



Toase-e Park Sanati Gohar Ofoh
Petrochemical Co.
**CONCEPTUAL, BASIC and DETAIL DESIGN
ENGINEERING OF STYRENE PARK OFFSITE**



Document Title: Condenser Outline Drawing

Document No.: EI027-HSE-VD- ME-DWG-005-R2

Rev. R2

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STYRENE PARK OFFSITE

Document Title:
Condenser Outline Drawing

Rev.	Issued Date	DESCRIPTION	PREPARED	CHECKED	APPROVED
R2	19-01-2025	FI	F.SH	M.O	A.M
R1	15-09-2024	IFA	F.SH	M.O	A.M
R0	04-07-2024	IFA	F.SH	M.O	A.M



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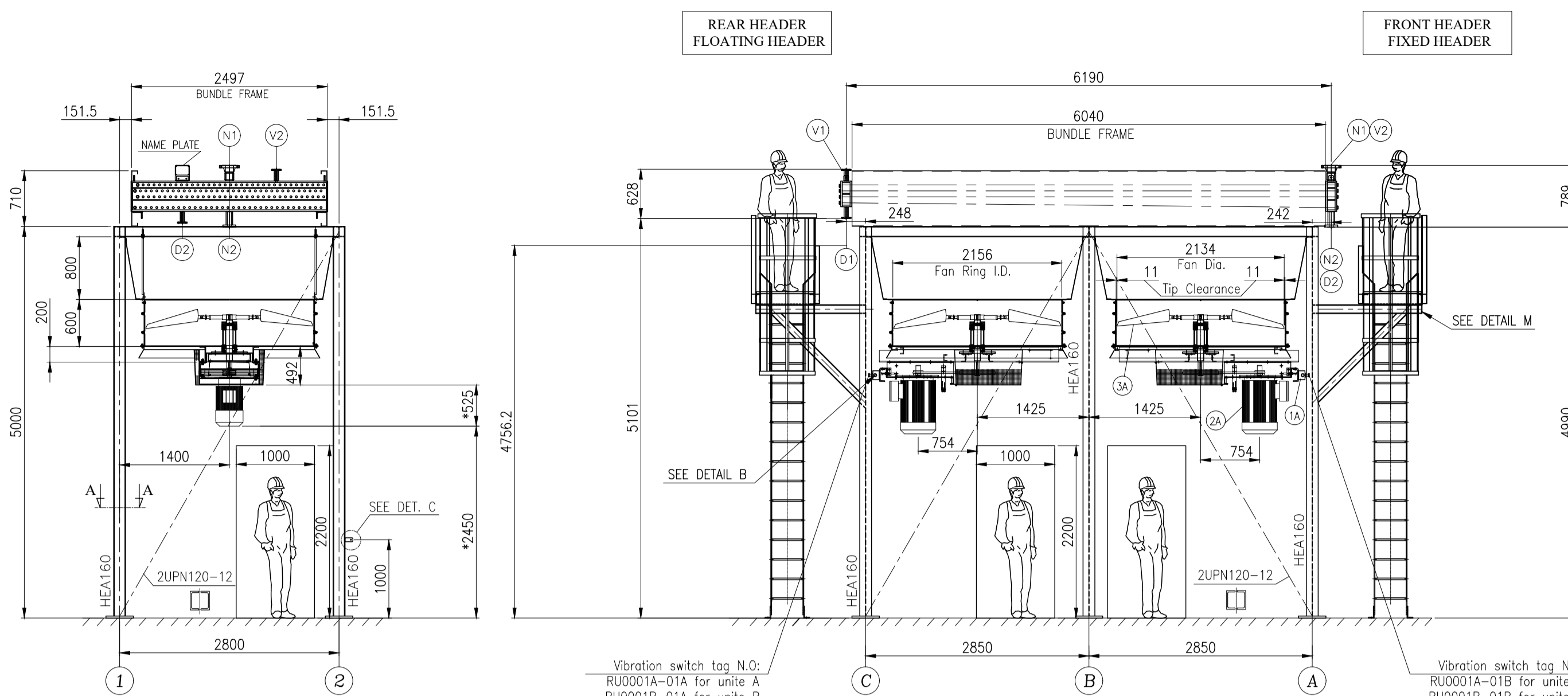
Document No.: EI027-HSE-VD- ME-DWG-005-R2

Rev. R2

Page 2 of 16

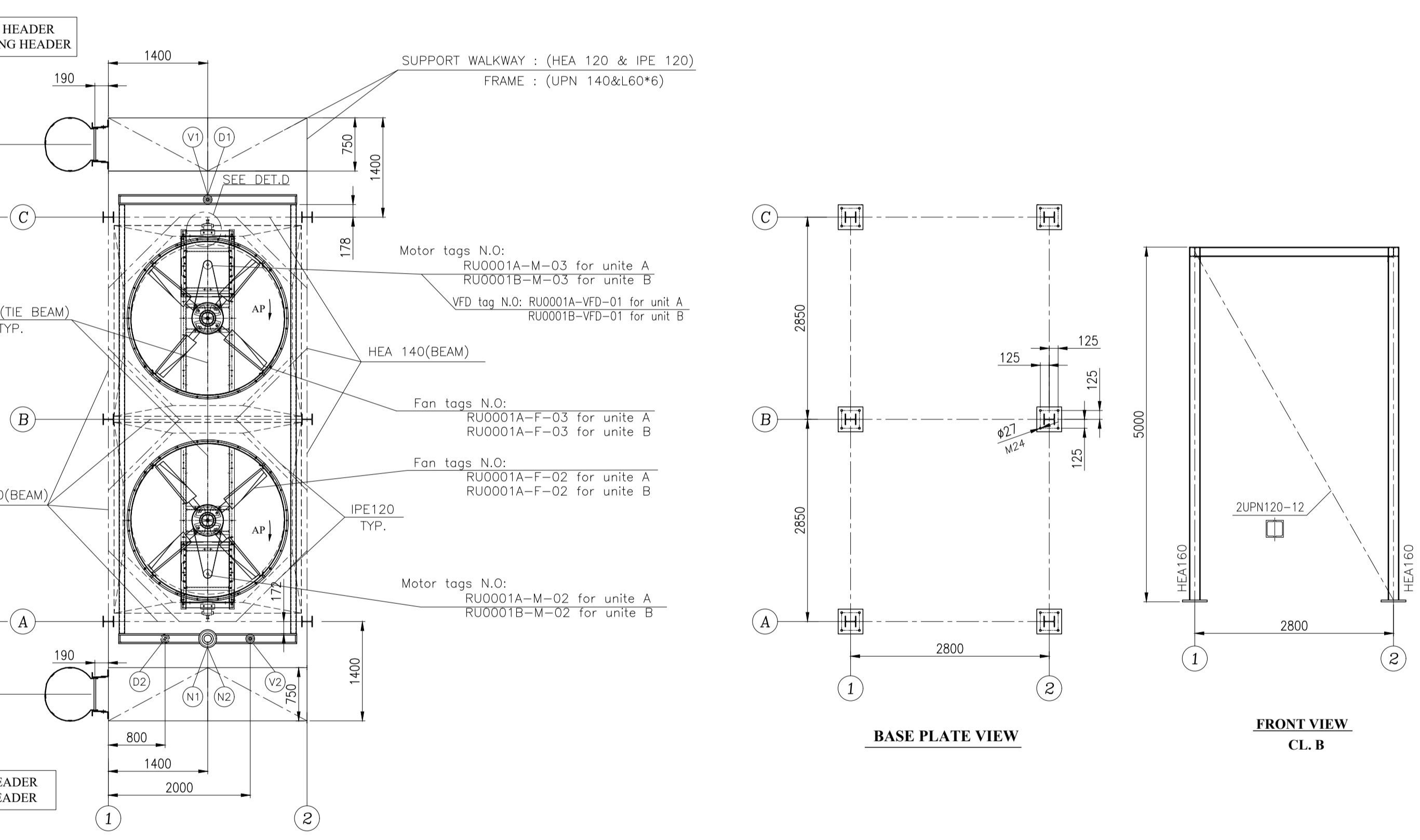
REVISION RECORD SHEET

Page Page	Revisions							Page	Revisions						
	R0	R1	R2	R3	R4	R5	R6		R0	R1	R2	R3	R4	R5	R6
1	X	X	X					41							
2	X	X	X					42							
3	X	X	X					43							
4	X	X	X					44							
5			X					45							
6			X					46							
7			X					47							
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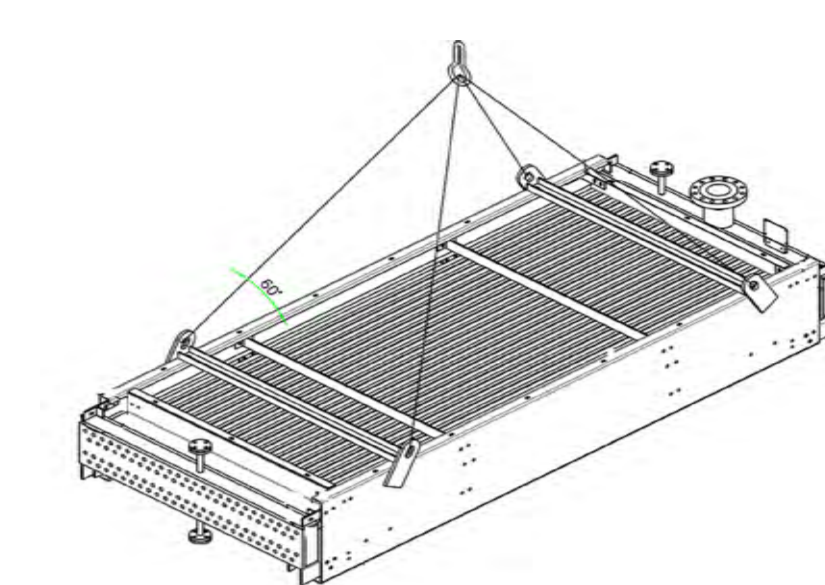
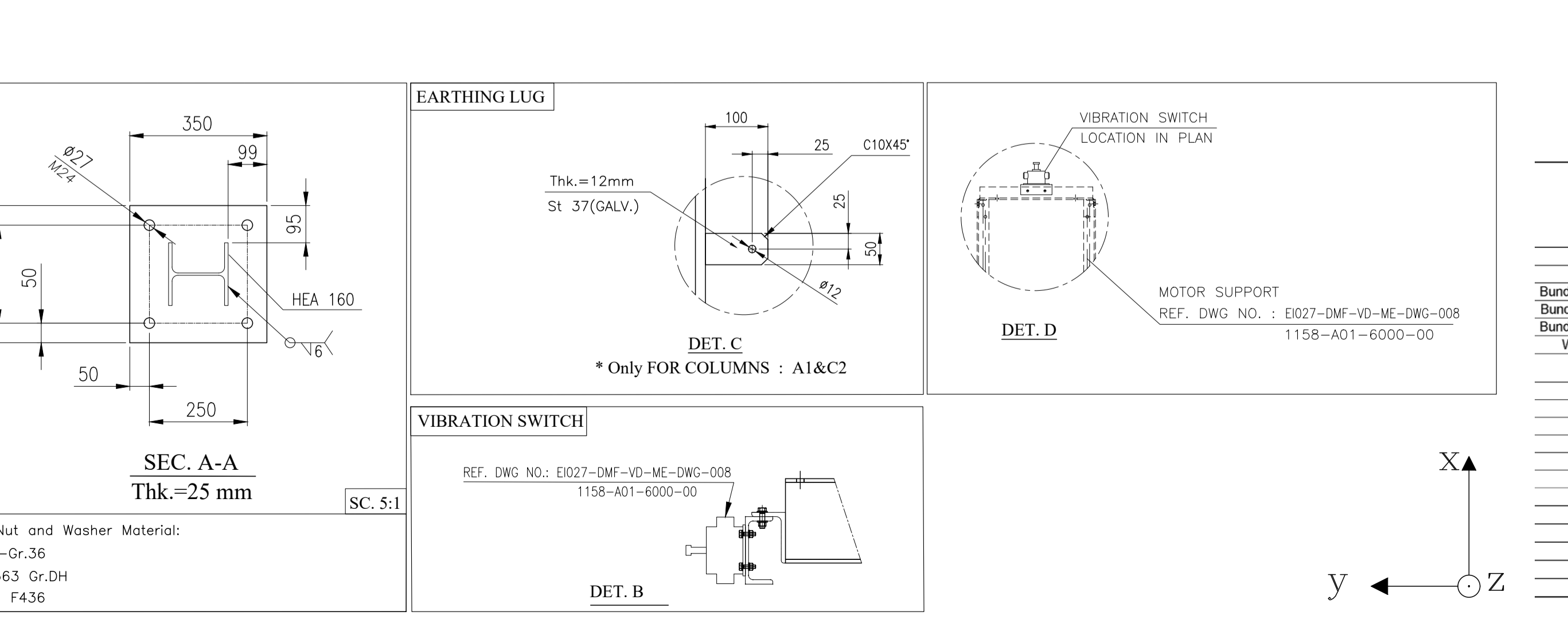


FRONT VIEW CL. A-C
SIDE VIEW

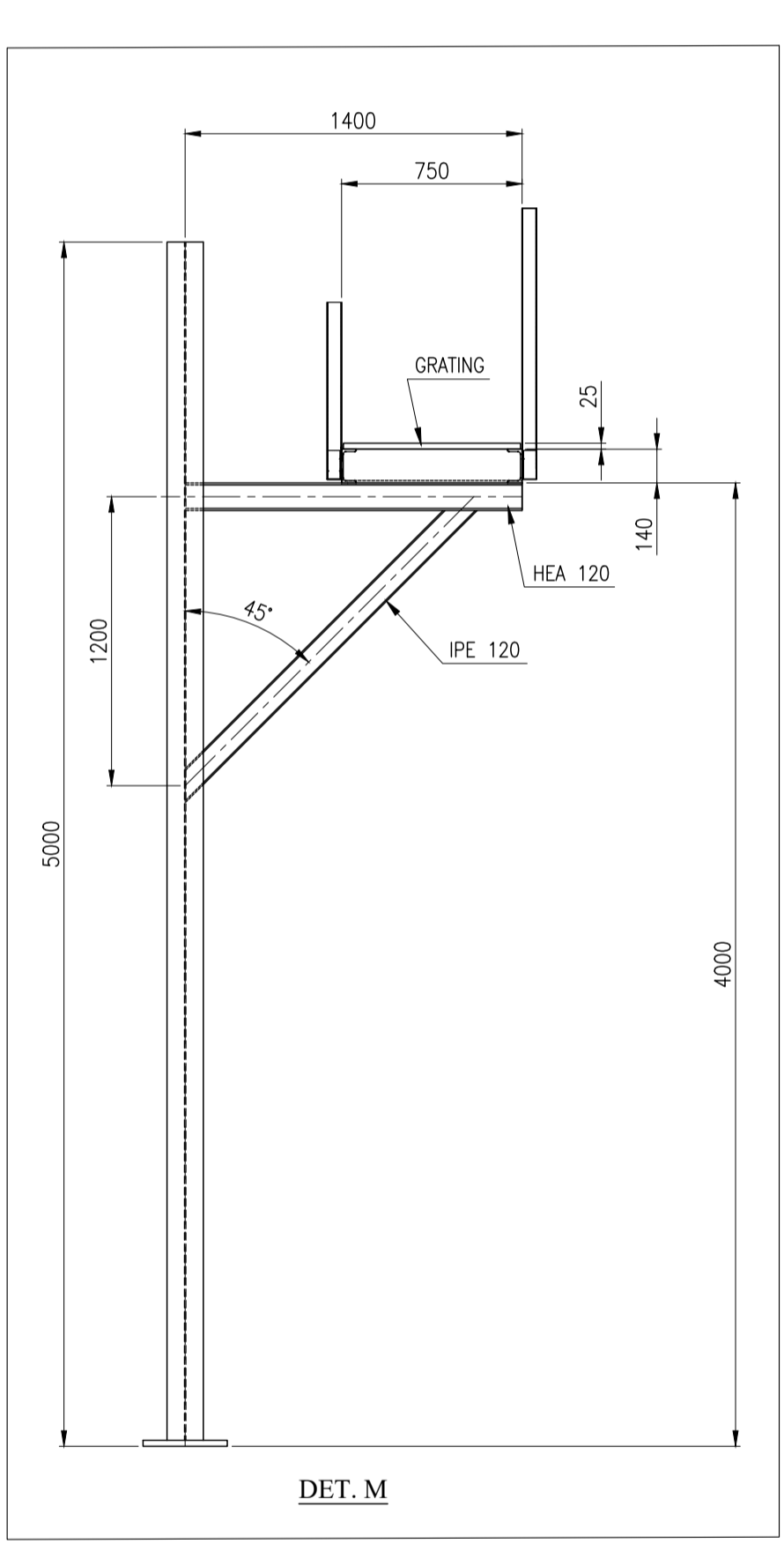
* THIS DIMENSION WILL BE FINALIZED AFTER APPROVED OF MOTOR DATA SHEET



TOP VIEW
BASE PLATE VIEW
FRONT VIEW CL. B



SCHEMATIC OF BUNDLE LIFTING



DET. M

Table 1. Weight of equipments For 1 Units (Total Units = 2)

Equipment	Total No in one Unit	Unit Weight (tonf)	Total No. for one Bay	Weight for One Bay (kgf)
Bundle Frame	1	1.091	1	1091
Tube Bundle & Headers	1	2.922	1	2922
Bundle frame & tube bundle(DRY)	1	4.013	1	4013
Bundle frame & tube bundle (OP)	1	4.222	1	4222
Bundle frame & tube bundle(HYD)	1	4.493	1	4493
Water in Tubes & Headers	1	0.48	1	480
Plenum	2	0.262	2	524
Fan Ring	2	0.13	2	260
Motor	2	0.07	2	140
Fan	2	0.0275	2	55
Speed Reducer	2	0.25	2	500
Machinery Mount	2	0.32	2	640
Fan Guard	2	0.0325	2	65
sum				2184
Fabrication Weight For 1 Units				11167
Operation Weight For 1 Units				11376
Hydrotest Weight For 1 Units				11647
Total Weight of Main structure, Ladder for 1 Units				4970

TABLE: Joint Reactions

Joint Text	Output Case	Fx Kgf	Fy Kgf	Fz Kgf
A-1	DEAD	16.65	-45	861.98
A-1	DEAD	49.34	-158.83	1640.14
A-1	DEAD OP	4.08	-14.37	92.37
A-1	DEAD_N	-1631.93	429.16	-2881.5
A-1	LIVE	3.34	25.54	1383.73
A-1	WX	31.57	329.34	352.72
A-1	WY	-387.76	93.94	-669.09
A-1	SNOW	9.74	-24.99	547.61
A-1	EQX	106.43	1146.34	-1764.17
A-1	EQY	-1561.76	337	-3289.21
A-1	EQO	210.24	2295.43	-3528.78
A-1	EQVO	-3123.79	673.24	-6571.39
A-2	DEAD	-20.6	1.599E-13	380.54
A-2	DEAD	-33.06	-0.00000289	811.07
A-2	DEAD OP	-10.59	-3.963E-07	55.27
A-2	DEAD_N	-76.47	6.353E-13	402.18
A-2	LIVE	-76.47	6.353E-13	402.18
A-2	WX	1.165E-12	49.87	8.288E-13
A-2	WY	-54.91	-1.269E-13	-353.83
A-2	SNOW	-19.58	-8.635E-07	221.21
A-2	EQX	0.004107	45.8	0.09216
A-2	EQY	-48.82	-0.38	-1465.12
A-2	EQO	0.00889	92.7	0.18
A-2	EQVO	-98.54	-0.78	-2927.34
A-2	DEAD	16.65	45	861.98
A-2	DEAD	49.34	158.83	1640.17
A-2	DEAD OP	4.08	14.37	92.37
A-2	DEAD_N	39.17	235.02	482.86
A-2	LIVE	3.34	-25.54	1383.73
A-2	WX	-31.57	329.34	352.72
A-2	WY	-387.76	-93.94	-669.09
A-2	SNOW	9.74	24.99	547.61
A-2	EQX	-106.49	1146.49	1764.07
A-2	EQY	-1071.77	-428.48	-2570.23
A-2	EQO	-210.36	2295.75	-3529.6
A-2	EQVO	-2144	-856.2	-5134.3
B-1	DEAD	34.11	-3.44	482.68
B-1	DEAD	174.23	-2.24	983.92
B-1	DEAD OP	16.3	0.03128	81.45
B-1	DEAD_N	-670.87	1.33	2555.04
B-1	LIVE	-43.74	-6.51	64.14
B-1	WX	-255.25	0.99	-374.63
B-1	WY	-1.33	-70.96	504.74
B-1	SNOW	24.65	-1.56	193.87
B-1	EQX	-985.73	4.1	-1834.5
B-1	EQY	-51.12	-28.6	2619.38
B-1	EQO	-1968.03	8.18	-3558.39
B-1	EQVO	-102.38	-57.85	5233.15
B-2	DEAD	-3.76E-15	-9.82	342.79
B-2	DEAD	-1.168E-10	-61.15	847.79
B-2	DEAD OP	-1.602E-11	-8.01	77.09
B-2	DEAD_N	-0.0003857	-403.24	720.08
B-2	LIVE	8.844E-15	82.81	-147.91
B-2	WX	-56.07	3.583E-12	-6.399E-12
B-2	WY	-8.004E-14	-439.42	682.53
B-2	SNOW	-3.498E-11	3.21	131.34
B-2	EQX	0.02819	0.04229	-0.07544
B-2	EQY	0.006383	-1570.51	2804.88
B-2	EQO	0.2	0.08416	0.15
B-2	EQVO	0.0007535	-3138.25	5603.81
B-3	DEAD	-34.11	-3.44	482.68
B-3	DEAD	-174.23	-2.24	983.9
B-3	DEAD OP	-16.3	0.03128	81.45
B-3	DEAD_N	-670.07	1.26	1104.47
B-3	LIVE	43.74	-6.51	64.14
B-3	WX	-255.25	-0.99	374.63
B-3	WY	1.33	-70.96	504.74
B-3	SNOW	-24.65	-1.56	193.87
B-3	EQX	-985.73	-4.09	1834.58
B-3	EQY	-40.75	-28.68	1909.29
B-3	EQO	-1968.16	-8.15	3558.54
B-3	EQVO	-81.36	-57.83	3796.07

GENERAL DATA

ITEM NO.	-
DESIGN CODE BUNDLE/STRUCTURE	ASME SEC.VIII DIV.1(2019), API 661-7th EDITION R2018
INLET PRESSURE/PRESSURE DRG. (ALLOWABLE/CALC)	19.8 Bar / (0.1/0.016) Bar
DESIGN PRESSURE	22+F.V. (barg)
HYDROSTATIC TEST PRESSURE	28.6 (bar)
TEMPERATURE IN/OUT(TUBE SIDE)	73.5°C/56.3°C
DESIGN TEMPERATURE	120 °C
MINIMUM DESIGN METAL TEMPERATURE	-45°C
AIR INLET/OUTLET TEMPERATURE (AIR SIDE)	48 / 62.28 °C
MINIMUM DESIGN AMBIENT TEMPERATURE	5 °C
CORROSION ALLOWANCE	3 mm
ULTRASONIC TEST	YES(Full)[See note 8]
RADIOGRAPHY	YES(Full)[See note 8]
STRESS RELIEVING	YES
BARE/FINNED SURFACE PER UNIT	68.101/1579.2 m ²
NUMBER OF BUNDLE PER BAY	1
NUMBER OF UNIT	2
NUMBER OF BAY PER UNIT	1
NOZZLE SIZE(INLET/OUTLET/RATING/TYP)	1x4"/1x2"/SCH.160/#300
PROCESS FLUID NAME	PROPANE
SERVICE	PROPANE
PASSES PER BUNDLE	4
FINNED-TUBES/BUNDLE	NO.140 TUBES OD=25.4,SEAMLESS MIN.W.BWG16,THK.=1.65,L=6096 mm
Tube to tube sheet joint	STRENGTH WELD + EXPANDED
Fin (Type,material, OD,PPI)	EXTRUDE.AL 1060,57,15,11
STEAM COIL	NO
LOUVER/TYP	NO/-
PLENUM / FAN RING	FORCED TYPE/CONICAL L/D=0.05
VIBRATION SWITCH	YES,(FOR EACHFAN) MANUAL & ELECTRIC RESET,Exd IC TS Gb,IP65
FAN SPECIFICATION RPM/DIAMETER	362/7 Ft
Pitch angle (for fan)	6.6°
BLADE NO./ MATERIAL	4/ALUMINIUM
AIR QUANTITY FOR FAN	26.879 m ³ /S
STATIC PRESSURE	102.95 Pa
AIR TEMPERATURE IN/OUT	48°C/52.28°C
SPEED REDUCER TYPE	V BELT
REDUCTION RATIO	3.76
MOTOR TYPE	ELECTRIC-Exhb.IIB-T4-IP55
VOLTAGE/Freq./PHASES	400/50/3
RPM/KW	1500/7.5 Kw
Motor VFD per unit	50%
VFD POWER	YES/11 Kw
S.P.L. 1m all side of fan:	<85 dB(A)1m all sides

NOTES:

- Loading Data
WIND :ASCE7-16,VELOCITY :125Km/h, EXPOSURE : C
Earthquake: Standard No. 2800,A=0.3,B=2.75,I=1.4,R=3.5,SOIL TYPE=IV
- Fans
-100% AP(Adjustable pitch-manual)
- Miscellaneous
- The Inlet Header Boxes Are Fixed In The Direction Of Fin Tubes, Refer To Table For The Lateral Displacement In Y Direction
- Flange Face Detail : ASME ANSI B16.5
- All Dimensions Are In Millimeter Unless Otherwise Specified.
- All Dimensions Tolerances Are According to API 661.(Figure 10)
- Bolts which are used for fixing headers to side frame , on sliding side should be removed after erection.
- PROTECTION(SEE Galvanizing Specification and Inspection Procedure: E1027-DMF-VD-QC-PRO-024
- RADIOGRAPHIC TEST (FULL/SPOT) SHALL BE IN COMPLIANCE WITH THE NDT PROCEDURE & WELD/NDT MAP E1027-DMF-VD-QC-PRO-023
- 50% motors per unit to be VFD.

