ENGINEERING
TOMORROW

Data sheet

3/2-Way Zone-Drain-Valves
VDHT 2E, VDHT 15E and VDHT 15EC



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1. Introduction

The 3/2-way valves are designed for applications in high-pressure humidification and adiabatic cooling systems.
Each valve has an IN, OUT and DRAIN port. When the valve is not in operation the connection between IN and OUT is closed while the connection between OUT and DRAIN stays open. This allows to instantanously relief the pressure at shut down from the application, typically a nozzle branch, to prevent the nozzle from dripping. If desired, the nozzle branch can be entirely drained after shut down to avoid bacterial growth. Furthermore, each valve has its individual properties to match exactly the specific needs in size and functionality.

All of our valves are made of stainless steel (AISI 304) and are suitable for potable and technical water. They have an extremely long service life for at least one million operations and are even then very easy to service.

Inline valves are available with European BSP thread (G-thread) and American National Pipe Thread (NPT). For the VDHT 15EC Danfoss offers a wide range of single and multiple manifolds.

The enclosure rating is IP67, including any standard coil. A large variety of coils for various supply voltages is available for all our valves.

If the recommendations in the manual are not followed, Danfoss reserves the right to void the warranty.

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2. Overview

VDHT 2E for small flows



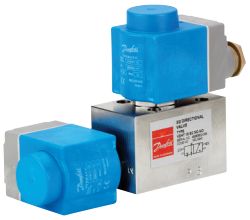
The VDHT 2E is a small valve for minor flow rates up to 2 litres per minute (0.52 gpm).
It is a direct operated valve with one NO and NC armature.
The VDHT 2E requires 2 coils activated by a common signal (ie. 24V a.c.).
It is suitable for systems with many zones with few nozzles and is a very cost effective solution.

VDHT 15E for medium flows



The VDHT 15E is a medium size single inline valve for flow rates up to 15 litres per minute (4 gpm).
It is comprising a piston type NC valve and a NO pilot stage in one housing. The NO part has a relative small orifice, so it cannot drain a big volume very fast.
It covers a very wide flow range already starting from 1 litre per minute (0.26 gpm).
The VDHT 15E requires 2 coils activated by acommon signal (ie. 24 V a.c.)

VDHT 15EC Cetop 3



The VDHT 15EC 3/2 is the Cetop 3 variant of the VDHT 15E, by means that connections are made through a valve block or multiple vave manifolds.
In multiple valve applicatons up to 5 valves can be installed on a common manifold side by side, saving time, space and plumbing effort.

Sub-base valve manifolds



Danfoss offers sub-base manifolds for installin 3, 4 or 5 VDHT 3/2 way valves side by side.
The sub-base manifolds represent a very cost-effective solution, saving significantly on time, space and plumbing efforts, as the number of connections is minimized.

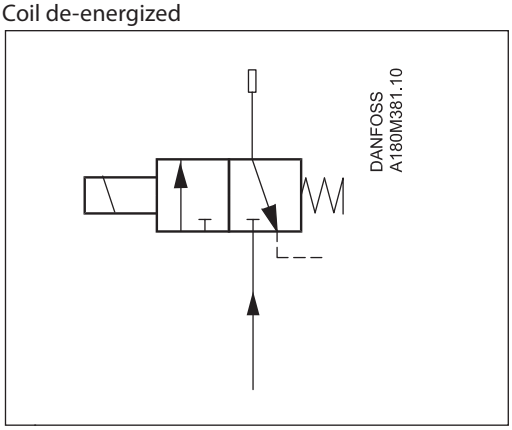
3. Technical data

Description		VDHT 2E	VDHT 15E	VDHT 15EC
Code number	BSP	180L0298	180L0173	180L0240
	NPT	180L1017	180L0174	
Connection	BSP	3 x ¼	⅜, ⅜, ¼	CETOP 3
	NPT	3 x ¼	3 x ⅜	
Max. continuous inlet pressure	barg	80	140	140
	psig	1150	2000	2000
Max. peak inlet pressure	barg	100	160	160
	psig	1450	2300	2300
Min. operation pressure at inlet port	barg	1	2	2
	psig	14.5	29	29
Drain opening pressure	barg	80	80	80
	psig	1150	1150	1150
Max. flow	l/min	2	15	15
	gpm	0.52	4	4
Min. flow	l/min	0	1	1
	gpm	0	0.26	0.26
Max. drain flow	l/min	2	5	5
	gpm	0.52	1.3	1.3
Opening/closing time	ms	250	250	250
Water temperature	°C	2-50	2-50	2-50
	°F	37-122	37-122	37-122
Weight without coils	kg	1.4	1.6	1.7
	lbs	3.1	3.5	3.7

