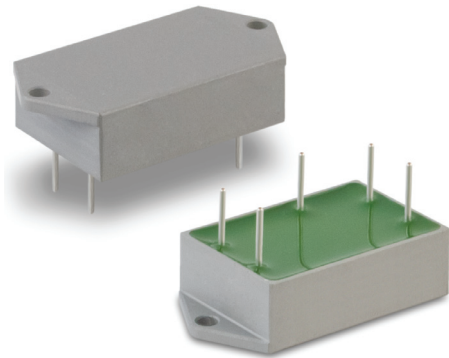


# Filtration modules

## M series



### Features

- 2 year Warranty
- Input voltage ranges 10,5...36 VDC, 17...72 VDC
- Insertion loss up to 60 dB for frequency range 0,15...30 MHz
- Overvoltage protection up to 1000 VDC
- Case operating temperature range  $-60...+85^{\circ}\text{C}$
- High reliability
- Two types of case design
- Low-profile design (10 mm)

### Description

**Filtration and protection modules** are designed for protection of analogue and digital networks of industrial and special purpose application from pulse spikes and filtration of noise coming from other modules and power supply units. With small dimensions (57,7×40,2×10,2 mm) these modules can have max current up to 20 A. M-series filtration modules are packed in low-profile metal case. Wide range of case operating temperatures ( $-60...+90^{\circ}\text{C}$ ) allows to use them in the equipment of different environmental applications. Having blade contacts these modules are suitable for mounting on PCB and for 3D wiring. The best effect can be achieved by combination of these filters with DC/DC converters made by AEDON, LLC.

## Filtration modules

### M series

#### Ordering information

MR   M4 - V   1   D   M   Y  
 ①   ②   ③   ④   ⑤   ⑥   ⑦

- ① - Monolithic DC/DC converter
- ② - Standard size
- ③ - Index of nominal input voltage  
V – 27 (10,5...36) VDC  
D – 60 (17...72) VDC
- ④ - Rated current, A
- ⑤ - Type of conversion  
D – DC/DC (constant)
- ⑥ - Index of case operating temperature range  
M – from –60 to +85°C
- ⑦ - Index of case design  
U – reinforced case  
no sign – forged case

#### Standard models

Module*	Input voltage	Limiting voltage @ 1 mA	Rated throughput current	Maximal pulse current 8/20 μs (surge pulse power 10/1000 μs)
MRM1-V2,5DMY	27 VDC	80 VDC	2,5 A	0,25 kA
MRM1-D2,5DMY	60 VDC	110 VDC	2,5 A	1,2 kA
MRM2-V5DMY	27 VDC	80 VDC	5 A	0,25 kA
MRM2-D5DMY	60 VDC	110 VDC	5 A	1,2 kA
MRM3-V10DMY	27 VDC	80 VDC	10 A	0,25 kA
MRM3-D10DMY	60 VDC	110 VDC	10 A	1,2 kA
MRM4-V20DMY	27 VDC	80 VDC	20 A	0,25 kA
MRM4-D20DMY	60 VDC	110 VDC	20 A	1,2 kA

\* Index "U" indicated case type with flanges, absence of index indicates case without flanges.

