Structural system XC

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A structure for every specific application

Introduction

The FlexLink structural system consists of a well balanced range of standard components which can be combined to form a structure for every specific application. It offers sturdy components which provide high load capacity for both static and linear motion systems. It also serves as the key to all other FlexLink standard systems.

The FlexLink structural system is used within a wide range of applications, from frameworks, work benches and enclosures to special machinery, pick and place units and gantry robots. Whether the design you need is permanent, temporary, or a prototype, the FlexLink system can be assembled economically, with ease and speed.

Characteristics

- Easy to assemble, adjust and dismantle using simple hand tools. No welding necessary.
- Short time from concept to finished design.
- The components can be used over and over again.
- Provides easy mounting of pneumatic or electrical components in the T-slots of the beams.
- The use of anodized aluminium in the beams provides a smooth, hard wearing finish without the need for an added protective finish.
- The system stimulates creativity.

Other FlexLink products

FlexLink is the trade name for a complete range of standard systems for materials handling and automation. The total package offered to the market consists of nine different product lines with approximately 2000 standard components.

Automation components

- Structural system XC and XD
- Linear drive units XR

Structural system XD focuses on compact, light automation applications. It consists of a comprehensive range of standard components and ready-made functional units for linear and rotary motion.

Linear drive unit XR consists of a range of screw or belt driven linear drive units which provide accurate and repeatable positioning. All units are assembled according to individual requirements of stroke, load, saddle configuration and drive method.

Conveyor systems

- Plastic chain conveyors XS, XL, XM, XH, XK
- Wide plastic chain conveyor XW
- Twin-track belt conveyor XP

Product range

Seven major application areas

The structural system employs a range of extruded modular aluminium beams with a uniform T-slot. The beams are designed to provide the highest possible stability and torsional strength. The product range is divided into seven major application areas with a wide range of principles within each group. Together they provide a unique flexibility and almost unlimited combination capability! This makes it possible to tailor make your own design exactly in accordance with your needs and requirements.

Beams

Six modular sizes:
24, 44, 64, 88, 132, 176 mm.

Connectors

Eight types:
Angle brackets, mounting plates, fastener yokes, T-slot washers, small fittings, parallel connector, stay brackets, connecting strips.

Feet

Five types:
Die-cast feet, foot plates, adjusting feet, 2/3-point polyamide feet, guide rollers.

Linear motion

Five types:
Sliding element for T-slot, sliding elements for guide profiles, plastic wheels, steel shaft and runners, roller unit.

Rotating motion

Two types:
Die-cast joint, parallel extruded joint.

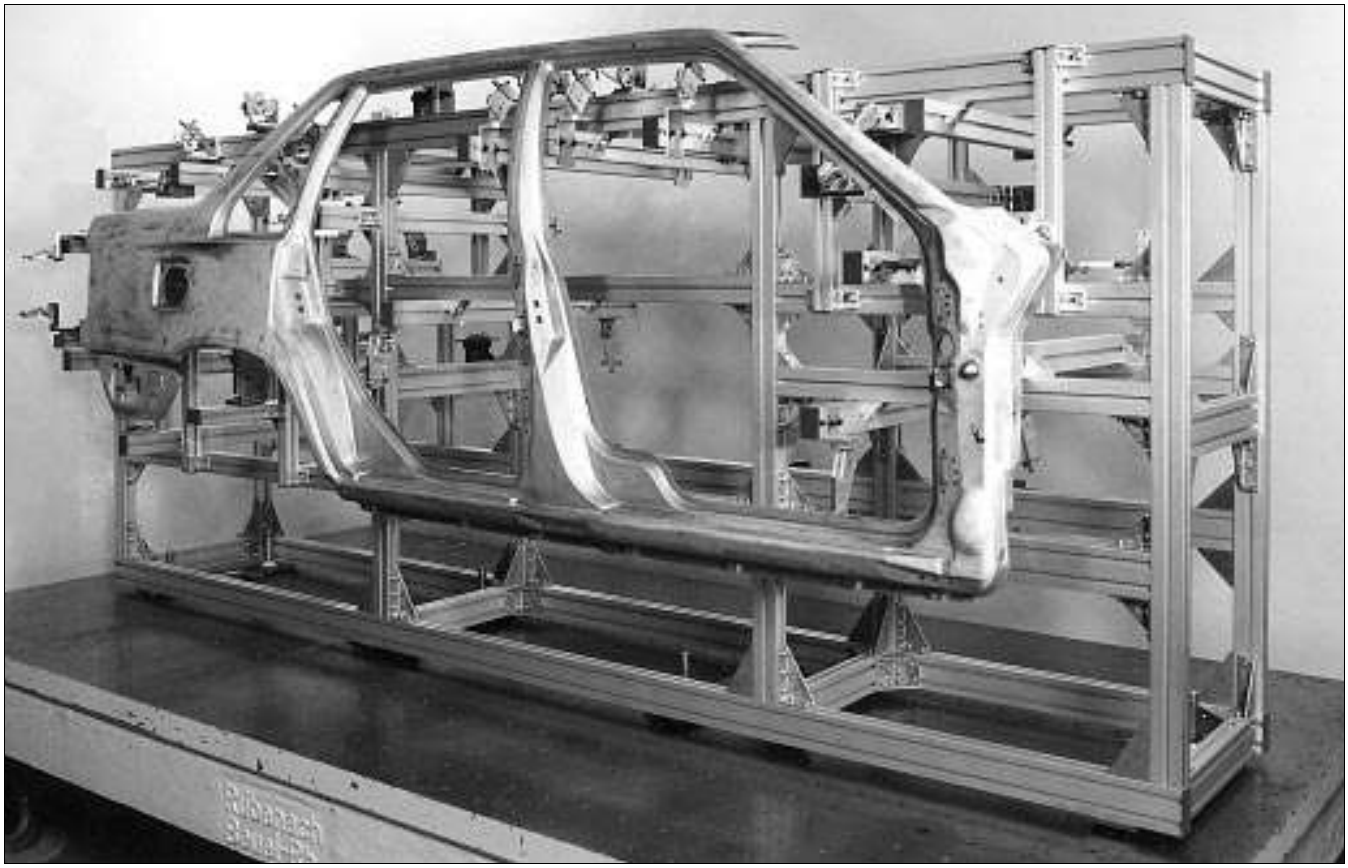
Enclosures

Nine types:
Sliding door profiles, multiblock, hinge, strap handle, door lock, mounting plate for security switch, enclosure profile, T-slot rubber strip, conduit elements.

Pneumatic components

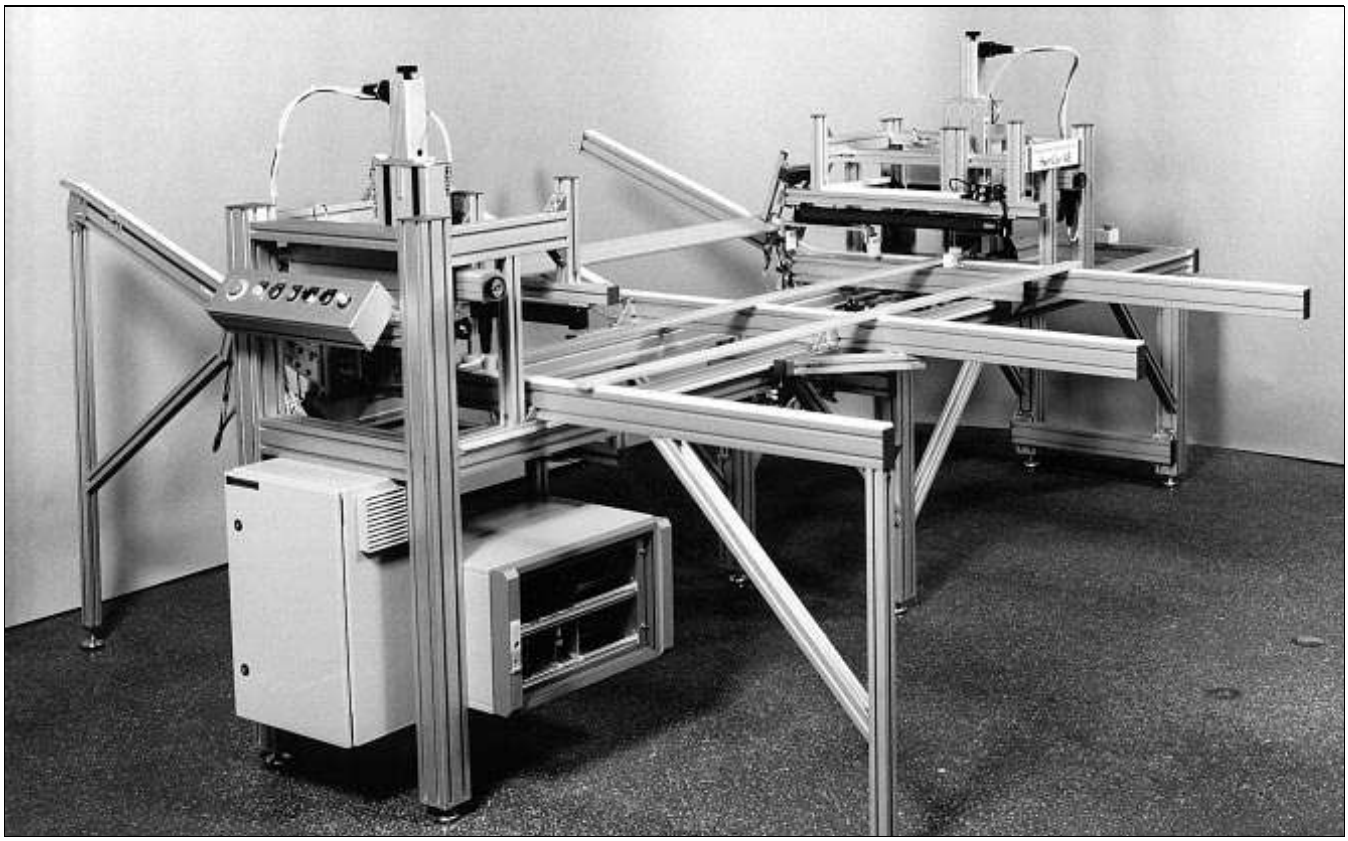
Four types:
Pneumatic end plates, pneumatic connection plates, pneumatic connector, gaskets.

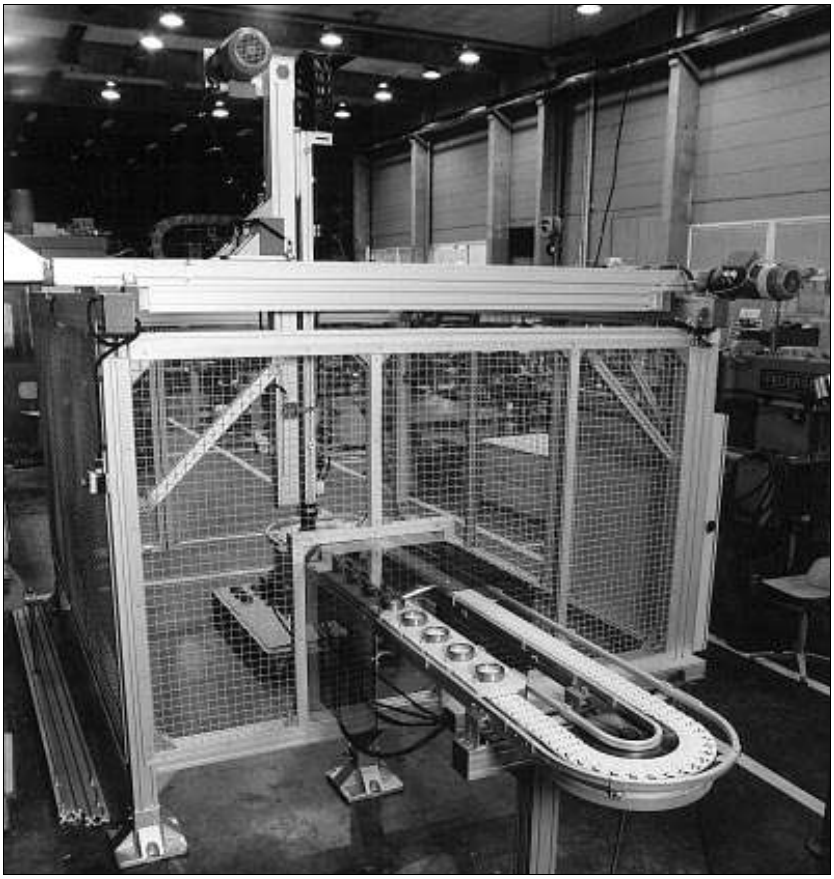
Application examples



FlexLink structural system XC
Tailor-made rigging system for inspection of welded car chassis assemblies.

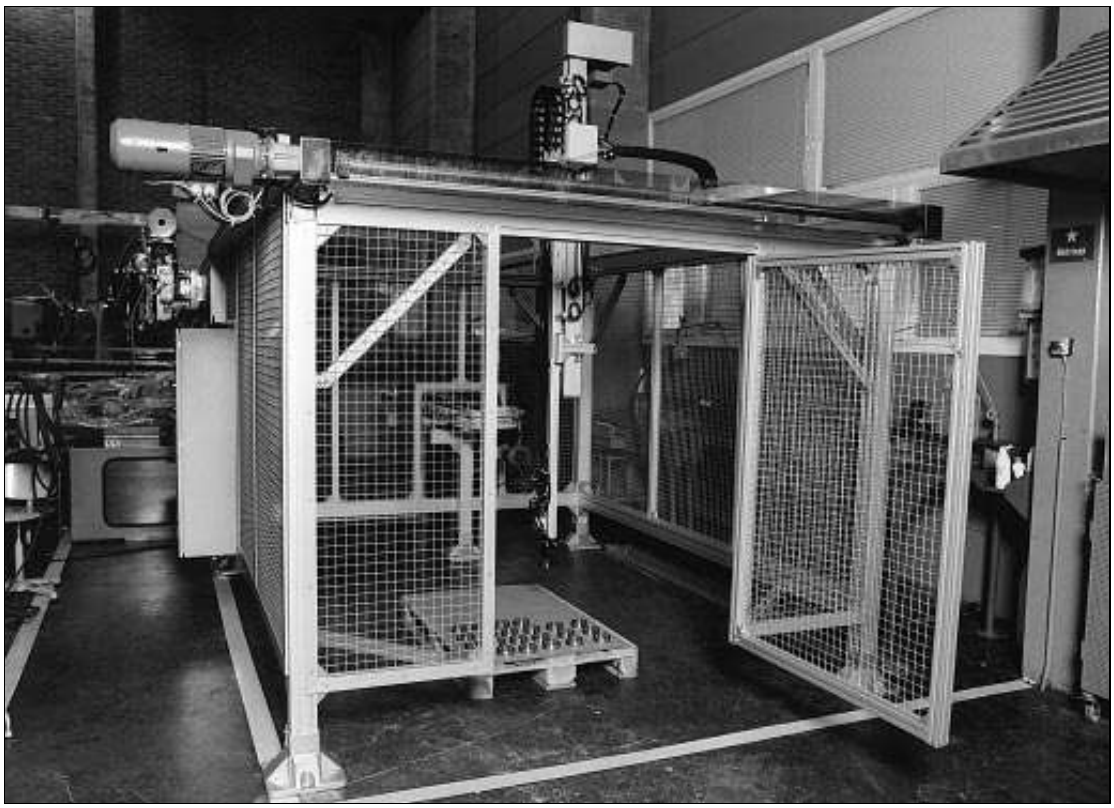
FlexLink structural system XC
Machine for automatic end milling of wood.

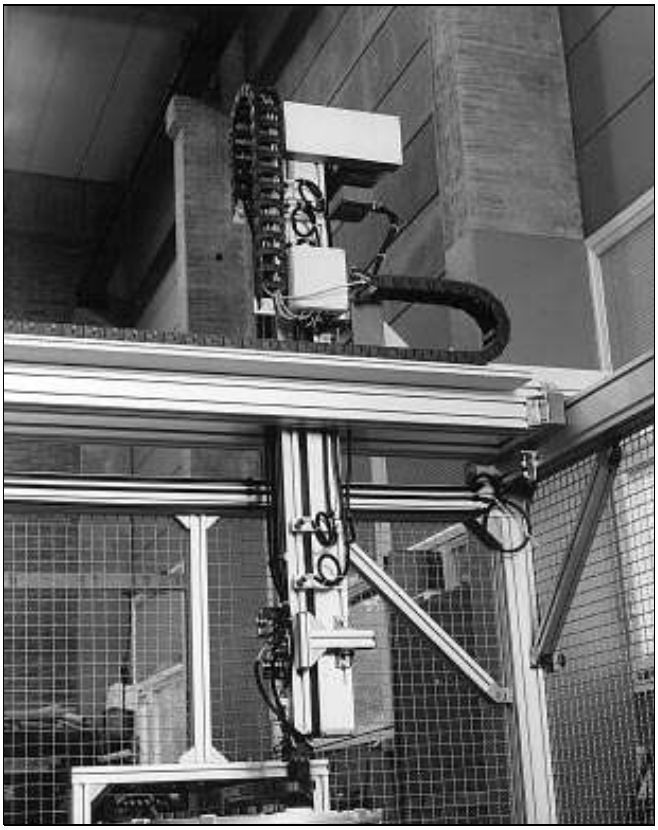




FlexLink structural system XC
Automatic palletizer for bearings, feed-in side. Built with linear drive units XRH/XRL. Training site.

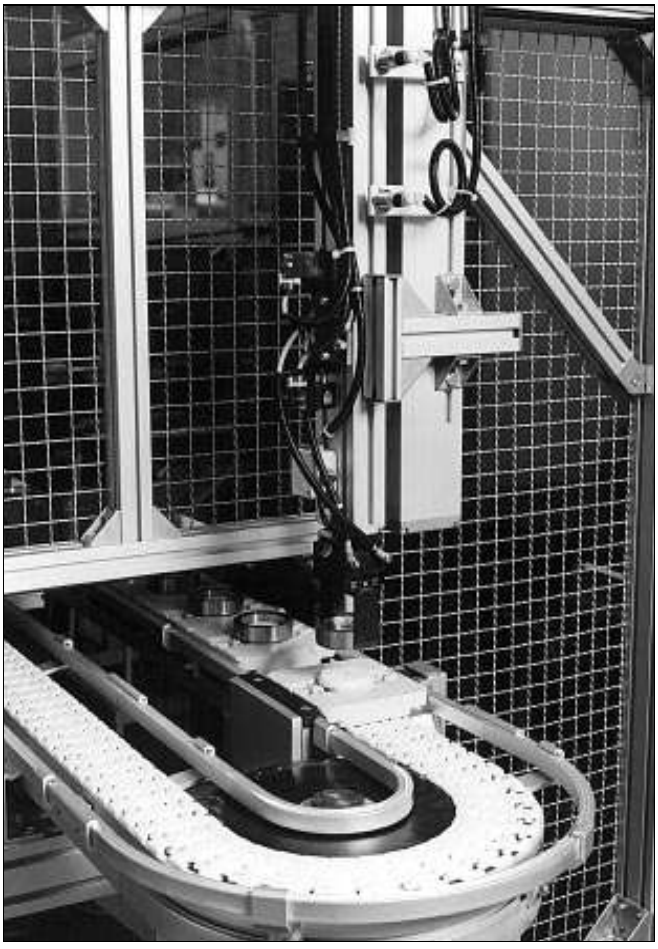
FlexLink structural system XC
Automatic palletizer for bearings, feed-out side. Built with linear drive units XRH/XRL. Training site.

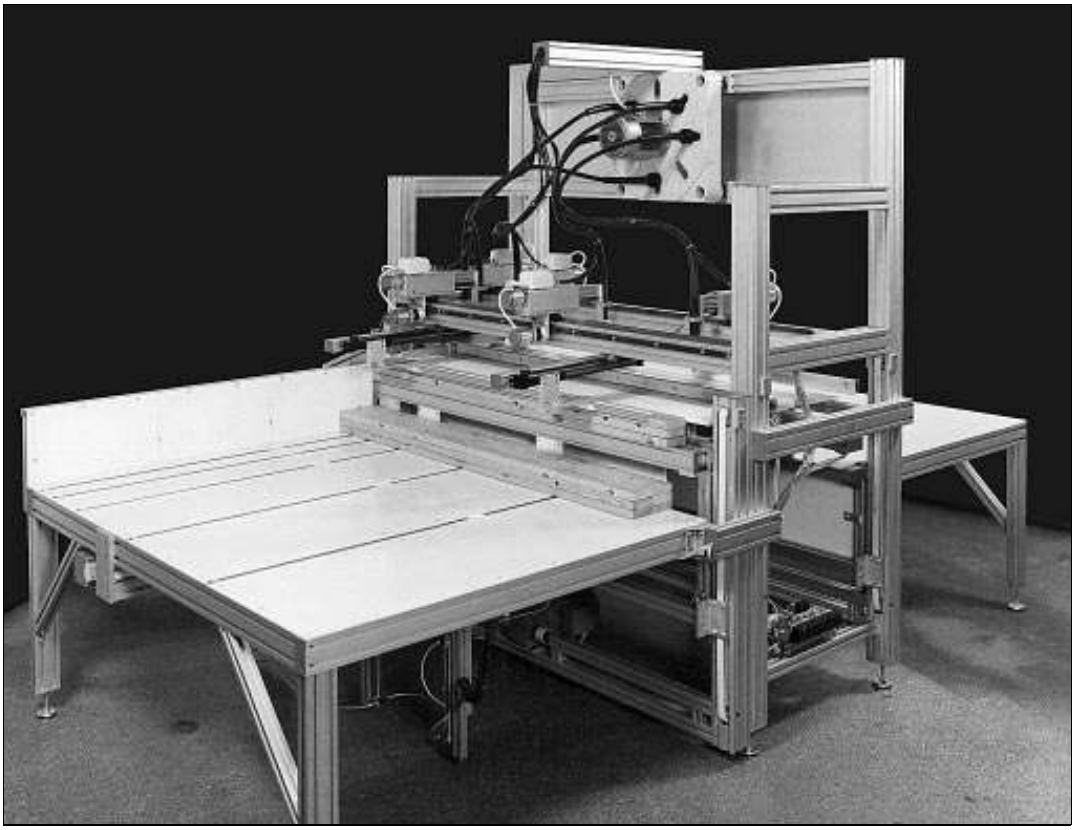




FlexLink structural system XC
Close-up wiew of z-axis unit built with linear drive unit XRL.

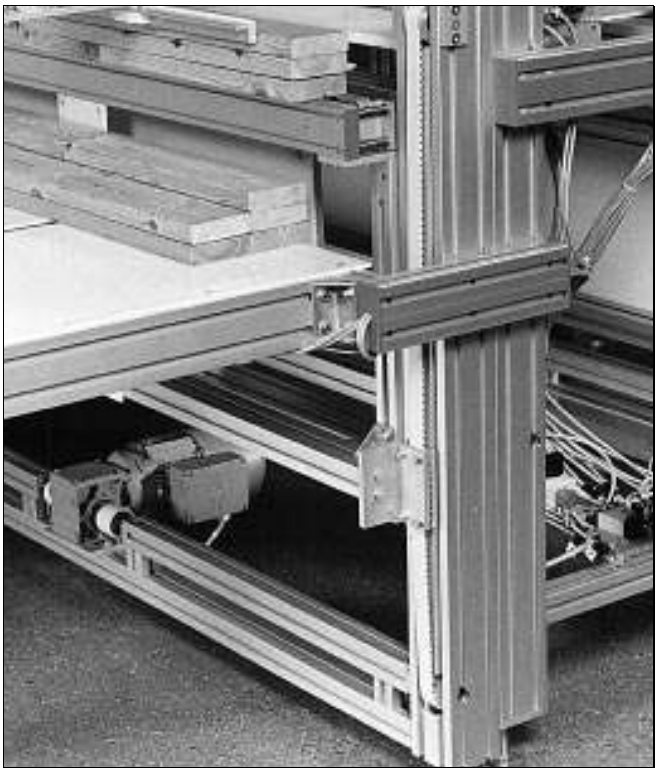
FlexLink structural system XC
Close-up view of gripper.

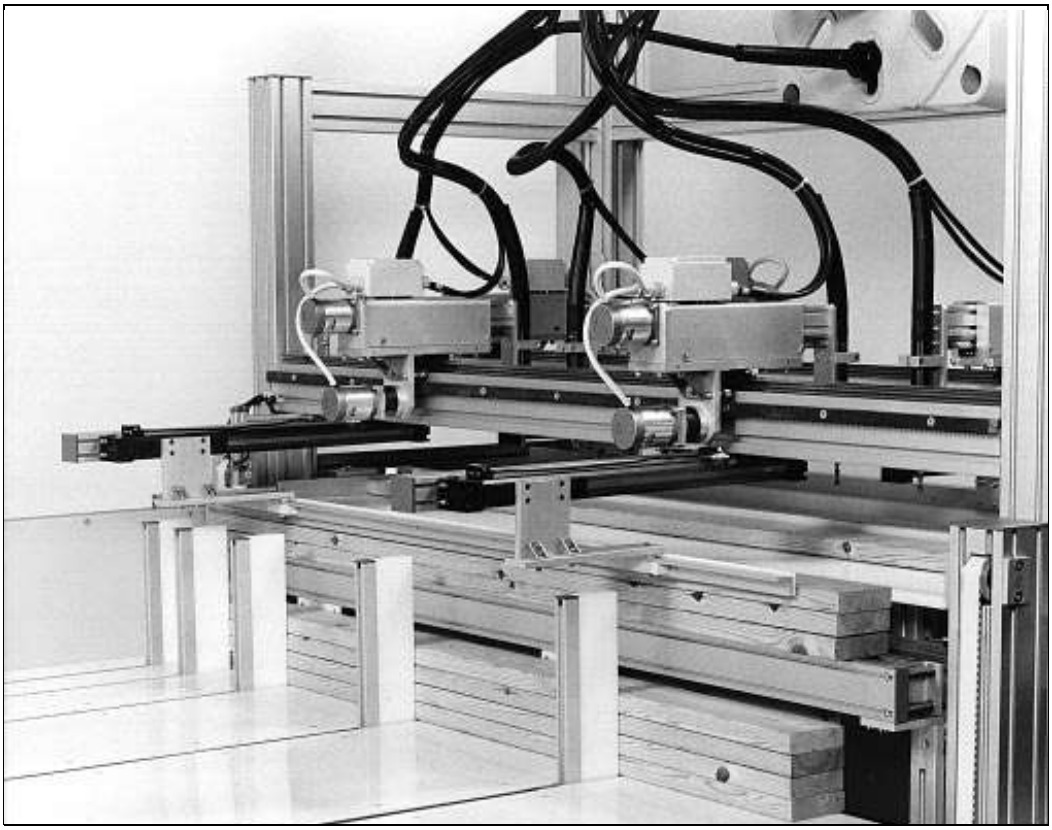




FlexLink structural system XC
Five-spindle drilling machine for automatic drilling in wood.

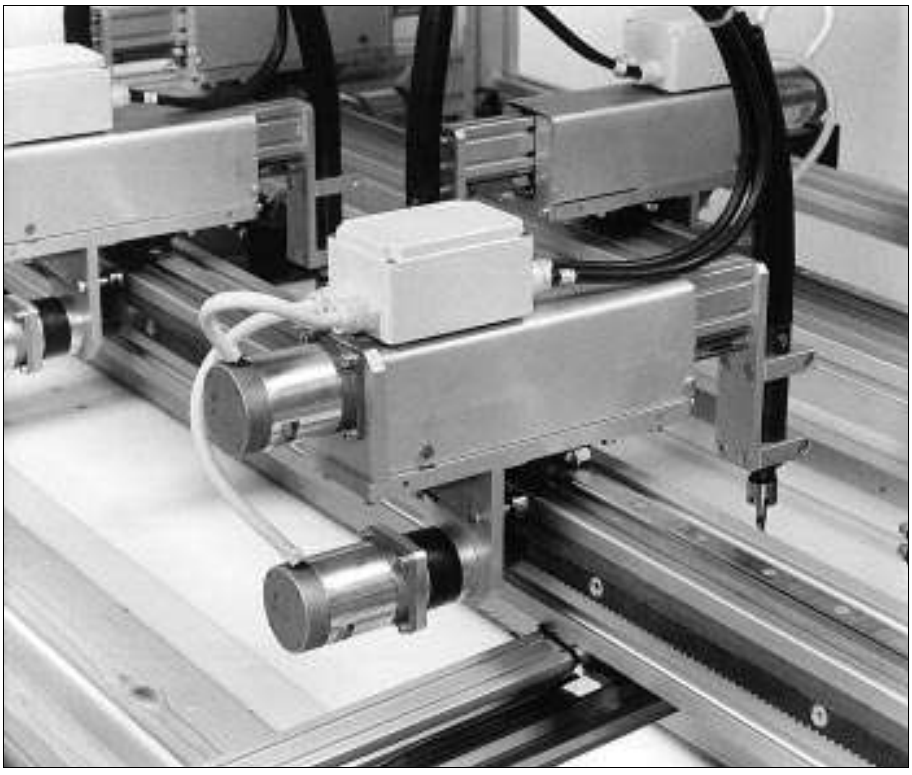
FlexLink structural system XC
Close-up view of timing belt drive integrated into XC framework.

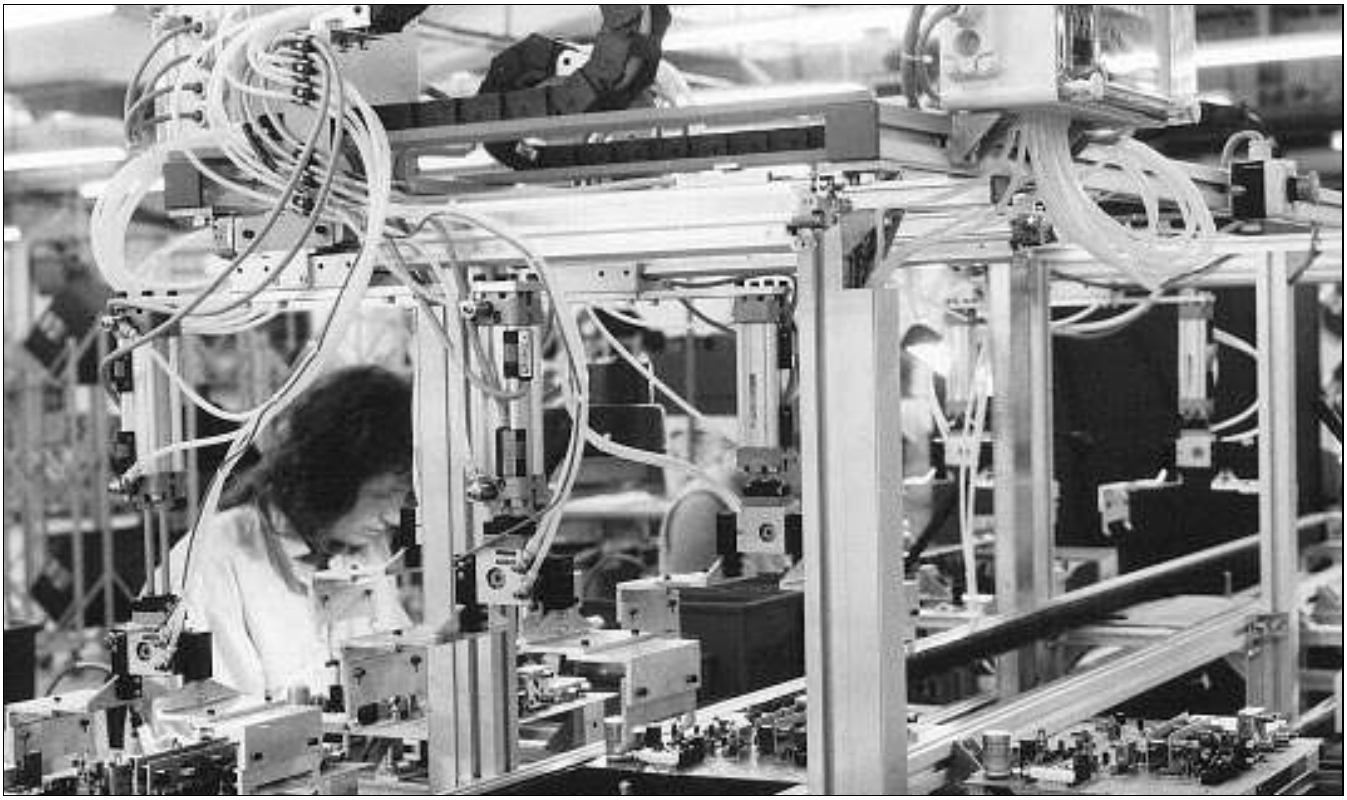




FlexLink structural system XC
Close-up view of feed-in mechanism.

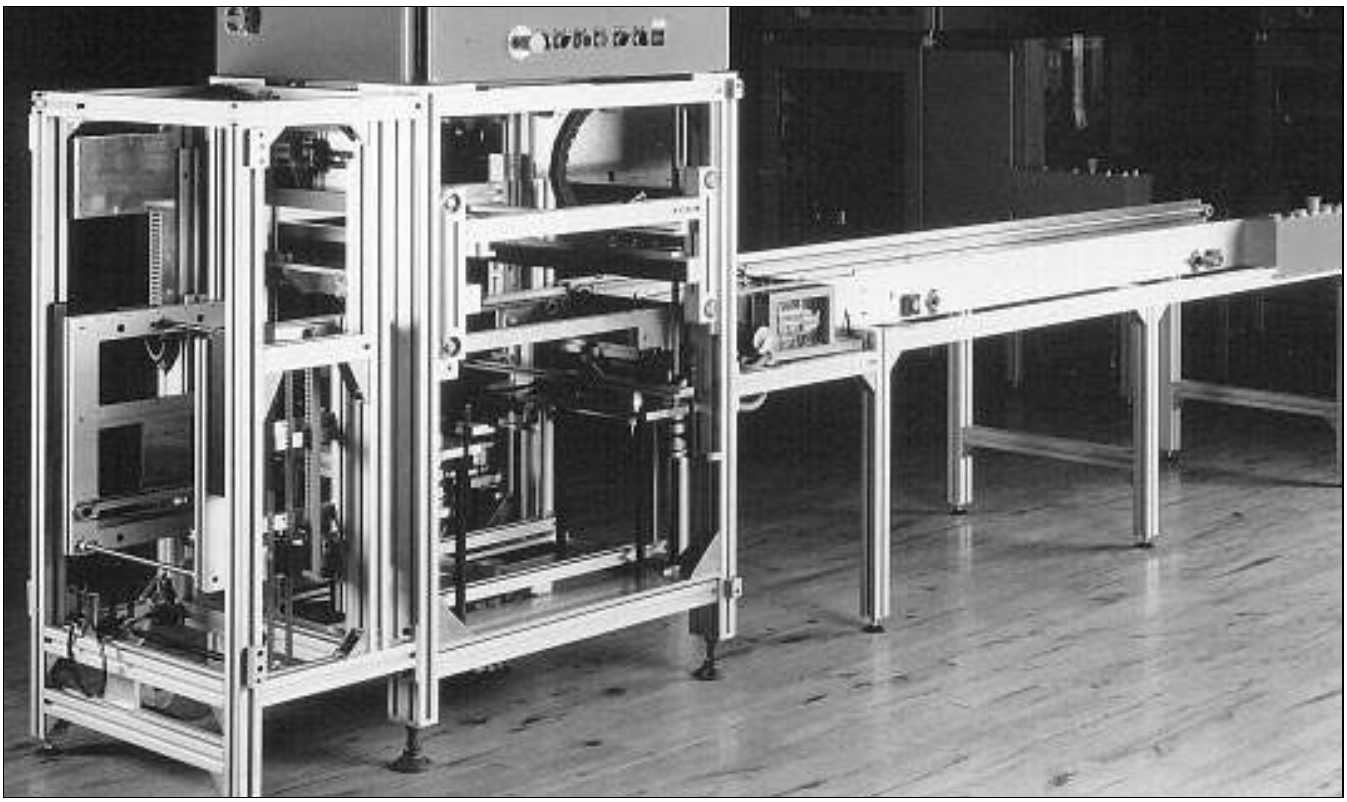
FlexLink structural system XC
Close-up view of drilling unit.

