

Canalta

Flow Measurement

A Canalta Controls Company



The Canalta Dual Chamber Orifice Fitting

Exceptional Value means adding to your *Bottom Line*
without sacrificing *Quality, Service* or *Performance*

Call Us Toll Free: 1-855-CANALTA

An ISO 9001:2008 registered company

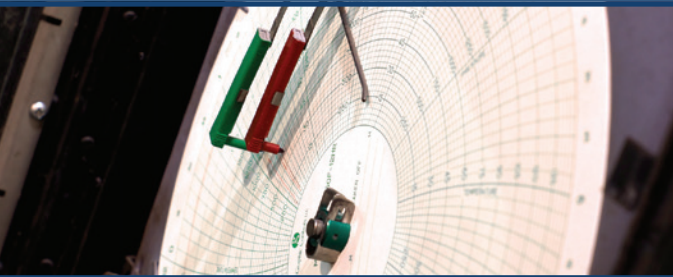
Phone: 403.342.4494

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The **Canalta Dual Chamber Orifice Fitting** is a high quality, high accuracy orifice fitting manufactured in a wide selection of sizes and materials. Proven measurement principles and field repairability make the Dual Chamber Orifice Fitting a reliable, cost-effective solution to your flow measurement needs. These units are built to meet or exceed ASME and ANSI specifications, as well as to comply with the requirements of the latest editions of AGA-3 / API-14.3 and ISO-5167. Available in Flangeneck, Flange x Flange and Weldneck configurations.

No matter the application, your process will benefit from Canalta's proven reliability and you can improve your bottom line without sacrificing quality, service or performance.



Our comprehensive **Quality Management System** includes full function, hydrostatic and pneumatic pressure testing to prevent imperfect fittings from reaching service. Standard testing comes at no extra charge and includes verifiable pressurization to 150% of working pressure. Additional inspections - such as radiography, ultra sonic and liquid dye penetration - are also available.



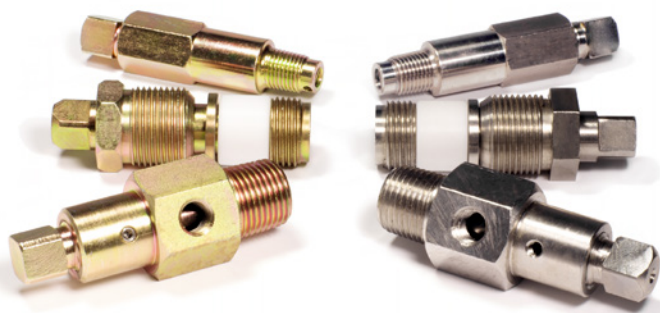
Our unit-specific **Documentation** packages include hydrostatic, seal and function test results as well as material test reports. An AGA 2000 Inspection Report is submitted with every fitting and includes bore tolerance and roughness tests, orifice eccentricity, seal protrusion, plate sealing tests and other critical details.

Third party inspection and reporting is available upon request.



Canalta applies a standard coating to all Dual Chamber Orifice Fittings that includes a non-lift oxide primer and fast-drying enamel finish in Canalta Grey and burgundy top. Custom coatings for special environments - including maritime, humid, high temperature and others - custom colours and primer only applications are also available.

Parts matter, whatever your service environment.

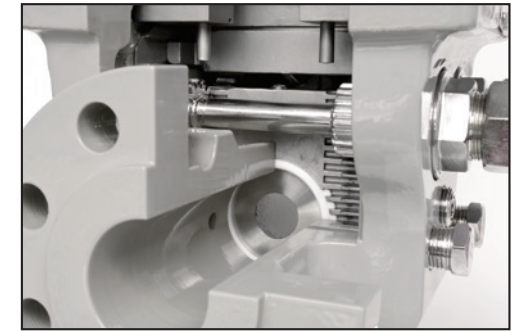
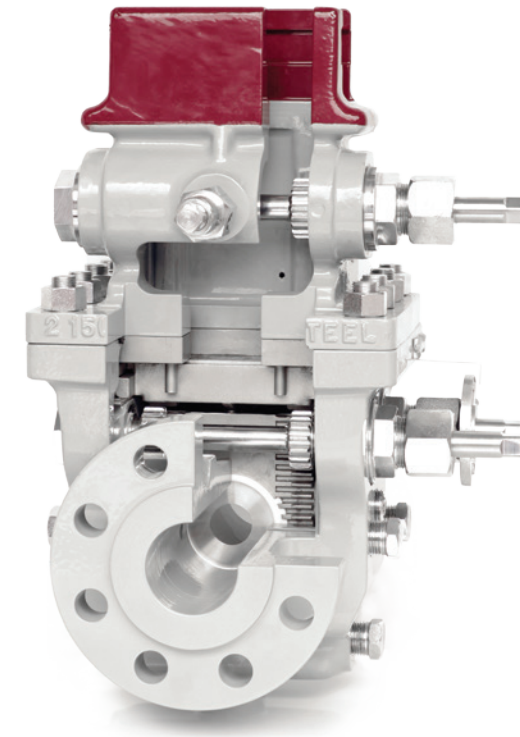


Our standard zinc-plated 4130 carbon steel internals offer superior corrosion protection and resistance to sulfide or hydrogen induced cracking, providing reliability and performance over a long service life.

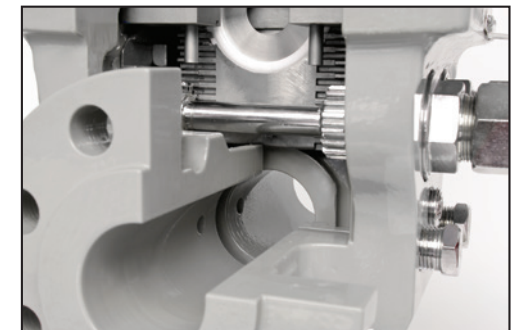
For extreme corrosive applications, such as wet H₂S service, 316 stainless steel internals are available to protect against general and localized corrosion.

All parts conform to NACE MR0175 / ISO 15156:2003 specifications. Internals in Duplex SS and other exotic alloys are also available by special order.

Delivering superior orifice fittings and exceptional value has been our core business for over fifteen years.



With orifice plate in flow line



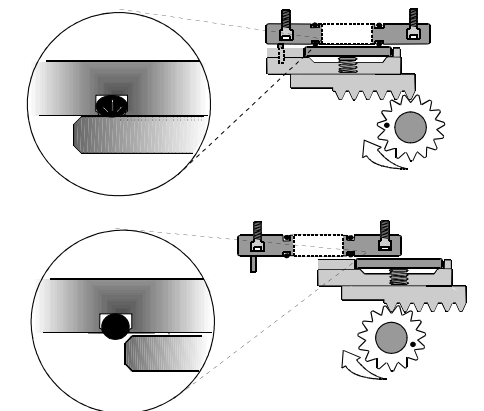
With orifice plate out of flow line

Each unit features **Fully Accessible, Field Adjustable Eccentricity** of the orifice plate from the exterior of the fitting. Tamper-proof sealing is done on request.

HNBR O-ring Seals on both the body and seal bar come standard with all Canalta Dual Chamber Orifice Fittings. This feature eliminates nuisance gasket maintenance and clamping bar screw breakage, while providing superior sealing capability. The O-rings incorporated are standard shelf sizes and can be supplied in a wide variety of compositions. Gaskets are also available and can be used when preferred or required.

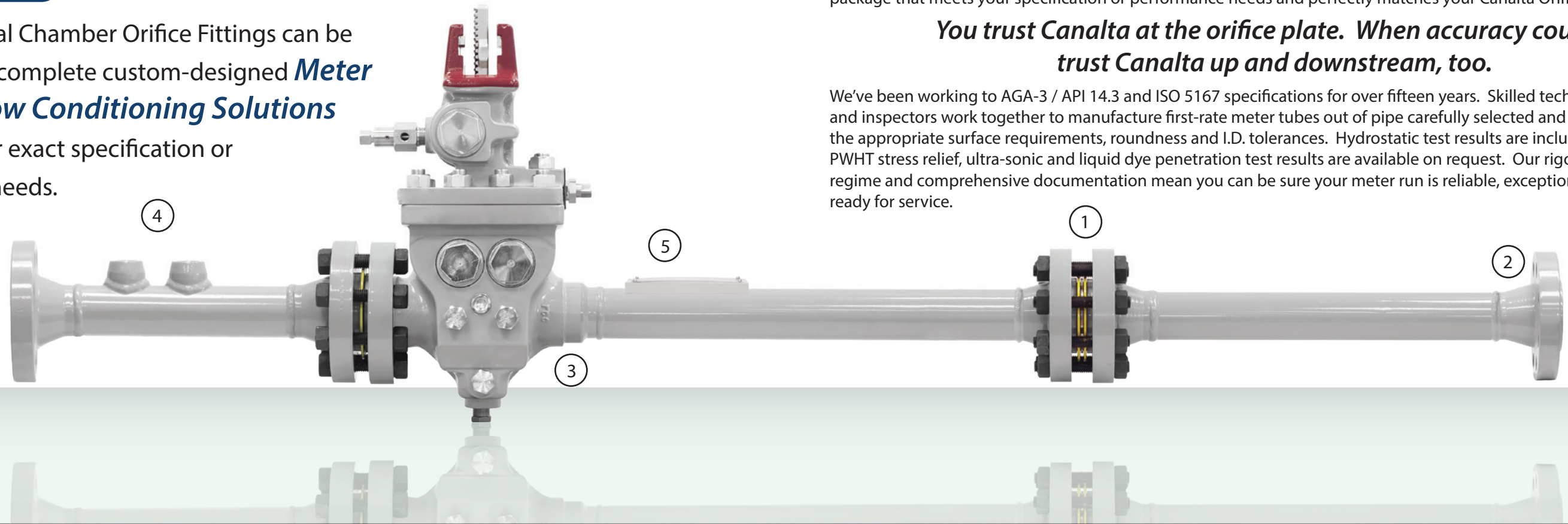


The **Soft Seat Valve Seal** is available for all dual chamber models. Effective in all scenarios, but particularly suited to low pressure applications, this unique design enables a bubble-tight seal between the upper and lower chambers without the need for frequent lubrication. The specially machined seal channel helps prevent O-ring dislocation, and the O-ring seals incorporated are available in a wide variety of compositions.



