INSTRUCTION MANUAL

DRILL RIG B B D 6 W



We always try to keep our machines on the latest level of development.

The construction and accordingly also the instructions for operation (description)

The construction and accordingly also the instructions for operation (description, drawings, measures and weights) are therefore subject to change without notice.



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1.) General Safety Instructions

To ensure your and the safety of other persons watch the following points when handling the equipment:

- Any person intended for operation, maintenance and repair of the equipment, must be familiar to the function and safety of the same.
- ➤ Check the orderly condition and the safety of machines, tools, operation mediums and other devices before you take up operation!
- Always bear in mind that disturbances may result in an accidence.
- Never open an equipment without switching off the power supply before.
- Never repair any electric equipment yourself.
 Such defects exclusively have to be repaired by an expert.
- In no way safety devices may be removed.
- > During repair and maintenance works there is the danger that third persons start the machine by mistake.
 - Therefore block up the switches with reliable means before you start working.
- > During the drilling and cutting work dangerous zones must be barricaded and marked in a suitable way or safeguarded by a warning sentry against trespassers.
- Persons occupied with demolishing works must wear protective helmets and also ear plugs.
- > Self-supporting constructions, like balconies and similar must be supported in a solid way or safeguarded against crashing in another way, before parts, which secure the fixing or anchoring of their pedestals, are demolished.
- Any single structural parts which are detached from the construction, must be safeguarded in a way, making their crash on an operator's position or lower ceilings impossible.
- ➤ Besides this the special instructions for the assembly of the equipment and for the safety must be watched and their strict observance secured.



2.) Possible risks when working with core drilling equipment

2.1 Statics of building construction

Before starting operation let a specialist check whether the borehole(s) intended to be made are a risk for the statics of the building. Only realise the jobs if they have no influence on the statics of the construction.

2.2 Fastening

If the drilling stand is fastened insufficiently, the possibility that somebody becomes insured through the falling down of the drilling stand or rotation around the drilling axle is high. So it is very important to watch the instructions for installation exactly.

2.3 Electric wires

Ensure yourself that no life wires are around the place where

the borehole shall be made. If you cannot exclude this let an electrician put your equipment to earth as protection.

Ensure that your equipment is protected by an earth leakage circuit breaker.

Always wear shoes with rubber bottom!

2.4 Power failure

If you use a vacuum pump for the fastening of the core drilling equipment place it where you can continuously watch the vacuum gauge during operation.

Immediately switch off the drilling drive when the vacuum pressure falls below 0,7 bar because of a power failure or some other defect and make sure that the core drilling equipment cannot fall down.

In case of a power failure switch off any electric equipment to prevent accidents in case the machine starts again suddenly.

2.5 Loose bolted connections

Before starting operation make sure that all bolted connections are tightened. Loose parts can result in accidents!



2.6 <u>Noise</u>

Use suitable ear plugs during drilling operation to avoid an impairment of your hearing.

2.7 Drill cores and other pieces of concrete

Make sure that the drill core or other loose pieces of concrete cannot become dangerous for any persons or things by falling down after perforation (especially when perforating ceilings).

Safeguard these parts with supports or other suitable measures.

2.8 Unintentional start of the drilling motor

During installation, maintenance work or changing of tools you must in any case plug-off the machine.

That means you must plug-off the electric drilling motor or if it is a hydraulic drive the plug of the hydraulic unit and ensure that nobody can connect it with the power supply again without your knowledge.

If you have a hydraulic drive it is sufficient if you disconnect the hydraulic hoses from the hydraulic motor (snap closure plug-couplings).



3.) Description of system and instructions for installation

The drilling equipment is used for drilling cores in steel concrete, stone and similar materials. Boreholes in any positions can be made.

<u>Instructions for installation:</u>

- 1.) Check the kind of underground (concrete, burnt brick, broken stones a.s.o.).
- 2.) How is the load and the acting force on the fastening.
- 3.) Choose then with this knowledge the anchor suitable for these conditions.
- 4.) Set the anchors exactly according setting instructions of the supplier.

For standard equipment the fastening is intended with dowels M 16(M 12) and hexagon dead screw M 16 (M 12) x 90.

For safety reasons the drilling stand must be tightened with at least 2 dowels.

The fastening (dowel) must be able to carry a tractive load of at least 15 kN.

For the exact adjustment of the drilling equipment use the 4 adjusting screws M 16 on the base plate.



4.) Technical data BBD6W

max. core bit diameter	1000 mm (with 2 pieces connecting link BHZ 8)
max. output power drill rig	18 kW
usable length	760 mm (standard)
weight	49 kg (without motor)



5.) Technical Description

5.1 Main parts of the drilling stand

- Base plate with support yoke and transport wheels
- Guide tubes with support and column plate
- Sliding carriage
- Mitre gear with hand wheel

Attachments: (Delivery upon request)

	Type
- Base support for hydraulic drilling	BLH 6
Hydraulic motor	OMR/OMS

- Base support for hydraulic drilling BLH 2,5 Hydraulic motor OMR Connecting link for BLH 2,5

- Hydraulic units according technical description resp. leaflet

 Possibilities for combination of drilling stand with electric drilling drive (for small core bit diameters) see leaflet resp. price lists

- electric or hydraulic feed drives

5.2 Characteristics

5.2.1 Base plate

There are 3 elongated slots in the solid base plate, which has to be fixed with plugs and screws M 16.

The adjusting of the base plate has to be made by means of 4 adjusting screws M 16 (part 32).

To prevent the tipping forward of the drilling stand a support yoke is mounted.

The middle of the base plate is marked on the aluminium casting.

Transport wheels on the backside make a quick and easy transport between the single drilling procedures possible.



5.2.2 Guide tubes with support

The 2 tubes are firmly fixed on the ground plate and held on distance through the column plate, so an exact guidance of the sliding carriage is ensured.

5.2.3 Mitre gear (feed unit)

The mitre gear equipped with bevel gear wheels is fixed in the slotted bore hole of the ground plate.

The connection with the trapezoidal spindle is made with a coupling (with clamping pin safety device = shear pin).

Adjusting is made with a solid hand wheel.

5.2.4 <u>Drilling drive and attachments</u>

The hydraulic base support is designed for the use of Danfoss OMS-hydraulic motors. Using any other motor you need an adapter (see price list resp. leaflet).



6.) Functional description and taking up operation

6.1 Prepare boreholes for plugs according to core bit diameter and kind of concrete (1, 2 or 3 boreholes) for M 16 and place drilling stand. Fasten with M 16. Tenacity of the anchoring at least **15 kN**!

6.2 Slip the hydraulic base support with assembled hydraulic motor over the plug bolts with nuts on the sliding carriage (part 11).

The drilling motor is fixed by inserting the 4 slotted washer (part 29) and tightening the nut.

