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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 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	with NBR seals	from -20°C to 80°C			
	with FPM seals	from -20°C to 100°C			
Viscosity	operating range	from 15 to 75 mm ² /s - from 15 to 75 cSt			
	minimum	12 mm ² /s - 12 cSt			
	maximum	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

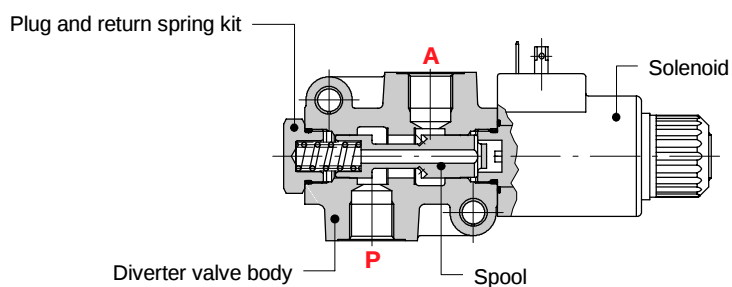
ALL PORTS	BSP	UN-UNF	METRIC (ISO 9974-1)	METRIC (ISO 6149)
DFE052	G 3/8	3/4-16 (SAE 8)	M18x1,5	
DFE10	G 1/2	7/8-14 (SAE 10)		
DFE20	G 3/4	1 1/16-12 (SAE 12)		
DF110	G 1/2	7/8-14 (SAE 10)	M22x1.5	M22x1.5
DRAIN PORT				
L	G 1/4	9/16-18 (SAE 6) 7/16-20 (SAE4)*	M12x1.5	M12x1.5

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

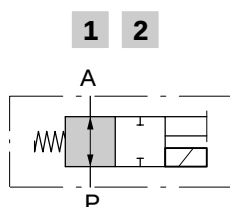
Optional threads: for availability contact Sales Department

2-way

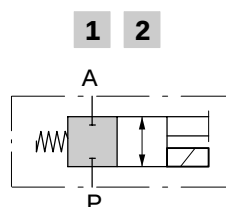
Available as body only in **DFE052/2** execution; for other executions 3-way body is used.



Spool type A

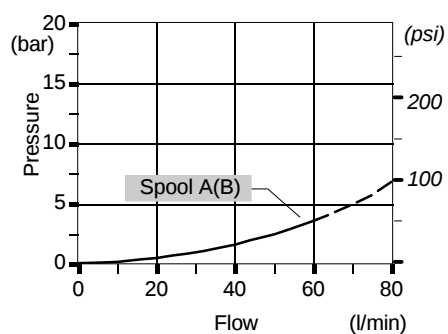


Spool type B

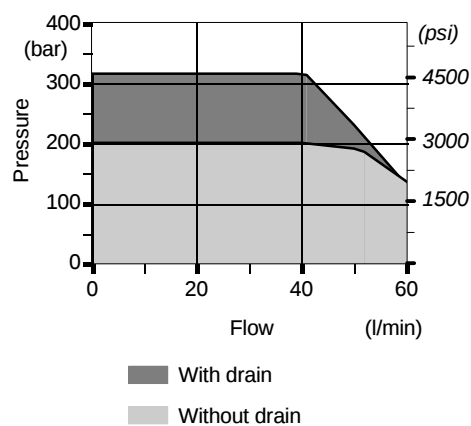


Performance data

Pressure drop versus flow
P→A



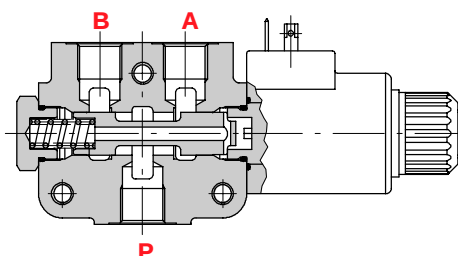
Minimum dynamic conditions
(supply = Vn-10%, coil at 70 °C)



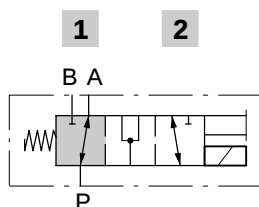
Hydraulic circuit

3-way

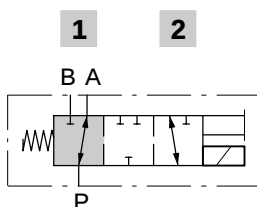
It's possible to obtain 2-way diverter valve plugging port A or B.



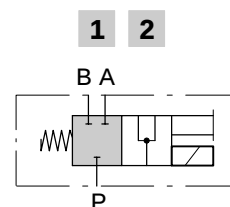
Spool type A



Spool type B



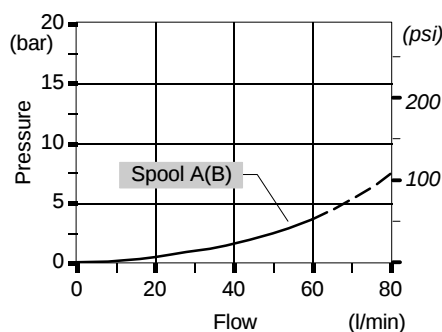
Spool type D



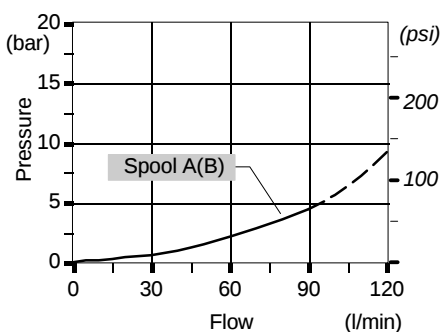
Performance data

Pressure drop versus flow: P→A(B)

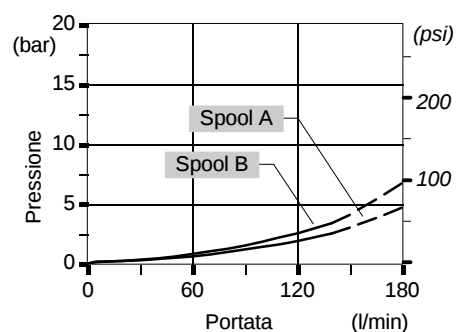
DFE052/3



DFE10/3

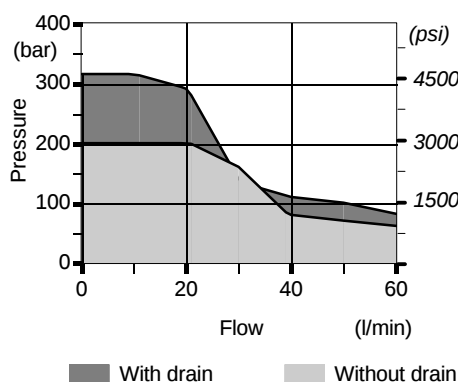


DFE20/3

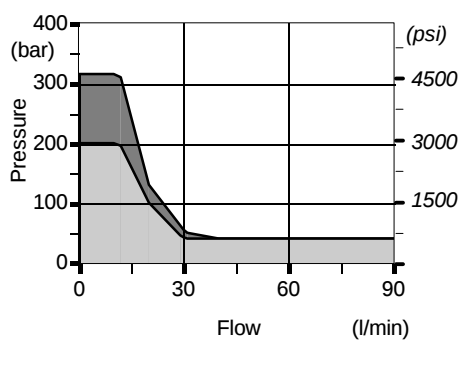


Minimum dynamic conditions: (supply = Vn-10%, coil at 70 °C)

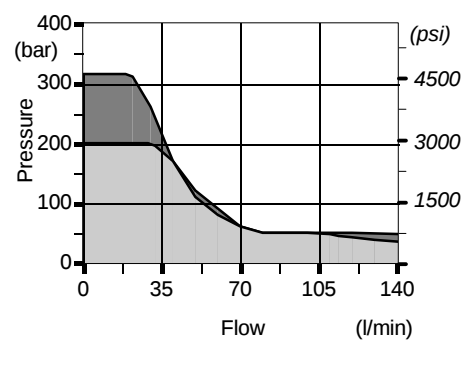
DFE052/3



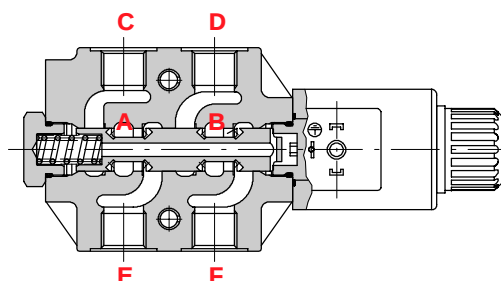
DFE10/3



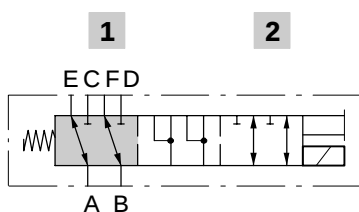
DFE20/3



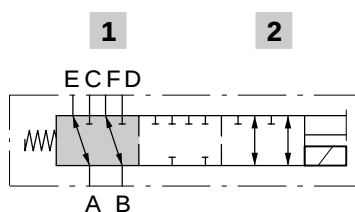
6-way



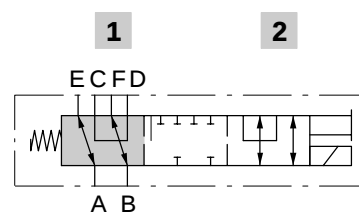
Spool type A



Spool type B



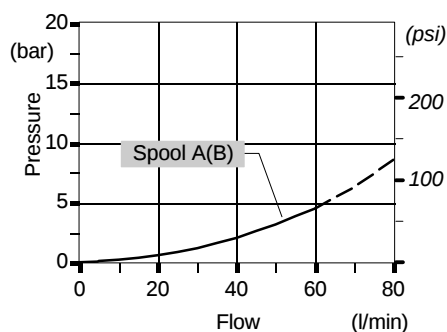
Spool type H



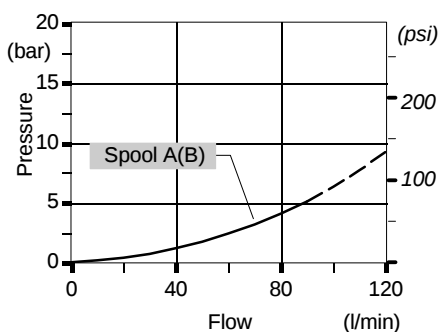
Performance data

Pressure drop versus flow: A→E(C).

