

Linear flow control

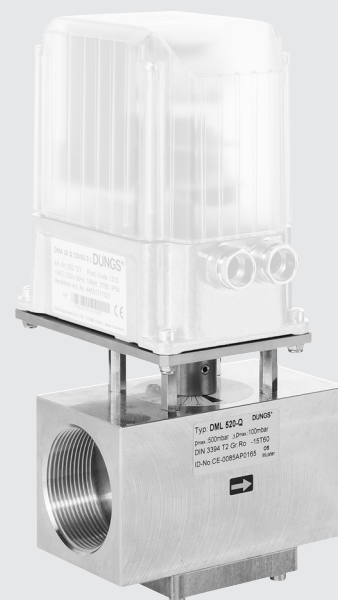
DML Nominal diameter Rp 1 - Rp 2

11.12

DUNGS®
Combustion Controls



DML...-P



DML...-Q

Technical description

The Dungs DML is an actuator without zero shutoff and complies with DIN 3394.

The motor restrictor is available in two thread sizes.

- Housing 520/515 Rp2
- Housing 510/507 Rp1
- Max. operating pressure: 500 mbar (50 kPa)
- Max. differential pressure: 100 mbar (10 kPa)
- Group R₀ as per DIN 3394, Sheet 2
- Application-specific selection of controller cylinder
- Standard actuators:
DMA... P..., DMA... Q..., DMA... A...

Further drives are available on request.

Application

The DUNGS linear flow control DML... is used for controlling the supply to gas burners and equipment. The wide control range is obtainable by selecting the controller cylinder and adjustable main volume restrictor.

The motor restrictor is suitable for gases of gas families 1, 2, 3 and other neutral gaseous media.

Free of non-ferrous metals, suitable for gases up to max. 0.1 vol.% H₂S, dry.

Approvals

EC type test approval as per EC Gas Appliance Directive:

DML CE-0085 AP0165

Approvals in other important gas consuming countries.

DML Actuator without zero shutoff for controlling tasks with linearised volume flow setting angle characteristic.
Main volume restrictor for DML 520...515...510.

Specifications

Tube thread as per ISO 7/1	DML 507	DML 510	DML 515	DML 520
	Rp 1	Rp 1	Rp 2	Rp 2
Max. operating pressure	500 mbar (50 kPa)			
Max. differential pressure	100 mbar (10 kPa)			
Actuator	Actuator as per DIN 3394, Sheet 2, Group R ₀			
Gap volume flow in closed position (0°)	< 2 % from max. volume flow			
Torque	Max. 150 Ncm			
Actuator angle	Max. 80° for DML 520 and DML 515 Approx. 45° for DML 510 and DML 507			
Main volume restrictor	For DML 520, DML 515, DML 510, not for DML 507			
Materials of gas-conveying parts	Housing: Shaft: Seals	Aluminium Steel NBR		
Ambient temperature	-15° C to +60° C			
Installation position	Any; refer to specifications of actuator drive			

Functional description

The DUNGS linear flow control is an automatic actuator operated with auxiliary power.

The electric-motor-driven actuator defines the position of the controller cylinder.

The presetting is defined by adjusting the switching cams of the actuator drive and the main volume restrictor.

DML 510, 515 and 520 can be adjusted to the application using the **main volume restrictor**. The actuator angle range remains constant by reducing

the opening of the controller cylinder. If the operating voltage (auxiliary power) is interrupted, the actuator remains in its current position.

For specifications of actuator drives, refer to data sheet 11.20

Equipment selection

To design the DML, the values listed below must be known:

1. Max. volume flow $V_{\max}$.
2. Pressure loss Δp at maximum volume flow from volume flow pressure differential diagram.
3. Minimum volume flow $V_{\min}$.

The controller cylinder is specified from the flow diagram.

Check whether the requested maximum volume flow can be reached in the controller cylinder position OPEN (80° and/or 45°) with the available pressure loss and/or which pressure loss $\Delta p_{\max}$ is requested.

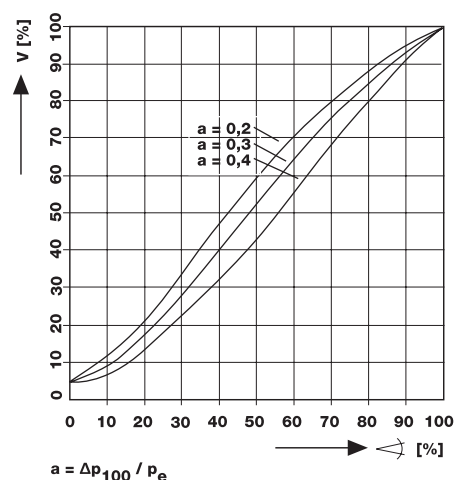
The inlet pressure p_1 upstream of the motor restrictor shall be $3 \times \Delta p_{\max}$.

The inlet pressure p_1 is defined by the upstream actuators (pressure controller, valves).

In smaller volume flows, the pressure loss is reduced in upstream equipment and the Δp available for the controller cylinder is increased.

