MEPNN Supplier Scouting Opportunity Synopsis

Section 1: General Information

Scouting Number	2025-116
Item to be Scouted	Custom Optical Fiber Bundle Assemblies
Days to be scouted	21
Response Due By	05/07/2025
Description	Custom optical fiber bundle assemblies for ground-based astronomy. The ViaSpec fiber bundle assembly is comprised of 11 COTS optical fibers, 27 meters long, each with an FC fiber connector terminating one end and bare

Section 2: Technical Information

Type of supplier being sought	encapsulating the 11 fiber/tube segments into a single bundle. In between the PTFE/Nylon bundle segments, the fibers run through 4 thermal breaks which allow for the expansion and contraction of the PTFE tubing. The thermal breaks consist of small diameter stainless steel tubing brazed or bonded together, which capture the ends of each neighboring section of PTFE tubing and protects the span of bare fiber in between. Please refer to attached drawing for full details.
Reason	The optical fiber, PTFE tubing, nylon braided tubing, and FC connectors are all COTS items. Each fiber will need to be connectorized and polished on one end, threaded through the PTFE tube segments and thermal breaks with their respective bonding processes, serialized and labeled, and packaged per the attached drawing. We also request a final inspection report that includes FIBO interferometer (or equivalent) data for each fiber that verifies conformance to the drawing specifications in Note 11. Images of the fiber core in the ferrule are also requested, but not a driving requirement for procurement.
Details	Part number VIA000240T. These fiber bundles are one of the key components of the spectrograph system being built for the Via Project. The fibers will transmit starlight from the focal plane of a 6.5 meter telescope to a custom spectrograph instrument (ViaSpec). These instruments will gather data that will lead to a better understanding of dark matter and other cosmic phenomena.
Describe the manufacturing processes (elaborate to provide as much detail as possible)	Refer to attached drawing.
Provide dimensions / size / tolerances / performance specifications for the item	Massachusetts
List required materials needed to make the product, including materials of product components	Refer to attached drawing and Bill of Materials (BOM).
Are there applicable certification requirements?	No
Are there applicable regulations?	No
Are there any other stndards, requirements, etc.?	No
Additional Technical Comments	We are open to discussion of alternative epoxies, and crimp sleeve methodologies, otherwise the design is considered stable.

Section 4: Business Information

Estimated potential business volume	Approx 130 assemblies to be ordered in 2025. Quantities requested: Phase 1: Prototype QTY 2 Phase 2: Production QTY 128 (assumes the prototypes are sufficient for reuse)
Estimated target price / unit cost information (if unavailable explain)	Best available. acceptable pricing is to be determined in negotiation.
When is it needed by?	Prototypes for testing, delivered by 6/15/25 Production approval July 2025. Delivery 8 months post production approval.

Describe packaging requirements	Per drawing Note 40: The fiber bundle shall be coiled into a 0.75 meter diameter circle and attached to a cardboard backer using loose cable ties. Each connector shall be individually protected using a plastic bag and foam sheeting. Bundles should be packaged such that they will not be damaged during shipping and handling.
Where will this item be shipped?	These will ship to Center for Astrophysics | Harvard & Smithsonian, 100 Acorn Park Drive, Cambridge, MA 02140, USA

Additional Comments

Is there other information you would like to include?	The Via Project is using the Milky Way galaxy as a laboratory to answer fundamental questions about the nature of the universe. Via will conduct an all-sky survey of stars using the 6.5-meter MMT (Arizona) and Magellan (Chile) telescopes. The survey will utilize the ViaSpec instruments, which will be built and deployed on each of the telescopes. The project is a collaboration between Carnegie Observatories and the Center for Astrophysics | Harvard & Smithsonian. See via-project.org for more information.

REV.	ECO	ZONE	DESCRIPTION	DATE	APPROVED
01	01		ISSUED FOR MANUFACTURING FEEDBACK AND QUOTE	APRIL 2025	AC

UNLESS OTHERWIDE SPECIFIED:
1. DIMENSIONS AND TOLERANCES PER ASME Y14.5-2009.
2. MATERIAL, REFERENCE THE BILL OF MATERIALS FOR SPECIFIC COMPONENT DEFINITIONS
3. ALL DIMENSIONS IN MILLIMETERS EXCEPT AS NOTED.
4. THIS DRAWING DEFINES THE VIASPEC FIBER BUNDLE AND THERMAL BREAK ASSEMBLY FOR MMT
5. GENERAL NOTE, THE ASSEMBLY SHOULD BE CONSTRUCTED ON A LONG FLAT SURFACE WHICH MINIMUIZES THE NUMBER OF SWITCH BACKS, AND AVOID DRAGGING THE ASSEMBLY ACROSS THE TABLE
6. THE ASSUMED ASSEMBLY ORDER BEGINS AT STATION NUMBER 0 AND PROCEEDS NUMERICALLY IN ORDER THROUGH STATION 23
7. ALL INSPECTION DIMENSIONS INDICATED BY (XX)

THE FOLLOWING IS AN EXAMPLE SET OF MANUFACTURING STEPS, THE DETAILS OF WHICH MAY VARY BASED ON THE MANUFACTURERS TOOLING AND FACILITY. ALL DIMENSIONS MARKED FOR INSPECTION ARE REQUIRED REPORTING:

8. IN ADVANCE OF ASSEMBLY, PREPARE ALL PTFE BONDING SURFACES USING ACTON TECHNOLOGIES FLUOROETCH ETCHING SOLUTION. ETCH PER MANUFACTURERS INSTRUCTIONS (ITEMS 15-19).

△9 IN ADVANCE OF ASSEMBLY, CHAMFER ALL PTFE TUBE ID EDGES (ALL ENDS) USING DREMEL #9909 TUNGSTEN CARBIDE CARVING BIT, OR EQUIVALENT (ITEMS 15-19).

△10 THE VIASPEC FIBER BUNDLE/THERMAL BREAK ASSEMBLY FOR THE MMT INSTALLATION (SEE SHEET 2) IS COMPRISED OF 11 OPTICAL FIBERS, EACH WITH A FIBER CONNECTOR AT ONE END. EACH FIBER RUNS THROUGH SEGMENTED ENCAPSULATING TEFLON PROTECTIVE TUBES. THE 11 FIBER/TUBE ASSEMBLIES RUN THROUGH 4 THERMAL BREAKS AND THE 11 FIBER/TUBE SECTIONS ARE ENCAPSULATED BY SEGMENTED NYLON SLEEVES. THE LENGTHS OF THE SEGMENTS ARE SHOWN IN TABLE 1, SHEET 1.

△11 STATIONS ALONG THE ASSEMBLY ARE LISTED IN THE TABLE AND COINCIDE WITH STATION NUMBERS, ENCLOSED IN HEXAGONS (N), AS SHOWN IN THE DRAWING. EACH STATION IDENTIFIES A TRANSITION IN THE ASSEMBLY. THE TOTAL DISTANCE OF THE STATION FROM THE CONNECTOR FACE IS LISTED ALONG WITH THE LENGTHS OF INDIVIDUAL SEGMENTS. THE 11 FIBERS ARE LOADED INTO A FIBER V-BLOCK WHICH IS POSITIONED AT THE OPTICAL SLIT INPUT TO THE SPECTROGRAPH. THE FIBER V-BLOCK IS EXCLUDE FROM THIS ASSEMBLY

△12 FIBER CONNECTORS : SEE SHEET 3, UPPER VIEW. A FIBER BUNDLE/THERMAL BREAK ASSEMBLY IS INITIATED BY BONDING ELEVEN INDIVIDUAL OPTICAL FIBERS (ITEM 5) OF THE REQUIRED TOTAL LENGTH INTO 11X FC/PC CONNECTORS (ITEM 2) USING EPOXY (ITEM 8).

△13 EACH FIBER/CONNECTOR END IS THEN POLISHED USING THE STANDARD FC MACHINE POLISH PROCESS MEETING THE FOLLOWING QUALITY:
- POLISHED FIBER FACE TO LAMBDA/4 WITH A REFERENCE WAVELENGTH OF 633 NM
- SURFACE ROUGHNESS < 0.5 MICRONS
- POLISHED FIBER SURFACE ANGLE < 0.2 DEGREES WITH A GOAL OF < 0.1 DEGREES
- RADIUS OF CURVATURE 15-25 MM.

△14 SECTION 1 TEFLON TUBES: THE FIRST TEFLON TUBE SEGMENT (ITEM 15) FOR EACH FIBER IS SLID ONTO THE FIBER. A BONDING SLEEVE (ITEM 5) IS SLID OVER THE FIBER AND TEFLON TUBE AND THEN ONTO THE CONNECTOR END PIECE AND BONDED TO BOTH THE PTFE TUBE AND THE CONNECTOR. A STRAIN RELIEF (ITEM 23) IS THEN SLID OVER THE FIBER AND PTFE AND PRESSED ONTO THE END OF THE BONDING SLEEVE.

△15 SECTION 1 NYLON SLEEVE: THE SECTION 1 FIBER BUNDLE NYLON SLEEVE (ITEM 11) IS THEN SLIPPED OVER THE ELEVEN OPTICAL FIBERS AND FIBERS/PTFE TUBES AND POSITIONED PER TABLE 1. A PICTORIAL OF THIS STEP IS SHOWN ON SHEET 4, LOWER VIEW.

△16 DEROTATOR THERMAL BREAK, DETAILED ON SHEET 4. VERIFY THE ENTRY AND EXIT EDGES OF ALL THERMAL BREAK TUBES ARE FREE OF BURRS AND SHARP EDGES. INSERT ELEVEN FIBERS THROUGH THEIR CORRESPONDING THERMAL BREAK TUBE. DO NOT ABRADE FIBER. THE ELEVEN PTFE TUBES COMING FROM THE FIBER CONNECTORS ARE SLID INTO THE THERMAL BREAK TUBE ASSEMBLY, POSITIONED AS SHOWN IN TABLE 1 AND SHEET 4. THESE TUBES ARE FREE TO SLIDE WITH RESPECT TO THE THERMAL BREAK ASSEMBLY.

