

Technical brochure

Heavy duty pressure controls Type MBC 5000 and MBC 5100



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

MBC's are compact pressure controls, designed according to our block design to survive in the harsh conditions known from machine rooms onboard ships among others.

BC's have high vibration resistance and MBC 5100 features all commonly 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 60947-4-1
 EN 60947-5-1

China Compulsory Certificate, CCC

**Ship approvals,
Type MBC 5100**

 Lloyd's Register of Shipping, 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 % FS (max.)
	Piston versions	± 1 % FS (typ.) ± 1 % FS (max.)
Response time		< 4 ms
Max. switch frequency		10/min (0.16 Hz)
Differential		see page 3
Permissible operating pressure		see page 3
Burst pressure		see page 3
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 1	10 A, 250 V	AC 15	0.5A, 250 V
	AC 3	3A, 250 V	DC 13	12 W, 125 V

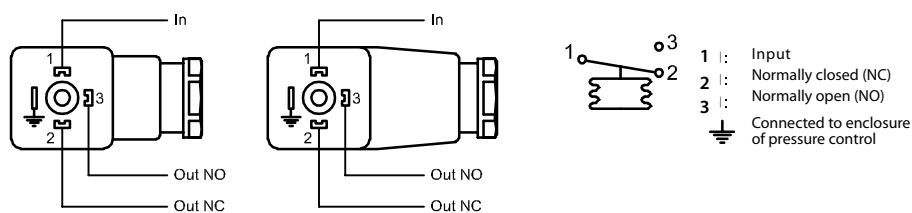
Environmental conditions

Temperature	Operation	Bellows versions Diaphragm versions Piston versions	-40 to +85 °C -10 to +85 °C -40 to +85 °C
	Transport	Bellows versions Diaphragm versions Piston versions	-50 to +85 °C -50 to +85 °C -40 to +85 °C
Enclosure			IP 65, IEC 529
Vibration stability	Sinusoidal	20 g, 25 Hz - 2 kHz	IEC 68-2-6
		piston type 4.4g, 25-200 Hz	IEC 60068-2-27

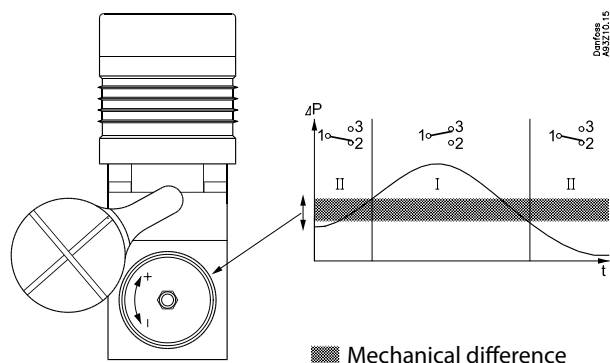
Mechanical characteristics

Pressure connection	Standard Option	G 1/4 female (ISO 228/1) or flange see specification form, page 3
Electrical connection	Plug	DIN 43650, Pg 9 / Pg 11 / Pg 13.5
Wetted parts material	Housing Bellows Diaphragm Piston O-ring	Anodized AlMgSi1 Stainless steel 1.4306 (18/8) Viton Stainless steel 1.4028 (3H13) NBR
Enclosure material	Housing Plug fixture Contact system	AlMgSi1 Glass filled polyamid, PA 6.6 Silver (AG) microprofile
Weight		0.4 kg

Electrical connection

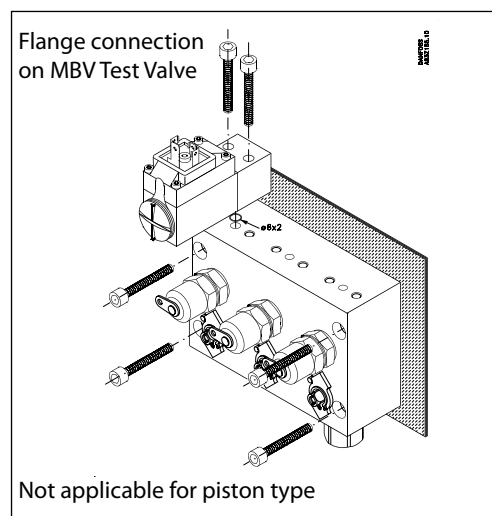
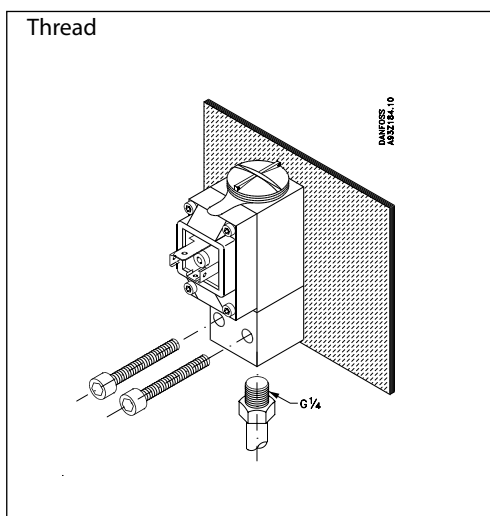


