



EcoShape – the tubular framing system for new dimensions

With EcoShape, build custom solutions from just a few components. Planning is easy, too, not just due to the new MTpro planning software and the ability to make virtually any connection with just a few standard parts.

The 35 standard components are designed in accordance with the poka yoke principle, making them quick to assemble and prohibiting any faulty connections. The assembly line can be improved and expanded at any time in line with the kaizen philosophy. The system allows you to quickly and economically custom plan and build flow racks, material shuttles, workstations and any other frame systems to meet your specific needs from just a few standard components.



- ▶ Two aluminum tubular profiles give your construction the required stability.
- ▶ With just five connectors, you can create any connection between two EcoShape profiles – parallel, perpendicular, or at any desired angle.
- ▶ All of the connectors establish a positive interlocking connection between the profiles for a secure fit.
- ▶ The connection elements allow for a length tolerance, greatly facilitating cut-to-size and assembly work.
- ▶ The new Variofix blocks let you securely attach panel elements quickly and inexpensively.
- ▶ The combination with Rexroth's modular aluminum framing system enables solutions for handling heavy loads.
- ▶ EcoShape can be combined with the range of components from the Manual Production Systems (MPS) line. You can use this versatility to expand system functionality, for example in the area of ergonomics.

OVERVIEW OF TUBULAR FRAMING SYSTEM

6-7	Round tube
6-8	Connector
6-11	Adapter



EcoShape



EcoShape stands for versatility.
With EcoShape, you are ready for any challenge.

- ▶ The ability to combine all components with one another gives you great flexibility with just a few components.
- ▶ The tubes and connectors will neither rust nor wear, making them ideal for long-term use and for reuse in new systems.
- ▶ For even greater stability, you can combine EcoShape with the modular aluminum framing system.

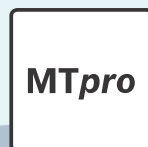
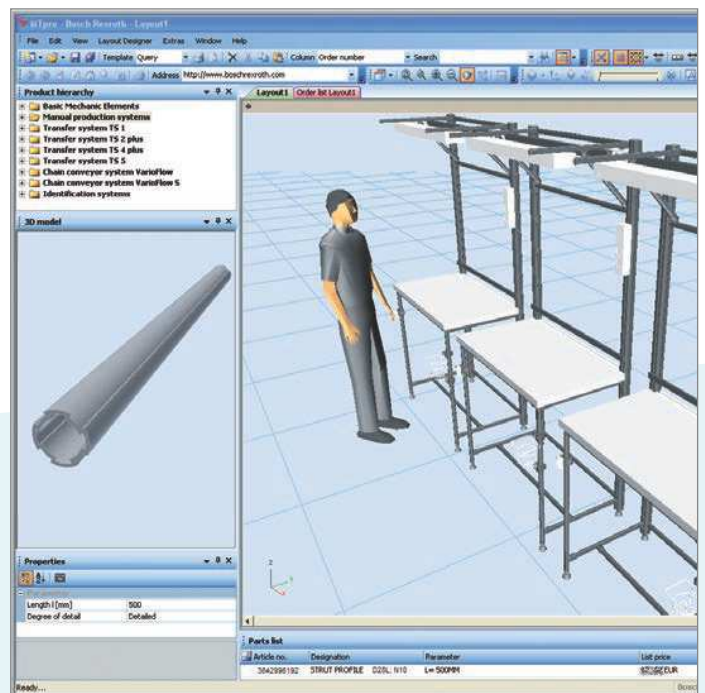
With the aid of just 35 EcoShape components, you can achieve continuous improvement (kaizen) and quickly and economically adapt existing systems to new demands on site.

All EcoShape systems are ESD-conductive and suitable for use in ESD-sensitive areas. All the connection elements are designed such that the anodized coating on the aluminum profiles is pierced to ensure ESD conductivity throughout the system without the need for risky additional wiring. No further ESD elements are required – with EcoShape you have everything in a single package.

- ▶ **MTpro** – the software for designing and planning constructions with the EcoShape tubular framing system. For further information, see pages 1-9/10 or www.boschrexroth.com

Ergonomics

The combination of lean production and ergonomics results in an unbeatable strategy to help you achieve short production runs and reduced costs. EcoShape unites low investment expenditure with high flexibility and quality, including in the area of ergonomics. The ergonomic accessories found in the MPS program can also be used with all EcoShape workstations and flow rack systems.



- ◀ **Aluminum is environmentally friendly and up to 99 % recyclable. Aluminum profiles are reusable.**



EcoShape



- ▶ All connectors can be combined with the EcoShape D28L and D28L, N10 round tubes as well as with the D28 round tube (see "Flow rack systems" section, pages 5-3 ff.).
- ▶ Integrated poka-yoke system for easy and secure connector installation
 - Anti-torsion element for secure joints
 - Form-fit connection
- ▶ All connectors are suitable for setting up ESD-conductive systems.

Material: Diecast zinc

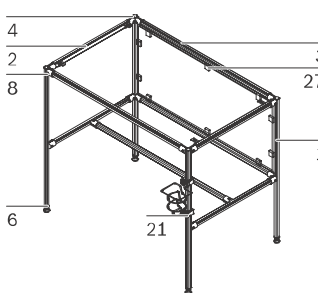
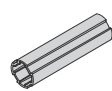
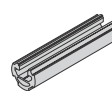

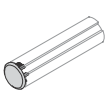
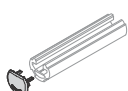

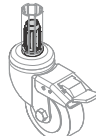
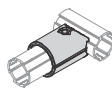
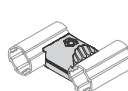
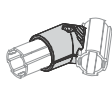
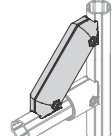
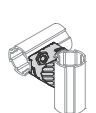
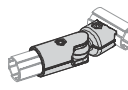
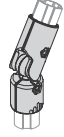