△17 A SHIPPING CLAMP (ITEM 5) IS THEN ATTACHED TO THE THERMAL BREAK ASSEMBLY AND TEFLON TUBES AS SHOWN IN SHEET 4, LOWER VIEW. THE CLAMP CAPTURES THE THERMAL BREAK ASSEMBLY WITH ONE CAPTURE PLATE AND THE PTFE TUBES WITH ANOTHER.

△18 SECTION 2 PTFE TUBES: THE SECTION 2 PTFE TUBE SEGMENTS (ITEM 16) FOR EACH FIBER ARE SLID ONTO THE FIBERS. EPOXY (ITEM 6) IS APPLIED TO EACH PTFE TUBE AND EACH PTFE TUBE IS INSERTED INTO THEIR MATING POSITION IN THE DEROTATOR THERMAL BREAK ASSEMBLY (ITEM 1). THE PTFE TUBES ARE INSERTED TO A DISTANCE AS SHOWN IN TABLE 1 AND SHEET 4, UPPER VIEW. THE BOND LENGTH IS SIZED TO LEAVE A ZONE FREE OF EPOXY AS SHOWN IN THE DETAIL VIEW.

△19 THE SECTION 2 NYLON SLEEVE: IS SLID ONTO THE SECTION 2 PTFE TUBES FROM LEFT TO RIGHT AS SHOWN ON SHEET 4. THE SLEEVE IS POSITIONED PER TABLE 1.

△20 OBSERVING FLOOR TBOX THERMAL BREAK: DETAILED ON SHEET 5. VERIFY THE ENTRY AND EXIT EDGES OF ALL THERMAL BREAK TUBES ARE FREE OF BURRS AND SHARP EDGES. INSERT ELEVEN FIBERS THROUGH THEIR CORRESPONDING THERMAL BREAK TUBE. DO NOT ABRADE FIBER. THE 11X SECTION 2 PTFE TUBES (ITEM 16) ARE SLID INTO THE THERMAL BREAK ASSEMBLY. POSITIONED AS PER TABLE 1 AND SHEET 5. THESE TUBES ARE FREE TO SLIDE WITH RESPECT TO THE THERMAL BREAK ASSEMBLY.

△21 A SHIPPING CLAMP (ITEM 5) IS THEN ATTACHED TO THE SS TUBES AND PTFE TUBES AS SHOWN IN SHEET 5, LOWER VIEW. THE CLAMP CAPTURES THE THERMAL BREAK ASSEMBLY WITH ONE CAPTURE PLATE AND THE PTFE TUBES WITH ANOTHER.

△22 SECTION 3 PTFE TUBES: THE SECTION 3 PTFE TUBES (ITEM 17) FOR EACH FIBER ARE SLID ONTO THE FIBERS. EPOXY (ITEM 6) IS APPLIED TO EACH PTFE TUBE AND EACH PTFE TUBE IS INSERTED INTO THEIR MATING POSITION IN THE OBSERVING FLOOR THERMAL BREAK ASSEMBLY (ITEM 1). THE PTFE TUBES ARE INSERTED TO A DISTANCE AS SHOWN IN TABLE 1 AND SHEET 5, UPPER VIEW. THE PTFE TUBES ARE BONDED INTO THE THERMAL BREAK SS TUBES IPER PROCEDURE (TBD). THE BOND LENGTH IS SHOWN ON SHEET 5, LOWER VIEW. THE BOND LENGTH IS SIZED TO LEAVE A ZONE FREE FROM EPOXY AS SHOWN IN THE DETAIL VIEW.

△23 THE SECTION 3 NYLON SLEEVE IS SLID ONTO THE SECTION 3 PTFE TUBES FROM LEFT TO RIGHT AS SHOWN ON SHEET 6,UPPER VIEW, LEFT. THE SLEEVE IS POSITIONED PER TABLE 1.

△24 LOWER ELBOW TBOX THERMAL BREAK, DETAILED ON SHEET 6. VERIFY THE ENTRY AND EXIT EDGES OF ALL THERMAL BREAK TUBES ARE FREE OF BURRS AND SHARP EDGES. INSERT ELEVEN FIBERS THROUGH THEIR CORRESPONDING THERMAL BREAK TUBE. DO NOT ABRADE FIBER. THE 11X SECTION 3 PTFE TUBES (ITEM 17) ARE SLID INTO THE THERMAL BREAK ASSEMBLY, POSITIONED AS PER TABLE 1 AND SHEET 6. THESE TUBES ARE FREE TO SLIDE WITH RESPECT TO THE THERMAL BREAK ASSEMBLY.

△25 A SHIPPING CLAMP (ITEM 5) IS THEN ATTACHED TO THE THERMAL BREAK ASSEMBLY AND PTFE TUBES AS SHOWN IN SHEET 6, LOWER VIEW. THE CLAMP CAPTURES THE THERMAL BREAK ASSEMBLY WITH ONE CAPTURE PLATE AND THE PTFE TUBES WITH ANOTHER.

△26 SECTION 4 PTFE TUBES: THE SECTION 4 PTFE TUBES (ITEM 18) FOR EACH FIBER ARE SLID ONTO THE FIBERS. DO NOT ABRADE FIBER. THE 11X SECTION 4 PTFE TUBES (ITEM 18) ARE SLID INTO THE THERMAL BREAK ASSEMBLY, POSITIONED AS PER TABLE 1 AND SHEET 6. THESE TUBES ARE FREE TO SLIDE WITH RESPECT TO THE THERMAL BREAK ASSEMBLY.

△27 A SHIPPING CLAMP (ITEM 5) IS THEN ATTACHED TO THE THERMAL BREAK ASSEMBLY AND TEFLON TUBES AS SHOWN IN SHEET 6, LOWER VIEW. THE CLAMP CAPTURES THE THERMAL BREAK ASSEMBLY WITH ONE CAPTURE PLATE AND THE PTFE TUBES WITH ANOTHER.

△28 THE SECTION 4 NYLON SLEEVE IS SLID ONTO THE SECTION 4 PTFE TUBES FROM LEFT TO RIGHT AS SHOWN ON SHEET 6. THE SLEEVE IS POSITIONED PER TABLE 1.

△29 UPPER ELBOW TBOX THERMAL BREAK, DETAILED ON SHEET 7. VERIFY THE ENTRY AND EXIT EDGES OF ALL THERMAL BREAK TUBES ARE FREE OF BURRS AND SHARP EDGES. INSERT ELEVEN FIBERS THROUGH THEIR CORRESPONDING THERMAL BREAK TUBE. DO NOT ABRADE FIBER. THE 11X SECTION 4 PTFE TUBES (ITEM 18) ARE INSERTED TO A DISTANCE AS SHOWN IN TABLE 1 AND SHEET 7, UPPER VIEW. THE TUBES ARE BONDED OVER THE LENGTH SHOWN IN THE LOWER RIGHT VIEW, LEAVING A ZONE AT THE TUBE ENDS FREE FROM EXPOY.

△30 SECTION 5 PTFE TUBES: THE SECTION 5 PTFE TUBES (ITEM 19) FOR EACH FIBER ARE SLID ONTO THE FIBERS. DO NOT ABRADE FIBER. THE 11X SECTION 5 PTFE TUBES (ITEM 19) ARE SLID INTO THE THERMAL BREAK ASSEMBLY, POSITIONED AS PER TABLE 1 AND SHEET 7. THESE TUBES ARE FREE TO SLIDE WITH RESPECT TO THE THERMAL BREAK ASSEMBLY.

△31 A SHIPPING CLAMP (ITEM 5) IS THEN ATTACHED TO THE THERMAL BREAK ASSEMBLY AND TEFLON TUBES AS SHOWN IN SHEET 7, LOWER VIEW. THE CLAMP CAPTURES THE THERMAL BREAK ASSEMBLY WITH ONE CAPTURE PLATE AND THE PTFE TUBES WITH ANOTHER.

△32 THE SECTION 5 NYLON SLEEVE IS SLID ONTO THE SECTION 5 PTFE TUBES FROM LEFT TO RIGHT AS SHOWN ON SHEET 7. THE SLEEVE IS POSITIONED PER TABLE 1.

△34 PTFE TUBE TERMINATOR: PREPARE THE 11X SECTION 5 PTFE TUBES (ITEM 19)AND THE PTFE TERMINATOR BLOCK (ITEM 20) FOR BONDING PER PROCEDURE (TBD). BOND THE 11X PTFE TUBES INTO THE TERMINATOR BLOCK. TUBE ENDS FLUSH WITH TERMINATOR BLOCK END.

△35 FIBER END POLISHING: POLISHED FIBER FACE TO:
- LAMBDA/4 WITH A REFERENCE WAVELENGTH OF 633 NM
- SURFACE ROUGHNESS < 0.5 MICRONS
- POLISHED FIBER SURFACE ANGLE < 0.2 DEGREES WITH A GOAL OF < 0.1 DEGREES
- RADIUS OF CURVATURE 15-25 MM.

△36 BARE FIBER END PACKAGING: BARE FIBER ENDS (11X) SHALL BE INSERTED INTO PTFE SHIPPING TUBES (ITEM 20) AND SECURED FOR SHIPMENT

△37 STATION LOCATION TOLERANCE: THE ABSOLUTE LOCATION OF EACH STATION IDENTIFIED IN TABLE 1 SHALL BE ACCURATE TO WITHIN +/- 10 MM. Relative to STATION ZERO.

△38 THE LOCATIONS OF EACH STATION IDENTIFIED IN TABLE 1 SHALL BE MEASURED AND REPORTED IN THE ACCEPTANCE TEST DATA REPORT. POSITIONAL ERRORS SHALL BE SUBJECT TO A WAIVER REQUEST PROCESS WITH SAO. ALL DIMENSIONS IDENTIFIED AS INSPECTION DIMENSIONS SHALL BE MEASURED AND REPORTED IN THE ACCEPTANCE TEST REPORT.

△39 MARKING AND IDENTIFICATION: THE FIBER BUNDLE ASSEMBLY SHALL BE LABELED WITH THE ASSEMBLY PART NUMBER AND SERIAL NUMBER. LABELS SHALL BE CLEARLY VISIBLE AND ATTACHED SECURELY. EACH INDIVIDUAL FIBER SHALL BE LABELED AT BOTH THE CONNECTOR AND AT THE PTFE TUBE TERMINATOR ENDS WITH THE BUNDLE SERIAL NUMBER AND THE FIBER NUMBER (1 TO 11). FIBER NUMBERS ARE DERIVED FROM POSITIONS ON THE PTFE TERMINATOR BLOCK AS SHOWN ON SHEET 8. DO NOT APPLY LABELS DIRECTLY TO BARE FIBER. CONNECTOR 1 SHOULD CORRESPOND WITH POSITION 1 ON ITEM 21 (TERMINATOR BLOCK) ETC.

