

Spring Fillers

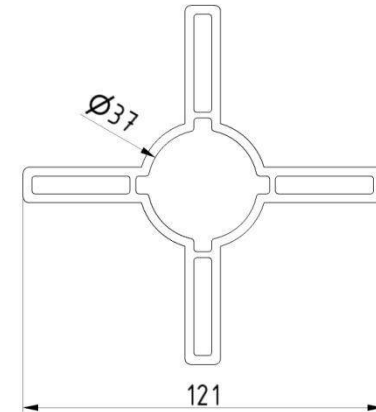
Function:

- Support the larger springs.
- use for 152 mm springs (30002+30003 / 30005 (old type))
- use for 95 mm springs (30006+30007)

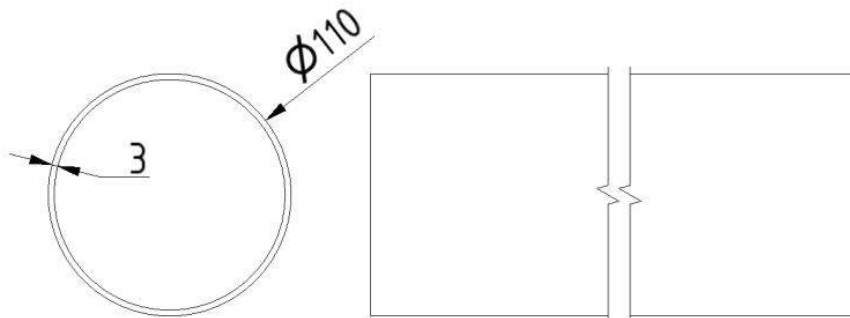
Spring filler is needed

- for 152mm springs from 1000mm
- for 95mm springs from 700mm

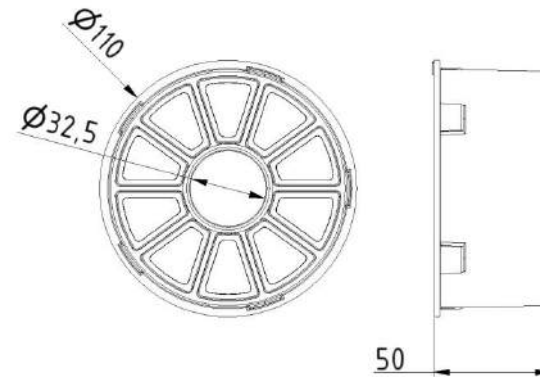
30005



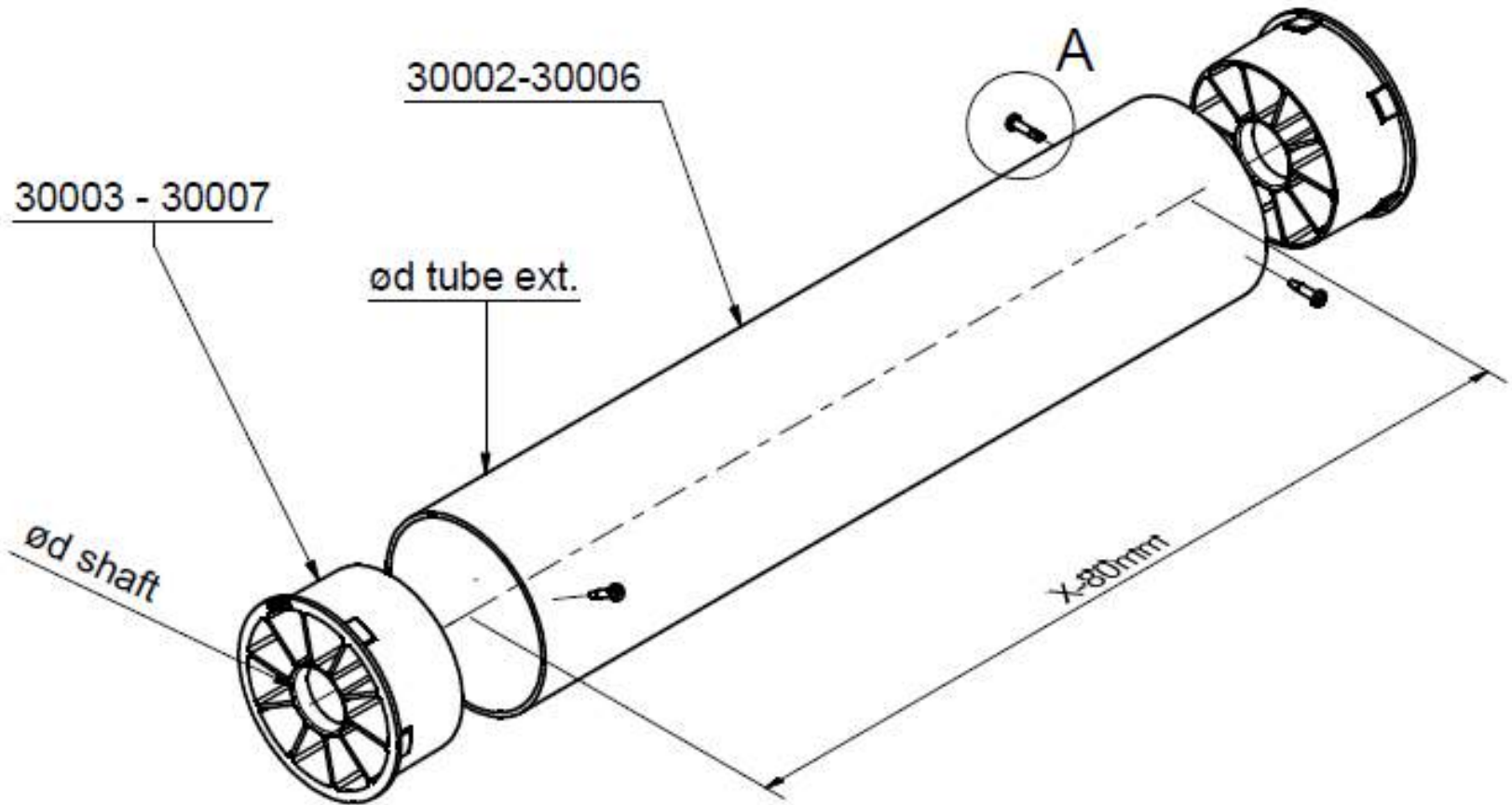
30002 tube



30003 plug



Spring Fillers



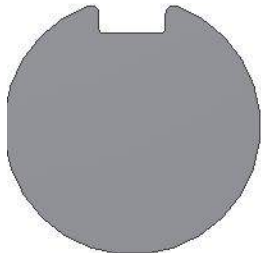
3 types:

- Hollow shaft => Residential.
- Hollow shaft with keyway => Residential / Industrial
- Massive shaft => Industrial

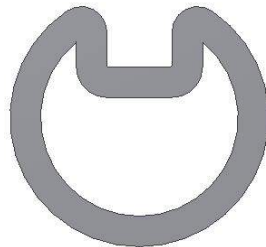
Finish:

- Zinc plated, (25516, 25018, 26018, 25019 and 25015 are zinc plated)

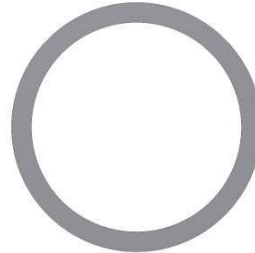
25516 serie
Ø 25,4



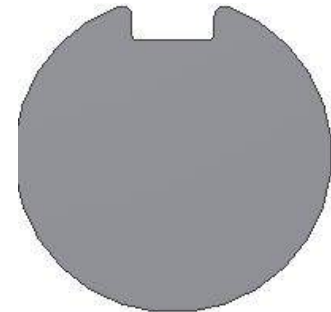
25018 serie
26018 serie
25019 serie
Ø 25,4



25015 serie
Ø 25,4



25576 serie
Ø 31.7



25018 / 26018 serie:

- Till 5000mm max. door width.
- max. doorweight 300 kg (max. 210Nm)

25019 serie: (using 1 spring)

- Till 3000mm max. door.
- max. doorweight 90 kg.

25019 serie: (using >2 spring)

- Till 3000mm max. door width
- max. doorweight 160 kg.

25516 serie:

- Till 6000mm max. door width
- max. doorweight 600 kg (max. 400Nm)

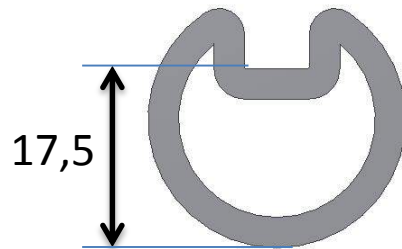
25576 serie:

- Till 7500mm max. door width*
- max. doorweight 900 kg (max. 725Nm)

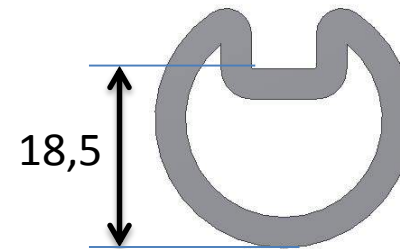
* DOCO CE certified.

Shafts

What are the Differences between 25018 and 26018 shafts?



25018
DOCO Type



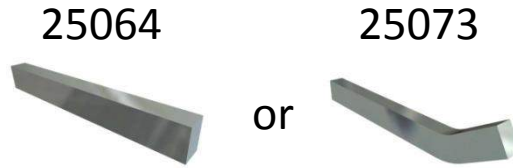
26018
Market Standard

- For the 25018 shaft use KEY 25064 (straight) / 25073 (bended)
- For the 26018 shaft use KEY 26064 (straight) / 26062 (bended)
- DOCO type, the key is positioned deeper into the shaft, the Torque transmission is much better.