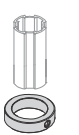
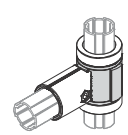
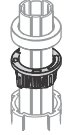
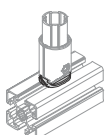
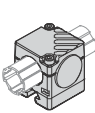
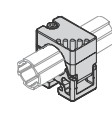
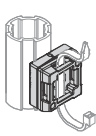
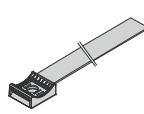
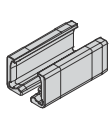
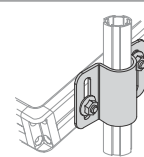
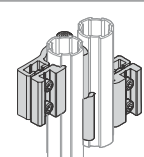
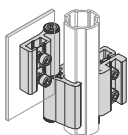
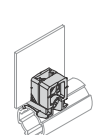
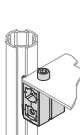
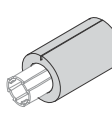
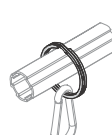

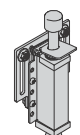
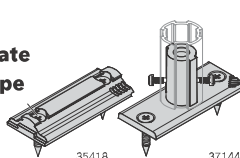
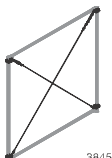
Scope of delivery: Incl fastening material



35 components - countless options: The EcoShape system is characterized by its consistent simplicity and efficiency. Using just a few components, you can build complete assembly lines as well as simple transport shuttles.

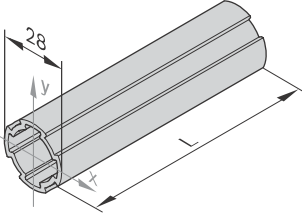
See technical data page 13-18 f.

00127214

	1 Round tube D28L  <p>24878</p>	2 Round tube D28L, N10  <p>24879</p>	3 Slide rail  <p>24880</p>	
	4 Cover cap D28L  <p>24881</p>	5 Cover cap D28L, N10  <p>24882</p>	6 Threaded sleeve D28L, PA  <p>24883</p>	
	7 Threaded sleeve D28L, PA  <p>24884</p>	8 90° connector  <p>24885</p>	9 Parallel connector  <p>24886</p>	
	10 45° connector  <p>24887</p>	11 Strut D28L, 45°  <p>24888</p>	12 Cross connector  <p>24889</p>	
13 0°-90° connector  <p>24890</p>	14 D28 connector  <p>24891</p>	15 Corner bracket D28  <p>24892</p>		
16 Retaining ring D28L  <p>24893</p>	17 Swivel bearing D28L  <p>24894</p>	18 Bushing  <p>34277</p>	19 Adapter N8, N10  <p>24895</p>	
20 Adapter N10/45  <p>24896</p>	21 Adapter N10/30  <p>24897</p>	22 Adapter mount D28L  <p>24898</p>	Adapter D28L Cable bracket loop  <p>37123</p>	
23 Adapter XLean  <p>24899</p>	24 Tube clamp D28L, N10  <p>24900</p>	25 Hinge D28L/D28L  <p>24901</p>	26 Hinge D28L/-  <p>24902</p>	
27 Variofix block PA  <p>24903</p>	28 Variofix block Zn  <p>24904</p>	29 Impact protection  <p>24905</p>	30 Ring D50  <p>24906</p>	
31 Rubber foot D28  <p>24907</p>	32 Stopper D28L, N10  <p>24908</p>	33/34 Base plate EcoShape  <p>35418 37144</p>	35 Tension wire  <p>38453</p>	

1

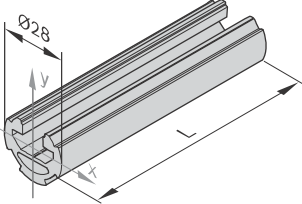

$A = 1,80 \text{ cm}^2$
 $I_x = 1,33 \text{ cm}^4$
 $I_y = 1,33 \text{ cm}^4$
 $W_x = 0,95 \text{ cm}^3$
 $W_y = 0,95 \text{ cm}^3$
 $m = 0,48 \text{ kg/m}$



00134985

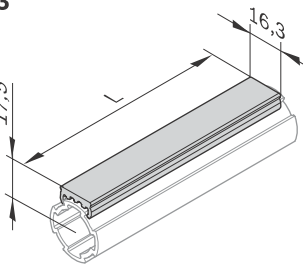
2

$A = 2,63 \text{ cm}^2$
 $I_x = 1,17 \text{ cm}^4$
 $I_y = 1,97 \text{ cm}^4$
 $W_x = 0,84 \text{ cm}^3$
 $W_y = 1,41 \text{ cm}^3$
 $m = 0,71 \text{ kg/m}$

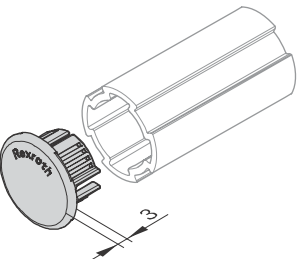
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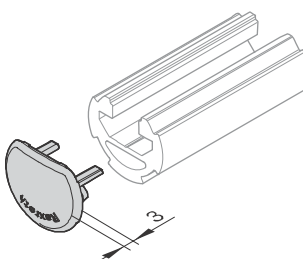
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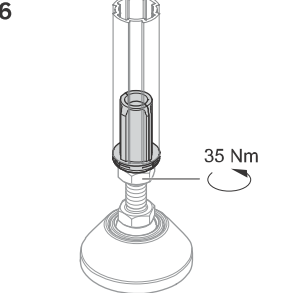
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5

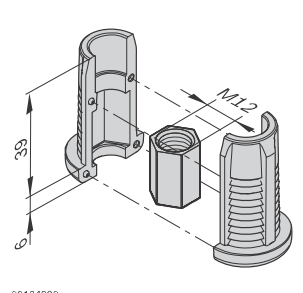


24133


6



25597




00134990

D28L round tube	L (mm)	No.
1 pc	50 ... 6070	3 842 996 191/L
 50 pcs	6070	3 842 557 243
1 pc	6070	3 842 557 250



