

P+S YOUR PARTNER FOR **LIFT-** **COMPONENTS**

*Lift buffers - Guide shoes & inserts - Rollers & roller guides -
Cable spring buffers - Anti-vibration - Special applications*





P+S Polyurethan-Elastomere GmbH & Co. KG

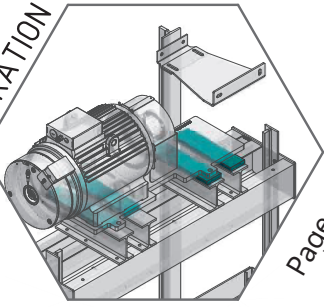
Since 1972, the **dynamic and resilient** construction elements made of polyurethane elastomers have been convincing customers in the **elevator industry**.

Both **compact and foamed** elastomers are characterized by **outstanding technical properties**. Customers around the world rely on the environmentally friendly elastomers by **P+S**.

Creativity, design competence, a **strong knowledge** of the industry, modern polyurethane materials as well as a high degree of **adherence to leadtimes** and **service orientation**, are essential components of our corporate culture.

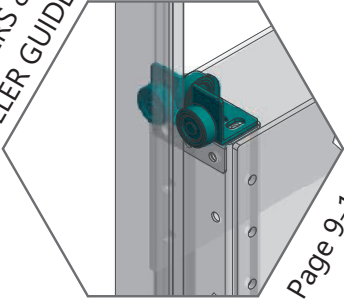


ANTI-VIBRATION



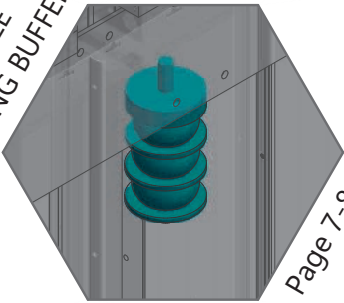
Page 12

ROLLERS & ROLLER GUIDES



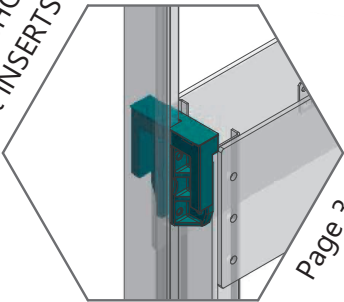
Page 9-11

CABLE SPRING BUFFERS



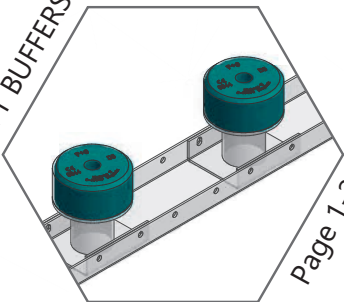
Page 7-8

GUIDE SHOES & INSERTS

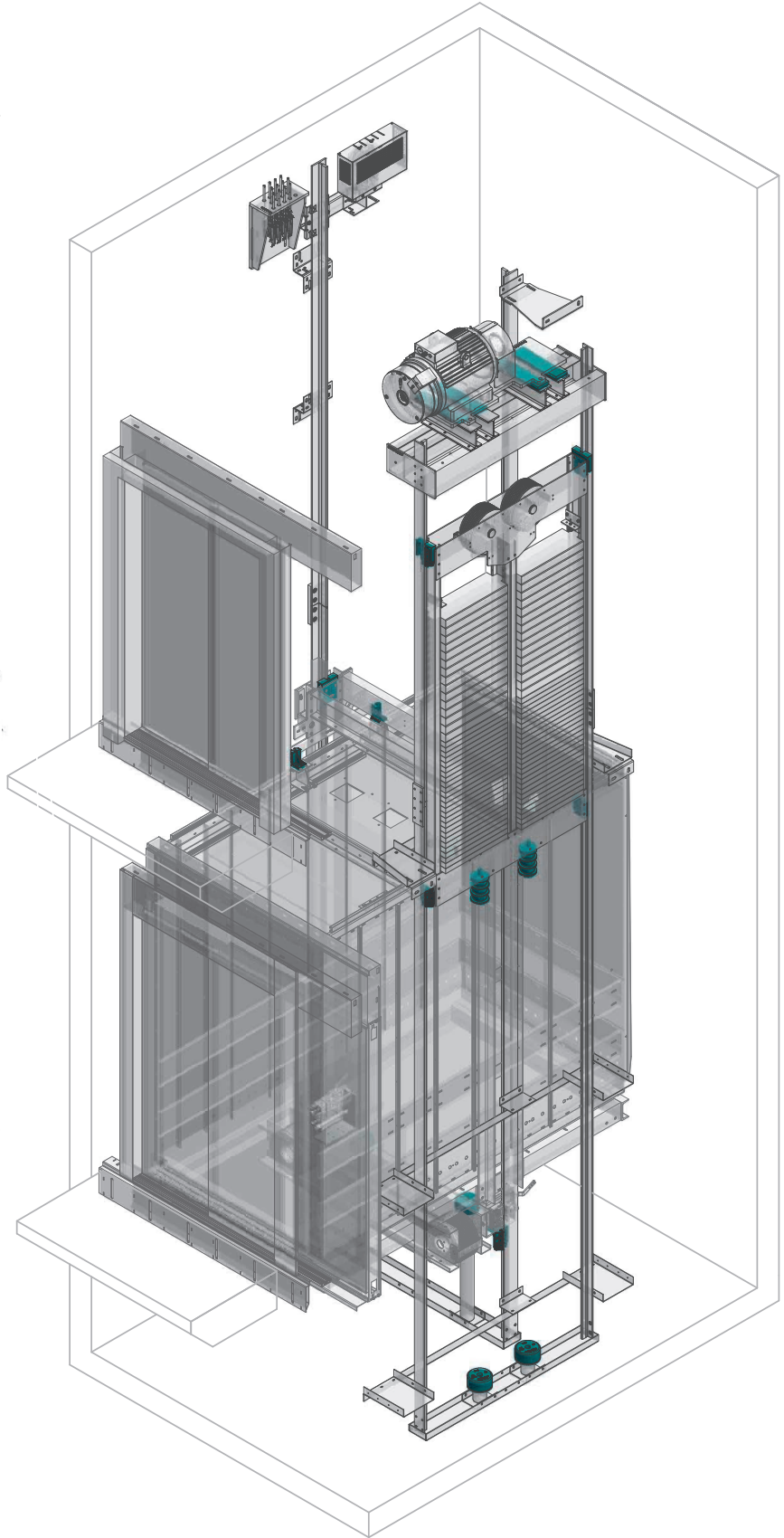


Page 3-6

LIFT BUFFERS



Page 1-2



Lift buffers



high loadrange | hydrolysis resistant | maintenance free

Our current generation of maintenance-free safety buffers made of **Diepocell® BM** was optimally adjusted according to the **EU standard EN 81 -20/ -50**.

They impress by a **strong damping**, as well as by high energy absorption with large load ranges.

P+S buffers have always been used in the elevator and crane industry. The **D-series** blends seamlessly into this reliable product-family of buffer elements.

Even the use in areas with increased humidity, as well as **tropical areas, is not a problem** for our D-series buffers.

