Technical Data
MM Channel

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our Technical Advisory Service on 0161 886 1144

February 2015

Selection for copper pipes according to DIN EN 1057
(water-filled, with 100 % insulation)

Pipe DN NW	Pipe weight * [kg/m]	Pipe outside diameter [mm]	Channel length between the attachment points [mm]	Number of pipes	Span width (distance between channels) [m] 1.5	2	2.5	3	Number of attachment points (anchor) fastening on cracked concrete ** HKD M8	HKD M10	HUS-I	HUS-P 6	HST M8
15	0.9	18.0	310	2	MM-C-16	x	x	x	2	2	2	2	2
			470	4	MM-C-16	x	x	x	2	2	2	2	2
			630	6	MM-C-16	x	x	x	2	2	2	2	2
20	1.1	22.0	330	2	MM-C-16	MM-C-16	x	x	2	2	2	2	2
			510	4	MM-C-16	MM-C-16	x	x	2	2	2	2	2
			690	6	MM-C-16	MM-C-16	x	x	2	2	2	2	2
25	2.0	28.0	350	2	MM-C-16	MM-C-16	x	x	2	2	2	2	2
			550	4	MM-C-16	MM-C-16	x	x	2	2	2	2	2
			750	6	MM-C-30	MM-C-30	x	x	2	2	2	2	2
32	2.7	35.0	378	2	MM-C-16	MM-C-16	MM-C-16	x	2	2	2	2	2
			606	4	MM-C-16	MM-C-16	MM-C-16	x	2	2	2	2	2
			834	6	MM-C-30	MM-C-30	MM-C-30	x	2	2	2	2	2
40	3.7	42.0	410	2	MM-C-16	MM-C-16	MM-C-16	MM-C-16	2	2	2	2	2
			670	4	MM-C-16	MM-C-30	MM-C-30	MM-C-30	2	2	2	2	2
			930	6	MM-C-30	MM-C-30	MM-C-36	MM-C-36	2	2	2	2	2
50	6.2	54.0	450	2	MM-C-16	MM-C-16	MM-C-16	MM-C-16	2	2	2	2	2
			750	4	MM-C-30	MM-C-30	MM-C-30	MM-C-30	2	2	2	2	2
			1050	6	MM-C-36	MM-C-36	MM-C-36	MM-C-36	3	3	3	3	3
65	10.9	76.1	510	2	MM-C-16	MM-C-16	MM-C-30	MM-C-30	2	2	2	2	2
			870	4	MM-C-36	MM-C-36	MM-C-36	MM-C-36	2	2	2	2	2
			1230	6	MM-C-36	MM-C-45	MM-C-45	MM-C-45	2	2	2	2	2
80	14.2	88.9	360	1	MM-C-16	MM-C-16	MM-C-16	MM-C-16	2	2	2	2	2
			570	2	MM-C-30	MM-C-30	MM-C-30	MM-C-30	2	2	2	2	2
			990	4	MM-C-36	MM-C-36	MM-C-36	MM-C-45	2	2	2	2	2
100	20.9	108.0	400	1	MM-C-16	MM-C-16	MM-C-16	MM-C-30	2	2	2	2	2
			650	2	MM-C-30	MM-C-30	MM-C-30	MM-C-30	2	2	2	2	2
			1150	4	MM-C-36	MM-C-45	MM-C-45	x	2	2	2	2	2

* Pipe weight is water-filled inclusive 100% insulation (according to EnEV 2009 with mit 80 kg/m³)
** The application policy of the anchor approvals must be kept. Load values according to the approvals with the state of October 2013

Selection for metal composite pipes Geberit Mepla
(water- filled, with 100 % insulation)

