

**Motorised butterfly valve
DMK
Nominal Diameters
DN 40 to DN 125**

DUNGS®

11.11



Technical description

The DUNGS DMK... motorised butterfly valve is an actuator without zero shut-off as per DIN 3394 Sheet 2, EN 161.

The intermediate-flange design saves space when it is mounted directly on DUNGS multiple actuators, solenoid valves and other valves:

- max. operating pressure 500 mbar
- max. differential pressure 100 mbar
- group R_0 as per DIN 3394 Sh. 2
- selection of application-specific diameters of throttle valves
- standard actuator drives:
DMA... P...

other drives available on request.

Application

The DUNGS DMK... motorised butterfly valve is used for controlling the gas supply to gas burners and gas-burning appliances. The motorised butterfly valve is suitable for gases of families 1, 2, 3 and other neutral gaseous media.

Free of non-ferrous metals, suitable for gases up to max. 0.1% by vol. H_2S , dry.

Approvals

EC type test approval as per EC Gas Appliance Directive:

DMK 5... CE-0085 AP0165

Approvals in other important gas consuming countries.

Technical data

Pipe thread as per ISO 7/1	DN 40 50 65 80 100 125 Intermediate flange to fit preweld flange as per DIN 26 33 (PN 16) DN 40-DN 125, ISO 7005-1 (PN 16), ISO 7005-2 (PN 16)
Max. operating pressure	500 mbar (50 kPa)
Max. differential pressure	100 mbar (10 kPa)
Pressure stage	PN 1
Actuator	Actuator as per DIN 3394 Sh. 2, Group R ₀
Gap volume flow in closed position (O°)	see Diagram 1
Torque	max. 150 Ncm
Adjusting angle	max. 90°
Throat valve diameters	DMK 5040 25-40 mm Preferred diameters 24, 32, 40 DMK 5050 30-50 mm Preferred diameters 32, 40, 50 DMK 5065 40-65 mm Preferred diameters 40, 50, 65 DMK 5080 50-80 mm Preferred diameters 50, 65, 80 DMK 5100 65-100 mm Preferred diameters 65, 80, 100 DMK 5125 80-125 mm Preferred diameters 80, 100, 125
Gas-conveying component materials	Housing Aluminium Shaft Steel Seals NBR
Ambient temperature	-15 °C to +70 °C
Installation position	Any installation position; comply with technical data of actuator drive

For technical data of actuator drives type DMA... P..., see Data Sheet 11.20

Functional description

The DUNGS motorised butterfly valve is an automatic actuator driven by auxiliary energy.

The electromechanical actuator drive determines the butterfly valve position.

Valve partial load and full load adjustment is defined by adjusting the related actuator drive switching cams. The actuating time depends on the actuator drive selected.

If the operating voltage (auxiliary energy) is interrupted, the actuator remains in its current position.

Installation

- Comply with specified installation position.
- When you install the device, do not use the actuator drive as a lever.