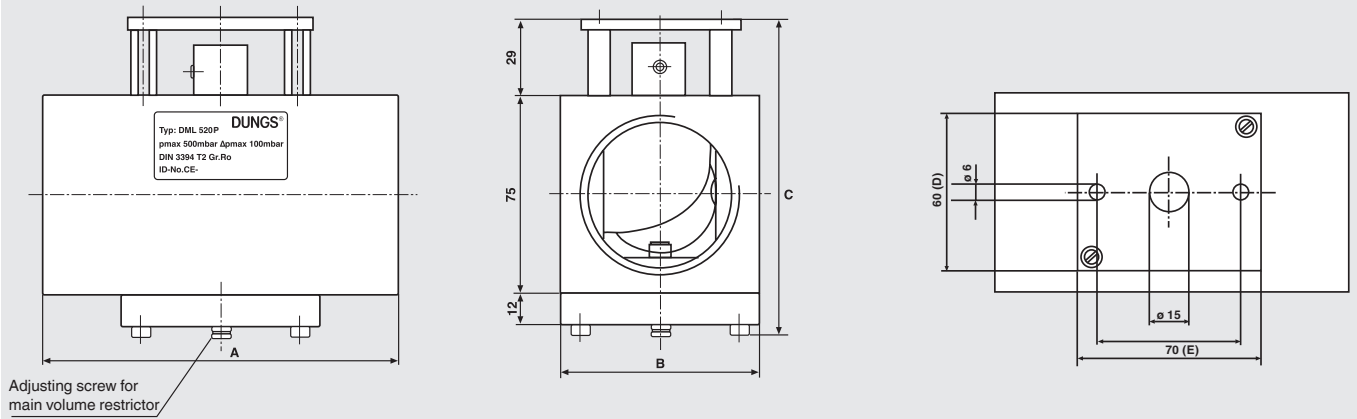
Select the controller cylinder with the largest pressure loss $\Delta p_{\max}$ ($\Delta p > 10$ mbar) for a good controller response.

Controller curve

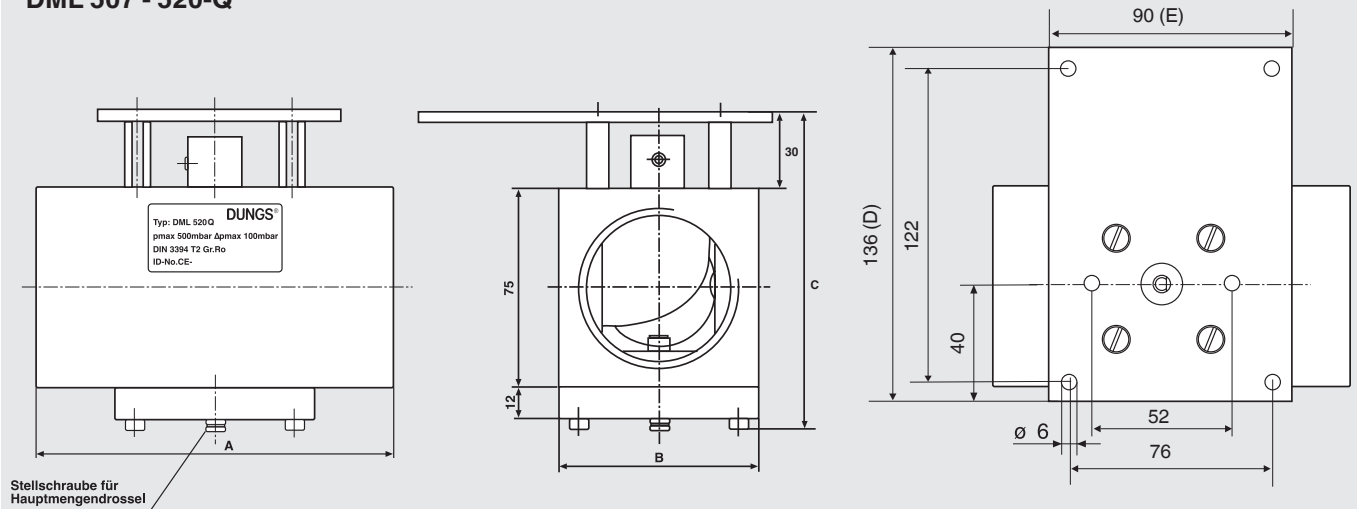


Dimensions [mm]

DML 507 - 520-P



DML 507 - 520-Q



Type	Order No.	p _{max.} [mbar]	Rp	Dimensions [mm]		C	D	E	Weight [kg]
				A	B				
DML 507-P	226 835	500	Rp 1	134	75	120	60	70	1,4
DML 510-P	226 834	500	Rp 1	134	75	120	60	70	1,4
DML 515-P	226 836	500	Rp 2	134	75	120	60	70	1,2
DML 520-P	226 667	500	Rp 2	134	75	120	60	70	1,2
DML 507-Q	264 095	500	Rp 1	134	75	120	136	90	1,4
DML 510-Q	264 094	500	Rp 1	134	75	120	136	90	1,4
DML 515-Q	264 093	500	Rp 2	134	75	120	136	90	1,2
DML 520-Q	264 092	500	Rp 2	134	75	120	136	90	1,2