- ▶ D28L round tube with 4 interfaces for attaching EcoShape connectors

Material: Aluminum, anodized

D28L round tube, N10	L (mm)	No.
1 pc	50 ... 6070	3 842 996 192/L
 20 pcs	6070	3 842 557 244
1 pc	6070	3 842 557 251




- ▶ D28L round tube, N10 with 10 mm slot for mounting accessories from the modular aluminum framing system
- ▶ 3 interfaces for EcoShape connectors

Material: Aluminum, anodized

Slide rail	L (mm)	ESD		No.
	2000		10	3 842 554 750
	2000		10	3 842 548 117

- ▶ Slide rail for creating a simple conveyor track or manual slide section by clipping the slide rail onto the D28L round tube or D28L, N10 round tube

Material: PVC, signal gray; ESD: PVC (conductive), black

Cover cap	ESD		No.
4 D28L	Black		20 3 842 548 129
	Signal gray		20 3 842 554 752
5 D28L, N10	Black		20 3 842 548 130
	Signal gray		20 3 842 554 754

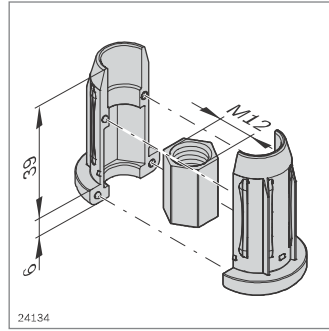
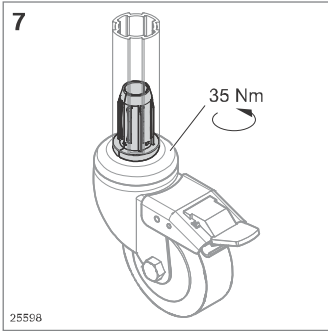
- ▶ Cover cap for D28L round tube and D28L, N10 round tube

Material: PA66 (conductive)

D28L threaded sleeve, PA	ESD		No.
		20	3 842 541 185

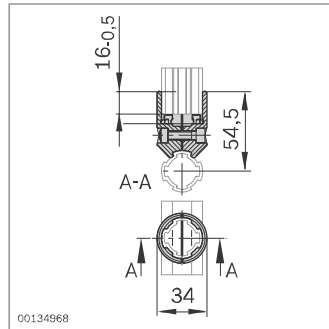
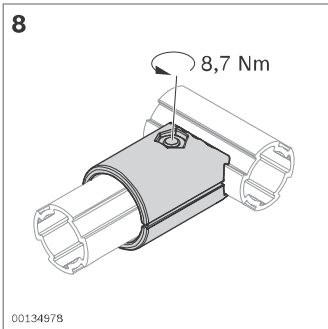
- ▶ Threaded sleeve for incorporating a leveling foot or castor wheel. For further information, see page 6-7

Material: PA66 (conductive), black; aluminum hexagon nut



D28L threaded sleeve, Zn	ESD	No.
	20	3 842 548 119

Material: Diecast zinc; aluminum hexagon nut

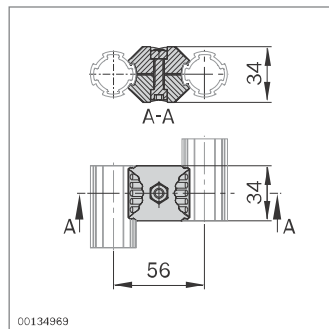
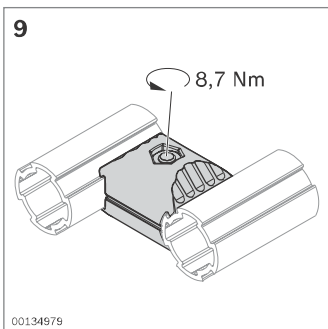


90° connector	ESD	No.	FS
	20	3 842 541 173	FS1

Material: Diecast zinc
Scope of delivery: Incl fastening material (FS)

FS1

- ISO 4762 M6x25
- ISO 10511 M6

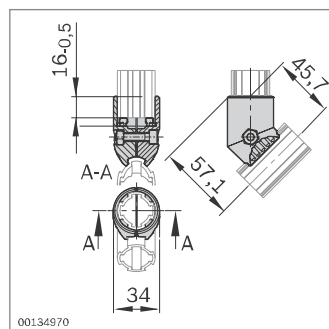
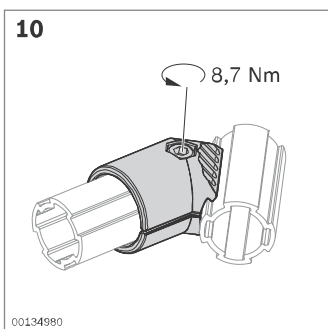


Parallel connector	ESD	No.	FS
	20	3 842 541 183	FS1

Material: Diecast zinc
Scope of delivery: Incl fastening material (FS)

FS1

- ISO 4762 M6x25
- ISO 10511 M6

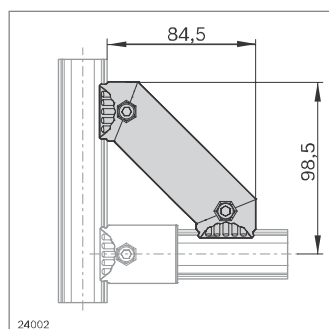
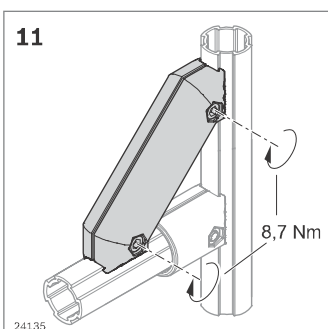


45° connector	ESD	No.	FS
	20	3 842 541 175	FS1

Material: Diecast zinc
Scope of delivery: Incl fastening material (FS)

