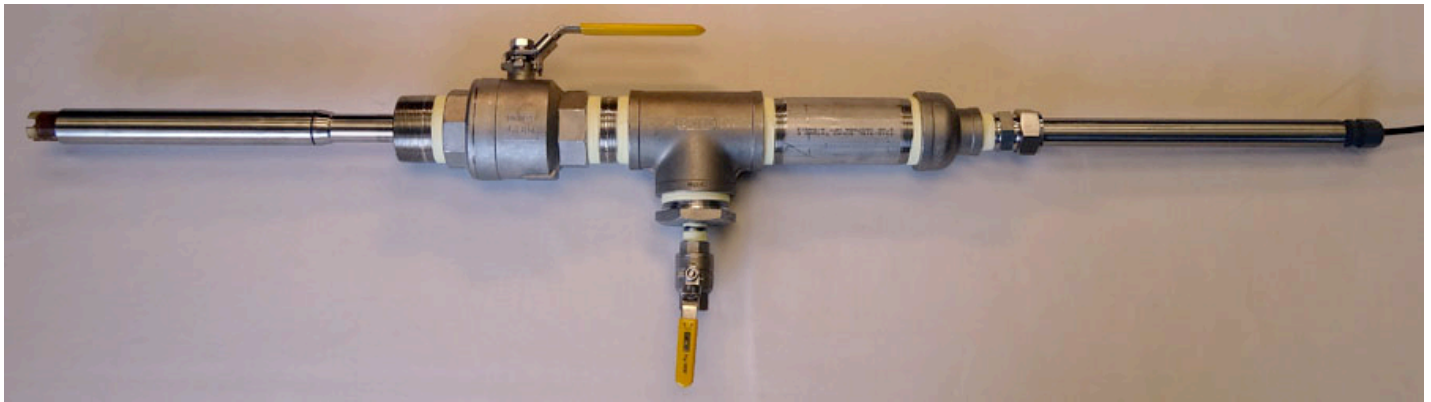


HOT-TAP Valve Retractable Assemblies, 3rd Generation

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)



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.

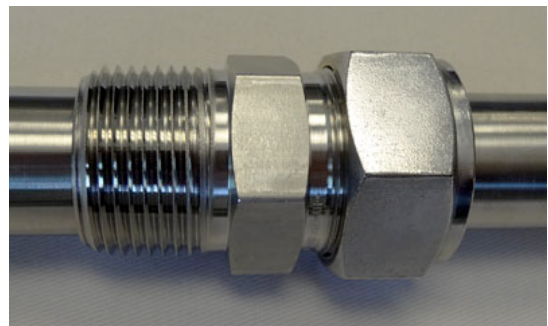


Complete HOT-TAP Valve Retractable Assembly including insertion tube & sensor shown below



- 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" X 1" or 2" X 1" 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.

Various close-up images are below for better visualization of the HOT-TAP assembly features:





3rd Generation HOT-TAP Valve Retractable Hardware Specs

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

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REVISION HISTORY		
REV	DESCRIPTION	DATE

APPROVED

DATE

9.625

8.625

HOTTAP-COMP-1"-316SS-TEFLON
(Item # 14007)
1"NPT X 1.00"
COMPRESSION FITTING
TEFLON FERRULES &
VITON O-RING (BLUE)

1/2" FNPT

1/2" MNPT
CABLE GLAND

VITON O-RINGS
2 PLACES

5X31, 5X41 or 5XX0
SERIES SENSOR

3/4" NPT
2 PLACES

3GVR-316SS-HOLDER (ITEM # 14069)
HOT-TAP SENSOR HOLDER
1.250" O.D. MAX DIA

EXTENSION TUBE
LENGTH
(SEE BELOW)

3GVR-316SS-EXT-XX"
HOT-TAP EXTENSION TUBE
12, 36, 48 or 60 INCHES
1.000" O.D. DIA

A

B

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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Advanced Sensor Technologies, Inc.
Orange, California USA
Toll-Free: 888-969-2784

TITLE		HOT-TAP Holder w/ Extension Tube Cross Section	
SIZE	PROJECT	DRAWING NO.	REV
B	SAN / VR	HOLDER-TUBE-X-VIEW	/
SCALE	MODEL	SHEET	OF
Not to Scale	Various	1	1

