Rotary Plug Valve

INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS

Your Source for Bulk Handling/Air Process Equipment

Wm. W. Meyer & Sons, Inc.
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SECTION I

SAFETY PRECAUTIONS

WARNING: TO THE OWNER, AND INSTALLATION, OPERATION AND MAINTENANCE PERSONNEL

The safety of the operator and those people that may come into contact with the Rotary Plug Valve is of great importance to Wm. W. Meyer & Sons, Inc (“Meyer”). The decals, shields, guards and other protective features designed, furnished or recommended for this machine are there for your protection. BEFORE attempting to install, operate or perform maintenance on this Equipment READ carefully and UNDERSTAND all safety instructions contained in this Installation, Operation, and Maintenance Instructions in addition to all applicable government safety/health laws and regulations and generally recognized industrial standards. The operation and maintenance of this Rotary Plug Valve should be restricted to only those personnel trained in its use. Consult Factory for the availability of manuals in other languages.

Operation, Installation and Maintenance personnel should READ carefully and UNDERSTAND the sections of this Installation, Operation and Maintenance Instructions relevant to the work they are performing.

The various precautions and recommendations detailed within this manual are not necessarily all inclusive. These instructions are intended to provide general safety and operational guidance relating to typical installations with which Meyer is familiar.

Additional information may be provided that pertain to your specific installation upon request. Equipment owners are responsible for understanding the contents of this document and compliance with applicable government laws and regulations and appropriate industrial standards. Appropriate plant safety and Equipment training is the responsibility of the plant owner. This Manual is intended to assist the owner in the training process. The operation, installation and maintenance of this Equipment should be restricted to only those personnel properly trained:

• Installation and maintenance of equipment must be performed by qualified mechanics/millwrights/maintenance personnel.
• Installation of any electrical equipment must be completed by qualified electricians, in compliance with applicable codes and ordinances.

Because Wm. W. Meyer & Sons is not always aware of the application and does not always have access to the installation, your participation in the safe installation, operation and maintenance of your Rotary Plug Valve is critical. If you have any safety or operational questions pertaining to the design or applications of the Rotary Plug Valve we encourage you to contact the factory at (800) 963-4458.

Always CONTROL / DE-ENERGIZE potentially hazardous energy sources when installing and maintaining the Rotary Plug Valve, as follows:

1. The Rotary Plug Valve product family uses a common mechanical principle which creates an internal pinch point in order to function properly: a metal rotor pivots around an axis within a metal housing.

   a. The Rotary Plug Valve should never be maintained or operated in a manner which could expose personnel to the internal moving parts; either via the inlet/discharge port, an access door of any kind or via ancillary equipment affixed to the Rotary Plug Valve. To do so will expose personnel to the potential risk of serious injury.

   b. Avoid serious injury by always keeping hands, fingers, feet or any parts of your body, loose clothing, and foreign objects away from inlet and discharge openings, drive components, auxiliary components, and associated equipment.

2. Always de-energize all electrical equipment by Locking Out/Tagging Out power before working on this Rotary Plug Valve, including actuators, switches, solenoids and other ancillary electrically powered or controlled Equipment. If the electrical components are not properly de-energized, this will expose personnel to the potential risk of serious injury.

   **WARNING!**: The Rotary Plug Valve may stop and start automatically, and may also operate very quietly. Equipment in an idle mode does not mean it is off-line.

3. Inlet and Outlet flanges must always be permanently fastened to mating system components. Such components must be designed so that under normal operation personnel are neither allowed access to the inlet or outlet flange nor able reach the internal moving parts. If requested, Meyer can design, build and supply custom ductwork, transition pieces, piping or special guards to protect against the risk of injury.

4. Rotary Plug Valves, their actuation components, accessory components, and any auxiliary or companion equipment, should be installed and operated only with protective guarding correctly and securely fastened in place.

5. Never open access covers/doors to inspect the Equipment when the overall plant system is under process pressure. Wait for process pressures to be relieved (i.e. ambient pressure is confirmed).

