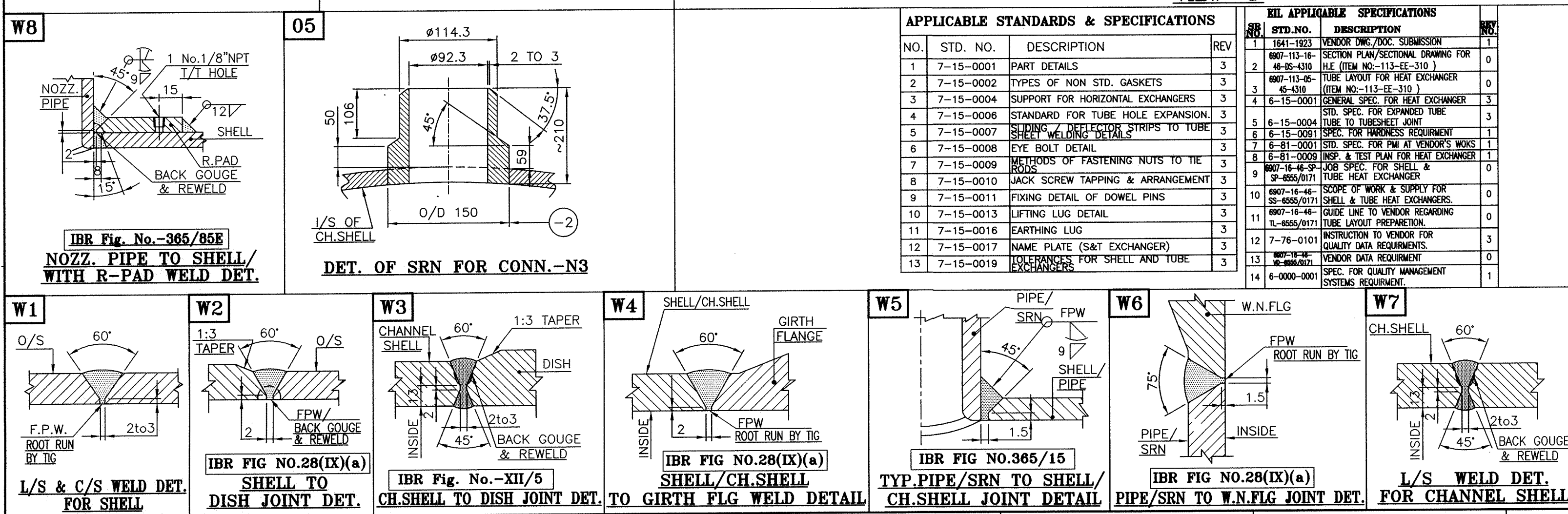