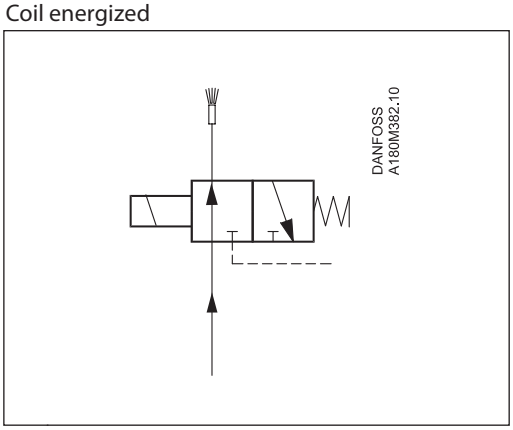
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3.1 3/2-way principle

Coil de-energized

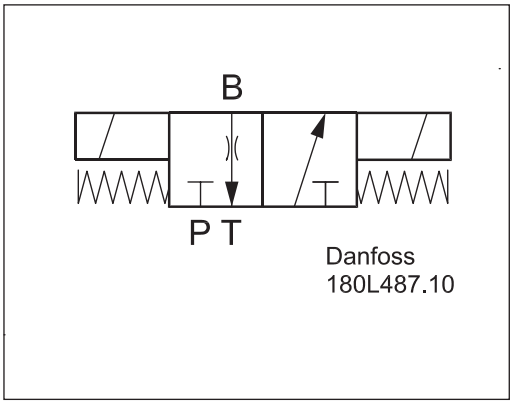


Coil energized



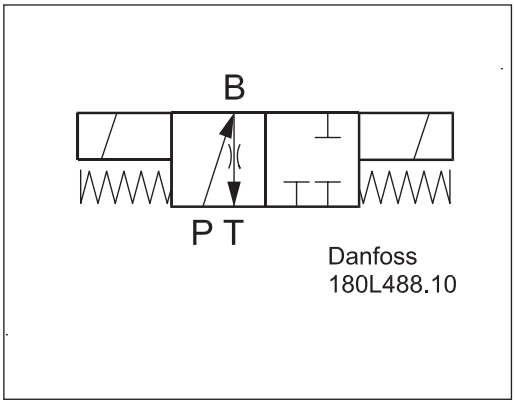
2.3 Soft-Charge principle

Both coils de-energized



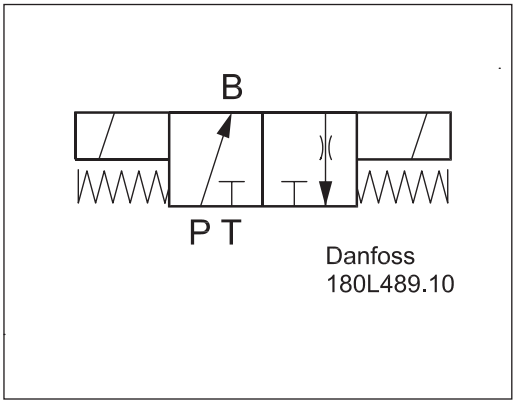
P-port (IN) closed,
B- and t_port conneted
(OUT and DRAIN), application drained

NC coil energized only



P-, T- and B-port
(IN, OUT and DRAIN) connected;
flow partially to application and drain

