THE FOLLOWING ICONS DENOTE IMPORTANT INFORMATION WITHIN THIS MANUAL.

- **GENERAL INFORMATION**
- **INSTALLATION AND OPERATION**
- **MAINTENANCE AND REPAIR**
- **SALES AND SUPPORT**
- **NOTE**
- **CAUTION**
- **WARNING/ DANGER**
SPM® PRODUCT SAFETY GUIDE

IMPORTANT SAFETY INFORMATION ENCLOSED. READ THIS OPERATING AND MAINTENANCE INSTRUCTIONS MANUAL BEFORE OPERATING PRODUCT.

THIS INFORMATION MUST BE AVAILABLE TO ALL PERSONNEL THAT WILL OPERATE AND MAINTAIN EQUIPMENT. FAILURE TO READ, UNDERSTAND AND FOLLOW THE OPERATING AND MAINTENANCE INSTRUCTIONS MANUAL COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH!

Most SPM® products generate, control or direct pressurized fluids; therefore, it is critical that those who work with these products be thoroughly trained in their proper application and safe handling. It is also critical that these products be used and maintained properly!!

SPM® flow products contain elastomeric seals and are not intended to provide proper functionality when exposed to fire.

MISUSE, SIDE LOADING, IMPROPER MAINTENANCE, OR DISASSEMBLY UNDER PRESSURE CAN CAUSE SERIOUS INJURY OR DEATH!

The following information is given in good faith and should aid in the safe use of your SPM® products. This information is not meant to replace existing Company's safety policies or practices.

Personal Responsibilities:

1. When working on SPM® flow control products, safety glasses, approved safety shoes and hard hat must be worn.

2. Personnel should never hammer on any component when pressure is present. Hammering on any part or component may also cause foreign material or steel slags to become airborne.

3. It is a personal responsibility to use the proper tools when servicing the valve. It is a personal responsibility to be knowledgeable and trained in the use and handling of tools for all maintenance of the valve.

4. Hot surface may be present; it is a person’s own responsibility to protect against burn injury.
On Location:

1. Each valve is clearly marked with a maximum pressure rating. This pressure must not be exceeded or SERIOUS INJURY OR DEATH CAN OCCUR!

2. The valve discharge connections should be properly cleaned and lightly oiled before the downstream piping is attached. Any worn, damaged or missing seals should be replaced.

3. Welding, brazing or heating any part of the valve is prohibited. If accessories must be attached, consult Weir Oil & Gas factory prior to installation.

4. A complete visual inspection of the valve must be made prior to each use. Any leaking seals, broken bolts, leaking hoses or improperly tightened parts must be remedied prior to using.

5. Any repairs or service (even routine maintenance) performed on the valve must be performed by a trained service technician who is qualified to work on high pressure flow control valves. All such service and repairs must be supervised by qualified management personnel or returned to Weir Oil & Gas for service. Only SPM<sup>®</sup> replacement parts should be utilized. Failure to do so may result in loss of warranty as well as SERIOUS INJURY OR DEATH!

Special Precautions:

1. The modifications to or unauthorized repair of any part of a SPM<sup>®</sup> valve, or use of components not qualified by SPM<sup>®</sup>, can lead to valve damage or failure and SERIOUS INJURY OR DEATH!

2. All SPM<sup>®</sup> threaded components are right hand threaded unless specifically designated otherwise. Any turning counterclockwise will unscrew the assembly. Make sure all threaded components are assembled to the correct torque value.

3. All products should be properly cleaned, greased or oiled after each use and inspected prior to each use.

4. Each integral union connection is clearly marked with a pressure code (i.e. “1502”, 15,000 psi). This pressure must not be exceeded. This code should also be used with mating unions. Improper mating can result in failures. All integral union connections used must match (according to size, pressure rating, etc.). These connections must also match the service of the designated string they are installed in.
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## SECTION I: General Information

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<table>
<thead>
<tr>
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# Rebuild Kits:

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<th>3” Adjustable Choke Rebuild Kit</th>
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Product Description:

SPM® Adjustable and Positive Choke Valves provide flow restriction in high pressure applications such as choke manifolds, flow through manifolds and test manifolds. Various forged-body configurations are available in 2-inch and 3-inch sizes, each rated at 15,000 psi NSCWP. Chokes are also available in sour gas configurations rated at 10,000 psi NSCWP. SPM® Chokes are designed for field applications such as drilling mud lines, including choke and kill lines and well service lines for cementing, fracturing, acidizing, and testing.

