

AL-KO

QUALITY FOR LIFE

80 *years*
1931 - 2011

AL-KO

ALOIS KOBER GMBH

SPECIAL APPLICATIONS

**TECHNICAL SALES CONSULTANT
FOR THE TRAILER MANUFACTURER**

Contents

QUALITY FOR LIFE

Hazardous substances ruling:

The braked axles in this catalogue comply with the Hazardous Substances Ruling § 47 (2) Fig 3 (asbestos free brake linings).

EC-Directive:

The overrun devices and wheel brakes comply with EC-Directive No. 71/320/EEC with all additions.

Germany 100 km/h:

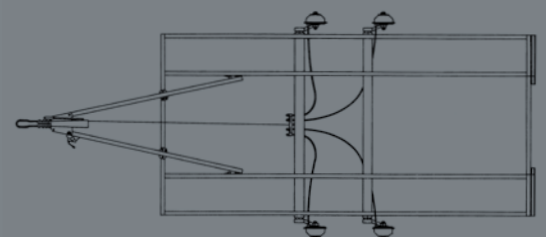
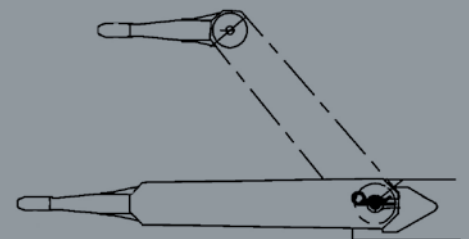
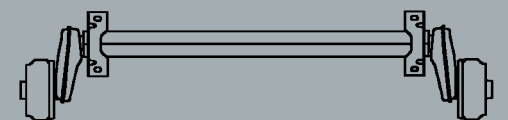
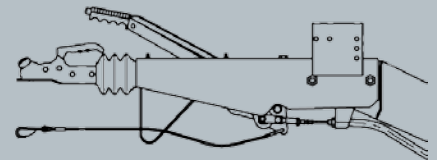
All vehicle components listed are designed for use to at least 100 km/h (see StVZO 15-th change order §30a paragraph 2).

Europe 140 km/h:

All vehicle components listed are designed for use to at least 140 km/h.

Order tips:

- 1.) please, generally name AL-KO parts numbers with your orders
- 2.) delivery time of **parts red printed** is 2 working days, leadtimes of black printed order numbers is 10 or 20 working days. Please ask for leadtimes when order lots are higher than 10 pc.
- 3.) Technical changes that serve technical progress are reserved.



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Quality for Life

The willingness and the ability to change, new adjustment for changed customer requirements and market requirements are the base for our worldwide success and our stable leadership. With energy, creativity and new ideas only we can start developments, create innovative products and protect advantages against the competition. For us „Quality for Life” means that we offer high-quality products and services which significant comfort in all company branches.

Quality for Life – „ quality, a life long “, not only stands for our products, but means that the **service begins for our partners and customers by the purchase of the products**. With nationwide advertisement and the presence on all important measuring we promote straight the sales with our contracting partners and **inform customers about the newest events**. **Partnership** signifies the beginning of a **trusting, engaged collaboration** for AL-KO. Our partners support the positive image of the leading manufacturer for vehicle components as well as the application of attractive marketing instruments for the sales, worldwide in the sales of AL-KO products.



Vehicle technology

The strong teamwork and innovative ideas of our six strategically coordinated areas of business ensure our Vehicle Technology Segment - quality, safety and comfort. This is one of the main factors making us the worlds leading manufacture of chassis technology for commercial and domestic trailers, motor homes and commercial vehicles.



Garden+Hobby

Power and performance in a visually appealing package typifies our products in the fields of Lawn, Garden, Water and DIY Technology. Numerous innovation, design and quality awards prove the high quality of our equipment, which provides satisfaction down to the smallest detail.



Air condition technology

We provide the perfect air climate for hospitals, production facilities and efficient solutions for large commercial or leisure buildings. We implement consistent tailored solutions for our customers with individual economic and ecological assembly design concepts without compromising on quality, new technology or reliability.

TRAININGS



With us up to date

In trainings we provide detailed inside knowledge about our high tech vehicle components.

Our service for you

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Worldwide in good hands



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Successful partnerships have to be maintained, lived and created each and every day. We require long-term contacts in order to put our products and services in the **international market**. We combine our strengths and utilise synergy effects with our **world-wide branch network**, which gives us an ongoing local presence. It provides customers and suppliers with **direct contacts**, reliable **AL-KO quality** and comprehensive **competent service!**

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Overrun Devices square rotatable sideways



✓ Your Advantage

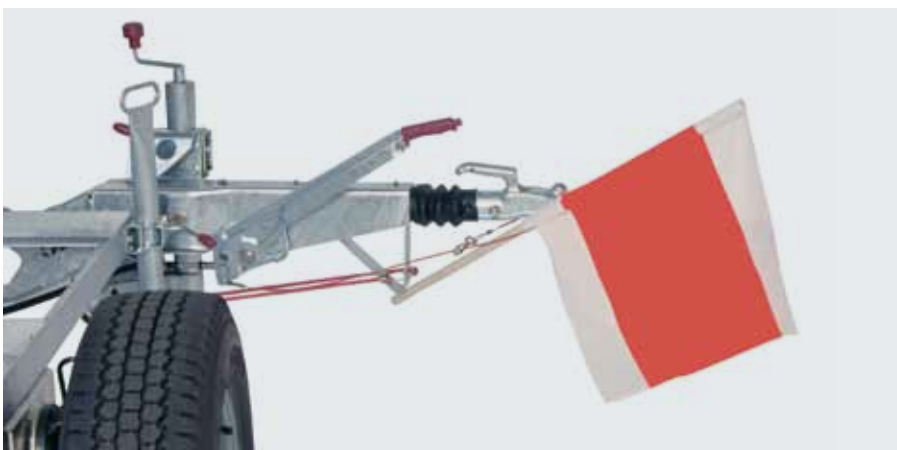
| Save Money

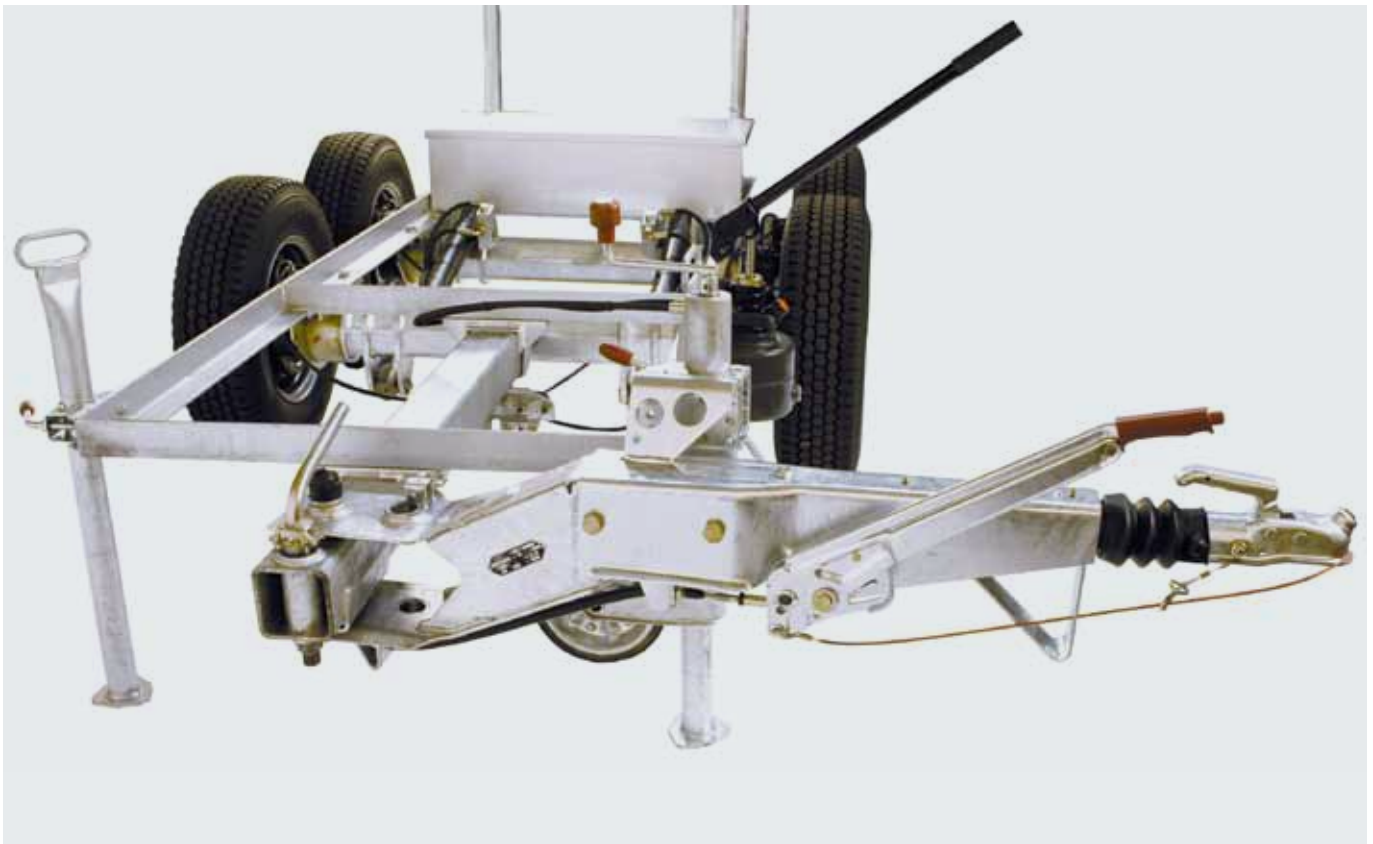
Parking space is expensive. During transport of the new vehicles as well as in day to day operation it is important to save space. Thus, e.g., sales vehicles are subtracted after occupied parking space. With the rotatable shaft

of AL-KO you can reduce the trailer size about approx. 1.20 m and save money.

| Easy operation

One person is able to swing the drawbar without big effort.





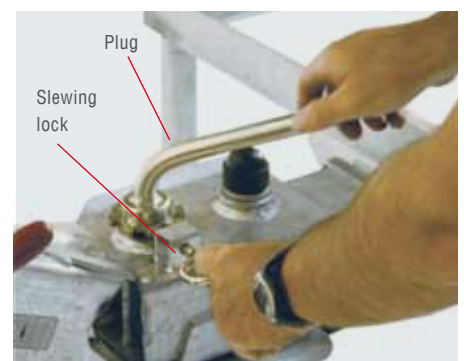
▣ Operation of Anti-Theft Device

I Trailer must be fixed to a stable stand by operation of four corner steadies. Support wheel to be turned up.

Open slewing lock and remove plug. Swing shaft alternatively to the right or to the left.

Disconnect plug again and protect drawbar against unintentional swinging back.

In case that drawbar exceeds vehicle width in swung position, the excess end must be marked (e.g. by a red flag).



▣ Surface treatment
hot-dip galvanised

Overrun Devices square

rotatable sideways, from 950 to 1600 kg

Type 161S - K26-S

Total weight 950 - 1600 kg
Permitted max. load 100 kg
Adjustable overrun lever: Yes

EC test number:

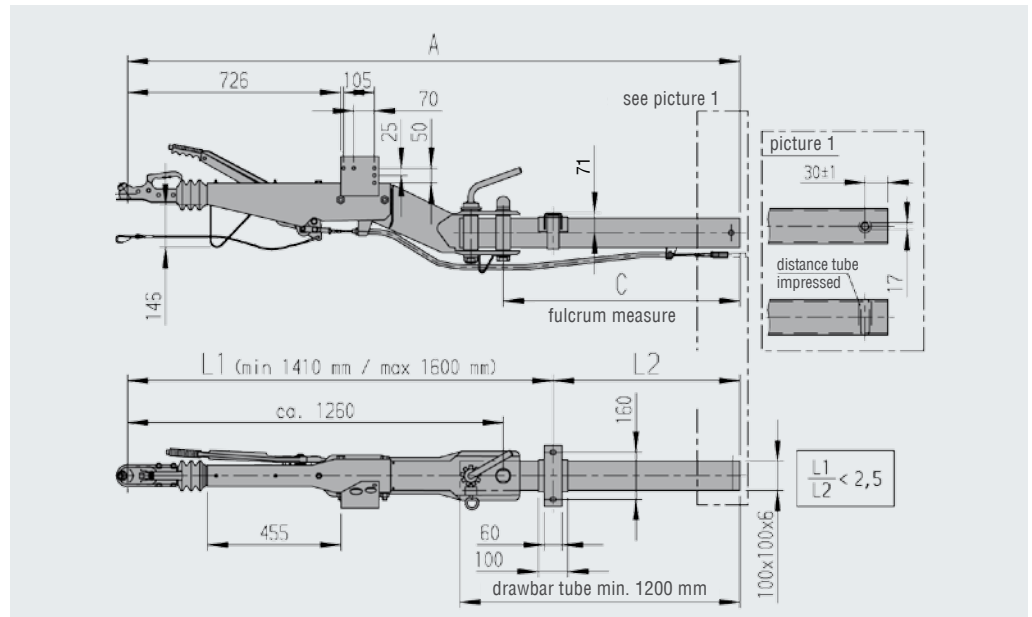
Complete assy: e1 00-0267
Overrun devices: 361 284 83
Drawbar: e1 00-1551
Max. free drawbar
length at total
weight 1600 kg: 1600 mm

Scope of supply

I Overrun device cpl.

see sketch

I Operating instructions



Range overview

with ball coupling AK 160 for wheel brake 2051 (90/27)						with ball coupling AK 160 for wheel brake 2361 (90/30)					
measurement in mm		Part-No.	E	F	G	measurement in mm		Part-No.	E	F	G
C	A					C	A				
1150	2410	200 554 01	59,0	20	10	1150	2410	200 554 20	59,0	20	10
1230	2490	200 554 02	60,4	20	10	1230	2490	200 554 21	60,4	20	10
1310	2570	200 554 03	61,8	20	10	1310	2570	200 554 22	61,8	20	10
1390	2650	200 554 04	63,2	20	10	1390	2650	200 554 23	63,2	20	10
1470	2730	200 554 05	64,6	20	10	1470	2730	200 554 24	64,6	20	10
1550	2810	200 554 06	66,0	20	10	1550	2810	200 554 25	66,0	20	10
1630	2890	200 554 07	67,4	20	10	1630	2890	200 554 26	67,4	20	10
1710	2970	200 554 08	68,8	20	10	1710	2970	200 554 27	68,8	20	10
1790	3050	1 222 006	70,2	20	10	1790	3050	200 554 28	70,2	20	10
1870	3130	200 554 09	71,6	20	10	1870	3130	200 554 29	71,6	20	10
1950	3210	200 554 10	73,0	20	10	1950	3210	200 554 30	73,0	20	10
2030	3290	200 554 11	74,4	20	10	2030	3290	200 554 31	74,4	20	10
2110	3370	200 554 12	75,8	20	10	2110	3370	200 554 32	75,8	20	10
2190	3450	200 554 13	77,2	20	10	2190	3450	200 554 33	77,2	20	10
2270	3530	200 554 14	78,6	20	10	2270	3530	200 554 34	78,6	20	10
2350	3610	200 554 15	80,0	20	10	2350	3610	200 554 35	80,0	20	10
2430	3690	200 554 16	81,4	20	10	2430	3690	200 554 36	81,4	20	10
2510	3770	200 554 17	82,8	20	10	2510	3770	200 554 37	82,8	20	10
2590	3850	200 554 18	84,2	20	10	2590	3850	200 554 38	84,2	20	10
2670	3930	200 554 19	85,6	20	10	2670	3930	200 554 39	85,6	20	10
2750	4010	1 222 007	87,0	20	10	2750	4010	200 554 40	87,0	20	10

with DIN-eye Ø 40 for wheel brake 2051 (90/27)

on inquiry

with DIN-eye Ø 40 for wheel brake 2361 (90/30)

on inquiry

rotatable sideways, from 1500 to 2600 kg

Type 251S - K26-S

Total weight 1500 - 2600 kg
Permitted max. load 100 kg
Adjustable overrun lever: Yes

EC-test-number:

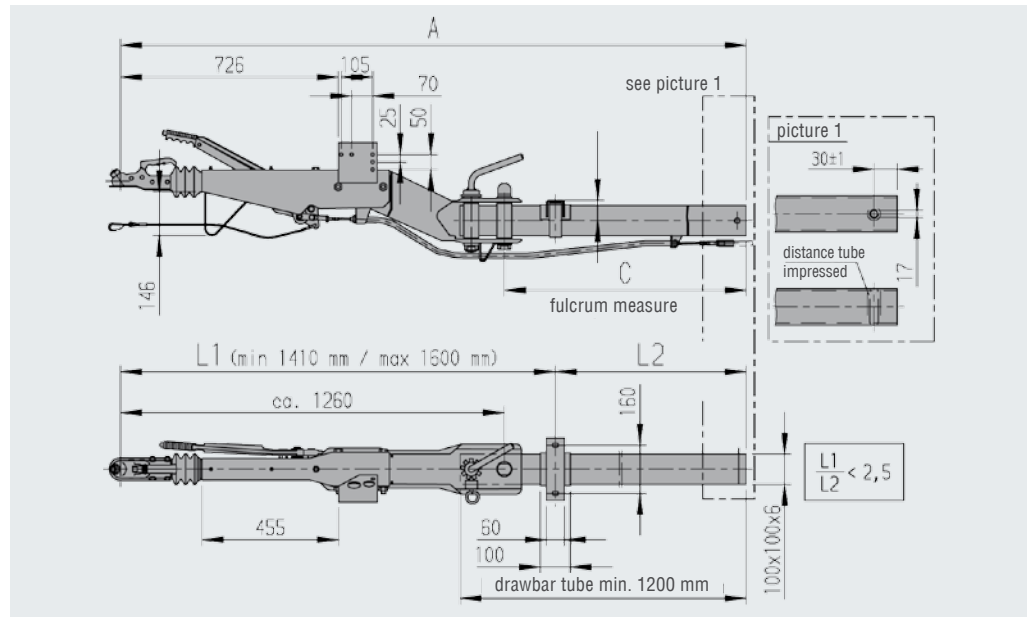
Complete assy: e1 00-0268
Overrun devices: 361 303 83
Drawbar: e1 00-1551
max. free drawbar length at total weight 1600 kg: 1600 mm

Scope of supply

I Overrun device cpl.

see sketch

I Operating instructions



Range overview

with ball coupling AK 160 for wheel brake 2051 (90/27)						with ball coupling AK 160 for wheel brake 2361 (90/30)					
measurement in mm		Part-No.				measurement in mm		Part-No.			
C	A					C	A				
1150	2410	200 555 01	64,0	20	10	1150	2410	200 555 20	64,0	20	10
1230	2490	200 555 02	65,4	20	10	1230	2490	200 555 21	65,4	20	10
1310	2570	200 555 03	66,8	20	10	1310	2570	200 555 22	66,8	20	10
1390	2650	200 555 04	68,2	20	10	1390	2650	200 555 23	68,2	20	10
1470	2730	200 555 05	69,6	20	10	1470	2730	200 555 24	69,6	20	10
1550	2810	200 555 06	71,0	20	10	1550	2810	200 555 25	71,0	20	10
1630	2890	200 555 07	72,4	20	10	1630	2890	200 555 26	72,4	20	10
1710	2970	200 555 08	73,8	20	10	1710	2970	200 555 27	73,8	20	10
1790	3050	1 221 857	75,2	20	10	1790	3050	200 555 28	75,2	20	10
1870	3130	200 555 09	76,6	20	10	1870	3130	200 555 29	76,6	20	10
1950	3210	200 555 10	78,0	20	10	1950	3210	200 555 30	78,0	20	10
2030	3290	200 555 11	79,4	20	10	2030	3290	200 555 31	79,4	20	10
2110	3370	200 555 12	80,8	20	10	2110	3370	200 555 32	80,8	20	10
2190	3450	200 555 13	82,2	20	10	2190	3450	200 555 33	82,2	20	10
2270	3530	200 555 14	83,6	20	10	2270	3530	200 555 34	83,6	20	10
2350	3610	200 555 15	85,0	20	10	2350	3610	200 555 35	85,0	20	10
2430	3690	200 555 16	86,4	20	10	2430	3690	200 555 36	86,4	20	10
2510	3770	200 555 17	87,4	20	10	2510	3770	200 555 37	87,4	20	10
2590	3850	200 555 18	89,2	20	10	2590	3850	200 555 38	89,2	20	10
2670	3930	200 555 19	90,6	20	10	2670	3930	200 555 39	90,6	20	10
2750	4010	1 221 980	92,0	20	10	2750	4010	200 555 40	92,0	20	10

with DIN-eye Ø 40 for wheel brake 2051 (90/27)

on inquiry

with DIN-eye Ø 40 for wheel brake 2361 (90/30)

on inquiry

Overrun Devices square

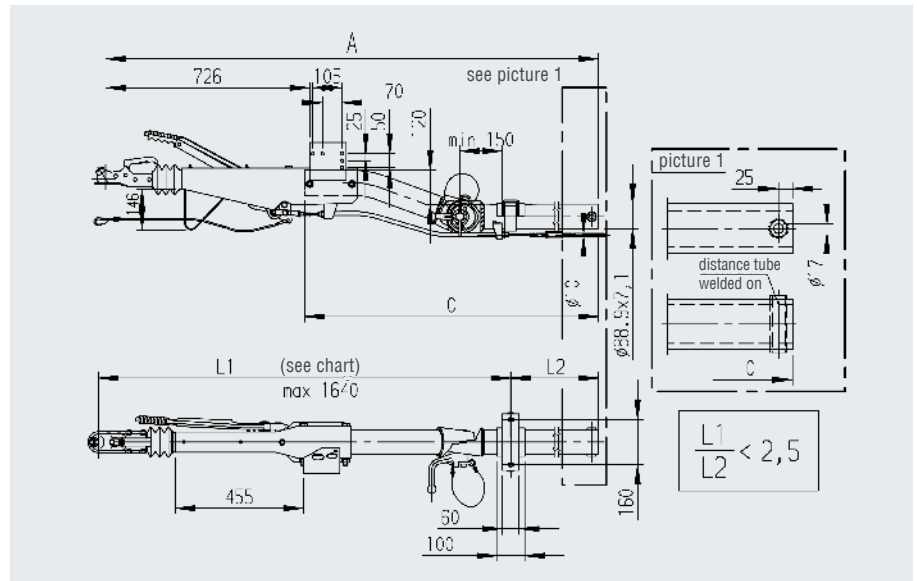
with removable towbar 950 to 1600 kg

Type 161S - ZE 252R

Total weight 950-1600 kg
Permitted max. load 100 kg
Adjustable overrun lever: Yes

EC-test-number:

Complete assy 161K: e1 00-0267
Overrun devices: 361 284 83
Drawbar 252R: e1 00-0536
free drawbar length min. 1430 mm
at total weight 1600 kg: max. 1640 mm



✓ Your Advantage




Commercial market trailers are charged by space occupied.

By dropping off or bringing in a vertical position of the overrun device the trailer length can be reduced by up to 1.20 m.

You save salesroom and state fees.



Range overview

		with ball coupling AK 160 for wheel brake 1637/2051 (90/27)	with ball coupling AK 160 for wheel brake 2361 (90/30)	with DIN-eye Ø 40 for wheel brake 1637/2051 (90/27)	with DIN-eye Ø 40 for wheel brake 2361 (90/30)			
C in mm	A in mm	Part-No.	Part-No.	Part-No.	Part-No.			
820	2145	200 564 01	200 564 11	200 564 22	200 564 33	49,9	20	15
980	2305	200 564 02	200 564 12	200 564 23	200 564 34	52,2	20	15
1140	2465	200 564 03	200 564 13	200 564 24	200 564 35	54,5	20	15
1300	2625	200 564 04	200 564 14	200 564 25	200 564 36	56,8	20	15
1460	2785	200 564 05	200 564 15	200 564 26	200 564 37	59,1	20	15
1620	2945	200 564 06	200 564 16	200 564 27	200 564 38	61,4	20	15
1780	3105	200 564 07	200 564 17	200 564 28	200 564 39	63,7	20	15
1940	3265	1 224 594	200 564 18	200 564 29	200 564 40	66,0	20	15
2100	3425	200 564 08	200 564 19	200 564 30	200 564 41	68,3	20	15
2260	3585	200 564 09	200 564 20	200 564 31	200 564 42	70,6	20	15
2420	3745	200 564 10	200 564 21	200 564 32	200 564 43	72,9	20	15

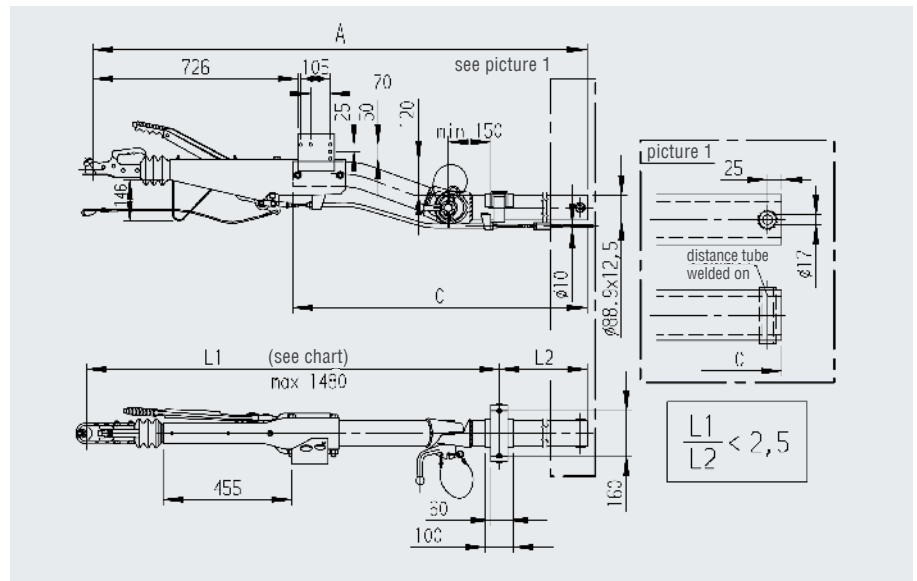
with removable towbar 1500 to 2600 kg

Type 251S - ZE 252R

Total weight 1500-2600 kg
Permitted max. load 100 kg
Adjustable overrun lever: Yes

EC-test-number:

Complete assy 251K: e1 00-0268
Overrun devices: 361 303 83
Drawbar 252R: e1 00-0536
free drawbar length min. 1440 mm
at total weight 2600 kg: max. 1480 mm



Surface treatment

hot-dip galvanised

Technology

We offer approx. 11 different lengths of 2,145 to 3,760 mm in hot-dip galvanised finish within 15 working days.

Operation

- I Bring trailer in a safe position by lifting up the four corner steadies. Turn up supporting wheel also
- I remove safety pins
- I loosen toggles
- I take out storage bolt and deposit the overrun device under the vehicle. Alternatively the overrun device can be raised vertically (remove wheel)

Range overview

		with ball coupling AK 300 for wheel brake 2051 (90/27)	with ball coupling AK 300 for wheel brake 2361 (90/30)	with DIN-eye Ø 40 for wheel brake 2051 (90/27)	with DIN-eye Ø 40 for wheel brake 2361 (90/30)			
C in mm	A in mm	Part-No.	Part-No.	Part-No.	Part-No.			
820	2160	200 565 01	200 565 11	200 565 22	200 565 33	65,4	20	15
980	2320	200 565 02	200 565 12	200 565 23	200 565 34	69,2	20	15
1140	2480	200 565 03	200 565 13	200 565 24	200 565 35	73,0	20	15
1300	2640	200 565 04	200 565 14	200 565 25	200 565 36	76,8	20	15
1460	2800	200 565 05	200 565 15	200 565 26	200 565 37	80,6	20	15
1620	2960	200 565 06	200 565 16	200 565 27	200 565 38	84,4	20	15
1780	3120	200 565 07	200 565 17	200 565 28	200 565 39	88,2	20	15
1940	3280	1 224 607	200 565 18	200 565 29	200 565 40	92,0	20	15
2100	3440	200 565 08	200 565 19	200 565 30	200 565 41	95,8	20	15
2260	3600	200 565 09	200 565 20	200 565 31	200 565 42	99,6	20	15
2420	3760	200 565 10	200 565 21	200 565 32	200 565 43	103,4	20	15

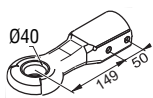
Overrun devices height adjustable V-Adapter

from 850 to 2700 kg

✓ Your Advantage

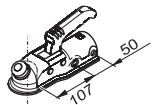
- extremely stable and robust construction
- technical advantages of overrun height adjustable, see comprehensive catalogue

Drawing 1: Coupling parts



DIN-eye Ø 40

161 VB Part-No. 1 213 350
251 VB Part-No. 1 213 350



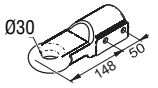
Ball coupling Ø 50

161 VB Part-No. 249 277 [AK 160]
251 VB Part-No. 249 278 [AK 300]



Nato-eye Ø 76

161 VB Part-No. 1 224 111
251 VB Part-No. 1 224 111



England-eye Ø 30

161 VB Part-No. 1 224 106
251 VB Part-No. 1 224 106



England-eye Ø 40

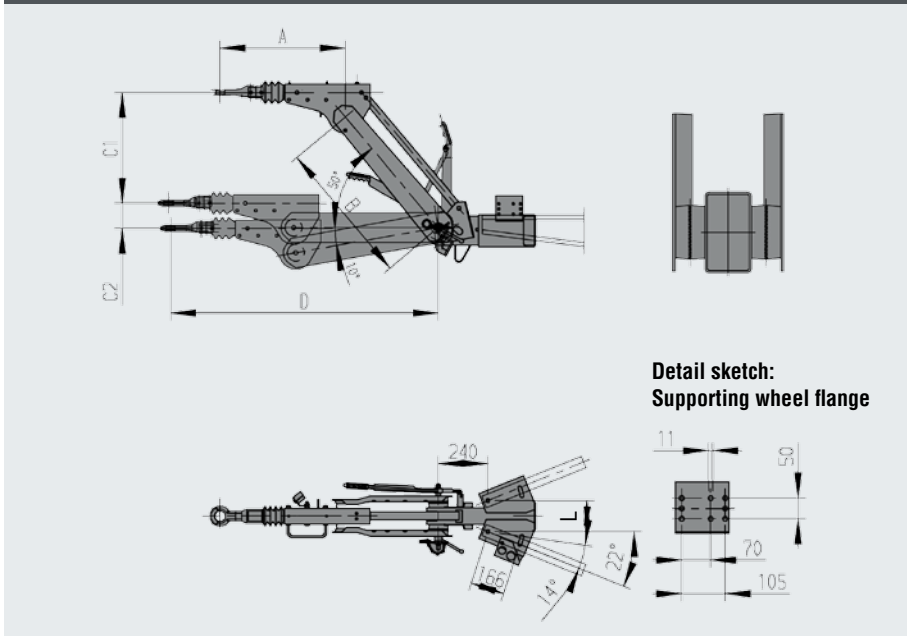
161 VB Part-No. 1 224 107
251 VB Part-No. 1 224 107



England-eye Ø 50,8

161 VB Part-No. 1 224 109
251 VB Part-No. 1 224 109

Drawing 2: Overrun device with V-Adapter

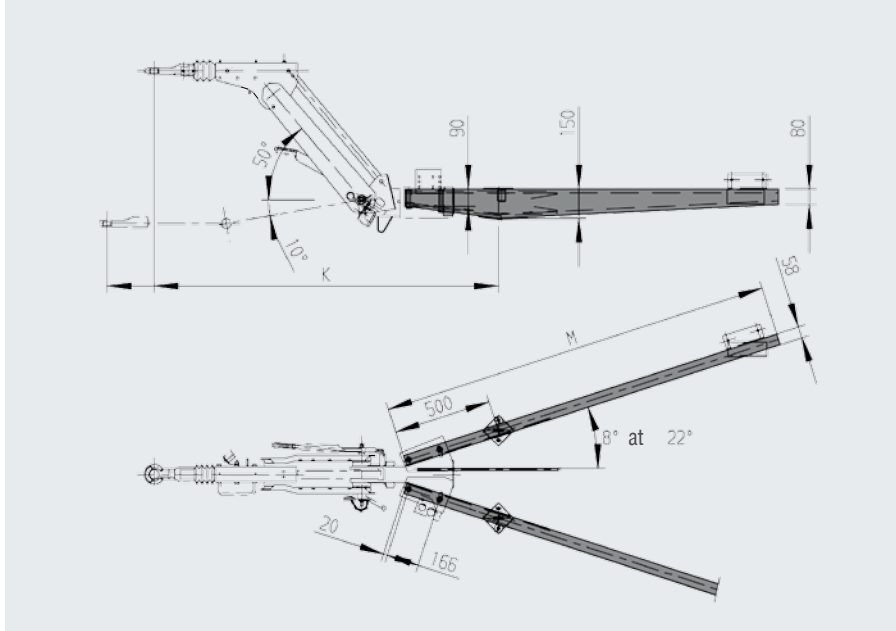


Range overview

Part-No.	for overrun devices cpl. with V-adapter (see drawing 2)			Overrun device (V-adapter)			Load kg	Compatible with AL-KO wheel brake	A (DIN-eye) mm
	Overrun device			Overrun device (V-adapter)					
	Total weight kg	Type	EC-No.	Type	EC-test-no.	Exec.			
1 220 119	850 - 1600	161VB-2	361-0002-01-FBKV	162VB-2	e1 94/20-1157	C	100	2051	606
1 222 806	850 - 1600	161VB-2	361-0002-91-FBKV	162VB-2	e1 94/20-1157	C	100	2361	606
1 220 091	1425 - 2700	251VB-2	361-0003-01-FBKV	252VB-2	e1 94/20-1158	C	120	2051	606
1 222 807	1425 - 2700	251VB-2	361-0003-01-FBKV	252VB-2	e1 94/20-1158	C	120	2361	606
1 222 808	1425 - 2700	251VB-2	361-0003-01-FBKV	252VB-2	e1 94/20-1158	C	120	3062	606

Part-No.	for drawbars V-type (V-towbar) with brake rod (see drawing 3)										
	Type Exec.	EC-test-no.	Total weight kg	Load kg	Length M mm		Free drawbar length K mm (with DIN-Eye)		Brake rod length Part- No.	Couple	
					Catalogue Standard mm	Reduced min. mm	at 0° mm	at 50° mm			
242 589	251T Exec. HV	e1 94/20-0535	to 2800	max. 120	2000	1500 shortest poss. 500 mm	1985	max. 1735	Ø10x3500 294 254	38	20

Drawing 3: drawbars V-type inclusive brake rod type 251T, Exec. HV



Scope of supply

I Coupling parts

see drawing 1. content:
coupling part with fixing bolts

I Overrun devices complete

see drawing 2. content:

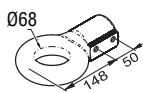
- I overrun device
- I adapter
- I brake activator (rope)
- I handbrake lever
- I breakaway cable
- I adjusting support
- I adapter piece -V-

I V-drawbar

see drawing 3. content:

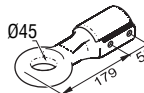
- I 1 pair drawbars
Incl. mounting bolts from adapter to V-drawbar
- I 1 brake rod with bolting material
- I Please order separately if needed:
2 welding brackets
Part-No. 202 418 01 03

I Operating instructions



France-eye Ø 68

161 VB Part-No. 1 224 110
251 VB Part-No. 1 224 110



Italy-eye Ø 45

161 VB Part-No. 1 224 108
251 VB Part-No. 1 224 108

for overrun devices cpl. with V-adapter (see drawing 2)

B Adapter mm	C1 at +50° mm	C2 at -10° mm	D (with DIN-eye)		L mm		
			at +50° mm	at 0° mm			
700	536	122	1056	1306	150	51	10
700	536	122	1056	1306	150	51	10
700	536	122	1056	1306	170	61	8
700	536	122	1056	1306	170	61	8
700	536	122	1056	1306	170	61	8

Surface treatment

Hot dip galvanised;
eye end and coupling zinc-plated

Technology

Only the V-towbars mentioned the table may be used. These towbars are optimally adapted to this load. Other towbar-versions may be overstrained by forces of the cranking height.

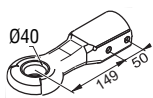
Exchanging the coupling parts (see drawing 1) must be carried out by a specialised workshop.

