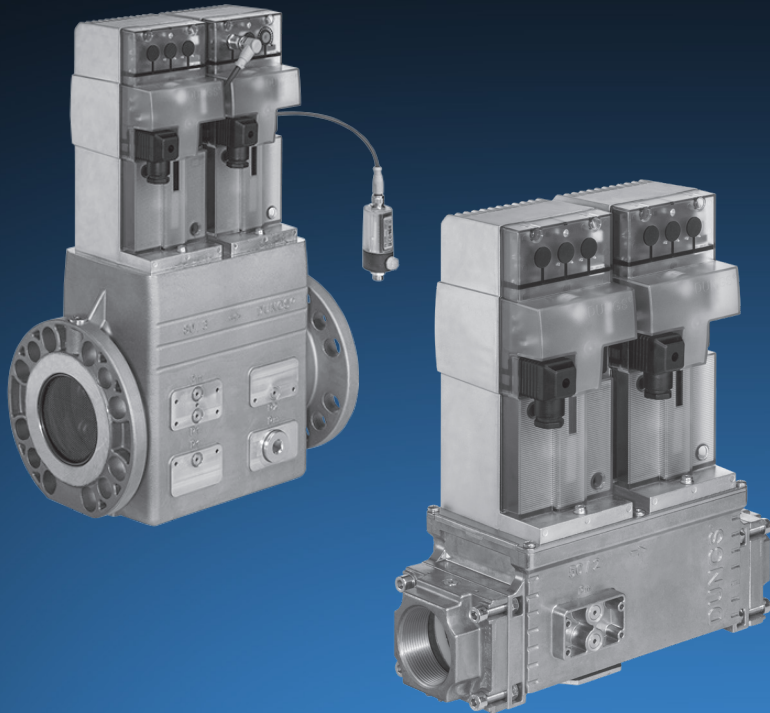


GasMultiBloc® Generation E



GasMultiBloc® MBE Generation E

The MBE multifunctional control combines the housing with two safety shutoff valves (ValveBody) and two electronic drives (ValveDrive) to actuate the safety valves and, optionally, to control the outlet pressure.

- 2 safety shutoff valves acc. EN 161
- Maximum inlet pressure of up to 70 kPa (700 mbar)
- Voltages: 100-240 VAC & 24 VDC
- Regulator function as per EN 88-1 & EN 88-3
- 3 sensors (PS) cover the outlet pressure range of (0-50 kPa)
- High flow rate with low pressure loss
- Biogas tested to max. 1.0 vol. % H₂S
- Modular system
- Simple assembly
- Lightweight design
- Worldwide approvals

ValveBody VB	3
ValveDrive VD	4
PressureSensor PS	5
Technical data	6-8
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System accessories	15
Flow diagram	16-22
Contact	24

ValveBody (VB)

The ValveBody combines two spring-loaded safety shutoff valves in one housing. The valves always remain closed when de-energised.



ValveDrive (VD)

The ValveDrive is an electronic actuator with a stepper motor for the following voltages: 100-240 VAC 50/60 Hz and 24 VDC. Each ValveDrive can be combined with all ValveBody versions. Operation mode is indicated with a blue LED. A visual position indicator is integrated as standard. Each ValveBody must be fitted with two ValveDrives.

The following models are available:

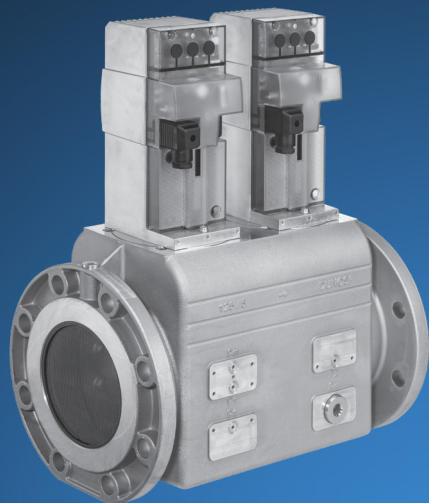
- VD-V-(AC/DC)
Open/close valve drive
- VD-R-(AC/DC)
Open/close valve drive with pressure regulation function
- VD-(V/R)-(AC/DC)-POC
Open/close valve drive with optional pressure regulation function and integrated closed position indicator switch



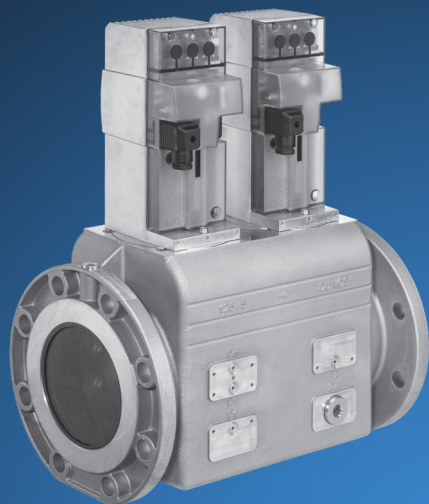
PressureSensor (PS)

The PressureSensor is a high-precision electronic pressure sensor with a digital interface. The PS is mounted on the outlet side of the ValveBody. The outlet pressure is measured by the PressureSensor outlet side or downstream of the VB. The pressure signal is transmitted to the VD-R via the BUS cable. The nominal value is pre-adjusted manually.




MultiBloc® Generation E multifunctional control

Nominal diameters	VB-050: Rp 1½ - 2 VB-065 to VB-150: DN 65 - 150 VB-2L: NPT 1½ - 2 VB-2½L to VB-6L: NPS 2½ - 6
Maximum inlet pressure	VB-050 $p_{max.} = 60 \text{ kPa (600 mbar)}$ VB-065...150 $p_{max.} = 70 \text{ kPa (700 mbar)}$ VB-2L $p_{max.} = 8 \text{ PSI (240 "W.C.)}$ VB-2½L...6L $p_{max.} = 10 \text{ PSI (280 "W.C.)}$
Outlet pressure range	Only in combination with VD-R... and PS-... PS-0: 0 kPa / 0 "W.C. PS-10/40: 0.4-10 kPa / 1.6-40 "W.C. PS-50/200: 2.0-50 kPa / 8.0-200 "W.C.
Accuracy class	$\pm 5 \text{ %}$ or $\pm 50 \text{ Pa}$ (as per EN 88-3)
Opening time	approx. 6 sec. until 100 % open
Closing time	< 1 sec.
Switching rate	max. 360/h
Ambient temperature	-20 °C to +60 °C

