

Content

Working conditions 54

Hydraulic circuit 55

DFE052

Dimensional data 60

Ordering codes 64

Positioner kits 67

Solenoid parts 68

DFE10

Dimensional data 69

Ordering codes 70

Positioner kits 72

Solenoid parts 73

DFE20

Dimensional data 74

Ordering codes 76

Positioner kits 78

Solenoid parts 79

DFE110

Dimensional data 80

Ordering codes 81

Positioner kits 82

Solenoid parts 83

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 with fluid and valve at 40 °C	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

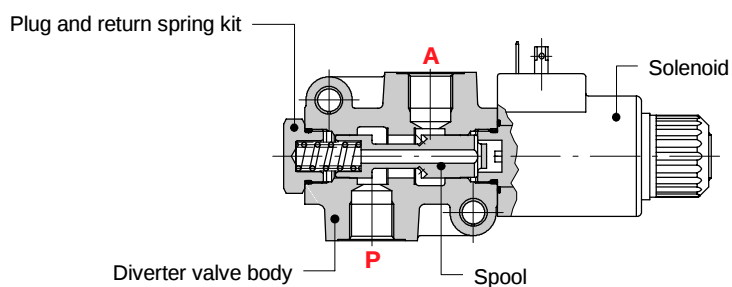
ALL PORTS	BSP	UN-UNF	METRIC (ISO 9974-1)	METRIC (ISO 6149)
DFE052	G 3/8	3/4-16 (SAE 8)	M18x1,5	
DFE10	G 1/2	7/8-14 (SAE 10)		
DFE20	G 3/4	1 1/16-12 (SAE 12)		
DF110	G 1/2	7/8-14 (SAE 10)	M22x1.5	M22x1.5
DRAIN PORT				
L	G 1/4	9/16-18 (SAE 6) 7/16-20 (SAE4)*	M12x1.5	M12x1.5

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

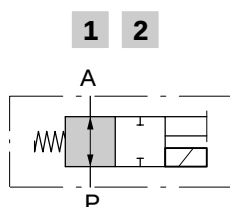
Optional threads: for availability contact Sales Department

2-way

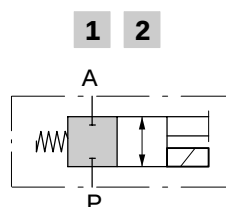
Available as body only in **DFE052/2** execution; for other executions 3-way body is used.



Spool type A

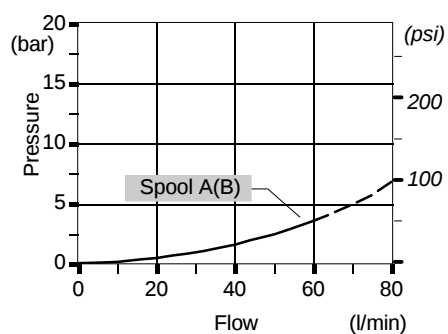


Spool type B

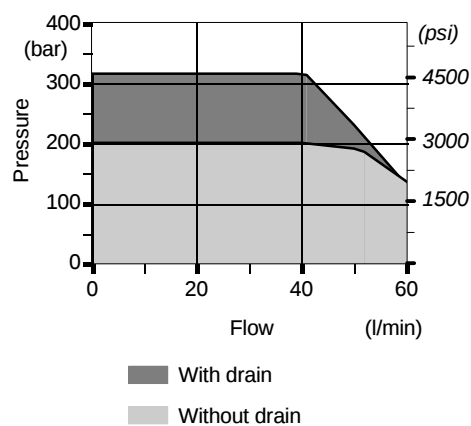


Performance data

Pressure drop versus flow
P→A



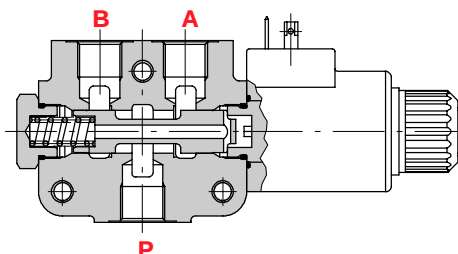
Minimum dynamic conditions
(supply = Vn-10%, coil at 70 °C)



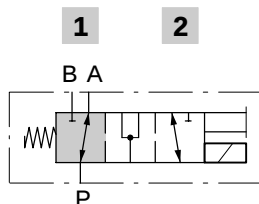
Hydraulic circuit

3-way

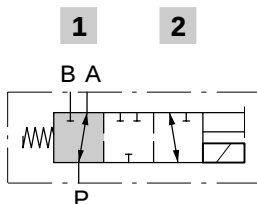
It's possible to obtain 2-way diverter valve plugging port A or B.



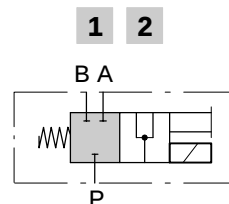
Spool type A



Spool type B



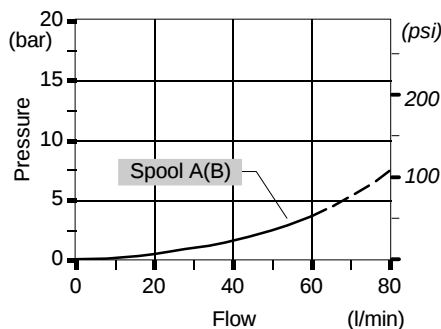
Spool type D



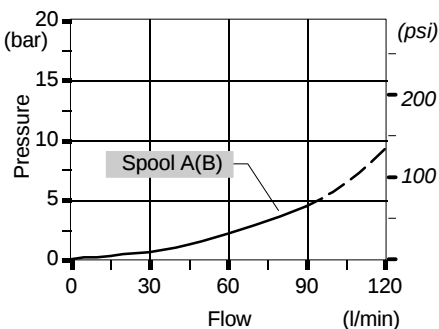
Performance data

Pressure drop versus flow: P→A(B)

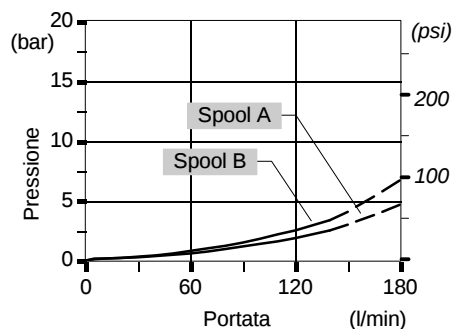
DFE052/3



DFE10/3

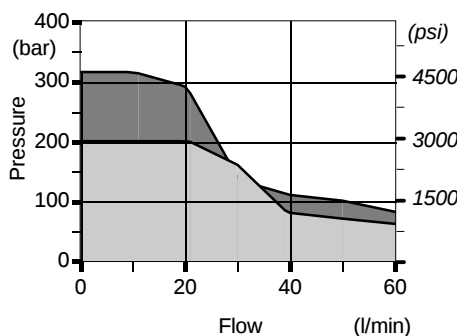


DFE20/3

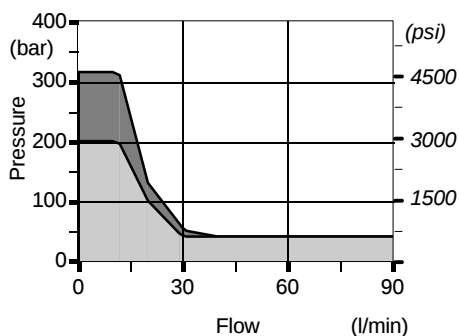


Minimum dynamic conditions: (supply = $V_n - 10\%$, coil at 70 °C)

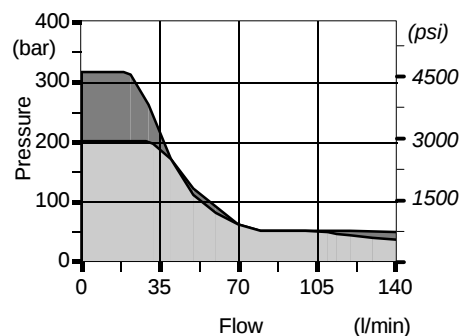
DFE052/3



DFE10/3

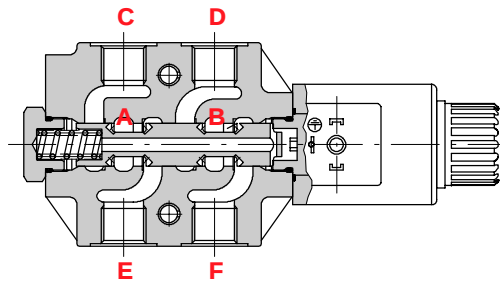


DFE20/3

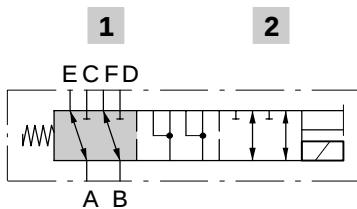


■ With drain ■ Without drain

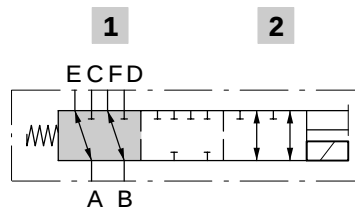
6-way



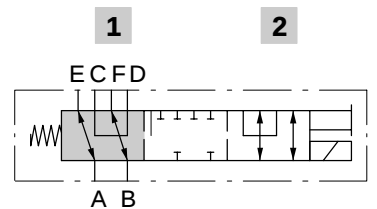
Spool type A



Spool type B



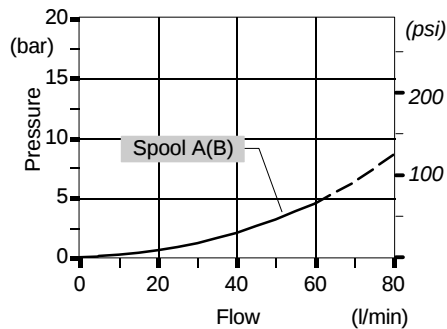
Spool type H



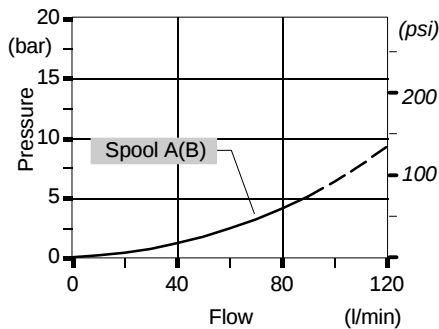
Performance data

Pressure drop versus flow: A→E(C).

