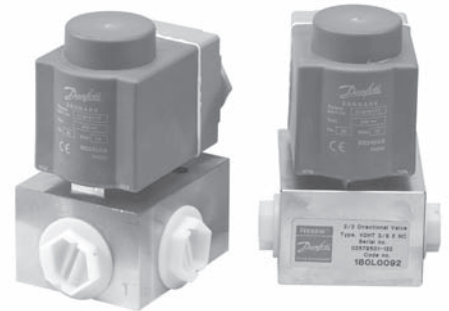


Nessie® 2/2 way Solenoid valves for High Pressures and High Temperatures, type VDHT

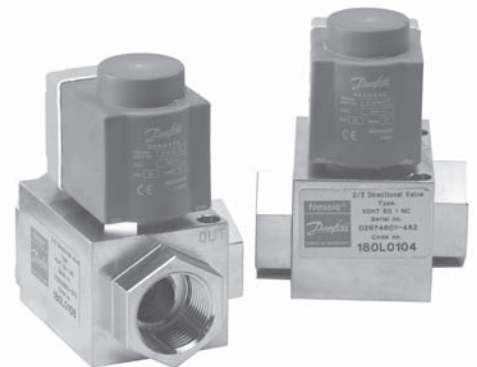
Valve program for small and medium flows:

- VDHT 3/8 E 2/2
- VDHT 1/2 E 2/2
- VDHT 3/8 EA 2/2
- VDHT 1/2 EA 2/2



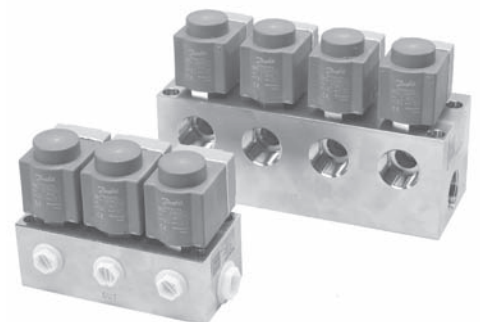
Valve program for big flows:

- VDHT 3/4 ED 2/2
- VDHT 1 ED 2/2
- VDHT 3/4 EA 2/2
- VDHT 1 EA 2/2



Integrated valve blocks (valves and block are one component):

- VDHT 2-5 stations



Manifold mounted valves (valve and block are separate components):

- VDHT 30 EC 2/2 way valve
30 l/min (G 3/8" manifold/Cetop 3)
- VDHT 60 EC 2/2 way valve
60 l/min (G 1/2" manifold/Cetop 5)



Application

The valves are designed for applications in neutral and most aggressive media compatible with the sealing and O-ring materials used. Typical media are water, cleaning fluids, neutral and aggressive gases, light heating oil and cutting/cooling oil.

The valves are used in applications like car wash systems, stationary high pressure cleaning, mobile cleaning vehicles, dust binding systems and CNC machines.

Function

The directional valves are pilot operated On/Off – seat valves electrically activated by a coil.

Benefits

- Corrosion-proof
- Easy-to-clean surfaces
- Reliability
- Dirt tolerant
- High temperature-resistant
- The seat valve design prevents leakage
- High coil density IP 67
- Possible to get a compact and simple block solution (integrated valve block)

Standard version

The valve housing and manifolds are made of stainless steel AISI 304 (W.No. 1.4301), and the piston of stainless steel AISI 316 (W.No. 1.4401).

The valves are delivered with PTFE piston sealings and PTFE piston insert, and as standard the valves are supplied with either FKM (Viton) or NBR O-rings.

The standard version of the VDHT valves is available with a number of mounting possibilities: Inline with straight or angular flow with 3/8", 1/2", 3/4", 1" threads and cetop 3 and cetop 5 manifold mounting.

The valves are available in normally closed (NC) or normally open (NO) versions. Both NPT and BSP are standard threads.

Temperature

- Medium temperature: 2°C to 90°C (if NBR O-rings are used, the medium temperature limit is 80°C)
- Ambient temperature: 2°C to 80°C

For operation at lower temperatures please contact Danfoss sales organization for Water Hydraulics.