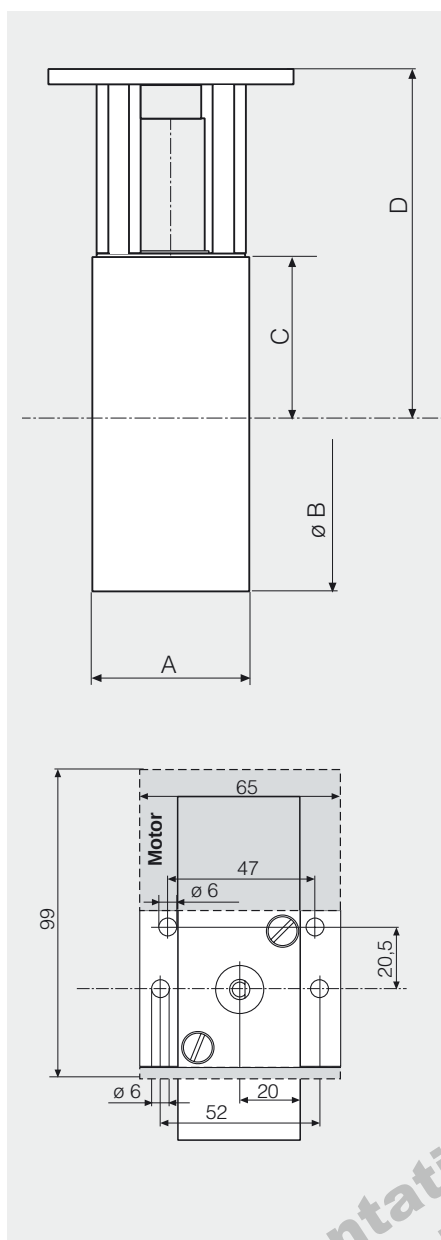
Electrical connection

Insert the cable through the cable gland PG 9. Connect the incoming power supply to the screw terminals in the actuator drive connecting box. Earthing shall comply with local regulations; do not earth the housing via the actuator drive protective earth terminal.

 **Avoid direct contact between the motorised butterfly valve and dried masonry, concrete walls or floors.**

 **Only set the nominal pressure on the pressure regulator. Any output-related restriction should only be performed using the motorised butterfly valve.**

 **Check for leaks and function after installation.**



Installation dimensions [mm] DMK 5040 - 5125

	A	B	C	D
DMK 5040 DN 40	40	93	42	92
DMK 5050 DN 50	40	105	48.5	98.5
DMK 5065 DN 65	40	125	59.5	109.5
DMK 5080 DN 80	40	140	67	117
DMK 5100 DN 100	40	160	77	127
DMK 5125 DN 125	40	192	89.5	139.5

V_N [m³/h]
 volume flow, standard state
 Δp [bar]
 pressure drop across DMK
 p_2 [bar]
 absolute pressure downstream
 of DMK
 ρ_n [kg/m³]
 standard gas density
 T_1 [K]
 absolute gas temperature up-
 stream of DMK

$$V_n = 514 \cdot k_v \cdot \sqrt{\frac{\Delta p \cdot p_2}{\rho_n \cdot T_1}}$$

Selecting the device

You must know the following values to select the DMK variant:

1. Maximum volume flow V_{max}
2. Pressure loss Δp at maximum volume flow
3. Minimum volume flow V_{min}
4. Pressure loss Δp at minimum volume flow

You can either determine the throat diameter by calculation using the k_v value or using diagrams 1, 2, 3 and 4. Check whether the required minimum volume flow is reached when the valve is positioned at 0°. If the calculated or measured value is above the minimum volume flow, the valve can be used.

If the volume flows are small, the pressure loss of upstream devices will fall. This increases the Δp available to the valve. To obtain an optimum control response, always choose the valve with the largest pressure loss ($\Delta p > 20$ mbar).