△40 SHIPPING: THE FIBER BUNDLE SHALL BE COILED INTO A 0.75 METER DIAMETER CIRCLE AND ATTACHED TO A CARDBOARD BACKER (ITEM 21) USING LOOSE CABLE TIES. EACH CONNECTOR SHALL BE INDIVIDUALLY PROTECTED USING A PLASTIC BAG AND FOAM SHEETING.

SHEET 10 - TUBE ASSEMBLY, THERMAL BREAK

△41 SS TUBES (13X): SEAMLESS 304 SS, BEAD BLASTED BEFORE ASSEMBLY. ENDS TO BE SMOOTH ON OD AND ID

△42 BRAZING/SOLDERING/BONDING CALLOUT IS NOTIONAL, VENDOR TO SUPPLY DETAILS.

△43 CLEANING: ALL COMPONENTS SHALL BE CLEANED PRIOR TO ASSEMBLY. ASSEMBLY SHALL BE CLEANED AFTER COMPLETION. CLEANING SHALL BE DONE USING SIMPLE GREEN/WATER OR EQUIVALENT.

△44 DATUM A IS A PLANE FORMED THROUGH LINE CONTACE WITH ALL 13 (13) TUBE SEGMENTS.

△45 INDIVIDUAL TUBE STRAIGHTNESS IS STANDARD COMMERCIAL TOLERANCE, 0.01"/FT OR 0.83 MM/METER

BOM TABLE

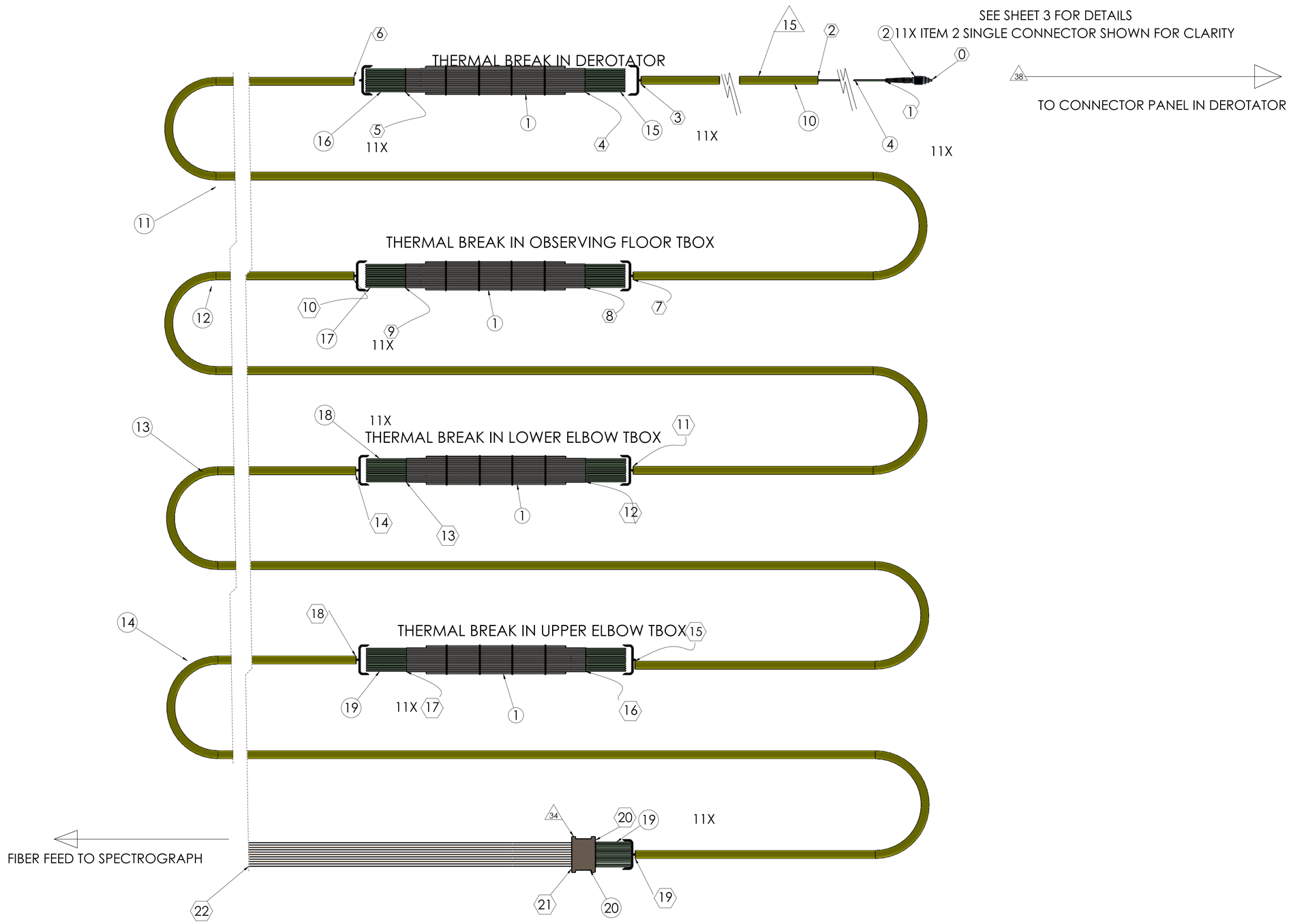
PART NUMBER	ITEM NO.	DESCRIPTION	QTY.	MATERLIAL (MAKE FROM)	LENGTH (MM)
VIA000359T	1	TUBE ASSEMBLY, THERMAL BREAK	4		NA
MM-CON2004-2800-2-BLK-EE	2	FC-PC-CONNECTOR	11		NA
REMOVE	NA	NA	NA	NA	NA
MOLEX 1068022187	4	OPTICAL FIBER, MOLEX, FBP200240280	A/R	FUSED SILICA	300,000
VIA000240T-13	5	BONDING SLEEVE, PTFE TUBE TO FC CONN (SHEET 10)	11	ALUMINUM 6061 T6, CHEM FILM PER MIL-DTL-5541, CLASS 3, TYPE 2	NA
HYSOL 9313	6	EPOXY	A/R	NA	NA
302-3M	7	EPOXY FOR BONDING FIBER INTO CONNECTOR	A/R	NA	NA
VIA000363T	9	ASSEMBLY, SHIPPING CLAMP	5	N/A	NA
VIA000240T-1	10	NYLON SLEEVE, SECTION 1(DEROTATOR SECTION)	1	BALLY PN 8044400500YW1365	3810
VIA000240T-2	11	NYLON SLEEVE, SECTION 2 (ARTICULATING SECTION)	1	BALLY PN 8044400500YW1365	6274
VIA000240T-3	12	NYLON SLEEVE, SECTION 3 (HORIZONTAL SECTION)	1	BALLY PN 8044400500YW1365	5283
VIA000240T-4	13	NYLON SLEEVE, SECTION 4 (VERTICAL SECTION)	1	BALLY PN 8044400500YW1365	4394
VIA000240T-5	14	NYLON SLEEVE, SECTION 5 (SPECTROGRAPH ROOM SECTION)	1	BALLY PN 8044400500YW1365	3912
VIA000240T-6	15	PTFE TUBE SEGMENT, SECTION 1 (DEROTATOR SECTION)	11	EXTRUDED PTFE TUBING(NATURAL), ZEUS, AWG20, STD WALL	4851
VIA000240T-7	16	PTFE TUBE SEGMENT, SECTION 2 (ARTICULATING SECTION)	11	EXTRUDED PTFE TUBING(NATURAL), ZEUS, AWG20, STD WALL	6579
VIA000240T-8	17	PTFE TUBE SEGMENT, SECTION 3 (HORIZONTAL SECTION)	11	EXTRUDED PTFE TUBING(NATURAL), ZEUS, AWG20, STD WALL	5588
VIA000240T-9	18	PTFE TUBE SEGMENT, SECTION 4 (VERTICAL SECTION)	11	EXTRUDED PTFE TUBING(NATURAL), ZEUS, AWG20, STD WALL	4699
VIA000240T-10	19	PTFE TUBE SEGMENT, SECTION 5 (SPECT ROOM SECTION)	11	EXTRUDED PTFE TUBING(NATURAL), ZEUS, AWG20, STD WALL	4064
VIA000240T-11	20	PTFE TUBE SHIPPING SEGMENT	11	EXTRUDED PTFE TUBING(NATURAL), ZEUS, AWG20, STD WALL	1300
VIA000240T-12	21	PTFE TUBE TERMINATOR BLOCK (SHEET 9)	1	ALUMINUM 6061 T6 CHEM FILM PER MIL-DTL-5541, CLASS 3 TYPE 2	NA
NA	22	SHIPPING CONTAINER	1	CARDBOARD BACKER AND BOX	NA
VIA000240T-14	23	STRAIN RELIEF, FC CONNECTOR	11	RUBBER	NA
VIA000240T-15	24	12 GAUGE SS TUBE, 0.109" OD, 0.012" WALL, 0.085" ID	11	304 SS	228.5
VIA000240T-16	25	12 GAUGE SS TUBE 0.109: OD, 0.012" WALL, 0.085" ID	2	304 SS	177.8
HYSOL 9313	26	EPOXY FOR BONDING OPTION	A/R	NA	NA

