PRODUCT INFORMATION

Exhaust gas flaps

for emission control and increased comfort

Product	PIERBURG No.
Exhaust gas flap	7.00509.03.0; 7.00671.05.0/.06.0; 7.01300.24.0; 7.03204.01.0; 7.04174.01.0; 7.22144.01.0; 7.22469.06.0; 7.22525.50.0; 7.22825.03.0; 7.28153.16.0/.18.0; 7.28252.04.0

Exhaust gas flaps are growing in importance when it comes to controlling emissions and increasing comfort.
Stricter legal requirements governing the controll of emissions, in particular, mean that exhaust gas flaps are increasingly being used close to the engine in series production:

- $DeNO_x$ catalysts
- Low-pressure exhaust gas recirculation
- Acoustic optimisation of the exhaust branch (e. g. cylinder shut-off)
- Increased performance due to resonance effects
- Noise reduction
- Use in the heating system
- Two-stage turbocharging

Load profile

- -40 °C to 950 °C gas temperature
- External seal: max. 1 l/min (at 20 °C, Δp = 300 mbar)
- Internal seal: max. 30 kg/h (at 20 °C, Δp = 300 mbar)
- Installation position: close to the engine, in the underbody area, not splash-proof
- Durability: 1,000,000 working cycles

This makes exhaust gas flaps a particularly interesting option for tuners and retrofitters.

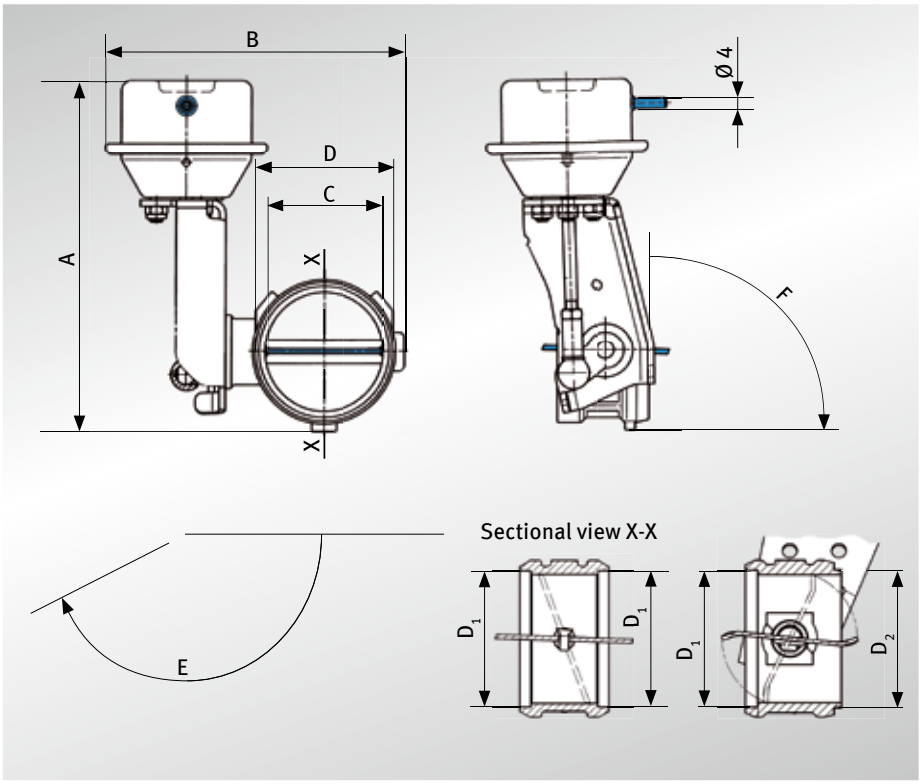
Exhaust gas flap variants

Retrofit in Ferrari 360

Replacement for PI 0029

Pneumatic exhaust gas flaps

Exhaust gas flap 7.22469.06.0 with extended connecting tube



Dimensions

PIERBURG no.	Height	Width	Flap Ø	Inner Ø	Outer Ø	Connection angle	Tube angle	Zero position	Comment
Pneumatic	A	B	C	D_1	D_2	E	F	(Unpressurised)	
7.00509.03.0	133.5	137.2	60	63.4	-	180°	90°	Open	
7.00671.05.0	133.5	137.2	60	63.4	-	105°	90°	Open	3)
7.00671.06.0	133.5	137.2	60	63.4	-	255°	70°	Open	3)
7.03204.01.0	141.5	121.2	48	52.8	58	270°	90°	Open	
7.22144.01.0	Approx. 135	145.5	60	63.4	66.5				3)
7.22469.06.0	149 1)	114.7 1)	47	-	2)	63°	90°	Open	With end tube, see Fig.
7.22525.50.0	133.5	137.2	60	63.4	-	180°	90°	Closed	3)
7.22825.03.0	159.8	167.5	71	71	76.1	180°	-17°	Open	Thin-walled tube 3)
7.28153.16.0	128.9	124	52	55.6	56	153°	90°	Open	
7.28153.18.0	128.9	124	52	55.6	56	233°	90°	Open	3)
7.28252.04.0	Approx. 157	149.7	64.4	64.4	-	135°	-50°	Open	3)
Electrical	A	B	C	D_1			F	(De-energised)	
7.01300.24.0									Spare part IAM 4)
7.04174.01.0	166.8	133.3	57.8	77.2	-	-	90°	Open	See Fig.

