

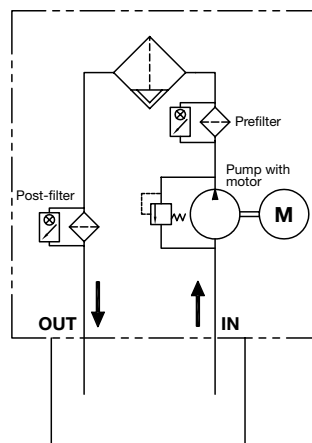
# OFFLINE FILTRATION SYSTEMS

## VMU 1/4 Series

Varnish Mitigation Unit



### Hydraulic Circuit Diagram



### Description

The user-friendly Varnish Mitigation Unit is designed to condition mineral oils. The VMU is particularly effective at removing oil aging products (varnish) from mineral oils.

Varnish takes the form of insoluble oil aging products which settle in reservoirs, valves and bearings. These can be non-filterable gels or solid paint-like deposits.

The VMU series offline filtration system removes varnish through adsorption on an active filter element surface.

### Features

- Removal of solid or gel-type oil aging products
- Operating reliability of the system is increased because there are fewer deposits in hydraulic components
- Increases oil service life
- Available as a complete unit for service, and as a modular system for retrofitting existing bypass circuit or for OEM

### Applications

- Power plants
- Steel industry

### Technical Specifications

Hydraulic Data	
MPC value achievable	< 20
Flow rate	VMU 1 ≈ 0.6 gpm (≈ 2.2 l/min) VMU 4 ≈ 2.4 gpm (≈ 8.9 l/min)
Fluid temperature	86 to 140 °F (30 to 60 °C)
Max. operating pressure	87 psi (6 bar)
Permissible suction pressure at suction inlet IN	-5.8 to 14.5 psi (-0.4 to 1 bar)
Viscosity range	80 to 370 SUS (15 to 80 cSt)
Permissible operating fluid	Mineral-based fluids
Connections IN / OUT	1/2" Male JIC
Pump type	Gear
Electrical Data	
Power supply voltage	See ordering details
Power consumption	0.25 to 0.6 kW / 16 Amps
Ambient Conditions	
Operating temperature range	32 to 104 °F (0 to 40 °C)
Storage temperature range	32 to 140 °F (0 to 60 °C)
Relative humidity	0 to 80%, non-condensing
Protection class to DIN 40050	IP 55
General Data	
Length of electrical connection cable	5' (1.5 m)
Sealing material	FKM (Viton®)
Sound level at 1m	< 80 dB(A)
Weight* (empty)	VMU 1 = 155 lbs (70 kg), VMU 4 = 660 lbs (300 kg)
Fluid cleanliness required	ISO 19/17/14 (ISO 4406:1999) 9A/9B/9C (SAE AS4059)

\*Weight noted is for a stationary unit.

## Model Code

**VMU - 4 - M - G - O - G05 - BM - G05 /-PKZ**

<b>Series</b>	VMU = Varnish Mitigation Unit
<b>Size</b>	1 = 1x Varnish Mitigation element NAVME ≈ 0.5 gpm (2.2 l/min) 4 = 4x Varnish Mitigation elements NAVME ≈ 2.4 gpm (8.9 l/min)
<b>Type</b>	M = mobile S = stationary
<b>Type of pump</b>	G = gear pump Z = without
<b>Power supply voltage</b>	F = 230 V, 60 Hz, 3 Ph K = 115 V, 60 Hz, 1 Ph O = 460 V, 60 Hz, 3 Ph (standard) Z = without (only available with "Z" pump type option)
<b>Prefilter</b>	G05 = with 5µm element G10 = with 10µm element
<b>Clogging indicator</b>	BM = differential pressure indicator – visual C = differential pressure indicator – electrical
<b>Postfilter</b>	G05 = with 5µm element G10 = with 10µm element
<b>Supplementary details</b>	PKZ = with on-off switch and overload protective motor switch (standard) FA1 = with on-off switch, overload protective motor switch and cut-out when filter clogged (requires neutral wire in power supply) FA2 = with on-off switch, overload protective motor switch and cut-out when filter clogged (does not require neutral wire in power supply)

For replacement element part numbers, please see Section E - REPLACEMENT ELEMENTS of this catalog.

