



DIVERTER VALVES

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Working conditions

This catalogue shows technical specifications and diagrams measured with mineral oil of 46 mm²/s - 46 cSt viscosity at 40°C temperature.

		DFE052	DFE10	DFE20	DFE110
N. of available ways		2-3-6-8	3-6	3-6	12
Nominal flow rating	<i>in steady conditions</i>	60 l/min	90 l/min	140 l/min	90 l/min
Operating pressure (maximum) *	<i>without drain</i>	200 bar - 2900 psi			
	<i>with drain</i>	315 bar - 4600 psi			
Available nominal voltage	VDC	12-24 48-110	12-24-48	12-24	12-24
	VAC 50Hz (with C04 connector)	24-110-220	110-220	24-110-220	24-110-220
Nominal power	W	38	60	60	60
Internal leakage A(B)→T	$\Delta p=100$ bar 1450 psi <i>with fluid and valve at 40°C</i>	7 cm ³ /min 0.43 in ³ /min	10 cm ³ /min 0.61 in ³ /min	15 cm ³ /min 0.92 in ³ /min	10 cm ³ /min 0.61 in ³ /min
Hydraulic fluid		Mineral base oil			
Fluid temperature	<i>with NBR seals</i>	from -20°C to 80°C			
	<i>with FPM seals</i>	from -20°C to 100°C			
Viscosity	<i>operating range</i>	from 15 to 75 mm ² /s - from 15 to 75 cSt			
	<i>minimum</i>	12 mm ² /s - 12 cSt			
	<i>maximum</i>	400 mm ² /s - 400 cSt			
Max. level of contamination		-/19/16 - ISO 4406			
Ambient temperature for working conditions		from -20°C to 50°C			

NOTE - For different working conditions please contact Sales Dept.

(*) - This value is reachable only in steady conditions; for dynamic working conditions see the related pages.

Standard threads

REFERENCE STANDARDS

		BSP	UN-UNF	METRIC	
THREAD ACCORDING TO		ISO 228/1	ISO 263	ISO 262	ISO 262
		BS 2779	ANSI B1.1 unified		
CAVITY ACCORDING TO	ISO	1179	11926	9974-1	6149
	SAE		J1926		J2244
	DIN	3852-2 shape X or Y		3852-1 shape X or Y	

PORTS THREAD

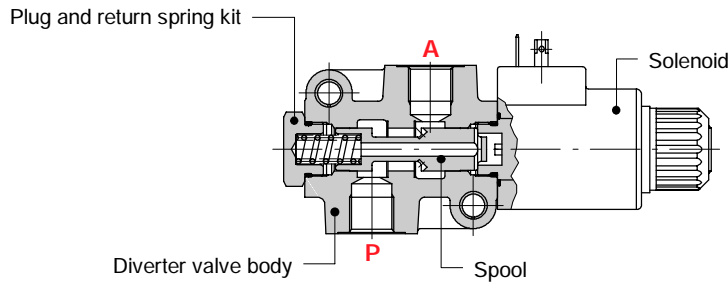
ALL PORTS	BSP	UN-UNF	METRIC (ISO 9974-1)	METRIC (ISO 6149)
DFE052	G 3/8	3/4-16 (SAE 8)	M18x1,5	
DFE10	G 1/2	7/8-14 (SAE 10)		
DFE20	G 3/4	1 1/16-12 (SAE 12)		
DF110	G 1/2	7/8-14 (SAE 10)	M22x1.5	M22x1.5
DRAIN PORT				
L	G 1/4	9/16-18 (SAE 6) 7/16-20 (SAE4)*	M12x1.5	M12x1.5

(*) For DFE052/8 and series DFE20 diverter valves

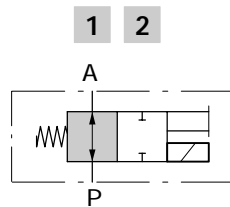
Optional threads: for availability contact Sales Department

2-way

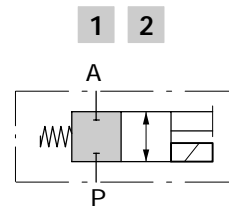
Available as body only in DFE052/2 execution; for other executions 3-way body is used.



Spool type A

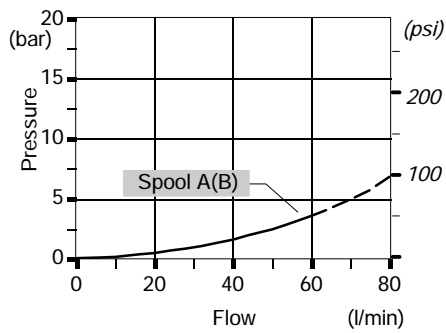


Spool type B

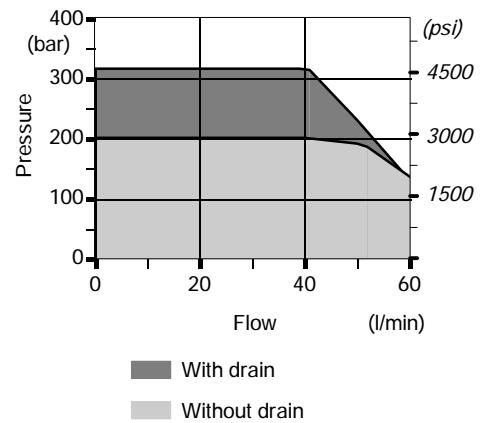


Performance data

**Pressure drop versus flow
P→A**



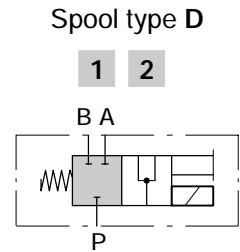
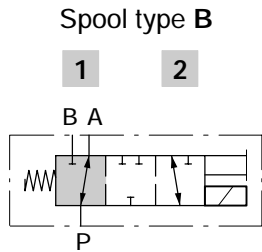
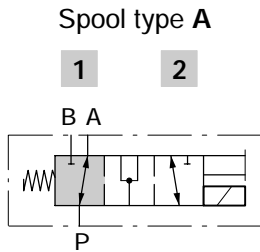
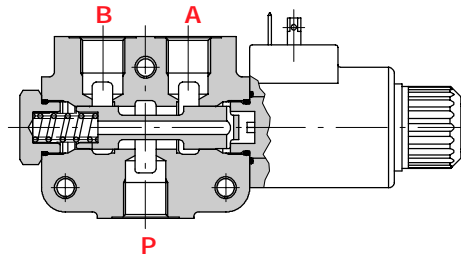
**Minimum dynamic conditions
(supply = Vn-10%, coil at 70 °C)**



Hydraulic circuit

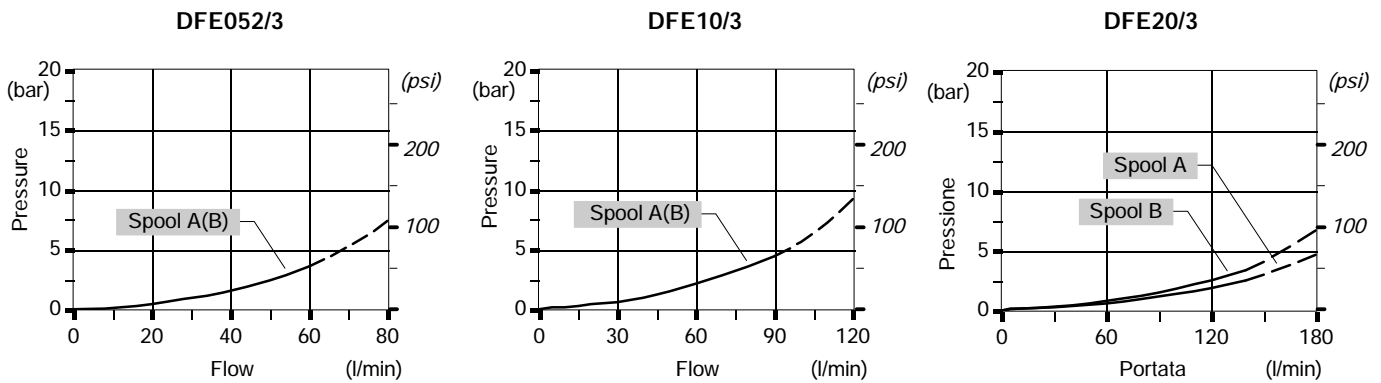
3-way

It's possible to obtain 2-way diverter valve plugging port A or B.

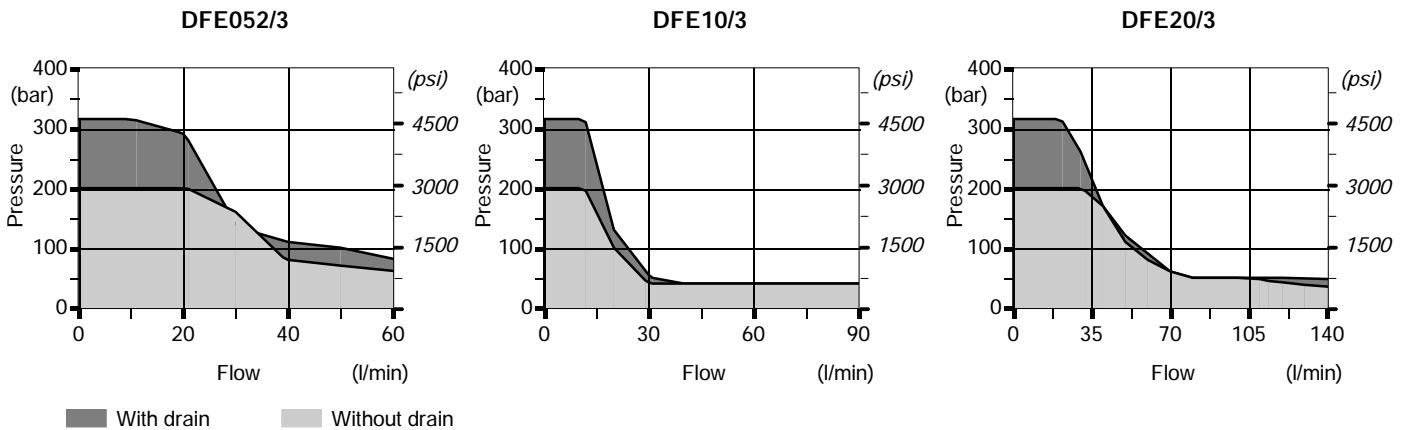


Performance data

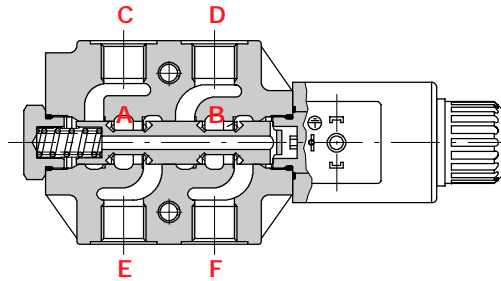
Pressure drop versus flow: P→A(B)



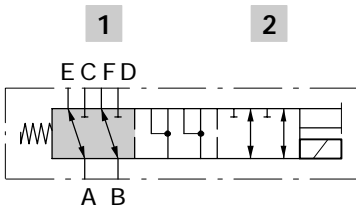
Minimum dynamic conditions: (supply = Vn-10%, coil at 70 °C)



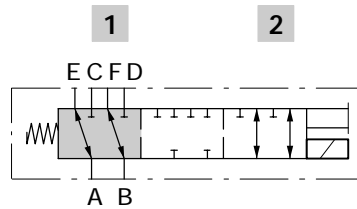
6-way



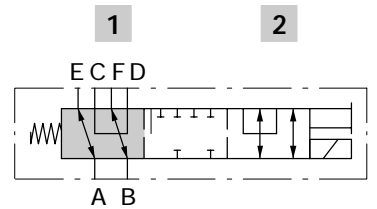
Spool type A



Spool type B



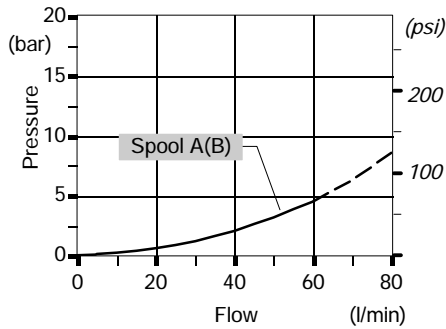
Spool type H



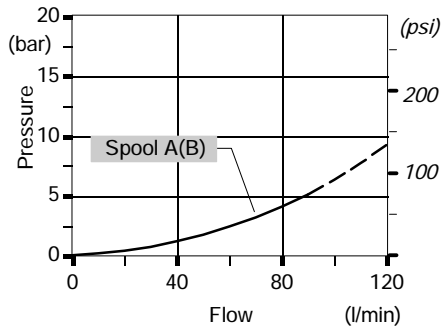
Performance data

Pressure drop versus flow: A→E(C).

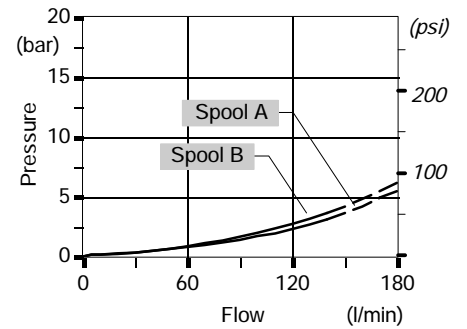
DFE052/6



DFE10/6

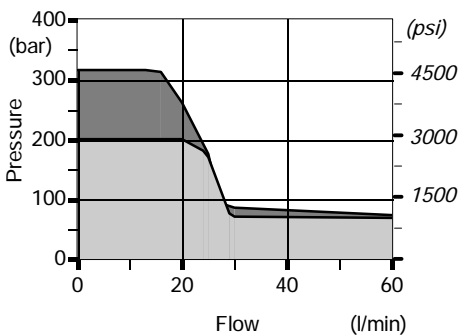


DFE20/6

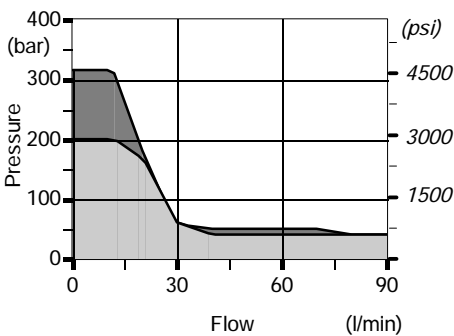


Minimum dynamic conditions: (supply = Vn-10%, coil at 70 °C)

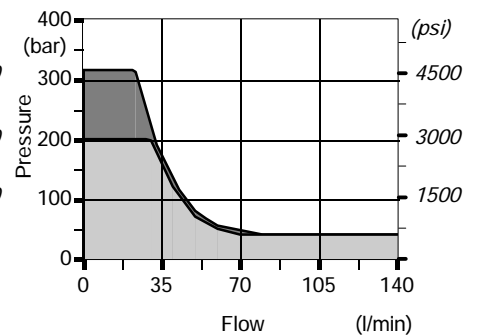
DFE052/6



DFE10/6



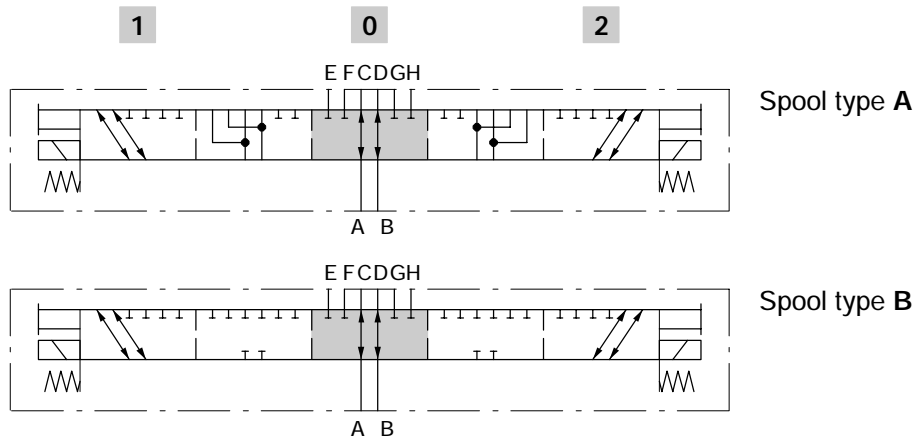
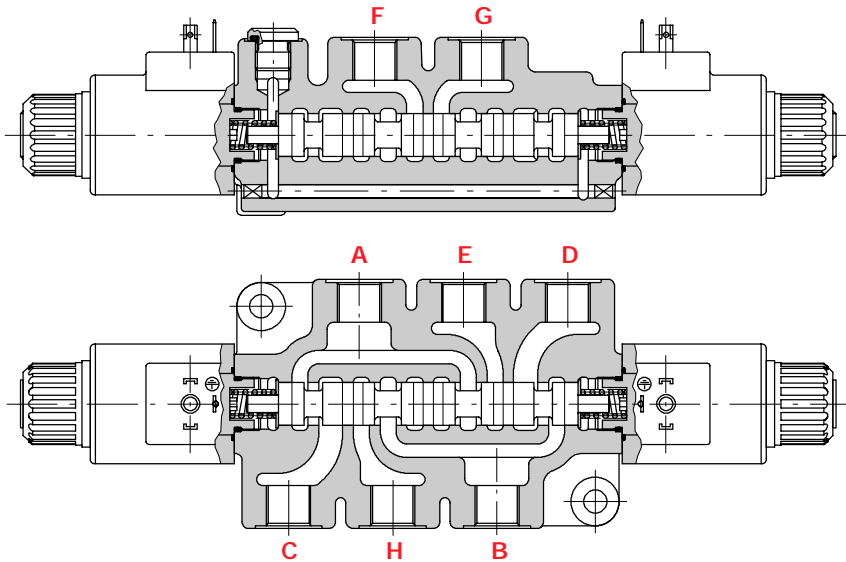
DFE20/6



