

DV-5 Deluge Valve with Remote-Resetting Trim 2 to 8 Inch (DN50 to DN200)

General Description

The TYCO DV-5 Deluge Valve with Remote-Resetting Trim is a quick-opening, hydraulically operated, differential-type valve designed for fire protection system service. For use as an automatic water control valve in a deluge fire protection system, this diaphragm-style valve can be opened and closed during a full-flow condition from a remote location.

Key features of the DV-5 Deluge Valve with Remote-Resetting Trim include the following:

- Remote-resetting feature provides the ability to reset the valve from one or more locations.
- Compact, space-saving design reduces valve room footprint and construction costs.
- Electric actuation is compatible with many types of automatic and manual release options.
- Actuation of fire alarms upon system operation is provided.

The automatic resetting feature of this valve provides for easy, remote resetting of a deluge system without having to open a valve hand-hole cover. Simply re-pressurizing the Diaphragm Chamber resets the valve.

Operation of the DV-5 Deluge Valve with Remote-Resetting Trim is provided by an automatic electric detection system or remote manual electric activation. The easily installed trim configuration for the DV-5 Deluge Valve with Remote-Resetting Trim provides for emergency (manual) release of the valve at the valve location.

NOTICE

The DV-5 Deluge Valve with Remote-Resetting Trim described herein must be installed and maintained in compli-

IMPORTANT

Refer to Technical Data Sheet TFP2300 for warnings pertaining to regulatory and health information. ance with this document as well as with the applicable installation and testing standards (e.g., NFPA 13 and 25), in addition to the standards of any local authorities having jurisdiction. Failure to do so may impair the performance of these devices.

The owner is responsible for maintaining their fire protection system and devices in proper operating condition. Contact the installing contractor or product manufacturer with any questions.

Technical Data

Approvals

- UL Listed when trimmed as described in Figures 6 - 10
- VdS Approved when trimmed as described in Figures 12 - 16 (Available for European markets only.)

The Trim forms a part of the laboratory listings and is necessary for proper operation of this deluge valve.

Deluge Valve TYCO DV-5 Deluge Valve

- Figure 5 shows components of the DV-5 Deluge Valve.
- Figure 11 shows the deluge valve with UL trim.
- Figure 17 shows the deluge valve with VdS trim. (Available for European markets only.)

Nominal Sizes

2 Inch (DN50), 3 Inch (DN80), 4 Inch (DN100), 6 Inch (DN150) 8 Inch (DN200)

Nominal Installation Dimensions
Refer to Figures 1 and 2

Flange Drilling Specifications Refer to Table B

Valve Maximum Service Pressure 250 psi (17,2 bar)

Pressure Loss Refer to Graph A

Threaded Ports

- NPT per ANSI Standard B1.20.1
- ISO 7-1



Materials of Construction

NOTICE

The RILSAN coating for the DV-5 Deluge Valve with Remote-Resetting Trim provides corrosion resistance and is intended to extend the life of the Valve when exposed to internal and external corrosive conditions. Although the RILSAN coating is intended to resist corrosion, it is recommended that the end user or other technical expert familiar with conditions at the proposed installation be consulted with respect to the suitability of this coating for a given corrosive condition.

Deluge systems using a seawater or brackish water supply require special considerations in order to extend the life of the valve and trim. This type of system ideally should be configured with a primary source of clean fresh water and only upon system operation is the secondary water supply (seawater or brackish water) allowed to enter the system.

After system operation, the system should then be thoroughly flushed with clean fresh water. Following this recommendation can increase the service life of the DV-5 Deluge Valve with Remote-Resetting Trim.