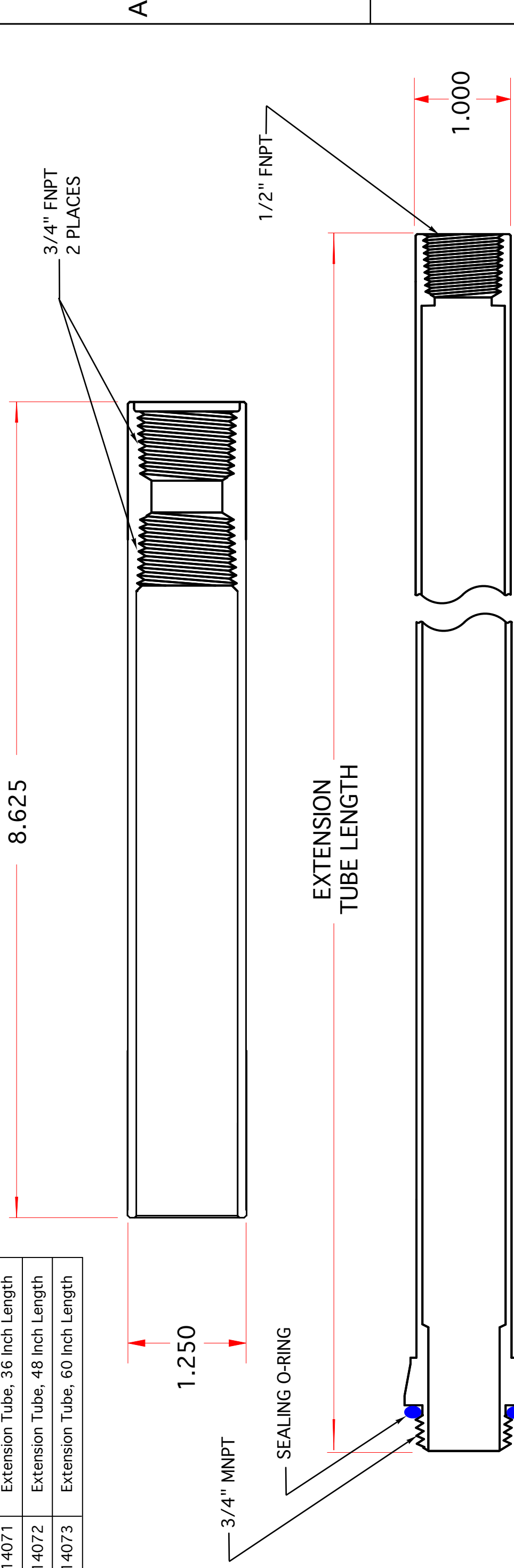
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EXTENSION TUBE LENGTH OPTIONS	
14070	Extension Tube, 12 Inch Length
14071	Extension Tube, 36 Inch Length
14072	Extension Tube, 48 Inch Length
14073	Extension Tube, 60 Inch Length

REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED



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. Only use with ASTI 5X31, 5X41 & 5XX0 series sensors. 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

1.25"X1.00" STEP FOR BLOWOUT PROTECTION

A

B



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 Orange, California USA
 Toll-Free: 888-969-2784

TITLE		HOT-TAP Holder w/ Extension Tube Cross Section	
SIZE	PROJECT	DRAWING NO.	REV
B	SAN / VR	HOLDER-TUBE-X-View	/
SCALE	Not to Scale	MODEL	SHEET 1 OF 1
	Various		

2

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ITEM #	EXTENSION TUBE LENGTH OPTIONS	PART NUMBER
14070	Extension Tube, 12 Inch Length	3GVR-316SS-EXT-12"
14071	Extension Tube, 36 Inch Length	3GVR-316SS-EXT-36"
14072	Extension Tube, 48 Inch Length	3GVR-316SS-EXT-48"
14073	Extension Tube, 60 Inch Length	3GVR-316SS-EXT-60"

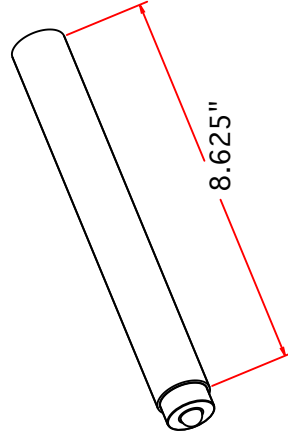
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"O" RING, AS 568-212

