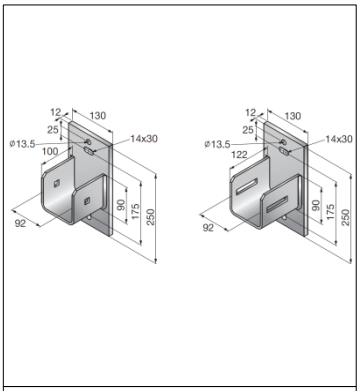
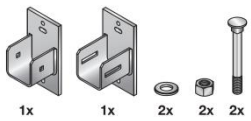
MIC-C90-EDB elevator connector

Designation	Item number
MIC-C90-EDB elevator connector	**2149279**



Package content



Corrosion protection:
Hot dipped galvanized as per DIN EN ISO 1462, thickness 55 micr ons

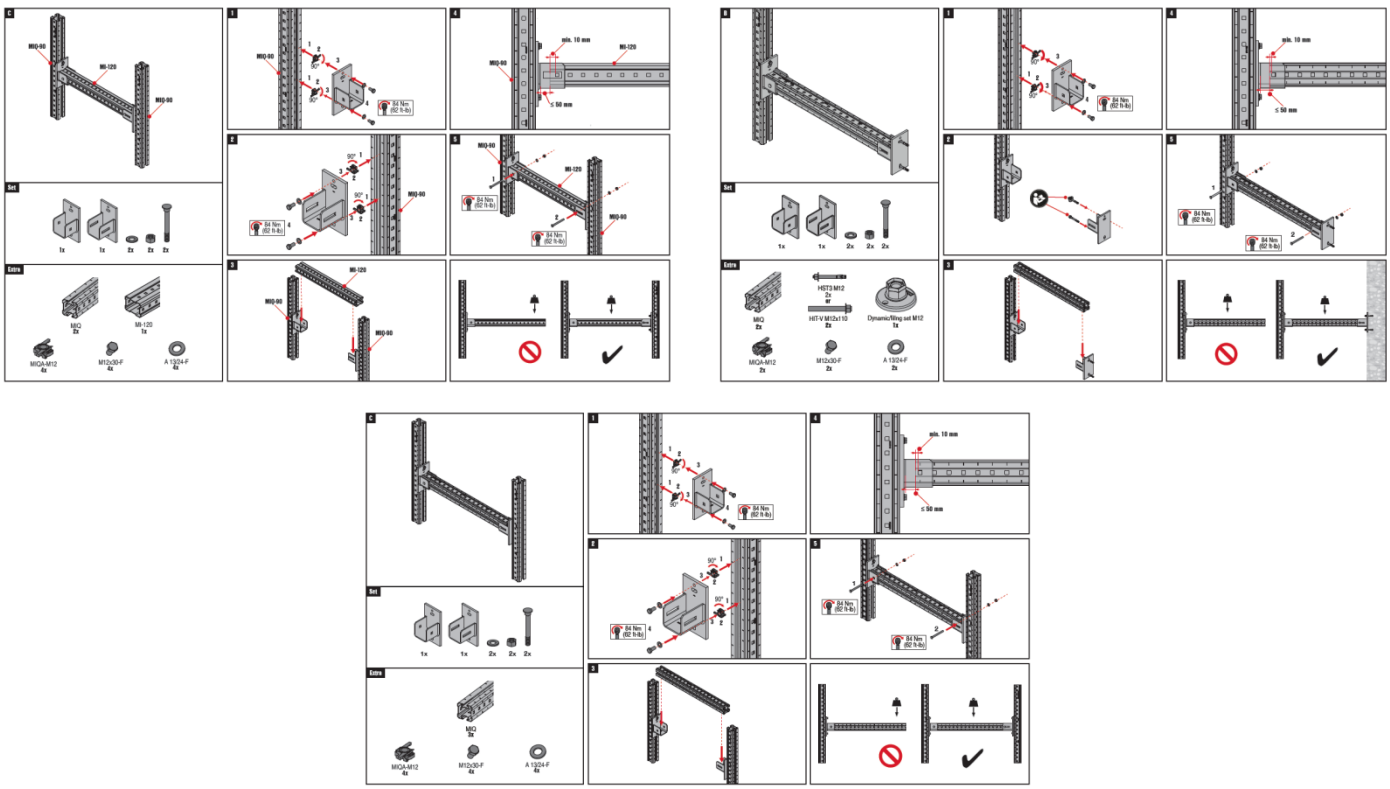
Weight:
9434g incl. accessories

Submittal text:
Hot-dipped galvanised Hilti elevator connector, used primarily to connect an MI or MIQ girder to either a concrete wall or another girder. The baseplate of the connector is fastened to concrete through anchor holes with Hilti HST3 anchors or similar, and with MIA-OH bolts to another girder, secured with two self-locking nuts. Sold as a pair of connectors, one with a single hole and the other with an oblong hole, through which the connector is fastened to the girder with MIA-OH through-bolts. Material weight 9.43kg including all items.

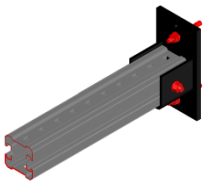
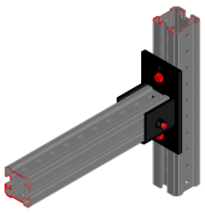
Material properties:

Material	Yield strength	Ultimate strength	E-modulus	Shear modulus
S355 JR DIN EN 10025	$F_y = 355 \frac{N}{mm^2}$	$F_u = 490 \frac{N}{mm^2}$	$E = 210000 \frac{N}{mm^2}$	$G = 80769 \frac{N}{mm^2}$

Instruction For Use:



MIC-C90-EDB elevator connector