△11 TABLE 1 - FIBER BUNDLE SEGMENT LENGTHS AND POSITIONING △38

	STATION DESCRIPTION	NOMINAL LENGTH FROM FIBER FACE (STATION 0)		SECTION LENGTH (REF)		SECTION DESCRIPTION
		(IN) △37	(M)	(IN)	(M)	
0	Fiber connector face	0.0	0.0	NA	NA	
1	End of connector strain relief	2.0	0.05	2.0	0.05	0-1: Connector and strain relief
2	Start of derotator nylon sleeve	34.0	0.86	32.0	0.81	1-2: Fibers in PTFE tubes, individually routed
3	End of derotator nylon sleeve	184.0	4.67	150.0	3.81	2-3: 11X fibers in PTFE tubes in nylon sleeve
4	Start of derotator thermal break	186.0	4.72	2.0	0.05	3-4: 11X fibers in PTFE tubes
5	End of derotator thermal break	195.0	4.95	9.0	0.23	4-5: Thermal break
6	Start of articulating chain nylon sleeve	197.0	5.00	2.0	0.05	5-6: 11X fibers in PTFE tubes
7	End of articulating chain nylon sleeve	444.0	11.28	247.0	6.27	6-7: 11X fibers in PTFE tubes in nylon sleeve
8	Start of observing floor TBOX thermal break	446.0	11.33	2.0	0.05	7-8: 11X fibers in PTFE tubes
9	End of observing floor TBOX thermal break	455.0	11.56	9.0	0.23	8-9: Thermal break
10	Start of horizontal chain nylon sleeve	457.0	11.61	2.0	0.05	9-10: 11X fibers in PTFE tubes in nylon sleeve
11	End of horizontal chain nylon sleeve	665.0	16.89	208.0	5.28	10-11: 11X fibers in PTFE tubes in nylon sleeve
12	Start of lower elbow TBOX thermal break	667.0	16.94	2.0	0.05	11-12: 11X fibers PTFE tubes
13	End of lower elbow TBOX thermal break	676.0	17.17	9.0	0.23	12-13: Thermal break
14	Start of vertical floor to floor chain nylon sleeve	678.0	17.22	2.0	0.05	13-14: 11X fibers in PTFE tubes
15	End of vertical floor to floor chain nylon sleeve	851.0	21.62	173.0	4.39	14-15: 11X fibers in PTFE tubes in nylon sleeve
16	Start of upper elbow TBOX thermal break	853.0	21.67	2.0	0.05	15-16: 11X fibers in PTFE tubes
17	End of upper elbow TBOX thermal break	862.0	21.89	9.0	0.23	16-17: Thermal break
18	Start of spectrograph room nylon sleeve	864.0	21.95	2.0	0.05	17-18: 11X fibers in PTFE tubes
19	End of spectrograph room nylon sleeve	1018.0	25.86	154.0	3.91	18-19: 11X fibers in PTFE tubes in nylon sleeve
20	Start of teflon tube terminator block	1020.0	25.91	2.0	0.05	19-20: 11X fibers in PTFE tubes
21	End of teflon tube terminator block	1022.0	25.96	2.0	0.05	20-21: PTFE tube termination block
22	End of bare fiber	1072.0	27.23	50.0	1.27	21-22: bare fiber routed in the shoe

PRELIMINARY 09-APR-2025
RELEASED FOR FEEDBACK AND QUOTATION

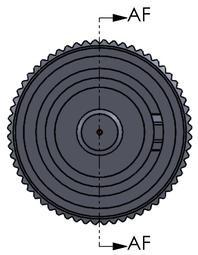
INITIAL RELEASE APPROVALS	TOLERANCES UNLESS OTHERWISE NOTED: ±0.XXX = ±0.050, ±0.XX = ±0.13, ±0.X = ±0.2, NO DECIMAL = ±1, ANGLES = ±1°	THIRD ANGLE PROJECTION	100 Acorn Park Drive, Cambridge, MA 02140
DESIGNED BY: WAP			
DRAFTED BY: WAP			
CHECKED BY: AC	DESCRIPTION: FIBER BUNDLE ASSEMBLY, MMT		
NEXT ASSEMBLY:	PROJECT ENGINEER: AC		
COMPONENT MATERIAL: SEE NOTES	INSTRUMENT ENGINEER: N/A	SHEET SIZE: E	SCALE: 1:2
COMPONENT WEIGHT (kg):	PRINCIPAL INVESTIGATOR:	DWG NO.: VIA000240T	REVISION: A
			SHEET: 10F10

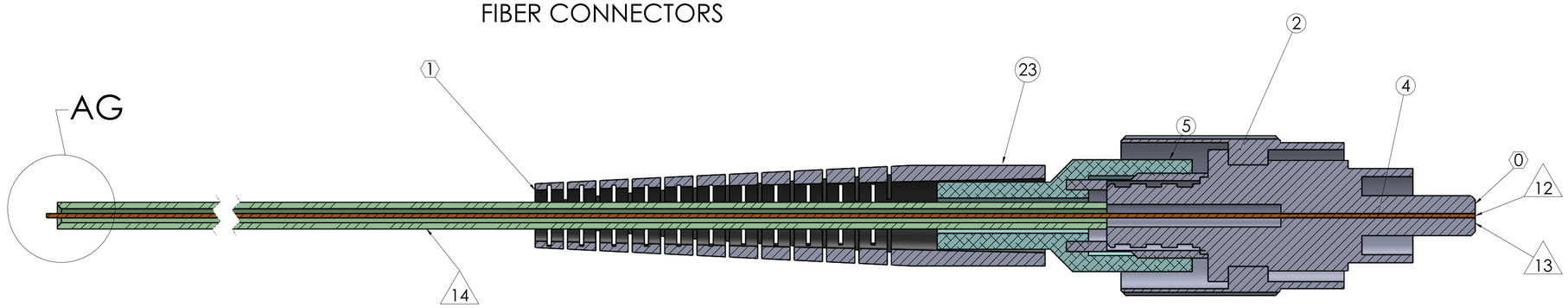


PRELIMINARY 09-APR-2025
RELEASED FOR FEEDBACK AND QUOTATION

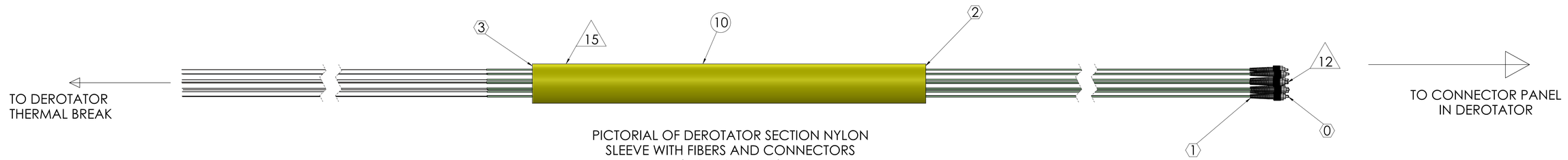
DWG NO. VIA000240T	REVISION 01	SHEET SIZE E	SCALE 1:2
		SHEET 2 OF 10	

FIBER CONNECTORS

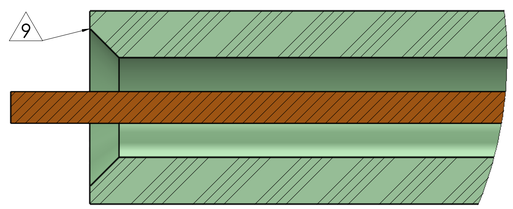




SECTION AF-AF
SCALE 8 : 1



PICTORIAL OF DEROTATOR SECTION NYLON
SLEEVE WITH FIBERS AND CONNECTORS
(NOT TO SCALE)