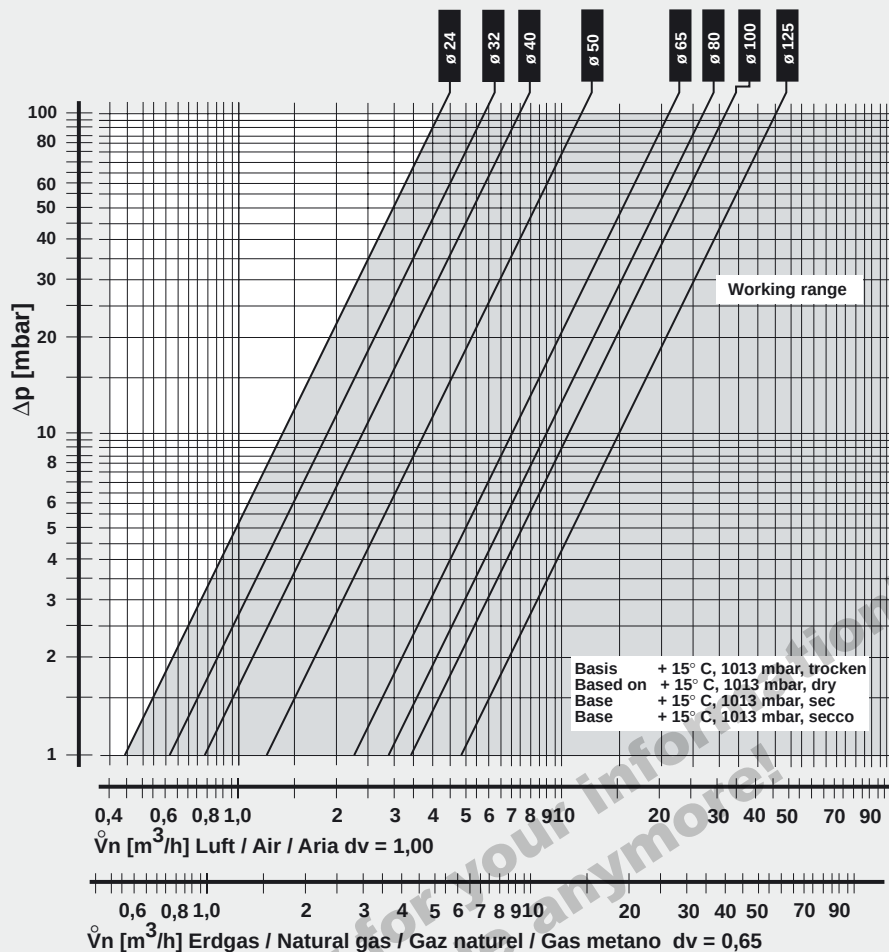
K_v value for DMK motorised butterfly valve

The DMK motorised butterfly valve is limited by the following parameters:
 operating pressure $p_{max} = 500$ mbar
