



OPERATING INSTRUCTIONS

(Translation)

Rack & Pinion Jack

Typ(e)	1624.1,5	1624.3	1624.5	1624.10
	1685.1,5	1685.3	1685.5	1685.10
	1156	1659	6152	



1. USER GROUPS

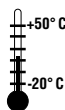
	Duties	Qualifications
Operator	Operation, visual inspection	Instruction by means of the operating instructions; authorised person 1
Specialist personnel	Assembly, disassembly, repair, maintenance	Mechanic
	Tests	Authorised person 2 per TRBS-1203 (Technical expert)

2. SAFETY INSTRUCTIONS

Where to use this winch

Operate the equipment in accordance with the information in these operating instructions.

- Only use when in perfect working order.
- Only operate by trained personnel.
- Only use for the recommended application (i.e. pulling or pushing).
- To be fixed with securing pin in the final position when used for widening or lengthening load surfaces.



Safe working practices

- First read the operating instructions!
- Always be conscious of safety and hazards when working.
- Observe lifting device and load during all movements.
- Report damage and deficiencies on the equipment immediately to the person responsible.
- Repair equipment first before continuing work!
- Do not leave the load suspended without supervision.
- Transport device protected against impacts and shocks, falling over or toppling.



The following are not allowed:

- Overload (→ technical data, type plate, payload plate)
- Mechanical propulsion.
- Impacts, blows.



Exclusions on use

- Not suitable for permanent operation and vibration stress.
- Not approved for use as builders' hoist (DGUV-R 100-500-2.30).
- Not approved for use in explosive areas/environments.
- Not suitable for aggressive environments.
- Not suitable for lifting hazardous loads.

Organisational measures

- Ensure that these operating instructions are always at hand.
- Ensure that only trained personnel work with the equipment.
- Check at regular intervals whether it is being used in a safety and hazard conscious manner.

Installation, service and repair

Only by specialist personnel!

Only use original spare parts for repairs.

Do not modify or alter safety-relevant parts!

Additional attachments must not impact safety.

Further regulations to be observed are:

- German Industrial Health and Safety Ordinance (BetrSichV).
- Country-specific regulations.
- German Accident prevention regulations (DGUV-V 54).

3. TECHNICAL DATA

Type		1624.1,5	1624.3	1624.5	1624.10
Type		1685.1,5	1685.3	1685.5	1685.10
Permitted load pulling / pushing*	t	1,5	3	5	10
Lift per crank turn	mm	13,9	8	3,9	4
Crank force	N	220	240	210	360
Weight (lift 800 mm)	kg	15	25	35	58

haacon policy is one of continuous development. We reserve the right to amend specifications without notice or obligation.

*It is possible that the admissible load is reduced for different types.

The permitted load on the identification plate is valid.

For other versions the indications on the attached drawings and on the serial number plate are valid.

4. GENERAL

These high quality rack & pinion jacks, produced for decades, are robust and reliable. They are capable of producing lifting, pulling, shifting and pushing forces from 1,5 to 10 tonnes. Suitable for safe adjustment of belt conveyors to any level and widening/lengthening of load bearing surfaces.

5. CONSTRUCTION

These rack & pinion jacks are a derivative of haacon's proven rack jack range, type 11.1,5 - 11.10. Spur gear in special steel, hardened or tempered. Gear mechanism of this rack jack range complies with German BGV D8 safety regulations for lifting and pulling equipment.

The rack jacks are available with either „SIKU“ safety cranks or „RAKU“ ratchet cranks.

SIKU = Safety crank with self-acting friction type load brake with two-part spring loaded detent lever secures the load at any height. By rotating the crank clockwise the load is lifted and vice versa.

Double acting locking device

If the rack and pinion jack is designed for pulling and pushing, it will be fitted with a double acting locking device. The crank, chain wheel, etc. for the manual operation can be fixed at this locking device.

6. INSTALLATION

Fix the rack and pinion jack securely to the drilled holes of the toothed rack and the housing, or to the drilled mounting holes, corresponding to the operating conditions.

7. OPERATION

For use as a lifting device

Unfold the crank handle. Turn crank clockwise to lift the load. To lower the load, turn crank anti-clockwise.

If the crank is not turned the load is suspended safely.

