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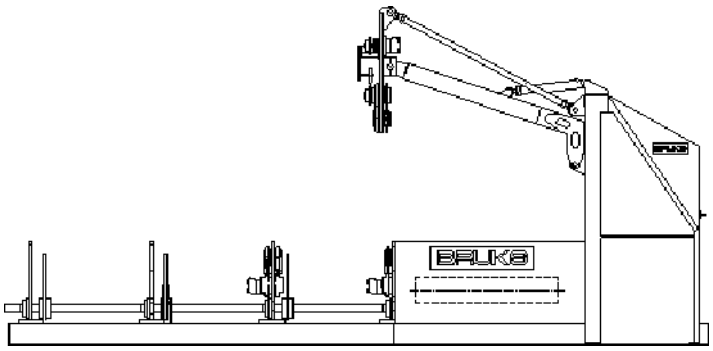

1. General:

These instructions contain the information that is necessary for a satisfactory operation of your butt-end reducer. To obtain the highest possible reliability and longest machine life, it is important that you follow our instructions closely. Faulty lubrication or failure to execute seemingly trivial repairs can soon lead to major defects and costly downtime.

Especially for new or factory-renovated machines, the instructions should be followed in great detail to make sure the guarantee conditions are met and the butt-end reducer is properly run in.

Whenever you contact us about your butt-end reducer, please indicate its order and serial numbers. These are specified on the machine tag.

2. Inspection of delivery:

All our butt-end reducers are thoroughly checked and test-run in our factory prior to delivery. The forwarding agent is responsible for delivering them in good condition. If you discover damages, please file your claims immediately with the forwarding agent. Spare parts for replacement of damaged parts can be ordered from BRUKS.

Please check that both loose and packaged goods listed on the packing slip have been delivered. File a claim with the forwarding agent if goods listed on the packing slip are missing.

3. Measures when the machine is not used:

If the butt-end reducer is not taken into operation soon after delivery or if it is not used for more than a month, lubricate the bearings once a month to prevent corrosion, and if the motor is mounted, let it run for a short while so as to enable the grease to spread in the bearings.

If the butt-end reducer is placed outdoors, you should also cover the bearing housings to prevent condensation in the bearings.

4. Safety instructions:

4.1 General:

The design and functioning of a butt-end reducer makes it impossible to eliminate all safety risks. A smooth and trouble-free operation prevents exhaustive protection against all risks by means of guards. It is therefore of greatest importance to observe the following safety rules!

4.2 Danger zone:

During operation, a danger zone of at least 5 meters in all directions must be observed. (See enclosed drawing 311670.)

4.3 Risk factors:

- Rotating cutter with knives
- Rotating chains on hold-down arm and V-blocks
- Rotating hour-glass rollers in the roller conveyor
- Rotating guide and support rollers
- Moving hold-down arm
- Moving infeed/outfeed arms (kickers)
- Rotating logs in the machine
- Torn-off wood pieces, chips and splinters thrown out of the machine
- Logs lying in the V-blocks and fixed by the hold-down arm during the working cycle can get out of their fixed position if they are very uneven or crooked or if jamming occurs.
- During transport and when being fed in and out, logs can be fed at a wrong angle and cause crushing danger.
- When switched off, the long stopping time for the cutter must be especially observed.
- Accumulator tank with closed-in pressure (for BK-BR800 only)

4.4 Controls:

The butt-end reducer is controlled from a control panel with clear markings, which is to be placed outside the danger zone, but so that the operator is able to monitor the machine. The machine can be started only by deliberate activation of the starting devices.

The work cycle of the butt-end reducer is automatically controlled by a PLC program. The PLC program may not be altered without BRUKS's consent.

Stopping devices and emergency switch are located on the control panel, and on the machine, too, there is an emergency switch for stopping the machine in a safe way.

4.5 Maintenance:

Adjustments, lubrication and other normal maintenance are to be carried out while the machine is out of operation and switched off. To eliminate risks of overheating and fire hazards, it is of greatest importance that the machine is kept clean from chips, dust, grease and oil. To prevent leakage, all hoses, pipes and couplings must be checked regularly.

4.6 For work to be done on the machine:

4.6.1 Safety switch:

Before doing any work on the butt-end reducer, the current supply to the main motor must be cut off by means of the safety switch. The switch must be fitted with a lock so that it cannot be activated by persons not authorized.

4.6.2 Clothing:

Make it a habit to always wear a helmet and protective clothes when working on the butt-end reducer. All cutting tools must be handled with great care. Always use suitable work gloves.

4.6.3 Knife bolts:

The bolts for the knives must be checked regularly. Bolts with deformed threads must be exchanged immediately. The threads must be cleaned and lubricated regularly. Otherwise the torque can not be adjusted correctly, so that the knives may loosen.

