

# مدارک فنی مناقصه

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR LOOP PREPOLY (60 LT)  
SAMPLING CYCLONE (CY-251)

## DATA SHEET FOR LOOP PREPOLY (60 LT) SAMPLING CYCLONE (CY-251)

Document No.: 200-DAS-A4-EQ-0058

Rev. : 01

Owner Job No.:

Type: DAS

Page : A



PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR LOOP PREPOLY (60 LT)  
SAMPLING CYCLONE (CY-251)

1	Item No.:CY-251	Quantity: 1	Location: Outdoor	Service: Continuous	
2	<b>DESIGN CONDITIONS</b>				
3					
4		<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>	
5	Operating Temperature(Min./Max.) °C	-30/+20	-/-	-/-	
6	Operating Pressure barg	30	-	-	
7	Density kg/m <sup>3</sup>	550	-	-	
8	Design Pressure(int./ext.) barg	45/-	-/-	-/-	
9	Design Temperature °C	-60/+180	-/-	-/-	
10	Volume(total) Liters	9.4	-	-	
11	Hydro Test Pressure barg	as per UG99b(33)	-	-	
12	Corrosion Allowance(shell/head) mm	0/0	-/-	-/-	
13	Cladding (shell/head) mm	-/-	-/-	-/-	
14	Content @ normal operation	Hydrocarbons+Slurry	-	-	
15	Thickness(shell/head) mm	8/20	-/-	-/-	
16	Welding Radiography(shell/head) %	100/100	-/-	-/-	
17	Joint Efficiency(shell/head)	1/1	-/-	-/-	
18	Top Head Type	Welded Flat	-	-	
19	Bottom Head Type	Cone	-	-	
20	Design code: ASME SEC. VIII DIV.1	Inspection code: ASME SEC. IX			
21	Cylinder Deminsion(IDxCyl.): $\triangle 1$ pipe 6" x 350 mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No			
22	M.D.M.T @ D.P: -60 °C	M.A.T: - °C			
23	M.A.W.P: 47.16 barg Limited by: Body Flange	Stamp: Not Required			
24	Impact Test: Not Required	P.W.H.T: Not Required			
25	N.D.T: Required	Vessel lining detail:			
26	HIC/SSC resistance: - / -	Painting & Coating: as per code			
27	Insulation thickness: $\triangle 1$ 30 mm	Insulation type: HOT			
28	Fireproofing : $\triangle 1$ NO	Vessel located on: Structure			
29	Seismic code: UBC 1997	Seismic Zone: 3			
30	Impotance factor: 1.25	Soil Profile: SD			
31	Wind code: UBC	Wind velocity: 120 km/hr @ 10 m			
32	Impotance factor: 1.15	Exposure: C			
33	<b>Support loading data(Note 5)</b>				
34	Earthquake	Wind	<b>Weight(kg) (Note 5)</b>	Fabricated: 64.8	
35	Shearing load(kgf)	16		15	Empty: 99.1
36	Moment(kg.m)	2.4		5.9	Test: 108
					Operation: 99.2
37	<b>MISCELLANEOUS(Note 2,10)</b>				
38					
39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate		
40	<input type="radio"/> Diffuser	<input type="radio"/> Distributer	<input type="radio"/> Trunnion		
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template		
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation		
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss		
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input checked="" type="radio"/> Dip pipe		
45	<input type="radio"/> Fire Proofing Support $\triangle 1$	<input type="radio"/> Internal lining			
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting			
47	<input type="radio"/> Heating coil	<input type="radio"/> Internal clips			
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips			

Document No.: 200-DAS-A4-EQ-0058

Rev. : 01

Owner Job No.:

Type: DAS

0

Page : 1 of 6

PROJECT:PP-PE PILOT PLANT

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شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR LOOP PREPOLY (60 LT)  
SAMPLING CYCLONE (CY-251)


**MATERIALS(NOTE 2)**

4	Shell(Main/CONE)	SA312-304L	1 SA182-304L	Earth lug	SA240-316L
5	Head(Main/Jacket)	SA182-304L	/ -	Stiffening rings	-
6	Nozzle Necks (Main/Jacket)	Plate	- / -	Gaskets	Double O ring
7		Pipe	SA312-304L / -	Ext. bolt/Nuts	SA193-B7/SA194-2H
8	Cladding	-	-	Int. bolt/Nuts	SA193-B8/SA194-8
9	Nozzle flanges	1 SA182-304L	-	Wire mesh	-
10	Blind flanges	1 SA182-304L	-	Welded clip	SA240-304L
11	Reinforcing pad	-	-	Int. welded	SA240-304L
12	Fitting	SA403-304L	-	Int. removable	SA240-304L
13	Support	Leg	-	Anchor/Setting bolts	SA307-B
14		Lug	SA240-304L	Ladder/Platform	-
15		leg/lug pad	-	Insulation Mateial	MINERAL WOOL
16	Lifting lug	SA240-304L	-	-	-

**NOZZLE DETAILS(NOTE 2,3,4,7,8)**

Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks
		Rating	Type	NOTE				Width	Thk.		
<b>Top Head</b>											
22	P1	1"	600#	WN	RF	40S	Vent	see P. 4	-	-	ANSI B16.5
<b>Shell</b>											
25	P2	1 1/2"	600#	WN	RF	40S	Product Inlet	see P. 4	-	-	ANSI B16.5 Tangential
<b>Bottom Head</b>											
28	P3	1 1/2"	600#	WN	RF	40S	Product Outlet	see P. 4	-	-	ANSI B16.5
29											
30											
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Document No.: 200-DAS-A4-EQ-0058	Rev. : 01
Owner Job No.:	Type: DAS
0	Page : 2 of 6

PROJECT:PP-PE PILOT PLANT	Client:
TITLE:DATA SHEET FOR LOOP PREPOLY (60 LT)SAMPLING CYCLONE (CY-251)	 <p>شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی</p>

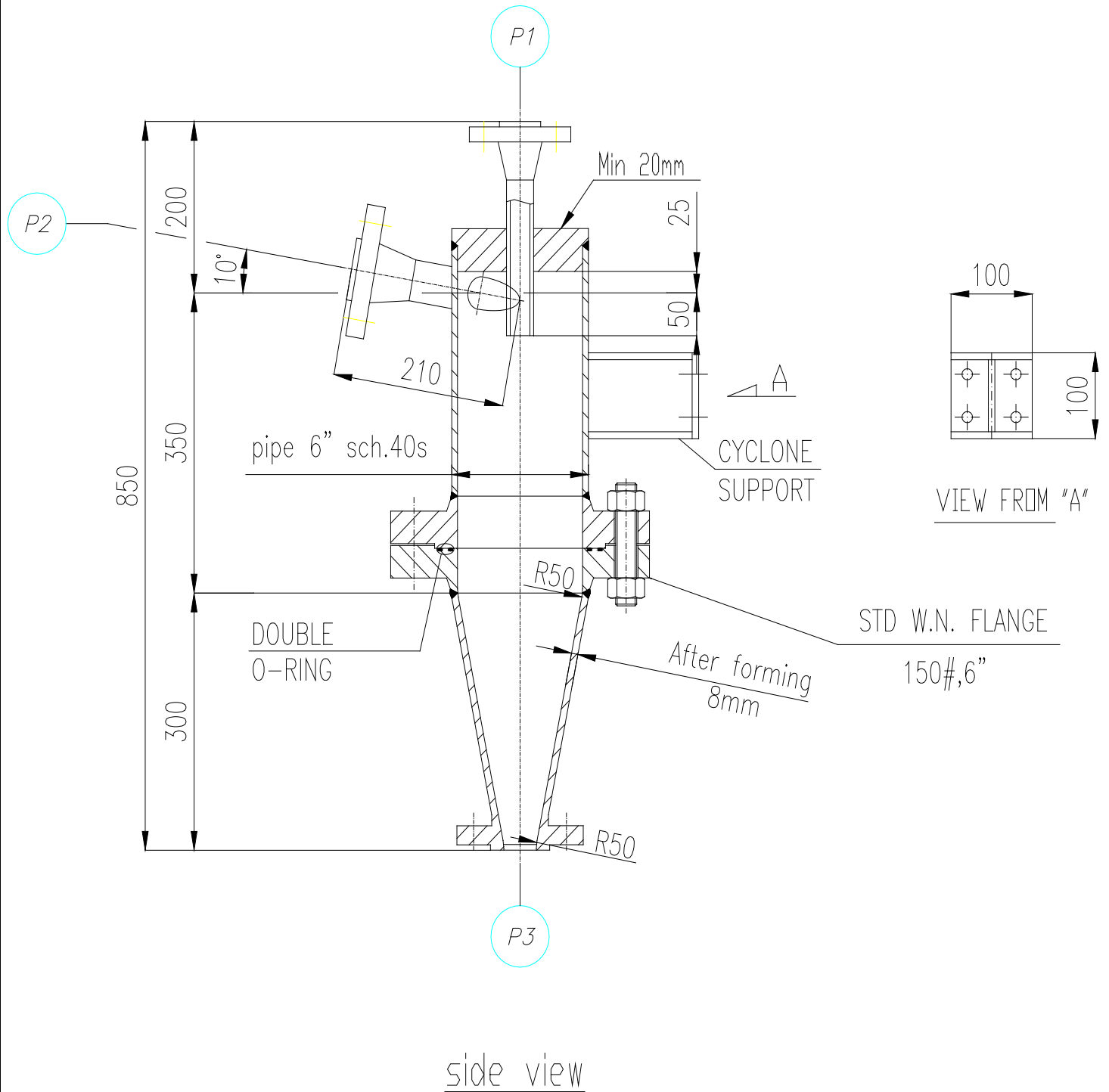
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2	NOZZLE LOADING DATA(NOTE 1)						
3							
4	Nozzle Name	FL (kgf)	FA (kgf)	FC (kgf)	MC (kg.m)	MT (kg.m)	ML (kg.m)
5							
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21	REFRENC DOCUMENTS		
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23	No.	Document No.	Document Title
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	Document No.: 200-DAS-A4-EQ-0058	Rev. : 01
	Owner Job No.:	Type: DAS
	0	Page : 3 of 6

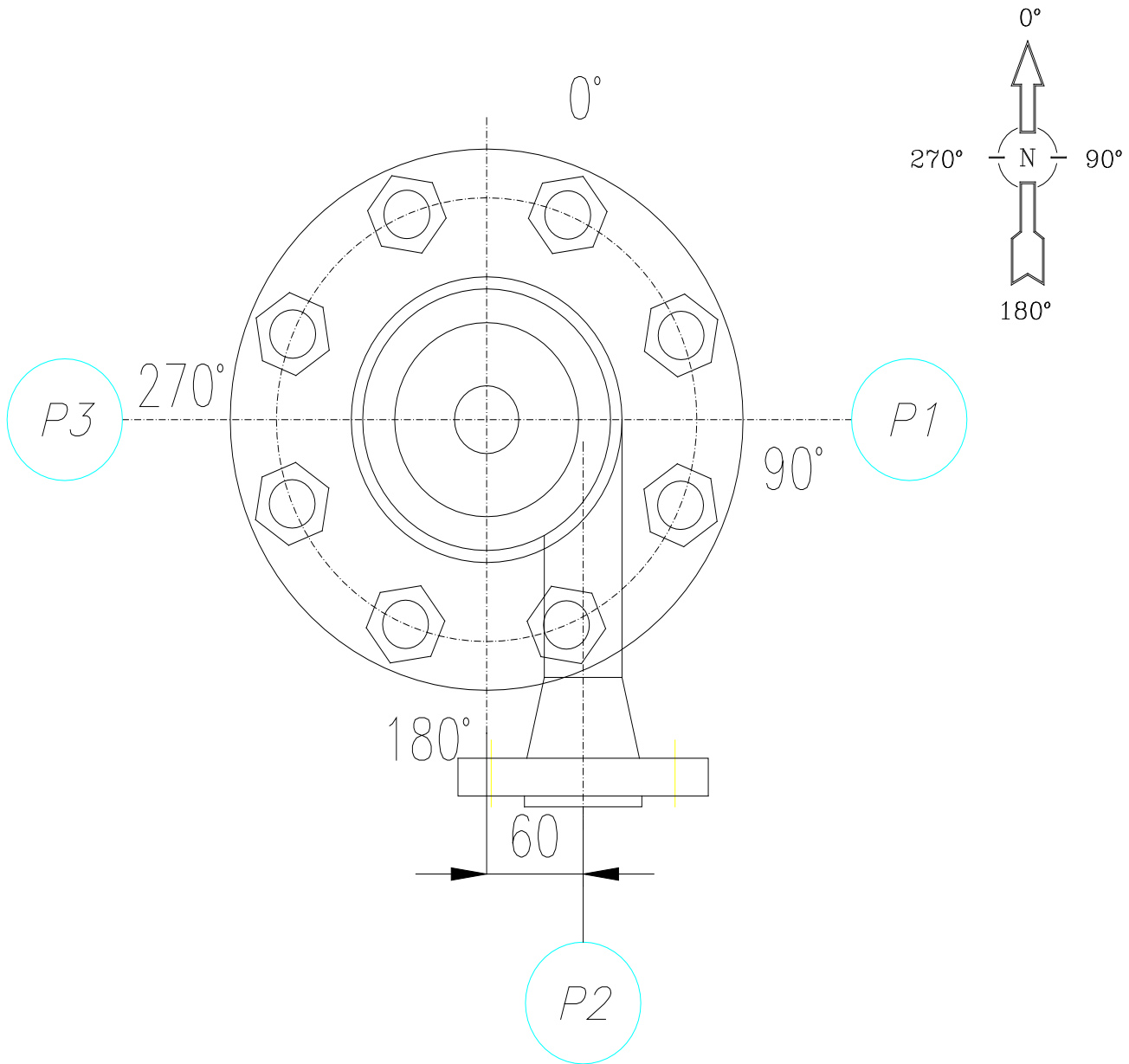


Sketch(Note 3)





Sketch(Note 3)



nozzle orientation



PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR LOOP PREPOLY (60 LT)  
SAMPLING CYCLONE (CY-251)

**General Notes:**

- 1- SHALL BE SPECIFIED BY VENDOR .
- 2- SHALL BE VERIFIED BY VENDOR.
- 3- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.
- 4- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.
- 5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 6- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF
- 7- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL
- 8- UNLESS OTHERWISE NOTED OUTSIDE PROJECTION OF NOZZLES ARE MEASURED FROM C.L./T.L. OF
- 9- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 10- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 11- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 12- SURFACE PREPARATAION,PICKLING&PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY
- 13- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.
- 14-FINISHING OF THE GASKET CONTACTING FACE SHALL BE SMOOTH FINISH RA=3.2 μm (125 μinch)
- 15-INTERNAL FINISHING SHALL BE SMOOTH FINISH RA= 0.4 μm (16μinch)
- 16- DESIGN TEMPERATURE (INT/EXT.): 180/- °C
- 17- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.: 200-DAS-A4-EQ-0058

Rev. : 01

Owner Job No.:

Type: DAS

0

Page : 6 of 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR LOOP PREPOLY (200 LT)  
SAMPLING CYCLONE (CY-261)

## DATA SHEET FOR LOOP PREPOLY (200 LT) SAMPLING CYCLONE (CY-261)

Document No.: 200-DAS-A4-EQ-0059

Rev. : 01

Owner Job No.:

Type: DAS

Page A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR LOOP PREPOLY (200 LT)  
SAMPLING CYCLONE (CY-261)

REV. PAGE	0	1	2	3	4	5	REV. PAGE	0	1	2	3	4	5
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B	X	X											
1	X	X											
2	X	X											
3	X	X											
4	X	X											
5	X	X											
6	X	X											

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1	18/11/2010	H.R	A.A	H.R	AFC
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<b>Revision</b>	<b>Date</b>	<b>Prepared By</b>	<b>Checked By</b>	<b>Approved By</b>	<b>Status</b>

Document Revision

	Document No.: 200-DAS-A4-EQ-0059	Rev. : 01
	Owner Job No.:	Type: DAS
		Page B

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR LOOP PREPOLY (200 LT)  
SAMPLING CYCLONE (CY-261)

1	Item No.:CY-261	Quantity: 1	Location: Outdoor	Service: Continuous	
2	<b>DESIGN CONDITIONS</b>				
3					
4		<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>	
5	Operating Temperature(Min./Max.) °C	-30/+60	-/-	-/-	
6	Operating Pressure barg	30	-	-	
7	Density kg/m <sup>3</sup>	550	-	-	
8	Design Pressure(int./ext.) barg	45/-	-/-	-/-	
9	Design Temperature °C	-60/+180	-/-	-/-	
10	Volume(total) Liters	9.4	-	-	
11	Hydro Test Pressure barg	as per UG99b(33)	-	-	
12	Corrosion Allowance(shell/head) mm	0/0	-/-	-/-	
13	Cladding (shell/head) mm	-/-	-/-	-/-	
14	Content @ normal operation	Hydrocarbons+Slurry	-	-	
15	Thickness(shell/head) mm	8/20	-/-	-/-	
16	Welding Radiography(shell/head) %	100/100	-/-	-/-	
17	Joint Efficiency(shell/head)	1/1	-/-	-/-	
18	Top Head Type	Welded Flat	-	-	
19	Bottom Head Type	Cone	-	-	
20	Design code: ASME SEC. VIII DIV.1	Inspection code: ASME SEC. IX			
21	Cylinder Deminsion(IDxCyl.): 1 PIPE 6" x 350 mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No			
22	M.D.M.T @ D.P: -60 °C	M.A.T: - °C			
23	M.A.W.P: 47.16 barg Limited by: Body Flange	Stamp: Not Required			
24	Impact Test: Not Required	P.W.H.T: Not Required			
25	N.D.T: Required	Vessel lining detail: NIL			
26	HIC/SSC resistance: - / -	Painting & Coating: as per code			
27	Insulation thickness: 40 mm	Insulation type: HOT			
28	Fireproofing : 1 NO	Vessel located on: Structure			
29	Seismic code: UBC 1997	Seismic Zone: 3			
30	Impotance factor: 1.25	Soil Profile: SD			
31	Wind code: UBC	Wind velocity: 120 km/hr @ 10 m			
32	Impotance factor: 1.15	Exposure: C			
33	<b>Support loading data(Note 5)</b>				
34	Earthquake	Wind	<b>Weight(kg) (Note 5)</b>	Fabricated: 64.8	
35	Shearing load(kgf)	16		15	Empty: 99.1
36	Moment(kg.m)	2.4		5.9	Test: 108
					Operation: 99.2
37	<b>MISCELLANEOUS(Note 2,10)</b>				
38					
39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate		
40	<input type="radio"/> Diffuser	<input type="radio"/> Distributer	<input type="radio"/> Trunnion		
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template		
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation		
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss		
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input checked="" type="radio"/> Dip pipe		
45	<input type="radio"/> Fire Proofing Support 1	<input type="radio"/> Internal lining			
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting			
47	<input type="radio"/> Heating coil	<input type="radio"/> Internal clips			
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips			

Document No.: 200-DAS-A4-EQ-0059

Rev. : 01

Owner Job No.:

Type: DAS

Page 1 of 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR LOOP PREPOLY (200 LT)  
SAMPLING CYCLONE (CY-261)

**MATERIALS(NOTE 2)**

4	Shell(Main/Cone)	SA312-304L	1	SA182-304L	Earth lug	SA240-316L	
5	Head(Main/Jacket)	SA182-304L	/	-	Stiffening rings	-	
6	Nozzle Necks	-	/	-	Gaskets	Double O ring	
7	(Main/Jacket)				Pipe	SA312-304L	/
8	Cladding	-	-	-	Int. bolt/Nuts	SA193-B8/SA194-8	
9	Nozzle flanges	1	SA182-304L	-	Wire mesh	-	
10	Blind flanges	1	SA182-304L	-	Welded clip	SA240-304L	
11	Reinforcing pad	-	-	-	Int. welded	SA240-304L	
12	Fitting	SA403-304L	-	-	Int. removable	SA240-304L	
13	Support	Leg	-	-	Anchor/Setting bolts	SA307-B	
14		Lug	SA240-304L	-	Ladder/Platform	-	
15		leg/lug pad	-	-	Insulation Mateial	MINERAL WOOL	
16	Lifting lug	SA240-304L	-	-	-	-	

**NOZZLE DETAILS(NOTE 2,3,4,7,8)**

Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks
		Rating	Type	Face				Width	Thk.		
<b>Top Head</b>											
P1	1"	600#	WN	RF	40S	Vent	see P. 4	-	-	ANSI B16.5	
<b>Shell</b>											
P2	1 1/2"	600#	WN	RF	40S	Product Inlet	see P. 4	-	-	ANSI B16.5	Tangential
<b>Bottom Head</b>											
P3	1 1/2"	600#	WN	RF	40S	Product Outlet	see P. 4	-	-	ANSI B16.5	

PROJECT:PP-PE PILOT PLANT

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شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR LOOP PREPOLY (200 LT)  
SAMPLING CYCLONE (CY-261)

1								
2	NOZZLE LOADING DATA(NOTE 1)							
3								
4	Nozzle	FL	FA	FC	MC	MT	ML	
5	Name	(kgf)	(kgf)	(kgf)	(kg.m)	(kg.m)	(kg.m)	
6								
7								
8								
9								
10								
11								
12								
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20								

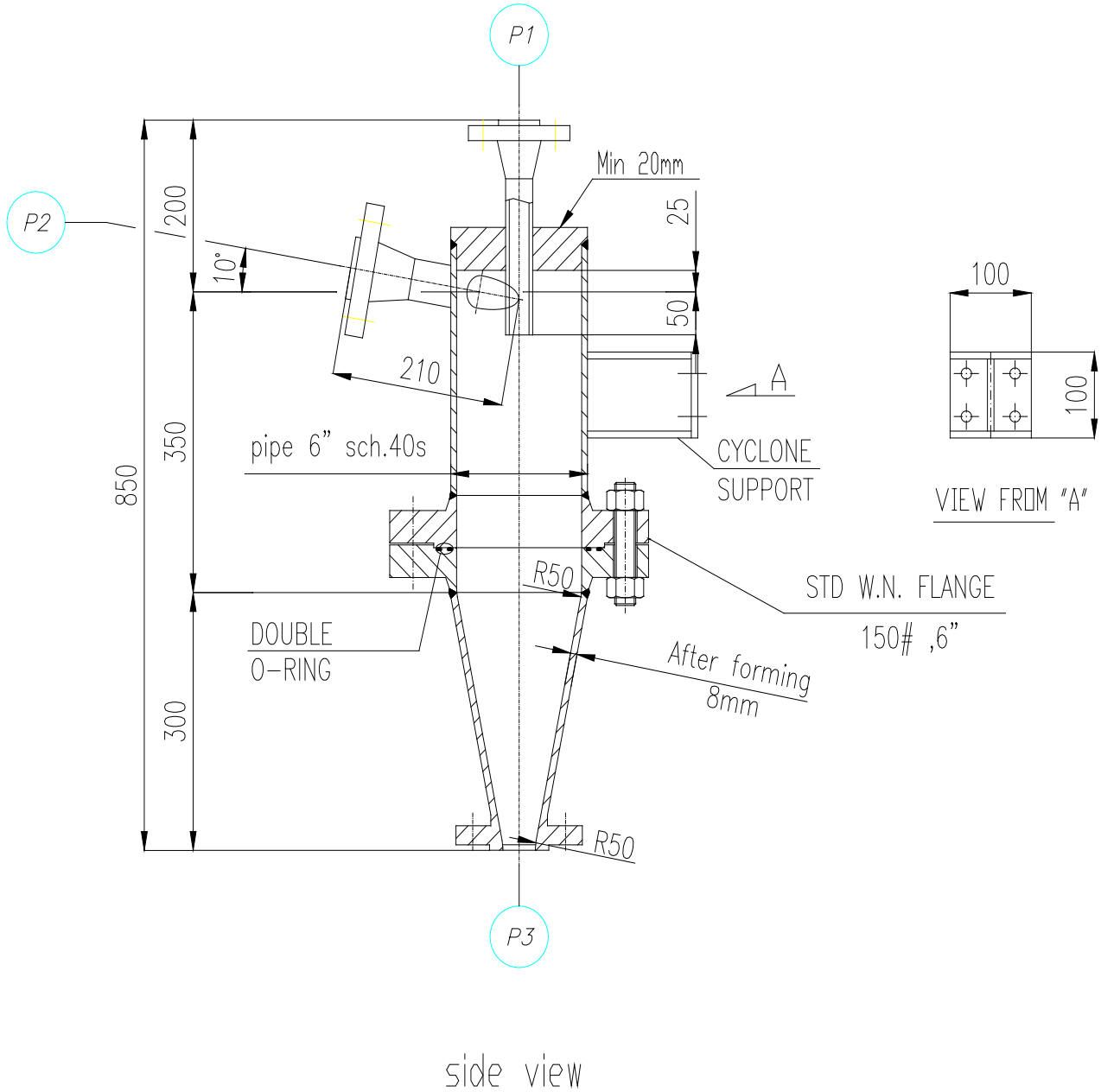
21	REFRENCE DOCUMENTS							
22								

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	Document No.: 200-DAS-A4-EQ-0059	Rev. : 01
	Owner Job No.:	Type: DAS
		Page 3 of 6

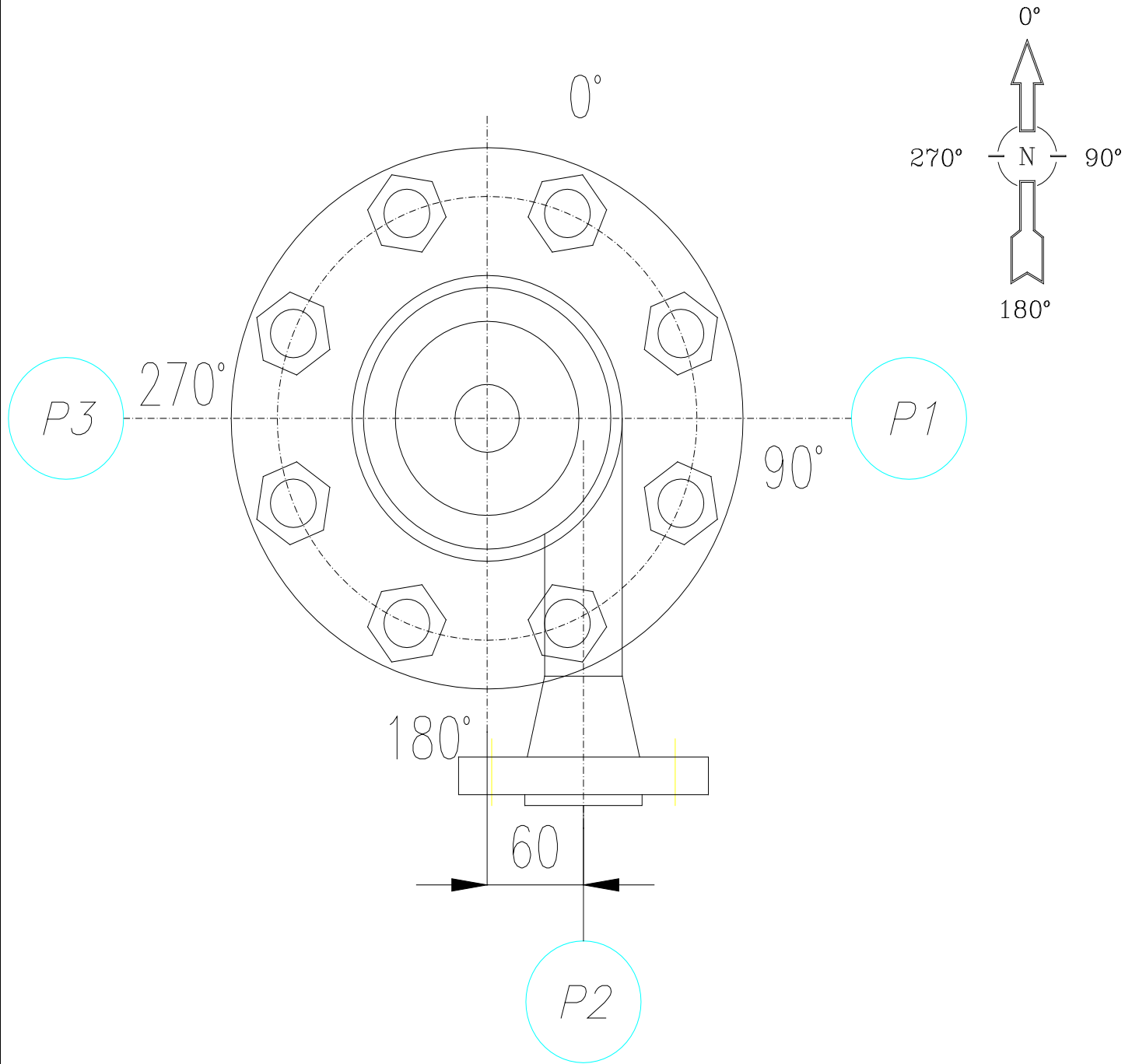


Sketch(Note 3)





Sketch(Note 3)



nozzle orientation



PROJECT:PP-PE PILOT PLANT

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شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR LOOP PREPOLY (200 LT)  
SAMPLING CYCLONE (CY-261)

**General Notes:**

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- 2- SHALL BE VERIFIED BY VENDOR.
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- 4- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.
- 5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 6- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF
- 7- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL
- 8- UNLESS OTHERWISE NOTED OUTSIDE PROJECTION OF NOZZLES ARE MEASURED FROM C.L./T.L. OF
- 9- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 10- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 11- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 12- SURFACE PREPARATAION,PICKLING&PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY
- 13- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.
- 14-FINISHING OF THE GASKET CONTACTING FACE SHALL BE SMOOTH FINISH RA=3.2 μm (125 μinch)
- 15-INTERNAL FINISHING SHALL BE SMOOTH FINISH RA= 0.4 μm (16μinch)
- 16- DESIGN TEMPERATURE (INT/EXT.) : 180/- °C
- 17- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.: 200-DAS-A4-EQ-0059

Rev. : 01

Owner Job No.:

Type: DAS

Page 6 of 6

PROJECT:PP-PE PILOT PLANT

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شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR1ST G.P.R. PRC CONTROL PURGING  
CYCLONE(CY-411)

## DATA SHEET FOR 1ST G.P.R. PRC CONTROL PURGING CYCLONE (CY-411)

Document No.: 400-DAS-A4-EQ-0090

Rev. : 01

Owner Job No.:

Type: DAS

Page A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
 شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR1ST G.P.R. PRC CONTROL PURGING  
 CYCLONE(CY-411)

REV. PAGE	0	1	2	3	4	5	REV. PAGE	0	1	2	3	4	5
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B	X	X											
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2	X	X											
3	X	X											
4	X	X											
5	X	X											
6	X	X											

5					
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1	18/11/2010	H.R	A.A	H.R	AFC
0					
Revision	Date	Prepared By	Checked By	Approved By	Status

Document revision

	Document No.: 400-DAS-A4-EQ-0090	Rev. : 01
	Owner Job No.:	Type: DAS
		Page A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR1ST G.P.R. PRC CONTROL PURGING CYCLONE(CY-411)

1	Item No.:CY-411	Quantity: 1	Location: Outdoor	Service: Continuous
2	<b>DESIGN CONDITIONS</b>			
3				
4		<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>
5	Operating Temperature(Min./Max.) °C	-30/+80	-/-	-/-
6	Operating Pressure barg	24	-	-
7	Density kg/m <sup>3</sup>	500	-	-
8	Design Pressure(int./ext.) barg	32/-	-/-	-/-
9	Design Temperature °C	-60/+180	-/-	-/-
10	Volume(total) Liters	5.6	-	-
11	Hydro Test Pressure barg	as per UG99b(33)	-	-
12	Corrosion Allowance(shell/head) mm	0/0	-/-	-/-
13	Cladding (shell/head) mm	-/-	-/-	-/-
14	Content @ normal operation	Hydrocarbons+Polymer	-	-
15	Thickness(shell/head) mm	7/15	-/-	-/-
16	Welding Radiography(shell/head) %	100/100	-/-	-/-
17	Joint Efficiency(shell/head)	1/1	-/-	-/-
18	Top Head Type	Welded Flat	-	-
19	Bottom Head Type	Cone	-	-
20	Design code: ASME SEC. VIII DIV.1	Inspection code: ASME SEC. IX		
21	Cylinder Deminsion(IDxCyl.): $\triangle 1$ PIPE 5" x 315 mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No		
22	M.D.M.T @ D.P.: $\triangle 1$ -60 °C	M.A.T: - °C		
23	M.A.W.P: 35.5 barg Limited by: ANSI FLANGE	Stamp: Not Required		
24	Impact Test: Not Required	P.W.H.T: Not Required		
25	N.D.T: Required	Vessel lining detail: NIL		
26	HIC/SSC resistance: - / -	Painting & Coating: as per code		
27	Insulation thickness: $\triangle 1$ 30 mm	Insulation type: HOT		
28	Fireproofing : $\triangle 1$ NO	Vessel located on: Structure		
29	Seismic code: UBC 1997	Seismic Zone: 3		
30	Impotance factor: 1.25	Soil Profile: SD		
31	Wind code: UBC	Wind velocity: 120 km/hr @ 10 m		
32	Impotance factor: 1.15	Exposure: C		
33	<b>Support loading data(Note 1)</b>		<b>Weight(kg) (Note 5)</b>	Fabricated: 37.7
34	Earthquake	Wind		Empty: 66
35	Shearing load(kgf)	-		Test: 71.3
36	Moment(kg.m)	-		Operation: 66.1
37	<b>MISCELLANEOUS(Note 2,10)</b>			
38				
39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate	
40	<input type="radio"/> Diffuser	<input type="radio"/> Distributer	<input type="radio"/> Trunnion	
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template	
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation	
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss	
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input checked="" type="radio"/> Dip pipe	
45	<input type="radio"/> Fire Proofing Support $\triangle 1$	<input type="radio"/> Internal lining		
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting		
47	<input type="radio"/> Heating coil	<input type="radio"/> Internal clips		
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips		

Document No.: 400-DAS-A4-EQ-0090

Rev. : 01

Owner Job No.:

Type: DAS

Page A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR1ST G.P.R. PRC CONTROL PURGING CYCLONE(CY-411)

1												
2	MATERIALS(NOTE 2)											
3												
4	Shell(Main/Cone)	SA312-304L	△1	SA182-304L	Earth lug	SA240-316L						
5	Head(Main/Jacket)	SA182-304L	△1	-	Stiffening rings	-						
6	Nozzle Necks (Main/Jacket)	Plate	-	/	-	Gaskets	Double O ring					
7		Pipe	SA312-304L	/	-	Ext. bolt/Nuts	SA193-B7/SA194-2H					
8	Cladding	-			Int. bolt/Nuts	SA193-B8/SA194-8						
9	Nozzle flanges	△1	SA182-304L		Wire mesh	-						
10	Blind flanges	△1	SA182-304L		Welded clip	SA240-304L						
11	Reinforcing pad	-			Int. welded	SA240-304L						
12	Fitting	SA403-304L			Int. removable	SA240-304L						
13	Support	Leg	-		Anchor/Setting bolts	SA307-B						
14		Lug	SA240-304L		Ladder/Platform	-						
15		leg/lug pad	-		Insulation Mateial	MINERAL WOOL						
16	Lifting lug	SA240-304L										
17	NOZZLE DETAILS(NOTE 2,3,4,7,8)											
18												
19	Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks
20			Rating	Type	Face				Width	Thk.		
21	Top Head	△1										
22	P1	1"	600#	WN	RF	40S	Gas Outlet	see P. 4	-	-	ANSI B16.5	
23												
24	Shell	△1										
25	P2	1"	600#	WN	RF	40S	Product/Gas Inlet	170	-	-	ANSI B16.5 Tangential	
26												
27	Bottom Head	△1										
28	P3	1"	600#	WN	RF	40S	Product Outlet	see P. 4	-	-	ANSI B16.5	
29												
30												
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47												
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Document No.: 400-DAS-A4-EQ-0090

Rev. : 01

Owner Job No.:

Type: DAS

Page A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR1ST G.P.R. PRC CONTROL PURGING  
CYCLONE(CY-411)

1

2

**NOZZLE LOADING DATA(NOTE 1)**

3

Nozzle Name	FL (kgf)	FA (kgf)	FC (kgf)	MC (kg.m)	MT (kg.m)	ML (kg.m)
-------------	----------	----------	----------	-----------	-----------	-----------

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**REFRENECE DOCUMENTS**

No.	Document No.	Document Title
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24

25

26

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Document No.: 400-DAS-A4-EQ-0090

Rev. : 01

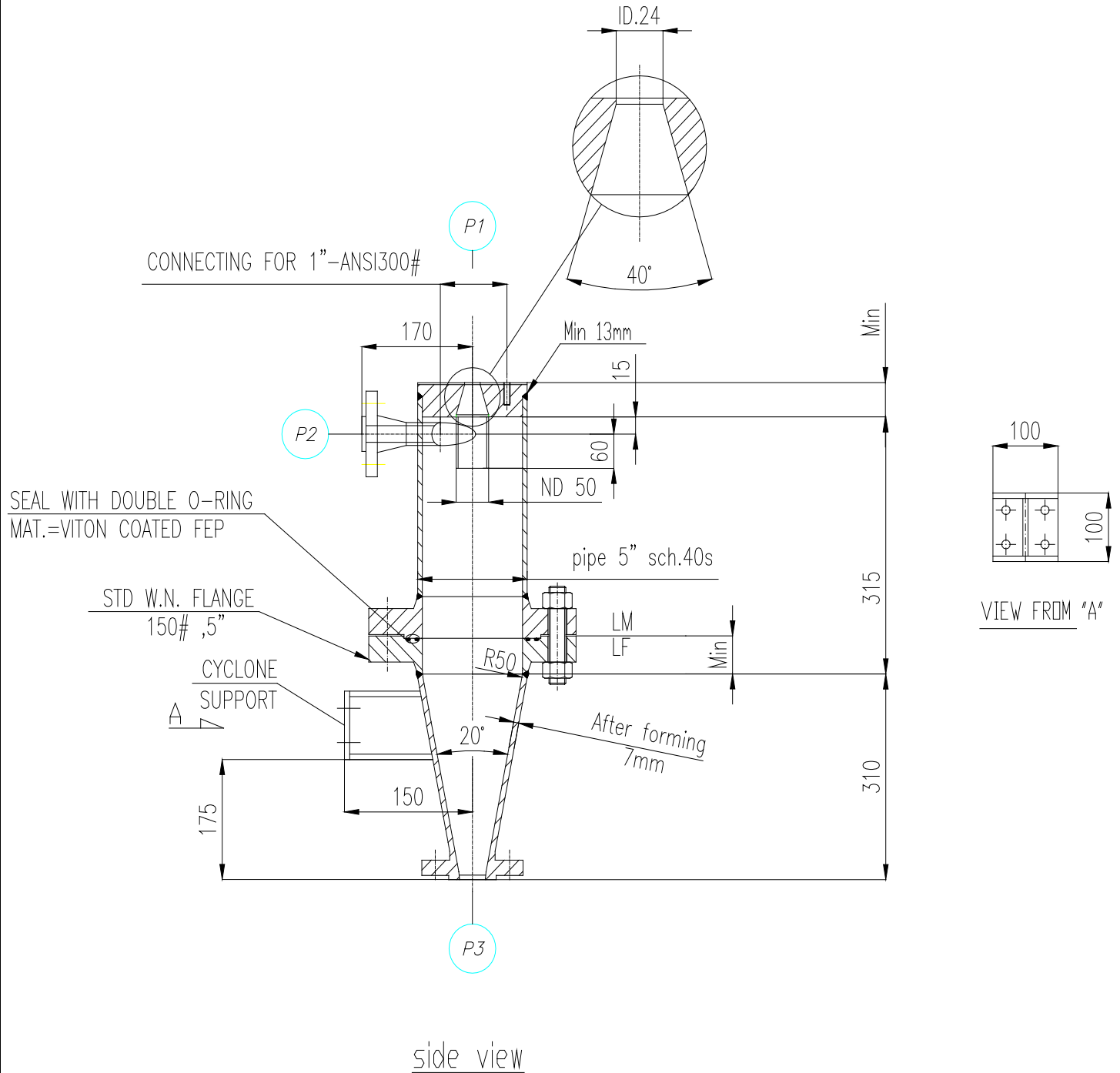
Owner Job No.:

Type: DAS

Page A

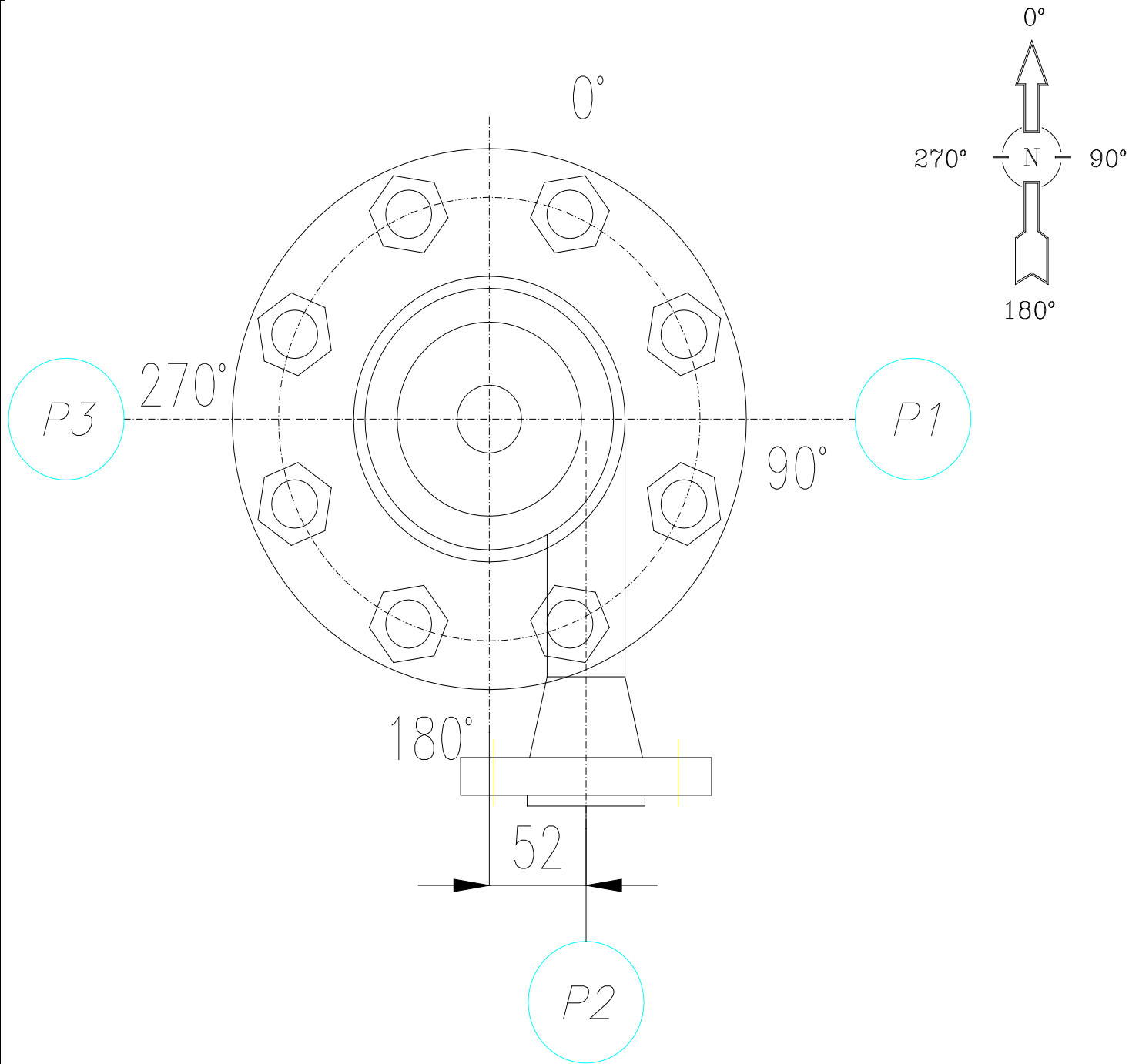


Sketch(Note 3)





Sketch(Note 3)



nozzle orientation



PROJECT:PP-PE PILOT PLANT

Client:



TITLE:DATA SHEET FOR1ST G.P.R. PRC CONTROL PURGING CYCLONE(CY-411)

**General Notes:**

- 1- SHALL BE SPECIFIED BY VENDOR .
  - 2- SHALL BE VERIFIED BY VENDOR.
  - 3- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.
  - 4- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.
  - 5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
  - 6- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF ELLIPTICAL/TORISPHERICAL HEADS SHALL BE IN NO CASE SMALLER THAN VESSEL SHELL THICKNESS VENDOR
  - 7- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
  - 8- UNLESS OTHERWISE NOTED OUTSIDE PROJECTION OF NOZZLES ARE MEASURED FROM O.L./I.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE
  - 9- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.
  - 10- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
  - 11- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
  - 12- SURFACE PREPARATION,FINISHING&PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER
  - 13- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.
  - 14-FINISHING OF THE GASKET CONTACTING FACE SHALL BE SMOOTH FINISH RA=0.8 µm (32 µinch)
  - 15-INTERNAL FINISHING SHALL BE SMOOTH FINISH RA= 0.4 µm (16 µinch)
- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.: 400-DAS-A4-EQ-0090

Rev. : 01

Owner Job No.:

Type: DAS

Page A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 1ST G.P.R. SAMPLING CYCLONE(CY-412)

## DATA SHEET FOR 1ST G.P.R. SAMPLING CYCLONE (CY-412)

Document No.: 400-DAS-A4-EQ-0091

Rev. : 01

Owner Job No.:

Type: DAS

Page A





PROJECT:PP-PE PILOT PLANT

Client:



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TITLE:DATA SHEET FOR 1ST G.P.R. SAMPLING CYCLONE(CY-412)

1	Item No.:CY-412	Quantity: 1	Location: Outdoor	Service: Continuous
2	<b>DESIGN CONDITIONS</b>			
3				
4		<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>
5	Operating Temperature(Min./Max.) °C	-30/+80	-/-	-/-
6	Operating Pressure barg	24	-	-
7	Density kg/m <sup>3</sup>	500	-	-
8	Design Pressure(int./ext.) barg	32/-	-/-	-/-
9	Design Temperature(int./ext.) °C	-60/+180	-/-	-/-
10	Volume(total) Liters	7.6	-	-
11	Hydro Test Pressure barg	as per UG99b(33)	-	-
12	Corrosion Allowance(shell/head) mm	0/0	-/-	-/-
13	Cladding (shell/head) mm	-/-	-/-	-/-
14	Content @ normal operation	Hydrocarbons+Polymer	-	-
15	Thickness(shell/head) mm	8/35	-/-	-/-
16	Welding Radiography(shell/head) %	100/100	-/-	-/-
17	Joint Efficiency(shell/head)	1/1	-/-	-/-
18	Top Head Type	ANSI/Bolted Falnge	-	-
19	Bottom Head Type	Cone	-	-
20	Design code: ASME SEC. VIII DIV.1	Inspection code: ASME SEC. IX		
21	Cylinder Deminsion(IDxCyl.): PIPE 6" x 300 mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No		
22	M.D.M.T @ D.P: -60 °C	M.A.T: - °C		
23	M.A.W.P: 35.5 barg Limited by: ANSI Flange	Stamp: Not Required		
24	Impact Test: Not Required	P.W.H.T: Not Required		
25	N.D.T: Required	Vessel lining detail: NIL		
26	HIC/SSC resistance: - / -	Painting & Coating: as per code		
27	Insulation thickness: 30 mm	Insulation type: HOT		
28	Fireproofing :  NO	Vessel located on: Structrue		
29	Seismic code: UBC 1997	Seismic Zone: 3		
30	Impotance factor: 1.25	Soil Profile: SD		
31	Wind code: UBC	Wind velocity: 120 km/hr @ 10 m		
32	Impotance factor: 1.15	Exposure: C		
33	<b>Support loading data(Note 1)</b>		<b>Weight(kg) (Note 5)</b>	Fabricated: 62.5
34	Earthquake	Wind		Empty: 109.5
35	Shearing load(kgf)	-		Test: 116.5
36	Moment(kg.m)	-		Operation: 109.5
37	<b>MISCELLANEOUS(Note 2,10)</b>			
38				
39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate	
40	<input type="radio"/> Diffuser	<input type="radio"/> Distributer	<input type="radio"/> Trunnion	
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template	
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation	
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss	
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input checked="" type="radio"/> Dip pipe	
45	<input type="radio"/> Fire Proofing Support 	<input type="radio"/> Internal lining		
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting		
47	<input type="radio"/> Heating coil	<input type="radio"/> Internal clips		
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips		

Document No.: 400-DAS-A4-EQ-0091

Rev. : 01

Owner Job No.:

Type: DAS

Page A

PROJECT:PP-PE PILOT PLANT

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شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 1ST G.P.R. SAMPLING CYCLONE(CY-412)

**MATERIALS(NOTE 2)**

4	Shell(Main/Cone)	SA312-304L	1	SA182-304L	Earth lug	SA240-316L
5	Head(Main/Jacket)	SA182-304L	1	-	Stiffening rings	NA
6	Nozzle Necks (Main/Jacket)	Plate	-	/	Gaskets	Spiral wound
7		Pipe	SA312-304L	/	Ext. bolt/Nuts	SA193-B7/SA194-2H
8	Cladding	-	-	-	Int. bolt/Nuts	SA193-B8/SA194-8
9	Nozzle flanges	1	SA182-304L	-	Wire mesh	-
10	Blind flanges	1	SA182-304L	-	Welded clip	SA240-304L
11	Reinforcing pad	-	-	-	Int. welded	SA240-304L
12	Fitting	SA403-304L	-	-	Int. removable	-
13	Skirt	Upper part	-	-	Anchor/Setting bolts	SA307-B
14		Lower part	SA240-304L	-	Ladder/Platform	-
15		Base ring	-	-	Insulation Mateial	Mineral wool
16	Lifting lug	SA240-304L	-	-	-	-

**NOZZLE DETAILS(NOTE 2,3,4,7,8)**

Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks
		Rating	Type	Face				Width	Thk.		
21	<b>Top Head</b>		1								
22	P1	1 1/2"	600#	WN	RF	40S	Gas Outlet	see P. 4	-	-	ANSI B16.5
23											
24	<b>Shell</b>		1								
25	P2	1"	600#	WN	RF	40S	Product/Gas Inlet	230	-	-	ANSI B16.5 Tangential
26											
27	<b>Bottom Head</b>		1								
28	P3	1 1/2"	600#	WN	RF	40S	Product Outlet	see P. 4	-	-	ANSI B16.5
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
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46											

PROJECT:PP-PE PILOT PLANT

Client:



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شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 1ST G.P.R. SAMPLING CYCLONE(CY-412)

1

2

**NOZZLE LOADING DATA(NOTE 1)**

3

No.	Nozzle Name	FL (kgf)	FA (kgf)	FC (kgf)	MC (kg.m)	MT (kg.m)	ML (kg.m)
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

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**REFRENCE DOCUMENTS**

22

No.	No.	Document No.	Document Title
23			
24	1		
25	2		
26	3		
27	4		
28	5		
29	6		
30	7		
31	8		
32	9		
33	10		
34	11		
35	12		
36	13		
37	14		
38	15		
39	16		
40	17		
41	18		
42	19		
43	20		
44	21		
45	22		
46	23		
47	24		
48	25		

Document No.: 400-DAS-A4-EQ-0091

Rev. : 01

Owner Job No.:

Type: DAS

Page A

PROJECT:PP-PE PILOT PLANT

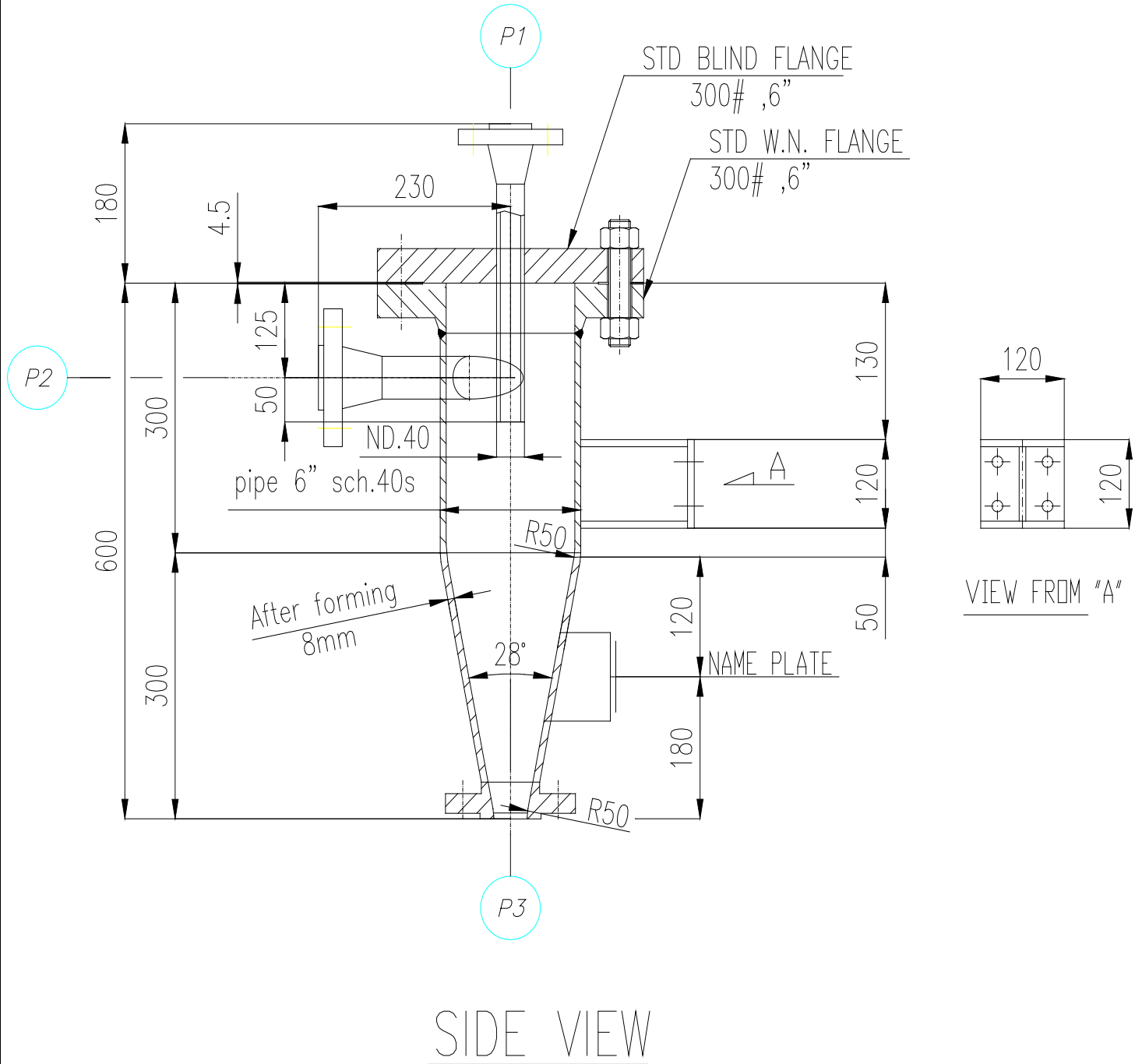
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شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 1ST G.P.R. SAMPLING CYCLONE(CY-412)

Sketch(Note 3)



SIDE VIEW

Document No.: 400-DAS-A4-EQ-0091

Rev. : 01

Owner Job No.:

Type: DAS

Page A

PROJECT:PP-PE PILOT PLANT

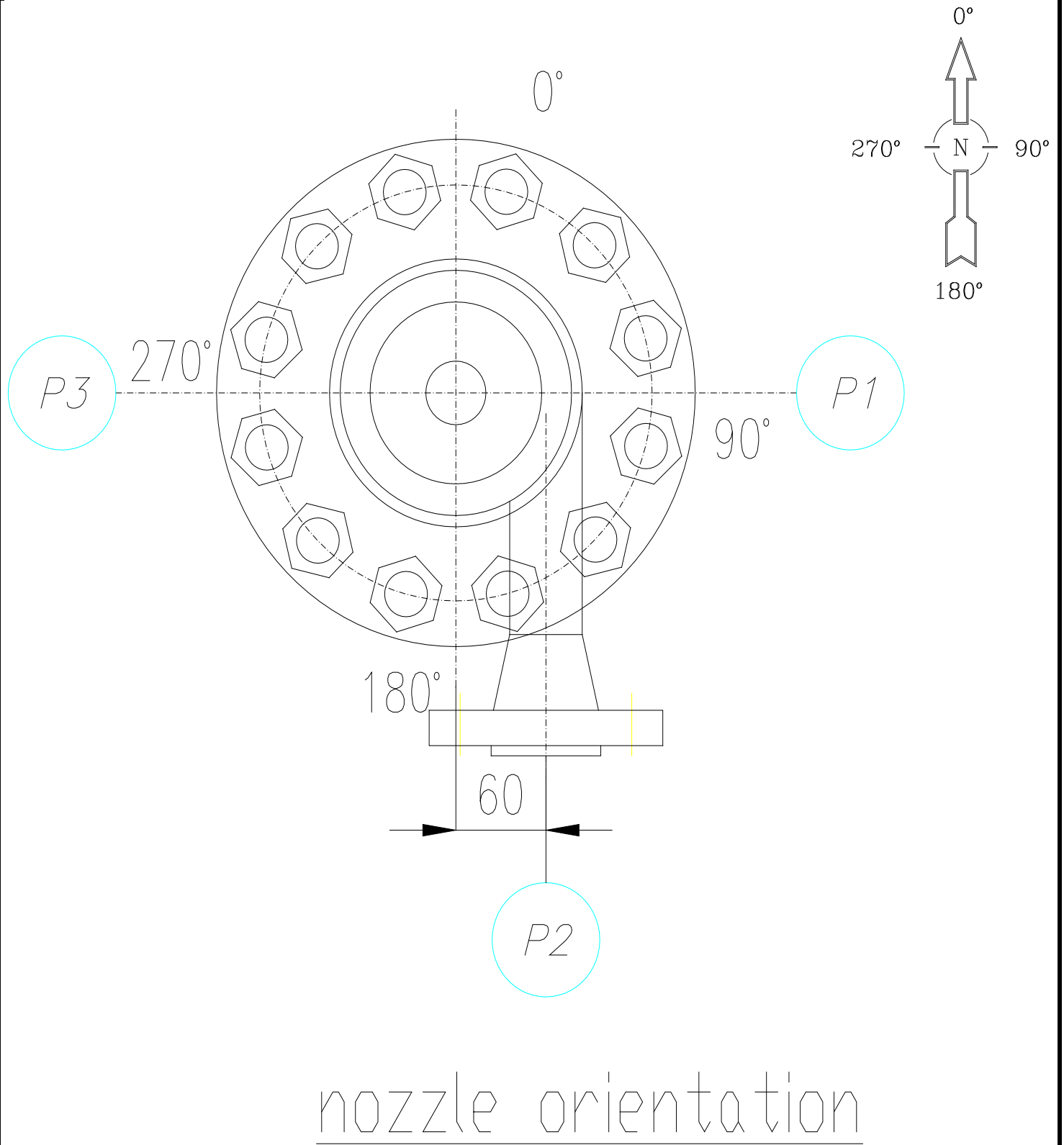
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TITLE:DATA SHEET FOR 1ST G.P.R. SAMPLING CYCLONE(CY-412)

Sketch(Note 3)



nozzle orientation

Document No.: 400-DAS-A4-EQ-0091

Rev. : 01

Owner Job No.:

Type: DAS

Page A



PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 1ST G.P.R. SAMPLING CYCLONE(CY-412)

**General Notes:**

- 1- SHALL BE SPECIFIED BY VENDOR .
- 2- SHALL BE VERIFIED BY VENDOR.
- 3- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.
- 4- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.
- 5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 6- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF ELLIPTICAL/TORISPHERICAL HEADS SHALL BE IN NO CASE SMALLER THAN VESSEL SHELL THICKNESS VENDOR
- 7- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 8- UNLESS OTHERWISE NOTED OUTSIDE PROJECTION OF NOZZLES ARE MEASURED FROM O.C./I.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE
- 9- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 10- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 11- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 12- SURFACE PREPARATION,FINISHING&PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER
- 13- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.
- 14-FINISHING OF THE GASKET CONTACTING FACE SHALL BE SMOOTH FINISH RA=6.3 μm (250 μinch)
- 15-INTERNAL FINISHING SHALL BE SMOOTH FINISH RA= 0.4 μm (16μinch)
- 16- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.: 400-DAS-A4-EQ-0091

Rev. : 01

Owner Job No.:

Type: DAS

Page A

PROJECT:PP-PE PILOT PLANT

Client:



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شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 2nd G.P.R. PRC control purging cyclone(CY-421)

## DATA SHEET FOR 2nd G.P.R. PRC control purging cyclone (CY-421)

Document No.: 400-DAS-A4-EQ-0092

Rev. : 01

Owner Job No.:

Type: DAS

Page A



PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 2nd G.P.R. PRC control purging cyclone(CY-421)

1	Item No.:CY-421	Quantity: 1	Location: Outdoor	Service: Continuous	
2	<b>DESIGN CONDITIONS</b>				
3					
4		<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>	
5	Operating Temperature(Min./Max.) °C	-30/+80	-/-	-/-	
6	Operating Pressure barg	24	-	-	
7	Density kg/m <sup>3</sup>	500	-	-	
8	Design Pressure(int./ext.) barg	32/-	-/-	-/-	
9	Design Temperature(int./ext.) °C	-60/+180	-/-	-/-	
10	Volume(total) Liters	5.6	-	-	
11	Hydro Test Pressure barg	as per UG99b(33)	-	-	
12	Corrosion Allowance(shell/head) mm	0/0	-/-	-/-	
13	Cladding (shell/head) mm	-/-	-/-	-/-	
14	Content @ normal operation	Hydrocarbons+Polymer	-	-	
15	Thickness(shell/head) mm	7/15	-/-	-/-	
16	Welding Radiography(shell/head) %	100/100	-/-	-/-	
17	Joint Efficiency(shell/head)	1/1	-/-	-/-	
18	Top Head Type	Welded Flat	-	-	
19	Bottom Head Type	Cone	-	-	
20	Design code: ASME SEC. VIII DIV.1	Inspection code: ASME SEC. IX			
21	Cylinder Deminsion(IDxCyl.): $\triangle 1$ pipe 5" x 315 mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No			
22	M.D.M.T @ D.P: -60 °C	M.A.T: - °C			
23	M.A.W.P: 35.5 barg Limited by: ANSI FLANGE	Stamp: Not Required			
24	Impact Test: Not Required	P.W.H.T: Not Required			
25	N.D.T: Required	Vessel lining detail: NIL			
26	HIC/SSC resistance: - / -	Painting & Coating: as per code			
27	Insulation thickness: $\triangle 1$ 30 mm	Insulation type: HOT			
28	Fireproofing : $\triangle 1$ NO	Vessel located on: Structure			
29	Seismic code: UBC 1997	Seismic Zone: 3			
30	Impotance factor: 1.25	Soil Profile: SD			
31	Wind code: UBC	Wind velocity: 120 km/hr @ 10 m			
32	Impotance factor: 1.15	Exposure: C			
33	<b>Support loading data(Note 1)</b>		Fabricated:	37.7	
34	Earthquake	Wind	<b>Weight(kg) (Note 5)</b>	Empty:	66
35	Shearing load(kgf)	-		Test:	71.3
36	Moment(kg.m)	-		Operation:	66.1
37	<b>MISCELLANEOUS(Note 2,10)</b>				
38					
39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate		
40	<input type="radio"/> Diffuser	<input type="radio"/> Distributer	<input type="radio"/> Trunnion		
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template		
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation		
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss		
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input checked="" type="radio"/> Dip pipe		
45	<input type="radio"/> Fire Proofing Support $\triangle 1$	<input type="radio"/> Internal lining			
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting			
47	<input type="radio"/> Heating coil	<input type="radio"/> Internal clips			
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips			

Document No.: 400-DAS-A4-EQ-0092

Rev. : 01

Owner Job No.:

Type: DAS

Page A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 2nd G.P.R. PRC control purging cyclone(CY-421)

1												
2	MATERIALS(NOTE 2)											
3												
4	Shell(Main/Cone)	SA312-304L	1	SA182-304L	Earth lug	SA240-316L						
5	Head(Main/Jacket)	SA182-304L	1	-	Stiffening rings	-						
6	Nozzle Necks (Main/Jacket)	Plate	-	/	-	Gaskets	Double O ring					
7		Pipe	SA312-304L	/	-	Ext. bolt/Nuts	SA193-B7/SA194-2H					
8	Cladding	-			Int. bolt/Nuts	SA193-B8/SA194-8						
9	Nozzle flanges	1	SA182-304L	Wire mesh	-							
10	Blind flanges	1	SA182-304L	Welded clip	SA240-304L							
11	Reinforcing pad	-			Int. welded	SA240-304L						
12	Fitting	SA403-304L			Int. removable	SA240-304L						
13	Skirt	Upper part	-			Anchor/Setting bolts	SA307-B					
14		Lower part	SA240-304L			Ladder/Platform	-					
15		Base ring	-			Insulation Mateial	MINERAL WOOL					
16	Lifting lug	SA240-304L										
17	NOZZLE DETAILS(NOTE 2,3,4,7,8)											
18												
19	Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks
20			Rating	Type	Face				Width	Thk.		
21	Top Head	1										
22	P1	1"	600#	WN	RF	40S	Gas Outlet	see P. 4	-	-	ANSI B16.5	
23												
24	Shell	1										
25	P2	1"	600#	WN	RF	40S	Product/Gas Inlet	170	-	-	ANSI B16.5	Tangential
26												
27	Bottom Head	1										
28	P3	1"	600#	WN	RF	40S	Product Outlet	see P. 4	-	-	ANSI B16.5	
29												
30												
31												
32												
33												
34												
35												
36												
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39												
40												
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43												
44												
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46												
47												
48												

Document No.: 400-DAS-A4-EQ-0092

Rev. : 01

Owner Job No.:

Type: DAS

Page A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 2nd G.P.R. PRC control purging  
cyclone(CY-421)

1								
2	<b>NOZZLE LOADING DATA(NOTE 1)</b>							
3								
4	Nozzle	FL	FA	FC	MC	MT	ML	
5	Name	(kgf)	(kgf)	(kgf)	(kg.m)	(kg.m)	(kg.m)	
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

21	<b>REFRENECE DOCUMENTS</b>							
22								

No.	Document No.	Document Title
23		
24	1	
25	2	
26	3	
27	4	
28	5	
29	6	
30	7	
31	8	
32	9	
33	10	
34	11	
35	12	
36	13	
37	14	
38	15	
39	16	
40	17	
41	18	
42	19	
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46	23	
47	24	
48	25	

Document No.: 400-DAS-A4-EQ-0092

Rev. : 01

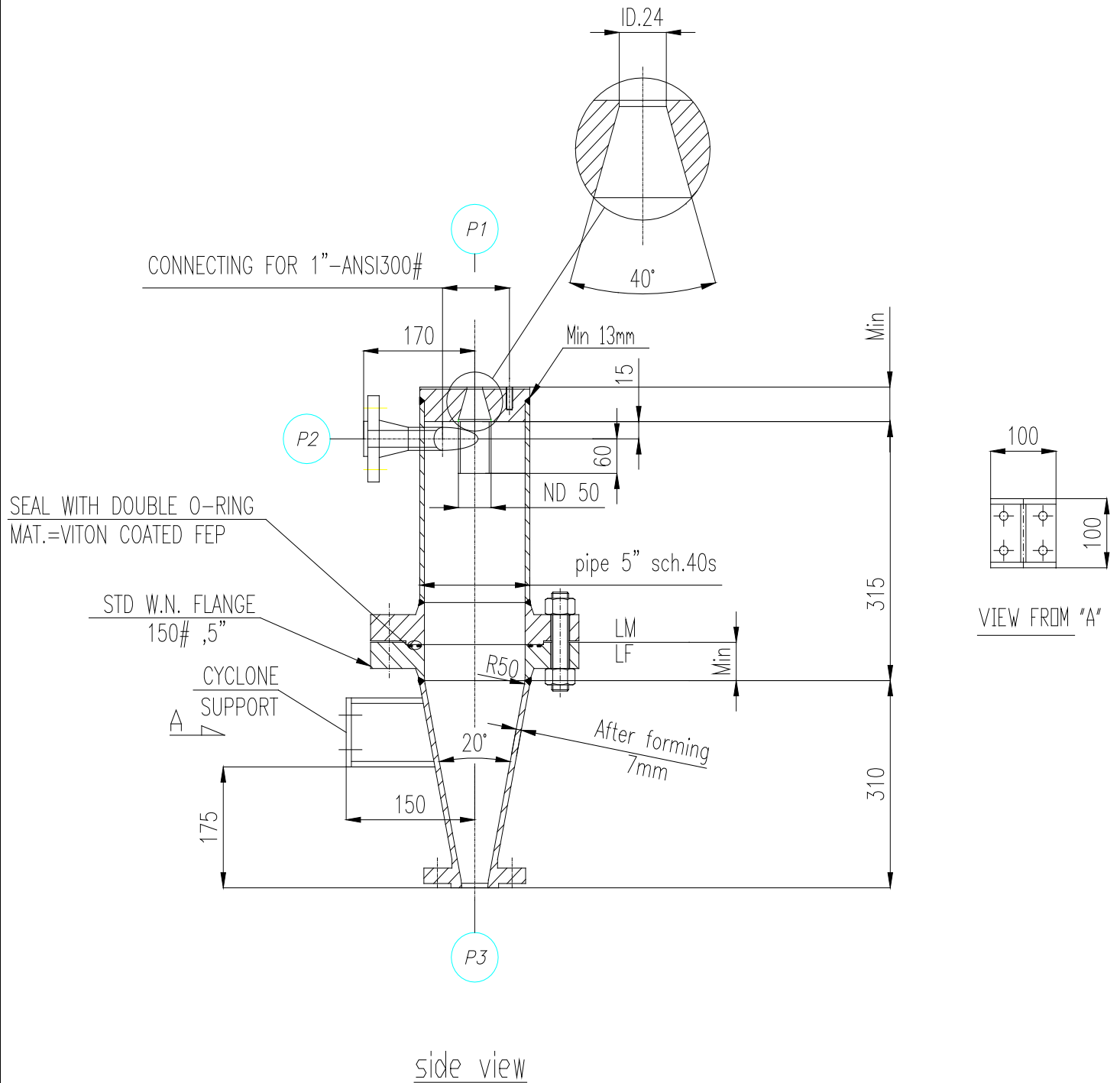
Owner Job No.:

Type: DAS

Page A

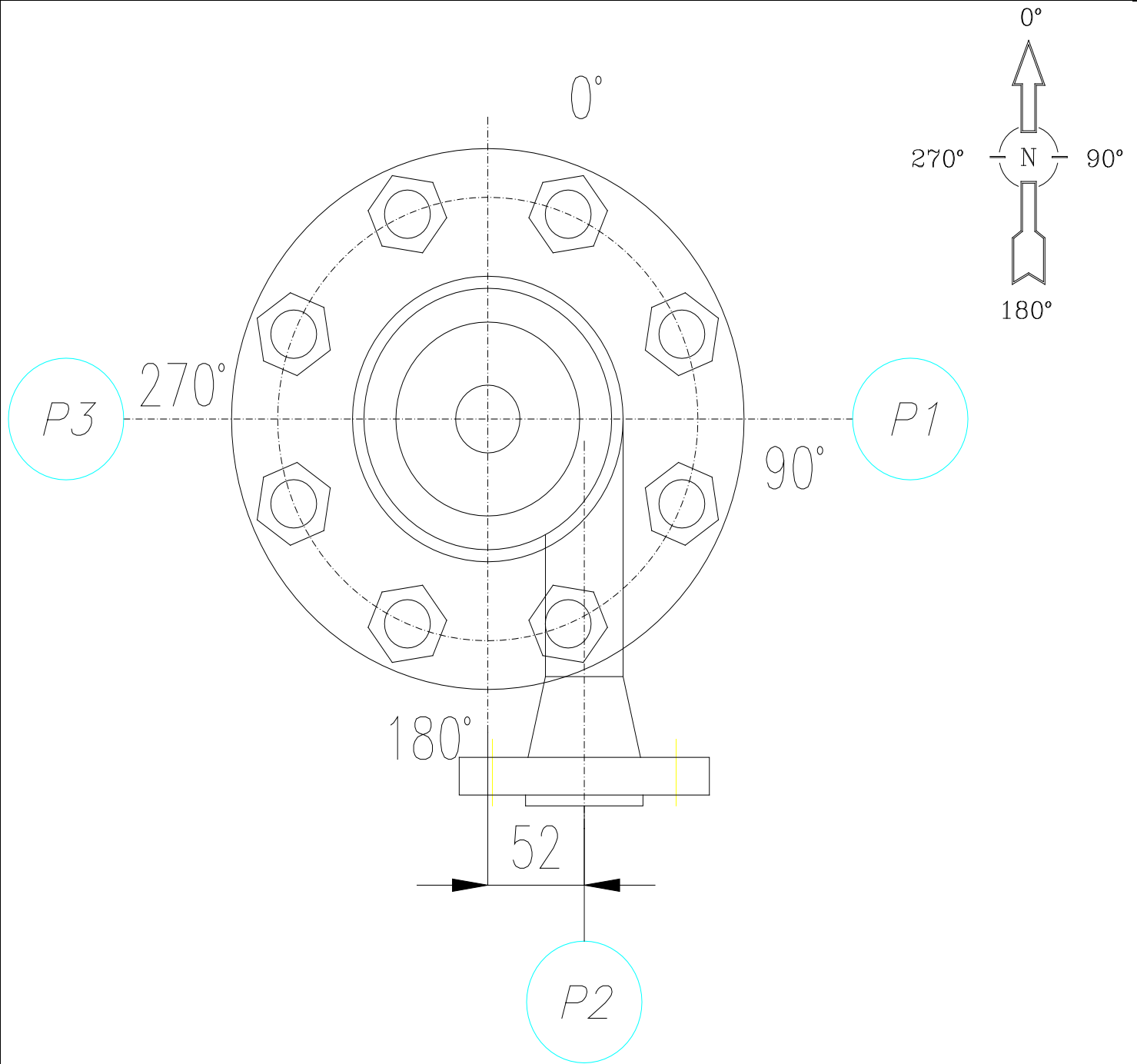


Sketch(Note 3)






Sketch(Note 3)



nozzle orientation



PROJECT:PP-PE PILOT PLANT	Client:  شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
TITLE:DATA SHEET FOR 2nd G.P.R. PRC control purging cyclone(CY-421)		
<p><b>General Notes:</b></p> <p>1- SHALL BE SPECIFIED BY VENDOR .</p> <p>2- SHALL BE VERIFIED BY VENDOR.</p> <p>3- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.</p> <p>4- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.</p> <p>5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE</p> <p>MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.</p> <p>6- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF ELLIPTICAL/TORISPHERICAL HEADS SHALL BE IN NO CASE SMALLER THAN VESSEL SHELL THICKNESS.VENDOR SHALL CHECK AND GUARANTEE THEM ON STRENGTH.</p> <p>7- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.</p> <p>8- UNLESS OTHERWISE NOTED OUTSIDE PROJECTION OF NOZZLES ARE MEASURED FROM C.L./T.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE.</p> <p>9- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.</p> <p>10- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .</p> <p>11- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.</p> <p>12- SURFACE PREPARATAION,PICKLING&amp;PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER.</p> <p>13- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.</p> <p>14-FINISHING OF THE GASKET CONTACTING FACE SHALL BE SMOOTH FINISH RA=0.8 μm (32 μinch)</p> <p>15-INTERNAL FINISHING SHALL BE SMOOTH FINISH RA= 0.4 μm (16 μinch)</p> <p>16- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.</p>		
	Document No.: 400-DAS-A4-EQ-0092	Rev. : 01
	Owner Job No.:	Type: DAS
		Page A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 2ND G.P.R. SAMPLING CYCLONE(CY-422)

## DATA SHEET FOR 2ND G.P.R. SAMPLING CYCLONE (CY-422)

Document No.: 400-DAS-A4-EQ-0093

Rev. : 01

Owner Job No.:

Type: DAS

Page : A



PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 2ND G.P.R. SAMPLING CYCLONE(CY-422)

1 Item No.:CY-422 Quantity: 1 Location: Outdoor Service: Continuous

## DESIGN CONDITIONS

4			Vessel	Jacket	Internal Coil	
5	Operating Temperature(Min./Max.)	°C	-/80	-/-	-/-	
6	Operating Pressure	barg	24	-	-	
7	Density	kg/m <sup>3</sup>	500	-	-	
8	Design Pressure(int./ext.)	barg	32/-	-/-	-/-	
9	Design Temperature	°C	-60/+180	-/-	-/-	
10	Volume(total)	Liters	7.6	-	-	
11	Hydro Test Pressure	barg	as per UG99b(33)	-	-	
12	Corrosion Allowance(shell/head)	mm	0/0	-/-	-/-	
13	Cladding (shell/head)	mm	-/-	-/-	-/-	
14	Content @ normal operation	Hydrocarbons+Polymer		-	-	
15	Thickness(shell/head)	mm	8/35	-/-	-/-	
16	Welding Radiography(shell/head)	%	100/100	-/-	-/-	
17	Joint Efficiency(shell/head)	1/1		-/-	-/-	
18	Top Head Type	ANSI/Bolted Falnge		-	-	
19	Bottom Head Type	Cone		-	-	
20	Design code:	ASME SEC. VIII DIV.1		Inspection code:	ASME SEC. IX	
21	Cylinder Deminsion(IDxCyl.):	1	PIPE 6" x 300 mm	Lethal Service:	<input type="radio"/> Yes <input checked="" type="radio"/> No	
22	M.D.M.T @ D.P:	-60	°C	M.A.T:	- °C	
23	M.A.W.P:	35.5	barg Limited by: ANSI Flange	Stamp:	Not Required	
24	Impact Test:	Not Required		P.W.H.T:	Not Required	
25	N.D.T:	Required		Vessel lining detail:	NIL	
26	HIC/SSC resistance:	-	/ -	Painting & Coating:	as per code	
27	Insulation thickness:	30	mm	Insulation type:	HOT	
28	Fireproofing	1	NO	Vessel located on:	Structrue	
29	Seismic code:	UBC 1997		Seismic Zone:	3	
30	Impotance factor:	1.25		Soil Profile:	SD	
31	Wind code:	UBC		Wind velocity:	120 km/hr @ 10 m	
32	Impotance factor:	1.15		Exposure:	C	
33	<b>Support loading data(Note 1)</b>			<b>Weight(kg) (Note 5)</b>	Fabricated:	62.5
34	Earthquake	Wind	Empty:		109.5	
35	Shearing load(kgf)	-	-		Test:	116.5
36	Moment(kg.m)	-	-		Operation:	109.5

## MISCELLANEOUS(Note 2,10)

39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate
40	<input type="radio"/> Diffuser	<input type="radio"/> Distributer	<input type="radio"/> Trunnion
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input checked="" type="radio"/> Dip pipe
45	<input type="radio"/> Fire Proofing Support 1	<input type="radio"/> Internal lining	
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting	
47	<input type="radio"/> Heating coil	<input type="radio"/> Internal clips	
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips	

Document No.: 400-DAS-A4-EQ-0093

Rev. : 01

Owner Job No.:

Type: DAS

Page : A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 2ND G.P.R. SAMPLING CYCLONE(CY-422)

**MATERIALS(NOTE 1)**

4	Shell(Main/Cone)	SA312-304L	SA182-304L	Earth lug	SA240-316L
5	Head(Main/Jacket)	SA182-304L	-	Stiffening rings	-
6	Nozzle Necks (Main/Jacket)	Plate	- / -	Gaskets	Spiral wound
7		Pipe	SA312-304L / -	Ext. bolt/Nuts	SA193-B7/SA194-2H
8	Cladding	-	-	Int. bolt/Nuts	SA193-B8/SA194-8
9	Nozzle flanges	SA182-304L	-	Wire mesh	-
10	Blind flanges	SA182-304L	-	Welded clip	SA240-304L
11	Reinforcing pad	-	-	Int. welded	SA240-304L
12	Fitting	SA403-304L	-	Int. removable	-
13	Support	Leg	-	Anchor/Setting bolts	SA307-B
14		Lug	SA240-304L	Ladder/Platform	-
15		leg/lug pad	-	Insulation Mateial	Mineral wool
16	Lifting lug	SA240-304L	-	-	-

**NOZZLE DETAILS(NOTE 2,3,4,7,8)**

Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks
		Rating	Type	Face				Width	Thk.		
<b>Top Head</b>											
22	P1	1 1/2"	600#	WN	RF	40S	Gas Outlet	See P.4	-	-	ANSI B16.5
<b>Shell</b>											
25	P2	1"	600#	WN	RF	40S	Product Inlet	230	-	-	ANSI B16.5 Tangential
<b>Bottom Head</b>											
28	P3	1 1/2"	600#	WN	RF	40S	Product Outlet	See P.4	-	-	ANSI B16.5
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
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42											
43											
44											
45											
46											

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 2ND G.P.R. SAMPLING CYCLONE(CY-422)

1

2

**NOZZLE LOADING DATA(NOTE 1)**

3

4	Nozzle Name	FL (kgf)	FA (kgf)	FC (kgf)	MC (kg.m)	MT (kg.m)	ML (kg.m)
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

21

**REFRENECE DOCUMENTS**

22

23	No.	Document No.	Document Title
24	1		
25	2		
26	3		
27	4		
28	5		
29	6		
30	7		
31	8		
32	9		
33	10		
34	11		
35	12		
36	13		
37	14		
38	15		
39	16		
40	17		
41	18		
42	19		
43	20		
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45	22		
46	23		
47	24		
48	25		

Document No.: 400-DAS-A4-EQ-0093

Rev. : 01

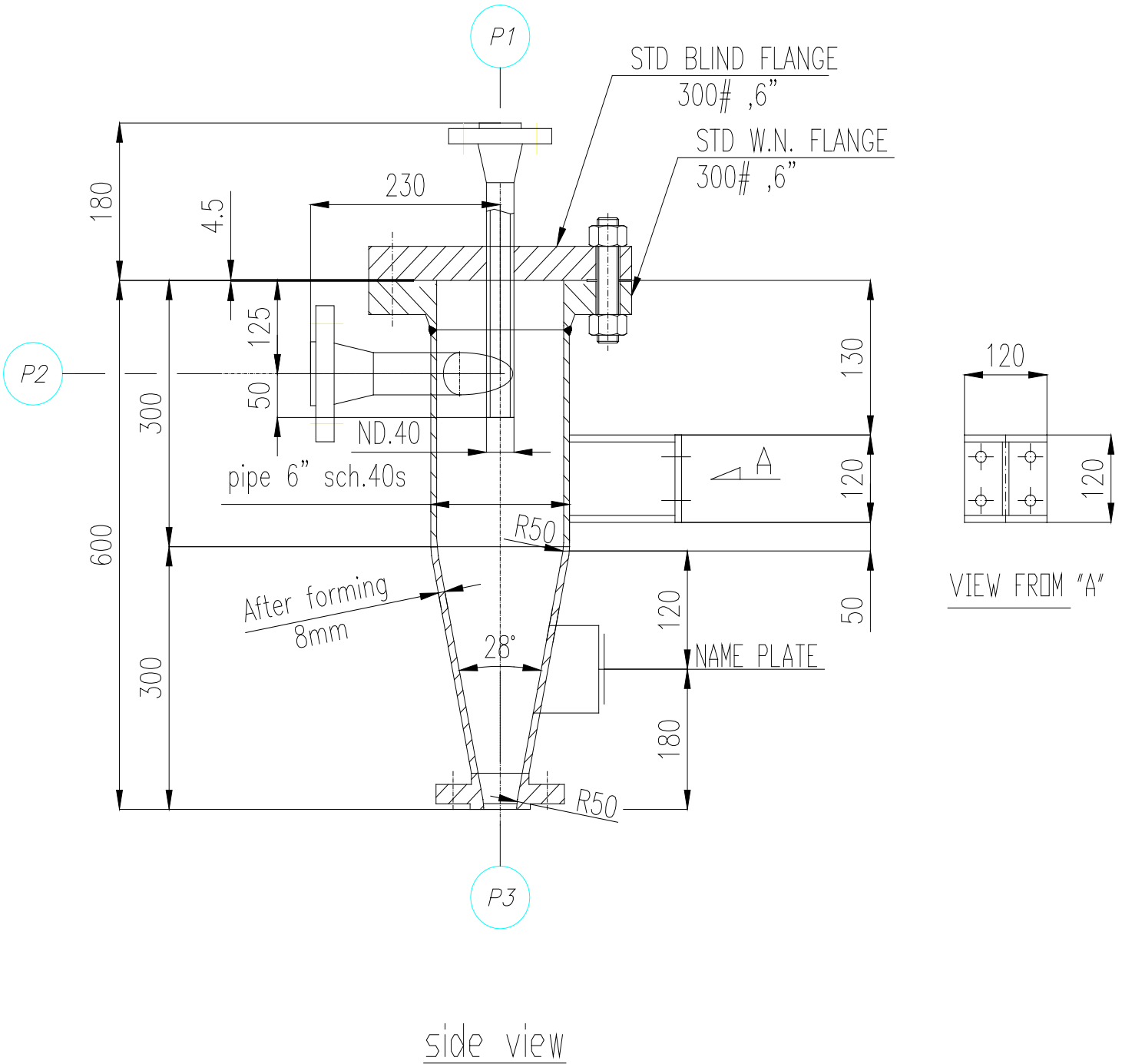
Owner Job No.:

Type: DAS

Page : A



Sketch(Note 3)



PROJECT:PP-PE PILOT PLANT

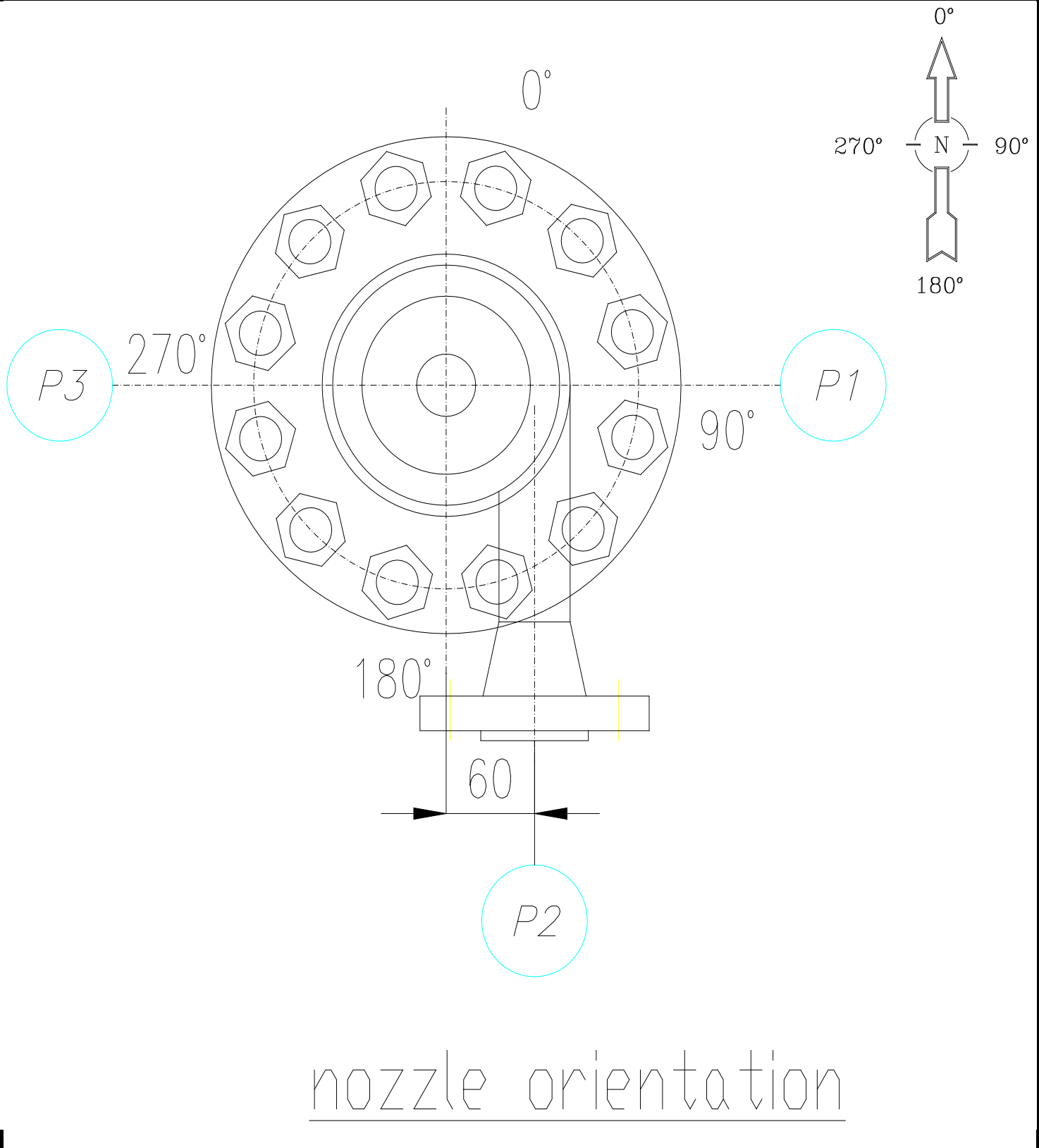
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شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 2ND G.P.R. SAMPLING CYCLONE(CY-422)

Sketch(Note 3)



nozzle orientation

	Document No.: 400-DAS-A4-EQ-0093	Rev. : 01
	Owner Job No.:	Type: DAS
		Page : A



PROJECT:PP-PE PILOT PLANT

Client:



TITLE:DATA SHEET FOR 2ND G.P.R. SAMPLING CYCLONE(CY-422)

**General Notes:**

- 1- SHALL BE SPECIFIED BY VENDOR .
- 2- SHALL BE VERIFIED BY VENDOR.
- 3- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.
- 4- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.
- 5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 6- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF ELLIPTICAL/TORISPHERICAL HEADS SHALL BE IN NO CASE SMALLER THAN VESSEL SHELL THICKNESS.VENDOR SHALL CHECK AND GUARANTEE THEM ON STRENGTH.
- 7- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 8- UNLESS OTHERWISE NOTED OUTSIDE PROJECTION OF NOZZLES ARE MEASURED FROM C.L./T.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE.
- 9- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 10- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 11- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 12- SURFACE PREPARATAION,PICKLING&PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER.
- 13- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.
- 14-FINISHING OF THE GASKET CONTACTING FACE SHALL BE SMOOTH FINISH RA=6.3 μm (250 μinch)
- 15-INTERNAL FINISHING SHALL BE SMOOTH FINISH RA= 0.4 μm (16μinch)
- 16- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.: 400-DAS-A4-EQ-0093

Rev. : 01

Owner Job No.:

Type: DAS

Page : A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 2ND G.P.R. FEEDING HOPPER (HP-421)

## DATA SHEET FOR 2ND G.P.R. FEEDING HOPPER (HP-421)

Document No.: 400-DAS-A4-EQ-0101

Rev. : 01

Owner Job No.:

Type: DAS

Page : A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 2ND G.P.R. FEEDING HOPPER (HP-421)