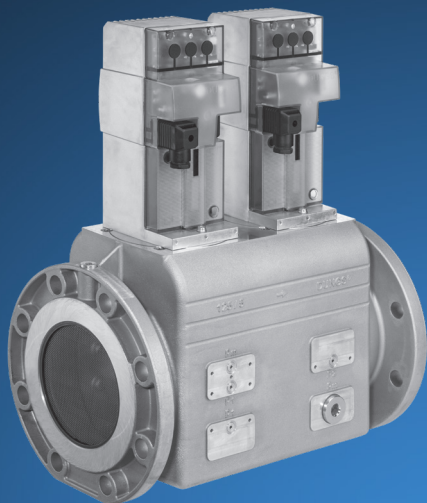


MultiBloc® Generation E multifunctional control

Process liquids / gases	As per EN 437:2018 Suitable for gases of gas families 1,2,3, 100% hydrogen (dry), bio and digester gases (DVGW G 260 (A)) up to max. 1.0 vol. % H₂S (dry). Do not operate the MBE... below 0 °C in liquid gas systems. Only suitable for gaseous liquid gas, liquid hydrocarbons destroy the sealing materials.
Valve V1, Valve V2	Class A (EN 161), Group 2 (EN 13611)
Electrical connection	Plug as per DIN EN 175301-803 Class II control (EN/UL 60730-1)
Voltage / frequency	VD-...-AC: 100-240 VAC, 50/60 Hz VD-...-DC: 24 VDC ± 30 % Duty cycle 100 %
Power consumption per VD	VD-...-AC: max. 16 VA / 8 W per drive Starting current max 1 A for 0.02 s VD-...-DC: max. 8 W per drive Starting current max 10 A for 0.02 s
Degree of protection	IP 55 as per IEC 529 (EN 60529)
Dirt trap device	Filter A suitable gas filter must be installed upstream.

MultiBloc® Generation E multifunctional control

Vibration resistance	VD-...-AC: tested as per EN 13611	
	VD-...-DC: tested as per EN 13611 & MIL-810G	
Duty cycle	100 %	
Installation position	Vertically upright to lying horizontally.	
Materials of gas conveying parts	Housing:	Aluminium
	Seals:	NBR basis (VB-050 & VB-2L) VMQ (VB-065...150 & VB-2½L...6L)



CE: EN 13611; EN 161; EN 126; EN 88-1; EN 88-3

cUL_{us}: UL Listed to UL 429 and to ANSI Z21.21/CSA 6.5 C/I
UL Listed to ANSI Z21.18/CSA 6.3

VB-100 & VB-125:
UL Recognised to UL 429 and to ANSI Z21.21/CSA 6.5 C/I

FM: Approval Class 7400

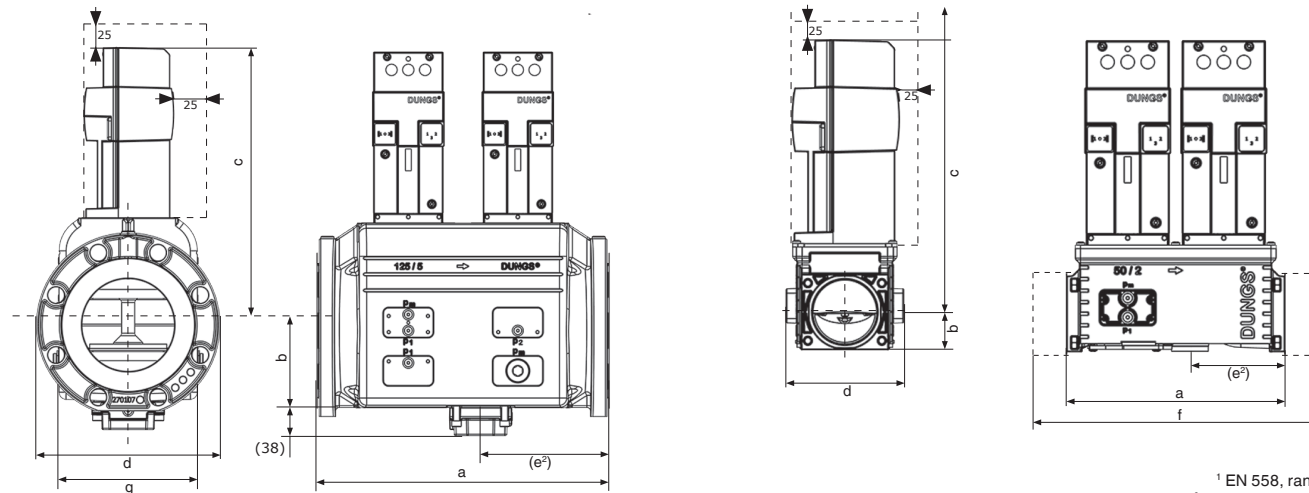
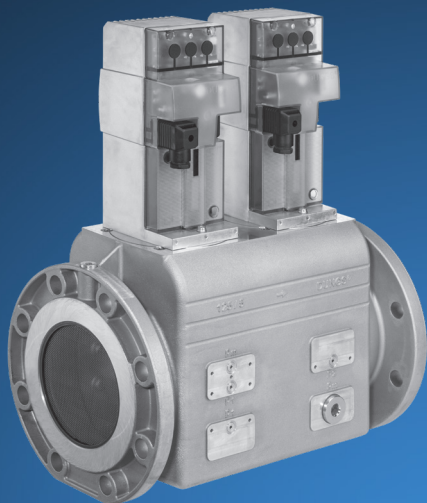
AGA: AS 4629-2005

EAC: TP TC 010/2011; TP TC 004/2011; TP TC 020/2011; TP TC 016/2011

UA: EN 13611; EN 161; EN 88-1



Dimensions



¹ EN 558, range 1

² Only VB-...L versions

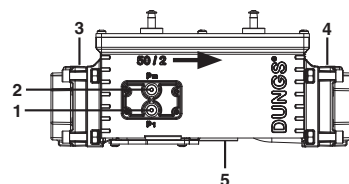
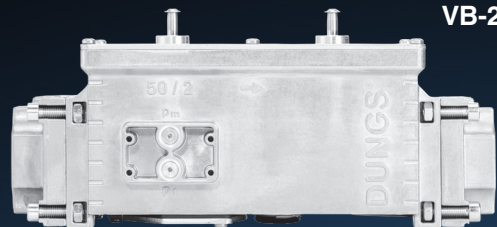
³ DN as per EN 1092-1:2007 PN 16 (raised face)

⁴ NPS as per ASME 16.5 Class 150 (raised face)

