

# Motorised butterfly valve for gas FCV...

Nominal diameter  
DN 40 - DN 150

**DUNGS**<sup>®</sup>  
Combustion Controls

## MOTORISED BUTTERFLY VALVE

## GAS

Manufacturer / owner of the EC  
type-examination certificate

Schimpf Antriebstechnik  
Waldenbuch / Germany



### Technical description

The DUNGS motorised butterfly valve FCV... is a control element without zero shut-off according to EN 13611.

The intermediate flange design allows space-saving installation upstream of the burner on pressure regulators and other actuators.

### Application

The DUNGS motorised butterfly valve FCV... is used to regulate the gas supply to gas burners and gas equipment. The motorised butterfly valve is suitable for gases of gas families 1, 2, 3 and other neutral gases.

### Certification

EU type-examination certificate according to EU Gas Appliances Regulation.



# Motorised butterfly valve for gas FCV...

## Function


The gas butterfly control valve FCV is used to adjust the gas supply volume to gas consumption devices.


The valve is an automatic actuator operated with auxiliary energy. The corresponding electromechanical actuator determines the position of the valve. The part-load and full-load setting of the valve is determined by adjusting the corresponding switching cams of the actuator. The actuating time is determined by the actuator drive. If the operating voltage (auxiliary energy) is interrupted, the actuator remains in its current position.


For higher control accuracy, control valves with reduced nominal diameter (reduced by one or two nominal diameters) can be used. This means that reducing adapters can be dispensed with.

The desired volume flow is set via the valve position with an opening angle between 0° and 90°.

The gas volume control valve has a smooth-running, knocking valve disc.

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

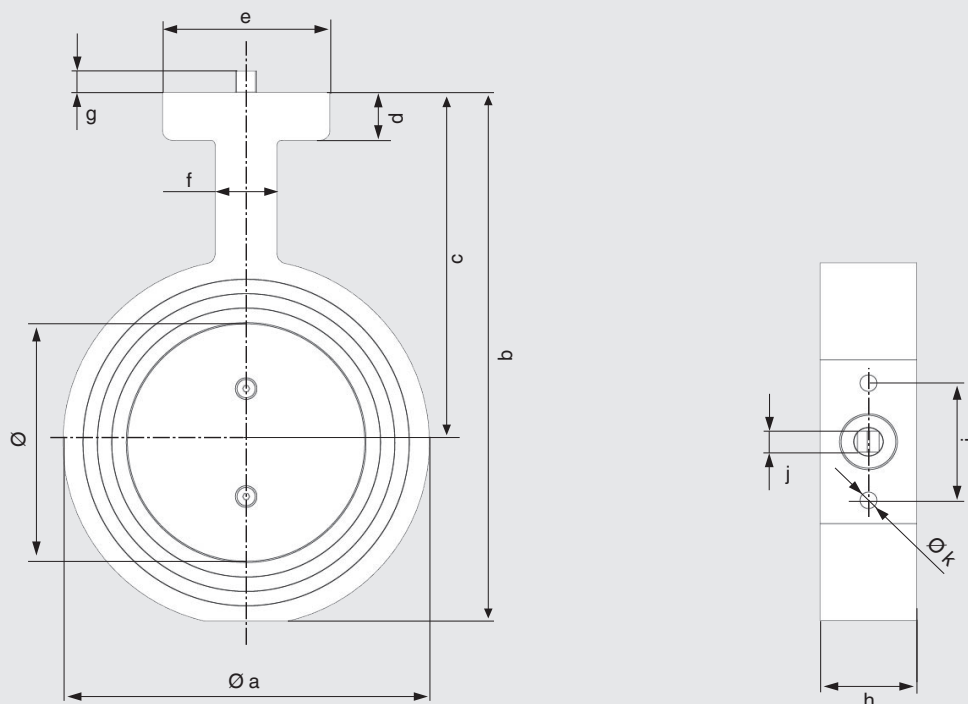
 **Only set the nominal pressure on the pressure regulator. Any output-related restriction should only be performed using the motorised butterfly valve.**