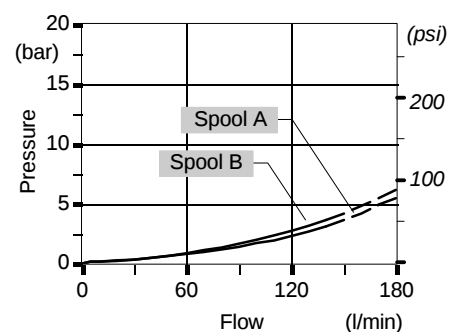
DFE052/6



DFE10/6

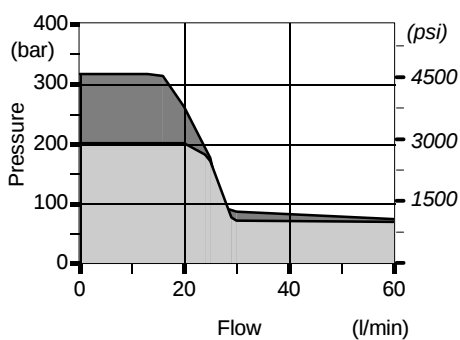


DFE20/6

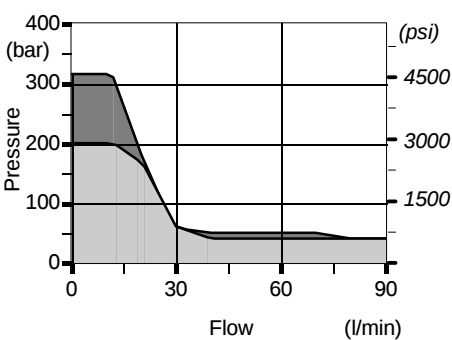


Minimum dynamic conditions: (supply = $V_n - 10\%$, coil at 70 °C)

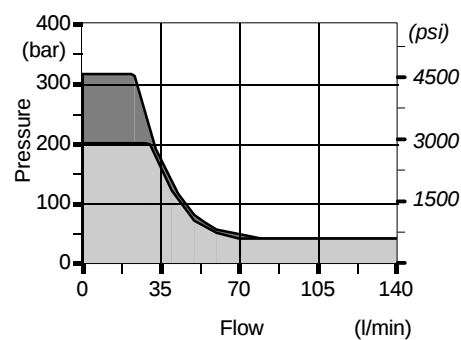
DFE052/6



DFE10/6



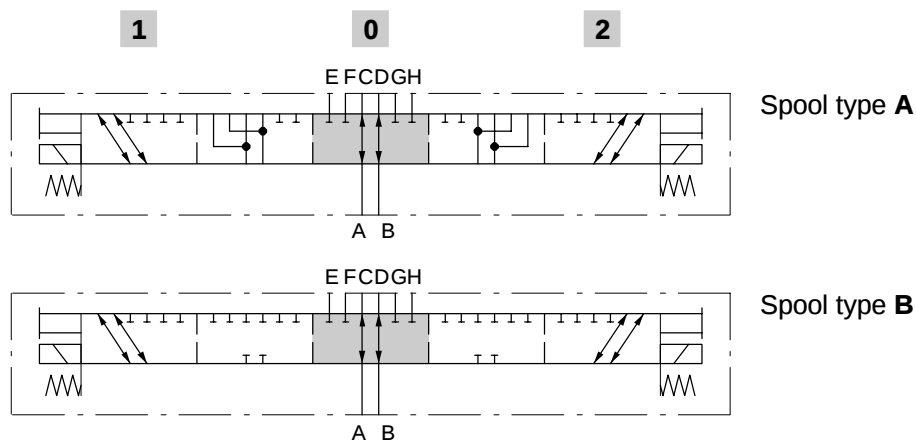
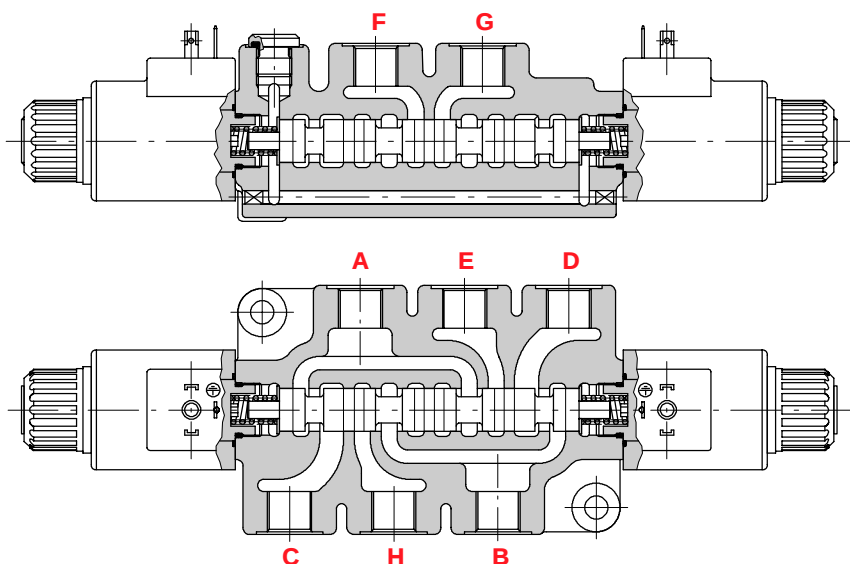
DFE20/6



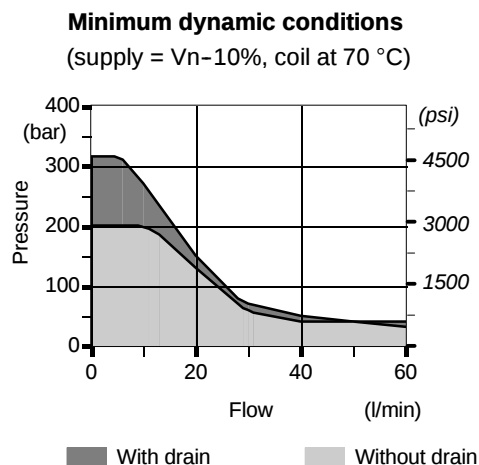
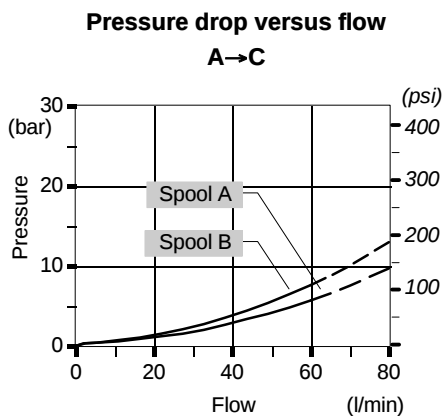
■ With drain ■ Without drain

HYdraulic circuit

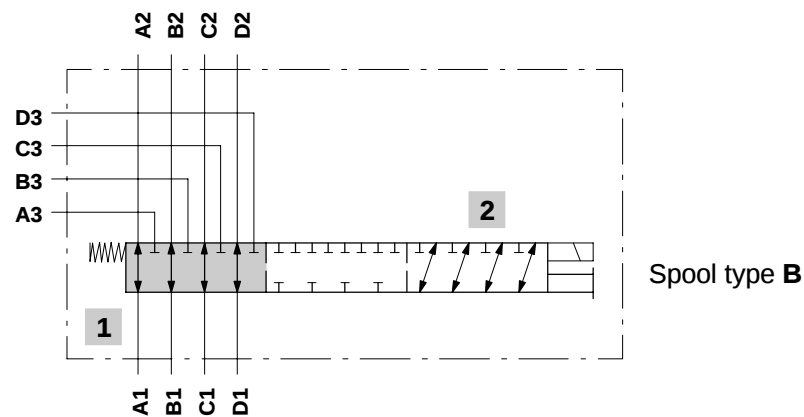
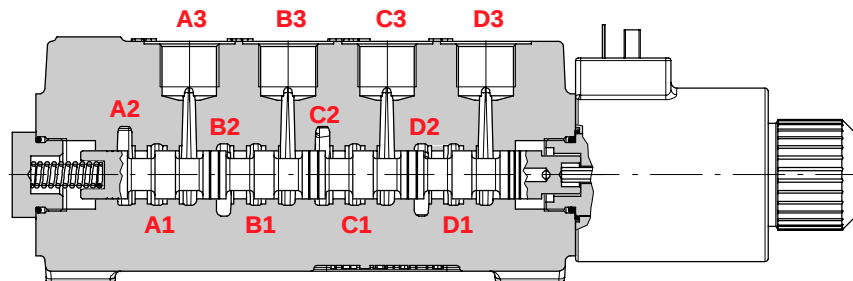
8-way