FS1

- ISO 4762 M6x25
- ISO 10511 M6

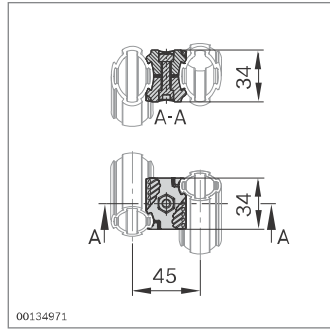
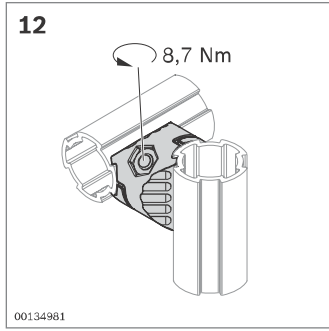


45° D28L strut	ESD	No.	FS
	20	3 842 548 118	2xFS1

Material: Diecast zinc
Scope of delivery: Incl fastening material (FS)

FS1

- ISO 4762 M6x25
- ISO 10511 M6



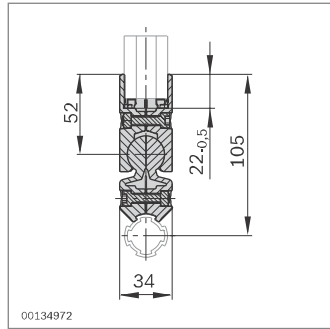
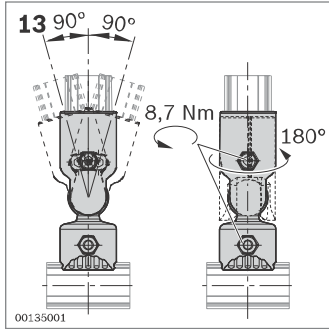
Cross connector	ESD	No.	FS
	20	3 842 541 181	FS1

Material: Diecast zinc

Scope of delivery: Incl fastening material (FS)

FS1

ISO 4762	M6x25
ISO 10511	M6



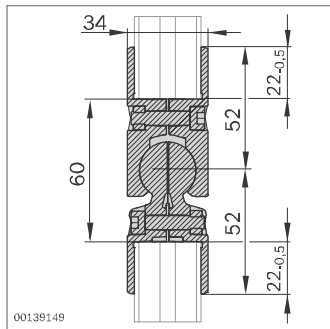
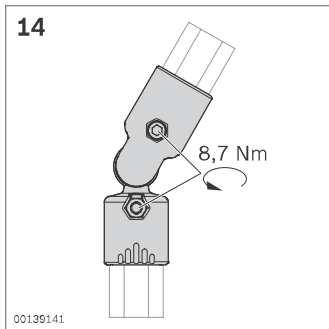
0°-90° connector	ESD	No.	FS
	20	3 842 541 178	2xFS1

Material: Diecast zinc

Scope of delivery: Incl fastening material (FS)

FS1

ISO 4762	M6x25
ISO 10511	M6



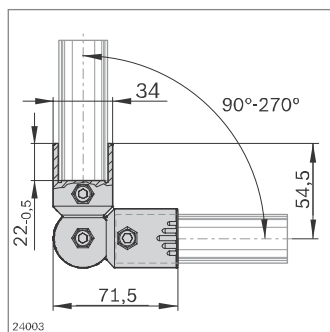
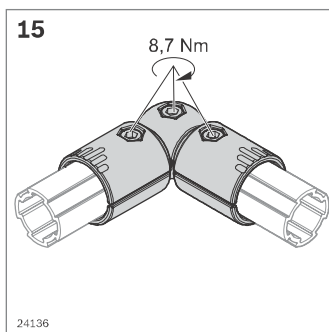
0°-90° D28 connector	ESD	No.	FS
	20	3 842 543 480	2xFS1

Material: Diecast zinc

Scope of delivery: Incl fastening material (FS)

FS1

ISO 4762	M6x25
ISO 10511	M6



D28 corner bracket	ESD	No.	FS
	20	3 842 548 123	3xFS1

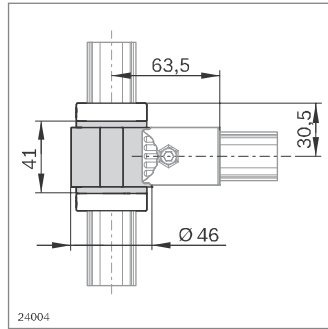
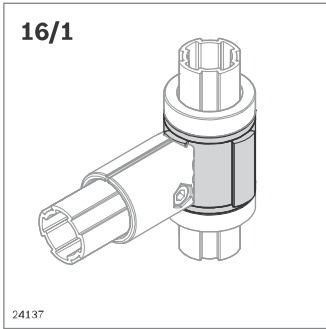
- ▶ D28 corner bracket for easy adjustment within a 15° range
- ▶ Swivel range: 90°-270°

Material: Diecast zinc

Scope of delivery: Incl fastening material (FS)

FS1

ISO 4762	M6x25
ISO 10511	M6



D28L swivel bearing	L (mm)	ESD	No.
	34	20	3 842 548 121

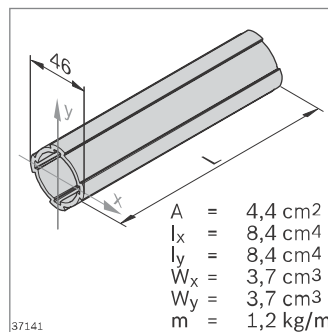
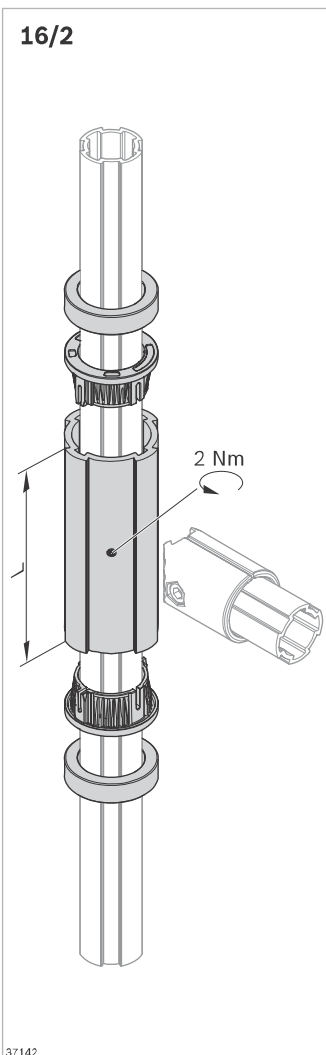
- ▶ For axial shifting along the D28L or D28L, N10 round tube. The retaining ring determines the end position
- ▶ Construction of swiveling applications
- ▶ Additional thread for flexible bracket adjustment