 operating pressure $\Delta p_{max} = 100$ mbar
 When the valve is used in subcritical flow states, the following applies:

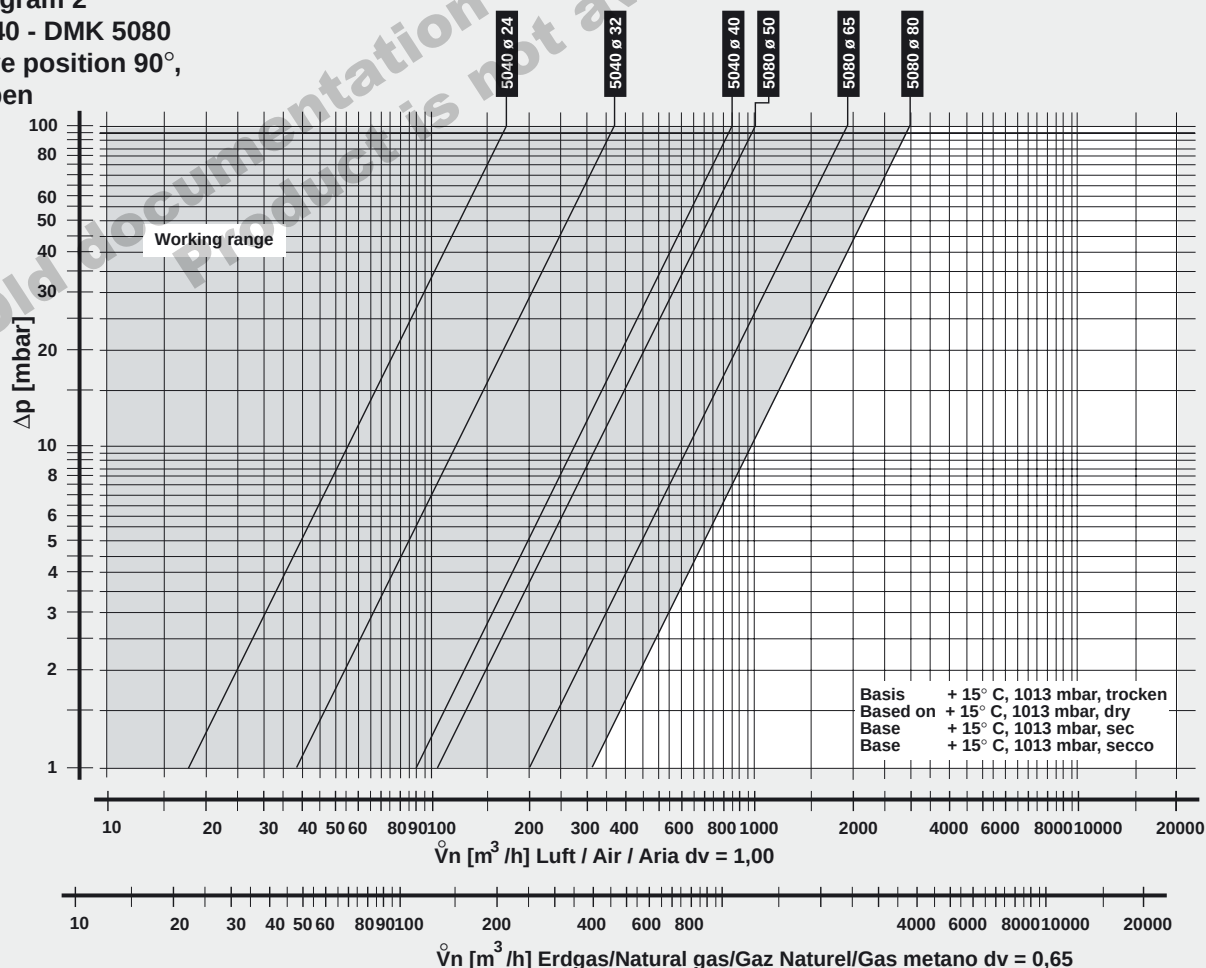
k_v values of valves with preferred throat diameters

