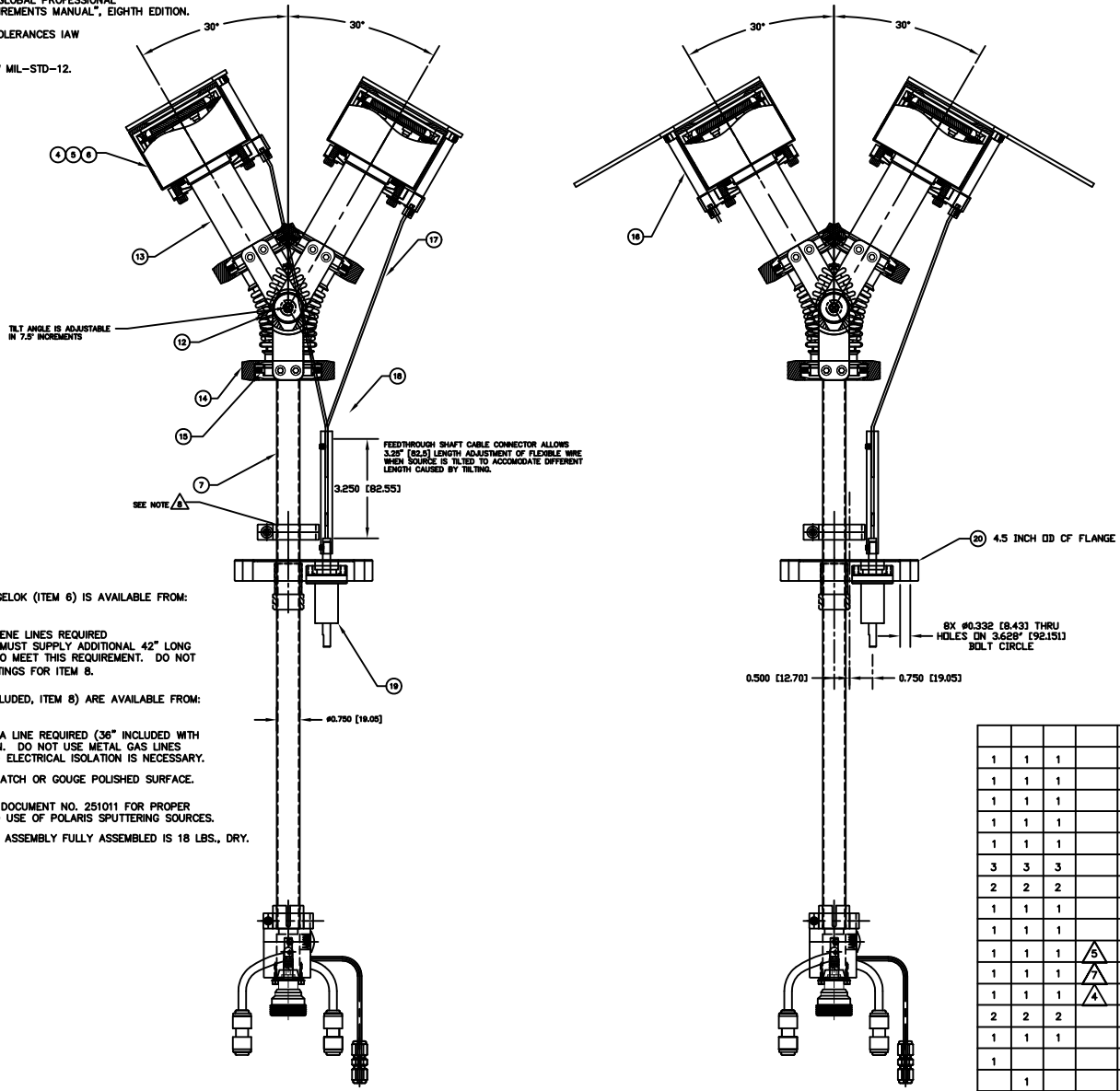


| REV | DESCRIPTION | DATE | APP'D |
|-----------------|-------------|--------|-------|
| INITIAL RELEASE | | 120715 | |

NOTES: UNLESS OTHERWISE SPECIFIED

1. INTERPRET DRAWING IAW THE GLOBAL PROFESSIONAL PUBLICATIONS "DRAWING REQUIREMENTS MANUAL", EIGHTH EDITION.
2. INTERPRET DIMENSIONS AND TOLERANCES IAW ANSI Y14.5M - 1982.
3. INTERPRET ABBREVIATIONS IAW MIL-STD-12.