BRUKS recommends to change the knife bolts once a year.

4.6.4 Checking before start-up:

- Check that all bolts that were loosened during maintenance or knife change are tightened at the correct torque.
- Check that the cutter can rotate freely and that there are no foreign objects around the cutter.
- Check that hatches, hoods and guards are properly mounted.

WARNING

4.6.5 All guards and safety devices originally mounted are specially designed to prevent safety hazards and must therefore not be removed. Always make sure to re-mount all guards after any maintenance or repair work.

Always use BRUKS original parts for service and repair work. These are developed for a maximum of safety and reliability.

It is strictly forbidden to maintain or clean the machine during operation. Before taking any action, be sure the main motor is switched off and the cutter has come to a complete stop, and cut the current by means of the safety switch (see 4.6.1.).

4.7 During operation:

4.7.1 Material infeed:

The butt-end reducer is designed for automatic feeding and milling of logs fed into the machine by means of log conveyors or crane. Manual feeding is strictly forbidden.

4.7.2 Hatches and guards:

It can be fatal to open hatches or guards on the butt-end reducer during operation. The rotating parts, wood pieces flying around, and the movements of the logs represent serious hazards.

4.7.3 To prevent breakdowns, the butt-end reducer should be fully inspected every 6 to 12 months, in addition to the routine inspections in connection with knife changes and daily maintenance.

4.7.4 The butt-end reducer's noise level is high. It exceeds permissible levels even when it runs empty.

Therefore all personnel close to the machine must wear ear protection.

5. Technical description:

The butt-end reducer consists of a cutter unit with hold-down arm and an extension section with V-blocks. The frame of the cutter unit carries the hold-down arm and the either stationary or movable cutter.

The cutter is placed below the V-block level and powered by an electric motor via a coupling.

Depending on application, the frame of the extension section carries V-blocks and kickers and/or hour-glass rollers.

The log turning chains on V-blocks and hold-down arm are powered by individual hydraulic or gear motors.

The hour-glass rollers are powered by hydraulic or electric motors.

The machine equipment also includes a hydraulic unit with valve package, an electrical cabinet and a control panel with PLC program.

6. Application: The butt-end reducer is used for milling off and reducing the root flares of logs. Reduced butt ends facilitate debarking, decrease the debarking diameter, increase alignment precision at the saws and reduce disturbances in the production process.

Technical data:

Butt-end reducer	Log length m	Log diam. mm	Max. root flare mm	Capacity logs/min.
BK-BR400	2.2-13	700	200	1-2
BK-BR600	3.0-23	700	200	2-6
BK-BR700	2.2-23	700	180	2-7
BK-BR1200	3.0-23	700	200	6-18
BK-BR2000	2.5-25	900	200	6-22

BK-BR400: A compact and simple machine that can easily be placed and moved. The logs are fed in with a crane or loader. Can also be fitted with an infeed/outfeed cradle.

BK-BR600: Can be fed from the right or left, by a singulator or crane. Can also be fitted with an infeed/outfeed cradle.

BK-BR700: A flexible machine. As standard, the logs are fed straight through, but the machine is also available with infeed from right or left.

BK-BR1 200: Characterized by high capacity, because the logs are fed through laterally and the log turning time is automatically set for each individual log diameter. The logs can come from the right or left.

BK-BR2000: A machine composed of modules, making it easy to adapt it to individual requirements. The logs can be fed in and out lengthwise or crosswise or in any combination of lateral and longitudinal directions. Takes up to 22 logs per minute. If all logs are to be reduced, the capacity is 12 logs per minute.

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7.Hydraulic and PLC systems:

For information regarding the hydraulic unit and hydraulic functions, please see the separate hydraulic diagram and hydraulic instructions. The PLC system and the machine's mode of operation are explained in a separate des cription of function.

8. Pre-settings:

The hydraulic functions and the PLC system are thoroughly checked and test-run prior to delivery. See separate description of function.
The PLC program may not be altered without BRUKS's consent.

The pressure limiting valve for the hold-down arm is pre-set at 40-70 bar. (See separate hydraulic instructions.)

The log turning direction is pre-set for "des cend-cutting" (see fig.).

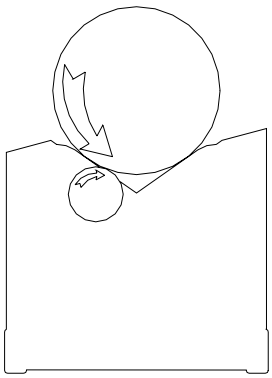

Figure 1 Climb-cutting

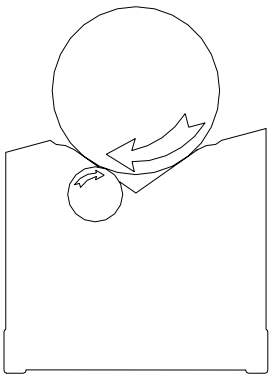

Figure 2 Descend-cutting

If jamming occurs or log adjustments during infeed and outfeed are needed, the turning direction can be reversed momentarily (see fig. 4, "climb-cutting") by means of the spring-loaded rotation switch on the control panel.

