

Data sheet

Heavy duty pressure switch

Types 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
 Germanischer Lloyd, GL
 Registro Italiano Navale, RINA,
 Nippon Kaiji Kyokai, NKK
 Det Norske Veritas, DNV
 Bureau Veritas, BV
 American Bureau of Shipping, ABS
 Korean Register of Shipping, KR
 Russian Maritime Register of Shipping, RMRS
 China Classification Society, CCS

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 Mechanical for piston type Electrical at max. contact load	> 400,000 cycles > 1 million cycles > 100,000 cycles

Electrical specifications

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

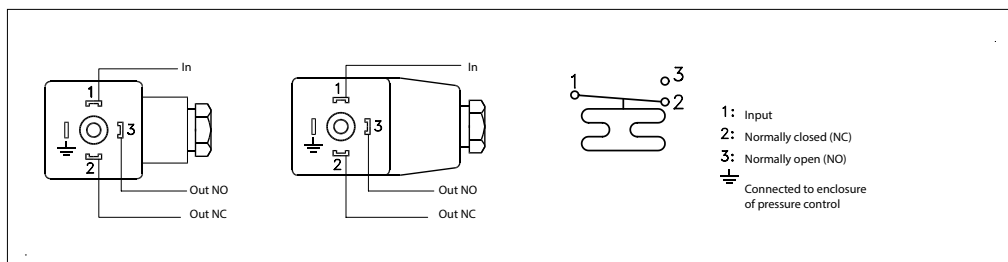
Environmental conditions

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 Hz - 2 kHz	EN 60068-2-6
		Piston type 4.4g, 25-200 Hz	

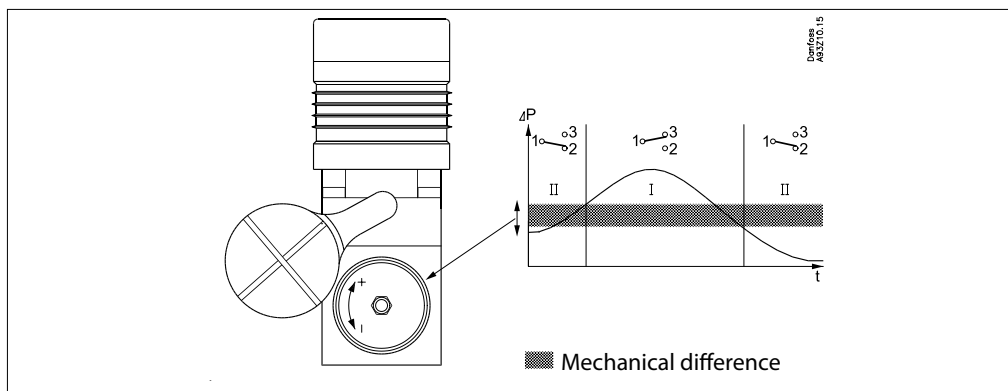
Mechanical characteristics

Pressure connection	Standard	G 1/4 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
	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