LENGTH

LENGTH



1.25"X1.00" STEP FOR BLOWOUT PROTECTION

3GVR-316SS-HOLDER sensor holder for HOT-TAP valve retractable installations (Item # 14069)

9.625"

NOTES

- All dimensions are in inches, unless otherwise indicated
- Material of construction is 316L Stainless Steel, others available upon request (as special orders)
- O-ring material of construction is Viton-75, others upon request
- Only use with ASTI 5X31, 5X41 & 5XX0 series sensors. See procedures for proper insertion of sensor into holder.
- Max pressure 100 psig, max temp 150 deg Celsius. Do not use any sensor beyond specified limits.
- HOT-TAP ball valve retractable assy must be installed at an angle as shown (Min 15 degrees below horizontal)

B

B

REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED



Advanced Sensor Technologies, Inc.
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TITLE		HOT-TAP Holder with Extension Tube - Isometric	
SIZE	PROJECT	DRAWING NO.	REV
B	SAN / VR	HOLDER-TUBE-ISO	/
SCALE	MODEL	SHEET	OF
Not to Scale	Various	1	1

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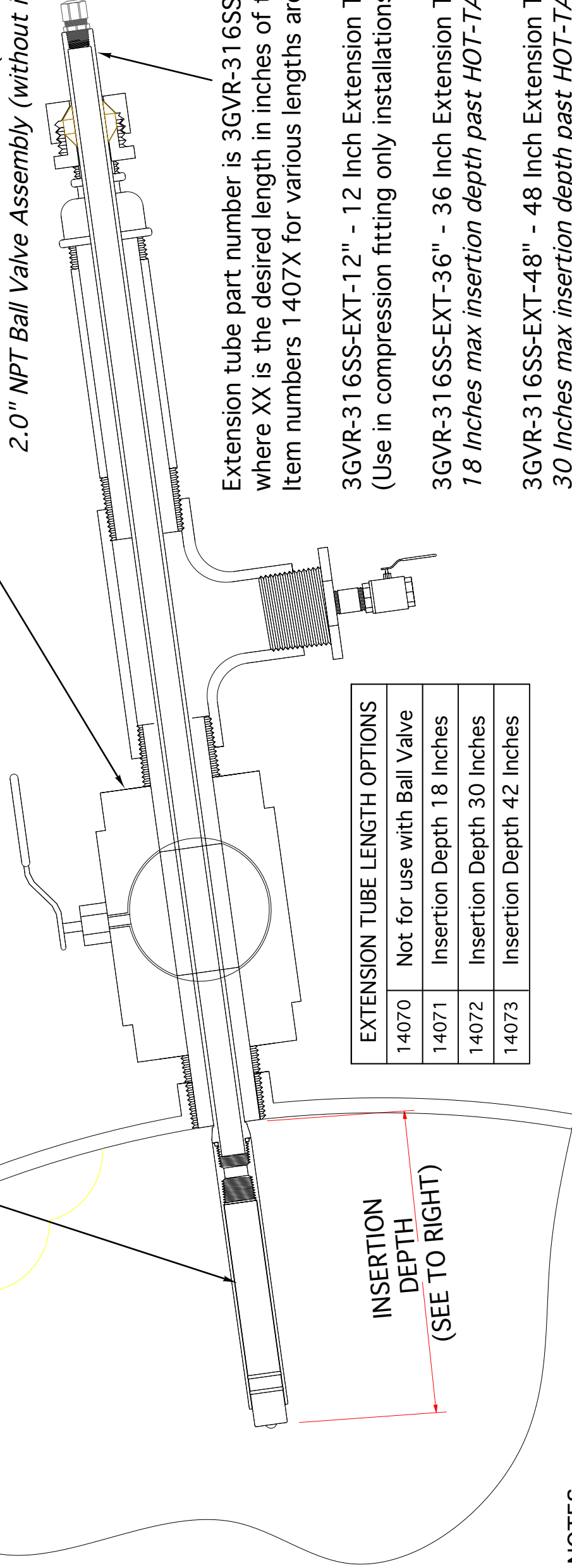
3

