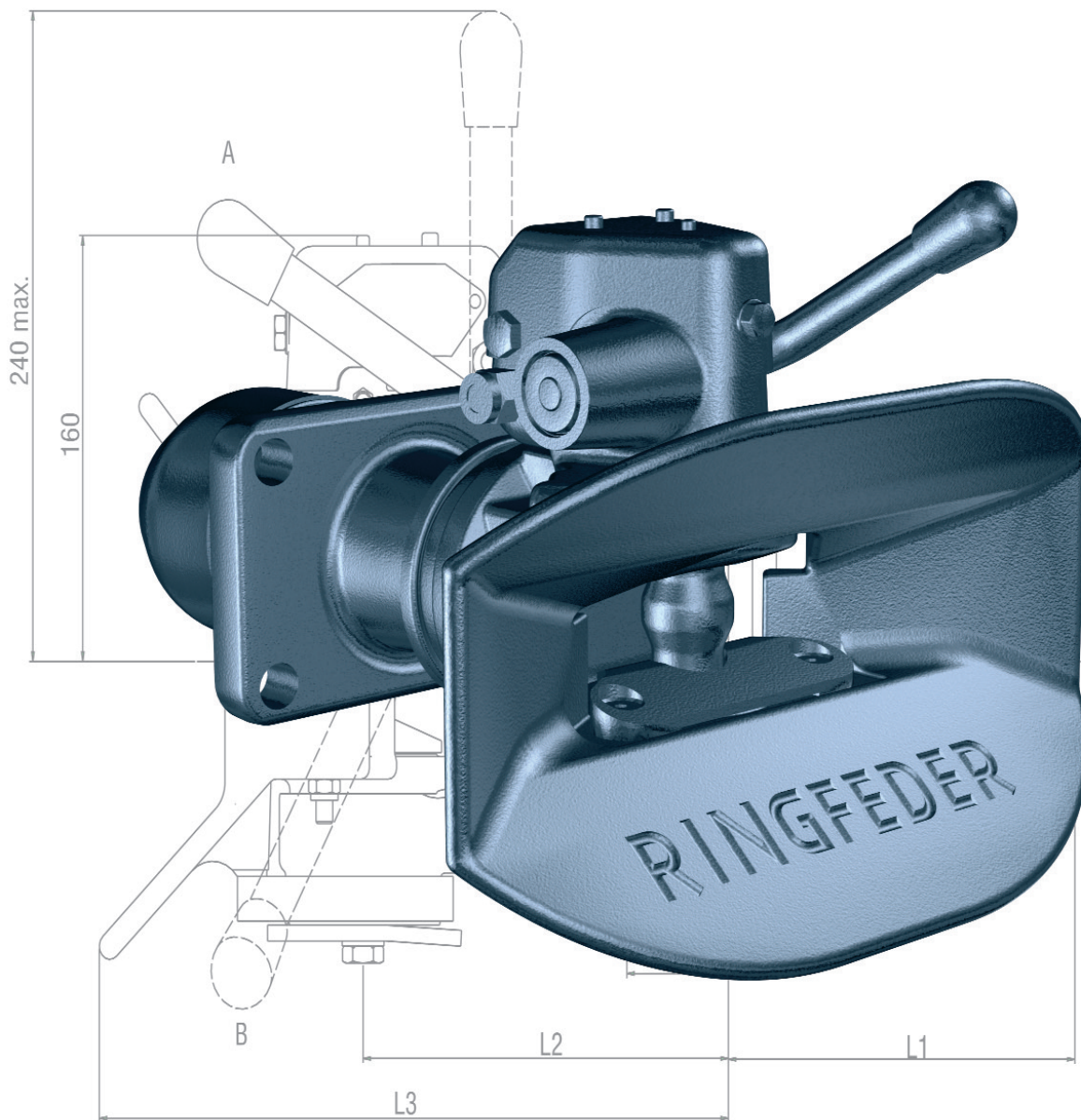


RINGFEDER

Automatic Trailer Couplings

especially suitable for centre axle trailers equipped with
40 mm towing eyes

Type 2040/G135 · 2040/G145 · 2040/G150



Automatic Trailer Couplings

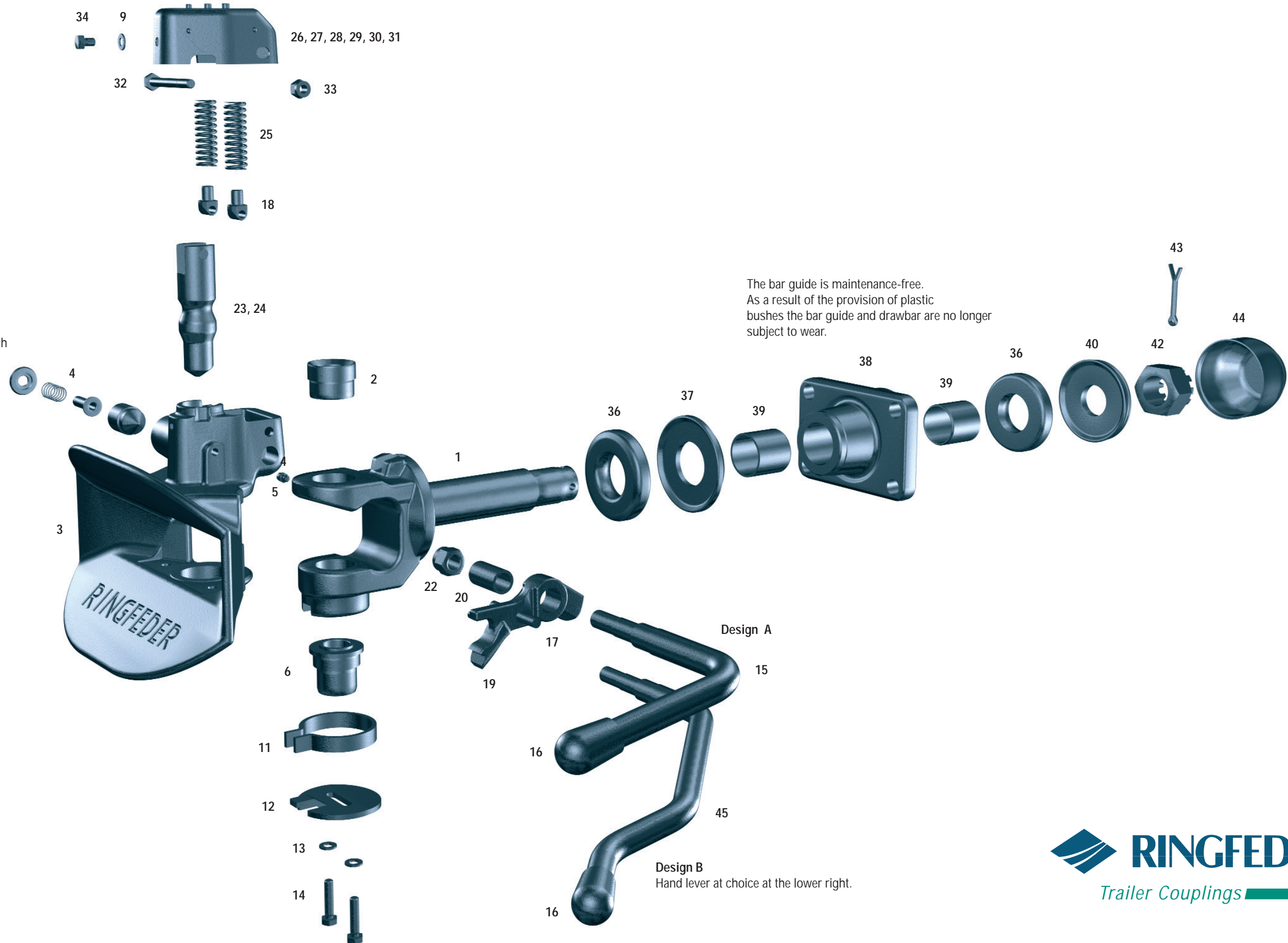
Type 2040/G135, Type 2040/G145 and Type 2040/G150

Automatic bolt coupling in size according to DIN 74051 suitable for 40 mm drawbar eyes to DIN 74054 and ISO 8755

The coupling head made of high quality cast cannot only be locked in the central position but also in the lateral end positions, a particular advantage when tractor and trailer have to be coupled in extreme angular positions.

The plastic plate protects the drawbar eye and muffles the sound.

The bar guide is maintenance-free. As a result of the provision of plastic bushes the bar guide and drawbar are no longer subject to wear.