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

Type	Ordering No.	Nominal diameter	Inside diameter [mm]	Weight [kg]	Differential pressure	Max. operating pressure
FCV-G 5040/25	293970	DN 40	25	1.00	500 mbar	500 mbar
FCV-G 5040/32	293971		32	0.90	500 mbar	
FCV-G 5040/40	293972		40	0.85	500 mbar	
FCV-G 5050/32	293973	DN 50	32	1.10	500 mbar	
FCV-G 5050/40	293974		40	1.05	500 mbar	
FCV-G 5050/50	293975		50	1.00	500 mbar	
FCV-G 5065/40	293976	DN 65	40	1.45	500 mbar	
FCV-G 5065/50	293977		50	1.40	500 mbar	
FCV-G 5065/65	293978		65	1.25	500 mbar	
FCV-G 5080/50	293979	DN 80	50	1.70	500 mbar	
FCV-G 5080/65	293980		65	1.60	500 mbar	
FCV-G 5080/80	293981		80	1.50	500 mbar	
FCV-G 5100/65	293982	DN 100	65	2.00	500 mbar	
FCV-G 5100/80	293983		80	1.90	500 mbar	
FCV-G 5100/100	293984		100	1.80	500 mbar	
FCV-G 5125/80	293985	DN 125	80	2.75	500 mbar	
FCV-G 5125/100	293986		100	2.60	500 mbar	
FCV-G 5125/125	293988		125	2.30	250 mbar	
FCV-G 5150/100	293989	DN 150	100	3.40	500 mbar	
FCV-G 5150/125	295990		125	3.00	250 mbar	
FCV-G 5150/150	293991		150	2.75	250 mbar	

# Motorised butterfly valve for gas FCV...

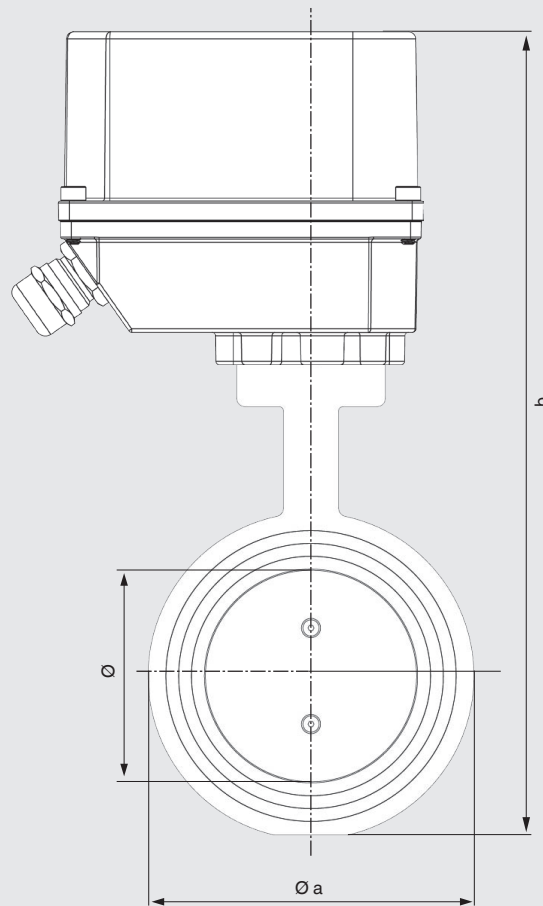
Dimensions [mm]



Type	Nominal diameter	Ø Inside [mm]	Dimensions [mm]										
			Ø a	b	c	d	e	f	g	h	i	j	Ø k
FCV-G 5040	DN 40	40/32/25	87	155.0	113.5	20	70	26	9	40	50	9	7
FCV-G 5050	DN 50	50/40/32	97	165.0	118.5	20	70	26	9	40	50	9	7
FCV-G 5065	DN 65	65/50/40	117	182.5	126.0	20	70	26	9	40	50	9	7
FCV-G 5080	DN 80	80/65/80	133	200.5	136.0	20	70	26	9	40	50	9	7
FCV-G 5100	DN 100	100/80/65	153	220.5	146.0	20	70	26	9	40	50	9	7
FCV-G 5125	DN 125	125/100/80	183	248.0	158.5	20	70	26	9	40	50	9	7
FCV-G 5150	DN 150	150/125/100	208	273.0	171.0	20	70	26	9	40	50	9	7

# Motorised butterfly valve for gas FCV...

Dimensions [mm]