9. Installation/Securing

The machine must be installed on either a steel frame or a concrete foundation and secured in place with bolts or be welded to the foundation. It is important that the foundation is stable and perfectly horizontal and that there is proper contact between machine frame and foundation. If needed, use shims to prevent tension in the machine frame.

To cushion the impact of the logs, the machine can be installed on BRUKS's rubber shock absorbers (part no. 20561700) adapted to the weight of the machine. The shock absorbers are 65 mm high and are threaded for M24 fas teners.
The foundation should be designed so as to facilitate the outfeed of the cutter shavings.

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9. Installation/Securing cont.

For lateral feeding:
For feeding from the right or left, it is extremely important that the infeed device makes sure the log even-end line is properly adjusted to the position of the cutter (see drawing 311669). If not, there is a risk that the logs can rise or tip over, which makes them a safety hazard.

In addition, the inclination of the log infeed level may not exceed 15 degrees (see appropriate dimension drawing). This in order to minimize wear and to prevent tipping at the cutter.

WARNING When welding, do not put the grounding clamp on the machine frame. If you do, the current can pass through moving parts on the machine, such as bearings and the like, and damage them. Put the clamp on the subframe/embedment steel close to the welding spot.

We recommend to mount guard rails and warning signs around the butt-end reducer's danger zone to prevent personal hazards.

10. Start-up:

The butt-end reducer is completely checked and properly adjusted when it leaves our factory. However, irregularities can occur, especially during transport. This is why we recommend the following, **before the machine is taken into operation:**

- **Check all bolts and nuts, especially those of the bearing housings, the chute and the knives and tighten them if needed.**
- **Check that all guards are mounted.**

Before start-up, also check that nobody is within the danger zone of the machine and there are no foreign objects around the cutter.

After a few hours of operation, check the belt transmission (if applicable; see chapter 11) and tighten the belts if needed. At the same time, check bolts and nuts and tighten them once again. Then check the belts at regular intervals, as well as bolts and nuts, which can loosen due to vibrations.

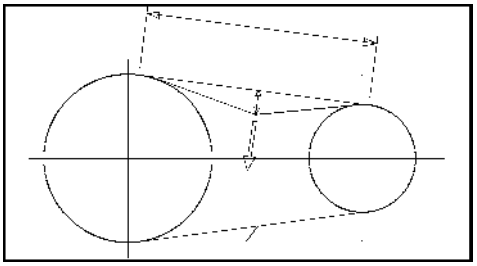
During the run-in period, overheating might occur in the bearing housings (up to about 70 degrees C), which is not unusual and will decrease with time. However, if the temperature ris es beyond 70 degrees C and won't drop, please contact BRUKS as soon as possible.

11. Belt transmission:

Instructions for belt mounting and tightening with tensiometer.

1. Make sure that the shafts are parallel to each other.
2. Pulleys must be well cleaned.
3. Check that pulleys are properly aligned.
4. Tighten belts as follows:

A = Free belt span
B = Deflection
F = Deflection force
N = Number of belts



5. Measure free belt span according to above figure. Deflection shall be 1 mm per 100 mm free belt span (see table below).
6. Place tensiometer in the middle of the free belt span and perpendicular to the belt.
7. Press tensiometer on the belt until you get the proper deflection (see table below). Read deflection force where the O-ring has stopped on the scale. (NOTE: For new belts apply the higher value.)
8. Adjust until proper belt tension is obtained.

Proper Tension for 5V/SPB/15J Belts

Small Pulley Diam. mm		F k p					A m				
		N st. *					0.7	1.0	1.3	1.6	etc.
		1	2	3	4	5	B mm				
160 - 229	min	3.0	6.1	9.1	12.2	15.2	7	10	13	16	etc.
	max	7.5	9.0	13.5	18.0	22.5					
230 - 305	min	3.3	6.7	10.0	13.3	16.7	7	10	13	16	etc.
	max	5.0	10.0	15.0	20.0	25.0					
306 - 406	min	3.6	7.3	10.9	14.5	18.2	7	10	13	16	etc.
	max	5.3	10.6	15.9	21.2	26.5					

Check belt tension after a few hours of operation. Most of the stretching occurs within this time.

Regular checks of tension ensure longest possible belt life. BRUKS recommends tension check intervals of 150-200 hours.

