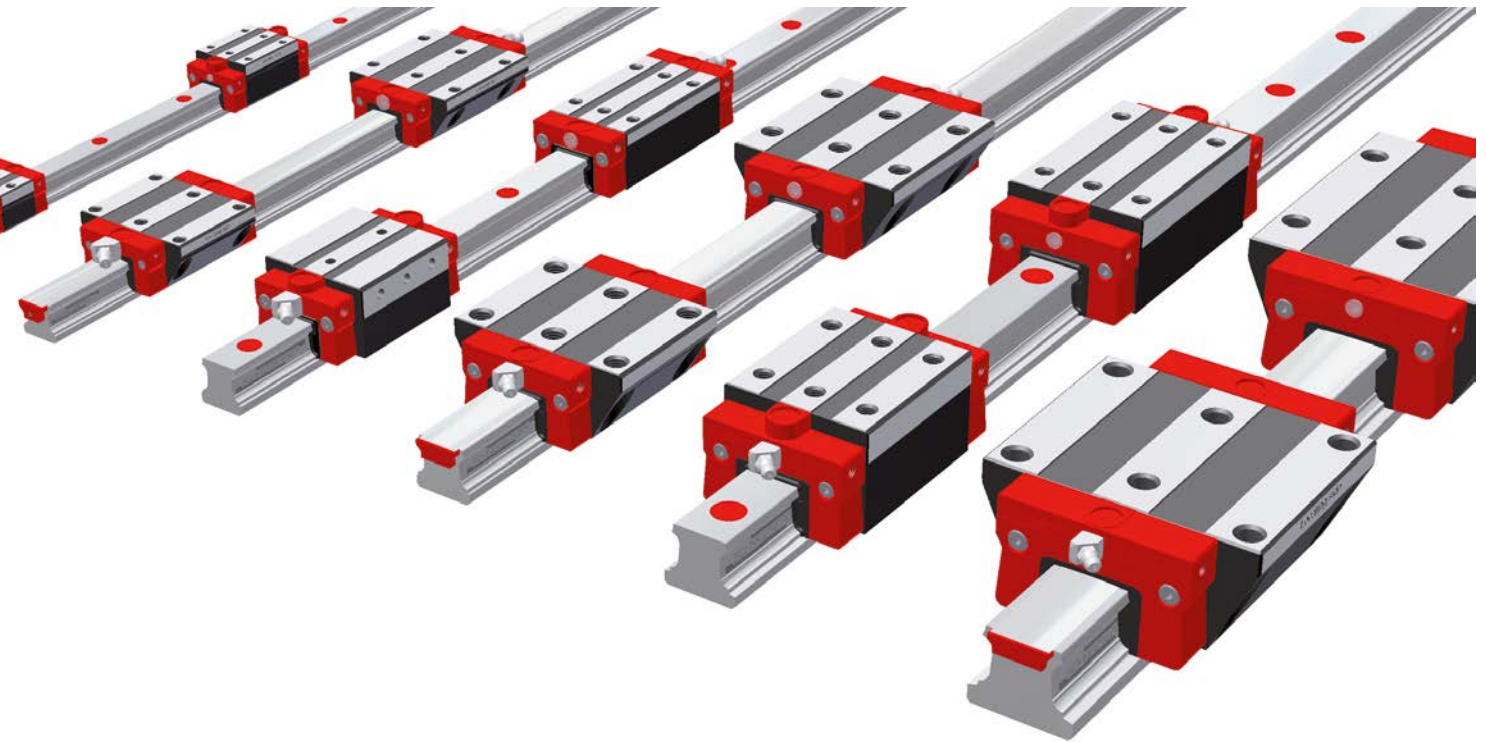


4.0 MONORAIL BM

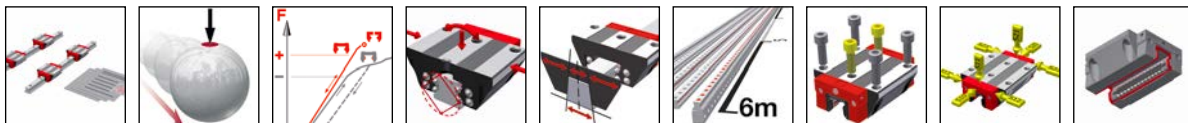
SCHNEEBERGER
LINEAR TECHNOLOGY



Very good dynamic characteristics and superb economy are the distinguishing features of the MONORAIL BM ball guideway. Thanks to the small number of transitions in the ball tracks, this novel design with its low number of optimally designed components provides outstanding running characteristics, which are distinguished by smooth running, low pulsation, reduced friction values and high travelling speeds.

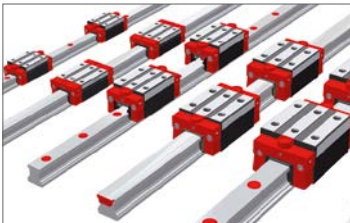
The trapezoidal rail section guideway results in a highly rigid guideway and also substantially reduces the amount of maintenance required since parts subject to wear can be replaced without the need to dismantle the guideway. Complete sealing of the carriages is a guarantee of unparalleled reliability matched by a long service life. This robust and versatile guideway thus ideally complements the MONORAIL MR roller guideway.

Features of System MONORAIL BM



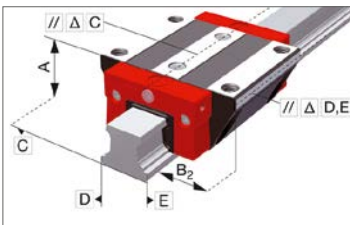
Details see chapter 1

4.1 Overview of types, sizes and available options 66



Product overview BM Rails	66
Product overview BM Carriages	67

4.2 Technical data and options 68



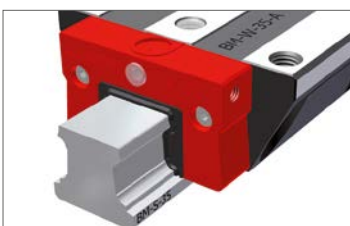
BM Size 15	68
BM Size 20	70
BM Size 25	72
BM Size 30	74
BM Size 35	76
BM Size 45	78

4.3 Accessories MONORAIL BM 80



Accessories overview	80
BM Rails accessory details	81
BM Carriages accessory details	83

4.4 Order key 86



Order code for BM Rails	86
Order code for BM Carriages	86

4.1 Overview of types, sizes and available options

BM Rails

Product overview BM Rails

							
	N standard	ND standard, through hardened	NXD standard, half pitch, through hardened	NU with tapped holes at the bottom	C for cover strip	CD for cover strip, through hardened	
Buildsizes / Rail build forms							
Size 15	BM S 15-N	BM S 15-ND	BM S 15-NXD	BM S 15-NU		BM S 15-CD	
Size 20	BM S 20-N			BM S 20-NU	BM S 20-C		
Size 25	BM S 25-N			BM S 25-NU	BM S 25-C		
Size 30	BM S 30-N			BM S 30-NU	BM S 30-C		
Size 35	BM S 35-N			BM S 35-NU	BM S 35-C		
Size 45	BM S 45-N			BM S 45-NU	BM S 45-C		
Features							
Screwable from above	•	•	•		•	•	
Screwable from below				•			
Small assembly effort				•	•	•	
Highly accurate mounting without lateral locating surface			•				
Great single-part system length	•			•	•		
For the support of metal covers		•	•				

Available options for BM Rails

Details see chapter 2

Accuracy

-  G0 Highly accurate
-  G1 Very accurate
-  G2 Accurate
-  G3 Standard

Straightness

-  KC Standard

Reference side

-  R1 Ref. at bottom
-  R2 Ref. on top

Coating

-  CN None
-  CH Hard chromium

Available accessories for BM Rails

Details see chapter 4.3

Plugs

Cover strips

Assembly tools

4.1 Overview of types, sizes and available options

BM Carriages

Product overview BM Carriages

													
	A standard B standard, long	C compact, high D compact, high, long	E compact, high, for lateral fixation	F compact G compact, long	H standard, low J standard, low, short	K compact, low, short	L compact, low	M standard, short N compact, short					
Buildsizes / Carriage build forms													
BM W 15-	A	B	C	D		F	G		J	K			
BM W 20-	A	B	C	D				H	J	K	L		N
BM W 25-	A	B	C	D	E	F	G	H	J	K	L		
BM W 30-	A	B	C	D	E	F	G	H	J		L	M	N
BM W 35-	A	B	C	D	E	F	G	H	J		L	M	N
BM W 45-	A	B	C	D		F	G						
Features													
Screwable from above	●	●	●	●		●	●	●	●	●	●	●	●
Screwable from below	●	●						●	●			●	
Screwable from the side					●								
For high loads and moments		●		●			●						
For medium loads and moments	●		●		●	●		●	●	●	●	●	●
For limited installation space						●	●		●	●	●	●	●

Available options for BM Carriages

Details see chapter 2

Accuracy

-  G0 Highly accurate
-  G1 Very accurate
-  G2 Accurate
-  G3 Standard

Preload

-  V0 Very low
-  V1 Low
-  V2 Mittel
-  V3 High

Reference side

-  R1 Ref. at bottom
-  R2 Ref. on top

Coating

-  CN None
-  CH Hard chromium

Lube connections

-  S10 Left center
-  S20 Right center
-  S11 Top left
-  S21 Top right
-  S12 Lower left side
-  S22 Lower right side

-  S13 Upper left side
-  S23 Upper right side
-  S32 Left side
-  S42 Right side