Pipe DN NW	Pipe weight * [kg/m]	Pipe outside diameter [mm]	Channel length between the attachment points [mm]	Number of pipes	Span width (distance between channels) [m] 1.5	2	2.5	3	Number of attachment points (anchor) fastening on cracked concrete ** HKD M8	HKD M10	HUS-I	HUS-P 6	HST M8
15	0.6	20.0	310	2	MM-C-16	x	x	x	2	2	2	2	2
			470	4	MM-C-16	x	x	x	2	2	2	2	2
			630	6	MM-C-16	x	x	x	2	2	2	2	2
20	0.8	26.0	330	2	MM-C-16	x	x	x	2	2	2	2	2
			510	4	MM-C-16	x	x	x	2	2	2	2	2
			690	6	MM-C-16	x	x	x	2	2	2	2	2
25	1.4	32.0	350	2	MM-C-16	MM-C-16	x	x	2	2	2	2	2
			550	4	MM-C-16	MM-C-16	x	x	2	2	2	2	2
			750	6	MM-C-16	MM-C-30	x	x	2	2	2	2	2
32	2.0	40.0	378	2	MM-C-16	MM-C-16	x	x	2	2	2	2	2
			606	4	MM-C-16	MM-C-16	x	x	2	2	2	2	2
			834	6	MM-C-30	MM-C-30	x	x	2	2	2	2	2
40	3.2	50.0	410	2	MM-C-16	MM-C-16	MM-C-16	x	2	2	2	2	2
			670	4	MM-C-16	MM-C-30	MM-C-30	x	2	2	2	2	2
			930	6	MM-C-30	MM-C-30	MM-C-30	x	2	2	2	2	2
50	5.0	63.0	450	2	MM-C-16	MM-C-16	MM-C-16	x	2	2	2	2	2
			750	4	MM-C-30	MM-C-30	MM-C-30	x	2	2	2	2	2
			1050	6	MM-C-36	MM-C-36	MM-C-36	x	2	2	2	2	2
65	7.2	75.0	510	2	MM-C-16	MM-C-16	MM-C-16	MM-C-16	2	2	2	2	2
			870	4	MM-C-30	MM-C-30	MM-C-36	MM-C-36	2	2	2	2	2
			1230	6	MM-C-36	MM-C-36	MM-C-36	MM-C-45	2	2	2	2	2

* Pipe weight is water-filled inclusive 100% insulation (according to EnEV 2009 with mit 80 kg/m³)
** The application policy of the anchor approvals must be kept. Load values according to the approvals with the state of October 2013

Selection for stainless steel pipes Geberit Mapress (1.4401)
(water-filled, with 100 % insulation)

Pipe DN NW	Pipe weight * [kg/m]	Pipe outside diameter [mm]	Channel length between the attachment points [mm]	Number of pipes	Span width (distance between channels) [m] 1.5	2	2.5	3	Number of attachment points (anchor) fastening on cracked concrete ** HKD M8	HKD M10	HUS-I	HUS-P 6	HST M8
15	0.8	18.0	310	2	MM-C-16	MM-C-16	MM-C-16	x	2	2	2	2	2
			470	4	MM-C-16	MM-C-16	MM-C-16	x	2	2	2	2	2
			630	6	MM-C-16	MM-C-16	MM-C-16	x	2	2	2	2	2
20	1.1	22.0	330	2	MM-C-16	MM-C-16	MM-C-16	MM-C-16	2	2	2	2	2
			510	4	MM-C-16	MM-C-16	MM-C-16	MM-C-16	2	2	2	2	2
			690	6	MM-C-16	MM-C-16	MM-C-16	MM-C-16	2	2	2	2	2
25	1.8	28.0	350	2	MM-C-16	MM-C-16	MM-C-16	MM-C-16	2	2	2	2	2
			550	4	MM-C-16	MM-C-16	MM-C-16	MM-C-16	2	2	2	2	2
			750	6	MM-C-30	MM-C-30	MM-C-30	MM-C-30	2	2	2	2	2
32	2.6	35.0	378	2	MM-C-16	MM-C-16	MM-C-16	MM-C-16	2	2	2	2	2
			606	4	MM-C-16	MM-C-16	MM-C-16	MM-C-16	2	2	2	2	2
			834	6	MM-C-30	MM-C-30	MM-C-30	MM-C-30	2	2	2	2	2
40	3.5	42.0	410	2	MM-C-16	MM-C-16	MM-C-16	MM-C-16	2	2	2	2	2
			670	4	MM-C-16	MM-C-30	MM-C-30	MM-C-30	2	2	2	2	2
			930	6	MM-C-30	MM-C-30	MM-C-30	MM-C-36	2	2	2	2	2
50	5.4	54.0	450	2	MM-C-16	MM-C-16	MM-C-16	MM-C-16	2	2	2	2	2
			750	4	MM-C-30	MM-C-30	MM-C-30	MM-C-30	2	2	2	2	2
			1050	6	MM-C-36	MM-C-36	MM-C-36	MM-C-36	2	2	2	2	2
65	10.5	76.1	510	2	MM-C-16	MM-C-16	MM-C-16	MM-C-30	2	2	2	2	2
			870	4	MM-C-36	MM-C-36	MM-C-36	MM-C-36	2	2	2	2	2
			1230	6	MM-C-36	MM-C-45	MM-C-45	MM-C-45	2	2	2	2	2
80	13.7	88.9	360	1	MM-C-16	MM-C-16	MM-C-16	MM-C-16	2	2	2	2	2
			570	2	MM-C-30	MM-C-30	MM-C-30	MM-C-30	2	2	2	2	2
			990	4	MM-C-36	MM-C-36	MM-C-36	MM-C-45	2	2	2	2	2
100	19.0	108.0	400	1	MM-C-16	MM-C-16	MM-C-16	MM-C-16	2	2	2	2	2
			650	2	MM-C-30	MM-C-30	MM-C-30	MM-C-30	2	2	2	2	2
			1150	4	MM-C-36	MM-C-45	MM-C-45	MM-C-45	2	2	2	2	2

