

## Filter module VMF

### TECHNICAL INFORMATION

- Safe gas cleaning using filter pad and strainer
- Easy installation into a system in conjunction with valVario valves and regulators
- Suitable for hydrogen



valVario®

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## 1 Application



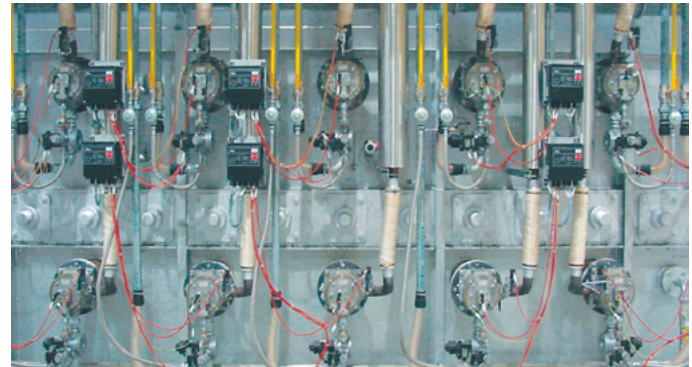
*VMF 3..R..M*

The filter module VMF is designed for cleaning the gas and air flow to gas burners or gas appliances. It is suitable for use in gas control and safety systems in all sectors of the iron, steel, glass and ceramics industries, and also in all areas of private and commercial heat generation.

It can easily be adapted to different pipes thanks to various flange shapes for the individual valVario valve sizes. Its modular design allows assembly with valVario valves or regulators making it possible to construct space-saving gas systems.



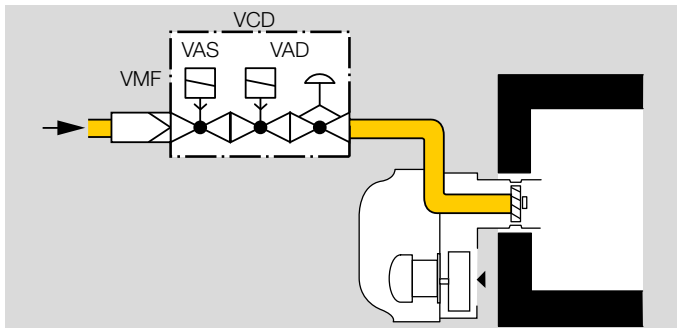
*HeatPak packaged burner system with valVario controls*



*Roller hearth furnace*

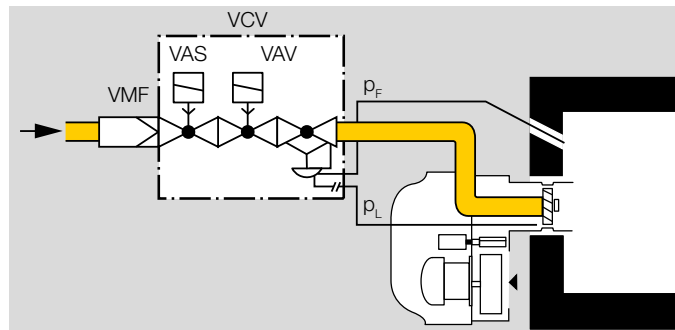
## 1.1 Application examples

### 1.1.1 valVario double block valve with pressure regulator VCD and VMF fitted to a forced draught burner



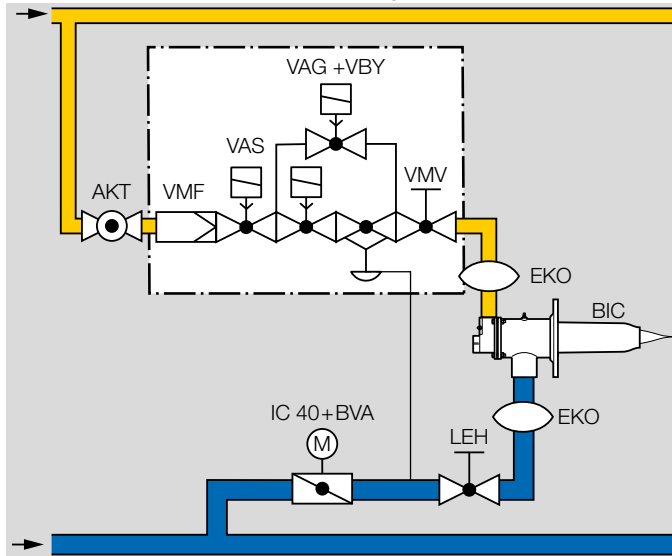
This type of control is used on one-stage forced draught burners or in one-stage boilers; it is also suitable for use with a mechanical or electronic air/gas ratio control system.