Deluge Valve

- Body and Hand-Hole Cover RILSAN coated ductile iron per ASTM A 536-77, Grade 65-45-12
- Diaphragm Nylon fabric reinforced, natural rubber per ASTM D 2000

Valve		١	lominal D	imensions	in Inches	s and (mm	1)	
Size	Α	В	С	D	E	F	G	Н
2 Inch	8.66	13.19	10.50	9.13	7.13	15.56	3.00	4.09
(DN50)	(220)	(355)	(267)	(232)	(181)	(395)	(76)	(103,9)
3 Inch	12.79	13.19	10.50	10.44	7.81	19.13	0.88	3.85
(DN80)	(325)	(355)	(267)	(265)	(198)	(486)	(22)	(98,0)
4 Inch	15.75	14.31	10.50	11.75	10.00	22.13	0.63	4.56
(DN100)	(400)	(364)	(267)	(299)	(254)	(562)	(16)	(116,0)
6 Inch	18.31	15.31	10.50	14.31	11.38	23.31	1.81	5.86
(DN150)	(465)	(389)	(267)	(364)	(289)	(592)	(46)	(149,0)
8 Inch	22.44	16.25	10.50	16.00	12.00	25.50	7.38	5.26
(DN200)	(570)	(413)	(267)	(406)	(305)	(648)	(187)	(134,0)

*Minimum clearance

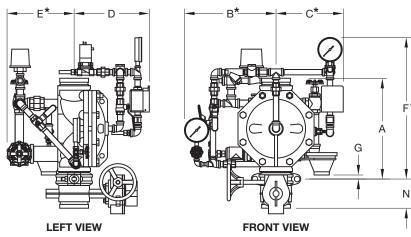


FIGURE 1 DV-5 WITH REMOTE-RESETTING TRIM NOMINAL INSTALLATION DIMENSIONS UL

Valve		Dii	mensions	in Inche	s and (mi	n)	
Size	Α	В	С	D	Е	F	G
2 Inch	8.66	11.81	11.61	7.48	7.48	13.78	7.87
(DN50)	(220)	(300)	(295)	(190)	(190)	(350)	(200)
3 Inch	12.79	12.40	11.61	8.66	8.27	15.94	5.12
(DN80)	(325)	(315)	(295)	(220)	(210)	(405)	(130)
4 Inch	15.75	11.42	11.61	10.24	9.25	17.72	4.33
(DN100)	(400)	(290)	(395)	(260)	(235)	(450)	(110)
6 Inch	18.31	12.40	11.61	12.80	10.43	20.47	1.38
(DN150)	(465)	(315)	(395)	(325)	(265)	(520)	(35)
8 Inch	22.44	13.39	11.61	14.37	11.02	23.82	N/A
(DN200)	(570)	(340)	(395)	(365)	(280)	(605)	

*Minimum clearance

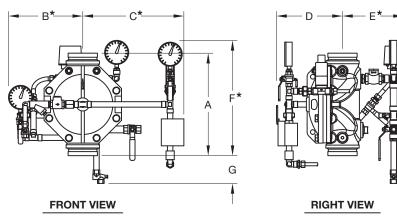


FIGURE 2 DV-5 WITH REMOTE-RESETTING TRIM NOMINAL INSTALLATION DIMENSIONS VdS (Available for European Markets Only)

	VALVE PAR	ΓS	
No.	Description	Qty.	Repair Parts
1	Valve Body	1	NR
2	Diaphragm		
	Diaphragm Cover	1	NR
4	Flat Washer, Metric: 2 Inch (DN50) Valve &		
	3 Inch (DN80) Valve &		
	M16	4	CH
	4 Inch (DN100) Valve &		
	6 Inch (DN150) Valve,		
	M16	8	CH
	8 Inch (DN200) Valve, M20	Ω	CH
5	Hex Bolt, Metric:	0	CIT
	2 Inch (DN50) Valve &		
	3 Inch (DN80) Valve,		
	M16 x 50 mm	4	CH
	4 Inch (DN100) Valve,	_	OLL
	M16 x 50 mm 6 Inch (DN150) Valve,	6	CH
	M16 x 55 mm	6	CH
	8 Inch (DN200) Valve,		0
	M20 x 70 mm	6	CH
6	Hex Nut, Metric:		
	4 Inch (DN100) Valve &		
	6 Inch (DN150) Valve, M16	2	CH
	8 Inch (DN200) Valve,	∠	CIT
	M20	2	CH

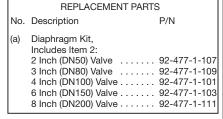
NOTES:

- 1. NR Not Replaceable
- 2. CH Common Hardware
- Valve Bodies of 4, 6 and 8 Inch (DN100, DN150 & DN200) valves are equipped with studs and Valve Covers are secured by Hex Nuts and Hex Bolts.