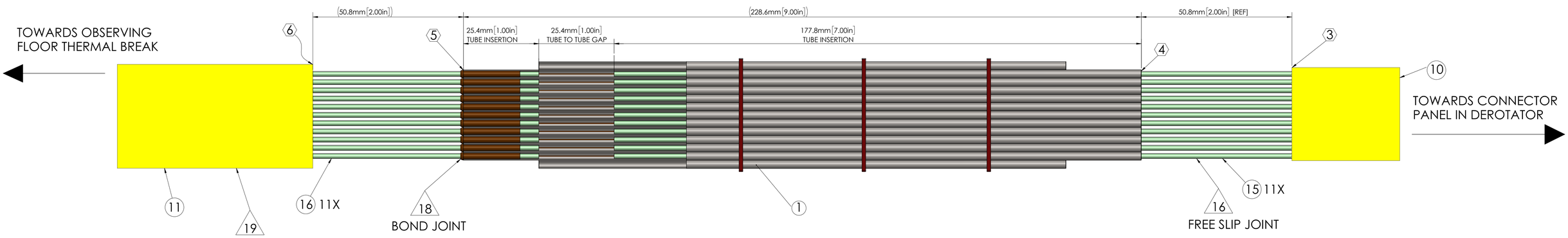


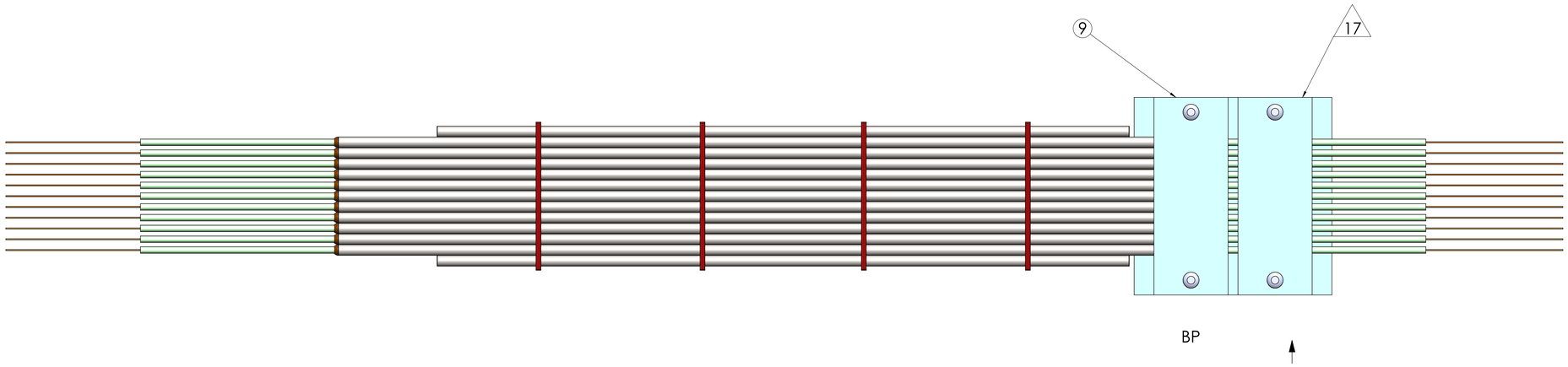
DETAIL AG
SCALE 50 : 1

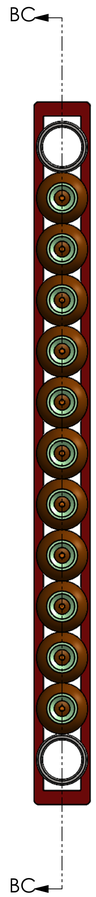
PRELIMINARY 09-APR-2025
RELEASED FOR FEEDBACK AND QUOTATION

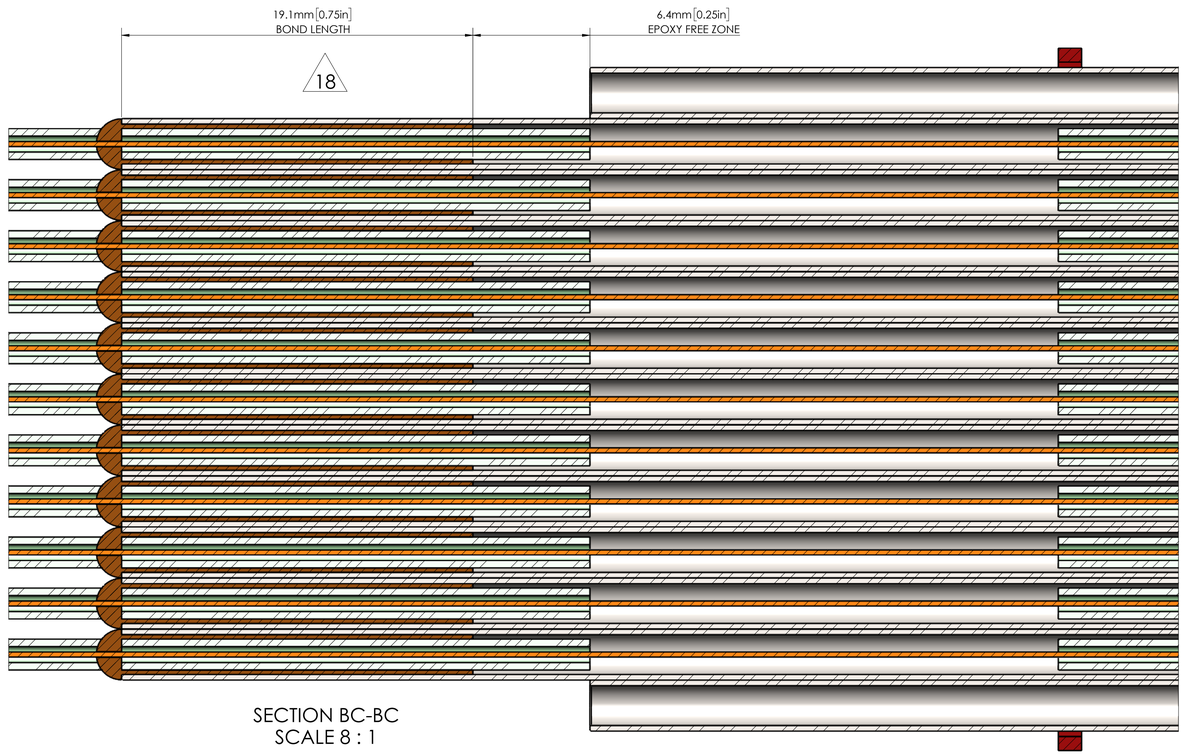
DWG NO. VIA000240T	REVISION 01	SHEET SIZE E	SCALE 2:1
		SHEET 3 OF 10	

THERMAL BREAK IN DEROTATOR

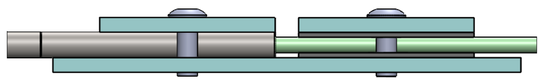








SECTION BC-BC
SCALE 8 : 1



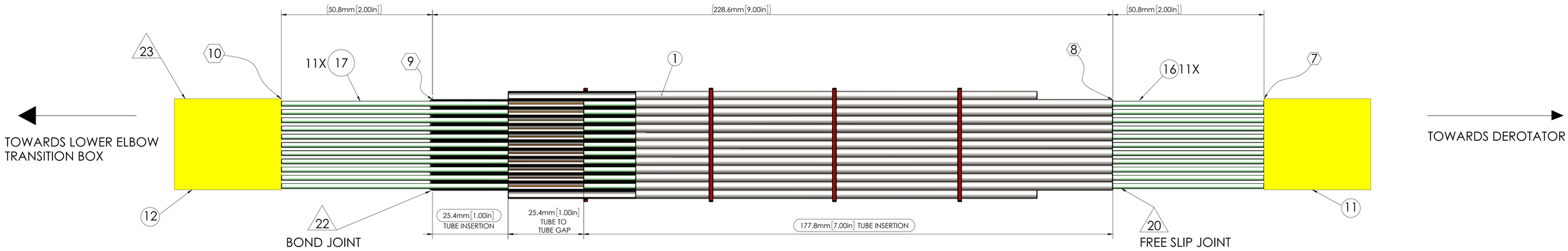
VIEW BP
SCALE 4 : 1

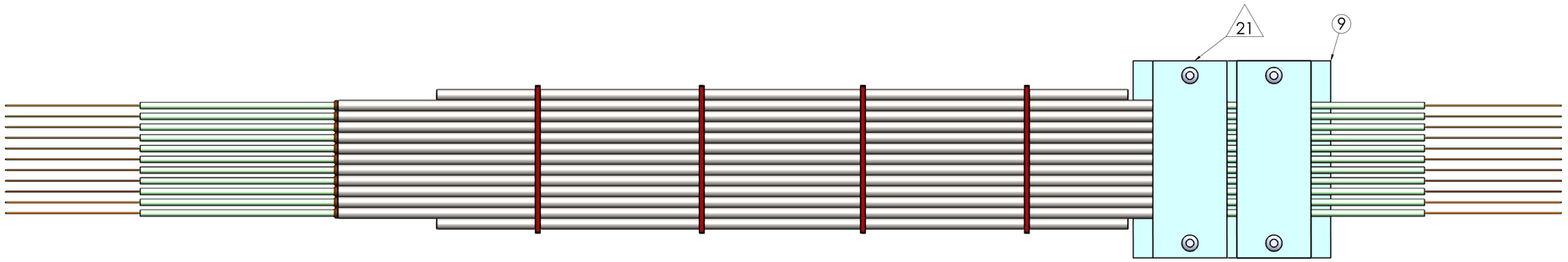
SIDE VIEW SHOWING TUBES
CAPTURED IN CLAMP

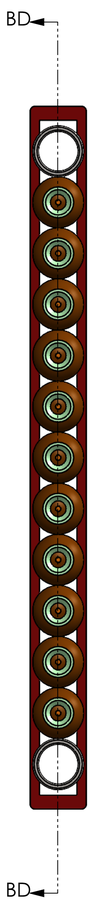
PRELIMINARY 09-APR-2025
RELEASED FOR FEEDBACK AND QUOTATION

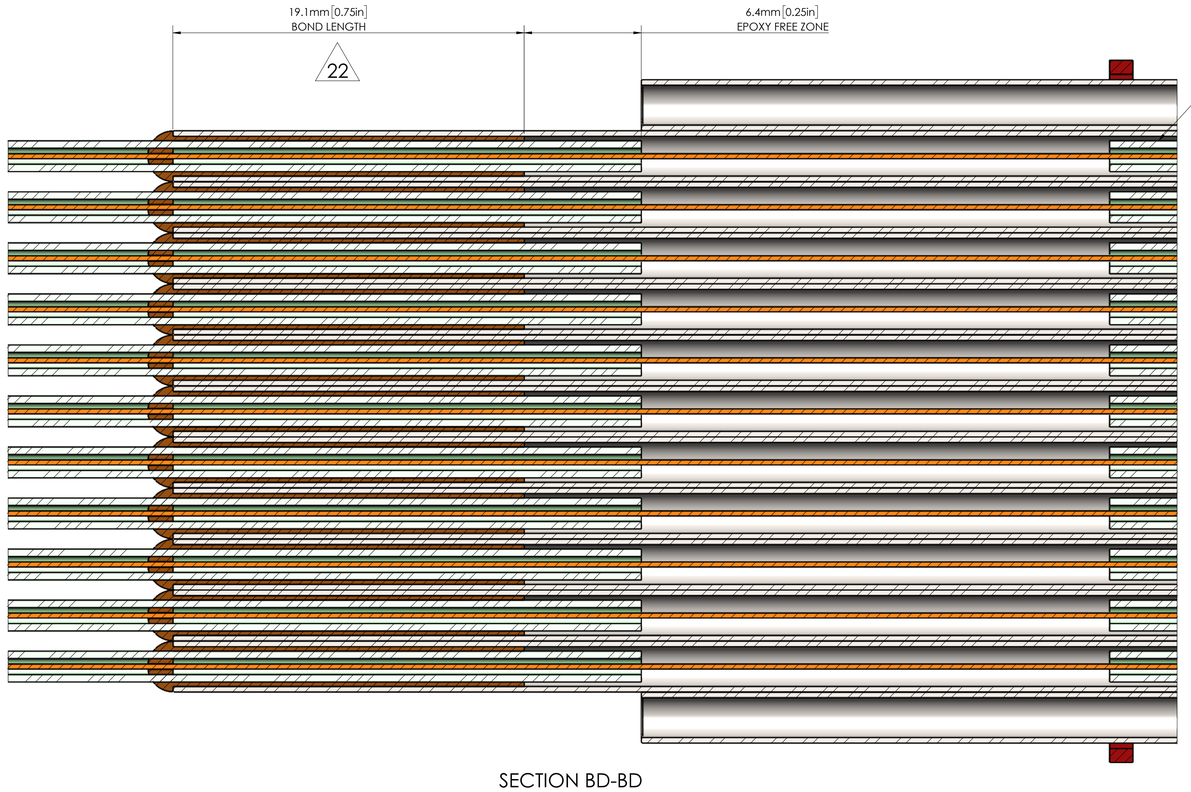
DWG NO. VIA000240T	REVISION 01	SHEET SIZE E	SCALE 1:1
		SHEET 4 OF 10	