Technical Data
VDHT 3/8" and 1/2" valves

	VDHT 3/8 E 2/2	VDHT 1/2 E 2/2	VDHT 3/8 EA 2/2	VDHT 1/2 EA 2/2
Max. inlet pressure	160 bar (HP = 210 bar)	160 bar (HP = 210 bar)	160 bar (HP = 210 bar)	160 bar (HP = 210 bar)
Min. Flow*	1 l/min*	1 l/min*	1 l/min*	1 l/min*
Opening time NC	At 30 l/min: 100-125 ms	At 60 l/min: 120-140 ms	At 30 l/min: 100-125 ms	At 60 l/min: 100-125 ms
Closing time NC	At 30 l/min: 200-300 ms	At 60 l/min: 200-300 ms	At 30 l/min: 200-300 ms	At 60 l/min: 200-300 ms
Operation pressure**	3.5 bar	3.5 bar	3.5 bar	3.5 bar
Max. viscosity	45 cSt	45 cSt	45 cSt	45 cSt
Connection	G 3/8"	G 1/2"	G 3/8"	G 1/2"
Weight (incl. of coil)	1.2 kg	1.2 kg	1.2 kg	1.2 kg

* For smaller flow than 1 l/min, please contact Danfoss sales organization for water hydraulics

** Inlet pressure must always be higher than the outlet pressure.

Technical Data
VDHT 3/4" and 1" valves

	VDHT 3/4 ED 2/2	VDHT 1 ED 2/2	VDHT 3/4 EA 2/2	VDHT 1 EA 2/2
Max. inlet pressure	140 bar	140 bar	140 bar	140 bar
Min. Flow*	1 l/min*	1 l/min*	1 l/min*	1 l/min*
Opening time NC	At 120 l/min: 500-700 ms	At 150 l/min: 500-900 ms	At 120 l/min: 500-700 ms	At 150 l/min: 500-900 ms
Closing time NC	At 120 l/min: 900-1200 ms	At 150 l/min: 1200-2000 ms	At 120 l/min: 900-1200 ms	At 150 l/min: 1200-2000 ms
Operation pressure**	3.5 bar	3.5 bar	3.5 bar	3.5 bar
Max. viscosity	45 cSt	45 cSt	45 cSt	45 cSt
Connection	G 3/4"	G 1"	G 3/4"	G 1"
Weight (incl. of coil)	2.3 kg	2.3 kg	2.3 kg	2.3 kg

* For smaller flow than 1 l/min, please contact Danfoss sales organization for water hydraulics.

** Inlet pressure must always be higher than the outlet pressure.

Integrated valve blocks

	Outlet connections: G 3/8" or G 1/2" Block type: B	Outlet connections: G 3/4" or G 1" Block type: BL
Max. inlet pressure	160 bar (HP=210 bar)	140 bar
Min. Flow* (per valve function)	1 l/min	1 l/min
Operation pressure**	3,5 bar	3,5 bar
Max. viscosity	45 cSt	45 cSt
Inlet connections	G 3/8" or G 1/2"	G 3/4" or G 1"

* For smaller flow than 1 l/min, please contact Danfoss sales organization for water hydraulics.

** Inlet pressure must always be higher than the outlet pressure.

For further details please see the specific technical data section for VDHT 3/8", 1/2", 3/4 and 1" valves.

VDHT manifold mounted valves (Cetop valves)

	VDHT 30 EC 2/2 30 l/min (cetop 3)	VDHT 60 EC 2/2 60 l/min (cetop 5)
Max. inlet pressure	160 bar	160 bar
Min. Flow*	1 l/min*	1 l/min*
Opening time NC	At 30 l/min: 100-125 ms	At 60 l/min: 120-140 ms
Closing time NC	At 30 l/min: 200-300 ms	At 60 l/min: 200-300 ms
Operation pressure**	3.5 bar	3.5 bar
Max. viscosity	45 cSt	45 cSt
Connection	G 3/8" manifold (cetop 3)	G 1/2" manifold (cetop 5)
Weight (incl. of coil)	1.4 kg	1.4 kg

* For smaller flow than 1 l/min, please contact Danfoss sales organization for water hydraulics.