Type	Nominal diameter	Ø Inside [mm]	Ø a Outer [mm]	FCD A 00-15	FCD A 01-15
				b = Total overall height [mm]	
FCV-G 5040	DN 40	40/32/25	87	277.0	297.0
FCV-G 5050	DN 50	50/40/32	97	287.0	307.0
FCV-G 5065	DN 65	65/50/40	117	304.5	324.5
FCV-G 5080	DN 80	80/65/80	133	322.5	342.5
FCV-G 5100	DN 100	100/80/65	153	342.5	362.5
FCV-G 5125	DN 125	125/100/80	183	370.0	390.0
FCV-G 5150	DN 150	150/125/100	208	395.0	415.0

Please note: 2 assembly screws and 4 centring aids are included in the scope of supply.

# Motorised butterfly valve for gas FCV...

## $K_v$ -values of the valves with preferred throat diameter

Valve position	FCV-G 5040		FCV-G 5050		FCV-G 5065		FCV-G 5080		FCV-G 5100		FCV-G 5125		FCV-G 5150	
	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°
Inside Ø														
DN 25	0.1	16.7												
DN 32	0.1	42.5	0.1	33.9										
DN 40	0.2	75.2	0.2	66.4	0.2	58.6								
DN 50			0.3	155.0	0.2	109.9	0.2	97.0						
DN 65					0.5	305.0	0.4	203.5	0.3	170.6				
DN 80							0.8	491.1	0.5	331.0	0.4	263.2		
DN 100									1.1	795.7	0.8	553.7	0.6	416.2
DN 125											1.5	1 267.0	1.1	917.0
DN 150													1.8	1 839.0

### Device selection

The following values must be known for the dimensioning of the FCV:

1. Maximum volume flow  $V_{max}$
2. Pressure loss  $\Delta p$  at maximum volume flow
3. Minimum volume flow  $V_{min}$
4. Differential pressure in the valve closed position ( $= p_e$ )

The valve diameter can be determined either mathematically via the  $K_v$  value or via the flow diagrams 1, 2 and 3.

Check whether the required minimum volume flow is reached when the valve is positioned a 0°.

If the calculated or measured value is below the required 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  $\Delta p$  available to the valve.**

**To obtain an optimum control response, always choose the valve with the largest pressure loss ( $\Delta p > 10$  mbar).**

### $K_v$ -values for motorised butterfly valve FCV

The motorised butterfly valve FCV is limited by the following parameters:

#### Max. operating pressure

500 mbar (50 kPa)

#### Differential pressure

≤ DN 100: 500 mbar (50 kPa)

≥ DN 125: max. 250 mbar (25 kPa)

When the valve is used in subcritical flow states, the following applies:

$V_n$  [m<sup>3</sup> / h]  
volume flow, standard state  
 $\Delta p$  [bar]  
pressure drop across FCV  
 $p_2$  [bar]  
absolute pressure downstream of FCV  
 $\rho_n$  [kg / m<sup>3</sup>]  
standard gas density  
 $T_1$  [K]  
absolute gas temperature upstream of FCV

