

- NOTES: UNLESS OTHERWISE SPECIFIED
- INTERPRET DRAWING IAW THE GLOBAL PROFESSIONAL PUBLICATIONS "DRAWING REQUIREMENTS MANUAL", EIGHTH EDITION.
  - INTERPRET DIMENSIONS AND TOLERANCES IAW ANSI Y14.5M - 1982.
  - INTERPRET ABBREVIATIONS IAW MIL-STD-12.

**4** WARNING:  
WATER FITTINGS HAVE A CLEAR ID OF .375". USING A SLEEVE OR OTHER DEVICE INSIDE THE WATER TUBING MAY CAUSE FLOW RESTRICTIONS AND INTERFERENCE WITH THE NORMAL OPERATION OF THE SPUTTERING SOURCE AND IS THEREFORE NOT RECOMMENDED.

**5** WATER CHANNELS ARE SYMMETRICAL THROUGHOUT. ORIENTATION OF THE INLET AND OUTLET IS NOT CRITICAL.

**6** MINIMUM 60" LONG POLYETHYLENE LINES REQUIRED TO ENSURE 50 KOHM RESISTIVITY AND SAFE OPERATION. TEST USING AN OHM METER OR OTHER SUITABLE DEVICE BEFORE USE. DO NOT USE METAL TUBING! POLYETHYLENE RECOMMENDED.

**7** MINIMUM 36" LONG TEFLON PFA LINE REQUIRED (36" INCLUDED WITH SOURCE) FOR SAFE OPERATION. DO NOT USE METAL GAS LINES TO MEET THIS REQUIREMENT - ELECTRICAL ISOLATION IS NECESSARY.

**8** SWAGELOK UNION FITTING, 1/8" OD TUBE IS SUPPLIED WITH SOURCE AND ALSO AVAILABLE FROM SWAGELOK COMPANY  
HTTP://WWW.SWAGELOK.COM  
SWAGELOK P/N SS-200-6  
SWAGELOK FITTING, 1/8" OD TUBE IS WELDED TO UTILITY CONNECTION MODULE.

**9** TUBING, TEFLON, PFA IS AVAILABLE FROM:  
MC MASTER CARR  
HTTP://WWW.MCMASTER.COM  
MCMASTER-CARR P/N 5180K51  
DO NOT USE METAL GAS LINES TO MEET THIS REQUIREMENT - ELECTRICAL ISOLATION IS NECESSARY.

**10** WATER LINE TUBE UNION IS AVAILABLE FROM:  
ALPHA TECHNOLOGIES  
HTTP://WWW.ALPHAFITTINGS.COM  
ALPHA PART NUMBER 88040-08