Preferred diameters [mm]	DMK 5040		DMK 5050		DMK 5065		DMK 5080		DMK 5100		DMK 5125	
Valve position	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°
24	20.08	0.51										
32	45.63	0.68	40.15	0.68								
40	102.2	0.85	80.3	0.85	62.05	0.85						
50			131.4	1.35	120.45	1.35	120.45	1.35				
65					255.5	2.59	226.3	2.59	186.15	2.59		
80							357.7	3.28	332.15	3.28	281.05	3.28
100									565.75	4.0	584	4.0
125											1204.5	5.48

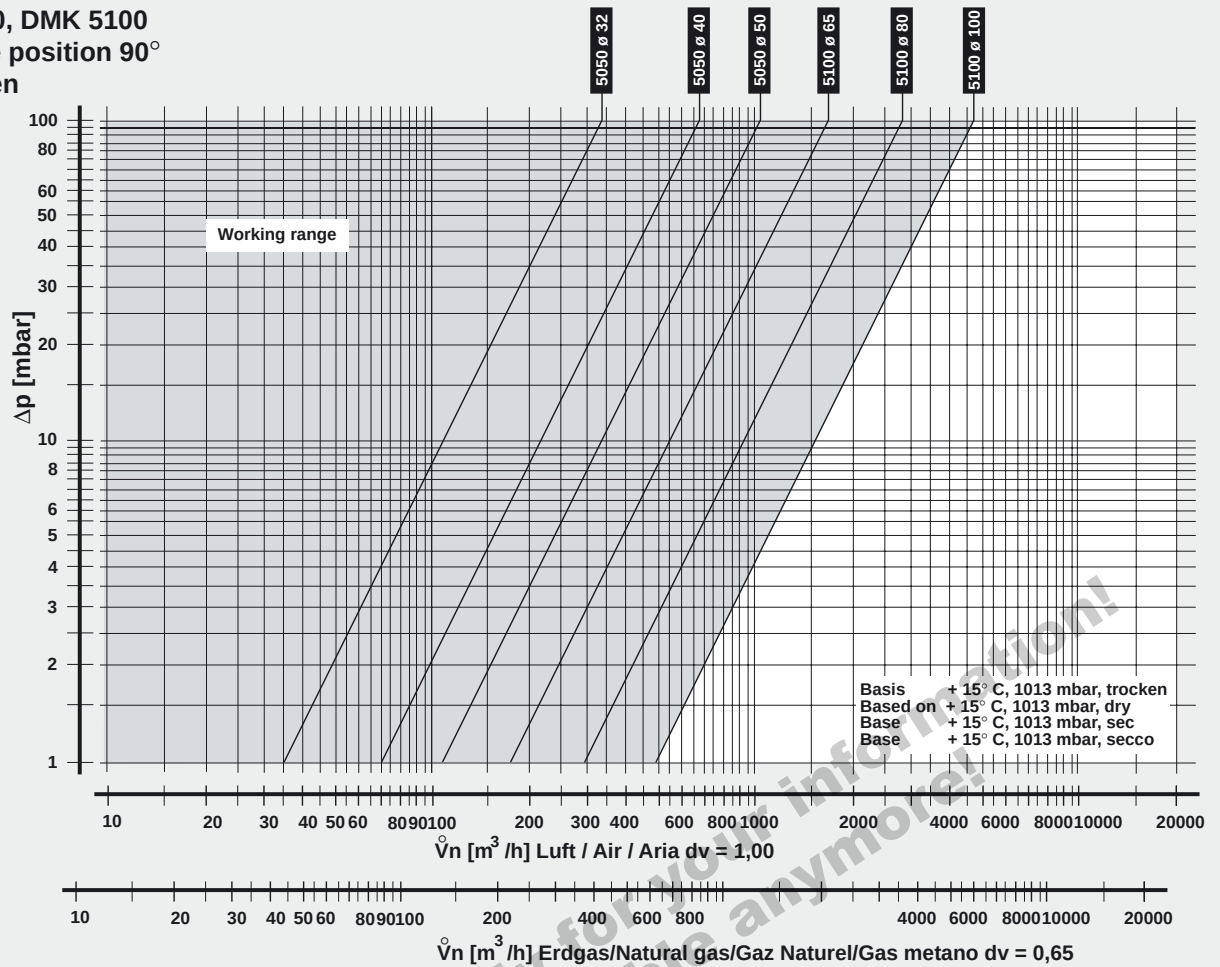
Flow diagram 1
DMK 5040 - DMK 5125
 $V_{\min}$ valve position 0°
Valve closed