Adjustment



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

Mechanical connection



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 types, if low differential is needed
- piston type for high pressure

Ordering standard types

Type: LP = Low pressure HP = High Pressure	Setting range Pe [bar]	Fixed differential Pe [bar] (typ)	Permissible operating pressure Pe [bar]	Min. burst pressure Pe [bar]	Type designation MBC 5000-/ MBC 5100-	MBC 5100 Ship approved Code no.	MBC 5000 Standard Code no.
LP bellows	-0.2 to 1	0.15 to 0.45 ¹⁾	15	30	1011-1DB04	061B000566	061B200566
LP bellows	-0.2 to 4	0.15 to 0.45 ¹⁾	15	30	1211-1DB04	061B000466²⁾	061B200466
LP bellows	-0.2 to 10	0.15 to 0.60 ¹⁾	15	30	1411-1DB04	061B000266²⁾	061B200266
LP bellows	-0.2 to 10	0.15 to 0.60 ¹⁾	15	30	1411-1CB04	061B000066	061B200066
LP bellows	0.5 to 3	0.15 to 0.30 ¹⁾	15	30	2011-1DB04	061B002966	
LP bellows	1 to 6	0.15 to 0.45 ¹⁾	15	30	2211-1DB04	061B000766	
HP bellows	5 to 30	0.40 to 1.5 ¹⁾	45	90	3421-1DB04	061B000366²⁾	061B200366
LP diaphragm	0.5 to 3	0.25 to 0.80 ¹⁾	150	300	2031-1DB04	061B101766	
LP diaphragm	1 to 6	0.30 to 2.0 ¹⁾	150	300	2231-1DB04	061B100966	
LP diaphragm	1 to 10	0.30 to 2.0 ¹⁾	150	300	2431-1DB04	061B100466²⁾	061B300466
LP diaphragm	5 to 20	0.4 to 2.5 ¹⁾	150	300	3231-1DB04	061B100266²⁾	061B300266
LP diaphragm	5 to 25	0.4 to 2.5 ¹⁾	150	300	3331-1DB04	061B102466	
HP diaphragm	5 to 40	1.0 to 7.0 ¹⁾	150	300	3641-1DB04	061B100566²⁾	061B300566
HP diaphragm	10 to 100	1.7 to 14 ¹⁾	150	300	4241-1DB04	061B100366²⁾	061B300366
HP piston	16 to 160	12 to 30 ¹⁾	600	1200	5251-1CB04	061B510066	061B500266
HP piston	25 to 250	12 to 40 ¹⁾	600	1200	5451-1CB04	061B510166	061B500166
HP piston	40 to 400	15 to 50 ¹⁾	600	1200	5651-1CB04	061B510266	061B500066

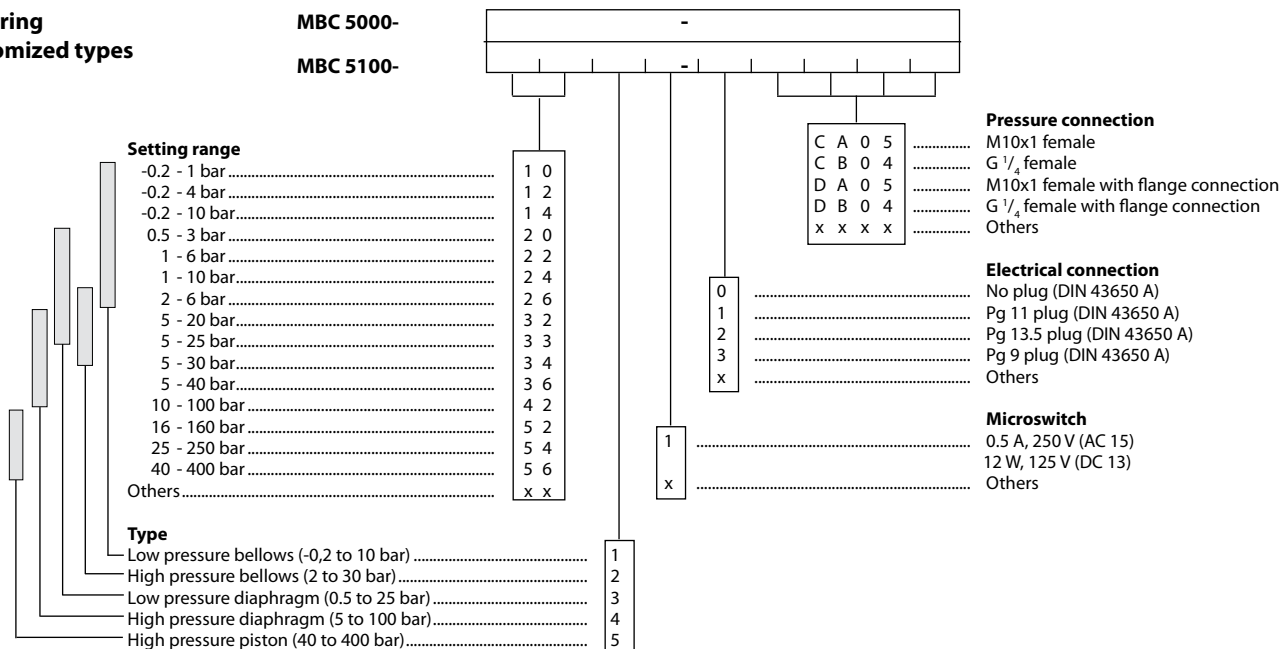
¹⁾ Lowest differential at min. setting range, highest differential at max. setting range