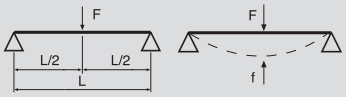
* Pipe weight is water-filled inclusive 100% insulation (according to EnEV 2009 with mit 80 kg/m³)
** The application policy of the anchor approvals must be kept. Load values according to the approvals with the state of October 2013

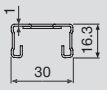
Selection for metal pipes (medium-heavy threaded pipe) according to DIN EN 10255 (water-filled, with 100 % insulation)

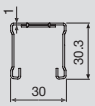
Pipe DN NW	Pipe weight * [kg/m]	Pipe outside diameter [mm]	Channel length between the attachment points [mm]	Number of pipes	Span width (distance between channels) [m] 1.5	2	2.5	3	Number of attachment points (anchor) fastening on cracked concrete ** HKD M8	HKD M10	HUS-I	HUS-P 6	HST M8
15 / ½"	1.6	21.3	310	2	MM-C-16	MM-C-16	x	x	2	2	2	2	2
			470	4	MM-C-16	MM-C-16	x	x	2	2	2	2	2
			630	6	MM-C-16	MM-C-16	x	x	2	2	2	2	2
20 / ¾"	2.2	26.9	330	2	MM-C-16	MM-C-16	x	x	2	2	2	2	2
			510	4	MM-C-16	MM-C-16	x	x	2	2	2	2	2
			690	6	MM-C-16	MM-C-30	x	x	2	2	2	2	2
25 / 1"	3.5	33.7	350	2	MM-C-16	MM-C-16	MM-C-16	x	2	2	2	2	2
			550	4	MM-C-16	MM-C-16	MM-C-30	x	2	2	2	2	2
			750	6	MM-C-30	MM-C-30	MM-C-30	x	2	2	2	2	2
32 / 1 ¼"	4.8	42.4	378	2	MM-C-16	MM-C-16	MM-C-16	MM-C-16	2	2	2	2	2
			606	4	MM-C-30	MM-C-30	MM-C-30	MM-C-30	2	2	2	2	2
			834	6	MM-C-30	MM-C-36	MM-C-36	MM-C-36	2	2	2	2	2
40 / 1 ½"	5.9	48.3	410	2	MM-C-16	MM-C-16	MM-C-16	MM-C-16	2	2	2	2	2
			670	4	MM-C-30	MM-C-30	MM-C-30	MM-C-30	2	2	2	2	2
			930	6	MM-C-36	MM-C-36	MM-C-36	MM-C-36	2	2	2	2	2
50 / 2"	8.8	60.3	450	2	MM-C-16	MM-C-16	MM-C-16	MM-C-16	2	2	2	2	2
			750	4	MM-C-30	MM-C-30	MM-C-36	MM-C-36	2	2	2	2	2
			1050	6	MM-C-36	MM-C-36	MM-C-36	MM-C-45	2	2	2	2	2
65 / 2 ½"	12.7	76.1	510	2	MM-C-16	MM-C-16	MM-C-30	MM-C-30	2	2	2	2	2
			870	4	MM-C-36	MM-C-36	MM-C-36	MM-C-36	2	2	2	2	2
			1230	6	MM-C-36	MM-C-36	MM-C-36	MM-C-36	3	3	3	3	3
80 / 3"	17.0	88.9	360	1	MM-C-16	MM-C-16	MM-C-16	MM-C-16	2	2	2	2	2
			570	2	MM-C-30	MM-C-30	MM-C-30	MM-C-30	2	2	2	2	2
			990	4	MM-C-36	MM-C-36	MM-C-36	MM-C-45	2	2	2	2	2
100 / 4"	26.3	114.3	400	1	MM-C-16	MM-C-16	MM-C-30	MM-C-30	2	2	2	2	2
			650	2	MM-C-30	MM-C-30	MM-C-36	MM-C-36	2	2	2	2	2
			1150	4	MM-C-45	MM-C-45	x	x	2	2	2	2	2