Parts list for replacement and maintenance

Type 2040/G135			
Item	Order No.	Description	Qty.
1		Drawbar incl. items 2, 42, 43	1
2	6 997 899	Top guide bush	1
3	14 994 488	Coupling body incl. Pos.4,5 without hole for sensor	1
3a	14 994 445	Coupling body incl. Pos.4,5 with hole for sensor	1
4	14 994 478	Safety device, cpl.	1
5		Tapered grease nipple AM 8 x 1 DIN 71412	1
6	6 997 880	Bottom guide bush	1
7	6 998 771	Special plastic plate incl. 2 pcs. of items 8, 10	1
7a	14 994 503	Wear plate (cost iron) incl. 2 pcs. of items 8, 10	1
8		Countersunk screw M 8 x 30 DIN 7991	2
9		Washer 8.4 DIN 125	1
10		Hexagonal nut VM 8 DIN 980	2
11	7 995 563	Return spring	1
12	7 995 571	Tab washer	1
13		Washer 10.5 DIN 125	2
14		Hexagonal screw M 10 x 40 DIN 933 incl. item 13	2
15	14 994 450	Hand lever incl. items 16, 19, 20, 22 Design A	1
16		Knob for hand lever	1
17	14 994 486	Bolt for spring arm	1
18	7 998 341	Spring arm	2
19		Locking lever	1
20		Distance bush	1
22		Lock nut VM 14 DIN 980	1
23	14 994 487	Coupling bolt incl. item 24 and 2 pcs. of item 25	1
24	12 991 452	Locking lever pin	1
25	7 998 171	Locking spring	2
26	14 994 495	End cap incl. 2 pcs. of items 27, 28, 29	1
27		Spring pin	2
28		Volute spring	1
29		Buttonhead rivet 6 x 12 DIN 660	1
30		Nameplate incl. 2 pcs. of item 31	1
31		Blind rivet 3 x 6	2
32		Hexagonal screw M 10 x 95 DIN 931	1
33		Lock nut VM 10 DIN 980	1
34		Hexagonal screw M 8 x 12 DIN 933	1
36	7 998 309	Rubber spring	2
37	7 995 539	Thrust washer	1
38	990 531	Bar guide incl. 2 x item 39	1
39	10 995 310	Bearing bush	2
40	7 995 687	Tension washer	1
42	6 997 740	Castellated nut M 36 x 3 incl. item 43	1
43	12 991 550	Cotter pin 6.3 x 63 DIN 94	1
44	10 996 660	Protecting cap	1
45	14 994 434	Hand lever incl. items 16, 19, 20, 22 Design B	1
46	14 994 443	Sensor type 2040/2045	1
	14 994 511	Repairkit composing of: Coupling bolt, compl., top and bottom guide bush, cotter pin, plastic plate compl.	1

Type 2040/G145			
Item	Order No.	Description	Qty.
1		Drawbar incl. items 2, 42, 43	1
2	6 997 899	Top guide bush	1
3	14 994 488	Coupling body incl. Pos.4,5 without hole for sensor	1
3a	14 994 445	Coupling body incl. Pos.4,5 with hole for sensor	1
4	14 994 478	Safety device, cpl.	1
5		Tapered grease nipple AM 8 x 1 DIN 71412	1
6	6 997 880	Bottom guide bush	1
7	6 998 771	Special plastic plate incl. 2 pcs. of items 8, 10	1
7a	14 994 503	Wear plate (cost iron) incl. 2 pcs. of items 8, 10	1
8		Countersunk screw M 8 x 30 DIN 7991	2
9		Washer 8.4 DIN 125	1
10		Hexagonal nut VM 8 DIN 980	2
11	7 995 563	Return spring	1
12	7 995 571	Tab washer	1
13		Washer 10.5 DIN 125	2
14		Hexagonal screw M 10 x 40 DIN 933 incl. item 13	2
15	14 994 450	Hand lever incl. items 16, 19, 20, 22 Design A	1
16		Knob for hand lever	1
17	14 994 486	Bolt for spring arm	1
18	7 998 341	Spring arm	2
19		Locking lever	1
20		Distance bush	1
22		Lock nut VM 14 DIN 980	1
23	14 994 487	Coupling bolt incl. item 24 and 2 pcs. of item 25	1
24	12 991 452	Locking lever pin	1
25	7 998 171	Locking spring	2
26	14 994 495	End cap incl. 2 pcs. of items 27, 28, 29	1
27		Spring pin	2
28		Volute spring	1
29		Buttonhead rivet 6 x 12 DIN 660	1
30		Nameplate incl. 2 pcs. of item 31	1
31		Blind rivet 3 x 6	2
32		Hexagonal screw M 10 x 95 DIN 931	1
33		Lock nut VM 10 DIN 980	1
34		Hexagonal screw M 8 x 12 DIN 933	1
36	7 998 317	Rubber spring	2
37	7 995 520	Thrust washer	1
38	990 540	Bar guide incl. 2 x item 39	1
39	10 996 732	Bearing bush	2
40	7 995 555	Tension washer	1
42	6 997 732	Castellated nut M 45 x 3 incl. item 43	1
43	12 991 533	Cotter pin 8 x 80 DIN 94	1
44	10 991 323	Protecting cap	1
45	14 994 434	Hand lever incl. items 16, 19, 20, 22 Design B	1
46	14 994 443	Sensor type 2040/2045	1
	14 994 511	Repairkit composing of: Coupling bolt, compl., top and bottom guide bush, cotter pin, plastic plate compl.	1