# Filtration modules

## M series

### Specifications\*

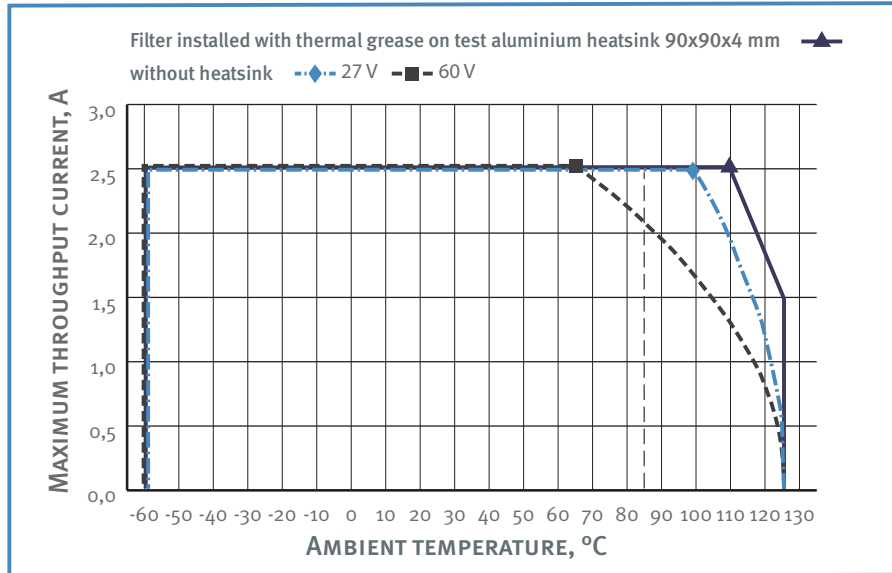
Input specification		
Input voltage range/transient deviation (1 sec.)	27 VDC 60 VDC	10,5...36 VDC / 10,5...40 VDC 17...72 VDC / 17...84 VDC
Output specification		
Insertion loss:	– from 0,15 up to 0,3 MHz – from 0,3 up to 1 MHz – from 1,0 up to 10 MHz – from 10 up to 30 MHz	≥30 dB ≥40 dB ≥60 dB ≥55 dB
Voltage drop		≤3 % U <sub>in. nom.</sub>
General specification		
Ambient temperature (operating and storage)		–60...+85°C
Case temperature (operating and storage)		–60...+85°C
Humidity		98% @ 35 °C
Isolation voltage	voltage +in./case, -in./case, +out./case, -out./case isolation resistance @ 500 VDC	500 VAC 20 MOhm min
MTBF		2000 kHrs
Cooling		convectonal with heatsink or forced fan cooling
Weight	MRM1xxxy MRM2xxxy MRM3xxxy MRM4xxxy	30 g 35 g 40 g 55 g

\* All specifications valid at normal climatic conditions (ambient temp. +15...+35°C; relative humidity 45...80%; air pressure 8,6×10<sup>4</sup>...10,6×10<sup>4</sup> Pa), U<sub>in.nom.</sub>, U<sub>out.nom.</sub>, unless otherwise stated.

