

Control Valve



ARTES Valve & Service GmbH
Parkallee 7 - 16727 Velten
GERMANY

A MEMBER OF THE ARCA FLOW GROUP

1	Customer:	Richard Kablitz GmbH		ARTES-ref.-no.:	5504246			
2	Plant:	Bihov		Pos.:	10.1			
3	Location:	HDU		Qty.:	1			
4	TAG No.:	1 MAN10 AA101		S/N:	3168071.1			
5	Pipe - Connection Data		Inlet		Outlet			
6	Dimensions	ØD [mm] x s [mm]	139,7	x	14,2	508,0	x	11,0
7	Material		1.7380 (10CrMo9-10)			1.7335 (13CrMo4-5)		
8	Welding Connection	ØD [mm] x s [mm]	139,7	x	14,2	508,0	x	11,0
9	Flange Connection		--			--		
10	Valve - Design		Inlet		Outlet			
11	Nominal Size	DN / NPS	125			500		
12	Nominal Pressure	PN / class	--			--		
13	Design Pressure	bar(g)	102			15		
14	Design Temperature	°C	530			250		
15	Material		1.7380/1.7383 (10CrMo9-10/11CrMo9-10)			1.7335 (13CrMo4-5)		
16	Operation Data	Loading Case	Loading Case	Loading Case	Loading Case	Loading Case	Loading Case	
17	Medium :	Water/Steam	1	2	3	4	5	6
18	Phase	steam	steam					
19	Flowrate ¹⁾	t/h	28,98	1,65				
20	Temperature, Inlet	°C	495,00	495,00				
21	Pressure, Inlet	barA	85,00	85,00				
22	Pressure, Outlet ²⁾	barA	2,50	0,41				
23	kv	m³/h	39,48	2,34				
24								
25	Sound Pressure Level ³⁾	db(A)	86	-				
26	Type Of Valve	Angle Valve						
27	Valve Parameter				Material			
28	Seat Diameter:	65	mm	Body:				1.7380/1.7383 (10CrMo9-10/11CrMo9-10)
29	Pressure Reduction Steps, controlled:	5		Seat:				1.7380/1.7383 (10CrMo9-10/11CrMo9-10), stellite
30	Pressure Reduction Steps, fix:	1		Stem with				
31	K _{VS} -value	52	m³/h	Holecage:				1.4923 (X22CrMoV12-1), nitrided
32	Control Characteristic:	linear		Seals:				Graphite
33	Stroke:	40	mm	Packing:				Graphite K80/K80S
34	max. Dp for Actuator:	85	bar					
35	Installation Length:	650/325	mm					
36	Design / Inspection					Final Inspection		
37						Confirmation acc. to DIN		
38	Requirements acc. to:	EN 12952			3.1			
39	Leakage Class:	0,5% of K _{VS} -value			EN 10204			
40								
41	Actuator	pneumatic						3168051
42	Type:	ARCA - diaphragm actuator UMA III 811-3063D-Ö BH, single acting, air opens, spring closes, Fail-Safe - closed						
43	Positioner:	Siemens Sipart PS2 - 6DR5011-0NG21-0AA1, incl. ly-Module for position feedback (4 ... 20mA)						
44		2 inductive limit switches; gauge block; solenoid valve Bückert 24VDC 3/2 way, filter regulator Festo						
45		Type: LFR-N1/2-D-5M-O-MIDI-T3-EX4, volume booster YTC YT-320-N1 with 2 one-way flow control valves for						
46		a positioning time of approx. 2 sec. in both directions						
47								
48	Remarks							
49	¹⁾ - total flow rate including water injection => 39,0 t/h							
50	²⁾ - pressure reduction to 0,4 bar(a) via downstream perforated disc, K _{VS} = 1290,0 m³/h							
51	³⁾ - sound insulation at least 150,0 mm thick, without rigid spacers							
52	Installation position - stem with holecage horizontal, flow from above, drainage at 6:00 o'clock position							
53	"Piston Release Design"							
54	Revision	0	1	2	3	4	5	6
55	Date:	11.06.2021	11.10.2021					
56	Prepared:	F. Lange	P. Schüler					
57	Checked:	P. Schüler	R. Feldmann					