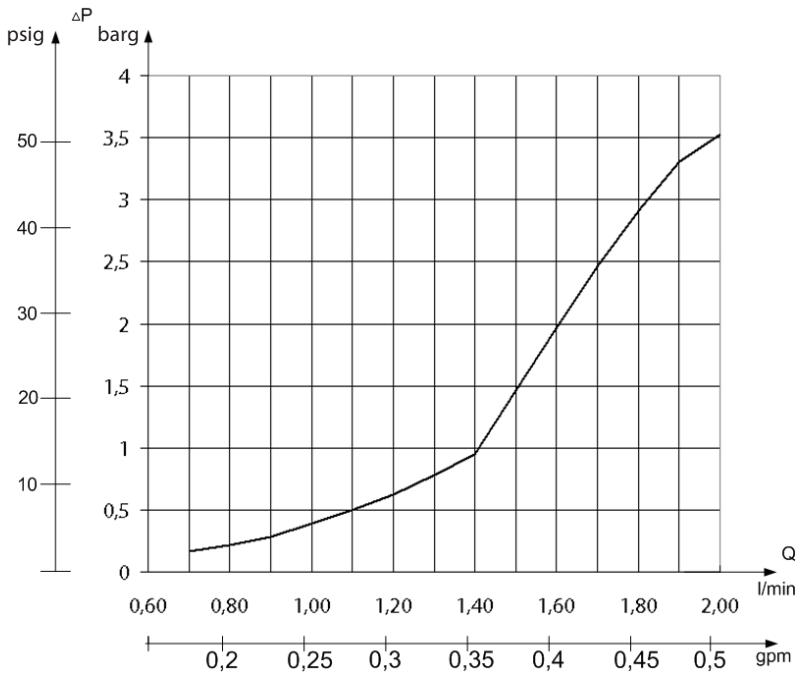
Both coils energized



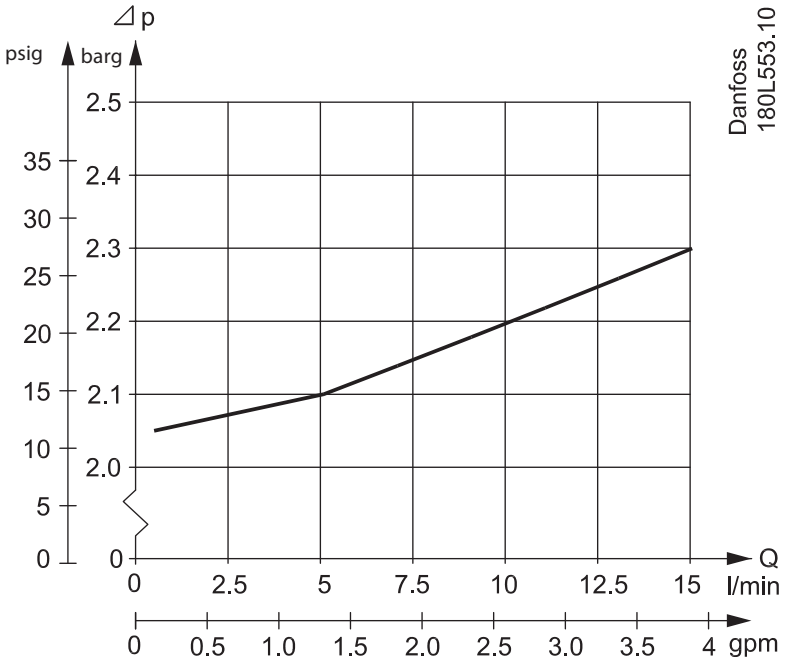
P-and B-port (IN and OUT) connected,
T-port (DRAIN) closed, full flow to application

4. Pressure losses at different flows

VDHT 2E



VDHT 15E and VDHT 15EC



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5. Overview coils and accessories



Description	Code no. HPP	Voltage	Power	Voltage tolerance	T max Ambiente °C (°F)	Connection	Enclosure	Weight kg (lbs)
Type BB / Without LED / for Hirschmann plug / excl. plug								
Coil 240V-50Hz-10W-IP65	018F7906	240V 50Hz	11W	+/- 10-15%	80 (176)	DIN 43650-A	IP65	0.2 (0.5)
Coil 24V-50Hz-10W-IP65	018F7905	24V 50Hz	11W		80 (176)	DIN 43650-A	IP65	0.2 (0.5)
Coil 24V-DC-18W-IP65	018F7928	24V DC	16W	+/- 10%	50 (122)	DIN 43650-A	IP65	0.2 (0.5)



