

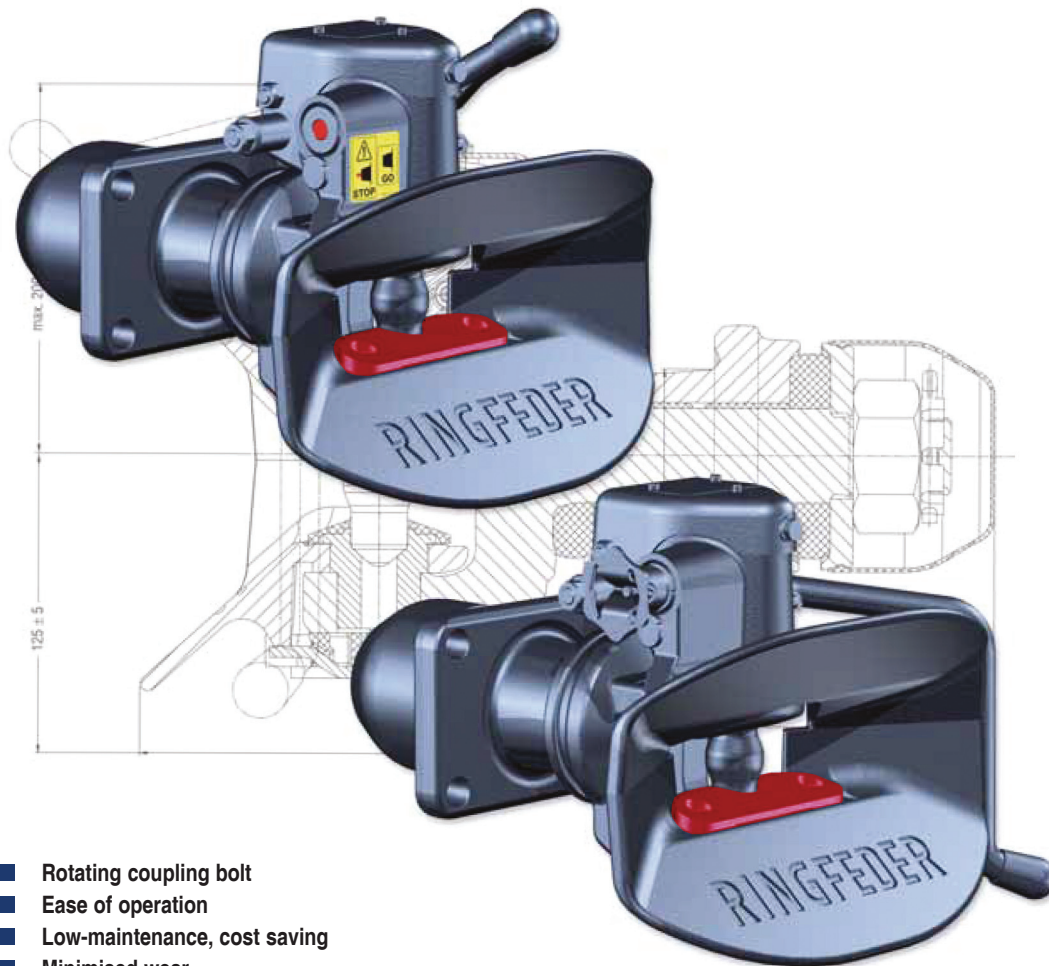


# RINGFEDER

## Automatic Trailer Coupling