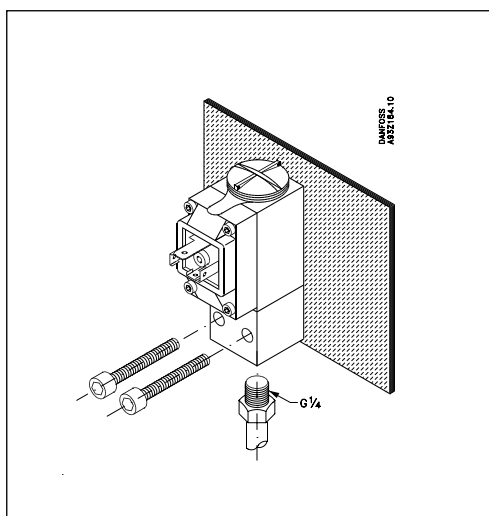
Adjustment



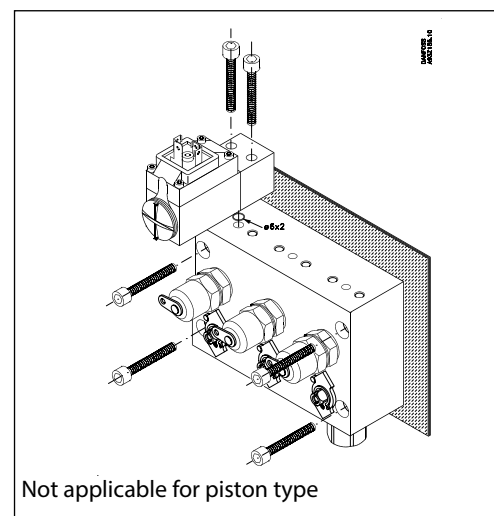
One full turn (360°) of MBC setting screw is approx. equal to 7% of the setting range

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.