6. If working on the Rotary Plug Valve when the surface is hot, always wear appropriate protective clothing (e.g. gloves and other protective outer clothing), or if hot surfaces could burn skin, wait for surfaces to cool before performing work which could put someone in a hazardous situation.
7. The weight of a Rotary Plug Valve or its components parts, such as the rotor, head plates, etc., can cause serious injury or damage if accidentally dropped or mishandled during installation. Use safe and acceptable methods when handling this equipment. Contact the factory for recommended safe handling and rigging techniques.

8. Refer also to appropriate supporting vendor safety information, MSDS sheets or any other applicable safety information in addition to these Instructions.

SAFETY LABELING

Your unit is shipped with an attached discharge flange guard. DO NOT operate equipment with unguarded inlet or outlet. DO NOT remove flange guard. The safety labels shown are affixed to your Equipment. A Safety Supplement Data sheet is packed with your equipment at the time of shipment. Additional Safety Supplement Data sheets and label packs are available at no additional charge for the system installer’s or plant owner’s discretionary use/placement to ensure this Equipment is installed, operated and maintained in the safest possible manner.

CAUTION: If you have received a unit without affixed labels or if labels fall off or are damaged, contact Wm. W. Meyer & Sons immediately (800-963-4458) to obtain replacements at no charge prior to installation, use or maintenance.

Meyer ships the equipment with affixed safety labels which are located on the Rotary Plug Valve housing. However, as the orientation of the Equipment varies, the OWNER is responsible for requesting, at no charge, any supplementary labels to allow safety label visibility to be maximized. The following recommendations are offered to assist placement of safety labels:

- Place labels in locations that all personnel operating and maintaining the Rotary Plug Valve or any other people that may have access to the Equipment will readily see as they are either working on the Equipment and/or as they approach the Equipment. The safety objective is for anyone who could come in contact with a hazard sees the label alerting him or her to such a hazard and the means to avoid the hazard.
• In some cases, labels may be located near the Rotary Plug Valve (e.g. on nearby structural steel, adjacent equipment), if this is the point of access where it can be easily seen and the hazard is clearly associated with the label’s location and how it relates to the Rotary Plug Valve.

• Consult Factory when the equipment is operated at temperatures over 250°F.

INFORMATION FOR SAFETY AND SERVICE

A description of every Meyer Rotary Plug Valve is kept on file with the factory. These specifications can be referenced by supplying the serial number to your local Meyer Representative. If you have any safety or Equipment-related questions we encourage you to contact the Meyer factory based on the cover contact information.

NOTE: The serial number is located on a metal identification label permanently affixed to every Rotary Plug Valve before it leaves the factory. To aid us in providing you with a special service, application assistance and help with spare part requirements, please record the following:

Type/Size _________________________________
Serial Number _____________________________
Date of Installation________________________

SECTION II
 APPLICATION

A. Application

Meyer Rotary Plug Valves (also called Plug Valves) are used in the unloading of dry free flowing bulk materials from hoppers or silos. Due to the special construction of the rotor they can be used to “cut off” a free flowing stream of material.

Rotary Plug Valves have wide application in industry wherever dry flee-flowing powders, granules, crystals, or pellets are used. Typical materials include: cement, sugar, minerals, grains, plastics, dust, fly ash, flour, gypsum, lime, coffee, cereals, pharmaceuticals, etc.

B. Operational Specifications

The following table shows capacities for the various size Rotary Plug Valves available. The capacities are based off of free flowing bulk materials. Pressure differentials, particle size and other material characteristics may affect flow rates.
A. RECEIVING AND INSPECTION

Upon receipt of equipment and material from Wm. W. Meyer & Sons, Inc., the following basic steps should be taken:

1. Use the packing list to determine that all the items shipped have been received. Your equipment was carefully crated for safe shipment when given to the carrier. If items are missing, contact Wm. W. Meyer & Sons, Inc., per contact information at the end of this section.