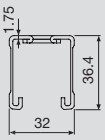
* Pipe weight is water-filled inclusive 100% insulation (according to EnEV 2009 with mit 80 kg/m³)
** The application policy of the anchor approvals must be kept. Load values according to the approvals with the state of October 2013

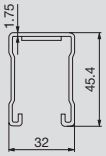
Technical data for channel profile MM (max. span width /deflection at single load)











	Max. Span width L [cm] / deflection f [mm], max. L/200 at single load							
	MM-C-16		MM-C-30		MM-C-36		MM-C-45	
Load F [kN]	**L**	**f**	**L**	**f**	**L**	**f**	**L**	**f**
0.25	67	3	146	7	226	11	294	15
0.50	40	1	104	5	164	8	216	11
0.75	27	<1	72	3	134	7	178	9
1.00	20	<1	54	1	114	5	155	8
1.25	16	<1	43	<1	91	3	134	6
1.50	13	<1	36	<1	76	2	112	4
1.75	11	<1	31	<1	65	2	96	3
2.00	-	-	27	<1	57	1	84	2
2.25	-	-	24	<1	51	1	75	2
2.50	-	-	-	-	46	<1	67	2
2.75	-	-	-	-	41	<1	61	1
3.00	-	-	-	-	38	<1	56	1
3.50	-	-	-	-	32	<1	48	<1
4.00	-	-	-	-	28	<1	42	<1
4.50	-	-	-	-	25	<1	37	<1
5.00	-	-	-	-	22	<1	34	<1

Selection example:

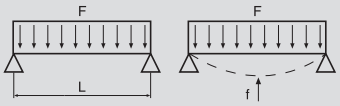
• 1.0 kN (≈ 100 kg) should be carried by a channel with a channel span width L = 100 cm (single span simply supported).

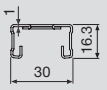
Solution:

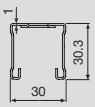
• Select the line with the load, F = 1.0 kN.

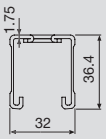
• The channels MM-C-36 to MM-C-45 can be used because the permissible span width (table value) is larger or equal to the required span width of L = 100 cm.