General Description of Choke Valve Operation:

The SPM® Choke Valve restricts the flow through the valve by reducing the flow area through the valve body to achieve a desired flow rate. 2” Choke Valves have a maximum orifice size of 1” while 3” Choke Valves have a maximum orifice size of 2”.

Adjustable Choke Valves use a stem and seat combination to control the flow rate. The desired flow rate is adjusted by turning the hand wheel to achieve a calibrated orifice size and associated flow coefficient (Cv). The orifice size is read from the indicator which is calibrated in 1/64” increments and is lined up with a V-notch machined into the top of the bonnet.

Positive Choke Valves provide a fixed flow rate through the use of a choke bean. The flow rate is controlled by the choke bean orifice size selected.

End Connection Options:

The SPM® Choke Valve family is available with SPM® Wing Union or Safety Iron™ connections. The nameplate will indicate the allowable cold working pressure for each assembly.

Wing union connections on the SPM® Choke Valve are interchangeable with other union connections of the same size and figure (pressure rating). Caution must be taken to avoid mixing different ratings of wing connections. There are various sizes and figures that are capable of making marginal connections. SPM® Safety Iron™ connections are universal requiring no male or female as does the wing union. Failure to observe good judgment may lead to failure of components and danger to life and limb. Always verify working pressure ratings of each connection before use.

**WARNING: OBSERVE ALL INSTRUCTIONS, CAUTIONS AND WARNINGS AS NOTED IN THIS MANUAL. FAILURE TO DO SO CAN LEAD TO EQUIPMENT DAMAGE AND PERSONAL INJURY OR DEATH!**
SECTION II: Installation and Operation

Installation:

SPM® Choke Valves are primarily installed in-line of a flow back system on a fracturing site: Manifold Assemblies. The important thing is to ensure that the size of the choke valve meets the correct application. The figure below shows a SPM® Flow-Thru Manifold, which consists of Plug Valves, Tees, Crosses and Chokes.

![Manifold Assembly Diagram]

The SPM® Choke Valve should be installed in the line with the flow media coming into the inlet connection and making a 90 degree turn to pass through the orifice opening in the seat or choke bean and exiting through the outlet flange.

The SPM® Choke Valve can be installed in any orientation without affecting performance; but orientation should be addressed to ensure ease of routine maintenance and the potential for solids accumulation in the thread areas.

Adjustable chokes are only designed to generate a pressure drop and should NEVER be used to isolate a flow line. Any attempt to forcibly close the choke to isolate the flow may damage the valve stem and affect the performance of the assembly. Contact SPM® regarding the availability of 90 degree isolation plug valves specifically designed for this application.

Always install the choke so that it is flowing in the specified direction.

![Choke Valve Diagram]

WARNING: OBSERVE ALL INSTRUCTIONS, CAUTIONS AND WARNINGS AS NOTED IN THIS MANUAL. FAILURE TO DO SO CAN LEAD TO EQUIPMENT DAMAGE AND PERSONAL INJURY OR DEATH!
Calibration Guide:

0.75" Orifice-Cv

1" Orifice-Cv

2" Orifice-Cv
Pressure/ Temperature Ratings:

Pressure:
The SPM® Choke Valve is rated for non-shock cold working pressures up to 15,000 PSI for Standard Service and up to 10,000 PSI for H2S applications. This pressure is never to be exceeded in the field. Certified testing at SPM® subjects the new product to a one time test of 1.5 times the rated working pressure.

Field or customer controlled tests should be conducted with experienced personnel. Maximum working pressure should never be exceeded.

Temperature:
The maximum recommended operating temperature for the SPM® Choke Valve is limited to the capability of the polymer seals to withstand elevated temperatures while maintaining seal integrity under pressure.

The accepted limit for the standard seal material is 230°F (110°C). Practical experience has shown that there is a rapid drop off in seal life when caustic fluids are handled at temperatures exceeding 160°F (71°C). Generally, chemical attack, gas absorbed, compression set or tearing is accelerated in these conditions. Minimum operating temperature of -22°F (-30°C) is acceptable for the elastomer seals.
# SECTION III: Maintenance and Repair

**WARNING:** DISASSEMBLY UNDER PRESSURE CAN CAUSE **SERIOUS INJURY OR DEATH**!

### Always Remember:

1. Always wear PPE (personal protective equipment).
2. Only qualified technicians should perform maintenance on SPM® products.
3. Always use SPM® supplied new parts kit for reassembly.
4. Clean all components thoroughly prior to reassembly.
5. Use only SPM® parts on SPM® valves.

