The given data is valid under the condition that the extrusions are structurally prevented from twisting. Sufficient evidence for both flexural buckling and torsio-nal flexural buckling has to be provided. Values printed in blue indicate reaching of the tension limit with a safety factor of 1.35. Load figures include the dead weight of the extrusion, i.e. the indicated load can be used in whole for addtional extrusions or exhibits. Flexible mounting was estimated for calculation so as to demonstrate load bearing capacity and deflection of the R 102 extrusion. In com-bination with the R 260 adaptor, the R 200 (or DFS 84) connector and the R 102 supporting beam feature a maximum moment of 5.5 kNm. The true deformation can be a little bit more than stated in the table below as any slippage between the components cannot be taken into account.

Maximum admissible load (in addition to dead load) and resulting calculated deflections of single span beams at permitted maximum deflection of 1/200 or 1/300 of span.

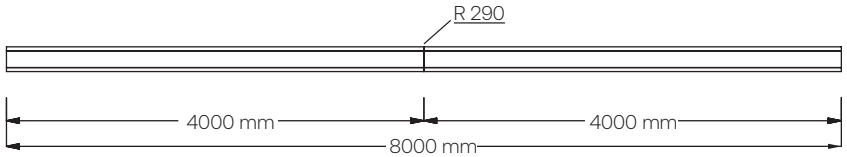
R 102	Beam span	2.0	2.5	3.0	3.5	4.0	4.5
	Single load in centre of beam (kg)	2750	2200	1830	1565	1365	1210
	Evenly distributed load (kg/m)	2750	1760	1220	890	685	490
	Deflection 1/200 (cm)	<1.00	<1.25	<1.50	<1.75	<2.0	(<)2.25
	Single load in centre of beam (kg)	2750	2200	1830	1510	1150	910
	Evenly distributed load (kg/m)	2750	1760	1090	660	460	325
	Deflection 1/300 (cm)	<0.67	<0.83	(<)1.00	1.17	1.33	1.50

Load-bearing capacity – Beam extension examples with connector R 290

The following examples show how the possible load capacity increases in equally long constructions with
hinged single span beams the closer the extension is in the edge area.

PLEASE NOTE: Static calculation of the construction might be necessary in particular cases!

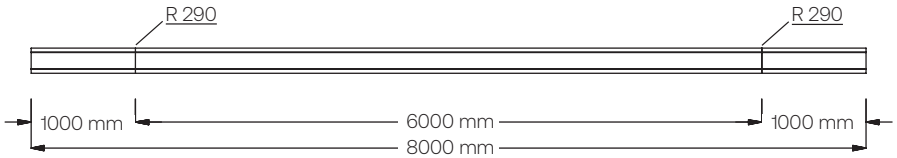
R 102	Beam span	5.0	5.5	6.0	6.5	7.0
	Single load in centre of beam (kg)	1085	915	765	645	550
	Evenly distributed load (kg/m)	355	265	205	160	125
	Deflection 1/200 (cm)	(<)2.50	2.75	3.00	3.25	3.50
	Single load in centre of beam (kg)	735	603	502	422	358
	Evenly distributed load (kg/m)	235	176	134	104	82
	Deflection 1/300 (cm)	1.67	1.83	2.00	2.17	2.33



Beam span: 4 + 4 m = 8 m (central extension)

Single load in centre of beam (kg)	174
Evenly distributed load (kg/m)	43
Deflection 1/200 (cm)	4.00 - vorh. 1.89 (P)* 4.00 - vorh. 2.25 (L)**

Single load in centre of beam (kg)	174
Evenly distributed load (kg/m)	43
Deflection 1/300 (cm)	2.67 - vorh. 1.89 (P)* 2.67 - vorh. 2.25 (L)**

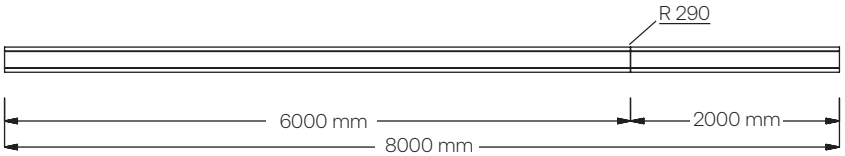


Beam span: 1 + 6 + 1 m = 8 m (eccentric extension)

Single load in centre of beam (kg)	410
Evenly distributed load (kg/m)	82
Deflection 1/200 (cm)	4.00