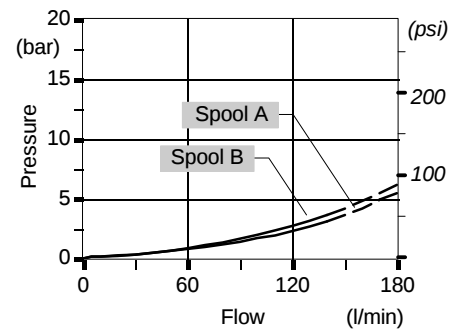
DFE052/6



DFE10/6

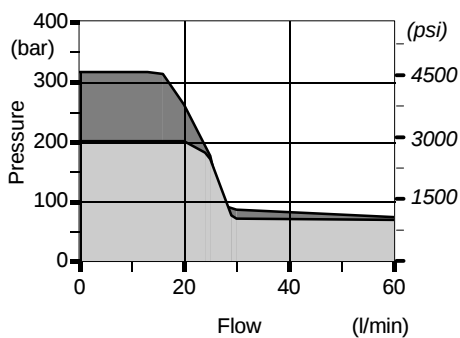


DFE20/6

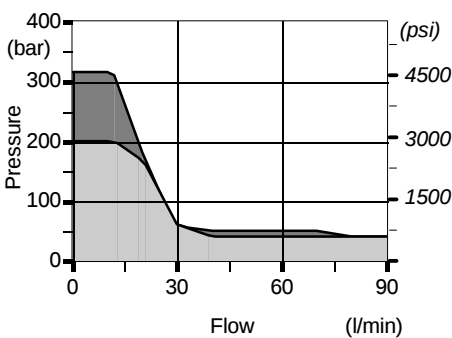


Minimum dynamic conditions: (supply = $V_n - 10\%$, coil at 70 °C)

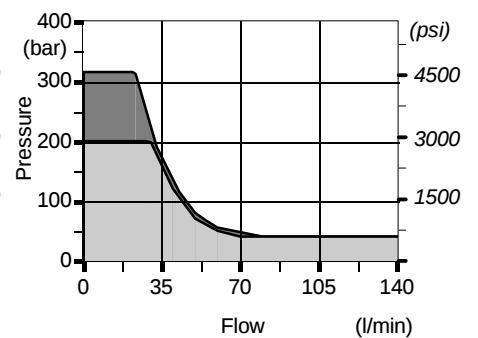
DFE052/6



DFE10/6



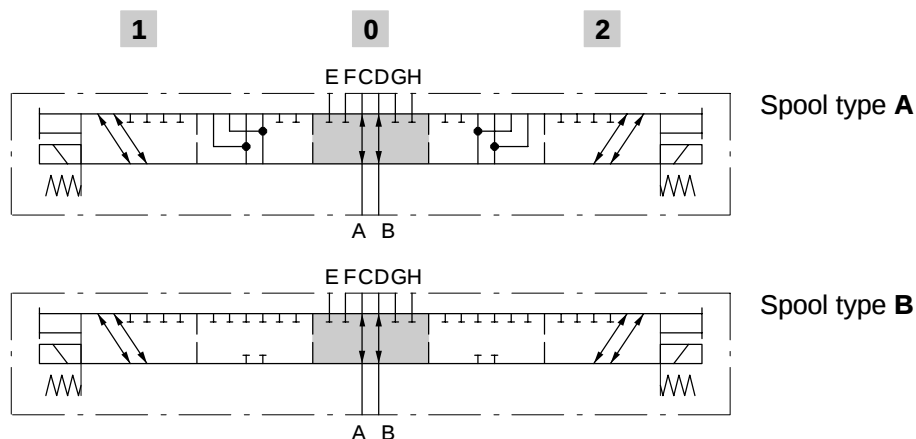
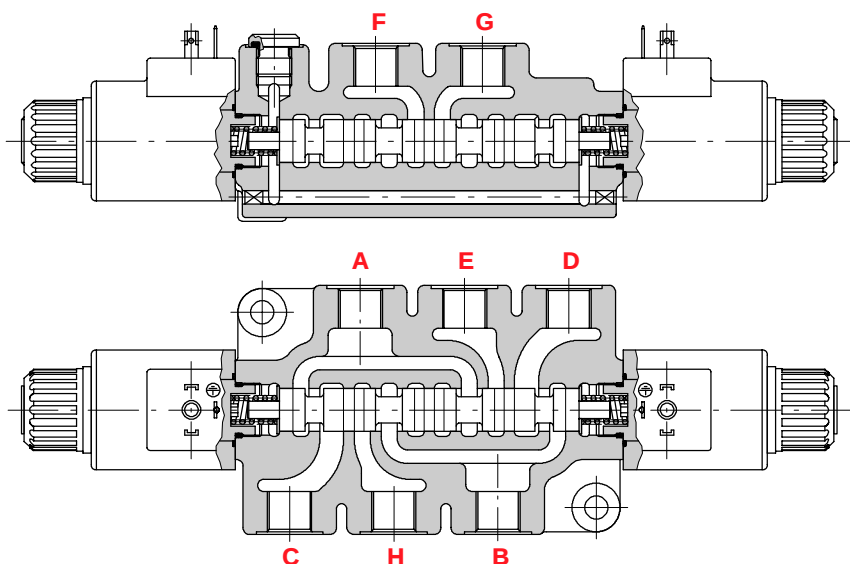
DFE20/6



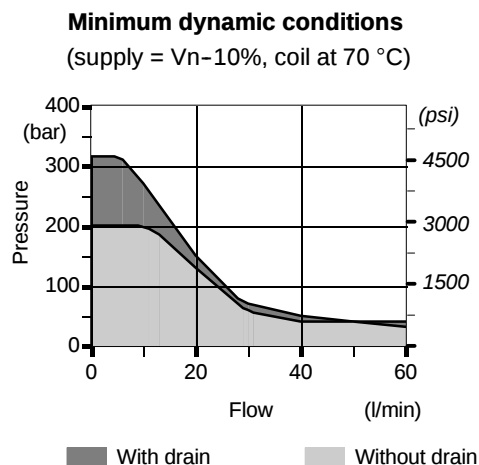
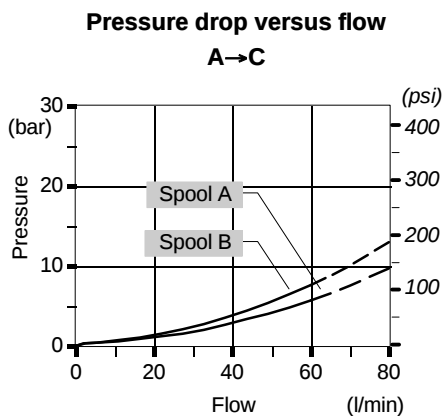
■ With drain ■ Without drain

HYdraulic circuit

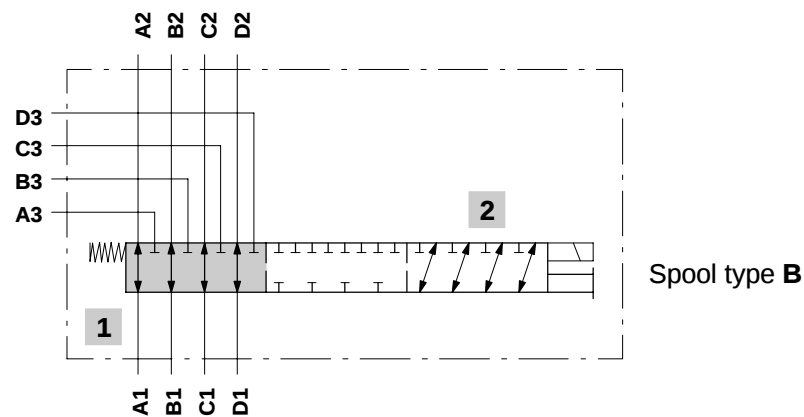
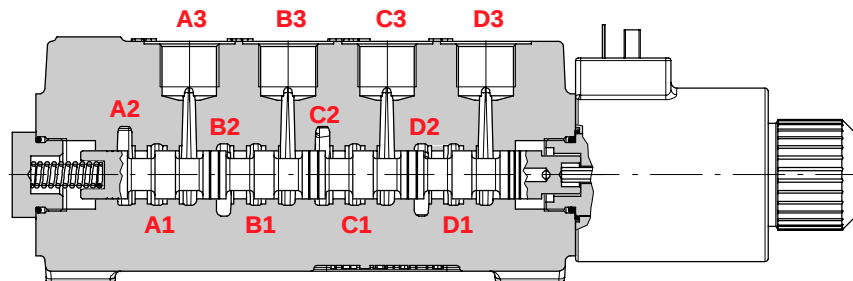
8-way