■ With drain ■ Without drain

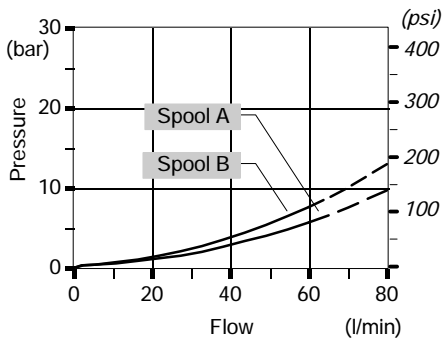
HYdraulic circuit

8-way

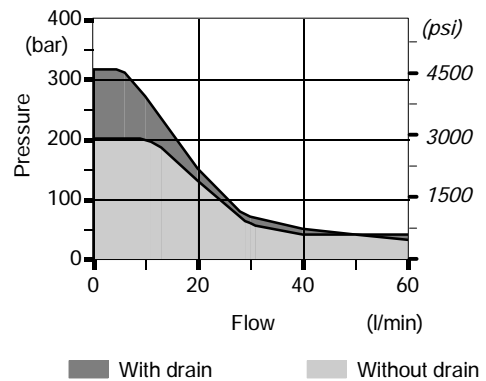


Performance data

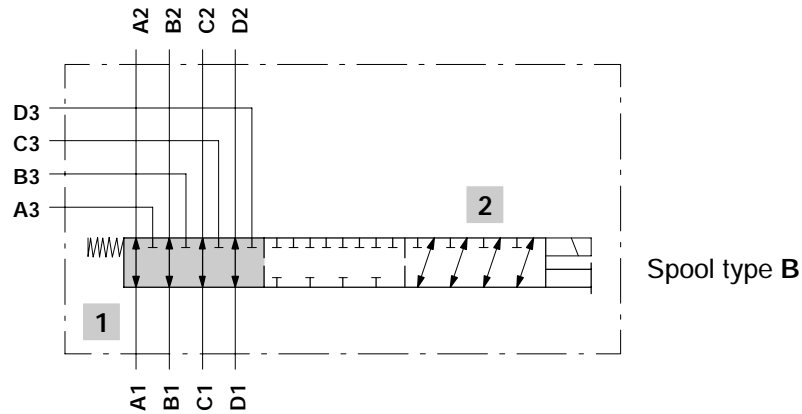
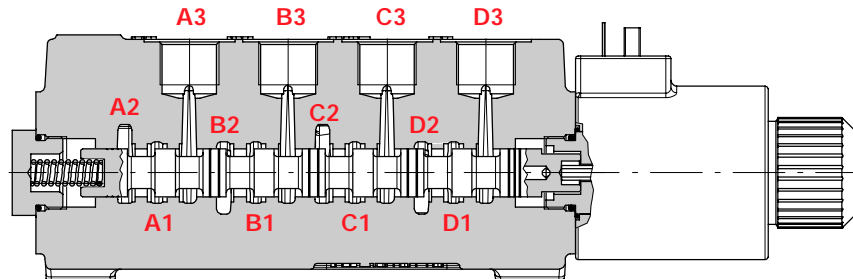
Pressure drop versus flow
A→C



Minimum dynamic conditions
(supply = Vn-10%, coil at 70 °C)



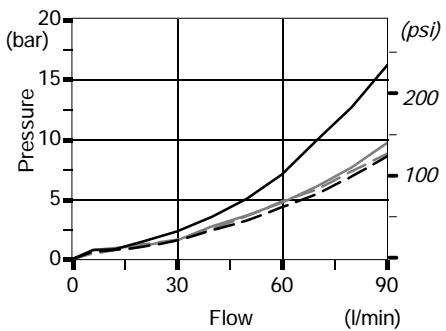
12-way



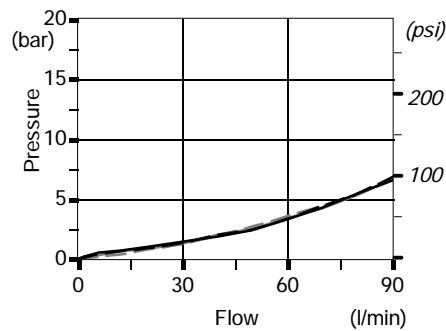
Performance data

Pressure drop versus flow

In position 1



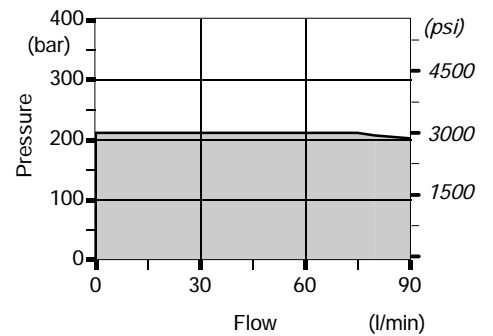
In position 2



— A1⇒A2 / - - - B1⇒B2
 — C1⇒C2 / - - - D1⇒D2

— A1⇒A3 / - - - B1⇒B3
 — C1⇒C3 / - - - D1⇒D3

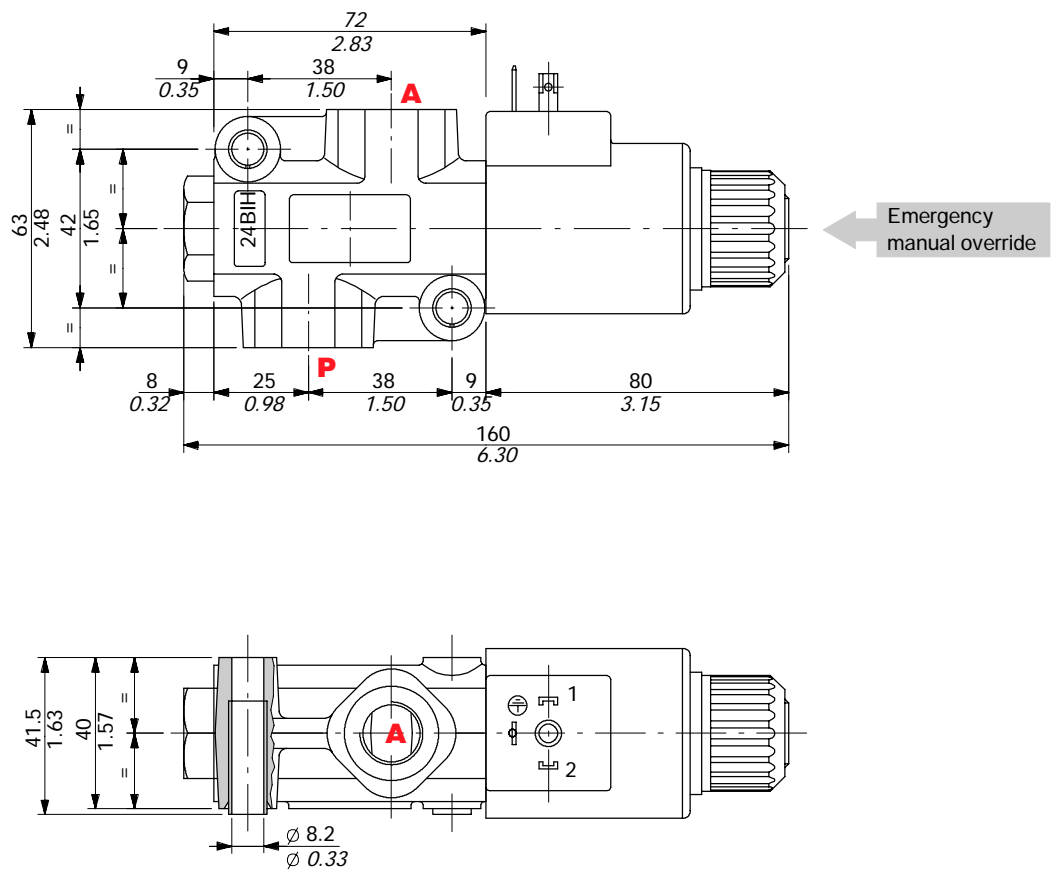
Minimum dynamic conditions
(supply = Vn-10%, coil at 70 °C)