METER RUNS

All Canalta Dual Chamber Orifice Fittings can be supplied with complete custom-designed **Meter Runs** and **Flow Conditioning Solutions** that meet your exact specification or performance needs.



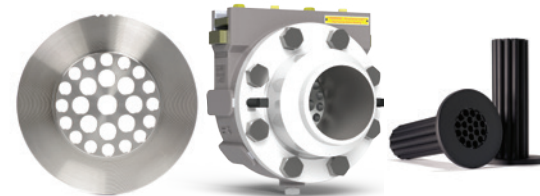
Whether the size is 2" or 30", high or low pressure, wet, dry or corrosive service, we can put together a custom meter run package that meets your specification or performance needs and perfectly matches your Canalta Orifice Fitting.

You trust Canalta at the orifice plate. When accuracy counts, trust Canalta up and downstream, too.

We've been working to AGA-3 / API 14.3 and ISO 5167 specifications for over fifteen years. Skilled technicians, engineers and inspectors work together to manufacture first-rate meter tubes out of pipe carefully selected and prepared with the appropriate surface requirements, roundness and I.D. tolerances. Hydrostatic test results are included as a standard. PWHT stress relief, ultra-sonic and liquid dye penetration test results are available on request. Our rigorous inspection regime and comprehensive documentation mean you can be sure your meter run is reliable, exceptionally accurate and ready for service.

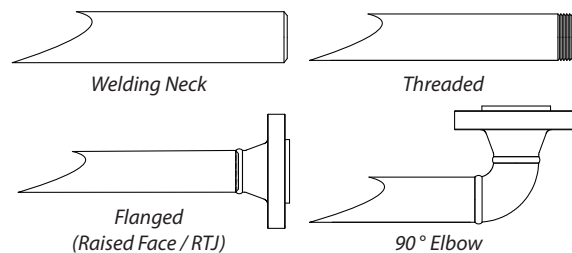
1 FLOW CONDITIONING ACCESSORIES

The goal of meter run design is to account for swirl and turbulence. Suitable for a wide range of flow measurement methods and equipment, Canalta's Contour™ lineup of Flow Conditioners, Flow Conditioner Housings and Straightening Vanes will help you develop the flow profile you need to achieve maximum performance and accuracy in the field.



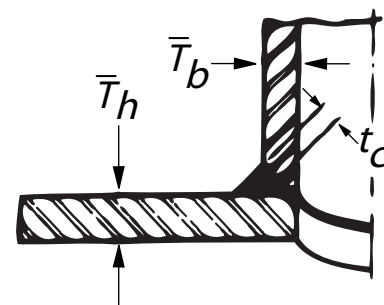
2 END CONNECTION OPTIONS

Canalta Meter Runs can be fabricated with a variety of standard tube ends. All inner surface welds are precision ground and inspected to meet exacting I.D. surface and roundness tolerances. Per your requirements, two and three-piece meter runs can have dissimilar end types up and downstream of the orifice fitting.



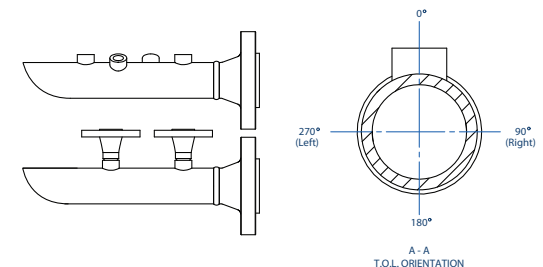
3 WELDING SPECIFICATION

Each Canalta Meter Run is professionally fabricated by our team of certified "B" Pressure Welders and experienced pipe finishers to meet and exceed the stringent specifications of AGA / API / ISO. Our welding procedures are registered with the Alberta Boiler and Safety Association (ABSA) and are in accordance with the applicable ASME Boiler and Pressure Vessel Codes. Canalta will ensure that all of your NDT and stress relieving requirements are met with full documentation.



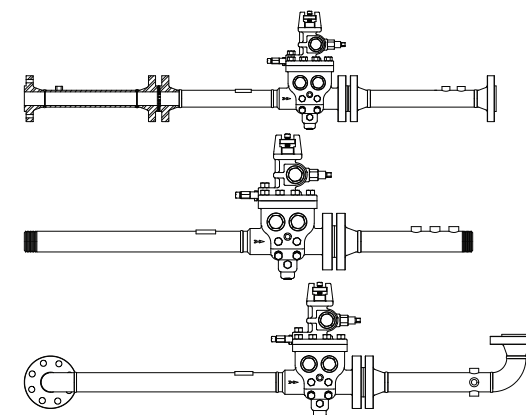
4 BRANCH CONNECTION OPTIONS

Industry standard offerings provide one 1" and one 3/4" branch connection on the downstream spool. Our custom meter tube design capability allows us to fabricate nearly any combination of weldolets, sockolets, flanged outlets, threadolets and latrolets in any orientation.



5 METER RUN SPECIFICATION PLATE

All Canalta Meter Runs include a specification plate mounted immediately upstream of the orifice fitting. These spec plates detail pipe schedule, pressure rating, maximum beta, maximum orifice and other information essential to proper operation.



With literally endless configurations possible, Canalta will custom design and fabricate your meter run for any application.

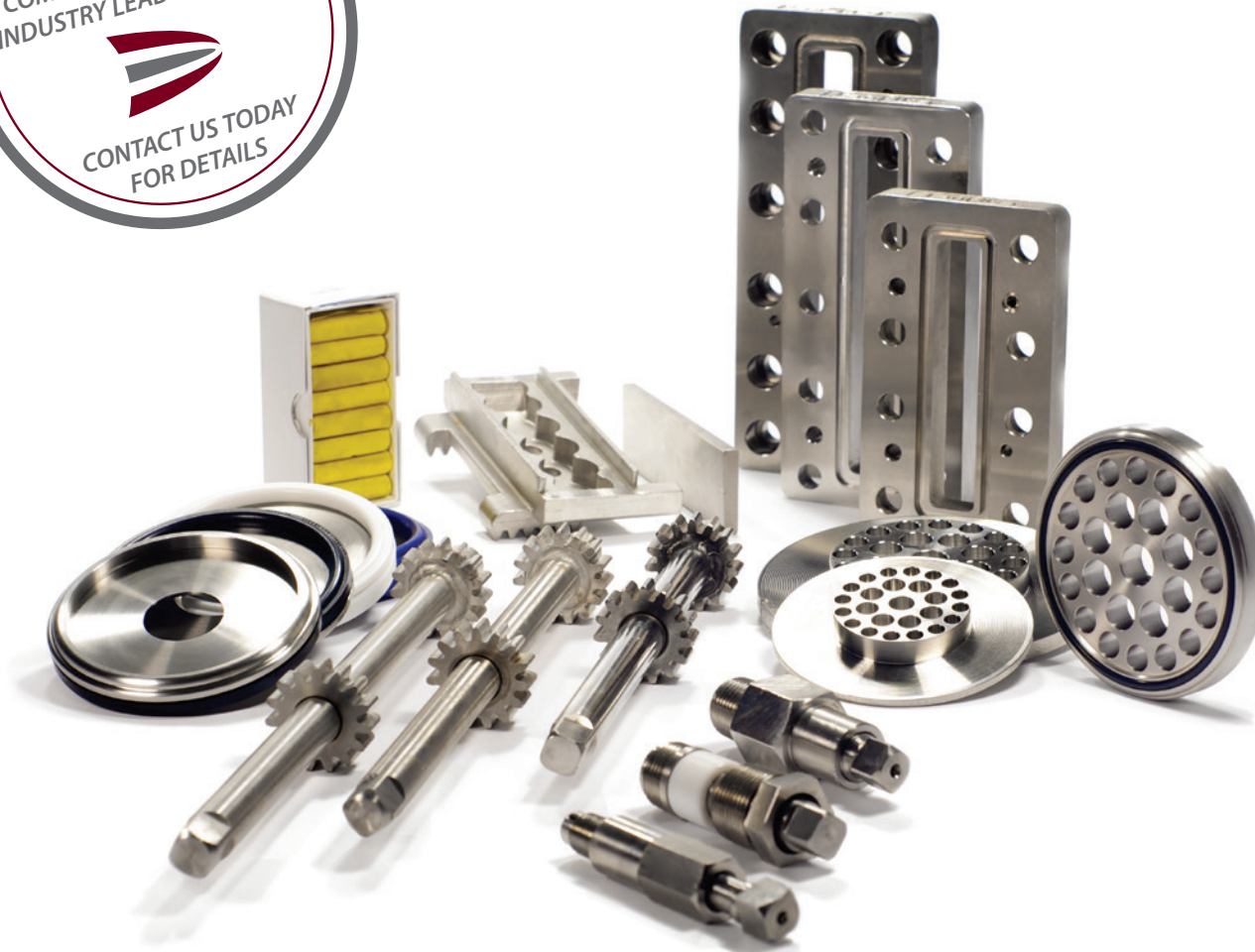
**ACCURACY, RELIABILITY,
PERFORMANCE.**

PARTS & REPAIR KITS

Canalta supplies **OEM Parts and Accessories** for all of our Dual Chamber Orifice Fitting models. These are high quality carbon and stainless steel internals that offer superior corrosion protection and resistance to sulfide or hydrogen induced cracking, providing reliability and performance over a long service life.

All materials meet the applicable ASTM requirements and are traceable to the original foundry. Wherever possible, Canalta has endeavoured to ensure that our parts and accessories are interchangeable with the current industry standard orifice fitting brand, making Canalta Orifice Fitting Parts and Accessories suitable for re-builds and re-works of our competitors' product lines.

Close attention to detail and tight quality control auditing ensure that Canalta parts are reliable and ready for service in the field.



Canalta also offers complete **Orifice Fitting Repair Kits**, which include a full complement of parts, allowing for a complete rebuild of the orifice fitting or replenishment of spare parts inventory. These kits are available with carbon or stainless steel internals. All repair kits include high grade HNBR internal seals and are packaged in a sturdy resin case for easy storage and transport.

Orifice Fitting Repair Kits that substitute Garlock® gaskets for the standard Canalta body, valve seat and seal bar O-ring seals are available for servicing our competitors' product. Please contact us directly for full details.



To view the complete **Canalta Parts Catalogue**, visit us online at www.canaltaflow.com/parts

FLOW CONDITIONING ACCESSORIES

Contour™
Flow Conditioning Solutions
by **Canalta**

Flow profile is critical to differential pressure measurement accuracy. Swirl effects, turbulence and pulsation all degrade the accuracy of your meter and potentially reduce profits. You can protect your bottom line.