Required accessories: D28L retaining ring

Material: Aluminum swivel bearing

Scope of delivery: D28L swivel bearing, L=34 mm;

D28 bushing (17), headless setscrew ISO 4026 M4x10

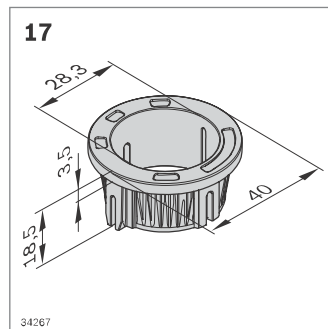


D28L swivel bearing	L (mm)	ESD	No.
	1000	2	3 842 557 298

For self-assembly:

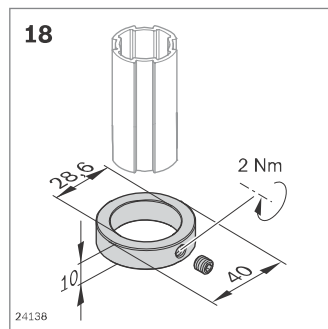
- ▶ D28L swivel bearing with L = 1000 mm that can be cut to length

Material: Aluminum swivel bearing



D28 bushing	ESD	No.
	4	3 842 557 299

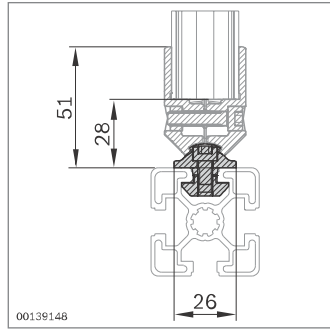
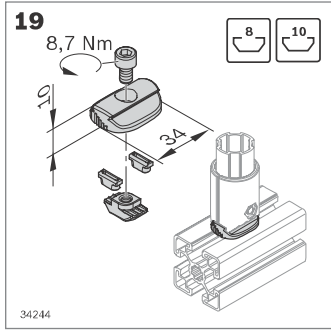
Material: POM bushing, black



D28L retaining ring	ESD	No.
	4	3 842 548 122

Material: Aluminum retaining ring

Scope of delivery: Retaining ring incl. headless setscrew DIN 913 M6x6

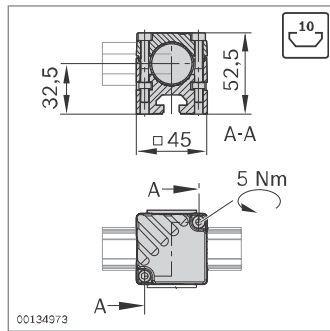
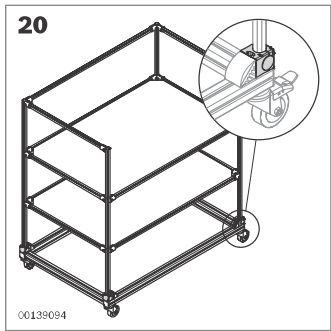
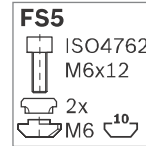
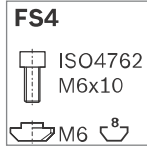


N8, N10 adapter	ESD	No.	FS
	20	3 842 543 272	FS4, FS5

- N8, N10 adapter for connecting an MGE strut profile (8 mm, 10 mm slots)

Material: Diecast zinc

Scope of delivery: Incl fastening material (FS)

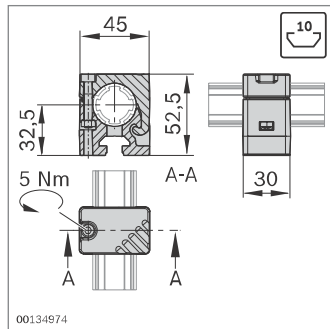
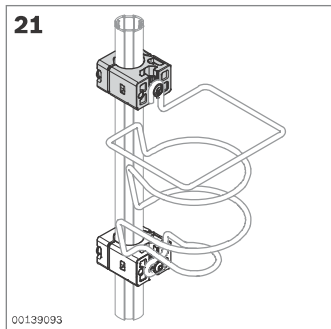


N10/45 adapter	ESD	No.	FS
	20	3 842 541 187	2xFS3

- N10/45 adapter for connecting D28L round tubes or D28L, N10 round tubes to profiles with a 10 mm slot

Material: Diecast zinc adapter, PE cover cap

Scope of delivery: Incl cover cap, fastening material (FS)

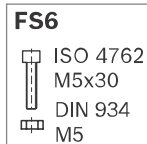


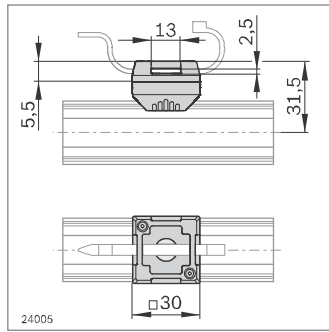
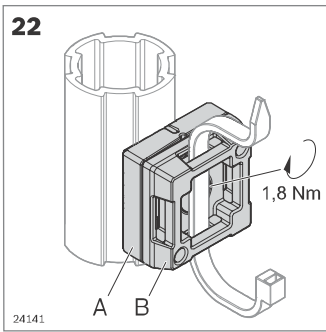
N10/30 adapter	ESD	No.	FS
	20	3 842 541 190	FS6

