

## Butterfly valves DKR

## Butterfly valves with actuator IDR

Technical Information · GB  
3 Edition 08.15l

- For (hot) air and flue gas.
- Low leakage rate and pressure loss
- Wide range of nominal sizes DN 15 – 500
- Simple installation thanks to clamping between standard flanges
- Pre-assembled combination of actuator, attachment set and butterfly valve
- Suitable for intermittent operation
- Low-maintenance operation
- Robust design for a long service life



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*Roller hearth kiln in the ceramics industry*



*Forging furnace*

### **1 Application**

Butterfly valve DKR is designed to adjust volumes of hot air and flue gas on various appliances and flue gas lines. It can be used for a control ratio of up to 1:10.



*Butterfly valve  
DKR..F with free  
shaft end*



*Butterfly valve  
DKR..H with lever*

### **1.1 DKR..F**

With the mounted actuator IC 50, butterfly valve DKR..F is suitable for regulating flow rates for modulating-controlled or stage-controlled combustion processes.

### **1.2 DKR..H**

On butterfly valve DKR..H, flow rates can be set and fixed using a lever, for example to limit the high-fire rate on the burner. A scale indicates the set angle of opening.

### 1.3 IDR: DKR with actuator IC 50

Pre-assembled combinations of actuator IC 50, attachment set and butterfly valve DKR are available as models IDR up to nominal size DN 300.

IDR is designed for applications with high torques of up to 30 Nm. The direction of rotation of the valve disc can be switched. The valve disc position can be read from the outside whereby the direction of rotation is indicated using a colour code.

Depending on the application, the actuator can be aligned to the butterfly valve using various attachment sets.

See [www.docuthek.com](http://www.docuthek.com), Technical Information bulletin IC 20, IC 50

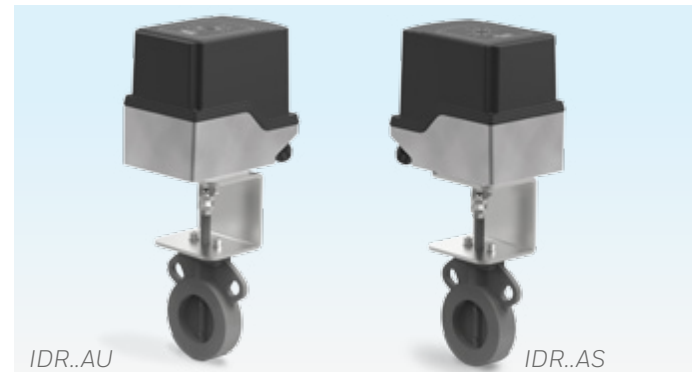
#### Axial mounting

The actuator is axially aligned to butterfly valve DKR.

The installation position of the actuator can be selected as follows:

IDR..AU: the electrical connections of the actuator are positioned above the pipe.

IDR..AS: the electrical connections of the actuator are positioned to the side of the pipe.



## Application

### Attachment with linkage

If the actuator is to be operated offset to the side of the butterfly valve, an attachment set with linkage can be used.

Attachment set GD is intended for butterfly valves with disc clearance DKR..D.

For butterfly valves with stop bar DKR..A, attachment set GA with shock suppressor is recommended.

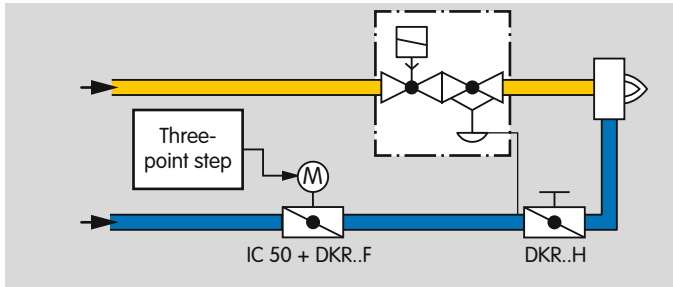


As of a medium temperature of  $> 250^{\circ}\text{C}$  ( $482^{\circ}\text{F}$ ), the actuator is to be protected by a heat deflector, see page 28 (Accessories).



## 1.4 Examples of application

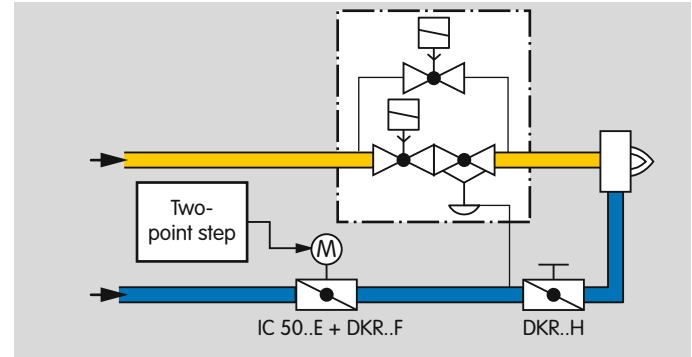
### 1.4.1 Modulating control via three-point step signal



For processes that require high temperature accuracy and low circulation in the furnace. Actuator IC is controlled by a three-point step controller and moves the butterfly valve to the ignition position. The burner starts. The butterfly valve opens or closes between the low-fire/high-fire rate positions depending on the capacity demand of the burner. When the three-point step signal is disconnected, the butterfly valve stops at its current position.

Butterfly valve DKR..H with manual adjustment is used to adjust the high-fire rate.

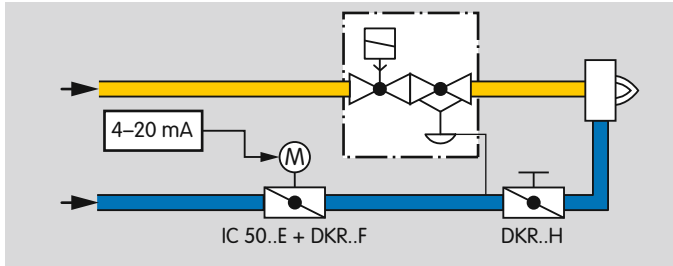
### 1.4.2 Staged control via two-point step signal



For processes that require a homogeneous temperature distribution in the furnace. Actuator IC..E is controlled by a two-point step controller and operates in On/Off or High/Low intermittent mode. The actuator closes when the voltage supply is interrupted.

Butterfly valve DKR..H with manual adjustment is used to adjust the high-fire rate.

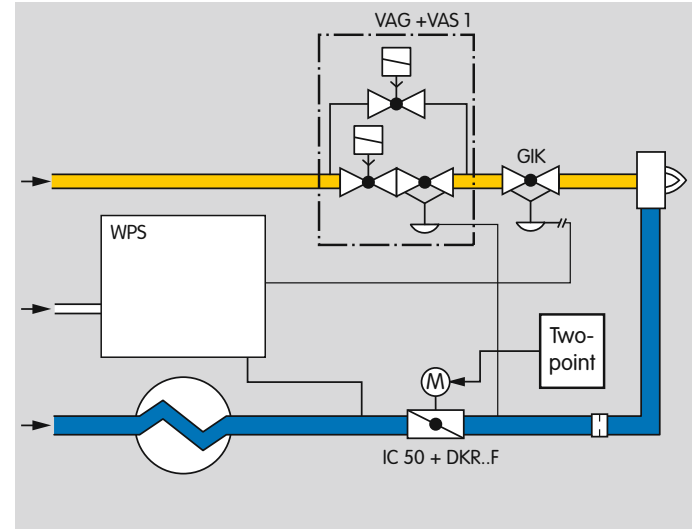
## 1.4.3 Modulating control with continuous input signal



For processes that require high temperature accuracy and low circulation in the furnace. Actuator IC..E is controlled by a (0) 4 – 20 mA or 0 – 10 V signal. The continuous signal corresponds to the adjustment angle to be approached and offers the option of monitoring the current position of the actuator.