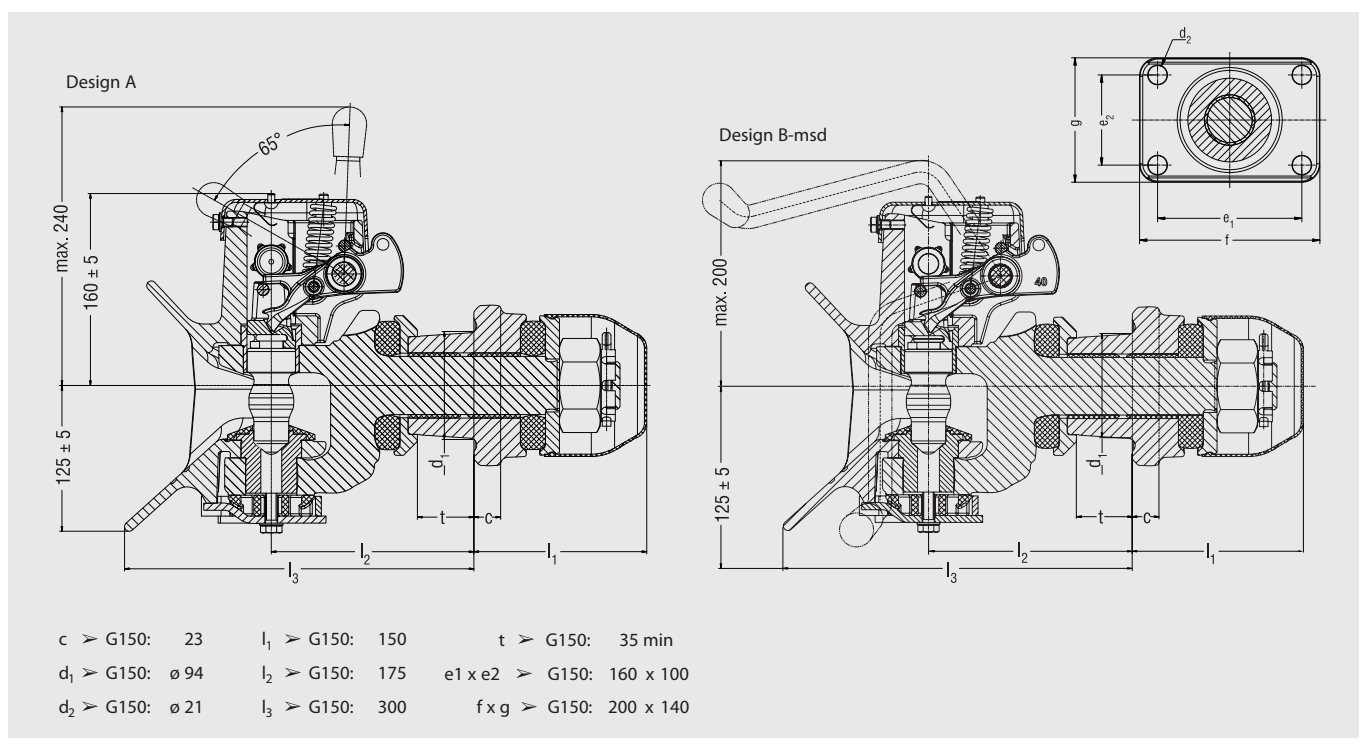
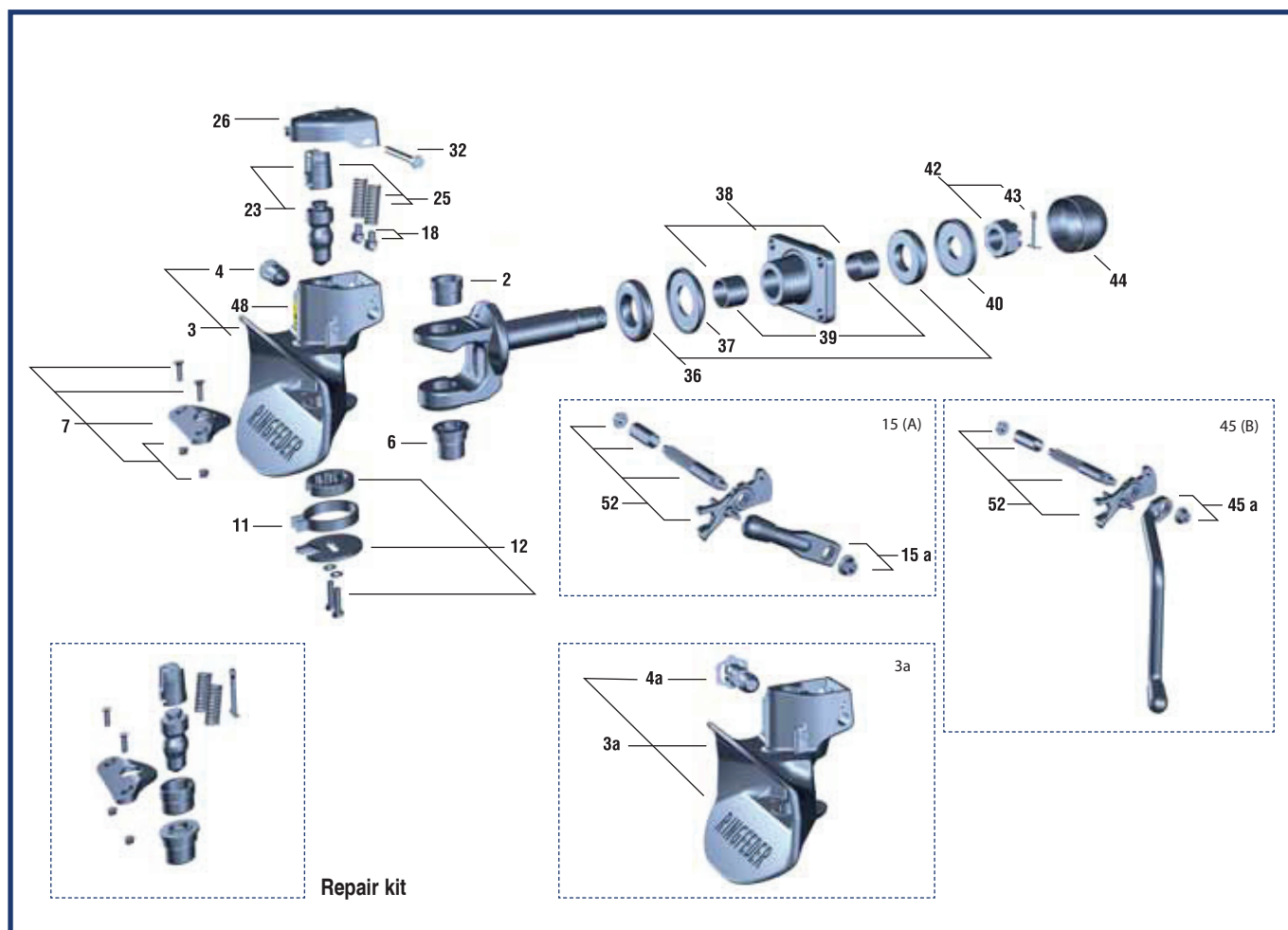
# RINGFEDER® Type 4040-A / B-msd