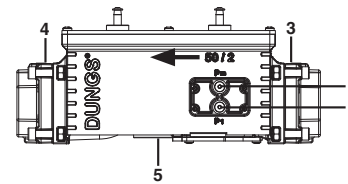
Type	Size	Dimensions							Weight	Mid-volume space
		a	b	c	d	e ²	f	g		
MBE-050-...	Rp 2 / NPT 2	250 mm	44 mm	313 mm	135 mm	109 mm	327 mm	-	8.9 kg	0.95 l
MBE-2L-...	Rp 2 / NPT 2	9.8 in	1.7 in	12.3 in	5.3 in	4.3 in	12.9 in	-	19.6 lbs	0.95 l
MBE-065-...	³⁺⁴ DN 65	290 mm	106 mm	382 mm	180 mm	121 mm	-	136 mm	13.5 kg	2.36 l
MBE-2½L-...	³⁺⁴NPS 2½	11.4 in	4.2 in	15.0 in	7.1 in	4.8 in	-	5.4 in	29.7 lbs	2.36 l
MBE-080-...	³⁺⁴ DN 80	310 mm	106 mm	382 mm	193 mm	126 mm	-	146 mm	14.5 kg	2.68 l
MBE-3L-...	³⁺⁴NPS 3	12.2 in	4.2 in	15.0 in	7.6 in	5.9 in	-	5.7 in	32.0 lbs	2.68 l
MBE-100-...	³ DN 100	350 mm	106 mm	382 mm	225 mm	140 mm	-	171 mm	17.0 kg	3.82 l
MBE-4L-...	⁴NPS 4	13.8 in	4.2 in	15.0 in	8.8 in	5.5 in	-	6.7 in	37.5 lbs	3.82 l
MBE-125-...	³ DN 125	400 mm	118 mm	382 mm	253 mm	176 mm	-	196 mm	18.5 kg	5.35 l
MBE-5L-...	⁴NPS 5	15.7 in	4.6 in	15.0 in	10.9 in	6.9 in	-	7.7 in	40.7 lbs	5.35 l
MBE-150-...	³⁺⁴ DN 150	480 mm	132 mm	382 mm	282 mm	204 mm	-	216 mm	23,9 kg	6,93 l
MBE-6L-...	³⁺⁴NPS 6	18.9 in	5.2 in	15.0 in	11.1 in	8.0 in	-	8.5 in	52.7 lbs	6,93 l

Pressure taps

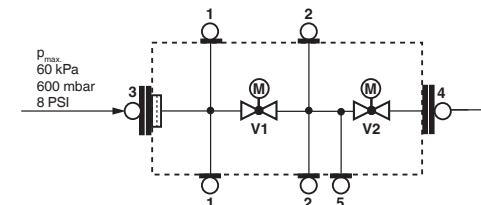
**VB-050
VB-2L**



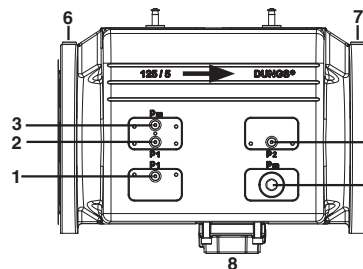
1, 2, 3, 4
Sealing plug G $\frac{1}{8}$ ISO 228



5
Locking screw
For version VB-2L only: connection for vent line **NPT 1**



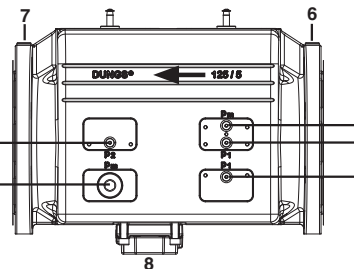
**VB-065...150
VB-2½L...6L**



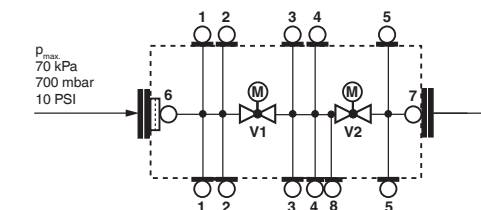
1, 2, 3, 5
Sealing plug G $\frac{1}{8}$ ISO 228

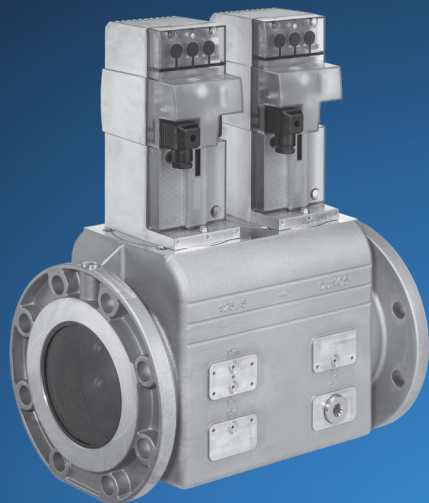
4
G $\frac{3}{4}$ for system accessories

6, 7
Sealing plug G $\frac{1}{4}$ ISO 228



8
For version VB...L only: connection for vent line
VB-2½L = 1¼" NPT
VB-3L = 1½" NPT
VB-4L = 2" NPT
VB-5L = 2" NPT
VB-6L = 2½" NPT

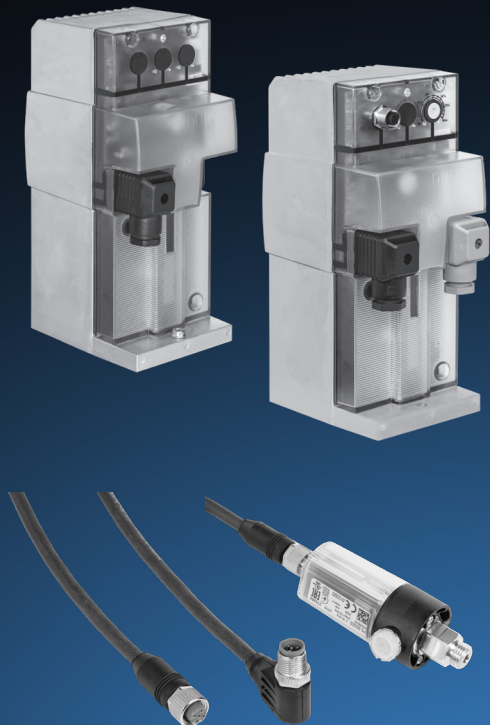




ValveBody		
Designation	Nominal diameter	Item number
VB-050	Rp 1½ - 2	274846
VB-065	DN 65	274659
VB-080	DN 80	274661
VB-100	DN 100	274663
VB-125	DN 125	274665
VB-150	DN 150	274667
VB-2L	NPT 1½ - 2	274847
VB-2½L	NPS 2½	274660
VB-3L	NPS 3	274662
VB-4L	NPS 4	274664
VB-5L	NPS 5	274666
VB-6L	NPS 6	274668



MBE components



ValveDrive

Designation	Item number	Voltage	Valve function	Regulator function	Close position indicator switch	Position indicator	Operating mode display
VD-V-AC	272262	100-240 VAC 50/60 Hz	x			x	x
VD-V-AC-POC	275358		x		x	x	x
VD-R-AC	274654		x	x		x	x
VD-R-AC-POC	275361		x	x	x	x	x
VD-V-DC	275359	24 VDC	x			x	x
VD-V-DC-POC	275360		x		x	x	x
VD-R-DC	275362		x	x		x	x
VD-R-DC-POC	275363		x	x	x	x	x

PressureSensor

Designation	Item number	Max. operating pressure	Outlet pressure			
			Min.		Max.	
			[kPa]	["W.C.]	[kPa]	["W.C.]
PS-0	275265	20 kPa	-0.5	-2	0.5	2
PS-10/40	275263	70 kPa	0.4	1.6	10	40
PS-50/200	275264	70 kPa	2	8	50	200
Bus cable 1.5 m	276911	-	-	-	-	-

MBE components



ValveDrive Set					
Designation	Item number	VD-R	PS	BUS cable	Pressure switch
VD-R-AC SET 10/40	279299	VD-R-AC	PS-10/40	incl.	-
VD-R-AC SET 50/200	279300	VD-R-AC	PS-50/200	incl.	-
VD-R-AC SET 0	290480	VD-R-AC	PS-0	incl.	-
VD-R-AC SET GW 10/40	292184	VD-R-AC	PS-10/40	incl.	GW 150 A5/1
VD-R-AC SET GW 50/200	292187	VD-R-AC	PS-50/200	incl.	GW 500 A5/1