Butterfly valve DKR..H with manual adjustment is used to adjust the high-fire rate.

## 1.4.4 Hot air compensation



Butterfly valve DKR is used on burners that are operated with preheated combustion air at temperatures of up to 650°C (1202°F).

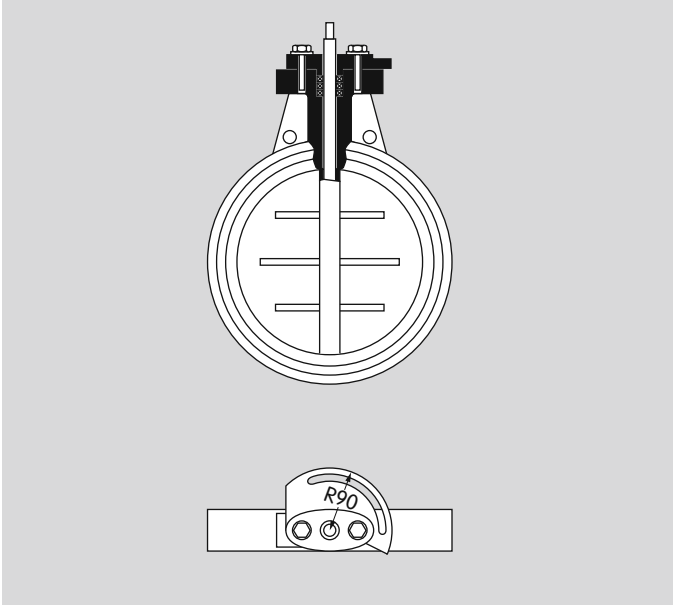


## **2 Certification**

### **Eurasian Customs Union**



The product DKR meets the technical specifications of the Eurasian Customs Union (the Russian Federation, Belarus, Kazakhstan).



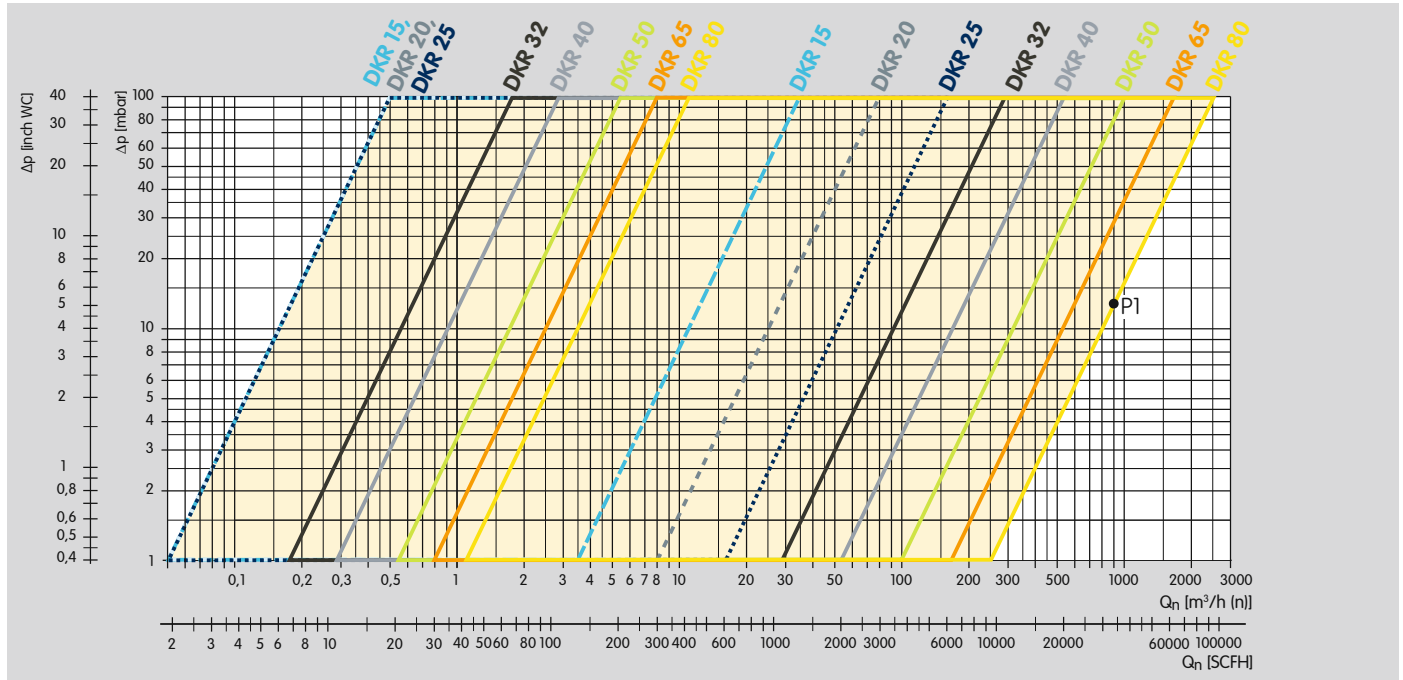
### 3 Function

The butterfly valve is designed on the basis of the free-flow principle (no deflection of the flow). It releases a cross-section for the flowing medium, depending on a rotary movement between 0 and 90°.

Butterfly valve DKR..D is with valve disc clearance.  
DKR..A is equipped with a mechanical stop bar.

## 4 Flow rate

### 4.1 Flow rate curves for DKR 15 – 80

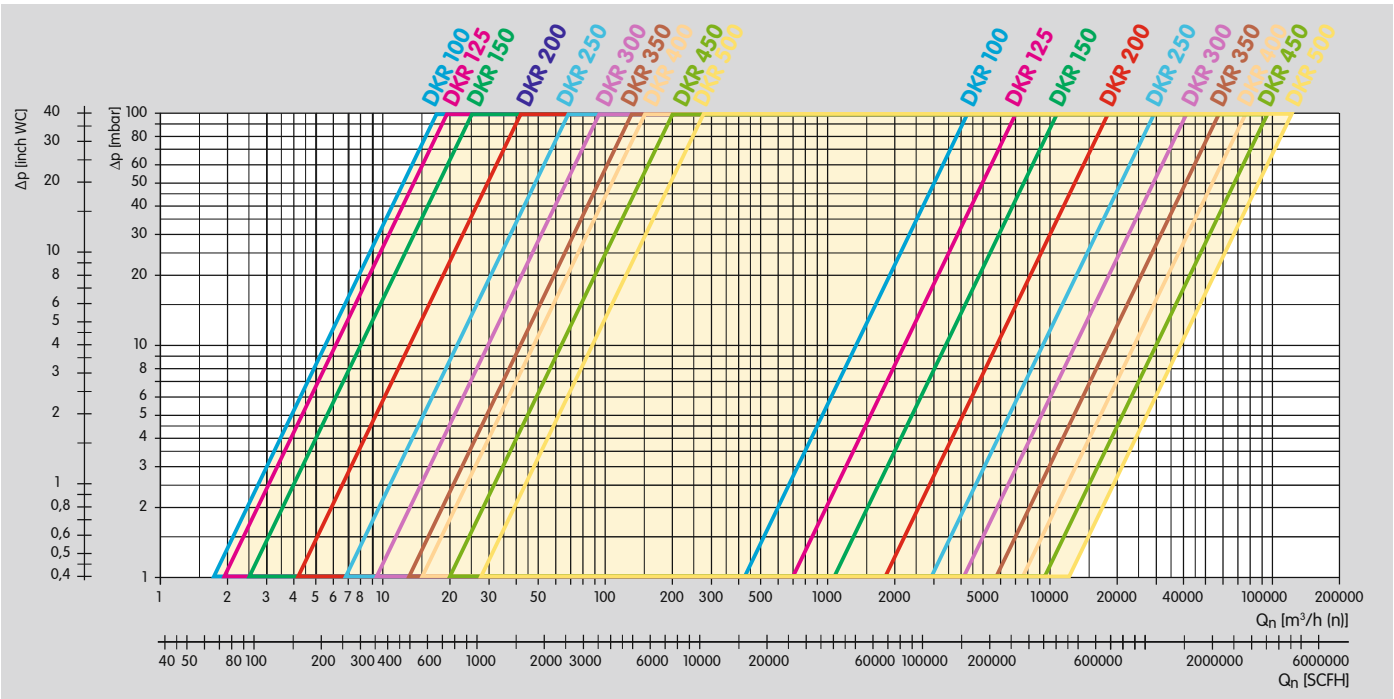


The characteristic curves are measured at 15°C (59°F) with a measurement set-up in accordance with the standards EN 13611/EN 161.

