling the inlet pressure while adjusting the switch.

**Figure 2**  
**Pressure Switch Wiring**



## SECTION 3—INSTALLATION

### Monitored Dual-Solenoid Hydraulic Valve

## Other Installation Considerations

### FLUID AND FILTRATIONS

Contamination is present in virtually every hydraulic system. Although some valves are more tolerant of these contaminants than others, best performance will be realized if a filter is installed to clean the hydraulic supply, thus preventing contaminants from interfering with the proper performance of the equipment. We recommend a filter with a 25-micron rating for normal applications.

Only use petroleum based fluids with a viscosity range of 100 to 300 mm<sup>2</sup>/sec. the system should be designed to maintain the pressure between 220 and 2350 psig (15 and 160 bar) with a cooling system to maintain the fluid temperature between 50° and 158°F (10° and 70°C)

### AVOID INLET AND RETURN RESTRICTION

Do not restrict the hydraulic flow in the supply line. To do so could reduce the pressure of the supply oil below the minimum requirements for the valve and thereby cause erratic action.

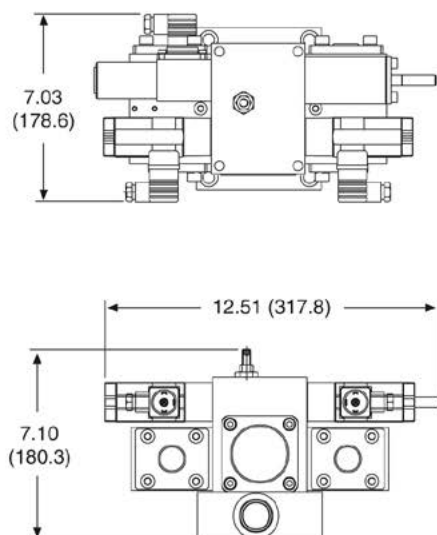
Do not restrict return-line flow as this can adversely affect the stopping performance of the press. Return-line piping should be sized to maintain proper fluid velocity with a minimum number of fittings and as short a tubing length as possible—refer to NFPA guidelines. For faster pressurizing and exhausting of the mechanism being operated by the valve, locate the valve as close as possible to the mechanism.

### POWER PRESSES AND HAZARDOUS MACHINERY

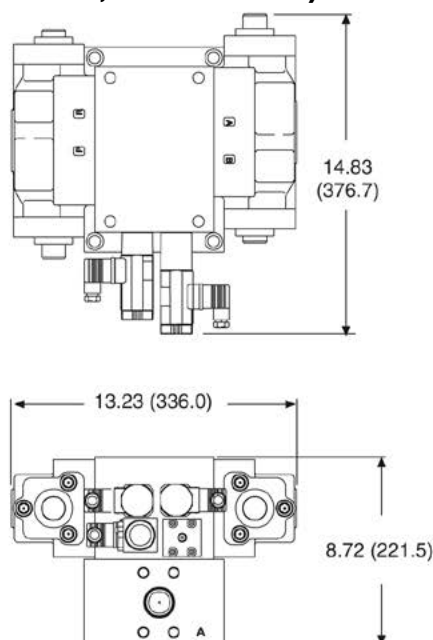
Hydraulic power presses as well as other hazardous machinery must use a redundant valve with a monitoring device. A redundant valve without a self-contained monitoring device should be used only in conjunction with a control system which assures monitoring of the valve. all dual-valve installations involving hazardous applications should incorporate a monitoring system which inhibits further operation of the valve and machine in the event of a failure within the redundant valve mechanism.