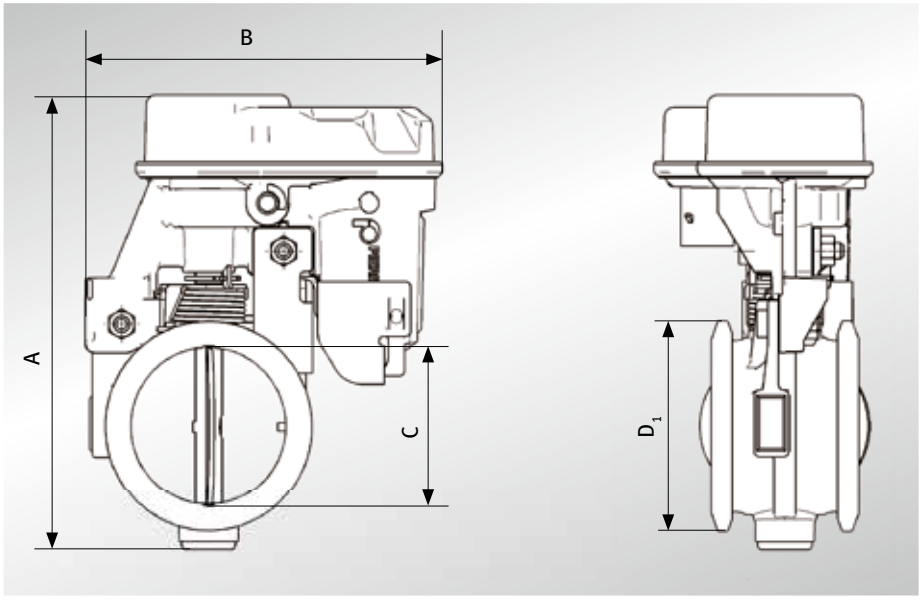
All measurements in mm

1) Dimensions in flap area
2) With end tube: inlet side Ø 48.1
3) Available for delivery until exhaustion of stock, please check availability
4) Ref. no. 1K0 253 291 F
For Volkswagen Jetta, Bora, Beetle 2.0 TDI 16V, engine ID code CJAA and CBEA

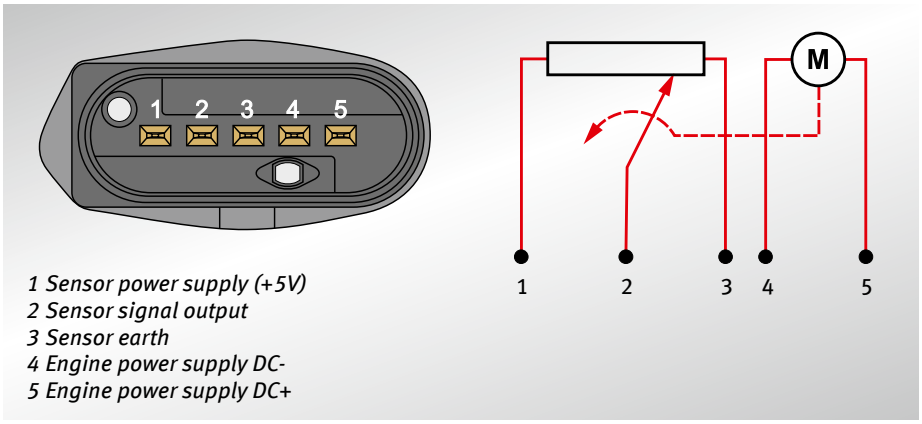
Electrical exhaust gas flap 7.04174.01.0

The electrical exhaust gas flap 7.04174.01.0 is infinitely adjustable throughout the entire adjustment range between open and closed. A noncontact sensor provides feedback on the flap position. Position control electronics are not part of the exhaust gas flap.

If the electrical exhaust gas flap is not used as a spare part for series production, a separate control unit must provide the actuation for the respective application.
In this case, please contact our Product Management team.



Dimensions



1 Sensor power supply (+5V)
2 Sensor signal output
3 Sensor earth
4 Engine power supply DC-
5 Engine power supply DC+

Plug assignment and wiring diagram

Electric switchover valve for pneumatic exhaust gas flaps

A vacuum is required to operate a pneumatic exhaust gas flap (e.g. from the intake manifold or a vacuum pump).