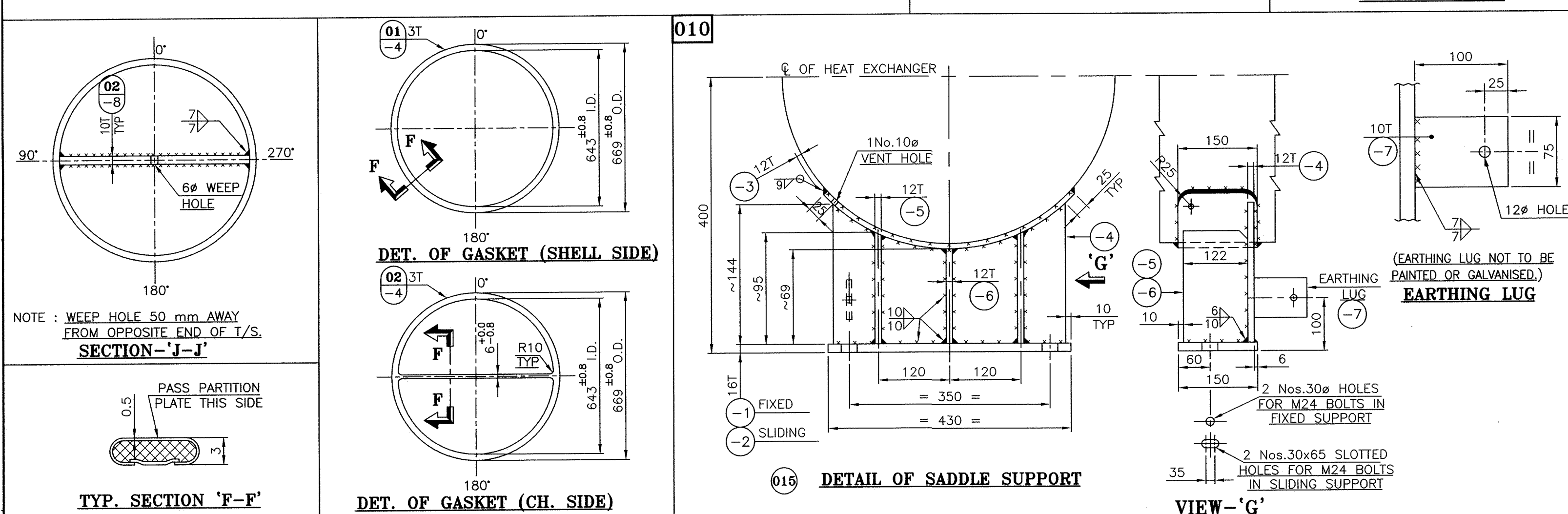
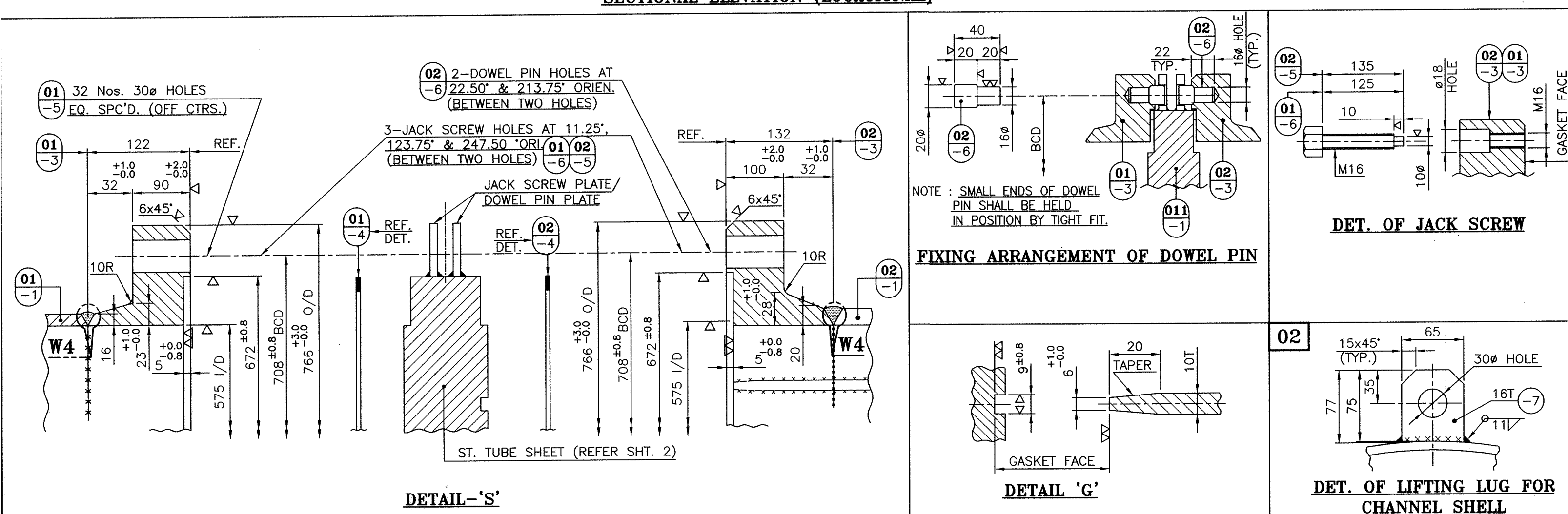
