



Pressure Switch

MBC 5000 / MBC 5100

For heavy-duty marine applications

Description

MBC pressure switches are used in industrial and marine applications where space and reliability are the most important features.

MBCs are compact pressure switches, designed according to our block design to survive in the harsh conditions known from machine rooms onboard ships.

MBCs have high vibration resistance and MBC 5100 features all common marine approvals. The fixed, but low differential guarantees accurate monitoring of critical pressures.

MBV test valves can be delivered as standard option for MBC.

Features & benefits

- Designed for use in severe industrial environments
- High vibration stability
- Part of the Danfoss block system, consisting of MBC pressure controls, MBS pressure transmitters and MBV test valves
- MBC 5100 with all major ship approvals
- High repeatability
- Optimal compact design for machine building purposes
- Intended for alarm indication, shut down, control and diagnostics in many applications
 - motors, gears, thrusters, pumps, filters, compressors, etc.

Ordering

Product code numbers

Table: Standard types

Low/High pressure (LP/HP)	Setting range P _e [bar]	Diff. at min. range ⁽¹⁾ P _e [bar]	Diff. at max. range ⁽¹⁾ P _e [bar]	Permissible operating pressure P _e [bar]	Min. burst pressure P _e [bar]	Type MBC 5000 / MBC 5100	MBC 5100 ship approved code no.
LP bellows	-0.20 – 1.00	0.30	0.45	15	30	1011-1DB04	061B000566
LP bellows	-0.20 – 4.00	0.30	0.45	15	30	1211-1DB04	061B000466 ⁽²⁾
LP bellows	-0.20 – 10.00	0.40	0.60	15	30	1411-1DB04	061B000266 ⁽²⁾
LP bellows	-0.20 – 10.00	0.40	0.60	15	30	1411-1CB04	061B000066
LP bellows	0.50 – 3.00	0.25	0.30	15	30	2011-1DB04	061B002966
LP bellows	1.00 – 6.00	0.30	0.45	15	30	2211-1DB04	061B000766
HP bellows	5.00 – 30.00	0.90	2.00	45	90	3421-1DB04	061B000366 ⁽²⁾
LP diaphragm	0.50 – 3.00	0.50	0.80	150	300	2031-1DB04	061B101766
LP diaphragm	1.00 – 6.00	1.00	2.50	150	300	2231-1DB04	061B100966
LP diaphragm	1.00 – 10.00	1.00	2.50	150	300	2431-1DB04	061B100466 ⁽²⁾
LP diaphragm	5.00 – 20.00	1.00	2.50	150	300	3231-1DB04	061B100266 ⁽²⁾
LP diaphragm	5.00 – 25.00	1.00	2.50	150	300	3331-1DB04	061B102466
HP diaphragm	5.00 – 40.00	2.00	7.00	150	300	3641-1DB04	061B100566 ⁽²⁾
HP diaphragm	10.00 – 100.00	4.00	12.00	150	300	4241-1DB04	061B100366 ⁽²⁾
HP piston	16.00 – 160.00	15.00	30.00	600	1200	5251-1CB04	061B510066
HP piston	25.00 – 250.00	20.00	40.00	600	1200	5451-1CB04	061B510166
HP piston	40.00 – 400.00	20.00	50.00	600	1200	5651-1CB04	061B510266

