DECLARATION OF PERFORMANCE **CONF-DOP_HM 11/19-E**

HALFEN Hot-Rolled Mounting Channel HM No. H28-19/0438

1.	Unique identification code of the product-type	**HALFEN Hot-Rolled Mounting Channel HM; HM 40/22, HM 50/30, HM 52/34, HM 55/42, HM 72/48**
2.	Type, batch or serial number or any other element allowing identification of the construction product as required pursuant to Article 11(4)	**See ETA-19/0438, 27.11.2019, Annex A1 and A3**
3.	Intended use or uses of the construction product, in accordance with the applicable harmonized technical specification, as foreseen by the manufacturer:	
	Generic type and use	C-shaped, hot-rolled mounting channels connected to frame structures by welding or bolting resp. by doweling to concrete substructures in combination with special shaped (hooked) HALFEN-channel bolts.
	Product size covered (hot-rolled mounting channels and corresponding screws)	HM 40/22 with channel bolt HS 40/22 M10 – M16 HM 50/30 with channel bolt HS 50/30 M10 – M20 HM 52/34 with channel bolt HS 50/30 M10 – M20 HM 55/42 with channel bolt HS 50/30 M10 – M24 HM 72/48 with channel bolt HS 72/48 M20 – M30
	For use in	–
	Hot-rolled mounting channel material / screw material and intended use	- Bright rolled steel for direct welding to the steel construction - Hot-dip galv. steel / electroplated steel for dry internal conditions - Hot-dip galv. steel / hot-dip galv. steel or electroplated steel with special coating also for internal conditions with normal humidity - Stainless steel / stainless steel also for medium corrosion exposure - High corrosion resistant steel / high corrosion resistant steel also for high corrosion exposure
	Loading	Static & quasi static tension and shear loads perpendicular to the longitudinal channel axis
4.	Name, registered trade name or registered trade mark and contact address of the manufacturer as required pursuant to Article 11(5)	HALFEN GmbH (part of Leviat), Liebigstraße 14, 40764 Langenfeld, Germany
5.	Where applicable, name and contact address of the authorized representative whose mandate covers the tasks specified in Article 12(2)	-
6.	System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V	System 2+
7.	In case of the declaration of performance concerning a construction product covered by a harmonized standard	-
8.	In case of the declaration of performance concerning a construction product for which a European Technical Assessment has been issued	Deutsches Institut für Bautechnik (DIBt) issued ETA-19/0438 on the basis of EAD 330667-00-0602, Version July 2016. The notified body 0432 performed under system 2+: (i) Initial inspection of the manufacturing plant and of factory production control;

<table>
<tr><td></td><td colspan="3"></td><td>(ii) Continuous surveillance, assessment and evaluation of factory production control under system 2+
and has issued the following certificates: 0432-CPR-00629</td></tr>
<tr><td rowspan="9">9.</td><td colspan="4">Declared performance</td></tr>
<tr><td>Essential Characteristics</td><td>Design Method</td><td>Performance</td><td>Harmonized Technical Specification</td></tr>
<tr><td>Characteristic resistance for tension</td><td rowspan="2">EN 1992-4</td><td>ETA-19/0438, Tab. C1-1 and Tab. C2 – Annex 1 and 2</td><td rowspan="6">EAD 330667-00-0602, Version July 2016</td></tr>
<tr><td>Characteristic resistance for shear</td><td>ETA-19/0438, Tab. C3-1 and Tab. C4 – Annex 3 and 4</td></tr>
<tr><td>Characteristic resistance for combined tension and shear</td><td>EN 1992-4</td><td>-</td></tr>
<tr><td>Displacement for tension / shear</td><td>-</td><td>ETA- 19/0438, Tab. C1-2 and Tab. C3-2 – Annex 1 and 3</td></tr>
<tr><td>Resistance for bending</td><td>EN 1993-1-1</td><td>-</td></tr>
<tr><td>Resistance and design of welding seams</td><td>EN 1993-1-8</td><td>-</td></tr>
<tr><td colspan="2">Where pursuant to Article 37 or 38 in the Specific Technical Documentation has been used, the requirements with which the product complies:</td><td>-</td></tr>
<tr><td>10.</td><td colspan="4">The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9.</td></tr>
<tr><td colspan="5">This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.</td></tr>
</table>

Langenfeld, 01.10.2020

Signed for and on behalf of the manufacturer by

Richard Wachter
(Managing Director)

ppa. Dr.-Ing. Dirk Albartus
(Manager Engineering)

H-968-10/20-E

Annex 1:

Table C1-1: Characteristic resistance for tension under static and quasi-static loading

Mounting channel [1]			**HM 40/22**	**HM 50/30**	**HM 52/34**	**HM 55/42**	**HM 72/48**
Resistance for tension, local failure of channel lips							
Minimum spacing of bolts	$S_{min,\,s,\,N}$	[mm]	150	200	200	250	300
Characteristic resistance	$N_{Rk,s,l}$	[kN]	26	38	68	100	120
Partial safety factor	$\gamma_{Ms,l}$ [2]		1,8				