Performance data



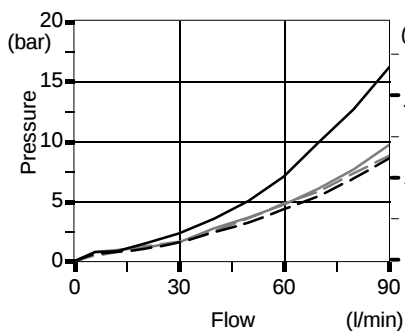
12-way



Performance data

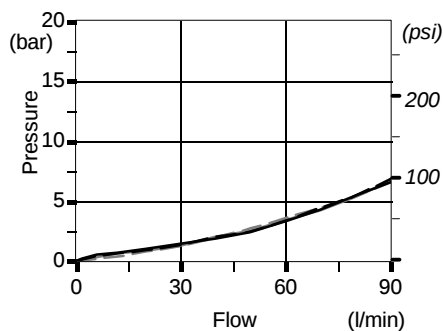
Pressure drop versus flow

In position 1



— A1⇒A2 / B1⇒B2
 — C1⇒C2 / ... D1⇒D2

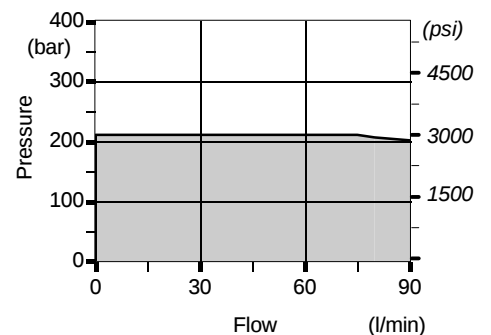
In position 2



— A1⇒A3 / B1⇒B3
 — C1⇒C3 / ... D1⇒D3

Minimum dynamic conditions

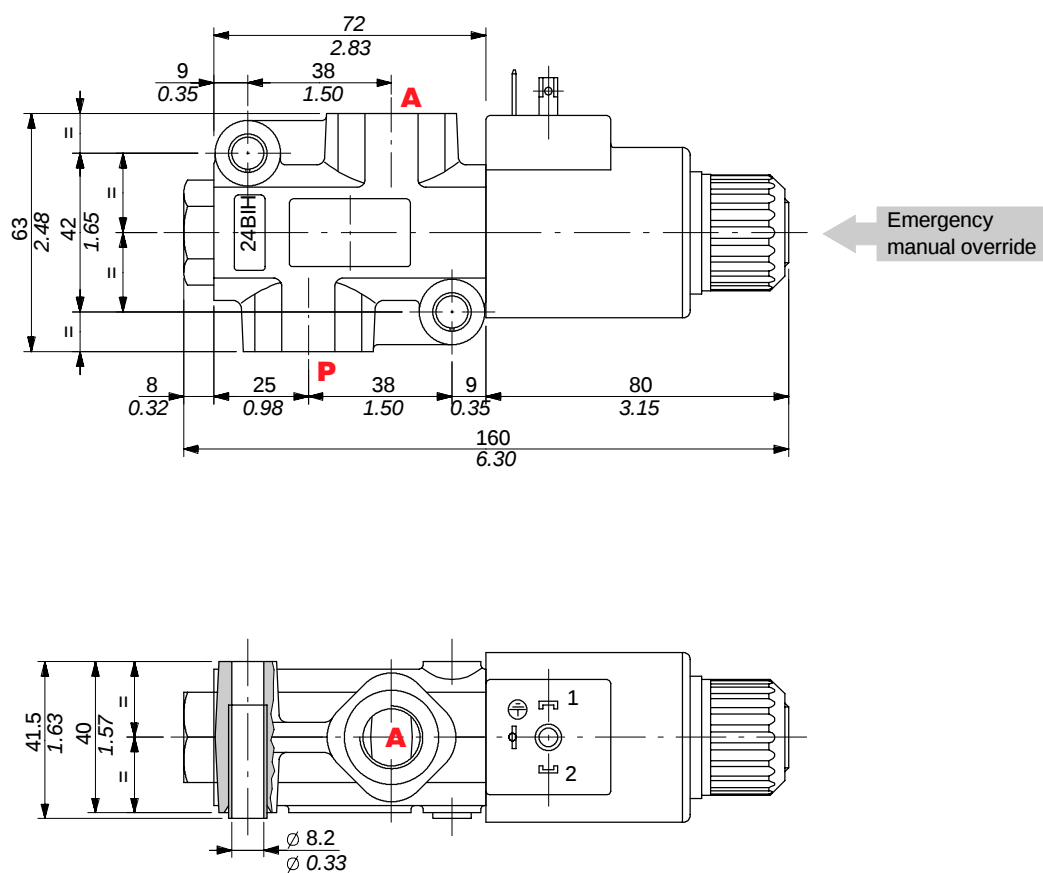
(supply = Vn-10%, coil at 70 °C)