3GVR-316SS-HOLDER sensor holder for HOT-TAP valve retractable installations is shown on top (Item # 14069)

- 316SS FULL PORT BALL VALVE, TEFLON SEATS & FERRULES, HOTTAP-ASSY-1 1/2"-316SS-TEFLON (Item # 14016)
- 1.5" NPT Ball Valve Assembly (without insertion tube assy)
- HOTTAP-ASSY-2"-316SS-TEFLON (Item # 14030)
- 2.0" NPT Ball Valve Assembly (without insertion tube assy)

A

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NOTES

- All dimensions are in inches, unless otherwise indicated
- Material of construction is 316L Stainless Steel, others available upon request (as special orders)
- O-ring material of construction is Viton-75, others upon request
- Only use with ASTI 5X31, 5X41 & 5XX0 series sensors. See procedures for proper insertion of sensor into holder.
- Max pressure 100 psig, max temp 150 deg Celsius. Do not use any sensor beyond specified limits.
- HOT-TAP ball valve retractable assy must be installed at an angle as shown (Min 15 degrees below horizontal)

B

B

REVISION HISTORY		
REV	DESCRIPTION	DATE



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Orange, California USA
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DRAWN BY RH		CHECKED BY TADP		APPROVED BY MJP	
TOLERANCES		1 Place: ± .1		3 Places: ± .005	
		2 Places: ± .01		4 Places: ± .0005	
		Angular: ± 0.25°			

TITLE HOT-TAP Assembly Drawing Inserted View					
SIZE B	PROJECT SAN / VR	DRAWING NO. HOT-TAP INSERTED	REV /		
SCALE Not to Scale	MODEL Various	SHEET 1	OF 1		

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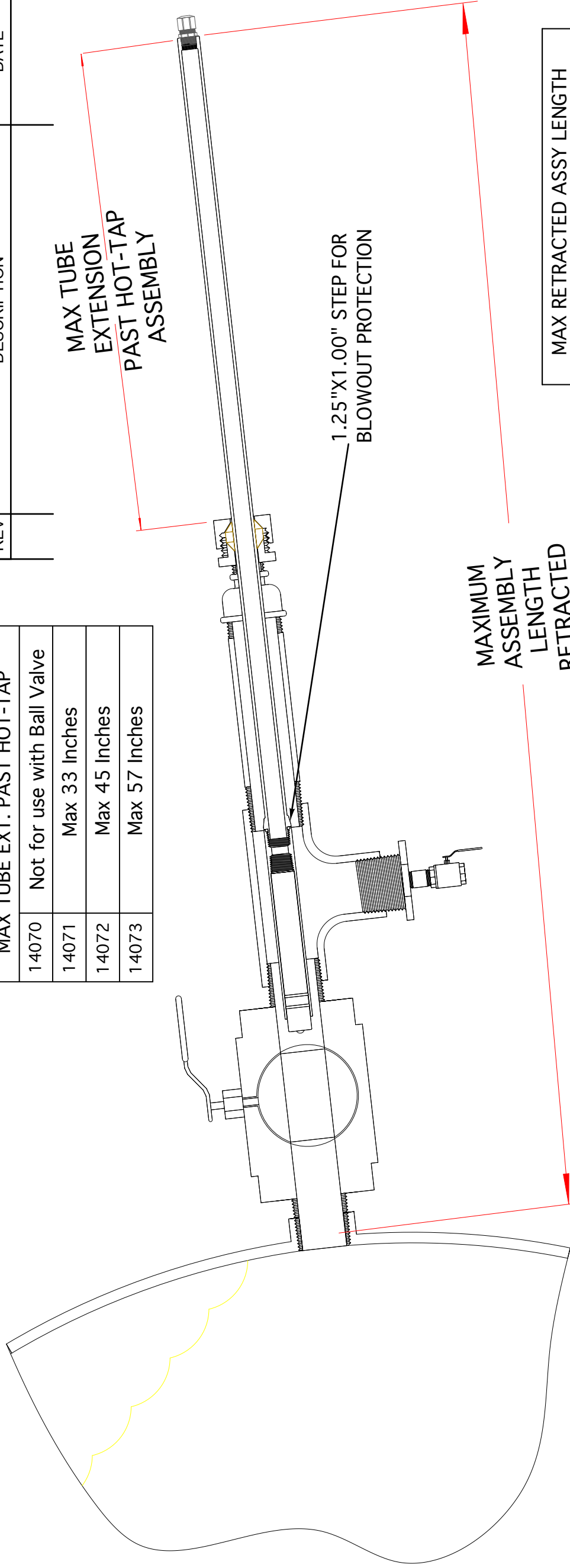
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MAX TUBE EXT. PAST HOT-TAP	
14070	Not for use with Ball Valve
14071	Max 33 Inches
14072	Max 45 Inches
14073	Max 57 Inches