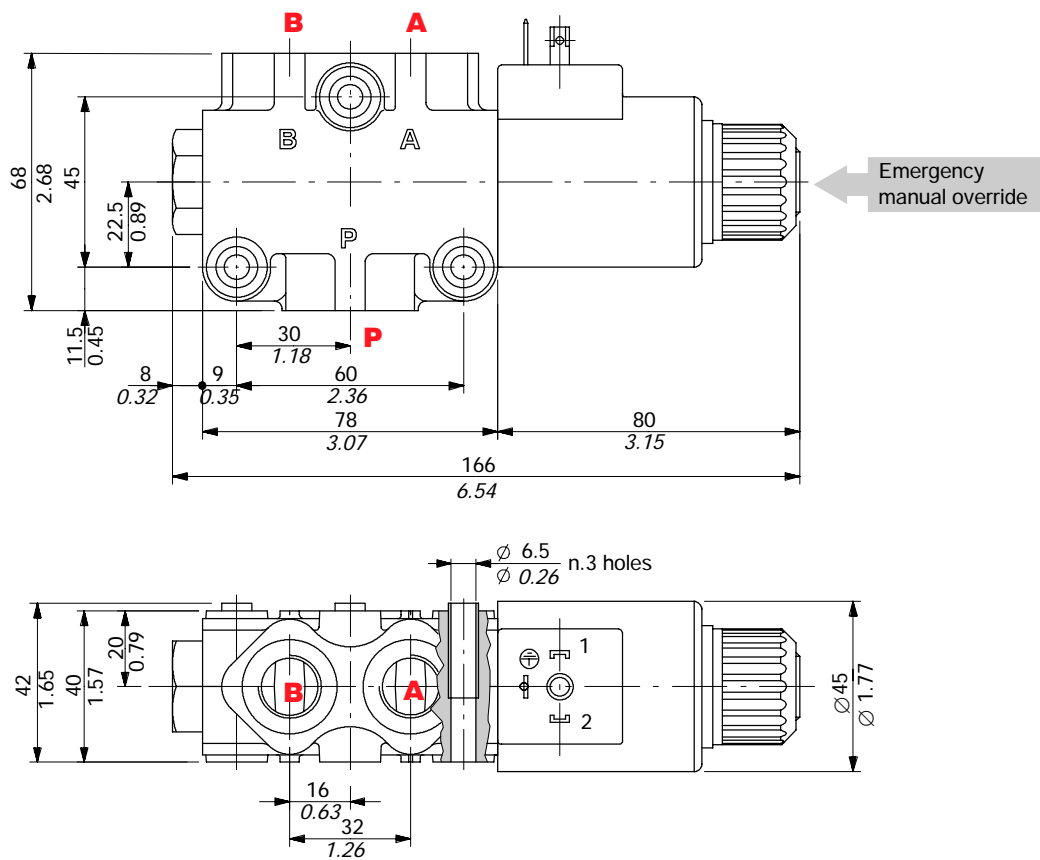
With drain
 Without drain

Dimensional data

2-way DFE052/2 valve

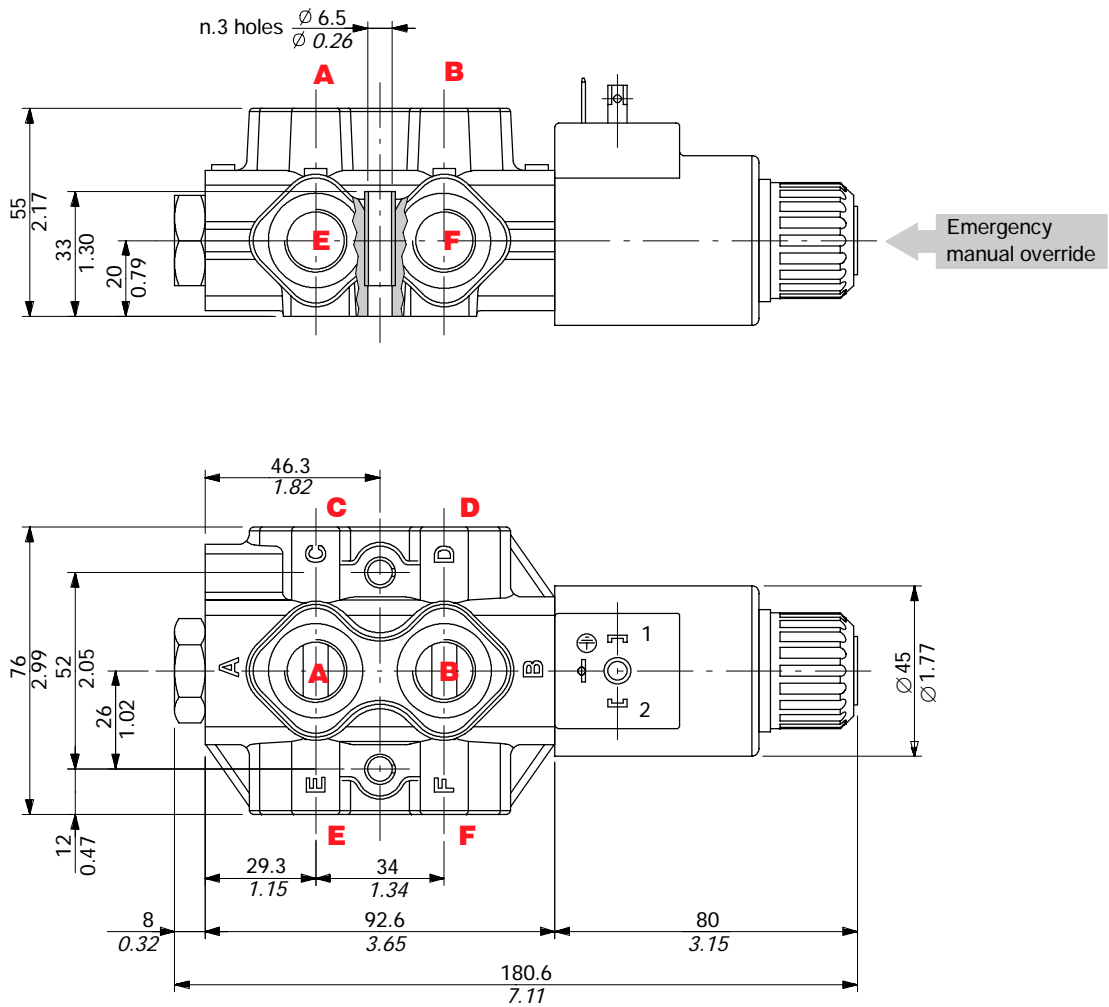


3-way DFE052/3 valve

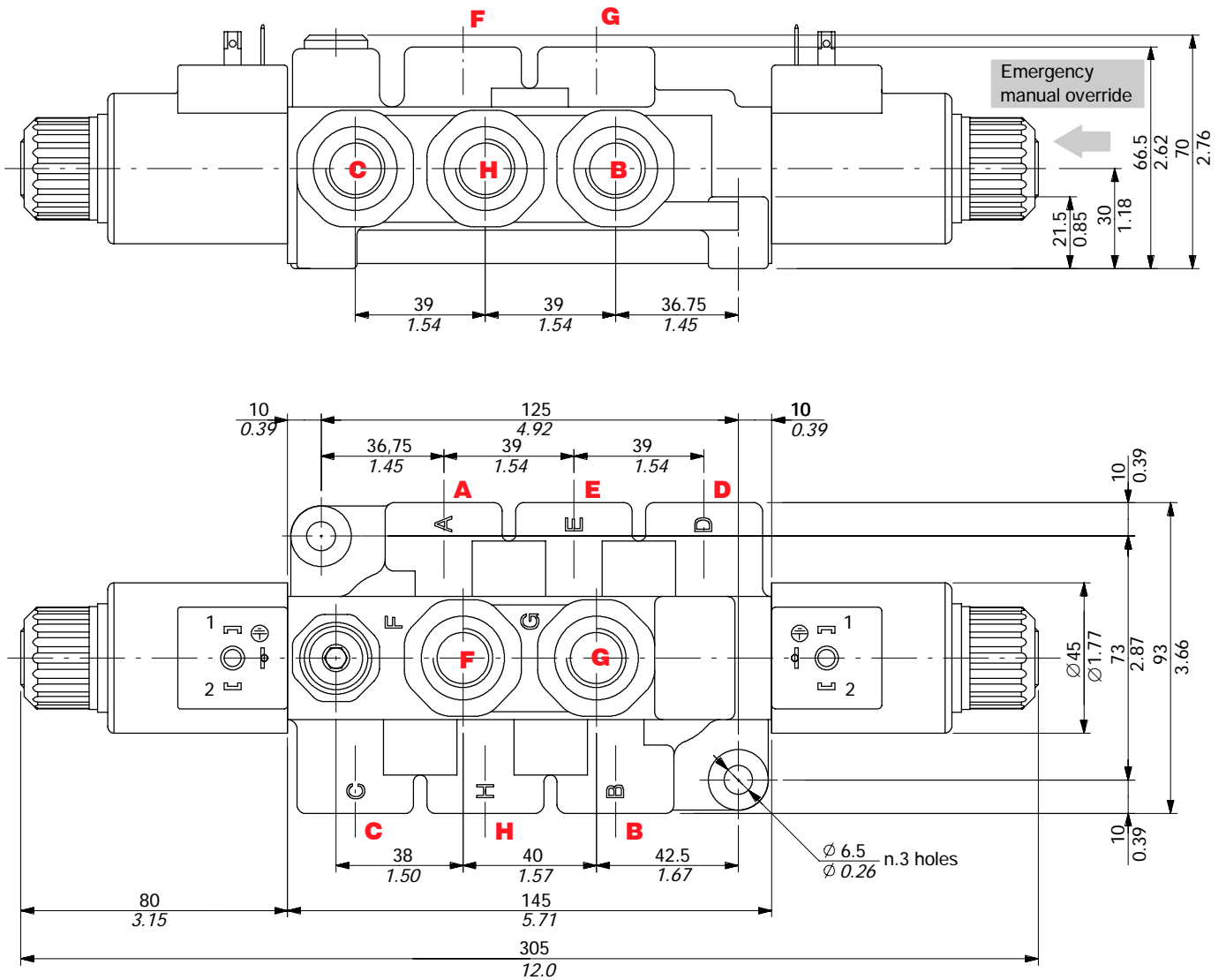


Dimensional data

6-way DFE052/6 valve



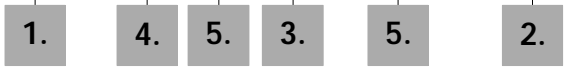
8-way DFE52/8 valve



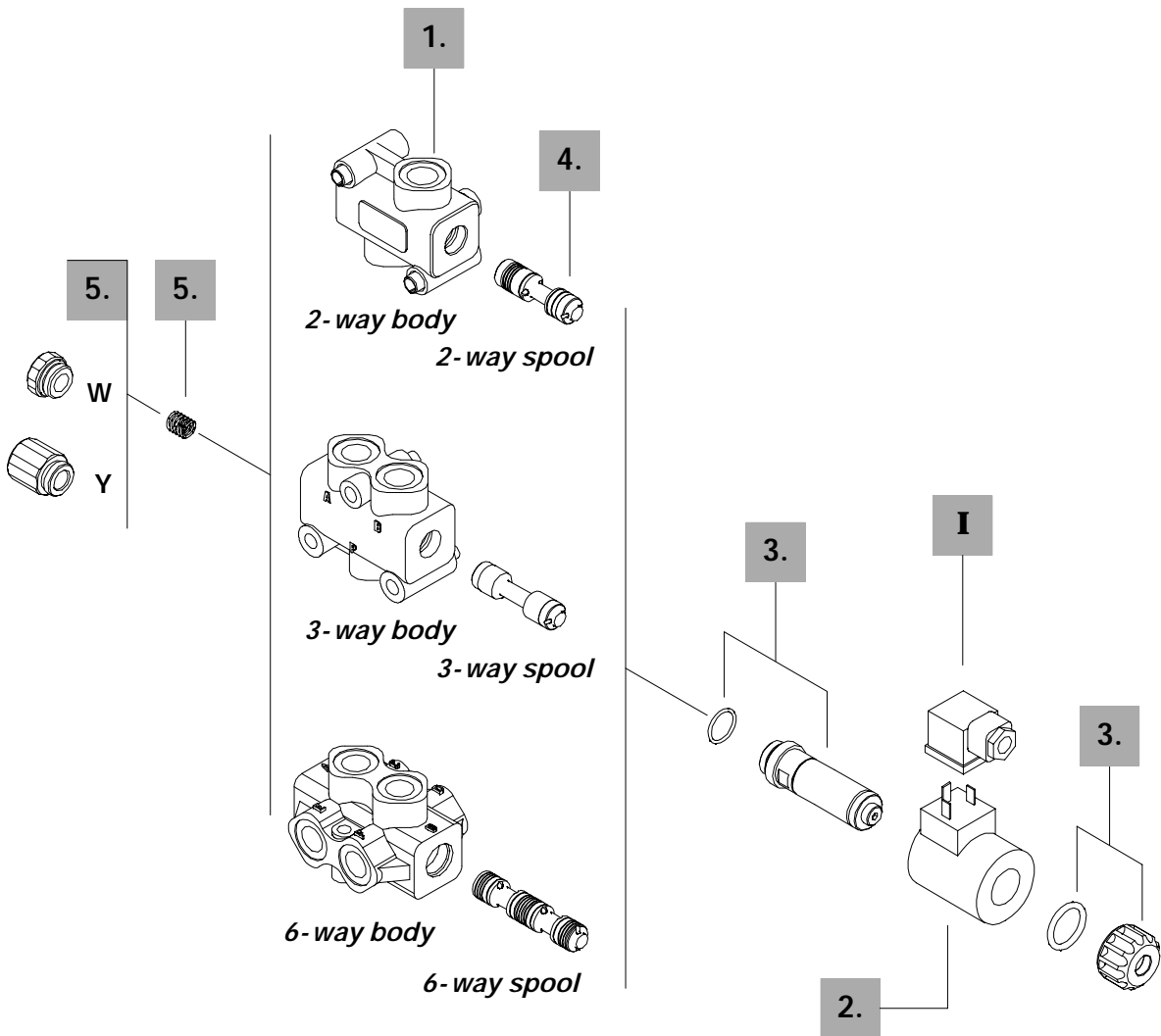
Ordering codes

DEscription example :

Diverter valve DFE052/2 A 18 ES - W 201-12VDC - <CVN>



Valve is supplied painted as standard, with one coat of Primer black antirust paint



2-way
1. Body *

TYPE	CODE	DESCRIPTION
DFE052/2	3CO2220321	Standard body

4. Spool options

TYPE	CODE	DESCRIPTION
A	3CAS105245	2 positions with open centre in neutral
B	3CAS105145	2 positions with closed centre in neutral

3-way
1. Body *

TYPE	CODE	DESCRIPTION
DFE052/3	3CO2221325	Standard body

4. Spool options

TYPE	CODE	DESCRIPTION
A	3CAS105345	3-way, 2 positions with ports connected in transit position
B	3CAS105445	3-way, 2 positions with ports closed in transit position
D	3CAS105546	3-way, 2 positions, without transit position, with ports closed in rest position

6-way
1. Body *

TYPE	CODE	DESCRIPTION
DFE052/6	3CO2222326	Standard body

4. Spool options

TYPE	CODE	DESCRIPTION
A	3CAS105645	6-way, 2 positions with ports connected in transit position
B	3CAS105746	6-way, 2 positions with ports closed in transit position
H	3CAS105845	6-way, 2 positions, D↔C in position 1, F↔E in position 2, ports closed in transit position

5. Positioner kits
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TYPE	CODE	DESCRIPTION
18...W	5TAP001	Spring return in position 1
18...Y	5GIU001 *	Spring return in position 1, with G1/4 drain port

3. Tube assembly
page 68

TYPE	CODE	DESCRIPTION
ES	5SOL515000	Spring return in position 1 (without coil)

2. Coil options
page 68

TYPE	CODE	DESCRIPTION
101	-	Without coil (only with tube kit)
<u>With ISO4400 connector</u>		
201-12VDC	4SOL515012	Coil with 12VDC nominal voltage
201-24VDC	4SOL515024	Coil with 24VDC nominal voltage
<u>With integrated DEUTSCH DT04 connector</u>		
241-12VDC	4SOL515014	Coil with 12VDC nominal voltage
241-24VDC	4SOL515025	Coil with 24VDC nominal voltage

I Optional connectors
page 119

TYPE	CODE	DESCRIPTION
C02	2X1001010	According to ISO4400
C19	5CON007	Type DEUTSCH DT06

 NOTE (*) - Codes are referred to **BSP** thread.

Ordering codes

DEscription example :

Diverter valve DFE052/8 B 8 ES3 - W 201-12VDC - <CVN>

2.

5.

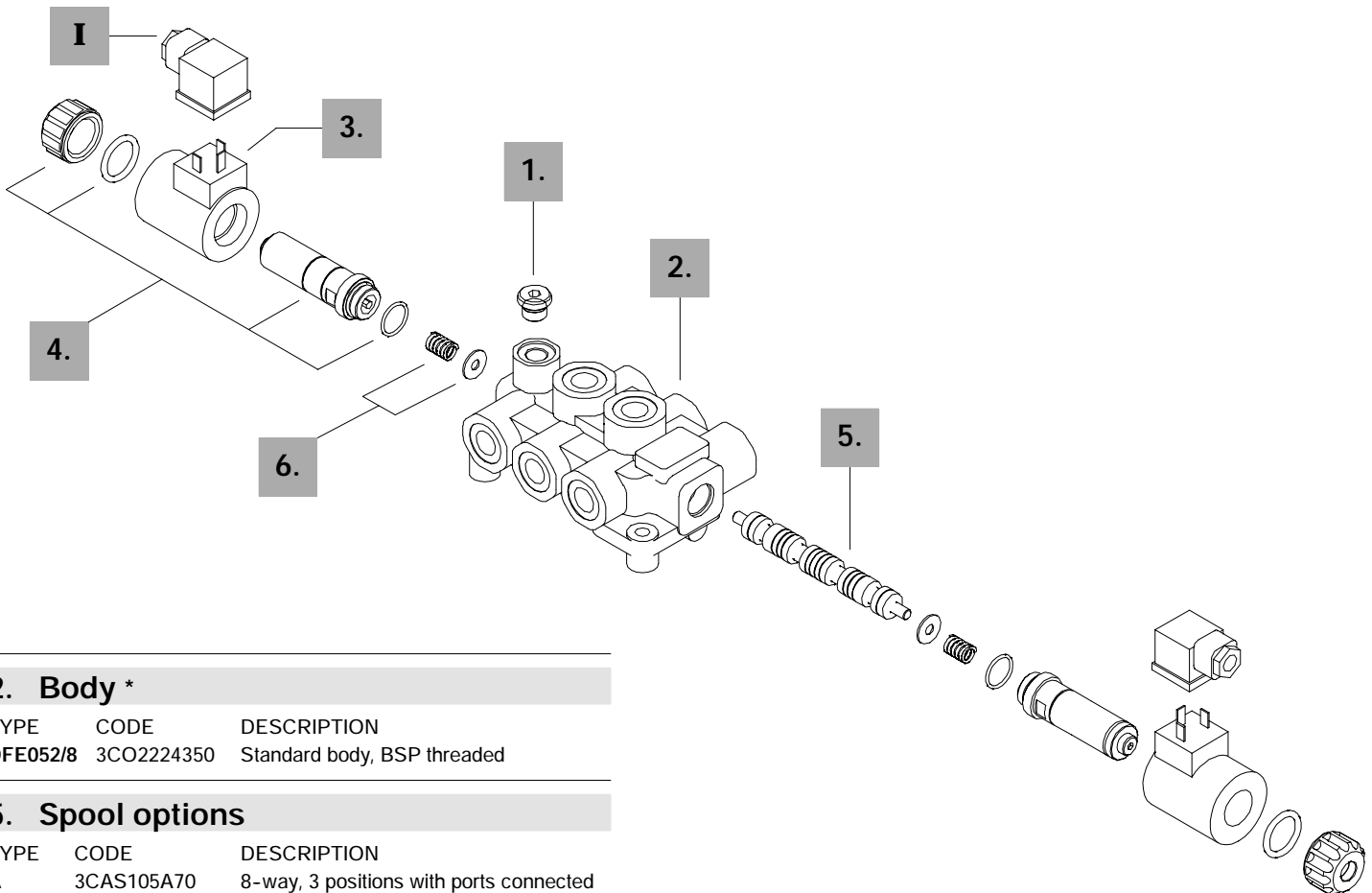
6.

4.

1.

3.

Valve is supplied painted as standard, with one coat of Primer black antirust paint



2. Body *

TYPE	CODE	DESCRIPTION
DFE052/8	3CO2224350	Standard body, BSP threaded

5. Spool options

TYPE	CODE	DESCRIPTION
A	3CAS105A70	8-way, 3 positions with ports connected in transit position
B	3CAS105B70	8-way, 3 positions with ports closed in transit position

6. Positioner kit

page 67

TYPE	CODE	DESCRIPTION
8	5V08001	Spring return in neutral position

4. Tube assembly

page 68

TYPE	CODE	DESCRIPTION
ES3	5SOL515000	With spring return in neutral position (without coil)

1. Drain options *

page 67

TYPE	CODE	DESCRIPTION
W	3XTAP719150	With drain plugged
Y	-	With G 1/4 drain port

NOTE (*) - Code are referred to **BSP** thread.

3. Coil options

page 68

TYPE	CODE	DESCRIPTION
101	-	Without coil (only with tube kit)
<u>With ISO4400 connector</u>		
201-12VDC	4SOL515012	Coil with 12VDC nominal voltage
201-24VDC	4SOL515024	Coil with 24VDC nominal voltage
<u>With integrated DEUTSCH DT04 connector</u>		
241-12VDC	4SOL515014	Coil with 12VDC nominal voltage
241-24VDC	4SOL515025	Coil with 24VDC nominal voltage

I Optional connectors

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TYPE	CODE	DESCRIPTION
C02	2X1001010	According to ISO4400
C19	5CON007	Type DEUTSCH DT06

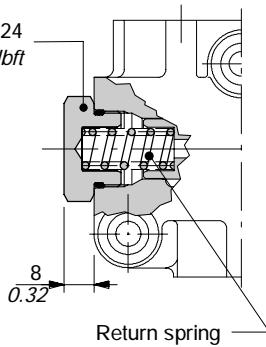
DFE052/2 - /3 - /6

18W kit

Spring return in position 1 with plug.



Plug - wrench 24
24 Nm / 17.7 lbf

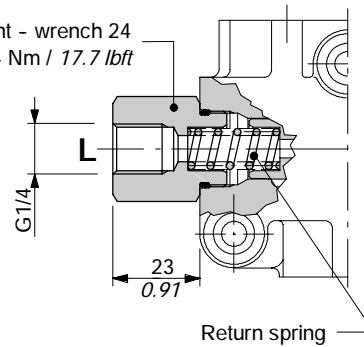


18Y kit

Spring return in position 1, with G1/4 joint for drain.