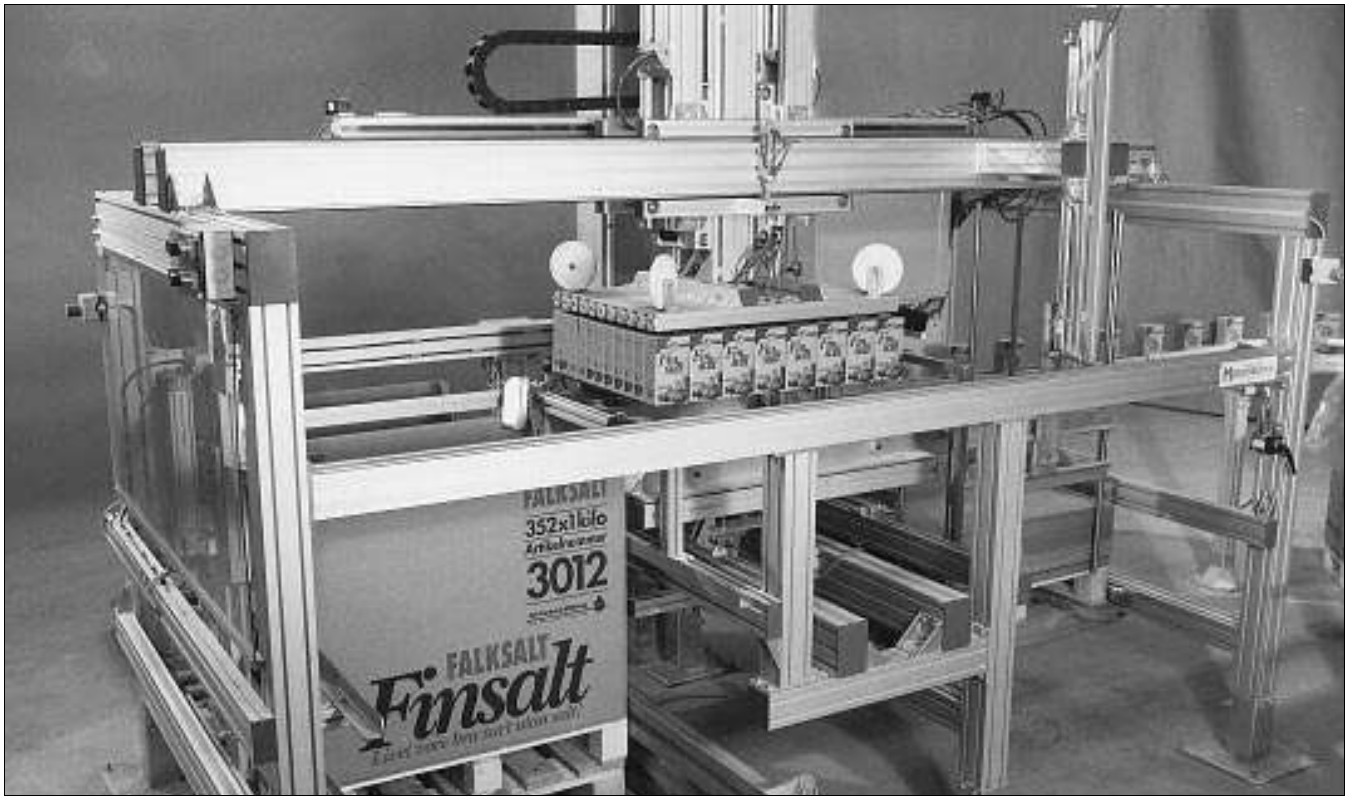




FlexLink structural system XC
Close-up view of a handling unit on an assembly and test line for circuit boards.

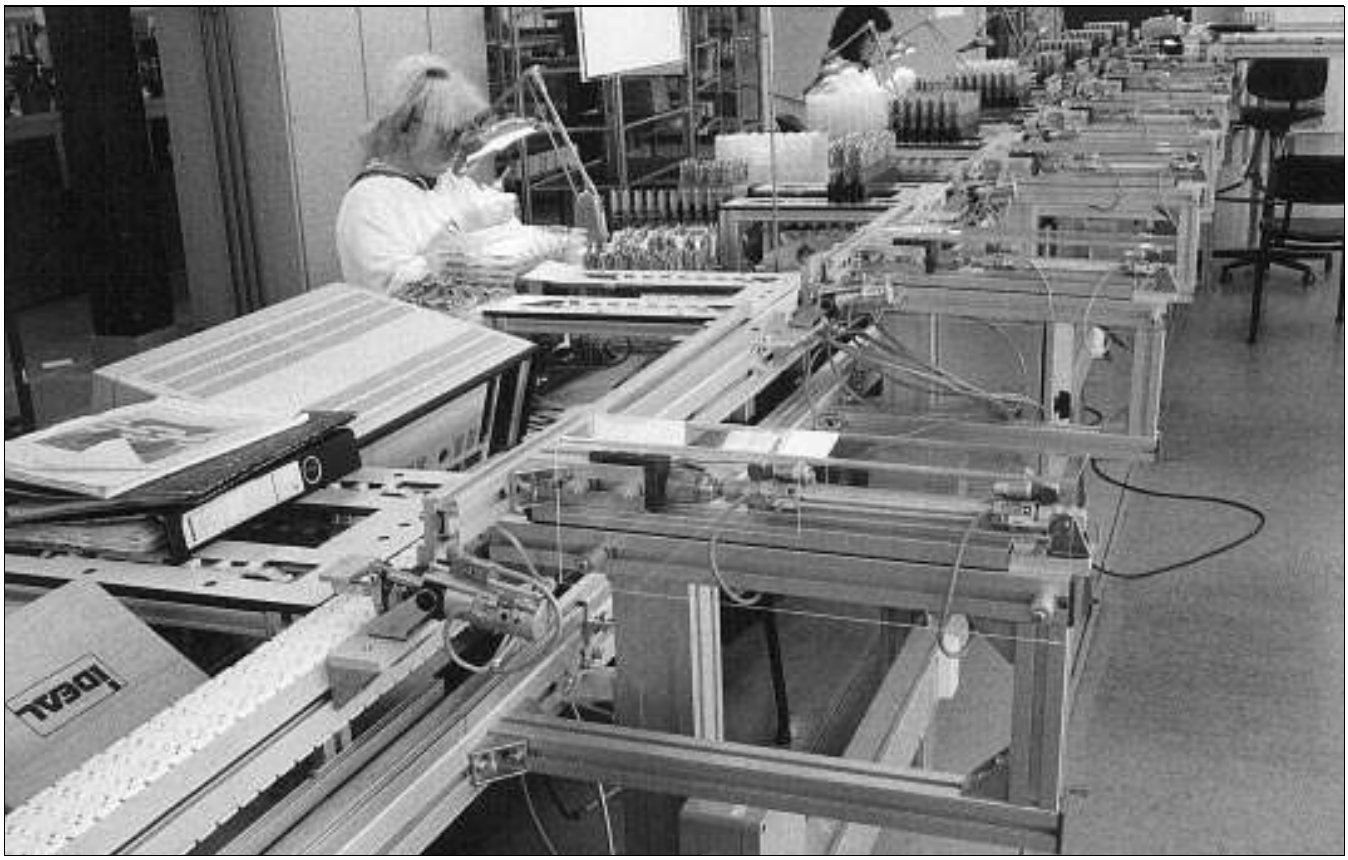
FlexLink structural system XC
Transport, assembly, and test unit for circuit boards.

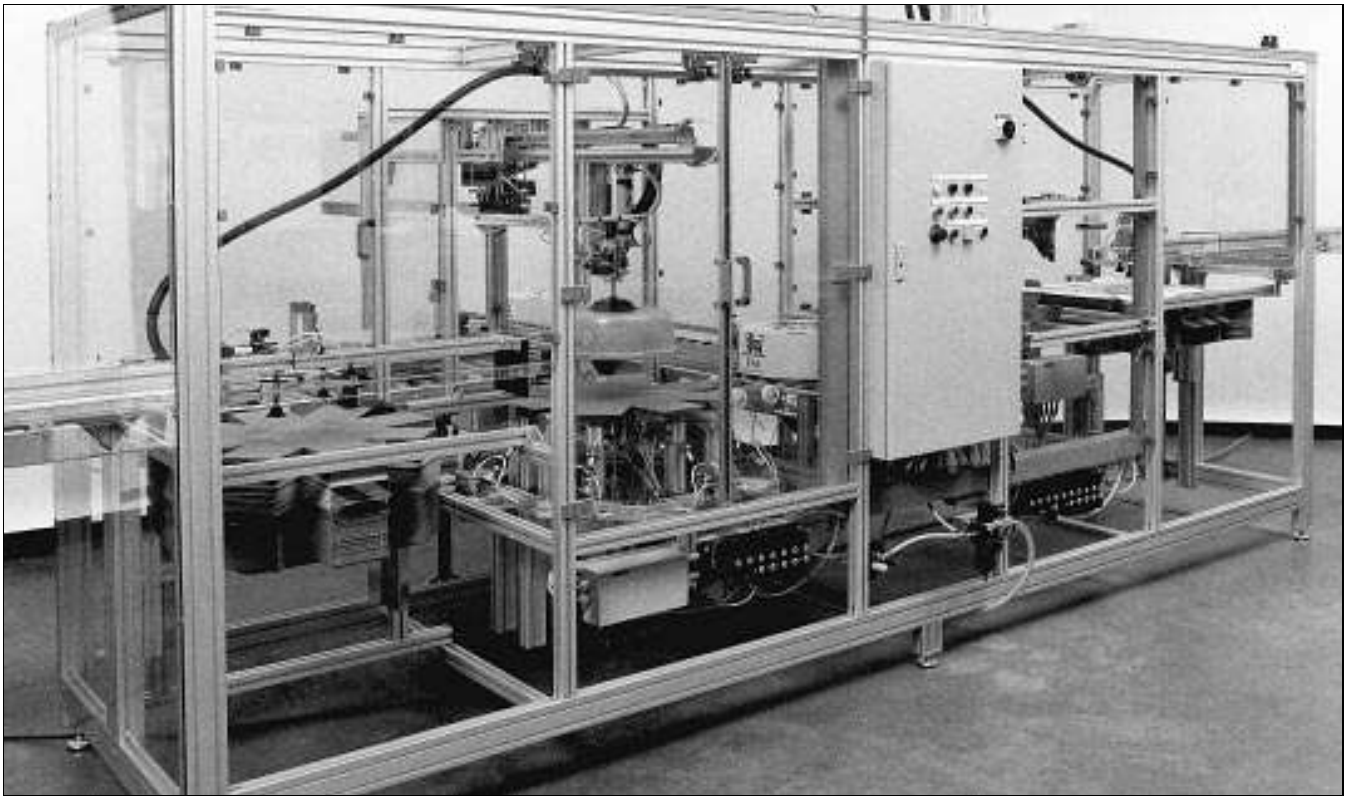




FlexLink structural system XC
Close-up view of an automatic packing machine for salt packages.

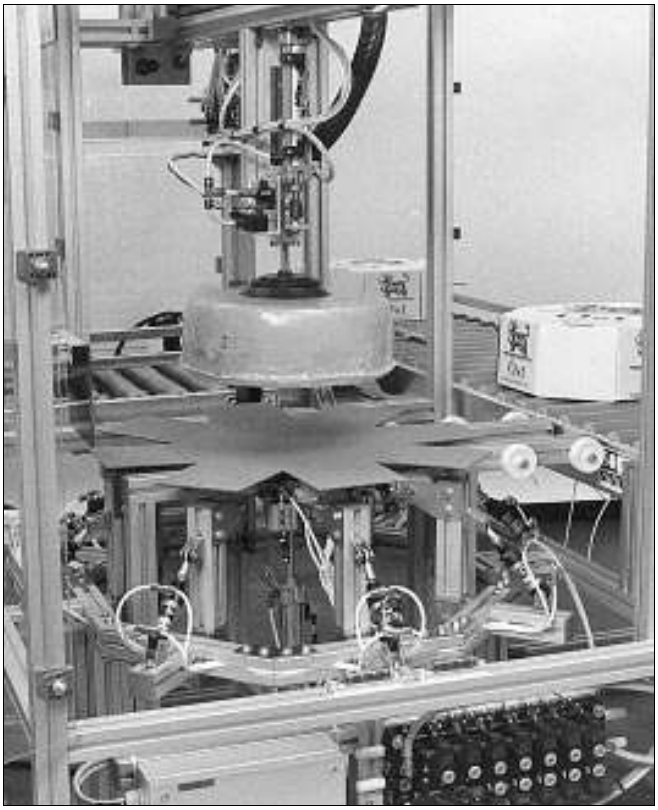
FlexLink structural system XC
Pushers and buffering tables in a TV monitor production line.



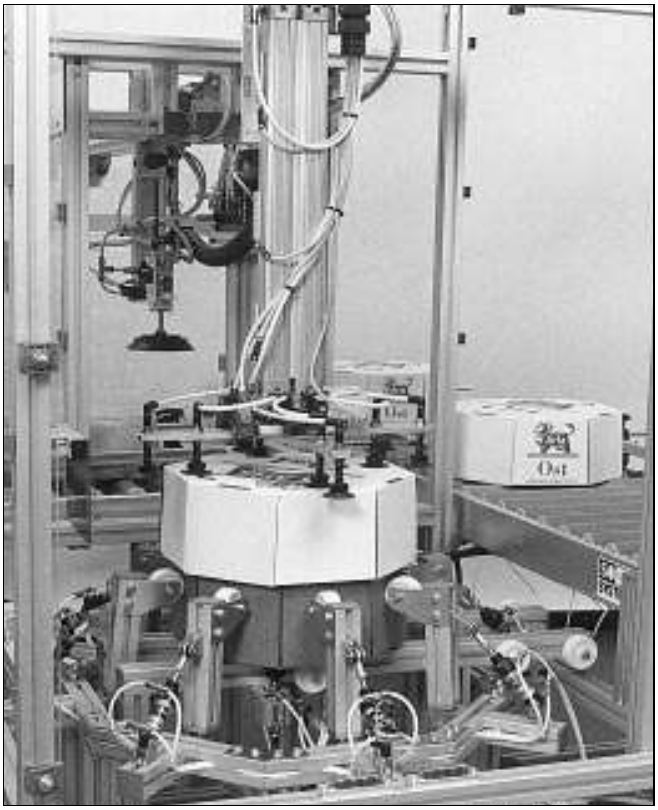


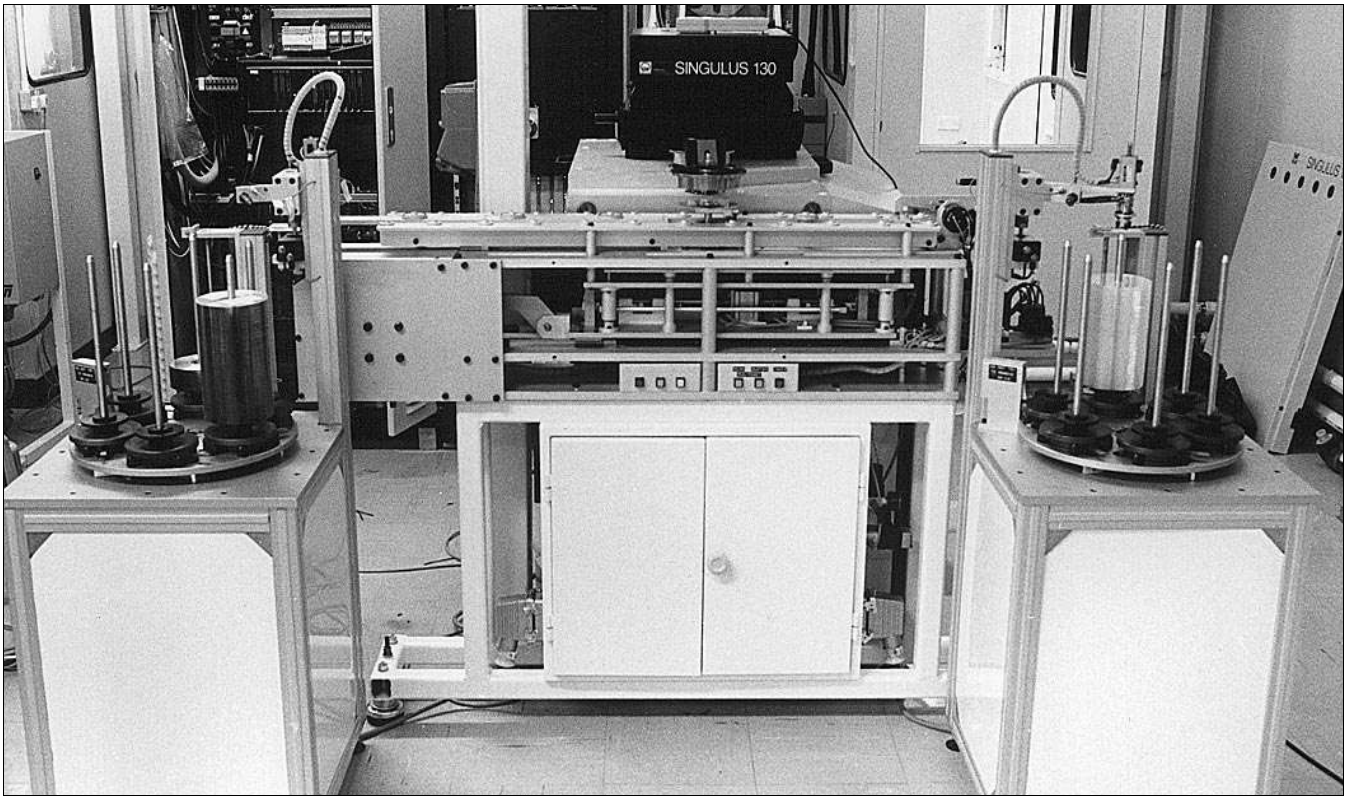
FlexLink structural system XC
Automatic case erector and packaging machine for cheese.

FlexLink structural system XC
Close-up view of pick-and-place unit for cheese.



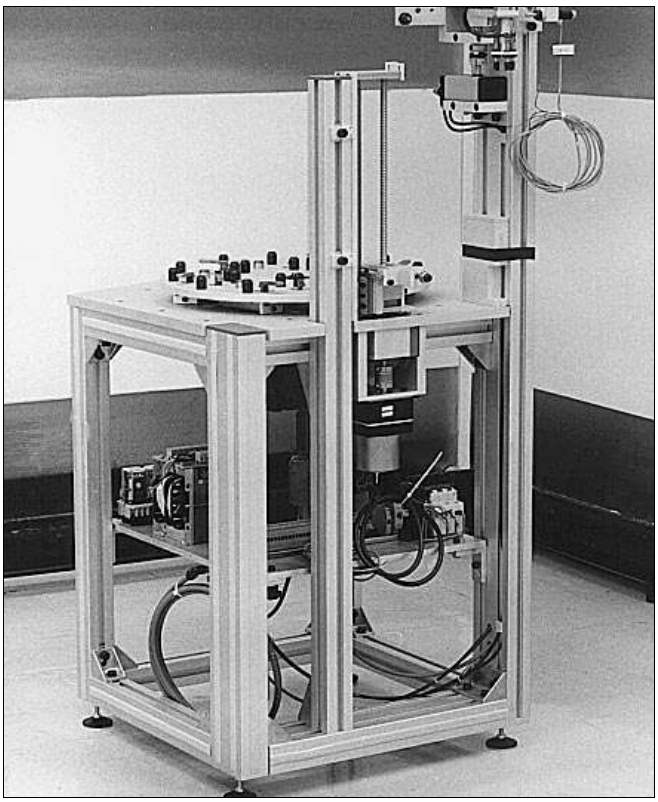
FlexLink structural system XC
Close-up view of pick-and-place unit for paper lid.





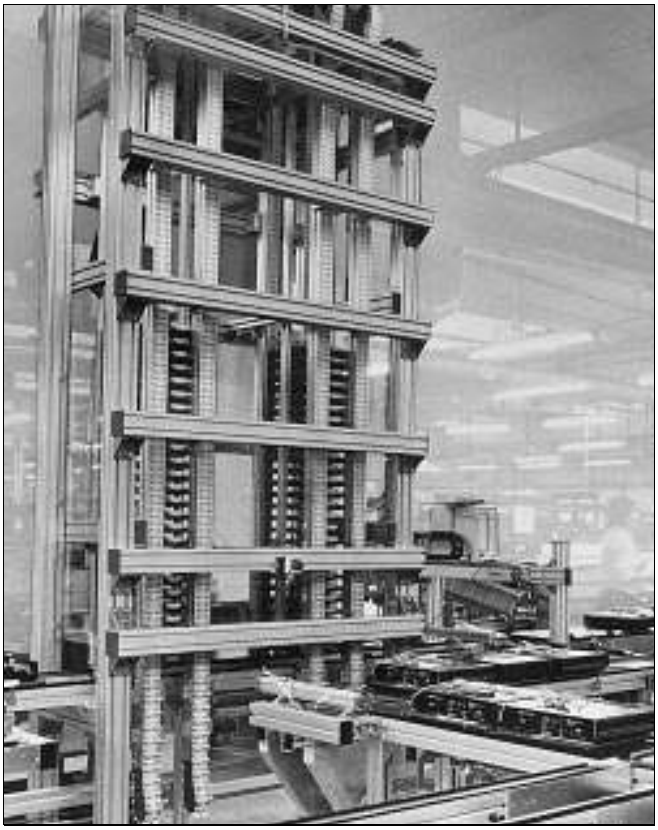
FlexLink structural system XC
Two 6-spindle buffers in a CD manufacturing process.

FlexLink structural system XC
Close-up view of 6-spindle buffer for CD's.



FlexLink structural system XC
Three-axis crash test measuring gantry for cars.



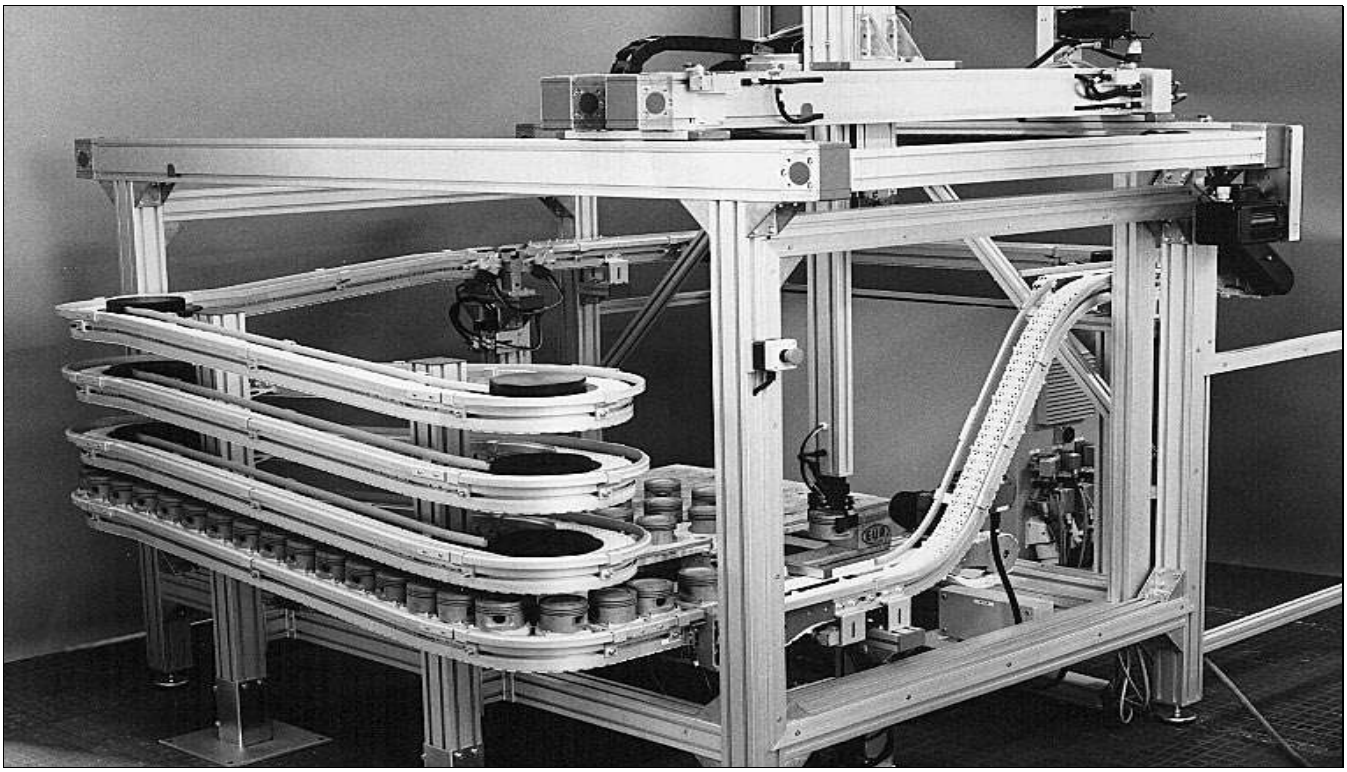


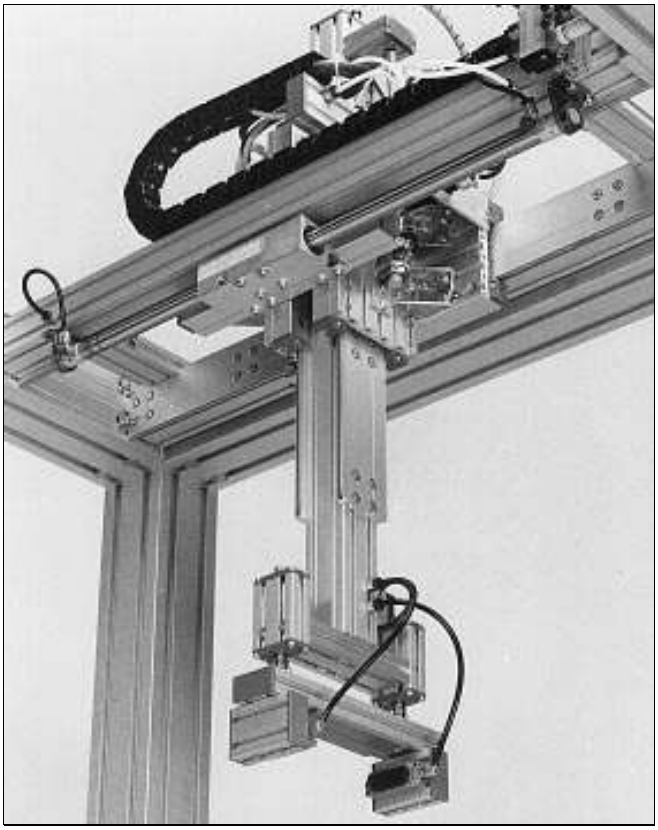
FlexLink structural system XC
Twin-tower pallet store in an assembly line for satellite receivers.



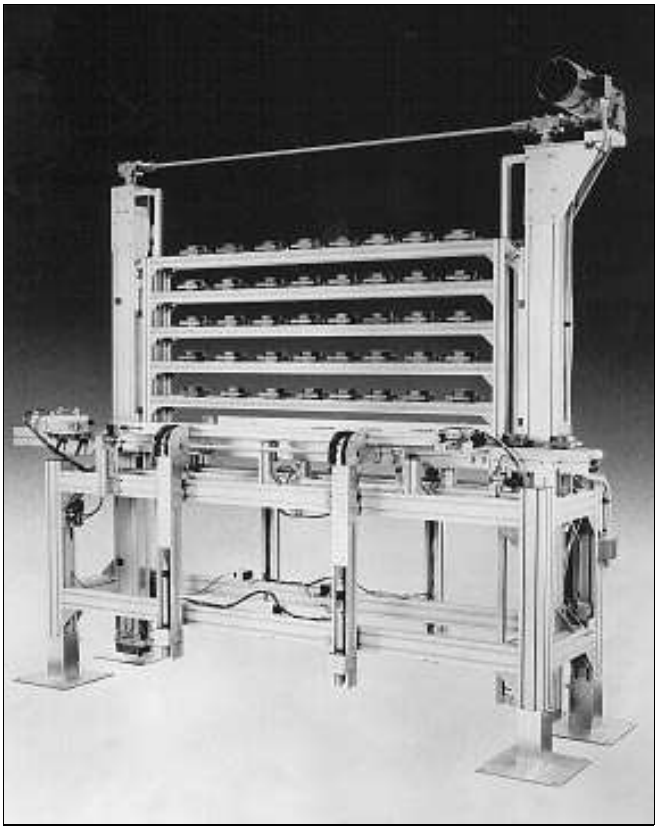
FlexLink structural system XC
Automatic palletizer for industrial paper rolls.

FlexLink structural system XC
Pick-and-place unit for pistons – pallet conveyor served by XR linear drive units.





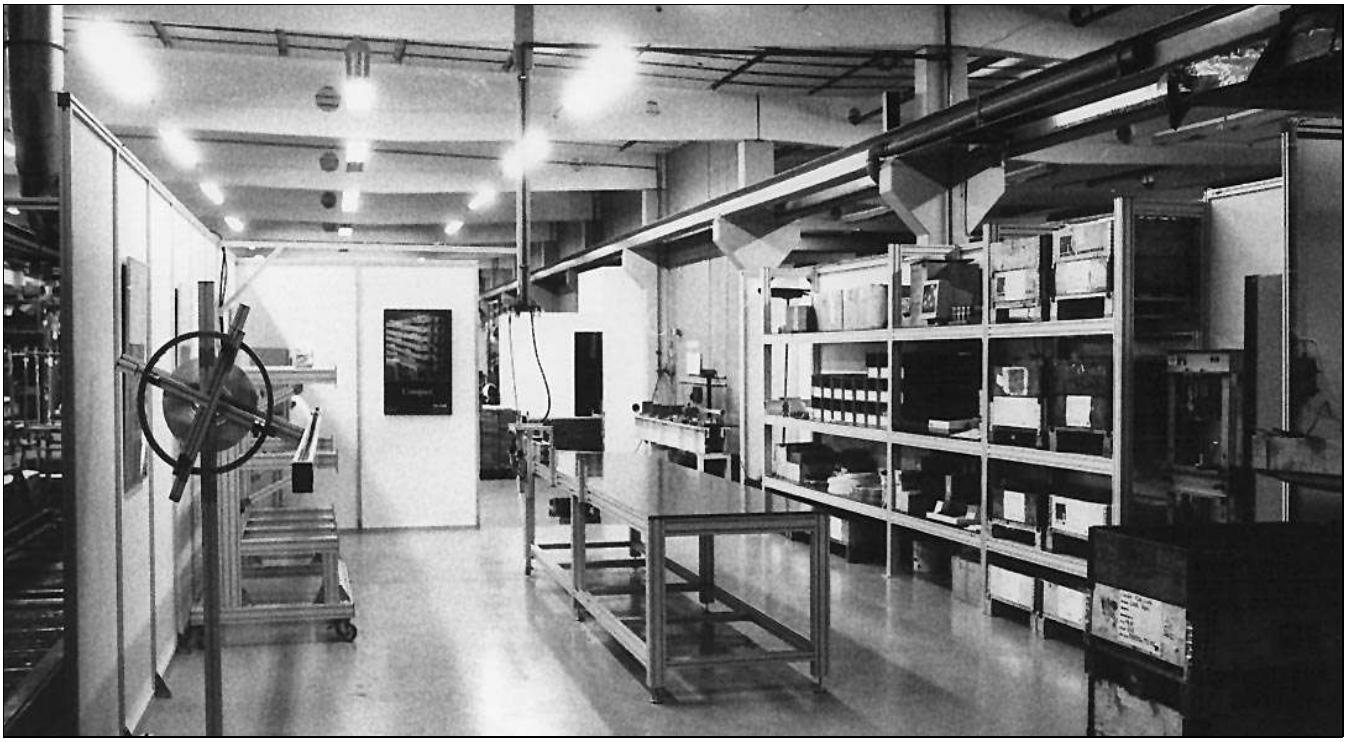
FlexLink structural system XC
Two-axis XD handling unit integrated into an XC frame.



FlexLink structural system XC
Vertical buffering system built with linear drive unit XR.

FlexLink structural system XC
XC gantry framework with integrated linear motion and fixtures in an assembly cell for motor vehicle parts.





FlexLink structural system XC
Tailor-made assembly cell completely built with XC components: enclosures, flexible storage racks, mounting fixtures and assembly tables with integrated test equipment.

FlexLink structural system XC
Clean room for testing of material handling equipment with Class 1 capability.



Components

Beams (1)

A number of different modular beams ranging from 24 mm × 24 mm to 88 mm × 176 mm. Open beam ends and T-slots can be enclosed using plastic end caps and cover strips.

Connectors (2–5)

Die-cast angle brackets provide sturdy connections for single and double T-slot beams (2). Extruded mounting plates give a compact connection which is easy to adjust along the T-slot (3). Compact and strong connectors such as fastener yokes and T-slot washers together with FlexLink T-slot nuts are the most important parts of the slot fastener component range (4). For small beams a wide range of connectors have been developed (5).

Feet (6)

Heavy duty slide-on sleeve-type feet, foot plates, adjusting feet, guide rollers, and 2- or 3-point polyamide feet make up the FlexLink feet program. End plates for the adjusting feet and guide rollers are also available.

Enclosures (7)

A wide range of components enable the design of partitions and doors around the XC framework. The range includes enclosure profiles, sliding door profiles, multiblock, hinges, handles, door lock kits, security switch kits, enclosure strips and conduit elements.

Linear motion (8)

Components for linear motion include three different compact elements for sliding motion and four different types for rolling motion, including runners and steel shafts. For complete and tailor-made linear drive units, screw or belt driven, please refer to *Linear drive unit XR*.

Rotating motion (9)

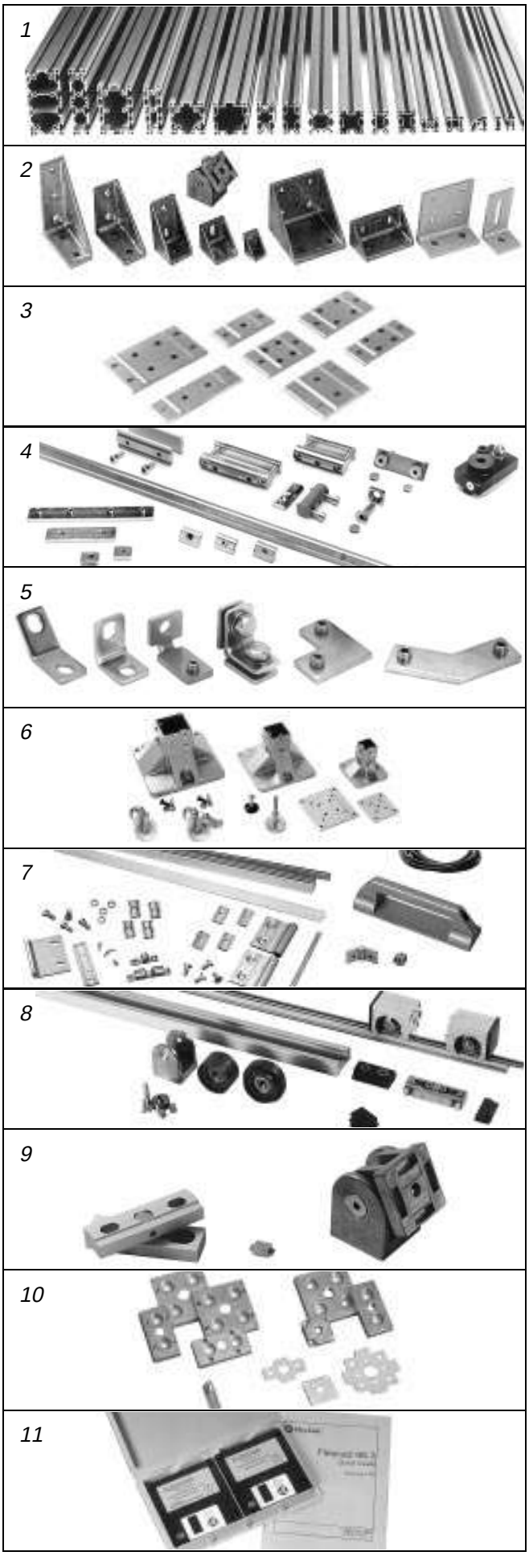
To achieve simple rotating motion, for example wipers, the range also includes one die-cast joint intended for the 44 mm × 44 mm beam and an extruded joint for parallel attachment of two beams.