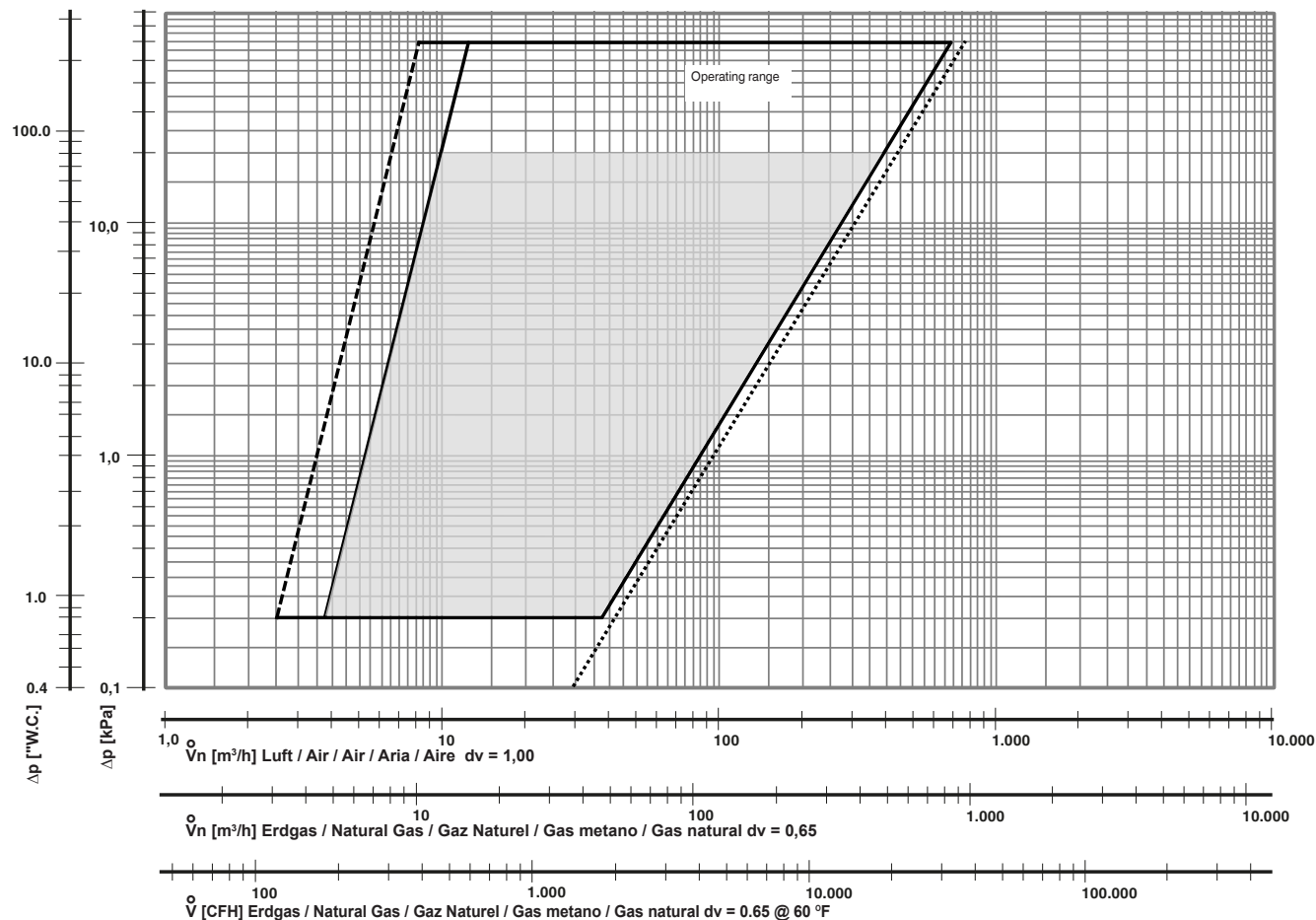
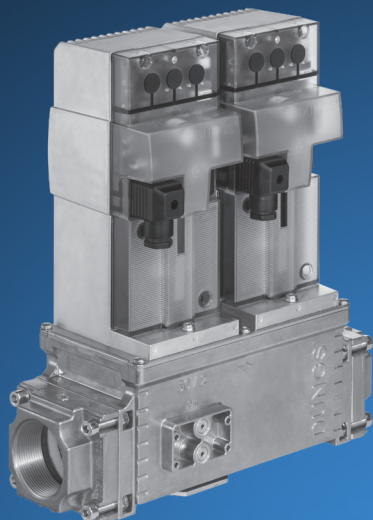
- **VPS 504 (to VB-100)**
<https://www.dungs.com/en/product/vps-504-valve-proving-system-for-multifunctional-gas-controls>
- **Pressure controller**
<https://www.dungs.com/en/productgroups/pressure-switches-for-gas-and-air>
- **Manometer**
<https://www.dungs.com/en/product/manometers-accessories-pressure-gauge-push-button-cock-pressure-gauge-shutoff-valve>
- **Plugs**

Flow diagram

Operating range as per EN 88-1 / EN 88-3

Basis
+15 °C, 101.3 kPa / 60 °F, 407 "W.C.
dry

..... MBE-...-VV
—— MBE-...-VR
- - - - $p_2 < 10.0 \text{ kPa} / 40 \text{ "W.C.}$
■ $p_2 = 0 \text{ kPa} / 0 \text{ "W.C.}$