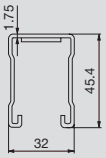
Technical data for channel profile MM (max. span width /deflection at uniform distributed load)





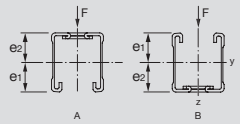
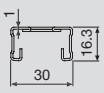
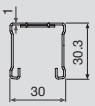
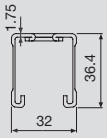
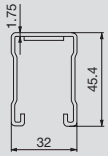






	Max. Span width L [cm] / deflection f [mm], max. L/200 at uniform distributed load							
	MM-C-16		MM-C-30		MM-C-36		MM-C-45	
Load F [kN]	**L**	**f**	**L**	**f**	**L**	**f**	**L**	**f**
0.25	85	4	182	9	277	14	300	10
0.50	60	3	131	7	204	10	267	13
0.75	49	2	107	5	169	8	222	11
1.00	40	2	93	5	147	7	194	10
1.25	32	1	83	4	132	7	174	9
1.50	26	<1	72	3	120	6	160	8
1.75	22	<1	61	2	112	6	148	7
2.00	19	<1	53	2	104	5	139	7
2.25	16	<1	47	1	98	5	131	7
2.50	-	-	42	1	90	4	124	6
2.75	-	-	38	<1	81	3	118	6
3.00	-	-	35	<1	74	3	110	5
3.50	-	-	29	<1	63	2	94	4
4.00	-	-	25	<1	54	1	81	3
4.50	-	-	22	<1	48	1	72	2
5.00	-	-	-	-	42	<1	64	2

Technical data for channel profiles MM (zinced)

Definition of axes							
			MM-C-16	**MM-C-30**	**MM-C-36**	**MM-C-45**
Channel wall thickness	t	[mm]	1.0	1.0	1.75 / 1.0	1.75
Cross-sectional area	A	[mm²]	72.0	100.0	159.0	215.0
Channel weight		[g/m]	565.0	779.0	1287.0	1762.0
Delivered length		[m]	2	2	2 / 3	3 / 6
Material						
Permissible stress	δ_{perm}	[N/mm²]	188.0	188.0	188.0	188.0
Surface						
Sendzimir galvanized			●	●	●	●
Cross-section values Y-axis						
Axis of gravity A [1]	e_1	[mm]	9.26	16.58	19.77	23.78
Axis of gravity B	e_2	[mm]	7.08	13.75	16.74	21.62
Moment of inertia	I_y	[cm⁴]	0.25	1.20	3.01	5.33
Reaction modulus A	W_{y1}	[cm³]	0.27	0.73	1.52	2.24
Reaction modulus B	W_{y2}	[cm³]	0.35	0.88	1.71	2.47
Radius of gyration	i_y	[cm]	0.59	1.10	1.38	1.57
Permissible moment [2]	M_y	[Nm]	50.8	137.2	285.8	421.7
Z-axis						
Moment of inertia	I_z	[cm⁴]	1.03	1.58	2.73	3.94
Reaction modulus	W_z	[cm³]	0.69	1.05	1.71	2.46
Radius of gyration	i_z	[cm]	1.20	1.25	1.31	1.35

•The permissible stress σ_D / $\gamma_{G/Q}$ where γ = 1.4. σ_D results from the higher yield strength (point) resulting from cold forming as per EN 1993-1-3: 2010-12: $\sigma_D = f_{yk} / \gamma_M$ where γ_M = 1.1. According to that results a safety factor of γ=1.54 in comparison with the yield strength.

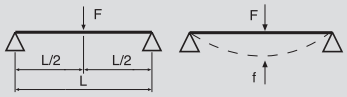
1) For the arithmetical bending dimensioning is the smaller value (W_{y1}, W_{y2}) decisive to ($W_{y1} = I_{y/e1}$ bzw. $W_{y2} = I_{y/e2}$).

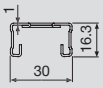
2) $M_y = \delta_{zul}$ x min. (W_{y1}, W_{y2})

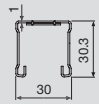
Channel selection: 4

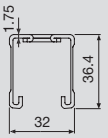
- The given data is based on a single span (simply-supported beam) bearing a single load, F(N), at mid span, L/2.
- If several loads are acting on a single span (simply-supported beam), these may be summated and regarded as a single load acting at mid span. By taking this approach, the design calculation is on the safe side. (→ Channel selection table).
- The permissible stress in the steel and the max. deflection, L/200, are not exceeded with the given max. span widths, L (mm).
- The channel's own weight has been considered.