LOAD DEFINITION*

DEAD	DEAD LOAD(PLENUMS+FAN RINGS+FAN GUARDS+FAN+MOTOR+SPEED REDUCERS+GRATING+TUBE BUNDLE EMPTY)+HEADER WALK WAY
DEAD OP	WEIGHT OF LIQUID WITHIN EACH TUBE BUNDLE& STEAM COIL(WATER)
DEADS	SELF WEIGHT OF STRUCTURE
DEADN	NOZZEL LOAD
LIVE	WALKWAY LOAD 250 Kg/m ²
EQX	SEISMIC LOAD DIR.X
EQY	SEISMIC LOAD DIR.Y
WX	WIND LOAD DIR.X
WY	WIND LOAD DIR.Y
SNOW	66 Kg/m ²

* Further Definition Check the Steel Structure Calculation.Doc No.: E1027-DMF-VD-ST-CAL-004 1158-A01-0030-00

THE MAXIMUM ALLOWABLE MOMENTS AND FORCES PER EACH NOZZLE (IF LOADS ARE DIVIDED EQUALLY FOR NOZZLES ACCORDING TO 3xAPI 661(7.1.10.1)

SIZE	Fx(N)	Fy(N)	Fz(N)	Mx(N.m)	My(N.m)	Mz(N.m)
4"	10020	8010	10020	2430	3660	2430
2"	3060	3990	3060	450	720	450

CONNECTIONS

NO.	REP.	QTY. PER BAY/UNIT	DIA	DESIGNATION
N1	INLET NOZZLE/FLANGE	1/2	4"	FLANGE ANSI B16.5,#300,WNF,SCH.160,SA-333 G/6 /SA-350 LF2 CL.N,THK.=13.49
N2	OUTLET NOZZLE/FLANGE	1/2	2"	FLANGE ANSI B16.5,#300,LWN,SA-350 LF2 CL.N,THK.=16.6
V1&V2	VENT	2/4	1"	FLANGE ANSI B16.5,#300,LWN,SA-350 LF2 CL1 N,THK.=14.3
D1&D2	DRAIN	2/4	1"	FLANGE ANSI B16.5,#300,LWN,SA-350 LF2 CL1 N,THK.=14.3
1A	VIBRATION SWITCH	2/4	-	SEE FAN DRIVE ASSEMBLY DRAWING
2A	MOTOR(7.5Kw)	2/4	-	SEE FAN DRIVE ASSEMBLY DRAWING
3A	FAN	2/4	7ft	SEE FAN DRIVE ASSEMBLY DRAWING

LATERAL DISPLACEMENT OF HEADERS (DIRECTION X) INSIDE BUNDLE FRAME IN RELATION WITH EXPANSION FORCES ON NOZZLES (mm) (ACCORDING TO API661 7-1-1-2)

MAXIMUM DISPLACEMENT INLET/OUTLET : ±9

* FOR MORE DETAILS FOR EACH COMPONENT OF AIR COOLER REFER TO BELOW DRAWING & DOCUMENTS.

REFERENCED DWG&DOC.

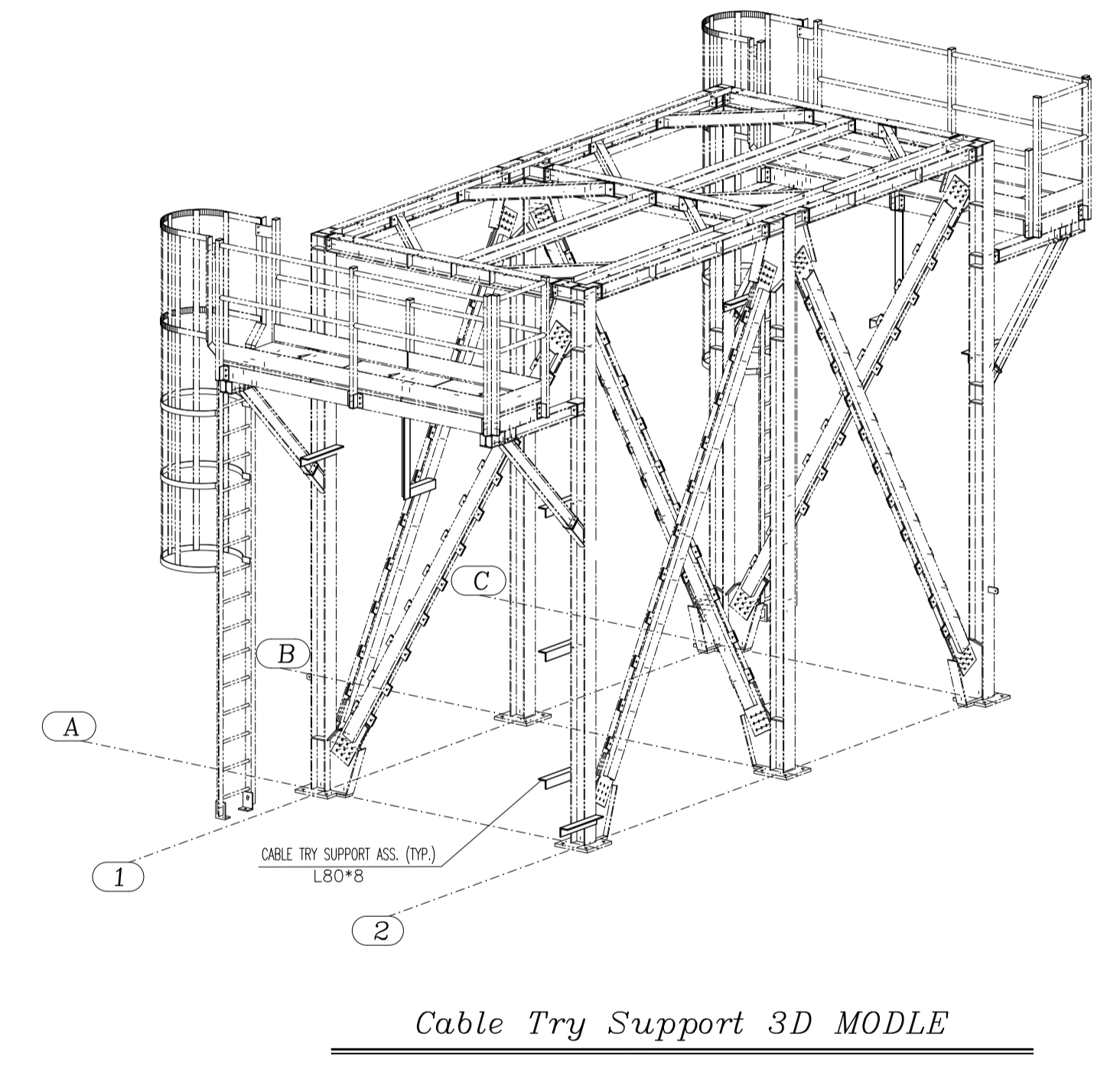
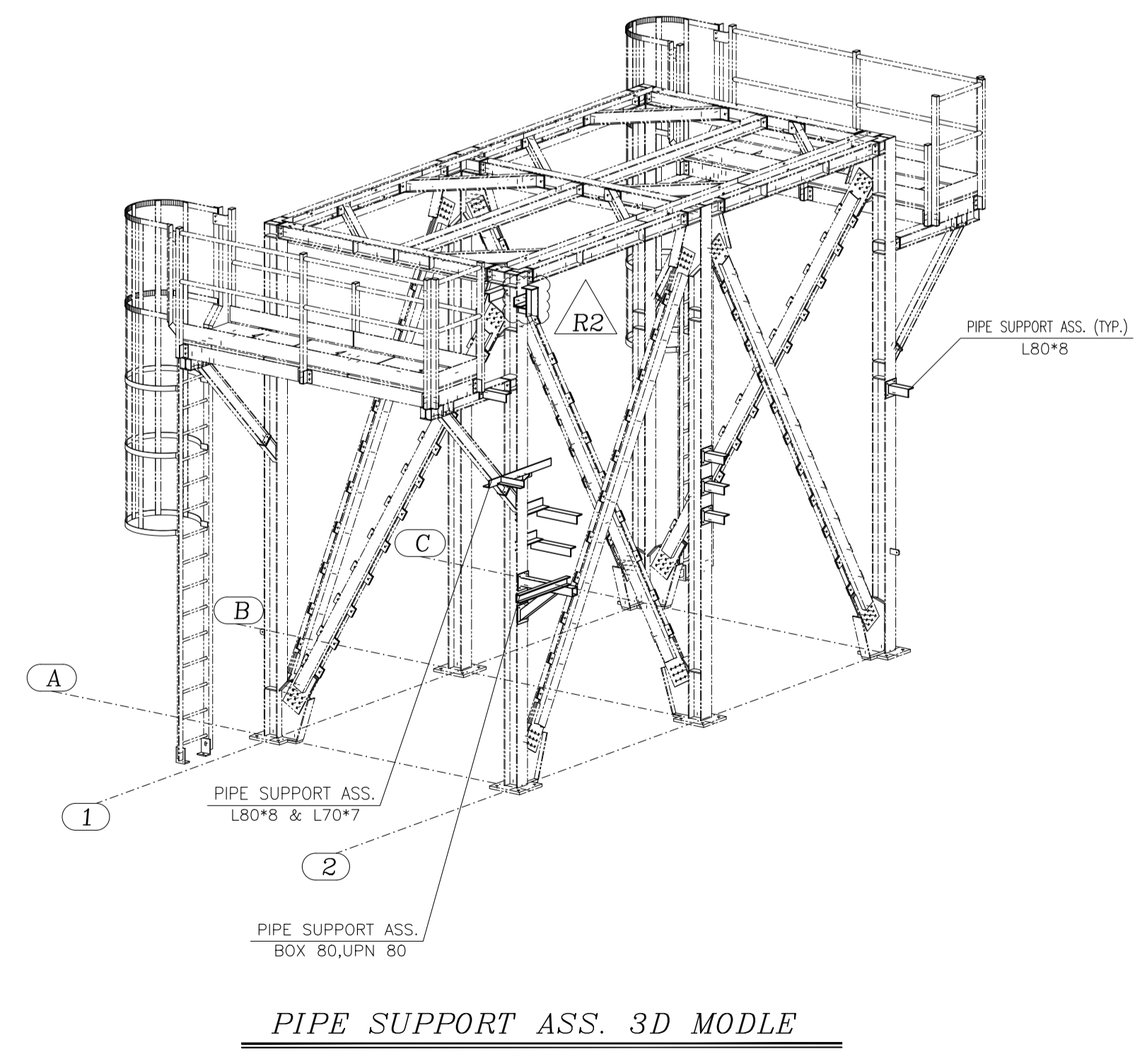
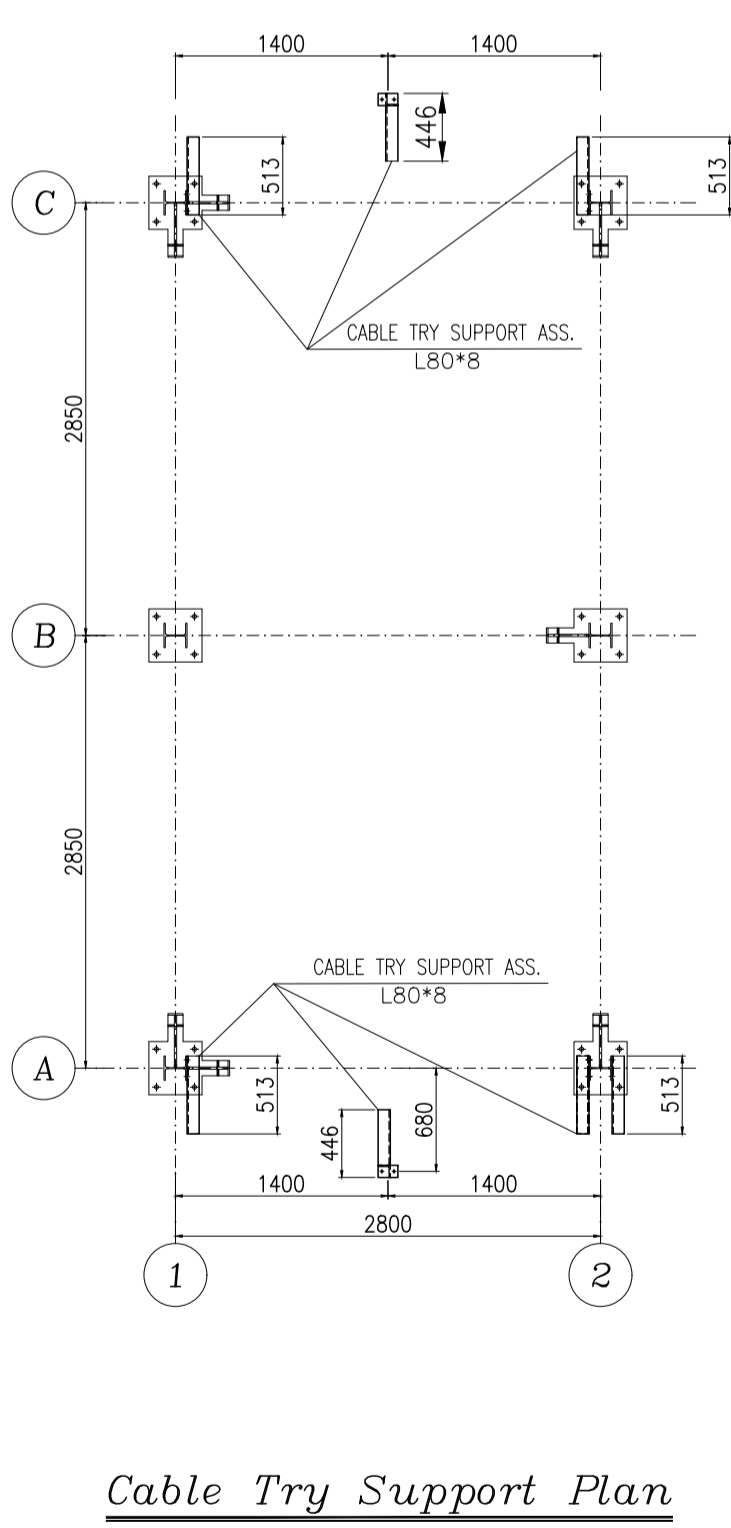
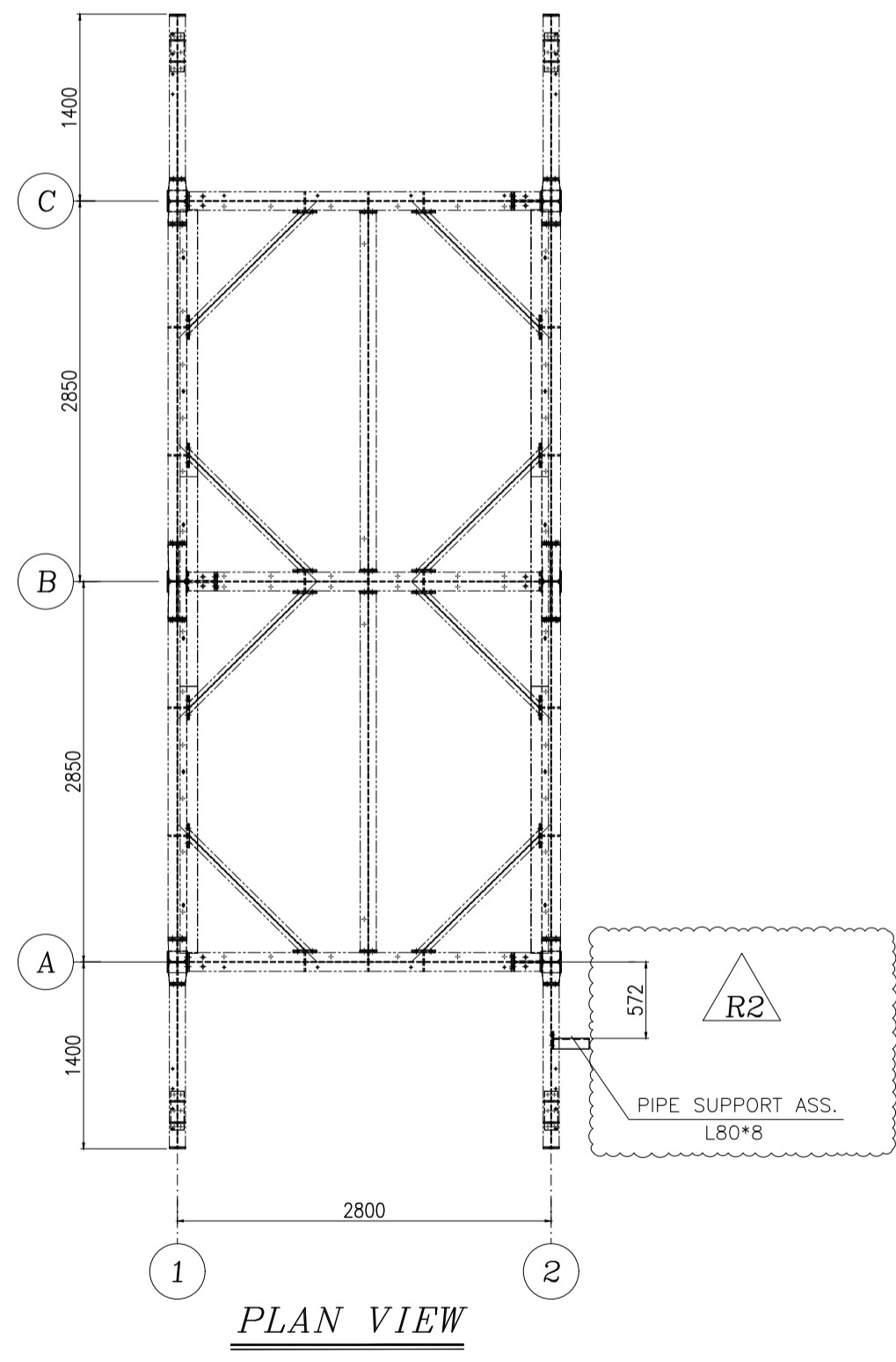
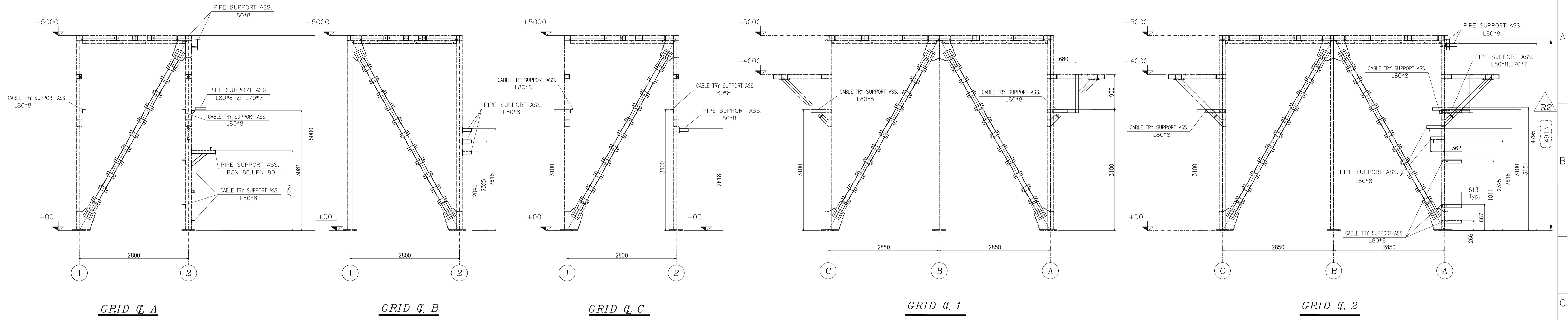
TITLE	VENDOR DOCUMENT NO.	CLIENT DOCUMENT NO.
Tube Bundle Drawing	1158-A01-2000-00	E1027-DMF-VD-ME-DWG-005
Bundle Frame Drawing	1158-A01-2400-00	E1027-DMF-VD-ME-DWG-007
Fan Drive Assembly Drawing	1158-A01-6000-00	E1027-DMF-VD-ME-DWG-008
Fan Ring Drawing	1158-A01-5087-00	E1027-DMF-VD-ME-DWG-009
Support Mechanism Drawing	1158-A01-5167-00	E1027-DMF-VD-ME-DWG-010
Plenum Drawing	1158-A01-5110-00	E1027-DMF-VD-ME-DWG-011
Steel Structure Drawing	1158-A01-1100-00	E1027-DMF-VD-ME-DWG-013
Header Walkway Drawing	1158-A01-1200-00	E1027-DMF-VD-ME-DWG-014
Ladder Drawing	1158-A01-1520-00	E1027-DMF-VD-ME-DWG-015
Surface Preparation and Painting Procedure for Air Cooler	1158-A01-GS01-00	E1027-DMF-VD-QC-PRO-024



REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY	APPROVED BY	FINAL APPROVED BY
R7	12/30/2024	ISSUED FOR APPROVAL	F.SZ	J.M.	J.B.L	A.GHZ
R6	12/28/2024	ISSUED FOR APPROVAL	F.SZ	J.M.	J.B.L	A.GHZ
R5	11/13/2024	ISSUED FOR APPROVAL	F.SZ	J.M.	J.B.L	A.GHZ
R4	09/22/2024	ISSUED FOR APPROVAL	F.SZ	J.M.	J.B.L	A.GHZ
R3	08/21/2024	ISSUED FOR APPROVAL	F.SZ	J.M.	J.B.L	A.GHZ
R2	08/10/2024	ISSUED FOR APPROVAL	F.SZ	J.M.	J.B.L	A.GHZ
R1	07/22/2024	ISSUED FOR APPROVAL	F.SZ	J.M.	J.B.L	A.GHZ
REV	06/30/2024	ISSUED FOR APPROVAL	F.SZ	J.M.	J.B.L	A.GHZ

CLIENT:

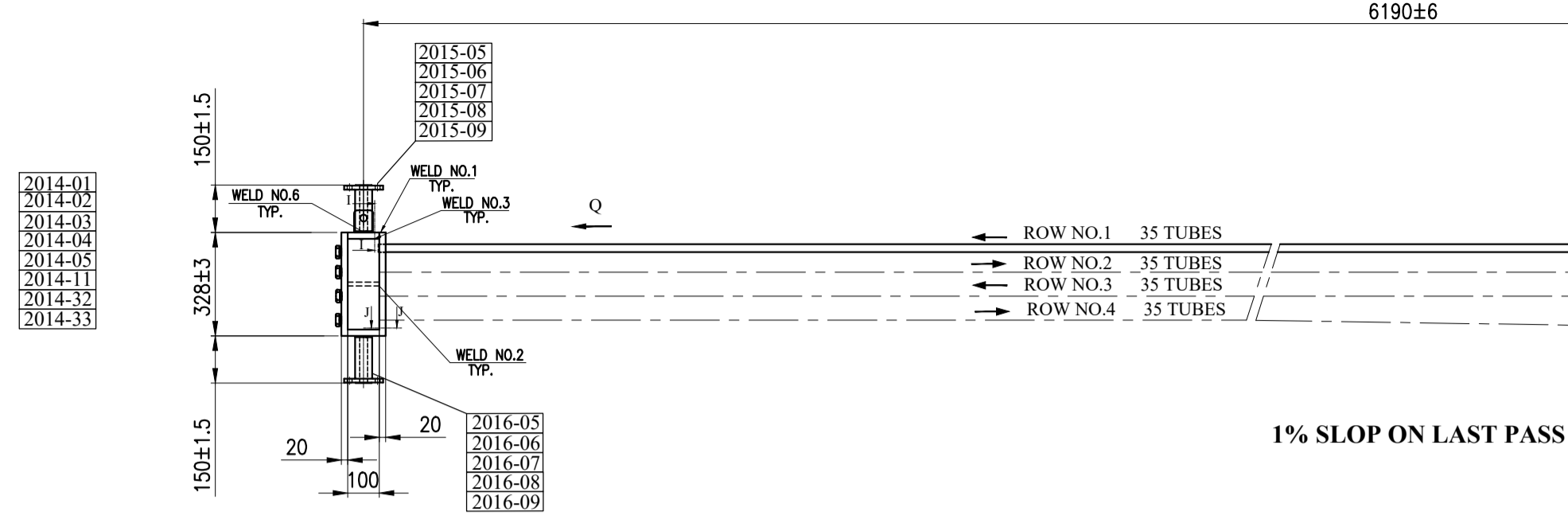
PROJECT :
AIR COOLER FOR
Toase-che Park Sanati Gohar Ofogh Petrochemical Co.
General Arrangement Drawing
1158-A01-1000-00
 (Sheet 1 of 2)

