FLUID DAMPERS
SERIES BELLINO

▶ PRODUCT SPECIFICATIONS

Narrow, compact, high-performance. With a stroke up to 10 mm, this compact damper can absorb an astonishing amount of force.
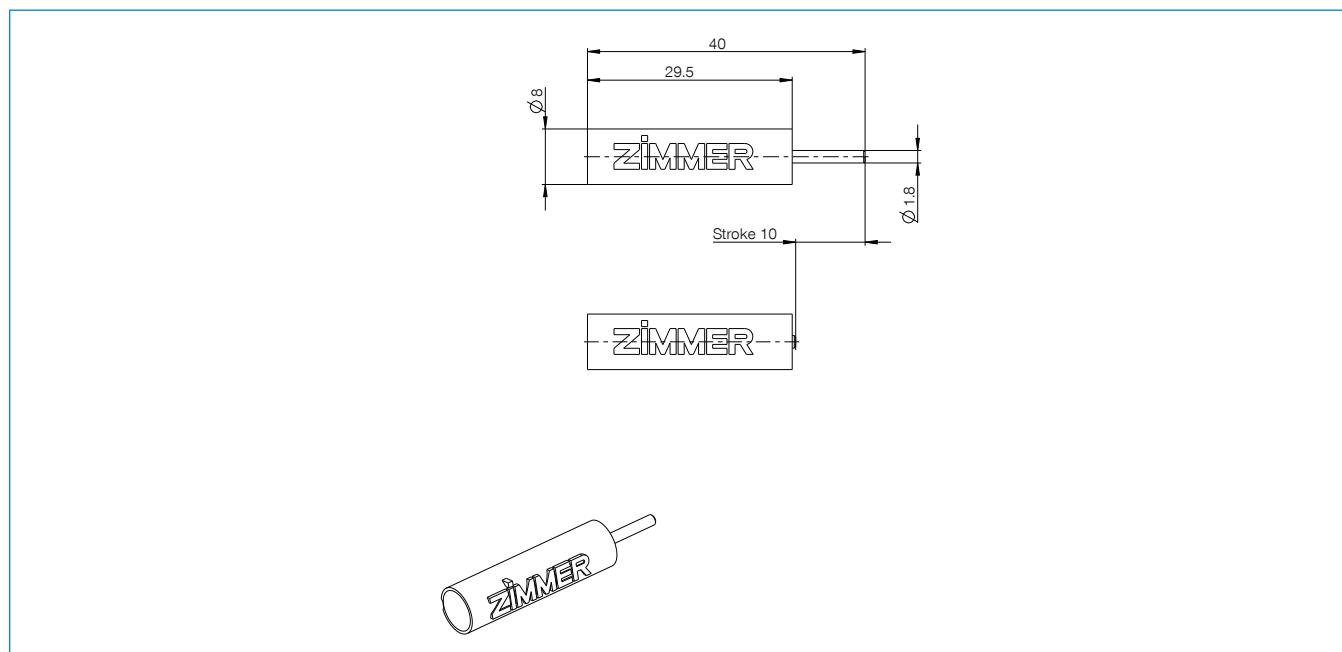
▶ APPLICATION AREAS

Door		•
Sliding door		
Drawer		
Hinge		•

▶ SERIES CHARACTERISTICS

Series	Stroke [mm]	Medium	Operating direction
Bellino	10.0	Fluid	Pressure dampers

▶ TECHNICAL DRAWING

► TECHNICAL DATA

Order no.	F010-08-011	F010-08-012
Technology	Defined Comfort	Defined Classic
Damper characteristic curve	Linear-constant	Linear-constant
Damper force [N]	100	200
Damper tolerance [N]	+20/-20	+25/-25
Damper speed [mm/s]	50	50
Free-run	No	No
Free-run length [mm]	0.0	0.0
Damper spring return	Yes	Yes
Damper housing color	Yellow PMS135C	Yellow PMS135C
Damper cover color	Orange RAL2012	Black RAL9005
Damper Ø housing [mm]	8.0	8.0
Damper housing length [mm]	29.5	29.5
Damper Ø piston rod [mm]	1.8	1.8
Damper housing connection	Without connection	Without connection
Damper piston rod connection	No head	No 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

Cylinder
Oil
Piston
Oil
Sealing
Air
Return spring
Piston rod

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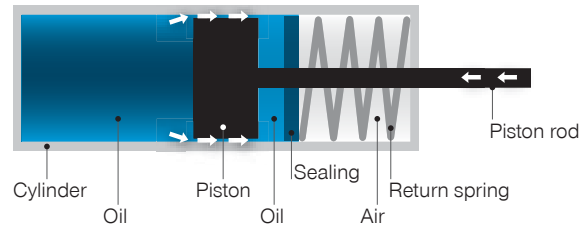
Damper **without** reset-function needs a coupler onto the pistonrod is needed to be used within the fitting. The pistonrod do not extract by itself, it has to be extracted manually.
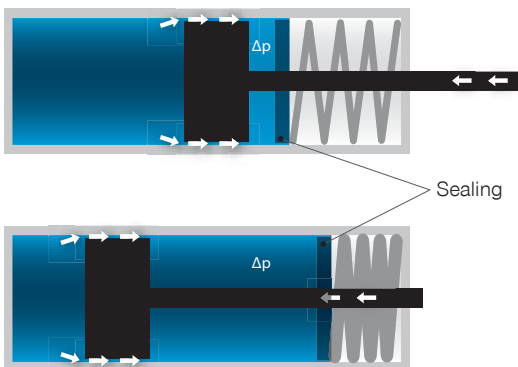