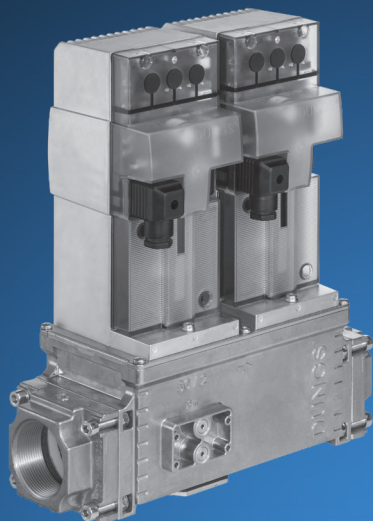


Flow diagram

Operating range as per EN 88-1 / EN 88-3

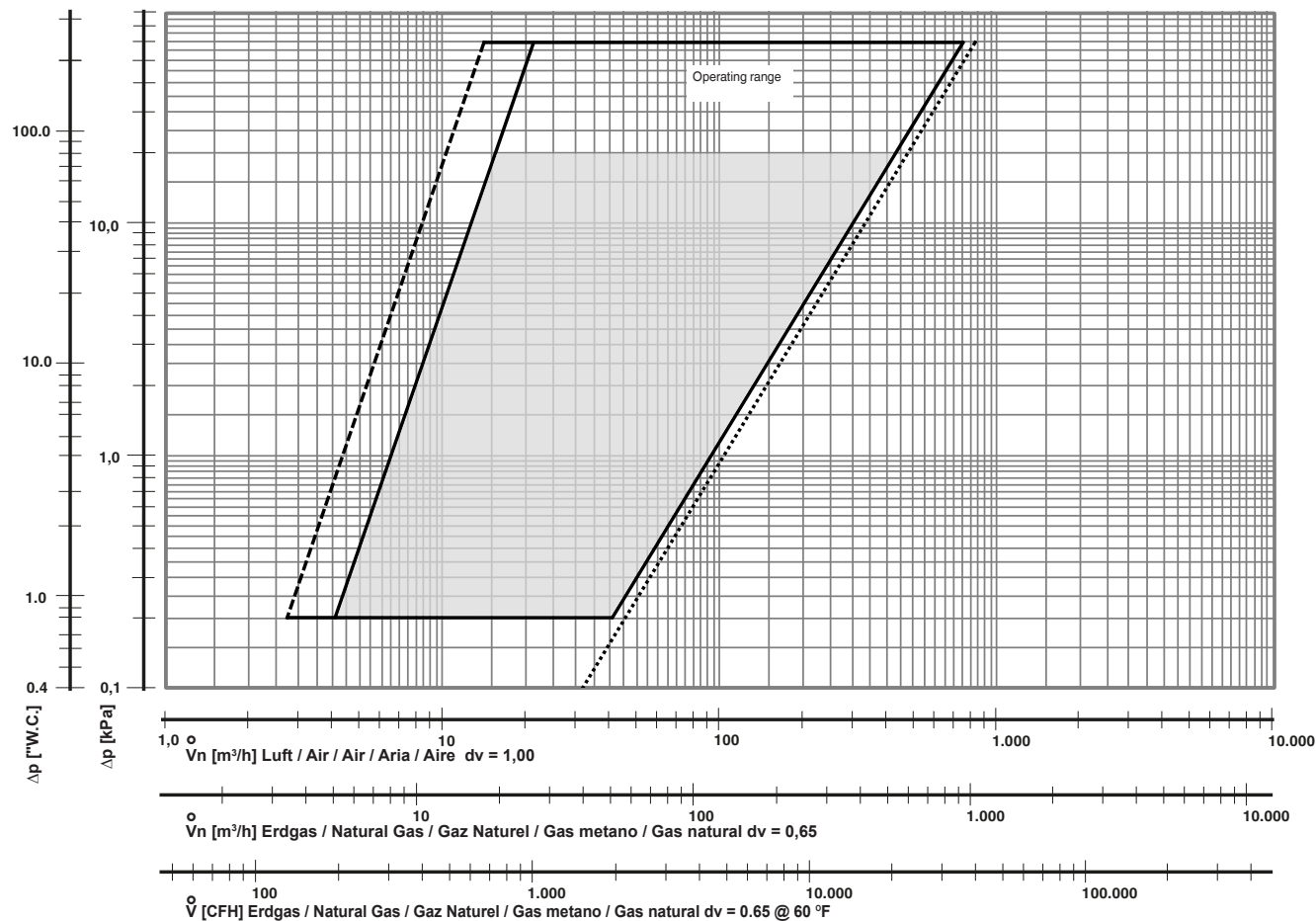
Basis
+15 °C, 101.3 kPa / 60 °F, 407 "W.C.
dry

..... MBE-...-VV
—— MBE-...-VR
- - - - $p_2 < 10.0 \text{ kPa} / 40 \text{ "W.C.}$
■ $p_2 = 0 \text{ kPa} / 0 \text{ "W.C.}$



MBE-050-... (Rp 2)
MBE-2L-... (NPT 2)

DUNGS®
Combustion Controls

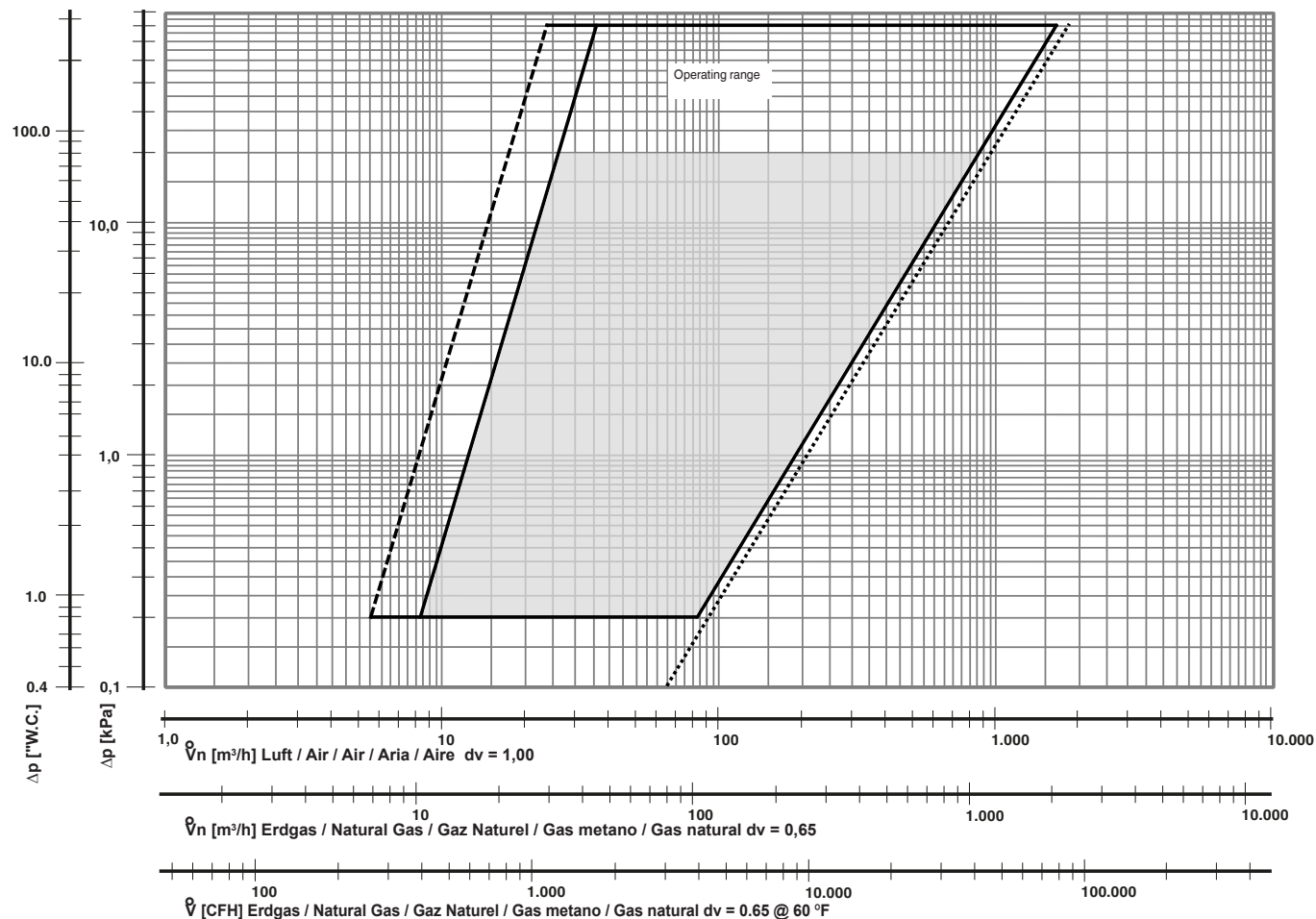
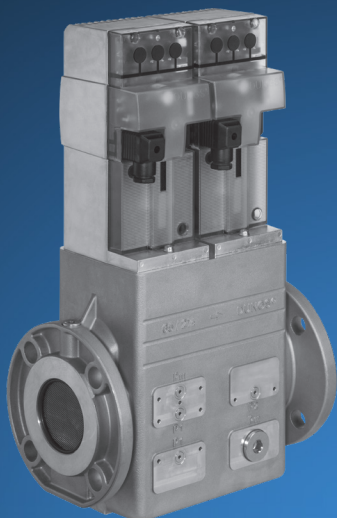