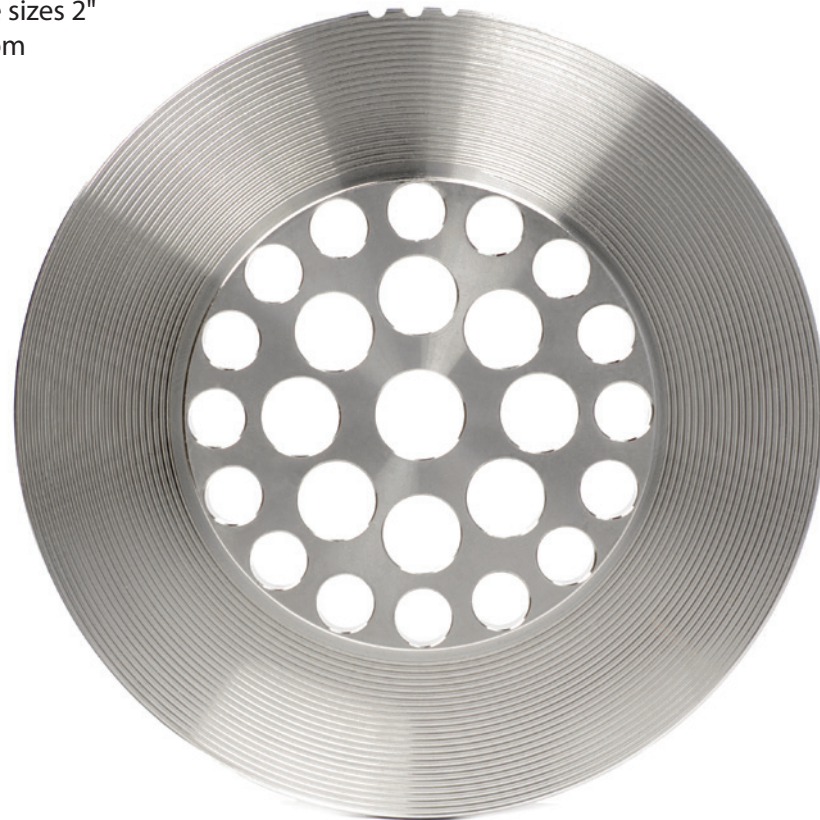
Canalta offers a variety of **OEM Flow Conditioning Elements** to perfectly match all of our Dual Chamber Orifice Fitting models. By delivering a fully developed flow profile to your measurement device, regardless of upstream piping, our lineup of Contour™ Flow Conditioners allow you to drastically reduce the amount of straight run upstream piping required. Cost, size and weight are reduced without significant drops in pressure or reliability.

Contour™ K5 Flow Conditioners are designed and manufactured to the exact geometries of the popular K-Lab / Nova design. Years of testing by third parties has made this geometry a veritable industry standard, and Canalta's robust quality control program ensures that our customers receive the best flow conditioners possible.

Canalta also offers the the Contour™ Z Flow Conditioner, featuring the 32-hole Zanker plate geometry, as well as the Contour™ Vane Flow Straightener. All units are available for pipe sizes 2" through 30" in all standard schedules, with custom schedules by special order.



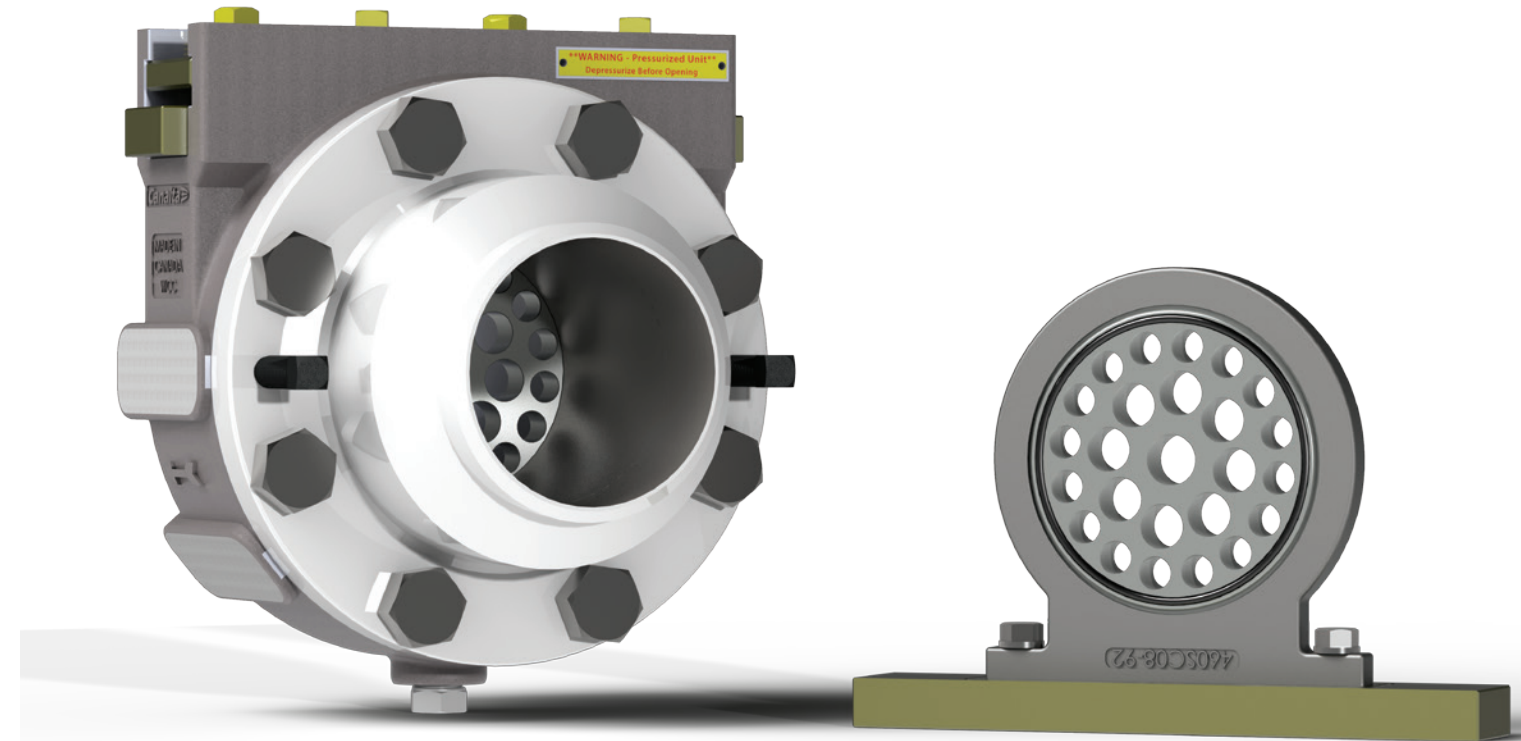
Contour™ Vane Flow Straightener



Contour™ K5 Flow Conditioner

Canalta's **Contour™ FCH Flow Conditioner Housing** brings the ease, safety and practicality of inspecting and changing an orifice plate to the flow conditioner. This long overdue concept allows for regular inspections of the flow conditioner without breaking apart the flow line. The Contour™ FCH allows the operator to easily perform flow conditioner inspection and maintenance on the same regular schedule as the orifice plate. With this innovative, patented design, you can be sure that your flow profile has not been degraded by damage, blockage or residue accumulation.

All bore surfaces and internal dimensions within the housing are manufactured to strictly comply with the latest editions of AGA-3 and ISO-5167. The Contour™ FCH is effective for custody transfer applications or any measurement scenario where flow profile and measurement accuracy are critical.



US Pat. 7,806,145



Canalta's Contour™ FCH utilizes the new Contour™ K5+ and Z+ Flow Conditioners. These isolating flow conditioners incorporate a non-protruding HNBR seal around the downstream face to prevent bypass leakage and protect the integrity of your flow profile.

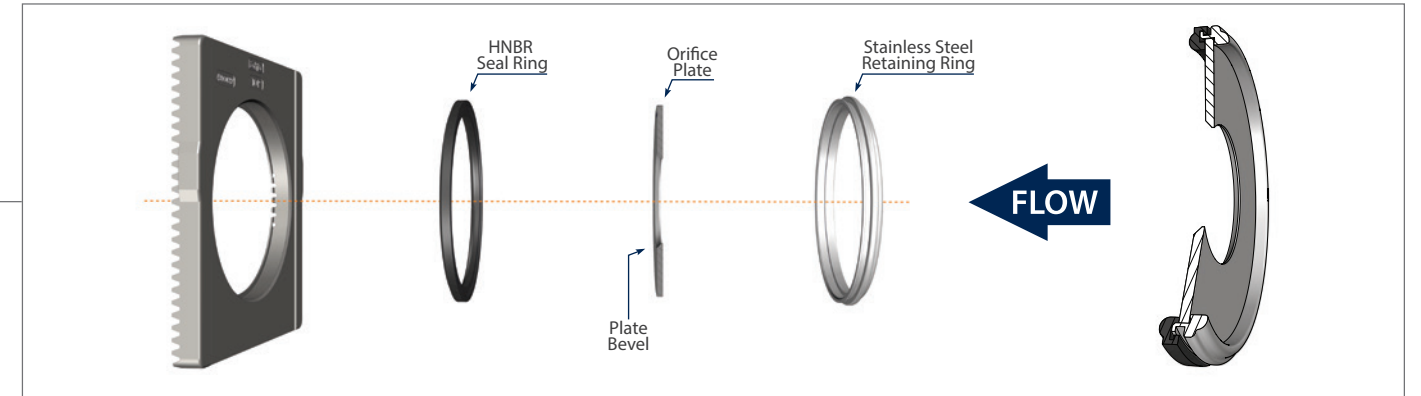
CONTACT US TODAY TO FIND OUT MORE

ORIFICE PLATE SEAL OPTIONS & CARRIER ASSEMBLIES

Type "K" Standard 2000 Edition Seal Assembly

This is the standard seal assembly supplied with all orifice fittings from sizes 2" through 8". This unit is used with a .562" seal gap for fittings sized 2" through 6", and with a .688" seal gap for 8" fittings. The single downstream seal function offers superior sealing capability while reducing seal damage during insertion. Plate seal bypass tested down to 1" water column.