PAGE	REV.						PAGE	REV.						
	0	1	2	3	4	5		0	1	2	3	4	5	
A	X	X												
B	X	X												
1	X	X												
2	X	X												
3	X	X												
4	X	X												
5	X	X												
6	X	X												

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1	18/11/2010	H.R	A.A	H.R	AFC
0					
<b>Revision</b>	<b>Date</b>	<b>Prepared By</b>	<b>Checked By</b>	<b>Approved By</b>	<b>Status</b>

	Document No.: 400-DAS-A4-EQ-0101	Rev. : 01
	Owner Job No.:	Type: DAS
		Page : A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 2ND G.P.R. FEEDING HOPPER (HP-421)

1 Item No.: HP-421      Quantity: 1      Location: Outdoor      Service: Continuous

**DESIGN CONDITIONS**

4			Vessel	Jacket	Internal Coil	
5	Operating Temperature(Min./Max.)	°C	-30/+80	-/-	-/-	
6	Operating Pressure	barg	24	-	-	
7	Density	kg/m <sup>3</sup>	500	-	-	
8	Design Pressure(int./ext.)	barg	32	-/-	-/-	
9	Design Temperature	°C	-60/+180	-/-	-/-	
10	Volume(total)	m <sup>3</sup>	0.062	-	-	
11	Hydro Test Pressure	barg	as per UG99b(33)	-	-	
12	Corrosion Allowance(shell/head)	mm	0/0	-/-	-/-	
13	Cladding (shell/head)	mm	-/-	-/-	-/-	
14	Content @ normal operation	Hydrocarbons+Polymer		-	-	
15	Thickness(shell/Cone)	mm	9.5/8	-/-	-/-	
16	Welding Radiography(shell/head)	%	100/100	-/-	-/-	
17	Joint Efficiency(shell/head)	1/1		-/-	-/-	
18	Top Head Type	ANSI/Bolted Falnge		-	-	
19	Bottom Head Type	Cone		-	-	
20	Design code:	ASME SEC. VIII DIV.1		Inspection code:	ASME SEC. IX	
21	Cylinder Deminsion(IDxT.L-T.L):	1 300	x 1250 mm	Lethal Service:	<input type="radio"/> Yes <input checked="" type="radio"/> No	
22	M.D.M.T @ D.P:	-60	°C	M.A.T:	- °C	
23	M.A.W.P:	32.17 barg	Limited by: CONE	Stamp:	Not Required	
24	Impact Test:	Not Required		P.W.H.T:	Not Required	
25	N.D.T:	Required		Vessel lining detail:	NIL	
26	HIC/SSC resistance:	NA	/ NA	Painting & Coating:	as per code	
27	Insulation thickness:	40	mm	Insulation type:	HOT	
28	Fireproofing :	1 NO		Vessel located on:	Structrue	
29	Seismic code:	UBC 1997		Seismic Zone:	3	
30	Impotance factor:	1.25		Soil Profile:	SD	
31	Wind code:	UBC		Wind velocity:	120 km/hr @ 10 m	
32	Impotance factor:	1.15		Exposure:	C	
33	<b>Support loading data(Note 5)</b>			<b>Weight(kg) (Note 5)</b>	Fabricated:	275
34	Earthquake	Wind	Empty:		285	
35	Shearing load(kgf)	70	50		Test:	340
36	Moment(kg.m)	40	25		Operation:	315

**MISCELLANEOUS(Note 2,10)**

39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate
40	<input type="radio"/> Diffuser	<input type="radio"/> Distributer	<input type="radio"/> Trunnion
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input checked="" type="radio"/> Dip pipe
45	<input type="radio"/> Fire Proofing Support 1	<input type="radio"/> Internal lining	
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting	
47	<input type="radio"/> Heating coil	<input type="radio"/> Internal clips	
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips	


Document No.: 400-DAS-A4-EQ-0101

Rev. : 01

Owner Job No.:

Type: DAS

Page : A

<b>PROJECT:PP-PE PILOT PLANT</b>	<b>Client:</b>
<b>TITLE:DATA SHEET FOR 2ND G.P.R. FEEDING HOPPER (HP-421)</b>	 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی

<b>1</b>
<b>2</b>
<b>3</b>
<b>MATERIALS(NOTE 2)</b>

4	Shell(Main/Cone)	SA312-304L	△ 1	SA182-304L	Earth lug	SA240-316L
5	Head(Main/Jacket)	SA182-304L	△ 1	-	Stiffening rings	-
6	Nozzle Necks (Main/Jacket)	Plate	-	/	-	Gaskets
7		Pipe	SA312-304L	/	-	Ext. bolt/Nuts
8	Cladding	-			Int. bolt/Nuts	SA193-B8/SA194-8
9	Nozzle flanges	△ 1	SA182-F304L		Wire mesh	-
10	Blind flanges	SA182-F304L			Welded clip	SA240-304L
11	Reinforcing pad	SA240-304L			Int. welded	SA240-304L
12	Fitting	SA403-304L			Int. removable	SA312-304L
13	Support	Leg	-		Anchor/Setting bolts	SA307-B
14		Lug	SA240-304L		Ladder/Platform	-
15		leg/lug pad	SA240-304L		Insulation Mateial	MINERAL WOOL
16	Lifting lug	SA240-304L				

<b>1</b>	<b>NOZZLE DETAILS(NOTE 2,3,4,7,8)</b>
----------	---------------------------------------

Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks
		Rating	Type	Face				Width	Thk.		
<b>21 Top Head</b>											
22	P1	4"	600#	WN	RF	80S	Gas outlet	See dwg	50	20	ANSI B16.5
23											
<b>24 Shell</b>											
25	P2	2"	600#	LWN	RF	40S	Product inlet	See dwg	-	-	ANSI B16.5 Tangential
26											
<b>27 Bottom Head</b>											
28	P3	2"	600#	WN	RF	40S	Product outlet	See dwg	-	-	ANSI B16.5
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											
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42											
43											
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45											
46											

	Document No.: 400-DAS-A4-EQ-0101	Rev. : 01
	Owner Job No.:	Type: DAS
		Page : A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 2ND G.P.R. FEEDING HOPPER (HP-421)

1

2 **NOZZLE LOADING DATA(NOTE 2)**

3	4 Nozzle Name	5 FL (kgf)	6 FA (kgf)	7 FC (kgf)	8 MC (kg.m)	9 MT (kg.m)	10 ML (kg.m)
11	P1	429	429	322	65	97	84
12							
13							
14							
15							
16							
17							
18							
19							
20							

21 **REFRENCE DOCUMENTS**

23 No.	24 Document No.	25 Document Title
26	1	
27	2	
28	3	
29	4	
30	5	
31	6	
32	7	
33	8	
34	9	
35	10	
36	11	
37	12	
38	13	
39	14	
40	15	
41	16	
42	17	
43	18	
44	19	
45	20	
46	21	
47	22	
48	23	
	24	
	25	

	Document No.: 400-DAS-A4-EQ-0101	Rev. : 01
	Owner Job No.:	Type: DAS
		Page : A

PROJECT:PP-PE PILOT PLANT

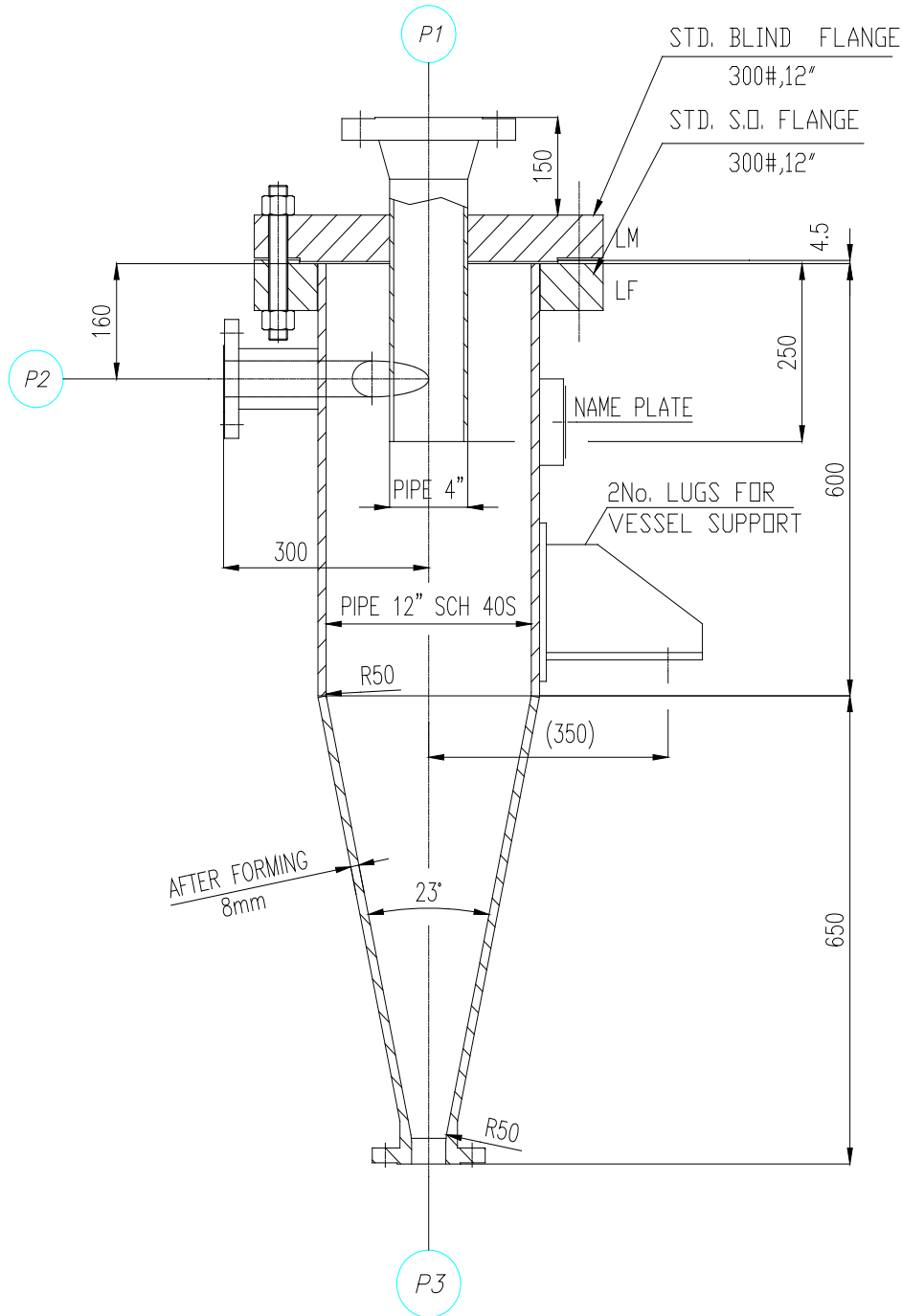
Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 2ND G.P.R. FEEDING HOPPER (HP-421)

Sketch(Note 3)



SIDE VIEW

Document No.: 400-DAS-A4-EQ-0101

Rev. : 01

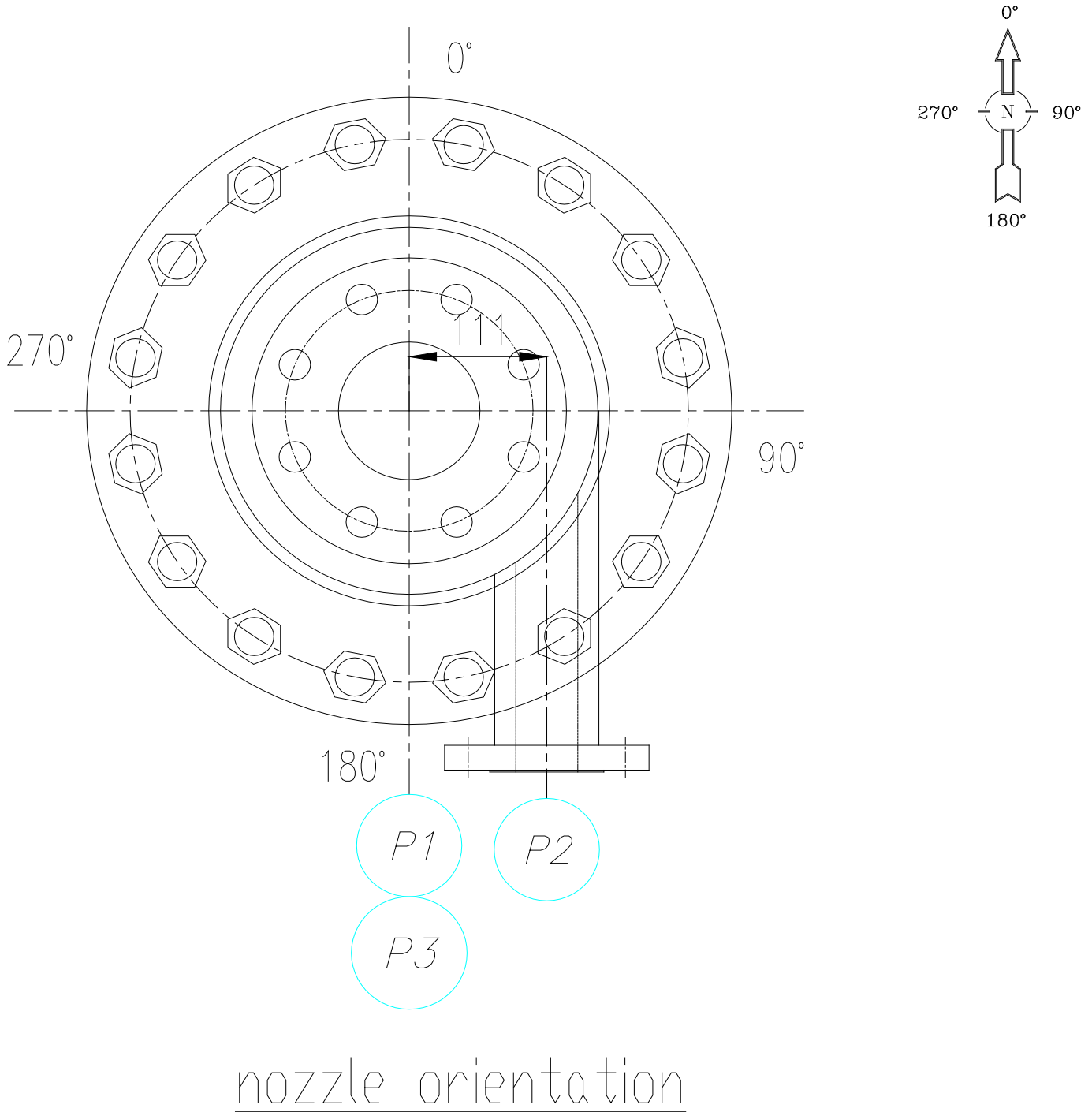
Owner Job No.:

Type: DAS


Page : A



Sketch(Note 3)





PROJECT:PP-PE PILOT PLANT	Client:  شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی
TITLE:DATA SHEET FOR 2ND G.P.R. FEEDING HOPPER (HP-421)	

**General Notes:**

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- 7- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 8- UNLESS OTHERWISE NOTED OUTSIDE PROJECTION OF NOZZLES ARE MEASURED FROM C.L./T.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE.
- 9- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 10- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 11- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 12- SURFACE PREPARATAION,PICKLING&PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER.
- 13- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.
- 14-FINISHING OF THE GASKET CONTACTING FACE SHALL BE SMOOTH FINISH RA=6.3 μm (250 μinch)
- 15-INTERNAL FINISHING SHALL BE SMOOTH FINISH RA= 0.4 μm (16μinch)
- 16- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

	Document No.: 400-DAS-A4-EQ-0101	Rev. : 01
	Owner Job No.:	Type: DAS
		Page : A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 2ND G.P.R. DISCHARGE HOPPER (HP-422)

## DATA SHEET FOR 2ND G.P.R. DISCHARGE HOPPER(HP-422)

Document No.: 400-DAS-A4-EQ-0102


Rev. : 01


Owner Job No.:

Type: DAS

Page : A



PROJECT:PP-PE PILOT PLANT				Client:			
TITLE:DATA SHEET FOR 2ND G.P.R. DISCHARGE HOPPER (HP-422)				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی			
1	Item No.: HP-422	Quantity: 1	Location: Outdoor	Service:	Continuous		
2	<b>DESIGN CONDITIONS</b>						
3							
4			<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>		
5	Operating Temperature(Min./Max.)	°C	-30/+80	-/-	-/-		
6	Operating Pressure	barg	24	-	-		
7	Density	kg/m <sup>3</sup>	500	-	-		
8	Design Pressure(int./ext.)	barg	32	-/-	-/-		
9	Design Temperature	°C	-60/+180	-/-	-/-		
10	Volume(total)	m <sup>3</sup>	0.065	-	-		
11	Hydro Test Pressure	barg	as per UG99b(33)	-	-		
12	Corrosion Allowance(shell/head)	mm	0/0	-/-	-/-		
13	Cladding (shell/head)	mm	-/-	-/-	-/-		
14	Content @ normal operation		Hydrocarbons+polymer	-	-		
15	Thickness(shell/Cone)	mm	9.5/8	<input checked="" type="checkbox"/> 1	-/-	-/-	
16	Welding Radiography(shell/head)	%	100/100	-/-	-/-		
17	Joint Efficiency(shell/head)		1/1	-/-	-/-		
18	Top Head Type		ANSI/Bolted Falnge	-	-		
19	Bottom Head Type		Cone	-	-		
20	Design code:	ASME SEC. VIII DIV.1		Inspection code:	ASME SEC. IX		
21	Cylinder Deminsion(IDxT.L-T.L)	<input checked="" type="checkbox"/> 1	PIPE 12" x 1250 mm	Lethal Service:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
22	M.D.M.T @ D.P:	-60	°C	M.A.T:	-	°C	
23	M.A.W.P:	32.17 barg	Limited by: CONE	Stamp:	Not Required		
24	Impact Test:	Not Required		P.W.H.T:	Not Required		
25	N.D.T:	Required		Vessel lining detail:	NIL		
26	HIC/SSC resistance:	NA	/ NA	Painting & Coating:	as per code		
27	Insulation thickness:	<input checked="" type="checkbox"/> 1	40 mm	Insulation type:	HOT		
28	Fireproofing :	<input checked="" type="checkbox"/> 1	NO	Vessel located on:	Structrue		
29	Seismic code:	UBC 1997		Seismic Zone:	3		
30	Impotance factor:	1.25		Soil Profile:	SD		
31	Wind code:	UBC		Wind velocity:	120	km/hr @ 10 m	
32	Impotance factor:	1.15		Exposure:	C		
33	<b>Support loading data(Note 5)</b>			<b>Weight(kg) (Note 5)</b>	Fabricated:	280	
34	Earthquake	Wind	Empty:		295		
35	Shearing load(kgf)	70	50		Test:	350	
36	Moment(kg.m)	35	25		Operation:	325	
37	<b>MISCELLANEOUS(Note 2,10)</b>						
38							
39	<input type="checkbox"/> Baffle	<input type="checkbox"/> Impingement plate	<input type="checkbox"/> Weir plate				
40	<input type="checkbox"/> Diffuser	<input type="checkbox"/> Distributer	<input type="checkbox"/> Trunion				
41	<input type="checkbox"/> Vortex breaker	<input type="checkbox"/> Tubesheet	<input type="checkbox"/> Template				
42	<input type="checkbox"/> Boot / Cap	<input type="checkbox"/> Demister	<input checked="" type="checkbox"/> Pickling & passivation				
43	<input checked="" type="checkbox"/> Insulation Support	<input type="checkbox"/> Wire mesh	<input checked="" type="checkbox"/> Earthing boss				
44	<input type="checkbox"/> Fire Proofing	<input checked="" type="checkbox"/> Name plate	<input checked="" type="checkbox"/> Dip pipe				
45	<input type="checkbox"/> Fire Proofing Support <input checked="" type="checkbox"/> 1	<input type="checkbox"/> Internal lining					
46	<input type="checkbox"/> Ladder & platform (int. & ext.)	<input type="checkbox"/> Sand blast & painting					
47	<input type="checkbox"/> Heating coil	<input type="checkbox"/> Internal clips					
48	<input checked="" type="checkbox"/> Lifting lug	<input checked="" type="checkbox"/> External clips					
				Document No.: 400-DAS-A4-EQ-0102	Rev. : 01		
				Owner Job No.:	Type: DAS		
					Page : A		

<b>PROJECT:PP-PE PILOT PLANT</b>	<b>Client:</b>
<b>TITLE:DATA SHEET FOR 2ND G.P.R. DISCHARGE HOPPER (HP-422)</b>	 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی

1	
2	<b>MATERIALS(NOTE 2)</b>
3	

4	Shell(Main/CONE)	SA312-304L	SA182-F304L	Earth lug	SA240-316L
5	Head(Main/Jacket)	SA182-304L	-	Stiffening rings	-
6	Nozzle Necks (Main/Jacket)	Plate	- / -	Gaskets	Spiral wound
7		Pipe	SA312-304L / -	Ext. bolt/Nuts	SA193-B7/SA194-2H
8	Cladding	-	-	Int. bolt/Nuts	SA193-B8/SA194-8
9	Nozzle flanges	SA182-F304L	-	Wire mesh	-
10	Blind flanges	SA182-F304L	-	Welded clip	SA240-304L
11	Reinforcing pad	SA240-304L	-	Int. welded	SA312-304L
12	Fitting	SA403-304L	-	Int. removable	-
13	Support	Leg	-	Anchor/Setting bolts	SA307-B
14		Lug	SA240-304L	Ladder/Platform	-
15		leg/lug pad	SA240-304L	Insulation Mateial	MINERAL WOOL
16	Lifting lug	SA240-304L	-	-	-

17	<b>NOZZLE DETAILS(NOTE 2,3,4,7,8)</b>
18	

19	Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks
			Rating	Type	Face				Width	Thk.		
21	<b>Top Head</b>											
22	P1	4"	600#	WN	RF	80S	Gas outlet	See dwg	50	20	ANSI B16.5	
23												
24	<b>Shell</b>											
25	P2	2"	600#	LWN	RF	40S	Product inlet	See dwg	-	-	ANSI B16.5	Tangential
26												
27	<b>Bottom Head</b>											
28	P3	2"	600#	WN	RF	40S	Product outlet	See dwg	-	-	ANSI B16.5	
29												
30												
31												
32												
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	Document No.: 400-DAS-A4-EQ-0102	Rev. : 01
	Owner Job No.:	Type: DAS
		Page : A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 2ND G.P.R. DISCHARGE HOPPER (HP-422)

NOZZLE LOADING DATA(NOTE 2)							
No.	Nozzle Name	FL (kgf)	FA (kgf)	FC (kgf)	MC (kg.m)	MT (kg.m)	ML (kg.m)
4	P1	571	571	429	115	172	149
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
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20							

REFRENECE DOCUMENTS

No.	No.	Document No.	Document Title
23	1		
24	2		
25	3		
26	4		
27	5		
28	6		
29	7		
30	8		
31	9		
32	10		
33	11		
34	12		
35	13		
36	14		
37	15		
38	16		
39	17		
40	18		
41	19		
42	20		
43	21		
44	22		
45	23		
46	24		
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	Document No.: 400-DAS-A4-EQ-0102	Rev. : 01
	Owner Job No.:	Type: DAS
		Page : A

PROJECT:PP-PE PILOT PLANT

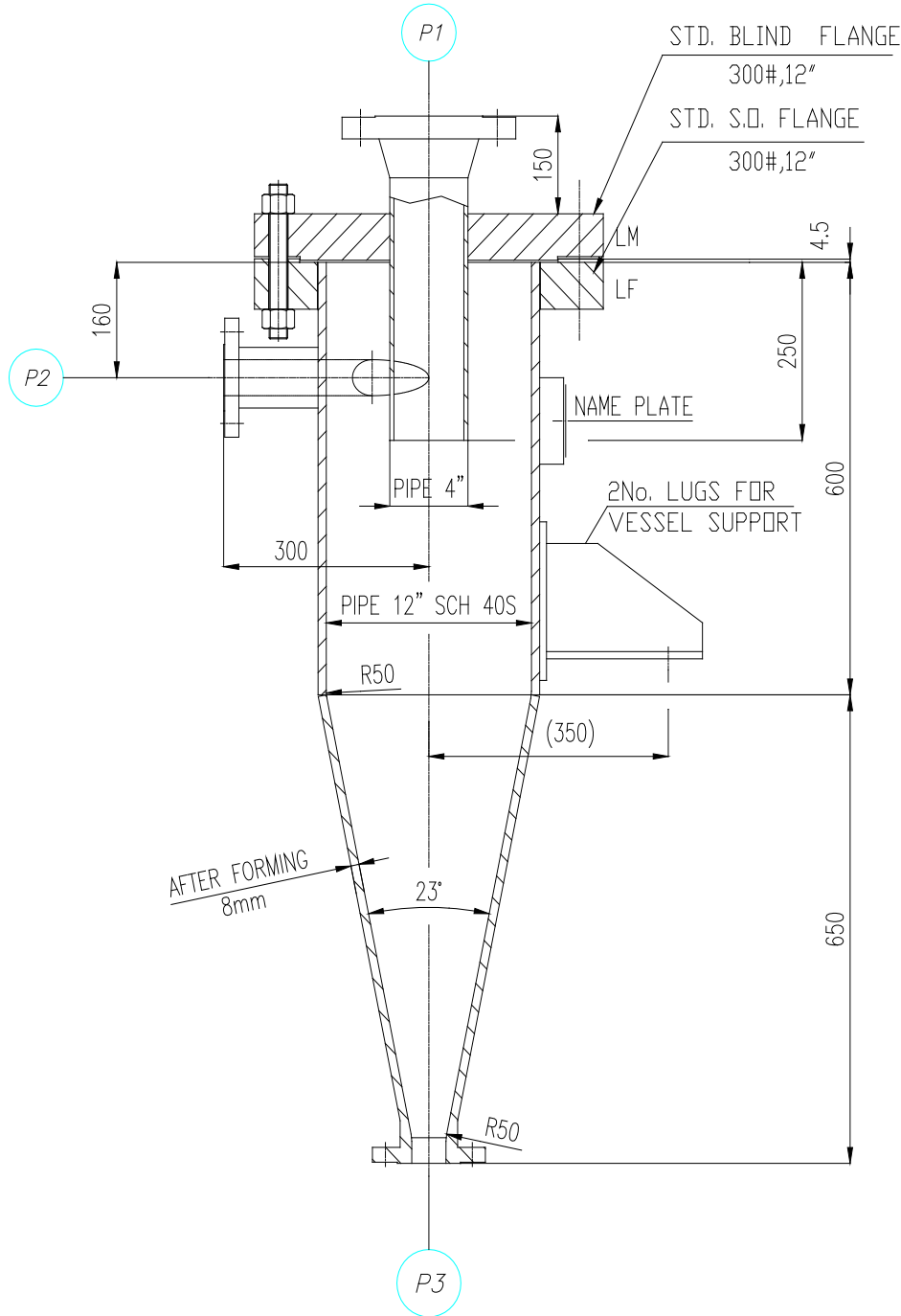
Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 2ND G.P.R. DISCHARGE HOPPER (HP-422)

Sketch(Note 3)



SIDE VIEW

Document No.: 400-DAS-A4-EQ-0102

Rev. : 01

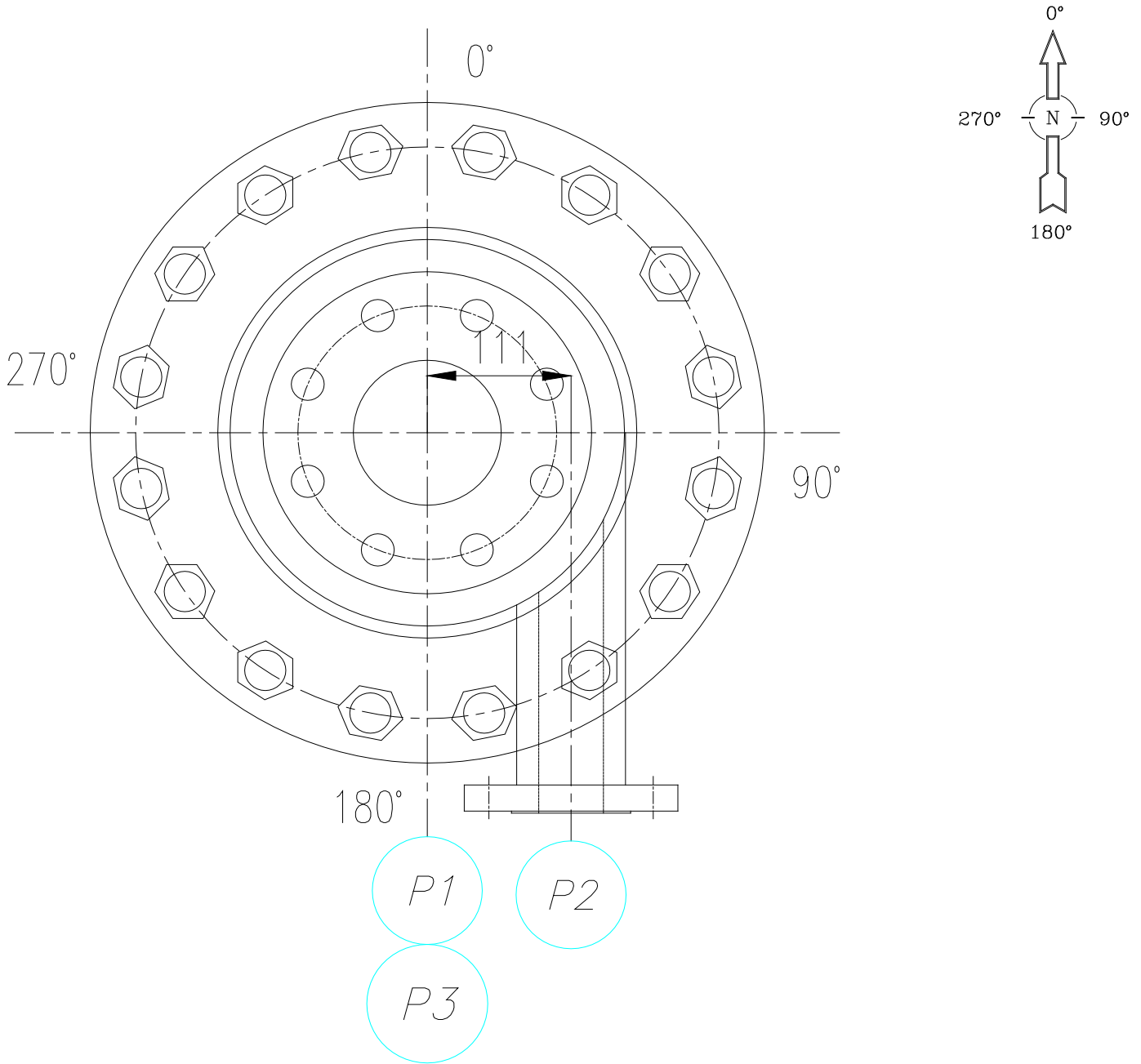
Owner Job No.:

Type: DAS

Page : A



Sketch(Note 3)



nozzle orientation



PROJECT:PP-PE PILOT PLANT

Client:



TITLE:DATA SHEET FOR 2ND G.P.R. DISCHARGE HOPPER (HP-422)

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Document No.: 400-DAS-A4-EQ-0102

Rev. : 01

Owner Job No.:

Type: DAS

Page : A

PROJECT:PP-PE PILOT PLANT

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شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 2ND G.P.R. DISCHARGE HOPPER(HP-423)

## DATA SHEET FOR 2ND G.P.R. DISCHARGE HOPPER(HP-423)

Document No.: 400-DAS-A4-EQ-0103


Rev. : 01

Owner Job No.:

Type: DAS

Page : A



PROJECT:PP-PE PILOT PLANT				Client:		 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی			
TITLE:DATA SHEET FOR 2ND G.P.R. DISCHARGE HOPPER(HP-423)									
1	Item No.: HP-423	Quantity: 1	Location: Outdoor	Service:	Continuous				
2	<b>DESIGN CONDITIONS</b>								
3									
4									
5	Operating Temperature(Min./Max.)	°C	Vessel	-30/+80	Jacket	-/-	Internal Coil	-/-	
6	Operating Pressure	barg		24		-		-	
7	Density	kg/m <sup>3</sup>		500		-		-	
8	Design Pressure(int./ext.)	barg		32		-/-		-/-	
9	Design Temperature	°C		-60/+180		-/-		-/-	
10	Volume(total)	m <sup>3</sup>		0.065		-		-	
11	Hydro Test Pressure	barg		as per UG99b(33)		-		-	
12	Corrosion Allowance(shell/head)	mm		0/0		-/-		-/-	
13	Cladding (shell/head)	mm		-/-		-/-		-/-	
14	Content @ normal operation			Hydrocarbons+polymer		-		-	
15	Thickness(shell/Cone)	mm		9.5/8	1	-/-		-/-	
16	Welding Radiography(shell/head)	%		100/100		-/-		-/-	
17	Joint Efficiency(shell/head)			1/1		-/-		-/-	
18	Top Head Type			ANSI/Bolted Falnge		-		-	
19	Bottom Head Type			Cone		-		-	
20	Design code:	ASME SEC. VIII DIV.1		Inspection code:	ASME SEC. IX				
21	Cylinder Deminsoin(IDxT.L-T.L)	1	PIPE12" x 650 mm	Lethal Service:	<input type="radio"/> Yes	<input checked="" type="radio"/> No			
22	M.D.M.T @ D.P:	-60	°C	M.A.T:	-	°C			
23	M.A.W.P:	32.17 barg	Limited by:	CONE				Stamp:	Not Required
24	Impact Test:	Not Required		P.W.H.T:	Not Required				
25	N.D.T:	Required		Vessel lining detail:	NIL				
26	HIC/SSC resistance:	NA	/	NA	Painting & Coating:	as per code			
27	Insulation thickness:	40	mm	Insulation type:	HOT				
28	Fireproofing :	1	NO	Vessel located on:	Structrue				
29	Seismic code:	UBC 1997		Seismic Zone:	3				
30	Impotance factor:	1.25		Soil Profile:	SD				
31	Wind code:	UBC		Wind velocity:	120	km/hr @ 10 m			
32	Impotance factor:	1.15		Exposure:	C				
33	<b>Support loading data(Note 5)</b>			<b>Weight(kg) (Note 5)</b>	Fabricated:	280			
34	Earthquake	Wind			Empty:	290			
35	Shearing load(kgf)	70	50		Test:	345			
36	Moment(kg.m)	35	25		Operation:	310			
37	<b>MISCELLANEOUS(Note 2,10)</b>								
38									
39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate						
40	<input type="radio"/> Diffuser	<input type="radio"/> Distributer	<input type="radio"/> Trunnion						
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template						
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation						
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss						
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input checked="" type="radio"/> Dip pipe						
45	<input type="radio"/> Fire Proofing Support 1	<input type="radio"/> Internal lining							
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting							
47	<input type="radio"/> Heating coil	<input type="radio"/> Internal clips							
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips							
				Document No.: 400-DAS-A4-EQ-0103	Rev. : 01				
				Owner Job No.:	Type: DAS				
					Page : A				





PROJECT:PP-PE PILOT PLANT

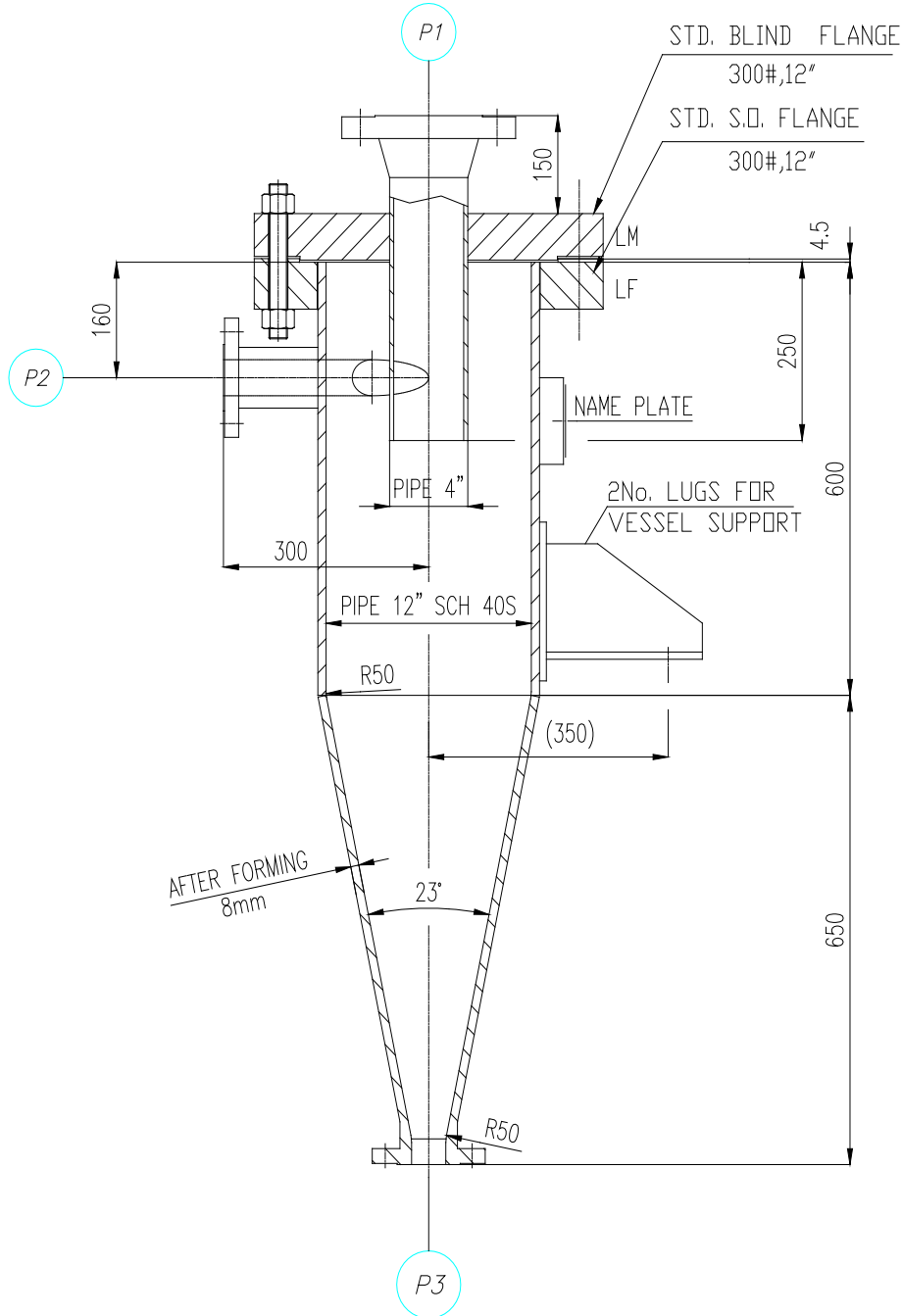
Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR 2ND G.P.R. DISCHARGE HOPPER(HP-423)

Sketch(Note 3)



SIDE VIEW

Document No.: 400-DAS-A4-EQ-0103

Rev. : 01

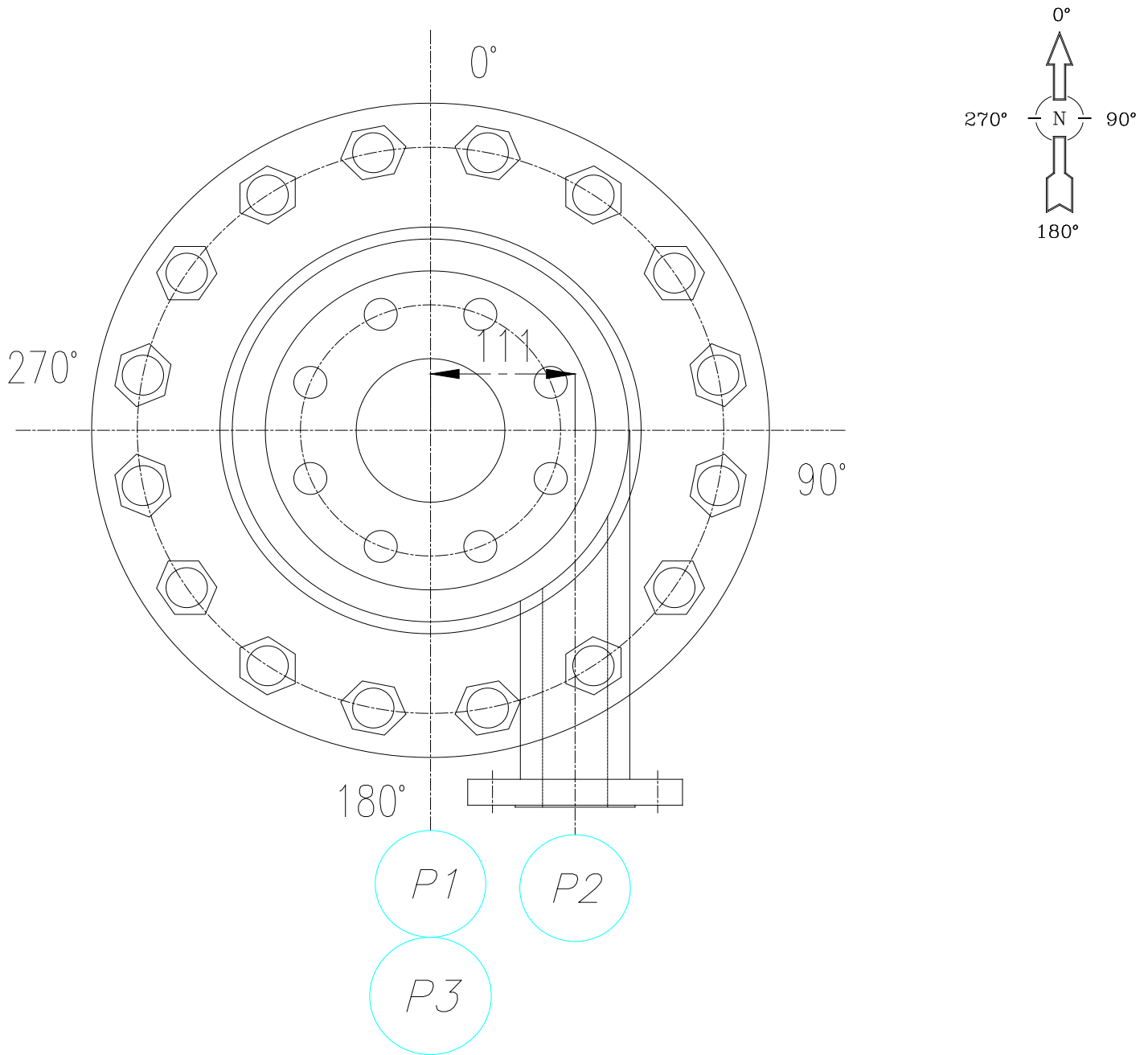
Owner Job No.:

Type: DAS

Page : A



Sketch(Note 3)



nozzle orientation



PROJECT:PP-PE PILOT PLANT

Client:



TITLE:DATA SHEET FOR 2ND G.P.R. DISCHARGE HOPPER(HP-423)

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- 1- SHALL BE SPECIFIED BY VENDOR .
- 2- SHALL BE VERIFIED BY VENDOR.
- 3- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.
- 4- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.
- 5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 6- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF ELLIPTICAL/TORISPHERICAL HEADS SHALL BE IN NO CASE SMALLER THAN VESSEL SHELL THICKNESS.VENDOR SHALL CHECK AND GUARANTEE THEM ON STRENGTH.
- 7- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 8- UNLESS OTHERWISE NOTED OUTSIDE PROJECTION OF NOZZLES ARE MEASURED FROM C.L./T.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE.
- 9- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 10- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 11- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 12- SURFACE PREPARATAION,PICKLING&PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER.
- 13- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.
- 14-FINISHING OF THE GASKET CONTACTING FACE SHALL BE SMOOTH FINISH RA=6.3  $\mu\text{m}$  (250  $\mu\text{inch}$ )
- 15-INTERNAL FINISHING SHALL BE SMOOTH FINISH RA= 0.4  $\mu\text{m}$  (16 $\mu\text{inch}$ )
- 16- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.: 400-DAS-A4-EQ-0103

Rev. : 01

Owner Job No.:

Type: DAS

Page : A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Hexene unloading hydraulic guard(V-342)

## Data Sheet for Hexene unloading hydraulic guard(V-342)

Document No.: 300-DAS-A4-EQ-0073

Rev.: 3

Owner Job No.:

Type: DAS

Page A



PROJECT:PP-PE PILOT PLANT



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Hexene unloading hydraulic guard(V-342)

1	Item No.:V-342	Quantity: 1	Location: Outdoor	Service: Continuous	
2	<b>DESIGN CONDITIONS</b>				
3					
4		<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>	
5	Operating Temperature(Min./Max.) °C	AMB	-/-	-/-	
6	Operating Pressure barg	ATM	-	-	
7	Density kg/m <sup>3</sup>	850	-	-	
8	Design Pressure(int./ext.) barg	6/6	-/-	-/-	
9	Design Temperature °C	-30/+120	-/-	-/-	
10	Volume(total) m <sup>3</sup>	0.033	-	-	
11	Hydro Test Pressure barg	as per UG99b(33)	-	-	
12	Corrosion Allowance(shell/head) mm	0/0	-/-	-/-	
13	Cladding (shell/head) mm	-/-	-/-	-/-	
14	Content @ normal operation	OIL	-	-	
15	Thickness(shell/head) mm	9.27/ #300	-/-	-/-	
16	Welding Radiography(shell/head) %	Full/Full	-/-	-/-	
17	Joint Efficiency(shell/head)	1/1	-/-	-/-	
18	Top Head Type	ANSI/Bolted Falnge	-	-	
19	Bottom Head Type	STD CAP	-	-	
20	Design code: ASME SEC. VIII DIV.1	Inspection code: as per code			
21	Cylinder Deminsion(IDxT.L-T.L) $\triangle 3$ PIPE 10" x 580 mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No			
22	M.D.M.T @ D.P: -30 °C	M.A.T: - °C			
23	M.A.W.P: - barg Limited by: -	Stamp: NIL			
24	Impact Test: Not Required	P.W.H.T: Not Required			
25	N.D.T: Required	Vessel lining detail: N/A			
26	HIC/SSC resistance: N/A / N/A	Painting & Coating: as per code			
27	Insulation thickness: 40 mm	Insulation type: IA			
28	Fireproofing thickness: (Note 17) mm	Vessel located on: Foundation			
29	Seismic code: UBC 1997	Seismic Zone: 3			
30	Impotance factor: 1.25	Soil Profile: SD			
31	Wind code: UBC	Wind velocity: 120 km/hr @ 10 m			
32	Impotance factor: 1.15	Exposure: C			
33	<b>Support loading data(Note 5)</b>				
34	Earthquake	Wind	<b>Weight(kg) (Note 5)</b>	Fabricated: 165 kg	
35	Shearing load(kgf)	35		25	Empty: 170 kg
36	Moment(kg.m)	30		20	Test: 195 kg
					Operation: 185 kg
37	<b>MISCELLANEOUS</b>				
38					
39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate		
40	<input type="radio"/> Diffuser	<input type="radio"/> Distributer	<input type="radio"/> Trunnion		
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template		
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation		
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss		
44	<input checked="" type="radio"/> Fire Proofing $\triangle 3$	<input checked="" type="radio"/> Name plate	<input checked="" type="radio"/> Dip pipe		
45	<input type="radio"/> Fire Proofing Support	<input type="radio"/> Internal lining			
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting			
47	<input type="radio"/> Heating coil	<input checked="" type="radio"/> Internal clips			
48	<input checked="" type="radio"/> Lifting lug	<input type="radio"/> External clips			

Document No.: 300-DAS-A4-EQ-0073

Rev.: 3

Owner Job No.:

Type: DAS

Page A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Hexene unloading hydraulic guard(V-342)

1													
2	<b>MATERIALS(NOTE 2)</b>												
3													
4	Shell(Main/Jacket)	SA312-304 / -					Earth lug	SA240-316					
5	Head(Main/Jacket)	SA403-304 / -					Stiffening rings	NA					
6	Nozzle Necks (Main/Jacket)	Plate	- / -					Gaskets	to be specified by vendor				
7		Pipe	SA312-304 / -					Ext. bolt/Nuts	SA193-BB/SA194-B				
8	Cladding	NA					Int. bolt/Nuts	SA193-BB/SA194-B					
9	Nozzle flanges	SA182-304					Wire mesh	NA					
10	Blind flanges	SA182-304					Welded clip	SA240-304					
11	Reinforcing pad	SA240-304					Int. welded	SA240-304					
12	Fitting	SA403-304					Int. removable	SA312-304					
13	Support	Leg	SA283-C					Anchor/Setting bolts	SA-307 B				
14		Lug	NA					Ladder/Platform	NA				
15		leg/lug pad	SA240-304					Insulation Mateial	MINERAL WOOL				
16	Lifting lug	SA240-304											
17	<b>NOZZLE DETAILS(NOTE 2,3,8)</b>												
18													
19	Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks	
20			Rating	Type	Face				Width	Thk.			
21	Top Head												
22	P1	1/2"	300#	WN	RF	40S	Nitrogen Inlet	-	-	-	ANSI B16.5	SEE DWG.	
23	P2	1"	300#	WN	RF	40S	SEO Inlet	-	-	-	ANSI B16.5	SEE DWG.	
24	P3	1"	300#	WN	RF	40S	Vent	-	-	-	ANSI B16.5	SEE DWG.	
25													
26													
27													
28	Shell												
29	K1	3"	150#	-	-	40S	Sight Glass	55	-	-	ANSI B16.5	PAD FLANGE	
30													
31													
32													
33													
34													
35	Bottom Head												
36	P4	1"	300#	WN	RF	40S	Drain	185	-	-	ANSI B16.5		
37													
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42													
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Document No.: 300-DAS-A4-EQ-0073

Rev.: 3

Owner Job No.:

Type: DAS

Page A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Hexene unloading hydraulic guard(V-342)

1

2

**NOZZLE LOADING DATA(NOTE 6)**

3

Nozzle Name	FA (kN)	FB (kN)	FC (kN)	MA (N.m)	MB (N.m)	MC (N.m)
P1						
P2						
P4						

21

22

**REFRENCE DOCUMENTS**

No.	Document No.	Document Title
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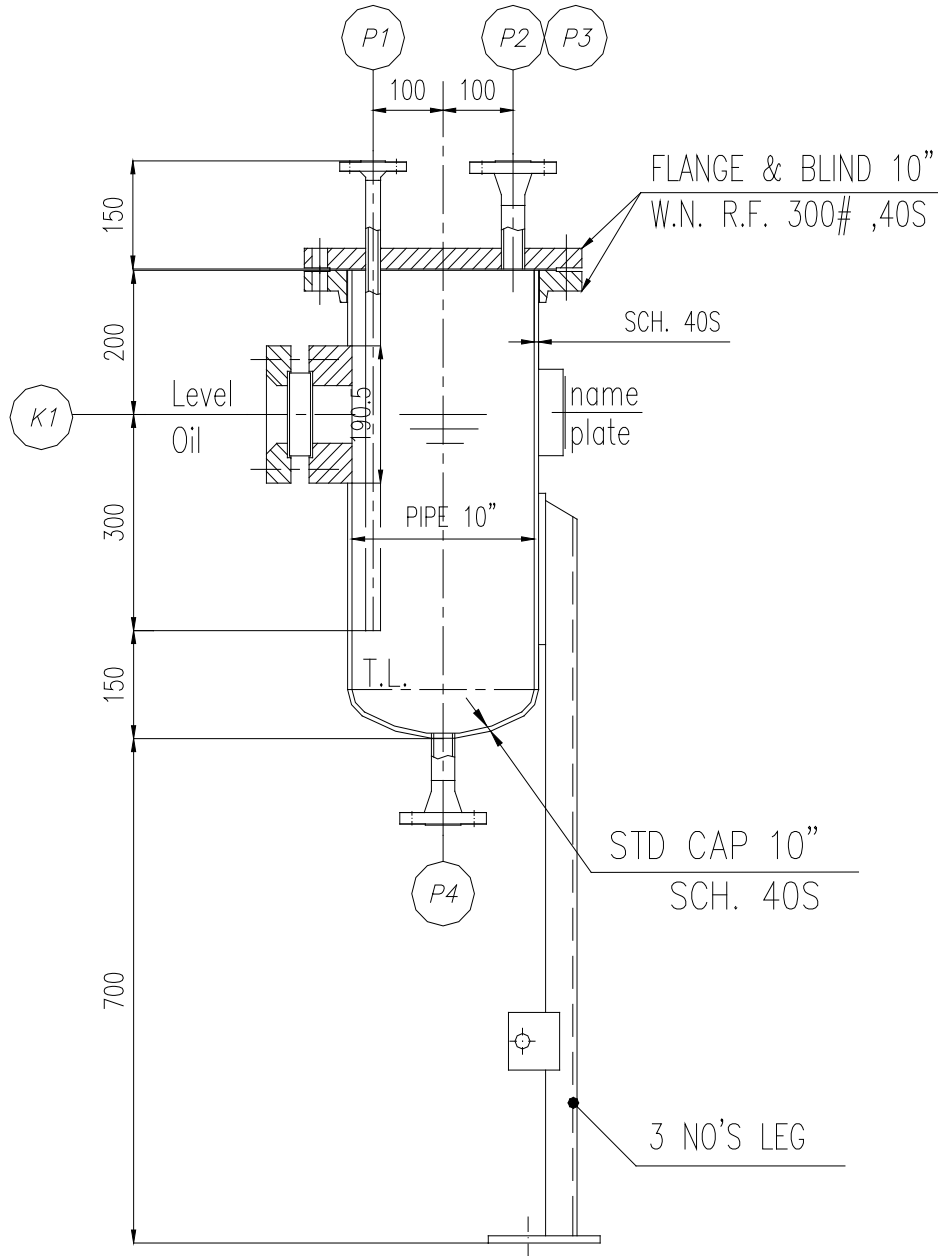
Document No.: 300-DAS-A4-EQ-0073

Rev.: 3

Owner Job No.:

Type: DAS

Page A



***SIDE VIEW***



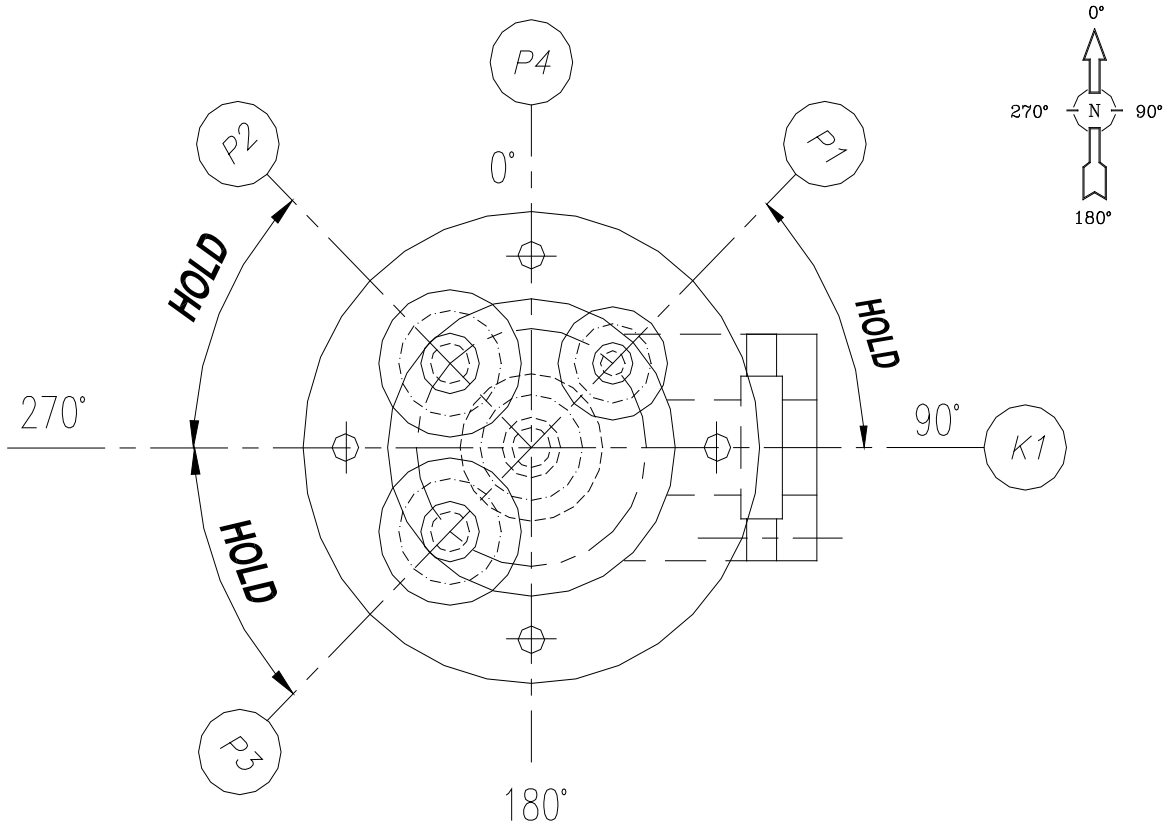
Document No.: 300-DAS-A4-EQ-0073

Rev.: 3

Owner Job No.:

Type: DAS

Page A



# ***Orientated (HOLD)***



Document No.: 300-DAS-A4-EQ-0073


Rev.: 3

Owner Job No.:

Type: DAS

Page A



PROJECT:PP-PE PILOT PLANT	Client:  شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی
TITLE:Data Sheet for Hexene unloading hydraulic guard(V-342)	

**General Notes:**

- 1- SHALL BE VERIFIED BY VENDOR.
- 2- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.
- 3- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.
- 4- THICKNESSES INDICATED ON ENG. DRAWING ARE Min. PURCHASER REQUIREMENT. VENDOR SHALL CHECK AND GUARANTEE THEM ON STRENGTH.
- 5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 6- SHALL BE SPECIFIED BY VENDOR .
- 7-SURFACE PREPARATAION,PICKLING&PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER
- 8- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 9- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 10- ALL NDT (RT, UT AND PT/MT) SHALL BE PERFORMED BEFORE AND AFTER PWHT .
- 11- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.
- 12- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 13- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF ELLIPTICAL/TORISPHERICAL HEADS SHALL BE IN NO CASE SMALLER THAN VESSEL SHELL THICKNESS.
- 14- ALL TAILED DIMENSIONS ARE MEASURED FROM B.L.
- 15- UNLESS OTHERWISE NOTED OUTSIDE PROJECTIONS OF NOZZLES ARE MEASURED FROM C.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE.
- 16- FLANGE FACE FINISHING SHALL BE SMOOTHED WITH 125-250 MICROINCH AVEREGAE ROUGHNESS
- 17- WILL BE SPECIFIED LATER.
- 18- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 19- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

	Document No.: 300-DAS-A4-EQ-0073	Rev.: 3
	Owner Job No.:	Type: DAS
		Page A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Precontact Pot (1,5 It)(R-211)

## Data Sheet for Precontact Pot (1,5 It)(R-211)

Document No.: 200-DAS-A4-EQ-0023


Rev. : 02

Owner Job No.:

Type: DAS

Page : A




<b>PROJECT:PP-PE PILOT PLANT</b>	<b>Client:</b>	
<b>TITLE:Data Sheet for Precontact Pot (1,5 lt)(R-211)</b>		شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی

1	Item No.:R-211	Quantity: 1	Location: Outdoor	Service:	Continuous
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2	<b>DESIGN CONDITIONS</b>				
3					

4		Vessel	Jacket	Internal Coil
5	Operating Temperature(Min./Max.) °C	-30 /+ 20	- / 20	-/-
6	Operating Pressure barg	30	2	-
7	Density kg/m <sup>3</sup>	600 - 650	1100	-
8	Design Pressure(int./ext.) barg	65 / 10	10 / -	-/-
9	Design Temperature °C	-60/+180	+180	-/-
10	Volume(total) m <sup>3</sup>	0.0015	0.002	-
11	Hydro Test Pressure barg	as per UG99b(33)	as per UG99b(33)	-
12	Corrosion Allowance(shell/head) mm	0/0	1.5/1.5	-/-
13	Cladding (shell/head) mm	-/-	-/-	-/-
14	Content @ normal operation	Hydrocarbons+Slurry	Glycole+Water	-
15	Thickness(shell/head) mm	10/40	6	/
16	Welding Radiography(shell/head) %	Full / Full	Full / Full	-/-
17	Joint Efficiency(shell/head)	1 / 1	1 / 1	-/-
18	Top Head Type	FORGED	N.A	-
19	Bottom Head Type	Welded Flat	N.A	-


20	Design code:	ASME SEC. VIII DIV.1	Inspection code:	ASME SEC. IX
21	Cylinder Deminsion(IDxT.L-T.L):	100 x 175 mm	Lethal Service:	<input type="radio"/> Yes <input checked="" type="radio"/> No
22	M.D.M.T @ D.P:	-60 °C	M.A.T:	- °C
23	M.A.W.P:	- barg Limited by: -	Stamp:	Required
24	Impact Test:	Not Required	P.W.H.T:	Not Required
25	N.D.T:	Required	Vessel lining detail:	NIL
26	HIC/SSC resistance:	NA / NA	Painting & Coating:	as per code
27	Insulation thickness:	30 mm	Insulation type:	COLD
28	Fireproofing :	 NO	Vessel located on:	Structrue
29	Seismic code:	UBC 1997	Seismic Zone:	3
30	Impotance factor:	1.25	Soil Profile:	SD
31	Wind code:	UBC	Wind velocity:	120 km/hr @ 10 m
32	Impotance factor:	1.15	Exposure:	C

33	<b>Support loading data(Note 5)</b>			<b>Weight(kg) (Note 5)</b>	Fabricated:	-
34	Earthquake	Wind	Empty:		90	
35	Shearing load(kgf)	-	Test:		-	
36	Moment(kg.m)	-	Operation:		-	
37						

38	<b>MISCELLANEOUS(Note 6)</b>				
----	------------------------------	--	--	--	--

39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate
40	<input type="radio"/> Diffuser	<input type="radio"/> Distributer	<input type="radio"/> Trunnion
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input type="radio"/> Dip pipe
45	<input type="radio"/> Fire Proofing Support	<input type="radio"/> Internal lining	<input checked="" type="radio"/> Agitator
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting	
47	<input type="radio"/> Heating coil	<input type="radio"/> Internal clips	
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips	

	Document No.:	200-DAS-A4-EQ-0023	Rev. : 02
	Owner Job No.:		Type: DAS
			Page : 1 of 7

PROJECT:PP-PE PILOT PLANT	Client:
TITLE:Data Sheet for Precontact Pot (1,5 lt)(R-211)	 <p>شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی</p>

1	
2	
3	<b>MATERIALS(NOTE 1)</b>

4	Shell(Main/Jacket)	SA182-304L / SA240-304L	Earth lug	SA240-316L
5	Head(Main/Jacket)	SA182-304L / NA	Stiffening rings	SA240-304L
6	Nozzle Necks	Plate - / -	Gaskets	DOUBLE O-RING
7	(Main/Jacket)	Pipe SA312-304L / SA312-304L	Ext. bolt/Nuts	SA193-B7/SA194-2H
8	Cladding	-	Int. bolt/Nuts	SA193-BB/SA194-8
9	Nozzle flanges	SA182-304L	Wire mesh	NA
10	Blind flanges	SA182-304L	Welded clip	SA240-304L
11	Reinforcing pad	SA240-304L	Int. welded	SA240-304L
12	Fitting	SA403-304L	Int. removable	SA240-304L
13	Support	Leg NA	Anchor/Setting bolts	SA307-B
14		Lug SA 36	Ladder/Platform	NA
15		leg/lug pad SA240-304L	Insulation Mateial	POLY-URETHANE
16	Lifting lug	SA240-304L		

17	
18	<b>NOZZLE DETAILS(NOTE 3)</b>

19	Item	NPS (Inch)	Flanges			SCH. /THK. (NOTE 5)	Service	Proj.	Rein. PAD (NOTE 5)		Standards	Remarks
			Rating	Type	Face				Width	Thk.		
21	<b>Top Head</b>											
22	P1	3/8"	3000#	Thr.NPT	-	-	Catalyst Inlet	see Dwg	-	-	ANSI B2.1	Internal hole Φ7mm
23	P2	3/8"	3000#	Thr.NPT	-	-	Cocacatal. Inlet	see Dwg	-	-	ANSI B2.1	Internal hole Φ7mm
24	P3	3/8"	3000#	Thr.NPT	-	-	Spare	see Dwg	-	-	ANSI B2.1	Internal hole Φ7mm+with plug
25	K1	3/8"	3000#	Thr.NPT	-	-	PRA Connection	see Dwg	-	-	ANSI B2.1	Internal hole Φ7mm
26	S1	-					Stirrer Connection	see Dwg	-	-		See note 10
27												
28	<b>Shell (Jacket)</b>											
29	P6	1/2"	3000#	Thr.NPT	-	-	Thermost. Inlet	see Dwg	-	-	ANSI B2.1	Internal hole Φ15mm
30	P7	1/2"	3000#	Thr.NPT	-	-	Thermost. Outlet	see Dwg	-	-	ANSI B2.1	Internal hole Φ15mm
32												
33	<b>Bottom Head</b>											
34	P4	3/8"	3000#	Thr.NPT	-	-	Product Outlet	see Dwg	-	-	ANSI B2.1	Internal hole Φ7mm
35	P5	3/8"	3000#	Thr.NPT	-	-	Drain	see Dwg	-	-	ANSI B2.1	Internal hole Φ7mm
36	K2	3/8"	3000#	Thr.NPT	-	-	TRC Connection	see Dwg	-	-	ANSI B2.1	Female(for more detail see H-212)
37												
38												
39												
40												
41												
42												
43												
44												

	Document No.: 200-DAS-A4-EQ-0023	Rev. : 02
	Owner Job No.:	Type: DAS
		Page : 2of 7

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Precontact Pot (1,5 lt)(R-211)

1

2

**NOZZLE LOADING DATA(NOTE 5)**

3

4	Nozzle Name	FA (kN)	FB (kN)	FC (kN)	MA (N.m)	MB (N.m)	MC (N.m)
5							
6							
7							
8							
9							
10							
11							
12							
13							
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**REFRENECE DOCUMENTS**

22

23	No.	Document No.	Document Title
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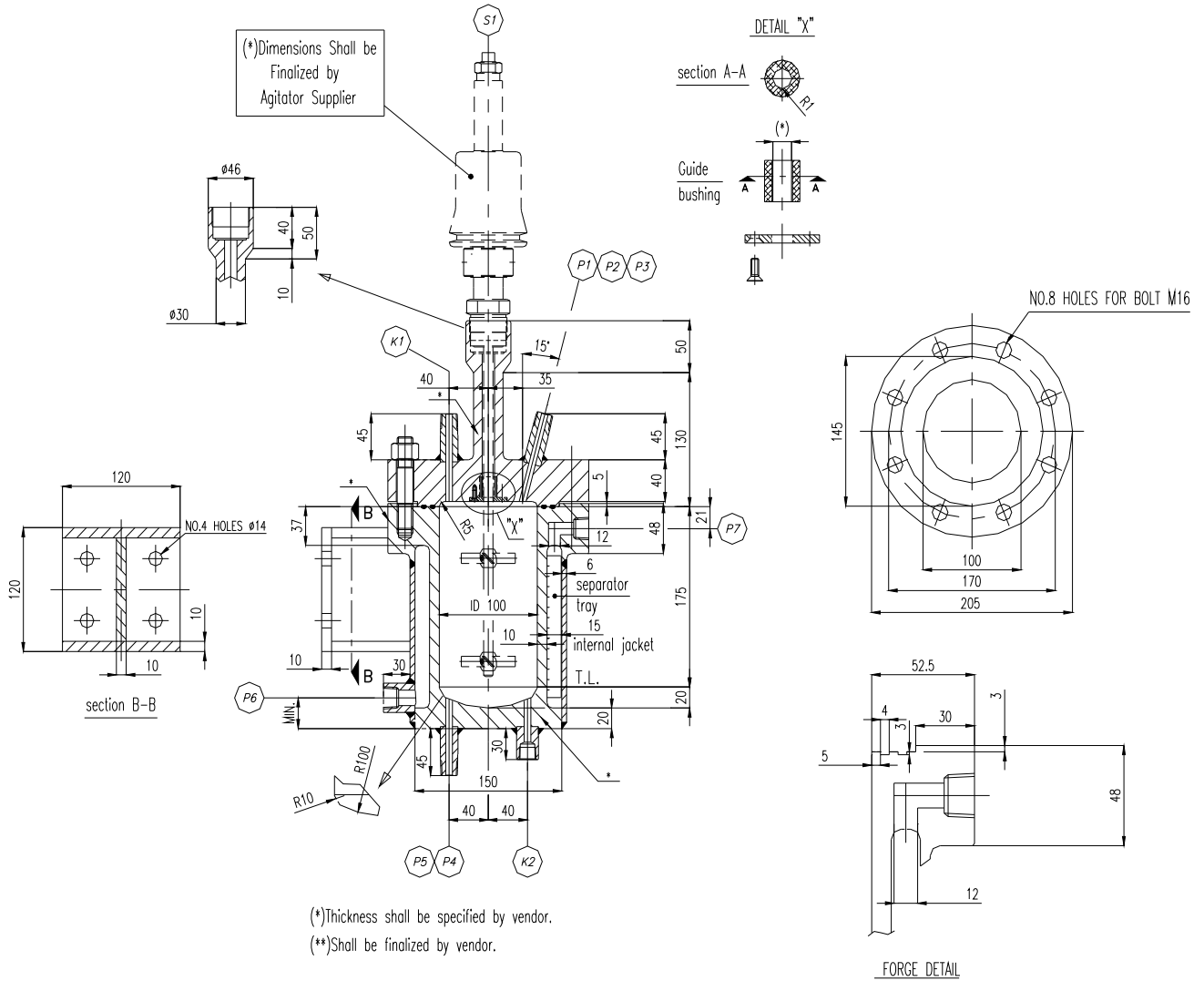
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Rev. : 02

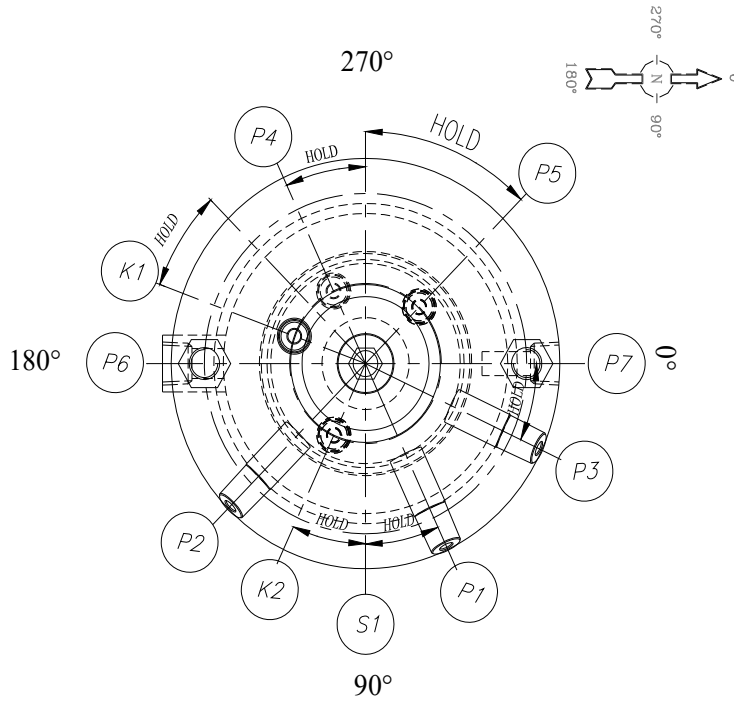
Owner Job No.:

Type: DAS

Page : 3 of 7

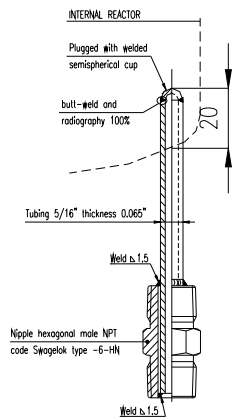


**Side View**



**Orientation (HOLD)**

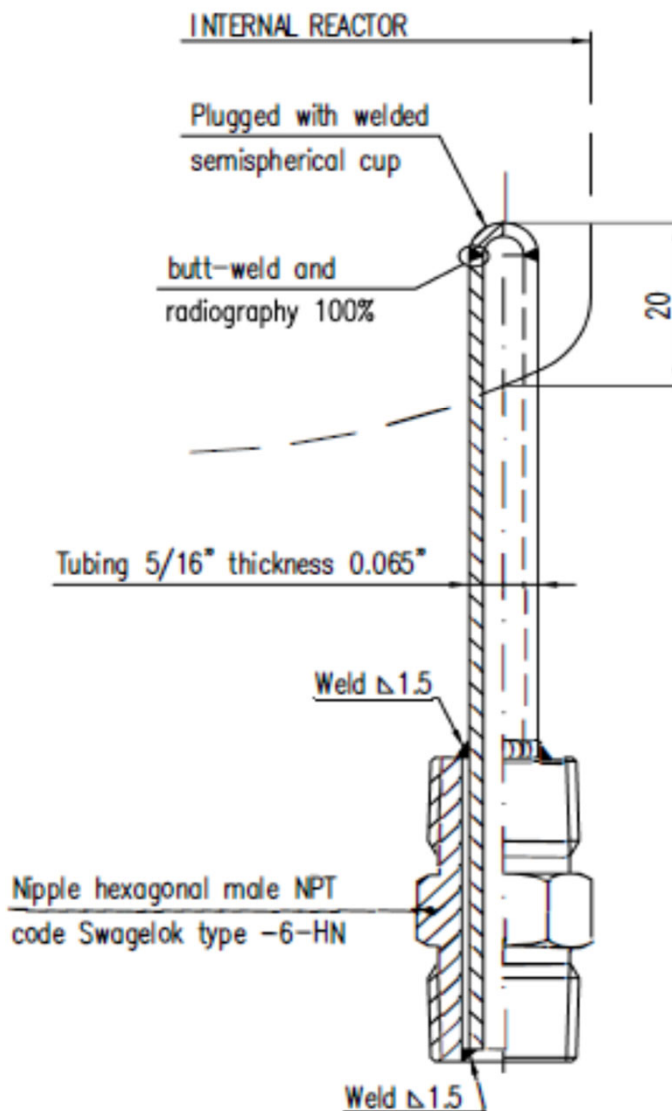
H-212 thermowell  
detail







H-212 thermowell  
detail



PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Precontact Pot (1,5 lt)(R-211)

**General Notes:**

- 1- SHALL BE VERIFIED BY VENDOR
- 2- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED
- 3- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR
- 4- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 5- SHALL BE SPECIFIED BY VENDOR .
- 6- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 7- LOCATION AND NUMBER OF LIFTING LUGS ON REACTOR SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 8- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 9- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 10- STIRRER CONNECTION AND MAGNETIC AGITATOR TYPE SHALL BE DEFINED BY RELATIVE SUPPLIER.
- 11- INTERNAL FINISHING SHALL BE SMOOTH FINISH RA=0.4 $\mu$ m (16 $\mu$ inch)
- 12- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.: 200-DAS-A4-EQ-0023

Rev. : 02

Owner Job No.:

Type: DAS

Page : 7 of 7

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Precontact Pot (7 lt) (R-221)

## Data Sheet for Precontact Pot (7 lt) (R-221)

Document No.:200-DAS-A4-EQ-0024


Rev. : 02

Owner Job No.:

Type: DAS

Page : A




<b>PROJECT:PP-PE PILOT PLANT</b>	<b>Client:</b>
<b>TITLE:Data Sheet for Precontact Pot (7 lt) (R-221)</b>	 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی

1	Item No.:R-221	Quantity: 1	Location: Outdoor	Service:	Continuous
---	----------------	-------------	-------------------	----------	------------

2	<b>DESIGN CONDITIONS</b>				
3					

4		Vessel	Jacket	Internal Coil
5	Operating Temperature(Min./Max.) °C	-30 / +20	-30 / +20	-/-
6	Operating Pressure barg	30	2	-
7	Density kg/m <sup>3</sup>	600 / 650	1100	-
8	Design Pressure(int./ext.) barg	65 / 10	10 / -	-/-
9	Design Temperature °C	-60/+180	+180	-/-
10	Volume(total) m <sup>3</sup>	0.007	0.004	-
11	Hydro Test Pressure barg	as per UG99b(33)	as per UG99b(33)	-
12	Corrosion Allowance(shell/head) mm	0/0	1.5/1.5	-/-
13	Cladding (shell/head) mm	-/-	-/-	-/-
14	Content @ normal operation	Hydrocarbons+Slurry	Glycole+Water	-
15	Thickness(shell/head) mm	10/40	8	/
16	Welding Radiography(shell/head) %	Full / Full	Full / Full	-/-
17	Joint Efficiency(shell/head)	1 / 1	1 / 1	-/-
18	Top Head Type	FORGED	N.A	-
19	Bottom Head Type	Welded Flat	N.A	-


20	Design code: ASME SEC. VIII DIV.1	Inspection code: ASME SEC. IX
21	Cylinder Deminsion(IDxT.L-T.L): 160 x 314 mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No
22	M.D.M.T @ D.P: -60 °C	M.A.T: - °C
23	M.A.W.P: barg Limited by:	Stamp: Required
24	Impact Test: Not Required	P.W.H.T: Not Required
25	N.D.T: Required	Vessel lining detail: NIL
26	HIC/SSC resistance: NA / NA	Painting & Coating: as per code
27	Insulation thickness: 30 mm	Insulation type: COLD
28	Fireproofing :  NO	Vessel located on: Structure
29	Seismic code: UBC 1997	Seismic Zone: 3
30	Impotance factor: 1.25	Soil Profile: SD
31	Wind code: UBC	Wind velocity: 120 km/hr @ 10 m
32	Impotance factor: 1.15	Exposure: C

33	<b>Support loading data(Note 5)</b>				Fabricated:	-
34		Earthquake	Wind	<b>Weight(kg) (Note 5)</b>	Empty:	130
35	Shearing load(kgf)	-	-		Test:	-
36	Moment(kg.m)	-	-		Operation:	-
37						

38	<b>MISCELLANEOUS(Note 6)</b>				
----	------------------------------	--	--	--	--

39 <input type="radio"/> Baffle	39 <input type="radio"/> Impingement plate	39 <input type="radio"/> Weir plate
40 <input type="radio"/> Diffuser	40 <input type="radio"/> Distributer	40 <input type="radio"/> Trunnion
41 <input type="radio"/> Vortex breaker	41 <input type="radio"/> Tubesheet	41 <input type="radio"/> Template
42 <input type="radio"/> Boot / Cap	42 <input type="radio"/> Demister	42 <input checked="" type="radio"/> Pickling & passivation
43 <input checked="" type="radio"/> Insulation Support	43 <input type="radio"/> Wire mesh	43 <input checked="" type="radio"/> Earthing boss
44 <input type="radio"/> Fire Proofing	44 <input checked="" type="radio"/> Name plate	44 <input type="radio"/> Dip pipe
45 <input type="radio"/> Fire Proofing Support	45 <input type="radio"/> Internal lining	45 <input checked="" type="radio"/> Agitator
46 <input type="radio"/> Ladder & platform (int. & ext.)	46 <input type="radio"/> Sand blast & painting	
47 <input type="radio"/> Heating coil	47 <input checked="" type="radio"/> Internal clips	
48 <input checked="" type="radio"/> Lifting lug	48 <input checked="" type="radio"/> External clips	

	Document No.:200-DAS-A4-EQ-0024	Rev. : 02
	Owner Job No.:	Type: DAS
		Page : 10F7

<b>PROJECT:PP-PE PILOT PLANT</b>	<b>Client:</b>
<b>TITLE:Data Sheet for Precontact Pot (7 It) (R-221)</b>	 <p>شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی</p>

1	
2	<b>MATERIALS(NOTE 1)</b>
3	

4	Shell(Main/Jacket)	SA240-304L / SA312-304L	Earth lug	SA240-316L	
5	Head(Main/Jacket)	SA182-304L / NA	Stiffening rings	SA240-304L	
6	Nozzle Necks (Main/Jacket)	Plate	- / -	Gaskets	DOUBLE O-RING
7		Pipe	SA312-304L / SA312-304L	Ext. bolt/Nuts	SA193-B7/SA194-2H
8	Cladding	-	Int. bolt/Nuts	SA193-BB/SA194-8	
9	Nozzle flanges	SA182-304L	Wire mesh	NA	
10	Blind flanges	SA182-304L	Welded clip	SA240-304L	
11	Reinforcing pad	SA240-304L	Int. welded	SA240-304L	
12	Fitting	SA403-304L	Int. removable	SA240-304L	
13	Support	Leg	NA	Anchor/Setting bolts	SA307-B
14		Lug	SA 36	Ladder/Platform	NA
15		leg/lug pad	SA240-304L	Insulation Mateial	POLY-URETHANE
16	Lifting lug	SA240-304L			

17	<b>NOZZLE DETAILS(NOTE 3)</b>
18	

19	Item	NPS (Inch)	Flanges			SCH. /THK. (NOTE 5)	Service	Proj.	Rein. PAD (NOTE 5)		Standards	Remarks
			Rating	Type	Face				Width	Thk.		
21	<b>Top Head</b>											
22	P1	3/8"	3000#	Thr.NPT	-	-	Catalyst Inlet	see Dwg	-	-	ANSI B2.1	Internal hole Φ7mm
23	P2	3/8"	3000#	Thr.NPT	-	-	Cocacatal. Inlet	see Dwg	-	-	ANSI B2.1	Internal hole Φ7mm
24	P3	3/8"	3000#	Thr.NPT	-	-	Spare	see Dwg	-	-	ANSI B2.1	Internal hole Φ7mm+with plug
25	K1	1/2"	3000#	Thr.NPT	-	-	PRA Connection	see Dwg	-	-	ANSI B2.1	Internal hole Φ10mm
26	S1	-					Stirrer Connection	see Dwg	-	-		See note 10
27												
28	<b>Shell (Jacket)</b>											
29	P6	1/2"	3000#	Thr.NPT	-	-	Thermost. Inlet	see Dwg	-	-	ANSI B2.1	Internal hole Φ15mm
30	P7	1/2"	3000#	Thr.NPT	-	-	Thermost. Outlet	see Dwg	-	-	ANSI B2.1	Internal hole Φ15mm
32												
33	<b>Bottom Head</b>											
34	P4	3/8"	3000#	Thr.NPT	-	-	Product Outlet	see Dwg	-	-	ANSI B2.1	Internal hole Φ7mm
35	P5	1/2"	3000#	Thr.NPT	-	-	Drain	see Dwg	-	-	ANSI B2.1	Internal hole Φ10mm
36	K2	3/8"	3000#	Thr.NPT	-	-	TRC Connection	see Dwg	-	-	ANSI B2.1	Female(for more detail see H-222)
37												
38												
39												
40												
41												
42												
43												
44												

	<b>Document No.:200-DAS-A4-EQ-0024</b>	<b>Rev. : 02</b>
	<b>Owner Job No.:</b>	<b>Type: DAS</b>
		<b>Page : 20F7</b>

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Precontact Pot (7 lt) (R-221)

1

2

**NOZZLE LOADING DATA(NOTE 5)**

3

4	Nozzle Name	FA (kN)	FB (kN)	FC (kN)	MA (N.m)	MB (N.m)	MC (N.m)
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

21

**REFRENECE DOCUMENTS**

22

23	No.	Document No.	Document Title
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25	2		
26	3		
27	4		
28	5		
29	6		
30	7		
31	8		
32	9		
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36	13		
37	14		
38	15		
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48	25		

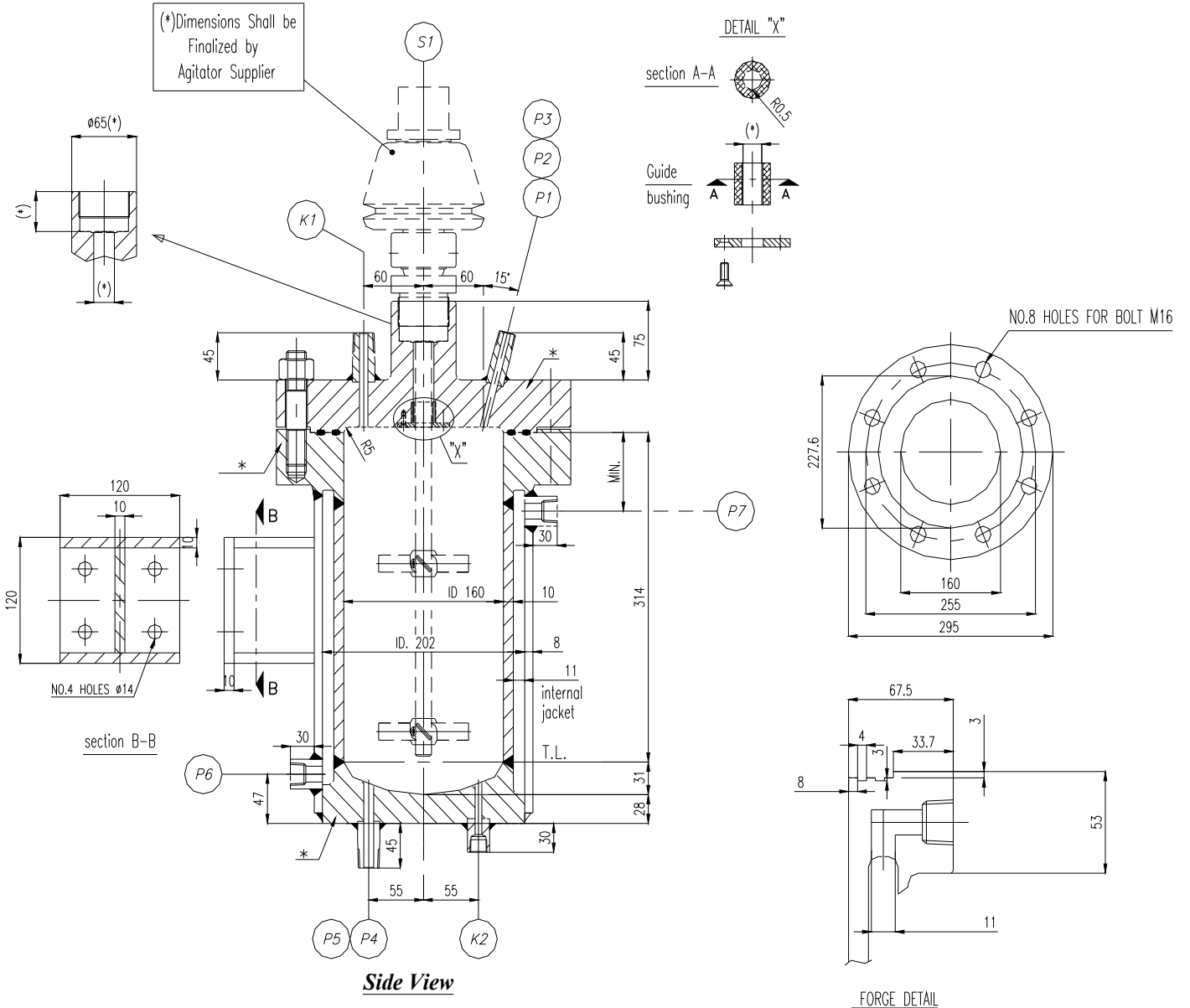
Document No.:200-DAS-A4-EQ-0024

Rev. : 02

Owner Job No.:

Type: DAS

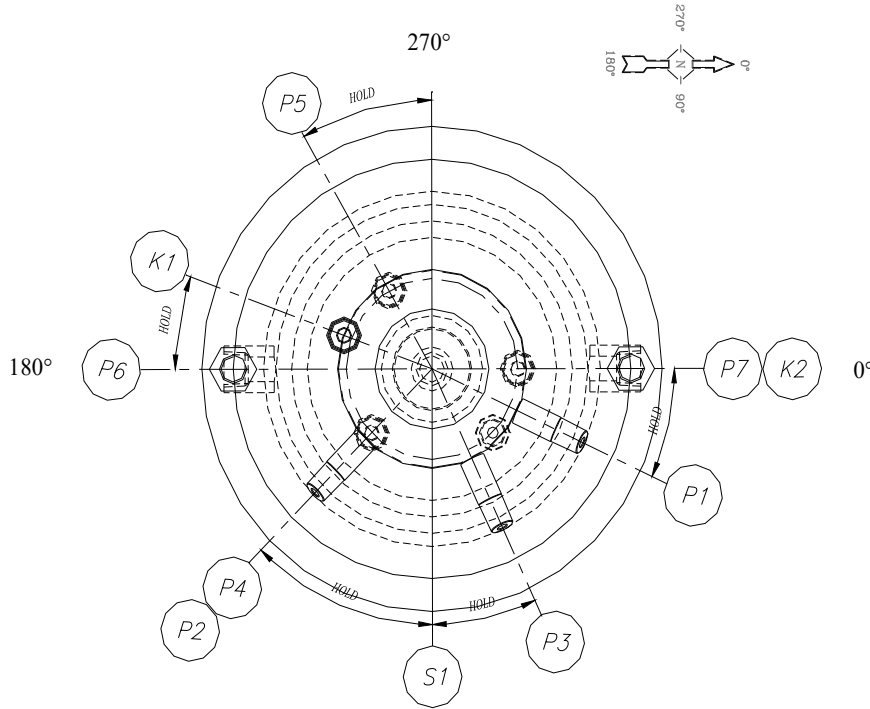
Page : 3OF7



(\*)Thickness shall be specified by vendor.

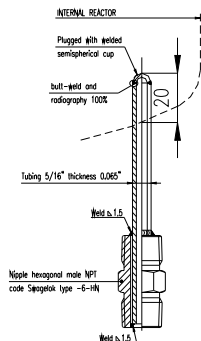
(\*\*)Shall be finalized by vendor.