Flow diagram

Operating range as per EN 88-1 / EN 88-3

Basis
+15 °C, 101.3 kPa / 60 °F, 407 "W.C.
dry

..... MBE-...-VV
—— MBE-...-VR
- - - - $p_2 < 10.0 \text{ kPa} / 40 \text{ "W.C.}$
■ $p_2 = 0 \text{ kPa} / 0 \text{ "W.C.}$

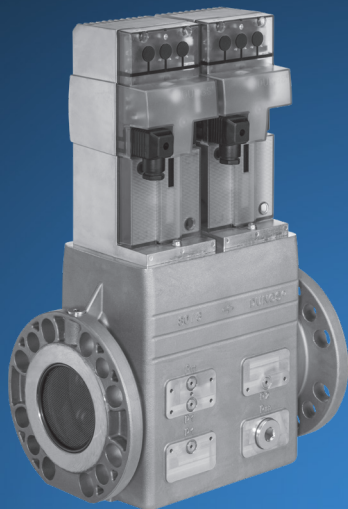


Flow diagram

Operating range as per EN 88-1 / EN 88-3

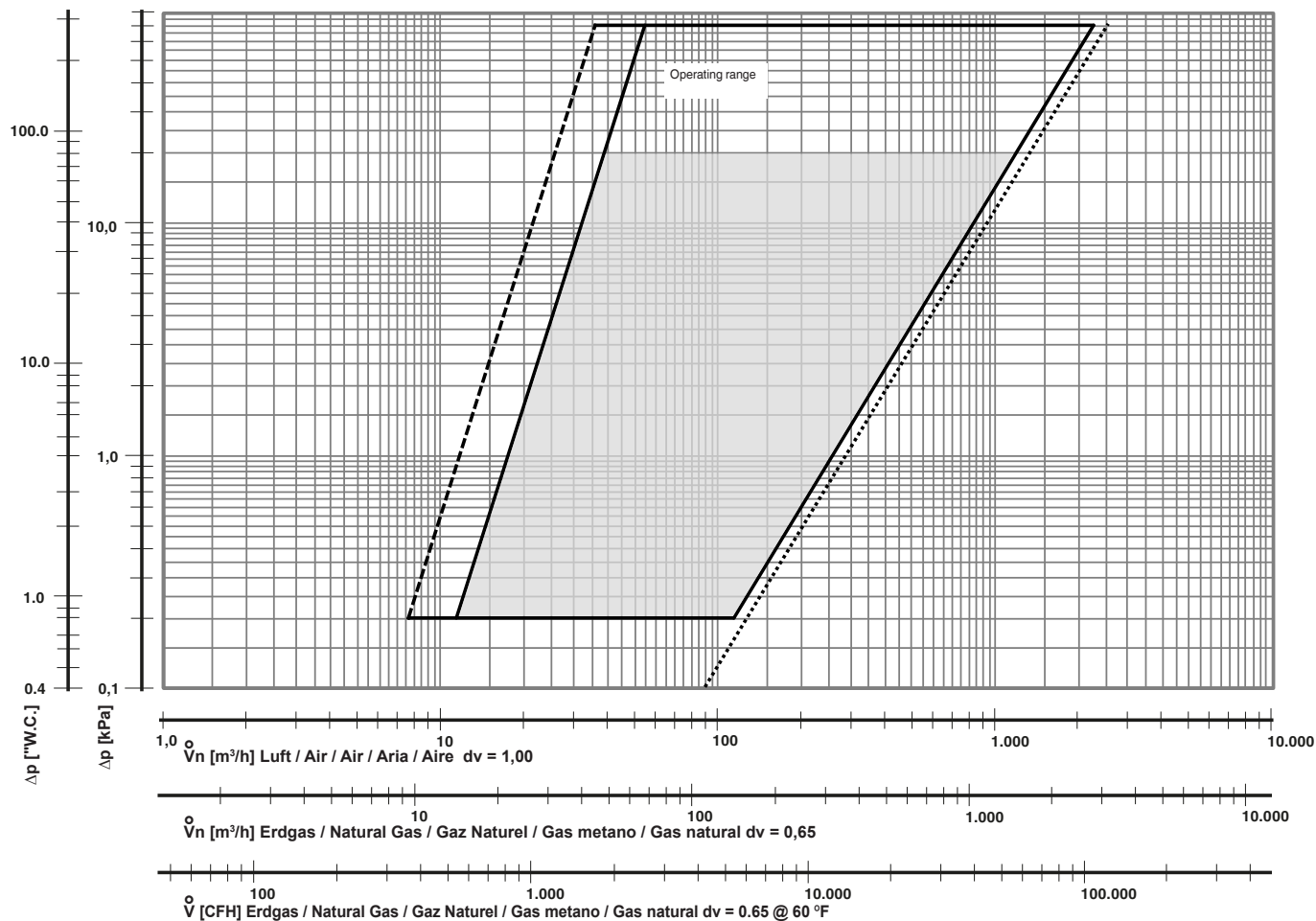
Basis
+15 °C, 101.3 kPa / 60 °F, 407 "W.C.
dry

..... MBE-...-VV
—— MBE-...-VR
- - - - $p_2 < 10.0 \text{ kPa} / 40 \text{ "W.C.}$
■ $p_2 = 0 \text{ kPa} / 0 \text{ "W.C.}$



MBE-080-...
MBE-3L-...