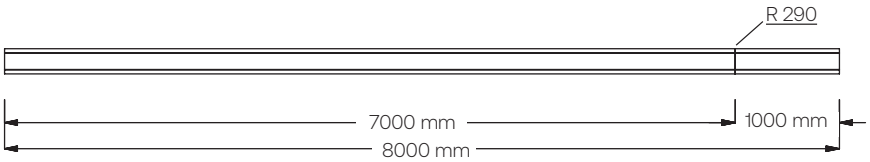
Single load in centre of beam (kg)	260
Evenly distributed load (kg/m)	52
Deflection 1/300 (cm)	2.67

i *P = point load, **L = line load



Beam span: 6 + 2 m = 8 m (eccentric extension)

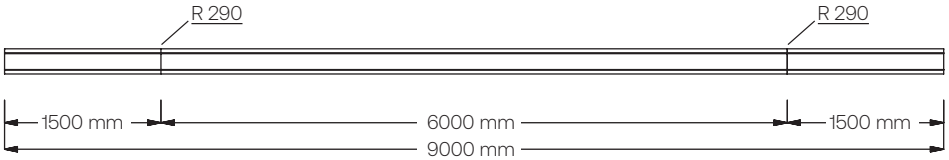
Single load in centre of beam (kg)	360	Single load in centre of beam (kg)	262
Evenly distributed load (kg/m)	60	Evenly distributed load (kg/m)	52
Deflection 1/200 (cm)	4.00 - vorh. 3.54 (P)* 4.00 - vorh. 2.99 (L)**	Deflection 1/300 (cm)	2.67



Beam span: 7 + 1 m = 8 m (eccentric extension)

Single load in centre of beam (kg)	410	Single load in centre of beam (kg)	260
Evenly distributed load (kg/m)	82	Evenly distributed load (kg/m)	52
Deflection 1/200 (cm)	4.00	Deflection 1/300 (cm)	2.67

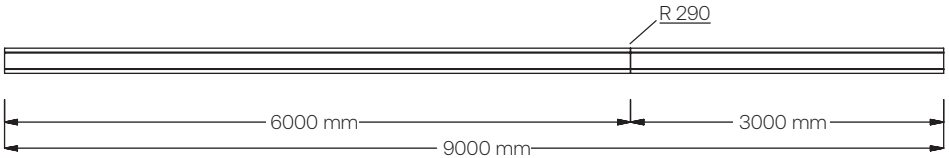
ℹ *P = point load, **L = line load



Beam span: 1.5 + 6 + 1.5 m = 9 m (eccentric extension)

Single load in centre of beam (kg)	314
Evenly distributed load (kg/m)	55
Deflection 1/200 (cm)	4.50

Single load in centre of beam (kg)	195
Evenly distributed load (kg/m)	35
Deflection 1/300 (cm)	3.00

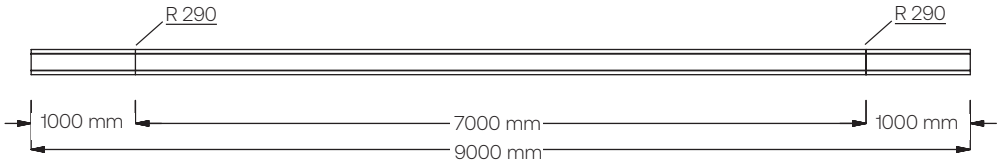


Beam span: 6 + 3 m = 9 m (eccentric extension

Single load in centre of beam (kg)	225
Evenly distributed load (kg/m)	37
Deflection 1/200 (cm)	4.50 - vorh. 3.39 (P)* 4.50 - vorh. 3.15 (L)**

Single load in centre of beam (kg)	195
Evenly distributed load (kg/m)	34
Deflection 1/300 (cm)	3.00

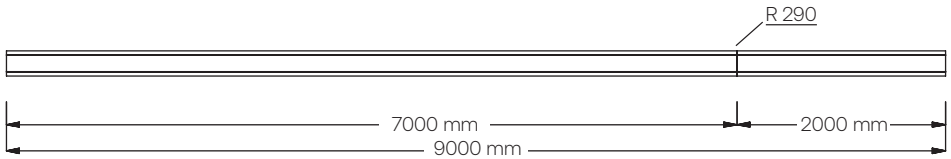
*P = point load, **L = line load



Beam span: 1 + 7 + 1 m = 9 m (eccentric extension)