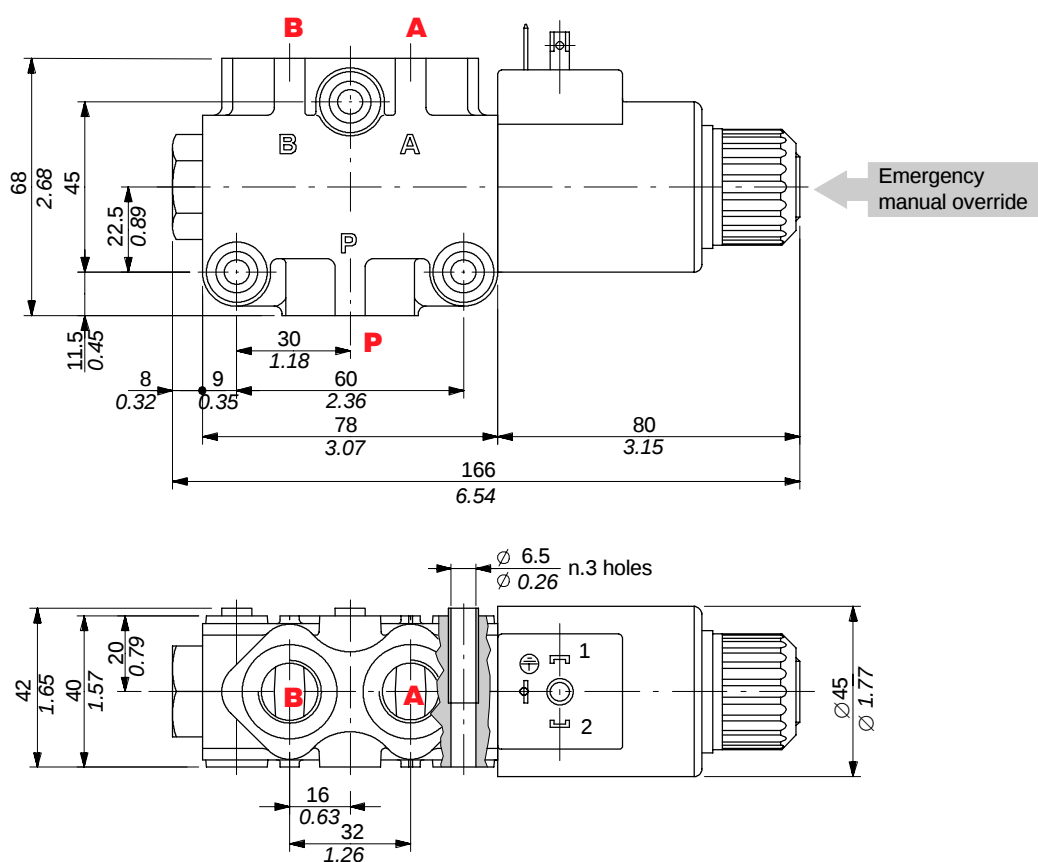
— With drain
 - - Without drain

Dimensional data

2-way DFE052/2 valve

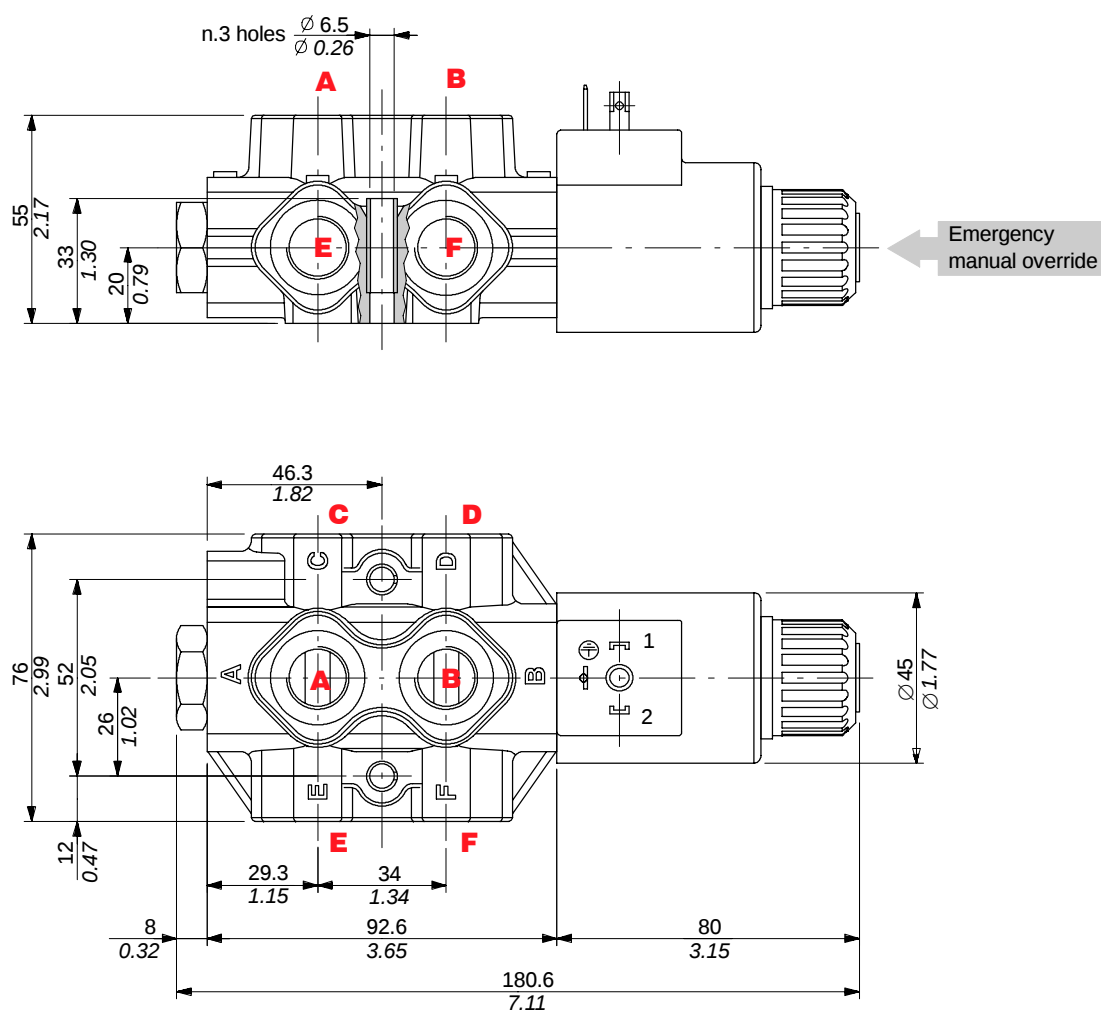


3-way DFE052/3 valve

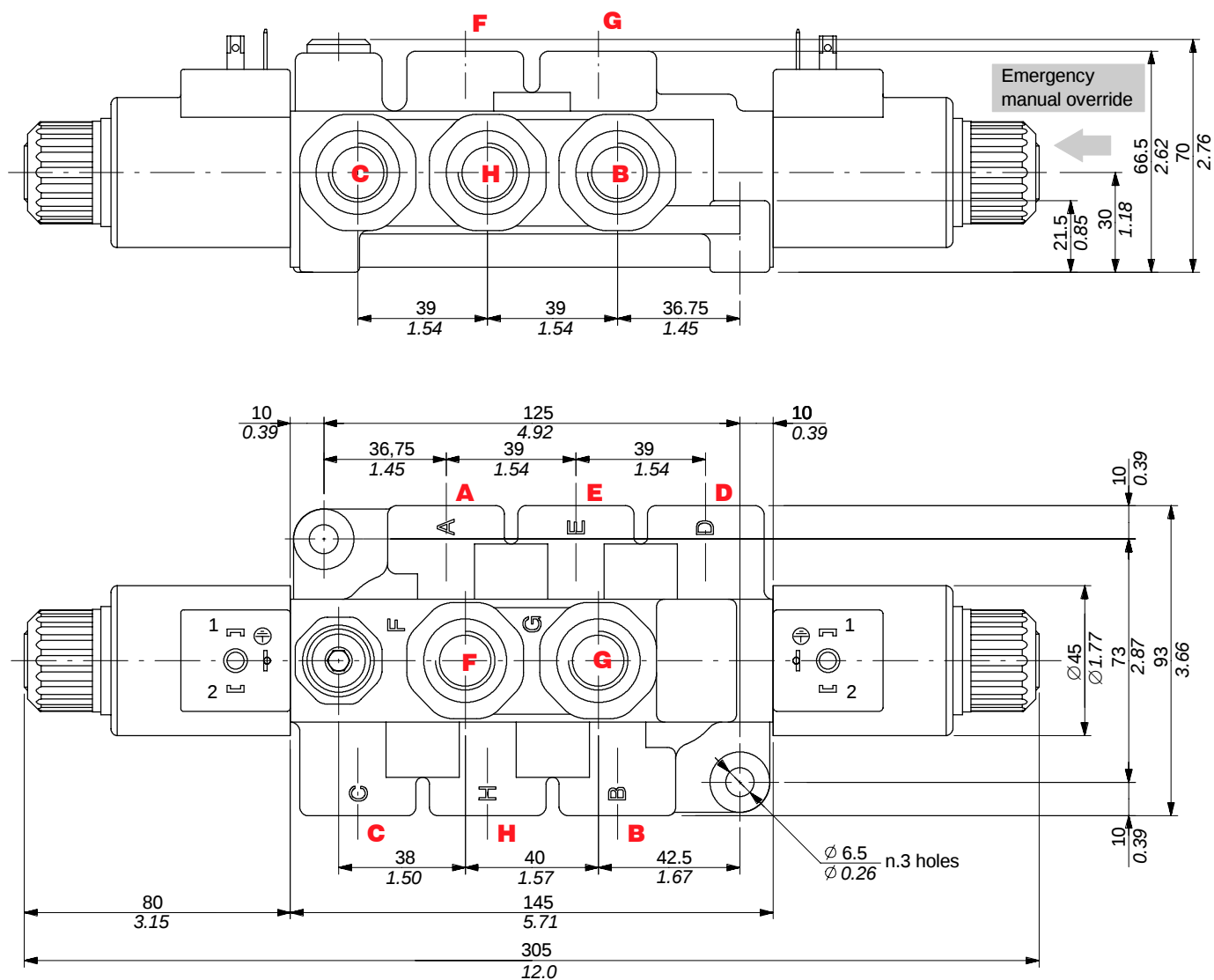


Dimensional data

6-way DFE052/6 valve



8-way DFE52/8 valve

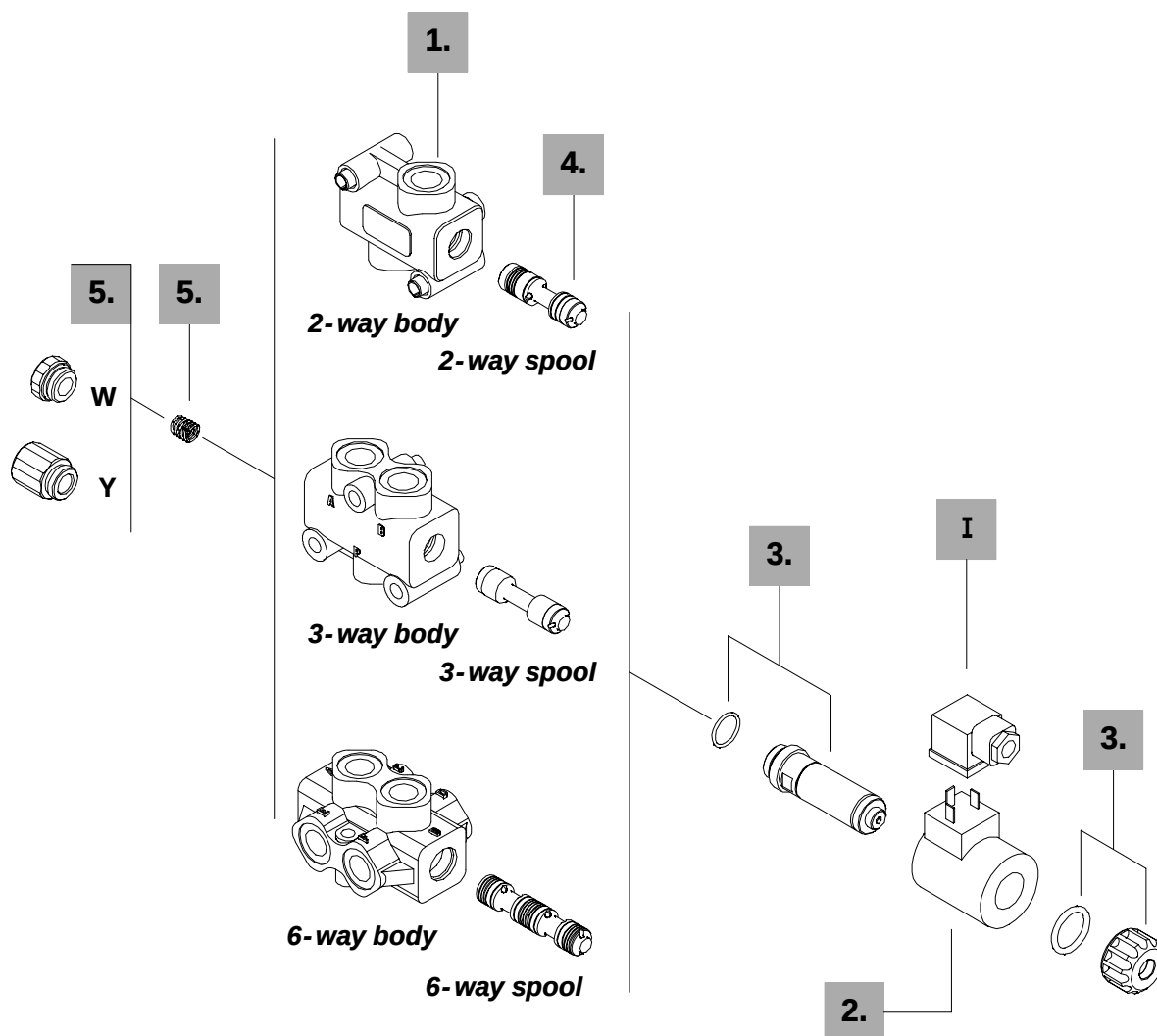


Ordering codes

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
page 67

YPE	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

TTYPE	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.