Performance data



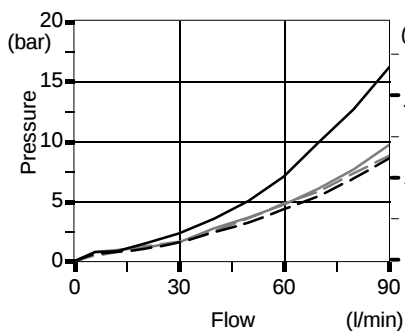
12-way



Performance data

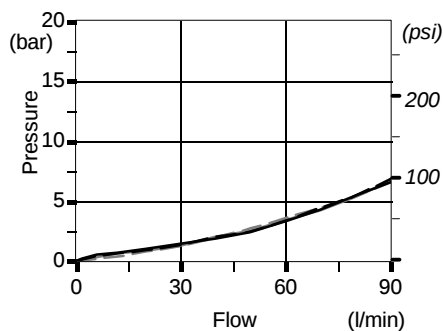
Pressure drop versus flow

In position 1



— A1⇒A2 / B1⇒B2
 — C1⇒C2 / ... D1⇒D2

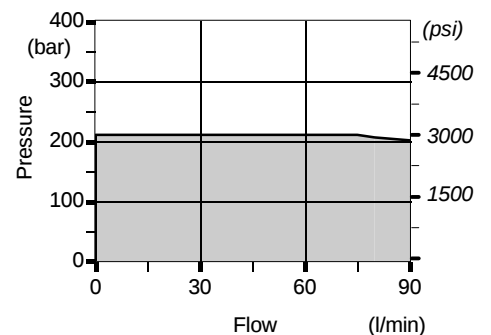
In position 2



— A1⇒A3 / B1⇒B3
 — C1⇒C3 / ... D1⇒D3

Minimum dynamic conditions

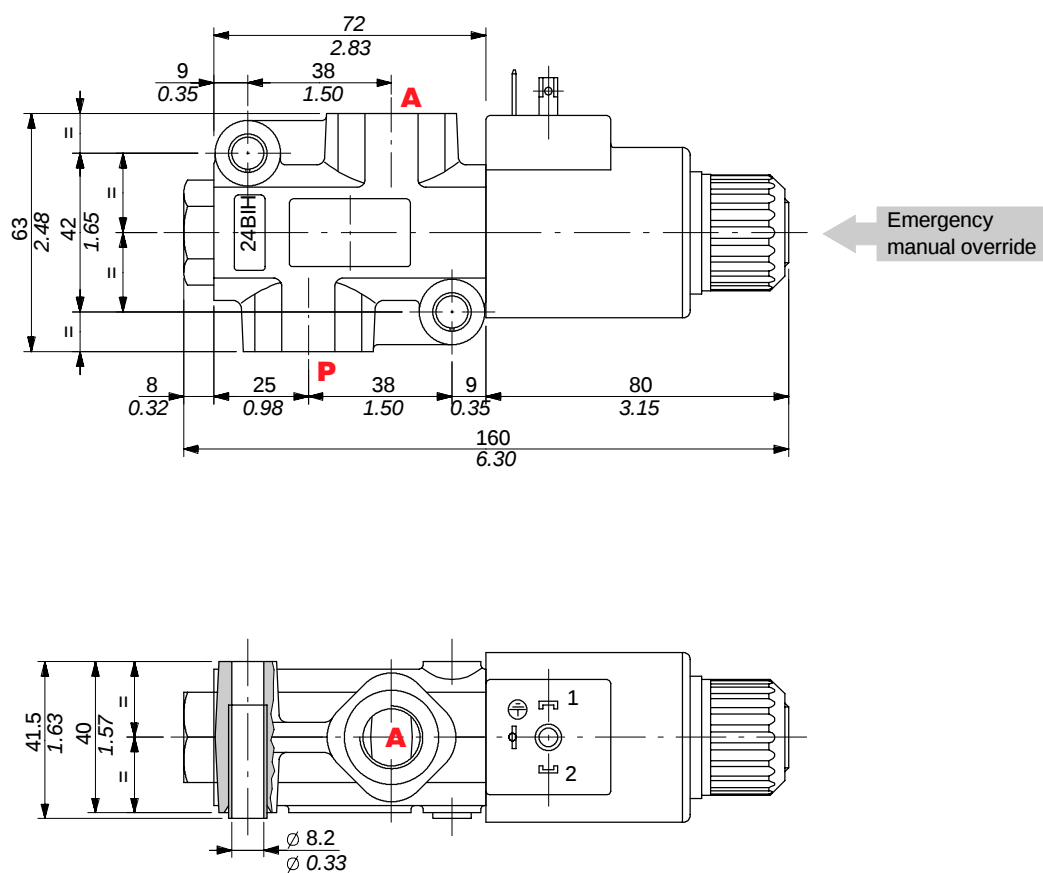
(supply = Vn-10%, coil at 70 °C)