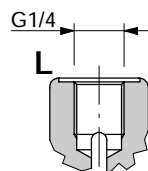
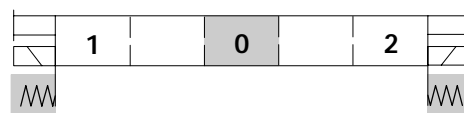
Joint - wrench 24
24 Nm / 17.7 lbf



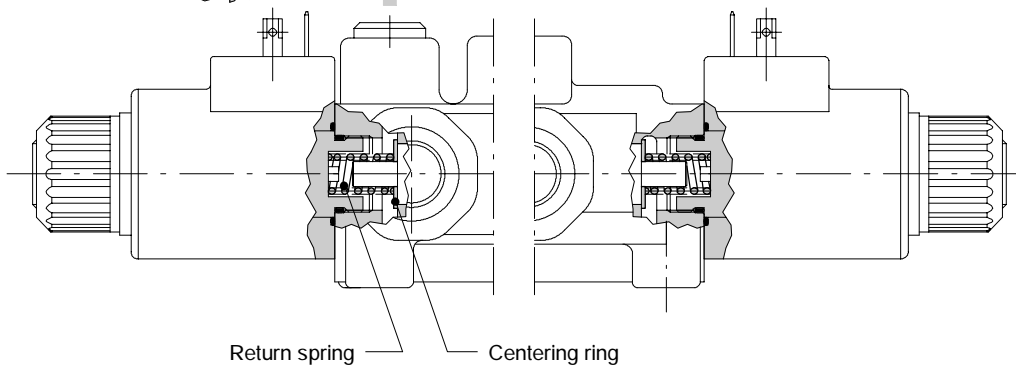
DFE052/8

8 kit

Spring return in position 0.

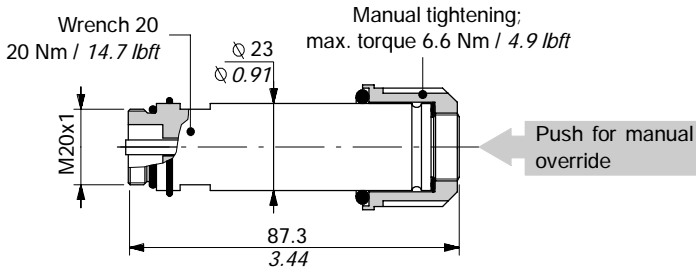


For drain, unscrew the plug
Allen wrench 6 - 24 Nm / 17.7 lbf



Solenoid parts

ES tube assembly

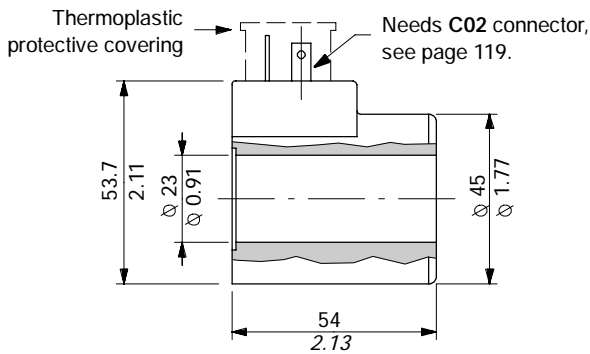


Operating features

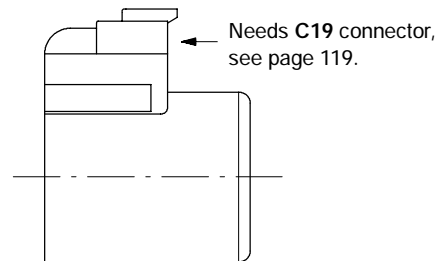
Plunger stroke : 7.1 mm / 0.28 in

Coil options

With ISO4400 connector
(weather protection IP65)



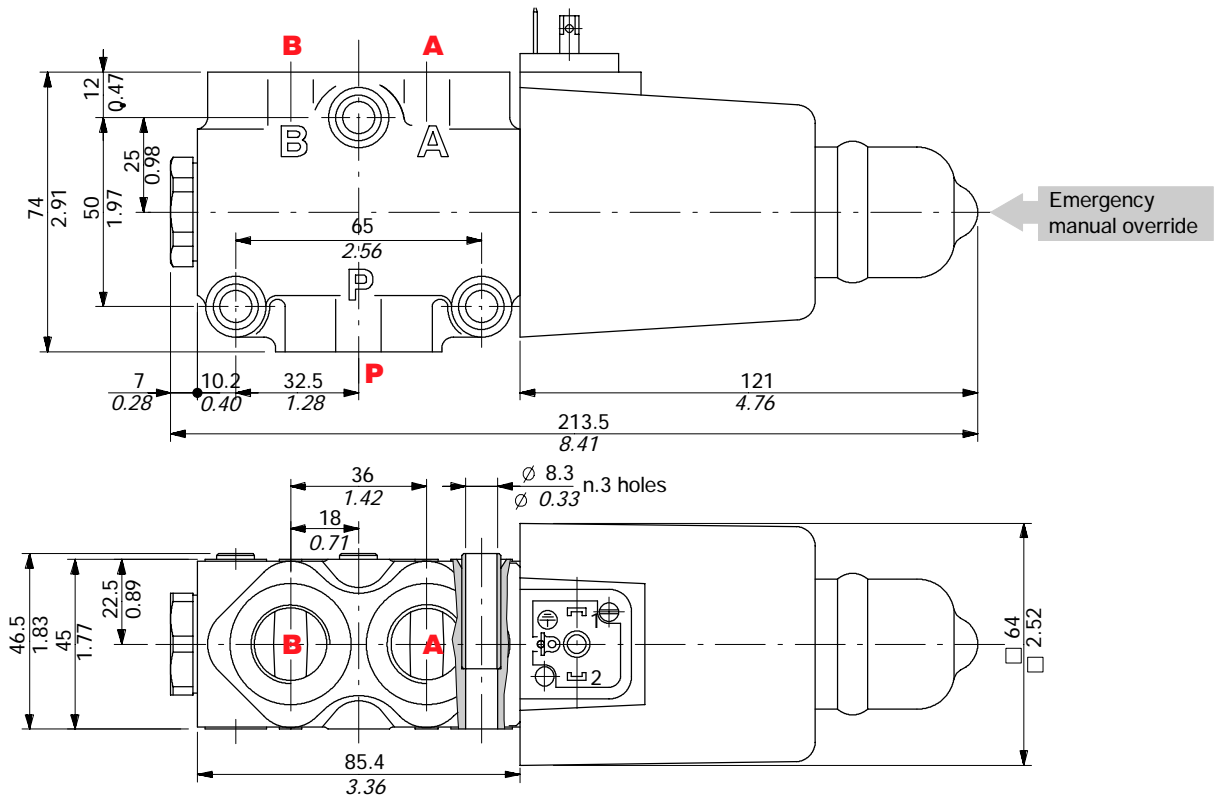
With integrated DEUTSCH 04 connector
(weather protection IP67)



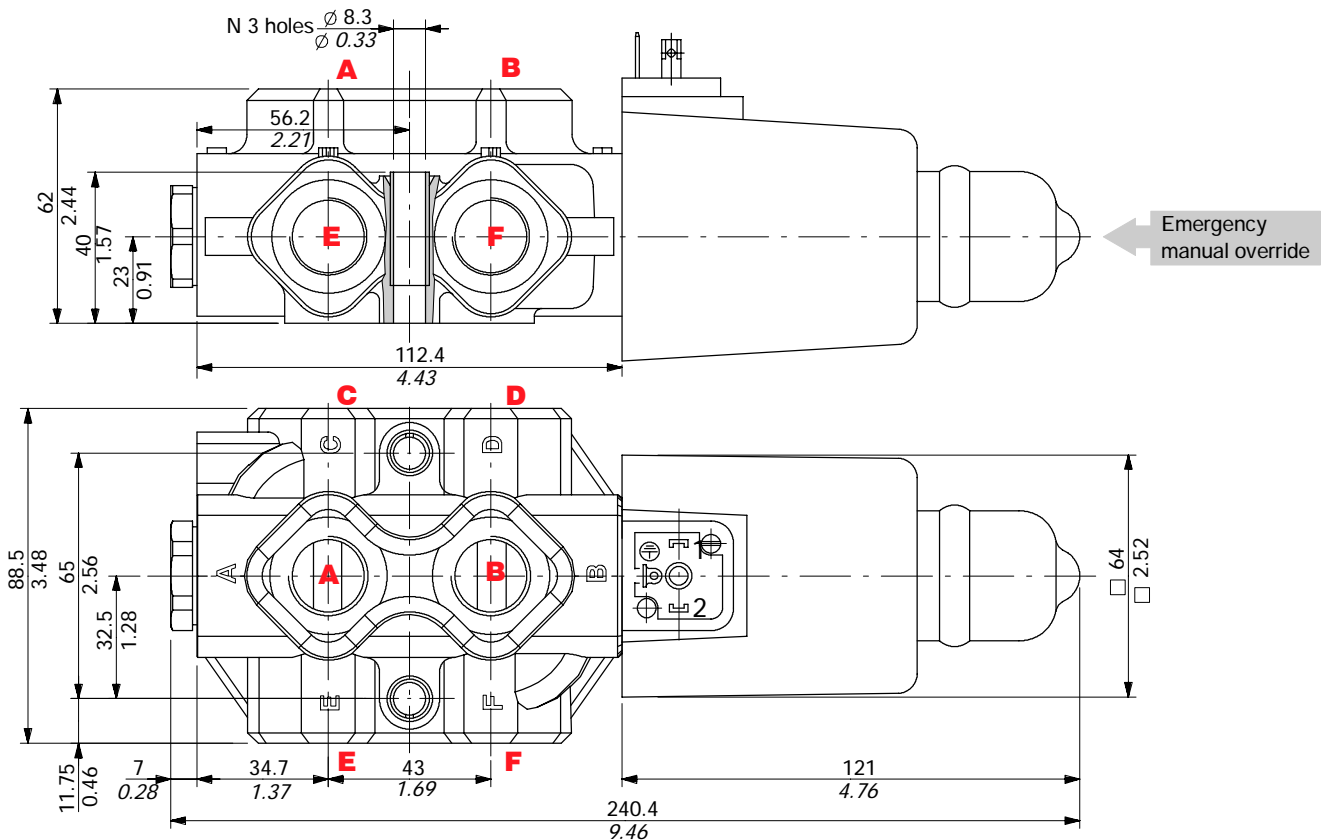
Operating features

- Nominal voltage : 12VDC / 24VDC
- Nominal voltage tolerance . . . : ±10%
- Power rating : 38 W
- Duty cycle : 100%
- Weather protection : Depending on connector type
- Coil insulation : Class H

3-way DFE10/3 valve



6-way DFE10/6 valve



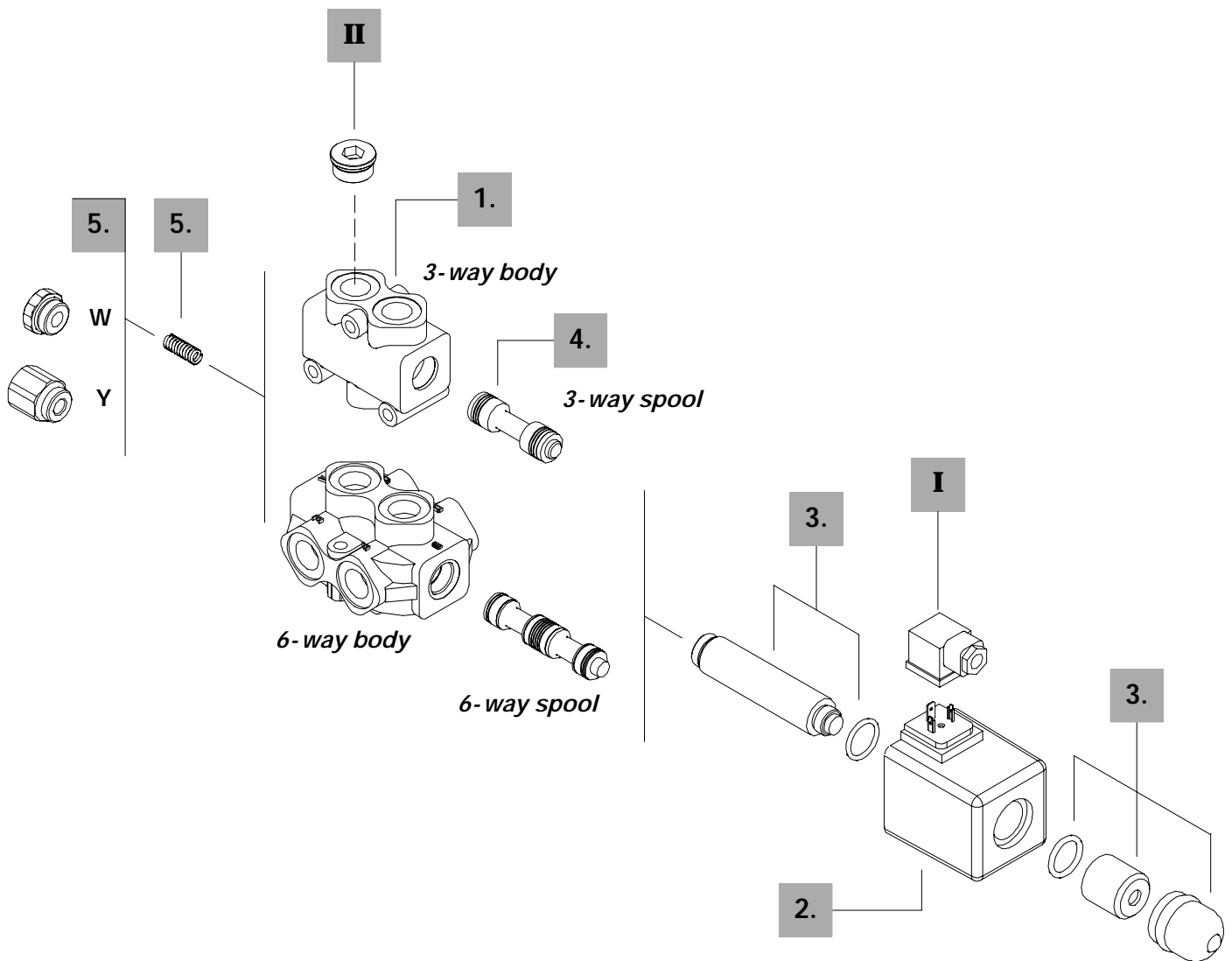
Ordering codes

Description example :

Diverter valve DFE10/3 A 18 ES - W 202-12VDC - <CVN>

1.
4.
5.
3.
5.
2.

Valve is supplied painted as standard, with one coat of Primer black antirust paint



3-way
1. Body *

TYPE	CODE	DESCRIPTION
DFE10/3	3CO2241320	Standard body

4. Spool options

TYPE	CODE	DESCRIPTION
A	3CAS110341	3-way, 2 positions with ports connected in transit position
B	3CAS110441	3-way, 2 positions with ports closed in transit position
D	3CAS110540	3-way, 2 positions, without transit position, with ports closed in rest position

6-way
1. Body *

TYPE	CODE	DESCRIPTION
DFE10/6	3CO2242322	Standard body

4. Spool options

TYPE	CODE	DESCRIPTION
A	3CAS110641	6-way, 2 positions with ports connected in transit position
B	3CAS110741	6-way, 2 positions with ports closed in transit position
H	3CAS110840	6-way, 2 positions, D↔C in position 1, F↔E in position 2, ports closed in transit position
N	3CAS110952	6-way, 2 positions with ports closed in transit position, with check valve

5. Positioner kits
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TYPE	CODE	DESCRIPTION
18...W	5TAP002	Spring return in position 1
18...Y	5GIU004 *	Spring return in position 1, with G1/4 drain port

3. Tube assembly
page 73

TYPE	CODE	DESCRIPTION
ES	5SOL516000	Spring return in position 1 (without coil)

2. Coil options
page 73

TYPE	CODE	DESCRIPTION
102	-	Without coil (only with tube kit)
<u>With ISO4400 connector</u>		
202-12VDC	4SOL516012	Coil with 12VDC nominal voltage
202-24VDC	4SOL516024	Coil with 24VDC nominal voltage
202-48VDC	4SOL516048	Coil with 48VDC nominal voltage
202-92VDC	4SOL516094	Coil with 92VDC nominal voltage (for 110VAC): need C04 connector
202-192VDC	4SOL516192	Coil with 192VDC nominal voltage (for 220VAC): need C04 connector
<u>With flying leads and DEUTSCH DT04 connector</u>		
241-12VDC	4SOL516412	Coil with 12VDC nominal voltage
241-24VDC	4SOL516424	Coil with 24VDC nominal voltage

I Optional connectors
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TYPE	CODE	DESCRIPTION
C02	2X1001010	According ISO4400
C04	2X1001040	According to ISO4400 with rectifier
C19	5CON007	Type DEUTSCH DT06

II Ports plug

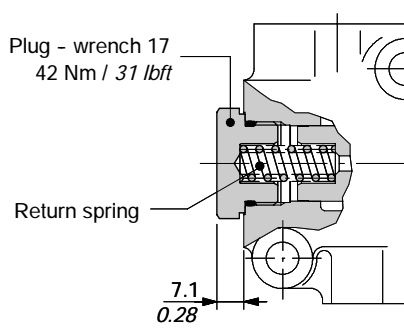
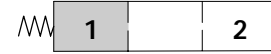
TYPE	CODE	DESCRIPTION
G1/2	3XTAP727180*	Body conversion from 3-way to 2-way circuit

 NOTE (*) - Codes are referred to **BSP** thread.

