

FLUID DAMPERS

SERIES ROBUSTO

▶ PRODUCT SPECIFICATIONS



The optimal compromise between power and size allows this damper to be used everywhere. The integrated return spring allows the piston rod to be extended once again after actuation.

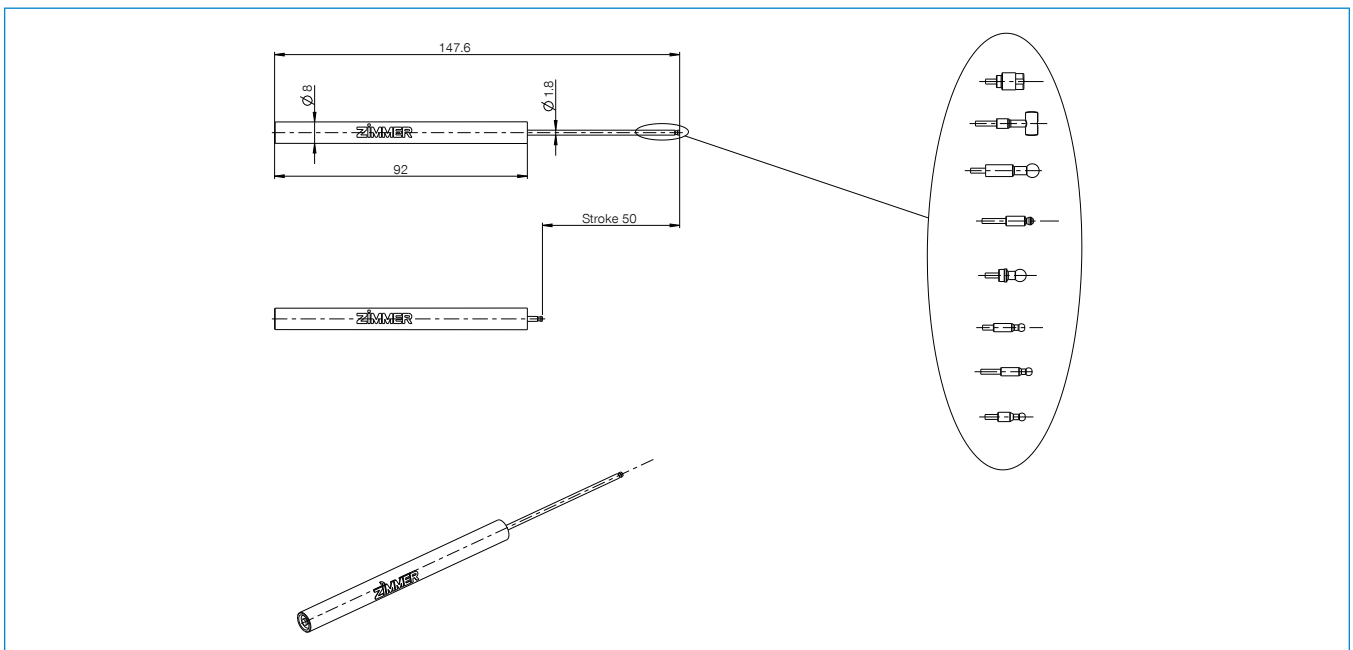
▶ APPLICATION AREAS

 Door	
 Sliding door	•
 Drawer	•
 Hinge	

▶ SERIES CHARACTERISTICS

Series	Stroke [mm]	Medium	Operating direction
Robusto	50.0	Fluid	Pressure dampers

▶ TECHNICAL DRAWING



► TECHNICAL DATA

Order no.	B045-08-002	F050-08-012	F050-08-054	F050-08-062
Technology	Defined Comfort	Defined Comfort	Defined Comfort	Defined Comfort
Damper characteristic curve	S-curve with free-run	Linear-constant	Linear-constant	Linear-constant with free-run
Damper force [N]	15	18	50	20
Damper tolerance [N]	+3/-3	+5/-5	+7/-7	+4/-4
Damper speed [mm/s]	50	12	50	50
Free-run	Yes	No	No	Yes
Free-run length [mm]	3.0	0.0	0.0	8.0
Damper spring return	No	Yes	Yes	Yes
Damper housing color	Gray RAL7016	Gray RAL7035	Blue PMS286C	Gray RAL7042
Damper cover color	Natural	Brown RAL8011	Natural	Natural
Damper Ø housing [mm]	8.0	8.0	8.0	8.0
Damper housing length [mm]	95.4	92.1	92.1	92.1
Damper Ø piston rod [mm]	1.8	1.8	1.8	1.8
Damper housing connection	Notches	Without connection	Without connection	Without connection
Damper piston rod connection	Ball head	No head	Bumper	Bumper
Application environment	Standard	Standard	Standard	Standard