Lubrication

-  LN Oil protect
-  LG Grease protect
-  LV Full greasing

Available accessories for MR Carriages

Details see chapter 4.3 and 2.1

Additional wipers ^{1, 2, 3, 4}
Front plates
Metal wiper ^{1, 2, 3, 4}

Bellows ^{1, 2, 3, 4}
Lube nipples

Assembly rails
Lube adapters

Lubrication plates ^{1, 2, 3, 4}
Smooth-running wipers

¹ does not apply for type H

² does not apply for type J

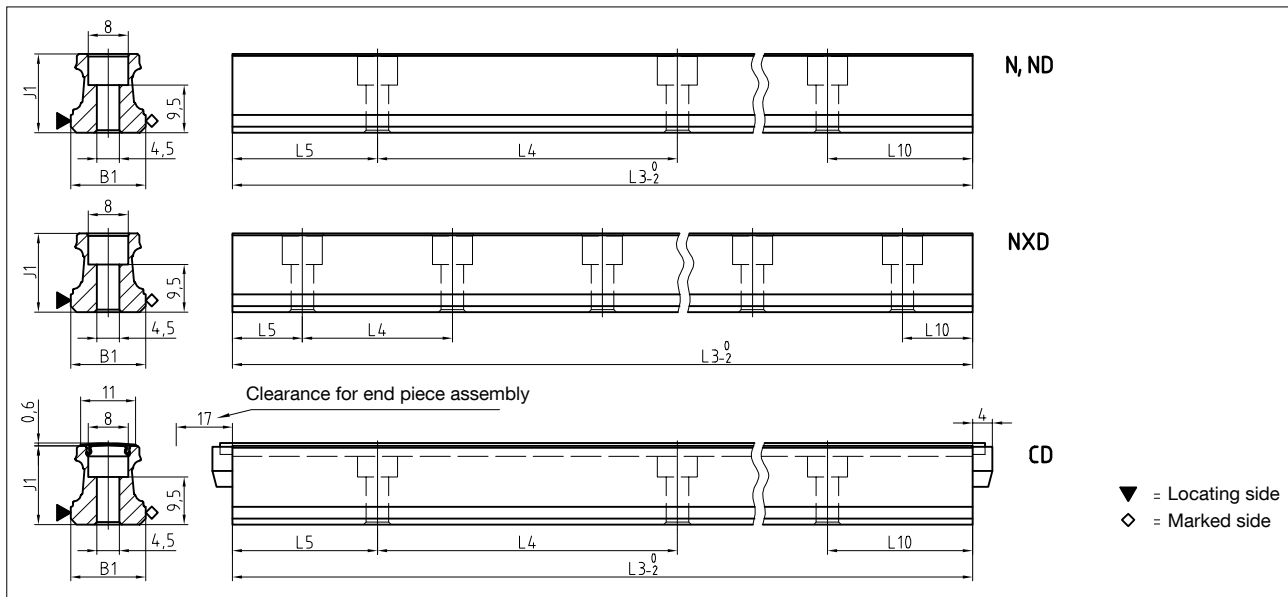
³ does not apply for type K

⁴ does not apply for type L

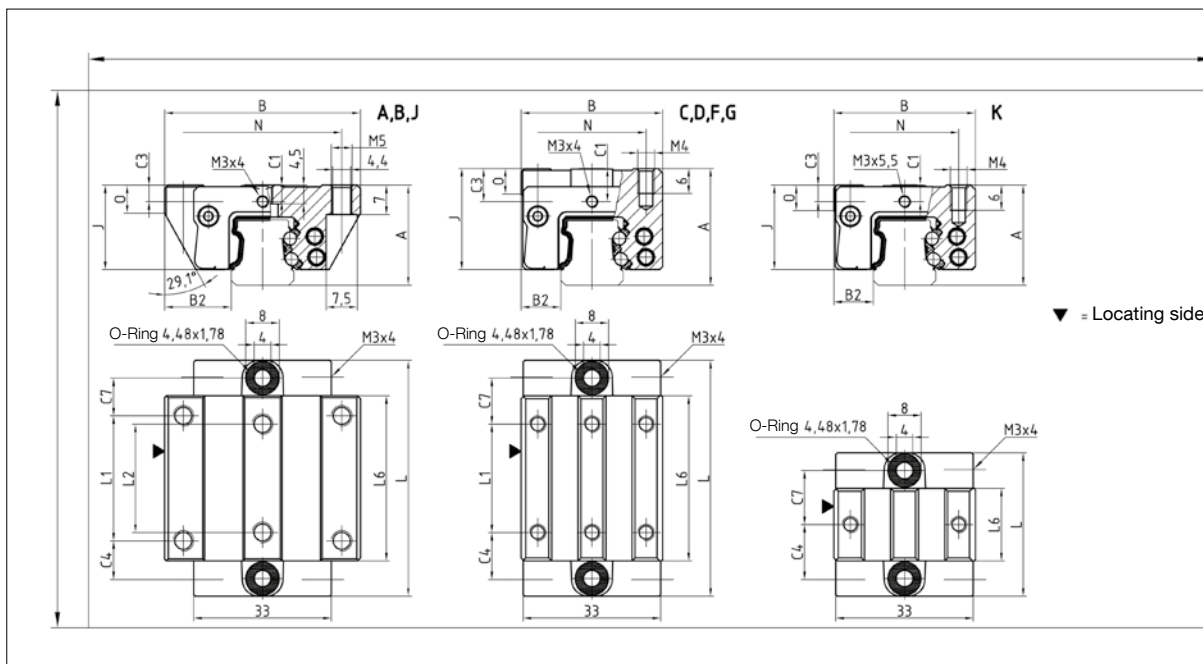
4.2 Technical data and options

BM Size 15

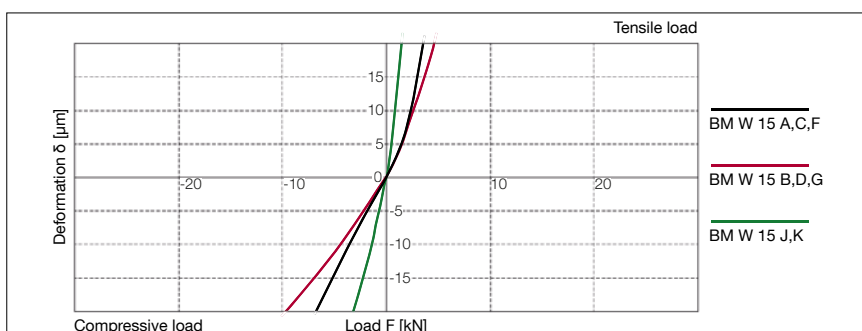
BM S 15 Drawings



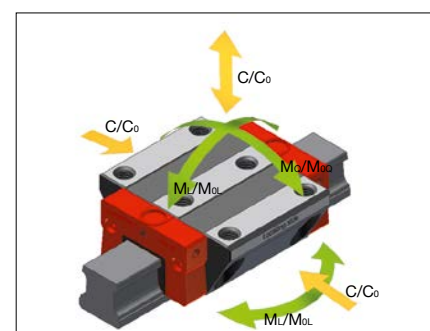
BM W 15 Drawings



BM W 15 Rigidity diagram



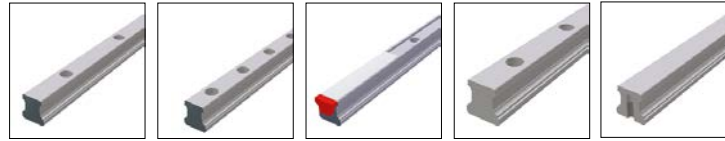
BM W 15 Load rating



4.2 Technical data and options

BM Size 15

BM S 15 Dimensions



	BM S 15-ND	BM S 15-NXD	BM S 15-CD	BM S 15-N	BM S 15-NU
B1: Rail width	15	15	15	15	15
J1: Rail height	15.7	15.7	15.7	15.7	15.7
L3: Rail length max.	1500	1500	1500	3000	3000
L4: Spacing of fixing holes	60	30	60	60	60
L5/L10: Position of first/last fixing hole	28.5	13.5	28.5	28.5	28.5
Gew.: Rail weight, specific (kg/m)	1.4	1.4	1.3	1.4	1.4

Available options for BM S 15



BM W 15 Dimensions and capacities



	BM W 15-A		BM W 15-B		BM W 15-C		BM W 15-D		BM W 15-F		BM W 15-G		BM W 15-J	BM W 15-K
A: System height	24	24	28	28	24	24	24	24	24	24	24	24	24	24
B: Carriage width	47	47	34	34	34	34	52	34	34	34	52	34	34	34
B2: Distance between locating faces	16	16	9.5	9.5	9.5	9.5	18.5	9.5	9.5	9.5	18.5	9.5	9.5	9.5
C1: Position of center front lube hole	4	4	8	8	4	4	4	4	4	4	4	4	4	4
C3: Position of lateral lube hole	4	4	8	8	4	4	4	4	4	4	4	4	4	4
C4: Position of lateral lube hole	9.3	17.3	11.3	19.3	11.3	19.3	14.8	14.8	11.3	19.3	14.8	14.8	14.8	14.8
C7: Position of top lube hole	9.1	17	11.1	19	11.1	19	14.6	14.6	11.1	19	14.6	14.6	14.6	14.6
J: Carriage height	20.2	20.2	24.2	24.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2
L: Carriage length	56.6	72.5	56.6	72.5	56.6	72.5	37.6	37.6	56.6	72.5	37.6	37.6	37.6	37.6
L1: Exterior fixing hole spacing	30	30	26	26	26	26	-	-	26	26	-	-	-	-
L2: Interior fixing hole spacing	26	26	-	-	-	-	-	-	-	-	-	-	-	-
L6: Steel body length	39.6	55.5	39.6	55.5	39.6	55.5	20.6	20.6	39.6	55.5	20.6	20.6	20.6	20.6
N: Lateral fixing hole spacing	38	38	26	26	26	26	41	26	26	26	41	26	26	26
O: Reference face height	7	7	6	6	6	6	6	6	6	6	6	6	6	6
Capacities and weights														
C0: Static load capacity (N)	19600	22900	19600	22900	19600	22900	8500	8500	19600	22900	8500	8500	8500	8500
C100: Dynamic load capacity (N)	9000	11400	9000	11400	9000	11400	5200	5200	9000	11400	5200	5200	5200	5200
MOQ: Static cross moment capacity (Nm)	181	218	181	218	181	218	78	78	181	218	78	78	78	78
MOL: Static longitud. moment capacity (Nm)	146	198	146	198	146	198	30	30	146	198	30	30	30	30
MQ: Dyn. cross moment capacity (Nm)	83	108	83	108	83	108	48	48	83	108	48	48	48	48
ML: Dyn. longitud. moment capacity (Nm)	67	96	67	96	67	96	18	18	67	96	18	18	18	18
Gew: Carriage weight (kg)	0.2	0.3	0.3	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2