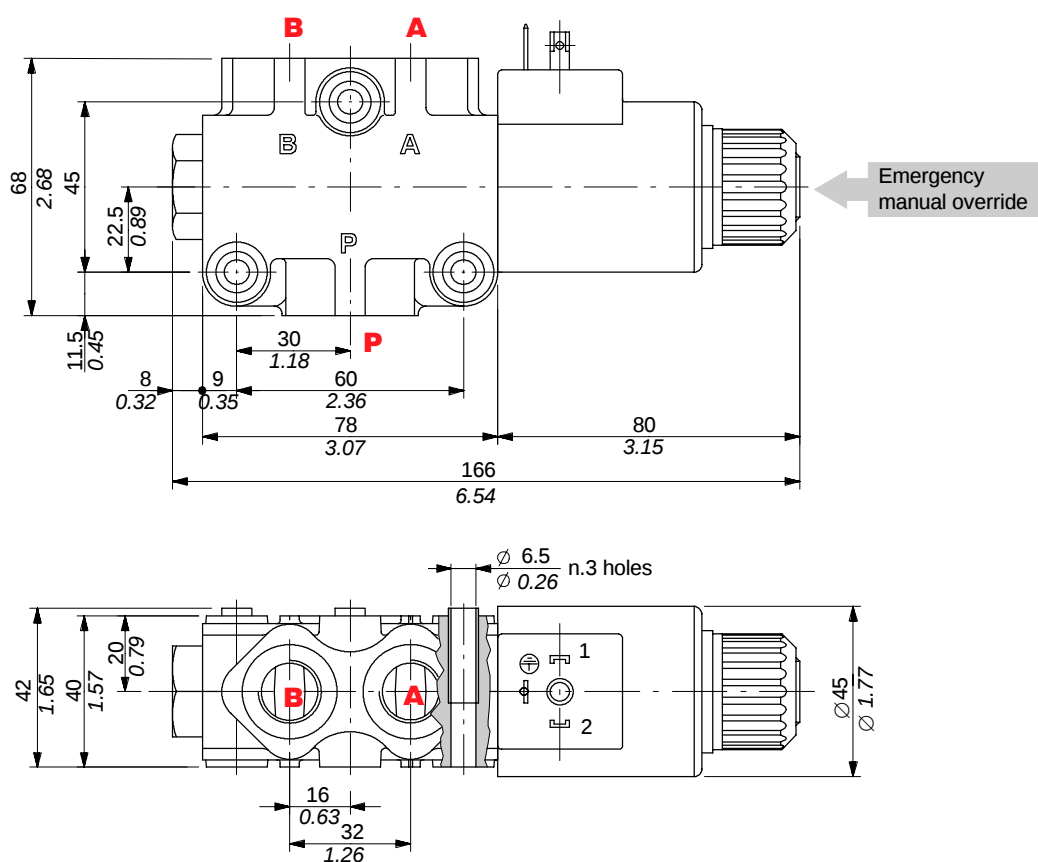
— With drain
 - - - Without drain

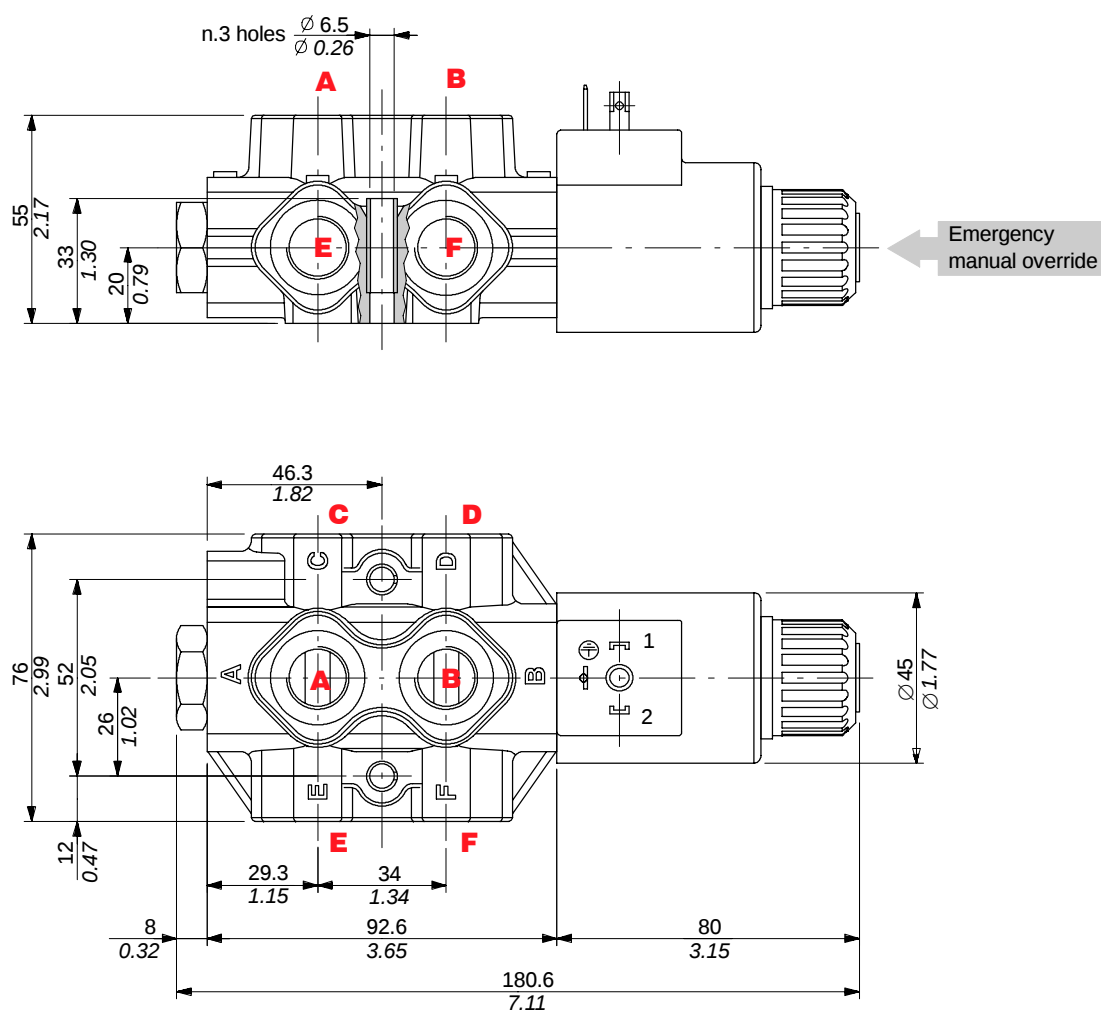
Dimensional data

2-way DFE052/2 valve



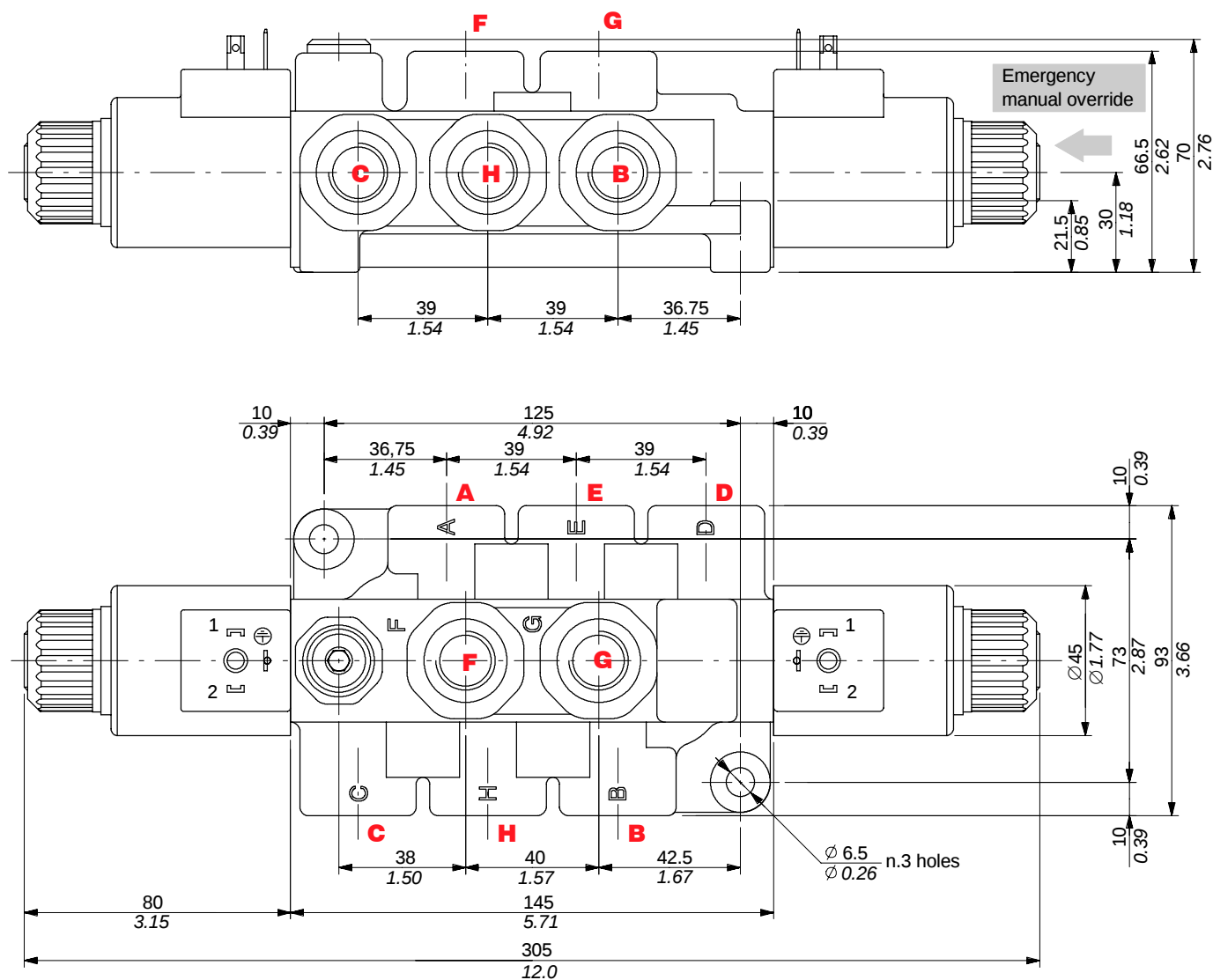
3-way DFE052/3 valve



Dimensional data
6-way DFE052/6 valve


Dimensional data

8-way DFE52/8 valve

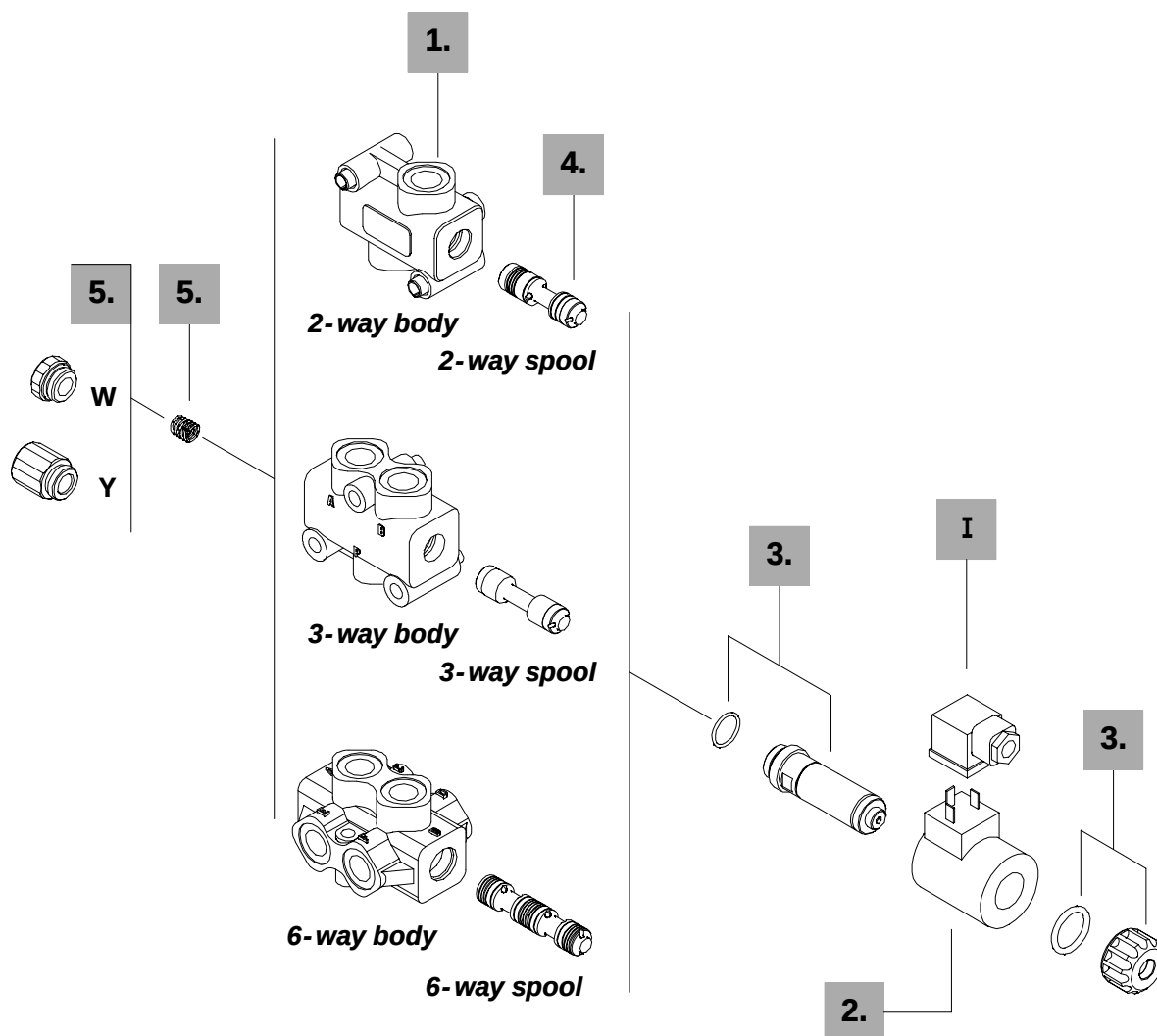


Ordering codes

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.