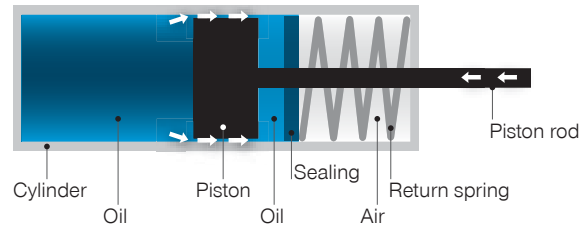
Order no.	F050-08-063	F050-08-217
Technology	Defined Comfort	Defined Comfort
Damper characteristic curve	Linear-constant with free-run	Linear-constant with free-run
Damper force [N]	40	35
Damper tolerance [N]	+7/-7	+5/-5
Damper speed [mm/s]	50	50
Free-run	Yes	Yes
Free-run length [mm]	8.0	8.0
Damper spring return	Yes	No
Damper housing color	Gray RAL7042	Gray RAL7016
Damper cover color	Natural	Natural
Damper Ø housing [mm]	8.0	8.0
Damper housing length [mm]	92.1	77.0
Damper Ø piston rod [mm]	1.8	1.8
Damper housing connection	Without connection	Without connection
Damper piston rod connection	Bumper	Ball head
Application environment	Standard	Standard

INDIVIDUAL DAMPERS

FLUID DAMPERS

PRINCIPLE OF FUNCTION

- ▶ In a closed housing a piston is moving back- and forward. A food-safe silicon-oil can flow in both directions through small channels. The viscosity of the oil, as well as the modification of the cross-section of the channels, leads to the friction needed to reduce the speed. The friction-heat will be channeled outside through the cylinder-wall.
- ▶ Highest energy-consumption on smallest cross section
- ▶ Different damping-characteristics possible



DAMPER WITH AND WITHOUT RESET-FUNCTION

Damper **without** reset-function needs a coupler onto the pistonrod is needed to be used within the fitting. The pistonrod do not extract by itself, it has to be extracted manually.

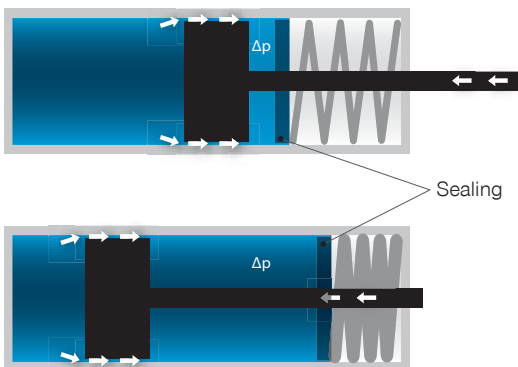


Damper **with** an integrated reset-function a Coupler is not needed onto the pistonrod within the fitting. The pistonrod will be extracted automatically.

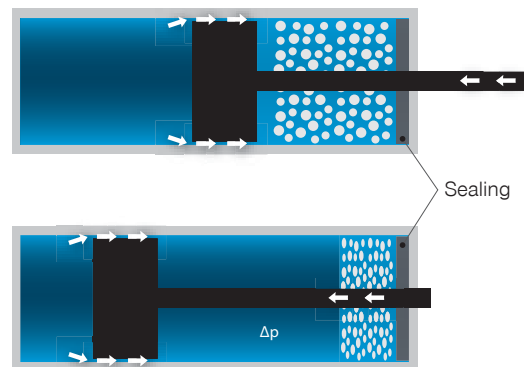


VOLUME-COMPENSATION

Volume-compensation by means of a spring in an air-filled chamber (ZIMMER-principle)



Volume-adjustment by using a sponge (competitors)



Δp = Pressure in cylinder higher than surrounding-pressure

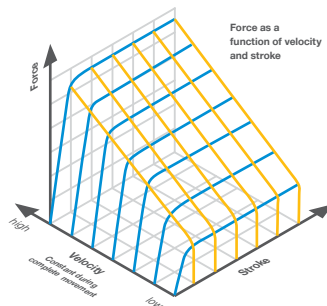
	Function	Leak-proof	Life-endurance
Cellular rubber	X	-	-
Volume-compensation	X	X	X