** Inlet pressure must always be higher than the outlet pressure.

Code Numbers

VDHT 3/8" and 1/2" inline valves

Valves (without coils)	Passage in inline valve	Port connection	O-rings material	Max. inlet pressure	Code number
VDHT 3/8 E 2/2 NC	Straight	G 3/8"	NBR	160 bar	180L0092
VDHT 3/8 E 2/2 NO	Straight	G 3/8"	NBR	160 bar	180L0093
VDHT 3/8 E 2/2 NC	Straight	G 3/8"	FPM	160 bar	180L0086
VDHT 3/8 E HP 2/2 NC	Straight	G 3/8"	NBR	210 bar	180L0178
VDHT 3/8 E HP 2/2 NC	Straight	G 3/8"	FPM	210 bar	180L0125
VDHT 3/8 EA 2/2 NC	Angular	G 3/8"	NBR	160 bar	180L0100
VDHT 3/8 EA 2/2 NO	Angular	G 3/8"	NBR	160 bar	180L0101
VDHT 1/2 E 2/2 NC	Straight	G 1/2"	NBR	160 bar	180L0094
VDHT 1/2 E 2/2 NO	Straight	G 1/2"	NBR	160 bar	180L0095
VDHT 1/2 E 2/2 NC	Straight	G 1/2"	FPM	160 bar	180L0087
VDHT 1/2 E HP 2/2 NC	Straight	G 1/2"	NBR	210 bar	180L0179
VDHT 1/2 E HP 2/2 NC	Straight	G 1/2"	FPM	210 bar	180L0126
VDHT 1/2 EA 2/2 NC	Angular	G 1/2"	NBR	160 bar	180L0102
VDHT 1/2 EA 2/2 NO	Angular	G 1/2"	NBR	160 bar	180L0103

The valves are delivered without coils. Coils must be ordered separately.
For NPT versions, please contact Danfoss Sales Organization for Water Hydraulics.

VDHT 3/4" and 1" inline valves

Valves (without coils)	Passage in inline valve	Port connection	O-rings material	Max. inlet pressure	Code number
VDHT 3/4 ED 2/2 NC	Displaced	G 3/4"	NBR	140 bar	180L0120
VDHT 3/4 ED 2/2 NC	Displaced	G 3/4"	FPM	140 bar	180L0116
VDHT 3/4 EA 2/2 NC	Angular	G 3/4"	NBR	140 bar	180L0121
VDHT 3/4 EA 2/2 NC	Angular	G 3/4"	NBR	140 bar	180L0118
VDHT 3/4 EA 2/2 NO	Angular	G 3/4"	FPM	140 bar	180L0198
VDHT 1 ED 2/2 NC	Displaced	G 1"	NBR	140 bar	180L0108
VDHT 1 ED 2/2 NC	Displaced	G 1"	FPM	140 bar	180L0104
VDHT 1 ED 2/2 NO	Displaced	G 1"	FPM	140 bar	180L0115
VDHT 1 EA 2/2 NC	Angular	G 1"	NBR	140 bar	180L0109
VDHT 1 EA 2/2 NC	Angular	G 1"	FPM	140 bar	180L0106

The valves are delivered without coils. Coils must be ordered separately.
For NPT versions, please contact Danfoss Sales Organization for Water Hydraulics.

Code Numbers

VDHT integrated valve blocks

VDHT integrated valve blocks

Integrated valve blocks in stainless steel AISI304 are available on request.

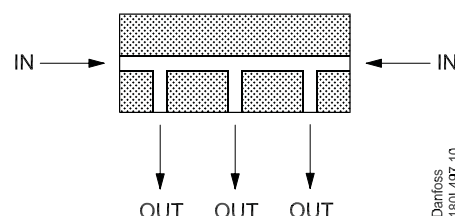
Integrated valve blocks provide a space and cost-saving solution in applications where valves are placed next to each other. Furthermore, integrated valve blocks provide a pressure loss reduction.