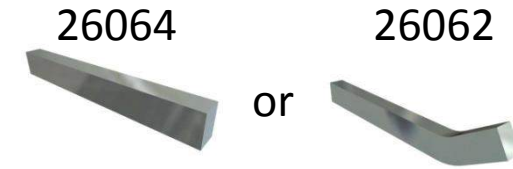
Shafts



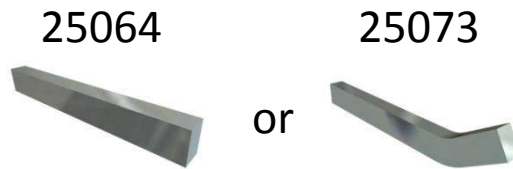
+



+

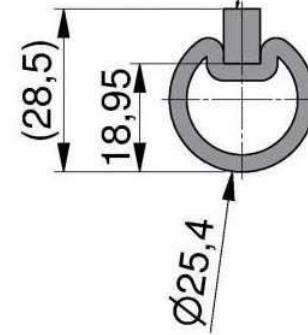


+



26018

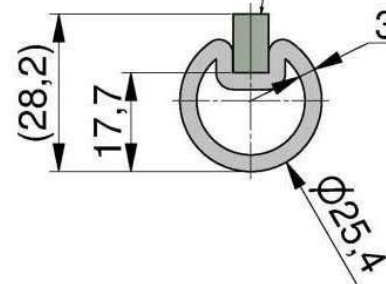
Additional key: 26062 or 26064.
Height 9.5mm.



$I_x = 1,16 \text{ cm}^4$
 $I_x = 1.41 \text{ cm}^4$
 $W_x = 0.92 \text{ cm}^3$
 $W_y = 1.11 \text{ cm}^3$

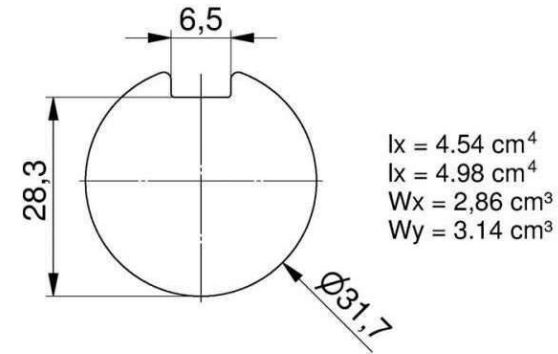
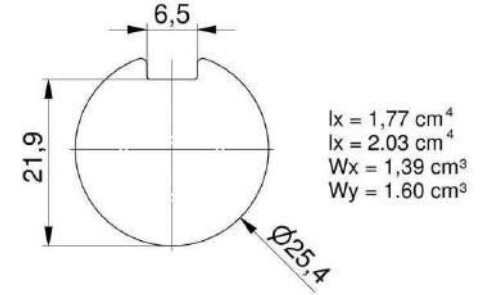
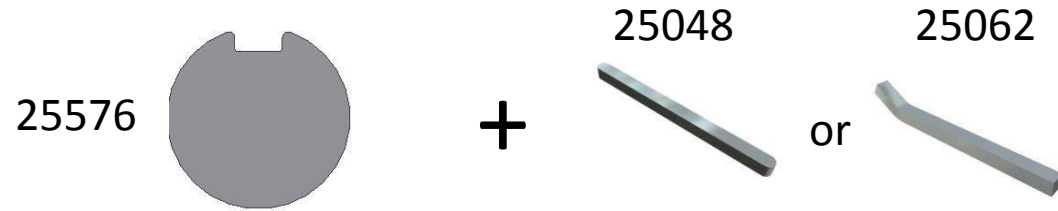
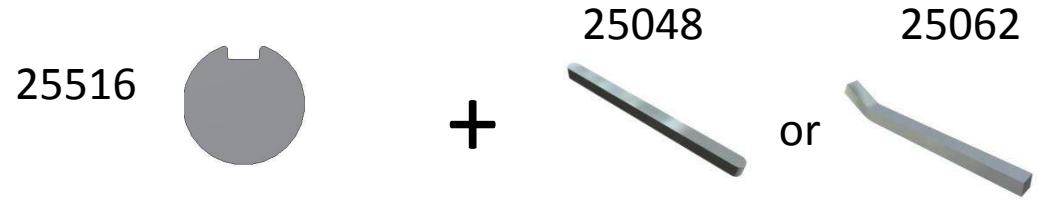
25018

Additional key: 25064 or 25073.
Height 10.5mm.



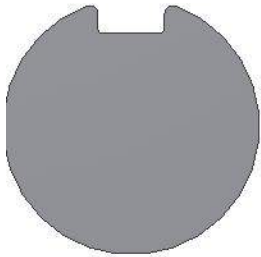
$I_x = 1,16 \text{ cm}^4$
 $I_x = 1.41 \text{ cm}^4$
 $W_x = 0.92 \text{ cm}^3$
 $W_y = 1.11 \text{ cm}^3$

Shafts



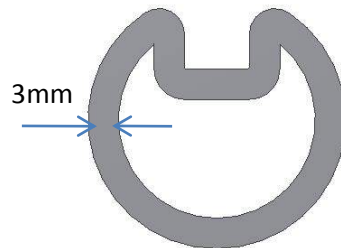
Shafts

25016 serie
25516 serie
Ø 25,4



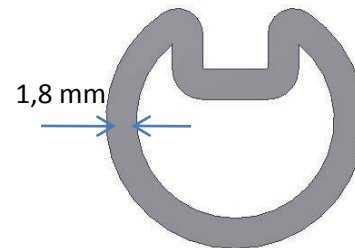
$I_x = 1,77 \text{ cm}^4$
 $I_y = 2,03 \text{ cm}^4$
 $W_x = 1,39 \text{ cm}^3$
 $W_y = 1,60 \text{ cm}^3$

25018 /
26018 serie
Ø 25,4



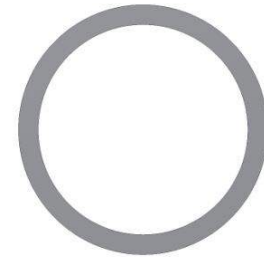
$I_x = 1,16 \text{ cm}^4$
 $I_y = 1,41 \text{ cm}^4$
 $W_x = 0,92 \text{ cm}^3$
 $W_y = 1,11 \text{ cm}^3$

25019 serie
Ø 25,4

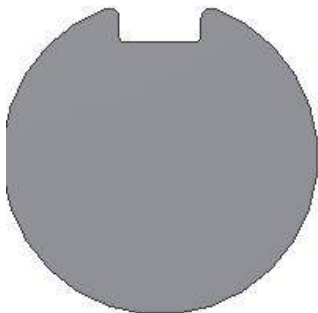


$I_x = 0,87 \text{ cm}^4$
 $I_y = 0,97 \text{ cm}^4$
 $W_x = 0,685 \text{ cm}^3$
 $W_y = 0,764 \text{ cm}^3$

25015 serie
Ø 25,4



$I_x = 1,0137 \text{ cm}^4$
 $I_y = 1,0137 \text{ cm}^4$
 $W_x = 0,798 \text{ cm}^3$
 $W_y = 0,798 \text{ cm}^3$



25576 serie
Ø 31,75

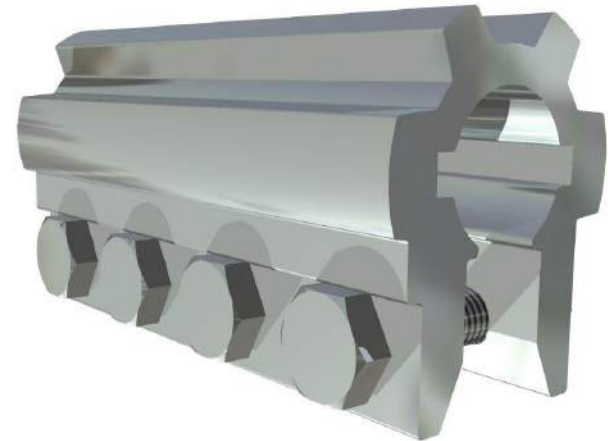
$I_x = 4,54 \text{ cm}^4$
 $I_y = 4,98 \text{ cm}^4$
 $W_x = 2,86 \text{ cm}^3$
 $W_y = 3,14 \text{ cm}^3$

Couplers

A door with 2 springs in balance gives a torque difference in the coupler of 0 Nm. (1 spring left side from the coupler and 1 spring right side from the coupler)
 When operating this door with a shaft operator (on the side) the torque of the operator will be transported by the coupler.
 So, symmetrical build up power-units have in normal operation no problems.

Couplers will be stressed when torque differences are between left and right side of the coupler, cases:

- Unequal Springs.
- Spring break



Couplers

Article: 25004

- New nice residential aluminum coupler
- Smooth design
- Fixation with M8 x16 hexagon socket screws (use a 4 mm Allan key to fit).
- for 25,4 mm hollow shafts without keyway
- Max. door-weight 130 kg
- Max. Torque difference 65Nm.