For extending or retracting load surfaces

The load is moved by rotating the crank clockwise or anti-clockwise. The extended or retracted parts must be fixed in the desired position with securing pins.

Use of rack & pinion jacks without brake:

Only shift in horizontal direction.

Do not move loads on inclined levels. Do not lift loads.

8. TESTING

The equipment must be checked in accordance with the conditions of use and the operating conditions at least once per year by an authorised person 2 per TRBS 1203 (Technical expert) (testing per BetrSichV, § 10, sect. 2 represents implementation of the EC guidelines 89/391/EEC and 2009/104/EC or the annual occupational safety inspection per DGUV-V 54, §23, sect. 2 and DGUV-G 309-007). These checks must be documented:

- Before commissioning.
- After significant alterations before recommissioning.
- At least once per year.
- In the event of unusual occurrences arising that could have detrimental effects on the safety of the winch (extraordinary tests, e.g. after a long period of inactivity, accidents, natural events).
- After repair works that could have an influence on the safety of the winch.

Technical experts (AP2) are persons, who have sufficient knowledge based on their education and experience, in the areas of winches, lift and pull systems and the relevant official occupational health and safety rules, accident prevention regulations, guidelines and generally accepted engineering rules (e.g. EN standards), to evaluate the operational safety of winches, lift and pull systems. Technical experts (AP2) are to be nominated by the operator of the equipment. The implementation of the annual occupational safety inspection as well as the training to obtain the aforementioned knowledge and skills can be provided by haacon hebeteknik.

9. MAINTENANCE RECOMMENDATIONS

The operator determines the intervals themselves based on frequency of use and the operating conditions.

- Regular cleaning, no steam jets!
- Carry out visual check on inaccessible brakes / locks every 5 years at the latest, replace brake pads as required.
- General overhaul by the manufacturer after 10 years at the latest.



ATTENTION!

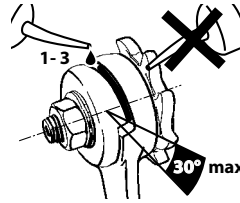
Inspection, maintenance and repair works only on an unloaded hoist. Work on brakes and locks only by qualified specialist personnel.

Maintenance and inspection work	Intervals
Visual and functional tests	Before every use
Brake function under load	
Lubrication (grease nipple)	Annually
Check rack and drive pinion for wear, grease and replace if necessary	
Check type plate for legibility	
Professional inspection	
Check gear parts, grease and replace if necessary	2-5 years

Lubricant recommendations:

Multi-purpose grease per DIN 51502 K3K-20.

Safety crank



If sluggishness occurs during lowering, pour a few drops of oil into the gap in the crank cam. Safety cranks with a gap aperture $>30^\circ$ should be replaced. Repair must be carried out by only by the manufacturer.

ATTENTION! Only disassemble the crank, ratchet brace and locking pawl when the equipment bears no load! Do not oil or grease the brake pads!

10. REPLACEMENT PARTS

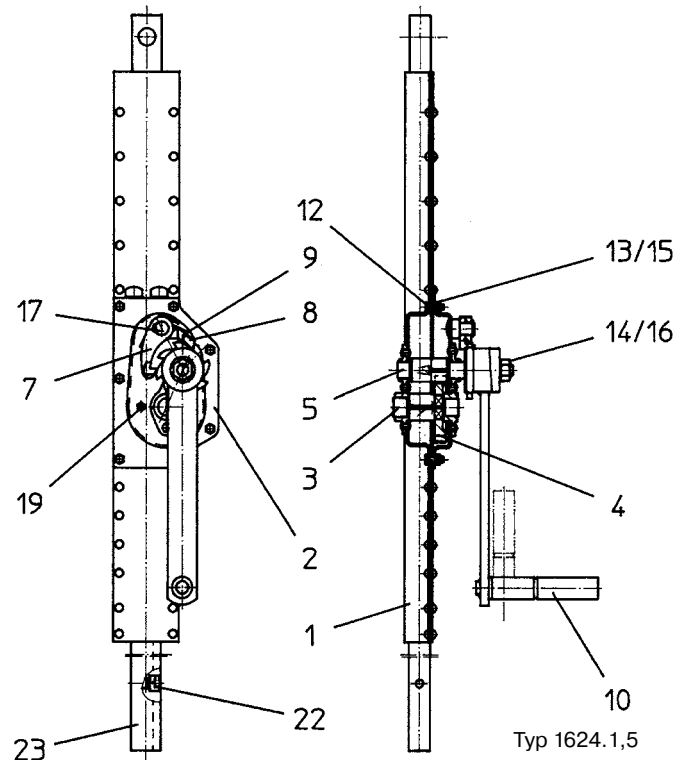
When ordering spare parts it is essential to quote:

- The type and serial number of the equipment / item and part number

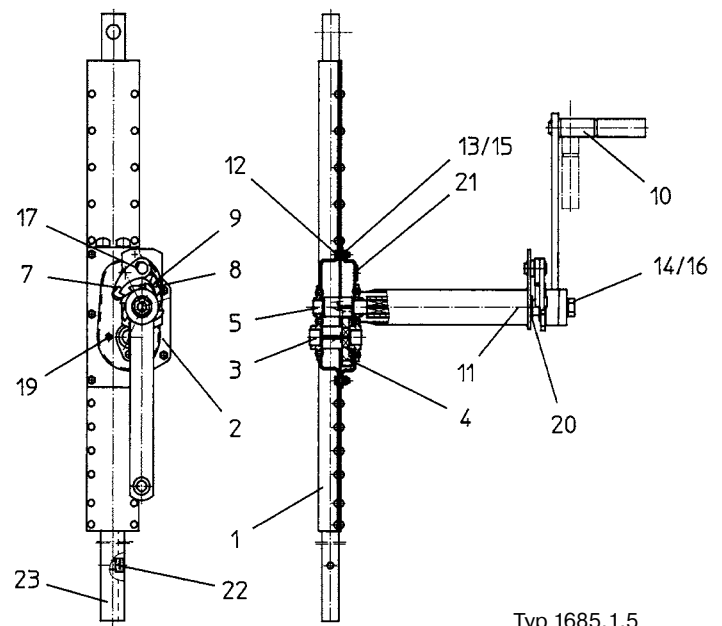
11. DISASSEMBLY, DISPOSAL

- Make sure to observe the safety instructions.
- Dispose of the equipment and the substances within it in an environmentally responsible manner.

Typ/ Type Pos.	1624.1,5 Teile-Nr. Part-No. Référence	1685.1,5 Teile-Nr. Part-No. Référence	Abmessung/DIN-Nr. Dimensions/DIN-No. Dimensions/DIN-No.		Stück Qty. Pièce
1	102 082	102 082			1
2	107 822	108 109			1
3	103 759	103 759			1
4	102 086	102 086			1
5	102 087	102 087			1
7	102 152	102 152			1
8	102 131	102 131			1
9	101 137	101 137			1
10	101 396	101 396			1
11		102 012			1
12	100 246	100 246	M 6 x 16	DIN 933	7
13	100 351	100 351	M 6	DIN 934	7
14	100 368	100 368	M 14	DIN 934	1
15	100453	100 453	A 6	DIN 127	7
16	100 461	100 461	A 14	DIN 127	1
17	100 721	100 721	A 14 x 1	DIN 471	1
19	100 264	100 264	AS 6 x 1	DIN 71412	1
20		100 507			1
21		101 188	GPN 300 F11		1
22	100 069	100 069	M 12 x 20	DIN 912	1
23	Zahnstange: Gesamtlänge angeben advise total length of rack veuillez indiquer longueur totale de la crémaillère				