Overrun devices height adjustable with square adapters from 850 to 2700 kg

✓ Your Advantage

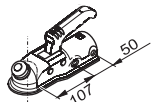
- extremely stable and robust construction
- technical advantages of overrun height adjustable, see comprehensive catalogue

Drawing 1: Coupling parts



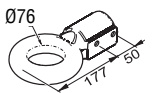
DIN-eye Ø 40

161 VB Part-No. 1 213 350
251 VB Part-No. 1 213 350



Ball coupling Ø 50

161 VB Part-No. 249 277 [AK 160]
251 VB Part-No. 249 278 [AK 300]



Nato-eye Ø 76

161 VB Part-No. 1 224 111
251 VB Part-No. 1 224 111



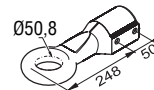
England-eye Ø 30

161 VB Part-No. 1 224 106
251 VB Part-No. 1 224 106



England-eye Ø 40

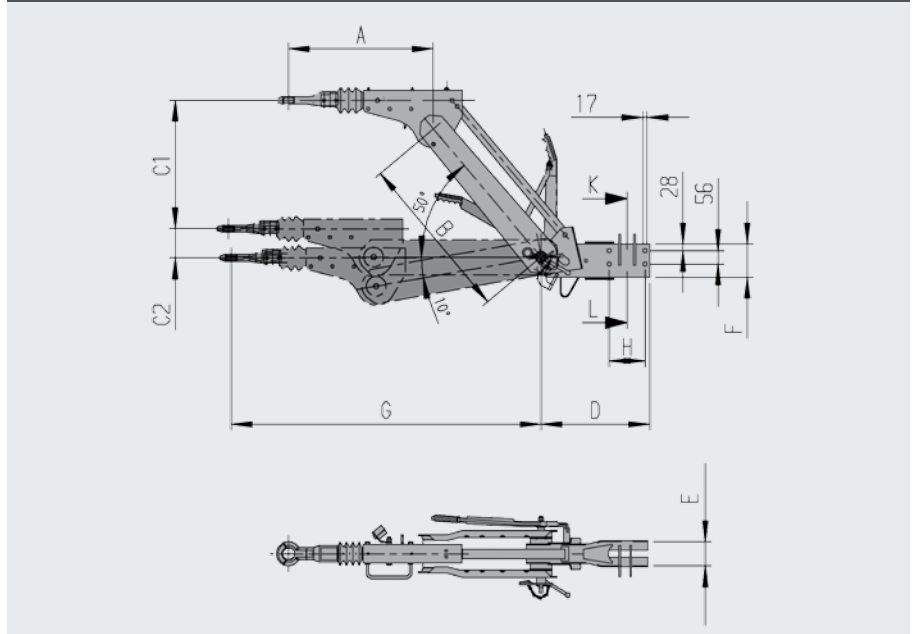
161 VB Part-No. 1 224 107
251 VB Part-No. 1 224 107



England-eye Ø 50,8

161 VB Part-No. 1 224 109
251 VB Part-No. 1 224 109

Drawing 2: Overrun devices with complete towbar (V-Adapter)

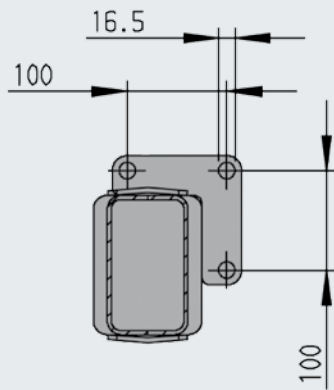


Range overview

for overrun devices cpl. with V-adapter (see drawing 2)

Part-No.	Overrun device			Drawbar (V-Adapter)			Load kg	compatible with AL-KO wheel brake	A (DIN-eye) mm
	Total weight kg	Type	EC-No.	Type	EC-test-no.	Exec.			
1 220 834	850 - 1600	161VB-2	361-0002-01-FBKV	162VB-2	e1 94/20-1157	A	100	1637/2051	606
1 220 314	850 - 1600	161VB-2	361-0002-91-FBKV	162VB-2	e1 94/20-1157	C	100	1637/2051	606
1 222 809	850 - 1600	161VB-2	361-0002-01-FBKV	162VB-2	e1 94/20-1157	A	100	2361	606
1 222 810	850 - 1600	161VB-2	361-0002-91-FBKV	162VB-2	e1 94/20-1157	C	100	2361	606
1 222 811	1425 - 2700	251VB-2	361-0003-01-FBKV	252VB-2	e1 94/20-1158	A	120	1637/2051	606
1 222 812	1425 - 2700	251VB-2	361-0003-01-FBKV	252VB-2	e1 94/20-1158	C	120	1637/2051	606
1 212 872	1425 - 2700	251VB-2	361-0003-01-FBKV	252VB-2	e1 94/20-1158	A	120	1637/2061	606
1 220 835	1425 - 2700	251VB-2	361-0003-01-FBKV	252VB-2	e1 94/20-1158	C	120	1637/2061	606
1 222 813	1425 - 2700	251VB-2	361-0003-01-FBKV	252VB-2	e1 94/20-1158	A	120	3062	606
1 222 814	1425 - 2700	251VB-2	361-0003-01-FBKV	252VB-2	e1 94/20-1158	C	120	3062	606

Section K-L



Recommended mounting bolts

Type	162VB-2	252VB-2
Mounting bolt	M16 - 8.8	M16x1,5 - 10.9
Tightening torque	170 Nm	250 Nm

Scope of supply

Coupling parts

see drawing 1. content:
coupling part with fixing bolts

Overrun devices complete

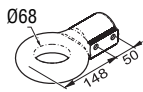
see drawing 2. content:

- I overrun device
- I middle section left, right
- I transmission unit (rope)
- I handbrake lever (gas spring supported)
- I breakaway cable

Operating instructions

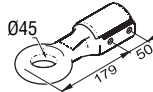
Surface treatment

Hot dip galvanised; eye coupling and coupling zinc-plated



France-eye Ø 68

161 VB Part-No. 1 224 110
251 VB Part-No. 1 224 110



Italy-eye Ø 45

161 VB Part-No. 1 224 108
251 VB Part-No. 1 224 108

Technology

- I Exchanging the coupling parts must be carried out by a specialised work shop.
- I Maximum free drawbar lengths depending on the type of drawbar used.

for overrun devices cpl. with V-adapter (see drawing 2)

B Adapter	C1 at +50°	C2 at -10°	D	E (Inside measure)	F	G (with DIN)		H	
mm	mm	mm	mm	mm	mm	at +50°	at 0°	mm	
400	306	70	455	101	140	863	1006	150	45
700	536	122	555	101	140	1056	1306	250	50
400	306	122	455	101	140	863	1006	150	45
700	536	122	555	101	140	1056	1306	250	50
400	306	70	465	101	172	863	1006	150	55
700	536	122	565	101	172	1056	1306	250	60
400	306	70	465	101	172	863	1006	150	55
700	536	122	565	101	172	1056	1306	250	60
400	306	70	465	101	172	863	1006	150	55
700	536	122	565	101	172	1056	1306	250	60

Compact-Overrun device with retractable hand brake 950 to 3000 kg

✓ Your advantage

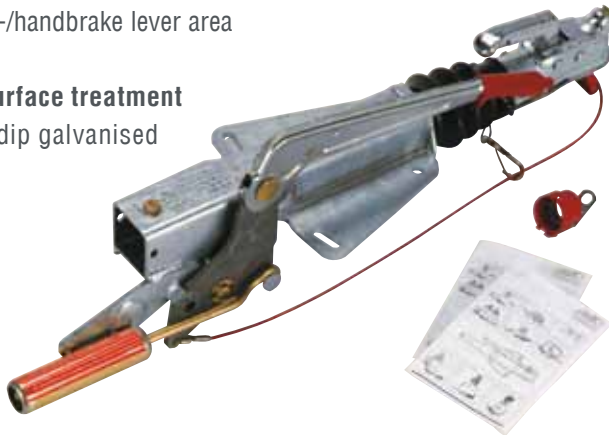
- After fixing the handbrake to parking position the lever can be dropped
- more free space in the drawbar-/handbrake lever area

📦 Scope of Supply

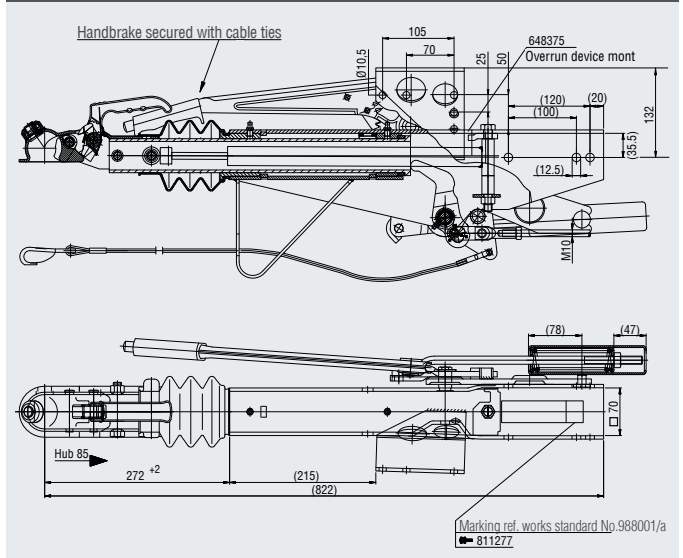
- Overrun device
- Plug holder
- Operating instructions
- Support buck

🔧 Surface treatment

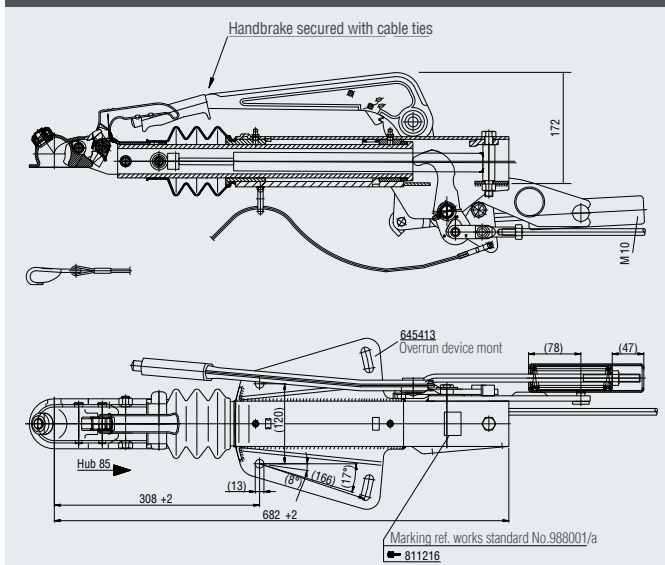
hot-dip galvanised



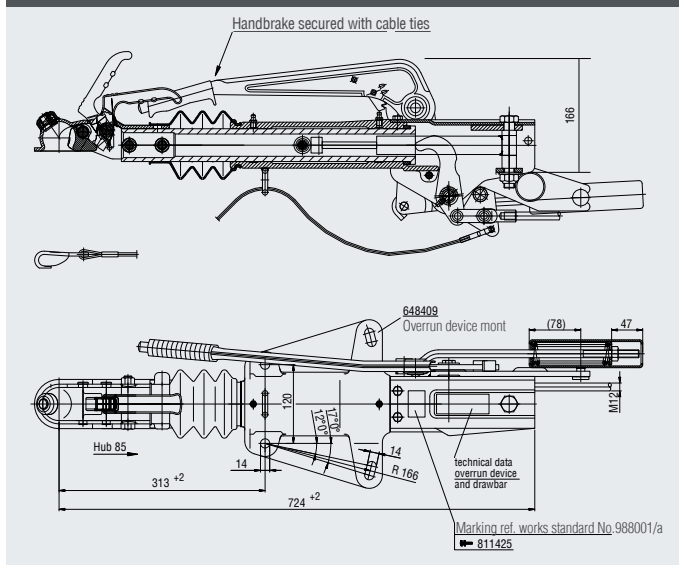
Overrun Device -V- 161 S



Overrun Device -V- 161 S



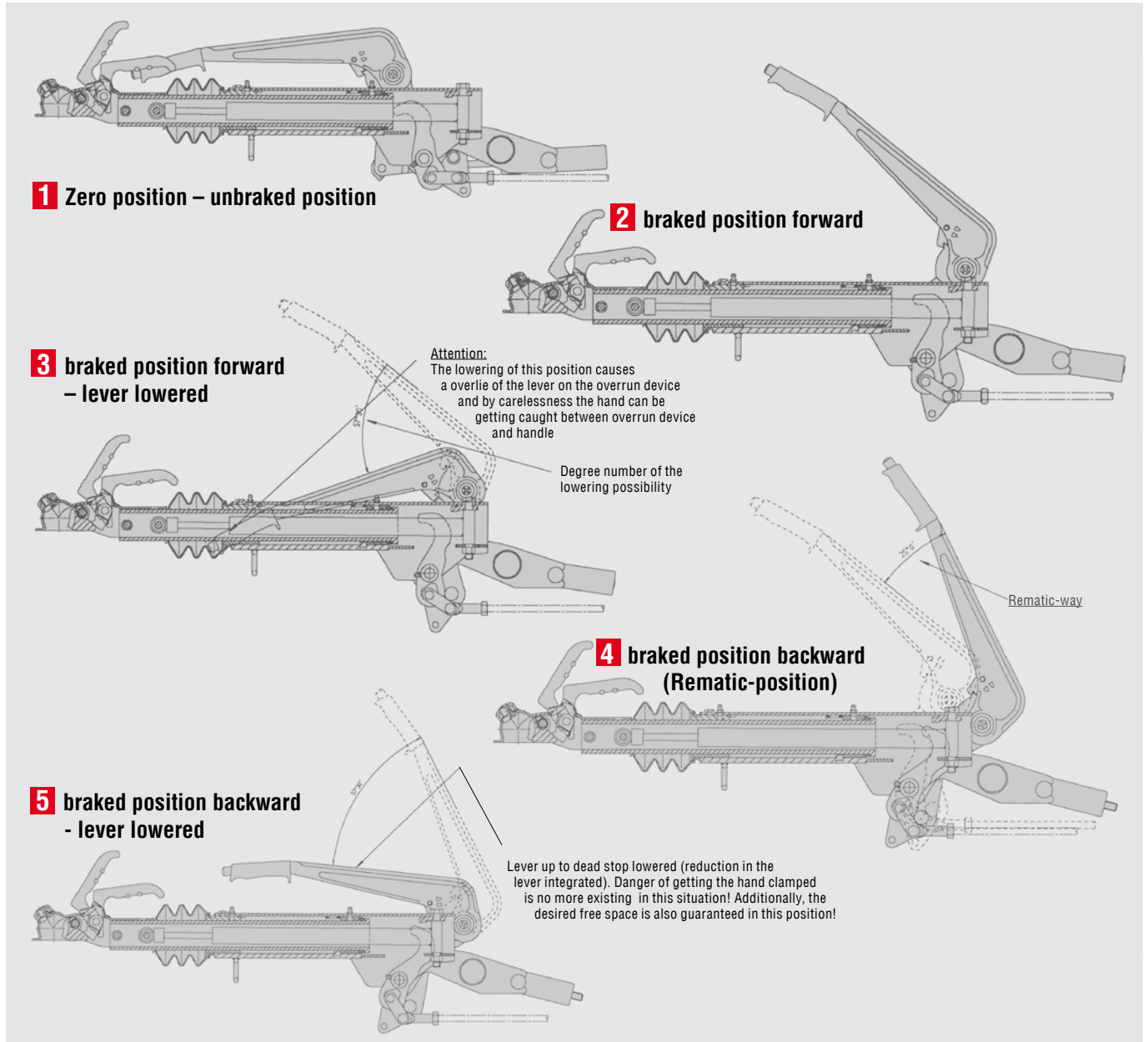
Overrun Device -V- 251 G



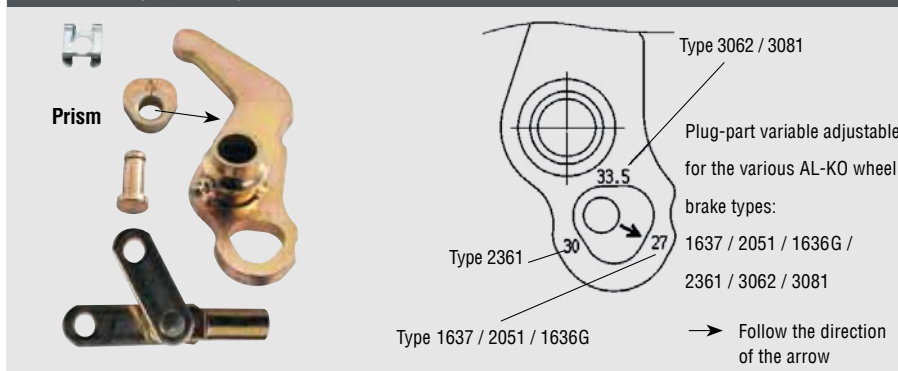
Range overview

Compact-Overrun device (steel)												
Part-No.	Type	Total weight trailer kg	Load kg	Installation	Compatible with AL-KO wheel brake*	EC-test-no. Ball coupling	Drawbar	Overrun device	Ball coupling mount.	📦	🔧	📄
1 211 246	square 161 S	950-1600	100	square 70	2051/2361	e1 00-0159 AK 160	e1 00-0267 161 K	361-284-83 161 S	AK 160	17	15	20
249 630	-V- 161 S	950-1600	100	V-arbor above	2051/2361	e1 00-0159 AK 160	e1 00-0227 251 S	361-284-83 161 S	AK 160	14	15	20
1 211 412	-V- 251 G	1500-3000	120	V-arbor above	3062/3081	e1 00-0131 AK 300	e1 00-0140 300 G	361-035-93 251 G	AK 300	19	15	20

Operation



Overrun lever (adjustable)



Attention!

Please make sure that the hand brake is released before driving away again! (Danger of overheated Wheelbrake!)
The hand brake lever position in picture 3 and 5 could tempt to the wrong presumption, that the hand brake had been already released. For this reason only briefed persons should operate the brake!

according to the wheel brake type the prism of the overrun lever must be adjusted properly!

Pro overrun device

with retractable hand brake lever 1600 up to 3500 kg

✓ Your advantage

- After fixing the hand brake to parking position the lever can be dropped
- more free space in the drawbar/hand brake lever area

🛠 Equipment

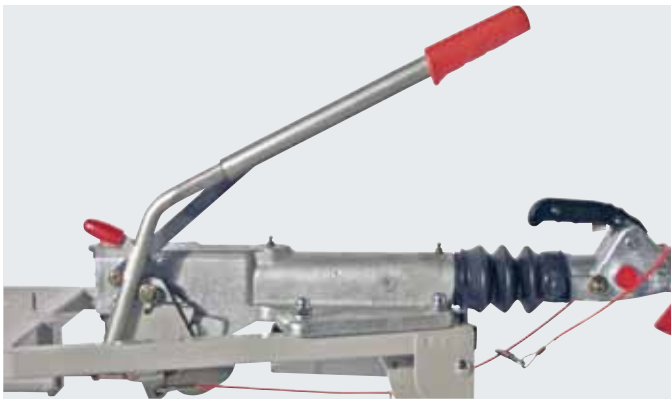
- wide range of accessories available (see main catalogue page 76 and 77)

📦 Scope of Supply

- Overrun device
- Plug holder
- Operating instructions
- Support buck

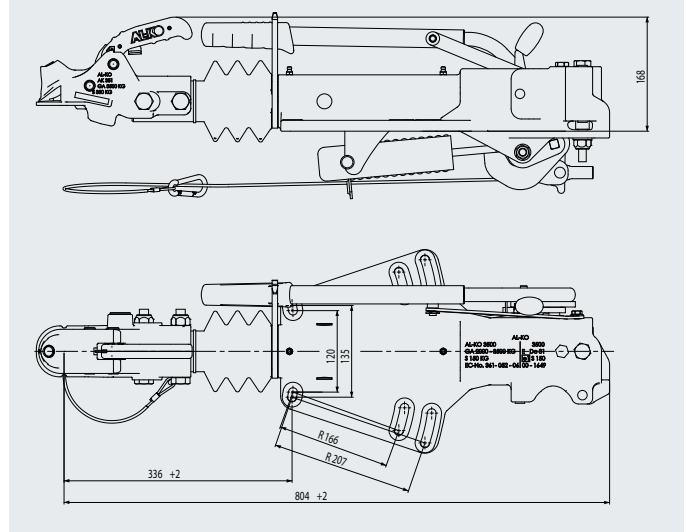
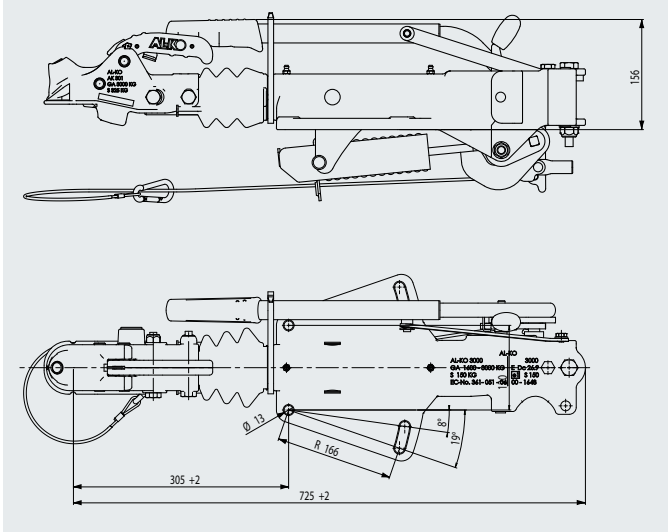
🔥 Surface treatment

- hot-dip galvanised



Overrun Device -V- 3000 kg

Overrun Device -V- 3500 kg

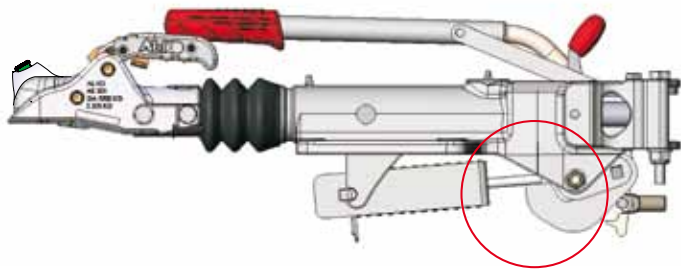


Range overview

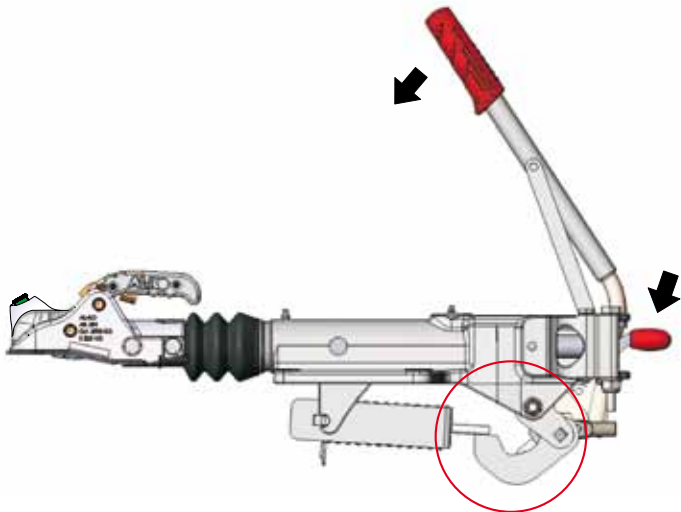
Profi-Overrun device (steel)													
Part No.	Type Overrun device Pro	Total weight trailer kg	Load kg	In- stal- lation	Adjust- able overrun lever	Compatible with AL-KO wheel brake*	EC-test-no.		EC-No. Overrun device	Ball coupling mount.			
							Ball coupling	Drawbar			🔥	🛠	📦
1 224 654 ¹						3062 / 3081	e1 00-1594	e1 00-1648	361-051-06		23	15	20
1 251 464 ²	3000 ASB	1600-3000	150	above +	no	2361	AK 301	3000	3000	AK 301	23	15	20
1 251 465 ²				below		2051					23	15	20
1 224 995				above +	no	2361	e1 00-1595	e1 00-1649	361-052-06		29	15	20
1 224 996	3500 ASB	2000-3500	150	below		3062 / 3081	AK 351	3500	3500	AK 351	29	15	20

¹ Only suitable for single-axle trailer!

² Only suitable for tandem trailer!

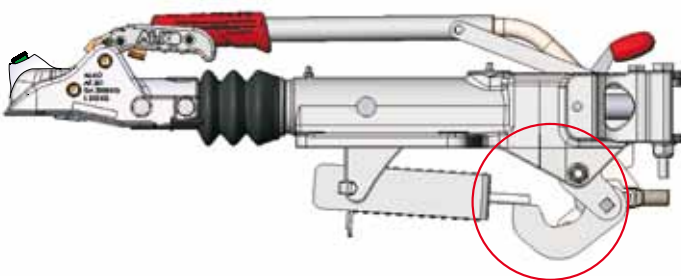


Hand brake lever opened = brake linkage not strained



Hand brake lever tightened = brake linkage strained

I press the locking lever and release the hand brake at the same time



Hand brake lever tightened = brake linkage strained, hand brake lever lowered



Attention!

Please make sure that the hand brake is released before driving away again!
 (Danger of overheated wheel brake!)
 The hand brake lever position in picture 3 and 5 could tempt to the wrong presumption, that the hand brake had been already released. For this reason only briefed persons should operate the brake!

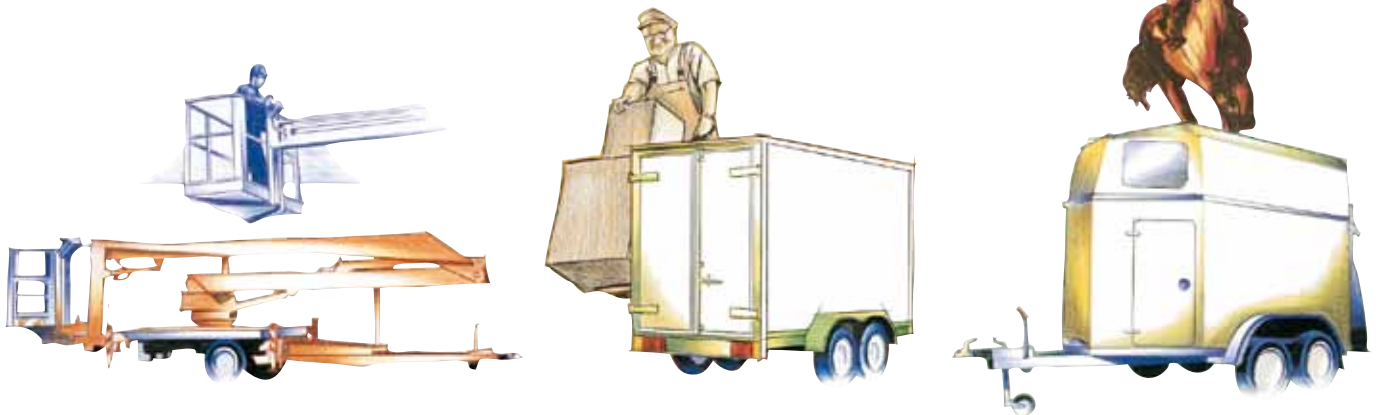
Overrun device V and square with hydraulic brake transmission

✓ Your advantage

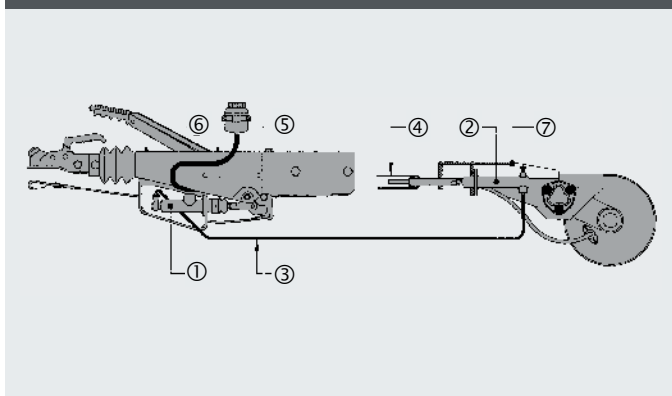
- | Soft, pleasant overrun process, no abrupt overrun hit
- | minimum loss of transmission forces = better brake performance

Application examples

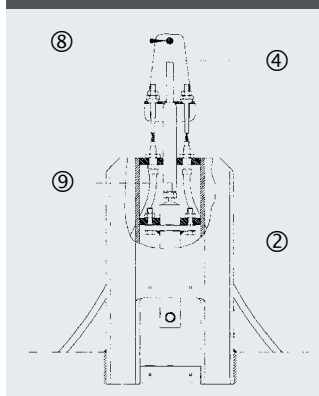
- | car lift trailer
- | transport trailer for sensitive goods (electronics, glass, etc.)
- | animal trailer, in particular horse trailer



Picture 1



Picture 2



- 1 = main brake cylinder
- 2 = slave cylinder
- 3 = hydraulic lines
- 4 = balance profile
- 5 = compensation tank
- 6 = hand brake lever
- 7 = console
- 8 = connection for stand brake
- 9 = bowden cable

Service brake / emergency brake

At the service brake the draw tube of the overrun device presses against the overrun lever on the main brake cylinder (Picture 1 ①). At the emergency brake the same happens via the hand brake lever, operated by the breakaway cable.

With hydraulic lines (or tubes picture 1 ③) the pressure is transferred to the slave cylinder (picture 1 ②) at the axle. The slave cylinder (picture 1 ②) draws the the (picture 1 ④) bowden cables via the balancer profile. This makes the brake

shoes spread apart and the trailer brakes.

Hand brake / fixing brake

Slave cylinder is mounted in front of the axle (direction of traffic):

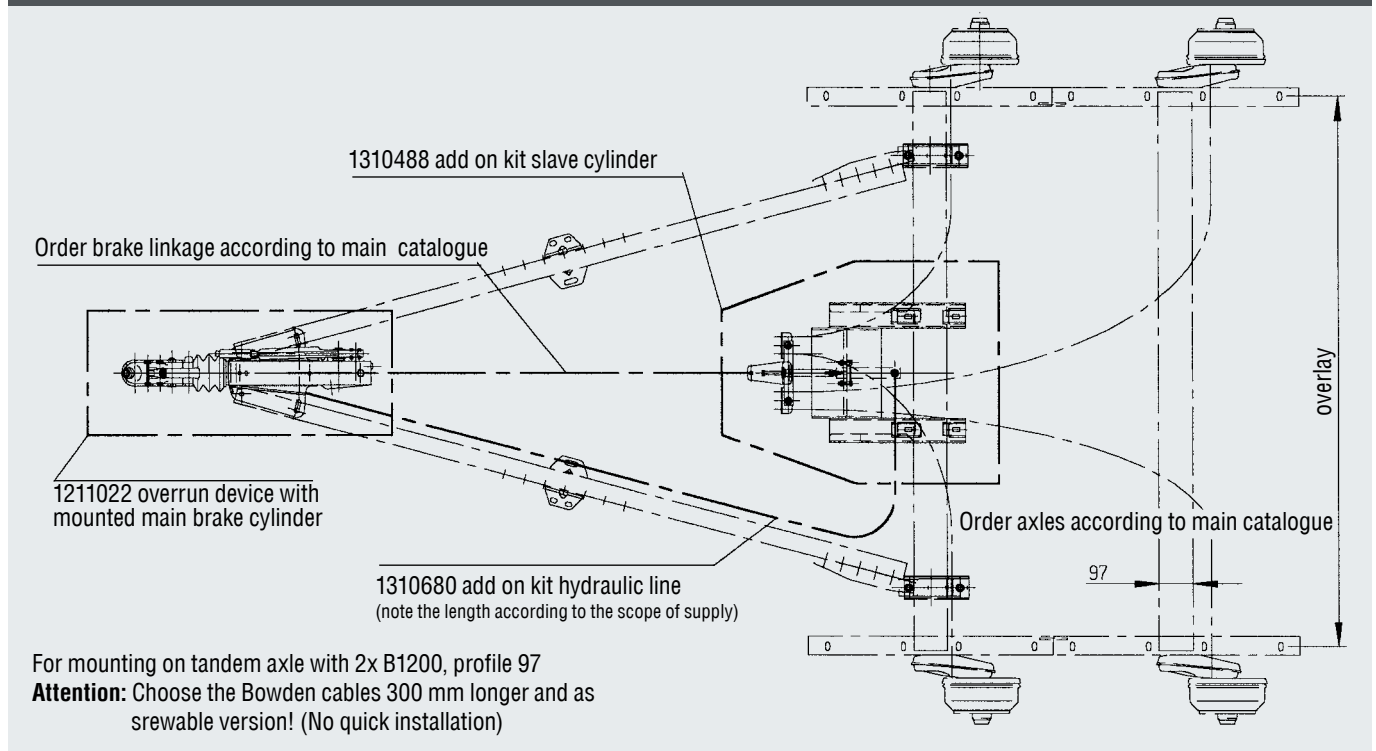
At V-overrun devices the add-on kit for the slave cylinder is mounted in front of the axle (direction of traffic): The hand brake in the hydraulic overrun device can brake the vehicle via the linkage (see picture 3):

Installation situation of the slave cylinder is mounted behind the axle (direction of traffic): If the slave cylinder is mounted behind the axle, the hand brake of the overrun device cannot be used any more. For this specific situation an additional hand brake / stand brake (see picture 4) must be mounted at suitable place on the vehicle.

Program

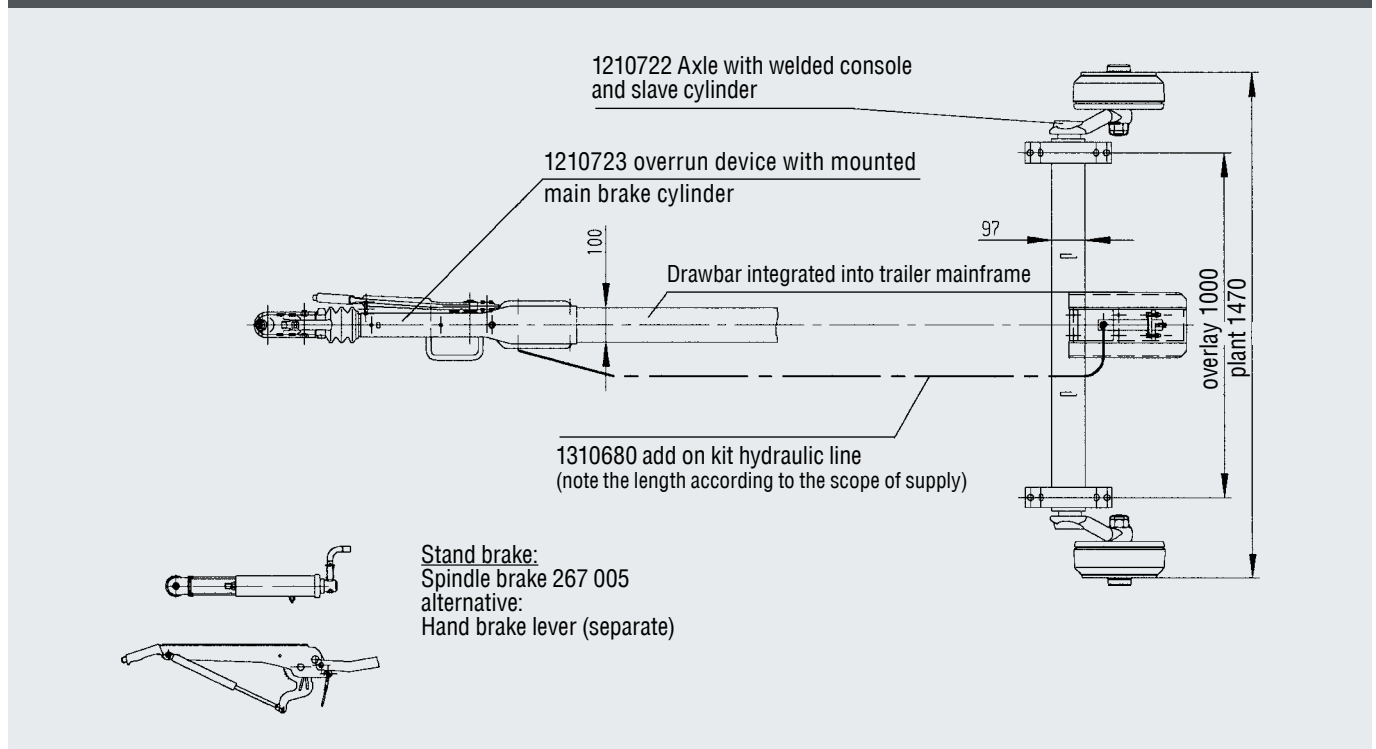
For example: Trailer with V-Drawbar, Tandem, max. 2600 kg permitted total weight

Picture 3



For example: trailer with square overrun device, single-axles, max. 1600 kg permitted total weight (special variant)

Picture 4



Overrun device V and square with hydraulic brake transmission

Mounting

Necessary for the installation of the hydraulic brake transmission:

- ! Bleeder (with adapter for reservoir)
- ! Flange device for brake line (with pin 4x7,5)

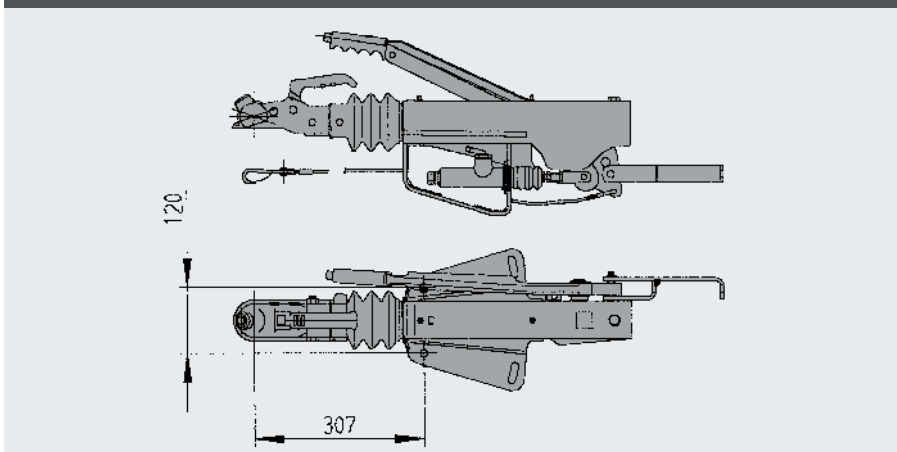
After chassis assembly the brake systems is filled and bled.

Attention! Brake performance of a incompletely bled brake system is not sufficient! **Danger of accident!**

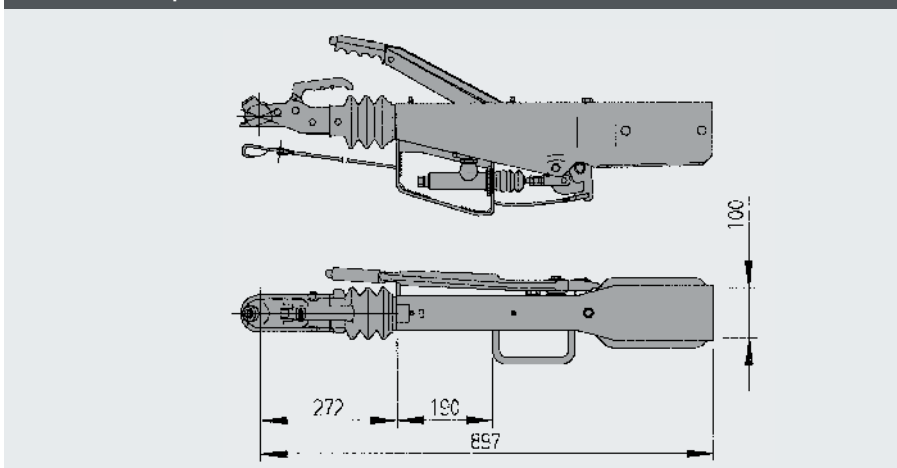
For trailers with hydraulic brake transmission a mechanical, independent stand brake is required.

The offered axles cannot be connected with a central tube drawbar. A central tube drawbar is to be integrated into the frame construction. Or alternatively the axles can be connected to a V-drawbar.