Possible versions:

2-station block, 3-station block, 4-station block and 5-station block

Inlet connection: 3/8", 1/2", 3/4" and 1"
 Outlet connection: 3/8", 1/2", 3/4" and 1"
 Thread: NPT or BSP

Flow direction: (Example: 3-station block)



Int. valve blocks (without coils)	Number of valve stations	Port connection	O-rings material	Max. inlet pressure	Code number
VDHT B2 1/2 inlet - 1/2 outlets NC	2 valves in a block	G 1/2" in G 1/2" out	FPM	160 bar	180L0270
VDHT B2 3/4 inlet - 1/2 outlets NC	2 valves in a block	G 3/4" in G 1/2" out	FPM	160 bar	180L0124
VDHT B2 1/2 inlet - 1/2 outlets NC-NO	2 valves in a block	G 1/2" in G 1/2" out	FPM	160 bar	180L0258
VDHT B3 3/4 inlet - 1/2 outlets NC	3 valves in a block	G 3/4" in G 1/2" out	FPM	160 bar	180L0088
VDHT B4 3/4 inlet - 1/2 outlets NC	4 valves in a block	G 3/4" in G 1/2" out	FPM	160 bar	180L0123
VDHT B5 3/4 inlet - 1/2 outlets NC	5 valves in a block	G 3/4" in G 1/2" out	FPM	160 bar	180L0091
Add-on angular inline valve 3/4 inlet - 1/2 outlets NC	1 valve in a block	G 3/4" in G 1/2" out	FPM	160 bar	180L0090
VDHT BL 1 inlet - 3/4 outlets NC	1 valve in a block	G 1" in G 3/4" out	FPM	140 bar	180L0265
VDHT BL2 3/4 inlet - 3/4 outlets NC	2 valves in a block	G 3/4" in G 3/4" out	FPM	140 bar	180L0202
VDHT BL2 1 inlet - 1 outlets NC	2 valves in a block	G 1" in G 1" out	FPM	140 bar	180L0275
VDHT BL2 3/4 inlet - 3/4 outlets NC-NO	2 valves in a block	G 3/4" in G 3/4" out	FPM	140 bar	180L0273
VDHT BL2 1 inlet - 1 outlets NC-NO	2 valves in a block	G 1" in G 1" out	FPM	140 bar	180L0274
VDHT BL3 3/4 inlet - 3/4 outlets NC	3 valves in a block	G 3/4" in G 3/4" out	FPM	140 bar	180L0089
VDHT BL3 1 inlet - 1 outlets NC	3 valves in a block	G 1" in G 1" out	FPM	140 bar	180L0189
VDHT BL4 1 inlet - 1 outlets NC	4 valves in a block	G 1" in G 1" out	FPM	140 bar	180L0172

The integrated valve blocks are delivered without coils. Coils must be ordered separately. For NPT thread or other integrated valve block combinations, please contact Danfoss Sales Organization for Water Hydraulics.

Code Numbers

VDHT manifold mounted valves (Cetop 3 and Cetop 5 valves)

Valves (without coils)	Weight in kg	Port connection	O-rings material	Max. inlet pressure	Code number
VDHT 30 EC 2/2 NC (cetop 3)	1,2	G 3/8" manifold	NBR	160 bar	180L0096
VDHT 30 EC 2/2 NO (cetop 3)	1,2	G 3/8" manifold	NBR	160 bar	180L0097
VDHT 60 EC 2/2 NC (cetop 5)	1,4	G 1/2" manifold	NBR	160 bar	180L0098
VDHT 60 EC 2/2 NO (cetop 5)	1,4	G 1/2" manifold	NBR	160 bar	180L0099
G 3/8" Manifolds (cetop 3)					
Manifold for 1 valve, VDHT 30 EC 2/2	1,0				180L0061
Manifold for 2 valves, VDHT 30 EC 2/2	1,8				180L0062
Manifold for 3 valves, VDHT 30 EC 2/2	2,6				180L0063
Manifold for 4 valves, VDHT 30 EC 2/2	3,4				180L0064
G 1/2" Manifolds (cetop 5)					
Manifold for 1 valve, VDHT 60 EC 2/2	1,6				180L0111
Manifold for 2 valves, VDHT 60 EC 2/2	3,3				180L0112
Manifold for 3 valves, VDHT 60 EC 2/2	5,0				180L0113
Manifold for 4 valves, VDHT 60 EC 2/2	6,6				180L0114

The valves are delivered without coils. Coils must be ordered separately. Cetop valves are supplied with 4 stainless steel screws and 4 O-rings.

