

MQW-H2-CP Angle

Designation
MQW-H2-CP

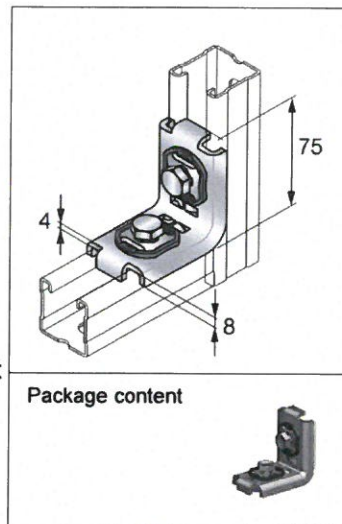
Item number
2184851

Corrosion protection:
Electro galvanized

Weight:
354g

Submittal text:

Angle for connecting two channels at 90° including two channel connectors MQN-CP. Angle geometry and integrated bends allows high stiffness and direct load transfer to the installation channel.

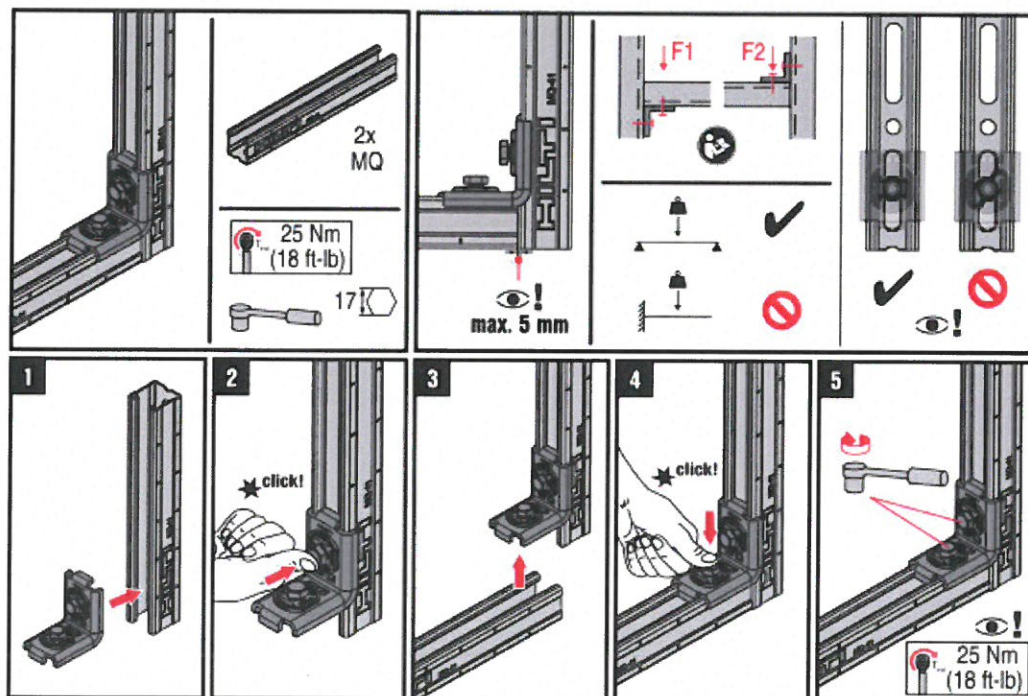


Material properties

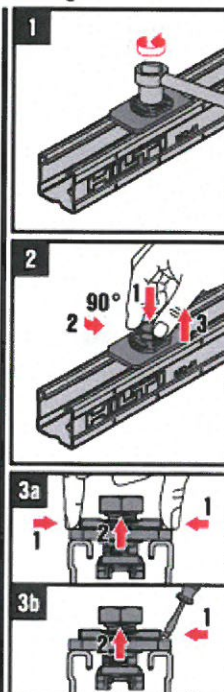
Material	Yield strength	Ultimate strength	E-modulus	Shear modulus
Connector: S275JR - DIN EN 10025-2	$F_y = 275 \frac{N}{mm^2}$	$F_u = 430 \frac{N}{mm^2}$	$E = 210000 \frac{N}{mm^2}$	$G = 80769 \frac{N}{mm^2}$
Plate: steel S355J2 DIN EN 10025-2	$F_y = 355 \frac{N}{mm^2}$	$F_u = 510 \frac{N}{mm^2}$	$E = 210000 \frac{N}{mm^2}$	$G = 80769 \frac{N}{mm^2}$
Nut: S355MC - DIN EN 10149-2	$F_y = 355 \frac{N}{mm^2}$	$F_u = 430 \frac{N}{mm^2}$	$E = 210000 \frac{N}{mm^2}$	$G = 80769 \frac{N}{mm^2}$
Bolt: grade 8.8 - DIN EN ISO 898	$F_y = 640 \frac{N}{mm^2}$	$F_u = 800 \frac{N}{mm^2}$	$E = 210000 \frac{N}{mm^2}$	$G = 80769 \frac{N}{mm^2}$
Plastic: PA 6.6				

Instruction For Use:

Montage / Assembly / Montage:




Démontage / Disassembly / Démontage:



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Possible loading cases		
Standard		
		

Design criteria used for loading capacity

Methodology:

- Finite element analysis
- Hardware tests

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

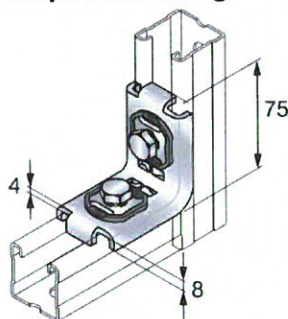
Software:

- Ansys 16.0
- Microsoft Excel

Environmental conditions:

- static loads
- no fatigue loads


Simplified drawing:





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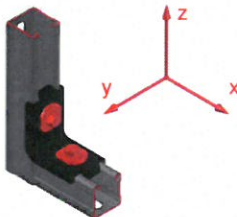
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Standard		
		

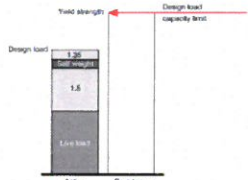
Loading case: Standard	Combinations covered by loading case
BOM: 1x MQW-H2-CP 2184851 2x Push buttons included and pre-assembled 	Angle perpendicularly connecting two open sections of channels 

Recommended loading capacity - simplified for most common applications




Method							
	 <table><tr><th>$\pm F_{x,rec.}$ [kN]</th><th>$\pm F_{y,rec.}$ [kN]</th><th>$\pm F_{z,rec.}$ [kN]</th></tr><tr><td>2.50</td><td>1.86</td><td>2.50</td></tr></table> <p>These values are individual one directional maximal capacity limits. For any combinations of multiple directions, use design values and their corresponding interaction formulas.</p>	$\pm F_{x,rec.}$ [kN]	$\pm F_{y,rec.}$ [kN]	$\pm F_{z,rec.}$ [kN]	2.50	1.86	2.50
$\pm F_{x,rec.}$ [kN]	$\pm F_{y,rec.}$ [kN]	$\pm F_{z,rec.}$ [kN]					
2.50	1.86	2.50					

Design loading capacity - 3D

1/2

Method	
	

Limiting components of capacity evaluated in following tables:

1. Steel connector 	2. MQN on horizontal channel (MQ-41-L) 	3. MQN on vertical channel (MQ-41-L) 
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Conditions of the loading capacity tables:

- Just for static loads
- No fatigue loads
- No low (< -10° C), no high (> +100° C) temperatures

Standard		

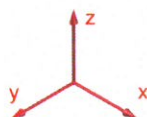
Design loading capacity - 3D

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. Steel connector



+Fx,Rd [kN]	-Fx,Rd [kN]	+Fy,Rd [kN]	-Fy,Rd [kN]	+Fz,Rd [kN]	-Fz,Rd [kN]
5.48	8.40	2.60	2.60	8.40	5.48
+Mx,Rd [kNcm]	-Mx,Rd [kNcm]	+My,Rd [kNcm]	-My,Rd [kNcm]	+Mz,Rd [kNcm]	-Mz,Rd [kNcm]
11.20	11.20	0.00	0.00	0.00	0.00

Interaction:

$$\frac{F_{x,Ed}}{F_{x,Rd}} + \frac{F_{y,Ed}}{F_{y,Rd}} + \frac{F_{z,Ed}}{F_{z,Rd}} + \frac{M_{x,Ed}}{M_{x,Rd}} + \frac{M_{y,Ed}}{M_{y,Rd}} + \frac{M_{z,Ed}}{M_{z,Rd}} \leq 1$$

2. MQN on horizontal channel (MQ-41-L)

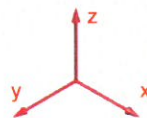


+Fx,Rd [kN]	-Fx,Rd [kN]	+Fy,Rd [kN]	-Fy,Rd [kN]	+Fz,Rd [kN]	-Fz,Rd [kN]
6.72	6.72	Not decisive	Not decisive	Not decisive	3.50
+Mx,Rd [kNcm]	-Mx,Rd [kNcm]	+My,Rd [kNcm]	-My,Rd [kNcm]	+Mz,Rd [kNcm]	-Mz,Rd [kNcm]
Not decisive	Not decisive	Not decisive	Not decisive	Not decisive	Not decisive

Interaction:

Interaction is not necessary

3. MQN on vertical channel (MQ-41-L)



+Fx,Rd [kN]	-Fx,Rd [kN]	+Fy,Rd [kN]	-Fy,Rd [kN]	+Fz,Rd [kN]	-Fz,Rd [kN]
3.50	Not decisive	Not decisive	Not decisive	6.72	6.72
+Mx,Rd [kNcm]	-Mx,Rd [kNcm]	+My,Rd [kNcm]	-My,Rd [kNcm]	+Mz,Rd [kNcm]	-Mz,Rd [kNcm]
Not decisive	Not decisive	Not decisive	Not decisive	Not decisive	Not decisive

Interaction:

Interaction is not necessary

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