Possible loading cases		
On concrete	On steel	
		

Design criteria used for loading capacity

Methodology:
- Finite element analysis
- Analytic calculation

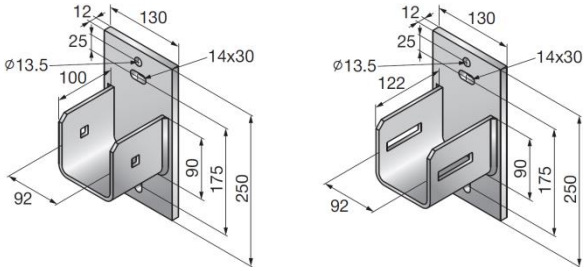
Standards and codes:

• EN 1990	Basics of structural design	03.2003
• EN 1991-1-1	Eurocode 1: Actions on structures – Part 1-1: General actions – densities, self-weight, imposed loads for buildings	09.2011
• EN 1993-1-1	Eurocode 3: Design of steel structures – Part 1-1: General rules and rules for buildings	03.2012
• EN 1993-1-3	Eurocode 3: Design of steel structures – Part 1-3: General rules- Supplementary rules for cold-formed members and sheeting	03.2012
• EN 1993-1-5	Eurocode 3: Design of steel structures – Part 1-5: Plated structural elements	03.2012
• EN 1993-1-8	Eurocode 3: Design of steel structures – Part 1-8: Design of joints	03.2012
EN 10025-2	Hot rolled products of structural steels- Part 2: technical delivery conditions for non-alloy structural steels	02.2005
• RAL-GZ 655	Pipe Supports	04.2008

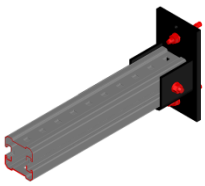
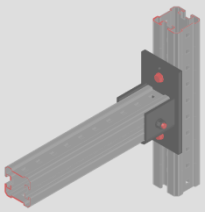
Software:
- Ansys 16.0
- Microsoft Excel
- Analytic calculation

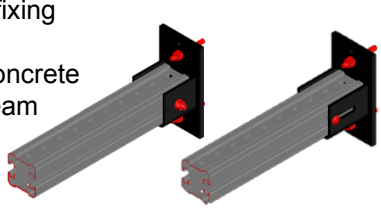
Environmental conditions:
- static loads
- no fatigue loads

Simplified drawing:



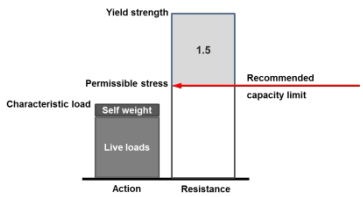
MIC-C90-EDB elevator connector

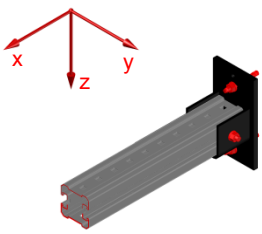
Possible loading cases		
On concrete	On steel	
		

Loading case: On concrete	Combinations covered by loading case
BOM: Base material connector incl. all connectivity material **1x MIC-C90-EDB elevator connector 2149279**	Connector used for fixing MIQ girder, perpendicularly to concrete usually as divider beam (wall to wall) in elevator shaft 

Recommended loading capacity - simplified for most common applications

Method



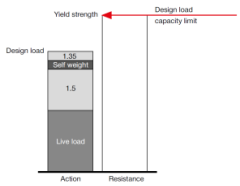


±Fx,rec. [kN]	±Fy,rec. [kN]	±Fz,rec. [kN]
1.40	3.33	5.67

These values are individual one directional maximal capacity limits. For any combinations of multiple directions, use design values and their corresponding interaction formulas.

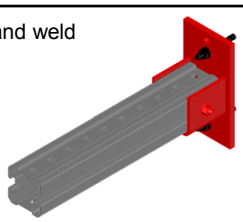
Design loading capacity - 3D 1/2

Method

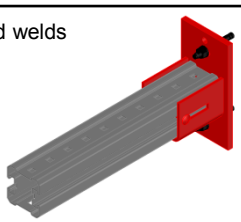


Limiting components of capacity evaluated in following tables:

1. Slotted connector incl. bolt, base plate and weld

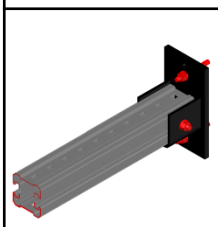
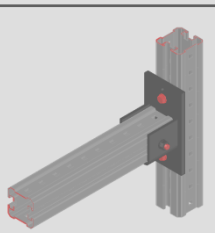


2. Connector with hole incl. bolt, plate and welds



MIC-C90-EDB elevator connector

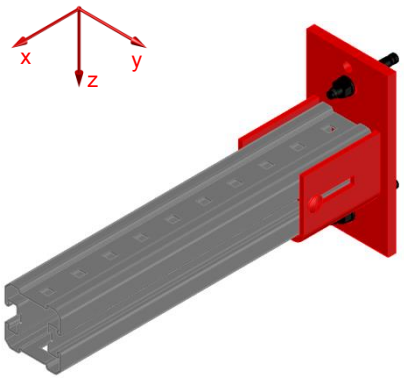
Conditions of the loading capacity tables:
- Just for static loads
- No fatigue loads
- No low (< -10° C), no high (> +100° C) temperatures

Possible loading cases		
On concrete	On steel	
		

Design loading capacity - 3D 2/2

Summary of design loads*
NOTE: all values in interaction formulas should be used in absolute values! The values below are referred to the coordinate system shown in the drawing.

1. MIC-C90-EDB Slotted connector incl. bolt, base plate and weld



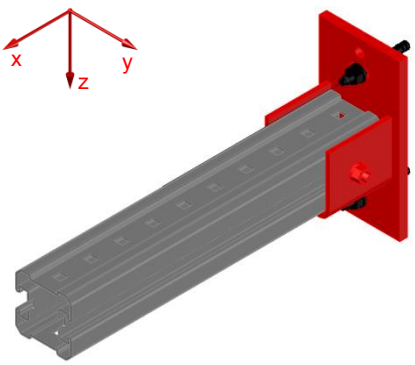
+Fx,Rd [kN]	-Fx,Rd [kN]	+Fy,Rd [kN]	-Fy,Rd [kN]	+Fz,Rd [kN]	-Fz,Rd [kN]
2.10	2.10	5.00**	5.00**	5.00	5.00
+Mx,Rd [kNm]	**-Mx,Rd [kNm]**	**+My,Rd [kNm]**	**-My,Rd [kNm]**	**+Mz,Rd [kNm]**	**-Mz,Rd [kNm]**
0.07	0.07	0.00	0.00	0.00	0.00