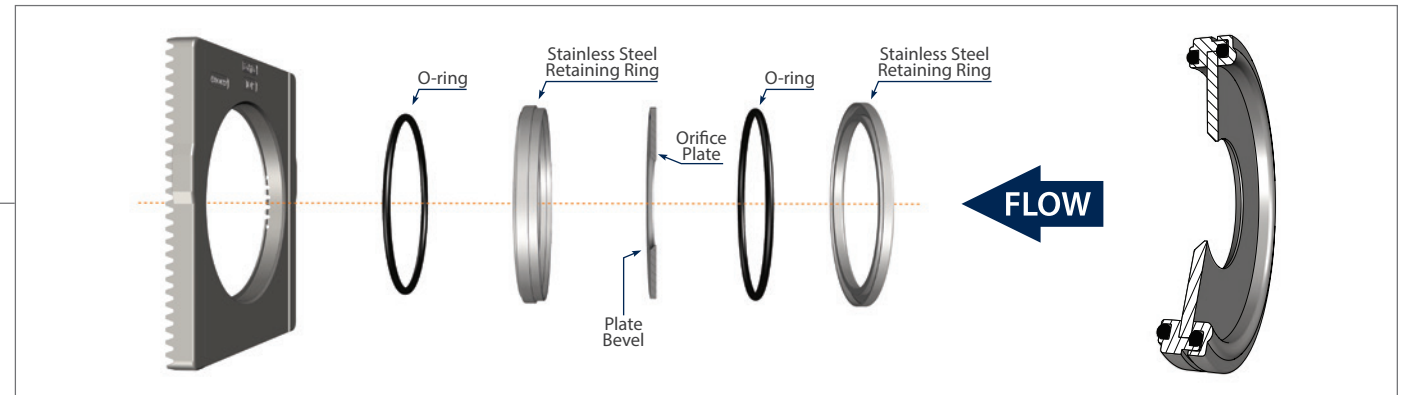
The seal assembly is comprised of an elastomer seal and one stainless steel retainer ring. Exact and repeatable concentricity is maintained with the metal to metal contact throughout the entire 360° circumference of the orifice plate to the plate carrier mechanism.



Dual Ring Seal

Canalta's Dual Ring Orifice Plate Seal is an innovative response to ultra-harsh process environments, performance challenges and the need for operating cost improvements. Two rugged 316 SS retaining rings encapsulate the orifice plate, providing bypass protection with two standard sized O-rings. Operators can easily source additional rings for replacement or to match changing service conditions. The unique seal structure provides excellent eccentricity and plate deflection performance.

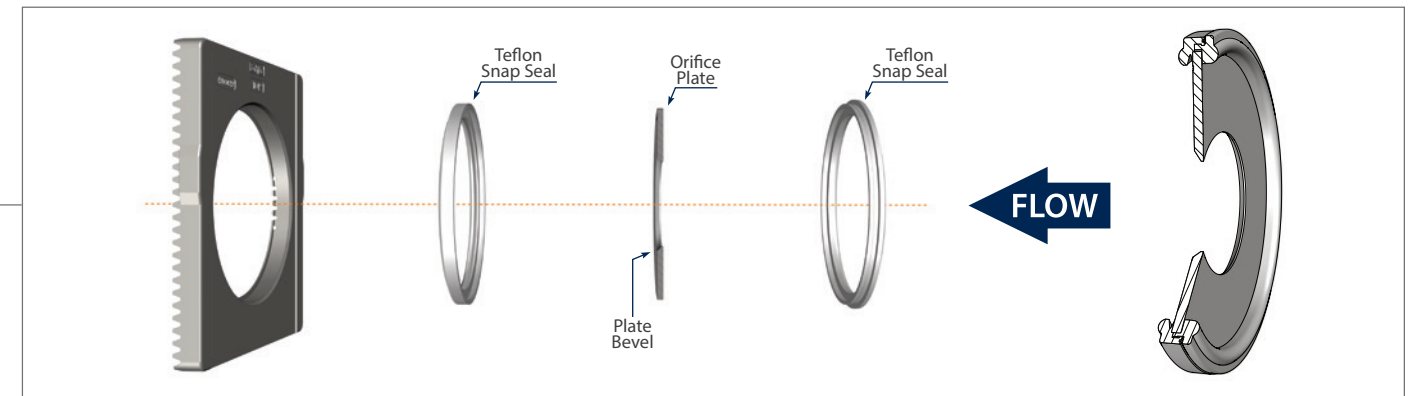
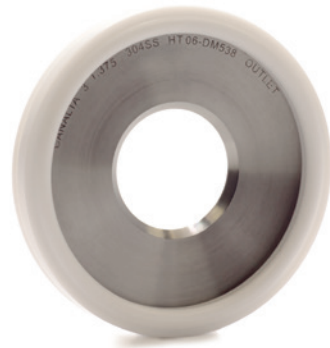
Available as standard with 80 duro HNBR sealing components, with exotics available by special order. Retaining rings also available in Teflon.



Teflon Snap Seal

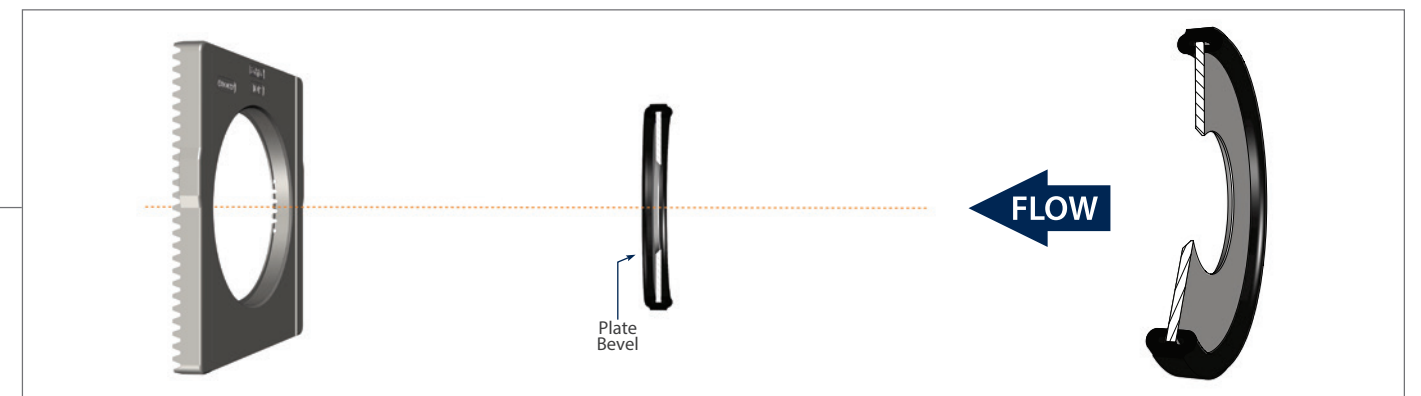
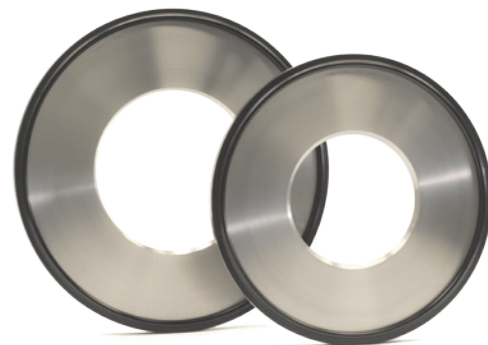
The Teflon Snap Seal provides positive plate sealing in the harshest of process environments. The two-piece design snaps over the orifice plate without the use of metal clips or retainers. A specially designed recess absorbs the insertion pressures, minimizing permanent compression and distortion.

The raised section adjacent to the recess creates a positive seal against the orifice plate, preventing bypass leakage. These two unique design features enhance seal performance while extending the life expectancy of the seal assembly.



Bonded Seal

This is the standard seal supplied with all Canalta Orifice Fitting model sizes 10" and larger. Designed with a unique "hollow core" recess, this seal has impressive expansion and contraction capabilities when compared to traditional solid rubber seals. The recess allows the seal to absorb insertion pressures, minimizing tearing, distortion and permanent compression. The 80 duro HNBR seal is adhesively bonded to the orifice plate, creating total and permanent contact between the plate and seal and preventing bypass leakage.



TECHNICAL SPECIFICATIONS

- Design** Orifice fittings supplied in Canada are built in accordance with the ABSA Quality Control Program and carry a CRN registration number. Industry Canada Approval Number AF-0014. In compliance with ASME 16.34 and ASME 16.5, ASTM specifications, AGA-3 Latest Edition and ISO-5167.
- Body Materials** A216 WCB, A216 WCC, A352 LCC, A358 CF8M, A995 Gr4A, A995 Gr6A, Custom
- Internal Parts** AISI 4130 Carbon Steel, 316 or A351 CF8M Stainless Steel
- Sizes and ANSI Class** 2" through 12" 150 through 2500 ANSI raised face flange
14" through 16", 150 through 1500 ANSI raised face flange
18" through 30", 150 through 600 ANSI raised face flange
600, 900, 1500 and 2500 flanges also available in RTJ face flange
- U/S D/S Connections** Flangeneck design (weldneck U/S, flange D/S)
Flange x flange
Weldneck both ends
- Internal Bore Sizes** 40, 60, 80, 100, 120, 160 and custom sizes
- Sealing Compounds** Seal bar - HNBR O-ring standard, gasket optional
Shafts - Teflon packing standard, HNBR O-ring optional
Inner valve - Grease seal standard, HNBR O-ring optional
Orifice plate - Type "K" 2000 Edition formed HNBR seal on a 316 SS retainer ring
Dual Ring HNBR O-rings standard on a 316 SS retainer ring assembly
Teflon Snap Seal two-piece virgin Teflon assembly
- Line Bore I.D. Tolerance** In conformance with AGA-3 and ISO-5167 Latest Editions
- Eccentricity Repeatability** In conformance with AGA-3 and ISO-5167 Latest Editions
- Tap Connections** Two 1/2" NPT per side standard, two 1/2" NPT additional per side optional (TT)
2" and 3" fitting sizes center bored to .375" inside diameter
4" and larger sizes center bored to .500" inside diameter
Tolerance +/- 1/64"
- Orifice Plate Seal Gap** 2" through 6" = 0.562", 8" through 14" = 0.688", 16" through 20" = 0.813",
24" through 30" = 0.875"
- Operating Shaft Location** Left hand mount standard on sizes 2" through 14"
Dual operation on sizes 16" and larger
- Operating Temperature** Standard at -20° to 100° F, optional -40° to 1200° F
- Operating Position** Vertical or horizontal

Conformance

All fittings come standard with a documentation package including hydro-test, function test, inner valve seal test, quality control inspection and material test reports. Trace ability is maintained in accordance with the ISO-9001 Quality Control Program. All fittings are manufactured within the guidelines of ASME 16.34 and ASME 16.5. When required, radiography, stress relief, ultra-sonic and liquid dye penetration tests can be performed with the relevant report submitted.