### Required Tools:

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<tr>
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<td>STEEL TOE BOOTS</td>
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<td>2</td>
<td>SPM® 1&quot; WRENCH 3P23644</td>
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<tr>
<td></td>
<td>or SPM® 2&quot; WRENCH 3A15906</td>
</tr>
<tr>
<td>3</td>
<td>SAFETY GLASSES</td>
</tr>
<tr>
<td>4</td>
<td>400 GRIT SAND PAPER</td>
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<td>5</td>
<td>GLOVES (ANY OTHER PPE)</td>
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<td>7</td>
<td>GREASE GUN</td>
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<td>8</td>
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<td>9</td>
<td>TORQUE WRENCH</td>
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<tr>
<td>10</td>
<td>SOCKET WRENCH</td>
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Maintenance Requirements:

The SPM® Choke Valve is made from high quality materials selected to provide the best service to the customer. However, the application of this product subjects it to handling fluids which are by their very nature corrosive and abrasive and operate at high velocities, and usually at high pressures. Some fluids may also require being conveyed at elevated temperatures. Combinations of any and all of these conditions will speed up the deterioration of internal surfaces including seals and seal surfaces.

Valve unions should be clean and lightly oiled prior to each use. Union seals should be checked and replaced when worn or damaged. Always flush valve with water, then oil after each use. If valves are used with acid services, they should be washed with fresh water as soon as possible.

For Adjustable Chokes, the stem threads should be lubricated with a high quality moly-based lubricant at least every three months. The Choke is equipped with a grease fitting for this purpose.

Preventative Maintenance:

Re-grease the stem threads on adjustable chokes periodically to ensure easier operation of the turn wheel. During operation, visually inspect the Choke Valve for any leaks at the bonnet (adjustable) or blanking cap (positive) seal and the autoclave fitting.

Periodic Inspection:

Periodic inspections are required to ensure that all internal components of the valve are working properly and are to Weir Oil & Gas Engineering’s specifications. It is imperative that a qualified Weir Oil & Gas Technician follow the assembly/disassembly/inspection instructions beginning on page 22.

Rebuild Kits are available through Weir Oil & Gas Service Centers. They are referenced on page 7.

Periodic Inspection will include recertification of the Choke Valve which will include the following:
- Inspection of sealing surfaces, evidence of wear and pitting of all components.
- Disassembly
- New Kitting
- Ultra-Sonic Inspection / Minimum Wall Inspection
- Reassembly
- Pressure testing to 100% the product’s normal working pressure per SPM® Specification 4S12497
- Magnetic Particle Inspection (Per Request)
Adjustable Choke BOM: (2A18156-1.00)

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Disassembly of Adjustable Choke:

**WARNING:** DISASSEMBLY UNDER PRESSURE CAN CAUSE SERIOUS INJURY OR DEATH!

**Step 1:**
Remove all pressure in the system with the choke in the full open position. Loosen the autoclave gland to detect any remaining pressure in the system (if available).

**Step 2:**
Unscrew stem and bonnet assembly and remove from choke valve body.
**Step 3:**
Remove hand wheel nut (16) and washer (22).
Remove hand wheel (12).
Loosen indicator set screw (24) with allen wrench and remove indicator (13).

**Step 4:**
Remove thumb screw (25), retainer ring (19), and bonnet wing nut (23).
**Step 5:**
Secure bonnet in soft jaw vise and use **hand wheel** (no need to secure hand wheel with washer and nut) to rotate clockwise to release stem from the bonnet.

![Image of hand wheel and bonnet]

**Step 6:**
Remove nylon balls (9) (or copper plugs) from thumb screw hole.
**Step 7:**
Remove retainer ring (20) with snap ring pliers.
Remove lower junk ring (14), junk ring (15), packing set (18), and junk ring (15).

**Step 8:**
Remove O-ring (17).
**Step 9:**
Secure valve body and use a socket wrench with seat socket (Required Tool 2) to remove the seat from the choke valve body.
Remove autoclave gland (if necessary).
**Inspection of Adjustable Choke:**

Weir Oil and Gas recommends complete replacement of the stem and bonnet assembly for best results and efficient use of time (i.e., remove Disassembly Steps 3-8).

