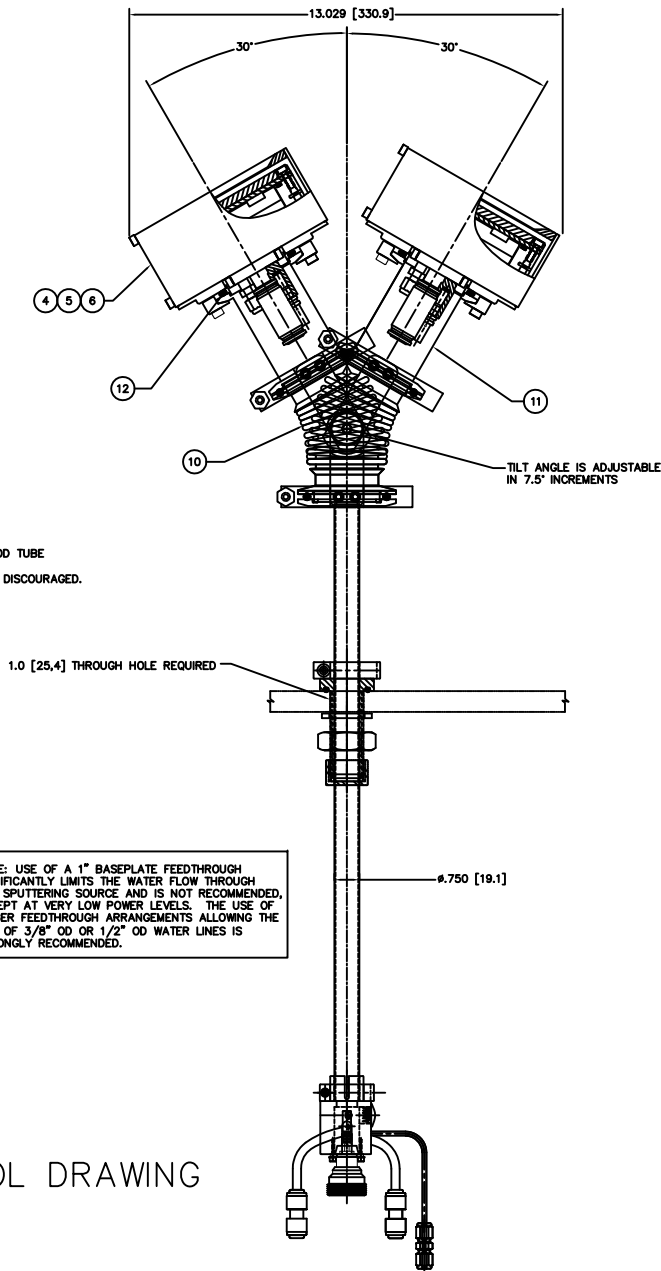


- NOTES: UNLESS OTHERWISE SPECIFIED
- INTERPRET DRAWING IAW THE GLOBAL PROFESSIONAL PUBLICATIONS "DRAWING REQUIREMENTS MANUAL", EIGHTH EDITION.
 - INTERPRET DIMENSIONS AND TOLERANCES IAW ANSI Y14.5M - 1982.
 - INTERPRET ABBREVIATIONS IAW MIL-STD-12.
 - WARNING: WATER FITTINGS HAVE A CLEAR ID OF .170". 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.ALPHAFITTINGS.COM](http://www.alpha fittings.com) ALPHA PART NUMBER 88040-04
 - 1/2" OD WATER TUBES AND PUSH-TO-CONNECT UNIONS HAVE BEEN REPLACED WITH 1/4" OD WATER LINES TO FIT WITHIN .75" OD TUBE FOR LOWER POWER APPLICATIONS OR WHEN ONLY 1" BASEPLATE FEEDTHROUGHS ARE PRESENT. USE OF SUCH SMALL FEEDTHROUGHS IS DISCOURAGED. CONTACT FACTORY.
 - 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"
 - 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.