TYPES

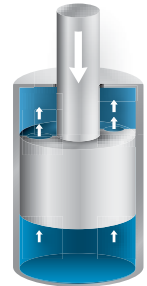
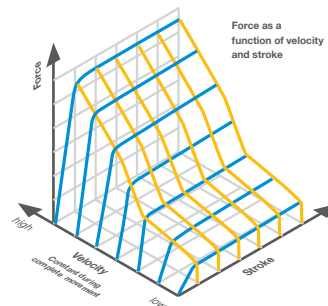
The nozzle let the oil flow constantly:

- ▶ Highest force on smallest space available
- ▶ Force can be modified through the cross-section of the nozzle
- ▶ No overload-protection

Classic defined



Classic smooth



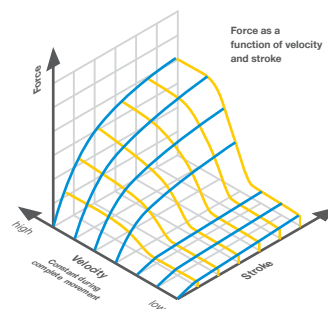
Oil is flowing around the piston. The housing is expanding at high pressure whereas through this gap the oil is flowing.

- ▶ Overload-protection
- ▶ Different graphs possible

Comfort defined



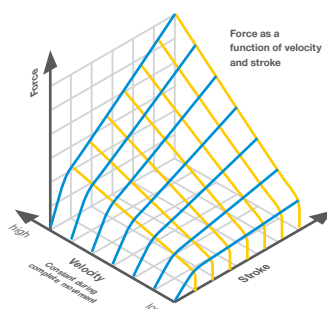
Comfort smooth



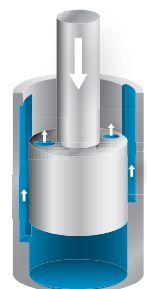
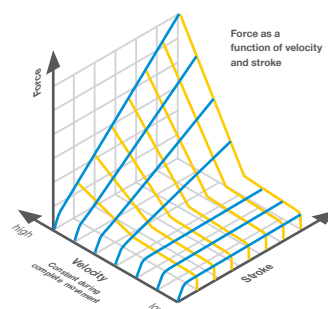
Through these two nozzles the oil can flow constantly. Channels in the housing enhances special cross-sections. Within this example the cross-section becomes smaller during retraction; thus the damping force becomes stronger.

- ▶ Various damper-characteristics possible
- ▶ Force can be modified by varying the cross-section and by changing the number of the channels

Versatile defined



Versatile smooth



defined: speed independent

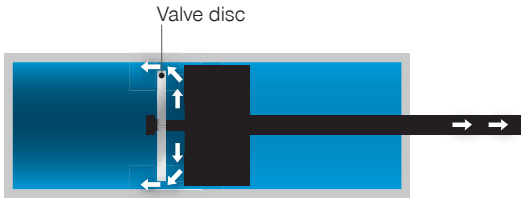
smooth: depending on speed, smooth reaction at low velocities, less opening time, constant closing picture, small opening force

INDIVIDUAL DAMPERS

FLUID DAMPERS

OPENING-MOVEMENT

Piston **defined**



Damper pulled out (release)



Damping

Piston **smooth**



Damper pulled out (release)



Damping

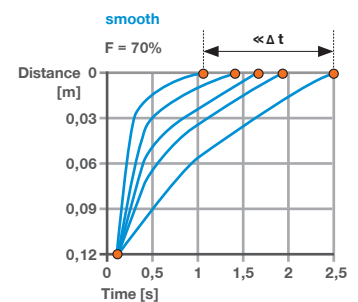
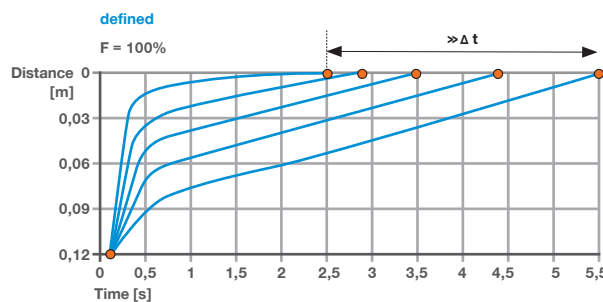


Valve disc as well as drillings lead to a minimized resistance at opening and the damping force needed during closing-movement.