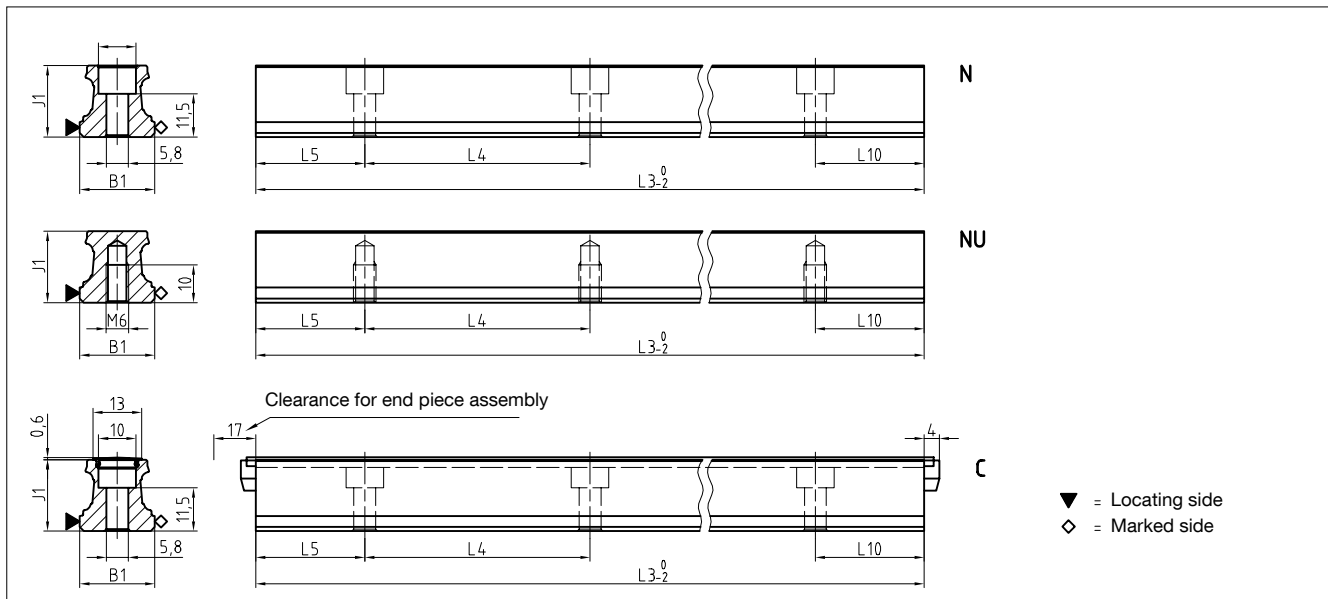
Available options for BM W 15



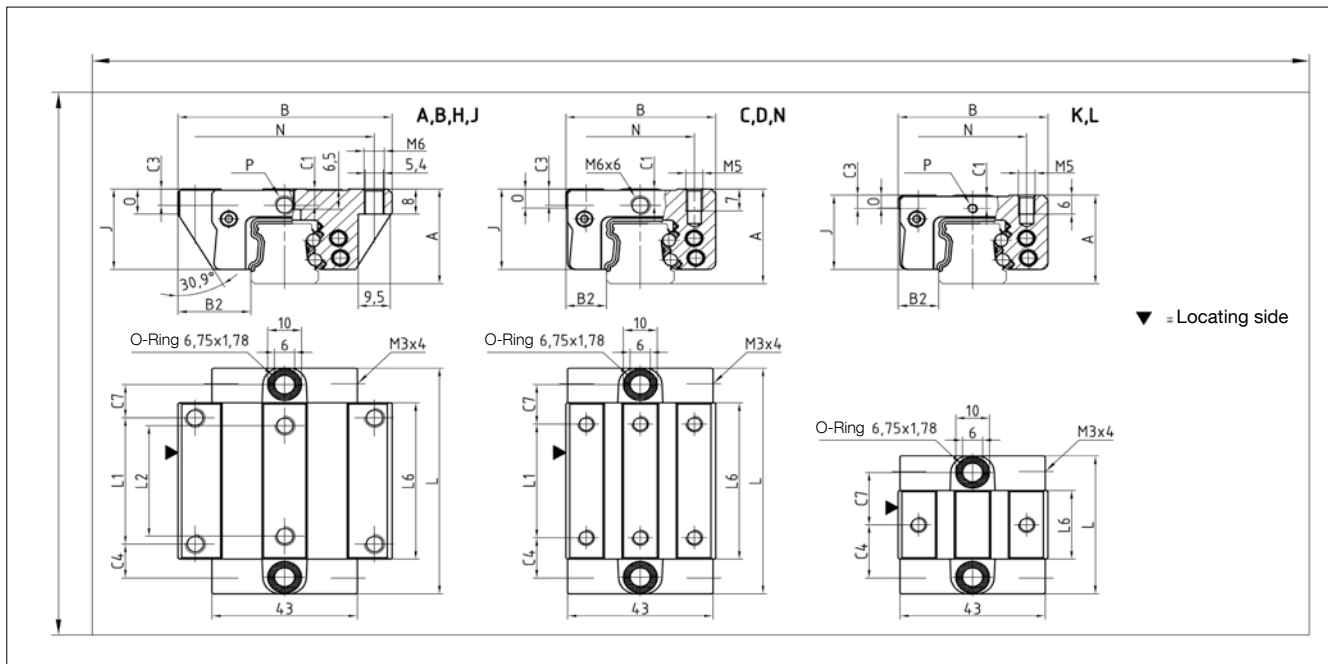
4.2 Technical data and options

BM Size 20

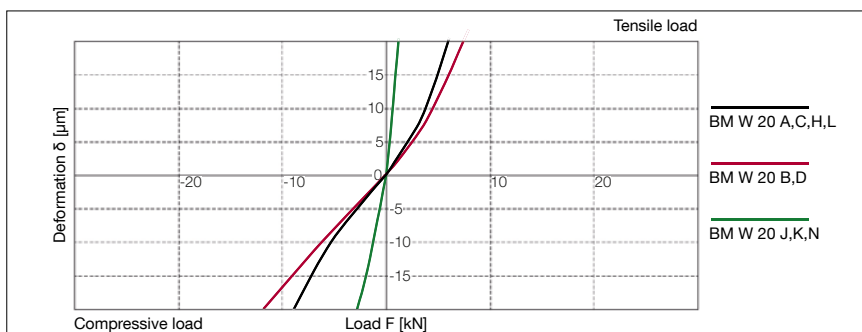
BM S 20 Drawings



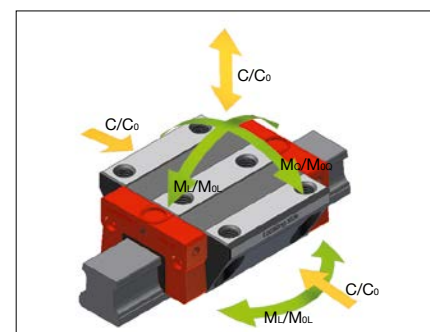
BM W 20 Drawings



BM W 20 Rigidity diagram



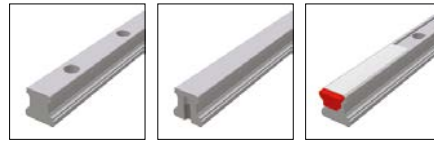
BM W 20 Load rating



4.2 Technical data and options

BM Size 20

BM S 20 Dimensions



	BM S 20-N	BM S 20-NU	BM S 20-C			
B1: Rail width	20	20	20			
J1: Rail height	19	19	19			
L3: Rail length max.	3000	3000	3000			
L4: Spacing of fixing holes	60	60	60			
L5/L10: Position of first/last fixing hole	28.5	28.5	28.5			
Gew.: Rail weight, specific (kg/m)	2.2	2.3	2.1			

Available options for BM S 20



BM W 20 Dimensions and capacities



	BM W 20-A	BM W 20-B	BM W 20-C	BM W 20-D	BM W 20-H	BM W 20-J	BM W 20-K	BM W 20-L	BM W 20-N		
A: System height	30	30	30	30	28	28	28	28	30		
B: Carriage width	63	63	44	44	59	59	44	42	44		
B2: Distance between locating faces	21.5	21.5	12	12	19.5	19.5	12	11	12		
C1: Position of center front lube hole	5.2	5.2	5.2	5.2	4	4	4	4	5.2		
C3: Position of lateral lube hole	5.2	5.2	5.2	5.2	3.2	3.2	3.2	3.2	5.2		
C4: Position of lateral lube hole	10.8	18.8	12.8	13.8	14.8	18.9	18.9	14.8	18.9		
C7: Position of top lube hole	10.3	18.3	12.3	13.3	14.3	18.4	18.4	14.3	18.4		
J: Carriage height	25.5	25.5	25.5	25.5	23.5	23.5	23.5	23.5	25.5		
L: Carriage length	71.5	87.5	71.5	87.5	71.5	47.7	47.7	71.5	47.7		
L1: Exterior fixing hole space	40	40	36	50	32	-	-	32	-		
L2: Interior fixing hole space	35	35	-	-	-	-	-	-	-		
L6: Steel body length	49.5	65.5	49.5	65.5	49.5	25.7	25.7	49.5	25.7		
N: Lateral fixing hole spacing	53	53	32	32	49	49	32	32	32		
O: Reference face height	8.5	8.5	6.5	6.5	10	10	6.5	6.5	6.5		
P: Connecting thread (MxL)	6x6	6x6	6x6	6x6	3x5.5	3x5.5	3x5.5	3x5.5	6x6		
Capacities and weights											
C0: Static load capacity (N)	31400	41100	31400	41100	31400	13100	13100	31400	13100		
C100: Dynamic load capacity (N)	14400	17400	14400	17400	14400	8400	8400	14400	8400		
MOQ: Static cross moment capacity (Nm)	373	490	373	490	373	150	150	373	150		
MOL: Static longitud. moment capacity (Nm)	292	495	292	495	292	58	58	292	58		
MQ: Dyn. cross moment capacity (Nm)	171	206	171	206	171	99	99	171	99		
ML: Dyn. longitude moment capacity (Nm)	134	208	134	208	134	37	37	134	37		
Gew: Carriage weight (kg)	0.5	0.6	0.4	0.5	0.4	0.3	0.3	0.4	0.3		