DWG. NO. E1027-DMF-VD-ME-DWG-003
 SCALE: N.T.S. SIZE: A1 REV.: R7
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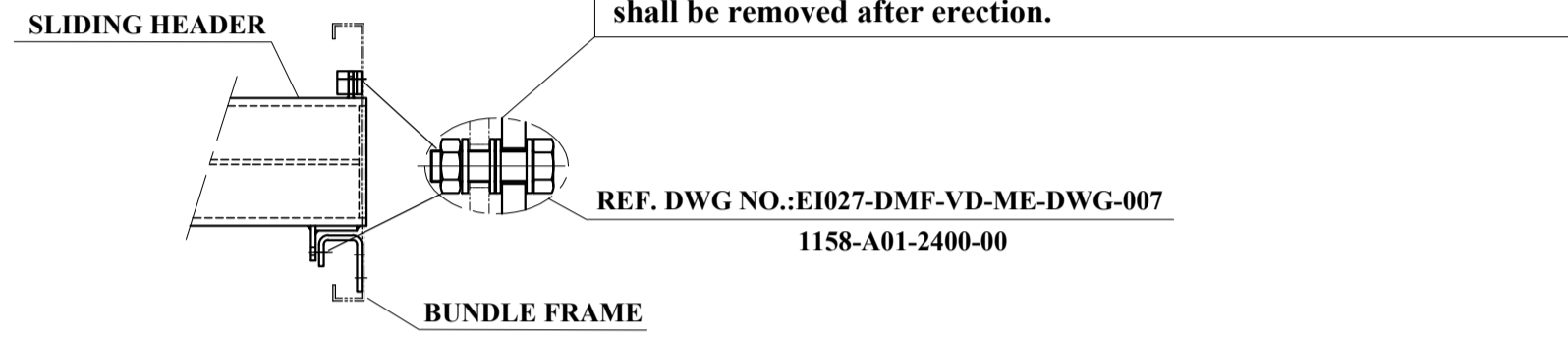
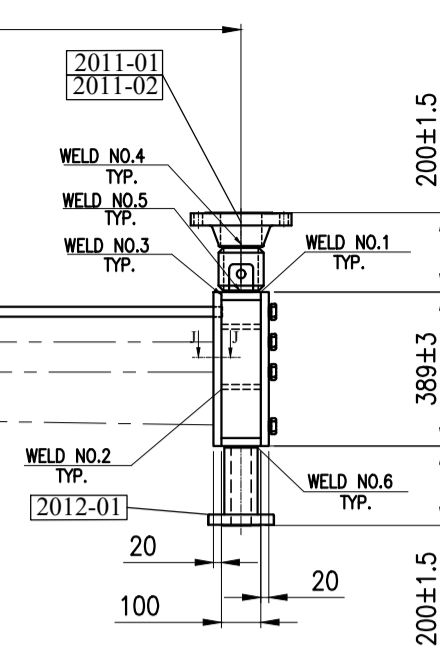


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R0	11/13/2024	ISSUED FOR APPROVAL	F.SZ	J.M.	J.B.L	A.GHZ
REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY	APPROVED BY	FINAL APPROVED BY
CLIENT:			CONTRACTOR:			
 			 			
PROJECT : AIR COOLER FOR Toase-che Park Sanati Gohar Ofogh Petrochemical Co. General Arrangement Drawing 1158-A01-1000-00 (Sheet 2 of 2)						
DWG. NO.		EI027-DMF-VD-ME-DWG-003				
SCALE:		N.T.S.		SIZE:		A1
				REV.:		R2
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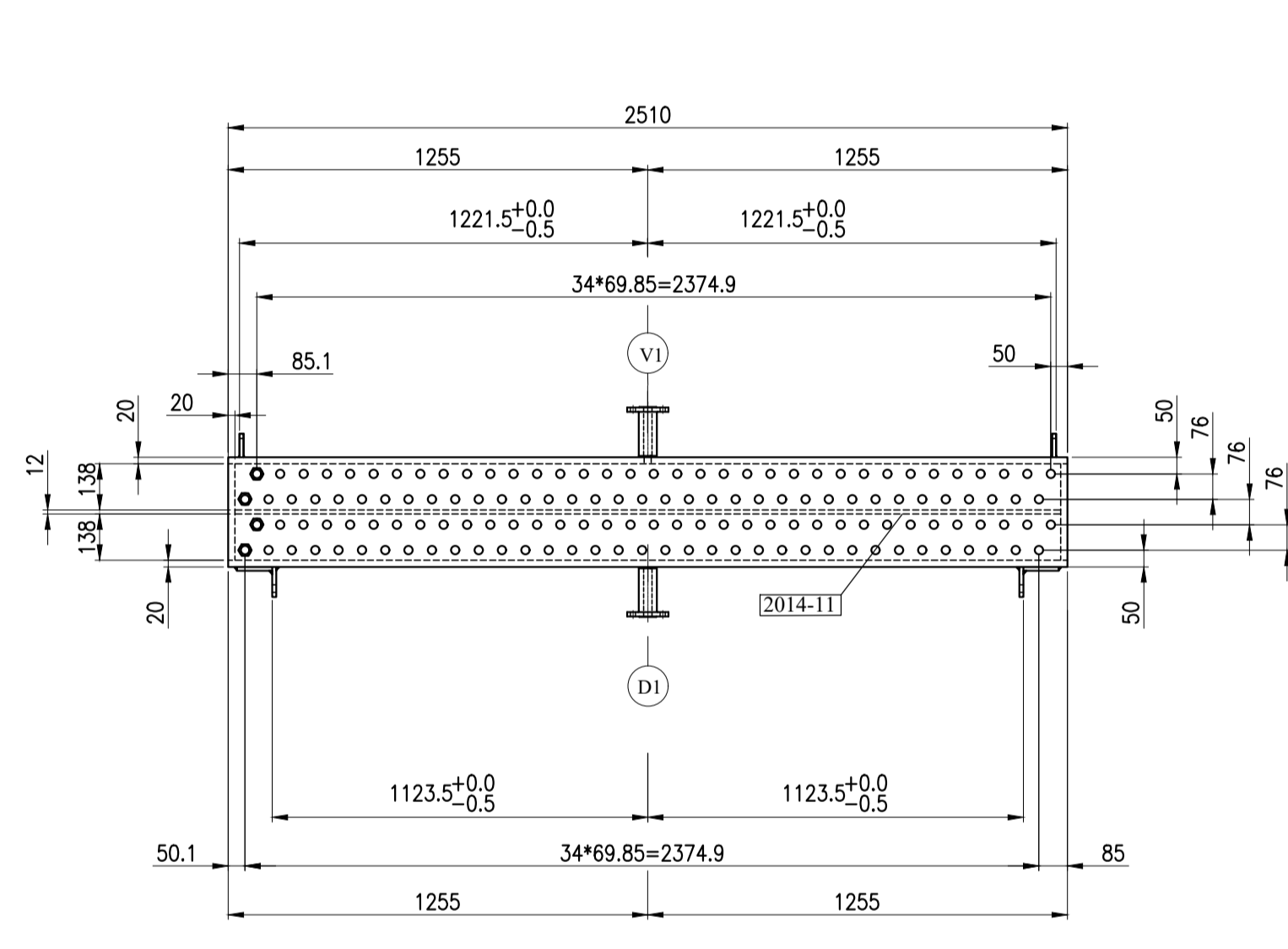
REAR HEADER (SLIDING HEADER)



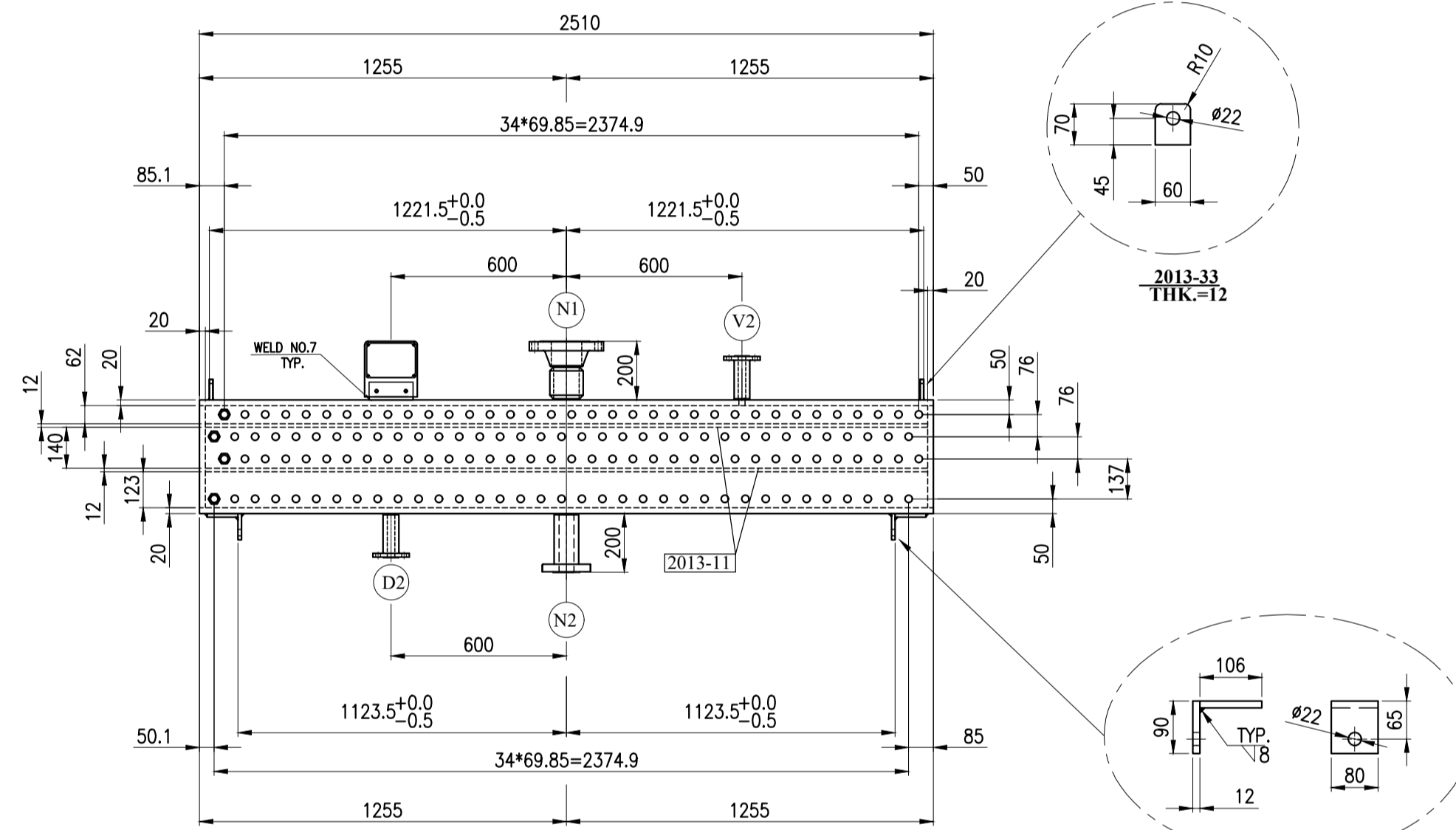
FRONT HEADER (FIXED HEADER)



DETAIL OF BOLTS FOR FIXING HEADER & TRANSPORTATION



VIEW FROM "Q"
REAR HEADER

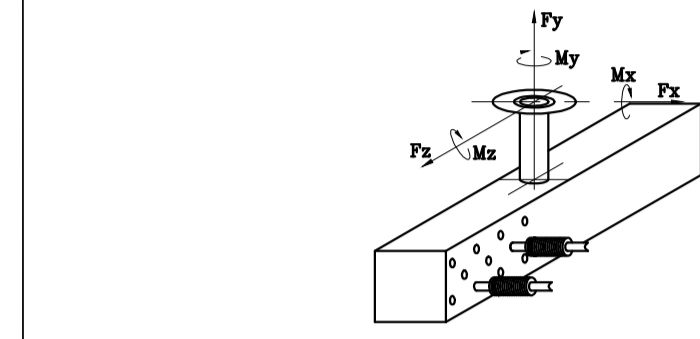


VIEW FROM "P"
FRONT HEADER

- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETERS.
 - ALL NOZZLE FACINGS SHALL BE PROTECTED BY COVER AND 4 BOLTS.
 - FLANGE CONTACT FACES SHALL BE COATED WITH GREASE.
 - ALL FLANGE BOLTS SHALL STRADDLE MAIN AXES.
 - ALL ENGINEERING AND MANUFACTURING CHARACTERISTICS NOT MENTIONED IN THIS DRAWING ARE INDICATED ON THE FOLLOWING APPLICABLE DOCUMENTS:
 - A-CALCULATION BOOK
 - B-WELDING PROCEDURE SPECIFICATION (W.P.S.)
 - C-NON DESTRUCTIVE TEST CHECK LIST (N.D.T.)
 - D-PAINTING & GALVANIZING SPECIFICATION SHEETS
 - HEADER PLUG THREADS SHALL BE COVERED BY ANTISEIZE GREASE PROPER FOR 200°C TEMPERATURE.
 - THE MATERIAL OF THE SLIDING PAD BETWEEN THE BUNDLE FRAME AND THE HEADER IS TEFLO/PTFE. FOR MORE INFORMATION, REFER TO DWG. NO. EI027-DMF-VD-ME-DWG-007
 - MATERIAL FOR PLATE(S) FOR PRESSURE PART) TO BE IMPACT TESTED.

THE MAXIMUM ALLOWABLE MOMENTS AND FORCES PER EACH NOZZLE (IF LOADS ARE DIVIDED EQUALLY FOR NOZZLES ACCORDING TO 3xAPI 661(7.1.10.1))

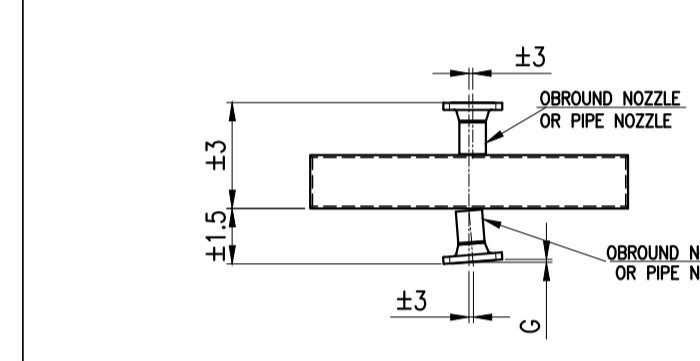
SIZE	Fx(N)	Fy(N)	Fz(N)	Mx(N.m)	My(N.m)	Mz(N.m)
4"	10020	8010	10020	2430	3660	2430
2"	3060	3990	3060	450	720	450



LATERAL DISPLACEMENT OF HEADERS (DIRECTION Z) INSIDE BUNDLE FRAME IN RELATION WITH EXPANSION FORCES ON NOZZLES (mm) (ACCORDING TO API661 7-1-1-2)

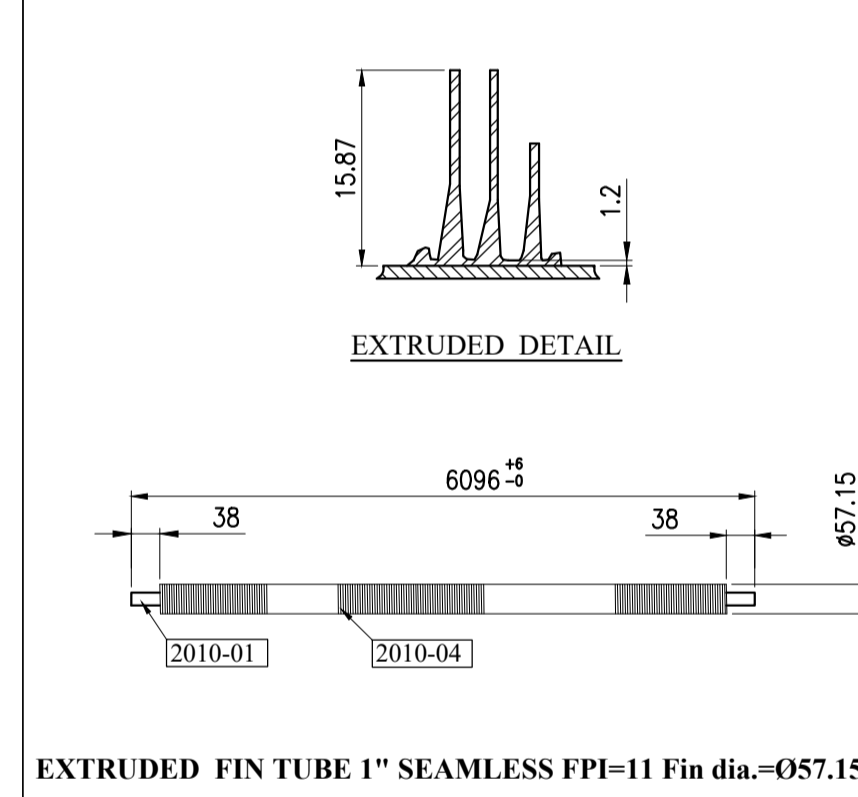
MAXIMUM DISPLACEMENT OF FRONT AND REAR HEADER(Z DIRECTION) INLET/OUTLET : ±9

NOZZLE ALIGNMENT TOLERANCES



NOMINAL NOZZLE SIZE (DN/IPS)	MINIMUM GIP-OF-FLAT TOLERANCE (°)
50 TO 100 (2 TO 4)	1.8 mm (1/16 inch)
150 TO 300 (6 TO 12)	2.4 mm (3/32 inch)

FIN TUBE DETAIL



EXTRUDED FIN TUBE 1" SEAMLESS FPI=11 Fin dia.=Ø57.15

PART NO.	DESCRIPTION	DIMENSIONS			MATERIAL	QTY.	UNIT WEIGHT (Kg)	TOTAL WEIGHT (Kg)	STD DWG	REV.
		Ø	LENGTH	THK						
2000-00	TUBE BUNDLE INCLUDING :	-	-	-	-	2	2921.9	5844	-	-
2010-00	EXTRUDED FINNED TUBE INCLUDING :	-	-	-	-	-	-	2010.7	-	-
2010-01	BASE TUBE 1" (SEAMLESS-MIN WALL-BWG16)	25.4	6006	1.65	SA-334 Gr.6	140	6.5	913.2	-	-
2010-04	ALUMINUM TUBE	35.75	5212.08	4.8	AL-1060	140	7.8	1097.5	-	-
2011-00	INLET NOZZLE INCLUDING :	-	-	-	-	-	-	11.0	-	-
2011-01	PIPE NOZZLE 4" SCH 160 (SEAMLESS)	107	-	13.49	SA-333 Gr.6	1	3.9	3.9	-	-
2011-02	FLANGE 4" (ANSI B16.5,300# LVNRF)	254	86	-	SA-350 L2 CL 1N	1	7.1	7.1	-	-
2012-00	OUTLET NOZZLE INCLUDING :	-	-	-	-	-	-	3.5	-	-
2012-01	NOZZLE 2" (ANSI B16.5,300# LVNRF)	165	196	16.6	SA-350 L2 CL 1N	1	3.5	3.5	-	-
2013-00	FRONT HEADER INCLUDING :	-	-	-	-	-	-	448.8	-	-
2013-01	TUBE SHEET	-	2510	389	20	-	-	153.3	153.3	R3
2013-02	PLUG SHEET	-	2510	389	20	-	-	153.3	153.3	R3
2013-03	TOP PLATE	-	2510	100	20	-	-	39.4	39.4	R3
2013-04	BOTTOM PLATE	-	2510	100	20	-	-	39.4	39.4	R3
2013-05	END PLATE	-	349	100	20	-	-	9.5	11.6	-
2013-11	PARTITION	-	2470	100	12	-	-	23.3	46.5	-
2013-32	SLIDING PAD	-	105690	80	12	-	-	1.6	3.1	-
2013-33	FIXING	-	70	80	12	-	-	0.4	0.8	-
2014-00	REAR HEADER INCLUDING :	-	-	-	-	-	-	-	-	-
2014-01	TUBE SHEET	-	2510	328	20	-	-	129.3	129.3	R3
2014-02	PLUG SHEET	-	2510	328	20	-	-	129.3	129.3	R3
2014-03	TOP PLATE	-	2510	100	20	-	-	39.4	39.4	R3
2014-04	BOTTOM PLATE	-	2510	100	20	-	-	39.4	39.4	R3
2014-06	END PLATE	-	288	100	20	-	-	4.5	9.0	-
2014-11	PARTITION	-	2470	100	12	-	-	23.3	23.3	-
2014-32	SLIDING PAD	-	106690	80	12	-	-	1.6	3.1	-
2014-33	FIXING	-	70	80	12	-	-	0.4	0.8	-
2015-00	VENT INCLUDING :	-	-	-	-	-	-	7.0	-	-
2015-01	FLANGE LVN 1" 300# RF	124	146	-	14.3	SA-350 L2 CL 1N	2	2.0	4.0	-
2015-02	BLIND FOR FLANGE LVN 1" 300# RF	-	-	-	-	SA-350 L2 CL 1N	2	1.5	3.0	-
2015-03	GASKET FOR FLANGE LVN 1" 300# RF	-	-	-	-	INNER: SS304 OUTER: C.S. GRAPHITE FILLED	2	-	-	-
2015-04	STUD BOLT FOR FLANGE LVN 1" 300# RF	M16	80	-	-	SA-320 Gr.7(Dacromet)	8	-	-	-
2015-05	NUT	M16	-	-	-	SA-194 Gr.7(Dacromet)	16	-	-	-
2016-00	DRAIN INCLUDING :	-	-	-	-	-	-	7.0	-	-
2016-01	FLANGE LVN 1" 300# RF	124	146	-	14.3	SA-350 L2 CL 1N	2	2.0	4.0	-
2016-02	BLIND FOR FLANGE LVN 1" 300# RF	-	-	-	-	SA-350 L2 CL 1N	2	1.5	3.0	-
2016-03	GASKET FOR FLANGE LVN 1" 300# RF	-	-	-	-	INNER: SS304 OUTER: C.S. GRAPHITE FILLED	2	-	-	-
2016-04	STUD BOLT FOR FLANGE LVN 1" 300# RF	M16	80	-	-	SA-320 Gr.7(Dacromet)	8	-	-	-
2016-05	NUT	M16	-	-	-	SA-194 Gr.7(Dacromet)	16	-	-	-
2020-00	MISCELLANEOUS PARTS INCLUDING :	-	-	-	-	-	-	62.2	-	-
2020-01	PLUG (1 1/8" 12 UNF CL 2A)	-	-	-	-	SA-350 L2 CL 1N	280	0.22	61.6	2201
2020-02	PLUG GASKET	2605.5	-	-	1.5	SOFT IRON	280	-	-	2200
2020-03	STAND FOR BRACKET	-	150	60	5	C.S.	1	6.35	0.7	-

NOZZLES TABLE

MARK NO.	SERVICE	SIZE	NOZZLE MATERIAL	FLANGE MATERIAL	RATING	TYPE	FACING	SCH. THK.	FLANGE FACE FINISHING	QTY. PER BUNDLE ITEM
N1	INLET NOZZLE	4"	SA-333 Gr.6	SA-350 L2 CL 1N	300#	LVN	RF	160	125-250 µH	1 2
N2	OUTLET NOZZLE	2"	SA-350 L2 CL 1N	SA-350 L2 CL 1N	300#	LVN	RF	16.6	125-250 µH	1 2
V1,V2	VENT WITH BLIND & GASKET	1"	SA-350 L2 CL 1N	SA-350 L2 CL 1N	300#	LVN	-	-	-	2 4
D1,D2	DRAIN WITH BLIND & GASKET	1"	SA-350 L2 CL 1N	SA-350 L2 CL 1N	300#	LVN	-	-	-	2 4

APPLICABLE CODES AND STANDARDS
ASME VIII-DIV.1 2019, API 661

SERVICE	PROPANE
MAXIMUM DESIGN TEMPERATURE (°C)	120
MINIMUM AMBIENT TEMPERATURE (°C)	5
MINIMUM DESIGN METAL TEMPERATURE (°C)	-45
DESIGN PRESSURE (barg)	22.4 F.V
TEST PRESSURE (barg)	28.6
CORROSION ALLOWANCE	3
WELD JOINT EFFICIENCY	0.6 FOR PARTITION / 0.85 FOR OTHER PARTS
HYDROTEST	YES
POST WELD HEAT TREATMENT	YES
N.D.T. EXAMINATION OF WELDED JOINTS	SEE NDT CHECK LIST
TUBE TO TUBE SHEET JOINT	STRENGTH WELD + EXPANDED
BUNDLE CAPACITY (m ³)	0.480
BUNDLE WEIGHT WITH FRAME (EMPTY) (Kg)	2920
BUNDLE WEIGHT WITH FRAME (FULL OF WATER) (Kg)	3400
ULTRASONIC TEST(NOZZLE TO HEADER)	YES