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.

Left curve: Leakage volume at a 0° opening angle.  
Right curve: Max. flow rate at a 90° opening angle.

## 4.2 Flow rate curves for DKR 100 – 500



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.

Left curve: Leakage volume at a 0° opening angle.  
Right curve: Max. flow rate at a 90° opening angle.

### 4.3 $k_V$ values

	Opening angle	
	0°	90°
DKR 15	0.11	4.0
DKR 20	0.11	9.2
DKR 25	0.11	12.6
DKR 32	0.18	32
DKR 40	0.32	62
DKR 50	0.63	115
DKR 65	0.92	195
DKR 80	1.3	287
DKR 100	2	494
DKR 125	2.3	804
DKR 150	2.8	1260
DKR 200	5	2060
DKR 250	8	3450
DKR 300	11	4820
DKR 350	15	6420
DKR 400	20	8600
DKR 450	24	10800
DKR 500	31	13700

## 5 Selection

### 5.1 DKR selection table

Typ	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	Z	03	H	F	D	A	100	350	450	650	
DKR	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

● = standard, ○ = available

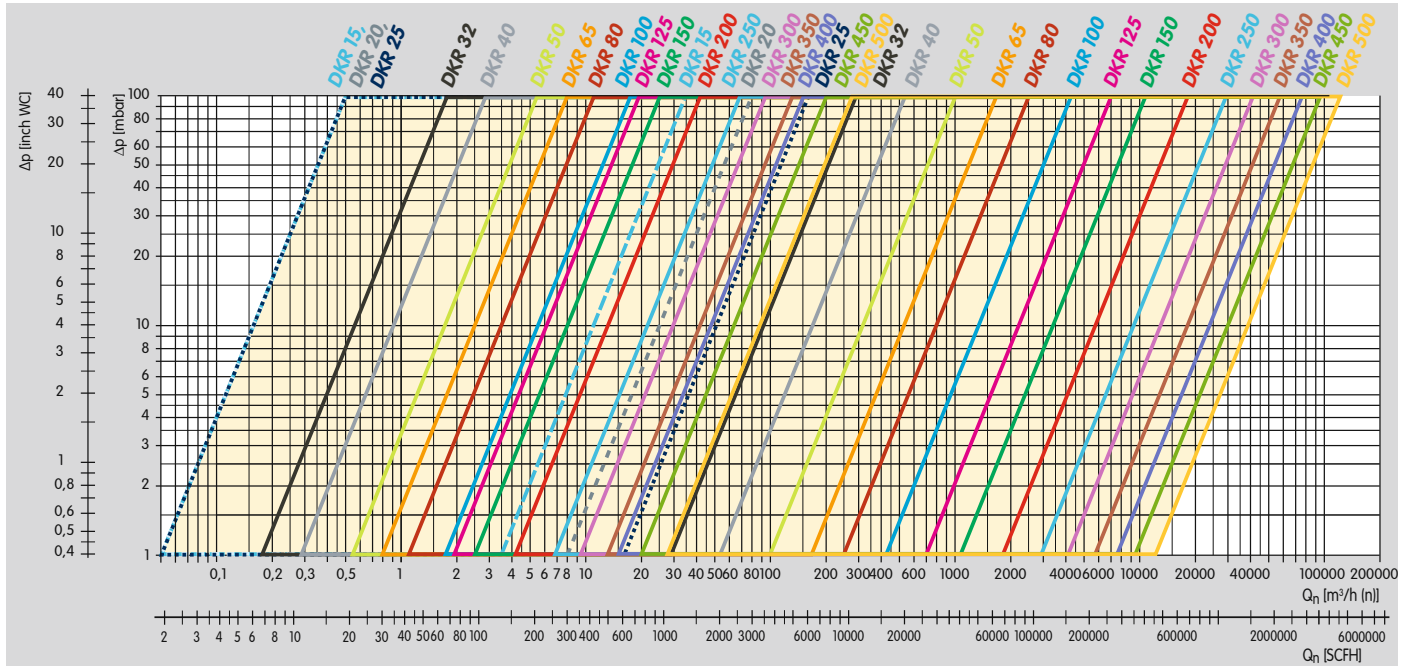
#### Example

DKR 250Z03FD650

### 5.2 DKR type code

Code	Description
DKR	Butterfly valve for air and flue gas
15-500	Nominal diameter
Z	for fitting between two DIN flanges
03	$p_{u\max}$ 300 mbar (4.35 psi)
H	with manual adjustment
F	with free shaft end
100	max. medium temperature: 100 °C (212 °F) 350 °C (662 °F) 450 °C (842 °F) 650 °C (1202 °F)
350	
450	
650	
D	with disc clearance
A	with stop bar

### 5.3 Interactive calculation of the nominal size



Density	Product	$\Delta p$	a	v
Flow rate Q (standard)				
Outlet pressure $p_d$				
$\Delta p_{max.}$				
Medium temperature				
Flow rate Q (operation)				

## 5.4 Determining the nominal size

Determining the size of a butterfly valve using the control characteristic  $a$  for normal operation, see page 35 (Glossary).

A valve authority of  $a = 0.3$  provides good control properties.

Select the required nominal size from the flow rate diagram on the basis of the desired flow rate  $Q$  and the calculated  $\Delta p$ .

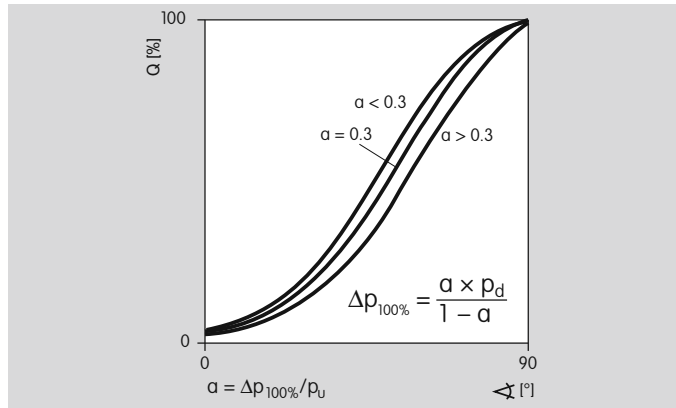
### 5.4.1 Example

We want to find the nominal size of the butterfly valve DKR for air to be used for modulating control of a gas burner:

Outlet pressure:  $p_d = 30$  mbar (12.1 "WC)

Air flow rate:  $Q = 900$  m<sup>3</sup>/h(n) (33,598 SCFH(n))

Control characteristic:  $a = 0.3$ .



$$\Delta p_{100\%} = \frac{0.3 \times 30 \text{ mbar}}{1 - 0.3} = 12.9 \text{ mbar} = 13 \text{ mbar}$$

The flow velocity in the pipes exercises a considerable influence on the pressure loss and the noise development. When designing the butterfly valve, it is recommended that the flow velocity of 30 m/s (5905 ft/min) is not exceeded. A flow rate  $Q = 900$  m<sup>3</sup>/h(n) results in a pipe of DN 100, see page 26 (Flow velocities in pipes).

