

STANDARDIZED FORM BY EP-2B-0001 - FIGURE A22

D				E				F				G							
B S D L				NOMINAL SIZE				26"	28"	30"	32"	34"	36"	38"	40"	42"	44"	46"	48"
				WEIGHT (N)															
DESCRIPTION	DRAWING NUMBER	REV																	
1	BELL MOUTH DL ASSEMBLY	I-DE-3010.00-1300-279-PPC-300	rev. B							1							1	1	
2	WELDING OF THE MAIN STRUCTURE (BSDL)	I-DE-3010.00-1300-279-PPC-301	rev. B							1							1	1	
3	CENTRAL STRUCTURE	I-DE-3010.00-1300-279-PPC-302	rev. A							1							1	1	
B S D L - COMMON PARTS																			
7	ROUND BLOCK	I-DE-3010.00-1300-279-PPC-305	rev. B							6							8	8	
8	LATCH BAR	I-DE-3010.00-1300-279-PPC-306	rev. B							6							8	8	
9	AXIS	I-DE-3010.00-1300-279-PPC-307	rev. A							6							8	8	
10	REACTION BLOCK	I-DE-3010.00-1300-279-PPC-308	rev. A							6							8	8	
11	STRUCTURAL WASHER	I-DE-3010.00-1300-279-PPC-309	rev. 0							12							16	16	
12	SPRING	I-DE-3010.00-1300-279-PPC-310	rev. B							12							16	16	
13	CENTRALISER	I-DE-3010.00-1300-279-PPC-311	rev. 0							6							8	8	
14	HANDLER	I-DE-3010.00-1300-279-PPC-312	rev. C							6							8	8	
15	SLIDING PLATE	I-DE-3010.00-1300-279-PPC-313	rev. 0							12							16	16	
16	PIVOT BOLT	I-DE-3010.00-1300-279-PPC-314	rev. 0							12							16	16	
17	CLIP	I-DE-3010.00-1300-279-PPC-315	rev. A							6							8	8	
18	BRACER ASSEMBLY	I-DE-3010.00-1300-279-PPC-316	rev. A							1							1	1	
19	1/2 BRACER	I-DE-3010.00-1300-279-PPC-317	rev. A							2							2	2	
20	EYE PLATE	I-DE-3010.00-1300-279-PPC-318	rev. A							6							8	8	
25	BOLTS	I-DE-3010.00-1300-279-PPC-330	rev. A							20							24	24	
BSDL x FPSO INSTALLATION PARTS AND FAT PART																			
35	TRANSITION CONNECTION OF I- TUBE	I-DE-3010.00-1300-279-PPC-320	rev. A							1							1	1	
36	ALIGNMENT RING	I-DE-3010.00-1300-279-PPC-321	rev. 0							1							1	1	
37	DUMMY CAP	I-DE-3010.00-1300-279-PPC-323	rev. A							1							1	1	
INTERFACE PROFILE FOR BEND STIFFENER DESIGN																			
40	CAP DL	I-DE-3010.00-1300-279-PPC-325	rev. A							1							1	1	
B S D L - FIXATIONS ELEMENTS																			
DESCRIPTION	DIA	LENGHT	MATERIAL	REV															
46	HEAVY HEX NUT - 20UNEF-2B	1"	ASTM A 325 CADMIUM or ZINC-NICKEL PLATING							12							16	16	
47	SOCKET HEAD SCREW - 18UNC-2A	5/16"	3/8"	ASTM A 325 CADMIUM or ZINC-NICKEL PLATING						12							16	16	
48	FULLY THREADED STUD - 9UNC-2A	7/8"	7"	ASTM A 325 CADMIUM or ZINC-NICKEL PLATING						4							4	4	
49	HEX NUT - 9UNC-2B	7/8"		ASTM A 325 CADMIUM or ZINC-NICKEL PLATING						16							16	16	
50	HEX HEAD SCREW - 8UNC-2A	1"	2.1/2"	ASTM A 325 CADMIUM or ZINC-NICKEL PLATING						2							2	2	
51	HEX NUT - 8UNC-2B	1"		ASTM A 325 CADMIUM or ZINC-NICKEL PLATING						2							2	2	
52	HEX NUT - 24UNF-2B	3/8"		ASTM A 325 CADMIUM or ZINC-NICKEL PLATING						12							16	16	
53	HEX JAM NUT - 24UNF-2B	3/8"		ASTM A 325 CADMIUM or ZINC-NICKEL PLATING						6							8	8	
54	HEX HEAD SCREW - 24UNF-2A	3/8"	3/4"	ASTM A 325 CADMIUM or ZINC-NICKEL PLATING						12							16	16	
BSDL - ELECTRIC ELEMENTS																			
DESCRIPTION	MATERIAL	REV																	
60	ELECTRIC RING TERMINAL - 1	ELECTROLYTIC COPPER CABLE ANNELING SOFT QUENCH, SECTION 10mm2, 0,8/1,0kV,WITH POLYETHYLENE ISOLATION OF HIGH MOLECULAR WEIGHT, ASTM-D-1248, TYPE 1, CLASS C, GAGE 5,LENGHT=710mm.								6							8	8	
BSDL - ELECTRIC ELEMENTS																			
DESCRIPTION	MATERIAL	REV																	
61	ELECTRIC RING TERMINAL - 2	ELECTROLYTIC COPPER CABLE ANNELING SOFT QUENCH, SECTION 10mm2, 0,8/1,0kV,WITH POLYETHYLENE ISOLATION OF HIGH MOLECULAR WEIGHT, ASTM-D-1248, TYPE 1, CLASS C, GAGE 5,LENGHT=480mm.								6							8	8	

REFERENCE DOCUMENTS				
MODEL BSDL: I-DE-3010.00-1300-279-PPC-300 I-ET-3010.00-1300-279-PPC-301 ET-3010.00-1300-279-PPC-302 ET-3010.00-1300-279-PPC-303 ET-3010.00-1300-279-PPC-304				

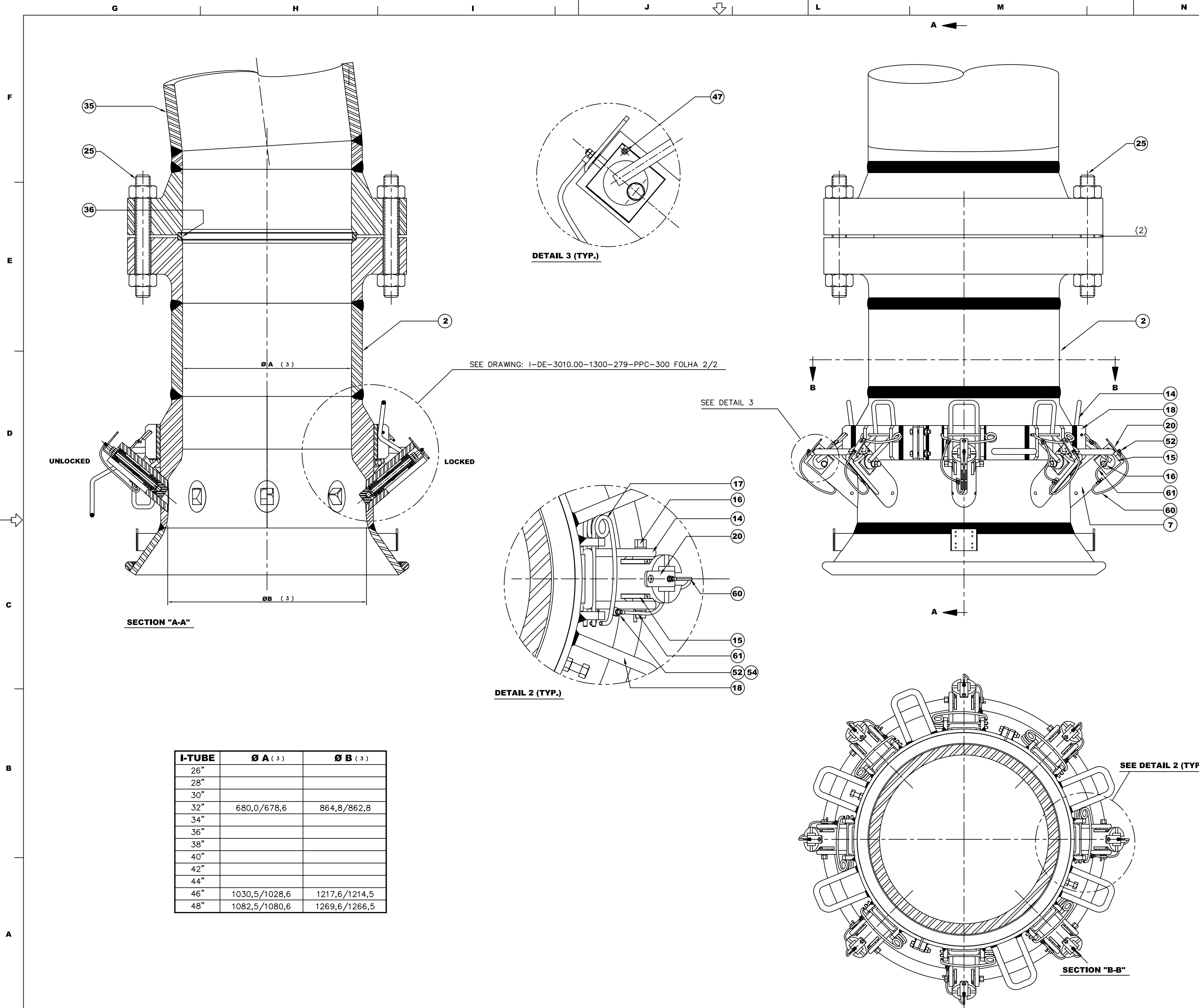
GENERAL NOTES

REV.	DESCRIPTION	DATE	EXEC.	CHECK	APPROV.
D	HANDLER LENGTH	NOV 17,2017	PDDP/DTUT	BRUNO PINHO	VINICIUS
C	GENERAL REVISION	JUL 18,2017	PDDP/DTUT	BRUNO PINHO	VINICIUS
B	GENERAL REVISION	JUN 01,2017	PDDP/DTUT	BRUNO PINHO	VINICIUS
A	GENERAL REVISION	MAY 08,2017	PDDP/DTUT	BRUNO PINHO	VINICIUS
0	ORIGINAL		PDDP/DTUT	CAPLONCH	VINICIUS

THE DATA, OR PART THEREOF ARE PETROBRAS PROPERTY AND THUS MUST NOT BE USED IN ANY WAY WITHOUT PERMISSION



CLIENT OR USER		E & P	
JOB OR PROJECT		FPSO UNIT	
AREA OR UNIT		PRODUCTION	
TITLE			
BSDL PART LIST			
DESIGN	PDDP/DTUT	DRAWN	PDDP/DTUT
APPROVAL	VINICIUS	SIZE	A3
DATE	APR 04,2017	SCALE	WITHOUT SCALE
		CHECK	BRUNO PINHO
		SHEET	1 of 2
No. I-LI-3010.00-1300-279-PPC-300			



I-TUBE	Ø A (3)	Ø B (3)
26"		
28"		
30"		
32"	680,0/678,6	864,8/862,8
34"		
36"		
38"		
40"		
42"		
44"		
46"	1030,5/1028,6	1217,6/1214,5
48"	1082,5/1080,6	1269,6/1266,5

**REFERENCE DOCUMENTS**

RELATED ASSEMBLY:  
 I-ET-3010.00-1300-279-PPC-302  
 I-LI-3010.00-1300-279-PPC-301

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**GENERAL NOTES**

(1) - GENERAL ANTI-FOULING PAINT AS PER ET EXCEPT WHERE PTFE IS APPLIED.  
 (2) - DO NOT PAINT THE FACES OF BOTH FLANGES.  
 (3) - AFTER PAINTING

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B	GENERAL REVISION	JAN 08,2017	PDDP/TDUT	BRUNO	VINICIUS
A	GENERAL REVISION	MAY 08,2017	PDDP/TDUT	BRUNO	VINICIUS
O	ORIGINAL		PDDP/TDUT	CAPLLONCH	VINICIUS
REV.	DESCRIPTION	DATE	EXEC.	CHECK	APPROV.

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**PETROBRAS** **PETROLEO BRASILEIRO S.A.** **CENPES**

CLIENT OR USER: **E & P**

JOB OR PROJECT: **FPSO UNIT**

AREA OR UNIT: **PRODUCTION**

TITLE: **BELL MOUTH DL ASSEMBLY**

DESIGN	PDDP/TDUT	DRAWN	PDDP/TDUT	CHECK	CAPLLONCH	APPROVAL	VINICIUS
SCALE	without scale	SIZE	A1	CC		SHEET	1 of 2
DATE	DEC 14,2016	No.	I-DE-3010.00-1300-279-PPC-300				

300-BEL-MOUTH DL ASSEMBLY (2016) (REV.04)

D

E

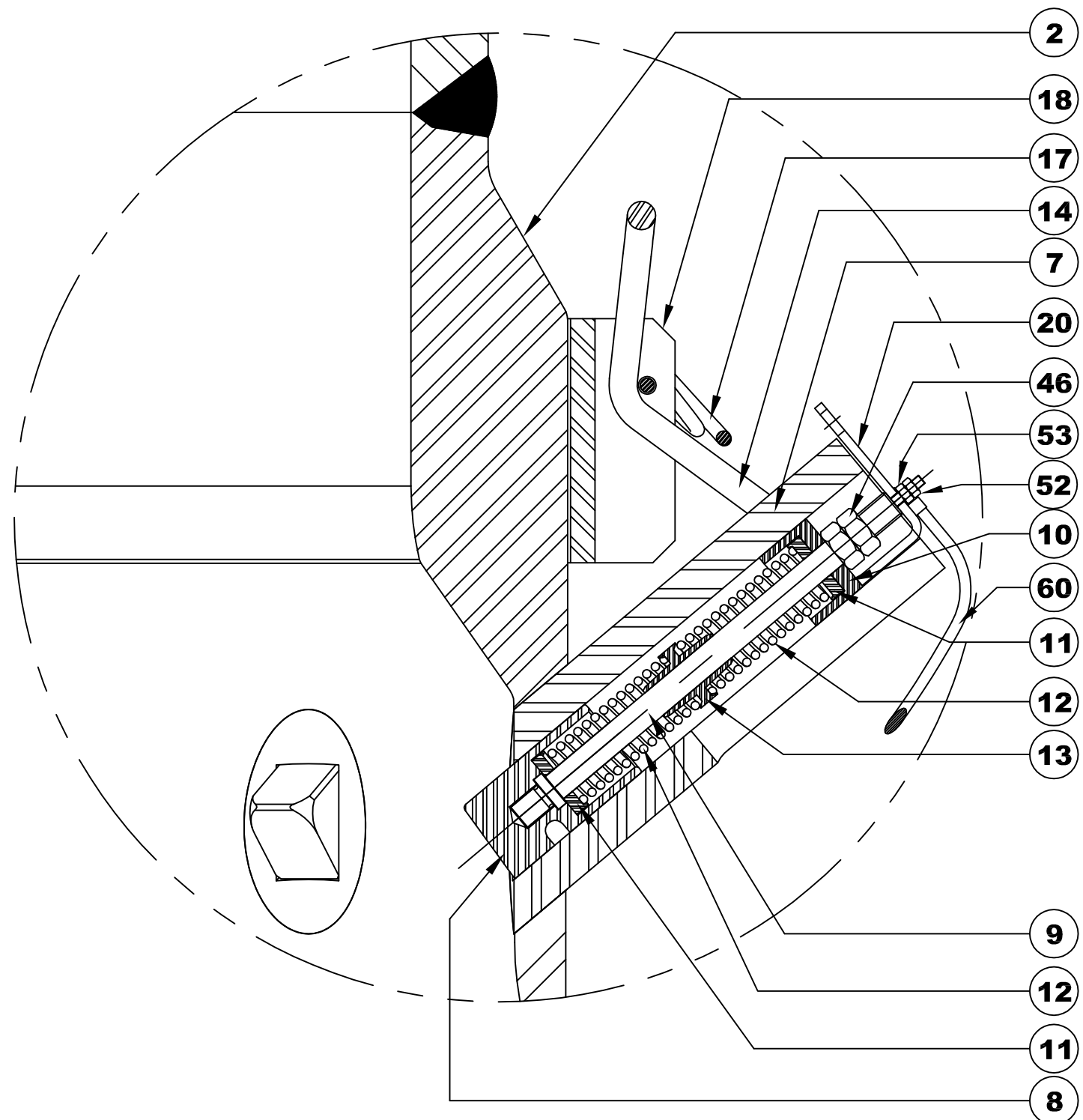
F

G

C

B

A



REFERENCE DOCUMENTS

GENERAL NOTES

REV.	DESCRIPTION	DATE	EXEC.	CHECK	APPROV.
B	GENERAL REVISION	JUN 07,2017	PDDP/TDUT	BRUNO PINHO	VINIUS
A	GENERAL REVISION	MAY 09,2017	PDDP/TDUT	BRUNO PINHO	VINIUS
0	ORIGINAL		PDDP/TDUT	CAPLLONCH	VINIUS

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PETROLEO BRASILEIRO S.A. <b>PETROBRAS</b>	CENPES
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CLIENT OR USER E & P

JOB OR PROJECT FPSO UNIT

AREA OR UNIT PRODUCTION

TITLE BELL MOUTH DL ASSEMBLY

DESIGN PDDP/TDUT DRAWN PDDP/TDUT CHECK CAPLLONCH

APPROVAL VINIUS SIZE A3 CC

DATE FEB 24,2017 SCALE s/esc. SHEET 2 of 2

No. I-DE-3010.00-1300-279-PPC-300

MATERIAL	WEIGHT	RUGOSITY (Ra)	SURFACE COATING TREATMENT														
LINEAR DIMENSIONS NOT INDICATED - BOILERMAKING			LINEAR DIMENSIONS NOT INDICATED - MACHINING														
DIMENSIONS (mm)	DE 2 a ≤30	>30 a ≤120	>120 a ≤400	>400 a ≤1000	>1000 a ≤2000	>2000 a ≤4000	>4000 a ≤8000	>8000 a ≤12000	DIMENSIONS (mm)	DE 0,5 a ≤3	>3 a ≤6	>6 a ≤30	>30 a ≤120	>120 a ≤400	>400 a ≤1000	>1000 a ≤2000	>2000 a ≤4000
TOLERANCES	±1	±3	±4	±6	±8	±11	±14	±18	LENGHT	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0	±3,0	±4,0
									DIAMETER	±0,1	±0,1	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0

STANDARDIZED FORM BY EP-2B-0001 - FIGURE A22

E

F

G

H

I

REFERENCE DOCUMENTS

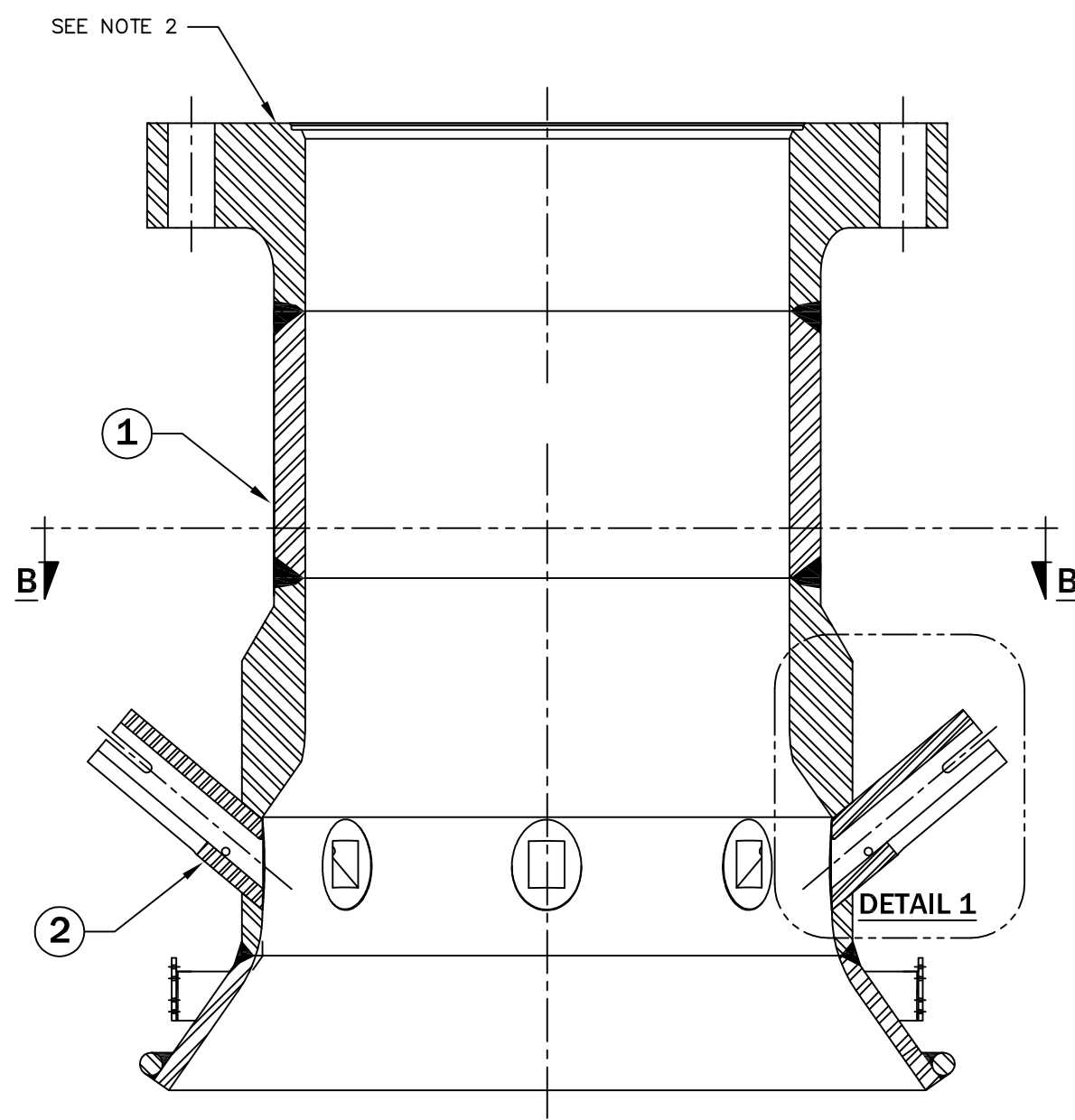
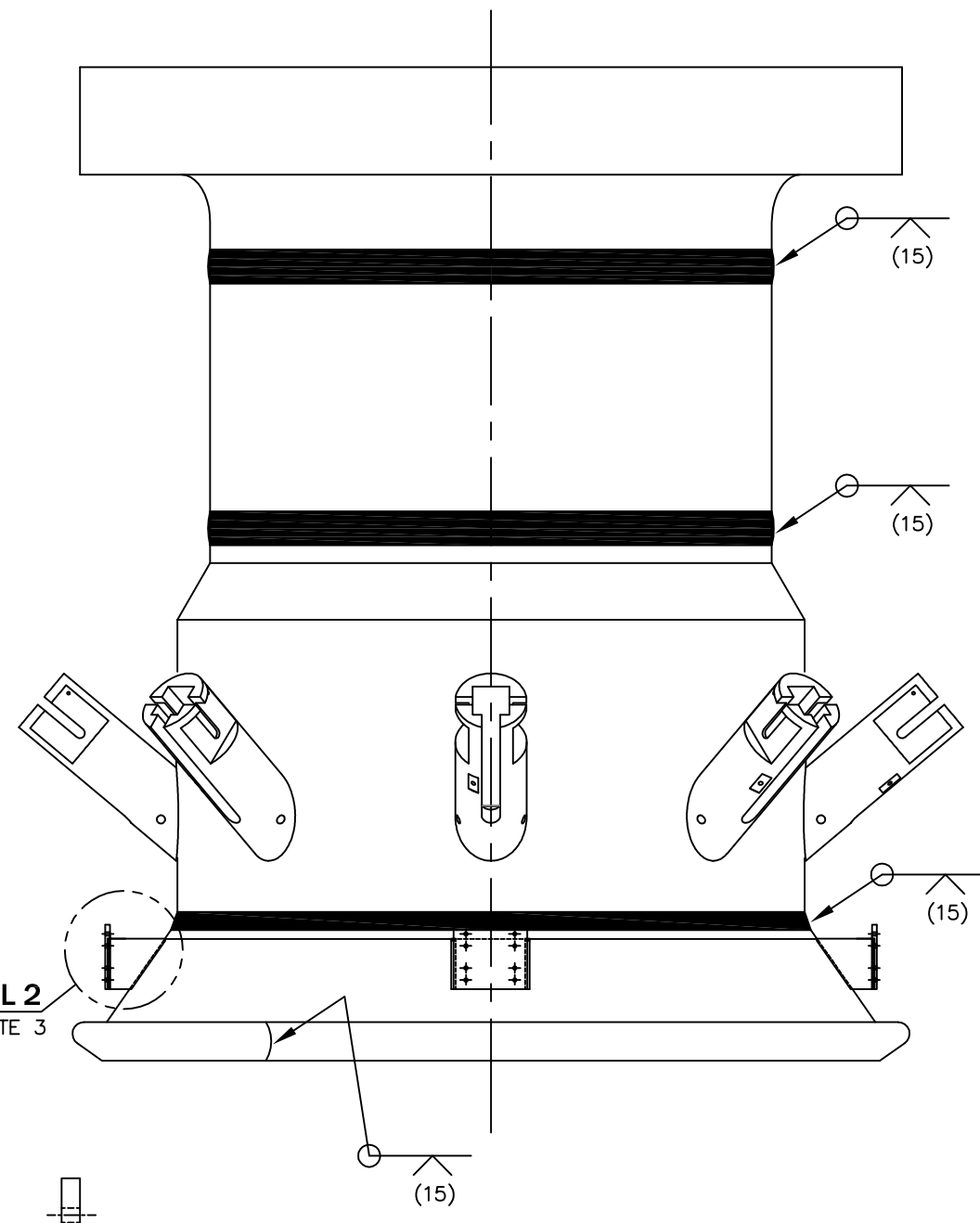
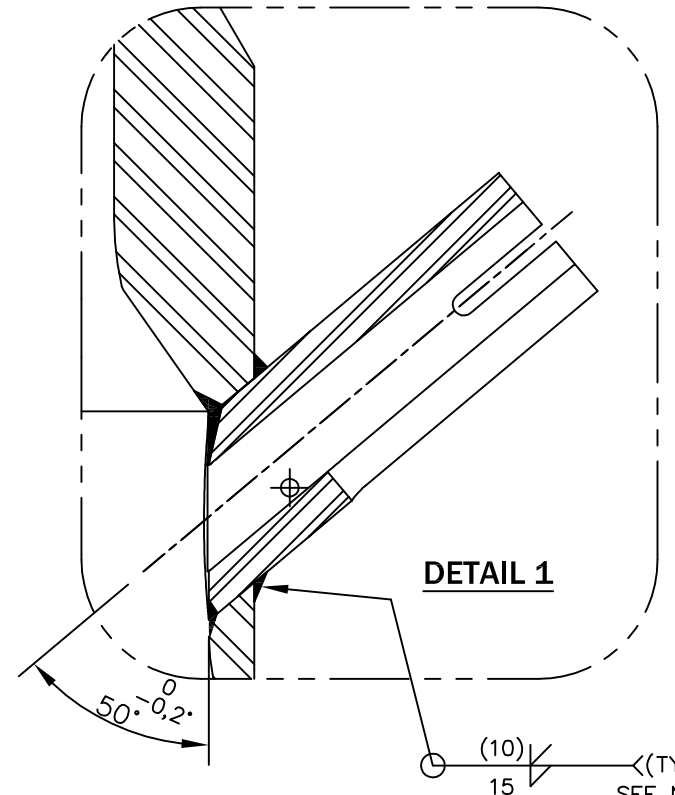
NEXT ASSEMBLY:  
I-DE-3010.00-1300-279-PPC-300