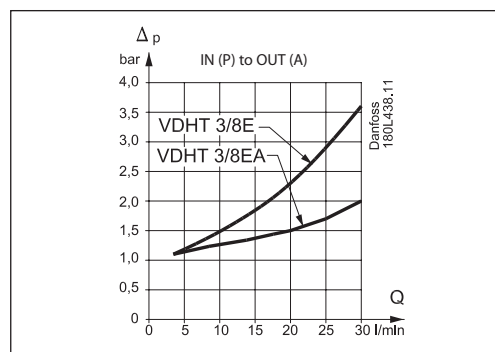
Coils

Coils	Voltage	Code number
10 W a.c. with terminal box	24V 50 Hz	018F7920
10 W a.c. with terminal box	220V 50 Hz	018F7921
10 W a.c. with terminal box	240V 50Hz	018F7924
10 W a.c. with terminal box	24V 60 Hz	018F7922
10 W a.c. with terminal box	110V 50/60 Hz	018F7923
18 W d.c. with terminal box	12V DC	018F7913
18 W d.c. with terminal box	24V DC	018F7914
10 W a.c. with terminal box	EEX 220V 50 Hz	018F7992
18 W d.c. with DIN spade terminals	24V 50 Hz	018F7928
UL recognized coils		
14 W a.c. with DIN spade terminals	24V 50/60 Hz	180Z0182
14 W a.c. with DIN spade terminals	110V 50/60 Hz	180Z0180
14 W a.c. with DIN spade terminals	208-240V 50/60 Hz	180Z0111
DIN plug		180Z0183

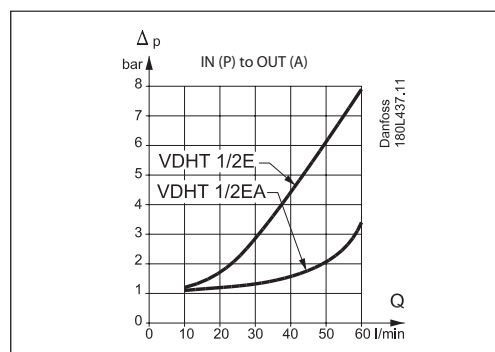
For other voltages, please contact Danfoss Sales Organization for Water Hydraulics.

Pressure losses at different flows

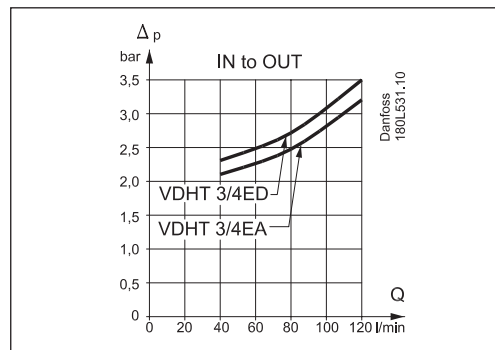
VDHT 3/8 E and VDHT 3/8 EA inline version



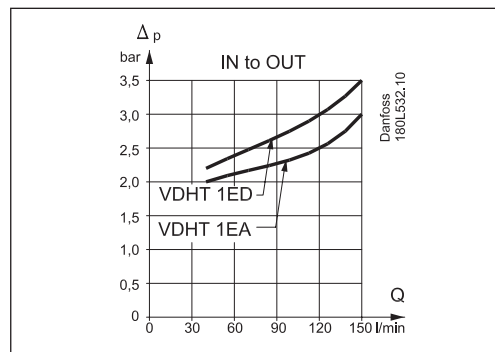
VDHT 1/2 E and VDHT 1/2 EA inline version



