

RAILS "GR"

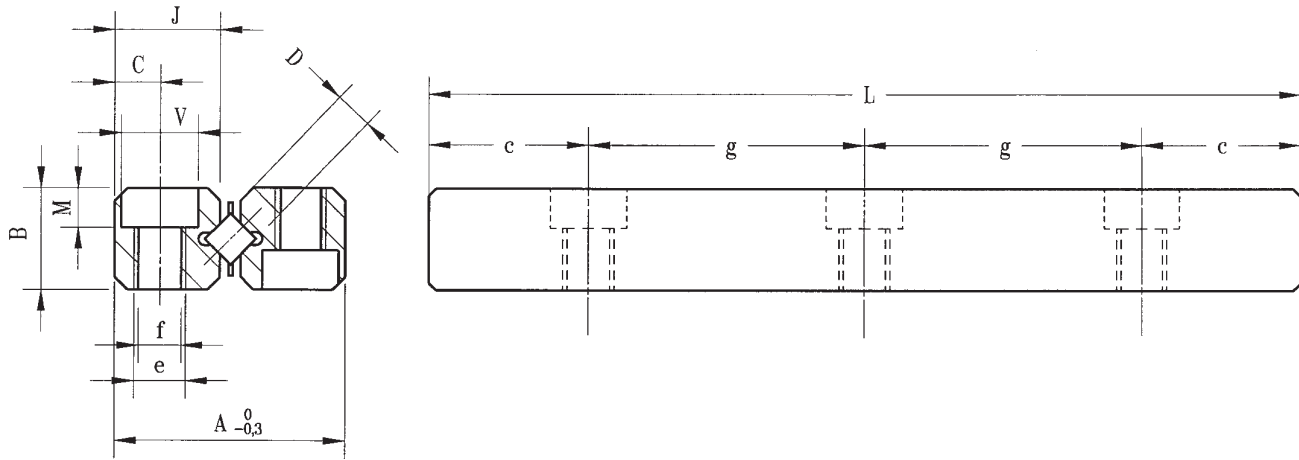
GR type linear system bearings could utilize either cross roller or ball as rolling elements. The two will differ substantially in load ratings. The ratio is approximately 10 to 1 in favor of rollers, depending upon the dimension under consideration.

Balls are more advantageous in case of presence of impurities and/or misalignment as it happens when the structure, to which rails are anchored, is not sturdy enough to support them and rails are not therefore placed in their correct position.

Such systems offer good load rating with respect to the cross section, length and relative stroke. They utilize different cages and end pieces depending upon the application.



Standardized cross roller rails "GR"



Designation	Rail Type	Rail Weight (g)	L	g	c	D	A	B	J	C	e	f	V	M
GR1	GR 1 020	02	20	1x10										
	GR 1 030	03	30	2x10										
	GR 1 040	04	40	3x10										
	GR 1 050	05	50	4x10										
	GR 1 060	06	60	5x10										
	GR 1 070	07	70	6x10	5	1,5	8,5	4	3,9	1,8	M2	1,65	3	1,4
	GR 1 080	08	80	7x10										
	GR 1 090	09	90	8x10										
	GR 1 100	10	100	9x10										
	GR 1 120	12	120	11x10										
	GR 1 140	14	140	13x10										
GR2	GR 2 030	06	30	1x15										
	GR 2 045	09	45	2x15										
	GR 2 060	12	60	3x15										
	GR 2 075	15	75	4x15										
	GR 2 090	18	90	5x15										
	GR 2 105	22	105	6x15	7,5	2	12	6	5,5	2,5	M3	2,5	4,3	2,0
	GR 2 120	25	120	7x15										
	GR 2 135	28	135	8x15										
	GR 2 150	31	150	9x15										
	GR 2 180	37	180	11x15										
	GR 2 210	44	210	13x15										
GR3	GR 3 050	23	50	1x25										
	GR 3 075	34	75	2x25										
	GR 3 100	45	100	3x25										
	GR 3 125	56	125	4x25										
	GR 3 150	67	150	5x25										
	GR 3 175	78	175	6x25	12,5	3	18	8	8,2	3,5	M4	3,3	6	3,2
	GR 3 200	89	200	7x25										
	GR 3 225	100	225	8x25										
	GR 3 250	111	250	9x25										
	GR 3 275	122	275	10x25										
	GR 3 300	133	300	11x25										

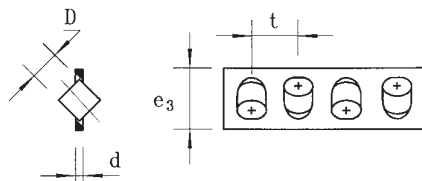
Standardized cross roller rails "GR"