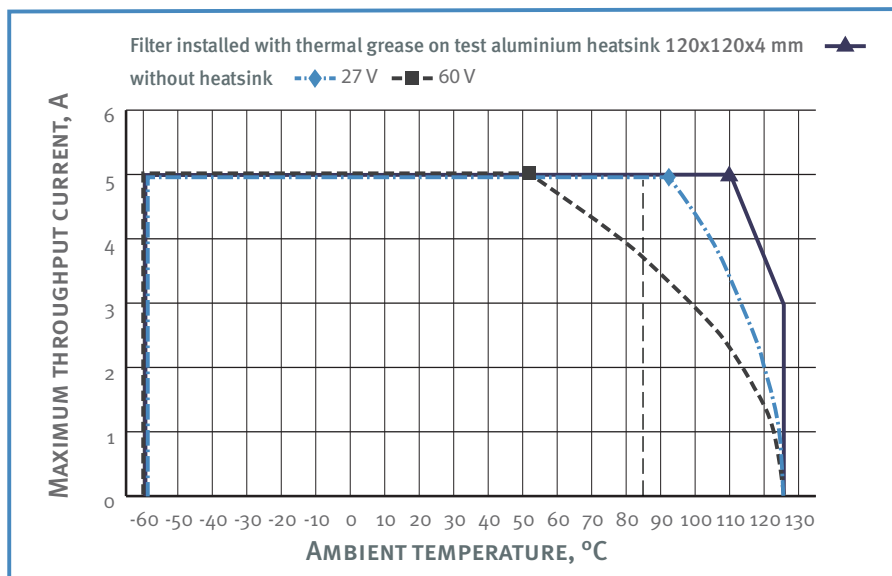
# Filtration modules

## M series

### Throughput current vs ambient temperature for MRM1



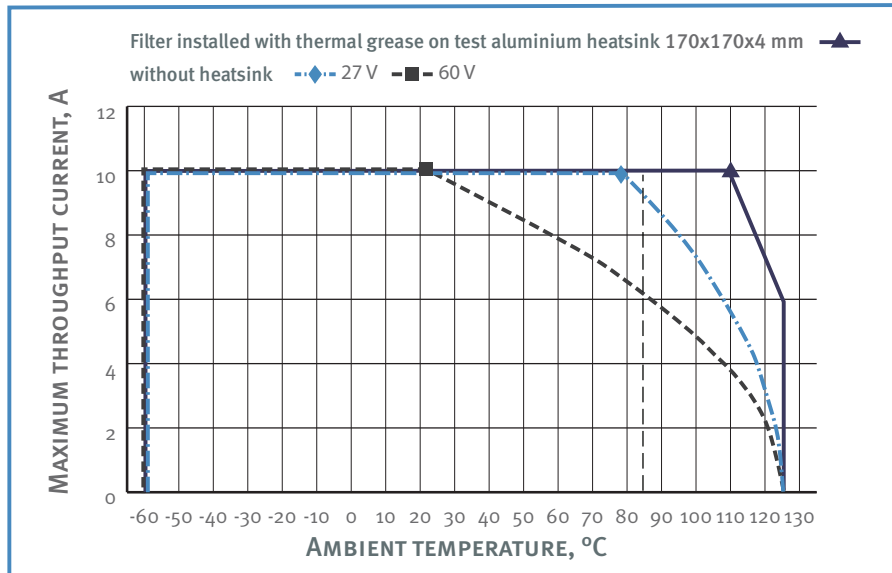
### Throughput current vs ambient temperature for MRM2



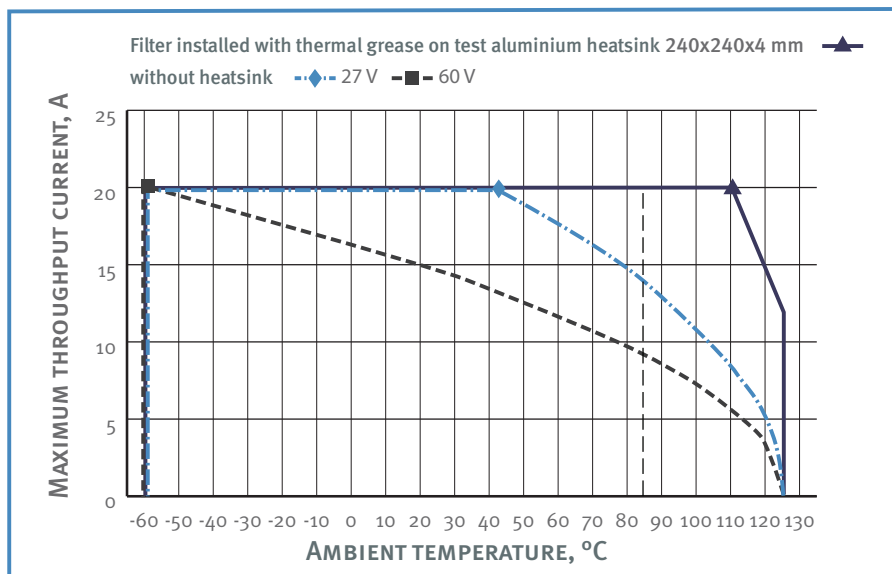
# Filtration modules

## M series

### Throughput current vs ambient temperature for MRM3



### Throughput current vs ambient temperature for MRM4



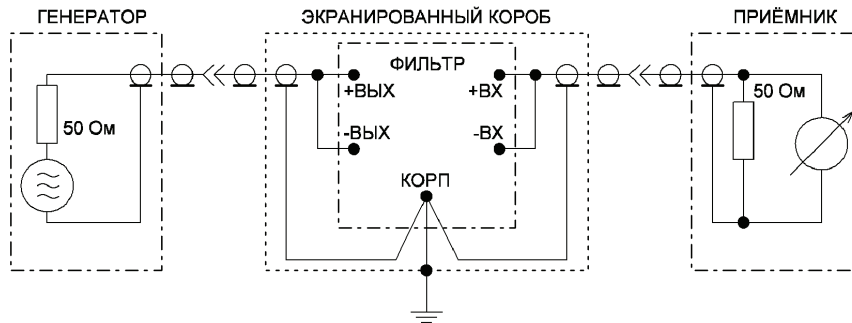
Decreasing parts of the dashed and dash-dotted curves correspond to the maximum case temperature +125°C. Throughput current must not exceed the values limited by curve for a given ambient temperature.