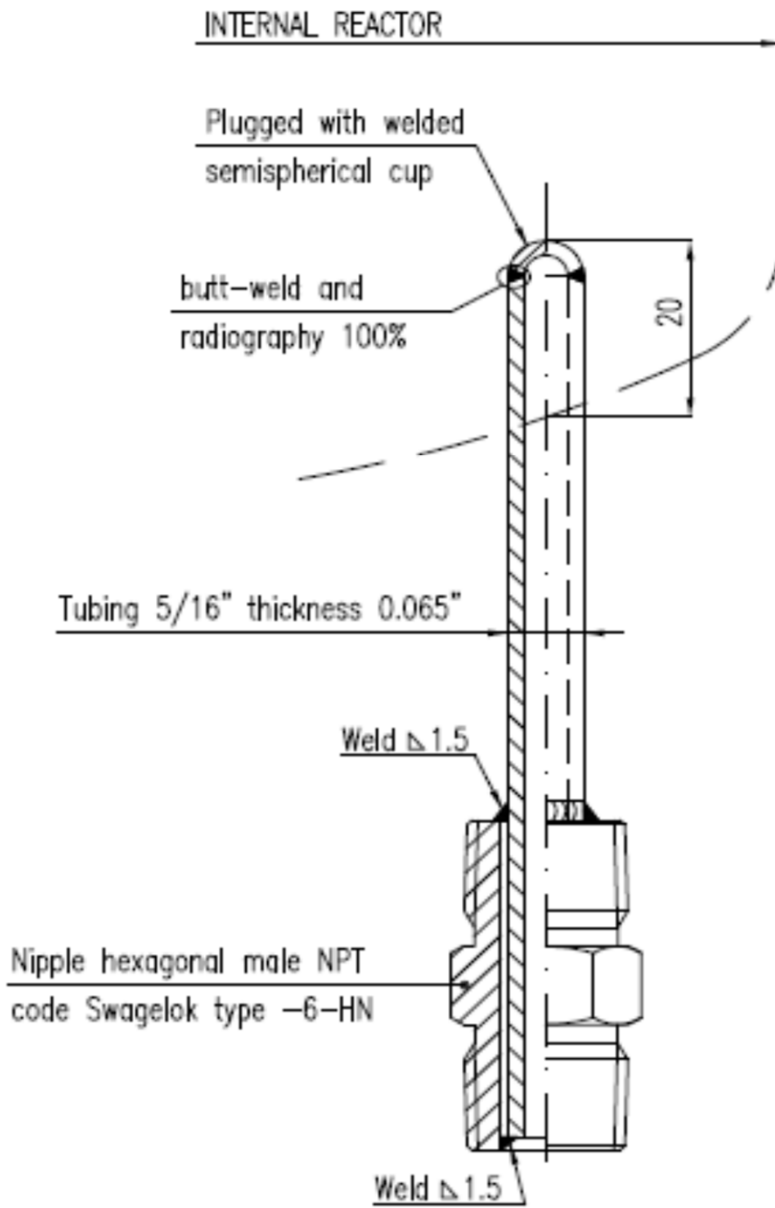
**Orientation (HOLD)**

H-222 thermowell  
detail





H-222 thermowell  
detail



PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Precontact Pot (7 lt) (R-221)

**General Notes:**

- 1- SHALL BE VERIFIED BY VENDOR
- 2- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED
- 3- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR
- 4- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 5- SHALL BE SPECIFIED BY VENDOR .
- 6- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 7- LOCATION AND NUMBER OF LIFTING LUGS ON REACTOR SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 8- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 9- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 10- STIRRER CONNECTION AND MAGNETIC AGITATOR TYPE SHALL BE DEFINED BY RELATIVE SUPPLIER.
- 11- INTERNAL FINISHING SHALL BE SMOOTH FINISH RA=0.4 $\mu$ m (16 $\mu$ inch)
- 12- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.:200-DAS-A4-EQ-0024

Rev. : 02

Owner Job No.:

Type: DAS

Page :7 OF7

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Loop prepoly (60 lt) (R -251)

## Data Sheet for Loop prepoly (60 lit) (R -251)

Document No.:200-DAS-A4-EQ-0026


Rev. : 02

Owner Job No.:

Type: DAS

Page : A




<b>PROJECT:PP-PE PILOT PLANT</b>	<b>Client:</b>
<b>TITLE:Data Sheet for Loop prepoly (60 lt) (R -251)</b>	 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی

1	Item No.:R-251	Quantity: 1	Location: Indoors	Service:	Continuous
---	----------------	-------------	-------------------	----------	------------

2	<b>DESIGN CONDITIONS</b>				
3					

	Vessel	Jacket	Internal Coil
4			
5	Operating Temperature(Min./Max.) °C	- 30/ +40	-30 / 40
6	Operating Pressure barg	30	3
7	Density kg/m <sup>3</sup>	500 ~ 550	1100
8	Design Pressure(int./ext.) barg	45 / 10	10 / -
9	Design Temperature °C	-60/+180	+180
10	Volume(total) m <sup>3</sup>	0.06	0.03
11	Hydro Test Pressure barg	as per UG99b(33)	as per UG99b(33)
12	Corrosion Allowance(shell/head) mm	0/0	1.5/1.5
13	Cladding (shell/head) mm	-/-	-/-
14	Content @ normal operation	Hydrocarbons+Slurry	Glycole+Water
15	Thickness(shell/head) mm	40S	80S
16	Welding Radiography(shell/head) %	Full / Full	Full / Full
17	Joint Efficiency(shell/head)	1 / 1	1 / 1
18	Top Head Type	See Dwg	NA
19	Bottom Head Type	See Dwg	NA
20	Design code: ASME SEC. VIII DIV.1	Inspection code: ASME SEC. IX	
21	Cylinder Deminsion(IDxT.L-T.L): 102 x 2800 mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No	
22	M.D.M.T @ D.P: -60 °C	M.A.T: - °C	
23	M.A.W.P: - barg Limited by: -	Stamp: Required	
24	Impact Test: Not Required	P.W.H.T: Not Required	
25	N.D.T: Required	Vessel lining detail: NIL	
26	HIC/SSC resistance: NA / NA	Painting & Coating: NIL	
27	Insulation thickness: 30 mm	Insulation type: COLD	
28	Fireproofing : NO	Vessel located on: Structure	
29	Seismic code: UBC 1997	Seismic Zone: 3	
30	Impotance factor: 1.25	Soil Profile: SD	
31	Wind code: UBC	Wind velocity: 120 km/hr @ 10 m	
32	Impotance factor: 1.15	Exposure: C	
33	<b>Support loading data(Note 5)</b>		
34	Earthquake	Wind	<b>Weight(kg) (Note 5)</b>
35	-	-	
36	-	-	
36	-	-	
37	<b>MISCELLANEOUS(Note 6)</b>		
38			
39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate
40	<input type="radio"/> Diffuser	<input type="radio"/> Distributer	<input type="radio"/> Trunnion
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input type="radio"/> Dip pipe
45	<input type="radio"/> Fire Proofing Support	<input type="radio"/> Internal lining	<input checked="" type="radio"/> Agitator
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting	
47	<input type="radio"/> Heating coil	<input checked="" type="radio"/> Internal clips	
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips	

	Document No.:200-DAS-A4-EQ-0026	Rev. : 02
	Owner Job No.:	Type: DAS
		Page : 10F 10

<b>PROJECT:PP-PE PILOT PLANT</b>	<b>Client:</b>
<b>TITLE:Data Sheet for Loop prepoly (60 lt) (R -251)</b>	 <p>شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی</p>

1	
2	
3	<b>MATERIALS(NOTE 1)</b>

4	Shell(Main/Jacket)	SA240-304L / SA240-304L	Earth lug	SA240-316L
5	Head(Main/Jacket)	SA240-304L / SA240-304L	Stiffening rings	SA240-304L
6	Nozzle Necks	Plate - / -	Gaskets	SPIRAL WOUND
7	(Main/Jacket)	Pipe SA312-304L / SA312-304L	Ext. bolt/Nuts	SA193-B7/SA194-2H
8	Cladding	-	Int. bolt/Nuts	SA193-BB/SA194-8
9	Nozzle flanges	SA182-304L	Wire mesh	NA
10	Blind flanges	SA182-304L	Welded clip	SA240-304L
11	Reinforcing pad	SA240-304L	Int. welded	SA240-304L
12	Fitting	SA403-304L	Int. removable	SA240-304L
13		Leg NA	Anchor/Setting bolts	SA307-B
14	Support	Lug SA283-C	Ladder/Platform	NA
15		leg/lug pad SA240-304L	Insulation Material	POLY-URETHANE
16	Lifting lug	SA240-304L		

17	
18	<b>NOZZLE DETAILS(NOTE 3)</b>

19	Item	NPS (Inch)	Flanges			SCH. /THK. (NOTE 5)	Service	Proj.	Rein. PAD (NOTE 5)		Standards	Remarks
			Rating	Type	Face				Width	Thk.		
21	<b>Top Head</b>											
22	P1	3/4"	600#	RF	LWN	-	Product outlet	see Dwg	-	-	ANSI B16.5	Internal hole Φ20mm (See H-251)
23	P2	1"	600#	LF	PAD	-	Spare	see Dwg	-	-	ANSI B16.5	Blind flange with plug
24	P3	3/8"	3000#	Thr.NPT	-	-	Fluxing bush spare	see Dwg	-	-	ANSI B2.1	With plug(see Dwg)
25	K1	1 1/2"	600#	LF	PAD	-	SV Connection	see Dwg	-	-	ANSI B16.5	
26	K2	1/2"	600#	LF	PAD	-	TR Connection	see Dwg	-	-	ANSI B16.5	(See H-252)
27	S1	-				-	Agit. Connection	see Dwg	-	-		See note 11
28	<b>Shell (Jacket)</b> <span style="border: 1px solid black; padding: 2px;">2</span>											
29	P9	2"	300#	RF	WN	40S	Thermost. Inlet	see Dwg	-	-	ANSI B16.5	Tangential
	P10a	2"	300#	RF	WN	40S	Thermost. Outlet	see Dwg	-	-	ANSI B16.5	Tangential
	P10b	2"	300#	RF	WN	40S	Thermost. Inlet	see Dwg	-	-	ANSI B16.5	Tangential
	P11	2"	300#	RF	WN	40S	Thermost. Outlet	see Dwg	-	-	ANSI B16.5	Tangential
30	P12	1/2"	3000#	Thr.NPT	-	-	Drain	see Dwg	-	-	ANSI B16.5	
32	P13	1/2"	3000#	Thr.NPT	-	-	Vent	see Dwg	-	-	ANSI B16.5	
32	P14	1/2"	3000#	Thr.NPT	-	-	Vent	see Dwg	-	-	ANSI B16.5	
32	P15	1/2"	3000#	Thr.NPT	-	-	Drain	see Dwg	-	-	ANSI B16.5	
33	<b>Bottom Head</b>											
34	P4	3/4"	600#	LF	PAD	-	Monomers Inlet	see Dwg	-	-	ANSI B16.5	
35	P5	1/2"	600#	LF	PAD	-	Product Inlet	see Dwg	-	-	ANSI B16.5	(See H-254)
36	P6	1"	600#	LF	PAD	-	Disch. Prod. Blow	see Dwg	-	-	ANSI B16.5	To install piston valve 1/2"
37	P7	1"	600#	LF	PAD	-	Disch. Prod.	see Dwg	-	-	ANSI B16.5	To install piston valve 1/2"
38	P8	3/4"	600#	RF	LWN	-	Spare	see Dwg	-	-	ANSI B16.5	Blind flange with plug
39	K3	1/2"	600#	LF	PAD	-	TRC Connection	see Dwg	-	-	ANSI B16.5	(See H-253)
40												
41												
42												
43												
44												

	<b>Document No.:200-DAS-A4-EQ-0026</b>	<b>Rev. : 02</b>
	<b>Owner Job No.:</b>	<b>Type: DAS</b>
		<b>Page : 2 OF 10</b>

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Loop prepoly (60 lt) (R -251)

**NOZZLE LOADING DATA(NOTE 5)**

No.	Nozzle Name	FA (kN)	FB (kN)	FC (kN)	MA (N.m)	MB (N.m)	MC (N.m)
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

**REFRENCE DOCUMENTS**

No.	No.	Document No.	Document Title
23	1		
24	2		
25	3		
26	4		
27	5		
28	6		
29	7		
30	8		
31	9		
32	10		
33	11		
34	12		
35	13		
36	14		
37	15		
38	16		
39	17		
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Document No.:200-DAS-A4-EQ-0026

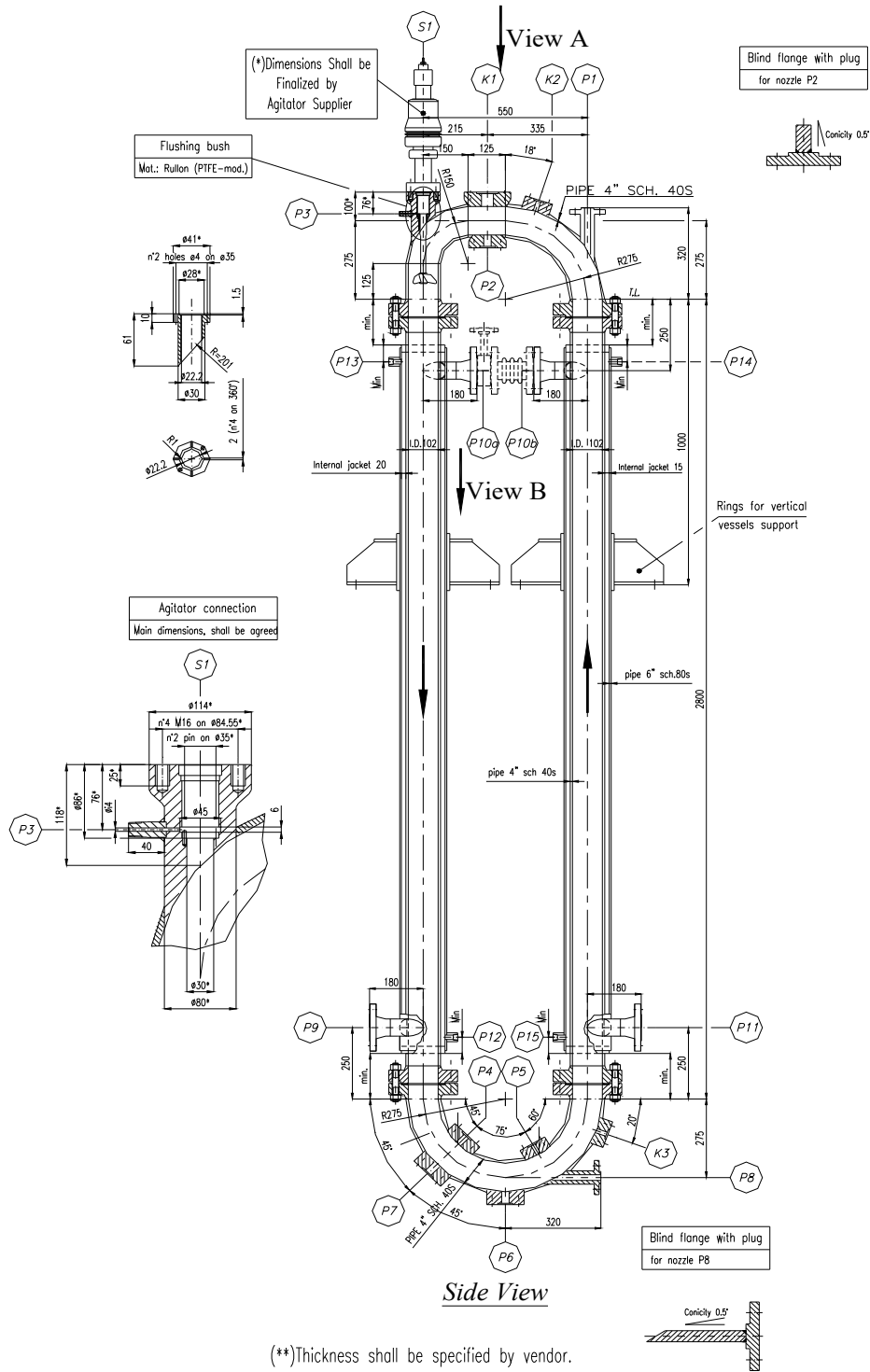
Rev. : 02

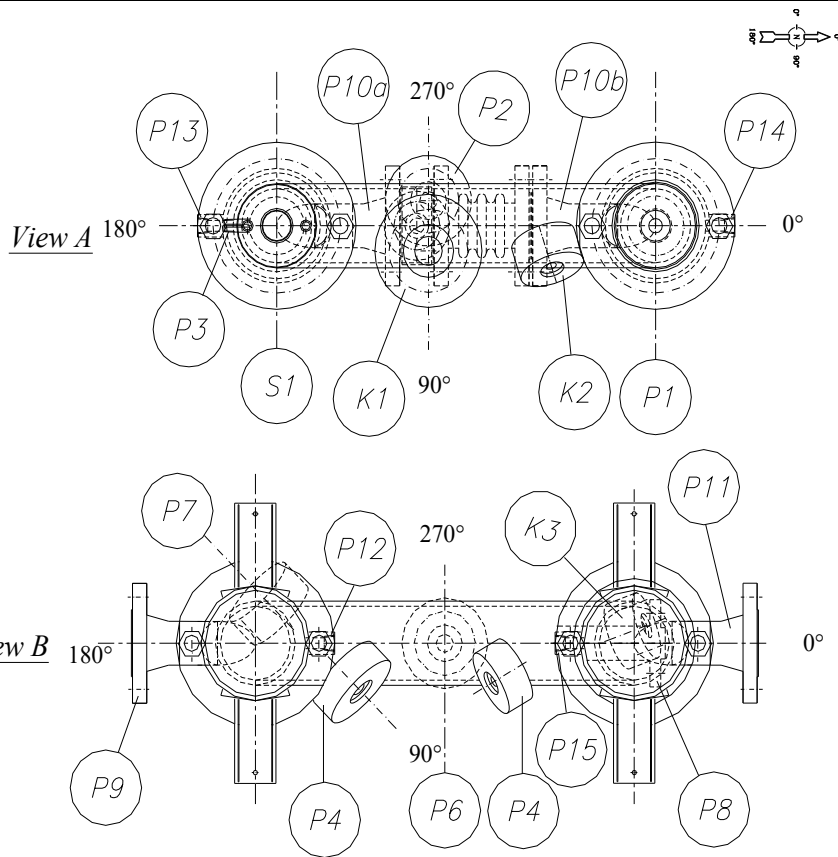
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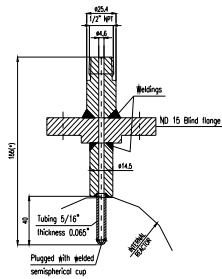
Page : 3 OF 10



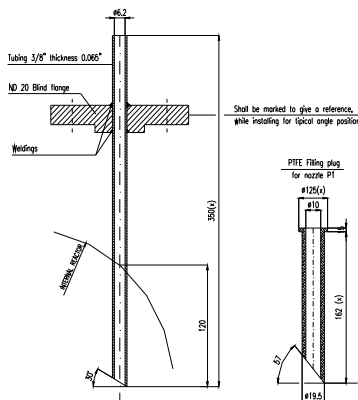




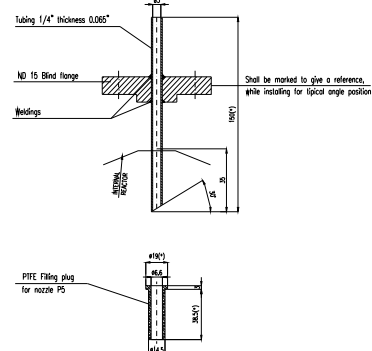
H-252 & H253  
thermowell detail



H-251 thermowell  
detail

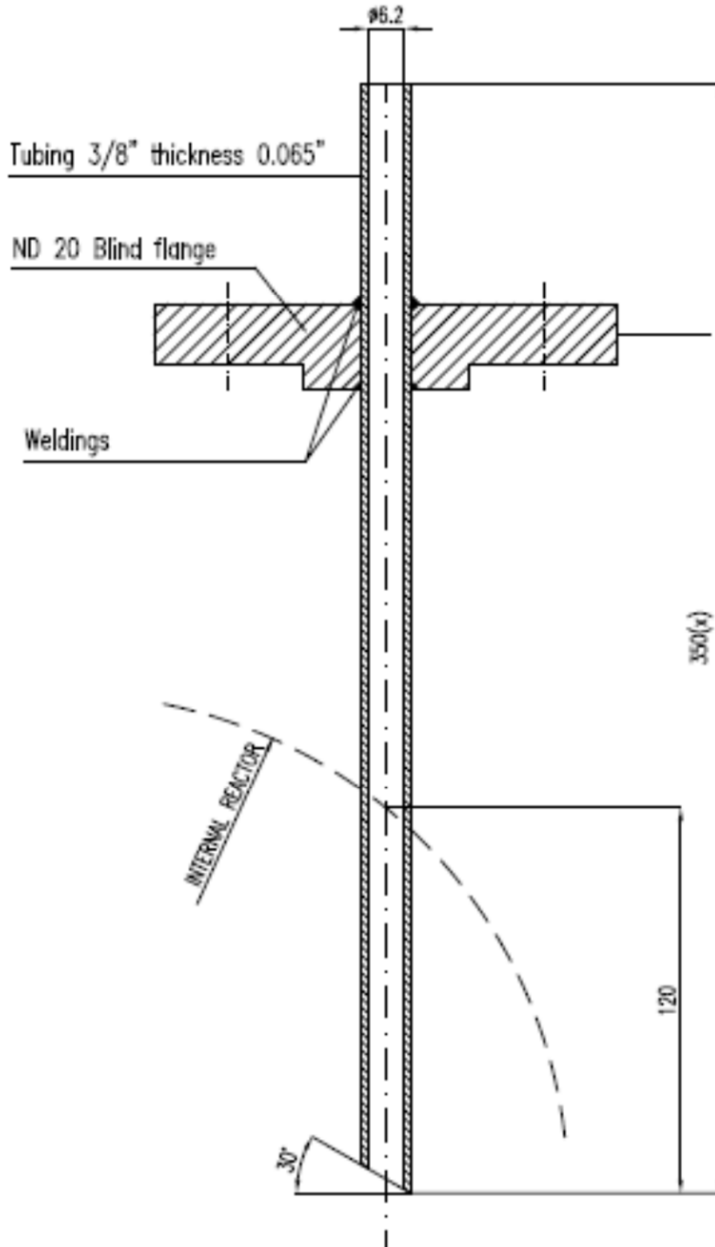


H-254 thermowell  
detail

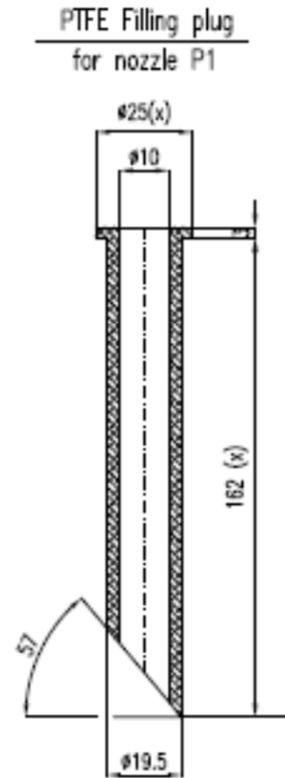




H-251 detail

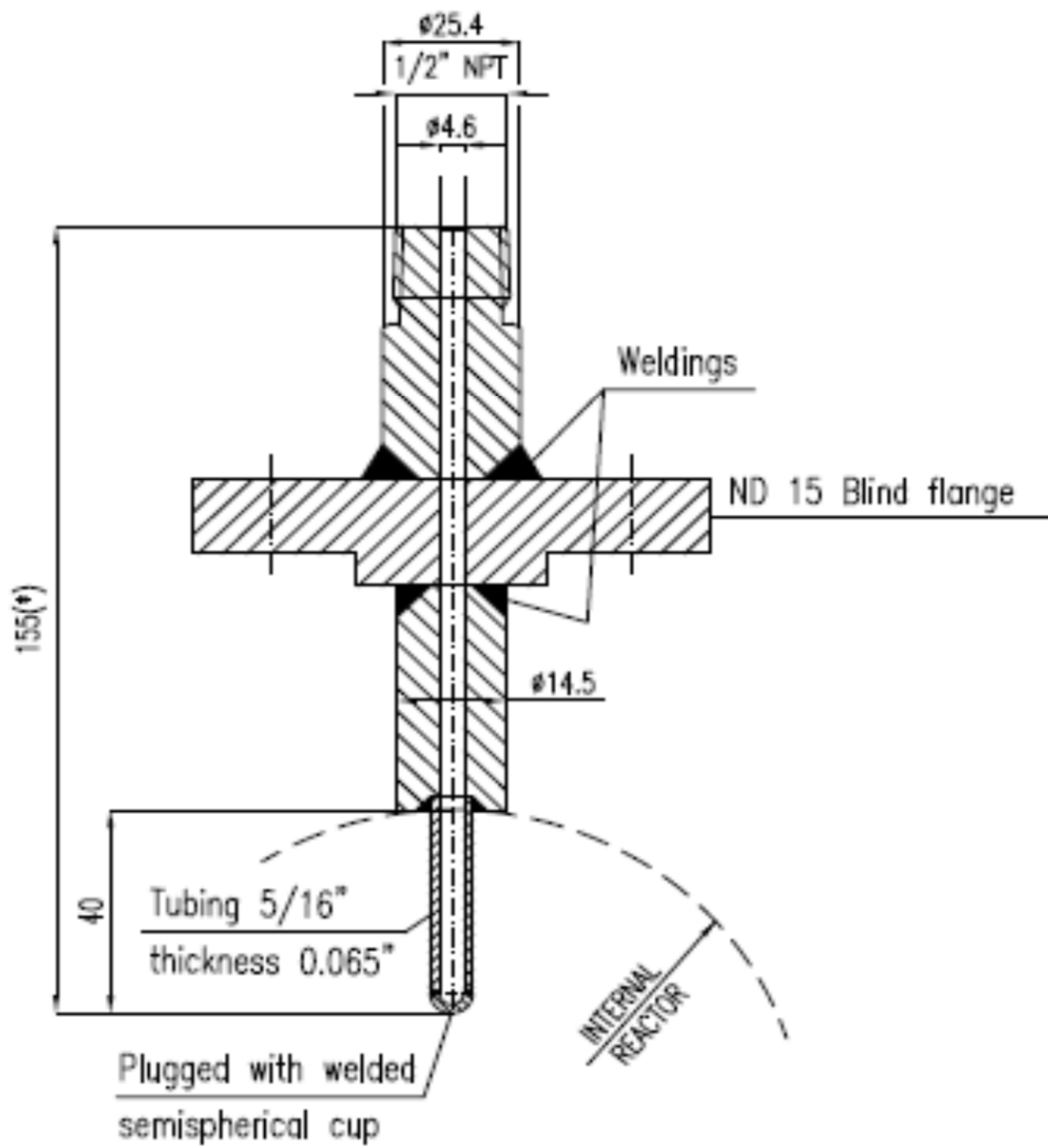


Shall be marked to give a reference,  
while installing for typical angle position



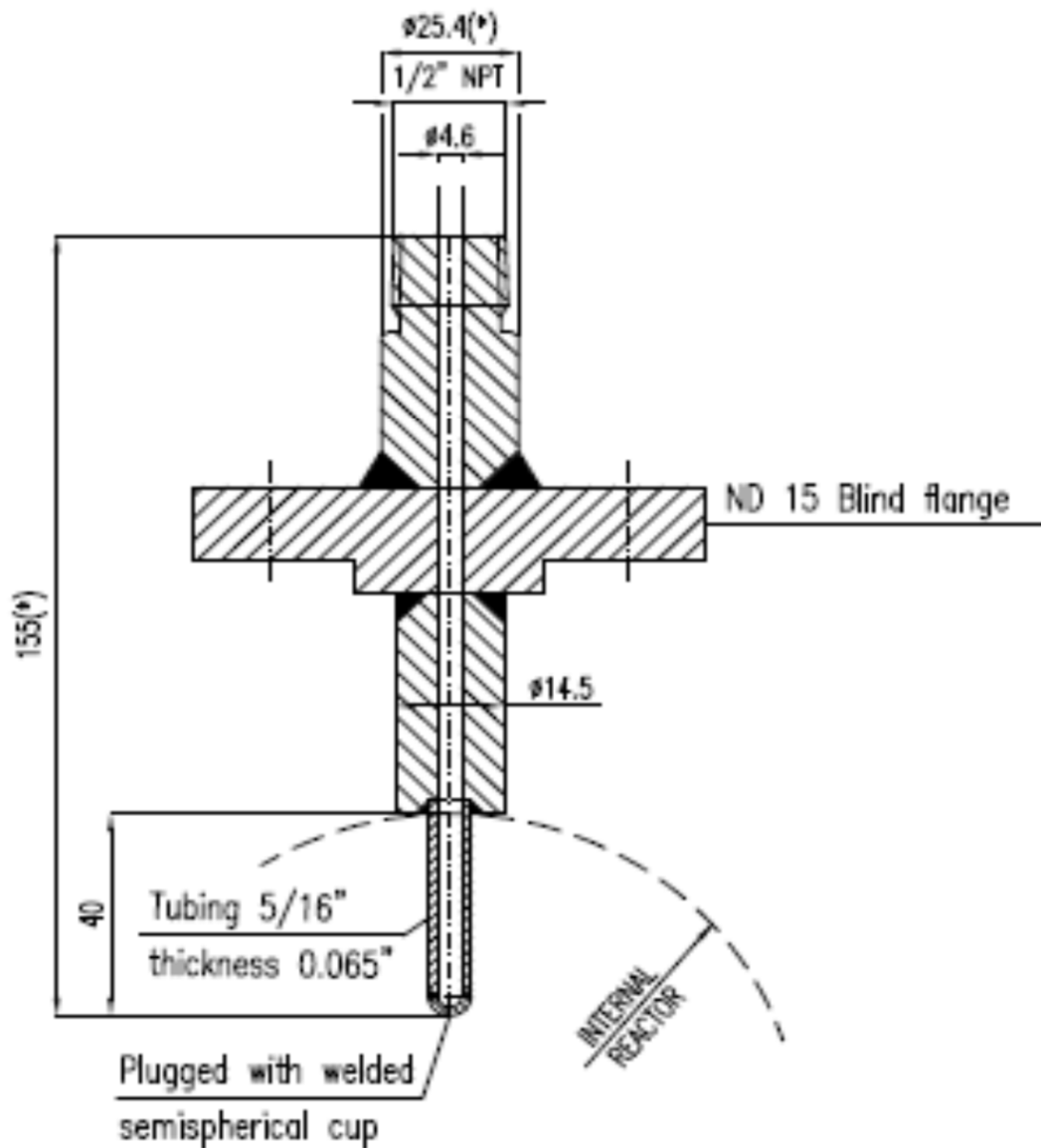


### H-252 thermowell detail



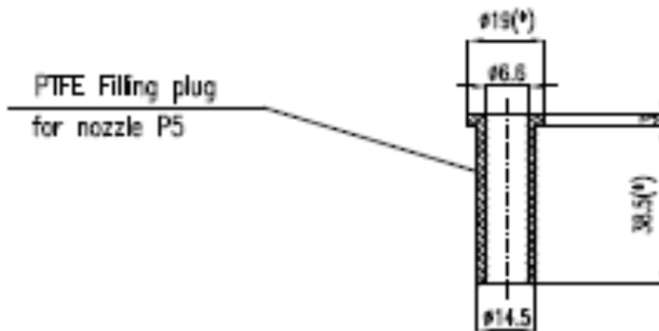
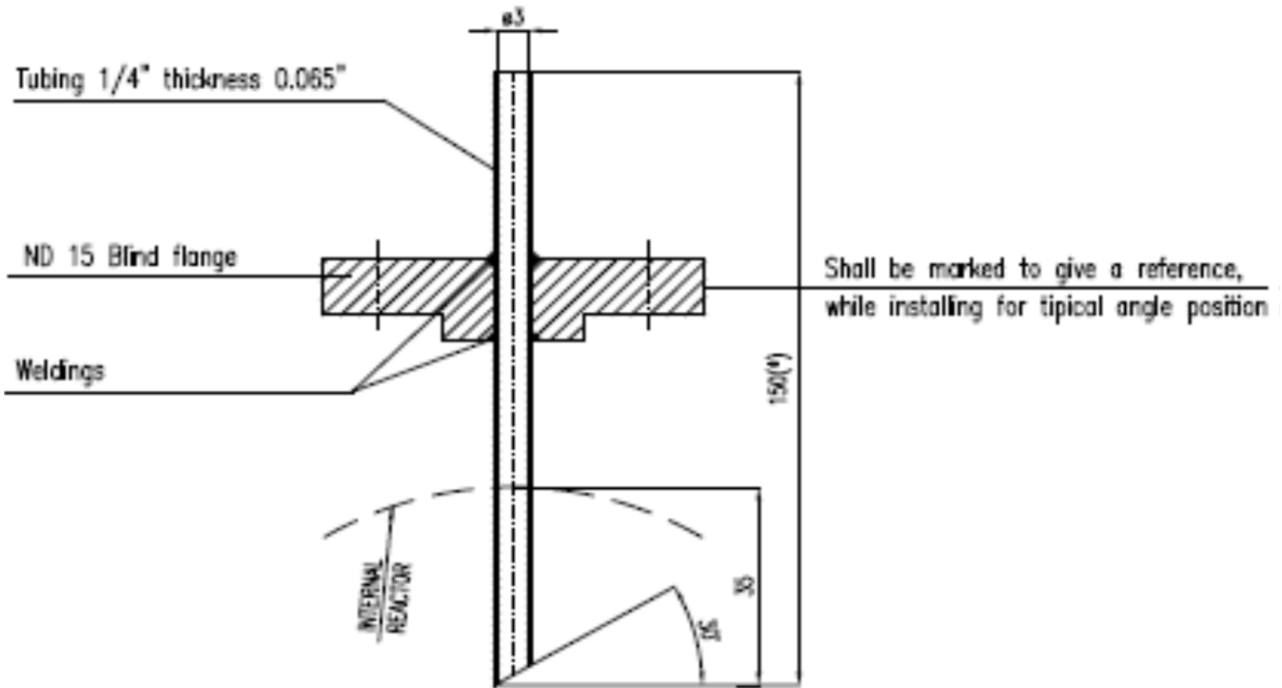


### H-253 thermowell detail





H-254 detail



	Document No.:200-DAS-A4-EQ-0026	Rev. : 02
	Owner Job No.:	Type: DAS
		Page : 9 OF 10

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Loop prepoly (60 lt) (R -251)

**General Notes:**

- 1- SHALL BE VERIFIED BY VENDOR
- 2- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED
- 3- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR
- 4- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 5- SHALL BE SPECIFIED BY VENDOR .
- 6- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 7- ALL NDT (RT, UT AND PT/MT) SHALL BE PERFORMED BEFORE AND AFTER PWHT .
- 8- LOCATION AND NUMBER OF LIFTING LUGS ON REACTOR SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 9- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 10- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 11- STIRRER CONNECTION AND MAGNETIC AGITATOR TYPE SHALL BE DEFINED BY RELATIVE SUPPLIER.
- 12- INTERNAL PRODUCT FINISHING SHALL BE SMOOTH FINISH RA=0.4 $\mu$ m (16 $\mu$ inch)
- 13-FINISHING OF THE GASKET CONTACTING FACE SHALL BE SMOOTH FINISH RA=3.2 $\mu$ m (125 $\mu$ inch)
- 14- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.:200-DAS-A4-EQ-0026

Rev. : 02

Owner Job No.:

Type: DAS

Page : 10OF 10

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Loop prepoly (200 It)(R -261)

## Data Sheet for Loop prepoly (200 It)(R -261)

Document No.: 200-DAS-A4-EQ-0027

Rev. : 02


Owner Job No.:

Type: DAS

Page : A





<b>PROJECT:PP-PE PILOT PLANT</b>	<b>Client:</b>	
<b>TITLE:Data Sheet for Loop prepoly (200 lt)(R -261)</b>		شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی

1	Item No.:R-261	Quantity: 1	Location: Outdoor	Service:	Continuous
---	----------------	-------------	-------------------	----------	------------

2	<b>DESIGN CONDITIONS</b>				
3					

4		Vessel	Jacket	Internal Coil
5	Operating Temperature(Min./Max.) °C	-30 / +40	-30 / +40	-/-
6	Operating Pressure barg	30	3	-
7	Density kg/m <sup>3</sup>	430 / 550	1100	-
8	Design Pressure(int./ext.) barg	45 / 10	10 / -	-/-
9	Design Temperature °C	-60/+180	+180	-/-
10	Volume(total) m <sup>3</sup>	0.2	0.1	-
11	Hydro Test Pressure barg	as per UG99b(33)	as per UG99b(33)	-
12	Corrosion Allowance(shell/head) mm	0/0	1.5/1.5	-/-
13	Cladding (shell/head) mm	-/-	-/-	-/-
14	Content @ normal operation	Hydrocarbons+Slurry	Glycole+Water	-
15	Thickness(shell/head) mm	11	40S	/
16	Welding Radiography(shell/head) %	Full / Full	Full / Full	-/-
17	Joint Efficiency(shell/head)	1 / 1	1 / 1	-/-
18	Top Head Type	See Dwg	NA	-
19	Bottom Head Type	See Dwg	NA	-

20	Design code:	ASME SEC. VIII DIV.1	Inspection code:	ASME SEC. IX
21	Cylinder Deminsion(IDxT.L-T.L)	146 x 5250 mm	Lethal Service:	<input type="radio"/> Yes <input checked="" type="radio"/> No
22	M.D.M.T @ D.P:	-60 °C	M.A.T:	- °C
23	M.A.W.P:	- barg Limited by: -	Stamp:	Required
24	Impact Test:	Not Required	P.W.H.T:	Not Required
25	N.D.T:	Required	Vessel lining detail:	NIL
26	HIC/SSC resistance:	NA / NA	Painting & Coating:	NIL
27	Insulation thickness:	40 mm	Insulation type:	COLD
28	Fireproofing :	NO	Vessel located on:	Structrue
29	Seismic code:	UBC 1997	Seismic Zone:	3
30	Impotance factor:	1.25	Soil Profile:	SD
31	Wind code:	UBC	Wind velocity:	120 km/hr @ 10 m
32	Impotance factor:	1.15	Exposure:	C

33	<b>Support loading data(Note 5)</b>			<b>Weight(kg) (Note 5)</b>	Fabricated:	-
34	Earthquake	Wind	Empty:		1700	
35	Shearing load(kgf)	-	Test:		-	
36	Moment(kg.m)	-	Operation:		-	
37						

38	<b>MISCELLANEOUS(Note 6)</b>				
----	------------------------------	--	--	--	--

39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate
40	<input type="radio"/> Diffuser	<input type="radio"/> Distributer	<input type="radio"/> Trunnion
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input type="radio"/> Dip pipe
45	<input type="radio"/> Fire Proofing Support	<input type="radio"/> Internal lining	<input checked="" type="radio"/> Agitator
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting	
47	<input type="radio"/> Heating coil	<input checked="" type="radio"/> Internal clips	
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips	

	<b>Document No.:</b> 200-DAS-A4-EQ-0027	<b>Rev. :</b> 02
	<b>Owner Job No.:</b>	<b>Type:</b> DAS
		<b>Page :</b> 10F10

PROJECT:PP-PE PILOT PLANT

Client:



TITLE:Data Sheet for Loop prepoly (200 lt)(R -261)

1					
2	<b>MATERIALS(NOTE 1)</b>				
3					
4	Shell(Main/Jacket)	SA240-304L / SA240-304L	Earth lug	SA240-316L	
5	Head(Main/Jacket)	SA240-304L / NA	Stiffening rings	SA240-304L	
6	Nozzle Necks (Main/Jacket)	Plate	- / -	Gaskets (NOTE 15)	SPIRAL WOUND
7		Pipe	SA312-304L / SA312-304L	Ext. bolt/Nuts	SA193-B7/SA194-2H
8	Cladding	-	Int. bolt/Nuts	SA193-BB/SA194-8	
9	Nozzle flanges	SA182-304L	Wire mesh	NA	
10	Blind flanges	SA182-304L	Welded clip	SA240-304L	
11	Reinforcing pad	SA240-304L	Int. welded	SA240-304L	
12	Fitting	SA403-304L	Int. removable	SA240-304L	
13	Support	Leg	NA	Anchor/Setting bolts	SA307-B
14		Lug	SA283-C	Ladder/Platform	NA
15		leg/lug pad	SA240-304L	Insulation Material	POLY-URETHANE
16	Lifting lug	SA240-304L			

17	<b>NOZZLE DETAILS(NOTE 3)</b>				
18					

Item	NPS (Inch)	Flanges			SCH. /THK. (NOTE 5)	Service	Proj.	Rein. PAD (NOTE 5)		Standards	Remarks	
		Rating	Type	Face				Width	Thk.			
<b>21 Top Head</b>												
22	P1	1"	600#	RF	LWN	t=14.3	Product outlet	see Dwg	-	-	ANSI B16.5	(See H-261)
23	P2	1"	600#	LF	PAD	-	Spare	see Dwg	-	-	ANSI B16.5	Blind flange with plug (See Dwg)
24	P3	1"	600#	LF	PAD	-	Spare	see Dwg	-	-	ANSI B16.5	Blind flange with plug (See Dwg)
	P4	3/8"	3000#	Thr.NPT	-	-	Flushing Bush	see Dwg	-	-	ANSI B2.1	Internal hole Ø7mm(to install valve 1/4")
25	K1	1 1/2"	600#	LF	PAD	-	SV Connection	see Dwg	-	-	ANSI B16.5	
26	K2	1/2"	600#	LF	PAD	-	TR Connection	see Dwg	-	-	ANSI B16.5	(See H-263)
27	S1	-				-	Agit. Connection	see Dwg	-	-		See note 10
28	<b>Shell (Jacket)</b> <span style="float: right;">2</span>											
29	P10	3"	300#	RF	WN	40S	Thermost. Inlet	see Dwg	-	-	ANSI B16.5	Tangential
30	P11a	3"	300#	RF	WN	40S	Thermost. Outlet	see Dwg	-	-	ANSI B16.5	Tangential
31	P11b	3"	300#	RF	WN	40S	Thermost. Inlet	see Dwg	-	-	ANSI B16.5	Tangential
32	P12	3"	300#	RF	WN	40S	Thermost. Outlet	see Dwg	-	-	ANSI B16.5	Tangential
33	P13	1/2"	3000#	Thr.NPT	-	-	Drain	see Dwg	-	-	ANSI B16.5	
34	P14	1/2"	3000#	Thr.NPT	-	-	Vent	see Dwg	-	-	ANSI B16.5	
35	P15	1/2"	3000#	Thr.NPT	-	-	Vent	see Dwg	-	-	ANSI B16.5	
36	P16	1/2"	3000#	Thr.NPT	-	-	Drain	see Dwg	-	-	ANSI B16.5	
<b>37 Bottom Head</b>												
38	P5	3/4"	600#	LF	PAD	-	Product Inlet	see Dwg	-	-	ANSI B16.5	(See H-264)
39	P6	1"	600#	LF	PAD	-	Monomers Inlet	see Dwg	-	-	ANSI B16.5	
40	P7	1"	600#	LF	PAD	-	Disch. Prod. Blow Down	see Dwg	-	-	ANSI B16.5	To install piston valve 1/2"
41	P8	1"	600#	LF	PAD	-	Disch. Prod. Sampling	see Dwg	-	-	ANSI B16.5	To install piston valve 1/2"
42	P9	1/2"	600#	LF	PAD	-	Spare	see Dwg	-	-	ANSI B16.5	Blind flange with plug (See Dwg)
43	K3	1/2"	600#	LF	PAD	-	TRC Connection	see Dwg	-	-	ANSI B16.5	(See H-265)
44												
45												
46												
47												

Document No.: 200-DAS-A4-EQ-0027

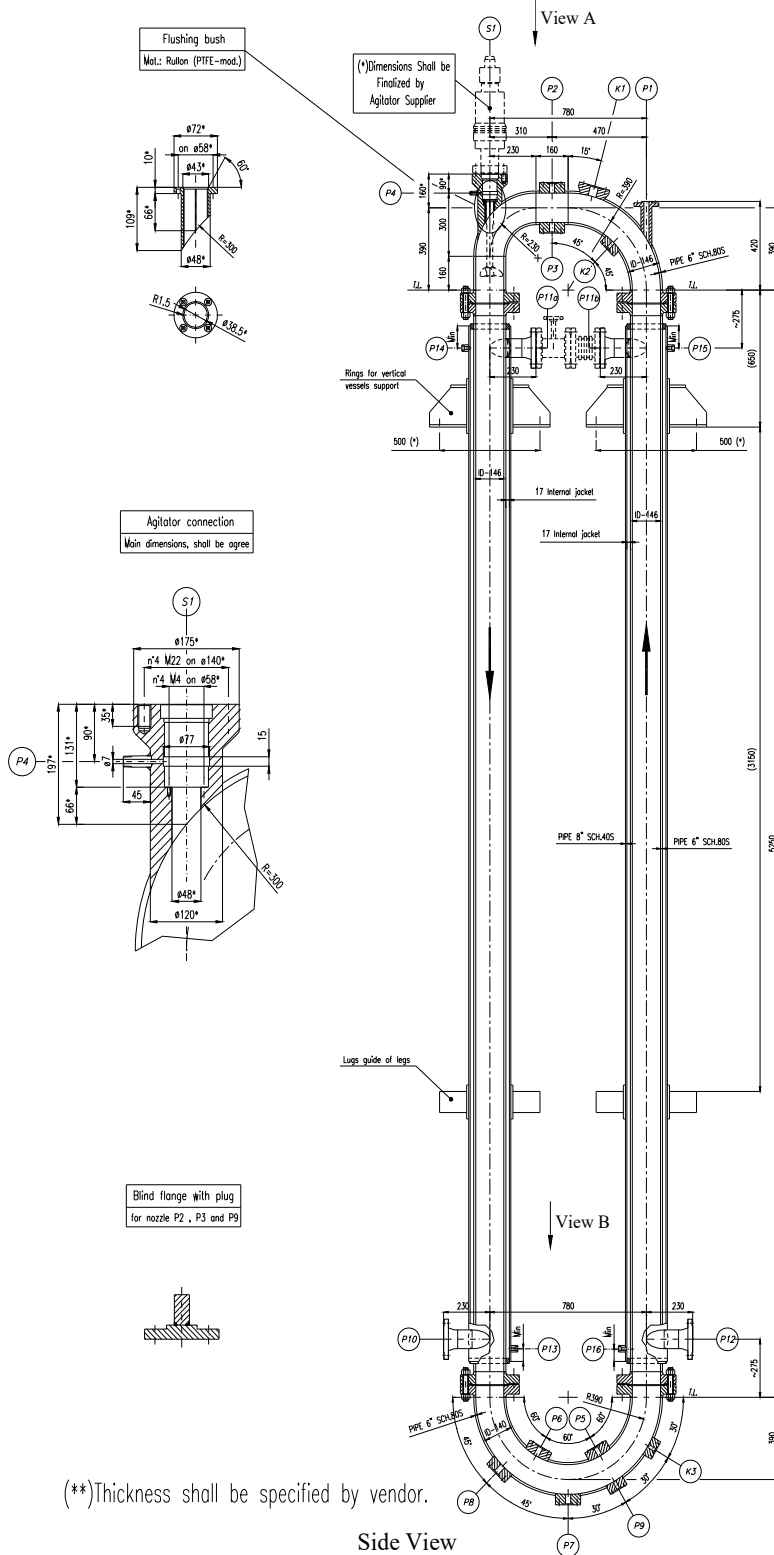
Rev. : 02

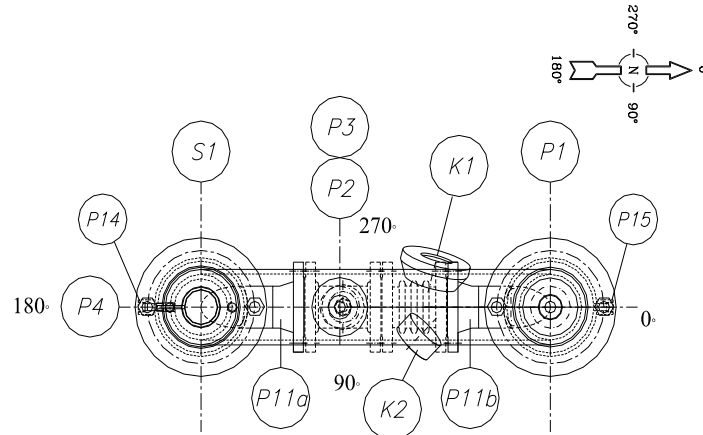
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Type: DAS

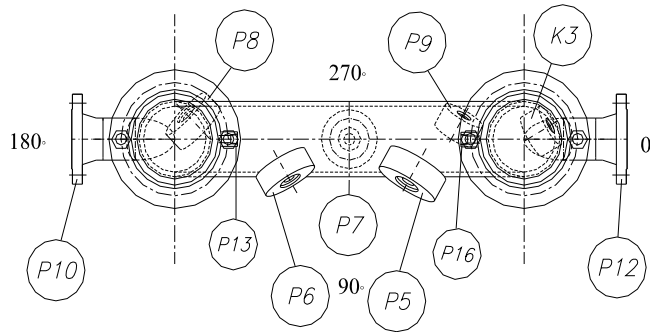
Page : 20F10





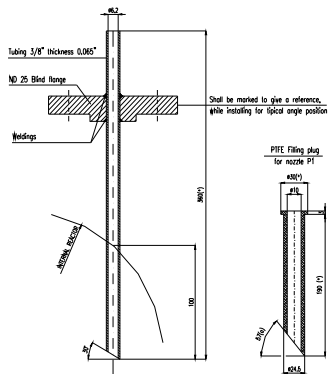


View A

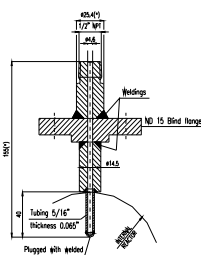


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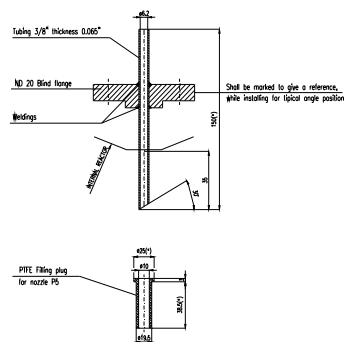
H-261 detail



H-263 & H-265 thermowell detail

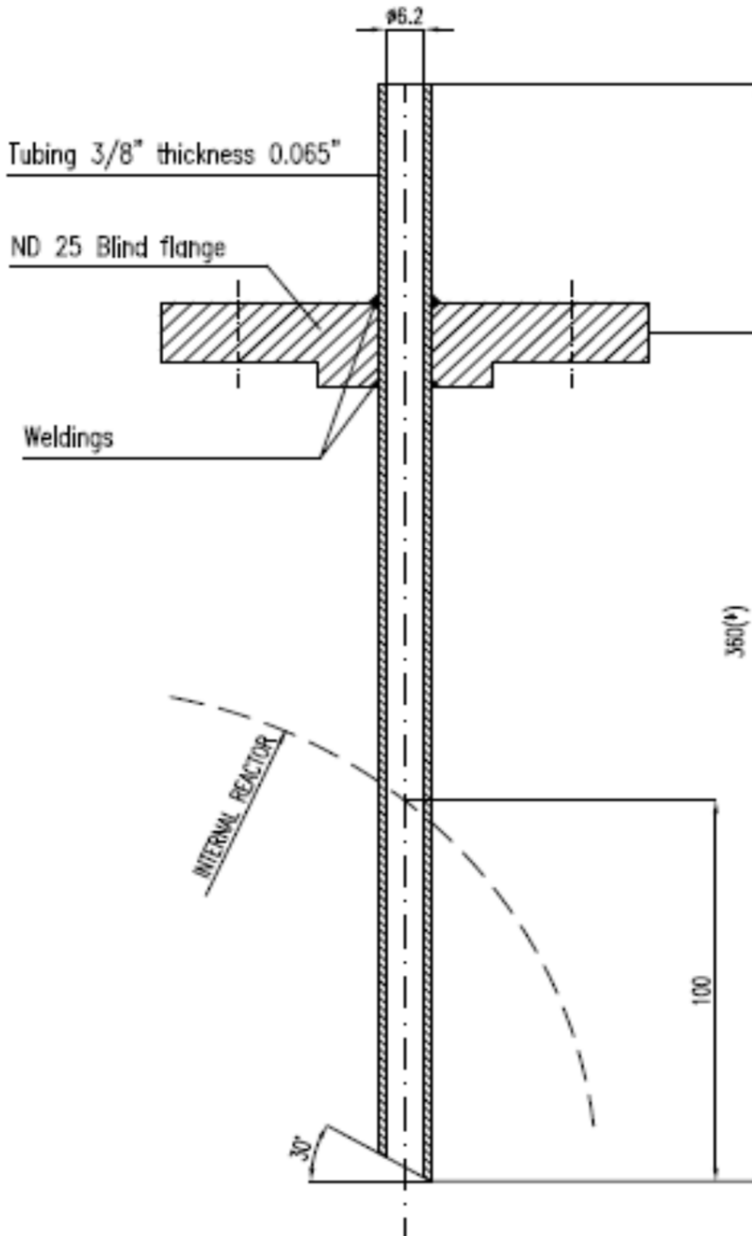


H-264 detail



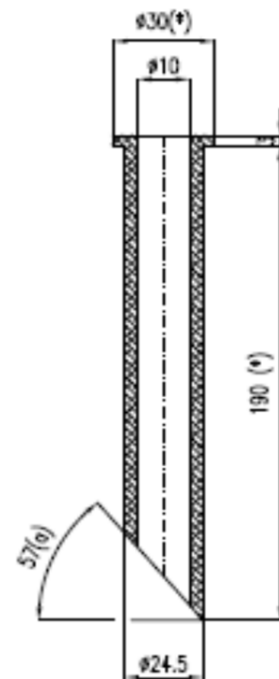


H-261 detail



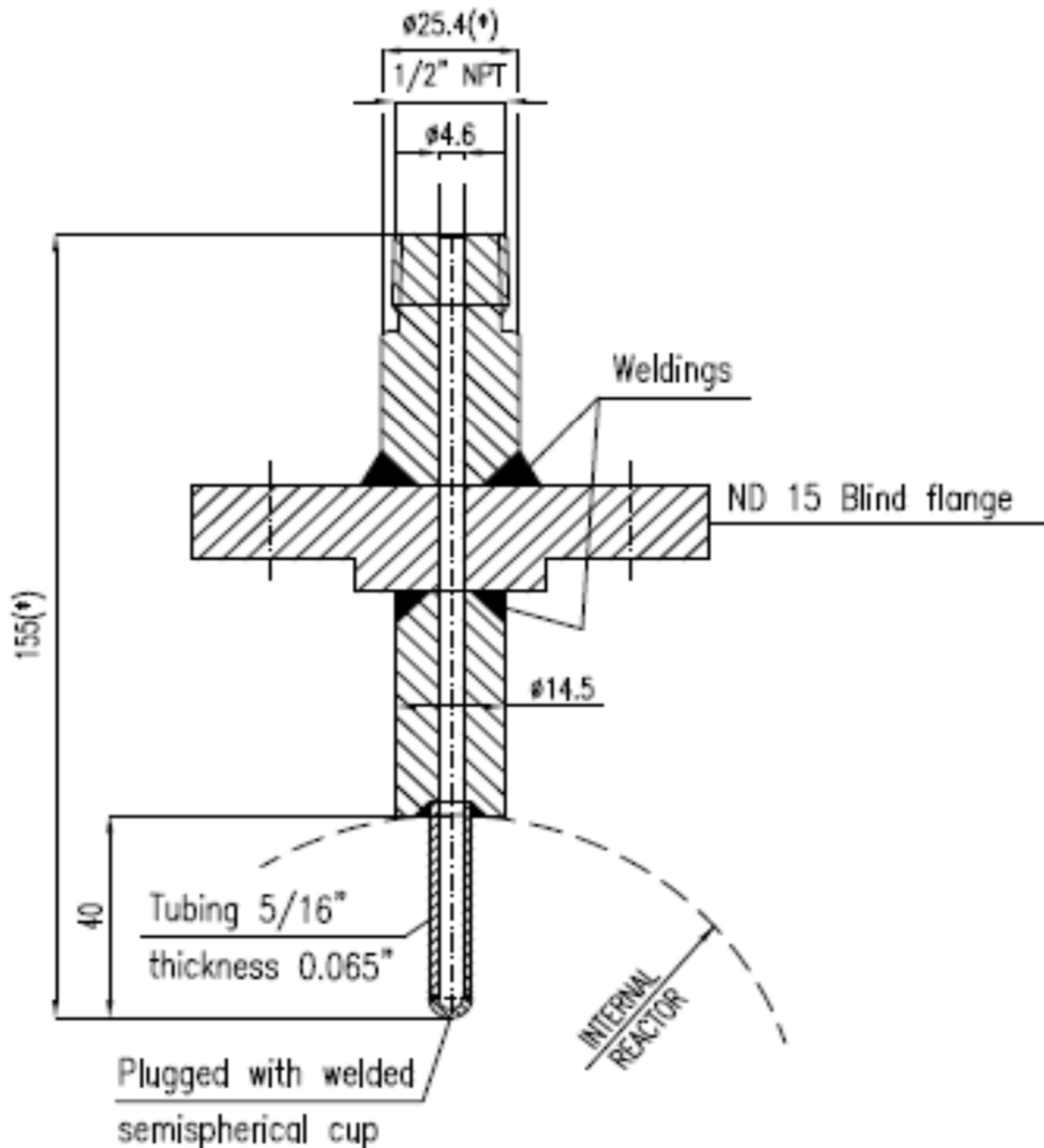
Shall be marked to give a reference, while installing for typical angle position

PTFE Filling plug for nozzle P1





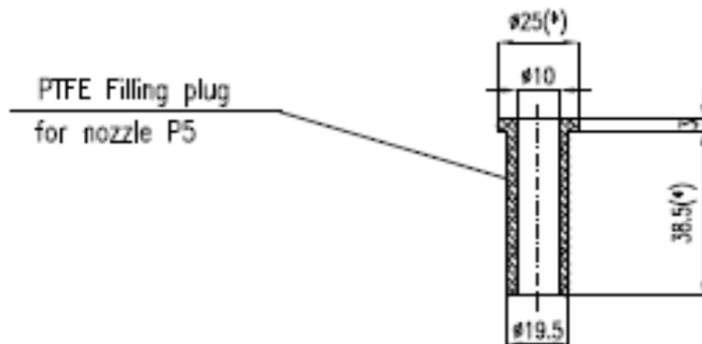
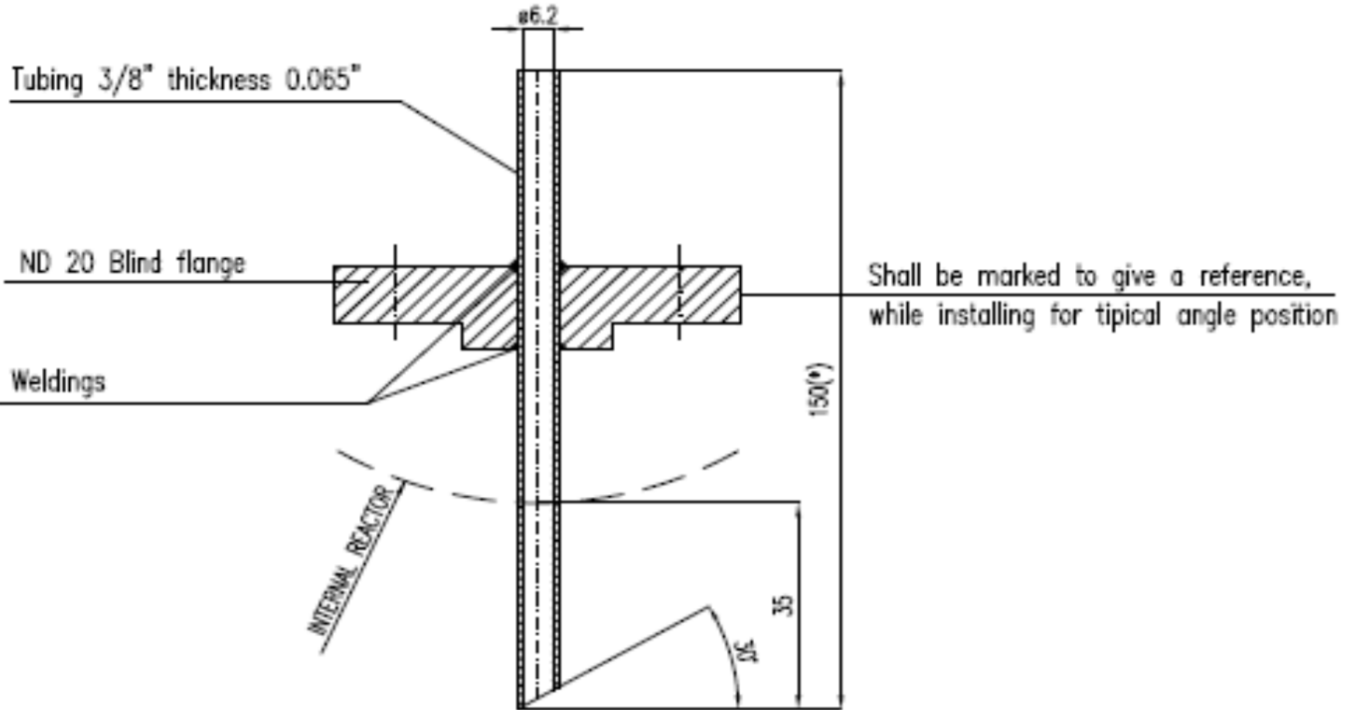
### H-263 thermowell detail





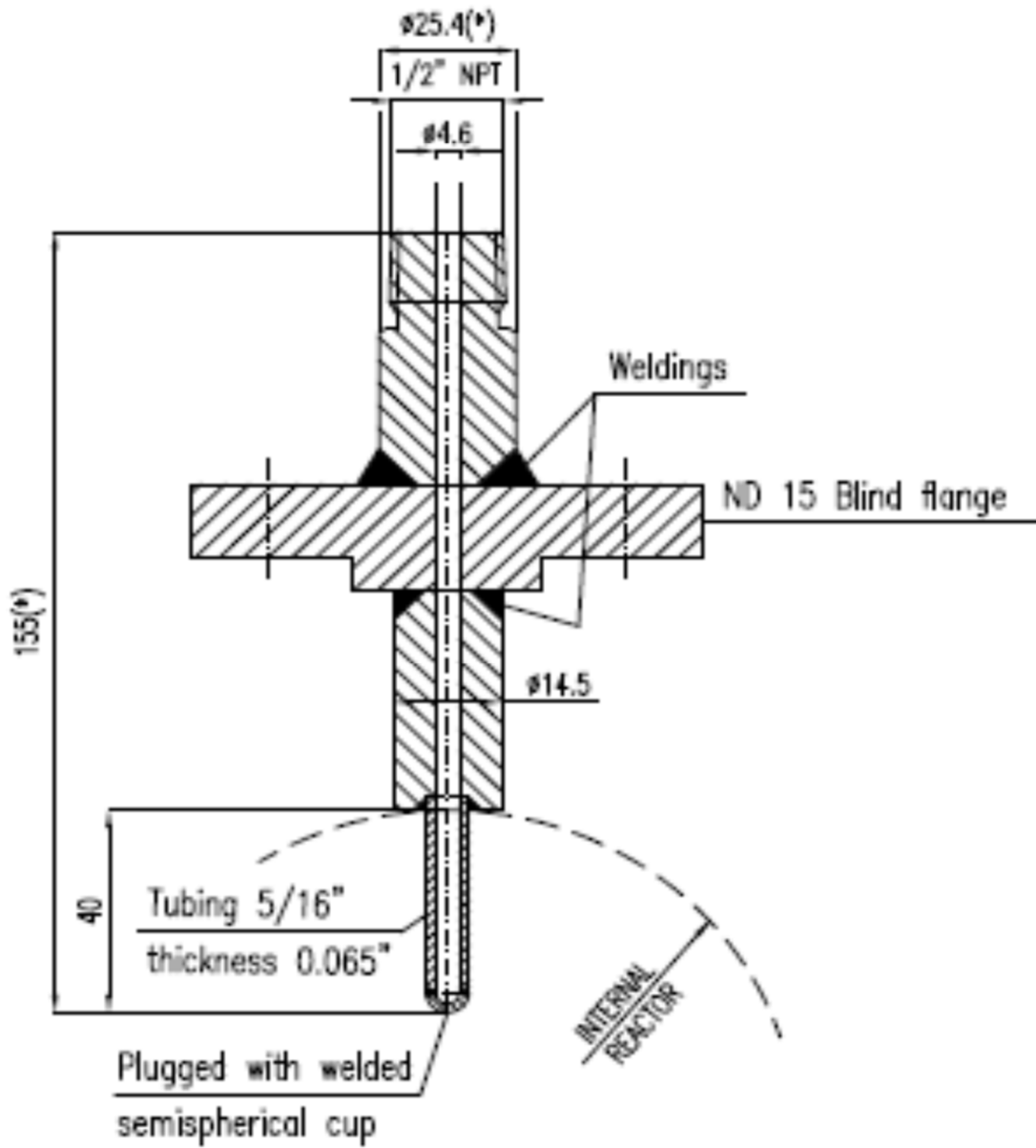


H-264 detail





### H-265 thermowell detail



PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Loop prepoly (200 lt)(R -261)

**General Notes:**

- 1- SHALL BE VERIFIED BY VENDOR
- 2- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.
- 3- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR
- 4- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 5- SHALL BE SPECIFIED BY VENDOR .
- 6- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 7- LOCATION AND NUMBER OF LIFTING LUGS ON REACTOR SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 8- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 9- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 10- STIRRER CONNECTION AND MAGNETIC AGITATOR TYPE SHALL BE DEFINED BY RELATIVE SUPPLIER.
- 11- INTERNAL PRODUCT FINISHING SHALL BE SMOOTH FINISH  $Ra=0.4\mu m$  (16 $\mu$ inch)
- 12- FINISHING OF THE GASKET CONTACTING FACE SHALL BE SMOOTH FINISH  $Ra=3.2\mu m$  (125 $\mu$ inch)
- 13- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.: 200-DAS-A4-EQ-0027

Rev. : 02

Owner Job No.:

Type: DAS

Page : 10 OF10

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for 1st Gas phase reactor(R -411)

## Data Sheet for 1st Gas phase reactor(R-411)

Document No.:400-DAS-A4-EQ-0097


Rev. : 02

Owner Job No.:

Type: DAS

Page : A



<b>PROJECT:PP-PE PILOT PLANT</b>	<b>Client:</b>	
<b>TITLE:Data Sheet for 1st Gas phase reactor(R -411)</b>		شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی

1	Item No.:R-411	Quantity: 2	Location: Outdoor	Service:	Continuous
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2	<b>DESIGN CONDITIONS</b>				
3					

4		Vessel	Jacket	Internal Coil
5	Operating Temperature(Min./Max.) °C	-30 / +80	-/-	-/-
6	Operating Pressure barg	24	-	-
7	Density kg/m <sup>3</sup>	500	-	-
8	Design Pressure(int./ext.) barg	32	-/-	-/-
9	Design Temperature °C	-60/+180	-/-	-/-
10	Volume(total) m <sup>3</sup>	1.73	-	-
11	Hydro Test Pressure barg	as per UG99b(33)	-	-
12	Corrosion Allowance(shell/head) mm	0/0	-/-	-/-
13	Level during operation(min/max) mm	50 / 1600	-/-	-/-
14	Content @ normal operation	Hydrocarbons+Polymer	-	-
15	Thickness(shell/head) mm	10(15)	/	/
16	Welding Radiography(shell/head) %	Full / Full	-/-	-/-
17	Joint Efficiency(shell/head)	1 / 1	-/-	-/-
18	Top Head Type	2:1 Elipsoidal	-	-
19	Bottom Head Type	2:1 Elipsoidal	-	-

20	Design code:	ASME SEC. VIII DIV.1	Inspection code:	ASME SEC. IX
21	Cylinder Deminsion(IDxT.L-T.L):	600(1000) X 3250 mm	Lethal Service:	<input type="radio"/> Yes <input checked="" type="radio"/> No
22	M.D.M.T @ D.P:	-60 °C	M.A.T:	- °C
23	M.A.W.P:	- barg Limited by: -	Stamp:	Not Required
24	Impact Test:	Not Required	P.W.H.T:	Not Required
25	N.D.T:	Required	Vessel lining detail:	NIL
26	HIC/SSC resistance:	NA / NA	Painting & Coating:	NIL
27	Insulation thickness:	50 mm	Insulation type:	HOT
28	Fireproofing :	NO	Vessel located on:	Structrue
29	Seismic code:	UBC 1997	Seismic Zone:	3
30	Impotance factor:	1.25	Soil Profile:	SD
31	Wind code:	UBC	Wind velocity:	120 km/hr @ 10 m
32	Impotance factor:	1.15	Exposure:	C

33	<b>Support loading data(Note 5)</b>			<b>Weight(kg) (Note 5)</b>	Fabricated:	-
34	Earthquake	Wind	Empty:		2200	
35	Shearing load(kgf)	-	Test:		-	
36	Moment(kg.m)	-	Operation:		-	
37						

38	<b>MISCELLANEOUS(Note 6)</b>				
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39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate
40	<input type="radio"/> Diffuser	<input checked="" type="radio"/> Distributer	<input type="radio"/> Trunnion
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input checked="" type="radio"/> Dip pipe
45	<input type="radio"/> Fire Proofing Support	<input type="radio"/> Internal lining	
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting	
47	<input type="radio"/> Heating coil	<input checked="" type="radio"/> Internal clips	
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips	

	Document No.:400-DAS-A4-EQ-0097	Rev. : 02
	Owner Job No.:	Type: DAS
		Page : 10F7

PROJECT:PP-PE PILOT PLANT

TITLE:Data Sheet for 1st Gas phase reactor(R -411)

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

1					
2	<b>MATERIALS(NOTE 1)</b>				
3					
4	Shell(Main/Jacket)	SA240-304L / NA	Earth lug	SA240-316L	
5	Head(Main/Jacket)	SA240-304L / NA	Stiffening rings	SA240-304L	
6	Nozzle Necks (Main/Jacket)	Plate	- / -	Gaskets	SPIRAL WOUND
7		Pipe	SA312-304L / NA	Ext. bolt/Nuts	SA193-B7/SA194-2H
8	Cladding	-	Int. bolt/Nuts	SA193-BB/SA194-8	
9	Nozzle flanges	SA182-304L	Wire mesh	NA	
10	Blind flanges	SA182-304L	Welded clip	SA240-304L	
11	Reinforcing pad	SA240-304L	Int. welded	SA240-304L	
12	Fitting	SA403-304L	Int. removable	SA240-304L	
13	Support	Leg	NA	Anchor/Setting bolts	SA307-B
14		Lug	SA283-C	Ladder/Platform	NA
15		leg/lug pad	SA240-304L	Insulation Material	MINERAL WOOL
16	Lifting lug	SA240-304L			

**NOZZLE DETAILS(NOTE 3)**

Item	NPS (Inch)	Flanges			SCH. /THK. (NOTE 5)	Service	Proj.	Rein. PAD (NOTE 5)		Standards	Remarks	
		Rating	Type	Face				Width	Thk.			
21	<b>Top Head</b>		2									
22	P1	6"	400#	LF	PAD	-	Gas Outlet	see Dwg	-	-	ANSI B16.5	
23	P2	3"	400#	RF	WN	XXS	Spare	see Dwg	-	-	ANSI B16.5	With blind flange
24	P3	2"	400#	RF	WN	XXS	Spare	see Dwg	-	-	ANSI B16.5	With blind flange
25	P4	1"	400#	RF	WN	160	Monomers Inlet	see Dwg	-	-	ANSI B16.5	
26	P5	1"	400#	RF	WN	160	Vent	see Dwg	-	-	ANSI B16.5	
27	K1	2"	400#	LF	PAD	-	PRC Connection	see Dwg	-	-	ANSI B16.5	
28												
29	<b>Shell</b>		2									
30	P6	3"	400#	RF	WN	XXS	Flush Drum Inlet	see Dwg	-	-	ANSI B16.5	With pipe Inlet 2"
31	P7	1"	400#	RF	WN	80S	Prepoly Inlet	see Dwg	-	-	ANSI B16.5	With pipe Inlet 3/8"
32	P8	1"	400#	RF	WN	80S	Propane Inlet	see Dwg	-	-	ANSI B16.5	
33	P9	1"	400#	LF	PAD	80S	Sampling	see Dwg	-	-	ANSI B16.5	
34	P10	1"	400#	LF	PAD	80S	Product Discharge	see Dwg	-	-	ANSI B16.5	
35	P11	1"	400#	LF	PAD	-	Spare	see Dwg	-	-	ANSI B16.5	Blind flange with plug
36	P12	1"	400#	LF	PAD	-	Direct Discharge	see Dwg	-	-	ANSI B16.5	
37	K2a	4"	400#	RF	LWN	t=22.225	Dpcelle	see Dwg	-	-	ANSI B16.5	
38	K2b	4"	400#	RF	LWN	t=22.225	Dpcelle	see Dwg	-	-	ANSI B16.5	
39												
40	<b>Bottom Head</b>		2									
41	P13	6"	400#	LF	PAD	-	Gas Inlet	see Dwg	-	-	ANSI B16.5	
42												
43												
44												
45												
46												
47												
48												
49												

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for 1st Gas phase reactor(R -411)

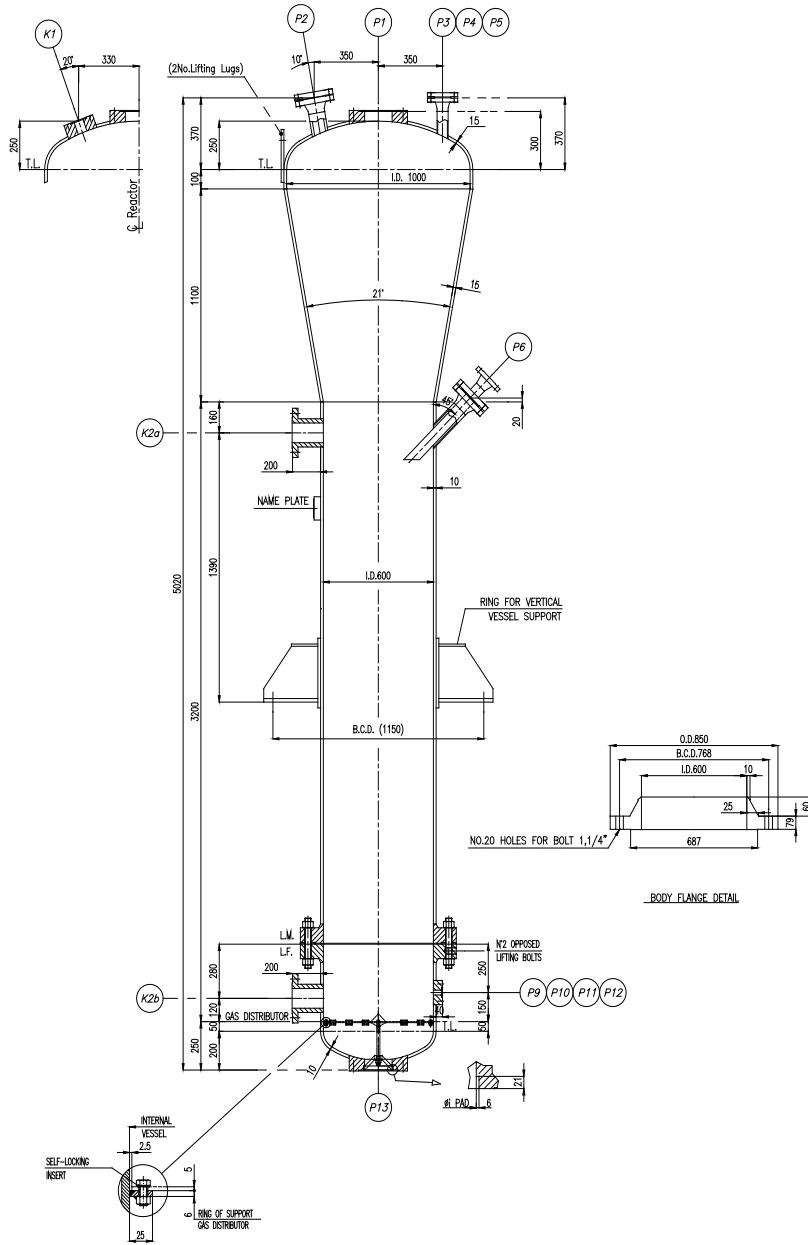
NOZZLE LOADING DATA(NOTE 4)							
No.	Nozzle Name	FL (kN)	FA (kN)	FC (kN)	MC (N.m)	MT (N.m)	ML (N.m)
6	P1	857	857	643	257	386	335
7	P2	429	429	322	65	97	84
8	P6	429	429	322	65	97	84
9	P13	857	857	643	257	386	335
10							
11							
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REFRENECE DOCUMENTS

No.	No.	Document No.	Document Title
24	1		
25	2		
26	3		
27	4		
28	5		
29	6		
30	7		
31	8		
32	9		
33	10		
34	11		
35	12		
36	13		
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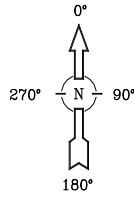
	Document No.:400-DAS-A4-EQ-0097	Rev. : 01
	Owner Job No.:	Type: DAS
		Page : 3OF7



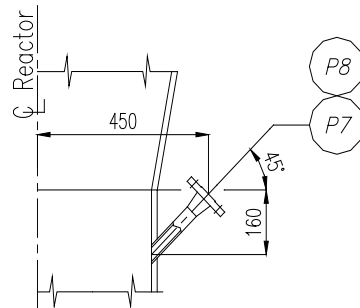
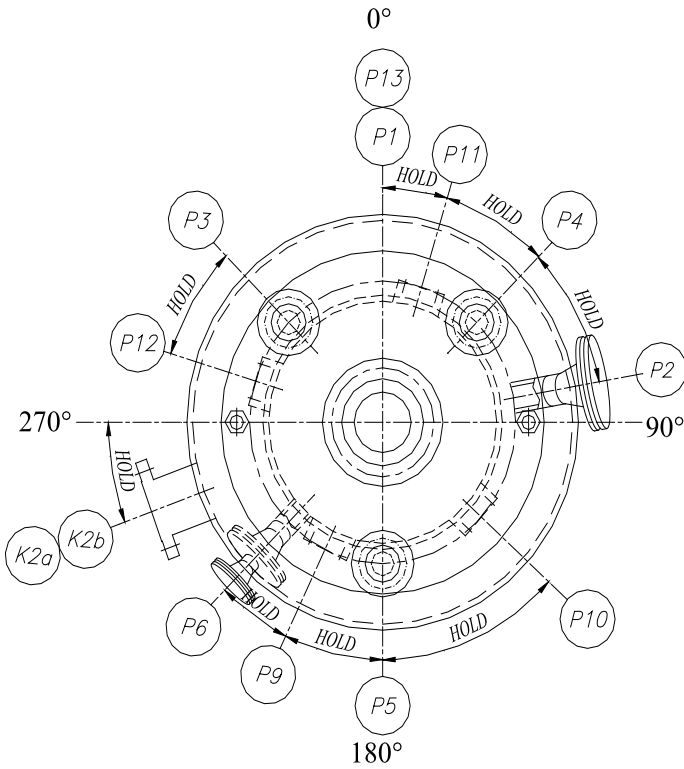
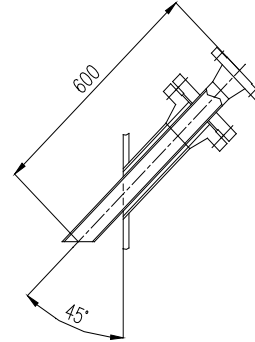


Side View

(\*\*)Thickness shall be specified by vendor.

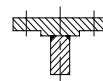


DETAIL NOZZLE "P6"



Orientation (HOLD)

BLIND FLANGE WITH PLUG  
FOR NOZZLE P11





Holes on grid plate

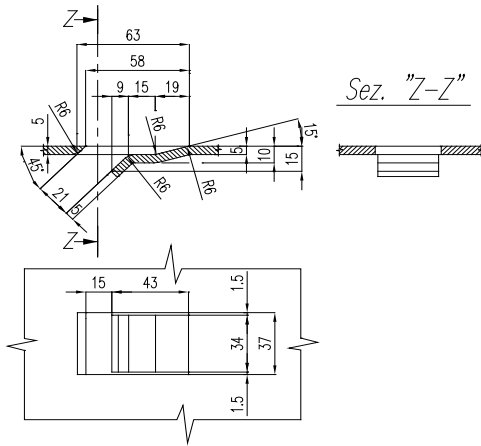
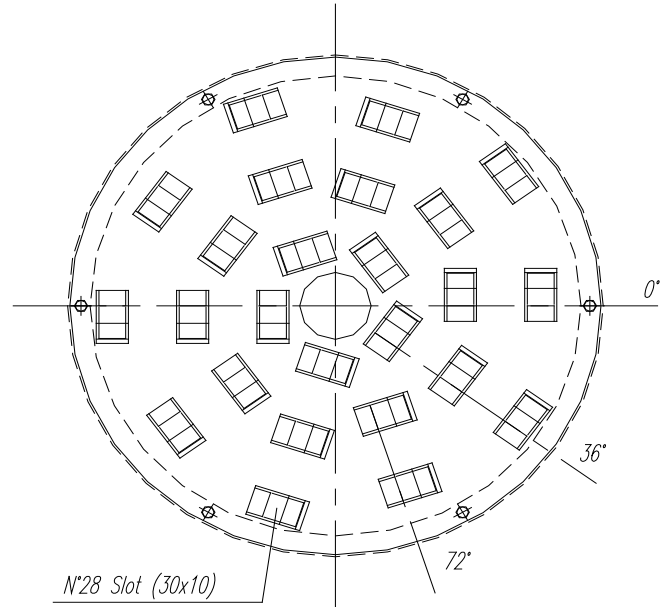
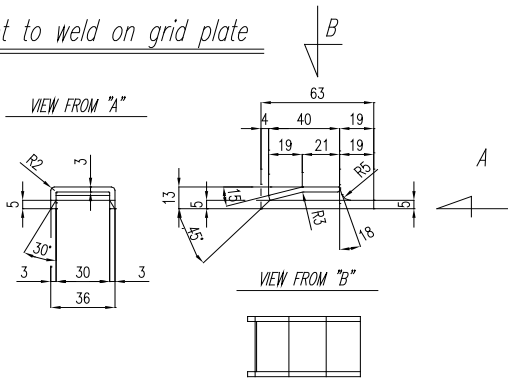


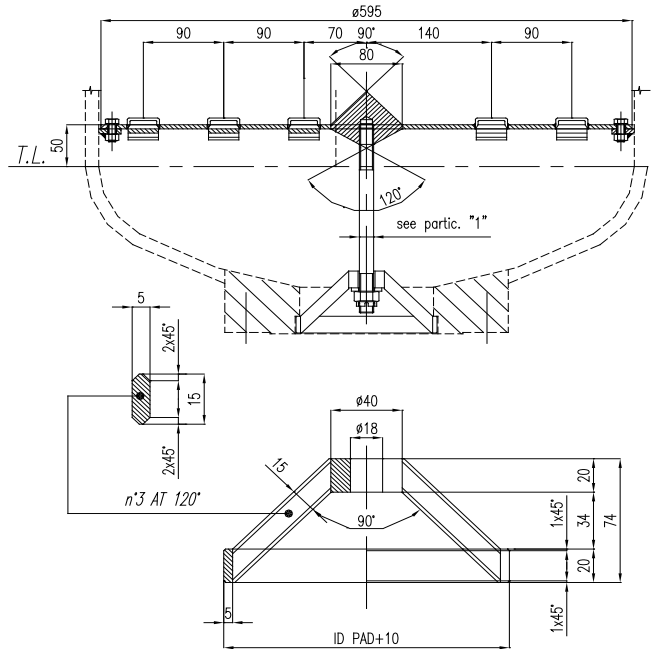
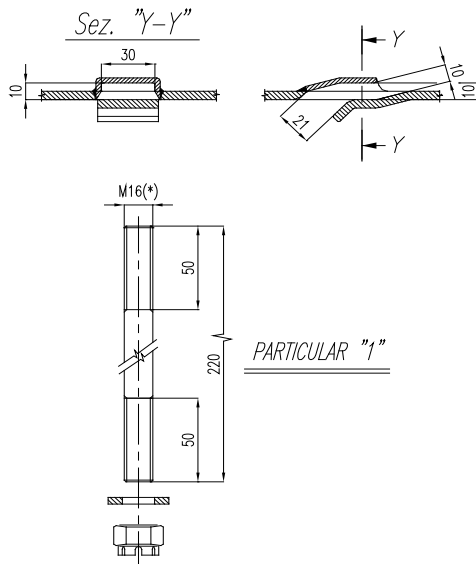
Plate distributor drawing



Slot to weld on grid plate



Slot assemblage drawing



\*) To be define by supplier

Side View

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for 1st Gas phase reactor(R -411)

**General Notes:**

- 1- SHALL BE VERIFIED BY VENDOR
- 2- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED
- 3- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR
- 4- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 5- SHALL BE SPECIFIED BY VENDOR .
- 6- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 7- ALL NDT (RT, UT AND PT/MT) SHALL BE PERFORMED BEFORE AND AFTER PWHT .
- 8- LOCATION AND NUMBER OF LIFTING LUGS ON REACTOR SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 9- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 10- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 11- INTERNAL FINISHING SHALL BE SMOOTH FINISH  $Ra=0.4\mu m$  (16 $\mu$ inch)
- 12- FINISHING OF THE GASKET CONTACTING FACE SHALL BE SMOOTH FINISH  $Ra=6.3\mu m$  (250 $\mu$ inch)
- 13- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.:400-DAS-A4-EQ-0097

Rev. : 02

Owner Job No.:

Type: DAS

Page : 7OF7

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for 2st Gas phase reactor(R -421)

## Data Sheet for 2st Gas phase reactor(R -421)

Document No.:400-DAS-A4-EQ-0098

Rev. : 02

Owner Job No.:

Type: DAS

Page : A




PROJECT:PP-PE PILOT PLANT

Client:


 شرکت ملی صنایع پتروشیمی  
 شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for 2st Gas phase reactor(R -421)

1	Item No.:R-421	Quantity: 1	Location: Outdoor	Service: Continuous	
2	<b>DESIGN CONDITIONS</b>				
3					
4		<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>	
5	Operating Temperature(Min./Max.) °C	-30 / +80	-/-	-/-	
6	Operating Pressure barg	24	-	-	
7	Density kg/m <sup>3</sup>	500	-	-	
8	Design Pressure(int./ext.) barg	32	-/-	-/-	
9	Design Temperature °C	-60/+180	-/-	-/-	
10	Volume(total) m <sup>3</sup>	5.4	-	-	
11	Hydro Test Pressure barg	as per UG99b(33)	-	-	
12	Corrosion Allowance(shell/head) mm	0/0	-/-	-/-	
13	Level during operation(min/max) mm	50 / 2200	-/-	-/-	
14	Content @ normal operation	Hydrocarbons+Polymer	-	-	
15	Thickness(shell/head) mm	15/24	/	/	
16	Welding Radiography(shell/head) %	Full / Full	-/-	-/-	
17	Joint Efficiency(shell/head)	1 / 1	-/-	-/-	
18	Top Head Type	2:1 Elipsoidal	-	-	
19	Bottom Head Type	2:1 Elipsoidal	-	-	
20	Design code: ASME SEC. VIII DIV.1	Inspection code: ASME SEC. IX			
21	Cylinder Deminsion(IDxT.L.-T.L): 900(1500) X 4300 mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No			
22	M.D.M.T @ D.P: -60 °C	M.A.T: - °C			
23	M.A.W.P: - barg Limited by: -	Stamp: Not Required			
24	Impact Test: Not Required	P.W.H.T: Not Required			
25	N.D.T: Required	Vessel lining detail: NIL			
26	HIC/SSC resistance: NA / NA	Painting & Coating: NIL			
27	Insulation thickness: 60 mm	Insulation type: HOT			
28	Fireproofing :  NO	Vessel located on: Structure			
29	Seismic code: UBC 1997	Seismic Zone: 3			
30	Impotance factor: 1.25	Soil Profile: SD			
31	Wind code: UBC	Wind velocity: 120 km/hr @ 10 m			
32	Impotance factor: 1.15	Exposure: C			
33	<b>Support loading data(Note 5)</b>		Fabricated:	-	
34	Earthquake	Wind	<b>Weight(kg) (Note 5)</b>	Empty:	6400
35	Shearing load(kgf)	-		Test:	-
36	Moment(kg.m)	-		Operation:	-
37	<b>MISCELLANEOUS(Note 6)</b>				
38					
39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate		
40	<input type="radio"/> Diffuser	<input checked="" type="radio"/> Distributer	<input type="radio"/> Trunnion		
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template		
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation		
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss		
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input checked="" type="radio"/> Dip pipe		
45	<input type="radio"/> Fire Proofing Support	<input type="radio"/> Internal lining			
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting			
47	<input type="radio"/> Heating coil	<input checked="" type="radio"/> Internal clips			
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips			

Document No.:400-DAS-A4-EQ-0098

Rev. : 02

Owner Job No.:

Type: DAS

Page : 10F7

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for 2st Gas phase reactor(R -421)

1												
2	<b>MATERIALS(NOTE 1)</b>											
3												
4	Shell(Main/Jacket)	SA240-304L	/	NA	Earth lug	SA240-316L						
5	Head(Main/Jacket)	SA240-304L	/	NA	Stiffening rings	SA240-304L						
6	Nozzle Necks (Main/Jacket)	Plate	-	/	-	Gasket	SPIRAL WOUND					
7		Pipe	SA312-304L	/	NA	Ext. bolt/Nuts	SA193-B7/SA194-2H					
8	Cladding	-			Int. bolt/Nuts	SA193-BB/SA194-8						
9	Nozzle flanges	SA182-304L			Wire mesh	NA						
10	Blind flanges	SA182-304L			Welded clip	SA240-304L						
11	Reinforcing pad	SA240-304L			Int. welded	SA240-304L						
12	Fitting	SA403-304L			Int. removable	SA240-304L						
13	Support	Leg	NA			Anchor/Setting bolts	SA307-B					
14		Lug	SA283-C			Ladder/Platform	NA					
15		leg/lug pad	SA240-304L			Insulation Material	MINERAL WOOL					
16	Lifting lug	SA240-304L										
17	<b>NOZZLE DETAILS(NOTE 3)</b>											
18												
19	Item	NPS (Inch)	Flanges			SCH. /THK. (NOTE 5)	Service	Proj.	Rein. PAD (NOTE 5)		Standards	Remarks
20			Rating	Type	Face				O.D.	Thk.		
21	<b>Top Head</b>											
22	P1	10"	400#	LF	PAD	-	Gas Outlet	see Dwg	-	-	ANSI B16.5	
23	P2	1 1/2"	400#	RF	WN	XXS	Vent	see Dwg	-	-	ANSI B16.5	
24	P3	1"	400#	RF	WN	160	Monomers Inlet	see Dwg	-	-	ANSI B16.5	
25	P4	3"	400#	RF	WN	40S	Spare	see Dwg	190	22	ANSI B16.5	With blind flange
26	P5	3"	400#	RF	WN	40S	Spare	see Dwg	190	22	ANSI B16.5	With blind flange
27	K1	2"	400#	LF	PAD	-	PRC Connection	see Dwg	-	-	ANSI B16.5	
28												
29	<b>Shell</b>											
30	P6	3"	400#	RF	WN	40S	Product Inlet	see Dwg	190	15	ANSI B16.5	With pipe Inlet 2"
31	P7	3"	400#	RF	WN	40S	Spare	see Dwg	190	15	ANSI B16.5	With blind flange
32	P8	1"	400#	RF	WN	160	Propane Inlet	see Dwg	-	-	ANSI B16.5	
33	P9	2"	400#	LF	PAD	-	Product Discharge	see Dwg	-	-	ANSI B16.5	
34	P10	2"	400#	LF	PAD	-	Product Discharge	see Dwg	-	-	ANSI B16.5	
35	P11	1"	400#	LF	PAD	-	Discharge to Sampling	see Dwg	-	-	ANSI B16.5	
36	P12	1 1/2"	400#	LF	PAD	-	Direct Discharge	see Dwg	-	-	ANSI B16.5	(See H-422)
37	P13	1 1/2"	400#	LF	PAD	-	Spare	see Dwg	-	-	ANSI B16.5	With blind flange
38	K2a	4"	400#	RF	LWN	t=22.225	Dpcelle	see Dwg	-	-	ANSI B16.5	
39	K2b	4"	400#	RF	LWN	t=22.225	Dpcelle	see Dwg	-	-	ANSI B16.5	
40	<b>Bottom Head</b>											
41	P14	8"	400#	LF	PAD	-	Gas Inlet	see Dwg	-	-	ANSI B16.5	
42												
43												
44												
45												
46												
47												
48												
49												

Document No.:400-DAS-A4-EQ-0098

Rev. : 02

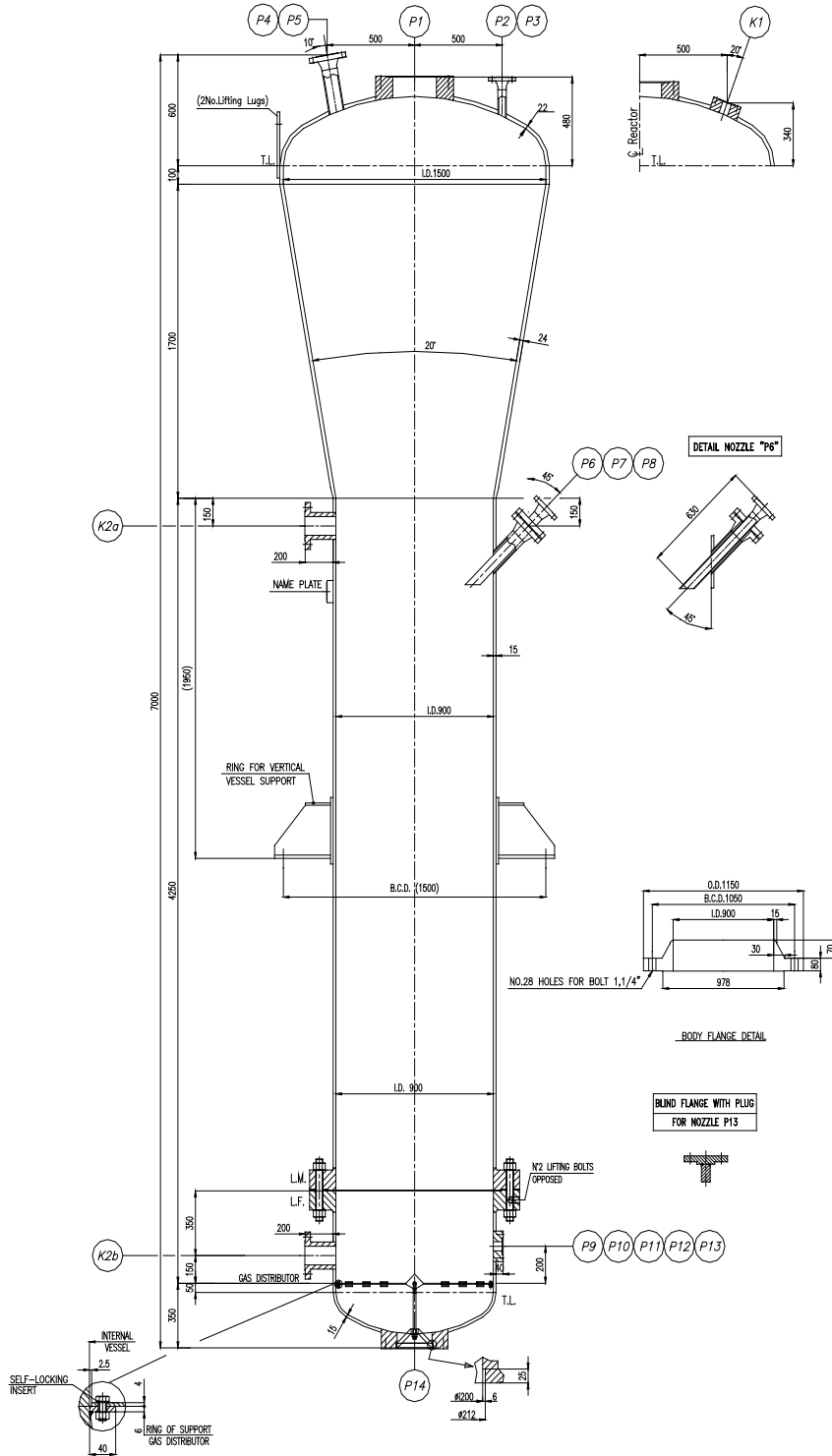
Owner Job No.:

Type: DAS

Page : 2OF7



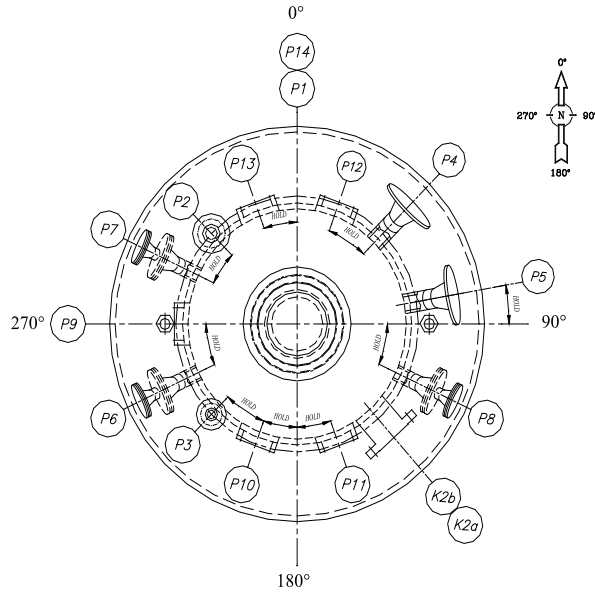




(\*\*)Thickness shall be specified by vendor.

