

## 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**

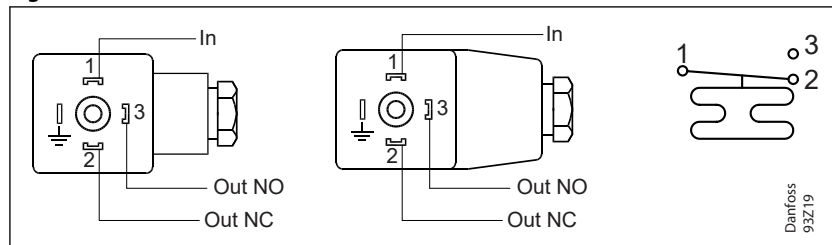
Temperature	Operation	-10 – 85 °C	
	Transport	-50 – 85 °C	
Enclosure			IP65, EN 60529
Vibration stability	Sinusoidal	4 g, 25–00 Hz	EN 60068-2-6
Shock resistance	Shock	50 g / 6 ms	EN 60068-2-27

**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		

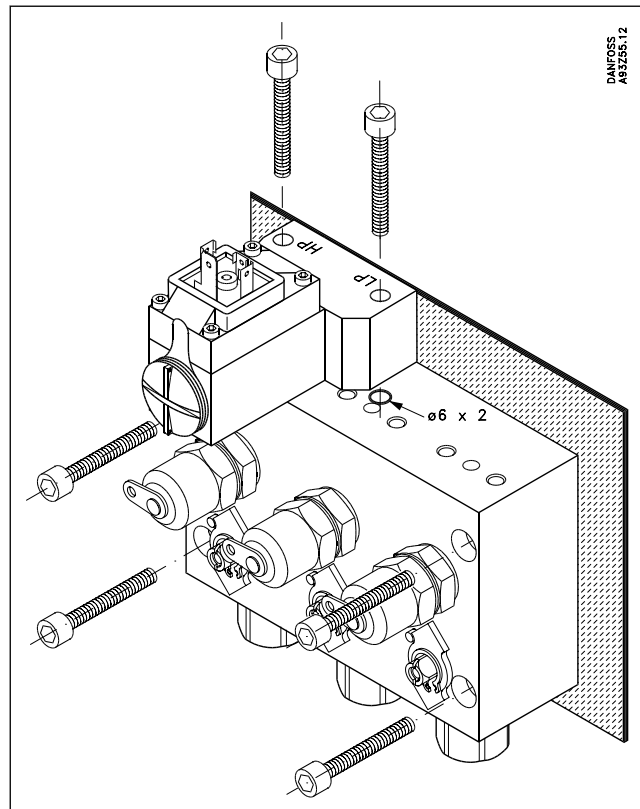
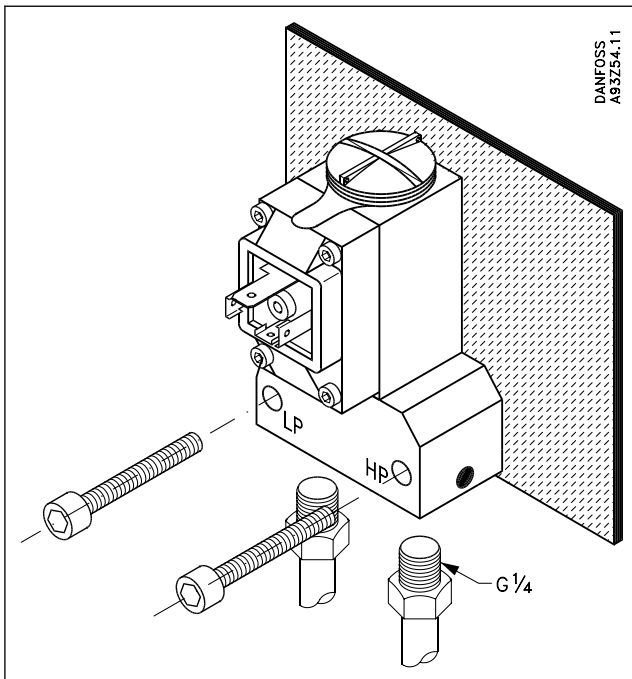
**Electrical connection**