Positioner kits

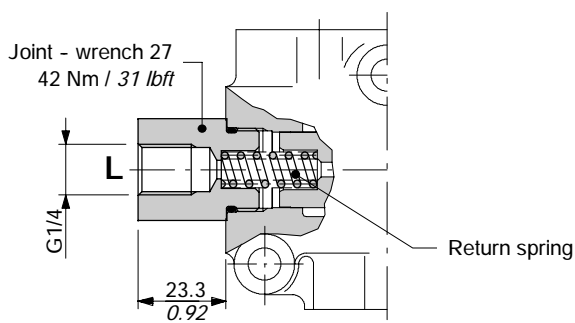
18W kit

Spring return in position 1 with plug.

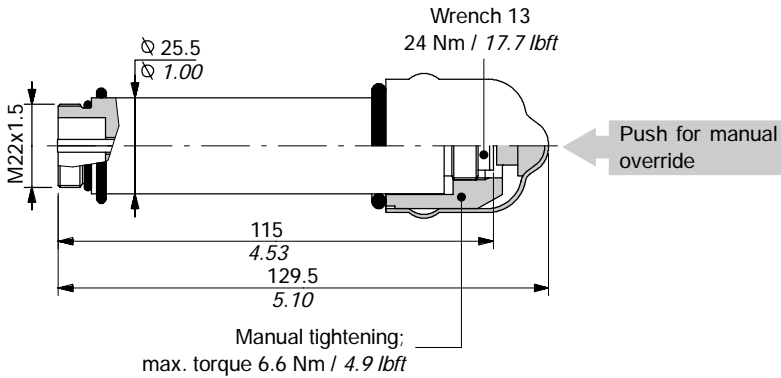


18Y kit

Spring return in position 1, with G1/4 joint for drain.



ES tube assembly

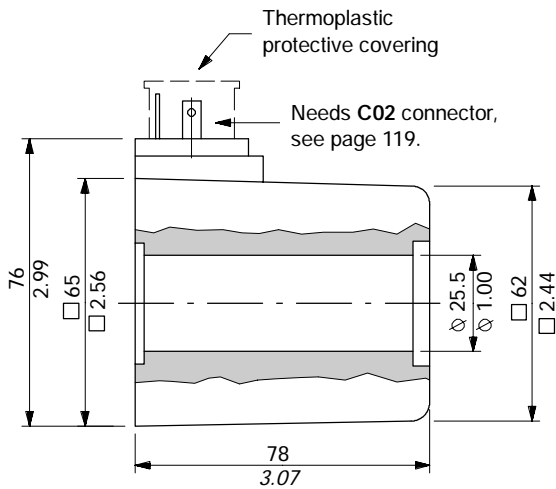


Operating features

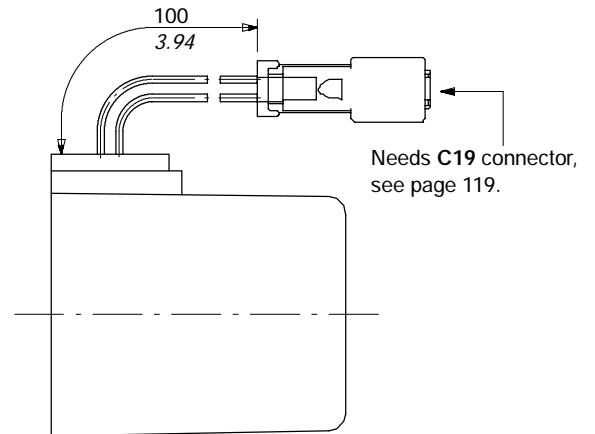
Plunger stroke : 10.2 mm / 0.40 in

Coil options

With ISO4400 connector
(weather protection IP65)



With flying leads and DEUTSCH DT04 connector
(weather protection IP67)

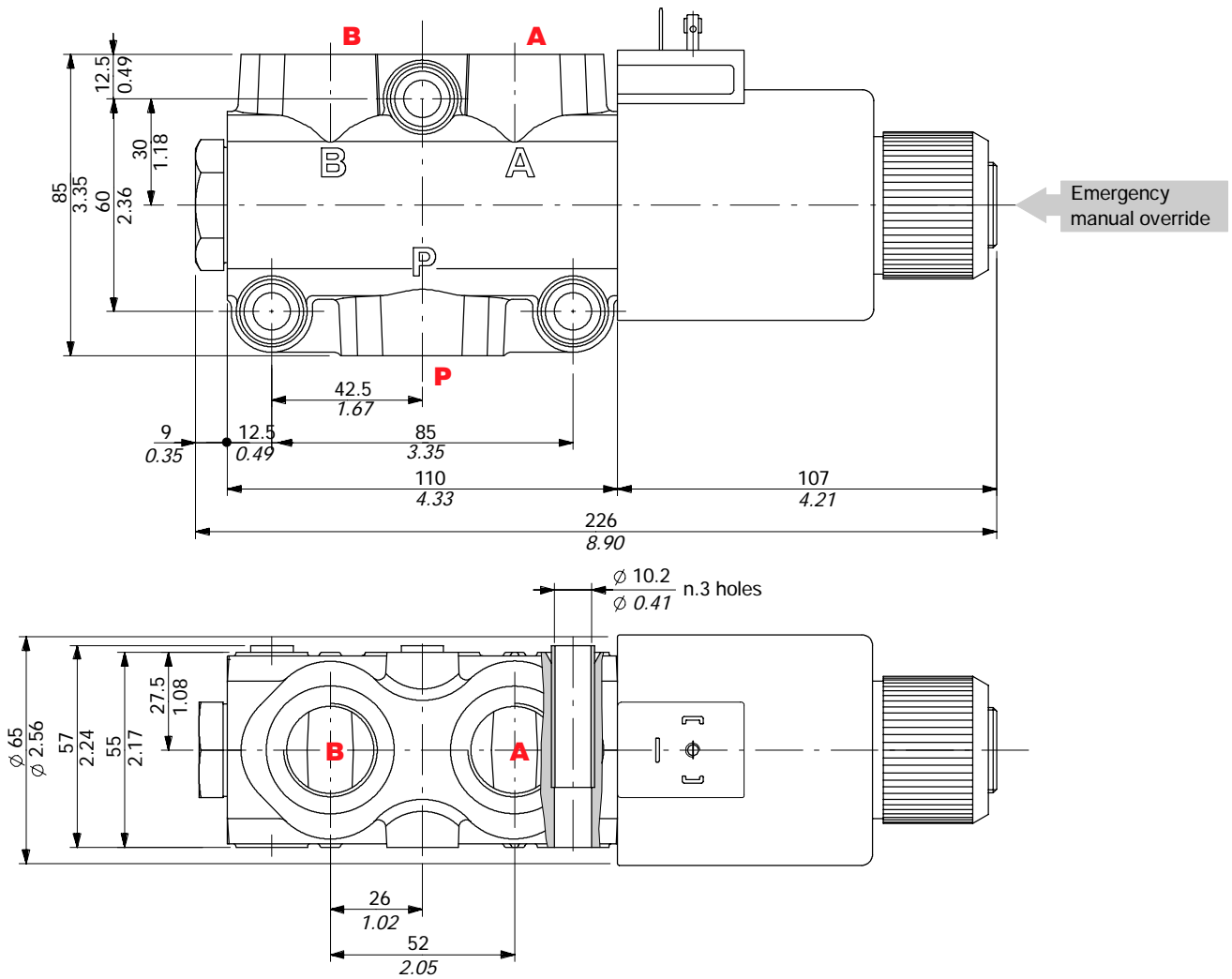


Operating features

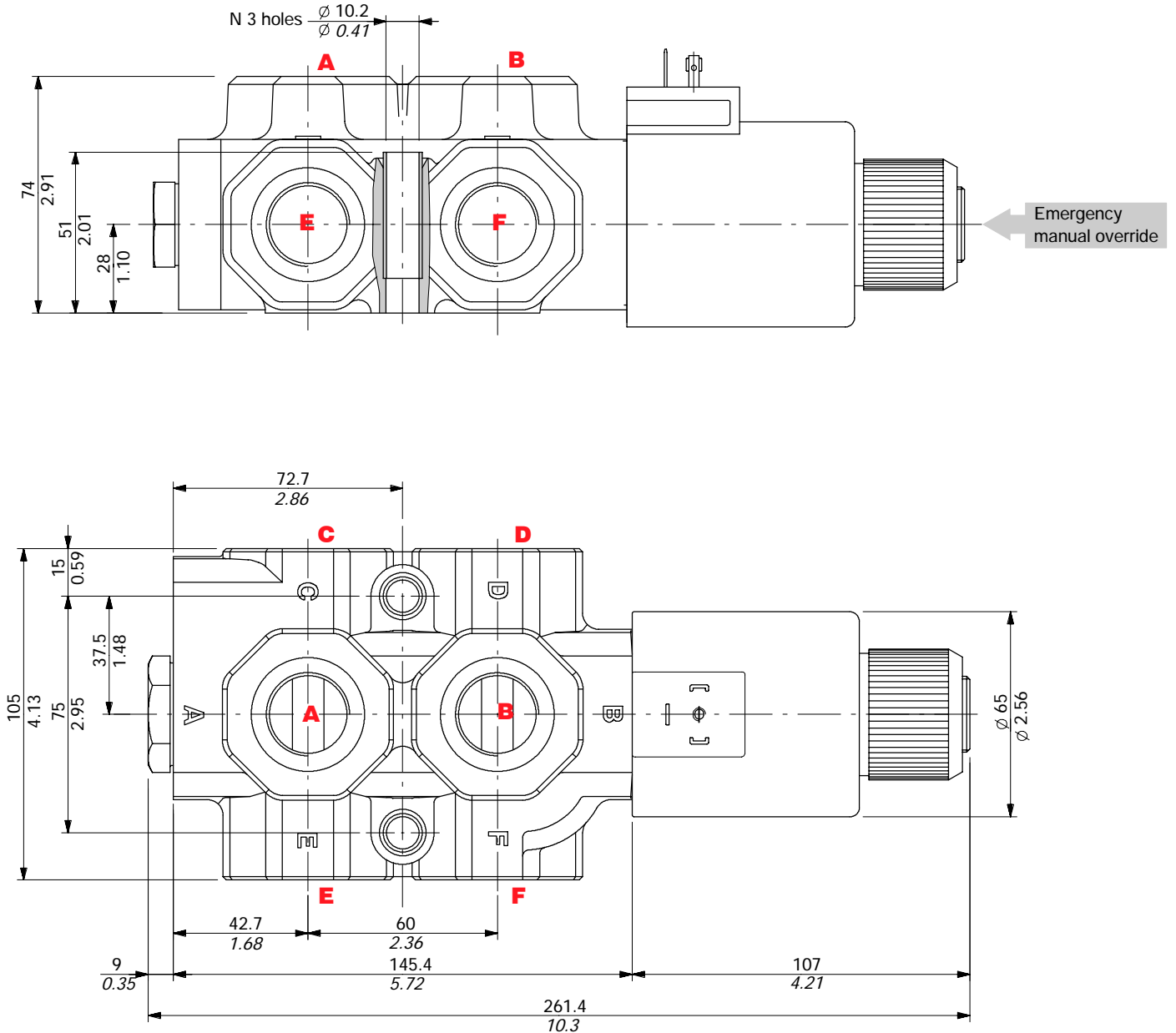
- Nominal voltage : 12-24-48-92-192VDC
- Nominal voltage tolerance . . . : $\pm 10\%$
- Power rating : 60 W
- Duty cycle : 100%
- Weather protection : depending on connector type
- Coil insulation : Class H

Dimensional data

3-way DFE20/3 valve



6-way DFE20/6 valve



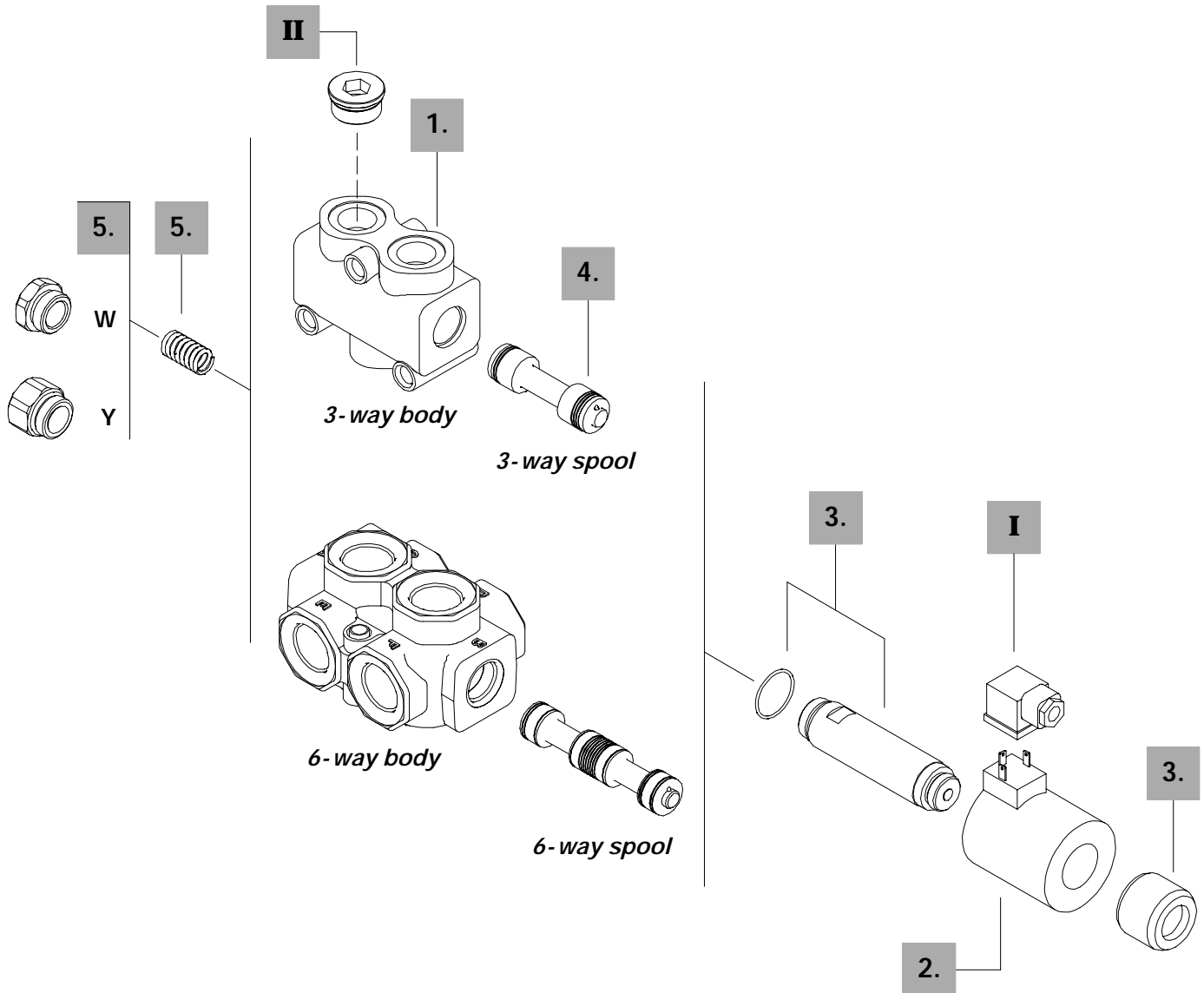
Ordering codes

Description example :