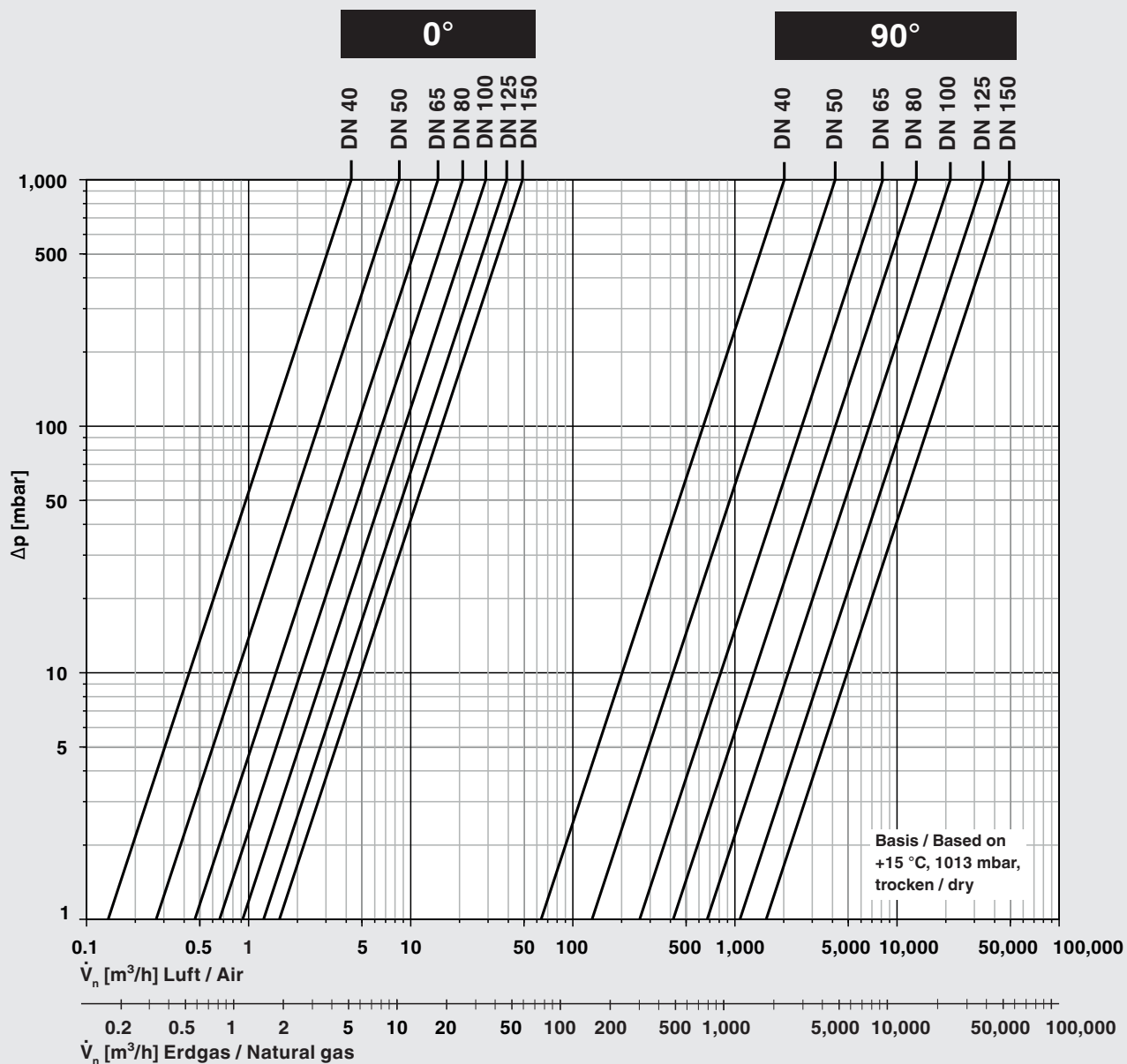
$$V_n = 514 \cdot K_v \cdot \sqrt{\frac{\Delta p \cdot p_2}{\rho_n \cdot T_1}}$$