REV	DESCRIPTION	DATE	APPROVED



A

A

NOTES

- All dimensions are in inches, unless otherwise indicated
- Material of construction is 316L Stainless Steel, others available upon request (as special orders)
- O-ring material of construction is Viton-75, others upon request
- Only use with ASTI 5X31, 5X41 & 5XX0 series sensors. See procedures for proper insertion of sensor into holder.
- Max pressure 100 psig, max temp 150 deg Celsius. Do not use any sensor beyond specified limits.
- HOT-TAP ball valve retractable assy must be installed at an angle as shown (Min 15 degrees below horizontal)
- 1/2" MNPT sealing cable glands available in a variety of plastic and metal materials of construction
- Optional secondary blowout protection is wire rope harness on 1/2" MNPT metal cable gland (not shown)

B

B

MAX RETRACTED ASSY LENGTH	
14070	Not for use with Ball Valve
14071	Max 55 Inches
14072	Max 67 Inches
14073	Max 79 Inches



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

DRAWN BY RH	CHECKED BY TADP
APPROVED BY MJP	

TITLE HOT-TAP Assembly Drawing Retracted View			
SIZE B	PROJECT SAN / VR	DRAWING NO. HOT-TAP RETRACTED	REV /
SCALE Not to Scale	MODEL Various	SHEET 1	OF 1

1

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EXTENSION TUBE LENGTH OPTIONS	
14070	Not for use with Ball Valve
14071	Insertion Depth 18 Inches
14072	Insertion Depth 30 Inches
14073	Insertion Depth 42 Inches

REVISION HISTORY		
REV	DESCRIPTION	DATE

FLATS ON CABLE GLAND PREVENT INSERTION ASSY FROM ACCIDENTALLY SLIPPING INTO PROCESS

22 INCHES MAX LENGTH

CLOSE NIPPLE
1.5" or 2.0" NPT

6 INCH NIPPLE
1.5" or 2.0" NPT

1" NPT X 1.00" COMPRESSION FITTING
TEFLON FERRULES & VITON O-RING

REDUCING BELL
1.5" to 1.0" NPT or
2.0" to 1.0" NPT

1.5" or 2.0" NPT TEE

1.5" to 1/2" or
2.0" to 1/2" REDUCER

1/2" NPT CLOSE NIPPLE

FULL PORT BALL VALVE
1/2" NPT

CLOSE NIPPLE
1.5" or 2.0" NPT

FULL PORT BALL VALVE
1.5" or 2.0" NPT

INSERTION DEPTH
(SEE ABOVE)

A

B

NOTES

- All dimensions are in inches, unless otherwise indicated
- Material of construction is 316L Stainless Steel, others available upon request (as special orders)
- O-ring material of construction is Viton-75, others upon request
- Only use with ASTI 5X31, 5X41 & 5XX0 series sensors. See procedures for proper insertion of sensor into holder.
- Max pressure 100 psig, max temp 150 deg Celsius. Do not use any sensor beyond specified limits.
- HOT-TAP ball valve retractable assy must be installed at an angle as shown (Min 15 degrees below horizontal)



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DRAWN BY RH		TOLERANCES	
CHECKED BY TADP		1 Place: ± .1	3 Places: ± .005
APPROVED BY MJP		2 Places: ± .01	4 Places: ± .0005
		Angular: ± 0.25°	
TITLE HOT-TAP Assembly Drawing Detail View		PROJECT SAN / VR	
SIZE B	DRAWING NO. HOT-TAP ASSY DETAILS	REV /	
SCALE Not to Scale	MODEL Various	SHEET 1	OF 1