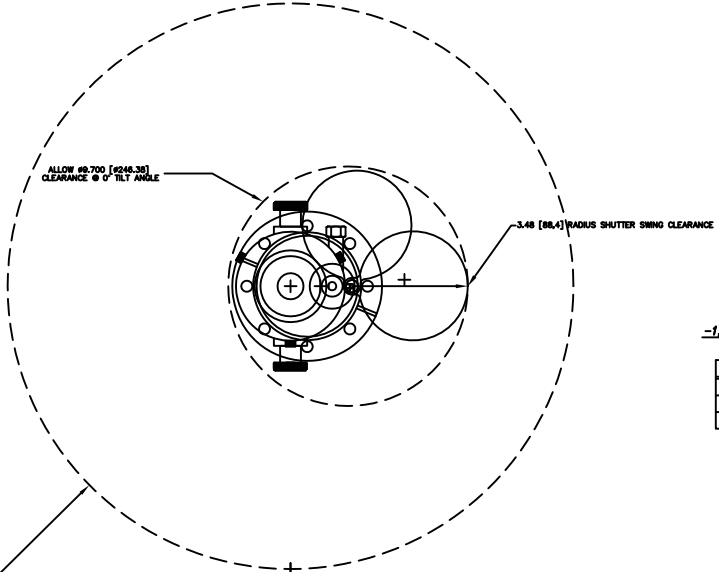
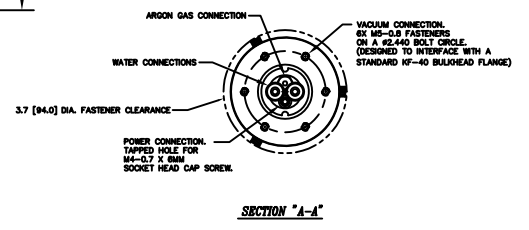
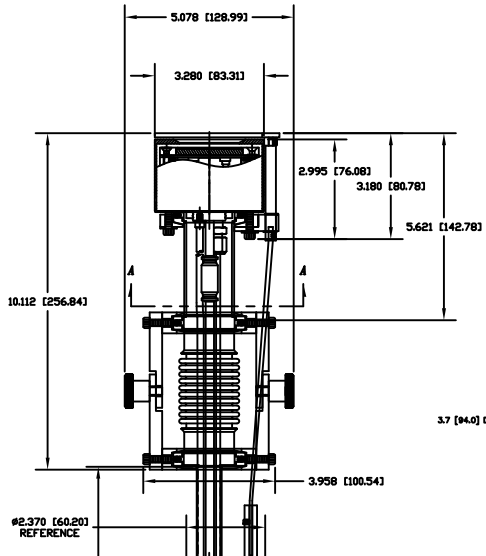
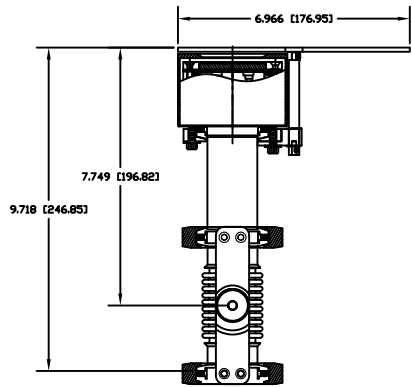
NOTE: SOURCE ASSEMBLY CANNOT BE INSERTED THROUGH CLEAR ID (2.37"/60.20MM) OF 4.5" OF/CF64 FLANGE. THE CF FLANGE MUST FIRST BE ATTACHED TO THE CHAMBER, THEN THE SOURCE FEEDTHROUGH SHAFT MUST BE INSTALLED THROUGH THE COMPRESSION FITTING FROM WITHIN THE CHAMBER. VERIFY THAT THIS IS POSSIBLE USING THE DIMENSIONS ON THIS DRAWING BEFORE PURCHASING THIS SOURCE.