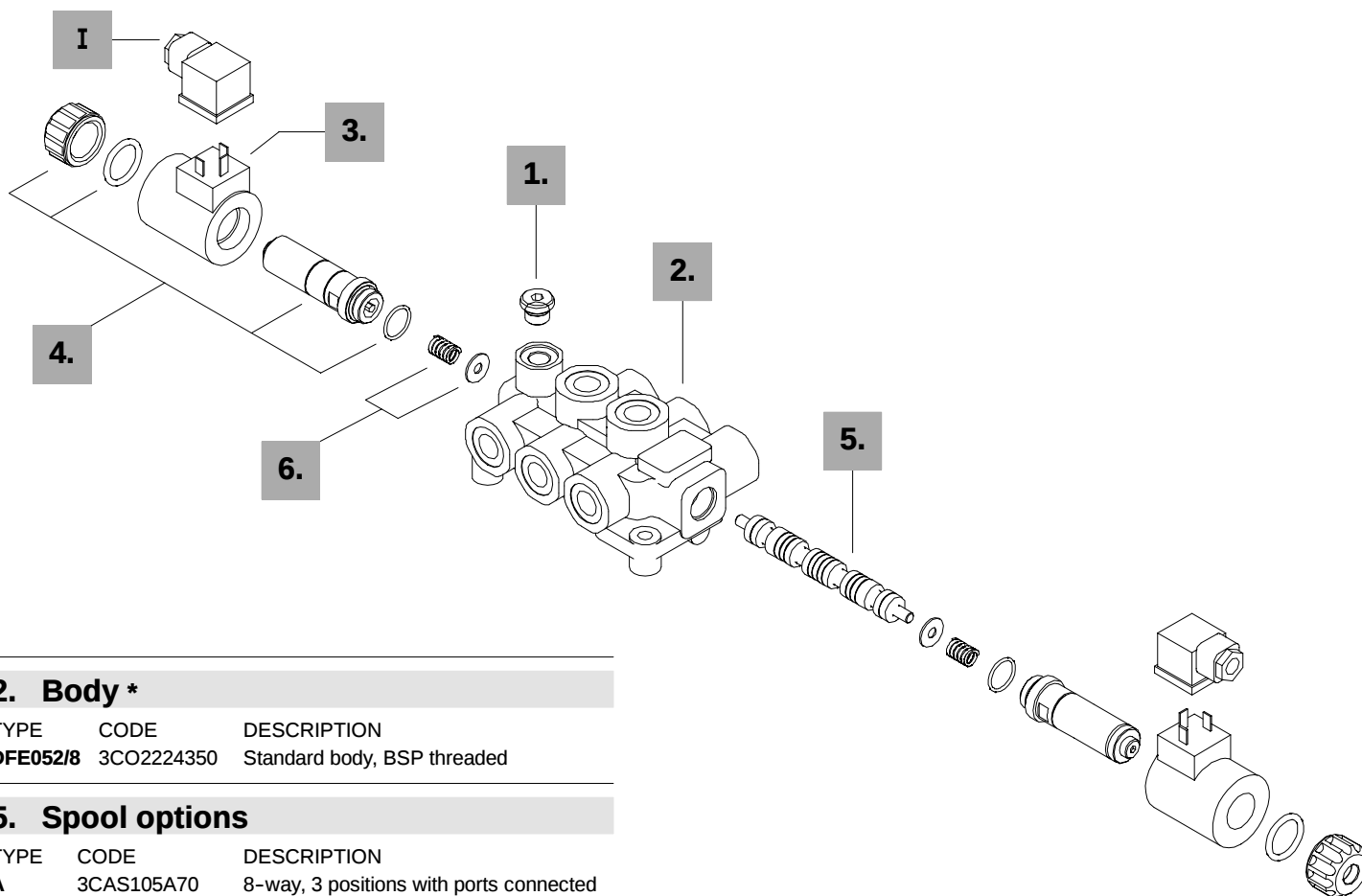
6.

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

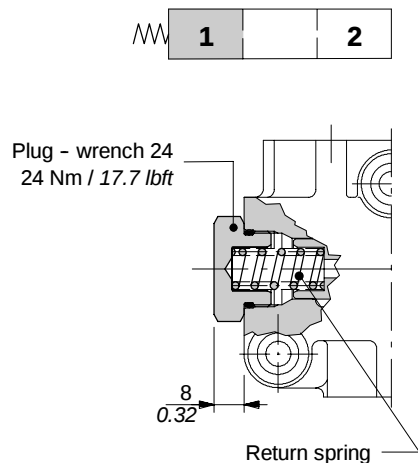
page 119

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

DFE052/2 - /3 - /6

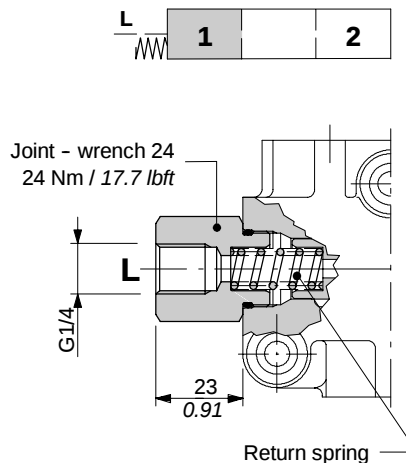
18W kit

Spring return in position 1 with plug.



18Y kit

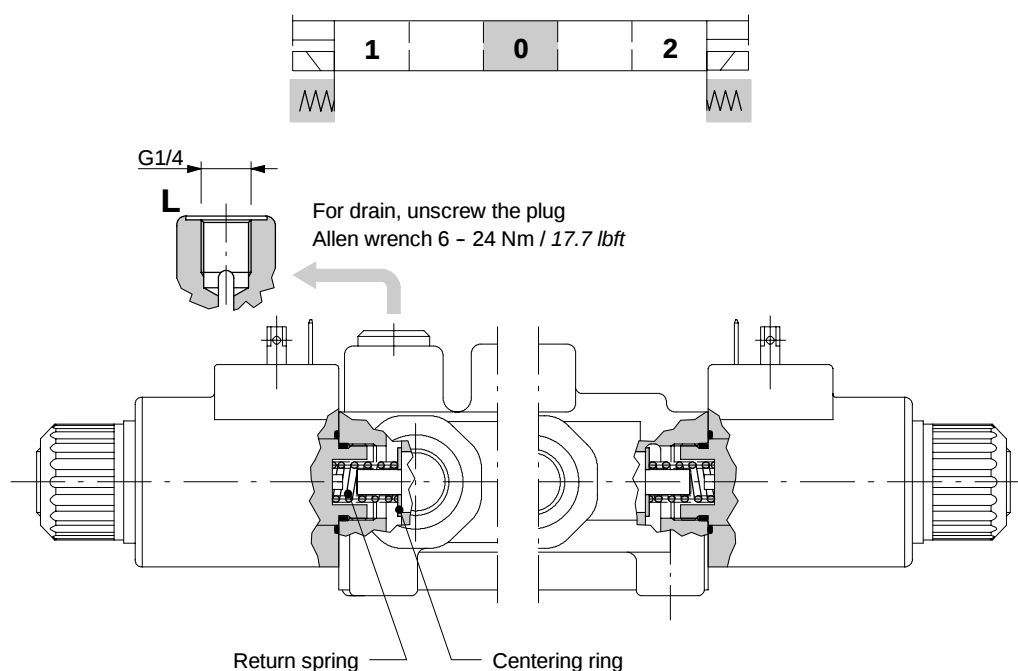
Spring return in position 1, with G1/4 joint for drain.



DFE052/8

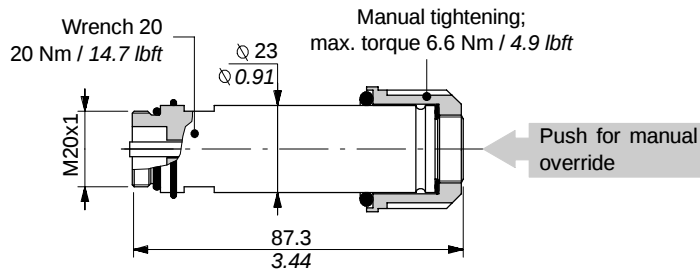
8 kit

Spring return in position 0.



Solenoid parts

ES tube assembly



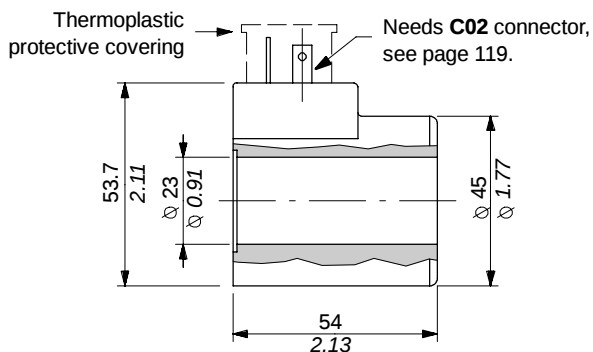
Operating features

Plunger stroke : 7.1 mm / 0.28 in

Coil options

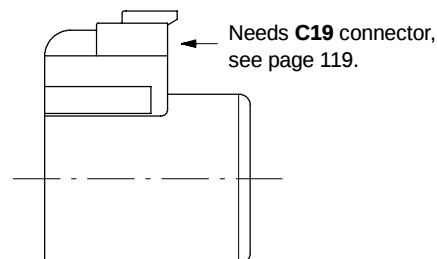
With ISO4400 connector

(weather protection IP65)