* Several V-belts vulcanized together (Powerband)

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12. Lubrication chart, BRUKS BK-BR700 and BK-BR400

Lubrication chart

Item	Nomenclature	Lubricant	Lubrication interval
1	Exposed chains	Q8 Wagner	Every 8 hours
2	Chains, guide roller	fl	fl
3	Hydraulic system	Q8 Handel 32	See sep. instr.
4	Bearings	Q8 Rembrandt EP2	Every 8 hours
5	Bearings, hold-down arm	fl	fl
6	Bearings, hold down arm	fl	fl
7	Bearings, hour-glass rollers	fl	fl
8	Bearings, sprockets	fl	fl
9	Bearings, hyd. cylinders	fl	fl
10	Cutter bearings	Q8 Rubens LT	fl
11	Rollers	Q8 Rembrandt EP2	Every 200 hours
12	Sprockets, guide roller	fl	fl
13	Pivoting bearings	fl	fl
14	Centre bearings	fl	fl
15	Bearings, sprockets	fl	fl
16	Bearings, kickers	fl	fl
17	Bearings, support roller	fl	Every 2000 hours
18	Gear boxes	Statoil Loadway EP150	fl
20	Speed reducers	Q8 Auto 12	fl

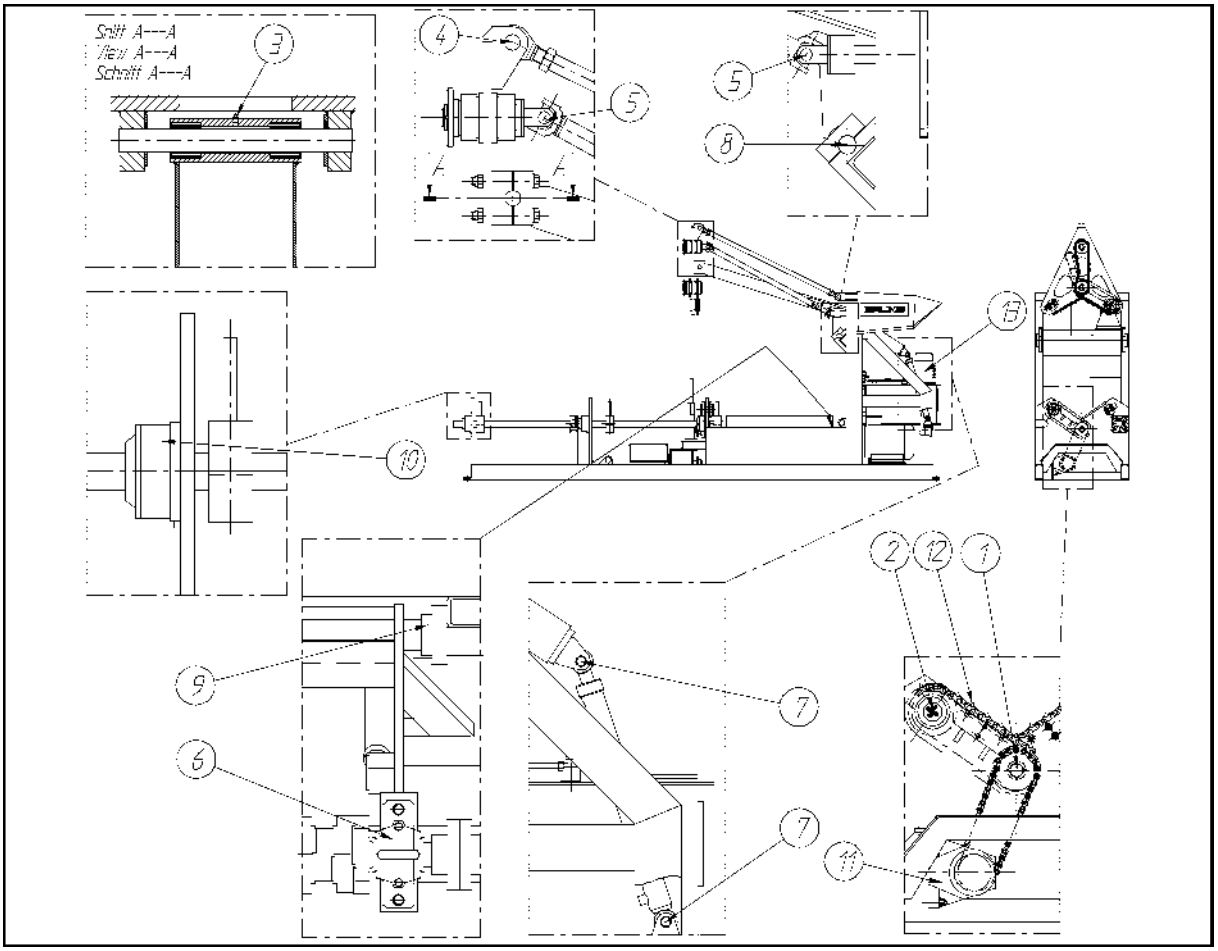
Grease for cutter bearing, Q8 Rubens LT we supply 2 cartridges in the tool box (Art no 99913222). New cartridges can be ordered from BRUKS or BRUKS Representative. Other lubricants can be replaced by equivalent qualities of other brands.