### 1.1.2 valVario double block valve with variable air/gas ratio control VCV and VMF fitted to a forced draught burner



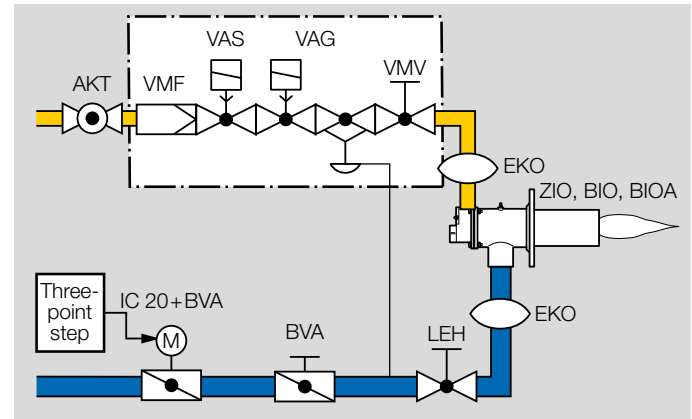
With this type of continuous control, the mixture setting is maintained over a wide turndown range while at the same time preventing low air pressure.

### 1.1.3 Industrial burner with staged control



The high output pulse frequency at the burner generated by this type of control produces a uniform temperature distribution and good circulation of the furnace or kiln atmosphere, e.g. in heat treatment furnaces in the iron and non-ferrous metal industries or kilns for heavy clay and fine ceramics. The required lambda value can be set using the fine-adjusting valve VMV and the air adjusting cock LEH. Using the filter module VMF, the gas flow upstream of the gas valve VAS is cleaned.

### 1.1.4 Industrial burner with continuous control



Using the filter module VMF, the gas flow upstream of the gas valve VAS and the air/gas ratio control VAG is cleaned. The gas/air mixture is set using the fine-adjusting valve VMV. A constant mixture setting is maintained over a wide turn-down range while at the same time preventing low air pressure. This type of control is used on boilers with multi-stage or infinitely adjustable forced draught burners, in melting furnaces in the aluminium industry or in regenerative incineration installations in the environment industry, for example.

## 2 Certification

### 2.1 Certificate download

Certificates – see [www.docuthek.com](http://www.docuthek.com)

### 2.2 Declaration of conformity



We, the manufacturer, hereby declare that the products VAS.../VAD/VAG/VAV/VAC/VAH/VBY/VRH/VMF/VMV/VMO with product ID No. CE-0063BO1580 comply with the requirements of the listed Directives and Standards.

Directives:

- 2014/35/EU – LVD
- 2014/30/EU – EMC
- 2011/65/EU – RoHS II
- 2015/863/EU – RoHS III

Regulation:

- (EU) 2016/426 – GAR

Standards:

- EN 161:2011+A3:2013
- EN 88-1:2011+A1:2016
- EN 126:2012
- EN 1854:2010

The relevant product corresponds to the tested type sample.

The production is subject to the surveillance procedure pursuant to Regulation (EU) 2016/426 Annex III paragraph 3.