Type BE / Without LED / incl. Terminal box								
Coil 240V-60Hz-10W-IP67	018F7926	240V 60Hz	15W	+/- 10-15%	80 (176)	Terminal box	IP67	0.3 (0.7)
Coil 240V-50Hz-10W-IP67	018F7924	240V 50Hz	11W		80 (176)	Terminal box	IP67	0.3 (0.7)
Coil 220-230V-50Hz-10W-IP67	018F7921	220-230 V 50 Hz	12W		80 (176)	Terminal box	IP67	0.3 (0.7)
Coil 220-230V-50-60Hz-10W-IP67	018F7919	220-230 V 50-60Hz	17W 14W		50 (122)	Terminal box	IP67	0.3 (0.7)
Coil 220V-60Hz-10W-IP67	018F7925	220V 60Hz	13W		80 (176)	Terminal box	IP67	0.3 (0.7)
Coil 200V-50-60Hz-10W-IP67	018F7929	200V 50/60Hz	10W		80 (176)	Terminal box	IP67	0.3 (0.7)
Coil 110V-50-60Hz-10W-IP67	018F7923	110V 50-60Hz	15W 13W		50 (122)	Terminal box	IP67	0.3 (0.7)
Coil 24V-60Hz-10W-IP67	018F7922	24V 60Hz	14W		80 (176)	Terminal box	IP67	0.3 (0.7)
Coil 24V-50Hz-10W-IP67	018F7920	24V 50Hz	12W		80 (176)	Terminal box	IP67	0.3 (0.7)
Coil 42V-50Hz-10W-IP67	018F7927	42V 50Hz	10W		80 (176)	Terminal box	IP67	0.3 (0.7)
Coil 24V-DC-18W-IP67	018F7914	24V DC	16W	+/- 10%	50 (122)	Terminal box	IP67	0.3 (0.7)
Coil 12V-DC-18W-IP67	018F7913	12V DC	15W	+/- 10%	50 (122)	Terminal box	IP67	0.3 (0.7)



Type BE / Without LED / for Hirschmann plug / prepare for terminal box								
Coil 200V-50-60Hz-10W-IP67	018F7918	200V 50/60 Hz	10W	+/- 10-15%	50 (122)	Terminal box	IP67	0.2 (0.5)
Coil 240V-50Hz-10W-IP67	018F7917	240V 50 Hz	11W		80 (176)	Terminal box	IP67	0.2 (0.5)
Coil 24V-DC-18W-IP67	018F7912	24V DC	16W	+/- 10%	50 (122)	Terminal box	IP67	0.3 (0.7)



Type BY / Without LED / for Hirschmann plug / excl. plug / UL Recognised								
Coil 208-240V-50-60Hz-14W-IP65-UL	018F7908	208-240V 50/60 Hz	16W 14W	+/- 10-15%	50 (122)	DIN43650-A	IP65	0.2 (0.5)
Coil 110V-50-60Hz-14W-IP65-UL	018F7909	110V 50-60 Hz	14W		50 (122)	DIN43650-A	IP65	0.2 (0.5)
Coil 24V-50-60Hz-14W-IP65-UL	018F7907	24V 50-60 Hz	14W 12W		50 (122)	DIN43650-A	IP65	0.2 (0.5)



Type BE / excl. LED / Incl. cable								
Coil 48V-50-60Hz-10W-IP67-4m cable	018F7915	48V 50Hz	10W	+/- 10-15%	80 (176)	4 mtr. cable	IP67	0.3 (0.7)



Type BO / Ex mb II T4 Gb - 2014/34/EU (ATEX) EN60079-D-2012+A11:2013, EN60079-D:2018, EN60079-18:2015 + A1:2017, EN60730-1:2011 [1]								
Coil Ex mb IIC T4 24V-50/60 Hz 10W-IP67	018Z6595[2]	24V 50/60 Hz	10W	±10%	60 (140)	5 m. cable	IP67	0.6 (1.4))
Coil Ex mb IIC T4 110V-50/60 Hz 10W-IP67	018Z6593[2]	110V 50/60 Hz	10W	±10%	60 (140)	5 m. cable	IP67	0.6 (1.4))
Coil Ex mb IIC T4 230V-50/60 Hz 10W-IP67	018Z6592[2]	230V 50/60 Hz	10W	±10%	60 (140)	5 m. cable	IP67	0.6 (1.4))
Coil Ex mb IIC T4 240V-50/60 Hz 10W-IP67	018Z6591[2]	240V 50/60 Hz	10W	±10%	60 (140)	5 m. cable	IP67	0.6 (1.4))
Coil Ex mb IIC T4 Gb 24V DC - IP67-10W-IP67	018Z6596[2]	24V DC	10W	± 10%	60 (140)	5 m. cable	IP67	0.6 (1.4)

[1] Due to physical dimensions of the ATEX coil, it is not possible to use these in combination with the HPP block valves (BL2 - 5)
[2] Code nos. to be ordered in Danfoss Sensing Solutions (PL04)