Reporting

An AGA 2000 inspection report is included with the purchase of every fitting. The documented tests include:

- I.D. Bore Tolerance
- Tap Communication
- Orifice Eccentricity
- Instrument Tap Diameter
- Plate Seal Test
- Bore Inside Diameter
- Instrument Tap Location
- Seal Protrusion
- Bore Roughness



Our **Quality Management** systems guarantee that your **Canalta Orifice Fittings** are fully function and pressure tested, AGA-3, API 14.3 and ISO 5167 compliant and **ready for service**

INSTALLATION RECOMMENDATIONS

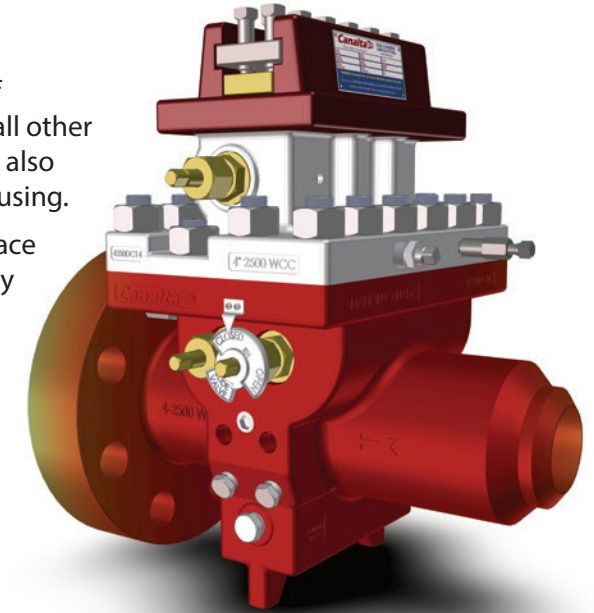
The Dual Chamber Orifice Fitting is typically installed in conjunction with upstream and downstream meter run sections (tubes). This is essential to meet the recommendations of both AGA Report 3 and ISO 5167. To obtain the best measurement results, follow the recommended piping configurations and installation requirements of either of these two standards, as well as the recommendations below.

- Always ensure that operating staff are competent and properly trained to operate this and all other pressurized equipment.
- Ensure that the system is designed to send clean fluids to the orifice plate. In some cases, a filter installed upstream of the flow meter and in accordance with the flow profile specifications of the AGA or ISO standard may be required.
- Ensure that the system is designed to provide the following (wherever required): protection against excessive pressure; fire suppression; protection from degrading or otherwise unstable fluids; access limitation while under pressure or vacuum.
- Attention to clearances is essential. Consult the available dimensional drawings and tables for details. Ensure there is operating clearance at the sides of the fitting for pinion gear rotation and operating wrench removal. Ensure, too, that there is clearance above the top of the fitting for removal of the orifice plate carrier.
- When installing the fitting or meter run, check that the flow arrow corresponds to the direction of flow in the line.
- The unit can be installed either in a vertical or horizontal flow orientation. When mounting horizontally, the top housing should be located in the upper position for ease of operation as well as to avoid liquid and debris from accumulating in the upper chamber.
- When used to measure wet gas, the vertical mount is recommended to prevent dam formation against the orifice plate.
- Instrument tap lines should be installed sloping upward to the differential pressure measurement instrument. Where this cannot be accomplished, use seal pots to chemically seal the sensing lines in order to eliminate hydrostatic head errors.
- After the orifice fitting has been piped in, install the bleeder valve, grease gun and indicator plate on the slide valve pinion gear.
- With the two drive screws provided, install the valve position pointer. Ensure that the position on the valve indicator plate corresponds with the position of the slide valve.
- It is recommended that the bleeder valve vent be piped away from the fitting to a safe venting area. It is the responsibility of the end user to ensure the piping system is designed to avoid all harmful effects, such as water hammer, vacuum collapse, corrosion and uncontrolled chemical reactions.
- To avoid damage to the orifice plate, ensure the orifice plate and plate carrier are removed from the fitting prior to pressure testing the system.
- Before inserting the orifice plate and plate carrier into the fitting, always ensure that the lower cavity of the fitting is free of debris. If debris has accumulated, remove the lower drain plugs and rod-clean the lower section.
- Dual Chamber Orifice Fittings equipped with the grease style slide valves were lubricated at the factory prior to shipment. If the unit has been sitting out of service for more than 90 days, remove the top housing and reapply grease to the valve seat grease track by hand.
- To avoid over range damage to the differential measurement instruments and orifice plate during initial pressurization, ensure the orifice plate is rolled up out of the flow stream and that the instrument manifold equalization valves are open.

OPERATIONS & MAINTENANCE

GENERAL OPERATING NOTES

- It is the responsibility of the end user to ensure all operating staff are competent and properly trained in the operation of this and all other pressurized equipment. The following operating instructions are also given on the operating plate attached to each flow meter top housing.
- It is the responsibility of the end user to assess the expected surface temperature of the unit while in service, and to take the necessary precautions to avoid operator injury.
- It is the responsibility of the end user to account for all vented process fluids, and to develop the necessary procedures to avoid operator injury and environmental damage.



During normal operation, only the lower chamber is pressurized. Atmospheric pressure in the upper chamber is necessary for proper functioning of the inner slide valve.

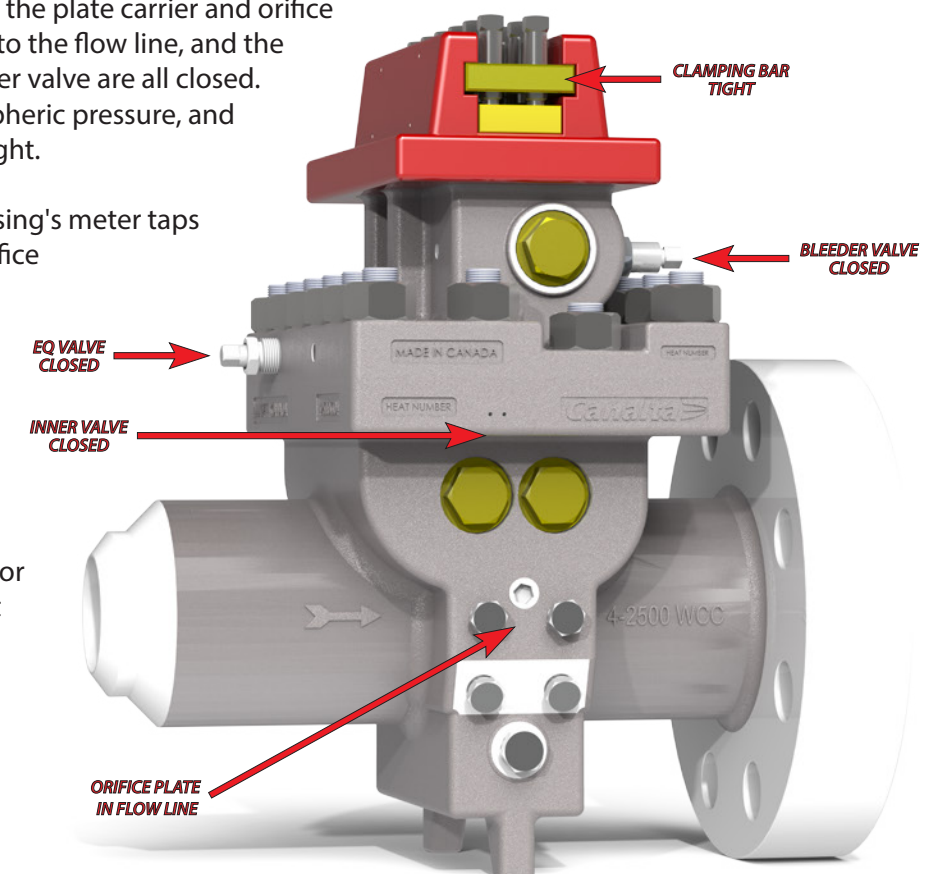
NORMAL OPERATION

The Canalta Dual Chamber Orifice Fitting allows for accurate placement of an orifice plate in the flow line, along with easy removal and replacement, without interrupting the flow or dismantling the pipeline. Flow of the gas or liquid through the orifice plate creates the differential pressure which is measured and used for the calculation of the flow rate through the pipeline.