Pneumatic components (10)

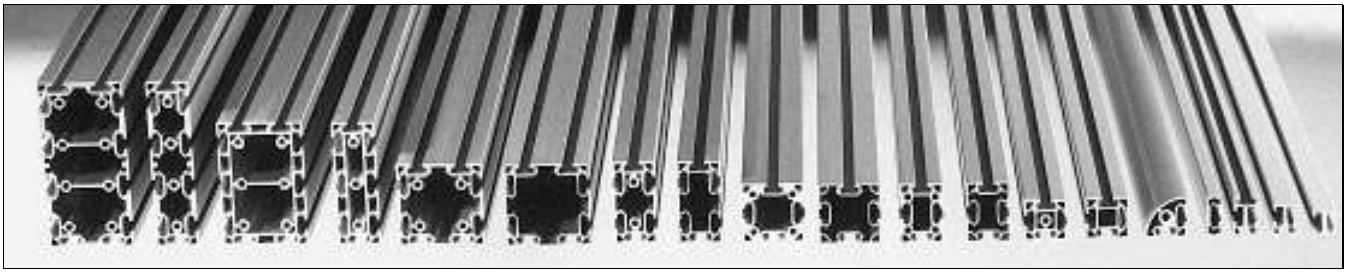
Special pneumatic components make it possible to distribute compressed air through a framework of beams.

Engineering and assembly support (11)

The FLEXCAD B AutoCAD symbol library consists of all components belonging to FlexLink XC, XD and XR systems. A picture-based assembly manual describes the assembly procedure for all XC components.



Support beams and small beams



Description

Support beams

Support beams exist in two versions, standard (XCBM..) and lightweight (XCBL..). In machine stands and heavy frameworks standard beams are normally used. General frameworks with low to medium loading are suitable applications for lightweight beams.

Enclosure beams

Three lightweight 44 mm × 44 mm beams XCBL . .× 44 T2/T2A/T3 have only two or three T-slots. They are designed especially for enclosures without T-slots on the exterior.

Corner beam

The corner profile XCBR ..×44 is a 44 mm radius support beam designed for mounting on corners of tables, workbenches, etc.

Small beams

Three XCBB ..×24×.. profiles are used in smaller superstructures. The XCBL ..×15×44 profile is intended for compact pushers, fastening of sensors, etc.

The T-slot design

A common feature for all beams is the T-slot which permits easy fitting of components anywhere along the beam. The standard T-slot is especially adapted to our XCAN slot nut. The T-slot can be covered by plastic or aluminium cover strips.

Screw hole design

All support beams have holes for M6 screws in the corners for connecting mounting plates, end plates etc. Always use roller threading to ensure a reliable screw connection. The screw holes in the centre of all XCBM beams and XCBL enclosure beams are intended for M8 roller threading or self-tapping screws.

Delivery

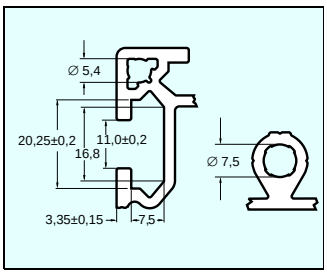
All beams have two standard lengths, 3 m and 6 m (3×..×/6×..×..). In addition, it is possible to order beams according to individual specifications of length, and including drilling and threading. Please refer to Appendix C in section APX.

Technical specifications

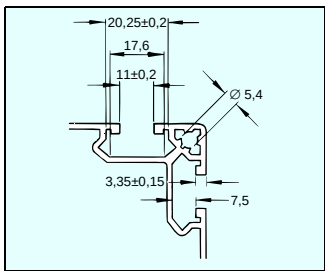
Beam type	Cross-section mm^2	Weight kg/m	I_x $mm^4 \cdot 10^4$	I_y $mm^4 \cdot 10^4$	W_x $mm^3 \cdot 10^3$	W_y $mm^3 \cdot 10^3$
XCBM ..×88×176	3970	10,7	1244	369	141	83,9
XCBM ..×44×176	2633	7,11	750	58,2	85,2	26,5
XCBM ..×88×132	2966	8,01	530	259	80,3	58,9
XCBM ..×44×132	2022	5,34	330	40,0	50,0	18,0
XCBM ..×88	1952	5,27	173		39,4	
XCBL ..×88	1180	3,18	126		28,6	
XCBM ..×44×88	1311	3,54	103	25,6	23,5	11,7
XCBL ..×44×88	886	2,39	81,4	21,6	18,5	9,8
XCBM ..×64	1493	4,27	70,2		22,1	
XCBL ..×64	848	2,29	44,5		14,0	
XCBM ..×44×64	1054	2,84	42,0	23,5	13,2	10,7
XCBL ..×44×64	724	1,96	33,9	17,7	10,6	8,1
XCBM ..×44	767	2,07	14,0		6,3	
XCBL ..×44	588	1,59	12,7		5,8	
XCBL ×44 T2	589	1,59	12,5	12,5	5,6	5,6
XCBL ×44 T2A	592	1,60	12,9	12,4	5,8	5,6
XCBL ×44 T3	627	1,69	12,6	12,8	5,7	5,7
XCBR ..×44	708	1,91	13,2	7,8	4,3	2,9
XCBA ..×44	572	1,55	9,47	9,47	3,65	3,65
XCBL ..×15×44	327	0,88	6,8	0,83	3,10	1,10
XCBB ..×24×44	375	1,02	5,55	2,41	2,52	2,00
XCBB ..×24×34	310	0,83	3,85	1,75	2,14	1,46
XCBB ..×24	240	0,64	1,10		0,92	

More information

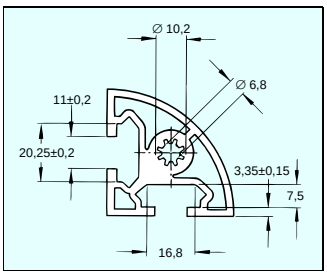
Beam and connector specifications and beam calculations: see pages 69–70. Material specifications including aluminium resistance to chemicals: see page 71.



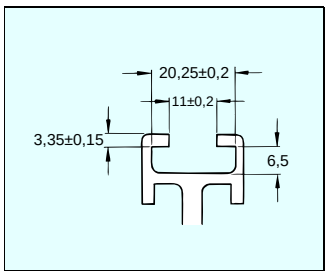
T-slot, standard beam



T-slot, lightweight beam



T-slot, corner profile

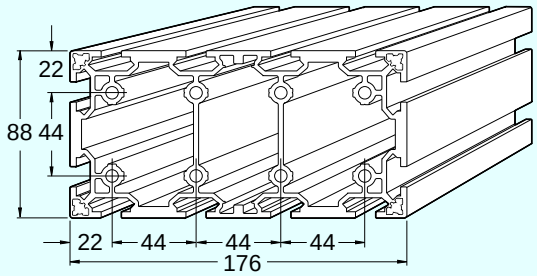


T-slot, small beam

Support beams

Beam 88 mm × 176 mm
Aluminium, anodized

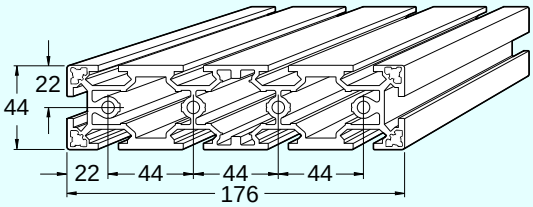
XCBM 3×88×176	Length 3 m
XCBM 6×88×176	Length 6 m
XCBM L×88×176	Length to order



End cap: Use XCBE 88 (2)

Beam 44 mm × 176 mm
Aluminium, anodized

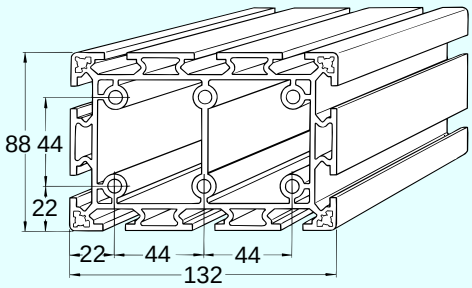
XCBM 3×44×176	Length 3 m
XCBM 6×44×176	Length 6 m
XCBM L×44×176	Length to order



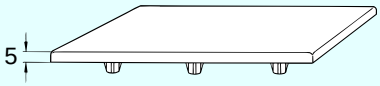
End cap: Use XCBE 44×88 (2)

Beam 88 mm × 132 mm
Aluminium, anodized

XCBM 3×88×132	Length 3 m
XCBM 6×88×132	Length 6 m
XCBM L×88×132	Length to order

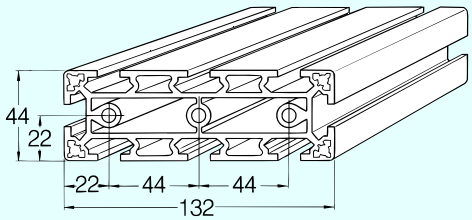


XCBE 88×132 A	End cap Polyamide

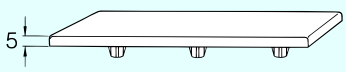


Beam 44 mm × 132 mm
Aluminium, anodized

XCBM 3×44×132	Length 3 m
XCBM 6×44×132	Length 6 m
XCBM L×44×132	Length to order



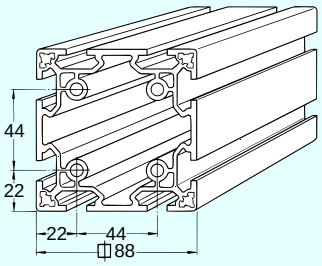
XCBE 44×132 A	End cap Polyamide



Support beams

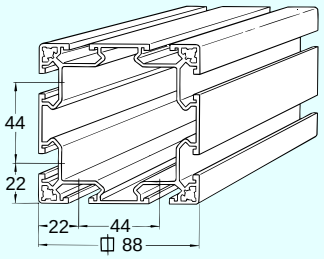
Beam 88 mm × 88 mm
Aluminium, anodized

XCBM 3×88 Length 3 m
XCBM 6×88 Length 6 m
XCBM L×88 Length to order

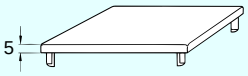


Beam 88 mm × 88 mm
Lightweight version
Aluminium, anodized

XCBL 3×88 Length 3 m
XCBL 6×88 Length 6 m
XCBL L×88 Length to order

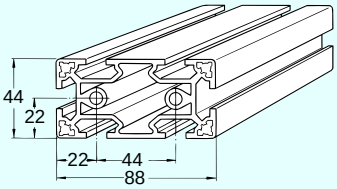


XCBE 88 End cap
Polyamide



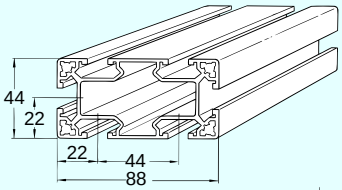
Beam 44 mm × 88 mm
Aluminium, anodized

XCBM 3×44×88 Length 3 m
XCBM 6×44×88 Length 6 m
XCBM L×44×88 Length to order

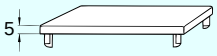


Beam 44 mm × 88 mm
Lightweight version
Aluminium, anodized

XCBL 3×44×88 Length 3 m
XCBL 6×44×88 Length 6 m
XCBL L×44×88 Length to order

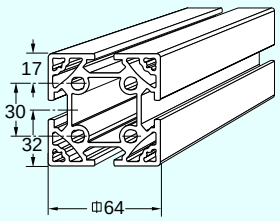


XCBE 44×88 End cap
Polyamide



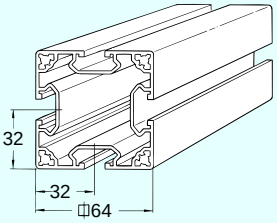
Beam 64 mm × 64 mm
Aluminium, anodized

XCBM 3×64 Length 3 m
XCBM 6×64 Length 6 m
XCBM L×64 Length to order

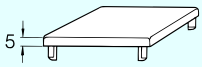


Beam 64 mm × 64 mm
Aluminium, anodized
Lightweight version

XCBL 3×64 Length 3 m
XCBL 6×64 Length 6 m
XCBL L×64 Length to order



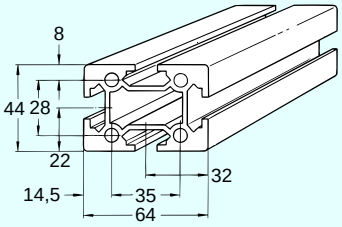
XCBE 64 End cap
Polyamide



Support beams

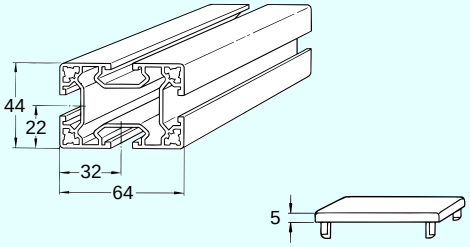
Beam 44 mm × 64 mm
Aluminium, anodized

XCBM 3×44×64	Length 3 m
XCBM 6×44×64	Length 6 m
XCBM L×44×64	Length to order



Beam 44 mm × 64 mm
Lightweight version
Aluminium, anodized

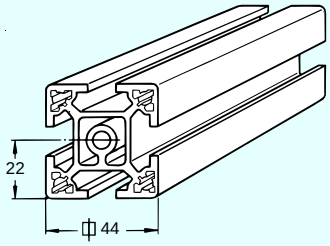
XCBL 3×44×64	Length 3 m
XCBL 6×44×64	Length 6 m
XCBL L×44×64	Length to order



XCBE 44×64 End cap
Polyamide

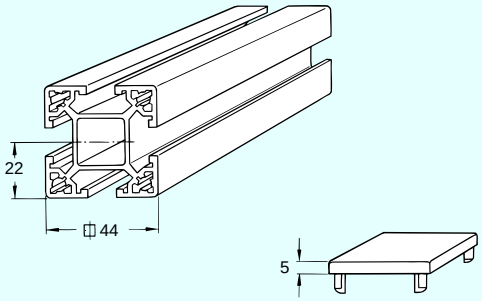
Beam 44 mm × 44 mm
Aluminium, anodized

XCBM 3×44	Length 3 m
XCBM 6×44	Length 6 m
XCBM L×44	Length to order



Beam 44 mm × 44 mm
Lightweight version
Aluminium, anodized

XCBL 3×44	Length 3 m
XCBL 6×44	Length 6 m
XCBL L×44	Length to order

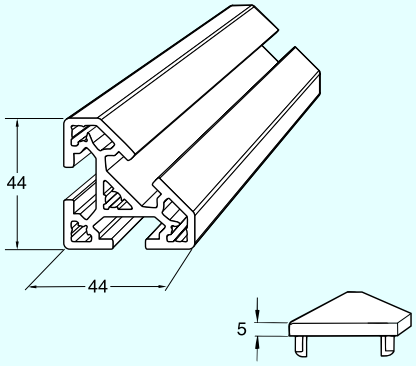


XCBE 44 End cap
Polyamide

Beam, 45°
Aluminium, anodized

XCBA 3×44	Length 3 m
XCBA 6×44	Length 6 m
XCBA L×44	Length to order

New!

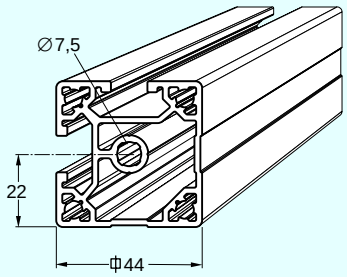


XCBE 44 A End cap
Polyamide

Enclosure beams

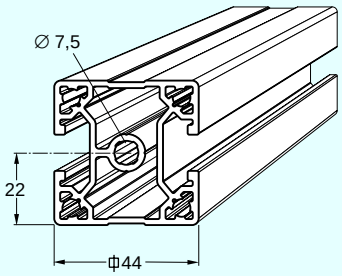
Beam 44 mm × 44 mm with two adjacent T-slots
Lightweight version
Aluminium, anodized

XCBL 3×44 T2	Length 3 m
XCBL 6×44 T2	Length 6 m
XCBL L×44 T2	Length to order



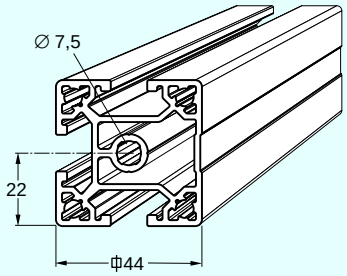
Beam 44 mm × 44 mm with two opposite T-slots
Lightweight version
Aluminium, anodized

XCBL 3×44 T2A	Length 3 m
XCBL 6×44 T2A	Length 6 m
XCBL L×44 T2A	Length to order



Beam 44 mm × 44 mm with three T-slots
Lightweight version
Aluminium, anodized

XCBL 3×44 T3	Length 3 m
XCBL 6×44 T3	Length 6 m
XCBL L×44 T3	Length to order



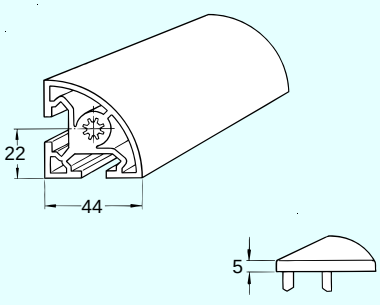
End cap for the enclosure beams:
see XCBE 44, page 19.

Corner beam

Beam 44 mm × 44 mm
Corner profile
Aluminium, anodized

XCBR 3×44	Length 3 m
XCBR 6×44	Length 6 m
XCBR L×44	Length to order

XCBE 44 R	End cap Polyamide

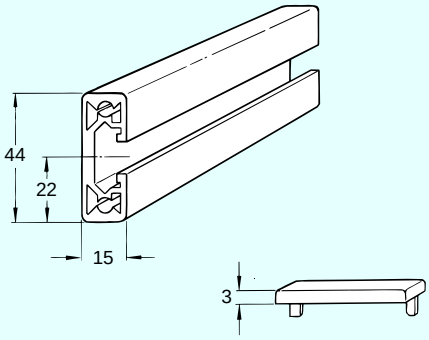


Small beams

Beam 15 mm × 44 mm
Lightweight version
Aluminium, anodized

XCBL 3×15×44 Length 3 m
XCBL 6×15×44 Length 6 m
XCBL L×15×44 Length to order

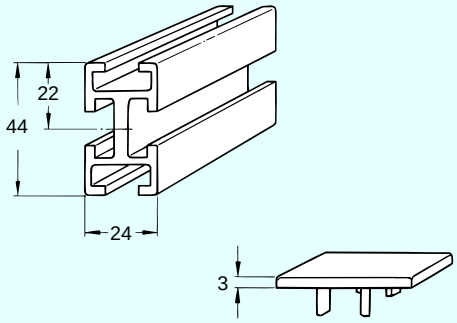
XCBE 15×44 End cap
Polyamide



Beam 24 mm × 44 mm
Aluminium, anodized

XCBB 3×24×44 Length 3 m
XCBB 6×24×44 Length 6 m
XCBB L×24×44 Length to order

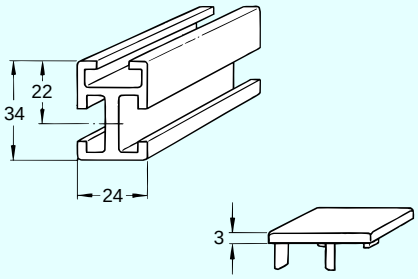
XCBE 24×44 End cap
Polyamide



Beam 24 mm × 34 mm
Aluminium, anodized

XCBB 3×24×34 Length 3 m
XCBB 6×24×34 Length 6 m
XCBB L×24×34 Length to order

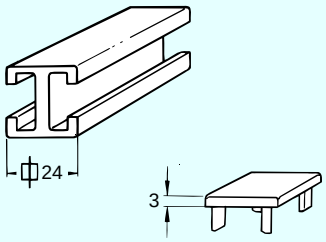
XCBE 24×34 End cap
Polyamide



Beam 24 mm × 24 mm
Aluminium, anodized

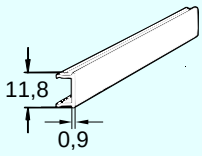
XCBB 3×24 Length 3 m
XCBB 6×24 Length 6 m
XCBB L×24 Length to order

XCBE 24 End cap
Polyamide

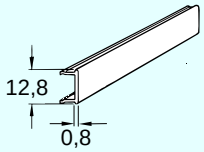


Cover strips

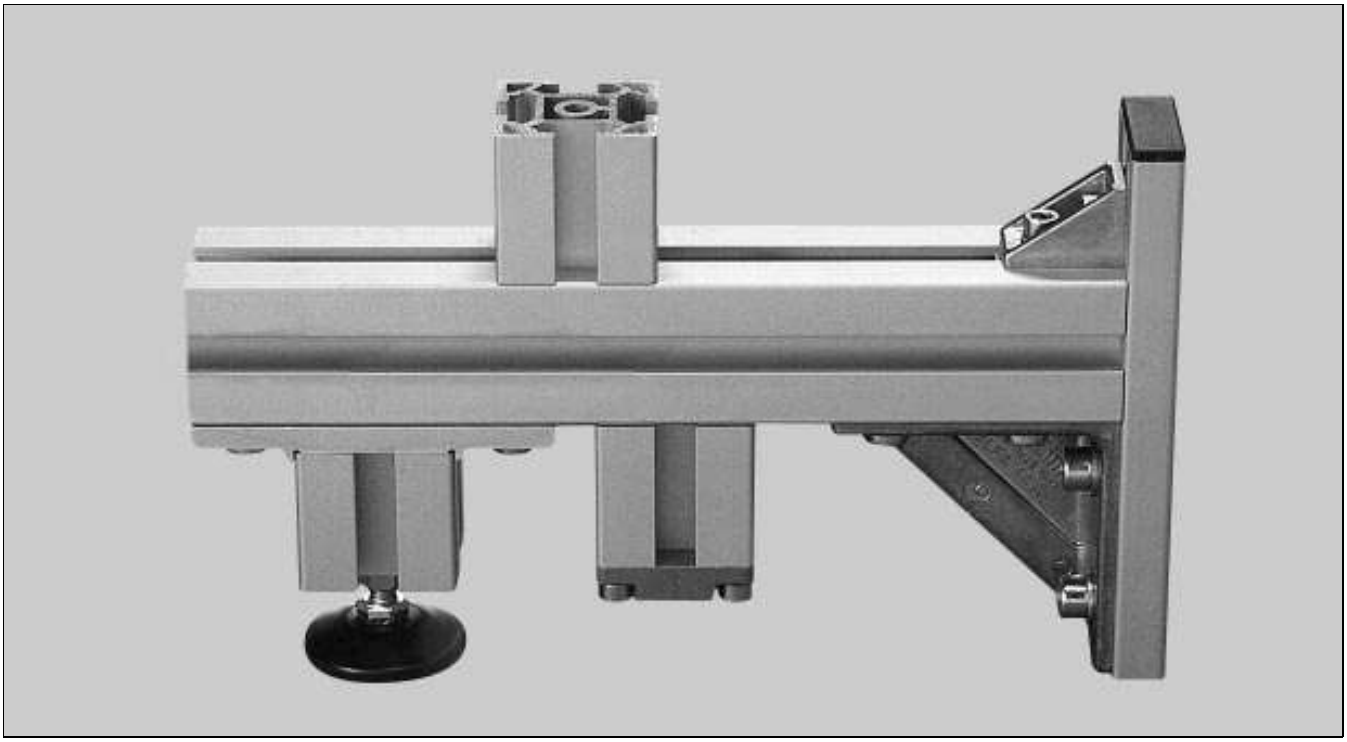
XCAC 2 Cover strip
Length 2 m
Aluminium, anodized



XCAC 3 P Cover strip
Length 3 m
Polyvinyl chloride



Introduction to connectors



Four main groups

The structural system contains a comprehensive number of components for the assembly of beams into frameworks. The table at the right presents the four main groups of connectors and their general characteristics. In addition to this, the product range also consists of small fittings, stay brackets, connecting strip, parallel connector, and small inner and corner fittings.

T-slot fasteners

For the T-slot itself, a number of fasteners are available. The slot nut XCAN is especially adapted to the T-slot and can be entered directly into the T-slot along the side of the beams. The nut automatically positions itself in the centre of the T-slot and also retains the position even in vertical positions. The square nut XLAQ provides a cost-effective solution when it is possible to insert the nut from the beam end. For additional information, please refer to the section “Slot fasteners”.

Technical data

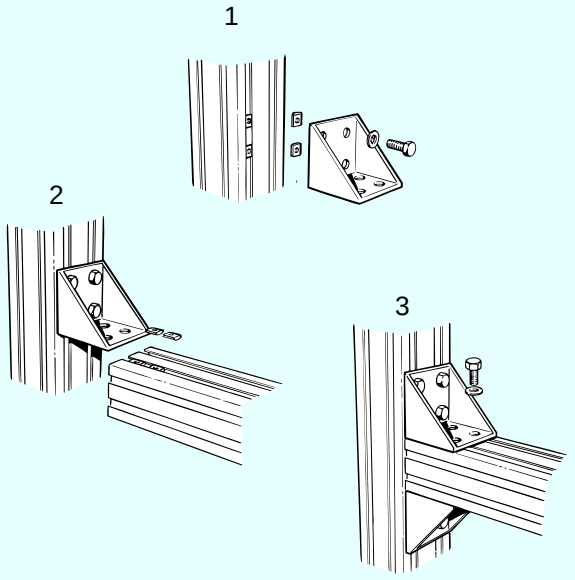
Technical data for different combinations of beams and connectors, together with guidelines for beam deflection calculations are presented on page 69–70 in the catalogue.

Connector selection guide

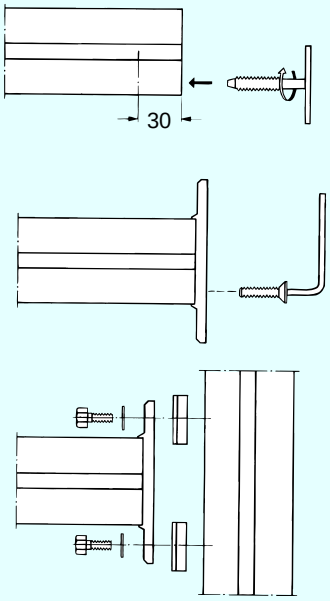
Quality **** indicates very favourable characteristics	*Angle brackets*	*Mounting plates*	*Fastener yokes*	*T-slot washers*
Many possible combinations	****	*	***	**
Good adjustability	****	***	***	*
High stiffness	****	**	**	***
High vibration resistance	**	**	****	***
Small space requirements	*	**	***	****
Minimal beam end cut precision	****	**	*	*
Minimal drill work	****	****	*	*
Minimal tap work	****	*	****	*
Short assembly time	****	***	**	*
Low component cost	*	**	***	****

Connector types

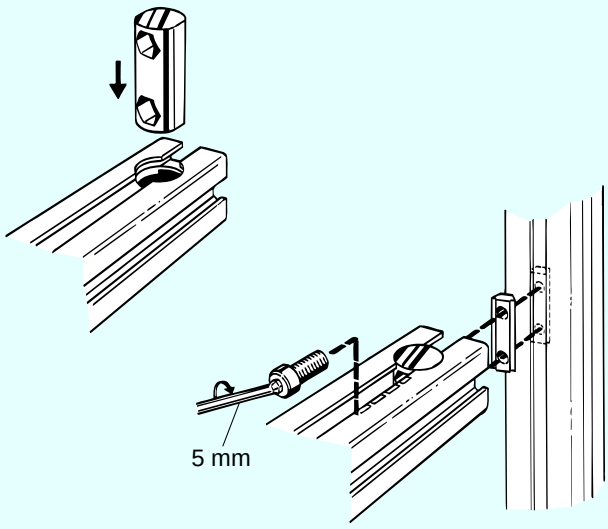
Angle brackets



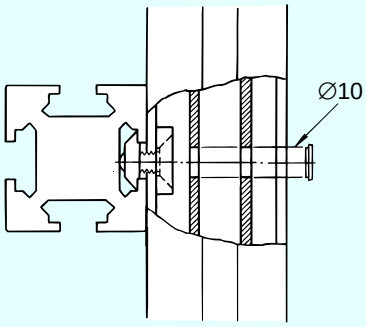
Mounting plates



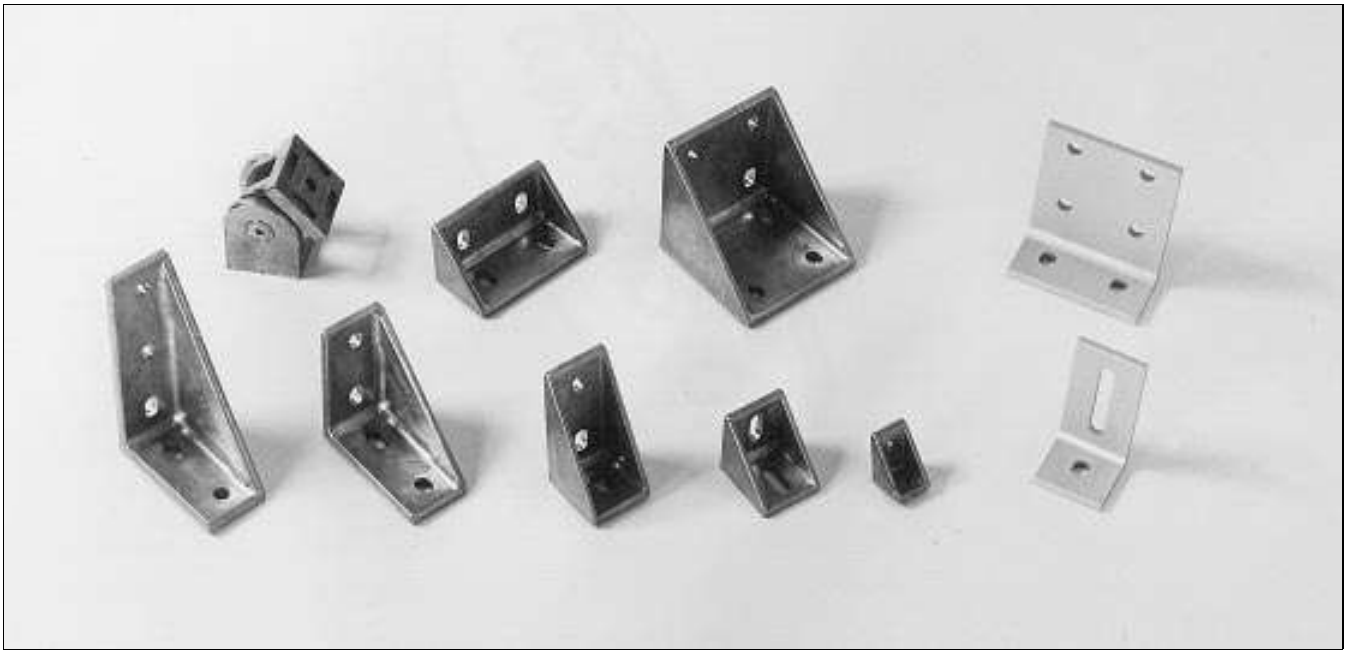
Fastener yokes



T-slot washers



Connectors – angle brackets



Angle brackets

Angle brackets XMFA../XLFA are used to connect beams end to side or side-to-side. See Fig. 1. They exist in two versions, die-cast and extruded.

Extruded angle brackets (2)

The extruded brackets are mostly used for attaching limit switches, photo cells, sensors, etc.; and for frameworks with very light loads.

Die-cast angle brackets (3–4)

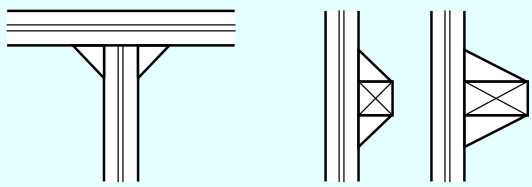
Die-cast angle brackets are strongest and specially aimed for frameworks.

Bracket XLFA 24 is suitable for connection of small beams in the XCBB ..×24×... series to the other XC beams. See Fig. 3.

Bracket XLFA 44 B has elongated holes which makes it suitable for connection to 44 mm beams as well as to 64 mm beams. See Fig. 4.

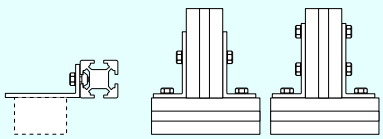
The M8 screws should be tightened to a torque of 24 Nm (lubricated joint).

1

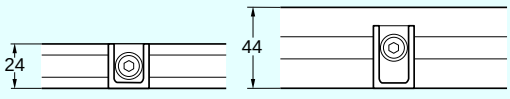


XMFA/XLFA

2

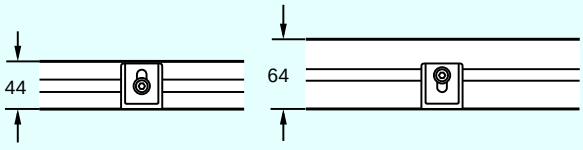


3



XLFA 24

4



XLFA 44 B

Connectors – angle brackets

Stay brackets

Two stay bracket types are available which fit to the end of beam XCBM ..×44.

Adjustable stay brackets (1)

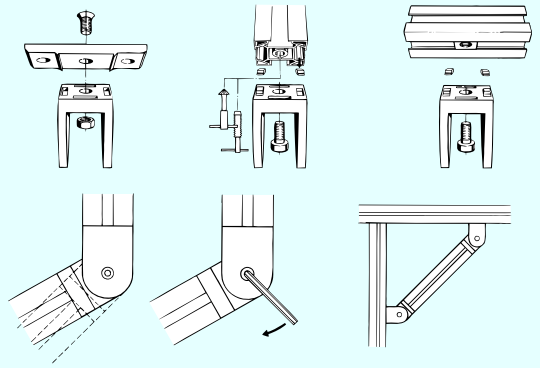
The adjustable type, XCFJ 44 F, makes it possible to build connections or stays of optional length and angle. See Fig. 1.

When fitting the stay bracket to the beam end, ensure that the hole in the beam profile is deburred and threaded (M8).

Fixed stay brackets (2, 3)

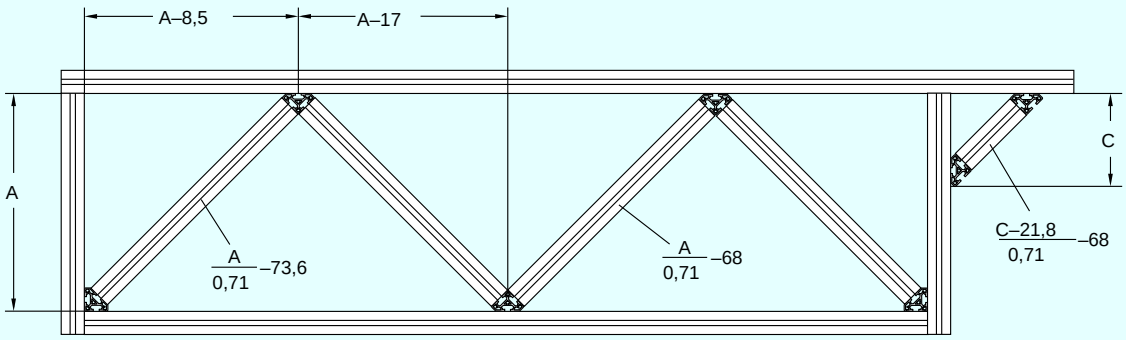
The fixed stay bracket, XCAB 44, is an extruded connector especially designed for 45-degree corners. See Fig. 2. Mounting: see Fig. 3.