Designation	Rail Type	Rail Weight (g)	L	g	c	D	A	B	J	C	e	f	V	M
GR6	GR 6 100	145	100	1x50										
	GR 6 150	220	150	2x50										
	GR 6 200	295	200	3x50										
	GR 6 250	370	250	4x50										
	GR 6 300	445	300	5x50										
	GR 6 350	520	350	6x50	25	6	31	15	13,9	6	M6	5,2	9,5	5,2
	GR 6 400	595	400	7x50										
	GR 6 450	670	450	8x50										
	GR 6 500	745	500	9x50										
	GR 6 550	815	550	10x50										
	GR 6 600	885	600	11x50										
GR9	GR 9 200	630	200	1x100										
	GR 9 300	945	300	2x100										
	GR 9 400	1260	400	3x100										
	GR 9 500	1575	500	4x100										
	GR 9 600	1890	600	5x100										
	GR 9 700	2205	700	6x100	50	9	44	22	19,7	9	M8	6,8	10,5	6,2
	GR 9 800	2520	800	7x100										
	GR 9 900	2835	900	8x100										
	GR 9 1000	3150	1000	9x100										
	GR 9 1100	3465	1100	10x100										
	GR 9 1200	3780	1200	11x100										
GR12	GR12 200	1040	200	1x100										
	GR12 300	1565	300	2x100										
	GR12 400	2090	400	3x100										
	GR12 500	2615	500	4x100										
	GR12 600	3140	600	5x100										
	GR12 700	3665	700	6x100	50	12	58	28	25,9	12	M10	8,5	13,5	8,2
	GR12 800	4190	800	7x100										
	GR12 900	4715	900	8x100										
	GR12 1000	5240	1000	9x100										
	GR12 1100	5765	1100	10x100										
	GR12 1200	6290	1200	11x100										

Cages

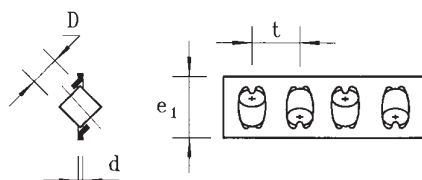
Typ CC

Non-captive crossroller cage for horizontal and vertical applications for rails GR1-GR2; only standard t pitch; material: brass.



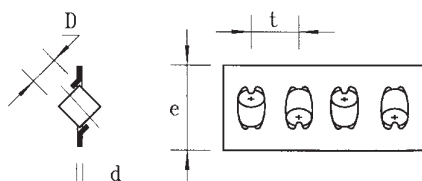
Typ AA

Cross roller cage for horizontal application. Sizes 2 ÷ 12; only standard t pitch; captive rollers; sheet metal.



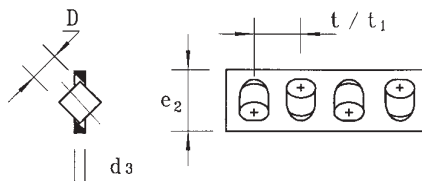
Typ BB

Cross roller cage for horizontal and vertical applications with Rails of different length with low speed. Sizes 3 ÷ 9; only standard t pitch; captive rollers; sheet metal.



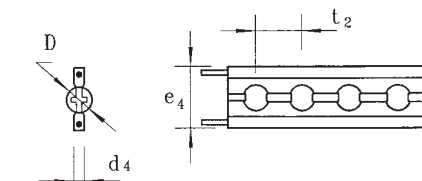
Typ DD

Cross roller cage for horizontal and vertical applications with high acceleration. Size 3 (Only standard t pitch) 6-9 (Standard t and reduced pitch t_1) 12 (Only reduced pitch t_1); non-captive rollers; brass.



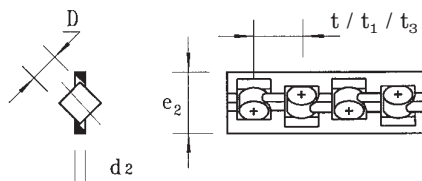
Typ PS

Captive ball cages for GR1 ÷ GR12 rails for horizontal and vertical applications; only t_2 pitch; material: polyamide. PS6 ÷ PS12 reinforced with steel.



Typ PR

Captive cross roller for GR1 ÷ GR9 rails for horizontal and vertical applications; GR1 ÷ GR3 t pitch; GR6 t_3 pitch and GR9 t_1 pitch; material: polyamide.