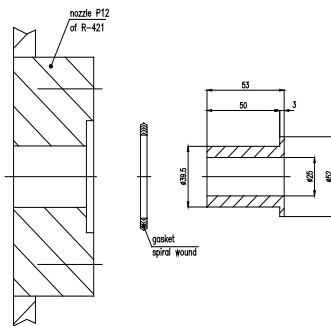
Side View

	Document No.:400-DAS-A4-EQ-0098	Rev. : 02
	Owner Job No.:	Type: DAS
		Page : 4 OF 7



Orientation (HOLD)

H-422  
detail



Notes

Material: Stainless Steel



PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for 2st Gas phase reactor(R -421)

**General Notes:**

- 1- SHALL BE VERIFIED BY VENDOR
- 2- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED
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- 4- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 5- SHALL BE SPECIFIED BY VENDOR .
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- 9- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 10- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 11- INTERNAL FINISHING SHALL BE SMOOTH FINISH  $Ra=0.4\mu m$  (16 $\mu$ inch)
- 12- FINISHING OF THE GASKET CONTACTING FACE SHALL BE SMOOTH FINISH  $Ra=6.3\mu m$  (250 $\mu$ inch)
- 13- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.:400-DAS-A4-EQ-0098

Rev. : 02

Owner Job No.:

Type: DAS

Page :7OF7

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR PROPANE RECOVERY TOWER (T-351)

## DATA SHEET FOR PROPANE RECOVERY TOWER (T-351)

Licensor:

Document No.: 300-DAS-A4-EQ-0164

Rev. : 00

Owner Job No.:

Type: DAS

Page : A



PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR PROPANE RECOVERY TOWER (T-351)

1	Item No.:T-351	Quantity: 1	Location: Outdoor	Service: Continuous		
2	<b>DESIGN CONDITIONS</b>					
3						
4	<input type="radio"/> Gaseous	<input type="radio"/> Liquid	<input type="radio"/> Solid	<input type="radio"/> Combustible	<input type="radio"/> Explodable	<input type="radio"/> Toxic
5	Process fluid	See Note 8		<b>Packing Data</b>		
6	Composition	See Note 8		Type	RASCHING Rings	
7	Density	kg/m <sup>3</sup>	46	Dimensions (inch)	3/4	
8	Dynamic viscosity	cP	0.01	Number	5	
9	Operating temperature	°C	-30/105	Height of bed	mm	2000
10	Operating pressure	barg	20			
11	Design temperature	°C	-60/+230			
12	Design pressure	barg	31			
13	Test Pressure	barg	as per UG99b: 33			
14	Type of Support					
D	Volume	m <sup>3</sup>	1.3			
16	<b>Tray Data</b>					
17	Type	NA				
18	Number	NA				
19						
20	Design code:	ASME SEC. VIII DIV.1		Inspection code:	ASME SEC. IX	
21	Cylinder Deminsion(IDxT.L-T.L):	350	x	13297	mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No
22	M.D.M.T @ D.P:	-60	°C	Thickness(shell/head):	2 10/10 mm	
23	M.A.W.P:	-	barg	Limited by:	-	
24	Impact Test:	Not Required		P.W.H.T:	Not Required	
25	N.D.T:	Required		Vessel lining detail:	NIL	
26	HIC/SSC resistance:	NA	/	NA	Painting & Coating:	as per code
27	Insulation thickness:	30	mm	Insulation type:	HOT	
28	Fireproofing :	YES		Vessel located on:	Structrue	
29	Seismic code:	UBC 1997		Seismic Zone:	3	
30	Importance factor:	1.25		Soil Profile:	SD	
31	Wind code:	UBC		Wind velocity:	120	km/hr @ 15 m
32	Importance factor:	1.15		Exposure:	C	
33	<b>Support loading data(Note 6)</b>					
34		Earthquake	Wind	<b>Weight(kg) (Note 6)</b>	Fabricated:	
35	Shearing load(kgf)	450	320		Empty:	2200
36	Moment(kg.m)	500	400		Test:	
36					Operation:	
37	<b>MISCELLANEOUS(Note 7)</b>					
38						
39	<input type="radio"/> Baffle	<input checked="" type="radio"/> Impingement plate		<input type="radio"/> Weir plate		
40	<input type="radio"/> Diffuser	<input checked="" type="radio"/> Distributer		<input type="radio"/> Trunnion		
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet		<input type="radio"/> Template		
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister		<input checked="" type="radio"/> Pickling & passivation		
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh		<input checked="" type="radio"/> Earthing boss		
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate		<input checked="" type="radio"/> Dip pipe		
45	<input type="radio"/> Fire Proofing Support	<input type="radio"/> Internal lining				
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting				
47	<input type="radio"/> Heating coil	<input checked="" type="radio"/> Internal clips				
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips				

Licensor:

Document No.: 300-DAS-A4-EQ-0164

Rev. : 00

Owner Job No.:

Type: DAS

Page : 1 of 7



PROJECT:PP-PE PILOT PLANT

TITLE:DATA SHEET FOR PROPANE RECOVERY TOWER (T-351)

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

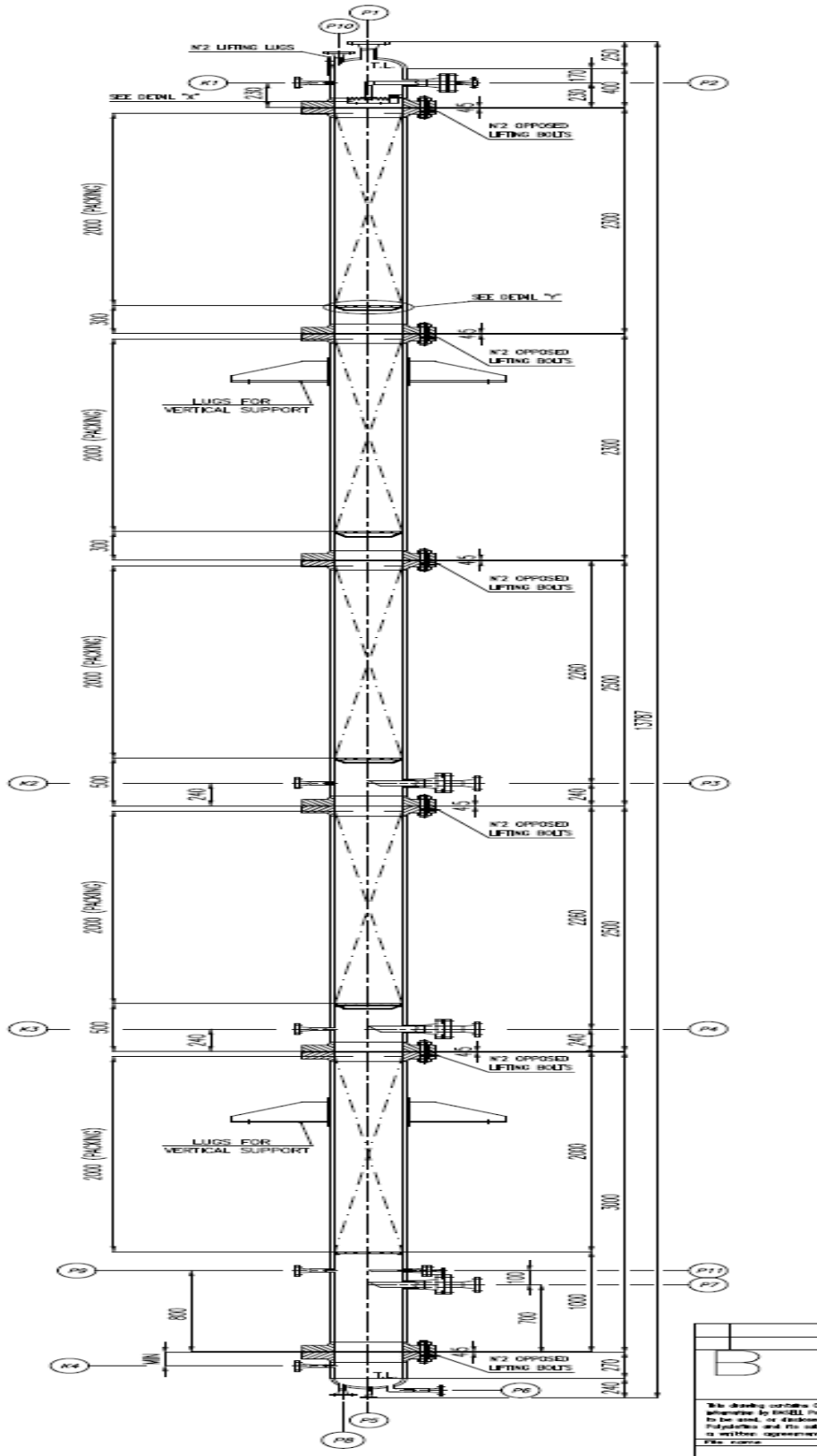
1							
2	<b>MATERIALS (NOTE 2)</b>						
3							
4	Shell(Main/Jacket)	SA240-304L	/	-	Earth lug	SA240-316L	
5	Head(Main/Jacket)	SA240-304L	/	-	Stiffening rings	-	
6	Nozzle Necks (Main/Jacket)	Plate	NA	/	-	Gaskets	Spiral Wound
7		Pipe	SA312-304L	/	-	Ext. bolt/Nuts	SA193-B7/SA194-2H
8	Cladding	-			Int. bolt/Nuts	SA193-BB/SA194-8	
9	Nozzle flanges	SA182-304L			Wire mesh	-	
10	Blind flanges	SA182-304L			Welded clip	SA240-304L	
11	Reinforcing pad	SA240-304L			Int. welded	SA240-304L	
12	Fitting	SA403-304L			Int. removable	SA240-304L	
13	Support	Leg	SA285-C		Anchor/Setting bolts	SA307-B	
14		Lug	SA283-C		Ladder/Platform	-	
DA		leg/lug pad	SA240-304L		Insulation Mateial	MINERAL WOOL	
16	Lifting lug	SA240-304L			Packing	SA240-316L	
17	Packing Support	SA240-304L					

18	<b>2</b> <b>NOZZLE DETAILS (NOTE 3,4)</b>											
19												

20	Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks
			Rating	Type	Face (note 10)				Width	Dia.		
22	<b>Top Head</b>											
23	P1	2"	300#	WN	RF	80S	Gas Outlet	See dwg	-	-	ANSI B16.5	
24	P10	2"	300#	WN	RF	80S	For PSV	See dwg			ANSI B16.5	
25	<b>Shell</b>											
26	P2	2" / 1"	300#	WN	RF	80S	Liquid Inlet	350	-	-	ANSI B16.5	With dip Pipe 1"
27	P3	2 1/2" / 1 1/2"	300#	WN	RF	80S	Gas Inlet	350	32	-	ANSI B16.5	with dip Pipe 1 1/2"
28	P4	2 1/2" / 1 1/2"	300#	WN	RF	80S	Gas Inlet	350	32	-	ANSI B16.5	with dip Pipe 1 1/2"
29	P7	2 1/2" / 1 1/2"	300#	WN	RF	80S	Vapor to Tower	See dwg	-	-	ANSI B16.5	with dip Pipe 1 1/2"
30	K1	1"	300#	WN	RF	80S	Temperature Transmitter	See dwg	-	-	ANSI B16.5	
31	K2	1"	300#	WN	RF	80S	Temperature Transmitter	350	-	-	ANSI B16.5	
32	K3	1"	300#	WN	RF	80S	Temperature Transmitter	350	-	-	ANSI B16.5	
33	P11	1" / 1/2"	300#	WN	RF	80S	Pump Outlet	350			ANSI B16.5	
34	P9	1"	300#	WN	RF	80S	Level Transmitter	See dwg			ANSI B16.5	
35												
36	<b>Bottom Head</b>											
37	P5	1/2"	300#	WN	RF	80S	Liquid Outlet	See dwg	-	-	ANSI B16.5	
38	P6	1"	300#	WN	RF	80S	Liquid to Reboiler	See dwg			ANSI B16.5	
39	P8	1"	300#	WN	RF	80S	Level Transmitter	See dwg			ANSI B16.5	
40	K4	1"	300#	WN	RF	80S	Temperature Transmitter	See dwg			ANSI B16.5	
41												
42												

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	Owner Job No.:	Type: DAS
		Page : 2 of 7





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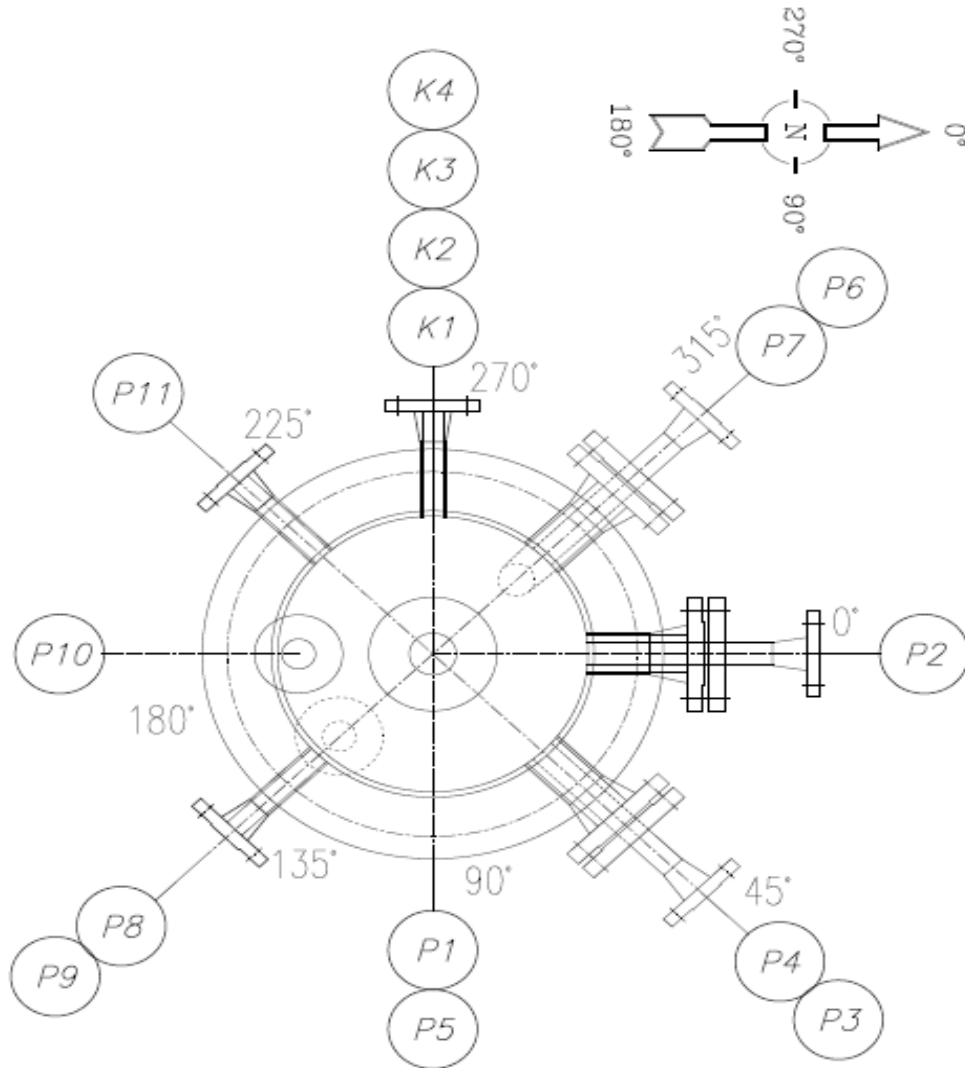
Document No.: 300-DAS-A4-EQ-0164

Rev. : 00

Owner Job No.:

Type: DAS

Page : 4 of 7



ORIENTATION VIEW

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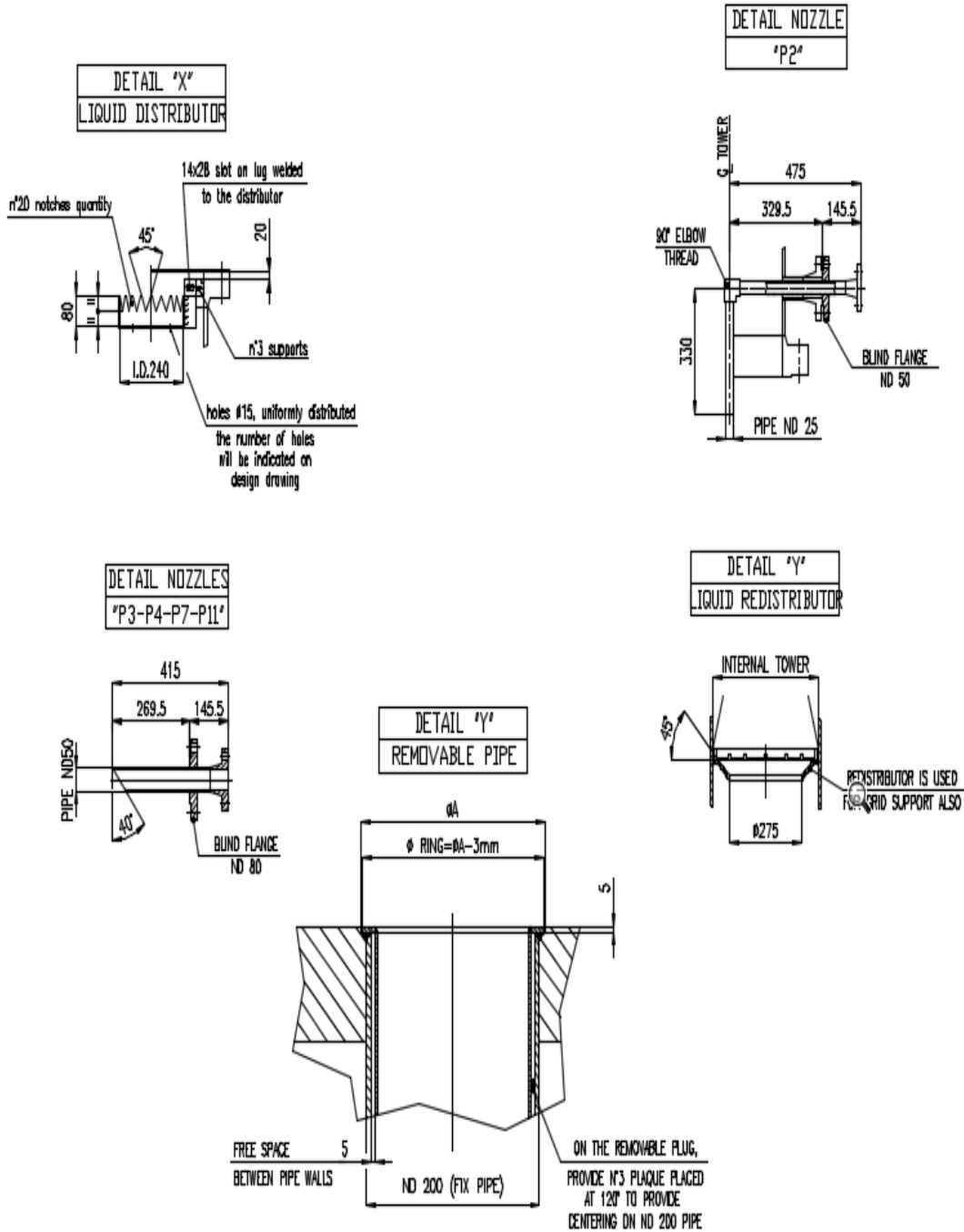
Document No.: 300-DAS-A4-EQ-0164

Rev. : 00

Owner Job No.:

Type: DAS

Page : 5 of 7



	Licensor:	Document No.: 300-DAS-A4-EQ-0164	Rev. : 00
		Owner Job No.:	Type: DAS
			Page : 6 of 7

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR PROPANE RECOVERY TOWER (T-351)

**General Notes:**

- 1- SHALL BE SPECIFIED BY VENDOR.
- 2- SHALL BE VERIFIED BY VENDOR
- 3- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED
- 4- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR
- 5- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 6- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 7- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 8-PROPANE 80% MIN.; ETHYLENE 10% MIN; HYDROCARBONS
- 9-FOR DETAIL REBOILER SEE REBOILER DATASHEET
- 10- FINISHING OF THE GASKET CONTACTING FACE: SMOOTH FINISH RA=3.2μM(125μINCH)  
PROPANE RECOVERY TOWER (T-351)
- 12- PACKING TYPE : RASCHING RINGS 3/4"
- 13- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Licensor:

Document No.: 300-DAS-A4-EQ-0164

Rev. : 00

Owner Job No.:

Type: DAS

Page : 7 of 7

PROJECT: PP-PE Pilot Plant

client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE: Data Sheet for Pump Suction Drum (D-351)

## Data Sheet for Pump Suction Drum (D-351)

REVIEWED & EXECUTED BY :

ENGINEERING :

Document No.: 300-DAS-A4-EQ-0180

Rev.: 01

Owner Job No.:


Type: DAS

Contract Job No.:

Page: A





<b>PROJECT: PP-PE Pilot Plant</b>		client:  شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی
<b>TITLE: Data Sheet for Pump Suction Drum (D-351)</b>		

Type: Vertical Drum	Manufacturer:	Belongs to.:
Item No.: D-351	No. required: 1	P&ID-No.: 300-P&ID-A3-FS-0031
Description: I : Pump Suction Drum		Area: 300
Service/mode of operation:	<input checked="" type="checkbox"/> continuous <input type="checkbox"/> discontinuous	

<b>1      General Data</b>
2 Shell diameter N.D.: 400 mm      Nominal volume: 0.125 m³      Height (cyl.): 1000 mm
3 Internals: <input type="checkbox"/> NO <input checked="" type="checkbox"/> YES    Type: Demister (above of the vessel with 50 mm thk., see drawing)
4 Other features: <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES    Type:
5 Location: <input type="checkbox"/> indoors <input checked="" type="checkbox"/> outdoors
6 Supports: 3 No.s Leg Support (Distance between Flange P6 to earth to be 700 mm)
7 Others:


<b>8      Operating Conditions</b>			
<b>9</b>	<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>
10 Nominal Volume      m³	0.125		
11 Medium/physical properties	1-Butene		
12 Max. operating temperature      °C	105		
13 Operating pressure      barg	20		
14 Physical state      (g/l/s)	l		
15 Density      kg/m³	462		
16 pH-value min/max.			
17 Operating volume      m³	0.08		
18 Errosive/Corrosive due to	0		
19 Concentration      %			
20 Min./max. level during operation      mm			
21			

<b>22      Design Data</b>			
23 Design code:ASME      Inspection by: ASME SEC IX      Design code section:SEC. VIII DIV.1			
<b>24</b>	<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>
25 Volume (total)      m³	0.15		
26 Design pressure      barg	31		
27 Testing over-pressure/medium      barg	TO BE SPECIFIED BY VENDOR		
28 Design temperature      °C	- 60 / 230		
29 Corrosion allowance      mm			
30 Welding radiography ( Shell / Head )      %	SPOT / FULL		
31 Pressure/vacuum test; type      bar	-		
32 Nominal volume      m³	0.125		
33 Surface coating	-		
34 Surface finish/treatment	Ra= 1.6 µm		
35 Safety device			

36 Others: ratio: L (cyl.)/D = 2.5
37 Weld finish: <input type="checkbox"/> NO <input checked="" type="checkbox"/> YES    Type: Internal, Grinded and Polished
38 Thermal treatment: <input type="checkbox"/> NO <input type="checkbox"/> YES
39 Empty weight [kg]: 550      Operating weight [kg]:      Shop test weight [kg]:      Fabricated Weight [kg]:
40 Insulation: <input type="checkbox"/> NO <input checked="" type="checkbox"/> YES    Type: Hot      Thickness [mm]: 30
41 Seismic factor: <input type="checkbox"/> none <input checked="" type="checkbox"/> factor: 0.3      Wind Velocity [Km/hr]:120@10 m
42 LOADS AT BASE (*) : [[ WIND: 120 km/hr    Shear[kgf]: 80 , Moment[kgf.m]: 40 , SEISMIC: Shear[kgf]: 304 , Moment[kgf.m]: 220 ]]

<b>43      Comments</b>
44
45
46
47
48
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50

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		Owner Job No.:	Type: DAS
		Contract Job No.:	Page : 1 of 5

<b>PROJECT: PP-PE Pilot Plant</b>		client:  شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی
<b>TITLE: Data Sheet for Pump Suction Drum (D-351)</b>		

Type: Vertical Drum	Manufacturer:	Belongs to.:
Item No.: I D-351	No. required: 1	P&ID-No.: 300-P&ID-A3-FS-0031
Description: I : Pump Suction Drum		Area: 300
Service/mode of operation:	<input checked="" type="checkbox"/> continuous <input type="checkbox"/> discontinuous	

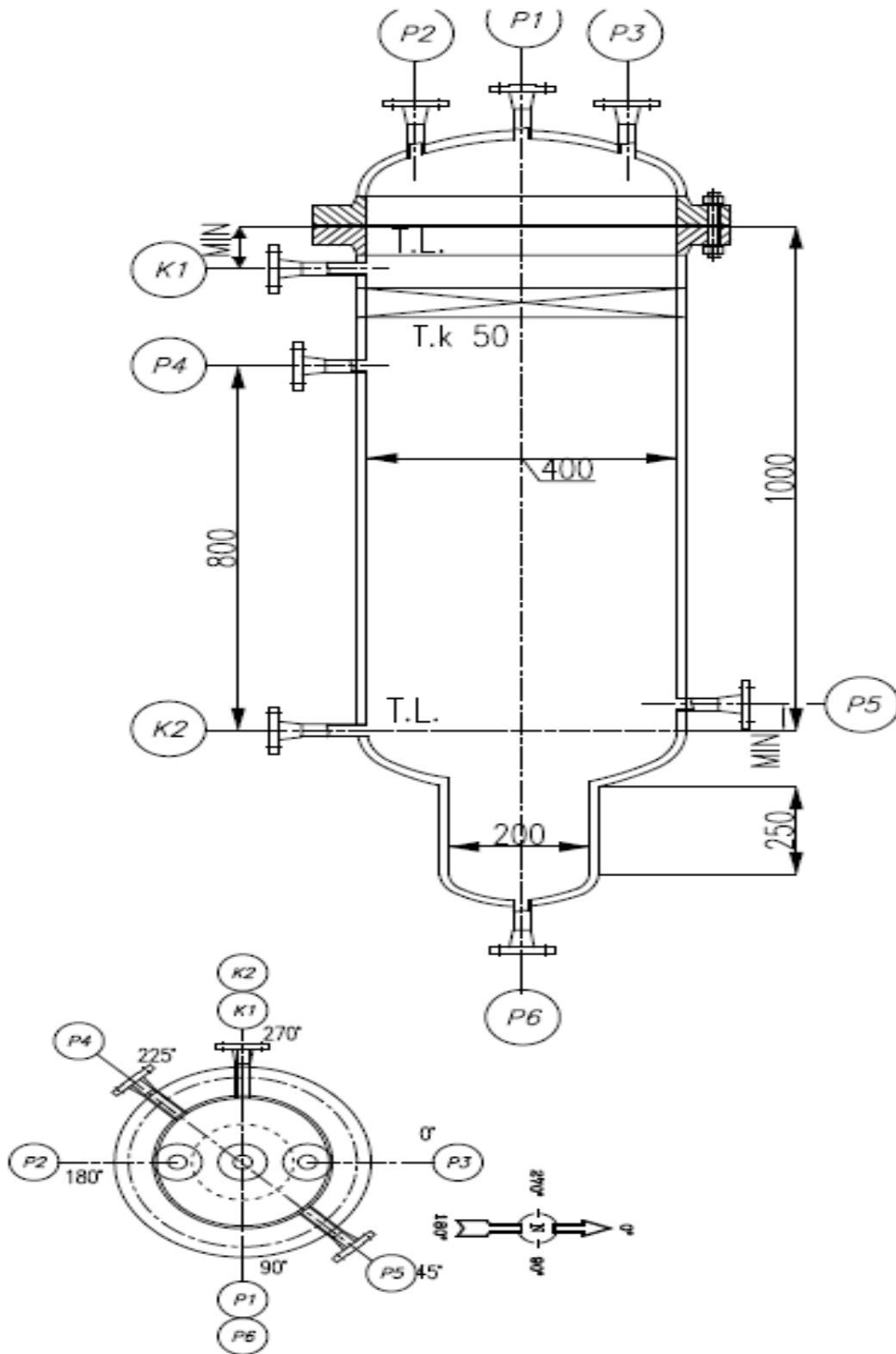
1 Material of Construction (*)			
2	Standard/certificate	Standard/certificate	Standard/certificate
3	Vessel	Jacket	Internal Coil
4	Shell (Thk.: 12 mm) Note 6	SA240-304L	
5	Heads (Thk.: 12 mm) Note 6	SA240-304L	
6	Flange	S.S 304L (with cladding)	
7	Tubes/flanges	-	
8	Screws/nuts	SA193-B7 / SA194-2H	
9	Gaskets	Spiral Wound	
10	Internals	S.S 304L	
11	Manhole	-	
12	Welding efficiency (shell / head)	0.85 / 1	
13	Supports	SAME AS SHELL	
14	Lugs / insulation	SAME AS SHELL / Hot	
15	Transport lugs	SAME AS SHELL	
16	Grounding device	S.S	
17	Tray / type	-	

19 Details concerning transport, scope of supplies & services			
20	Transport volume [m³]:	transport weight [kN]:	Protective coating: <input type="checkbox"/> No <input type="checkbox"/> Yes    Type:
21	Registration:	Date of delivery:	Place of delivery
22	site of inspection:		
23	Quality Control :		
24	Language of documentation:	<input checked="" type="checkbox"/> English <input type="checkbox"/> German	
25	Drawings:		

27 Nozzle Details								
28	Designation	DN	Rating	Facing	Type	Standard	SCH.	Comments
29	<b>Top head</b>							
30	<b>P1</b> Off-Gas	1/2"	300#	RF	WN	ANSI B16.5	80S	
31	<b>P2</b> PG	1/2"	300#	RF	WN	ANSI B16.5	80S	
32	<b>P3</b> Spare	1/2"	300#	RF	WN	ANSI B16.5	80S	with blind flange
33								
35								
36	<b>Bottom head</b>							
38	<b>P6</b> Powder Slurry Outlet	1"	300#	RF	WN	ANSI B16.5	80S	
40								
41	<b>Shell</b>							
42	<b>K1</b> LI&LT Conection	1"	300#	RF	WN	ANSI B16.5	80S	
42	<b>K2</b> LI&LT Conection	1"	300#	RF	WN	ANSI B16.5	80S	
43	<b>P4</b> Inlet	1/2"	300#	RF	WN	ANSI B16.5	80S	
44	<b>P5</b> Outlet	1/2"	300#	RF	WN	ANSI B16.5	80S	
45								
37								

46 COMMENTS	
47	
48	
49	
50	

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		Owner Job No.:	Type: DAS
		Contract Job No.:	Page : 2 of 5



REVIEWED & EXECUTED BY :

ENGINEERING :

Document No.: 300-DAS-A4-EQ-0180


Rev.: 01

Owner Job No.:

Type: DAS

Contract Job No.:

Page: 4 of 5

<b>PROJECT: PP-PE Pilot Plant</b>		client:  شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی
<b>TITLE: Data Sheet for Pump Suction Drum (D-351)</b>		

**GENERAL NOTES:**

- 1- UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN MILLIMETERS.
- 2- ALL TAILS DIMENSIONS ARE MEASURED FROM VESSEL B.L.
- 3- UNLESS OTHERWISE NOTED OUTSIDE PROJECTION OF NOZZLES ARE MEASURED FROM C.L./T.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE .
- 4- FLANGE FACE FINISHING SHALL BE SMOOTH 125-250 MICROINCH AVERAGE ROUGHNESS .
- 5- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF ELLIPTICAL/TORISPHERICAL HEADS SHALL BE IN NO CASE SMALLER THAN VESSEL SHELL THICKNESS.
- 6- THICKNESS INDICATED ON THIS DRAWING ARE MIN.PURCHASER REQUIREMENT. VENDOR SHALL CHECK AND GUARANTEE THEM ON STRENGTH.
- 7- SHELL / NOZZLE THICKNESS AT CONNECTION / ATTACHMENT AREA SHALL BE VERIFIED BY LOCAL STRESS CALCULATION  
 PECIAL BLINDED BODY FLANGE , SHALL BE DESIGNED BY VESSEL MANUFACTURER .
- 8- INDICATED WEIGHTS WILL BE FINALIZED AFTER VENDOR CALCULATION APPROVAL .
- 9- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

<b>REVIEWED &amp; EXECUTED BY :</b>	<b>ENGINEERING :</b>	<b>Document No.:</b> 300-DAS-A4-EQ-0180	<b>Rev.:</b> 01
		<b>Owner Job No.:</b>	<b>Type:</b> DAS
		<b>Contract Job No.:</b>	<b>Page:</b> 5 of 5

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR PROPANE RECOVERY TOWER (T-361)

## DATA SHEET FOR PROPANE RECOVERY TOWER (T-361)

Document No.:

Rev. : 00

Owner Job No.:

Type: DAS

Page : A



PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR PROPANE RECOVERY TOWER (T-361)

1	Item No.:T-361	Quantity: 1	Location: Outdoor	Service: Continuous		
2	<b>DESIGN CONDITIONS</b>					
3						
4	<input type="radio"/> Gaseous	<input type="radio"/> Liquid	<input type="radio"/> Solid	<input type="radio"/> Combustible	<input type="radio"/> Explodable	<input type="radio"/> Toxic
5	Process fluid	See Note 8		<b>Packing Data</b>		
6	Composition	See Note 8		Type	Rings	
7	Density	kg/m <sup>3</sup>	30	Dimensions	Rings 1 (inch)	
8	Dynamic viscosity	cP	0.01	Number	2	
9	Operating temperature	°C	90	Height of bed	mm	1500
10	Operating pressure	barg	18	<b>Others(Reboiler) See note 9</b>		
11	Design temperature	°C	-60÷+230	Heating Device	-	
12	Design pressure	barg	31	Material	SA312-TP304L	
13	Test Pressure	barg	as per UG99b(33)	Medium	-	
14	Type of Support	4 Lugs		Operating temperature	°C	-
15	Volume	m <sup>3</sup>	0.9	Operating pressure	barg	-
16	<b>Tray Data</b>			Design temperature	°C	-60 / 230
17	Type	NA		Design pressure	barg	31
18	Number	NA		Length	-	
19						
20	Design code:	ASME SEC. VIII DIV.1		Inspection code:	ASME SEC. IX	
21	Cylinder Deminsion(IDxT.L-T.L):	400	x	6688	mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No
22	M.D.M.T @ D.P:	-60	°C	Thickness(shell/head):	2 8/ 8 mm	
23	M.A.W.P:	-	barg	Limited by:	-	
24	Impact Test:	Not Required		Stamp:	Not Required	
25	N.D.T:	Required		P.W.H.T:	Not Required	
26	HIC/SSC resistance:	NA	/	NA	Vessel lining detail:	NIL
27	Insulation thickness:	30	mm	Painting & Coating:	as per code	
28	Fireproofing :	YES		Insulation type:	HOT	
29	Seismic code:	UBC 1997		Vessel located on:	Structrue	
30	Impotance factor:	1.25		Seismic Zone:	3	
31	Wind code:	UBC		Soil Profile:	SD	
32	Importance factor:	1.15		Wind velocity:	120	km/hr @ 10 m
33	<b>Support loading data(Note 6)</b>			<b>Weight(kg) (Note 6)</b>	Fabricated:	1450
34		Earthquake	Wind		Empty:	1800
35	Shearing load(kgf)	450	320		Test:	2350
36	Moment(kg.m)	500	400		Operation:	1800
37	<b>MISCELLANEOUS(Note 7)</b>					
38						
39	<input type="radio"/> Baffle	<input checked="" type="radio"/> Impingement plate		<input type="radio"/> Weir plate		
40	<input type="radio"/> Diffuser	<input checked="" type="radio"/> Distributer		<input type="radio"/> Trunnion		
41	<input type="radio"/> Vortex breaker	<input checked="" type="radio"/> Tubesheet		<input type="radio"/> Template		
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister		<input checked="" type="radio"/> Pickling & passivation		
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh		<input checked="" type="radio"/> Earthing boss		
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate		<input checked="" type="radio"/> Dip pipe		
45	<input type="radio"/> Fire Proofing Support	<input type="radio"/> Internal lining				
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting				
47	<input type="radio"/> Heating coil	<input checked="" type="radio"/> Internal clips				
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips				

Document No.:

Rev. : 00

Owner Job No.:

Type: DAS

Page : 1 of 7

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR PROPANE RECOVERY TOWER (T-361)

1				
2	<b>MATERIALS(NOTE 2)</b>			
3				
4	Shell(Main/Jacket)	SA240-304L / -	Earth lug	SA240-316L
5	Head(Main/Jacket)	SA240-304L / -	Stiffening rings	-
6	Nozzle Necks (Main/Jacket)	Plate NA / -	Gaskets	Spiral Wound
7		Pipe SA312-304L / -	Ext. bolt/Nuts	SA193-B7/SA194-2H
8	Cladding	-	Int. bolt/Nuts	SA193-BB/SA194-8
9	Nozzle flanges	SA182-304L	Wire mesh	-
10	Blind flanges	SA182-304L	Welded clip	SA240-304L
11	Reinforcing pad	SA240-304L	Int. welded	SA240-304L
12	Fitting	SA403-304L	Int. removable	SA240-304L
13	Support	Leg -	Anchor/Setting bolts	SA307-B
14		Lug SA283-C	Ladder/Platform	-
15		leg/lug pad SA240-304L	Insulation Mateial	MINERAL WOOL
16	Lifting lug	SA240-304L	Packing	SA240-316L
17	Packing Support	SA240-304L		

2	<b>NOZZLE DETAILS(NOTE 3,4)</b>
---	---------------------------------

Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks	
		Rating	Type	Face (note 10)				Width	Dia.			
<b>Top Head</b>												
23	P1	2"	400#	WN	RF	80S	Gas Outlet	See dwg	-	-	ANSI B16.5	
24												
<b>Shell</b>												
26	P2	2" / 1"	400#	WN	RF	80S	Liquid Inlet	350	-	-	ANSI B16.5	With dip Pipe 1"
27	P3	3" / 2"	400#	WN	RF	80S	Gas Inlet	370	32	155	ANSI B16.5	With dip Pipe 2"
28	P4	3" / 2"	400#	WN	RF	80S	Gas Inlet	370	32	155	ANSI B16.5	With dip Pipe 2"
29												
30	K1	1"	400#	WN	RF	80S	Temperature	See dwg	-	-	ANSI B16.5	
31	K2a	1 1/2"	400#	WN	RF	80S	Stand-Pipe	350	-	-	ANSI B16.5	
32	K2b	1 1/2"	400#	WN	RF	80S	Stand-Pipe	350	-	-	ANSI B16.5	
33	K3	1"	400#	WN	RF	80S	Temperature	See dwg	-	-	ANSI B16.5	
34	K4	1"	400#	WN	RF	80S	Temperature	See dwg	-	-	ANSI B16.5	
35												
<b>Bottom Head</b>												
37	P5	1"	400#	WN	RF(*)	80S	Liquid Outlet	See dwg	-	-	ANSI B16.5	
38												
<b>Reboiler</b>												
40	P6	1 1/2"	400#	WN	RF(*)	80S	Steam Inlet	350	-	-	ANSI B16.5	With Impingement Plate
41	P7	1"	400#	WN	RF(*)	80S	Condensate Outlet	350	-	-	ANSI B16.5	
42	P8	1/2"	3000#	-	Th. NPT	-	Vent	See dwg	-	-	ANSI B2.1	With plug
43	P9	1/2"	3000#	-	Th. NPT	-	Drain	See dwg	-	-	ANSI B2.1	With plug
44												
45												
46												
47												
48												
49												

Document No.:

Rev. : 00

Owner Job No.:

Type: DAS

Page : 2 of 7



PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

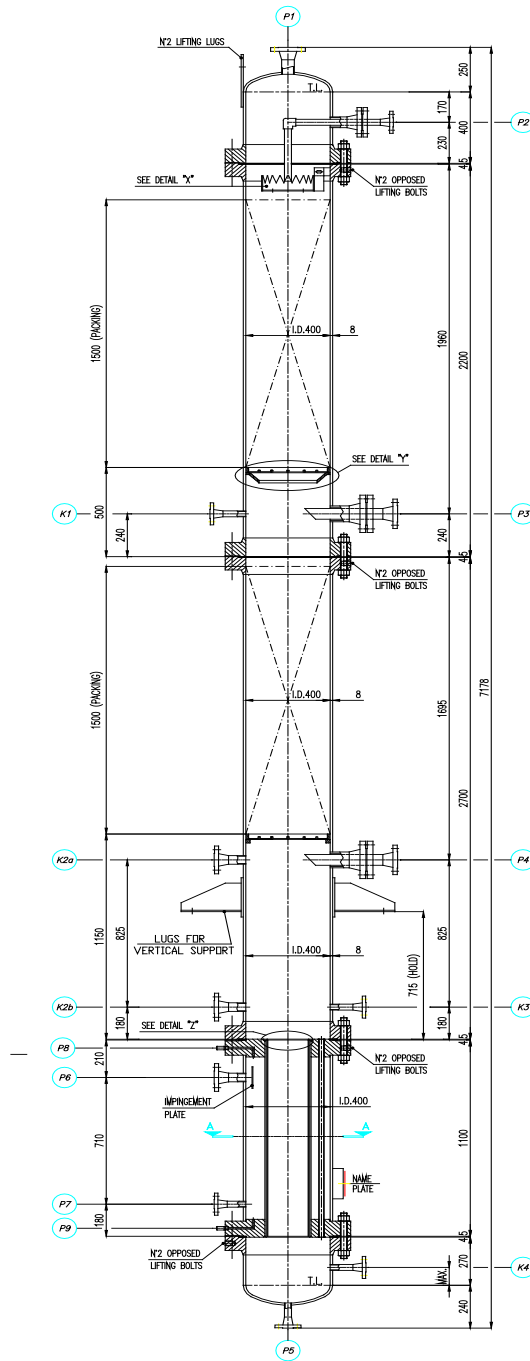
TITLE:DATA SHEET FOR PROPANE RECOVERY TOWER (T-361)

1							
2	<b>NOZZLE LOADING DATA(NOTE 6)</b>						
3							
4	Nozzle	FL	FA	FC	MC	MT	ML
5	Name	(kgf)	(kgf)	(kgf)	(kg.m)	(kg.m)	(kg.m)
6	P1	286	286	215	29	43	37
7	P2(2")	286	286	215	29	43	37
8	P3(2")	286	286	215	29	43	37
9	P3(3")	429	429	322	65	97	84
10	P4(2")	286	286	215	29	43	37
11	P4(3")	429	429	322	65	97	84
12							
13							
14							
15							
16							
17							
18							
19							
20							

21	<b>REFRENCE DOCUMENTS</b>						
22							

23	No.	Document No.	Document Title
24	1		
25	2		
26	3		
27	4		
28	5		
29	6		
30	7		
31	8		
32	9		
33	10		
34	11		
35	12		
36	13		
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	Document No.:	Rev. : 00
	Owner Job No.:	Type: DAS
		Page : 3 of 7



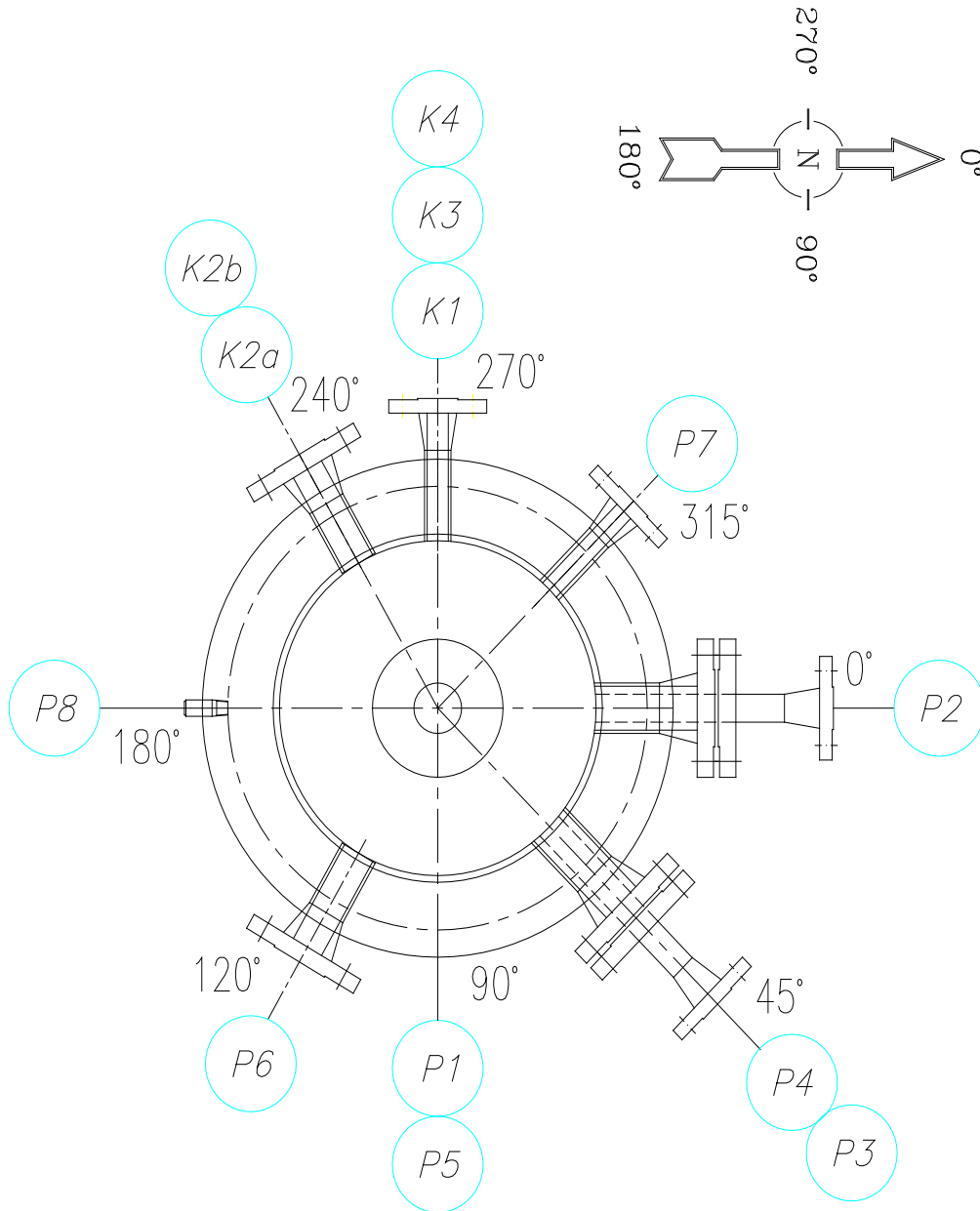
Document No.:

Rev. : 00

Owner Job No.:

Type: DAS

Page : 4 of 7



# ORIENTATION VIEW

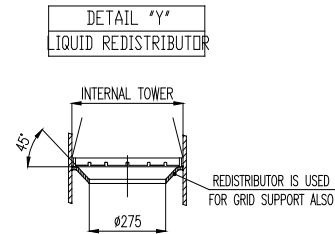
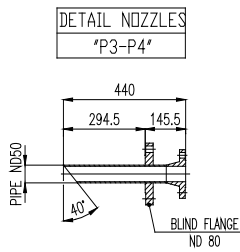
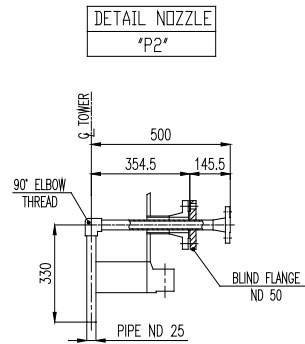
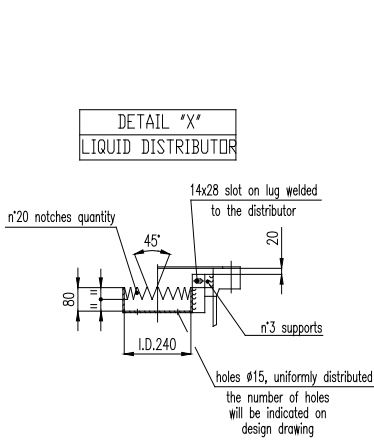
Document No.:

Rev. : 00

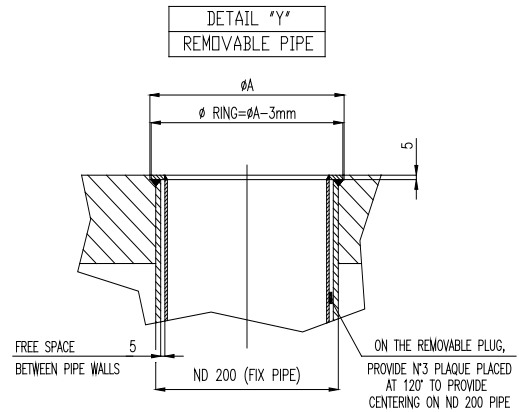
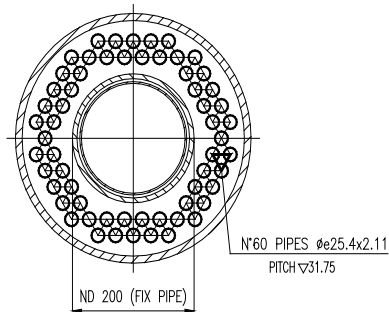
Owner Job No.:

Type: DAS

Page : 5 of 7



**SECTION "A-A"**  
REBOILER



Document No.:

Rev. : 00

Owner Job No.:

Type: DAS

Page : 6 of 7

PROJECT:PP-PE PILOT PLANT


Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR PROPANE RECOVERY TOWER (T-361)

**General Notes:**

- 1- SHALL BE SPECIFIED BY VENDOR.
- 2- SHALL BE VERIFIED BY VENDOR
- 3- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED
- 4- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR
- 5- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 6- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 7- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 8-PROPYLENE 95% MIN.; HYDROCARBONS
- 9-FOR DETAIL REBOILER SEE DRAWING IN PAGES 4 AND 6.
- 10- FINISHING OF THE GASKET CONTACTING FACE: SMOOTH FINISH RA=3.2μM(125μINCH)
- 11- LOCATION AND NUMBER OF LIFTING LUGS ON TOWER SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 12- PACKING TYPE : RINGS 1" 
- 13- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.:

Rev. : 00

Owner Job No.:

Type: DAS

Page : 7 of 7

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR CONDENSED PROPANE DRUM(V-361)

## DATA SHEET FOR CONDENSED PROPANE DRUM(V-361)

Document No.:

Rev. : 00

Owner Job No.:

Type: DAS

Page : A



PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR CONDENSED PROPANE DRUM(V-361)

1	Item No.: V-361	Quantity: 1	Location: Outdoor	Service: Continuous	
2	<b>DESIGN CONDITIONS</b>				
3					
4		<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>	
5	Operating Temperature(Min./Max.) °C	-/40	-/-	-/-	
6	Operating Pressure barg	18	-	-	
7	Density kg/m <sup>3</sup>	474	-	-	
8	Design Pressure(int./ext.) barg	28/-	-/-	-/-	
9	Design Temperature(int./ext.) °C	-60++120	-/-	-/-	
10	Volume(total) m <sup>3</sup>	0,34	-	-	
11	Hydro Test Pressure barg	as per UG99b(33)	-	-	
12	Corrosion Allowance(shell/head) mm	0/0	-/-	-/-	
13	Cladding (shell/head) mm	-/-	-/-	-/-	
14	Content @ normal operation	Propylene	-	-	
15	Thickness(shell/head) mm	10 / 10	-/-	-/-	
16	Welding Radiography(shell/head) %	100/100	-/-	-/-	
17	Joint Efficiency(shell/head)	1/1	-/-	-/-	
18	Top Head Type	2:1 Elipsoidal	-	-	
19	Bottom Head Type	2:1 Elipsoidal	-	-	
20	Design code: ASME SEC. VIII DIV.1	Inspection code: ASME SEC. IX			
21	Cylinder Deminsion(IDxT.L-T.L): 600 x 1000 mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No			
22	M.D.M.T @ D.P: -45 °C	M.A.T: - °C			
23	M.A.W.P: 30.558 barg Limited by: Cylinder	Stamp: Not Required			
24	Impact Test: Not Required	P.W.H.T: Not Required			
25	N.D.T: Not Required	Vessel lining detail: NIL			
26	HIC/SSC resistance: NA / NA	Painting & Coating: as per code			
27	Insulation thickness: 40 mm	Insulation type: Hot			
28	Fireproofing : Yes	Vessel located on: Structure			
29	Seismic code: UBC 1997	Seismic Zone: 3			
30	Impotance factor: 1.25	Soil Profile: SD			
31	Wind code: UBC	Wind velocity: 120 km/hr @ 10 m			
32	Impotance factor: 1.15	Exposure: C			
33	<b>Support loading data(Note 5)</b>				
34	Earthquake	Wind	<b>Weight(kg) (Note 5)</b>	Fabricated: 360	
35	Shearing load(kgf)	100		110	Empty: 390
36	Moment(kg.m)	85		110	Test: 710
					Operation: 525
37	<b>MISCELLANEOUS(Note 2,10)</b>				
38					
39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate		
40	<input type="radio"/> Diffuser	<input type="radio"/> Distributer	<input type="radio"/> Trunnion		
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template		
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation		
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss		
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input type="radio"/> Dip pipe		
45	<input checked="" type="radio"/> Fire Proofing Support	<input type="radio"/> Internal lining			
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting			
47	<input type="radio"/> Heating coil	<input type="radio"/> Internal clips			
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips			

Document No.:

Rev. : 00

Owner Job No.:

Type: DAS

Page : 1





PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR CONDENSED PROPANE DRUM(V-361)

1 |

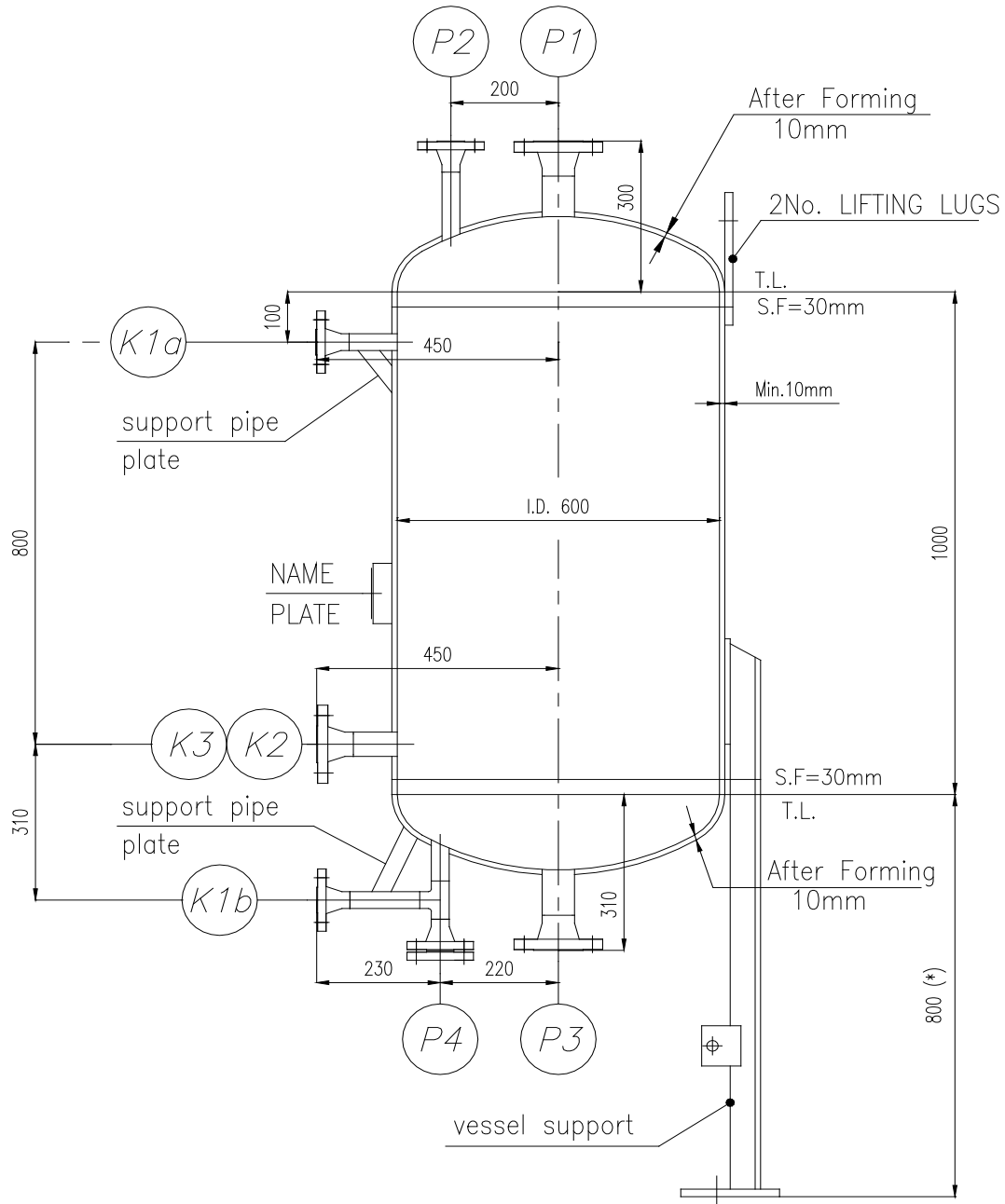
2 | **NOZZLE LOADING DATA(NOTE 1)**

3	4	5	6	7	8	9	10
Nozzle Name	FL (kgf)	FA (kgf)	FC (kgf)	MC (kg.m)	MT (kg.m)	ML (kg.m)	
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

21 | **REFRENECE DOCUMENTS**

23	No.	Document No.	Document Title
24	1		
25	2		
26	3		
27	4		
28	5		
29	6		
30	7		
31	8		
32	9		
33	10		
34	11		
35	12		
36	13		
37	14		
38	15		
39	16		
40	17		
41	18		
42	19		
43	20		
44	21		
45	22		
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48	25		

	Document No.:	Rev. : 00
	Owner Job No.:	Type: DAS
		Page : 3



\*) To be defined

Side View

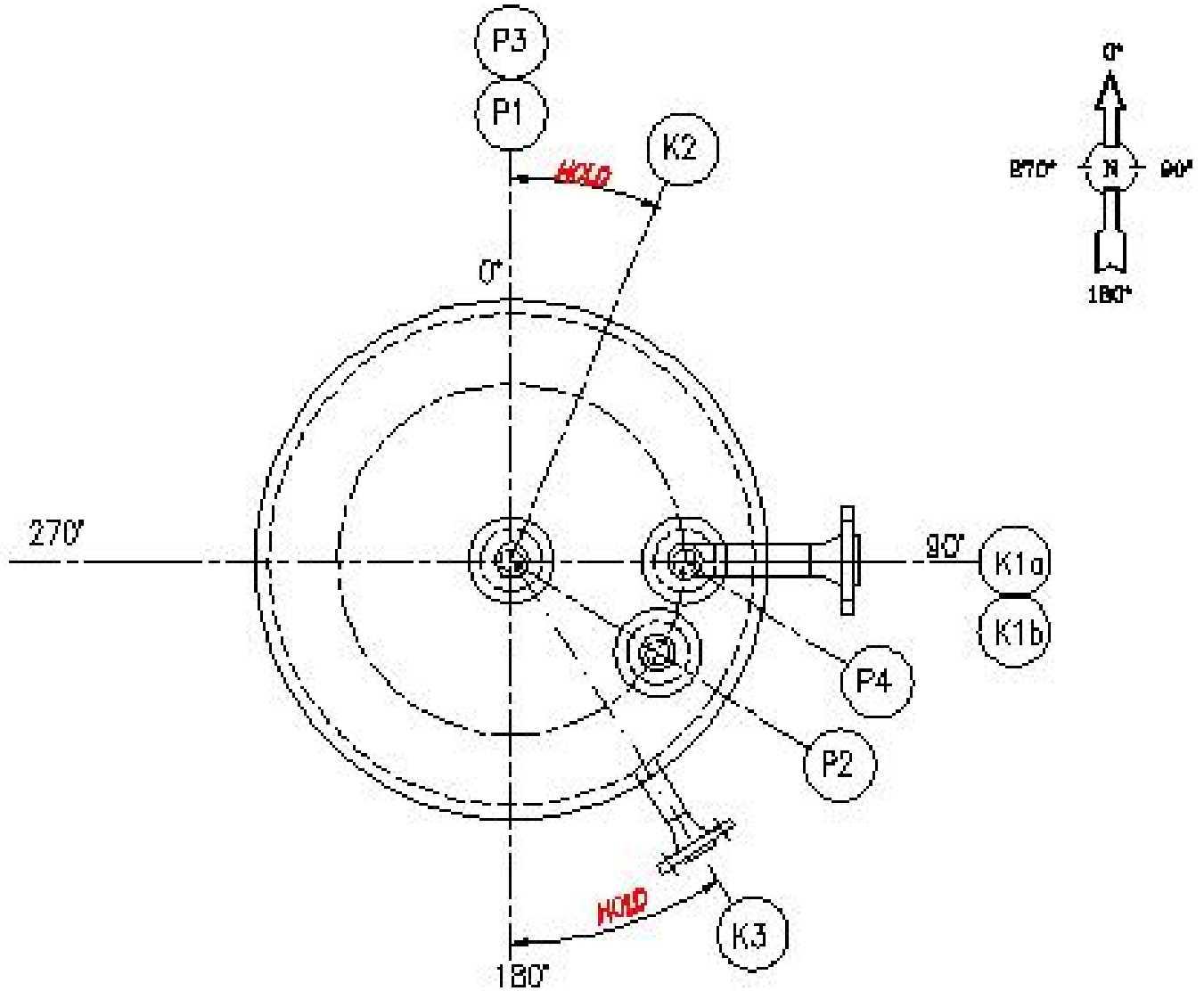
Document No.:

Rev. : 00

Owner Job No.:

Type: DAS

Page : 4



Orientation (HOLD)

1

	Document No.:	Rev. : 00
	Owner Job No.:	Type: DAS
		Page : 5

PROJECT:PP-PE PILOT PLANT

Client:



TITLE:DATA SHEET FOR CONDENSED PROPANE DRUM(V-361)

**General Notes:**

- 1- SHALL BE SPECIFIED BY VENDOR .
- 2- SHALL BE VERIFIED BY VENDOR.
- 3- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.
- 4- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.
- 5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 6- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF ELLIPTICAL/TORISPHERICAL HEADS SHALL BE IN NO CASE SMALLER THAN VESSEL SHELL THICKNESS.VENDOR SHALL CHECK AND GUARANTEE THEM ON STRENGTH.
- 7- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 8- UNLESS OTHERWISE NOTED OUTSIDE PROJECTION OF NOZZLES ARE MEASURED FROM C.L./T.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE.
- 9- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 10- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 11- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 12- SURFACE PREPARATAION,PICKLING&PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER.
- 13- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.
- 14- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.: 300-DAS-A4-EQ-0075

Rev. : 00

Owner Job No.:

Type: DAS

Page : 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR C-401 SUCTION DRUM (V-401)

# TITLE:DATA SHEET FOR C-401 SUCTION DRUM (V-401)

Licensor:

Document No.: 300-DAS-A4-EQ-0077


Rev. : 01

Owner Job No.:

Type: DAS

Page : A



PROJECT:PP-PE PILOT PLANT			Client:		
TITLE:DATA SHEET FOR C-401 SUCTION DRUM (V-401)			 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
1	Item No.:V-401	Quantity: 1	Location: Outdoor	Service:	Continuous
2	<b>DESIGN CONDITIONS</b>				
3					
4			<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>
5	Operating Temperature(Min./Max.)	°C	-30/+50	-/-	-/-
6	Operating Pressure	barg	1.5	-	-
7	Density	kg/m <sup>3</sup>	2.517	-	-
8	Design Pressure(int./ext.)	barg	35	-/-	-/-
9	Design Temperature(int./ext.)	°C	-60/+180	-/-	-/-
10	Volume(total)	m <sup>3</sup>	0.31	-	-
11	Hydro Test Pressure	barg	as per UG99b(33)	-	-
12	Corrosion Allowance(shell/head)	mm	0/0	-/-	-/-
13	Cladding (shell/head)	mm	- / -	-/-	-/-
14	Content @ normal operation	Propane+Ethylene+Hydrogen		-	-
15	Thickness(shell/head)	mm	14/14	-/-	-/-
16	Welding Radiography(shell/head)	%	Full/Full	-/-	-/-
17	Joint Efficiency(shell/head)		1/1	-/-	-/-
18	Top Head Type		2:1 Elipsoidal	-	-
19	Bottom Head Type		2:1 Elipsoidal	-	-
20	Design code:	ASME SEC. VIII DIV.1		Inspection code:	ASME SEC. IX
21	Cylinder Deminsion(IDxT.L-T.L):	534 x 1100	mm	Lethal Service:	<input type="radio"/> Yes <input checked="" type="radio"/> No
22	M.D.M.T @ D.P:	-45	°C	M.A.T:	- °C
23	M.A.W.P:	71.474	barg	Limited by:	Cylinder
24	Impact Test:	Not Required		Stamp:	Not Required
25	N.D.T:	Required		P.W.H.T:	Not Required
26	HIC/SSC resistance:	NA	/	NA	Vessel lining detail:
27	Insulation thickness:	30	mm	Painting & Coating:	as per code
28	Fireproofing :	Yes		Insulation type:	ET & IH
29	Seismic code:	UBC 1997		Vessel located on:	Foundation
30	Impotance factor:	1.25		Seismic Zone:	3
31	Wind code:	UBC		Soil Profile:	SD
32	Impotance factor:	1.15		Wind velocity:	120 km/hr @ 10 m
33	<b>Support loading data(Note 5)</b>			Exposure:	C
34		Earthquake	Wind	<b>Weight(kg) (Note 5)</b>	Fabricated:
35	Shearing load(kgf)	50	55		Empty:
36	Moment(kg.m)	60	65		Test:
37					Operation:
38	<b>MISCELLANEOUS(Note 2,10)</b>				
39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate		
40	<input type="radio"/> Diffuser	<input type="radio"/> Distributer	<input type="radio"/> Trunnion		
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template		
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation		
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss		
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input type="radio"/> Dip pipe		
45	<input checked="" type="radio"/> Fire Proofing Support	<input type="radio"/> Internal lining			
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting			
47	<input type="radio"/> Heating coil	<input type="radio"/> Internal clips			
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips			
			Document No.: 300-DAS-A4-EQ-0077	Rev. : 01	
			Owner Job No.:	Type: DAS	
				Page : A	



PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR C-401 SUCTION DRUM (V-401)

1												
2	MATERIALS(NOTE 2)											
3												
4	Shell(Main/Jacket)	SA240-304 /					Earth lug	SA240-316				
5	Head(Main/Jacket)	SA240-304 /					Stiffening rings	-				
6	Nozzle Necks (Main/Jacket)	Plate	-					Gaskets	Spiral Wound			
7		Pipe	SA312-304 /					Ext. bolt/Nuts	SA193-B7/SA194-2H			
8	Cladding	-					Int. bolt/Nuts	SA193-B8/SA194-8				
9	Nozzle flanges	SA182-F304					Wire mesh	-				
10	Blind flanges	SA182-F304					Welded clip	SA240-304				
11	Reinforcing pad	SA240-304					Int. welded	-				
12	Fitting	SA403-304					Int. removable	-				
13	Saddle	Leg	SA240-304					Anchor/Setting bolts	SA307 B			
14		Base plate	SA283-C					Ladder/Platform	-			
15		leg/lug pad	SA240-304					Insulation Mateial	MINERAL WOOL			
16	Lifting lug	SA240-304										
17	NOZZLE DETAILS(NOTE 2,3,4,7,8)											
18												
19	Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks
20			Rating	Type	Face				Width	Thk.		
21	Top Head											
22	P1	1"	900#	LWN	RF	t=14.3	Vent	See dwg	-	-	ANSI B16.5	
23	P2	1"	900#	LWN	RF	t=14.3	Gas Outlet	See dwg	-	-	ANSI B16.5	
24	P3	1"	900#	LWN	RF	t=14.3	Recycle	See dwg	-	-	ANSI B16.5	
25												
26												
27	Shell											
28	P4	1"	900#	LWN	RF	t=14.3	Product Inlet	See dwg	-	-	ANSI B16.5	
29												
30	K1	1 1/2"	900#	LWN	RF	t=16	Temperature	See dwg	-	-	ANSI B16.5	
31												
32												
33	Bottom Head											
34	P5	1/2"	900#	LWN	RF	t=12.65	Drain	See dwg	-	-	ANSI B16.5	
35			△ 1			△ 1						
36												
37												
38												
39												
40												
41												
42												
43												
44												
45												
46												
47												
48	*)Finishing of the gasket contacting face : smooth finish Ra=3.2μm (125μinch)											

Document No.: 300-DAS-A4-EQ-0077

Rev. : 01

Owner Job No.:

Type: DAS

Page : A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR C-401 SUCTION DRUM (V-401)

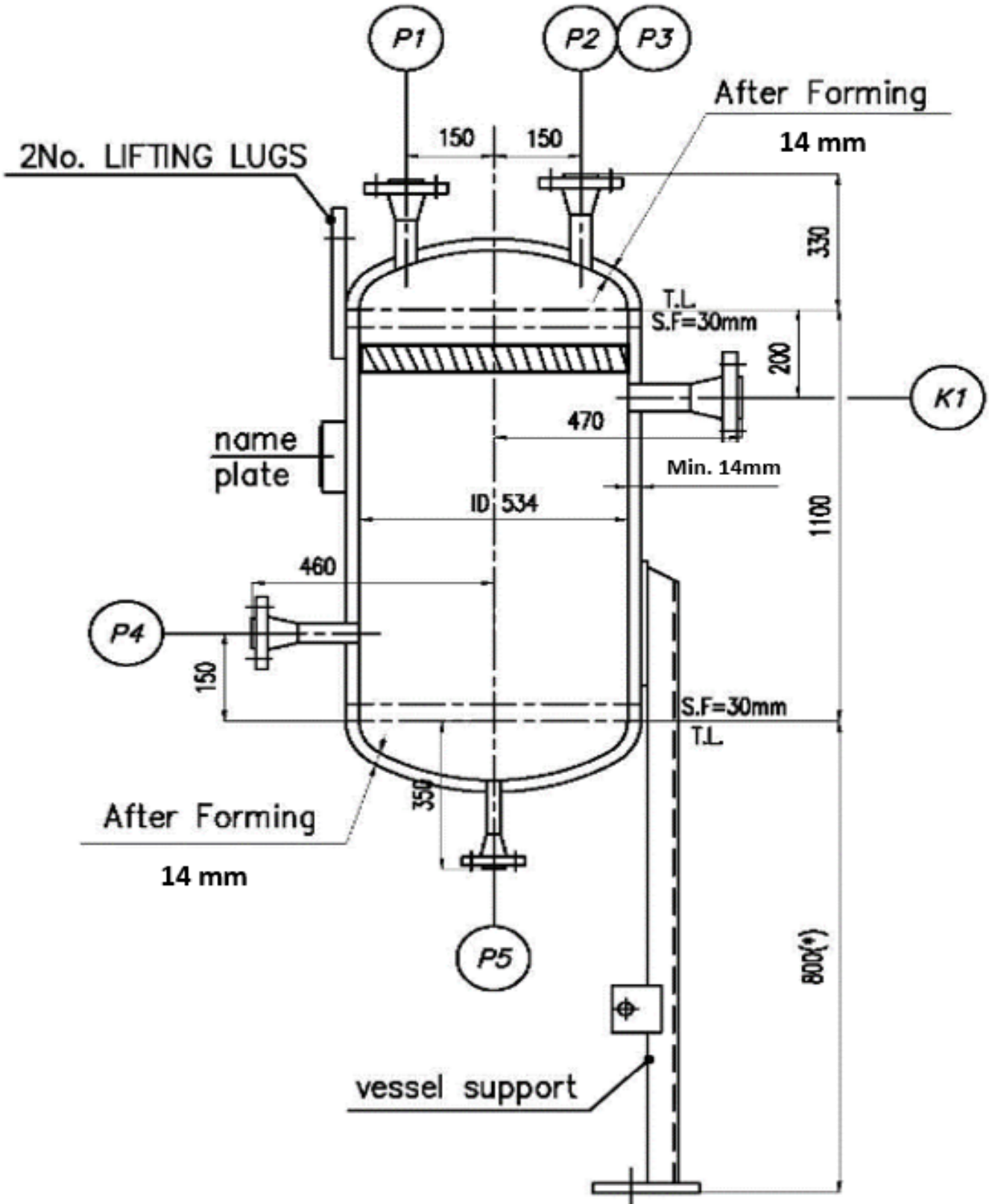
1 |  
2 | **NOZZLE LOADING DATA(NOTE 1)**  
3 |

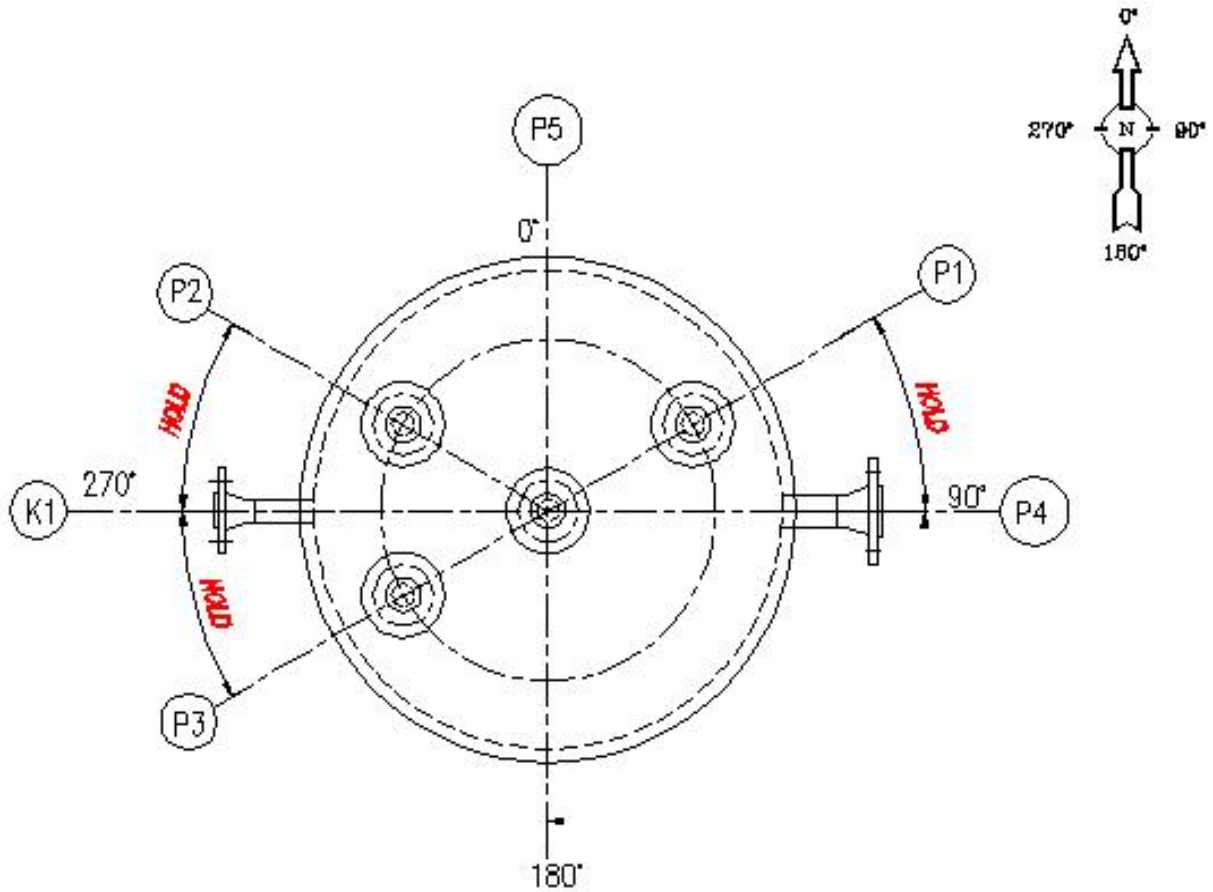
No.	Nozzle Name	FA (kN)	FB (kN)	FC (kN)	MA (N.m)	MB (N.m)	MC (N.m)
4							
5							
6							
7							
8							
9							
10							
11							
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21 | **REFRENCE DOCUMENTS**  
22 |


No.	No.	Document No.	Document Title
23	1		
24	2		
25	3		
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45	23		
46	24		
47	25		

	Document No.: 300-DAS-A4-EQ-0077	Rev. : 01
	Owner Job No.:	Type: DAS
		Page : A





Orientation (HOLD)

PROJECT:PP-PE PILOT PLANT	Client: 	
TITLE:DATA SHEET FOR C-401 SUCTION DRUM (V-401)	شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
<p><b>General Notes:</b></p> <p>1- SHALL BE SPECIFIED BY VENDOR .</p> <p>2- SHALL BE VERIFIED BY VENDOR.</p> <p>3- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.</p> <p>4- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.</p> <p>5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.</p> <p>6- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF ELLIPTICAL/TORISPHERICAL HEADS SHALL BE IN NO CASE SMALLER THAN VESSEL SHELL THICKNESS.VENDOR SHALL CHECK AND GUARANTEE THEM ON STRENGTH.</p> <p>7- SHELL/NOZZLE THICKNESS AT CONNECTION/ATTACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.</p> <p>8- UNLESS OTHERWISE NOTED OUTSIDE PROJECTION OF NOZZLES ARE MEASURED FROM C.L./T.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE.</p> <p>9- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.</p> <p>10- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .</p> <p>11- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.</p> <p>12- SURFACE PREPARATAION,PICKLING&amp;PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER.</p> <p>13- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.</p> <p>14- FINISHING OF THE GASKET CONTACTING FACE: SMOOTH FINISH RA=3.2μM (125μINCH)</p> <p>16- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.</p>		
	Document No.: 300-DAS-A4-EQ-0077	Rev. : 01
	Owner Job No.:	Type: DAS
		Page : A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR C-401 DISCHARGE DRUM (V-402)

# TITLE:DATA SHEET FOR C-401 DISCHARGE DRUM (V-402)

Document No.: 300-DAS-A4-EQ-0077

Rev. : 01

Owner Job No.:

Type: DAS

Page : A

PROJECT:PP-PE PILOT PLANT

Client:




شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR C-401 DISCHARGE DRUM (V-402)

REV. / PAGE	0	1	2	3	4	5	REV. / PAGE	0	1	2	3	4	5
A	X	X											
B	X	X											
1	X	X											
2	X	X											
3	X	X											
4	X	X											
5	X	X											
6	X	X											

5					
4					
3					
2					
1	23/02/2021	M.A.	M.N.		
0					
Revision	Date	Prepared By	Checked By	Approved By	Status

Document Revision	
Document No.:	Rev. : 01
Owner Job No.:	Type: DAS
	Page : A

PROJECT:PP-PE PILOT PLANT				Client:		 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
TITLE:DATA SHEET FOR C-401 DISCHARGE DRUM(V-402)							
1	Item No.:V-401	Quantity: 1	Location: Outdoor	Service:	Continuous		
2	<b>DESIGN CONDITIONS</b>						
3							
4			<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>		
5	Operating Temperature(Min./Max.)	°C	-30/+75	-/-	-/-		
6	Operating Pressure	barg	27	-	-		
7	Density	kg/m <sup>3</sup>	32	-	-		
8	Design Pressure(int./ext.)	barg	35	-/-	-/-		
9	Design Temperature(int./ext.)	°C	-60/+180	-/-	-/-		
10	Volume(total)	m <sup>3</sup>	0.31	-	-		
11	Hydro Test Pressure	barg	as per UG99b(33)	-	-		
12	Corrosion Allowance(shell/head)	mm	0/0	-/-	-/-		
13	Cladding (shell/head)	mm	- / -	-/-	-/-		
14	Content @ normal operation	Propane+Ethylene+Hydrogen		-	-		
15	Thickness(shell/head)	mm	14/14	-/-	-/-		
16	Welding Radiography(shell/head)	%	Full/Full	-/-	-/-		
17	Joint Efficiency(shell/head)		1/1	-/-	-/-		
18	Top Head Type		2:1 Elipsoidal	-	-		
19	Bottom Head Type		2:1 Elipsoidal	-	-		
20	Design code:	ASME SEC. VIII DIV.1		Inspection code:	ASME SEC. IX		
21	Cylinder Deminsion(IDxT.L-T.L):	534 x 1100	mm	Lethal Service:	<input type="radio"/> Yes	<input checked="" type="radio"/> No	
22	M.D.M.T @ D.P:	-45	°C	M.A.T:	-		°C
23	M.A.W.P:	71.474	barg	Limited by:	Cylinder		
24	Impact Test:	Not Required		P.W.H.T:	Not Required		
25	N.D.T:	Required		Vessel lining detail:	NIL		
26	HIC/SSC resistance:	NA	/	NA	Painting & Coating:	as per code	
27	Insulation thickness:	30	mm	Insulation type:	ET & IH		
28	Fireproofing :	Yes		Vessel located on:	Foundation		
29	Seismic code:	UBC 1997		Seismic Zone:	3		
30	Impotance factor:	1.25		Soil Profile:	SD		
31	Wind code:	UBC		Wind velocity:	120	km/hr @ 10 m	
32	Impotance factor:	1.15		Exposure:	C		
33	<b>Support loading data(Note 5)</b>			<b>Weight(kg) (Note 5)</b>	Fabricated:	450	
34		Earthquake	Wind		Empty:	450	
35	Shearing load(kgf)	50	55		Test:	693	
36	Moment(kg.m)	60	65		Operation:	450	
37	<b>MISCELLANEOUS(Note 2,10)</b>						
38							
39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate		<input type="radio"/> Weir plate			
40	<input type="radio"/> Diffuser	<input type="radio"/> Distributer		<input type="radio"/> Trunnion			
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet		<input type="radio"/> Template			
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister		<input checked="" type="radio"/> Pickling & passivation			
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh		<input checked="" type="radio"/> Earthing boss			
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate		<input type="radio"/> Dip pipe			
45	<input checked="" type="radio"/> Fire Proofing Support	<input type="radio"/> Internal lining					
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting					
47	<input type="radio"/> Heating coil	<input type="radio"/> Internal clips					
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips					
				Document No.: 300-DAS-A4-EQ-0077		Rev. : 01	
				Owner Job No.:		Type: DAS	
						Page : A	



PROJECT:PP-PE PILOT PLANT

TITLE:DATA SHEET FOR C-401 DISCHARGE DRUM (V-402)

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

**MATERIALS(NOTE 2)**

4	Shell(Main/Jacket)		SA240-304 /	Earth lug	SA240-316
5	Head(Main/Jacket)		SA240-304 /	Stiffening rings	-
6	Nozzle Necks (Main/Jacket)	Plate	- /	Gaskets	Spiral Wound
7		Pipe	SA312-304 /	Ext. bolt/Nuts	SA193-B7/SA194-2H
8	Cladding		-	Int. bolt/Nuts	SA193-B8/SA194-8
9	Nozzle flanges		SA182-F304	Wire mesh	-
10	Blind flanges		SA182-F304	Welded clip	SA240-304
11	Reinforcing pad		SA240-304	Int. welded	-
12	Fitting		SA403-304	Int. removable	-
13	Saddle	Leg	SA240-304	Anchor/Setting bolts	SA307 B
14		Base plate	SA283-C	Ladder/Platform	-
15		leg/lug pad	SA240-304	Insulation Mateial	MINERAL WOOL
16	Lifting lug		SA240-304		

**NOZZLE DETAILS(NOTE 2,3,4,7,8)**

Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks
		Rating	Type	Face				Width	Thk.		
21	Top Head										
22	P1	1"	900#	LWN	RF	t=14.3	Vent	See dwg	-	-	ANSI B16.5
23	P2	1"	900#	LWN	RF	t=14.3	Gas Outlet	See dwg	-	-	ANSI B16.5
24	P3	1"	900#	LWN	RF	t=14.3	Recycle	See dwg	-	-	ANSI B16.5
25											
26											
27	Shell										
28	P4	1"	900#	LWN	RF	t=14.3	Product Inlet	See dwg	-	-	ANSI B16.5
29											
30	K1	1 1/2"	900#	LWN	RF	t=16	Temperature	See dwg	-	-	ANSI B16.5
31											
32											
33	Bottom Head										
34	P5	1/2"	900#	LWN	RF	t=12.65	Drain	See dwg	-	-	ANSI B16.5
35			1			1					
36											
37											
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42											
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\*)Finishing of the gasket contacting face : smooth finish Ra=3.2µm (125µinch)

	Document No.: 300-DAS-A4-EQ-0077	Rev. : 01
	Owner Job No.:	Type: DAS
		Page : A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR C-401 DISCHARGE DRUM (V-402)

1

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**NOZZLE LOADING DATA(NOTE 1)**

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**REFRENE DOCUMENTS**

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No.

Document No.