1

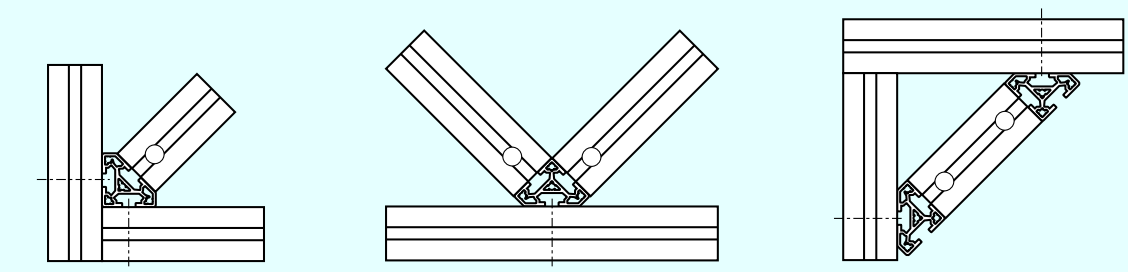


XCFJ 44 F

2



3



XCAF ...
XCAQ 20 CA, MF6S 8×18, XCAN 8 (2)

XCAF ... (2)
XCAQ 20 CA, MF6S 8×18, XCAN 8

XCAF ... (2)
XCAQ 20 CA, MF6S 8×18, XCAN 8

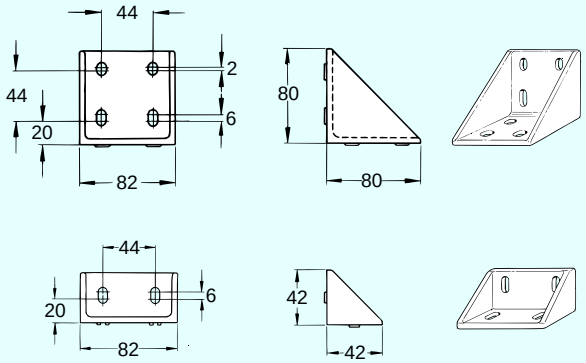
Angle brackets, die-cast

XMFA 84 A

Angle bracket
Aluminium, die-cast
Mounting:
M6S 8×16 (8)
BRB 8,4×16 (8)
XCAN 8 (8)

XMFA 84 B

Angle bracket
Aluminium, die-cast
Mounting:
M6S 8×16 (4)
BRB 8,4×16 (4)
XCAN 8 (4)

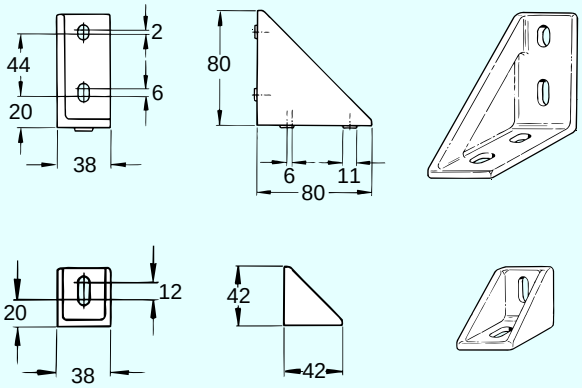


XLFA 44 A

Angle bracket
Aluminium, die-cast
Mounting:
M6S 8×16 (4)
BRB 8,4×16 (4)
XCAN 8 (4)

XLFA 44 B

Angle bracket
Aluminium, die-cast
Mounting:
M6S 8×16 (2)
BRB 8,4×16 (2)
XCAN 8 (2)

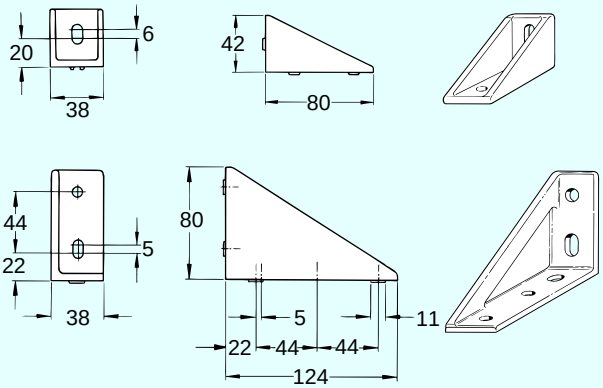


XLFA 44 C

Angle bracket
Aluminium, die-cast
Mounting:
M6S 8×16 (3)
BRB 8,4×16 (3)
XCAN 8 (3)

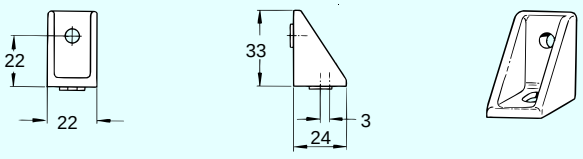
XLFA 44 D

Angle bracket
Aluminium, die-cast
Mounting:
M6S 8×16 (5)
BRB 8,4×16 (5)
XCAN 8 (5)



XLFA 24

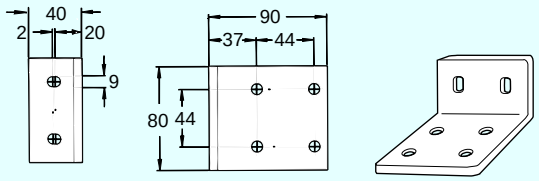
Angle bracket
Aluminium, die-cast
Mounting:
MC6S 6×14 (2)
BRB 6,4×12 (2)
XCAN 6 (2)



Angle brackets, extruded

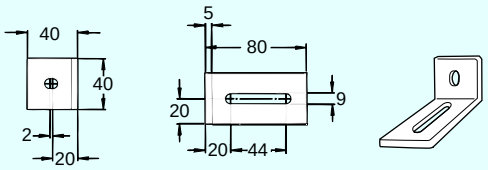
XMFA 84

Angle bracket
Aluminium, anodized
Mounting:
M6S 8×16 (6)
BRB 8,4×16 (6)
XCAN 8 (6)



XLFA 44

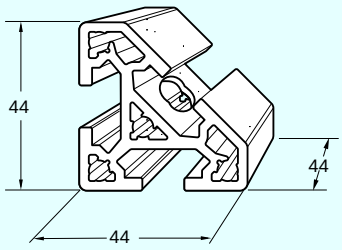
Angle bracket
Aluminium, anodized
Mounting:
M6S 8×16 (2)
BRB 8,4×16 (2)
XCAN 8 (2)



Stay bracket

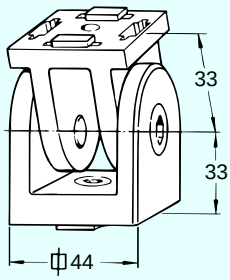
XCAB 44

Stay bracket, 45°
Aluminium, anodized
Mounting: see page 25

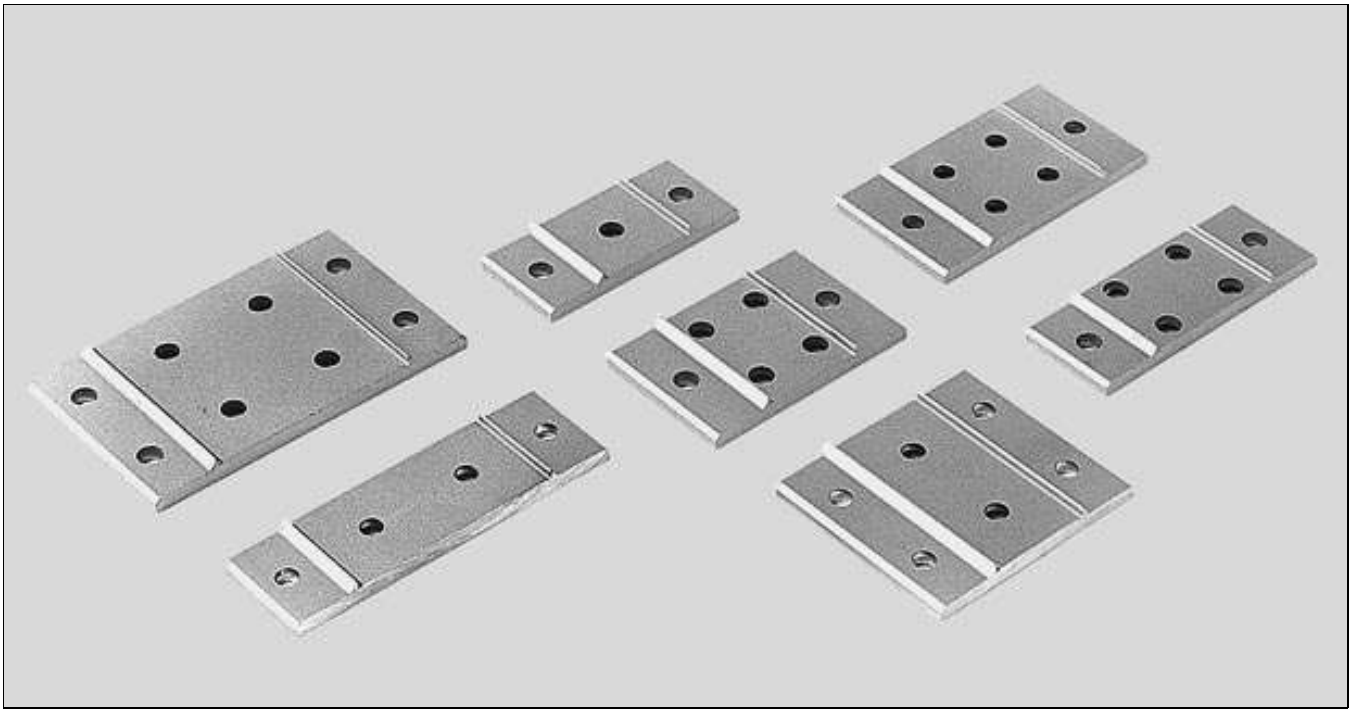


XCFJ 44 F

Stay bracket, including reversible guide lugs
Zinc, die-cast
Mounting:
MLC6S 8×14 (2)
XCAN 8 (2)
(beam side) or
MLC6S 8×30 (2)
(beam end)



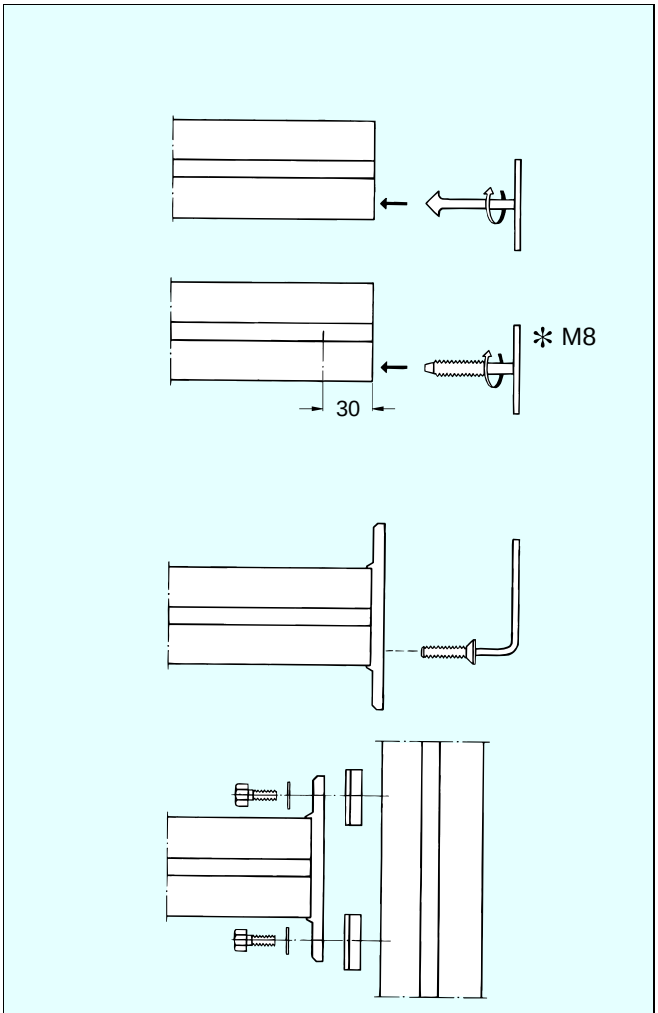
Connectors – mounting plates



Description

Mounting plates XCFB .. are used for mounting beam ends against beam sides. The holes in the end of the beam cross-section must be de-burred and threaded, (M8 roller threading). The mounting plate fits over the beam end and is secured with screws. Mounting plates must be used for double-sided assembly only.

*Note. M8 roller threading. It is also possible to use a selftapping screw (MF6S-TT 8×30, see catalogue section *Fasteners*). In this case, no threading is required.

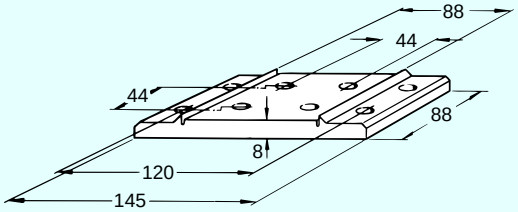


XCFB ..

Mounting plates

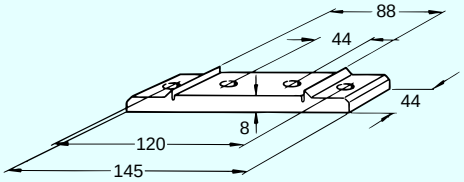
XCFB 88

Mounting plate
Aluminium, anodized
Mounting:
M6S 8×18 (4)
BRB 8,4×16 (4)
XCAN 8 (4)
MF6S 8×30 (4)



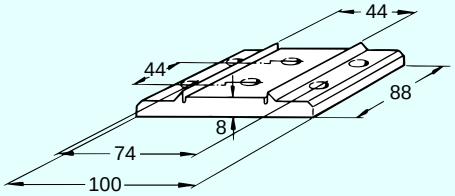
XCFB 44×88 A

Mounting plate
Aluminium, anodized
Mounting:
M6S 8×18 (2)
BRB 8,4×16 (2)
XCAN 8 (2)
MF6S 8×30 (2)



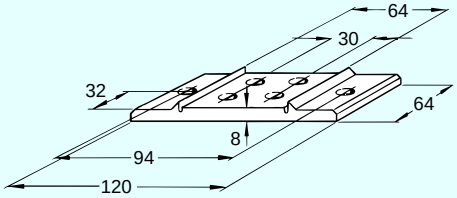
XCFB 44×88 B

Mounting plate
Aluminium, anodized
Mounting:
M6S 8×18 (4)
BRB 8,4×16 (4)
XCAN 8 (4) +
MF6S 8×30 (2)



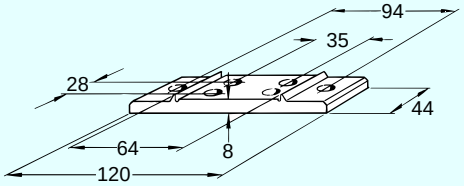
XCFB 64 A

Mounting plate
Aluminium, anodized
Mounting:
M6S 8×18 (2)
BRB 8,4×16 (2)
XCAN 8 (2) +
MF6S 8×30 (4)



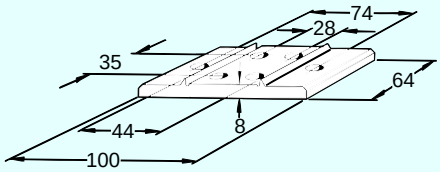
XCFB 44×64 A

Mounting plate
Aluminium, anodized
Mounting:
M6S 8×18 (2)
BRB 8,4×16 (2)
XCAN 8 (2) +
MF6S 8×30 (4)



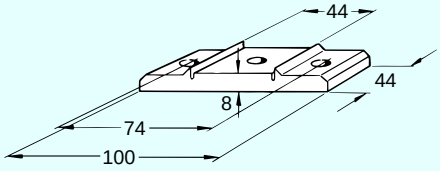
XCFB 44×64 B

Mounting plate
Aluminium, anodized
Mounting:
M6S 8×18 (2)
BRB 8,4×16 (2)
XCAN 8 (2) +
MF6S 8×30 (4)

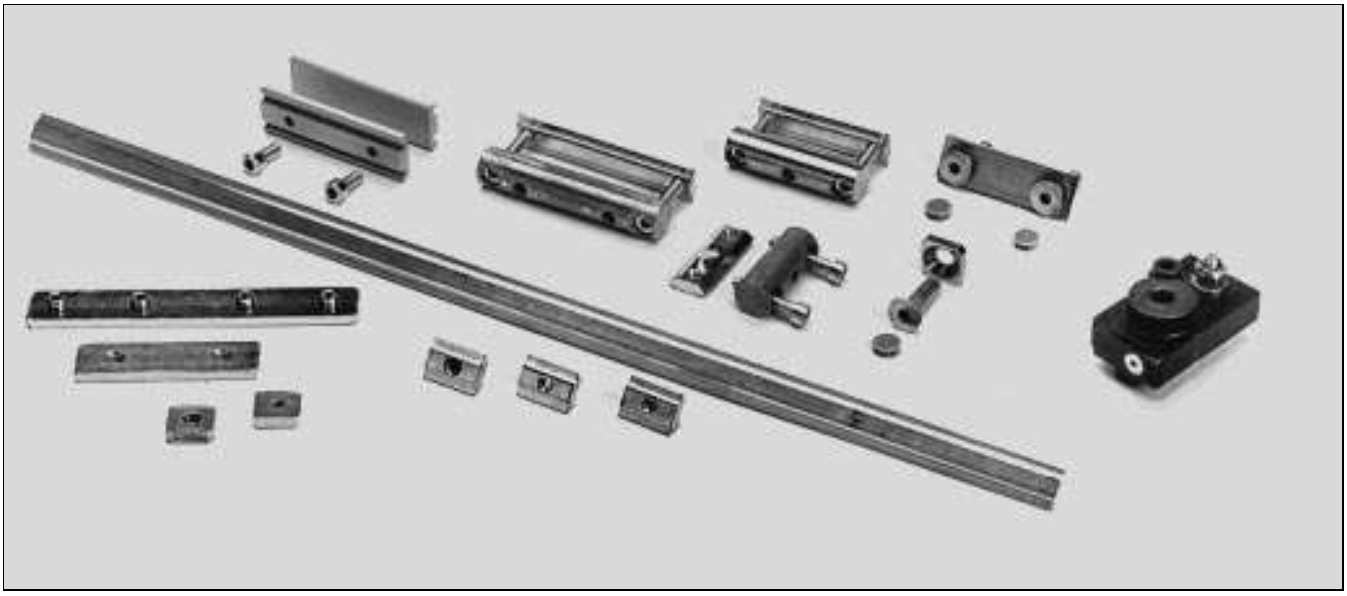


XCFB 44

Mounting plate
Aluminium, anodized
Mounting:
M6S 8×18 (2)
BRB 8,4×16 (2)
XCAN 8 (2) +
MF6S 8×30 (1)



Connectors – slot fasteners



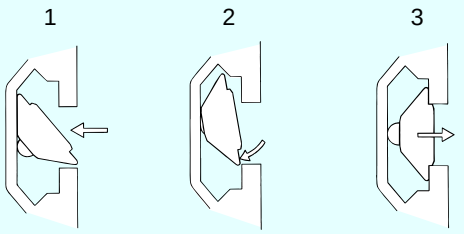
Description

Slot nut (1)

The slot nut is directly adapted to the T-slot of the structural system. On the support beam, the slot nut may be entered into the T-slot from the beam side, thus making it very simple to make additions to existing designs. The nut automatically positions itself in the centre of the T-slot due to the increased thickness in the centre of the nut. For the small beams, the slot nut must enter from the beam end.

The slot nut incorporates a small leaf spring which acts against the bottom of the T-slot, thus retaining the nut in place even in vertical positions.

1

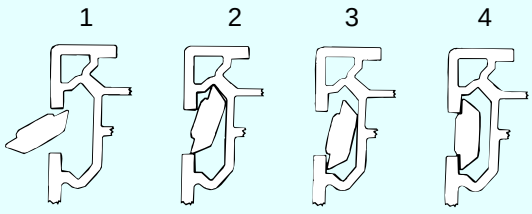


XCAN ..

Nut profile (2)

The nut profile is intended for the attachment of various devices to the T-slot of a beam. This provides for an easy change of the location of a device along the T-slot. The profile can be cut to the desired length, and holes up to M6 for 6 mm screws can be accommodated (drilled and threaded). The profile is inserted into the T-slot from the side of the beam.

2



XCAP 500

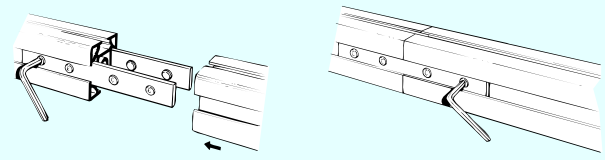
Connectors – slot fasteners

Connecting strips (1, 2)

Connecting strips are used for mounting beam end against beam end (Fig. 1). This type of connection is suitable for moment loads. If the connection will be subjected to heavy pulling, fastener yokes (next page) are a better solution.

Connecting strip XLCJ 5×76 with two threaded M8 holes can also be used to make the mounting of angle brackets more rigid and easier to assemble (Fig. 2).

1

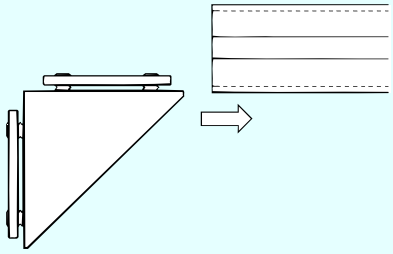


XLCJ ..

Square nuts

Square nuts fit the T-slot of support beams, small beams and also conveyor beams, and can be used together with angle brackets. The nut can only be entered into the T-slot from the beam end.

2

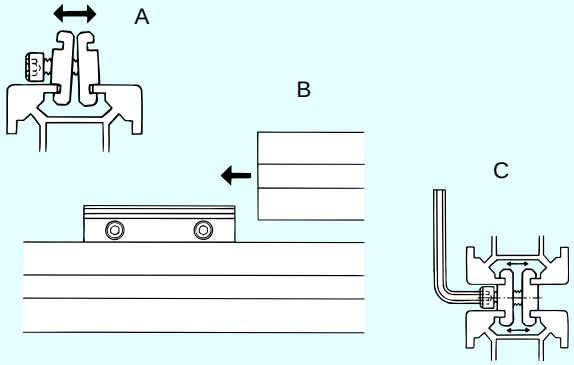


XLCJ 5×76

Parallel connector (3)

Parallel connectors are used to mount two beams together in parallel. The two profiles are entered into the T-slot of the beams and tightened by two Allen screws. This connection is intended for applications with light loads.

3



XCFP 75

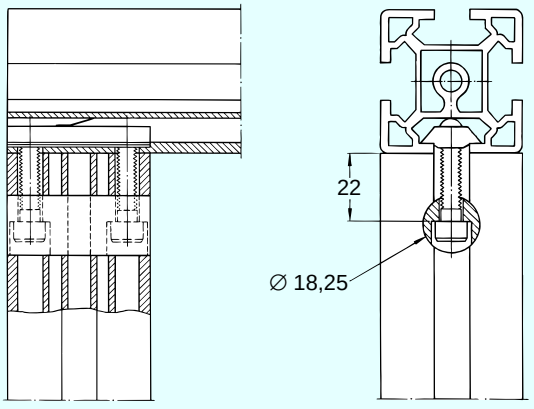
Fastener yokes – movable joint on lateral plane (4)

The fastener yokes are die-cast and provided with a common nut for both screws (M6). The nut length is adapted to the length of each yoke. A through hole with a diameter of 18,25 mm must be drilled in the beam. Using drill fixture XCAD 18 it is always easy to drill accurately.

The screws should be tightened to a torque of 10 Nm (lubricated joint).

If the hole in the yoke is threaded for M8 screws, the use of the fastener yokes is broadened.

4



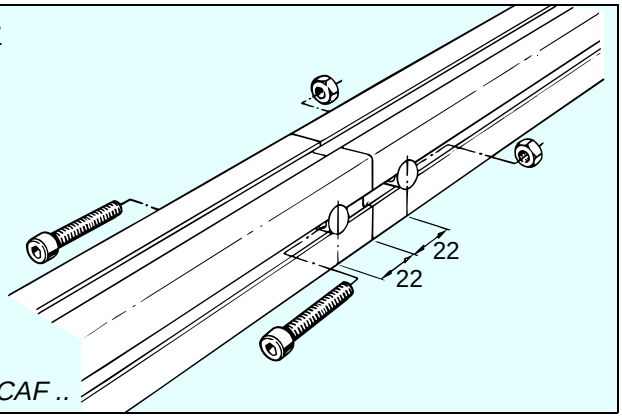
XCAF ..

Connectors – slot fasteners

Fastener yokes – beam end against beam end (1)

Two beams can be mounted beam end against beam end by using two fastener yokes, two M6 nuts, and two screws (MC6S 6×50). This connection can withstand heavy axial pulls. For applications with moment loads, connecting strips are recommended.

1



XCAF ..

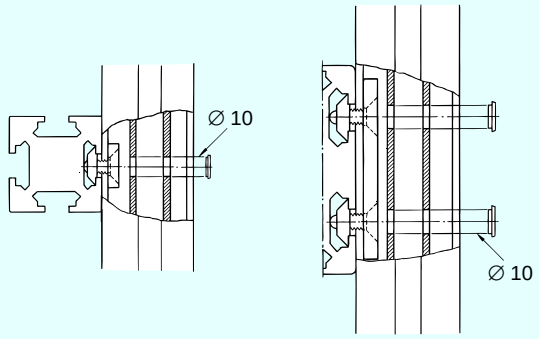
T-slot washer and slot nut (2–3)

Crossing beams can be connected using the T-slot washer and slot nut. A 9,5–10 mm hole has to be drilled in the beam for the screw. Note that the screw must not be longer than 18 mm (use MF6S 8×18).

This joining method can also be used for beams with more than one T-slot, using T-slot washer strips (Fig. 2, right).

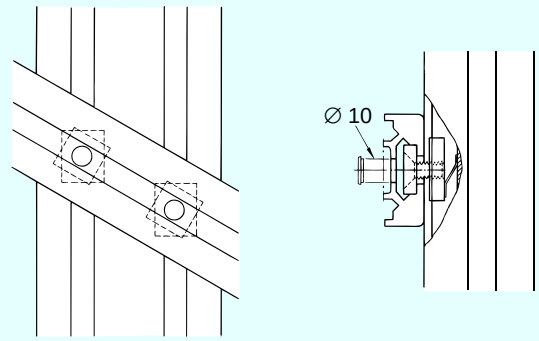
Braces can be joined at angles other than 90° by combining the T-slot washer and slot nut (Fig. 3).

2



XCAQ ..

3



XCAQ ../XCAN 8

T-slot washer strip and connecting strip (1)

For heavier structures, T-slot washer strips and connecting strips can be used together. Note that the screw must not be longer than 18 mm.

Mounting procedure:

1 Drill the holes in the beam (c-c 44 mm).

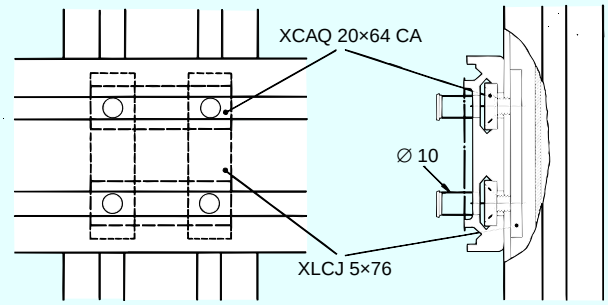
2 Preassemble the “cross” (two T-slot washer strips and two connecting strips) using MF6S 8×18 screws.

3 Push in the T-slot washer strips from the beam end so that the screws align with the holes.

4 Push in the connecting strips from the beam end to the desired position.

5 Tighten the screws.

1



XCAQ 20×64 CA/XLCJ 5×76

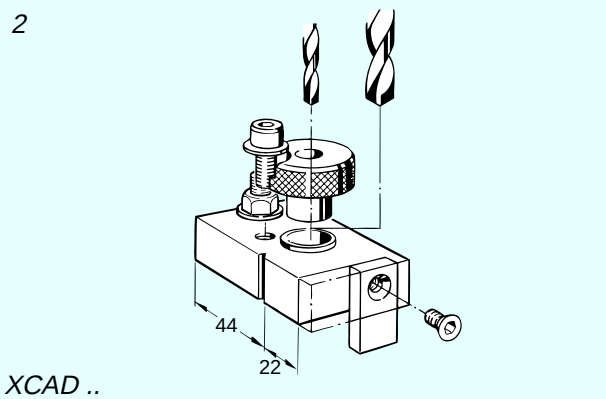
Drill fixture (2)

The fixture provides for accurate drilling of through holes intended for fastener yokes (Ø 18,25 mm) and T-slot washers (Ø 10 mm).

To drill for a yoke, the 10 mm drill insert has to be removed; it is secured by a locking screw. With the stop tongue down, the fixture is inserted all the way into the T-slot of the beam, and then locked. The hole will be drilled 22 mm from the beam end, and centered by the fixture.

To drill for a T-slot application, the stop tongue is turned 90°, the fixture is placed into the T-slot of the beam in the desired position on the beam, and then locked. Positioning the fixture for another hole 44 mm from the first one is easy, by first marking off the beam at the fixture rear end, then moving the fixture for coincidence with the mark, and locking it.

2



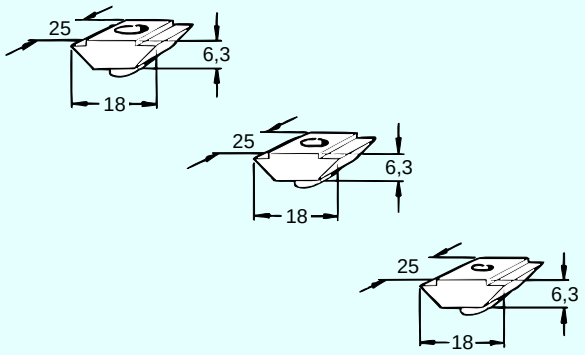
XCAD ..

Slot nuts and nut profile

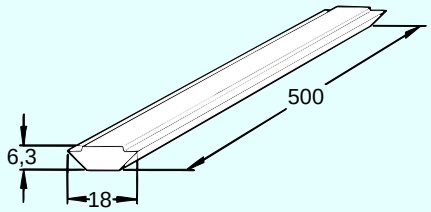
XCAN 8 Slot nut, M8 thread
Steel, zinc-chromated

XCAN 6 Slot nut, M6 thread
Steel, zinc-chromated

XCAN 5 Slot nut, M5 thread
Steel, zinc-chromated



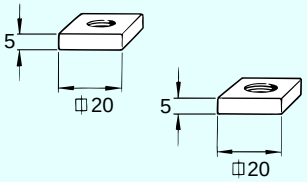
XCAP 500 Nut profile for T-slot
Length 500 mm
Aluminium



Square nuts

XLAQ 8 Square nut, M8 thread
Steel, electro-zinc-plated

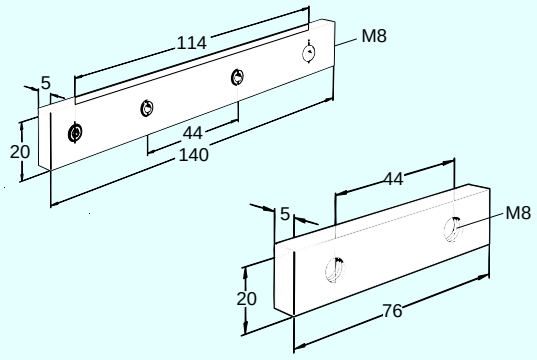
XLAQ 6 Square nut, M6 thread
Steel, electro-zinc-plated



Connecting strips

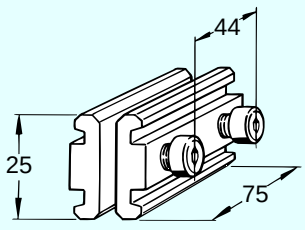
XLCJ 5×140 Connecting strip with M8 set screws
Length 140 mm
Steel, electro-zinc-plated

XLCJ 5×76 Connecting strip, M8 thread
Length 76 mm
Steel, electro-zinc-plated



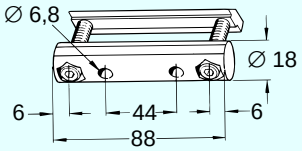
Parallel connector

XCFP 75 Parallel connector assembly for connecting beams T-slot to T-slot
Length 75 mm
Aluminium, anodized

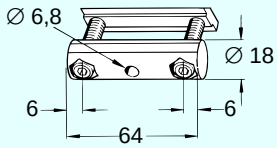


Fastener yokes

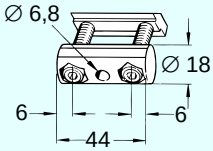
XCAF 88
Fastener yoke assembly
Length 88 mm
Zinc, die-cast



XCAF 64
Fastener yoke assembly
Length 64 mm
Zinc, die-cast

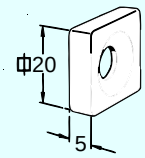


XCAF 44
Fastener yoke assembly
Length 44 mm
Zinc, die-cast

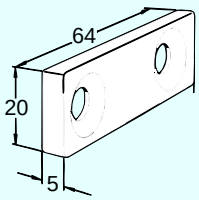


T-slot washers

XCAQ 20 CA
T-slot washer kit
Steel, electro-zinc-plated
The kit contains:
1 T-slot washer
1 cap (for ∅10 mm hole)

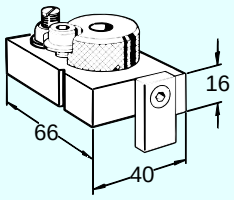


XCAQ 20×64 CA
T-slot washer strip kit
Length 64 mm
Steel, electro-zinc-plated
The kit contains:
1 T-slot washer strip
2 caps (for ∅10 mm hole)

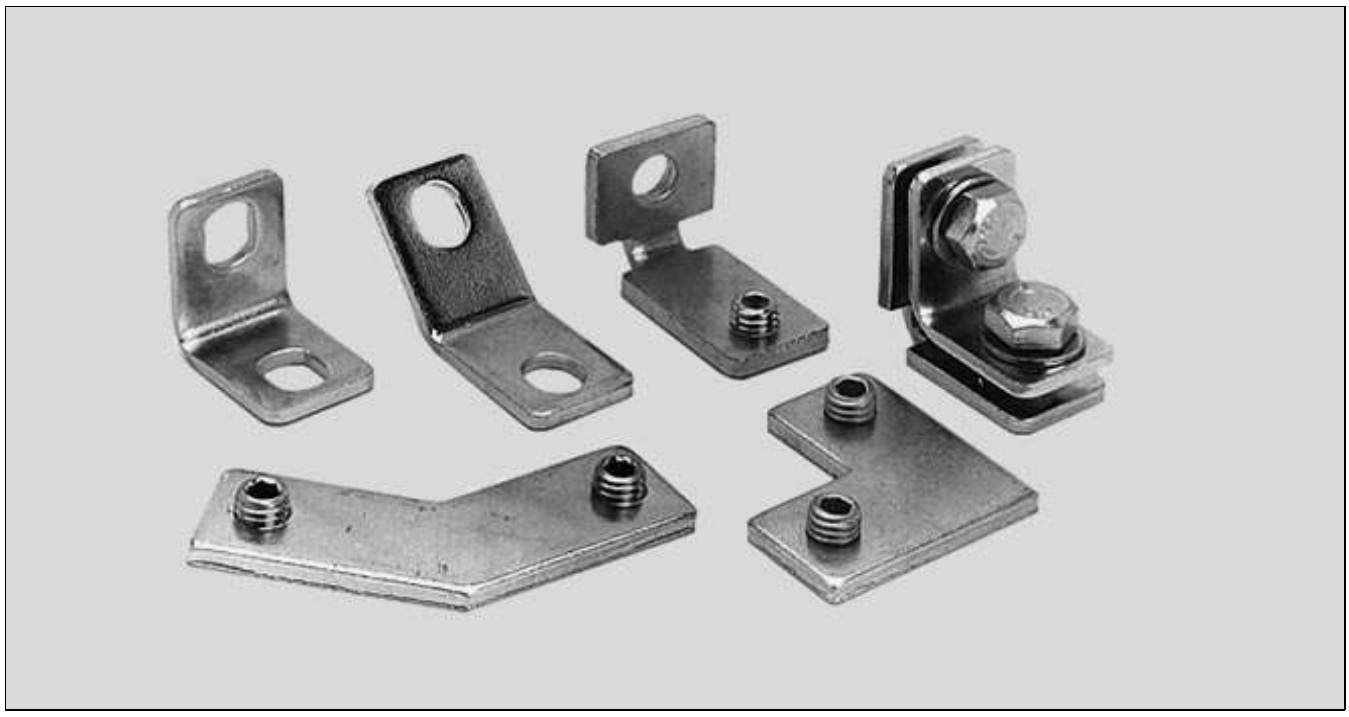


Accessories for fastener yokes and T-slot washer

XCAD 10/18
Drill fixture for fastener yokes (Ø 18,25 mm) and for the T-slot washer (∅10 mm)
Steel, black chromated



Connectors – small fittings



Description

Small fittings are mainly intended for use with small beams.

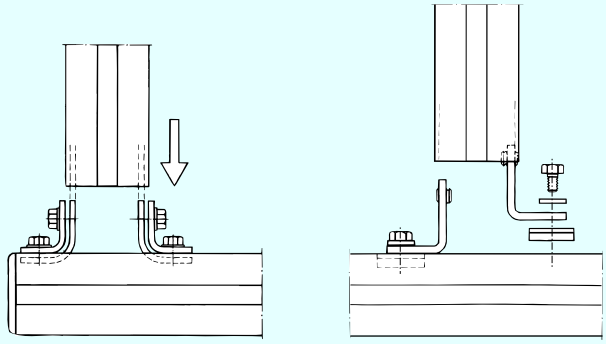
Inner fittings (1)

Inner fittings are used when mounting beam end against beam side.

