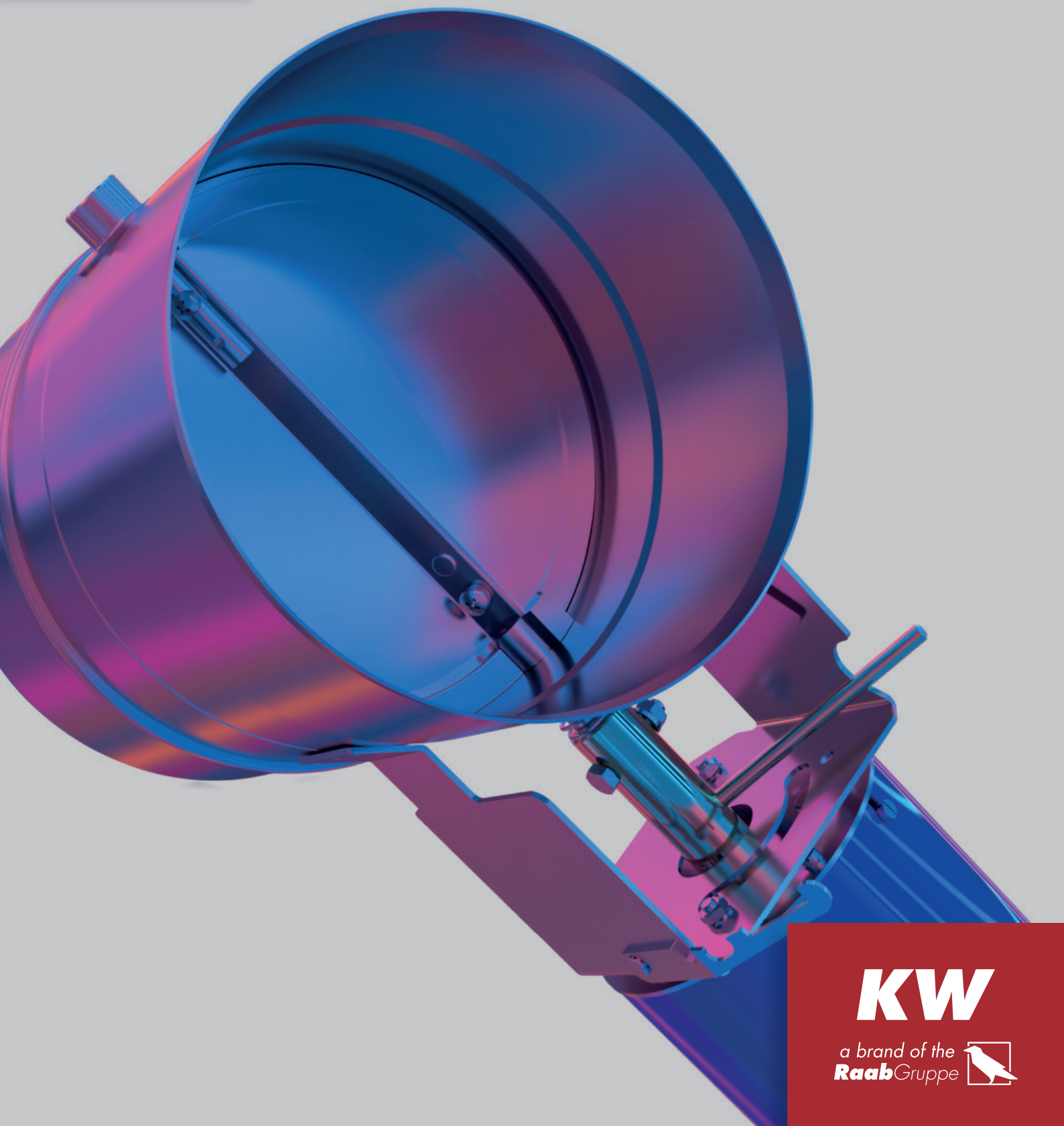
MOTOR-DRIVEN FLUE GAS DAMPERS

Intelligent solutions for flue gas and heating technology

PRODUCT SHEET



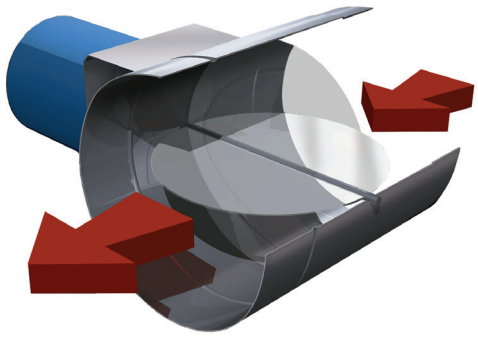
KW

a brand of the RaabGruppe

MOTOR-DRIVEN FLUE GAS DAMPERS

FUNCTION

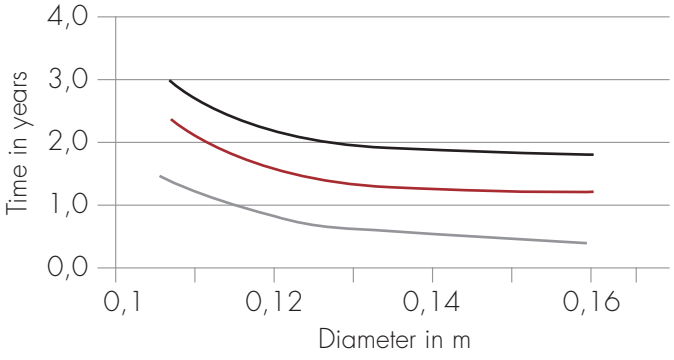
Motor-driven flue gas dampers can be used with all oil and gas fireplaces with or without fans as well as solid fuel fireplaces. Unlike the thermal Diermayer damper, they already open before the burner is turned on. During the downtime of the fireplace it closes the flue gas tract and prevents heated room air from escaping and the fireplace from cooling down.
The motor-driven model can be operated in various ways, e.g. manual control via an on/off switch, temperature-dependant control via an upstream thermostat or fully automatic via a stove regulator.



SAVING ENERGY WITH FLUE GAS DAMPERS

Depending on the fireplace and the surrounding conditions, the energy loss caused by escaping room air can be up to 4,000 kWh per year. Flue gas dampers prevent this loss. They are installed between the stove and the chimney and close the flue gas tract to the chimney as soon as it is not needed anymore. The closing is controlled with an actuator. The resulting savings on energy and fuel costs help to quickly amortise the installation costs. The following chart shows the payback period depending on the flue gas damper, location and chimney diameter.

PAYBACK PERIOD



■ *Regensburg 1.9 m/s; cp=0.55* ■ *Würzburg 3.2 m/s; cp=0.75*
■ *Bremerhaven 5.2 m/s; cp=0.77*

The chart shows how much time it takes for the installation costs of a motor-driven flue gas damper to be evened out by the resulting savings. The potential for savings depends on prevalent weather conditions that were considered here in the form of locations.

ADVANTAGES

- ✓ Suited for all types of fuels
- ✓ Energy conservation
- ✓ Reduction of down time losses
- ✓ Prevents heated room air from escaping
- ✓ Prevents heat stored in the stove from escaping
- ✓ Improves the building's energy balance
- ✓ Prevents flue gas backflow
- ✓ Eco-friendly due to reduced emission
- ✓ Reduces fuel consumption
- ✓ Short payback period

EXEMPLAR CALCULATION OF ANNUAL VENTILATION LOSSES OF SPECIAL GAS BOILERS

Input/estimate connection piece:

Estimate		Input Zeta value	
Effective length	1 m	Flow-operated safety device	3.0
Effective height	0.3 m	Bends and safety device inlet	1.5
Chimney data input			
Chimney height	10 m	Stainless steel, aluminium, plastic	0.001
Chimney diameter	0.2 m	Moulded firebrick	0.002
Chimney roughness	0.002 m	Masonry ducts	0.005
Pipe friction coefficient	0.048		
Wind data input		**Supply air data input**	
Mean wind speed	5.2 m/s	Overall joint length	40 m
Inflow conditions (cp value)	0.77	Joint permeability coefficient a	0.6

Load level	Mean air temperature in chimney	Mean temperature chimney outlet
13 %	24 °C	22 °C
30 %	25 °C	23 °C
39 %	26 °C	24 °C
48 %	27 °C	25 °C
63 %	28 °C	26 °C

Load level	13%	30%	39%	48%	63%
Mean air density in chimney	1.187	1.183	1.179	1.175	1.172
Negative pressure due to buoyancy in Pa	6.200	9.300	11.200	13.100	16.200
Negative pressure due to wind inflow in Pa	13.000	13.300	13.400	13.600	13.900
Total negative pressure in Pa	19.200	22.600	24.600	26.700	30.000
Volume flow in m3/h	140.000	148.000	152.000	156.500	163.000
Ventilation losses in kW	0.590	0.959	1.182	1.429	1.825
Ventilation losses in kWh	1,477.710	810.520	685.680	578.760	401.490

► Total losses: 3954.16 kWh/year

FLUE GAS SWITCHES

The **maintenance-free flue gas switch** is an additional safety device to bypass a certain component without obstructing the flue gas stream. This way the component is always accessible for maintenance or repairs.

Flue gas switches are also used with flue gas heat exchangers to guide the flue gasses past the register during downtime. The control unit TJ-HRC monitors the temperatures inside the heat exchanger register and activates the flue gas switch automatically.

Flue Gas Switch N1, metal-tight closing for negative pressure systems without condensation

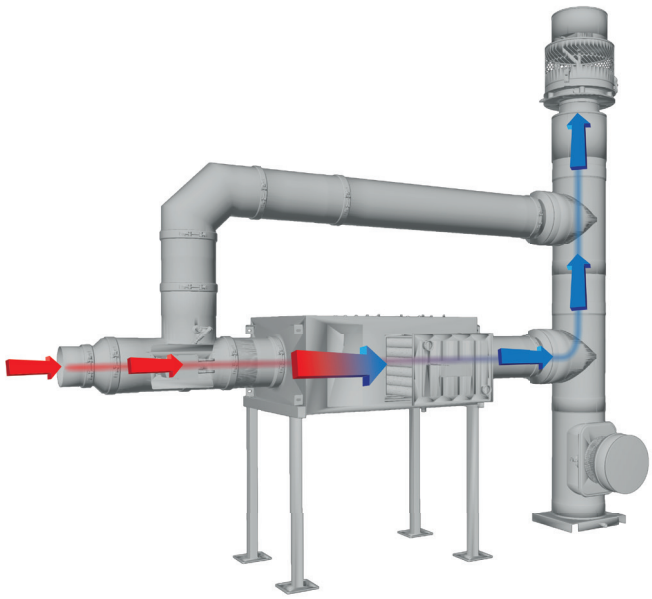
- ✓ For flue gas temperatures up to 400 °C
- ✓ Integrated limit switch
- ✓ Metal-tight

Flue Gas Switch P1, for external flue gas routing.
Metal-tight closing for negative and positive pressure systems.