⁽¹⁾ Max value, all values lower or equal are correct

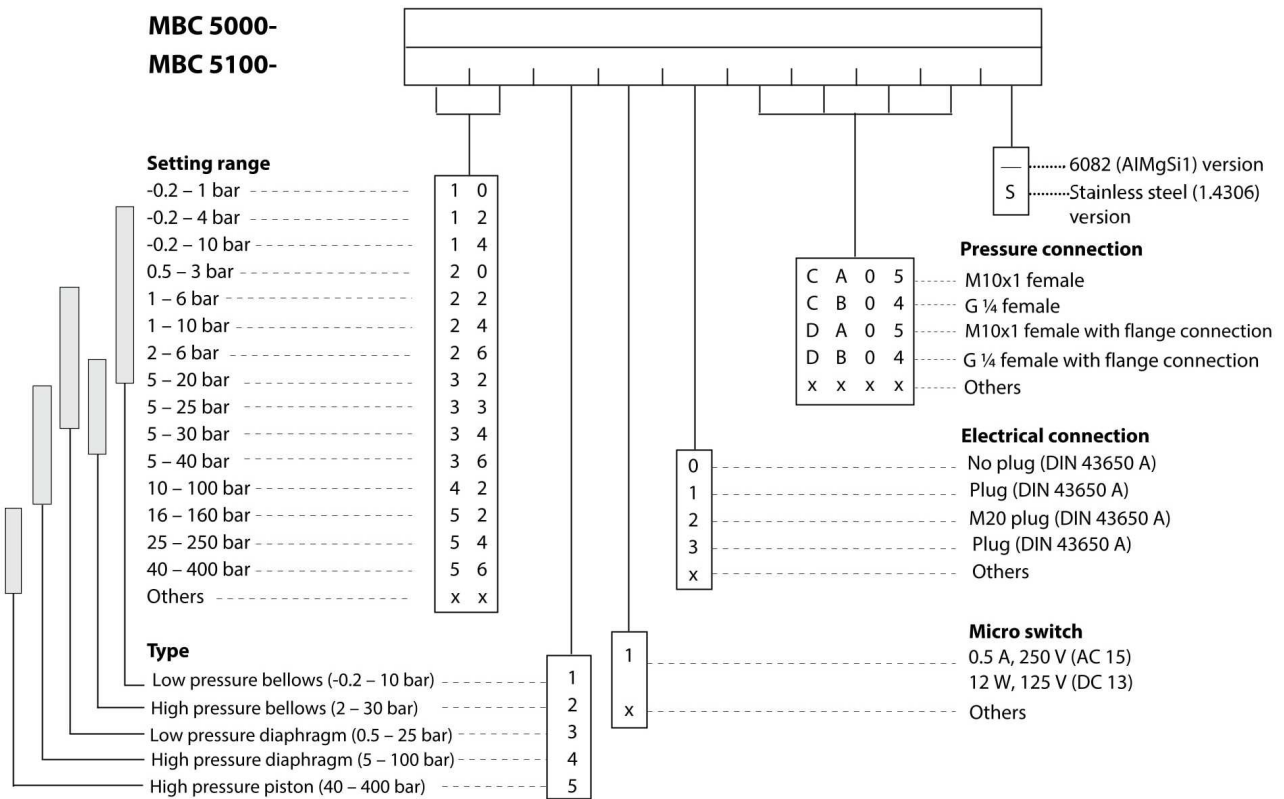
⁽²⁾ Preferred versions

Table: Stainless steel types

Low/High pressure (LP/HP)	Setting range P _e [bar]	Diff. at min. range ⁽¹⁾ P _e [bar]	Diff. at max. range ⁽¹⁾ P _e [bar]	Permissible operating pressure P _e [bar]	Min. burst pressure P _e [bar]	Type MBC 5000 / MBC 5100	MBC 5100 ship approved code no.
LP bellows	-0.20 – 10.00	0.40	0.60	15	30	1411-1DB04S	061B025066
LP bellows	-0.20 – 4.00	0.30	0.45	15	30	1211-1DB04S	061B025166
LP bellows	-0.20 – 10.00	0.40	0.60	15	30	1411-2DB04S	061B025266
LP bellows	-0.20 – 4.00	0.30	0.45	15	30	1211-2DB04S	061B025366

⁽¹⁾ Max value, all values lower or equal are correct

Figure: Customized types



Accessories code numbers

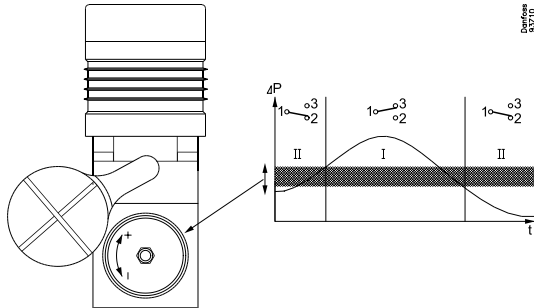
Table: Pulse snubber

Part	Description	Code number
	Male, G¼ A, length 20 mm	061B400166
	Male, G¼ A, length 34 mm	061B400266
	For flange connection	061B722166

Functions

Settings

Figure: Adjustment



	Mechanical difference
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NOTE:

One full turn (360°) of MBC setting screw is approx. equal to 7% of the setting range.

Product details

General data

Table: Performance

Repeatability	Bellows versions	±0.2% FS (typ.) ±0.5% FS (max.)
	Diaphragm versions	±0.5% FS (typ.) ±1.0% FS (max.)
	Piston versions	±1.0% FS (typ.) ±1.0% FS (max.)
Max. switch frequency	10/min (0.16 Hz)	
Differential	See Figure: Customized types	
Permissible operating pressure	See Figure: Customized types	
Burst pressure	See Figure: Customized types	
Lifetime	Mechanical for diaphragm and bellows Mechanical for piston type Electrical at max. contact load	> 400,000 cycles > 1 million cycles > 100,000 cycles

Table: Electrical specifications

Switch	Utilization category	SPDT
Contact load	AC 15	0.5 A, 250 V
	DC 13	12 W, 125 V

