

Data Sheet

Differential pressure switch Type **MP 55E**

MP 55E oil differential pressure switches
are used as safety switches



MP 55E oil differential pressure switches are used as safety switches to protect refrigeration compressors against low lubricating oil pressure.

If the oil pressure fails the oil differential pressure control stops the compressor.

MP 55E for HCFC, HFC and HC refrigerants are equipped with gold-plated SPDT contacts, which react directly on the differential pressure without time delay.

The units are designed to operate in explosive zones acc. to 2014/34/EU, Atex directive, explosive zone 2, surface equipment, category 3.

MP 55E are delivered with 1/4 inch solder connections to ensure a hermetic installation.

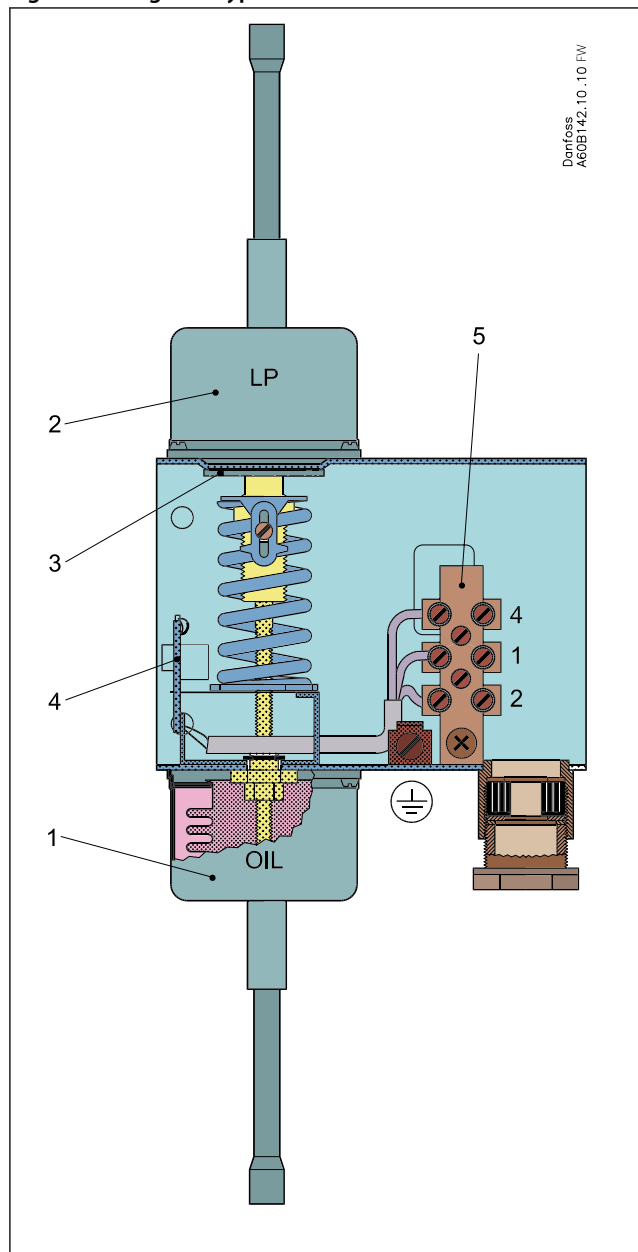
Features

- Wide regulating range,
- Can be used for deep freeze, refrigeration and air conditioning plant,
- Can be used for HCFC, HFC and HC refrigerants,
- Electrical connection at the front of the unit,
- Screwed cable entry for cables from 6 – 14 mm diameter,
- Small contact differential

Product specifications

Design and Materials

Figure 1: Design for Type MP 55E



1	Connection to oil pressure side of lubrication system, OIL
2	Connection to suction side of refrigeration plant, LP
3	Setting disc
4	Test device
5	Terminals

The MP 55E pressure control only switches the differential pressure, i.e. the difference in pressure between the two counteracting bellows, and it is virtually independent of the absolute pressure acting on both bellows.

The MP 55E can be set for different differential pressures by the setting disc (3).

The set differential pressure can be read from the internal scale.

Table 1: Materials in contact with the medium

Features	Specification
Stainless steel	19/11, no. 1.4306 to EN 10088
Deep-drawn steel plate	no. 1.0338 to EN 10130
Free cutting steel	no. 1.0401 to EN 10277

Technical data

Table 2: Technical data for MP 55E

Features	Specification
Ambient temperature	-20 – 60 °C
Max. working pressure	PS/MWP = 17 bar
Max. test pressure	$P_e = 22$ bar
Screwed cable entry	Pg 13.5
Cable diameter	6 – 14 mm
Max. media temperature	80 °C
Enclosure	IP20 to EN 60529 / IEC 60529
Contact rating	P_i max: 1 W
	U_i max: 30 V
	I_i max: 0.1 A
	C_i max: 0.5 nF
	L_i max: 0.2 μ H

Electrical connection

The MP 55E pressure switch placed in explosive zone must always be wired through reliable Ex zener barrier, placed outside ex-zone, to ensure insufficient energy supply to cause the ignition of surrounding atmosphere by an electrical spark or the heating of components of circuitry.

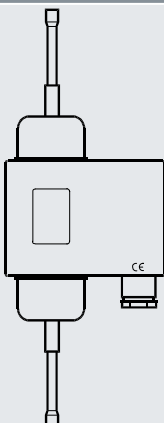
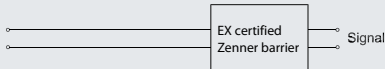
The equipment to be used for electrical load limiting must always be approved for use in the zone concerned. Cables and cable entries approved for the application must be used and can not be in contact with sharp edges. Cables must be connected with adequate stress relief that way that pulling forces can not be carried through the cable to the terminal.