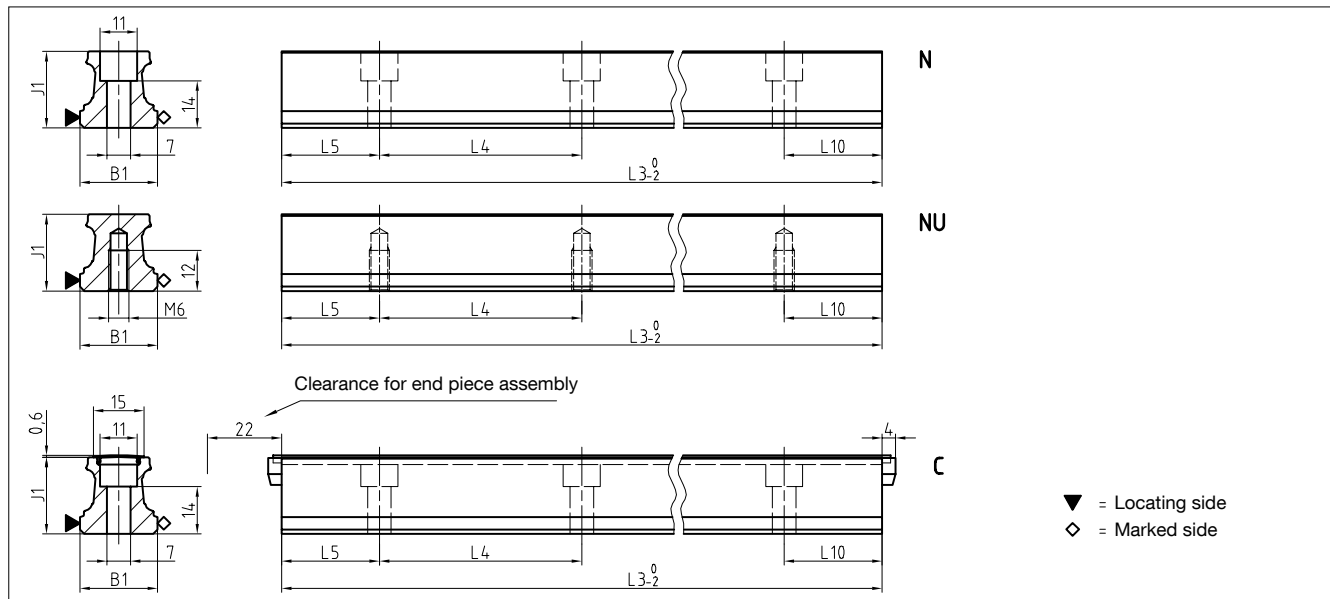
Available options for BM W 20



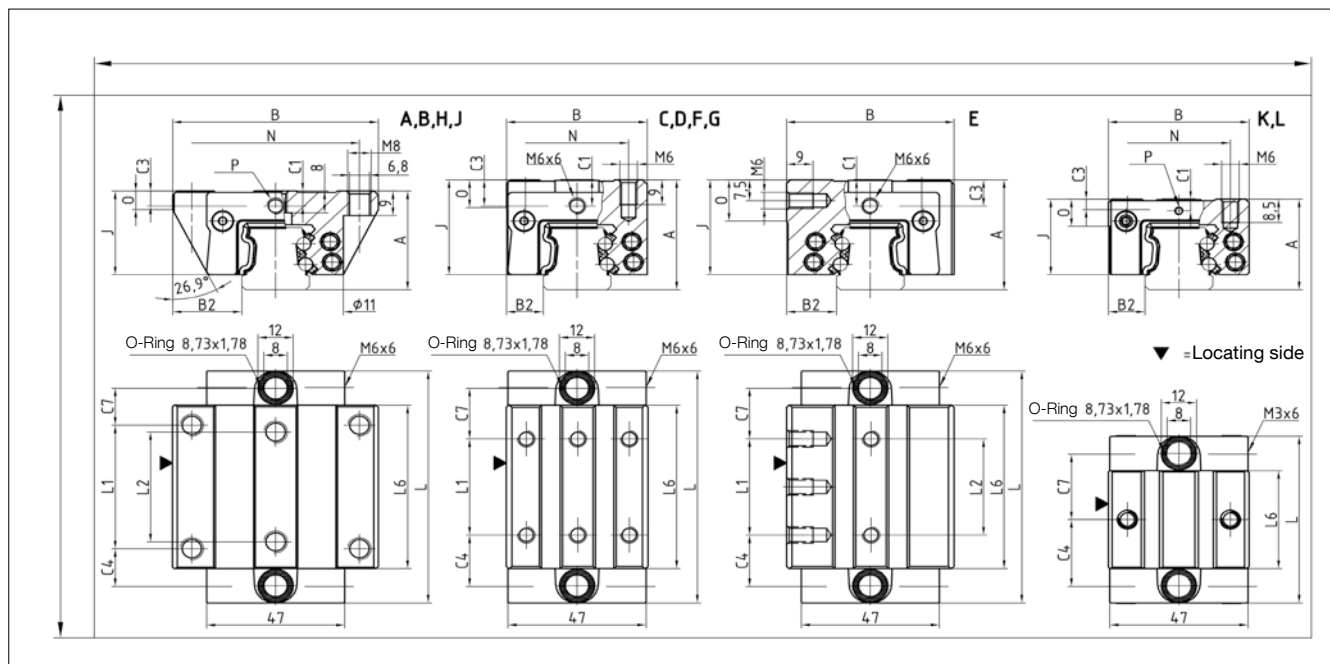
4.2 Technical data and options

BM Size 25

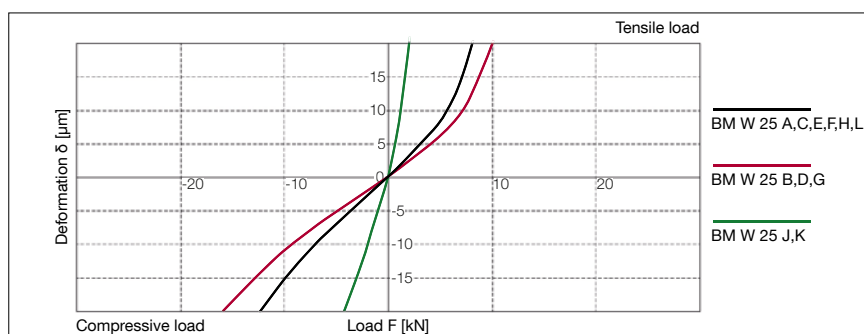
BM S 25 Drawings



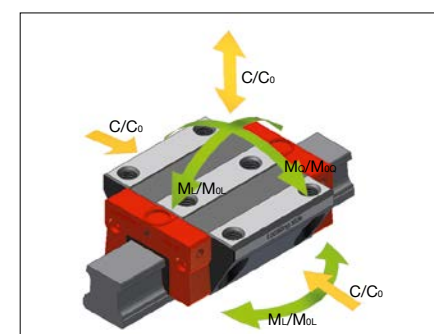
BM W 25 Drawings



BM W 25 Rigidity diagram



BM W 25 Load rating



4.2 Technical data and options

BM Size 25

BM S 25 Dimensions



	BM S 25-N	BM S 25-NU	BM S 25-C			
B1: Rail width	23	23	23			
J1: Rail height	22.7	22.7	22.7			
L3: Rail length max.	6000	6000	3000			
L4: Spacing of fixing holes	60	60	60			
L5/L10: Position of first/last fixing hole	28.5	28.5	28.5			
Gew.: Rail weight, specific (kg/m)	3.0	3.1	2.8			

Available options for BM S 25



BM W 25 Dimensions and capacities



	BM W 25-A	BM W 25-B	BM W 25-C	BM W 25-D	BM W 25-E	BM W 25-F	BM W 25-G	BM W 25-H	BM W 25-J	BM W 25-K	BM W 25-L	
A: System height	36	36	40	40	40	36	36	33	33	33	33	
B: Carriage width	70	70	48	48	57	48	48	73	73	48	48	
B2: Distance between locating faces	23.5	23.5	12.5	12.5	17	12.5	12.5	25	25	12.5	12.5	
C1: Position of center front lube	5.5	5.5	9.5	9.5	9.5	5.5	5.5	4.3	4.3	4.3	4.3	
C3: Position of lateral lube hole	5.5	5.5	9.5	9.5	9.5	5.5	5.5	3.8	3.8	3.8	3.8	
C4: Position of lateral lube hole	13.8	23.3	18.8	20.8	18.8	18.8	20.8	18.8	24.4	24.4	18.8	
C7: Position of top lube hole	13.5	23	18.5	20.5	18.5	18.5	20.5	18.5	24.1	24.1	18.5	
J: Carriage height	30.5	30.5	34.5	34.5	34.5	30.5	30.5	27.5	27.5	27.5	27.5	
L: Carriage length	84.5	103.5	84.5	103.5	84.5	84.5	103.5	84.5	60.7	60.7	84.5	
L1: Exterior fixing hole spacing	45	45	35	50	35	35	50	35	-	-	35	
L2: Interior fixing hole spacing	40	40	-	-	35	-	-	-	-	-	-	
L6: Steel body length	59.5	78.5	59.5	78.5	59.5	59.5	78.5	59.5	35.7	35.7	59.5	
N: Lateral fixing hole spacing	57	57	35	35	-	35	35	60	60	35	35	
O: Reference face height	7	7	10	10	15	10	10	8	8	9.5	9.5	
P: Connecting thread (MxL)	6x6	6x6	6x6	6x6	6x6	6x6	6x6	3x6	3x6	3x6	3x6	
Capacities and weights												
C0: Static load capacity (N)	46100	60300	46100	60300	46100	46100	60300	46100	18200	18200	46100	
C100: Dynamic load capacity (N)	21100	25500	21100	25500	21100	21100	25500	21100	12800	12800	21100	
MOQ: Static cross moment capacity (Nm)	631	825	631	825	631	631	825	631	251	251	631	
MOL: Static longitud. moment capacity (Nm)	513	863	513	863	513	513	863	513	101	101	513	
MQ: Dyn. cross moment capacity (Nm)	289	349	289	349	289	289	349	289	176	176	289	
ML: Dyn. longitud. moment capacity (Nm)	235	365	235	365	235	235	365	235	71	71	235	
Gew: Carriage weight (kg)	0.7	0.9	0.6	0.8	0.7	0.6	0.7	0.6	0.4	0.3	0.4	

Available options for BM W 25



Technical drawings of three types of end pieces: N, NU, and C.

