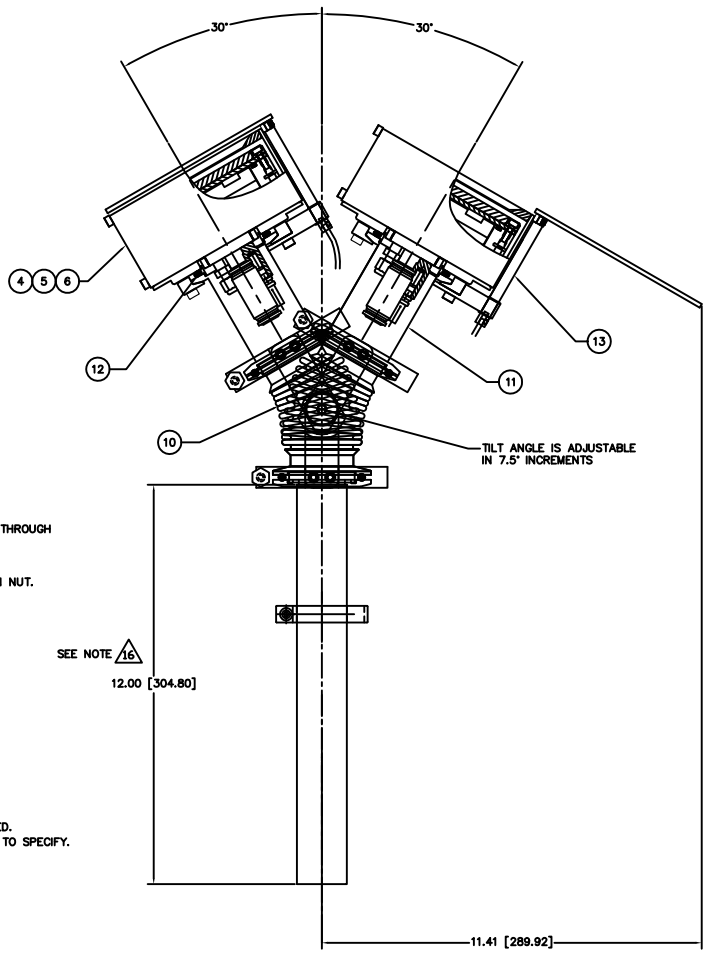


REV	DESCRIPTION	DATE	APPROVED
INITIAL RELEASE		11/09/21	

- 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.

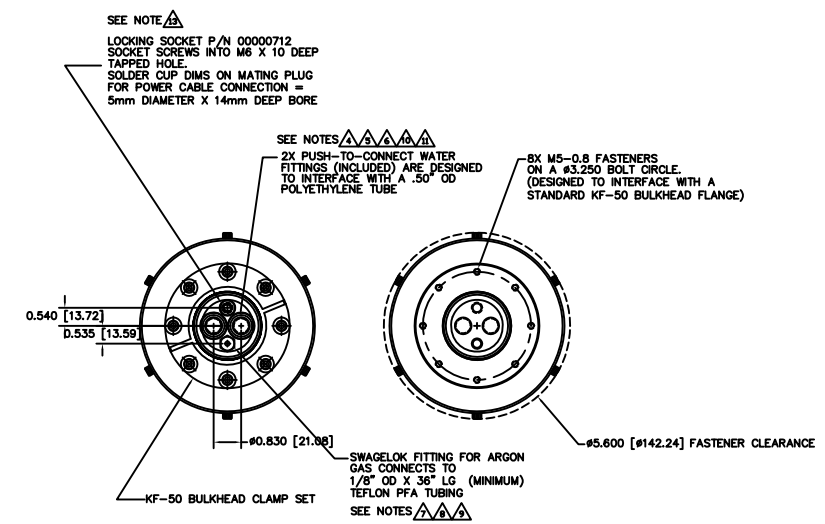
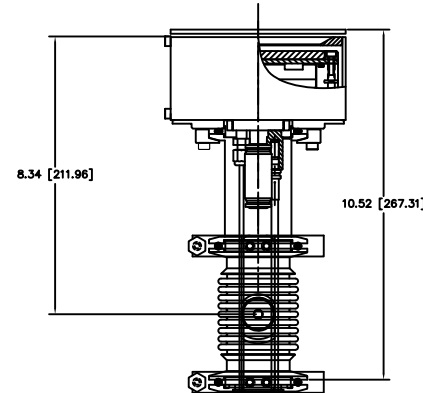
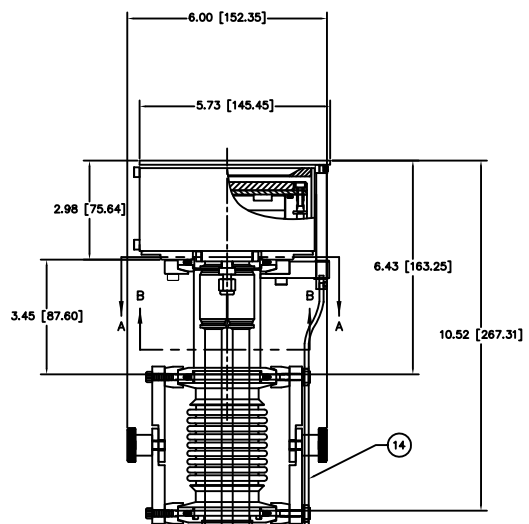
- WARNING: WATER FITTINGS HAVE A CLEAR ID OF .375". USING A SLEEVE OR OTHER DEVICE INSIDE THE WATER TUBING MAY CAUSE FLOW RESTRICTIONS AND INTERFERENCE WITH THE NORMAL OPERATION OF THE SPUTTERING SOURCE AND IS THEREFORE NOT RECOMMENDED.
- WATER CHANNELS ARE SYMMETRICAL THROUGHOUT. ORIENTATION OF THE INLET AND OUTLET IS NOT CRITICAL.
- 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.
- 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.
- SWAGELOK UNION FITTING, 1/8" OD TUBE IS SUPPLIED WITH SOURCE AND ALSO AVAILABLE FROM SWAGELOK COMPANY [HTTP://WWW.SWAGELOK.COM](http://www.swagelok.com) SWAGELOK P/N SS-200-6 SWAGELOK FITTING, 1/8" OD TUBE IS WELDED TO UTILITY CONNECTION MODULE.
- TUBING, TEFLON, PFA IS AVAILABLE FROM: MC MASTER CARR [HTTP://WWW.MCMASTER.COM](http://www.mcmaster.com) MCMASTER-CARR P/N 5180K51 DO NOT USE METAL GAS LINES TO MEET THIS REQUIREMENT - ELECTRICAL ISOLATION IS NECESSARY.
- WATER LINE TUBE UNION IS AVAILABLE FROM: ALPHA TECHNOLOGIES [HTTP://WWW.ALPHA FITTINGS.COM](http://www.alpha fittings.com) ALPHA PART NUMBER 88040-08
- 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.
- MATERIALS SCIENCE P/N 00000680 SPANNER WRENCH REQUIRED TO TIGHTEN NUT. FEDERAL SPEC QQQ-W-6656. ADJUSTABLE UP TO 2". OVERALL LENGTH 6 3/8". PIN DIAMETER 3/16". PIN HEIGHT: 1/8"
- MULTI-CONTACT-USA [HTTP://WWW.MULTI-CONTACT-USA.COM](http://www.multi-contact-usa.com) P/N 05.0201 LOCKING PLUG IS SUPPLIED WITH SOURCE
- 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.
- DIFFERENT TUBE LENGTHS CAN BE SUPPLIED ACCORDING TO CUSTOMER NEED. TUBE CAN BE TERMINATED WITH KF-50 FLANGE IF SO DESIRED. CUSTOMER TO SPECIFY.