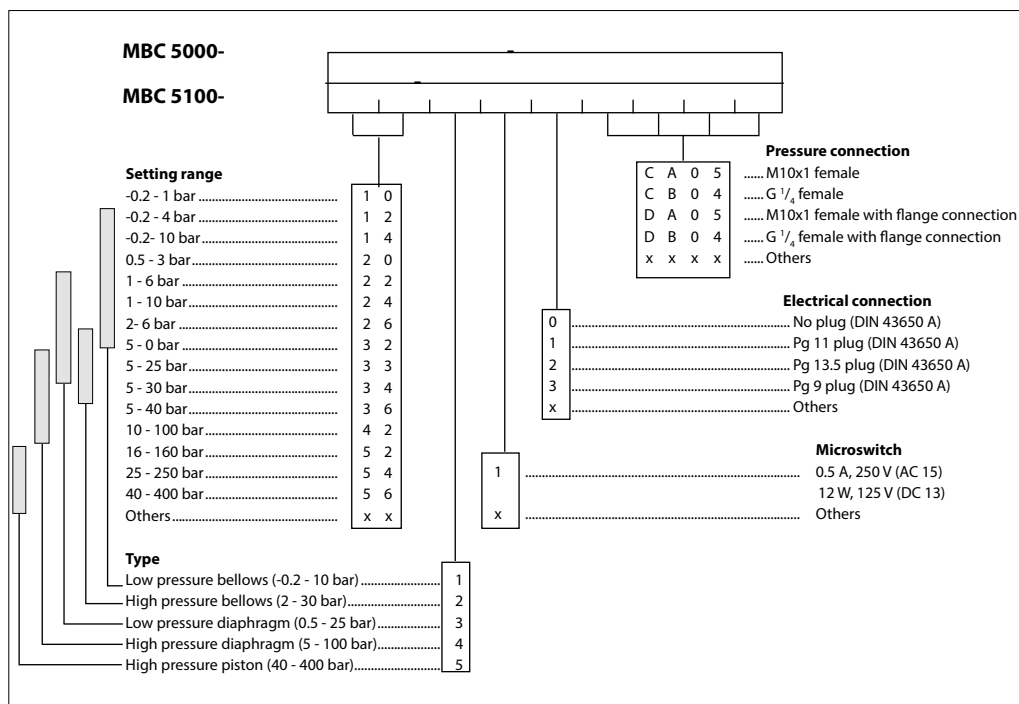
Ordering standard types

Type: LP = Low pressure HP = High Pressure	Setting range P _e [bar]	Fixed differential 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.	MBC 5000 Standard Code no.
LP bellows	-0.20 – 1.00	0.15 – 0.45 ¹⁾	15	30	1011-1DB04	061B000566	061B200566
LP bellows	-0.20 – 4.00	0.15 – 0.45 ¹⁾	15	30	1211-1DB04	061B000466²⁾	061B200466
LP bellows	-0.20 – 10.00	0.15 – 0.60 ¹⁾	15	30	1411-1DB04	061B000266²⁾	061B200266
LP bellows	-0.20 – 10.00	0.15 – 0.60 ¹⁾	15	30	1411-1CB04	061B000066	061B200066
LP bellows	0.50 – 3.00	0.15 – 0.30 ¹⁾	15	30	2011-1DB04	061B002966	—
LP bellows	1.00 – 6.00	0.15 – 0.45 ¹⁾	15	30	2211-1DB04	061B000766	—
HP bellows	5.00 – 30.00	0.40 – 1.50 ¹⁾	45	90	3421-1DB04	061B000366²⁾	—
LP diaphragm	0.50 – 3.00	0.25 – 0.80 ¹⁾	150	300	2031-1DB04	061B101766	—
LP diaphragm	1.00 – 6.00	0.30 – 2.00 ¹⁾	150	300	2231-1DB04	061B100966	—
LP diaphragm	1.00 – 10.00	0.30 – 2.00 ¹⁾	150	300	2431-1DB04	061B100466²⁾	—
LP diaphragm	5.00 – 20.00	0.40 – 2.50 ¹⁾	150	300	3231-1DB04	061B100266²⁾	061B300266
LP diaphragm	5.00 – 25.00	0.40 – 2.50 ¹⁾	150	300	3331-1DB04	061B102466	—
HP diaphragm	5.00 – 40.00	1.00 – 7.00 ¹⁾	150	300	3641-1DB04	061B100566²⁾	061B300566
HP diaphragm	10.00 – 100.00	1.70 – 14.00 ¹⁾	150	300	4241-1DB04	061B100366²⁾	061B300366
HP piston	16.00 – 160.00	12.00 – 30.00 ¹⁾	600	1200	5251-1CB04	061B510066	061B500266
HP piston	25.00 – 250.00	12.00 – 40.00 ¹⁾	600	1200	5451-1CB04	061B510166	061B500166
HP piston	40.00 – 400.00	15.00 – 50.00 ¹⁾	600	1200	5651-1CB04	061B510266	061B500066