Couplers

25034 / 25534

Advice torque = 32-36 Nm
Max. torque = 45 Nm



Advice torque = 32-36 Nm
Max. torque = 45 Nm

Max. torque difference = 224 Nm

25017/ 25517

Advice torque = 32-36 Nm
Max. torque = 45 Nm



Advice torque = 32-36 Nm
Max. torque = 45 Nm

Max. torque difference = 100 Nm

Tool : Use a 7/16" insert or a 11mm insert with **12 recesses!**

Couplers

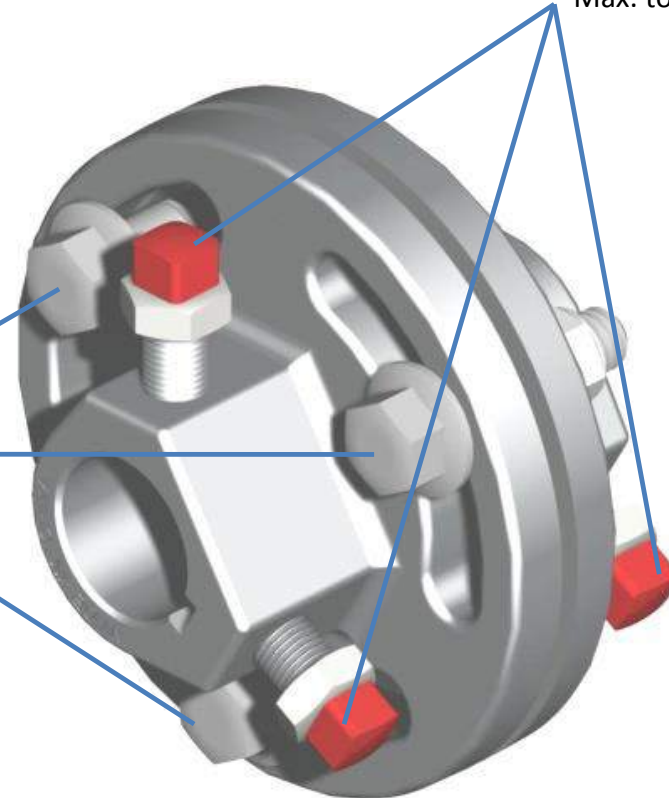
**25042 For 1"
(25,4mm) shaft**

Tool : Use a 7/16" insert or a 11mm insert with **12 recesses!**

Advice torque = 32-36 Nm
Max. torque = 45 Nm

Tool : 15mm insert

Advice torque = 55 Nm
Max. torque = 60 Nm



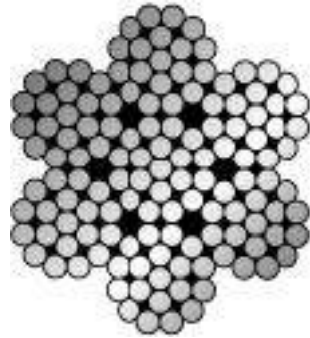
Max. torque difference = 224 Nm

Cables

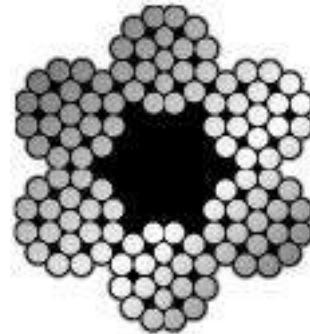
Function:

- Hold the door.

-Type 7x19



- Type 6x19 + 1PP



Cables

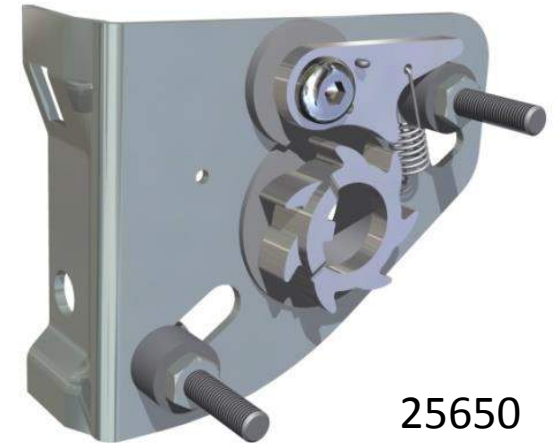


Galvanised rope + pp-core, construction 6x19+1PP assembled (Cable thimble according DIN6899A)				
Art.nr	Tensile Strength / Zugfestigkeit	Diameter	Min break / Min Bruchkraft (/cable)	DIN EN 12604*
25110-	1770 N/mm ²	3 mm	4900 N	166 kg max/door*
25111-	1770 N/mm ²	4 mm	8700 N	295 kg max/door*
25112-	1770 N/mm ²	5 mm	13600 N	463 kg max/door*
25113-	1770 N/mm ²	6 mm	19600 N	666 kg max/door*
End connections of assembled cables are according EN/12604 (>90% of min. Break) Endverbindungen montierte Stahlseile nach EN/12604 (>90% of min. Bruchkraft)				
Galvanised Aircraft Cable Construction 7x19				
Art.nr	Tensile Strength / Zugfestigkeit	Diameter	Min break / Min Bruchkraft (/cable)	DIN EN 12604*
25012	1770 N/mm ²	3 mm	5290 N	179 kg max/door*
25013	1770 N/mm ²	4 mm	9400 N	318 kg max/door*
25014	1770 N/mm ²	5 mm	14700 N	500 kg max/door*
25113	1770 N/mm ²	6 mm	21100 N	720 kg max/door*
Galvanised rope + pp-core, construction 6x19+1PP				
Art.nr	Tensile Strength / Zugfestigkeit	Diameter	Min break / Min Bruchkraft (/cable)	DIN EN 12604*
25212	1960 N/mm ²	3 mm	5320 N	180 kg max/door*
25213	1960 N/mm ²	4 mm	9435 N	319 kg max/door*
25214	1960 N/mm ²	5 mm	14825 N	500 kg max/door*
25215	1960 N/mm ²	6 mm	21335 N	722 kg max/door*
Galvanised Aircraft Cable Stainless steel (AISI 316) Construction 7x19				
Art.nr	Tensile Strength / Zugfestigkeit	Diameter	Min break / Min Bruchkraft (/cable)	DIN EN 12604*
25912	1570 N/mm ²	3 mm	4690 N	159 kg max/door*
25913	1570 N/mm ²	4 mm	8340 N	283 kg max/door*
25914	1570 N/mm ²	5 mm	13000 N	443 kg max/door*
Galvanised rope + pp-core, construction 6x19+1PP with fixed end terminals				
Art.nr	Tensile Strength / Zugfestigkeit	Diameter	Min break / Min Bruchkraft (/cable)	DIN EN 12604*
25114	1770 N/mm ²	3 mm	6600 N	223 kg max/door*
25115	1770 N/mm ²	4 mm	10540 N	357 kg max/door*
25116	1770 N/mm ²	5 mm	14480 N	490 kg max/door*
25117	1770 N/mm ²	6 mm	15320 N	518 kg max/door*

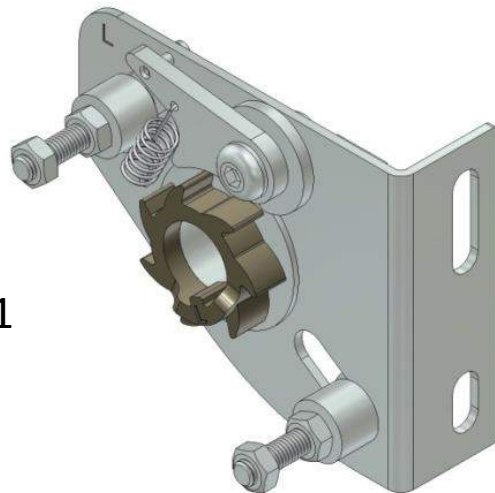
Spring Break Device - Residential

25650 / 25651

- SP certified for 60Nm/spring
 - SP certificate number P902383
 - Universal design for 50 AND 67 mm springs
 - Fixed ratchet wheel on device
 - Easy Fitting (shape in shape) => 25650
 - Easy assembly of power unit ("hang- in" system) => 25650
 - Patent nr. 1036426 (Holland), European patent pending
 - Suitable mounting brackets
- =>13006 (springs Front) / 24619 (springs rear) => 25650



25650



25651



SP

P902383

Article : 25650 /
25651

Max. Torque:
60 Nm / spring



DOCO

Spring Break Device - Residential

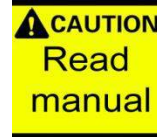
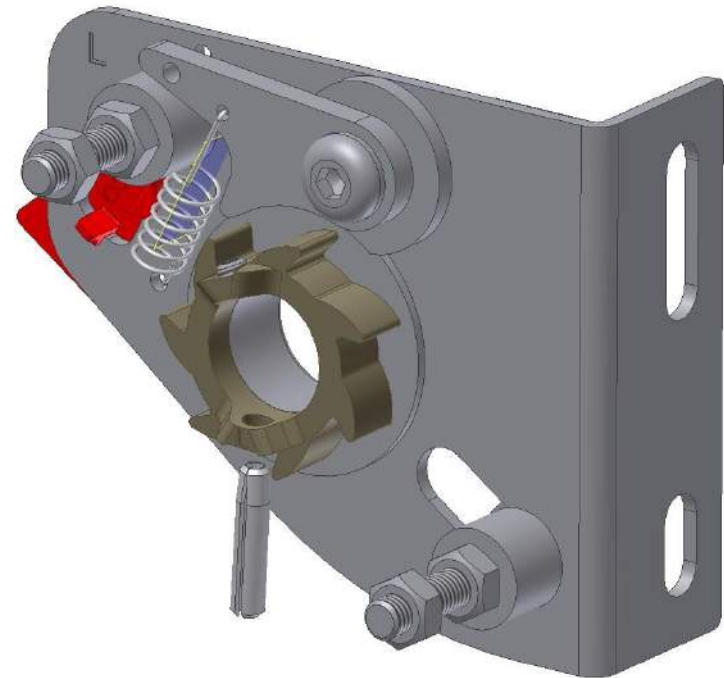
new Innovative “Hang in / Position system[®]” for power units (Patented)