We recommend an electric switchover valve for the actuation (see fig. to the right).
Motor Service offers a wide range of electric switchover valves, such as:

- 7.22341.08.0
  Connection: Junior Timer 2-pin or EV1
  (BMW e. g. no. 12 52 1 427 608)
- 7.28098.04.0
  Connection: RD coupling
  (VW/Audi e. g. no. 1J0 973 722)

Electric switchover valve

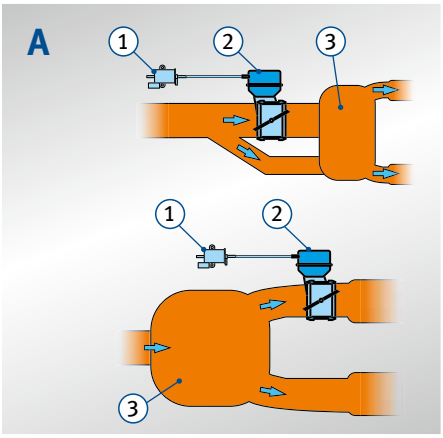
Application examples

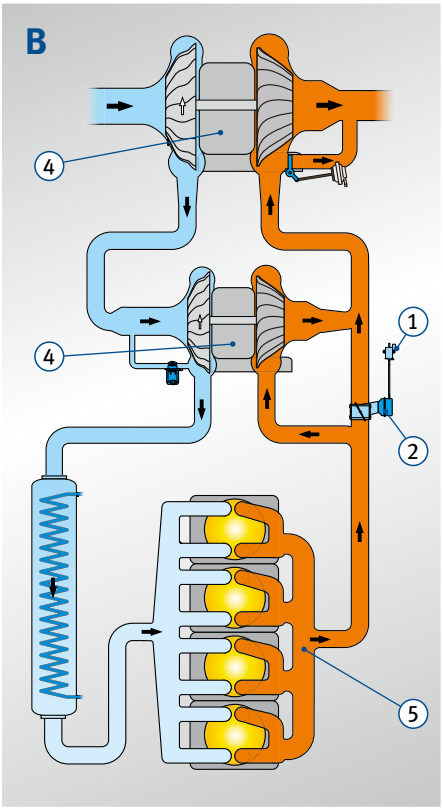
Acoustic requirements (A)
To reduce noise, sound waves are superpositioned in such a way that they cancel each other out. The sound waves can also be superpositioned so that they amplify each other, thereby increasing the volume. As such, an exhaust gas flap can be used to modify the vehicle acoustics.

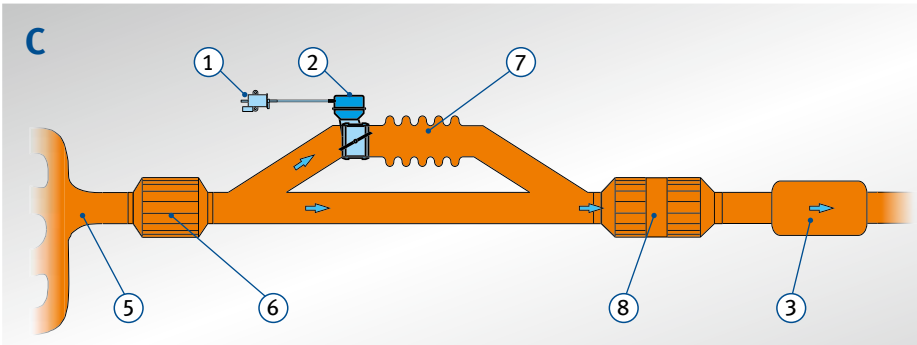
Two-stage turbocharging (B)
In turbocharged engines, the energy of the exhaust gas is used to drive a compressor. The combustion air is supplied to the engine in pre-compressed form. This increases the engine performance whilst the engine speed and displacement stay the same. However, this increased performance is only "noticeable" at higher engine speeds. At lower engine speeds, the turbocharging effect is barely discernible. Sequential turbocharging, also known as two-stage turbocharging, avoids this problem by using two turbochargers – the first is optimised for low to medium engine speeds, the second for medium to high engine speeds. The exhaust gas flap controls the exhaust gas supply to the relevant turbocharger.

DeNO$_x$ catalyst (C)
In a DeNO$_x$ catalyst (8), the inlet temperature is regulated via the exhaust gas flap, allowing the catalyst to operate with optimum efficiency.
The catalyst is also protected against overheating so that the aging process is slowed considerably. If the temperature increases, more exhaust gas is conducted over the cooling section; if the temperature drops, the flap is closed and the catalyst is actuated directly.

Cylinder shut-off (no figure)
In high-volume petrol engines, cylinders are shut off to reduce fuel consumption in certain load ranges.
This technology also influences the engine acoustics and exhaust gas system.
An exhaust gas flap can be used to modify the flow cross-section of the exhaust gas system. This creates and utilises effects that make the engine sound just like it does in normal operation with all cylinders active.







1 Electric switchover valve
2 Exhaust gas flap
3 Silencer
4 Turbocharger
5 Exhaust manifold
6 Pre-catalyst
7 Cooling section
8 DeNO$_x$ catalyst