

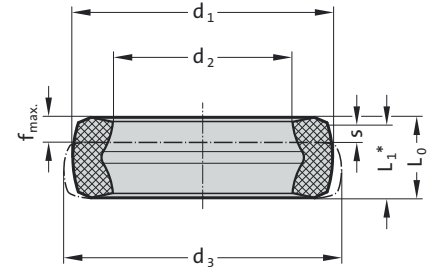
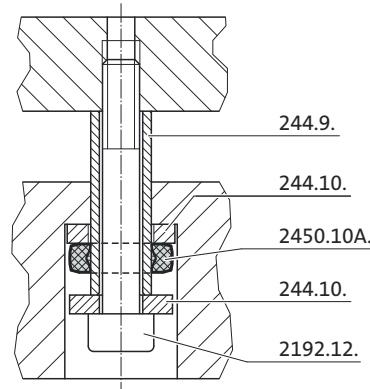


Damper, light-duty



Mounting example

2450.10A.



Description:

Dampers, light duty, made of co-polyester elastomer are found in the elevating units in progressive dies in the automotive and white goods industry. The increasing stresses on screws and bolts as well as noise emission are reduced by the light duty dampers.

Benefits:

- High absorption of force and energy
- Long service life and high level of operating safety
- Noise reduction
- High degree of effectiveness

Material:

Co-Polyester-Elastomer

Technical data:

Surroundings: Resistant to microbes, seawater, chemicals.

No absorption of water and no swelling.

Grease and oil resistant.

Approved temperature range: -40°C to +90°C (-40°F to +194°F)

Note:

Socket cap screw 2192.12. see Section C

Spacer tube 244.9. see Section F

Washer 244.10. see Section F

2450.10A. Damper, light-duty

Order No	d ₁	d ₂	d ₃	L ₀	L ₁ *	Stroke (s)	F _{max.} [N]	f _{max.}	W [Nm/stroke (s)]**	W _h [Nm/h]***	Socket cap screw
2450.10A.0236.0163.073	23.6	16.3	25.3	7.3	6.6	1.9	3000	2	3	7500	M10

*Dimension L₁ is the slump which must be taken into account for the design.

**W = Total energy per stroke

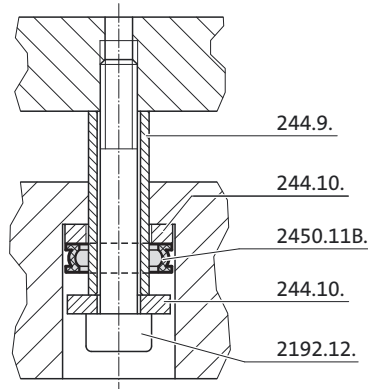
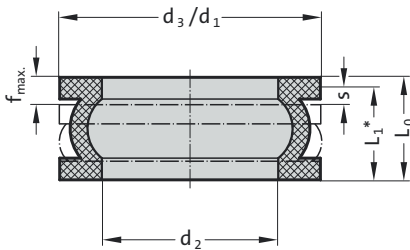
***W_h = Total energy per hour



Damper, light-duty

2450.11B.

Mounting example



Description:

Dampers, light duty, made of co-polyester elastomer are found in the elevating units in progressive dies in the automotive and white goods industry. The increasing stresses on screws and bolts as well as noise emission are reduced by the light duty dampers. The two-ply version of the flanged damper can also be used depending on the force or stroke without the use of an additional distance washer.

Benefits:

- High absorption of force and energy
- Long service life and high level of operating safety
- Noise reduction
- High degree of effectiveness

Material:

Co-Polyester-Elastomer

Technical data:

Surroundings: Resistant to microbes, seawater, chemicals.
 No absorption of water and no swelling.
 Grease and oil resistant.
 Approved temperature range: -40°C to +90°C (-40°F to +194°F)

Note:

Socket cap screw 2192.12. see Section C
 Spacer tube 244.9. see Section F
 Washer 244.10. see Section F

2450.11B. Damper, light-duty

Order No	d ₁	d ₂	d ₃	L ₀	L ₁ *	Stroke (s)	F _{max.} [N]	f _{max.}	W [Nm/stroke (s)]**	W _h [Nm/h]***	Socket cap screw
2450.11B.0300.0203.118	30	20.3	30.2	11.8	10.7	2.7	5000	2.9	8.6	20000	M12

*Dimension L₁ is the slump which must be taken into account for the design.

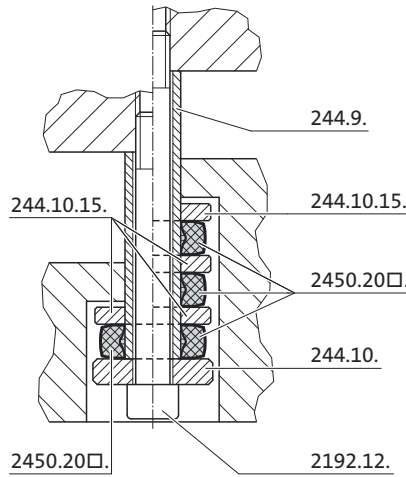
**W = Total energy per stroke

***W_h = Total energy per hour

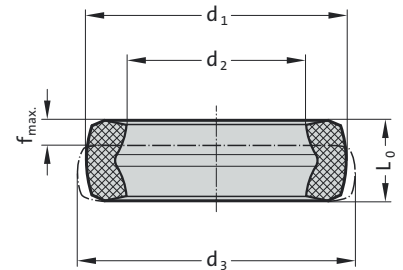
Damper, heavy-duty



Mounting example



2450.20□.