QTY	UNIT	DESCRIPTION	MATERIAL SPECIFICATION	ZONE	ITEM NO			
					25			
					24			
					23			
					22			
					21			
					20			
					19			
					18			
					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-40 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	00002201	1.5" OD INCH TUBE FEEDTHROUGH ASSEMBLY	304 CRES	7		
1			00001026-3	4 INCH INTERNAL CATHODE (CLAMPED TARGET)		6		
1			00001026-2	4 INCH INT CATHODE (DIRECT WATER COOLED TGT)		5		
1			00001026-1	4 INCH INTERNAL CATHODE (BONDED TARGET)		4		
			00002473-3	4" SUNSOURCE, VARIABLE, TILT & SHUTTER		3		
			00002473-2	4" SUNSOURCE, VARIABLE, TILT & SHUTTER		2		
			00002473-1	4" SUNSOURCE, VARIABLE, TILT & SHUTTER		1		
-3	-2	-1	CAGE CODE	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION	ZONE	ITEM NO

INSTALLATION CONTROL DRAWING

DATE: 11/09/21	BY: J.MILLER	REV: 1
APP: 591-2	USED ON:	DO NOT SCALE DRAWING
APPLICATION:	SCALE: 1/1"	SHEET: 2
PARTS LIST		00002473
NOMENCLATURE OR DESCRIPTION		4" INTERNAL, VARIABLE POSITION TILT, SHUTTER - 1.5" FEEDTHRU



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  $\triangle$

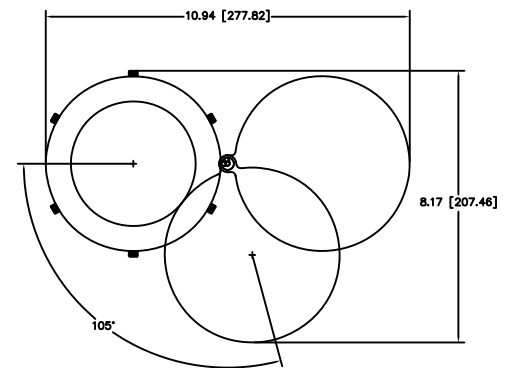
REFERENCE ONLY  
.50-1.125 [12.7-28.5]  
BASEPLATE/CHAMBER  
WALL THICKNESS

TYPICAL FEEDTHROUGH SHOWN  
FOR REFERENCE ONLY

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.

DESIGNED TO INTERFACE WITH 1.50" OD  
TUBE COMPRESSION FITTING ON SYSTEM  
BASEPLATE. COMPRESSION FITTING MUST  
HAVE A CLEAR THROUGH ID OF 1.51".

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



MINIMUM SHUTTER  
SWING CLEARANCE

00002473