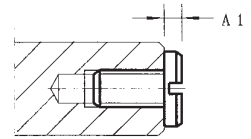
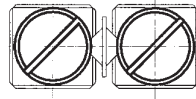


Designation	D	t	t1	t2	t3	d	d2	d3	d4	f*	e	e1	e2	e3	e4	G*	P (N)	
																	P roller	P ball
GR 1	1,5	3	-	2,2	-	0,5	0,5	-	0,45	-	-	-	3,8	3,5	3,5	-	50	9
GR 2	2	4	-	4	-	0,8	0,8	-	0,75	-	-	5,5	5,5	5,5	5	-	85	15
GR 3	3	5	-	4,2	-	0,5	1	1	1	1	12	7,5	7	-	7	13	130	25
GR 6	6	12	9	9	8,5	0,8	2,7	2,7	2,5	1,5	20	14	15	-	14	21	530	65
GR 9	9	18	14	14	-	1	4	3	3,2	2	30	19,5	20	-	20	32	1300	150
GR12	12	22	18	15,5	-	1,2	4	4	4	2,5	35	25	25	-	20	37	2500	260

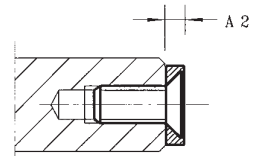
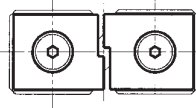
* With reference to page 12 figure 10

End pieces

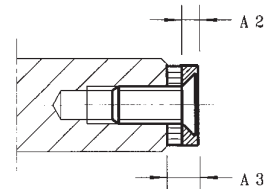
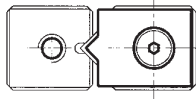
GA = For horizontal applications



GB = For horizontal and vertical applications with high accelerations (not available for GR1 rails)



GC = For horizontal and vertical applications with or without wipers. Mounted only on the longer rails (not available for GR1 ÷ GR2 rails)



Rail Type	GR1	GR2	GR3	GR6	GR9	GR12
A1	1,5	2	2	3	3	3
A2	–	3	2	3	4	5
A3	–	–	3	5	6	8

Mounting screws with modified stem

These screws offer the following advantages:

- Compensation for pitch errors in the supporting structure.
- Compensation for pitch variation during heat treating.
- Elimination of clearance through lateral screws.

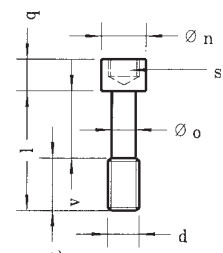
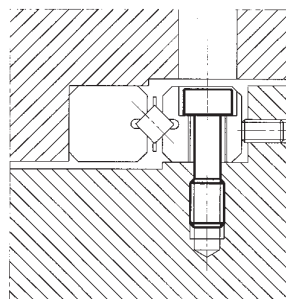


Fig. 15

Dimension	GR3	GR6	GR9	GR12
l	12	20	30	40
Øn	5	8	8,5	11,3
Øo	2,3	3,9	4,6	6,25
d	M3	M5	M6	M8
q	3	5	6	8
v	7	12	18	23
t	5	8	12	17
s	2,5	4	5	6
Code	VM3	VM5	VM6	VM8

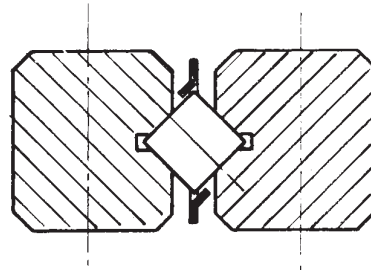
Ordering examples

To simplify the ordering, thus the delivery, the following examples should be followed. We assumed, like in most cases, that one table utilizes 4 rails, 2 cages and 8 end pieces. Therefore, the information required should include:

- Number and type of rail
- Number and type of cage
- Number of rolling elements in each cage or cage length or stroke
- Number and type of end pieces
- Type of application (horizontal or vertical)

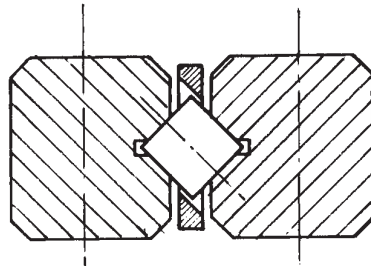
For horizontal movement (rollers)

System GR3 125 Stroke = 35 mm
4 Rails GR3 125
2 Cages AA3 with 21 rollers
8 End pieces GA3



For vertical movement (Rollers)

System GR6 300 Stroke = 120 mm
4 Rails GR6 300
2 Cages DD6 with 20 rollers
8 End pieces GB6



For horizontal & vertical movement (Balls) and wipers

System GR9 400 Stroke = 185 mm
Reduced Pitch t1
4 Rails GR9 400
2 Cages PS9 with 21 balls
4 End pieces with wiper GCT9