Single load in centre of beam (kg)	314
Evenly distributed load (kg/m)	55
Deflection 1/200 (cm)	4.50

Single load in centre of beam (kg)	195
Evenly distributed load (kg/m)	35
Deflection 1/300 (cm)	3.00

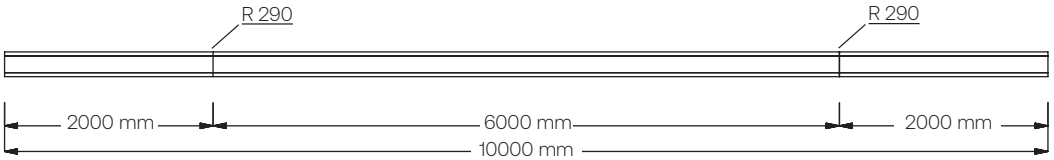


Beam span: 7 + 2 m = 9 m (eccentric extension

Single load in centre of beam (kg)	314
Evenly distributed load (kg/m)	50
Deflection 1/200 (cm)	4.50 (P)* 4.50 - vorh. 4.06 (L)**

Single load in centre of beam (kg)	195
Evenly distributed load (kg/m)	35
Deflection 1/300 (cm)	3.00

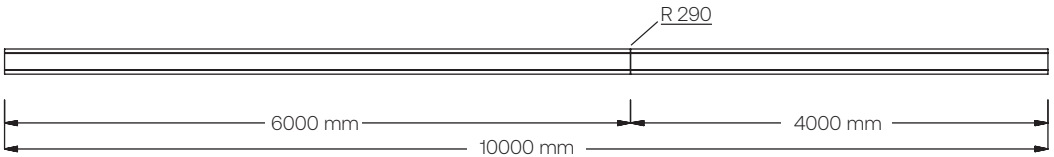
i *P = point load, **L = line load



Beam span: 2 + 6 + 2 m = 10 m (eccentric extension)

Single load in centre of beam (kg)	241
Evenly distributed load (kg/m)	38
Deflection 1/200 (cm)	5.00

Single load in centre of beam (kg)	145
Evenly distributed load (kg/m)	23
Deflection 1/300 (cm)	3.33

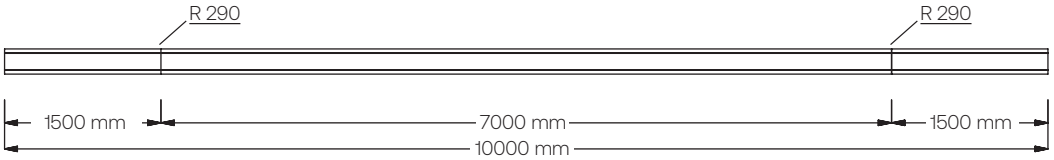


Beam span 6 + 4 m = 10 m (eccentric extension)

Single load in centre of beam (kg)	157
Evenly distributed load (kg/m)	25
Deflection 1/200 (cm)	5.00 - vorh. 3.54 (P)* 5.00 - vorh. 3.51 (L)**

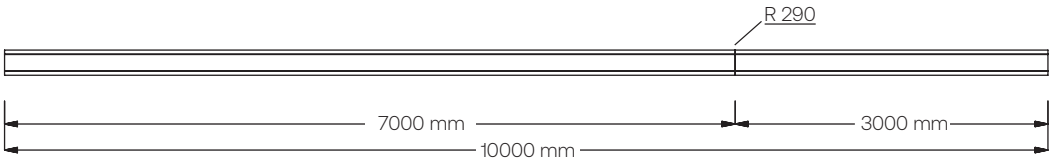
Single load in centre of beam (kg)	145
Evenly distributed load (kg/m)	23
Deflection 1/300 (cm)	3.33

*P = point load, **L = line load



Beam span: 1.5 + 7 + 1.5 m = 10 m (eccentric extension)

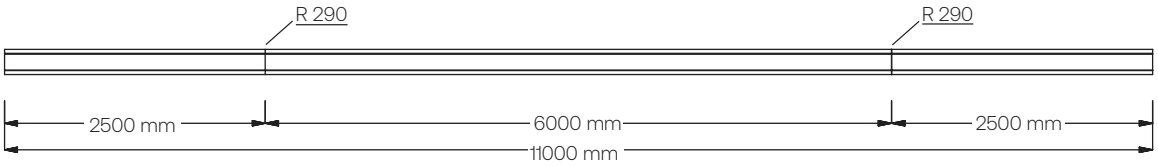
Single load in centre of beam (kg)	241	Single load in centre of beam (kg)	145
Evenly distributed load (kg/m)	38	Evenly distributed load (kg/m)	23
Deflection 1/200 (cm)	5.00	Deflection 1/300 (cm)	3.33



