



Fig. 1: GENO-mat® MS-Z

Designated application

In general, multi-layer filter systems are used for the conventional filtration of impurities in cases where a fine filtration by means of cartridge filters would be too costly due to an exceptionally high degree of pollution.

The hydro-anthrasite H used in addition to quartz sand is a filter material composed of carefully sieved, thermally-treated carbon for the treatment of drinking and industrial water. The abrasion-resistant filter material has a rough surface by which a finer filtrate is achieved compared to a filtration by gravel alone.

The multi-layer filter is able to retain undissolved substances such as sand, etc. Heavy metal compounds in dissolved form such as iron and manganese, however, cannot be removed. The filter must be backwashed if there is an accumulation of dirt particles and a pressure drop by approx. 0.3 bar (overpressure). The backwash is carried out from the bottom to the top, opposite to the regular direction of flow.

Function

Filtration

The raw water flows through the raw water inlet of the control valve into the filter cylinder and then from the top to the bottom through the filter material. According to the filter type, the dirty water is filtered from top to bottom.

The filtered pure water is then directed via the lower distributing nozzles and the riser pipe through the pure water outlet into the piping system.

During the backwash process, the filter bed is forcibly flushed from bottom to top and thus loosened up. Impurities retained during the filtra-

tion process are washed out via the drain outlet at the control valve. The filter system has to be backwashed every 6 days at the latest.

First filtrate

By an automatic switch-over of the central control valve, the filter bed will forcibly be flushed from top to bottom. This first filtrate is discharged to the drain and afterwards the filter system is ready for operation once again.

Control unit

The GENO-mat® MS-Z multi-layer filters are time-controlled via an electrical timer.

In order to use the time-dependent, automatic control, the time interval between two filter sequences (backwash interval in days) must be set. If the differential pressure is exceeded, the backwash has to be activated after 4 days already and the timer has to be readjusted.

Design

5-cycle control valve made of red bronze with time-dependent control via an electric timer. Control valve top with rotating discs to set the backwash intervals; cover for protection against splash water and unauthorised access.

Exchanger tank made of pressure resistant plastic with fixtures for water flow control and retention of filter material.

The control unit is interference-free. Power supply by means of a transformer plug with 1.5 m feed line. The system operation itself runs with protective low voltage 24 V/50 Hz.

Scope of supply

Multi-layer filter system with corresponding filter material filling and operation manual.

GENO-mat® multi-layer filter

MS-Z 20/10
MS-Z 25/13
MS-Z 30/14
MS-Z 40/17
MS-Z 40/18
MS-Z 50/19
MS-Z 60/20

Options

Mounting set 1

For convenient hydraulic connection. Compact valve block R 1" female thread, integrated bypass with shut-off valve, shut-off valves for hard and soft water, outlet for raw water (e.g. garden hose), 2 connection hoses

Mounting set R 1" (up to type 30/14)

Order no. 125 845

GENO-STOP®1"

The new safety device GENO-STOP® provides reliable and comprehensive protection against water damage. The GENO-STOP® may be equipped with up to two wired water sensors and with five wireless water sensors.

- For further variants, please inquire -
Order no. 126 875

Installation requirements

Please observe local installation directives as well as general and technical specifications.

The installation site must be frost-proof and ensure the system's protection from chemicals, dyes, solvents and vapours. The ambient temperature as well as the radiation temperature next to the system must not exceed 40 °C.

For the electrical connection, a separate socket (230 V / 50 Hz) within approx. 1.2 m from the system is required.

The installation room must have a floor drain (DN 100). If no floor drain is available, an appropriate safety device has to be installed.

For the discharge of the backwash water, a drain connection must be provided. If the waste water is directed to a lifting system, make sure that this is sufficiently dimensioned in order to cope with the waste water volume to be expected.

According to DIN EN 806-5, filter systems routinely require a function-

al check to be performed by the operator and maintenance to be

performed by an authorised customer service company.

