

## Data sheet

# Heavy duty pressure switch

## MBC 5000 and MBC 5100



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

- 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.

### Approvals

EN 60947-1  
EN 60947-4-1  
EN 60947-5-1

China Compulsory Certificate, CCC

### Ship approvals, Type MBC 5100

Lloyd's Register, LR  
Det Norske Veritas and Germanischer Lloyd, DNV GL  
Registro Italiano Navale, RINA  
Nippon Kaiji Kyokai, NKK

Bureau Veritas, BV  
American Bureau of Shipping, ABS  
Korean Register of Shipping, KR  
Russian Maritime Register of Shipping, RMRS  
China Classification Society, CCS

*Note: For stainless steel types only DNV GL and BV approvals are available.*

**Technical data**
**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 page 4
Permissible operating pressure		See page 4
Burst pressure		See page 4
Life time	Mechanical for diaphragm and bellows	> 400,000 cycles
	Mechanical for piston type	> 1 million cycles
	Electrical at max. contact load	> 100,000 cycles

**Electrical specifications**

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

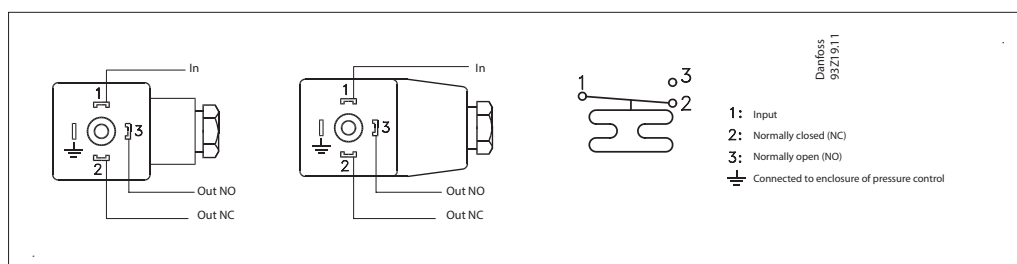
**Environmental conditions**

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

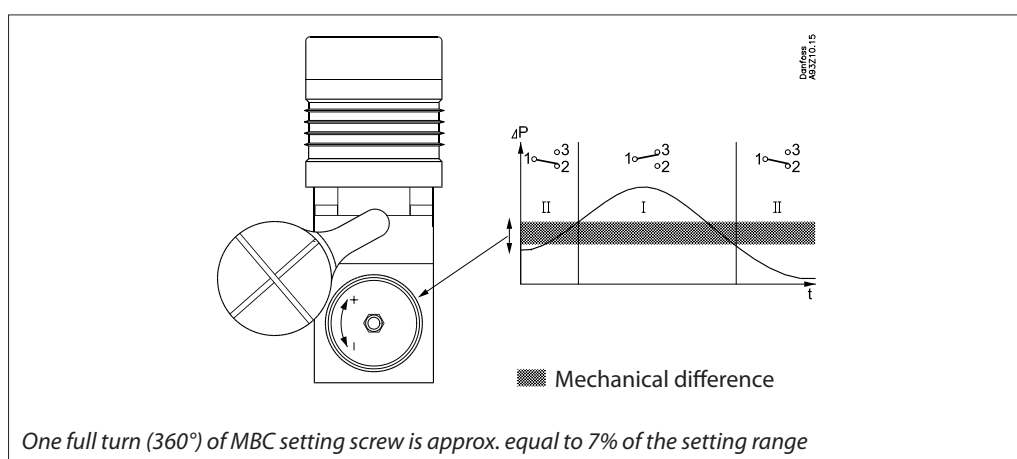
**Mechanical characteristics**

Pressure connection	Standard	G ¼ female (ISO 228-1) or flange
	Option	See specification form, page 4
Electrical connection	Plug	DIN 43650, Pg 9 / Pg 11 / Pg 13.5
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) microprofile
Net weight		0.25 kg