## Valve Dimensions inches (mm)

### SERIES IM-12 (PART NOS. RCD-540, RCD-541, AND RCD-542)



### SERIES IM-20 (PART NOS. RCD-543, RCD-544, AND RCD-545)



## SECTION 4—VALVE SPECIFICATIONS

*Monitored Dual-Solenoid Hydraulic Valve*

Valve Type/Size	SERIES IM-12			SERIES IM-20		
Part No./Port Size	RCD-540 ½" Port	RCD-541 ¾" Port	RCD-542 1" Port	RCD-543 1" Port	RCD-544 1¼" Port	RCD-545 1½" Port
Type Monitoring	100% dynamic internal					
Reset Type	Discrete dedicated function solenoid					
Possible False Reset by Removing Pressure	No					
Possible False Reset by Removing Electric	No					
Monitoring Directions	Energize and Deenergize					
Type Mounting	Subplate					
Mounting Position	Unlimited—No Restrictions					
Valve Function	3/2 Normally Closed					
Directions of Flow	P to A and A to T					
Weight (Valve Only)	37 lb (17 kg)			108 lb (49 kg)		
Ambient Temperature Range	-4° to 122°F (-20° to 50°C)					
Max. Oper. Pressure (Standard)	2,350 psi (160 Bar)					
Min. Oper. Pressure (Standard)	220 psi (15 Bar)					
Fluid Temperature Range	50° to 158°F (10° to 70°C)					
Fluid Type	Petroleum Based					
Fluid Viscosity Range (Kinematic)	100-300 mm²/sec					
Flow Capabilities	Refer to Flow Charts on page 6					
Inlet Flow at 30 Bar Pressure Drop	31 GPM (118 Liters/Min.)			81 GPM (310 Liters/Min.)		
Return Flow Fault Mode at 20 Bar Pressure Drop	39 GPM (147 Liters/Min.)			116 GPM (440 Liters/Min)		
Max. Return Flow Without Malfunction	104 GPM Normal Mode (395 L/Min.) 75 GPM Fault Mode (285 L/Min.)			in Excess of 317 GPM (1,200 Liters/Min.) in Excess of 237 GPM (900 Liters/Min.)		
Internal Leakage—Valve Not Energized	0.01 in³ (170 mm³/min @ 160 Bar) 0.03 in³ (60 mm³/min @60 Bar)			0.12 in³ (2,000 mm³/min. @ 160 Bar) 0.045 in³ (750 mm³/min @60 Bar)		
Internal Leakage—Valve Energized	0.026 in³ (420 mm³/min @ 160 Bar) 0.006 in³ (100 mm³/min @60 Bar)			0.12 in³ (2,000 mm³/min. @ 160 Bar) 0.045 in³ (750 mm³/min @60 Bar)		
Valve Overlap	Positive					
Control Volume	0.14 in³ (2.3 cm³)			0.19 in³ (3.2 cm³)		
Recommended Filtration	25 Micron					
Seals	Buna					
Rated Voltage	24 V DC or 110/50 110/60 V AC					
Inrush Solenoid Power	DC=18.6 W AC=58 VA					
Holding Power	DC=18.6 W AC=30 VA					
Switching Time On	DC=29 ms AC=19-28 ms			DC=33 ms AC=22-32 ms		
Switching Time Off	DC=10 ms AC=8-19 ms			DC=15 ms AC=13-24 ms		
Number of Switches Per Hour	DC=60,000 AC=50,000					
Relative Duty cycle	100%					
Electrical Connection (Solenoids)	DIN 43650					
Electrical Connection (Switches)	DIN 43650			M12 x 1 (micro) 4 pin		
Solenoid Enclosure Rating	IP 64					

## SECTION 5—RETURN MATERIALS AUTHORIZATION & ORDER FORM

*Monitored Dual-Solenoid Hydraulic Valve*

### RETURN MATERIALS AUTHORIZATION REQUEST FORM

To return material for any reason contact the sales department in our organization at our organization at 1-800-922-7533 for an RMA number. All return materials shipments must be prepaid. Complete this form and send with material to Rockford Systems LLC, 5795 Logistics Parkway, Rockford, Illinois 61109. Make sure the RMA number is plainly identified on the outside of the shipping container.

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

Contact Name \_\_\_\_\_ Representative \_\_\_\_\_

**Items Authorized To Return on RMA No.** \_\_\_\_\_ **Original Invoice No.** \_\_\_\_\_ **Date** \_\_\_\_\_

Part No.	Serial No.	Description
_____	_____	_____
_____	_____	_____
_____	_____	_____

**Service Requested:** ☐ Full Credit ☐ 25% Restocking ☐ Repair & Return ☐ Warranty Replacement

Reason for return (describe in detail):

\_\_\_\_\_

\_\_\_\_\_

Original Invoice No. \_\_\_\_\_ Date \_\_\_\_\_ Replacement Invoice No. \_\_\_\_\_ Date \_\_\_\_\_

Return Materials Authorized By \_\_\_\_\_ Date \_\_\_\_\_

### ORDER FORM FOR SIGNS AND LITERATURE

This instruction manual references signs and literature available for your machines. This order form is for your convenience to order additional signs and/or literature as needed. (This order form is part of your installation manual so please make a copy of it when ordering.)

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

Name \_\_\_\_\_ Purchase Order No. \_\_\_\_\_ Date \_\_\_\_\_

Part No.	Description	Quantity Required
KSL-269	Installation Manual	_____
KSC-000	Operator Safety Precautions Sign	_____
KSC-054	Danger Sign—5" x 6" (English)	_____
KSC-054S	Danger Sign—5" x 6" (Spanish)	_____
KSC-054F	Danger Sign—5" x 6" (French)	_____
KSC-055	Danger Sign—5" x 6" (English)	_____
KSC-055S	Danger Sign—5" x 6" (Spanish)	_____
KSC-055F	Danger Sign—5" x 6" (French)	_____
FAB	Catalog—Controls and Safeguarding for Fabricating Machines	_____

For prices and delivery, please use the address, phone, or fax number listed on the front cover of this manual.

Your Signature \_\_\_\_\_ Date \_\_\_\_\_