Typ 1624.1,5



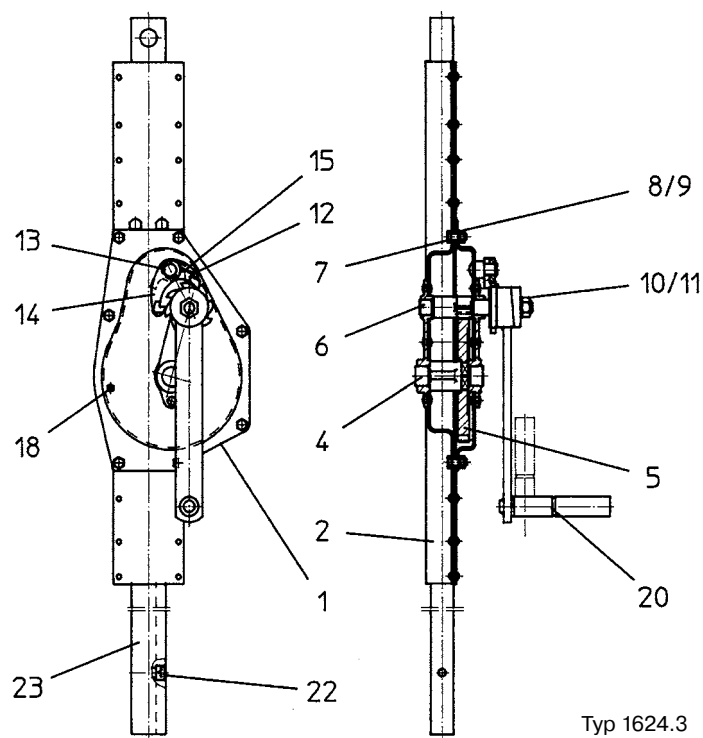
Typ 1685.1,5

D Bei Sonderbauformen entnehmen Sie die Teilnummern aus der beigelegten Ersatzteilzeichnung.

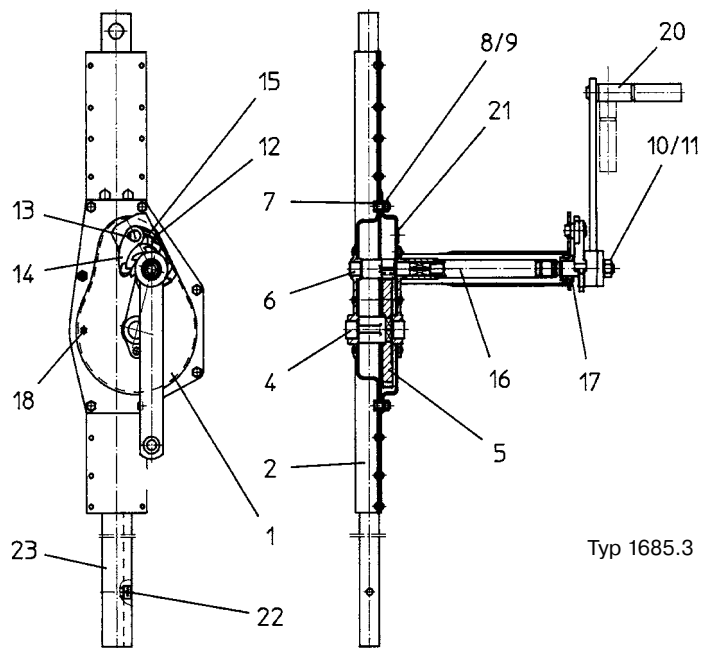
GB For special versions the part numbers are indicated in the spare parts drawing attached.

F Pour des versions spéciales, veuillez trouver les numéros d'article dans le plan des pièces détachées en annexe.

Typ/ Type Pos.	1624.3 Teile-Nr. Part-No. Référence	1685.3 Teile-Nr. Part-No. Référence	Abmessung/DIN-Nr. Dimensions/DIN-No. Dimensions/DIN-No.		Stück Qty. Pièce
1	108 122	108 128			1
2	102 097	102 097			1
4	103 761	103 761			1
5	102 101	102 101			1
6	102 102	102 102			1
7	100 191	100 191	M 8 x 20	DIN 933	7
8	100 455	100 455	A 8	DIN 127	7
9	100 355	100 355	M 8	DIN 934	7
10	100 368	100 368	M 14	DIN 934	1
11	100 461	100 461	A 14	DIN 127	1
12	101 137	100 137			1
13	100 721	100 721	A 14 x 1	DIN 471	1
14	102 152	100 152			1
15	102 131	102 131			1
16		102 112			1
17		100 507			1
18	100 264	100 264	AS 6 x 1	DIN 71412	1
20	101 396	100 396			1
21		101 188	GPN 300 F11		1
22	100 069	100 069	M 2 x 20	DIN 912	1
23	Zahnstange: Gesamtlänge angeben advise total length of rack veuillez indiquer longueur totale de la crémaillère				