042N1256



042N1278

Connecting plug / Typ BY / excl. LED / for Hirschmann connection (DIN 43650-A) UL Recognised								
Plug EN175301-803 A PG9	042N1256[1)]	–	Excl LED	–	125 (257)	BE-BB-BY	IP67	0.1 (0.3)
Plug EN175301-803 A PG9	042N1278[1)]	–	Excl LED	–	90 (194)	BE-BB-BY	IP65	0.1 (0.3)



Connecting plug / Typ BY / incl. LED / for Hirschmann connection (DIN 43650-A) UL Recognised								
Plug EN175301-803 A 230V AC/DC LED	042N0265[1)]	230V AC	Incl LED	–	60 (140)	BE-BB-BY	IP65	0.1 (0.3)
Plug EN175301-803 A 24V AC/DC LED + PACK	042N0263[1)]	24V AC/DC	Incl LED	–	60 (140)	BE-BB-BY	IP65	0.1 (0.3)



Connection terminal box / Permanent magnet								
Terminal box excl. LED pack unit 100 Pe	018Z0279	–	Excl LED 100 PE	–	80 (176)	BE	IP67	0.1 (0.3)
Terminal box incl. LED 48-220V DC 24-250V-50Hz / only BE	018Z0089[1)]	48-220V DC24 -250V 50/60 Hz	Incl. LED	–	80 (176)	BE	IP67	0.1 (0.3)
Permanent magnet	180Z0212	for testing	–	–	–	–	–	0.3 (0.7)

[1)] Code nos. to be ordered in Danfoss Sensing Solutions (PL04)