REFERENCE DOCUMENTS

TITLE	VENDOR DOCUMENT NO.	CLIENT DOCUMENT NO.
GENERAL ARRANGEMENT	1158-A01-1000-00	EI027-DMF-VD-ME-DWG-003
BUNDLE FRAME	1158-A01-2400-00	EI027-DMF-VD-ME-DWG-007
AIR COOLER DATA SHEET	1158-A01-0010-00	EI027-DMF-VD-ME-DWG-002
MECHANICAL CALCULATION	1158-A01-0020-00	EI027-DMF-VD-ME-CAL-006
WELDING PROCEDURE SPECIFICATION (W.P.S.)	1158-A01-0060-00	EI027-DMF-VD-QC-WPS-021
NON DESTRUCTIVE TEST CHECK LIST (N.D.T.)	1158-A01-0070-00	EI027-DMF-VD-QC-PRO-022

REV.	DATE	DESCRIPTION	DRAWN BY	CHECKED BY	APPROVED BY	FINAL APPROVED BY
R3	07/31/2024	ISSUED FOR APPROVAL	F.SZ	S.S	J.B.L	A.GHZ
R2	07/22/2024	ISSUED FOR APPROVAL	F.SZ	S.S	J.B.L	A.GHZ
R1	06/26/2024	ISSUED FOR APPROVAL	F.SZ	S.S	J.B.L	A.GHZ
R0	06/02/2024	ISSUED FOR APPROVAL	F.SZ	S.S	J.B.L	A.GHZ

CLIENT:

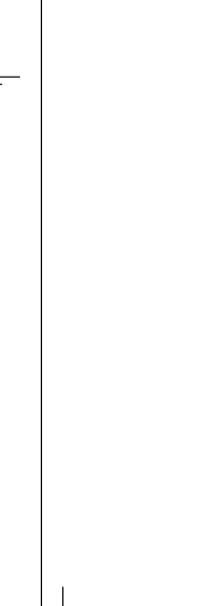
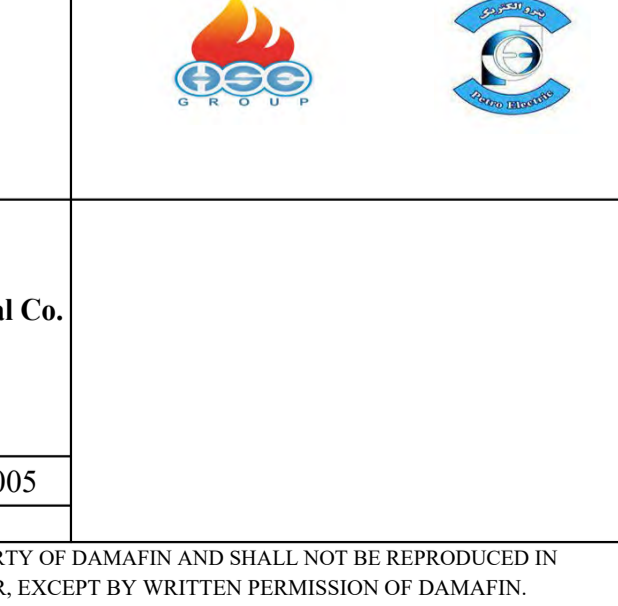
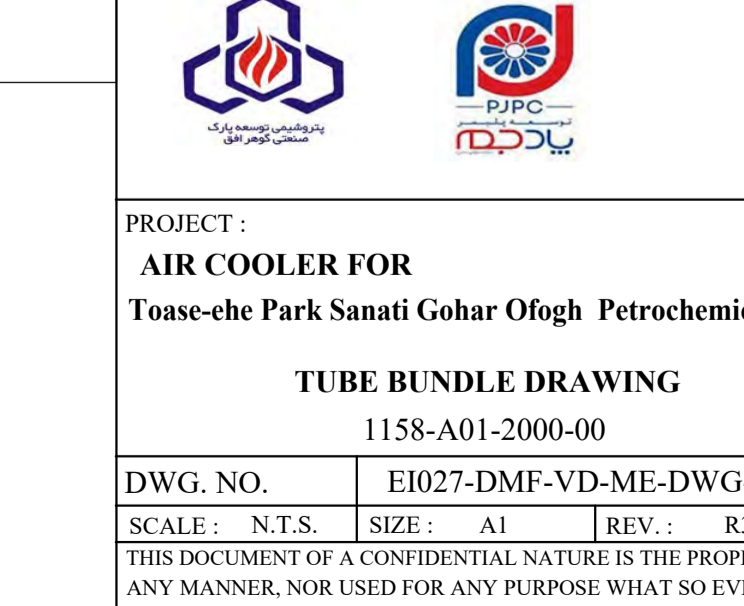
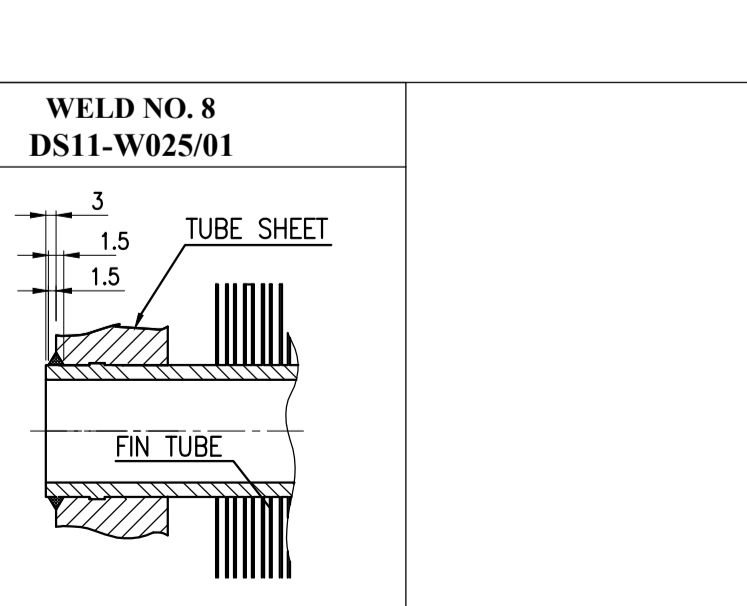
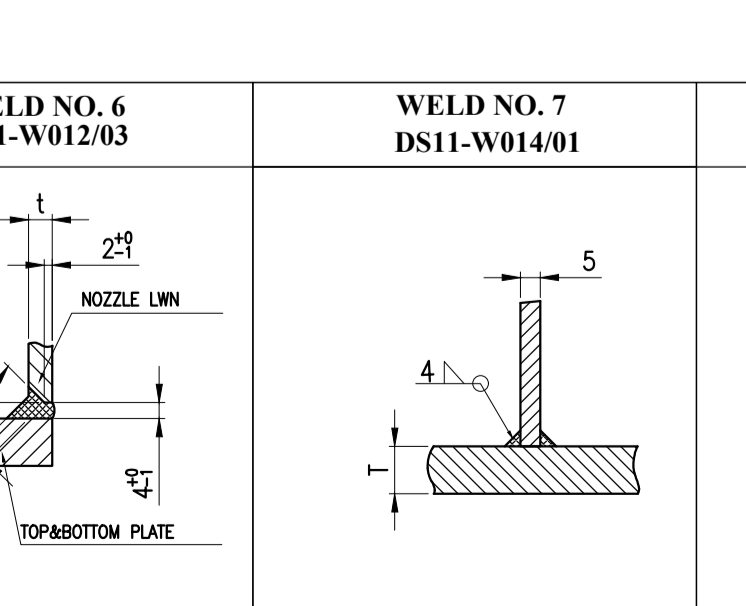
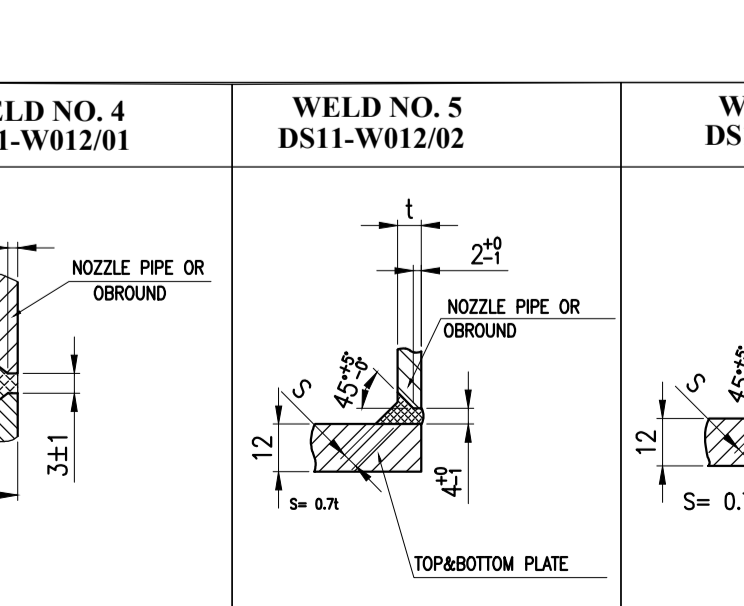
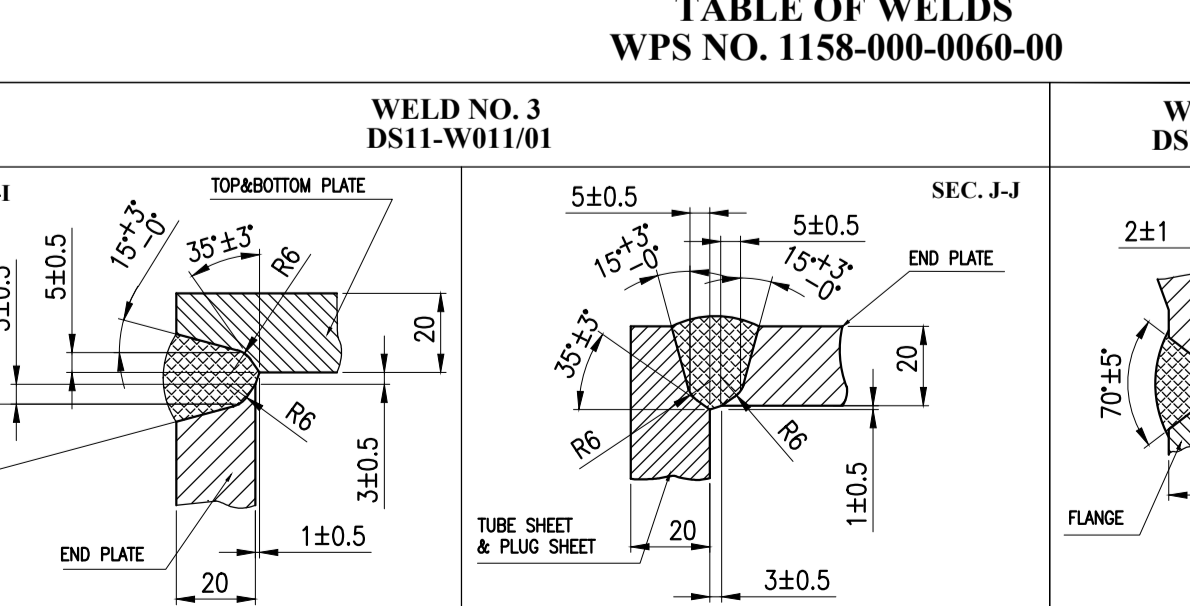
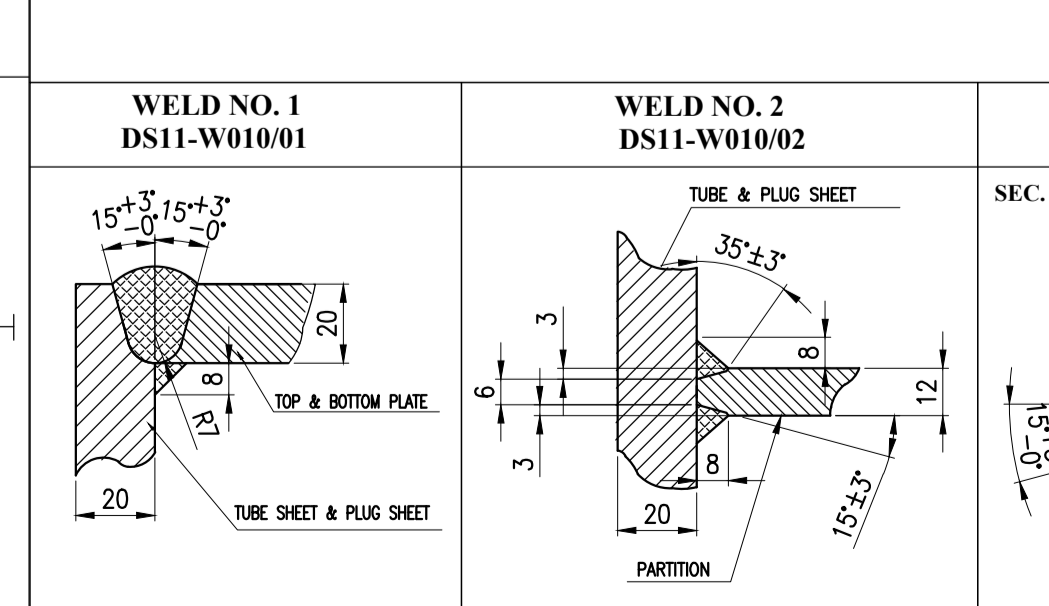
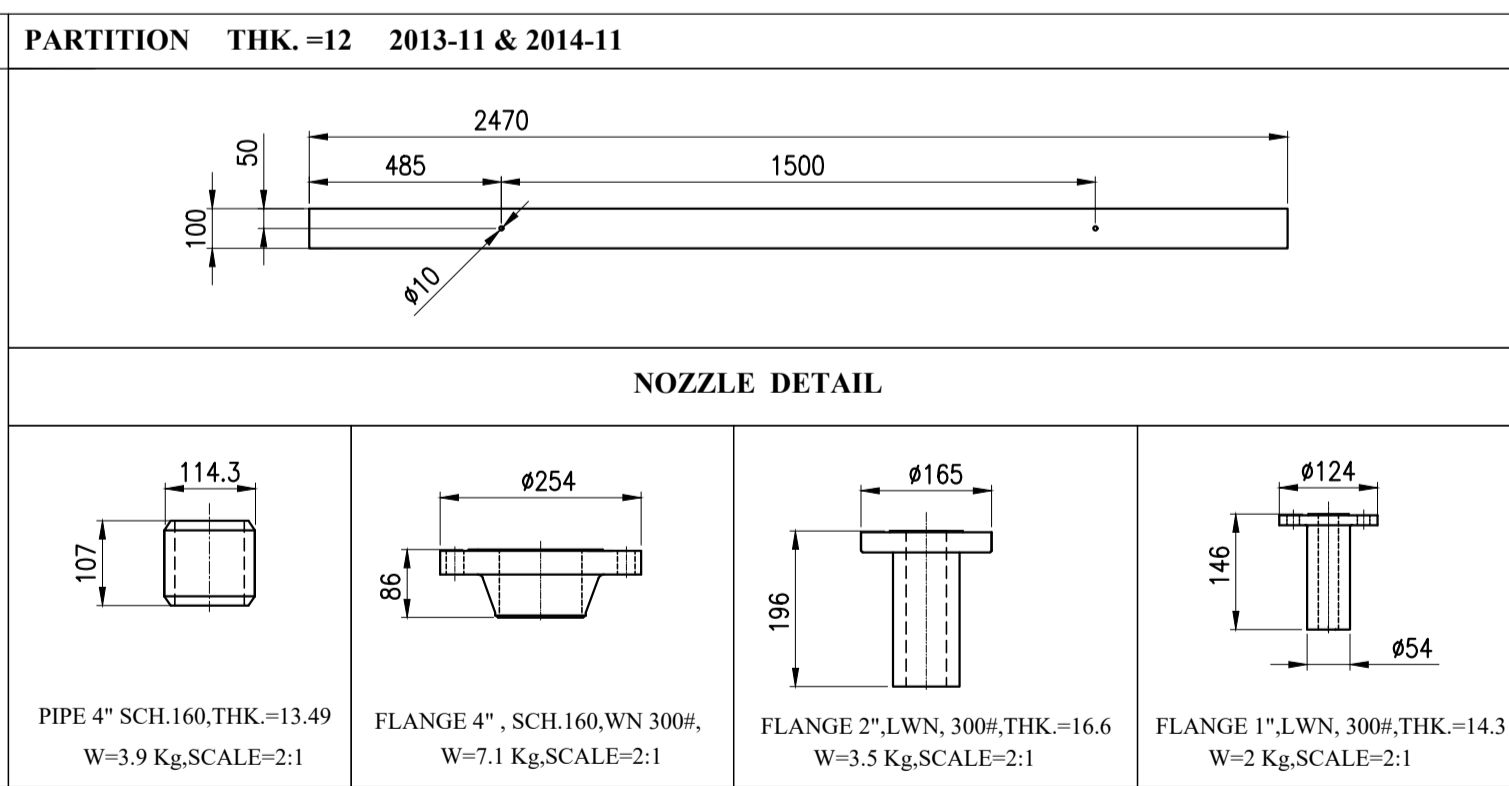
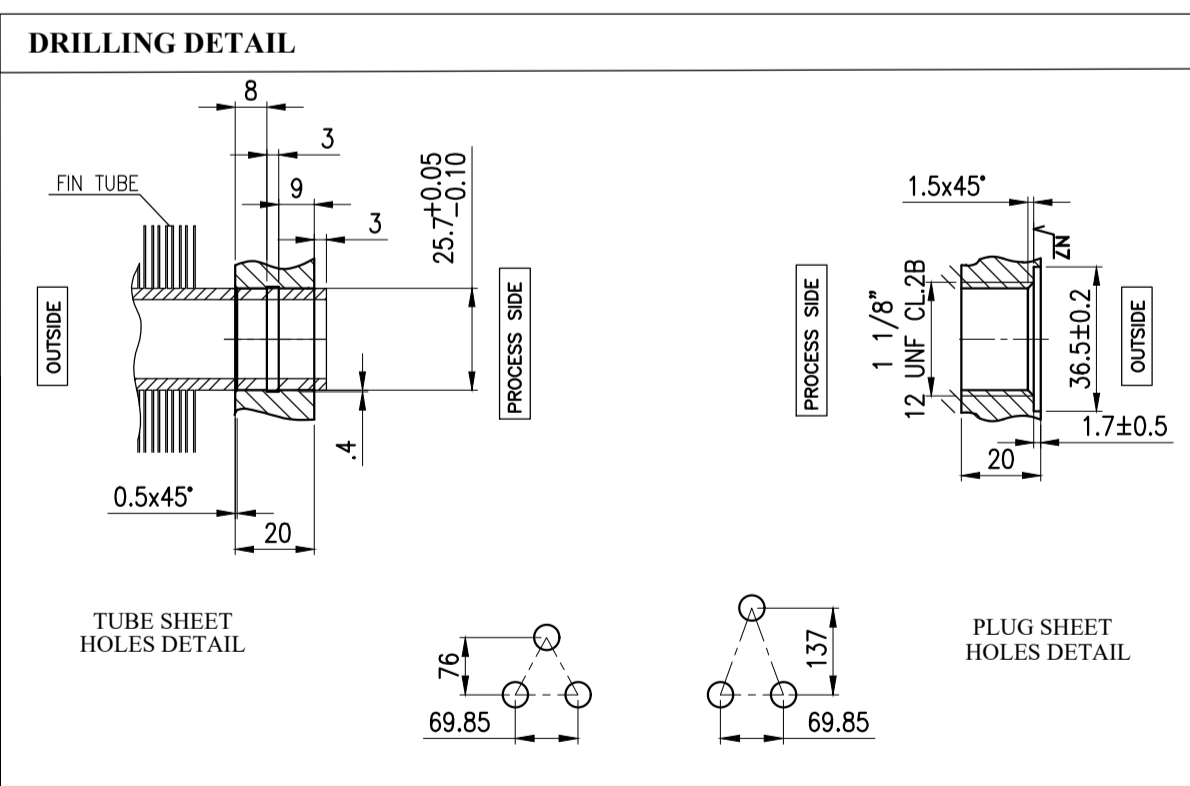
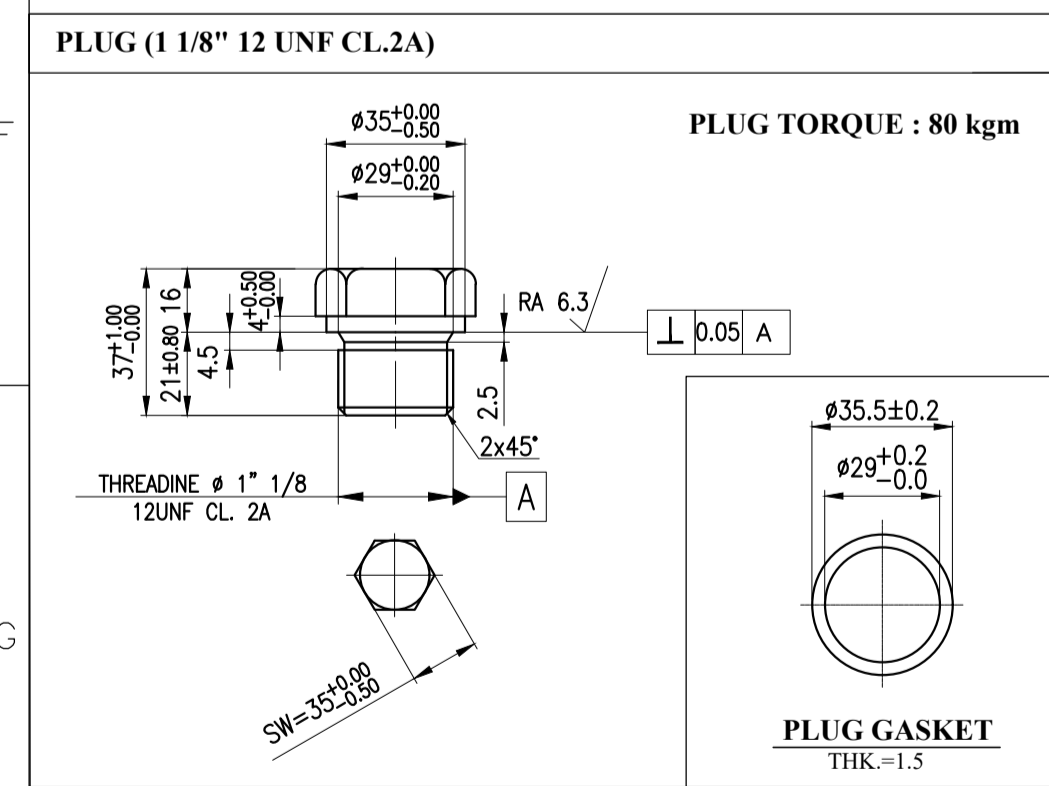
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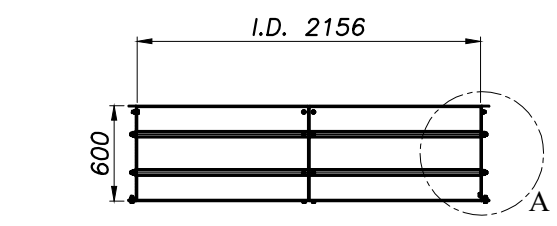
PROJECT: **AIR COOLER FOR Toase-che Park Sanati Gohar Ofogh Petrochemical Co.**

TUBE BUNDLE DRAWING
1158-A01-2000-00

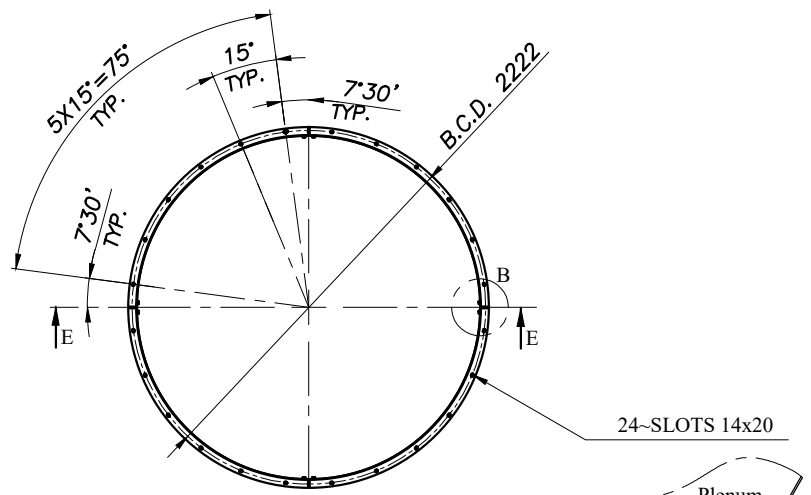
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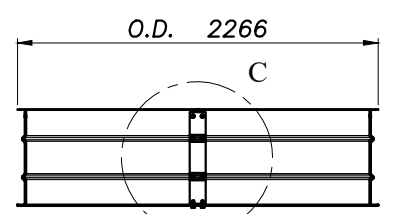