Elster GmbH

### 2.3 UKCA certified



Gas Appliances (Product Safety and Metrology etc. (Amendment etc.) (EU Exit) Regulations 2019)

EN 161:2011+A3:2013, EN 88-1:2011+A1:2016, EN 126:2012, EN 1854:2010

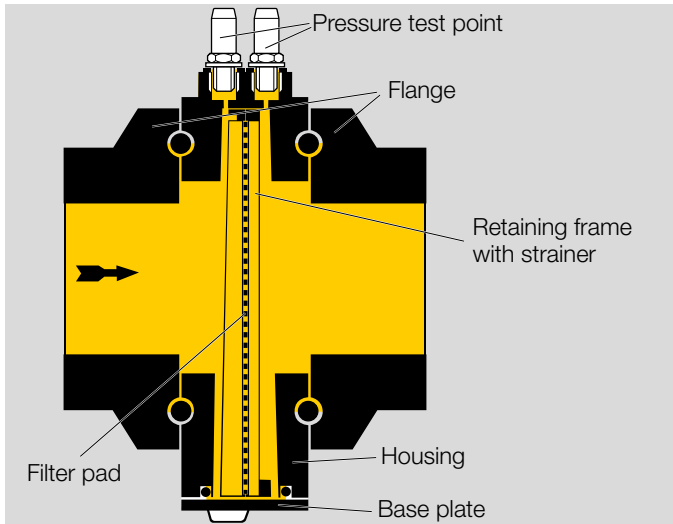
### 2.4 REACH Regulation

The device contains substances of very high concern which are listed in the Candidate List of the European REACH Regulation No. 1907/2006. See Reach list HTS at [www.docuthek.com](http://www.docuthek.com).

### 2.5 China RoHS

Directive on the restriction of the use of hazardous substances (RoHS) in China. Scan of the Disclosure Table China RoHS2, see certificates at [www.docuthek.com](http://www.docuthek.com).

## 3 Function



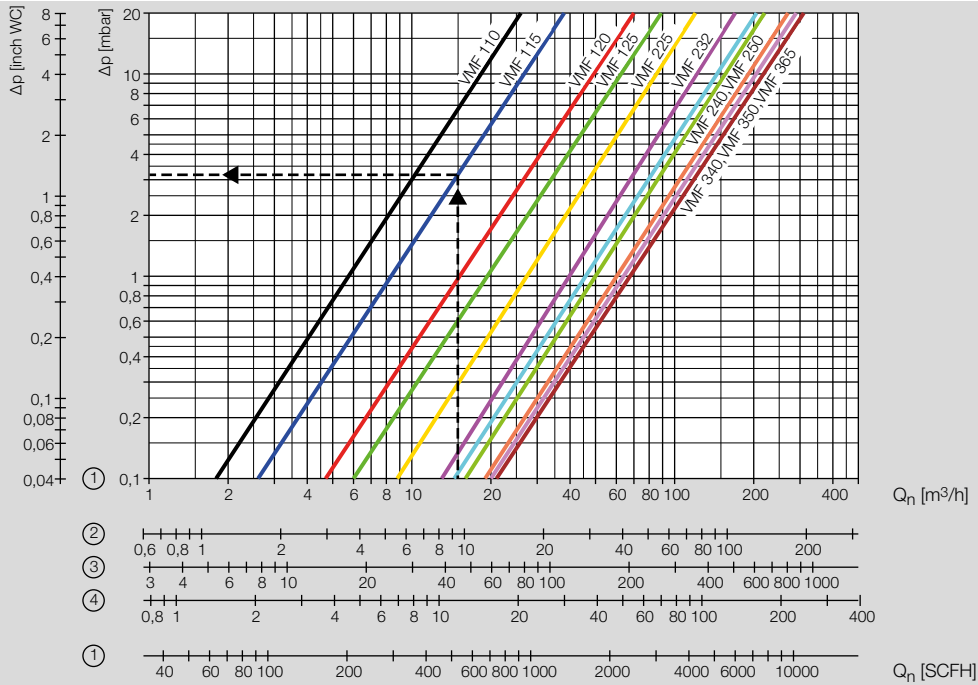
*VMF..M with test points*

There is a retaining frame with an integrated strainer and filter pad in the housing of the VMF. The filter pad is supported by the strainer. The filter pad and the strainer rid the gas of coarse as well as fine impurities.

In order to replace the filter pad, the two retaining screws are undone and the base plate removed. The retaining frame with the filter pad is pulled out. The retaining frame is opened and the filter pad can be removed.