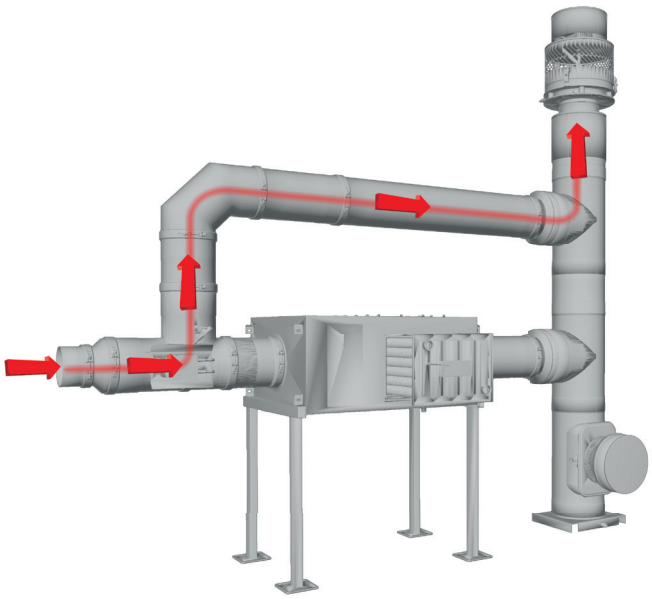
- ✓ For flue gas temperatures up to 400 °C
- ✓ Integrated limit switch
- ✓ Metal-tight
- ✓ Pressure and condensation-tight shaft feedthrough
- ✓ Positive pressure-tight up to 200 Pa outwards

Flue Gas Switch H1, for external flue gas routing.
Metal-tight closing for positive pressure systems up to 5,000 Pa.

- ✓ For flue gas temperatures up to 400 °C
- ✓ Integrated limit switch
- ✓ Metal-tight
- ✓ Pressure and condensation-tight shaft feedthrough
- ✓ Positive pressure-tight up to 5,000 Pa outwards

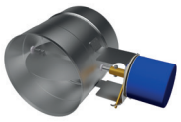
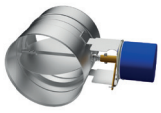
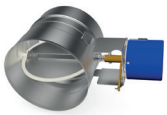
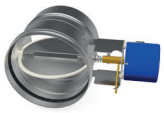
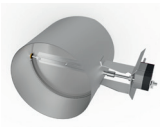


Normal use of heat exchanger



Rerouting via bypass

TECHNICAL DATA

	 MOK	 MOK AD	 MUK	 MUK D	 MUK DK mit Kastensicke	 MUK LAS	 MUK HP
Max. temperature	up to 400 °C	up to 400 °C	up to 200 °C with graphite seal up to 400 °C	up to 120 °C	up to 120 °C	up to 120 °C	up to 400 °C
Neg. / pos. pressure	Neg. pressure	Neg. pressure	Neg./pos. pressure	Neg./pos. pressure	Neg./pos. pressure	Neg./pos. pressure	Neg./pos. pressure
Pressure-tight outwards	✘(N1)	✘(N1)	200 Pa (P1)	200 Pa (P1)	200 Pa (P1)	200 Pa (P1)	5,000 Pa (H1)
Inner tightness	✘	✘	✘	leakage max. 200 l/h at +100 Pa as per DVWG worksheet G 635	leakage max. 200 l/h at +100 Pa as per DVWG worksheet G 635	leakage max. 200 l/h at +100 Pa as per DVWG worksheet G 635	✘
Diameter	80–1,000	80–1,000	80–1,000	80, 100, 110, 125, 150, 180, 200, 250, 300, 400	80, 110, 125, 160	80/125, 100/150	80–400
Application	for neg. pressure flue gas systems without condensation, devices with pilot flame or solid fuels	for neg. pressure flue gas systems without condensation	for pos. and neg. pressure flue gas systems with condensation or cascade systems with condensation	for pos. and neg. pressure flue gas systems with condensation for higher tightness requirements	for all standard plastic flue gas systems	for air-exhaust systems	for industrial and block heating plants
Damper type	with minimum opening	metal-tight	metal-tight	with elastomer seal	with elastomer seal	with elastomer seal	metal-tight

Kutzner + Weber GmbH
Frauenstraße 32
82216 Maisach · GERMANY
+49(0)8141/957-0
info@kutzner-weber.de
www.kutzner-weber.de

Status 03/2023 · Version 1.0
Item No. 2124835