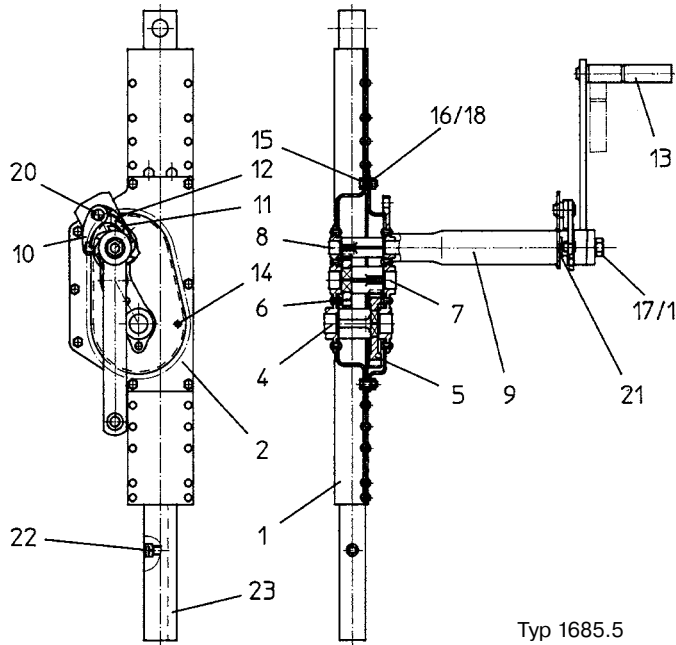
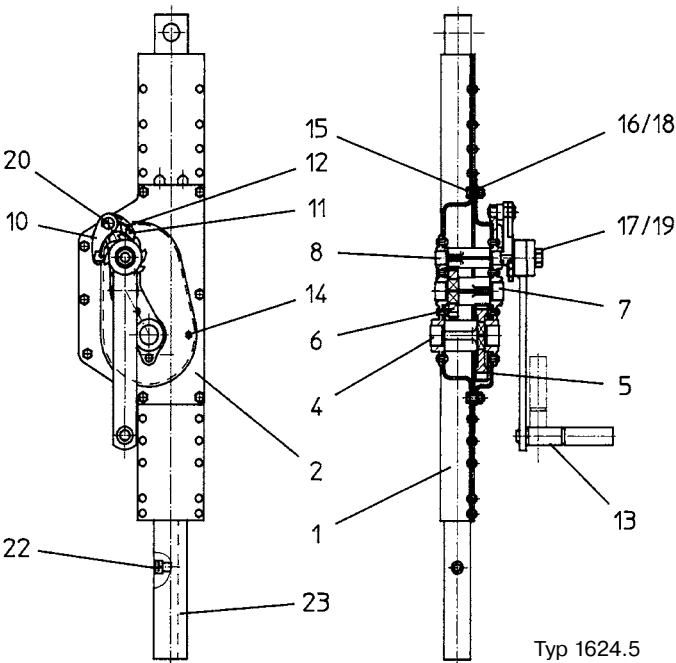