End Piece N: Cross-section shows a base width B1, a central width of 9, and a top width of 15. The height is 14.5. The side view shows a total length of $L3-2^{0/-2}$ with segments L5, L4, and L10.

End Piece NU: Cross-section shows a base width B1, a central width of M8, and a top width of 15. The height is 15. The side view shows a total length of $L3-2^{0/-2}$ with segments L5, L4, and L10.

End Piece C: Cross-section shows a base width B1, a central width of 9, and a top width of 15. The height is 14.5. The side view shows a total length of $L3-2^{0/-2}$ with segments L5, L4, and L10. A clearance of 22 is indicated for the end piece assembly.

Legend:

- ▼ = Locating side
- ◇ = Marked side

[illegible]

The graph shows the deflection δ in μm on the y-axis (ranging from -15 to 15) against the load F in kN on the x-axis (ranging from -20 to 20). The x-axis is labeled 'Compressive load' for negative values and 'Tensile load' for positive values. Three curves are plotted:

- BM W 30 A,C,E,F,H,L** (Black line): Shows a non-linear relationship, with deflection increasing more rapidly as tensile load increases.
- BM W 30 B,D,G** (Red line): Shows a non-linear relationship, with deflection increasing more rapidly as compressive load increases.
- BM W 30 J,M,N** (Green line): Shows a linear relationship, passing through the origin with a steeper slope than the other two beams.

A 3D perspective diagram of a mechanical assembly, likely a bearing or a joint. It shows a grey cylindrical component with a red rectangular block attached to its side. Several contact points are highlighted with green curved arrows and labels: C/C_0 at the top and bottom, M_L/M_{0L} on the left side, and M_3/M_{03} on the right side. Yellow arrows indicate the direction of forces or moments at these points.

4.2 Technical data and options

BM Size 30

BM S 30 Dimensions



	BM S 30-N	BM S 30-NU	BM S 30-C			
B1: Rail width	28	28	28			
J1: Rail height	26	26	26			
L3: Rail length max.	6000	6000	6000			
L4: Spacing of fixing holes	80	80	80			
L5/L10: Position of first/last fixing hole	38.5	38.5	38.5			
Gew: Rail weight, specific (kg/m)	4.3	4.5	4.1			

Available options for BM S 30



BM W 30 Dimensions and capacities



	BM W 30-A	BM W 30-B	BM W 30-C	BM W 30-D	BM W 30-E	BM W 30-F	BM W 30-G	BM W 30-H	BM W 30-J	BM W 30-L	BM W 30-N	BM W 30-M
A: System height	42	42	45	45	42	42	42	38	38	38	42	42
B: Carriage width	90	90	60	60	62	60	60	90	90	60	60	90
B2: Distance between locating faces	31	31	16	16	17	16	16	31	31	16	16	31
C1: Position of center front lube	7	7	10	10	10	7	7	5.2	5.2	5.2	7	7
C3: Position of lateral lube hole	7	7	10	10	10	7	7	4.7	4.7	4.7	7	7
C4: Position of lateral lube hole	16.2	27.2	22.2	23.2	22.2	22.2	23.2	16.2	28.3	22.2	28.3	28.3
C7: Position of top lube hole	15.7	26.7	21.7	22.7	21.7	21.7	22.7	15.7	27.8	21.7	27.8	27.8
J: Carriage height	35.9	35.9	38.9	38.9	38.9	35.9	35.9	31.9	31.9	31.9	35.9	35.9
L: Carriage length	97.4	119.4	97.4	119.4	97.4	97.4	119.4	97.4	69.6	97.4	69.6	69.6
L1: Exterior fixing hole spacing	52	52	40	60	40	40	60	52	-	40	-	-
L2: Interior fixing hole spacing	44	44	-	-	40	-	-	-	-	-	-	-
L6: Steel body length	69.4	91.4	69.4	91.4	69.4	69.4	91.4	69.4	41.6	69.4	41.6	41.6
N: Lateral fixing hole spacing	72	72	40	40	-	40	40	72	72	40	40	72
O: Reference face height	8	8	11	11	17	11	11	8	8	11	11	8
P: Connecting thread (MxL)	6x6	6x6	6x6	6x6	6x6	6x6	6x6	3x5.5	3x5.5	3x5.5	6x6	6x6
Capacities and weights												
C0: Static load capacity (N)	63700	83300	63700	83300	63700	63700	83300	63700	24700	63700	24700	24700
C100: Dynamic load capacity (N)	29200	35300	29200	35300	29200	29200	35300	29200	17500	29200	17500	17500
MOQ: Static cross moment capacity (Nm)	1084	1414	1084	1414	1084	1084	1414	1084	434	1084	434	434
MOL: Static longitud. moment capacity (Nm)	829	1390	829	1390	829	829	1390	829	161	829	161	161
MQ: Dyn. cross moment capacity (Nm)	497	599	497	599	497	497	599	497	308	497	308	308
ML: Dyn. longitud. moment capacity (Nm)	380	589	380	589	380	380	589	380	113	380	113	113
Gew: Carriage weight (kg)	1.2	1.5	1.0	1.3	1.0	0.9	1.2	1.0	0.8	1.0	0.6	0.8