## Electrical connection

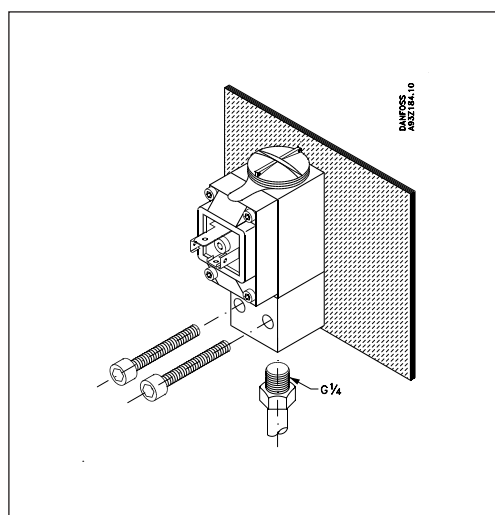


## Adjustment

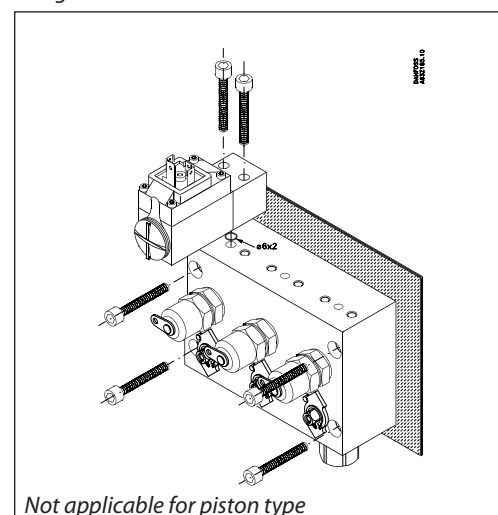


## Mechanical connection

### Thread



### Flange connection on MBV 5000 Test Valve



## 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

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**Ordering standard types**

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

<sup>1)</sup> Max value, all values lower or equal are correct

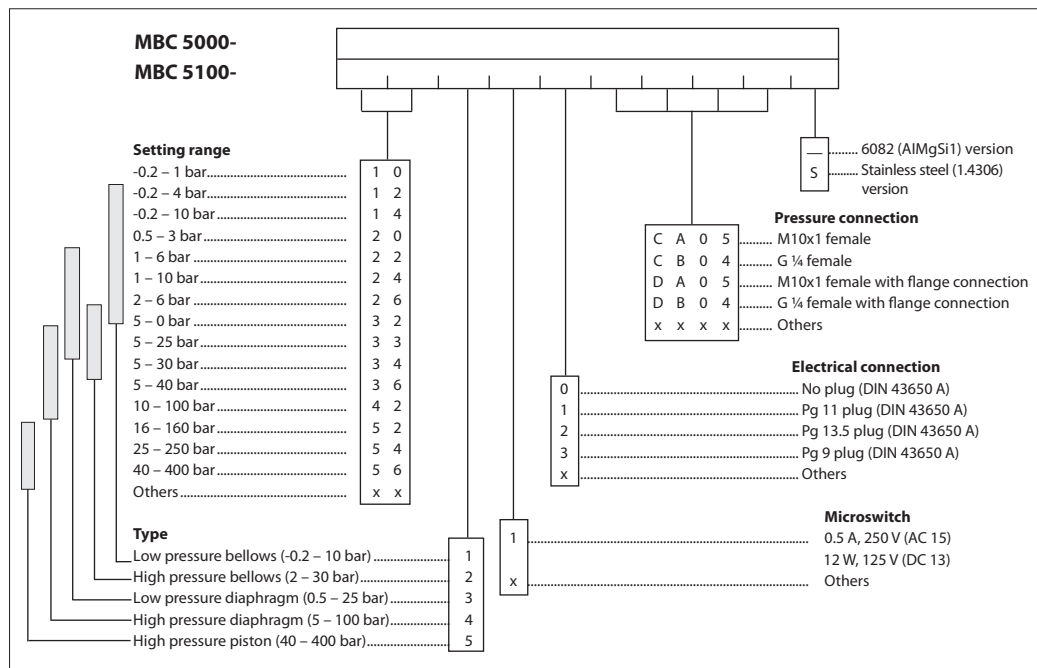
<sup>2)</sup> Preferred versions

**Ordering stainless steel types**

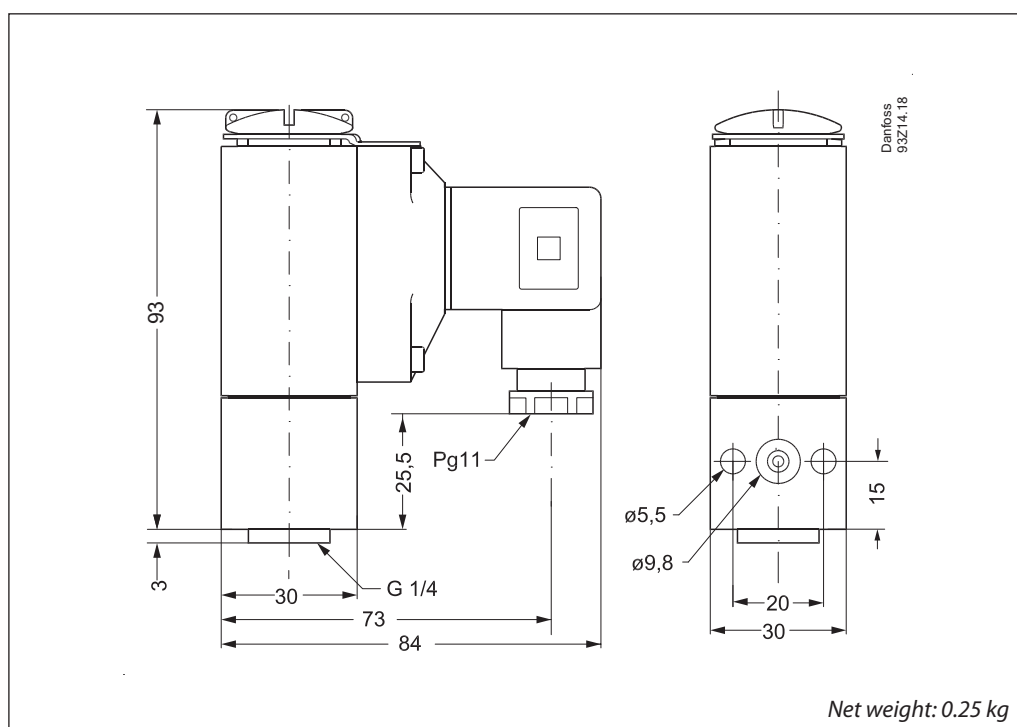
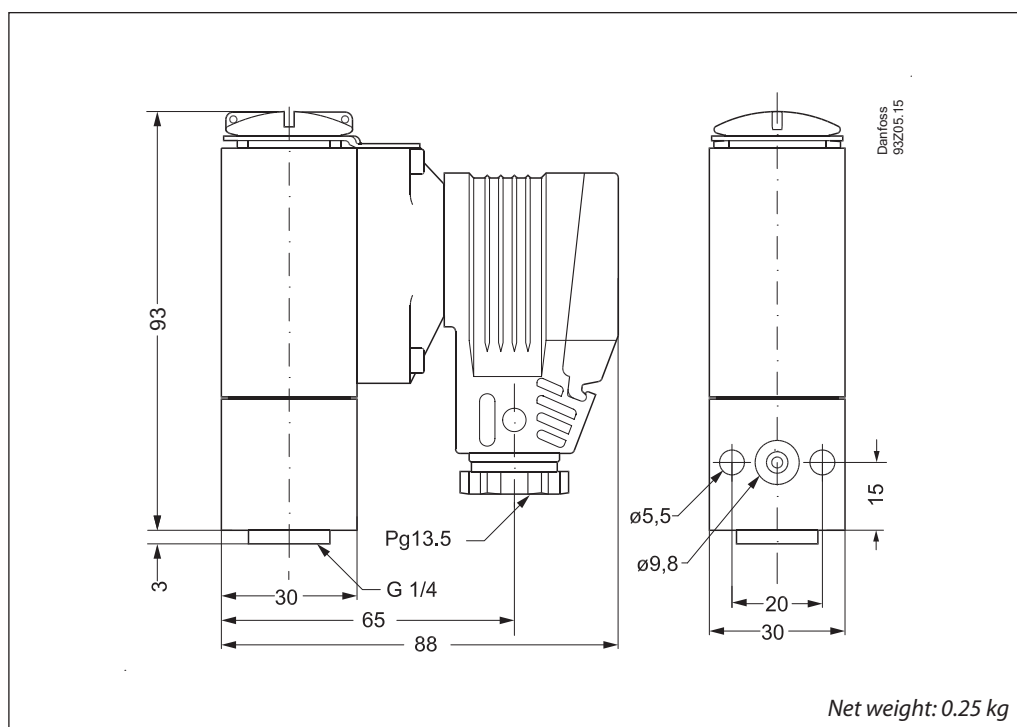
Type: LP Low pressure / HP High pressure	Setting range  $P_e$ [bar]	Diff. at min. range <sup>1)</sup> $P_e$ [bar]	Diff. at max. range <sup>1)</sup> $P_e$ [bar]	Permissible operating pressure  $P_e$ [bar]	Min. burst pressure  $P_e$ [bar]	Type designation MBC 5000- / MBC 5100-	MBC 5100 Ship approved  Code no.
LP bellows	-0.20 – 10.00	0.40	0.60	15	30	1411-1DB04S	<b>061B025066</b>
LP bellows	-0.20 – 4.00	0.30	0.45	15	30	1211-1DB04S	<b>061B025166</b>
LP bellows	-0.20 – 10.00	0.40	0.60	15	30	1411-2DB04S	<b>061B025266</b>
LP bellows	-0.20 – 4.00	0.30	0.45	15	30	1211-2DB04S	<b>061B025366</b>

<sup>1)</sup> Max value, all values lower or equal are correct

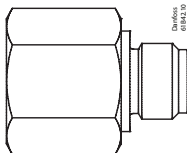
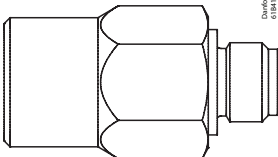
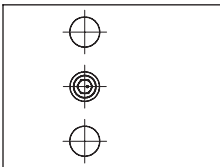
**Ordering customized types**



**Dimensions [mm]  
and weights [kg]**



## Accessories

Part	Description	Code number:
Pulse snubber 	Male, G1/4A, length 20 mm	061B400166
Pulse snubber 	Male, G1/4A, length 34 mm	061B400266
Pulse snubber 	For flange connection	061B722166