In order to obtain the pressure loss  $\Delta p = 13$  mbar (5.23 "WC) that has been calculated using the valve authority, valve DKR 80 is selected from the flow rate diagram, see **P1**, page 11 (DKR 15 – 80).

If pipe fittings (reducing fittings) are installed in the pipework, the additional pressure loss must be taken into account.



## 5.5 Determining the nominal size for operation with preheated air

We want to find the nominal size of the butterfly valve DKR to be used for modulating control of a gas burner using preheated air. Once the required pressure loss has been calculated, the butterfly valve will be designed using the  $k_V$  value.

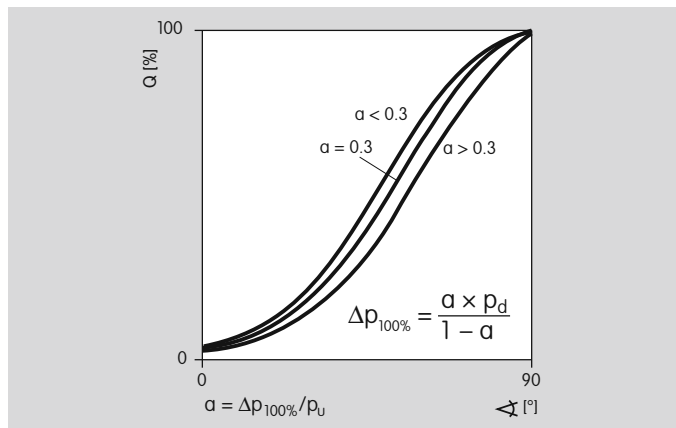
### 5.5.1 Example

Outlet pressure:  $p_d = 60$  mbar (24.1 "WC)

Air flow rate:  $Q = 1200$  m<sup>3</sup>/h (44,797 SCFH)

Air temperature: 500°C (932°F)

Control characteristic:  $a = 0.3$ .



The required pressure loss is

$$\Delta p_{100\%} = \frac{0.3 \times 60 \text{ mbar}}{1 - 0.3} = 26 \text{ mbar}$$

The required  $k_V$  value is

$$k_V = \frac{Q(n)}{514} \cdot \sqrt{\frac{\rho(n) \cdot T}{(\Delta p_{Gr} \cdot p_{d \text{ Gr}})}}$$

$$k_V = \frac{1200}{514} \cdot \sqrt{\frac{1,29 \cdot (500 + 273)}{0,026 \cdot (1,013 + 0,06)}}$$

$$k_V = 441$$

Select the DKR with the next largest  $k_V$  value from the  $k_V$  value table, see page 13 ( $k_V$  values). In this case, select the DKR 100 with a  $k_V$  value of 494 m<sup>3</sup>/h (18,442 SCFH).

With butterfly valve DKR 100, there is an actual pressure loss of

$$\Delta p = \frac{p(n) \times T}{p_d} \times \left( \frac{Q}{k_V \times 514} \right)^2$$

$$\Delta p = \frac{129 \times (500 + 273)}{(1.013 + 0.06)} \times \left( \frac{1200}{494 \times 514} \right)^2$$

$$\Delta p = 21 \text{ mbar}$$

## 5.6 Calculation formulae

### $k_V$ value

$$k_V = \frac{Q_{(n)}}{514} \cdot \sqrt{\frac{\rho_{(n)} \cdot T}{(\Delta p \cdot p_d)}}$$

### Flow rate

$$Q_{(n)} = k_V \cdot 514 \cdot \sqrt{\frac{(\Delta p \cdot p_d)}{\rho_{(n)} \cdot T}}$$

### Pressure loss

$$\Delta p = \frac{\rho_{(n)} \times T}{p_d} \times \left( \frac{Q}{k_V \times 514} \right)^2$$

### Valve authority

$$a = \frac{\Delta p_{100\%}}{p_U}$$

Legend		
$Q_{(n)}$	[m <sup>3</sup> /h]	Standard volumetric flow rate
$\rho_{(n)}$	[kg/m <sup>3</sup> ]	Gas density in standard state
$\Delta p$	[bar]	Pressure loss via control element
$p_d$	[bar]	Absolute pressure downstream of the control element
$p_u$	[bar]	Inlet pressure
$T$	[K]	Absolute temperature of the medium
$a$	-	Control characteristic

## 5.7 IDR: actuator, attachment set and butterfly valve

Combinations of actuator IC 50, attachment set and butterfly valve DKR are configurable as models IDR up to DN 300. IDR is supplied pre-assembled.

### 5.7.1 IDR selection table

Type	15-300	Z	03	D	A	100	350	450	650	AU	AS	GD	GDW	GA	GAW	/50	-03	-07	-15	-30	-60	W	Q	H	3	7	15	20	30	E	T	R10
IDR	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

● = standard, ○ = available

### Example

IDR..Z03A350AU/50-30W20TR10

### 5.7.2 IDR type code

Code	Description
IDR	Butterfly valve for hot air and flue gas with actuator
15-300	Nominal size
Z	For fitting between two DIN flanges
03	$p_{u,max.}$ 300 mbar (4.35 psi)
D	With disc clearance
A	With stop bar
100	Temperature range: 100°C (212°F)
350	350°C (662°F)
450	450°C (842°F)
650	650°C (1202°F)
	Attachment set for axial mounting:
AU	Electrical connection: IC 50 above the pipe
AS	Electrical connection: IC 50 to the side of the pipe
	Attachment set with linkage:
GD	for DKR..D
GDW	and heat deflector for DKR..D
	Attachment set with linkage and shock suppressor:
GA	for DKR..A
GAW	and heat deflector for DKR..A

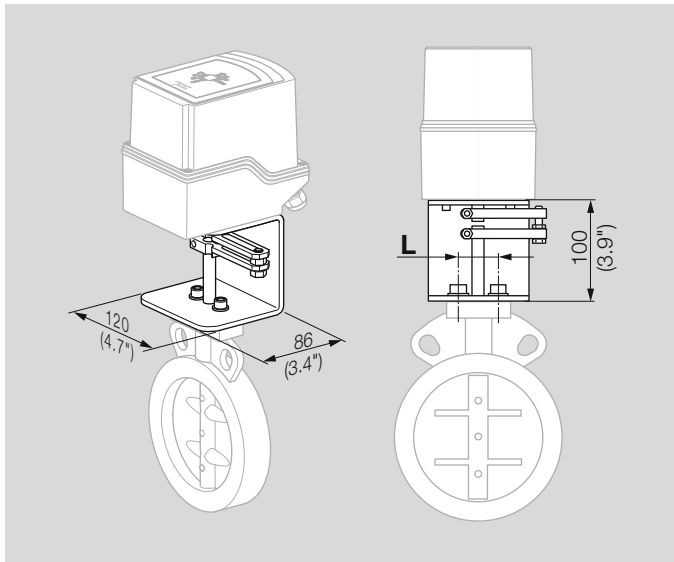
Code	Description
/50	Series 50, with higher torque
-03	Running time [s]/Adjustment angle [°]: 3.7/90
-07	7.5/90
-15	15/90
-30	30/90
-60	60/90
W	Mains voltage: 230 V AC, 50/60 Hz
Q	120 V AC, 50/60 Hz
H	24 V AC, 50/60 Hz
3	Torque: 3 Nm
7	7 Nm
15	15 Nm
20	20 Nm
30	30 Nm
E	Continuous control
T	Three-point step control
R10	Feedback potentiometer

## 5.8 Axial attachment set

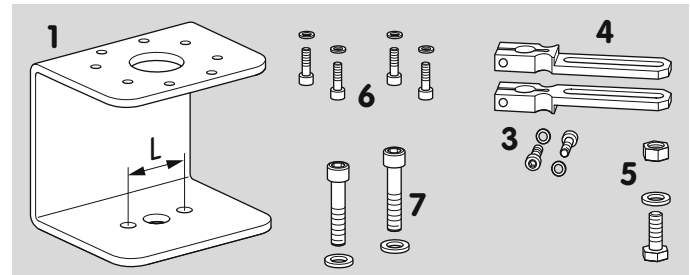
Attachment set for axial assembly of butterfly valve DKR..D and actuator IC 50. The actuator can be mounted to the attachment set in increments of 90°.