Inspect all parts for damage, corrosion, or erosion and replace as necessary. Use 400 grit sandpaper to clean all seal surfaces.

The following areas are critical for the function of the valve:

**Body**
Visually inspect the following: seat seal surface, bonnet seal surface, intake and discharge ports and seal surfaces, seat thread area, and autoclave thread area.

**Stem**
Visually inspect the following: tip, threads, and packing seal area.

**Bonnet**
Visually inspect the following: bonnet seal surface, stem thread area, and packing box.
Assembly of Adjustable Choke:

- Visually inspect all new parts and remove any foreign contaminates.

**Step 1:**
Install seat gasket onto seat.
Lubricate threads on seat with anti-seize lubricant.
Install seat into choke body using seat socket (Required Tool 2) with seat gasket. Recommended torque is 230 ft-lbs. for 2” Choke Valves and 600 ft.-lbs for 3” Choke Valves.

**Step 2:**
Grease inside of packing box.
Grease junk ring (15) and place into packing box.
**Step 3:**
Grease packing set (18) and install into packing box. If the Choke equips pressure-energized spring loaded packing, ensure that the internal spring faces the internal pressure of the choke body. If the Choke equips Chevron style packing with V-rings, ensure that the wide end of the V shape faces the internal pressure of the choke body.

![Diagram of packing set](image)

**Step 4:**
Grease the junk ring (15) and lower junk ring (14) and install into packing box. Install packing retainer ring (20) using snap ring pliers.

![Diagram of junk ring and retainer ring](image)
**Step 5:**
Lubricate stem threads with anti-seize lubricant.
Secure bonnet in soft jaw vice and insert stem.
Tighten by hand until the threads are just visible at the top of the bonnet.

**Step 6:**
Grease the area around the groove on the bonnet. Grease and install the O-ring (17).
**Step 7:**
Lubricate threads on wing nut (22) with anti-seize lubricant.
Install wing nut and retainer ring (19) on bonnet.
Grease and install nylon balls (9) (or copper plugs) into the thumb screw hole.
Lubricate the threads on the thumb screw (25) with anti-seize lubricant.
Install thumbscrew onto the bonnet.

**Step 8:**
Install the indicator (13) on the stem. Do not tighten down set screw (24) at this time.
**Step 9:**
Grease the inside of the hand wheel (12).
Install onto the stem (21).
Lubricate the stem thread with anti-seize lubricant.
Install washer (22) and nut (16) onto stem using socket wrench.

**Step 10:**
Open stem to full open position by rotating the hand wheel *counter-clockwise* until it stops.
Install onto choke body and tighten by hand.
Rotate the hand wheel until the stem is fully closed and then back to fully open to ensure proper operation and clearance.

⚠️ CAUTION: DO NOT FORCE STEM INTO SEAT DURING CLOSING.

Use sledge hammer to tighten securely.
Step 11:
Install autoclave gland (if applicable) using Teflon tape or pipe dope and socket wrench.

Step 12:
Set the indicator:
Rotate the hand wheel until the stem is seated. Do not tighten or force the stem into the seat.
Align the “0” mark with the mark on the top of the bonnet.
Tighten the set screw. Do not over-tighten the set screw as the indicator may crack or the threads strip.
Rotate the hand wheel to full open position as indicated for the maximum orifice size to ensure full movement and correct indicator setting.
The choke valve is now ready for testing.
Disassembly of Positive Choke:

WARNING: DISASSEMBLY UNDER PRESSURE CAN CAUSE SERIOUS INJURY OR DEATH!

Step 1:
Remove all pressure in the system with the choke in the full open position. Loosen the autoclave gland to detect any remaining pressure in the system.
Step 2:
Unscrew blanking cap assembly and remove from choke valve body.

Step 3:
Remove blanking cap retainer ring (14) and separate blanking cap (13) from the wing nut (12). Remove O-ring (15).
Step 4:
Secure valve body and use a socket wrench with seat socket (Required Tool 2) to remove the choke bean from the choke valve body.
Inspection of Positive Choke:

Inspect all parts for damage, corrosion, or erosion and replace as necessary. The following areas are critical for the function of the valve:

**Body**
Visually inspect the following: bean seal surface, bonnet seal surface, intake and discharge ports and seal surfaces, bean thread area, and autoclave thread area.