[1] for steel and stainless steel
[2] in absence of other national regulations

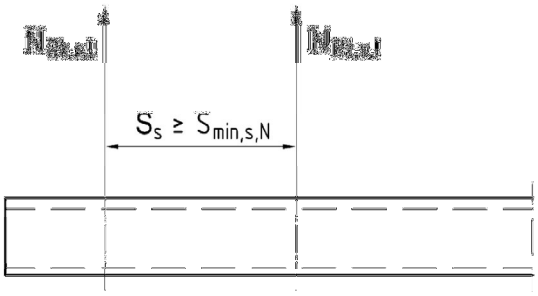

Table C1-2: Displacements under tension service load

Mounting channel [1]			**HM 40/22**	**HM 50/30**	**HM 52/34**	**HM 55/42**	**HM 72/48**
Displacement due to tensile loading							
Service load	N	[kN]	10,4	15,2	27,2	40,0	48,0
Displacement	δ_N	[mm]	0,5	0,5	0,6	0,6	0,6

[1] for steel and stainless steel

Annex 2:

Table C2: Characteristic resistances under tension load – steel failure of HALFEN channel bolts

HALFEN channel bolts Ø				**M10**	**M12**	**M16**	**M20**	**M24**	**M27**	**M30**
Steel failure										
Charakt. resistance	$N_{Rk,s}$	[kN]	4.6	23,2	33,7	62,8	98,0	141,2	183,6	224,4
			8.8	46,4	67,4	125,6	196,0	282,4	367,2	448,8
			50 [1]	29,0	42,2	78,5	122,5	176,5	229,5	280,5
			70 [1]	40,6	59,0	109,9	171,5	247,1	321,3	392,7
Partial safety factor	γ_{Ms} [2]		4.6	2,00						
			8.8	1,50						
			50 [1]	2,86						
			70 [1]	1,87						

[1] materials according Annex A1 and A2
[2] in absence of other national regulations

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Annex 3:

Table C3-1: Characteristic resistance for shear under static and quasi-static loading

Mounting channel [1]			**HM 40/22**	**HM 50/30**	**HM 52/34**	**HM 55/42**	**HM 72/48**
Resistance for shear, local failure of channel lips							
Minimum spacing of bolts	$S_{min,s,V}$	[mm]	150	200	200	250	300
Characteristic resistance	$V_{Rk,s,l}$	[kN]	14	27	38	45	50
Partial safety factor	$\gamma_{Ms,l}$		1,8				

[1] for steel and stainless steel

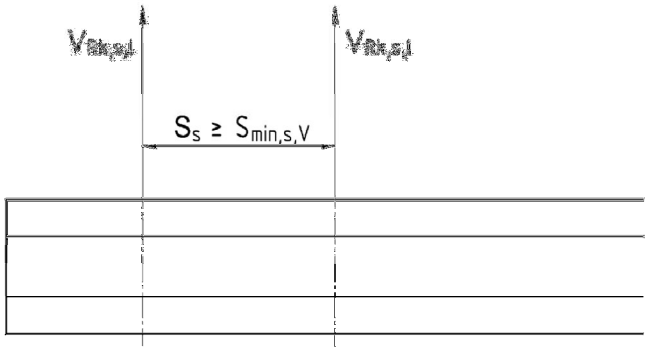

Table C3-2: Displacements under shear service load

Mounting channel [1]			**HM 40/22**	**HM 50/30**	**HM 52/34**	**HM 55/42**	**HM 72/48**
Displacement due to shear loading							
Service load	V	[kN]	5,6	10,8	15,2	18,0	20,0
Displacement	δ_V	[mm]	0,3	0,8	0,6	0,6	0,9

[1] for steel and stainless steel

Annex 4:

Table C4: Characteristic resistances under shear load – steel failure of HALFEN channel bolts

HALFEN channel bolts ∅				**M10**	**M12**	**M16**	**M20**	**M24**	**M27**	**M30**
Steel failure										
Characteristic resistance	$V_{Rk,s}$	[kN]	4.6	13,9	20,2	37,7	58,8	84,7	110,2	134,6
			8.8	23,2	33,7	62,8	98,0	141,2	183,6	224,4
			50 [1)]	17,4	25,3	47,1	73,5	105,9	137,7	168,3
			70 [1)]	24,4	35,4	65,9	102,9	148,3	192,8	235,6
Characteristic flexure resistance	$M^0_{Rk,s}$	[Nm]	4.6	29,9	52,4	133,2	259,6	449,0	665,8	899,6
			8.8	59,8	104,8	266,4	519,3	898,0	1331,5	1799,2
			50 [1)]	37,4	65,5	166,5	324,5	561,3	832,2	1124,5
			70 [1)]	52,3	91,7	233,1	454,4	785,8	1165,1	1574,3
Partial safety factor	γ_{Ms} [2)]		4.6	1,67						
			8.8	1,25						
			50 [1)]	2,38						
			70 [1)]	1,56						

[1)] materials according Annex A1 and A2
[2)] in absence of other national regulations