**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.

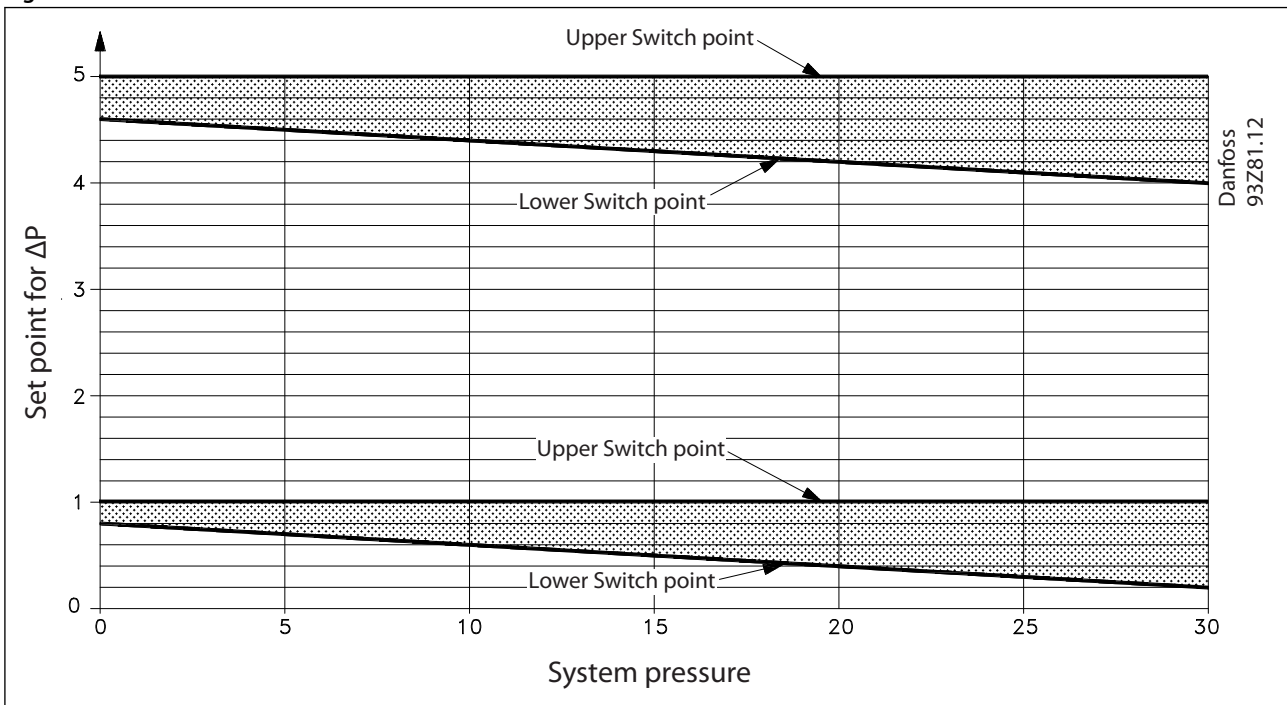
Example:

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.

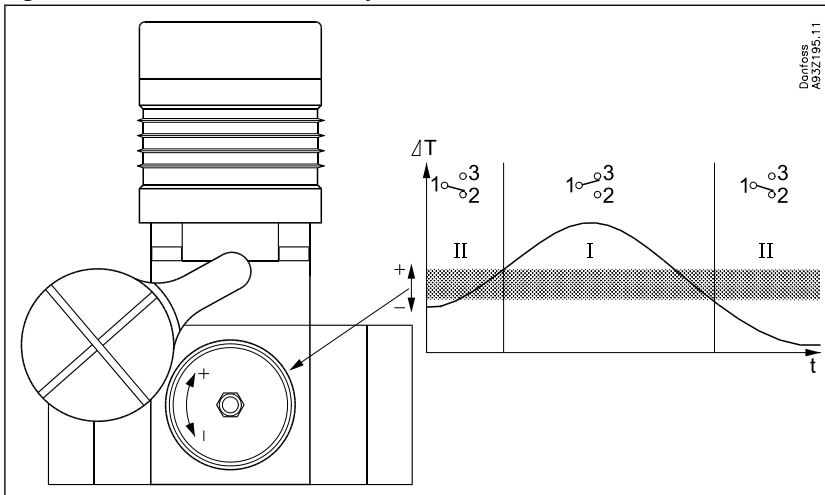
If a high differential is needed, we recommend to make a differential setting at the system pressure that is normal for the application.