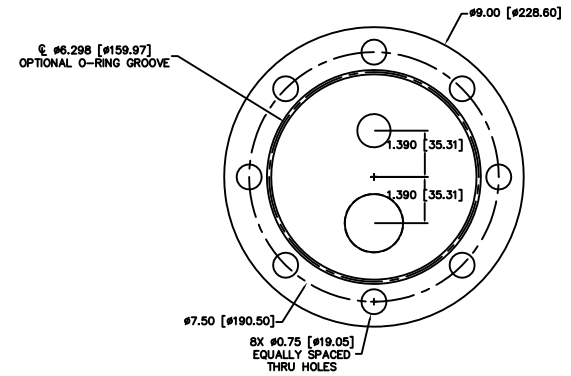
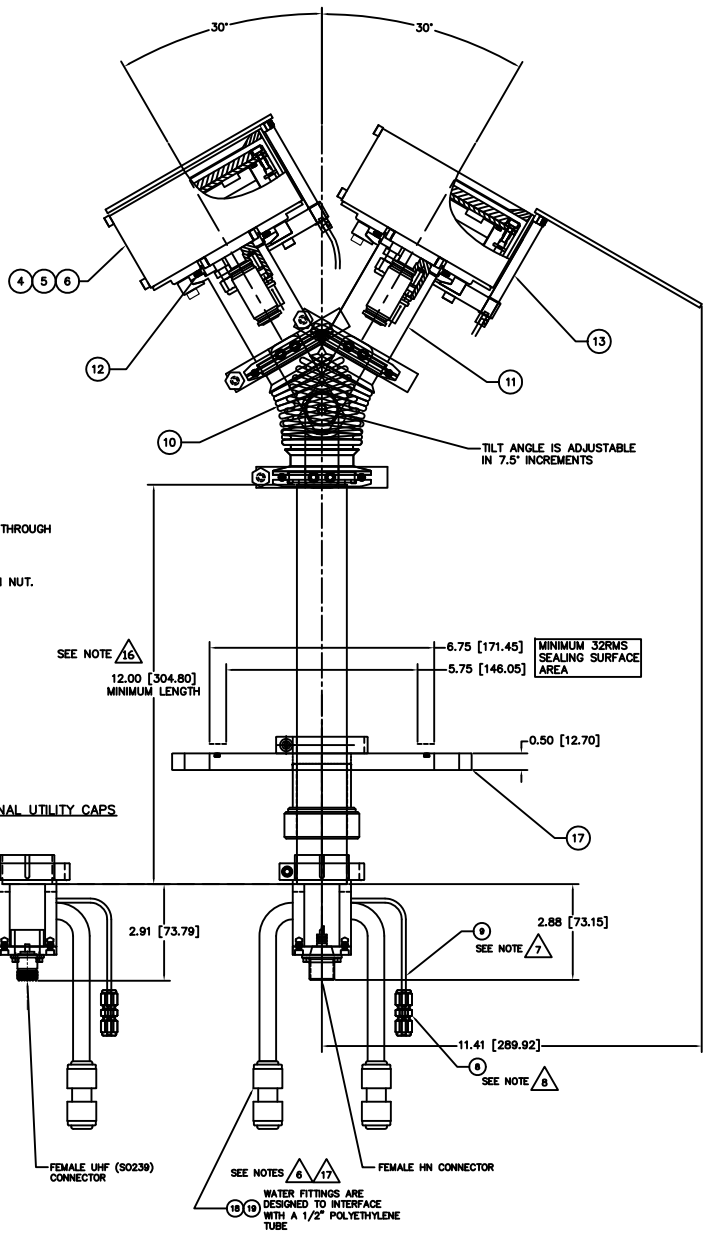
**11** 1/2" OD WATER TUBES AND PUSH-TO-CONNECT UNIONS CAN BE REPLACED WITH 3/8" OD OR 1/4" OD WATER LINES FOR LOWER POWER APPLICATIONS OR WHEN ONLY 1" BASEPLATE FEEDTHROUGHS ARE PRESENT (MUST USE 1/4" OD TUBING FOR THIS SIZE. CONTACT FACTORY.  
SEE DRAWING 00002492 FOR LOW POWER VERSION WITH 1" BASEPLATE FEEDTHROUGH AND 1/4" OD WATER LINES.

**12** MATERIALS SCIENCE P/N 00000680 SPANNER WRENCH REQUIRED TO TIGHTEN NUT.  
FEDERAL SPEC GGG-W-6656.  
ADJUSTABLE UP TO 2".  
OVERALL LENGTH 6 3/8".  
PIN DIAMETER 3/16".  
PIN HEIGHT: 1/8"

**13** MULTI-CONTACT-USA  
HTTP://WWW.MULTI-CONTACT-USA.COM  
P/N 05.0201 LOCKING PLUG IS SUPPLIED WITH SOURCE

**14** TAKE CARE NOT TO DING, SCRATCH OR GOUGE POLISHED SURFACE.

- SEE MATERIALS SCIENCE, INC. DOCUMENT NO. 251092 FOR PROPER INSTALLATION, OPERATION AND USE OF POLARIS SPUTTERING SOURCES.
- 16** DIFFERENT TUBE LENGTHS CAN BE SUPPLIED ACCORDING TO CUSTOMER NEED.
- 17** WATER LINE CONNECTORS (INCLUDED, ITEM 18) ARE AVAILABLE FROM:  
HTTP://WWW.JOHNQUEST.COM. P/N PP0416W.