With integrated DEUTSCH 04 connector

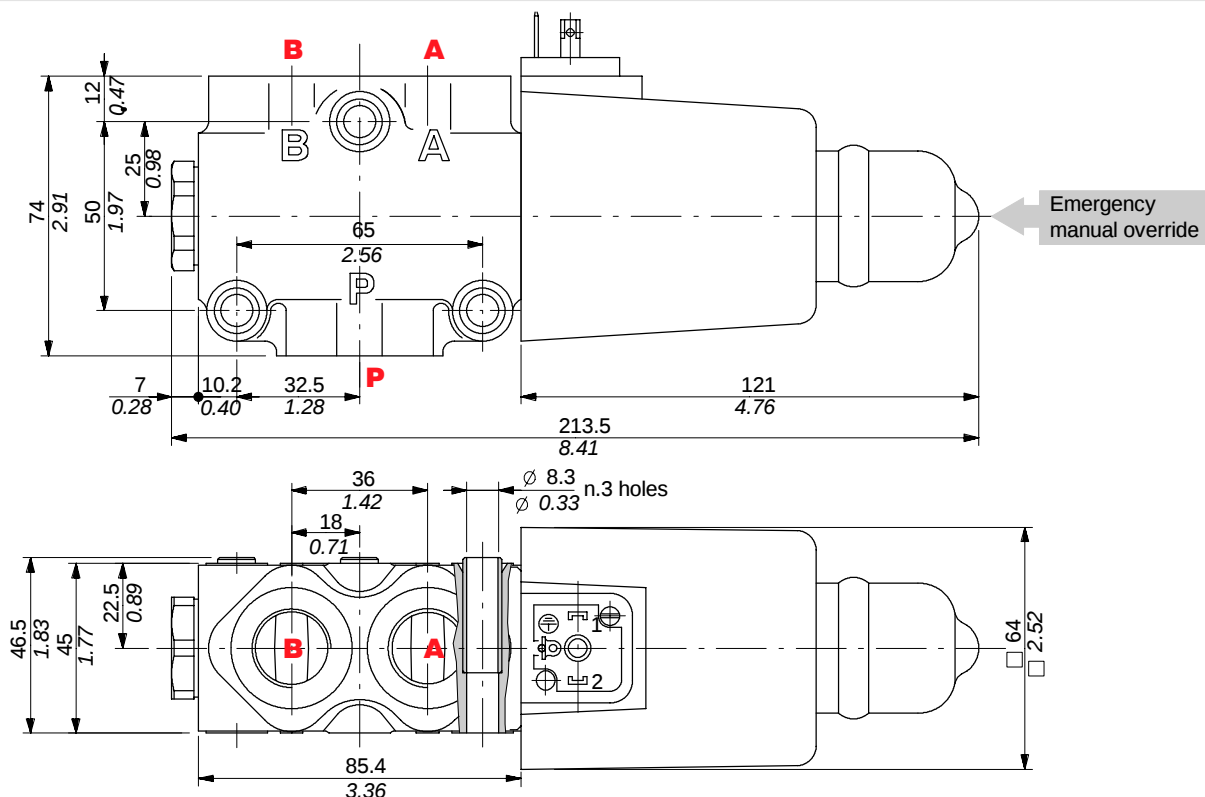
(weather protection IP67)



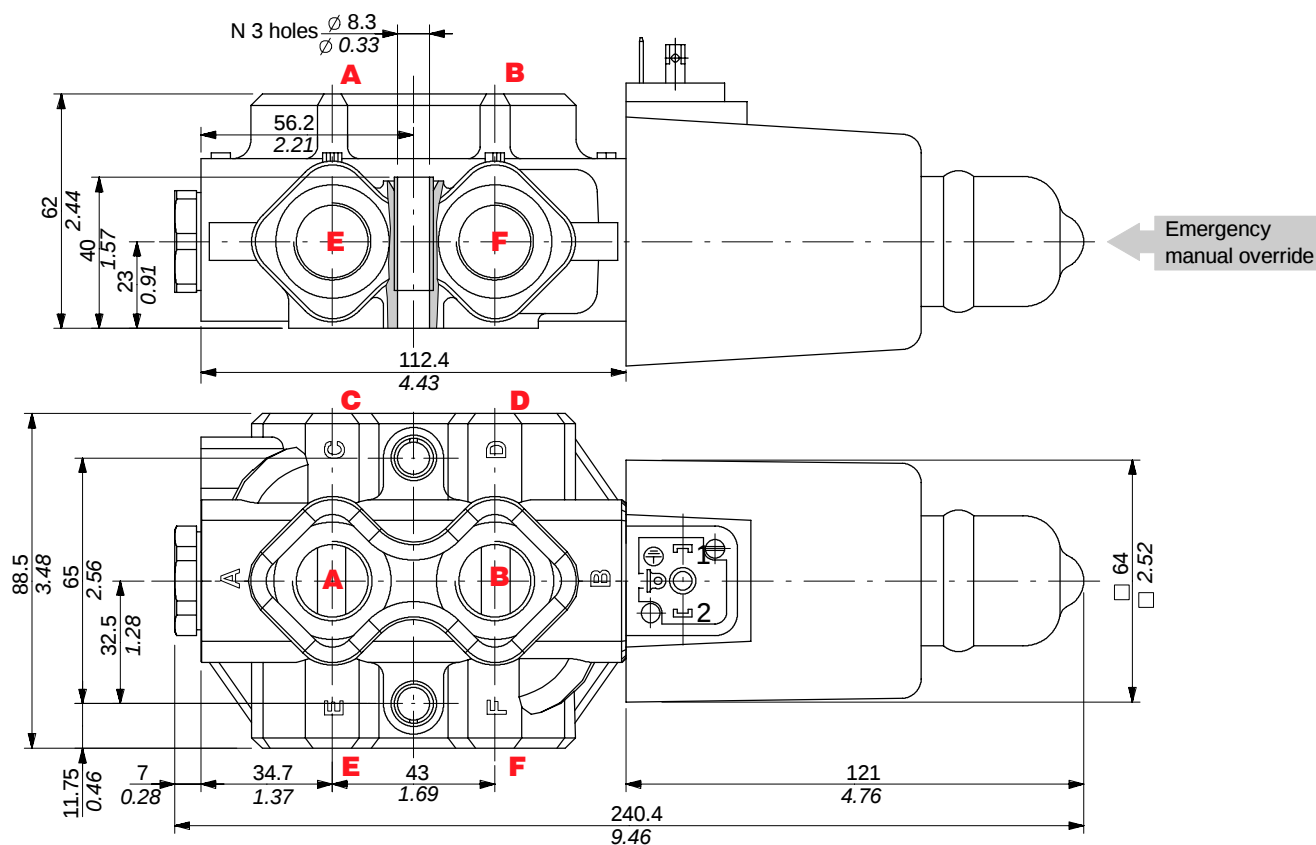
Operating features

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.

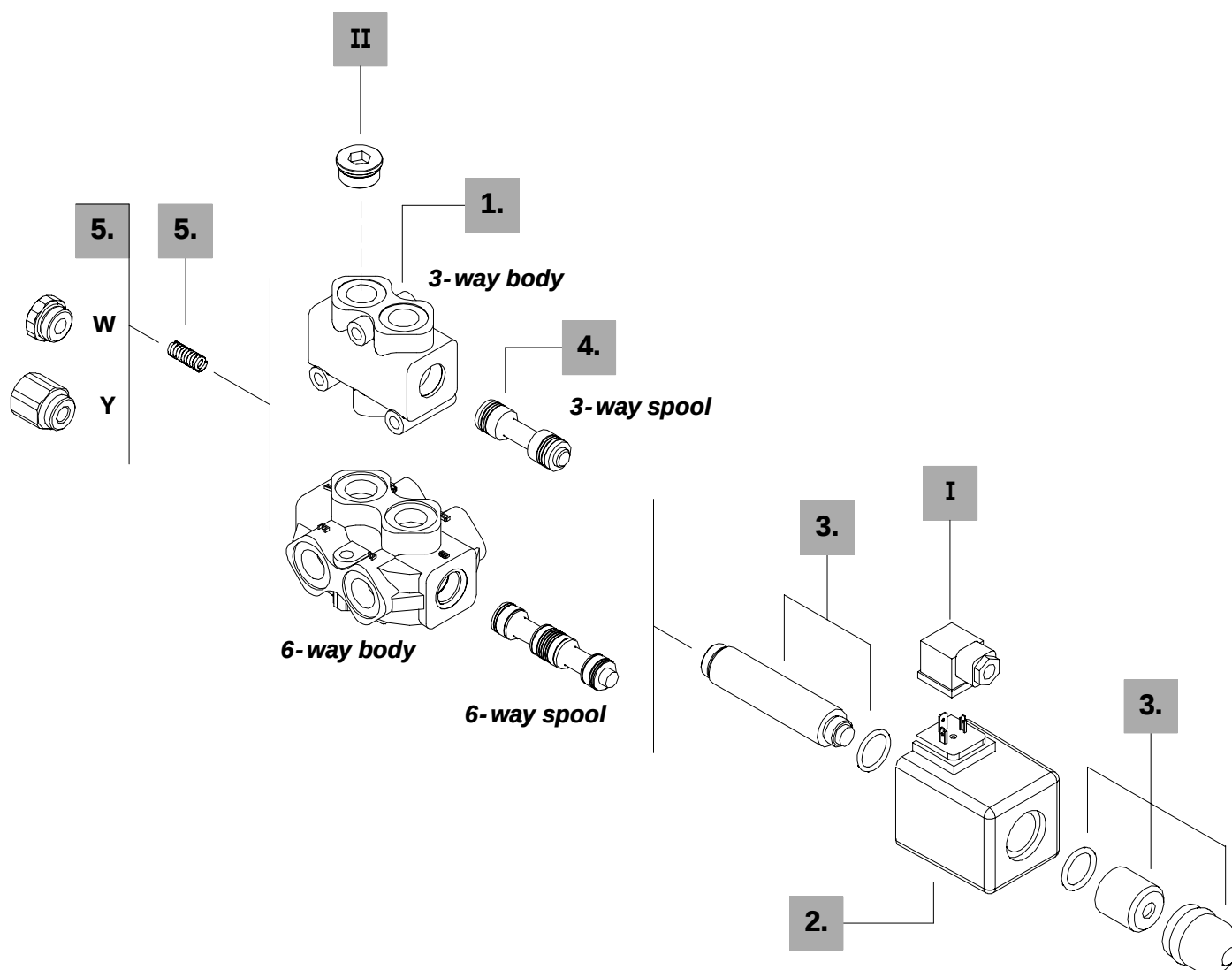
5.