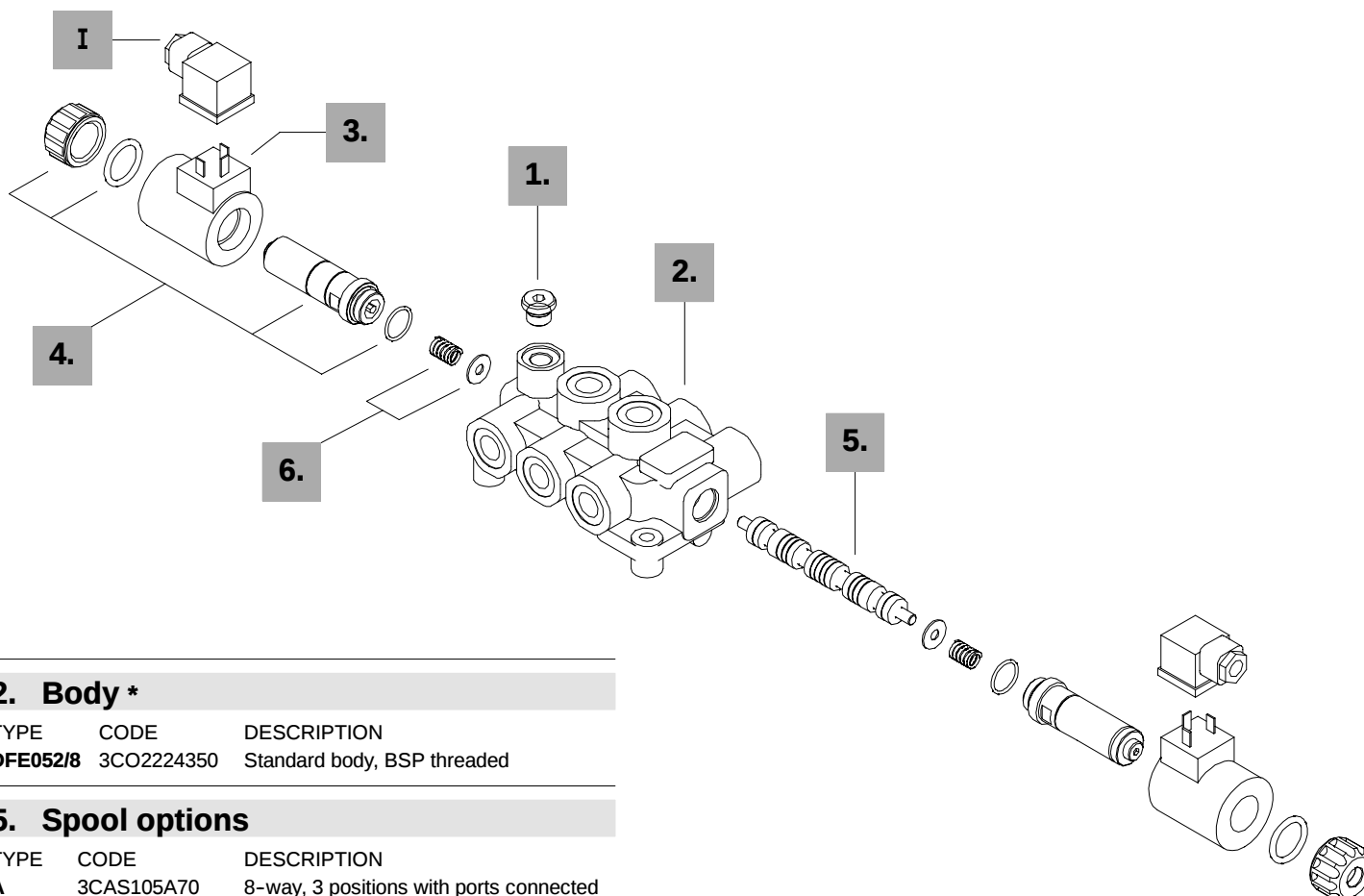
6.

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

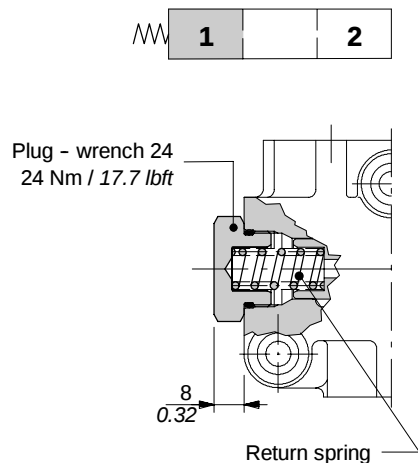
page 119

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

DFE052/2 - /3 - /6

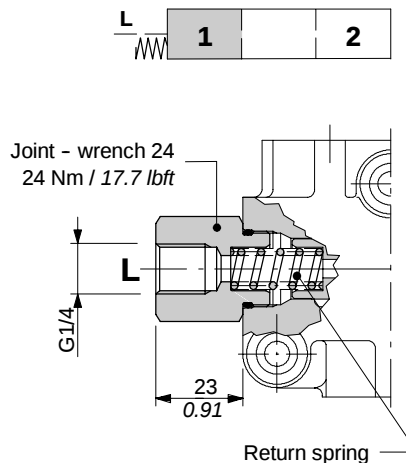
18W kit

Spring return in position 1 with plug.



18Y kit

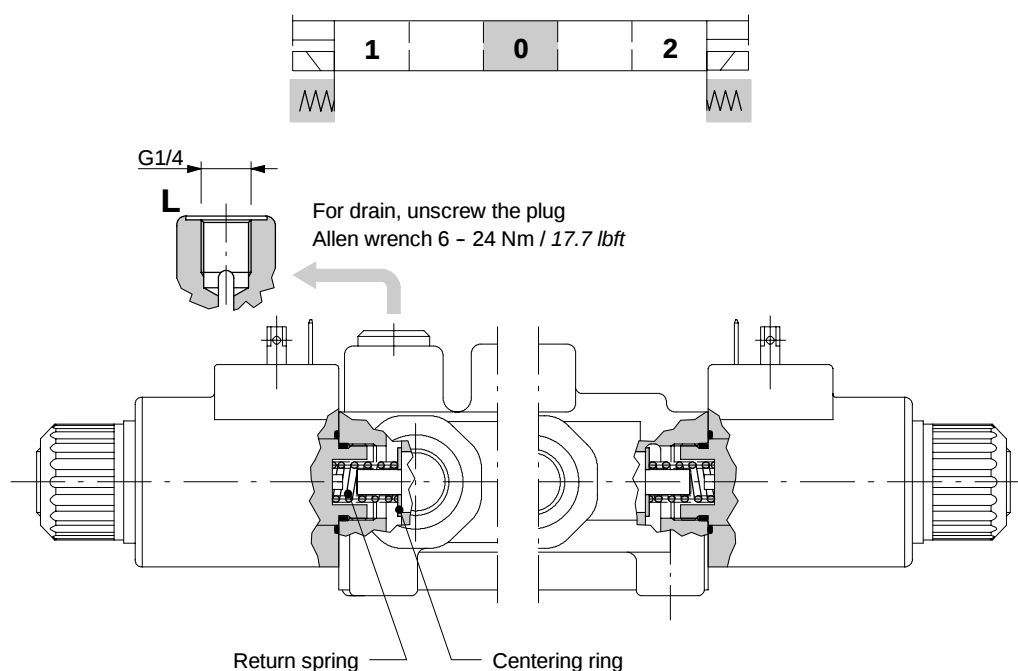
Spring return in position 1, with G1/4 joint for drain.



DFE052/8

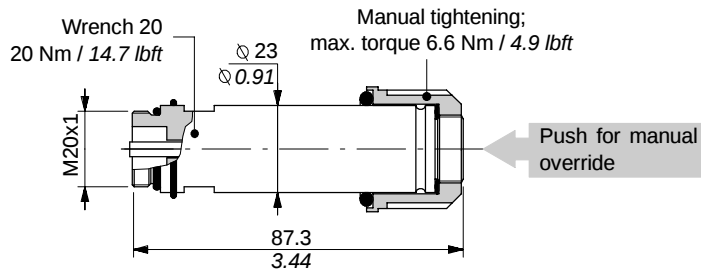
8 kit

Spring return in position 0.



Solenoid parts

ES tube assembly



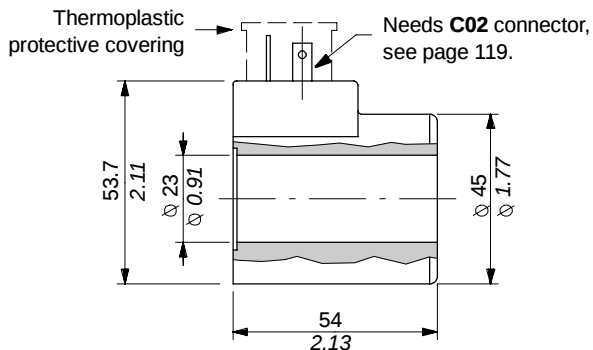
Operating features

Plunger stroke : 7.1 mm / 0.28 in

Coil options

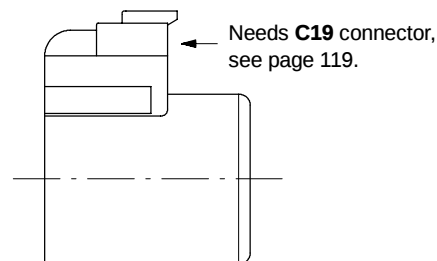
With ISO4400 connector

(weather protection IP65)