*Model Codes Containing RED are non-standard items – Minimum quantities and longer lead times may apply - Contact HYDAC for information and availability.*

## Sizing

Tank Volume	Varnish Mitigation Unit
< 4,230 gal. (<16,000 liters)	VMU-1
4,230 to 15,850 gal. (16,000 to 60,000 liters)	VMU-4

## VMU Element & Filter Elements

VMU Element	Part No.
NAVME Element	2210730
Replacement Filter Element (prefilter & protection filter)	Part No.
5.03.18D 05 BN4 /-V-G	2094528
5.03.18 D 10 BN4 /-V-G	2094529

## Scope of delivery

- VMU according to the model purchased. Varnish Mitigation elements (NAVME, see VMU Element & Filter Elements) purchased separately.
- Operating and maintenance manual

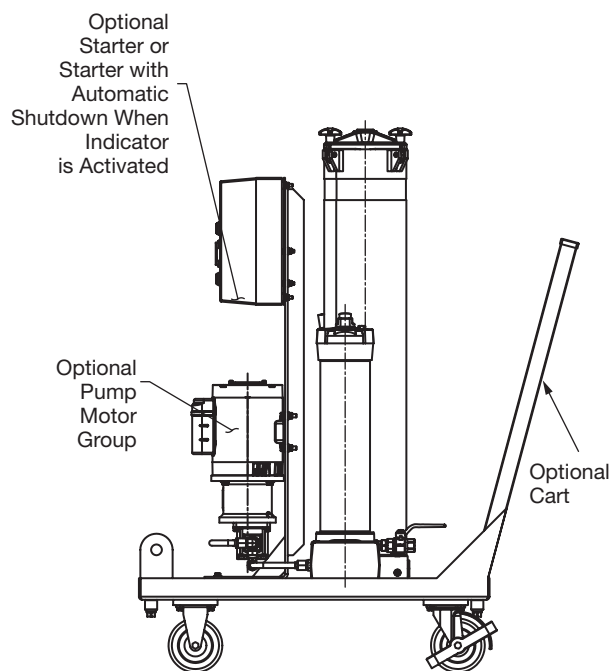
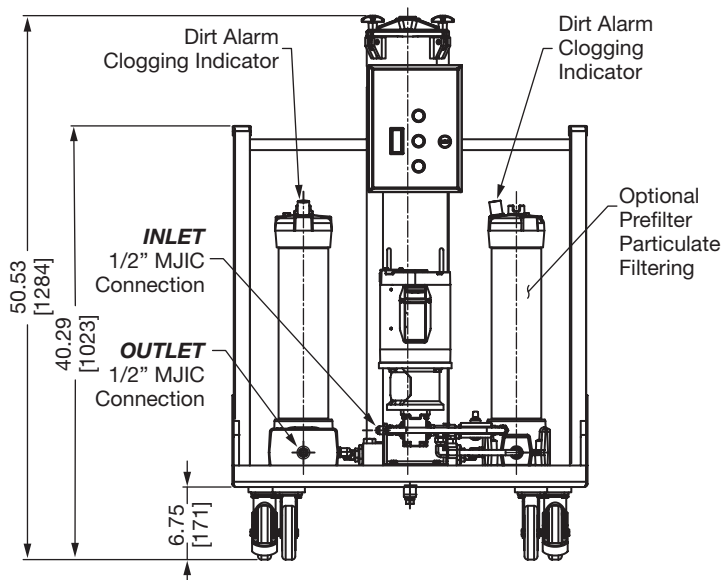
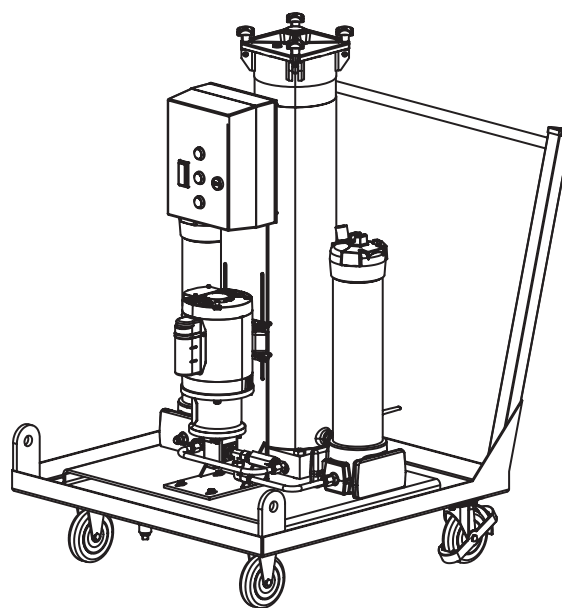
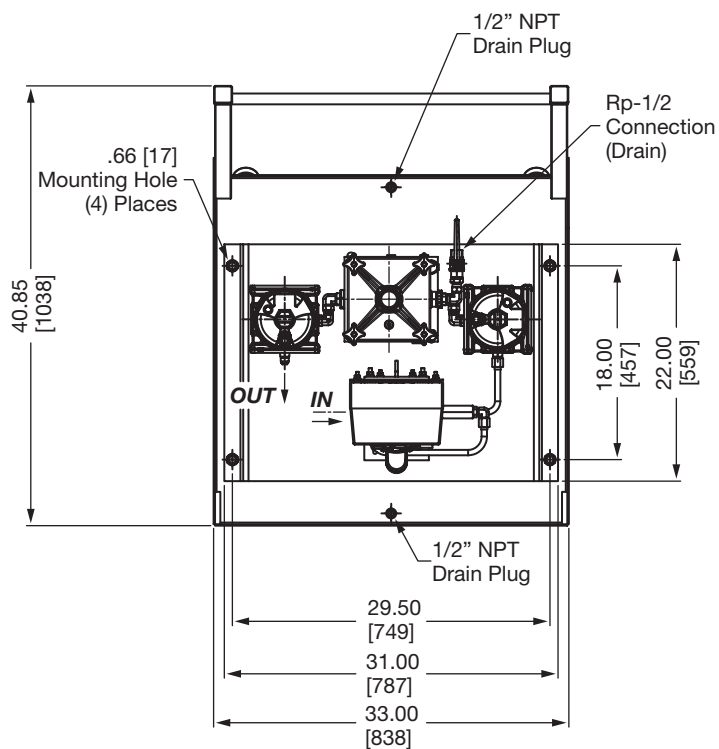
### Order examples:

**VMU-1-M-G-O-G10-BM-G05-PKZ** requires:  
1x NAVME200

**VMU-4-M-G-O-G10-BM-G05-PKZ** requires:  
4x NAVME200

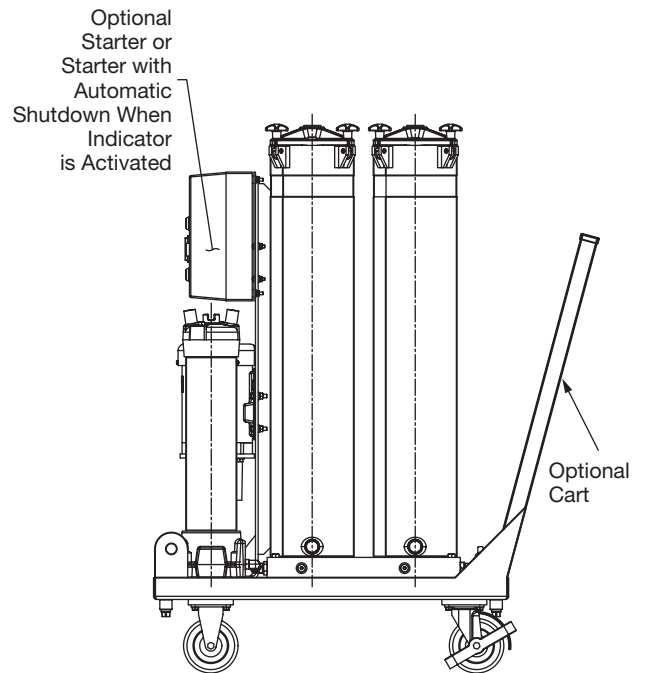
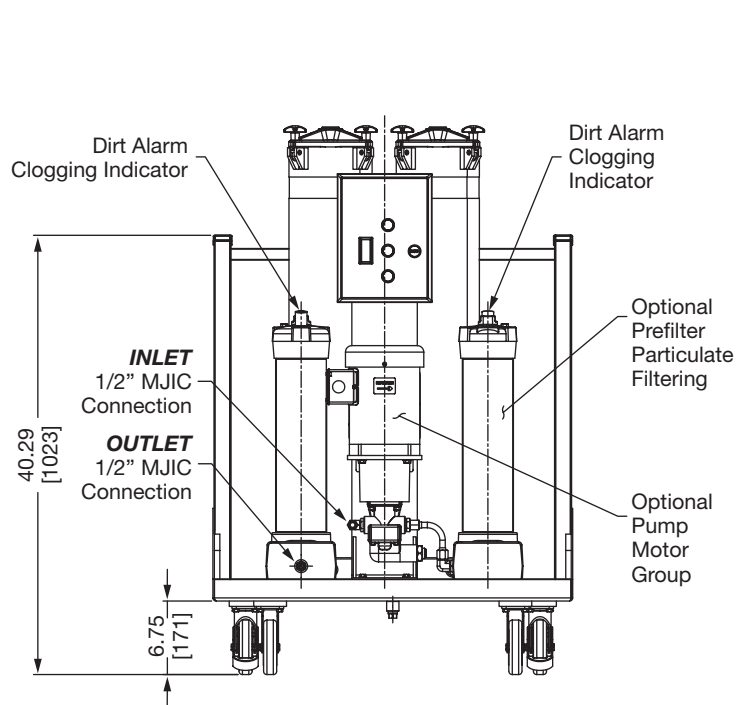
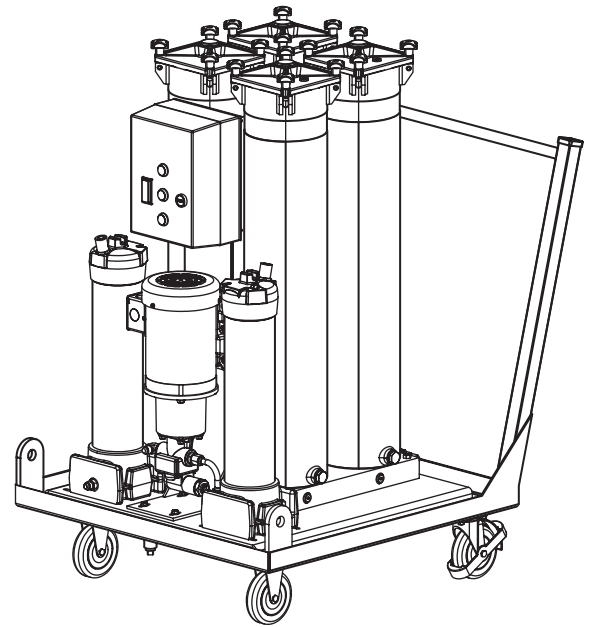
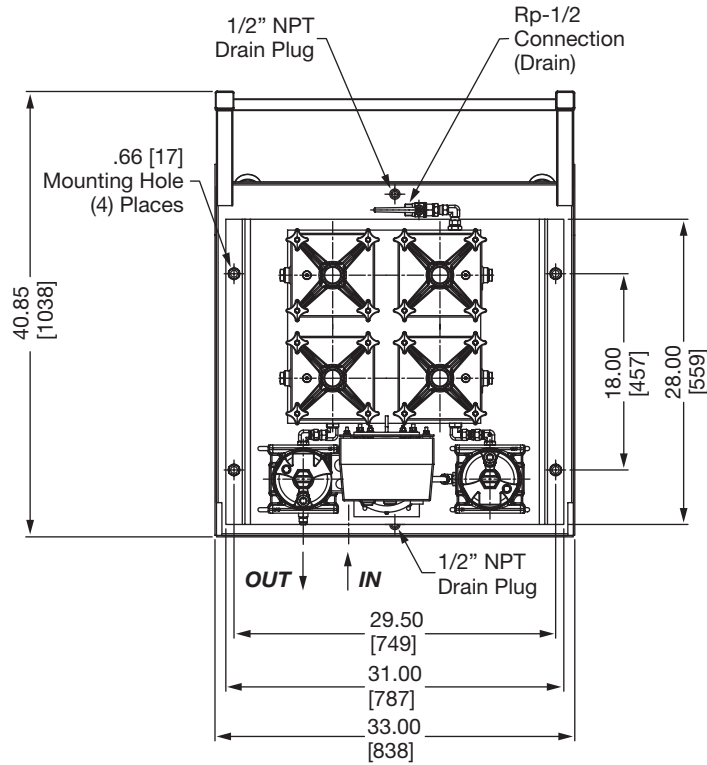
# OFFLINE FILTRATION SYSTEMS

## Dimensions VMU1 Series



Dimensions are for general information only, all critical dimensions should be verified by requesting a certified print.

## Dimensions VMU4 Series



Dimensions are for general information only, all critical dimensions should be verified by requesting a certified print.