Beam span: 7 + 3 m= 10 m (eccentric extension)

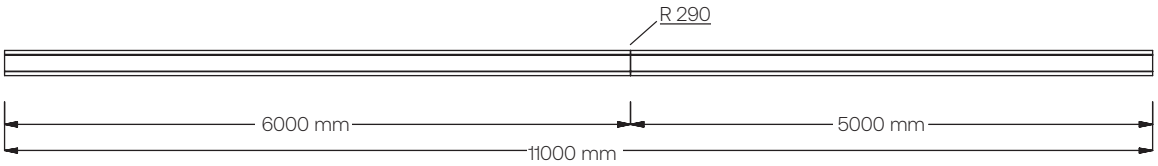
Single load in centre of beam (kg)	219	Single load in centre of beam (kg)	145
Evenly distributed load (kg/m)	31	Evenly distributed load (kg/m)	23
Deflection 1/200 (cm)	5.00 - vorh. 4.61 (P)* 5.00 - vorh. 3.51 (L)**	Deflection 1/300 (cm)	3.33

i *P = point load, **L = line load



Beam span: 2.5 + 6 + 2.5 m = 11 m (eccentric extension)

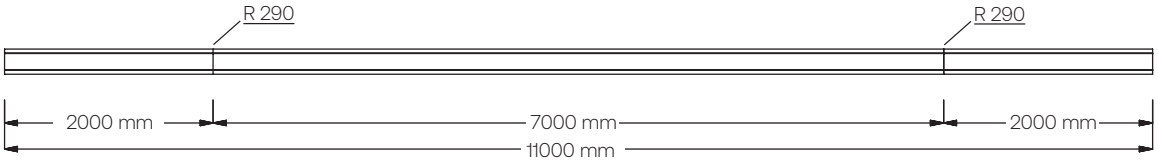
Single load in centre of beam (kg)	187	Single load in centre of beam (kg)	108
Evenly distributed load (kg/m)	27	Evenly distributed load (kg/m)	15
Deflection 1/200 (cm)	5.50	Deflection 1/300 (cm)	3.67



Beam span: 6 + 5 m = 11 m (eccentric extension)

Single load in centre of beam (kg)	118	Single load in centre of beam (kg)	108
Evenly distributed load (kg/m)	19	Evenly distributed load (kg/m)	15
Deflection 1/200 (cm)	5.50 - vorh. 3.91 (P)* 5.50 - vorh. 4.20 (L)**	Deflection 1/300 (cm)	3.67

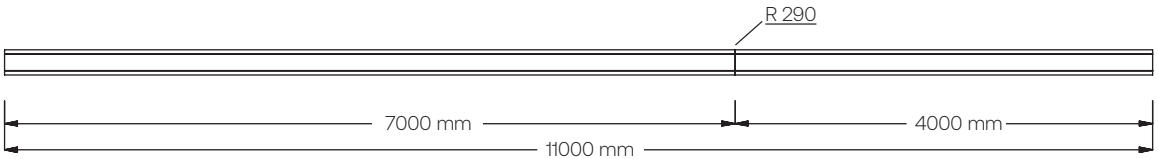
i *P = point load, **L = line load



Beam span: 2 + 7 + 2 m = 11 m (eccentric extension)

Single load in centre of beam (kg)	187
Evenly distributed load (kg/m)	27
Deflection 1/200 (cm)	5.50

Single load in centre of beam (kg)	108
Evenly distributed load (kg/m)	15
Deflection 1/300 (cm)	3.67

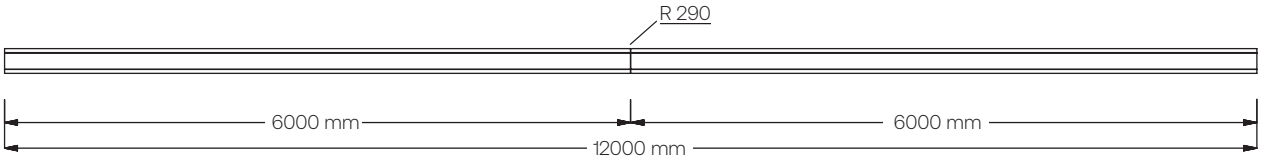


Beam span: 7 + 4 m = 11 m (eccentric extension)