In points ■, ◆ and ▲ there are a number of extreme parameters, e.g. a combination of max case temperature and max throughput current. Long-term operation of the filter under these conditions is not allowed.

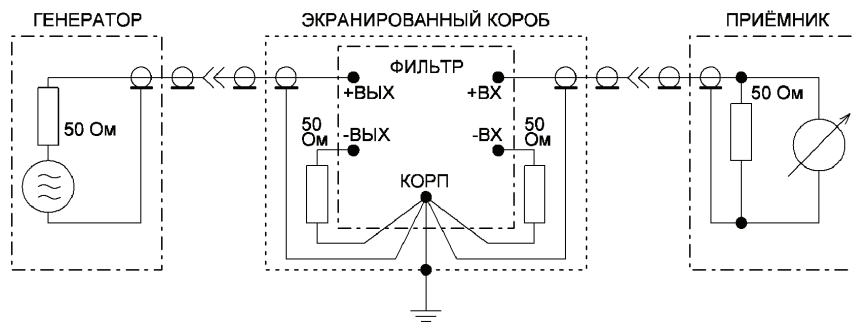
# Filtration modules

## M series

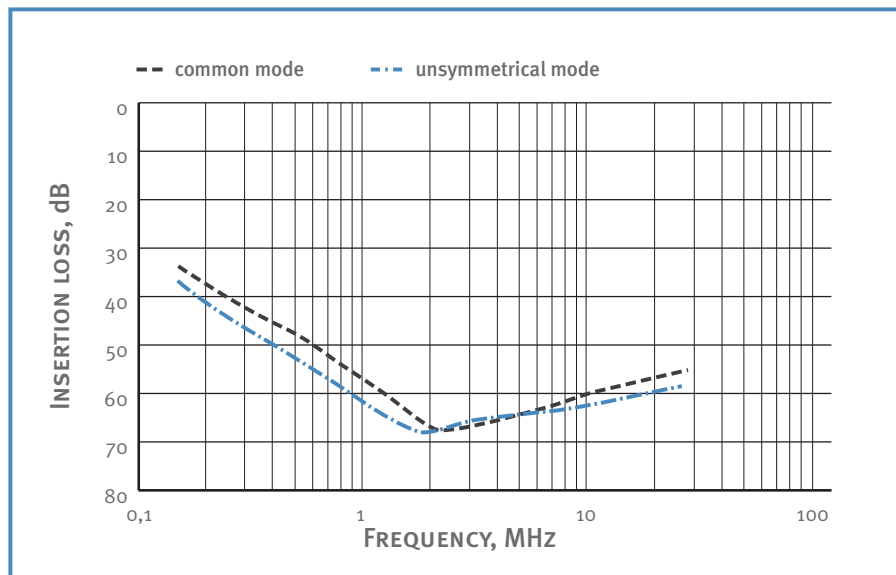
### Common-mode measuring layout



### Unsymmetrical three-phase system



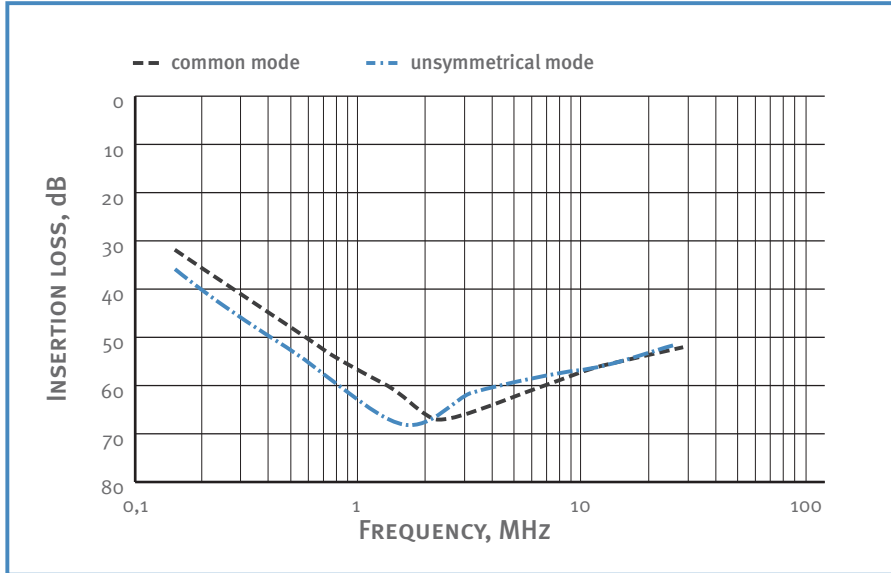
### Insertion loss vs frequency for MRM1