GENERAL NOTES

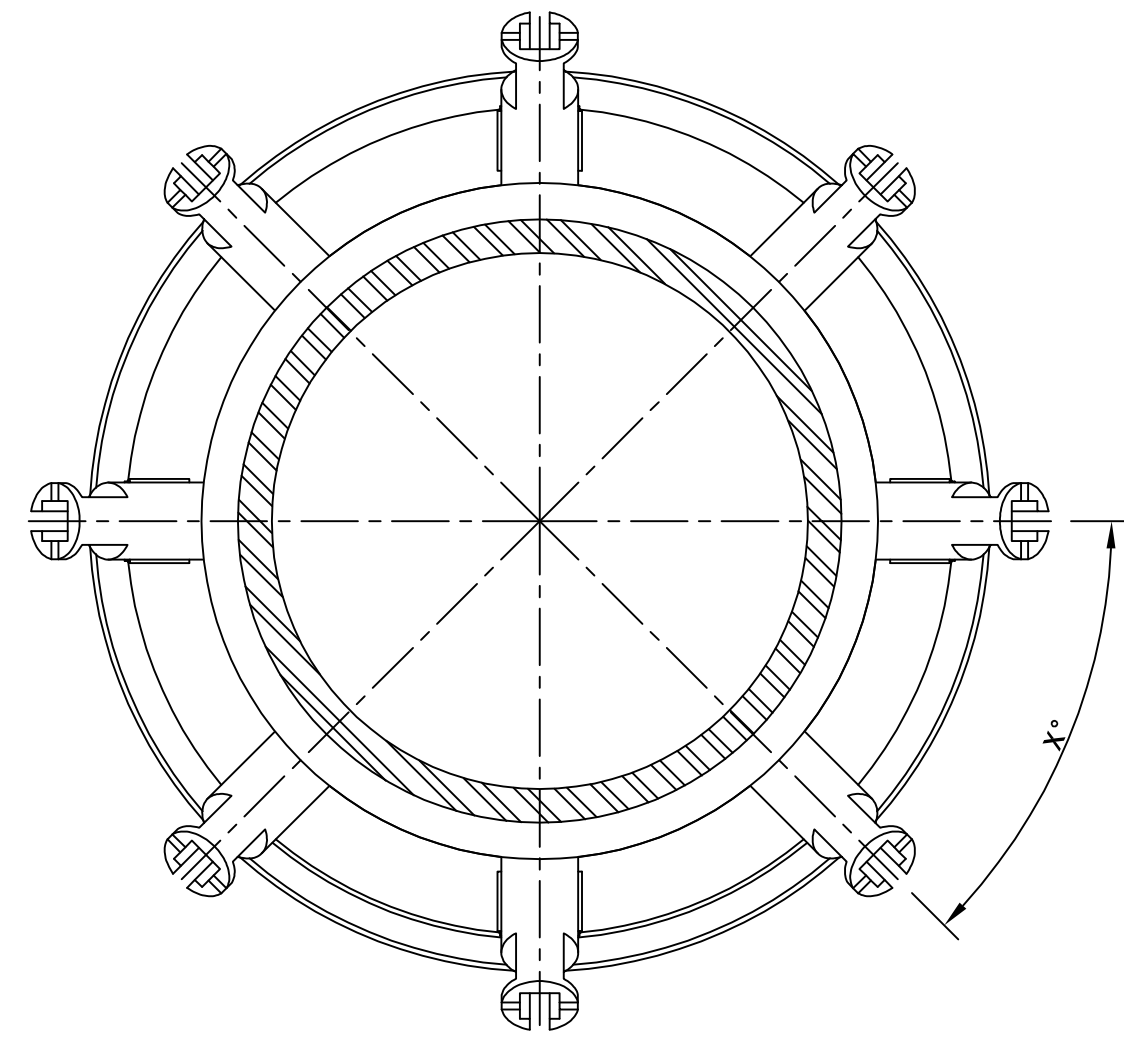
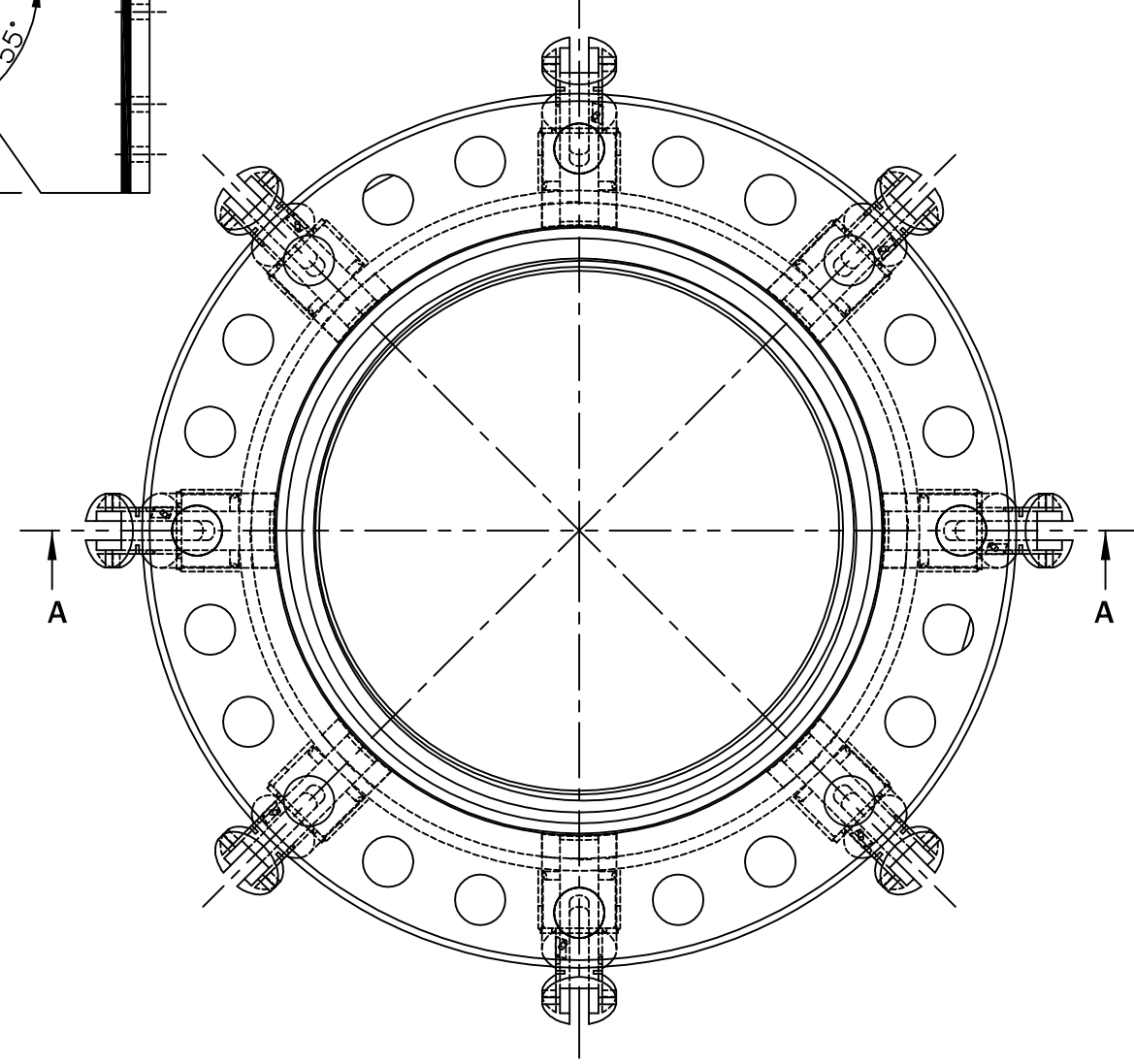
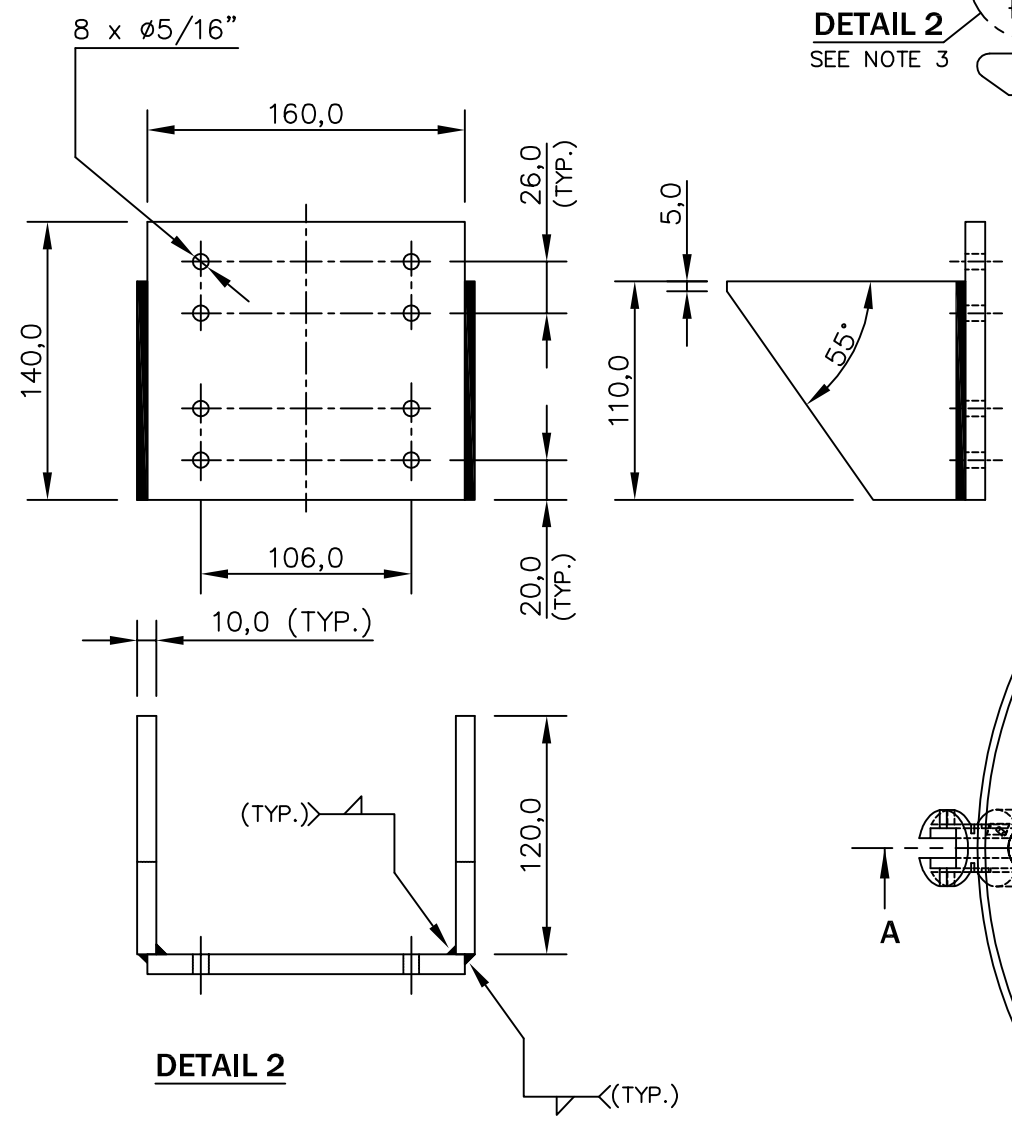
- 1 - ROUND EXTERNAL FILLET AFTER WELDING, R=3,2um.
- 2 - DO NOT PAINT THIS FACE.
- 3 - FOUR CAMERA SUPPORTS EQUALLY SPACED (90°).

MATERIAL:

- ① - CENTRAL STRUCTURE = I-DE-3010.00-1300-279-PPC-302
- ② - ROUND BLOCK = I-DE-3010.00-1300-279-PPC-305



SECTION "A-A"



SECTION "B-B"

B	GENERAL REVISION	JUN 01,2017	PDDP/TDUTBRUNO PINHO	VINICIUS
A	GENERAL REVISION	MAY 10,2017	PDDP/TDUTBRUNO PINHO	VINICIUS
0	ORIGINAL		PDDP/TDUTCAPLONCH	VINICIUS
REV.	DESCRIPTION	DATE	EXEC.	CHECK APPROV.

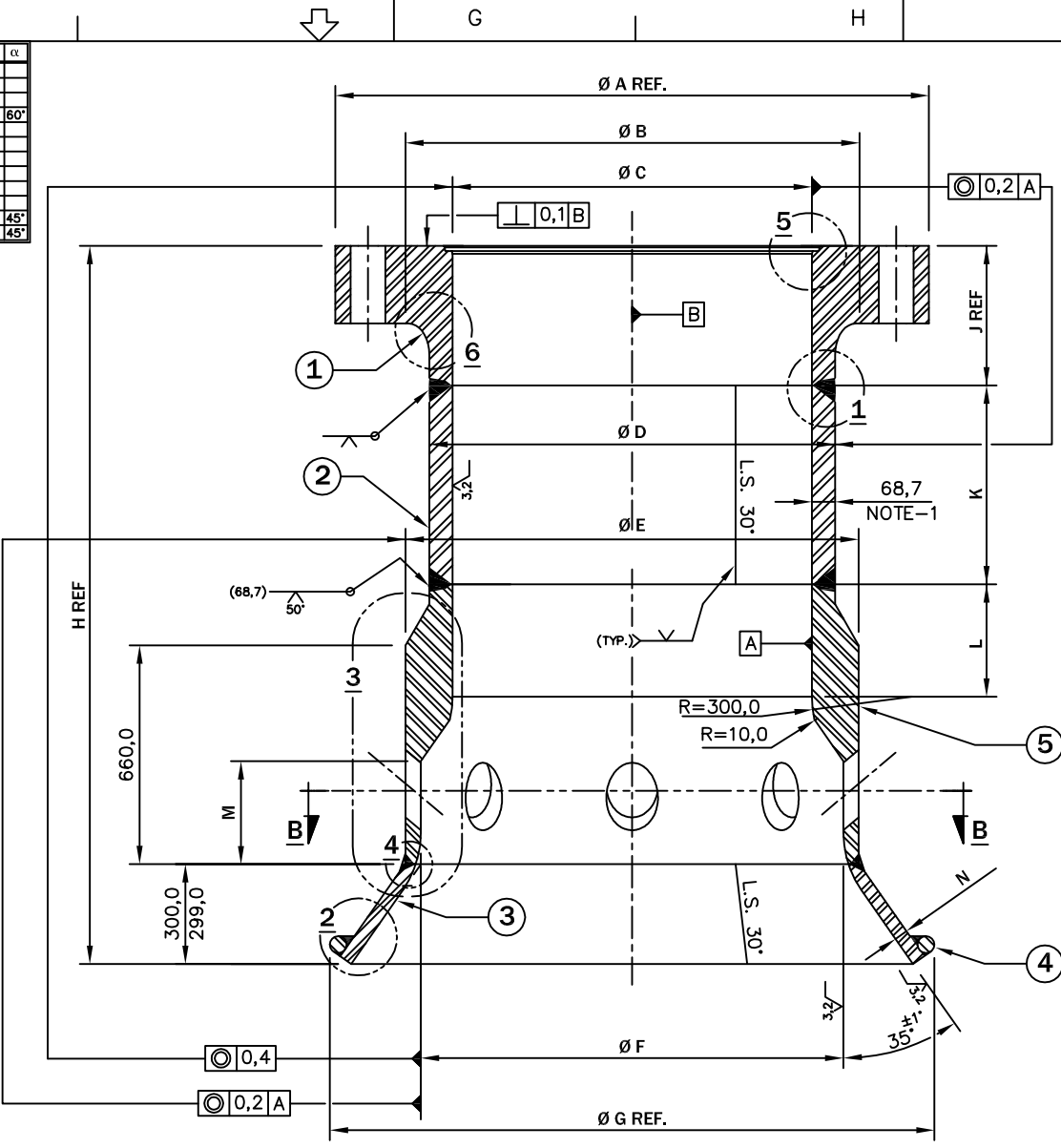
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<b>BR</b> PETRÓLEO BRASILEIRO S.A. <b>PETROBRAS</b>		CENPES		
CLIENT OR USER		<b>E &amp; P</b>		
JOB OR PROJECT		<b>FPSO UNIT</b>		
AREA OR UNIT		<b>PRODUCTION</b>		
TITLE		<b>WELDING OF THE MAIN STRUCTURE</b>		
DESIGN	PDDP/TDUT	DRAWN	PDDP/TDUT	CHECK
SCALE	1:15	SIZE	A2	CC
DATE	DEC 14,2016	No.	I-DE-3010.00-1300-279-PPC-301	
		SHEET 1 of 1		

MATERIAL	WEIGHT	RUGOSITY (C.L.A)	SURFACE COATING TREATMENT
LINEAR DIMENSIONS NOT INDICATED - BOILERMAKING		LINEAR DIMENSIONS NOT INDICATED - MACHINING	
DIMENSIONS (mm)	DE 2 ≤30 ≤120 ≤400 ≤1000 ≤2000 ≤4000 ≤8000 ≤12000	>30 >120 >400 >1000 >2000 >4000 >8000 >12000	DIMENSIONS (mm) DE 0,5 ≤3 ≤6 ≤30 ≤120 ≤400 ≤1000 ≤2000 ≤4000
TOLERANCES	±1 ±3 ±4 ±6 ±8 ±11 ±14 ±18		LENGHT ±0,2 ±0,3 ±0,5 ±0,8 ±1,2 ±2,0 ±3,0 ±4,0 DIAMETER ±0,1 ±0,1 ±0,2 ±0,3 ±0,5 ±0,8 ±1,2 ±2,0

STANDARDIZED FORM BY EP-2B-0001 - FIGURE A30

I-TUBE	Ø A REF.	Ø B	Ø C	Ø D	Ø E	Ø F	Ø G	H	J Ref	K	L	M	N	Ø P	Ø S	U	X	α	
26"																			
30"																			
32"	1314,45	946,15	680,0/681,0	818,7/815,9	934,0/933,0	864,2/865,8	1394,0	1690,0	330,20	240,0	370,0	260,0	35,0	145,145/145,305	740,0/740,5	633,0	8	60°	
34"																			
36"																			
38"																			
40"																			
42"																			
44"																			
46"	1733,55	1292,35	1030,0/1031,5	1169,9/1166,4	1314,3/1313,0	1215,9/1218,6	1769,0	2156,0	410,97	600,0	345,0	318,5	40,0	155,145/155,305	1090,0/1090,5	605,0	8	45°	
48"	1784,35	1343,15	1082,0/1083,5	1221,9/1218,4	1366,3/1365,0	1267,9/1270,6	1816,0	2154,0	419,10	590,0	345,0	318,5	40,0	155,145/155,305	1140,0/1140,5	607,0	8	45°	