Diverter valve DFE20/3 A 18 ES - W 201-12VDC - <CVN>



Valve is supplied painted as standard, with one coat of Primer black antirust paint



3-way

1. Body *

TYPE	CODE	DESCRIPTION
DFE20/3	3CO2261320	Standard body

4. Spool options

TYPE	CODE	DESCRIPTION
A	3CAS120341	3-way, 2 positions with ports connected in transit position
B	3CAS120441	3-way, 2 positions with ports closed in transit position

6-way

1. Body *

TYPE	CODE	DESCRIPTION
DFE20/6	3CO2263320	Standard body

4. Spool options

TYPE	CODE	DESCRIPTION
A	3CAS120641	6-way, 2 positions with ports connected in transit position
B	3CAS120741	6-way, 2 positions with ports closed in transit position
H	3CAS120841	6-way, 2 positions, D↔C in position 1, F↔E in position 2, ports closed in transit position

5. Positioner kits *page 78*

TYPE	CODE	DESCRIPTION
18...W	5TAP003	Spring return in position 1
18...Y	5GIU007 *	Spring return in position 1, with G1/4 drain port

3. Tube assembly *page 78*

TYPE	CODE	DESCRIPTION
ES	5SOL519001	Spring return in position 1 (without coil)

2. Coil options *page 79*

TYPE	CODE	DESCRIPTION
101		Without coil (only with tube kit)
<u>With ISO4400 connector</u>		
201-12VDC	4SOL519112	Coil with 12VDC nominal voltage
201-24VDC	4SOL519124	Coil with 24VDC nominal voltage
201-20VDC	4SOL519120	Coil with 20VDC nominal voltage (for 24VAC): need C04 connector
201-94VDC	4SOL519094	Coil with 94VDC nominal voltage (for 110VAC): need C04 connector
201-192VDC	4SOL519192	Coil with 192VDC nominal voltage (for 220VAC): need C04 connector
<u>With flying leads and DEUTSCH DT04 connector</u>		
241-12VDC	4SOL519412	Coil with 12VDC nominal voltage
241-24VDC	4SOL519424	Coil with 24VDC nominal voltage

I Optional connectors *page 119*

TYPE	CODE	DESCRIPTION
C02	2X1001010	According ISO4400
C04	2X1001040	According to ISO4400 with rectifier
C19	5CON007	Type DEUTSCH DT06

II Ports plug

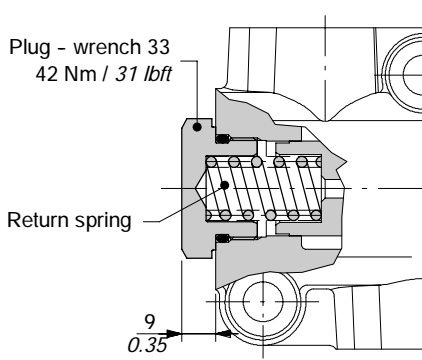
TYPE	CODE	DESCRIPTION
G3/4	3XTAP732200*	Body conversion from 3-way to 2-way circuit

NOTE (*) - Codes are referred to **BSP** thread.

Positioner kits

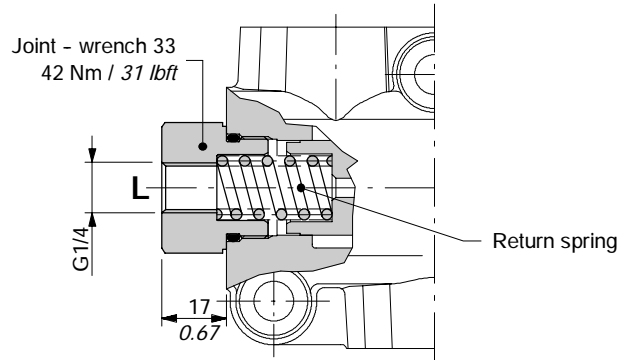
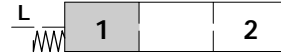
18W kit

Spring return in position 1 with plug.



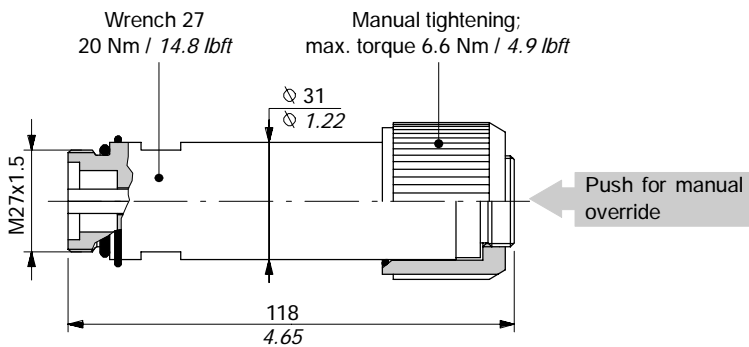
18Y kit

Spring return in position 1, with G1/4 joint for drain.



Solenoid parts

ES tube assembly

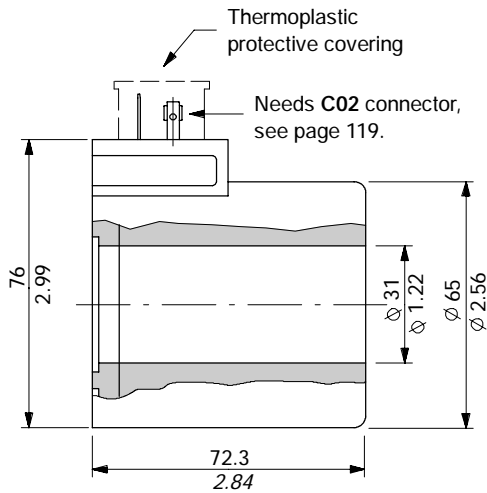


Operating features

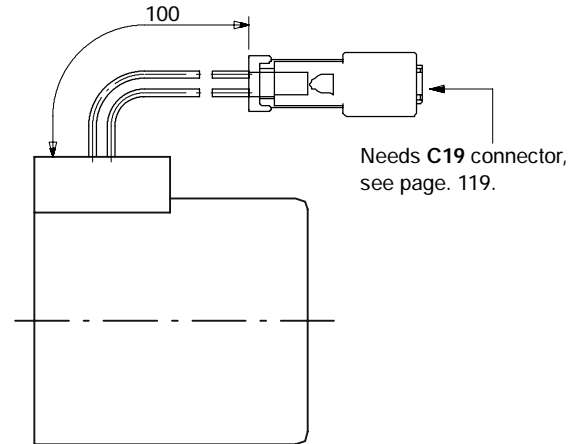
Plunger stroke : 10.2 mm / 0.40 in

Coil options

With ISO4400 connector
(weather protection IP65)



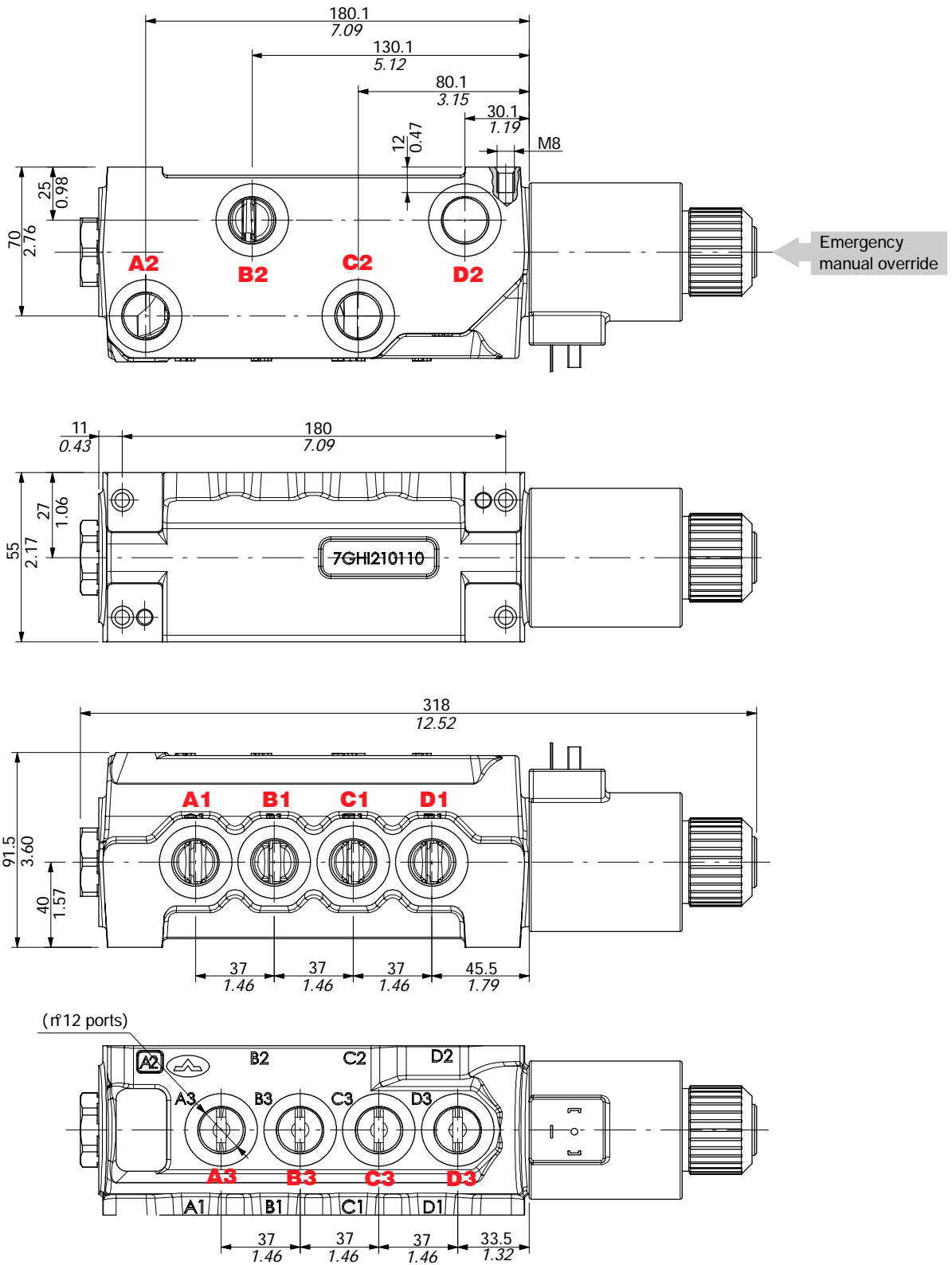
With flying leads and DEUTSCH DT04 connector
(weather protection IP67)



Operating features

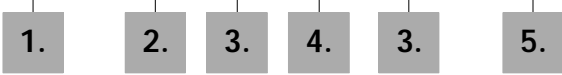
- Nominal voltage : 12-20-24-94-192VDC
- Nominal voltage tolerance . . . : ±10%
- Power rating : 60 W
- Duty cycle : 100%
- Weather protection : depending on connector type
- Coil insulation : Class H

Dimensional data

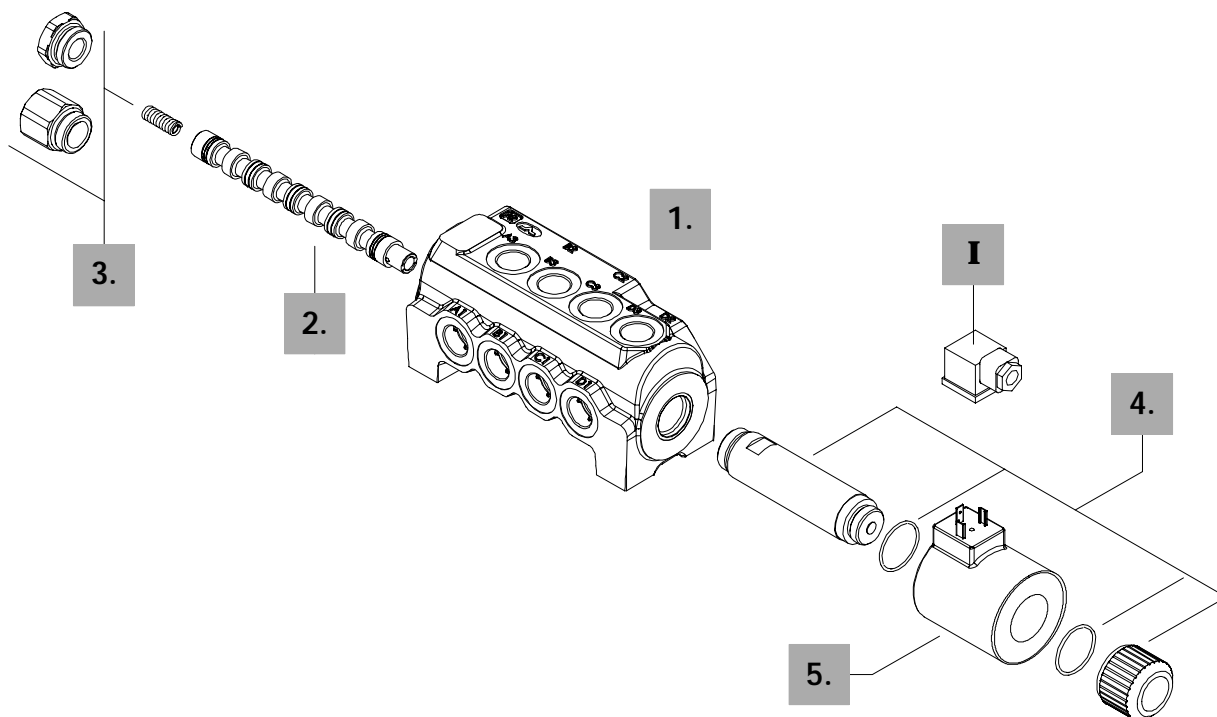


Description example :

Diverter valve **DFE110/12** **B** **18** **ES** - **W** **201-12VDC** - **<CVN>**



Valve is supplied painted as standard, with one coat of Primer black antirust paint



1. Body *

TYPE	CODE	DESCRIPTION
110/12	3CO2243320	12-way standard body

2. Spool options

TYPE	CODE	DESCRIPTION
B	3CAS108H40	2 positions with ports closed in transit position

3. Positioner kits *page 82*

TYPE	CODE	DESCRIPTION
18...W	5TAP005	Spring return in position 1
18...Y	5GIU010*	Spring return in position 1, with G1/4 drain port

4. Tube assembly *page 82*

TYPE	CODE	DESCRIPTION
ES	5SOL519001	Spring return in position 1 (without coil)

5. Coil options *page 83*

TYPE	CODE	DESCRIPTION
101		Without coil (only with tube kit)
<u>With ISO4400 connector</u>		
201-12VDC	4SOL519112	Coil with 12VDC nominal voltage
201-24VDC	4SOL519124	Coil with 24VDC nominal voltage
201-20VDC	4SOL519120	Coil with 20VDC nominal voltage (for 24VAC): need C04 connector
201-94VDC	4SOL519094	Coil with 94VDC nominal voltage (for 110VAC): need C04 connector
201-192VDC	4SOL519192	Coil with 192VDC nominal voltage (for 220VAC): need C04 connector
<u>With flying leads and DEUTSCH DT04 connector</u>		
241-12VDC	4SOL519412	Coil with 12VDC nominal voltage
241-24VDC	4SOL519424	Coil with 24VDC nominal voltage

I Optional connectors *page 119*

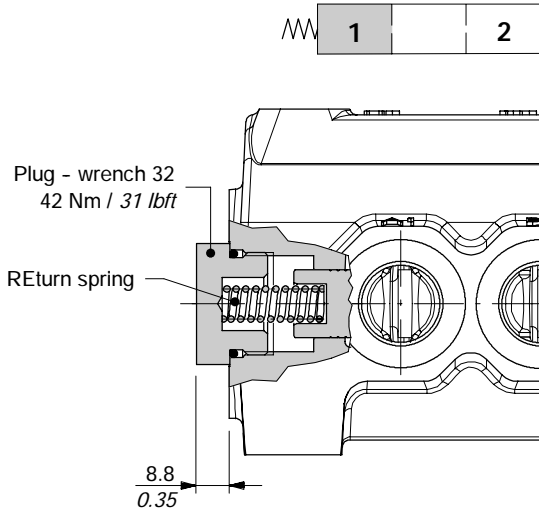
TYPE	CODE	DESCRIPTION
C02	2X1001010	According ISO4400
C04	2X1001040	According to ISO4400 with rectifier
C19	5CON007	Type DEUTSCH DT06

NOTE (*) - Codes are referred to **BSP** thread.