- ▲ GAS FITTING (INCLUDED), SWAGelok (ITEM 6) IS AVAILABLE FROM: [HTTP://WWW.SWAGELOK.COM](http://www.swagelok.com)
 - ▲ MINIMUM 60" LONG POLYETHYLENE LINES REQUIRED FOR SAFE OPERATION. USER MUST SUPPLY ADDITIONAL 42" LONG POLYETHYLENE WATER LINES TO MEET THIS REQUIREMENT. DO NOT SUBSTITUTE METAL WATER FITTINGS FOR ITEM 8.
 - ▲ WATER LINE CONNECTORS (INCLUDED, ITEM 8) ARE AVAILABLE FROM: [HTTP://WWW.JOHNQUEST.COM](http://www.johnguest.com)
 - ▲ 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.
 - ▲ TAKE CARE NOT TO DING, SCRATCH OR GOUGE POLISHED SURFACE.
9. SEE MATERIALS SCIENCE, INC. DOCUMENT NO. 251011 FOR PROPER INSTALLATION, OPERATION AND USE OF POLARIS SPUTTERING SOURCES.
10. MASS OF SPUTTERING SOURCE ASSEMBLY FULLY ASSEMBLED IS 18 LBS., DRY.

| QTY | UNIT | DESCRIPTION | MATERIAL SPECIFICATION | ZONE | ITEM NO | |
|-----|------|-------------|------------------------|--|--------------|----|
| 1 | 1 | 1 | 00002604 | WELDMENT, 4.5" CF TO 3/4" OD TUBE FEEDTHRU | 304 CRES | 21 |
| 1 | 1 | 1 | 00002382 | FEEDTHROUGH, ROTARY, FERROFLUID SEAL | | 19 |
| 1 | 1 | 1 | 00002133 | FEEDTHROUGH SHAFT CABLE CONNECTOR | 304 CRES | 18 |
| 1 | 1 | 1 | 00002134 | FLEXIBLE CABLE ASSEMBLY | 304 CRES | 17 |
| 1 | 1 | 1 | 00002202 | SHUTTER ASSEMBLY, 2 INCH POLARIS | 304 CRES | 16 |
| 3 | 3 | 3 | 00000100-3 | CENTERING RING, KF-40 | | 15 |
| 2 | 2 | 2 | 00002146 | CLAMP, KF-40, STAINLESS STEEL | 304 CRES | 14 |
| 1 | 1 | 1 | 00000941 | NIPPLE, KF-40 X 3.20 LONG | 316 CRES | 13 |
| 1 | 1 | 1 | 00000940 | TILT MECHANISM ASSEMBLY, POLARIS GEN II | | 12 |
| 1 | 1 | 1 | ▲ 00000074-1 | TUBING, 1/4" OD X .170" ID X 18" | POLYETHYLENE | 11 |
| 1 | 1 | 1 | ▲ 00000038-1 | TUBING, 1/8" OD X 1/16" ID X 36" MINIMUM | TEFLON PFA | 10 |
| 1 | 1 | 1 | ▲ 000000316 | FITTING, SWAGelok, SS-200-6 | 316 CRES | 9 |
| 2 | 2 | 2 | 00000281-1 | 1/4 INCH OD COUPLING, QUICK CONNECT | P/N C1040BW | 8 |
| 1 | 1 | 1 | 00002201 | 3/4 INCH TUBE FEEDTHROUGH ASSEMBLY | 304 CRES | 7 |
| 1 | | | 00000773-1 | 2 INCH INTERNAL CATHODE (CLAMPED TARGET) | | 6 |
| 1 | | | 00000773-2 | 2 INCH INT CATHODE (DIRECT WATER COOLED TGT) | | 5 |
| 1 | | | 00000773-3 | 2 INCH INTERNAL CATHODE (BONDED TARGET) | | 4 |
| 1 | | | 00002602-3 | 2" POLARIS SOURCE, VARIABLE, TILT & SHUTTER | | 3 |
| 1 | | | 00002602-2 | 2" POLARIS SOURCE, VARIABLE, TILT & SHUTTER | | 2 |
| 1 | | | 00002602-1 | 2" POLARIS SOURCE, VARIABLE, TILT & SHUTTER | | 1 |