- **6.3** Fixing of the core bit on the drilling motor
 - a) Core bit with intermediate flange, for large borehole diameters (up from Ø 600 mm), must be directly flanged to the base support flange.

ATTENTION: If the hydraulic drilling motor is working with a pressure of more than 160 bar (for ex. RE24) the core bit always must be "DIRECTLY FLANGED" independent from the diameter. In case of a higher pressure the max. allowed torque of the 1 1/4" UNC-spigot could be exceeded and this could lead to a breakdown.

b) Using a core bit with connection holding fixture 1 1/4" UNC 7 thread winding the thread flange has to be fixed between base support flange and core bit.

If you fix the core bit in this way make sure that the drive has the right direction of rotation (to prevent that the core bit becomes loose when taking up operation).

Attention: Make sure that the core bit is firmly fastened to the drilling motor!

6.4 Connect cooling water piping to drilling motor.

The minimum water quantity depends on the borehole diameter and is between 3 and 15 l/min.

Details are shown in the technical brochure of the producers of diamond hollow drillers.

6.5 Only if the drilling stand, drilling drive and core bit are sufficiently fastened, the drilling drive may be connected to the power supply resp. to the hydraulic unit!



TAKING UP OPERATION

6.6) The core drilling equipment is ready for operation.

Switch on:

- 1.) drilling drive (hydraulic unit)
- 2.) water supply.
- **6.7**) In case of an eventual tool change in any case disconnect the equipment from the power supply (take-off power supply plug or disconnect the hydraulic hoses).
- **6.8**) Take back the tool with switched on drilling motor after the borehole is finished to avoid a jamming.
- **6.9**) In any case take off the power supply plug and disconnect the hydraulic hoses before disassembling the core drilling equipment!
- **6.10**) When the operation has been finished equipment and tools must be carefully cleaned; so lifetime and safety will be increased essentially.



7.) Defects - Reasons - Removal

The lifetime of the core bits depends on the material to be drilled and the stability of the drilling stand, but also the number of rotations, feed power and water cooling are influencing these parameters essentially.

In the following some defects and hints for their removal:

DEFECTS	REASONS	ELIMINATION
Waved wall -	Machine:	repair machine
excessive lateral wear	insufficient fastening	
	faulty concentric running of the spindle	
	play of the guiding, spindle or bearing	
	parallelism of the guiding out of tolerance	
	feed pressure too high	reduce feed pressure
	Tool (core bit):	
	excessive lateral stroke	repair or change core bit
	unusual concentric running	
	excessive water supply	supply less water
excessive wear of the diamond	number of rotations too low	correct parameters for operation
layer	feed too high	
	too less cooling water	
	wrong type of tool	change tool type
tool is dull	tool not suitable for material	sharpen tool with suitable material
	number of rotations too high	correct steps of operation
	feed to low or too	
	high excessive vibrations	



8.) Maintenance instructions

Periodical maintenance is decisive for the lifetime of the equipment and decreases the accident risk.

According to our experience the following points must be observed:

✓ The guiding column and the feed spindle as well as bolts and screws must be kept clean and greased if necessary.

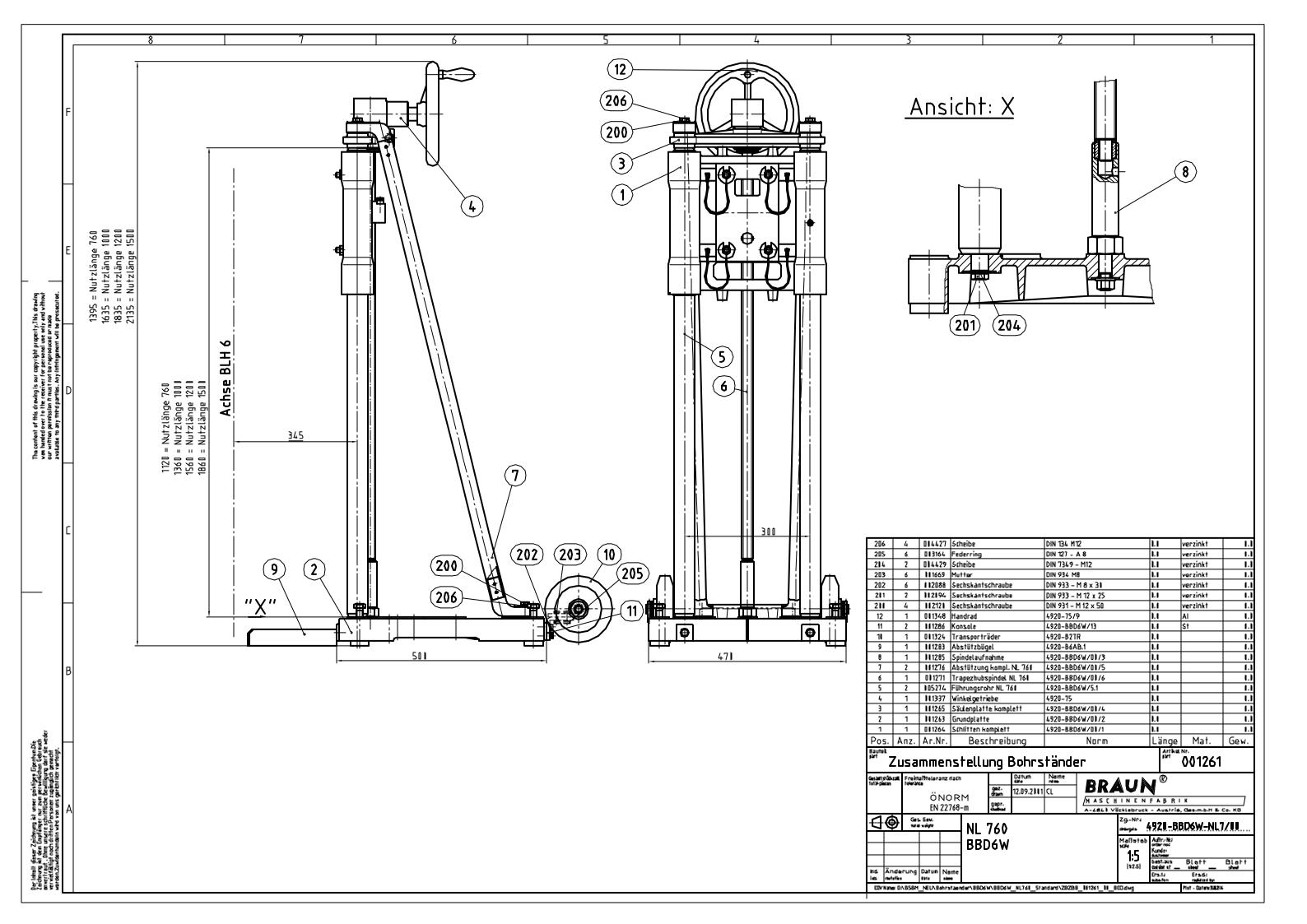
The trapezoidal nut (part 3) is worn out quickly if the feed spindle is not kept clean.