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

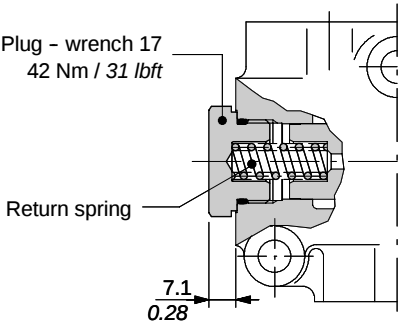
TYPE	CODE	DESCRIPTION
G1/2	3XTAP727180*	Body conversion from 3-way to 2-way circuit

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

Positioner kits

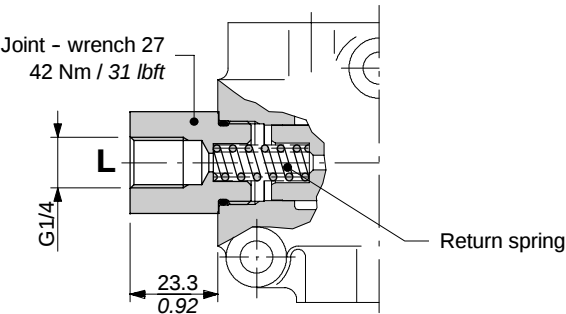
18W kit

Spring return in position 1 with plug.