Spring Break Device - Residential

Article: 29950 (left) / 29951 (right)

- Universal design 50 - 67 mm springs
- Suitable for hollow shafts (25015)
- SP certified
- Certified for 46 Nm
- Fixed ratchet wheel on device
- Fixation to the shaft



SP

PX06943A

Article :

29950 / 29951

29952 / 29953

Max. Torque:

46 Nm / spring

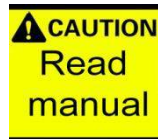
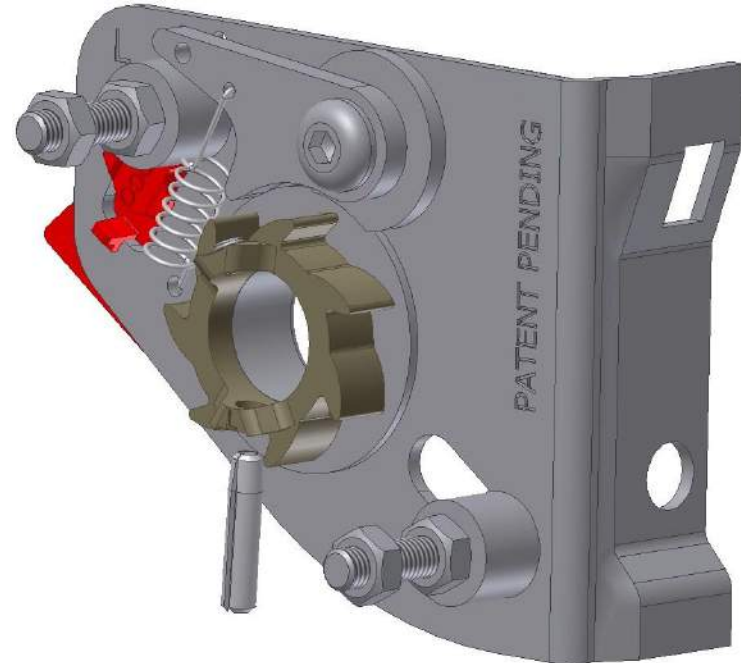


DOCO

Spring Break Device - Residential

Article: 29952 (left) / 29953 (right)

- Universal design 50 - 67 mm springs
- Suitable for hollow shafts (25015)
- SP certified
- Certified for 46 Nm
- Fixed ratchet wheel on device
- Fixation to the shaft
- Suitable to next systems:
 - ✓ SFR-200
 - ✓ SRR-70
 - ✓ REN-70
 - ✓ SF-200



PX06943A

Article :
29950 / 29951
29952 / 29953

Max. Torque:
46 Nm / spring

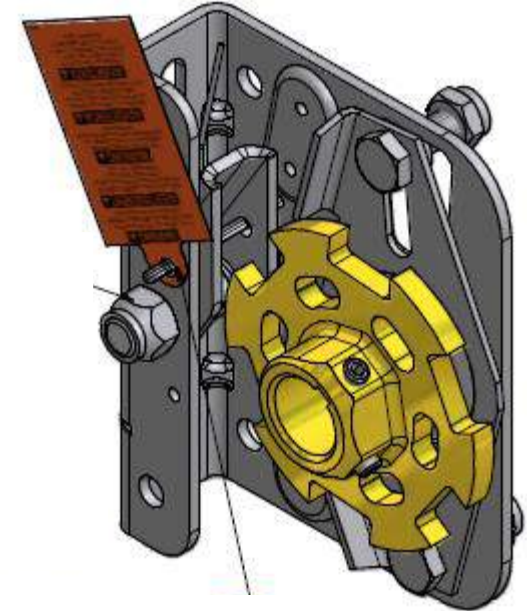


Spring Break Device - Industrial

Left version shown, Right version symmetrically opposite

Technical specifications:

- For Shaft 25,4mm (1")
- max. 210Nm
- Offset 86mm
- for 111,127 and 152mm offset use bracket 25448
- E-Switch 25447
- Does not work with Duplex springs



25449

How to calculate the max Door weight ?

Calculation: $\text{Torque} = \text{Weight} \times \text{Drum Arm}$

Tips and tricks:

Left version need a right turned spring.

Right version need a left turned spring.

Catcher need positioned always @ top.

Spring Break Device - Industrial

Technical specifications:

- For Shaft 31,75 mm (1,25")
- max. 210Nm
- Offset 86mm
- for 111,127 and 152mm offset use bracket 25448
- E-Switch 25447
- Does not work with Duplex springs



25549

Tips and tricks:

Left version need a right turned spring.
 Right version need a left turned spring.
 Catcher need positioned always @ top.

How to calculate the max Door weight ?

Calculation: $Torque = Weight \times Drum\ Arm$

Cable Break Device

Function:

- Prevent falling of the door when a cable breaks.
- Also bottom bracket.

Types:

- 25450
- 25454
- 25455



25455



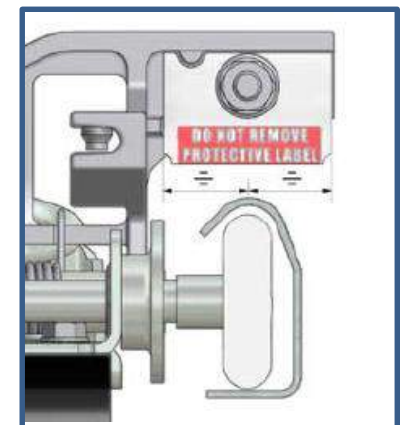
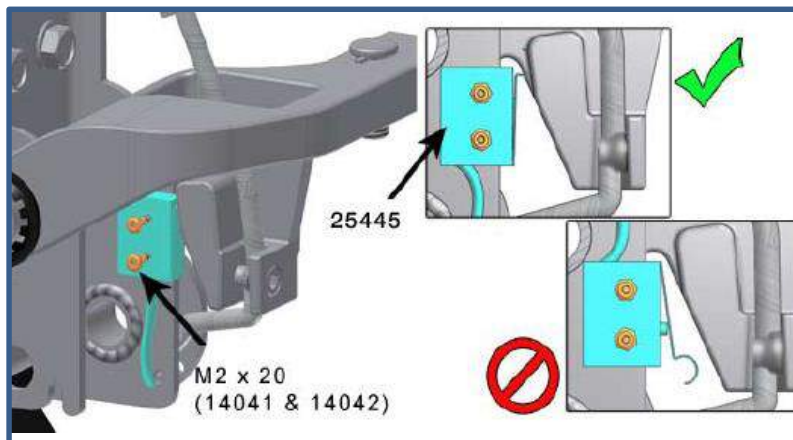
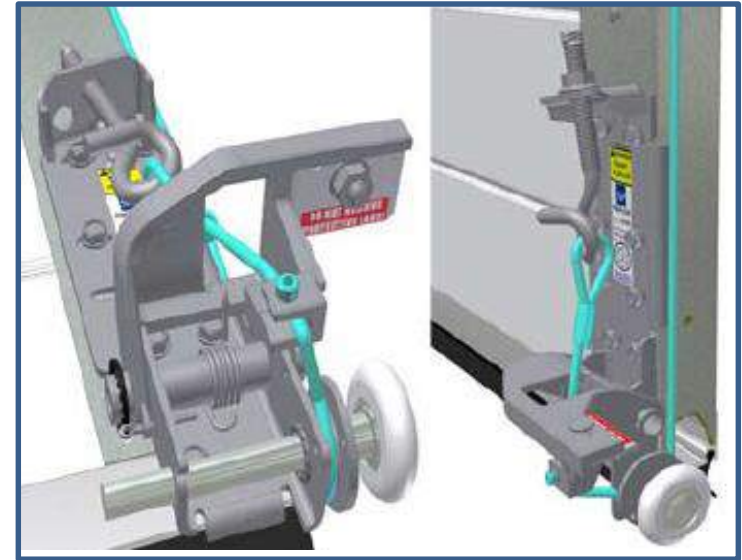
25450



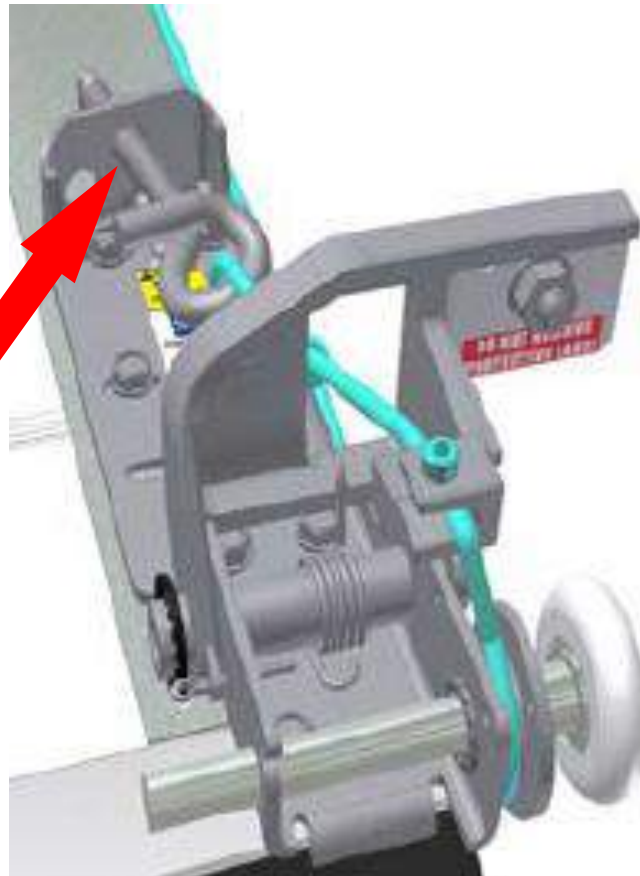
25454

Cable Break Device 25455

- **Patent** construction for standard and low headroom applications; No catching in curve area!
- Stable E switch fixation (not into safety cover)
- Idiot proof knife fixation.