6. Sub-base manifold

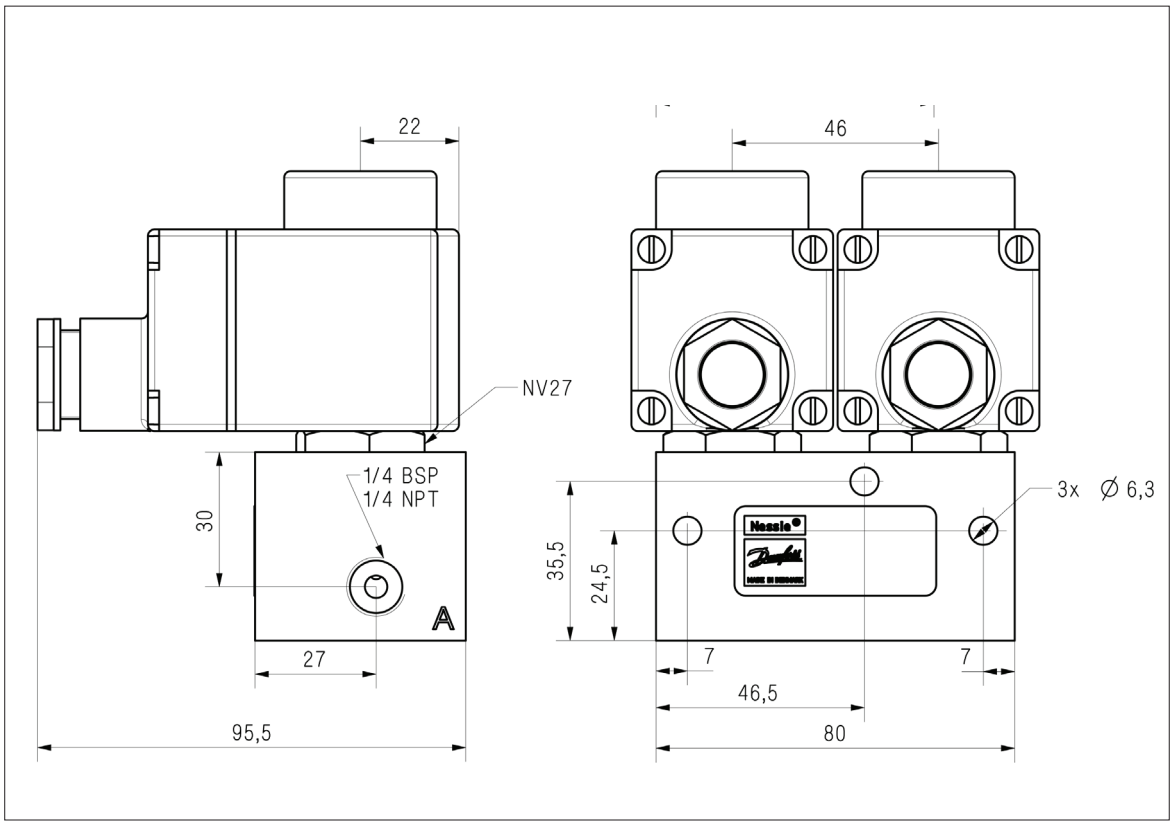
6.1 Manifolds

Type	Description	Code No.
Sub-base manifold	for 3 VDHT 15EC	180L0261
Sub-base manifold	for 4 VDHT 15EC	180L0262
Sub-base manifold	for 5 VDHT 15EC	180L0263
Blind plate	to cover spare position	180L0079

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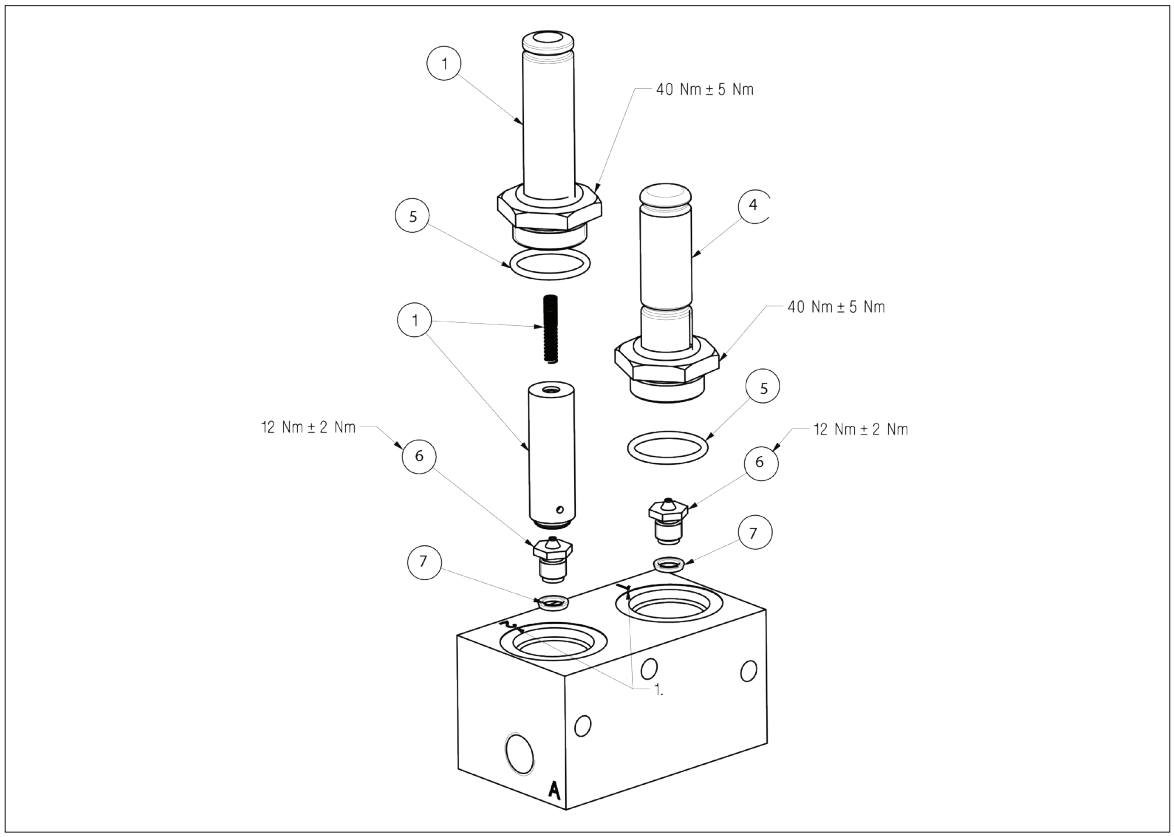
7. VDHT drawing spare part