4. V-Ring is attached to Diaphragm of 4, 6 and 8 Inch (DN100, DN150 & DN200) valves at factory. If, during internal valve inspection, V-Ring is discovered to be detached from Diaphragm, be advised that V-Ring is a required valve component and that detachment will not affect normal valve operation or performance. Should V-Ring become detached, reinstall between Diaphragm and Diaphragm Cover concentrically as shown.

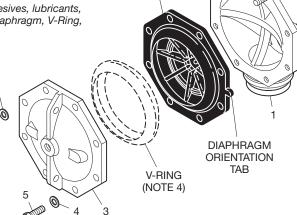
NOTE: Do not apply adhesives, lubricants, or other substances to Diaphragm, V-Ring, or Valve Body.

(NOTE 3)



STUDS

(NOTE 3)



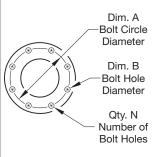
(NOTE 4)



DV-5 WITH REMOTE-RESETTING TRIM VALVE ASSEMBLY Flange Drilling Specification minal Dimensions in Inches and (mm)

FIGURE 5

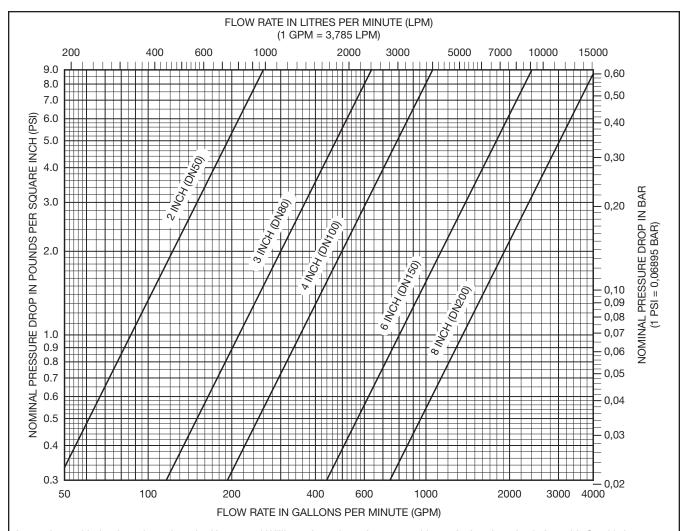
ı			Flange Drilling Specification													
Nominal		Nominal Dimensions in Inches and (mm)														
	Valve Size 1	ANSI B16.1 (Class 125) ²			ISO 7005-2 (PN10) ³				7005-2 N16) ⁴			JIS B 2210 (10K)		AS 2129 (Table E)		
ı		Α	В	N	Α	В	N	Α	В	N	Α	В	N	Α	В	N
	3 Inch (DN80)	6.00 (152,4)	0.75 (19,0)	4					0.75 (19,0)	8	N/A			N/A		
	4 Inch (DN100)	7.50 (190,5)	0.75 (19,0)	8	ISO	USE ISO 7005-2		7.09 (180,0)	0.75 (19,0)	8	6.89 (175,0)	0.60 (15,0)	8	7.00 (178,0)	0.71 (18,0)	8
	6 Inch (DN150)	9.50 (241,3)	0.88 (22,2)	8	(PN16)			9.45 (240,0)	0.91 (23,0)	8	9.45 (240,0)	0.75 (19,0)	8	9.25 (235,0)	0.87 (22,0)	8
	8 Inch (DN200)	11.75 (298,5)	0.88 (22,2)	8	11.61 (295,0)	0.91 (23,0)	8	11.61 (295,0)	0.91 (23,0)	12	١	N/A		11.50 (292,0)	0.87 (22,0)	8



Notes:

- 1. Flange end 1-1/2 & 2 Inch (DN40 & DN50) DV-5 Valves are not offered.
- 2. Same drilling as for B16.5 (Class 150) and B16.42 (Class 250).
- 3. Same drilling as for BS 4504 Section 3.2 (PN10) and DIN 2532 (PN10).
- 4. Same drilling as for BS 4504 Section 3.2 (PN16) and DIN 2532 (PN16).