THERMAL BREAK IN OBSERVING FLOOR TRANSITION BOX (TBOX)

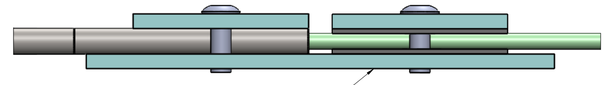








SECTION BD-BD
SCALE 8 : 1

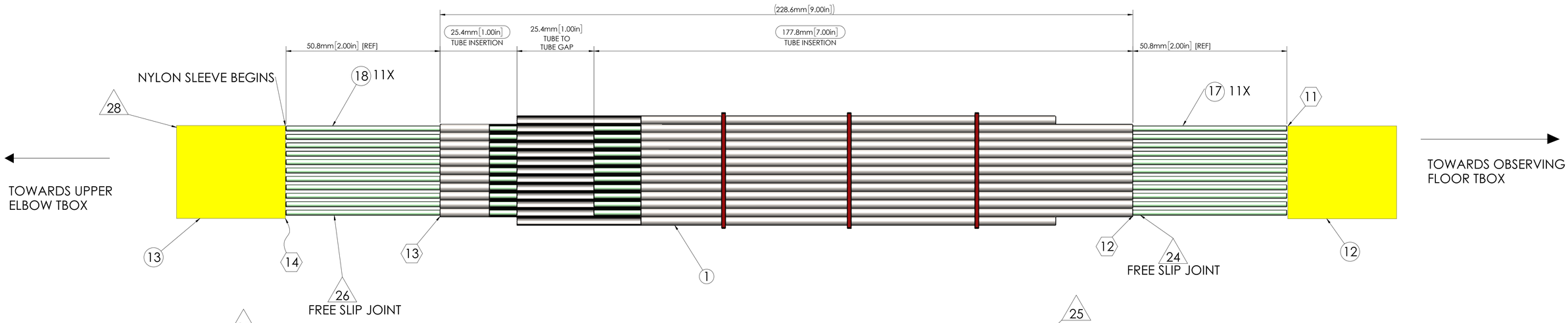


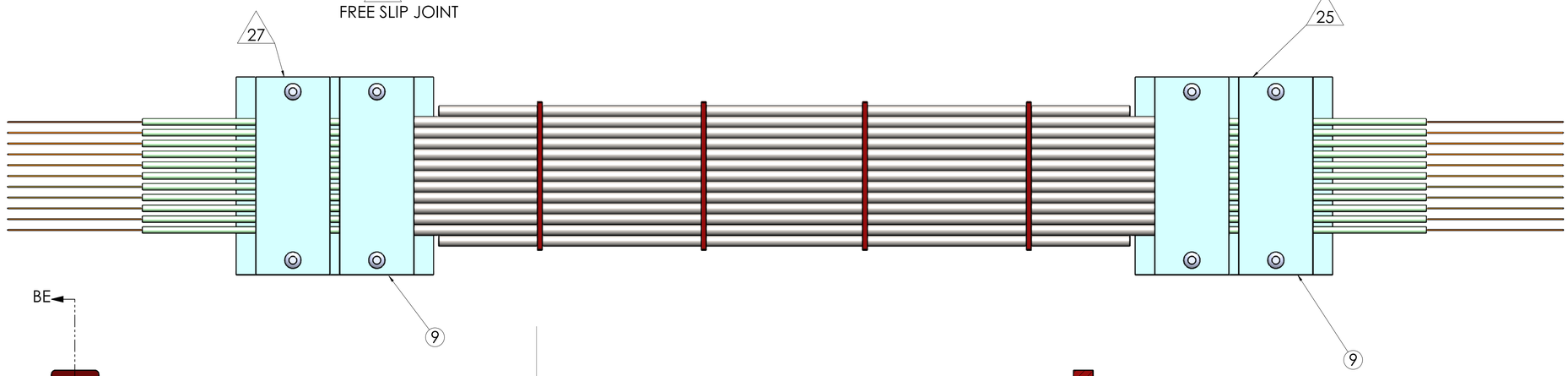
21 SIDE VIEW SHOWING TUBES CAPTURED IN CLAMP

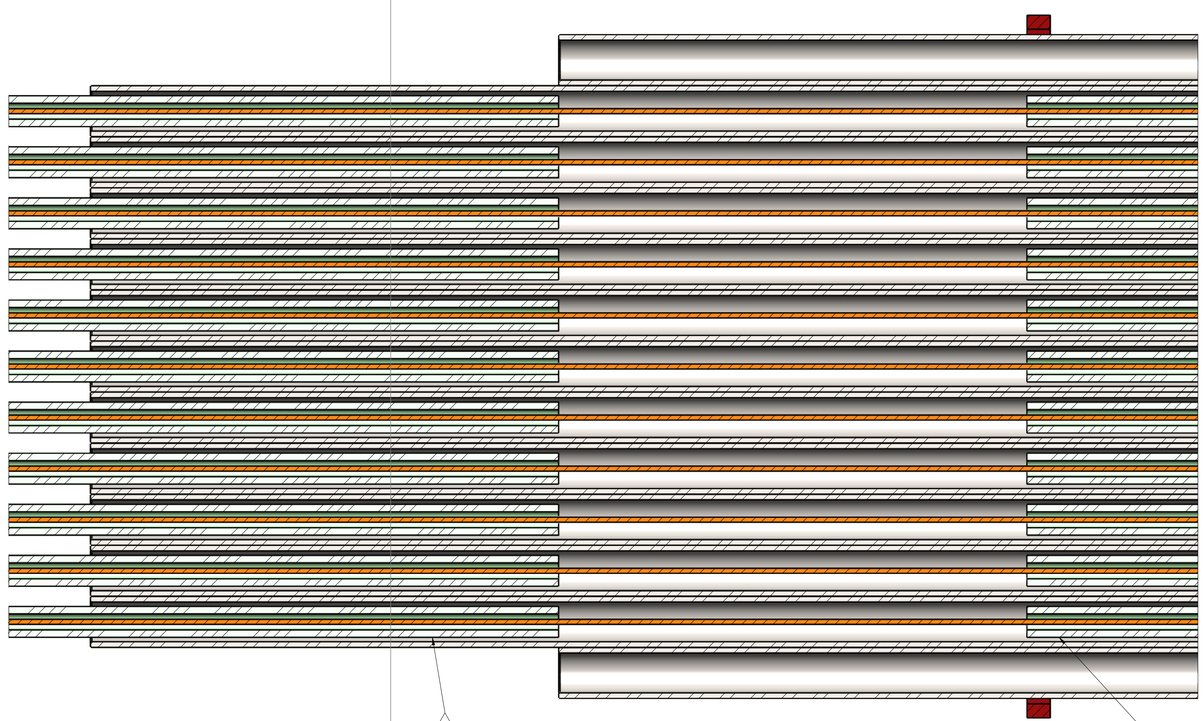
PRELIMINARY 09-APR-2025
RELEASED FOR FEEDBACK AND QUOTATION

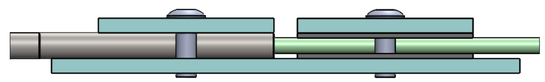
DWG NO. VIA000240T	REVISION 01	SHEET 5 OF 10	SHEET SIZE E / SCALE 1:1

LOWER ELBOW TBOX THERMAL BREAK ASSEMBLY







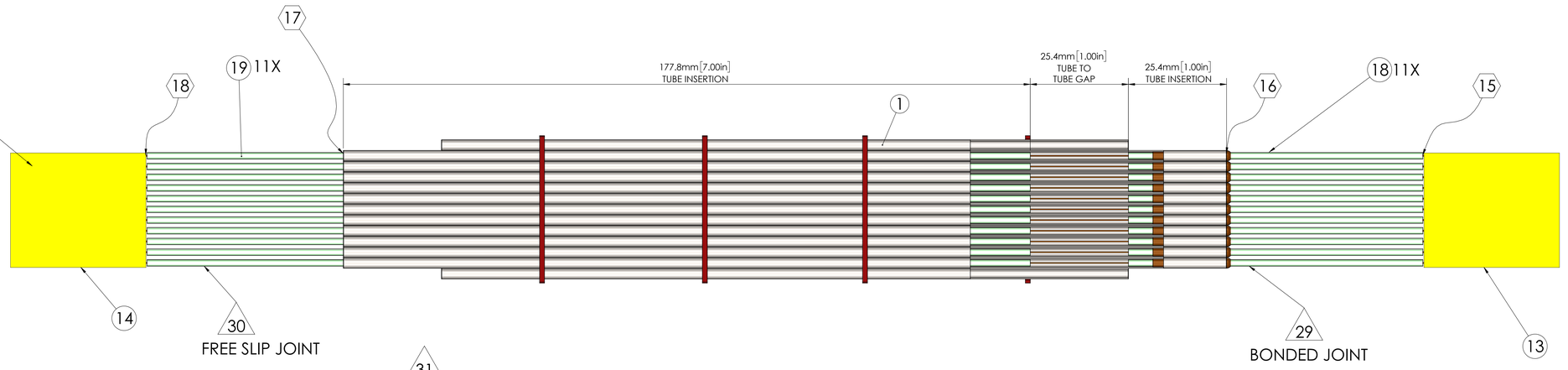


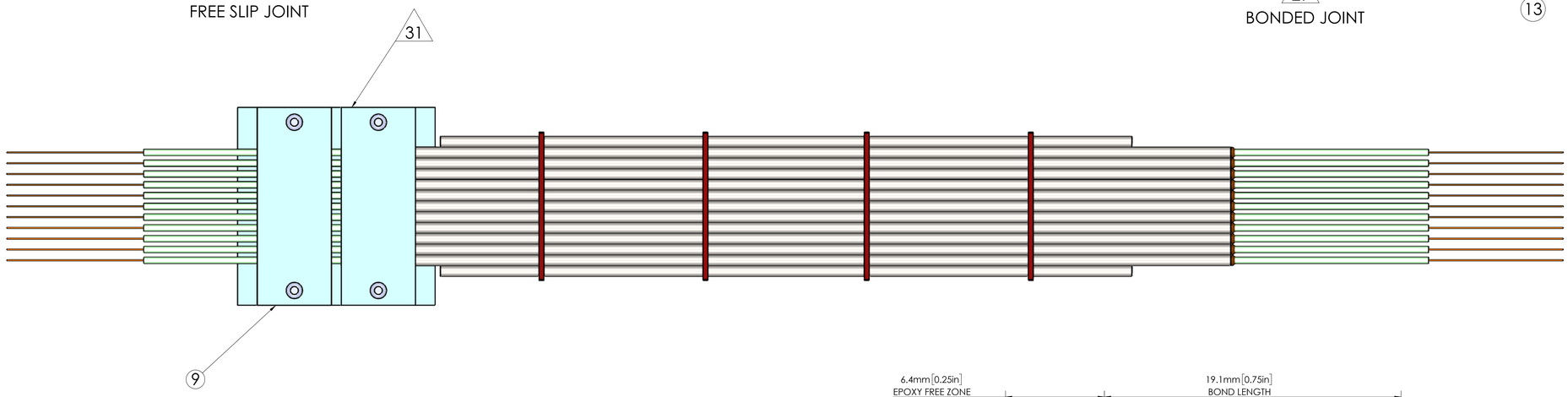
25 SIDE VIEW SHOWING TUBES CAPTURED IN CLAMP BOTH SIDES (TYP)