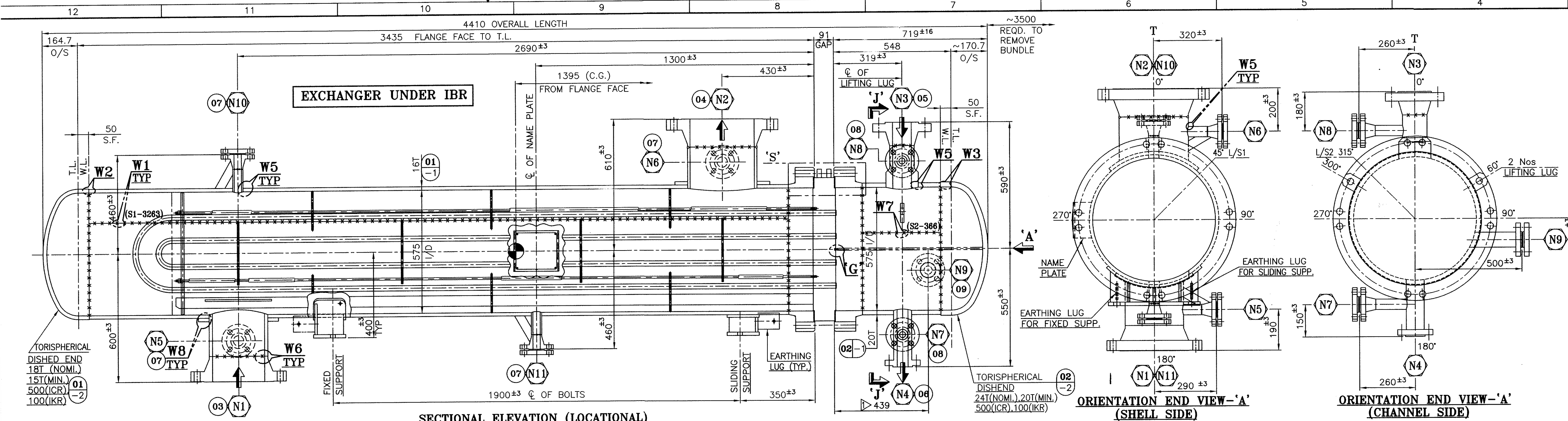