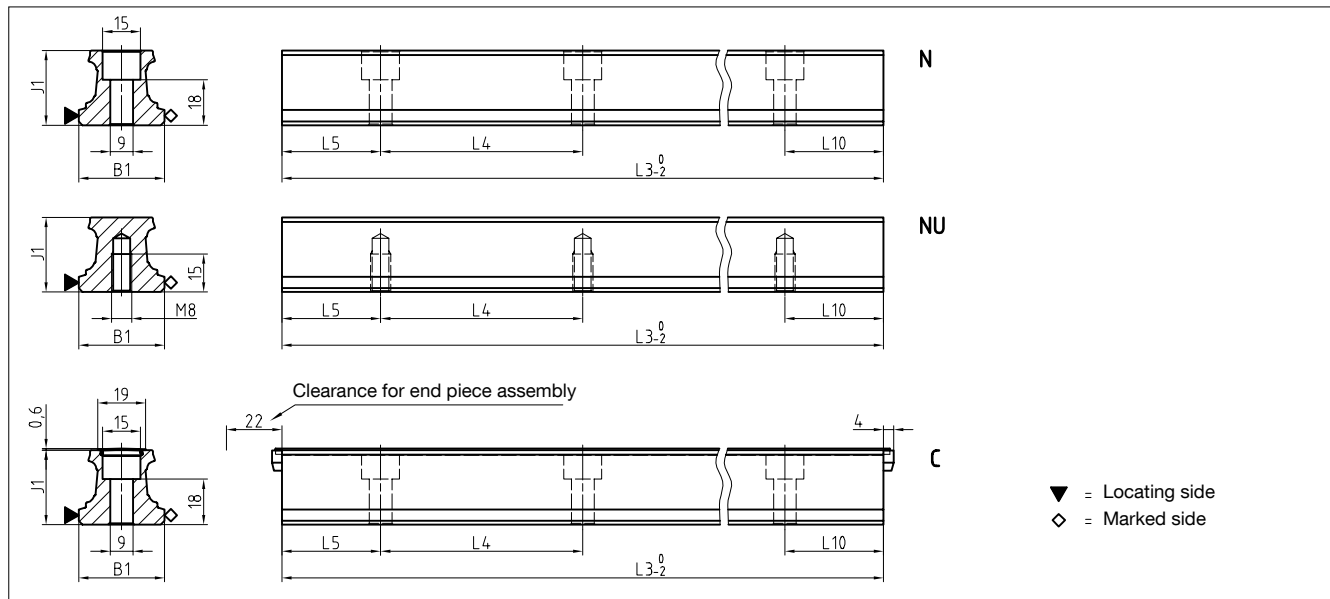
Available options for BM W 30



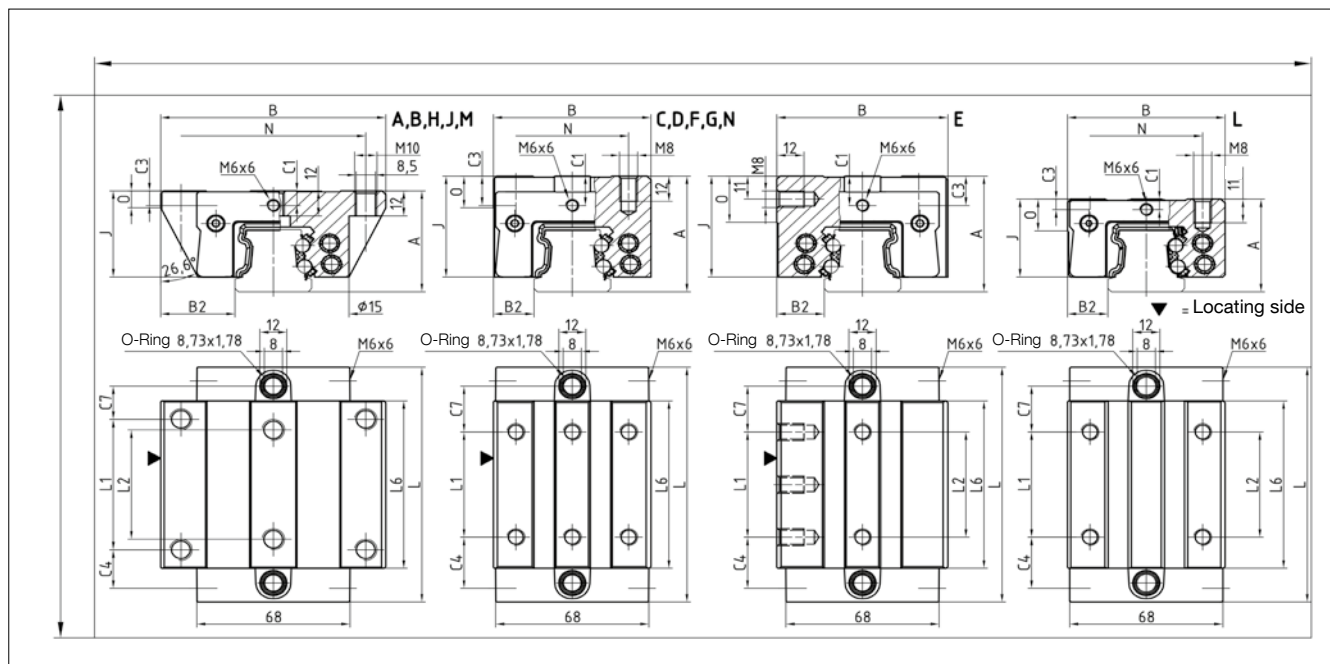
4.2 Technical data and options

BM Size 35

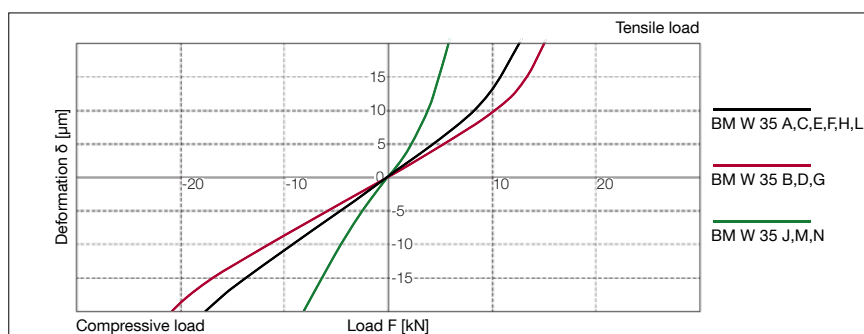
BM S 35 Drawings



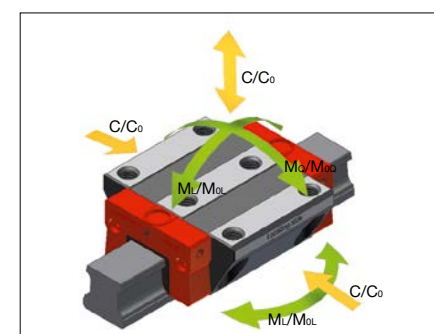
BM W 35 Drawings



BM W 35 Rigidity diagram



BM W 35 Load rating



4.2 Technical data and options

BM Size 35

BM S 35 Dimensions



	BM S 35-N	BM S 35-NU	BM S 35-C			
B1: Rail width	34	34	34			
J1: Rail height	29.5	29.5	29.5			
L3: Rail length max.	6000	6000	6000			
L4: Spacing of fixing holes	80	80	80			
L5/L10: Position of first/last fixing hole	38.5	38.5	38.5			
Gew: Rail weight, specific (kg/m)	5.4	5.7	5.7			

Available options for BM S 35



BM W 35 Dimensions and capacities



	BM W 35-A	BM W 35-B	BM W 35-C	BM W 35-D	BM W 35-E	BM W 35-F	BM W 35-G	BM W 35-H	BM W 35-J	BM W 35-L	BM W 35-N	BM W 35-M
A: System height	48	48	55	55	55	48	48	44	44	44	48	48
B: Carriage width	100	100	70	70	76	70	70	100	100	70	70	100
B2: Distance between locating faces	33	33	18	18	21	18	18	33	33	18	18	33
C1: Position of center front lube	7	7	14	14	14	7	7	5.3	5.3	5.3	7	7
C3: Position of lateral lube hole	7	7	14	14	14	7	7	5.3	5.3	5.3	7	7
C4: Position of lateral lube hole	18.3	31.1	24.3	26.1	24.3	24.3	26.1	18.3	33.5	24.3	33.5	33.5
C7: Position of top lube hole	15.8	28.6	21.8	23.6	21.8	21.8	23.6	15.8	31.0	21.8	31.0	31.0
J: Carriage height	41	41	48	48	48	41	41	37	37	37	41	41
L: Carriage length	111.6	137.1	111.6	137.1	111.6	111.6	137.1	111.6	79.9	111.6	79.9	79.9
L1: Exterior fixing hole spacing	62	62	50	72	50	50	72	62	-	50	-	-
L2: Interior fixing hole spacing	52	52	-	-	50	-	-	-	-	-	-	-
L6: Steel body length	79.6	105.1	79.6	105.1	79.6	79.6	105.1	79.6	47.9	79.6	47.9	47.9
N: Lateral fixing hole spacing	82	82	50	50	-	50	50	82	82	50	50	82
O: Reference face height	8.5	8.5	15	15	22	8.5	8.5	8.5	8.5	15	15	8.5
Capacities and weights												
C0: Static load capacity (N)	84400	110300	84400	110300	84400	84400	110300	84400	37700	84400	37700	37700
C100: Dynamic load capacity (N)	38700	46700	38700	46700	38700	38700	46700	38700	25800	38700	25800	25800
MOQ: Static cross moment capacity (Nm)	1566	2048	1566	2048	1566	1566	2048	1566	717	1566	717	717
MOL: Static longitud. moment capacity (Nm)	1252	2104	1252	2104	1252	1252	2104	1252	240	1252	240	240
MQ: Dyn. cross moment capacity (Nm)	718	867	718	867	718	718	867	718	492	718	492	492
ML: Dyn. longitud. moment capacity (Nm)	574	891	574	891	574	574	891	574	172	574	172	172
Gew: Carriage weight (kg)	1.8	2.3	1.7	2.2	1.9	1.4	1.8	1.5	1.2	1.2	0.9	1.2