The attachment set can be delivered enclosed as an additional item up to DN 500.

### 5.8.1 Dimensions



### 5.8.2 Scope of delivery

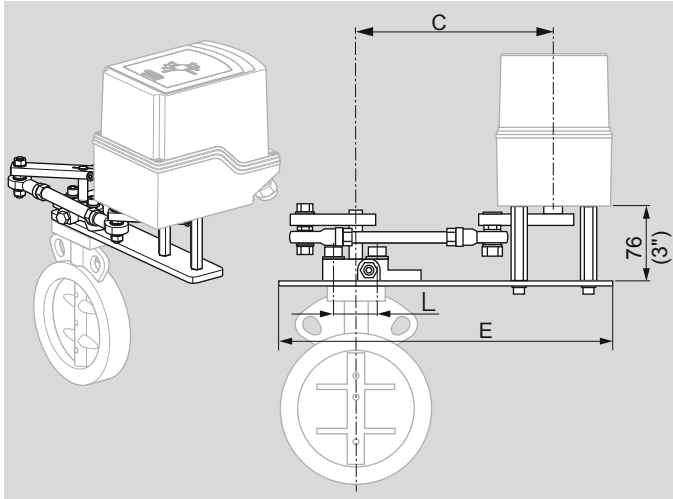


- 1 1 x U bracket
- 2 2 x levers
- 3 2 x screws and washers for the levers
- 4 1 x screw, washer and nut
- 5 4 x screws and washers for the actuator
- 6 2 x screws and washers for the butterfly valve

DKR nominal size	L		Weight		Order No. for attachment set enclosed
	mm	inch	kg	lbs	
DN 15 – 20	36	1.4	1.3	2.9	74924940
DN 25 – 32	36	1.4	1.3	2.9	74924941
DN 40 – 50	40	1.6	1.3	2.9	74924942
DN 65 – 125	40	1.6	1.3	2.9	74924943
DN 150 – 250	60	2.4	1.3	2.9	74924944
DN 300	60	2.4	1.3	2.9	74924945
DN 350	90	3.5	1.4	3.1	74924946
DN 400 – 500	90	3.5	1.4	3.1	74924947

## 5.9 Attachment set with linkage for DKR..D

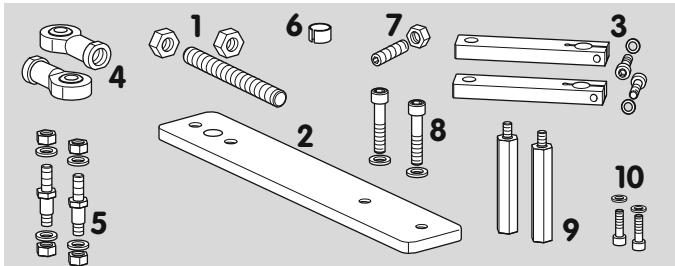
Attachment set for assembly of butterfly valves DKR..D and actuators IC 50. The attachment set can be delivered enclosed as an additional item up to DN 500.



### 5.9.1 Dimensions

DKR nominal size	L		E		C		Weight	
	mm	inch	mm	inch	mm	inch	kg	lbs
DN 25 - 32	36	1.4	285	11.2	194	7.6	1.3	2.9
DN 40 - 50	40	1.6	285	11.2	194	7.6	1.3	2.9
DN 65 - 100	40	1.6	285	11.2	194	7.6	1.3	2.9
DN 125	40	1.6	330	13.0	239	9.4	1.5	3.3
DN 150 - 250	60	2.4	340	13.4	239	9.4	1.5	3.3
DN 300	60	2.4	395	15.6	294	11.6	1.7	3.7
DN 350	90	3.5	435	17.1	319	12.5	1.9	4.2
DN 400 - 500	90	3.5	495	19.5	380	15	2.1	4.6

5.9.2 Scope of delivery

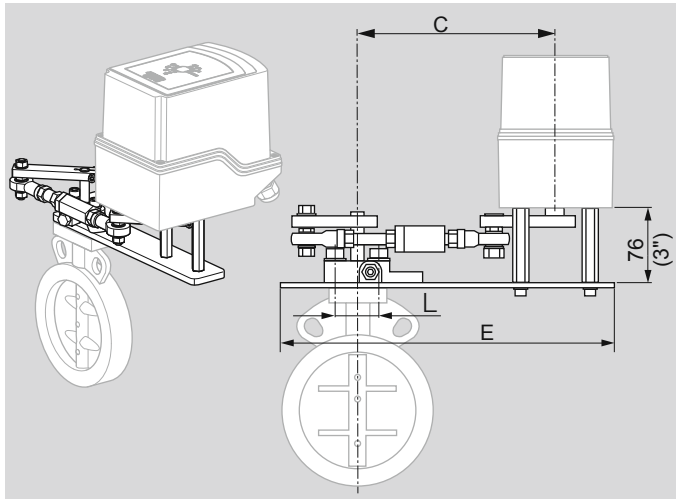


- 1** 1 x threaded rod, 2 x nuts
- 2** 1 x flat iron mounting bracket
- 3** 2 x levers, 2 x screws, 2 x washers
- 4** 2 x rod ends
- 5** 2 x stud bolts, 4 x washers, 4 x nuts
- 6** Sleeve for shaft end (for DN 15 – 50 only)
- 7** Setscrew with nut (butterfly valve)
- 8** 2 x screws, 2 x washers (butterfly valve mounting)
- 9** 2 x spacer bolts for actuator
- 10** 2 x screws, 2 x washers (actuator mounting)

DKR nominal size	Order No. for attachment set
DN 15 – 20	74924948
DN 25 – 32	74924949
DN 40 – 50	74924950
DN 65 – 100	74924951
DN 125	74924952
DN 150 – 250	74924953
DN 300	74924954
DN 350	74924955
DN 400 – 500	74924956

## 5.10 Attachment set with linkage and shock suppressor for DKR..A

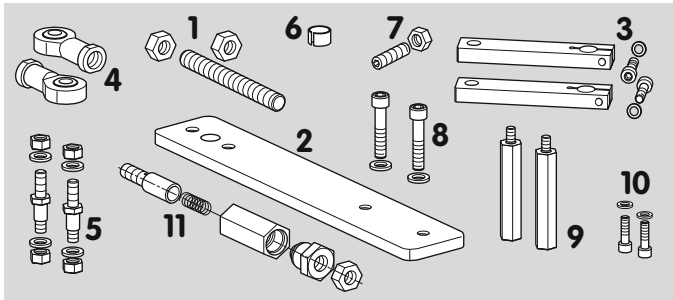
Attachment set for assembly of butterfly valves DKR..A and actuators IC 50. For butterfly valves with stop bar, a linkage with shock suppressor is recommended. The attachment set can be delivered enclosed as an additional item up to DN 500.



