

Compact Differential Pressure Controller

TA Series 7DA



1.0 PRODUCT DESCRIPTION

Available Sizes

- ½ – 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	
Submitted By		Date	

Spec Section		Paragraph	
Approved		Date	

2.0 CERTIFICATION/LISTINGS

Not applicable. Contact Victaulic with any questions.

3.0 SPECIFICATIONS – MATERIAL

Valve Body: Ductile iron per EN-GJS-400

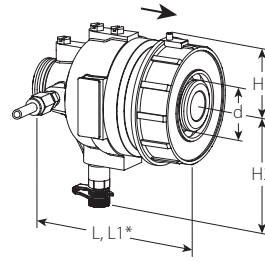
Diaphragms and Gaskets: EPDM

Adjustment Ring: Polyphenylene sulfide (PPS)

Surface Treatment: Electrophoretic coating

4.0 DIMENSIONS

TA Series 7DA Compact Differential Pressure Controller

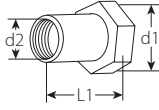


Size		Pressure Range psi kPa	Dimensions			Weight
Nominal inches DN	Actual Outside Diameter inches mm		L Body Length inches mm	Tailpiece Length inches mm	Total Length With Tailpiece inches mm	Approx. Each lb kg
½ DN15	0.840 21.3	0.73 – 4.35	4.17	1.81	7.80	4.2
		5 – 30	106	46	198	1.9
		1.45 – 8.70	4.17	1.81	7.80	4.2
		10 – 60	106	46	198	1.9
		1.45 – 14.50	4.17	1.81	7.80	4.2
10 – 100	106	46	198	1.9		
¾ DN20	1.050 26.9	0.73 – 4.35	4.17	2.20	8.58	4.6
		5 – 30	106	56	218	2.1
		1.45 – 8.70	4.17	2.20	8.58	4.6
		10 – 60	106	56	218	2.1
		1.45 – 14.50	4.17	2.20	8.58	4.6
10 – 100	106	56	218	2.1		
1 DN25	1.315 33.7	0.73 – 4.35	4.92	2.87	10.67	7.5
		5 – 30	125	73	271	3.4
		1.45 – 8.70	4.92	2.87	10.67	7.5
		10 – 60	125	73	271	3.4
		1.45 – 14.50	4.92	2.87	10.67	7.5
10 – 100	125	73	271	3.4		
1¼ DN32	1.660 42.4	0.73 – 4.35	4.92	3.15	11.22	7.9
		5 – 30	125	80	285	3.6
		1.45 – 8.70	4.92	3.15	11.22	7.9
		10 – 60	125	80	285	3.6
		1.45 – 14.50	4.92	3.15	11.22	7.9
10 – 100	125	80	285	3.6		
1½ DN40	1.900 48.3	0.73 – 4.35	6.38	3.23	12.83	15.4
		5 – 30	162	82	326	7.0
		1.45 – 8.70	6.38	3.23	12.83	15.4
		10 – 60	162	82	326	7.0
		1.45 – 14.50	6.38	3.23	12.83	15.4
10 – 100	162	82	326	7.0		
2 DN50	2.375 60.3	0.73 – 4.35	6.38	3.66	13.70	16.3
		5 – 30	162	93	348	7.4
		1.45 – 8.70	6.38	3.66	13.70	16.3
		10 – 60	162	93	348	7.4
		1.45 – 14.50	6.38	3.66	13.70	16.3
10 – 100	162	93	348	7.4		
		8.70 – 21.76	6.38	3.66	13.70	16.3
		60 – 150	162	93	348	7.4

4.1 DIMENSIONS

TA Series 7DA Compact Differential Pressure Controller

Connections with Female NPT Outlets



d1	d2	Dimensions
		L inches mm
G1	½ NPT	1.81 46
G1	¾ NPT	2.20 56
G1 ¼	1 NPT	2.87 73
G1 ¼	1 ¼ NPT	3.15 80
G2	1 ½ NPT	3.23 82
G2	2 NPT	3.66 93

5.0 PERFORMANCE

Sizing

1. Select the smallest size for the designed flow according to the diagram.
2. Check that the available system Δp 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:

$$\Delta P = \frac{Q^2}{C_v^2}$$

$$Q = C_v \times \sqrt{\Delta P}$$

Where:

Q = Flow (GPM)

ΔP = Pressure Drop (psi)

C_v = Flow Coefficient

$$\Delta P = \frac{Q^2}{K_v^2}$$

$$Q = K_v \times \sqrt{\Delta P}$$

Where:

Q = Flow (m³/hr)

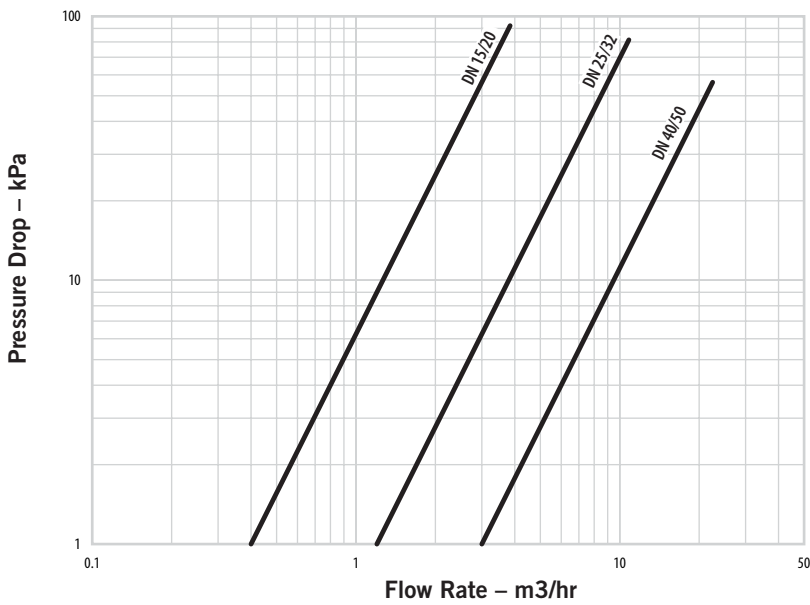
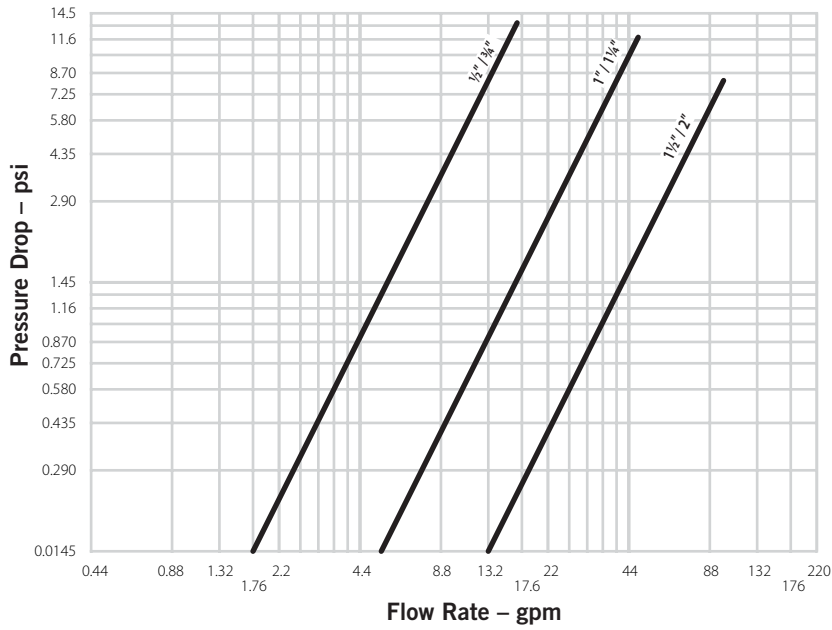
ΔP = Pressure Drop (Bar)

K_v = Flow Coefficient

Size		Fully Open C_v K_v
Nominal inches DN	Actual Outside Diameter inches mm	
½ DN15	0.840 21.3	4.63 4.00
¾ DN30	1.050 26.9	4.63 4.00
1 DN25	1.315 33.7	13.88 12.00
1 ¼ DN32	1.660 42.4	13.88 12.00
1 ½ DN40	1.900 48.3	34.70 30.00
2 DN50	2.375 60.3	34.70 30.00

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.