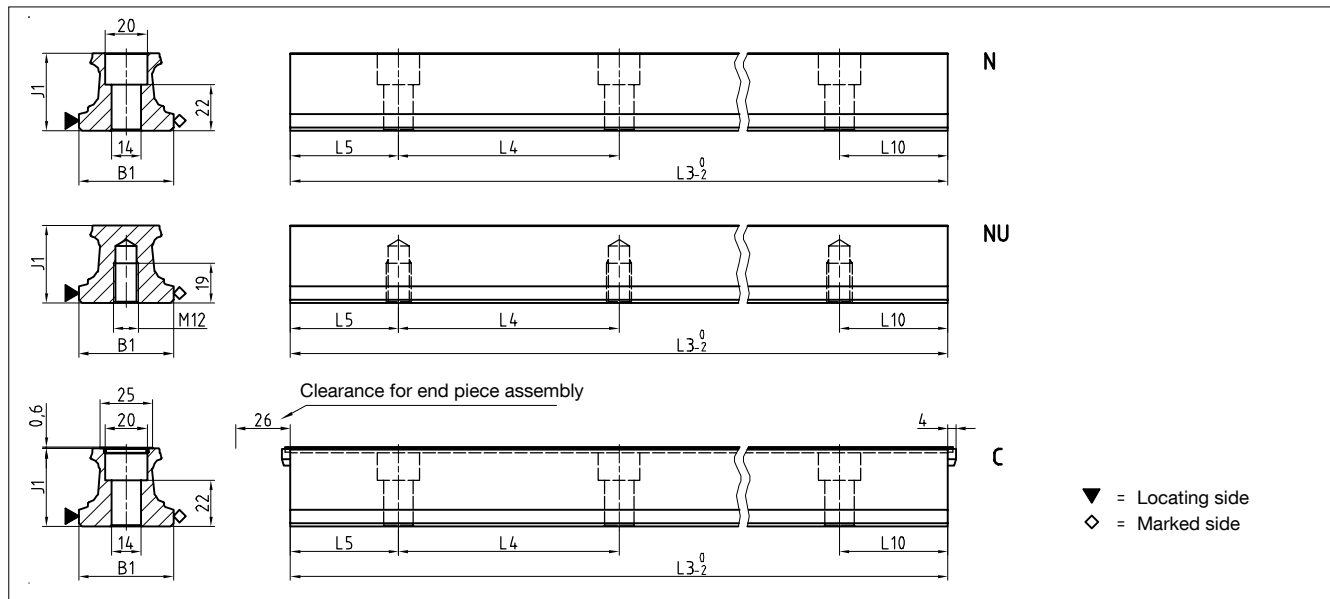
Available options for BM W 35



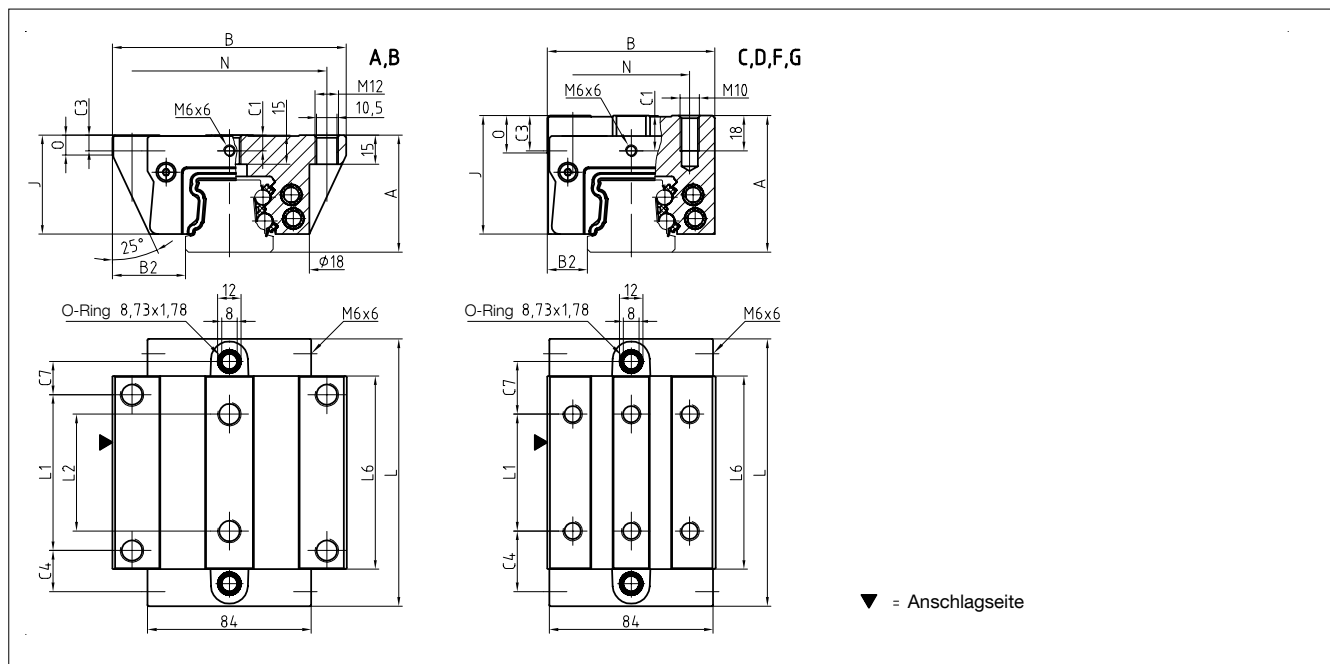
4.2 Technical data and options

BM Size 45

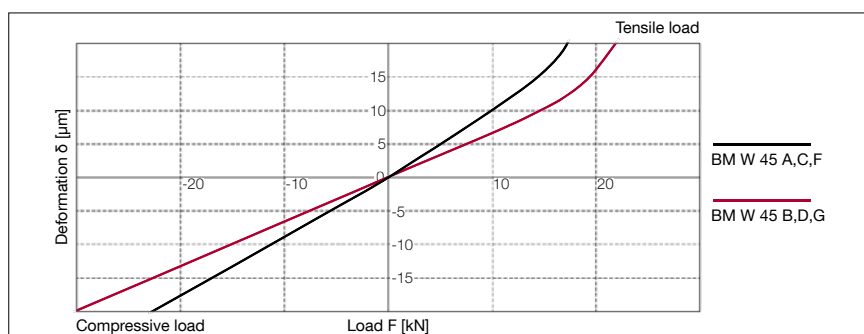
BM S 45 Drawings



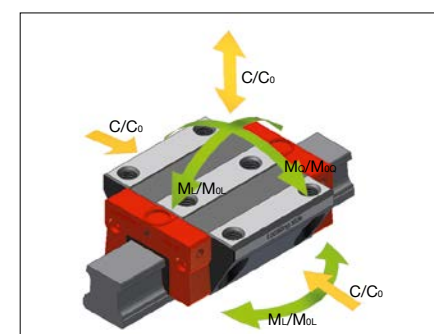
BM W 45 Drawings



BM W 45 Rigidity diagram



BM W 45 Load rating



4.2 Technical data and options

BM Size 45

BM S 45 Dimensions



	BM S 45-N	BM S 45-NU	BM S 45-C			
B1: Rail width	45	45	45			
J1: Rail height	37	37	37			
L3: Rail length max.	6000	6000	6000			
L4: Spacing of fixing holes	105	105	105			
L5/L10: Position of first/last fixing hole	51	51	51			
Gew.: Rail weight, specific (kg/m)	8.8	9.3	8.6			

Available options for BM S 45



BM W 45 Dimensions and capacities



	BM W 45-A	BM W 45-B	BM W 45-C	BM W 45-D	BM W 45-F	BM W 45-G	
A: System height	60	60	70	70	60	60	
B: Carriage width	120	120	86	86	86	86	
B2: Distance between locating faces	37.5	37.5	20.5	20.5	20.5	20.5	
C1: Position of center front lube hole	8	8	18	18	8	8	
C3: Position of lateral lube hole	8	8	18	18	8	8	
C4: Position of lateral lube hole	21.1	36.8	31.1	36.8	31.1	36.8	
C7: Position of top lube hole	17.1	32.8	27.1	32.8	27.1	32.8	
J: Carriage height	50.8	50.8	60.8	60.8	50.8	50.8	
L: Carriage length	137.1	168.6	137.1	168.6	137.1	168.6	
L1: Exterior fixing hole spacing	80	80	60	80	60	80	
L2: Interior fixing hole spacing	60	60	-	-	-	-	
L6: Steel body length	99.1	130.6	99.1	130.6	99.1	130.6	
N: Lateral fixing hole spacing	100	100	60	60	60	60	
O: Reference face height	10	10	19	19	10	10	
Capacities and weights							
CO: Static load capacity (N)	134800	176300	134800	176300	134800	176300	
C100: Dynamic load capacity (N)	61900	74700	61900	74700	61900	74700	
MOQ: Static cross moment capacity (Nm)	3193	4175	3193	4175	3193	4175	
MOL: Static longitud. moment capacity (Nm)	2498	4199	2498	4199	2498	4199	
MQ: Dyn. cross moment capacity (Nm)	1466	1769	1466	1769	1466	1769	
ML: Dyn. longitud. moment capacity (Nm)	1147	1779	1147	1779	1147	1779	
Gew: Carriage weight (kg)	3.3	4.2	3.3	4.3	2.7	3.5	

Available options for BM W 45



4.3 Accessories

Overview

BM Rails Accessories overview

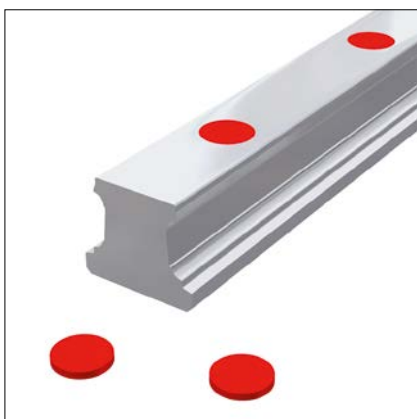
Accessories	BM S 15	BM S 20	BM S 25	BM S 30	BM S 35	BM S 45	
Plugs:							
Plastic plugs	BRK 15	BRK 20	BRK 25	BRK 30	BRK 35	BRK 45	
Cover strips:							
Cover strip (spare part)	BAC 15	BAC 20	BAC 25	BAC 30	BAC 35	BAC 45	
Securing band for cover strip (spare part)	BSC 15-BAC	BSC 20-BAC	BSC 25-BAC	BSC 30-BAC	BSC 35-BAC	BSC 45-BAC	
End piece for cover strip (spare part)	EST 15-BAC	EST 20-BAC	EST 25-BAC	EST 30-BAC	EST 35-BAC	EST 45-BAC	
Assembly tools:							
Installation tool for cover strip	BWC 15	BWC 20	BWC 25	BWC 30	BWC 35	BWC 45	

BM Carriages Accessories overview

Accessories	BM W 15	BM W 20	BM W 25	BM W 30	BM W 35	BM W 45	
Additional wipers:							
Additional wipers Viton	ZBV 15	ZBV 20	ZBV 25	ZBV 30	ZBV 35	ZBV 45	
Metal wiper	ABM 15	ABM 20	ABM 25	ABM 30	ABM 35	ABM 45	
Bellows:							
Bellows	-	FBB 20	FBB 25	FBB 30	FBB 35	FBB 45	
Adapter plate for bellows (spare part)	-	ZPB 20	ZPB 25	ZPB 30	ZPB 35	ZPB 45	
End plate for bellows (spare part)	-	EPB 20	EPB 25	EPB 30	EPB 35	EPB 45	
Assembly rails:							
Assembly rail	MBM 15	MBM 20	MBM 25	MBM 30	MBM 35	MBM 45	
Lubrication plates:							
Lubrication plate	SPL 15-BM	SPL 20-BM	SPL 25-BM	SPL 30-BM	SPL 35-BM	SPL 45-BM	
Front plates:							
Cross wiper for front plate (spare part)	QAS 15-STB	QAS 20-STB	QAS 25-STB	QAS 30-STB	QAS 35-STB	QAS 45-STB	
Smooth-running wipers with front plate	QL 15-STB	QL 20-STB	QL 25-STB	QL 30-STB	QL 35-STB	QL 45-STB	
Lube nipples:							
Hydraulic-type grease nipple straight	-	SN 6	SN 6	SN 6	SN 6	SN 6	
Hydraulic-type grease nipple 45°	-	SN 6-45	SN 6-45	SN 6-45	SN 6-45	SN 6-45	
Hydraulic-type grease nipple 90°	-	SN 6-90	SN 6-90	SN 6-90	SN 6-90	SN 6-90	
Flush type grease nipple M3	SN 3-T	SN 3-T	-	-	-	-	
Flush type grease nipple M6	-	SN 6-T	SN 6-T	SN 6-T	SN 6-T	SN 6-T	
Grease gun for SN 3-T und SN 6-T	SFP-T3	SFP-T3	SFP-T3	SFP-T3	SFP-T3	SFP-T3	
Lube adapters:							
Straight screw-in connection M3	SA 3-D3	SA 3-D3	-	-	-	-	
Lubrication adapter M8 round-head	-	SA 6-RD-M8	SA 6-RD-M8	SA 6-RD-M8	SA 6-RD-M8	SA 6-RD-M8	
Lubrication adapter M8 hexagon head	-	-	-	SA 6-6KT-M8	SA 6-6KT-M8	SA 6-6KT-M8	
Lubrication adapter G1/8 hexagon head	-	-	-	SA 6-6KT-G1/8	SA 6-6KT-G1/8	SA 6-6KT-G1/8	
Swivel screw connection for pipe d=4 mm	-	SV 6-D4	SV 6-D4	SV 6-D4	SV 6-D4	SV 6-D4	
Swivel screw connection M3	SV 3-D3	SV 3-D3	-	-	-	-	
Swivel screw connection M6	-	SV 6-M6	SV 6-M6	SV 6-M6	SV 6-M6	SV 6-M6	
Swivel screw connection M6 long	-	SV 6-M6-L	SV 6-M6-L	SV 6-M6-L	SV 6-M6-L	SV 6-M6-L	
Swivel screw connection M8	-	SV 6-M8	SV 6-M8	SV 6-M8	SV 6-M8	SV 6-M8	
Swivel screw connection M8 long	-	SV 6-M8-L	SV 6-M8-L	SV 6-M8-L	SV 6-M8-L	SV 6-M8-L	

4.3 Accessories

BM Rails accessory details



Plastic plugs

BRK plastic plugs are used as a low-cost method of closing off the rail attachment holes. They can be fitted manually with fairly simple tools. Plastic plugs are recommended for use with protected axes or in environments with low levels of contamination, e.g. handling.

Quantity supplied: Pack of 25 pcs

Order code: **BRK xx**

xx = Size, sample order: 3 x BRK 35 (75 pcs)



Cover strip (spare part)

A BAC cover strip combines technical functionality with simple installation and neat appearance.

Made of stainless spring steel, the strip is suitable for demanding applications with enhanced mechanical and thermal loading.