VDHT 2E
Drawings
Spare parts

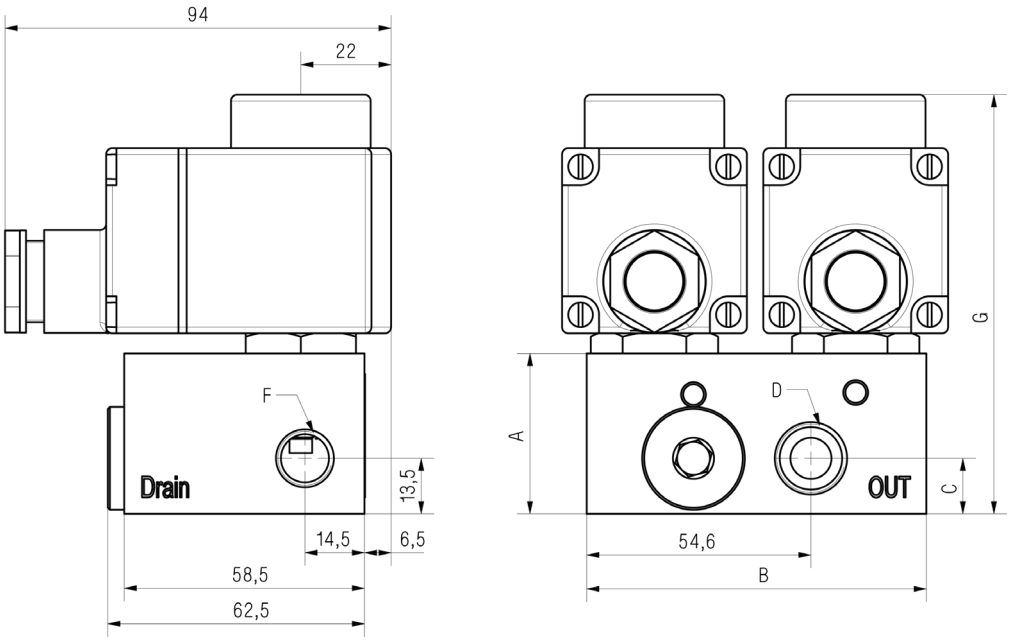


Spare parts

Armature kit NC	180L5002 / Pos.: 1, 5
Armature kit NO	180L5010 / Pos.: 4, 5
Orifice kit NO & NC (1.4 mm)	180Z0097 / Pos.: 6, 7