The EC-type examination certificates of **P+S liftbuffers** made of **Diepocell® BM** was performed acc. to **guideline 2014/33/EU**. The buffers are in general marked with **QR-code** and do fulfill all requirements in regard of **traceability**.

Notified Body: TÜV NORD CERT GMBH, Langemarckstraße 20; DE-45141 Essen

Applicable in elevators acc. to:

- EN 81 -1/ -2:1998+A3:2009
- EN 81 -20/ -50 : 2014

Certificates / user manual:

info@pus-polyurethan.de

Choosing the right lift buffer



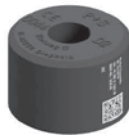
Choose your loadrange



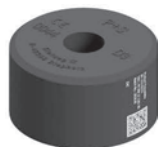
D0



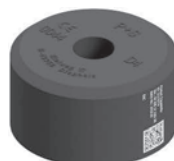
D1



D2



D3



D4



D5



D6

Dimension in mm (diameter x height)

80x80

100x80

100x80

125x80

140x80

165x80

220x80

TÜV ID-Number

44 208 12
1262 03

44 208 12
1262 05

44 208 12
1262 06

44 208 12
1262 07

44 208 12
1262 08

44 208 12
1262 09

44 208 12
1262 10

Nominal speed v 0,63 (m/s)

m_{min} (kg) - m_{max} (kg)

150

200

250

500

320

600

950

1200

1500

3200

5200

4000

7500

9400

Nominal speed v 1,00 (m/s)

m_{min} (kg) - m_{max} (kg)

180

220

330

600

450

650

1500

600

700

1250

1850

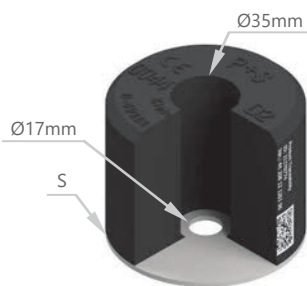
1500

2700

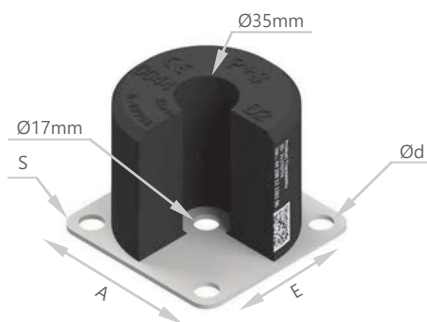
5500



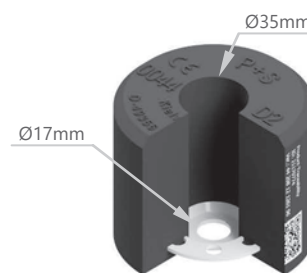
Choose your fixing-type



TYPE A



TYPE C



TYPE D

| | S (mm) | Item-No.: | A (mm) | E (mm) | d (mm) | S (mm) | Item-No.: | Item.-No.: |
|----|--------|-----------|--------|--------|--------|--------|-----------|------------|
| D0 | 4 | 211800074 | 105 | 80 | 12 | 4 | 211800174 | 211800774 |
| D1 | 4 | 211801074 | 130 | 100 | 14 | 6 | 211801174 | 211801774 |
| D2 | 4 | 211802074 | 130 | 100 | 14 | 6 | 211802174 | 211802774 |
| D3 | 4 | 211803074 | 155 | 125 | 18 | 6 | 211803174 | 211803774 |
| D4 | 4 | 211804074 | 180 | 140 | 18 | 6 | 211804174 | 211804774 |
| D5 | 6 | 211805074 | 205 | 165 | 18 | 6 | 211805174 | 211805774 |
| D6 | 6 | 211806074 | 260 | 220 | 18 | 6 | 211806174 | 211806774 |

Guide shoes & inserts



light-weight | damping-effect | universal

Our wide range of **components for elevator construction** includes a range of **guiding components**.

P+S guide shoes made of **modern plastic systems** or **high-quality aluminium alloys** have a high load-bearing capacity and good wear resistance. Guide shoes & inserts are available for all typical guide rail widths.

Our **inserts convince** by a **good damping** effect (PU), good sliding behavior (PA), very good damping and sliding effect (DT), **self-lubricating** (DT-GF) and by their hardness and thus a **high abrasion** resistance (PE and PEC).

The range is completed by **suitable oilers and oil collectors**, which are also characterized by their design, a **stable construction**, as well as a **universal usability** and the ease of assembly.

foldable insert

- high wear resistance
- very good damping behavior
- 6 different material types



oilers

- universal usability
- easy to install

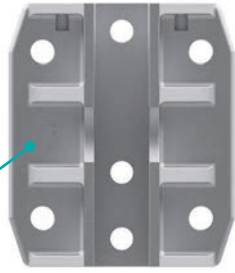
guide shoes

- excellent material quality
- high break loads
- aluminium alloy or special plastics

Overview of **guide shoes**

Aluminium

- high material quality
- high breaking-loads
- precise manufactured
- sharp tolerances

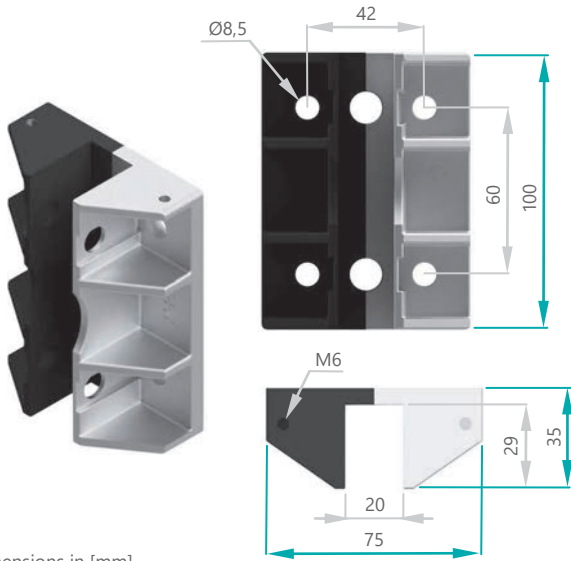


Plastic

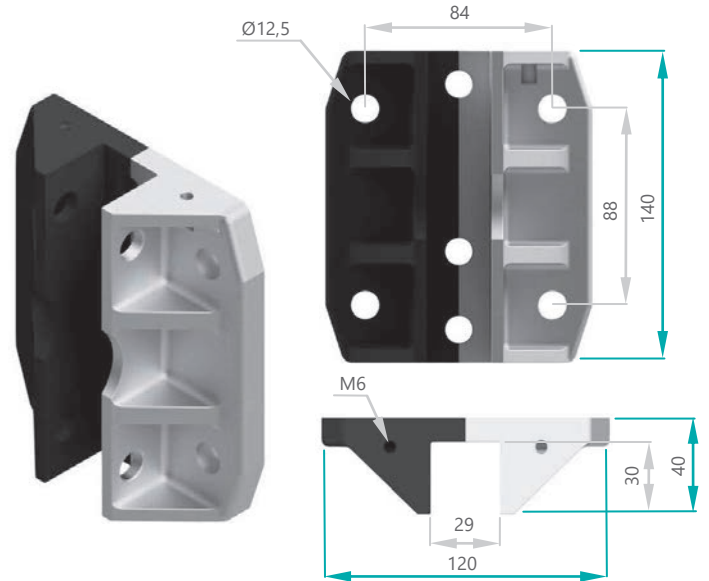
- lightweight
- precision component
- 100% recyclable
- convincing material combination



