

# Steam Conditioning Station



ARTES Valve & Service GmbH  
Parkallee 7 - 16727 Velten  
GERMANY



WESSEL GmbH Kessel- und Apparatebau  
Bruchweg 13 - 46509 Xanten  
GERMANY

A MEMBER OF THE ARCA FLOW GROUP

1	Customer:	Mannproject Ltd.	ARTES-ref.-no.:		5504967		WESSEL-ref.-no.:		
2	Plant:	WRPC Warri, Nigeria	Pos.:		9		73026		
3	Location:	Station 82/16	Qty.:		1				
4	TAG No.:	101-PIC-012V	S/N:		3188129.1				
5	<b>Pipe - Connection Data</b>		<b>Inlet</b>		<b>Outlet</b>		<b>Cooling Water</b>		
6	Dimensions	Ø D [mm] x s [mm]	219,1	x	15,09	457,2	x	14,27	
7	Material		--		--	--		--	
8	Welding Connection	Ø D [mm] x s [mm]	219,1	x	15,09	457,2	x	14,27	
9	Flange Connection		--		--	--		--	
10	<b>Valve - Design</b>		<b>Inlet</b>		<b>Outlet</b>		<b>Cooling Water</b>		
11	Nominal Size	DN / NPS	8"		18"		2"		
12	Nominal Pressure	PN / class	--		--		--		
13	Design Pressure	bar(g)	92		25		140		
14	Design Temperature	°C	490		400		200		
15	Material		SA182 F22 Cl.3		SA182 F22 Cl.3		SA182 F22 Cl.3		
16	<b>Operation Data</b>		<b>Loading Case</b>		<b>Loading Case</b>		<b>Loading Case</b>		
17	Medium:	Water/Steam	1		2		3		
18	Phase		steam						
19	Flowrate	t/h	110,0						
20	Temperature, Inlet	°C	475						
21	Pressure, Inlet	barG	82,00						
22	Pressure, Outlet	barG	16,00						
23	Σ-c <sub>v</sub>	gal/min	163,56						
24	Temp. cooled	°C	240,0						
25	t-sat. p2	°C	205						
26	Water Temp.	°C	155						
27	Water-Press.	barG	21,7						
28	Water-Flow	t/h	22		--		--		
29	Water-Velocity	m/s	2,81		--		--		
30	Steam-Velocity, Inlet	m/s	41,9		--		--		
31	Steam-Velocity, Outlet	m/s	32,9		--		--		
32	Min. straight-run distance:	8,0 m	Min. distance to temperature sensor:		13,0 m				
33	<b>Type of Valve</b> <b>Angle-Form With Integrated Motive Steam Nozzle</b>								
34	<b>Valve Parameter</b>		<b>Material</b>				<b>Add. Equipment</b>		
35	Seat Diameter:	105 mm	Body: SA182 F22 Cl.3				Dirt Strainer <i>without</i>		
36	Pressure Reduction Steps, controlled:	3	Seat: SA182 F22 Cl.3, stellite				Drainage Port <i>with</i>		
37	Pressure Reduction Steps, fix:	1	Perforated Cone: 1.4923 (X22CrMoV12-1), plasma nitrided				Valve Support <i>without</i>		
38	Σ-c <sub>vs</sub>	149 gal/min	Motive Steam Nozzle: 1.4923 (X22CrMoV12-1)						
39	Control Characteristic:	linear	Seals: Graphite						
40	max. Dp for Actuator:	90 bar					<b>Installation Dimensions</b>		
41	Stroke:	80 mm					Leg Length, Inlet      370 mm		
42	<i>- Piston Released (Balanced) Design -</i>						Leg Length, Outlet      880 mm		
43	<b>Design / Inspection</b>				<b>Final Inspection</b>				
44	ASME Boiler and Pressure Vessel Code - Sec.VIII, Div.1				Confirmation acc. to DIN <b>3.1</b>				
45	Requirements acc. to: ASME Boiler and Pressure Vessel Code - Sec.VIII, Div.1				<b>EN 10204</b>				
46	Leakage Class: 1,5% of kvs-Value								
47									
48	<b>Actuator</b>	pneumatic						3188127	
49	Type:	ARCA UV-100-Ö; single-acting; air to open, spring to close, signal/air failure: close							
50		Positioner Siemens Sipart PS2 6DR5310-0NG01-0AA0							
51		Control signal 4-20 mA / feedback signal 4-20 mA							
52		positioning time: appr. 20 sec. / Filter regulator: Festo 1/2"							
53		min. air supply pressure: 5,0 bar(g)							
54	<b>Actuatoradaption:</b>	--							
55	<b>Remarks</b>								
56									
57									
58									
59									
60									
61	Revision	0	1	2	3	4	5	6	
62	Date:	29.05.2024	09.07.2024						
63	Prepared:	C. Pocher	P. Schüler						
64	Checked:	P. Schüler	H. Roßmann						