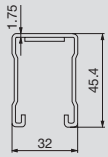
Technical data for channel profiles MM (max. load/ deflection at single load)





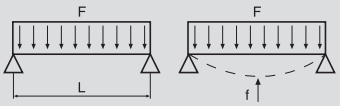


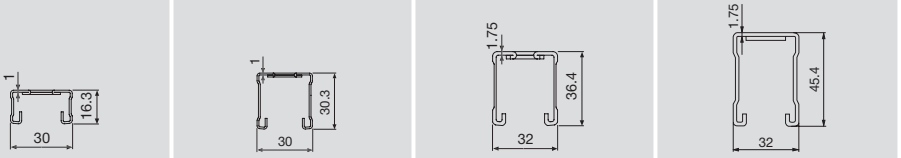




	Max. Load F [kN] / deflection f [mm], max. L/200 at single load							
	MM-C-16		**MM-C-30**		**MM-C-36**		**MM-C-45**	
Span width L [cm]	**F**	**f**	**F**	**f**	**F**	**f**	**F**	**f**
25	0.80	0.6	2.13	0.3	4.32	0.2	6.18	0.2
50	0.40	2.2	1.08	1.2	2.25	1.0	3.29	0.8
75	0.20	3.8	0.72	2.8	1.51	2.3	2.22	1.9
100	0.11	5.0	0.54	5.0	1.14	4.2	1.67	3.5
125	0.07	6.3	0.34	6.3	0.87	6.3	1.34	5.4
150	0.05	7.5	0.24	7.5	0.60	7.5	1.06	7.5
175	0.03	8.8	0.17	8.8	0.43	8.8	0.78	8.8
200	0.02	10.0	0.13	10.0	0.33	10.0	0.59	10.0
225	-	-	-	-	0.25	11.3	0.46	11.3
250	-	-	-	-	0.20	12.5	0.36	12.5
275	-	-	-	-	0.16	13.8	0.29	13.8
300	-	-	-	-	0.13	15.0	0.24	15.0

Technical data for channel profiles MM (max. load / deflection at uniform distributed load)





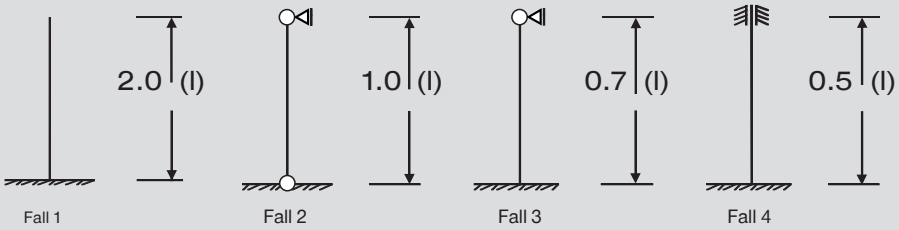
	Max. Load F [kN] / deflection f [mm], max. L/200 at uniform distributed load							
	MM-C-16		MM-C-30		MM-C-36		MM-C-45	
Span width L [cm]	**F**	**f**	**F**	**f**	**F**	**f**	**F**	**f**
25	1.63	0.7	4.36	0.4	9.17	0.3	13.50	0.3
50	0.73	2.5	2.18	1.6	4.58	1.3	6.75	1.1
75	0.32	3.8	1.45	3.5	3.05	2.9	4.49	2.4
100	0.18	5.0	0.87	5.0	2.18	5.0	3.36	4.3
125	0.11	6.3	0.55	6.3	1.39	6.3	2.47	6.3
150	0.07	7.5	0.38	7.5	0.96	7.5	1.70	7.5
175	0.05	8.8	0.27	8.8	0.69	8.8	1.24	8.8
200	0.03	10.0	0.20	10.0	0.52	10.0	0.94	10.0
225	-	-	-	-	0.40	11.3	0.73	11.3
250	-	-	-	-	0.32	12.5	0.58	12.5
275	-	-	-	-	0.26	13.8	0.47	13.8
300	-	-	-	-	0.21	15.0	0.38	15.0

Permissible buckling load for channel profile MM

• Flexural buckling certificate according to EN 1993-1-3: 2006 for C-Profiles (fully supporting cross-section)