SR. NO.	BOLT SIZE	TORQUE REQ'D	DESCRIPTION
1	M27	5695.08 Lb-ft	BETWEEN P. NO. 02/-3 & 01/-3

SR. NO.	DESCRIPTION	QTY/ITEM	MATERIAL	SIZE	WEIGHT
01	NAME PLATE ASSLY	1	SA 105	10T x 75W x 100 Lg	1.20
02	TEST FLANGE ASSLY	1	SA 105	10T x 75W x 100 Lg	1.20
03	TUBE BUNDLE ASSLY	1	SA 105	10T x 75W x 100 Lg	1.20
04	EARTHING LUG	2	IS 2062 GR B	10T x 75W x 100 Lg	1.20
05	RIB PLATE	2	IS 2062 GR B	12T x 122W x 69 Lg	1.62
06	RIB PLATE	4	IS 2062 GR B	12T x 122W x 95 Lg	4.45
07	SUPPORT PLATE	2	IS 2062 GR B	12T x 144W x 410 Lg	11.34
08	PAD PLATE	2	SA 516 GR 60	12T x 150W x 490 DEV Lg	14.11
09	BASE PL. SLIDING SUPP.	1	IS 2062 GR B	16T x 150W x 430 Lg	8.26
10	BASE PL. FIXED SUPP.	1	IS 2062 GR B	16T x 150W x 430 Lg	8.26
11	SADDLE SUPPORT ASSLY	1	SA 105	10T x 75W x 100 Lg	1.20
12	STUD WITH 2HYV HEX NUT	4	SA 193 GR B/SA 194 GR 2H	3/4" UNC x 135 Lg	1.85
13	GASKET	1	SA 105	NPS 1.5 x 600 CL x B16.20	0.00
14	BLIND FLANGE	1	SA 105	NPS 1.5 x 600 CL x BLRF	7.20
15	PIPE-N8	1	SA 106 GR B	NPS 1.5 x SCH.XXS x 180 Lg	1.72
16	PIPE-N7	1	SA 106 GR B	NPS 1.5 x SCH.XXS x 200 Lg	1.91
17	FLANGE	2	SA 105	NPS 1.5 x SCH.XXS x 600 CL x WNRF	14.10
18	CONN.-N9 ASSLY	4	SA 516 GR 60	6T x 40W x 150 Lg (CUT TO SUIT)	2.30
19	STIFFENERS	8	SA 193 GR B/SA 194 GR 2H	3/4" UNC x 135 Lg	3.90
20	STUD WITH 2HYV HEX NUT	16	SA 193 GR B/SA 194 GR 2H	3/4" UNC x 115 Lg	7.00
21	GASKET	4	SA 105	NPS 1.5 x 300 CL x B16.20	0.00
22	BLIND FLANGE	4	SA 105	NPS 1.5 x 300 CL x BLRF	2.70
23	PIPE-N8	3	SA 106 GR B	NPS 1.5 x SCH.160 x 140 Lg	3.03
24	PIPE-N5	1	SA 106 GR B	NPS 1.5 x SCH.160 x 130 Lg	0.94
25	FLANGE	4	SA 105	NPS 1.5 x SCH.160 x 300 CL x WNRF	12.60
26	CONN.-N6,N10,N11 ASSLY	1	SA 105	2" I/D x 600 CL x LWN RF x 300 Lg	1.98
27	FLANGE	1	SA 105	AS PER DRG.	14.23
28	SRN	1	SA 105	NPS 4 x 11T x 600 CL x WNRF	19.10
29	CONN.-N3 ASSLY	1	SA 105	AS PER DRG.	0.00
30	R-PAD	1	SA 516 GR 60	16T x 327 I/D x 460 O/D	10.33
31	FAB. PIPE	1	SA 516 GR 60	12T x 275W x 980 DEV Lg	25.87
32	FLANGE	1	SA 105	NPS 12 x 12T x 300 CL x WNRF	64.00
33	CONN.-N2 ASSLY	1	SA 516 GR 60	16T x 276 I/D x 395 O/D	7.88
34	PIPE	1	SA 106 GR B	NPS 10 x SCH.80 x 260 Lg	21.20
35	FLANGE	1	SA 105	NPS 10 x SCH.80 x 300 CL x WNRF	42.00
36	CONN.-N1 ASSLY	1	SA 516 GR 60	10T x 575W x 693 Lg	0.00
37	PARTITION PLATE	2	SA 516 GR 60	16T x 65W x 77 Lg	1.28
38	LIFTING LUG	2	IS 2062 GR A	ø22 x 45 Lg	0.30
39	DOWEL PIN	2	IS 2062 GR A	ø22 x 45 Lg (REF. DETAIL)	0.60
40	JACK SCREW	3	IS 1367 GR 4.6	M16 x 135 Lg	0.60
41	GASKET	1	1UA	3T x AS PER DRG.	0.00
42	GIRTH FLANGE	1	SA 266 GR 4	AS PER DRG.	156.42
43	DISHEND	1	SA 516 GR 60	REQ.24T(USED 25T) x 885 B.D.	118.16
44	CHANNEL SHELL	1	SA 516 GR 60	20T x 366W x 1869 DEV. Lg	109.45
45	CHANNEL SHELL ASSLY	1	SA 516 GR 60	20T x 366W x 1869 DEV. Lg	109.45
46	DOWEL PIN	2	IS 2062 GR A	ø22 x 45 Lg	0.30
47	JACK SCREW	3	IS 1367 GR 4.6	M16 x 125 Lg (REF. DETAIL)	0.60
48	STUD WITH 2HYV HEX NUTS	32	SA 193 GR B/SA 194 GR 2H	M27 x 3P x 385 Lg (FULL THRD.)	58.36
49	GASKET	1	1UA	3T x AS PER DRG.	0.00
50	GIRTH FLANGE	1	SA 266 GR 4	AS PER DRG.	139.14
51	DISHEND	1	SA 516 GR 60	18T x 805 B.D.	73.32
52	MAIN SHELL	1	SA 516 GR 60	16T x 3263W x 1857 DEV. Lg	775.60