With integrated DEUTSCH 04 connector

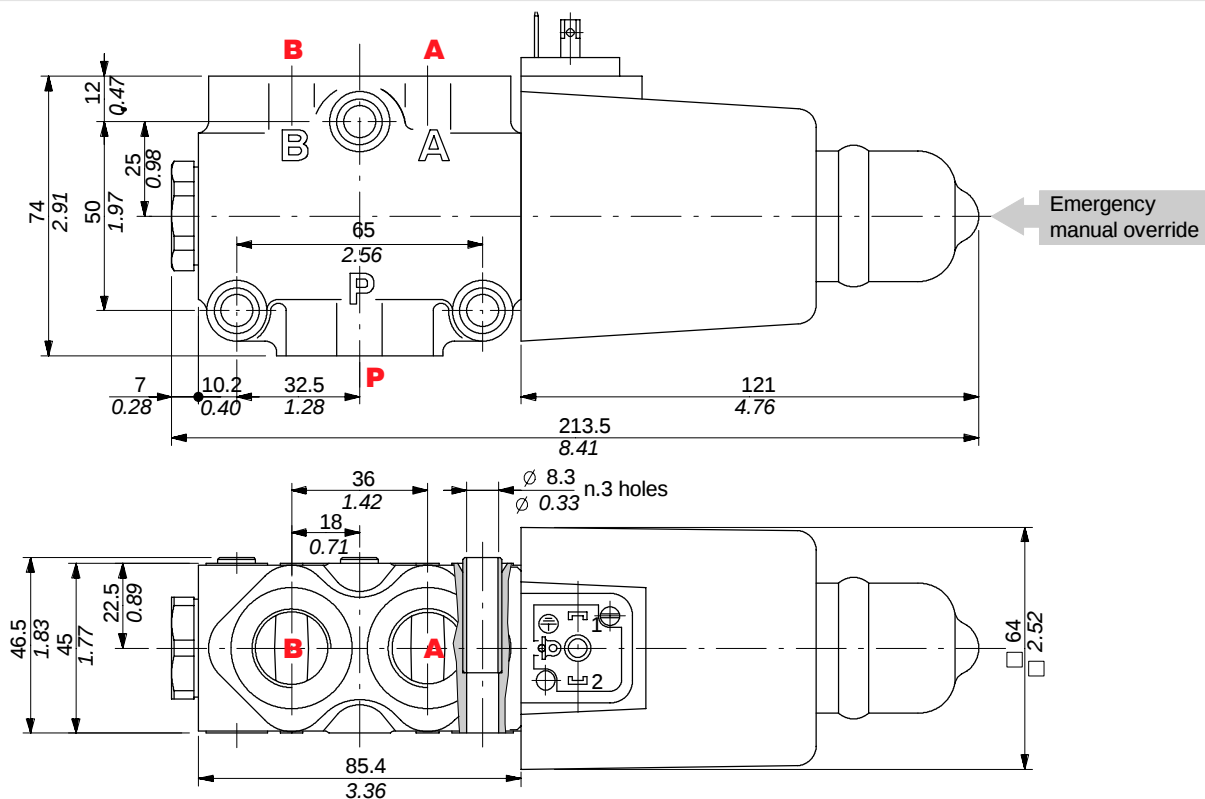
(weather protection IP67)



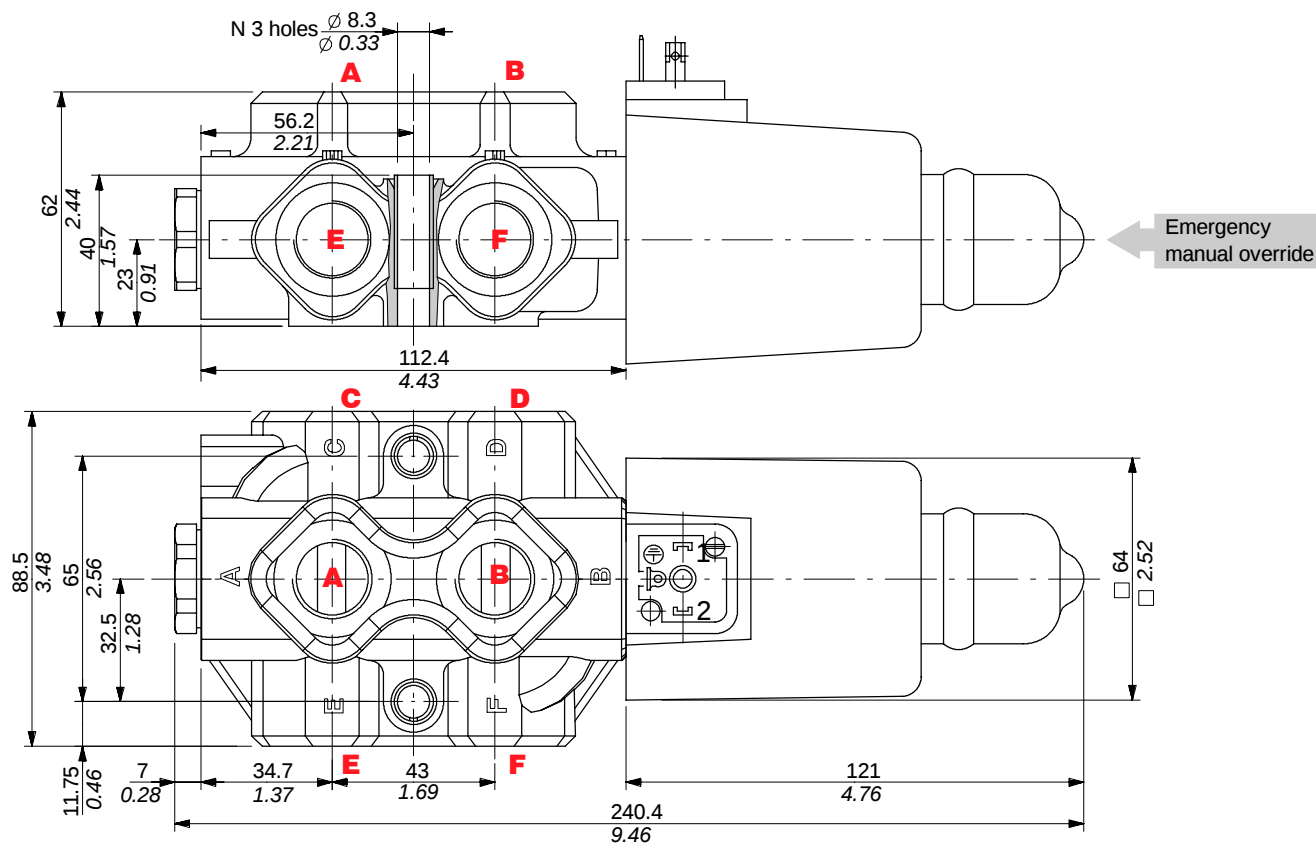
Operating features

Nominal voltage : 12VDC / 24VDC
 Nominal voltage tolerance ... : $\pm 10\%$
 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.

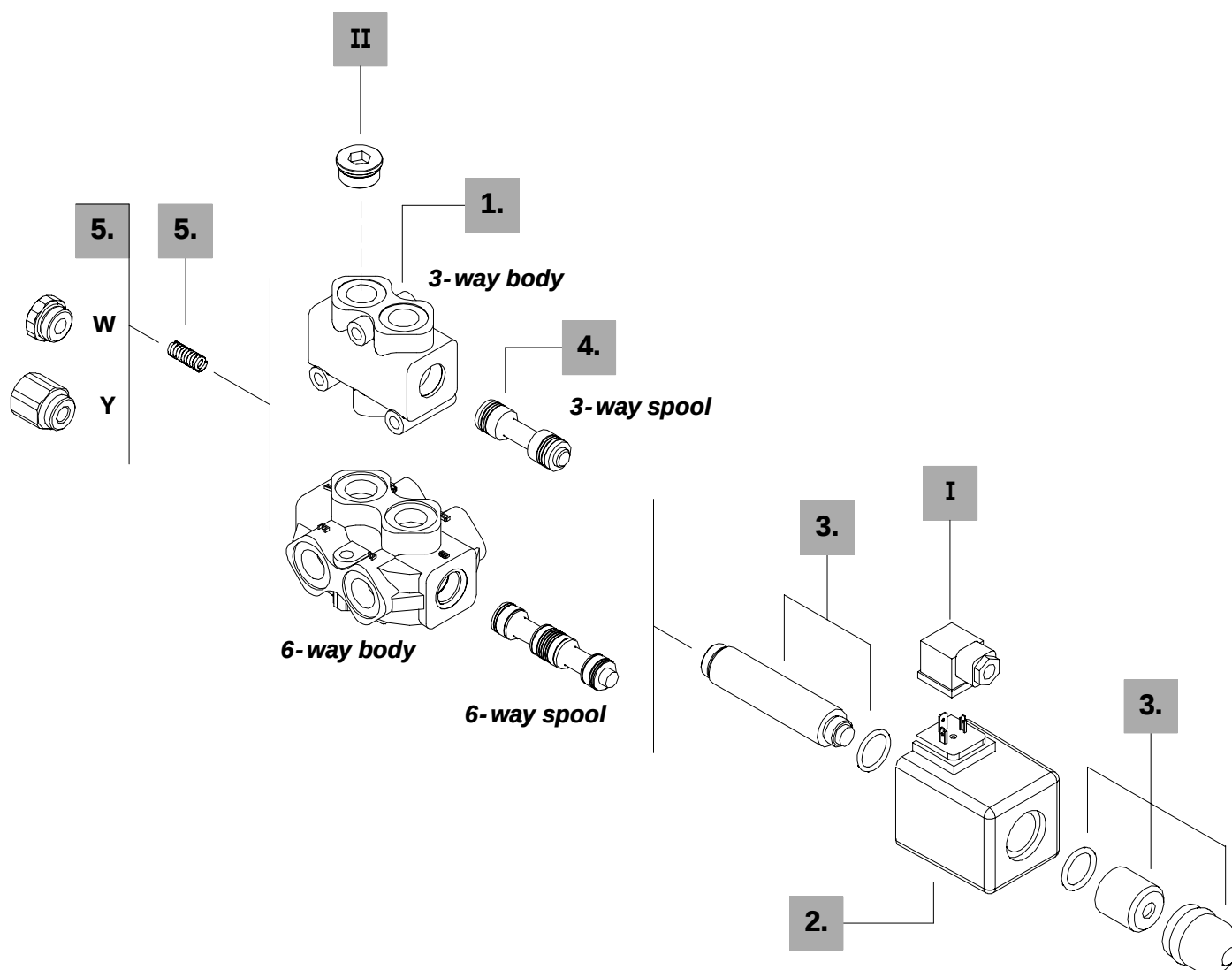
5.