Buckling length Sk [cm]	**MM-C-16 permissible buckling load [kN]**	**MM-C-30 permissible buckling load [kN]**	**MM-C-36 permissible buckling load [kN]**	**MM-C-45 permissible buckling load [kN]**
25	11.75	18.20	29.39	39.82
50	7.59	16.01	26.67	36.29
75	4.23	13.00	23.14	31.78
100	2.57	9.66	18.75	26.11
125	1.71	7.02	14.46	20.39
150	-	5.21	11.07	15.73
175	-	3.98	8.61	12.28
200	-	3.13	6.84	9.78
225	-	2.52	5.55	7.94
250	-	2.07	4.58	6.56
275	-	-	3.84	5.51
300	-	-	3.27	4.69
325	-	-	-	4.03
350	-	-	-	-
375	-	-	-	-
400	-	-	-	-

Flexural buckling:
Rod length l (cm) / euler factor β/Sk (cm) effective length = l • β



• $\gamma_{G/Q}$ = 1.4 → F_D* = permissible buckling load 1.4 *(design value)

• Bend table is only valid for centric buckling loads. The values in this table aren't allowed for offset torque/oblique position/lateral-torsional buckling and must be engineered.

Technical data for brackets MM-B

Bracket	L [mm]	Type of load 1: Uniform  F1 [N] HST M10 or HUS-H 8x80/5/20/30	Type of load 2: Single  F1 [N] HST M10 or HUS-H 8x80/5/20/30	Type of load 3  F1 [N] HST M10 or HUS-H 8x80/5/20/30	Type of load 4  F2 [N] HST M10 or HUS-H 8x80/5/20/30	Type of load 5  F3 [N] HST M10 or HUS-H 8x80/5/20/30
MM-B-30/200	200	870	870	430	430	290
MM-B-30/300	300	580	580	290	290	190
MM-B-36/300	300	1230	1230	610	610	410
MM-B-36/450	450	810	810	400	400	270
MM-B-36/600	600	610	610	300	300	200

Technical data for brackets MM-B with angle brace (channel opening facing down)

Bracket	L [mm]	Type of load 1: Uniform  F1 [N] HST M10 or HUS-H 8x80/5/20/30	Type of load 2: Single  F1 [N] HST M10 or HUS-H 8x80/5/20/30	Type of load 3  F1 [N] HST M10 or HUS-H 8x80/5/20/30	Type of load 4  F2 [N] HST M10 or HUS-H 8x80/5/20/30	Type of load 5  F3 [N] HST M10 or HUS-H 8x80/5/20/30
MM-B-30/200	200	2990	2730	1490	1490	990
MM-B-30/300	300	1990	1990	990	990	660
MM-B-36/300	300	1990	1990	990	990	660
MM-B-36/450	450	1320	1320	660	660	440
MM-B-36/600	600	990	990	470	490	330

Technical data for brackets MM-B with angle brace (channel opening facing up)

Bracket	L [mm]	Type of load 1: Uniform  F1 [N] HST M10 or HUS-H 8x80/5/20/30	Type of load 2: Single  F1 [N] HST M10 or HUS-H 8x80/5/20/30	Type of load 3  F1 [N] HST M10 or HUS-H 8x80/5/20/30	Type of load 4  F2 [N] HST M10 or HUS-H 8x80/5/20/30	Type of load 5  F3 [N] HST M10 or HUS-H 8x80/5/20/30
MM-B-30/200	200	4590	2730	2290	2050	1360
MM-B-30/300	300	3060	3060	1360	1530	1020
MM-B-36/300	300	3060	3060	1530	1530	1020
MM-B-36/450	450	2030	2030	1010	1010	670
MM-B-36/600	600	1520	1520	470	760	500

- Load values are for grade ≥ C20/25 concrete.
- The bracket's own weight has been considered.
- The load's apply only if the bracket is fastened away from abuilding component edge (fastenings made at component edges must be designed separately).
- Separate verification must be provided that forces are transferred to the respective base material, i.e. steel and concrete.
- The application guidelines in anchor approvals must be observed. Loading values according to approval status October 2013.
- The deflection (deformation) of L/150 was observed in all cases, this being measured at the point of load application.