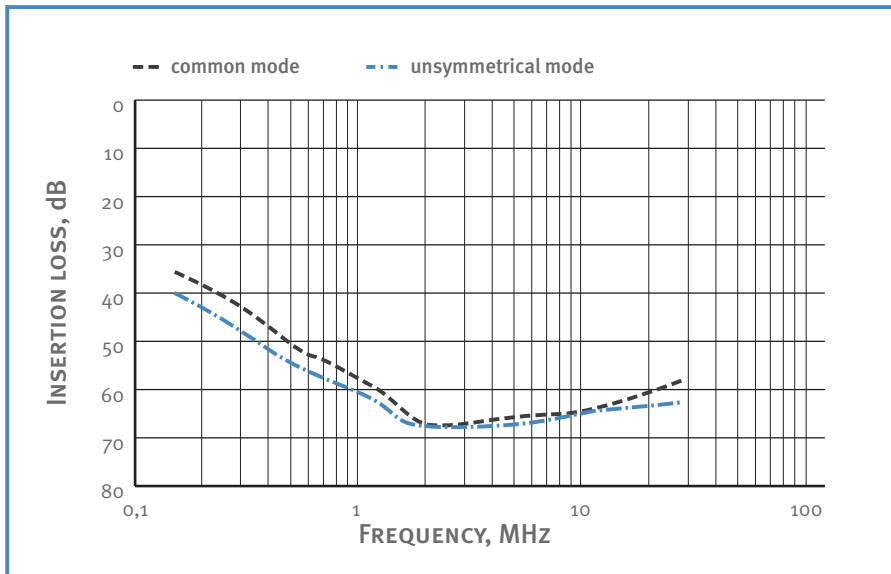
# Filtration modules

## M series

Insertion loss vs frequency for MRM2



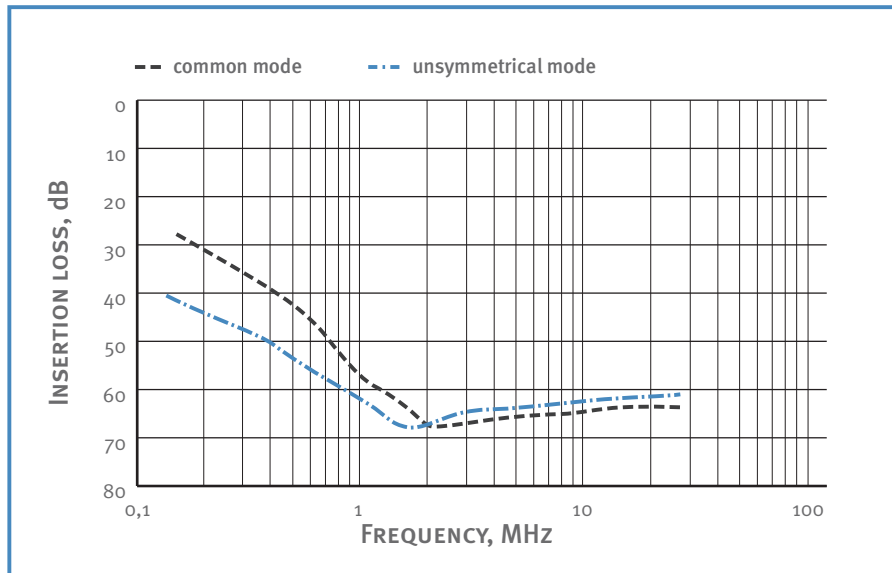
Insertion loss vs frequency for MRM3



# Filtration modules

## M series

### Insertion loss vs frequency for MRM4





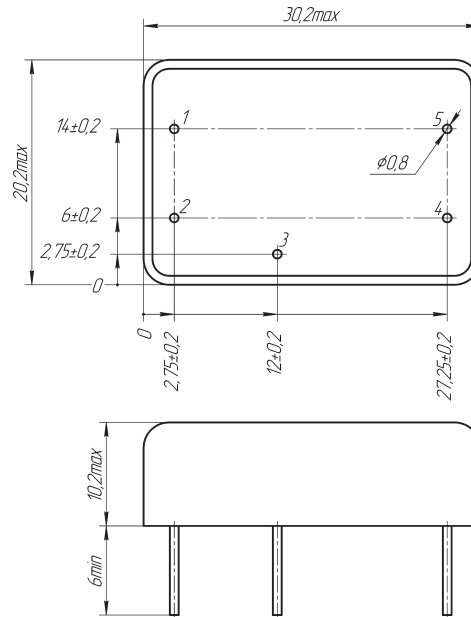