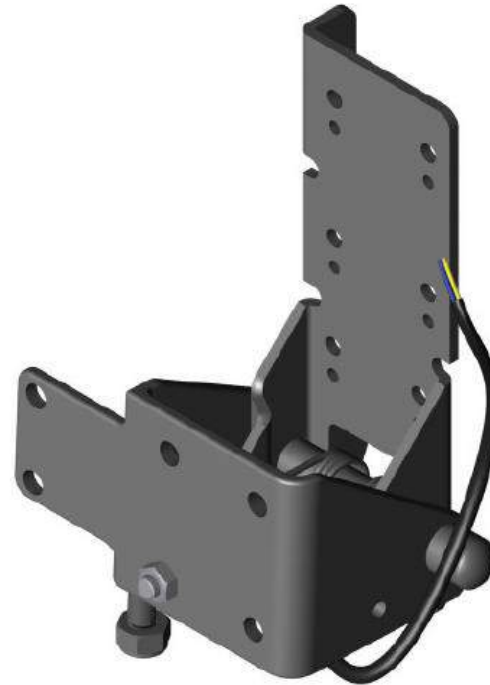
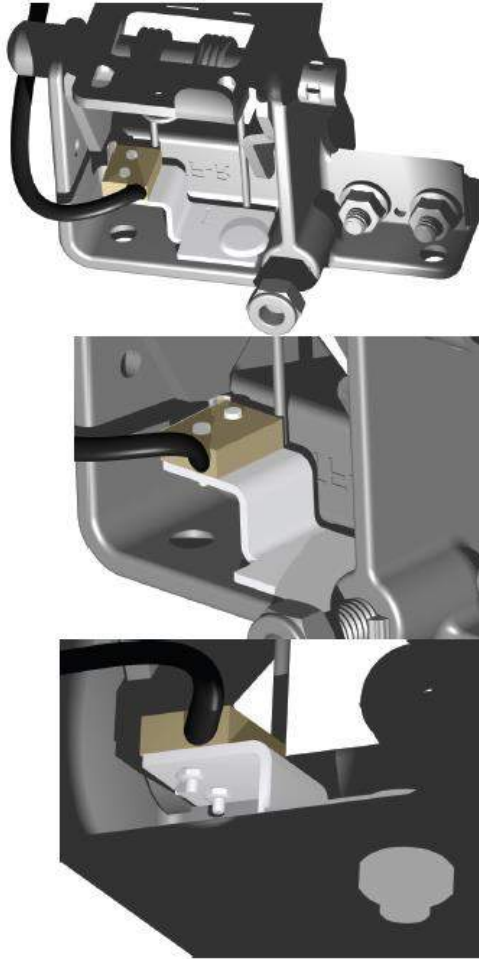


Cable Break Device 25455



**Install NO NUT!!
Reason: for function
reason**

E- Switch for 25450 and 25454



Example 25450

E- Switch for 25450 and 25454

Content 25446A



Contents of the package:

Qty.	Art nr.	Description
4	14041	M2 x 12
4	14042	M2
2	25445	Microswitch
1	25446R	Microswitch retainer right version R
1	25446L	Microswitch retainer left version L

Cable Break Device Industrial

Feature overview:

Cable break device type	Certified weight	max. cable diameter	Cable adjustable	Electro-Switch	Catching in curve area (SL, LHR)	Option Anti Burglar kit (25451)	Certified by
25450	750 kg	6 mm	No	25446-A	Yes	Yes	TUV Tor FV6/102
25454	750 kg	6 mm	Yes, 30 mm	25446-A	Yes	Yes	TUV Tor FV6/102
25455 (patent)	500 kg	6 mm	Yes, 40 mm	25445	No	No	SP P904336 and TUV Tor FV11/160

Bottom brackets - Industrial

Function:

- Lifting the door-blade
- The complete door weight will pull on the end fixation.
- Very important are the connections to the door panel (bottom panel)

Types

Industrial:

25032 aluminum, cable inside, max weight = 600 kg

25054 steel, cable outside, max weight = 450 kg (not CE approved)

25231 steel, cable inside, max weight = 450 kg



25032



25231



25054

Bottom brackets - Residential

Types

Residential:

25029 (will run out of stock)

25051

25052

25056

25057



25056

- front spring system
- Special T- fixation

25051

- rear / front spring system
- “new”25029”

25057

- front spring system
- Special T- fixation
- Panel pre- assembly possible

25052

- rear / front spring system
- Panel pre-assembly possible

Side Hinges

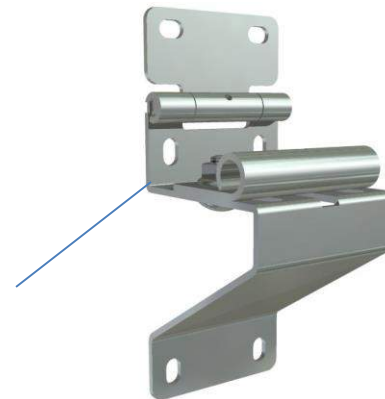
Function:

- Connection between roller and panels.
- Support of the roller.
- Axial play of the roller.
- Roller carrier adjusting.
- Catch up the most of the mechanical- and wind load.
- Single or double support.

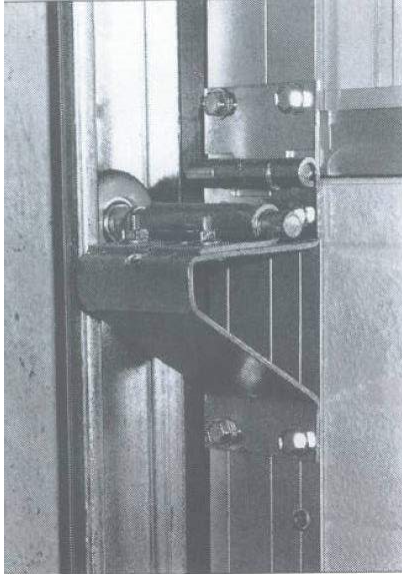
Use
"duplex"
rollers



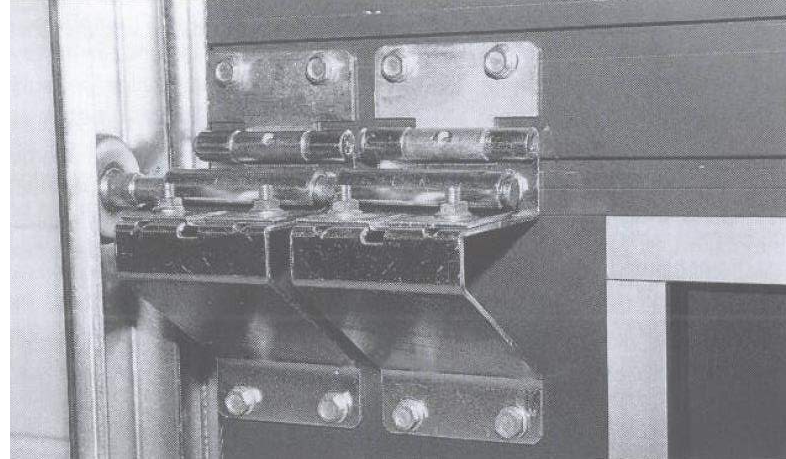
Use
"normal"
rollers



Side Hinges



Single hinge:
- Door <5m width



“Double” hinge:
- Door >5m width

Intermediate hinges

Function:

- Connection between door panels.
- Catch up the lower door-panel weight.



Rollers

Function:

- Connection between door-blade and trackset.
- Determine, the run of the doorblade (noise, smoothness)
- Catch up the most of the load (wind or mechanical).
- Rollers are fitted on Roller carriers / side hinges.

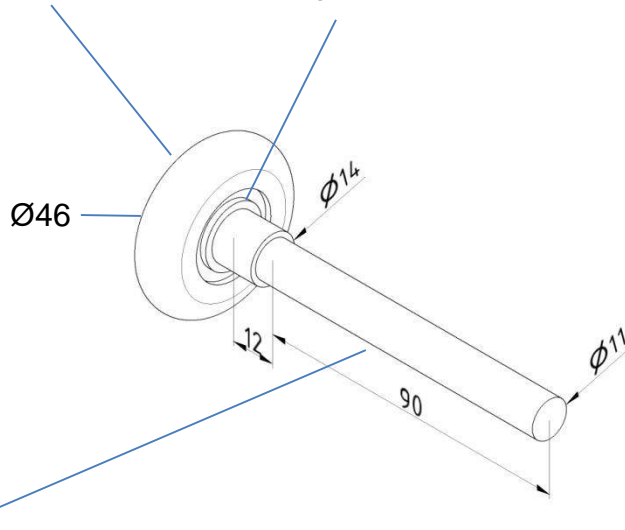
Rollers

Material tire:

- a) PA (nylon)
- b) PU (only DOCO)
- c) Different colors

Bearing type:

- a) normal-type :35 kg
- b) "ZZ" type :60 kg
- c) Stainless steel :35 kg



Shaft:

- Steel 11 or 12 mm thickness
- Stainless steel
- different lengths
- different finishes

Finger guard (first Genenartion)



From Summer
2011

Rollers

NEW Innovative Silent Roller Carrier:

- Article **25239**
- Universal design.
- Strong steel outside design with a plastic silent insert core.
- Excellent sliding properties
- Exchangeable with all standard roller carriers, like the one on article 25234, 25334 ,25634 ,25734 , 25736 , 25052, 25057
- Perfect in combination with Silent Roller **25229**