Document Title

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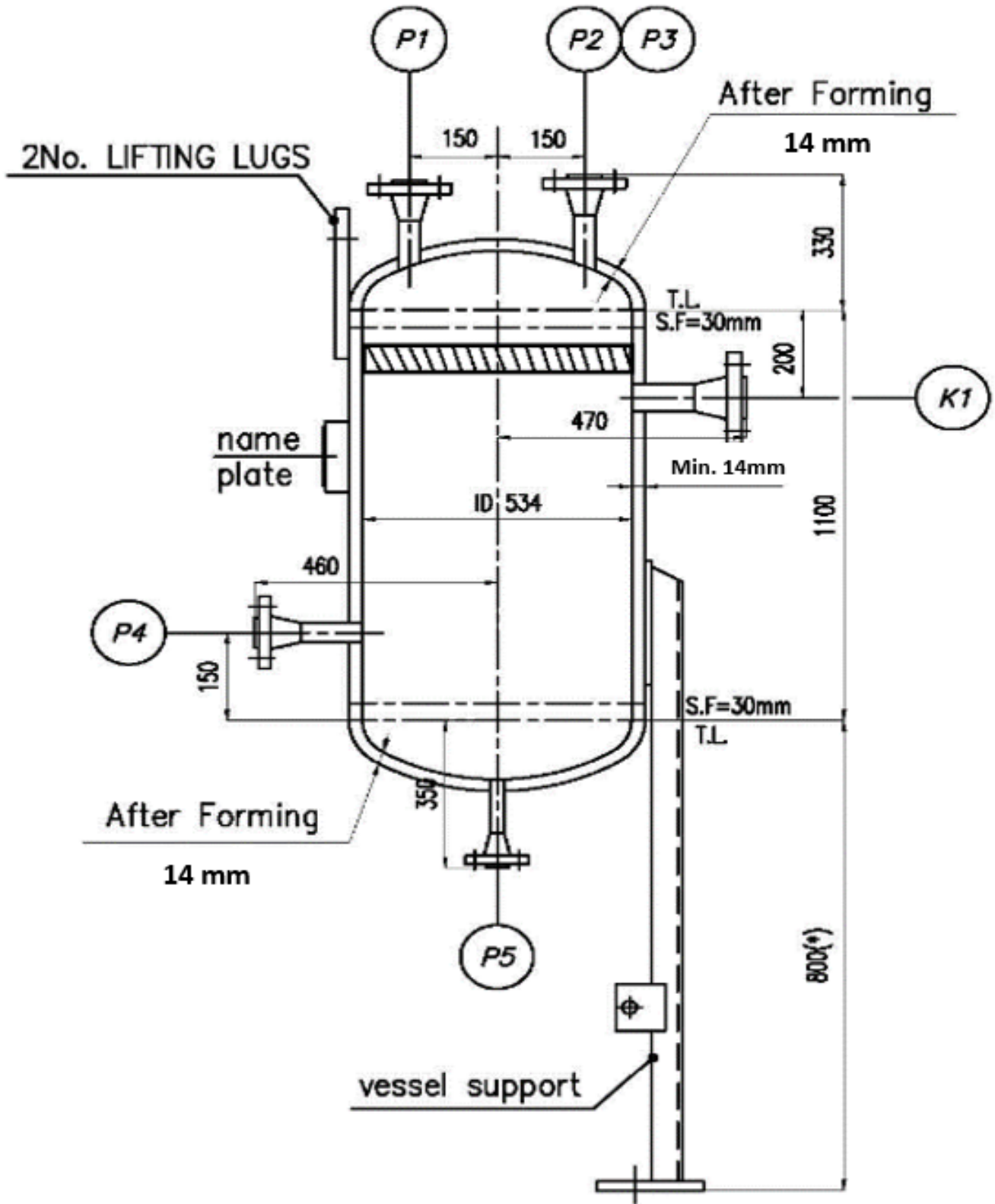
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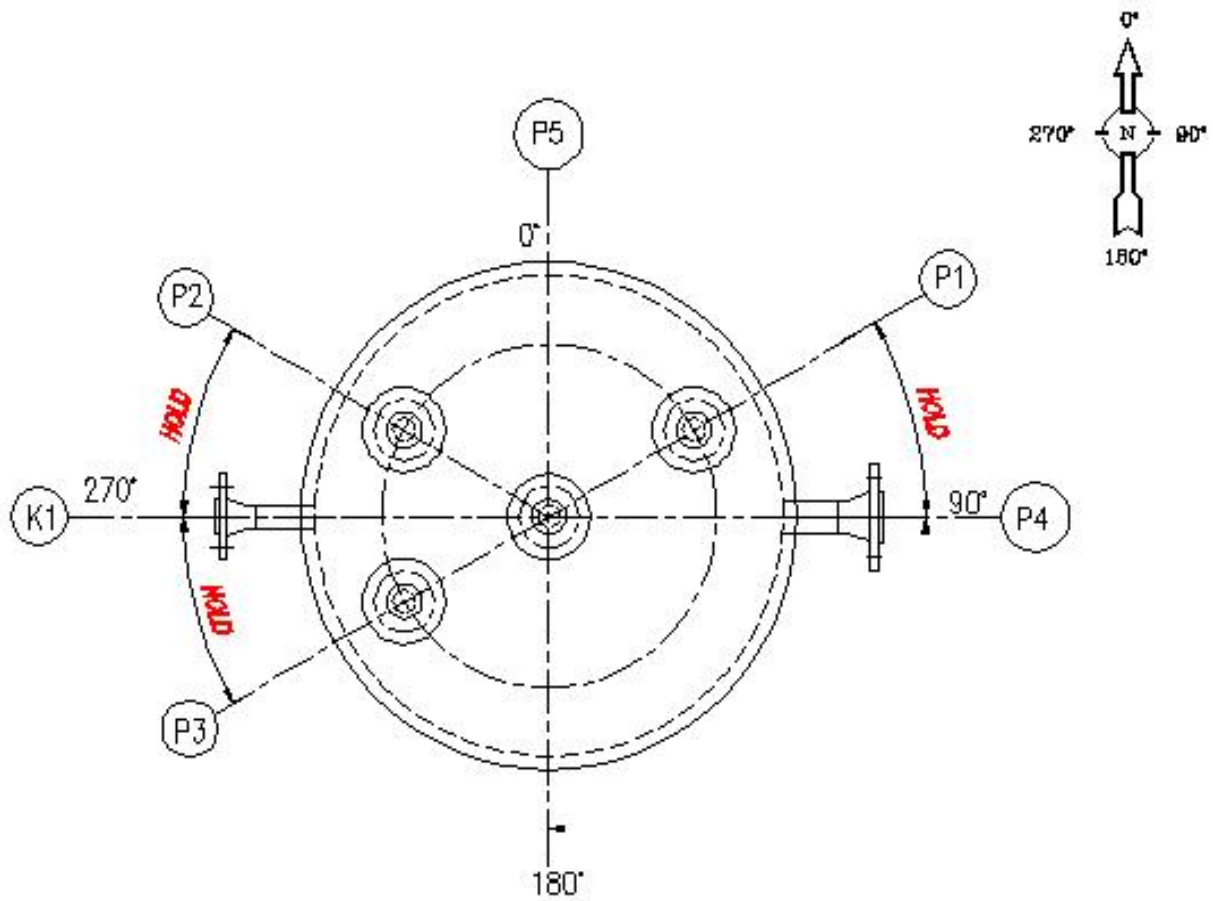
Rev. : 01

Owner Job No.:

Type: DAS

Page : A





Orientation (HOLD)

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR C-401 DISCHARGE DRUM (V-402)

**General Notes:**

- 1- SHALL BE SPECIFIED BY VENDOR .
- 2- SHALL BE VERIFIED BY VENDOR.
- 3- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.
- 4- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.
- 5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 6- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF ELLIPTICAL/TORISPHERICAL HEADS SHALL BE IN NO CASE SMALLER THAN VESSEL SHELL THICKNESS.VENDOR SHALL CHECK AND GUARANTEE THEM ON STRENGTH.
- 7- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 8- UNLESS OTHERWISE NOTED OUTSIDE PROJECTION OF NOZZLES ARE MEASURED FROM C.L./T.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE.
- 9- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 10- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 11- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 12- SURFACE PREPARATAION,PICKLING&PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER.
- 13- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.
- 14- FINISHING OF THE GASKET CONTACTING FACE: SMOOTH FINISH RA=3.2μM (125μINCH)
- 15- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.: 300-DAS-A4-EQ-0077

Rev. : 01

Owner Job No.:

Type: DAS

Page : A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for TEA storage vessel (V-123)

## Data Sheet for TEA storage vessel (V -123)

Document No.:

Rev. : 00

Owner Job No.:

Type: DAS

Page : A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for TEA storage vessel (V-123)

REV. PAGE	0	1	2	3	4	5	REV. PAGE	0	1	2	3	4	5
A	X												
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<b>Revision</b>	<b>Date</b>	<b>Prepared By</b>	<b>Checked By</b>	<b>Approved By</b>
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	Document No.:	Rev. : 00
	Owner Job No.:	Type: DAS
		Page : B



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

# Data Sheet

## Vessel

Technical Abbreviation: **V**

Project: **PP-PE PILOT PLANT**

Country **IRAN**

Company: **NPC-RT**

Location: **ARAK**

Document n°

Page

1

Type: **Vessel**

Manufacturer:

Location: **Indoors**

Item No.: **V-123**

No. required: **1**

Contract No.:

Description: **TEA storage vessel**

Area: **100**

Service/mode of operation:

continuous  discontinuous

### General Data

Shell diameter ID: **1200 mm** Nominal volume: **1.6 m<sup>3</sup>** Height (cyl.): **1400 mm**

Internals:  no  yes, - Type:

Other features:  no  yes, - Type:

Location:  indoors  outdoors

Supports:

Others:

### Operating Conditions

		Vessel	Jacket	Internal Coil
14	Volume m <sup>3</sup>	<b>2</b>		
15	Medium/physical properties	<b>Hexane + TEA</b>		
16	Max. operating temperature °C	<b>40</b>		
17	Operating pressure barg	<b>0.2 ÷ 1.2</b>		
18	Physical state (g/l/s)	<b>liquid</b>		
19	Density kg/m <sup>3</sup>	<b>680</b>		
20	pH-value min/max.			
21	Operating volume m <sup>3</sup>	<b>1.7</b>		
22	Errosive/Corrosive due to			
23	Concentration %			
24	Min./max. level during operation mm	<b>-/-</b>		<b>/</b>

### Design Data

		Vessel	Jacket	Internal Coil
29	Design code:			
29	Inspection by:			
29	Design code section:			
31	Volume (total) m <sup>3</sup>	<b>2</b>		
32	Design over pressure (minimum) barg	<b>6/-1</b>		
33	Testing over-pressure/medium barg	<b>9</b>		
34	Design temperature (minimum) °C	<b>-30/200</b>		
35	Corrosion allowance mm			
36	Welding radiography %	<b>15</b>		
37	Pressure/vacuum test; type bar			
38	Nominal volume m <sup>3</sup>	<b>1.6</b>		
39	Thickness mm	<b>8 NOTE1</b>		
40	Surface finish/treatment			
41	Safety device			

Others: ratio: **L (cyl.) / D = ~1.2**

Weld finish:  no  yes, - Type:

Thermal treatment:  no  yes

Loads/moments [N/m]:

Empty weight [kN]:

Max. weight [kN]:

Assembly weight [kN]:

Insulation:  no  yes, - Type: **IA**

Thickness [mm]:

Seismic factor:  none  factor:

Wind load [N/m<sup>2</sup>]:

### Comments

**TEAL in Hexane (10% wt)**

**Top head is elliptical head Ratio 2:1**

All data have to be checked during basic engineering





شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

# Data Sheet

## Vessel

Technical Abbreviation: **V**

Project: **PP-PE PILOT PLANT**

Country **IRAN**

Company: **NPC-RT**

Location: **ARAK**

Document n°

Page

2

Type: **Vessel**

Manufacturer:

Location: **Indoors**

Item No.: **V-123**

No. required: **1**

Contract No.:

Description: **TEA storage vessel**

Area: **100**

Service/mode of operation:

continuous  discontinuous

### Material of Construction

	Standard/certificate	Standard/certificate	Standard/certificate
	<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>
5			
6			
7			
8	<b>S.S. AISI 304</b>		
9			
10			
11			
12			
13	<b>CLASS 1</b>		
14			
15			
16	<b>1</b>		
17			
18			
19			
20			
21			

### Details concerning transport, scope of supplies & services

22			
23			
24	Transport volume [m <sup>3</sup> ]:	transport weight [kN]:	Protective coating: <input type="checkbox"/> no <input type="checkbox"/> yes, - Type:
25	Registration:	Date of delivery:	Place of delivery:
26	site of inspection:		
27	Quality Control :		
28	Language of documentation:	<input checked="" type="checkbox"/> english	<input type="checkbox"/> german
29	Drawings:		

### Nozzle Details

	Designation	DN	PN	Facing	Flange	Standard	Length nozzle	Comments
32								
33	<b>Top head</b>							
34	<b>P1</b> Product inlet	1½"	300#	RF	WN	ANSI		With ½"pipe inlet L=300
35	<b>P2</b> Product outlet	1½"	300#	RF	WN	ANSI		With ½"dip pipe
36	<b>P3</b> Gas phase	1"	300#	RF	WN	ANSI		
37								
38	<b>K1</b> Level	2"	150#	RF	WN	ANSI		
39								
40	<b>Shell</b>							
41	<b>K2</b> Level Switch	1½"	300#	RF	WN	ANSI		
42								
43								
44								
45								
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48								
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### Comments

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شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

# Data Sheet

## Vessel

Technical Abbreviation: **V**

Project: **PP-PE PILOT PLANT**

Country **IRAN**

Company: **NPC-RT**

Document n° Page

Location: **ARAK**

3

Type: **Vessel**

Manufacturer:

Location: **Indoors**

Item No.: **v-123**

No. required: **1**

Contract No.:

Description: **TEA storage vessel**

Area: **100**

Service/mode of operation:  continuous  discontinuous

Nozzle Details								
	Designation	DN	PN	Facing	Flange	Standard	Length nozzle	Comments
5								
6								
7								
8								
9								
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40 - All nozzle details and positions have to be defined and checked during basic detail  
41 engineering.

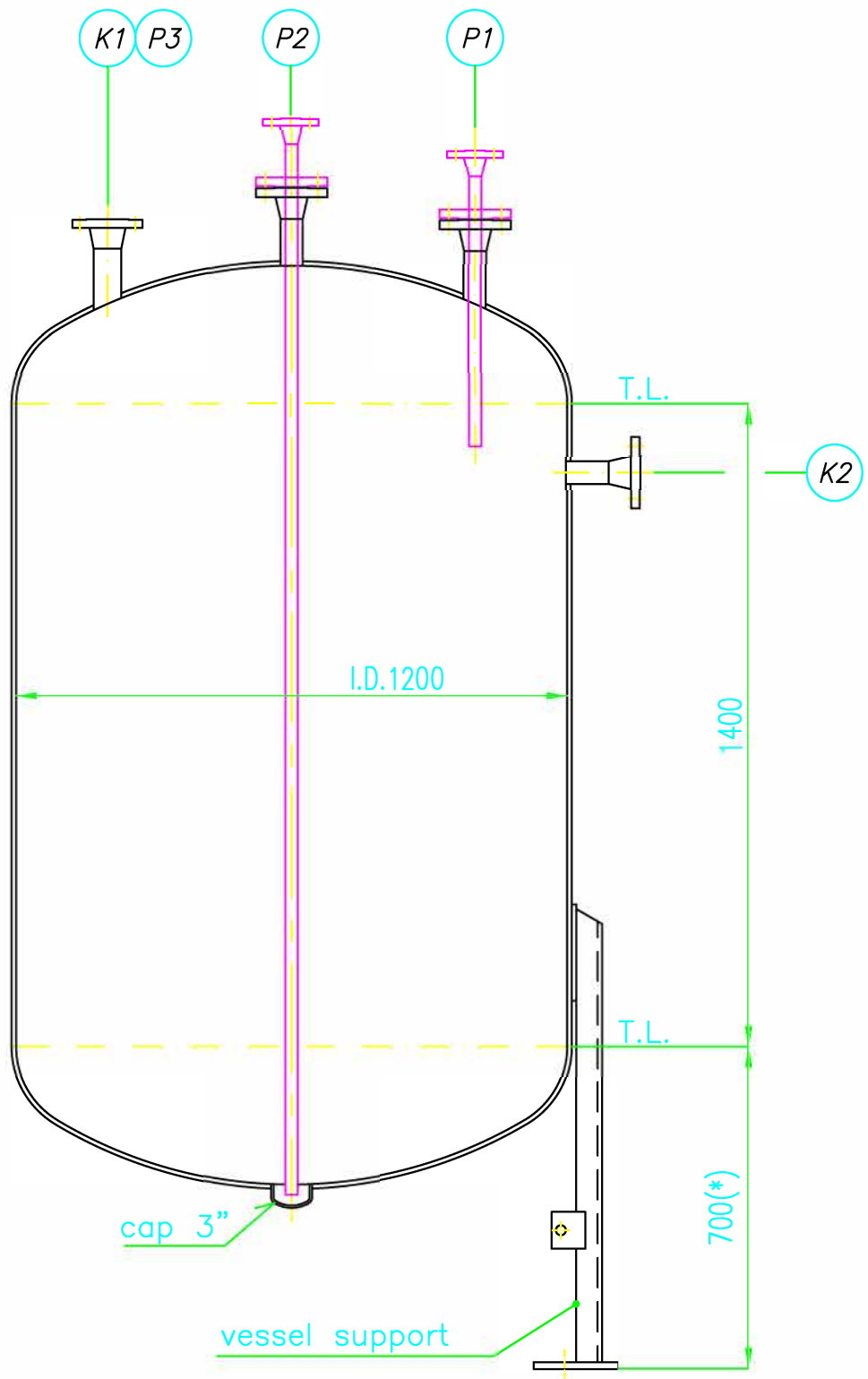
### Sketch

43 Sketch available:  yes, attached  no

45 NOTE1 To be checked by VENDOR

46 NOTE2 DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR

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\*) - To be define

B				U.E.	DRAWING N.	Page	
						04	
				U.D.	PLANT	CT	
	01 FIRST ISSUE			2021-11-11	IR PP-PE	V	
This drawing contains CONFIDENTIAL and PROPRIETARY information by BASELL Polyolefins. This information has not to be used, or disclosed to anyone outside of BASELL Polyolefins and its subsidiaries, except pursuant to a written agreement with BASELL Polyolefins.			Project: PP-PE PILOT PLANT		2021/11/11		
			Title: TEAL STORAGE VESSEL		DWG issued by: BASELL Polyolefins Italia S.p.A. - Research Centre "Gidlo Natta" P.le Donegani, 12 - 44100 Ferrara (Italy)	Scale: 1:15	
			File name: V-123-312155_001_01.dwg	ITEM: V-123	Company: NPC-RT	Location: ARAK	Country: IRAN

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR ALKYL METERING DRUM(V-121)

## DATA SHEET FOR ALKYL METERING DRUM(V-121)

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page A

PROJECT:PP-PE PILOT PLANT

Client:




TITLE:DATA SHEET FOR ALKYL METERING DRUM(V-121)

REV. PAGE	0	1	2	3	4	5	REV. PAGE	0	1	2	3	4	5
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Revision	Date	Prepared By	Checked By	Approved By	Status

Document Revision


Document No.:	Rev. : 0
Owner Job No.:	Type: DAS
	Page B

<b>PROJECT:PP-PE PILOT PLANT</b>	<b>Client:</b>
<b>TITLE:DATA SHEET FOR ALKYL METERING DRUM(V-121)</b>	 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی

1	Item No.:V-121	Quantity: 1	Location: Outdoor	Service:	Continuous
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2	<b>DESIGN CONDITIONS</b>				
3					

			Vessel	Jacket	Internal Coil
4					
5	Operating Temperature(Min./Max.)	°C	-/30	-/-	-/-
6	Operating Pressure	barg	0.11	-	-
7	Density	kg/m <sup>3</sup>	640	-	-
8	Design Pressure(int./ext.)	barg	6/-	-/-	-/-
9	Design Temperature	°C	-45++150	-/-	-/-
10	Volume(total)	m <sup>3</sup>	0.13	-	-
11	Hydro Test Pressure	barg	as per UG99b(33)	-	-
12	Corrosion Allowance(shell/head)	mm	0/0	-/-	-/-
13	Cladding (shell/head)	mm	-/-	-/-	-/-
14	Content @ normal operation		Hexane+Alkyl	-	-
15	Thickness(shell/head)	mm	7 / 7	-/-	-/-
16	Welding Radiography(shell/head)	%	Full/Full	-/-	-/-
17	Joint Efficiency(shell/head)		1/1	-/-	-/-
18	Top Head Type		STD CAP	-	-
19	Bottom Head Type		STD CAP	-	-
20	No. of Baffles		4 (Thk. : 4mm)		

21	Design code:	ASME SEC. VIII DIV.1		Inspection code:	as per code
22	Cylinder Deminsion(IDxT.L-T.L):	400 x 1000	mm	Lethal Service:	<input type="radio"/> Yes <input checked="" type="radio"/> No
23	M.D.M.T @ D.P:	-45	°C	M.A.T:	- °C
24	M.A.W.P:	barg	Limited by:	Stamp:	Not Required
25	Impact Test:	Not Required		P.W.H.T:	NIL
26	N.D.T:	Required		Vessel lining detail:	NIL
27	HIC/SSC resistance:	NIL	/	NIL	Painting & Coating:
28	Insulation thickness:	40	mm	Insulation type:	Electrical tracing + IA
29	Fireproofing thickness:	(Note 17)	mm	Vessel located on:	Structrue
30	Seismic code:	UBC 1997		Seismic Zone:	3
31	Impotance factor:	1.25		Soil Profile:	-
32	Wind code:	UBC		Wind velocity:	120 km/hr @ 10 m
33	Impotance factor:	1.15		Exposure:	C

34	<b>Support loading data(Note 5)</b>			<b>Weight(kg) (Note 5)</b>	Fabricated:	
35		Earthquake	Wind		Empty:	150 kg
36	Shearing load(kgf)	16.5	30		Test:	
37	Moment(kg.m)	8	15		Operation:	

38	<b>MISCELLANEOUS</b>				
39					

40	<input checked="" type="radio"/> Baffle	41	<input type="radio"/> Impingement plate	42	<input type="radio"/> Weir plate
41	<input type="radio"/> Diffuser	42	<input type="radio"/> Distributer	43	<input type="radio"/> Trunnion
42	<input type="radio"/> Vortex breaker	43	<input type="radio"/> Tubesheet	44	<input type="radio"/> Template
43	<input type="radio"/> Boot / Cap	44	<input type="radio"/> Demister	45	<input checked="" type="radio"/> Pickling & passivation
44	<input checked="" type="radio"/> Insulation Support	45	<input type="radio"/> Wire mesh	46	<input checked="" type="radio"/> Earthing boss
45	<input type="radio"/> Fire Proofing	46	<input checked="" type="radio"/> Name plate	47	<input checked="" type="radio"/> Dip pipe
46	<input type="radio"/> Fire Proofing Support	47	<input type="radio"/> Internal lining		
47	<input type="radio"/> Ladder & platform (int. & ext.)	48	<input type="radio"/> Sand blast & painting		
48	<input type="radio"/> Heating coil	49	<input type="radio"/> Internal clips		
49	<input checked="" type="radio"/> Lifting lug		<input type="radio"/> External clips		

	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page 1

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR ALKYL METERING DRUM(V-121)

1													
2	<b>MATERIALS(NOTE 1)</b>												
3													
4	Shell(Main/Jacket)	SA312-304 /					Earth lug	SA240-316					
5	Head(Main/Jacket)	SA403-304 /					Stiffening rings	NA					
6	Nozzle Necks (Main/Jacket)	Plate	NA /					Gaskets	to be specified by vendor				
7		Pipe	SA312-304 /					Ext. bolt/Nuts	SA193-B7/SA194-2H				
8	Cladding	NA					Int. bolt/Nuts	SA320-B8/SA194-8					
9	Nozzle flanges	SA182-304					Wire mesh	NA					
10	Blind flanges	SA182-304					Welded clip	NA					
11	Reinforcing pad	SA240-304					Int. welded	SA240-304					
12	Fitting	SA403-304					Int. removable	NA					
13	Support	Pad plate	SA240-304					Anchor/Setting bolts	SA307-B				
14		Lug	SA240-304					Ladder/Platform	NA				
15		-	-					Insulation Mateial	MINERAL WOOL				
16	Lifting lug	SA240-304					Baffle	SA312-304					
17	<b>NOZZLE DETAILS(NOTE 2,3,8)</b>												
18													
19	Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks	
20			Rating	Type	Face				Width	Thk.			
21	Top Head												
22	P1	1/2"	300#	WN	RF	40S	CO-Catalyst Inlet	-	-	-	ANSI B16.5	See DWG.	
23	P2	1/2"	300#	WN	RF	40S	Nitrogen Inlet	-	-	-	ANSI B16.5	See DWG.	
24	P3	1"	300#	WN	RF	40S	Vent	-	-	-	ANSI B16.5	See DWG.	
25	Pad Flang	6"	300#		RF	40S	Agitator				ANSI B16.5	See DWG.	
26	K1	1 1/2"	300#	WN	RF	40S	Level Alarm	-	-	-	ANSI B16.5	See DWG.	
27													
28	Shell												
29	P4	1/2"	300#	WN	RF	40S	Recycle	-	-	-	ANSI B16.5	See DWG.	
30													
31	K2a	3/4"	300#	WN	RF	40S	Level Indication	-	-	-	ANSI B16.5	See DWG.	
32	K3	1"	300#	WN	RF	40S	Level Alarm Switch	-	-	-	ANSI B16.5	See DWG.	
33													
34													
35	Bottom Head												
36	P5	1/2"	300#	WN	RF	40S	Drain	-	-	-	ANSI B16.5	See DWG.	
37	P6	1/2"	300#	WN	RF	40S	Catalyst Outlet	-	-	-	ANSI B16.5	See DWG.	
38													
39	K2b	3/4"	300#	WN	RF	40S	Level Indication	-	-	-	ANSI B16.5	See DWG.	
40													
41													
42													
43													
44													
45													
46													
47													
48													

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page 2



TITLE:DATA SHEET FOR ALKYL METERING DRUM(V-121)

1

2

NOZZLE LOADING DATA(NOTE 6)

3

No.	Nozzle Name	FL (kgf)	FA (kgf)	FC (kgf)	MC (kg.m)	MT (kg.m)	ML (kg.m)
4							
5							
6	P1						
7	P2						
8	P4						
9	P5						
10	P6						
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

21

REFRENC DOCUMENTS

22

No.	No.	Document No.	Document Title
23			
24	1		
25	2		
26	3		
27	4		
28	5		
29	6		
30	7		
31	8		
32	9		
33	10		
34	11		
35	12		
36	13		
37	14		
38	15		
39	16		
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42	19		
43	20		
44	21		
45	22		
46	23		
47	24		
48	25		

Document No.:

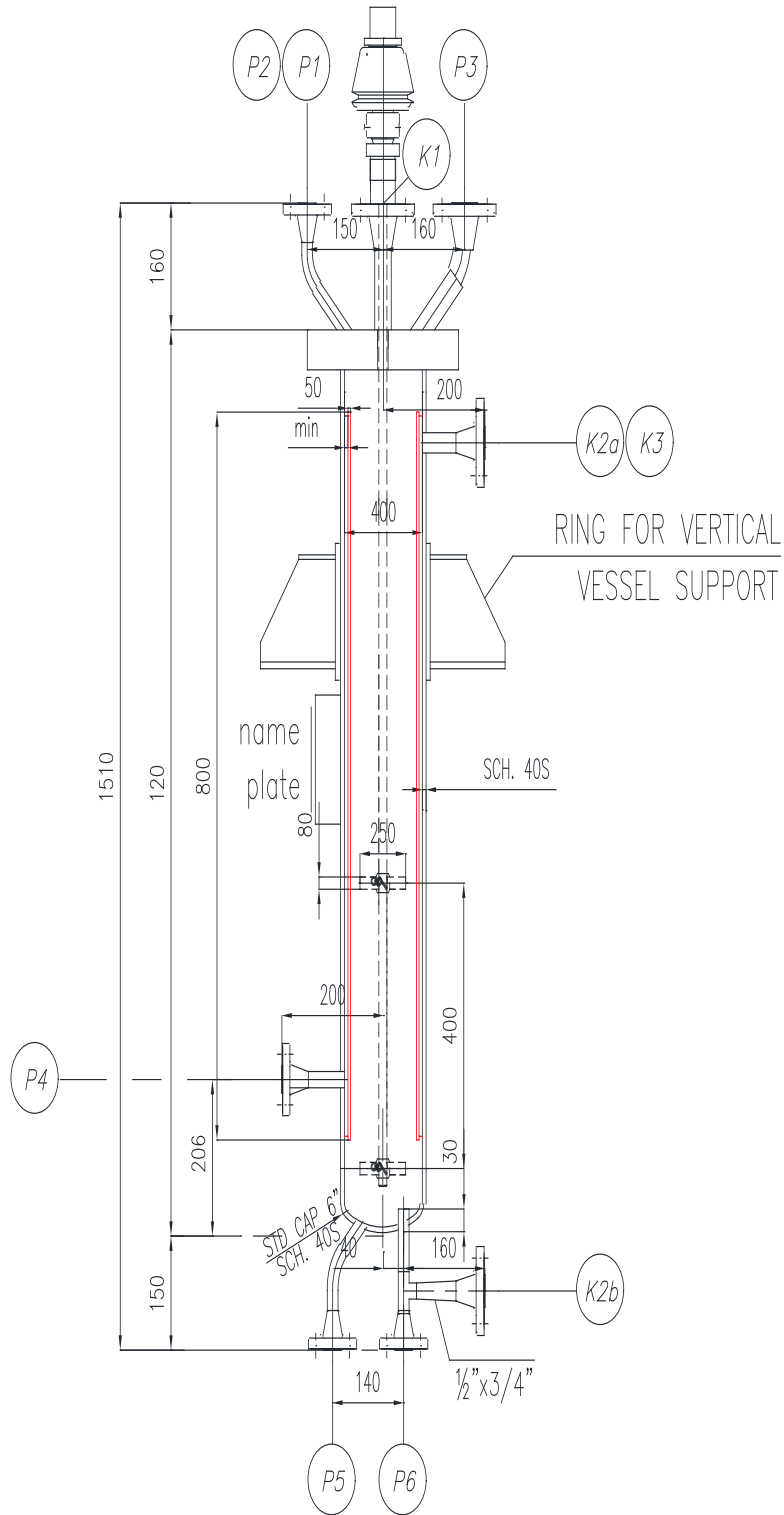
Rev. : 0

Owner Job No.:

Type: DAS

Page 3





**Side View**  
3

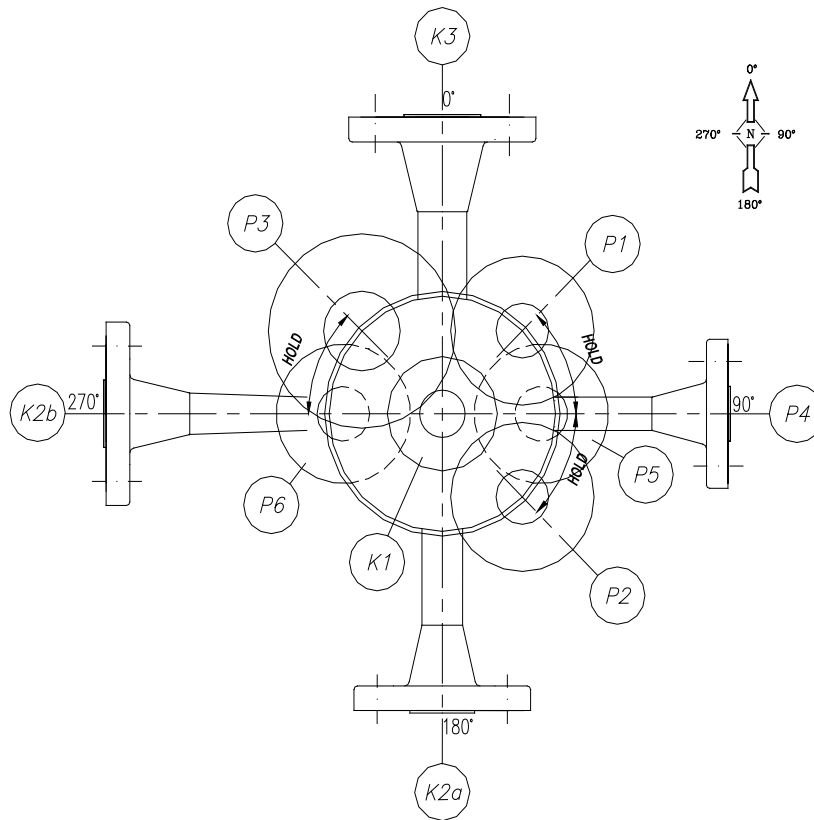
Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page 4



**Orientated (HOLD)**




Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page 5

PROJECT:PP-PE PILOT PLANT	Client:  شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی
TITLE:DATA SHEET FOR ALKYL METERING DRUM(V-121)	

**General Notes:**

- 1- SHALL BE VERIFIED BY VENDOR.
- 2- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.
- 3- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.
- 4- THICKNESSES INDICATED ON ENG. DRAWING ARE Min. PURCHASER REQUIREMENT. VENDOR SHALL CHECK AND GUARANTEE THEM ON STRENGTH.
- 5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 6- SHALL BE SPECIFIED BY VENDOR .
- 7-SURFACE PREPARATAION,PICKLING&PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER
- 8- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 9- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 10- ALL NDT (RT, UT AND PT/MT) SHALL BE PERFORMED BEFORE AND AFTER PWHT .
- 11- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.
- 12- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 13- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF ELLIPTICAL/TORISPHERICAL HEADS SHALL BE IN NO CASE SMALLER THAN VESSEL SHELL THICKNESS.
- 14- ALL TAILED DIMENSIONS ARE MEASURED FROM B.L.
- 15- UNLESS OTHERWISE NOTED OUTSIDE PROJECTIONS OF NOZZLES ARE MEASURED FROM C.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE.
- 16- FLANGE FACE FINISHING SHALL BE SMOOTHED WITH 125-250 MICROINCH AVEREGAE ROUGHNESS
- 17- WILL BE SPECIFIED LATER.
- 18- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 19- DESIGN TEMPERATURE (INT/EXT.): 150/- C
- 20- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET for DONOR METERING DRUM(V-131)

## DATA SHEET for DONOR METERING DRUM(V-131)

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET for DONOR METERING DRUM(V-131)

REV. PAGE	0	1	2	3	4	5	REV. PAGE	0	1	2	3	4	5
A	X												
B	X												
1	X												
2	X												
3	X												
4	X												
5	X												
6	X												

5					
4					
3					
2					
1					
0	2021-11-27	K.A	M.N	AA.SH	AFC
<b>Revision</b>	<b>Date</b>	<b>Prepared By</b>	<b>Checked By</b>	<b>Approved By</b>	<b>Status</b>

Document Revision

	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page B

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET for DONOR METERING DRUM(V-131)

1	Item No.:V-131	Quantity: 1	Location: Outdoor	Service: Continuous	
2	<b>DESIGN CONDITIONS</b>				
3					
4		<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>	
5	Operating Temperature(Min./Max.) °C	-/30	-/-	-/-	
6	Operating Pressure barg	1.5	-	-	
7	Density kg/m <sup>3</sup>	640	-	-	
8	Design Pressure(int./ext.) barg	6/-	-/-	-/-	
9	Design Temperature °C	-45++150	-/-	-/-	
10	Volume(total) m <sup>3</sup>	0.13	-	-	
11	Hydro Test Pressure barg	as per UG99b(33)	-	-	
12	Corrosion Allowance(shell/head) mm	0/0	-/-	-/-	
13	Cladding (shell/head) mm	-/-	-/-	-/-	
14	Content @ normal operation	Hexane+Donor	-	-	
15	Thickness(shell/head) mm	7 / 7	-/-	-/-	
16	Welding Radiography(shell/head) %	Full/Full	-/-	-/-	
17	Joint Efficiency(shell/head)	1/1	-/-	-/-	
18	Top Head Type	STD CAP	-	-	
19	Bottom Head Type	STD CAP	-	-	
20	No. of Baffles	4 (Thk. : 4mm)			
21	Design code: ASME SEC. VIII DIV.1	Inspection code: as per code			
22	Cylinder Deminsion(IDxT.L-T.L) 40 x 1000 mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No			
23	M.D.M.T @ D.P: -45 °C	M.A.T: - °C			
24	M.A.W.P: barg Limited by:	Stamp: Not Required			
25	Impact Test: Not Required	P.W.H.T: NIL			
26	N.D.T: Required	Vessel lining detail: NIL			
27	HIC/SSC resistance: NIL / NIL	Painting & Coating: as per code			
28	Insulation thickness: 40 mm	Insulation type: Electrical tracing + IA			
29	Fireproofing thickness: (Note 17) mm	Vessel located on: Structure			
30	Seismic code: UBC 1997	Seismic Zone: 3			
31	Impotance factor: 1.25	Soil Profile: -			
32	Wind code: UBC	Wind velocity: 120 km/hr @ 10 m			
33	Impotance factor: 1.15	Exposure: C			
34	<b>Support loading data(Note 5)</b>		<b>Weight(kg) (Note 5)</b>	Fabricated: 70 kg	
35	Earthquake	Wind		Empty: 77 kg	
36	Shearing load(kgf)	16.5		30	Test: 100 kg
37	Moment(kg.m)	8		15	Operation: 90 kg
38	<b>MISCELLANEOUS</b>				
39					
40	<input checked="" type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate		
41	<input type="radio"/> Diffuser	<input type="radio"/> Distributer	<input type="radio"/> Trunnion		
42	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template		
43	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation		
44	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss		
45	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input checked="" type="radio"/> Dip pipe		
46	<input type="radio"/> Fire Proofing Support	<input type="radio"/> Internal lining			
47	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting			
48	<input type="radio"/> Heating coil	<input type="radio"/> Internal clips			
49	<input checked="" type="radio"/> Lifting lug	<input type="radio"/> External clips			

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page 1

PROJECT:PP-PE PILOT PLANT

Client:


 شرکت ملی صنایع پتروشیمی  
 شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET for DONOR METERING DRUM(V-131)

1													
2	<b>MATERIALS(NOTE 1)</b>												
3													
4	Shell(Main/Jacket)	SA312-304 /					Earth lug	SA240-316					
5	Head(Main/Jacket)	SA403-304 /					Stiffening rings	NA					
6	Nozzle Necks (Main/Jacket)	Plate	NA /					Gaskets	to be specified by vendor				
7		Pipe	SA312-304 /					Ext. bolt/Nuts	SA193-B7/SA194-2H				
8	Cladding	NA					Int. bolt/Nuts	SA320-B8/SA194-8					
9	Nozzle flanges	SA182-304					Wire mesh	NA					
10	Blind flanges	SA182-304					Welded clip	NA					
11	Reinforcing pad	SA240-304					Int. welded	SA240-304					
12	Fitting	SA403-304					Int. removable	NA					
13	Support	Pad plate	SA240-304					Anchor/Setting bolts	SA307-B				
14		Lug	SA240-304					Ladder/Platform	NA				
15		-	-					Insulation Mateial	MINERAL WOOL				
16	Lifting lug	SA240-304					Baffle	SA312-304					
17	<b>NOZZLE DETAILS(NOTE 2,3,8)</b>												
18													
19	Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks	
20			Rating	Type	Face				Width	Thk.			
21	Top Head												
22	P1	1/2"	300#	WN	RF	40S	Donor Inlet	-	-	-	ANSI B16.5	See DWG.	
23	P2	1/2"	300#	WN	RF	40S	Nitrogen Inlet	-	-	-	ANSI B16.5	See DWG.	
24	P3	1"	300#	WN	RF	40S	Vent	-	-	-	ANSI B16.5	See DWG.	
25	Pad Flang	6"	300#		RF	40S	Agitator				ANSI B16.5	See DWG.	
26	K1	1 1/2"	300#	WN	RF	40S	Level Alarm	-	-	-	ANSI B16.5	See DWG.	
27													
28	Shell												
29	P4	1/2"	300#	WN	RF	40S	Spare	-	-	-	ANSI B16.5	See DWG.	
30													
31	K2a	3/4"	300#	WN	RF	40S	Level Indication	-	-	-	ANSI B16.5	See DWG.	
32	K3	1"	300#	WN	RF	40S	Level Alarm Switch	-	-	-	ANSI B16.5	See DWG.	
33													
34													
35	Bottom Head												
36	P5	1/2"	300#	WN	RF	40S	Drain	-	-	-	ANSI B16.5	See DWG.	
37	P6	1/2"	300#	WN	RF	40S	Donor Outlet	-	-	-	ANSI B16.5	See DWG.	
38													
39	K2b	3/4"	300#	WN	RF	40S	Level Indication	-	-	-	ANSI B16.5	See DWG.	
40													
41													
42													
43													
44													
45													
46													
47													
48													

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page 2

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET for DONOR METERING DRUM(V-131)

1 |  
2 | **NOZZLE LOADING DATA(NOTE 6)**  
3 |

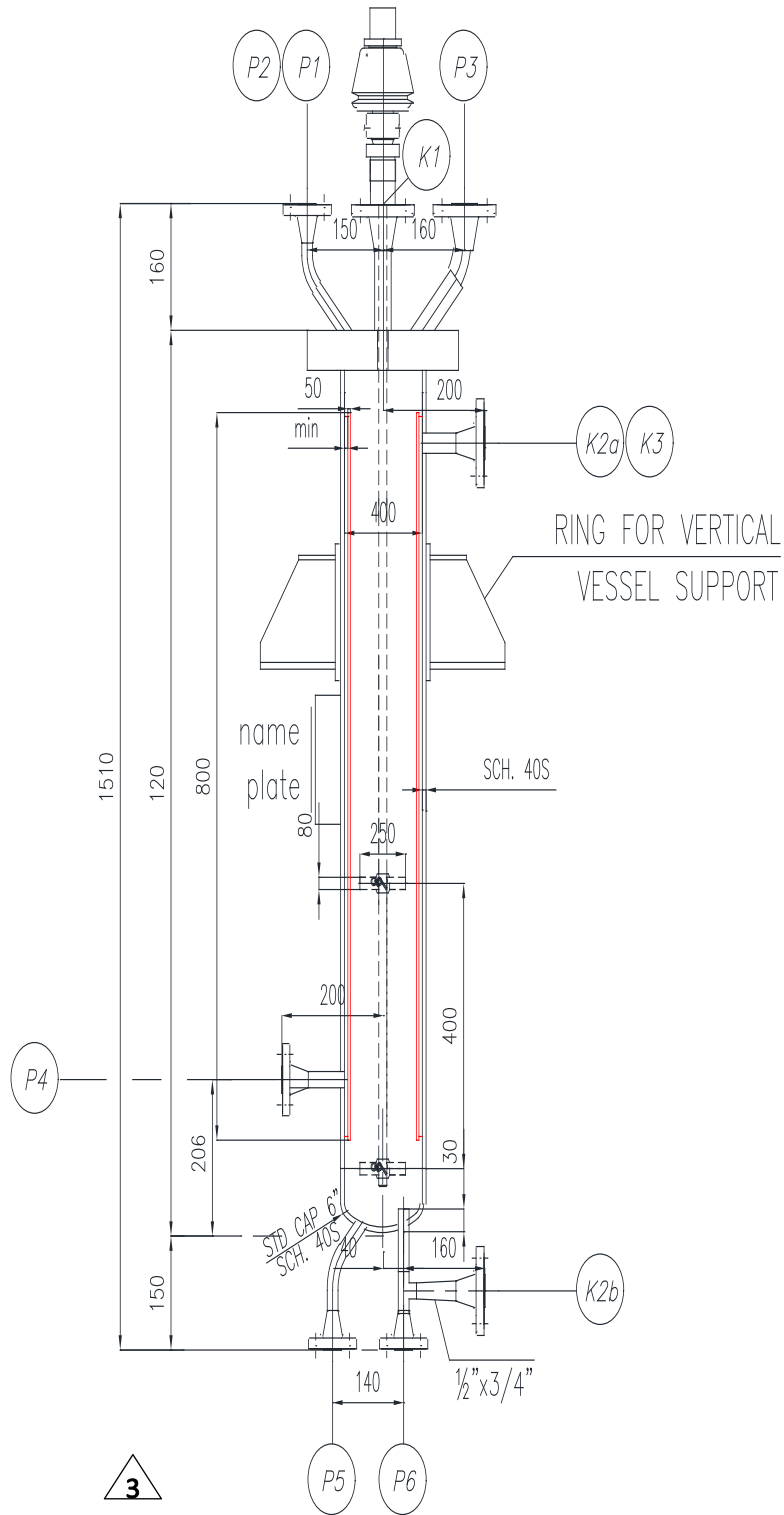
No.	Nozzle Name	FL (kgf)	FA (kgf)	FC (kgf)	MC (kg.m)	MT (kg.m)	ML (kg.m)
4							
5							
6	P1						
7	P2						
8	P4						
9	P5						
10	P6						
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

21 | **REFRENCE DOCUMENTS**  
22 |

No.	No.	Document No.	Document Title
23			
24	1		
25	2		
26	3		
27	4		
28	5		
29	6		
30	7		
31	8		
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41	18		
42	19		
43	20		
44	21		
45	22		
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48	25		

	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page 3





**Side View**

3

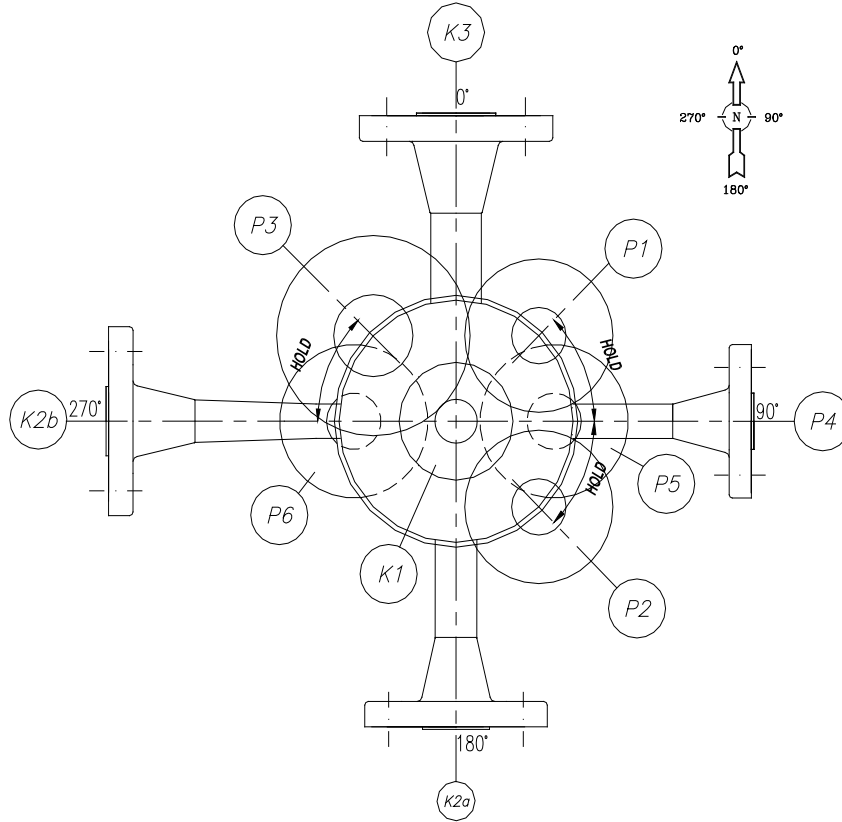
Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page 4



**Orientated (HOLD)**




Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page 5

PROJECT:PP-PE PILOT PLANT	Client:  شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی
TITLE:DATA SHEET for DONOR METERING DRUM(V-131)	

**General Notes:**

- 1- SHALL BE VERIFIED BY VENDOR.
- 2- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.
- 3- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.
- 4- THICKNESSES INDICATED ON ENG. DRAWING ARE Min. PURCHASER REQUIREMENT. VENDOR SHALL CHECK AND GUARANTEE THEM ON STRENGTH.
- 5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 6- SHALL BE SPECIFIED BY VENDOR .
- 7-SURFACE PREPARATAION,PICKLING&PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER
- 8- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 9- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 10- ALL NDT (RT, UT AND PT/MT) SHALL BE PERFORMED BEFORE AND AFTER PWHT .
- 11- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.
- 12- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 13- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF ELLIPTICAL/TORISPHERICAL HEADS SHALL BE IN NO CASE SMALLER THAN VESSEL SHELL THICKNESS.
- 14- ALL TAILED DIMENSIONS ARE MEASURED FROM B.L.
- 15- UNLESS OTHERWISE NOTED OUTSIDE PROJECTIONS OF NOZZLES ARE MEASURED FROM C.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE.
- 16- FLANGE FACE FINISHING SHALL BE SMOOTHED WITH 125-250 MICROINCH AVEREGAE ROUGHNESS
- 17- WILL BE SPECIFIED LATER.
- 18- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 19- DESIGN TEMPERATURE (INT/EXT.): 150/- °C
- 20- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR ATMER METERING DRUM(V-141)

## DATA SHEET FOR ATMER METERING DRUM(V-141)

Document No.:

Rev.: 0

Owner Job No.:

Type: DAS

Page A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی


TITLE:DATA SHEET FOR ATMER METERING DRUM(V-141)

REV. PAGE	0	1	2	3	4	5	REV. PAGE	0	1	2	3	4	5
A	X												
B	X												
1	X												
2	X												
3	X												
4	X												
5	X												
6	X												

5					
4					
3					
2					
1					
0	2021-11-27	K.A	M.N	AA.SH	AFC
<b>Revision</b>	<b>Date</b>	<b>Prepared By</b>	<b>Checked By</b>	<b>Approved By</b>	<b>Status</b>

Document Revision

	Document No.:	Rev.: 0
	Owner Job No.:	Type: DAS
		Page B

<b>PROJECT:PP-PE PILOT PLANT</b>	<b>Client:</b>
<b>TITLE:DATA SHEET FOR ATMER METERING DRUM(V-141)</b>	 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی

1	Item No.:V-141	Quantity: 1	Location: Outdoor	Service:	Continuous
---	----------------	-------------	-------------------	----------	------------

2	<b>DESIGN CONDITIONS</b>
3	

		Vessel	Jacket	Internal Coil
4				
5	Operating Temperature(Min./Max.) °C	-/30	-/-	-/-
6	Operating Pressure barg	1.5	-	-
7	Density kg/m <sup>3</sup>	640	-	-
8	Design Pressure(int./ext.) barg	6/-	-/-	-/-
9	Design Temperature °C	-45÷150	-/-	-/-
10	Volume(total) m <sup>3</sup>	0.13	-	-
11	Hydro Test Pressure barg	as per UG99b(33)	-	-
12	Corrosion Allowance(shell/head) mm	0/0	-/-	-/-
13	Cladding (shell/head) mm	-/-	-/-	-/-
14	Content @ normal operation	Hexane+Atmer	-	-
15	Thickness(shell/head) mm	7 / 7	-/-	-/-
16	Welding Radiography(shell/head) %	Full/Full	-/-	-/-
17	Joint Efficiency(shell/head)	1/1	-/-	-/-
18	Top Head Type	STD CAP	-	-
19	Bottom Head Type	STD CAP	-	-
20	No. of Baffles	4 (Thk. : 4mm)		

21	Design code: ASME SEC. VIII DIV.1	Inspection code: as per code
22	Cylinder Deminsion(IDxT.L-T.V) 3 400 x 1000 mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No
23	M.D.M.T @ D.P: -45 °C	M.A.T: - °C
24	M.A.W.P: - barg Limited by:	Stamp: Not Required
25	Impact Test: Not Required	P.W.H.T: NIL
26	N.D.T: Required	Vessel lining detail: NIL
27	HIC/SSC resistance: NIL / NIL	Painting & Coating: as per code
28	Insulation thickness: 40 mm	Insulation type: Electrical tracing + IA
29	Fireproofing thickness: (Note 17) mm	Vessel located on: Structrue
30	Seismic code: UBC 1997	Seismic Zone: 3
31	Impotance factor: 1.25	Soil Profile: -
32	Wind code: UBC	Wind velocity: 120 km/hr @ 10 m
33	Impotance factor: 1.15	Exposure: C
34	<b>Support loading data(Note 5)</b>	
35	Earthquake	Wind
36	Shearing load(kgf) 16.5	30
37	Moment(kg.m) 8	15
	<b>Weight(kg) (Note 5)</b>	
	Fabricated:	70 kg
	Empty:	77 kg
	Test:	100 kg
	Operation:	90 kg

38	<b>MISCELLANEOUS</b>
39	

40 ● Baffle	○ Impingement plate	○ Weir plate
41 ○ Diffuser	○ Distributer	○ Trunnion
42 ○ Vortex breaker	○ Tubesheet	○ Template
43 ○ Boot / Cap	○ Demister	● Pickling & passivation
44 ● Insulation Support	○ Wire mesh	● Earthing boss
45 ○ Fire Proofing	● Name plate	● Dip pipe
46 ○ Fire Proofing Support	○ Internal lining	
47 ○ Ladder & platform (int. & ext.)	○ Sand blast & painting	
48 ○ Heating coil	○ Internal clips	
49 ● Lifting lug	○ External clips	

	Document No.:	Rev.: 0
	Owner Job No.:	Type: DAS
		Page 1

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR ATMER METERING DRUM(V-141)

1													
2	<b>MATERIALS(NOTE 1)</b>												
3													
4	Shell(Main/Jacket)	SA312-304 /					Earth lug	SA240-316					
5	Head(Main/Jacket)	SA403-304 /					Stiffening rings	NA					
6	Nozzle Necks (Main/Jacket)	Plate	NA /					Gaskets	to be specified by vendor				
7		Pipe	SA312-304 /					Ext. bolt/Nuts	SA193-B7/SA194-2H				
8	Cladding	NA					Int. bolt/Nuts	SA320-B8/SA194-8					
9	Nozzle flanges	SA182-304					Wire mesh	NA					
10	Blind flanges	SA182-304					Welded clip	NA					
11	Reinforcing pad	SA240-304					Int. welded	SA240-304					
12	Fitting	SA403-304					Int. removable	NA					
13	Support	Pad plate	SA240-304					Anchor/Setting bolts	SA307-B				
14		Lug	SA240-304					Ladder/Platform	NA				
15		-	-					Insulation Mateial	MINERAL WOOL				
16	Lifting lug	SA240-304					Baffle	SA312-304					
17	<b>NOZZLE DETAILS(NOTE 2,3,8)</b>												
18													
19	Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks	
20			Rating	Type	Face				Width	Thk.			
21	Top Head												
22	P1	1/2"	300#	WN	RF	40S	Atmer Inlet	-	-	-	ANSI B16.5	See DWG.	
23	P2	1/2"	300#	WN	RF	40S	Nitrogen Inlet	-	-	-	ANSI B16.5	See DWG.	
24	P3	1"	300#	WN	RF	40S	Vent	-	-	-	ANSI B16.5	See DWG.	
25	Pad Flang	6"	300#		RF	40S	Agitator				ANSI B16.5	See DWG.	
26	K1	1 1/2"	300#	WN	RF	40S	Level Control	-	-	-	ANSI B16.5	See DWG.	
27													
28	Shell												
29	P4	1/2"	300#	WN	RF	40S	Recycle	-	-	-	ANSI B16.5	See DWG.	
30													
31	K2a	3/4"	300#	WN	RF	40S	Level Indication	-	-	-	ANSI B16.5	See DWG.	
32	K3	1"	300#	WN	RF	40S	Level Alarm Switch	-	-	-	ANSI B16.5	See DWG.	
33													
34													
35	Bottom Head												
36	P5	1/2"	300#	WN	RF	40S	Drain	-	-	-	ANSI B16.5	See DWG.	
37	P6	1/2"	300#	WN	RF	40S	Atmer Outlet	-	-	-	ANSI B16.5	See DWG.	
38													
39	K2b	3/4"	300#	WN	RF	40S	Level Indication	-	-	-	ANSI B16.5	See DWG.	
40													
41													
42													
43													
44													
45													
46													
47													
48													

Document No.:

Rev.: 0

Owner Job No.:

Type: DAS

Page 2

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR ATMER METERING DRUM(V-141)

1 |  
2 | **NOZZLE LOADING DATA(NOTE 6)**  
3 |

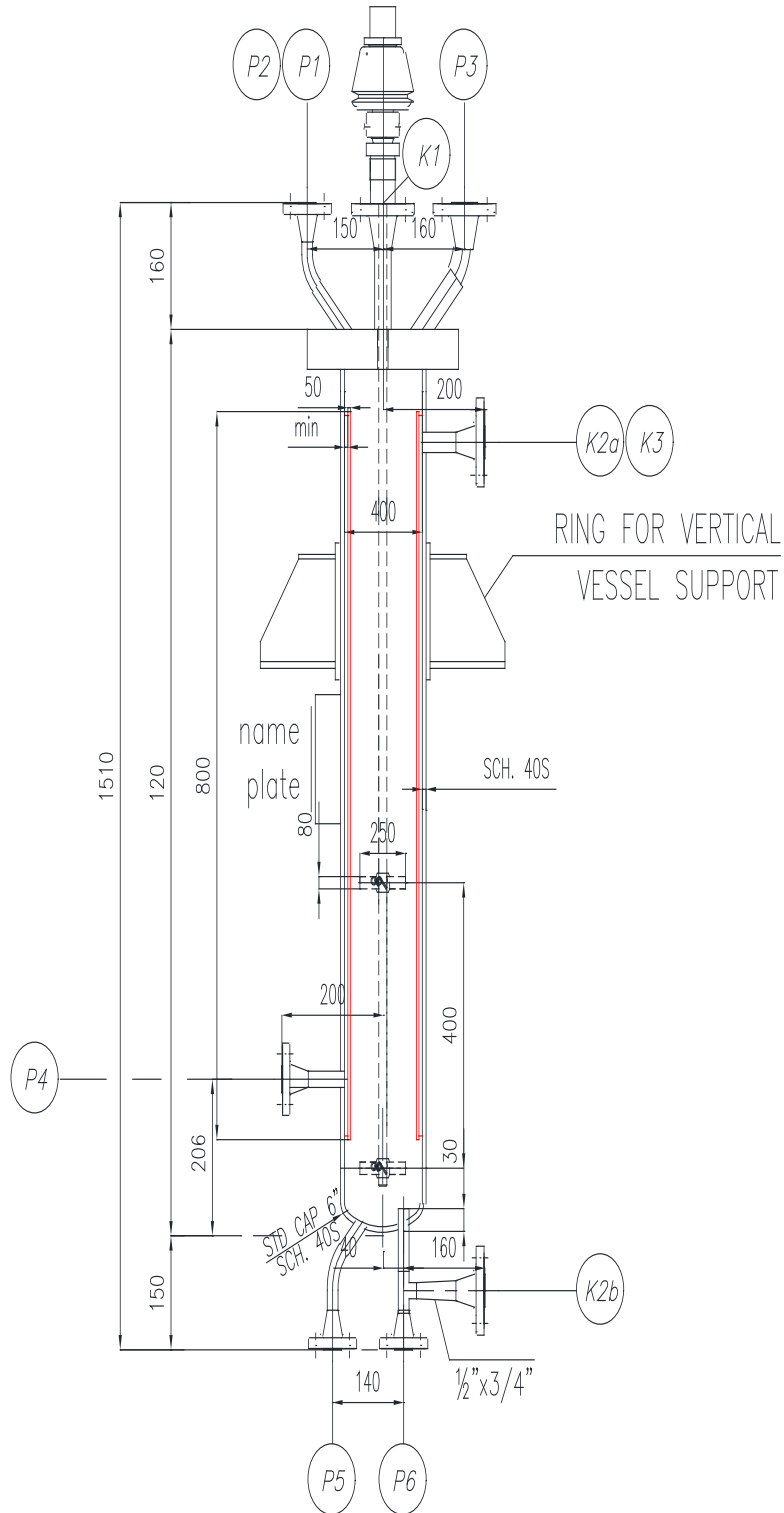
No.	Nozzle Name	FL (kgf)	FA (kgf)	FC (kgf)	MC (kg.m)	MT (kg.m)	ML (kg.m)
4							
5							
6	P1						
7	P2						
8	P4						
9	P5						
10	P6						
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

21 | **REFERENCE DOCUMENTS**  
22 |

No.	No.	Document No.	Document Title
23			
24	1		
25	2		
26	3		
27	4		
28	5		
29	6		
30	7		
31	8		
32	9		
33	10		
34	11		
35	12		
36	13		
37	14		
38	15		
39	16		
40	17		
41	18		
42	19		
43	20		
44	21		
45	22		
46	23		
47	24		
48	25		

	Document No.:	Rev.: 0
	Owner Job No.:	Type: DAS
		Page 3

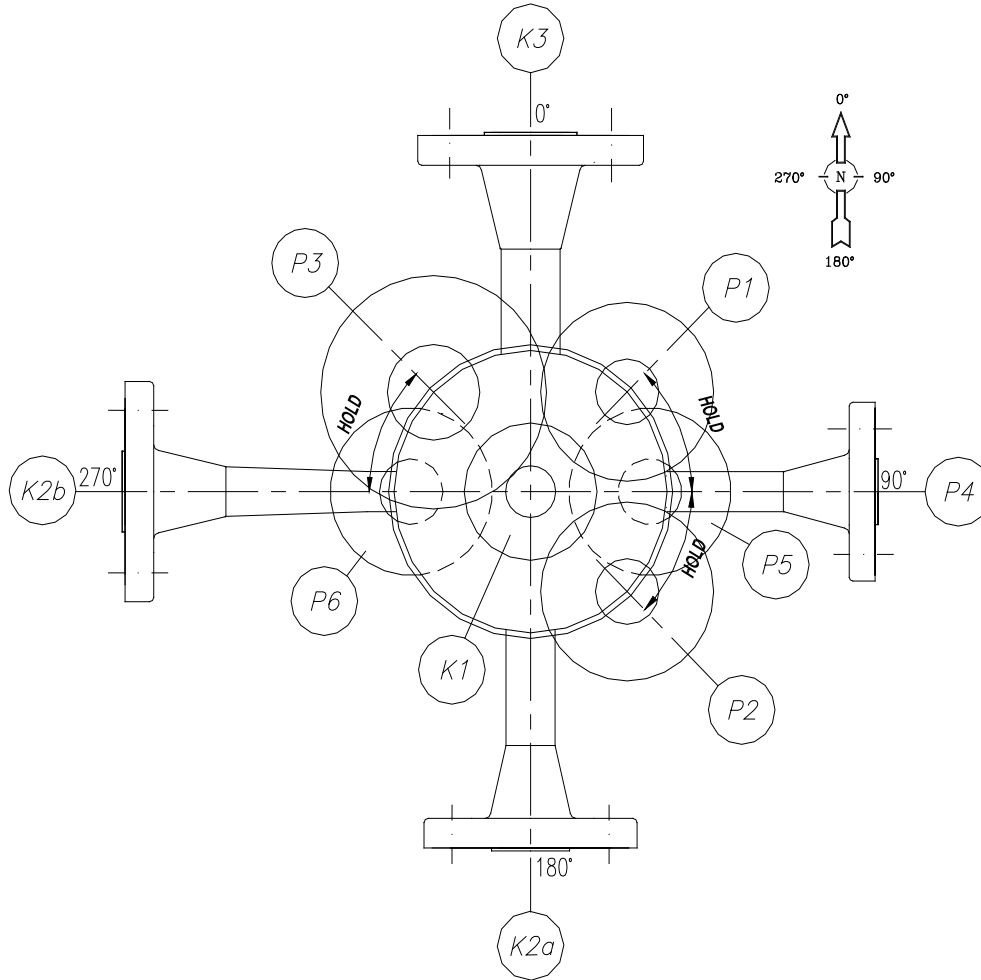




**Side View**

3

	Document No.:	Rev.: 0
	Owner Job No.:	Type: DAS
		Page 4



**Orientated (HOLD)**

3

	Document No.:	Rev.: 0
	Owner Job No.:	Type: DAS
		Page 5

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR ATMER METERING DRUM(V-141)

**General Notes:**

- 1- SHALL BE VERIFIED BY VENDOR.
- 2- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.
- 3- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.
- 4- THICKNESSES INDICATED ON ENG. DRAWING ARE Min. PURCHASER REQUIREMENT. VENDOR SHALL CHECK AND GUARANTEE THEM ON STRENGTH.
- 5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 6- SHALL BE SPECIFIED BY VENDOR .
- 7-SURFACE PREPARATAION,PICKLING&PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER
- 8- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 9- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 10- ALL NDT (RT, UT AND PT/MT) SHALL BE PERFORMED BEFORE AND AFTER PWHT .
- 11- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.
- 12- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 13- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF ELLIPTICAL/TORISPHERICAL HEADS SHALL BE IN NO CASE SMALLER THAN VESSEL SHELL THICKNESS.
- 14- ALL TAILED DIMENSIONS ARE MEASURED FROM B.L.
- 15- UNLESS OTHERWISE NOTED OUTSIDE PROJECTIONS OF NOZZLES ARE MEASURED FROM C.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE.
- 16- FLANGE FACE FINISHING SHALL BE SMOOTHED WITH 125-250 MICROINCH AVEREGAE ROUGHNESS
- 17- WILL BE SPECIFIED LATER.
- 18- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 19- DESIGN TEMPERATURE (INT/EXT.): 150/- °C
- 20- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.:

Rev.: 0

Owner Job No.:

Type: DAS

Page 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Alkyl metering hydraulic guards(V -125 A/B)

## Data Sheet for Alkyl metering hydraulic guards (V-125 A/B)

Document No.:


Rev. : 0

Owner Job No.:

Type: DAS

Page : A



<b>PROJECT:PP-PE PILOT PLANT</b>	<b>Client:</b>
<b>TITLE:Data Sheet for Alkyl metering hydraulic guards(V -125 A/B)</b>	 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی

1 Item No.: V-125 A/B	Quantity: 2	Location: Outdoor	Service: Continuous
-----------------------	-------------	-------------------	---------------------

2	<b>DESIGN CONDITIONS</b>		
3			

4		Vessel	Jacket(Half pipe)	Internal Coil
5	Operating Temperature(Min./Max.) °C	-/40	-/-	-/-
6	Operating Pressure barg	0.2	-	-
7	Density kg/m <sup>3</sup>	800	-	-
8	Design Pressure(int./ext.) barg	6/-	-/-	-/-
9	Design Temperature °C	-30÷+180	-/-	-/-
10	Volume(total) m <sup>3</sup>	0.104	-	-
11	Hydro Test Pressure barg	as per UG99b(33)	-	-
12	Corrosion Allowance(shell/head) mm	0/0	-/-	-/-
13	Cladding (shell/head) mm	-/-	-/-	-/-
14	Content @ normal operation	oil	-	-
15	Thickness(shell/head) mm	40s/40s	-	-/-
16	Welding Radiography(shell/head) %	100/100	-/-	-/-
17	Joint Efficiency(shell/head)	1/1	-/-	-/-
18	Top Head Type	2:1 Elipsoidal	-	-
19	Bottom Head Type	Cone	-	-

20	Design code: ASME SEC. VIII DIV.1	Inspection code: -
21	Cylinder Deminsion(IDxT.L-T.L): pipe 10" x 1000 mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No
22	M.D.M.T @ D.P: -30 °C	M.A.T: - °C
23	M.A.W.P: 11.029 barg Limited by: Cylinder of shell	Stamp: Not Required
24	Impact Test: Not Required	P.W.H.T: Not Required
25	N.D.T: Required	Vessel lining detail: NIL
26	HIC/SSC resistance: NA / NA	Painting & Coating: as per code
27	Insulation thickness: 30 mm	Insulation type: Personnel protection
28	Fireproofing : Yes	Vessel located on: Structure
29	Seismic code: UBC 1997	Seismic Zone: 3
30	Impotance factor: 1.25	Soil Profile: SD
31	Wind code: UBC	Wind velocity: 120 km/hr @ 10 m
32	Impotance factor: 1.15	Exposure: C

33	<b>Support loading data(Note 5)</b>			Fabricated:	-
34	Earthquake	Wind	<b>Weight(kg) (Note 5)</b>	Empty:	-
35	Shearing load(kgf)	-		Test:	-
36	Moment(kg.m)	-		Operation:	-

37	<b>MISCELLANEOUS(Note 2,10)</b>		
38			

39 <input type="radio"/> Baffle	39 <input type="radio"/> Impingement plate	39 <input type="radio"/> Weir plate
40 <input type="radio"/> Diffuser	40 <input type="radio"/> Distributer	40 <input type="radio"/> Trunnion
41 <input type="radio"/> Vortex breaker	41 <input type="radio"/> Tubesheet	41 <input type="radio"/> Template
42 <input type="radio"/> Boot / Cap	42 <input type="radio"/> Demister	42 <input checked="" type="radio"/> Pickling & passivation
43 <input checked="" type="radio"/> Insulation Support	43 <input type="radio"/> Wire mesh	43 <input checked="" type="radio"/> Earthing boss
44 <input type="radio"/> Fire Proofing	44 <input checked="" type="radio"/> Name plate	44 <input checked="" type="radio"/> Dip pipe
45 <input type="radio"/> Fire Proofing Support	45 <input type="radio"/> Internal lining	45 <input type="radio"/> Half pipe coil
46 <input type="radio"/> Ladder & platform (int. & ext.)	46 <input type="radio"/> Sand blast & painting	
47 <input type="radio"/> Heating coil	47 <input checked="" type="radio"/> Internal clips	
48 <input checked="" type="radio"/> Lifting lug	48 <input checked="" type="radio"/> External clips	

	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page : 1

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Alkyl metering hydraulic guards(V -125 A/B)

1												
2	MATERIALS(NOTE 2)											
3												
4	Shell(Main/Jacket)	SA240-304 / -		Earth lug		SA240-316						
5	Head(Main/Jacket)	SA240-304 / -		Stiffening rings		-						
6	Nozzle Necks (Main/Jacket)	Plate	- / -		Gaskets		Graphite fiber					
7		Pipe	SA312-304 / -		Ext. bolt/Nuts		SA193-B7/SA194-2H					
8	Cladding	-		Int. bolt/Nuts		SA193-B8/SA194-8						
9	Nozzle flanges	SA182-F304		Wire mesh		-						
10	Blind flanges	SA182-F304		Welded clip		SA240-304						
11	Reinforcing pad	SA240-304		Int. welded		SA240-304						
12	Fitting	SA403-304		Int. removable		-						
13	Support	Leg	-		Anchor/Setting bolts		SA307-B					
14		Lug	SA240-304		Ladder/Platform		-					
15		leg/lug pad	SA240-304		Insulation Mateial		MINERAL WOOL					
16	Lifting lug	SA240-304										
17	NOZZLE DETAILS(NOTE 2,3,4,7,8)											
18												
19	Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks
20			Rating	Type	Face				O.D.	Thk.		
21	<b>Top Head</b>											
22	P1	1"	300#	WN	RF	40S	vent	See dwg	-	-	ANSI B16.5	
23	P2	1"	300#	WN	RF	40S	spare	See dwg	-	-	ANSI B16.5	
24	P3	1"	300#	WN	RF	40S	oil inlet	See dwg	-	-	ANSI B16.5	Blind Flange
25	P4	1"	300#	WN	RF	40S	gas inlet	See dwg	-	-	ANSI B16.5	
26	P5	1"	300#	WN	RF	40S	gas inlet	See dwg	-	-	ANSI B16.5	
27	P6	1"	300#	WN	RF	40S	oil inlet	See dwg	-	-	ANSI B16.5	
28	P9	1"	300#	WN	RF	40S	connection	See dwg	-	-	ANSI B16.5	
	P10	1"	300#	WN	RF	40S	connection	See dwg	-	-	ANSI B16.5	
29	<b>Shell</b>											
30	k1	3"	150#	PAD	-	40S	sight glass	See dwg	-	-	ANSI B16.5	Tangential
31	k2	3"	150#	PAD	-	40S	sight glass	See dwg	-	-	ANSI B16.5	Tangential
32												
33												
34												
35												
36	<b>Bottom Head</b>											
37	p7	1"	300#	WN	RF	40S	drain	See dwg	-	-	ANSI B16.5	
38	p8	1"	300#	WN	RF	40S	drain	See dwg	-	-	ANSI B16.5	
39												
40												
41												
42												
43												
44												
45												
46												
47												
48												

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 2

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Alkyl metering hydraulic guards(V -125 A/B)

1 |

2 | **NOZZLE LOADING DATA(NOTE 7)**

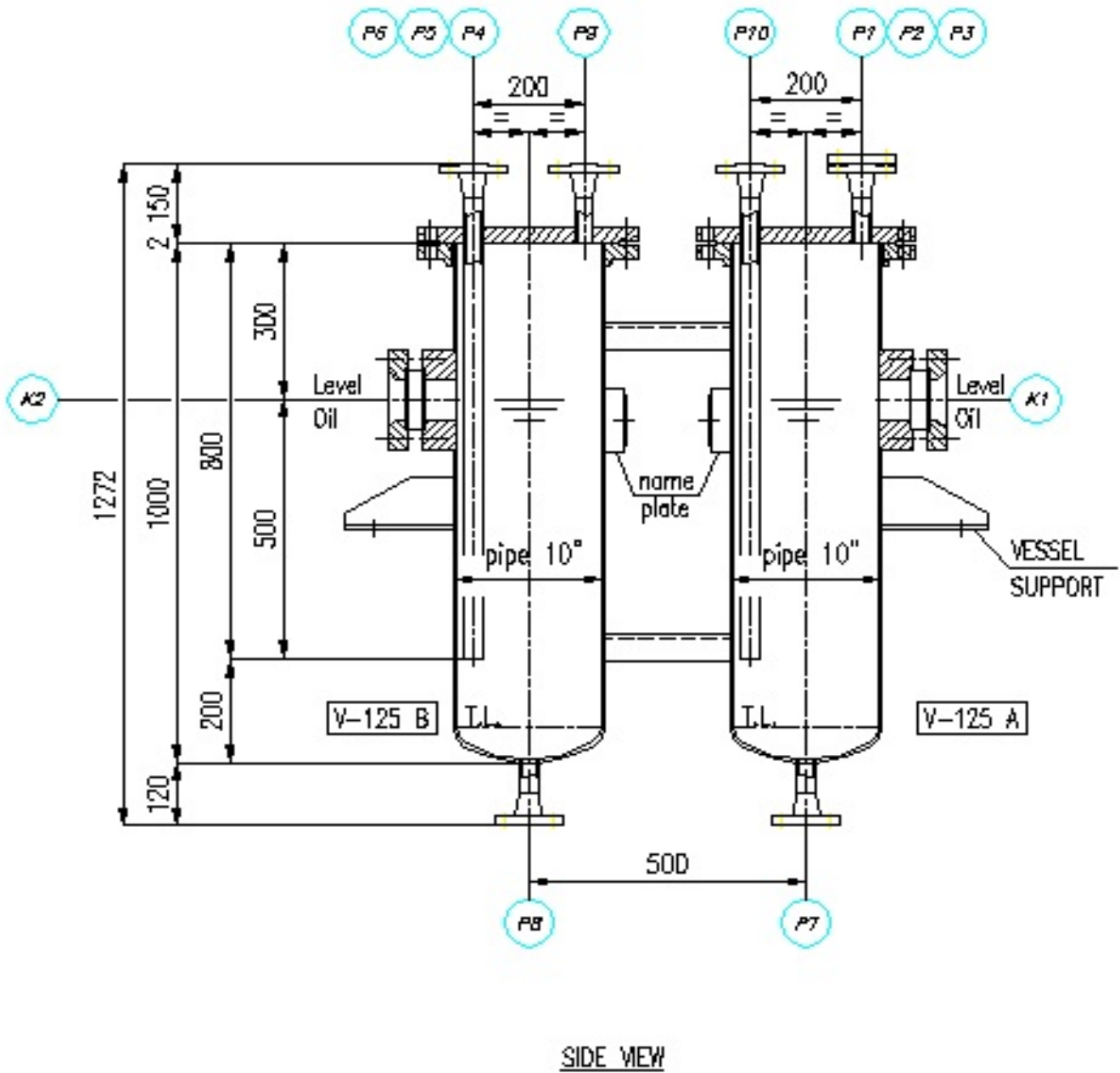
3	4	5	6	7	8	9	10
Nozzle Name	P (kgf)	VC (kgf)	VL (kgf)	MC (kg.m)	ML (kg.m)	MT (kg.m)	
6	P3						
7	P4						
8	P5						
9	P6						
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

21 | **REFRENECE DOCUMENTS**

23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
No.	Document No.	Document Title																							
1																									
2	900-IDS-A4-EQ-0002	Inspection Data Sheet For S.S Pressure Vessels																							
3	900-SPC-A4-EQ-0001	Engineering Specification For Pressure Vessels																							
4																									
5																									
6																									
7																									
8																									
9																									
10																									
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18																									
19																									
20																									
21																									
22																									

	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page : 3





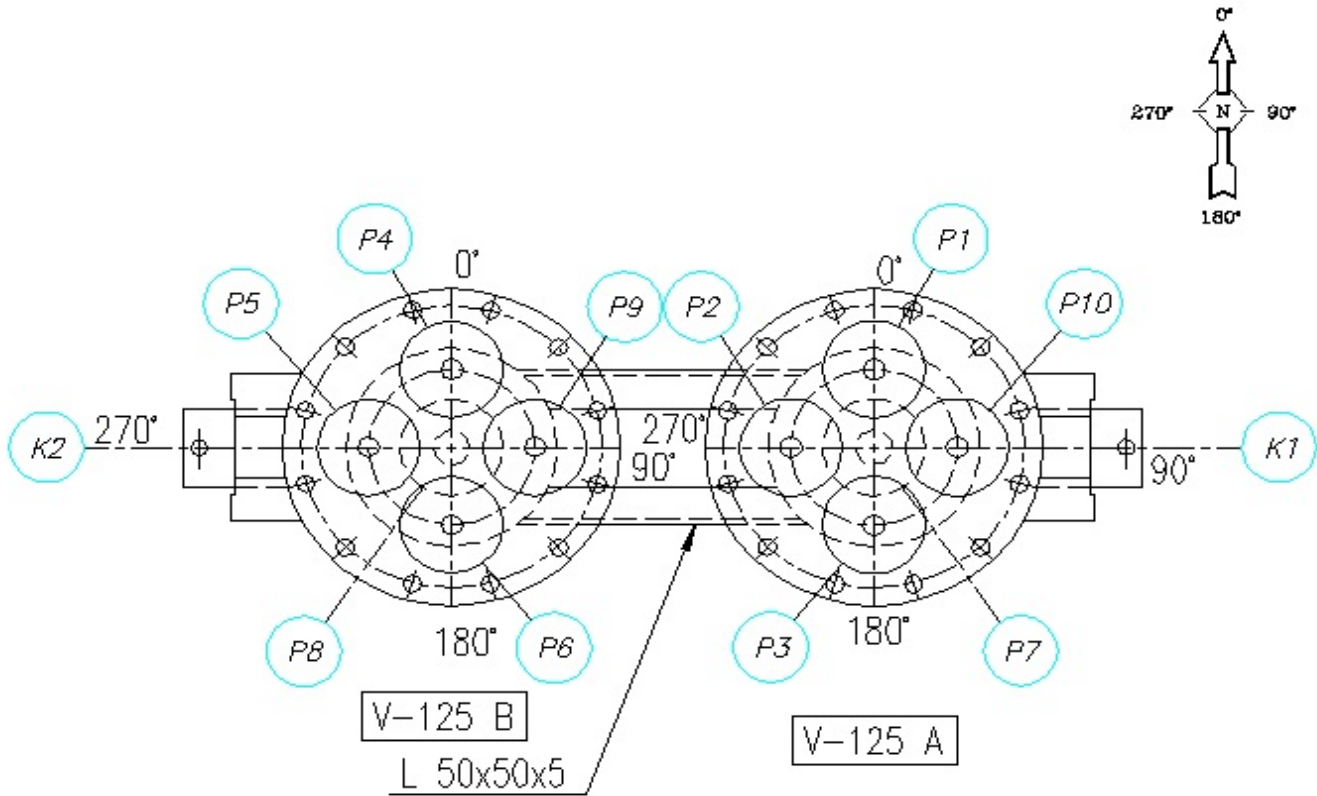
Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 4



Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 5

PROJECT:PP-PE PILOT PLANT

Client:



TITLE:Data Sheet for Alkyl metering hydraulic guards(V -125 A/B)

**General Notes:**

- 1- SHALL BE SPECIFIED BY VENDOR .
- 2- SHALL BE VERIFIED BY VENDOR.
- 3- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.
- 4- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.
- 5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 6- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF ELLIPTICAL/TORISPHERICAL HEADS SHALL BE IN NO CASE SMALLER THAN VESSEL SHELL THICKNESS.VENDOR SHALL CHECK AND GUARANTEE THEM ON STRENGTH.
- 7- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 8- UNLESS OTHERWISE NOTED OUTSIDE PROJECTION OF NOZZLES ARE MEASURED FROM C.L./T.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE.
- 9- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 10- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 11- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 12- SURFACE PREPARATAION,PICKLING&PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER.
- 13- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.
- 14- DESIGN TEMPERATURE (INT/EXT.) : 180/- °C
- 15- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE: Data Sheet for Flash Drum Filter(FT -351)

## Data Sheet for Flash Drum Filter(FT-351)

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی


TITLE: Data Sheet for Flash Drum Filter(FT -351)


PAGE \ REV.	0	1	2	3	4	5	PAGE \ REV.	0	1	2	3	4	5
A	X												
B	X												
1	X												
2	X												
3	X												
4	X												
5	X												
6	X												

5					
4					
3					
2					
1					
0	2021-11-27	K.A	M.N	AA.SH	AFC
Revision	Date	Prepared By	Checked By	Approved By	Status

Document Revision

	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page : B

PROJECT:PP-PE PILOT PLANT				Client:	
TITLE: Data Sheet for Flash Drum Filter(FT -351)				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
1	Item No.:FT-351	Quantity: 1	Location: Outdoor	Service:	Continuous
2	<b>PROCESS DESIGN DATA</b>				
3					
4	FILTER CAPACITY			REMARKS	
5	Solid	Traces of PP fine powder			
6	Particle size analysis	Mean dia. 1500 $\mu$ ,min dia. 100 $\mu$			
7	Solid bulk density	kg/m <sup>3</sup>	350 ~ 450		
8	Particle density	kg/m <sup>3</sup>	500 ~ 900		
9	GAS				
10	Gas	hydrocarbon mixture consisting mainly of propylene, plus hydrogen			
11	Flow rate (Norm/Max)	kg/h	400 / 800		
12	Density	kg/m <sup>3</sup>	30		
13	Viscosity	cP	0.01		
14	FILTERING MEDIA				
15	Filter type	Bag filter			
16	OPERATING DATA				
17	Max allowed press. drop	barg	0.1		
18					
19	<b>DESIGN CONDITIONS</b>				
20					
21					<b>REMARKS</b>
22	Filteration area	2.1		-/-	
23	Operating Temperature	°C	70 - 100		-/-
24	Operating Pressure	barg	18		-/-
25	Design Pressure(int./ext.)	barg	30 / 10		10 / 1
26	Design Temperature	°C	-60/+180		180
27	Volume(total)	m <sup>3</sup>	0.27		-/-
28	Hydro Test Pressure	barg	as per UG99b(33)		as per UG99b(33)
29	Corrosion Allowance(shell/head)	mm	0 / 0		0
30	Content @ normal operation	Propylene		Steam	
31	Main Thickness(shell/head/Cone)	mm	8 / 6 / 8		6 / NA / 6
32	Welding Radiography(shell/head)	%	Full/Full		Spot
33	Joint Efficiency(shell/head)	1/1		0.85	
34	Top Head Type	Elliptical			-
35	Bottom Head Type	Cone			Cone
36	Design code:	ASME SEC. VIII DIV.1		Inspection code:	as per code
37	Cylinder Deminsion(IDxT.L-T.L):	450 / 2163	mm	Lethal Service:	<input type="radio"/> Yes <input checked="" type="radio"/> No
38	M.D.M.T @ D.P:	-60	°C	M.A.T:	- °C
39	M.A.W.P:	- barg	Limited by:	-	Stamp: Not Required
40	Impact Test:	NIL		P.W.H.T:	NIL
41	N.D.T:	Required		Filter lining detail:	NIL
42	HIC/SSC resistance:	NIL	/	NIL	Painting & Coating: As per spec
43	Insulation thickness:	50	mm	Insulation type:	IA
44	Fireproofing thickness:	As per spec		Vessel located on:	Structrue
45	Seismic code:	UBC 1997		Seismic Zone:	3
46	Impotance factor:	1.25		Soil Profile:	SD
47	Wind code:	UBC		Wind velocity:	120 km/hr @ 10 m
48	Importance factor:	1.15		Exposure:	C
				Document No.:	Rev. : 0
				Owner Job No.:	Type: DAS
				Page 1 OF 6	

<b>PROJECT:PP-PE PILOT PLANT</b>	<b>Client:</b>	 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی
<b>TITLE: Data Sheet for Flash Drum Filter(FT -351)</b>		

1						
2	<b>MATERIALS(NOTE 3)</b>					
3						
4	Shell(Main/Jacket)	SA240-316	△ <sub>2</sub>	SA240-316	Gaskets	Main: Spiral wound Jacket: Graphite / kewlar
5	Head(Main/Jacket)	SA240-316	/	-	Ext. bolt/Nuts	SA320-L7/SA194-4
6	Nozzle Necks (Main/Jacket)	Plate	-	-	Int. bolt/Nuts	SA320-B8/SA194-8
7		Pipe	SA312-316	△ <sub>2</sub>	SA312-316	Wire mesh
8	Cladding				Welded clip	△ <sub>2</sub> SA240-316
9	Nozzle flanges			SA182-F316	Int. welded	SA240-316
10	Blind flanges			SA182-F316	Int. removable	SA240-316
11	Reinforcing pad	△ <sub>2</sub>		SA240-316	Anchor/Setting bolts	SA307 - B
12	Fitting			SA403-316	Ladder/Platform	-
13	Support	Leg		-	Insulation Mateial	Mineral wool
14		Lug		SA283-C	Filtering media	Expanded PTFE
15		leg/lug pad		SA240-316	Supporting media	Aramidid resin (Nomex)
16	Lifting lug			SA240-316	Sewing media	Aramidid resin (oxygen containing materials are not allowed)
11	Earth lug			SA240-316L		
12	Stiffening rings			SA240-316		

17	<b>△<sub>2</sub> NOZZLE DETAILS(NOTE 5,9)</b>				
18					

19	Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks
			Rating	Type	Face				Width	Thk.		
21	<b>Top Head</b>											
22	P1	3"	300#	PAD	RF	64.5	Gas Outlet	170	-	-	ANSI B16.5	
23	<b>Shell</b>											
24	P2 a/b/c	1"	300#	WN	RF	40S	Gas Inlet	400	-	-	ANSI B16.5	See DWG
25	P3	2"	300#	LWN	RF	-	Product Inlet	350	-	-	ANSI B16.5	Tangential
26	K1	3"	300#	LWN	RF	-	DP Celle	(*)	-	-	ANSI B16.5	
27	K2	2"	300#	LWN	RF	-	Spare (SV Connection)	400	-	-	ANSI B16.5	With blind flange + plug
28	K3	1"	300#	WN	RF	40S	Spare (temperature)	(*)			ANSI B16.5	With blind flange + plug
29	<b>Bottom Head</b>											
30	P4	3"	300#	LWN	RF	-	Product Outlet	(*)	-	-	ANSI B16.5	
31	<b>Jacket Shell</b>											
32	P5	1"	300#	WN	RF	40S	Steam Inlet	400	-	-	ANSI B16.5	With impingement plate
33	P6	1"	300#	WN	RF	40S	Codensate Outlet	250	-	-	ANSI B16.5	With impingement plate
34	P7	1/2"	3000#	NPT	-	-	Vent	250	-	-	ANSI B2.1	With plug
35	P8	1/2"	3000#	NPT	-	-	Drain	(*)	-	-	ANSI B2.1	With plug

36

37 (\*) See drawing on page 4, for projection.