Damper **with** a integrated reset-function a Coupler is not needed onto the pistonrod within the fitting. The pistonrod will be extracted automatically.
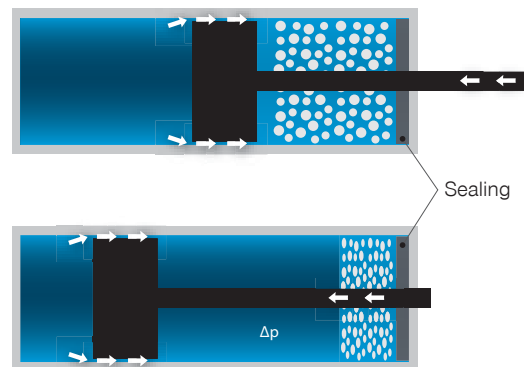

VOLUME-COMPENSATION

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

Sealing

Δp = Pressure in cylinder higher than surrounding-pressure

Volume-adjustment by using a sponge (competitors)

Sealing

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

TYPES

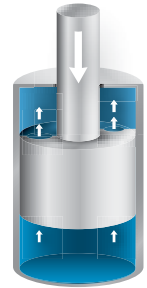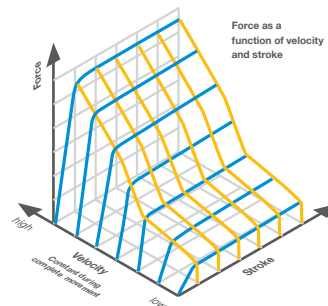The nozzle let the oil flow constantly:

▶ Highest force on smallest space available

▶ Force can be modified through the crosssection of the nozzle

▶ No overload-protection

Classic defined

Force as a function of velocity and stroke

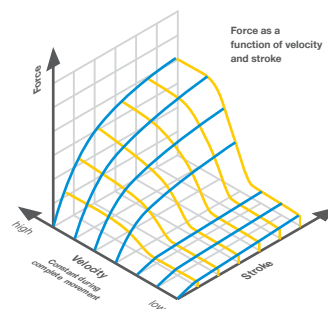**Classic** smooth

Force as a function of velocity and stroke
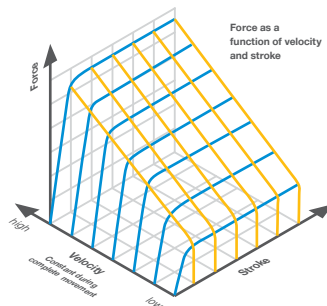
Oil is flowing around the piston. The housing is expanding at high pressure whereas through this gap the oil is flowing.

▶ Overload-protection

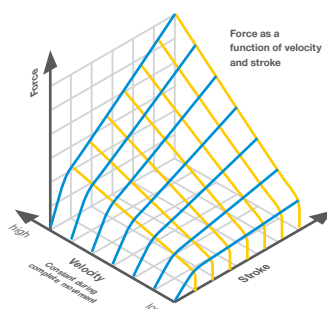▶ Different graphs possible

Comfort defined

Force as a function of velocity and stroke

**Comfort** smooth

Force as a function of velocity and stroke

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

Force as a function of velocity and stroke

Versatile smooth

Force as a function of velocity and stroke
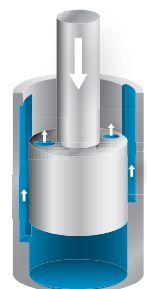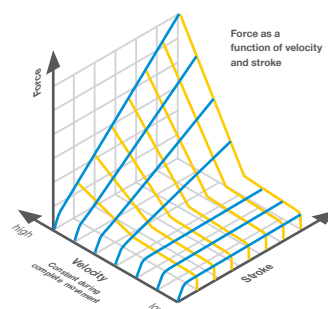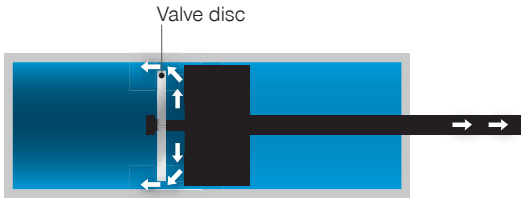
defined: speed independent

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

Valve disc

Damper pulled out (release)