**Blanking Cap**
Visually inspect the following: blanking cap seal surface.
Assembly of the Positive Choke:

- Visually inspect all new parts and remove any foreign contaminates.

**Step 1:**
Install bean gasket (8) onto bean (7). Lubricate threads on bean with anti-seize lubricant. Install bean into choke body using seal socket (Required Tool 2). Recommended torque is 230 ft-lbs. for 2” Choke Valves and 600 ft.-lbs for 3” Choke Valves.

**Step 2:**
Grease the area around the groove on the bonnet. Grease and install the O-ring (15).
**Step 3:**
Lubricate threads on wing nut (12) with anti-seize lubricant.
Install wing nut on blanking cap (13).
Install blanking cap retainer ring (14) onto blanking cap.
Install onto choke body and tighten by hand.
Use sledge hammer to tighten securely.
The choke valve is now ready for testing.
Vessel Test Procedures:

Prior to shipment, product testing procedure 4S12497 requires that each Choke Valve pass a one-time vessel test at 150% of its rated working pressure; then, when conducting subsequent vessel tests on used or re-certified valves, limit the pressure to 100% of rated working pressure as required by 4S12497.

Choke Valves should always be vessel tested in accordance with product testing procedure 4S12497.
Troubleshooting Guide:

**TROUBLESHOOTING GUIDE**

Always follow existing SPM® procedures concerning identifying equipment for inspection and removing equipment from service. The following is intended as a general guide in helping resolve most problems encountered in repairing choke valves. If problems not covered here are encountered, contact Weir Oil & Gas for assistance at 1-800-342-7458.

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>PROBLEM</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Valve leaks past stem toward hand wheel.</td>
<td>Packing set installed incorrectly.</td>
<td>Reinstall packing set in correct orientation.</td>
</tr>
<tr>
<td>2 Valve leaks around bonnet wing nut.</td>
<td>O-Ring damaged.</td>
<td>Replaced damaged seal.</td>
</tr>
<tr>
<td>3 Reduced flow or no flow.</td>
<td>Possible obstruction due to stem tip breaking off.</td>
<td>Remove obstruction and replace stem and seat. Stem should not be forcibly tightened onto the stem as it could be sheared off.</td>
</tr>
</tbody>
</table>
SECTION IV: Service and Support

Service Center Order Information:

Weir Oil and Gas stocks a large inventory of genuine original equipment replacement parts. In order to expedite a parts order and avoid any delays, please provide the following information with your order:

- The part number and description (refer to drawings and parts lists in this section) of each item ordered.
- The quantity of each part, kit, or assembly ordered.
- The model number and serial number.
- Your purchase order number.
- Specify method of shipment, complete shipping address, complete billing address and telephone number at the destination of the shipment.

Refer to location sheet on the following page.
UNITED STATES:

Houston, TX - Sales Office
363 N. Sam Houston Pkwy. E., Suite 550
Houston, TX 77060
Ph: +1-281-847-7270
Fax: +1-281-820-2972

GULF COAST:

Alice, TX - Service Center
2450 Business Hwy. 281 North
Alice, TX 78332
Ph: +1-361-661-0900
Fax: +1-361-661-0909

Deer Park, TX - Service Center
920 Seacoast
Deer Park, TX 77536
Ph: +1-832-200-6220
Fax: +1-832-200-6220

Lafayette, LA - Service Center
401 S. Bernard Rd
Broussard, LA 70518
Mailing: PO Box 8209, Lafayette, LA 70508
Ph: +1-337-837-3161
Fax: +1-337-839-1985

Pleasanton, TX - Service Center
772 HWY 281 South
Pleasanton, TX 78064
Ph: +1-830-369-3571
Fax: +1-830-569-3643

MID CONTINENT:

Bossier City, LA - Service Center
2403 Crimmitt Dr.
Shreveport, LA 71107
Ph: +1-318-677-2422
Fax: +1-318-677-5185

Elk City, OK - Service Center
2111 S. Main
Elk City, OK 73648
Ph: +1-580-225-2385
Fax: +1-580-223-3402

Fort Worth, TX - Service Center
7711 Wyatt Dr.
Fort Worth, TX 76108
Ph: +1-817-935-7900
Fax: +1-817-246-3970

Kilgore, TX - Service Center
1102 State Hwy 31W
Kilgore, TX 75662
Ph: +1-903-984-8153
Fax: +1-903-984-8626