Positioner kits

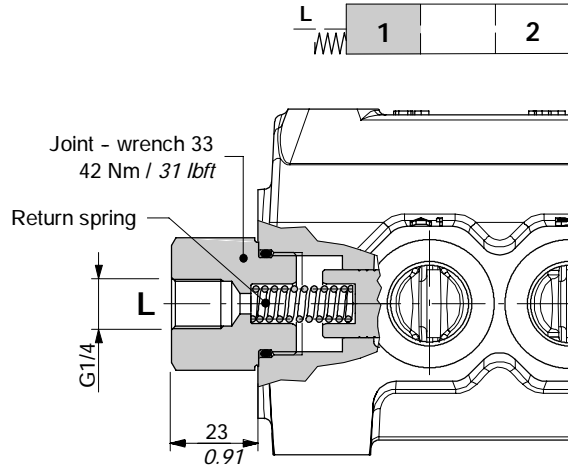
18W kit

Spring return in position 1 with plug.



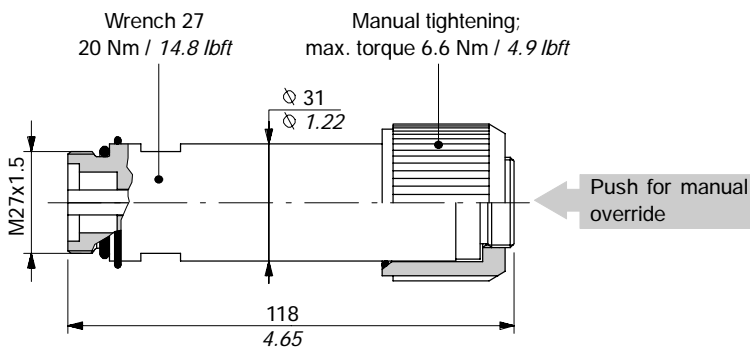
18Y kit

Spring return in position 1, with G1/4 joint for drain.



Solenoid parts

ES tube assembly

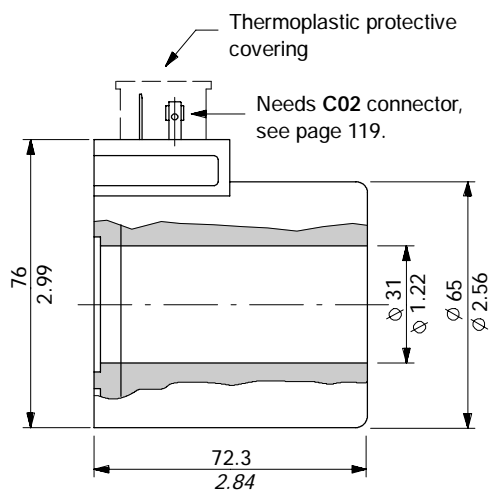


Operating features

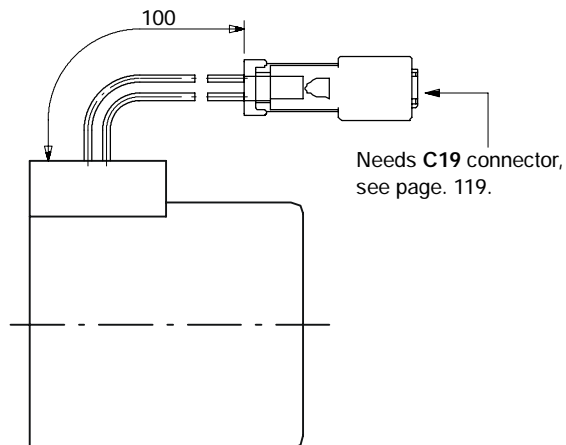
Plunger stroke : 10.2 mm / 0.40 in

Coil options

With ISO4400 connector
(weather protection IP65)



With flying leads and DEUTSCH DT04 connector
(weather protection IP67)



Operating features

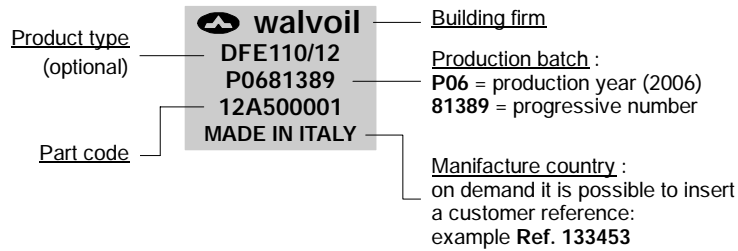
- Nominal voltage : 12-20-24-94-192VDC
- Nominal voltage tolerance . . . : ±10%
- Power rating : 60 W
- Duty cycle : 100%
- Weather protection : depending on connector type
- Coil insulation : Class H

Product marking

All Walvoil diverter valves are marked according to EN 982 normative.

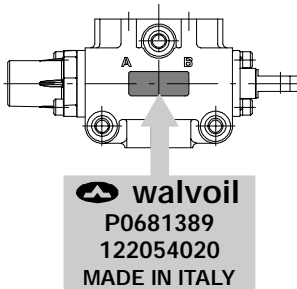
This marking includes: building firm, part code, production batch and manufacture country.

Marking example

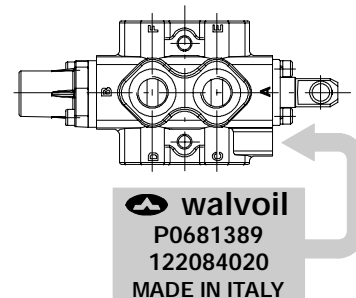


Marking zone depending on valve type, as indicate below.

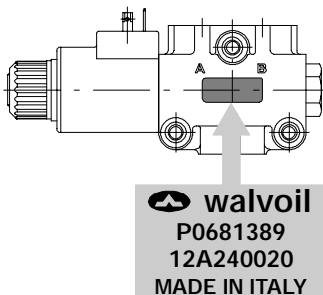
2-way and 3-way DF mechanical control type



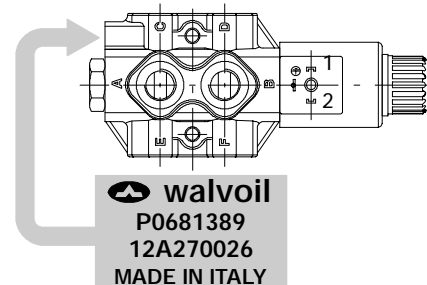
6-way DF mechanical control type



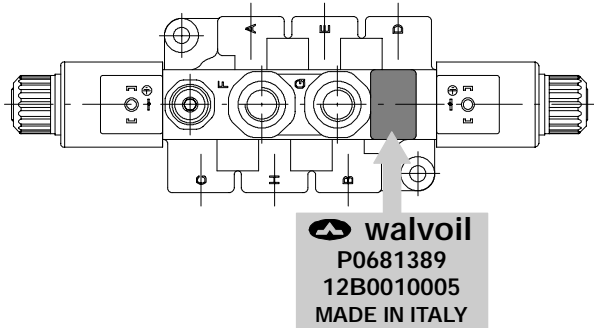
2-way and 3-way DFE solenoid control monoblock type



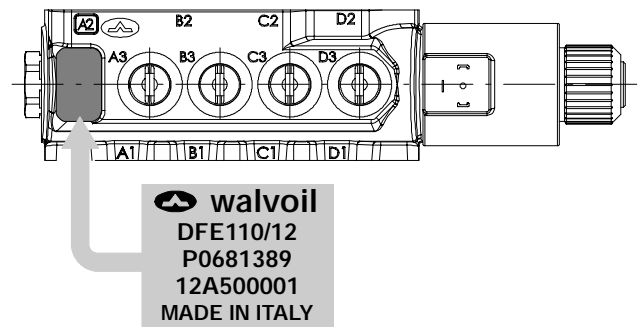
6-way DFE solenoid control monoblock type



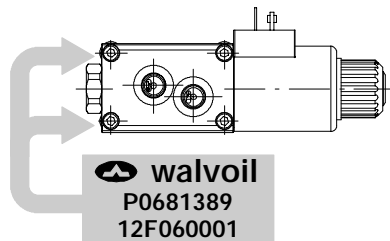
8-way DFE solenoid control monoblock type



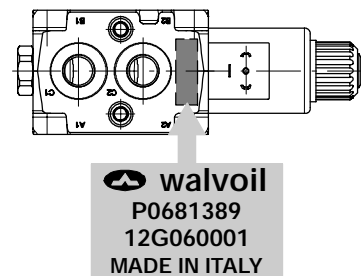
DFE110 solenoid control monoblock type



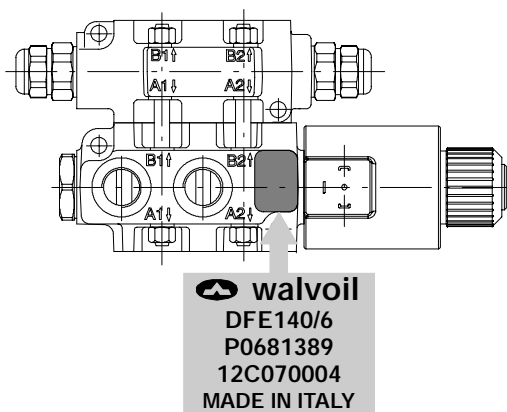
DFE080 solenoid control sectional type



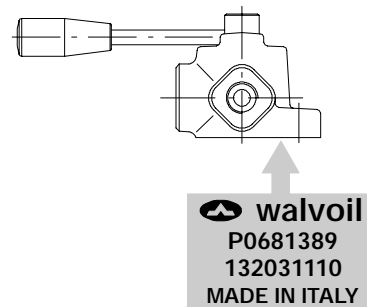
DFE100 solenoid control sectional type



DFE140 solenoid control sectional type



DH rotary control type



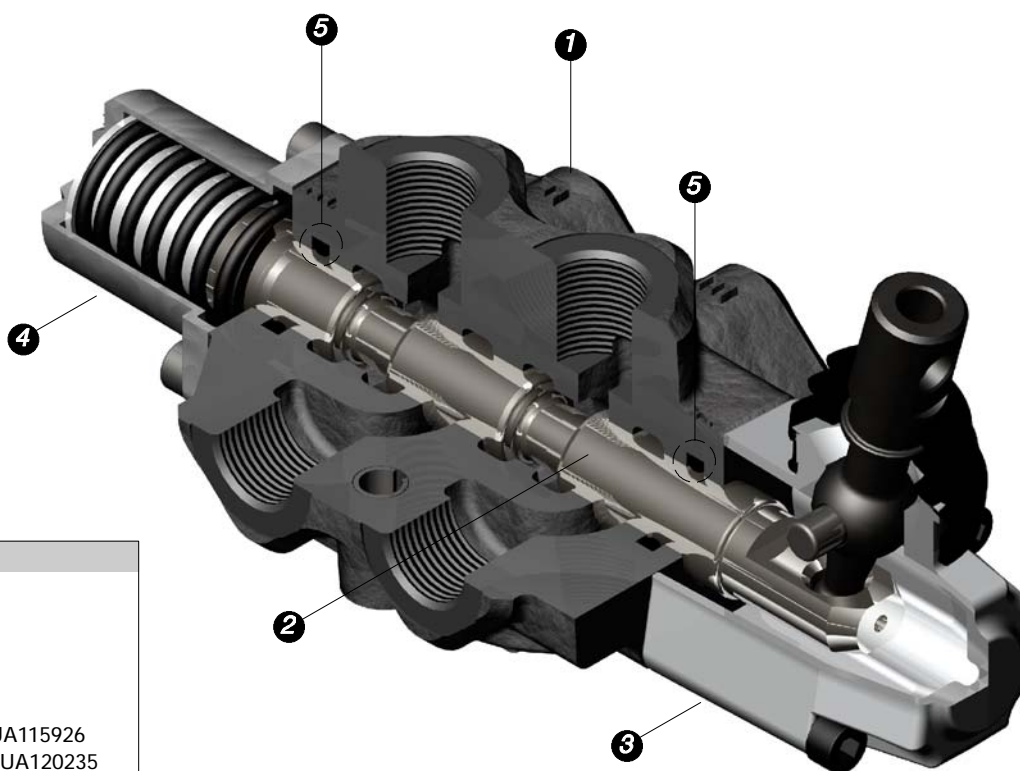
Installation and maintenance

The DF-DFE-DH diverter valves are assembled and tested as per the technical specification of this catalogue.

Before the final installation on your equipment, follow the below recommendations:

- the diverter valves can be assembled in any position, in order to prevent body deformation and spool sticking mount the product on a flat surface;
- in order to prevent the possibility of water entering the lever box and spool control kit, do not use high pressure wash down directly on the diverter valves;
- prior to painting, ensure plastic port plugs are tightly in place.

With mechanical control series DF



Item list

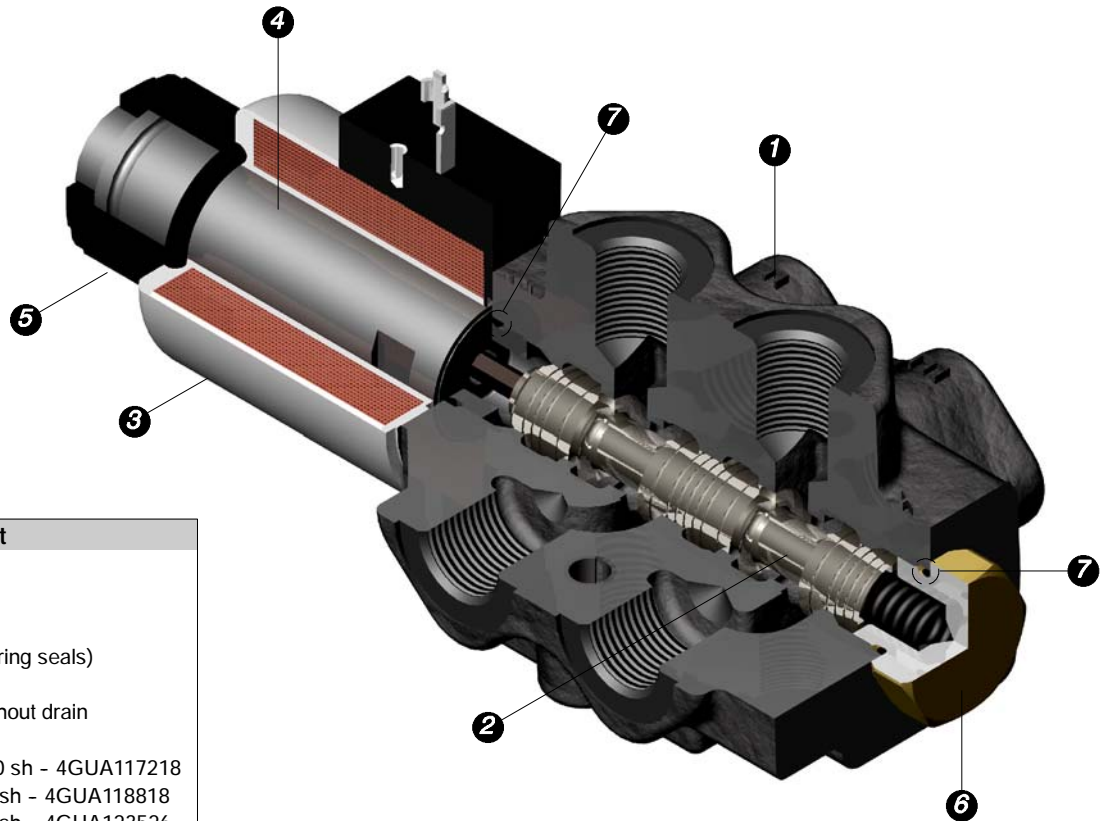
- 1) Diverter valve body
- 2) Spool
- 3) Control kit: lever box
- 4) Positioner kit
- 5) O-ring seals on spool

DF5: 15.88x2.62 NBR 70 sh - 4GUA115926
 DF10: 20.22x3.53 NBR 70 sh - 4GUA120235
 DF20: 24.99x3.53 NBR 70 sh - 4GUA125035
 DF25: 29.75x3.53 NBR 70 sh - 4GUA129835

NOTE - All articulated parts inside cap, lever box and mechanical joystick are lubricated with synthetic base grease grade NLGI2.