Overrun device -V-



Overrun device square



Range overview

1. Overrun device											
Part No.	Type	Total weight	Load	Installation	Compatible with AL-KO wheel brake Type	Adjustable overrun lever	Hand-brake lever	EC-Test Number		Ball coupling mounting Type/execution	
		kg	kg					Drawbar	Overrun device		
1 211 022	-V- 251 S	1500-2600	100	above	2051	yes 2361/3081	Gas spring	e1 00-0277 251 S	361-303-83 251 S/A	AK 300	
1 210 723	square 161 S	950-1600	100	☑ 100	2051	yes 2361/3081	Gas spring	e1 00-267 161 K	361-284-83 161 S/A	AK 160	
1 210 971	square 251 S	1500-2600	100	☑ 100	2051	yes 2361/3081	Gas spring	e1 00-268 251 K	361-303-83 251 S/A	AK 300	

2. add on kit hydraulic lines

Part No.	description/content
1 310 680	Brake tube 2x2000 mm + small parts (see scope of supply)

3. add on kit slave cylinder for tandem axle V-Chassis

Part No.	description/content	for axle body Ø mm
1 310 488	Console screwable, slave cylinder + small parts (see technical drawing)	97 (=max. total weight Tandem 2600 kg)

Scope of supply

1. Overrun device

complete with main brake cylinder, plug holder, operating instruction, coil for breakaway cable guide (251 S-V-), cover plate for sublevel (251 S-V-)

2. Add on kit hydraulic lines (1310680):

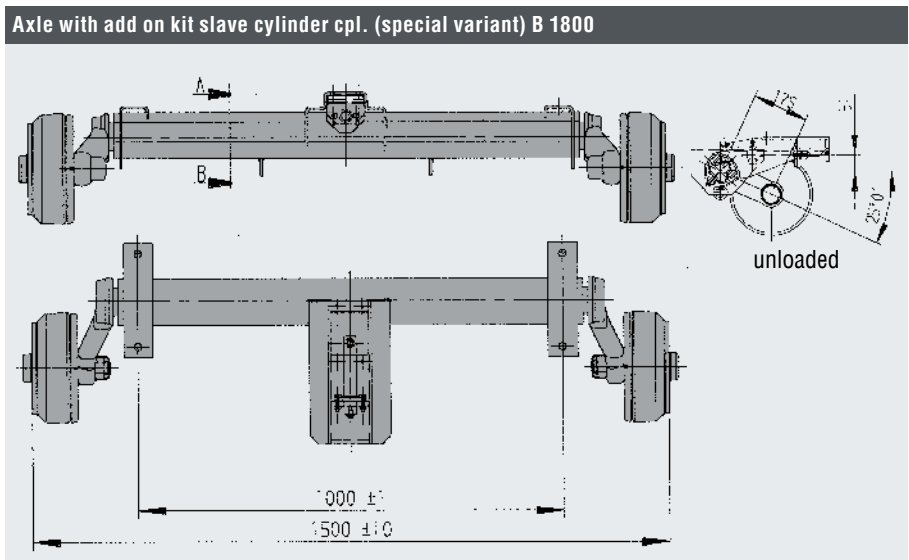
compensation tank, tube 500 mm, hose clamp(2x), banjo bolt, ring fitting, gasket ring (4x), nipple brake tube (4x), line link, clamp (6x), brake tube 2000 mm (2x)

3. Add on kit slave cylinder (1310488) for tandem-axle V-Chassis:

See technical drawing

4. Axle with add on kit Slave cylinder compl. (1 211 952 / 1 210 973 / 1 210 877)

for (special variant): console welded, slave cylinder, bowden cable, balance profile, spherical wheel bolt, nuts and bolts, operating instructions



4. Axle with add on kit slave cylinder (special variant) B 1800

Part No.	Axle Type	Axle load kg	Wheel brake Type	PCD	BC mm	OHF mm	Axle body Ø		Recom- mended rims	Recom- mended tire
1 211 952	B 1600	1600	2361	112x5	1000	1470	97	72	6 J 14	185 R 14 C
1 210 973	B 1800	1800	2361	112x5	1000	1500	110	76	6 J 14	185 R 14 C
1 210 877	B 2500	2500	3081 A	205x6	1000	1530	120	133	6.00G-16	7.00 R 16

Overrun devices

The world of axles

Unbraked Single axle AL-KO					
Model	Axle load kg	PCD	Damping	Brake	ABS
UBR 700 Compact	750	100 x 4	Hexagonal rubber damping	–	
UBR 700 Compact	750	112 x 5	Hexagonal rubber damping	–	
UBR Plus	1000	100 x 4	Hexagonal rubber damping	–	
UBR Plus	1000	112 x 5	Hexagonal rubber damping	–	
UBR Plus	1300	112 x 5	Hexagonal rubber damping	–	

Braked (mechanical) Single axle AL-KO					
Model	Axle load kg	PCD	Damping	Brake	ABS
Compact	750	100 x 4	Hexagonal rubber damping	Drum	
Plus	900	100 x 4	Hexagonal rubber damping	Drum	
Plus	900	112 x 5	Hexagonal rubber damping	Drum	
Plus	1000	100 x 4	Hexagonal rubber damping	Drum	
Plus	1000	112 x 5	Hexagonal rubber damping	Drum	
Plus	1300	112 x 5	Hexagonal rubber damping	Drum	
Plus	1500	112 x 5	Hexagonal rubber damping	Drum	
Plus	1600	112 x 5	Hexagonal rubber damping	Drum	
Plus	1800	112 x 5	Hexagonal rubber damping	Drum	
Compact	2500	205 x 6	Hexagonal rubber damping	Drum	
Compact	3000	205 x 6	Hexagonal rubber damping	Drum	
Compact	3500	205 x 6	Hexagonal rubber damping	Drum	optional
Compact	3500	205 x 6	Steel – torsion bar	Drum	optional

Braked (air pressure) Single axle AL-KO and GFA					
See following pages for possibilities to combine axles as tandems and tridems (TRI)					
Model	Axle load kg	PCD	Damping	Brake	ABS
AL-KO Compact	3000	205 x 6	Hexagonal bolt rubber spring	Barrel	optional
GFA RB 323006	3200	205 x 6	Parable / Air	Barrel	optional
AL-KO Compact	4000	205 x 6	Steel - torsion bar	Barrel	optional
GFA RB 503008	5000	205 x 6	Parable / Air	Barrel	optional
GFA RB 553010	5500	205 x 6	Parable / Air	Barrel	optional
GFA RB 603334	6250	225 x 10	Parable / Air	Disc	optional
Trail	9000	335 x 10	Air	Disc	optional
Trail +	9000	335 x 10	Air	Disc	optional

✔ Your advantage

GFA is a developer and manufacturer of vehicle- and trailer axles up to an axle load of 9 tons, spring- and airdamping aggregates as well as steering axles for special vehicles. Axles with an axle load of more than 5.5 tons are equipped with

disc braking. All GFA axles already fulfil the new EU licensing and are made in the center of Germany, located in the city of Gotha.

All axles can be complemented with various security options (for example ABS). GFA products are high-class products „Made in Germany“. This also is valid for the majority of the supplier's parts. The legal guarantee applies to GFA Axles.

Unbraked – taper roller bearing

Hubs AL-KO

Model	Wheel load kg	PCD	Damping	Brake	ABS
	250	100 x 4			
	425	100 x 4			
	425	112 x 5			
	650	112 x 5			
	800	112 x 5			
	1100	205 x 6			

Unbraked – compact bearing

hubs AL-KO

Model	Wheel load kg	PCD	Damping	Brake	ABS
	375	100 x 4			
	650	100 x 4			
	650	112 x 5			

Braked (air pressure)

Stub shaft GFA

Model	Wheel load kg	PCD	Damping	Brake	ABS
VB St 153 006	1600	205 x 6		Drum	optional
VB St 253 008	2500	205 x 6		Drum	optional
VB St 283 010	2800	205 x 6		Drum	optional

Damping

Air cushioning GFA

Model	Axle load kg	Brake	Model	Axle load	Brake
LAU 1 / LAU 2	6500	Drum / Disc	U. [...]	9000	Disc
LAO 1 / LAO 2	6500	Drum	K. [...]	9000	Disc
			P. [...]	9000	Disc

Damping

Parable cushioning GFA

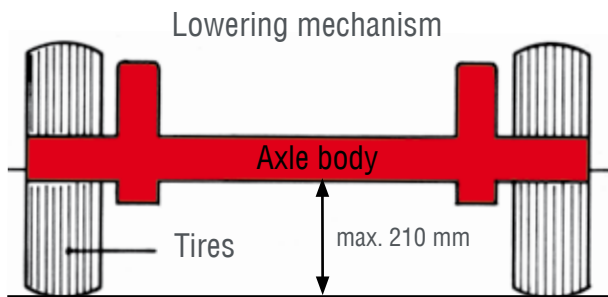
Model	Axle load kg	Brake	Model	Axle load kg	Brake
AG-EPW 3580-S	3500		AG-TPW 7080-S	2 x 3500 kg	
AG-EPW 4080-S	4000		AG-TPW 8080-S	2 x 4000 kg	
AG-EPW 4080-M	4000		AG-TPW 8080-M	2 x 4000 kg	
AG-EPW 5080-S	5000		AG-TPW 8080-L	2 x 4000 kg	
AG-EPW 6080-S	6000		AG-TPW 10080-S	2 x 5000 kg	
AG-EPW 6080-M	6000		AG-TPW 10080-M	2 x 5000 kg	
AG-EPW 6080-L	6000		AG-TPW 12080-S	2 x 6000 kg	
			AG-TPW 12080-L	2 x 6000 kg	
			AG-TPW 12080-XL	2 x 6000 kg	
			AG-TPW 12080-XXL	2 x 6000 kg	
			AG-TPW 12080-XXXL	2 x 6000 kg	
			AG-TPW 16080-XXL	2 x 8000 kg	

Axles Lowerable up to 210 mm

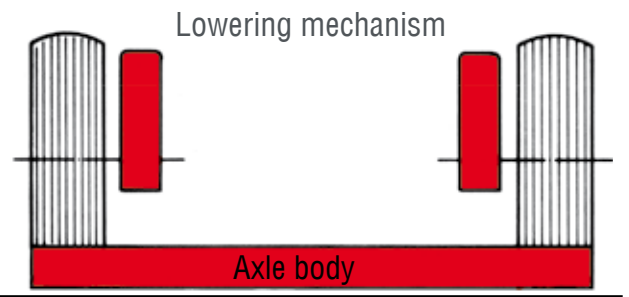
✓ Your advantage

┆ Lowerable up to 210 mm

Driving condition



Lowered state (Axle body in ground level)



Application examples

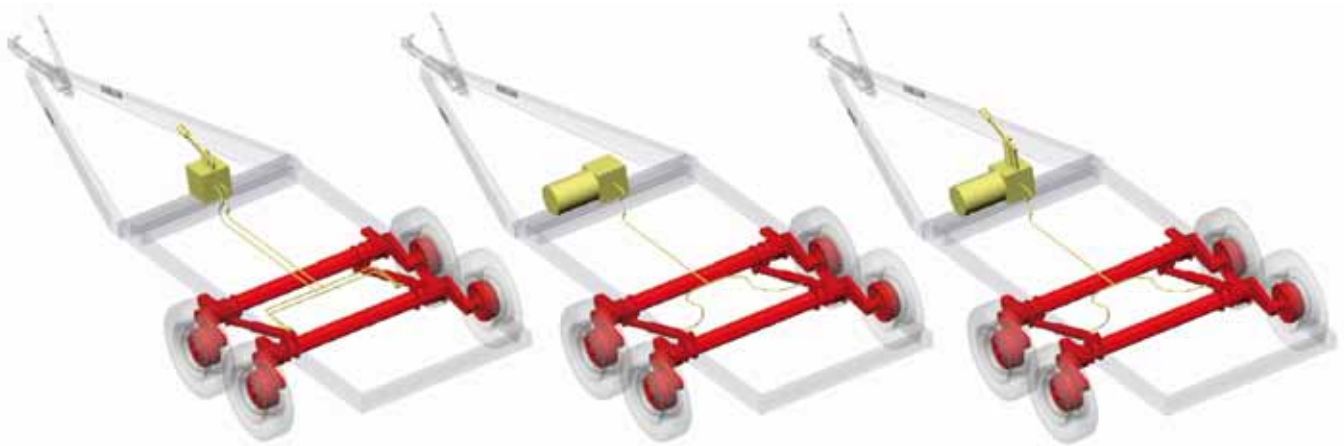
Your customers wish space-saving, reasonable priced and practically oriented solutions

┆ easy and reasonable priced loading and unloading

┆ salesman and customer talk on the same eye level



Variants/ Weight range



Variant 1 Hydraulic pump mechanic

Single axles 1300/1500/1600/1800/2500/
3000/3500 kg
Tandem 2000/2600/3000/3500 kg

Variant 2 Hydraulic pump electrical without emergency service

Single axles 1300/1500/1600/1800/2000/
2500/3000/3500 kg
Tandem 2000/2600/3000/3500 kg

Variant 3 hydraulic pump electrical with emergency service

Single axles 1300/1500/1600/1800/2000/
2500/3000/3500 kg
Tandem 2000/2600/3000/3500 kg

Scope of supply

AL-KO (red printed)

Axles with loose hydraulic cylinder

Hydraulic provider (yellow printed)

Pump aggregate with tubes and valves

Hydraulic components are no scope of supply of AL-KO. AL-KO recommends the following hydraulic specialist for Germany:

Firma Stiefel GmbH
Dr.- Carl-Schwenk-Straße 16
89233 Neu-Ulm, Burlafingen
Tel. 0731 / 7173-0
Fax 0731 / 7173-41
E-Mail: Info@stiefel.de



Driving position



Lowered position

Lowerable Axles up to 210 mm

Function single axles

Two hydraulic cylinders are mounted between the axle body and the follower frame. The axle brackets are positioned swivelling on the axle body. By a hydraulic pump the axle body and frame with trailerbox can be lowered or lifted. The springs are not impaired during driving operation.



Function tandem axles

Two hydraulic cylinders are mounted between the front and rear axle body. The axle brackets are positioned swivelling on both axle bodies. By a hydraulic pump both axle bodies and frame with trailerbox can be lowered or lifted. The springs are not impaired during driving operation.



The arrangement of the hydraulic cylinders with tandem axles fulfils in addition the function of a load balancer between front axle and rear axle. Instead of a balance linkage, both hydraulic cylinders work during driving operation and provide a steady load distribution on both axles therefore.

Service

Lowering single-/tandem axles

Open the valves at the hydraulic pump. The cylinder moves together and the axle body with frame construction is lowered on both sides together by the vehicle weight.

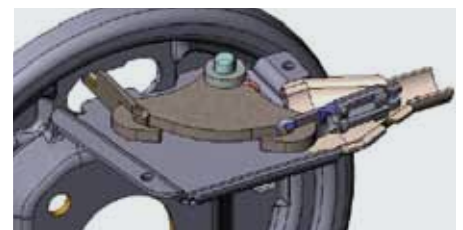
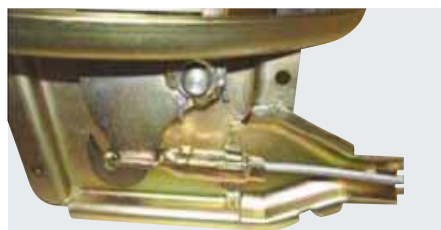
Lifting single / Tandem axles

Operate hydraulic pump (electric pump / hand pump). The cylinder drives out and the axle body with construction is raised on both sides together.

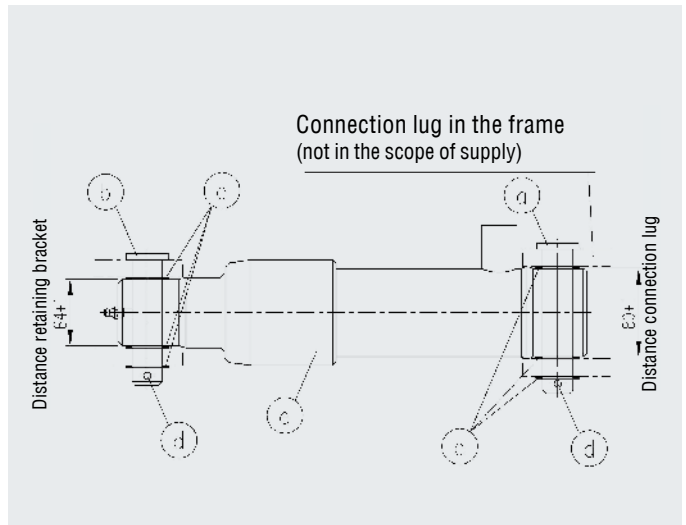
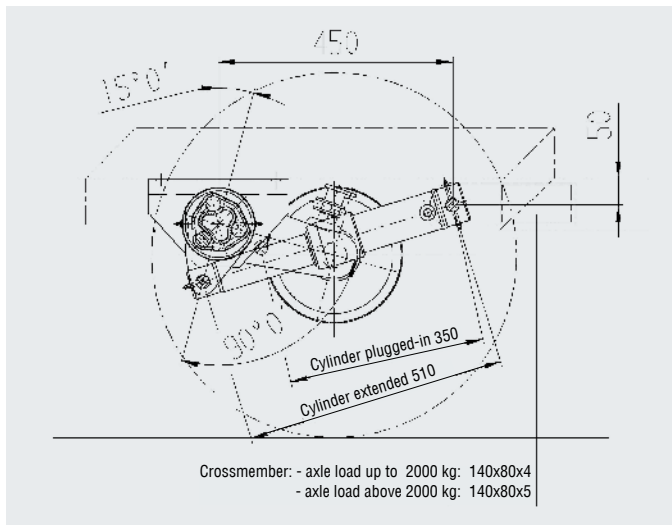
Mounting

| Axle brackets rotatable stored

| Bowden cable outlet 90° (no buckling during the lowering process). Bowden cable guidance welded.

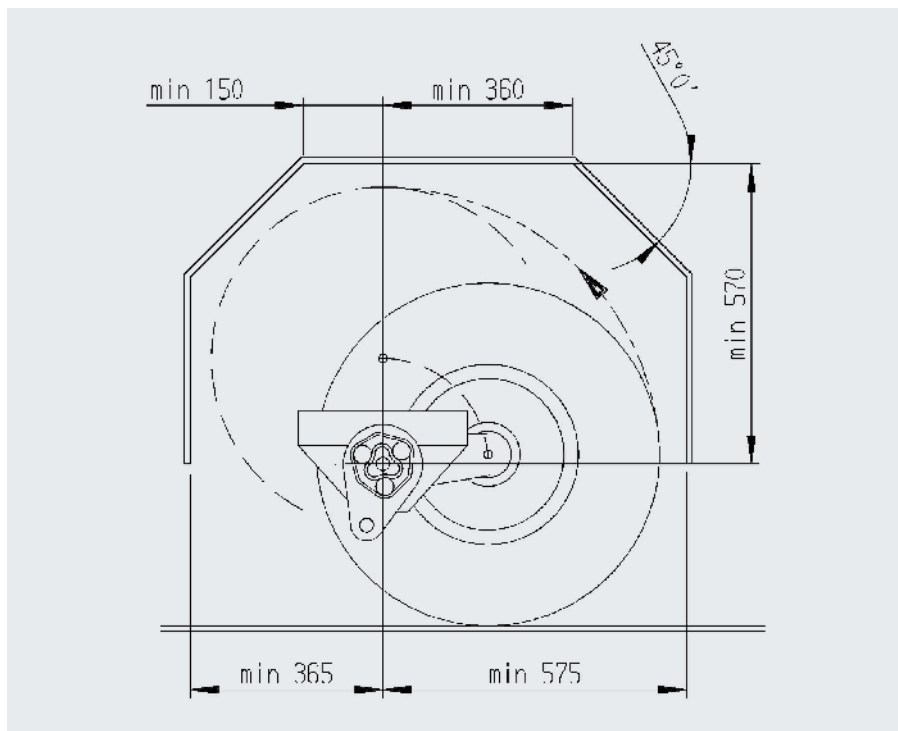


Mounting of cylinder at single axle



Included to the scope of supply of the axles

Position	amount	description
a	2	Bolt
b	2	Bolt
c	12	Disc
d	4	Cotter
e	2	Hydraulic cylinder

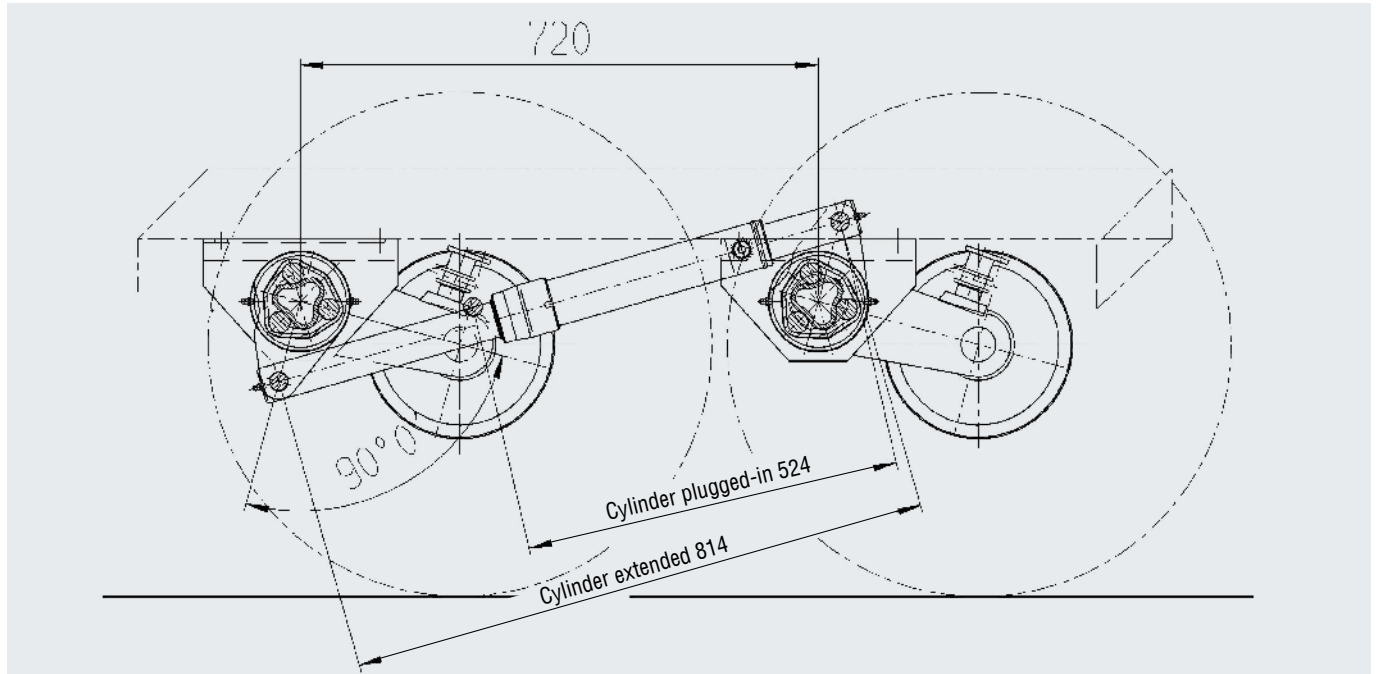


Pay attention for free space of wheel case with other tires (see sketch) the layout of the wheel case has to be adjusted accordingly. Please take note of swingarm travel (see sketch).

Measurements of sketch refer to tire 215 R 14 C!

Lowerable Axles up to 210 mm

☑ Mounting of cylinder at single axle



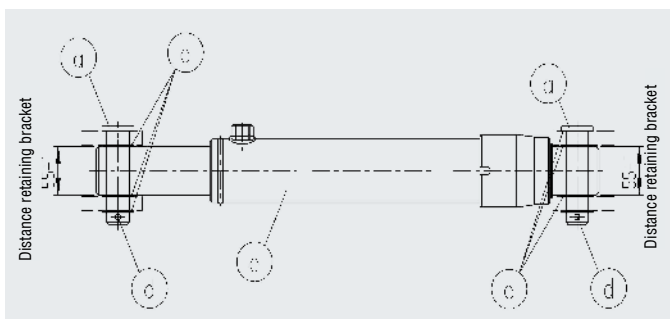
☑ Mounting axles

- | Distance between axles (front-rear axle) of 720 ± 1 mm is to be kept with tandem axles.
- | The tire radius R stat. may not fall below 300 mm.
- | With catalogue axles the frame width or the box width may not overlap more than 30/40 mm per side from bracket center. Wider constructions on inquiry.

- | Pay attention to distance measurement between cylinders by any means (especially with tandem axles if the frame is moved inwards beyond the center of bracket). Other distance measurements on inquiry.
- | AL-KO axles have toe and must be installed subsequent therefore.

☑ Jockey wheel mounting

- | In lowered position the deepest point is the frames bottom edge. Therefore, the supporting wheel must be mounted in highest possible position.
- | The supporting wheel is implicated to the lowering procedure. Therefore, a very stable version should be used.

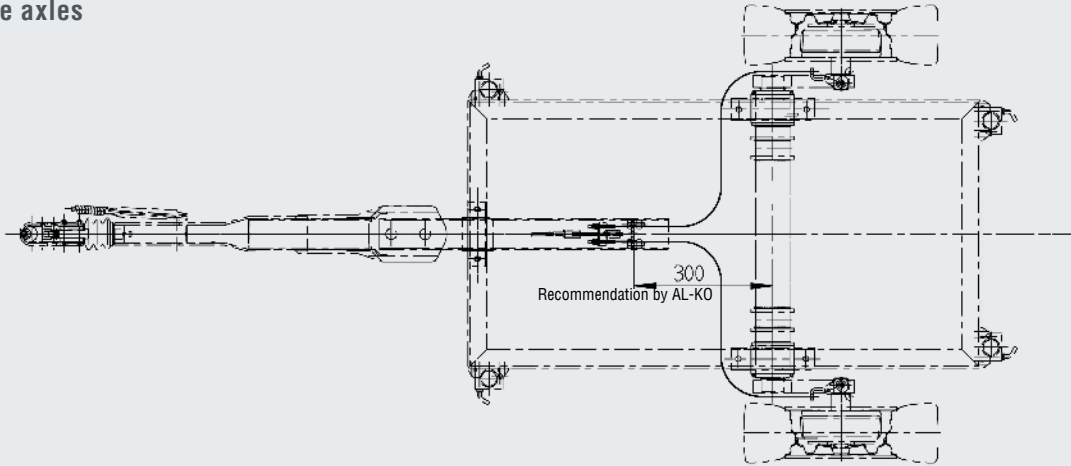


Included to the scope of supply of the axles

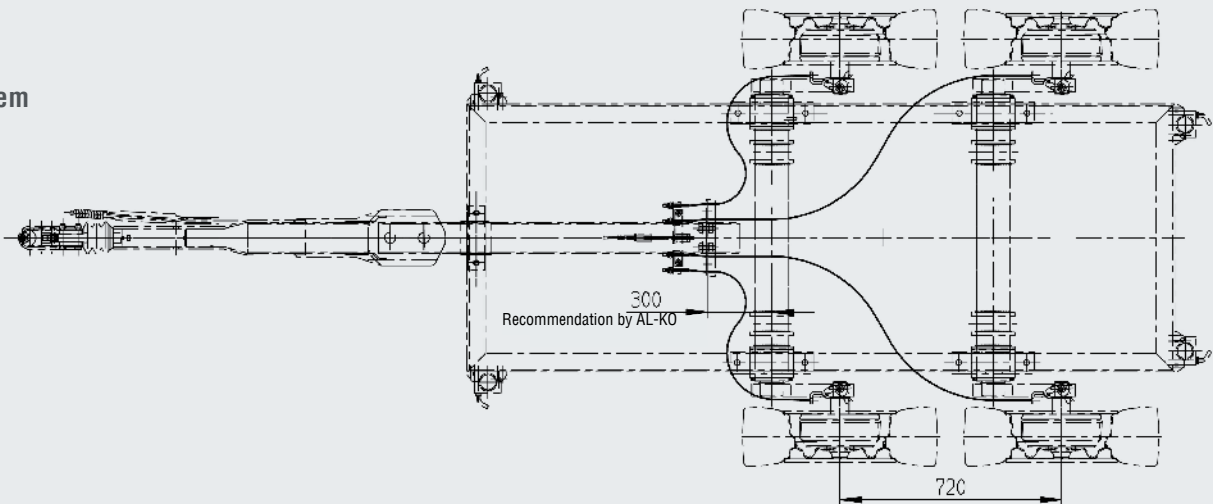
Position	amount	description
a	4	Bolt
c	12	Disc
d	4	Cotter
e	2	Hydraulic cylinder

☑ Mounting of bowden cables

Single axles



Tandem



Bowden cable assignment: NEW – Longlife with hook-in eyelet

For single-axle trailer

Plant from / to (mm)	Wheel brake 2051/2361			Wheel brake 3062/3081		
	Material-no. Bowden cable	Casing (mm)	Rope (mm)	Material-no. Bowden cable	Casing (mm)	Rope (mm)
to 1650	208 880 04 06	1009	1265	278 196 04 03	1040	1300
1650-2050	208 880 04 02	1309	1565	278 196 04 05	1340	1600
2050-2450	218 418 04	1429	1685	224 609	1760	2020

For tandem trailer

Plant from / to (mm)	Wheel brake 2051/2361			Rear axle		
	Material-no. Bowden cable	Casing (mm)	Rope (mm)	Material-no. Bowden cable	Casing (mm)	Rope (mm)
to 1650	208 880 04 06	1009	1265	248 663 04	1609	1865
1650-2050	208 880 04 02	1309	1565	248 663 05	1789	2045
2050-2450	218 418 04	1429	1685	224 254	2169	2425

- ! Bowden cables are included to the scope of supply of the axles.
- ! During positioning of the Bowden cables strong bends have to be avoided!
- ! Adequate radii are to be kept accordingly!
- ! The bowden cables are to be hung up guided to avoid chafe marks.

Lowerable Axles up to 210 mm

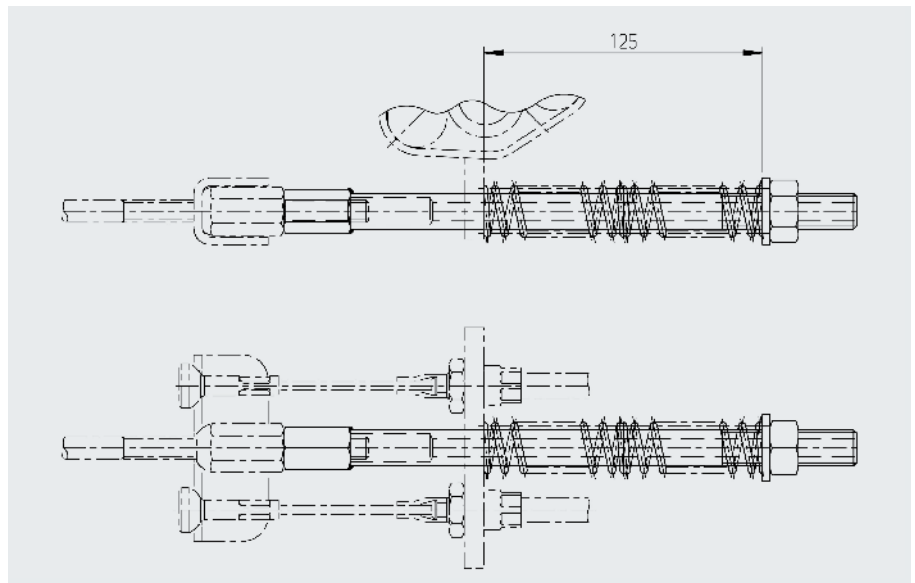
Mounting of reverse device

Reverse device

Part-No. 288 676 to 2500 kg (M10)

Part-No. 288 676 over 2500 kg (M12)

The reserve device is included to the scope of supply of the axles.



Security and maintenance

Safety instructions:

- | All sides of the trailer must carry a warning tip. For example:
„**Attention: trailer lowers!**“
- | Work on the hydraulic arrangement may be carried out only in lowered state of the trailer or by using a subbase under the frame (danger of accident by lowering)
- | The valve lever in the pump must be positioned in medial position during driving operation (danger of lowering)
- | The hand lever of the pump must be removed during driving operating (danger of mishandling)

Service notes:

- | It is recommended to lower the trailer after driving operating, the cylinders piston rods are cleaned of salt, dust and moisture with this
- | lubricate grease fitting on the axle body at least once per year
- | lubricate grease fitting on the hydraulic cylinder at least once per year
- | lubricate grease fitting in the bowden cable baffle on the swinging lever at least twice per year

Hydraulic

The hydraulic components are no scope of supply of AL-KO. That means order processing, delivery, and invoicing are carried out for cost reasons by the respective hydraulic supplier.

The information on the following pages are meant to help you select the hydraulic arrangement suitable for you fast and at a reasonable price.

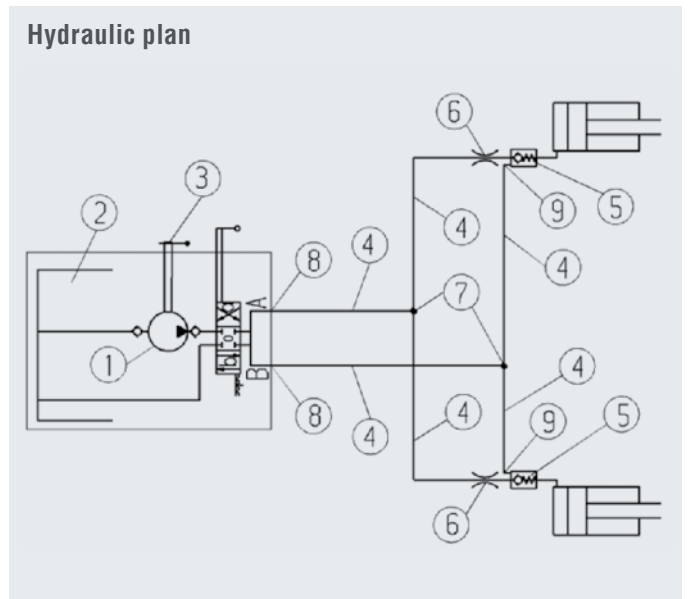
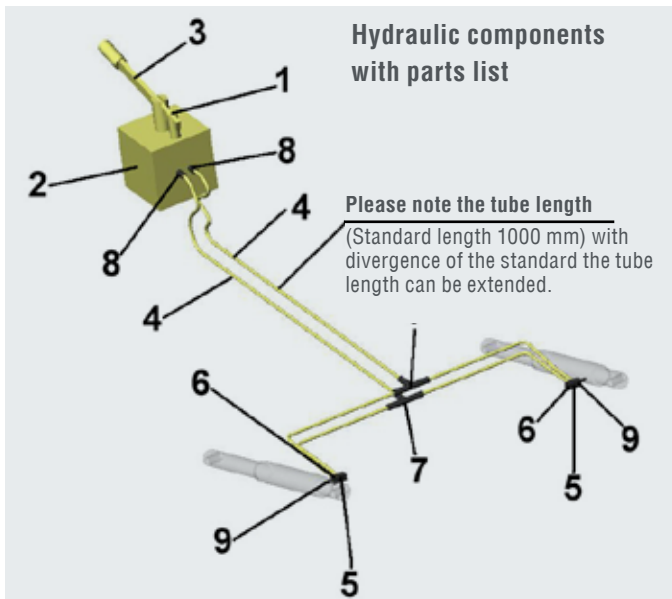
The respective hydraulic supplier (see page 31) gladly answers your questions about the hydraulic arrangement.

📦 Scope of supply

The delivery programme of the Stiefel company



Hydraulic components set
Hand pump



Range overview

Included to the scope of supply of the axles				
Position	Unit	Description	Stiefel-no.	AL-KO-no.
	1	complete set with all positions listed below	100 187 528	1 222 213
1	1	Hand pump double-active		
2	1	Tank 2 liter		
3	1	Hand lever		
4	6	High pressure-tube 1000lg.DKOL 12/DKOL 1290 Gr.		
5	2	Dual check valve		
6	2	Straight screw in L 12/3/8" with bezel		
7	2	T-piece 12 L		
8	2	Straight screw in L 12/ 3/8"		
9	2	Straight screw in L 12/ 1/4"		

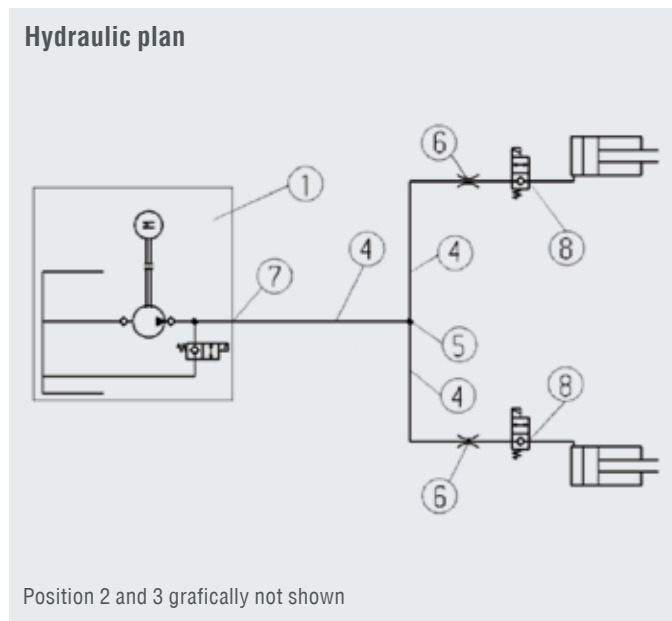
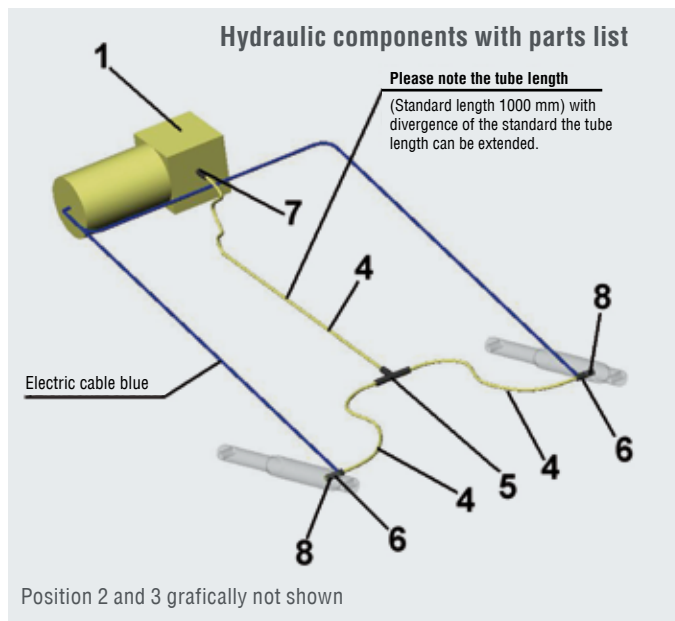
Lowerable Axles up to 210 mm

📦 Scope of supply

The delivery programme of the Stiefel company



Hydraulic components set
Electric power unit without emergency hand pump



Range overview

Included to the scope of supply of the axles				
Position	Unit	Description	Stiefel-no.	AL-KO-no.
	1	complete set with all positions listed below	100 187 675	1 222 214
1	1	Direct current aggregate 12VDC with 2/2 seat valve		
2	1	Cable set with 7-pole plug		
3	1	Switch box		
4	3	HD-tube 1000lg.DKOL 12/DKOL 1290 Gr.		
5	1	T-piece 12 L		
6	2	Straight screw in L 12/3/8" with bezel		
7	1	Straight screw in L 12/ 1/4"		
8	2	2/2 ways seat valve with banjo bolt		

📦 Scope of supply

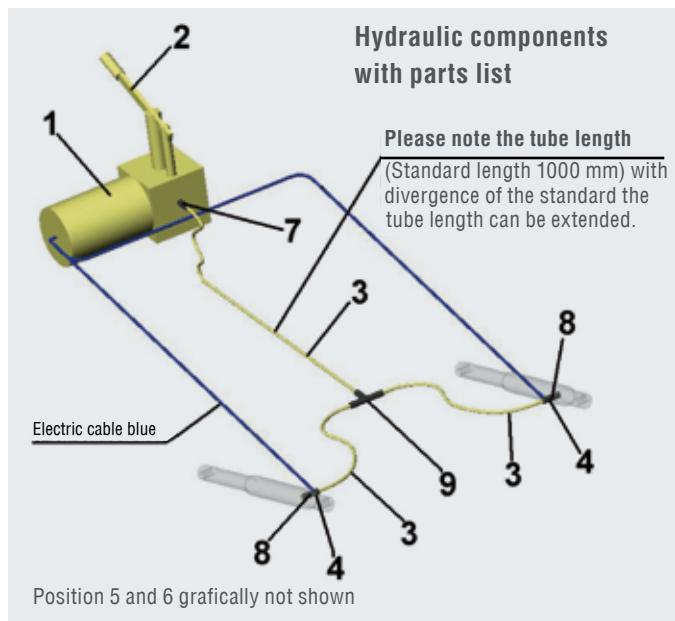
The delivery programme of the Stiefel company

Hydraulic components set

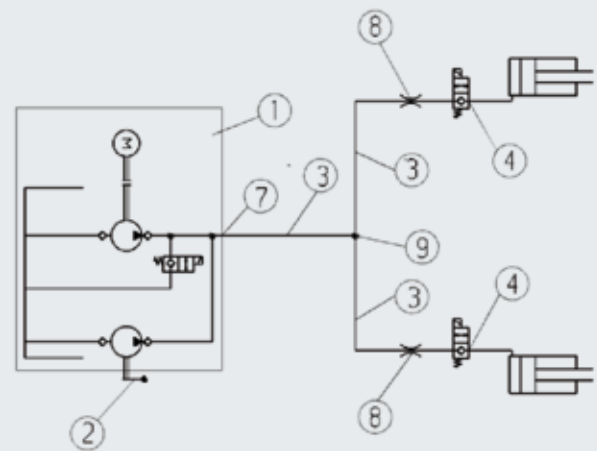
Electric power unit without emergency hand pump
(without picture)

Important notice about emergency hand pump!