Type 2040/G150			
Item	Order No.	Description	Qty.
1		Drawbar incl. items 2, 42, 43	1
2	6 997 899	Top guide bush	1
3	14 994 488	Coupling body incl. Pos.4,5 without hole for sensor	1
3a	14 994 445	Coupling body incl. Pos.4,5 with hole for sensor	1
4	14 994 478	Safety device, cpl.	1
5		Tapered grease nipple AM 8 x 1 DIN 71412	1
6	6 997 880	Bottom guide bush	1
7	6 998 771	Special plastic plate incl. 2 pcs. of items 8, 10	1
7a	14 994 503	Wear plate (cost iron) incl. 2 pcs. of items 8, 10	1
8		Countersunk screw M 8 x 30 DIN 7991	2
9		Washer 8.4 DIN 125	1
10		Hexagonal nut VM 8 DIN 980	2
11	7 995 563	Return spring	1
12	7 995 571	Tab washer	1
13		Washer 10.5 DIN 125	2
14		Hexagonal screw M 10 x 40 DIN 933 incl. item 13	2
15	14 994 450	Hand lever incl. items 16, 19, 20, 22 Design A	1
16		Knob for hand lever	1
17	14 994 486	Bolt for spring arm	1
18	7 998 341	Spring arm	2
19		Locking lever	1
20		Distance bush	1
22		Lock nut VM 14 DIN 980	1
23	14 994 487	Coupling bolt incl. item 24 and 2 pcs. of item 25	1
24	12 991 452	Locking lever pin	1
25	7 998 171	Locking spring	2
26	14 994 495	End cap incl. 2 pcs. of items 27, 28, 29	1
27		Spring pin	2
28		Volute spring	1
29		Buttonhead rivet 6 x 12 DIN 660	1
30		Nameplate incl. 2 pcs. of item 31	1
31		Blind rivet 3 x 6	2
32		Hexagonal screw M 10 x 95 DIN 931	1
33		Lock nut VM 10 DIN 980	1
34		Hexagonal screw M 8 x 12 DIN 933	1
36	7 998 317	Rubber spring	2
37	7 995 520	Thrust washer	1
38	990 558	Bar guide incl. 2 x item 39	1
39	10 996 732	Bearing bush	2
40	7 995 555	Tension washer	1
42	6 997 732	Castellated nut M 45 x 3 einschl. Pos. 43	1
43	12 991 533	Cotter pin 8 x 80 DIN 94	1
44	10 991 323	Protecting cap	1
45	14 994 434	Hand lever incl. items 16, 19, 20, 22 Design B	1
46	14 994 443	Sensor type 2040/2045	1
	14 994 511	Repairkit composing of: Coupling bolt, compl., top and bottom guide bush, cotter pin, plastic plate compl.	1

Automatic Trailer Couplings

Type 2040/G135, Type 2040/G145 and Type 2040/G150

Installation:

Remove protecting cap (44), castellated nut (42), tension washer (40), rubber spring (36) and bar guide (38) from the drawbar. Introduce bar guide (38) against driving direction in the cross member until the flange fits close to the cross member. Fasten bar guide (38) to the cross member from the rear using 4 hexagonal screws quality 8.8, DIN 931 and 4 hexagon nuts quality 8 in turns.