Type XMRY 20 is a two-part bracket. One part is inserted into the T-slot and the other part lies outside the beam. When the screws are tightened, the beam is squeezed between the two parts.

Type XMRX 20 A is a single bracket where one end is inserted into the T-slot and secured with a set screw. The other end is mounted on the outside of the beam using a screw and a slot nut. The remaining inner fittings are single brackets for mounting inside or outside the T-slot.

1

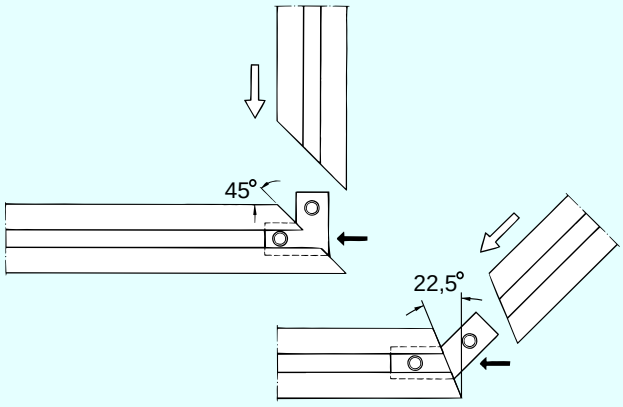


XMRY 20/XMRX 20 A

Corner fittings (2)

Corner fittings are used to build stable and neat framework corners. The fittings are placed in the T-slots and clamped against the slot with set screws. The beams have to be cut to form the required angle. For a right-angle corner the beams have to be cut at a 45-degree angle and for a 45-degree corner the beams should be cut at 22,5 degrees.

2

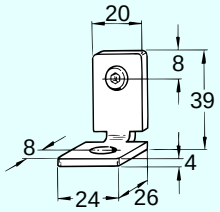


XMRW ..

Small fittings

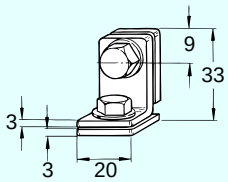
XMRX 20 A

Inner fitting 90°
Including set screw
Steel, electro-zinc-plated
Mounting:
M6S 8×14 (1)
BRB 8,4×16 (1)
XCAN 8 (1)



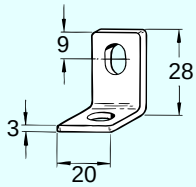
XMRY 20

Inner fitting 90°, double
Including screws
Steel, electro-zinc-plated



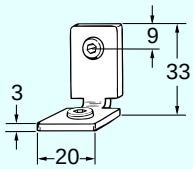
XMRY 20 A

Inner fitting 90°
Steel, electro-zinc-plated
Mounting:
M6S 8×14 (2)
BRB 8,4×16 (2)
XCAN 8 (2)



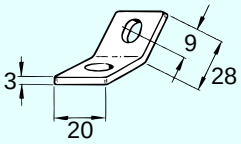
XMRY 20 B

Inner fitting 90°
Including set screws
Steel, electro-zinc-plated



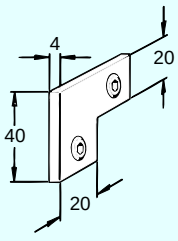
XMRY 20×45 A

Inner fitting 45°
Steel, electro-zinc-plated
Mounting:
M6S 8×14 (2)
BRB 8,4×16 (2)
XCAN 8 (2)



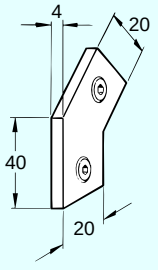
XMRW 20

Corner fitting 90°
Including set screws
Steel, electro-zinc-plated

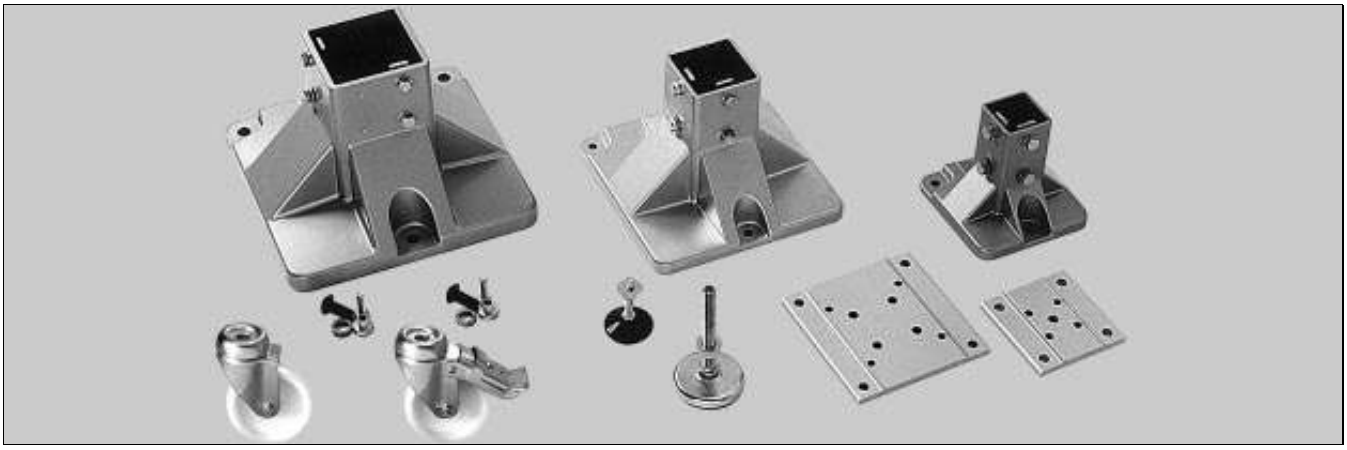


XMRW 20×45

Corner fitting 45°
Including set screws
Steel, electro-zinc-plated



Feet



Description

Feet (1)

Foot types XCFF ... provide the sturdiest attachment of a beam end directly onto the floor. They can be used with standard and light-weight support beams. The feet are made of aluminium, ensuring good resistance to corrosion. All horizontal surfaces are declined 5° for efficient runoff of water or cleaning liquid.

Foot plates (2)

For flat surfaces, foot plate XCFB .. F can be used for standard and light-weight support beams 88 mm × 88 mm and 44 mm × 44 mm. The standard beams are mounted with M8-screws at the centre of the plate. The light-weight beams are mounted with four M6-screws in the corners of the beams.

*Note. M8 roller threading. It is also possible to use a selftapping screw (MF6S-TT 8×30 or MF6S-TT 6×30, see catalogue section *Fasteners*). In this case, no threading is required.

Adjusting feet (3)

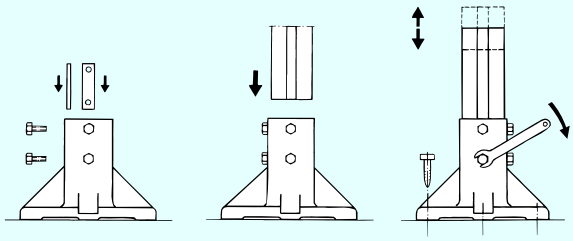
Adjusting foot XCFS 12×68 is screwed to an end plate (XCFE .. M12). The product range includes end plates from 44 mm × 44 mm to 88 mm × 88 mm. Please refer to pages 42–43 for a detailed presentation of end plates. It is also possible to use this foot with corner profile XCBR 44 after predrilling and threading. The absorber pad of XCFS 12×68 is made of chloroprene rubber with a hardness of 80 Shore (A).

Adjusting foot XLFS 8 can either be mounted directly into beams XCBM/XCBR 44 or directly into any T-slot.

Guide rollers (4)

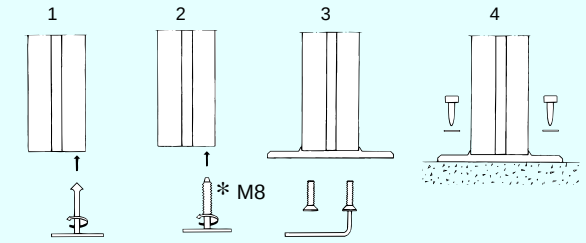
Guide rollers XCAG .. are available with or without multi-stop-brake. The rollers can either be mounted into any T-slot (XCAN 8) or directly to an end plate (XCFE .. M12). Please refer to pages 42–43 for a detailed presentation of end plates. The wheels are made of polyamide.

1



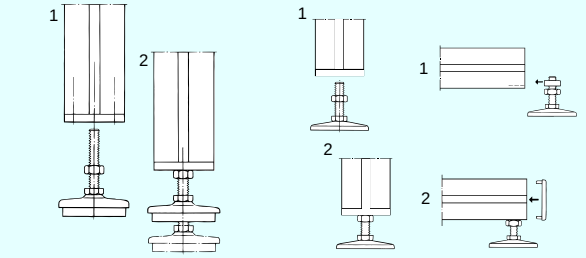
XCFF ..

2



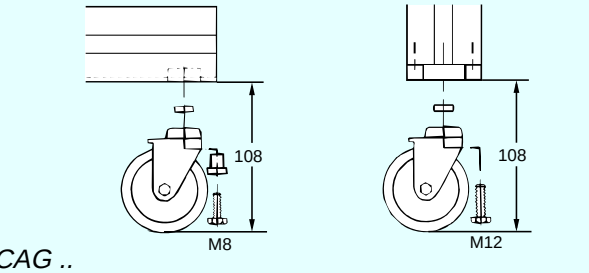
XCFB .. F

3



XCFS 12×68 *XLFS 8*

4

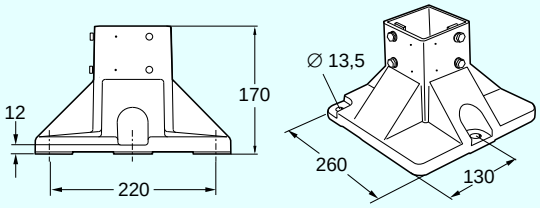


XCAG ..

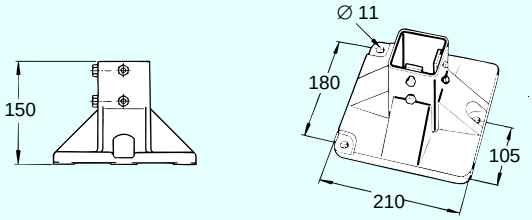
Feet

Feet
Including fastener kit
Aluminium, die-cast

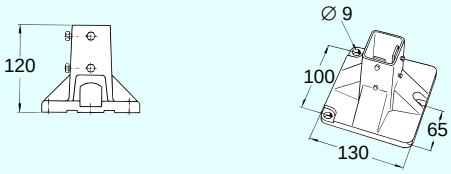
XCFF 88×260 Foot for beam XCBM/XCBL ..×88
Max. bending moment 1500 Nm



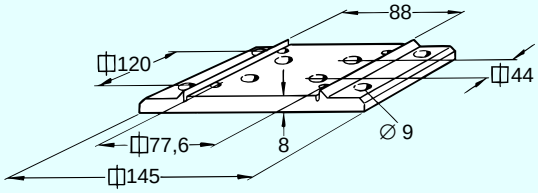
XCFF 64×210 Foot for beam XCBM/XCBL ..×64
Max. bending moment 750 Nm



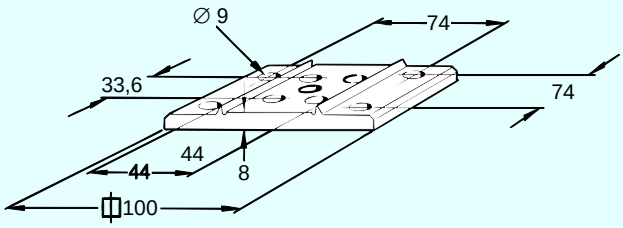
XCFF 44×130 Foot for beam XCBM/XCBL ..×44
Max. bending moment 250 Nm



XCFB 88 F Foot plate for beam XCBM/XCBL ..×88
Aluminium, anodized
Mounting:
MF6S 8×30 (4)
or MF6S 6×30 (4)
Max. bending moment 200 Nm



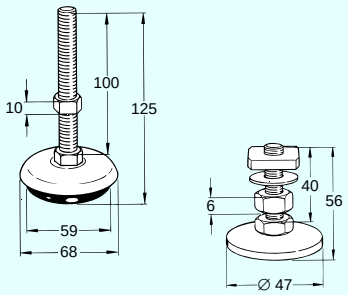
XCFB 44 F Foot plate for beam XCBM/XCBL ..×44
Aluminium, anodized
Mounting:
MF6S 8×30 (1)
or MF6S 6×30 (4)
Max. bending moment 50 Nm



Adjusting foot
Including nut
Steel, electro-zinc-plated

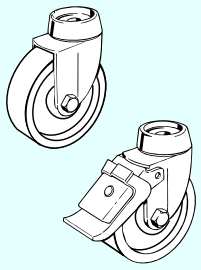
XCFS 12×68 M12 thread
Mounting: XCFE .. M12
Max. vertical load 2500 N

XLFS 8 M8 thread
Max. vertical load 400 N

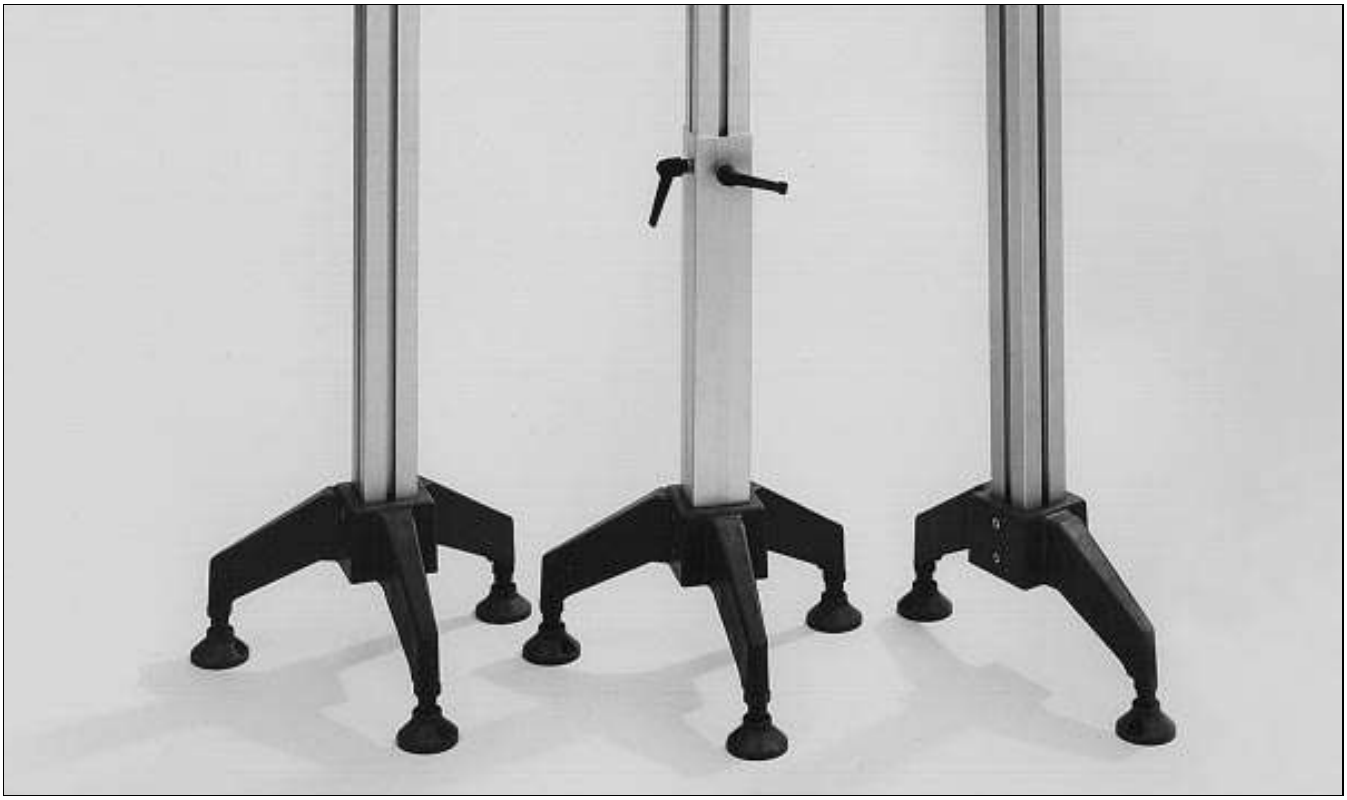


Guide rollers
Including fastener kit
Steel, electro-zinc-plated
Mounting: XCAN 8 or XCFE .. M12
Max. vertical load 600 N

XCAG 80 A Guide roller
XCAG 80 BA Guide roller with multistop brake



Feet for 64 mm beam



Description

Polyamide feet

Two- and three-point polyamide feet are available for 64 mm support beams. Minor adjustments to the height of the support point can be made at the beam support bracket or at the beam-to-foot connection.

The foot is secured to the support beam by means of compression clamps with screws. The screw must be tightened sufficiently to keep the support beam stationary for all loads. Recommended tightening torque is 15 Nm.

The adjusting mounts can be bolted to the floor. The maximum adjusting height is 30 mm. Vibration absorbers can be fitted to the adjusting mounts. Apart from reducing vibration, they also increase the friction if the feet are not bolted to the floor.

Height adjustment assembly

For a height adjustment range larger than that provided by the adjusting mounts, a special height adjustment assembly is available. A piece of 70 mm square section tube is used as a sleeve. The support beam can slide into the square section tube. Locking levers facilitate quick and easy readjustment of the height. The base of the square section tube fits into a special version of the three-point polyamide foot. Maximum adjustment range for the square tube assembly is 500 mm.

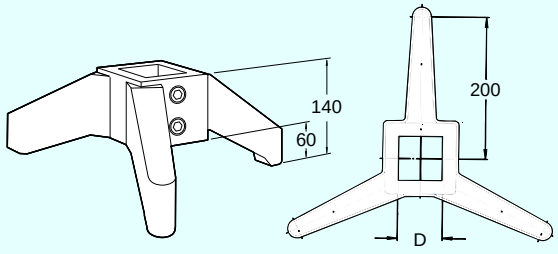
Feet, polyamide, for 64 mm beam

XEFG 64 T

Three-point foot for XC.. 64 beam
- D=64 mm
- Incl. screws and clamps
- Polyamide, glass-fibre reinforced
- Max. vertical load 800 N

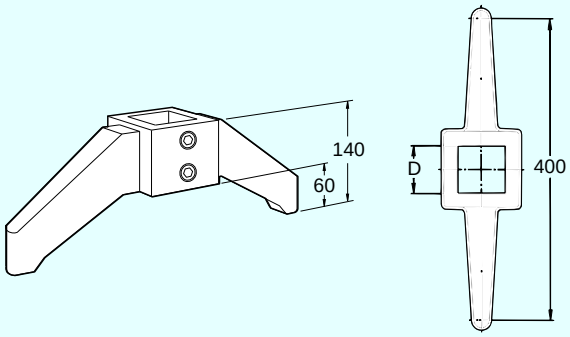
XEFG 70 T

Three-point foot for XEFU 500
- D=70 mm
- Incl. screws and clamps
- Polyamide, glass-fibre reinforced
- Max. vertical load 800 N



XEFG 64 D

Two-point foot for XC.. 64 beam
- D= 64 mm
- Incl. screws and clamps
- Polyamide, glass-fibre reinforced
- Max. vertical load 800 N

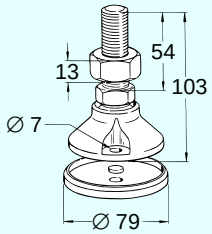


XLFS 20 P

Adjusting mount for XEFG 64/70 T/D
- With ball joint and M20 locking nut
- Polyamide, glass-fibre reinforced
- Max. vertical load 500 N

XLFJ 69

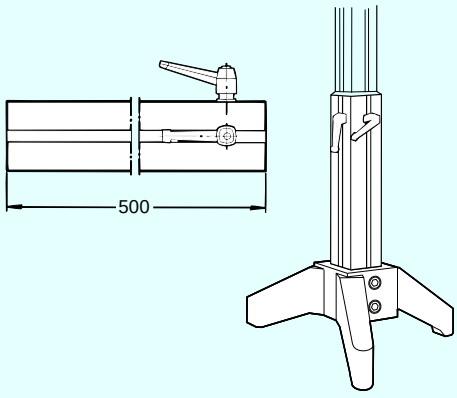
Vibration absorber for XLFS 20 P
- Thermoplastic polyester



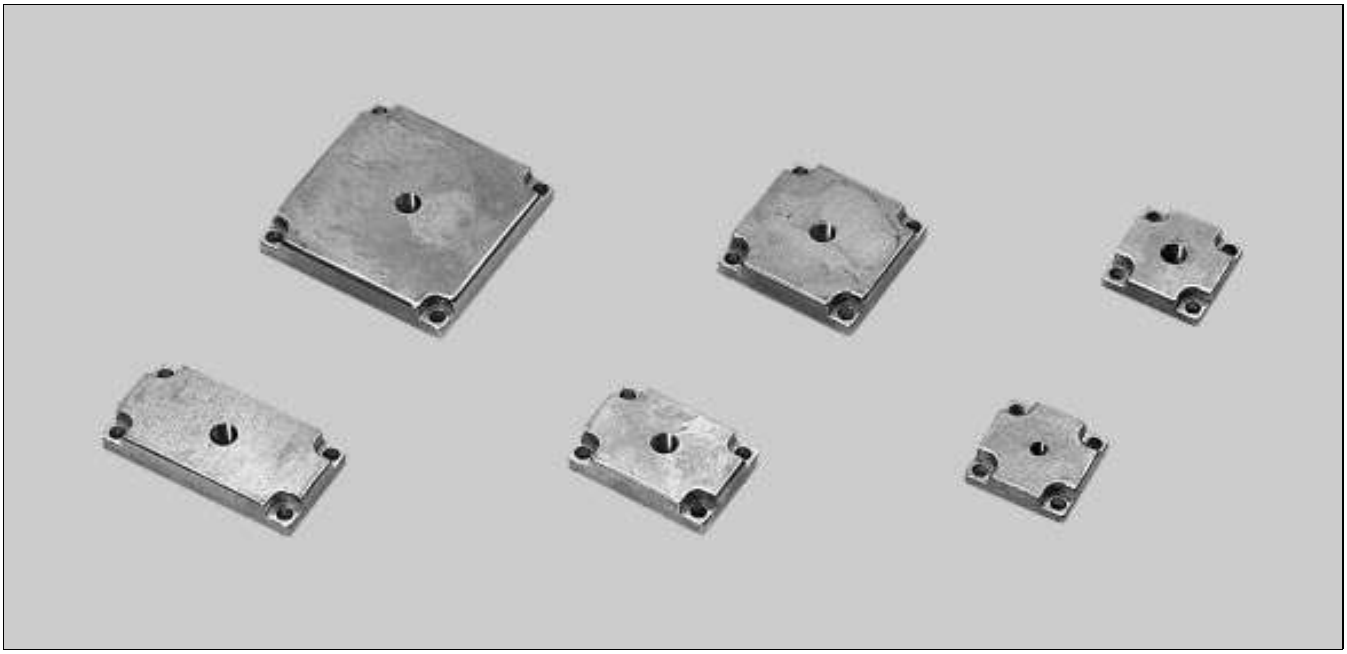
Height adjustment assembly

XEFU 500

Square section tube height adjustment assembly for XEFG 70 T
- Including locking levers
- Length 500 mm
- Aluminium, anodized



Feet – end plates



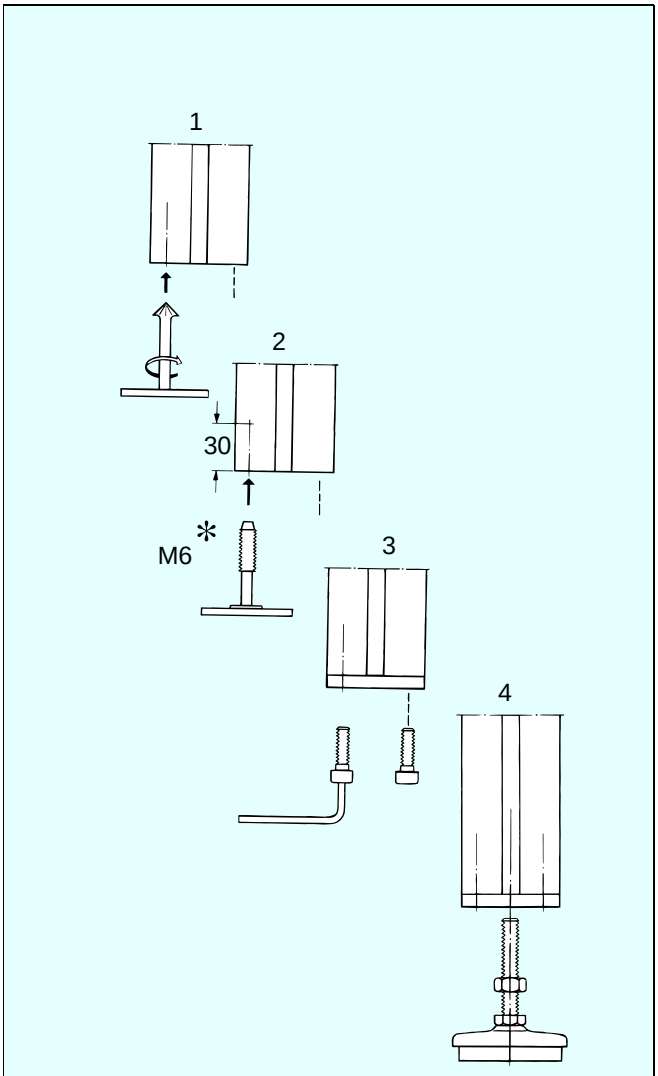
Description

End plates

End plates are screwed onto beam ends to provide attachments for the feet. The holes in the beam cross-section must be de-burred and threaded (M6).

The end plates with an M12 threaded hole are intended for the XCFS 12×68 foot, and for guide rollers XCAG 80 A/80 BA. End plate XCFE 44 M8 is intended for the XLFS 8 foot.

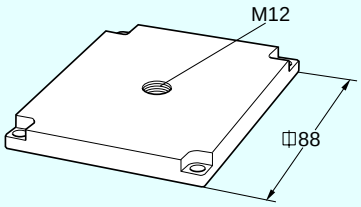
*Note. M6 roller threading. It is also possible to use a selftapping screw (MC6S-TT 8×30, see catalogue section *Fasteners*). In this case, no threading is required.



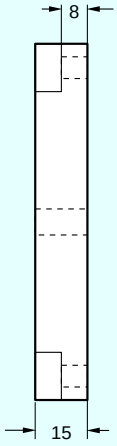
XCFE ..

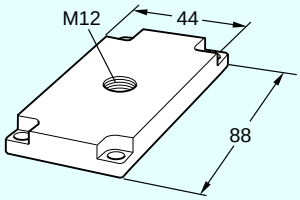
End plates

XCFE 88 M12A End plate for beam
XCBL/XCBM ...×88
M12 thread
Zinc, die-cast
Mounting:
MC6S 6×30 (4)

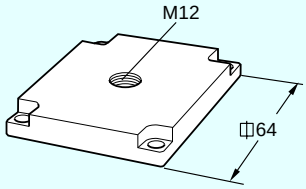


XCFE 44×88 M12A End plate for beam
XCBL/XCBM ...×44×88
M12 thread
Zinc, die-cast
Mounting:
MC6S 6×30 (4)

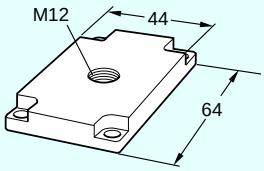




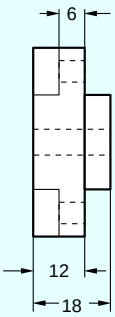
XCFE 64 M12A End plate for beam
XCBL/XCBM ...×64
M12 thread
Zinc, die-cast
Mounting:
MC6S 6×30 (4)

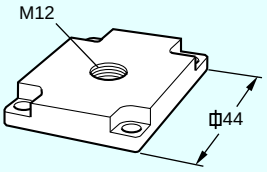


XCFE 44×64 M12A End plate for beam
XCBL/XCBM ...×44×64
M12 thread
Zinc, die-cast
Mounting:
MC6S 6×30 (4)

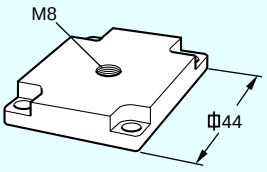


XCFE 44 M12 End plate for beam
XCBL ...×44
M12 thread
Zinc, die-cast
Mounting:
MC6S 6×30 (4)

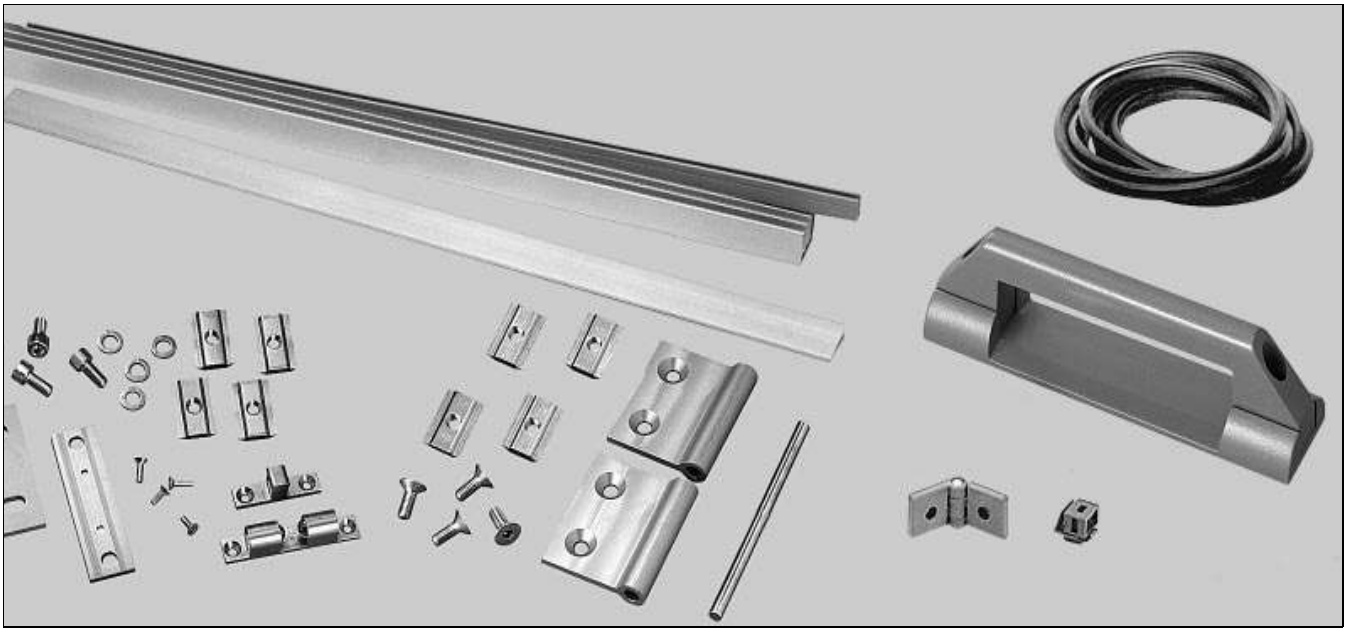




XCFE 44 M8 End plate for beam
XCBL ...×44
M8 thread
Zinc, die-cast
Mounting:
MC6S 6×30 (4)



Enclosure components



Description

Enclosure profiles (1)

The XCEP ..×10×44 profile is intended for the attachment of panels or nets, thickness 4–8 mm, on the outside of an existing framework. The profile fits all beams with a minimum width of 44 mm. Profile XCEP ..×5×44 can be used to fasten panels or nets on both sides.

On the back of the profile there is a drilling groove. Use M6 countersunk screws with a distance of 150 mm to 300 mm between the holes. For 6 mm panels: use MF6S 6×16 screws.

Profile for sliding doors (2)

A profile for sliding doors XLFL .. can be mounted directly into the T-slots of the support beams or on angle bracket XLFA 44 B. Slide strips XLFR 3 are then placed in the slots of the profile. The slide strips are designed for sheets which are 5,5–6,0 mm thick, for example sheets made of acrylic or polycarbonate plastic.

If the slide strips are mounted reversed in the lower and upper profiles, a sheet can be fitted after the profiles have been mounted on the framework.

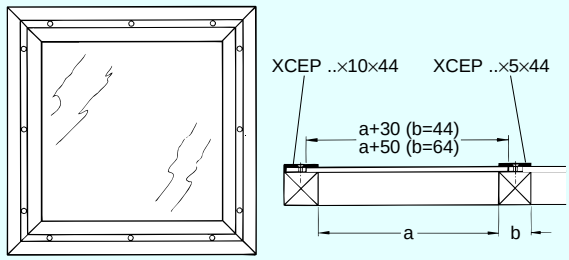
In order to provide for a large door opening, the profile has been designed with three slots.

Multiblock (3)

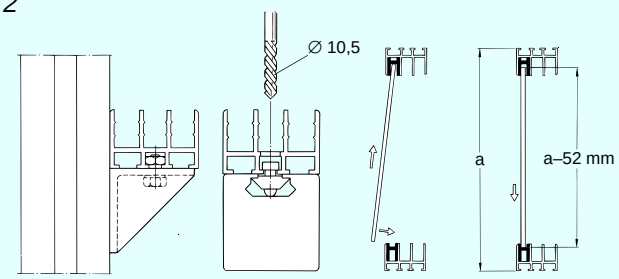
The XCAM 14 multiblock is intended for attachment of enclosure sheets to XC beams. The multiblock is inserted into the beam T-slot and fixed by turning through 90°. One side of the block is designed for mounting with an M6 screw (A). The thread length of the screw should be equal to the sheet thickness plus 22 mm. Note that screw mounting permits zero clearance between sheet edge and beam.

The other side is intended for clamping (B). Suitable sheet thickness: 1–6 mm.

1

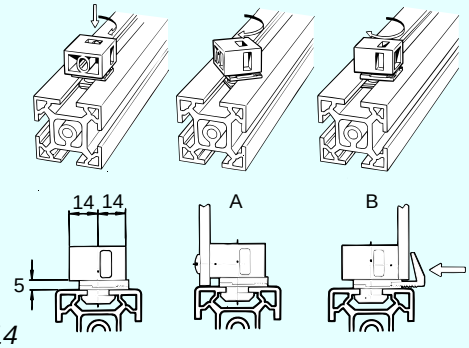


2



XLFL ../XLFR 3

3



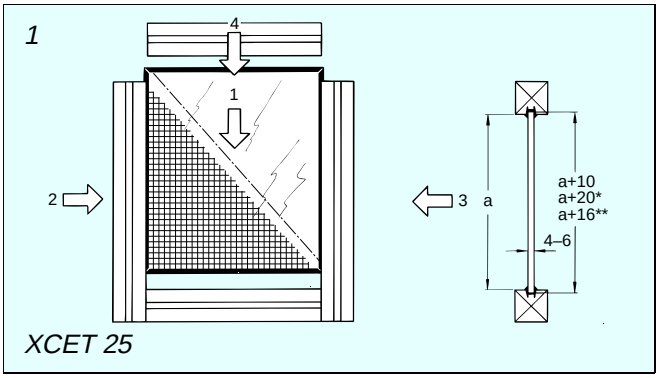
XCAM 14

Enclosure components

Enclosure strips (1)

Four strip profiles can be used with the XC enclosure components:

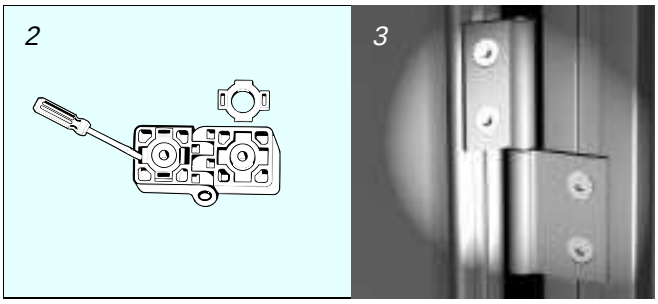
- Profile XCET 25, EDPM rubber, hardness 60 Shore (A), for 4–5 mm thick panels (Fig. 1).
- Rim strip XCET 3 A*, PVC, for 5–6 mm thick panels.
- Net strip XCET 3 C**, PVC, for 4–5 mm thick nets.
- Sliding door profile XCET 3 D, PVC, for two 4 mm panels.