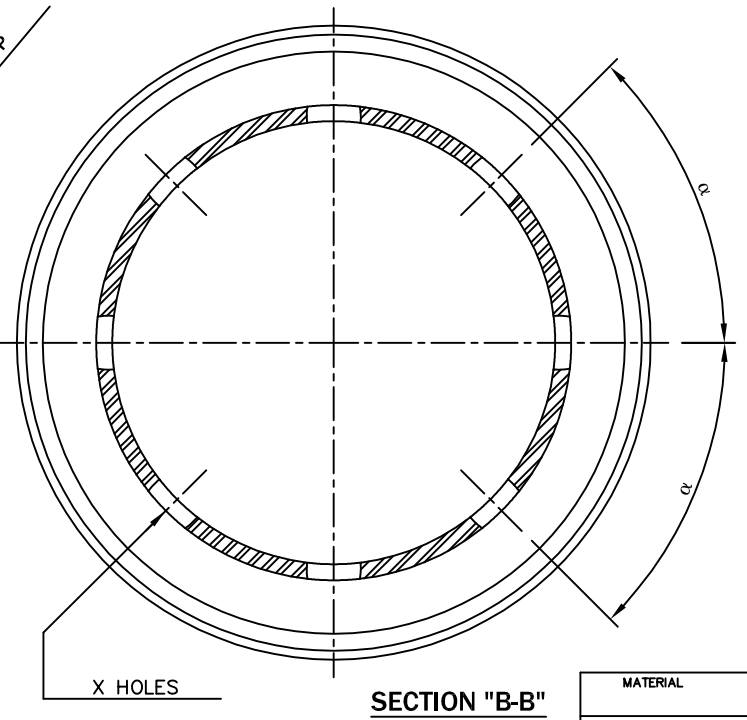
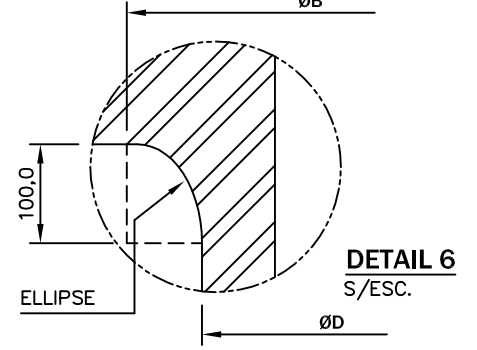
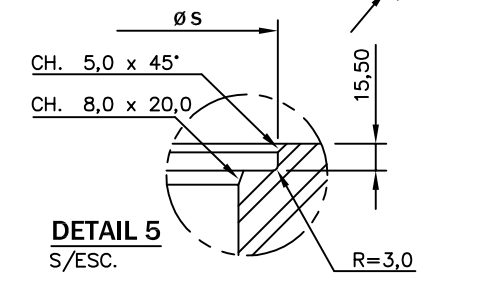
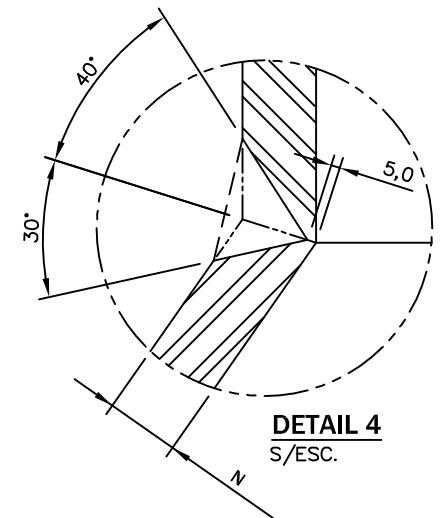
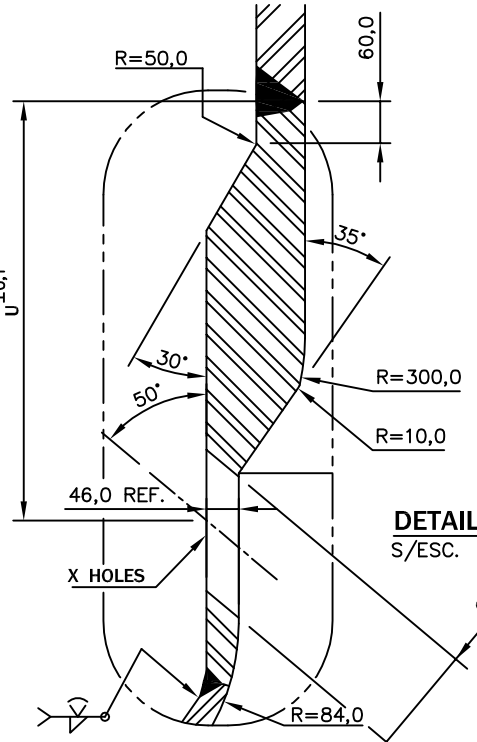
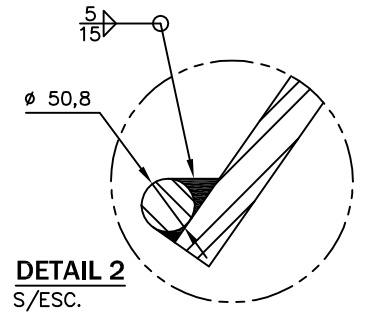
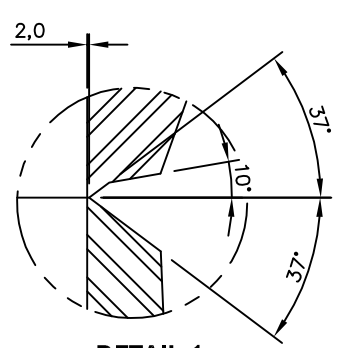


REFERENCE DOCUMENTS			
NEXT ASSEMBLY: I-DE-3010.00-1300-279-PPC-300			

GENERAL NOTES

NOTE:  
1 - MINIMUM THICKNESS ACCEPTED BY MACHINING: 67,45 mm.

- MATERIAL:
- ① - FLANGE ASTM A-105  
- DIMENSIONAL AS PER STANDARD ASME B16.47 CLASS 900 SERIE A  
- NOMINAL SIZE: SEE I-TUBE CONFIGURATION  
- MODIFIED NECK (ELLIPSOID HUB) AS SHOWN IN DETAIL 6
  - ② - TUBE: ASTM DH 36
  - ③ - CONE: ASTM DH 36
  - ④ - RING: SAE 1020
  - ⑤ - TUBE: ASTM A-105



MATERIAL	RUGOSITY (C.L.A)	SURFACE COATING TREATMENT
LINEAR DIMENSIONS NOT INDICATED - BOILERMAKING		
DIMENSIONS (mm)	DE 2 ≤30 ≤120 ≤400 ≤1000 ≤2000 ≤4000 ≤8000 ≤12000	DIMENSIONS (mm)
TOLERANCES	±1 ±3 ±4 ±6 ±8 ±11 ±14 ±18	LENGHT ±0,2 ±0,3 ±0,5 ±0,8 ±1,2 ±2,0 ±3,0 ±4,0 DIAMETER ±0,1 ±0,1 ±0,2 ±0,3 ±0,5 ±0,8 ±1,2 ±2,0

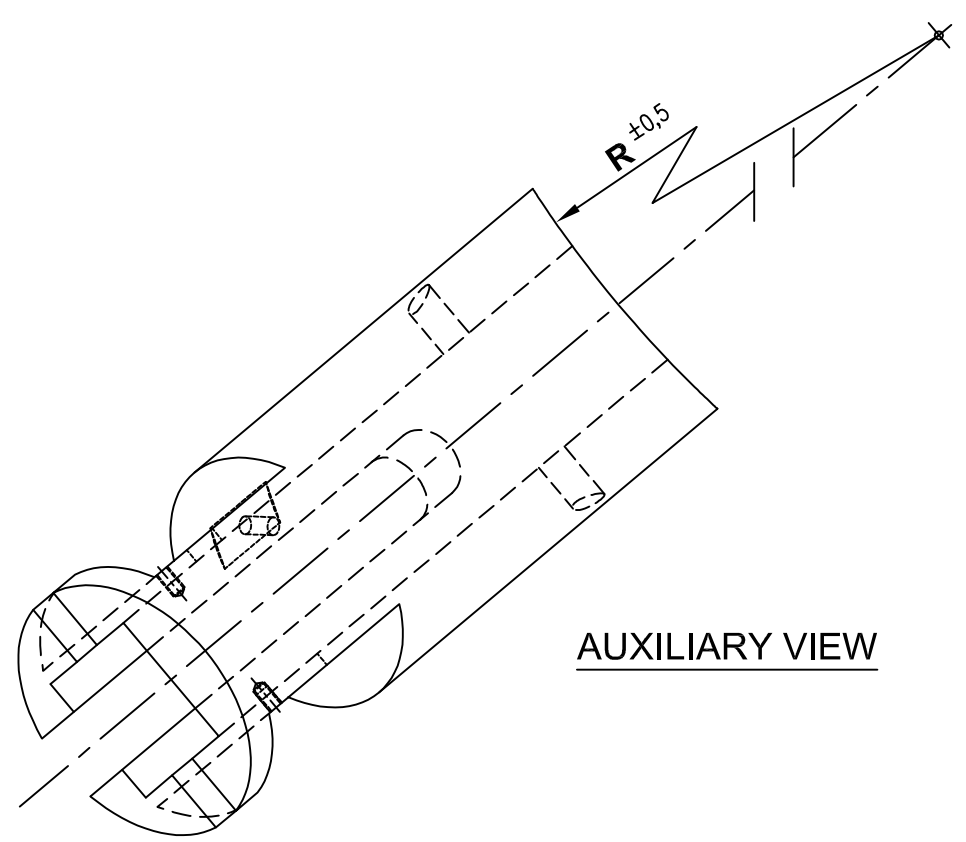
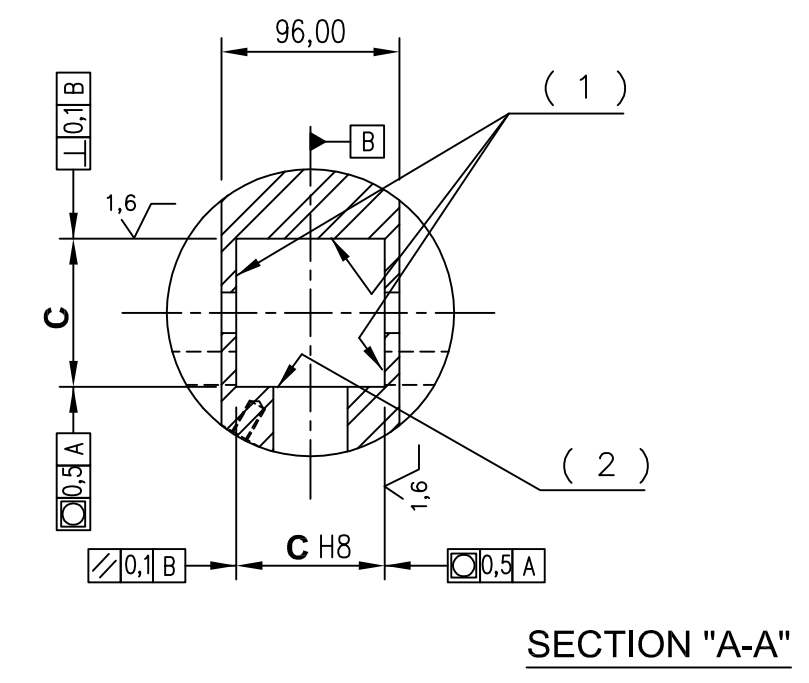
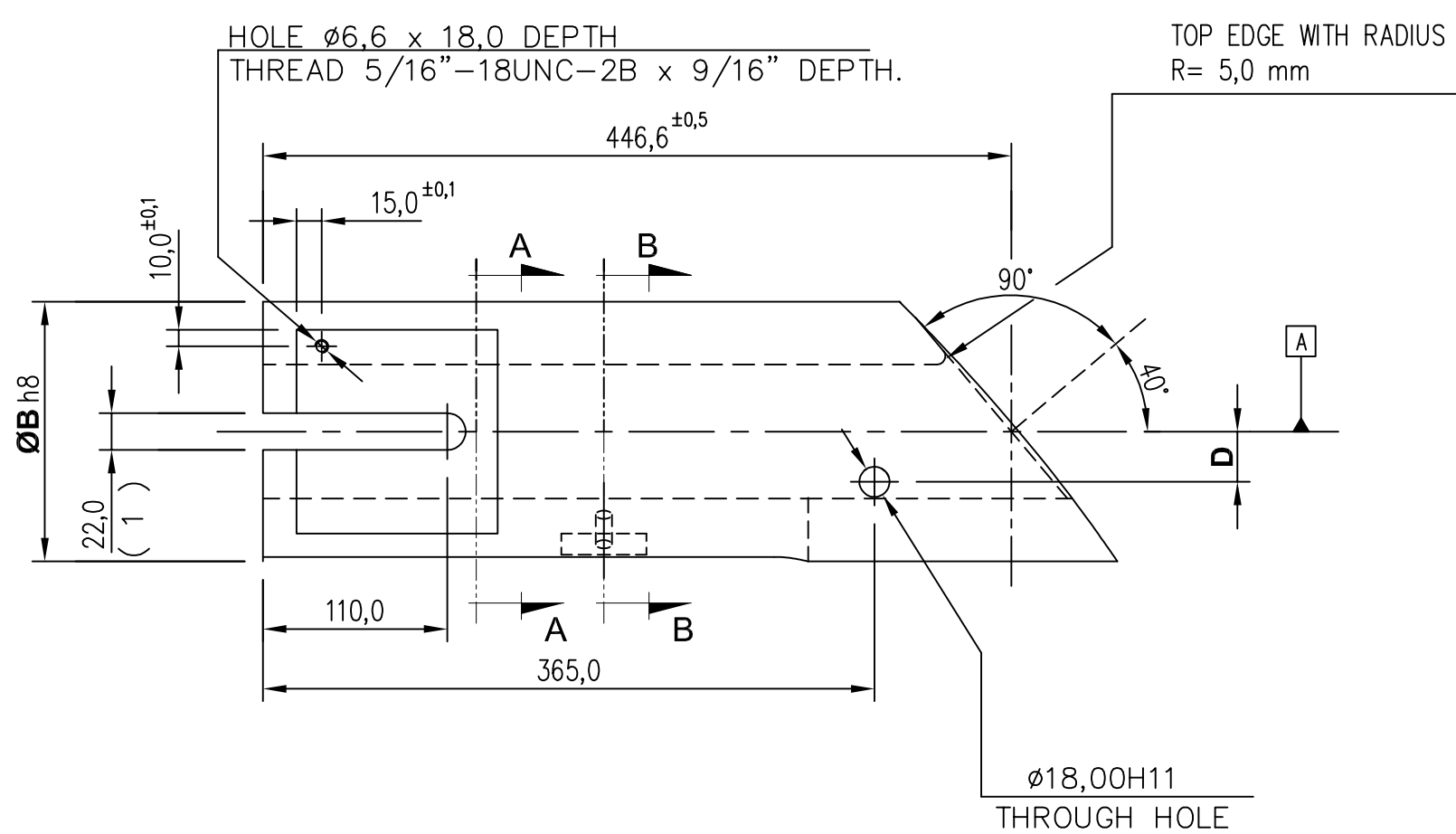
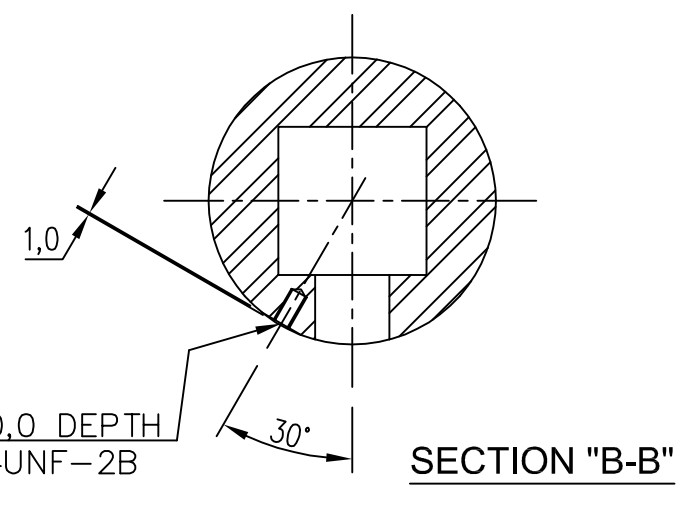
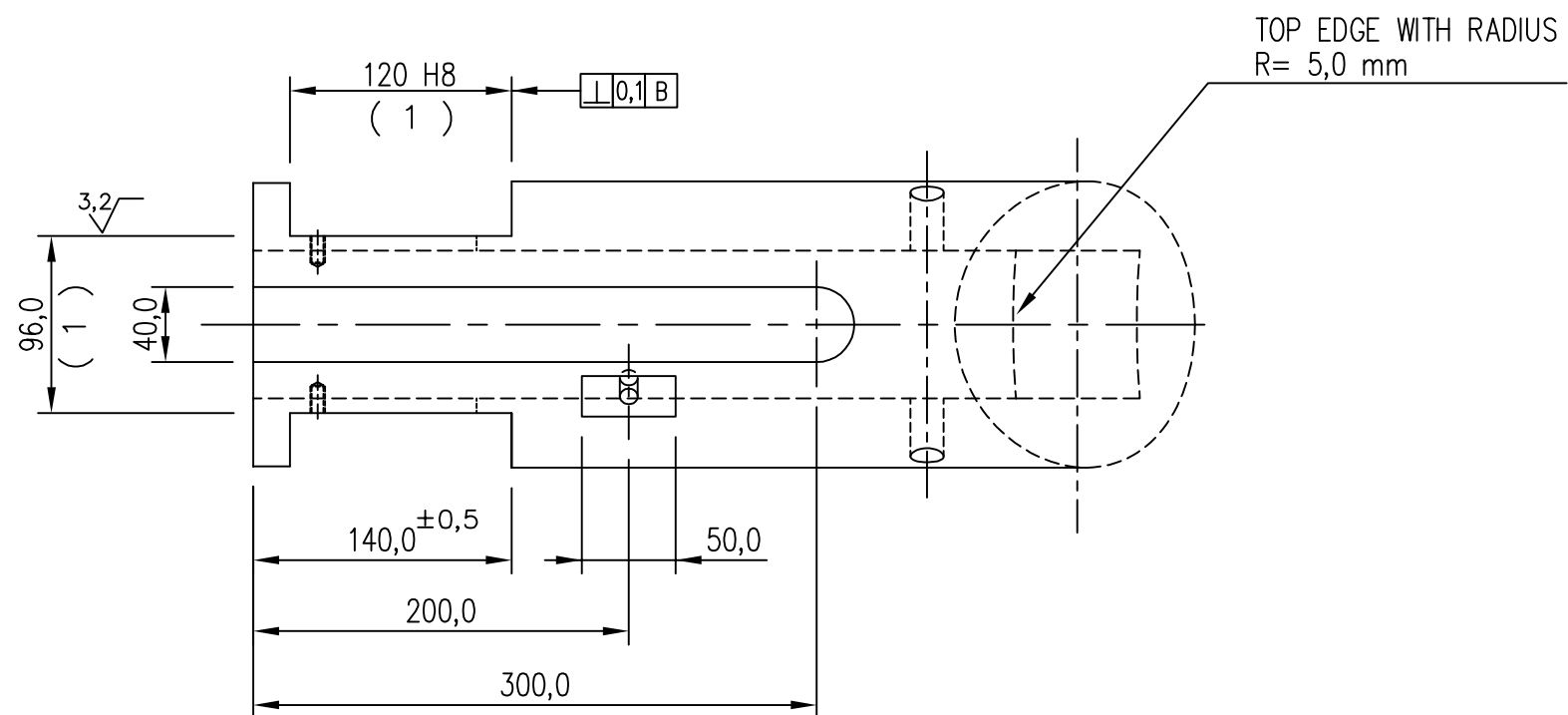
REV.	DESCRIPTION	DATE	EXEC.	CHECK	APPROV.
A	GENERAL REVISION	MAY 10, 2017	PDDP/TDU	BRUNO PEREIRA	VINICIUS
0	ORIGINAL		PDDP/TDU	CAPLONCH	VINICIUS

THE DATA, OR PART THEREOF ARE PETROBRAS PROPERTY AND THUS MUST NOT BE USED IN ANY WAY WITHOUT PERMISSION

		CENPES	
CLIENT OR USER			
E & P			
JOB OR PROJECT			
FPSO UNIT			
AREA OR UNIT			
PRODUCTION			
TITLE			
CENTRAL STRUCTURE			
DESIGN	PDDP/TDU	DRAWN	PDDP/TDU
CHECK	CAPLONCH	APPROVAL	VINICIUS
SCALE	1:15	SIZE	A2
DATE	DEC 14, 2016	No.	I-DE-3010.00-1300-279-PPC-302
SHEET 1 of 1			

STANDARDIZED FORM BY EP-2B-0001 - FIGURE A30





REFERENCE DOCUMENTS

RELATED ASSEMBLY:  
I-DE-3010.00-1300-279-PPC-301

GENERAL NOTES

( 1 ) PTFE  
( 2 ) Zi-Ni

B	INSPECTION & CATHODIC PROTECTION HOLE	JUN 08,2017	PDDP/TDUT	BRUNO PINHQ	VINICIUS
A	GENERAL REVISION	MAY 10,2017	PDDP/TDUT	FLAVIO	VINICIUS
0	ORIGINAL		PDDP/TDUT		
REV.	DESCRIPTION	DATE	EXEC.	CHECK	APPROV.