Single load in centre of beam (kg)	150
Evenly distributed load (kg/m)	21
Deflection 1/200 (cm)	5.50 - vorh. 4.65 (P)* 5.50 - vorh. 4.51 (L)**

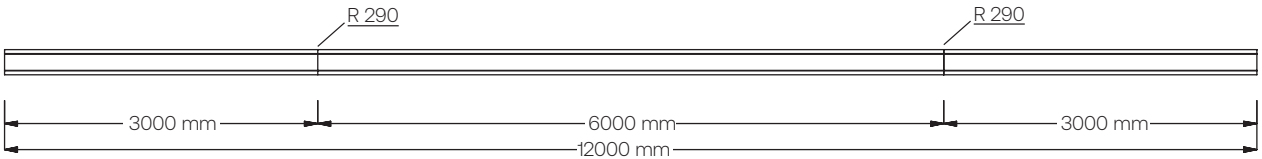
Single load in centre of beam (kg)	108
Evenly distributed load (kg/m)	15
Deflection 1/300 (cm)	3.67

*P = point load, **L = line load



Beam span 6 + 6 m = 12 m (central extension)

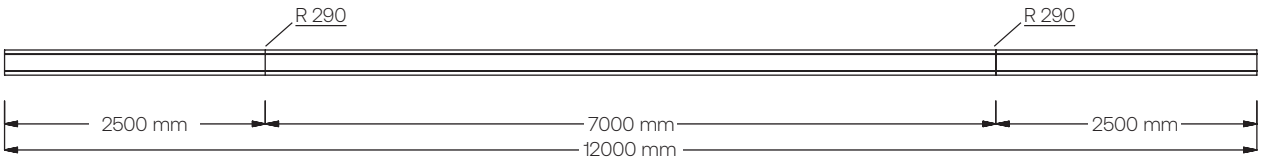
Single load in centre of beam (kg)	90	Single load in centre of beam (kg)	77
Evenly distributed load (kg/m)	15	Evenly distributed load (kg/m)	10
Deflection 1/200 (cm)	6.00 - vorh. 4.38 (P)* 6.00 - vorh. 5.04 (L)**	Deflection 1/300 (cm)	4.00



Beam span: 3 + 6 + 3 m = 12 m (eccentric extension

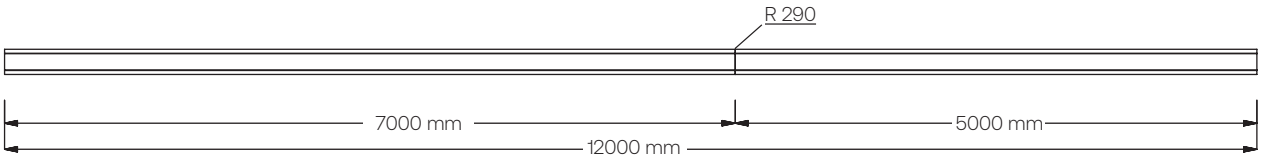
Single load in centre of beam (kg)	145	Single load in centre of beam (kg)	77
Evenly distributed load (kg/m)	19	Evenly distributed load (kg/m)	10
Deflection 1/200 (cm)	6.00	Deflection 1/300 (cm)	4.00

ℹ *P = point load, **L = line load



Beam span: 2.5 + 7 + 2.5 m = 12m (eccentric extension)

Single load in centre of beam (kg)	145	Single load in centre of beam (kg)	77
Evenly distributed load (kg/m)	19	Evenly distributed load (kg/m)	10
Deflection 1/200 (cm)	6.00	Deflection 1/300 (cm)	4.00



Beam span: 7 + 5 m = 12 m (eccentric extension)

Single load in centre of beam (kg)	110	Single load in centre of beam (kg)	77
Evenly distributed load (kg/m)	16	Evenly distributed load (kg/m)	10
Deflection 1/200 (cm)	6.00 - vorh. 4.97 (P)* 6.00 - vorh. 5.25 (L)**	Deflection 1/300 (cm)	4.00

i *P = point load, **L = line load