HOT-TAP Valve Retractable Assemblies, 3rd Generation

1½” & 2” 316 Stainless Steel (316SS) HOT-TAP Valve Retractable Assemblies for 5X31, 5X41 & 5XX0 pH, ORP & Ion Selective Sensors

Support for Insertion & Removal directly into a process tank or pipe while system is running with support for pressures up to 100 psig at up to 150 degrees Celsius

Shown above is a complete 2” NPT HOT-TAP Valve Retractable Assembly with 316SS Sensor Holder, 36 Inch Extension Tube & 5X31 Series Sensor

- Fast & Easy Insertion & Removal of robust 5X31, 5X41 & 5XX0 series sensors for superior lifetime and performance in valve retractable installations
- Side Purge Port and Vent Valve Included for relief of high pressure or dissolved gas containing process media during removal or insertion of sensor into process for cleaning, recalibration or replacement
- Sturdy 1.25" X 1.00" step between sensor holder and extension tube ensure blow-out protection for safe operation up to 100 psig
- Viton-75 O-ring standard, with CV-75, Simriz 485 and Kalrez 4079 available upon request
- Can be interfaced to most existing 1.5”, 2” or 3” NPT process connections. Can be retrofitted to most existing HOT-TAP retraction installations from prior OEM suppliers (leaving installed the original full-port ball valve) with the use of extended length insertion tubes.
2" NPT Ball Valve Assembly Only with Side Purge Port Shown Above (without compression fitting or insertion tube)

Complete HOT-TAP Valve Retractable Assembly including insertion tube & sensor shown below

- Shown above is the 5X31 series sensor installed into the sensor holder (far left) as well as the 1"MNPT X 1.00"O.D. 316SS compression fitting (middle of extension tube) and sealing cable glands (far right). The cable glands are available in various plastic and metal materials of construction which serve as the stop-in safety to prevent the entire assembly from accidentally sliding into the process line or tank.

- The step down from the 1.25" O.D. of the sensor holder to the 1.00" O.D. of the sensor tube serves as a robust blow-out protection since it is essentially physically impossible for this to pass the 1.5"X1" or 2"X1" NPT reducing bell on the back of the HOT-TAP assembly provided it is securely fastened.

- When such an insertion tube assembly is to be used for HOT-TAP valve retractable style installations the extension tube would be the longer 36, 48 or 60 inch lengths as needed to achieve the necessary insertion depth.

The photo below details the 316SS sensor holder fitted with a 12" 316SS extension tube. This arrangement of hardware constitutes an insertion tube only assembly.
Various close-up images are below for better visualization of the HOT-TAP assembly features:
### 3rd Generation HOT-TAP Valve Retractable Hardware Specs

