

Data Sheet

Differential pressure switch

Type **MBC 5080** and **MBC 5180**

Heavy duty industry and marine applications



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

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

MBCs have high vibration resistance and feature all commonly marine approvals.

Features

- Designed for use in severe marine and industrial environments
- High vibration stability
- Part of the Danfoss block-system, consisting of MBC pressure switches, MBS pressure transmitters and MBV test-valves
- MBC 5180 with ship approvals
- Low fixed hysteresis and high repeatability,
- Optimal compact design for machine building purposes
- Intended for alarm indication, shut-down, control and diagnosing in many applications - motors, gears, thrusters, pumps, filters, compressors etc.

Product specification

Technical data

Table 1: Performance

Repeatability upper switch point	±0.1 bar (typ.)	
Static pressure on LP-side (Pressure released totally after activating the switch point)	±0.2 bar (max.)	
Max. switch frequency	10/min. (0.16 Hz)	
Permissible operating pressure (HP)	45 bar	
Min. bursting pressure	90 bar	
Lifetime	Mechanical	> 400.000 cycles
	Electrical at max. contact load	> 100.000 cycles

Table 2: Electrical specifications

Switch		SPDT
Contact load	AC15	0.5 A, 250 V
	DC13	12 W, 125 V

Table 3: Environmental conditions

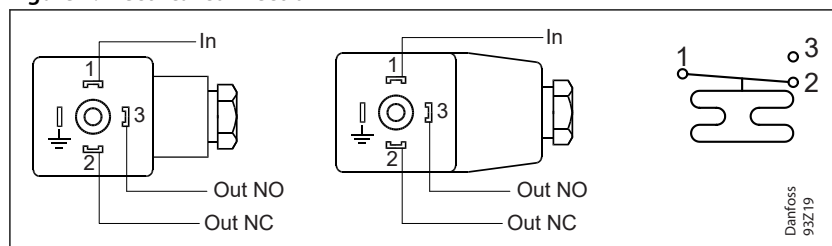
Temperature	Operation	-10 – 85 °C	
	Transport	-50 – 85 °C	
Enclosure			IP65, EN 60529
Vibration stability	Sinusoidal	4 g, 25–00 Hz	EN 60068-2-6
Shock resistance	Shock	50 g / 6 ms	EN 60068-2-27

Table 4: Mechanical characteristics

Pressure connection	Standard	G1/4 female (ISO 228-1) or flange	
	Option	See specification form, page 3	
Electrical connection	Plug	DIN 43650, Pg9, Pg11 or M20	
	Housing	Anodized AlMgSi1, AW-6082 T6	
Wetted parts material	Diaphragm	NBR	
	O-ring	NBR	
	Hole plug (flange version)	Nickel plated brass	
	O-ring (flange version)	NBR	
	Housing	Anodized AlMgSi1, AW-6082 T6	
Enclosure material	Plug fixture	Glass filled polyamid, PA 6.6	
Net weight	0.35 kg		