Searcy, AR - Service Center
Searcy, AR 72143
Ph: +1-501-305-5296
Fax: +1-501-305-3419

PERMIAN:

Odessa, TX - Service Center
2424 E. I-20
Odessa, TX 79766
Ph: +1-432-580-3887
Fax: +1-432-333-1351

NORTH EAST:

Blairsville, PA - Service Center
1519 Route 22 Hwy East
Blairsville, PA 15717
Ph: +1-724-459-4770
Fax: +1-724-459-4771

Buckhannon, WV - Service Center
52 Norwinds Drive
Buckhannon, WV 26201
Ph: +1-304-472-9701
Fax: +1-304-472-9130

Horseheads, NY - Service Center
36 Level Acres Dr
Horseheads, NY 14845
Ph: +1-607-739-1215
Fax: +1-607-739-1314

Williamsport, PA - Service Center
76 Odell Road
Muncy, PA 17756
Ph: +1-570-546-1005
Fax: +1-570-546-2033

ROCKIES:

Fort Lupton, CO - Service Center
13055 Weld County Road 8
Fort Lupton, CO 80621
Ph: +1-303-535-5450
Fax: +1-303-535-5455

Grand Junction, CO - Service Center
842 1/2 Rd, Building A
Grand Junction, CO 81505
Ph: +1-970-243-4600
Fax: +1-970-243-8027

Williston, ND - Service Center
5073 Owens Industrial Park
Williston, ND 58801
Ph: +1-701-572-0776
Fax: +1-701-572-0784

CANADA:

Edmonton, AB, Canada - Service Center
4737 97th Street
Edmonton, Alberta T6E 3J2
Ph: +1-780-436-1122
Fax: +1-780-437-5218

Fort St. John, BC, Canada - Service Center
10508, 89th Avenue
Fort St. John, British Columbia V1J 5P9
Ph: +1-250-785-6627
Fax: +1-250-785-4501

Grande Prairie, AB, Canada - Service Center
8801 99th Street
Clairmont, Alberta T0H 0W0
Ph: +1-780-567-3857
Fax: +1-780-567-2808

Medicine Hat, AB, Canada - Service Center
1202 Dirkson Drive N.E.
Redcliff, Alberta T0J 2P0
Ph: +1-403-504-8353
Fax: +1-403-504-8370

Red Deer, AB, Canada - Service Center
Unit A, 8060 Edgar Industrial Crescent
Red Deer, Alberta T4P 5R3
Ph: +1-403-341-3410
Fax: +1-403-341-3072

INTERNATIONAL:

MEXICO:

Villahermosa, Mexico - Service Center
Bodega 3, Lote 8, Manzana 3
Sobre Calle San Lazaro
Parque Logistico Industrial, Tabasco
Villahermosa, Tabasco 86150
Ph: +52-993-142-7083

Poza Rica, Mexico - Service Center
San Miguel Mecatepec Tihuatlan, Veracruz
Bodega C
Ph: +782-111-73-55

BRAZIL:

Macae, Brazil - Service Center
Rua Internacional, No 245,
Lote 09, Quadra W
Lotacemio Novo Cavaleiros,
Macae, RJ Brazil
Ph: +55-22-2106-8750
Fax: +55-22-2106-8777

EUROPE:

Aberdeen, Scotland - Service Center
Badentoy Industrial Park, Portlethen
Aberdeen AB12 4YD, Scotland
Ph: +44-1224-783664
Fax: +44-1224-784184

MIDDLE EAST:

Dubai, UAE - Service Center
Oilfield Supply Center, L.T.D., Building 22
P.O. Box 1518, Jebel Ali, Dubai, UAE
Ph: +971-48836-368
Fax: +971-48836-485

AUSTRALASIA:

Singapore - Sales Office
15 Tukang Innovation Drive,
Singapore, 618299
Ph: +65-6302-0852
Fax: +65-6302-0883

Australia - Service Center
Henderson Service Center
20 Stuart Drive
Perth, Western Australia 6166
Ph: +61-9410-7500

Adelaide (AUS) - Service Center
83 Rundle Road
Salisbury South SA 5106
Ph: +61-8-8285-3133
Fax: +61-8-8285-3151

Toowoomba (AUS) - Service Center
Unit 4, 24 Carroll Street,
Toowoomba QLD 4350
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Fax: +86-546-7769999

MANUFACTURING:

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8388 C.F. Hawn Freeway
Dallas, TX 75217
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