# Control Valve



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1	Customer:	Mannproject Ltd.	ARTES-ref.-no.:	5504967	WESSEL-ref.-no.:			
2	Plant:	WRPC Warri, Nigeria	Pos.:	10		73026		
3	Location:	cooling water CV for steam-conditioning station 82/16	Qty.:	1				
4	TAG No.:	101-TIC-009V	S/N:	3188114.1				
5	<b>Pipe - Connection Data</b>		<b>Inlet</b>			<b>Outlet</b>		
6	Dimensions	Ø D [mm] x s [mm]	60,3	x	3,91	60,3	x	3,91
7	Material			--			--	
8	Welding Connection	Ø D [mm] x s [mm]	60,3	x	3,91	60,3	x	3,91
9	Flange Connection			--			--	
10	<b>Valve - Design</b>		<b>Inlet</b>			<b>Outlet</b>		
11	Nominal Size	DN / NPS	2"			2"		
12	Nominal Pressure	PN / class	--			--		
13	Design Pressure	bar(g)	30			30		
14	Design Temperature	°C	200			200		
15	Material		SA105			SA182 F22 Cl.3		
16	<b>Operation Data</b>		<b>Loading Case</b>	<b>Loading Case</b>	<b>Loading Case</b>	<b>Loading Case</b>	<b>Loading Case</b>	<b>Loading Case</b>
17	Medium :	Water/Steam	1	2	3	4	5	6
18	Phase		water					
19	Flowrate	t/h	21,73					
20	Temperature, Inlet	°C	155,00					
21	Pressure, Inlet	barG	21,70					
22	Pressure, Outlet	barG	20,70					
23	C <sub>v</sub>	gal/min	26,4					
24	Flow Speed, Outlet	m/s	3,06					
25	<b>Type Of Valve</b> Control Ball Valve Type W							
26	<b>Valve Parameter</b>				<b>Material</b>			
27	Seat Diameter:	50	mm	Body:	SA105			
28	Pressure Reduction Steps, controlled:	1		Seating:	1.4122 (X39CrMo17-1), metal sealing			
29	Pressure Reduction Steps, fix:			Ball:	1.4122 (X39CrMo17-1), metal sealing			
30	C <sub>vs</sub>	37	gal/min	Control disc:	1.4122 (X39CrMo17-1)			
31	Control Characteristic:	modified		Seals:	Graphite			
32	max. Dp for Actuator:	30	bar					
33	Installation Length:	250	mm					
34								
35	<b>Design / Inspection</b>					<b>Final Inspection</b>		
36	ASME Boiler and Pressure Vessel Code - Sec.VIII, Div.1					Confirmation acc. to DIN EN <b>3.1</b>		
37	Requirements acc. to: ASME Boiler and Pressure Vessel Code - Sec.VIII, Div.1					<b>10204</b>		
38	Leakage Class: 0,01% of kvs-Value							
39								
40	<b>Actuator</b>	pneumatic						3188107
41	Type:	ProtACT PR263S; single-acting "rack&pinion"; air to open, spring to close, signal/air failure: close						
42		Positioner Siemens Sipart PS2 6DR5010-ONG01-0AA0, communication 2-wire / 4-20 mA						
43		ly-module (6DR4004-8J) for position-feedback (4...20mA); volume booster: EIL100-F02-L; Filter regulator: YT-200BP210						
44		positioning time: 30 sec. / 90°; piping SST (V4A/316L); corrosion class C4 coating						
45		min. air supply pressure: 5,0 bar(g)						
46	<b>Actuatoradaption:</b>	EN ISO 5211 - F14						
47	<b>Remarks</b>							
48								
49								
50								
51								
52								
53	Revision	0	1	2	3	4	5	6
54	Date:	29.05.2024	09.07.2024					
55	Prepared:	C. Pocher	P. Schüler					
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