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<b>BR</b> PETROLEO BRASILEIRO S.A. <b>PETROBRAS</b>	CENPES
CLIENT OR USER	E & P
JOB OR PROJECT	FPSO UNIT
AREA OR UNIT	PRODUCTION

I-TUBE	B	C	R	D
26"				
28"				
30"				
32"	145,0	70,35/70,30	432,9/432,6	25,1/25,0
34"				
36"				
38"				
40"				
42"				
44"				
46"	155,0	80,35/80,30	609,30/607,95	30,1/30,0
48"	155,0	80,35/80,30	635,30/633,95	30,1/30,0

MATERIAL	DH-36	RUGOSITY (C.L.A)	6,3	SURFACE COATING	GENERAL NOTES	
LINEAR DIMENSIONS NOT INDICATED - BOILERMAKING			LINEAR DIMENSIONS NOT INDICATED - MACHINING			
DIMENSIONS (mm)	DE 2 a ≤30	>30 a ≤120	>120 a ≤400	>400 a ≤1000	>1000 a ≤2000	>2000 a ≤4000
TOLERANCES	±1	±3	±4	±6	±8	±11 ±14 ±18
DIMENSIONS (mm)	DE 0,5 a ≤3	>3 a ≤6	>6 a ≤30	>30 a ≤120	>120 a ≤400	>400 a ≤1000
LENGHT	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0 ±3,0 ±4,0
DIAMETER	±0,1	±0,1	±0,2	±0,3	±0,5	±0,8 ±1,2 ±2,0

TITLE	ROUND BLOCK				
DESIGN PDDP/TDUT	DRAWN PDDP/TDUT	CHECK	CAPLLONCH	APPROVAL	VINICIUS
SCALE	1:2	SIZE	A2: 594X420	CC	SHEET 1 of 1
DATE	DEC 14,2016	No.	I-DE-3010.00-1300-279-PPC-305		

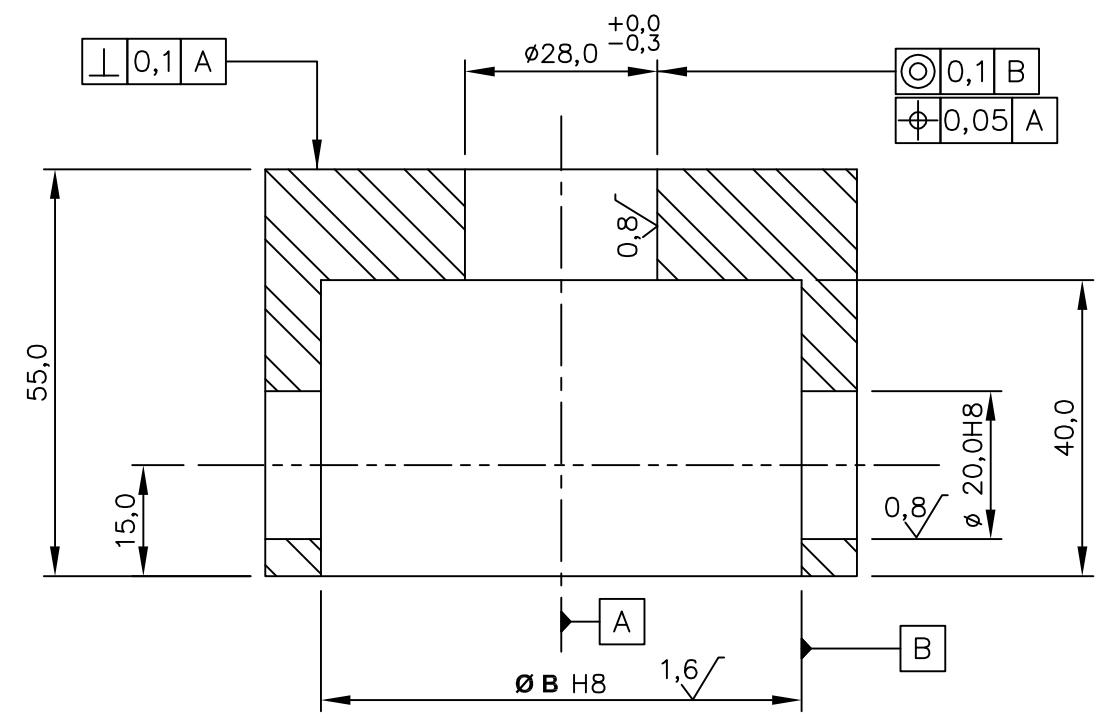
STANDARDIZED FORM BY EP-2B-0001 - FIGURE A.30





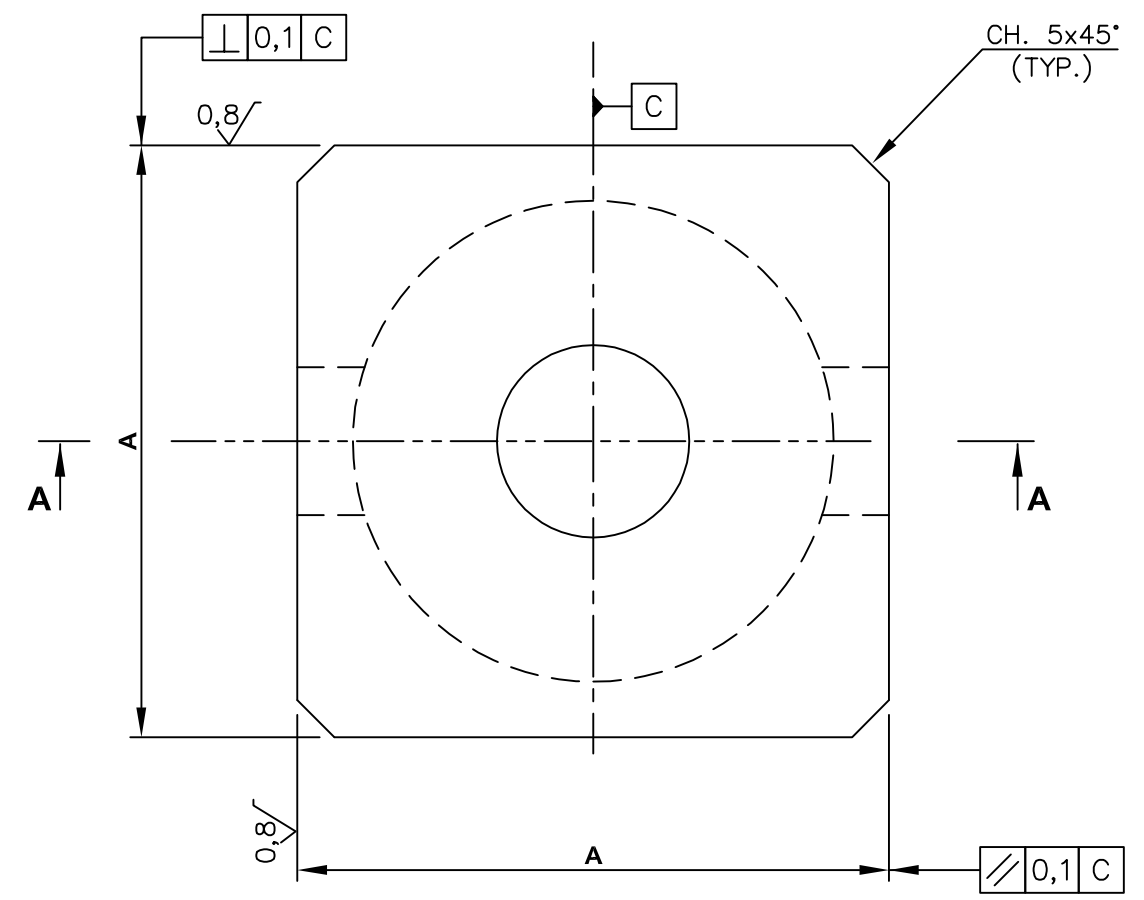


D E F G



SECTION "A-A"

I-TUBE	A	B
26"		
28"		
30"		
32"	69,85/69,75	55,0
34"		
36"		
38"		
40"		
42"		
44"		
46"	79,85/79,75	65,0
48"	79,85/79,75	65,0



REFERENCE DOCUMENTS

RELATED ASSEMBLY:  
I-DE-3010.00-1300-279-PPC-300

GENERAL NOTES

REV.	DESCRIPTION	DATE	EXEC.	CHECK	APPROV.
A	HOLES REMOVAL	JUN 01,2017	PDDP/TDUT	BRUNO PINHO	VINIUS
0	ORIGINAL		PDDP/TDUT	CAPLONCH	VINIUS

THE DATA, OR PART THEREOF ARE PETROBRAS PROPERTY AND THUS MUST NOT BE USED IN ANY WAY WITHOUT PERMISSION

	PETROLEO BRASILEIRO S.A.	CENPES
CLIENT OR USER	E & P	
JOB OR PROJECT	FPSO UNIT	
AREA OR UNIT	PRODUCTION	
TITLE	REACTION BLOCK	

MATERIAL	SAE 1045								WEIGHT	RUGOSITY (C.L.A)								SURFACE COATING								ZI-NI										
LINEAR DIMENSIONS NOT INDICATED - BOILERMAKING																LINEAR DIMENSIONS NOT INDICATED - MACHINING																				
DIMENSIONS (mm)		DE 2	>30	>120	>400	>1000	>2000	>4000	>8000	DIMENSIONS (mm)								DE 0,5	>3	>6	>30	>120	>400	>1000	>2000	TOLERANCES										
		≤30	≤120	≤400	≤1000	≤2000	≤4000	≤8000	≤12000	DE 0,3	≤3	≤6	≤30	≤120	≤400	≤1000	≤2000	≤4000	LENGTH	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0	±3,0	±4,0	DIAMETER	±0,1	±0,1	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0

DESIGN PDDP/TDUT	DRAWN PDDP/TDUT	CHECK CAPLONCH
APPROVAL VINIUS	SIZE A3	CC
DATE DEC 14,2016	SCALE 1:2	SHEET 1 of 1
No.	I-DE-3010.00-1300-279-PPC-308	

STANDARDIZED FORM BY EP-2B-0001 - FIGURE A22

D

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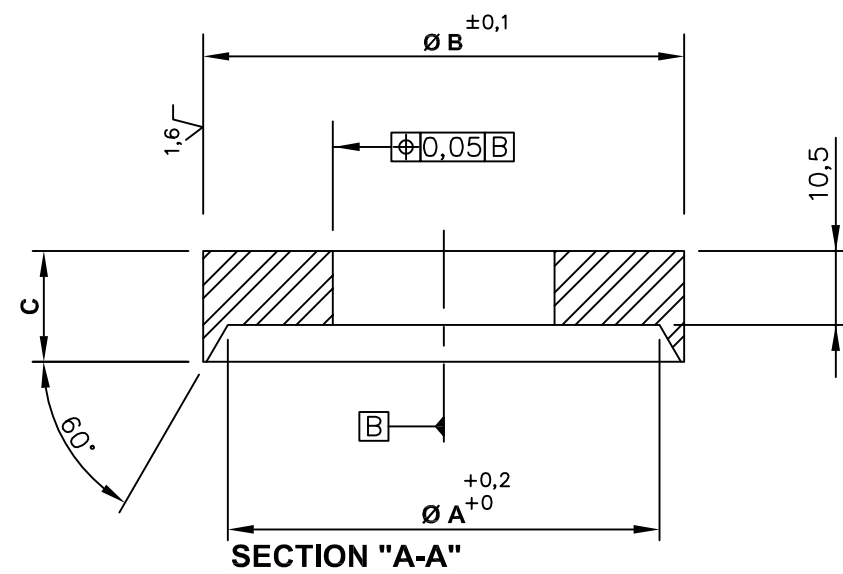
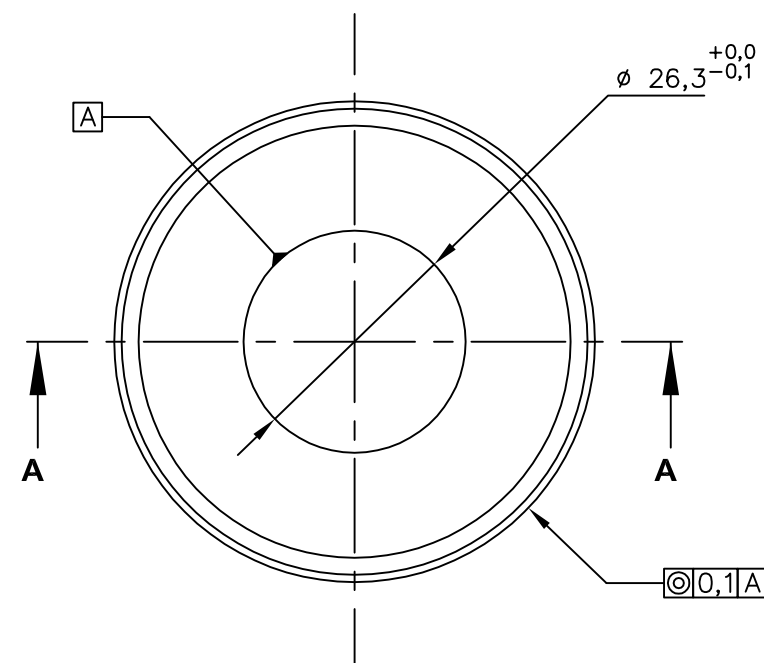
G

REFERENCE DOCUMENTS

RELATED ASSEMBLY:  
I-DE-3010.00-1300-279-PPC-300

GENERAL NOTES

I-TUBE	A	B	C
26"			
28"			
30"			
32"	51,27	54,0	12,0
34"			
36"			
38"			
40"			
42"			
44"			
46"	57,0	63,0	14,0
48"	57,0	63,0	14,0



REV.	DESCRIPTION	DATE	EXEC.	CHECK	APPROV.
0	ORIGINAL		PDDP/TDUT	CAPLLONCH	VINIUS

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**PETROBRAS** PETROLEO BRASILEIRO S.A. CENPES

CLIENT OR USER: E & P

JOB OR PROJECT: FPSO UNIT

AREA OR UNIT: PRODUCTION

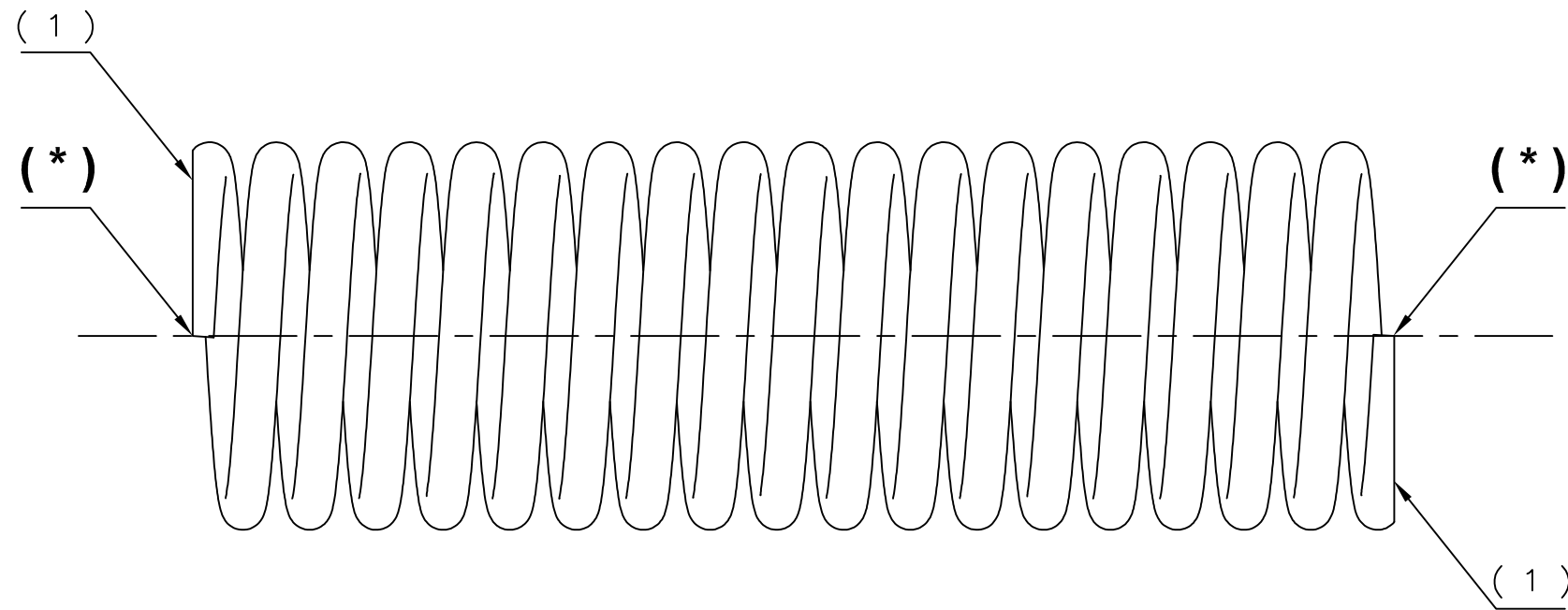
TITLE: STRUCTURAL WASHER

DESIGN PDDP/TDUT	DRAWN PDDP/TDUT	CHECK CAPLLONCH
APPROVAL VINIUS	SIZE A3	CC
DATE DEC 14,2016	SCALE 1:1	SHEET 1 of 1

No. I-DE-3010.00-1300-279-PPC-309

MATERIAL	SAE 1020								WEIGHT	RUGOSITY (C.L.A)	SURFACE COATING								Zi-Ni												
LINEAR DIMENSIONS NOT INDICATED - BOILERMAKING																LINEAR DIMENSIONS NOT INDICATED - MACHINING															
DIMENSIONS (mm)	DE 2	>30	>120	>400	>1000	>2000	>4000	>8000	DE 0,5	>3	>6	>30	>120	>400	>1000	>2000	DIMENSIONS (mm)	DE 0,5	>3	>6	>30	>120	>400	>1000	>2000						
TOLERANCES	±1	±3	±4	±6	±8	±11	±14	±18	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0	±3,0	±4,0	LENGTH	±0,1	±0,1	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0						
																	DIAMETER	±0,1	±0,1	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0						

STANDARDIZED FORM BY EP-2B-0001 - FIGURE A22



**COMPRESSION SPRING**

<b>MATERIAL: ICONEL 718 (HARDNESS LESS THAN 35 HRC)</b>				
LEFT HAND				
SQUARED AND GROUND END (*)				

I-TUBE		DN 48"/46"	DN 32"	
ACTIVE COILS	N	12	12	
TOTAL COILS	Nt	14	14	
WIRE DIAMETER	d	7,5	7,5	mm
OUTSIDE DIAMETER	De	57,5	52,5	mm
FREE LENGHT	L	167,6	156,2	mm
SOLID LENGHT	Ls	105,0	105,0	mm

**TEST**

FORCE	F1	55,00	42,00	kgf
		539,6	412,0	N
LENGHT	L1	142,0	142,0	mm
FORCE	F2	119,5	130,5	kgf
		1172,6	1280,4	N
LENGHT	L2	112,0	112,0	mm

MATERIAL	WEIGHT	RUGOSITY (C.L.A)	SURFACE COATING	PTFE
LINEAR DIMENSIONS NOT INDICATED – BOILERMAKING			LINEAR DIMENSIONS NOT INDICATED – MACHINING	
DIMENSIONS (mm)	DE 2 ≤30	>30 ≤120	>120 ≤400	>400 ≤1000
	>1000 ≤2000	>2000 ≤4000	>4000 ≤8000	>8000 ≤12000
TOLERANCES	±1	±3	±4	±6
	±8	±11	±14	±18
	DE 0,5 ≤3	>3 ≤6	>6 ≤30	>30 ≤120
	>120 ≤400	>400 ≤1000	>1000 ≤2000	>2000 ≤4000
	±0,2	±0,3	±0,5	±0,8
	±1,2	±2,0	±3,0	±4,0
	±0,1	±0,1	±0,2	±0,3
	±0,5	±0,8	±1,2	±2,0

REFERENCE DOCUMENTS

RELATED ASSEMBLY:  
I-DE-3010.00-1300-279-PPC-300

GENERAL NOTES

( 1 ) – DO NOT PAINT THE ENDING FACES.

REV.	DESCRIPTION	DATE	EXEC.	CHECK	APPROV.
B	ADDED NOTE	JUN 01,2017	PDDP/TDUT	BRUNO PINHO	VINIUS
A	SURFACE COATING	MAY 10,2017	PDDP/TDUT	BRUNO PINHO	VINIUS
0	ORIGINAL		PDDP/TDUT	CAPLLONCH	VINIUS

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CLIENT OR USER	E & P
JOB OR PROJECT	FPSO UNIT
AREA OR UNIT	PRODUCTION

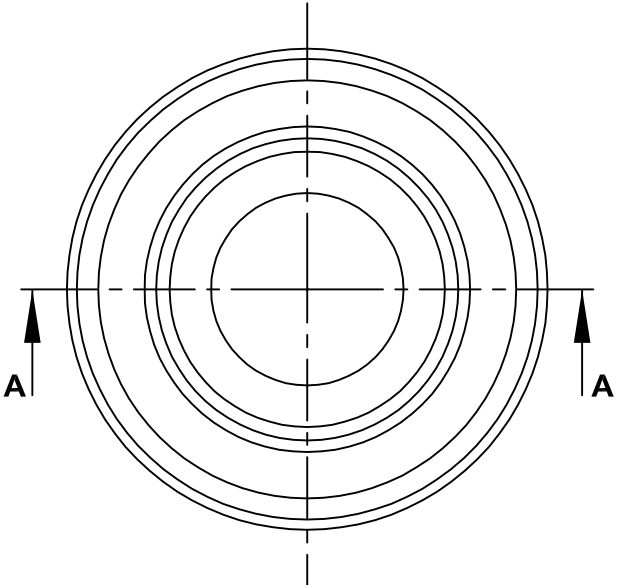
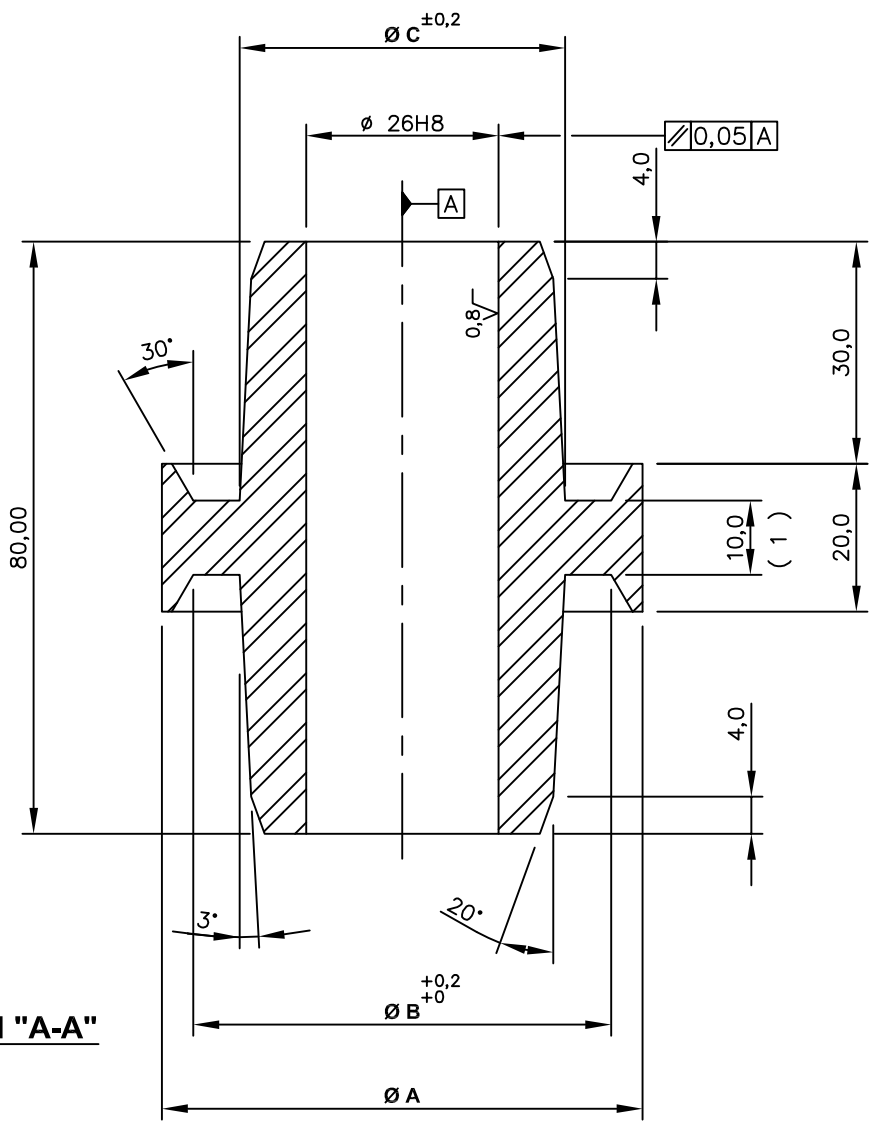
TITLE	SPRING		
DESIGN	PDDP/TDUT	DRAWN	PDDP/TDUT
APPROVAL	VINIUS	CHECK	CAPLLONCH
DATE	DEC 14,2016	SCALE	without scale
		SHEET	1 of 1

No. I-DE-3010.00-1300-279-PPC-310

STANDARDIZED FORM BY EP-2B-0001 - FIGURE A22

I-TUBE	A	B	C
26"			
28"			
30"			
32"	60,0	52,0	37,0
34"			
36"			
38"			
40"			
42"			
44"			
46"	65,0	57,0	42,0
48"	65,0	57,0	42,0

**SECTION "A-A"**



MATERIAL	SAE 1020								WEIGHT		RUGOSITY (Ra)	3,2								SURFACE COATING	PTFE							
TREATMENT																	SYMBOL											
LINEAR DIMENSIONS NOT INDICATED - BOILERMAKING										LINEAR DIMENSIONS NOT INDICATED - MACHINING																		
DIMENSIONS (mm)	DE 2	>30	>120	>400	>1000	>2000	>4000	>8000		DIMENSIONS (mm)	DE 0,5	>3	>6	>30	>120	>400	>1000	>2000										
	≤30	≤120	≤400	≤1000	≤2000	≤4000	≤8000	≤12000			≤3	≤6	≤30	≤120	≤400	≤1000	≤2000	≤4000										
TOLERANCES	±1	±3	±4	±6	±8	±11	±14	±18		LENGHT	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0	±3,0	±4,0		DIAMETER	±0,1	±0,1	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0