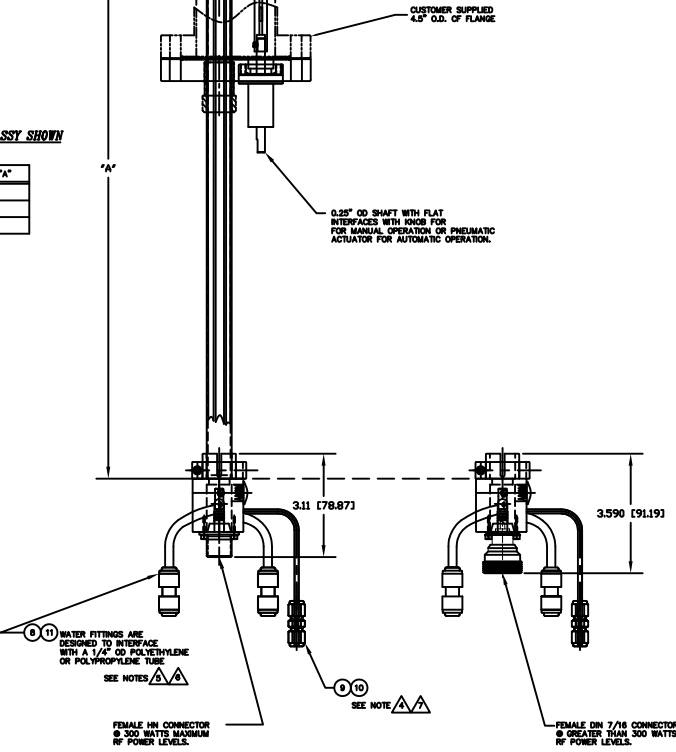
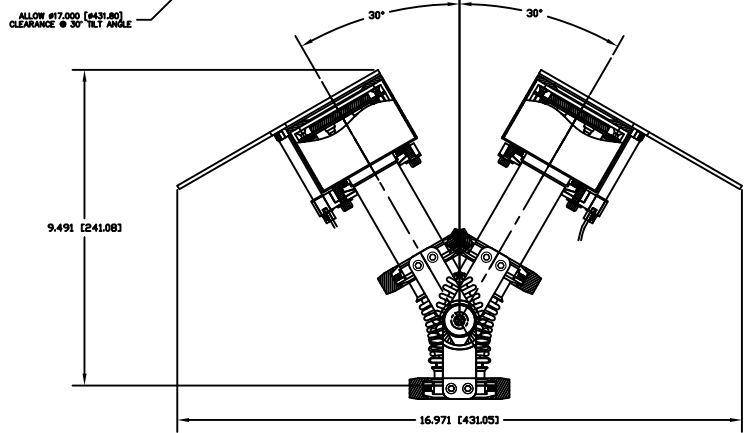
INSTALLATION CONTROL DRAWING

| | | | | | | |
|-----------------------|-----------|-------------------------|--|--|------|---------|
| QUANTITY FOR ASSEMBLY | CAGE CODE | PART OR IDENTIFYING NO. | NOMENCLATURE OR DESCRIPTION | MATERIAL SPECIFICATION | ZONE | ITEM NO |
| | | | 2" POLARIS, VARIABLE POSITION TILT, SHUTTER - 4.5" CF FLANGE | | | 1 |
| DATE | BY | CHKD | APP'D | PARTS LIST | | |
| 12/07/15 | J.MILLER | 12/07/15 | | MATERIALS SCIENCE, INC. Vacuum and Thin Film Technology | | |
| DATE | BY | CHKD | APP'D | REVISIONS | | |
| | | | | 1. 00002602 - 2" POLARIS, VARIABLE POSITION TILT, SHUTTER - 4.5" CF FLANGE | | |
| DATE | BY | CHKD | APP'D | NEXT ASSEMBLY | | |
| | | | | USED ON | | |
| DATE | BY | CHKD | APP'D | APPLICATION | | |
| | | | | DO NOT SCALE DRAWING | | |



-1, -2, AND -3 ASSY SHOWN

| DASH NO | DIM "A" |
|---------|---------|
| -1 | 12" |
| -2 | 18" |
| -3 | 24" |



⑩ WATER FITTINGS ARE DESIGNED TO INTERFACE WITH A 1/4" OD POLYETHYLENE OR POLYPROPYLENE TUBE. SEE NOTES ⚠⚠

⑨ ⑩ SEE NOTE ⚠⚠

FEMALE HN CONNECTOR @ 300 WATTS MAXIMUM HF POWER LEVEL.

FEMALE DIN 7/16 CONNECTOR @ GREATER THAN 300 WATTS HF POWER LEVEL.