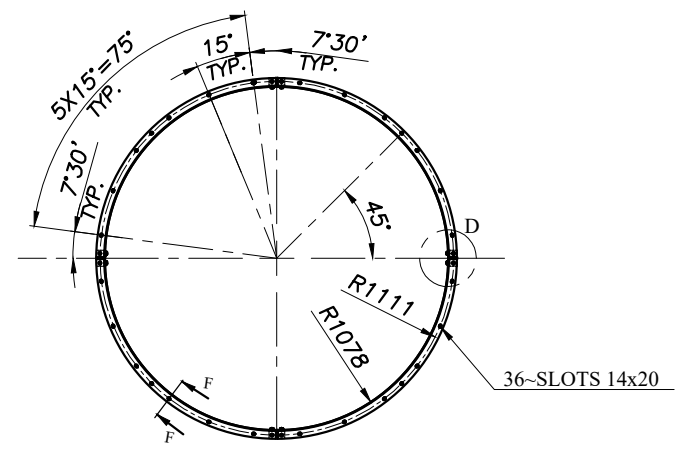
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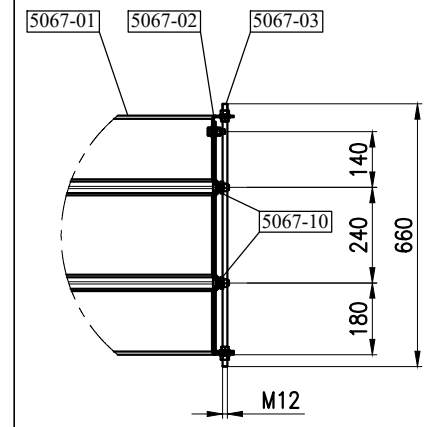
TOP VIEW



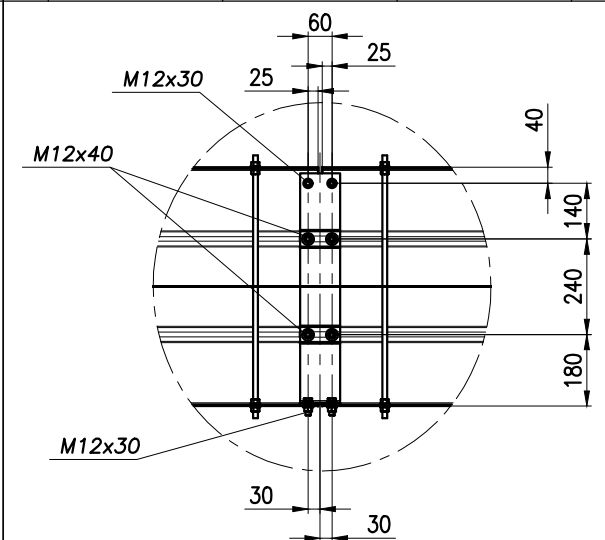
FRONT VIEW



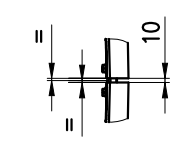
BOTTOM VIEW



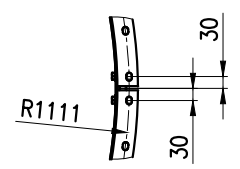
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SCALE 2.5:1



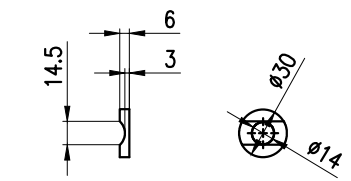
DET. C
SCALE 2.5:1



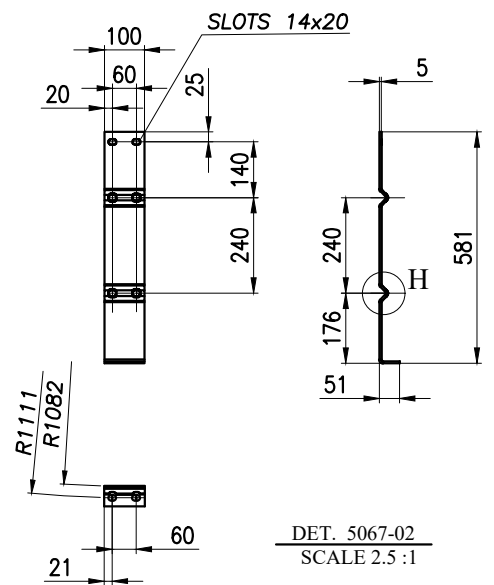
DET. B
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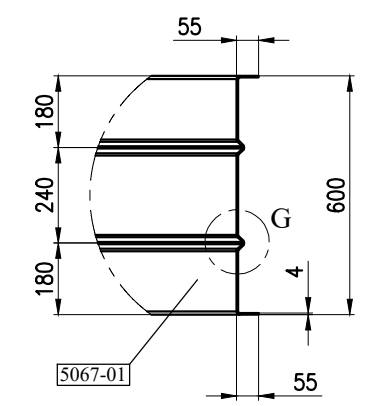
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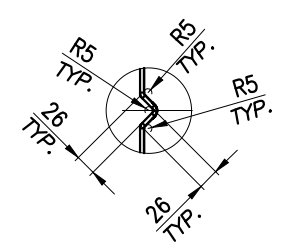
DET. 5067-10
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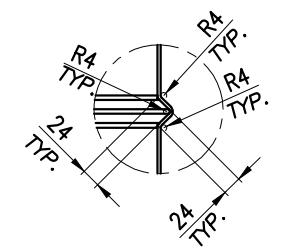
DET. 5067-02
SCALE 2.5:1



SEC. F-F
SCALE 2.5:1

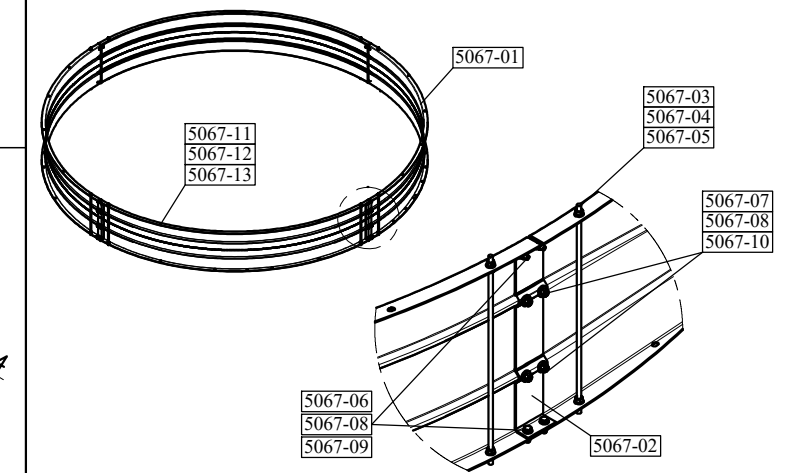


DET. H
SCALE 5:1



DET. G
SCALE 5:1

PART LIST										
PART NO.	DESCRIPTION	QA	LENGTH	WIDTH	THK.	MATERIAL	QTY.	Unit Weight	Total Weight	REV.
5067-00	FAN RING INCLUDING:	-	-	-	-	-	4	168	670	
5067-01	SHEET MARRING	-	1000	714	4	303799126-999-1	4	38	152	R2
5067-02	FIXING PLATE (BRACKET)	-	648	100	5	303799126-999-1	4	2	8	R2
5067-03	BOLT FOR THE ROD	M12	680	-	-	DIN-976-1(DAchromet)	8	1	8	
5067-04	NUT FOR THE ROD	M12	-	-	-	DIN-934-CL.8(DAchromet)	32	-	-	
5067-05	WASHER FOR THE ROD	A13	-	-	-	DIN-125A-ST(DAchromet)	32	-	-	
5067-06	BOLT FOR FIXING PLATE	M12	38	-	-	DIN-933-CL.8(DAchromet)	18	-	-	
5067-07	BOLT FOR FIXING PLATE	M12	40	-	-	DIN-999(DAchromet)	18	-	-	
5067-08	NUT FOR FIXING PLATE	M12	-	-	-	DIN-934-CL.8(DAchromet)	32	-	-	
5067-09	WASHER FIXING PLATE	A13	-	-	-	DIN-125A-ST(DAchromet)	32	-	-	
5067-10	WASHER FIXING PLATE	S0	-	-	5	303799126-999-1	18	-	-	R2
5067-11	BOLT FOR CONNECTION FAN RING TO PLENUM	M12	40	-	-	DIN-933-CL.8(DAchromet)	24	-	-	
5067-12	NUT	M12	-	-	-	DIN-934-CL.8(DAchromet)	24	-	-	
5067-13	WASHER	A13	-	-	-	DIN-125A-ST(DAchromet)	48	-	-	



* FOR MORE DETAILS FOR EACH COMPONENT OF AIR COOLER REFER TO BELOW DRAWING & DOCUMENTS.

REFERENCED DWG&DOC.

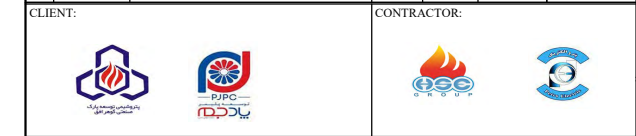
TITLE	VENDOR DOCUMENT NO.	CLIENT DOCUMENT NO.
General Arrangement Drawing	1158-A01-1000-00	EI027-DMF-VD-ME-DWG-003
Fan Drive Assembly Drawing	1158-A01-6000-00	EI027-DMF-VD-ME-DWG-008
Plenum Drawing	1158-A01-5110-00	EI027-DMF-VD-ME-DWG-011
Support Mechanism Drawing	1158-A01-6307-00	EI027-DMF-VD-ME-DWG-010
Axial Fan Data Sheet	1158-A01-6510-00	EI027-DMF-VD-ME-DSH-016
Surface Preparation and Painting Procedure for Air Cooler	1158-000-QS01-00	EI027-DMF-VD-QC-PRO-024

- NOTES:
- ALL DIMENSION ARE IN MILLIMETERS.
 - BOLTS, NUTS, WASHERS, THREADS, PARTS INCLUDES THREADS SHALL BE AS PER PROJECT SPECIFICATION DOC. NO. EI027-DMF-VD-QC-PRO-024
 - ALL PARTS HOT DIP GALVANIZING SHALL BE DONE AS PER ASTM-123/ISO 1461.
 - THIS DRAWING IS COMPATIBLE WITH FAN DATA SHEET DOCUMENT NUMBER EI027-DMF-VD-ME-DSH-016 AND IT SHALL BE READ IN CONJUNCTION WITH RELEVANT DATA SHEET.

GENERAL DATA	
FAN DIA.	2134
FAN RING TYPE	CONICAL L/D=0.05
TIP CLEARANCE	11 mm

TOLERANCES	
THE FOLLOWING VALUES ARE APPLICABLE TO THE DIMENSIONS THAT ARE NOT PROVIDED WITH TOLERANCES OR OTHERWISE	
MINIMAL DIMENSIONS FOR MILLIMETER SIZES	0 001 0001 0 001 0001 0 001 0 001
TOLERANCES	1 2 3
TOLERANCE ON CENTER DISTANCES	A 0.0
THE TOLERANCES SHOWN HERE ARE NOT CUMULATIVE	

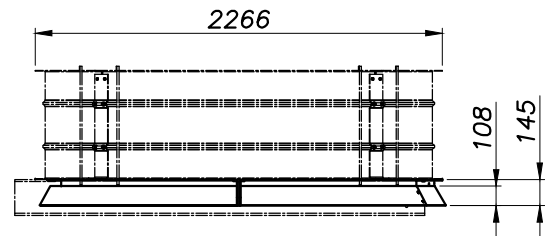
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R1	08/20/2024	ISSUED FOR APPROVAL	F.SZ	F.A.	J.B.L	A.GHZ
R0	08/10/2024	ISSUED FOR APPROVAL	F.SZ	F.A.	J.B.L	A.GHZ



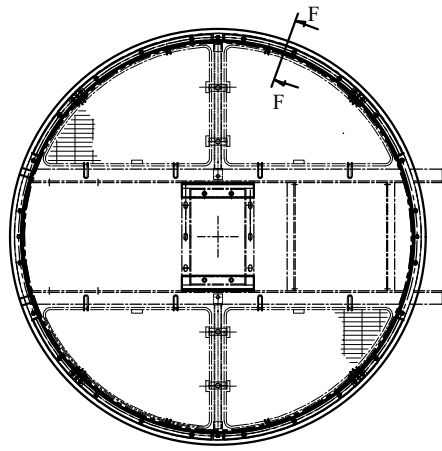
PROJECT: AIR COOLER FOR Toase-eh Park Sanati Gohar Ofogh Petrochemical Co.
Fan Ring & Conical Drawing
1158-A01-5067-00
(Sheet 1 of 2)

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SIZE:	A3
REV.:	R2

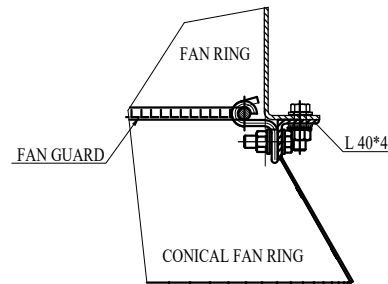
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FRONT VIEW

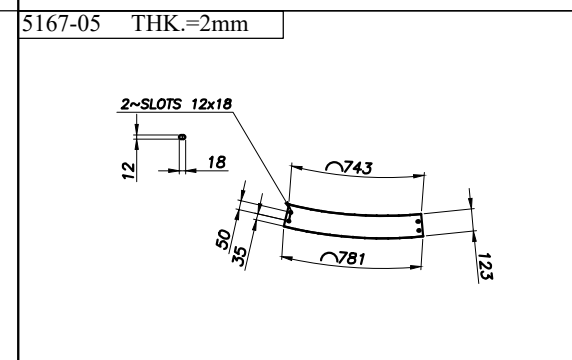
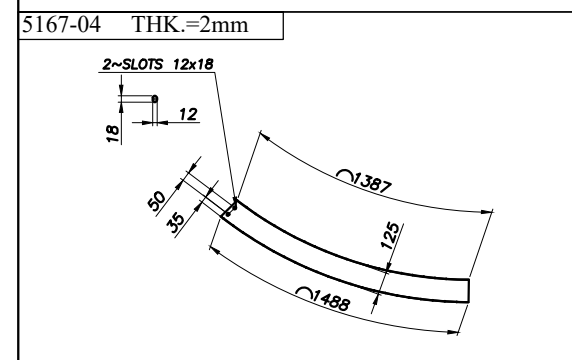
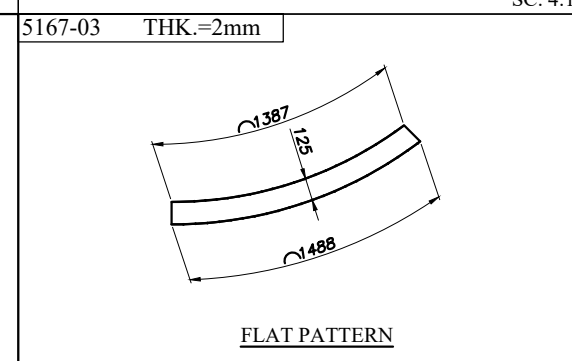
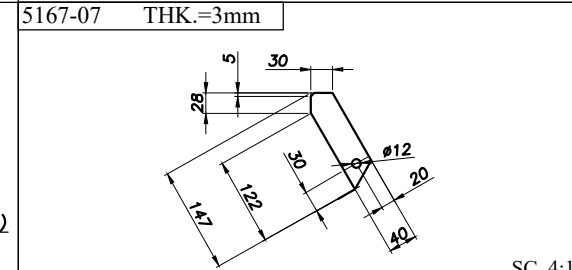
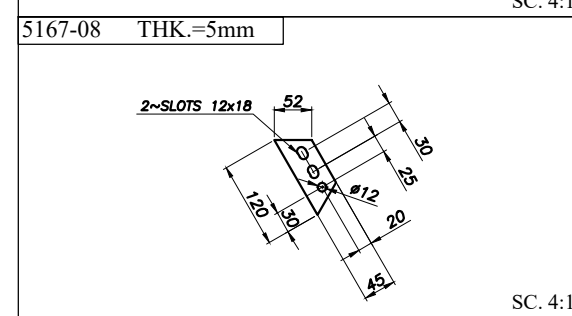
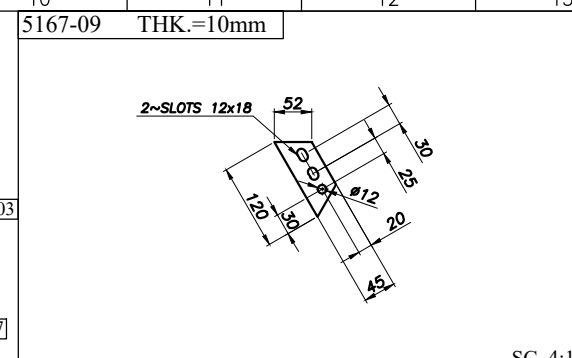
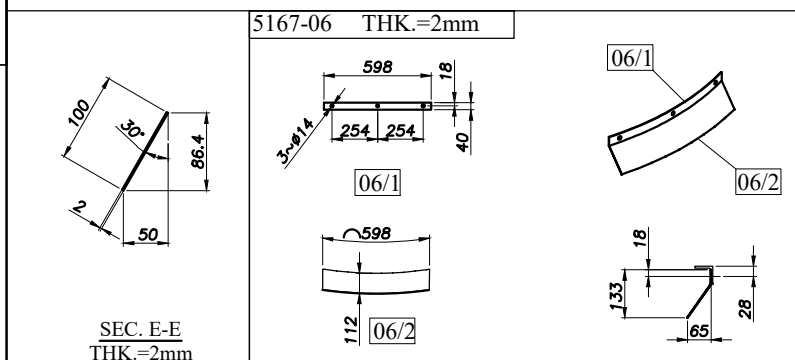
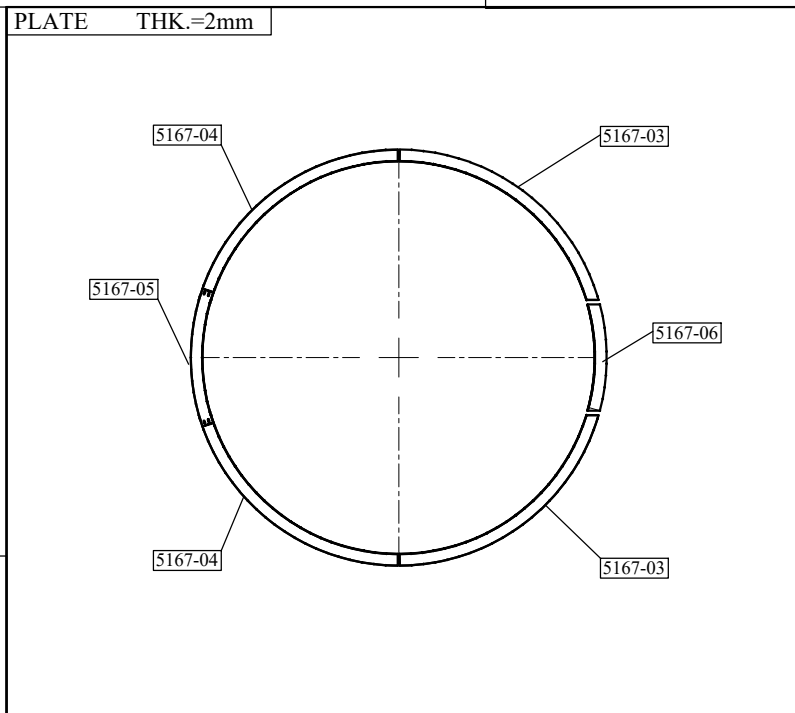
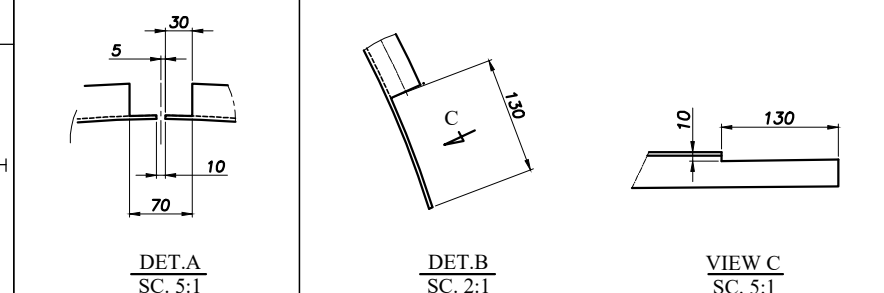
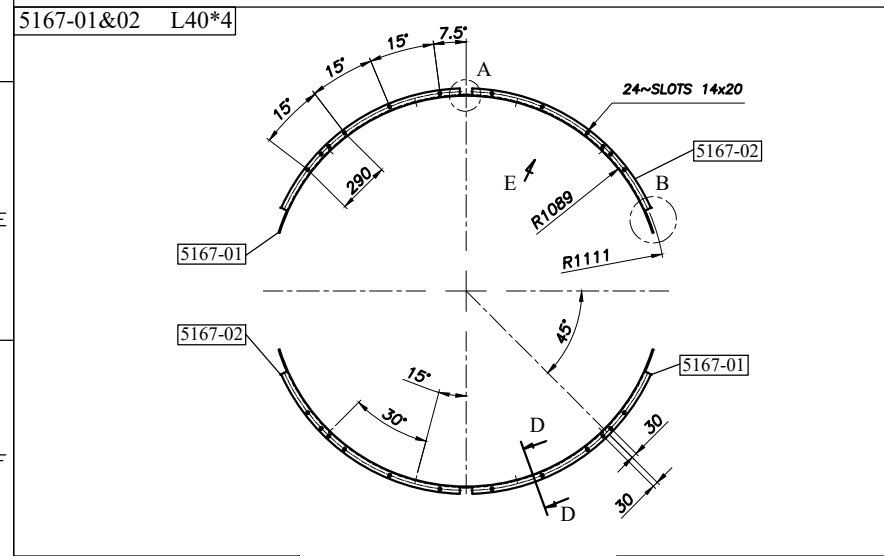
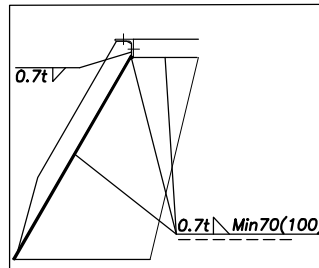


TOP VIEW

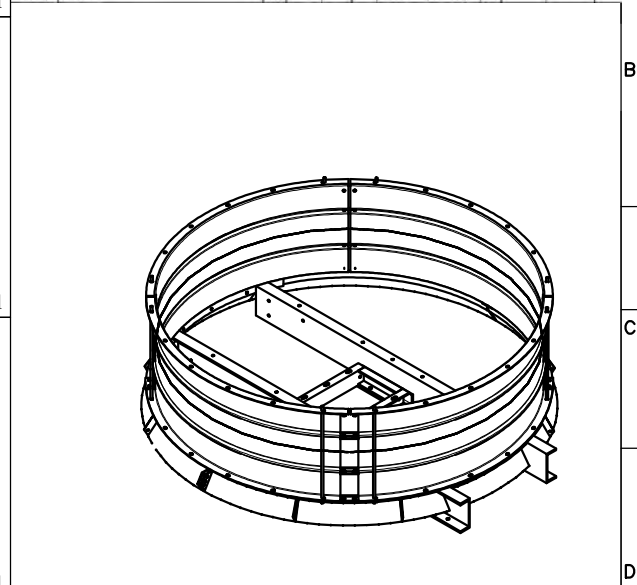


SEC. F-F

Connection Fan Guard to Conical Fan Ring(L40*4)



PART LIST		QTY	Unit Weight	Total Weight	REV.
5167-01	CONICAL FAN RING FOR ONE SET INCLUDING...	1	20	20	01
5167-02	...	2	3	6	02
5167-03	...	2	2	4	03
5167-04	...	2	2	4	04
5167-05	...	2	2	4	05
5167-06	...	2	2	4	06
5167-07	...	2	2	4	07
5167-08	...	2	2	4	08
5167-09	...	2	2	4	09
SUPPORT PLATE ASSEMBLY		1	1.30	1.30	01
5167-011	...	1	2.38	2.38	01
5167-012	...	1	1.12	1.12	02
5167-013	...	1	1.12	1.12	03
5167-014	...	1	1.12	1.12	04
5167-015	...	1	1.12	1.12	05
5167-016	...	1	1.12	1.12	06
5167-017	...	1	1.12	1.12	07
5167-018	...	1	1.12	1.12	08
5167-019	...	1	1.12	1.12	09
5167-020	...	1	1.12	1.12	10



REV.	DATE	DESCRIPTION	DRAWN BY	CHECKED BY	APPROVED BY	FINAL APPROVED BY
R2	08/31/2024	ISSUED FOR APPROVAL	F.SZ	F.A.	J.B.L	A.GHZ
R1	08/20/2024	ISSUED FOR APPROVAL	F.SZ	F.A.	J.B.L	A.GHZ
R0	08/10/2024	ISSUED FOR APPROVAL	F.SZ	F.A.	J.B.L	A.GHZ

CLIENT:

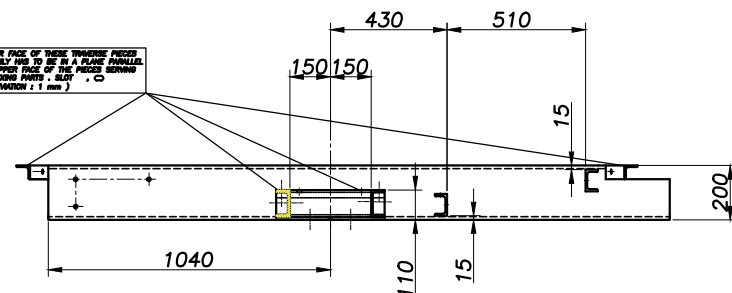
CONTRACTOR:

PROJECT: AIR COOLER FOR Toase-eh Park Sanati Gohar Ofogh Petrochemical Co.
Fan Ring & Conical Drawing
1158-A01-5167-00
(Sheet 2 of 2)

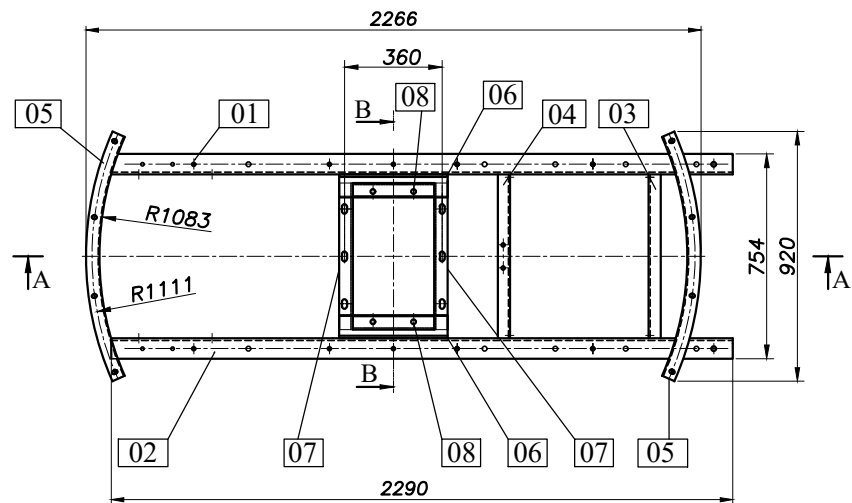
DWG. NO. E1027-DMF-VD-ME-DWG-009
SCALE: N.T.S. SIZE: A3 REV.: R2

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THE UPPER FACE OF THESE BRASS PINS SHOULD BE TO BE A PLANE PARALLEL TO THE UPPER FACE OF THE PIPES BEARING ON THE IRON PARTS. SEE DET. C (MAX. DEVIATION ± 1 mm)



SECTION A-A



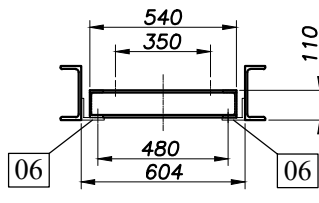
NOTES :
 1- ALL DIMENSIONS ARE IN MILLIMETERS.
 2- BOLTS, NUTS, WASHERS, THREADS, PARTS INCLUDES THREADS SHALL BE AS PER PROJECT SPECIFICATION DOC. NO. EI027-DMF-VD-QC-PRO-024
 3- COATING SHALL BE AS PER PROJECT SPECIFICATION.
 4- MIN HEIGHT OF FILLET WELD=0.7*MIN THK.