Motive Steam Cooler



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1	Customer:	Richard Kablitz GmbH	ARTES-ref.-no.:	5504246				
2	Plant:	Bihov	Pos.:	10.2				
3	Location:	NDU	Qty.:	1				
4	TAG No.:	(1 MAN10 AA101)	S/N:	(3168071.1)				
5	Pipe - Connection Data		Motive Steam	Cooling Water	Steam Pipe			
6	Dimensions	ØD [mm] x s [mm]	internal	48,3 x 3,6	508,0 x 11,0			
7	Material							
8	Motive Steam Cooler - Connection Data		Motive Steam	Cooling Water	Steam Pipe			
9	Nominal Size	DN / NPS	--	40	--			
10	Nominal Pressure	PN / class	--	--	--			
11	Design Pressure	bar(g)	--	105	--			
12	Design Temperature	°C	--	125	--			
13	Material		--	1.7380/1.7383	--			
14	Welding Connection	ØD [mm] x s [mm]	--	x	--			
15	Flange Connection		--	--	--			
16								
17	Operation Data							
18			Loading Case	Loading Case	Loading Case	Loading Case	Loading Case	
19			1	2	3	4	5	
20	Medium:	steam						
21	Flowrate	t/h	28,98	1,65				
22	Temperatur, Inlet	°C	450,0	448,7				
23	Temperatur, Outlet	°C	127,5	77,1				
24	Pressure	barA	2,50	0,42				
25	Flow Speed	m/s	39,50 ²⁾	12,40				
26								
27	Medium:	water						
28	Flowrate	t/h	8,61	0,57				
29	Temperature	°C	115	115				
30	Pressure, Inlet	barA	11,80	1,70				
31	Pressure, Outlet	barA	2,50	0,41				
32	Flow Speed	m/s	2,20	0,13				
33	kv	m³/h	2,92	2,92				
34								
35	Medium:	motive steam						
36	Flowrate	t/h	3,01	1,65				
37	Temperatur, Inlet	°C	475,6	466,0				
38	Pressure, Inlet	barA	47,20	29,80				
39	Pressure, Outlet	barA	2,50	0,42				
40	kv	m³/h	7,42	7,42				
41								
42	Type Of Valve		Motive Steam Cooler - Type 1					
43	Design / Inspection							
44	Requirements acc. to:		EN 12952					
45	Mounting Instruction							
46	Length of straight outflow pipe				6,0 m			
47								
48	Remarks							
49	¹⁾ - total flow rate including water injection => 39,0 t/h							
50	²⁾ - flow speed "hot" => 56,4 m/s							
51								
52								
53	- internal motive steam extraction							
54	The motive steam cooler is part of the control valve - 1 MAN10 AA101!							
55	Revision	0	1	2	3	4	5	6
56	Date:	11.06.2021	11.10.2021					
57	Prepared:	F. Lange	P. Schüler					
58	Checked:	P. Schüler	R. Feldmann					

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1	Customer:	Richard Kablitz GmbH	ARTES-ref.-no.:	5504246
2	Plant:	Bihov	Pos.:	10.3
3	Location:	injection water control valve - HDU	Qty.:	1
4	TAG No.:	1 LAE40 AA005	S/N:	3168076.1

5 Pipe - Connection Data		Inlet			Outlet		
6	Dimensions	ØD [mm] x s [mm]	48,3	x	3,2	48,3	x 3,2
7	Material		1.0425 (P265GH)			1.0425 (P265GH)	
8	Welding Connection	ØD [mm] x s [mm]	48,3	x	3,2	48,3	x 3,2
9	Flange Connection		--			--	

10 Valve - Design		Inlet			Outlet		
11	Nominal Size	DN / NPS	40			40	
12	Nominal Pressure	PN / class	--			--	
13	Design Pressure	bar(g)	40			40	
14	Design Temperature	°C	125			125	
15	Material		1.0460 (P250GH, C22.8)			1.0460 (P250GH, C22.8)	

16 Operation Data		Loading Case	Loading Case	Loading Case	Loading Case	Loading Case	Loading Case
17	Medium :	Water/Steam	1	2	3	4	5
18	Phase		water	water			
19	Flowrate	t/h	8,62	0,57			
20	Temperature, Inlet	°C	115,00	115,00			
21	Pressure, Inlet	barA	27,00	27,00			
22	Pressure, Outlet	barA	11,80	1,70			
23	kvs	m³/h	2,28	0,12			
24	Flow Speed, Outlet	m/s	1,83	0,12			

25 **Type Of Valve** Control Ball Valve Type GW

26 Valve Parameter			Material	
27	Seat Diameter:	25 mm	Body:	1.0460 (P250GH, C22.8)
28	Pressure Reduction Steps, controlled:	1	Seating:	1.4122 (X39CrMo17-1), metal sealing
29	Pressure Reduction Steps, fix:	0	Ball:	1.4122 (X39CrMo17-1), metal sealing
30	kvs	3,60 m³/h	Control disc:	1.4122 (X39CrMo17-1), hardened
31	Control Characteristic:	equal percentage	Seals:	O-Rings, EPDM perox.
32	max. Dp for Actuator:	30 bar		
33	Installation Length:	190 mm		
34				

35 Design / Inspection			Final Inspection	
36			Confirmation acc. to DIN EN 3.1	
37	Requirements acc. to:	EN 12952	10204	
38	Leakage Class:	0,01% of kvs-Value		
39				

40	Actuator	pneumatic	3169373
41	Type:	ProtACT PR216S.10.090.14S36.PRH, single-acting, spring closes	
42		Positioner: Siemens Sipart PS2 - 6DR5011-0NG21-0AA1, incl. ly-Module for position feedback (4 ... 20mA)	
43		Typee: 6DR4004-8J; incl. liwithout transwithutter SIA-Module; inductive liwithout switches; incl.gauge block made of plastic	
44		aluminium block, filter regulator SMC AW30-F02G-B 1/4" incl. pressure gauge	
45		completely piped in stainless steel, air supply: 5,0 bar(g)	
46	Actuatoradaption:	EN ISO 5211 - F14 - square 36 mm	

47 **Remarks**

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52 - design with 2 seat rings

53	Revision	0	1	2	3	4	5	6
54	Date:	11.06.2021	11.10.2021					
55	Prepared:	F. Lange	P. Schüler					
56	Checked:	P. Schüler	R. Feldmann					