- N10/30 adapter for mounting light accessories such as a bottle holder to the D28L round tube

Material: Diecast zinc

Scope of delivery: Incl fastening material (FS)



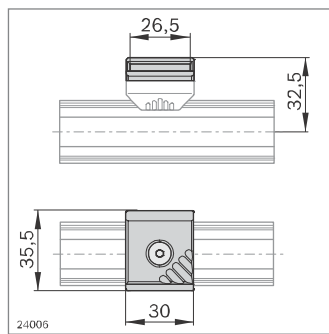
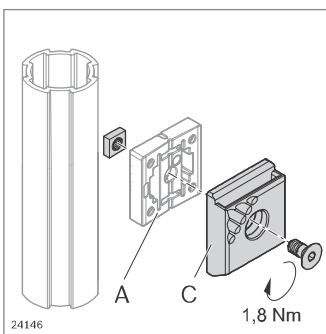
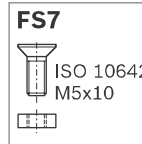


D28L adapter mount	ESD	No.	FS
A + B	20	3 842 548 120	FS7

► For attaching cable ties

Material: PA66 (conductive), black

Scope of delivery: Incl fastening material (FS)

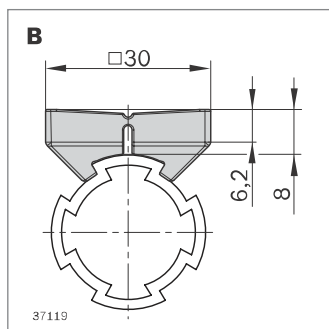
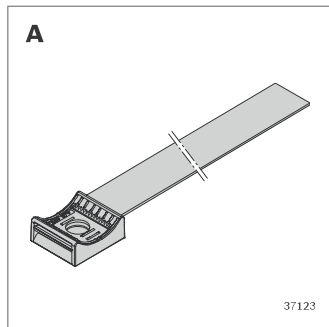
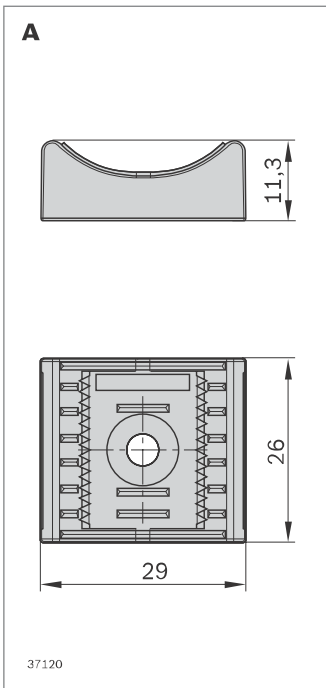
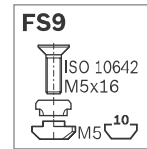
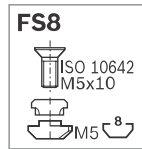


Container mount	ESD	No.	FS
C	10	3 842 544 797	FS8, FS9

► For attaching containers using the container mount

Material: PA66 (conductive), black

Scope of delivery: Incl fastening material (FS)

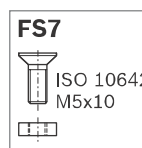


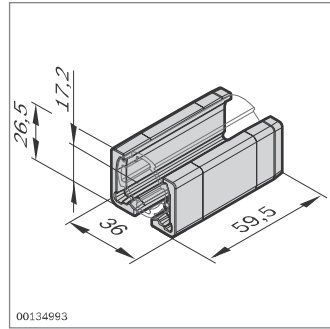
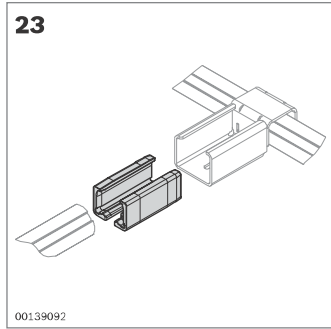
Cable bracket + adapter	ESD	No.	FS
A Loop flat cable bracket	10	3 842 559 380	
B Adapter D28L	10	3 842 562 115	FS7

- Loop flat cable bracket (**A**) for the direct assembly on panel element or table top
- Can be mounted on adapter D28L (**B**) for the fastening on EcoShape profiles
- Can be used with M4 and M5 screws
- Adapter for the fastening of loop flat cable holder at EcoShape profiles
- D28L adapter (**B**) for the fastening of container mount

Material: PP cable bracket (conductive), black, UL certified; PP velcro strap, PPA (velour), UL certified; PA adapter (conductive), black; steel mounting kit, galvanized

Scope of delivery: Adapter incl. fastening material (FS)

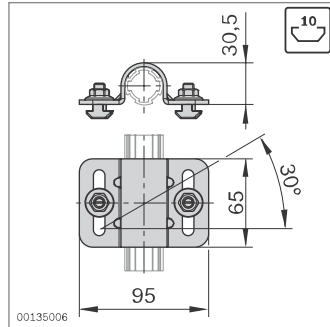
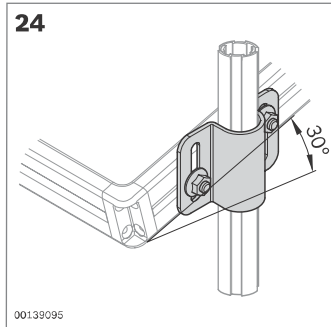




XLean adapter	ESD	No.
	20	3 842 541 296

- ▶ XLean adapter for combination with XLean. The XLean adapter connects the D28L round tube with the XLean rail holder (page 6-13)

Material: PA66 (conductive), black



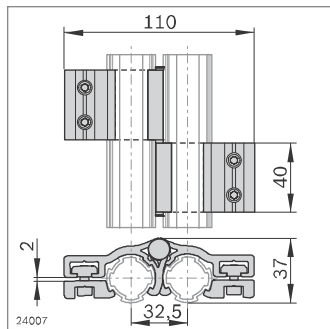
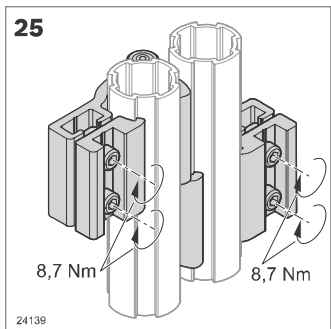
D28L, N10 tube clamp	ESD	No.	FS
	20	3 842 541 193	2xFS10