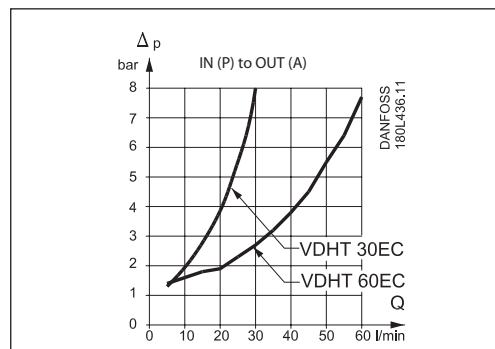
VDHT 3/4 ED and VDHT 3/4 EA Inline version



VDHT 1 ED and VDHT 1 EA Inline version

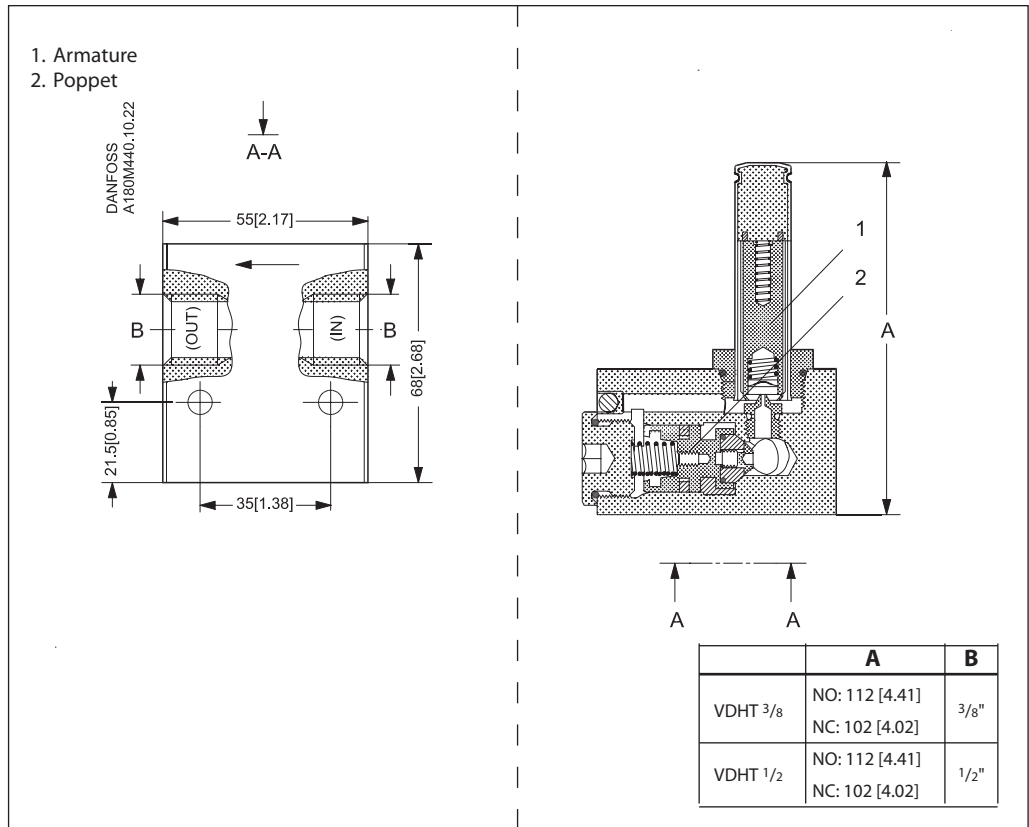