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
page 72

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
page 119

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

II Ports plug

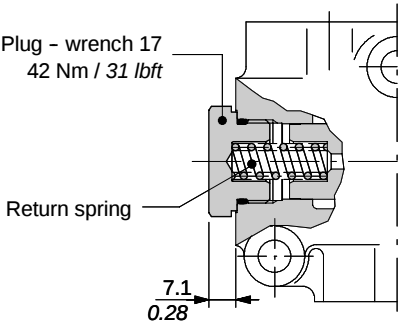
TYPE	CODE	DESCRIPTION
G1/2	3XTAP727180*	Body conversion from 3-way to 2-way circuit

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

Positioner kits

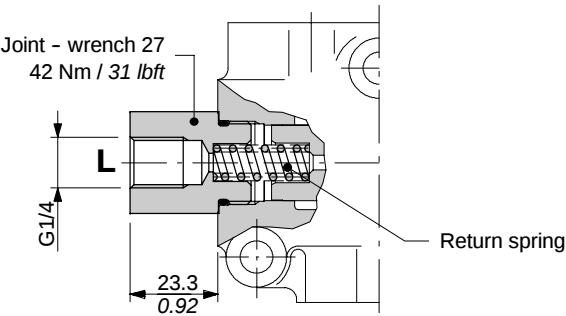
18W kit

Spring return in position 1 with plug.