Table: Mechanical characteristics

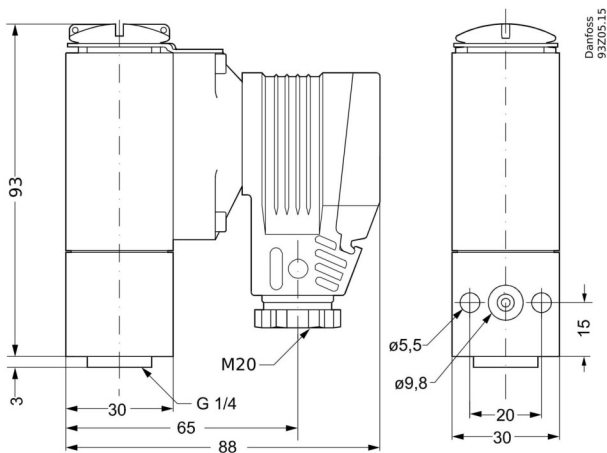
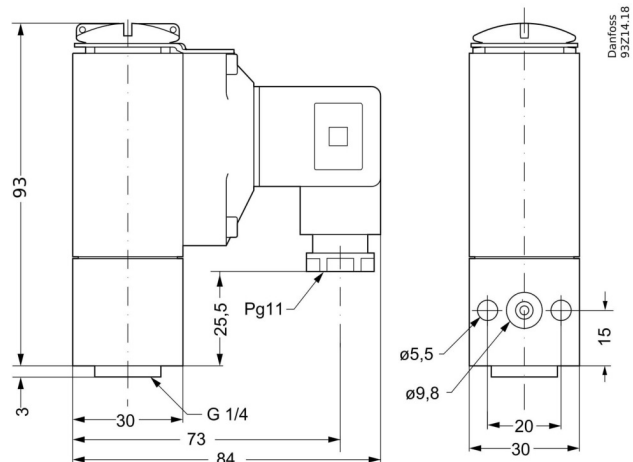
Pressure connection	Standard	G ¼ female (ISO 228-1) or flange
	Option	See specification form <i>Figure: Customized types</i>
Electrical connection	Plug	DIN 43650, Pg 9 / Pg 11 / M20
Wetted parts material	Housing	Anodized AlMgSi1, AW-6082T6 Stainless steel 1.4306 (18/8), acc. to EN10088-3
	Bellows	Stainless steel 1.4306 (18/8), acc. to EN10088-2
	Diaphragm	FKM
	Piston	Stainless steel 1.4028 (3H13), acc. to EN10088-2
	O-ring	NBR
	Hole plug (flange version)	Nickel plated brass or zinc plated steel
	Seal (piston version)	Turcon T05
Enclosure material	Housing	Anodized AlMgSi1, AW-6082T6
	Plug fixture	Glass filled polyamid, PA 6.6
	Contact system	Silver (AG) micro profile
Net weight		0.25 kg

Performance and environmental conditions

Table: Environmental conditions

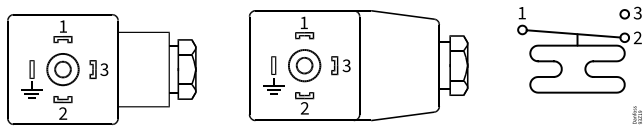
Temperature	Operation	Bellows versions Diaphragm versions Piston versions	-40 – 85 °C -10 – 85 °C -40 – 85 °C
	Transport	Bellows versions Diaphragm versions Piston versions	-50 – 85 °C -50 – 85 °C -40 – 85 °C
Enclosure			IP65, EN 60529
Vibration stability	Sinusoidal	20 g, 25 – 2 kHz	EN 60068-2-6
		Piston type 4.4 g, 25 – 200 Hz	IEC 60068-2-27

Dimensions

Figure: MBC 5000**Net weight: 0.25 kg****Figure: MBC 5100****Net weight: 0.25 kg**