The VMF is delivered with two test points for pressure measurement as standard. The VMF can also optionally be delivered with two 1/8" screw plugs.

# 4 Flow rate



- 1 = natural gas ( $\rho = 0.80 \text{ kg/m}^3$ )
- 2 = propane ( $\rho = 2.01 \text{ kg/m}^3$ )
- 3 = hydrogen ( $\rho = 0.09 \text{ kg/m}^3$ )
- 4 = air ( $\rho = 1.29 \text{ kg/m}^3$ )

The characteristic curves are measured at 15°C (59°F) with a measurement set-up in accordance with the standards EN 13611/EN 161.

This involves measuring the pressure 5 x DN upstream and downstream of the unit under test. The pressure drop of the pipe is also measured but is not compensated for.

A pressure loss of 10 mbar must not be exceeded.

Reading instructions: should operating cubic metres ( $Q_b$ ) have been used in the flow rate diagram, instead of standard cubic metres ( $Q_n$ ), then the pressure loss read must be multiplied by the absolute inlet pressure in bar (1 + positive pressure in bar).

Example:

inlet pressure  $p_u$  (positive pressure) = 0.4 bar,  
 gas type: natural gas,  
 operating flow rate  $Q_b = 15 \text{ m}^3/\text{h}$ ,



## 4 Flow rate

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selected filter module: VMF 120

$\Delta p$  from diagram = 3,1 mbar,

$\Delta p = 3,1 \text{ mbar} \times (1 + 0,4) = 4,5 \text{ mbar}$ .

The VMF 120 has been selected correctly.

### 4.1 Calculating the nominal size

A web app for calculating the nominal size is available at [www.adlatus.org](http://www.adlatus.org).

## 5 Selection

Option	VMF 1	VMF 2	VMF 3
DN – inlet	–, 10, 15, 20, 25	–, 25, 32, 40, 50	–, 40, 50, 65
DN – outlet <sup>1)</sup>	/–, /10, /15, /20, /25	/–, /25, /32, /40, /50	/–, /40, /50, /65
Pipe connection	R, N	R, N, F <sup>2)</sup>	R, N, F <sup>2)</sup>
Inlet pressure	05	05	05
Pressure measuring point	M, P	M, P	M, P

<sup>1)</sup> Specification omitted, if the nominal diameter of the inlet and outlet flanges is the same.

<sup>2)</sup> Only available for VMF 240/VMF 350.

### Order example

VMF 125/–R05M

## 5.1 Type code

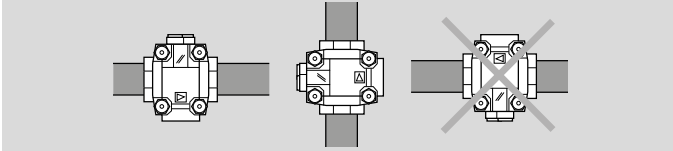
<b>VMF</b>	Filter module
<b>1-3</b>	Sizes
<b>–</b>	Without flange
<b>10-65</b>	Inlet and outlet flange nominal size
<b>R</b>	Rp internal thread
<b>N</b>	NPT internal thread
<b>F</b>	Flange to ISO 7005
<b>05</b>	p <sub>u</sub> max. 500 mbar
<b>P</b>	Screw plugs
<b>M</b>	Test nipple

## 5.2 ProFi

A web app selecting the correct product is available at [www.adlatus.org](http://www.adlatus.org).

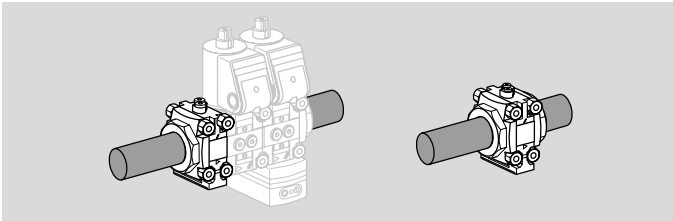
## 6 Project planning information

### 6.1 Installation



Installation position: VMF can be installed as required.

We recommend installation with the base plate pointing downwards or sideways so that dirt can be removed from the housing more easily.