VDHT 30 EC and VDHT 60 EC Manifold (cetop) version

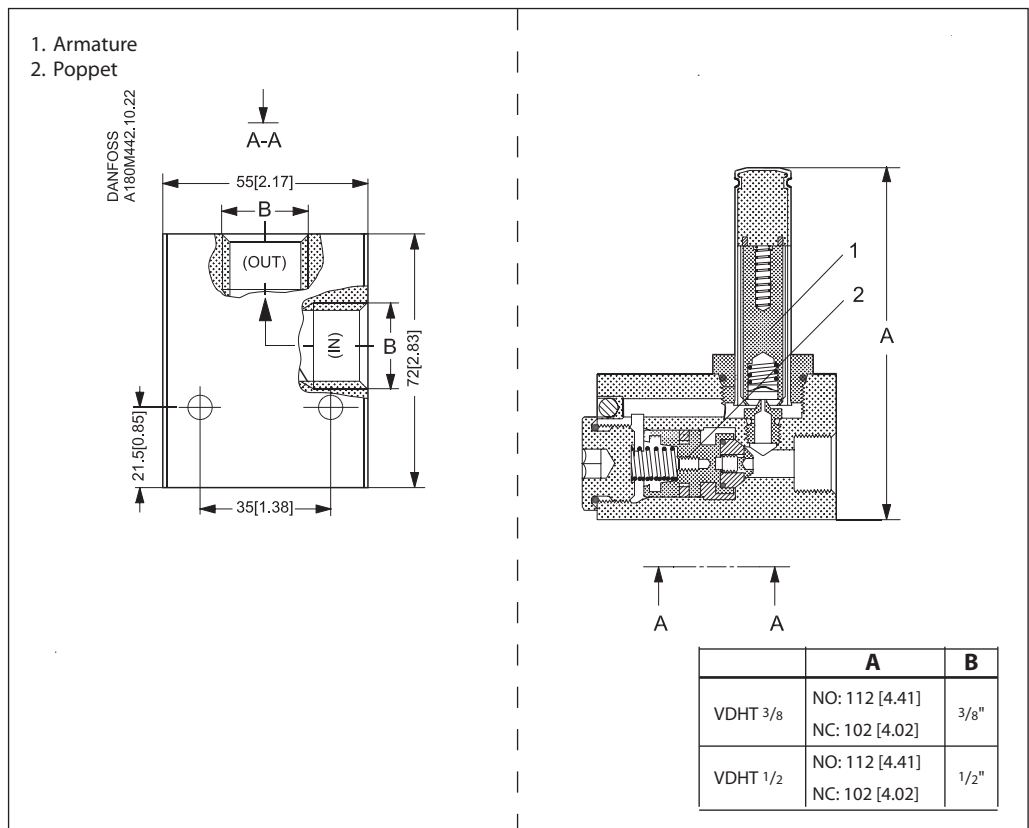


Dimensions, mm [in]

VDHT 3/8 E2/2 and
VDHT 1/2 E2/2
(straight flow)