Tightening torque per screw:

2040/G135, M14 x135 Nm
 2040/G145, M16 x210 Nm
 2040/G150, M20 x410 Nm

Push the drawbar (1) with front rubber spring (36) and thrust washer (37) into the bar guide (38). Fit rear rubber spring (36) and tension washer (40). Tighten castellated nut (42) with the specified tightening torque (see installation and operating instructions) until it is fully tightened and secure using a cotter pin (43). (To reach the next hole position for the cotter pin even higher tightening torques may be required.) Fit protecting cap (44). Straighten the coupling. Removal is effected similarly. During repair attend to always using new, corrosion-resisting cotter pins to fix the castellated nut with (DIN94 - A3C).

Operation:

For that purpose the coupling jaw must be in the central position or it must be moved by hand to one of the lateral end positions. Only now can the coupling be opened and locked into place. When inserting the drawbar eye, the mechanism is released by lifting the coupling bolt (23). In the lower position a second independent safety device (4) automatically locks the coupling bolt. For your own safety check that the safety device (4) is fully engaged after each coupling process, which is perceptible by the signal pin of the safety device is fitting closely and flush with the plastic side cap of the coupling body.

Maintenance:

The coupling body (3) is provided with a tapered grease nipple (5) which permits lubrication of the entire coupling head. Please lubricate regularly. The coupling bolt and drawbar eye will be subject to less wear and tear if they are always kept clean and well lubricated. The drawbar guide is maintenance-free.

Repair:

Besides the spare parts overleaf we offer for the repair of our couplings a kit comprising of all important wear parts and repair instructions.

The repair kit is composed of:

- coupling bolt including locking lever pin and 2 locking springs
- 1 bottom and 1 top guide bush
- plastic plate and mounting material order no. 14 994 511

Important Instruction:

When fitting (or replacing) the trailer coupling please attend to the relevant statutory regulations and particular information from the vehicle manufacturers.

The mounting of the trailer coupling has to be checked in accordance with the regulations contained in appendix I, no. 5.10 and in compliance with the requirements laid down in appendix VII of the EC-regulation 94/20.

Technical Data:

D-value for towing vehicle and semi-trailer

$$D \text{ (kN)} = g \cdot \frac{T \cdot R}{T + R}$$

The calculated D-value may be **less or equal to** the D-value of the coupling.

T: max. mass in tonnes of the towing vehicle
 R: max. mass in tonnes of the semi-trailer
 g: acceleration due to gravity 9,81 m/s²

Dc-value for the towing vehicle and centre axle trailer

(only applicable in connection with the V-value)

$$Dc \text{ (kN)} = g \cdot \frac{T \cdot C}{T + C}$$

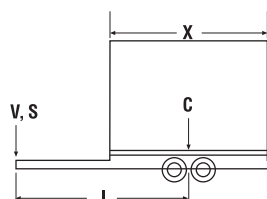
The calculated Dc-value may be **less or equal to** the Dc-value of the coupling.

T: max. mass in tonnes of the towing vehicle
 C: sum of the axle loads of the centre axle trailer carrying maximum permissible load, in tonnes
 g: acceleration due to gravity 9,81 m/s²

V-value for the centre axle trailer

(only applicable in connection with the Dc-value)

$$V \text{ (kN)} = a \cdot \frac{X^2}{l^2} \cdot C$$



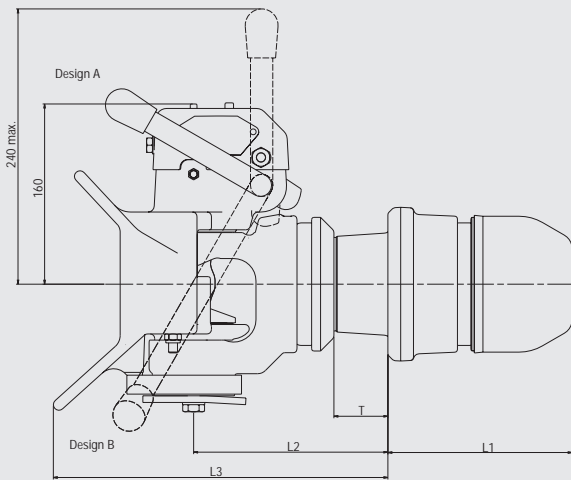
The calculated V-value may be **less or equal to** the V-value of the coupling.