During failure of the electric aggregate the emergency hand pump can only be used for raising of the trailer (no lowering)



Hydraulic plan



Included to the scope of supply of the axles

Position	Unit	Description	Stiefel-no.	AL-KO-no.
	1	complete set with all positions listed below	100 219 872	1 222 318
1	1	Emergency aggregate		
2	1	Hand lever		
3	3	Tube		
4	2	2/2 ways seat valve with banjo bolt		
5	1	Switch box		
6	1	Socket		
7	1	Straight screw in L 12/ 1/4"		
8	2	Straight screw in L 12/ 3/8" with bezel		
9	1	T-piece		

Lowerable Axles up to 210 mm

Single Axle 1300 kg to 1500 kg

Technology

Model: Standard
 Axle type: BRA 1800-01
 BRA 1800-3
 Axle load
 single axle: 1300 kg / 1500 kg
 Wheel brake: 2051Ab
 PCD: 112x5
 Wheel bolts: M12x1,5 sphere




Scope of supply



Included in the scope of supply:
 | Hydraulic cylinder with mounting parts
 | support bracket single axle loose
 2081930103
 | reverse device 288675
 | balance profile 2385760002
 | hexagonal nut M8
 | ball nut M8
 | bowden cable loose
 | wheel bolt loose

Surface treatment

Axle body hot-dip galvanised
 Wheel brake black powder-coated

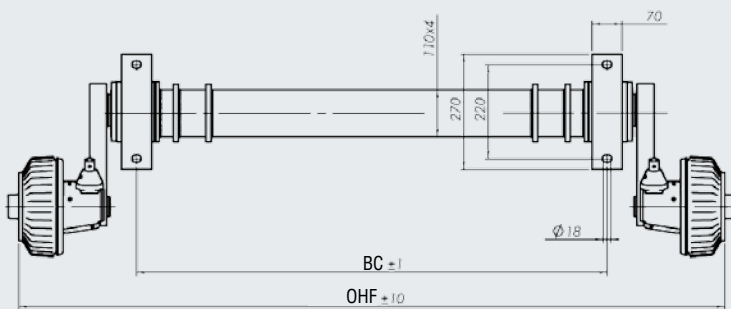
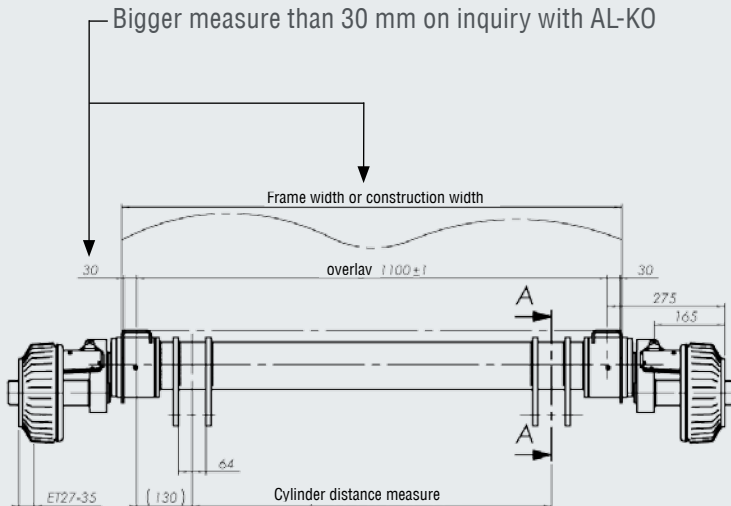
Range overview

Part No.	Type	Axle load	BC	OHF	Cylinder distance measure			
		kg						
1 222 251	BRA 1800-01	1300	1100	1650	840	108	20	20
200 556 01	BRA 1800-01	1300	1200	1750	940	109	20	20
200 556 02	BRA 1800-01	1300	1300	1850	1040	110	20	20
200 556 03	BRA 1800-01	1300	1400	1950	1140	111	20	20
200 556 04	BRA 1800-01	1300	1500	2050	1240	112	20	20
200 556 05	BRA 1800-01	1300	1600	2150	1340	113	20	20
200 556 06	BRA 1800-01	1300	1700	2250	1440	114	20	20
200 556 07	BRA 1800-01	1300	1800	2350	1540	115	20	20
200 556 08	BRA 1800-01	1300	1900	2450	1640	116	20	20

Part No.	Type	Axle load	BC	OHF	Cylinder distance measure			
		kg						
1 222 252	BRA 1800-3	1500	1100	1650	840	108	20	20
200 556 09	BRA 1800-3	1500	1200	1750	940	109	20	20
200 556 10	BRA 1800-3	1500	1300	1850	1040	110	20	20
200 556 11	BRA 1800-3	1500	1400	1950	1140	111	20	20
200 556 12	BRA 1800-3	1500	1500	2050	1240	112	20	20
200 556 13	BRA 1800-3	1500	1600	2150	1340	113	20	20
200 556 14	BRA 1800-3	1500	1700	2250	1440	114	20	20
200 556 15	BRA 1800-3	1500	1800	2350	1540	115	20	20
200 556 16	BRA 1800-3	1500	1900	2450	1640	116	20	20

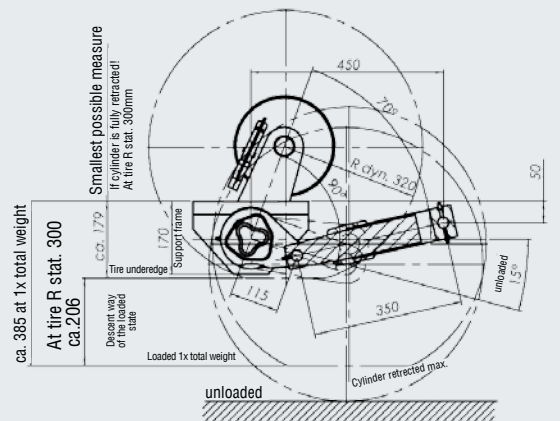
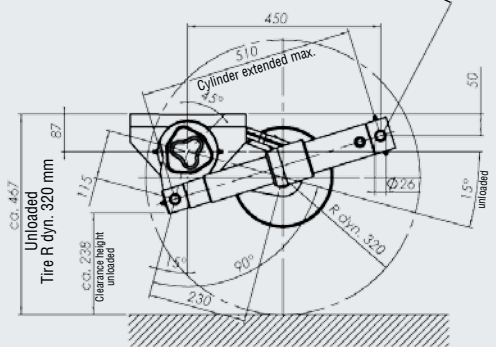
Only follow this notice if construction width and frame are in a vertical level!

If the construction is built over the wheels, the max. measure of 30 mm for the frame must be kept!



In driving position!

Pivot point in the frame of the vehicle manufacturer



Allowed tire size min. static radius 300 mm

The tire radius must not fall below stat. 300 mm!

Max. lowering way ca. 210 mm

Spring excursion appr. 50 mm with 1x total weight

Lowerable Axles up to 210 mm

Single Axle 1600 kg to 1800 kg

Technology

Model: Standard
 Axle type: BRA 1800-5
 BRA 1800-9
 Axle load
 single axle: 1600 kg / 1800 kg
 Wheel brake: 2361
 PCD: 112x5
 Wheel bolts: M12x1,5 sphere




Scope of supply




Included in the scope of supply:
 | Hydraulic cylinder with mounting parts
 | support bracket single axle loose
 2081930103
 | reverse device 288675
 | balance profile 2385760002
 | hexagonal nut M8
 | ball nut M8
 | bowden cable loose
 | wheel bolt loose

Surface treatment

Axle body hot-dip galvanised
 Wheel brake black powder-coated

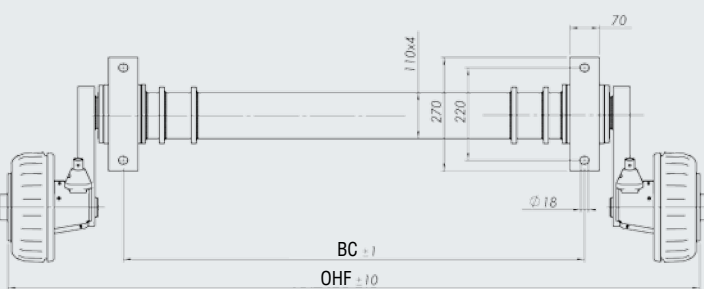
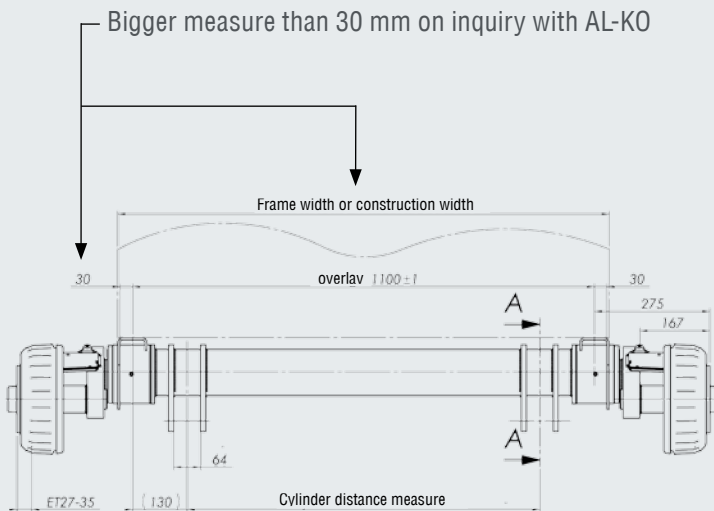
Range overview

Part No.	Type	Axle load	BC	OHF	Cylinder distance measure			
		kg						
1 222 253	BRA 1800-5	1600	1100	1650	840	110	20	20
200 556 17	BRA 1800-5	1600	1200	1750	940	111	20	20
200 556 18	BRA 1800-5	1600	1300	1850	1040	112	20	20
200 556 19	BRA 1800-5	1600	1400	1950	1140	113	20	20
200 556 20	BRA 1800-5	1600	1500	2050	1240	114	20	20
200 556 21	BRA 1800-5	1600	1600	2150	1340	115	20	20
200 556 22	BRA 1800-5	1600	1700	2250	1440	116	20	20
200 556 23	BRA 1800-5	1600	1800	2350	1540	117	20	20
200 556 24	BRA 1800-5	1600	1900	2450	1640	118	20	20

Part No.	Type	Axle load	BC	OHF	Cylinder distance measure			
		kg						
1 222 254	BRA 1800-9	1800	1100	1650	840	110	20	20
200 556 25	BRA 1800-9	1800	1200	1750	940	111	20	20
200 556 26	BRA 1800-9	1800	1300	1850	1040	112	20	20
200 556 27	BRA 1800-9	1800	1400	1950	1140	113	20	20
200 556 28	BRA 1800-9	1800	1500	2050	1240	114	20	20
200 556 29	BRA 1800-9	1800	1600	2150	1340	115	20	20
200 556 30	BRA 1800-9	1800	1700	2250	1440	116	20	20
200 556 31	BRA 1800-9	1800	1800	2350	1540	117	20	20
200 556 32	BRA 1800-9	1800	1900	2450	1640	118	20	20

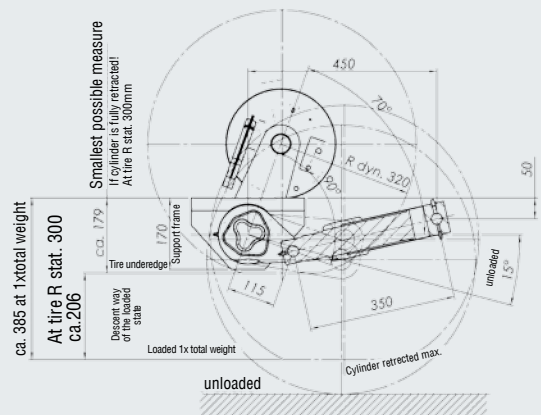
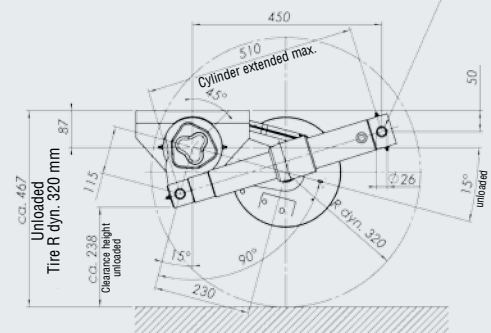
Only follow this notice if construction width and frame are in a vertical level!

If the construction is built over the wheels, the max. measure of 30 mm for the frame must be kept!



In driving position!

Pivot point in the frame of the vehicle manufacturer



Allowed tire size min. static radius 300 mm

The tire radius must not fall below stat. 300 mm!

Max. lowering way appr. 210 mm

Spring excursion appr. 50 mm with 1x total weight

Lowerable Axles up to 210 mm

Single Axle 2000 kg to 3000 kg

Technology

Model: Standard
 Axle type: BRA 2500-3
 BRA 2500-8
 BRA 3000-2
 Axle load single axle: 2000 kg / 2500 kg / 3000 kg
 Wheel brake: 3062
 PCD: 205x6
 Wheel bolts: M18x1,5 sphere




Scope of supply




Included in the scope of supply:
 | Hydraulic cylinder with mounting parts
 | support bracket single axle loose 375175
 | reverse device 288676
 | balance profile 372421
 | hexagonal nut M10
 | ball nut M10
 | bowden cable loose
 | wheel nut loose




Surface treatment

Axle body hot-dip galvanised
 Wheel brake black powder-grounded

Range overview

Part No.	Type	Axle load kg	BC mm	OHF mm	Cylinder distance measure mm			
1 222 255	BRA 2500-3	2000	1100	1665	918	162	10	20
200 556 33	BRA 2500-3	2000	1200	1765	1018	163	10	20
200 556 34	BRA 2500-3	2000	1300	1865	1118	164	10	20
200 556 35	BRA 2500-3	2000	1400	1965	1218	165	10	20
200 556 36	BRA 2500-3	2000	1500	2065	1318	166	10	20
200 556 37	BRA 2500-3	2000	1600	2165	1418	167	10	20
200 556 38	BRA 2500-3	2000	1700	2265	1518	168	10	20
200 556 39	BRA 2500-3	2000	1800	2365	1618	169	10	20
200 556 40	BRA 2500-3	2000	1900	2465	1718	170	10	20

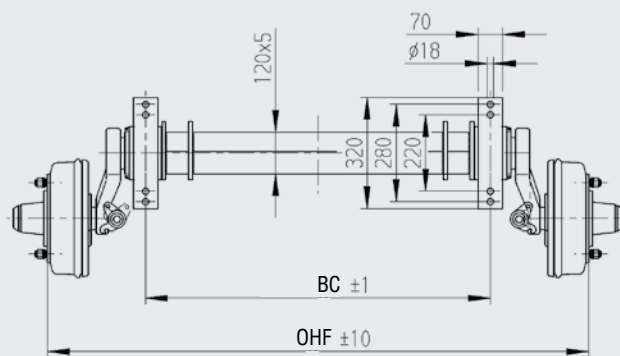
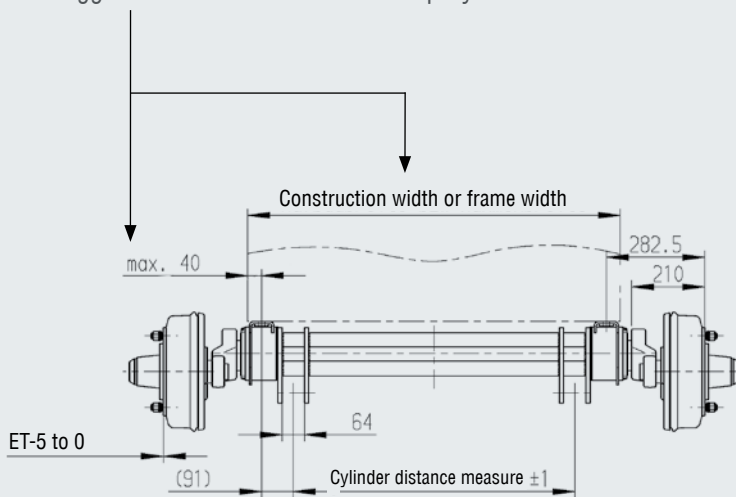
Part No.	Type	Axle load kg	BC mm	OHF mm	Cylinder distance measure mm			
1 222 256	BRA 2500-8	2500	1100	1665	918	162	10	20
200 556 41	BRA 2500-8	2500	1200	1765	1018	163	10	20
200 556 42	BRA 2500-8	2500	1300	1865	1118	164	10	20
200 556 43	BRA 2500-8	2500	1400	1965	1218	165	10	20
200 556 44	BRA 2500-8	2500	1500	2065	1318	166	10	20
200 556 45	BRA 2500-8	2500	1600	2165	1418	167	10	20
200 556 46	BRA 2500-8	2500	1700	2265	1518	168	10	20
200 556 47	BRA 2500-8	2500	1800	2365	1618	169	10	20
200 556 48	BRA 2500-8	2500	1900	2465	1718	170	10	20

Part No.	Type	Axle load kg	BC mm	OHF mm	Cylinder distance measure mm			
1 222 257	BRA 3000-2	3000	1100	1665	918	162	10	20
200 556 49	BRA 3000-2	3000	1200	1765	1018	163	10	20
200 556 50	BRA 3000-2	3000	1300	1865	1118	164	10	20
200 556 51	BRA 3000-2	3000	1400	1965	1218	165	10	20
200 556 52	BRA 3000-2	3000	1500	2065	1318	166	10	20
200 556 53	BRA 3000-2	3000	1600	2165	1418	167	10	20
200 556 54	BRA 3000-2	3000	1700	2265	1518	168	10	20
200 556 55	BRA 3000-2	3000	1800	2365	1618	169	10	20
200 556 56	BRA 3000-2	3000	1900	2465	1718	170	10	20

Only follow this notice if construction width and frame are in a vertical level!

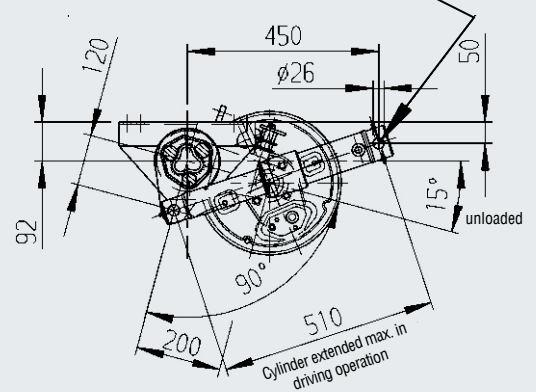
If the construction is built over the wheels, the max. measure of 40 mm for the frame must be kept!

Bigger measure than 40 mm on inquiry with AL-KO

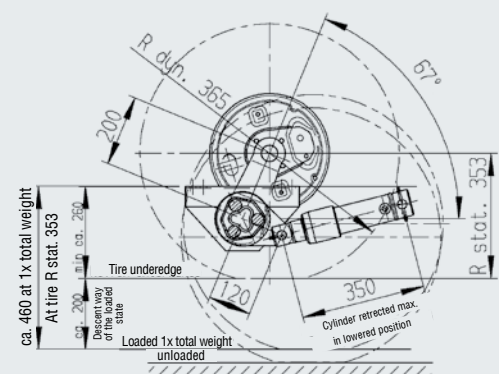


In driving position!

(in unloaded state)
Pivot point in the frame of the vehicle manufacturer



In lowered position!



Allowed tire size min. static radius 300 mm

The tire radius must not fall below stat. 300 mm!

Layout of wheel housing according to tire size!
(take care for swing range)

Lowering way appr. 200 mm

Lowerable Axles up to 210 mm

Single Axle 3500 kg

Technology

Model: Standard - torsion bar suspension
 Axle type: BT 3500
 Axle load single axle: 3500 kg
 Wheel brake: 3081 B
 PCD: 205x6
 Wheel bolts: M18x1,5 sphere




Scope of supply

Included in the scope of supply:
 | Hydraulic cylinder with mounting parts
 | support bracket single axle loose 375175
 | reverse device 288676
 | balance profile 372421
 | hexagonal nut M10
 | ball nut M10
 | bowden cable loose
 | wheel nut loose

Surface treatment

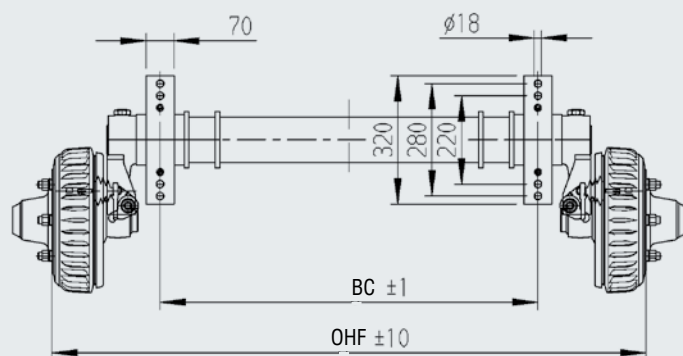
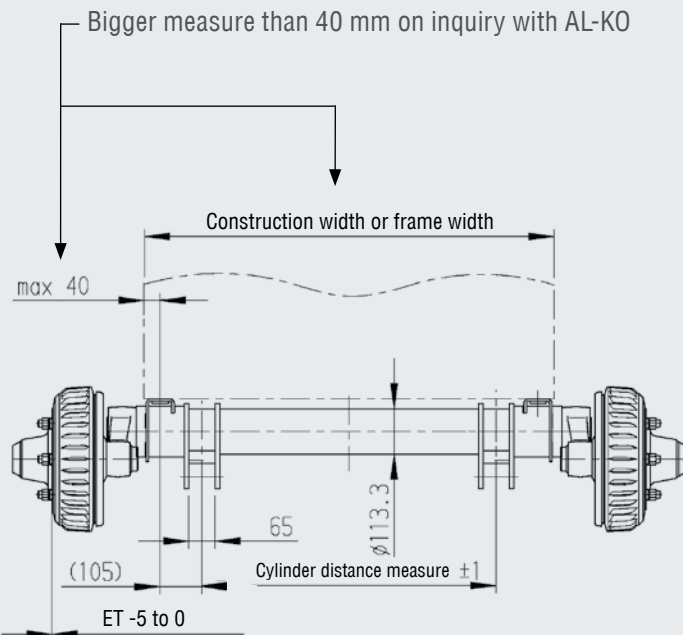
Axle body hot-dip galvanised
 Wheel brake black powder-coated

Range overview

Part No.	Type	Axle load kg	BC mm	OHF mm	Cylinder distance measure mm			
1 222 258	BRA 3500	3500	1100	1640	891	214 kg	10	20
200 556 57	BRA 3500	3500	1200	1740	991	215 kg	10	20
200 556 58	BRA 3500	3500	1300	1840	1091	216 kg	10	20
200 556 59	BRA 3500	3500	1400	1940	1191	217 kg	10	20
200 556 60	BRA 3500	3500	1500	2040	1291	218 kg	10	20
200 556 61	BRA 3500	3500	1600	2140	1391	219 kg	10	20
200 556 62	BRA 3500	3500	1700	2240	1491	220 kg	10	20
200 556 63	BRA 3500	3500	1800	2340	1591	221 kg	10	20
200 556 64	BRA 3500	3500	1900	2440	1691	222 kg	10	20

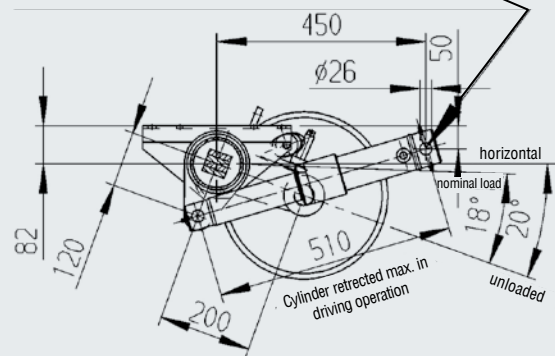
Only follow this notice if construction width and frame are in a vertical level!

If the construction is built over the wheels, the max. measure of 40 mm for the frame must be kept!

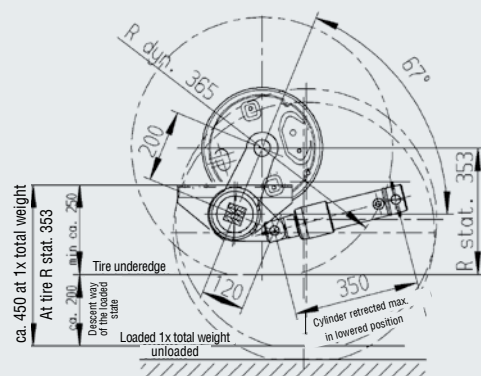


In driving position!

(in unloaded state)
Pivot point in the frame of the vehicle manufacturer



In lowered position!



Allowed tire size min. static radius 300 mm

The tire radius must not fall below stat. 300 mm!

Layout of wheel housing according to tire size!
(take care for swing range)

Lowering way appr. 200 mm

Lowerable Axles up to 210 mm

Tandem 2000 kg to 3000 kg

Technology

Model: Standard
 Axle type: BRA 1800-07
 BRA 1800-01
 BRA 1800-3
 Axle load: 2000 kg/2600 kg/
 tandem axle: 3000 kg
 Wheel brake: 2051Ab
 PCD: 112x5
 Wheel bolts: M12x1,5 sphere




Scope of supply




Included in the scope of supply:
 | Hydraulic cylinder with mounting parts
 | support bracket tandem loose
 2088890003
 | reverse device 288675
 | balance profile 238576
 | hexagonal nut M8
 | ball nut M8
 | bowden cable loose
 | wheel bolt loose




Surface treatment

Axle body hot-dip galvanised
 Wheel brake black powder-coated

Range overview

Part No.	Type	Axle load kg	BC mm	OHF mm	Cylinder distance measure mm			
1 222 259	BRA 1800-07	2000	1100	1650	840	192	20	20
200 556 65	BRA 1800-07	2000	1200	1750	940	194	20	20
200 556 66	BRA 1800-07	2000	1300	1850	1040	196	20	20
200 556 67	BRA 1800-07	2000	1400	1950	1140	198	20	20
200 556 68	BRA 1800-07	2000	1500	2050	1240	200	20	20
200 556 69	BRA 1800-07	2000	1600	2150	1340	202	20	20
200 556 70	BRA 1800-07	2000	1700	2250	1440	204	20	20
200 556 71	BRA 1800-07	2000	1800	2350	1540	206	20	20
200 556 72	BRA 1800-07	2000	1900	2450	1640	208	20	20

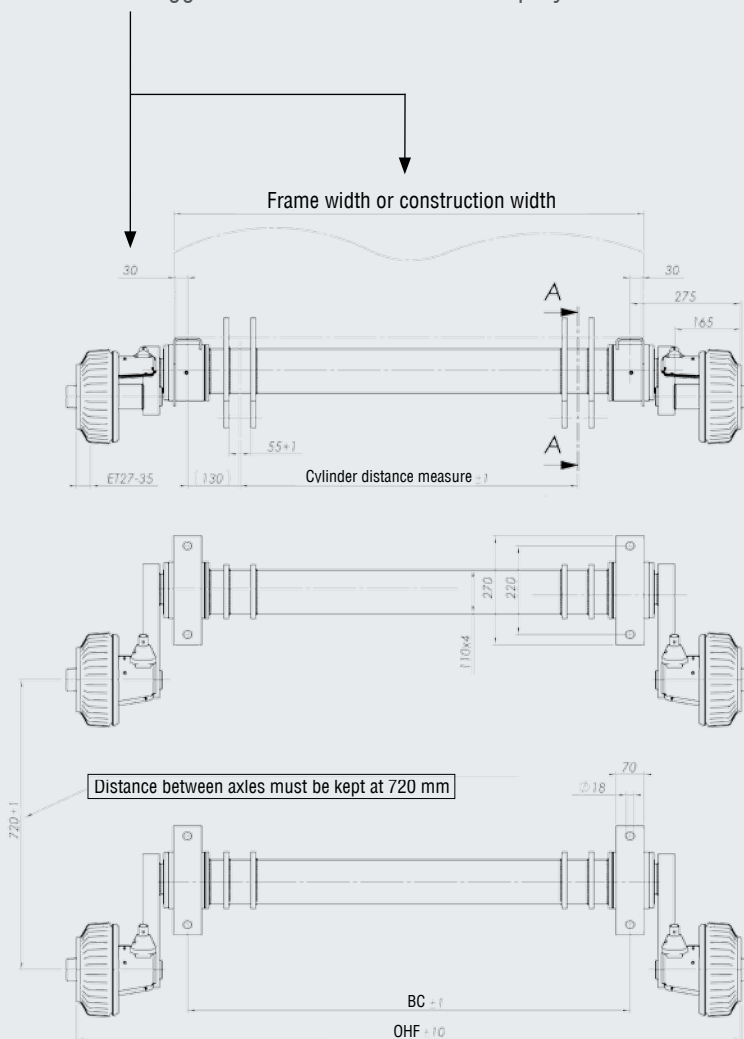
Part No.	Type	Axle load kg	BC mm	OHF mm	Cylinder distance measure mm			
1 222 260	BRA 1800-01	2600	1100	1650	840	192	20	20
200 556 73	BRA 1800-01	2600	1200	1750	940	194	20	20
200 556 74	BRA 1800-01	2600	1300	1850	1040	196	20	20
200 556 75	BRA 1800-01	2600	1400	1950	1140	198	20	20
200 556 76	BRA 1800-01	2600	1500	2050	1240	200	20	20
200 556 77	BRA 1800-01	2600	1600	2150	1340	202	20	20
200 556 78	BRA 1800-01	2600	1700	2250	1440	204	20	20
200 556 79	BRA 1800-01	2600	1800	2350	1540	206	20	20
200 556 80	BRA 1800-01	2600	1900	2450	1640	208	20	20

Part No.	Type	Axle load kg	BC mm	OHF mm	Cylinder distance measure mm			
1 222 261	BRA 1800-3	3000	1100	1650	840	192	20	20
200 556 81	BRA 1800-3	3000	1200	1750	940	194	20	20
200 556 82	BRA 1800-3	3000	1300	1850	1040	196	20	20
200 556 83	BRA 1800-3	3000	1400	1950	1140	198	20	20
200 556 84	BRA 1800-3	3000	1500	2050	1240	200	20	20
200 556 85	BRA 1800-3	3000	1600	2150	1340	202	20	20
200 556 86	BRA 1800-3	3000	1700	2250	1440	204	20	20
200 556 87	BRA 1800-3	3000	1800	2350	1540	206	20	20
200 556 88	BRA 1800-3	3000	1900	2450	1640	208	20	20

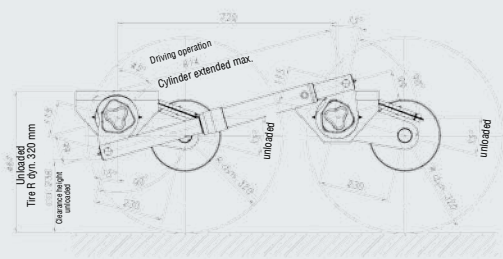
Only follow this notice if construction width and frame are in a vertical level!

If the construction is built over the wheels, the max. measure of 30 mm for the frame must be kept!

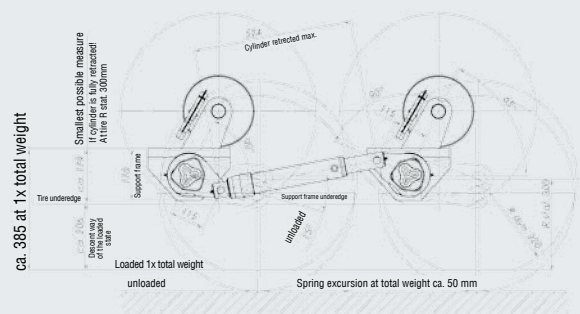
Bigger measure than 30 mm on inquiry with AL-KO



In driving position!



In lowered position!



Allowed tire size min. static radius 300 mm

The tire radius must not fall below stat. 300 mm!

Layout of wheel housing according to tire size! (take care for swing range)

Lowering way appr. 210 mm

Lowerable Axles up to 210 mm

Tandem 3500 kg

Technology

Model: Standard
 Axle type: BRA 1800-9
 Axle load
 tandem axle: 3500 kg
 Wheel brake: 2361
 PCD: 112x5
 Wheel bolts: M12x1,5 sphere




Scope of supply

Included in the scope of supply:
 | Hydraulic cylinder with mounting parts
 | support bracket tandem loose
 2088890003
 | reverse device 288675
 | balance profile 238576
 | hexagonal nut M8
 | ball nut M8
 | bowden cable loose
 | wheel bolt loose

Surface treatment

Axle body hot-dip galvanised
 Wheel brake black powder-coated

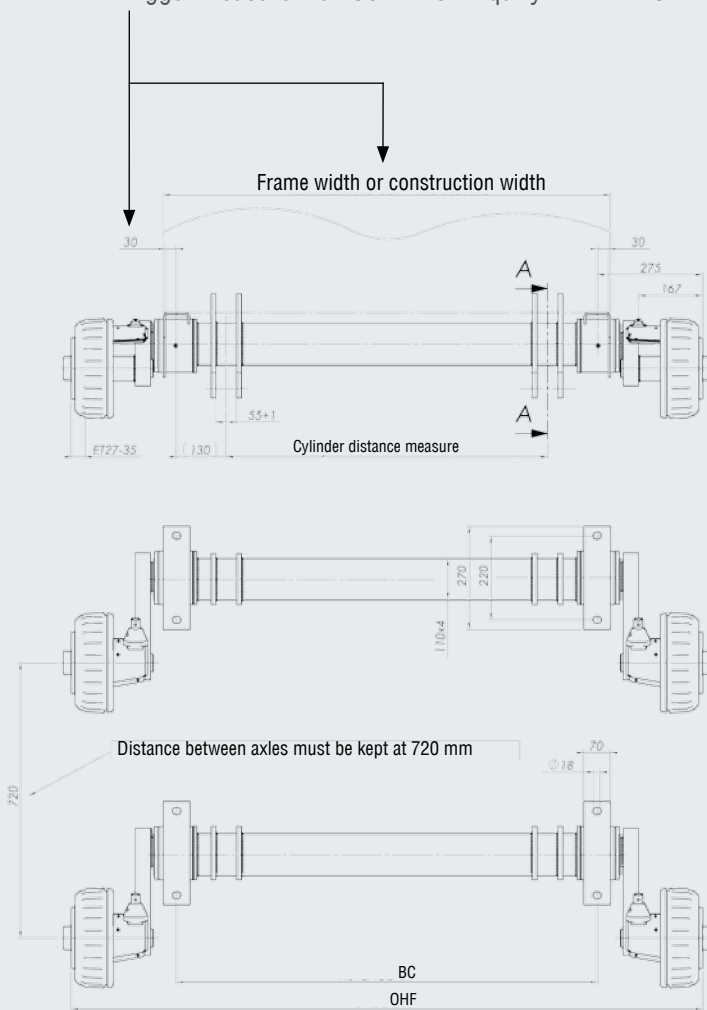
Range overview

Part No.	Type	Axle load kg	BC mm	OHF mm	Cylinder distance measure mm			
1 222 262	BRA 1800-9	3500	1100	1650	840	196	10	20
200 556 89	BRA 1800-9	3500	1200	1750	940	198	10	20
200 556 90	BRA 1800-9	3500	1300	1850	1040	200	10	20
200 556 91	BRA 1800-9	3500	1400	1950	1140	202	10	20
200 556 92	BRA 1800-9	3500	1500	2050	1240	204	10	20
200 556 93	BRA 1800-9	3500	1600	2150	1340	206	10	20
200 556 94	BRA 1800-9	3500	1700	2250	1440	208	10	20
200 556 95	BRA 1800-9	3500	1800	2350	1540	210	10	20
200 556 96	BRA 1800-9	3500	1900	2450	1640	212	10	20

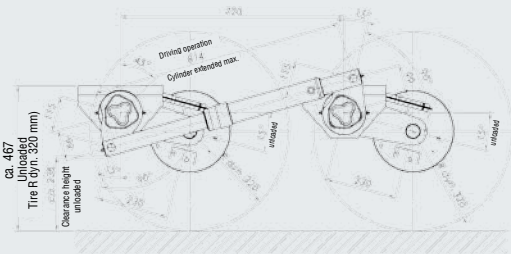
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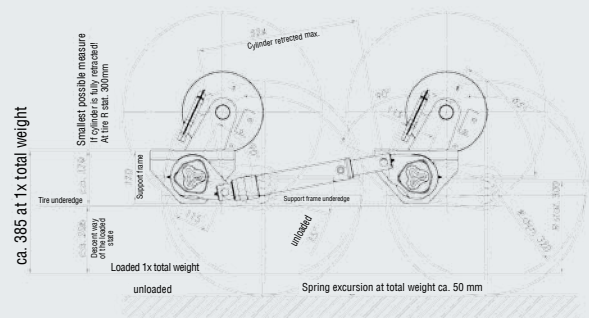
Bigger measure than 30 mm on inquiry with AL-KO



In driving position!