for connection with hinged drawbar trailers and centre axle trailers with drawbar eyes 40 acc. to DIN 74054 or 40 mm acc. to ISO 8755 and equal drawbar eyes of class S in accordance with the directive 94/20 EC or ECE 55-01



- Rotating coupling bolt
- Ease of operation
- Low-maintenance, cost saving
- Minimised wear

# Type 4040 design A / B-msd



## Technical data

Design	Type	Class 94/20EG	EEC type approval 94/20EG	D-Value kN	Dc-Value kN	V-Value kN	Adm. supporting load kg	Flange size kg	Order number
A	4040/G150	S	e11 00 - 6292	137	92	40	1000	160 x 100	14 996 314
B-msd	4040/G150	S	e11 00 - 6292	137	92	40	1000	160 x 100	14 991 624

## Spare parts

Type 4040 A / B-msd		
Pos.	No.	Designation
2	14 991 240	Top guide bush
3	14 991 248	Coupling body cpl., with safety device design A
3a	14 991 720	Coupling body cpl., with manual safety device design B-msd
4	14 994 478	Safety device, complete design A
4a	14 991 073	Manual safety device, complete (14 996 434)
6	14 991 256	Bottom guide bush
7	06 998 771	Special plastic plate, cpl.
7a	14 994 503	Wear plate, cast iron
11	07 995 563	Return spring
12	14 991 264	Tab washer, complete
15	14 991 272	Hand lever-/locking lever combination, design A
15a	14 991 312	Hand lever design A
18	07 998 341	Spring arm (2 pcs.)
23	14 991 280	Coupling bolt, cpl. with locking springs short, L = 75 mm
25	14 991 241	Locking spring short, L = 75 mm (2 pcs.)
26	14 991 288	End cap, cpl.
32	14 991 359	Hexagon screw M 10x115- 10.9
36	14 991 672	Rubber spring (2 pcs.)
37	07 995 520	Thrust washer
38	14 991 296	Bar guide cpl.
39	14 991 304	Bearing bush (2 pcs.)
40	07 995 555	Tension washer
42	06 997 732	Castellated nut M 45x3, cpl.
43	12 991 533	Cotter pin 8 x 80 DIN 94, St, A3C
44	10 991 323	Protecting cap
45	14 991 368	Hand lever-/locking lever combination, design B
45a	14 997 190	Hand lever design B
48	09 127 100	Plug for sensor hole (10 pcs.)
52	14 991 320	Axle with locking lever
	14 991 328	Repair kit 4040 / 4045 A, B, coupling bolt, cpl. (23), special plastic plate, cpl., top guide bush, bottom guide bush, cotter pin

## Technical Data

### D-value for towing vehicle and full-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/s<sup>2</sup>

**Important Instruction:** When fitting (or replacing) the trailer coupling the relevant legal regulations and the instructions from the car manufacturers have to be observed.