NEW Innovative Silent Roller for residential use :

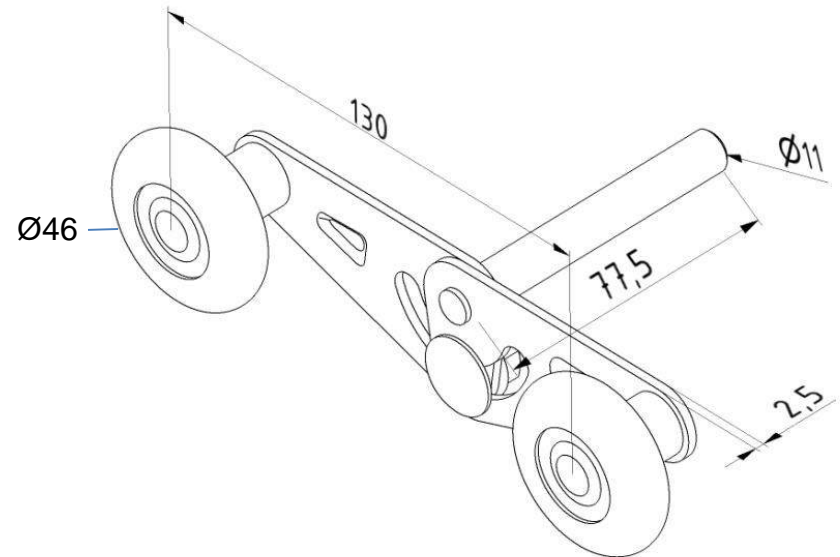
- Article **25229**
- Reduce operating noise up to 15 Decibels
- Roller material made out polyurethane (like the material of skates)
- Max. Load = 25kg / piece
- Finger guard 25700 suitable



Parts in Detail : Rollers

Duplex- Rollers:

- Typical : 2 tires
- Smoother run
- No, “big” side hinges necessary.
- Flat design
- Residential and industrial versions
- Some LHR cases not possible!



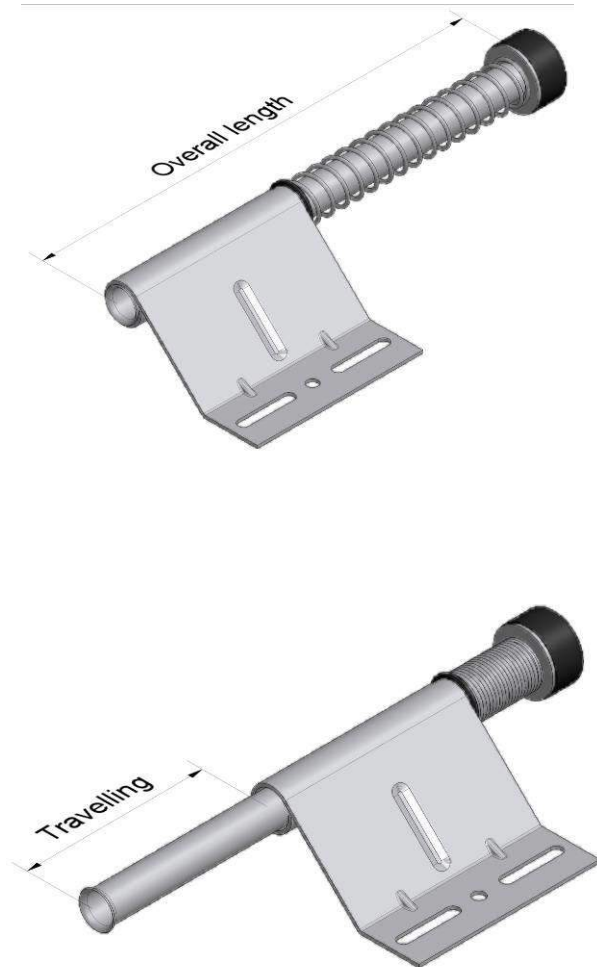
Spring bumpers

Function:

- End stop for door-blade.
- Short version mainly for Manual driven Doors
- Long versions mainly for Electrical Doors

Models	Weight (kg)	Overall Length (mm)	Travelling g (mm)	Pushing Force (N/m)	Force at full compression (N)
25026	1,05	380	160	2940	470
25026-C	1,2	380	134	1225	164
25026-F	1,2	380	155	1348	209
25041	1,35	680	408	931	379
25041-C	1,5	680	393	882	347
25041-F	1,55	680	393	784	308
25326*	0,5 (1,2)*	395	148	4900	723
25328	0,5	225	80	5880	472
25329	1,1	665	375	935	351
25341*	0,7 (1,4)*	695	385	1029	396
25926	1	380	153	1409	215
25941	1,25	680	408	441	180

**combination with universal mounting plate 25330*



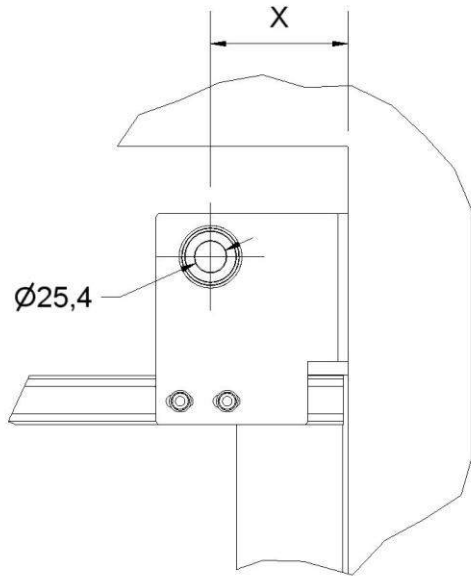
Brackets Industrial

Side Bearing Brackets:

Side brackets are positioned on the outside of the door

Type depends of drum type (offset X).

Installation is carried out using paro plates (24620) with bolts (14021) and nuts (14022,14015)



Drum:	Offset (X):	Side bearing plate:	Side bearing plate max. load*
11014 (ST)	86mm	13001	160kg/st
11002 (ST)	111mm	13002	160kg/st
11003 (ST)	127mm	13003	150kg/st
11005 (HL)	111mm	13002	160kg/st
11006 (HL)	111mm	13002	160kg/st
11007 (HL)	127mm	13003	150kg/st
11008 (HL)	152mm	13004	140kg/st
11004 (HL)	152mm	13004	140kg/st
11009 (FL)	127mm	13003	150kg/st
11010 (FL)	152mm	13004	130kg/st
11012 (FL)	190mm	13005	100kg/st

* provided it is also attached to C track!

Notes:

Side bearing plates with diameter Ø31,75 => 1350x serie

Brackets Industrial

Intermediate/End Bearing Brackets:

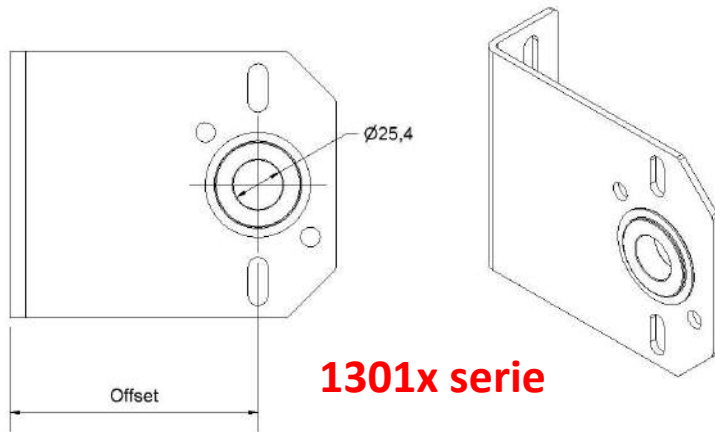
Intermediate brackets are positioned on the inside/center of the door
 Type depends of drum type (offset X).

Centre/support consoles with fixed offset (see figure on the right)

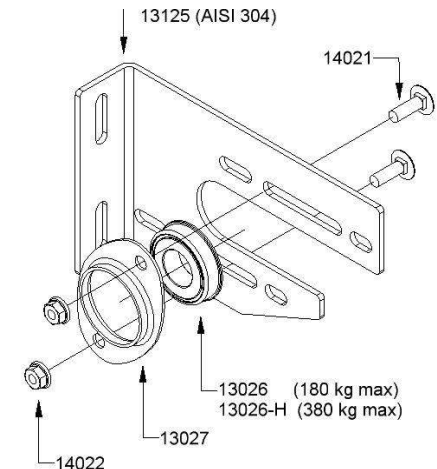
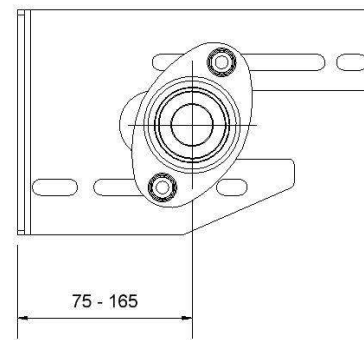
13013 / 13301:	offset 86	max load: 130kg/piece
13014 / 13302 :	offset 111	max load: 120kg/piece
13015 / 13303:	offset 127	max load: 110kg/piece
13016 / 13304 :	offset 152	max load: 100kg/piece
13025+ 13026/27	offset 75-165	max load: 100kg/piece

Note: Spring break protections also count as bearing points.