15. 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](http://www.johnguest.com). P/N C10408W.



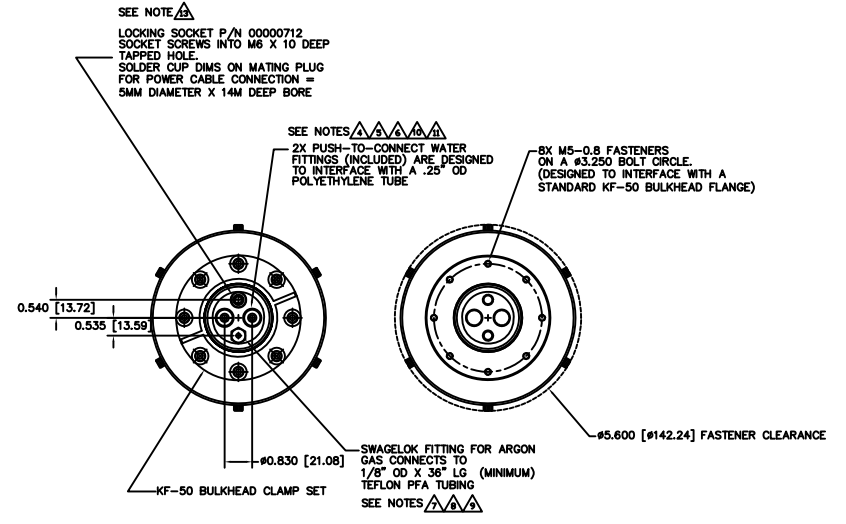
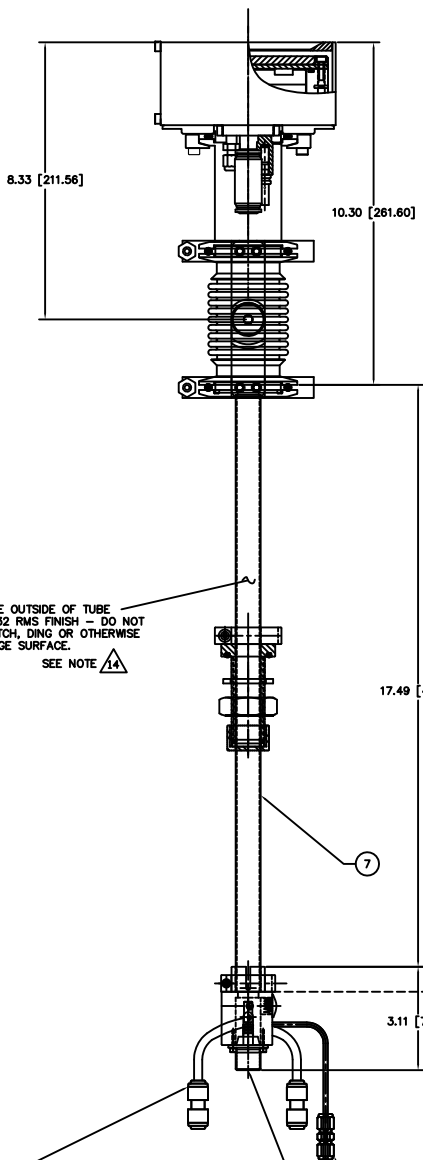
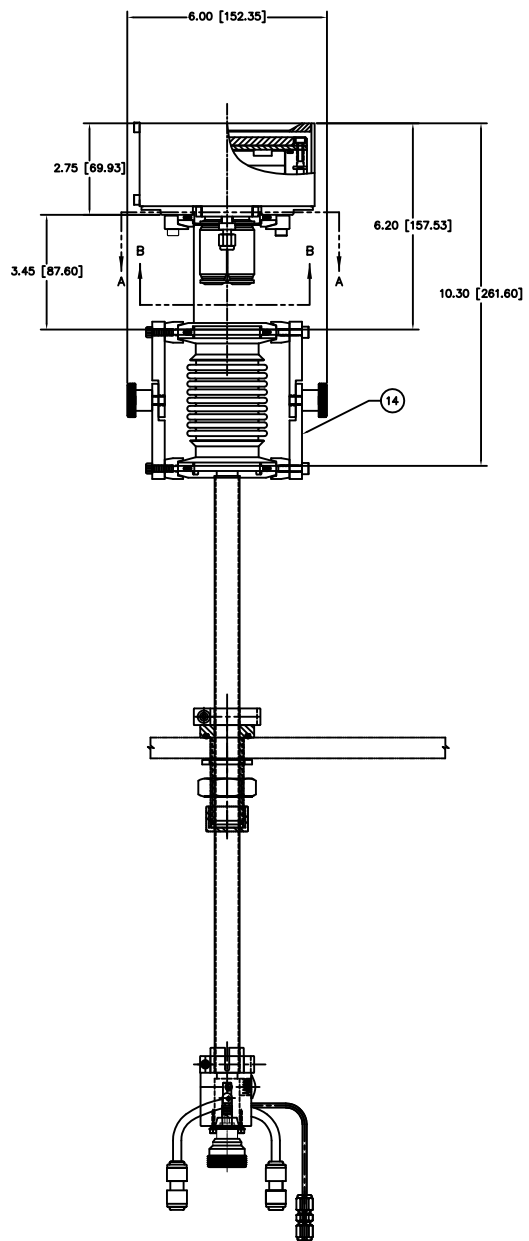
NOTE: USE OF A 1" BASEPLATE FEEDTHROUGH SIGNIFICANTLY LIMITS THE WATER FLOW THROUGH THE SPUTTERING SOURCE AND IS NOT RECOMMENDED, EXCEPT AT VERY LOW POWER LEVELS. THE USE OF BIGGER FEEDTHROUGH ARRANGEMENTS ALLOWING THE USE OF 3/8" OD OR 1/2" OD WATER LINES IS STRONGLY RECOMMENDED.