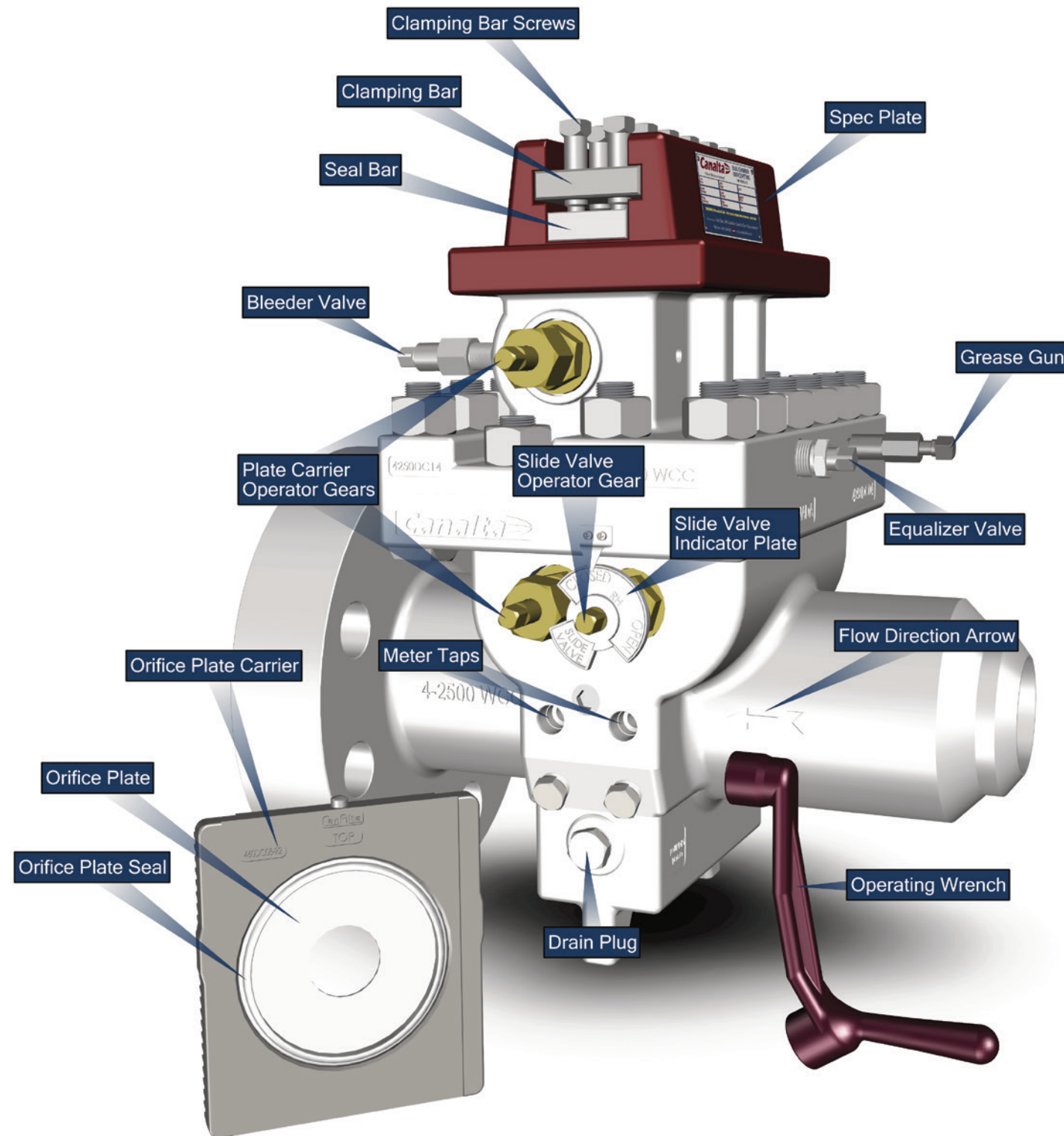
The unit is in normal metering status when the plate carrier and orifice plate are in the lower chamber, concentric to the flow line, and the inner slide valve, equalizer valve and bleeder valve are all closed. The upper chamber of the unit is at atmospheric pressure, and the clamping bar at the top of the unit is tight.

Pressure sensors installed in the lower housing's meter taps read the differential pressure across the orifice plate and transmit the readings to a flow computer or chart recorder.

Orifice plate condition is critical to accurate metering. The orifice plate must be removed and inspected for damage, general wear and particulate build-up regularly. Prior to beginning the orifice plate removal procedure, the operator must confirm that the clamping bar is tight and that the bleeder valve is fully closed.



KEY OPERATING PARTS AT A GLANCE



REMOVING THE ORIFICE PLATE

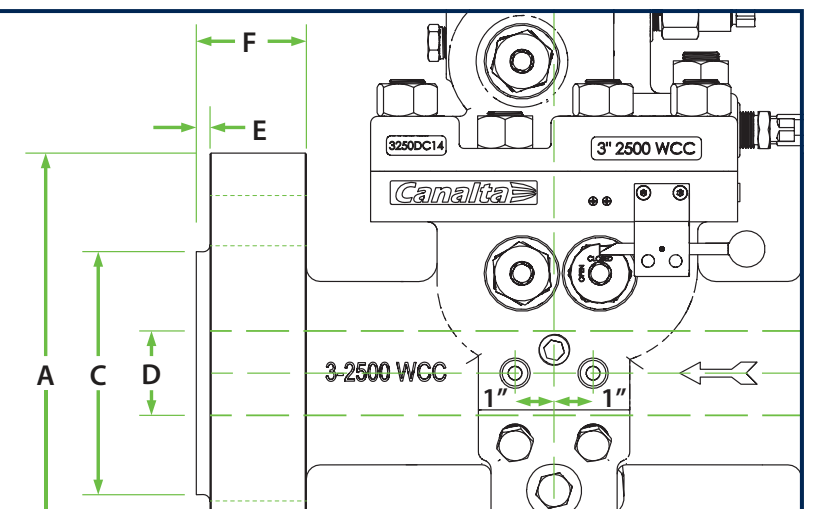
WARNING: Prior to beginning the procedure, confirm that the clamping bar is tight and that the bleeder valve is fully closed.

WARNING: THE UNIT MAY BE UNDER EXTREME HIGH PRESSURE. Failure to depressurize the top housing before attempting to remove the seal bar may result in bodily harm or death. Follow all instructions carefully. Stay clear of the top opening at all times and ensure that the bleeder valve is vented away safely.

1. Slowly open the equalizer valve to pressurize the top chamber equal to the flow line pressure.
2. Open the inner slide valve. (See previous for operating inner valves with the valve lock-out mechanism).
3. Starting with the lower plate carrier operator gear, rotate the gear shaft to raise the plate carrier using the operating wrench until it engages the upper plate carrier pinion gear. Rotate the upper operator gear until the plate carrier stops against the seal bar.
4. Rotate the slide valve operator gear to close the inner slide valve. **Ensure the inner slide valve is completely closed.**
5. Fully close the equalizer valve.
6. Open the bleeder valve to fully depressurize the top chamber.
7. Lubricate the slide valve through the provided grease gun (see below).
8. Loosen the top clamping bar screws. **DO NOT REMOVE THE CLAMPING BAR.**
9. Rotate the upper plate carrier pinion gear to raise the plate carrier and dislodge the seal bar.
10. Remove the clamping bar and seal bar. Raise the plate carrier through the opening for access.

Complete dimensions tables for all of our orifice fitting models are available by contacting your nearest Canalta Flow Measurement sales representative.

Find a list of our offices and global distribution partners at www.canaltaflow.com/global



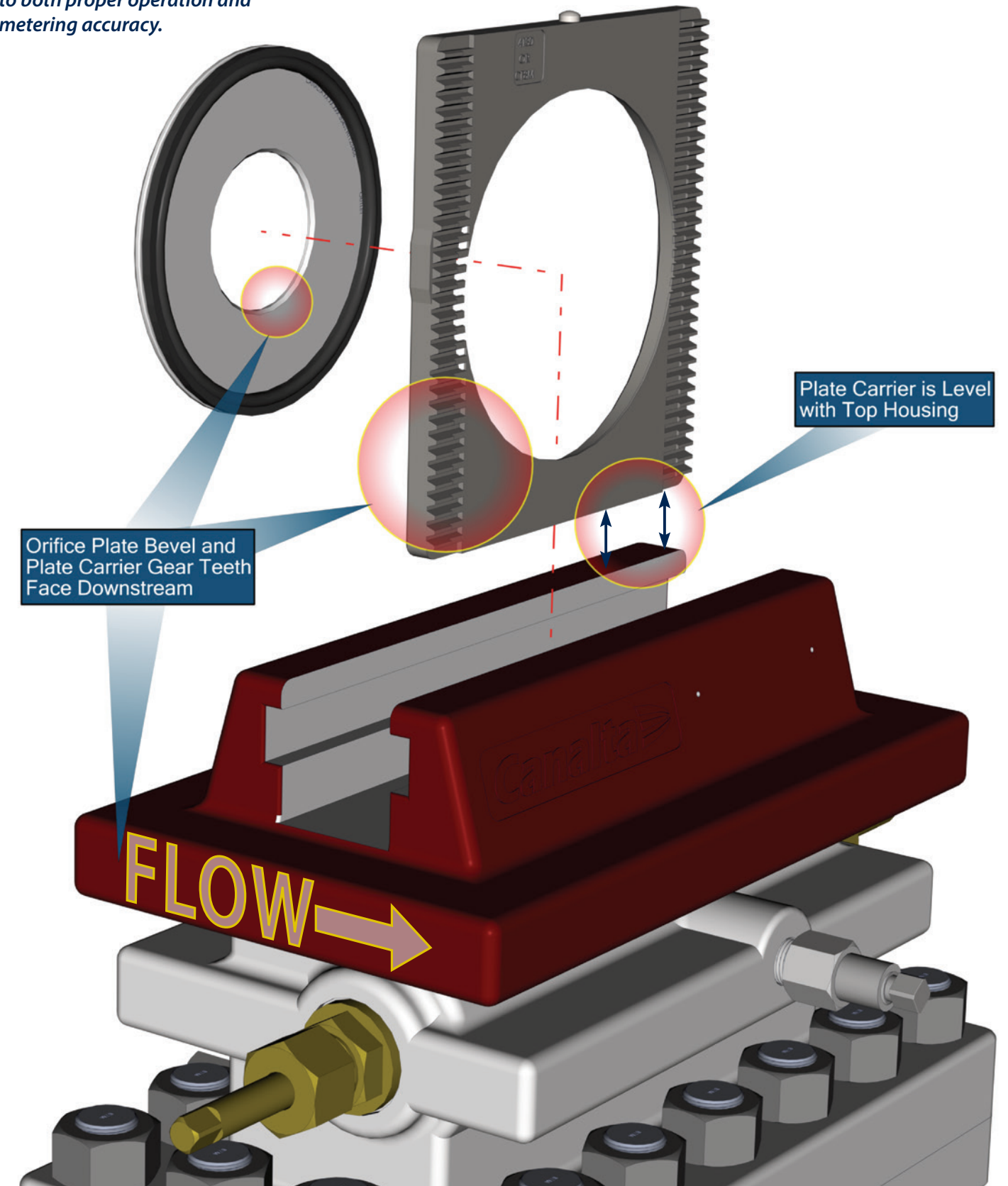
OPERATIONS & MAINTENANCE

REPLACING THE ORIFICE PLATE

1. Fully close the bleeder valve.
2. Ensure that the orifice plate and seal are configured in the plate carrier with the plate seal and orifice plate bevel facing downstream (see right).
3. Insert the plate carrier assembly into the open top slot of the orifice fitting with the gear surface facing downstream, ensuring that it sits squarely on the top operator gears and is parallel to the top surface of the fitting's top housing.
4. Slowly rotate the upper plate carrier operator gear until the plate carrier clears the seal bar level of the top housing. **DO NOT LOWER THE PLATE CARRIER ONTO THE INNER SLIDE VALVE.** Ensure that the plate carrier is not crooked or otherwise falling out of level.
5. Replace the seal and clamping bars, and tighten the clamping bar screws.
6. Ensuring that the bleeder valve is closed, slowly open the equalizer valve to match pressure levels in the fitting body and top housing.
7. Rotate the slide valve operator gear to open the inner slide valve.
8. Rotate the upper plate carrier operator gear to lower the plate carrier into the fitting body. Rotate the lower plate carrier operator gear until the carrier makes contact with the bottom of the fitting.
9. Close the inner slide valve to seal off the top housing from the fitting body.
10. Fully close the equalizer valve.
11. Open the bleeder valve to release pressure from the top housing.
12. Lubricate the slide valve through the provided grease gun (see below).
13. Fully close the bleeder valve.