13. Lubrication chart, BRUKS BK-BR600

Lubrication chart

Item	Nomenclature	Lubricant	Lubrication interval
1	Drive bearings	Q8 Rembrandt EP2	Every 16 hours
2	Sprocket bearings	fl	fl
3	Bearings, hold-down arm	fl	fl
4	Bearings, parallel rod	fl	fl
5	Drive shaft joints	fl	fl
6	Bearings, cutter	Q8 Rubens LT	fl
7	Bearings, hyd. cylinders	Q8 Rembrandt EP2	fl
8	Bearings, hold-down arm	fl	fl
9	Bearings, cradle	fl	fl
10	Bearings, kickers	fl	fl
11	Gear boxes	Statoil Loadway EP150	Every 2000 hours
12	Exposed chains	Q8 Wagner 68	Every 8 hours
13	Hydraulic unit	Q8 Handel 32	See sep. hyd.manufact. instr.

Grease for cutter bearing, Q8 Rubens LT we supply 2 cartridges in the tool box (Art no 99913222). New cartridges can be ordered from BRUKS or BRUKS Representative. Other lubricants can be replaced by equivalent qualities of other brands.

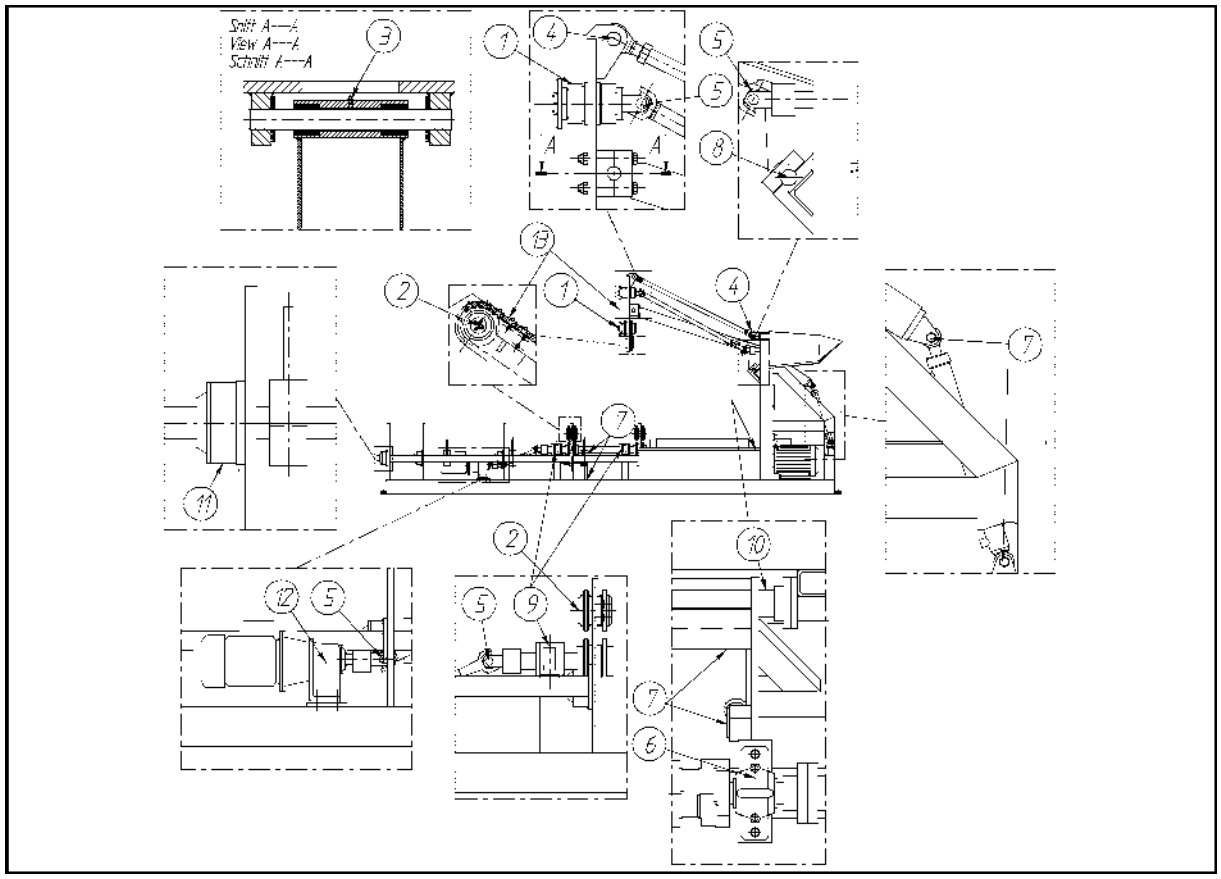


14. Lubrication chart, BRUKS BK-BR1 200

Lubrication chart

Item	Nomenclature	Lubricant	Lubrication interval
1	Drive bearings	Q8 Rembrandt EP2	Every 16 hours
2	Sprocket bearings	fl	fl
3	Bearings, hold-down arm	fl	fl
4	Bearings, parallel rod	fl	fl
5	Drive shaft joints	fl	fl
6	Bearings, cutter	Q8 Rubens LT	fl
7	Bearings, hyd. cylinders	Q8 Rembrandt EP2	fl
8	Bearings, hold-down arm	fl	fl
9	Log turning shaft	fl	fl
10	Pivoting bearings, cradle	fl	fl
11	Bearings, kickers	fl	fl
12	Gear boxes	Mobil SHC629	Every 2000 hours
13	Exposed chains	Q8 Wagner 68	Every 8 hours
14	Hydraulic unit	Q8 Handel 32	See sep. hyd.Manufact. instr.

Grease for cutter bearing, Q8 Rubens LT we supply 2 cartridges in the tool box (Art no 99913222). New cartridges can be ordered from BRUKS or BRUKS Representative. Other lubricants can be replaced by equivalent qualities of other brands.