HSMK100 | Alu. Item-No.: 780300008 | Plastic Item.-Nr.: 780300108

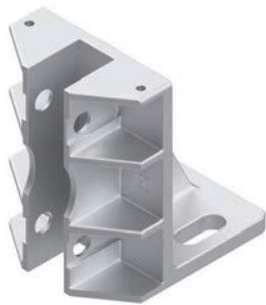


HSM140 | Alu. Item-No.: 780300002 | Plastic Item-No.: 780300102

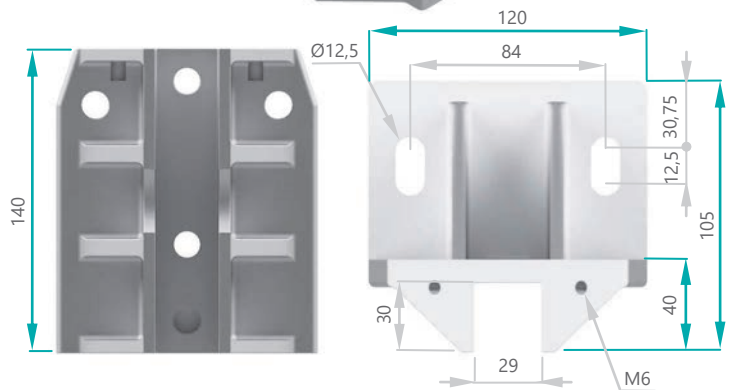
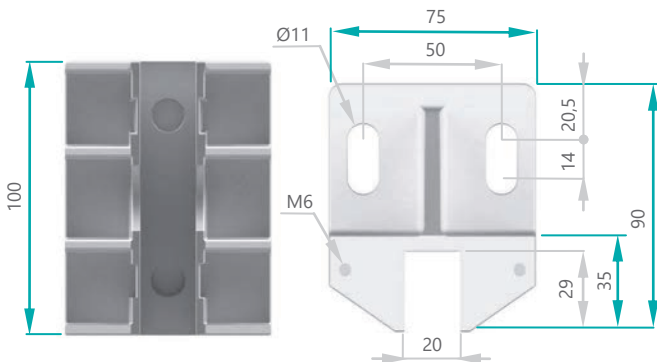
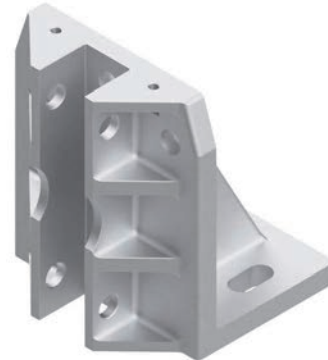


* All dimensions in [mm]

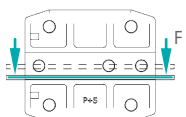
WSMK100 | Alu. Item-No.: 780300001



WSM140 | Alu. Item-No.: 780300003



* All dimensions in [mm]



Breaking -load

HSMK100 Aluminium = **30kN**

HSMK100 Plastic = **15kN**

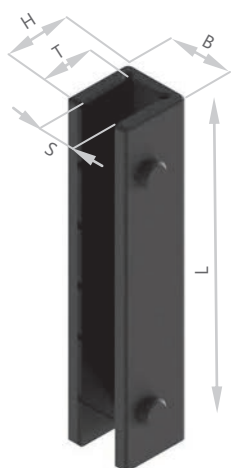
WSMK100 Aluminium = **20kN**

HSM140 Aluminium = **80kN**

HSM140 Plastic = **25kN**

WSMK140 Aluminium = **40kN**

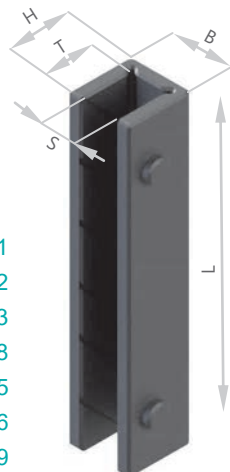
Overview of inserts



| Dimensions (mm) | | | | | Item-No. |
|-----------------|------|----|------|----|-----------|
| L | S | H | T | B | |
| 100 | 5,5 | 30 | 25 | 20 | 780311001 |
| 100 | 9,5 | 30 | 25 | 20 | 780311002 |
| 100 | 10,5 | 30 | 25 | 20 | 780311003 |
| 140 | 8,5 | 30 | 23,5 | 29 | 780311008 |
| 140 | 9,5 | 30 | 23,5 | 29 | 780311005 |
| 140 | 10,5 | 30 | 23,5 | 29 | 780311006 |
| 140 | 16,5 | 30 | 23,5 | 29 | 780311009 |

Material:
Diepotex (DT)

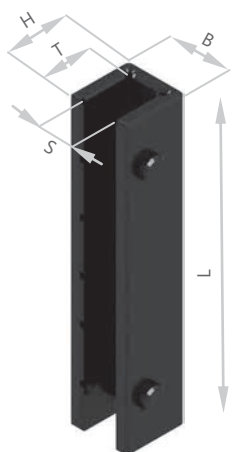
Properties:
very good sliding-effect |
exceptional damping



| Dimensions (mm) | | | | | Item-No. |
|-----------------|------|----|------|----|-----------|
| L | S | H | T | B | |
| 100 | 5,5 | 30 | 25 | 20 | 780311031 |
| 100 | 9,5 | 30 | 25 | 20 | 780311032 |
| 100 | 10,5 | 30 | 25 | 20 | 780311033 |
| 140 | 8,5 | 30 | 23,5 | 29 | 780311038 |
| 140 | 9,5 | 30 | 23,5 | 29 | 780311035 |
| 140 | 10,5 | 30 | 23,5 | 29 | 780311036 |
| 140 | 16,5 | 30 | 23,5 | 29 | 780311039 |

Material:
Diepotex +
graphite (DT-GF)

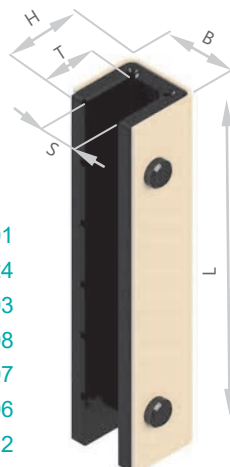
Properties:
similar to „DT“ |
+ self-lubricating



| Dimensions (mm) | | | | | Item-No. |
|-----------------|------|----|------|----|-----------|
| L | S | H | T | B | |
| 100 | 5,5 | 30 | 25 | 20 | 780309001 |
| 100 | 9,5 | 30 | 25 | 20 | 780309024 |
| 100 | 10,5 | 30 | 25 | 20 | 780309003 |
| 140 | 8,5 | 30 | 23,5 | 29 | 780309008 |
| 140 | 9,5 | 30 | 23,5 | 29 | 780309007 |
| 140 | 10,5 | 30 | 23,5 | 29 | 780309006 |
| 140 | 16,5 | 30 | 23,5 | 29 | 780309012 |

Material:
Polyethylene (PE)