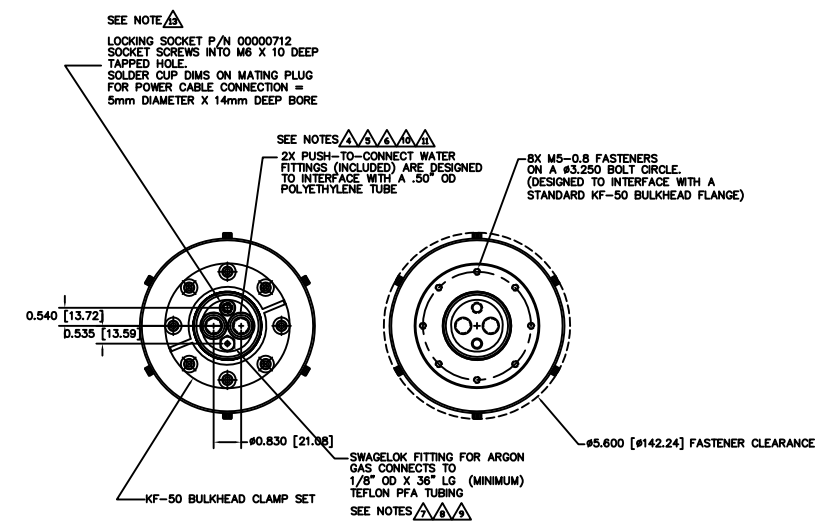
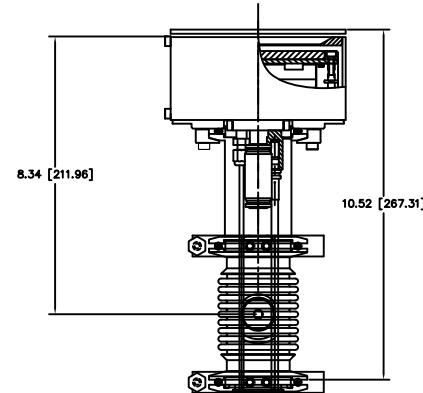
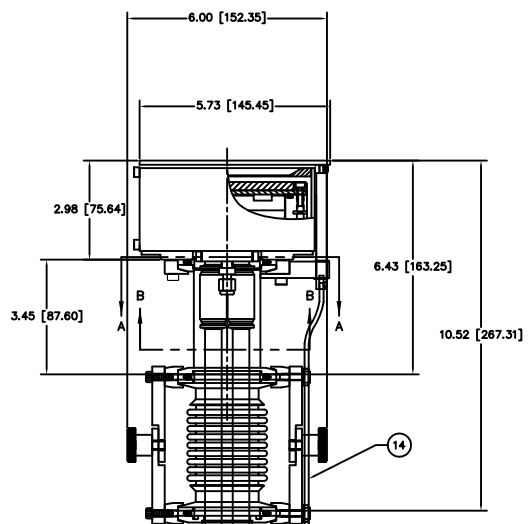


4" ASA 150 LB FLANGE

INSTALLATION CONTROL DRAWING

QTY	UNIT	DESCRIPTION	MATERIAL SPECIFICATION	ZONE	ITEM NO	
2	2	2	00000074-2	TUBING, 1/2" OD X 3/8" ID X 18" LONG	POLYETHYLENE	19
2	2	2	00002208	1/2" OD COUPLING, QUICK DISCONNECT	POLYPROPYLENE	18
1	1	1	00002600	WELDMENT, 4" 150 LB. ASA FLANGE		17
1	1	1	00002132	FEEDTHROUGH, ROTARY, FERROFLUID SEAL		16
1	1	1	00002133	FEEDTHROUGH SHAFT CABLE CONNECTOR	304 CRES	15
1	1	1	00002134	FLEXIBLE CABLE ASSEMBLY	304 CRES	14
1	1	1	00002490	SHUTTER ASSEMBLY, 4 INCH SUNSOURCE	304 CRES	13
1	1	1	00000100-4	CENTERING RING, KF-50		12
1	1	1	00002489	NIPPLE, KF-50 X 3.29 LONG	316 CRES	11
1	1	1	00002152	TILT MECHANISM ASSEMBLY, KF-50		10
1	1	1	00000038-1	TUBING, 1/8" OD X 1/16" ID X 36" MINIMUM	TEFLON PFA	9
1	1	1	00000316	UNION, SWAGELOK, SS-200-6	316 CRES	8
1	1	1	00002608	1.5" OD INCH TUBE FEEDTHROUGH ASSEMBLY	304 CRES	7
1	1	1	00001026-3	4 INCH INTERNAL CATHODE (CLAMPED TARGET)		6
1	1	1	00001026-2	4 INCH INT CATHODE (DIRECT WATER COOLED TGT)		5
1	1	1	00001026-1	4 INCH INTERNAL CATHODE (BONDED TARGET)		4
			00002598-3	4" SUNSOURCE, VARIABLE, TILT & SHUTTER		3
			00002598-2	4" SUNSOURCE, VARIABLE, TILT & SHUTTER		2
			00002598-1	4" SUNSOURCE, VARIABLE, TILT & SHUTTER		1