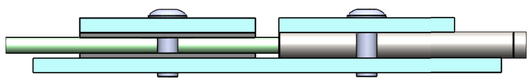
PRELIMINARY 09-APR-2025
RELEASED FOR FEEDBACK AND QUOTATION

DWG NO.	SHEET SIZE	SCALE
VIA000240T	E	1:1
	REVISION 01	SHEET 6 OF 10

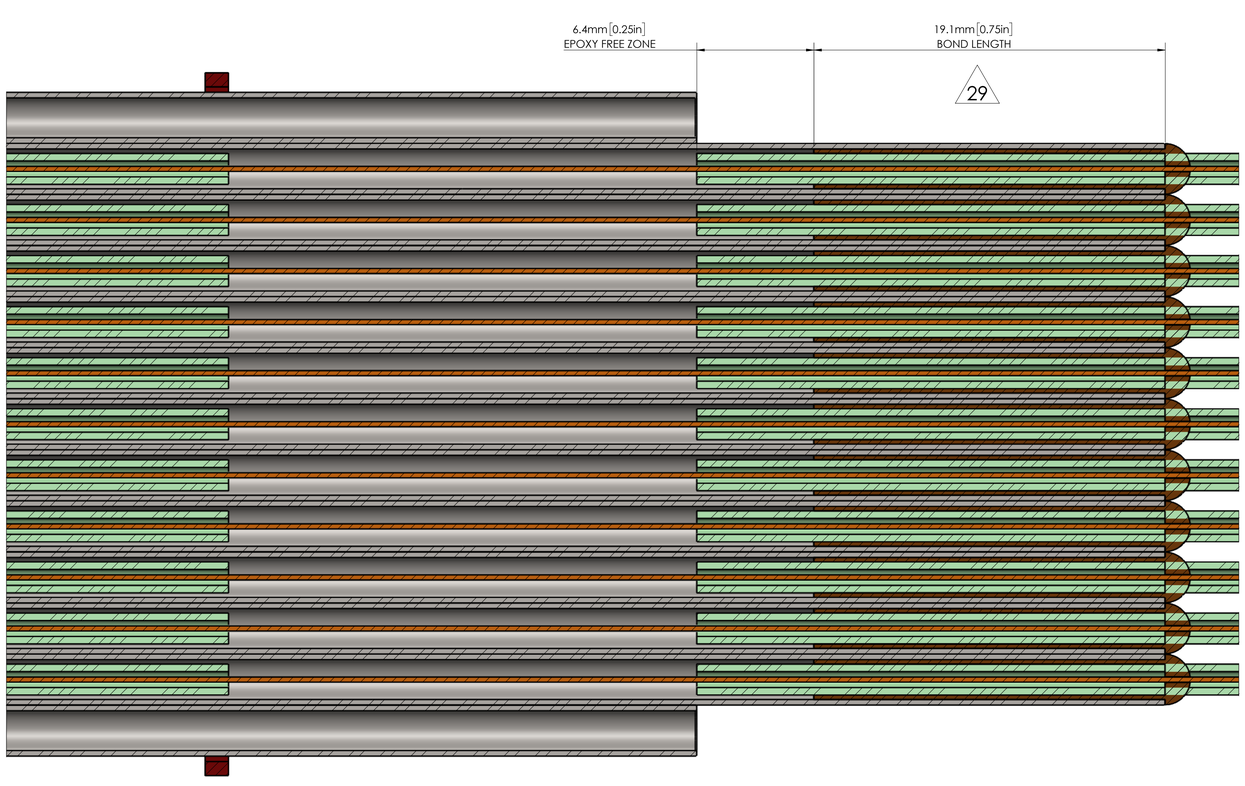
UPPER ELBOW TRANSITION BOX THERMAL BREAK ASSEMBLY







31 SIDE VIEW SHOWING
SHIPPING CLAMP
CAPTURING BOTH TUBES

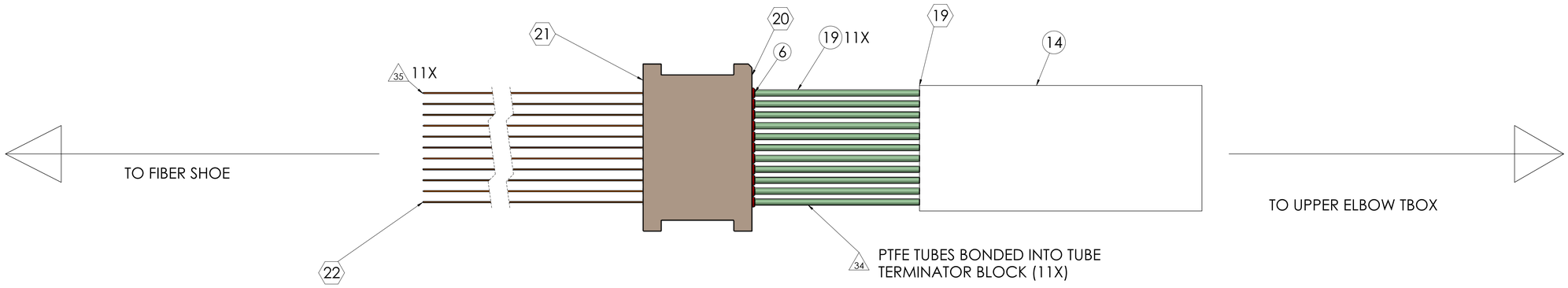


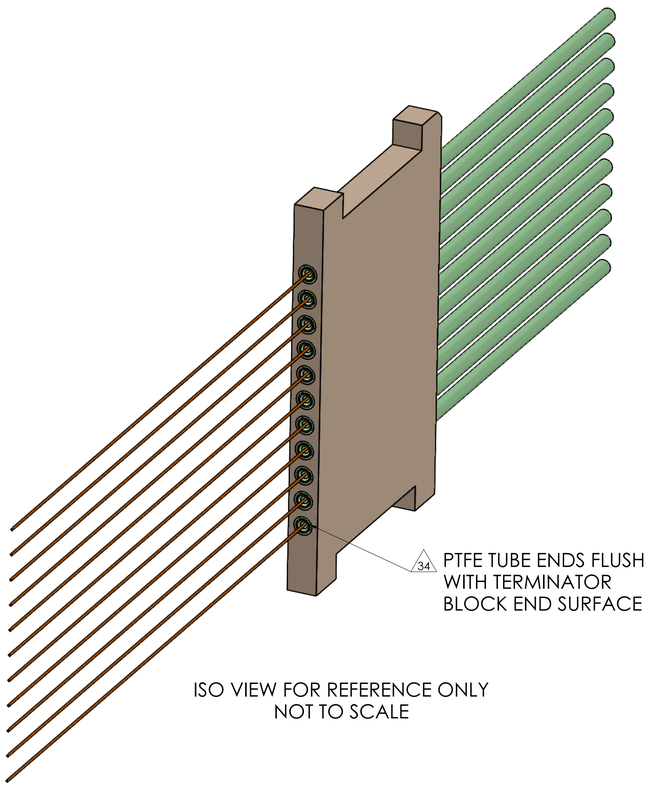
SECTION BH-BH
SCALE 8 : 1

PRELIMINARY 09-APR-2025
RELEASED FOR FEEDBACK AND QUOTATION

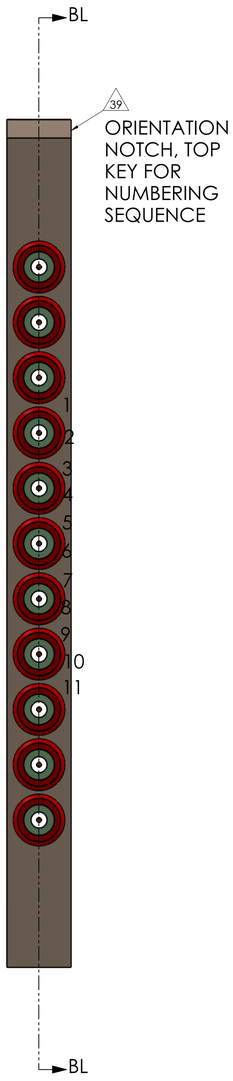
DWG NO. VIA000240T	REVISION 01	SHEET SIZE E	SCALE 1:1
		SHEET 7 OF 10	