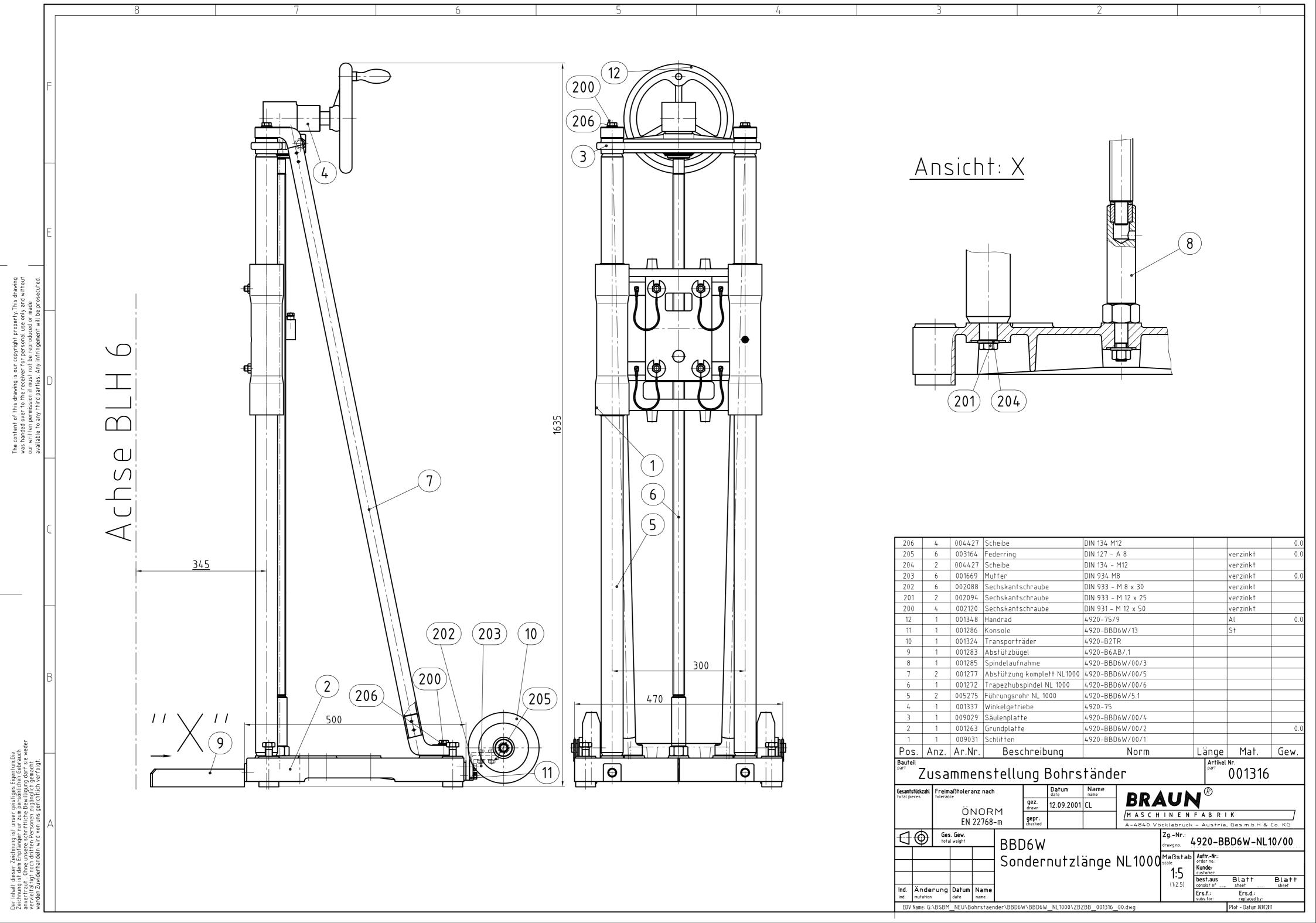
✓ Every week the points of lubrication on the feed slide must be greased again (use noncorrosive grease).

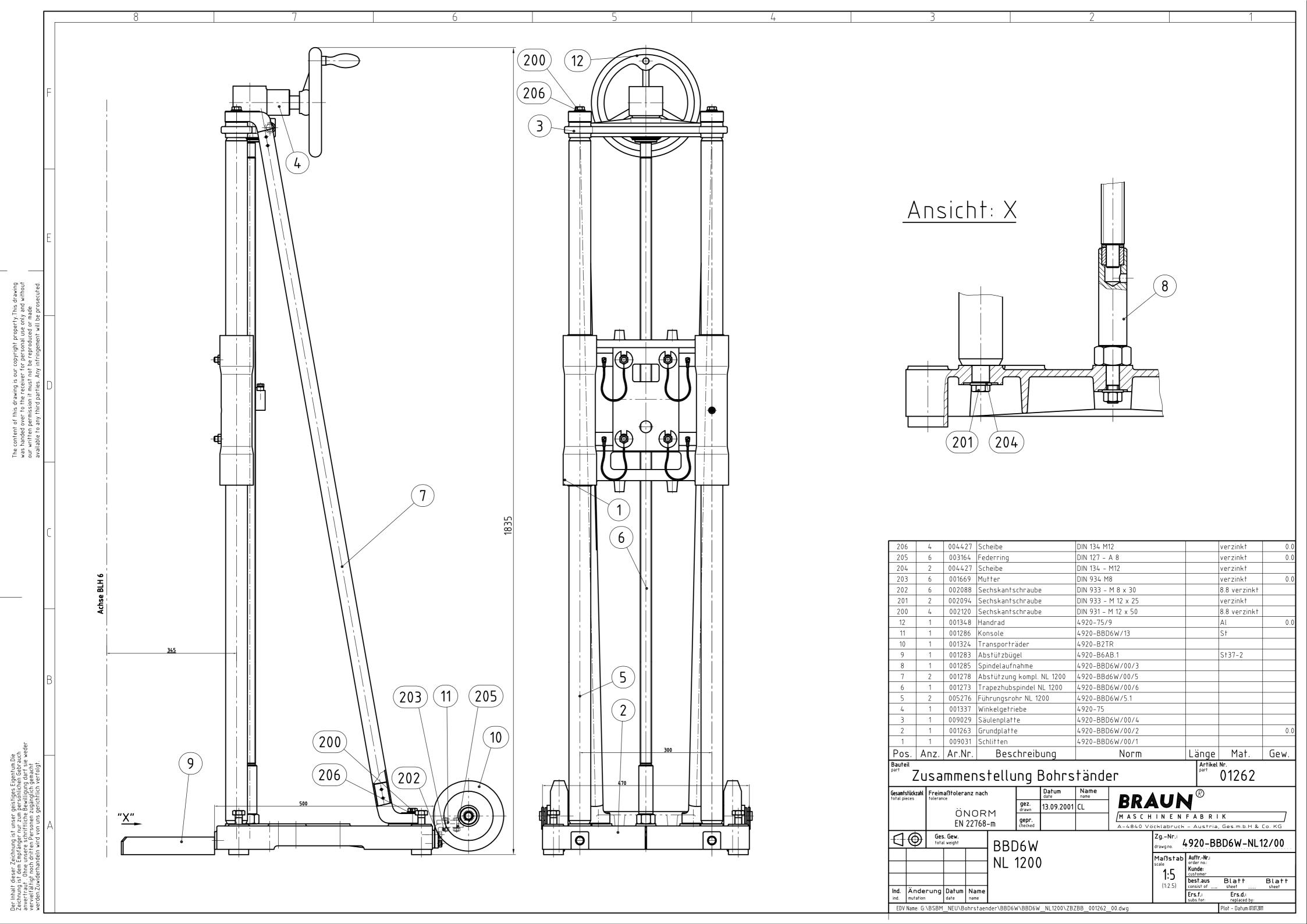
A thin film of lubrication must cover the guide columns to avoid the drying of mud and dust and also to prevent a wear-out of the guide bushing.