TABLE B DV-5 WITH REMOTE-RESETTING TRIM FLANGE DRILLING SPECIFICATION



Approximate friction loss, based on the Hazen and Williams formula and expressed in equivalent length of pipe with C=120, is as follows:

- 16 feet of 2 inch Schedule 40 pipe for the 2 inch DV-5 Valve calculated on a typical flow rate of 175 gpm.
- 20 feet of 3 inch Schedule 40 pipe for the 3 inch DV-5 Valve calculated on a typical flow rate of 350 gpm.
- 29 feet of 4 inch Schedule 40 pipe for the 4 inch DV-5 Valve calculated on a typical flow rate of 600 gpm.
- 46 feet of 6 inch Schedule 40 pipe for the 6 inch DV-5 Valve calculated on a typical flow rate of 1500 gpm.
- 72 feet of 8 inch Schedule 30 pipe for the 6 inch DV-5 Valve calculated on a typical flow rate of 2500 gpm.

Approximate friction loss, based on the Hazen and Williams formula and expressed in equivalent length of pipe with C=120, is as follows:

- 5 meters of DN50 Schedule 40 pipe for the DN50 DV-5 Valve calculated on a typical flow rate of 662 lpm.
- 6 meters of DN80 Schedule 40 pipe for the DN80 DV-5 Valve calculated on a typical flow rate of 1325 lpm.
- 9 meters of DN100 Schedule 40 pipe for the DN100 DV-5 Valve calculated on a typical flow rate of 2271 lpm.
- 14 meters of DN150 Schedule 40 pipe for the DN150 DV-5 Valve calculated on a typical flow rate of 5678 lpm.
- 22 meters of DN200 Schedule 30 pipe for the DN200 DV-5 Valve calculated on a typical flow rate of 9464 lpm.

GRAPH A DV-5 WITH REMOTE-RESETTING TRIM NOMINAL PRESSURE LOSS VERSUS FLOW

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3. Route all Tubing to Drip Funnel, Item 15.

 Items A1-A3 included only in pre-trimmed valve assemblies as applicable; otherwise ordered separately.

NO. DESCRIPTION QTY. P/N	NO. DESCRIPTION QTY. P/N	NO. DESCRIPTION QTY. P/N
1 300 psi/ 2000 kPa Water Pressure Gauge . 2 92-343-1-005 2 1/4" Gauge Test Valve . 1 46-005-1-002 3 Model MC-1 Manual Control Station 1 52-289-2-001 4 Model AD-1 Automatic Drain Valve 1 52-793-2-004 5 Priming Supply Restriction, 3/16" Orifice . 1 92-210-1-011 6 Item No. Not Used 7 1/2" Ball Valve 2 46-050-1-004 8 1/2" Swing Check Valve . 1 46-049-1-004 9 1/2" Y-Strainer 1 52-353-1-005 10 3/4" Swing Check Valve . 1 46-049-1-006 11 1" Angle Valve 1 46-048-1-006 12 2" Angle Valve 1 46-048-1-009 13 Drip Funnel Connector . 1 92-211-1-003 14 Drip Funnel Bracket 1 92-211-1-003 15 Drip Funnel 1 92-343-1-007 16 3/32" Vent Fitting 1 92-032-1-002	19 1/2" x 24" Tubing	41 1/2" x 7" Nipple
17 1/4" x 24" Tubing1 CH 18 1/2" Tubing Connector 2 CH	39 1/2" x 5" Nipple	6" (DN150)1 57760ACP
LOCATION FOR OPTIONAL ELECTRICALLY SUPERVISED N.O. ALARM CONTROL VALVE 35 29 41 10 20 NOTES: 1. All Fittings and Nipples are	30 48 48 66 EEN 31 46 27 31 46 47 46 47 46 47 49 50 12 12 22 35 35 39 39 39	19 (ORDERED SEPARATELY) 25 35 38 18 27 27 1 13 35 35 28 41 3 34 34 25 35 39 22 25 35 35 35
galvanized (Standard Order). 2. CH: Common Hardware. 3. Pouts all Tubing to Drip Funnel.	28 24 33 A2	7
3. Route all Tubing to Drip Funnel,	CII (DNI450)	IJ