REFERENCE DOCUMENTS

RELATED ASSEMBLY:  
I-DE-3010.00-1300-279-PPC-300

GENERAL NOTES

( 1 ) - Zr-Ni

REV.	DESCRIPTION	DATE	EXEC.	CHECK	APPROV.
0	ORIGINAL		PDDP/TDUT	CAPLLONCH	VINIUS

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**PETROBRAS** PETROLEO BRASILEIRO S.A. **CENPES**

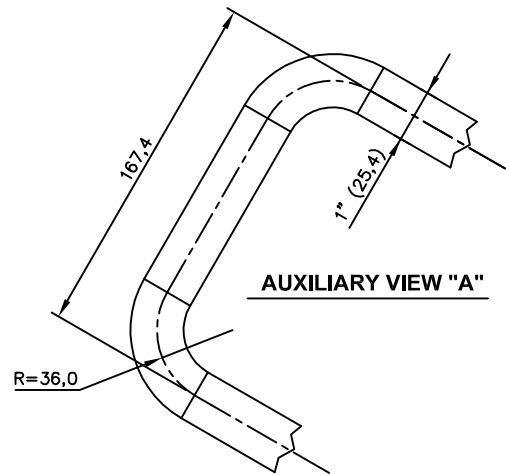
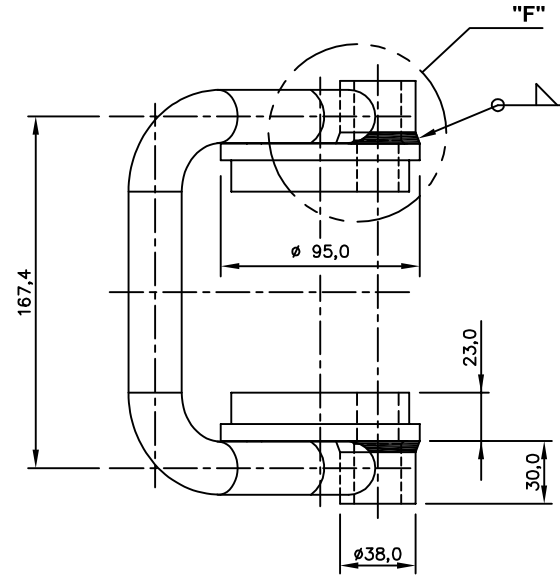
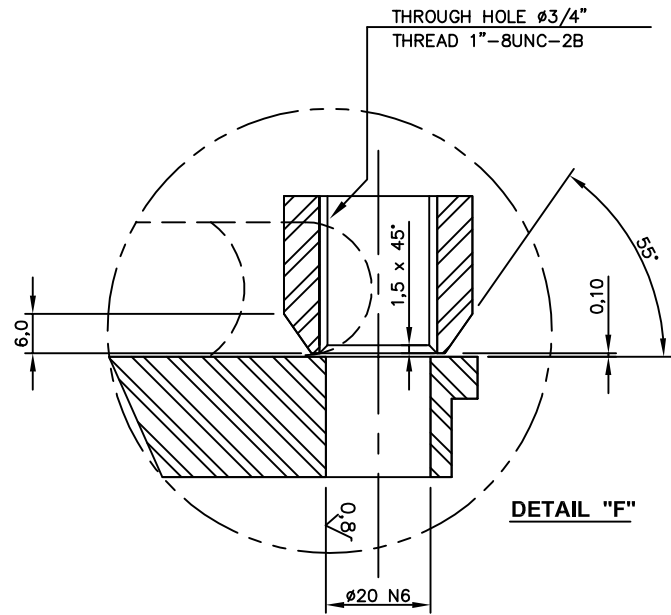
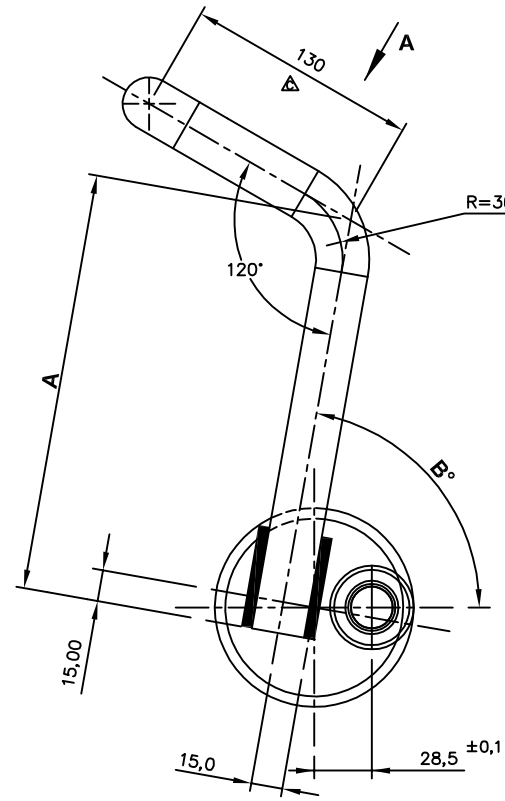
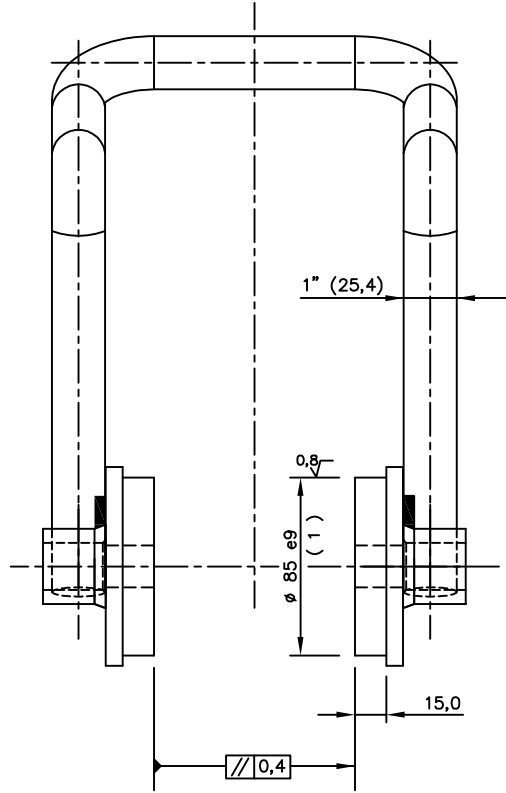
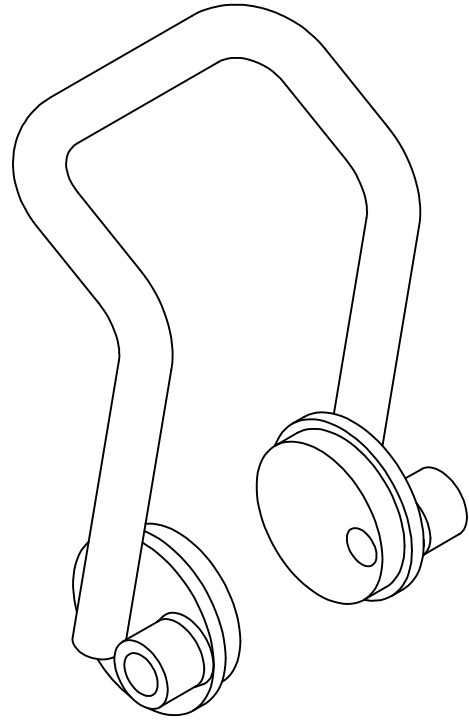
CLIENT OR USER	E & P	
JOB OR PROJECT	FPSO UNIT	
AREA OR UNIT	PRODUCTION	
TITLE	CENTRALIZER	

DESIGN PDDP/TDUT	DRAWN PDDP/TDUT	CHECK CAPLLONCH
APPROVAL VINIUS	SIZE A3	CC
DATE DEC 14,2016	SCALE 1:2	SHEET 1 of 1

No. I-DE-3010.00-1300-315-PPC-311

STANDARDIZED FORM BY EP-2B-0001 - FIGURE A22

I-TUBE	A	B°
26"		
28"		
30"		
32"	285	68°
34"		
36"		
38"		
40"		
42"		
44"		
46"	240	73°
48"	240	73°



MATERIAL	A-36								RUGOSITY (C.L.A)	SURFACE COATING TREATMENT								ANTIFOULING													
LINEAR DIMENSIONS NOT INDICATED - BOILERMAKING																LINEAR DIMENSIONS NOT INDICATED - MACHINING															
DIMENSIONS (mm)	DE 2	>30	>120	>400	>1000	>2000	>4000	>8000	DE 0,5	>3	>6	>30	>120	>400	>1000	>2000	DIMENSIONS (mm)	DE 0,5	>3	>6	>30	>120	>400	>1000	>2000						
	≤30	≤120	≤400	≤1000	≤2000	≤4000	≤8000	≤12000	≤3	≤6	≤30	≤120	≤400	≤1000	≤2000	≤4000		≤3	≤6	≤30	≤120	≤400	≤1000	≤2000	≤4000						
TOLERANCES	±1	±3	±4	±6	±8	±11	±14	±18	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0	±3,0	±4,0	LENGTH	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0	±3,0	±4,0						
									±0,1	±0,1	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0	DIAMETER	±0,1	±0,1	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0						

REFERENCE DOCUMENTS

RELATED ASSEMBLY:  
I-DE-3010.00-1300-279-PPC-300

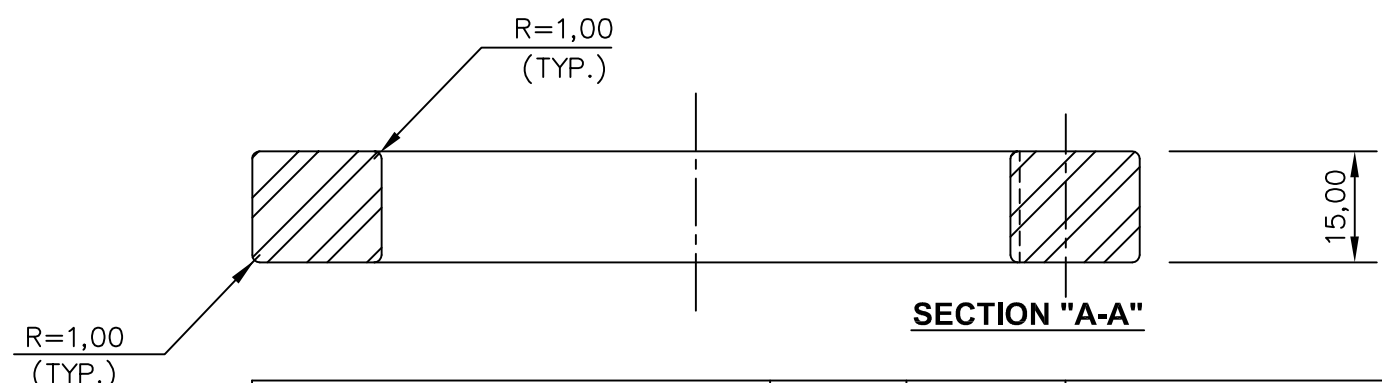
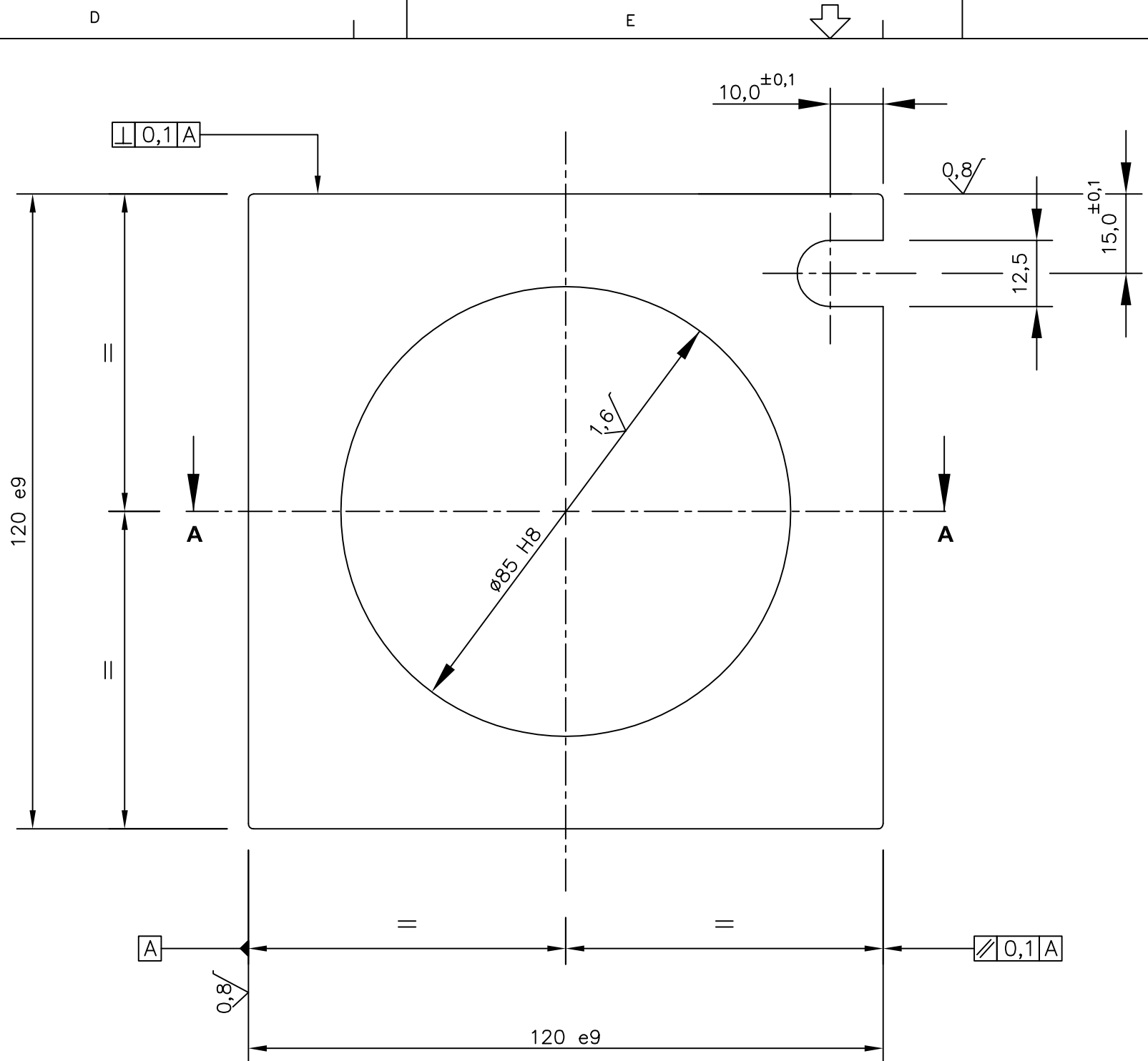
GENERAL NOTES

( 1 ) Zr-Ni WITHOUT ANTI-FOULING

REV.	DESCRIPTION	DATE	EXEC.	CHECK	APPROV.
C	HANDLER LENGTH	NOV 17,2017	PDDP/TDUT	BRUNO PINHO	VINICIUS
B	THREAD DIAMETER	JUL 18,2017	PDDP/TDUT	BRUNO PINHO	VINICIUS
A	GENERAL REVISION	MAY 10,2017	PDDP/TDUT	FLÁVIO	VINICIUS
O	ORIGINAL		PDDP/TDUT	CAPLONCH	VINICIUS

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		CENPES	
CLIENT OR USER	E & P		
JOB OR PROJECT	FPSO UNIT		
AREA OR UNIT	PRODUCTION		
TITLE	HANDLER		
DESIGN PDDP/TDUT	DRAWN PDDP/TDUT	CHECK CAPLONCH	APPROVAL VINICIUS
SCALE 1:2,5	SIZE A2: 594X420	CC	SHEET 1 of 1
DATE DEC 14,2016	No. I-DE-3010.00-1300-279-PPC-312		



MATERIAL	SAE 1045								WEIGHT									RUGOSITY (C.L.A)									SURFACE COATING	Zi-Ni + PTFE							
LINEAR DIMENSIONS NOT INDICATED - BOILERMAKING																LINEAR DIMENSIONS NOT INDICATED - MACHINING																			
DIMENSIONS (mm)		DE 2	>30	>120	>400	>1000	>2000	>4000	>8000	DIMENSIONS (mm)		DE 0,5	>3	>6	>30	>120	>400	>1000	>2000	LENGTH		±0,2	±0,3	±0,5	±0,8	±1,2	±2,0	±3,0	±4,0						
TOLERANCES		≤30	≤120	≤400	≤1000	≤2000	≤4000	≤8000	≤12000	DIAMETER		±0,1	±0,1	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0			±0,1	±0,1	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0						

REFERENCE DOCUMENTS					
RELATED ASSEMBLY: I-DE-3010.00-1300-279-PPC-300					

GENERAL NOTES

0	ORIGINAL				
REV.	DESCRIPTION	DATE	EXEC.	CHECK	APPROV.

THE DATA, OR PART THEREOF ARE PETROBRAS PROPERTY AND THUS MUST NOT BE USED IN ANY WAY WITHOUT PERMISSION

--	--	--	--	--	--

	PETROLEO BRASILEIRO S.A.	CENPES
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CLIENT OR USER E & P

JOB OR PROJECT FPSO UNIT

AREA OR UNIT PRODUCTION

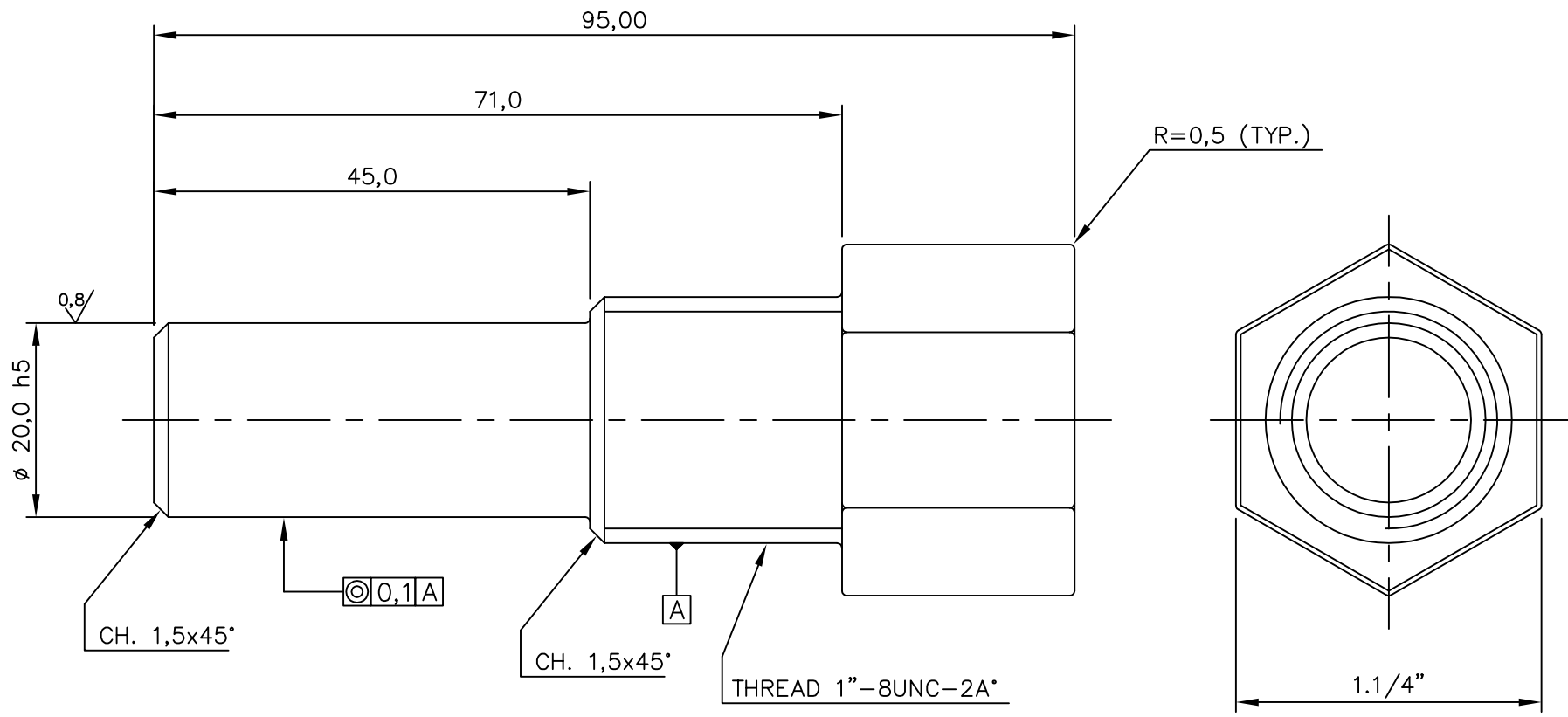
TITLE SLIDING PLATE

DESIGN PDDP/TDUT	DRAWN PDDP/TDUT	CHECK CAPLLONCH
APPROVAL VINICIUS	SIZE A3	CC
DATE DEC 14,2016	SCALE 1:1	SHEET 1 of 1

No. I-DE-3010.00-1300-279-PPC-313

STANDARDIZED FORM BY EP-2B-0001 - FIGURE A22





REFERENCE DOCUMENTS					
RELATED ASSEMBLY: I-DE-3010.00-1300-279-PPC-300					

GENERAL NOTES


0	ORIGINAL		PDDP/TDUT	CAPLLONCH	VINIUS
REV.	DESCRIPTION	DATE	EXEC.	CHECK	APPROV.

THE DATA, OR PART THEREOF ARE PETROBRAS PROPERTY AND THUS MUST NOT BE USED IN ANY WAY WITHOUT PERMISSION

		CENPES
CLIENT OR USER	E & P	
JOB OR PROJECT	FPSO UNIT	
AREA OR UNIT	PRODUCTION	
TITLE	PIVOT BOLT	

DESIGN PDDP/TDUT	DRAWN PDDP/TDUT	CHECK CAPLLONCH
APPROVAL VINIUS	SIZE A3	CC
DATE JAN 24,2017	SCALE 1:1,5	SHEET 1 of 1
No.	I-DE-3010.00-1300-279-PPC-314	

MATERIAL	SAE 1045							WEIGHT	RUGOSITY (C.L.A)	SURFACE COATING	Zi-Ni															
LINEAR DIMENSIONS NOT INDICATED - BOILERMAKING									LINEAR DIMENSIONS NOT INDICATED - MACHINING																	
DIMENSIONS (mm)	DE 2	>30	>120	>400	>1000	>2000	>4000	>8000	DIMENSIONS (mm)	DE 0,5	>3	>6	>30	>120	>400	>1000	>2000	LENGHT	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0	±3,0	±4,0
TOLERANCES	±1	±3	±4	±6	±8	±11	±14	±18	DIAMETER	±0,1	±0,1	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0									

STANDARDIZED FORM BY EP-2B-0001 - FIGURE A22

D

E

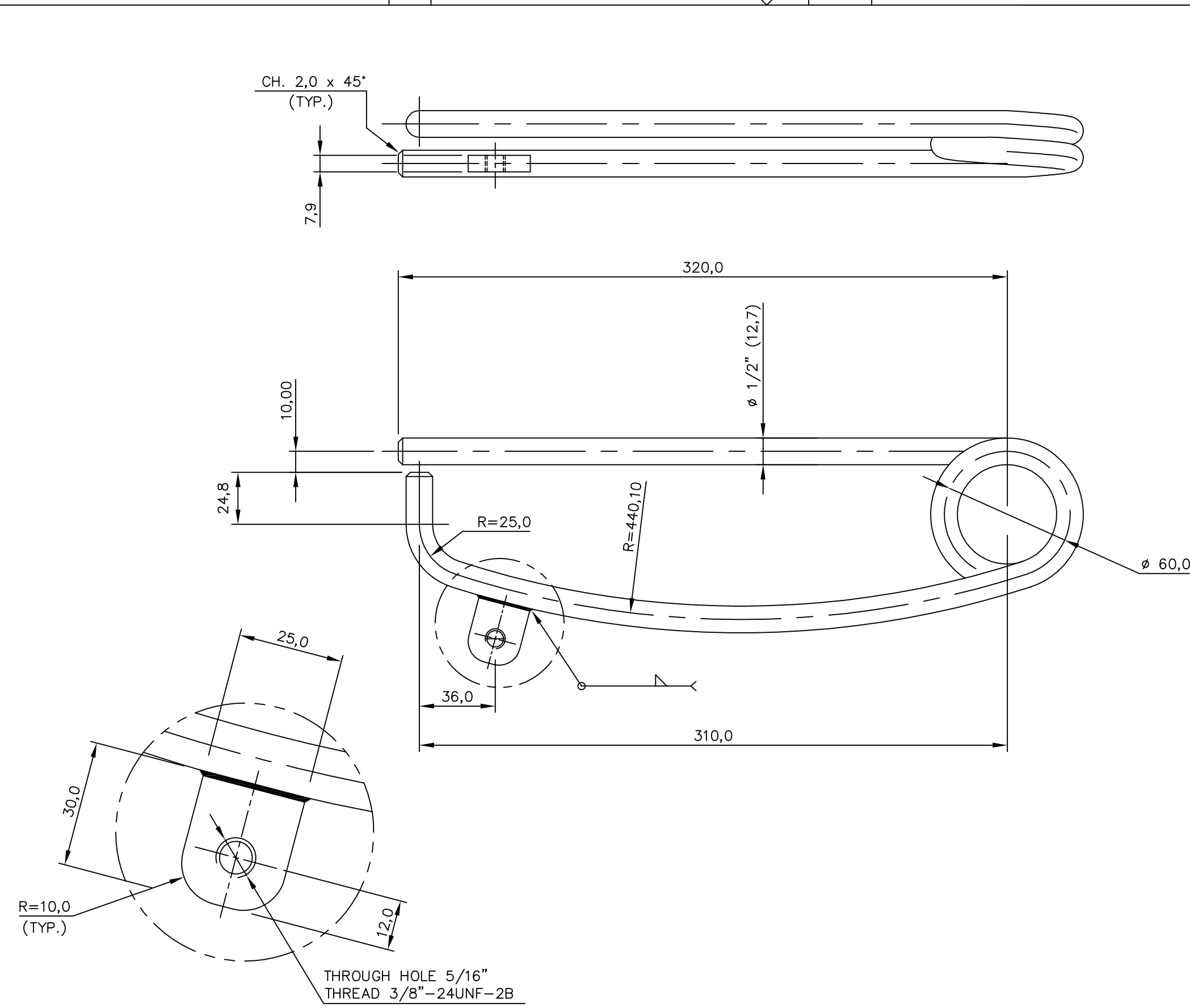
F

G

REFERENCE DOCUMENTS

RELATED ASSEMBLY:  
I-DE-3010.00-1300-279-PPC-300

GENERAL NOTES



A	GENERAL REVISION	MAY 10,2017	PDDP/TDUT	VIOLANTE	VINIUS
0	ORIGINAL		PDDP/TDUT	CAPLLONCH	VINIUS
REV.	DESCRIPTION	DATE	EXEC.	CHECK	APPROV.