Technical specifications/Dimensions

GENO-mat® MS-Z	20/10	25/13	30/14	40/17	40/18	50/19	60/20
Connection data							
Nominal connection diameter	DN 25 (1")			DN 40 (1½")			
Min. drain connection	DN 50				DN 70		
Max. nominal flow [m³/h]	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Power supply [V]/[Hz]	230 V, 50 Hz operation with protective low voltage 24 V / 50 Hz						
Connected load [VA]	10						
Protection	IP 54						
Performance data							
Nominal pressure (PN)	8.0						
Min./max. operating pressure [bar]	2.5/6.0						
Filling volumes and consumption data							
Quartz gravel 3.0 - 5.6 I [kg]	9	15	20	30	20	67	100
Quartz sand 1.0 - 2.2 II [kg]	8	25	50	82	90	180	267
Hydro-anthrasite H 0.6 - 1.6 III [l]	8	18	26	24	64	50	78
Dimensions and weights¹⁾							
Total weight empty [kg]	31	65	99	151	170	312	455
Operating weight (incl. water) [kg]	53	100	167	240	268	515	732
Filling level in mm	a	880	1110	1140	1360	1460	1450
	b	720	780	760	850	1000	840
	c	490	440	460	630	510	580
A Total height [mm]	1360	1620	1620	1900	1900	1870	2100
B Pressure cylinder Ø [mm]	210	260	340	370	420	550	620
E Connection height/raw water piping [mm]	1160	1420	1420	1710	1710	1680	1910
F Connection height/pure water piping [mm]	1210	1470	1470	1735	1735	1705	1935
H Distance to wall [mm]	200	230	280	280	300	365	405
I Depth of foundation [mm]	400	450	500	500	550	600	650
K Length of foundation [mm]	705	755	860	860	900	1030	1110
Amount of regeneration agent required							
Backwash capacity [m³/h]	1.6	2.3		3.4		5.7	
Duration of backwash [min]	10						
Ambient data							
Max. water/ambient temperature [°C]	30/40						
Order no.	129 550	129 555	129 560	129 565	129 570	129 575	129 580

¹⁾ All indications are approximate.

Filling of filter layers

Filter layer I bottom
Filter layer II middle
Filter layer III top

- ① Pump (provided by others)
- ② Membrane expansion vessel (provided by others)
- ③ Pressure gauge inlet pressure (provided by others)
- ④ Control valve for operating voltage 24 V / 50 Hz
- ⑤ Multi-layer filter
- ⑥ Pressure gauge outlet pressure (provided by others)

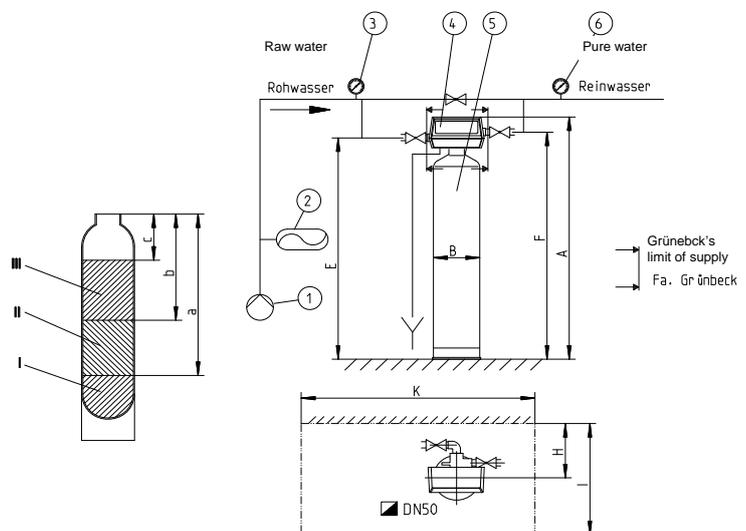


Fig. 2: Erection drawing with foundation plan