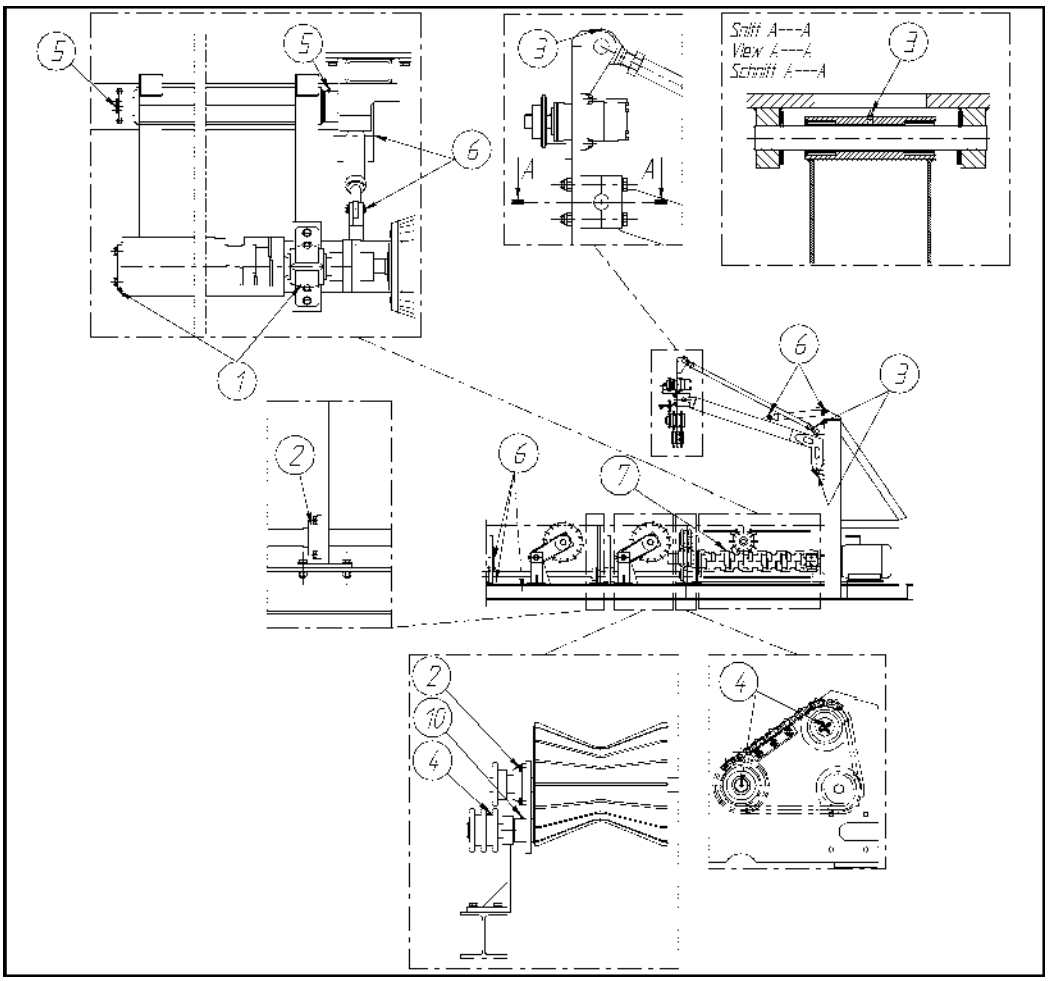


15. Lubrication chart,BRUKS BK-BR2000:

Lubrication chart

Item	Nomenclature	Lubricant	Lubrication interval
1	Cutter bearings	Q8 Rubens LT	Every 16 hours
2	Flange bearings	Q8 Rembrandt EP2	fl
3	Pivoting bearings	fl	fl
4	Sprocket bearings	fl	fl
5	Cradle, pivoting bearings	fl	fl
6	Pivoting bearings, hyd. cylinders	fl	fl
7	Pivoting bearings, guide roller	fl	fl
8	Hydraulic unit	Q8 Handel 32	See sep. hyd.manufact. instr.
9	Exposed chains	Q8 Wagner 68	Every 16 hours
10	Pivoting bearings, rollers	Q8 Rembrandt EP2	fl

Grease for cutter bearing, Q8 Rubens LT we supply 2 cartridges in the tool box (Art no 99913222). New cartridges can be ordered from BRUKS or BRUKS Representative. Other lubricants can be replaced by equivalent qualities of other brands.

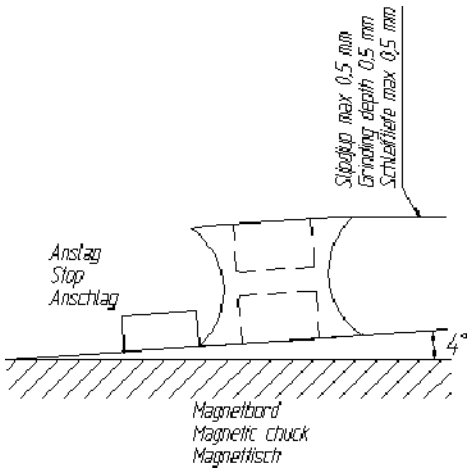


16. Knives - Change and grinding:

General: The knife edges must be intact. Slightly damaged edges do not cause problems but if an edge is miss ing, the cutter cannot mill fast enough and the log tends to rise, or the log might not be reduced evenly all around. Check and make sure that the knife bolts are intact and tightened at the proper torque.

Knife change: The knives are mounted with 12.9 Allen screws of type MC6S 16x50. Required torque is 29 kpm (daNm).
It is important that the knives as well as their seats are thoroughly cleaned to obtain proper seating.
Each knife has four cutting edges, which means that the knives can be turned three times, provided that the contact surfaces are not damaged.

Grinding: The knives can be ground once, if the cutting edge damages are less than 0.5 mm deep. The grinding angle is 4°.
It is important that coolant is used when grinding to prevent loss of temper in the cutting edges.



NOTE: **The current for the main motor must be cut by the safety switch when changing knives. The switch also blocks all automatic starting devices for the work cycle.**

17. Noise levels:

The equivalent, continuous acoustic pressure level exceeds 85 dB(A) for all butt-end reducers. The noise levels vary depending on the type of machine and the type of building/environment where the machine is installed. Normal values are between 75 and 110 dB(A).