COMPARASION DEFINED/SMOOTH IN SELF-CLOSING UNIT

▶ EXAMPLE CHARACTERIS- TIC CHIUSO 100

- ▶ Load: 70kg sliding door
- ▶ Chart shows the closing time from 0,1–0,5 m/s in different graphs
- ▶ Opening force is reduced about 30% in version: **smooth**

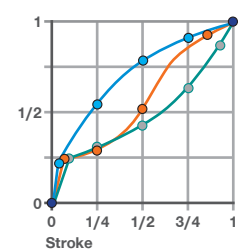
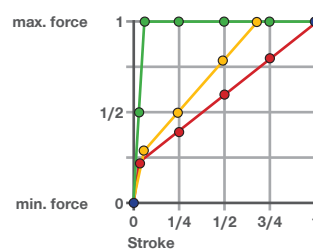


FLUID DAMPER CHARACTERISTIC WITH CONSTANT SPEED

Characteristic curves fluid damper

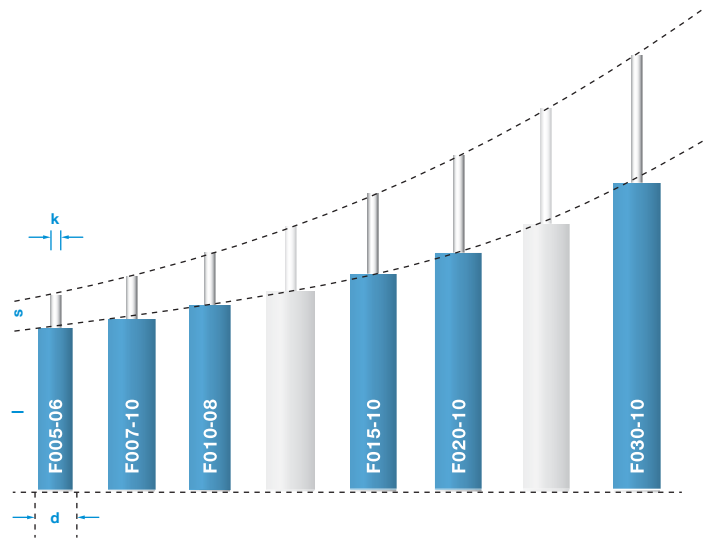
Damping force according to the stroke

- Linear rising
- Linear rising – constant
- Linear constant
- Inclining
- S-Line
- Declining



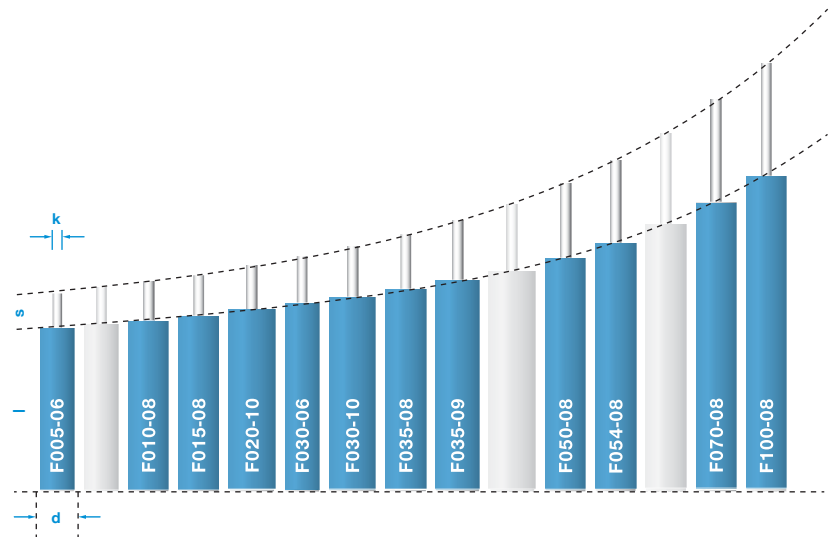
PRODUCT RANGE DAMPER CLASSIC

- ▶ Housing length (l): 42 mm bis 67 mm
- ▶ Housing diameter (d): 6 mm, 8 mm und 10 mm
- ▶ Stroke (s): 5 mm bis 30 mm
- ▶ Piston rod diameter (k): 2,3 mm



PRODUCT RANGE DAMPER COMFORT

- ▶ Housing length (l): 29,5 mm bis 151,6 mm
- ▶ Housing diameter (d): 6 mm, 8 mm und 10 mm
- ▶ Stroke (s): 10 mm bis 100 mm
- ▶ Piston rod diameter (k): 1,5 bis 2,3 mm



PRODUCT RANGE DAMPER VERSATILE

- ▶ Housing length (l): 42 mm bis 67 mm
- ▶ Housing diameter (d): 6 mm, 8 mm und 10 mm
- ▶ Stroke (s): 5 mm bis 30 mm
- ▶ Piston rod diameter (k): 2,3 mm