# Filtration modules

## M series

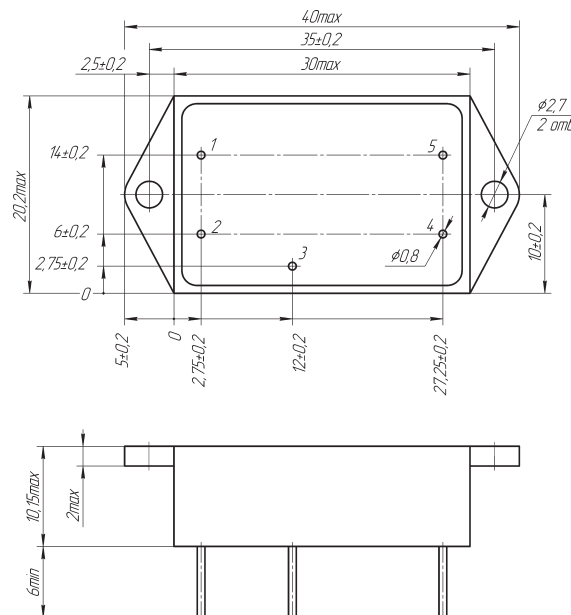
### Pin out

Pin #	1	2	3	4	5
Functions	+IN	-IN	CASE	+OUT	-OUT

### MRM1, case without flanges



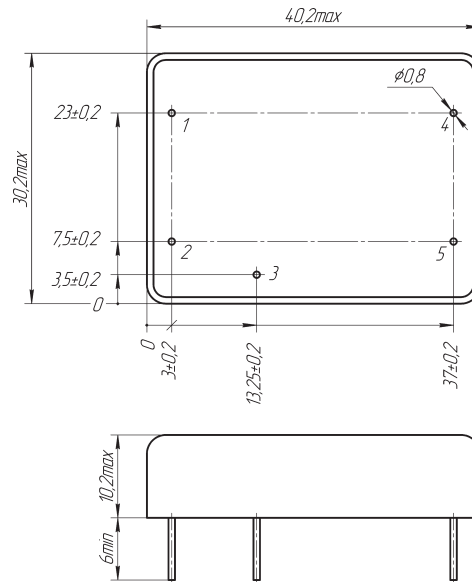
### MRM1, case with flanges



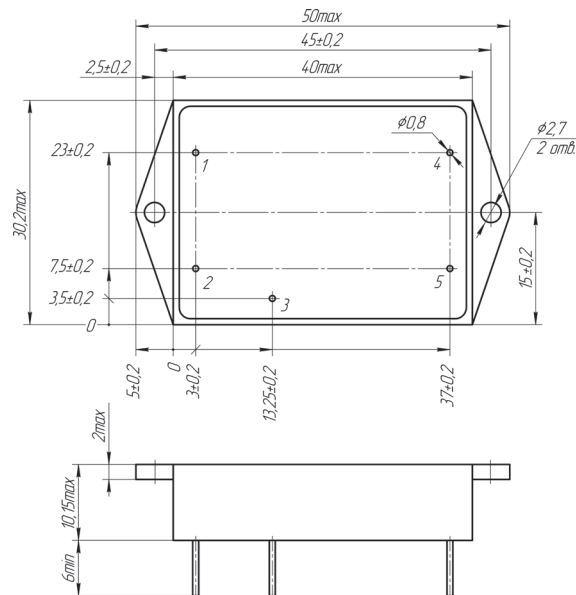
# Filtration modules

## M series

### MRM2, case without flanges



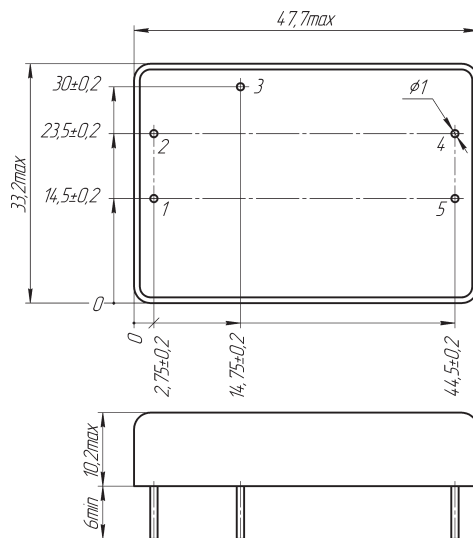