Hinges (2, 3)

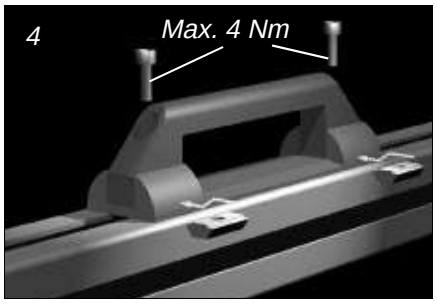
Plastic hinge XCAH 50 (2) is suitable for simple door functions and the like. The hinge is mounted in the T-slot of the beams and is guided by rotatable guide lugs. The guide lugs may be removed entirely when the hinge is mounted on a flat surface.

Aluminium hinge XCAH 110 A (3) is intended for doors built with 44 mm × 44 mm XC aluminium profiles. The hinge can either be mounted on the left or right hand side of the door. Use Loctite 401 or something similar to fix the hinge connecting pin to one of the two hinge pieces.



Handle (4)

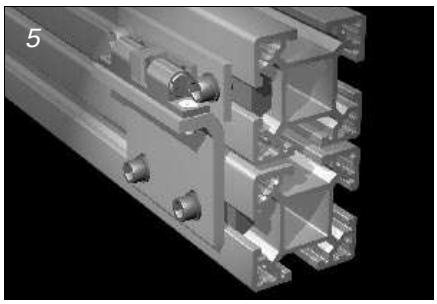
Plastic handle XDEH 160 is designed to fit XC T-slots when used in combination with the XC T-slot adapter (included). Without the adapter, the handle will fit XD T-slots (see page XD 20).



Ball latch lock kit (5)

Ball latch lock kit XCEL 60 B can be placed at any desired position in an XCBL framework. See Fig. 5.

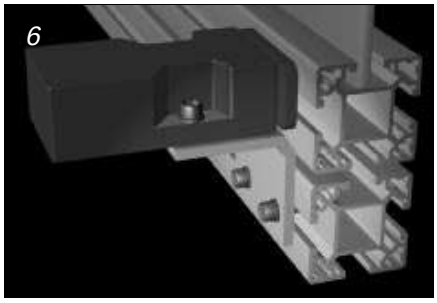
Type XCEL 60 BA should be used when the framework is based on 88 mm beams.



Security switch kit (6)

Security switch kit XCEL 60 W is mounted on the inner side of the bottom XCBL framework profile. The connecting plate fits security switch Schmersal AZ 15/16-B1 (not included in kit). See Fig. 6.

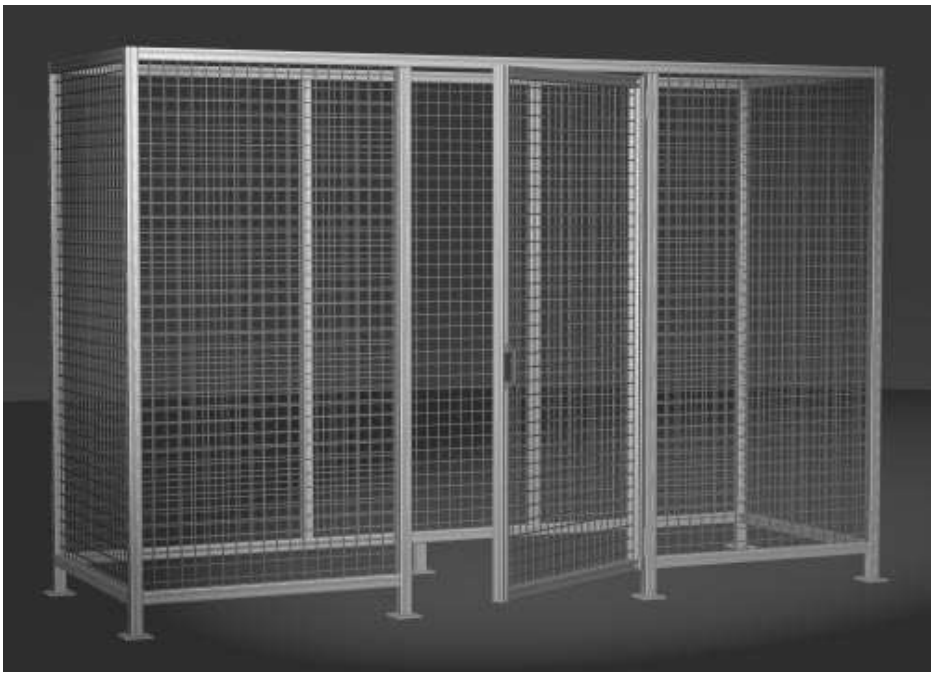
Type XCEL 60 WA should be used when the framework is based on 88 mm beams.



Enclosure components – partitions

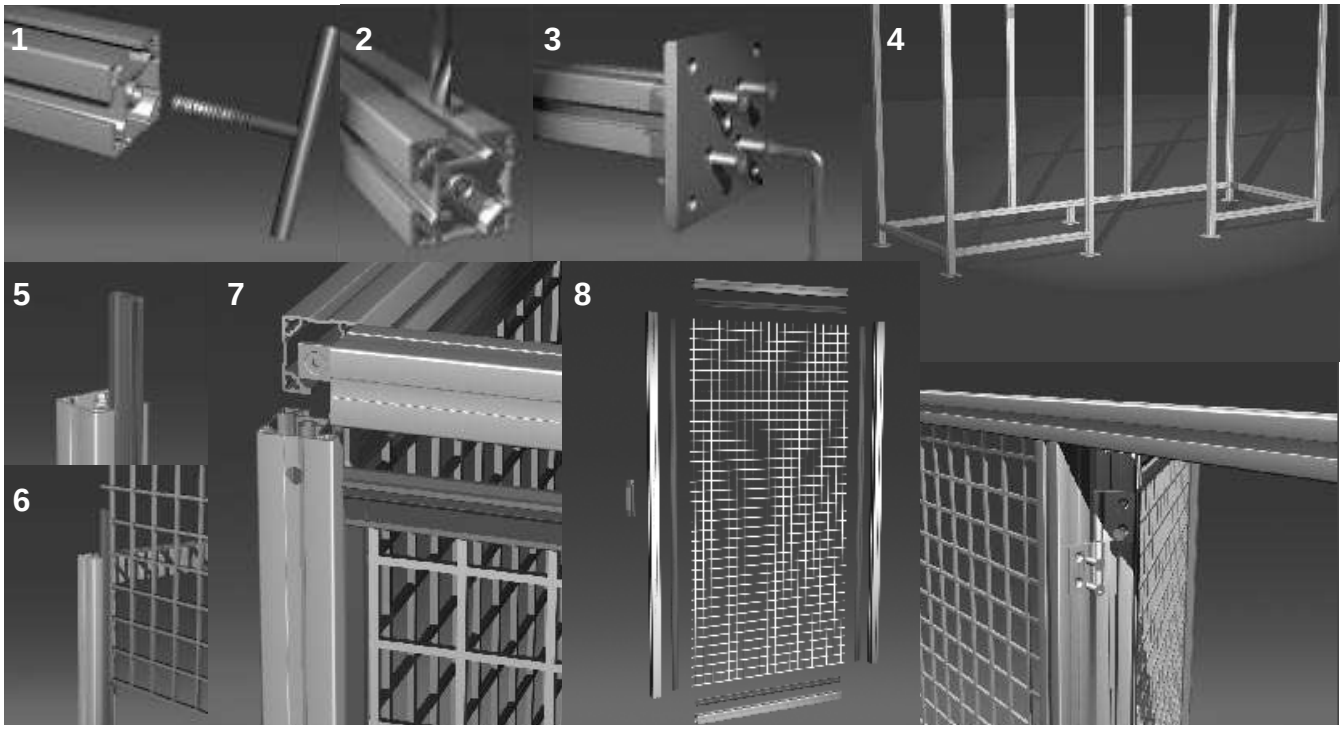
Freestanding partitions

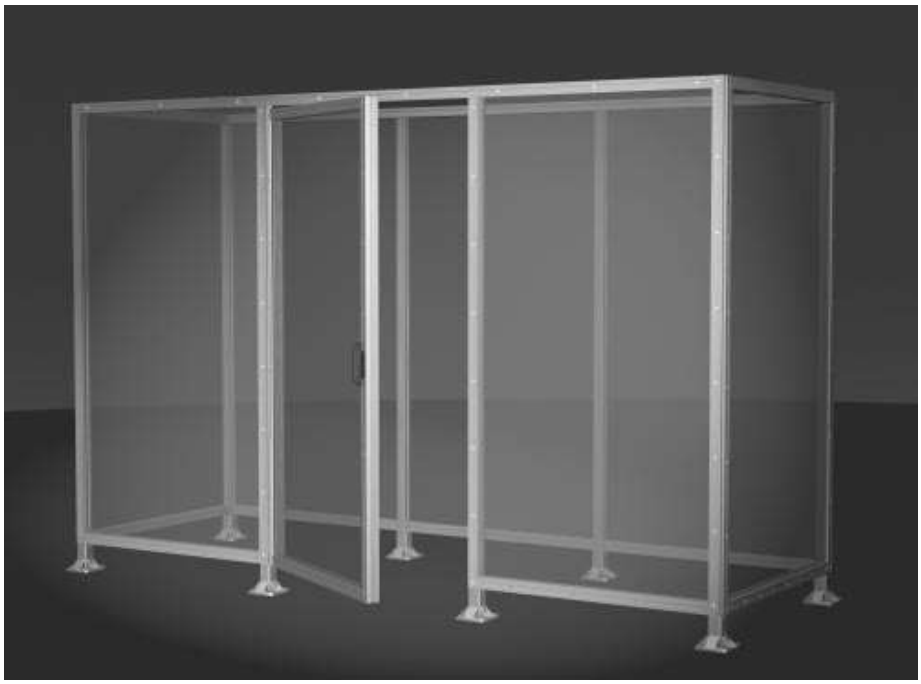
FlexLink structural system XC is particularly suitable for freestanding partitions. They can either be assembled with panels/nets integrated into the framework, or mounted on the outside of an assembled framework.



Panels/nets directly into the T-slot

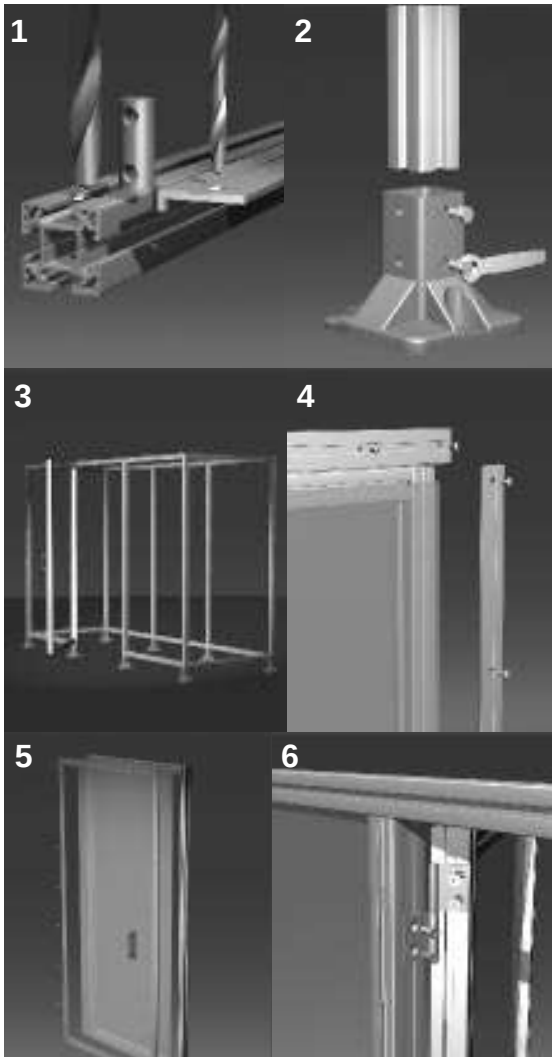
- Cut XCBL ..×44 T2/T2A/T3 to desired lengths.
- Mount all foot plates onto the vertical beams (3).
- Assemble all horizontal beams in the lower layer (4).
- Mount suitable XCET strip and slide the net/panel into the framework (5, 6).
- Assemble the upper horizontal beams (7).
- Mount XCET strip into the door profiles and assemble the frame around the net. Handle XDEH 160 can be conveniently mounted at this stage (8).
- Assemble hinge XCAH 110 A at the closed position and mount the door into the framework (9). The kits for ball latch locks and security switches can then be installed at the desired positions.





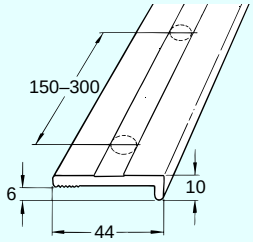
Panels/nets mounted with enclosure profile

- Cut XCBL ..×44 and XCEP ..×5/10×44 to desired lengths: Drill holes for fastener yokes XCAF 44 and for assembly of the enclosure profiles (1).
- Mount XCFF 44×130 onto all vertical beams (2).
- Assemble the entire framework (3).
- Mount nets/panels with XCEP ..×5/10×44 onto the framework (4).
- Assemble the door framework and then the nets/panels. Premount the handle onto the XCEP ..×10×44 before assembling it onto the framework (5).
- Mount the hinge to the framework and then the door profile. Please note that it is necessary to mill away 5 mm from XCEP ..×10×44 before mounting the hinges (6).
- Finally, install the ball latch lock kit and security switch kit.

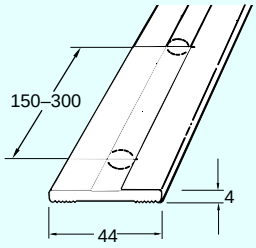


Enclosure profile

Profile for enclosures
Aluminium, anodized
For mounting panels and nets to all standard profiles with a min. width of 44 mm
Mounting:
MF6S 6×16 (for 6 mm panels)
XCAN 6



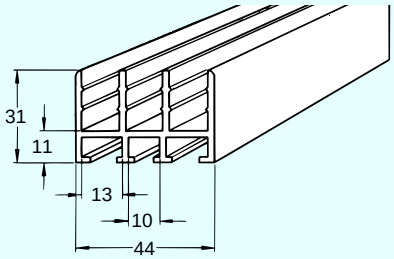
XCEP 3×10×44 Edge profile, length 3 m
XCEP L×10×44 Edge profile, length to order



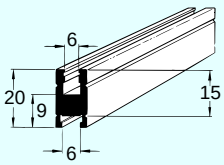
XCEP 3×5×44 Inner profile, length 3 m
XCEP L×5×44 Inner profile, length to order

Profile for sliding door

Profile for sliding door
Aluminium, anodized
Mounting:
MLC6S 6×12
XCAN 6 (profile), or
MC6S 6×14
BRB 6,4×12 and
M6M 6 (angle bracket)



XLFL 3 Length 3 m
XLFL L Length to order

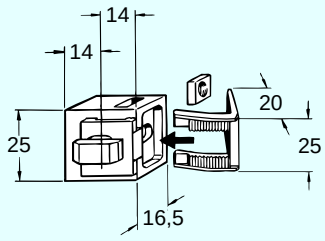


XLFR 3 Slide strip for sliding doors
Length 3 m
Polyvinyl chloride

Multiblock

XCAM 14

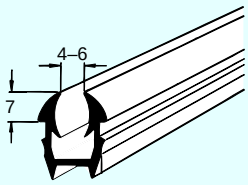
Multiblock, assembly
Including polyamide clamp and M6 square nut
Polyamide



Enclosure strips

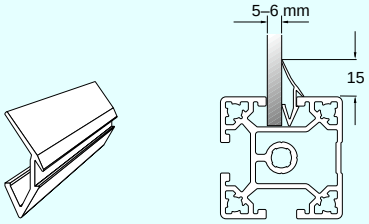
XCET 25

Rubber strip for panels
Length 25 m
EPDM rubber, black



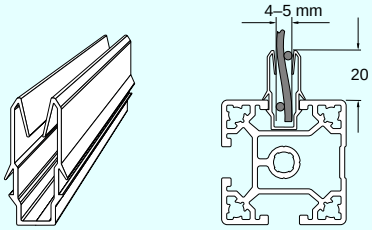
XCET 3 A

Rim strip
Length 3 m
Polyvinyl chloride, grey



XCET 3 C

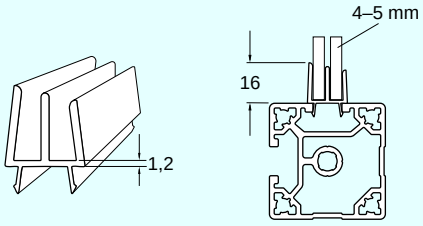
Net strip
Polyvinyl chloride, grey
Length 3 m



XCET 3 D

Sliding door profile
Length 3 m
Polyvinyl chloride, grey

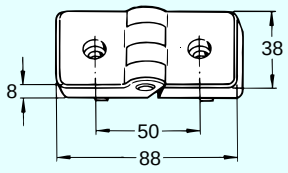
New!



Door accessories

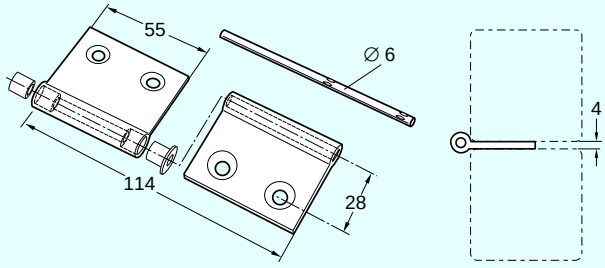
XCAH 50

Hinge
Including rotatable guide lugs
Polyamide
Mounting:
MLC6S 6×12 (2)
XCAN 6 (2)



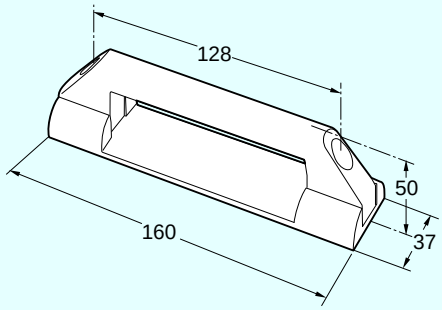
XCAH 110 A

Hinge kit
Including the necessary mounting hardware
Aluminium, anodized



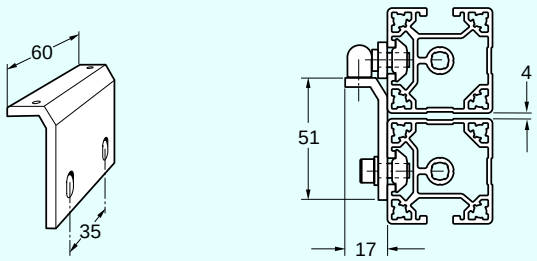
XDEH 160

Handle assembly
Including adapter plate for XC
Polyamide
Mounting:
MC6S 5×20 (2)
XCAN 5 (2)



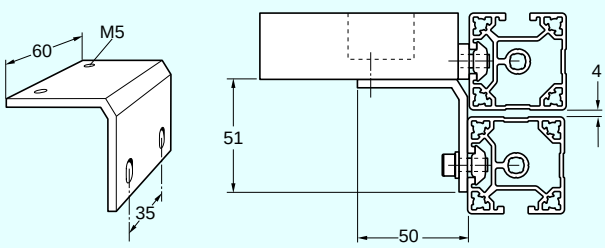
XCEL 60 B

Ball latch lock kit
Kit includes the necessary mounting hardware
Aluminium, anodized



XCEL 60 W

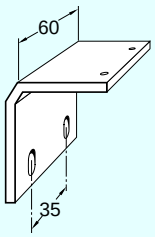
Security switch kit
Kit includes the necessary mounting hardware
Aluminium, anodized
For security switch
Schmersal AZ 15/16-B1
Security switch is not included

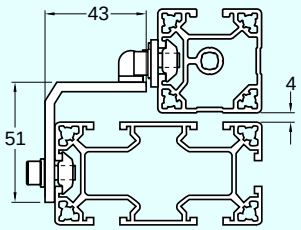


Door accessories

XCEL 60 BA

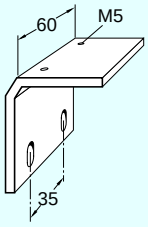
Ball latch lock kit
Aluminium, anodized
Including ball latch and the necessary mounting hardware

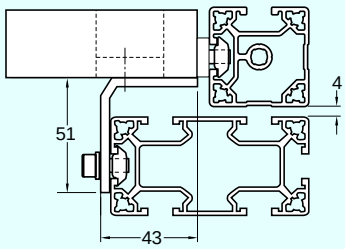




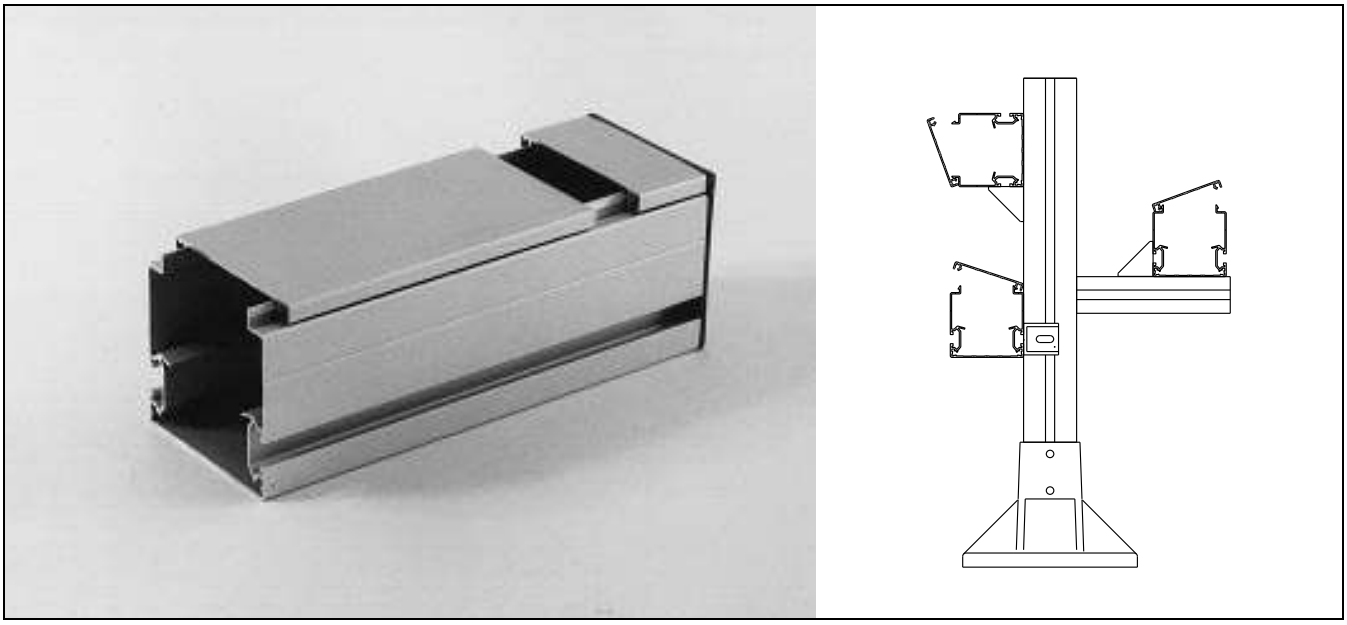
XCEL 60 WA

Security switch kit
Aluminium, anodized
Including the necessary mounting hardware
For security switch Schmersal AZ 15/16-B1
Security switch is not included





Enclosure components – conduit elements



Description

The conduit elements facilitate integration of low voltage electrical wires and pneumatic tubes into frameworks built with components from Structural system XC. The elements: a cable duct profile and a cover profile, are made of anodized aluminium. Cutting the cable duct to length should be done with the cover attached, to prevent undesired deformation.

Application of conduit elements

The following instructions do not apply to cable duct XCDD 3×22. The example shows XCCC 3×88 and XCCD 3×88.

Mounting of cover and end cap (1)

The cover is snap-fitted to the duct profile. It should be secured by means of two self-tapping screws at each end of each cover section. Use plastic end caps (XCBE..) to cover open ends of the cable duct. A short piece of duct cover profile should be used at the duct end to permit removal of the duct cover section without removing the end cap.

Duct corners 90° (2)

Use a combination of XMRY 20 and XMRY 20 B with set screws.

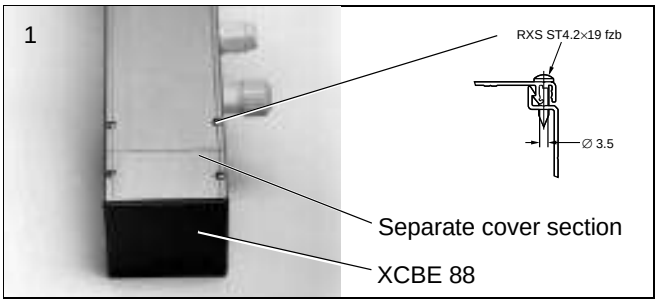
Vertical duct corners (3)

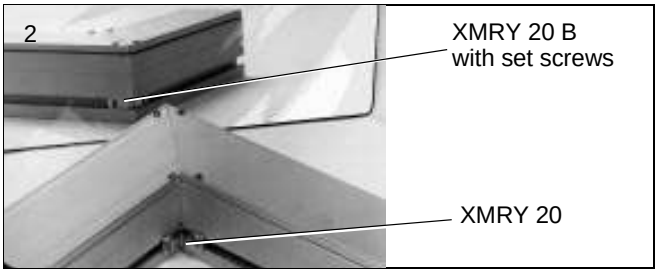
a 45°: Cut channel (duct and cover) to 22,5°. Use XMRW 20×45 in the T-slot of the duct.

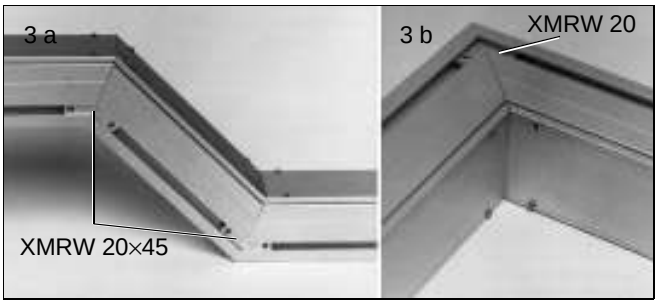
b 90°: Cut channel (duct and cover) to 45°. Use XMRW 20 in the T-slot of the duct.

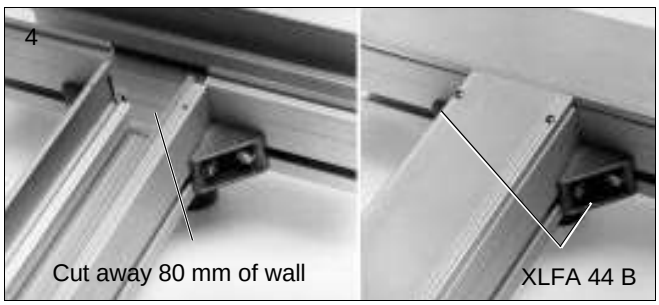
T-connections (4)

Cut away 80 mm of wall in main cable duct. Use two die-cast angle brackets, e.g. XLFA 44 B, to connect duct sections.









Enclosure components – conduit elements

Mounting of electric terminals (1)

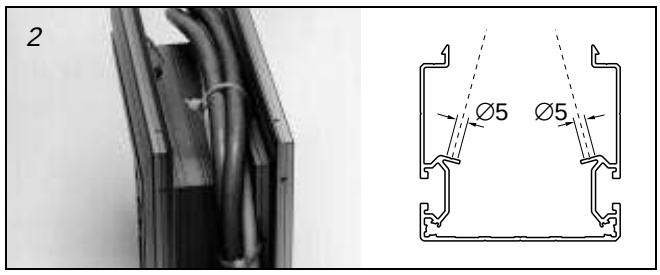
Terminals for electric circuits can be mounted at all sides of the conduit elements. Maximum hole diameter in the side walls of the cable duct is 29 mm. For the bottom of the duct and the cover itself, the maximum hole diameter is 41 mm.

Ground cables can be connected to screw terminals mounted in the internal mounting flanges (Fig. 2).



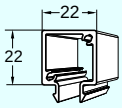
Cable ties at vertical corners (2)

Cable ties should be used before and after vertical corners to strap the cables away from the inner corner edges. Drill 5 mm holes in the mounting flanges to serve as anchor points for the cable ties.

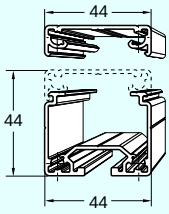


Conduit elements

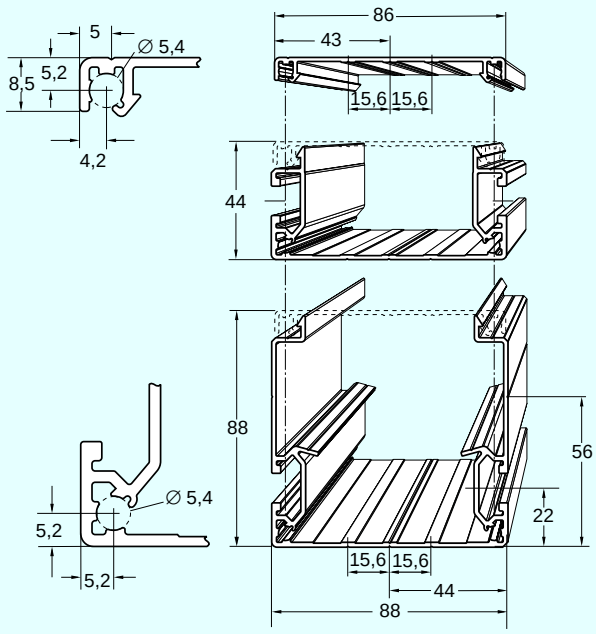
	Cable duct, 22 mm × 22 mm Aluminium, anodized
XCCD 3×22	Length 3 m
XCCD L×22	Length to order



	Cover for cable duct, 44 mm Aluminium, anodized
XCCC 3×44	Length 3 m
XCCC L×44	Length to order
	Cable duct, 44 mm × 44 mm Aluminium, anodized
XCCD 3×44	Length 3 m
XCCD L×44	Length to order



	Cover for cable duct, 88 mm Aluminium, anodized
XCCC 3×88	Length 3 m
XCCC L×88	Length to order
	Cable duct, 44 mm × 88 mm Aluminium, anodized
XCCD 3×44×88	Length 3 m
XCCD L×44×88	Length to order
	Cable duct, 88 mm × 88 mm Aluminium, anodized
XCCD 3×88	Length 3 m
XCCD L×88	Length to order



Components for linear motion



Sliding elements

Structural system XC includes one sliding element which uses the T-slot for guidance and two which use a special guide profile. The sliding elements are not designed to withstand bending moments. Therefore, always use two parallel slides to convert any moment into a centered force.

Sliding element for T-slot (1a)

Sliding element XCLB 20×30 is preferably used for light applications such as intermittent pushers or hand-operated doors and covers. The element should be mounted into the movable part. Secure the set screw with locking fluid.

Sliding element in guide profile (1b)

Sliding element XCLE 34×52 is used for sliding movements of higher frequency and load, such as constantly moving pushers and pick-and-place units together with pneumatic cylinders.

When mounting the guide profile (XCLP 44), tighten first only by hand and make the final adjustment with the sliding unit in position. Nominal life expectancy at maximum load and speed is 1 000 000 m.

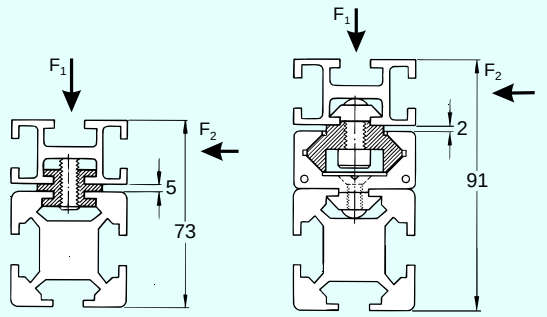
End cap (2)

The end cap for the guide profile is fastened after making an M5 thread in the two holes of the profile.

Technical data

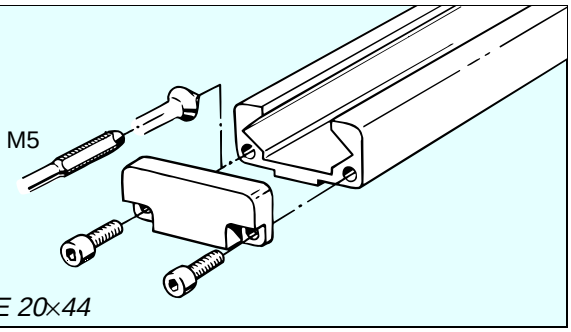
Sliding element type See Figure 1	XCLB 20×30	XCLE 34×52
Max normal static load (F_1)	100 N	600 N
Max normal static load (F_2)	50 N	600 N
Max normal dynamic load (F_1)	30 N	300 N
Max normal dynamic load (F_2)	15 N	300 N
Max speed	0,3 m/s	0,3 m/s
Friction coefficient	0,25	0,3
Max working temperature	45 °C	45 °C

1 *a* *b*



XCLB 20×30 *XCLE 34×52*

2



XCBE 20×44

Adjustable sliding element in guide profile (1, 2)

XCLE 34×80 A is an adjustable sliding element, i.e. the clearance between element and guide profile can be adjusted. This permits presetting of a desired clearance. The design is suitable for installation flat down or on the edge. Low-friction plastic inserts ensure smooth travel and a life expectancy at maximum load and speed of 1 000 000 m. Felt pads remove any dirt and provide lubrication.

For load limits and dry or lubricated usage, see the diagram (2). The diagram shows the maximum load on one slide block as a function of average slide block speed.

Rolling elements

Wheel, guide wheel, wheel yoke (3, 4)

For simple linear motion and movable frameworks, wheels XCAW 48/48 G and wheel yoke XCAY 44 can be used. The wheels are supplied complete with bearings and spacer sleeves which make it possible to mount directly into the T-slot.

An alternative is to mount the wheel into the wheel yoke which can be mounted either on the beam side or at the end of an XCBM 44 beam. The guide wheel is designed to run directly in the T-slot.

Steel shaft and runners (5)

Steel shafts and runners provide linear motion with high precision and load capacity. The bearing housings are mounted on an XCBM ..×44 beam. The housings exist in centric and eccentric versions. The shaft support profile and the steel shaft are mounted into any T-slot. The total load is determined by the choice of support beam. Additional security is obtained if a solid plate is used to connect the two beams upon which the bearing housings are mounted.

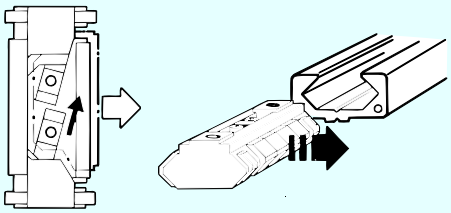
Technical data

Parameter	XCLU 10×44 F_1=F_2 (Fig. 5)	XCAW 48/48 G (Fig 4)
Max. speed	3 m/s	1 m/s
Max. normal load	800 N	–
Max. radial load F_1	–	100 N
Max axial load F_2	–	50 N
Friction coefficient	0,005	0,03
Static load rating C_0	4350 N	
Dynamic load rating C	8300 N	

Roller units

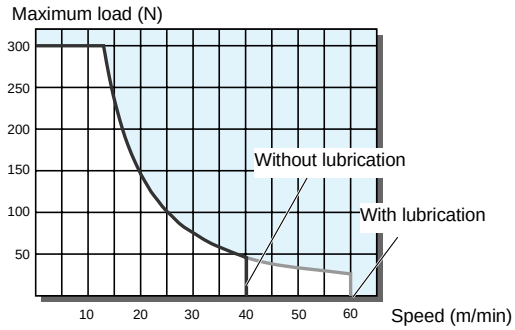
A roller unit is a roller module (saddle) combined with a special linear beam with integrated steel shafts. See page 58–59.