2. Check for damage. Damage in transit is the responsibility of the carrier. Title to your machine and all other items in the shipment were transferred to you as soon as the shipment left our dock, thus it is your responsibility to handle any claim. In the event damage has occurred:
   a. Be sure to have the driver sign a copy of the freight bill with a notation about any damage and contact their office before the driver leaves your premises.
   b. Contact the truck line to arrange for an independent inspector to come out to inspect the damage and to prepare the inspection report. It is imperative that this inspection is done before you start to unpack or use any of the equipment.
   c. If there are any visible problems with your machine or any other items in the shipment, you or the driver must note in detail the damage on all copies of the freight bill before signing for the shipment. Then immediately call Wm. W. Meyer & Sons, Inc.
   d. If helpful, photographic records of the damage may be used to communicate the extent and type of damage as well as provide a clear record.
   e. If a shipment was sent to you by parcel post, have the postmaster complete a damage claim report.

<table>
<thead>
<tr>
<th>SIZE</th>
<th>CFH (Cubic feet per hour)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6X6</td>
<td>414</td>
</tr>
<tr>
<td>8X8</td>
<td>940</td>
</tr>
<tr>
<td>10X10</td>
<td>1878</td>
</tr>
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<td>12X12</td>
<td>2923</td>
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<tr>
<td>14X14</td>
<td>5171</td>
</tr>
<tr>
<td>16X16</td>
<td>7524</td>
</tr>
</tbody>
</table>
f. Concealed Damage: If Equipment or goods are discovered to be damaged in shipment at a later date, contact the carrier and Wm. W. Meyer & Sons, Inc., immediately.

g. In all cases of damage in transit, contact Wm. W. Meyer & Sons, Inc., for assistance in determining whether or not this damage may in any way affect safety or proper operation. Please contact us so that we can assist you with replacement parts or with any questions about the claim process, using the following contact information:

Wm. W. Meyer & Sons, Inc.  800-963-4458 or 847-918-0111
1700 Franklin Blvd  sales@wmwmeyer.com
Libertyville, IL 60048

B. STORING THE ROTARY PLUG VALVE

1. Short Term Storage (Up to 4 weeks)

   a. If moved to storage, the equipment should be located in a dry area, preferably inside. Outside storage will require adequate protection from the weather.

   b. The inlet and outlet of the Rotary Plug Valve should be securely covered to protect the interior while in storage. For prolonged storage an anti-rust compound should be applied to all interior surfaces. See actuator manufacturer’s data for storage instructions.

   c. After storage and prior to start-up, the Rotary Plug Valve and its actuator should be inspected by qualified personnel.

2. Long Term Storage

   a. Spray the interior of the valve with anti-rust preservative oil.

   b. Provide and install metal covers for inlet and outlet flanges with at least four cap crews in each flange. Keep covers on unit until ready for service.

   c. Read and follow ancillary equipment manufacturer’s instructions for long term storage.

   d. Plug all openings on actuators and switches.

   e. Store off the floor in a dry, adequately ventilated, indoor area not subject to extreme temperature changes. These requirements are a minimum.

   f. If stored for more than 6 months, rotate the rotor back and forth every month.

C. MOUNTING

WARNING - Never operate the Rotary Plug Valve with unguarded inlet/outlet. Contact Wm. W. Meyer & Sons, Inc. for flange guards at no additional charge.
D. WIRING

On air actuated models, the solenoid valve (if applicable) will need to be wired to the electrical control source (a SPST switch, pushbutton equivalent, PLC, etc.) and the optional limit switches (if applicable) will be wired to an electrical indicator (light, PLC, etc.). Note: If a dual coil (fail last state) solenoid is used a SPDT switch or pushbutton equivalent will be required. Refer to the manufacturer’s instructions for the electrical wiring schematics for these devices.

⚠️ DANGER - Disconnect power before servicing Rotary Plug Valve or actuation components to prevent serious personal injury.

1. Prior to installing the valve and with the power disconnected, check to assure no foreign objects have been left inside or have accidentally fallen into the valve.

2. We recommend that inlet and outlet flanges remain covered until the valve is ready to be attached to the mating equipment.

3. Rotary Plug Valves must be installed with the top and bottom flanges parallel to the mating system flanges and adequately supported to prevent distortion.

⚠️ CAUTION - Never operate the Rotary Plug Valve with unguarded inlet/outlet. Contact Wm. W. Meyer & Sons, Inc. for flange guards at no additional charge.