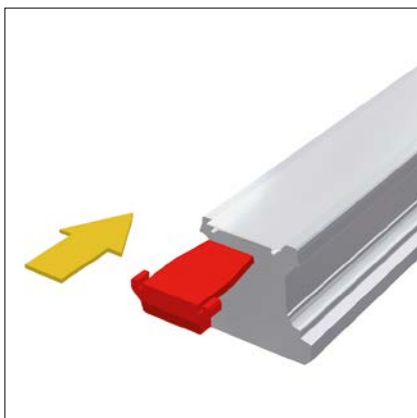
It provides the following advantages:

- Reliable fixing along the length as it is clipped into a special groove
- Additional fixing of the ends of the strips using locking parts (EST xx-BAC)
- Very robust due to the substantial thickness of the material
- Can be fitted and removed several times
- Protection of the wipers during installation as the rail fixing holes are recessed in the groove
- In any length up to 30 m available

When ordering guide rails with cover strips, they are included in the scope of supply.

Order code: **BAC xx-yy**

xx = Size, yy= Rail length in mm, sample order: 1 x BAC 35-4560



End piece for cover strip (spare part)

EST end pieces are used to close the ends of BAC cover strips. To do this, these plastic parts are inserted on both ends of the rail into the gap under the cover strip. Their special design prevents the ends of the cover strip from lifting and reduces the danger of injury on the sharp edges of the cover strip.

Order code: **EST xx-BAC**

xx = Size, sample order: 2 x EST 35-BAC

4.3 Accessories

BM Rails accessory details



Securing band for cover strip (spare part)

The BSC securing band for cover strips is used to secure the ends when mechanical loads are high. To do this, the protruding band ends are cut off at right angles and burr-free, and a fastening thread is fitted to the front face of the rail.

Securing bands are used in applications with high vibration levels, with rails in open chip spaces, with rail lengths of less than 600 mm or for vertical fitting and the subsequent risk that EST endpieces could fall out.

The securing band also covers the ends of the cover strips and reduces the risk of injury on the sharp corners of the ends.

Order code: **BSC xx-MAC**

xx = Size, order example: 2 x BSC 65-MAC



Installation tool for cover strip

A BWC fitting tool is used to simplify the fitting of an MAC cover strip. At the same time, it ensures that the cover strip sits securely in the rail groove without any gaps.

Order code: **BWC xx**

xx = Size, sample order: 1 x BWC 35

4.3 Accessories

BM Carriages accessory details



Additional wiper Viton

ZBV additional wipers provide additional protection of the carriages in heavily contaminated environments. Made of Viton® (fluoroelastomer), they are also suitable for use with aggressive coolants. Since they can be pushed over the rail cross section due to their flexibility, retrofitting is possible without any need to remove the carriage from the rail. ZBV wipers can also be used in combination with ABM metal wipers.

Order code: **ZBV xx**

xx = Size, sample order: 2 x ZBV 35



Metal wiper

Made of stainless steel, ABM metal wipers are used to protect the sealing lips of carriages and additional wipers against hot metal chips. Large and loose dirt particles are pushed away and cannot get jammed due to the controlled dimension of the gap with the rail. Specially adapted types are available for rails using AMS measuring systems. Metal wipers are ideally used in combination with ZBV additional wipers.

Order code: **ABM xx**

xx= Size, sample order: 1 x ABM 35

4.3 Accessories

BM Carriages accessory details



Bellows

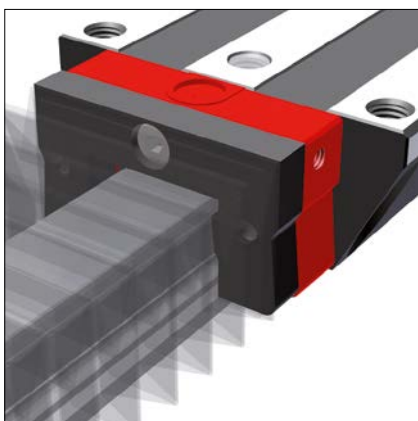
A standard FBB bellows is available for MONORAIL sizes BM 20 – BM 45, the purpose of which is mainly to provide additional protection against dust and water splashes. The bellows are made of synthetic fabric coated on both sides with plastic. The bellows cover the entire length of the rail profile matching the relevant faceplate of the carriage. The external dimensions of the carriage are not exceeded by the bellows.

Installation is simple and takes little time. A ZPB adapter plate is required to attach the bellows to the carriage. The adapter plate is screwed to the front plate of the carriage using a central screw. An EPB end plate is screwed to the end face of the rail. The bellows are fastened by two rivets to both the adapter plate and the front plate.

The required adapter and end plates, attachment screws and rivets are supplied with each order for a complete set of bellows. The attachment holes for the end plate are also prepared in the rail when a guideway with bellows is ordered.

Order code: **FBB xx-yy**

xx = Size, yy = Number of folds, sample order: 1 x FBB 35-146

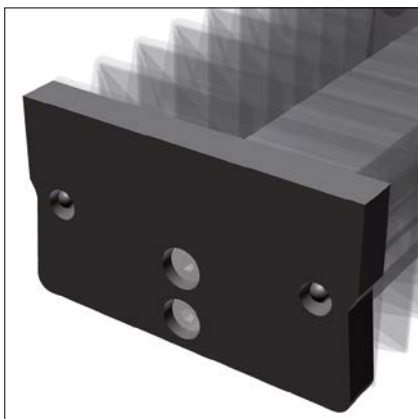


Adapter plate for bellows (spare part)

A ZPB adapter plate is used to attach FBB bellows to the carriage and is included with every order for a bellows. It is made of black anodized aluminium. The outer contour of the adapter plate corresponds to that of the carriage front plate, the bellows and the end plate. The central fastening screw is included in the scope of supply.

Order code: **ZPB xx**

xx = Size, sample order: 2 x ZPB 35



End plate for bellows (spare part)

Made of black anodized aluminium, an EPB end plate is used to attach the FBB bellows to the end of the rail. It is included with every order for a set of bellows. The attachment holes must be drilled in the rail if the bellows are to be retrofitted. For this reason, we recommend the use of induction-hardened rails for retrofits. The outer contour of the end plate corresponds to that of the carriage front plate, the bellows and the adapter plate. Both fastening screws are supplied with the end plate.

Order code: **EPB xx**

xx = Size, sample order: 2 x EPB 35

4.3 Accessories

BM Carriages accessory details



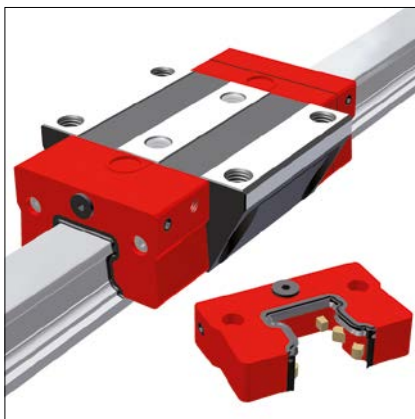
Assembly rail

An MBM assembly rail is required when a carriage has to be removed from the rail and then reinstalled during the installation of the MONORAIL guideway.

It is advisable to leave the assembly rail in the carriage to protect the balls against contamination. If necessary, the two internal carriage attaching screws can be fitted and tightened through the two holes in the assembly rail.

Order code: **MBM xx**

xx = Size, sample order: 1 x MBM 35



Lubrication plate

An SPL lubrication plate is used wherever long lubrication intervals are required. Thanks to its integral oil reservoir, the rolling elements are supplied with an automatic and uniform supply of lubrication over an extended period.

It is ideally used in dry and clean environments as in handling technology or on the ancillary axes of machine tools.

The advantages are:

- Assured supply of lubrication in any installation position
- Long lubrication intervals of up to 5,000 km or 12 months according to use
- Refill apertures closed with screws
- Reduced outlay on lubrication and accessories
- Low environmental impact thanks to minimum consumption of lubricant
- Wipers have a long service life as oil is also supplied to the top surface of the rail

For maximum travel distances without re-lubrication, the lubrication plates are always used in pairs and the carriages are given an additional filling of grease.

The lubrication plates have the same dimensions as the carriage front plates and are installed in front of these. Retrofitting is possible.

Additional ZBV wipers must be provided in applications in which particles of dirt can come into contact with the guideways.

Order code: **SPL xx-BM**

xx = Size, sample order: 2 x SPL 35-BM



Cross wiper for front plate (spare part)

QAS twin-lip cross wipers, integrated into the end plate, seal the carriage at the ends, thus preventing the ingress of dirt and the loss of lubricant.

As the cross wipers are subject to normal wear, they must be examined regularly and replaced if necessary.

Order code: **QAS xx-STB**

xx = Size, sample order: 1 x QAS 35-STB

4.4 Order key

Individual guide rails and carriages are ordered in accordance with the order codes described below.

Q.v. chapter 2.1 and chapter 4.3 for the order key for accessories.

Separate order codes are used in each case for rails, carriages and accessories. This also applies to different versions of rails and carriages.

All guide components are supplied individually as standard, i.e. unassembled.

If required, SCHNEEBERGER can also supply rails and carriages assembled incl. accessories as complete systems. Please note the ordering instructions in chapter 2.4 if this applies.

Order code for BM Rails

	2x	BM S	25	-N	-G3	-KC	-R1	-958	-29	-29	-CN
Quantity											
Rail											
Size											
Type											
Accuracy											
Straightness											
Reference side											
Rail length L3											
Position of first fixing hole L5											
Position of last fixing hole L10											
Coating											

NB

Q.v. chapter 4.1 to 4.3 for an overview of types, details of shapes, available options and accessories.

Q.v. chapter 2 for a description of the options.

If possible, standard lengths are preferred for L3 rail length.

These are calculated with the table values in chapter 4.2 using the following formula: $L3 = n \times L4 + L5 + L10 \leq L3_{\max}$.

Order code for BM Carriages

	4x	BM W	25	-A	-G3	-V1	-R1	-CN	-S10	-LN
Quantity										
Carriage										
Size										
Type										
Accuracy										
Preload										
Reference side										
Coating										
Lube connection										
Lubrication as delivered condition										

NB

Q.v. chapter 4.1 to 4.3 for an overview of types, details of shapes, available options and accessories.

Q.v. chapter 2 for a description of the options.