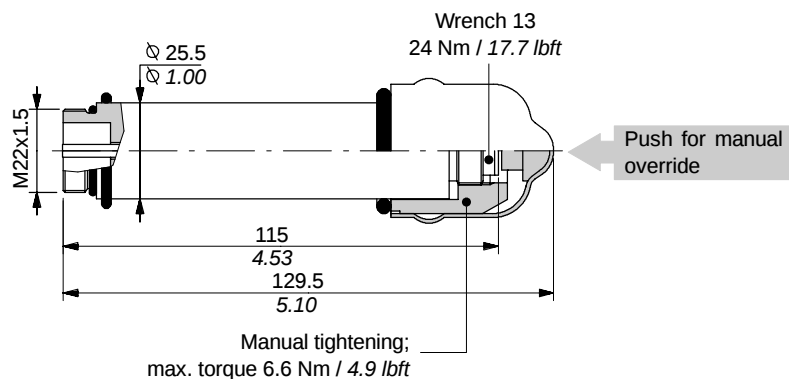


18Y kit

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



ES tube assembly



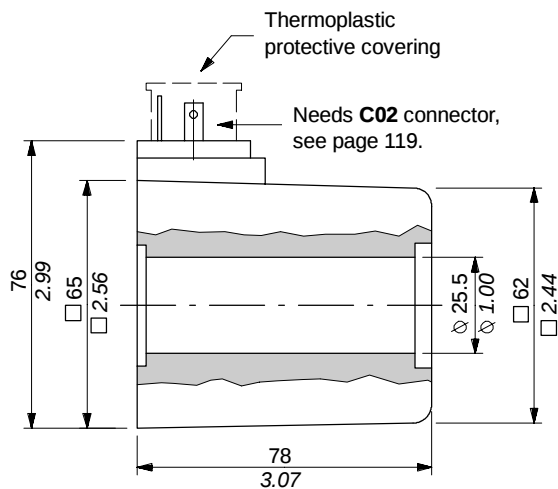
Operating features

Plunger stroke : 10.2 mm / 0.40 in

Coil options

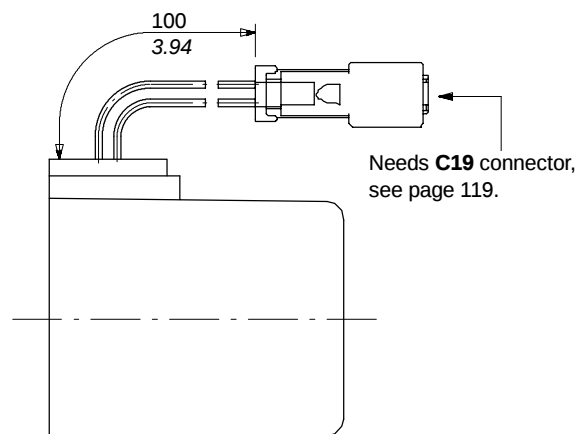
With ISO4400 connector

(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

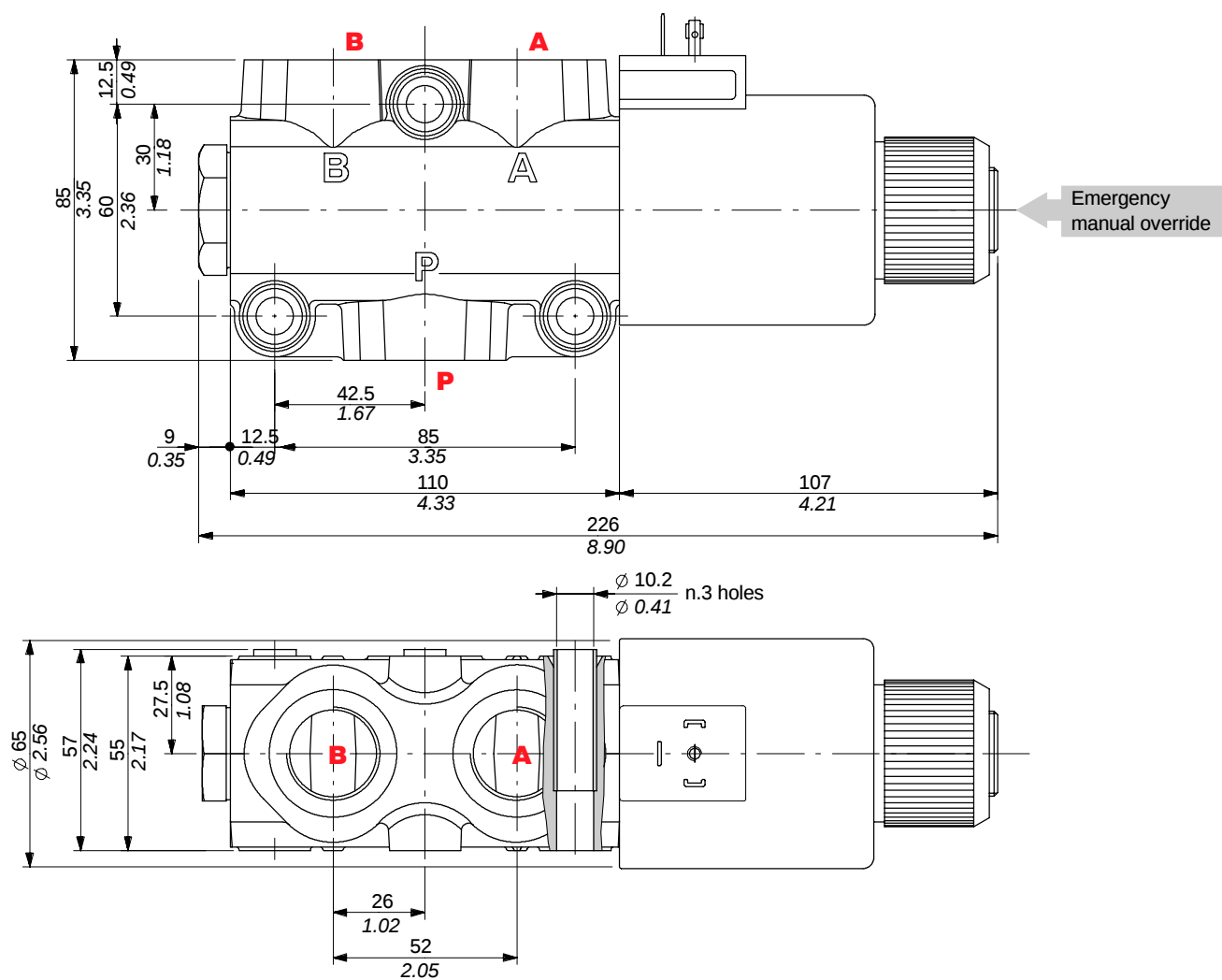
Duty cycle : 100%

Weather protection : depending on connector type

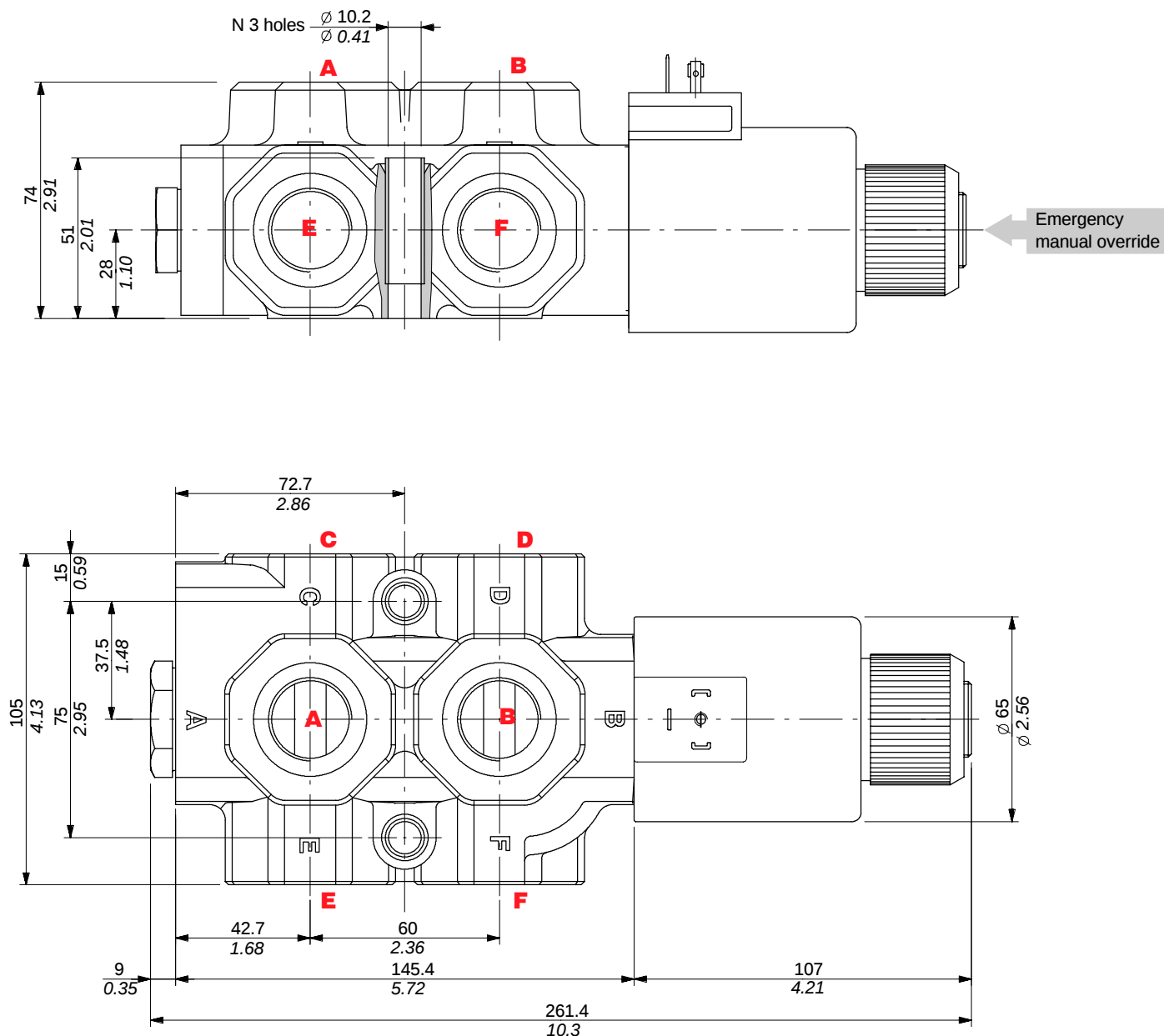
Coil insulation : Class H

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>**

1.

4.

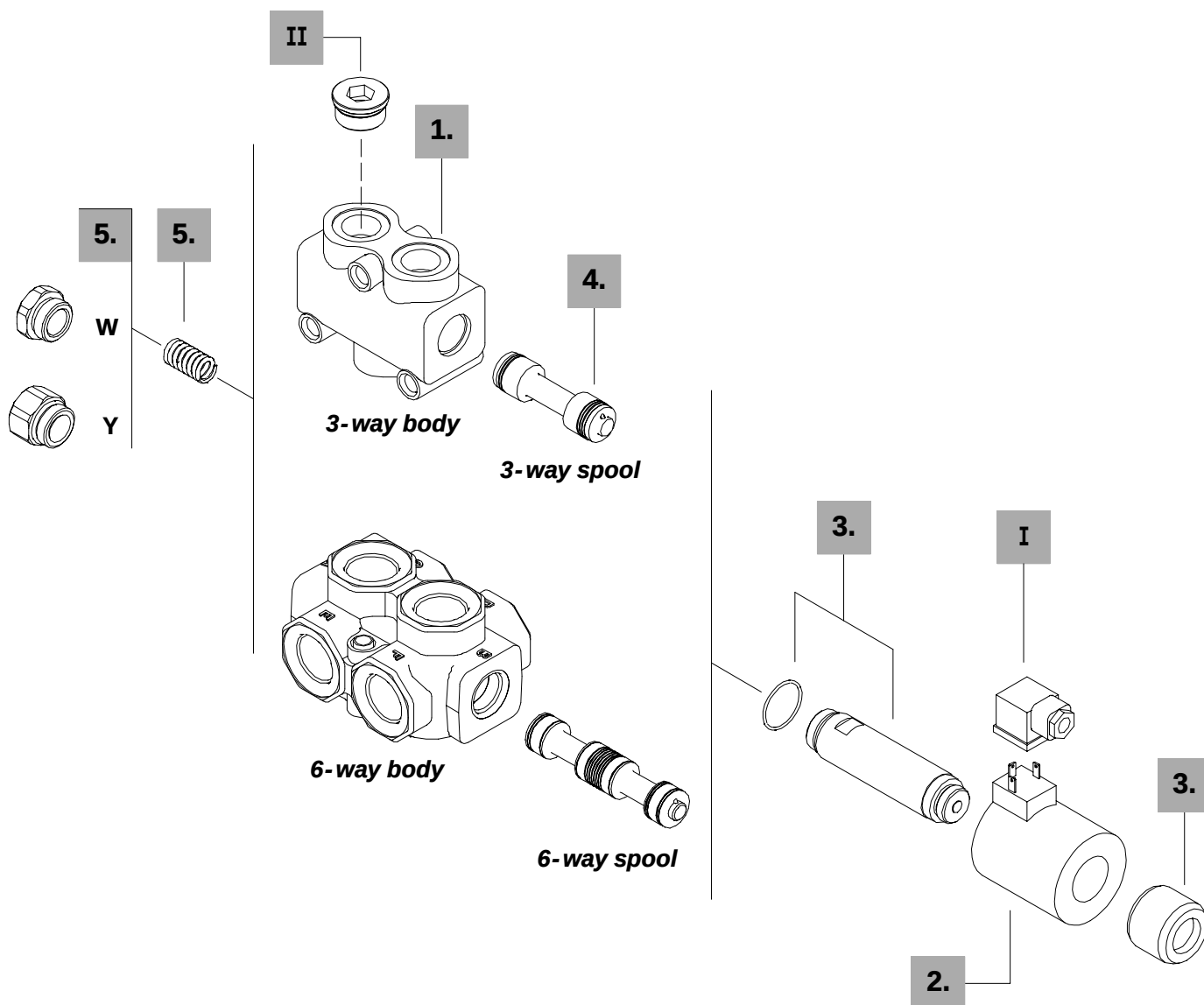
5.

3.

5.

2.

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



3-way
1. Body *

TYPE	CODE	DESCRIPTION
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.



Plug - wrench 33
42 Nm / 31 lbft

Return spring

9
0.35

18Y kit

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



Joint - wrench 33
42 Nm / 31 lbft

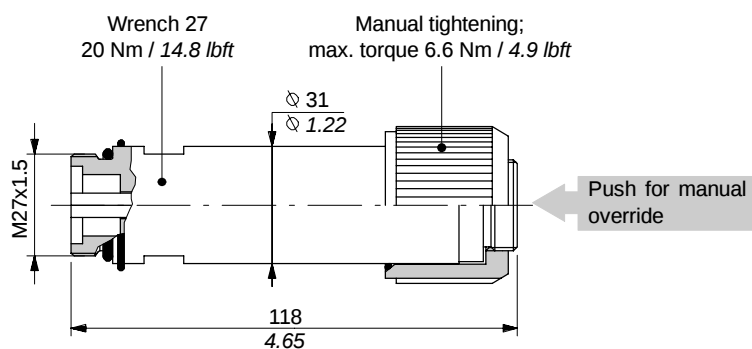
G1/4

Return spring

17
0.67

Solenoid parts

ES tube assembly



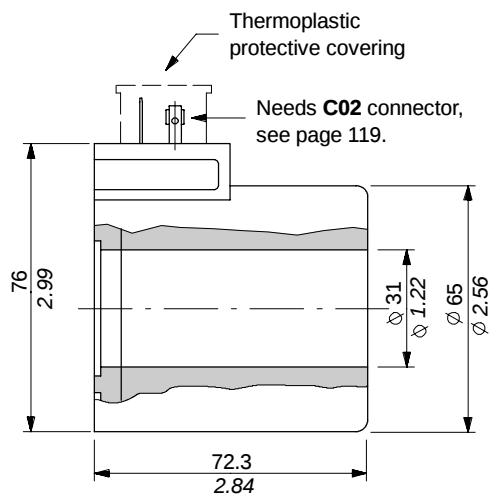
Operating features

Plunger stroke : 10.2 mm / 0.40 in

Coil options

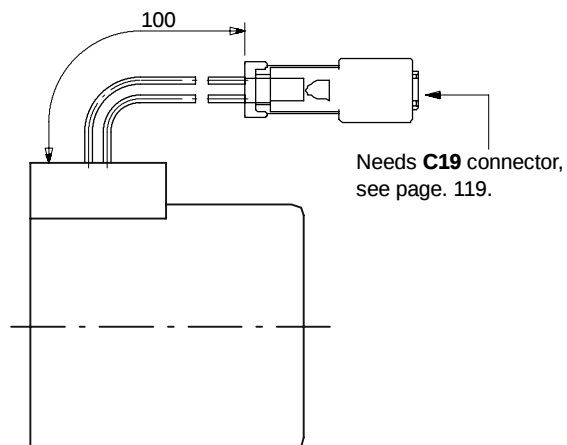
With ISO4400 connector

(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 ... : $\pm 10\%$
 Power rating : 60 W
 Duty cycle : 100%
 Weather protection : depending on connector type
 Coil insulation : Class H