Installation position when using valVario valves and regulators: the VMF is fitted upstream of the valVario control.

The VMF can be installed as a standalone device in the pipe.

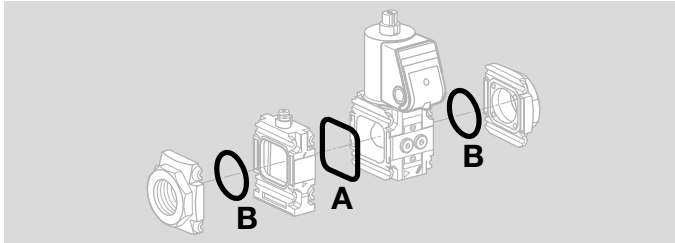
## 6.2 Hydrogen



Other hydrogen-compatible products can be found here: [Technical Information, Products for hydrogen](#).

## 7 Accessories

### 7.1 Seal set VA 1–3



The seal set VA is available for retrofitting the VMF to a val-Vario control.

Seal set for size 1: Order No. 74921988

Seal set for size 2: Order No. 74921989

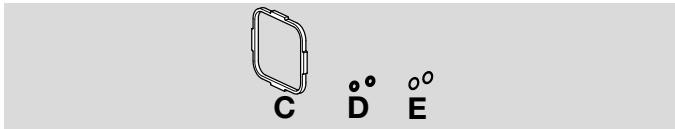
Seal set for size 3: Order No. 74921990

Scope of delivery:

**A** 1 x double block seal

**B** 2 x shaped rings (VA 1) for flange or 2 x O-rings (VA 2–3) for flange

The following components are not necessary when mounting the VMF:

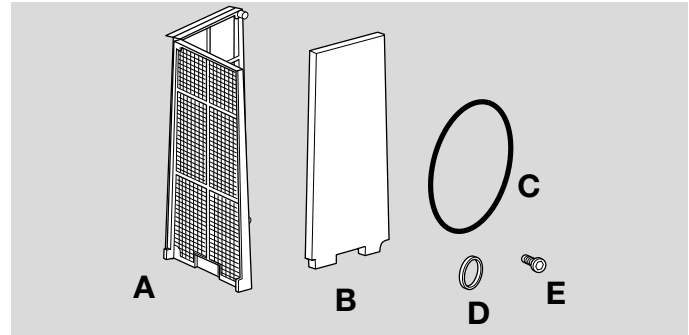


**C** 1 x retaining frame

**D** 2 x O-rings (pressure switch)

**E** 2 x sealing rings (flat sealing), 2 x profiled sealing rings

### 7.2 Filter pad set



Filter pad set for size 1: Order No. 74923800

Filter pad set for size 2: Order No. 74923801,

Filter pad set for size 3: Order No. 74926023

Scope of delivery:

VMF 1–2:

**A** 1 x filter frame

**B** 10 x filter pads

**C** 10 x seals for the baseplate

**D** 2 x profiled sealing rings for 1/8" test nipple

**E** 2 x screws for securing the baseplate

VMF 3:

**A** 1 x filter frame

**B** 10 x filter pads

**C** 10 x 61x2 O-rings

**D** 2 x profiled sealing rings for 1/8" test nipple

**E** 4 x screws for securing the baseplate

## 8 Technical data

Gas types:

natural gas, LPG (gaseous), biogas (max. 0.1 %-by-vol. H<sub>2</sub>S), hydrogen or air; other gases on request.

The gas must be dry in all conditions and must not contain condensate.

Max. inlet pressure  $p_u$ :

500 mbar (7.25 psig).

Medium and ambient temperatures:

-20 to +60°C (-4 to +140°F), no condensation permitted.

Long-term use in the upper ambient temperature range accelerates the ageing of the elastomer materials and reduces the service life (please contact manufacturer).

Storage temperature: -20 to +40°C (-4 to +104°F).

Housing: aluminium.