DESIGN DATA		CONST. CODE	
DESIGN PRESSURE	DESIGN TEMPERATURE	ASME SECT.VIII DIV-1, ED.2007+ TEMA CLASS-R	IBR 1950 TO AMENDMENT UPTO 2010 (TUBE SIDE)
kgf/cm ² (g)	°C		
39.00	250.0		
5.01	400.0		
34.9/235.0	380.0/249.3		
50.7	69.0		
3.0	3.0		
0.85	0.85		
SPOT	FULL		
REGENERATION GAS	HP STEAM		
ONE	TWO		
°C	1		
ONE	ONE		
ONE	ONE		

NOZZLES DATA		SERVICE		RF PAD		REMARK	
MARK	QTY	SIZE (NPS)	SCH. THK.	ASME B16.5 FLANGE CLASS TYPE	FACE	FINISH	REMARK
N1	1	10	80	15.09	300	WN	RF
N2	1	12	-	12	300	WN	RF
N3	1	4	-	11	600	WN	RF
N4	1	2" I/D	-	16.67	600	LWN	RF
N5,N6	2	1.5	160	7.14	300	WN	RF
N7-N8	2	1.5	XXS	10.16	600	WN	RF
N9	1	1.5" I/D	-	15.87	600	LWN	RF
N10	1	1.5	160	7.14	300	WN	RF
N11	1	1.5	160	7.14	300	WN	RF

GEN. NOTES :-

MATERIAL

M1) ALL PRESSURE BEARING PLATES & PLATE WELDED TO PRESSURE PART SHALL BE IN NORMALIZED CONDITION.

M2) THE CARBON CONTENT FOR PLATES SHALL NOT EXCEED 0.23% & CARBON EQU. SHALL NOT EXCEED 0.43%.

M3) ALL TUBES SHALL BE COLD DRAWN, SEAMLESS, SINGLE PIECE AND IN ANNEALED CONDITION.

M4) ALL FASTENERS FOR NOZZLES FLANGES SHALL BE UNC STUD BELOW 1" AND UNB SERIES STUDS FOR 1" AND ABOVE SIZES. NUT SHALL BE HEAVY SERIES.

M5) MANDATORY SPARE :- FASTENERS-20% OF FASTENERS (MINIMUM 4 SET OF STUD WITH TWO HEX NUT) GASKET-400% GASKET FOR EACH ORTH FLG. & NOZZ. WITH BLIND FLG.

M6) PRESSURE BEARING PLATES HAVING 16mmTHK. TO 50mm. (BOTH INCLUSIVE) SHALL BE UT TESTED AS PER SA-435.

M7) FOR NON-PRESSURE PARTS,CS PLATES SHALL BE MINIMUM IS-2062 OR SA283 GR C OR EQUIVALENT. PIPES SHALL BE TO IS1239 OR SA53 OR EQUIVALENT.

M8) PAINT SYSTEM:- a) C.S.EXTERNAL SURFACES SHALL BE BLAST CLEANED AS PER SSPC-SP-10/SA 2-1/2 SWEDISH STD.SIS-05-5900. b) PRIMER-ONE COAT OF INORGANIC ZINC SILICATE Ø65-75 MICRON DRY FILM THICKNESS. c) GASKET FACE, OTHER MACHINED SURFACES & EARTHING LUG NOT TO BE PAINTED. d) ALL MACHINED SURFACES SHALL BE SUITABLY PROTECTED WITH RUST PREVENTIVE COATING AFTER MACHINING.