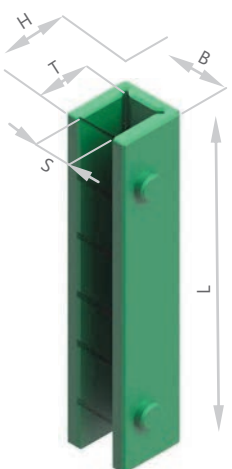
Properties:
excellent sliding properties |
wear-resistant



| Dimensions (mm) | | | | | Item-No. |
|-----------------|------|----|------|----|-----------|
| L | S | H | T | B | |
| 100 | 5,5 | 30 | 25 | 20 | 780310005 |
| 100 | 9,5 | 30 | 25 | 20 | 780310002 |
| 100 | 10,5 | 30 | 25 | 20 | 780310003 |
| 140 | 8,5 | 30 | 23,5 | 29 | 780310006 |
| 140 | 9,5 | 30 | 23,5 | 29 | 780310007 |
| 140 | 10,5 | 30 | 23,5 | 29 | 780310008 |
| 140 | 16,5 | 30 | 23,5 | 29 | 780310012 |

Material:
Polyethylene +
cellular layer (PEC)

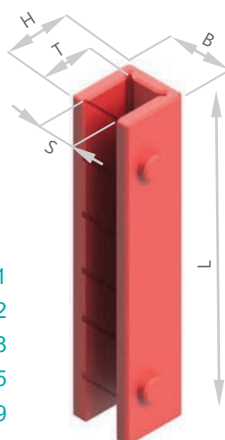
Properties:
similar to „PE“ | + damping-effect
due to the cellular layer



| Dimensions (mm) | | | | | Item-No. |
|-----------------|------|----|------|----|-----------|
| L | S | H | T | B | |
| 100 | 5,5 | 30 | 25 | 20 | 780307001 |
| 100 | 9,5 | 30 | 25 | 20 | 780307002 |
| 140 | 8,5 | 30 | 23,5 | 29 | 780307018 |
| 140 | 9,5 | 30 | 23,5 | 29 | 780307005 |
| 140 | 16,5 | 30 | 23,5 | 29 | 780307009 |

Material:
Polyamide (PA)

Properties:
good sliding-effect |
wear-resistant



| Dimensions (mm) | | | | | Item-No. |
|-----------------|------|----|------|----|-----------|
| L | S | H | T | B | |
| 100 | 5,5 | 30 | 25 | 20 | 780308001 |
| 100 | 9,5 | 30 | 25 | 20 | 780308002 |
| 100 | 10,5 | 30 | 25 | 20 | 780308003 |
| 140 | 8,5 | 30 | 23,5 | 29 | 780308018 |
| 140 | 9,5 | 30 | 23,5 | 29 | 780308005 |
| 140 | 10,5 | 30 | 23,5 | 29 | 780308012 |
| 140 | 16,5 | 30 | 23,5 | 29 | 780308009 |

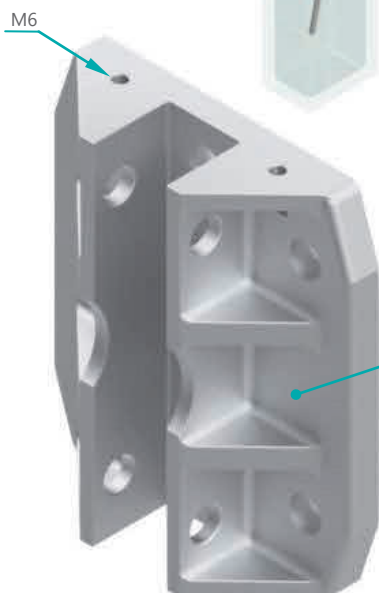
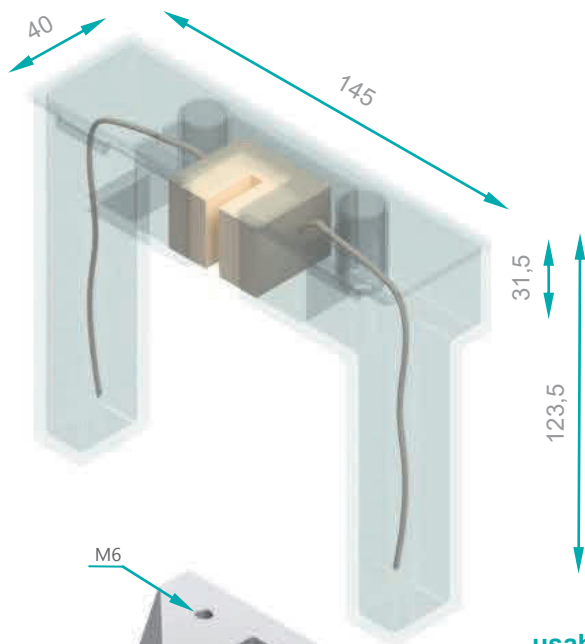
Material:
Polyurethane
(PU)

Properties:
good damping-effect | high
elasticity

Further **dimensions** are available upon request for all **mentioned qualities**.

Overview of **oilers & oil-collectors**

Oiler 140 | Item-No.: 780305000



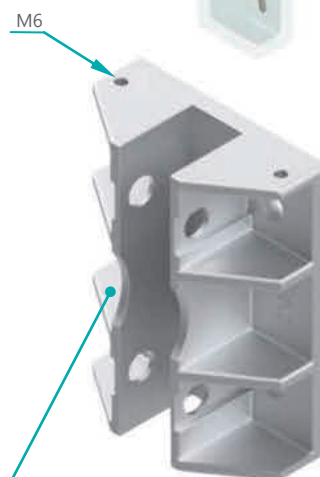
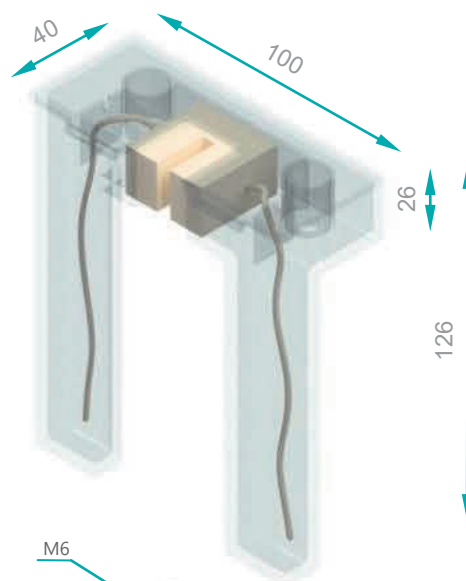
usable for:

- HSM140 (Alu)
- HSM140 (Plastic)
- WSM140 (Alu)
- HSMK100 (Alu)
- HSMK100 (Plastic)
- WSMK100 (Alu)

usable for:

- HSMK100 (Alu)
- HSMK100 (Plastic)
- WSMK100 (Alu)

Oiler 100 | Item-No.: 780305001



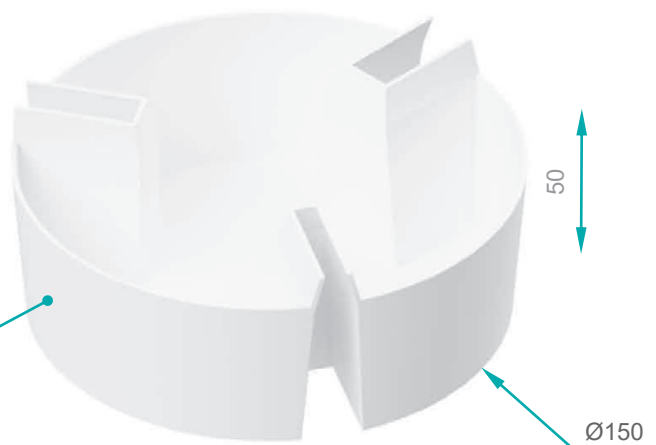
* All dimensions in [mm]

P+S oilers are reverse-compatible to all common manufacturers.