Size inches DN	Number of Turns	Δp Change Per Turn of Setting Nut/Spanner			
		0.73 – 4.35 5 – 30 psi kPa	1.45 – 8.70 10 – 60 psi kPa	1.45 – 14.50 10 – 100 psi kPa	8.70 – 21.76 60 – 150 psi kPa
½ – ¾ DN15 – DN20	10	0.38 2.6	0.74 5.1	1.35 9.3	1.35 9.3
1 – 1¼ DN25 – DN32	14	0.26 1.8	0.52 3.6	0.96 6.6	0.96 6.6
1½ – 2 DN40 – DN50	15	0.25 1.7	0.48 3.3	0.87 6.0	0.87 6.0

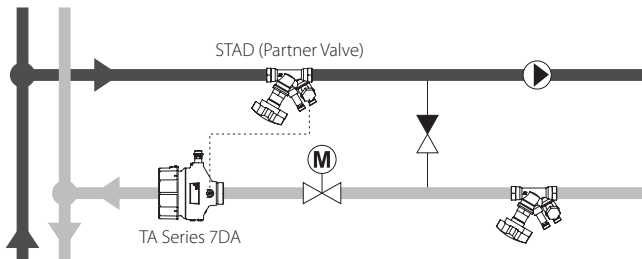
NOTE

- Measure flow and adjust Δp accordingly.

5.2 PERFORMANCE

Application Example

Keeping the differential pressure over a control valve constant

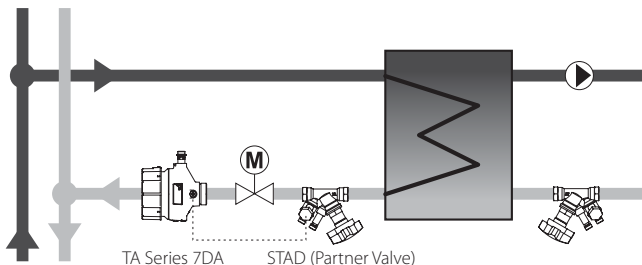


Heat Exchanger

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.



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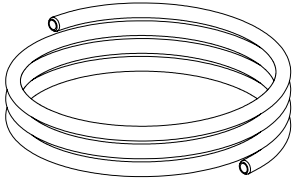
5.3 PERFORMANCE

Accessories

Each TA Series 7DA assembly includes all parts needed to connect the 7DA to the partner valve's drain kit. This includes the 1/4" 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

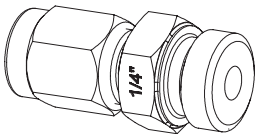
1 pc included in TA Series 7DA



L	D	Part Code
ft	inches	
3	0.25	P0007PROCP

Capillary Pipe Connection

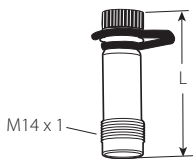
For capillary pipe 0.25" with R1/4 connection. 1 pc included in TA Series 7DA



Part Code
P0007PRCON

Measuring Point

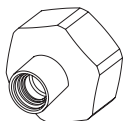
Max +248°F/+120°C



d	L	Part Code
inches	inches	
M14 x 1	1.73	K000740003
M14 x 1	4.06	K000740010

Transition Nipple

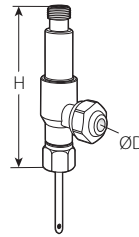
For adapting capillary tube connection to drain kit on partner valve



Part Code
P010793000

Measuring Point, Two-Way

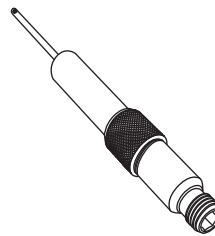
For connection of 0.25" copper pipe while permitting simultaneous use of the balancing instrument.



D	H	Part Code
inches	inches	
0.25	2.68	P0007PRMP2

Measuring Point

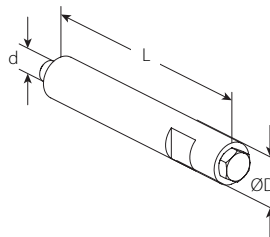
Extensions 2.36"/60 mm
Can be installed without draining of the system.



L	Part Code
inches	
2.36	K000740012

Venting Extension

Suitable when insulation is used



d	D	L	Part Code
	inches	inches	
M6	0.47	2.76	P0007PROVE

Venting Screw



d	Part Code
M6	P0007PROVS

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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