Compact Differential Pressure Controller TA Series 7DA





1.0 PRODUCT DESCRIPTION

Available Sizes

- ¹/₂ 2"/DN15 DN50
- End types are female NPT adapters
- Available in four different pressure ranges across the load between the partner valve and the Series 7DA valve:
 - .73 4.35 psi/5 30 kPa
 - 1.45 8.70 psi/10 60 kPa
 - 1.45 14.5 psi/10 100 kPa
 - 8.7 21.76 psi/60 150 kPa

Maximum Pressure Rating

• 365 psi/2517 kPa/25 bar

Maximum Differential Pressure Across the Series 7DA Valve

• 230 psi/1600 kPa/16 bar

Operating Temperature Range

• +14°F to +248°F/-10°C to +120°C

Function

• Differential pressure control

Application

- Heating and cooling systems
- Water and neutral fluids; Water-glycol mixtures

ALWAYS REFER TO ANY NOTIFICATIONS AT THE END OF THIS DOCUMENT REGARDING PRODUCT INSTALLATION, MAINTENANCE OR SUPPORT.

System No.	Location	Spec Section	Paragraph	
Submitted By	Date	Approved	Date	

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2.0 CERTIFICATION/LISTINGS

Not applicable. Contact Victaulic with any questions.

3.0 SPECIFICATIONS – MATERIAL

Valve Body: Ductile iron per EN-GJS-400 Diaphragms and Gaskets: EPDM Adjustment Ring: Polyphenylene sulfide (PPS) Surface Treatment: Electrophoretic coating



4.0 DIMENSIONS

TA Series 7DA Compact Differential Pressure Controller



Size			Dimensions					Weight
	Actual Outside		L	Tailpiece	Total Length			Approx.
Nominal	Diameter	Pressure Range	Body Length	Length	With Tailpiece	H1	H2	Each
inches	inches	psi	inches	inches	inches	inches	inches	lb
DN	mm	kPa	mm	mm	mm	mm	mm	kg
		0.73 – 4.35	4.17	1.81	7.80	1.61	3.35	4.2
		5 – 30	106	46	198	41	85	1.9
		1.45 – 8.70	4.17	1.81	7.80	1.61	3.35	4.2
1/2	0.840	10 – 60	106	46	198	41	85	1.9
DN15	21.3	1.45 – 14.50	4.17	1.81	7.80	1.61	3.35	4.2
		10 – 100	106	46	198	41	85	1.9
		8.70 – 21.76	4.17	1.81	7.80	1.61	3.35	4.2
		60 – 150	106	46	198	41	85	1.9
		0.73 – 4.35	4.17	2.20	8.58	1.61	3.35	4.6
		5 – 30	106	56	218	41	85	2.1
		1.45 – 8.70	4.17	2.20	8.58	1.61	3.35	4.6
3⁄4	1.050	10 – 60	106	56	218	41	85	2.1
DN20	26.9	1.45 – 14.50	4.17	2.20	8.58	1.61	3.35	4.6
		10 - 100	106	56	218	41	85	2.1
		8.70 – 21.76	4.17	2.20	8.58	1.61	3.35	4.6
		60 – 150	106	56	218	41	85	2.1
		0.73 – 4.35	4.92	2.87	10.67	2.01	3.86	7.5
		5 - 30	125	73	271	51	98	3.4
	1.315 33.7	1.45 – 8.70	4.92	2.87	10.67	2.01	3.86	7.5
1		10 – 60	125	73	271	51	98	3.4
DN25		1.45 – 14.50	4.92	2.87	10.67	2.01	3.86	7.5
		10 - 100	125	73	271	51	98	3.4
		8.70 - 21.76	4.92	2.87	10.67	2.01	3.86	7.58
		60 - 150	125	/3	2/1	51	98	3.4
	1.660 42.4	0./3 – 4.35	4.92	3.15	11.22	2.01	3.86	7.9
		5 - 30	125	80	285	51	98	3.6
4.17		1.45 - 8.70	4.92	3.15	11.22	2.01	3.86	7.9
		10-60	125	80	285	51	98	3.6
DIN32		1.45 - 14.50	4.92	3.15	11.22	2.01	3.86	7.9
		10 - 100	125	215	285	2.01	98	3.0
		8.70 - 21.76	4.92	3.15	11.22	2.01	3.80	7.9
		072 425	6.29	00	200	276	90	5.0
1 ½ DN40	1.900 48.3	0.75 - 4.55	0.30	3.23	326	2.76	4.55	7.0
		1 45 9 70	6.29	2 22	12.02	2.76	110	15 /
		1.45 - 6.70	162	3.23	326	2.70	4.55	70
		1.45 - 14.50	638	3.23	12.83	2.76	/ 33	15 /
		10 - 100	162	82	326	2.70	110	7.0
		8 70 - 21 76	6 3 8	3 23	12.83	2.76	4 33	15.4
		60 - 150	162	82	326	70	110	70
		073 - 435	6 3 8	3.66	13 70	2.76	4 33	163
	2 375	5 - 30	162	93	348	70	110	7.4
		1 45 - 8 70	6 38	3.66	13 70	2.76	4 33	163
2		10 - 60	162	93	348	70	110	7.4
DN50	60.3	1.45 - 14.50	6.38	3.66	13.70	2.76	4.33	16.3
		10 - 100	162	93	348	70	110	7.4
		8.70 - 21.76	6.38	3.66	13.70	2.76	4.33	16.3
		60 – 150	162	93	348	70	110	7.4