In lowered position!



Allowed tire size min. static radius 300 mm

The tire radius must not fall below stat. 300 mm!

Layout of wheel housing according to tire size! (take care for swing range)

Lowering way appr. 210 mm

Lowerable Axles up to 270 mm

Single Axle to 1800 kg, Tandem to 3500 kg

✔ Your advantage

! Ground-level lowering up to 270 mm of lower edge frame to the ground

The actual entrance height (drive on) in lowered state is identically with the frame height of the trailer (strictly follow installation guidelines).

! Choice of one and two-sided raise

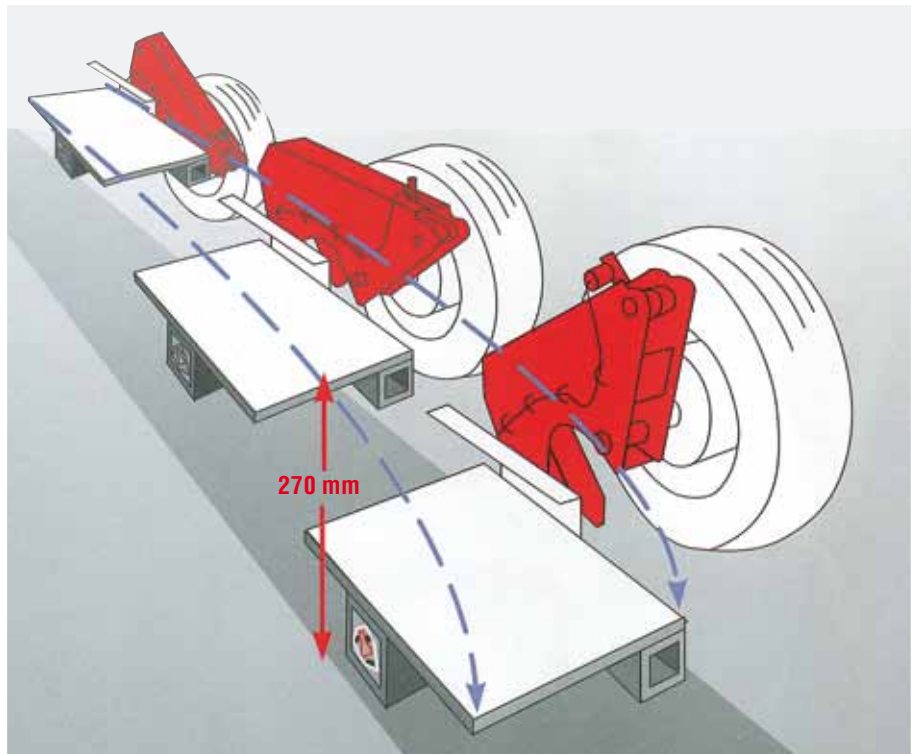
The trailer can be raised alternatively on one side or on both sides.

For example:

A sales trailer should be parked on uneven ground like street and sidewalk. Caused by the height difference between sidewalk to the roadway the trailer stands sloped. The trailer can be brought to horizontal level again by one-sided raising and lowering

! Variable construction widths available ex stock

Variable structures with an axle can be made by the use of the shaft sections which are screwed into the trailer frame. (Follow installation tips). These shaft sections we keep available ex stock.



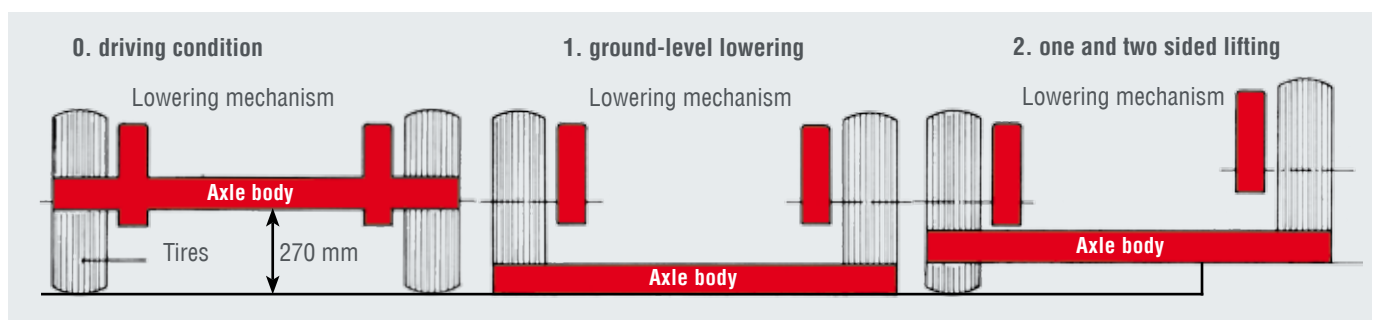
! The bowden cable outlet from the wheel brake is diverted 90° forwards by a lever. Therefore no damage of the bowden cables is possible while lifting and lowering.

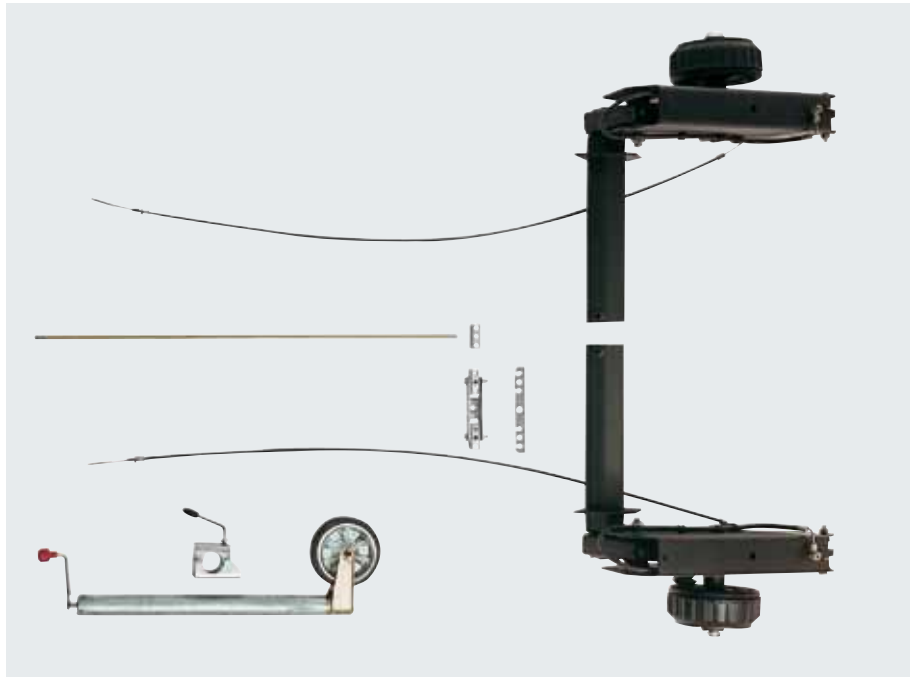
Function

A special lowering mechanism with integrated hydraulic cylinder works between wheel and axle body.

The wheels can be operated via a special pump aggregate with remote control as follows:

- ! All wheels lower together i.e. all at once
- ! Lifting of wheels together, or alternatively separated between right side and left side apart of each other





Application examples

Your customers wish space-saving, reasonable priced and practically oriented solutions

| easy and reasonable priced loading and unloading

| salesman and customer talk on the same eye level

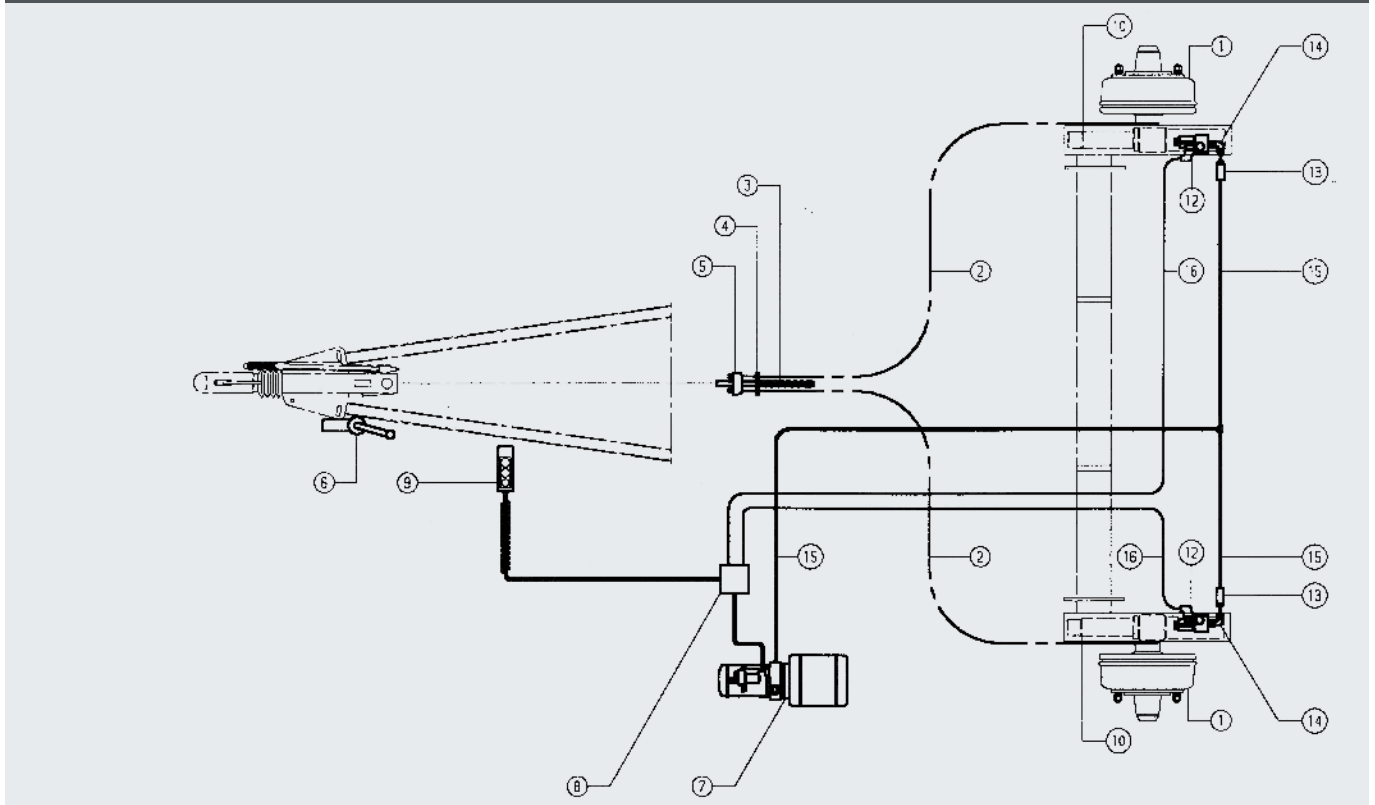


Lowerable Axles up to 270 mm

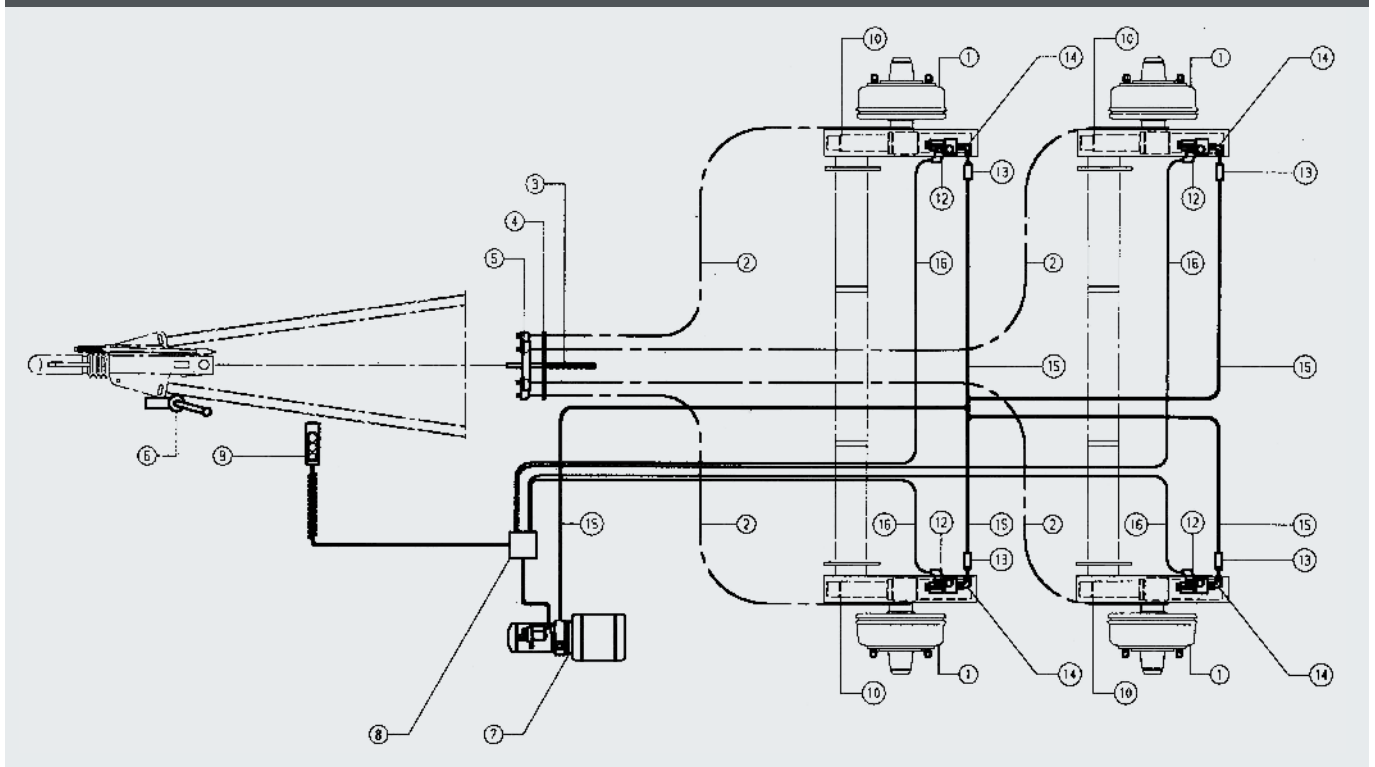
Single Axle to 1800 kg, Tandem to 3500 kg

Type overview / order positions

Single axle



Tandem



🔧 Mounting

1. Hydraulic aggregate with remote control

The pump aggregate must be protected against misuse by a lockable housing. We recommend to use the hydraulic components suggested by us. These components are tested by us, were perceived to be good and then released.

2. Axles

- ! AL-KO Axles have a toe-in and must therefore be installed subsequent.
- ! Please, absolutely follow our installation tips (wheel box free space, bolting connection to the frame, fitting possibilities for the Axle profile, etc.)
- ! The shaft sections are screwed into customers frames. The vehicle builder fills the hydraulic system with hydraulic oil and airs them.

3. Support wheel mounting

- ! In lowered state the deepest point is the frames lower edge. Please take care of this when mounting the jockey wheel (preferably high).
- ! Because the supporting wheel and connecting bracket is incorporated in the lowering procedure, an especially stable version should be used here.

Therefore we recommend:

- Supporting wheel
Part-No. 243 888 – 500kg
- Gripper clamp 60 Ø
Part-No. 249 859 – 500kg (stat. carrying capacity).

Attention!

If the lowerable axle is a shaft section, please especially take care for the toe-in and drop data!

The following data are to be kept:

- Toe-in: $+ 20' \pm 10'$
- Drop: $+ 1^\circ 10' \pm 10'$
- Measured in unloaded state!

All sides of the trailer must carry a warning tip. For example:

„Attention: trailer lowers!“

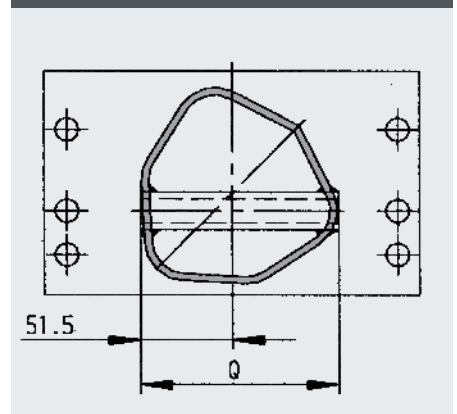
Admission recommendation for the Axle profile

Across bolting connection with a screw M12 - 8.8. flange plate with four screws (alternatively six) M12 - 8.8 (torque for screw M12 = from 80 to 85 Nm).

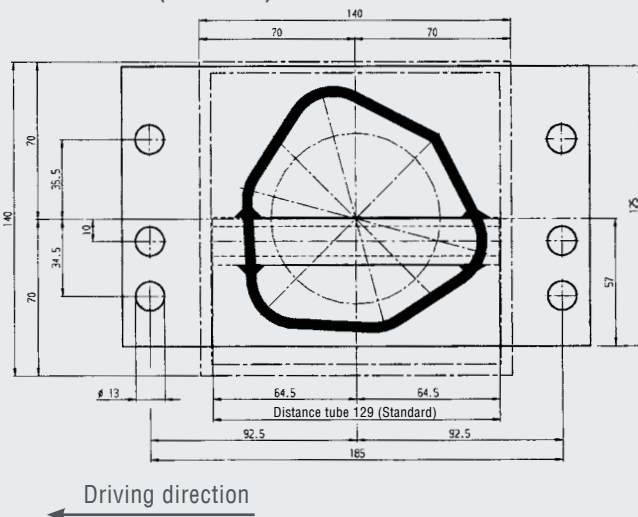
Attention!

When hollow profiles are used for the frame construction, distance bushes are to be inserted.

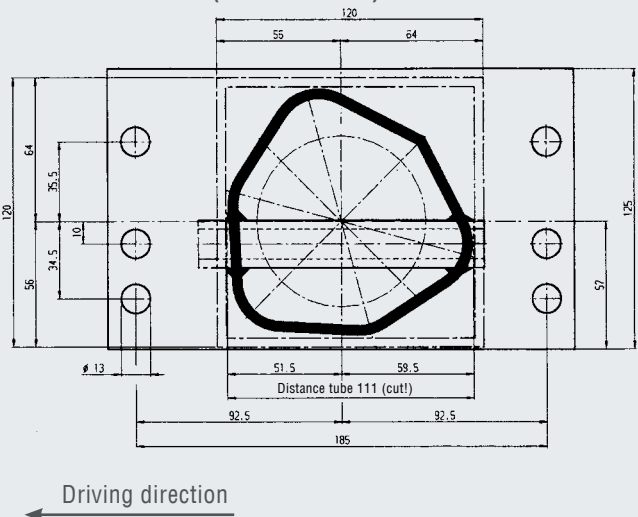
Cross section 120x120x4 – Distance cut



140 x 140 x 5 (Standard)

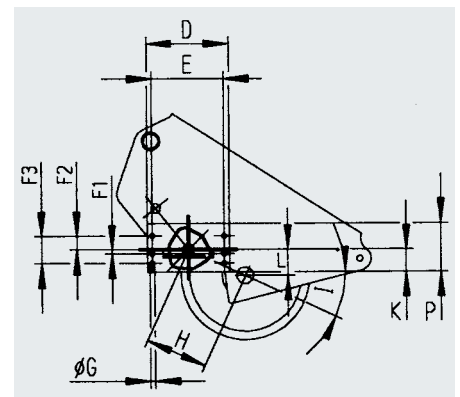
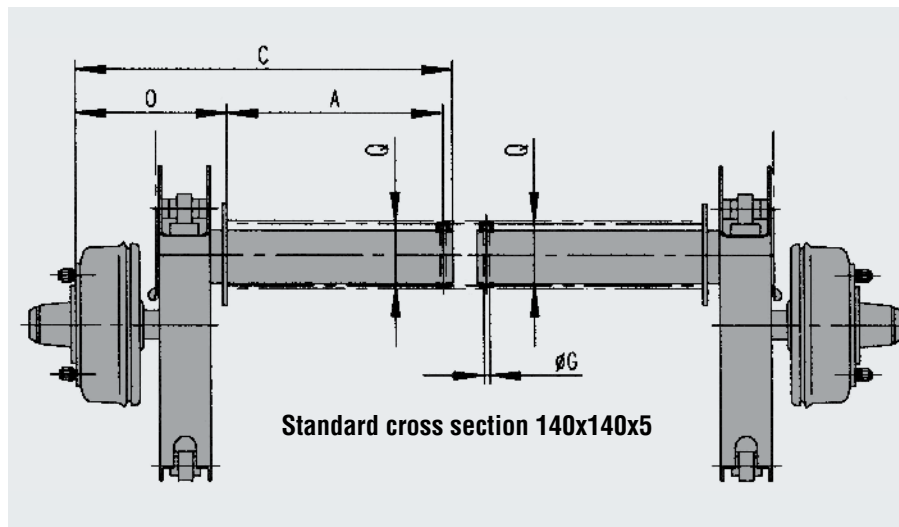


□ 120 x 120 x 4 (Distance cut!)



Lowerable Axles up to 270 mm

Single Axle to 1800 kg, Tandem to 3500 kg



Surface treatment

Synthetic resin immersion prime coating black

Stiefel-Order-No.: 100 196 635

(complete set contains positions
⑦ ⑧ ⑨ ⑬)

If other additional hydraulic tubes are required, these can be ordered at the company Stiefel.

Supplier hydraulic components and control components:

- Hydro-compact-aggregate ⑦
- Control box ⑧
- Remote control ⑨
- Flow regulator ⑬

Order directly from:

Firma Stiefel GmbH
Dr.- Carl-Schwenk-Straße 16
89233 Neu-Ulm, Burlafingen
Fon +49 731 7173-0
Fax +49 731 7173-41
E-Mail: Info@stiefel.de

Range overview

Type overview - lowerable axles ①													
Part No.	Type	allowed axle load kg	Axle dimensions (mm)					Rims and tires					
			BC A	OHF C	Support frame M	Cylinder N	Mounting plate O	Wheel brake	PCD	Wheel bolt	Insert from/to	Rec. rims	Rec. tires
249 419	ASB1800	EA=1800 TA=3500	449	785	-	-	316	2361	112x5	M12x1,5 sphere	30 mm	6J x 14	205 R 14 C*

* consider tire size, maximum tire width 215 mm

Type overview - accessories							
Type	Longlife-Bowden cables – single axle/tandem front axles			Longlife-Bowden cables – single axle/tandem axles			Reverse device Part No. ③
	Part No.	Casing mm H	Rope mm S ②	Part No.	Casing mm H	Rope mm S ②	
ASB1800	224 243	1729	1985	224 244	2749	3005	288 675 (for M10) 288 676 (for M12)

Types and suppliers overview hydraulic system									
For axle Type	Hydro-compact-aggregate		Control box (diode module)		Switch box (remote control)		Hydraulic cylinder		Mounting parts Hydraulic cylinder (per cylinder) ⑩
	Supplier	Part No.	Supplier	Part No.	Supplier	Part No.	Supplier	Part No.	
ASB1800 semiaxle	⑦ Stiefel	100 196 636	⑧ Stiefel	100 196 637	⑨ Stiefel	100 196 638	⑩ in the scope of supply	⑪ in the scope of supply	

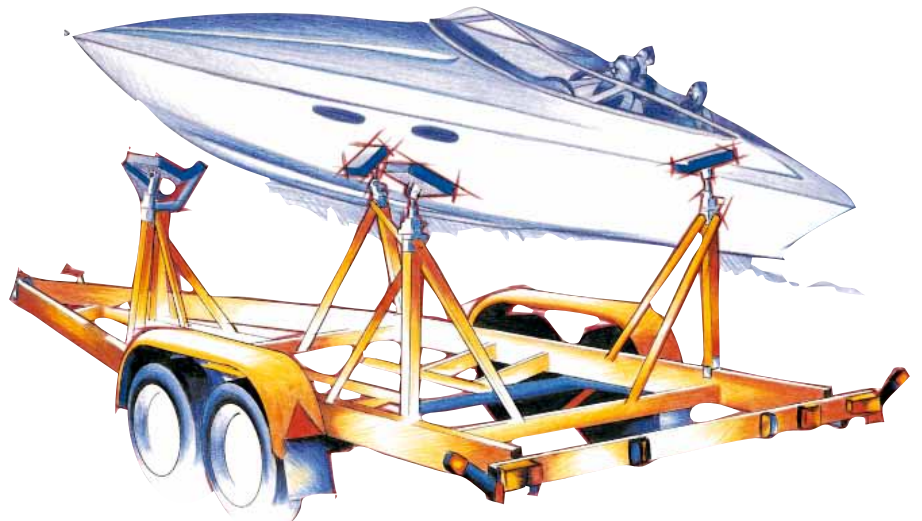
Axles without braking with waterproof hub to 750 kg

✓ Your advantage

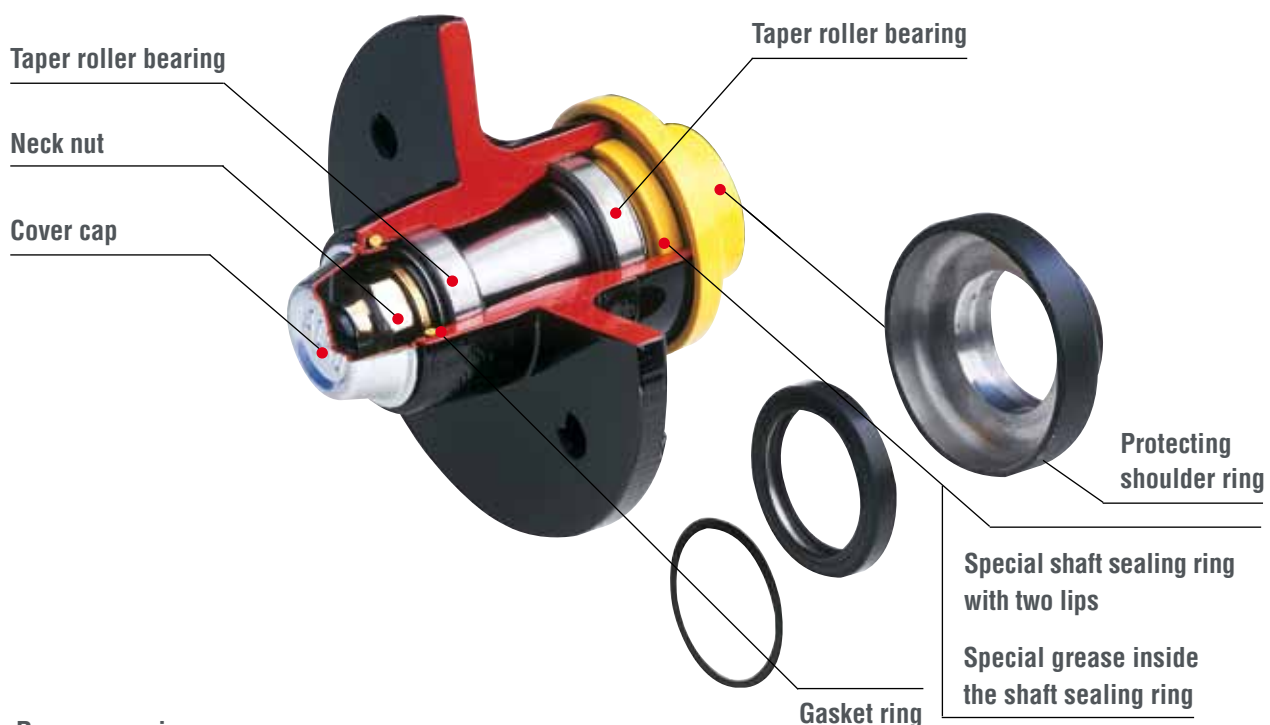
- | Wheel hub sealed on both sides (waterproof)
- | additional protection against coarse dirt by protecting shoulder ring
- | 5-year manufacturer's guarantee on setting of wheel bearing and lubrication*

Application examples

Boat trailers or other trailers which are exposed to water in the area of the axle.



① Waterproof taper roller bearing for unbraked axle 750 kg



Range overview

unbraked							
Axle-type	Axle-load kg	Possible support mass	Possible PCD	Swing arm version and length	Axle-body Ø	Possible inset rim	Bearing
700-5	750	700-1850 mm	100x4 / 112x5 / 98x4 115x4 / 130x4	forged 145 mm	71 mm	27 - 45 mm	Taper roller bearing ①
1200-5	750 to 1300	750-1900 mm	100x4 / 112x5 other PCD's on inquiry	Stable form 161 mm	97 mm	27 - 33 mm	Compact bearing ②

*precise range of warranty appears out of the general declaration of guarantee by AL-KO

Axles braked with waterproof bearing 750 to 1800 kg

✓ Your advantage

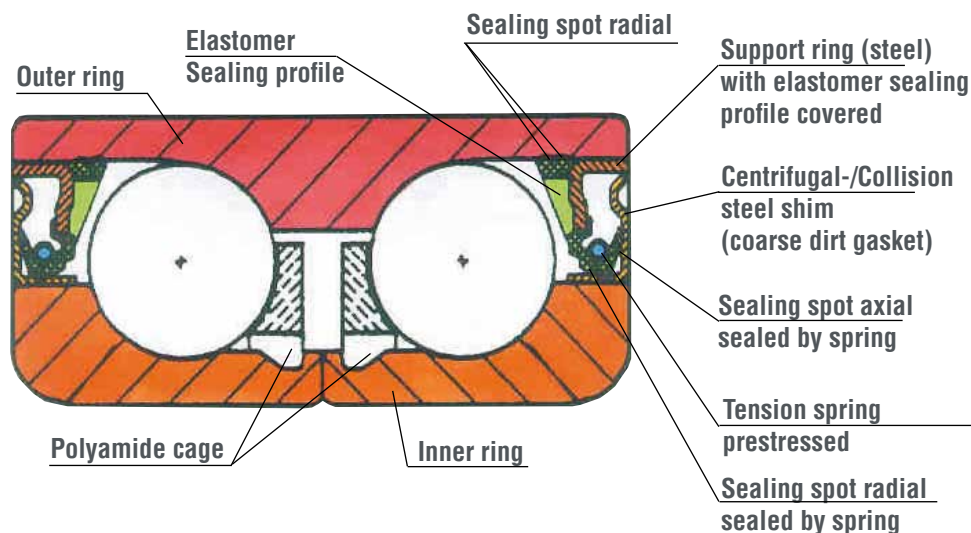
- | Compact bearing waterproof with special sealing and special grease
- | Proven in the automobile sector
- | Maintenance-free (lubricated for life)
- | Adjustment or service of bearings not necessary
- | The bearing is impressed to the bearing seat of the brake drum with high precision

Attention:

- | Let the wheel brakes of the boat trailer cool down before driving in water
- | Flush wheel brakes regularly with clear water after operating in water (especially salt water) and keep service intervals!



② Waterproof Compact bearing for unbraked axles 800 – 1300 kg
for braked axles 750 – 1800 kg



Optical identification
AL-KO WATERPROOF



braked	Axle-type	Axle-load kg	Possible support mass mm	Wheel brake	Bearing Ø Inner/outer Bearing width mm	Possible PCD	Swing arm Version and length mm	Axlebody Ø mm
	B 850	750-1000	750-1900	2051 Aa	34/64/37	see wheel brake	stable form 158	80
	B 1200	1000-1350	750-1900	2051 Aa	34/64/37	see wheel brake	stable form 161,5 / 175	97
	B 1600	1350-1500	800-1900	2051 Ab	39/72/37	see wheel brake	stable form 161,5	97
	B 1600	1500-1600	850-1850	2361	42/72/45	see wheel brake	forge 160	97
	B 1800	1600-1800	900-1850	2361	42/78/45	see wheel brake	forge 175	110

Axles braked with drive system

Single axle to 1800 kg, Tandem axle to 3500 kg

✔ Your advantage

- | Trailer independent of towing vehicle (no connection to cardan shaft necessary in towing vehicle)
- | Wheel brake on the left prepared completely with drive shaft (involute spline referring DIN ISO 14-6x21x25)

📦 Scope of supply

- | Axle complete (see technical drawing)
- | Abutment single axle welded with hat profile single axle- and tandem axle-abutment
- | Balancer profile single axle
- | Bowden cables loose
- | Wheel bolts loose (Standard M12x1,5 spherical)
- | Operating instructions

🔪 Surface treatment

- | Axle body hot-dip galvanised
- | Axle swing arm paint-coated
- | Brake shield powder-coated
- | Drive shaft short time gas-nitrided



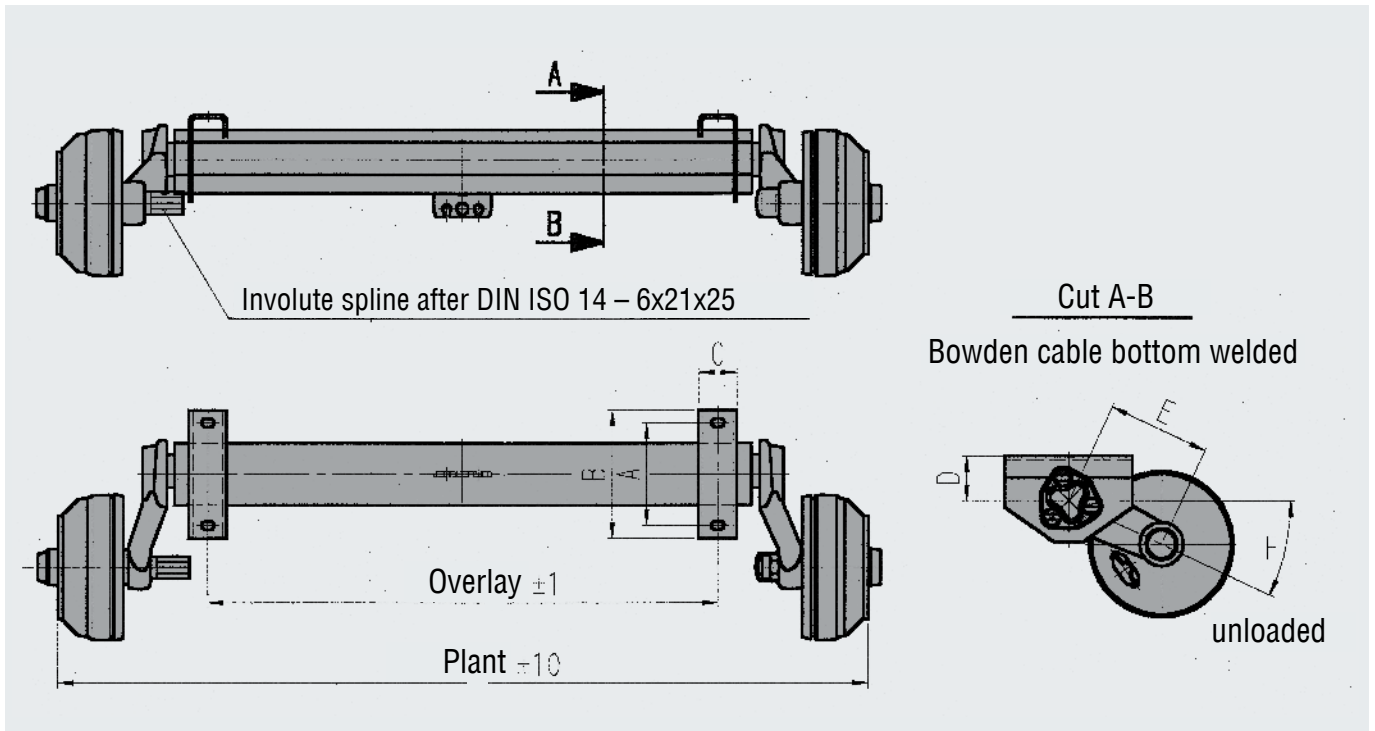
Application examples

- | Salt spreader trailer
- | Trailer with cooling aggregate (rolling energy is converted into electricity via the drive shaft)



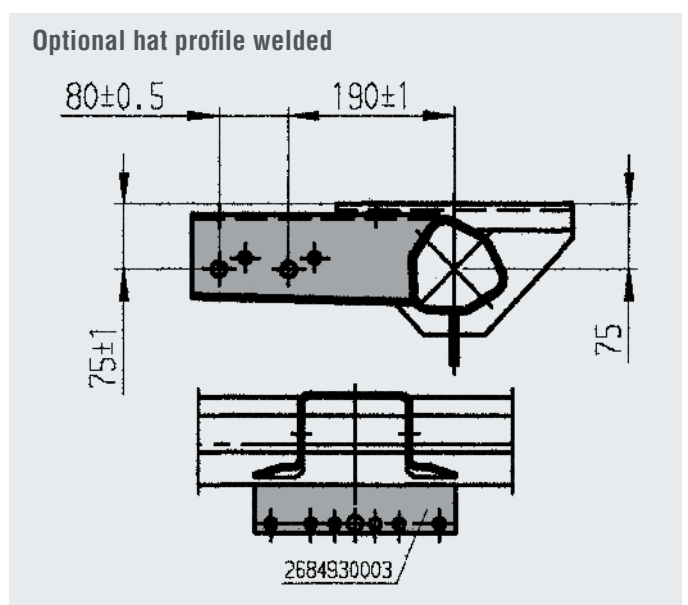
Range overview

Programme	Single axle		Tandem	
	1300 kg	1800 kg	2600 kg	3500 kg
Axle load	1300 kg	1800 kg	2600 kg	3500 kg
Axle type	B 1200-5	B 1800-8	2x B 1200-5	2x B 1800-8
Wheel brake type	2051	2361	2051	2361
Recommended distance between axles	-	-	650 mm	650 mm



Ordering information:

Axles according to order overview alternatively available with hat profile and/or tandem abutment welded serially at AL-KO factory.