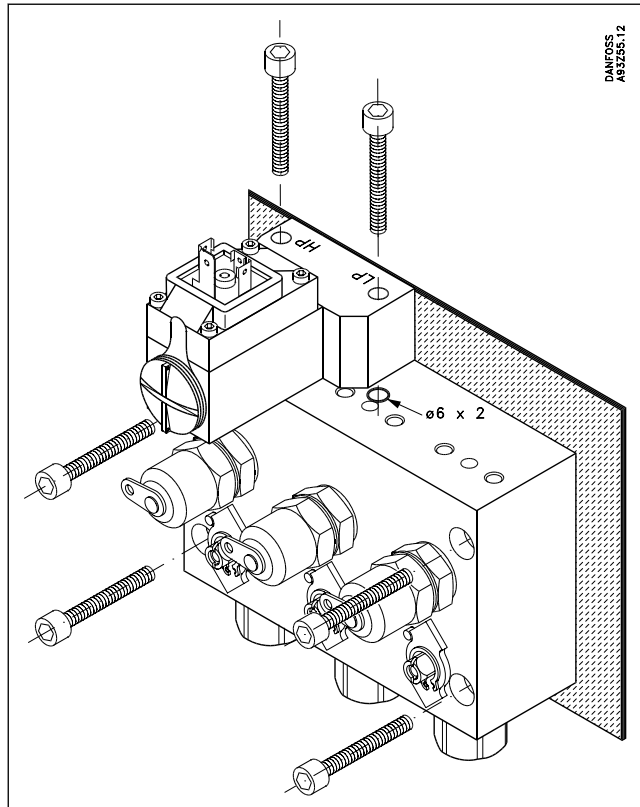
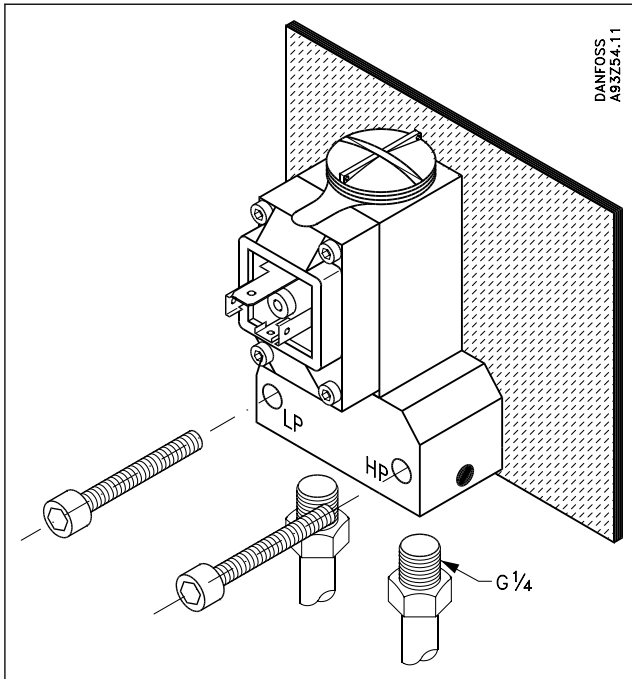
Electrical connection

Figure 1: Electrical connection



1	Input
2	Normally closed (NC)
3	Normally open (NO)
⏏	Connected to enclosure of pressure control

Mechanical connections



Mechanical differential

MBC standard versions are adjusted at minimum differential range 0.3 bar.

Variation in the system pressure will not affect the differential setting.

If the differential is set to a high value at 0 bar system pressure, there will be a small change in the setpoint.

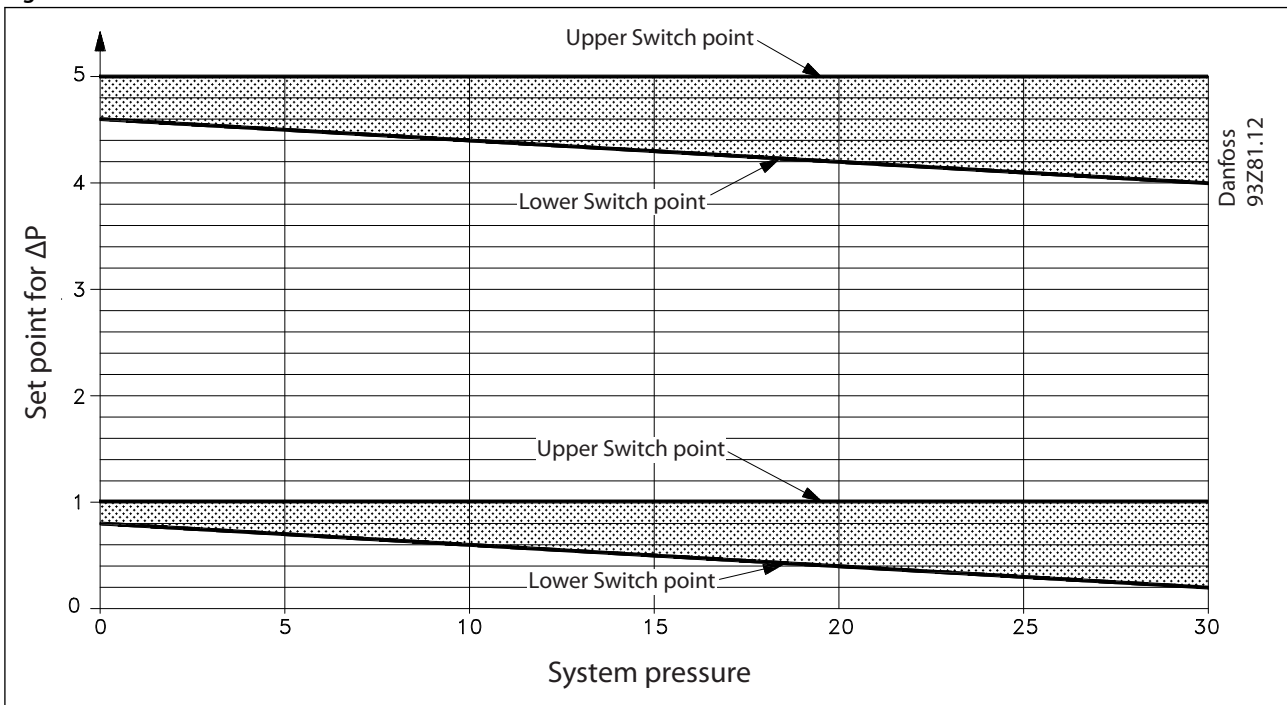
Example:

MBC 5080 and MBC 5180 set to 5.0 bar differential at 0 bar system pressure will at 30 bar system pressure give alarm at approx. 34.2 bar. Differential decreased 0.8 bar.

Our experience is that MBC 5080 and MBC 5180 often are used at a differential setting close to minimum, where the differential would be independent of the system pressure.

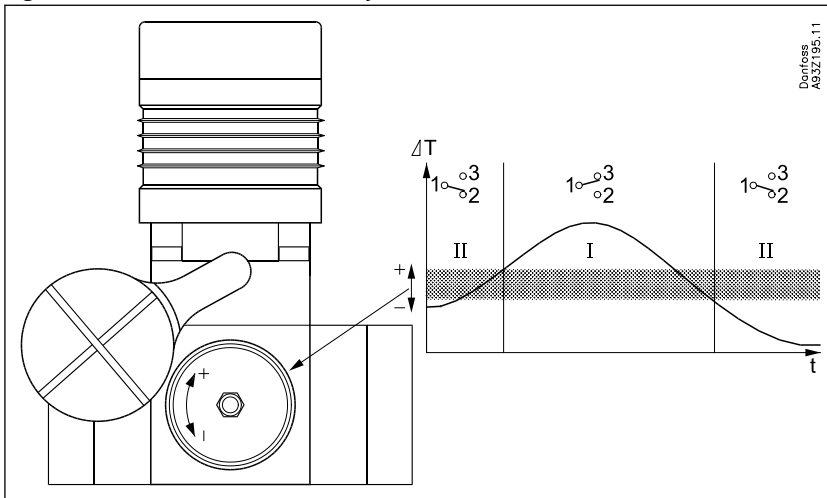
If a high differential is needed, we recommend to make a differential setting at the system pressure that is normal for the application.

Figure 2: Mechanical differential



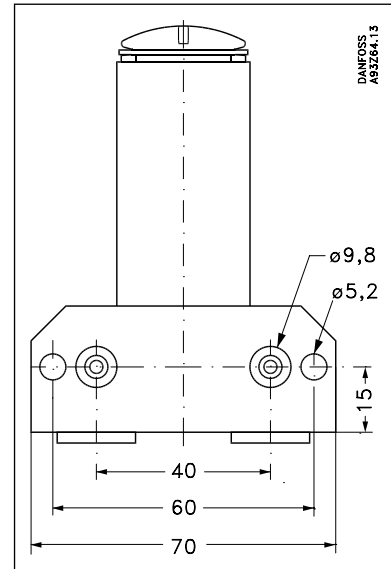
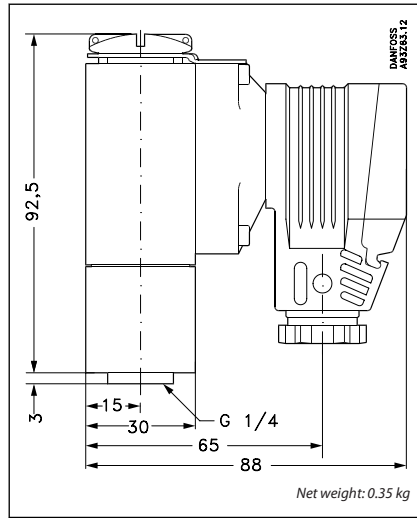
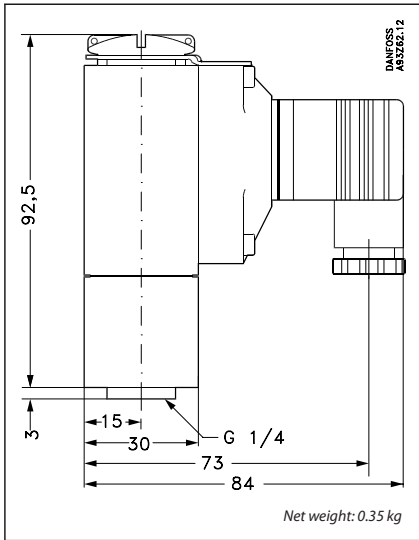
Adjustment