4.1 DIMENSIONS

TA Series 7DA Compact Differential Pressure Controller

Connections with Female NPT Outlets

		Dimensions
		L
		inches
d1	d2	mm
C1	14 NDT	1.81
GI	72 INF 1	46
C1	34 NDT	2.20
GI	74 INP I	56
C11/	1 NDT	2.87
GT 74	I INP I	73
C11/	1.1/ NDT	3.15
GT %	1 74 INP I	80
()	1 1/ NDT	3.23
62	1 72 NP I	82
62		3.66
GZ	ZINPI	93



5.0 PERFORMANCE

Sizing

- 1. Select the smallest size for the designed flow according to the diagram.
- 2. Check that the available system ∆p at the point of valve installation is larger than the pressure drop of the fully open valve at the designed flow. The valve pressure drop may be found in the diagram or calculated using the formula below:

$$\begin{array}{lll} \Delta P &= & Q^2 & & \mbox{Where:} & & \Delta P &= & Q^2 \\ \hline C_v^2 & & & Q = Flow (GPM) & & \mbox{$\Delta P = Pressure Drop (psi)$} \\ Q &= & C_v & x & \sqrt{\Delta P} & & C_v = Flow Coefficient & Q = & K_v & x & \sqrt{\Delta P} \end{array}$$

Si		
Nominal inches DN	Actual Outside Diameter inches mm	Fully Open Cv Kv
1/2	0.840	4.63
DN15	21.3	4.00
3⁄4	1.050	4.63
DN30	26.9	4.00
1	1.315	13.88
DN25	33.7	12.00
1 1⁄4	1.660	13.88
DN32	42.4	12.00
1 1⁄2	1.900	34.70
DN40	48.3	30.00
2	2.375	34.70
DN50	60.3	30.00

Where:

 $Q = Flow (m^3/hr)$ $\Delta P = Pressure Drop (Bar)$ $K_v = Flow Coefficient$



5.0 PERFORMANCE (CONTINUED)

The charts below indicate flow performance of a fully open valve and are to be used for overall valve sizing only.





5.1 PERFORMANCE

Setting

The differential pressure can be adjusted by turning the adjustment ring.

		∆p Change Per Turn of Setting Nut/Spanner			
		0.73 – 4.35	1.45 – 8.70	1.45 – 14.50	8.70 – 21.76
Size		5 – 30	10 – 60	10 - 100	60 – 150
inches		psi	psi	psi	psi
DN	Number of Turns	kPa	kPa	kPa	kPa
1/2 - 3/4	10	0.38	0.74	1.35	1.35
DN15 – DN20	10	2.6	5.1	9.3	9.3
1 – 1 ¼	14	0.26	0.52	0.96	0.96
DN25 – DN32	14	1.8	3.6	6.6	6.6
1 1/2 – 2	15	0.25	0.48	0.87	0.87
DN40 – DN50	CI	1.7	3.3	6.0	6.0

NOTE

• Measure flow and adjust Δp accordingly.

5.2 PERFORMANCE

Application Example

Keeping the differential pressure over a control valve constant



Heat Exchanger

The TA Series 7DA should be mounted downstream of the control valve. The Series 787H/Series 78KH should be upstream of the control valve, but downstream of the heat exchanger. The Series 787H/Series 78KH may be mounted in the supply pipe, but a decreased valve authority may result. **NOTES**

• TA Series 7DA assemblies are shipped with all parts needed to connect to the factory-installed drain valve on the Series 787H/Series 78KH.

• If a Series 786 valve is used, a drain kit is needed.





5.3 PERFORMANCE

Accessories

Each TA Series 7DA assembly includes all parts needed to connect the 7DA to the partner valve's drain kit. This includes the ¼" capillary pipe, adapters, and the transition nipple that connects to the drain kit on the partner valve. Drain kit not included. It is recommended the Series 787H or Series 78KH be ordered with the factory-installed drain kit when used with the Series 7DA.

Capillary Pipe

1 pc included in TA Series 7DA



Capillary Pipe Connection

For capillary pipe 0.25" with G $^{\prime\!\!/}_{\!\!8}$ thread. 1 pc factory installed on TA Series 7DA



Measuring Point

Max +248°F/+120°C



Transition Nipple

For adapting capillary tube connection to drain kit on partner valve



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inches inches Part Code M6 0.47 2.76 P0007PR0VE

Venting Screw





Measuring Point, Two-Way

For connection of 0.25" copper pipe while permitting simultaneous use of the balancing instrument.



Measuring Point

Extensions 2.36"/60 mm Can be installed wihtout draining of the system.



L	
inches	Part Code
2.36	K000740012

Venting Extension

Suitable when insulation isused



	ØD	
d	D	L
	inches	inches

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6.0 NOTIFICATIONS

Not applicable. Contact Victaulic with any questions.

7.0 REFERENCE MATERIALS

08.16: Victaulic Balancing Valves - TA Series 786/787H/788/789 and Series 78KH 08.29: Differential Pressure Controller - TA Series 793/794 08.46: Differential Pressure Controller - TA Series 7PR

User Responsibility for Product Selection and Suitability

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