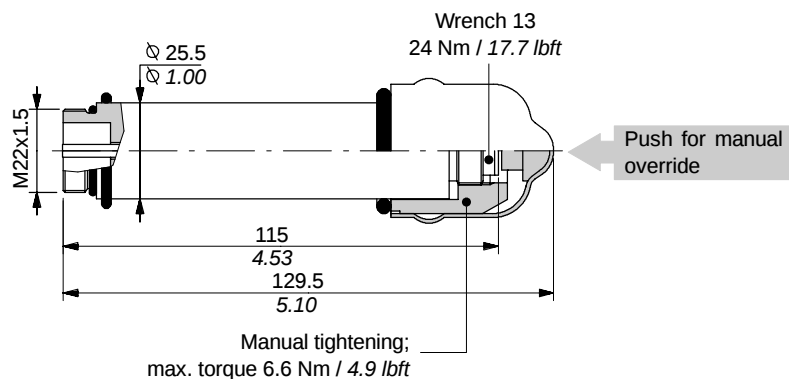


18Y kit

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



ES tube assembly



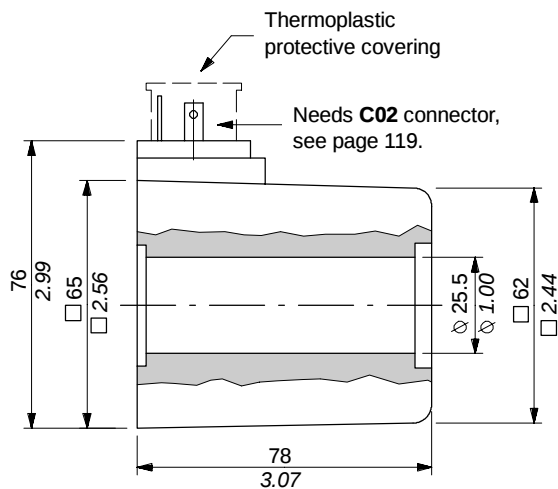
Operating features

Plunger stroke : 10.2 mm / 0.40 in

Coil options

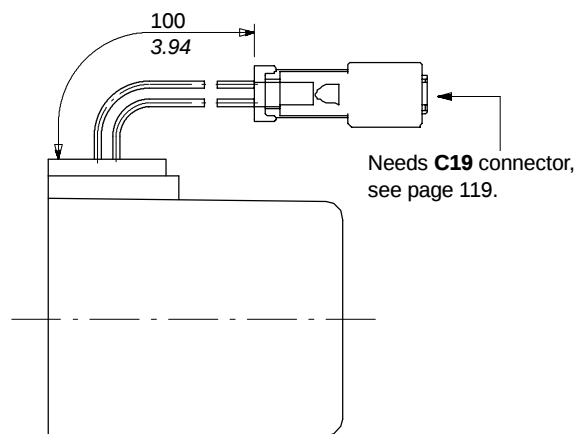
With ISO4400 connector

(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

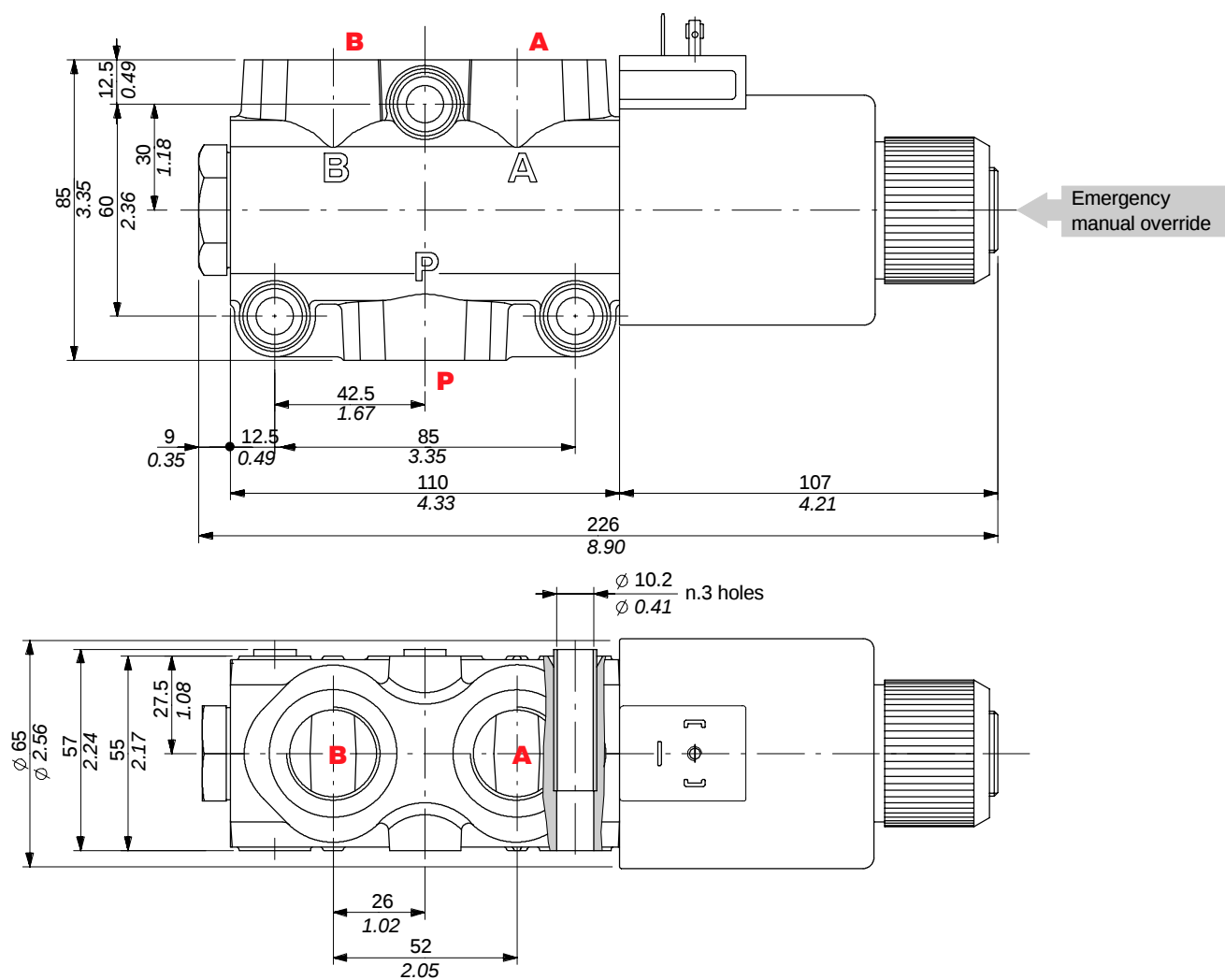
Duty cycle : 100%

Weather protection : depending on connector type

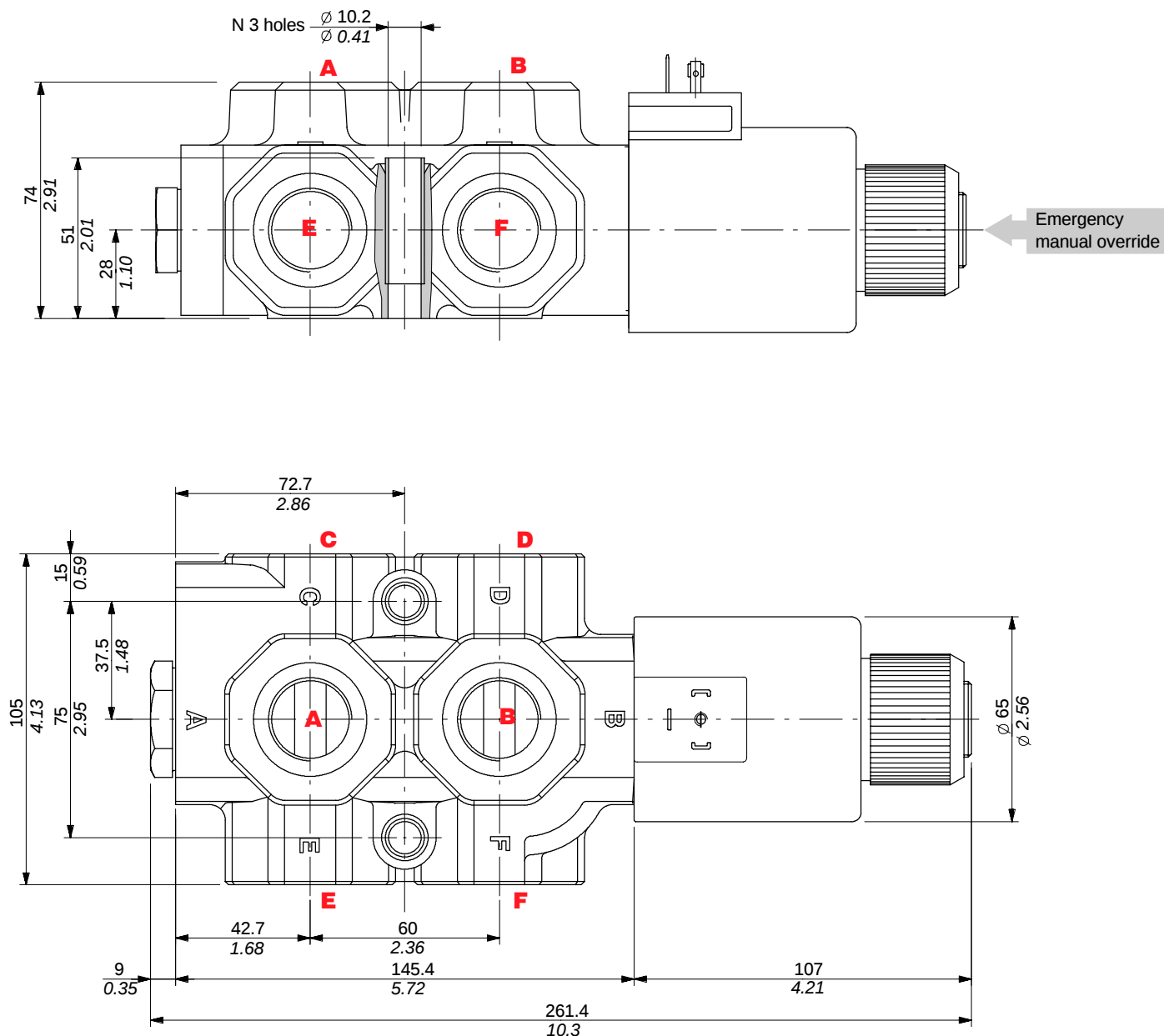
Coil insulation : Class H

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.

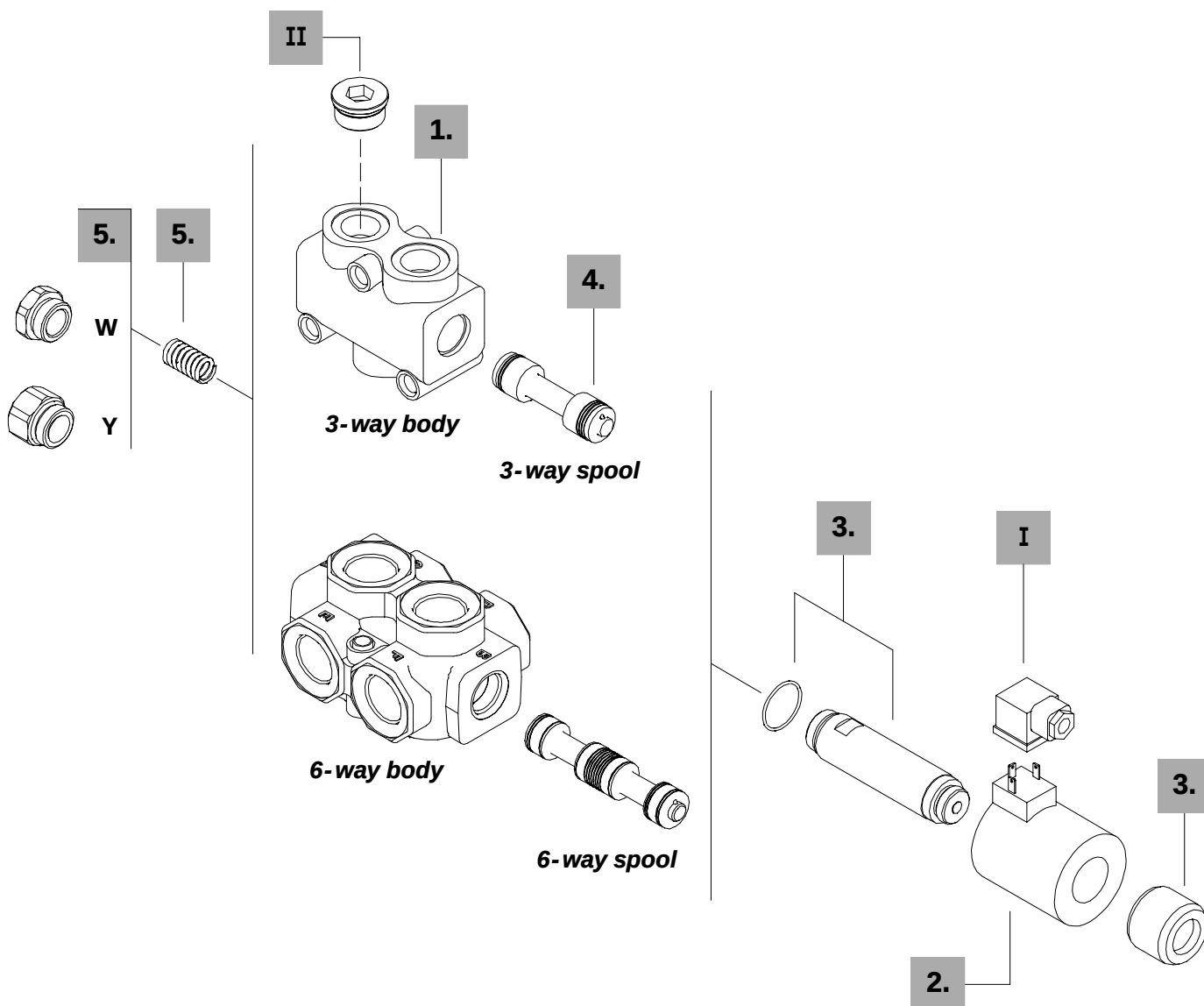
5.

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

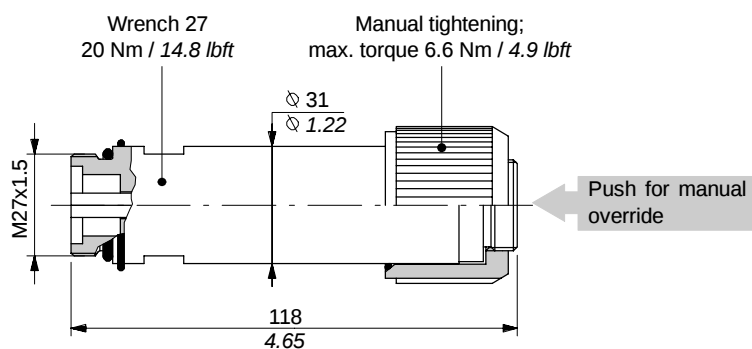
G1/4

Return spring

17
0.67

Solenoid parts

ES tube assembly



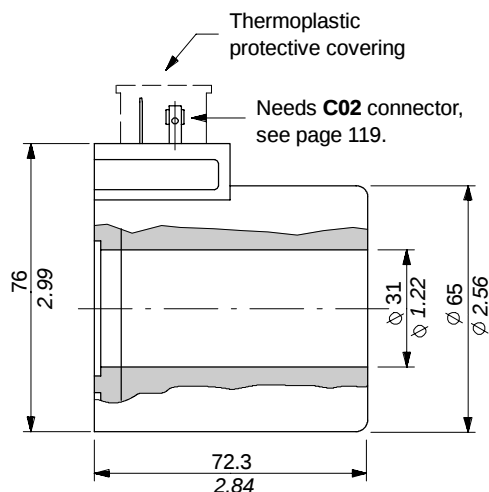
Operating features

Plunger stroke : 10.2 mm / 0.40 in

Coil options

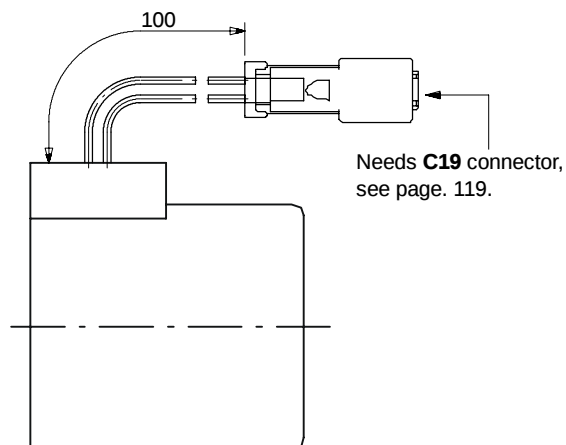
With ISO4400 connector

(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