²⁾ Preferred versions

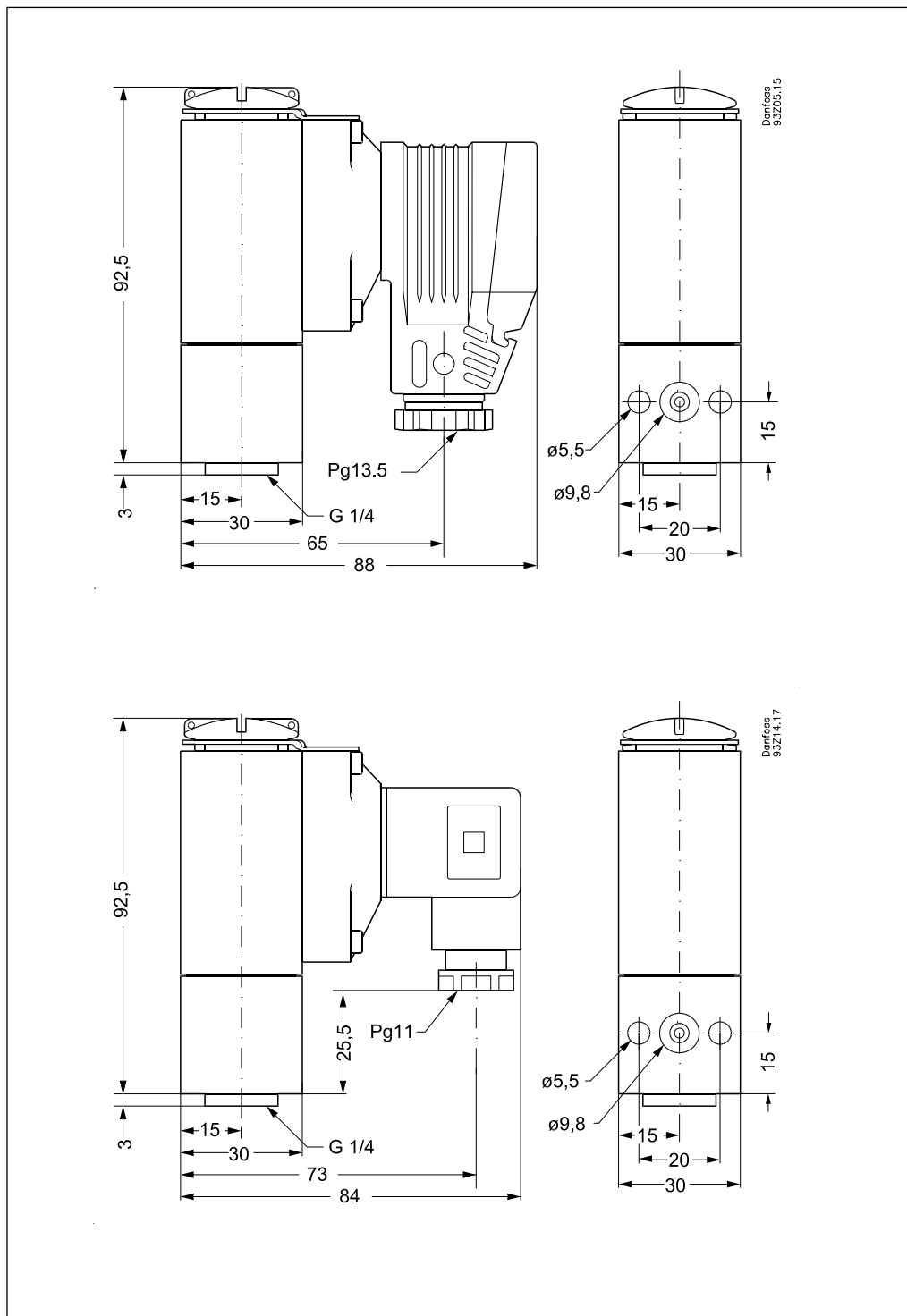
Ordering customized types

MBC 5000-

MBC 5100-



Dimensions



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