Range overview

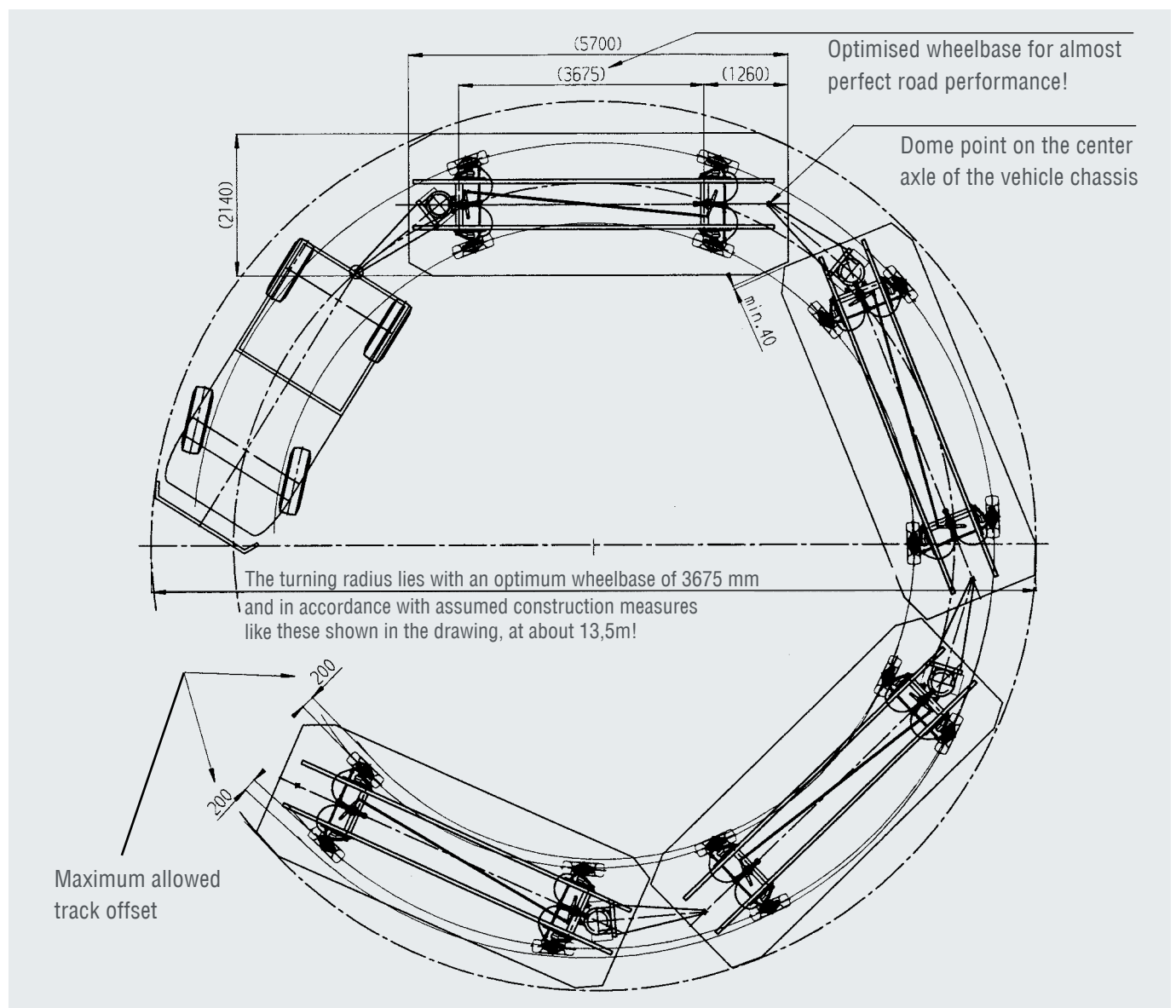
Axle type	Axle load	Wheel brake	PCD	BC	OHF	Measurement						Axle-body \varnothing mm
						A mm	B mm	C mm	D mm	E mm	F mm	
B 1200 Drive axle	1300 kg Single axle	2051	100x4	940 min.	1420 min.	160	200	60	65	160	25°	97
	2600 kg Tandem axle*		112x5	1800 max.	2280 max.							
B 1800 Drive axle	1800 kg Single axle	2361	112x5	840 min.	1320 min.	220	270	70	75	175	25°	110
	3500 kg Tandem axle*			1800 max.	2280 max.							

* With tandem axle the wheel brake left side back is equipped with the drive shaft

Steering axles with frame up to 5400 kg

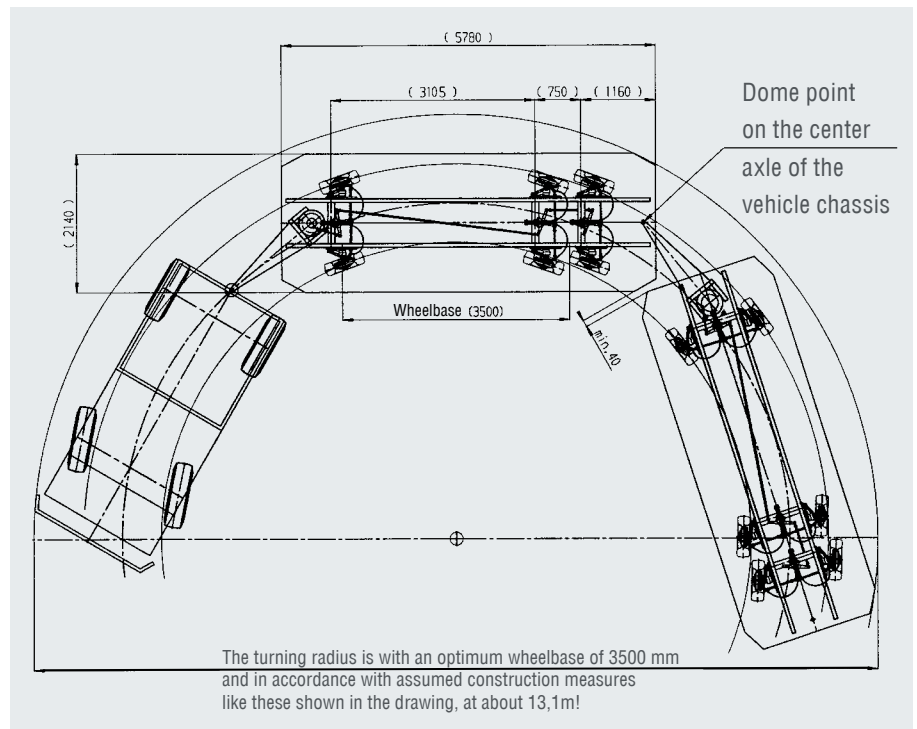
✓ Your advantage

- | The trailer runs in perfect trace behind the towing vehicle
- | Stable and sealed steering arm bearing
- | Sealed kingpin bearing
- | Sealed swingarm bearing.



Application examples

- | Amusement railway
- | Internal transport
- | Light railway with several trailers



Technology

Service brake:

Hydraulic actuation of the wheel brake cylinder

Parking brake:

Mechanical actuation of bowden cables

- | For the construction of this special trailer our assembly instruction no. 1312133 is to be followed as a guideline.
- | The trailer must be maintained regularly (see operating instructions no. 1311308).
- | The distance from frame to outer edge of brake drum measures 326 mm fix per side.
- | The frame distance right to left is variable from 750 to 1750 mm (Frame outer edge to outer edge with an assumed tire 185 R 15 C).
- | In general the wheel base is variable. Attention: you can reach best possible road performance with a wheelbase of precisely 3675 mm (2 axles).

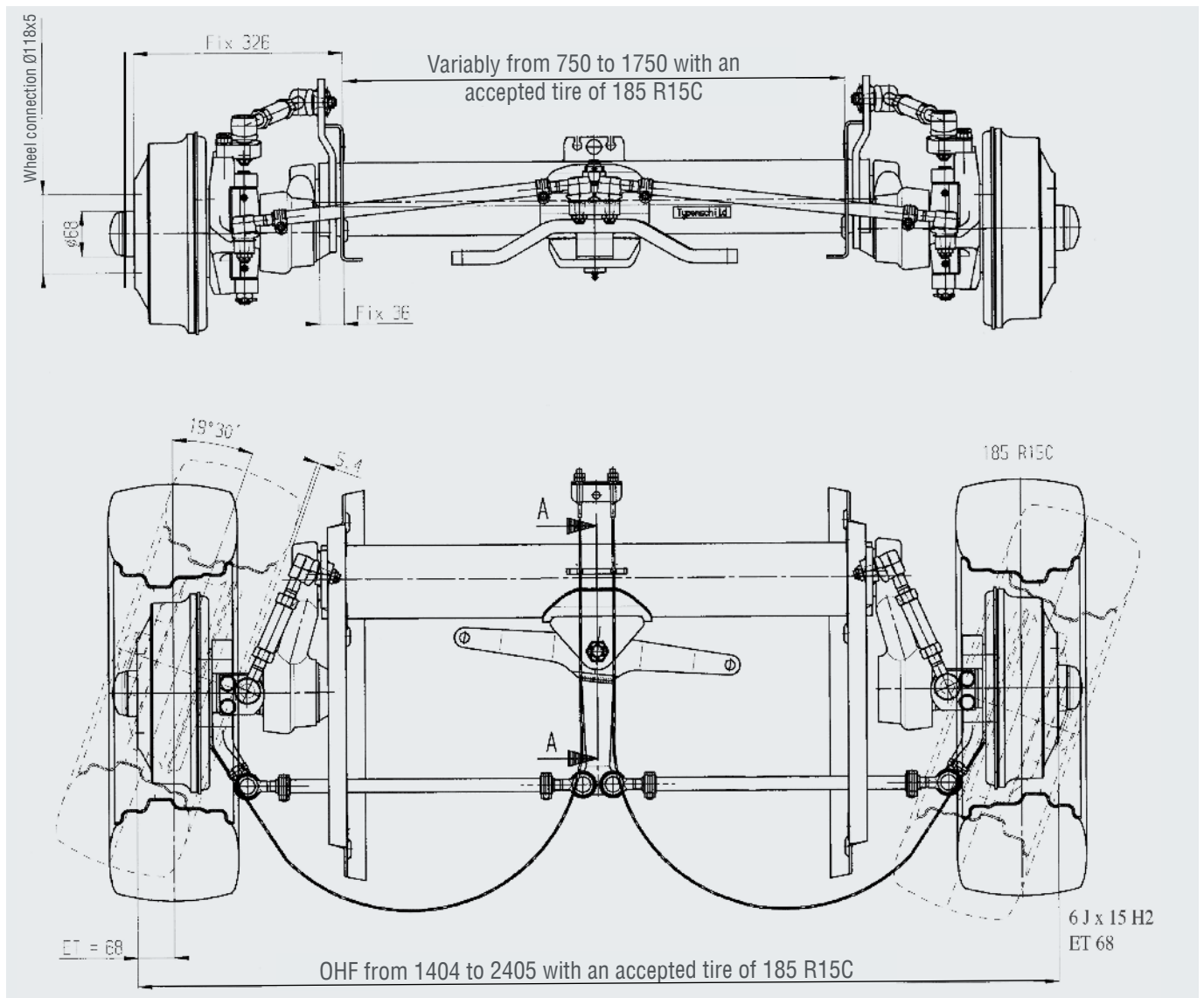
If this measure is exceeded or undercut, increasingly to the wheelbase difference a linearly increasing of track offset is the result.

- | The frame length is also variable: This affects the track offset and turning radius of your train.
- | The maximum steering angle of the wheel is about 19,5°. Strongly pay attention that the minimum distance of 5,4 mm between the wheel and the swing arm is not undercut. The maximum allowed steering angle of ca.19,5° is limited by a steering lock end-stop right in the axle (recommended tire 185 R 15 C – 8 PR).
- | The dome point of the trailer must lie on the center axle.

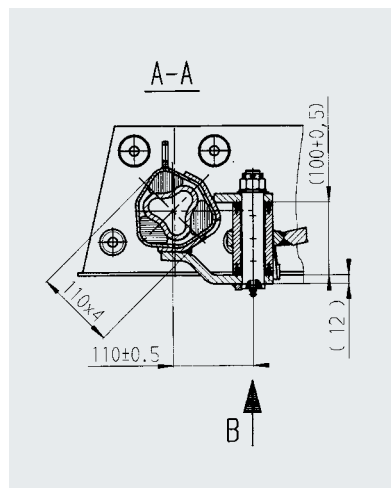
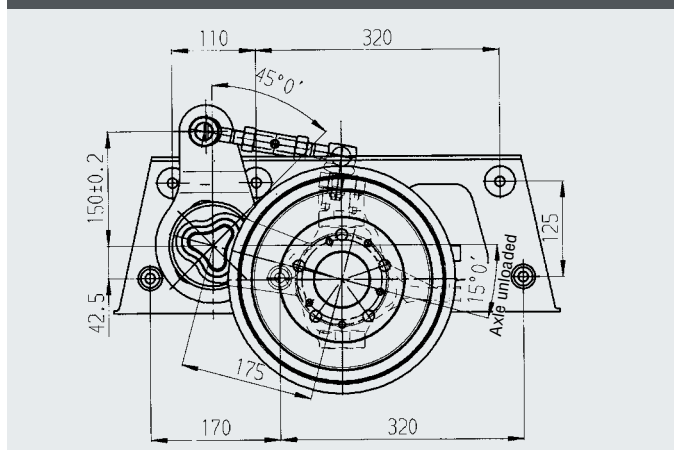
- | With the smallest possible turning radius of the train the distance of the superstructures may not undercut 40 mm.
- | The maximum track divergence (wheel offset) after 4 lined up trailers one after the other may be about 200 mm.
- | The bowden cables must be hung up on the vehicle floor.
- | The allowed axle loads may not be exceeded.

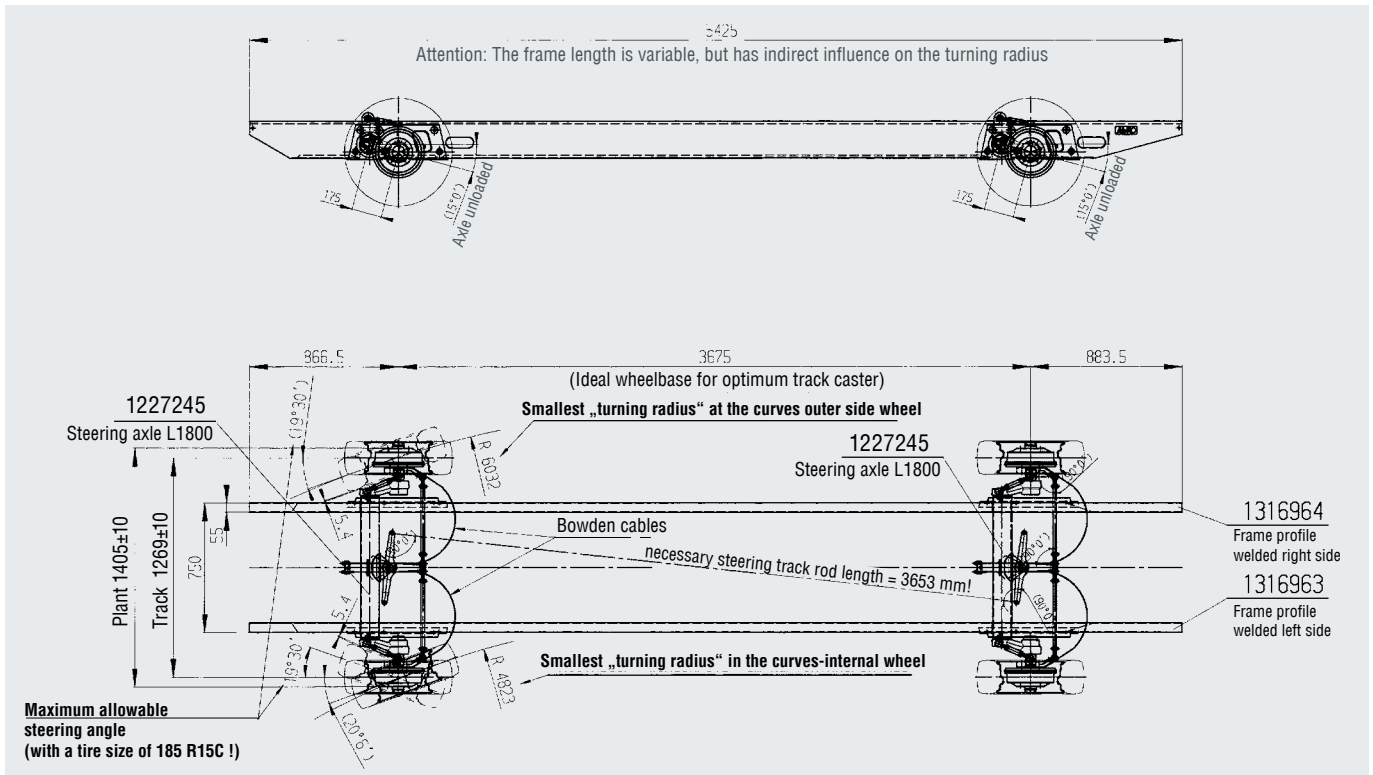
Steering axles with frame

up to 5400 kg



Fixed measurements





Technology

Type LA 1800 Axle load 1800 kg or 1600 kg	2-axle total weight max. 3500 kg 3-axle total weight max. 5400 kg
Allowed maximum speed	At 2 trailer max. 40 km/h At 3 trailer max. 25 km/h At 4 trailer max. 25 km/h
Number of trailers	Maximum of 4 trailers are possible
Wheels/tires	PCD 118x5 Tire 185 R15 C -8PR Rims: 6 J x 15 H2 Taper wheel screws M 14x1,5 inset: ET=68
Wheel brake	(Girling) li. kpl. Art.Nr. 374 627 (Girling) re. kpl. Art.Nr. 374 628
Brake cylinder	Ø 25,4 mm

Surface treatment

- Frame parts, Axle body hot dip galvanised

Scope of supply

- Axle complete with frame alternatively 2-axle or 3-axle (variable and fixed measurements see drawings).
- The above mentioned example (double axle) has the order No. **1 227 840** (axles complete with frame) and can be used as a reference for inquiries.

(Axles not available without frame parts, because of specific construction of bolting connection and related steering angle!)

Chassis with height-adjustable train shaft for air pressure-braked trailers

✓ Your advantage

180 kg more payload

| In comparison to straight axles with leaf springs you save up to 180 kg of net weight at a total carrying weight of 5 tons. That means more payload for your customers.

Height adjustable drawbar

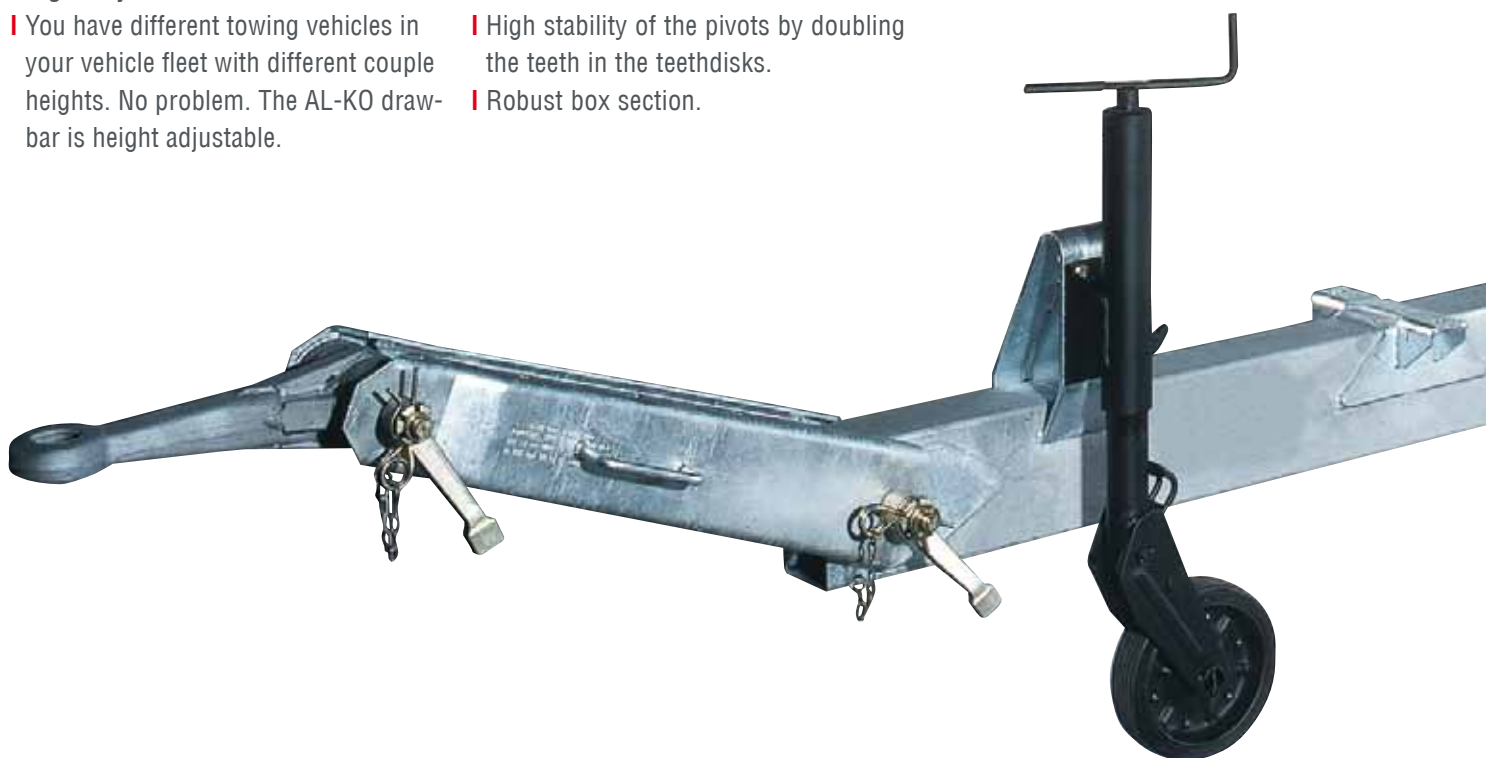
| You have different towing vehicles in your vehicle fleet with different couple heights. No problem. The AL-KO drawbar is height adjustable.

No counterweight necessary up to 6500 kg

| By combination of the AL-KO drawbar heights adjustable with AL-KO tandem axles no counterweight is necessary (TÜV report can be requested when required).

Robust

| High stability of the pivots by doubling the teeth in the teethdisks.
| Robust box section.



Serially

- | Automatic adjustment of the brake pads (regulation 71/320/EEC from the 01.10.1994).
- | Shunting grip welded to middle section.
- | Holder for replacement coupling welded to middle section.
- | Exchangeable coupling parts (DIN-Eye/Nato-Eye).

Preparation for antilock brake system

AL-KO Axles are prepared according to EC guideline 98/12 for the equipment with antilock brake system. For this, the brake drum is equipped with a pulse wheel tooting and the brake shield receives a pressed socket. With tandem axles only the rear axle is used for steering of the antilock brake system. This means that the drillings for the sensor only exist in the brake plate of the rear axle. The sensors are no scope of supply of AL-KO (Wabco/Knorr/Haldex or similar)

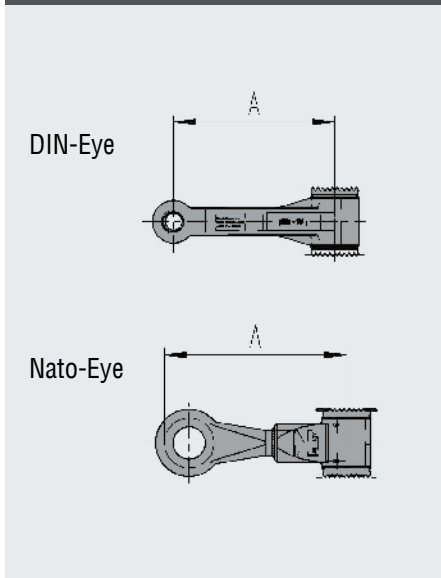


Example of use

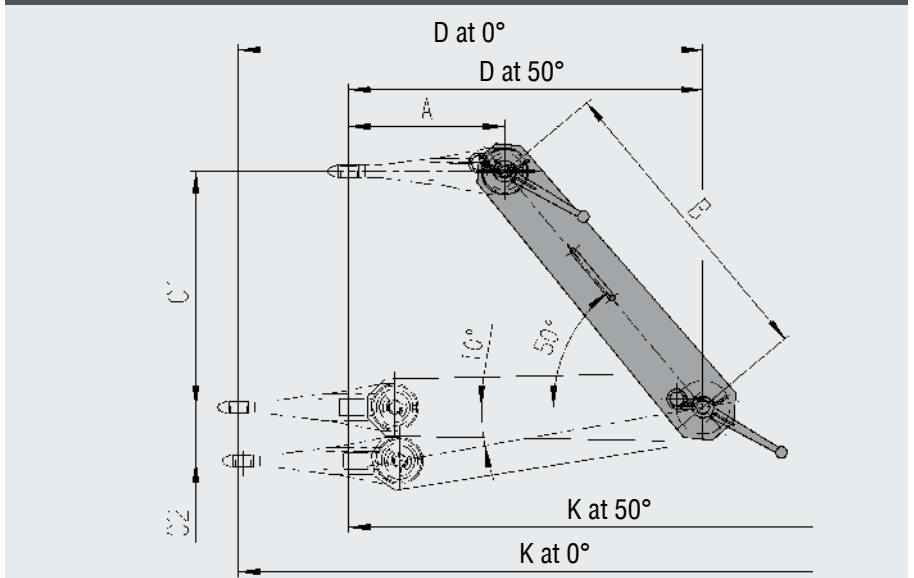


Train shafts heights-adjustably 3500 to 6500 kg for air pressure-braked trailers

Drawing 1 - eye



Drawing 2 - adapter



📦 Scope of supply

- ! Eye end (see drawing 1)
- ! Adapter in two-parts, incl. storage bolts, chains, spring cotter (see drawing 2)
- ! Towbar without support bracket, without jockey wheel flange (see drawing 3)
- ! Accessories (see type overview)

🔧 Surface treatment

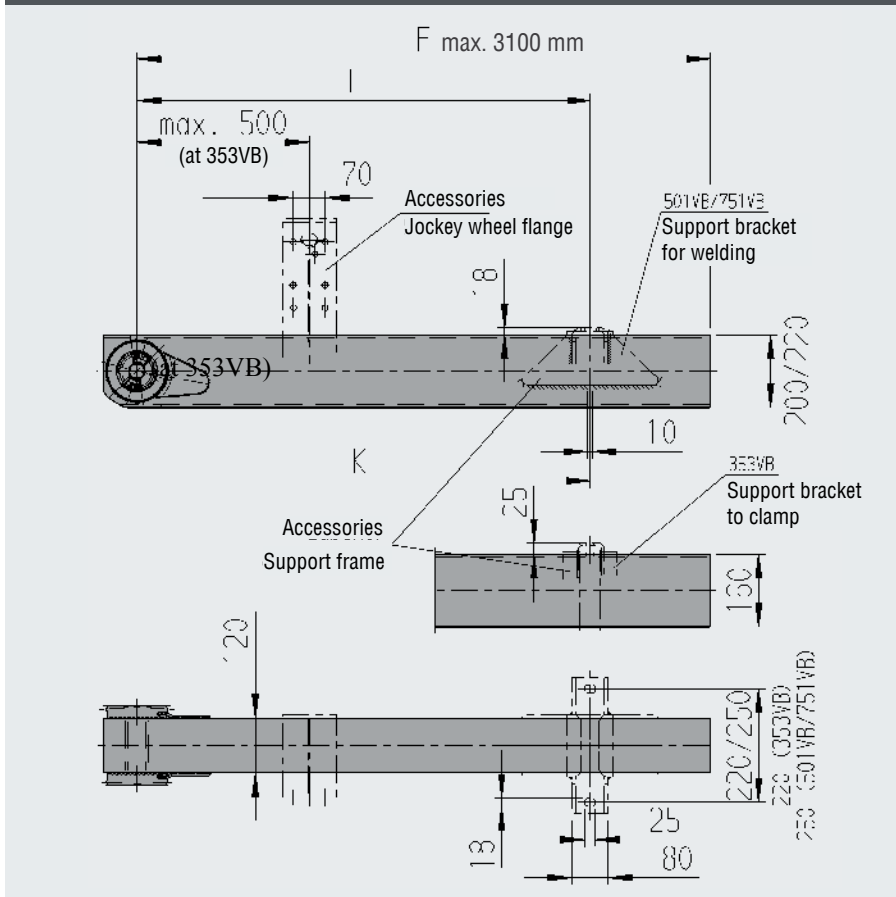
- ! Synthetic resin immersion prime coating black
- ! Fixing handle and various small parts galvanised

Range overview

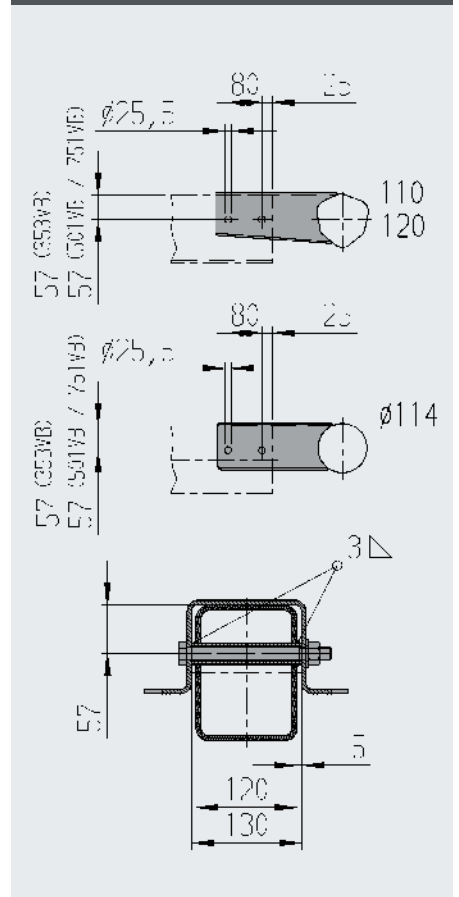
Eye end (drawing 1)				
Part No.	Permitted total weight	Type	Measurement A	kg
246 998	6500 kg	Din Ø 40	380 mm	21
246 999	6500 kg	Din Ø 50	380 mm	21
1 313 948	6500 kg	NATO Ø 76	380 mm	23

Adapters (drawing 2)										
Part No.	Permitted total weight	Type	EC-Test Number	Nose load	Version	B mm	C1 at +50° mm	C2 at -10° mm	D at DIN-eye +50° mm	kg
1 336 752	3500 kg	353 VB	el*94/20*0239	G	750	575	130	865	1130	41
610 513	5000 kg	501 VB	el*94/20*0883	A 2	750	575	130	865	1130	41
622 643	6500 kg	751 VB	el*94/20*0259	A 1	600	460	104	765	980	41

Drawing 3 - towbar



Drawing 4 - connection axle



Range overview

Adapters (drawing 2)									
Part No.	Permitted total weight	Type	E mm	F* min. mm	F* max. mm	K max.		Towbar Width x height mm	26
						at 0° mm	at 50° mm		
1 336 750	3500 kg	353 VB	875	300	1078	2200	1940	120 x 160	26
1 336 751	3500 kg	353 VB	2875	300	1078	2200	1940	120 x 160	71
610 387	5000 kg	501 VB	875	300	970	2100	1835	120 x 200	41
610 512	5000 kg	501 VB	2875	300	970	2100	1835	120 x 200	115
623 022	6500 kg	751 VB	875	400	1185	2165	1950	120 x 220	50
622 646	6500 kg	751 VB	2875	400	1185	2165	1950	120 x 220	146

F* = Middle support frame according to report

Accessories (drawing 4)								
Permitted total weight	For axle body mm	Hat profile with screws Part-No.	2 pieces of distance tubes Part-No.	Jockey wheel flange to weld Part-No.	suitable jockey wheel solid rubber 260x65 Part-No.	suitable support bracket to weld or clamp Part-No.	suitable shifting help Part-No.	
Single axle 1800 / Tandem axle 3500	110 mm	243 105	372 879 per piece	387 363	1 250 408 800 kg	1 211 106 (clamping)	1 310 602	
Single axle 3500	114 mm Ø	240 134	372 879 per piece	387 363	1 250 408 800 kg	1 211 106 (clamping)	623 090	
Single axle / Tandem axle 6000	120 mm	240 133	372 879 per piece	387 363	1 250 408 800 kg	622 637 (weld)	623 090	
Single axle / Tandem axle 7500	114 mm Ø	240 134	372 879 per piece	387 363	1 250 408 800 kg	622 637 (weld)	623 090	

Axles rubber damping for air pressure-braked trailers

Single axles 1800 kg, Tandem 3500 kg, Tridem 5400 kg

✓ Your advantage

- | Above a total weight of 3500 kg an antilock system (ABS) is required by law
- | With tridem axles above a total weight of 3500 kg the rearmost axle is prepared to the installation by ABS
- | If the axles are combined with AL-KO drawbars height-adjustable, there is no need for a counterweight

📦 Accessories

- see order overview (please order separately)
- | Parking brake
- | Shock absorber without bolting material (please only use the specially balanced original AL-KO axle shock absorber)
- | The compressure air-brake-system as well as the parts of the automatic antilock system (ABS), please order directly from following suppliers:
Co. Wabco / Co. Haldex / Co. Knorr

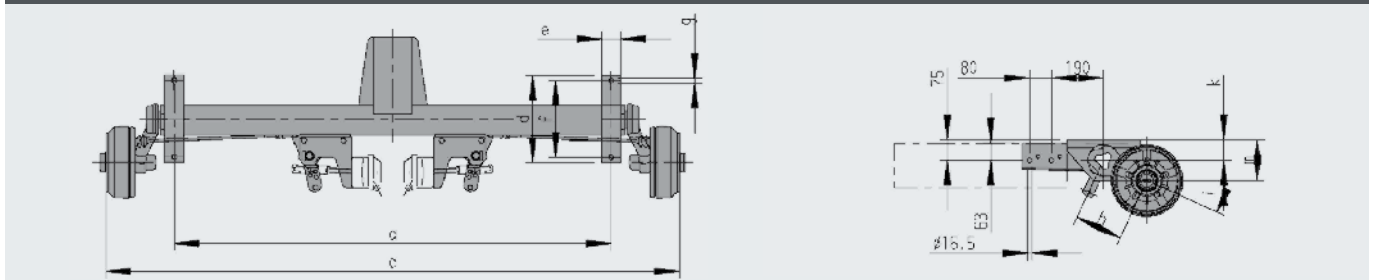
📦 Scope of supply

- | Automatic brake pad adjustment
- | Shock absorber mounting brackets
- | Consoles for brake cylinder
- | Hat profile welded
- | Wheel nuts or wheel bolts
- | Brake rod with brake lever
- | Operating instructions

📦 Surface treatment

- hot dip galvanised

Single axle 1800 kg axle load

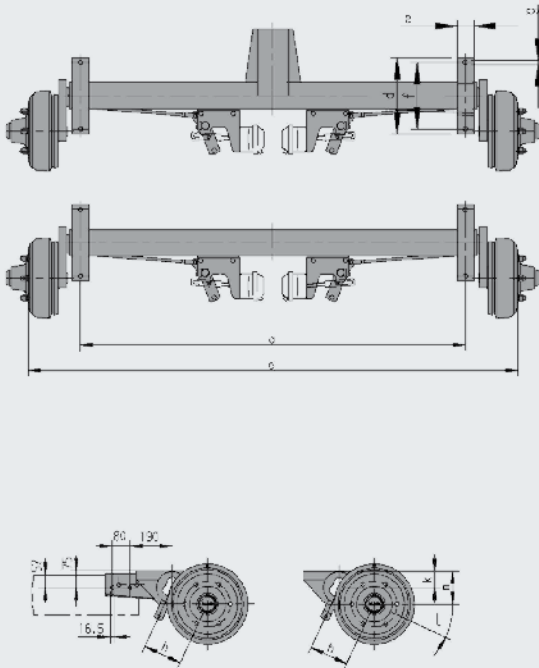


Range overview

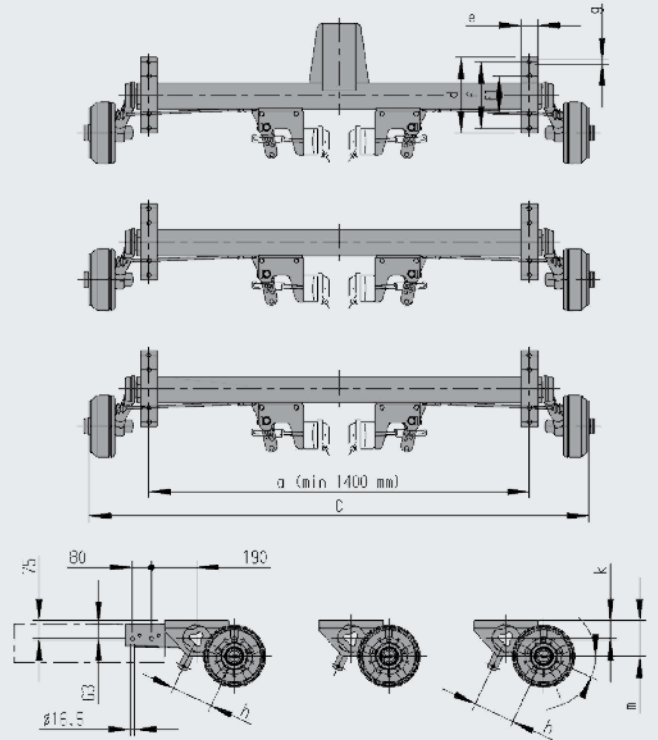
Part No.	SA TA TRI	Type	Single axle load kg	Tandem axle load kg	Tridem axle load kg	BC a mm	OHF c mm	OHF c min. mm	Axle body	Wheel brake Type	PCD	Wheel bolt Sphere	In- set mm	d mm	e mm	f mm
1 220 493	SA	BL 1800	1800			1400	1900	1900	110	2361AR	112x5	M12x1,5	30	270	70	220
1 220 790	SA	BL 1800	1800			1500	2000	1900	110	2361AR	112x5	M12x1,5	30	270	70	220
1 220 822	SA	BL 1800	1800			1600	2100	1900	110	2361AR	112x5	M12x1,5	30	270	70	220
1 220 823	SA	BL 1800	1800			1700	2200	1900	110	2361AR	112x5	M12x1,5	30	270	70	220
1 220 824	SA	BL 1800	1800			1800	2300	1900	110	2361AR	112x5	M12x1,5	30	270	70	220
1 213 646	TA	BL 1800		3500		1400	1900	1900	110	2361AR	112x5	M12x1,5	30	270	70	220
1 213 647	TA	BL 1800		3500		1500	2000	1900	110	2361AR	112x5	M12x1,5	30	270	70	220
1 213 648	TA	BL 1800		3500		1600	2100	1900	110	2361AR	112x5	M12x1,5	30	270	70	220
1 213 649	TA	BL 1800		3500		1700	2200	1900	110	2361AR	112x5	M12x1,5	30	270	70	220
1 213 650	TA	BL 1800		3500		1800	2300	1900	110	2361AR	112x5	M12x1,5	30	270	70	220
1 220 825	TRI	BL 1800			4300	1400	1900	1900	110	2361AR	112x5	M12x1,5	30	270	70	220
1 220 826	TRI	BL 1800			4300	1500	2000	1900	110	2361AR	112x5	M12x1,5	30	270	70	220
1 220 827	TRI	BL 1800			4300	1600	2100	1900	110	2361AR	112x5	M12x1,5	30	270	70	220
1 220 828	TRI	BL 1800			4300	1700	2200	1900	110	2361AR	112x5	M12x1,5	30	270	70	220
1 220 716	TRI	BL 1800			4300	1800	2300	1900	110	2361AR	112x5	M12x1,5	30	270	70	220
1 220 829	TRI	BL 2000			5400	1400	1900	1900	120	2361AR	112x5	M12x1,5	30	320	70	280
1 220 830	TRI	BL 2000			5400	1500	2000	1900	120	2361AR	112x5	M12x1,5	30	320	70	280
1 220 122	TRI	BL 2000			5400	1600	2100	1900	120	2361AR	112x5	M12x1,5	30	320	70	280
1 220 831	TRI	BL 2000			5400	1700	2200	1900	120	2361AR	112x5	M12x1,5	30	320	70	280
1 220 832	TRI	BL 2000			5400	1800	2300	1900	120	2361AR	112x5	M12x1,5	30	320	70	280