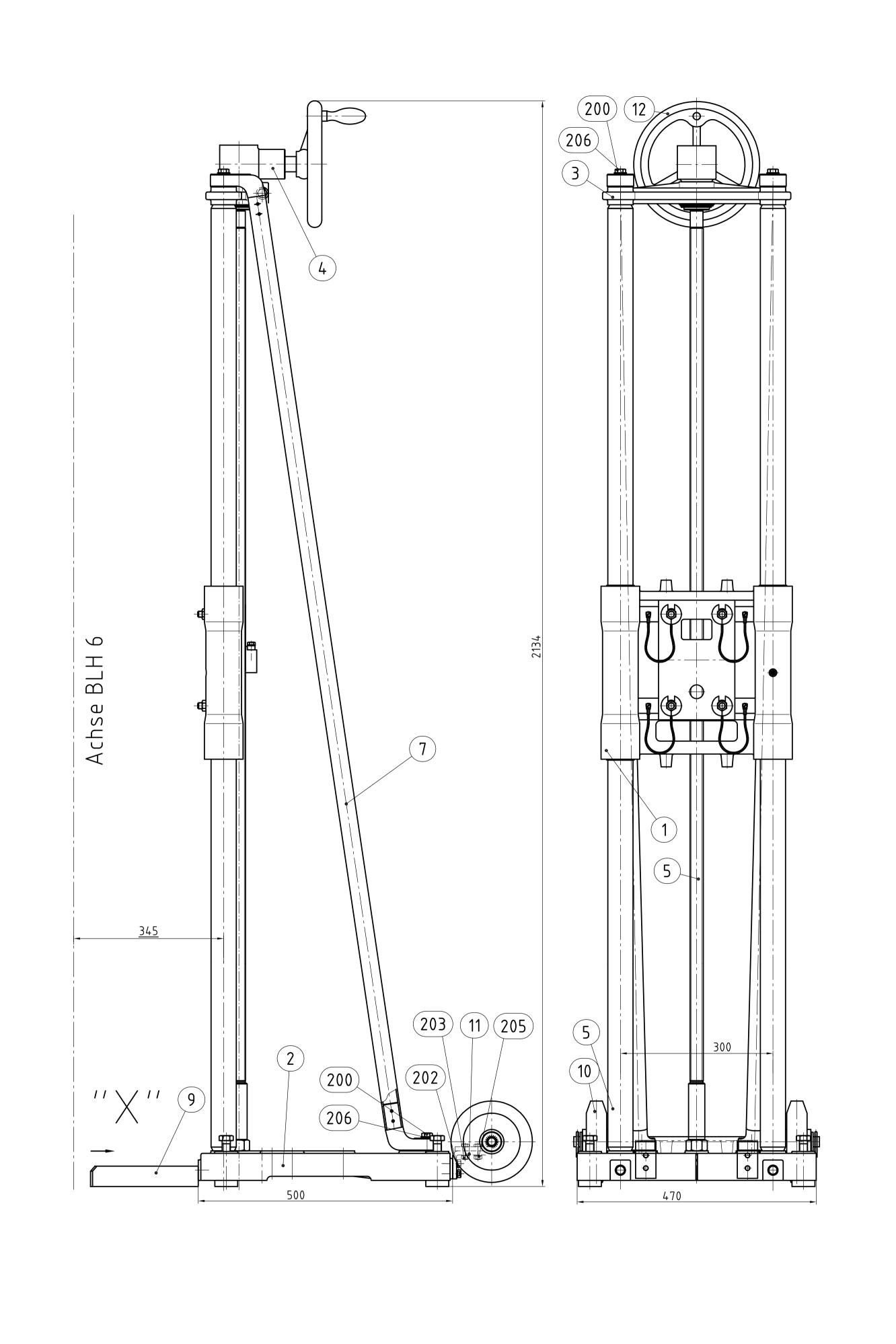
- ✓ Every week resp. after accidents all parts must be checked with regard to cracks and must be changed if necessary (Do not weld aluminium-cast parts).
- ✓ The mitre wheel gearing is filled with gear slime, this must be renewed after repair works (for example changing of the bevel gear wheels).
- ✓ The grooved ball bearings are greased for lifetime.
- ✓ The equipment must be cleaned carefully when the drilling work is finished.
- ✓ After taking up operation for the first time or after repair works all screws must be controlled and tightened if necessary to avoid any damages in the following.