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**BR** PETROLEO BRASILEIRO S.A. **PETROBRAS** CENPES

CLIENT OR USER E & P

JOB OR PROJECT FPSO UNIT

AREA OR UNIT PRODUCTION

TITLE CLIP

DESIGN PDDP/TDUT	DRAWN PDDP/TDUT	CHECK CAPLLONCH
APPROVAL VINIUS	SIZE A3	CC
DATE DEC 14,2016	SCALE 1:2	SHEET 1 of 1

No. I-DE-3010.00-1300-279-PPC-315

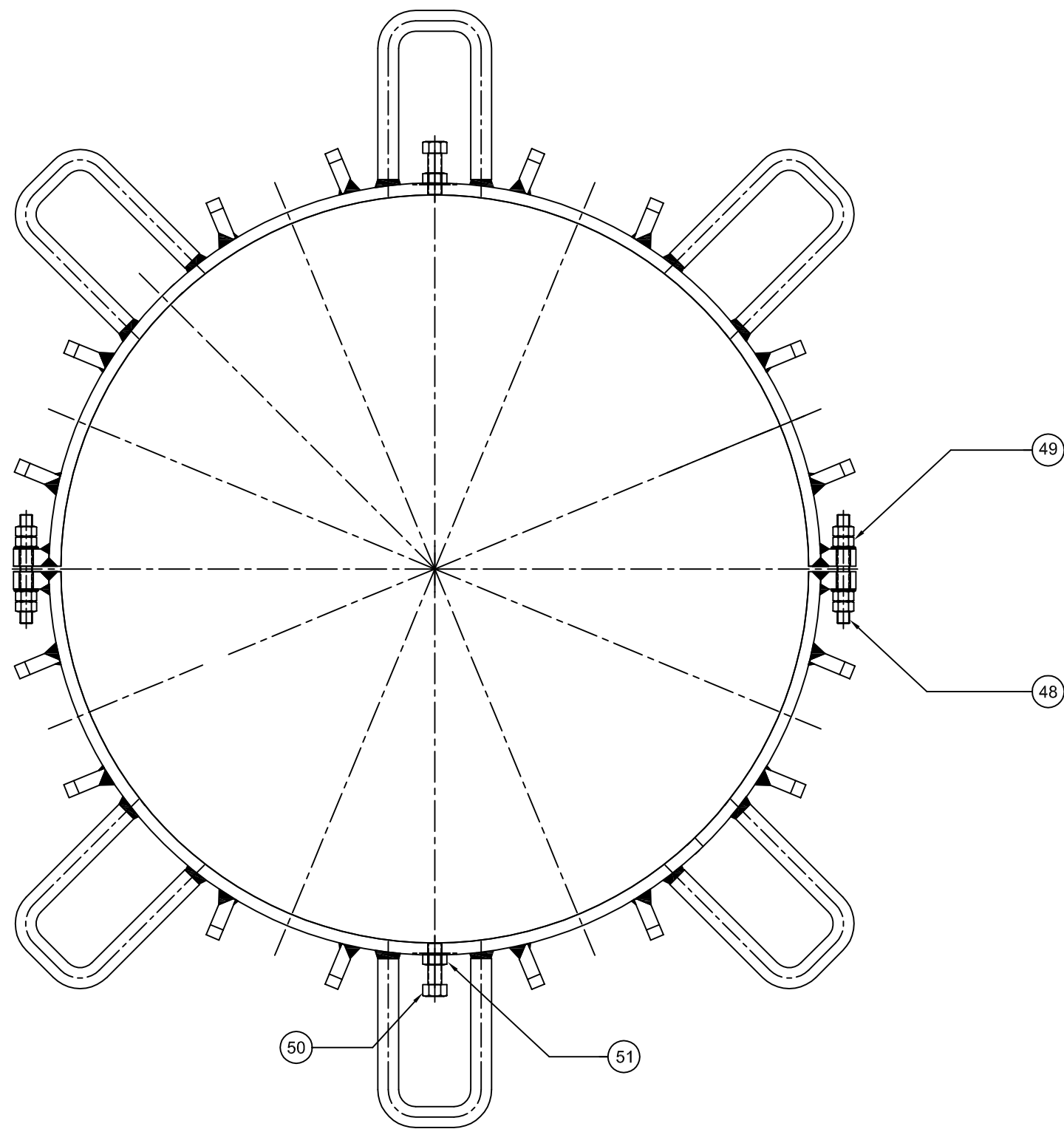
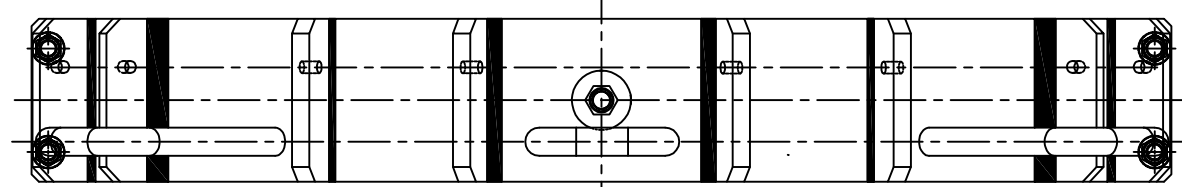
STANDARDIZED FORM BY EP-2B-0001 - FIGURE A22

D

E

F

G



REFERENCE DOCUMENTS

RELATED ASSEMBLY:  
I-DE-3010.00-1300-279-PPC-300

GENERAL NOTES

REV.	DESCRIPTION	DATE	EXEC.	CHECK	APPROV.
A	GENERAL REVISION	JUN 01, 2017	PDDP/TDUT	BRUNO PINHO	VINICIUS
0	ORIGINAL		PDDP/TDUT	CAPLLONCH	VINICIUS

THE DATA, OR PART THEREOF ARE PETROBRAS PROPERTY AND THUS MUST NOT BE USED IN ANY WAY WITHOUT PERMISSION

**PETROBRAS** PETROLEO BRASILEIRO S.A. CENPES

CLIENT OR USER E & P

JOB OR PROJECT FPSO UNIT

AREA OR UNIT PRODUCTION

TITLE BSDL BRACER ASSEMBLY

DESIGN PDDP/TDUT DRAWN PDDP/TDUT CHECK CAPLLONCH

APPROVAL VINICIUS SIZE A3 CC

DATE DEC 14, 2016 SCALE s/esc. SHEET 1 of 1

No. I-DE-3010.00-1300-279-PPC-316

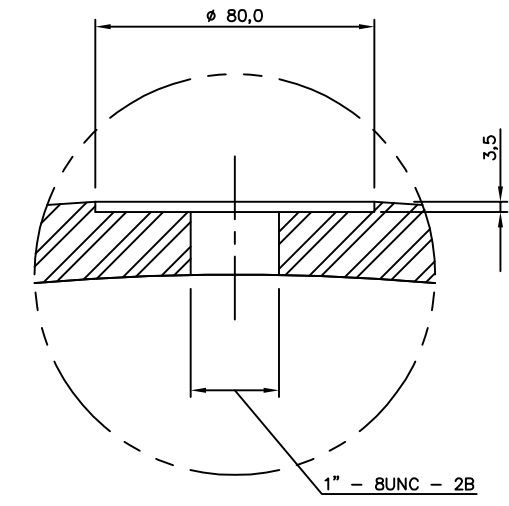
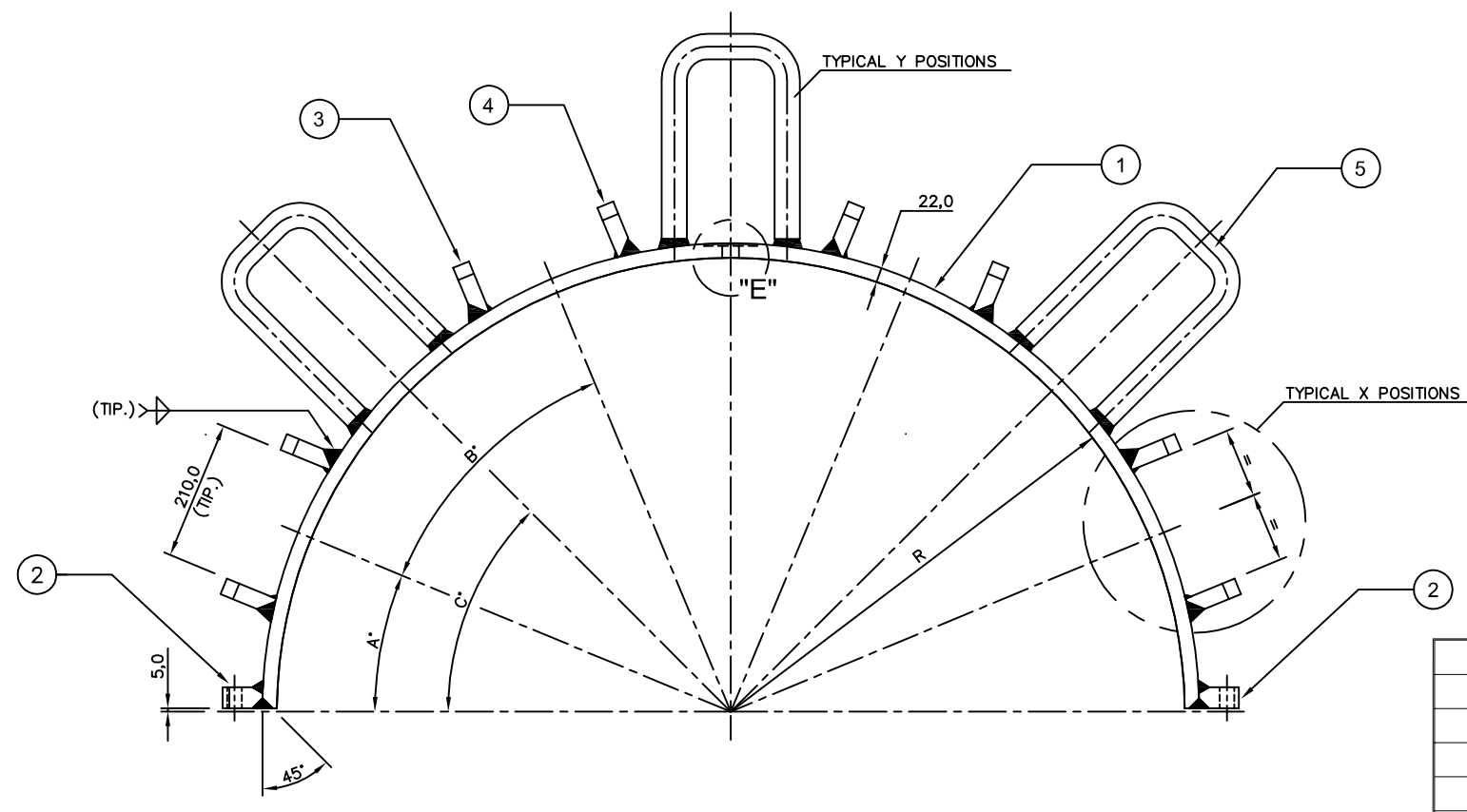
STANDARDIZED FORM BY EP-2B-0001 - FIGURE A22

MATERIAL	WEIGHT	RUGOSITY (Ra)	SURFACE COATING	ZI-NI
LINEAR DIMENSIONS NOT INDICATED - BOILERMAKING			LINEAR DIMENSIONS NOT INDICATED - MACHINING	
DIMENSIONS (mm)	DE 2 a ≤30	>30 a ≤120	>120 a ≤400	>400 a ≤1000
			>1000 a ≤2000	>2000 a ≤4000
			>4000 a ≤8000	>8000 a ≤12000
TOLERANCES	±1	±3	±4	±6
			±8	±11
			±14	±18
			DE 0,5 a ≤3	>3 a ≤6
			>6 a ≤30	>30 a ≤120
			>120 a ≤400	>400 a ≤1000
			>1000 a ≤2000	>2000 a ≤4000
			LENGTH	±0,2
			DIAMETER	±0,1

E F G H I

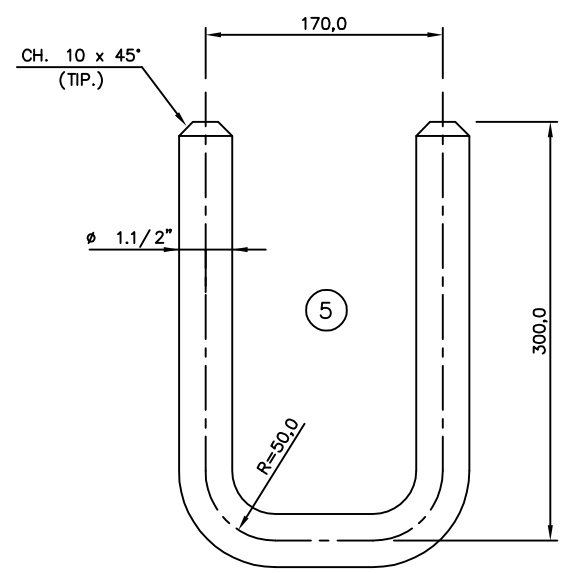
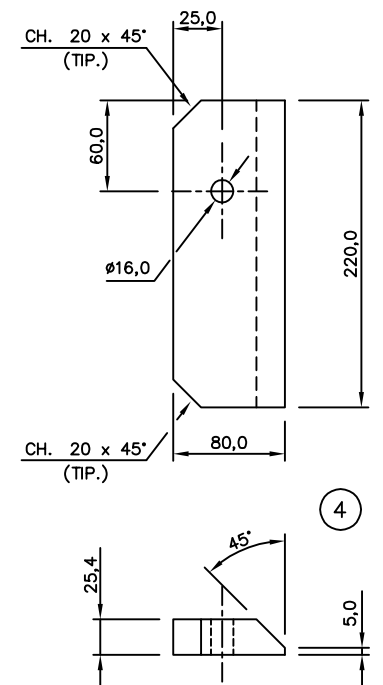
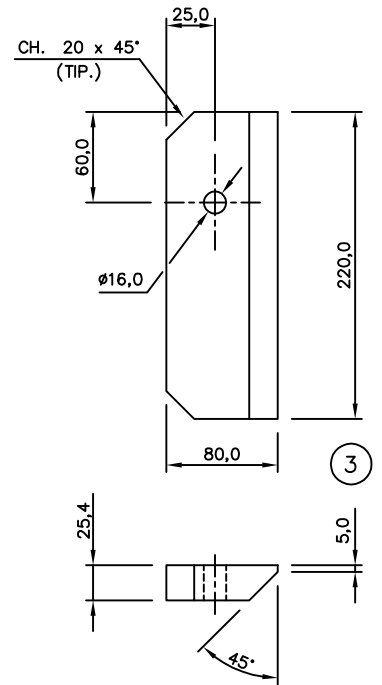
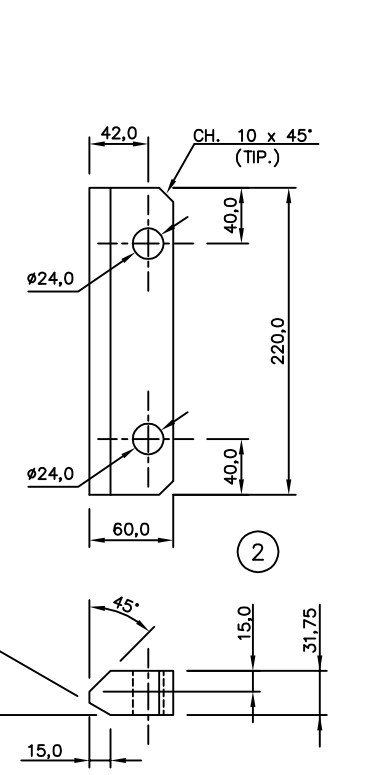
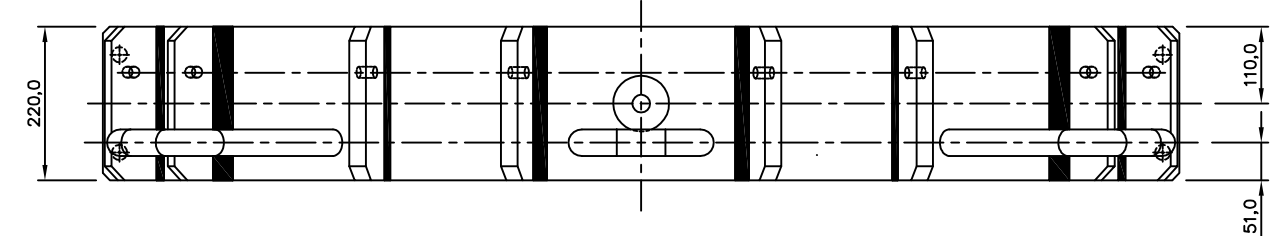
REFERENCE DOCUMENTS

GENERAL NOTES



DETALHE "E"  
(TIP.)

I-TUBE	A°	B°	C°	R	X	Y
26"						
28"						
30"						
32"	30°	60°	60°	468,50/468,00	3	2
34"						
36"						
38"						
40"						
42"						
46"	22,5°	45°	45°	658,00/657,50	4	3
48"	22,5°	45°	45°	684,15/683,50	4	3



STANDARDIZED FORM BY EP-2B-0001 - FIGURE A.30

MATERIAL	A-36								RUGOSITY (C.L.A)									SURFACE COATING TREATMENT																			
LINEAR DIMENSIONS NOT INDICATED - BOILERMAKING										LINEAR DIMENSIONS NOT INDICATED - MACHINING																											
DIMENSIONS (mm)	DE 2	>30	>120	>400	>1000	>2000	>4000	>8000		DIMENSIONS (mm)	DE 0,5	>3	>6	>30	>120	>400	>1000	>2000		LENGHT	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0	±3,0	±4,0	DIAMETER	±0,1	±0,1	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0
TOLERANCES	±1	±3	±4	±6	±8	±11	±14	±18																													

A	GENERAL REVISION	MAY 10,2017	PDDP/TDUT	VOLANTE	VINICIUS
0	ORIGINAL		PDDP/TDUT		
REV.	DESCRIPTION	DATE	EXEC.	CHECK	APPROV.