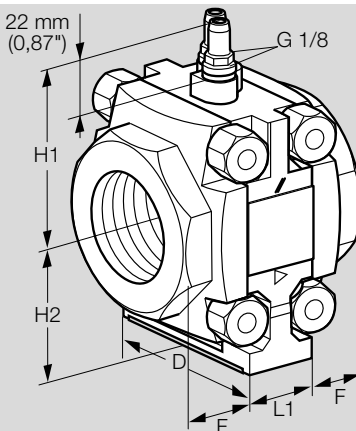
Connection flanges:

with internal thread: Rp to ISO 7-1, NPT to ANSI/ASME,

with ISO flange: DN 40 and DN 50 to ISO 7005.

## 8.1 Dimensions

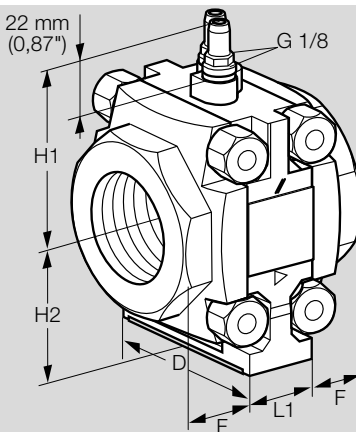
## 8.1.1 VMF..R



Type	Connection		Dimensions					Weight	
			L1	F	D	H1	H2	VMF..P*, VMF..M*	Flange
	Rp	DN	mm	mm	mm	mm	mm	kg	kg
VMF 110	3/8	10	30	15	62.7	69.1	44.2	0.34	0.07
VMF 115	1/2	15	30	15	62.7	69.1	44.2	0.34	0.06
VMF 120	3/4	20	30	23	62.7	69.1	44.2	0.34	0.11
VMF 125	1	25	30	23	62.7	69.1	44.2	0.34	0.09
VMF 225	1	25	34	29	88	82.8	64.6	0.76	0.29
VMF 232	1¼	32	34	29	88	82.8	64.6	0.76	0.26
VMF 240	1½	40	34	29	88	82.8	64.6	0.76	0.29
VMF 250	2	50	34	29	88	82.8	64.6	0.76	0.22
VMF 340	1½	40	36	36	106	94.6	77.5	1.3	0.66
VMF 350	2	50	36	36	106	94.6	77.5	1.3	0.576
VMF 365	2½	65	36	36	106	94.6	77.5	1.3	0.428

\* Without flanges

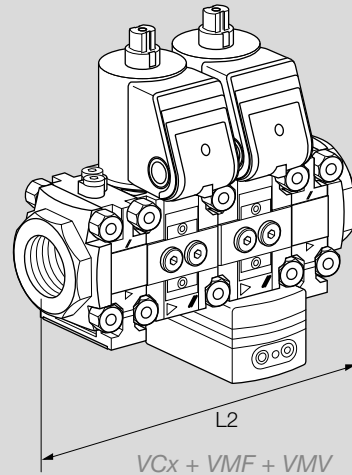
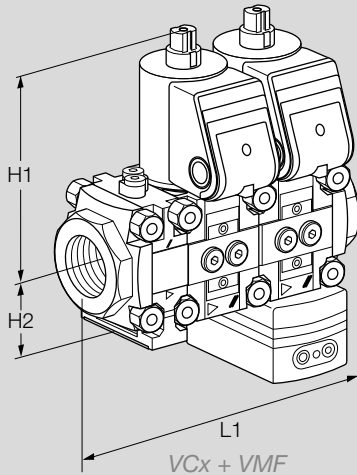
## 8.1.2 VMF..N



Type	Connection		Dimensions					Weight	
			L1	F	D	H1	H2	VMF..P*, VMF..M*	Flange
	Rp	DN	mm	mm	mm	mm	mm	kg	kg
VMF 110	3/8	10	1.18	0.59	2.47	2.72	1.74	0.75	0.15
VMF 115	1/2	15	1.18	0.59	2.47	2.72	1.74	0.75	0.14
VMF 120	3/4	20	1.18	0.91	2.47	2.72	1.74	0.75	0.23
VMF 125	1	25	1.18	0.91	2.47	2.72	1.74	0.75	0.20
VMF 225	1	25	1.34	1.14	3.46	3.26	2.54	1.66	0.64
VMF 232	1 1/4	32	1.34	1.14	3.46	3.26	2.54	1.66	0.57
VMF 240	1 1/2	40	1.34	1.14	3.46	3.26	2.54	1.66	0.65
VMF 250	2	50	1.34	1.14	3.46	3.26	2.54	1.66	0.49
VMF 340	1 1/2	40	1.42	1.42	4.17	3.72	3.05	2.86	1.45
VMF 350	2	50	1.42	1.42	4.17	3.72	3.05	2.86	1.27
VMF 365	2 1/2	64	1.42	1.42	4.17	3.72	3.05	2.86	0.94