- ▶ Tube clamp D28L, N10 for fastening material shelves with a 10 mm slot to the D28L round tube; oblique positioning up to 30 degrees is possible

Material: Steel, galvanized, black

Scope of delivery: Incl fastening material (FS)

FS10



D28L/D28L hinge	ESD	No.	FS
	2	3 842 548 126	4xFS11, FS12

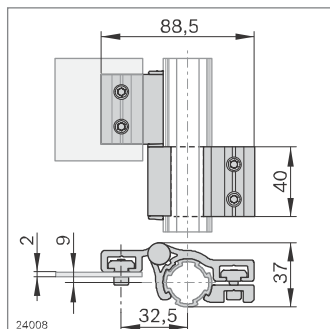
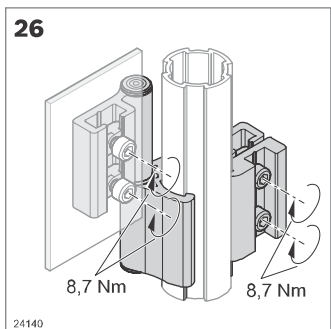
- ▶ Opening angle: 180°
- ▶ For mounting D28L round tube

Material: Aluminum

Scope of delivery: Incl fastening material (FS)

FS11

FS12



D28L/- hinge	ESD	No.	FS
	2	3 842 548 127	2xFS11, FS12

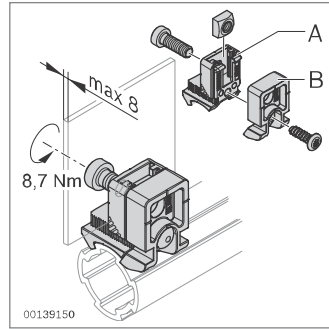
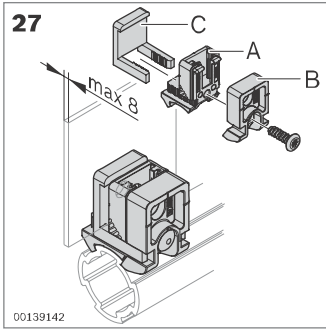
- ▶ Opening angle: 180°
- ▶ For mounting panel elements

Material: Aluminum

Scope of delivery: Incl fastening material (FS)

FS11

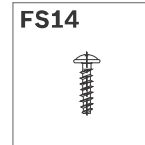
FS12



Variofix block (PA)	No.	FS
	20	3 842 543 311 FS13, FS14

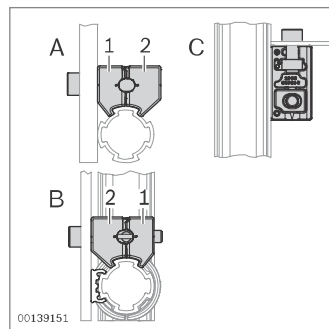
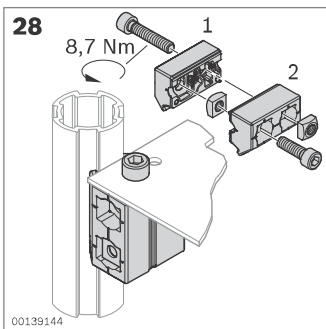
- ▶ Plastic Variofix block for fastening panel elements with snap-in clips or a screw
- ▶ Variofix remover for releasing the snap-in clip (page 6-14)

Material: PA66 (conductive), black
 Scope of delivery: Incl fastening material (FS)



Snap-in clip	No.
	10 3 842 184 738

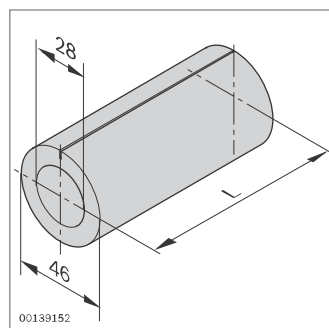
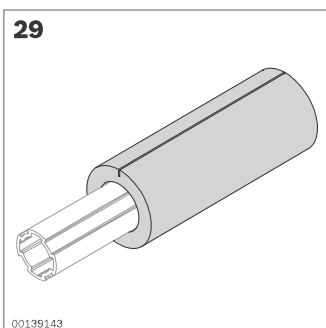
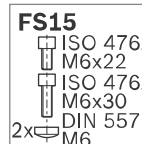
Material: PA6, transparent



Variofix block (Zn)	ESD	No.	FS
		20	3 842 543 494 FS15

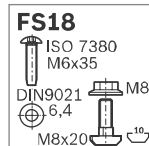
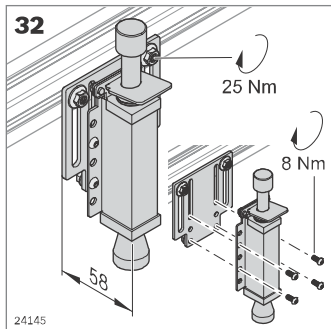
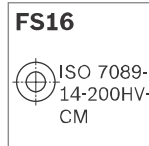
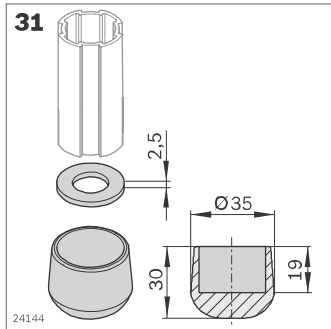
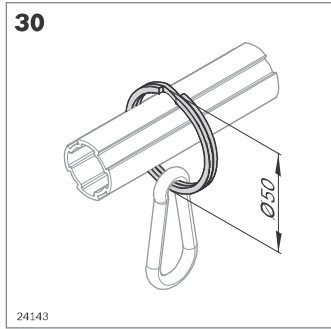
- ▶ Diecast zinc Variofix block for fastening panel elements
- ▶ Three arrangements possible ("A", "B", "C")