Therefore, all personnel must wear ear protection during operation.

18. Maintenance chart:

The table below summarizes the instructions to be followed for the routine maintenance of your butt-end reducer. For further instructions and measures to be taken please see the chapters of this manual as indicated in the table below.

Interval	Measures	Notes	Chapter
Daily	Check that there are no untypical noises or vibrations. Check that all bolts are properly tightened.	Change knives if needed. Vibrations may indicate damaged or loosened knives.	4,9,10
	Keep machine free from chips, dust, grease and oil.Check hoses, pipes and couplings to prevent leakage.	To prevent fire and overheating.	4
	Check oil temperature on hydraulic unit.		4
	Check cutter bearing temperature.	Grease leakage may indicate broken seals or overheating.	4,12
Every 16 hours	Check that bolts in drive shaft are tightened. Check for play in the joints. Lubricate joint crosses.		13,14
	Check for play in bearings for hold-down arm head, and check chain tightener.		
	Lubricate according to lubrication instructions.	Lubricate with oil and grease.	10-13
Every 40 hours	Machines with cutter tilt: Check for play in sliding sleeve.	If needed, change chains and rails.	
	V-blocks: Tighten chains, check for wear on support rails. Check that the shaft nut for the centre bearings is tightened.	If needed, change chains and rails.	
	Tighten expander bolts for hydraulic cylinders.		4, 10
	Check oil level for.hydraulic unit.	If needed, refill oil Q8 Handel 32.	10-13
Every 150 hours	Belt transmission: Check wear, belt tension and alignment. Re-mount all guards.	BK-BR700 only.	11
Every 2000 hours	All roller and ball bearings: Check, clean, change grease and adjust play.	Once a year. First change after 500, then every 2000 hours.	
	Change knife bolts.		4.6, 13
Every 10000 hours	Change oil and lubricate bearings for gear motors for log turning chains.	But at least every 3 years.	See encl.instr.