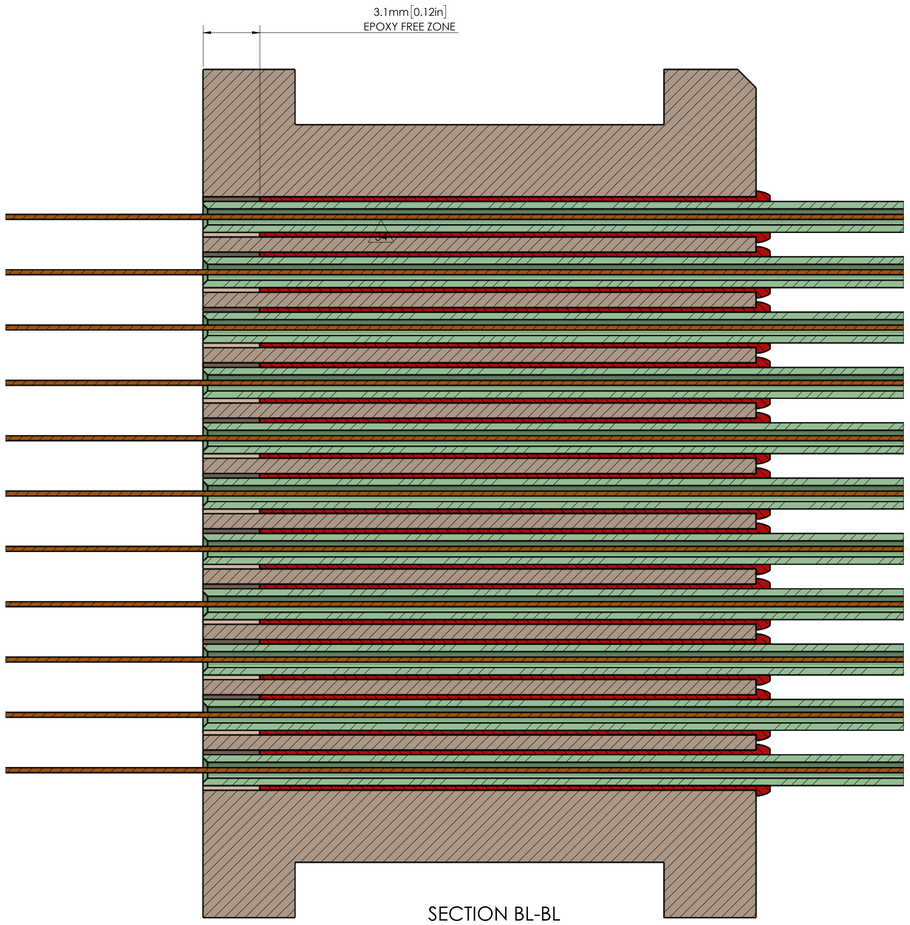
TEFLON TUBE TERMINATOR ASSEMBLY





ISO VIEW FOR REFERENCE ONLY
NOT TO SCALE



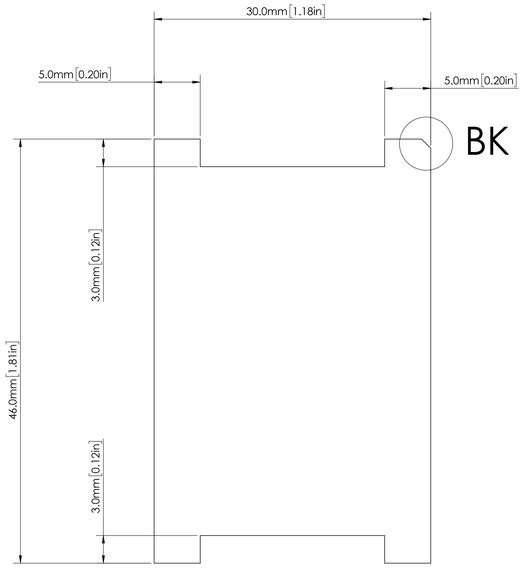


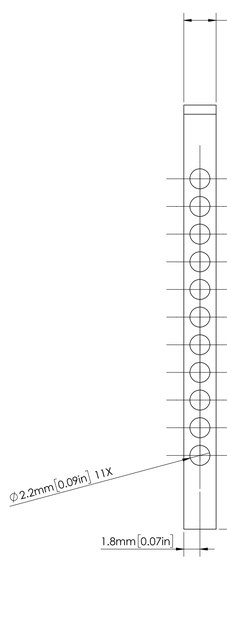
SECTION BL-BL
SCALE 8 : 1

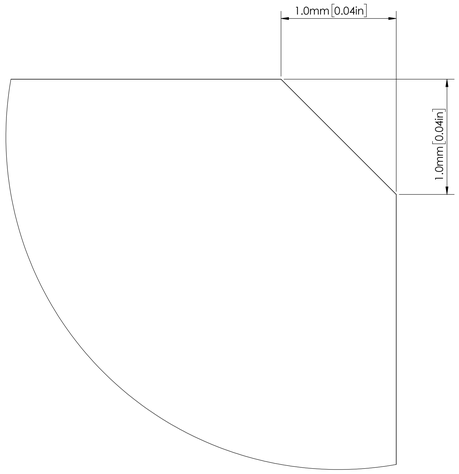
PRELIMINARY 09-APR-2025
RELEASED FOR FEEDBACK AND QUOTATION

SHEET SIZE	E
SCALE	2:1
DWG NO.	VIA000240T
REVISION	01
SHEET	8 OF 10

PTFE TERMINATION BLOCK DETAIL (ITEM NO.21)





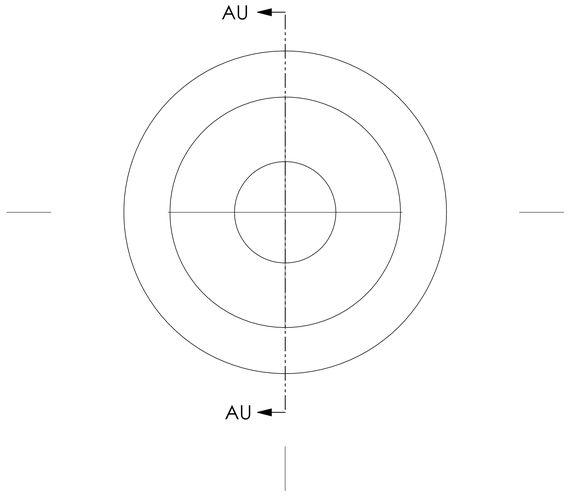


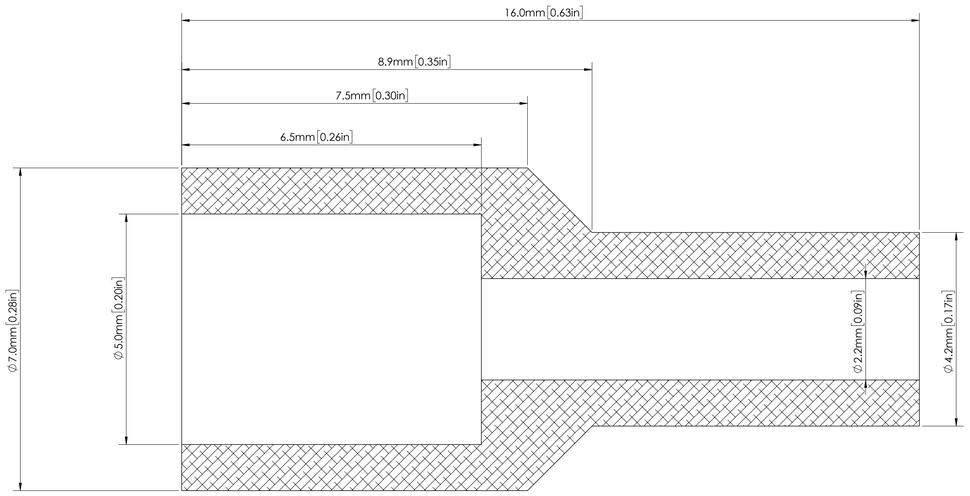
DETAIL BK
SCALE 50 : 1

PRELIMINARY 09-APR-2025
RELEASED FOR FEEDBACK AND QUOTATION

DWG NO. VIA000240T	REVISION 01	SHEET SIZE E	SCALE 5:1
		SHEET 9 OF 10	

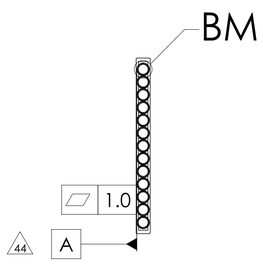
BONDING SLEEVE, FC CONNECTOR TO PTFE TUBE (ITEM NO.5)

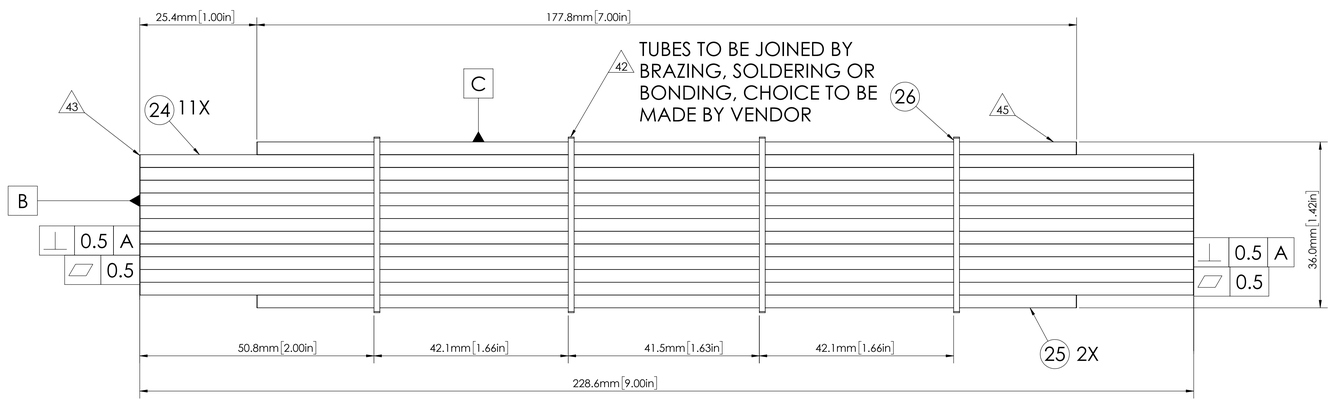


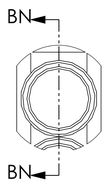


SECTION AU-AU

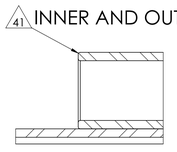
TUBE ASSEMBLY, THERMAL BREAK (ITEM NO.1)







DETAIL BM
SCALE 12 : 1



SECTION BN-BN
SCALE 12 : 1

PRELIMINARY 09-APR-2025
RELEASED FOR FEEDBACK AND QUOTATION

DWG NO.	SHEET SIZE	SCALE
VIA000240T	E	20:1
	REVISION 01	SHEET 10 OF 10