Oil-collector | Item-No.: 780306002

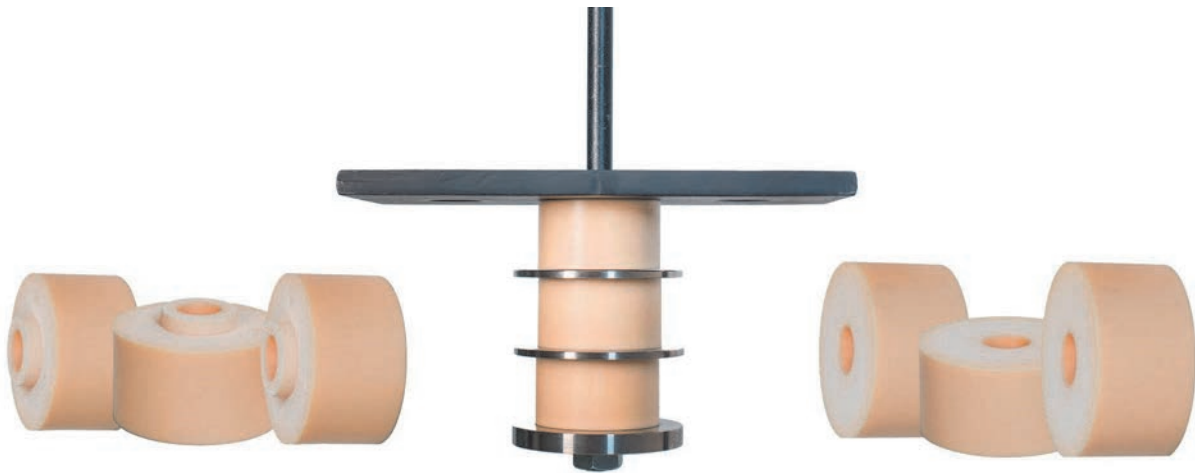
P+S oil-collector:

- universal usability for rails from 5 - 16 mm
- strong construction
- high filling volume
- easy & clean handling



* All dimensions in [mm]

Cable spring buffers



large deflection | good damping | adjustable

The **cable spring buffers** made of **Vulkocell®** are indispensable in the lift industry. Due to their **very good technical properties** they are used within lots of applications in the cabin as well as the counterweight. These properties are a **large deflection at a low construction** height, a minimum transversal strain due to a **high volume compressibility** and a **good damping behaviour**.

Deflection can be adjusted by using a different number of buffer elements (1-3 buffers with intermediate layers). The spring elements are **very easy to install** and have a **good resistance** to mineral oils and greases.

Recommendation for use:

When **installing several buffer elements** on top of each other, intermediate steel plates should be used. These influence a **uniform deformation** of the spring elements in a **positive way**. We recommend plates **whose diameter is about 40% higher** than the nominal diameter of the spring element.

We offer suitable steel plates for the buffer elements upon request.

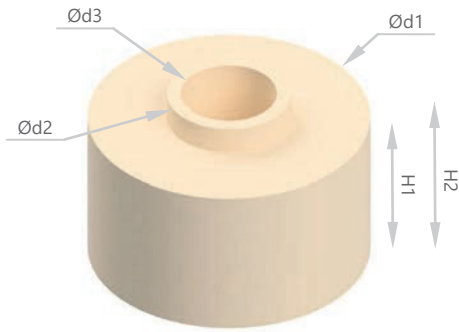
In case **several cable spring buffers shall be installed** side by side, it has to be ensured to have a **sufficient distance** between the buffers, in order to ensure free deformation.

The spring elements can be installed with a **defined preload**. These can be found in the **table shown next page**.

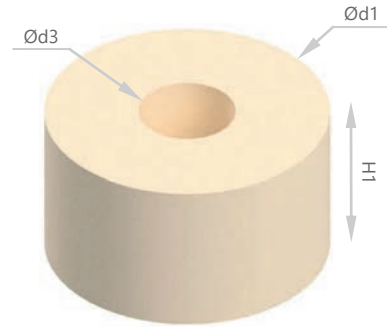
The permanent **maximum dynamic deflection should not exceed about 65%** of the nominal height. Overload forced to the spring elements can lead to a differing spring characteristic and negatively affects the lifetime.

Therefore, a **visual inspection** of the components within the general maintenance intervals of the elevator system is **recommended**.

Overview of cable spring buffers



TYPE **A**

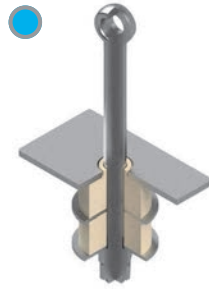


TYPE **B**

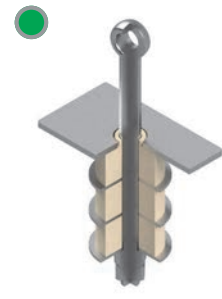
| d1 (mm) | d2 (mm) | d3 (mm) | H1 (mm) | H2 (mm) | Item-No.: | d1 (mm) | d3 (mm) | H1 (mm) | Item-No.: |
|---------|---------|---------|---------|---------|-----------|---------|---------|---------|-----------|
| 40 | 27 | 17 | 17 | 20 | 288037058 | 40 | 17 | 17 | 288037158 |
| 50 | 22 | 13 | 28 | 33 | 288029058 | 50 | 13 | 28 | 288030058 |
| 50 | 22 | 17 | 28 | 33 | 288031058 | 50 | 17 | 28 | 288032058 |
| 55 | 27 | 21 | 27 | 30 | 288038058 | 55 | 21 | 27 | 288038158 |
| 65 | 27 | 21 | 28 | 33 | 288033058 | 65 | 21 | 28 | 288034058 |
| 80 | 27 | 25 | 28 | 33 | 288035058 | 80 | 25 | 28 | 288036058 |