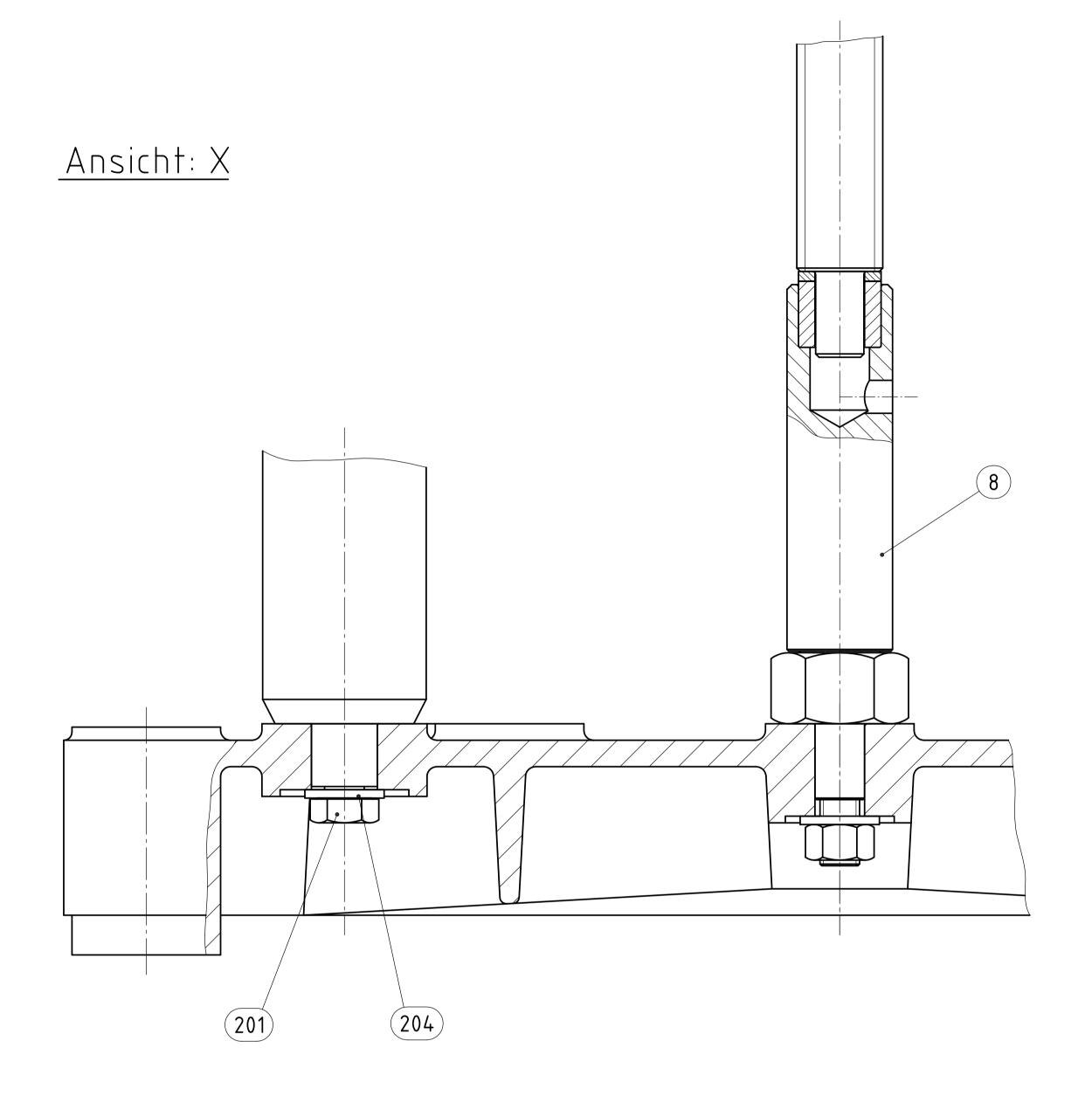










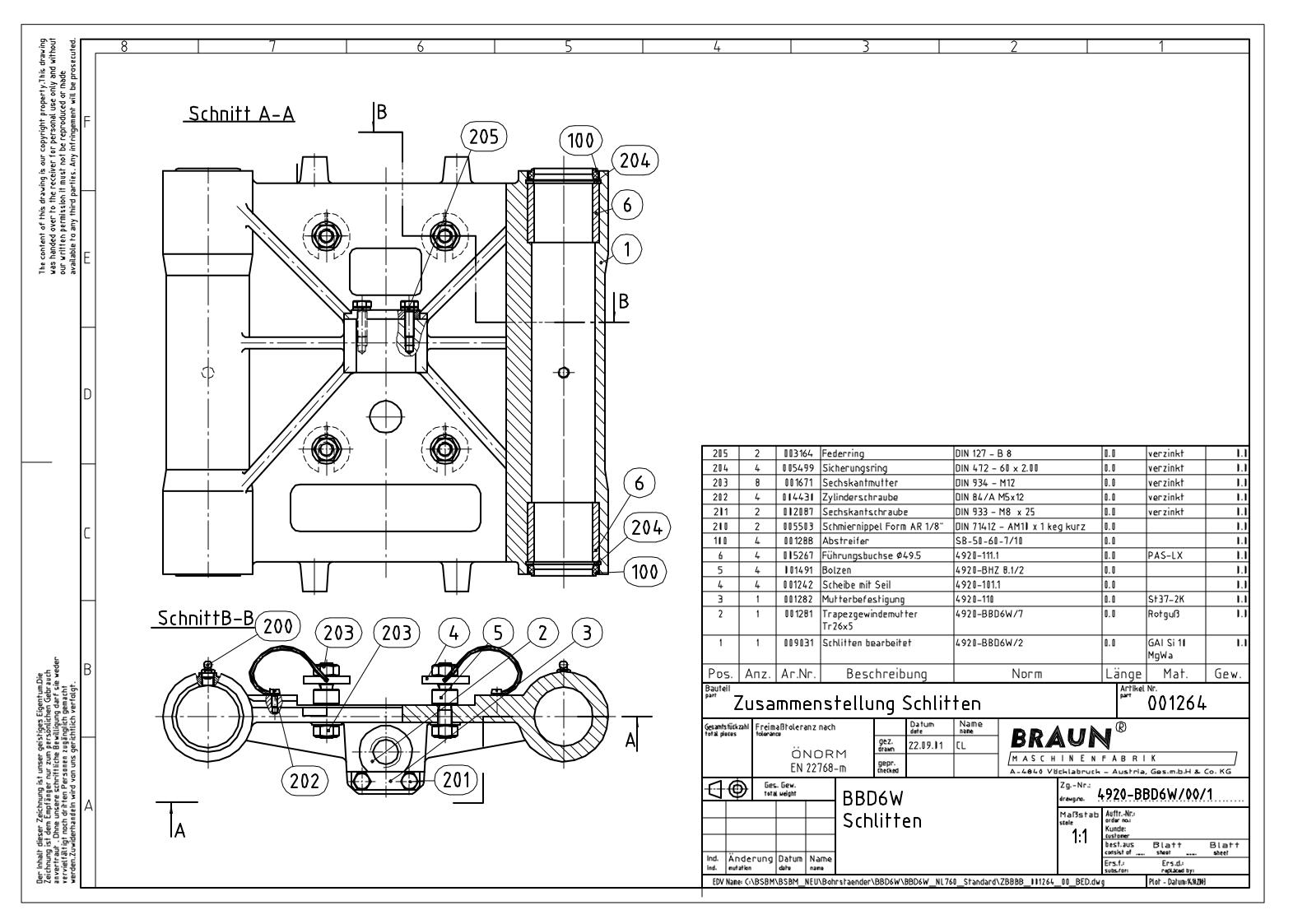


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Bohrständer / Drill Rig / Carotteuse BBD6W Stückliste Artikel Nummer: 001261