QTY	REV	DESCRIPTION	MATERIAL	ZONE	ITEM NO	
2	2	2	00000074-1	TUBING, 1/4" OD X 3/8" ID X 18" LONG	POLYETHYLENE	18
2	2	2	16	1/4" OD COUPLING, QUICK DISCONNECT	POLYPROPYLENE	17
						16
						15
						14
						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	00002606	3/4" 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
			00004001-3	4" SUNSOURCE, VARIABLE POSITION WITH TILT		3
			00004001-2	4" SUNSOURCE, VARIABLE POSITION WITH TILT		2
			00004001-1	4" SUNSOURCE, VARIABLE POSITION WITH TILT		1

QTY	REV	DESCRIPTION	MATERIAL	ZONE	ITEM NO			
-3	-2	-1	CAGE CODE	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION	ZONE	ITEM NO

DATE: 08/04/00	BY: J.MILLER	APP: 00004001
REVISION:	DATE:	BY:
DESCRIPTION:	DATE:	BY:
DATE: 08/04/00	BY: J.MILLER	APP: 00004001
REVISION:	DATE:	BY:
DESCRIPTION:	DATE:	BY:

INSTALLATION CONTROL DRAWING



ENTIRE OUTSIDE OF TUBE
 HAS 32 RMS FINISH - DO NOT
 SCRATCH, DING OR OTHERWISE
 DAMAGE SURFACE.
 SEE NOTE \triangle 14

17.49 [444.1]
 SEE NOTE \triangle 16

17 18 WATER FITTINGS ARE
 DESIGNED TO INTERFACE
 WITH A 1/4" OD POLYETHYLENE
 OR POLYPROPYLENE TUBE
 SEE NOTES \triangle 6 \triangle 17

8 9
 SEE NOTE \triangle 8

FEMALE HN CONNECTOR
 @ 300 WATTS MAXIMUM
 RF POWER LEVELS.

FEMALE DIN 7/16 CONNECTOR
 @ GREATER THAN 300 WATTS
 RF POWER LEVELS.