### Dc-value for towing vehicle and centre axle trailer:

(only applicable in connection with the V-value)

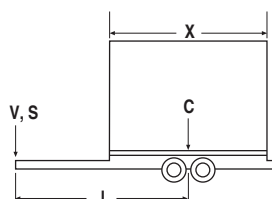
$$Dc \text{ (kN)} = g \cdot \frac{T \cdot C}{T + C}$$

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/s<sup>2</sup>

**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/s<sup>2</sup>

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 metres

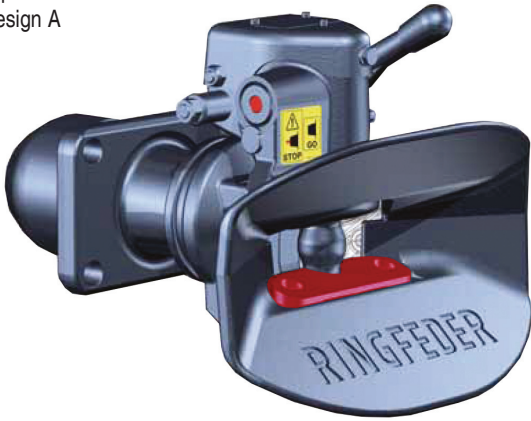
$X^2/l^2$  **at least 1.0** (for the calculation)

C: sum of the axle loads of the centre axletrailer carrying maximum permissible load, in tonnes

**EEC Type Approval:** 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.

# Type 4040 design A / B-msd

Type 4040  
Design A



## Operation Type 4040, design A

The trailer coupling is closed and secured, resp. coupled, that is to say the towing eye is inserted, the coupling bolt in its lower position, the safety device is engaged, the indicator pin in this secured position of the safety device is fitting flush to the safety cap in the coupling body.

### Releasing and opening of the trailer coupling:

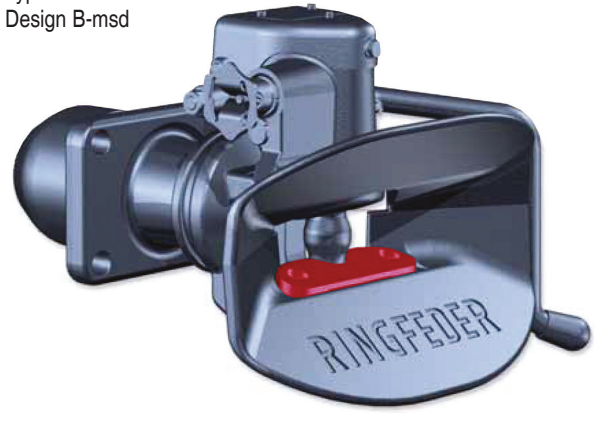
To open the coupling the handle is moved to its upper end position and then released. This will cause the coupling bolt to lift up and the towing eye may be extended. Due to the extension of the towing eye the coupling mechanism is again released and thus, the coupling repeatedly closed and secured.

### Opening of the trailer coupling and engaging the towing eye:

To open the trailer coupling proceed as described above. The coupling lever is in its upper end position, the coupling is set ready for its next engagement. When inserting the towing eye, the coupling mechanism is released by lifting the coupling bolt. The coupling closes automatically, which means that the coupling bolt is inserted through the towing eye bush in its lower position in the bottom guide bush.

Check that after each coupling process the safety device is fully engaged. If the indicator pin is not fitting flush to the safety cap in the coupling body the trailer coupling is unsecured and the whole procedure must be repeated.

Type 4040  
Design B-msd



## Operation Type 4040, design B-msd

### Trailer coupling coupled

The trailer coupling is closed and secured, respectively coupled, that is to say the towing eye is inserted, the coupling bolt in its lower position, the safety device is engaged: the safety bar/bolt locates over the coupling bolt, the security knob is in the internal engaged position.

### Opening the trailer coupling

The trailer coupling can only be opened if the coupling jaw is in the central position or in the lateral end positions. To release the trailer coupling the securing knob is to be pulled out and turned ahead until it has reached its external engaged position. The trailer coupling now is released. To open the trailer coupling the handle is moved to its upper end position and then released. (The handle engages in the upper end position.) This will cause the coupling bolt to lift up and the towing eye may be extended. Due to the extension of the towing eye the coupling mechanism is again released and thus the coupling repeatedly closed and secured.

### Opening the trailer coupling to couple the towing eye

To open the trailer coupling proceed as described above. The coupling lever is engaged in its upper end position, the coupling is set ready for its next engagement. When inserting the towing eye the coupling mechanism is released by lifting the coupling bolt. The coupling closes automatically which means that the coupling bolt is inserted in its lower position through the towing eye bush in the lower guide bush. The safety device is engaged that is to say the safety bar / bolt locates over the coupling bolt, the securing knob is in its engaged position, the coupling is closed and secured, the towing eye is engaged.

Check that after each coupling process the safety device is fully engaged. If the securing knob is not in its internal engaged position, the trailer coupling is unsecured and the whole coupling procedure must be repeated.



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