Pos.	Stk.	Art.Nr.:	description	Norm	Material
1	1	001264	sliding carriage complete	4920-BBD6W/00/1	
2	1	001263	base plate	4920-BBD6W/00/2	
3	1	001265	column plate	4920-BBD6W/00/4	
4	1	001337	mitre gear	4920-75	
5	2	005274	guiding tube - usable length 760 mm	4920-BBD6W/5.1	
5	2	005275	guiding tube - usable length 1000 mm		
5	2	005276	guiding tube - usable length 1200 mm		
5	2	001269	guiding tube - usable length 1500 mm		
6	1	001271	spindle - usable length 760 mm	4920-BBD6W/00/6	
6	1	001272	spindle - usable length 1000 mm		
6	1	001273	spindle - usable length 1200 mm		
6	1	001274	spindle - usable length 1500 mm		
7	2	001276	supporting tube - usable length 760 mm		
7	2	001277	supporting tube - usable length 1000 m		
7	2	001278	supporting tube - usable length 1200 m		
7	2	001279	supporting tube - usable length 1500 m		
8	1	001285	spindle fixture		
9	1	001283	supporting yoke	4920-B6AB.1	
10	1	001324	transport wheels complete	4920-B2TR	
11	2	001286	bracket	4920-BBD6W/13	St
12	1	001348	hand wheel with grip	4920-75/9	Al
200	4	002120	hexagon screw	DIN 931 - M 12 x 50	verzinkt
201	2	002094	hexagon screw	DIN 933 - M 12 x 25	verzinkt
202	6	002088	hexagon screw	DIN 933 - M 8 x 30	verzinkt
203	6	001669	nut	DIN 934 M8	verzinkt
204	2	004429	disc	DIN 7349 - M12	verzinkt
205	6	003164	washer spring DIN 127 - A 8		verzinkt
206	4	004427	disc	DIN 134 M12	verzinkt