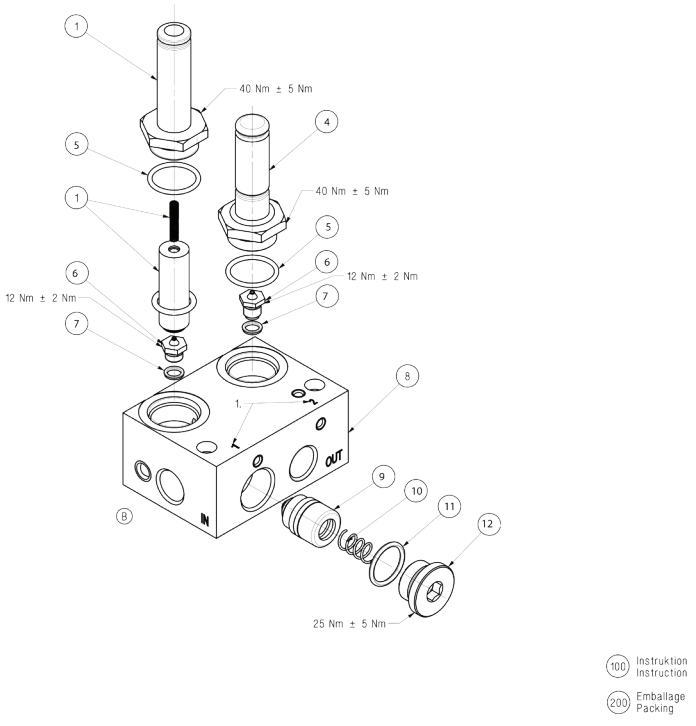


VDHT 15 E
Drawings
Spare parts



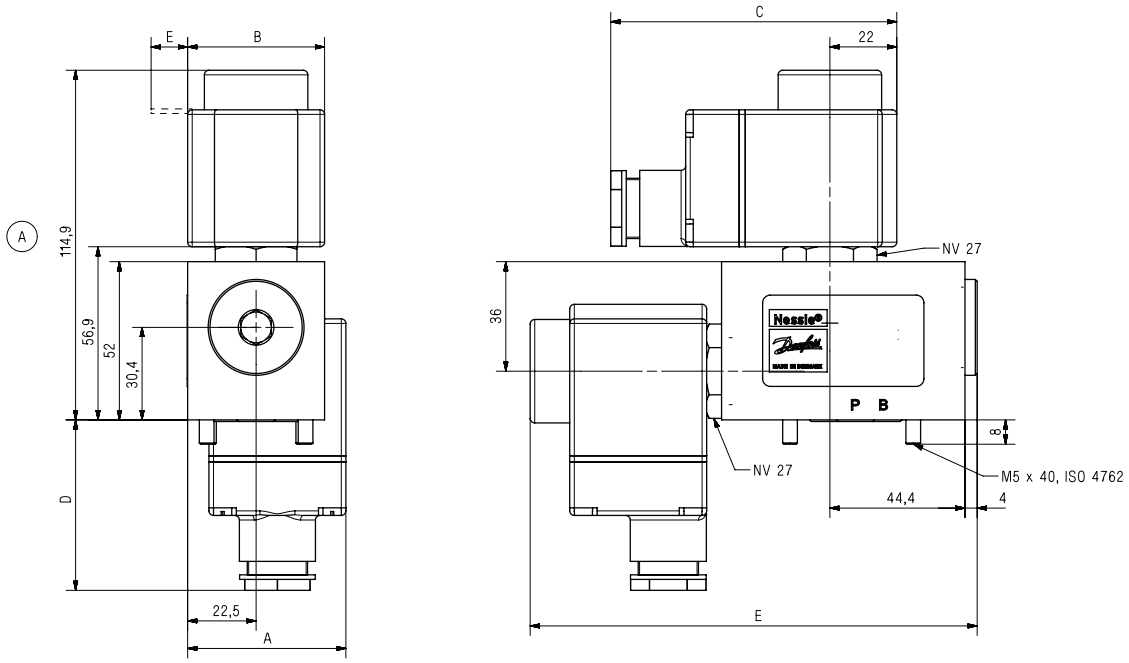
Spare parts

Armature kit NC	180L5002 / Pos.:1, 5
Armature kit NO	180L5010 / Pos.: 4, 5
Orifice kit NC	180Z0098 / Pos.: 6, 7
Orifice kit NO	180Z0097 / Pos.: 6, 7
Piston kit Ø18.1	180Z0024 / Pos.: 9, 10, 11



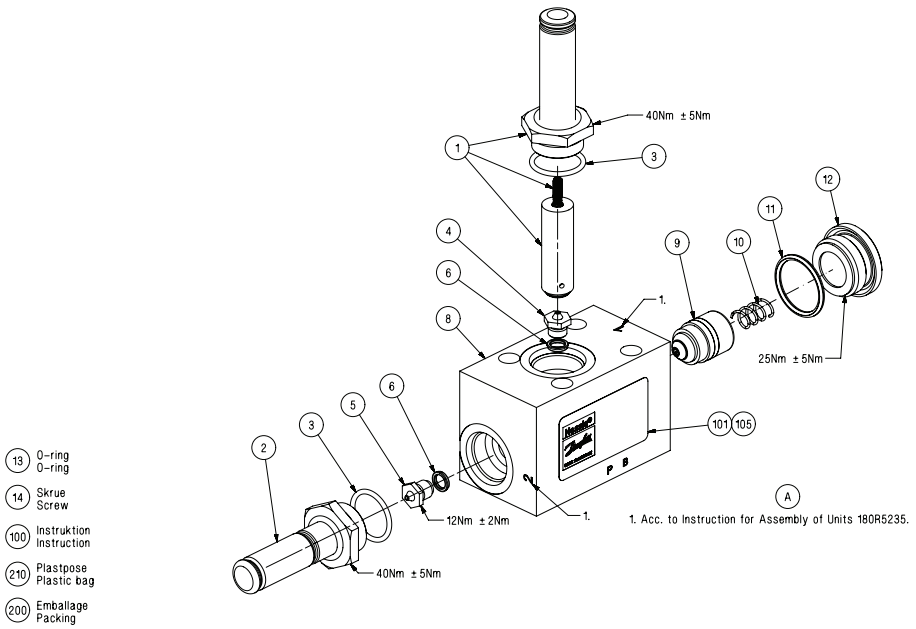
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VDHT 15 EC
Drawings
Spare parts



Spare parts

Armature kit NC	180L5002 / Pos.: 1, 5
Armature kit NO	180L5010 / Pos.: 4, 5
Orifice kit NC	180Z0098 / Pos.: 6, 7
Orifice kit NO	180Z0097 / Pos.: 6, 7
Piston kit	180Z0024 / Pos.: 9, 10



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