Malfunction	Cause	Remedy
External leakage.	Worn spool seal due to mechanical actuation.	Locate the leakage and replace the seal.
Excessive internal leakage.	Increase clearance between spools and body due to high wear.	Replace the diverter valve and check the oil contamination level.
Diverter valve don't commute.	Spool blocked.	Remove the spool, clean it and check the oil contamination level.
	High pressure and/or flow.	Verify that pressure and flow values are within working conditions limits.

With ON/OFF solenoid control series DFE monoblock type

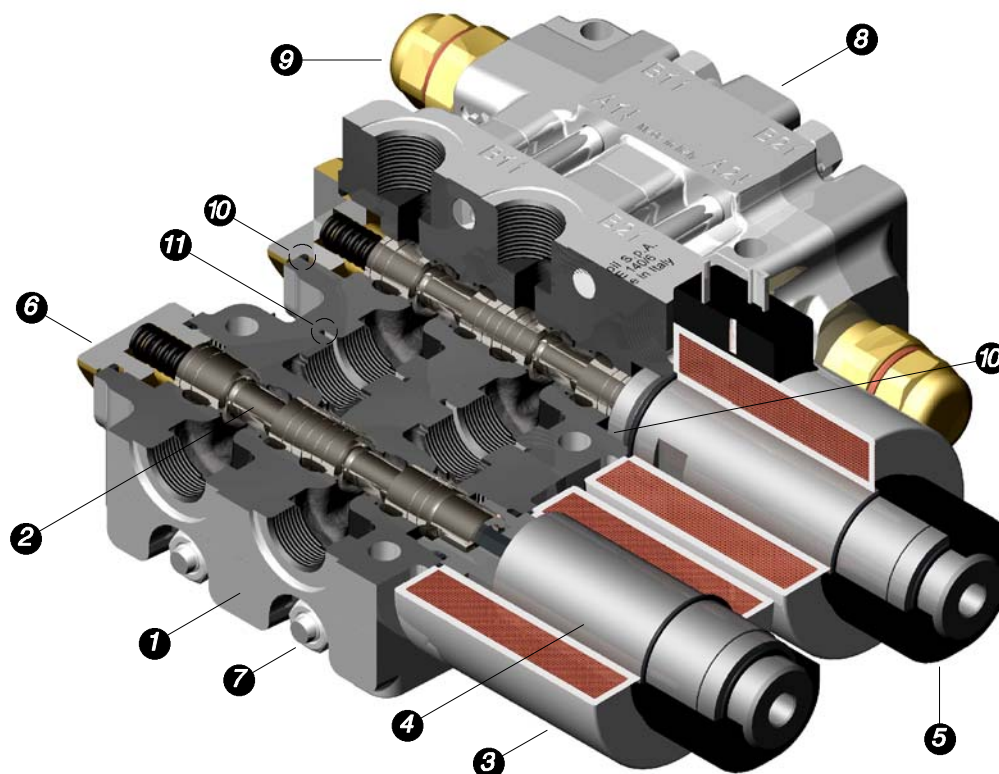


Item list
1) Diverter valve body
2) Spool
3) Coil
4) Tube assembly (with O-ring seals)
5) Lock ring
6) Positioner kit, with or without drain
7) O-ring seals on body
DFE052: 17.17x1.78 NBR 70 sh - 4GUA117218
DFE10: 18.77x1.78 NBR 70 sh - 4GUA118818
DFE20: 23.47x2.62 NBR 70 sh - 4GUA123526
DFE110: 23.47x2.62 NBR 70 sh - 4GUA123526

Malfunction	Cause	Remedy
External leakage.	Worn body seal due to mechanical actuation	Locate the leakage and replace the seal.
Excessive internal leakage.	Increase clearance between spools and body due to high wear.	Replace the diverter valve and check the oil contamination level.
	Spool blocked.	Remove the spool, clean it and check the oil contamination level.
Diverter valve don't commute.	Coil winding burnt.	Replace the coil and check the supply voltage value.
	Uncorrected supply voltage.	Test the electric circuit and check the supply voltage value.
	High pressure and/or flow.	Verify that pressure and flow values are within working conditions limits.

Installation and maintenance

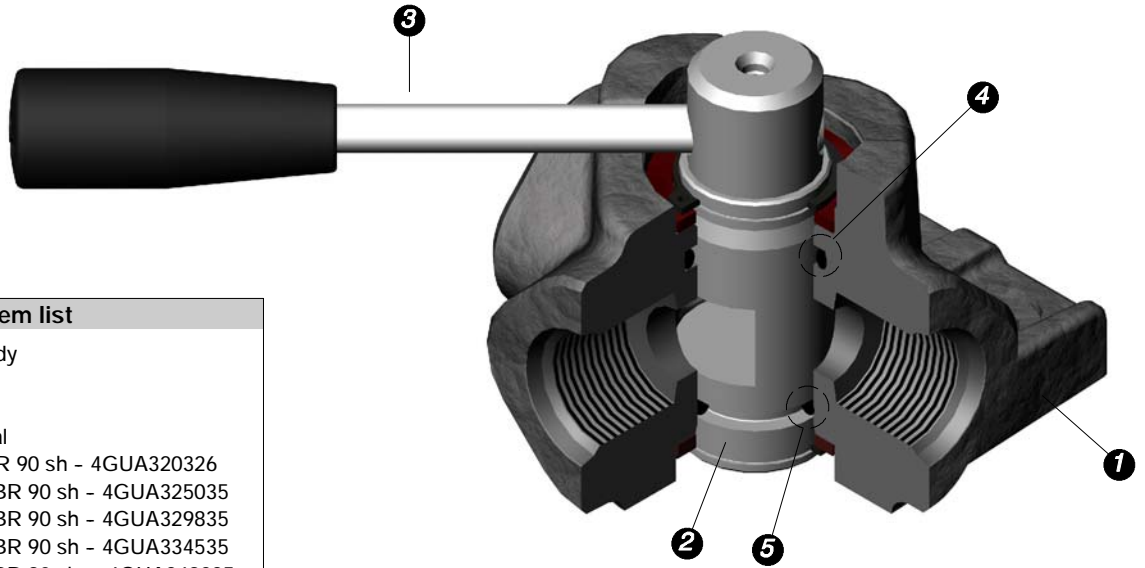
With ON/OFF solenoid control series DFE sectional type



Item list	
1) Diverter valve body	10) O-ring seals on body
2) Spool	DFE080: 17.17x1.78 NBR 70 sh - 4GUA117218
3) Coil	DFE100: 17.17x1.78 NBR 70 sh - 4GUA117218
4) Tube assembly (with O-ring seals)	DFE140: 23.47x2.62 NBR 70 sh - 4GUA123526
5) Lock ring	11) O-ring seals between sections
6) Positioner kit, with or without drain	DFE080: 18.77x1.78 NBR 90 sh - 4GUA318818
7) Tie rods kit	DFE100: 26.70x1.78 NBR 90 sh - 4GUA326718
8) Valves block (only for DFE140)	DFE140: 28.30x1.78 NBR 90 sh - 4GUA328318
9) Anti-shock valves (only for DFE140)	

Malfunction	Cause	Remedy
External leakage.	Worn body seal.	Locate the leakage and replace the seal.
	Worn section seal.	Locate the leakage and replace the seal. Be sure to tighten the tie rods to correct value.
Excessive internal leakage.	Increase clearance between spools and body due to high wear.	Replace the diverter valve and check the oil contamination level.
	Spool blocked.	Remove the spool, clean it and check the oil contamination level.
Diverter valve don't commute.	Coil winding burnt.	Replace the coil and check the supply voltage value.
	Uncorrected supply voltage.	Test the electric circuit and check the supply voltage value.
	High pressure and/or flow.	Verify that pressure and flow values are within working conditions limits.

With rotary control series DH



Item list

- 1) Diverter valve body
- 2) Rotative spool
- 3) Handlever
- 4) Upper O-ring seal
DH5: 20.29X2.62 NBR 90 sh - 4GUA320326
DH10: 24.99X3.53 NBR 90 sh - 4GUA325035
DH20: 29.75X3.53 NBR 90 sh - 4GUA329835
DH25: 34.52X3.53 NBR 90 sh - 4GUA334535
DH30: 49.21X3.53 NBR 90 sh - 4GUA349235
- 5) Bottom O-ring seal
DH5: 15.08X2.62 NBR 90 sh - 4GUA315126
DH10: 18.64X3.53 NBR 90 sh - 4GUA318635
DH20: 23.39X3.53 NBR 90 sh - 4GUA323435
DH25: 28.17X3.53 NBR 90 sh - 4GUA328235
DH30: 42.86X3.53 NBR 90 sh - 4GUA342935

Malfunction	Cause	Remedy
External leakage.	Worn spool seal due to mechanical actuation.	Locate the leakage and replace the seal.
Excessive internal leakage.	Increase clearance between spools and body due to high wear.	Replace the diverter valve and check the oil contamination level.
Diverter valve don't commute.	Spool blocked.	Remove the spool, clean it and check the oil contamination level.
	High pressure and/or flow.	Verify that pressure and flow values are within working conditions limits.

Installation and maintenance

Fittings tightening torque - Nm / lbft

These torque are recommended.

Assembly tightening torque depends on many factors, including lubrication, coating and surface finish. The manufacturer shall be consulted.

MECHANICAL CONTROL DIVERTER VALVE VALVES

THREADS TYPE	DF5	DF10	DF20	DF25
BSP	G 3/8	G 1/2	G 3/4	G 1
With O-Ring seal	35 / 25.8	50 / 37	90 / 66.4	100 / 73.8
With copper washer	40 / 29.5	60 / 44.3	60 / 44.3	90 / 66.4
With steel and rubber washer	30 / 22	60 / 44.3	70 / 51.6	100 / 73.8
UN-UNF	3/4-16 (SAE 8)	7/8-14 (SAE 10)	1 1/16-12 (SAE 12)	1 5/16-12 (SAE 16)
With O-Ring seal	50 / 37	60 / 44.3	95 / 70	150 / 111

SOLENOID CONTROL MONOBLOCK DIVERTER VALVES

THREADS TYPE	DFE052			DFE10		DFE110		DFE20	
	Ports	Drain	Drain *	Ports	Drain	Ports	Drain	Ports	Drain
BSP	G 3/8	G 1/4	G 1/4	G 1/2	G 1/4	G 1/2	G 1/4	G 3/4	G 1/4
With O-Ring seal	35 / 25.8	20 / 14.8	20 / 14.8	50 / 37	20 / 14.8	50 / 37	20 / 14.8	90 / 66.4	20 / 14.8
With copper washer	40 / 29.5	25 / 18.4	25 / 18.4	60 / 44.3	25 / 18.4	60 / 44.3	25 / 18.4	60 / 44.3	25 / 18.4
With steel and rubber washer	30 / 22	16 / 11.8	16 / 11.8	60 / 44.3	16 / 11.8	60 / 44.3	16 / 11.8	70 / 51.6	16 / 11.8
UN-UNF	3/4-16 (SAE 8)	9/16-18 (SAE 6)	7/16-20 (SAE4)	7/8-14 (SAE 10)	9/16-18 (SAE 6)	7/8-14 (SAE 10)	9/16-18 (SAE 6)	1 1/16-12 (SAE 12)	7/16-20 (SAE4)
With O-Ring seal	50 / 37	30 / 22.1	15 / 11	60 / 44.3	30 / 22.1	60 / 44.3	30 / 22.1	95 / 70	15 / 11

(*) drain only for DFE052/8

SOLENOID CONTROL SECTIONAL DIVERTER VALVES

THREADS TYPE	DFE080		DFE100		DFE140	
	Bocche	Drenaggio	Bocche	Drenaggio	Bocche	Drenaggio
BSP	G 1/4	G 1/4	G 3/8	G 1/4	G 1/2	G 1/4
With O-Ring seal	20 / 14.8	20 / 14.8	35 / 25.8	20 / 14.8	50 / 37	20 / 14.8
With copper washer	25 / 18.4	25 / 18.4	40 / 29.5	25 / 18.4	60 / 44.3	25 / 18.4
With steel and rubber washer	16 / 11.8	16 / 11.8	30 / 22	16 / 11.8	60 / 44.3	16 / 11.8
UN-UNF	7/16-20 (SAE 4)	7/16-20 (SAE 4)	7/8-14 (SAE 10)	9/16-18 (SAE 6)	7/8-14 (SAE 10)	9/16-18 (SAE 6)
With O-Ring seal	15 / 11	15 / 11	50 / 37	30 / 22.1	60 / 44.3	30 / 22.1

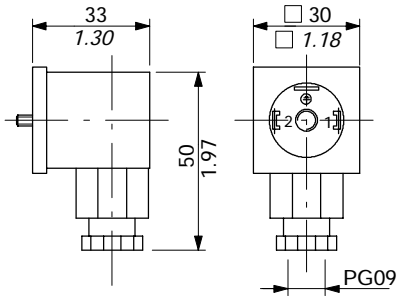
ROTARY CONTROL DIVERTER VALVES

THREADS TYPE	DH5	DH10	DH20	DH25	DH30
BSP	G 3/8	G 1/2	G 3/4	G 1	G 1 1/2
With O-Ring seal	35 / 25.8	50 / 37	90 / 66.4	100 / 73.8	120 / 44.3
With copper washer	40 / 29.5	60 / 44.3	60 / 44.3	90 / 66.4	100 / 73.8
With steel and rubber washer	30 / 22	60 / 44.3	70 / 51.6	100 / 73.8	120 / 44.3
UN-UNF	3/4-16 (SAE 8)	7/8-14 (SAE 10)	1 1/16-12 (SAE 12)	1 5/16-12 (SAE 16)	1 7/8-12 (SAE 24)
With O-Ring seal	50 / 37	60 / 44.3	95 / 70	150 / 111	210 / 155

Optional connectors

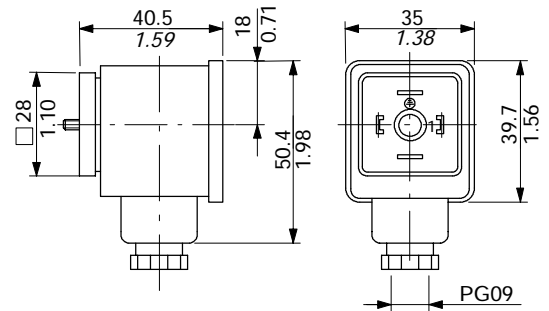
Type C02 code: 2X1001010

2P+T according to
ISO4400 / EN175301-803



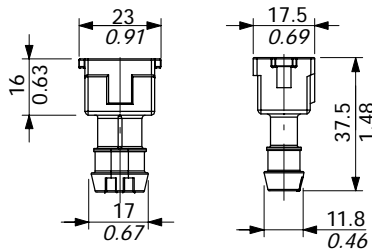
Type C04 code: 2X1001040

2P+T according to ISO4400 / EN175301-803
With bridge rectifier, to use with VAC supply.



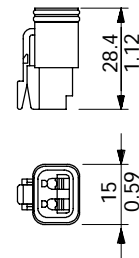
Type C08 code: 5CON003

2P female case with female end
type AMP "Junior-Power-Timer"



Type C19 code: 5CON007

2P male case with female end
type Deutsch DT06-2S



Type	Poles	Nominal voltage	Nominal current	Permitted conductor section range	Permitted cable diameter range	Weather protection
C02	2P + T	250 VAC / 300 VDC	10 A	max.1.5 mm ² / max.0.0023 in ²	6-8 mm / 0.24-0.31 in	IP65
C04	2P + T	/	10 A	max.1.5 mm ² / max.0.0023 in ²	6-8 mm / 0.24-0.31 in	IP65
C08	2P	250 VAC	12 A	0.5-1 mm ² / 0.00077-0.00155 in ²	1.4-1.6 mm / 0.055-0.063 in	IP65
C19	2P	/	13 A	1-1.2 mm ² / 0.00155-0.00186 in ²	2.2-3.5 mm / 0.088-0.14 in	IP67



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