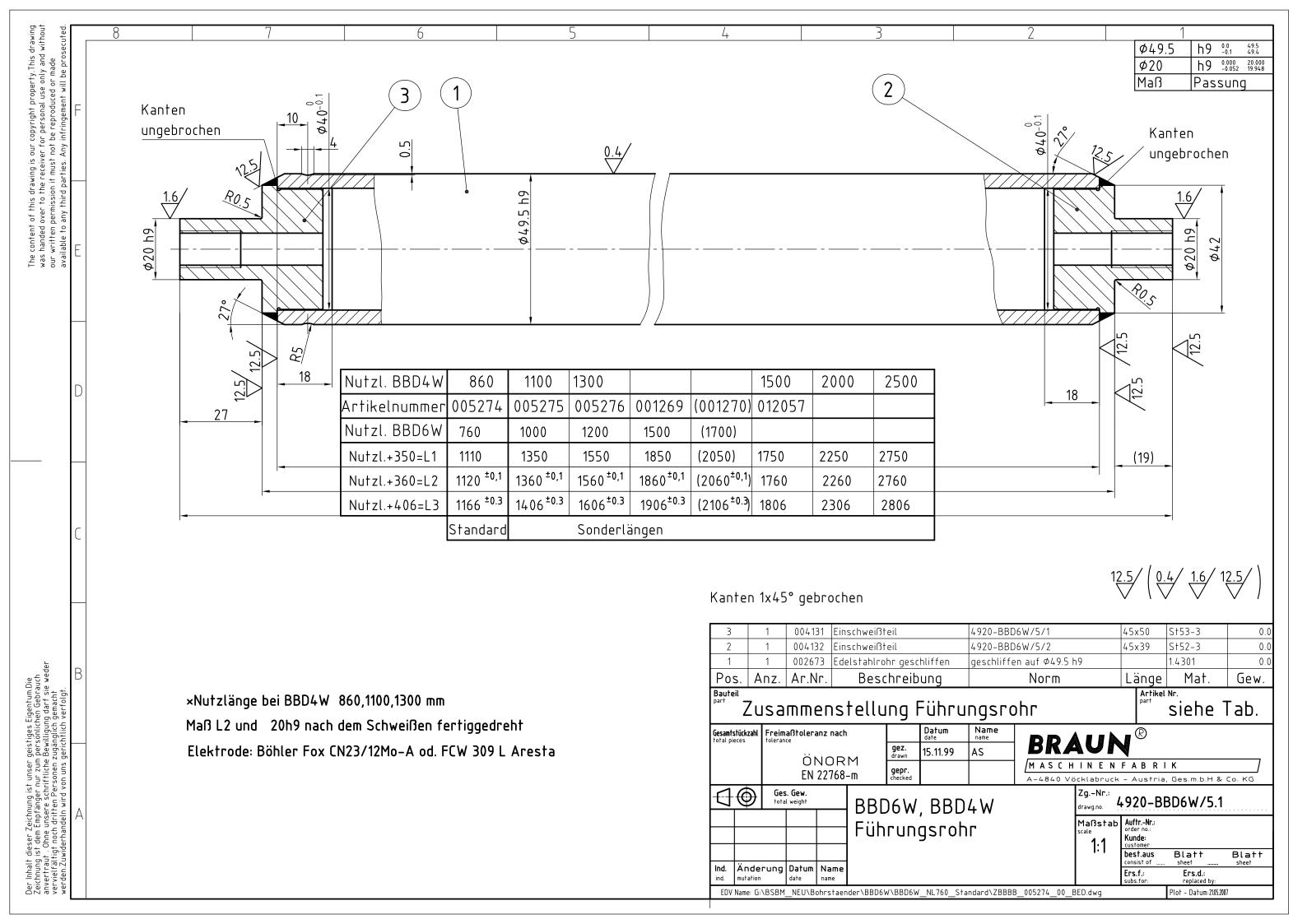


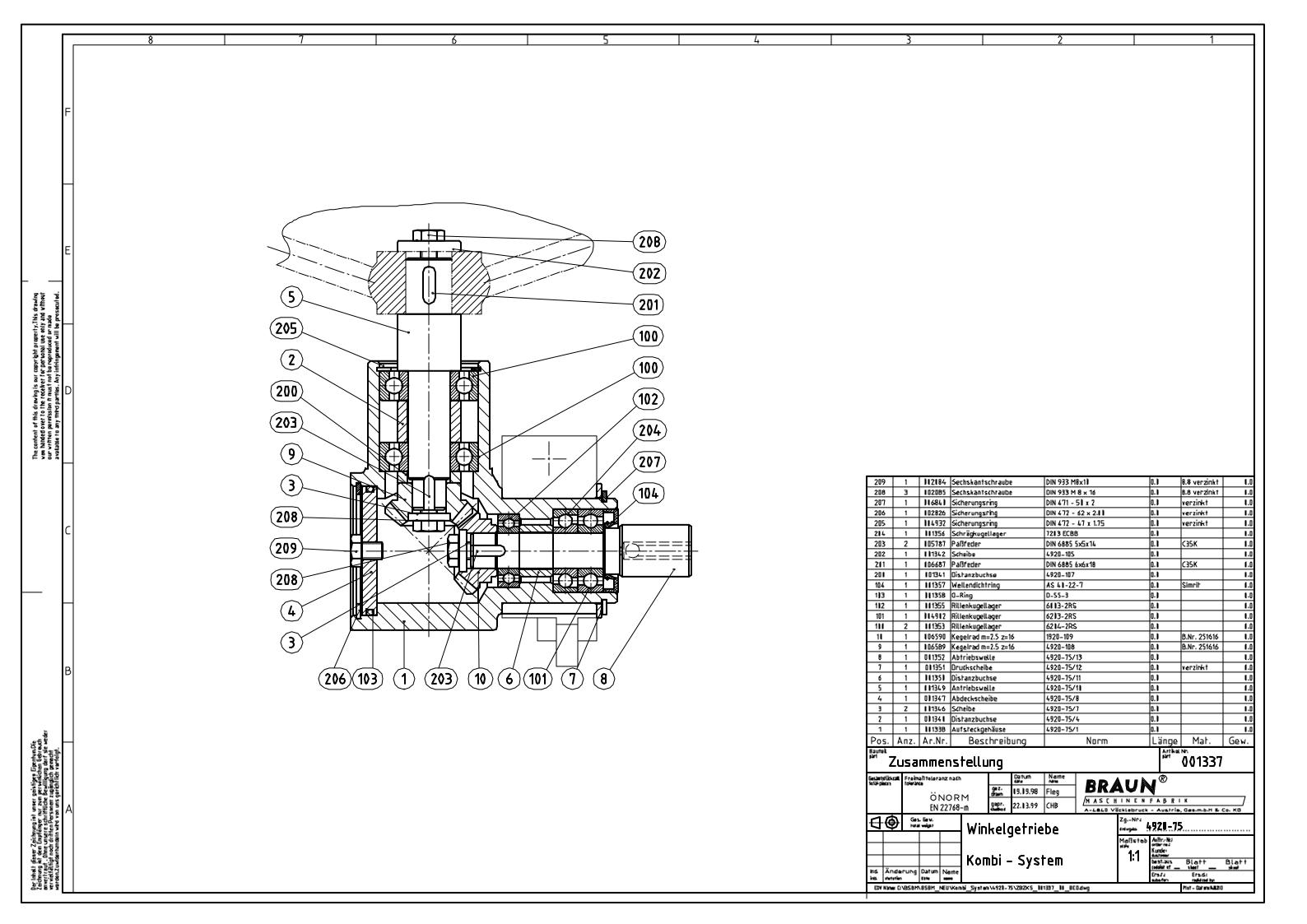


MASCHINENFABRIK

Schlitten / Feed Slide / Chariot Stückliste Artikel Nummer: 001264

Pos.	Stk.	Art.Nr.:		Norm	Material
1	1	009031	slide	4920-BBD6W/2	
2	1	001281	trapezoidal nut	4920-BBD6W/7	Rotguß
3	1	001282	fixing of trapezoidal nut	4920-110	St37-2K
4	4	001242	disc with wire	4920-101.1	
5	4	001491	bolt	4920-BHZ 8.1/2	
6	4	005267	guide bushing diam.49.5	4920-111.1	PAS-LX
100	4	001288	wiper	SB-50-60-7/10	
200	2	005503	grease nipple	DIN 71412 - AM10x1	
201	2	002087	hexagon head screw	DIN 933 - M8 x 25	verzinkt
202	4	004430	cheese head screw	DIN 84/A M5x12	verzinkt
203	8	001671	hexagon nut	DIN 934 - M12	verzinkt
204	4	005499	circlip	DIN 472 - 60 x 2.00	verzinkt
205	2	003164	lock washer	DIN 127 - B 8	verzinkt