# Motorised butterfly valve for gas FCV...

## Flow diagram 1



Inside diameter corresponds with the nominal diameter, no zero shut-off

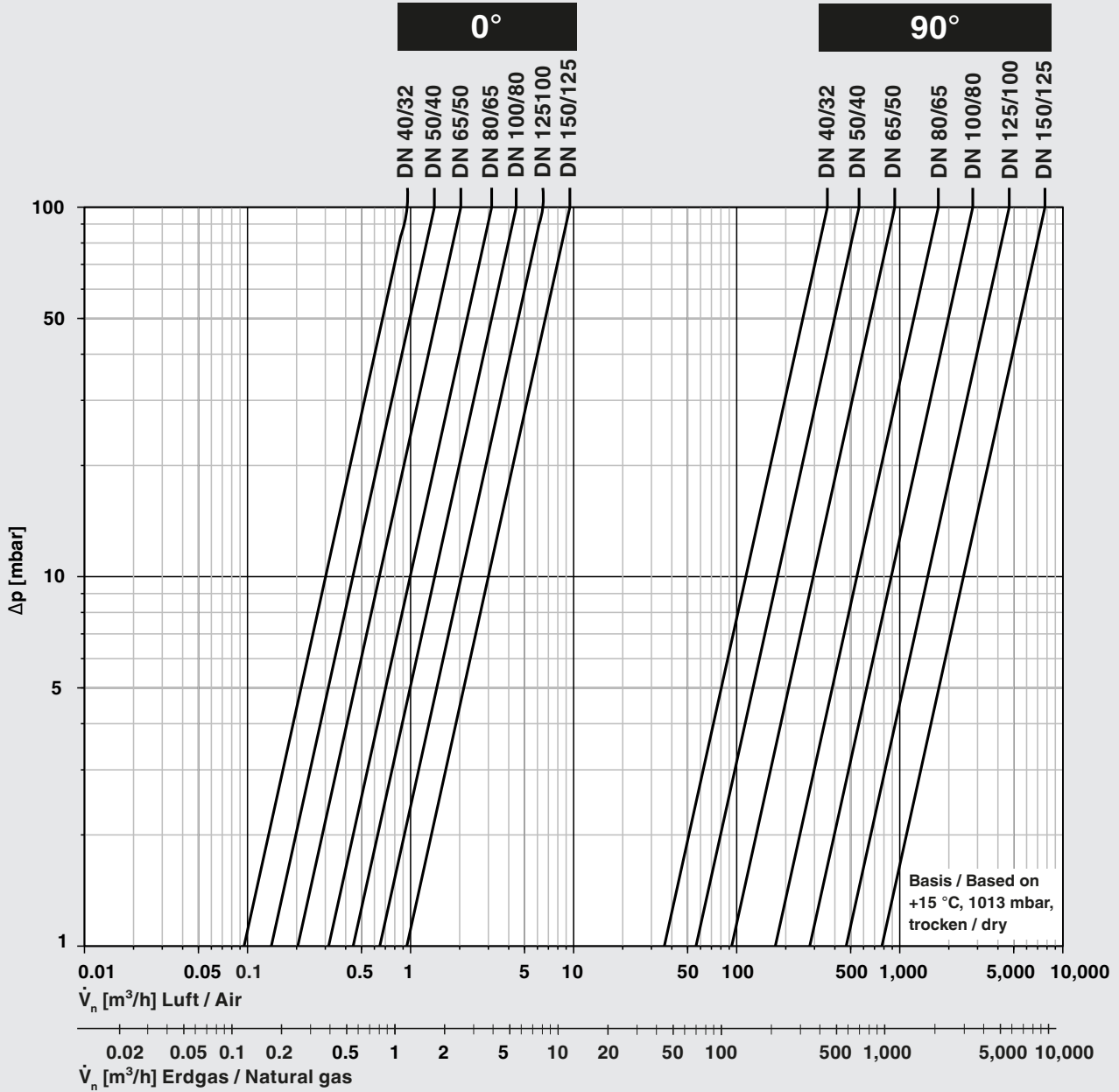


# Motorised butterfly valve for gas FCV...

## Flow diagram 2



1-Fold reduced nominal diameter, no zero shut-off



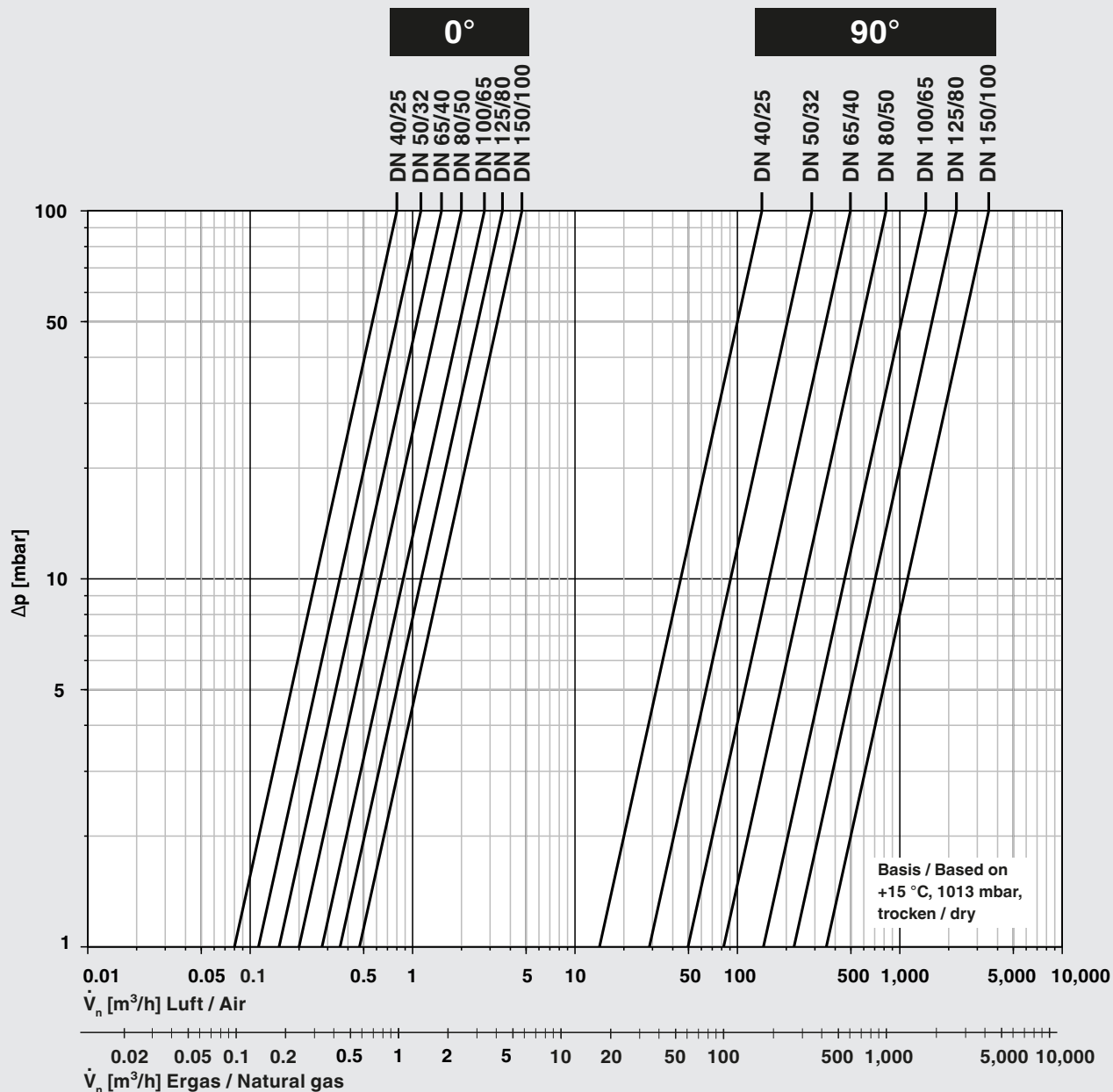


# Motorised butterfly valve for gas FCV...

## Flow diagram 3



2-Fold reduced nominal diameter, no zero shut-off



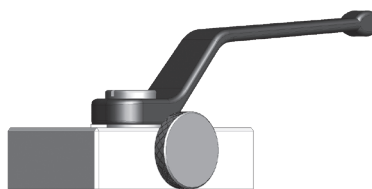
# Motorised butterfly valve for gas FCV...

## Recommended combination valve – actuator drive



Type	Ordering No.	Type	AC	DC
FCV-G 5040/25	293970	FCD A 00-15 xx	293334	293911
FCV-G 5040/32	293971			
FCV-G 5040/40	293972			
FCV-G 5050/32	293973			
FCV-G 5050/40	293974			
FCV-G 5050/50	293975			
FCV-G 5065/40	293976			
FCV-G 5065/50	293977			
FCV-G 5065/65	293978			
FCV-G 5080/50	293979			
FCV-G 5080/65	293980			
FCV-G 5080/80	293981			
FCV-G 5100/65	293982	FCD A 01-15 xx	293916	293917
FCV-G 5100/80	293983			
FCV-G 5100/100	293984			
FCV-G 5125/80	293985			
FCV-G 5125/100	293986			
FCV-G 5125/125	293988			
FCV-G 5150/100	293989			
FCV-G 5150/125	295990			
FCV-G 5150/150	293991			

Replacement parts / Accessories	Ordering No.
Handle FCV	297283



## Motorised butterfly valve for gas FCV...



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**Technical Information based on:**  
**Revision:** Product information  
BA\_SVG\_20220419

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