WARNING: PRESSURIZED UNIT. Ensure all operating staff are trained in the safe operation of this and all other pressurized equipment. These instructions are attached to the top housing of each Canalta Dual Chamber Orifice Fitting.

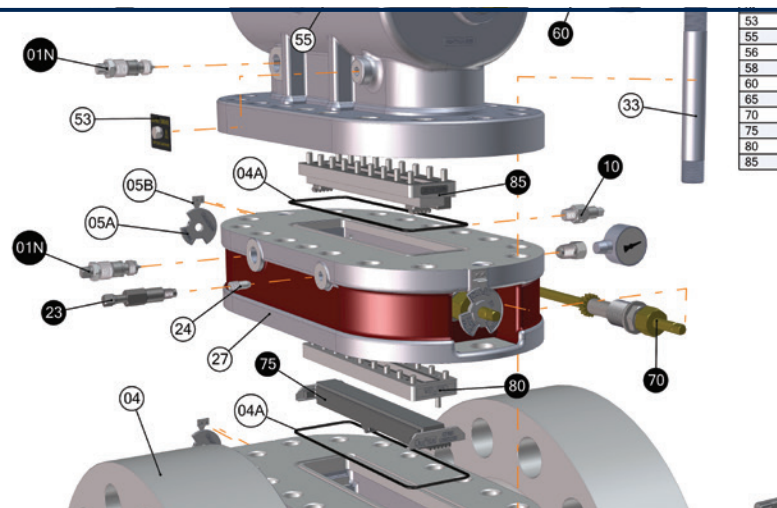
When replacing the orifice plate, proper positioning of the orifice plate and plate carrier is crucial to both proper operation and metering accuracy.



Looking for general assembly diagrams? Contact your nearest Canalta Flow Measurement sales representative to get all of the technical documents you need.

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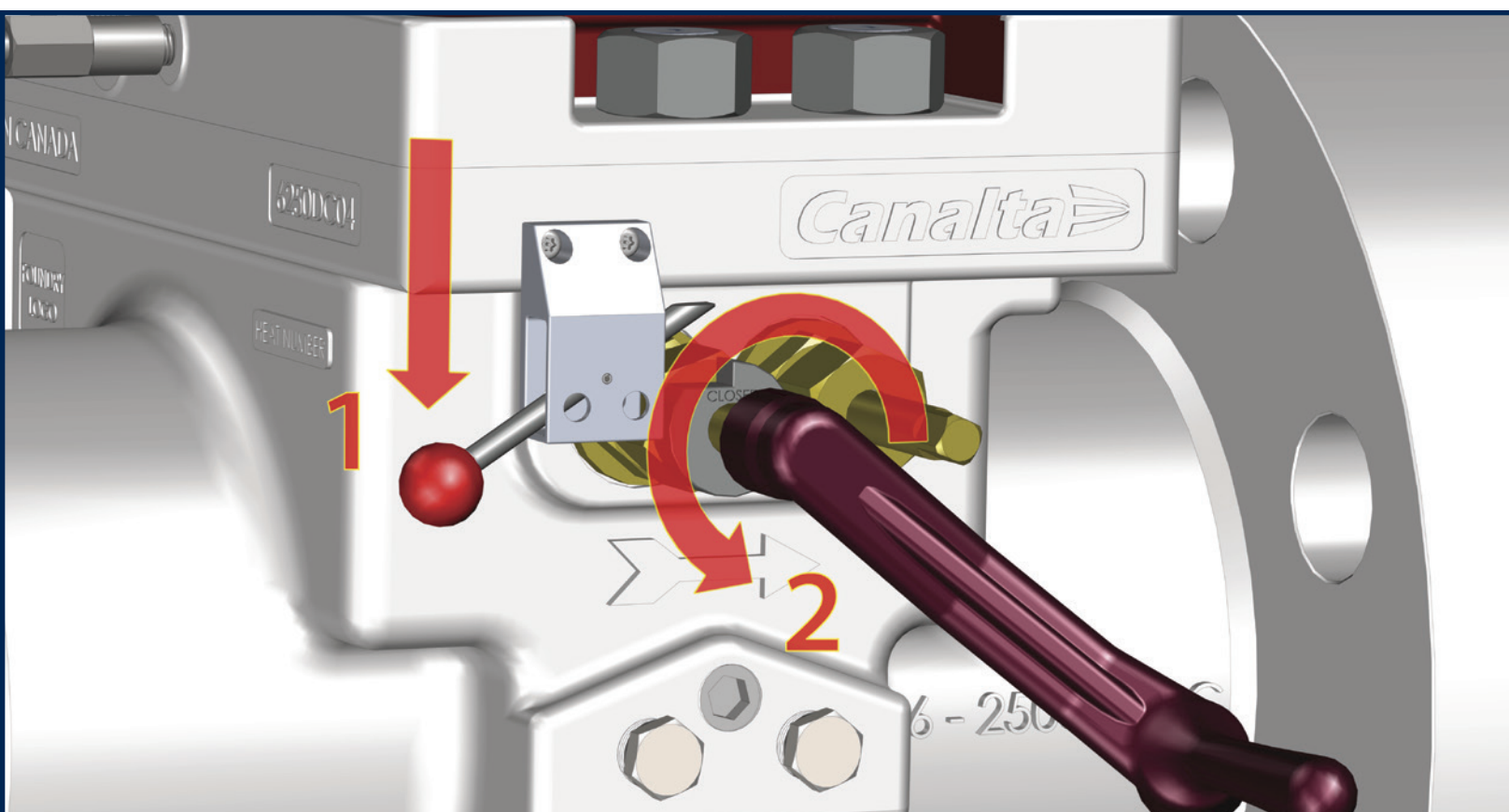
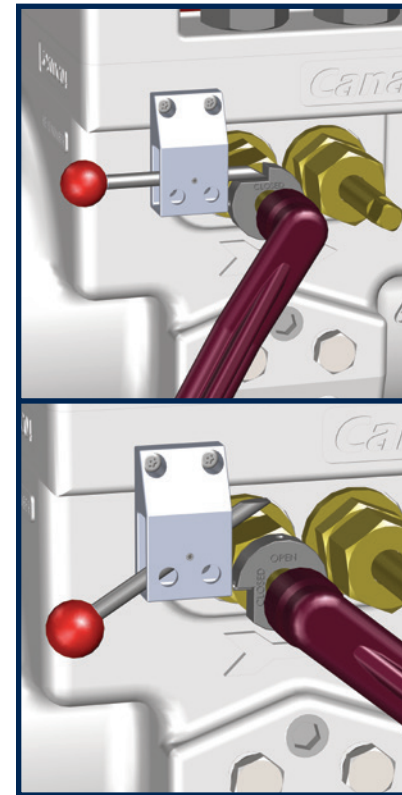
OPERATIONS & MAINTENANCE

VALVE LOCK-OUT MECHANISM

After numerous requests from our customers, Canalta designed a valve lock-out mechanism to provide extra protection on the inner valve pinion gear. Requiring a manual reset before the inner valve may be opened, this security accessory provides an added opportunity for safety assessment and operator awareness. Two holes in the lock-out mechanism's mounting bracket allow the unit to be locked with any standard padlock as a protection against tampering or other unauthorized operation. In addition, the mechanism is attached to the fitting body with two fasteners that require a non-standard tool for removal, adding further security.

The mechanism also provides clear visual indication of valve status (open / closed) by means of a retainer that rotates with the pinion gear shaft during operation.

To open the inner valve with the valve lock-out mechanism in place, first depress and hold the lever arm, then rotate valve's operator gear shaft with the operating wrench. Rotation will automatically stop when the valve is fully open, and the mechanism's retainer will be in the "OPEN" position.



SLIDE VALVE LUBRICATION

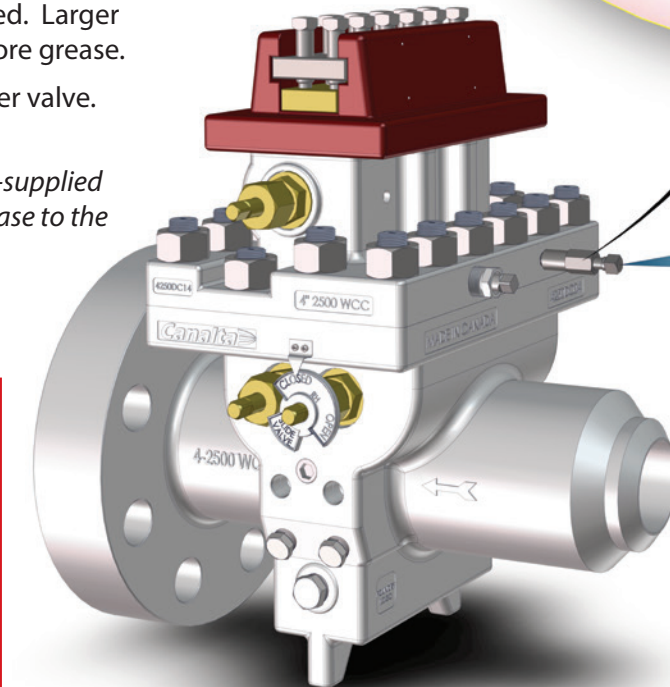
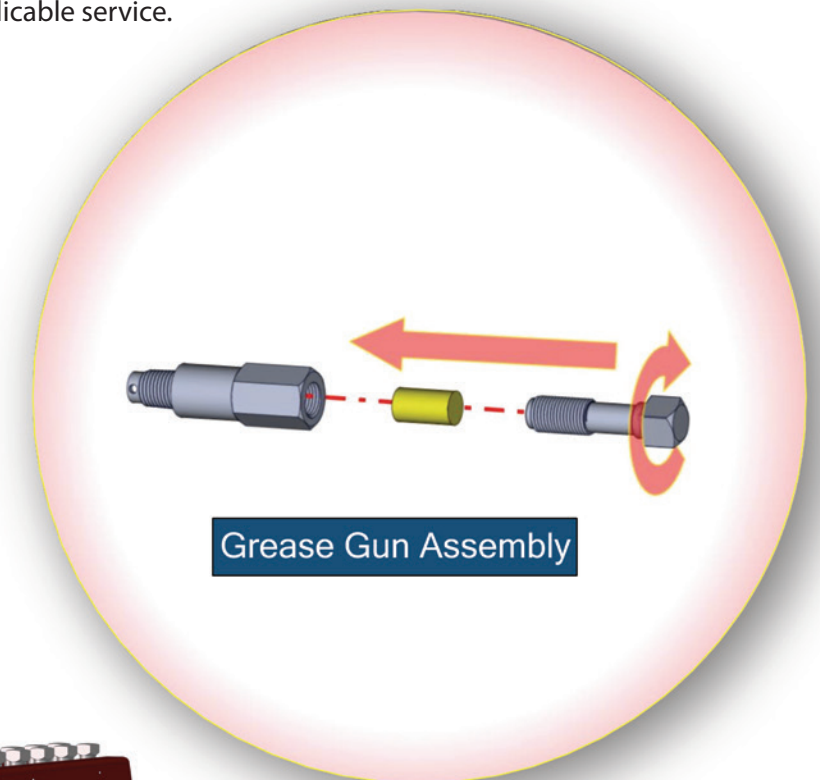
GREASING PROCEDURE