DUNGS®
Combustion Controls

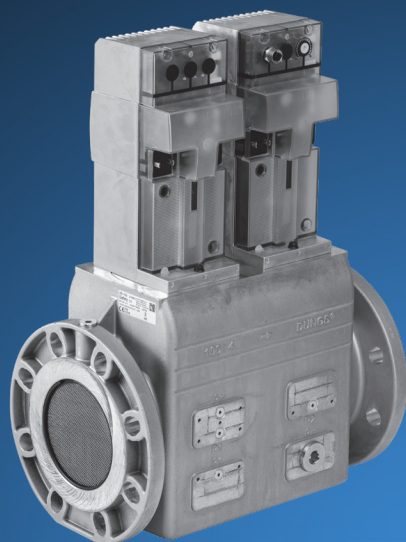


Flow diagram

Operating range as per EN 88-1 / EN 88-3

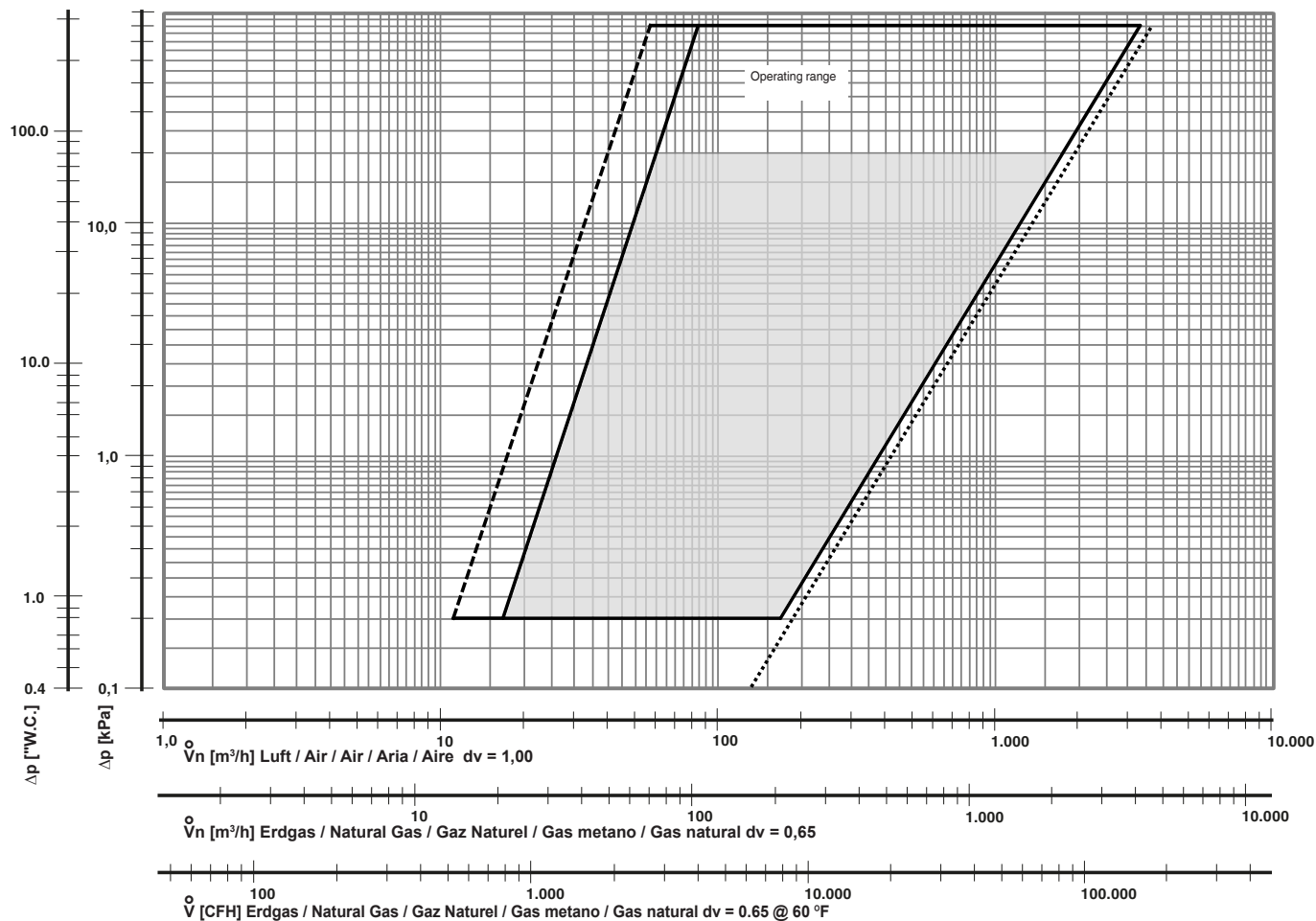
Basis
+15 °C, 101.3 kPa / 60 °F, 407 "W.C.
dry

..... MBE-...-VV
—— MBE-...-VR
- - - - $p_2 < 10.0 \text{ kPa} / 40 \text{ "W.C.}$
■ $p_2 = 0 \text{ kPa} / 0 \text{ "W.C.}$



MBE-100-...
MBE-4L-...