\* Without flanges

8.1.3 VCx with VMF and VMV

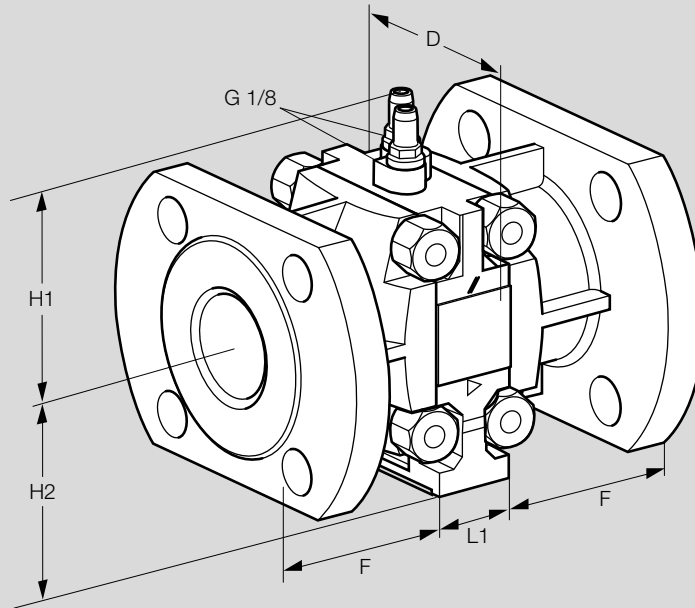


Type	[mm]			
	L1	L2	H1	H2
VMF 110	150	180	143	32
VMF 115	150	180	143	32
VMF 120	166	196	143	32
VMF 125	166	196	143	32
VMF 225	230	264	170	47
VMF 232	230	264	170	47
VMF 240	230	264	170	47
VMF 250	230	264	170	47
VMF 340	274	310	180	59
VMF 350	274	310	180	59
VMF 365	274	310	180	59

Type	[inch]			
	L1	L2	H1	H2
VMF 110	5.9	7.1	5.63	1.26
VMF 115	5.9	7.1	5.63	1.26
VMF 120	6.5	7.7	5.63	1.26
VMF 125	6.5	7.7	5.63	1.26
VMF 225	9.1	10.4	6.69	1.85
VMF 232	9.1	10.4	6.69	1.85
VMF 240	9.1	10.4	6.69	1.85
VMF 250	9.1	10.4	6.69	1.85
VMF 340	10.8	12.2	7.09	2.3
VMF 350	10.8	12.2	7.09	2.3
VMF 365	10.8	12.2	7.09	2.3



## 8.1.4 VMF..F



Type	Connection	Dimensions					Weight	
		L1	F	D	H1	H2	VMF..P*; VMF..M*	Flange
	DN	mm	mm	mm	mm	mm	kg	kg
VMF 240	40	34	66	88	81	65.2	0.76	1.04
VMF 350	50	36	74	106	94.6	77.5	1.30	1.62

\* Without flanges and connection parts.

## **9 Maintenance cycles**

Check for external tightness at least once per annum, at least twice per annum for operation with biogas. Replace filter pad as required, see page 12 (7.2 Filter pad set).

## For more information

The Honeywell Thermal Solutions family of products includes Honeywell Combustion Safety, Eclipse, Exothermics, Hauck, Kromschroder and Maxon. To learn more about our products, visit [ThermalSolutions.honeywell.com](https://ThermalSolutions.honeywell.com) or contact your Honeywell Sales Engineer.

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