Typ 1624.3

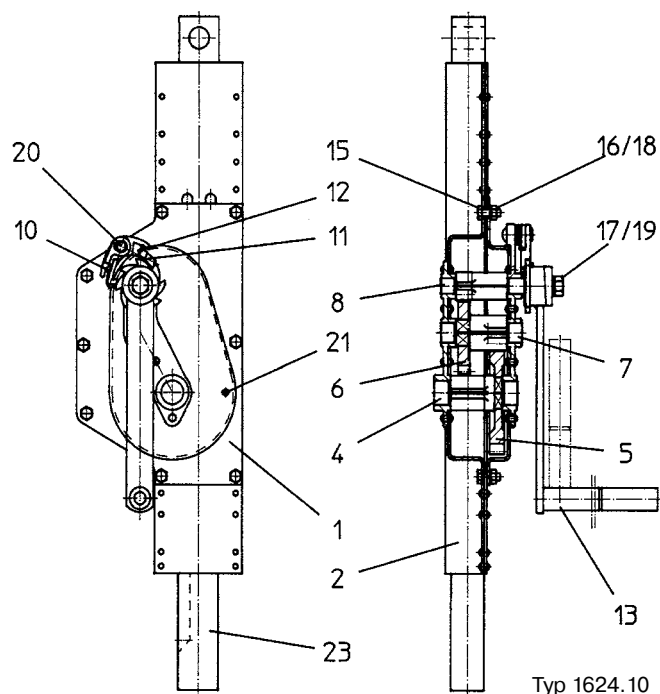


Typ 1685.3

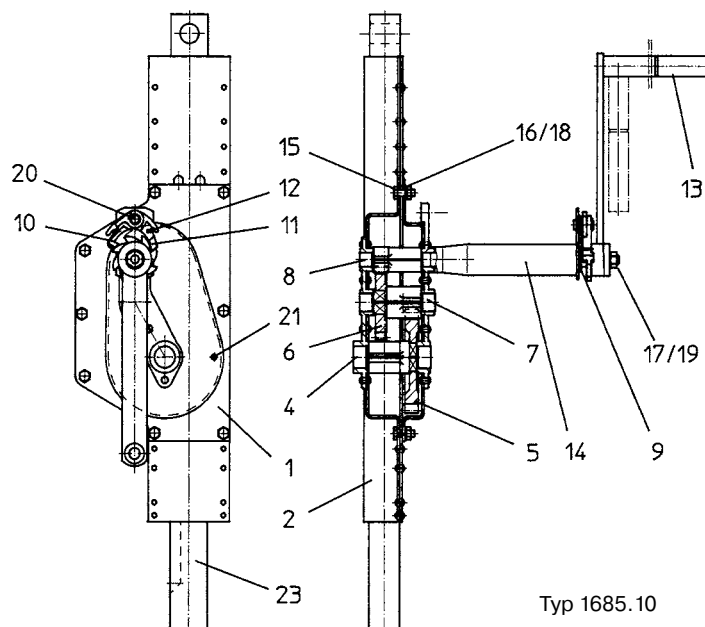
Typ/ Type Pos.	1624.5 Teile-Nr. Part-No. Référence	1685.5 Teile-Nr. Part-No. Référence	Abmessung/DIN-Nr. Dimensions/DIN-No.		Stück Qty. Pièce
1	113 213	112 115			1
2	108 131	114 462			1
4	102 481	102 481			1
5	102 119	102 119			1
6	102 112	102 122			1
7	102 123	102 123			1
8	102 120	102 120			1
10	102 152	102 152			1
11	102 131	102 131			1
12	101 137	101 137			1
13	101 396	101 396			1
14	100 264	100 264	AS 6 x 1	DIN 71412	1
15	100 191	100 191	M 8 x 20	DIN 933	8
16	100 455	100 455	A 8	DIN 127	8
17	100 461	100 461	A 14	DIN 127	1
18	100 355	100 355	M 8	DIN 934	8
19	100 368	100 368	M 14	DIN 934	1
20	100 721	100 721	A 14 x 1	DIN 471	1
21		100 507			1
22	100 069	100 069	M 12 x 20	DIN 912	1
23	Zahnstange: Gesamtlänge angeben advise total length of rack veuillez indiquer longueur totale de la crémaillère				



Typ/ Type Pos.	1624.10 Teile-Nr. Part-No. Référence	1685.10 Teile-Nr. Part-No. Référence	Abmessung/DIN-Nr. Dimensions/DIN-No. Dimensions/DIN-No.		Stück Qty. Pièce
1	108 135	108 136			1
2	102 159	102 159			1
4	102 162	114 197			1
5	102 163	102 163			1
6	102 166	102 166			1
7	102 167	102 167			1
8	102 164	102 164			1
9		100 057			1
10	102 152	102 152			1
11	102 174	102 174			1
12	101 137	101 137			1
13	101 398	101 398			1
14		108 125			1
15	100 203	100 203	M 10 x 25	DIN 933	8
16	100 457	100 457	A 10	DIN 127	8
17	100 463	100 463	A 16	DIN 127	1
18	100 361	100 361	M 10	DIN 934	8
19	100 369	100 369	M 16	DIN 934	1
20	100 721	100 721	A 14 x 1	DIN 471	1
21	100 264	100 264	AS 6 x 1	DIN 71412	1
23	Zahnstange: (Gesamtlänge und Ausführung, Zug oder Druck angeben) advise total length of rack and wether push or pull appli- cation veuillez indiquer longueur totale de la crémaillère et si c'est pour charge en traction ou appui				



Typ 1624.10



Typ 1685.10

12. SLIDING DEVICE TYP 6152

Version: Rack jack construction (see next page)

Notes on safety, installation and servicing:

The casing for the rack jacks must be securely mounted on the vehicle frame. The rack casings must also not move during operation.