Connections

Figure: Electrical connection



1	Input
2	Output: Normally Closed (NC)
3	Output: Normally Open (NO)
	Connected to enclosure of pressure control

Mechanical connection

Figure: Thread

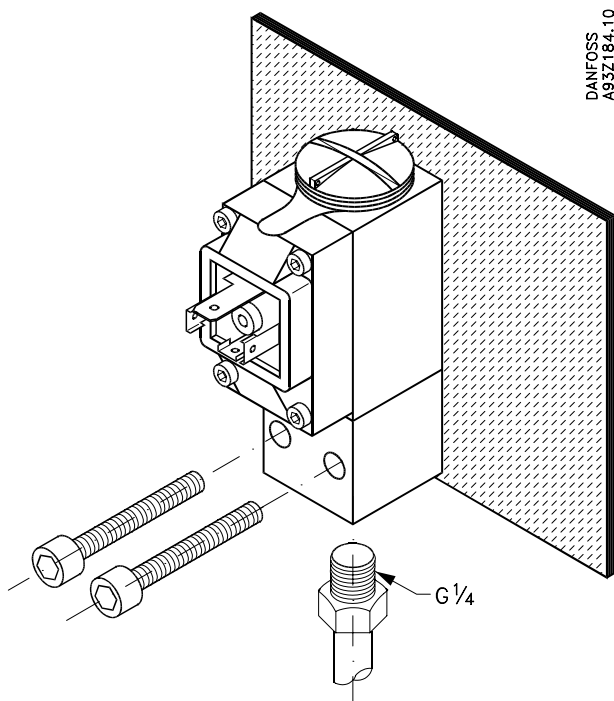
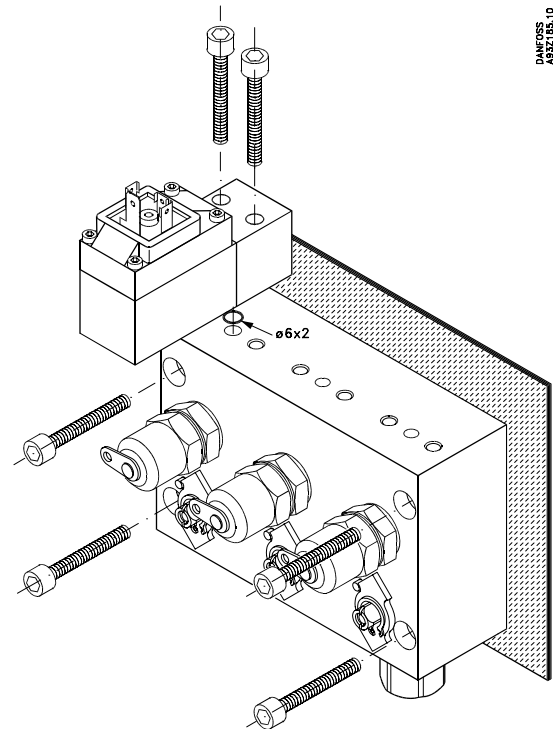


Figure: Flange connection on MBV 5000 test valve



NOTE:

Flange connection is not applicable for piston type MBC

How to choose

To achieve the best operating conditions for MBC pressure controls, it is recommended to apply the following rules of thumb.

Choose:

- The MBC type/types which meet the demands for the operating pressure
- The MBC version with the lowest possible setting range
- A diaphragm type, if pressure peaks and pulsations occur in the system (if possible)
- Bellows type, if low differential is needed
- Piston type for high pressure

Certificates, declarations and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

When you click on the link you will be directed to the latest version of the 'Declaration of Conformity'. Products developed and sold before this date of issue conform to the directives/standards in force at the time of their sale.

Approval type	Title	Certification body	Approval topic
Marine Certificate	KR HMB 17529-AE005	KR - Korean Register of Shipping	Marine
CCC Declaration	Danfoss CCC 2020970305003454	Danfoss	
Marine Certificate	ABS 25-0336462-PDA	ABS - American Bureau of Shipping	
CCC Declaration	Danfoss CCC 2020970305003455	Danfoss	
Marine Certificate	CCS GB23PTB00006_03	CCS - China Classification Society	Marine
Marine Certificate	BV 06095-G0 BV	BV - Bureau Veritas	Marine
Marine Certificate	DNV GL TAA00001W8 Rev. 3	DNV GL	
Marine Certificate	NKK TA22325M	ClassNK - The Japanese Marine Association	
EU Declaration	Danfoss EU 060-9680.AC	Danfoss	LVD
Manufacturer's Declaration	Danfoss MD 060-9639.AB	Danfoss	China RoHS
CCC Declaration	Danfoss CCC 2024010305641307	CCC - China Compulsory Certification	CCC
Electrical Safety Certificate	EAC KZ 7100841.01.01.01391	EAC - Eurasian Customs Union	EMC
Export Control Declaration	Pressure switches & Thermostats	Danfoss	
UA Declaration	Danfoss UA 2024-07-25 cooling sensors	Danfoss	EMC, LVD
UA Declaration	Danfoss UA 2023-01-10 Regulators PL01 PL04	Danfoss	PED, Pressure
Pressure Safety Certificate	LLC CDC EURO-TYSK UA.TR.089.1015.05-22	LLC CDC EURO TYSK - Ukraine	Pressure

Contact details

Online support

Danfoss offers a wide range of support along with our products, including digital information, software, mobile apps and expert guidance. See the possibilities below.



The Danfoss Design center

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