TOLERANCES

THE FOLLOWING VALUES ARE APPLICABLE TO THE DIMENSIONS THAT ARE NOT PROVIDED WITH TOLERANCES ON DRAWING

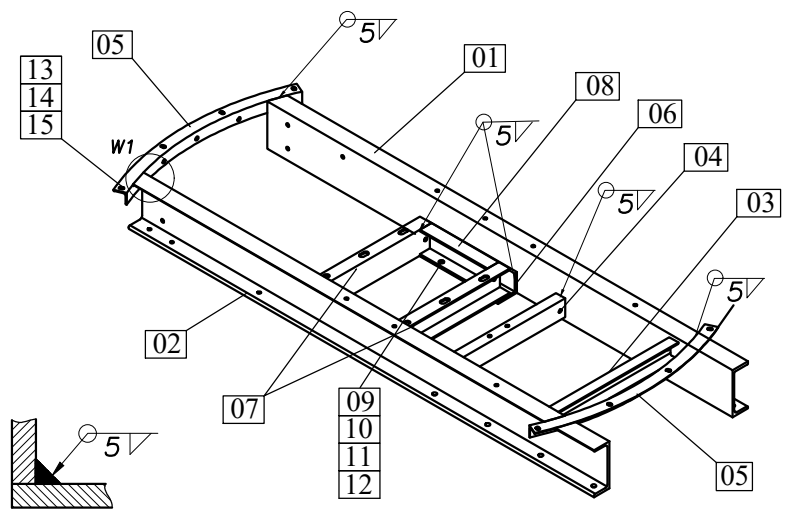
NOMINAL DIMENSIONS FOR MILLIMETER STEPS	0	801	5001
TOLERANCES ±	1	2	3
TOLERANCE ON CENTER DISTANCES ±	0.5		

THE TOLERANCES SHOWN HERE ARE NOT CUMULATIVE



SEC. B-B

PART LIST										
PART NO.	DESCRIPTION	DIA. (mm)	LENGTH (mm)	WIDTH (mm)	THK. (mm)	MATERIAL	QTY.	Unit Weight	Total Weight	REV.
6307-00	SUPPORT MECHANISM INCLUDING:	-	-	-	-	-	4	151	606	
6307-00/1	SUPPORT MECHANISM FRAME ASSEMBLY:	-	-	-	-	-	1	142	142	
6307-01	LPN 200	-	2290	-	-	St-37(Hot Dip Galv.)	1	58	58	
6307-02	LPN 200	-	2290	-	-	St-37(Hot Dip Galv.)	1	58	58	
6307-03	LPN 80	-	604	-	-	St-37(Hot Dip Galv.)	1	5	5	
6307-04	LPN 80	-	604	-	-	St-37(Hot Dip Galv.)	1	5	5	
6307-05	L5*5	-	920	-	-	St-37(Hot Dip Galv.)	2	3	7	
6307-06	L- SHAPE 85*80*10	-	400	-	10	St-37(Hot Dip Galv.)	2	5	9	
6307-00/2	BEARING BLOCK SUPPORT ASSEMBLY:	-	-	-	-	-	1	18	18	
6307-07	LPN 100	-	540	-	-	St-37(Hot Dip Galv.)	2	6	11	
6307-08	LPN 100	-	300	-	-	St-37(Hot Dip Galv.)	2	3	6	
BOLT & NUT & WASHER INCLUDING :										
6307-09	BOLT FOR CONNECTING B.B. SUPPORT TO SUPPORT MECHA	M16	50	-	-	DIN-933-CL. 8.8(Dacromet)	4			
6307-10	NUT	M16	-	-	-	DIN-934-CL. 8(Dacromet)	4			
6307-11	WASHER	A17	-	-	-	DIN-125A-ST(Dacromet)	4			
6307-12	TAPER WASHER	-	-	-	-	DIN-434-18-ST-8%(Dacromet)	4			
6307-13	BOLT FOR CONNECTING SUPPORT MECHANISM TO FAN RING	M12	40	-	-	DIN-933-CL. 8.8(Dacromet)	8			
6307-14	NUT	M12	-	-	-	DIN-934-CL. 8(Dacromet)	8			
6307-15	WASHER	A13	-	-	-	DIN-125A-ST(Dacromet)	16			

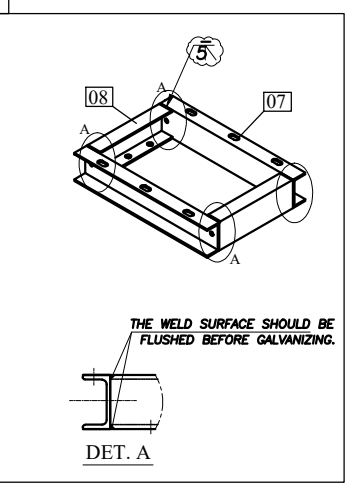
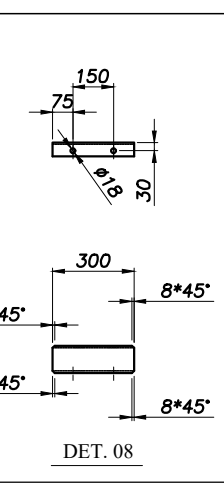
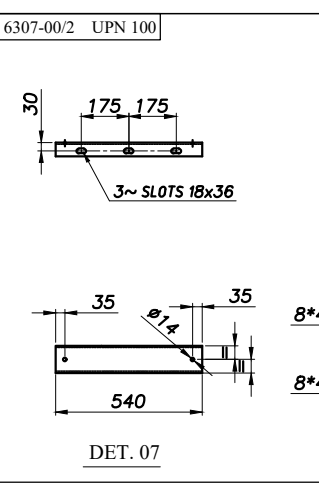
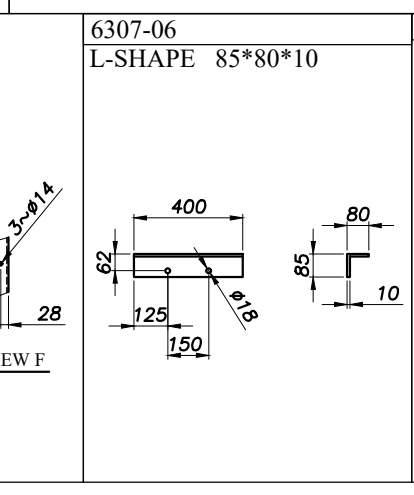
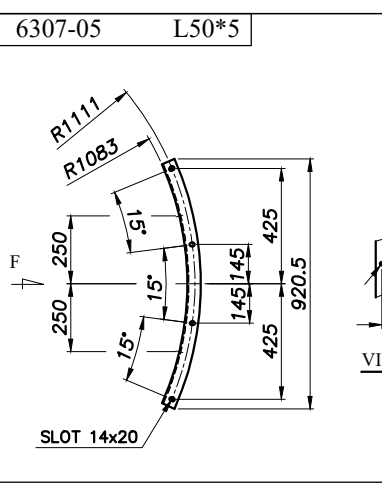
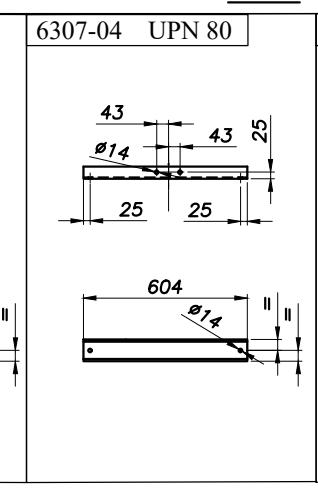
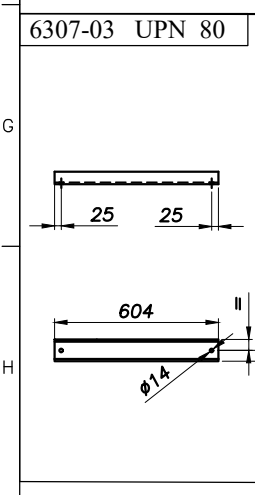
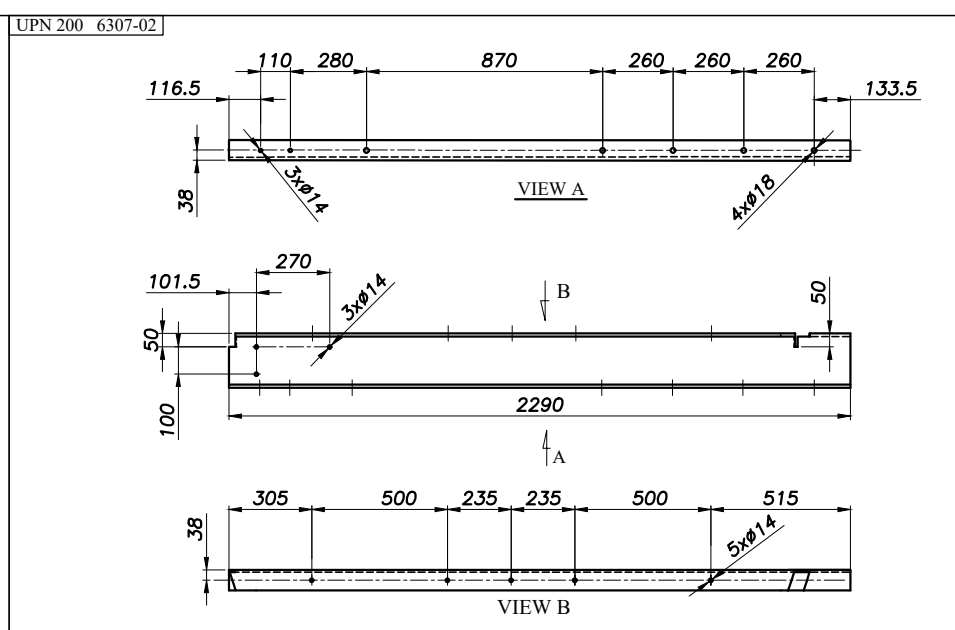
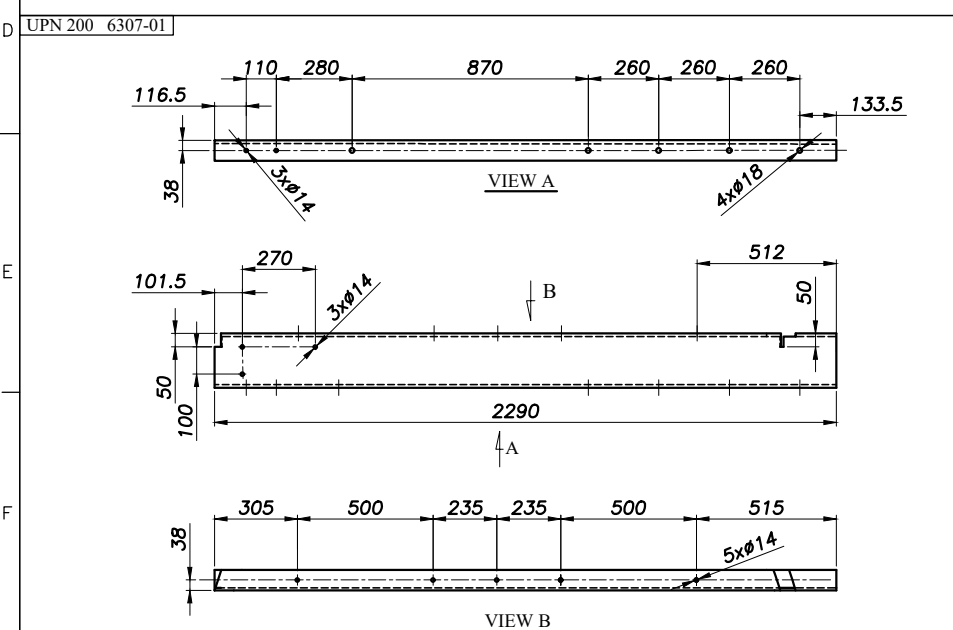


DET. W1 TYP.

* FOR MORE DETAILS FOR EACH COMPONENT OF AIR COOLER REFER TO BELOW DRAWING & DOCUMENTS.

REFERENCED DWG&DOC.

TITLE	VENDOR DOCUMENT NO.	CLIENT DOCUMENT NO.
General Arrangement Drawing	1158-A01-1000-00	EI027-DMF-VD-ME-DWG-003
Fan Drive Assembly Drawing	1158-A01-6000-00	EI027-DMF-VD-ME-DWG-008
Plenum Drawing	1158-A01-5110-00	EI027-DMF-VD-ME-DWG-011
Fan Ring Drawing	1158-A01-5067-00	EI027-DMF-VD-ME-DWG-009
Surface Preparation and Painting Procedure for Air Cooler	1158-A01-QS01-00	EI027-DMF-VD-QC-PRO-024



REV.	DATE	DESCRIPTION	DRAWN BY	CHECKED BY	APPROVED BY	FINAL APPROVED BY
R2	08/31/2024	ISSUED FOR APPROVAL	F.SZ	F.A.	J.B.L	A.GHZ
R1	08/20/2024	ISSUED FOR APPROVAL	F.SZ	F.A.	J.B.L	A.GHZ
R0	08/10/2024	ISSUED FOR APPROVAL	F.SZ	F.A.	J.B.L	A.GHZ

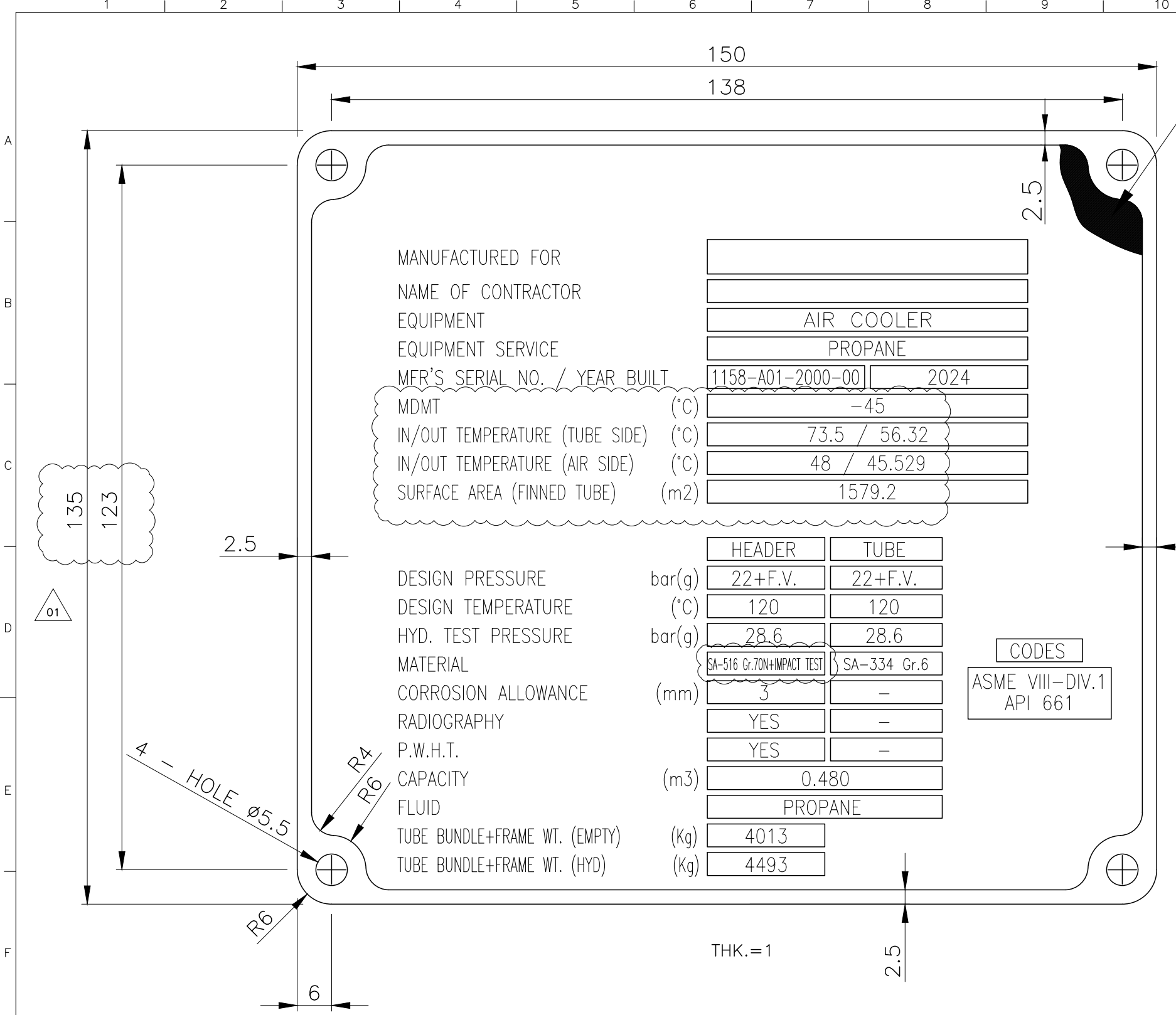
CLIENT:

CONTRACTOR:

PROJECT : AIR COOLER FOR Toase-che Park Sanati Gohar Ofogh Petrochemical Co. Support Mechanism Drawing 1158-A01-6037-00

DWG. NO. EI027-DMF-VD-ME-DWG-010
 SCALE : N.T.S. SIZE : A3 REV. : R2

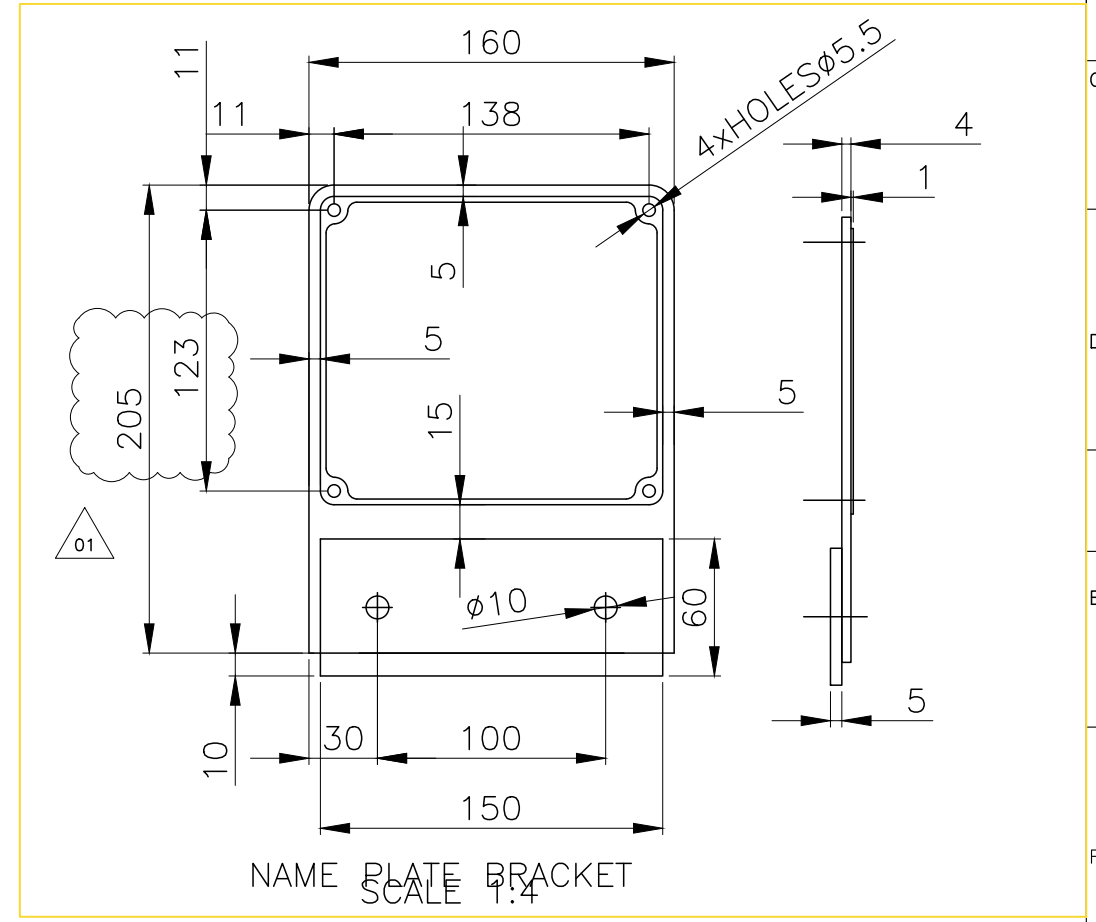
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PART NO.	DESCRIPTION	DIMENSIONS				MATERIAL	QTY.	UNIT WEIGHT (Kg)	TOTAL WEIGHT (Kg)
		DIA. (mm)	LENGTH (mm)	WIDTH (mm)	THK. (mm)				
2020-01	NAME PLATE	-	150	135	1	S.S.304	2	0.16	0.3
2020-03	NAME PLATE BRACKET	-	160	205	4	C.S	2	1.03	2.1
2020-04	RIVET FOR NAME PLATE	5	11	-	-	AL-S.S	8	-	-
2020-06	BOLT	-	M8	22	-	DIN-933-CL.8.8(GALV.)	4	-	-
2020-07	NUT	-	M8	-	-	DIN-934-CL.8(GALV.)	4	-	-
2020-08	WASHER	-	A9	-	-	DIN-128A-ST(GALV.)	8	-	-

NOTE

- 1-ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.
- 2-ALL LETTERS , BLOCKS , AS WELL AS EDGES , SHALL HAVE RAISED POLISHED FACE - RELIEF 0.5mm APPROX.
- 3-BLACK BACKGROUND



REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY	APPROVED BY	FINAL APPROVED BY
R1	10/15/2024	ISSUED FOR APPROVAL	SH.S	J.B.L	J.B.L	A.GHZ
R0	10/07/2024	ISSUED FOR APPROVAL	F.SZ	F.A	J.B.L	A.GHZ