DUNGS®
Combustion Controls

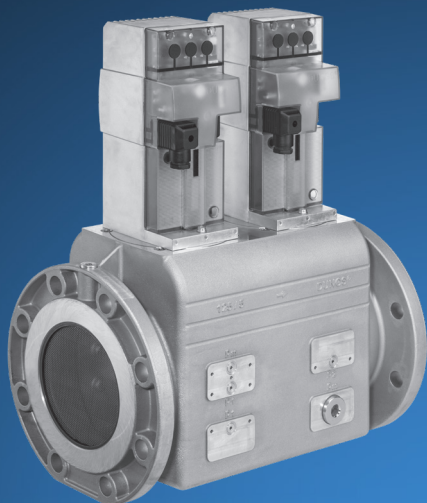


Flow diagram

Operating range as per EN 88-1 / EN 88-3

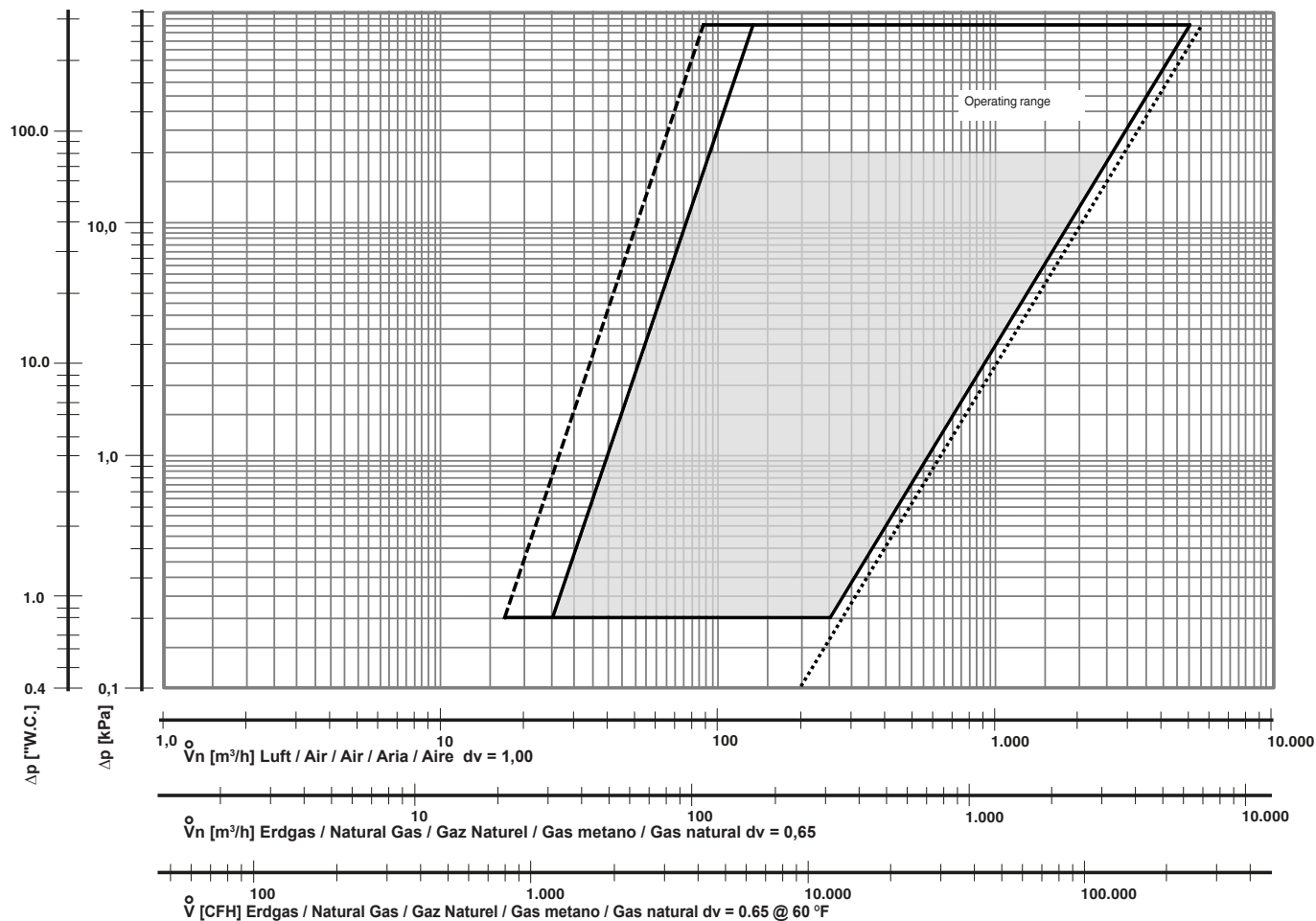
Basis
+15 °C, 101.3 kPa / 60 °F, 407 "W.C.
dry

..... MBE-...-VV
—— MBE-...-VR
- - - - $p_2 < 10.0 \text{ kPa} / 40 \text{ "W.C.}$
■ $p_2 = 0 \text{ kPa} / 0 \text{ "W.C.}$



MBE-125-...
MBE-5L-...

DUNGS®
Combustion Controls

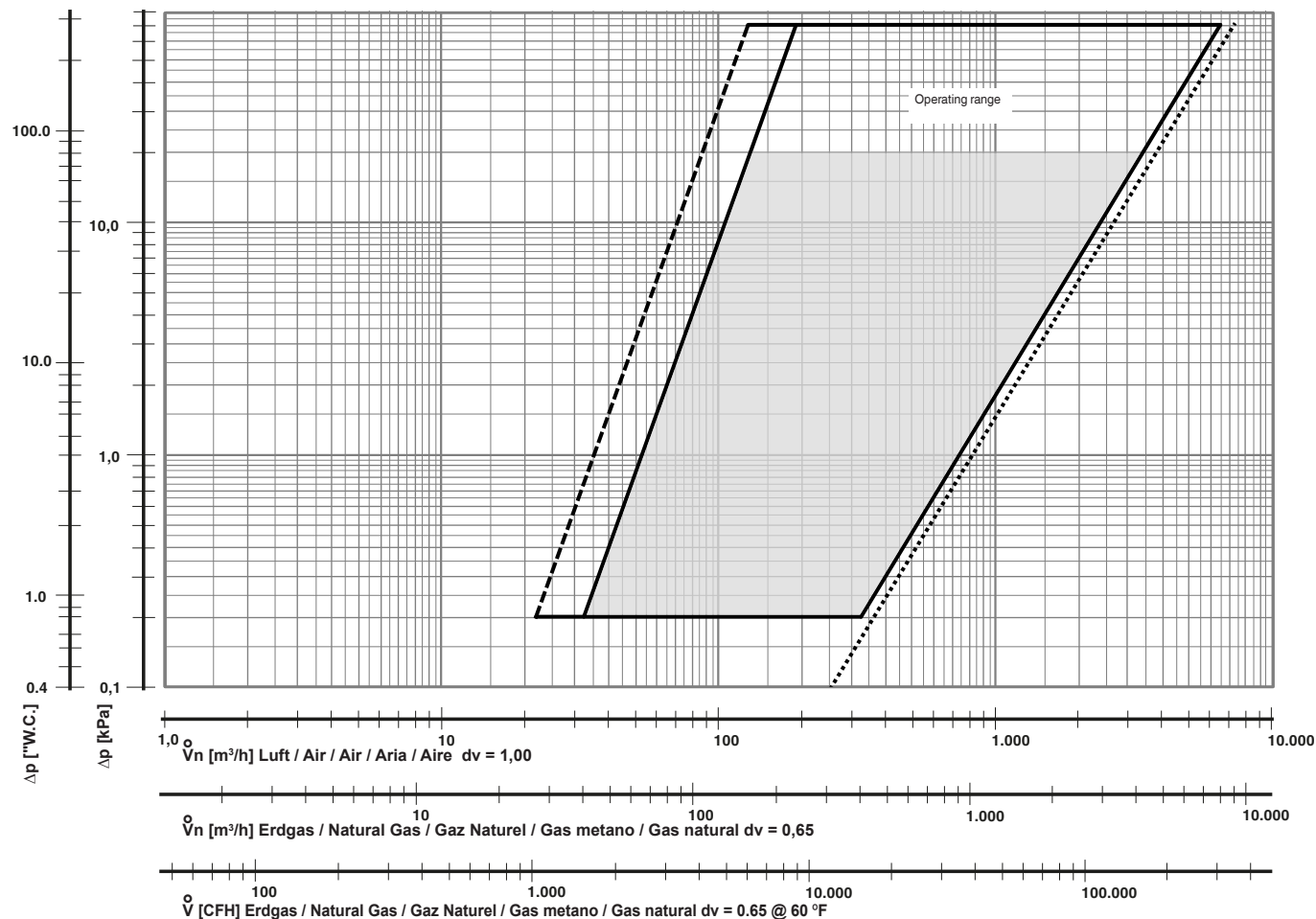


Flow diagram

Operating range as per EN 88-1 / EN 88-3

Basis
+15 °C, 101.3 kPa / 60 °F, 407 "W.C.
dry

..... MBE-...-VV
—— MBE-...-VR
- - - - $p_2 < 10.0 \text{ kPa} / 40 \text{ "W.C.}$
■ $p_2 = 0 \text{ kPa} / 0 \text{ "W.C.}$



$$\dot{V}_{\text{gas used}} = \dot{V}_{\text{air}} \times f$$

$$f = \sqrt{\frac{\text{air density}}{\text{density of the gas used}}}$$

Type of gas	Density [kg/m³]	dv	f
Natural gas	0.81	0.65	1.24
City gas	0.58	0.47	1.46
Liquid gas	2.08	1.67	0.77
Air	1.24	1.00	1.00
Hydrogen	0.085	0.069	3.82

Subject to technical modification in the interest of technical progress.

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