SA = Single axle | TA = Tandem axle | TRI = Tridem axle

Tandem 3500 kg axle load



Tridem 4300 kg axle load, Tridem 5400 kg axle load



f1 mm	g mm Ø	h mm	l swingarm angle unloaded	k mm	m mm	Vers. SC = forged swingarm		Shock absorber per piece without screw material	Parking brake with- out bowden cable or brake cable	Intended brake cylinder type: 9 Co. Wabco, Knorr, Haldex Part No. (no scope of supply by AL-KO)
	18	175	25°	75	149	SC	83	244 087	267 005	see page 78
	18	175	25°	75	149	SC	84	244 087	267 005	see page 78
	18	175	25°	75	149	SC	85	244 087	267 005	see page 78
	18	175	25°	75	149	SC	86	244 087	267 005	see page 78
	18	175	25°	75	149	SC	87	244 087	267 005	see page 78
	18	175	25°	75	149	SC	166	244 087	267 005	see page 78
	18	175	25°	75	149	SC	168	244 087	267 005	see page 78
	18	175	25°	75	149	SC	170	244 087	267 005	see page 78
	18	175	25°	75	149	SC	172	244 087	267 005	see page 78
	18	175	25°	75	149	SC	174	244 087	267 005	see page 78
	18	175	25°	75	149	SC	249	244 087	267 005	see page 78
	18	175	25°	75	149	SC	252	244 087	267 005	see page 78
	18	175	25°	75	149	SC	255	244 087	267 005	see page 78
	18	175	25°	75	149	SC	258	244 087	267 005	see page 78
	18	175	25°	75	149	SC	261	244 087	267 005	see page 78
220	18	175	25°	75	149	SC	264	244 087	267 005	see page 78
220	18	175	25°	75	149	SC	267	244 087	267 005	see page 78
220	18	175	25°	75	149	SC	270	244 087	267 005	see page 78
220	18	175	25°	75	149	SC	273	244 087	267 005	see page 78
220	18	175	25°	75	149	SC	276	244 087	267 005	see page 78

Axles rubber damping for air pressure-braked trailers

Single axles 3000 kg, Tandem 6000 kg

✔ Your advantage

- | Above a total weight of 3500 kg an antilock system (ABS) is required by law
- | With tandem axles the very back axle is prepared for the installation of ABS
- | If the axles are combined with AL-KO drawbars height-adjustable, there is no need for a counterweight
- | Automatic brake pad adjustment

Accessories

- see order overview (please order separately)
- | Parking brake
- | Shock absorber without bolting material (please only use the specially balanced original AL-KO axle shock absorber)
- | The compressure air-brake-system as well as the parts of the automatic antilock system (ABS), please order directly from following suppliers:
Co. Wabco / Co. Haldex / Co. Knorr

📦 Scope of supply

- | Shock absorber mounting brackets
- | Consoles for brake cylinder
- | Hat profile welded
- | Wheel nuts
- | Brake rod with brake lever
- | Operating instructions

🔪 Surface treatment

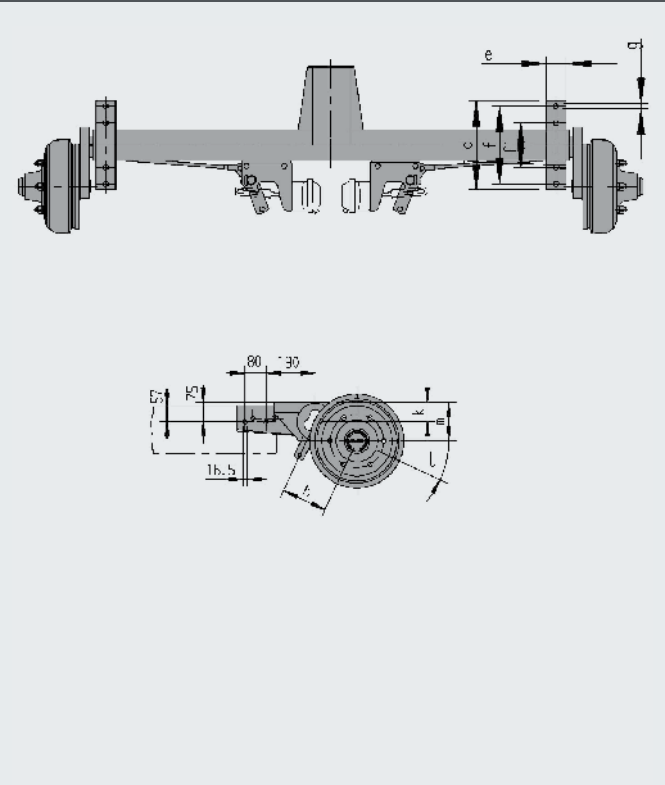
hot-dip galvanised

Range overview

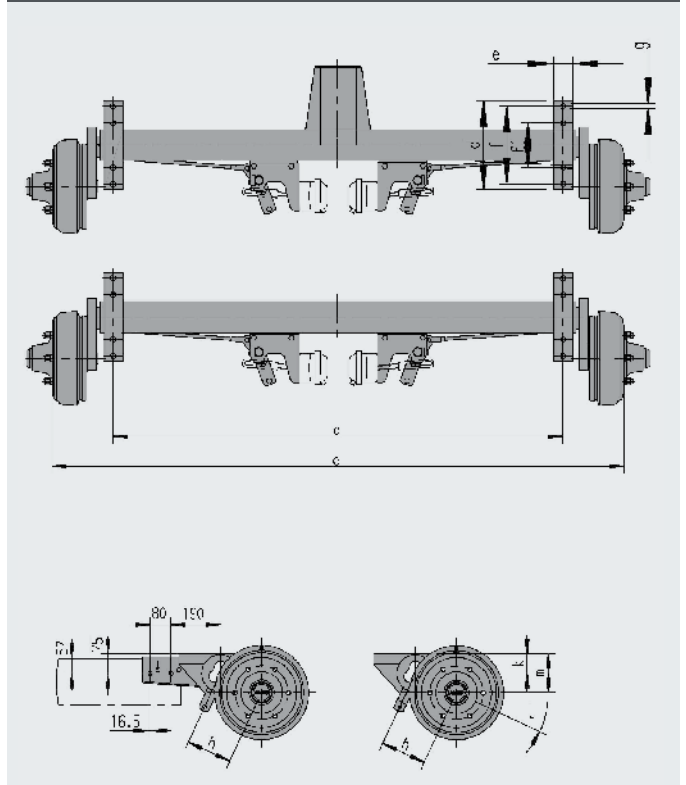
Part No.	SA TA	Type	Single axle load kg	Tandem axle load kg	BC a mm	OHF c mm	OHF c min. mm	Axle body	Wheel brake Type	PCD	Wheel nut sphere	Inset mm	d mm	e mm	f mm
1 220 816	SA	BL 3000	3000		1330	1800	1750	120	3062AR	205x6	M18x1,5	0	320	70	280
1 220 817	SA	BL 3000	3000		1430	1900	1750	120	3062AR	205x6	M18x1,5	0	320	70	280
1 220 818	SA	BL 3000	3000		1530	2000	1750	120	3062AR	205x6	M18x1,5	0	320	70	280
1 220 819	SA	BL 3000	3000		1630	2100	1750	120	3062AR	205x6	M18x1,5	0	320	70	280
1 220 820	SA	BL 3000	3000		1730	2200	1750	120	3062AR	205x6	M18x1,5	0	320	70	280
1 220 821	SA	BL 3000	3000		1830	2300	1750	120	3062AR	205x6	M18x1,5	0	320	70	280
1 213 651	TA	BL 2700		5000	1330	1800	1750	120	3062AR	205x6	M18x1,5	0	320	70	280
1 213 652	TA	BL 2700		5000	1430	1900	1750	120	3062AR	205x6	M18x1,5	0	320	70	280
1 213 653	TA	BL 2700		5000	1530	2000	1750	120	3062AR	205x6	M18x1,5	0	320	70	280
1 213 654	TA	BL 2700		5000	1630	2100	1750	120	3062AR	205x6	M18x1,5	0	320	70	280
1 213 655	TA	BL 2700		5000	1730	2200	1750	120	3062AR	205x6	M18x1,5	0	320	70	280
1 213 656	TA	BL 2700		5000	1830	2300	1750	120	3062AR	205x6	M18x1,5	0	320	70	280
1 213 657	TA	BL 3000		6000	1330	1800	1750	120	3062AR	205x6	M18x1,5	0	320	70	280
1 213 658	TA	BL 3000		6000	1430	1900	1750	120	3062AR	205x6	M18x1,5	0	320	70	280
1 213 659	TA	BL 3000		6000	1530	2000	1750	120	3062AR	205x6	M18x1,5	0	320	70	280
1 213 660	TA	BL 3000		6000	1630	2100	1750	120	3062AR	205x6	M18x1,5	0	320	70	280
1 213 661	TA	BL 3000		6000	1730	2200	1750	120	3062AR	205x6	M18x1,5	0	320	70	280
1 213 662	TA	BL 3000		6000	1830	2300	1750	120	3062AR	205x6	M18x1,5	0	320	70	280

SA = Single axle | TA = Tandem axle

Single axle 3000 kg axle load



Tandem 5000 kg axle load, Tandem 6000 kg axle load



f1 mm	g mm Ø	h mm	l swingarm angle unloaded	k mm	m mm	Vers. SC = forged swingarm		Shock absorber per piece without screw material	Parking brake with- out bowden cable or brake cable	Intended brake cylinder type: 9 Co. Wabco, Knorr, Haldex Part No. (no scope of supply by AL-KO)
220	18	175	25°	75	143	SC	133	244 087	267 005	see page 78
220	18	175	25°	75	143	SC	134	244 087	267 005	see page 78
220	18	175	25°	75	143	SC	135	244 087	267 005	see page 78
220	18	175	25°	75	143	SC	136	244 087	267 005	see page 78
220	18	175	25°	75	143	SC	137	244 087	267 005	see page 78
220	18	175	25°	75	143	SC	138	244 087	267 005	see page 78
220	18	175	25°	75	143	SC	266	244 087	267 005	see page 78
220	18	175	25°	75	143	SC	268	244 087	267 005	see page 78
220	18	175	25°	75	143	SC	270	244 087	267 005	see page 78
220	18	175	25°	75	143	SC	272	244 087	267 005	see page 78
220	18	175	25°	75	143	SC	274	244 087	267 005	see page 78
220	18	175	25°	75	143	SC	276	244 087	267 005	see page 78
220	18	175	25°	75	143	SC	280	244 087	267 005	see page 78
220	18	175	25°	75	143	SC	282	244 087	267 005	see page 78
220	18	175	25°	75	143	SC	285	244 087	267 005	see page 78
220	18	175	25°	75	143	SC	289	244 087	267 005	see page 78
220	18	175	25°	75	143	SC	294	244 087	267 005	see page 78
220	18	175	25°	75	143	SC	299	244 087	267 005	see page 78

Axles steel torsion bar for air pressure-braked trailers

Single axles 4000 kg, Tandem 7500 kg

✔ Your advantage

- | Above a total weight of 3500 kg an antilock system (ABS) is required by law
- | With single axles or tandem axles each axle at the very back is prepared for the installation of ABS
- | If the axles are combined with AL-KO drawbars height-adjustable, there is no need for a counterweight
- | Automatic brake pad adjustment

Accessories

- see order overview
(please order separately)
- | Parking brake
 - | Shock absorber without bolting material (please only use the specially balanced original AL-KO axle shock absorber)
- Attention: steel torsion bar axles must be equipped with shock absorber
- | The compressure air-brake-system as well as the parts of the automatic antilock system (ABS), please order directly from following suppliers:
Co. Wabco / Co. Haldex / Co. Knorr

📦 Scope of supply

- | Shock absorber mounting brackets
- | Consoles for brake cylinder
- | Hat profile welded
- | Wheel nuts
- | Brake rod with brake lever
- | Operating instructions

🏠 Surface treatment

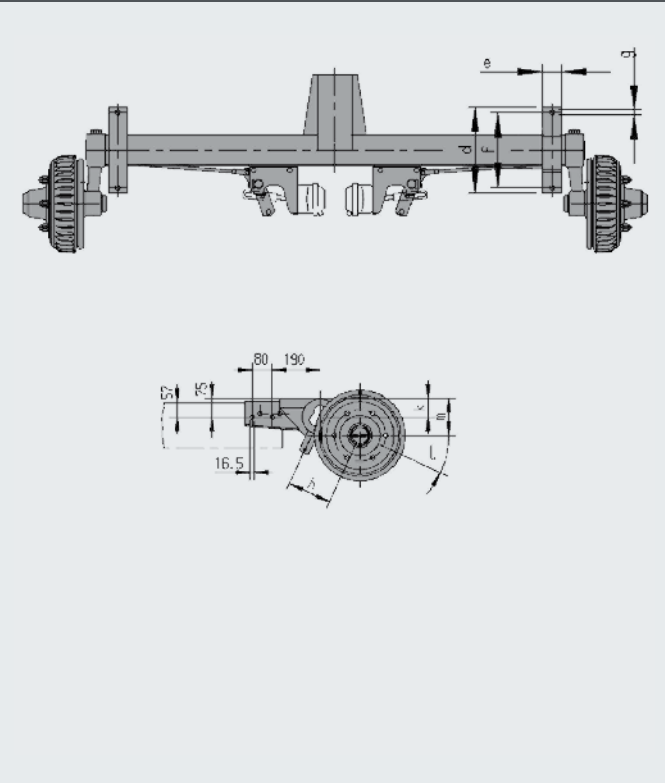
Synthetic resin immersion prime coating black (steel torsion bar axles can not be hot-dip galvanised)

Range overview

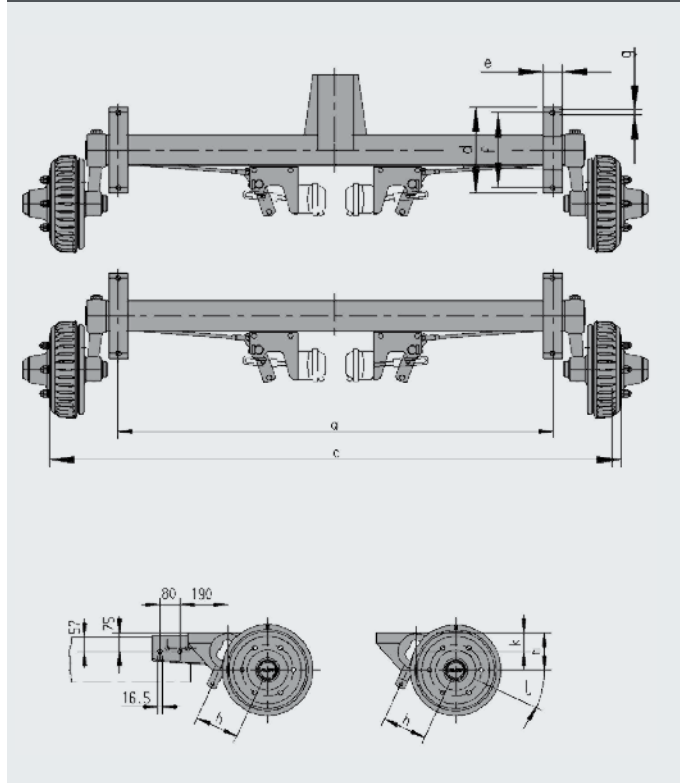
Part No.	Single	Type	Single Axle load kg	Tandem Axle load kg	BC a mm	OHF c mm	OHF c min. mm	Axle body	Wheel brake Type	PCD	Wheel nut sphere	Inset	d mm	e mm	f mm
	SA														
1 211 875	SA	BT 4000	4000		1260	1800	1750	120	3081AR/B	205x6	M18x1,5	0	320	70	280
1 211 876	SA	BT 4000	4000		1360	1900	1750	120	3081AR/B	205x6	M18x1,5	0	320	70	280
1 211 877	SA	BT 4000	4000		1460	2000	1750	120	3081AR/B	205x6	M18x1,5	0	320	70	280
1 211 878	SA	BT 4000	4000		1560	2100	1750	120	3081AR/B	205x6	M18x1,5	0	320	70	280
1 211 879	SA	BT 4000	4000		1660	2200	1750	120	3081AR/B	205x6	M18x1,5	0	320	70	280
1 220 833	SA	BT 4000	4000		1760	2300	1750	120	3081AR/B	205x6	M18x1,5	0	320	70	280
1 211 886	TA	BT 4000		7500	1260	1800	1750	120	3081AR/B	205x6	M18x1,5	0	320	70	280
1 211 887	TA	BT 4000		7500	1360	1900	1750	120	3081AR/B	205x6	M18x1,5	0	320	70	280
1 211 888	TA	BT 4000		7500	1460	2000	1750	120	3081AR/B	205x6	M18x1,5	0	320	70	280
1 211 889	TA	BT 4000		7500	1560	2100	1750	120	3081AR/B	205x6	M18x1,5	0	320	70	280
1 211 890	TA	BT 4000		7500	1660	2200	1750	120	3081AR/B	205x6	M18x1,5	0	320	70	280
1 211 891	TA	BT 4000		7500	1760	2300	1750	120	3081AR/B	205x6	M18x1,5	0	320	70	280

SA = Single axle | TA = Tandem axle

Single axle 4000 kg axle load




Tandem 7500 kg axle load



Attention:

The bolting connection between axle and support frame must occur exclusively about measure f.

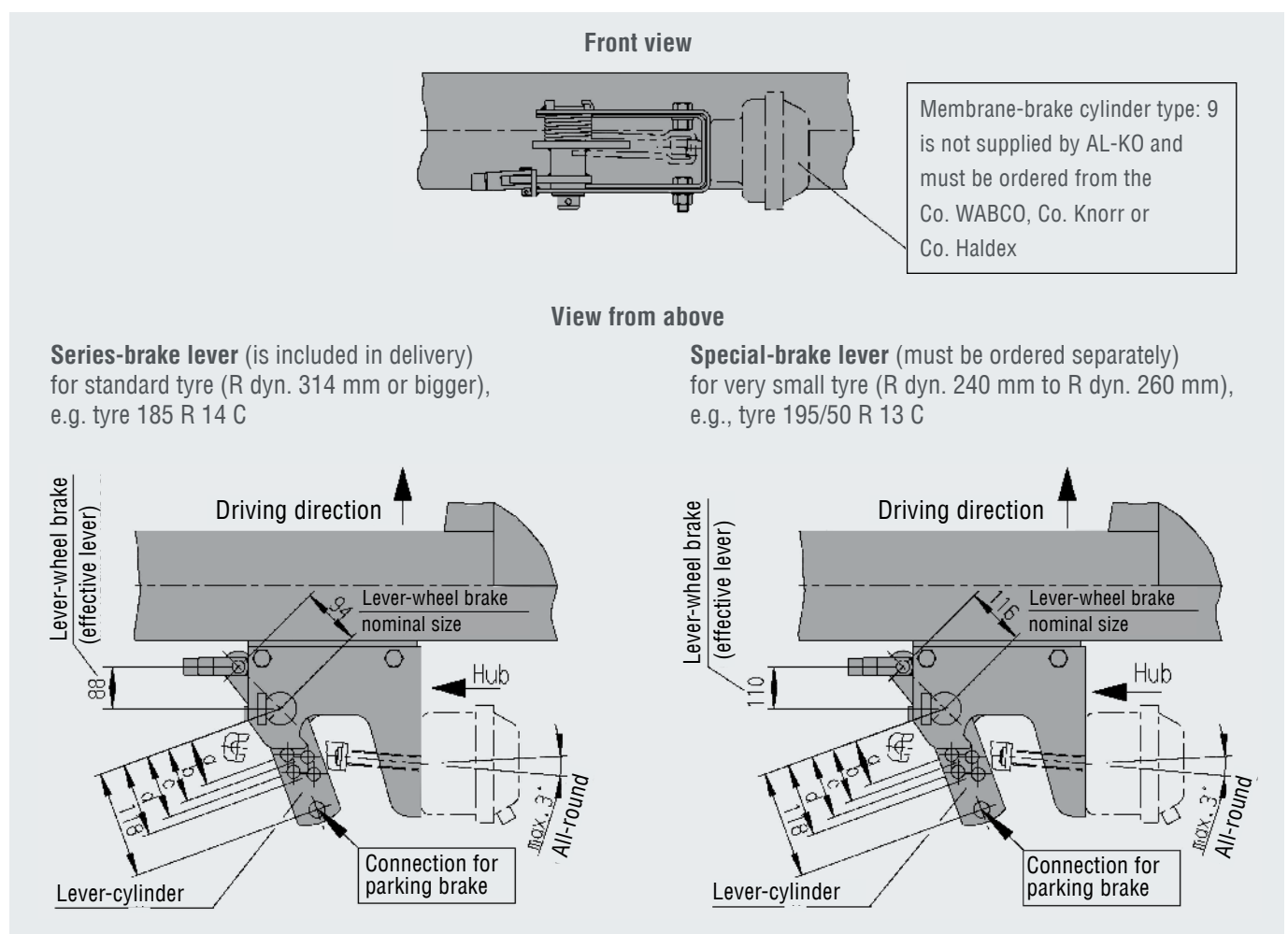
f1 mm	g mm Ø	h mm	l swingarm angle unloaded	k mm	m mm	Vers. SC = forged swingarm		Shock absorber per piece without screw material	Parking brake without bowden cable or brake cable	Intended brake cylinder type: 9 Co. Wabco, Knorr, Haldex Part No. (no scope of supply by AL-KO)
220	18	200	20°	75	143	SC	185	244 087	267 005	see page 78
220	18	200	20°	75	143	SC	187	244 087	267 005	see page 78
220	18	200	20°	75	143	SC	189	244 087	267 005	see page 78
220	18	200	20°	75	143	SC	191	244 087	267 005	see page 78
220	18	200	20°	75	143	SC	193	244 087	267 005	see page 78
220	18	200	20°	75	143	SC	195	244 087	267 005	see page 78
220	18	200	20°	75	143	SC	370	244 087	267 005	see page 78
220	18	200	20°	75	143	SC	374	244 087	267 005	see page 78
220	18	200	20°	75	143	SC	378	244 087	267 005	see page 78
220	18	200	20°	75	143	SC	382	244 087	267 005	see page 78
220	18	200	20°	75	143	SC	386	244 087	267 005	see page 78
220	18	200	20°	75	143	SC	390	244 087	267 005	see page 78

Technical tips for air pressure-braked trailers for rubber damped axle

Technology

Assembly of brake cylinder with rubber damped axles

- Single axle 1800 kg wheel brake 2361 AR
- Tandem 3500 kg wheel brake 2361 AR
- Tridem 4300 kg wheel brake 2361 AR
- Tridem 5400 kg wheel brake 2361 AR



Range overview

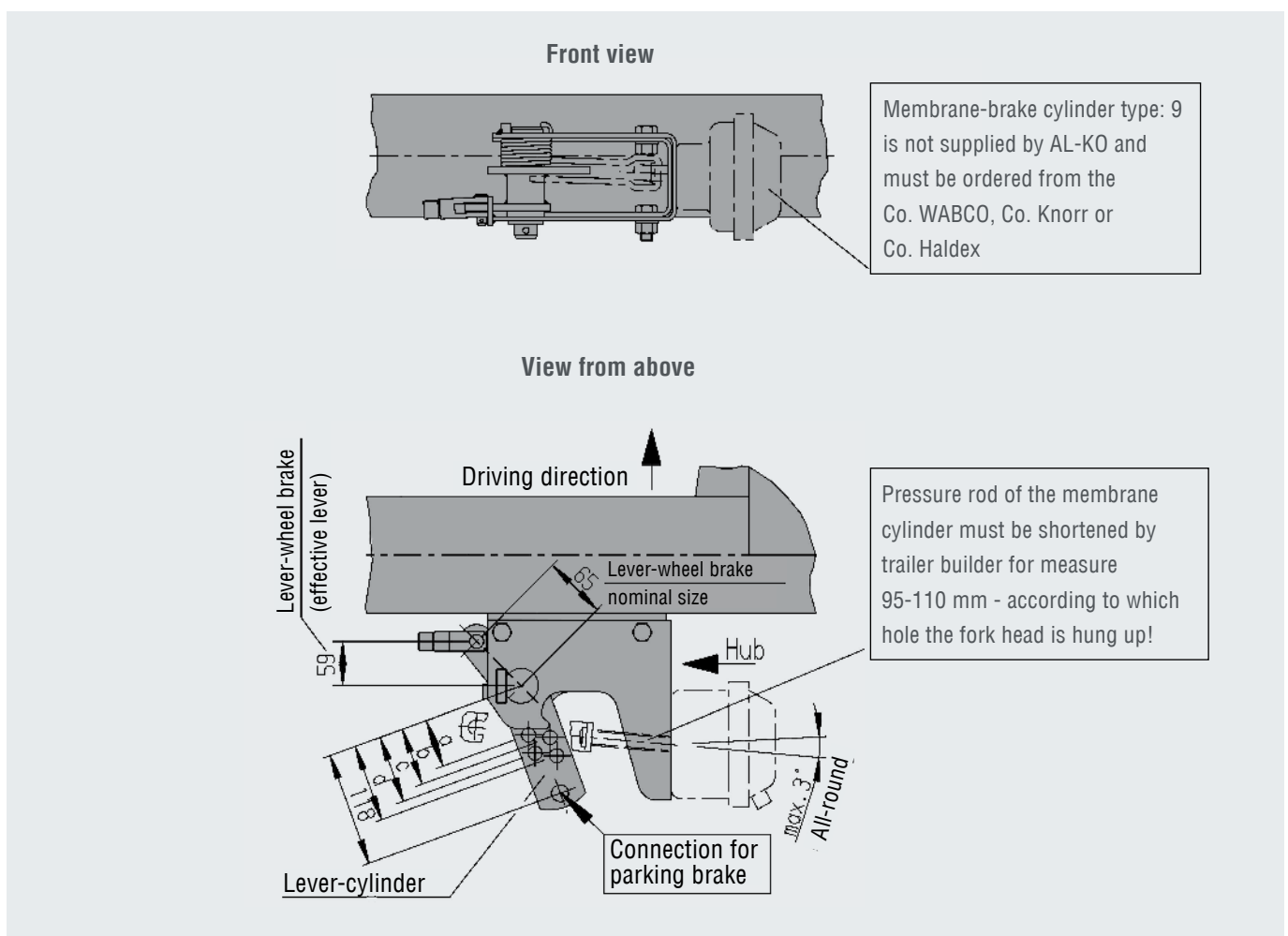
Total weight		Lever-cylinder	Lever-wheel brake		Total weight		Lever-cylinder	Lever-wheel brake	
			Nominal size	effective lever (for brake calculation)				Nominal size	effective lever (for brake calculation)
Single axle	1800 kg	a = 50 mm	94 mm	88 mm	Single axle	1800 kg	a = 50 mm	116 mm	110 mm
Tandem axle	3500 kg	a = 50 mm	94 mm	88 mm	Tandem axle	3500 kg	a = 50 mm	116 mm	110 mm
Tridem axle	4300 kg	a = 50 mm	94 mm	88 mm	Tridem axle	4300 kg	a = 50 mm	116 mm	110 mm
Tridem axle	5400 kg	a = 50 mm	94 mm	88 mm	Tridem axle	5400 kg	a = 50 mm	116 mm	110 mm

for rubber damped axle and steel torsion bar axle

Technology

Assembly of brake cylinder with rubber damped axles

- Single axle 3000 kg wheel brake 3062 AR
- Single axle 4000 kg wheel brake 3081 AR/B
- Tandem 5000 kg wheel brake 3062 AR
- Tandem 6000 kg wheel brake 3062 AR
- Tandem 7500 kg wheel brake 3081 AR/B



Total weight		Lever-cylinder	Lever-wheel brake	
			Nominal size	effective lever (for brake calculation)
Single axle	3000 kg - axle type BL 3000 rubber damped	c = 70 mm	65 mm	59 mm
Single axle	4000 kg - axle type BT 4000 steel torsion bar	d = 80 mm	65 mm	59 mm
Tandem axle	5000 kg - axle type BL 2700 rubber damped	a = 50 mm	65 mm	59 mm
Tandem axle	6500 kg - axle type BL 3000 rubber damped	b = 60 mm	65 mm	59 mm
Tandem axle	7500 KG - axle type BT 4000 steel torsion bar	c = 70 mm	65 mm	59 mm

Technical tips for air pressure-braked trailers

for rubber damped axle and steel torsion bar axle

Technology

- | AL-KO Axles have a toe-in and must therefore be installed running after
- | According to ECC guideline 71/320/ EWG is with trailers more than 3,5 tons total weight, the brake system must be equipped with automatic anti-lock system!
- | AL-KO Axles above (total weight) 3,5 tons are prepared for the installation of anti-lock system
- | With tandem or tridem axles only the rear axle is prepared for the installation of automatic anti-lock system control. The brake back plate is intended for installation of the anti-lock sensors
- | The sensors are not included in delivery. Suppliers: Co. WABCO, Co. Knorr, Co. Haldex

- | Unloaded weight of the trailer
 - | Single axle, tandem, tridem or road semi trailer
 - | Wheel brake AL-KO 2361AR or wheel brake AL-KO 3062AR or wheel brake AL-KO 3081AR version. A or rather version B
 - | Membrane cylinder: Type 9
WABCO No. 423 102 900 0
Knorr No. K010241
Haldex No. 120 311 101
 - | Indicate brake lever relation (see technical tips on the page 76/77)
 - | Copies of the wheel brakes EC-test report (is provided on inquiry by AL-KO)
- Co. WABCO
Sensor-order-No.: 441 032 905 0
Clamping bush-order-No.: 899 759 815 4

Co. HALDEX
Sensor-order-No.: 364 208 001
Clamping bush-order-No.: 059 5123 09

- | Please request brake calculation at Co. Wabco, Co. Knorr or Co. Haldex (manufacturers of the compressed air system)

Braking diagram – recommendation

Co. WABCO
Single axle-no.: 841 601 101 0
Tandem-no.: 841 601 174 0
Tridem-no.: 841 601 251 0

Co. KNORR
Single axle-no.: BC1A2P-AGK
Tandem-no.: BC2A2P-AGK
Tridem-no.: BC3A2P-AGK

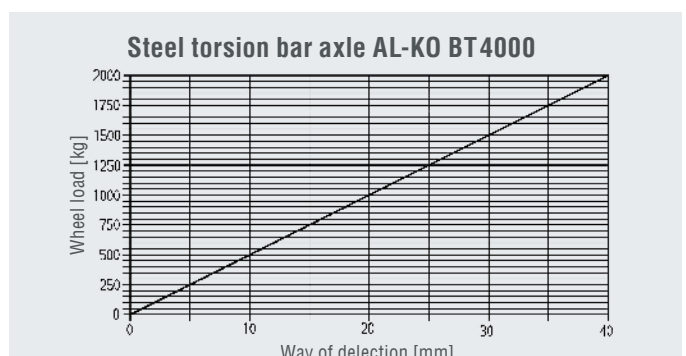
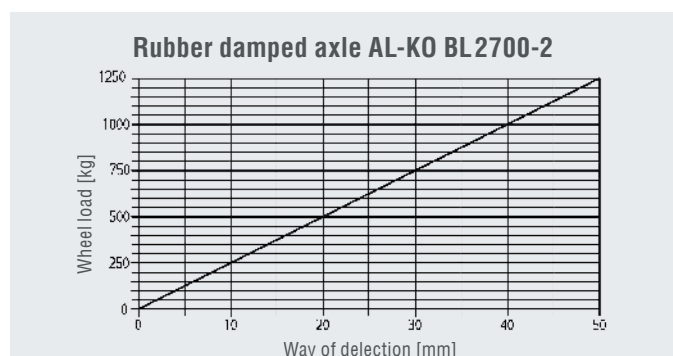
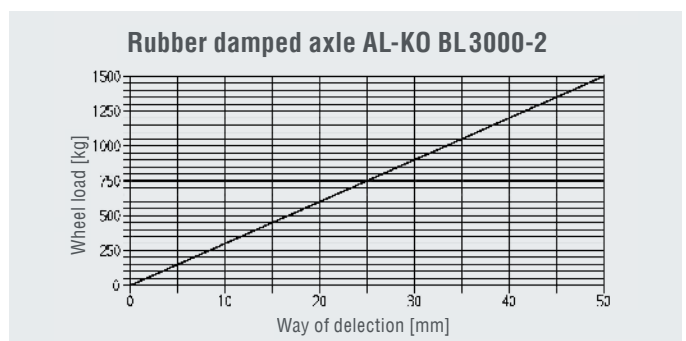
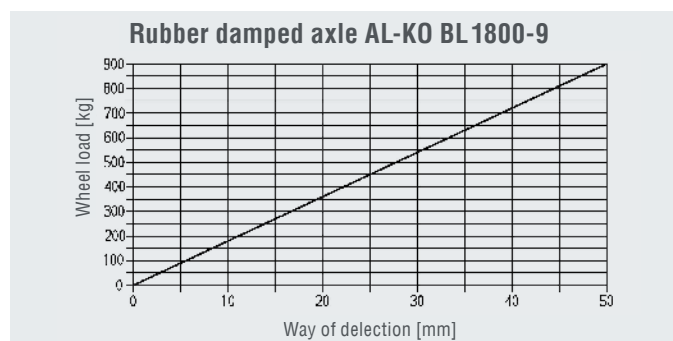
Co. HALDEX
Single axle-no.: 380 098 190
Tandem-no.: 380 095 320
Tridem-no.: 380 095 330

Following information is required to brake calculation:

- | permitted total weight of the trailer
- | Intended nose load on the coupling point

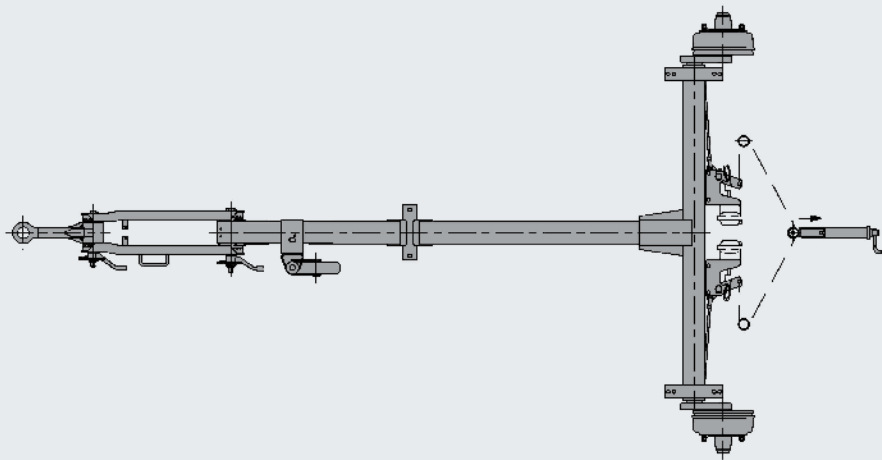
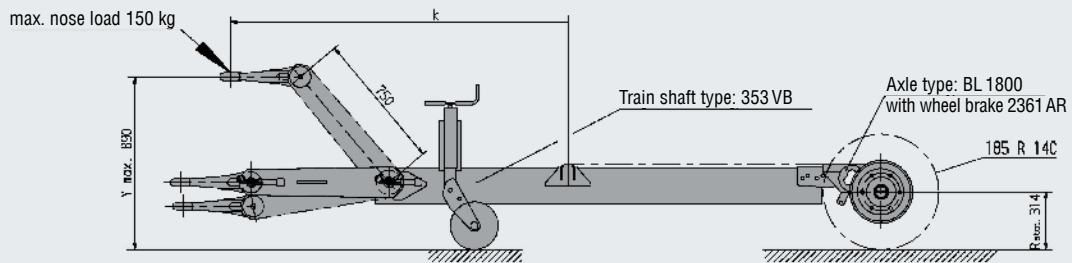
Co. KNORR
Sensor-order-No.: 0 486 001 032 100
Clamping bush-order-No.: II16774

Deflection-diagrams (to the adjusting of the ALB-regulator)

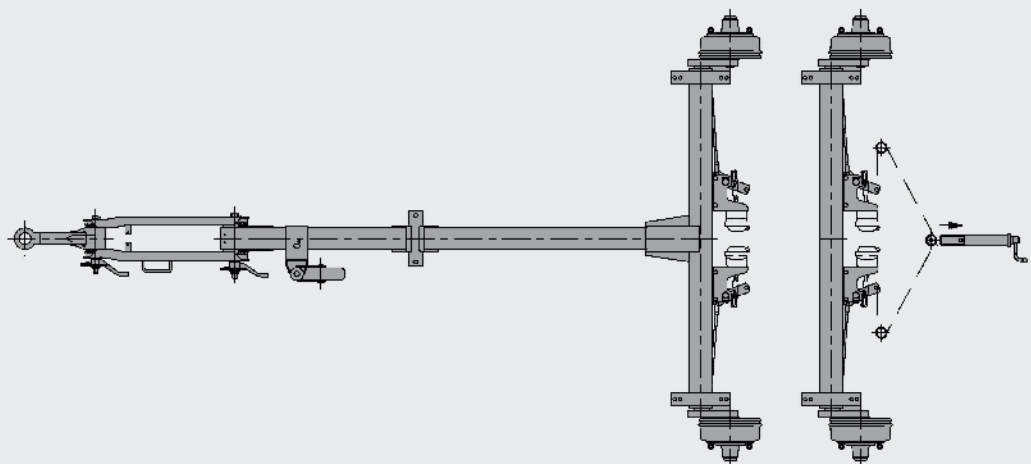
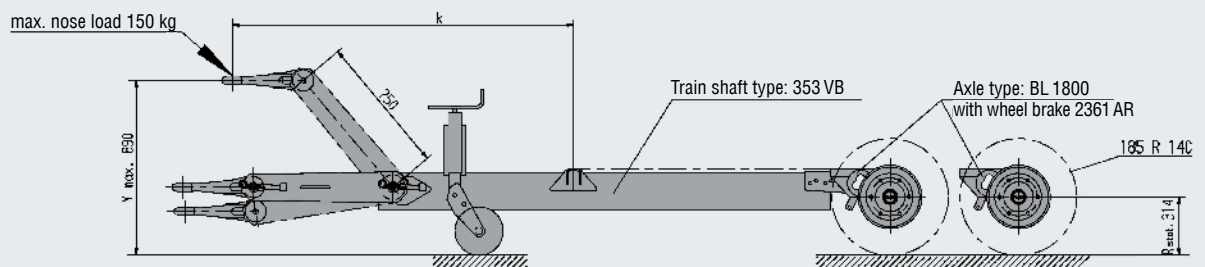


Installation tips

Suggested Installation up to total weight 1,8 t (with single axle-rubber damped axle max. axle load 1,8 t)