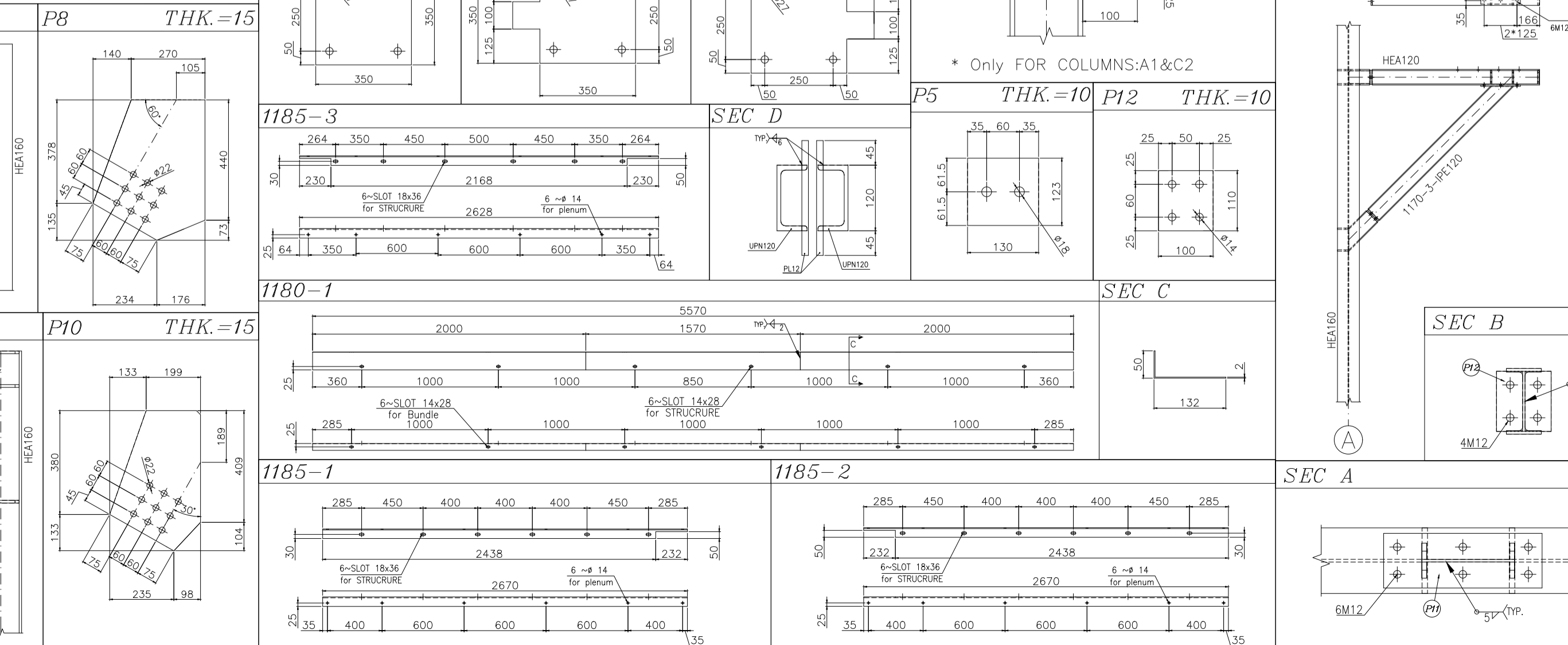
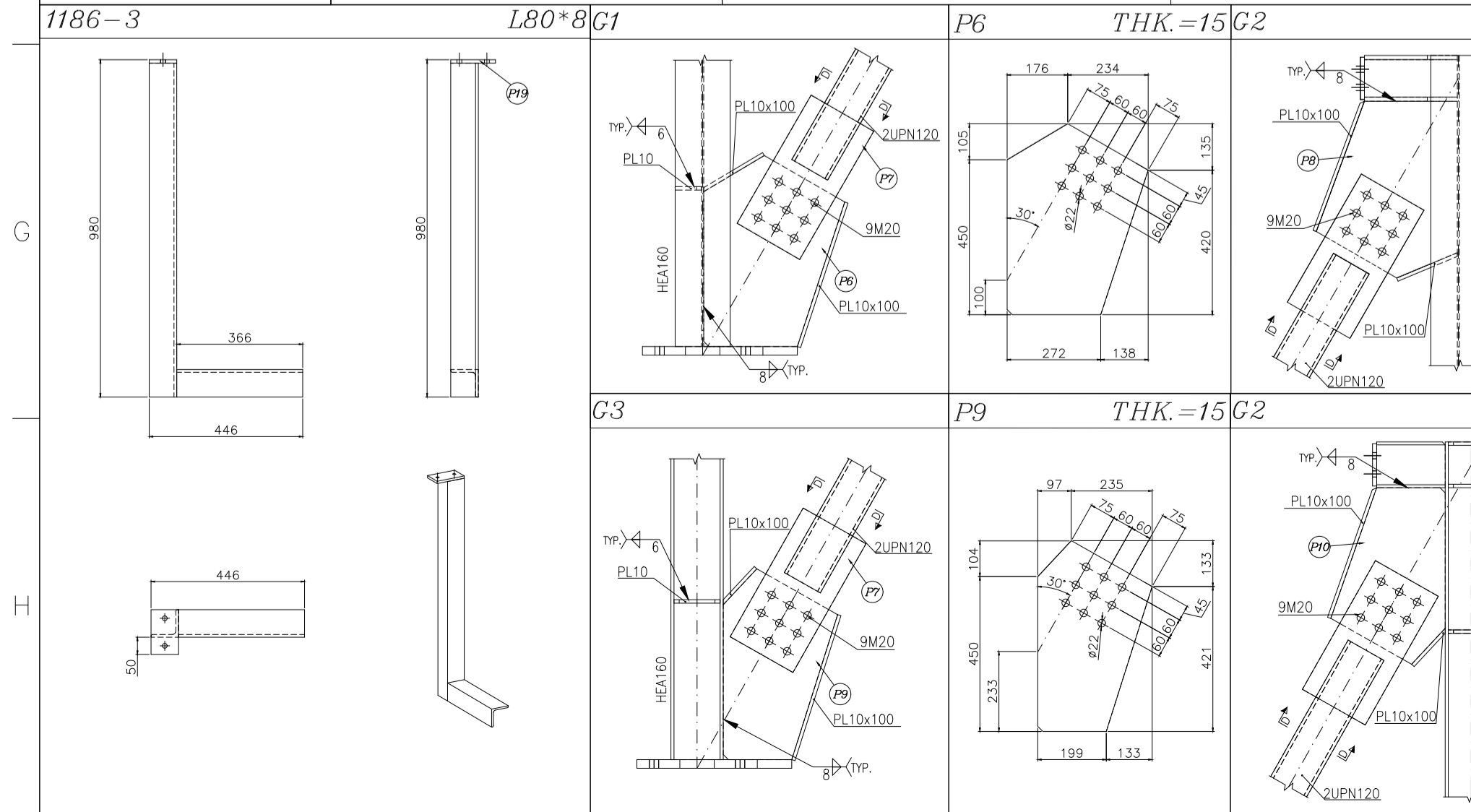
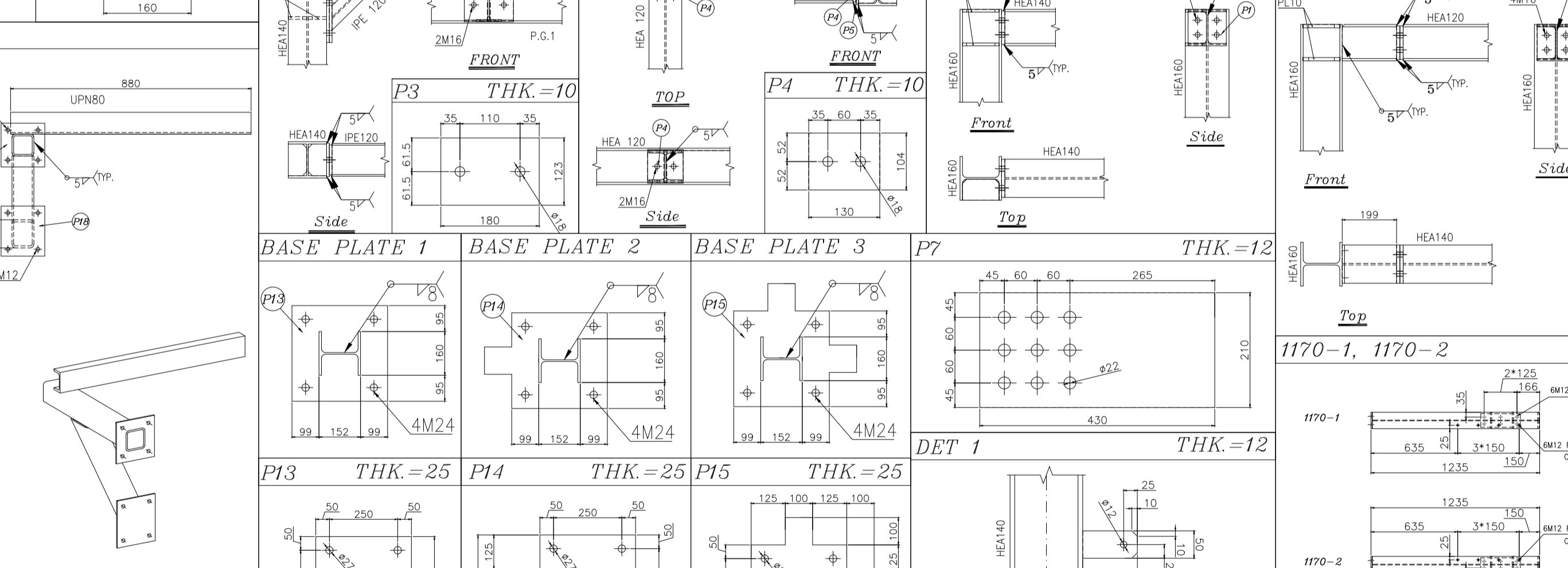
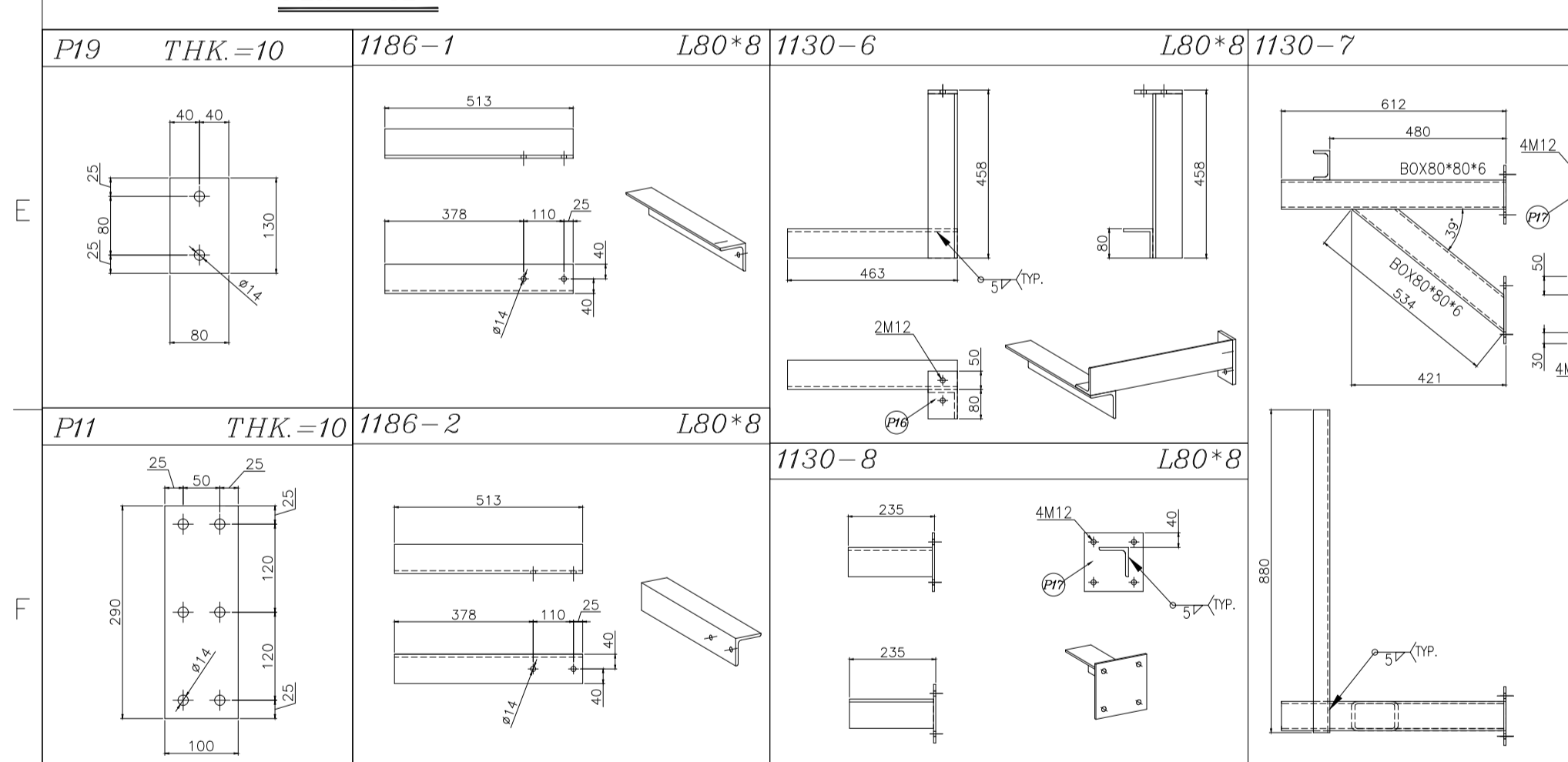
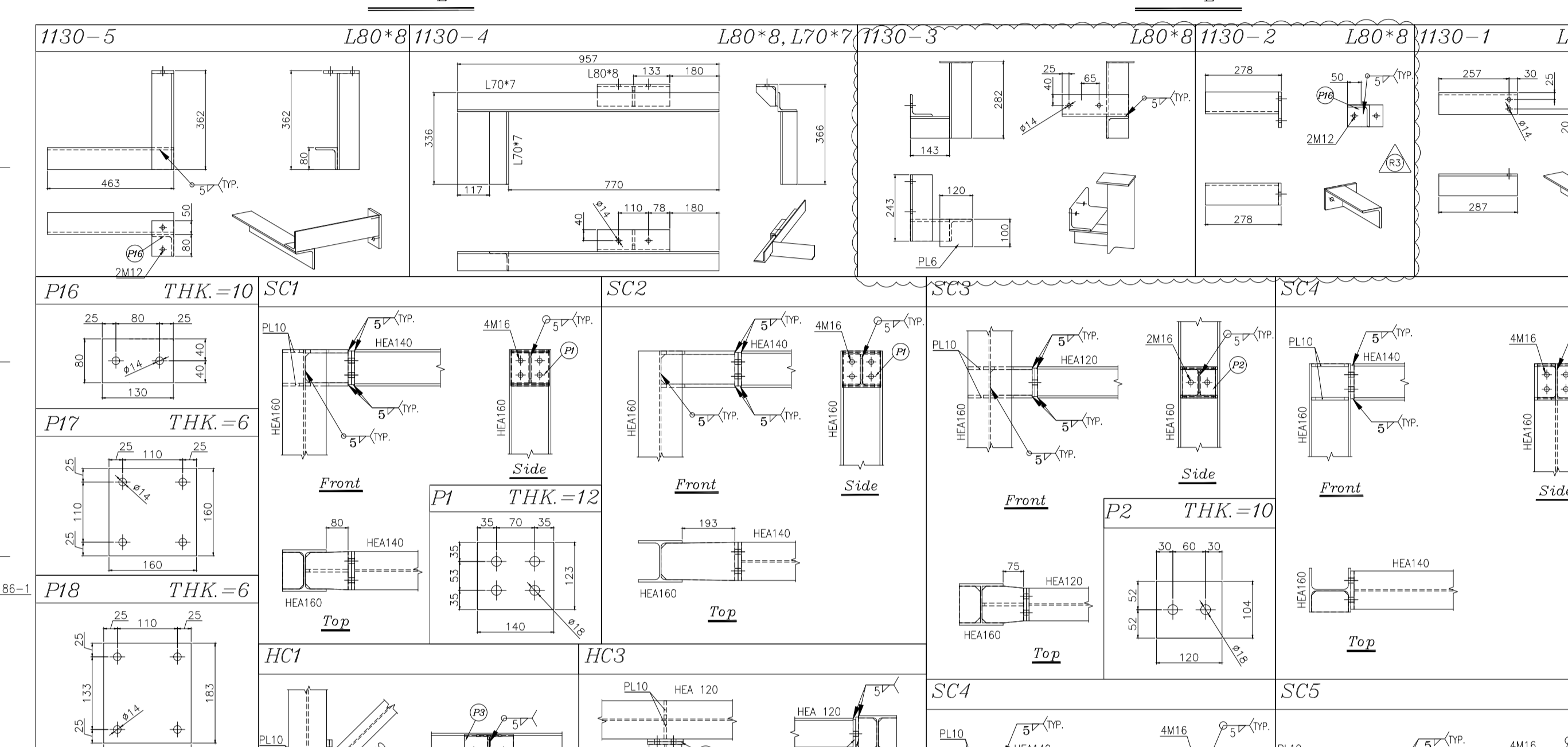
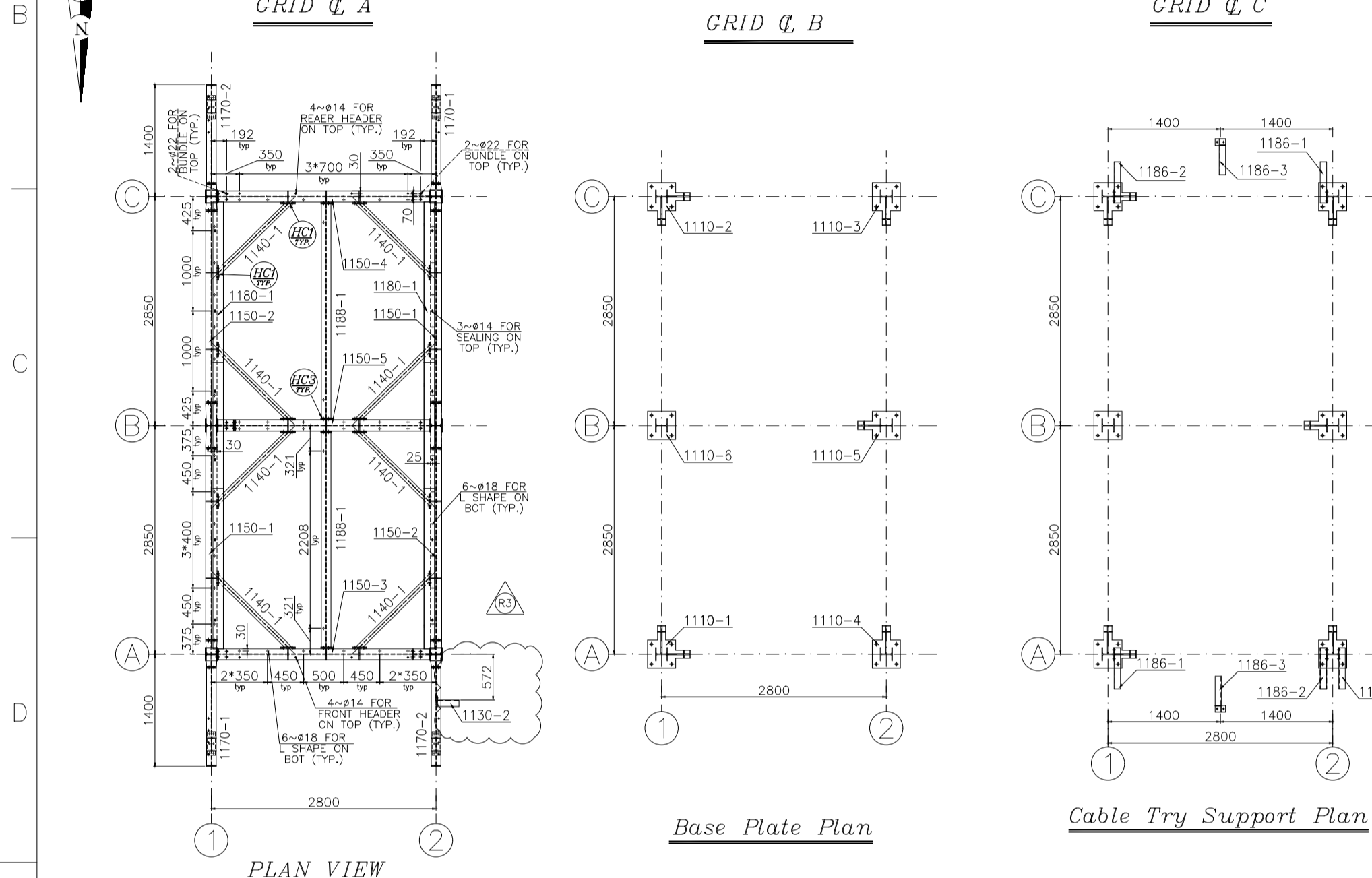
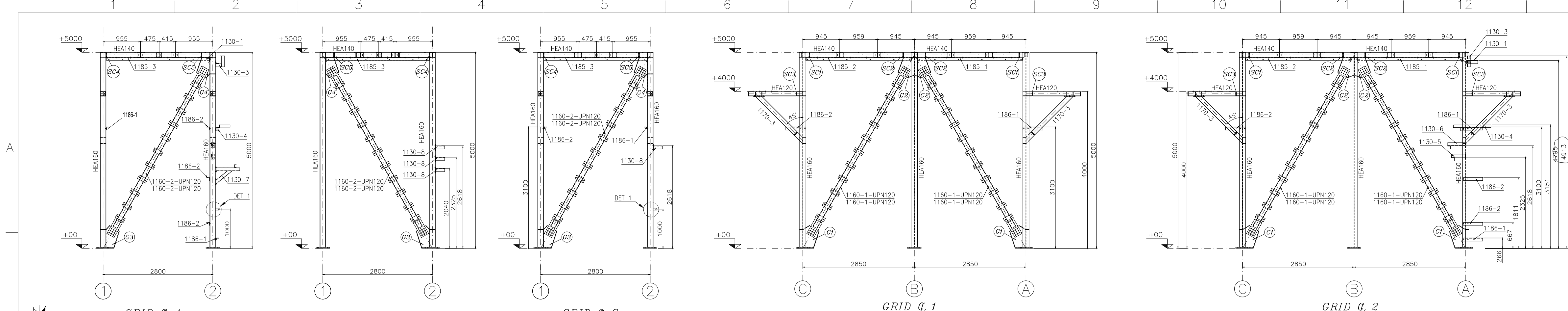
CLIENT:

CONTRACTOR:

PROJECT : **AIR COOLER FOR**
Toase-eh Park Sanati Gohar Ofogh Petrochemical Co.
Name Plate Drawing
 1158-A01-2403-00

DWG. NO. EI027-DMF-VD-ME-DWG-012
 SCALE: N.T.S. SIZE: A3 REV: R1

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TOTAL UNITS - 3											
PART LIST FOR UNIT											
PART NO.	DESCRIPTION	PROFILE	REA (mm)	LENGTH (mm)	WIDTH (mm)	THK (mm)	MATERIAL	QTY.	UNIT WEIGHT (kg)	TOTAL WEIGHT (kg)	REV.
1101	COLUMN ASS.	HEA140	800	5000	-	-	ST.PAINTED	1	247.3	247.3	
1102	COLUMN ASS.	HEA160	800	5000	-	-	ST.PAINTED	1	246.8	246.8	
1103	COLUMN ASS.	HEA160	800	5000	-	-	ST.PAINTED	1	251.8	251.8	
1104	COLUMN ASS.	HEA160	800	5000	-	-	ST.PAINTED	1	249.8	249.8	
1105	COLUMN ASS.	HEA160	800	5000	-	-	ST.PAINTED	1	271.4	271.4	
1106	COLUMN ASS.	HEA160	800	5000	-	-	ST.PAINTED	1	289.6	289.6	
1107	PIPE SUPPORT ASS.	L80*8	257	287	-	-	ST.PAINTED	1	2.8	2.8	
1108	PIPE SUPPORT ASS.	L80*8	278	278	-	-	ST.PAINTED	1	3.4	3.4	
1109	PIPE SUPPORT ASS.	L80*8	282	233	-	-	ST.PAINTED	1	6.9	6.9	
1110	PIPE SUPPORT ASS.	L80*8, L70*7	957	236	-	-	ST.PAINTED	1	11.9	11.9	
1111	PIPE SUPPORT ASS.	L80*8	467	262	-	-	ST.PAINTED	1	8.7	8.7	
1112	PIPE SUPPORT ASS.	L80*8	465	406	-	-	ST.PAINTED	1	9.6	9.6	
1113	PIPE SUPPORT ASS.	BOX80*80*6	800	612	-	-	ST.PAINTED	1	25.2	25.2	
1114	PIPE SUPPORT ASS.	L80*8	235	235	-	-	ST.PAINTED	4	3.4	13.6	
1115	HORIZONTAL BRACING ASS.	IP120	120	120	-	-	ST.PAINTED	8	16.4	131.2	
1116	BEAM ASS.	HEA140	203	-	-	-	ST.PAINTED	2	47.5	95	
1117	BEAM ASS.	HEA140	203	-	-	-	ST.PAINTED	2	47.5	95	
1118	BEAM ASS.	HEA140	247	-	-	-	ST.PAINTED	1	71.1	71.1	
1119	BEAM ASS.	HEA140	247	-	-	-	ST.PAINTED	1	71.1	71.1	
1120	BEAM ASS.	HEA140	247	-	-	-	ST.PAINTED	1	75.8	75.8	
1121	BRACING ASS.	UP120	404	-	-	-	ST.PAINTED	8	97.2	777.6	
1122	BRACING ASS.	UP120	404	-	-	-	ST.PAINTED	6	96.9	581.4	
1170	WALKWAY SUPPORT ASS.	HEA120	125	-	-	-	ST.PAINTED	2	27.9	55.8	
1171	WALKWAY SUPPORT ASS.	HEA120	125	-	-	-	ST.PAINTED	2	27.9	55.8	
1172	WALKWAY SUPPORT ASS.	IP120	149	-	-	-	ST.PAINTED	4	17.5	70	
1181	SEALING ASS.	PLATE	576	182	2	-	ST.PAINTED	2	15.7	31.4	
1182	L-SHAPE PLENUM	L70*7	2670	-	-	-	ST.PAINTED	2	18.7	37.4	
1183	L-SHAPE PLENUM	L70*7	2670	-	-	-	ST.PAINTED	2	18.7	37.4	
1184	CABLE TRY SUPPORT ASS.	L80*8	513	-	-	-	ST.PAINTED	3	5	15	
1185	CABLE TRY SUPPORT ASS.	L80*8	513	-	-	-	ST.PAINTED	4	5	20	
1186	CABLE TRY SUPPORT ASS.	L80*8	980	446	-	-	ST.PAINTED	2	13.7	27.4	
1187	TR ROD BEAM ASS.	HEA120	289	-	-	-	ST.PAINTED	2	55.2	110.4	