### 5.10.1 Dimensions

DKR nominal size	L		E		C		Weight	
	mm	inch	mm	inch	mm	inch	kg	lbs
DN 25 – 32	36	1.4	285	11.2	194	7.6	1.5	3.3
DN 40 – 50	40	1.6	285	11.2	194	7.6	1.5	3.3
DN 65 – 100	40	1.6	285	11.2	194	7.6	1.5	3.3
DN 125	40	1.6	330	13.0	239	9.4	1.6	3.5
DN 150 – 250	60	2.4	340	13.4	239	9.4	1.7	3.7
DN 300	60	2.4	395	15.6	294	11.6	1.9	4.2
DN 350	90	3.5	435	17.1	319	12.5	2.1	4.6
DN 400 – 500	90	3.5	495	19.5	380	15	2.3	5.1

5.10.2 Scope of delivery



- 1 1 x threaded rod, 2 x nuts
- 2 1 x flat iron mounting bracket
- 3 2 x levers, 2 x screws, 2 x washers
- 4 2 x rod ends
- 5 2 x stud bolts, 4 x washers, 4 x nuts
- 6 Sleeve for shaft end (for DN 15 – 50 only)
- 7 Setscrew with nut (butterfly valve)
- 8 2 x screws, 2 x washers (butterfly valve mounting)
- 9 2 x spacer bolts for actuator
- 10 2 x screws, 2 x washers (actuator mounting)
- 11 Shock suppressor

DKR nominal size	Order No. for attachment set enclosed
DN 25 – 32	74924958
DN 40 – 50	74924959
DN 65 – 100	74924960
DN 125	74924961
DN 150 – 250	74924962
DN 300	74924963
DN 350	74924964
DN 400 – 500	74924965



## 6 Project planning information

### 6.1 Installation

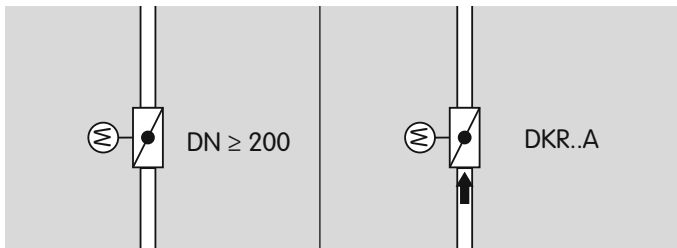
The butterfly valve must be installed in-between two flanges in accordance with EN 1092, PN 16.

The length of the inlet and outlet section should be  $5 \times \text{DN}$ .

When designing the pipe, it is recommended that a flow velocity of 30 m/s (5905 ft/min) is not exceeded, see page 26 (Flow velocities in pipes).

#### 6.1.1 Installation position

The unit can be installed in any position.



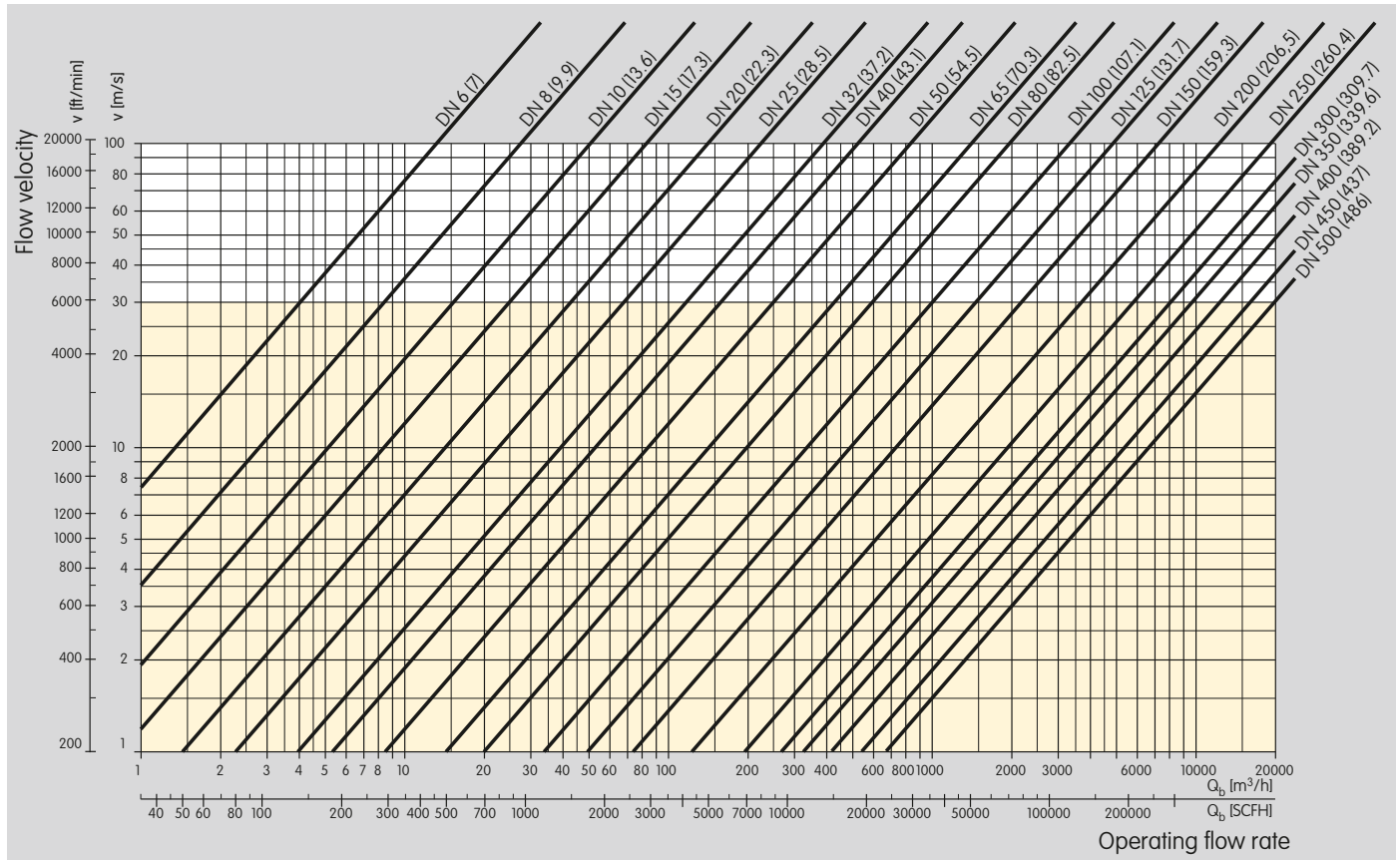
For butterfly valves DKR with a nominal size of  $\text{DN} \geq 200$ , we recommend installing the actuator in a vertical pipe. For butterfly valves with stop bars (DKR..A), we recommend installing them in a vertical pipe and selecting the direction of flow from bottom to top in order to prevent dirt accumulating on the stop bar and to ensure that the valve closes tightly.

If the valve is used with hot air, the pipe should be adequately insulated so as to reduce the ambient tem-

perature. The flanges and the butterfly valve DKR must be kept free of insulating material. Install the butterfly valve in such a way that rising hot air does not circulate around the actuator.

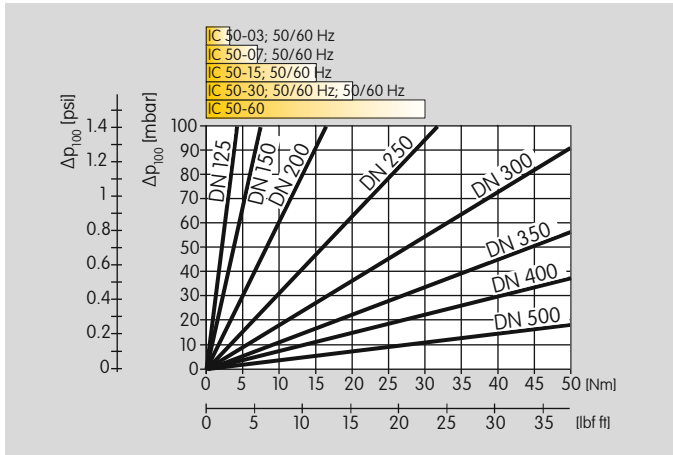
Use heat deflectors for a medium temperature of  $> 250^\circ\text{C}$  ( $482^\circ\text{F}$ ), see page 28 (Heat deflector).