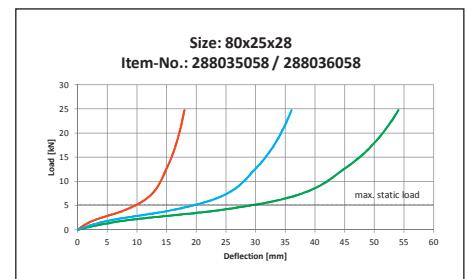
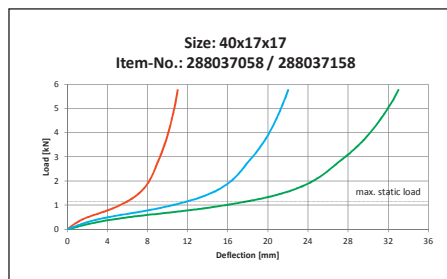
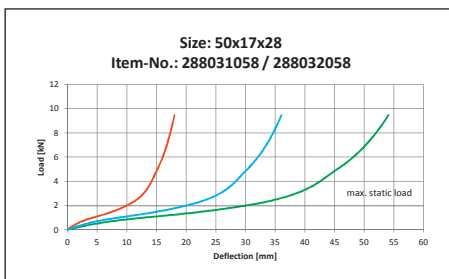
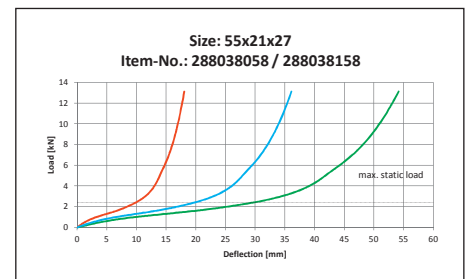
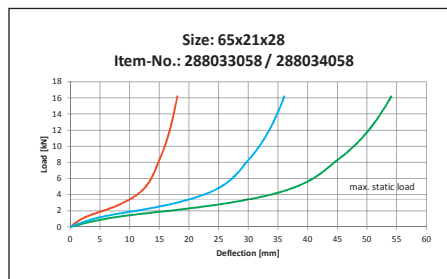
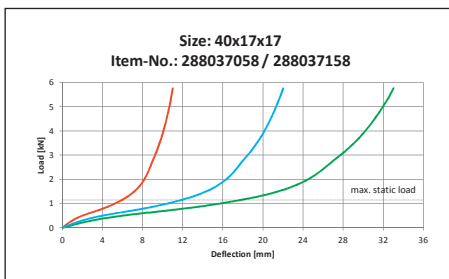
VERSION **1**
Type A



VERSION **2**
Type A + Type B



VERSION **3**
Type A + Type B + Type B



Rollers & roller guides

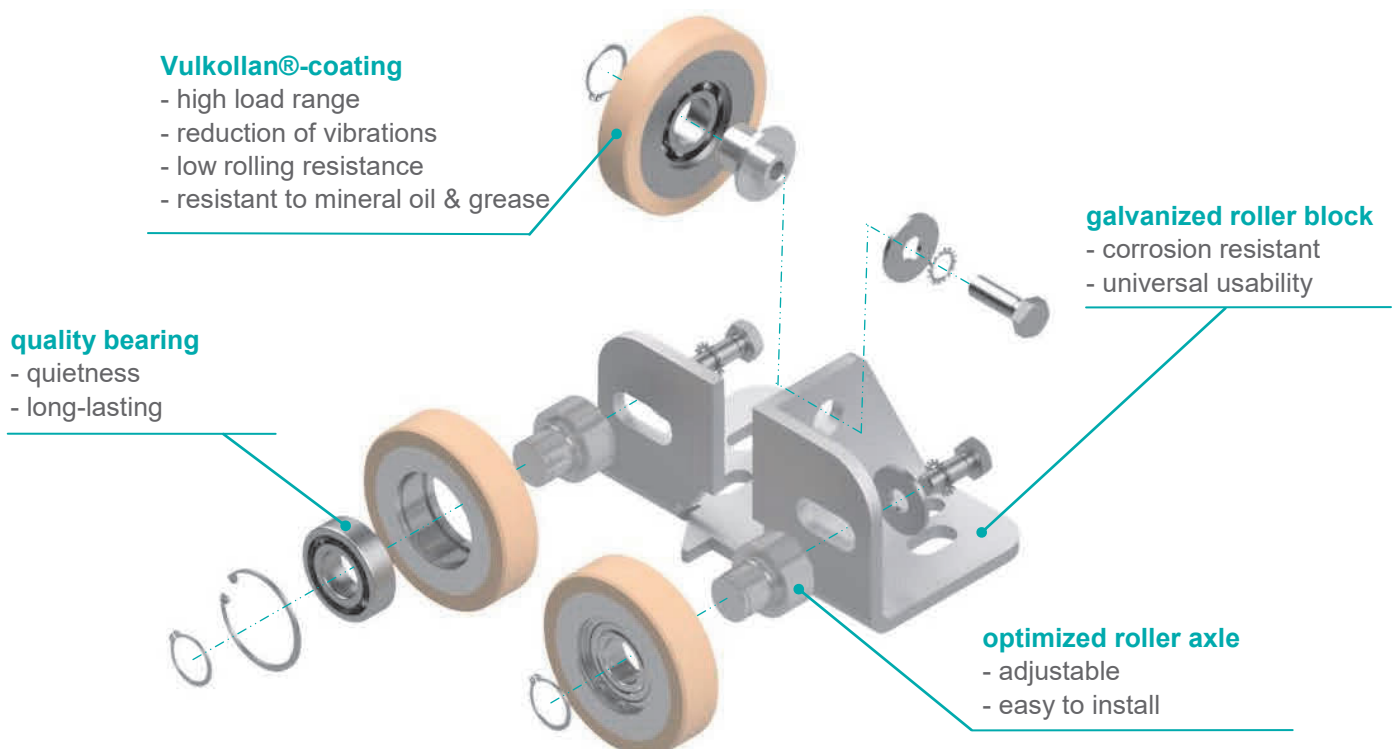


application related | silent | fast moving

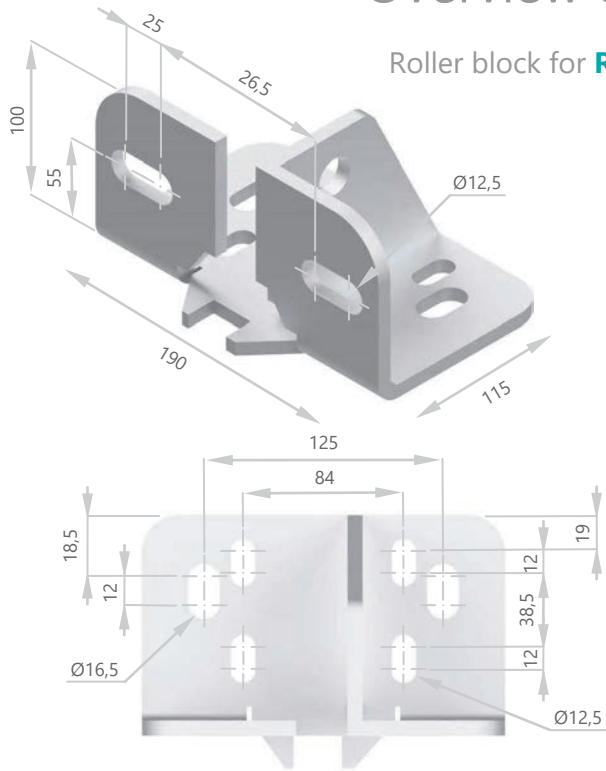
Vulkollan® is an ideal material for the covering of **of guide-rollers**. As a registered trademark of COVESTRO Deutschland AG, Vulkollan® is a guarantee of consistent elastomer **quality at the highest level**, based on its tightly specified raw materials.