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Range</td>
<td>-30 to 150 Degrees Celsius (-22 to 302 Degrees Fahrenheit)</td>
</tr>
<tr>
<td></td>
<td><em>NOTE: Do not use any sensor past its recommended Temperature Rating</em></td>
</tr>
<tr>
<td>Pressure Range</td>
<td>1 to 100 psig (6.9 to 690 kPag absolute)</td>
</tr>
<tr>
<td></td>
<td><em>NOTE: Do not use any sensor past its recommended Pressure Rating</em></td>
</tr>
<tr>
<td>Operating pH range</td>
<td>-0.5 to 14.5 max range</td>
</tr>
<tr>
<td></td>
<td><em>NOTE: Do not use any sensor past its recommended pH Rating</em></td>
</tr>
<tr>
<td>Dissolved Gasses Resistant</td>
<td>Chlorine, Chlorine Dioxide, NOx, Ozone, Hydrogen Sulfide, Hydrogen Cyanide (standard)</td>
</tr>
<tr>
<td></td>
<td>Inquire about other gasses</td>
</tr>
<tr>
<td>Process Connection</td>
<td>316 SS: 1 ½&quot; or 2&quot; MNPT</td>
</tr>
<tr>
<td>Ball Valve For Process Isolation</td>
<td>Full Port 316 SS with Teflon Seats &amp; Ferrules; 1 ½&quot; &amp; 2&quot; FNPT</td>
</tr>
<tr>
<td>Connecting Nipple with purge port and vent valve</td>
<td>316 SS: 1 ½&quot; &amp; 2&quot; MNPT X 6&quot; Pipe Tee with ½&quot; MNPT Ball Valve for Pressure Relief (Purge Port &amp; Vent Valve)</td>
</tr>
<tr>
<td>1 ½&quot;-1&quot;, 2&quot;-1&quot; Reducer &amp; 1&quot; Compression Fitting</td>
<td>316 SS</td>
</tr>
<tr>
<td>Compression Fitting Ferrule</td>
<td>Teflon standard; Application Specific Ferrules available, Inquire to ASTI</td>
</tr>
<tr>
<td>Gas/Pressure Seal</td>
<td>O-Ring, Viton # 214 standard; Application Specific O-Rings available, Inquire to ASTI</td>
</tr>
<tr>
<td>Back End Blowout Protection</td>
<td>Flats on 1/2&quot;MNPT cable glands stop-out against compression fitting to prevent accidental slippage into process</td>
</tr>
<tr>
<td>Front End Blowout Protection</td>
<td>1.25&quot;X1.00&quot; step between sensor holder and extension tube ensures rugged blow-out protection for safe insertion and removal at pressures to 100 psig</td>
</tr>
<tr>
<td>Insertion Depth past Process Connection</td>
<td>18 inches (~46 cm) with 36 inch extension tube</td>
</tr>
<tr>
<td></td>
<td>30 inches (~76 cm) with 48 inch extension tube</td>
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<tr>
<td></td>
<td>42 inches (~107 cm) with 60 inch extension tube</td>
</tr>
<tr>
<td>Overall Length of HOT-TAP Valve Assembly Only</td>
<td>22 inches Maximum (~ 56 cm)</td>
</tr>
</tbody>
</table>
NOTES

1. All dimensions are in inches, unless otherwise indicated.
2. Material of construction is 316L Stainless Steel, others available upon request (as special orders).
3. O-ring material of construction is Viton-75, others upon request.
4. Only use with ASTI 5X31, 5X41 & 5XX0 series sensors. See procedures for proper insertion of sensor into holder.
5. Max pressure 100 psig, max temp 150 deg Celsius. Do not use any sensor beyond specified limits.
6. Suitable for compression fitting only or HOT-TAP use.
7. Minimum process interface size is 1.5" NPT or equivalent.
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   See procedures for proper insertion of sensor into holder.
4. 3GVR-316SS-HOLDER sensor holder for HOT-TAP valve retractable installations is shown on top (Item # 14069)
5. Extension tube part number is 3GVR-316SS-EXT-XX" where XX is the desired length in inches of the tube

TOLERANCES

<table>
<thead>
<tr>
<th>TOLERANCE</th>
<th>1 Place: ± .1</th>
<th>2 Places: ± .01</th>
<th>3 Places: ± .005</th>
<th>4 Places: ± .0005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angular</td>
<td>± 0.025°</td>
<td></td>
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有所帮助的助手。
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4. Only use with ASTI 5X31, 5X41 & 5XX0 series sensors.
   See procedures for proper insertion of sensor into holder.
5. Max pressure 100 psig, max temp 150 deg Celsius. Do not use any sensor beyond specified limits.
6. HOT-TAP ball valve retractable assy must be installed at an angle as shown (Min 15 degrees below horizontal).
3GVR-316SS-HOLDER sensor holder for HOT-TAP valve retractable installations is shown on top (Item # 14069)

Extension tube part number is 3GVR-316SS-EXT-XX"
where XX is the desired length in inches of the tube
Item numbers 1407X for various lengths are shown in chart:

- 3GVR-316SS-EXT-12" - 12 Inch Extension Tube (14070)
  (Use in compression fitting only installations - NO HOT-TAP)

- 3GVR-316SS-EXT-36" - 36 Inch Extension Tube (14071)
  18 Inches max insertion depth past HOT-TAP interface