### MRM2, case with flanges



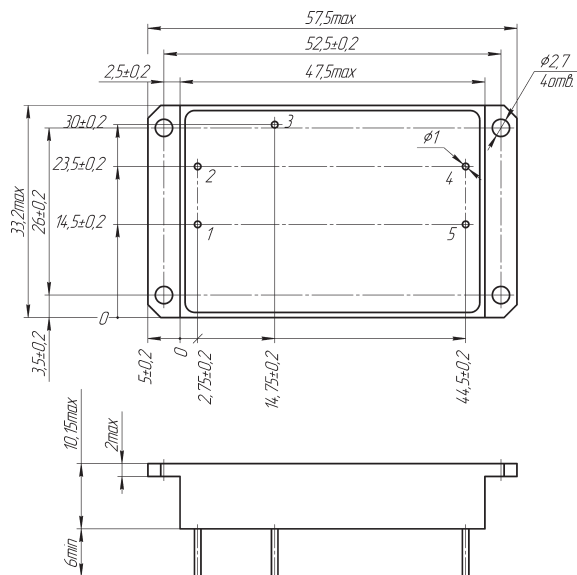
## Filtration modules

### M series

#### MRM3, case without flanges



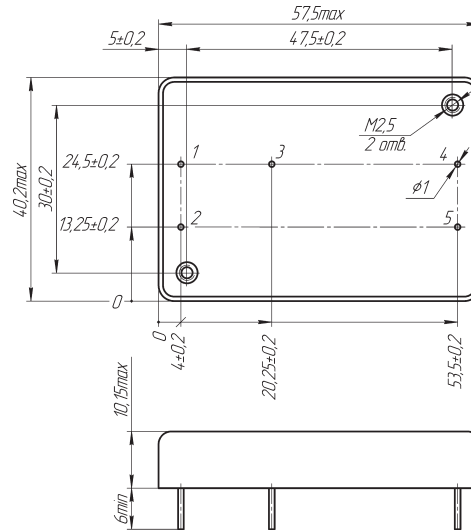
#### MRM3, case with flanges



# Filtration modules

## M series

### MRM4, case without flanges



### MRM4, case with flanges