38

39	<b>WIND AND LOADS DATA REPORT(Note 6)</b>				
40					

Support loading data				Weight(kg)	Fabricated:		
42	Earthquake		Wind		Empty:	1535	
43	Shearing load(kgf)		340		75	Test:	1810
44	Moment(kg.m)		451		63	Operation:	1535

45			
46			
		<b>Document No.:</b>	<b>Rev. : 0</b>
		<b>Owner Job No.:</b>	<b>Type: DAS</b>
			<b>Page 2 OF 6</b>

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE: Data Sheet for Flash Drum Filter(FT -351)

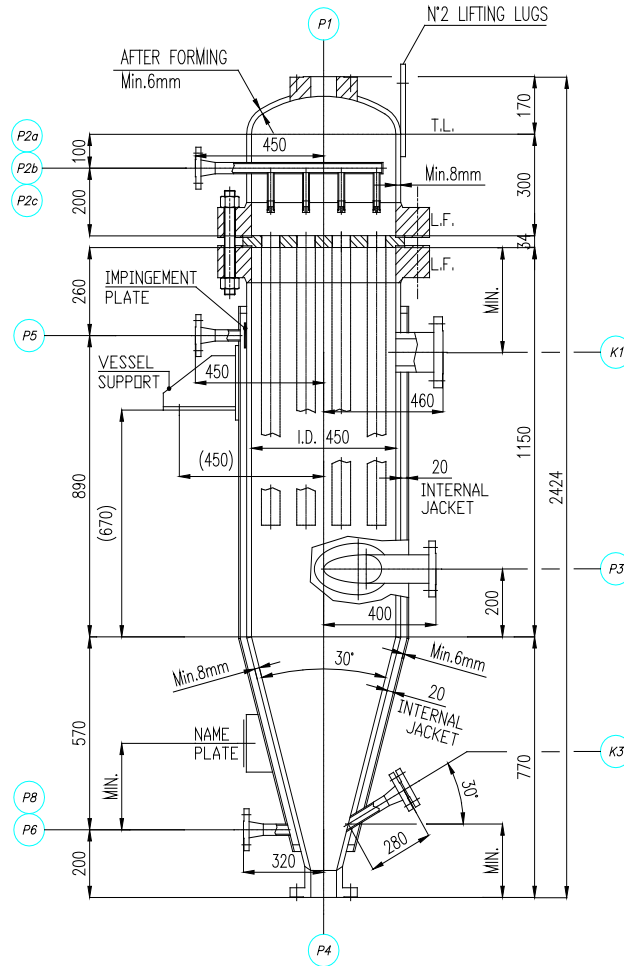
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2	<b>NOZZLE LOADING DATA(NOTE 6)</b>						
3							
4	Nozzle	FL	FA	FC	MC	MT	ML
5	Name	(kN)	(kN)	(kN)	(N.m)	(N.m)	(N.m)
6	P1	429	429	322	65	97	84
7	P3	286	286	215	29	43	34
8	P4	429	429	322	65	97	84
9							
10							
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**REFRENECE DOCUMENTS**

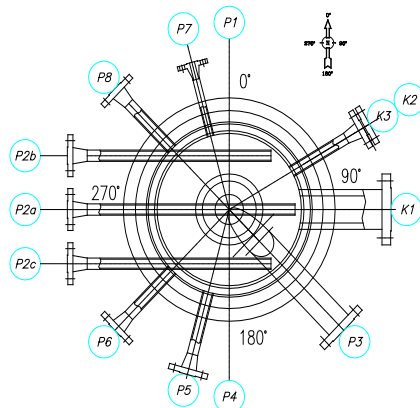
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44	21	
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46	23	
47	24	
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	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page 3 OF 6





SIDE VIEW



NOZZLE ORIENTATION (HOLD)

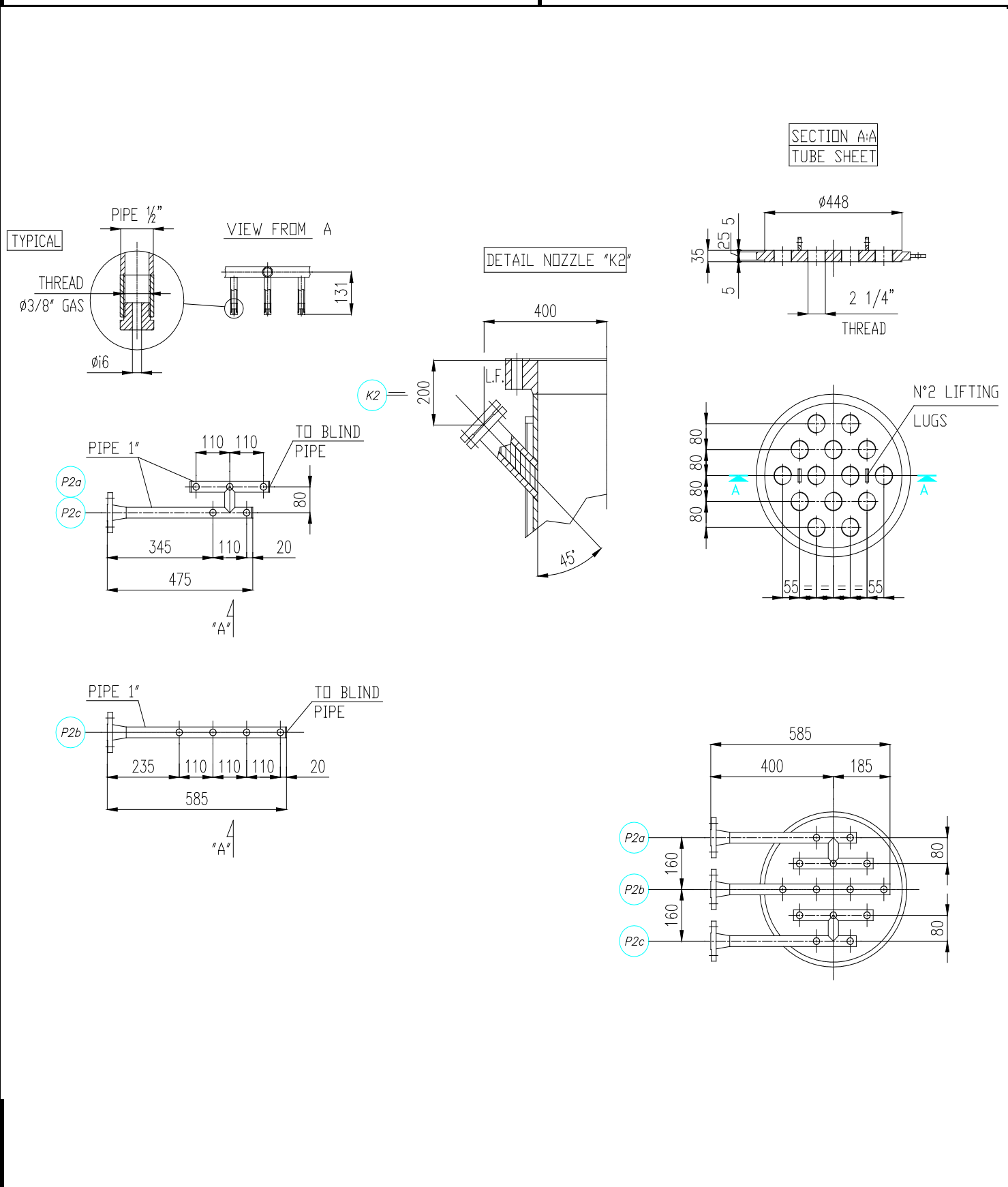
Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page 4 OF 6




Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

PROJECT:PP-PE PILOT PLANT	Client:  شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی
TITLE: Data Sheet for Flash Drum Filter(FT -351)	

**General Notes:**

- 1- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.
- 2- ALL TAILED DIMENSIONS ARE MEASURED FROM B.L.
- 3- SUGGESTED MATERIAL , SHALL BE VERIFIED BY VENDOR.
- 4- FLANGE FACE FINISHING SHALL BE SMOOTHED WITH 125-250 MICROINCH AVEREGAE ROUGHNESS.
- 5- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.
- 6- THICKNESSES, WEIGHTS AND LOADS SHALL BE CALCULATED BY MANUFACTURER. ALSO MANUFACTURER IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 8- SURFACE PREPARATAION,PICKLING&PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER,
- 9- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 10- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 11- ALL NDT (RT, UT AND PT/MT) SHALL BE PERFORMED BEFORE AND AFTER PWHT .
- 12- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.
- 13- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 14- LOCATION AND NUMBER OF LIFTING LUGS ON FILTER SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 15- VARIUS MATERIAL (DIRTY, RUST, ECC.)
- 16- UNLESS OTHERWISE NOTED OUTSIDE PROJECTIONS OF NOZZLES ARE MEASURED FROM C.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE.
- 17-VENDOR SHALL SPECIFY THE CONSUMPTION OF THE UTILITIES AND THE AVERAGE WASHING BACK FLOW.
- 18- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page 6 OF 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR FLASH DRUM HOPPER(HP-351)

## DATA SHEET FOR FLASH DRUM HOPPER(HP-351)

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page A

PROJECT:PP-PE PILOT PLANT

Client:




شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR FLASH DRUM HOPPER(HP-351)

REV. PAGE	0	1	2	3	4	5	REV. PAGE	0	1	2	3	4	5
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B	X												
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0	2021-11-27	K.A	M.N	AA.SH	AFC
<b>Revision</b>	<b>Date</b>	<b>Prepared By</b>	<b>Checked By</b>	<b>Approved By</b>	<b>Status</b>

	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page B

<b>PROJECT:PP-PE PILOT PLANT</b>	<b>Client:</b>
<b>TITLE:DATA SHEET FOR FLASH DRUM HOPPER(HP-351)</b>	 <p style="font-size: small;">شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی</p>

1 Item No.: HP-351	Quantity: 1	Location: Outdoor	Service: Continuous
--------------------	-------------	-------------------	---------------------

2	<b>DESIGN CONDITIONS</b>
3	

4		Vessel	Jacket	Internal Coil
5	Operating Temperature(Min./Max.) °C	-80	-/-	-/-
6	Operating Pressure barg	18	-	-
7	Density kg/m <sup>3</sup>	30/900	-	-
8	Design Pressure(int./ext.) barg	30/-	-/-	-/-
9	Design Temperature °C	-60÷+180	-/-	-/-
10	Volume(total) m <sup>3</sup>	0.039	-	-
11	Hydro Test Pressure barg	as per UG99b(33)	-	-
12	Corrosion Allowance(shell/head) mm	-/-	-/-	-/-
13	Cladding (shell/head) mm	-/-	-/-	-/-
14	Content @ normal operation	Polymer+Hydrocarbons	-	-
15	Thickness(shell/Cone) mm	sch.40S/8 <span style="border: 1px solid black; padding: 2px;">1</span>	-/-	-/-
16	Welding Radiography(shell/head)	FULL/FULL	-/-	-/-
17	Joint Efficiency(shell/head)	1/1	-/-	-/-
18	Top Head Type	ANSI/Bolted Falnge	-	-
19	Bottom Head Type	Falnge	-	-

20 Design code: ASME SEC. VIII DIV.1	Inspection code: ASME SEC. IX
21 Cylinder Deminsion(IDxH): <span style="border: 1px solid black; padding: 2px;">1</span> pipe 12" x 1050 mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No
22 M.D.M.T @ D.P: -60 °C	M.A.T: - °C
23 M.A.W.P: 29.941 barg Limited by: Flanged head	Stamp: Not Required
24 Impact Test: Not Required	P.W.H.T: Not Required
25 N.D.T: Required	Vessel lining detail: NIL
26 HIC/SSC resistance: - / -	Painting & Coating: as per code
27 Insulation thickness: <span style="border: 1px solid black; padding: 2px;">1</span> 30 mm	Insulation type: Personal Protection
28 Fireproofing : <span style="border: 1px solid black; padding: 2px;">1</span> NO	Vessel located on: Structrue
29 Seismic code: UBC 1997	Seismic Zone: 3
30 Impotance factor: 1.25	Soil Profile: SD
31 Wind code: UBC	Wind velocity: 120 km/hr @ 10 m
32 Impotance factor: 1.15	Exposure: C

33 Support loading data(Note 5)			<b>Weight(kg) Note 5)</b>	Fabricated:	230
	Earthquake	Wind		Empty:	230
35 Shearing load(kgf)	-	-		Test:	265
36 Moment(kg.m)	-	-		Operation:	260

37	<b>MISCELLANEOUS(Note 2,10)</b>
38	

39 <input type="radio"/> Baffle	39 <input type="radio"/> Impingement plate	39 <input type="radio"/> Weir plate
40 <input type="radio"/> Diffuser	40 <input type="radio"/> Distributer	40 <input type="radio"/> Trunnion
41 <input type="radio"/> Vortex breaker	41 <input type="radio"/> Tubesheet	41 <input type="radio"/> Template
42 <input type="radio"/> Boot / Cap	42 <input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation
43 <input checked="" type="radio"/> Insulation Support	43 <input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss
44 <input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input type="radio"/> Dip pipe
45 <input type="radio"/> Fire Proofing Support <span style="border: 1px solid black; padding: 2px;">1</span>	<input type="radio"/> Internal lining	
46 <input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting	
47 <input type="radio"/> Heating coil	<input type="radio"/> Internal clips	
48 <input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips	

	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page 1

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR FLASH DRUM HOPPER(HP-351)

**MATERIALS(NOTE 2)**

4	Shell(Main/Cone)	SA312-304L	SA182-304L	Earth lug	SA240-316L
5	Head(Main/Jacket)	SA182-304L	-	Stiffening rings	-
6	Nozzle Necks (Main/Jacket)	Plate	- / -	Gaskets	Spiral wound
7		Pipe	SA312-304L / -	Ext. bolt/Nuts	SA193-B7/SA194-2H
8	Cladding	-		Int. bolt/Nuts	SA193-B8/SA194-8
9	Nozzle flanges	SA182-F304L		Wire mesh	-
10	Blind flanges	SA182-F304L		Welded clip	SA240-304L
11	Reinforcing pad	SA240-304L		Int. welded	SA240-304L
12	Fitting	SA403-304L		Int. removable	-
13	Support	Leg	-	Anchor/Setting bolts	SA307-B
14		Lug	-	Ladder/Platform	-
15		leg/lug pad	-	Insulation Mateial	MINERAL WOOL
16	Lifting lug	SA240-304L			

**NOZZLE DETAILS(NOTE 2,3,4,7,8)**

Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks
		Rating	Type	Face				OD	Thk.		
<b>Top Head</b>											
22	P1	3"	300#	WN	RF	80S	Product inlet	See dwg	-	-	ANSI B16.5
24	K1	2"	300#	WN	RF	40S	Spare (level)	See dwg	-	-	ANSI B16.5 With blind flange
<b>Shell</b>											
27	K2	1"	300#	WN	RF	40S	Temperature	See dwg	-	-	ANSI B16.5
<b>Bottom Head</b>											
30	P2	1 1/2"	300#	WN	RF	40S	Product outlet	See dwg	-	-	ANSI B16.5 See H-351 on page 6
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											
46											
47											
48	Internal finishing: smooth finish Ra=0.4µm (16µinch)										

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR FLASH DRUM HOPPER(HP-351)

1  
2  
3 **NOZZLE LOADING DATA(NOTE 7)**

No.	Nozzle Name	FL (kgf)	FA (kgf)	FC (kgf)	MC (kg.m)	MT (kg.m)	ML (kg.m)
4							
5							
6	P1	429	429	322	65	97	84
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

21  
22 **REFRENCE DOCUMENTS**

No.	No.	Document No.	Document Title
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25	2		
26	3		
27	4		
28	5		
29	6		
30	7		
31	8		
32	9		
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37	14		
38	15		
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40	17		
41	18		
42	19		
43	20		
44	21		
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48	25		

Document No.:	Rev. : 0
Owner Job No.:	Type: DAS
	Page 3



PROJECT:PP-PE PILOT PLANT

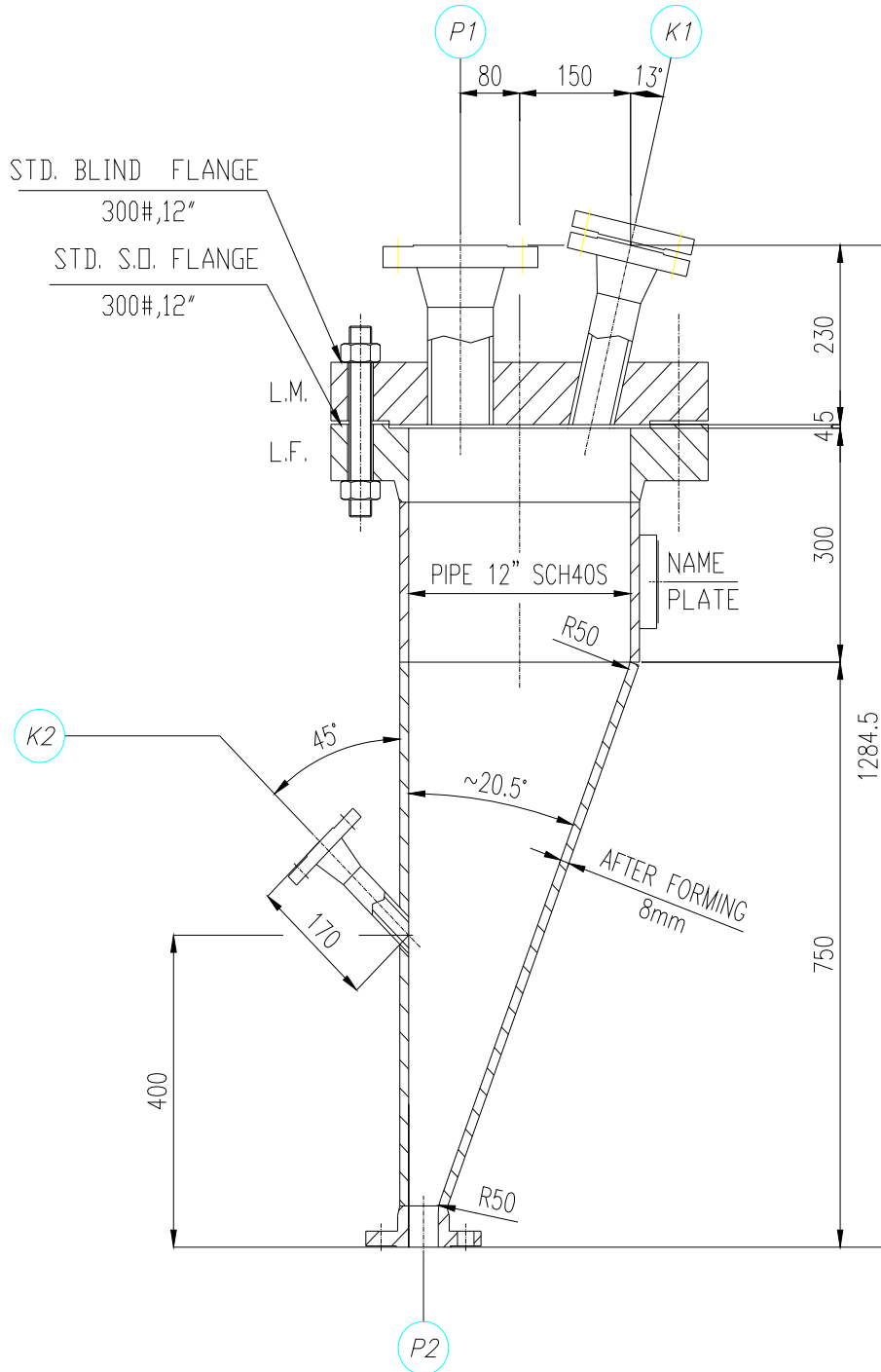
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شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR FLASH DRUM HOPPER(HP-351)

Sketch(Note 3)



SIDE VIEW

Document No.:

Rev. : 0

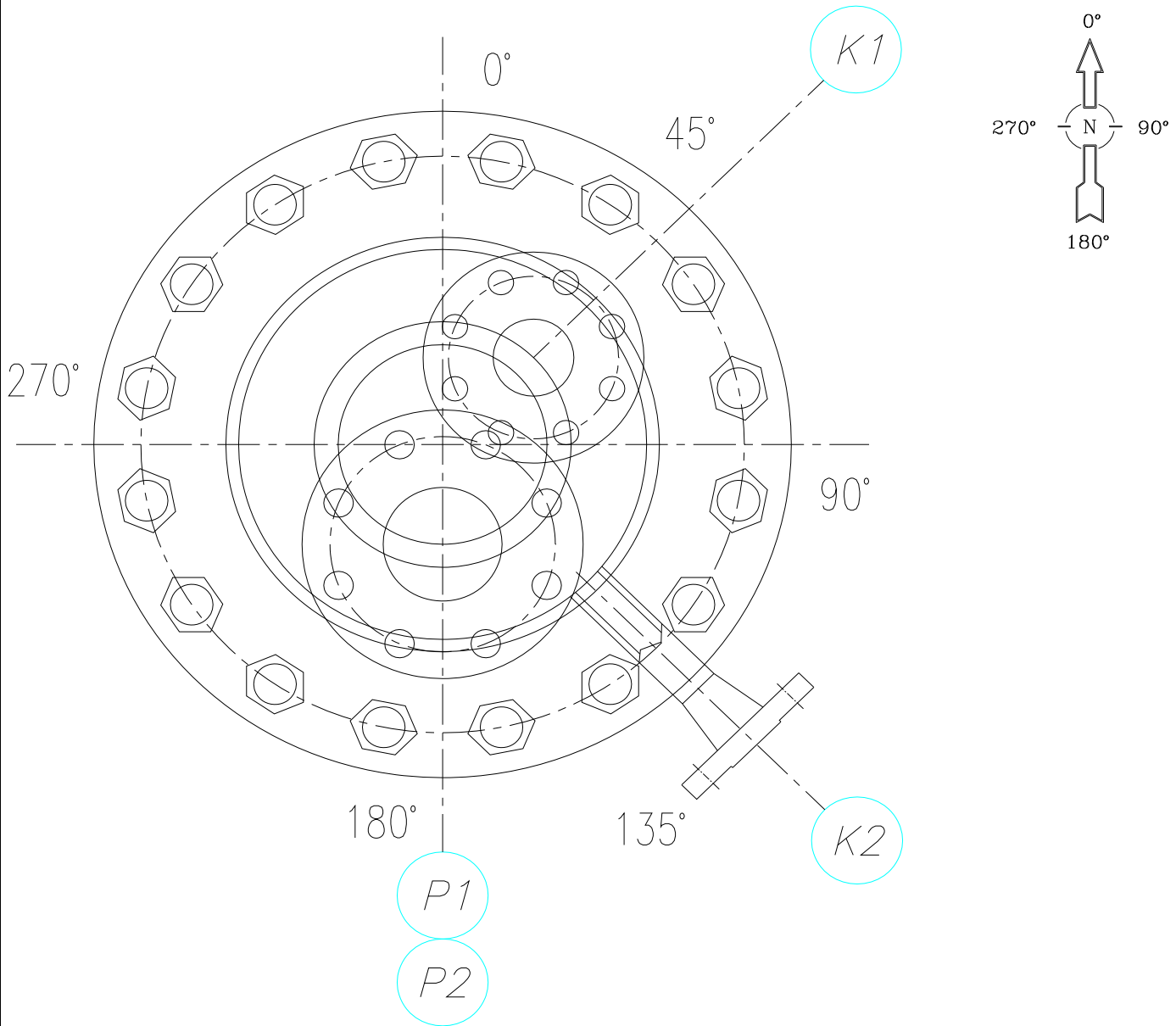
Owner Job No.:

Type: DAS

Page 4



Sketch(Note 3)



nozzle orientation

PROJECT:PP-PE PILOT PLANT

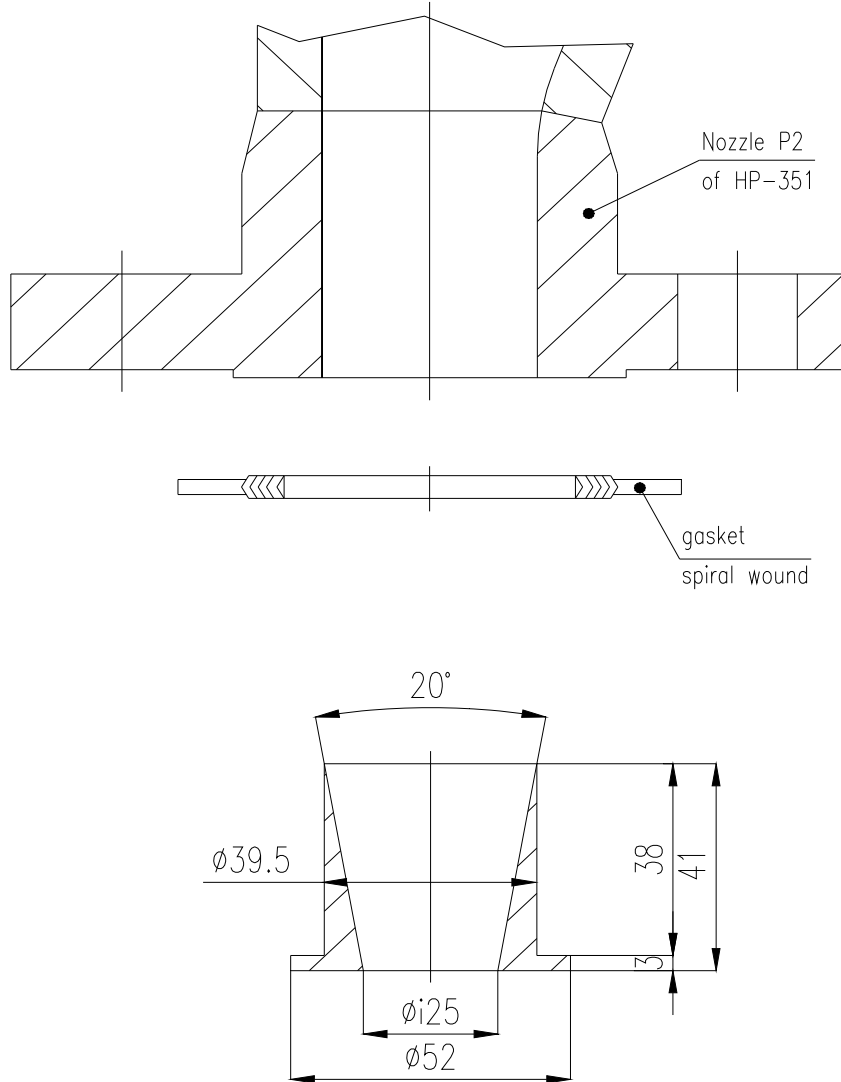
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شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR FLASH DRUM HOPPER(HP-351)

Sketch(Note 3)



Notes

Material: Stainless Steel

H-351

Detail


Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page 6

PROJECT:PP-PE PILOT PLANT	Client:  شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی
TITLE:DATA SHEET FOR FLASH DRUM HOPPER(HP-351)	

**General Notes:**

- 1- SHALL BE SPECIFIED BY VENDOR .
- 2- SHALL BE VERIFIED BY VENDOR.
- 3- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.
- 4- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.
- 5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 6- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF ELLIPTICAL/TORISPHERICAL HEADS SHALL BE IN NO CASE SMALLER THAN VESSEL SHELL THICKNESS.VENDOR SHALL CHECK AND GUARANTEE THEM ON STRENGTH.
- 7- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 8- UNLESS OTHERWISE NOTED OUTSIDE PROJECTION OF NOZZLES ARE MEASURED FROM C.L./T.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE.
- 9- LOCATION AND NUMBER OF LIFTING LUGS ON HOPPER SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 10- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 11- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 12- SURFACE PREPARATAION,PICKLING&PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER.
- 13- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.
- 14-INTERNAL FINISHING SHALL BE SMOOTH FINISH RA= 0.4 μm (16μinch)
- 15- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page 7

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR BLOW-BACK SYSTEM DRUM(V-351)

## DATA SHEET FOR BLOW-BACK SYSTEM DRUM(V-351)

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : A

PROJECT:PP-PE PILOT PLANT

Client:



TITLE:DATA SHEET FOR BLOW-BACK SYSTEM DRUM(V-351)

REV. PAGE	0					1					2					3					4					5								
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5					
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1					
0	2021-11-27	K.A	M.N	AA.SH	AFC

Document Revision		
	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page : B

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR BLOW-BACK SYSTEM DRUM(V-351)

1	Item No.:V-351	Quantity: 1	Location: Outdoor	Service: Continuous	
2	<b>DESIGN CONDITIONS</b>				
3					
4		<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>	
5	Operating Temperature(Min./Max.) °C	-/100	-/160	-/-	
6	Operating Pressure barg	23	5.5	-	
7	Density kg/m <sup>3</sup>	70	1000	-	
8	Design Pressure(int./ext.) barg	32/-	10/-	-/-	
9	Design Temperature °C	-60++180	180	-/-	
10	Volume(total) m <sup>3</sup>	0.2	0.03	-	
11	Hydro Test Pressure barg	as per UG99b(33)	as per UG99b(33)	-	
12	Corrosion Allowance(shell/head) mm	0/0	0/0	-/-	
13	Cladding (shell/head) mm	-/-	-/-	-/-	
14	Content @ normal operation	Propylene	Steam	-	
15	Thickness(shell/head) mm	10/10	4/4	/	
16	Welding Radiography(shell/head) %	Full/Full	Full/Full	-/-	
17	Joint Efficiency(shell/head)	1/1	1/1	-/-	
18	Top Head Type	2:1 Elipsoidal	-	-	
19	Bottom Head Type	2:1 Elipsoidal	2:1 Elipsoidal	-	
20	Design code: ASME SEC. VIII DIV.1	Inspection code: ASME SEC. IX			
21	Cylinder Deminsion(IDxT.L-T.L): 500 x 800 mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No			
22	M.D.M.T @ D.P: -60 °C	M.A.T: - °C			
23	M.A.W.P: 32.815 barg Limited by: CYLINDER	Stamp: Not Required			
24	Impact Test: Not Required	P.W.H.T: Not Required			
25	N.D.T: Required	Vessel lining detail: NIL			
26	HIC/SSC resistance: NA / NA	Painting & Coating: as per code			
27	Insulation thickness: 70 mm	Insulation type: Hot			
28	Fireproofing : Yes	Vessel located on: Structure			
29	Seismic code: UBC 1997	Seismic Zone: 3			
30	Impotance factor: 1.25	Soil Profile: SD			
31	Wind code: UBC	Wind velocity: 120 km/hr @ 10 m			
32	Impotance factor: 1.15	Exposure: C			
33	<b>Support loading data(Note 5)</b>				
34	Earthquake	Wind	<b>Weight(kg) (Note 5)</b>	Fabricated: 360	
35	Shearing load(kgf)	80		75	Empty: 385
36	Moment(kg.m)	100		85	Test: 560
					Operation: 390
37	<b>MISCELLANEOUS(Note 2,10)</b>				
38					
39	<input type="radio"/> Baffle	<input checked="" type="radio"/> Impingement plate	<input type="radio"/> Weir plate		
40	<input type="radio"/> Diffuser	<input type="radio"/> Distributer	<input type="radio"/> Trunnion		
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template		
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation		
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss		
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input type="radio"/> Dip pipe		
45	<input checked="" type="radio"/> Fire Proofing Support	<input type="radio"/> Internal lining			
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting			
47	<input type="radio"/> Heating coil	<input type="radio"/> Internal clips			
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips			

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 1

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR BLOW-BACK SYSTEM DRUM(V-351)

1	
2	<b>MATERIALS(NOTE 2)</b>
3	
4	

4	Shell(Main/Jacket)	SA240-304L /	Earth lug	SA240-316L	
5	Head(Main/Jacket)	SA240-304L /	Stiffening rings	-	
6	Nozzle Necks (Main/Jacket)	Plate	- /	Gaskets	Spiral Wound
7		Pipe	SA312-304L /	Ext. bolt/Nuts	SA193-B7/SA194-2H
8	Cladding	-	Int. bolt/Nuts	SA193-B8/SA194-8	
9	Nozzle flanges	SA182-F304L	Wire mesh	-	
10	Blind flanges	SA182-F304L	Welded clip	SA240-304L	
11	Reinforcing pad	SA240-304L	Int. welded	-	
12	Fitting	SA403-304L	Int. removable	-	
13	Support	Leg	-	Anchor/Setting bolts	SA307 B
14		Lug	SA240-304L	Ladder/Platform	-
15		leg/lug pad	SA240-304L	Insulation Mateial	MINERAL WOOL
16	Lifting lug	SA240-304L			

17	<b>NOZZLE DETAILS(NOTE 2,3,4,7,8)</b>
18	

Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks	
		Rating	Type	Face				Width	Thk.			
21	Top Head											
22	P1	1"	400#	WN	RF	40S	Vent	See dwg	-	-	ANSI B16.5	
23	P2	1"	400#	WN	RF	40S	SDV Connection	See dwg	-	-	ANSI B16.5	
24												
25	K1	1"	400#	WN	RF	40S	PRC Connection	See dwg	-	-	ANSI B16.5	
26	K2	1"	400#	WN	RF	40S	Safety Valve	See dwg	-	-	ANSI B16.5	
27												
28	Shell											
29	P3	1"	400#	WN	RF	40S	Product Inlet	See dwg	-	-	ANSI B16.5	
30	P4	1 1/2"	400#	WN	RF	40S	Product Outlet	See dwg	-	-	ANSI B16.5	
31												
32												
33	Bottom Head											
34	P5	1/2"	400#	WN	RF	40S	Drain	See dwg	-	-	ANSI B16.5	
35												
36	K3	1"	400#	WN	RF	40S	Temperature	See dwg	-	-	ANSI B16.5	
37												
38	Jacket											
39	P6	1/2"	300#	WN	RF	40S	Steam Inlet	See dwg	-	-	ANSI B16.5	With Impingement plate
40	P7	1/2"	300#	WN	RF	40S	Condens. Outlet	See dwg	-	-	ANSI B16.5	
41												
42												
43												
44												
45												
46												
47												
48												

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 2



PROJECT:PP-PE PILOT PLANT

Client:

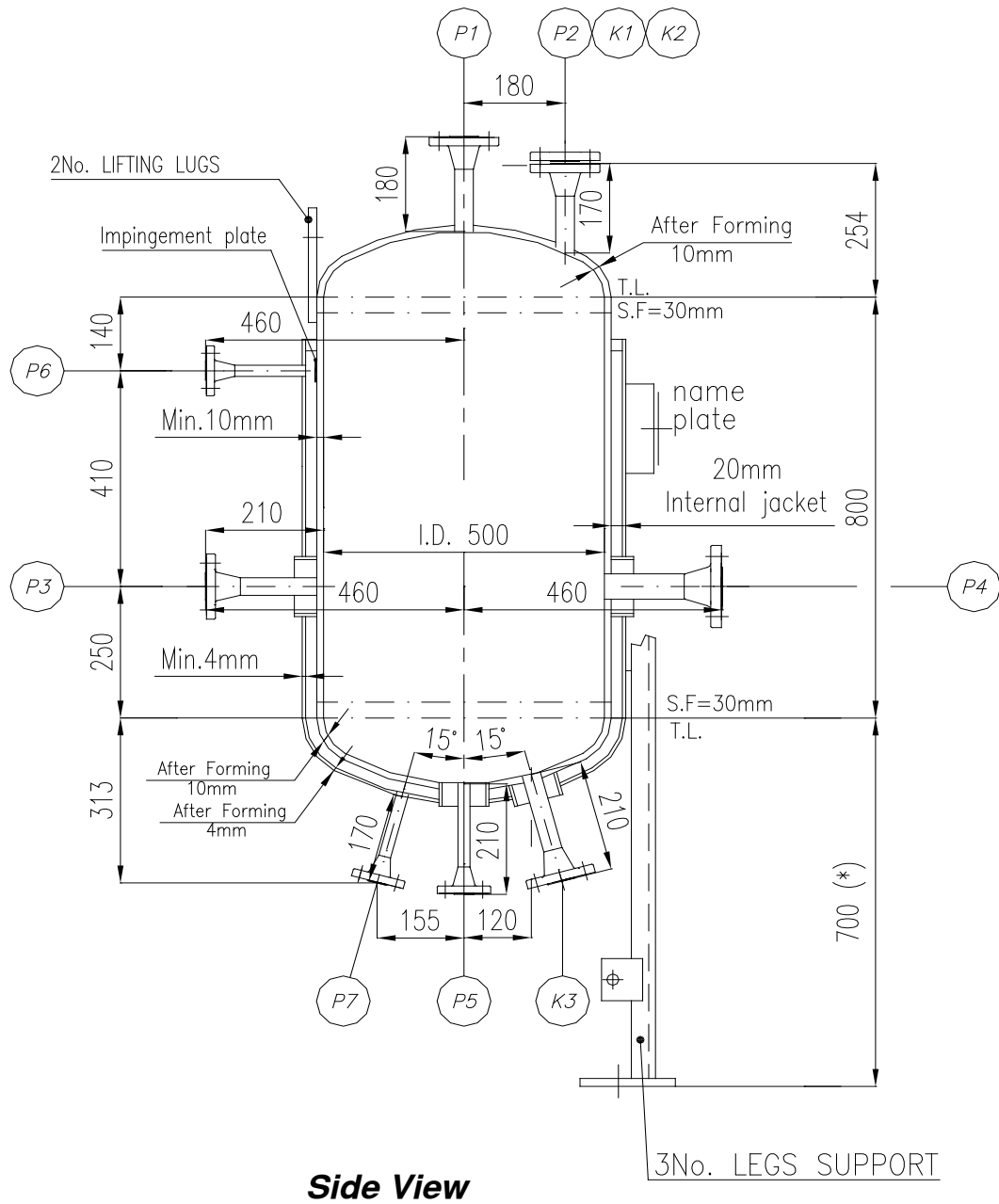


TITLE:DATA SHEET FOR BLOW-BACK SYSTEM DRUM(V-351)

1							
2	<b>NOZZLE LOADING DATA(NOTE 1)</b>						
3							
4	Nozzle	FA	FB	FC	MA	MB	MC
5	Name	(kN)	(kN)	(kN)	(N.m)	(N.m)	(N.m)
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

21 **REFRENC DOCUMENTS**

No.	Document No.	Document Title
23		
24	1	
25	2	
26	3	
27	4	
28	5	
29	6	
30	7	
31	8	
32	9	
33	10	
34	11	
35	12	
36	13	
37	14	
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40	17	
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43	20	
44	21	
45	22	
46	23	
47	24	
48	25	



\*) To be finalized by vendor

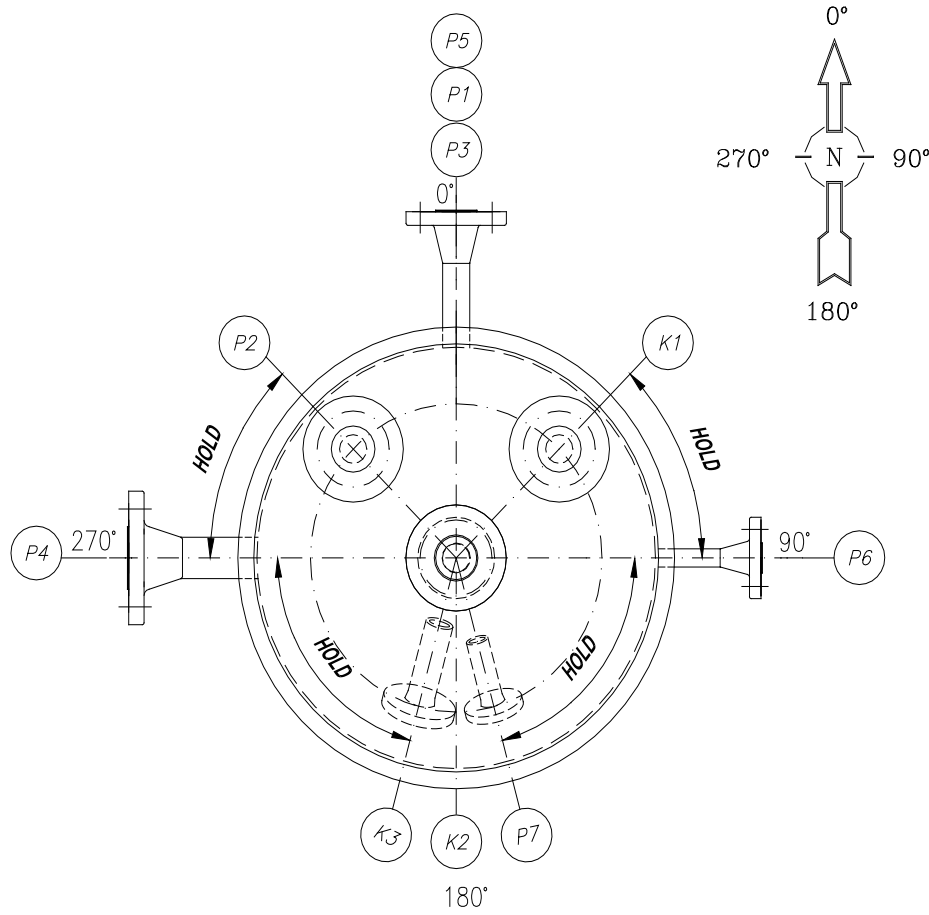
Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 4



### Nozzle Orientation (HOLD)

	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page : 5

PROJECT:PP-PE PILOT PLANT

Client:



TITLE:DATA SHEET FOR BLOW-BACK SYSTEM DRUM(V-351)

**General Notes:**

- 1- SHALL BE SPECIFIED BY VENDOR .
- 2- SHALL BE VERIFIED BY VENDOR.
- 3- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.
- 4- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.
- 5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 6- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF ELLIPTICAL/TORISPHERICAL HEADS SHALL BE IN NO CASE SMALLER THAN VESSEL SHELL THICKNESS.VENDOR SHALL CHECK AND GUARANTEE THEM ON STRENGTH.
- 7- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 8- UNLESS OTHERWISE NOTED OUTSIDE PROJECTION OF NOZZLES ARE MEASURED FROM C.L./T.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE.
- 9- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 10- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 11- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 12- SURFACE PREPARATAION,PICKLING&PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER.
- 13- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.
- 14- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Storage of HEXANE TK-343

**Data Sheet for STORAGE  
OF HEXANE  
TK-343**

Document No.:

Rev. : 00

Owner Job No.:

Type: DAS

Page : A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Storage of HEXANE TK-343

REV. PAGE	0	1	2	3	4	5	REV. PAGE	0	1	2	3	4	5
A	X												
B	X												
1	X												
2	X												
3	X												

5					
4					
3					
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1					
0	2021-11-27	K.A	M.N	AA.SH	AFC
<b>Revision</b>	<b>Date</b>	<b>Prepared By</b>	<b>Checked By</b>	<b>Approved By</b>	<b>Status</b>

	Document No.:	Rev. : 00
	Owner Job No.:	Type: DAS
		Page : B

<b>Data Sheet</b>		Project: <b>PP-PE PILOT PLANT</b>	Country: <b>IRAN</b>
<b>Vessel</b>		Company: <b>NPC-RT</b>	Document n°
Technical Abbreviation: <b>TK</b>		Location: <b>ARAK</b>	Page
			1
Type: <b>Vertical Vessel</b>		Manufacturer:	Belongs to.:
Item No.: <b>TK-343</b>		No. required: <b>1</b>	P&ID-No.:
Description: <b>Storage of hexane</b>			Area: <b>300</b>
Service/mode of operation:		<input checked="" type="checkbox"/> continuous <input type="checkbox"/> discontinuous	
<b>General Data</b>			
5			
6	Shell diameter ID: <b>2200 mm</b>	Nominal volume: <b>20 m<sup>3</sup></b>	Height (cyl.): <b>5000 mm</b>
7	Internals: <input type="checkbox"/> no <input checked="" type="checkbox"/> yes, - Type: <b>Inlet pipe</b>		
8	Other features: <input type="checkbox"/> no <input type="checkbox"/> yes, - Type:		
9	Location: <input type="checkbox"/> indoors <input checked="" type="checkbox"/> outdoors		
10	Supports:		
11	Others:		
12	<b>Operating Conditions</b>		
13		<b>Vessel</b>	<b>Jacket</b>
14	Volume <span style="float: right;">m<sup>3</sup></span>	<b>22</b>	
15	Medium/physical properties	<b>Hexane</b>	
16	Max. operating temperature <span style="float: right;">°C</span>	<b>Ambient</b>	
17	Operating pressure <span style="float: right;">barg</span>	<b>0.3</b>	
18	Physical state <span style="float: right;">(g/l/s)</span>	<b>liquid</b>	
19	Density <span style="float: right;">kg/m<sup>3</sup></span>	<b>Liq. 660</b>	
20	pH-value min/max.		
21	Operating volume <span style="float: right;">m<sup>3</sup></span>	<b>15</b>	
22	Errrosive/Corrosive due to		
23	Concentration <span style="float: right;">%</span>		
24	Min./max. level during operation <span style="float: right;">mm</span>	<b>500 / 4000</b>	<b>/</b>
25			
26	<b>Design Data</b>		
27			
28			
29	Design code:	Inspection by:	Design code section:
30		<b>Vessel</b>	<b>Jacket</b>
31	Volume (total) <span style="float: right;">m<sup>3</sup></span>	<b>22</b>	<b>Internal Coil</b>
32	Design over pressure (minimum) <span style="float: right;">barg</span>	<b>6/-1</b>	
33	Testing over-pressure/medium <span style="float: right;">barg</span>	<b>9</b>	
34	Design temperature (minimum) <span style="float: right;">°C</span>	<b>-30 ÷ +180</b>	
35	Corrosion allowance <span style="float: right;">mm</span>	<b>1</b>	
36	Welding radiography <span style="float: right;">%</span>	<b>10</b>	
37	Pressure/vacuum test; type <span style="float: right;">bar</span>		
38	Nominal volume <span style="float: right;">m<sup>3</sup></span>		
39	Thickness <span style="float: right;">mm</span>	<b>8 (NOTE 1)</b>	
40	Surface finish/treatment		
41	Safety device		
42	Others: ratio: <b>L (cyl.) / D = ~2.3</b>		
43	Weld finish: <input checked="" type="checkbox"/> no <input type="checkbox"/> yes, - Type:		
44	Thermal treatment: <input checked="" type="checkbox"/> no <input type="checkbox"/> yes	Loads/moments [N/m]:	
45	Empty weight [kN]:	Max. weight [kN]:	Assembly weight [kN]:
46	Insulation: <input type="checkbox"/> no <input checked="" type="checkbox"/> yes, - Type: <b>IA</b>	Thickness [mm]:	
47	Seismic factor: <input type="checkbox"/> none <input type="checkbox"/> factor:	Wind load [N/m <sup>2</sup> ]:	
48			
49			
50			
51	Lower and top head are elliptical heads Ratio 2:1.		
52			
53			
54			
55			
56	All data have to be checked during basic engineering		

<b>Data Sheet</b>		Project: <b>PP-PE PILOT PLANT</b>	Country: <b>IRAN</b>
<b>Vessel</b>		Company: <b>NPC-RT</b>	Document n°
Technical Abbreviation: <b>TK</b>		Location: <b>ARAK</b>	Page
			2
Type: <b>Vertical Vessel</b>		Manufacturer:	Belongs to.:
Item No.: <b>TK-343</b>		No. required: <b>1</b>	P&ID-No.:
Description: <b>Storage of hexane</b>		Area: <b>300</b>	
Service/mode of operation:		<input checked="" type="checkbox"/> continuous <input type="checkbox"/> discontinuous	
<b>Material of Construction</b>			
		Standard/certificate	Standard/certificate
		<b>Vessel</b>	<b>Jacket</b>
			<b>Internal Coil</b>
5	Process side (main)	<b>L.T. C.S.</b>	
6	Heads		
7	Flange		
8	Tubes/flanges		
9	Screws/nuts		
10	Gaskets	<b>CLASS 1</b>	
11	Internals		
12	Manhole		
13	Welding efficiency	1	
14	Supports		
15	Lugs/insulation		
16	Transport lugs		
17	Grounding device		
18	Tray/type		
<b>Details concerning transport, scope of supplies &amp; services</b>			
22	Transport volume [m³]:	transport weight [kN]:	Protective coating: <input type="checkbox"/> no <input type="checkbox"/> yes, - Type:
23	Registration:	Date of delivery:	Place of delivery:
24	site of inspection:		
25	Quality Control :		
26	Language of documentation:	<input checked="" type="checkbox"/> english <input type="checkbox"/> german	
27	Drawings:		
<b>Nozzle Details</b>			
	Designation	DN	PN
		Facing	Flange
		Standard	Length nozzle
			Comments
31	<b>Top head</b>		
32	<b>P1</b> Solvent Inlet	3"	150#
33		RF	WN
34		ANSI	
35			With 2" pipe inlet L= 500mm
36	<b>P2</b> Solvent Inlet	2"	150#
37		RF	WN
38		ANSI	
39			With 2" pipe inlet L= 500mm
40	<b>P3</b> Gas Phase	2"	150#
41		RF	WN
42		ANSI	
43			With blind flange
44	<b>P4</b> Spare	2"	150#
45		RF	WN
46		ANSI	
47			With blind flange
48	<b>K1</b> Safety Valve	2"	150#
49		RF	WN
50		ANSI	
51			With blind flange
52	<b>K2</b> Level	3"	150#
53		RF	WN
54		ANSI	
55			With blind flange
56	<b>K3</b> Pressure Switch	1"	300#
57		RF	WN
58		ANSI	
59			With blind flange
60	<b>Shell</b>		
61	<b>P5</b> Recycling	2"	150#
62		RF	WN
63		ANSI	
64			With blind flange
65	<b>P6</b> Spare	2"	150#
66		RF	WN
67		ANSI	
68			With blind flange
69	<b>K4</b> Level Switch	1 ½"	300#
70		RF	WN
71		ANSI	
72			With blind flange
73	<b>K5</b> Level Indicator	1"	300#
74		RF	WN
75		ANSI	
76			With blind flange
77	<b>K6</b> Temperature	1"	300#
78		RF	WN
79		ANSI	
80			With blind flange
81	<b>M1</b> Manhole	22"	150#
82		RF	SO
83		ANSI	
84			With blind flange
85	<b>Bottom head</b>		
86	<b>P7</b> Solvent Outlet	3"	150#
87		RF	WN
88		ANSI	
89			With blind flange
90	<b>P8</b> Spare	1½"	150#
91		RF	WN
92		ANSI	
93			With blind flange
94	<b>K7</b> Level Indicator	1"	300#
95		RF	WN
96		ANSI	
97			With blind flange



# Data Sheet

## Vessel

Technical Abbreviation: **TK**

Project: **PP-PE PILOT PLANT**

Country: **IRAN**

Company: **NPC-RT**

Location: **ARAK**

Document n°

Page

3

Type: **Vertical Vessel**

Manufacturer:

Belongs to.:

Item No.: **TK-343**

No. required: **1**

P&ID-No.:

Description: **Storage of hexane**

Area: **300**

Service/mode of operation:

continuous  discontinuous

### Nozzle Details

	Designation	DN	PN	Facing	Flange	Standard	Length nozzle	Comments
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								

40 - All nozzle details and positioning have to be defined and checked during basic detail  
 41 engineering.

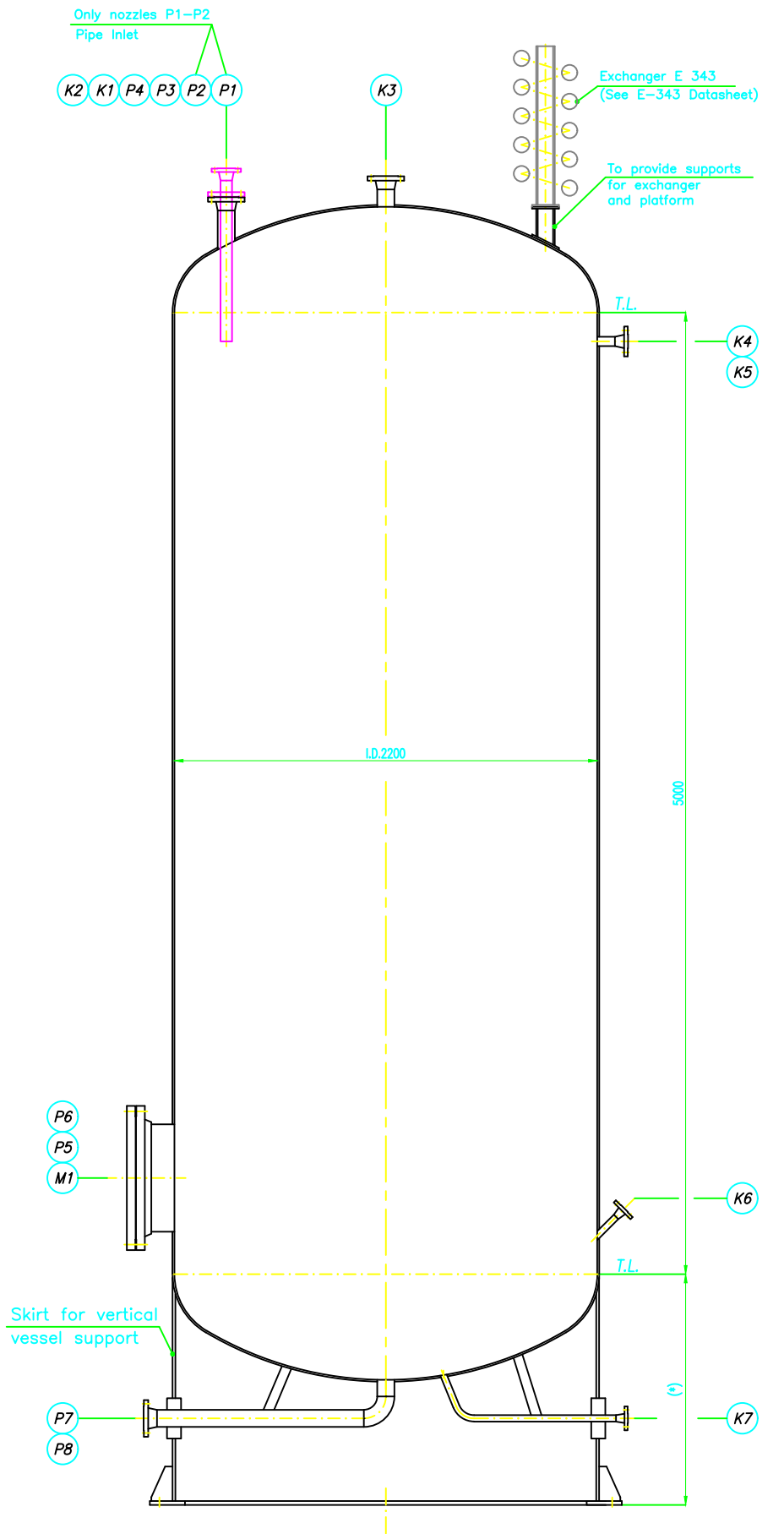
### Sketch

43 Sketch available:  yes, attached  no

44 (NOTE 1) To be checked by VENDOR

45 (NOTE 2) DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

46	
47	
48	
49	
50	
51	
52	
53	
54	
55	



\*) - To be define

B			U.E.	REVISION N.	REV. N.
			FE		4
			U.A.	PLANT	CF
			IR	PP-PE	TK
© FIRST ISSUE		02/11/20			
Project:		PP-PE PILOT PLANT		02/11/20	
Title:		STORAGE OF HEXANE			
Scale:		1:15			
File name:		DWG TK-343			
DESIGNER	COMPANY	LOCATION	COUNTRY	CREATOR	APPROVED
IR	NPC-RT	ARAK	IRAN	KA	MM
					MSH

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR STEAMER (V-611)

## DATA SHEET FOR STEAMER (V-611)

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : A



PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR STEAMER (V-611)

1	Item No.: V-611	Quantity: 1	Location: Outdoor	Service: Continuous
2	<b>DESIGN CONDITIONS</b>			
3				
4		<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>
5	Operating Temperature(Min./Max.) °C	-/100	-/160	-/-
6	Operating Pressure barg	0.4	5.5	-
7	Density kg/m <sup>3</sup>	430	1000	-
8	Design Pressure(int./ext.) barg	8/-	10/-1	-/-
9	Design Temperature °C	-45÷+180	+180	-/-
10	Volume(total) m <sup>3</sup>	0.81	0.12	-
11	Hydro Test Pressure barg	as per UG99b(33)	as per UG99b(33)	-
12	Corrosion Allowance(shell/head) mm	0/0	0/0	-/-
13	Cladding (shell/head) mm	-/-	-/-	-/-
14	Content @ normal operation	Hydrocarbons+Polymer	Steam	-
15	Thickness(shell/head/cone) mm	12/16/14(Note 1) $\Delta$ 2	(Note 1)	-/-
16	Welding Radiography	FULL	FULL	-/-
17	Joint Efficiency(shell/head)	1/1	1/1	-/-
18	Top Head Type	2:1 Elipsoidal	2:1 Elipsoidal	-
19	Bottom Head Type	Bolted FLange	-	-
20	Design code: ASME SEC. VIII DIV.1	Inspection code: ASME SEC. IX		
21	Cylinder Deminsion(IDxT.L-T.L): 450-800 x 3378 mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No		
22	M.D.M.T @ D.P: -45 °C	M.A.T: - °C		
23	M.A.W.P: (Note 1) barg Limited by: (Note 1)	Stamp: Required		
24	Impact Test: Not Required	P.W.H.T: Not Required		
25	N.D.T: Required	Vessel lining detail: NIL		
26	HIC/SSC resistance: NA / NA	Painting & Coating: as per code		
27	Insulation thickness: 30 mm	Insulation type: Personel Protection		
28	Fireproofing : YES	Vessel located on: Structrue		
29	Seismic code: UBC 1997	Seismic Zone: 3		
30	Impotance factor: 1.25	Soil Profile: SD		
31	Wind code: UBC	Wind velocity: 120 km/hr @ 10 m		
32	Impotance factor: 1.15	Exposure: C		
33	<b>Support loading data(Note 1)</b>			
34	Earthquake	Wind	<b>Weight(kg) (Note 1)</b>	Fabricated: -
35	Shearing load(kgf)	-		Empty: -
36	Moment(kg.m)	-		Test: -
36				Operation: -
37	<b>MISCELLANEOUS</b>			
38				
39	<input type="radio"/> Baffle	<input checked="" type="radio"/> Impingement plate	<input type="radio"/> Weir plate	
40	<input type="radio"/> Diffuser	<input checked="" type="radio"/> Distributer	<input type="radio"/> Trunnion	
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template	
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation	
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss	
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input checked="" type="radio"/> Dip pipe	
45	<input type="radio"/> Fire Proofing Support	<input type="radio"/> Internal lining	<input checked="" type="radio"/> Perforated Plate	
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting	<input checked="" type="radio"/> Agitator	
47	<input type="radio"/> Heating coil	<input checked="" type="radio"/> Internal clips	<input checked="" type="radio"/> Stirrer	
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips		

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 1 of 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR STEAMER (V-611)

1												
2	MATERIALS(NOTE 2)											
3												
4	Shell(Main/Jacket)	UNS S31803 / SS304		Earth lug		UNS S31803						
5	Head(Main/Jacket)	UNS S31803 / SS304		Stiffening rings		-						
6	Nozzle Necks (Main/Jacket)	Plate	- / -		Gaskets		SPIRAL WOUND					
7		Pipe	UNS S31803 / SS304		Ext. bolt/Nuts		UNS S31803					
8	Cladding	-		Int. bolt/Nuts		UNS S31803						
9	Nozzle flanges	UNS S31803		Wire mesh		-						
10	Blind flanges	UNS S31803		Welded clip		UNS S31803						
11	Reinforcing pad	UNS S31803		Int. welded		UNS S31803						
12	Fitting	UNS S31803		Int. removable		UNS S31803						
13	Support	Leg	-		Anchor/Setting bolts		UNS S31803					
14		Lug	SA283-C		Ladder/Platform		-					
15		leg/lug pad	UNS S31803		Insulation Mateial		MINERAL WOOL					
16	Lifting lug	UNS S31803										
17	NOZZLE DETAILS(NOTE 3,4,12)											
18												
19	Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD (NOTE 1)		Standards	Remarks
20			Rating	Type	Face				O.D.	Thk.		
21	<b>Top Head</b>											
22	P1	6"	150#	WN	RF	40S	Gas Outlet	See dwg	300	20	ANSI B16.5	
23	P2	1/4"	3000#	-	Thr. NPT	-	N <sub>2</sub> Seal Inlet	See dwg	-	-	ANSI B2.1	
24	P3	1/4"	3000#	-	Thr. NPT	-	N <sub>2</sub> Seal Inlet	See dwg	-	-	ANSI B2.1	
25	S1	5"	150#		RF	40S	Stirrer Connect.	See dwg	-	-	ANSI B16.5	
26												
27	K1	2"	150#	WN	RF	80S	Level Switch	See dwg	-	-	ANSI B16.5	
28	K2	2"	150#	WN	RF	80S	Spare (Level)	See dwg	-	-	ANSI B16.5	Blind Flange
29												
30	<b>Shell</b>											
31	P4	3"	150#	WN	RF	40S	Product Inlet	See dwg	-	-	ANSI B16.5	Tangential
32	P5	1"	300#	LWN	RF	40S	Spare	See dwg	-	-	ANSI B16.5	Blind Flange+Plug
33	P6	3"	150#	PAD	RF	40S	Product	See dwg	-	-	ANSI B16.5	
34												
35	<b>Bottom Head</b>											
36	P7	3"	150#	WN	RF	160	Product	See dwg	-	-	ANSI B16.5	
37	P8	1 1/2"	300#	WN	RF	80S	Steam + N <sub>2</sub> Inlet	See dwg	-	-	ANSI B16.5	
38	P9	1/2"	300#	WN	RF	40S	Steam Outlet	See dwg	-	-	ANSI B16.5	Impingement plate
39					RF							
40	K3	1"	300#	WN	RF	40S	Temperature	See dwg	-	-	ANSI B16.5	
41												
42	<b>Jacket</b>											
43	P10	2"	150#	WN	RF	40S	Thermostat.inlet	See dwg	-	-	ANSI B16.5	Impingement plate
44	P11	1/2"	3000#	WN		-	Vent	See dwg	-	-	ANSI B2.1	With plug
45	P12	2"	150#	WN	RF	40S	Thermostat.outlet	See dwg	-	-	ANSI B16.5	
46	P13	1/2"	3000#	WN		-	Drain	See dwg	-	-	ANSI B2.1	With plug
47												
48												

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 2 of 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR STEAMER (V-611)

1							
2	<b>NOZZLE LOADING DATA(NOTE 10)</b>						
3							
4	Nozzle	FL	FA	FC	MC	MT	ML
5	Name	(kgf)	(kgf)	(kgf)	(kg.m)	(kg.m)	(kg.m)
6	P1	734	734	551	221	331	287
7	P4	367	367	276	56	83	72
8	P6	367	367	276	56	83	72
9	P7	367	367	276	56	83	72
10	S1	(Note 9)	(Note 9)	(Note 9)	(Note 9)	(Note 9)	(Note 9)
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

21	<b>REFRENCE DOCUMENTS</b>						
22							

No.	Document No.	Document Title
23		
24	1	
25	2	
26	3	
27	4	
28	5	
29	6	
30	7	
31	8	
32	9	
33	10	
34	11	
35	12	
36	13	
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48	25	

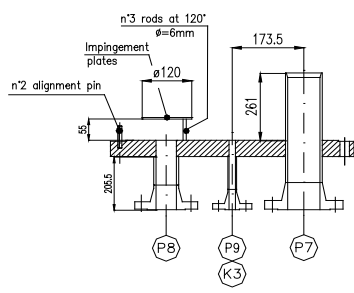
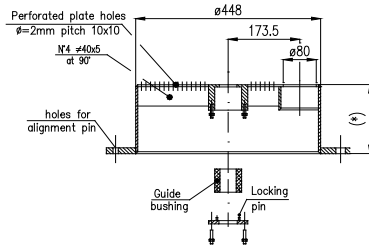
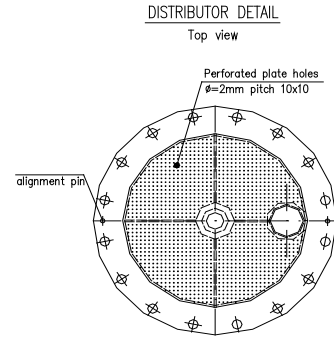
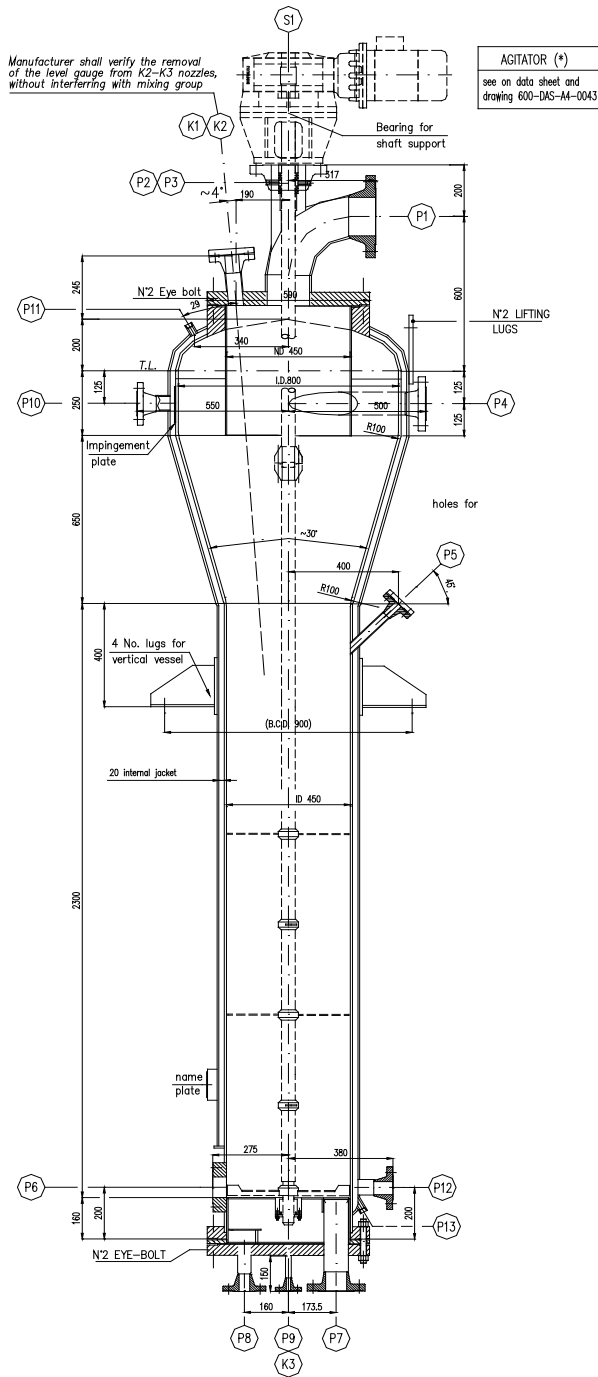
Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 3 of 6



\*) Agitator connection and other dimensions shall be agreed with agitator supplier

**Side View**

Document No.:

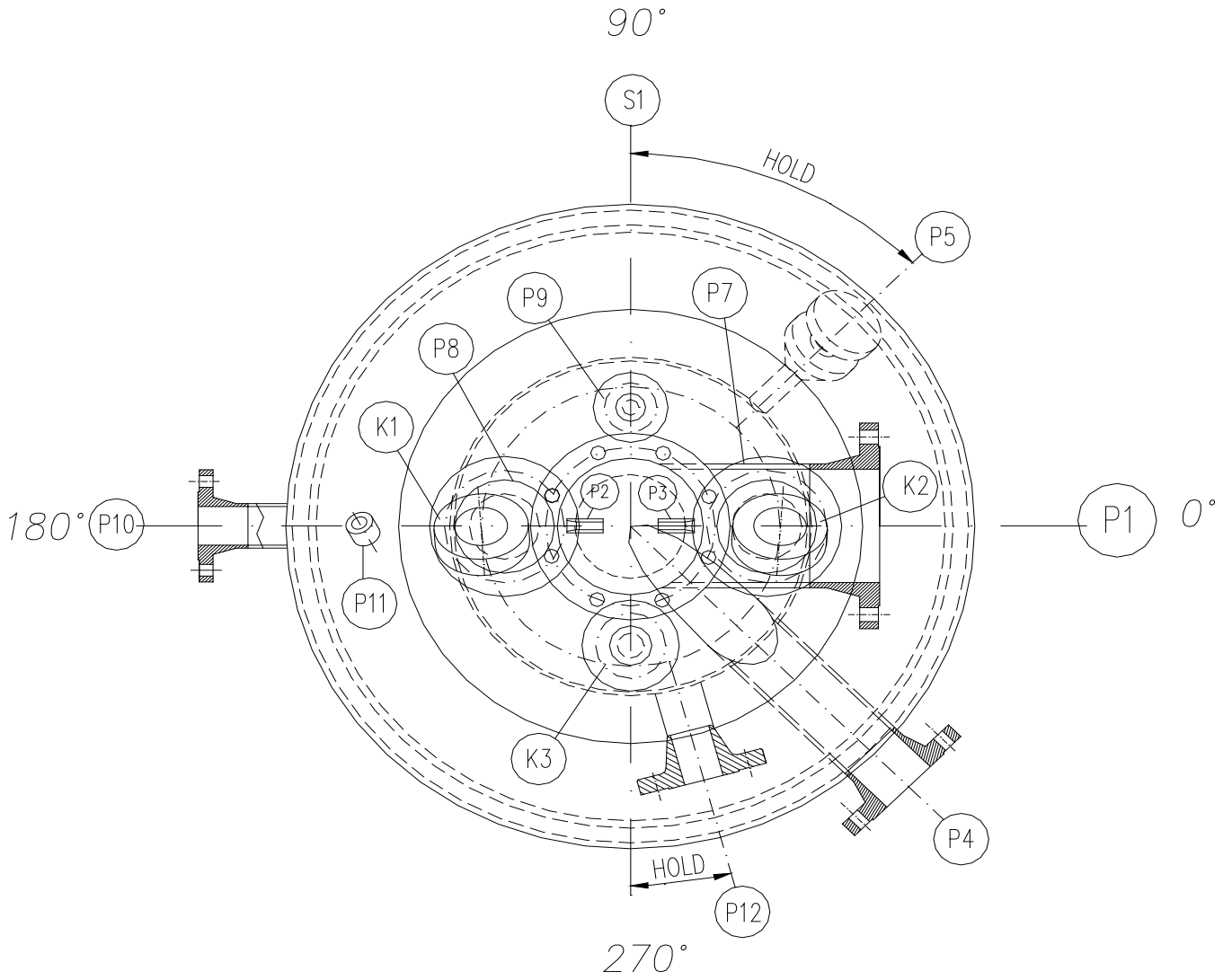
Rev. : 0

Owner Job No.:

Type: DAS

Page : 4 of 6





**Orientation (HOLD)**

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 5 of 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR STEAMER (V-611)

**General Notes:**

- 1- VENDOR. TO SPECIFY.
- 2- SHALL BE VERIFIED BY VENDOR
- 3- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED
- 4- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR
- 5-INTERNAL FINISHING SHALL BE SMOOTH FINISH RA=0.4 $\mu$ M (16 $\mu$ INCH)
- 6- SHALL BE MODIFIED AND SPECIFIED BY VENDOR .
- 7- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 8- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 9-SHALL SPECIFIED BY AGITATOR SUPPLIER.
- 10- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 11- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 12- FINISHING OF THE GASKET CONTACTING FACE SHALL BE SMOOTH FINISH RA=6.3 $\mu$ M (250 $\mu$ INCH).
- 13- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 6 of 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR STEAMER SCRUBBER(T -611)

## DATA SHEET FOR STEAMER SCRUBBER(T-611)

Document No.:

Rev.: 0

Owner Job No.:

Type: DAS

Page A

PROJECT:PP-PE PILOT PLANT

Client:



TITLE:DATA SHEET FOR STEAMER SCRUBBER(T -611)

REV. PAGE	0	1	2	3	4	5	REV. PAGE	0	1	2	3	4	5
A	X												
B	X												
1	X												
2	X												
3	X												
4	X												
5	X												
6	X												

5					
4					
3					
2					
1					
0	2021-11-28	K.A	M.N	AA.SH	AFC
<b>Revision</b>	<b>Date</b>	<b>Prepared By</b>	<b>Checked By</b>	<b>Approved By</b>	<b>Status</b>

**Document Revision**

	<b>Document No.:</b>	<b>Rev.: 0</b>
	<b>Owner Job No.:</b>	<b>Type: DAS</b>
		<b>Page B</b>

PROJECT:PP-PE PILOT PLANT

Client:


 شرکت ملی صنایع پتروشیمی  
 شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR STEAMER SCRUBBER(T -611)

1	Item No.:T-611	Quantity: 1	Location: Outdoor	Service: Continuous	
2	<b>DESIGN CONDITIONS</b>				
3					
4		<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>	
5	Operating Temperature(Min./Max.) °C	30 / 40	-/-	-/-	
6	Operating Pressure barg	0.5	-	-	
7	Density kg/m <sup>3</sup>	1000 (Liq.)	-	-	
8	Design Pressure(int./ext.) barg	8 / -	-/-	-/-	
9	Design Temperature °C	-45÷+180	-/-	-/-	
10	Volume(total) m <sup>3</sup>	0.3	-	-	
11	Hydro Test Pressure barg	as per UG99b(33)	-	-	
12	Corrosion Allowance(shell/head) mm	0 / 0	-/-	-/-	
13	Cladding (shell/head) mm	- / -	-/-	-/-	
14	Content @ normal operation	Water + Hydrocarbons	-	-	
15	Thickness(shell/head) mm	Sch.40s / Sch.40s	-/-	-/-	
16	Welding Radiography(shell/head) %	Full / Full	-/-	-/-	
17	Joint Efficiency(shell/head)	1 / 1	-/-	-/-	
18	Top Head Type	STD CAP	-	-	
19	Bottom Head Type	STD CAP	-	-	
20	Design code: ASME SEC. VIII DIV.1	Inspection code: as per code			
21	Cylinder Deminsion(IDxT.L-T.L): PIPE 12" x 3800 mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No			
22	M.D.M.T @ D.P: -45 °C	M.A.T: - °C			
23	M.A.W.P: - barg Limited by: -	Stamp: NIL			
24	Impact Test: Not Required	P.W.H.T: NIL			
25	N.D.T: Required	Vessel lining detail: -			
26	HIC/SSC resistance: - / -	Painting & Coating: as per code			
27	Insulation thickness: 30 mm	Insulation type: IA			
28	Fireproofing thickness: (Note 19) mm	Vessel located on: Structure			
29	Seismic code: UBC 1997	Seismic Zone: 3			
30	Impotance factor: 1.25	Soil Profile: -			
31	Wind code: UBC	Wind velocity: 120 km/hr @ 10 m			
32	Impotance factor: 1.15	Exposure: C			
33	<b>Support loading data(Note 5)</b>				
34	Earthquake	Wind	<b>Weight(kg) (Note 5)</b>	Fabricated: 600	
35	Shearing load(kgf)	140		150	Empty: 660
36	Moment(kg.m)	70		75	Test(Field): 950
					Operation: 680
37	<b>MISCELLANEOUS(Note 5)</b>				
38					
39	<input checked="" type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate		
40	<input type="radio"/> Diffuser	<input type="radio"/> Distributer	<input type="radio"/> Trunnion		
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template		
42	<input type="radio"/> Boot / Cap	<input checked="" type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation		
43	<input type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss		
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input checked="" type="radio"/> Dip pipe		
45	<input type="radio"/> Fire Proofing Support	<input type="radio"/> Internal lining			
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting			
47	<input type="radio"/> Heating coil	<input checked="" type="radio"/> Internal clips			
48	<input checked="" type="radio"/> Lifting lug	<input type="radio"/> External clips			


Document No.:

Rev.: 0

Owner Job No.:

Type: DAS

Page 1 of 6

PROJECT:PP-PE PILOT PLANT	Client:	 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی
TITLE:DATA SHEET FOR STEAMER SCRUBBER(T -611)		

1	
2	<b>MATERIALS(NOTE 1)</b>
3	

4	Shell(Main/Jacket)	SA312-304 / NA	Earth lug	SA240-316	
5	Head(Main/Jacket)	SA403-304 / NA	Stiffening rings	NA	
6	Nozzle Necks	Plate	Gaskets (Note17)	Spiral wound	
7	(Main/Jacket)	Pipe	SA312-304 / NA	Ext. bolt/Nuts	SA193-B7/SA194-2H
8	Cladding	NA	Int. bolt/Nuts	SA320-B8/SA194-8	
9	Nozzle flanges	SA182-304	Wire mesh		
10	Blind flanges	SA182-304	Welded clip	SA240-304	
11	Reinforcing pad	SA240-304	Int. welded	SA240-316	
12	Fitting	SA403-304	Int. removable	SA240-316	
13	Support	Leg	NA	Anchor/Setting bolts	SA307-B
14		Lug	SA240-304	Ladder/Platform	NA
15		-	Insulation Mateial	Mineral Wool	
16	Lifting lug	SA240-304			

17	<b>NOZZLE DETAILS(NOTE 2,3,8)</b>
18	

Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks	
		Rating	Type	Face				Width	Thk.			
21	Top Head											
22	P1	3"	150#	W.N	RF	40S	Gas Outlet	(**)	-	-	ANSI B16.5	
23												
24	Shell											
25	P2	1 1/2"	300#	W.N	RF	40S	Water Inlet	(**)	-	-	ANSI B16.5	Tangential , See Dwg.
26	P3	4"	150#	W.N	RF	40S	Gas Inlet	(**)	-	-	ANSI B16.5	Tangential
27	P4	3"/2"	150#	W.N	RF	40S	Recycle	(**)	-	-	ANSI B16.5	With internal pipe 2" , See Dwg.
28	K1	3"	300#	W.N	RF	40S	Dpcelle Connec.	(**)	-	-	ANSI B16.5	
29	K2	1"	300#	W.N	RF	40S	Temperature	(**)	-	-	ANSI B16.5	See Dwg.
30	K3	1"	300#	W.N	RF	40S	Level Connec.	(**)	-	-	ANSI B16.5	See Dwg.
31												
32	Bottom Head											
33	P5	3"	150#	S.O	RF	40S	Product Disch.	(**)	-	-	ANSI B16.5	
34	K4	3"	300#	W.N	RF	40S	Dpcelle Connec.	(**)	-	-	ANSI B16.5	See Dwg.
35												
36												
39												
41												
42												

43	<b>COMMENTS</b>
44	- To be verified by vendor.
45	(*) From vessel surface.
46	(**) Nozzles Projection are shown in sketch.
47	

	Document No.:	Rev.: 0
	Owner Job No.:	Type: DAS
		Page 2of 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

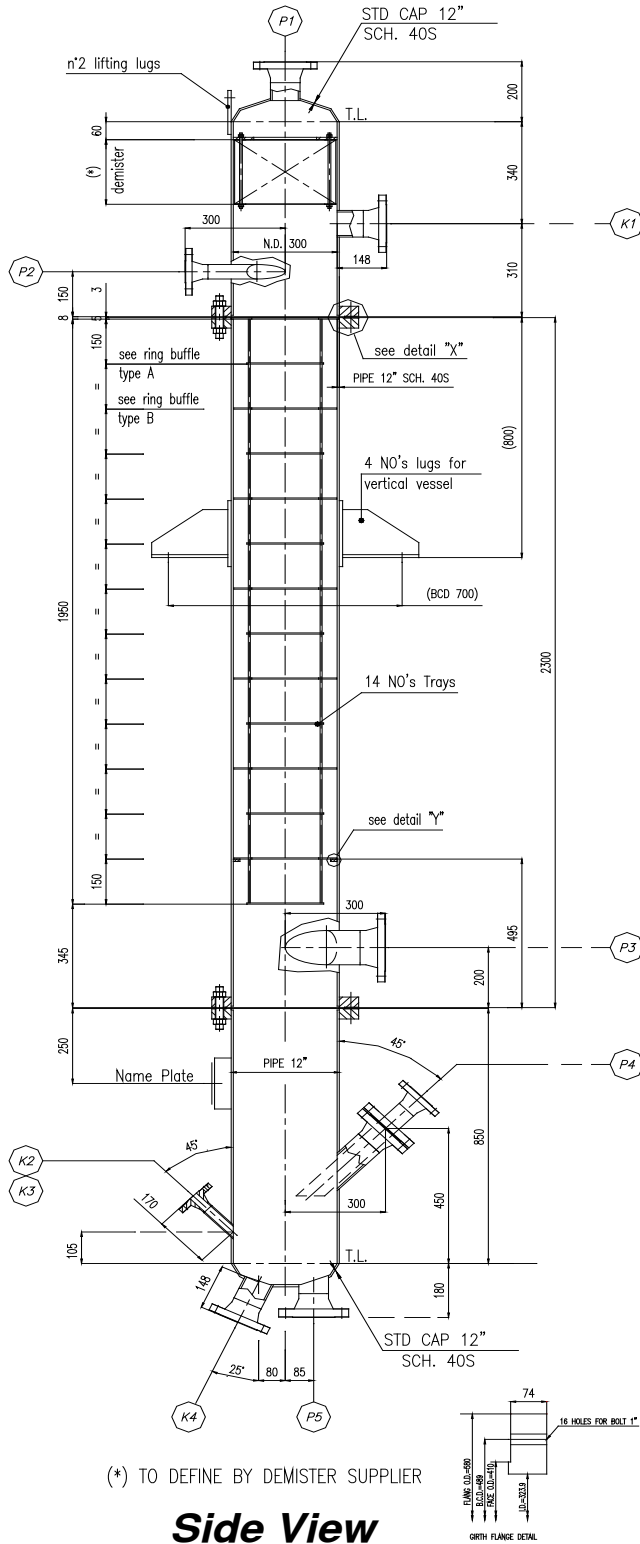
TITLE:DATA SHEET FOR STEAMER SCRUBBER(T -611)

1							
2	<b>NOZZLE LOADING DATA(NOTE 6)</b>						
3							
4	Nozzle	FL	FA	FC	MC	MT	ML
5	Name	(kgf)	(kgf)	(kgf)	(kg.m)	(kg.m)	(kg.m)
6	P1	367	367	276	56	83	72
7	P2						
8	P3	490	490	367	98	147	128
9	P4	367	367	276	56	83	72
10	P5	367	367	276	56	83	72
11							
12							
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19							
20							

21	<b>REFRENCE DOCUMENTS</b>						
22							

No.	Document No.	Document Title
23		
24	1	
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26	3	
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48	25	

	Document No.:	Rev.: 0
	Owner Job No.:	Type: DAS
		Page 3 of 6



Document No.:

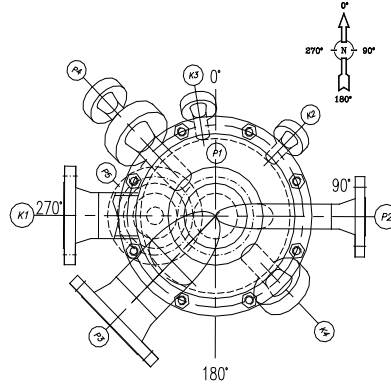
Rev.: 0

Owner Job No.:

Type: DAS

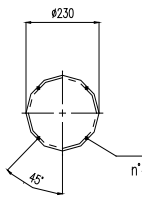
Page 4 of 6



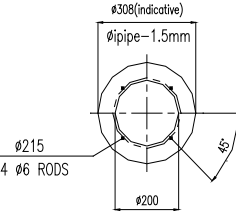


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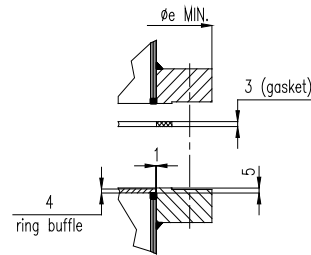
RING BUFFLE TYPE "A"  
thickness 4mm



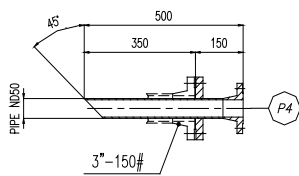
RING BUFFLE TYPE "B"  
thickness 4mm



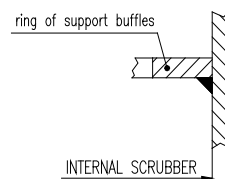
MAIN FLANGES  
detail "X"



DETAIL NOZZLE P4  
dip pipe ND50



DETAIL "Y"



Document No.:

Rev.: 0

Owner Job No.:

Type: DAS

PROJECT:PP-PE PILOT PLANT

Client:



TITLE:DATA SHEET FOR STEAMER SCRUBBER(T -611)

**General Notes:**

- 1- SHALL BE VERIFIED BY VENDOR.
- 2- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.
- 3- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.
- 4- THICKNESSES INDICATED ON ENG. DRAWING ARE Min. PURCHASER REQUIREMENT. VENDOR SHALL CHECK AND GUARANTEE THEM ON STRENGTH.
- 5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 6- SHALL BE SPECIFIED BY VENDOR .
- 7-SURFACE PREPARATAION,PICKLING&PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER
- 8- SHELL/NOZZLE THICKNESS AT CONNECTION/ATTACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 9- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 10- ALL NDT (RT, UT AND PT/MT) SHALL BE PERFORMED BEFORE AND AFTER PWHT .
- 11- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.
- 12- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 13- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF ELLIPTICAL/TORISPHERICAL HEADS SHALL BE IN NO CASE SMALLER THAN VESSEL SHELL THICKNESS.
- 14- ALL TAILED DIMENSIONS ARE MEASURED FROM B.L.
- 15- UNLESS OTHERWISE NOTED OUTSIDE PROJECTIONS OF NOZZLES ARE MEASURED FROM C.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE.
- 16- FLANGE FACE FINISHING SHALL BE SMOOTHED WITH 125-250 MICROINCH AVEREGAE ROUGHNESS
- 17- FINISHING OF THE GASKET CONTACTING FACE SHALL BE SMOOTH FINISH Ra=6.3 μm (250 μinch).
- 18- NUMBER AND SPACING OF TRAYS SHALL BE VERIFIED BY VENDOR REGARDING PERFORMANCE GUARANTY
- 19- WILL BE SPECIFIED LATER.
- 20- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 21- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.:

Rev.: 0

Owner Job No.:

Type: DAS

Page 6 of 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR POLYMER WATER SEPARATOR DRUM(V-612)

## DATA SHEET FOR POLYMER WATER SEPARATOR DRUM(V-612)

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی


TITLE:DATA SHEET FOR POLYMER WATER SEPARATOR DRUM(V-612)

REV. PAGE	0	1	2	3	4	5	REV. PAGE	0	1	2	3	4	5
A	X												
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0	2021-11-28	K.A	M.N	AA.SH	AFC
<b>Revision</b>	<b>Date</b>	<b>Prepared By</b>	<b>Checked By</b>	<b>Approved By</b>	<b>Status</b>

**Document Revision**

	<b>Document No.:</b>	Rev. : 00
	<b>Owner Job No.:</b>	Type: DAS
		Page : B

<b>PROJECT:PP-PE PILOT PLANT</b>	<b>Client:</b>
<b>TITLE:DATA SHEET FOR POLYMER WATER SEPARATOR DRUM(V-612)</b>	 <p>شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی</p>

1	Item No.: V-612	Quantity: 1	Location: Outdoor	Service: Continuous
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
<b>DESIGN CONDITIONS</b>				
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		<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>
5	Operating Temperature(Min./Max.) °C	-/40	-/-	-/-
6	Operating Pressure barg	0.5	-	-
7	Density kg/m <sup>3</sup>	1000	-	-
8	Design Pressure(int./ext.) barg	8/-	-/-	-/-
9	Design Temperature °C	-45++180	-/-	-/-
10	Volume(total) m <sup>3</sup>	0.0151	-	-
11	Hydro Test Pressure barg	as per UG99b(33)	-	-
12	Corrosion Allowance(shell/head) mm	0/0	-/-	-/-
13	Cladding (shell/head) mm	-/-	-/-	-/-
14	Content @ normal operation	Water+traces poly	-	-
15	Thickness(shell/head) mm	Sch 40s/Sch 40s	-/-	-/-
16	Welding Radiography(shell/head) %	100/100	-/-	-/-
17	Joint Efficiency(shell/head)	1/1	-/-	-/-
18	Top Head Type	STD CAP	-	-
19	Bottom Head Type	STD CAP	-	-


20	Design code:	ASME SEC. VIII DIV.1	Inspection code:	ASME SEC. IX
21	Cylinder Deminon(IDxT.L-T.L)	1 PIPE 6" x 622 mm	Lethal Service:	<input type="radio"/> Yes <input checked="" type="radio"/> No
22	M.D.M.T @ D.P:	-45 °C	M.A.T:	- °C
23	M.A.W.P: 11:41 barg	Limited by: Flange	Stamp:	Not Required
24	Impact Test:	Not Required	P.W.H.T:	Not Required
25	N.D.T:	Required	Vessel lining detail:	NIL
26	HIC/SSC resistance:	NA / NA	Painting & Coating:	as per code
27	Insulation thickness:	30 mm	Insulation type:	Cold
28	Fireproofing thickness:	Yes	Vessel located on:	Structrue
29	Seismic code:	UBC 1997	Seismic Zone:	3
30	Impotance factor:	1.25	Soil Profile:	SD
31	Wind code:	UBC	Wind velocity:	120 km/hr @ 10 m
32	Impotance factor:	1.15	Exposure:	C

<b>Support loading data(Note 5)</b>			<b>Weight(kg) (Note 5)</b>	Fabricated:	55
	Earthquake	Wind			
34				Empty:	60
35	Shearing load(kgf)	20	25	Test:	70
36	Moment(kg.m)	10	15	Operation:	75

<b>MISCELLANEOUS(Note 2,10)</b>				
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39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate
40	<input type="radio"/> Diffuser	<input type="radio"/> Distributer	<input type="radio"/> Trunnion
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input checked="" type="radio"/> Dip pipe
45	<input type="radio"/> Fire Proofing Support 	<input type="radio"/> Internal lining	
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting	
47	<input type="radio"/> Heating coil	<input type="radio"/> Internal clips	
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips	

	<b>Document No.:</b>	<b>Rev. : 0</b>
	<b>Owner Job No.:</b>	<b>Type: DAS</b>
		<b>Page : 1</b>

PROJECT:PP-PE PILOT PLANT	Client:
TITLE:DATA SHEET FOR POLYMER WATER SEPARATOR DRUM(V-612)	 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی

1				
2	MATERIALS(NOTE 2)			
3				
4	Shell(Main/Jacket)	SA312-304 /	Earth lug	SA240-316
5	Head(Main/Jacket)	SA403-304 /	Stiffening rings	-
6	Nozzle Necks (Main/Jacket)	Plate	- /	Gaskets
7		Pipe	SA312-304 /	Ext. bolt/Nuts
8	Cladding	-	Int. bolt/Nuts	SA193-B8/SA194-8
9	Nozzle flanges	SA182-F304	Wire mesh	-
10	Blind flanges	SA182-F304	Welded clip	SA240-304
11	Reinforcing pad	SA240-304	Int. welded	SA240-304
12	Fitting	SA403-304	Int. removable	SA312-304
13	Support	Leg	-	Anchor/Setting bolts
14		Lug	SA240-304	Ladder/Platform
15		leg/lug pad	SA240-304	Insulation Mateial
16	Lifting lug	SA240-304		Poly-Urethane

17	NOZZLE DETAILS(NOTE 2,3,4,7,8)			
18				

Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks	
		Rating	Type	Face				Width	Thk.			
<b>Top Head</b>												
21	P1	1"	300#	WN	RF	40S	Gas outlet	See dwg	-	-	ANSI B16.5	
22												
<b>Shell</b>												
23												
24	P2	1 1/2"	300#	WN	RF	40S	Product	See dwg	-	-	ANSI B16.5	
25												
<b>Bottom Head</b>												
26												
27	P3	2 1/2" /1 1/2"	150#	WN	RF	40S	Product inlet	See dwg	-	-	ANSI B16.5	dip pipe 1, 1/2" ANSI 300#
28												
29												
30												
31												
32												
33												
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46												
47												
48	Finishing of the gasket contacting face: smooth finish Ra=6.3µm (250µinch)											

	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page : 2

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR POLYMER WATER SEPARATOR DRUM(V-612)

1

2

**NOZZLE LOADING DATA(NOTE 1)**

3

4

Nozzle Name

FL

(kgf)

FA

(kgf)

FC

(kgf)

MC

(kg.m)

MT

(kg.m)

ML

(kg.m)

5

6

7

8

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10

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**REFERENCE DOCUMENTS**

22

23

No.

Document No.