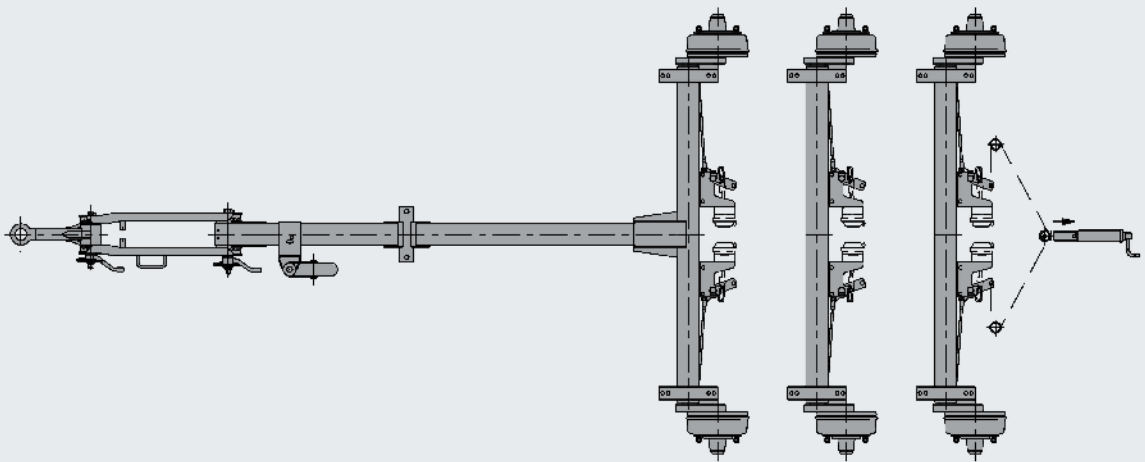
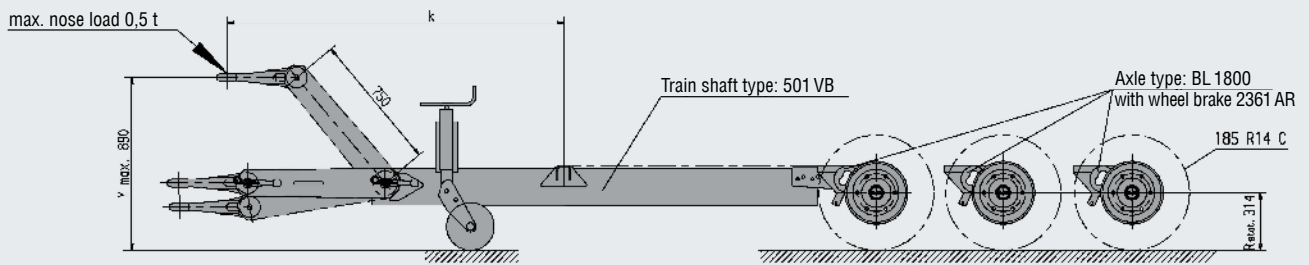


Suggested Installation up to total weight 3,5 t (with tandem-rubber damped axle max. axle load 3,5 t)

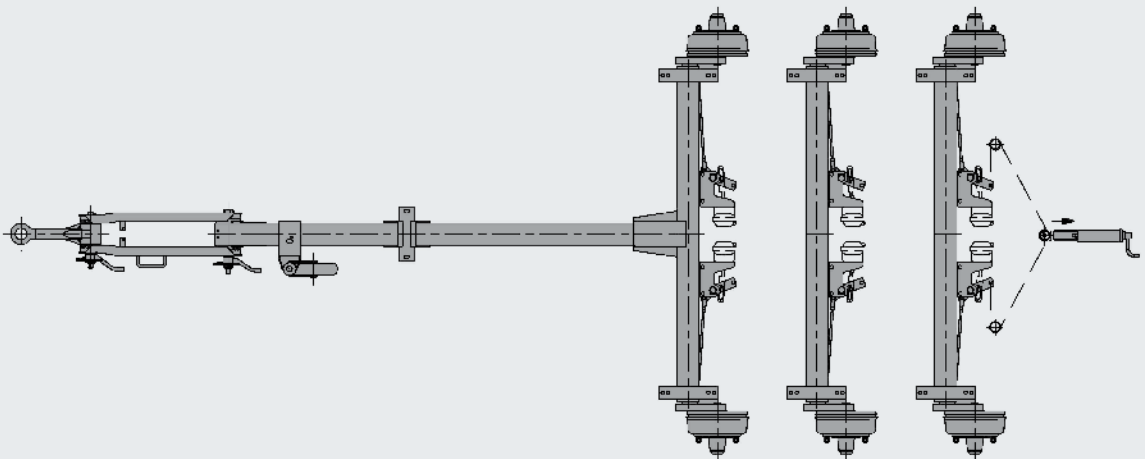
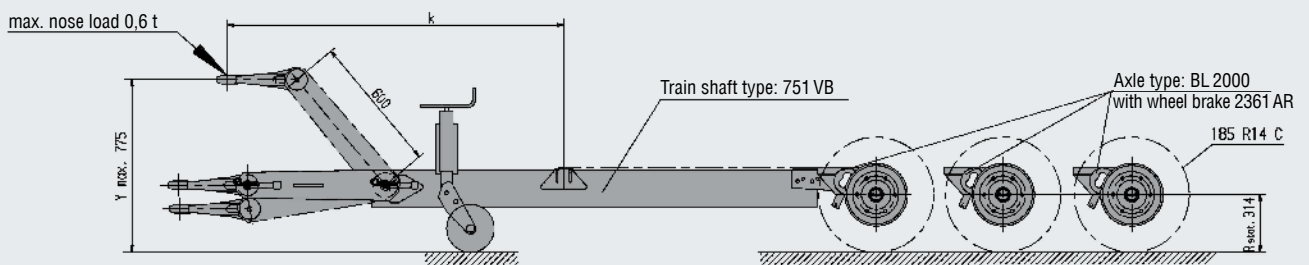


Installation tips

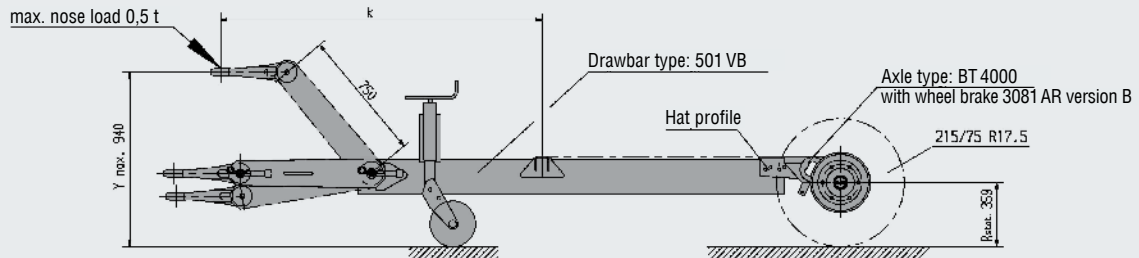
Suggested Installation up to total weight 4,8 t (with tridem-rubber damped axle max. axle load 4,3 t)



Suggested Installation up to total weight 6,0 t (with tridem-rubber damped axle max. axle load 5,4 t)

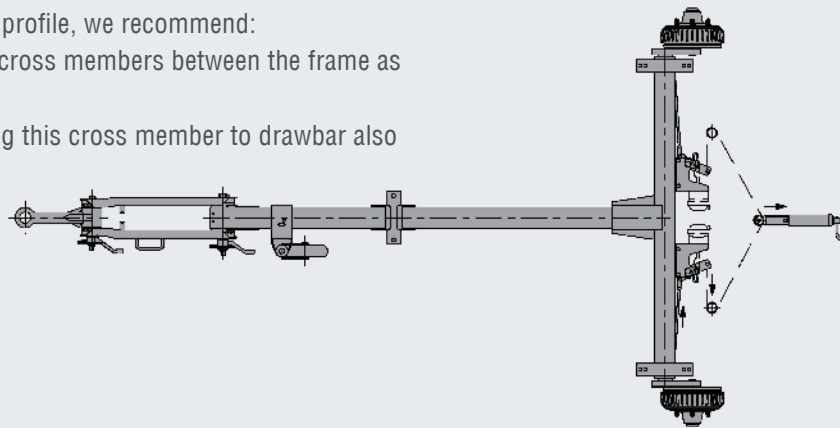


Suggested Installation up to total weight 4,5 t (with single axle-steel torsion bar axle max. axle load 4,0 t)

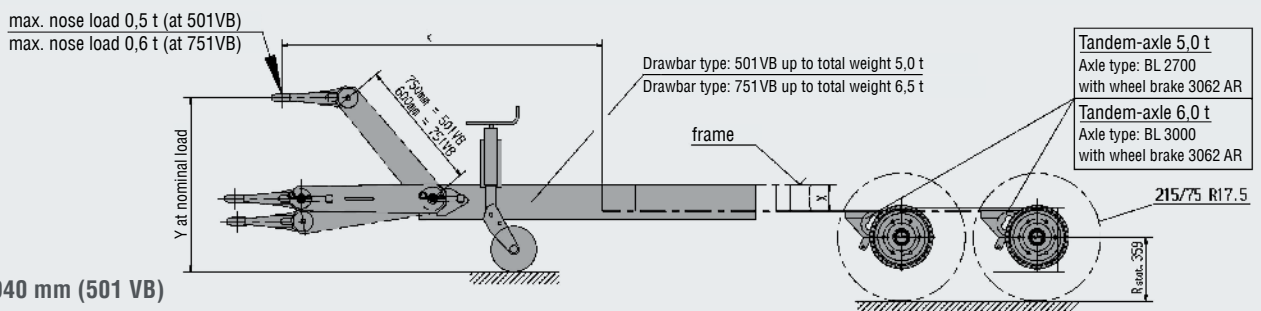


If the drawbar is connected to an axle with carrying load above 5,0 tons via a hat profile, we recommend:

- to weld an additional cross members between the frame as a reinforcement and
- connecting and bolting this cross member to drawbar also



Suggested Installation up to total weight 5,0 t / 6,5 t (with tandem-rubber damped axle max. axle load 5,0 t or rather 6,0 t)



Y = 940 mm (501 VB)

Connection of the drawbar to the axle directly via a hat profile (see picture above)

Y = 825 mm (751 VB)

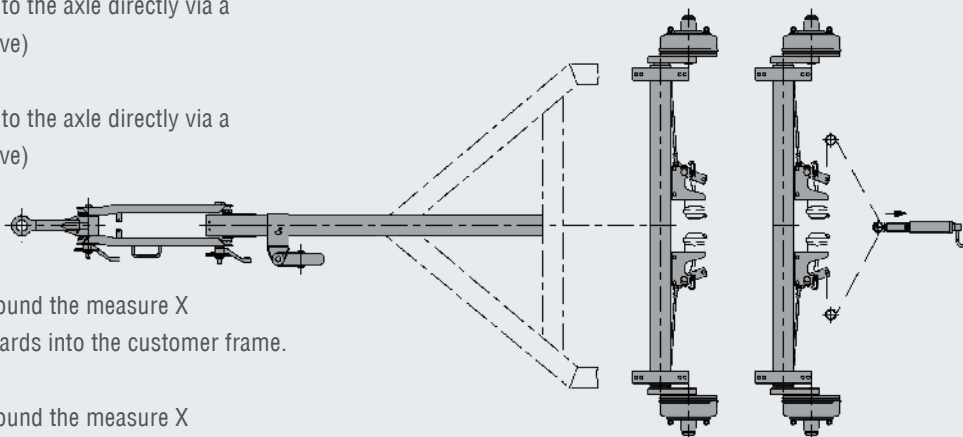
Connection of the drawbar to the axle directly via a hat profile (see picture above)

Y = 1090 mm (501 VB)

If the drawbar is moved around the measure X (in this case 150 mm) upwards into the customer frame.

Y = 875 mm (751 VB)

If the drawbar is moved around the measure X (in this case 150 mm) upwards into the customer frame.



System lightweight chassis

for automobile transporters up to 2600 kg

✔ Your advantage

- ! Four longitudinal girders enable problem-free and quick assembly of runners (not included in scope of delivery)
- ! Extremely wide track provides especially good handling
- ! Conical frame girders reduce weight and increase sturdiness
- ! Parts are easily interchangeable. Easier to repair because axles can be individually replaced

📦 Accessories

(please order separately)

- ! Shock absorber holders and shock absorbers (see main catalogue)
Please only use original AL-KO axle shock absorbers!

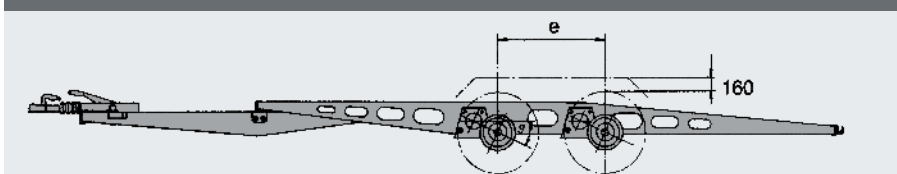
📦 Scope of supply

- ! Complete (see technical drawing) without shock absorbers

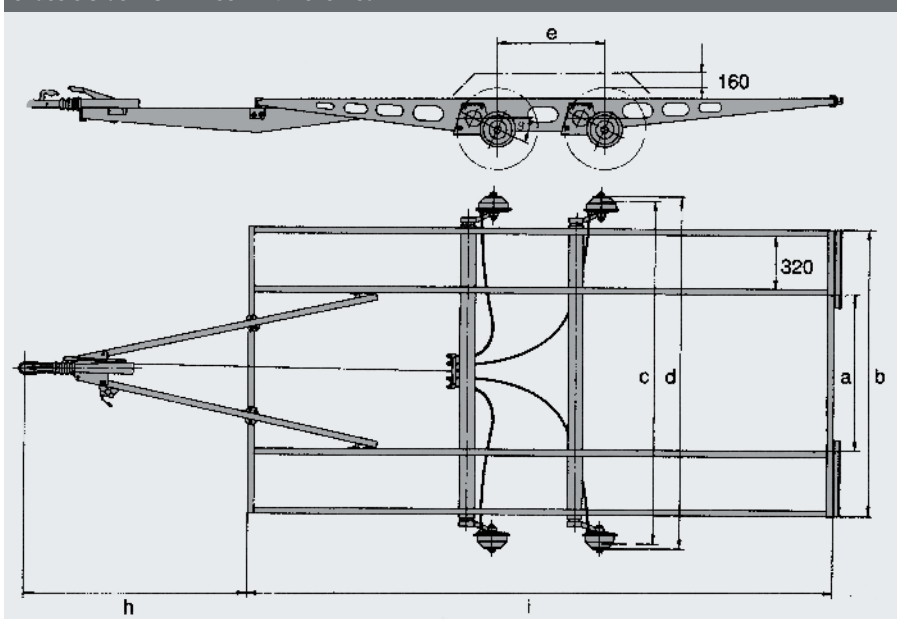
🔪 Surface Treatment

Hot-dip galvanized

Chassis order no. 244 081 with canted rear



Chassis order no. 244 082 with level rear



Range overview

Part No. with Euro Axle Plus	Total weight	Wheel brake	Wheel bolts	Wheel lugs	Inset from to	Axle measurement in mm				Swing arm length	Swing arm degree position
						a Overlay	b Overlay	d Plant	e Distance between axle		
244 081	2600	2051	112 x 5	M 12 x 1,5 ball	26-40	1100	1810	2330	700	175	25°
244 082	2600	2051	112 x 5	M 12 x 1,5 ball	26-40	1100	1810	2330	700	175	25°

Part No. with Euro Axle Plus	Length measurement in mm		📦	📦
	h max. free drawbar length	i Frame length		
244 081	1760	3845	275	1
244 082	1760	3845	275	1

Tire and rim table



Total allowed trailer weight (Tire table for allowed max. speed 80 km/h)	AL-KO axle type B = Rubber spring axle mechanically braked BL = Rubber spring axle air braked BRA = Rubber spring axle lowerable by 210 mm ASB = Rubber spring axle lowerable by 270 mm BT = Steel spring axle (lowerable/air-braked)	Recommended tires						Recommended rims	
		Tire size	R stat. mm	R dyr. mm	PR*	Load bearing capacity kg bar		Sizes	Wheel connection
Single axle, up to max. 1800 kg	B 1800 / BRA 1800 / ASB 1800 / BL 1800	185 R 14 C	300	320	8	900	4.5	5,5J x 14	112 x 5
		195 R 14 C	302	321	8	900		6,5J x 14	112 x 5
Single axle, up to max. 2500 kg	B 2500 / BRA 2500 / BL 2700	215 R 14 C (Bridgest)	310	331	8	1250		6J x 14	205 x 6
		7.00 R 16 C	361	377	12	1285	6.00	6.00G-16	205 x 6
Single axle, up to max. 3000 kg	BRA 3000 / BL 3000	7.50 R 16 C	371	389	12	1500	6.75	6.00G-16	205 x 6
		225 / 75 R 16 C	338	358		1575	6.75	6J x 16H2	205 x 6
		215 / 75 R 17,5	359	371		1600	7.00	17,5 x 4.00	205 x 6
Single axle, up to max. 3500 kg	BT 3500 (lowerable)	235 / 75 R 17,5	363	387		2 725	9.00	17,5 x 6.75	205 x 6
Single axle, up to max. 4000 kg	BT 4000 (air-braked)	235 / 75 R 17,5	363	387		2725	9.00	17,5 x 6.75	205 x 6
Tandem, up to max. 3500 kg	2 x BRA 1800 / 2 x BL 1800	185 R 14 C	300	320	8	900	4.50	5,5J x 14	112 x 5
		195 R 14 C	320	321	8	900		5,5J x 14	112 x 5
Tandem, up to max. 5000 kg	2 x BL 2700	215 R 14 C (Bridgest)	310	331	8	1250		6J x 14	205 x 6
		7.00 R 16 C	361	377	12	1285	6.0	6.00G-16	205 x 6
Tandem, up to max. 6500 kg	2 x BL 3000	7.50 R 16	371	389	12	1500	6.75	6.00G-16	205 x 6
		225 / 75 R 16	338	358		1575	6.75	6J x 16H2	205 x 6
		215 / 75 R 17,5	371	371		1600	7.00	17,5 x 6.00	205 x 6
Tandem, up to max. 7500 kg	2 x BT 4000 (air-braked)	235 / 75 R 17,5	363	387		2725	9.00	17,5 x 6.75	205 x 6
Tridem, up to max. 4300 kg	3 x BL 1800	195 / 50 R 13 C	240	255	8	900	6.25	5,5J x 13	112 x 5
		185 R 14 C	300	320	8	900	4.50	5,5J x 14	112 x 5
Tridem, up to max. 5400 kg	3 x BL 2000	195 / 50 R 13 C	240	255	8	900	6.25	5,5J x 13	112 x 5
		185 R 14 C	300	320	8	900	4.50	5,5J x 14	112 x 5

* = Ply Rating = x-ply carcass

All tire and rim information is given without guarantee. Confirm tire and rim load bearing capacity with dealer or manufacturer.

Tires and rims shown in the table are excerpts from tire and rim handbooks. Should you have further questions about tires and or rims, please contact your tire and rim dealer or your tire and rim manufacturer.

Vehicle manufacturers are responsible for matching rims and tires to axles. AL-KO assumes no liability. Tires and rims are not among AL-KO's range of products.

Chassis for rotary footstool trailers up to 3500 kg

2-axles and 3-axles

✓ Your advantage

With the introduction of the EG driver's license, limits on wheelbase and number of axles for passenger cars and light truck trailers have been raised.

This provides the opportunity to use turntable trailers (that use overrun brakes) for passenger cars and light truck trailers.

- | Variable wheelbase for simpler load distribution
- | Longer body lengths possible
- | Driving stability no longer depends on coupling joint load
- | Support wheel and feet no longer required

📦 Scope of supply

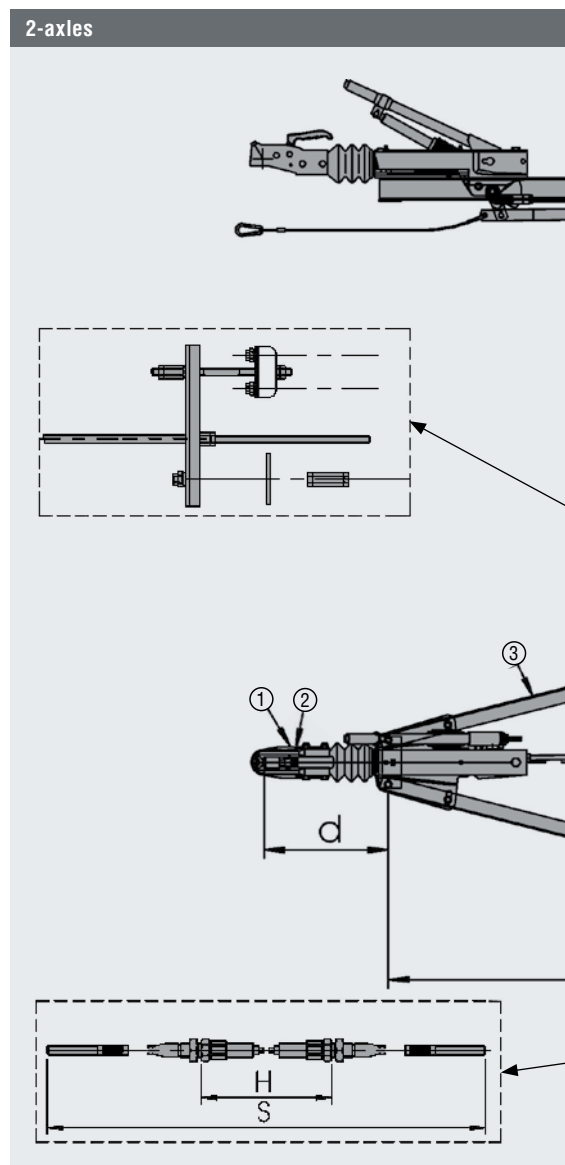
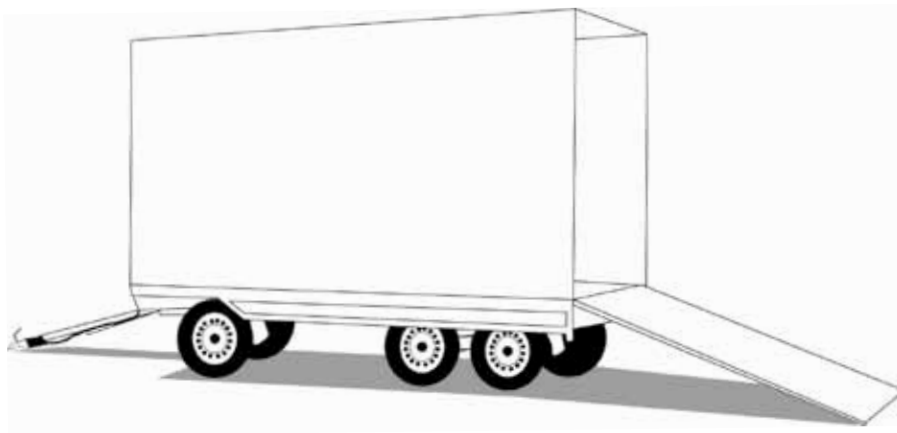
- | See order overview position 1 to 10
- | Turntable (not in scope of supply from AL-KO)

🛠️ Accessories

- (please order separately)
- | Shock absorber holder
 - | Shock absorbers (see main catalogue)
- Please only use original AL-KO axle shock absorbers!

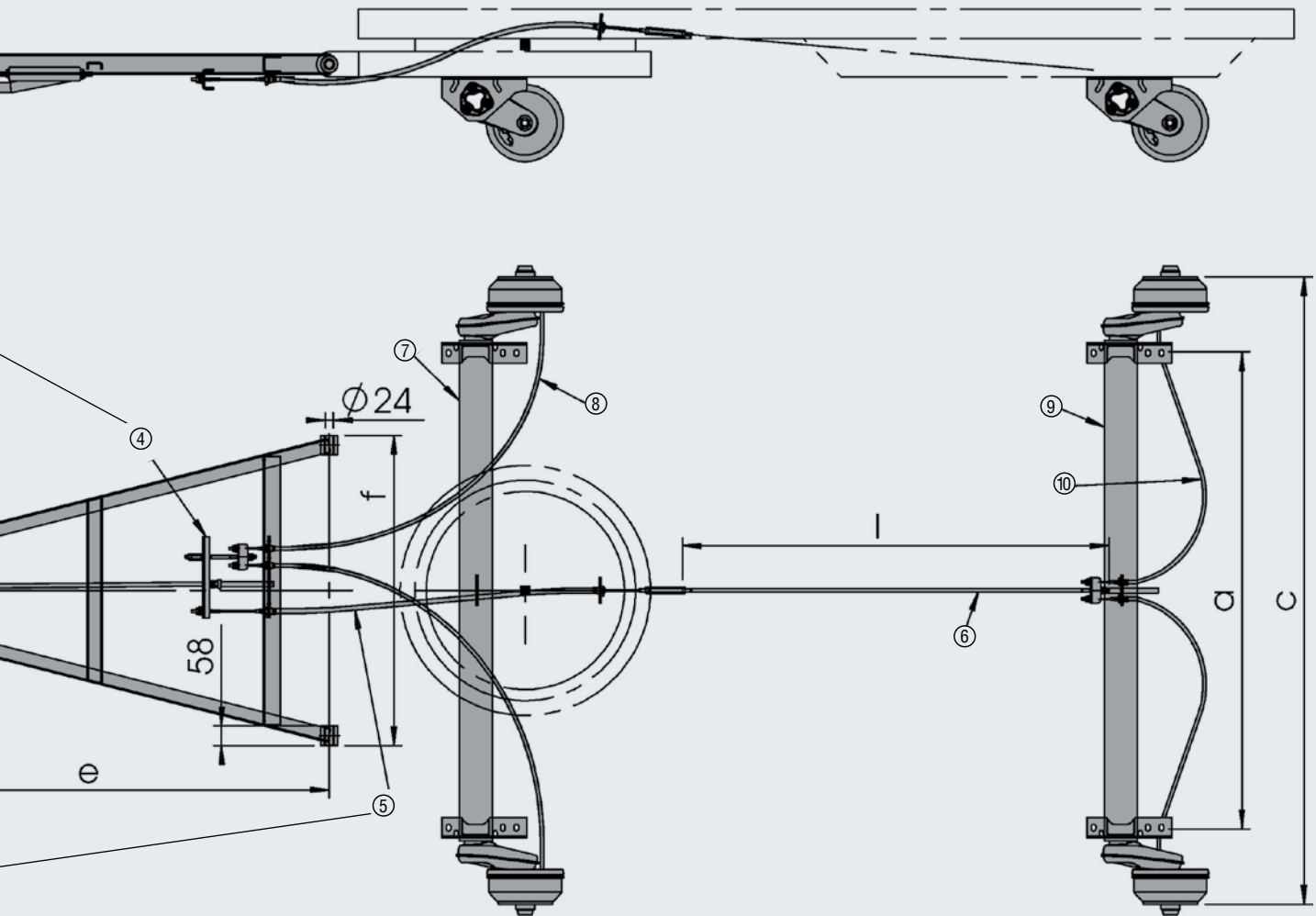
🏠 Surface Treatment

Galvanized housing, overrun device, axle body and drawbar



Order overview

Total weight kg	Overrun device ①			Moun- ting parts Overrun device Part No.	V-drawbar ③				Mounting ④ parts Brake system Part No.	Longlife bowden ⑤ cable from drawbar to the rear axle				Brake rod ⑥ between front and rear axle										
	Part No.	Type	Length d mm		Part No.	Type	Length e mm	Width f mm		Part No.	Part No.	H mm	S mm	Part.No.	l mm									
2600	1 211 172	250S/1 with ball couplin	328	374847	251 139	3,5	1450	915	1 211 571	1 221 594	1000	1380	1 366 312	1900										
3000	242 800	351 ZA with ball couplin	338										251 403	ZA	1458	660	1 211 572	1 221 595	1200	1580	1 366 313	2250		
													1 221 596								2380	2380	1 366 314	2600
													1 221 596								2380	2380	1 366 315	2950
3500	220 959	351 ZA with DIN-eye	342										251 403	ZA	1458	660	1 211 572	1 221 596	2380	2380	1 366 316	3300		
																					1 366 317	3650		



1. Axle ⑦			OHF	BC	Longlife axle bowden cable (order separately) ⑧			2. Axle ⑨			OHF	BC	Axle bowden cable in the scope of supply of the 2. axle ⑩
Part. No.	Type	Wheel brake	c mm	a mm	Part.No.	H mm	S mm	Part.No.	Type	Wheel brake	c mm	a mm	
247 563	B1600-3 1500 kg	2051	2150	1700	299 710	890	1100	247 554	B1200-5 1300 kg	2051	2150	1700	
					299 711	1020	1230		B1600-3 1500 kg	2051	2150	1700	
247 563	B1600-3 1500 kg	2051	2150	1700	299 712	1130	1340	247 563	B1800-9 1800 kg	2361	2200	1700	
244 064	B1800-9 1800 kg	2361	2200	1700	299 713	1320	1530	244 064	B1800-9 1800 kg	2361	2200	1700	
					299 714	1430	1640		B1800-9 1800 kg	2361	2200	1700	
244 064	B1800-9 1800 kg	2361	2200	1700	299 715	1620	1830	244 064	B1800-9 1800 kg	2361	2200	1700	

Chassis for rotary footstool trailers up to 3500 kg

2-axles and 3-axles

Technology

- | Rotary footstool trailers have no nose load. While loading it is important to take care for equal and levelled out axle loads
- | The coupling height of the towing vehicle and trailer should be at the same level in loaded state
- | The tires should have a reserve of minimum 10 - 15% at bearing load.
- | According to EC guideline 94/20/EC a height adjustment device for the V-drawbar is necessary (no scope of supply by AL-KO)
- | To reach optimal effectiveness of brake system, the bowden cables must be routed perfectly

Accessories

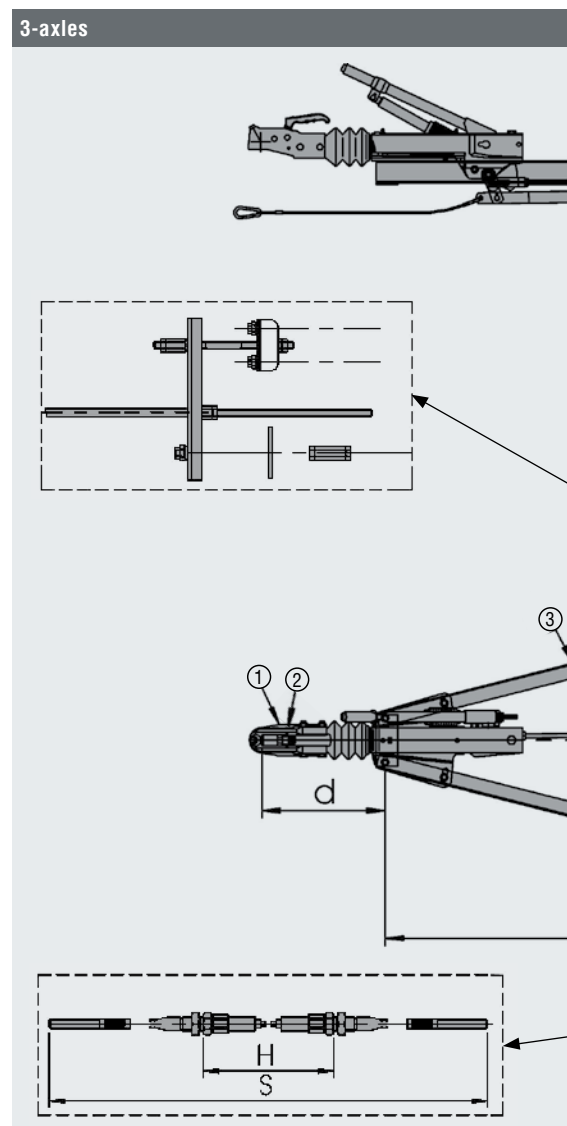
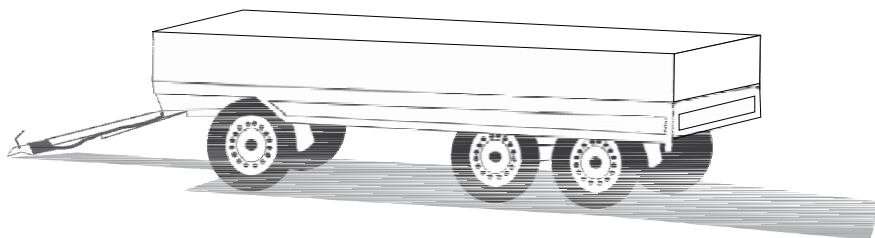
- (please order separately)
- | Shock absorber mounting brackets
 - | Shock absorber (see comprehensive catalogue) please only use the specially balanced original AL-KO Octagon shock absorber

Scope of supply

- | see range overview position 1 to 14
- | rotary footstool is no scope of supply of AL-KO

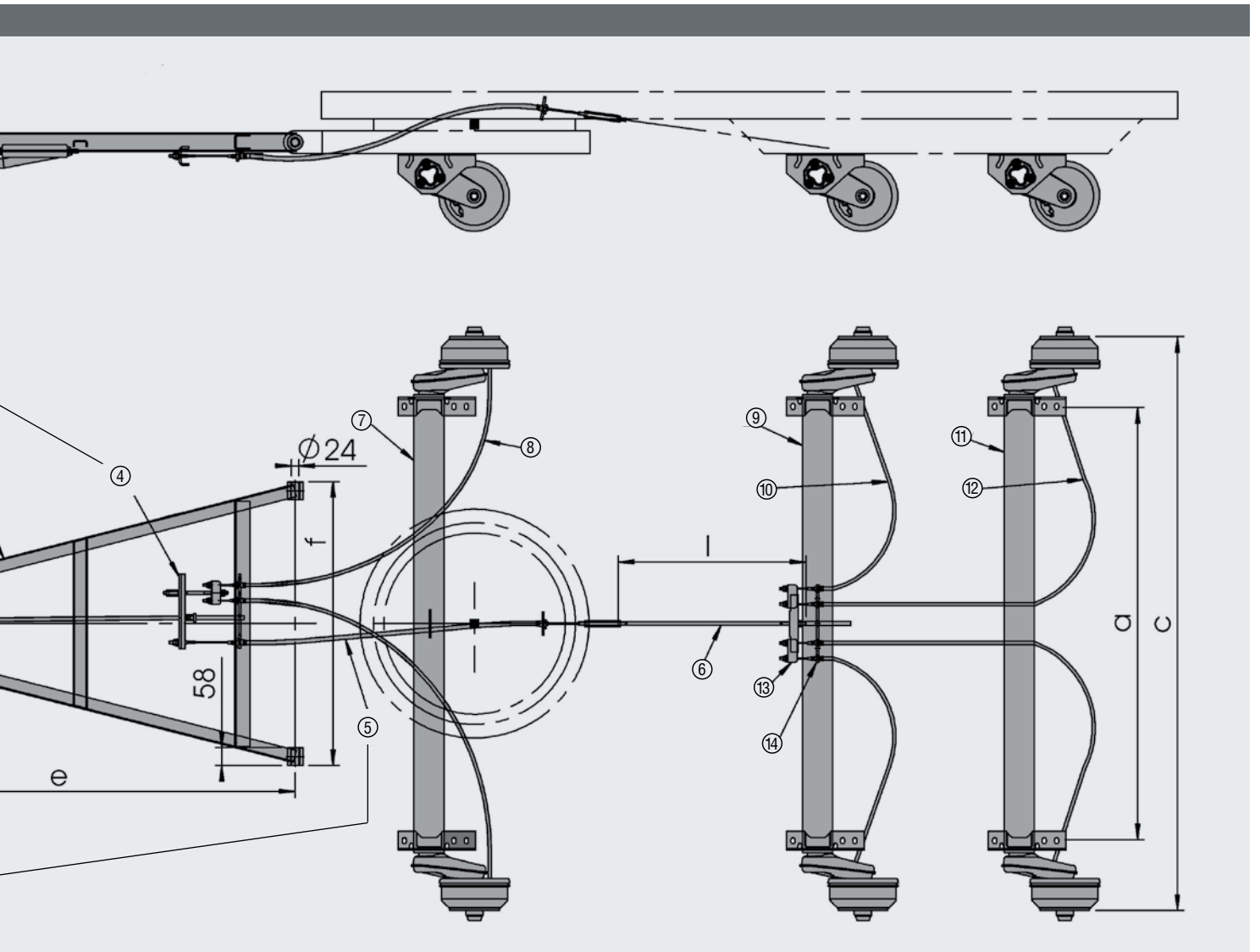
Surface Treatment

Housing, overrun device, axle body and drawbar hot-dip galvanised



Range Overview

Total weight	Overrun device ①			Mounting parts		V-drawbar ③			Mounting parts		Bowden cable ⑤			Brake rod ⑥	
	Part.No.	Type	Length d mm	Overrun device		Part.No.	Type	Length e mm	Width f mm	Brake system		from drawbar to the rear axle		between front- and rear axle	
kg	Part.No.	Type	d mm	Part.No.	Part.No.	Type	e mm	f mm	Part.No.	Part.No.	H mm	S mm	Part.No.	l mm	
3000	242 800	351 ZA with ball coupling	388	374 847	251 139	3,5	1450	915	1 211 572	1 221 594	1000	1380	1 366 312	1900	
		351 ZA with DIN-Eye	342										1 366 313	2250	
	220 959	351 ZA with DIN-Eye	342										251 403	ZA	1458
3500	220 959	351 ZA with DIN-Eye	342	374 847	251 403	ZA	1458	660	1 211 572	1 221 596	2000	2380	1 366 315	2950	
													1 366 316	3300	
													1 366 317	3650	



1. Axle ⑦ (order without bowden cable)			OHF	BC	Axle bowden cable ⑧ (order separately)			2. Axle ⑨			OHF	BC	Axle ⑩ bowden cable in the scope of supply of the 2. axle	3. Axle ⑪			OHF	BC
Part. No.	Type	Wheel brake	c mm	a mm	Part. No.	H mm	S mm	Part No.	Type	Wheel brake	c mm	a mm		Part No.	Type	Wheel brake	c mm	a mm
247 563	B1600-3 1500 kg	2051	2150	1700	299 710	890	1100	247 554 03	B1200-5 1300 kg	2051	2150	1700		247 554 05	B1200-5 1300 kg	2051	2150	1700
					299 711	1020	1230											
					299 712	1130	1340											
244 064	B1800-9 1800 kg	2051	2200	1700	299 713	1320	1530	244 064 03	B1800-9 1800 kg	2361	2200	1700		244 064 05	B1800-9 1800 kg	2361	2200	1700
					299 714	1430	1640											
					299 715	1620	1830											

⑫ Axle bowden cable in the scope of supply of the 3. axle

⑬ Tandem brake equaliser Part.No. 238 576

⑭ Abutment tandem screwable Part.No. 249 236

AL-KO

QUALITY FOR LIFE

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