## 6.2 Flow velocities in pipes



It is recommended that flow velocities of 30 m/s (5905 ft/min) are not exceeded when using the valve on thermoprocessing equipment.

The details on the internal diameter correspond to the conventional dimensions for gas pipes as stipulated in the standard EN 10220. Different cross-sections will result in flow velocities that differ correspondingly.



## 6.3 Actuator running time

Butterfly valve DKR is controlled by actuator IC 50. The running time of the actuator per 90° depends on the required torque.

The characteristic curves relate to the maximum torque produced by the flow rate. In general, maximum torque is reached at approx. 70° (158°F).

Example:

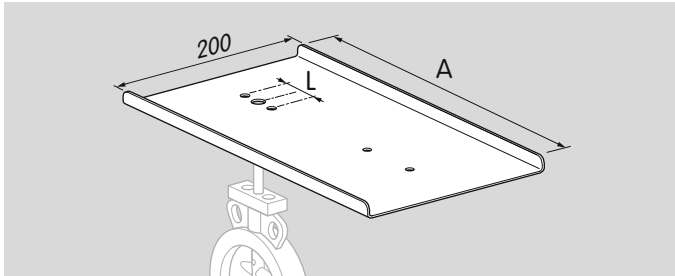
For butterfly valves DKR 125 or DKR 150, any running time could be used.

The running time is reduced by a factor of 0.83 at a frequency of 60 Hz on the actuator.

## 7 Accessories

### 7.1 Heat deflector

Recommended for operation with hot air  $\geq 250^{\circ}\text{C}$  ( $482^{\circ}\text{F}$ ) to protect the actuator IC 50. The ambient temperature on the actuator must not exceed  $60^{\circ}\text{C}$ .



DN	L		A		Order No.
	mm	inch	mm	inch	
DKR 15 - 20	36	1.4	366	14.4	74924966
DKR 25 - 32	36	1.4	366	14.4	74924967
DKR 40 - 50	40	1.6	366	14.4	74924968
DKR 65 - 100	40	1.6	366	14.4	74924969
DKR 125	40	1.6	459	18.1	74924970
DKR 150 - 250	60	2.4	459	18.1	74924971
DKR 300	60	2.4	566	22.3	74924972
DKR 350	90	3.5	619	24.4	74924973
DKR 400 - 500	90	3.5	758	29.9	74924974

## 8 Technical data

Gas type: air, flue gas.

Inlet pressure  $p_U$ : max. 300 mbar (4.35 psi).

Medium temperature:

DKR..100: -20 to +100°C (-4 to +212°F),

DKR..350: -20 to +350°C (-4 to +662°F),

DKR..450: -20 to +450°C (-4 to +842°F),

DKR..650: -20 to +650°C (-4 to +1202°F).

Ambient temperature: -20 to +60°C (-4 to +140°F).

Seals: free of asbestos.

DKR..150/350/450:

Housing material: GG,

valve disc: up to DN 100: steel,

valve disc: from DN 125: GG,

drive shaft up to max. 350°C: steel,

drive shaft up to max. 450°C: stainless steel,

packing: graphite.

DKR..650:

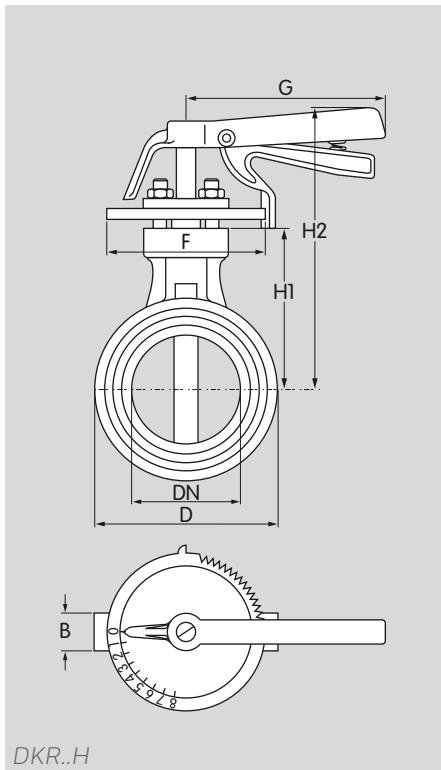
housing material: heat-resistant cast iron,

valve disc: up to DN 65: stainless steel,

valve disc: from DN 80: heat-resistant cast iron,

drive shaft: stainless steel,

packing: aluminium silicate.

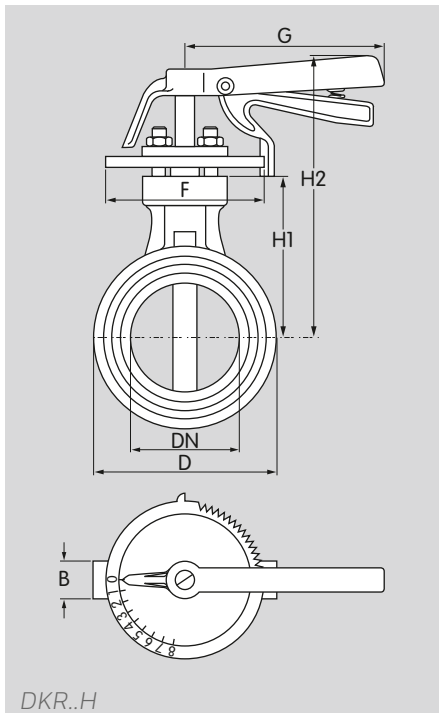


DKR..H

## 8.1 Dimensions

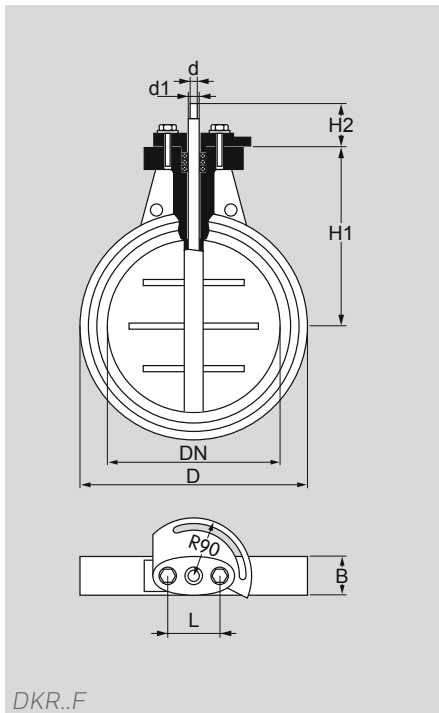
### 8.1.1 DKR..H in mm

Type	DN	H1	H2	D	B	G	F	Weight kg
		mm	mm	mm	mm	mm	mm	
DKR 15..H	15	60	125	44	25	105	100	1.14
DKR 20..H	20	60	125	44	25	105	100	1.14
DKR 25..H	25	75	140	60	25	105	100	1.14
DKR 32..H	32	80	145	67	25	105	100	1.4
DKR 40..H	40	83	148	75	25	105	100	1.5
DKR 50..H	50	85	150	85	25	105	100	1.6
DKR 65..H	65	95	160	105	25	120	100	2.2
DKR 80..H	80	105	170	120	30	120	100	2.5
DKR 100..H	100	115	180	140	30	120	100	2.8
DKR 125..H	125	135	205	170	35	150	115	5.0
DKR 150..H	150	150	220	195	40	150	115	6.3
DKR 200..H	200	175	245	255	40	150	115	9.3
DKR 250..H	250	220	305	310	40	150	115	13.9
DKR 300..H	300	240	325	360	45	220	160	22.6
DKR 350..H	350	290	410	415	45	220	160	27
DKR 400..H	400	335	455	465	50	220	160	39
DKR 450..H	450	360	480	520	50	220	160	45
DKR 500..H	500	400	520	620	55	220	160	56