Damping

Piston smooth

Damper pulled out (release)

Damping

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

COMPARSATION DEFINED/SMOOTH IN SELF-CLOSING UNIT

► **EXAMPLE CHARACTERISTIC 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
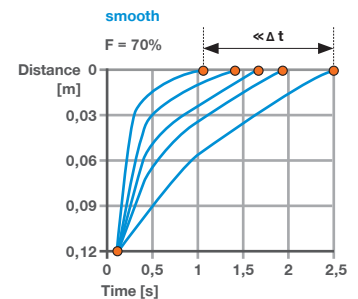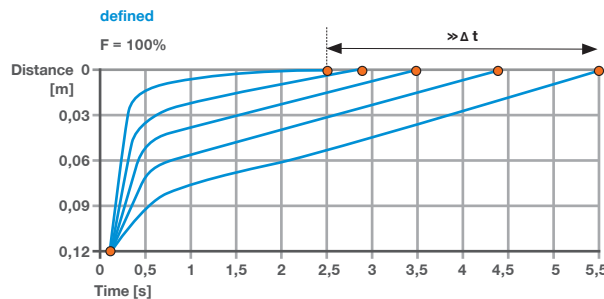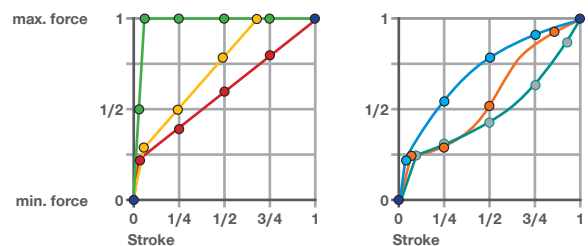
FLUID DAMPER CHARACTERISTIC WITH CONSTANT SPEED

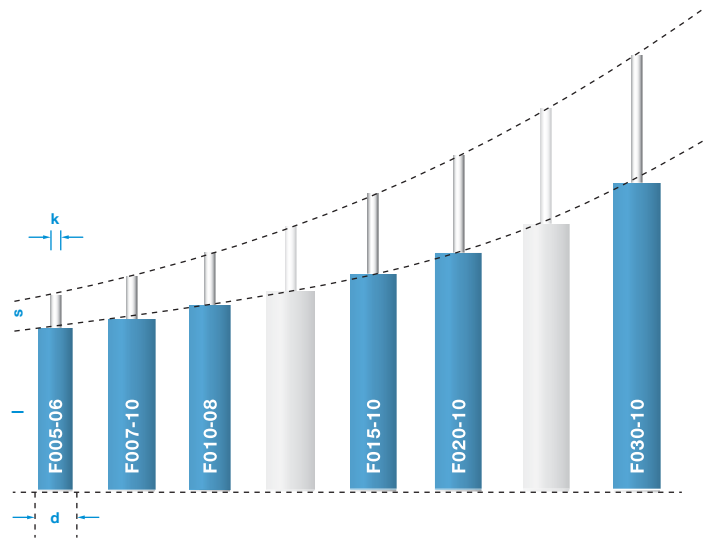**Characteristic curves fluid damper**
Damping force according to the stroke

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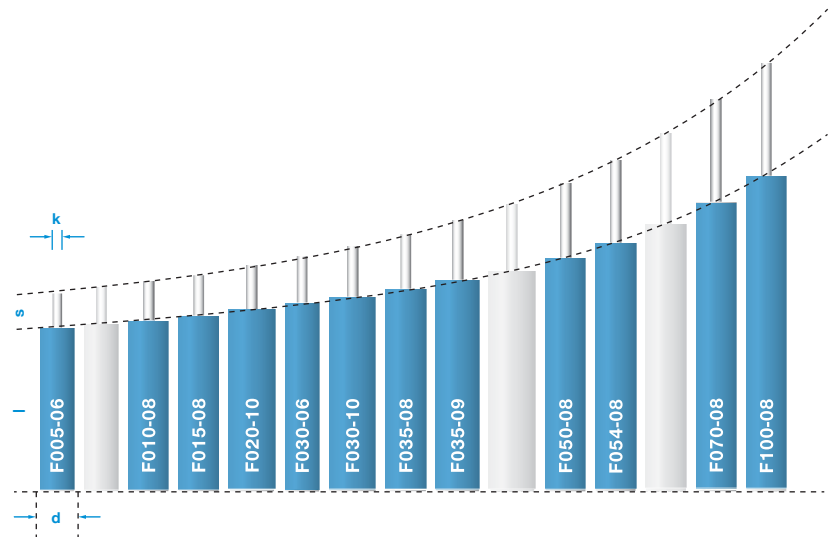
- Inclining
- S-Line
- Declining

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

F005-06 F007-10 F010-08 F015-10 F020-10 F030-10

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

F005-06 F010-08 F015-08 F020-10 F030-06 F030-10 F035-08 F035-09 F050-08 F054-08 F070-08 F100-08

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

F020-10