THE DATA, OR PART THEREOF ARE PETROBRAS PROPERTY AND THUS MUST NOT BE USED IN ANY WAY WITHOUT PERMISSION

<b>BR</b> PETROLEO BRASILEIRO S.A. <b>PETROBRAS</b>	CENPES
CLIENT OR USER	E & P
JOB OR PROJECT	FPSO UNIT
AREA OR UNIT	PRODUCTION

TITLE			
BSDL 1/2 BRACER			
DESIGN PDDP/TDUT	DRAWN PDDP/TDUT	CHECK CAPLLONCH	APPROVAL VINICIUS
SCALE 1:7,5	SIZE A2: 594X420	CC	SHEET 1 of 1
DATE DEC 05,2016	No.	I-DE-3010.00-1300-279-PPC-317	

D

E

F

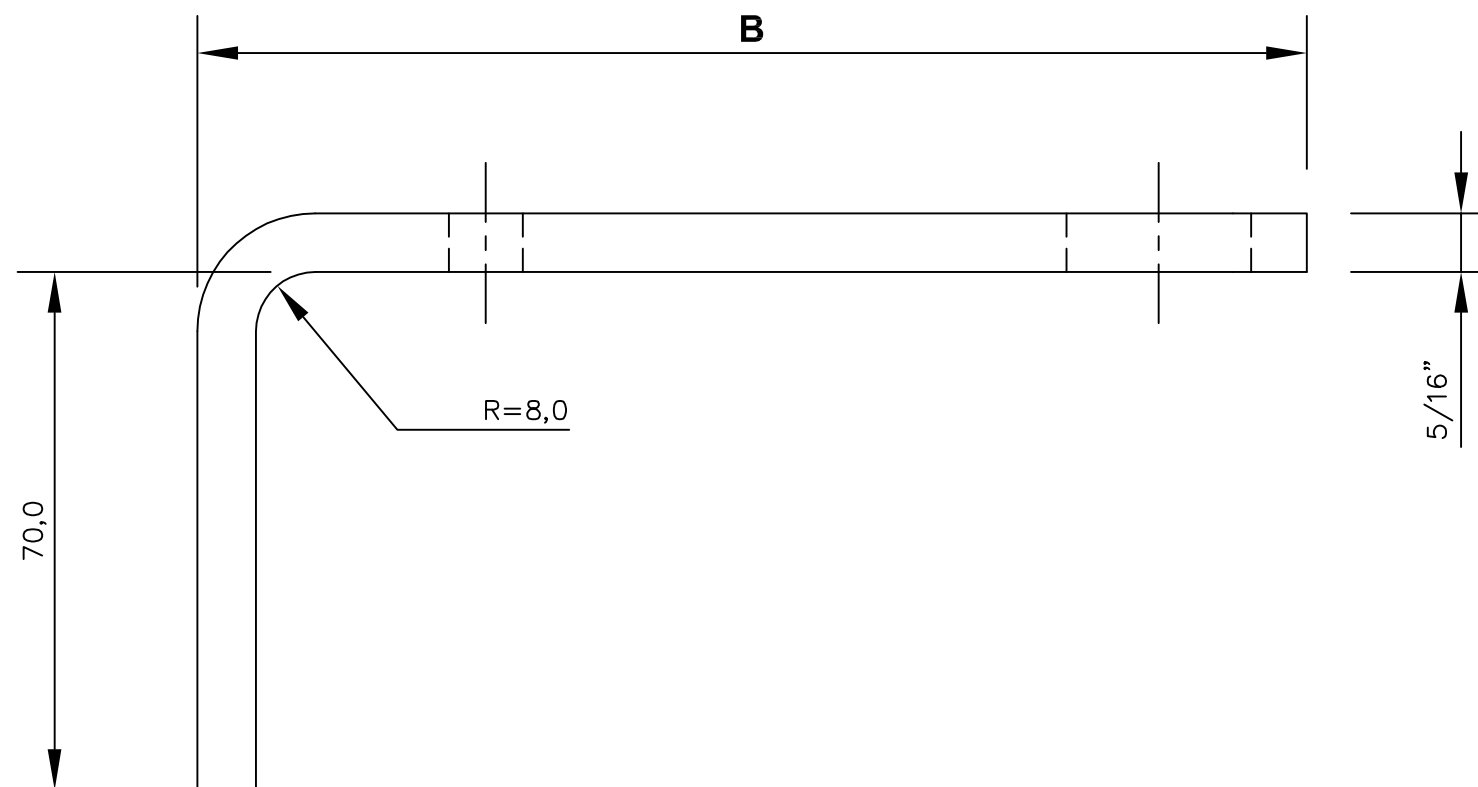
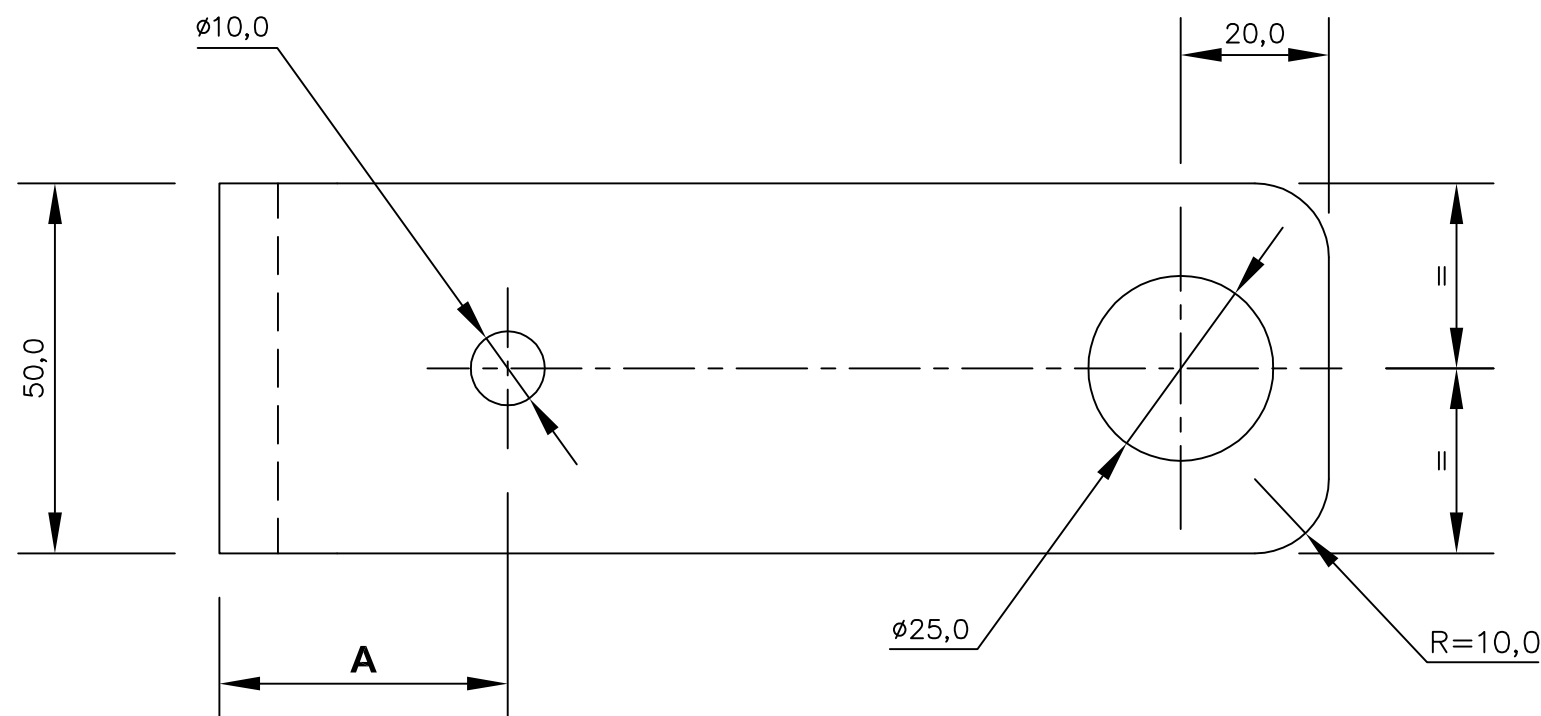
G

REFERENCE DOCUMENTS

RELATED ASSEMBLY:  
I-DE-3010.00-1300-279-PPC-300

GENERAL NOTES

- ( 1 ) - Zi-Ni
- ( 2 ) - AFTER Zi-Ni, PAINT WITH ANTIFOULING PAINT OF COLOR DIFERENT FROM THE PAINTED ONE ON THE MAIN STRUCTURE.



I-TUBE	A	B
26"		
28"		
30"		
32"	34,0	145,0
34"		
36"		
38"		
40"		
42"		
44"		
46"	39,0	155,0
48"	39,0	155,0

REV.	DESCRIPTION	DATE	EXEC.	CHECK	APPROV.
A	INCLUDED R=10,0	MAY 10,2017	PDDP/TDUT	FLAVIO	VINICIUS
0	ORIGINAL		PDDP/TDUT	CAPLLONCH	VINICIUS

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**PETROBRAS** PETROLEO BRASILEIRO S.A. CENPES

CLIENT OR USER: E & P

JOB OR PROJECT: FPSO UNIT

AREA OR UNIT: PRODUCTION

TITLE: EYE PLATE

DESIGN PDDP/TDUT	DRAWN PDDP/TDUT	CHECK CAPLLONCH
APPROVAL VINICIUS	SIZE A3	CC
DATE FEB 21,2017	SCALE 1:1	SHEET 1 of 1

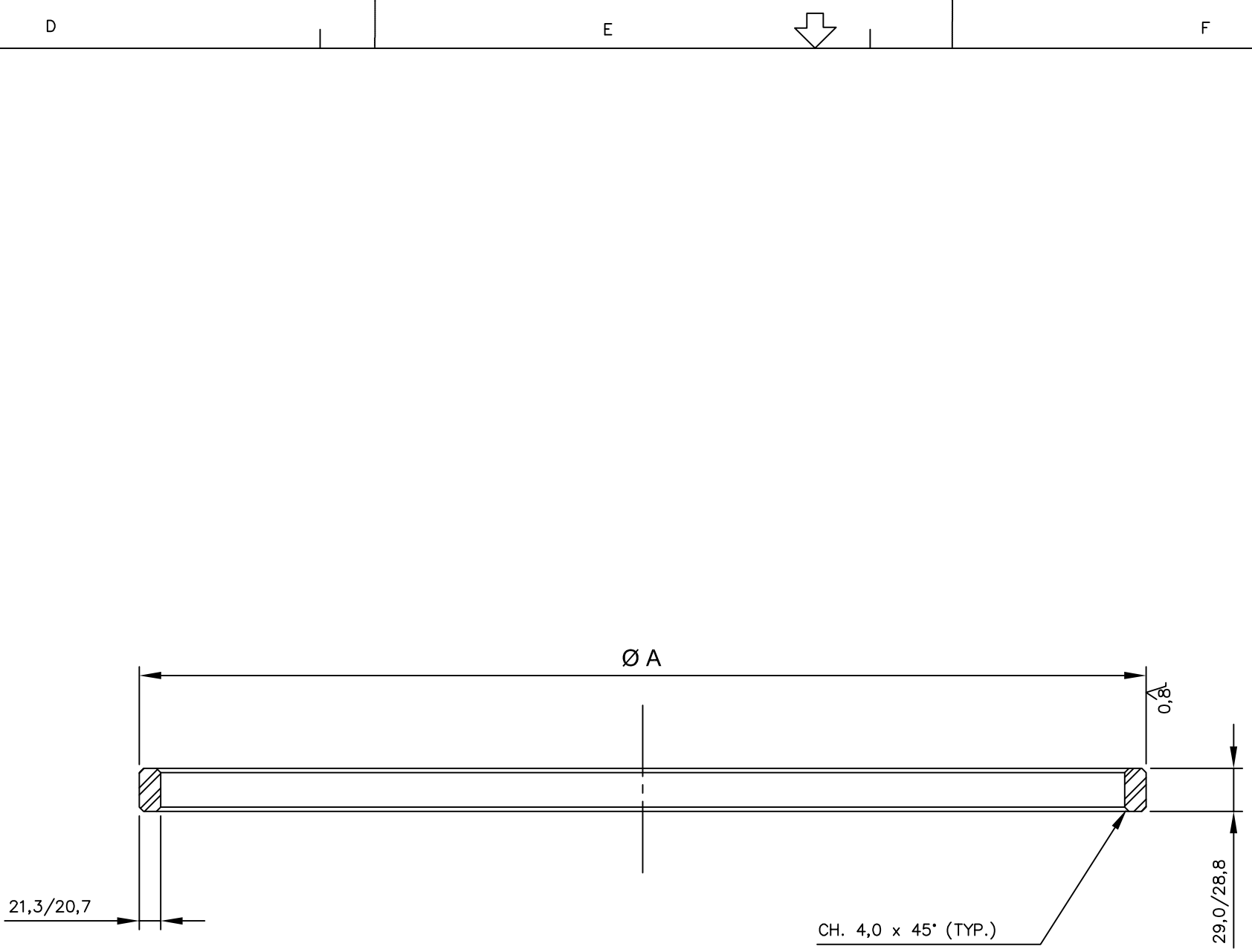
No. I-DE-3010.00-1300-279-PPC-318

MATERIAL	SAE 1045	WEIGHT	RUGOSITY (C.L.A)	SURFACE COATING	GENERAL NOTES												
LINEAR DIMENSIONS NOT INDICATED - BOILERMAKING			LINEAR DIMENSIONS NOT INDICATED - MACHINING														
DIMENSIONS (mm)	DE 2 ≤30	>30 ≤120	>120 ≤400	>400 ≤1000	>1000 ≤2000	DIMENSIONS (mm)	DE 0,5 ≤3	>3 ≤6	>6 ≤30	>30 ≤120	>120 ≤400	>400 ≤1000	>1000 ≤2000	>2000 ≤4000			
TOLERANCES	±1	±3	±4	±6	±8	±11	±14	±18	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0	±3,0	±4,0	
									LENGHT	±0,1	±0,1	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0
									DIAMETER	±0,1	±0,1	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0

STANDARDIZED FORM BY EP-2B-0001 - FIGURE A22



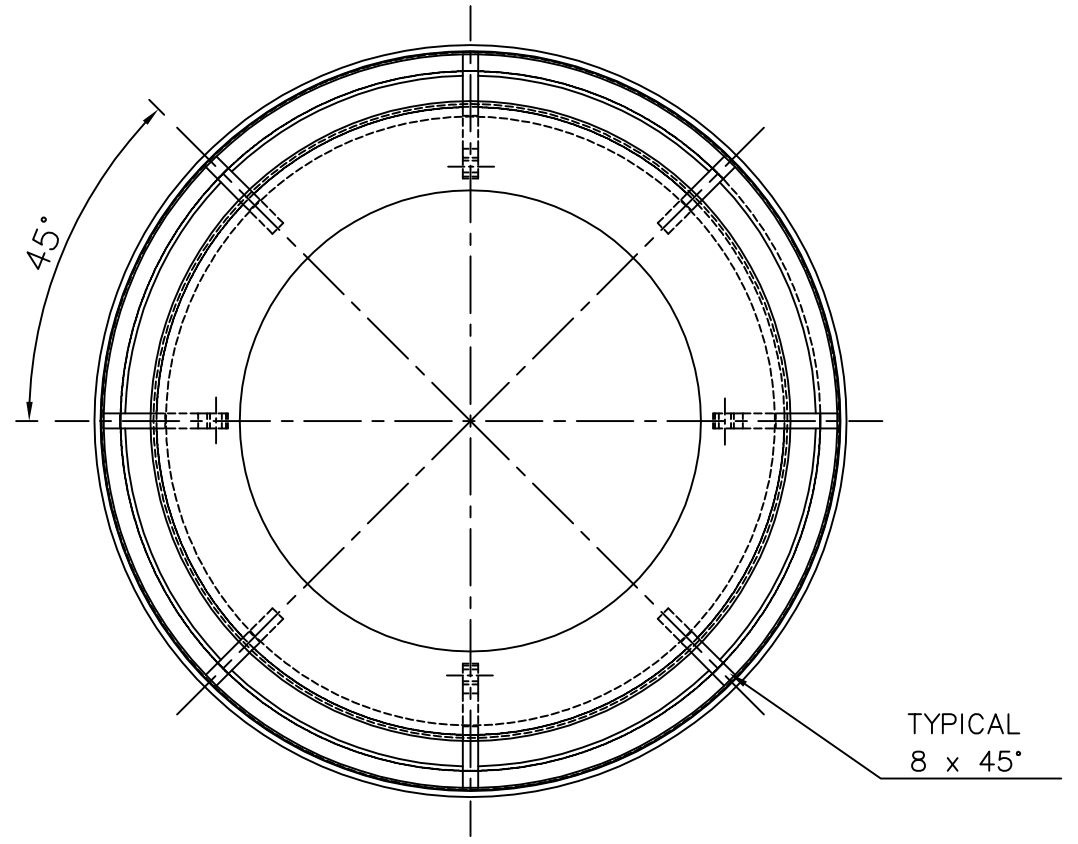
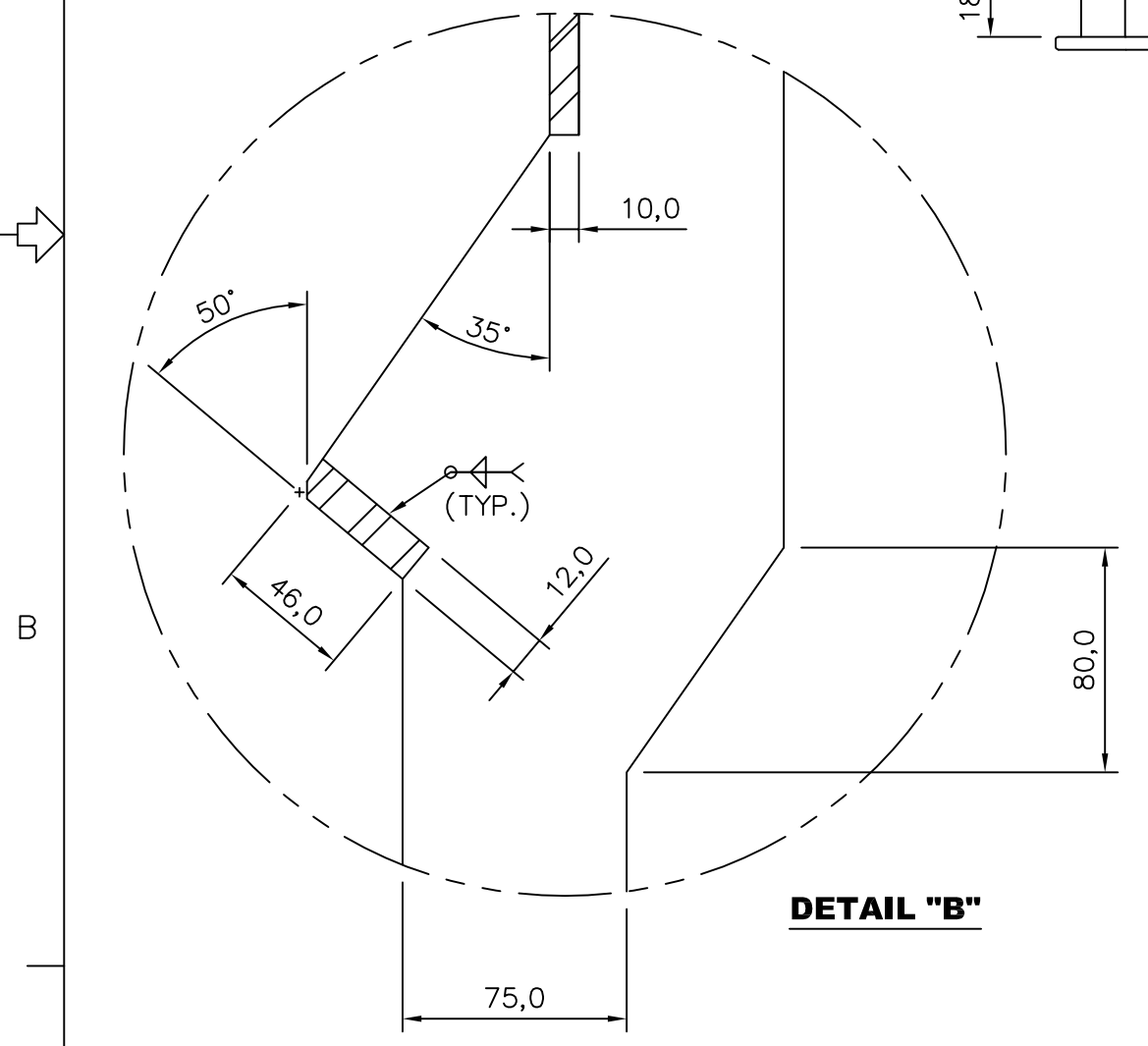
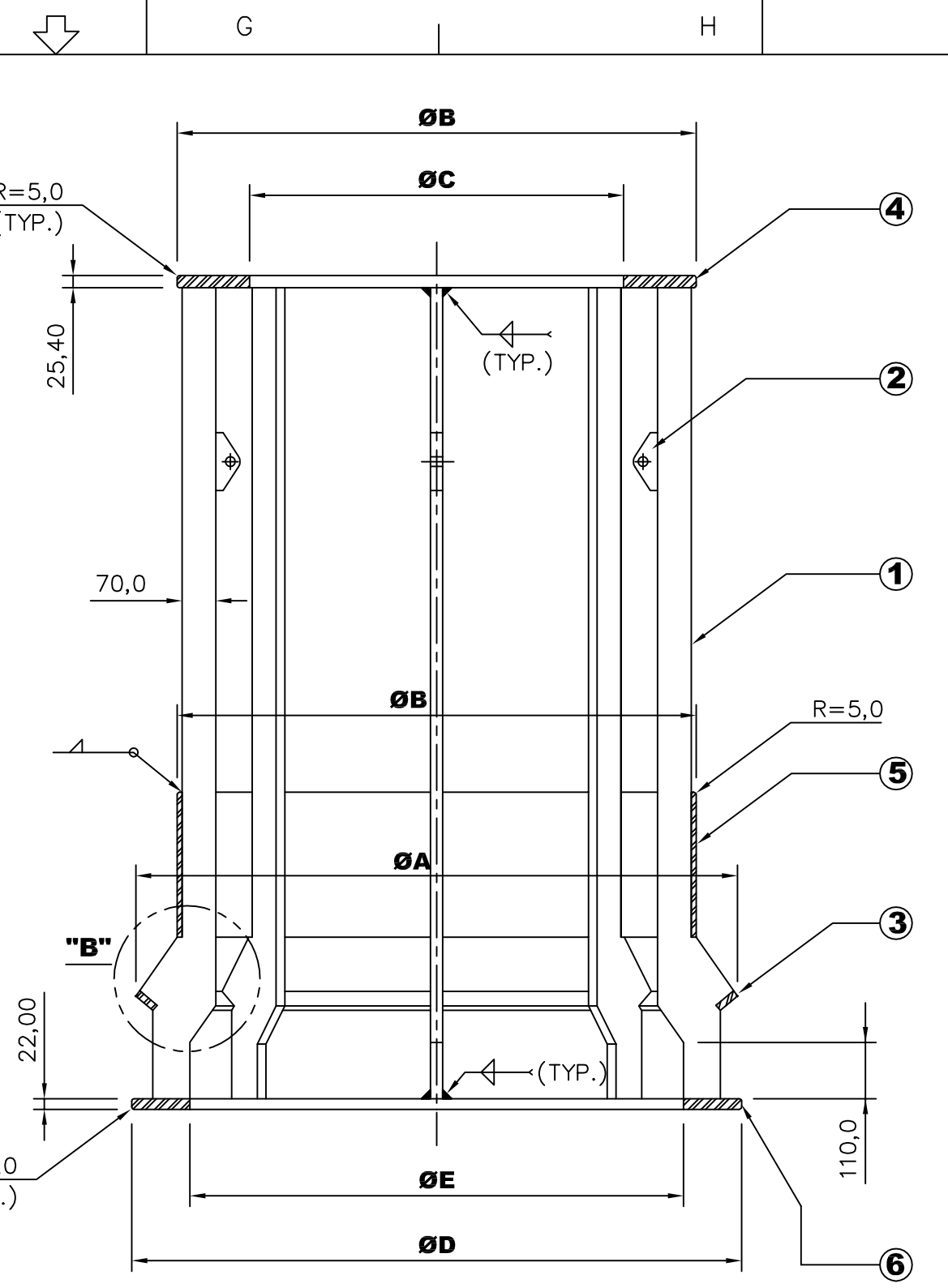
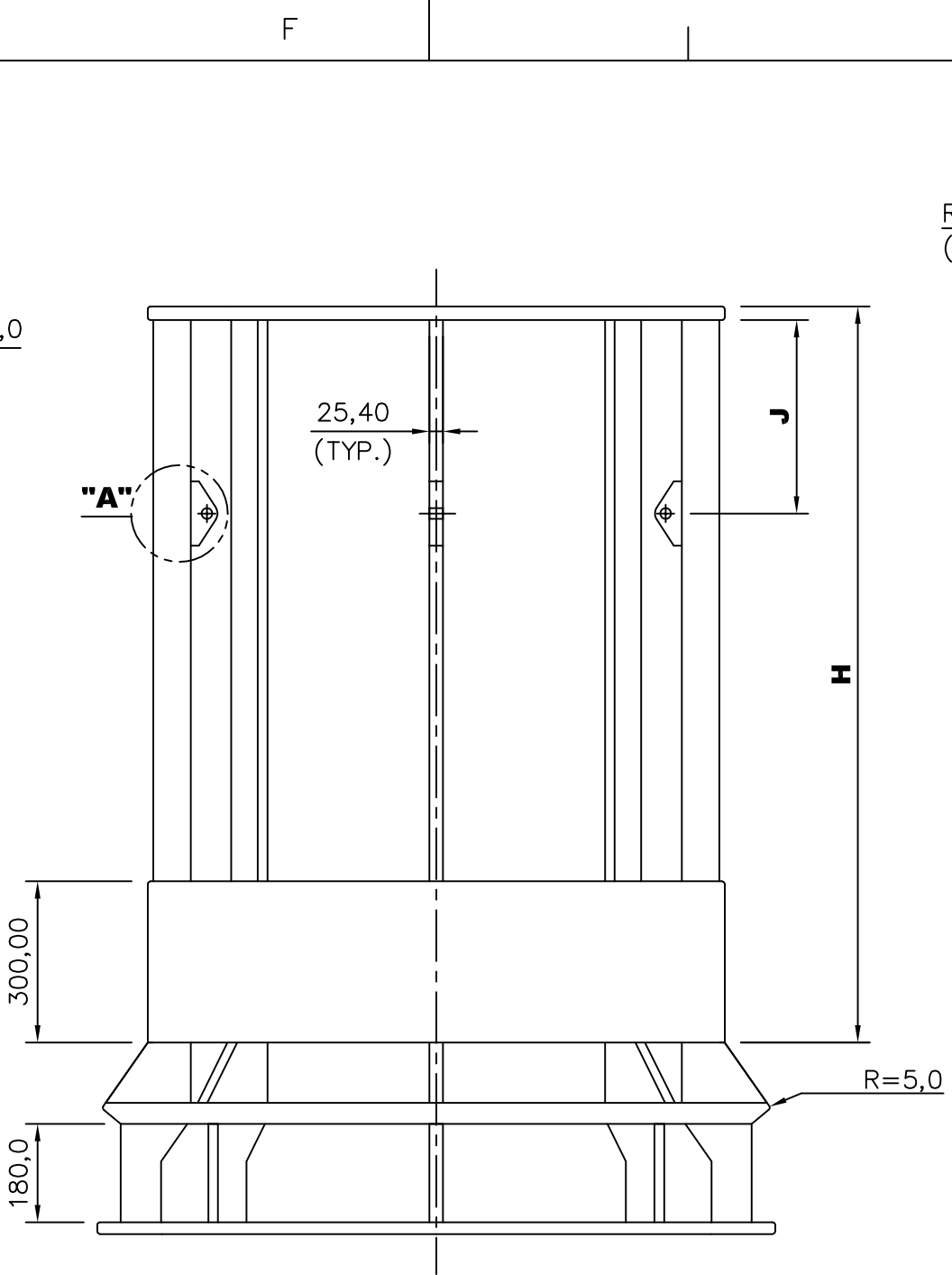
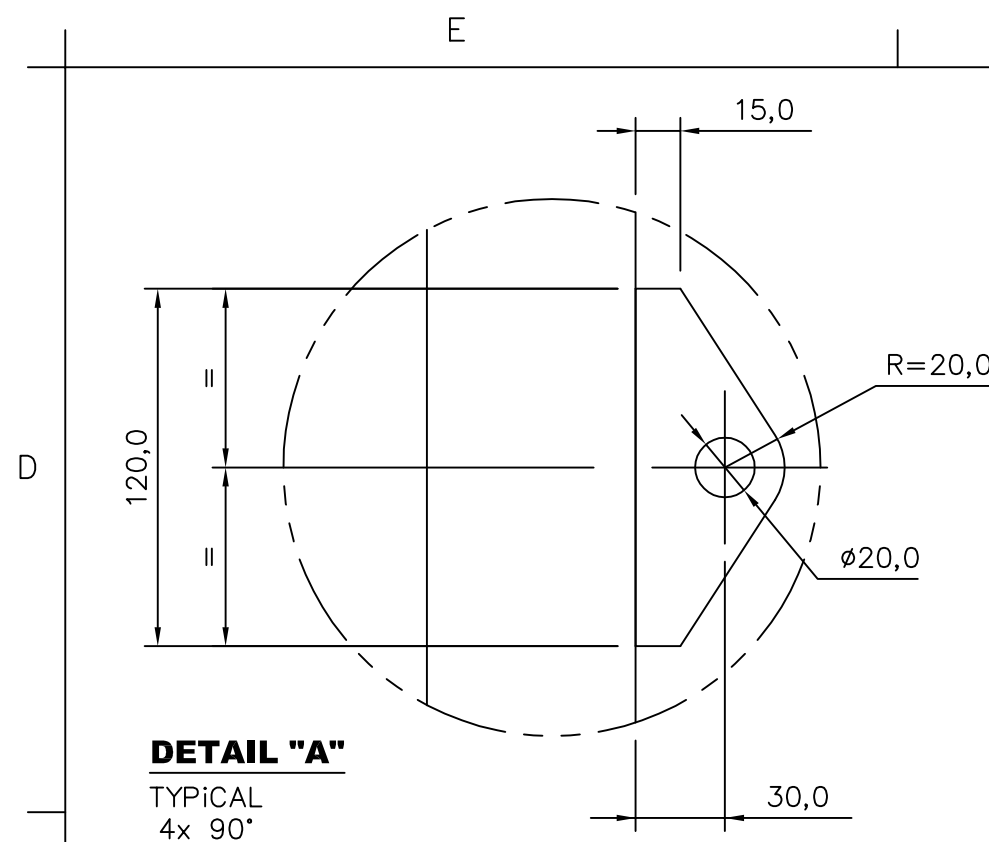