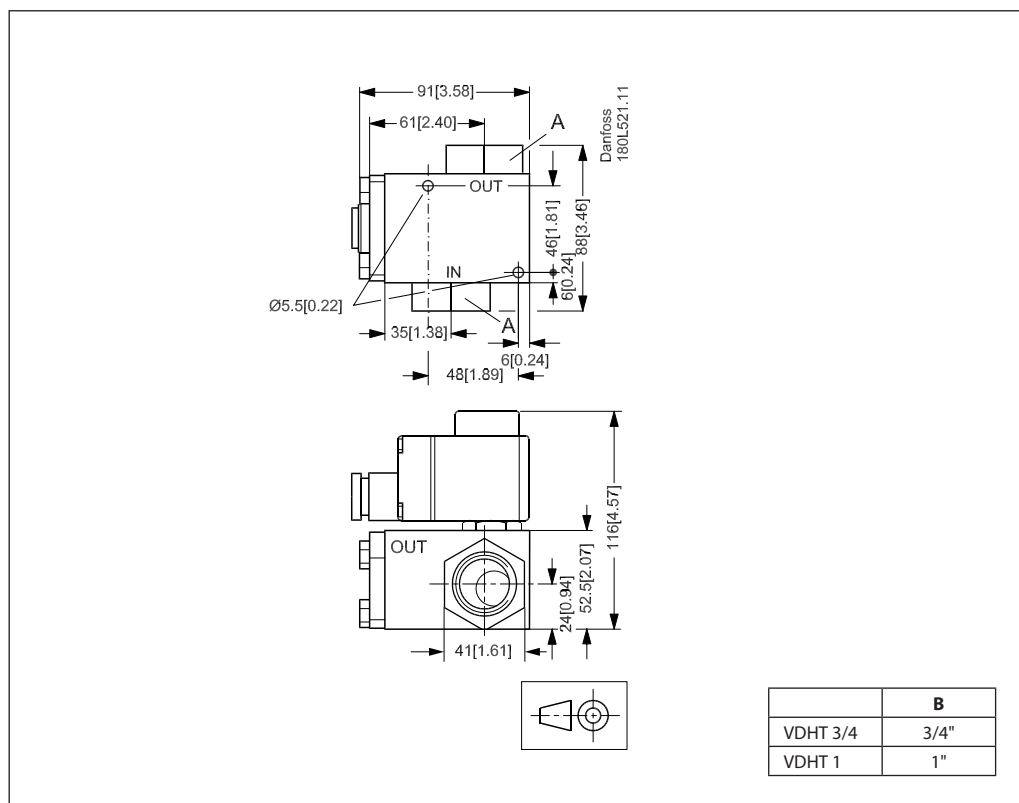


VDHT 3/8 EA2/2 and
VDHT 1/2 EA2/2
(angular flow)

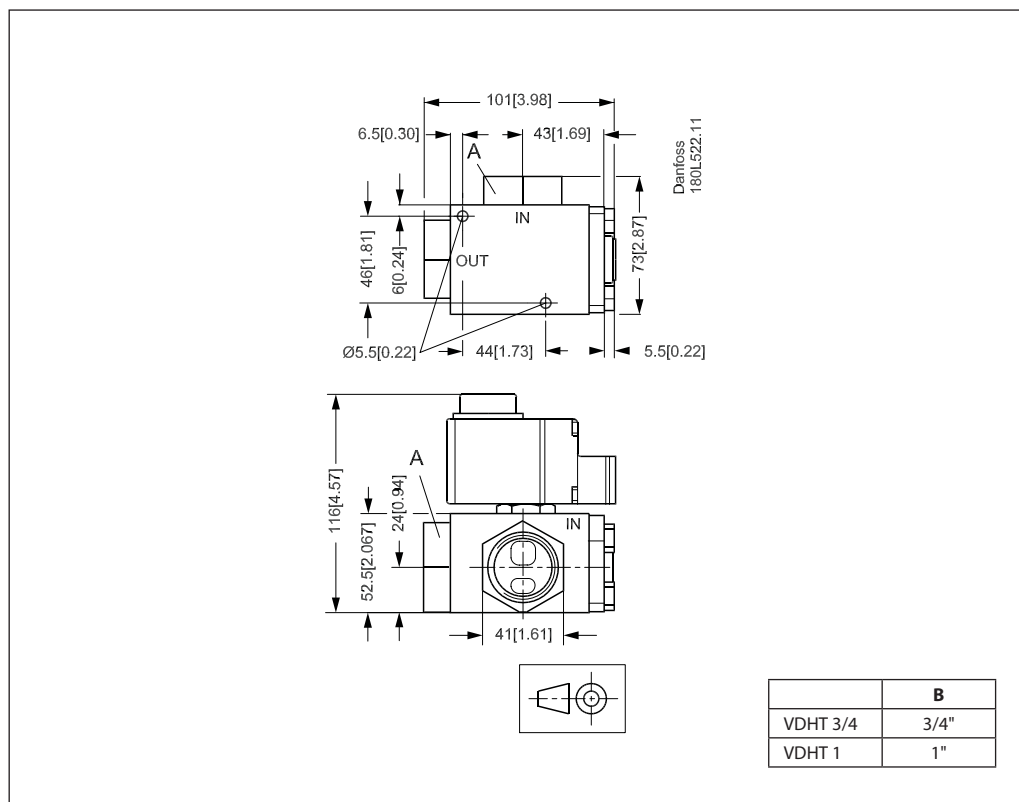


Dimensions, mm [in]

VDHT 3/4 ED and
VDHT 1 ED
(displaced flow)



VDHT 3/4 EA and
VDHT 1 EA
(angular flow)



Spare parts

	Code number
Armature kit NC	180L5002
Armature kit NO	180L5010
Poppet spare part kit with FPM O-rings (for 3/8" and 1/2" VDHT)	180Z0024
Poppet spare part kit with NBR O-rings (for 3/8" and 1/2" VDHT)	180Z0015
Poppet spare part kit with FPM O-rings (for 3/4" and 1" VDHT)	180Z0026
Poppet spare part kit with NBR O-rings (for 3/4" and 1" VDHT)	180Z0025

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