6" (DN150) GROOVE x GROOVE DV-5 DELUGE VALVE SHOWN

FIGURE 9 6 INCH (DN150) DV-5 WITH REMOTE-RESETTING TRIM UL

NO.	DESCRIPTION	QTY.	P/N
1	Nickel Plated Copper Tube 15 x 1 mm Elbow 90°; 370 mm x 225 mm	1	WS00000096
2	Copper Pipe 10 x 12 mm Length 900 mm		WS00000007
3	Pressure Relief Hose 3 x 6 Length 1,2 m; Transparant		WS00000004
4	Adapter Tee Brass Male Thread DN20 Female DN20; Type 113; Nickel Plated		TTEMEEFN
5	Adapter Tee Brass Female Thread DN20 x DN20 x DN20, Type 111; Nickel Plated		TTEEEFN
6	Adapter Tee Brass Male Thread DN15 Female DN15 x DN15: Type 113: Nickel Plated		TTDMDDFN
7	Adapter Tee Brass Female Thread DN15 x DN15 x DN15; Type 100 Nickel Plated	1	TTDDDFN
8	Reduce Threaded Fitting, Nickel Plated Brass Thread Male DN20 x Male DN25	1	RTFEMN
9	Reduce Threaded Fitting, Nickel Plated Brass, Thread Male DN20 x Thread Female DN15 Type 100	2	RTEMDFN
10	Reduce Threaded Fitting, Nickel Plated Brass, Thread Male DN15 x Thread Male DN20 Type 100	1	RTEDMN
11	Adapter Reduce, Brass Male Thread DN15 x Female Thread DN8 Type 100 Nickel Plated	3	RTDMBFN
12	Elbow threaded fitting nickel plated brass thread male dn15 x thread female dn15, type 100	2	ETDMDFN
13	Elbow Threaded Fitting, Nickel Plated Brass, Thread Male DN15 x DN15, Type 100	1	ETDDMN
14	Elbow Threaded Fitting, Nickel Plated Brass, Thread Female DN15 x DN15, Type 100	1	ETDDFN
15	Adapter Fitting, Nickel Plated Brass Thread Male DN20 x DN20 Type 102	1	ATEEMN
16	Adapter Compr Fitting Brass Male Thread DN15 x Compr Fitt 15 mm, Type 200 Nickel Plated	2	ATDMCON
17	Adapter Fitting, Nickel Plated Brass Thread Male DN15 x DN15 Type 100		ATDDMN
18	Pipe Nipple - 3/4" SS316 Male BSPT Length 80 mm		AP80E4
19	Pipe Nipple - 1/2" SS316 Male BSPT Length 60 mm	1	AP60D4
20	Pipe Nipple - 1/2" SS316 Male BSPT Length 300 mm	1	AP300D4
21	Pipe Nipple - 1/2" SS316 Male BSPT Length 140 mm	2	AP140D4
22	Pipe Nipple - 1/2" SS316 Male BSPT Length 120 mm	2	AP120D4
23	Pipe Nipple - 3/4" SS316 Male BSPT Length 100 mm		AP100E4
24	Pipe Fitting - Union Fig 341 Male/Female BSP Size 1/2" Finish: Stainless Steel		A341D4
25	Malleable Fitting - Plug Fig 291 Male BSP Size 2" Finish: Galvanized		A291I2
26	Malleable Fitting - Plug Fig 291 Male BSP Size 1/2" Finish: Galvanized		A291D2
27	Swing Type Check Valve 1/2" Type 99S		460491004
28	Straight Tube Connector 12 mm x 1/2" Male Nr 661273	2	81900211
29	Nipple 1/2" M/F Orifice 4,76 mm Brass		922101011
30	Ball Valve Size DN15 - 1/2" ISO 7/1 Full Bore PN40 Venthole Threaded M5		59304FO
31	DV-5 Deluge Valve; Diaphragm Style; 17,2 bar; Size 6"; Grv x Grv (168 mm) ISO Ports; 2" ISO Drain		524771925
32	Break Station Model MC-1 for Manual Release ; Galva Fittings		522892001
33	Swing Type Check Valve 3/4" Type 99S		460491005
34	Elbow WES 3 mm/ M5 (Rart Ref. 610470)		406012
35	Solenoid Valve 24 VDC 1/2" ISO Impuls w. Mech. Lock and Man. Emerg. Release		2460566
36	1/2" Self-Closing Drain Valve K-Factor Non Operated = 5 K-Factor Operated = 25		2162156
37	Strainer Y-Type; Fig 557; 1/2" NPT Connection; 50 Mesh; S304 Screen; Bronze Body		20005025
38	Ball Valve Fig. 1610 Full Bore DN20 - 3/4" BSP		1610000270
39	Ball Valve Fig. 1610 Full Bore DN15 - 1/2" BSP		1610000210
40	Pressure Switch Mod. PS10-1 Single Contact; 1/2" NPT Male		0260
41	Water Gauge 1/4" NPT Male 0 - 300 PSI / 0 - 21 bar	3	025500013