Figure 2: Mechanical differential



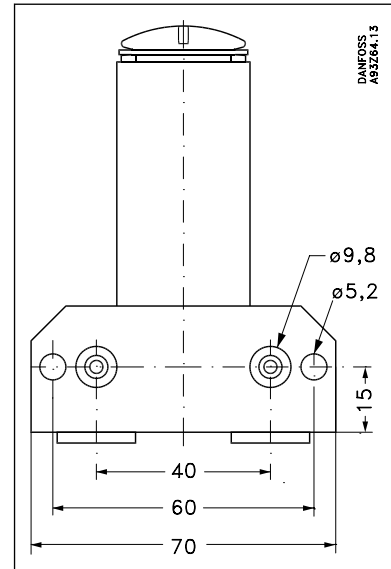
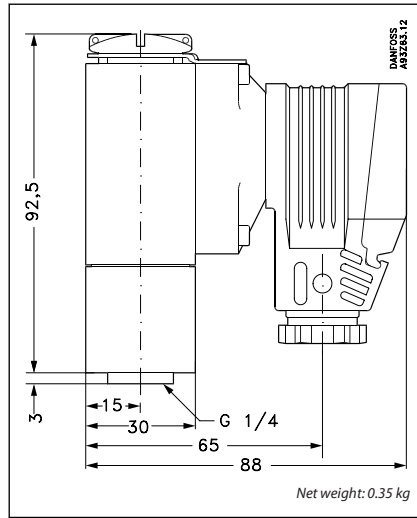
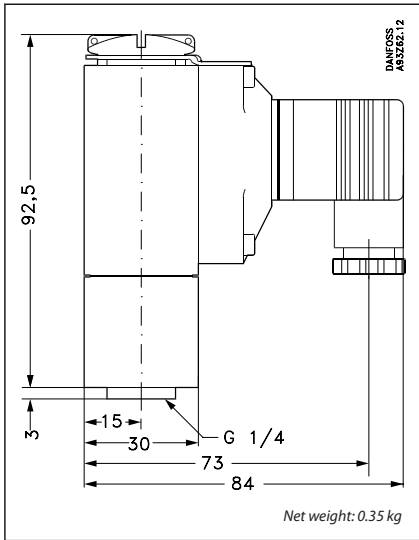
### Adjustment