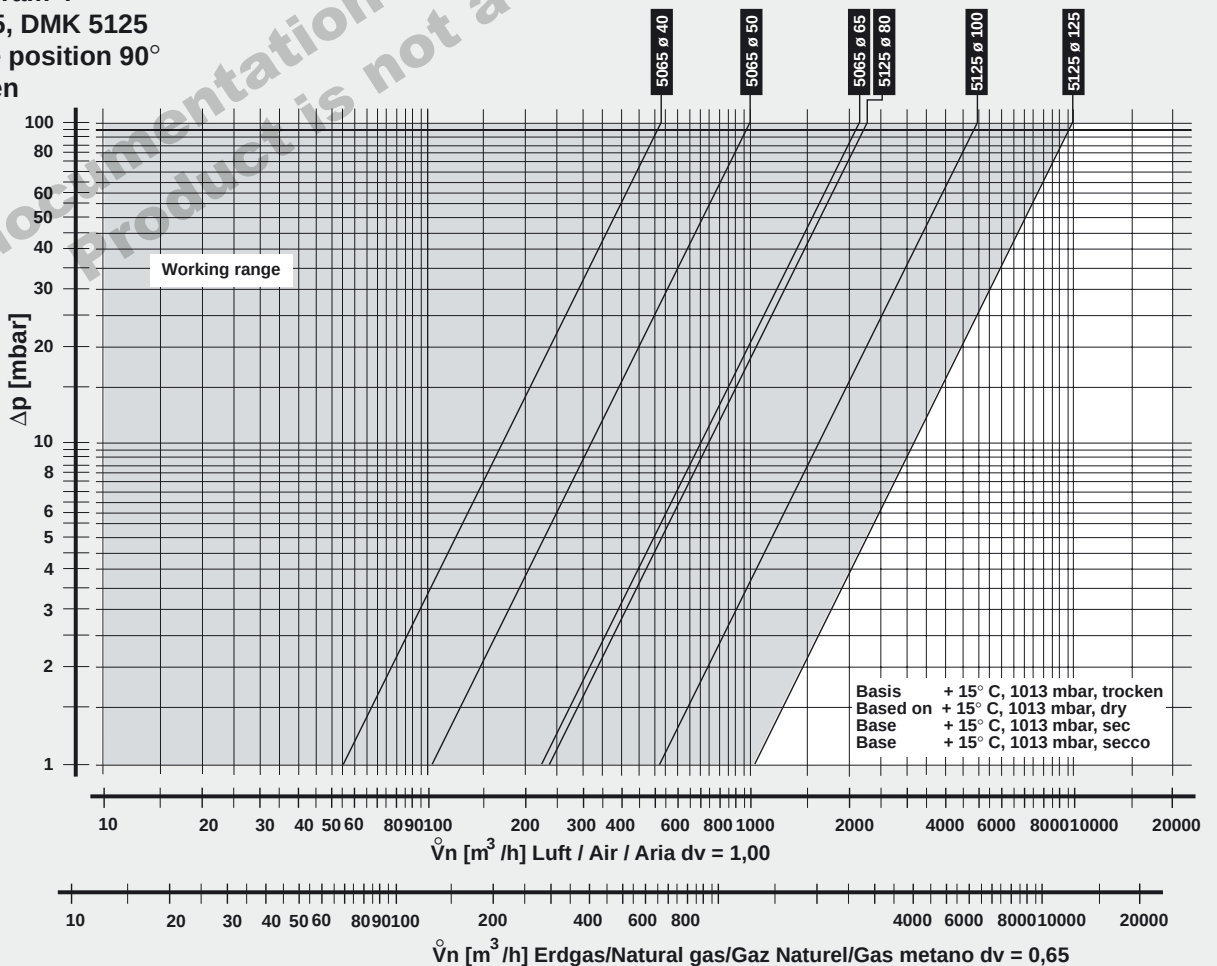
Flow diagram 2
DMK 5040 - DMK 5080
 $V_{\max}$ valve position 90° ,
Valve open



Flow diagram 3
DMK 5050, DMK 5100
 $V_{\max}$ valve position 90°
Valve open



Flow diagram 4
DMK 5065, DMK 5125
 $V_{\max}$ valve position 90°
Valve open



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Type	DN	Throat [mm]	Order No.
DMK 5040	40	24	225 977
DMK 5040	40	32	225 976
DMK 5040	40	40	225 975
DMK 5050	50	32	225 980
DMK 5050	50	40	225 979
DMK 5050	50	50	225 978
DMK 5065	65	40	225 983
DMK 5065	65	50	225 982
DMK 5065	65	65	225 981
DMK 5080	80	50	225 986
DMK 5080	80	65	225 985
DMK 5080	80	80	225 984
DMK 5100	100	65	225 989
DMK 5100	100	80	225 988
DMK 5100	100	100	225 987
DMK 5125	125	80	225 992
DMK 5125	125	100	225 991
DMK 5125	125	125	225 990

Actuator drives

Type	Order No.
DMA 40 P 230/02 3	226 240
DMA 40 P 230/02 4	238 810
DMA 30 P 230/03 0	238 811

Please quote actuator drive on ordering.

We reserve the right to make any changes in the interest of technical progress.

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