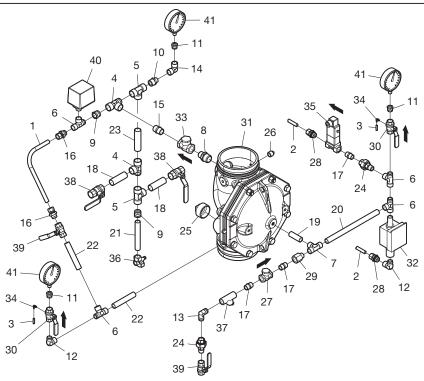


FIGURE 15 6 INCH (DN150) DV-5 WITH REMOTE-RESETTING TRIM VdS (Available for European Markets Only)

NO.	DESCRIPTION QTY.	. P/N
1	Nickel Plated Copper Tube 15 x 1 mm Elbow 90°; 370 mm x 225 mm	WS00000096
2	Copper Pipe 10 x 12 mm Length 900 mm 2	WS0000007
3	Pressure Relief Hose 3 x 6 Length 1,2 m; Transparant 2	WS0000004
4	Adapter Tee Brass Male Thread DN20 Female DN20; Type 113; Nickel Plated	TTEMEEFN
5	Adapter Tee Brass Female Thread DN20 x DN20 x DN20, Type 111; Nickel Plated	TTEEEFN
6	Adapter Tee Brass Male Thread DN15 Female DN15 x DN15; Type 113; Nickel Plated	TTDMDDFN
7	Adapter Tee Brass Female Thread DN15 x DN15 x DN15; Type 100 Nickel Plated	TTDDDFN
8	Reduce Threaded Fitting, Nickel Plated Brass Thread Male DN20 x Male DN25	RTFEMN
9	Reduce Threaded Fitting, Nickel Plated Brass, Thread Male DN20 x Thread Female DN15 Type 100	RTEMDFN
10	Adapter Reduce, Brass Male Thread DN15 x Female Thread DN8 Type 100 Nickel Plated	RTDMBFN
11	Elbow threaded fitting nickel plated brass thread male dn15 x thread female dn15, type 100	ETDMDFN
12	Elbow Threaded Fitting, Nickel Plated Brass, Thread Male DN15 x DN15, Type 100	ETDDMN
13	Elbow Threaded Fitting, Nickel Plated Brass, Thread Female DN15 x DN15, Type 100	ETDDFN
14	Adapter Fitting, Nickel Plated Brass Thread Male DN20 x DN20 Type 102	ATEEMN
15	Adapter Compr Fitting Brass Male Thread DN15 x Compr Fitt 15 mm, Type 200 Nickel Plated	ATDMCON
16	Adapter Fitting, Nickel Plated Brass Thread Male DN15 x DN15 Type 100	ATDDMN
17	Pipe Nipple - 3/4" SS316 Male BSPT Length 80 mm	AP80E4
18	Pipe Nipple - 1/2" SS316 Male BSPT Length 60 mm	AP60D4