Figure 3: Mechanical differential adjustment



Mechanical difference

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



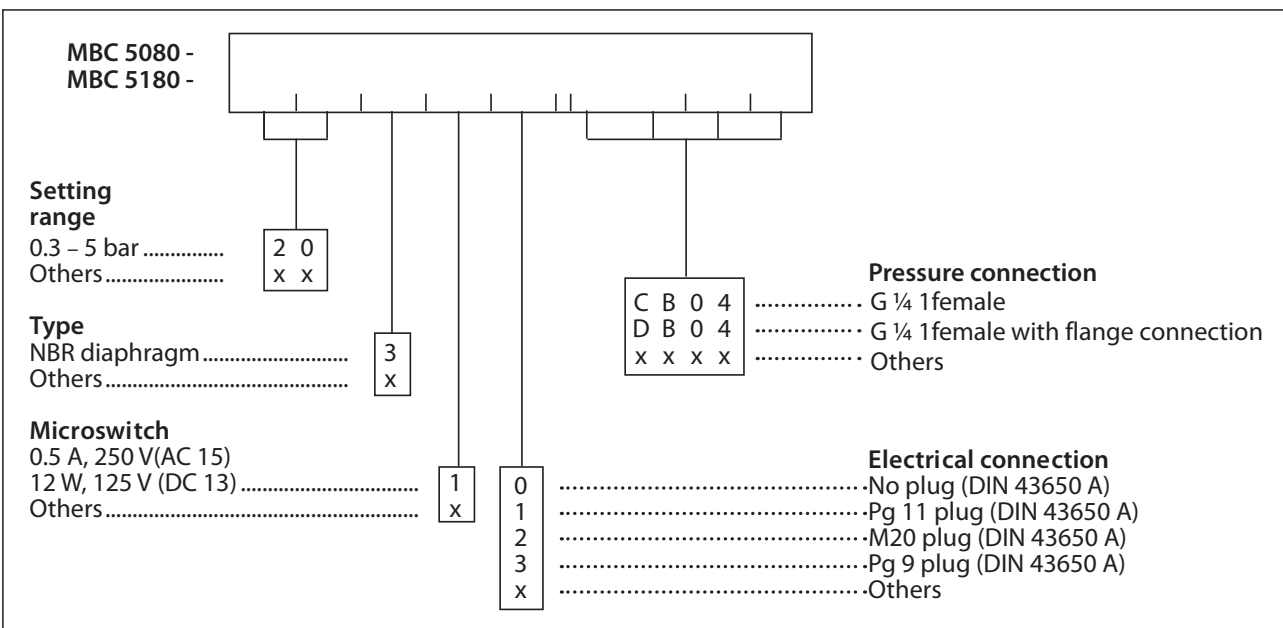
## Ordering

### Ordering standard types

Setting range $\Delta p$ [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 <sup>(1)</sup>
	MBC 5180-2031-1CB04	061B129066

<sup>(1)</sup> 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](http://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

## Online support

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

### The Danfoss Product Store



The Danfoss Product Store is your one-stop shop for everything product related—no matter where you are in the world or what area of the cooling industry you work in. Get quick access to essential information like product specs, code numbers, technical documentation, certifications, accessories, and more.

Start browsing at [store.danfoss.com](https://store.danfoss.com).

### Find technical documentation



Find the technical documentation you need to get your project up and running. Get direct access to our official collection of data sheets, certificates and declarations, manuals and guides, 3D models and drawings, case stories, brochures, and much more.

Start searching now at [www.danfoss.com/en/service-and-support/documentation](https://www.danfoss.com/en/service-and-support/documentation).

### Danfoss Learning



Danfoss Learning is a free online learning platform. It features courses and materials specifically designed to help engineers, installers, service technicians, and wholesalers better understand the products, applications, industry topics, and trends that will help you do your job better.

Create your Danfoss Learning account for free at [www.danfoss.com/en/service-and-support/learning](https://www.danfoss.com/en/service-and-support/learning).

### Get local information and support



Local Danfoss websites are the main sources for help and information about our company and products. Find product availability, get the latest regional news, or connect with a nearby expert—all in your own language.

Find your local Danfoss website here: [www.danfoss.com/en/choose-region](https://www.danfoss.com/en/choose-region).

### Spare Parts



Get access to the Danfoss spare parts and service kit catalog right from your smartphone. The app contains a wide range of components for air conditioning and refrigeration applications, such as valves, strainers, pressure switches, and sensors.

Download the Spare Parts app for free at [www.danfoss.com/en/service-and-support/downloads](https://www.danfoss.com/en/service-and-support/downloads).

#### Danfoss A/S

Climate Solutions • [danfoss.com](https://danfoss.com) • +45 7488 2222

Any information, including, but not limited to information on selection of product, its application or use, product design, weight, dimensions, capacity or any other technical data in product manuals, catalogues descriptions, advertisements, etc. and whether made available in writing, orally, electronically, online or via download, shall be considered informative, and is only binding if and to the extent, explicit reference is made in a quotation or order confirmation. Danfoss cannot accept any responsibility for possible errors in catalogues, brochures, videos and other material. Danfoss reserves the right to alter its products without notice. This also applies to products ordered but not delivered provided that such alterations can be made without changes to form, fit or function of the product.

All trademarks in this material are property of Danfoss A/S or Danfoss group companies. Danfoss and the Danfoss logo are trademarks of Danfoss A/S. All rights reserved.