M9) EXCHANGER WILL BE SUBJECTED TO DRY OUT CONDITION Ø7.5 kg/cm² & 80°C.

M10) ALL FLANGES UP TO 24 NPS SHALL BE AS PER ASME B 16.5 & ALL FLANGES FACE FINISH SHALL BE 125 AARH.

M11) U-BEND PLUS 300 mm STRAIGHT LENGTH BEYOND THE POINT OF TANGENCY SHALL BE STRESS RELIEVED.

M12) FORGINGS TO SA 266 GR 4 ABOVE 75 MM THK & ALL TUBES/LET FORGINGS SHALL BE 100% ULTRASONICALLY TESTED AS PER SA 388. ACCEPTANCE CRITERIA SHALL BE AS PER PARA AM 203.2 OF ASME SECT.VIII DIV.2.

M13) ALL NON STD FORGINGS (SA 266 GR 4) SHALL BE NORMALISED & TEMPERED CONDITION.

M14) THE REQUIREMENT OF UCS-66 OF ASME VIII DIV-I SHALL BE APPLIED FOR ALL CS MATERIAL.

FABRICATION

F1) ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SHOWN & TOLERANCE SHALL BE AS PER EIL SPEC. 7-15-0019 R3.

F2) ALL NOZZLES BOLT HOLES TO STRADDLE EQUIPMENT MAIN AXES UNLESS OTHERWISE SHOWN.

F3) ALL NOZZLE <500N ARE TO BE BRACED BY 2-6T/40W STIFFENERS LOCATED 90° APART ON SUIT.ORE.

F4) ID OF WN FLANGES SHALL MATCH WITH CORRESPONDING ID OF NOZZLE FLG.

F5) ALL SHARP CORNERS SHALL BE ROUNDED OFF TO SMOOTH RADIUS.

F6) WELDING TO BE DONE AS PER APPROVED WELDING PROCEDURE AND WELD TEST PLAN.

F7) ROLLING OF PLATES SHALL BE IN THE LONGITUDINAL DIRECTION OF PLATES.

F8) L/S SHALL BE STAGGERED WITH CIRCUMFERENTIAL DISTANCE BETWEEN THE CENTRES OF WELD BEING AT LEAST 5 TIMES THE THICKNESS OF THE THICKER PLATE.

F9) a) POST WELD HEAT TREATMENT CYCLE FOR CH. ASSLY. b) MIN. HOLDING TIME : 50 MINUTES(Min.) c) COOLING RATE : 200°C/Hr. UP TO 300°C THEN COOL IN STILL AIR.

F10) DELETED.

F11) 'T' DENOTES MACH MARK FOR ASSLY SHALL BE PUNCHED ON ALL MATING PARTS.

F12) THE EQUIPMENT ITEM NO., P.O. NO., AND PURCHASER NAME AND ADDRESS SHALL BE PAINTED IN BOLD LETTERS WRITTEN WITH STENCIL, ON THE HEAT EXCHANGER.

F13) IN ADDITION TO STAMPING, SPEC. & MFR. SYMBOL AS SPECIFIED IN ASME MATERIAL SPEC. ON ONE OF ENDS THE SIZE OF STUD SHALL BE CLEARLY PUNCH MARKED. SIMILARLY SIZE SHALL BE PUNCH ON ONE OF THE FACE OF NUT. ALL ALLOY STEEL STUD/NUTS SHALL BE IDENTIFIED BY RED COLOUR MARKING AT THE STUD END/FACE OF NUT.

GENERAL ARRANGEMENT AND OTHER DETAIL FOR DRYER REGENERATION GAS HEATER

ITEM No : 113-EE-310 TYPE BEU (H)