- 3GVR-316SS-EXT-48" - 48 Inch Extension Tube (14072)
  30 Inches max insertion depth past HOT-TAP interface

- 3GVR-316SS-EXT-60" - 60 Inch Extension Tube (14073)
  42 Inches max insertion depth past HOT-TAP interface

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   See procedures for proper insertion of sensor into holder.
5. Max pressure 100 psig, max temp 150 deg Celsius.
   Do not use any sensor beyond specified limits.
6. HOT-TAP ball valve retractable assy must be installed at
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<td>3</td>
<td>± .005</td>
</tr>
<tr>
<td>4</td>
<td>± .005</td>
</tr>
</tbody>
</table>

Angular: ± 0.25°

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5. Max pressure 100 psig, max temp 150 deg Celsius. Do not use any sensor beyond specified limits.
6. HOT-TAP ball valve retractable assy must be installed at an angle as shown (Min 15 degrees below horizontal).
7. 1/2" MNPT sealing cable glands available in a variety of plastic and metal materials of construction.
8. Optional secondary blowout protection is wire rope harness on 1/2" MNPT metal cable gland (not shown).

MAX TUBE EXTENSION PAST HOT-TAP ASSEMBLY

1.25"X1.00" STEP FOR BLOWOUT PROTECTION

MAXIMUM ASSEMBLY LENGTH RETRACTED

MAX TUBE EXT. PAST HOT-TAP

14070  Not for use with Ball Valve
14071  Max 33 Inches
14072  Max 45 Inches
14073  Max 57 Inches

MAX RETRACTED ASSY LENGTH

14070  Not for use with Ball Valve
14071  Max 55 Inches
14072  Max 67 Inches
14073  Max 79 Inches

TOLERANCES

1 Place: ± .1
2 Places: ± .01
3 Places: ± .005
4 Places: ± .0005
Angular: ± 0.25°

DRAWN BY
RH

CHECKED BY
TADP

APPROVED BY
MJP

SCALE
Not to Scale

PROJECT
SAN / VR

DRAWING NO.
HOT-TAP RETRACTED

REV
/
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### Iotron™ Sensor Selection Guide

<table>
<thead>
<tr>
<th>Sensor Description</th>
<th>RADEL</th>
</tr>
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<tbody>
<tr>
<td>General Purpose</td>
<td>5031</td>
</tr>
<tr>
<td>High Temperature</td>
<td>5131</td>
</tr>
<tr>
<td>Ultra High Temperature</td>
<td>5231</td>
</tr>
<tr>
<td>Slurry Viscous Material</td>
<td>5331</td>
</tr>
<tr>
<td>Acid/Fluoride Resistant</td>
<td>5431</td>
</tr>
<tr>
<td>Paper/Pulp Resistant</td>
<td>5531</td>
</tr>
<tr>
<td>Sulfide Resistant</td>
<td>5631</td>
</tr>
<tr>
<td>Ultrapure Water Resistant</td>
<td>5731</td>
</tr>
<tr>
<td>ORP</td>
<td>5831</td>
</tr>
<tr>
<td>Saturated Sodium Resistant</td>
<td>5931</td>
</tr>
</tbody>
</table>
NOTES

1. All dimensions are in inches, unless otherwise indicated with tolerances as detailed.
2. Sensor body material of construction is Radel grade R-5000 NT, unless otherwise stated.
3. O-ring material of construction is Viton-75 standard; CV75, Simriz 485 & Kalrez 4079 Optional.
4. Drawing as shown is without protective tines. The maximum displacement of the sensor past the end of the body in this configuration is 0.30" inches yielding a max overall length of 8.30 inches.
5. If sensor is ordered with protective tines option (not shown above, 4 places, 90 degrees apart), the overall sensor assembly length shall be 8.00 inches.
6. This sensor is only for use with ASTI supplied sanitary and valve retractable sensor holders.
7. See installation procedures for proper insertion of this sensor into the mating holder.