Due to 8 different sizes a individual **fine-tuning in regard of the load is possible**. All **P+S roller guides** are available at short notice. Spare parts such as individual rollers, galvanized steel roller blocks, as well as axles are also available upon request.

As a **strategic development partner**, P+S also offers the possibility of **an individual and application-related design** for special loads and environmental influences, as well as different dimensions for special systems.

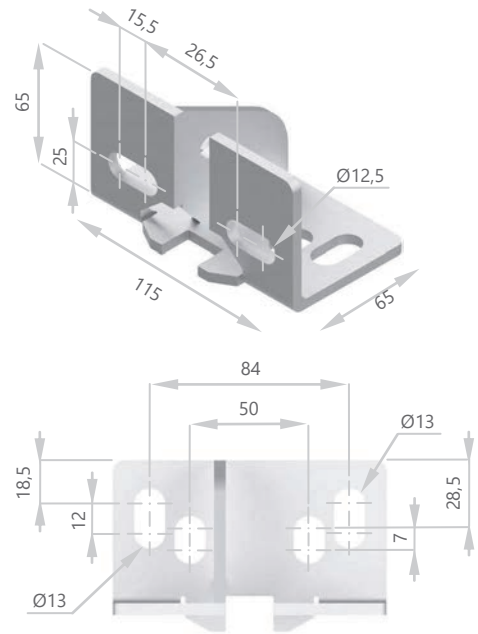


Overview of components



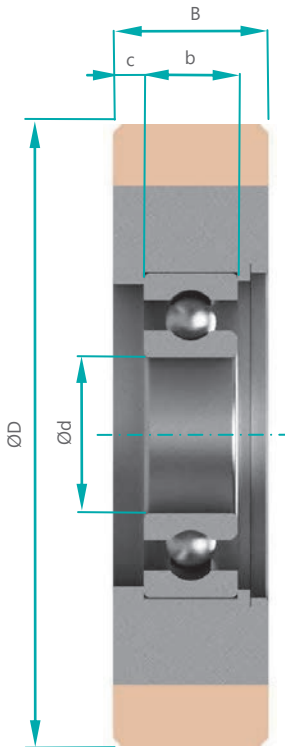
Roller block for **RFS**

Roller block for **RFL**



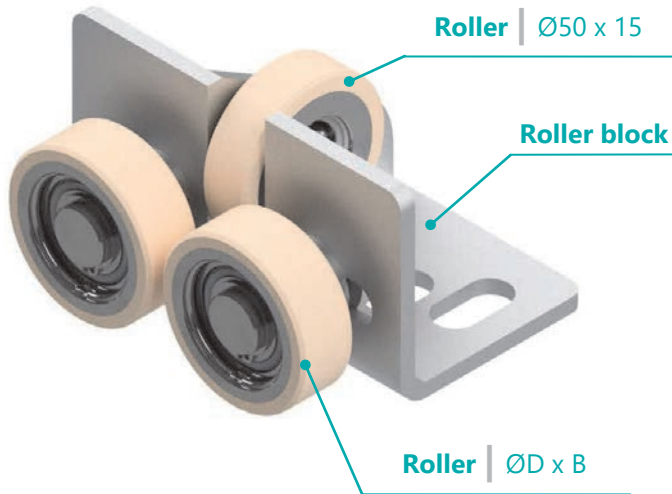
* All dimensions in [mm]

Spare program of rollers

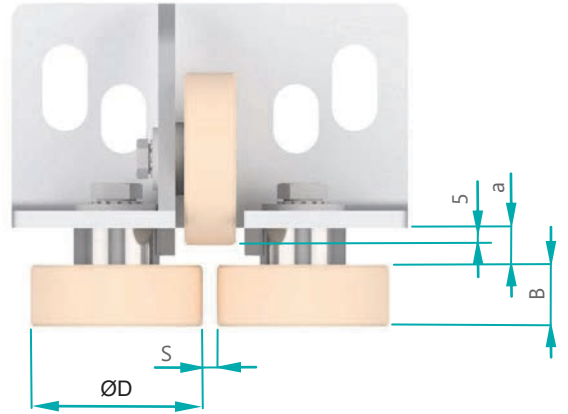


| No. | Ø D (mm) | Ø d (mm) | B (mm) | b (mm) | c (mm) | Bearing-size | Load range [N] at v [m/s] | | | Item-No. |
|-----|----------|----------|--------|--------|--------|--------------|---------------------------|------|------|-----------|
| | | | | | | | 0,63 | 1 | 2,5 | |
| 1 | 21,3 | 5 | 8 | 5 | 1,5 | 625-2RS | 160 | 150 | 140 | 701554194 |
| 2 | 32 | 8 | 12 | 7 | 2,5 | 608-ZZ | 320 | 300 | 285 | 707513590 |
| 3 | 40 | 10 | 15 | 8 | 3,5 | 6000-ZZ | 580 | 550 | 520 | 701700590 |
| 4 | 50 | 10 | 15 | 8 | 3,5 | 6000-ZZ | 740 | 700 | 660 | 701701590 |
| 5 | 55 | 10 | 15 | 8 | 3,5 | 6000-ZZ | 790 | 750 | 705 | 701702590 |
| 6 | 50 | 17 | 18 | 10 | 4 | 6003-ZZ | 895 | 850 | 810 | 707202590 |
| 7 | 60 | 17 | 18 | 10 | 4 | 6003-ZZ | 1055 | 1000 | 950 | 701703590 |
| 8 | 60 | 20 | 20 | 12 | 4 | 6004-ZZ | 1160 | 1100 | 1045 | 701704590 |
| 9 | 70 | 20 | 16 | 12 | 1,25 | 6004-ZZ | 1160 | 1100 | 1045 | 701705590 |
| 10 | 70 | 20 | 20 | 12 | 4 | 6004-ZZ | 1370 | 1300 | 1235 | 701706590 |
| 11 | 70 | 25 | 25 | 15 | 5 | 6205-ZZ | 1700 | 1600 | 1430 | 701707590 |
| 12 | 80 | 25 | 21 | 15 | 2,85 | 6205-ZZ | 1700 | 1600 | 1430 | 701708590 |
| 13 | 80 | 25 | 25 | 15 | 5 | 6205-ZZ | 1900 | 1800 | 1550 | 701709590 |
| 14 | 90 | 25 | 21 | 15 | 2,85 | 6205-ZZ | 1790 | 1700 | 1480 | 701710590 |
| 15 | 90 | 25 | 25 | 15 | 5 | 6205-ZZ | 2215 | 2100 | 1830 | 701711590 |
| 16 | 100 | 25 | 21 | 15 | 2,85 | 6205-ZZ | 2000 | 1900 | 1660 | 701712590 |
| 17 | 100 | 25 | 25 | 15 | 5 | 6205-ZZ | 2420 | 2300 | 2000 | 701713590 |
| 18 | 100 | 25 | 30 | 12 | 7,5 | 6205-ZZ | 2850 | 2700 | 2350 | 702567590 |
| 19 | 100 | 25 | 40 | 15 | 12,5 | 6205-ZZ | 3800 | 3600 | 3200 | 702568590 |
| 20 | 110 | 25 | 20 | 15 | 4 | 6205-ZZ | 2150 | 2000 | 1750 | 701714590 |
| 21 | 110 | 25 | 21 | 15 | 2,85 | 6205-ZZ | 2230 | 2100 | 1820 | 701715590 |
| 22 | 110 | 25 | 25 | 15 | 5 | 6205-ZZ | 2645 | 2500 | 2190 | 701716590 |
| 23 | 110 | 25 | 30 | 15 | 7,5 | 6205-ZZ | 3160 | 3000 | 2600 | 701717590 |
| 24 | 120 | 25 | 21 | 15 | 2,85 | 6205-ZZ | 2420 | 2300 | 2000 | 701718590 |
| 25 | 120 | 25 | 25 | 15 | 5 | 6205-ZZ | 2830 | 2700 | 2350 | 701719590 |
| 26 | 120 | 25 | 30 | 15 | 7,5 | 6205-ZZ | 3470 | 3300 | 2870 | 701720590 |
| 27 | 125 | 25 | 21 | 15 | 2,85 | 6205-ZZ | 2540 | 2400 | 2100 | 701721590 |
| 28 | 125 | 25 | 25 | 15 | 5 | 6205-ZZ | 3075 | 2900 | 2500 | 701722590 |
| 29 | 125 | 25 | 30 | 15 | 7,5 | 6205-ZZ | 3600 | 3400 | 3100 | 701723590 |
| 30 | 125 | 25 | 40 | 15 | 12,5 | 6205-ZZ | 4750 | 4500 | 3900 | 702570590 |
| 31 | 150 | 25 | 40 | 15 | 12,5 | 6205-ZZ | 5690 | 5400 | 4710 | 701740590 |
| 32 | 180 | 25 | 30 | 15 | 7,5 | 6205-ZZ | 5160 | 4900 | 4250 | 702602590 |