1

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Selection Guide for Sensors for use with 3rd Generation HOT-TAP Valve Retractable Assemblies

Iotron™ Sensor Selection Guide

For 1.5", 2.0" & 3.0" HOT-TAP Assemblies

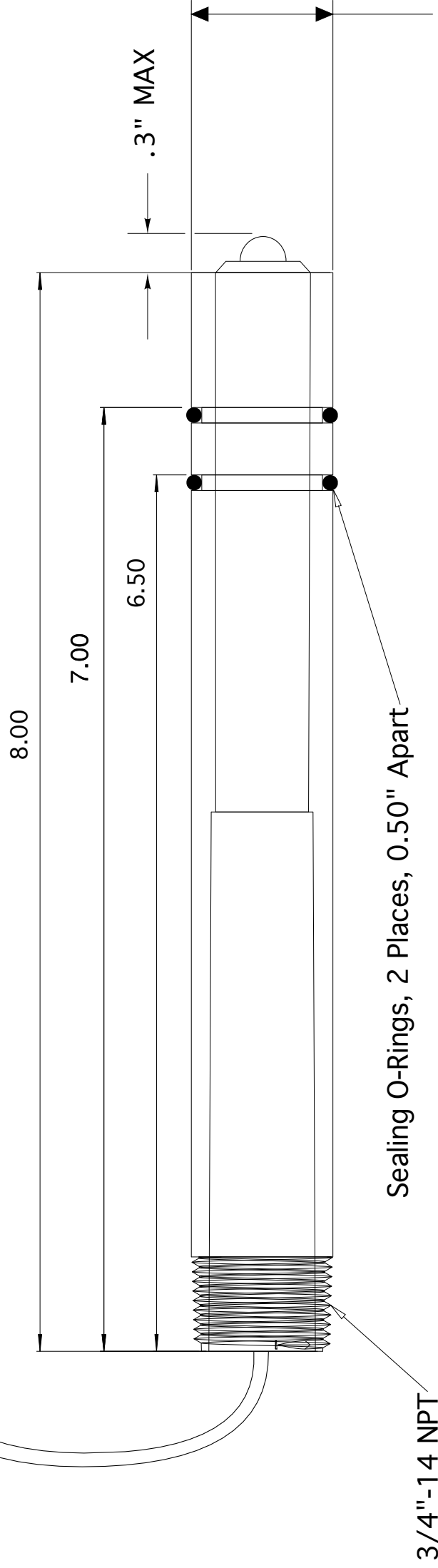
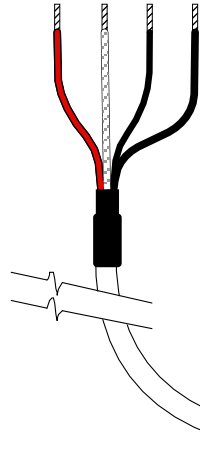
Sensor Description	RADEL
<i>General Purpose</i>	<u>5031</u>
<i>High Temperature</i>	<u>5131</u>
<i>Ultra High Temperature</i>	<u>5231</u>
<i>Slurry Viscous Material</i>	<u>5331</u>
<i>Acid/Fluoride Resistant</i>	<u>5431</u>
<i>Paper/Pulp Resistant</i>	<u>5531</u>
<i>Sulfide Resistant</i>	<u>5631</u>
<i>Ultrapure Water Resistant</i>	<u>5731</u>
<i>ORP</i>	<u>5831</u>
<i>Saturated Sodium Resistant</i>	<u>5931</u>

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REVISION HISTORY		
REV	DESCRIPTION	DATE



1.05 Ø

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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.

B

B



Advanced Sensor Technologies, Inc.
 Orange, California USA
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TITLE		Sensor for Sanitary & HOT-TAP/Retractable Use	
SIZE	PROJECT	DRAWING NO.	REV
B	SAN / VR	5-1 pH/ORP/ISE SENSORS	/
SCALE	Not to Scale	MODEL	SHEET 1 OF 1
		5X31, 5XX0	1

DRAWN BY		RH	
CHECKED BY		TADP	
APPROVED BY		MJP	
TOLERANCES			
1 Place: ± .1	3 Places: ± .005		
2 Places: ± .01	4 Places: ± .0005		
Angular: ± 0.25°			

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