### 8.1.2 DKR..H in inches

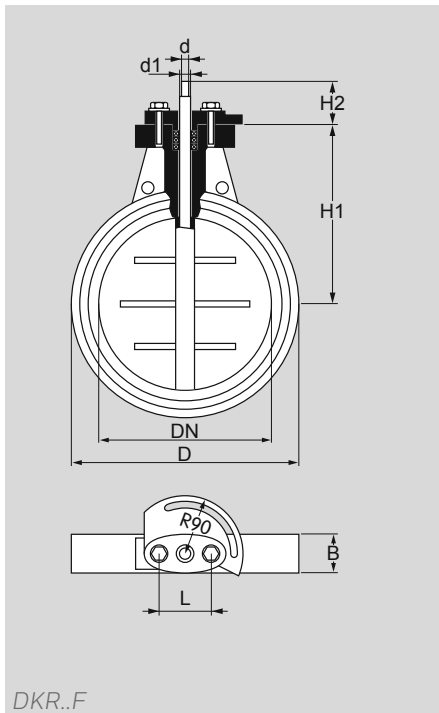
Type	DN	H1	H2	D	B	G	F	Weight
		inch	inch	inch	inch	inch	inch	
DKR 15..H	15	2.4	4.9	1.7	1.0	4.1	3.9	2.5
DKR 20..H	20	2.4	4.9	1.7	1.0	4.1	3.9	2.5
DKR 25..H	25	3.0	5.5	2.4	1.0	4.1	3.9	2.5
DKR 32..H	32	3.1	5.7	2.6	1.0	4.1	3.9	3.1
DKR 40..H	40	3.3	5.8	3.0	1.0	4.1	3.9	3.3
DKR 50..H	50	3.3	5.9	3.3	1.0	4.1	3.9	3.5
DKR 65..H	65	3.7	6.3	4.1	1.0	4.7	3.9	4.9
DKR 80..H	80	4.1	6.7	4.7	1.2	4.7	3.9	5.5
DKR 100..H	100	4.5	7.1	5.5	1.2	4.7	3.9	6.2
DKR 125..H	125	5.3	8.1	6.7	1.4	5.9	4.5	11.0
DKR 150..H	150	5.9	8.7	7.7	1.6	5.9	4.5	13.9
DKR 200..H	200	6.9	9.6	10.0	1.6	5.9	4.5	20.5
DKR 250..H	250	8.7	12.0	12.2	1.6	5.9	4.5	30.9
DKR 300..H	300	9.4	12.8	14.2	1.8	8.7	6.3	50.7
DKR 350..H	350	11.4	16.1	16.3	1.8	8.7	6.3	59.5
DKR 400..H	400	13.2	17.9	18.3	2.0	8.7	6.3	86.0
DKR 450..H	450	14.2	18.9	20.5	2.0	8.7	6.3	99.2
DKR 500..H	500	15.7	20.5	24.4	2.2	8.7	6.3	123.5



### 8.1.3 DKR..F in mm

Type	DN	L	H1	H2	D	B	d	d1	Weight
		mm	mm	mm	mm	mm	mm	mm	kg
DKR 15..F	15	36	60	75	44	25	8	8	1.14
DKR 20..F	20	36	60	75	44	25	8	8	1.14
DKR 25..F	25	36	75	75	60	25	8	10	1.14
DKR 32..F	32	36	80	75	67	25	8	10	1.4
DKR 40..F	40	40	83	75	75	25	8	10	1.5
DKR 50..F	50	40	85	75	85	25	8	10	1.6
DKR 65..F	65	40	95	75	105	25	12	12	2.2
DKR 80..F	80	40	105	75	120	30	12	12	2.5
DKR 100..F	100	40	115	75	140	30	12	12	2.8
DKR 125..F	125	40	135	75	170	35	12	12	5.0
DKR 150..F	150	60	150	75	195	40	12	12	6.3
DKR 200..F	200	60	175	75	255	40	12	15	9.3
DKR 250..F	250	60	220	75	310	40	12	15	14
DKR 300..F	300	60	240	75	360	45	12	20	23
DKR 350..F	350	90	290	75	415	45	12	25	27
DKR 400..F	400	90	335	75	465	50	12	30	39
DKR 450..F	450	90	360	75	520	50	12	30	45
DKR 500..F	500	90	400	75	620	55	12	30	56





### 8.1.4 DKR..F in inches

Type	DN	L	H1	H2	D	B	d	d1	Weight
		inch	inch	inch	inch	inch	inch	inch	lbs
DKR 15..F	15	1.4	2.4	3	1.7	1	0.3	0.3	2.5
DKR 20..F	20	1.4	2.4	3	1.7	1	0.3	0.3	2.5
DKR 25..F	25	1.4	3.0	3	2.4	1	0.3	0.4	2.5
DKR 32..F	32	1.4	3.1	3	2.6	1	0.3	0.4	3.1
DKR 40..F	40	1.6	3.3	3	3	1	0.3	0.4	3.3
DKR 50..F	50	1.6	3.3	3	3.3	1	0.3	0.4	3.5
DKR 65..F	65	1.6	3.7	3	4.1	1	0.5	0.5	4.9
DKR 80..F	80	1.6	4.1	3	4.7	1.2	0.5	0.5	5.5
DKR 100..F	100	1.6	4.5	3	5.5	1.2	0.5	0.5	6.2
DKR 125..F	125	1.6	5.3	3	6.7	1.4	0.5	0.5	11.0
DKR 150..F	150	2.4	5.9	3	7.7	1.6	0.5	0.5	13.9
DKR 200..F	200	2.4	6.9	3	10.0	1.6	0.5	0.6	20.5
DKR 250..F	250	2.4	8.7	3	12.2	1.6	0.5	0.6	30.9
DKR 300..F	300	2.4	9.4	3	14.2	1.8	0.5	0.8	50.7
DKR 350..F	350	3.5	11.4	3	16.3	1.8	0.5	1.0	59.5
DKR 400..F	400	3.5	13.2	3	18.3	2	0.5	1.2	86.0
DKR 450..F	450	3.5	14.2	3	20.2	2	0.5	1.2	99.2
DKR 500..F	500	3.5	15.7	3	24.4	2.2	0.5	1.2	123.5

## **9 Converting units**

See [www.adlatus.org](http://www.adlatus.org)

## **10 Maintenance cycles**

Butterfly valve DKR requires little servicing.

We recommend a function check once a year.

## 11 Glossary

### **Control characteristic, valve authority**

In order for the butterfly valve to be able to influence the flow rate, a proportion of the pressure loss  $\Delta p$  from the entire system has to be caused by the butterfly valve. Since the overall pressure loss  $\Delta p$  should be kept to a minimum, a valve authority  $a = 0.3$  is recommended for the butterfly valve. This means that of the overall pressure loss  $\Delta p$  there is a 30% drop on the fully open butterfly valve.

### **Hot air compensation**

The volume of air increases with the addition of hot air. The oxygen content contained in the air decreases with every  $\text{m}^3$ . In order to maintain a constant oxygen content, additional air has to be added to the combustion gas.

## Feedback

Finally, we are offering you the opportunity to assess this “Technical Information (TI)” and to give us your opinion, so that we can improve our documents further and suit them to your needs.

### Clarity

- Found information quickly
- Searched for a long time
- Didn't find information
- What is missing?
- No answer

### Comprehension

- Coherent
- Too complicated
- No answer

### Scope

- Too little
- Sufficient
- Too wide
- No answer



### Use

- To get to know the product
- To choose a product
- Planning
- To look for information

### Navigation

- I can find my way around
- I got “lost”
- No answer

### My scope of functions

- Technical department
- Sales
- No answer

### Remarks

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[www.kromschroeder.de/Weltweit.20.0.html?&L=1](http://www.kromschroeder.de/Weltweit.20.0.html?&L=1)

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