Actuators Type	Degree of protection	Height	Ø _{Shaft} [mm]	Mounting on DML	Comment	Order No.
DMA 40 P 230/02 3	IP 40	66	8	2 holes at a distance of 52 mm	on mounting plate DML...-P	226 240
DMA 40 P 230/02 4	IP 40	114	8			238 810
DMA 30 P 230/03 0	IP 40	114	8			226 239
DMA 30 Q 230/10 3	IP 54	149	10	4 holes at a distance of 76/122 mm	on mounting plate DML...-Q	252 723
DMA 30 Q 230/10 0	IP 54	149	10			252 721
DMA 30 A 230/10 3 LR	IP 65	124	10	2 holes at a distance of 52 mm	on mounting plate DML...-Q	255 039
DMA 30 A 115/10 3 LR	IP 65	124	10			255 041
DMA 30 A 24/10 3 LR	IP 65	124	10			255 482
DMA 30 A 230/10 0 LR	IP 65	124	10			255 042
DMA 30 A 115/10 0 LR	IP 65	124	10			255 044

Linear flow control

DML

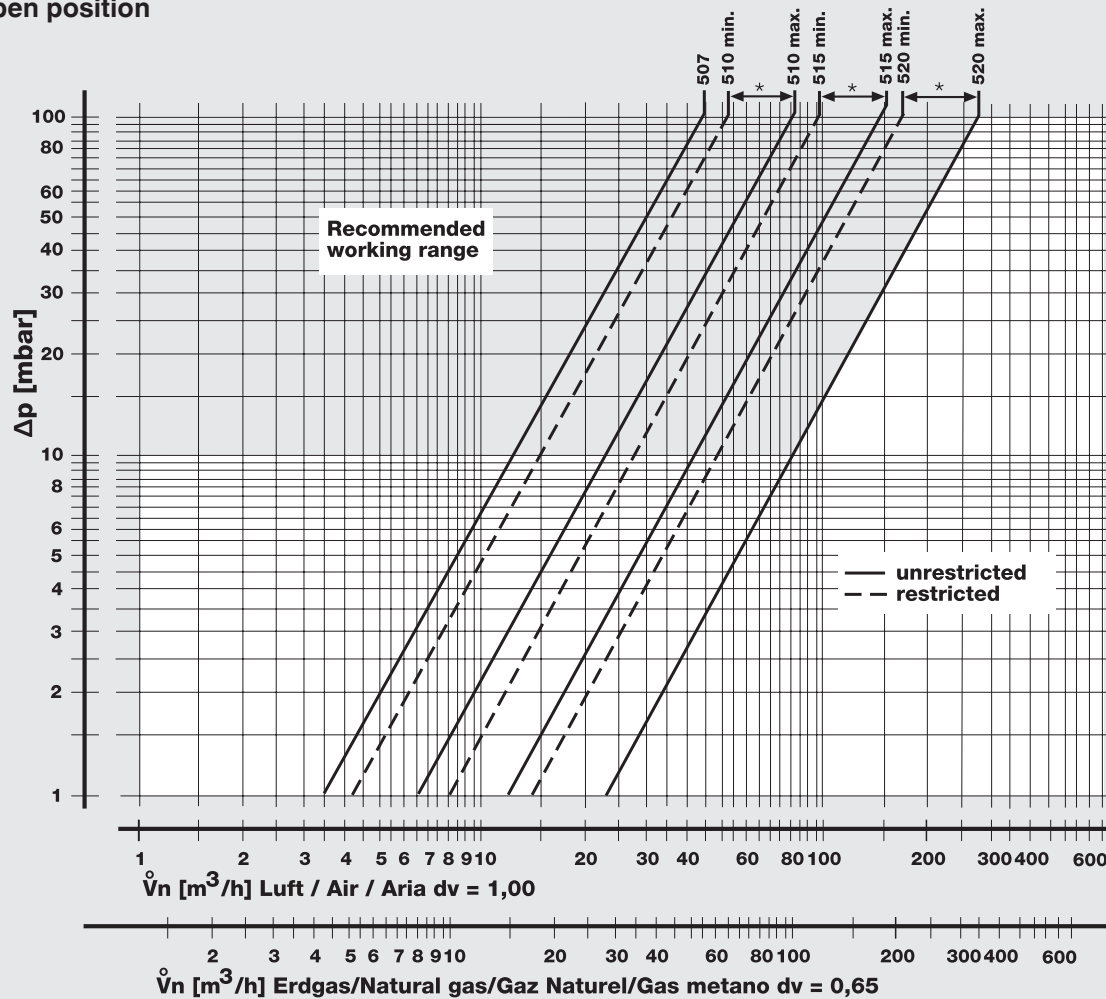
Nominal diameter Rp 1 - Rp 2

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Flow diagram

DML 507-520

$V_{\max}$ = open position



*Setting range of
main volume restrictor

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

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