The opposite drive journals on the crank drive unit must be flush.

The slide section must slide freely in the vehicle frame over the entire sliding area and must not stick.

The racks are pushed out individually and pinned and secured using bolts.

The racks must move parallel with each other in all planes.

Both parts of the connection shaft are to be pushed into each other loosely until the connection shaft can be placed on the square pin of the projecting gearbox part.

Predrill both connection shaft parts together, bolt them together and secure them.

Check and ensure that the slide section slides freely by connecting and disconnecting the crank.

Lubrication:

As required, but grease adequately at least once per week.

If you have any questions, our technical support team can be contacted at any time. Tel. 09375/84-0

EU Installation Declaration

haacon hebeteknik gmbh
Josef-Haamann-Strasse 6
D-97896 Freudenberg/Main

haacon
—group—

Manufacturer: haacon hebeteknik gmbh Phone +49 (0) 9375 / 84-0
Josef-Haamann-Strasse 6 Fax +49 (0) 9375 / 8466
D-97896 Freudenberg/Main

The product

Product name: Rack & Pinion Jack

Type:	1248	1273	1524	1543	1551	1555	1557	1597
	1599	1616	1624	1659	1685	3604	3619	3626
	3628	3668	3852	3875	3887	3895	6116	6117
	6173	207643	207644					

Load capacity range: – 20 t

conforms with the basic requirements of the directive **Machines (2006/42/EG)**

Appendix I, article

- 1.1.2 Basic for the integration of safety
- 1.1.3 Materials and products
- 1.1.5 Construction of the machine regarding its handling
- 1.3.2 Risk of breakage during operation
- 1.3.4 Risks by surface, edges and corners
- 1.3.7 Risks caused by moving parts
- 1.3.9 Risk of uncontrolled movements
- 1.7 Information
- 4.1.2 Protective measures against mechanical hazards
- 4.3.3 Machines to lift loads
- 4.4 Operating instructions

The product is an incomplete machine as per machine directive (2006/42/EG). The product must not be taken into operation until it is determined that the machine, in which it is to be installed conforms with the machine directive (2006/42/EG).

If the product is changed significantly, it will lose this conformity declared by the manufacturer.

The manufacturer agrees to submit the specific documentation pertaining to this product to individual state institutions electronically, if so requested.

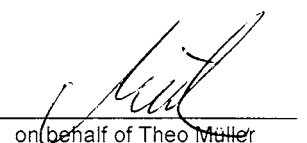
The specific technical documentation as outlined in Appendix VII Part B were compiled.

Responsible for the documentation: Construction

Signed by:

Freudenberg, 30.07.2013


on behalf of Robert Miltenberger


on behalf of Theo Müller

gb Edition 1; 07/13

092001 of 30.07.2013

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erstellt: hck-cd; Stand: 18.03.13

EU Installation Declaration

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group

Manufacturer: haacon hebetechnik gmbh Phone +49 (0) 9375 / 84-0
Josef-Haamann-Strasse 6 Fax +49 (0) 9375 / 8466
D-97896 Freudenberg/Main

The product

Product name: Pair of rack & pinion jacks, Lifting device, Sliding device
Type: 1156 1524 1624 3672 3834 3836 6141 6146
6180 6181 6204 6207 207495
Load capacity range: – 3 t

conforms with the basic requirements of the directive **Machines (2006/42/EG)**

Appendix I, article

- 1.1.2 Basic for the integration of safety
- 1.1.3 Materials and products
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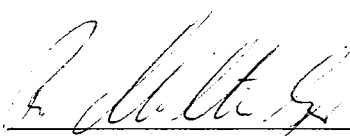
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Freudenberg, 30.07.2013


on behalf of Robert Miltenberger


on behalf of Theo Müller

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