Document Title

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Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 3

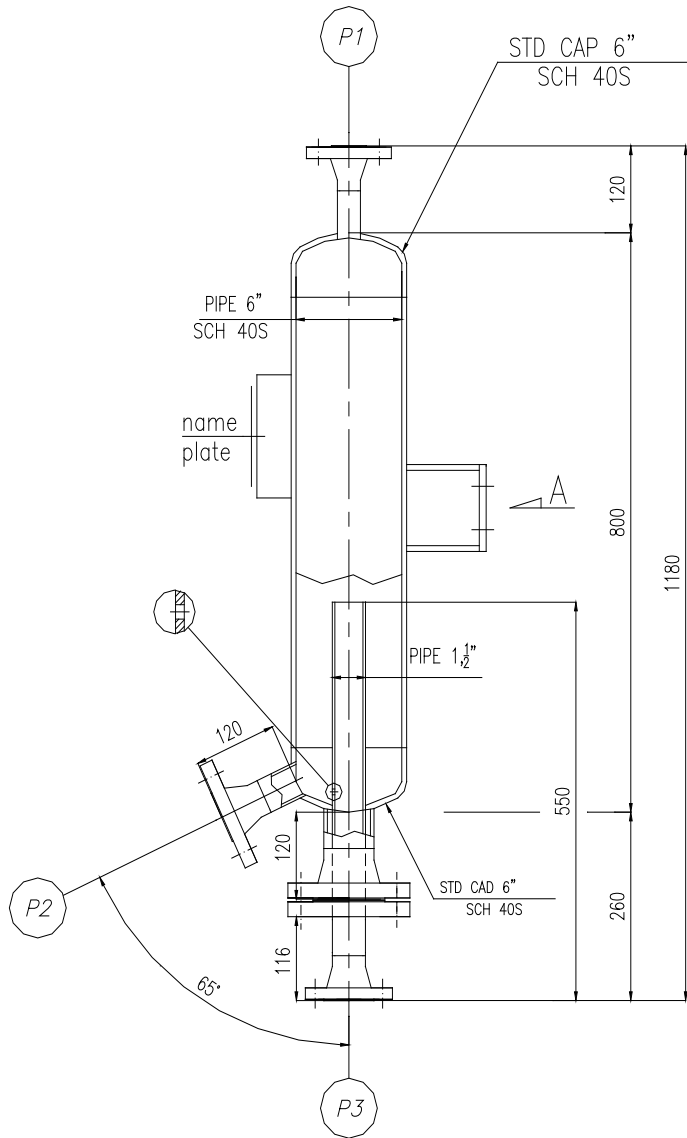
PROJECT:PP-PE PILOT PLANT

Client:

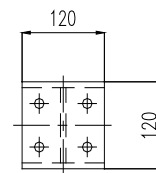


شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR POLYMER WATER SEPARATOR DRUM(V-612)



VIEW FROM "A"  
vessel support



Side View

1

Document No.:

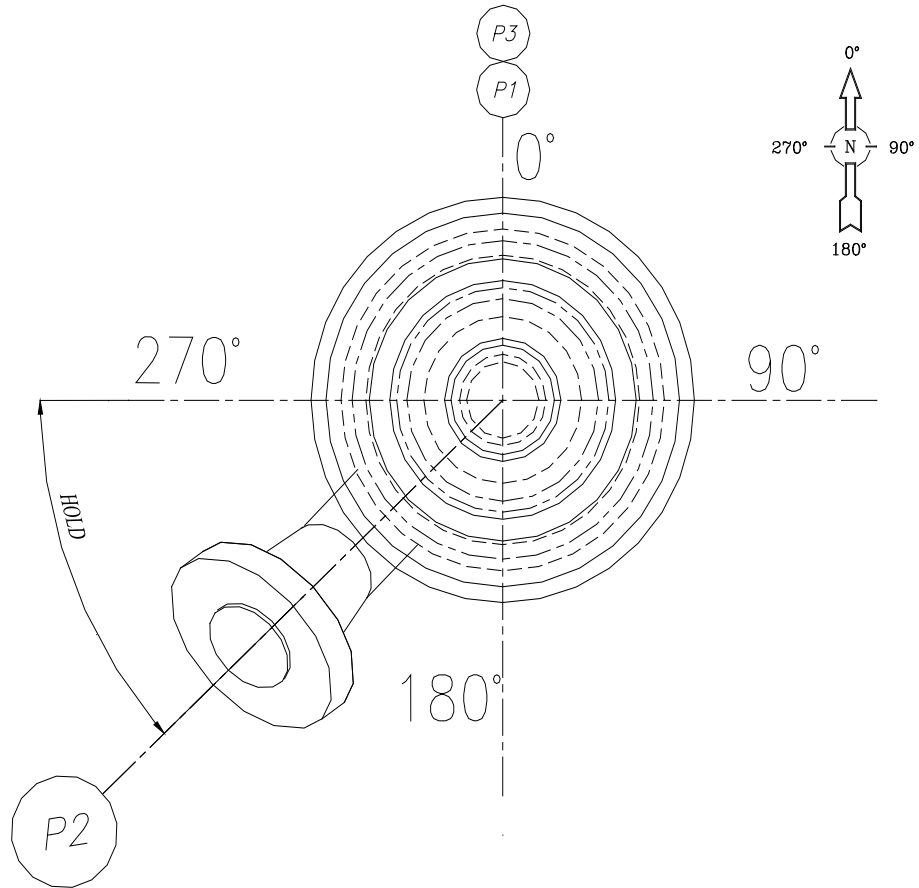
Rev. : 0

Owner Job No.:

Type: DAS

Page : 4





Nozzle Orientation (Hold)

1

	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page : 5

PROJECT:PP-PE PILOT PLANT

Client:



TITLE:DATA SHEET FOR POLYMER WATER SEPARATOR DRUM(V-612)

**General Notes:**

- 1- SHALL BE SPECIFIED BY VENDOR .
- 2- SHALL BE VERIFIED BY VENDOR.
- 3- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.
- 4- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.
- 5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 6- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF ELLIPTICAL/TORISPHERICAL HEADS SHALL BE IN NO CASE SMALLER THAN VESSEL SHELL THICKNESS.VENDOR SHALL CHECK AND GUARANTEE THEM ON STRENGTH.
- 7- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 8- UNLESS OTHERWISE NOTED OUTSIDE PROJECTION OF NOZZLES ARE MEASURED FROM C.L./T.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE.
- 9- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 10- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 11- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 12- SURFACE PREPARATAION,PICKLING&PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER.
- 13- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.
- 14- FINISHING OF THE GASKET CONTACTING FACE SHALL BE SMOOTH FINISH Ra=6.3µm (250µinch),
- 15- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR DRYER (DR-621)

## DATA SHEET FOR DRYER (DR-621)

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR DRYER (DR-621)

PAGE \ REV.	0	1	2	3	4	5	PAGE \ REV.	0	1	2	3	4	5
A	X												
B	X												
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0	2021-11-28	K.A	M.N	AA.SH	AFC
<b>Revision</b>	<b>Date</b>	<b>Prepared By</b>	<b>Checked By</b>	<b>Approved By</b>	<b>Status</b>

Document Revision

	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page : B

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR DRYER (DR-621)

1	Item No.:DR-621	Quantity: 1	Location: Outdoor	Service: Continuous
2	<b>DESIGN CONDITIONS</b>			
3				
4		<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>
5	Operating Temperature(Min./Max.) °C	100	-/-	-/-
6	Operating Pressure barg	0.2	-	-
7	Density kg/m <sup>3</sup>	400	-	-
8	Design Pressure(int./ext.) barg	6/-	10 / -1	-/-
9	Design Temperature °C	-45÷+180	+180	-/-
10	Volume(total) m <sup>3</sup>	1.15	0.06	-
11	Hydro Test Pressure barg	as per UG99b(33)	as per UG99b(33)	-
12	Corrosion Allowance(shell/head) mm	0/0	0/0	-/-
13	Cladding (shell/head) mm	-/-	-/-	-/-
14	Content @ normal operation	Hydrocarbons+Polymer	-	-
15	Thickness(shell/head) mm	12/12	4/4	-/-
16	Welding Radiography(shell/head) %	100/100	100/ -	-/-
17	Joint Efficiency(shell/head)	1/1	1/1	-/-
18	Top Head Type	2:1 Elipsoidal	Cylinder	-
19	Bottom Head Type	2:1 Elipsoidal	-	-
20	Design code: ASME SEC. VIII DIV.1	Inspection code: ASME SEC. IX		
21	Cylinder Deminsion(IDxT.L-T.L): 550-1000 x 2300 mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No		
22	M.D.M.T @ D.P: -45 °C	M.A.T: - °C		
23	M.A.W.P: 11.35 barg Limited by: Body Flange	Stamp: Required		
24	Impact Test: Not Required	P.W.H.T: Not Required		
25	N.D.T: Required	Vessel lining detail: NIL		
26	HIC/SSC resistance: NA / NA	Painting & Coating: as per code		
27	Insulation thickness: 30 mm	Insulation type: HOT		
28	Fireproofing :  NO	Vessel located on: Structure		
29	Seismic code: UBC 1997	Seismic Zone: 3		
30	Impotance factor: 1.25	Soil Profile: SD		
31	Wind code: UBC	Wind velocity: 120 km/hr @ 10 m		
32	Impotance factor: 1.15	Exposure: C		
33	<b>Support loading data(Note 7)</b>			
34		Earthquake	Wind	<b>Weight(kg) (Note 7)</b>
35	Shearing load(kgf)	155	15	
36	Moment(kg.m)	160	70	
37	<b>MISCELLANEOUS(Note 5)</b>			
38				
39	<input type="radio"/> Baffle	<input checked="" type="radio"/> Impingement plate	<input type="radio"/> Weir plate	
40	<input type="radio"/> Diffuser	<input checked="" type="radio"/> Distributer	<input type="radio"/> Trunnion	
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template	
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation	
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss	
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input checked="" type="radio"/> Dip pipe	
45	<input type="radio"/> Fire Proofing Support	<input type="radio"/> Internal lining	<input checked="" type="radio"/> Perforated Plate	
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting		
47	<input type="radio"/> Heating coil	<input checked="" type="radio"/> Internal clips		
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips		

Document No.:

Rev. : 0

Owner Job No.:


Type: DAS

Page : 1 of 6

PROJECT:PP-PE PILOT PLANT

TITLE:DATA SHEET FOR DRYER (DR-621)

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

**MATERIALS(NOTE 2)**

4	Shell(Main/Jacket)	UNS S31803 / SS304	Earth lug	UNS S31803
5	Head(Main/Jacket)	UNS S31803 / NA	Stiffening rings	NA
6	Nozzle Necks	Plate NA / NA	Gaskets	SPIRAL WOUND
7	(Main/Jacket)	Pipe UNS S31803 / SA312-304	Ext. bolt/Nuts	UNS S31803
8	Cladding	NA	Int. bolt/Nuts	UNS S31803
9	Nozzle flanges	UNS S31803	Wire mesh	NA
10	Blind flanges	UNS S31803	Welded clip	UNS S31803
11	Reinforcing pad	UNS S31803	Int. welded	UNS S31803
12	Fitting	UNS S31803	Int. removable	UNS S31803
13	Support	Leg NA	Anchor/Setting bolts	UNS S31803
14		Lug SA283-C	Ladder/Platform	NA
15		leg/lug pad UNS S31803	Insulation Mateial	MINERAL WOOL
16	Lifting lug	UNS S31803		

**NOZZLE DETAILS(NOTE 3,4)**

Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD (NOTE 1)		Standards	Remarks	
		Rating	Type	Face (note 9)				Width	Dia.			
<b>21 Top Head</b>												
22	P1	3"	150#	WN	RF	80S	Product Inlet	see dwg	-	-	ANSI B16.5	With dip pipe ND80
23	P2	6"	150#	WN	RF	80S	Gas Outlet	see dwg	-	-	ANSI B16.5	
24												
25	K1a	3"	300#	WN	RF	80S	DP Celle Connect.	see dwg	-	-	ANSI B16.5	
26	K2	2"	300#	WN	RF	80S	Level Switch	see dwg	-	-	ANSI B16.5	
27	K3	2"	300#	WN	RF	80S	Spare(Level)	see dwg	-	-	ANSI B16.5	With blind flange
28												
<b>29 Shell</b>												
30	P3	2"	150#	WN	RF	80S	Gas Inlet	see dwg	-	-	ANSI B16.5	
31	P4	2"	150#	PAD	RF	80S	Lateral Discharge	see dwg	-	-	ANSI B16.5	
32												
33	K1b	3"	300#	WN	RF	80S	DP Celle Connect.	see dwg	-	-	ANSI B16.5	
34	K4	1"	300#	WN	RF	80S	Temperature	see dwg	-	-	ANSI B16.5	
35	K5	1"	300#	WN	RF	80S	Temperature	see dwg	-	-	ANSI B16.5	
36												
<b>37 Bottom Head</b>												
38	P5	3"	150#	PAD	RF	80S	Product Discharge	see dwg	-	-	ANSI B16.5	See Dwg.
39	P6a	4"	150#	WN	RF	80S	N <sub>2</sub> Inlet	see dwg	-	-	ANSI B16.5	
40	P6b	4"	150#	WN	RF	80S	N <sub>2</sub> Inlet	see dwg	-	-	ANSI B16.5	
41												
<b>42 Jacket</b>												
43	P7	2"	150#	WN	RF	80S	Thermostat. Inlet	see dwg	-	-	ANSI B16.5	With impingement plate + with blind flange
44	P8	1/2"	3000#	-	Th. NPT	-	Vent	see dwg	-	-	ANSI B2.1	With plug
45	P9	2"	150#	WN	RF	80S	Thermostat. Outlet	see dwg	-	-	ANSI B16.5	With impingement plate+ with blind flange
46	P10	1/2"	3000#	-	Th. NPT	-	Drain	see dwg	-	-	ANSI B2.1	With plug
47												
48												

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR DRYER (DR-621)

1							
2	<b>NOZZLE LOADING DATA(NOTE 7)</b>						
3							
4	Nozzle	FL	FA	FC	MC	MT	ML
5	Name	(kgf)	(kgf)	(kgf)	(kg.m)	(kg.m)	(kg.m)
6	P1	367	367	276	56	83	72
7	P2	734	734	551	221	331	287
8	P3	245	245	184	25	37	32
9	P4	245	245	184	25	37	32
10	P5	367	367	276	56	83	72
11	P6a	490	490	367	98	147	128
12	P6b	490	490	367	98	147	128
13							
14							
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21	<b>REFRENCE DOCUMENTS</b>						
22							

No.	Document No.	Document Title
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24	1	
25	2	
26	3	
27	4	
28	5	
29	6	
30	7	
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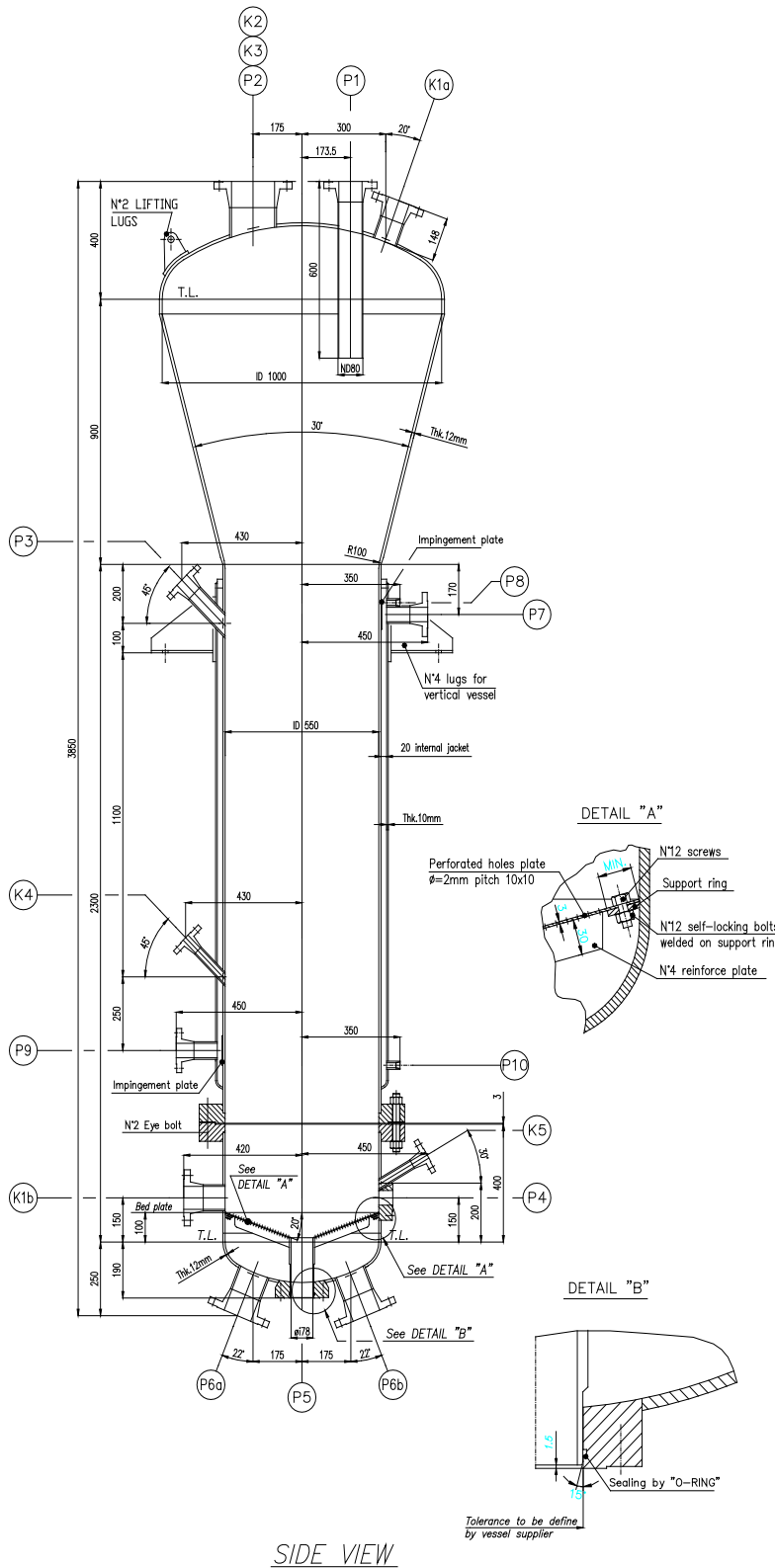
Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 3 of 6



Document No.:

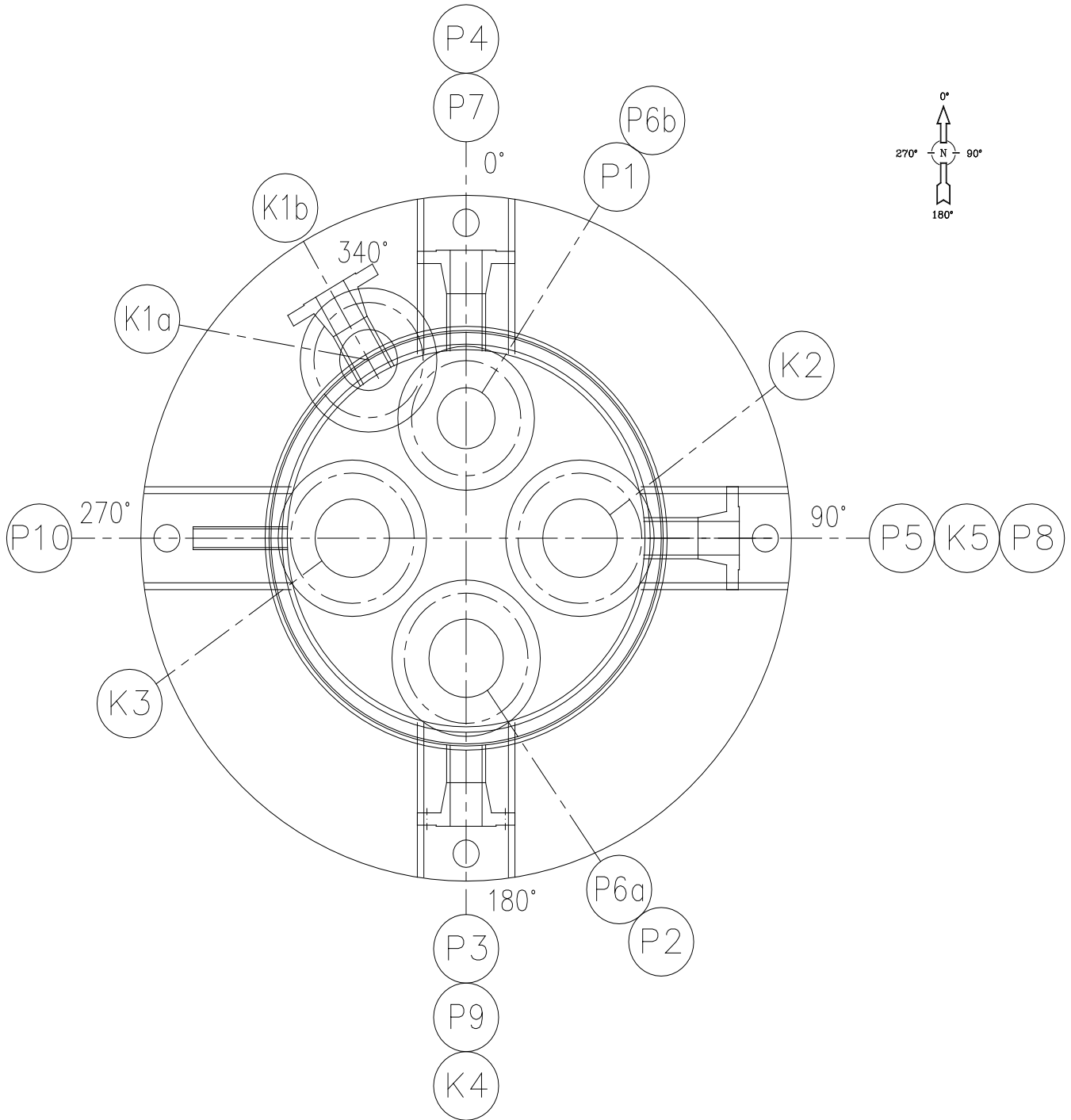
Rev. : 0

Owner Job No.:

Type: DAS

Page : 4 of 6





nozzle orientation

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 5 of 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR DRYER (DR-621)

**General Notes:**

- 1- SHALL BE SPECIFIED BY VENDOR.
- 2- SHALL BE VERIFIED BY VENDOR.
- 3- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.
- 4- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.
- 5- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER.
- 6- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 7- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 8- LOCATION AND NUMBER OF LIFTING LUGS ON DRYER SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 9- FINISHING OF THE GASKET CONTACTING FACE SHALL BE SMOOTH FINISH  $Ra=6.3\mu m$  (250 $\mu$ inch)
- 10- INTERNAL FINISHING SHALL BE SMOOTH FINISH ( $Ra=0.4\mu m$ (16 $\mu$ inch)).
- 11- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 6 of 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR DRYER SCRUBBER (T-621)

## DATA SHEET FOR DRYER SCRUBBER (T-621)

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR DRYER SCRUBBER (T-621)

REV. PAGE	0	1	2	3	4	5	REV. PAGE	0	1	2	3	4	5
A	X												
B	X												
1	X												
2	X												
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2					
1	2011-06-12				
0	2021-11-28	K.A	M.N	AA.SH	AFC
<b>Revision</b>	<b>Date</b>	<b>Prepared By</b>	<b>Checked By</b>	<b>Approved By</b>	<b>Status</b>

Document Revision

	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page : B

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR DRYER SCRUBBER (T-621)

1	Item No.:T-621	Quantity: 1	Location: Outdoor	Service: Continuous		
2	<b>DESIGN CONDITIONS</b>					
3						
4	<input checked="" type="radio"/> Gaseous	<input checked="" type="radio"/> Liquid	<input type="radio"/> Solid	<input type="radio"/> Combustible	<input type="radio"/> Explodable	<input type="radio"/> Toxic
5	Process fluid	WATER+HYDROCARBONS		<b>Packing Data</b>		
6	Composition	WATER+POLYMER TRACES		Type	NA	
7	Density Liquid	kg/m <sup>3</sup>	1000	Dimensions	mm	NA
8	Dynamic viscosity	cP	-	Number	NA	
9	Operating temperature	°C	30-40	Height of bed	mm	NA
10	Operating pressure	barg	0.2	<b>Others</b>		
11	Design temperature	°C	-45÷+180	Heating Device	-	
12	Design pressure	barg	6	Material	-	
13	Test Pressure	barg	as per UG99b(33)	Medium	-	
14	Type of Support	4 No.s lugs and sleeve way		Operating temperature	°C	-
15	Volume	m <sup>3</sup>	1.35	Operating pressure	barg	-
16	<b>Tray Data</b>			Design temperature	°C	-
17	Type	Rings		Design pressure	barg	-
18	Number	9		Length	-	
19	Spacing	mm	250			
20	Design code:	ASME SEC. VIII DIV.1		Inspection code:	ASME SEC. IX	
21	Cylinder Deminsion(IDxT.L-T.L):	500	x	6506	mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No
22	M.D.M.T @ D.P:	-45	°C	Thickness(shell/head):	6/6	°C
23	M.A.W.P:	-	barg	Limited by:	-	Stamp: Not Required
24	Impact Test:	Not Required		P.W.H.T:	Not Required	
25	N.D.T:	Required		Vessel lining detail:	NIL	
26	HIC/SSC resistance:	NA	/	NA	Painting & Coating:	as per code
27	Insulation thickness:	40	mm	Insulation type:	HOT	
28	Fireproofing :	1 NO		Vessel located on:	Structrue	
29	Seismic code:	UBC 1997		Seismic Zone:	3	
30	Impotance factor:	1.25		Soil Profile:	SD	
31	Wind code:	UBC		Wind velocity:	120	km/hr @ 10 m
32	Impotance factor:	1.15		Exposure:	C	
33	<b>Support loading data(Note 6)</b>			<b>Weight(kg) (Note 6)</b>	Fabricated:	1115
34		Earthquake	Wind		Empty:	1310
35	Shearing load(kgf)	450	300		Test:	2635
36	Moment(kg.m)	520	355		Operation:	2110
37	<b>MISCELLANEOUS(Note 7)</b>					
38						
39	<input checked="" type="radio"/> Baffle	<input checked="" type="radio"/> Impingement plate	<input type="radio"/> Weir plate			
40	<input type="radio"/> Diffuser	<input type="radio"/> Distributer	<input type="radio"/> Trunnion			
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template			
42	<input checked="" type="radio"/> Boot / Cap	<input checked="" type="radio"/> Demister (Note 10)	<input checked="" type="radio"/> Pickling & passivation			
43	<input checked="" type="radio"/> Insulation Support	<input checked="" type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss			
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input checked="" type="radio"/> Dip pipe			
45	<input type="radio"/> Fire Proofing Support	<input type="radio"/> Internal lining				
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting				
47	<input type="radio"/> Heating coil	<input checked="" type="radio"/> Internal clips				
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips				

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 1 of 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR DRYER SCRUBBER (T-621)

1												
2	MATERIALS(NOTE 2)											
3												
4	Shell(Main/Jacket)		SA240-304	/	-		Earth lug		SA240-316			
5	Head(Main/Jacket)		SA240-304	/	-		Stiffening rings		-			
6	Nozzle Necks (Main/Jacket)	Plate	SA240-304	/	-		Gaskets		SPIRAL WOUND			
7		Pipe	SA312-304	/	-		Ext. bolt/Nuts		SA193-B7/SA194-2H			
8	Cladding		-				Int. bolt/Nuts		SA193-B8/SA194-8			
9	Nozzle flanges		SA182-304				Wire mesh		SA240-304			
10	Blind flanges		SA182-304				Welded clip		SA240-304			
11	Reinforcing pad		SA240-304				Int. welded		(Note 1)			
12	Fitting		SA403-304				Int. removable		(Note 1)			
13	Support	Leg	-				Anchor/Setting bolts		SA273-B			
14		Lug	SA283-C				Ladder/Platform		-			
15		leg/lug pad	SA240-304				Insulation Mateial		MINERAL WOOL			
16	Lifting lug		SA240-304				Packing		-			
17	Tray Support		SA240-304				Tray		SA240-304			
18	NOZZLE DETAILS(NOTE 3,4)											
19												
20	Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD (note 1)		Standards	Remarks
21			Rating	Type	Face (note 9)				Width	Dia.		
22	<b>Top Head</b>											
23	P1	6"	150#	WN	RF	40S	Gas Outlet	See dwg	-	-	ANSI B16.5	
24												
25	<b>Shell</b>											
26	P2	2"	150#	WN	RF	40S	Product Inlet	350	-	-	ANSI B16.5	Tangential
27	P3	6"	150#	WN	RF	40S	Gas Inlet	400	-	-	ANSI B16.5	With Internal pipe 4"
28	P4	4"	150#	PAD	RF	40S	Water Outlet	300	-	-	ANSI B16.5	See Dwg
29	M1	10"	150#	SO	RF	40S	Hand Hole	420	-	-	ANSI B16.5	See Dwg
30												
31	K1	1"	300#	WN	RF	40S	Level Alarm	380	-	-	ANSI B16.5	
32	K2	1"	300#	WN	RF	40S	Temperature	370	-	-	ANSI B16.5	
33												
34	<b>Bottom Head</b>											
35	P5	5"	150#	PAD	RF	40S	Product Discharge	See dwg	-	-	ANSI B16.5	See Dwg
36												
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Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 2 of 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

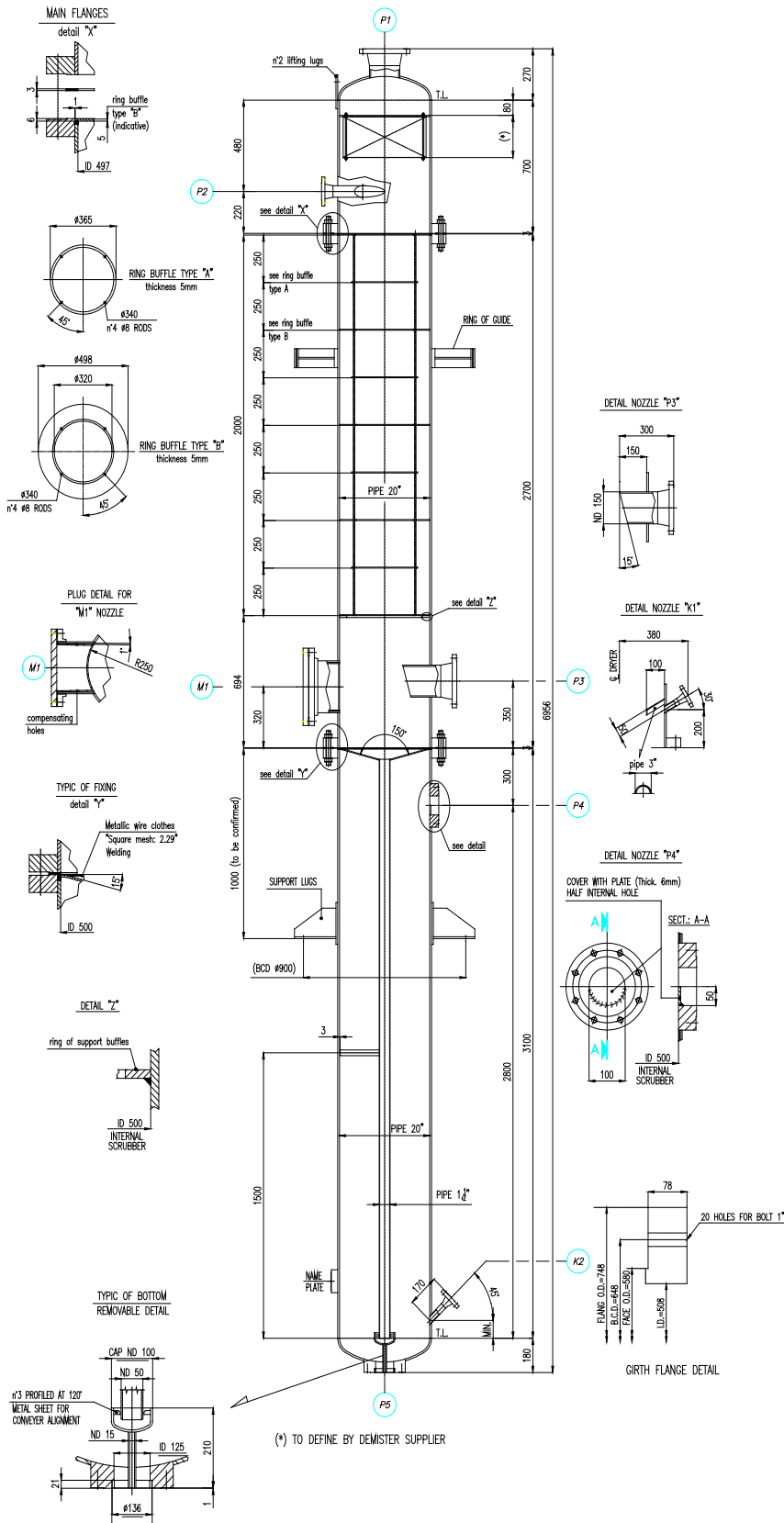
TITLE:DATA SHEET FOR DRYER SCRUBBER (T-621)

NOZZLE LOADING DATA(NOTE 6)							
Nozzle Name	FL (kgf)	FA (kgf)	FC (kgf)	MC (kg.m)	MT (kg.m)	ML (kg.m)	
P1	734	734	551	221	331	287	
P2	245	245	184	25	37	32	
P3	734	734	551	221	331	287	
P4	490	490	367	98	147	128	
P5	367	367	276	56	83	72	

REFRENECE DOCUMENTS

No.	Document No.	Document Title
1		
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	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page : 3 of 6



Document No.:

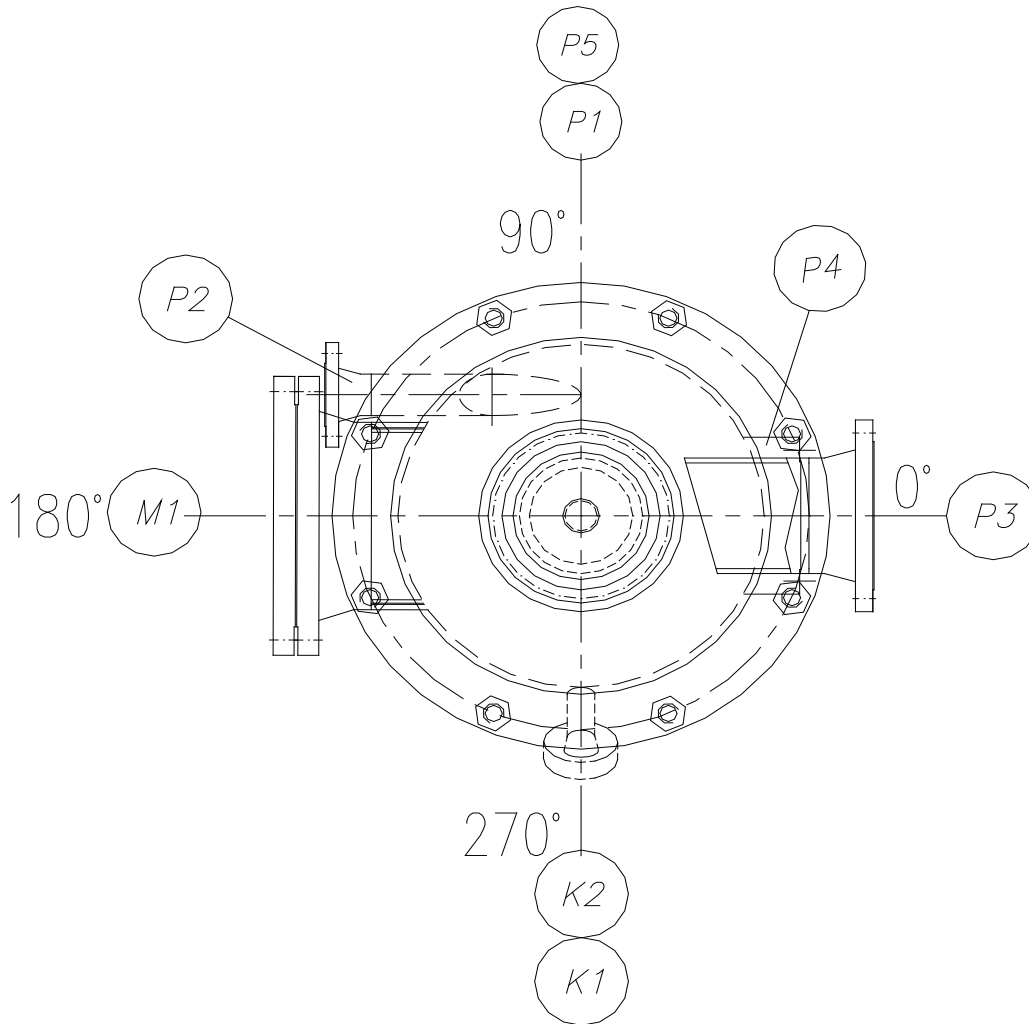
Rev. : 0

Owner Job No.:

Type: DAS

Page : 4 of 6





*Orientated view (Hold)*

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 5 of 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR DRYER SCRUBBER (T-621)

**General Notes:**

- 1- SHALL BE SPECIFIED BY VENDOR.
- 2- SHALL BE VERIFIED BY VENDOR
- 3- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED
- 4- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR
- 5- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 6- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 7- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 8- LOCATION AND NUMBER OF LIFTING LUGS ON TOWER SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 9- FINISHING OF THE GASKET CONTACTING FACE: SMOOTH FINISH RA=6.3μm(250μinch)
- 10- DEMISTER MATERIAL IS STAINLESS STEEL.DEMISTER CHARACTERISTICS SHALL BE DEFINED BY DEMISTER SUPPLIER.
- 11- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 6 of 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR LIQUID BLOW DOWN(V-711)

## DATA SHEET FOR LIQUID BLOW DOWN (V-711)

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR LIQUID BLOW DOWN(V-711)

REV. PAGE	0					1					2					3					4					5				
	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4					
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0	2021-11-28	K.A	M.N	AA.SH	AFC
<b>Revision</b>	<b>Date</b>	<b>Prepared By</b>	<b>Checked By</b>	<b>Approved By</b>	<b>Status</b>

**Document Revision**

	<b>Document No.:</b>	Rev. : 0
	<b>Owner Job No.:</b>	Type: DAS
		Page B

PROJECT:PP-PE PILOT PLANT

Client:



TITLE:DATA SHEET FOR LIQUID BLOW DOWN(V-711)

1 Item No.: V-711      Quantity: 1      Location: Outdoor      Service:      Continuous

**DESIGN CONDITIONS**

		Vessel	Jacket	Internal Coil
5	Operating Temperature(Min./Max.) °C	-/50	-/60	-/-
6	Operating Pressure barg	0.1	2	-
7	Density kg/m <sup>3</sup>	-	1100	-
8	Design Pressure(int./ext.) barg	25/-	6/-	-/-
9	Design Temperature °C	-45++180	+180	-/-
10	Volume(total) m <sup>3</sup>	7.3	-	-
11	Hydro Test Pressure barg	as per UG99b(33)	as per UG99b(33)	-
12	Corrosion Allowance(shell/head) mm	0/0	0/0	-/-
13	Cladding (shell/head) mm	-/-	-/-	-/-
14	Content @ normal operation	Gas + hydrocarbons	Glycole + water	-
15	Thickness(shell/head/cone) mm	24/22/22	Sch 40S	-/-
16	Welding Radiography(shell/head) %	100/100	100/100	-/-
17	Joint Efficiency(shell/head)	1/1	1/1	-/-
18	Top Head Type	2:1 Elipsoidal	-	-
19	Bottom Head Type	Cone	Coil in Half pipe	-
20	Design code:	ASME SEC. VIII DIV.1	Inspection code:	ASME SEC. IX
21	Cylinder Deminsion(IDxT.L-T.L):	1500 x 3200 mm	Lethal Service:	<input type="radio"/> Yes <input checked="" type="radio"/> No
22	M.D.M.T @ D.P:	-45 °C	M.A.T:	- °C
23	M.A.W.P: 25,821 barg	Limited by: Bottom Body Flange	Stamp:	Not Required
24	Impact Test:	Not Required	P.W.H.T:	Not Required
25	N.D.T:	Required	Vessel lining detail:	NIL
26	HIC/SSC resistance:	NA / NA	Painting & Coating:	as per code
27	Insulation thickness:	30 mm	Insulation type:	IP
28	Fireproofing :	Yes	Vessel located on:	Structrue
29	Seismic code:	UBC 1997	Seismic Zone:	3
30	Impotance factor:	1.25	Soil Profile:	SD
31	Wind code:	UBC	Wind velocity:	120 km/hr @ 10 m
32	Impotance factor:	1.15	Exposure:	C

**Support loading data(Note 5)**

	Support loading data(Note 5)		Weight(kg) (Note 5)	Fabricated:	
	Earthquake	Wind		Empty:	Operation:
34				6500	
35	Shearing load(kgf)	2780	910	6700	13800
36	Moment(kg.m)	3130	1130	12500	

**MISCELLANEOUS(Note 2,10)**

39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate
40	<input type="radio"/> Diffuser	<input checked="" type="radio"/> Distributer	<input type="radio"/> Trunnion
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input type="radio"/> Dip pipe
45	<input type="radio"/> Fire Proofing Support	<input type="radio"/> Internal lining	<input checked="" type="radio"/> Half pipe coil
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting	
47	<input type="radio"/> Heating coil	<input checked="" type="radio"/> Internal clips	
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips	

Document No.:	Rev. : 0
Owner Job No.:	Type: DAS
	Page 1

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR LIQUID BLOW DOWN(V-711)

1												
2	MATERIALS(NOTE 2)											
3												
4	Shell(Main/Jacket)	SA240-304L / SA312-304L		Earth lug	SA240-316L							
5	Head(Main/Jacket)	SA240-304L / -		Stiffening rings	-							
6	Nozzle Necks (Main/Jacket)	Plate	- /		Gaskets	Spirotalic gasket						
7		Pipe	SA312-304L /	SA312-304L	Ext. bolt/Nuts	SA193-B7/SA194-2H						
8	Cladding	-		Int. bolt/Nuts	SA193-BB/SA194-8							
9	Nozzle flanges	SA182-304L			Wire mesh	-						
10	Blind flanges	SA182-304L			Welded clip	SA240-304L						
11	Reinforcing pad	SA240-304L			Int. welded	SA240-304L						
12	Fitting	SA403-304L			Int. removable	-						
13	Support	-		Anchor/Setting bolts	SA307-B							
14		Lug	SA516-60N		Ladder/Platform	-						
15		leg/lug pad	SA240-304L		Insulation Mateial	MINERAL WOOL						
16	Lifting lug	SA240-304L										
17	NOZZLE DETAILS(NOTE 2,3,4,7,8)											
18												
19	Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks
20			Rating	Type	Face				Width	Thk.		
21	<b>Top Head</b>											
22	P1	8"	300#	WN	RF	40S	vent	230	350	22	ANSI B16.5	
23	P2	3"	300#	WN	RF	40S		215	190	22	ANSI B16.5	
24	P3	4"	300#	WN	RF	40S		215	220	22	ANSI B16.5	blind flange
25												
26	K1	3"	300#	WN	RF	40S	Safety valve	215	190	22	ANSI B16.5	
27	K2	2"	300#	WN	PAD	160	PR connection	60	-	-	ANSI B16.5	
28												
29	<b>Shell</b>											
30	P4	6"	300#	WN	RF	40S		700	300	22	ANSI B16.5	Tangential
31	P5	3"	300#	WN	RF	40S	Loop disch.inlet	600	190	22	ANSI B16.5	Tangential
32	P6	2"	300#	WN	RF	160	disch.inlet	500	-	-	ANSI B16.5	Tangential
33	P7	2"	300#	WN	RF	160	Prepoly discharge	500	-	-	ANSI B16.5	Tangential
34	P8	2"	300#	WN	RF	160	Spare	900	-	-	ANSI B16.5	Blind flange+plug
35	P12	24"	300#	WN	RF	40S	MANHOLE					
36	<b>Bottom Head</b>											
37	P9	6"	300#	WN	RF	40S	Discharge product	100	-	-	ANSI B16.5	
38	K3	1"	300#	WN	RF	40S	Temperature	200	-	-	ANSI B16.5	
39												
40	<b>Jacket</b>											
41	P10	1 1/2"	300#	WN	RF	40S	thermost. inlet	320	-	-	ANSI B16.5	
42	P11	1 1/2"	300#	WN	RF	40S	thermost. outlet	900	-	-	ANSI B16.5	
43												
44												
45												
46												
47												
48												

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page 2

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR LIQUID BLOW DOWN(V-711)

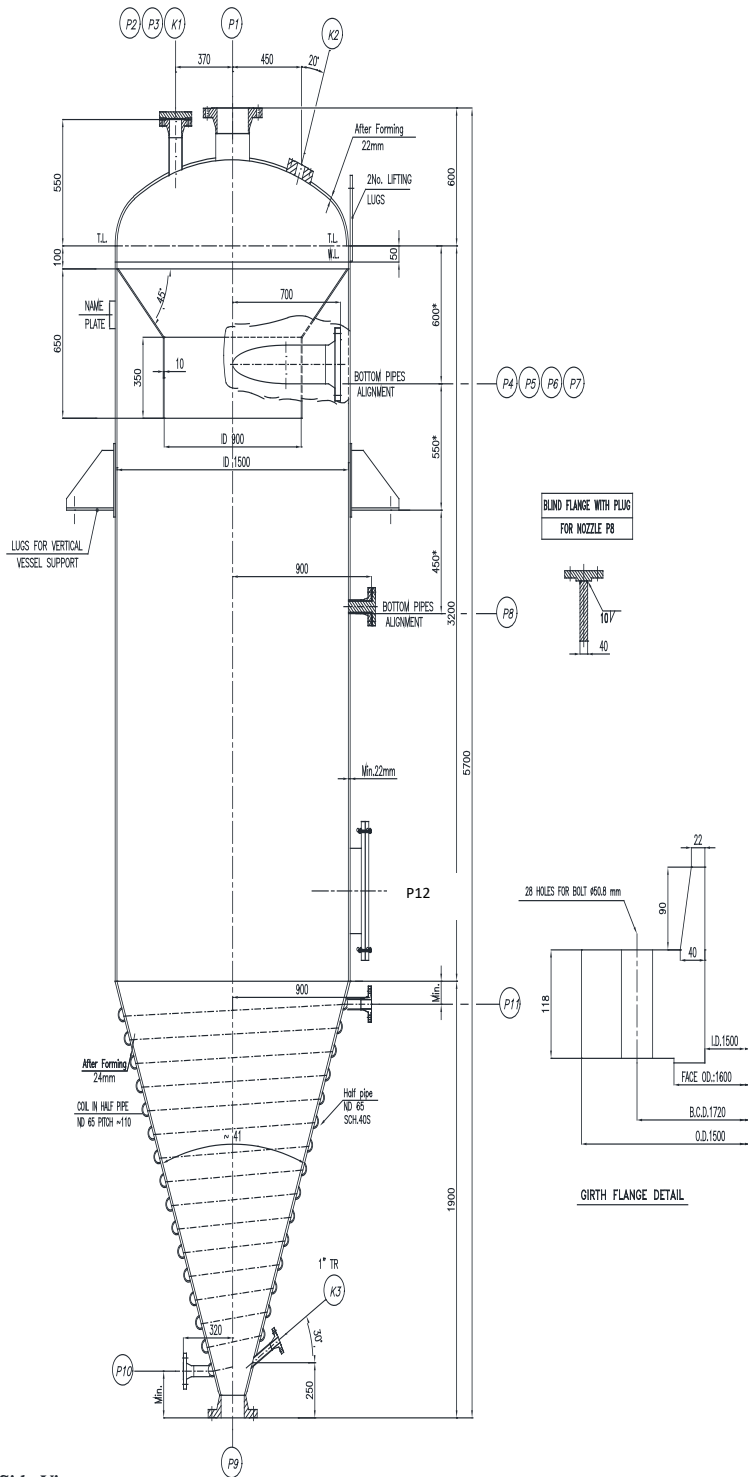
1 |  
2 | **NOZZLE LOADING DATA(NOTE 7)**  
3 |

No.	Nozzle Name	P (kgf)	VC (kgf)	VL (kgf)	MC (kg.m)	ML (kg.m)	MT (kg.m)
4	P1	1142	1142	1142	594	594	686
5	P2	429	429	429	84	84	84
6	P3	571	571	571	149	149	172
7	P4	857	643	857	257	335	386
8	P5	429	322	429	65	84	97
9	P6	286	215	286	29	37	43
10	P7	286	215	286	29	37	43
11							
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21 | **REFRENCE DOCUMENTS**  
22 |

No.	No.	Document No.	Document Title
23	1		
24	2		
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46	24		
47	25		

	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page 3



Document No.:

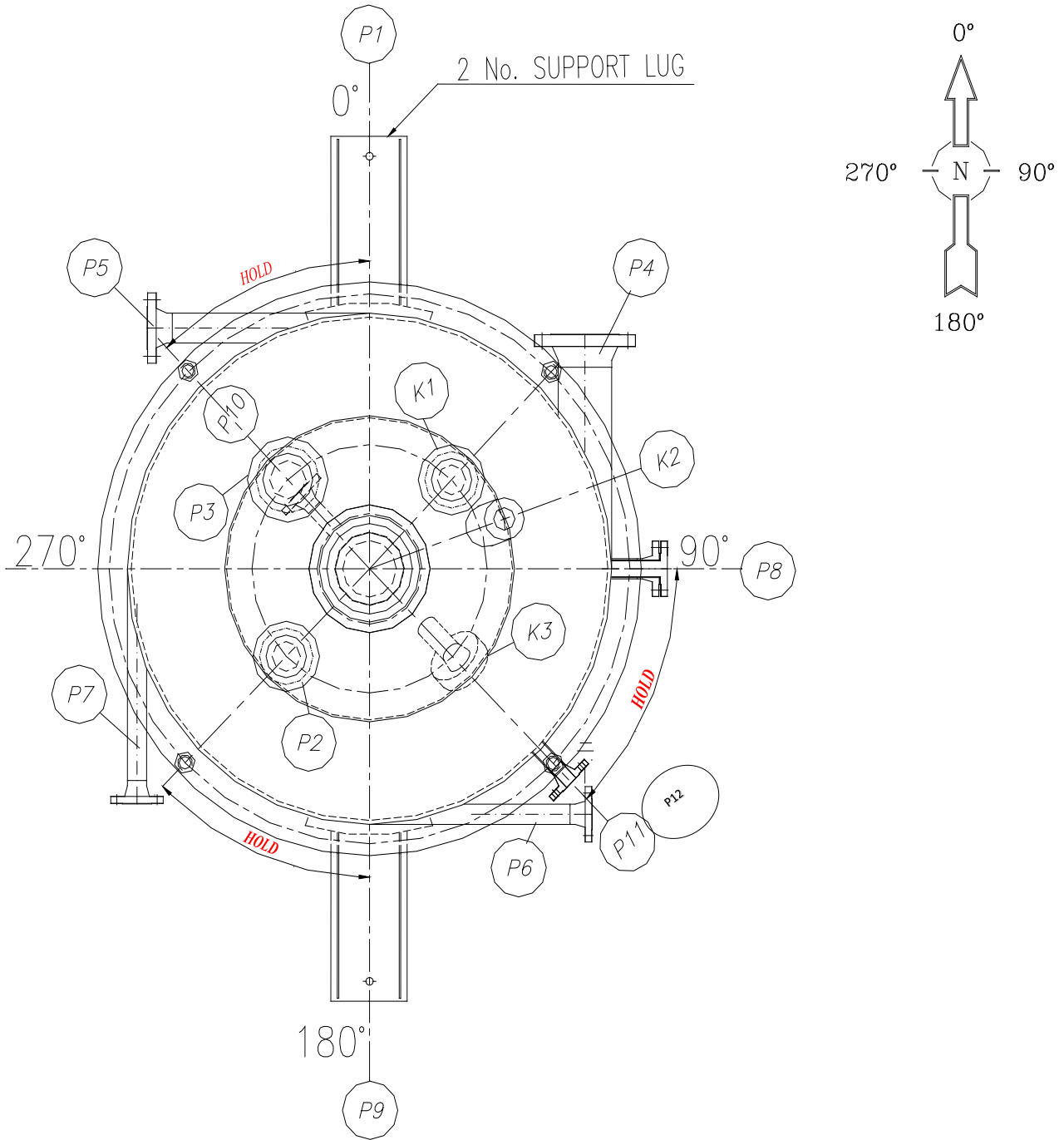
Rev. : 0

Owner Job No.:

Type: DAS

Page 4





Orientation Hold

	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page 5

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR LIQUID BLOW DOWN(V-711)

**General Notes:**

- 1- SHALL BE SPECIFIED BY VENDOR .
- 2- SHALL BE VERIFIED BY VENDOR.
- 3- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.
- 4- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.
- 5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 6- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF ELLIPTICAL/TORISPHERICAL HEADS SHALL BE IN NO CASE SMALLER THAN VESSEL SHELL THICKNESS.VENDOR SHALL CHECK AND GUARANTEE THEM ON STRENGTH.
- 7- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 8- UNLESS OTHERWISE NOTED OUTSIDE PROJECTION OF NOZZLES ARE MEASURED FROM C.L./T.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE.
- 9- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 10- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 11- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 12- SURFACE PREPARATION,FINISHING&PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER
- 13- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.
- 14- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Gas blow down (V -712)

## Data Sheet for Gas blow down (V -712)

Licenser:

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : A

PROJECT:PP-PE PILOT PLANT

Client:




شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Gas blow down (V -712)

REV. PAGE	0	1	2	3	4	5	REV. PAGE	0	1	2	3	4	5
A	X												
B	X												
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0	2021-11-28	K.A	M.N	AA.SH	AFC
Revision	Date	Prepared By	Checked By	Approved By	Status

Document Revision	
Document No.:	Rev. : 0
Owner Job No.:	Type: DAS
	Page : B

<b>PROJECT:PP-PE PILOT PLANT</b>	<b>Client:</b>
<b>TITLE:Data Sheet for Gas blow down (V -712)</b>	 <p>شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی</p>

1	Item No.: V-712	Quantity: 1	Location: Outdoor	Service: Continuous
---	-----------------	-------------	-------------------	---------------------

2	<b>DESIGN CONDITIONS</b>			
3				

4		Vessel	Jacket(Half pipe)	Internal Coil
5	Operating Temperature(Min./Max.) °C	-/50	-/60	-/-
6	Operating Pressure barg	0.1	2	-
7	Density kg/m <sup>3</sup>	900	1100	-
8	Design Pressure(int./ext.) barg	6/-	6/-	-/-
9	Design Temperature °C	-45÷+180	+180	-/-
10	Volume(total) m <sup>3</sup>	2.1	-	-
11	Hydro Test Pressure barg	as per UG99b(33)	as per UG99b(33)	-
12	Corrosion Allowance(shell/head) mm	0/0	0/0	-/-
13	Cladding (shell/head) mm	-/-	-/-	-/-
14	Content @ normal operation	Gas + hydrocarbons	Glycole + water	-
15	Thickness(shell/head/cone) mm	6/6/10	Sch 40S	-/-
16	Welding Radiography(shell/head) %	100/100	100/100	-/-
17	Joint Efficiency(shell/head)	1/1	1/1	-/-
18	Top Head Type	2:1 Elipsoidal	-	-
19	Bottom Head Type	Cone	Coil in Half pipe	-

20	Design code: ASME SEC. VIII DIV.1	Inspection code: ASME SEC. IX
21	Cylinder Deminsion(IDxT.L-T.L): 1000 x 1890 mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No
22	M.D.M.T @ D.P: -45 °C	M.A.T: - °C
23	M.A.W.P: 11.029 barg Limited by: Cylinder of shell	Stamp: Not Required
24	Impact Test: Not Required	P.W.H.T: Not Required
25	N.D.T: Required	Vessel lining detail: NIL
26	HIC/SSC resistance: NA / NA	Painting & Coating: as per code
27	Insulation thickness: 30 mm	Insulation type: Personnel protection
28	Fireproofing : Yes	Vessel located on: Structure
29	Seismic code: UBC 1997	Seismic Zone: 3
30	Impotance factor: 1.25	Soil Profile: SD
31	Wind code: UBC	Wind velocity: 120 km/hr @ 10 m
32	Impotance factor: 1.15	Exposure: C

33	<b>Support loading data(Note 5)</b>			<b>Weight(kg) (Note 5)</b>	Fabricated:	1210
34	Earthquake	Wind	Empty:		1280	
35	Shearing load(kgf)	640	390		Test:	3200
36	Moment(kg.m)	390	230		Operation:	2940
37						

38	<b>MISCELLANEOUS(Note 2,10)</b>			
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39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate
40	<input type="radio"/> Diffuser	<input checked="" type="radio"/> Distributer	<input type="radio"/> Trunnion
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input checked="" type="radio"/> Dip pipe
45	<input checked="" type="radio"/> Fire Proofing Support	<input type="radio"/> Internal lining	<input checked="" type="radio"/> Half pipe coil
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting	
47	<input type="radio"/> Heating coil	<input checked="" type="radio"/> Internal clips	
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips	

	<b>Document No.:</b>	<b>Rev. : 0</b>
	<b>Owner Job No.:</b>	<b>Type: DAS</b>
		<b>Page : 1</b>

PROJECT:PP-PE PILOT PLANT

TITLE:Data Sheet for Gas blow down (V -712)

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

**MATERIALS(NOTE 2)**

4	Shell(Main/Jacket)	SA240-304L / SA312-304L	Earth lug	SA240-316L	
5	Head(Main/Jacket)	SA240-304L / -	Stiffening rings	-	
6	Nozzle Necks (Main/Jacket)	Plate	- / -	Gaskets	Spirotalic gasket
7		Pipe	SA312-304L / SA312-304L	Ext. bolt/Nuts	SA193-B7/SA194-2H
8	Cladding	-	Int. bolt/Nuts	SA193-B8/SA194-8	
9	Nozzle flanges	SA182-F304L	Wire mesh	-	
10	Blind flanges	SA182-F304L	Welded clip	SA240-304L	
11	Reinforcing pad	SA240-304L	Int. welded	SA240-304L	
12	Fitting	SA403-304L	Int. removable	-	
13	Support	Leg	-	Anchor/Setting bolts	SA307-B
14		Lug	SA240-304L	Ladder/Platform	-
15		leg/lug pad	SA240-304L	Insulation Mateial	MINERAL WOOL
16	Lifting lug	SA240-304L			

**NOZZLE DETAILS(NOTE 2,3,4,7,8)**

Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks
		Rating	Type	Face				O.D.	Thk.		
<b>Top Head</b>											
P1	12"	150#	WN	RF	40S		See dwg	450	6	ANSI B16.5	
P2	2"	150#	WN	RF	40S		See dwg	-	-	ANSI B16.5	
P3	2"	150#	WN	RF	40S		See dwg	-	-	ANSI B16.5	Blind Flange
K1	2"	150#	WN	PAD	40S	PK Connection	See dwg	-	-	ANSI B16.5	
<b>Shell</b>											
P4	8"	150#	WN	RF	40S		600	350	6	ANSI B16.5	Tangential
P5	4"	150#	WN	RF	40S	Gas disch.inlet	500	220	6	ANSI B16.5	Tangential
P6	2"	150#	WN	RF	40S	Prepoly disch.inlet	400	-	-	ANSI B16.5	Tangential
P7	2"	150#	WN	RF	40S	Spare	650	-	-	ANSI B16.5	Blind flange+plug
<b>Bottom Head</b>											
P8	6"	150#	WN	RF	40S	Discharge product	See dwg	-	-	ANSI B16.5	
K2	1"	300#	WN	RF	40S	Temperature	See dwg	-	-	ANSI B16.5	
<b>Jacket</b>											
P9	1 1/2"	150#	WN	RF	40S	Rvw Inlet	320	-	-	ANSI B16.5	
P10	1 1/2"	150#	WN	RF	40S	Rvw Outlet	650	-	-	ANSI B16.5	

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

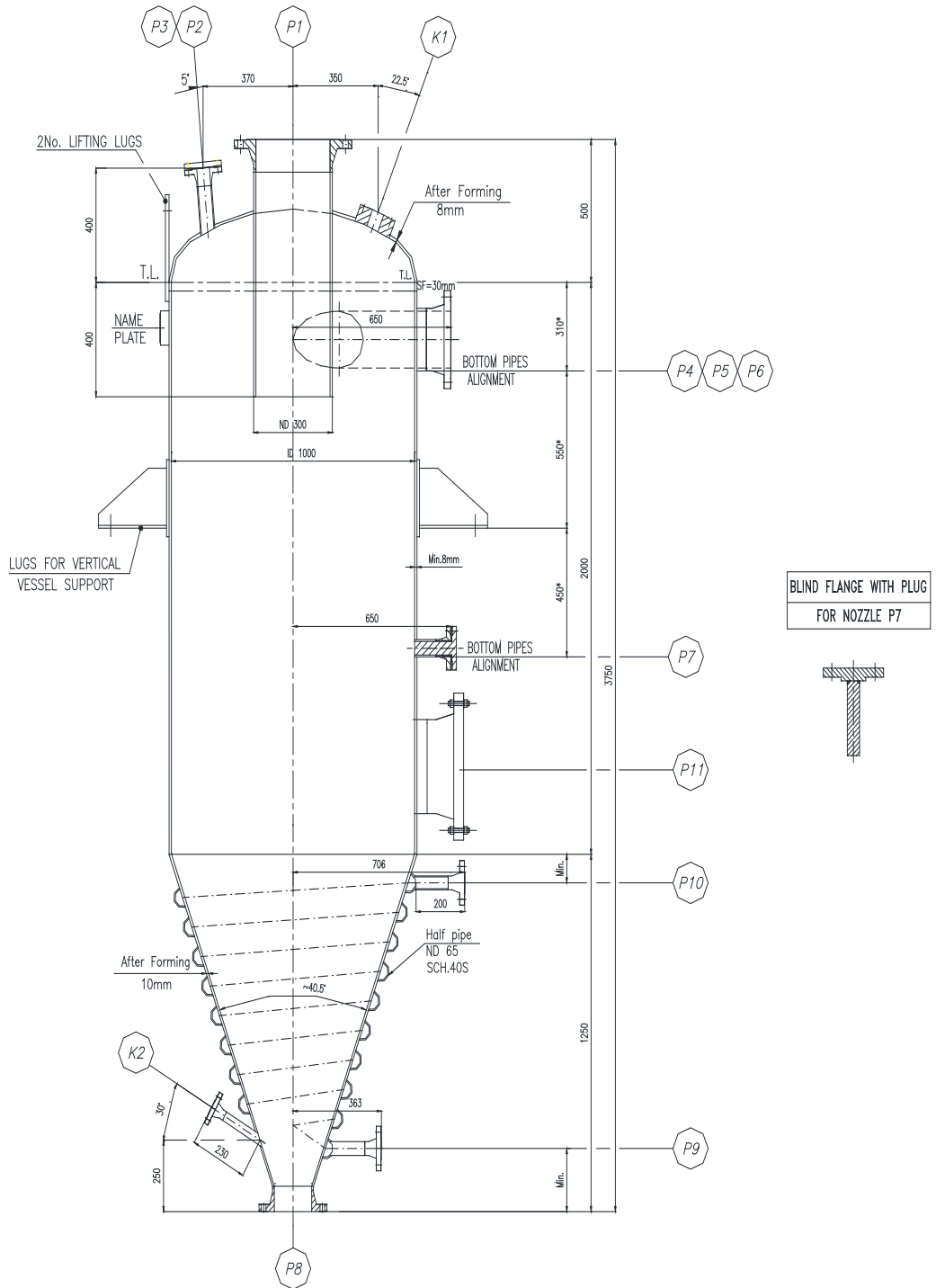
TITLE:Data Sheet for Gas blow down (V -712)

NOZZLE LOADING DATA(NOTE 7)							
Nozzle Name	P (kgf)	VC (kgf)	VL (kgf)	MC (kg.m)	ML (kg.m)	MT (kg.m)	
P4	979	734	979	392	509	588	
P5	490	367	490	98	128	147	
P1	1468	1101	1101	1145	1145	1322	

REFRENC DOCUMENTS

No.	Document No.	Document Title
1		
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	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page : 3



Document No.:

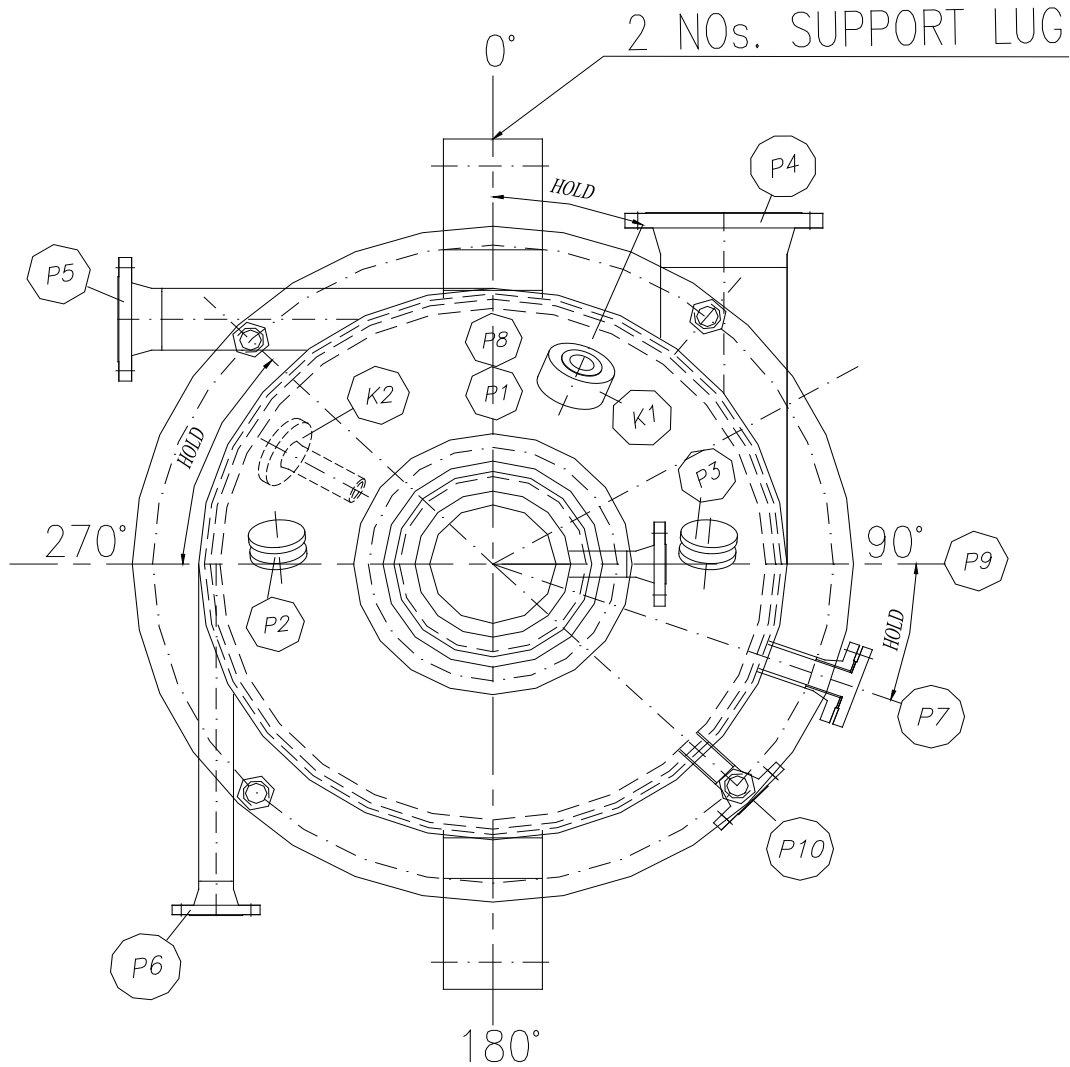
Rev. : 0

Owner Job No.:

Type: DAS

Page : 4





## Nozzle Orientation Hold


Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 5

PROJECT:PP-PE PILOT PLANT	Client:	
TITLE:Data Sheet for Gas blow down (V -712)	 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
<p><b>General Notes:</b></p> <p>1- SHALL BE SPECIFIED BY VENDOR .</p> <p>2- SHALL BE VERIFIED BY VENDOR.</p> <p>3- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.</p> <p>4- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.</p> <p>5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.</p> <p>6- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF ELLIPTICAL/TORISPHERICAL HEADS SHALL BE IN NO CASE SMALLER THAN VESSEL SHELL THICKNESS.VENDOR SHALL CHECK AND GUARANTEE THEM ON STRENGTH.</p> <p>7- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.</p> <p>8- UNLESS OTHERWISE NOTED OUTSIDE PROJECTION OF NOZZLES ARE MEASURED FROM C.L./T.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE.</p> <p>9- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.</p> <p>10- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .</p> <p>11- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.</p> <p>12- SURFACE PREPARATAION,PICKLING&amp;PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER.</p> <p>13- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.</p> <p>14- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.</p>		
	Document No.:	Rev. : 01
	Owner Job No.:	Type: DAS
		Page : 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR EXPANSION VESSEL(V-713)

## DATA SHEET FOR EXPANSION VESSEL (V-713)

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR EXPANSION VESSEL(V-713)

REV. PAGE	0	1	2	3	4	5	REV. PAGE	0	1	2	3	4	5
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5	X												
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4					
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0	2021-11-28	K.A	M.N	AA.SH	AFC
Revision	Date	Prepared By	Checked By	Approved By	Status

Document Revision

	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page : B

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR EXPANSION VESSEL(V-713)

1	Item No.:V-713	Quantity: 1	Location: Outdoor	Service: Continuous	
2	<b>DESIGN CONDITIONS</b>				
3					
4		<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>	
5	Operating Temperature(Min./Max.) °C	-/60	-/-	-/-	
6	Operating Pressure barg	2	-	-	
7	Density kg/m <sup>3</sup>	1100	-	-	
8	Design Pressure(int./ext.) barg	6/-	-/-	-/-	
9	Design Temperature °C	+180	-/-	-/-	
10	Volume(total) m <sup>3</sup>	0.052	-	-	
11	Hydro Test Pressure barg	as per UG99b(33)	-	-	
12	Corrosion Allowance(shell/head) mm	0/0	-/-	-/-	
13	Cladding (shell/head) mm	-/-	-/-	-/-	
14	Content @ normal operation	Glycole+Water	-	-	
15	Thickness(shell/head) mm	SCH.40S / SCH.40S	-/-	-/-	
16	Welding Radiography(shell/head) %	Full/Full	-/-	-/-	
17	Joint Efficiency(shell/head)	1/1	-/-	-/-	
18	Top Head Type	STD CAP	-	-	
19	Bottom Head Type	STD CAP	-	-	
20	Design code: ASME SEC. VIII DIV.1	Inspection code: ASME SEC. IX			
21	Cylinder Deminsion(NDxT.L-T.L) 12" x 446 mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No			
22	M.D.M.T @ D.P: -45 °C	M.A.T: - °C			
23	M.A.W.P: - barg Limited by: -	Stamp: Not Required			
24	Impact Test: Not Required	P.W.H.T: Not Required			
25	N.D.T: Required	Vessel lining detail: NIL			
26	HIC/SSC resistance: NA / NA	Painting & Coating: as per code			
27	Insulation thickness: 30 mm	Insulation type: IP			
28	Fireproofing : Yes	Vessel located on: Structue			
29	Seismic code: UBC 1997	Seismic Zone: 3			
30	Impotance factor: 1.25	Soil Profile: SD			
31	Wind code: UBC	Wind velocity: 120 km/hr @ 10 m			
32	Impotance factor: 1.15	Exposure: C			
33	<b>Support loading data(Note 5)</b>				
34	Earthquake	Wind	<b>Weight(kg) (Note 5)</b>	Fabricated: 95	
35	Shearing load(kgf)	70		50	Empty: 100
36	Moment(kg.m)	40		30	Test: 135
					Operation: 135
37	<b>MISCELLANEOUS(Note 2,10)</b>				
38					
39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate		
40	<input type="radio"/> Diffuser	<input type="radio"/> Distributer	<input type="radio"/> Trunnion		
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template		
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation		
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss		
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input type="radio"/> Dip pipe		
45	<input type="radio"/> Fire Proofing Support	<input type="radio"/> Internal lining			
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting			
47	<input type="radio"/> Heating coil	<input type="radio"/> Internal clips			
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips			

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 1

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR EXPANSION VESSEL(V-713)

1													
2	MATERIALS(NOTE 2)												
3													
4	Shell(Main/Jacket)	SA312-304L /					Earth lug	SA240-316L					
5	Head(Main/Jacket)	SA403-304L /					Stiffening rings	-					
6	Nozzle Necks (Main/Jacket)	Plate	- /					Gaskets	Spirotallic Gasket				
7		Pipe	SA312-304L /					Ext. bolt/Nuts	SA193-B7/SA194-2H				
8	Cladding	-					Int. bolt/Nuts	SA193-B8/SA194-8					
9	Nozzle flanges	SA182-304L					Wire mesh	-					
10	Blind flanges	SA182-304L					Welded clip	SA240-304L					
11	Reinforcing pad	SA240-304L					Int. welded	SA240-304L					
12	Fitting	SA403-304L					Int. removable	SA240-304L					
13	Support	Leg	-					Anchor/Setting bolts	SA307-B				
14		Lug	SA240-304L					Ladder/Platform	-				
15		leg/lug pad	SA240-304L					Insulation Mateial	MINERAL WOOL				
16	Lifting lug	SA240-304L											
17	NOZZLE DETAILS(NOTE 2,3,4,7,8)												
18													
19	Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks	
20			Rating	Type	Face				Width	Thk.			
21	Top Head												
22	P1	1"	300#	WN	RF	40S	Loading	145	-	-	ANSI		
23	P2	1"	300#	WN	RF	40S	Vent	145	-	-	ANSI		
24													
25													
26													
27	Shell												
28	K1a	3/4"	300#	WN	RF	40S	Level Indication	145			ANSI		
29	K2	1 1/2"	300#	WN	RF	40S	Level Alarm	150			ANSI		
30													
31													
32	Bottom Head												
33	P3	1"	300#	WN	RF	40S	Balance	130			ANSI		
34	K1b	3/4"	300#	WN	RF	40S	Level Indication	-			ANSI	See Dwg.	
35													
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Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 2

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET FOR EXPANSION VESSEL(V-713)

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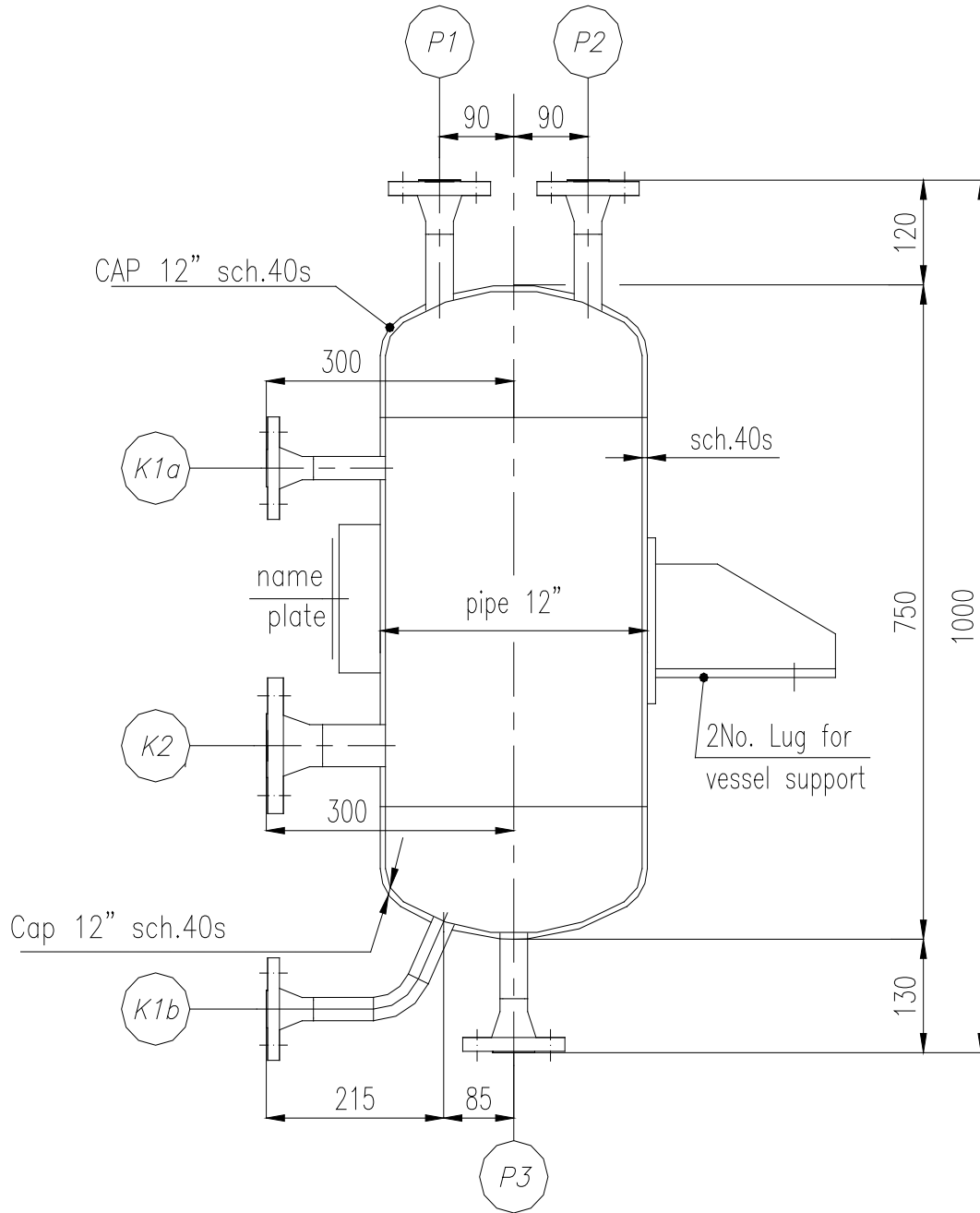
2 | **NOZZLE LOADING DATA(NOTE 1)**

3	4	5	6	7	8	9	10
Nozzle Name	FA (kN)	FB (kN)	FC (kN)	MA (N.m)	MB (N.m)	MC (N.m)	
6							
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21 | **REFRENCE DOCUMENTS**

23	No.	Document No.	Document Title
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	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page : 3



*Side View*

Document No.:

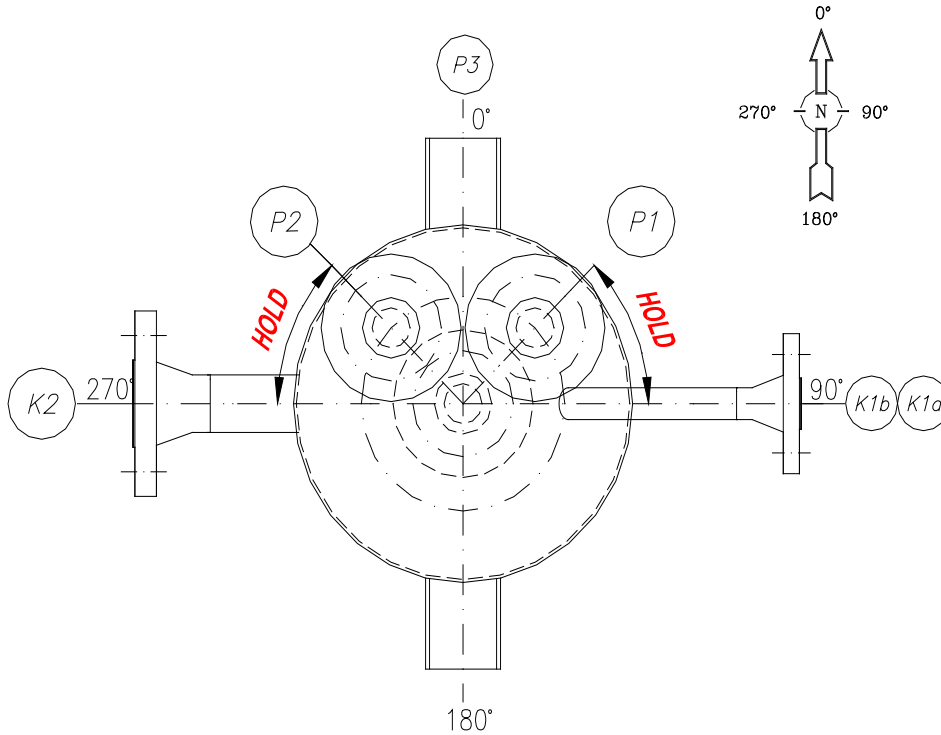
Rev. : 0

Owner Job No.:

Type: DAS

Page : 4





Orientation (HOLD)

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 5

PROJECT:PP-PE PILOT PLANT

Client:



TITLE:DATA SHEET FOR EXPANSION VESSEL(V-713)

**General Notes:**

- 1- SHALL BE SPECIFIED BY VENDOR .
- 2- SHALL BE VERIFIED BY VENDOR.
- 3- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.
- 4- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.
- 5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 6- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF ELLIPTICAL/TORISPHERICAL HEADS SHALL BE IN NO CASE SMALLER THAN VESSEL SHELL THICKNESS.VENDOR SHALL CHECK AND GUARANTEE THEM ON STRENGTH.
- 7- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 8- UNLESS OTHERWISE NOTED OUTSIDE PROJECTION OF NOZZLES ARE MEASURED FROM C.L./T.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE.
- 9- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 10- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 11- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 12- SURFACE PREPARATAION,PICKLING&PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER.
- 13- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.
- 14- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page : 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET for RWS EXPANSION DRUM(V -021)

## Data Sheet for RWS expansion Drum(V -021)

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET for RWS EXPANSION DRUM(V -021)

REV. PAGE	0	1	2	3	4	5	REV. PAGE	0	1	2	3	4	5
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B	X												
1	X												
2	X												
3	X												
4	X												
5	X												
6	X												

5					
4					
3					
2					
1					
0	2021-11-28	K.A	M.N	AA.SH	AFC
<b>Revision</b>	<b>Date</b>	<b>Prepared By</b>	<b>Checked By</b>	<b>Approved By</b>	<b>Status</b>

Document Revision

	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page B

PROJECT:PP-PE PILOT PLANT

Client:


 شرکت ملی صنایع پتروشیمی  
 شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET for RWS EXPANSION DRUM(V -021)

1	Item No.:V-021	Quantity: 1	Location: Outdoor	Service: Continuous	
2	<b>DESIGN CONDITIONS</b>				
3					
4		<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>	
5	Operating Temperature(Min./Max.) °C	-/5	-/-	-/-	
6	Operating Pressure barg	ATM	-	-	
7	Density kg/m <sup>3</sup>	1048	-	-	
8	Design Pressure(int./ext.) barg	6/-	-/-	-/-	
9	Design Temperature °C	-30÷+120	-/-	-/-	
10	Volume(total) m <sup>3</sup>	0.23	-	-	
11	Hydro Test Pressure barg	as per UG99b(33)	-	-	
12	Corrosion Allowance(shell/head) mm	0/0	-/-	-/-	
13	Cladding (shell/head) mm	-/-	-/-	-/-	
14	Content @ normal operation	Glycole+Water	-	-	
15	Thickness(shell/head) mm	4 / 4	-/-	-/-	
16	Welding Radiography(shell/head) %	Full/Full	-/-	-/-	
17	Joint Efficiency(shell/head)	1/1	-/-	-/-	
18	Top Head Type	2:1 Elipsoidal	-	-	
19	Bottom Head Type	2:1 Elipsoidal	-	-	
20	Design code: ASME SEC. VIII DIV.1	Inspection code: as per code			
21	Cylinder Deminsion(IDxT.L-T.L): 500 x 900 mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No			
22	M.D.M.T @ D.P: -30 °C	M.A.T: - °C			
23	M.A.W.P: - barg Limited by: -	Stamp: Not Required			
24	Impact Test: Not Required	P.W.H.T: NIL			
25	N.D.T: Required	Vessel lining detail: NIL			
26	HIC/SSC resistance: NIL / NIL	Painting & Coating: as per code			
27	Insulation thickness: 40 mm	Insulation type: IA			
28	Fireproofing thickness: (Note 17) mm	Vessel located on: Foundation			
29	Seismic code: UBC 1997	Seismic Zone: 3			
30	Impotance factor: 1.25	Soil Profile: SD			
31	Wind code: UBC	Wind velocity: 120 km/hr @ 10 m			
32	Impotance factor: 1.15	Exposure: C			
33	<b>Support loading data(Note 5)</b>				
34	Earthquake	Wind	<b>Weight(kg) (Note 5)</b>	Fabricated: 145	
35	Shearing load(kgf)	65		90	Empty: 165
36	Moment(kg.m)	70		122	Test: 395
					Operation: 340
37	<b>MISCELLANEOUS</b>				
38					
39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate		
40	<input type="radio"/> Diffuser	<input type="radio"/> Distributer	<input type="radio"/> Trunnion		
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template		
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation		
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss		
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input type="radio"/> Dip pipe		
45	<input checked="" type="radio"/> Fire Proofing Support	<input type="radio"/> Internal lining			
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting			
47	<input type="radio"/> Heating coil	<input type="radio"/> Internal clips			
48	<input checked="" type="radio"/> Lifting lug	<input type="radio"/> External clips			

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page 1

PROJECT:PP-PE PILOT PLANT

TITLE:DATA SHEET for RWS EXPANSION DRUM(V -021)

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

**MATERIALS(NOTE 2)**

4	Shell(Main/Jacket)		SA240-304 /	Earth lug	SA240-316
5	Head(Main/Jacket)		SA240-304 /	Stiffening rings	NA
6	Nozzle Necks (Main/Jacket)	Plate	NA /	Gaskets	to be specified by vendor
7		Pipe	SA312-304 /	Ext. bolt/Nuts	SA193-B7/SA194-2H
8	Cladding		NA	Int. bolt/Nuts	SA193-BB/SA194-B
9	Nozzle flanges		SA182-304	Wire mesh	NA
10	Blind flanges		SA182-304	Welded clip	NA
11	Reinforcing pad		SA240-304	Int. welded	SA240-304
12	Fitting		SA403-304	Int. removable	NA
13	Support	Leg	SA383-C	Anchor/Setting bolts	SA307-B
14		Lug	NA	Ladder/Platform	NA
15		leg/lug pad	SA240-304	Insulation Mateial	MINERAL WOOL
16	Lifting lug		SA240-304		

**NOZZLE DETAILS(NOTE 2,3,8)**

Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks	
		Rating	Type	Face				Width	Thk.			
21	Top Head											
22	P1	1"	300#	WN	RF	40S	Nitrogen Inlet	-	-	-	ANSI B16.5	SEE DWG.
23	P2	1"	300#	WN	RF	40S	Chemical Inlet	-	-	-	ANSI B16.5	SEE DWG.
24	P3	1"	300#	WN	RF	40S	Spare	-	-	-	ANSI B16.5	With BL. Flange SEE DWG.
25												
27												
28	Shell											
29	P4	2"	300#	WN	RF	40S	Overflow	-	-	-	ANSI B16.5	SEE DWG.
30	P5	1"	300#	WN	RF	40S	Water Inlet	-	-	-	ANSI B16.5	SEE DWG.
31	K1	1 1/2"	300#	WN	RF	40S	LA Connection	-	-	-	ANSI B16.5	SEE DWG.
32												
33												
34												
35	Bottom Head											
36	P6	2"	300#	WN	RF	40S	Product Outlet	-	-	-	ANSI B16.5	SEE DWG.
37	P7	1"	300#	WN	RF	40S	Spare	-	-	-	ANSI B16.5	With BL. Flange SEE DWG.
38												
39												
41												
42												
43												
44												
45												
46												
47												

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET for RWS EXPANSION DRUM(V -021)

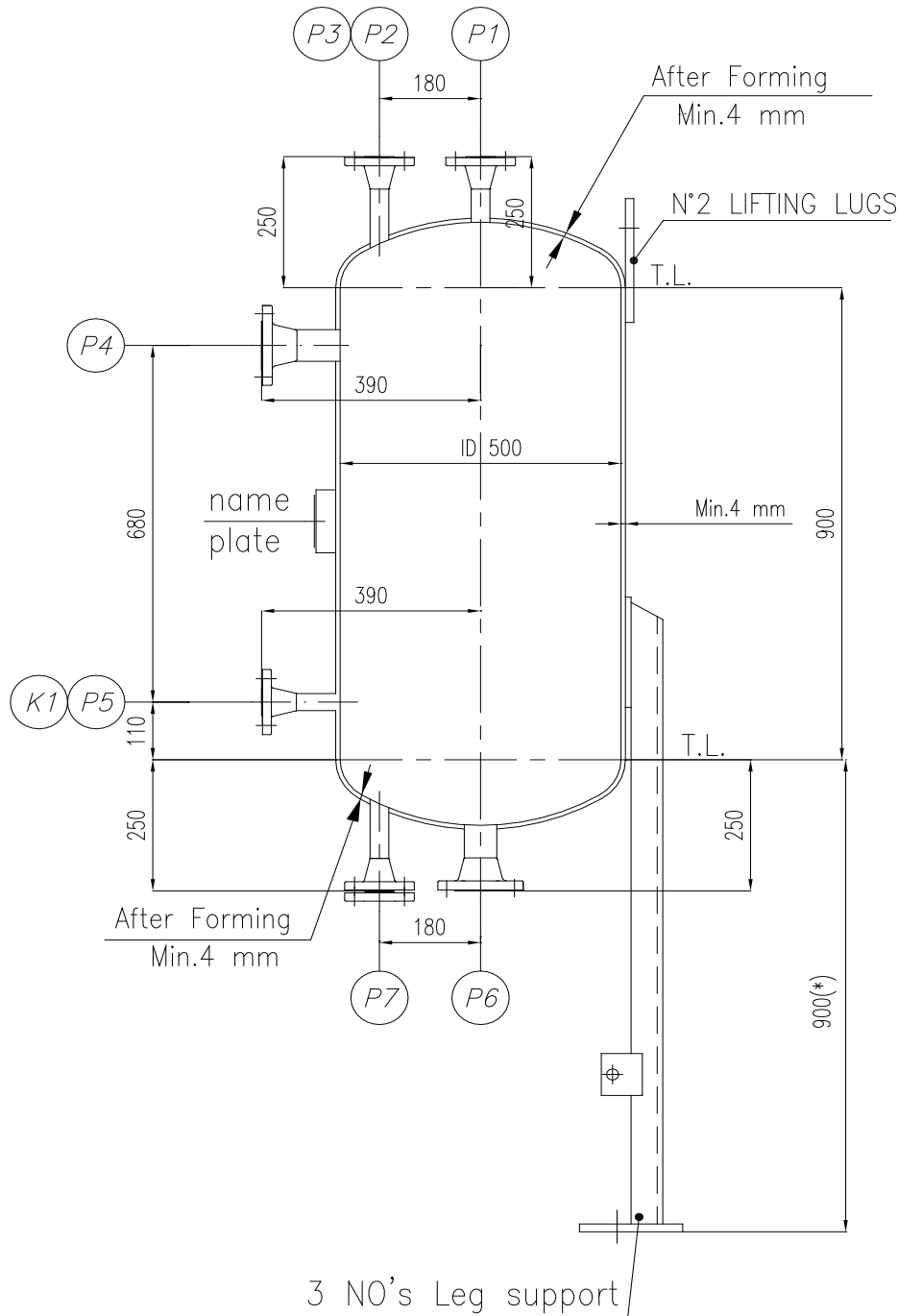
1 |  
2 | **NOZZLE LOADING DATA(NOTE 6)**  
3 |

No.	Nozzle Name	FA (kN)	FB (kN)	FC (kN)	MA (N.m)	MB (N.m)	MC (N.m)
4	P1						
5	P2						
6	P4						
7	P5						
8	P6						
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

21 | **REFRENCE DOCUMENTS**  
22 |

No.	No.	Document No.	Document Title
23	1		
24	2		
25	3		
26	4		
27	5		
28	6		
29	7		
30	8		
31	9		
32	10		
33	11		
34	12		
35	13		
36	14		
37	15		
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39	17		
40	18		
41	19		
42	20		
43	21		
44	22		
45	23		
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	Document No.:	Rev. : 0
	Owner Job No.:	Type: DAS
		Page 3



\*) To be defined

**Side View**

Document No.:

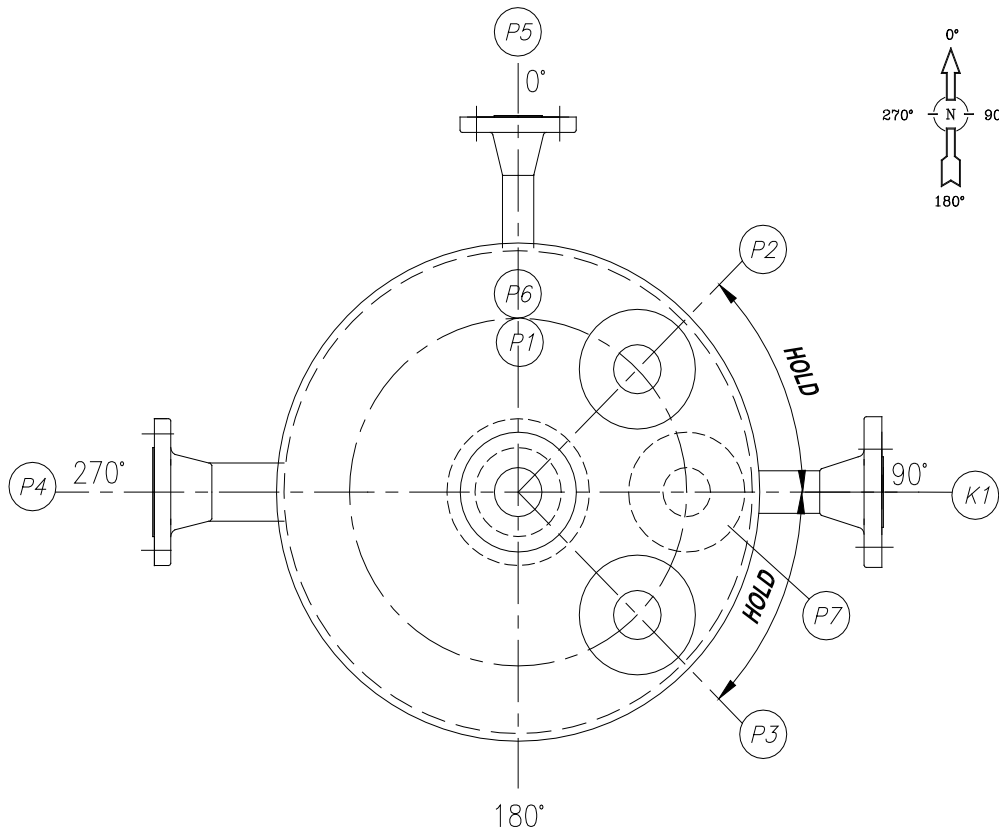
Rev. : 0

Owner Job No.:

Type: DAS

Page 4





***Orientated (HOLD)*** 

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page 5

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET for RWS EXPANSION DRUM(V -021)

**General Notes:**

- 1- SHALL BE VERIFIED BY VENDOR.
- 2- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.
- 3- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.
- 4- THICKNESSES INDICATED ON ENG. DRAWING ARE Min. PURCHASER REQUIREMENT. VENDOR SHALL CHECK AND GUARANTEE THEM ON STRENGTH.
- 5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 6- SHALL BE SPECIFIED BY VENDOR .
- 7-SURFACE PREPARATAION,PICKLING&PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER  
CALCULATION.
- 9- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 10- ALL NDT (RT, UT AND PT/MT) SHALL BE PERFORMED BEFORE AND AFTER PWHT .
- 11- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.
- 12- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 13- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF ELLIPTICAL/TORISPHERICAL HEADS SHALL BE IN NO CASE SMALLER THAN VESSEL SHELL THICKNESS.
- 14- ALL TAILED DIMENSIONS ARE MEASURED FROM B.L.
- 15- UNLESS OTHERWISE NOTED OUTSIDE PROJECTIONS OF NOZZLES ARE MEASURED FROM C.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE.
- 16- FLANGE FACE FINISHING SHALL BE SMOOTHED WITH 125-250 MICROINCH AVEREGAE ROUGHNESS
- 17- WILL BE SPECIFIED LATER.
- 18- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 19- Design Temperature(int./ext.) : 120 / 86 °C
- 20- **DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.**

Document No.:

Rev. : 0

Owner Job No.:

Type: DAS

Page 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET for EXPANSION DRUM(V -031)

## DATA SHEET for JWS EXPANSION DRUM(V-031)

Document No.:

Rev.: 0

Owner Job No.:

Type: DAS

Page A

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET for EXPANSION DRUM(V -031)

REV. PAGE	0	1	2	3	4	5	REV. PAGE	0	1	2	3	4	5
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B	X												
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0	2021-11-28	K.A	M.N	AA.SH	AFC
<b>Revision</b>	<b>Date</b>	<b>Prepared By</b>	<b>Checked By</b>	<b>Approved By</b>	<b>Status</b>

<b>Document Revision</b>		
	<b>Document No.:</b>	Rev.: 0
	<b>Owner Job No.:</b>	Type: DAS
		Page B


PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:DATA SHEET for EXPANSION DRUM(V -031)

1	Item No.:V-031	Quantity: 1	Location: Outdoor	Service: Continuous
2	<b>DESIGN CONDITIONS</b>			
3				
4		<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>
5	Operating Temperature(Min./Max.) °C	-/AMB	-/-	-/-
6	Operating Pressure barg	ATM	-	-
7	Density kg/m <sup>3</sup>	1000	-	-
8	Design Pressure(int./ext.) barg	6/-	-/-	-/-
9	Design Temperature °C	-30÷+120	-/-	-/-
10	Volume(total) m <sup>3</sup>	0.34	-	-
11	Hydro Test Pressure barg	as per UG99b(33)	-	-
12	Corrosion Allowance(shell/head) mm	0/0	-/-	-/-
13	Cladding (shell/head) mm	-/-	-/-	-/-
14	Content @ normal operation	Nitrogen+Water	-	-
15	Thickness(shell/head) mm	4 / 4	-/-	-/-
16	Welding Radiography(shell/head) %	Full/Full	-/-	-/-
17	Joint Efficiency(shell/head)	1/1	-/-	-/-
18	Top Head Type	2:1 Elipsoidal	-	-
19	Bottom Head Type	2:1 Elipsoidal	-	-
20	Design code: ASME SEC. VIII DIV.1	Inspection code: as per code		
21	Cylinder Deminsion(IDxT.L-T.L): 600 x 1000 mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No		
22	M.D.M.T @ D.P: -30 °C	M.A.T: - °C		
23	M.A.W.P: 15.156 barg Limited by: CYLINDER	Stamp: Not Required		
24	Impact Test: Not Required	P.W.H.T: NIL		
25	N.D.T: Required	Vessel lining detail: NIL		
26	HIC/SSC resistance: NIL / NIL	Painting & Coating: as per code		
27	Insulation thickness: 40 mm	Insulation type: IA		
28	Fireproofing thickness: (Note 17) mm	Vessel located on: Foundation		
29	Seismic code: UBC 1997	Seismic Zone: 3		
30	Impotance factor: 1.25	Soil Profile: SD		
31	Wind code: UBC	Wind velocity: 120 km/hr @ 10 m		
32	Impotance factor: 1.15	Exposure: C		
33	<b>Support loading data(Note 5)</b>			
34	Earthquake	Wind	<b>Weight(kg) (Note 5)</b>	Fabricated: 175
35	Shearing load(kgf)	90 104		Empty: 185
36	Moment(kg.m)	96 146		Test: 525
				Operation: 435
37	<b>MISCELLANEOUS</b>			
38				
39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate	
40	<input type="radio"/> Diffuser	<input type="radio"/> Distributer	<input type="radio"/> Trunnion	
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template	
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation	
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss	
44	<input checked="" type="radio"/> Fire Proofing 	<input checked="" type="radio"/> Name plate	<input type="radio"/> Dip pipe	
45	<input type="radio"/> Fire Proofing Support	<input type="radio"/> Internal lining		
46	<input type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting		
47	<input type="radio"/> Heating coil	<input type="radio"/> Internal clips		
48	<input checked="" type="radio"/> Lifting lug	<input type="radio"/> External clips		

Document No.:

Rev.: 0

Owner Job No.:


Type: DAS

Page 1

**PROJECT:PP-PE PILOT PLANT**

**TITLE:DATA SHEET for EXPANSION DRUM(V -031)**

**Client:**



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

**MATERIALS(NOTE 2)**

4	Shell(Main/Jacket)		SA240-304 /	Earth lug	SA240-316
5	Head(Main/Jacket)		SA240-304 /	Stiffening rings	NA
6	Nozzle Necks (Main/Jacket)	Plate	NA /	Gaskets	to be specified by vendor
7		Pipe	SA312-304 /	Ext. bolt/Nuts	SA193-B7/SA194-2H
8	Cladding		NA	Int. bolt/Nuts	SA193-BB/SA194-B
9	Nozzle flanges		SA182-304	Wire mesh	NA
10	Blind flanges		SA182-304	Welded clip	NA
11	Reinforcing pad		SA240-304	Int. welded	SA240-304
12	Fitting		SA403-304	Int. removable	NA
13	Support	Leg	SA283-C	Anchor/Setting bolts	SA307-B
14		Lug	NA	Ladder/Platform	NA
15		leg/lug pad	SA240-304	Insulation Mateial	MINERAL WOOL
16	Lifting lug		SA240-304		

**NOZZLE DETAILS(NOTE 2,3,8)**

Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks	
		Rating	Type	Face				Width	Thk.			
21	Top Head											
22	P1	1"	300#	WN	RF	40S	Nitrogen Inlet	-	-	-	ANSI B16.5	SEE DWG.
23	P2	1"	300#	WN	RF	40S	Chemical Inlet	-	-	-	ANSI B16.5	SEE DWG.
24	P3	1"	300#	WN	RF	40S	Spare	-	-	-	ANSI B16.5	With BL. Flange SEE DWG.
25												
27												
28	Shell											
29	P4	3"	300#	WN	RF	40S	Overflow	-	-	-	ANSI B16.5	SEE DWG.
30	P5	1"	300#	WN	RF	40S	Water Inlet	-	-	-	ANSI B16.5	SEE DWG.
31	K1	1 1/2"	300#	WN	RF	40S	LA Connection	-	-	-	ANSI B16.5	SEE DWG.
32												
33												
34												
35	Bottom Head											
36	P6	4"	300#	WN	RF	40S	Product Outlet	-	-	-	ANSI B16.5	SEE DWG.
37	P7	1"	300#	WN	RF	40S	Spare	-	-	-	ANSI B16.5	With BL. Flange SEE DWG.
38	K2	1 1/2"	300#	WN	RF	40S	LA Connection	-	-	-	ANSI B16.5	SEE DWG.
39												
40												
42												
43												
44												
45												
46												
47												

**PROJECT:PP-PE PILOT PLANT**

**Client:**



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

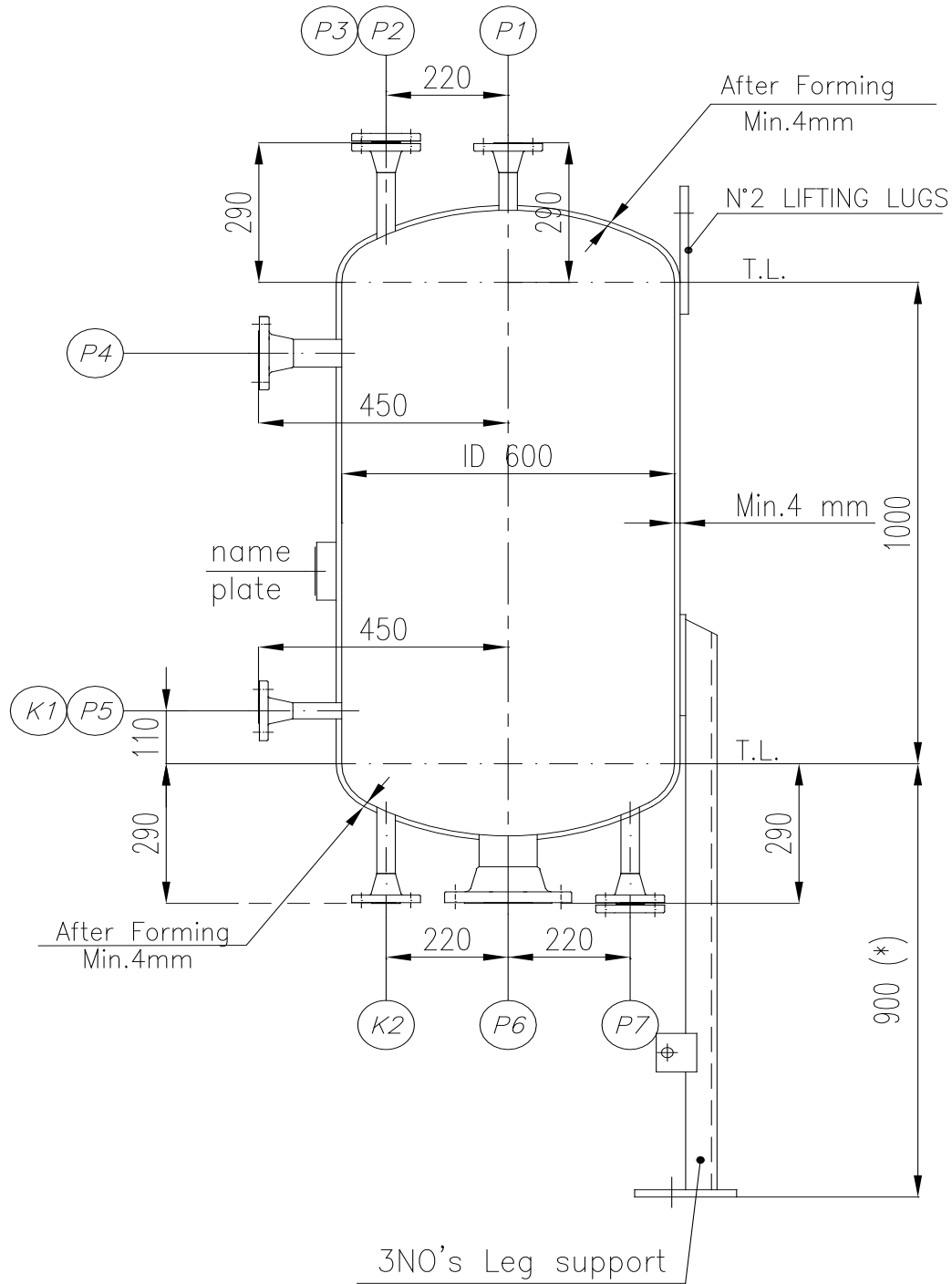
**TITLE:DATA SHEET for EXPANSION DRUM(V -031)**

1							
2	<b>NOZZLE LOADING DATA(NOTE 6)</b>						
3							
4	<b>Nozzle</b>	<b>P</b>	<b>V2</b>	<b>V1</b>	<b>M1</b>	<b>M2</b>	<b>Mt</b>
5	<b>Name</b>	<b>(kgf)</b>	<b>(kgf)</b>	<b>(kgf)</b>	<b>(kg.m)</b>	<b>(kg.m)</b>	<b>(kg.m)</b>
6	P1						
7	P2						
8	P4						
9	P5						
10	P6	490	490	490	98	128	147
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

21	<b>REFRENCE DOCUMENTS</b>						
22							

	<b>No.</b>	<b>Document No.</b>	<b>Document Title</b>
23			
24	1		
25	2		
26	3		
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42	19		
43	20		
44	21		
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46	23		
47	24		
48	25		

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	<b>Owner Job No.:</b>	<b>Type: DAS</b>
		<b>Page 3</b>

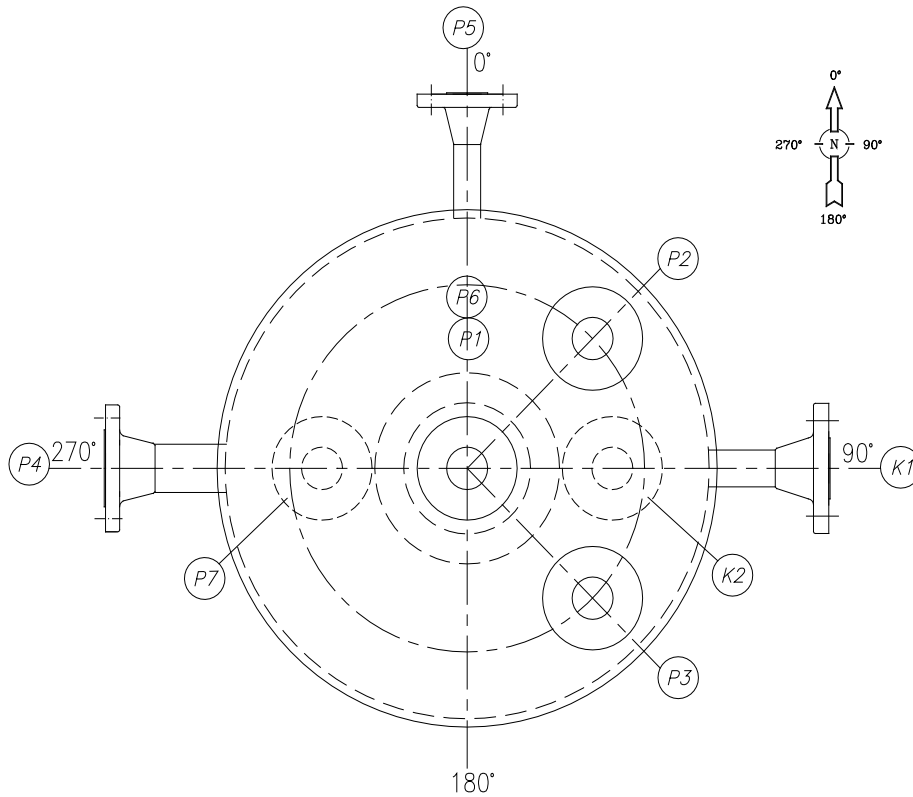


\*) To be define

**Side View**

	Document No.:	Rev.: 0
	Owner Job No.:	Type: DAS
		Page 4






**Orientated (HOLD)**



	Document No.:	Rev.: 0
	Owner Job No.:	Type: DAS
		Page 5

<b>PROJECT:PP-PE PILOT PLANT</b>	<b>Client:</b>
<b>TITLE:DATA SHEET for EXPANSION DRUM(V -031)</b>	 <p>شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی</p>

**General Notes:**

- 1- SHALL BE VERIFIED BY VENDOR.
- 2- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED.
- 3- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR.
- 4- THICKNESSES INDICATED ON ENG. DRAWING ARE Min. PURCHASER REQUIREMENT. VENDOR SHALL CHECK AND GUARANTEE THEM ON STRENGTH.
- 5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 6- SHALL BE SPECIFIED BY VENDOR .
- 7-SURFACE PREPARATAION,PICKLING&PASSIVATION SHALL BE ACC. TO APPROVED VENDOR DOCUMENT BY PURCHASER
- 8- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 9- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 10- ALL NDT (RT, UT AND PT/MT) SHALL BE PERFORMED BEFORE AND AFTER PWHT .
- 11- ALL REINF.PADS SHALL HAVE 1/4"(6mm) TELL TALE HOLE.
- 12- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 13- STATED THICKNESS IS MINIMUM AFTER FORMING. THICKNESS OF STRAIGHT FLANGE OF ELLIPTICAL/TORISPHERICAL HEADS SHALL BE IN NO CASE SMALLER THAN VESSEL SHELL THICKNESS.
- 14- ALL TAILED DIMENSIONS ARE MEASURED FROM B.L.
- 15- UNLESS OTHERWISE NOTED OUTSIDE PROJECTIONS OF NOZZLES ARE MEASURED FROM C.L. OF VESSEL TO THE EXTREME FACE OF NOZZLE FLANGE.
- 16- FLANGE FACE FINISHING SHALL BE SMOOTHED WITH 125-250 MICROINCH AVEREGAE ROUGHNESS
- 17- WILL BE SPECIFIED LATER.
- 18- LOCATION AND NUMBER OF LIFTING LUGS ON VESSEL SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 19- Design Temperature(int./ext.) : 120 / 86 °C
- 20- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

	<b>Document No.:</b>	<b>Rev.: 0</b>
	<b>Owner Job No.:</b>	<b>Type: DAS</b>
		<b>Page 6</b>

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Propylene surge tank(TK -321)

## Data Sheet for Propylene surge tank(TK -321)

Document No.:

Rev.:0

Owner Job No.:

Type:DAS

Page A

PROJECT:PP-PE PILOT PLANT

TITLE:Data Sheet for Propylene surge tank(TK -321)

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

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<b>Revision</b>	<b>Date</b>	<b>Prepared By</b>	<b>Checked By</b>	<b>Approved By</b> <b>Status</b>

	<b>Document No.:</b>	<b>Rev.:0</b>
	<b>Owner Job No.:</b>	<b>Type:DAS</b>
		<b>Page B</b>

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Propylene surge tank(TK -321)

1	Item No.:TK-321	Quantity: 1	Location: Outdoor	Service: Continuous	
2	<b>DESIGN CONDITIONS</b>				
3					
4		<b>Vessel</b>	<b>Jacket</b>	<b>Internal Coil</b>	
5	Operating Temperature(Min./Max.) °C	47	-/-	-/-	
6	Operating Pressure barg	18	-	-	
7	Density kg/m <sup>3</sup>	480	-	-	
8	Design Pressure(int./ext.) barg	26 / -	-/-	-/-	
9	Design Temperature °C	-45÷+120	-/-	-/-	
10	Volume m <sup>3</sup>	1.55	-	-	
11	Hydro Test Pressure barg	as per UG99b(33)	-	-	
12	Corrosion Allowance(shell/head) mm	0 / 0	-/-	-/-	
13	Cladding (shell/head) mm	- / -	-/-	-/-	
14	Content @ normal operation	Propylene	-	-	
15	Thickness(shell/head) mm	12 / 12	-/-	-/-	
16	Welding Radiography(shell/head) %	100 / 100	-/-	-/-	
17	Joint Efficiency(shell/head)	1 / 1	-/-	-/-	
18	Top Head Type	2:1 Elipsoidal	-	-	
19	Bottom Head Type	2:1 Elipsoidal	-	-	
20	Design code: ASME SEC. VIII DIV.1	Inspection code: ASME SEC. IX			
21	Cylinder Deminsion(IDxT.L-T.L): 1000 x 1600 mm	Lethal Service: <input type="radio"/> Yes <input checked="" type="radio"/> No			
22	M.D.M.T @ D.P: -45 °C	M.A.T: - °C			
23	M.A.W.P: 27.18 barg Limited by: Cylinder	Stamp: Not Required			
24	Impact Test: Not Required	P.W.H.T: Not Required			
25	N.D.T: Required	Vessel lining detail: NIL			
26	HIC/SSC resistance: NIL / NIL	Painting & Coating: as per code			
27	Insulation thickness: 50 mm	Insulation type: IA			
28	Fireproofing thickness: NA mm	Vessel located on: Foundation			
29	Seismic code: UBC 1997	Seismic Zone: 3			
30	Impotance factor: 1.25	Soil Profile: SD			
31	Wind code: UBC	Wind velocity: 120 km/hr @ 10 m			
32	Impotance factor: 1.15	Exposure: C			
33	<b>Support loading data(Note 5)</b>				
34	Earthquake	Wind	<b>Weight(kg) (Note 5)</b>	Fabricated: 1220	
35	Shearing load(kgf)	400		230	Empty: 1350
36	Moment(kg.m)	660		430	Test: 2850
					Operation: 1900
37	<b>MISCELLANEOUS(Note 4)</b>				
38					
39	<input type="radio"/> Baffle	<input type="radio"/> Impingement plate	<input type="radio"/> Weir plate		
40	<input type="radio"/> Diffuser	<input type="radio"/> Distributer	<input type="radio"/> Trunnion		
41	<input type="radio"/> Vortex breaker	<input type="radio"/> Tubesheet	<input type="radio"/> Template		
42	<input type="radio"/> Boot / Cap	<input type="radio"/> Demister	<input checked="" type="radio"/> Pickling & passivation		
43	<input checked="" type="radio"/> Insulation Support	<input type="radio"/> Wire mesh	<input checked="" type="radio"/> Earthing boss		
44	<input type="radio"/> Fire Proofing	<input checked="" type="radio"/> Name plate	<input type="radio"/> Dip pipe		
45	<input type="radio"/> Fire Proofing Support	<input type="radio"/> Internal lining	<input checked="" type="radio"/> Davit for manhole		
46	<input checked="" type="radio"/> Ladder & platform (int. & ext.)	<input type="radio"/> Sand blast & painting			
47	<input type="radio"/> Heating coil	<input type="radio"/> Internal clips			
48	<input checked="" type="radio"/> Lifting lug	<input checked="" type="radio"/> External clips			

Document No.:

Rev.:0

Owner Job No.:

Type:DAS

Page 1 of 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Propylene surge tank(TK -321)

1				
2	<b>MATERIALS(NOTE 1)</b>			
3				
4	Shell(Main/Jacket)	SA240-304L / -	Earth lug	SA240-316L
5	Head(Main/Jacket)	SA240-304L /	Stiffening rings	NA
6	Nozzle Necks (Main/Jacket)	Plate	SA240-304L /	Gaskets
7		Pipe	SA312-304L /	Ext. bolt/Nuts
8	Cladding	NA	Int. bolt/Nuts	SA193-BB/SA194-B
9	Nozzle flanges	SA182-304L	Wire mesh	NA
10	Blind flanges	SA182-304L	Welded clip	SA240-304L
11	Reinforcing pad	SA240-304L	Int. welded	SA240-304L
12	Fitting	SA403-304L	Int. removable	NA
13	Support	Leg	SA36	Anchor/Setting bolts
14		Base palte	SA283 C	Ladder/Platform
15		leg/lug pad	SA240-304L	Insulation Mateial
16	Lifting lug	SA240-304L		Mineral wool

17	<b>NOZZLE DETAILS(NOTE 2,3,14)</b>			
18				

Item	NPS (Inch)	Flanges			SCH. /THK.	Service	Proj.	Rein. PAD		Standards	Remarks
		Rating	Type	Face				OD	Thk.		
<b>Top Head</b>											
P1	1"	300#	WN	RF	80S	VENT	See Dwg	-	-	ANSI B16.5	
P2	2"	300#	WN	RF	160	Gas Return	See Dwg	-	-	ANSI B16.5	
P3	1"	300#	WN	RF	80S	RV Inlet	See Dwg	-	-	ANSI B16.5	
K1	2"	300#	WN	RF	160	Safty Valve	See Dwg	-	-	ANSI B16.5	
K2	1"	300#	WN	RF	80S	PRC Connection	See Dwg	-	-	ANSI B16.5	
<b>Shell</b>											
P4	1 1/2"	300#	WN	RF	160	Recycle	See Dwg	-	-	ANSI B16.5	
P5	1"	300#	WN	RF	80S	Make-up	See Dwg	-	-	ANSI B16.5	
P6	1"	300#	WN	RF	80S	Dist. Liquid Inlet	See Dwg	-	-	ANSI B16.5	
K3a	2"	300#	WN	RF	160	Stand-pipe	See Dwg	-	-	ANSI B16.5	
K4	1 1/2"	300#	WN	RF	160	Temperature	See Dwg	-	-	ANSI B16.5	
M1	14"	300#	WN	RF	40S	Handhole	See Dwg	680	12	ANSI B16.5	With blind flange
<b>Bottom Head</b>											
P7	1"	300#	WN	RF	80S	Drain	See Dwg	-	-	ANSI B16.5	
P8	2"	300#	WN	RF	80S	Liquid Outlet	See Dwg	-	-	ANSI B16.5	
P9	1"	300#	WN	RF	80S	Liquid to Vapor	See Dwg	-	-	ANSI B16.5	
K3b	2"	300#	WN	RF	80S	Stand-pipe	See Dwg	-	-	ANSI B16.5	
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Document No.:

Rev.:0

Owner Job No.:

Type:DAS

Page 2 of 6

PROJECT:PP-PE PILOT PLANT

Client:



شرکت ملی صنایع پتروشیمی  
شرکت پژوهش و فناوری پتروشیمی

TITLE:Data Sheet for Propylene surge tank(TK -321)

1							
2	<b>NOZZLE LOADING DATA(NOTE 5)</b>						
3							
4	Nozzle	FL	FA	FC	MC	MT	ML
5	Name	(kN)	(kN)	(kN)	(N.m)	(N.m)	(N.m)
6							
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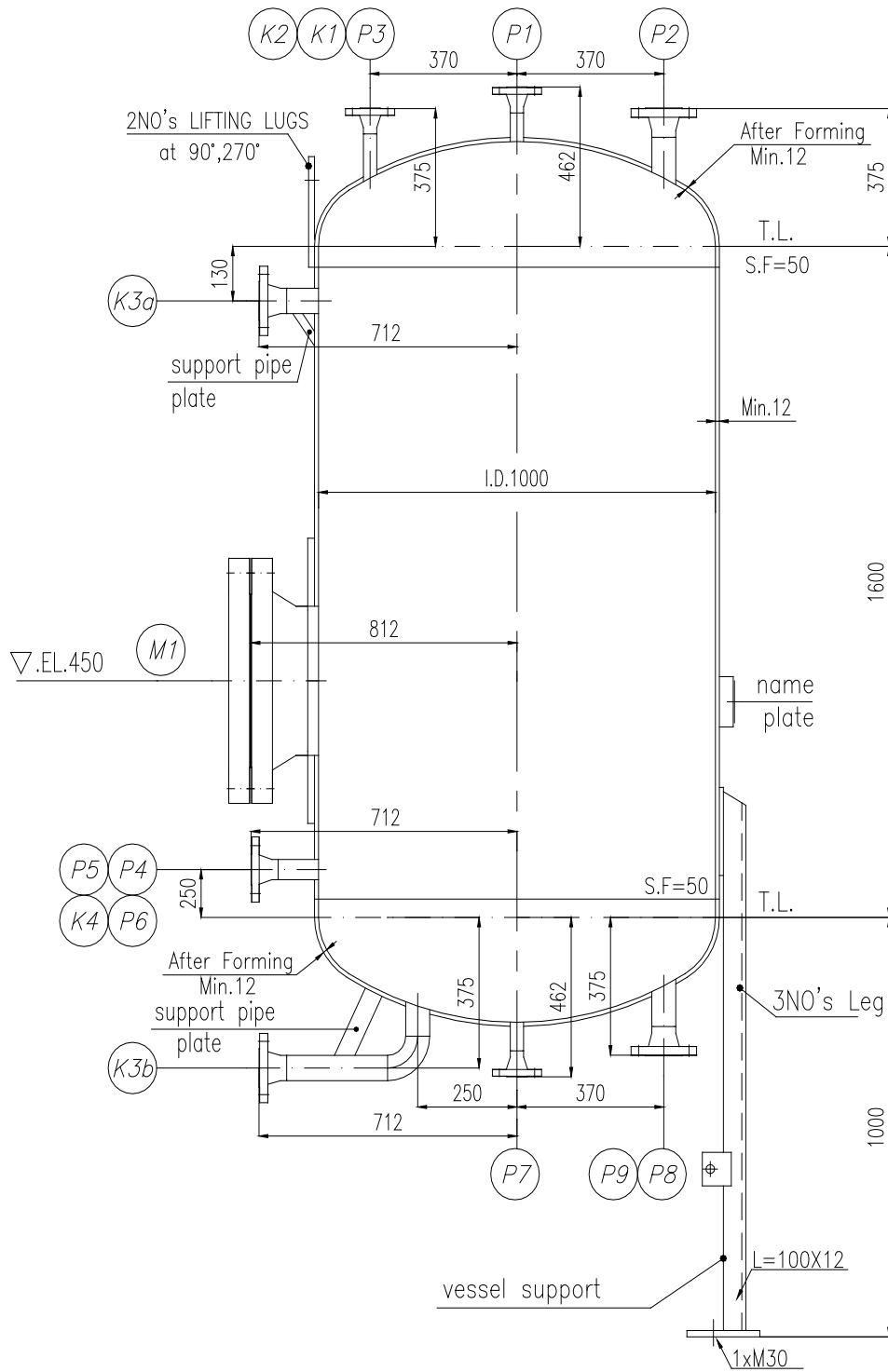
21	<b>REFRENCE DOCUMENTS</b>						
22							

No.	Document No.	Document Title
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24	1	
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	Document No.:	Rev.:0
	Owner Job No.:	Type:DAS
		Page 3 of 6



SKETCH(Note 2)



Side View

Document No.:

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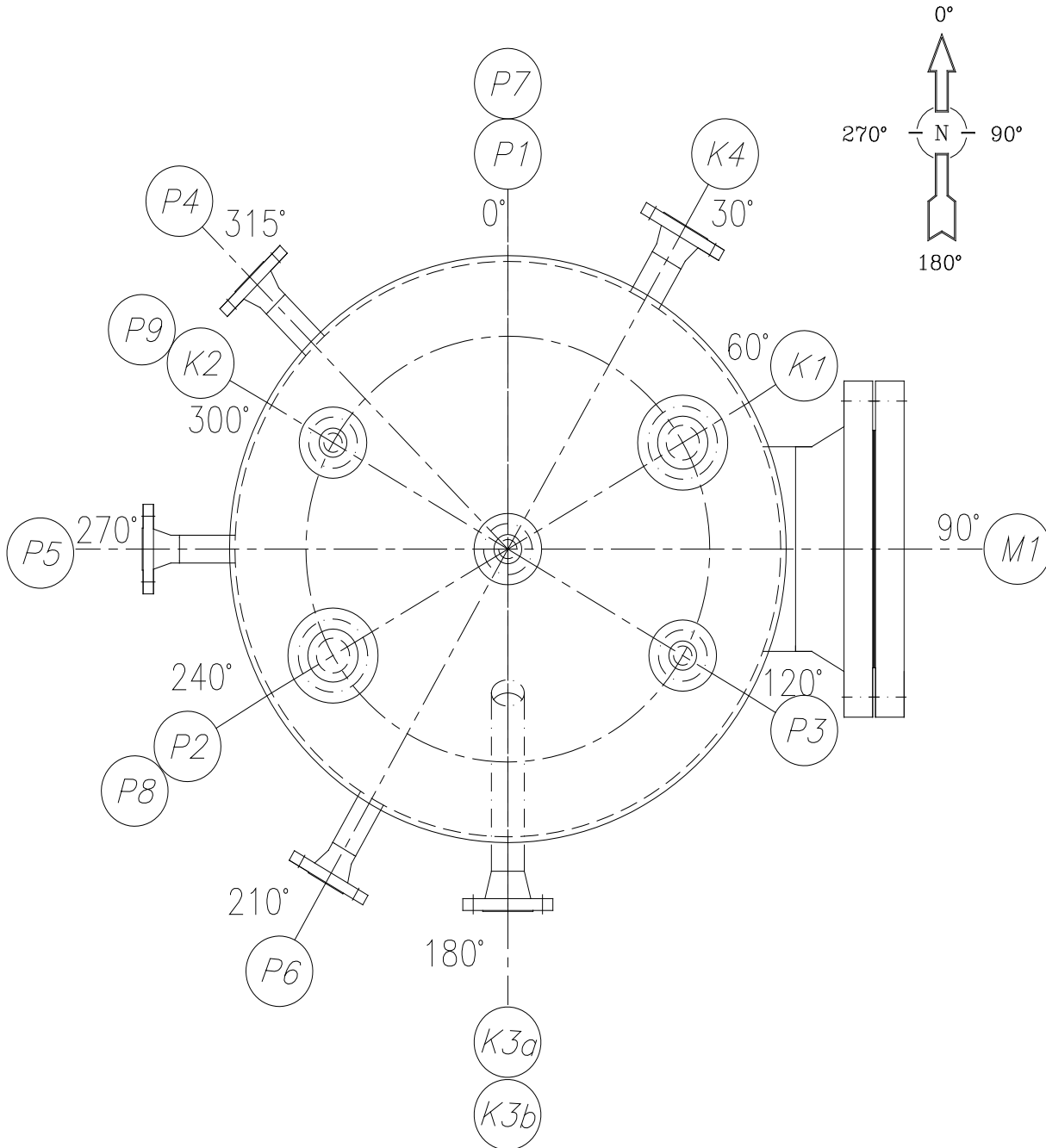
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Page 4 of 6





SKETCH(Note 2)



Nozzle Orientation


Document No.:

Rev.:0

Owner Job No.:

Type:DAS

Page 5 of 6

PROJECT:PP-PE PILOT PLANT	Client:  شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی
TITLE:Data Sheet for Propylene surge tank(TK -321)	

**General Notes:**

- 1- SHALL BE VERIFIED BY VENDOR
- 2- ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE NOTED
- 3- NOZZLE CHARACTERISTICS SHALL BE VERIFIED BY VENDOR
- 4- ALL INTERNALS SHALL BE INTRODUCED THROUGH A MANHOLE . IF NECESSARY, THEY SHALL BE MADE OF SEVERAL PIECES TO BE INTRODUCED INSIDE THE EQUIPMENT.
- 5- THICKNESSES, WEIGHTS AND LOADS ARE INDICATED FOR ESTIMATION PURPOSE ONLY ; THE MANUFACTURER SHALL CONFIRM THESE ITEMS AND IS RESPONSIBLE FOR MECHANICAL DESIGN.
- 6- SHALL BE SPECIFIED BY VENDOR .
- 7- ALL MANWAYS SHOULD BE EQUIPPED WITH BLIND FLANGE , BOLTING , DAVIT AND GASKET .
- 8- ALL WELDED ATTACHMENTS TO THE VESSEL TO BE SUPPLIED BY THE VESSEL MANUFACTURER .
- 9- ALL NDT (RT, UT AND PT/MT) SHALL BE PERFORMED BEFORE AND AFTER PWHT .
- 10- UNLESS OTHERWISE NOTED OUTSIDE PROJECTIONS OF NOZZLES ARE MEASURED FROM C.L.
- 11- LOCATION AND NUMBER OF LIFTING LUGS ON FILTER SHALL BE SPECIFIED ON VENDOR DRAWINGS.
- 12- UNLESS OTHERWISE NOTED OUTSIDE PROJECTION OF NOZZLES ARE MEASURED FROM C.L./T.L. OF COLUMN TO THE EXTREME FACE OF NOZZLE FLANGE.
- 13- SETTING BOLTS SHALL BE HOT DIP GALVANIZED.
- 14- SHELL/NOZZLE THICKNESS AT CONNECTION/ATACHMENT AREA SHALL BE VERIFIED BY LOCAL CALCULATION.
- 15- DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

	Document No.:	Rev.:0
	Owner Job No.:	Type:DAS
		Page 6 of 6



National Petrochemical Company  
Petrochemical Research & Technology Company

# SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET  
TK-9022

SHEET N. 1 OF 6

ISSUE 0

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## TANK 9022

REVISED DATA ROW NUMBER	ISSUE	DESCRIPTION	DRAWN UP	VERIFY	APPROVED	DATE
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# SAZ CATALYST PLANT

DOCUMENT NUMBER

## PROCESS DATA SHEET

SHEET N. 2 OF 6 ISSUE 0

TK-9022

1	SERVICE	RECOVERY HEXANE	QUANTITY	1
2	TYPE	VERTICAL	DIAMETER	mm 3000
3	HEAD TYPE	CONICAL TOP / FLAT BOTTOM	HEIGHT or LEN.	mm 4500
4	INSULATION:	NONE	CAPACITY	m <sup>3</sup> 32
5	INSTALATION:	OUTDOOR	FIRE PROOFING	RADIOGRAPHY
6	DESIGN CODE			
7	OPERATING CONDITIONS			
8	TANK			
9	FLUID	RECOVERY HEXANE		
10	FLUID HAZARDOUSNESS	FLAMMABLE, IRRITANT, HEALTH		
11	CONDITION 1	TEMPERATURE	°C	AMB
12		PRESSURE	bar(g)	ATM
13		DENSITY	kg/m <sup>3</sup>	~660
14	CONDITION 2	TEMPERATURE	°C	
15		PRESSURE	bar(g)	
16		DENSITY	kg/m <sup>3</sup>	
17	DESIGN CONDITIONS			
18	TANK			
19	MAXIMUM LIQUID DENSITY	kg/m <sup>3</sup>	700	
20	CONDITION 1	TEMPERATURE	°C	69
21		PRESSURE	bar(g)	2
22	CONDITION 2	TEMPERATURE	°C	
23		PRESSURE	bar(g)	
24	FULL VACUUM	REQUIRED (yes/no)		
25		© TEMPERATURE	°C	
26	METAL	MDMT		
27		© TEMPERATURE	°C	
28	MATERIALS			
29	MATERIAL DESCRIPTION			CORROSION ALLOW.
30	TANK	C.S		mm
31				mm
32				mm
33				mm
34				mm
35	CONDITION 2	VESSEL	AS PER PIPING CLASSES	
36				
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# SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET  
TK-9022

SHEET N. 3 OF 6

ISSUE 0

1	SERVICE	RECOVERY HEXANE			QUANTITY	1		
2					PLANT UNIT	900		
3								
4	NOZZLE							
5								
6	POS.	N.	SERVICE	DN	RATING	FLANGE	FINISHING	NOTE
7	N1		WAG	4"	150#	WNRF		
8	N2		PER. TRANSMITER.	1"	150#	WNRF		4
9	N3		PSV	6"	150#	WNRF		
10	N4		LSH	2"	150#	WNRF		4
11	N5		LT	3"	150#	WNRF		1
12	N6		SPARE	2"	150#	WNRF		
13	N7		IN/OUT	2"	150#	WNRF		
14	N8		OUTLET	3"	150#	WNRF		
15	N9		PER. TRANSMITER.	2"	150#	WNRF		4
16	N10		TEM. TRANSMITER	2"	150#	WNRF		4, 3
17	MN		MANHOLE	24"	150#	SORF		2
18	N11		LEVEL G.	1"	150#	WNRF		
19	N12		LEVEL G.	1"	150#	WNRF		
20	N13		LEVEL G.	1"	150#	WNRF		
21	N14		LEVEL G.	1"	150#	WNRF		
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# SAZ CATALYST PLANT

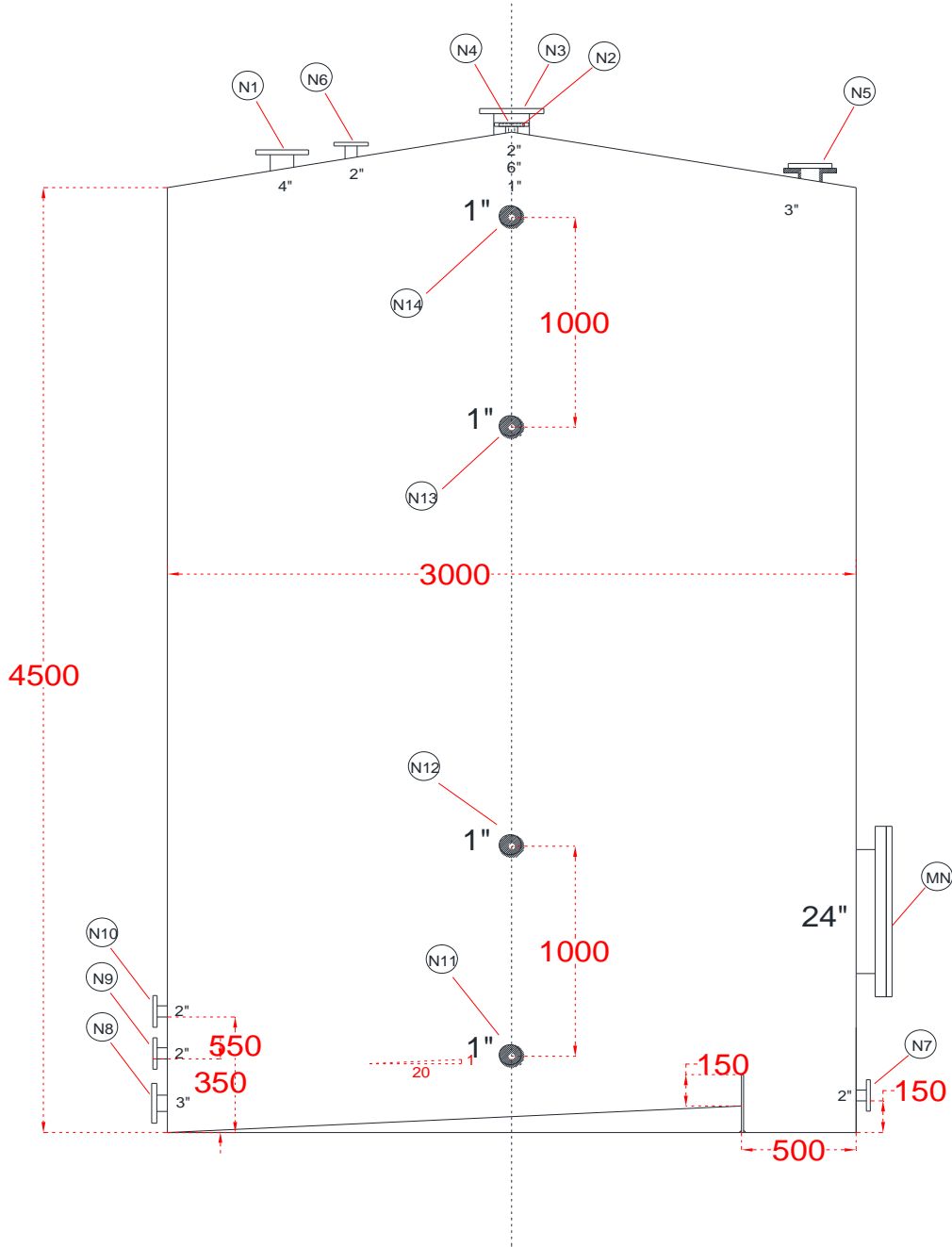
PROCESS DATA SHEET  
TK-9022

DOCUMENT NUMBER

SHEET N. 4 OF 6 ISSUE 0

1	SERVICE	RECOVERY HEXANE	QUANTITY	1
2			PLANT UNIT	900

## SKETCH



REVISED DATA

ROW NUMBER



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# SAZ CATALYST PLANT

PROCESS DATA SHEET  
TK-9022

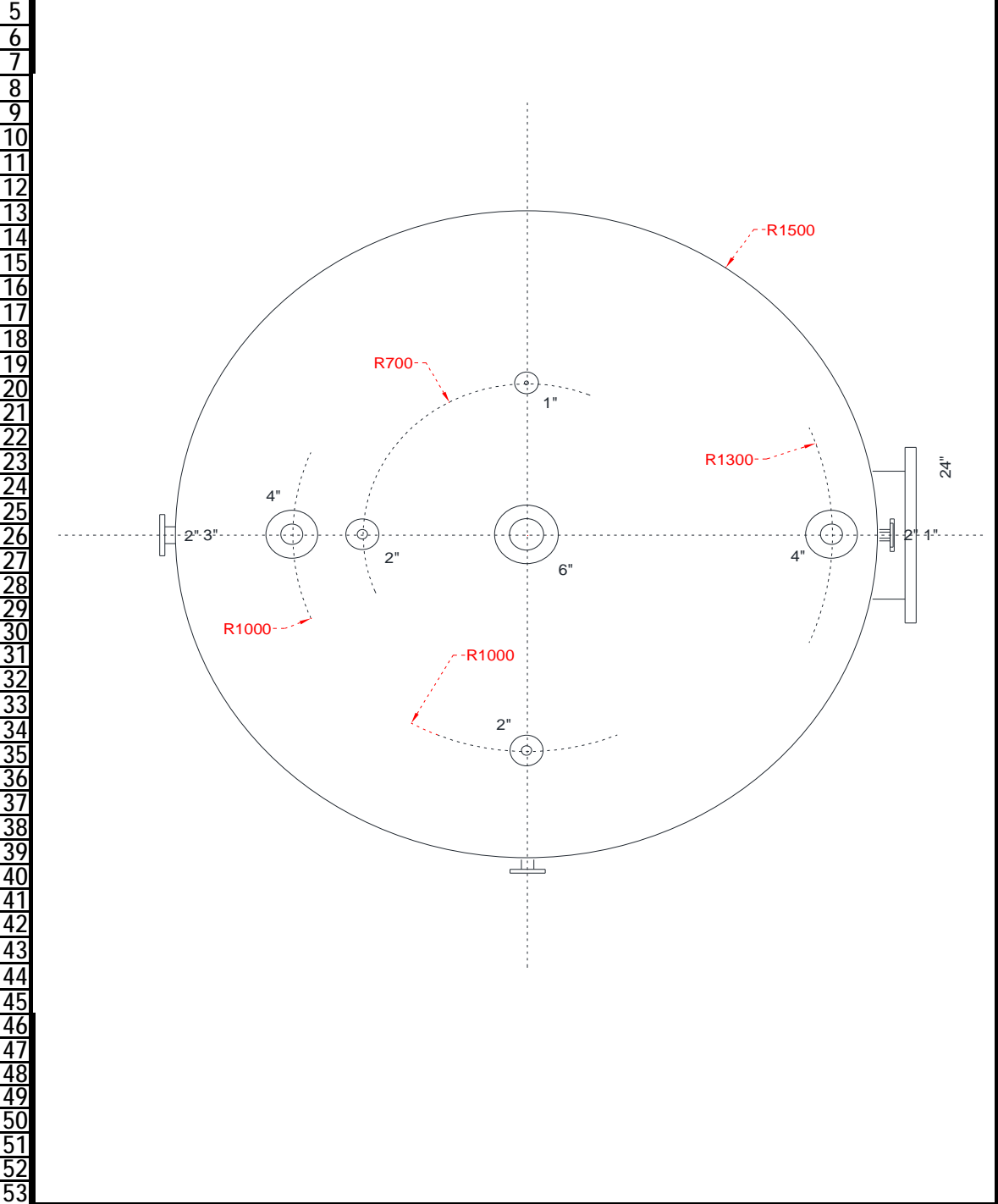
DOCUMENT NUMBER

SHEET N. 5 OF 6 ISSUE 0

1	SERVICE	RECOVERY HEXANE	QUANTITY	1
2			PLANT UNIT	900

3

4 SKETCH



REVISED DATA

ROW NUMBER

51				
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# SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET  
TK-9022

SHEET N. 6 OF 6 ISSUE 0

1	SERVICE	RECOVERY HEXANE	QUANTITY	1
2			PLANT UNIT	900

3

4 NOTE

5

6 GENERAL NOTES:

7 NOTE 1: DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

8

9

10

11

12 NOZZLE NOTES:

13

14

15 1- NOZZLE WITH DIP

16 2- WITH COVER AND DAVIT.

17 3- I.D. OF FLANGE AND O.D. OF DISPLACER TO BE MACHINED. GAP TO BE MINIMIZED.

18 SUPPLY STUD BOLTS, NUTS, GASKETS AND THERMOWELL.

19 4- INSTRUMENT NOZZLE SIZE TO BE CONFIRMED.

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REVISED DATA

ROW NUMBER





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# SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET  
V-7021 A/B

SHEET N. 1 OF 6 ISSUE 0

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## VESSEL 7021 A/B

REVISED DATA						
	0	ISSUED FOR PDP	MRO			JULY2021
	ISSUE	DESCRIPTION	DRAWN UP	VERIFIE	APROVED	DATE

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# SAZ CATALYST PLANT

DOCUMENT NUMBER

## PROCESS DATA SHEET V-7021 A/B

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# SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET  
V-7021 A/B

SHEET N. 3 OF 6

ISSUE 0

1	SERVICE		WASTE		QUANTITY	2		
2					PLANT UNIT	700		
3								
4	NOZZLE							
5								
6	POS.	N.	SERVICE	DN	RATING	FLANGE	FINISHING	NOTE
7	N1		AGITATOR	6"	150#	SORF		1
8	N2		SPARE	6"	150#	WNRF		
9	N3		WAL	2"	150#	WNRF		
10	N4		SPARE	1½"	150#	WNRF		
11	N5		FRESH HEXANE	1"	150#	WNRF		
12	N6		VAPOUR	4"	150#	WNRF		
13	N7		WAL	2"	150#	WNRF		
14	N8		SPARE	1½"	150#	WNRF		
15	N9		NITROGEN	½"	150#	WNRF		
16	N10		NAOH	1"	150#	WNRF		
17	N11		PER. TRANSMITER	1½"	150#	PADRF		2
18	N12		TEMP. TRANSMITER	1½"	150#	PADRF		2, 6
19	N13		PH	1½"	150#	PADRF		2
20	N14		OUT	3"	150#	PADRF		
21	N15		HALF COIL OUT	2"	150#	WNRF		3
22	N16		HALF COIL IN	2"	150#	WNRF		3
23	N17		OUT	2"	150#	WNRF		7
24	N18		LEVEL GAUGE	1"	150#	WNRF		4
25	N19		LEVEL GAUGE	1"	150#	WNRF		4
26	MN		MANHOLE	20"	150#	WNRF		5
27								
28								
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REVISED DATA  
ROW NUMBER

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# SAZ CATALYST PLANT

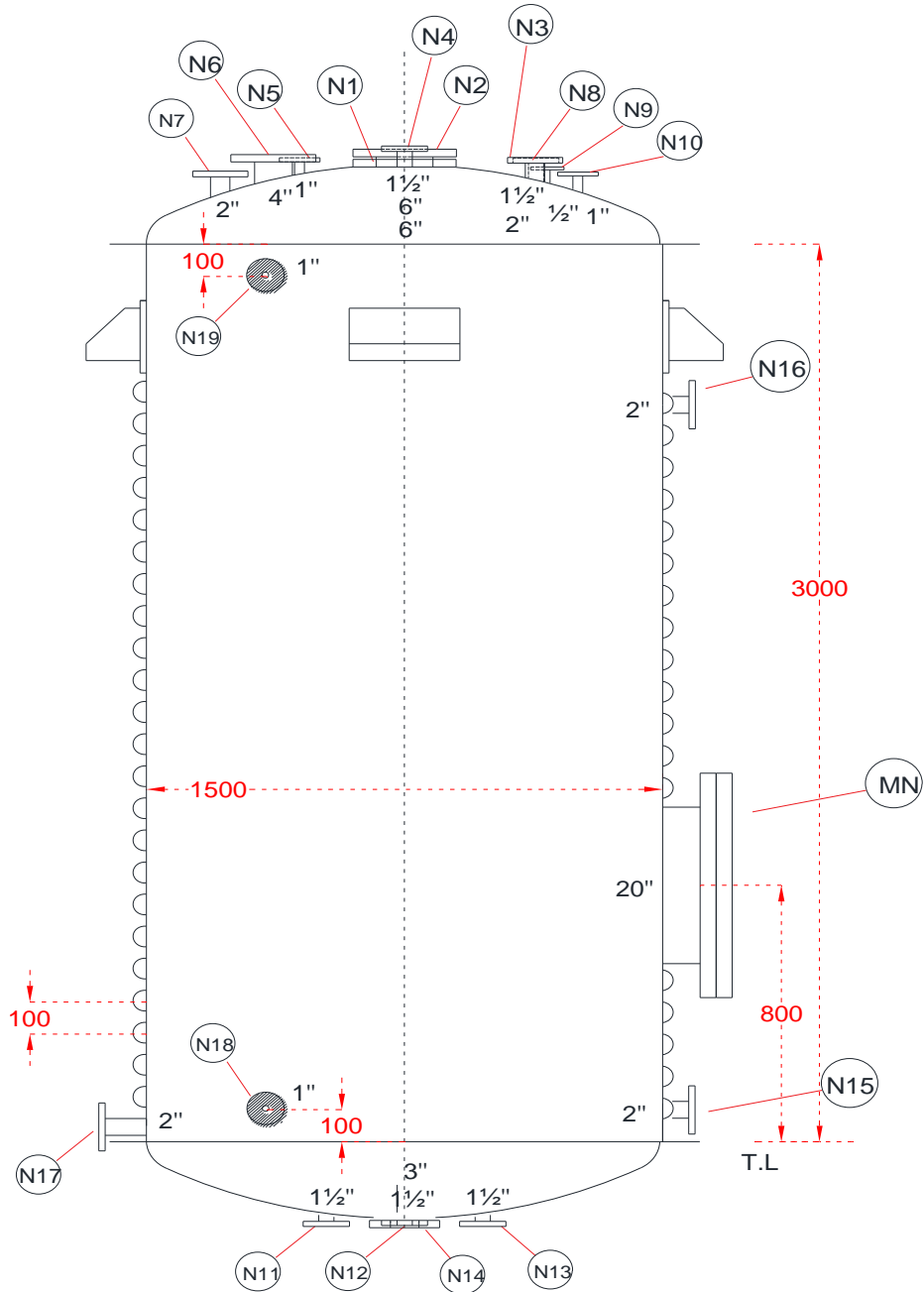
PROCESS DATA SHEET  
V-7021 A/B

DOCUMENT NUMBER

SHEET N. 4 OF 6 ISSUE 0

1	SERVICE	WASTE	QUANTITY	2
2			PLANT UNIT	700

## SKETCH



REVISED DATA

ROW NUMBER



National Petrochemical Company  
Petrochemical Research & Technology Company

# SAZ CATALYST PLANT

PROCESS DATA SHEET  
V-7021 A/B

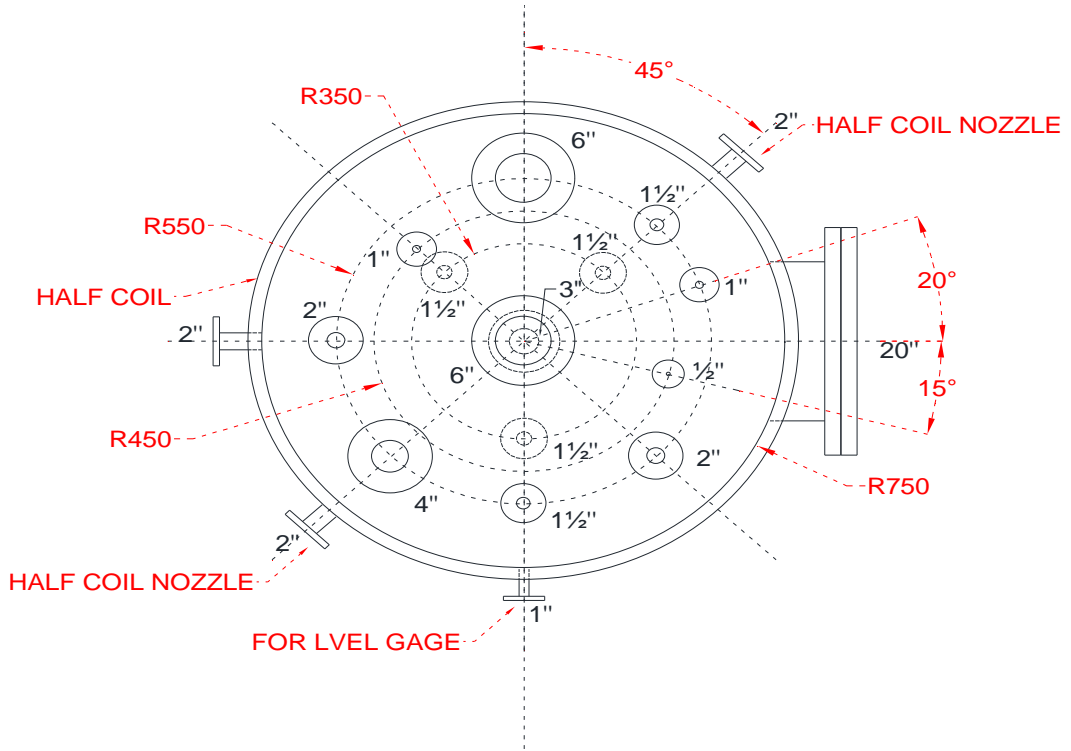
DOCUMENT NUMBER

SHEET N. 5 OF 6 ISSUE 0

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SERVICE	WASTE	QUANTITY	2
		PLANT UNIT	700

## SKETCH



REVISED DATA

ROW NUMBER



National Petrochemical Company  
Petrochemical Research & Technology Company

# SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET  
V-7021 A/B

SHEET N. 6 OF 6 ISSUE 0

1	SERVICE	WASTE	QUANTITY	2
2			PLANT UNIT	700
3				
4	NOTE			
5	NOTE 1: DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.			
6				
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12	NOZZLE NOTES:			
13				
14				
15				
16				
17	1- NOZZLE SIZE TO BE CONFIRMED BY AGITATOR VENDOR.			
18	2- INSTRUMENT NOZZLE SIZE TO BE CONFIRMED.			
19	3- HALF COILS NOZZLE.			
20	4- FOR INSTALL LEVEL G. NOZZLE MOST NOT LOCATE UNDER THE LEG.			
21	5- WITH COVER AND DAVIT.			
22	6- I.D. OF FLANGE AND O.D. OF DISPLACER TO BE MACHINED. GAP TO BE MINIMIZED.			
23	SUPPLY STUD BOLTS, NUTS, GASKETS AND THERMOWELL.			
24	7- NOZZLE MOST NOT LOCATE UNDER THE LEG.			
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REVISED DATA  
ROW NUMBER



National Petrochemical Company  
Petrochemical Research & Technology Company

# SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET  
V-7011 A/B

SHEET N. 1 OF 6

ISSUE 0

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## VESSEL 7011 A/B

REVISED DATA	0	ISSUED FOR PDP	MRO			JULY2021
	ISSUE	DESCRIPTION	DRAWN UP	VERIFIE	APROVED	DATE



National Petrochemical Company  
Petrochemical Research & Technology Company

# SAZ CATALYST PLANT

DOCUMENT NUMBER

## PROCESS DATA SHEET V-7011 A/B

SHEET N. 2 OF 6 ISSUE 0

1	SERVICE	WASTE	QUANTITY	2		
2	TYPE	VERTICAL	DIAMETER	mm 1600		
3	HEAD TYPE	ELLIPTICAL	HEIGHT or LEN.	mm 3000		
4	INSULATION:	NONE	CAPACITY	m <sup>3</sup> 6		
5	INSTALATION:	OUTDOOR	FIRE PROOFING	RADIOGRAPHY		
6	DESIGN CODE					
7	<b>OPERATING CONDITIONS</b>					
8		VESEL	HALF COIL			
9	FLUID	WASTE	STEAM			
10	FLUID HAZARDOUSNESS	TOXIC; FLAMMABLE	-			
11		TEMPERATURE °C	100	172		
12	CONDITION 1	PRESSURE bar(g)	5	7.5		
13		DENSITY kg/m <sup>3</sup>	~800	~4.3		
14		TEMPERATURE °C				
15	CONDITION 2	PRESSURE bar(g)				
16		DENSITY kg/m <sup>3</sup>				
17		<b>DESIGN CONDITIONS</b>				
18		VESEL				
19	MAXIMUM LIQUID DENSITY	kg/m <sup>3</sup>				
20	CONDITION 1	TEMPERATURE °C	180	200		
21		PRESSURE bar(g)	6	9		
22	CONDITION 2	TEMPERATURE °C				
23		PRESSURE bar(g)				
24	FULL VACUUM	REQUIRED (yes/no)	YES			
25		© TEMPERATURE °C				
26	METAL	MDMT				
27		© TEMPERATURE °C				
28	<b>MATERIALS</b>					
29		MATERIAL DESCRIPTION	CORROSION ALLOW.			
30	VESEL	C.S.	mm			
31	HALF COIL	C.S.	mm			
32			mm			
33			mm			
34			mm			
35		VESEL	AS PER PIPING CLASSES			
36	CONDITION 2					
37						
38						
39						
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41						
42		DATA FOR HALF PIPE				
43		OUTSIDE DIAMETER FOR HALF COIL PIPE: 73.0 mm				
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REVISED DATA	ROW NUMBER					
	0	ISSUED FOR PDP	MRO		JULY2021	
	ISSUE	DESCRIPTION	DRAWN UP	VERIFIE	APROVED	DATE

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# SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET  
V-7011 A/B

SHEET N. 3 OF 6

ISSUE 0

1	SERVICE		WASTE		QUANTITY	2		
2					PLANT UNIT	700		
3								
4	NOZZLE							
5								
6	POS.	N.	SERVICE	DN	RATING	FLANGE	FINISHING	NOTE
7	N1		AGITATOR	6"	150#	SORF		1
8	N2		FRESH HEXANE	1"	150#	WNRF		
9	N3		INLET	2"	150#	WNRF		
10	N4		SPARE	6"	150#	WNRF		
11	N5		VAPOR	4"	150#	WNRF		
12	N6		SPARE	1"	150#	WNRF		
13	N7		SPARE	1"	150#	WNRF		
14	N8		LEVEL G.	1"	150#	WNRF		
15	N9		OUTLET	3"	150#	PADRF		
16	N10		LEVEL G.	1"	150#	WNRF		
17	N11		OUTLET	2"	150#	WNRF		4
18	N12		NITROGEN	½"	150#	WNRF		
19	N13		TEM. TRANSMITER	1½"	150#	PADRF		
20	N14		PRE. TRANSMITER	1½"	150#	PADRF		
21	N15		HALF COIL OUT	2"	150#	WNRF		3
22	N16		HALF COIL IN	2"	150#	WNRF		3
23	MH		MANHOLE	24"	150#	WNRF		2
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REVISED DATA

ROW NUMBER



National Petrochemical Company  
Petrochemical Research & Technology Company

# SAZ CATALYST PLANT

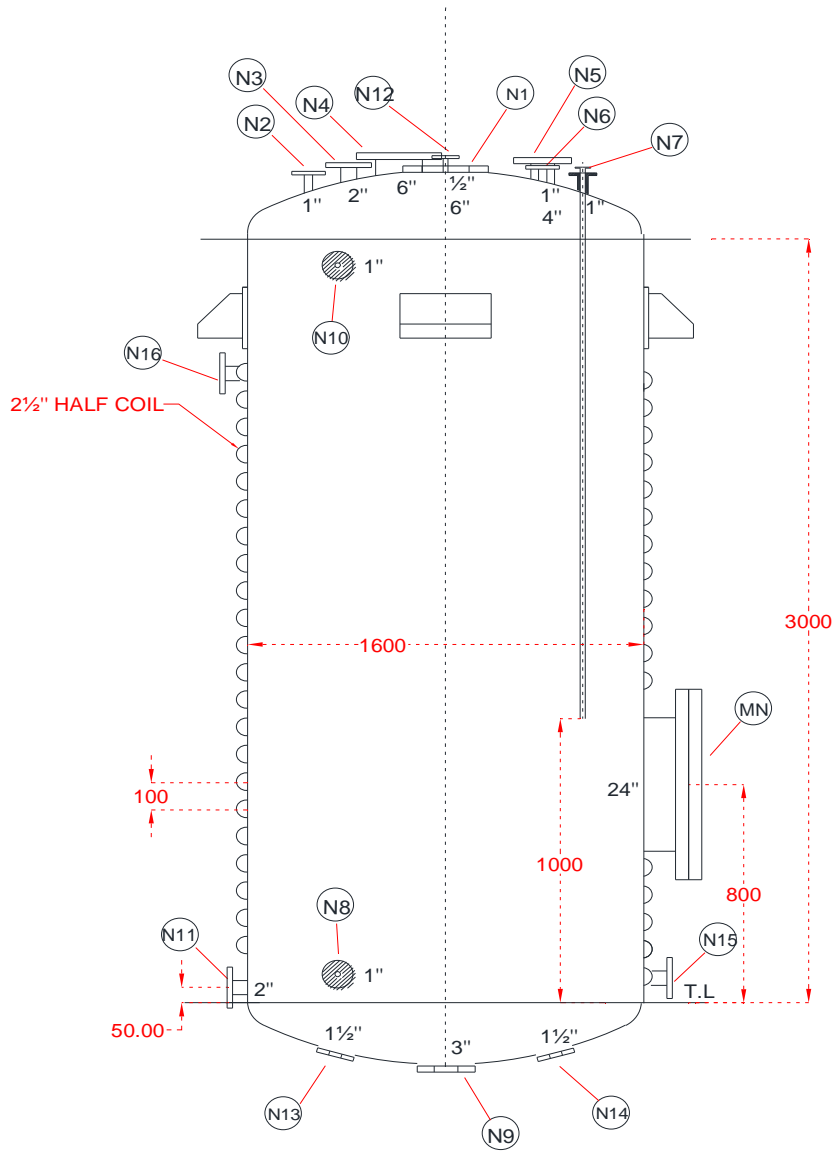
PROCESS DATA SHEET  
V-7011 A/B

DOCUMENT NUMBER

SHEET N. 5 OF 6 ISSUE 0

1	SERVICE	WASTE	QUANTITY	2
2			PLANT UNIT	700

## SKETCH



REVISED DATA

ROW NUMBER



National Petrochemical Company  
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# SAZ CATALYST PLANT

PROCESS DATA SHEET  
V-7011 A/B

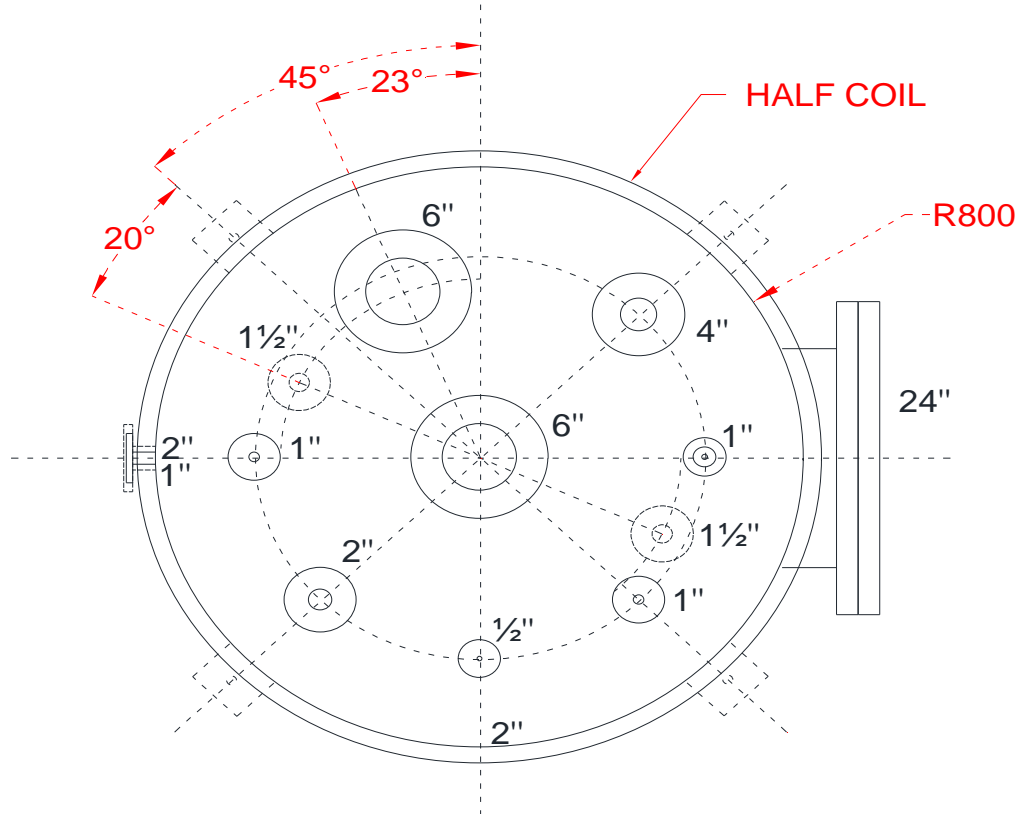
DOCUMENT NUMBER

SHEET N. 5 OF 6 ISSUE 0

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SERVICE	WASTE	QUANTITY	2
		PLANT UNIT	700

## SKETCH



REVISED DATA  
ROW NUMBER



National Petrochemical Company  
Petrochemical Research & Technology Company

# SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET  
V-7011 A/B

SHEET N. 6 OF 6 ISSUE 0

1	SERVICE	WASTE	QUANTITY	2
2			PLANT UNIT	700
3				
4	NOTE			
5	NOTE 1: DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.			
6				
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12	NOZZLE NOTES:			
13				
14				
15				
16	1- NOZZLE SIZE TO BE CONFIRMED BY AGITATOR VENDOR			
17	2- WITH COVER AND DAVIT.			
18	3- NOZZLE FOR HALF COIL			
19	4- NOZZLE MOST NOT LOCATE UNDER THE LEG.			
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REVISED DATA  
ROW NUMBER



National Petrochemical Company  
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# SAZ CATALYST PLANT

DOCUMENT NUMBER

## PROCESS DATA SHEET T-8021

SHEET N. 1 OF 6

ISSUE 1

- 1
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### DATA SHEET FOR TOWER 8021

REVISED DATA	ROW NUMBER	ISSUE	DESCRIPTION	DRAWN UP	VERIFIE	APROVED	DATE

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# SAZ CATALYST PLANT

DOCUMENT NUMBER

## PROCESS DATA SHEET

I-8021

SHEET N. 2 OF 6

ISSUE 1

1	SERVICE	DISTILLATION COLUMN		QUANTITY	1		
2	TYPE	PACKED/ TRAY		PLANT UNIT	800		
3	HEAD TYPE			INCLUDED IN			
4	SERVICE TYPE:	CONTINUOUS		HEIGHT [m]	22.5		
5	DESIGN CODE						
6	<b>PROCESS DATA</b>						
7	SECTION	UPPER		LOWER			
8	FLUID	HEXANE		HEXANE			
9	DENSITY	kg/m <sup>3</sup>	-655				
10	FLUID HAZARDOUSNESS	TOXIC; FLAMMABLE		TOXIC; FLAMMABLE			
11	OPERATING PRESSURE	bar(g)	1	1.1			
12	OPERATING TEMPERATURE	°C	84	115			
13	OPERATING TEMPERATURE 2	°C					
14	<b>MECHANICAL DATA</b>						
15	DESIGN PRESSURE	bar(g)	3.7/FV	4.2/FV			
16	DESIGN PRESSURE 2	bar(g)					
17	DESIGN TEMPERATURE	°C	100	142			
18	DESIGN TEMPERATURE 2	°C					
19	MDMT	@		@	@	@	
20	FULL VACUUM REQ'D	@ °C	YES	@	YES	@	
21	COLUMN INSIDE DIAMETER	mm	400	1)	760	1)	
22	TRAY TYPE	SIEVE					
23	TRAY NUMBER	15		2)			
24	TRAY SPACING	mm	400	2)			
25	PACKING TYPE	SULZER					
26	PACKING SIZE	mm	2500	3000			
27	TOTAL PACKED HEIGHT	mm	5500	2)			
28	HEIGHT PER BED	mm		2)			
29	CORROSION ALLOWANCE	mm	1.5				
30	STRESS RELIEVING						
31	INSULATION	HOT 80mm THK		HOT 80mm THK			
32	<b>MATERIALS</b>						
33	SECTION	UPPER		LOWER			
34	VESSEL	S.S.		S.S.			
35	INTERNALS	S.S.		S.S.			
36	INTERNALS GASKETS						
37	EXTERNAL GASKETS						
38	TRAYS						
39	PACKING	S.S		S.S			
40	MIST ELIMINATOR						
41	GRID						
42	REDISTRIBUTOR						
43	<b>NOTES</b>						
44							
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REVISED DATA	ROW NUMBER	DESCRIPTION		DRAWN UP	VERIFY	APPROVED	DATE

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# SAZ CATALYST PLANT

DOCUMENT NUMBER

## PROCESS DATA SHEET T-8021

SHEET N. 3 OF 6 ISSUE 1

1	SER SERVICE	DISTILLATION COLUMN	QUANTITY	1
2			PLANT UNIT	800

### LIQUID AND VAPOR LOADS

5	POSITION		TOP	INLET	BOTTUM	4	5	6	7	8
6	FLOWRATE	kg/h								
7	PHASE		VAP	LIQ/VAP	LIQ					
8	OPER. TEMPERATURE	°C	84	96	115					
9	OPER. PRESSURE	bara	1.8	2.2	1.9					
10	DENSITY	kg/m <sup>3</sup>	599	586	670					
11	VISCOSITY	mPa s	0.2	0.19	0.17					
12	SPECIFIC HEAT	kJ/kg K								
13	THERMAL CONDUCTIVITY	W/m K								
14	LATENT HEAT	kJ/kg								
15	SURFACE TENSION	mN/m								
16	MOLECULAR WEIGHT		86.178	86.178						

17	COMPONENTS									
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REVISED DATA

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# SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET  
T-8021

SHEET N. 4 OF 6

ISSUE 1

1	SERVICE	DISTILLATION COLUMN					QUANTITY	1
2							PLANT UNIT	800
3								
4	NOZZLE							
5								
6	POS.	N.	SERVICE	DN .IN	RATING	FLANGE	FINISHING	NOTE
7	1A	1	FEED (ALTERNATE)	1	300#	SORF		
8	1B	1	FEED	1/3	150#	SORF		
9	2	1	TO REB.	6	150#	SORF		
10	3	1	VAP OUTLET	1½	150#	SORF		
11	4A	1	REFLUX OUT	2	150#	SORF		
12	4B	1	REFLUX IN	2/6	150#	SORF		
13	5A	1	VAPOR DRAWOFF	3	150#	SORF		
14	5B	1	VAPOR DRAWOFF	3	150#	SORF		
15	6	1	FROM REB.	8	150#	SORF		
16	7 AB	2	LT/LG	2	150#	SORF		
17	8	1	S.V	3	150#	SORF		
18	9A	1	OVERHEAD VAPOR	4	150#	SORF		
19	9B	1	OVERHEAD VAPOR	4	150#	SORF		
20	10 ABC	3	TEMP GAUG.	1½	150#	SORF		
21	11	1	STEAM OUT	1½	150#	SORF		
22	12	1	VENT	2	150#	SORF		
23	13 ABCD	4	PDI	¾	150#	SORF		
24	14	1	MANHOLE	20	150#	SORF		
25	15A	1	LDT	1½	150#	SORF		
26	15B	1	LDT	1½	150#	SORF		
27	16	1	MANHOLE	20	150#	SORF		
28	17	1	MANHOLE	20	150#	SORF		
29	18	1	HANDHOLE	8	150#	SORF		
30	19	1	HANDHOLE	8	150#	SORF		
31	20A	1	LDG	¾	150#	SORF		
32	20B	1	LDG	¾	150#	SORF		
33	21A	1	LG	¾	150#	SORF		
34	21B	1	LG	¾	150#	SORF		
35	22	1	DECANTED WATER	2	150#	SORF		
36	23	1	MANHOLE	20	150#	SORF		
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REVISED DATA  
ROW NUMBER

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# SAZ CATALYST PLANT

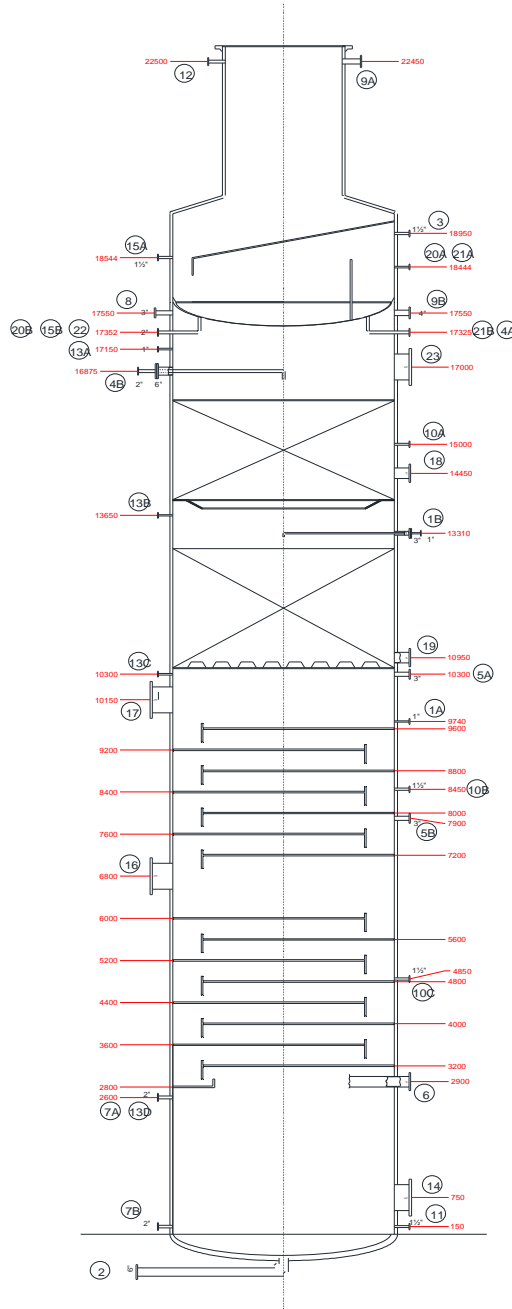
DOCUMENT NUMBER

## PROCESS DATA SHEET T-8021

SHEET N. 5 OF 6 ISSUE 1

1	SERVICE	DISTILLATION COLUMN	QUANTITY	1
2			PLANT UNIT	800

### SKETCH



REVISED DATA  
ROW NUMBER

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# SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET  
T-8021

SHEET N. 6 OF 6 ISSUE 1

1	SERVICE	DISTILLATION COLUMN	QUANTITY	1
2			PLANT UNIT	800

3

4 NOTE

5 NOTE 1: DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.

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REVISED DATA  
ROW NUMBER



National Petrochemical Company  
Petrochemical Research & Technology Company

# SAZ CATALYST PLANT

DOCUMENT NUMBER

## PROCESS DATA SHEET V-6014

SHEET N. 1 OF 6

ISSUE 0

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# VESSEL 6014

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# SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET  
V-6014

SHEET N. 2 OF 6

ISSUE 0

1	SERVICE	CATALYST	QUANTITY	1
2	TYPE	VERTICAL	DIAMETER mm	2000
3	HEAD TYPE	ELLIPTICAL	HEIGHT or LEN. mm	4000
4	INSULATION:	HOT	CAPACITY m <sup>3</sup>	~12
5	INSTALATION:	OUTDOOR	FIRE PROOFING	YES
6	DESIGN CODE		RADIOGRAPHY	
7	<b>OPERATING CONDITIONS</b>			
8			VESEL	HALF COIL
9	FLUID		CATALYST	WATER + MEG
10	FLUID HAZARDOUSNESS		CORROSIVE, TOXIC	
11		TEMPERATURE °C	70	100
12	CONDITION 1	PRESSURE bar(g)	4	5
13		DENSITY kg/m <sup>3</sup>	990	1035
14		TEMPERATURE °C		
15	CONDITION 2	PRESSURE bar(g)		
16		DENSITY kg/m <sup>3</sup>		
17	<b>DESIGN CONDITIONS</b>			
18			VESEL	HALF COIL
19	MAXIMUM LIQUID DENSITY	kg/m <sup>3</sup>		
20	CONDITION 1	TEMPERATURE °C	150	150
21		PRESSURE bar(g)	8	10
22	CONDITION 2	TEMPERATURE °C		
23		PRESSURE bar(g)	-1	-1
24	FULL VACUUM	REQUIRED (yes/no)	YES	YES
25		© TEMPERATURE °C		
26	METAL	MDMT		
27		© TEMPERATURE °C		
28	<b>MATERIALS</b>			
29			MATERIAL DESCRIPTION	CORROSION ALLOW.
30	VESEL		S.S.	mm
31	INTERNALS		S.S.	mm
32	LINING		S.S.	mm
33	HALF COIL		C.S.	mm
34				mm
35		VESEL		
36	CONDITION 2	HALF COIL	AS PER PIPING CLASSES	
37				
38	<b>DATA FOR HALF PIPE</b>			
39				
40				
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42				
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44				
45	OUTSIDE DIAMETER FOR HALF COIL PIPE: 88.9 mm			
46				
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REVISED DATA

ROW NUMBER

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National Petrochemical Company  
Petrochemical Research & Technology  
Company

# SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET  
V-6014

SHEET N. 3 OF 6

ISSUE 0

1	SERVICE	CATALYST				QUANTITY	1	
2						PLANT UNIT	600	
3								
4	<b>NOZZLE</b>							
5								
6	POS.	N.	SERVICE	DN	RATING	FLANGE	FINISHING	NOTE
7	N1		WASTE LIQUID	2 / 1½"	150#	SWRF		1
8	N2		INLET	2"	150#	SWRF		
9	N3		SPARE	2"	150#	SWRF		
10	N4		WASTE LIQUID	2 / 1½"	150#	SWRF		1
11	N5		WASTE LIQUID	2 / 1½"	150#	SWRF		1
12	N6		NITROGEN	1"	150#	SWRF		
13	N7		WASTE GAS	2"	150#	SWRF		
14	N8		SPARE	3"	150#	SWRF		
15	N9		AGITATOR	8"	150#	PADRF		3
16	N10		WASTE LIQUID	2 / 1½"	150#	SWRF		1
17	N11		WASTE LIQUID	2 / 1½"	150#	SWRF		1
18	N12		MANHOLE	20"	150#	SORF		4
19	N13		HALF COIL OUTLET	2½"	150#	SWRF		2, 5
20	N14		TEMP. TRANSMITER	1½"	150#	SWRF		
21	N15		HALF COIL INLET	2½"	150#	SWRF		2
22	N16		PRE. TRANSMITER	1½"	150#	PADRF		
23	N17		OUTLET	2"	150#	PADRF		
24	N18		HEXANE	1"	150#	SWRF		
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PROCESS DATA SHEET  
V-6014

SHEET N. 4 OF 6

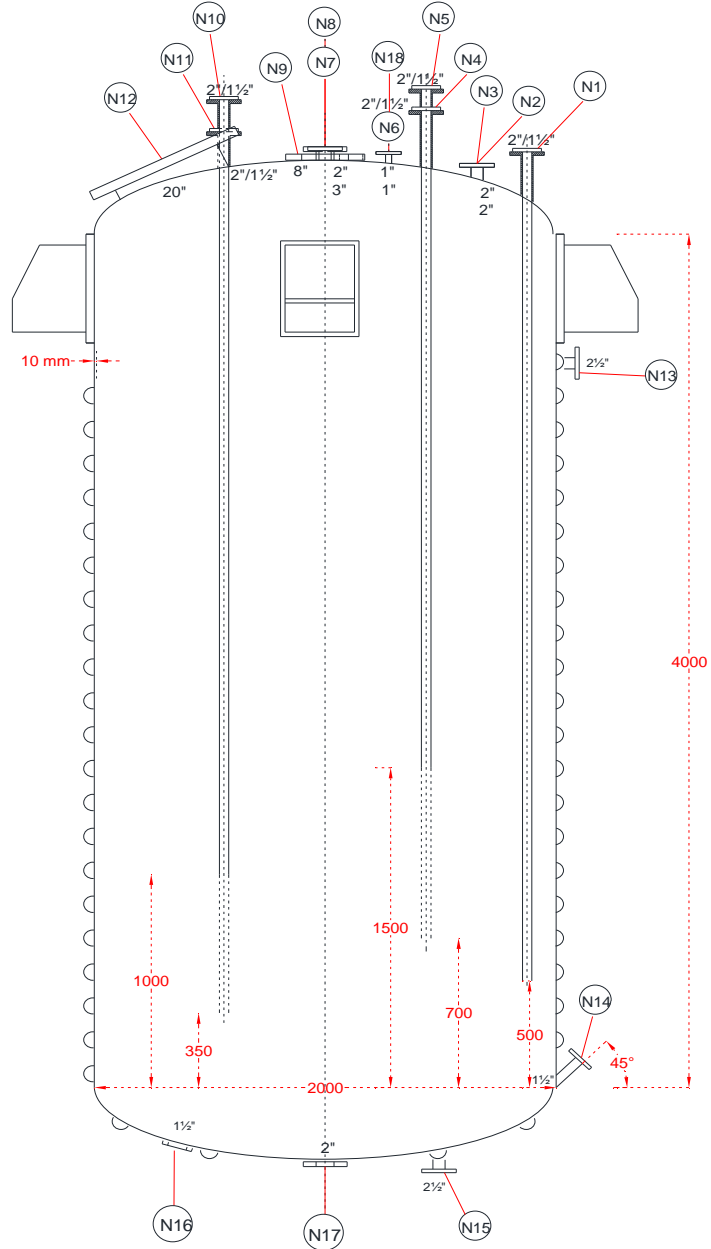
ISSUE 0

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SERVICE CATALYST

QUANTITY 1  
PLANT UNIT 600

## SKETCH



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# SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET  
V-6014

SHEET N. 5 OF 6

ISSUE 0

SERVICE CATALYST

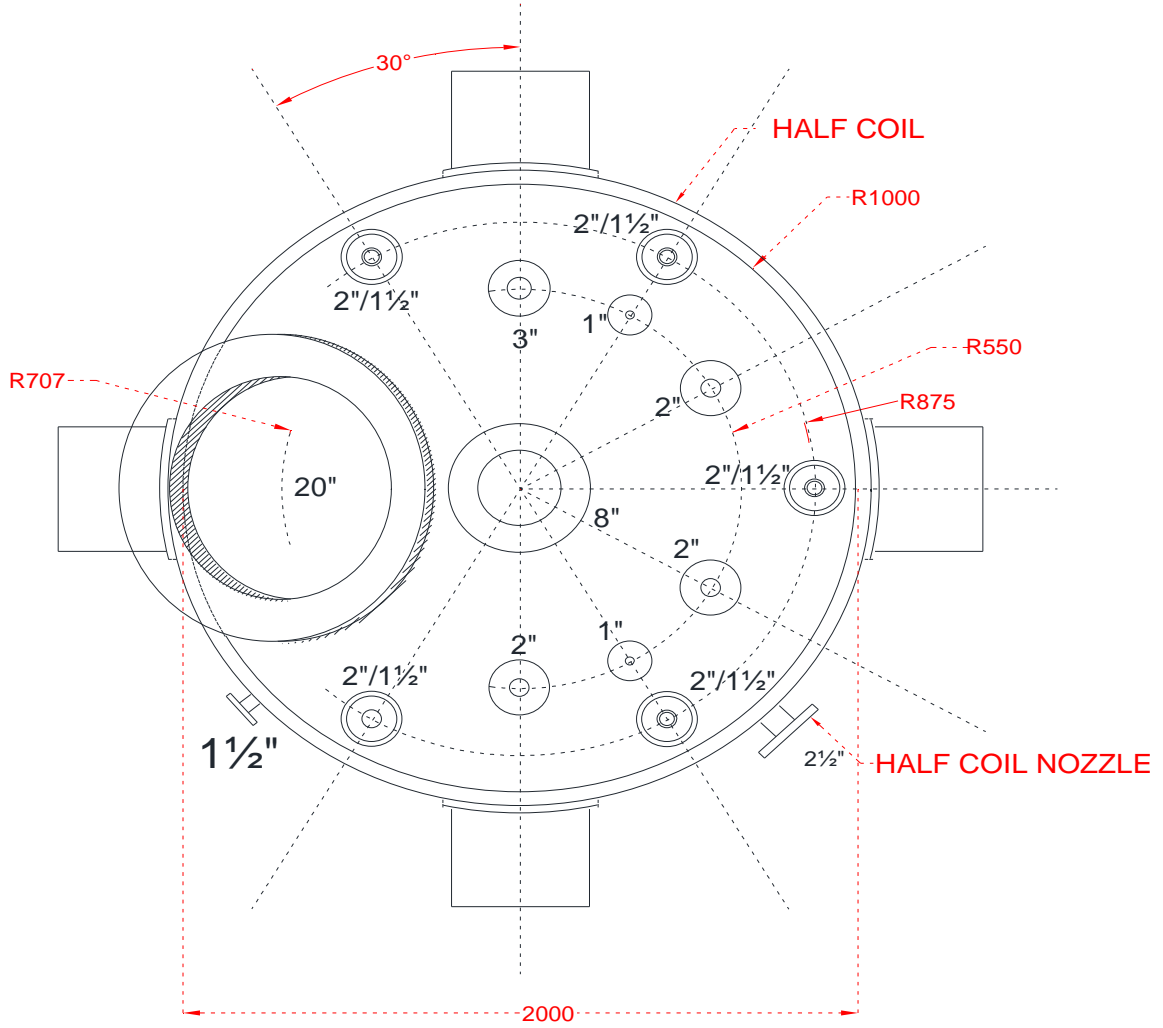
QUANTITY

1

PLANT UNIT

600

## SKETCH



REVISED DATA

ROW NUMBER



National Petrochemical Company  
Petrochemical Research & Technology Company

# SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET  
V-6014

SHEET N. 6 OF 6

ISSUE 0

1	SERVICE	CATALYST	QUANTITY	1
2			PLANT UNIT	600
3				
4	<b>NOTE</b>			
5	NOTE 1: DETAILED ENGINEERING MUST BE ACCOMPLISHED BY VENDOR.			
6				
7				
8				
9				
10				
11				
12	<b>NOZZLE NOTES:</b>			
13				
14	1- NOZZEL WITH DIP			
15	2-HALF COILS NOZZLE.			
16	3-NOZZLE SIZE TO BE CONFIRMED BY AGITATOR VENDOR			
17	4-WITH COVER AND DAVIT.			
18	5- NOZZLE MOST NOT LOCATE UNDER THE LEG.			
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REVISED DATA  
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