1



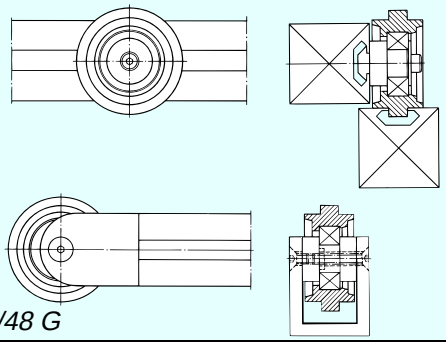
XCLE 34×80 A

2



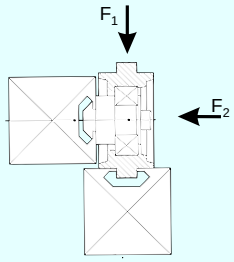
XCLE 34×80 A

3



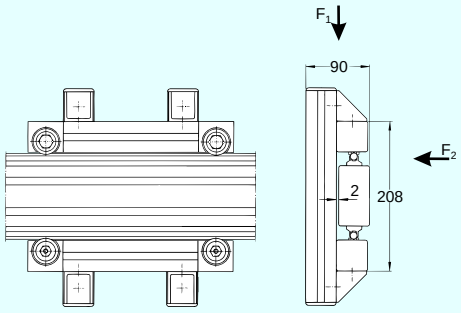
XCAW 48/48 G

4



XCAW 48 G

5

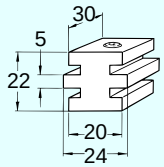


XCLU ../XCLJ 10×3 & XCLS

Sliding element for T-slot

XCLB 20×30

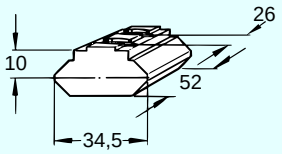
Sliding element for T-slot
Including set screw
Ultra-high molecular weight polyethylene



Sliding elements for guide profile

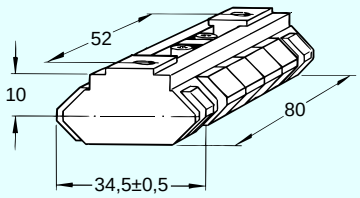
XCLE 34×52

Sliding element assembly for guide profile XCLP ..×44
Ultra-high molecular weight polyethylene



XCLE 34×80 A

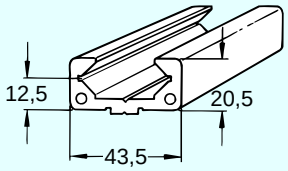
Sliding element assembly for guide profile XCLP ..×44
Die-cast aluminium with ultra-high molecular weight polyethylene slide inserts. Can also be mounted with a suitable M6 screw from the outside and an M6M 6 nut.



Guide profile

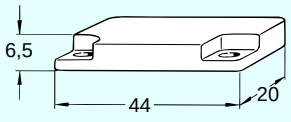
Guide profile
Aluminium, anodized
Mounting:
MF6S 6×12
XCAN 6

XCLP 3×44 Length 3 m
XCLP 6×44 Length 6 m
XCLP L×44 Length to order



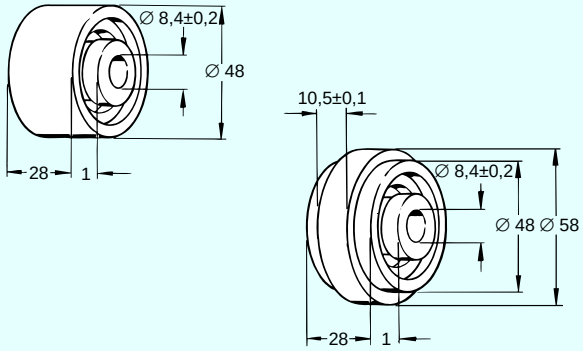
XCBE 20×44

End cap for guide profile XCLP ..×44
Polyamide
Mounting:
MLC6S 5×10 (2)

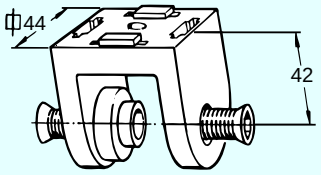


Wheels and wheel yoke

	Wheel, guide wheel Including bearing and spacer sleeve Polyamide Mounting: M6S 8×30 (1) BRB 8,4×16 (1) XCAN 8 (1)
XCAW 48	Wheel, diameter 48 mm
XCAW 48 G	Guide wheel, diameter 48 mm

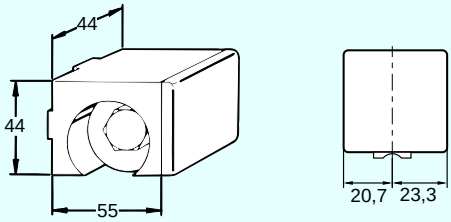


XCAY 44	Wheel yoke Including guide lugs Zinc, die-cast Mounting: MC6S 8×14 (1) and XCAN 8 (1) (beam side) or MC6S 8×30 (1) (beam end)

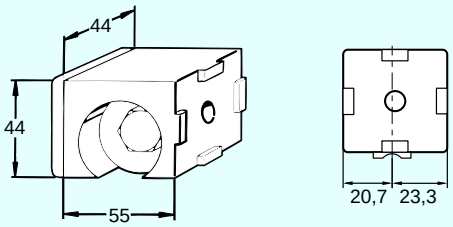


Bearing housing

	Bearing housing assembly Right-hand version Including runner and polyamide end cap Aluminium, anodized
XCLU 10×44 R	Centric bearing housing
XCLU 10×44 RE	Eccentric bearing housing

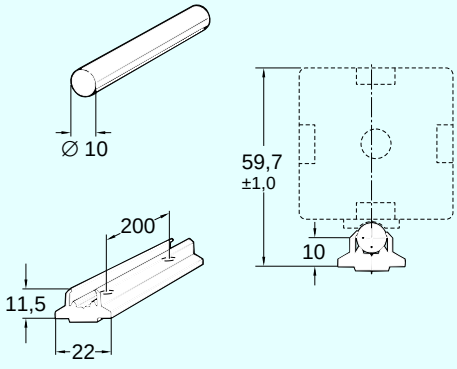


	Bearing housing assembly Left-hand version Including runner and polyamide end cap Aluminium, anodized
XCLU 10×44 L	Centric bearing housing
XCLU 10×44 LE	Eccentric bearing housing



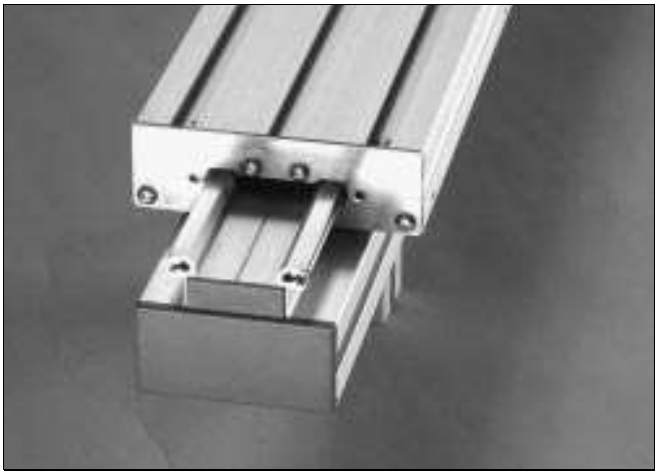
Steel shaft

XCLJ 10×3	Steel shaft Length 3 m Steel, rounded and hard-ened
	Shaft support profile Predrilled every 200 mm Aluminium, anodized Mounting: MLC6S 5×10 XCAN 5
XCLS 10×3	Length 3 m
XCLS 10×L	Length to order



Roller units

Basic configuration



A roller unit is a roller module, saddle, combined with a special linear beam with integrated steel shafts snap-fitted into the beam. The saddle has centrically mounted runners on one side, and eccentrically mounted runners on the other side. This makes it possible to adjust the clearance between saddle and steel shaft and even to set a suitable preload on the unit.

The saddle has integrated spring loaded felts providing lubrication between the runners and the steel shafts. It is also equipped with replaceable brushes that provide additional sealing.

The roller modules are delivered complete, with lubrication oil and assembly instructions.

Technical data

Saddle XCLZ 250×132

Maximum speed	10 m/s
Coefficient of friction, runner	0,005
Static load rating C_0, runner	2300 N
Dynamic load rating C, runner	4100 N
Temperature range	–20 to +80 °C

Saddle XCLZ 300×220

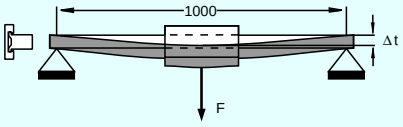
Maximum speed	10 m/s
Coefficient of friction, runner	0,005
Static load rating C_0, runner	5100 N
Dynamic load rating C, runner	8500 N
Temperature range	–20 to +80 °C

Linear beam specifications

Beam type	Cross-section mm^2	Weight kg/m	I_y mm^4 $\cdot 10^4$	I_z mm^4 $\cdot 10^4$	W_y mm^3 $\cdot 10^4$	W_z mm^3 $\cdot 10^4$
XCLY 6×88×68	1540	4,16	70,9	115,5	1,89	2,62
XCLY 6×88×88	2312	6,24	193,8	247,8	4,38	4,39

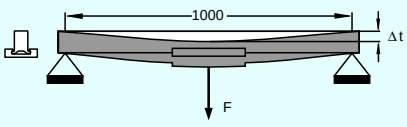
Vertical and torsional stiffness

The following data applies to both versions (XCLZ 250×132 with XCLY 6×88×68 and XCLZ 300×220 with XCLY 6×88×88).



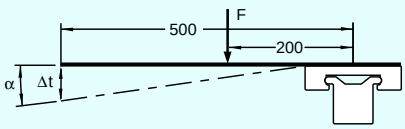
XCLY 6×88×68	
F_y N	Δt mm
100	0,06
200	0,12
300	0,17
400	0,23
500	0,28

XCLY 6×88×88	
F_y N	Δt mm
200	0,05
400	0,10
600	0,15
800	0,20
1000	0,25

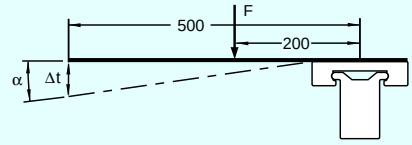


XCLY 6×88×68	
F_z N	Δt mm
100	0,06
200	0,13
300	0,18
400	0,24
500	0,30

XCLY 6×88×88	
F_z N	Δt mm
200	0,05
400	0,11
600	0,17
800	0,23
1000	0,29

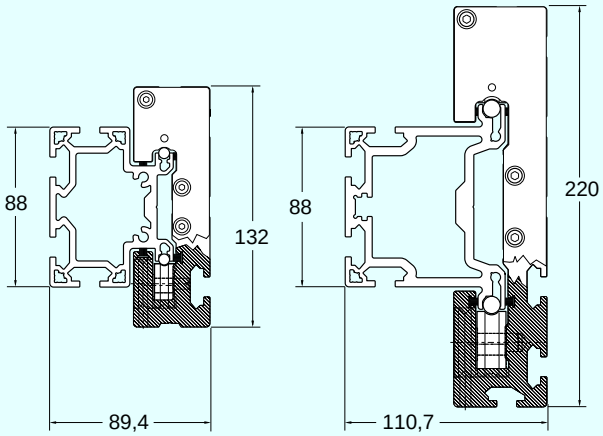


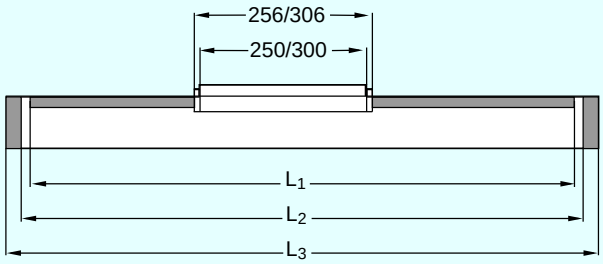
XCLY 6×88×68			
F N	α°	Δt mm	Moment M_x Nm
25	0,03	0,26	5
50	0,06	0,52	10
75	0,08	0,70	15
100	0,11	0,96	20
125	0,13	1,13	25



XCLY 6×88×88			
F N	α°	Δt mm	Moment M_x Nm
100	0,03	0,26	20
175	0,05	0,44	35
250	0,07	0,61	50
325	0,09	0,79	65
400	0,11	0,96	80

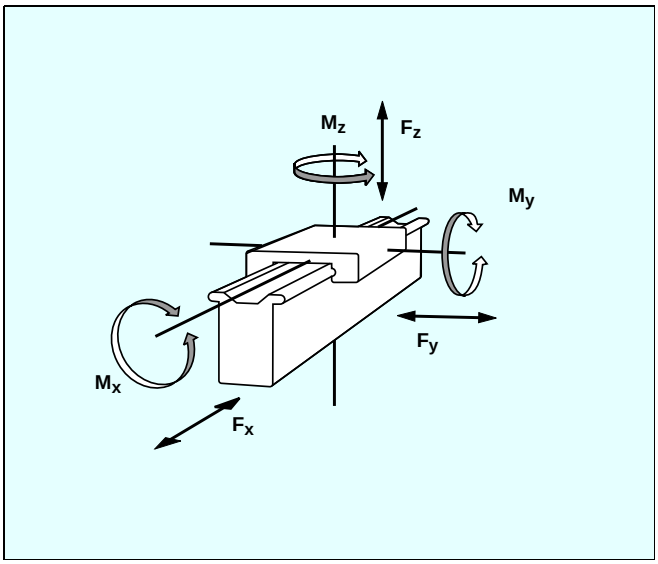
Main dimensions





Total length of steel shafts = L_1
Minimum length of linear unit = $L_2 = L_1 + 10$ mm
Minimum length including end caps = $L_3 = L_2 + 10$ mm

Load capacity



Maximum recommended loads XCLZ 250×132

F_z = 500 N
F_y = 500 N

Maximum recommended loads XCLZ 300×220

F_z = 1000 N
F_y = 1000 N

Maximum recommended moment load

Saddle	Maximum moment load (Nm)		
	M_x (dyn.)	M_y (dyn.)	M_z (dyn.)
XCLZ 220×132	26	85	89
XCLZ 300×220	112	228	253

Calculation of resulting maximum load

Use the following formulas to calculate the maximum combined load applied to the saddle:

XCLZ 250×132

$$F_{red} = F_z + F_y \cdot 0{,}5 + M_x \cdot 32 + M_y \cdot 10 + M_z \cdot 9$$

F_{red} is recommended to be lower than or equal to 850 N

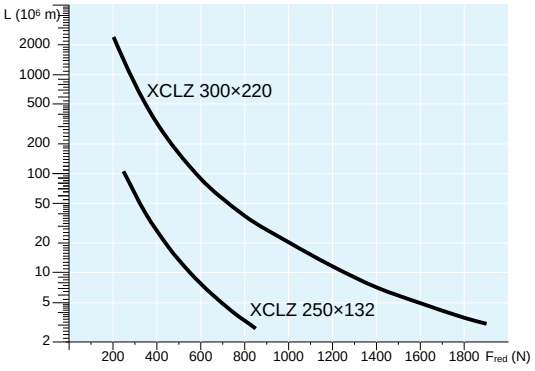
XCLZ 300×220

$$F_{red} = F_z + F_y \cdot 0{,}5 + M_x \cdot 17 + M_y \cdot 8 + M_z \cdot 7$$

F_{red} is recommended to be lower than or equal to 1900 N

Operational life of saddle

The diagram below shows the operational life of the saddle as a function of F_{red}. The load limits are calculated from practical tests. With F_{red} = 850 N (XCLZ 250×132) or 1900 N (XCLZ 300×220), the saddle will last at least 3 000 000 m.



Roller unit – Calculation examples

Example 1 – XCLZ 250×132

$F_1 = F_z = 120$ N
$F_2 = F_y = 60$ N

Moment calculated around saddle axis:

$M_x = F_z \cdot 0{,}08 + F_y \cdot 0{,}05$

$M_x = 120 \cdot 0{,}08 + 60 \cdot 0{,}05 = 12{,}6$ Nm

$M_y = F_z \cdot 0{,}17$

$M_y = 120 \cdot 0{,}17 = 20{,}4$ Nm

$M_z = F_y \cdot 0{,}12$

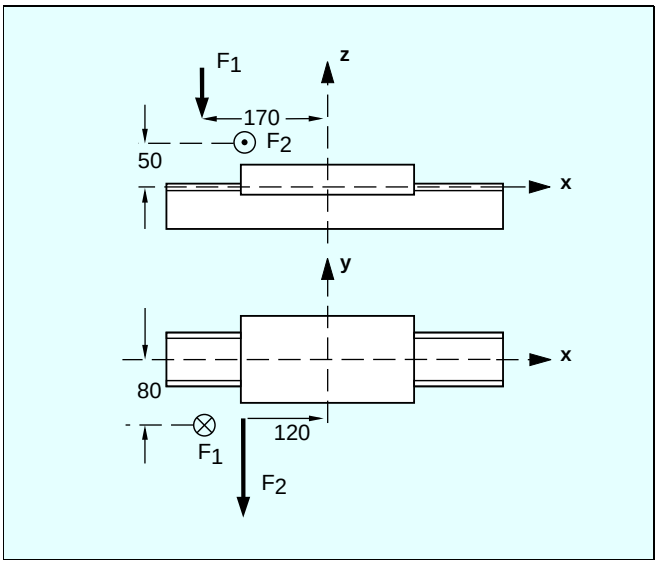
$M_z = 60 \cdot 0{,}12 = 7{,}2$ Nm

Forces and moments exceeding the system limits are not recommended. Check that F_{red} does not exceed 850 N.

$F_{red} = F_z + F_y \cdot 0{,}5 + M_x \cdot 32 + M_y \cdot 10 + M_z \cdot 9$

$F_{red} = 120 + 60 \cdot 0{,}5 + 12{,}6 \cdot 32 + 20{,}4 \cdot 10 + 7{,}2 \cdot 9 = 822$ N

Conclusion: The load is within recommended limit.



Example 2 – XCLZ 300×220

$F_1 = F_z = 340$ N
$F_2 = F_z = 470$ N

Since both forces act in the z direction, the resulting force in the z direction is the sum of the two forces:

$\Sigma F_z = F_1 + F_2 = 340 + 470 = 810$ N

$F_y = 0$

Since the two forces do not act on the same spot, they create moments as follows:

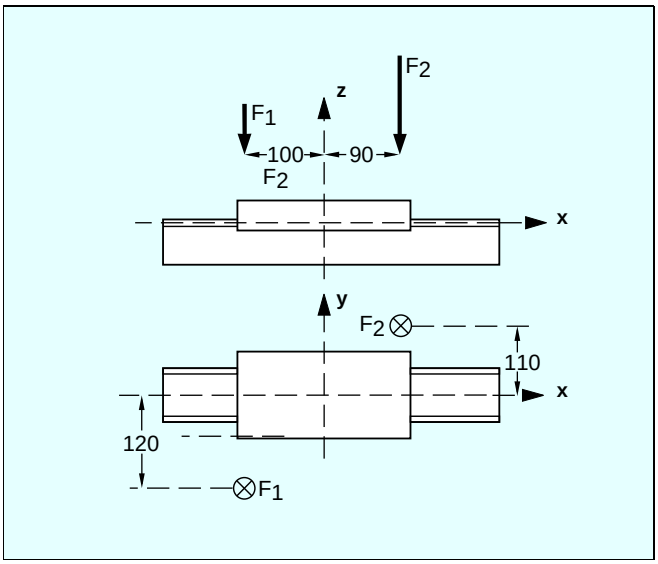
$M_x = F_2 \cdot 0{,}11 – F_1 \cdot 0{,}12 = 470 \cdot 0{,}11 – 340 \cdot 0{,}12 = 10{,}9$ Nm
$M_y = F_2 \cdot 0{,}09 – F_1 \cdot 0{,}10 = 470 \cdot 0{,}09 – 340 \cdot 0{,}10 = 8{,}3$ Nm
$M_z = 0$

Forces and moments exceeding the system limits are not recommended. Check that F_{red} does not exceed 1900 N.

$F_{red} = F_z + F_y \cdot 0{,}5 + M_x \cdot 17 + M_y \cdot 8 + M_z \cdot 7$

$F_{red} = 810 + 10{,}9 \cdot 17 + 8{,}3 \cdot 8 = 1062$ N

Conclusion: The load is within recommended limit.

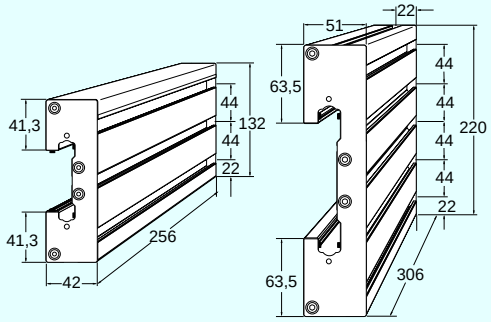


Saddles

New!

Saddle for linear beam
Including end caps with springs, felt pads, lubrication oil and assembly instructions
Aluminium, anodized

XCLZ 250×132 L = 250 mm
XCLZ 300×220 L = 300 mm

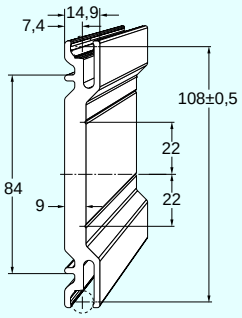


Linear beams

New!

Linear beam adapter
Aluminium, anodized
For use with 64 or 88 mm XC beam and steel shaft XCLJ 10×3

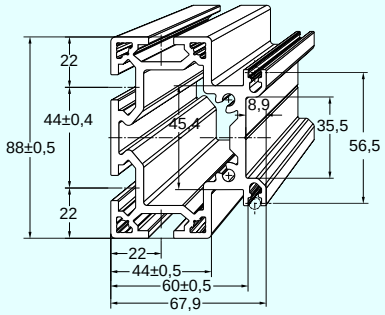
XCLY 3×88×15 Length 3 m
XCLY 6×88×15 Length 6 m
XCLY L×88×15 Length to order



New!

Linear beam 68 mm × 88 mm
Aluminium, anodized
For use with steel shaft XDLJ 6×3

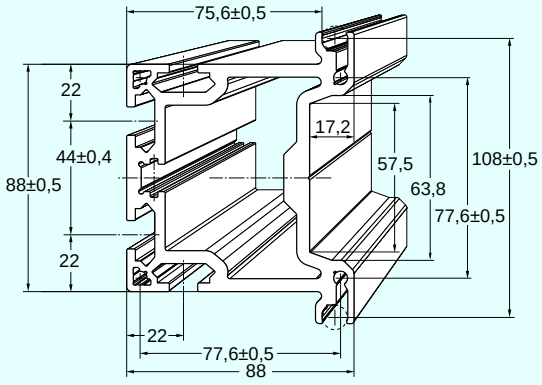
XCLY 3×88×68 Length 3 m
XCLY 6×88×68 Length 6 m
XCLY L×88×68 Length to order



New!

Linear beam 88 mm × 88 mm
Aluminium, anodized
For use with steel shaft XCLJ 10×3

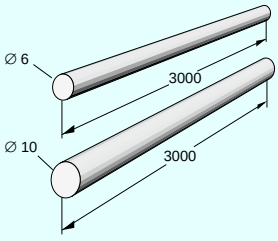
XCLY 3×88 Length 3 m
XCLY 6×88 Length 6 m
XCLY L×88 Length to order



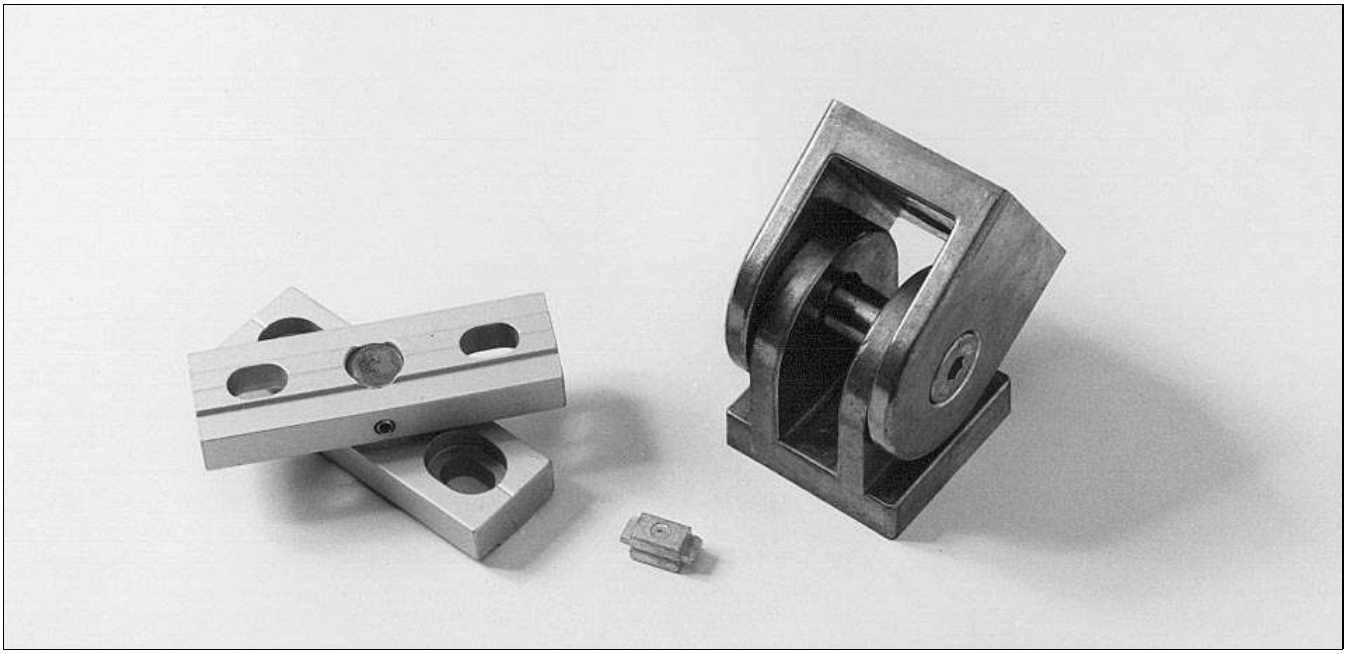
Steel shaft for linear beam

XDLJ 6×3 Steel shaft for linear beams
Diameter 6 mm
Length 3 m

XCLJ 10×3 Steel shaft for linear beams
Diameter 10 mm
Length 3 m



Components for rotating motion

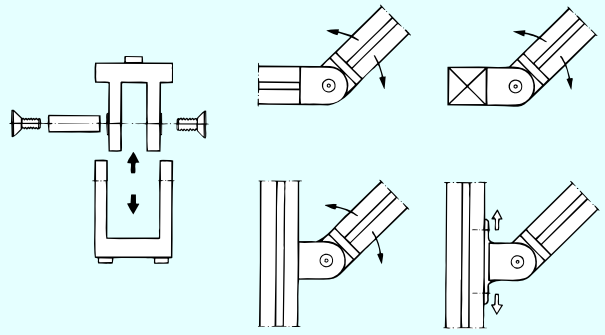


Descripton

Joint (1)

The joint has a steel shaft journalled in plain bearings. It is mounted in the same way as the wheel yoke. Note that the joint should be dismantled before being mounted. The joint will have an adjustable attachment if it is mounted on mounting plate XCFB 44.

1



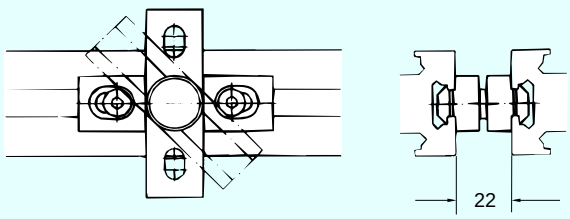
XCFJ 44

Extruded joint (2)

With the extruded joint two beams can be attached to each other and one of the beams is allowed to swing. The joint is intended for use in pairs, to avoid moment loads. The joint is fastened in the T-slot of each beam with T-slot nuts. The joint flanges have elongated holes to facilitate easy assembly.

Maximum load for a pair of joints is 1000 N.

2

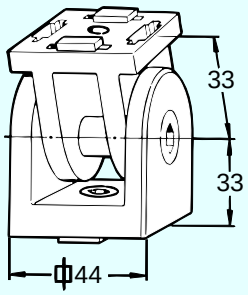


XCFJ 75 E

Joints

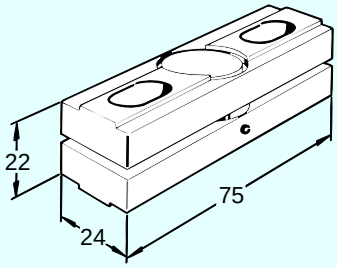
XCFJ 44

Joint
Including reversible guide lugs
Zinc, die-cast
Mounting:
MLC6S 8×14 (2)
XCAN 8 (2) (beam side) or
MLC6S 8×30 (2) (beam end)

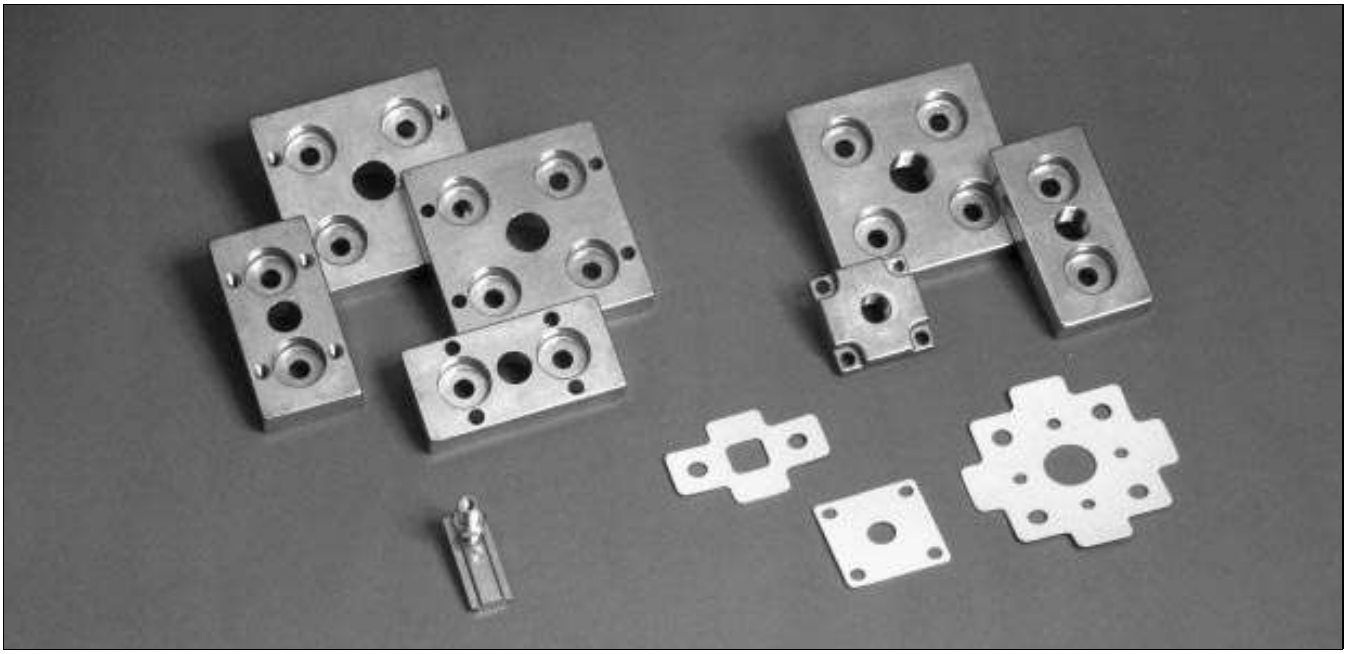


XCFJ 75 E

Extruded joint for two profiles,
T-slot to T-slot
Aluminium, anodized
Mounting:
MLC6S 8×14 (4)
XCAN 8 (4)



Pneumatic components



Description

XCBL beams of size 44×44 as well as XCBM beams of size 44×88 and 88×88 mm can be utilized to distribute compressed air. Special end plates are available that together with airtight gaskets can be attached to the beams. Standard pneumatic connectors shall be used together with these end plates for inlet and outlet of air.

Connecting plates are used to connect beams to each other, in line or perpendicular to each other to allow for easy connection troughout a framework.

A special pneumatic connector based on the standard XC slot nut is available to make outlet of air possible wherever needed. The pneumatic connector is fitted in the T-slot and a hole with a diameter of 4 mm is drilled using the connector for guidance. By tightening the integrated nut in the connector against the T-slot the connection is kept airtight with help of the O-ring.

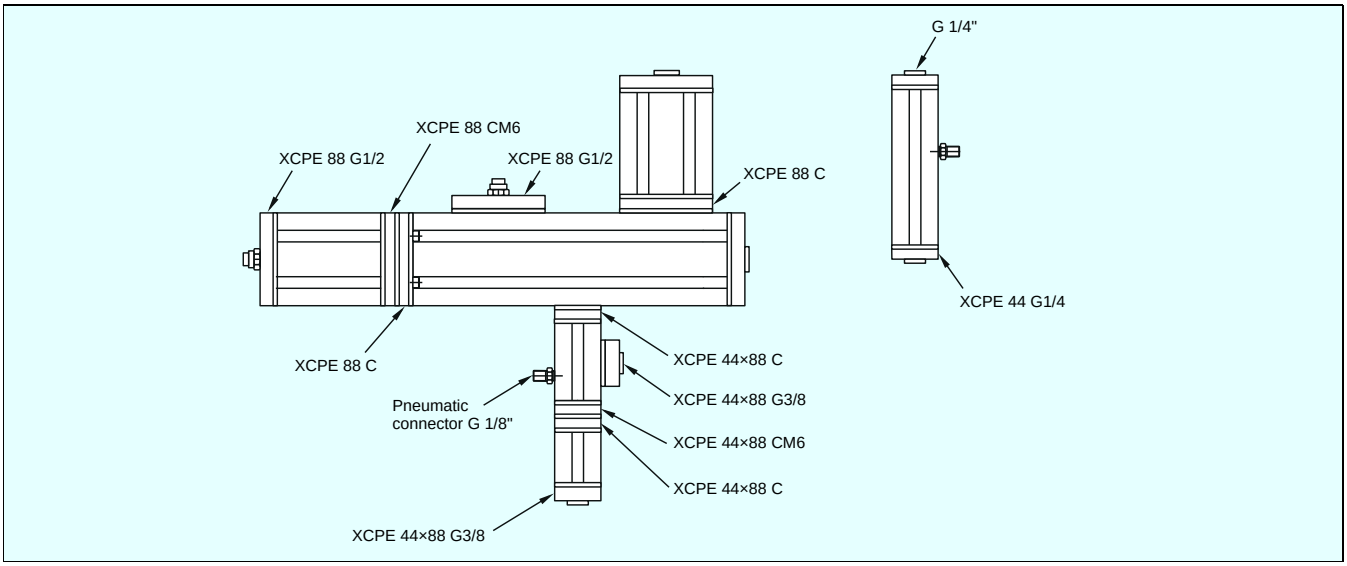
Technical data

Maximum working pressure__ 8 bar
Pneumatic connection _____ G 1/4", 3/8" or 1/2"

Strength

The maximal permissible beam tension shall be reduced when compressed air is used in the beams. Formulas as per section “Technical data” page 69 are still valid, but the maximum permissible beam tension $\sigma = 60$ N/mm^2 shall be used.

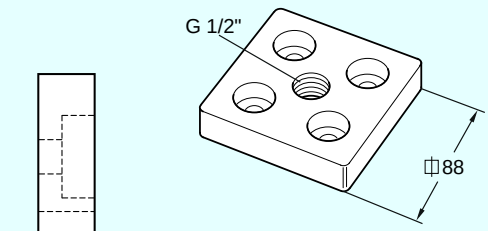
Application example



Pneumatic end plates

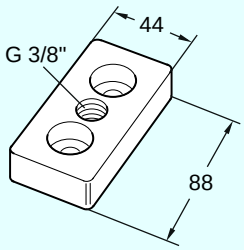
XCPE 88 G1/2

End plate for beam
XCBM ...×88
Pneumatic connection G 1/2"
Zinc, diecast
Mounting:
M6S 8×30 (4)
Gasket: 3904943



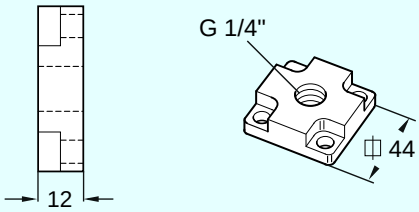
XCPE 44×88 G3/8

End plate for beam
XCBM ...×44×88
Pneumatic connection G 3/8"
Zinc, diecast
Mounting:
M6S 8×30 (2)
Gasket: 3904942



XCPE 44 G1/4

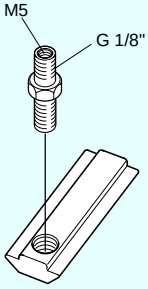
End plate for beam
XCBL ...×44
Pneumatic connection G 1/4"
Zinc, diecast
Mounting:
MC6S 6×30 (4)
Gasket: 3905359



Pneumatic connector

3905090

Pneumatic connector for XC T-slot
Steel, zinc-chromated
Including nut and O-ring
Mounting: 4 mm hole to be drilled in the beam T-slot after inserting the connector

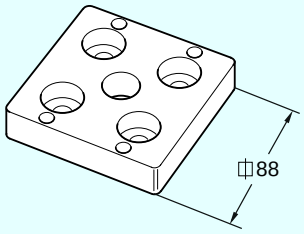


Pneumatic connection plates

XCPE 88 C

New!