1330x serie



1301x serie



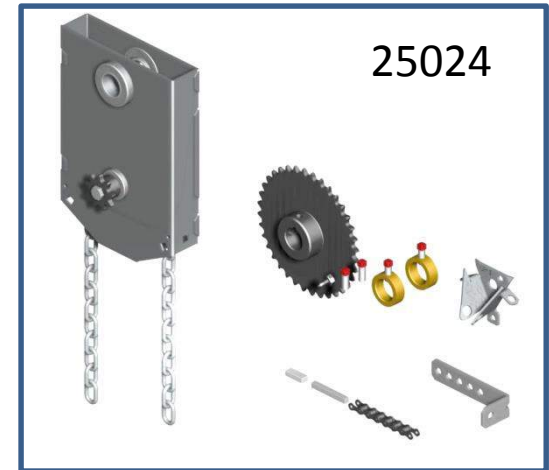
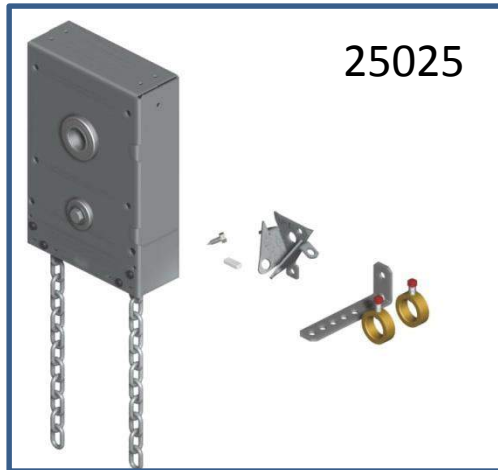
Chain Hoist

Function:

- Opening en closing the door manual by pulling on a chain.
- Mainly Industrial doors.

Types:

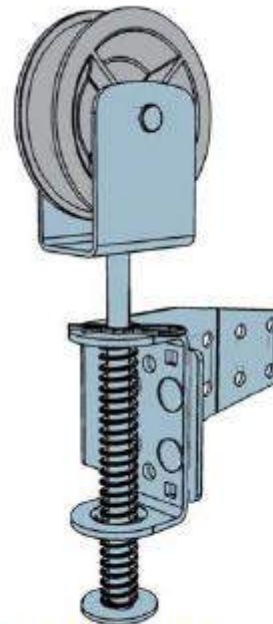
Chain hoist	Reduction type	Transmission	Reduction ratio	Max. unbalance	max weight
25022	indirect	by chain	4:1	5%	ca. 400 kg
25024	indirect	by chain	4:1	5%	ca. 400 kg
25025	direct	by gears	4:1	5%	ca. 700 kg



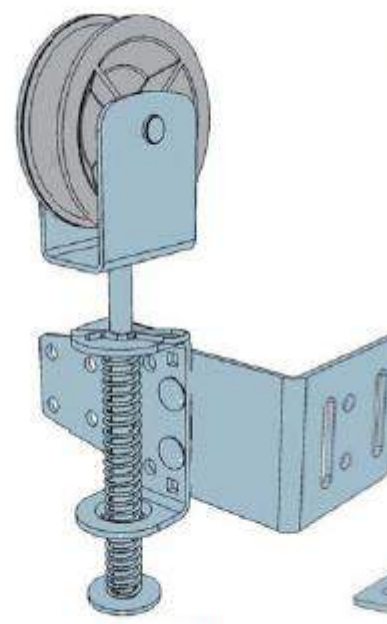
Chain Tensioner

Function:

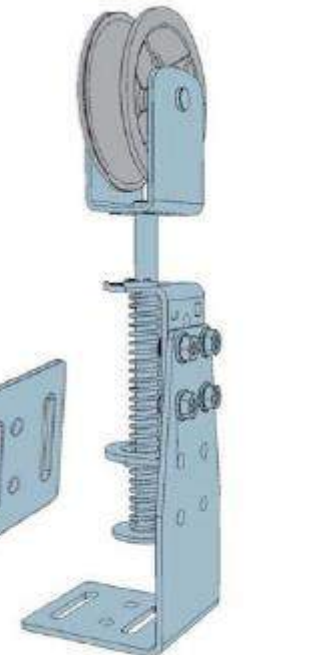
- Constant tension on the chain
- Optimal guidance into the chain wheel of the chain hoist.
- Smoother running of the chain



Mounting against
vertical angle



Mounting
against wall



Mounting against floor

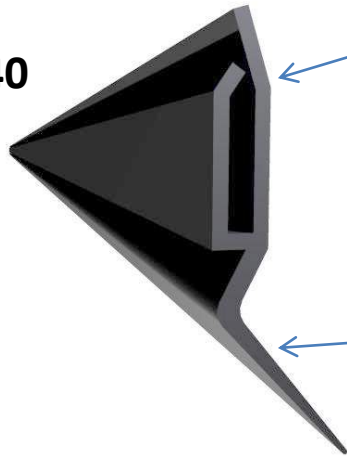
Side seals

Function:

- Seal between vertical angle and panels.

Material:
Co-extrusion

24740



Hard PVC

Soft rubber

24250



24704

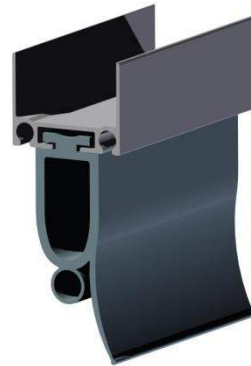


Bottom - seals

Function:

- Seal between vertical angle and panels.

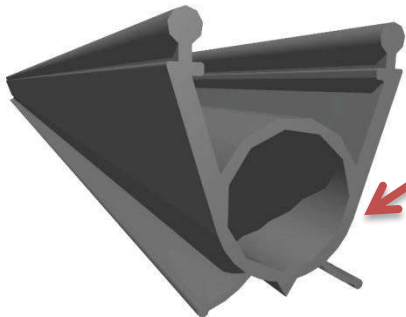
Material: EPDM



80042

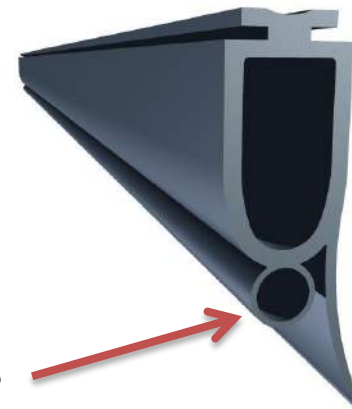


80019



Pneumatic /
Optical eyes

80045



Optical eyes

Panels

Function:

- Closing the building
- The “look” of the door.

Types:

Industrial panels / Commercial panels

Residential panels / Domestic panels

Isolated (different thicknesses) and non isolated.

Where used:

Industrial panel may only be used if doors go vertical up >2500mm without coming into the curve area (CE standard)

Residential panel may be used for garage-doors and industrial doors

Material:

- “Normal Panels” are made from 2 sheets steel with Polyurethane foam (PU-foam) between.
- Wooden panels (residential high market)
- PVC panels (UK market).
- Aluminum panels (mostly full vision doors).

Panels

Thickness:

- Most common panels are around 40mm (39-42) thick.
- But also 20,30,35,45,60,80mm thickness

Visual:

- Flat panels.
- Rib panels
- Cassette panels
- Micro ribs panels

A lot of colors and embossing are possible

Embossing



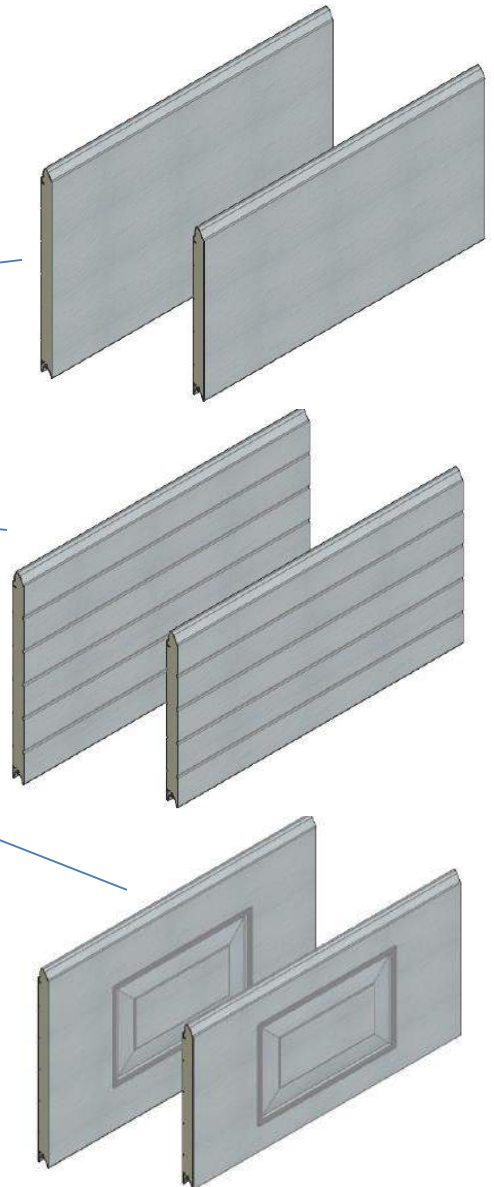
Smooth



Woodgrain

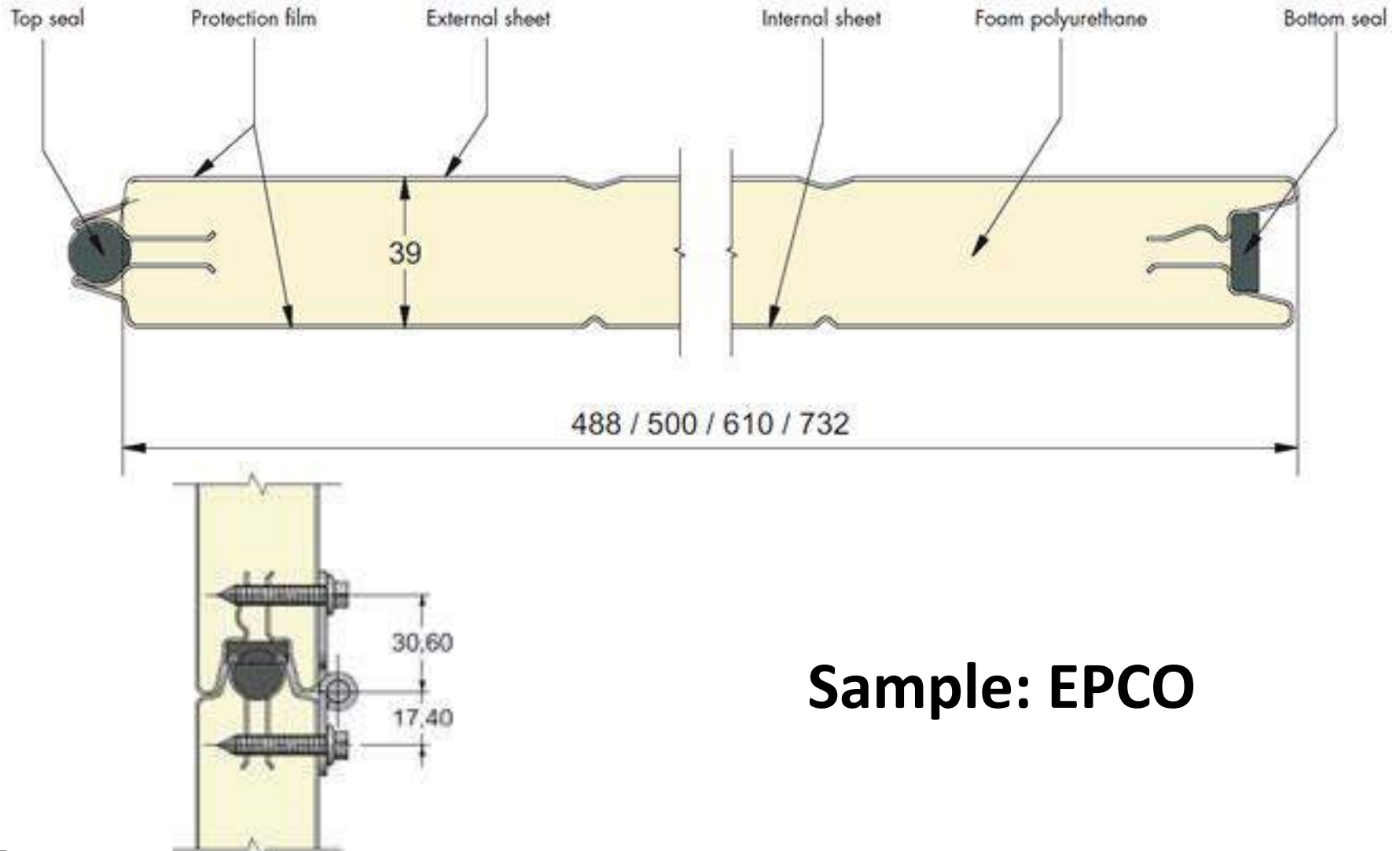


Stucco



Panels

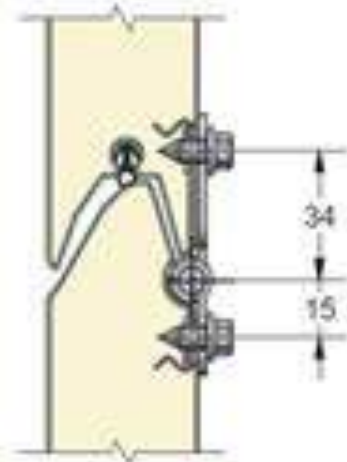
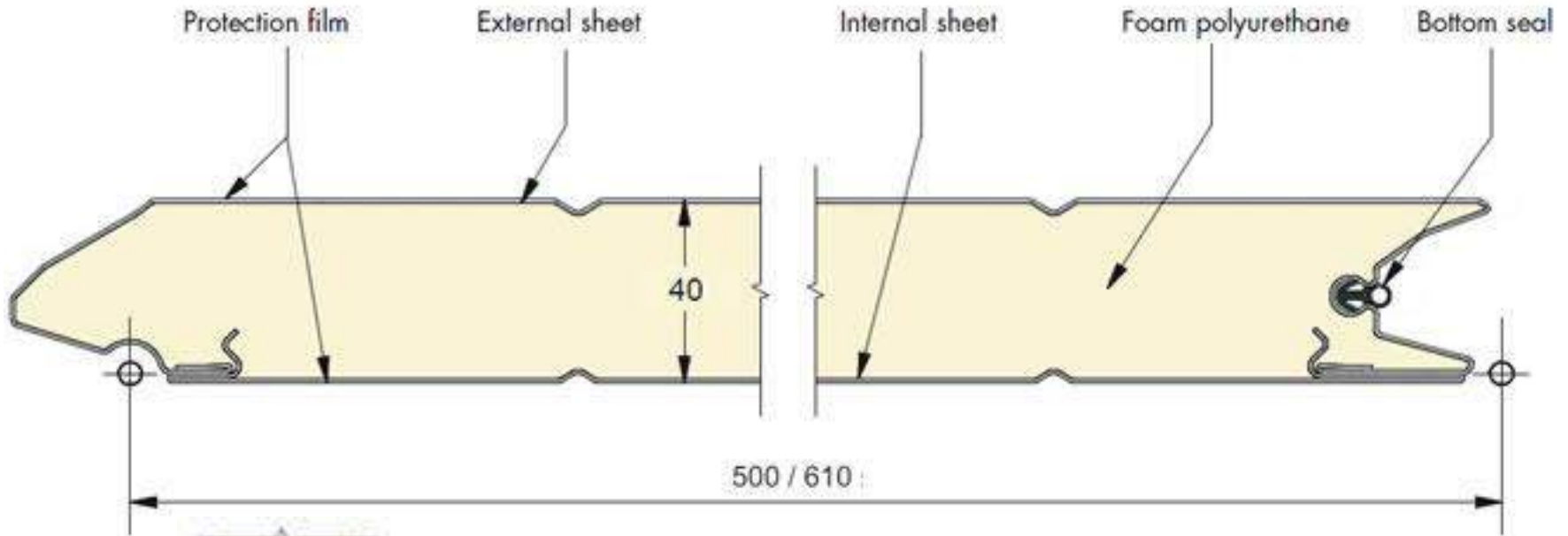
Construction of a most common industrial panels



Sample: EPCO

Parts in Detail : Panels

Construction of a most common residential panels



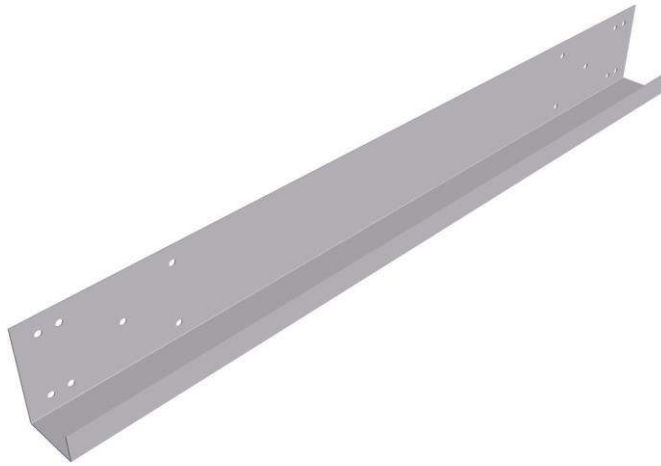
Sample: EPCO



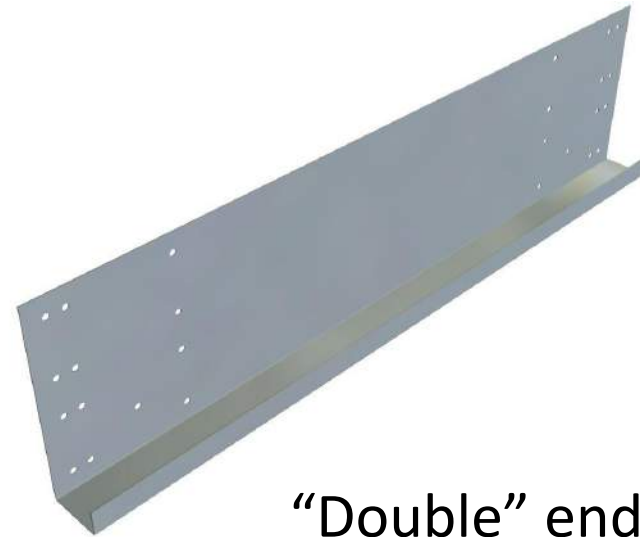
Endcaps

Function:

- Close the panel ends.
- Strengthening the panels.



Single endcap:
- Till 5m door width



“Double” endcap:
- from >5m door width

Strengthening Profiles

Function:

- Strengthening the doorblade against windload and doorblade weight in horizontal position.

According EN 12424 /12444 Class	Reference wind load [PA]
Class 1	300
Class 2	450
Class 3	700
Class 4	1000
Class 5**	>1000
** Exceptional; Agreement between manufacturer and purchaser	



For your imaging:

Wind-force 12 = Hurricane = 658 PA

Wind-force 9-10 = Storm –strong Storm = 450 PA = Minimum requirement of CE standard “class 2”

Use strenghtening profiles at doors $\geq 5000 \text{ mm}$

Strengthening Profiles

Fixation the strengthening profiles:

Advised will the fixation at the top of the panel; Why?

Because of the extra strengthening plate of the panel = extra hold.