QTY	UNIT	DESCRIPTION	MATERIAL SPECIFICATION	ZONE	ITEM NO
1	1	4" INTERNAL, VARIABLE POSITION TILT, SHUTTER - 1.5" FEEDTHRU			
591-2	USED ON	APPLICATION	DO NOT SCALE DRAWING	DATE	1/1



SEE NOTE  $\triangle$   
 LOCKING SOCKET P/N 00000712  
 SOCKET SCREWS INTO M6 X 10 DEEP  
 TAPPED HOLE.  
 SOLDER CUP DIMS ON MATING PLUG  
 FOR POWER CABLE CONNECTION =  
 5mm DIAMETER X 14mm DEEP BORE

SEE NOTES  $\triangle\triangle\triangle\triangle\triangle$   
 2X PUSH-TO-CONNECT WATER  
 FITTINGS (INCLUDED) ARE DESIGNED  
 TO INTERFACE WITH A .50" OD  
 POLYETHYLENE TUBE

8X M5-0.8 FASTENERS  
 ON A #3.250 BOLT CIRCLE.  
 (DESIGNED TO INTERFACE WITH A  
 STANDARD KF-50 BULKHEAD FLANGE)

SWAGelok FITTING FOR ARGON  
 GAS CONNECTS TO  
 1/8" OD X 36" LG (MINIMUM)  
 TEFLON PFA TUBING  
 SEE NOTES  $\triangle\triangle\triangle\triangle$

SECTION B-B

SECTION A-A

USE OF #.125 [3.2] FLEXIBLE CABLE ASSEMBLY ALLOWS  
 ROTARY FEEDTHROUGH TO BE LOCATED WHERE CONVENIENT.  
 AVOID LOCATIONS REQUIRING A TIGHT BEND RADIUS.

FEEDTHROUGH SHAFT CABLE CONNECTOR  
 ALLOWS 3.25" [82.5] LENGTH ADJUSTMENT OF  
 FLEXIBLE WIRE WHEN SOURCE IS TILTED TO  
 ACCOMMODATE DIFFERENT LENGTH CAUSED BY  
 TILTING.

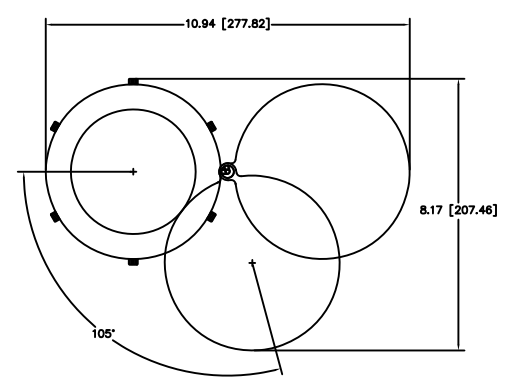
ENTIRE OUTSIDE OF TUBE  
 HAS 32 RMS FINISH - DO NOT  
 SCRATCH, DING OR OTHERWISE  
 DAMAGE SURFACE.  
 SEE NOTE  $\triangle$

FERROFLUIDIC ROTARY FEEDTHROUGH  
 SUPPLIED WITH SHUTTER ASSEMBLY.  
 0.25" OD SHAFT WITH FLAT INTERFACES  
 WITH KNOB FOR MANUAL OPERATION OR  
 PNEUMATIC ACTUATOR FOR AUTOMATIC  
 OPERATION.

1/2" OD POLYETHYLENE WATER LINES  
 (NOT SUPPLIED) SHOWN FOR REFERENCE  
 ONLY.  
 SEE NOTE  $\triangle$

ENTIRE OUTSIDE OF TUBE  
 HAS 32 RMS FINISH - DO NOT  
 SCRATCH, DING OR OTHERWISE  
 DAMAGE SURFACE.  
 SEE NOTE  $\triangle$

POWER CABLE SHOWN FOR  
 REFERENCE ONLY - NOT SUPPLIED



MINIMUM SHUTTER  
 SWING CLEARANCE

00002598