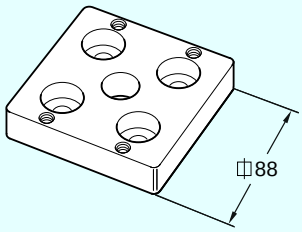
Connection plate for two beams XCBM ...×88, end to side
- Zinc, diecast
- Mounting:
- M6S 8×30 (4)
- MC6S 6×25 (4)
- XCAN 6 (4)
- Gasket: 3904943 (2)



XCPE 88 CM6

New!

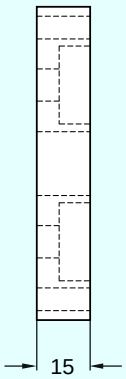
Connection plate for two beams XCBM ...×88 end to end
- Zinc, diecast
- Mounting:
- M6S 8×30 (8)
- MC6S 6×30 (4)
- XCPE 88 C (1)
- Gasket: 3904943 (3)

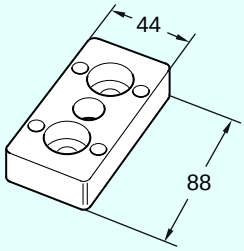


XCPE 44×88 C

New!

Connection plate for two beams XCBM ...×44×88, end to side
- Zinc, diecast
- Mounting:
- M6S 8×30 (2)
- MC6S 6×25 (4)
- XCAN 6 (4)
- Gasket: 3904942 (2)

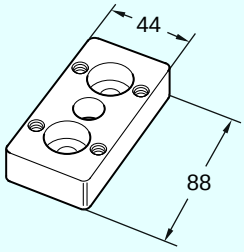




XCPE 44×88 CM6

New!

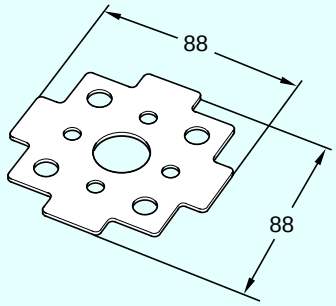
Connection plate for two beams XCBM ...×44×88, end to end
- Zinc, diecast
- Mounting:
- M6S 8×30 (4)
- MC6S 6×30 (4)
- XCPE 44×88 C (1)
- Gasket: 3904942 (3)



Gaskets

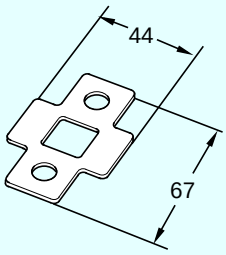
3904943

Gasket to beam XCBM ...×88
Polyethylene
One side self-adhesive with protective film
Use one gasket with XCPE 88 G1/2
Use two gaskets with XCPE 88 C
Use three gaskets with XCPE 88 C/ XCPE 88 CM6



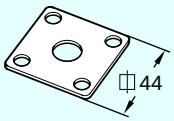
3904942

Gasket to beam XCBM ...×44×88
Polyethylene
One side self-adhesive with protective film
Use one gasket with XCPE 44×88 G3/8
Use two gaskets with XCPE 44×88 C
Use three gaskets with XCPE 44×88 C/ XCPE 44×88 CM6



3925359

Gasket to beam XCBL ...×44
Polyethylene
One side self-adhesive with protective film
Use one gasket with XCPE 44 G1/4



AutoCAD symbol library and assembly instructions



Description

AutoCAD library

The FLEXCAD B AutoCAD symbol library contains diskettes with CAD drawing files of the components belonging to structural systems XC and XD, and linear drive unit XR. Each component is shown in one to three views.

The files are AutoCAD .DWG and .DXF files. The .DWG files are automatically presented in a screen menu. They can be used with AutoCAD release 11, 12, and 13, AutoCAD for Windows release 12 and 13, and AutoCAD LT release 2 and 3. A Windows-based easy-to-use user interface, “FlexCAD Manager”, is included.

The .DXF files are intended for import into CAD systems other than AutoCAD.

Microsoft Windows is required for automatic installation of the symbol library and menu system. FlexCAD can also be used in a network environment.

Assembly instructions

The FlexLink structural system XC assembly manual contains picture-only assembly instructions for all components belonging to the XC system. It is intended to be used as an introduction to the system and a quick reference handbook at installation sites or workshops.

CAD library and assembly instructions

FLEXCAD B	AutoCAD symbol library for XC, XD, XR Diskette format: MS-DOS 3,5", 1,44 MB. For AutoCAD release 11–13, AutoCAD for Windows release 12–13, and AutoCAD LT release 2–3. Requires Windows 3.x for automatic installation.	
Publ. # 4264	FlexLink structural system XC assembly instructions	

Technical data

Beam specifications

Beam type	Cross-section mm^2	Weight kg/m	I_x $mm^4 \cdot 10^4$	I_y $mm^4 \cdot 10^4$	W_x $mm^3 \cdot 10^3$	W_y $mm^3 \cdot 10^3$
XCBM ..×88×176	3970	10,7	1244	369	141	83,9
XCBM ..×44×176	2366	7,11	750	58,2	85,2	26,5
XCBM ..×88×132	2966	8,01	530	259	80,3	58,9
XCBM ..×44×132	2022	5,34	330	40,0	50,0	18,0
XCBM ..×88	1952	5,27	173		39,4	
XCBL ..×88	1180	3,18	126		28,6	
XCBM ..×44×88	1311	3,54	103	25,6	23,5	11,7
XCBL ..×44×88	886	2,39	81,4	21,6	18,5	9,8
XCBM ..×64	1493	4,27	70,2		22,1	
XCBL ..×64	848	2,29	44,5		14,0	
XCBM ..×44×64	1054	2,84	42,0	23,5	13,2	10,7
XCBL ..×44×64	724	1,96	33,9	17,7	10,6	8,1
XCBM ..×44	767	2,07	14,0		6,3	
XCBL ..×44	588	1,59	12,7		5,8	
XCBL 44 T2	589	1,59	12,5	12,5	5,6	5,6
XCBL 44 T2A	592	1,60	12,9	12,4	5,8	5,6
XCBL 44 T3	627	1,69	12,6	12,8	5,7	5,7
XCBR ..×44	708	1,91	13,2	7,8	4,3	2,9
XCBA ..×44	572	1,55	9,47	9,47	3,65	3,65
XCBL ..×15×44	327	0,88	6,8	0,83	3,10	1,10
XCBB ..×24×44	375	1,02	5,55	2,41	2,52	2,00
XCBB ..×24×34	310	0,83	3,85	1,75	2,14	1,46
XCBB ..×24	240	0,64	1,10		0,92	

General tolerances

The length tolerance for standard length beams is 0 mm to +5 mm for 3 m beams, and +5 mm to +14 mm for 6 m beams. General dimensions comply with DIN 17615, section 3.

The outer measurements have the following general tolerances:

Beam outer measure mm	132	88	64	44	34	24	15
Tolerance mm	±0,5	±0,5	+0 –0,6	±0,3	±0,3	±0,3	±0,3

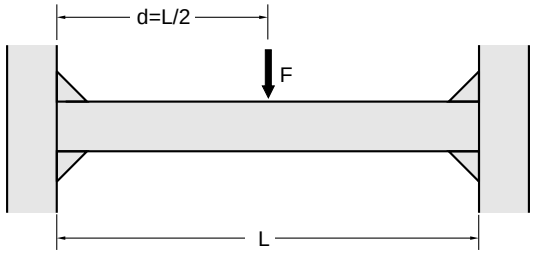
FlexLink aluminium profile data

Alloy _____ AA 6063-T6
Density _____ 2700 kg/m^3
Linear expansion _____ 23×10^{-6}/°
Elasticity modulus _____ 70 000 N/mm^2
Shear modulus _____ 27 000 N/mm^2
Tensile strength
Yield point R_p _____ 200 N/mm^2
Ultimate strength R_m _____ 230 N/mm^2
Elongation A_5 _____ 12 %

Anodization layer thickness is 10 µm. Section cuts are not anodized. For aluminium resistance to chemicals, please refer to page 71.

Beam calculations

The standard formulas for flexure of beams cannot be applied to a structural beam with a high degree of accuracy. The reason for this is the very complicated cross-section of the beams together with the fact that the cross-section is large compared to the length in normal frameworks. We therefore recommend using the following formulas for calculating “worst possible cases” for beam tension, deflection, and bending moment.



Maximum beam tension σ at F:

$$\sigma = \frac{M_{max}}{W} = \frac{F \cdot L}{8 \cdot W}$$

Maximum permissible beam tension for aluminium profiles is 130 N/mm^2.

Maximum beam deflection y at F:

$$y = \frac{F \cdot L^3}{48 \cdot E \cdot I}$$

The real deflection will always be somewhat smaller than the value obtained from the formula. The most rigid connections are (a) angle brackets in a double-sided configuration and (b) mounting plates and fastener yokes, in this order. For a description of the different connector characteristics, please refer to page 22, “Introduction to connectors”. Also see “Technical data”, next page.

Maximum bending moment M for the connector:

$$M = \frac{F \cdot L}{8}$$

Permissible bending moment values for different combinations of beams and connectors are specified in the connector specification tables. See next page.

Technical data

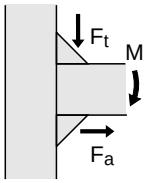
Connector selection guide

Quality **** indicates very favourable characteristics	*Angle brackets*	*Mounting plates*	*Fastener yokes*	*T-slot washers*
Many possible combinations	****	*	***	**
Good adjustability	****	***	***	*
High stiffness	****	**	**	***
High vibration resistance	**	**	****	***
Small space requirements	*	**	***	****
Minimal beam end cut precision	****	**	*	*
Minimal drill work	****	****	*	*
Minimal tap work	****	*	****	*
Short assembly time	****	***	**	*
Low component cost	*	**	***	****

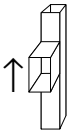
Connector specifications

In the following tables, L in the Beam column indicates the light-weight version of the beam. ↑ and → indicate the orientation of the horizontal beam section. Screws must be tightened to 24 Nm (fastener yokes: 10 Nm) with a lubricated joint. The vertical beam is type XCBM in all cases.

Angle brackets, double-sided assembly



$F_{amax} = F_{tmax}$



Bracket	Beam	M_{max} Nm	F_{tmax} N
XMFA 84 A	↑88×176	1800	7000
XMFA 84 A	↑88×132	1600	7000
XLFA 44 D	↑88×176	2000	6000
XLFA 44 D	↑88×132	1800	6000
XLFA 44 D	↑44×176	1000	3000
XLFA 44 D	↑44×132	800	3000
XMFA 84 A	88×88	1200	7000
XMFA 84 A	L 88×88	1000	5000
XMFA 84 B	88×88	550	3000
XLFA 44 A	↑44×88	575	3000
XLFA 44 B	↑44×88	300	1500
XLFA 44 C	↑44×88	425	1500
XLFA 44 D	↑44×88	700	3000
XLFA 24	↑24×44	100	200

Mounting plates

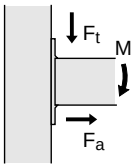
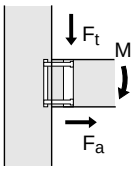


Plate	Beam	M_{max} Nm	F_{tmax} N	F_{amax} N
XCFB 88	88×88	700	4000	6000
XCFB 64 A	64×64	480	1200	2000
XCFB 44×88 A	44×88	395	1200	2000
XCFB 44×88 B	44×88	375	4000	5000
XCFB 44×64 A	44×64	360	1200	1750
XCFB 44×64 B	44×64	320	1200	2000
XCFB 44	44×44	150	800	1000

Fastener yokes



Yoke (pcs.)	Beam	M_{max} Nm	F_{tmax} N	F_{amax} N
XCAF 88 2	88×88	715	4000	7000
XCAF 88 2	L 88×88	480	3000	4000
XCAF 88 1	44×88	360	1750	4000
XCAF 88 1	L 44×88	310	1250	1750
XCAF 64 1	64×64	300	1200	4500
XCAF 64 1	L 64×64	165	1000	1250
XCAF 64 1	44×64	300	1500	4500
XCAF 44 2	44×88	370	2000	6000
XCAF 44 2	L 44×88	300	1000	1750
XCAF 44 1	44×64	150	1000	4000
XCAF 44 1	44×44	150	1000	3500
XCAF 44 1	L 44×44	150	1000	1500

Materials

The components of the FlexLink structural system are made mainly of anodized aluminium and various types of plastic. This means that the system has a good resistance to corrosion and chemicals. The components will resist long-term exposure to most chemicals used in a normal workshop environment. However, care must be taken not to subject the structural system to acids with a pH value lower than 4 or bases with a pH value above 9. Long-term exposure to chlorinated hydrocarbons, e.g. trichlorethylene, should also be avoided. The following materials are used:

Material	Use
Aluminium extruded natural anodized	Bearing housings Ball lock latch kit Cable ducts Covers Cover strips Door accessories Extruded joints Foot plates Guide profiles Linear beams Mounting plates Nut profiles Parallel connectors Profiles for enclosures Profiles for sliding doors Saddles Security switch kit Shaft support profiles Small beams Stay brackets Support beams
Aluminium die-cast	Angle brackets Feet
Polyamide glass-fibre reinforced*	2/3-point feet* Adjusting mount End caps, Hinges Multiblocks*, Wheels
Polyethylene ultra high molecular weight polyethylene*	Adjustable sliding elements Sliding elements Gaskets for pneumatic components*
Polyvinyl chloride	Cover strips Slide strips for sliding doors
Rubber Natural* EPDM**	Guide rollers* T-slot profile rubber strips**
Steel electro-zinc-plated zinc-chromated* hardened**	Adjusting feet Connecting strips Door lock kits, Guide rollers Small fittings Screws, nuts, washers Pneumatic connectors* T-slot washers Slot nuts* Steel shafts**
Thermoplastic polyester	Vibration absorber
Thermoplastic resin	Strap handles
Zinc die-cast	Adjustable sliding elements End plates Fastener yokes, Joints Pneumatic connection plates Stay brackets, Wheel yokes

Aluminium resistance to chemicals

Aluminium has a high resistance to corrosion in most environments due to the thin oxide layer that forms on the metal surface when it is exposed to oxygen. This natural oxide layer is hard, tight and adheres well. In spite of its limited thickness (0,01 mm) it prevents further oxidation. Under unfavourable conditions, however, corrosion will take place. Normally, this will only affect the appearance.

The following table shows the resistance of aluminium to a number of chemical agents.

Organic compounds and solvents	
Acetone	1
Aniline	1
Benzene	1
Benzine	1
Butyl alcohol	1
Carbon disulphide	1
Carbon tetrachloride	2
Ethyl acetate	1
Ethyl alcohol	1
Ethylic ether	1
Formalin	1
Methyl alcohol	2
Nitrobenzene	1
Phenol	1

Gases	
Carbon dioxide	1
Carbon monoxide	1
Chlorine (dry)	1
Chlorine (wet)	4
Hydrogen sulphide	1
Sulphur dioxide (dry)	1
Sulphur dioxide (wet)	3

1 Very good resistance
2 Good resistance
3 Moderate resistance
4 Poor resistance

Tolerances

In general, extruded aluminium is manufactured to a somewhat wider tolerance than steel. Please note, however, that the tolerance of each individual profile is much closer.

Product overview

Designation	Description	Weight	Page
Beams			
XCBM 3×88×176	Beam 88×176, length 3 m	32 kg	17
XCBM 6×88×176	Beam 88×176, length 6 m	64 kg	17
XCBM L×88×176	Beam 88×176, length to order	10,7 kg/m	17
XCBM 3×44×176	Beam 44×176, length 3 m	21 kg	17
XCBM 6×44×176	Beam 44×176, length 6 m	43 kg	17
XCBM L×44×176	Beam 44×176, length to order	7,1 kg/m	17
XCBM 3×88×132	Beam 88×132, length 3 m	24 kg	17
XCBM 6×88×132	Beam 88×132, length 6 m	48 kg	17
XCBM L×88×132	Beam 88×132, length to order	8,0 kg/m	17
XCBE 88×132 A	End cap 88×132	45 g	17
XCBM 3×44×132	Beam 44×132, length 3 m	16 kg	17
XCBM 6×44×132	Beam 44×132, length 6 m	33 kg	17
XCBM L×44×132	Beam 44×132, length to order	5,5 kg/m	17
XCBE 44×132 A	End cap 44×132	25 g	17
XCBM 3×88	Beam 88×88, length 3 m	16 kg	18
XCBM 6×88	Beam 88×88, length 6 m	32 kg	18
XCBM L×88	Beam 88×88, length to order	5,3 kg/m	18
XCBL 3×88	Beam 88×88, lightweight, length 3 m	9,5 kg	18
XCBL 6×88	Beam 88×88, lightweight, length 6 m	19 kg	18
XCBL L×88	Beam 88×88, lightweight, length to order	3,2 kg/m	18
XCBE 88	End cap 88×88	29 g	18
XCBM 3×44×88	Beam 44×88, length 3 m	11 kg	18
XCBM 6×44×88	Beam 44×88, length 6 m	21 kg	18
XCBM L×44×88	Beam 44×88, length to order	3,5 kg/m	18
XCBL 3×44×88	Beam 44×88, lightweight, length 3 m	7,2 kg	18
XCBL 6×44×88	Beam 44×88, lightweight, length 6 m	14 kg	18
XCBL L×44×88	Beam 44×88, lightweight, length to order	2,4 kg/m	18
XCBE 44×88	End cap 44×88	15 g	18
XCBM 3×64	Beam 64×64, length 3 m	12 kg	18
XCBM 6×64	Beam 64×64, length 6 m	24 kg	18
XCBM L×64	Beam 64×64, length to order	2,8 kg/m	18
XCBL 3×64	Beam 64×64, lightweight, length 3 m	6,9 kg	18
XCBL 6×64	Beam 64×64, lightweight, length 6 m	14 kg	18
XCBL L×64	Beam 64×64, lightweight, length to order	2,3 kg/m	18
XCBE 64	End cap 64×64	16 g	18
XCBM 3×44×64	Beam 44×64, length 3 m	8,5 kg	19
XCBM 6×44×64	Beam 44×64, length 6 m	17 kg	19
XCBM L×44×64	Beam 44×64, length to order	2,8 kg/m	19
XCBL 3×44×64	Beam 44×64, lightweight, length 3 m	5,9 kg	19
XCBL 6×44×64	Beam 44×64, lightweight, length 6 m	12 kg	19
XCBL L×44×64	Beam 44×64, lightweight, length to order	2,0 kg/m	19
XCBE 44×64	End cap 44×64	11 g	19
XCBM 3×44	Beam 44×44, length 3 m	6,2 kg	19
XCBM 6×44	Beam 44×44, length 6 m	12 kg	19
XCBM L×44	Beam 44×44, length to order	2,1 kg/m	19
XCBL 3×44	Beam 44×44, lightweight, length 3 m	4,8 kg	19
XCBL 6×44	Beam 44×44, lightweight, length 6 m	9,5 kg	19
XCBL L×44	Beam 44×44, lightweight, length to order	1,6 kg/m	19
XCBE 44	End cap 44×44	8 g	19
XCBA 3×44	Beam 45°, length 3 m	4,65 kg	19
XCBA 6×44	Beam 45°, length 6 m	9,3 kg	19
XCBA L×44	Beam 45°, length to order	1,6 kg/m	19
XCBE 44 A	End cap for beam 45°	6 g	19
XCBL 3×44 T2	Enclosure beam 44×44, two T-slots, length 3 m	4,8 kg	20
XCBL 6×44 T2	Enclosure beam 44×44, two T-slots, length 6 m	9,6 kg	20
XCBL L×44 T2	Enclosure beam 44×44, two T-slots, length to order	1,6 kg/m	20

Product overview

Designation	Description	Mounting hardware required	Weight	Page
XCBL 3×44 T2A	Enclosure beam 44×44, two T-slots, length 3 m		4,8 kg	20
XCBL 6×44 T2A	Enclosure beam 44×44, two T-slots, length 6 m		9,6 kg	20
XCBL L×44 T2A	Enclosure beam 44×44, two T-slots, length to order		1,6 kg/m	20
XCBL 3×44 T3	Enclosure beam 44×44, three T-slots, length 3 m		5,1 kg	20
XCBL 6×44 T3	Enclosure beam 44×44, three T-slots, length 6 m		10 kg	20
XCBL L×44 T3	Enclosure beam 44×44, three T-slots, length to order		1,7 kg/m	20
XCBR 3×44	Beam 44×44, corner, length 3 m		5,7 kg	20
XCBR 6×44	Beam 44×44, corner, length 6 m		11 kg	20
XCBR L×44	Beam 44×44, corner, length to order		1,9 kg/m	20
XCBE 44 R	End cap 44×44 for corner profile		6 g	20
XCBL 3×15×44	Beam 15×44, lightweight, length 3 m		2,6 kg	21
XCBL 6×15×44	Beam 15×44, lightweight, length 6 m		5,3 kg	21
XCBL L×15×44	Beam 15×44, lightweight, length to order		0,9 kg/m	21
XCBE 15×44	End cap 15×44		2 g	21
XCBB 3×24×44	Beam 24×44, length 3 m		3,1 kg	21
XCBB 6×24×44	Beam 24×44, length 6 m		6,1 kg	21
XCBB L×24×44	Beam 24×44, length to order		1,0 kg/m	21
XCBE 24×44	End cap 24×44		4 g	21
XCBB 3×24×34	Beam 24×34, length 3 m		2,5 kg	21
XCBB 6×24×34	Beam 24×34, length 6 m		5,0 kg	21
XCBB L×24×34	Beam 24×34, length to order		0,83 kg/m	21
XCBE 24×34	End cap 24×34		3 g	21
XCBB 3×24	Beam 24×24, length 3 m		1,9 kg	21
XCBB 6×24	Beam 24×24, length 6 m		3,8 kg	21
XCBB L×24	Beam 24×24, length to order		0,64 kg/m	21
XCBE 24	End cap 24×24		2 g	21
Cover strips				
XCAC 2	Cover strip, aluminium		90 g	21
XCAC 3 P	Cover strip, PVC		0,20 kg	21
Connectors – angle brackets				
XMFA 84 A	Angle bracket	M6S 8×16, BRB 8,4×16, XCAN 8 (8 ea.)	0,24 kg	26
XMFA 84 B	Angle bracket	M6S 8×16, BRB 8,4×16, XCAN 8 (4 ea.)	96 g	26
XLFA 44 A	Angle bracket	M6S 8×16, BRB 8,4×16, XCAN 8 (4 ea.)	0,11 kg	26
XLFA 44 B	Angle bracket	M6S 8×16, BRB 8,4×16, XCAN 8 (2 ea.)	50 g	26
XLFA 44 C	Angle bracket	M6S 8×16, BRB 8,4×16, XCAN 8 (3 ea.)	82 g	26
XLFA 44 D	Angle bracket	M6S 8×16, BRB 8,4×16, XCAN 8 (5 ea.)	0,17 kg	26
XLFA 24	Angle bracket	MC6S 6×14, BRB 6,4×12, XCAN 6 (2 ea.)	15 g	26
XMFA 84	Angle bracket, extruded	M6S 8×16, BRB 8,4×16, XCAN 8 (6 ea.)	0,15 kg	27
XLFA 44	Angle bracket, extruded	M6S 8×16, BRB 8,4×16, XCAN 8 (2 ea.)	51 g	27
XCAB 44	Stay bracket, 45°	See page XC 25	66 g	27
XCFJ 44 F	Stay bracket	MLC6S 8×14, XCAN 8 (2 ea.) or MLC6S 8×30 (2)	0,47 kg	27
Connectors – mounting plates				
XCFB 88	Mounting plate 88×88	M6S 8×18, BRB 8,4×16, XCAN 8, MF6S 8×30 (4 ea.)	0,28 kg	29
XCFB 44×88 A	Mounting plate 44×88	M6S 8×18, BRB 8,4×16, XCAN 8, MF6S 8×30 (2 ea.)	0,15 kg	29
XCFB 44×88 B	Mounting plate 44×88	M6S 8×18, BRB 8,4×16, XCAN 8 (4 ea.), MF6S 8×30 (2)	0,19 kg	29
XCFB 64 A	Mounting plate 64×64	M6S 8×18, BRB 8,4×16, XCAN 8 (2 ea.), MF6S 8×30 (4)	0,14 kg	29
XCFB 44×64 A	Mounting plate 44×64	M6S 8×18, BRB 8,4×16, XCAN 8 (2 ea.), MF6S 8×30 (4)	92 g	29
XCFB 44×64 B	Mounting plate 44×64	M6S 8×18, BRB 8,4×16, XCAN 8 (2 ea.), MF6S 8×30 (4)	0,12 kg	29
XCFB 44	Mounting plate 44×44	M6S 8×18, BRB 8,4×16, XCAN 8 (2 ea.), MF6S 8×30 (1)	0,10 kg	29

Product overview

Designation	Description	Mounting hardware required	Weight	Page
Connectors – slot fasteners				
XCAN 8	Slot nut, M8		15 g	34
XCAN 6	Slot nut, M6		16 g	34
XCAN 5	Slot nut, M5		16 g	34
XCAP 500	Nut profile		0,12 kg	34
XLAQ 8	Square nut, M8		13 g	34
XLAQ 6	Square nut, M6		13 g	34
XLCJ 5×140	Connecting strip, 140 mm		0,11 kg	34
XLCJ 5×76	Connecting strip, 76 mm		53 g	34
XCFP 75	Parallel connector assembly		69 g	34
XCAF 88	Fastener yoke, 88 mm		0,20 kg	35
XCAF 64	Fastener yoke, 64 mm		0,14 kg	35
XCAF 44	Fastener yoke, 44 mm		96 g	35
XCAQ 20 CA	T-slot washer kit		13 g	35
XCAQ 20×64 CA	T-slot washer strip kit		51 g	35
XCAD 10/18	Drill fixture		0,41 kg	35
Connectors – small fittings				
XMRX 20 A	Inner fitting 90°	M6S 8×14, BRB 8,4×16, XCAN 8 (1 ea.)	40 g	37
XMRY 20	Inner fitting 90°		66 g	37
XMRY 20 A	Inner fitting 90°	M6S 8×14, BRB 8,4×16, XCAN 8 (2 ea.)	17 g	37
XMRY 20 B	Inner fitting 90°		23 g	37
XMRY 20×45 A	Inner fitting 45°	M6S 8×14, BRB 8,4×16, XCAN 8 (2 ea.)	20 g	37
XMRW 20	Corner fitting 90°		40 g	37
XMRW 20×45	Corner fitting 45°		45 g	37
Feet				
XCFF 88×260	Foot		3,0 kg	39
XCFF 64×210	Foot		1,7 kg	39
XCFF 44×130	Foot		0,60 kg	39
XCFB 88 F	Foot plate	MF6S 8×30 (4) or MF6S 6×30 (4)	0,45 kg	39
XCFB 44 F	Foot plate	MF6S 8×30 (1) or MF6S 6×30 (4)	0,19 kg	39
XCFS 12×68	Adjusting foot	XCFE .. M12	0,25 kg	39
XLFS 8	Adjusting foot		47 g	39
XCAG 80 A	Guide roller kit	XCAN 8 or XCFE .. M12	0,36 kg	39
XCAG 80 BA	Guide roller kit w. brake	XCAN 8 or XCFE .. M12	0,48 kg	39
XEFG 64 T	Three-point foot		1,0 kg	41
XEFG 70 T	Three-point foot		1,0 kg	41
XEFG 64 D	Two-point foot		0,82 kg	41
XLFS 20 P	Adjusting mount		85 g	41
XLFJ 69	Vibration absorber		30 g	41
XEFU 500	Square section tube assembly		1,2 kg	41
XCFE 88 M12A	End plate 88×88	MC6S 6×30 (4)	0,50 kg	43
XCFE 44×88 M12A	End plate 44×88	MC6S 6×30 (4)	0,28 kg	43
XCFE 64 M12A	End plate 64×64	MC6S 6×30 (4)	0,31 kg	43
XCFE 44×64 M12A	End plate 44×64	MC6S 6×30 (4)	0,21 kg	43
XCFE 44 M12	End plate 44×44	MC6S 6×30 (4)	0,13 kg	43
XCFE 44 M8	End plate 44×44	MC6S 6×30 (4)	0,14 kg	43

Product overview

Designation	Description	Mounting hardware required	Weight	Page
Enclosure components				
XCEP 3×10×44	Profile for enclosures	MF6S 6×16 (for 6 mm panels), XCAN 6	1,6 kg	48
XCEP L×10×44	Profile for enclosures	MF6S 6×16 (for 6 mm panels), XCAN 6	0,53 kg/m	48
XCEP 3×5×44	Profile for enclosures	MF6S 6×16 (for 6 mm panels), XCAN 6	1,4 kg	48
XCEP L×5×44	Profile for enclosures	MF6S 6×16 (for 6 mm panels), XCAN 6	0,46 kg/m	48
XLFL 3	Profile for sliding doors	MLC6S 6×12, XCAN 6 or MC6S 6×14, BRB 6,4×12, M6M 6	2,8 kg	48
XLFL L	Profile for sliding doors	MLC6S 6×12, XCAN 6 or MC6S 6×14, BRB 6,4×12, M6M 6	0,9 kg/m	48
XLFR 3	Slide strip for sliding doors, length 3 m		0,54 kg	48
XCAM 14	Multiblock, assembly		13 g	49
XCET 25	T-slot profile rubber strip, length 3 m		2,9 kg	49
XCET 3 A	Rim strip, length 3 m		45 g/m	49
XCET 3 C	Net strip, length 3 m		0,13 kg/m	49
XCET 3 D	Sliding door profile		0,12 kg/m	49
XCAH 50	Hinge	MLC6S 6×12, XCAN 6 (2 ea.)	53 g	50
XCAH 110 A	Hinge kit		0,16 kg	50
XDEH 160	Handle XC/XD, polyamide	MC6S 5×20, XCAN 5 (2)	0,15 kg	50
XCEL 60 B	Ball latch lock kit		0,18 kg	50
XCEL 60 W	Security switch kit		0,15 kg	50
XCEL 60 BA	Ball latch lock kit		0,19 kg	51
XCEL 60 WA	Security switch kit		0,14 kg	51
XCCD 3×22	Cable duct 22×22, length 3 m		1,1 kg	53
XCCD L×22	Cable duct 22×22, length to order		0,36 kg/m	53
XCCC 3×44	Cover for cable duct, 44 mm, length 3 m		1,1 kg	53
XCCC L×44	Cover for cable duct, 44 mm, length to order		0,37 kg/m	53
XCCD 3×44	Cable duct 44×44, length 3 m		2,1 kg	53
XCCD L×44	Cable duct 44×44, length to order		0,71 kg/m	53
XCCC 3×88	Cover for cable duct, 88 mm, length 3 m		1,5 kg	53
XCCC L×88	Cover for cable duct, 88 mm, length to order		0,5 kg/m	53
XCCD 3×44×88	Cable duct 44×88, length 3 m		3,3 kg	53
XCCD L×44×88	Cable duct 44×88, length to order		1,1 kg/m	53
XCCD 3×88	Cable duct 88×88, length 3 m		5,4 kg	53
XCCD L×88	Cable duct 88×88, length to order		1,8 kg/m	53
Components for linear motion				
XCLB 20×30	Sliding element for T-slot		11 g	56
XCLE 34×52	Sliding element		25 g	56
XCLE 34×80 A	Adjustable sliding element		0,13 kg	56
XCLP 3×44	Guide profile, length 3 m	MF6S 6×12, XCAN 6	3,3 kg	56
XCLP 6×44	Guide profile, length 6 m	MF6S 6×12, XCAN 6	6,7 kg	56
XCLP L×44	G. profile, length to order	MF6S 6×12, XCAN 6	1,1 kg/m	56
XCBE 20×44	End cap for guide profile	MLC6S 5×10 (2)	4 g	56
XCAW 48	Wheel	M6S 8×30, BRB 8,4×16, XCAN 8 (1 ea.)	0,10 kg	57
XCAW 48 G	Guide wheel	M6S 8×30, BRB 8,4×16, XCAN 8 (1 ea.)	0,11 kg	57
XCAY 44	Wheel yoke	MC6S 8×14, XCAN 8 (1 ea.) or MC6S 8×30 (1)	0,24 kg	57
XCLU 10×44 R	Bearing housing, right-hand		0,31 kg	57
XCLU 10×44 RE	Bearing housing, right-hand, eccentric		0,31 kg	57
XCLU 10×44 L	Bearing housing, left-hand		0,31 kg	57
XCLU 10×44 LE	Bearing housing, left-hand, eccentric		0,31 kg	57
XCLJ 10×3	Steel shaft		1,9 kg	57
XCLS 10×3	Shaft support profile	MLC6S 5×10, XCAN 5	1,4 kg	57
XCLS 10×L	Shaft support profile	MLC6S 5×10, XCAN 5	0,46 kg/m	57
XCLZ 250×132	Saddle for linear beam, length 250 mm		1,2 kg	61
XCLZ 300×220	Saddle for linear beam, length 300 mm		5,5 kg	61
XCLY 3×88×15	Linear beam adapter, length 3 m		7,7 kg	61
XCLY 6×88×15	Linear beam adapter, length 6 m		15,4 kg	61
XCLY L×88×15	Linear beam adapter, length to order		2,6 kg/m	61
XCLY 3×88×68	Linear beam 68×88, length 3 m		12,6 kg	61
XCLY 6×88×68	Linear beam 68×88, length 6 m		25,2 kg	61
XCLY L×88×68	Linear beam 68×88, length to order		4,2 kg/m	61

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Designation	Description	Mounting hardware required	Weight	Page
Components for linear motion				
XCLY 3×88	Linear beam 88×88, length 3 m		18,7 kg	61
XCLY 6×88	Linear beam 88×88, length 6 m		37,4 kg	61
XCLY L×88	Linear beam 88×88, length to order		6,2 kg/m	61
XDLJ 6×3	Steel shaft		0,67 kg	61
XCLJ 10×3	Steel shaft		1,9 kg	61
Components for rotating motion				
XCFJ 44	Joint	MLC6S 8×14, XCAN 8 (2 ea.) or MLC6S 8×30 (2)	0,49 kg	63
XCFJ 75 E	Joint, extruded	MLC6S 8×14, XCAN 8 (4 ea.)	96 g	63
Pneumatic components				
XCPE 88 G1/2	End plate for beam	M6S 8×30 (4)	0,49 kg	65
XCPE 44×88 G3/8	End plate for beam	M6S 8×30 (2)	0,27 kg	65
XCPE 44 G1/4	End plate for beam	MC6S 6×30 (4)	0,11 kg	65
3905090	Pneumatic connector		40 g	65
XCPE 88 C	Connection plate	M6S 8×30, MC6S 6×25, XCAN 6 (4 ea.)	0,49 kg	66
XCPE 88 CM6	Connection plate	M6S 8×30 (8), MC6S 6×30 (4), XCPE 88 C (1)	0,49 kg	66
XCPE 44×88 C	Connection plate	M6S 8×30 (2), MC6S 6×25, XCAN 6 (4 ea.)	0,26 kg	66
XCPE 44×88 CM6	Connection plate	M6S 8×30, MC6S 6×30 (4 ea.), XCPE 44×88 C (1)	0,26 kg	66
3904943	Gasket		2 g	67
3904942	Gasket		1 g	67
3925359	Gasket		1 g	67
AutoCAD symbol library and assembly instructions				
FLEXCAD B	AutoCAD symbol library for XC, XD, XR		–	68
Publ. # 4264	FlexLink structural system XC, Assembly instructions		–	68