19	Pipe Nipple - 1/2" SS316 Male BSPT Length 300 mm	AP300D4
20	Pipe Nipple - 1/2" SS316 Male BSPT Length 140 mm	AP140D4
21	Pipe Nipple - 1/2" SS316 Male BSPT Length 120 mm	AP120D4
22	Pipe Nipple - 3/4" SS316 Male BSPT Length 100 mm	AP100E4
23	Pipe Fitting - Union Fig 341 Male/Female BSP Size 1/2" Finish: Stainless Steel	A341D4
24	Malleable Fitting - Plug Fig 291 Male BSP Size 2" Finish: Galvanized	A291I2
25	Malleable Fitting - Plug Fig 291 Male BSP Size 1/2" Finish: Galvanized	A291D2
26	Swing Type Check Valve 1/2" Type 99S 1	460491004
27	Straight Tube Connector 12 mm x 1/2" Male Nr 661273 2	81900211
28	Nipple 1/2" M/F Orifice 4,76 mm Brass	922101011
29	Ball Valve Size DN15 - 1/2" ISO 7/1 Full Bore PN40 Venthole Threaded M5	59304FO
30	DV-5 Deluge Valve; Diaphragm Style; 17.2 bar; Size 8"; Grv x Grv (219 mm) ISO Ports; 2" ISO Drain	524771926
31	Break Station Model MC-1 for Manual Release ; Galva Fittings	522892001
32	Swing Type Check Valve 3/4" Type 99S 1	460491005
33	Elbow WES 3 mm/ M5 (Rart Ref. 610470) 2	406012
34	Solenoid Valve 24 VDC 1/2" ISO Impuls w. Mech. Lock and Man. Emerg. Release	2460566
35	1/2" Self-Closing Drain Valve K-Factor Non Operated = 5 K-Factor Operated = 25	2162156
36	Strainer Y-Type; Fig 557; 1/2" NPT Connection; 50 Mesh; S304 Screen; Bronze Body	20005025
37	Ball Valve Fig. 1610 Full Bore DN20 - 3/4" BSP 2	1610000270
38	Ball Valve Fig. 1610 Full Bore DN15 - 1/2" BSP 2	1610000210
39	Pressure Switch Mod. PS10-1 Single Contact; 1/2" NPT Male	0260
40	Water Gauge 1/4" NPT Male 0 - 300 PSI / 0 - 21 bar	025500013

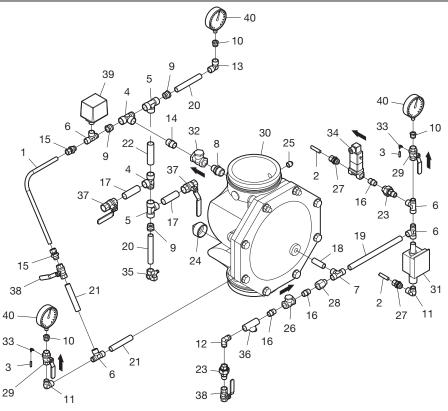


FIGURE 16 8 INCH (DN200) DV-5 WITH REMOTE-RESETTING TRIM VdS (Available for European Markets Only)