a: equivalent vertical acceleration in the coupling point, in m/s²

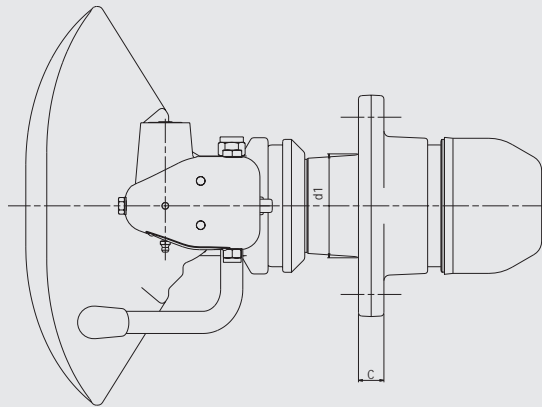
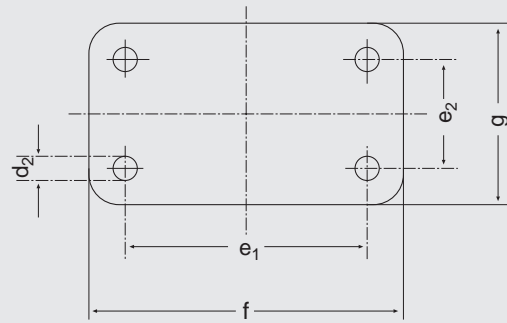
a = 1.8 for vehicles with air suspension
 a = 2.4 for vehicles with other suspension

l: theoretical drawbar length in metres
 X: length of the loading area of the trailer in m

X^2/l^2 at least 1.0 (for the calculation)
 C: sum of the axle loads of the centre axle trailer carrying maximum permissible load, in tonnes



Flange Design



Articulation of drawbar eye:

- horizontally $\pm 110^\circ$
- vertically $\pm 20^\circ$
- rotationally $\pm 360^\circ$

Technical Data:

Design	Order No.	Type	Class to 94/20 EC	EEC Type Approval	D-Value kN	Dc-Value kN	V-Value kN	Supporting load kg	c	d ₁	d ₂	e ₁ x e ₂	f	g	l ₁	l ₂	l ₃	t	Weight kg
A	14994504	2040/G135	S	e11 00-3728	70	70	28	700	21	ø74	ø15	120x55	155	90	150	168	295	35	29
A with Sensor	14994512	2040/G135	S	e11 00-3728	70	70	28	700	21	ø74	ø15	120x55	155	90	150	168	295	35	29
B	14994528	2040/G135	S	e11 00-3728	70	70	28	700	21	ø74	ø15	120x55	155	90	150	168	295	35	29
B with Sensor	14994536	2040/G135	S	e11 00-3728	70	70	28	700	21	ø74	ø15	120x55	155	90	150	168	295	35	29
A	14995451	2040/G145	S	e11 00-3444	100	92	38	1000	23	ø84	ø17	140x80	180	120	172	168	295	35	35
A with Sensor	14994519	2040/G145	S	e11 00-3444	100	92	38	1000	23	ø84	ø17	140x80	180	120	172	168	295	35	35
B	14994527	2040/G145	S	e11 00-3444	100	92	38	1000	23	ø84	ø17	140x80	180	120	172	168	295	35	35
B with Sensor	14994535	2040/G145	S	e11 00-3444	100	92	38	1000	23	ø84	ø17	140x80	180	120	172	168	295	35	35
A	14995422	2040/G150	S	e11 00-3445	136	92	38	1000	23	ø94	ø21	160x100	200	140	165	175	305	35	37
A with Sensor	14994502	2040/G150	S	e11 00-3445	136	92	38	1000	23	ø94	ø21	160x100	200	140	165	175	305	35	37
B	14994510	2040/G150	S	e11 00-3445	136	92	38	1000	23	ø94	ø21	160x100	200	140	165	175	305	35	37
B with Sensor	14994518	2040/G150	S	e11 00-3445	136	92	38	1000	23	ø94	ø21	160x100	200	140	165	175	305	35	37



A certified company in accordance with DIN EN ISO 9001 and VDA 6.1

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