Figure 3: Mechanical differential adjustment



Mechanical difference

Dimensions [mm] and weights [kg]



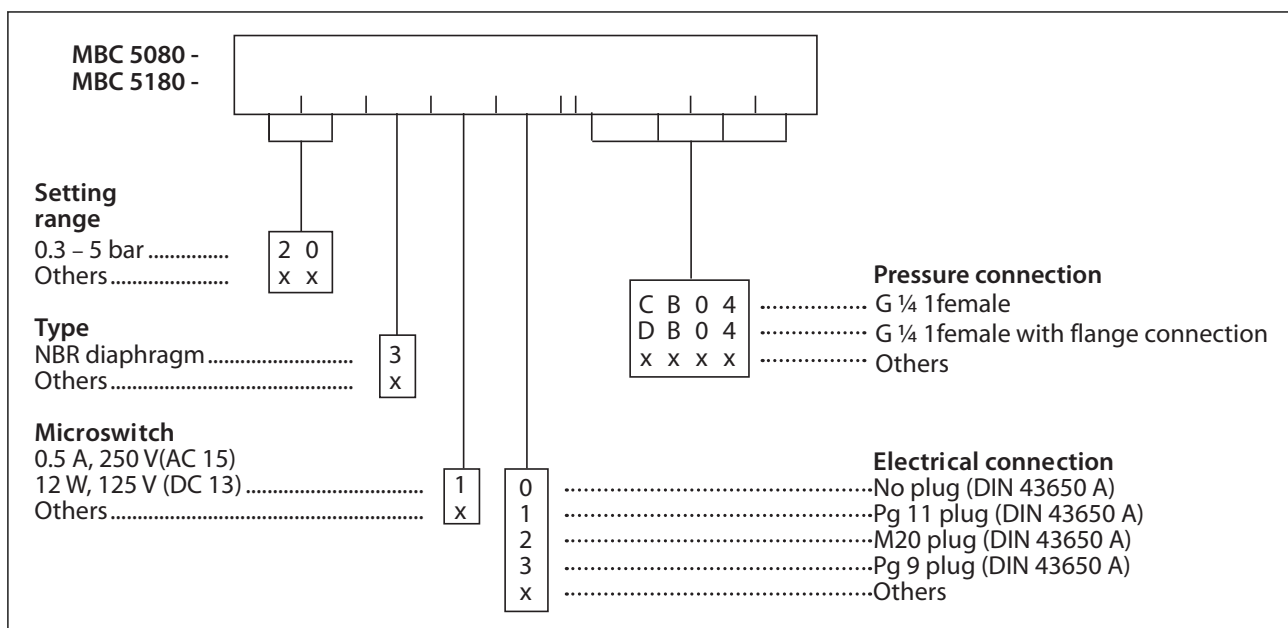
Ordering

Ordering standard types

Setting range Δp [bar]	Type no. MBC 5080 MBC 5180	Ship approved MBC 5180 Code no.
0.3 - 5	MBC 5080-2031-1DB04	-
	MBC 5080-2031-1CB04	-
	MBC 5180-2031-1DB04	061B128066 ⁽¹⁾
	MBC 5180-2031-1CB04	061B129066

⁽¹⁾ Preferred version

Ordering of customized types



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.

Some approvals may change over time. You can check the most current status at danfoss.com or contact your local Danfoss representative if you have any questions.

Table 5: Approvals

File name	Approval authority
EN 60947-4-1	China Compulsory Certificate, CCC
EN 60947-5-1	
EN 60947-1	

CE-marked in accordance with:

- LVD 2014/35/EU (EN 60947-1, EN 60947-4-1, EN 60947-5-1)

Ship approvals, Type MBC 5180:

Lloyd's Register, LR
Germanischer Lloyd, GL
Registro Italiano Navale, RINA
Nippon Kaiji Kyokai, NKK
Det Norske Veritas, DNV
China Classification Society, CCS
American Bureau of Shipping, ABS
Korean Register of Shipping, KR

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