I-TUBE	Ø A
26"	
28"	
30"	
32"	739,4/739,0
34"	
36"	
38"	
40"	
42"	
44"	
46"	1089,4/1089,0
48"	1139,4/1139,0

REFERENCE DOCUMENTS																										
NEXT ASSEMBLY: I-DE-3000.00-1300-279-PPC-300																										
GENERAL NOTES																										
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="3">MATERIAL</td> </tr> <tr> <td colspan="3" style="text-align: center;">PLATE 1" - ASTM DH 36</td> </tr> <tr> <td style="width: 33%;">TOLERANCE</td> <td style="width: 33%;">RUGOSITY (C.L.A)</td> <td style="width: 33%;">WEIGHT(Kg)</td> </tr> <tr> <td style="text-align: center;">± 0,4</td> <td style="text-align: center;">6,4 μm</td> <td></td> </tr> <tr> <td colspan="3">SURFACE COATING</td> </tr> <tr> <td colspan="3" style="text-align: center;">Zi-Ni</td> </tr> <tr> <td colspan="2">DIMENSIONS IN MILIMETERS (UNLESS INDICATED)</td> <td style="text-align: center;"> </td> </tr> </table>						MATERIAL			PLATE 1" - ASTM DH 36			TOLERANCE	RUGOSITY (C.L.A)	WEIGHT(Kg)	± 0,4	6,4 μm		SURFACE COATING			Zi-Ni			DIMENSIONS IN MILIMETERS (UNLESS INDICATED)		
MATERIAL																										
PLATE 1" - ASTM DH 36																										
TOLERANCE	RUGOSITY (C.L.A)	WEIGHT(Kg)																								
± 0,4	6,4 μm																									
SURFACE COATING																										
Zi-Ni																										
DIMENSIONS IN MILIMETERS (UNLESS INDICATED)																										
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REV.</th> <th>DESCRIPTION</th> <th>DATE</th> <th>EXEC.</th> <th>CHECK</th> <th>APPROV.</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0</td> <td style="text-align: center;">ORIGINAL</td> <td></td> <td style="text-align: center;">PDDP/TDUT</td> <td style="text-align: center;">CAPLLONCH</td> <td style="text-align: center;">VINICIUS</td> </tr> </tbody> </table>						REV.	DESCRIPTION	DATE	EXEC.	CHECK	APPROV.	0	ORIGINAL		PDDP/TDUT	CAPLLONCH	VINICIUS									
REV.	DESCRIPTION	DATE	EXEC.	CHECK	APPROV.																					
0	ORIGINAL		PDDP/TDUT	CAPLLONCH	VINICIUS																					
THE DATA, OR PART THEREOF ARE PETROBRAS PROPERTY AND THUS MUST NOT BE USED IN ANY WAY WITHOUT PERMISSION																										
<b>PETROBRAS</b>			CENPES																							
CLIENT OR USER																										
E & P																										
JOB OR PROJECT																										
FPSO UNIT																										
AREA OR UNIT																										
PRODUCTION																										
TITLE																										
ALIGNMENT RING																										
DESIGN	PDDP/TDUT	DRAWN	PDDP/TDUT	CHECK	CAPLLONCH																					
APPROVAL	VINICIUS	SIZE	A3	CC																						
DATE	DEC 15,2016	SCALE	-	SHEET	1 of 1																					
No.	I-DE-3010.00-1300-279-PPC-321																									

STANDARDIZED FORM BY EP-2B-0001 - FIGURE A22



REFERENCE DOCUMENTS

GENERAL NOTES

- 1 - DO NOT PAINT
- 2 - ALL DIMENSIONS OF DIAMETER TAKE INTO ACCOUNT THE "CAP" ALREADY COATED.

**MATERIAL:**

- ① - PLATE 1" - ASTM A36
- ② - PLATE 1" - ASTM A36
- ③ - PLATE 1/2" - ASTM A36
- ④ - PLATE 1" - ASTM A36
- ⑤ - PLATE 10mm - ASTM A36
- ⑥ - PLATE 1" - ASTM A36

A	GENERAL REVISION	MAY 10, 2017	PDDP/TDUT	VOLANTE	VINIUS
0	ORIGINAL		PDDP/TDUT	CAPLONCH	VINIUS
REV.	DESCRIPTION	DATE	EXEC.	CHECK	APPROV.

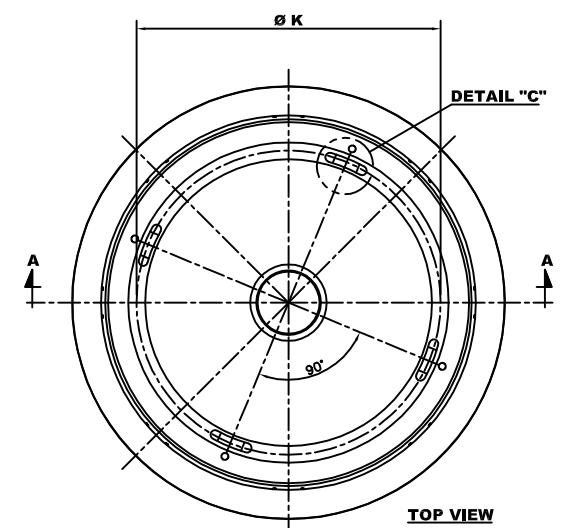
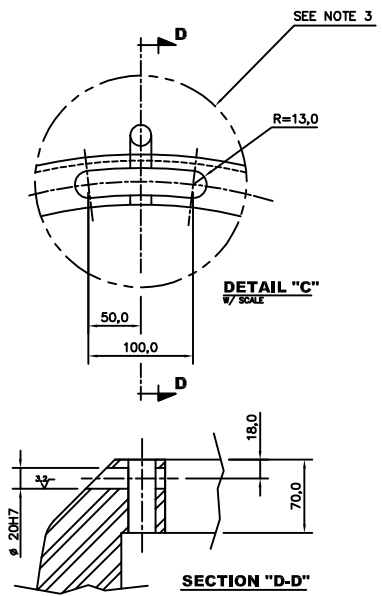
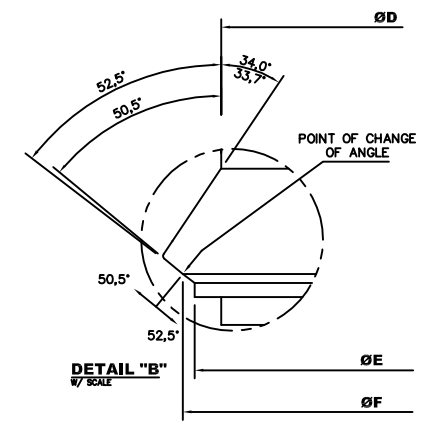
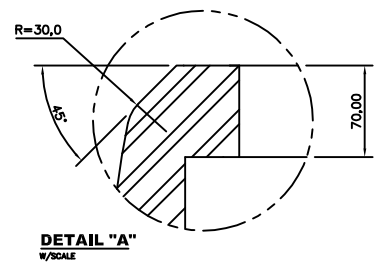
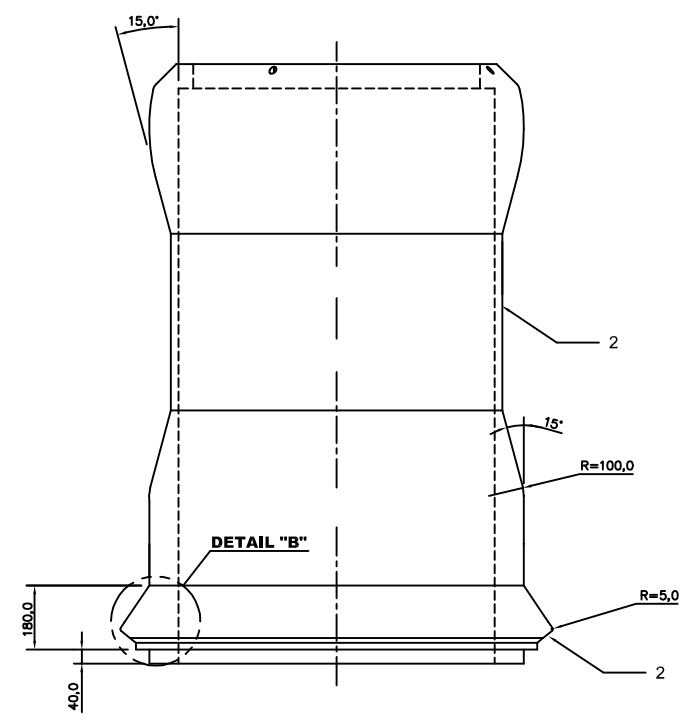
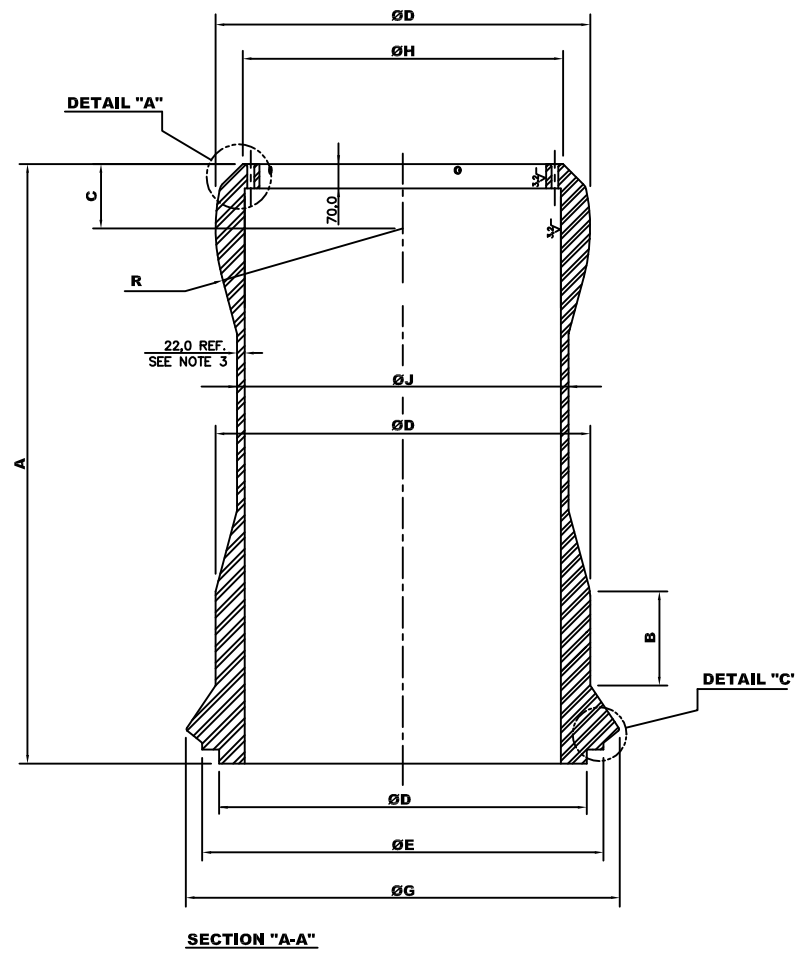
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		CENPES	
CLIENT OR USER	E & P		
JOB OR PROJECT	FPSO UNIT		
AREA OR UNIT	PRODUCTION		
TITLE	DUMMY CAP		
DESIGN	PDDP/TDUT	DRAWN	PDDP/TDUT
CHECK	CAPLONCH	APPROVAL	VINIUS
SCALE	1:12,5	SIZE	A2: 594X420
DATE	JAN12, 2017	SHEET	1 of 1
No.	I-DE-3010.00-1300-279-PPC-323		

I-TUBE	Ø A	Ø B	Ø C	Ø D	Ø E	H	J
26"							
28"							
30"							
32"	843,0/842,0	676,10/673,5	373,0	861,3/858,3	623,6	950,0	260,0
34"							
36"							
38"							
40"							
42"							
44"							
46"	1193,0/1192,0	1026,1/1024,0	724,2	1212,0/1211,1	973,6	1370,0	360,0
48"	1245,0/1244,0	1078,1/1076,0	774,0	1264,0/1263,1	1025,6	1370,0	360,0

MATERIAL	RUGOSITY (C.L.A)	SURFACE COATING TREATMENT	Zi-Ni
LINEAR DIMENSIONS NOT INDICATED - BOILERMAKING		LINEAR DIMENSIONS NOT INDICATED - MACHINING	
DIMENSIONS (mm)	DE 2 ≤30	>30 ≤120	>120 ≤400
	>400 ≤1000	>1000 ≤2000	>2000 ≤4000
	>4000 ≤8000	>8000 ≤12000	
TOLERANCES	±1	±3	±4
	±6	±8	±11
	±14	±18	
		LENGHT	±0,2
		DIAMETER	±0,1

STANDARDIZED FORM BY EP-28-0001 - FIGURE A.30



I-TUBE	A	B	C	ØD	ØE	ØF	ØG	ØH	ØJ	ØK
26"										
28"										
30"										
32"	1310,0/1308,0	310,0	140,0/138,0	673,0/672,0	748,0/746,0	790,0	843,0/842,0	569,0	573,0	495,0
34"										
36"										
38"										
40"										
42"										
44"										
46"	1730,0/1728,0	290,0	200,0/198,0	1023,0/1022,0	1099,0/1097,0	1141,2	1194,0/1193,0	867,2	899,2	821,2
48"	1730,0/1728,0	290,0	200,0/198,0	1075,0/1074,0	1150,0/1148,0	1192,0	1245,0/1244,0	936,0	950,0	872,0

REFERENCE DOCUMENTS  
I-DE-3010.00-1300-279-PPC-330

GENERAL NOTES  
1 - DIMENSIONS IN MILLIMETERS ( UNLESS ) INDICATED.  
2 - PTFE WERE INDICATED EXTERNAL SURFACE  
3 - PRELIMINARY DIMENSIONS - FINAL DESIGN SHALL BE DEFINED BY THE RISER SUPPLIER.

REV.	DESCRIPTION	DATE	EXEC.	CHECK	APPROV.
A	GENERAL REVISION				
0	ORIGINAL				

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**PETROBRAS** PETRÓLEO BRASILEIRO S.A.  
CLIENT OR USER: CENPES  
JOB OR PROJECT: E & P  
AREA OR UNIT: FPSO UNIT  
TITLE: PRODUCTION  
CAP DL

MATERIAL	WEIGHT	ROUGHNESS (CLA)	SURFACE COATING	TREATMENT	EPDM
ASTM A-36					
LINEAR DIMENSIONS NOT INDICATED - BOILERMAKING			LINEAR DIMENSIONS NOT INDICATED - MACHINING		
DIMENSIONS (mm)	DE 2	>30	>120	>400	>1000
TOLERANCES	±1	±3	±4	±6	±8
	±11	±14	±18		
DIMENSIONS (mm)	DE 0,8	>3	>8	>30	>120
LENGTH	±0,2	±0,3	±0,5	±0,8	±1,2
DIAMETER	±0,1	±0,1	±0,3	±0,5	±0,8

DESIGN	PDDP/TDUT	DRAWN	PDDP/TDUT	CHECK	CAPLONCH	APPROVAL	VINICIUS
SCALE		SIZE	A1	CC		SHEET	1 of 2
DATE	FEB 23, 2017	No.	I-DE-3010.00-1300-279-PPC-325				

D

E

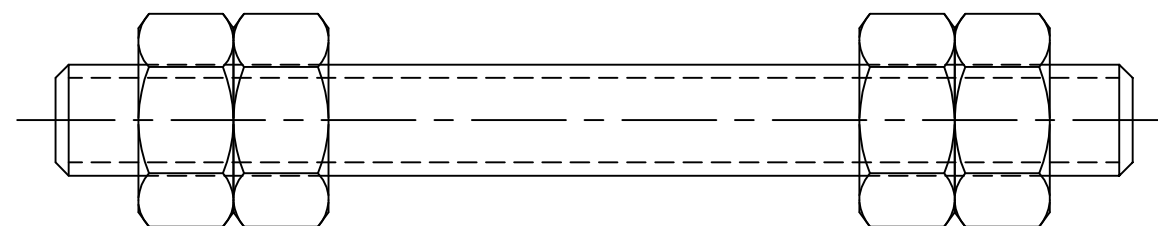
F

G

C

B

A



REFERENCE DOCUMENTS

NEXT ASSEMBLY:  
I-DE-3010.00-1300-279-PPC-300

GENERAL NOTES

- 1 - DROP BOLT MATERIAL:  
ASTM A 193-B7 CADMIUM or  
ZINC-NICKEL PLATING
- HEX NUT AND LOCK NUT MATERIAL:  
ASTM A 194 Gr 2

I-TUBE	DROP BOLT	HEX NUT AND LOCK NUT
26"		
28"		
30"		
32"	3.1/4"-8UNC-2A x 38.1/2"	3.1/4"-8UNC-2B
34"		
36"		
38"		
40"		
42"		
44"		
46"	4"-8UNC-2A x 49.3/4"	4"-8UNC-2B
48"	4"-8UNC-2A x 50.3/8"	4"-8UNC-2B

A	TITLE	MAY 10,2017	PDDP/TDUT	BRUNO PINHO	VINIUS
0	ORIGINAL		PDDP/TDUT	CAPLLONCH	VINIUS
REV.	DESCRIPTION	DATE	EXEC.	CHECK	APPROV.

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PETROLEO BRASILEIRO S.A. <b>PETROBRAS</b>	CENPES
--	--------

CLIENT OR USER **E & P**

JOB OR PROJECT **FPSO UNIT**

AREA OR UNIT **PRODUCTION**

TITLE **BOLTS**

DESIGN PDDP/TDUT	DRAWN PDDP/TDUT	CHECK CAPLLONCH
APPROVAL VINIUS	SIZE A3	CC
DATE FEB 23,2017	SCALE -	SHEET 1 of 1

No. **I-DE-3010.00-1300-279-PPC-330**

MATERIAL	WEIGHT	RUGOSITY (C.L.A)	SURFACE COATING TREATMENT																							
LINEAR DIMENSIONS NOT INDICATED - BOILERMAKING			LINEAR DIMENSIONS NOT INDICATED - MACHINING																							
DIMENSIONS (mm)	DE 2 ≤30	>30 ≤120	>120 ≤400	>400 ≤1000	>1000 ≤2000	>2000 ≤4000	>4000 ≤8000	>8000 ≤12000	DIMENSIONS (mm)	DE 0,5 ≤3	>3 ≤6	>6 ≤30	>30 ≤120	>120 ≤400	>400 ≤1000	>1000 ≤2000	>2000 ≤4000									
TOLERANCES	±1	±3	±4	±6	±8	±11	±14	±18	LENGHT	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0	±3,0	±4,0	DIAMETER	±0,1	±0,1	±0,2	±0,3	±0,5	±0,8	±1,2	±2,0

STANDARDIZED FORM BY EP-2B-0001 - FIGURE A22