NOTE:

A particular system can be classified in different zones, for different parts of the system.

Intrinsic safety protection method

Table 3: Intrinsic safety protection method

EX - zone	Non EX - zone	Electrical data for intrinsically safe specification (for all MP 55E types):
		P_i max: 1 W U_i max: 30 V I_i max: 0.1 A C_i max: 0.5 nF L_i max: 0.2 μ H

Must be used with certified Ex ic barrier (product matching) satisfying the input parameters.

Installation and maintenance

Only authorised persons, who are certified in installing and maintaining the systems may do the installation, maintenance and change of the switch.

In the event of strong pulsation in the system, bellows must be protected against fatigue failure by use of damping coil.

Differential pressure switch, Type MP 55E

The cycle frequency of the MP 55E switch must be kept as low as possible. The vibration level must be kept as low as possible.

Any overload of the MP 55E switch must be prevented. Overloaded or damaged apparatus must be exchanged.

Safety requirements

The MP-E can be applied on systems with R1270, R290, R600, R600a as the working fluid. For countries where safety standards are not an indispensable part of the safety system Danfoss recommend the installer to get a third party approval of the system containing flammable refrigerant.

: Please follow specific selection criteria stated in the datasheet for these particular refrigerants.

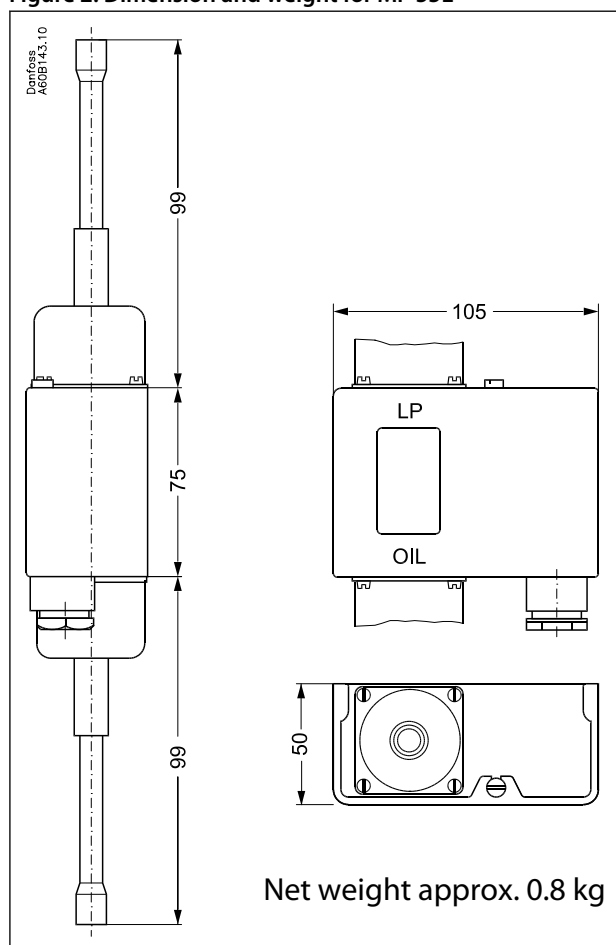
MP 55E pressure switches comply with the requirements for explosive atmosphere 2014/34/EU, acc. to ATEX, zone 2.

Only apparatus designed, constructed and released by Danfoss must be used for application concerned. Danfoss can accept no responsibility in case of alterations made on the switches or the use of them against the Danfoss instructions. Original Danfoss spare parts approved for use in explosive atmosphere can only be used.

The application covers systems that must be located within the EU or EFTA and comply with the existing EU legislation, such as the directive concerning potential explosive atmosphere (ATEX) 2014/34/EU, and other related EU standards. The system where MP 55E is mounted must always comply with local directives, legislation or any other regulation applying in the area of installation. The Danfoss products comply with the requirements of ATEX directive, but Danfoss takes no responsibility for the classification of explosive zone.

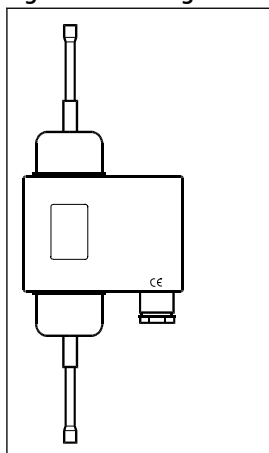
Dimension and weight

Figure 2: Dimension and weight for MP 55E



Ordering

Figure 3: Ordering for MP 55E



For R32, R290, R600, R600a, R1270

For complete list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of technical data.

This product is validated in accordance to EN 60079-0:2012 + A11:2013. Ignition risk is evaluated in accordance to EN 60079-11:2012. See safety requirements at the end of instruction.

Table 4: Ordering for MP 55E

Type	Differential range Δp	Switch differential max. Δp	Operation range LP side	Code no.
	[bar]	[bar]	[bar]	Connection 1/4 in. ODF solder
MP 55E	0.3 – 4.5	0.2	-1 – 12	060B530091

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: Certificates, declarations and approvals

Document type	Approval authority
UA declaration (EMCD/LVD)	LLC CDC EURO TYSK
EU declaration (ATEX/ ROHS)	Danfoss
Manufacturer declaration for China ROHS	Danfoss

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