Description:

The co-polyester elastomer dampers, heavy-duty, are used as holddown dampers in the automotive and white goods industry. Increasing return stroke speeds and the related stresses on screws and bolts in moveable, suspended tool parts are absorbed by the hold-down dampers. Reduced noise emission is a further additional positive sideeffect.

Benefits:

- High absorption of force and energy
- Slight settlement
- Energy absorption between 5 Nm and 269 Nm
- Long service life and high level of operating safety
- Noise reduction
- High degree of effectiveness

Material:

Co-Polyester-Elastomer

Technical data:

Surroundings: Resistant to microbes, seawater, chemicals.

No absorption of water and no swelling.

Grease and oil resistant.

Approved temperature range: -40°C to +90°C (-40°F to +194°F)

Note:

Socket cap screw 2192.12. see Section C

Spacer tube 244.9. see Section F

Washer 244.10. see Section F

2450.20□. Damper, heavy-duty

Order No	d ₁	d ₂	d ₃	L ₀	F _{max} [N] (static < 0,1)	f _{max}	W [Nm/stroke (s)]*	Socket cap screw
2450.20A.0264.0163.078	26.4	16.3	28.4	7.8	5500	2	5	M10
2450.20B.0321.0203.108	32.1	20.3	35.1	10.8	9000	4.4	14.2	M12
2450.20B.0458.0253.170	45.8	25.3	49.8	17	20000	4.9	44.6	M16
2450.20A.0546.0303.213	54.6	30.3	61.8	21.3	30000	7.6	81.9	M20
2450.20A.0618.0363.215	61.8	36.3	69.9	21.5	46000	8.2	126.5	M24
2450.20A.0785.0423.294	78.5	42.3	89	29.4	75000	11.4	269	M30

*Total energy per stroke

Damper, heavy-duty

Selection table multiple layering

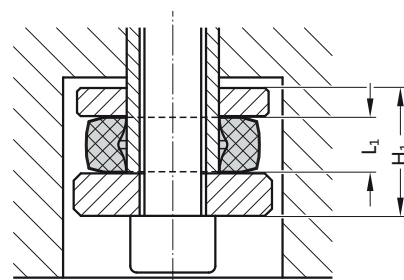
Simple layering

Order No.	L_1^*	$F_{1\max}$ [N] (dynamic > 0,1)	W_1 [Nm/stroke (s)]**	W_{h1} [Nm/h]***	H_1 total height	socket cap screw
2450.20A.0264.0163.078	7.1	4100	3.5	9000	17.1	M10
2450.20B.0321.0203.108	9.8	6600	12	30000	23.8	M12
2450.20B.0458.0253.170	15.3	14500	19	45000	31.3	M16
2450.20A.0546.0303.213	19	22500	47	67000	39	M20
2450.20A.0618.0363.215	19.5	37500	76	114000	39.5	M24
2450.20A.0785.0423.294	27	46000	143	152000	50	M30

* Dimension „ L_1 “ is the slump which must be taken into account for the design.

** Total energy per stroke

*** Total energy per hour



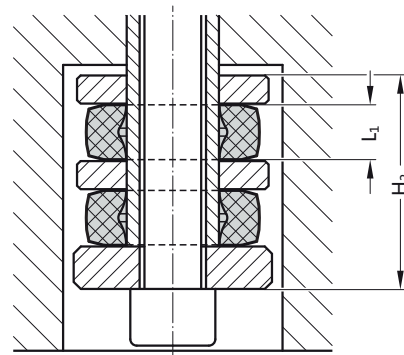
Double layering

Order No.	L_1^*	$F_{2\max}$ [N] (dynamic > 0,1)	W_2 [Nm/stroke (s)]**	W_{h2} [Nm/h]***	H_2 total height	socket cap screw
2450.20A.0546.0303.213	19	18000	78	107000	66	M20
2450.20A.0618.0363.215	19.5	35000	148	174000	67	M24
2450.20A.0785.0423.294	27	39000	233	272000	85	M30

* Dimension „ L_1 “ is the slump which must be taken into account for the design.

** Total energy per stroke

*** Total energy per hour



Threefold layering

Order No.	L_1^*	$F_{3\max}$ [N] (dynamic > 0,1)	W_3 [Nm/stroke (s)]**	W_{h3} [Nm/h]***	H_3 total height	socket cap screw
2450.20A.0546.0303.213	19	16000	100	127000	93	M20
2450.20A.0618.0363.215	19.5	28000	176	194000	94.5	M24
2450.20A.0785.0423.294	27	29000	255	281000	120	M30

* Dimension „ L_1 “ is the slump which must be taken into account for the design.

** Total energy per stroke

*** Total energy per hour