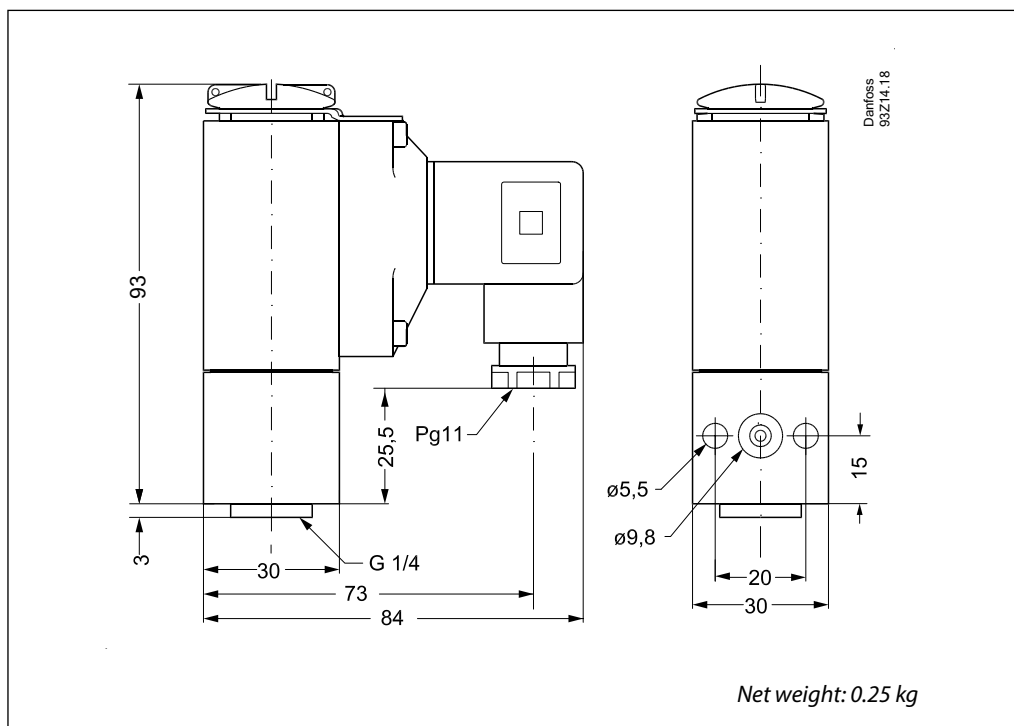
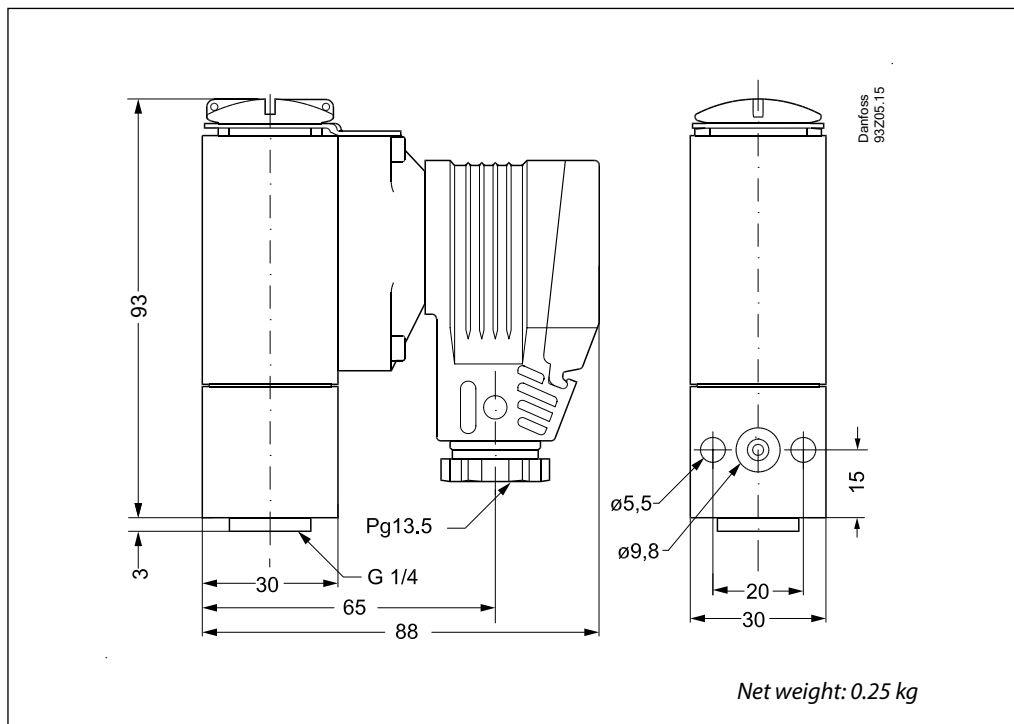
¹⁾ Lowest differential at min. setting range, highest differential at max. setting range

²⁾ Preferred versions

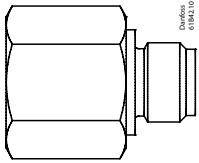
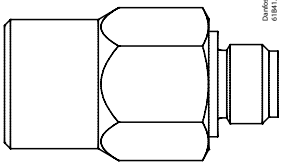
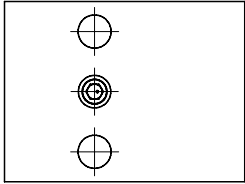
Ordering customized types



Dimensions [mm]
and weights [kg]



Accessories

Part	Description:	Code number:
Pulse snubber 	Male, G1/4A, length 20 mm	061B400101
Pulse snubber 	Male, G1/4A, length 34 mm	061B400201
Pulse snubber 	For flange connection	061B722101

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