TOTAL WEIGHT (kg)											
LIST OF BOLTS, NUTS & WASHERS FOR UNIT											
PART NO.	DESCRIPTION	PROFILE	REA (mm)	LENGTH (mm)	WIDTH (mm)	THK (mm)	MATERIAL	QTY.	UNIT WEIGHT (kg)	TOTAL WEIGHT (kg)	REV.
1190	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1191	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1192	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1193	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1194	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1195	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1196	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1197	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1198	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1199	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1200	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1201	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1202	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1203	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1204	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1205	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1206	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1207	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1208	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1209	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1210	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1211	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1212	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1213	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1214	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1215	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1216	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1217	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1218	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1219	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1220	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1221	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1222	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1223	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1224	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1225	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1226	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1227	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1228	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1229	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1230	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1231	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1232	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1233	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1234	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1235	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1236	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1237	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1238	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1239	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	
1240	BE BEAM ASS.	M16	20	-	-	-	BEN 534 (BACROMET)	56	-	-	

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETER.
- ALL PARTS SHALL PAINTED ACCORDING TO EI027-DMF-VQ-PRO-024
- BOLTS & NUTS SHALL BE DACROMET IN ACCORDANCE WITH ASTM - A153 OR EN ISO 1461
- WELD: CONTINUOUS WELD.
MIN. HEIGHT OF FILLET WELD = 0.7 x MIN. THK.
< MAX. THK. , IF MAX. THK < 7mm
< MAX. THK -1.5 , IF MAX. THK > 7mm

TOLERANCES			
THE FOLLOWING VALUES ARE APPLICABLE TO THE DIMENSIONS THAT ARE NOT PROVIDED WITH TOLERANCES ON DRAWING			
NOMINAL DIMENSIONS	0	201	801
PER MILLIMETER STEPS	200	800	2000
TOLERANCES	± 0.2	± 0.3	± 0.5
	± 0.5	± 0.6	± 0.7
TOLERANCE ON CENTER DISTANCES: ± 1.5			
THE TOLERANCES SHOWN HERE ARE NOT CUMULATIVE			

General Arrangement Drawing	1158-A01-1000-00	EI027-DMF-VQ-ME-DWG-003
Bundle Frame Drawing	1158-A01-2400-00	EI027-DMF-VQ-ME-DWG-007
Plenum Drawing	1158-A01-5110-00	EI027-DMF-VQ-ME-DWG-011
Header Walkway Drawing	1158-A01-1200-00	EI027-DMF-VQ-ST-DWG-014
Ladder Drawing	1158-A01-1520-00	EI027-DMF-VQ-ST-DWG-015

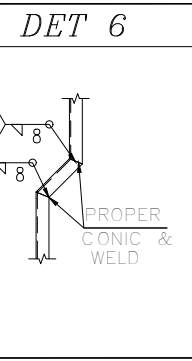
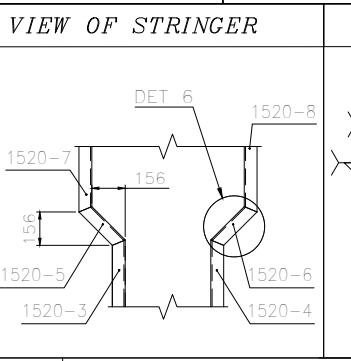
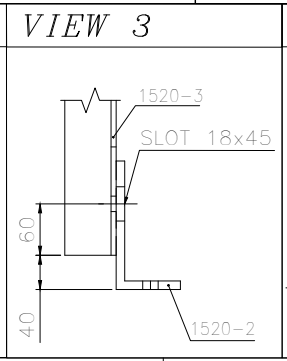
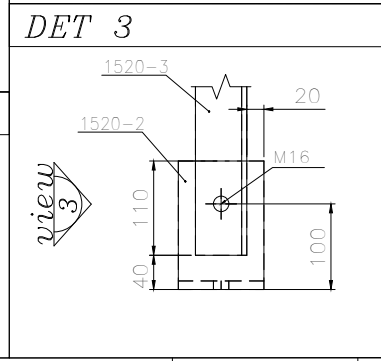
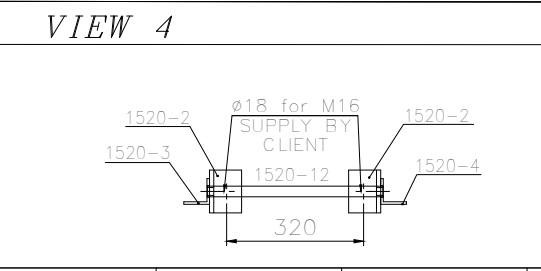
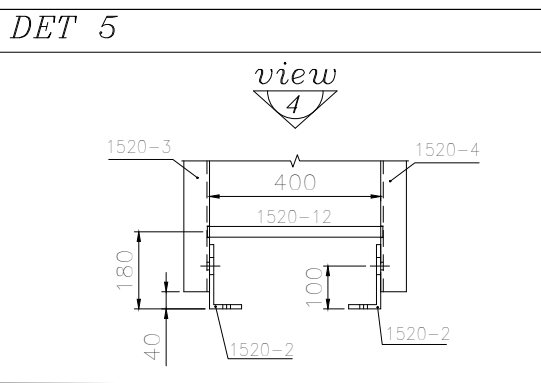
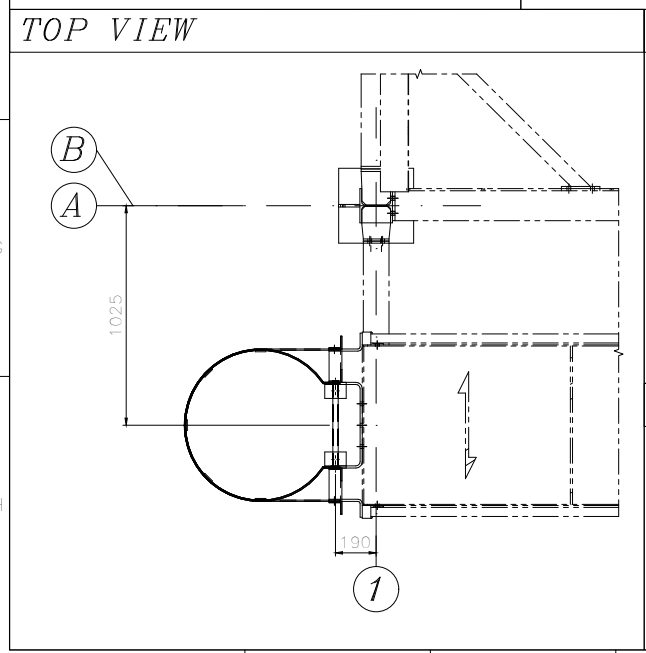
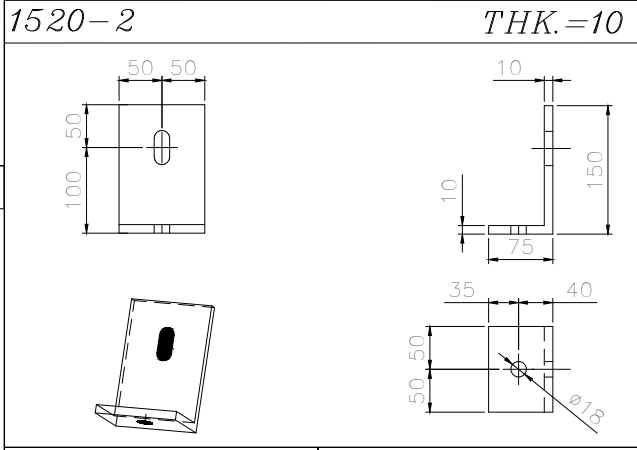
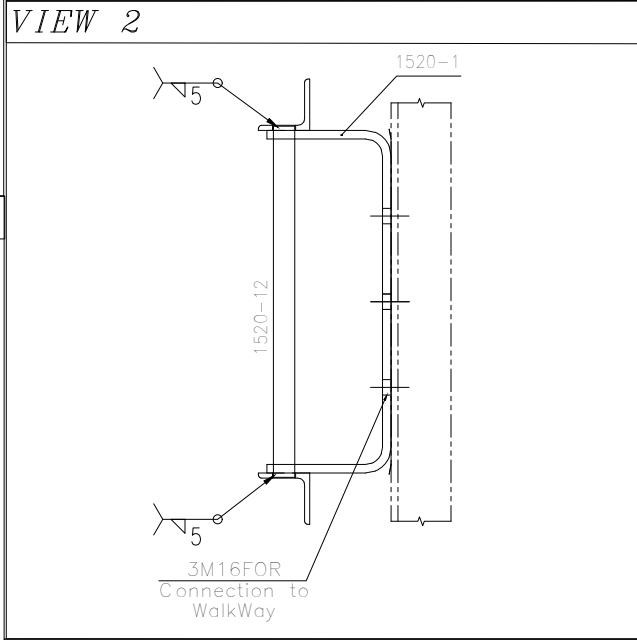
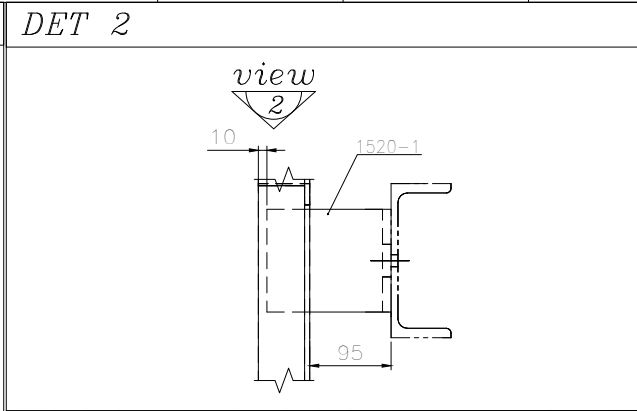
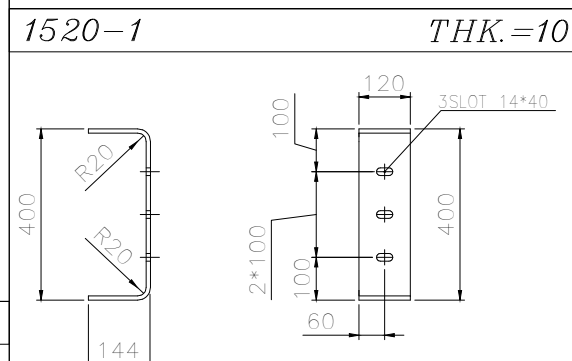
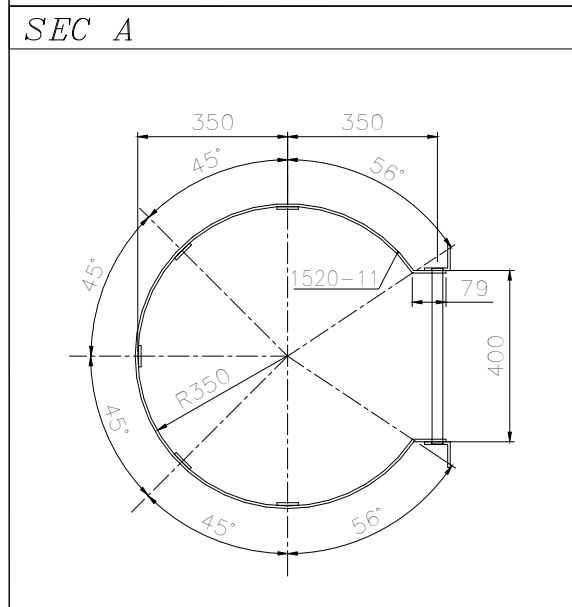
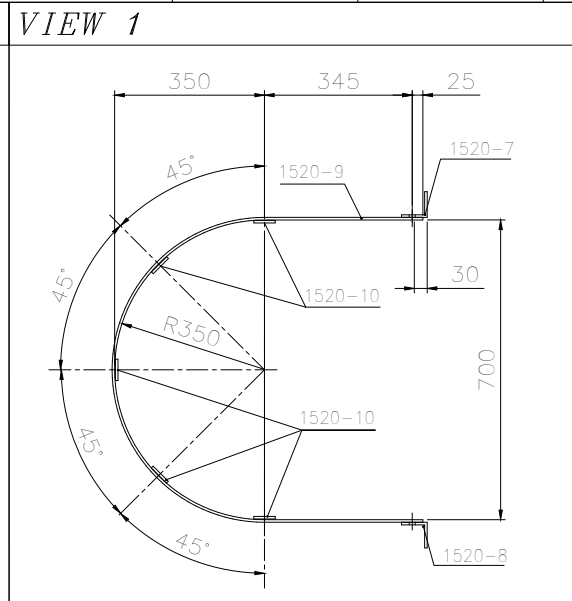
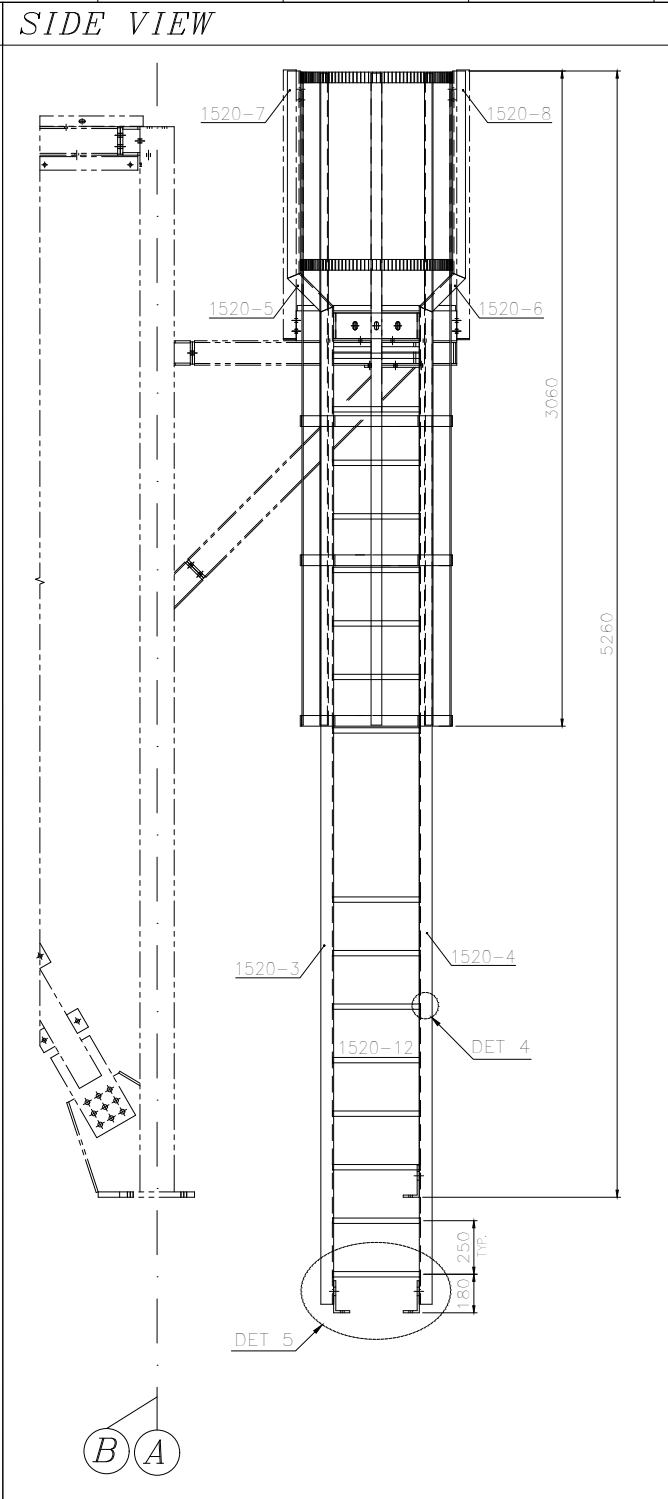
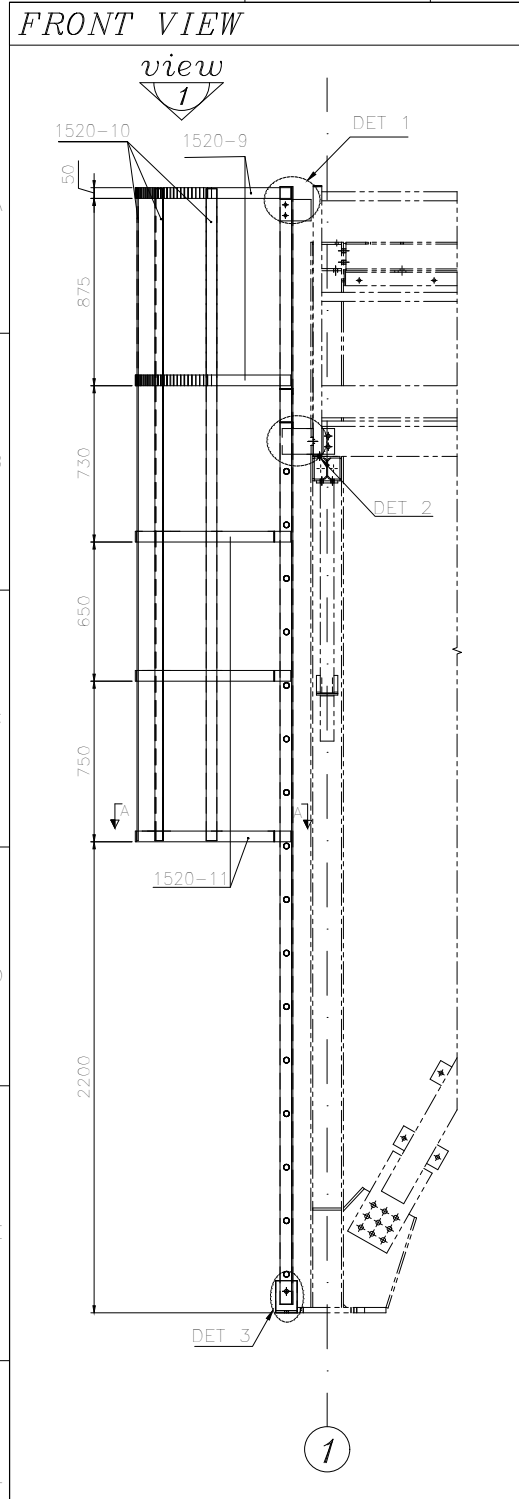
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R2	12/28/2024	ISSUED FOR APPROVAL	J.M.	J.B.L	J.B.L	AGHZ
RI	11/13/2024	ISSUED FOR APPROVAL	J.M.	J.B.L	J.B.L	AGHZ
R0	09/01/2024	ISSUED FOR APPROVAL	J.M.	J.B.L	J.B.L	AGHZ
REV	DATE	DESCRIPTION	DRAWN BY		CHECKED BY	APPROVED BY
CLIENT:			CONTRACTOR:			

PROJECT :
AIR COOLER FOR
Toase-eh Park Sanati Gohar Ofogh Petrochemical Co.

Steel Structure Drawing
1158-A01-100-00

DWG. NO.	EI027-DMF-VQ-ST-DWG-013
SCALE :	NTS
SIZE :	A1
REV. :	R3

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total ladder : 4
PART LIST For 1 ladder

PART NO	DESCRIPTION	PROFILE	DIMENSION				MATERIAL	QTY.	UNIT WEIGHT (kg)	TOTAL WEIGHT (kg)	REV.
			DIAM (mm)	LENGT H (mm)	WIDTH (mm)	THK (mm)					
1520-1	CONCTION TO WALKWAY	PLATE	613	120	10	ST-37(Painted)	1	8.1	8.1		
1520-2	EARTH SUPPORT	PLATE	215	100	10	ST-37(Painted)	2	1.7	3.4		
1520-3	STRINGER	PLATE	4120	-	-	ST-37(Painted)	1	22.3	22.3		
1520-4	STRINGER	PLATE	4120	-	-	ST-37(Painted)	1	22.3	22.3		
1520-5	STRINGER	PLATE	245	-	-	ST-37(Painted)	1	1.3	1.3		
1520-6	STRINGER	PLATE	245	-	-	ST-37(Painted)	1	1.3	1.3		
1520-7	STRINGER	PLATE	999	-	-	ST-37(Painted)	1	3.3	3.3		
1520-8	STRINGER	PLATE	869	-	-	ST-37(Painted)	1	3.3	3.3		
1520-9	TOP HOOP	PLATE	1849	50	6	ST-37(Painted)	2	4.4	8.8		
1520-10	VERTICAL BAR	PLATE	3045	50	6	ST-37(Painted)	5	7.2	36		
1520-11	BOT HOOP	PLATE	1939	50	6	ST-37(Painted)	3	4.6	13.8		
1520-12	RING	ROD22	25	410	-	ST-37(Painted)	16	1.5	24		
Total weight(kg)									149.9		

LIST of bolts & nuts 2 washer For 1 ladder

DESCRIPTION	PROFILE	DIAM (mm)	LENGT H (mm)	WIDTH (mm)	THK (mm)	MATERIAL	QTY.	UNIT WEIGHT (kg)	TOTAL WEIGHT (kg)	REV.
1598-2	for HANDRAIL CONNECTION	M12	-	-	-	DN934.8 (Diameter)	4	-	-	
1598-3	-	A13	-	-	-	DN125AST(Diameter)	8	-	-	
1598-4	-	M16	45	-	-	DN934.8 (Diameter)	3	-	-	
1598-5	for WALKWAY FRAME CONNECTION	M16	-	-	-	DN934.8 (Diameter)	5	-	-	
1598-6	-	A17	-	-	-	DN125AST(Diameter)	8	-	-	
1598-7	-	M16	45	-	-	DN934.8 (Diameter)	2	-	-	
1598-8	for CONNECTION to EARTH SUPPORT	M16	-	-	-	DN934.8 (Diameter)	2	-	-	
1598-9	-	A17	-	-	-	DN125AST(Diameter)	4	-	-	

NOTES:
 1- ALL DIMENSIONS ARE IN MILLIMETER.
 2- ALL PARTS SHALL PAINTED ACCORDING TO EIQ27-DMF-VD-QC-PRO-024
 3- BOLTS & NUTS & WASHERS SHALL BE SACROMENT IN ACCORDANCE WITH ASTM - A153 OR EN ISO 1461
 4- WELD: CONTINUOUS WELD.
 MIN. HEIGHT OF FILLET WELD = 0.7 x MIN. THK.
 < MAX. THK. < 7mm
 < MAX. THK. > 7mm

TOLERANCES
 THE FOLLOWING VALUES ARE APPLICABLE TO THE DIMENSIONS THAT ARE NOT PROVIDED WITH TOLERANCES ON DRAWING

NOMINAL DIMENSIONS PER MILLIMETER STEPS	0	201	801	2001	5001
TOLERANCES	± 2	± 3	± 5	± 6	± 7

TOLERANCE ON CENTER DISTANCES
 THE TOLERANCES SHOWN HERE ARE NOT CUMULATIVE

General Arrangement Drawing	1158-A01-1000-00	EIQ27-DMF-VD-ME-DWG-003
Steel Structure Drawing	1158-A01-1100-00	EIQ27-DMF-VD-ST-DWG-013
Header Walkway Drawing	1158-A01-1210-00	EIQ27-DMF-VD-ST-DWG-014

RI	11/13/2024	ISSUED FOR APPROVAL	J.M.	J.R.L.	J.R.L.	AGHZ
RD	10/06/2024	ISSUED FOR APPROVAL	J.M.	J.R.L.	J.R.L.	AGHZ
REV	DATE	DESCRIPTION	DRAWN BY CHECKED BY APPROVED BY FINAL APPROVED BY			

CLIENT:

CONTRACTOR:

PROJECT :
 AIR COOLER FOR
 Toase-ehe Park Sanati Goh
 Ladder Drawi
 1158-A01-

DWG. NO.: EIQ27-
SCALE : NTS **SIZE :** A3 **REV. :** RI

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