The metal-to-metal grease seal design requires lubrication on a regular basis. For the procedure to be successful, a pressure differential across the slide valve being serviced is required, with the chamber immediately below the valve having a higher pressure and forcing the valve strip up against the seat. The double ball grease check valve prevents process pressure from coming through the grease port. For best results, use only valve seal grease supplied by Canalta and recommended for the applicable service.

1. Ensure that the inner slide valve and equalizer valve are fully closed, and that the upper chamber is depressurized.
2. Open the bleeder valve and allow the top chamber to depressurize. A pressure differential now exists between the lower and upper chambers, and the slide valve is ready to be greased.
3. Remove the threaded stem from the grease gun assembly. Insert one stick of grease.
4. Replace the grease gun stem and turn in slowly so as not to rupture the grease channel seal.
5. Repeat steps 3 and 4 if additional grease is required. Larger units require more grease.
6. Close the bleeder valve.

*** Note:** use only Canalta-supplied grease guns to apply grease to the slide valve.

WARNING:
PRESSURIZED UNIT.
Ensure all operating staff are trained in the safe operation of this and all other pressurized equipment.



WARNING: The soft seat valve seal design does not require lubrication through the grease port. Attempting to lubricate a Canalta DC Orifice Fitting equipped with a soft seat slide valve will cause the inner O-ring seal to be ejected from the dovetail groove resulting in valve failure.

MAINTENANCE & STORAGE REQUIREMENTS

PREVENTIVE MAINTENANCE

The Canalta Dual Chamber Orifice Fitting has a number of moving parts that benefit from a regular preventive maintenance program. The following procedures are recommended:

- Remove and inspect the orifice plate and seal monthly. Replace as required. Visually inspect the interior of the fitting through the opening and regularly monitor for excessive corrosion or wear.
- Lubricate grease-type slide valves as per operating instructions, or monthly. If the greasing procedure is not performed for 90 days or more, disassemble the unit and re-apply grease to the grease tracks by hand. *Do not apply valve seal grease to soft seat units via grease gun;*
- Disassemble the orifice fitting every two years or earlier if deemed necessary. Inspect the inner working parts for corrosion and wear. Replace the working parts as required and replace all seals prior to reassembly.

PRESERVATION & STORAGE

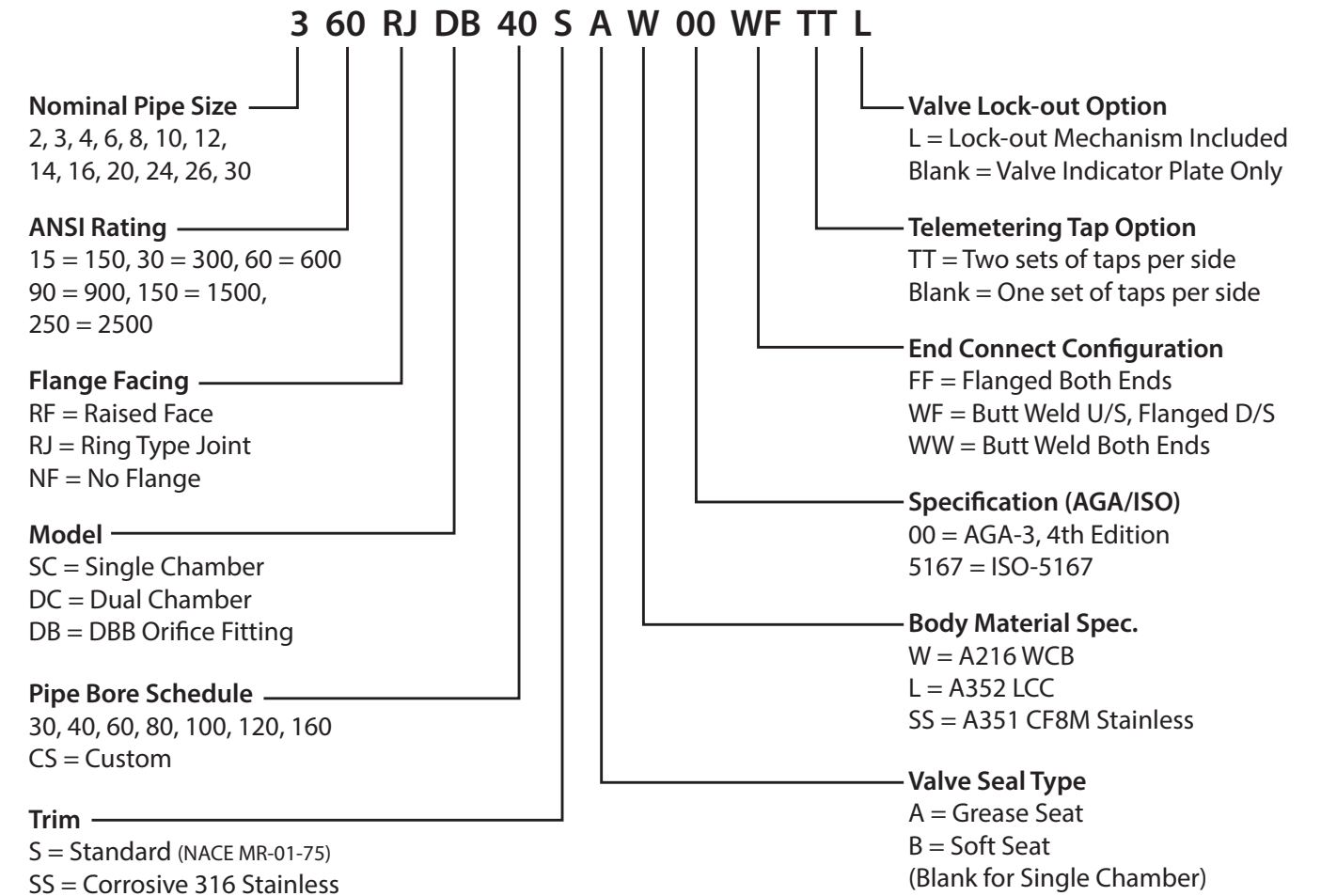
The following measures should be taken to preserve and store all orifice fittings and meter runs that are not currently in service:

- Store in dry conditions, preferably indoors to prevent rust and corrosion;
- The end caps shipped with the meter run or fitting should be left in place during storage;
- Apply rust inhibitor every 3-6 months inside the bore to prevent rust and corrosion;
- Ensure orifice plate and seals are removed from the seal gap, and soft seat slide valves remain in the "open" position during storage. Soft seat units require no additional maintenance during storage. *Do not apply valve seal grease to soft seat units via grease gun;*
- For grease-type units, apply valve seal grease via grease gun every 90 days to prevent hardening of the sealant medium. Ensure grease-type valves remain in the "closed" position during storage;
- Hydrostatic testing is required before entering service if stored for more than 1 year; replace / re-lubricate seals as required.



MODEL NUMBERING SYSTEM

Each individual Canalta Orifice Fitting is assigned a model number which can be found on the unit's sales and quality control documentation. These model numbers facilitate quick identification of specific features of an orifice fitting, such as pipe schedule, body material and applicable standard. To understand the model number on your Canalta Orifice Fitting, use the legend below.



Note: the orifice fitting model number may deviate slightly from this legend in cases where exotic materials or other custom features are included. Please contact us directly for any questions or concerns regarding your Canalta Orifice Fitting.

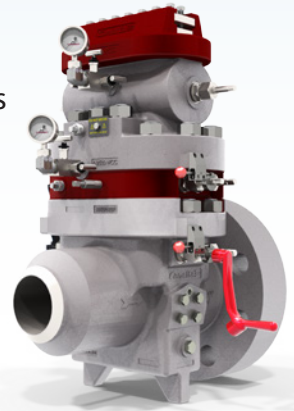
ADDITIONAL PRODUCT LINES

Canalta also offers a complete lineup of products to fulfill your orifice metering requirements. Visit us on the web at www.canaltaflow.com, or contact us to request details.

The Canalta DBB Orifice Fitting

Designed after HSE HSG 253 Cat 2 Isolation, the Canalta DBB Orifice Fitting brings new levels of safety and user functionality to D.P. flow measurement. Two valves separate the operator from high pressures and toxic flow media, and pressure gauges with BOP protection provide added security during operation.

Available as fitting only, retrofit package or with complete meter run, 150# - 2500# ANSI ratings, in a variety of material and connection configurations.



Patent Pending

Parts, Accessories & Repair Kits

Parts and repair kits available for all of our orifice fitting models, meter runs and flow conditioning solutions.

Our parts and accessories offerings are interchangeable with the current industry standard orifice fitting brand, making Canalta Orifice Fitting internals suitable for re-builds and re-works of our competitors' product lines at substantial cost savings.



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