Overview of roller guides

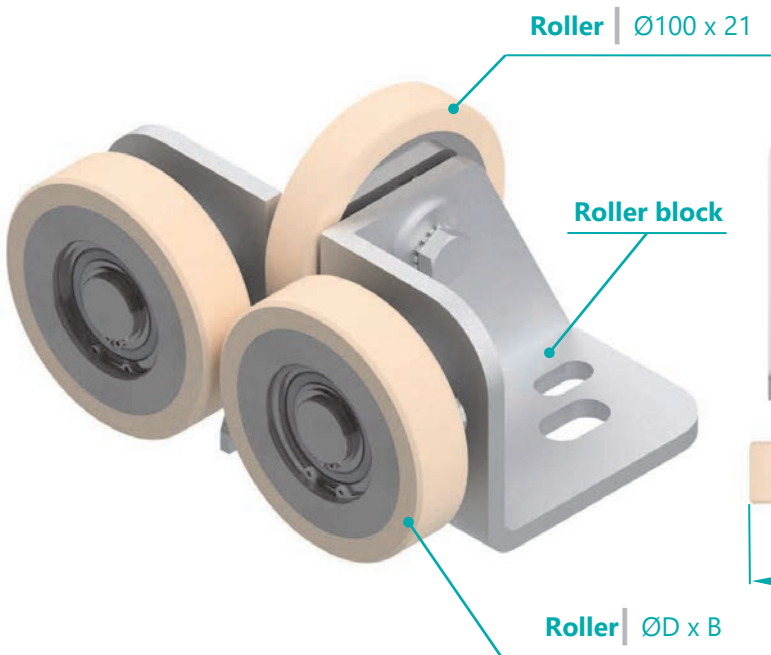


Roller guide: **RFL**

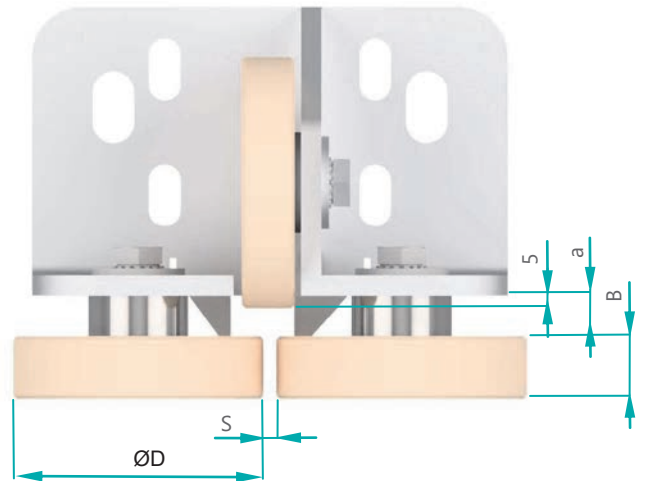


* All dimensions in [mm]

| No. | S (mm) | ØD (mm) | B (mm) | a (mm) | Load range [N] at v [m/s] | | | Hardness Shore A | Item-No. |
|-----|-----------|------------|-----------|-----------|---------------------------|-------------|------------|---------------------|-----------|
| | | | | | 0,63 | 1 | 2,5 | | |
| 1 | 5 - 18 | 50 | 18 | 10,5 | 895 | 850 | 810 | 93° | 780300050 |
| 2 | 5 - 18 | 60 | 18 | 10,5 | 1055 | 1000 | 950 | 93° | 780300051 |



Roller guide: **RFS**



* All dimensions in [mm]

| No. | S | ØD | B | a | Load range [N] at v [m/s] | | | Hardness Shore A | Item-No. |
|-----|--------|-----|----|------|---------------------------|-------------|-------------|---------------------|-----------|
| | | | | | 0,63 | 1 | 2,5 | | |
| 1 | 5 - 25 | 100 | 25 | 16 | 2420 | 2300 | 2000 | 93° | 780300060 |
| 2 | 5 - 25 | 100 | 30 | 13,5 | 2850 | 2700 | 2350 | 93° | 780300061 |
| 3 | 5 - 25 | 100 | 40 | 8,5 | 3800 | 3600 | 3200 | 93° | 780300062 |
| 4 | 5 - 25 | 125 | 25 | 16 | 3075 | 2900 | 2500 | 93° | 780300066 |
| 5 | 5 - 25 | 125 | 30 | 13,5 | 3600 | 3400 | 3100 | 93° | 780300063 |
| 6 | 5 - 25 | 125 | 40 | 8,5 | 5690 | 5400 | 4710 | 93° | 780300064 |

Anti-vibration



decoupling | noise-reducing | adjustable

Our different qualities made of **Vulkocell®** combine **high volume compressibility** and **low transversal strain** with a high dynamic load capacity and very good spring properties, due to a relatively low damping. **Long service life can be achieved** with the **correct choice of load**.

The different qualities of the **Diepolast®** family convince by **very good decoupling properties** due to low deflection and high amplitudes. A large number of basic types and large load ranges of the individual types allow an exact and **application-related adjustment**. **Diepolast®** is **hydrolysis resistant**, which allows the installation even in regions with high humidity.

Both materials are used in many areas of the lift industry. Dynamic springs in elevator cabins or support structures, **active vibration decoupling** of motors and suspension of the ropes by spring packages are just some application which are covered by the excellent technical properties of these materials. **Reducing undesirable vibrations** and structure born noise are the central tasks and result in a **high level of smoothness and driving comfort**.

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