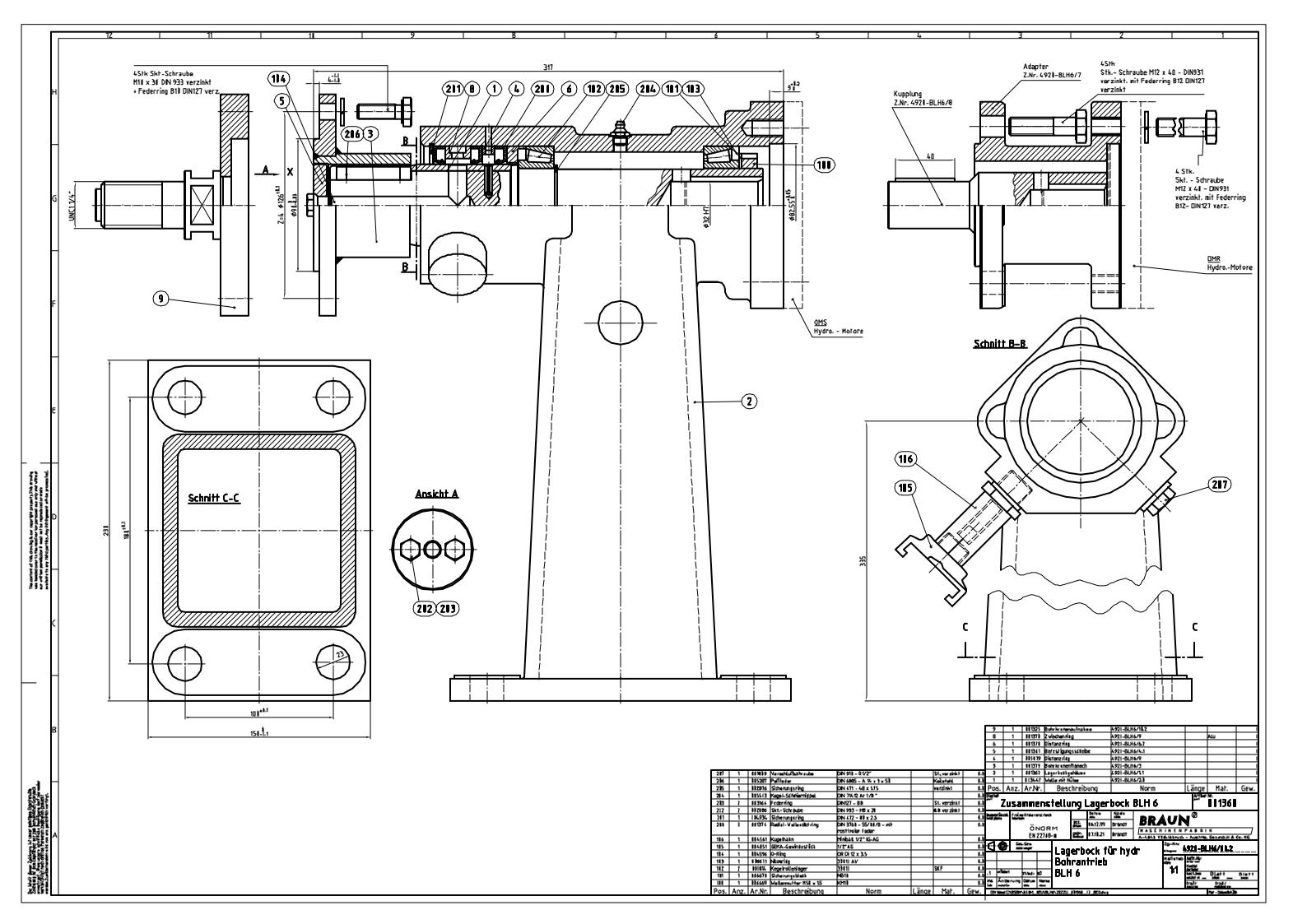






Winkelgetriebe / Mitre Gear / Engrenage Angulaire Stückliste Artikel Nummer: 001337

Pos.	Stk.	Art.Nr.:		Norm	Material
1	1	001338	mounting case	4920-75/1	
2	1	001340	distance washer	4920-75/4	
3	2	001346	disc	4920-75/7	
4	1	001347	cover plate	4920-75/8	
5	1	001349	driving shaft	4920-75/10	
6	1	001350	distance washer	4920-75/11	
7	1	001351	thrust washer	4920-75/12	verzinkt
8	1	001352	power take-off shaft	4920-75/13	
9	1	003854	bevel gear m=2.5 z=16	4920-108	B.Nr. 251616
10	1	003654	bevel gear m=2.5 z=16	1920-109	B.Nr. 251616
100	2	001353	grooved ball bearing	6204-2RS	
101	1	004902	grooved ball bearing	6203-2RS	
102	1	001355	grooved ball bearing	6003-2RS	
103	1	001358	o-ring	O-55-3	
104	1	001357	shaft sealing	AS 40-22-7	Simrit
200	1	001341	distance washer	4920-107	
201	1	006687	key	DIN 6885 6x6x18	C35K
202	1	001342	disc	4920-105	
203	2	005787	key	DIN 6885 5x5x14	C35K
204	1	001356	inclined ball bearing	7203 ECBB	
205	1	004932	circlip	DIN 472 - 47 x 1.75	verzinkt
206	1	002826	circlip	DIN 472 - 62 x 2.00	verzinkt
207	1	006840	circlip	DIN 471 - 50 x 2	verzinkt
208	3	002085	hexagon head screw	DIN 933 M 8 x 16	8.8 verzinkt
209	1	002084	hexagon head screw	DIN 933 M8x10	8.8 verzinkt





MASCHINENFABRIK

Hydrauliklagerbock / Base Support / Support BLH6 Stückliste Artikel Nummer : 001360

Position	Stück	Art.Nr.:		Norm
1	1	003447	shaft with socket	4920-BLH6/11
2	1	001362	case of BLH6	4920-BLH6/1.1
3	1	001379	flange of core bit	4920-BLH6/3
4	1	005079	spacer ring	4920-BLH6/9
5	1	001367	fastening disc	4920-BLH6/4.1
6	1	001370	spacer ring	4920-BLH6/6.2
8	1	001373	intermediate ring	4920-BLH6/9
9	1	001325	carrier of core bit	4920-BLH6/10.2
100	1	006669	shaft nut	KM10
101	1	006670	lock washer	MB10
102	2	001814	tapered roller bearing	33010
103	1	006671	nilos ring	33010 AV
104	1	004596	O-ring	OR DI 12 x 3.5
105	1	004051	GEKA threaded element	1/2"AG
106	1	004561	ball valve	Miniball 1/2" IG-AG
200	3	001374	rotary shaft seal	DIN 3760 - 55/80/8
201	1	004934	circlip	DIN 472 - 80 x 2.5
202	2	002086	hexagon head screw	DIN 933 - M8 x 20
203	2	003164	washer spring	DIN127 - B8
204	1	005503	grease nipple	DIN 71412 Ar 1/8 "
205	1	002876	circlip	DIN 471 - 48 x 1.75
206	1	005287	key	DIN 6885 - A 14 x 9 x 50
207	1	001839	lockign screw	DIN 910 - R1/2"

Accessories BBD6W

Drilling stand for special usable lengths

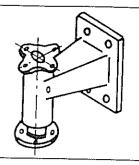
BBD6W NL 10 (usable length 1000 mm)
BBD6W NL 12 (usable length 1200 mm)

BBD6W NL 15 (usable length 1500 mm)

BLH 6

Base support

for hydromotor Danfoss OMS or equal construction of another manufacture



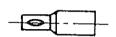
ABLH6-OMR

Adapter for OMR-motor on BHL 6



KBLH6-OMR

Adapter plug for OMR-motor on BHL 6



BKA-UNC 11/4"

Adapter

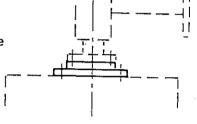
for core bit with UNC 1 1/4" screw

is only allowed to be used up to an operating pressure of 160 bar



BKA-F

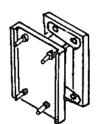
Intermediate flange for holding fixture of hollow drill



BHZ8

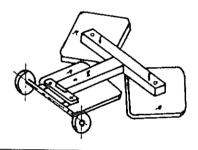
Connecting link

between BBD6W and BLH 6 for max. borehole diam. of 800 mm



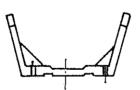
B6V

Vacuum plate for BBD6W



B6AB

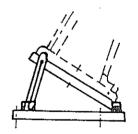
Support yoke for BBD6W



SBP6

Device

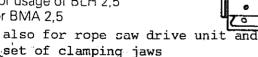
for inclined drilling with BBD6W (0-45°)

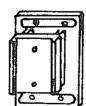


BHA 4

Adapter

for BBD6W for usage of BLH 2,5 or BMA 2,5





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BBD2W/BBD6W

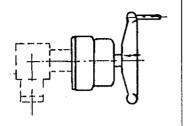
DIAMOND DRILLING EQUIPMENT

General accessories

B2SW

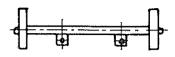
Additional charges for special mitter gear with high gear

for BBD2W and BBD6W



BTR

Transport wheels for BBD2W and BBD6W



BKV 3

BKV 4

BKV 8

Extension shaft for core bit_ usable length 300 mm

usable length 400 mm usable length 800 mm

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