Material: Diecast zinc
 Scope of delivery: Incl fastening material (FS)



Impact protection	L (mm)	No.
	2000 10	3 842 544 637

Material: PE-LD, gray



Ring + spring hook	ESD	No.	FS
D50 ring	20	3 842 548 131	
Spring hook	1	0 842 901 309	

► For designing simple tool holders

Material: Steel ring, nickel-plated; steel spring hook, galvanized

D28L base plate	ESD	No.	FS
	20	3 842 548 128	FS16

► Non-slip design of flow racks and stands

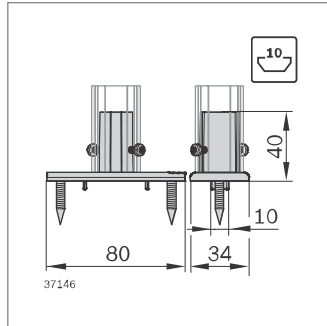
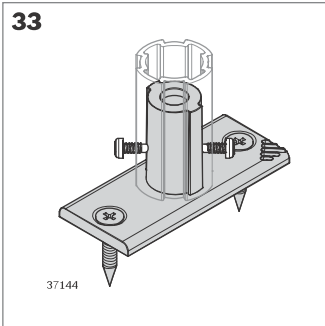
Material: NR/SBR (conductive), black

D28L, N10 stopper	No.	FS
	3 842 548 132	4xFS16, 2x FS18

- To stop material shuttles ergonomically at just one point
- All-purpose option for attachment to different round tubes and profile cross-sections
- Stopper tension path: 34 mm

Material: Stainless steel stopper: EPDM; aluminum attachment plate

Scope of delivery: Incl fastening material (FS)



D28L base plate	ESD	No.	FS
	10	3 842 559 346	2xFS19

- ▶ Base plate for fastening frames directly onto walls, floors, table tops and strut profiles with 10 mm slot via EcoShape round tubes
- ▶ No additional connector required
- ▶ Anti-torsion element by centering lug (can be broken off)
- ▶ Reference load during profile installation: 15 Nm admissible in lengthwise and crosswise direction. Load values at installation on other surfaces depend on the respective material

Material: Diecast zinc

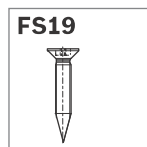
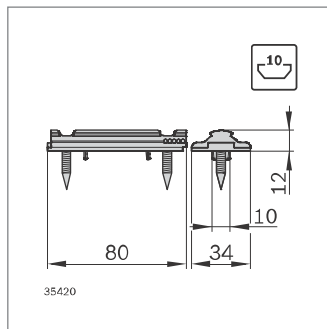
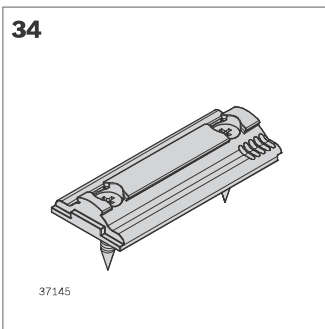
Scope of delivery: Incl fastening material (FS)

Recommended accessories for profile installation:

Countersunk screw ISO 10642 M5x16-8.8; T-nut

(3 842 530 283)

Optional accessories: Self-tapping screw **(3 842 552 267)**



EcoShape base plate	ESD	No.	FS
	10	3 842 559 345	2xFS19

- ▶ Base plate for fastening frames onto walls, floors, table tops and strut profiles with 10 mm slot with the help of EcoShape connectors
- ▶ Anti-torsion element by centering lug (can be broken off)
- ▶ Reference load during profile installation: 15 Nm admissible in lengthwise and crosswise direction. Load values at installation on other surfaces depend on the respective material

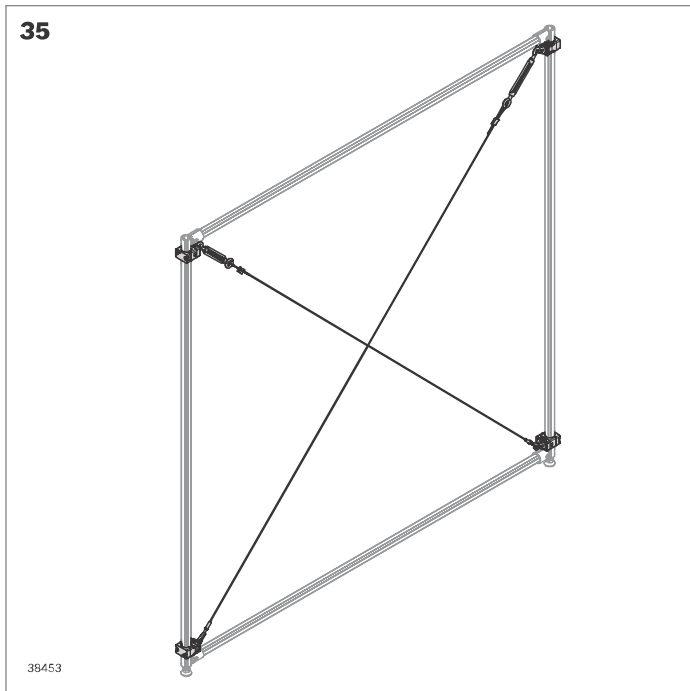
Material: Diecast zinc

Scope of delivery: Incl fastening material (FS)

Recommended accessories for profile installation:

Countersunk screw ISO 10642 M5x16-8.8; T-nut

(3 842 530 283)



Tension wire	ESD	No.
	2	3 842 562 083

- Reinforcement option for EcoShape applications
- Max. tensioning force 500 N

Material: eye, locking lock, stainless steel: Steel wire, galvanized

Scope of delivery: Incl fastening material for fastening to the D28L round tube