SECTION IV

START-UP PROCEDURE

A. INITIAL START-UP

1. Prior to actual operation, the operator must familiarize himself with the method of operating the Rotary Plug Valve, and the status of supporting utilities.

2. The general appearance of the Rotary Plug Valve and surrounding area should be visually inspected to determine that the Rotary Plug Valve can be operated safely and without causing any type of damage.

3. Always assure the unit is properly grounded in accordance with OSHA, the NEC and local codes.

4. Open air supply valve and set regulator on air actuated models. Set at 80 psi.

5. Actuate the rotor, noting any unusual noise or vibration. On air actuated models cycle the solenoid valve. If noise is evident it is recommended that the equipment be shut down and re-inspected for foreign materials. If no obstruction appears you should contact Meyer before any further operation. For air actuated models you should adjust the flow controls to control rotor speed at this time (see Rotor Speed Adjustment Procedure).
6. When shutting down the Rotary Plug Valve, shut off supporting utilities in accordance with plant operating procedures.

7. When cleaning or servicing is required of the Rotary Plug Valve, proper lock out of electrical, compressed air and any auxiliary equipment should be completed before the work is started.

**Rotor Speed Adjustment Procedure - Air Actuator Models Only**

The speed of the actuation of the rotor is regulated by the flow control valve mounted on the solenoid valve. The valve restricts the flow of air out of the cylinder thus controlling the speed that the rotor moves. Opening the valve (Turn knob CCW) allows the rotor to move faster. Closing the flow control valves (Turn knob CW) slows the rotor down.

**B. OPERATING PROCEDURES**

The Plug Valve should never be operated with the top or bottom open and accessible to the operator or other personnel. The rotor of the Plug Valve is operated by the electrical switch or controls. Actuation of the switch or controls moves the rotor from open to closed.

**C. GENERAL INSPECTION**

1. Observe equipment for any unusual vibration, noise or operating temperatures in excess of the maximum specified for your installation.

2. Check flanges and air connections, and all nuts/bolts for tightness.

3. Inspect inlet and outlet fittings, flanges and piping for leaks. Check utility service piping and associated valves and gauges attached to the Rotary Plug Valve.

4. Check all accessories for proper operation.

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**SECTION V PROPER CARE AND HANDLING**

The Meyer Rotary Plug Valve has been manufactured from the finest materials available and to exacting standards of workmanship. Very close and precise tolerances assure the best possible fit and seal between all components. As with any quality product, it should be given proper handling and care, as outlined below:

1. Never switch a rotor from within one housing into another without contacting the Meyer factory.

2. Use special care and handling to avoid damaging (i.e., nicking, scoring, gouging, galling, etc.) any internal surface, edge or contour of the housing, rotor or end plate. Any degradation of these machined surfaces may upset the internal clearances, cause the valve to bind and cause extensive damage.
3. Rotary Plug Valves of cast iron construction without any special purpose surface coating (such as electroless nickel) are subject to rust and corrosion when exposed to moisture. If water is used as a cleansing agent, be sure valve is completely dry and rotor is free to turn before returning to service.

4. Sealed and pre-lubricated bearings are normally supplied with the Rotary Plug Valve. If the Rotary Valve components are to be submerged in a cleaning tank or similar type of bath, the bearings must first be removed from the head plate.

5. Always clean and inspect one valve at a time and reassemble immediately to avoid mismatching parts.

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**SECTION VI**

**MAINTENANCE**

![Danger Icon]

**DANGER** – Depressurize or shut off compressed air lines valves before servicing Rotary Plug Valve actuation components to prevent serious personal injury.

On air operated models, the solenoid valve and air cylinder are lubricated by a lubricator installed in the compressed air line upstream of these devices. It must be kept filled with adequate lubricant. The air supply should be shut off to fill the lubricator. An adjustment dial allows the lubricant flow rate to be controlled. An air filter at this location protects the solenoid and actuator from contamination with water. Discharge of water from this device should be monitored to insure proper operation. The discharge of water can be controlled with the adjustment knob at the bottom of the bowl. Water can be manually discharged if necessary from this point as well.