**Values are provided for 1mm local deflection on connector
Interaction:

$$\frac{F_{x.Ed}}{F_{x.Rd}} + \frac{F_{y.Ed}}{F_{y.Rd}} + \frac{F_{z.Ed}}{F_{z.Rd}} + \frac{M_{x.Ed}}{M_{x.Rd}} \le 1$$

Note: The welds and the one hand screw are modelled appropriately in the FE- calculation and are therefore included in the overall resistance for connector given above.

2. MIC-C90-EDB Connector with hole incl. bolt, plate and welds



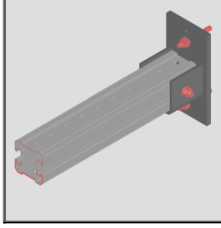
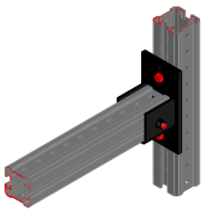
+Fx,Rd [kN]	-Fx,Rd [kN]	+Fy,Rd [kN]	-Fy,Rd [kN]	+Fz,Rd [kN]	-Fz,Rd [kN]
10.60	10.60	5.00**	5.00**	5.00	5.00
+Mx,Rd [kNm]	**-Mx,Rd [kNm]**	**+My,Rd [kNm]**	**-My,Rd [kNm]**	**+Mz,Rd [kNm]**	**-Mz,Rd [kNm]**
0.07	0.07	0.00	0.00	0.00	0.00

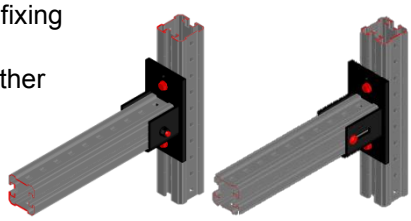
**Values are provided for 1mm local deflection on connector
Interaction:

$$\frac{F_{x.Ed}}{F_{x.Rd}} + \frac{F_{y.Ed}}{F_{y.Rd}} + \frac{F_{z.Ed}}{F_{z.Rd}} + \frac{M_{x.Ed}}{M_{x.Rd}} \le 1$$

Note: The welds and the one hand screw are modelled appropriately in the FE- calculation and are therefore included in the overall resistance for connector given above

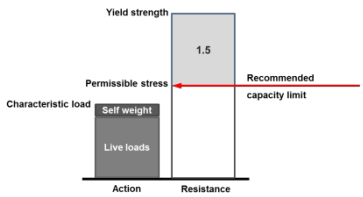
MIC-C90-EDB elevator connector

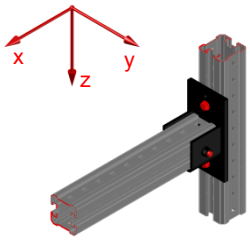
Possible loading cases		
On concrete	On steel	
		

Loading case: On steel	Combinations covered by loading case
BOM: Base material connector incl. all connectivity material **1x MIC-C90-EDB elevator connector** **2149279** Connection to vertical MIQ girder **2x MIQM-M12 wing nut** **2120275** **2x M12x30-F hex. Head screw** **284387**	Connector used for fixing MIQ girder, perpendicularly to other MIQ vertical girder usually as divider beam (wall to wall) in elevator shaft 

Recommended loading capacity - simplified for most common applications

Method





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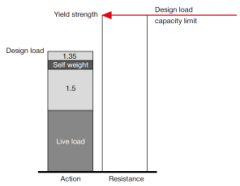
Design loading capacity - 3D 1/2

Method



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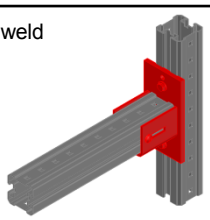

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