Grease and oil qualities:

Grease, general: Grease with a consistency according to NLGI 2-3, Example: Q8 Rembrandt EP2.
Grease, cutter: Grease Q8 Rubens LT (BRUKS art no 99913222).
Oil, exposed chains: Guide oil according to ISO VG 68, Example: Q8 Wagner 68
Hydraulic oil: Hydraulic oil according to ISO VG 32, Example: Q8 Handel 32.
Gear oil: BK-BR400, BK-BR600 and BK-BR700: Mineral oil with a viscosity according to ISO VG 150, Ex.: Q8 T55. The gear boxes are filled with Statoil Loadway 150 prior to delivery. BK-BR800 and BK-BR1200: Filled with Mobil SHC 629 synthetic oil.
Do not mix different brands of oil!

19. Accessory: Central Lubrication

19.1 General

Grease lubrication: The lubricating pipes on the reducer are connected, via a progressive distributor, to a common connection point at the rear of the machine.
Please note that the cutter bearings are not connected to the central lubrication system but have to be checked and lubricated manually with special grease (see Lubrication Chart).
Rotating lubricating points such as cardan joints are not connected to the system.
Pipes between common connection points and lubricators are not included in the delivery.
Please also see the enclosed manual for lubricating pumps.

The lubricating pumps are intermittent-duty controlled by the reducer's electrical system. A control panel to be mounted close to the lubricators is included.

19.2 Inspection of Delivery:

The lubricating pumps are delivered as separate units.
Lubricating pipes and progressive distributor are completely mounted on the reducer.

19.3 Technical Description:

See enclosed manual from the lubricating pump manufacturer.

19.4 Adjustments Prior to Delivery:

All pipes for grease lubrication on the reducer are filled with grease (quality according to Lubrication Chart) prior to delivery.
The oil pipes are not pre-filled.

19.5 Installation / Start-Up:

The lubricating pumps are to be placed ata distance to the butt-end reducer, in a warm room.
Pipes between butt-end reducer and lubricating pumps are not included. The pipes for grease that are connected during installation must be cleaned on the inside and filled with grease (quality according to Lubrication Chart) before start-up. Please pay attention to instructions regarding the connection of pipes between specific points, where, for example, double outlets on the lubricator must be connected to a certain progressive bloc. Please contact BRUKS in case of doubt.

The pumps should first be operated in "Manual" position while all lubricating points are checked to make sure the lubricant arrives at all points. Grease leakage at the overpressure controls indicate obstruction in the pipes, the progressive distributor or any of its lubricating points on the reducer.

19.6 Description of Function:

Control system:

The lubricating pumps are controlled by pause/running time relays in the control cabinet. A lubrication cycle consists of a running period and a stand-still period of the pump. The lubrication is in operation when the hydraulic pump for the reducer is on. As the hydraulic unit is switched on, the lubricator always starts with a running period. Typical set values are 6 min. running time / 3 min. pause time for grease lubrication and 2 min. running time / 10 min. pause time for oil lubrication. These values can be adjusted by means of the potentiometers on the respective relay in the control cabinet (please check with BRUKS before any adjustment!).

Control panel for central lubrication:

Alarm light	"High level grease" indicates upper level in tank with closed refilling.
Alarm light	"Low level grease" indicates level in tank for refilling.
Switch	"Lubrication interval grease Auto-0-Man". "Auto" -Lubricator runs according to preset cycle times. "0" -Lubricator turned off. "Man" -Lubricator runs continuously; to be used for start-up and checking.
Alarm light	Low level oil" indicates level in tank for refilling.
Switch	"Lubrication interval oil Auto-0-Man". "Auto" -Lubricator runs according to preset cycle times. "0" -Lubricator turned off. "Man" -Lubricator runs continuously; to be used for start-up and checking.

On the control panel for the butt-end reducer there is an alarm light indicating signals from any of the alarm lights on the control panel for the central lubrication system. The lubricating points must NOT be plugged towards the progressive distributor, as this would stop the whole distributor and the grease would be pressed out through the overpressure control at the pump instead of at the lubricating point.

A missing or otherwise not functioning overpressure control on an outgoing pipe can make the pump work against increased counter-pressure and break down as a consequence.

19.7 Maintenance Instructions:

Lubricating pumps, overpressure controls, pipings, hoses and connections should be checked every day for damage and leakage. The lubricant in the pump must be monitored so that it will never be used up in order not to get air into the system.

Nr	Ant	Ändring	Datum	Inf.	Godk.

För ej toleranssatta mått gäller:
På maskinbearbetade ytor +- IT14/2
På ej maskinbearbetade ytor +- IT17/2

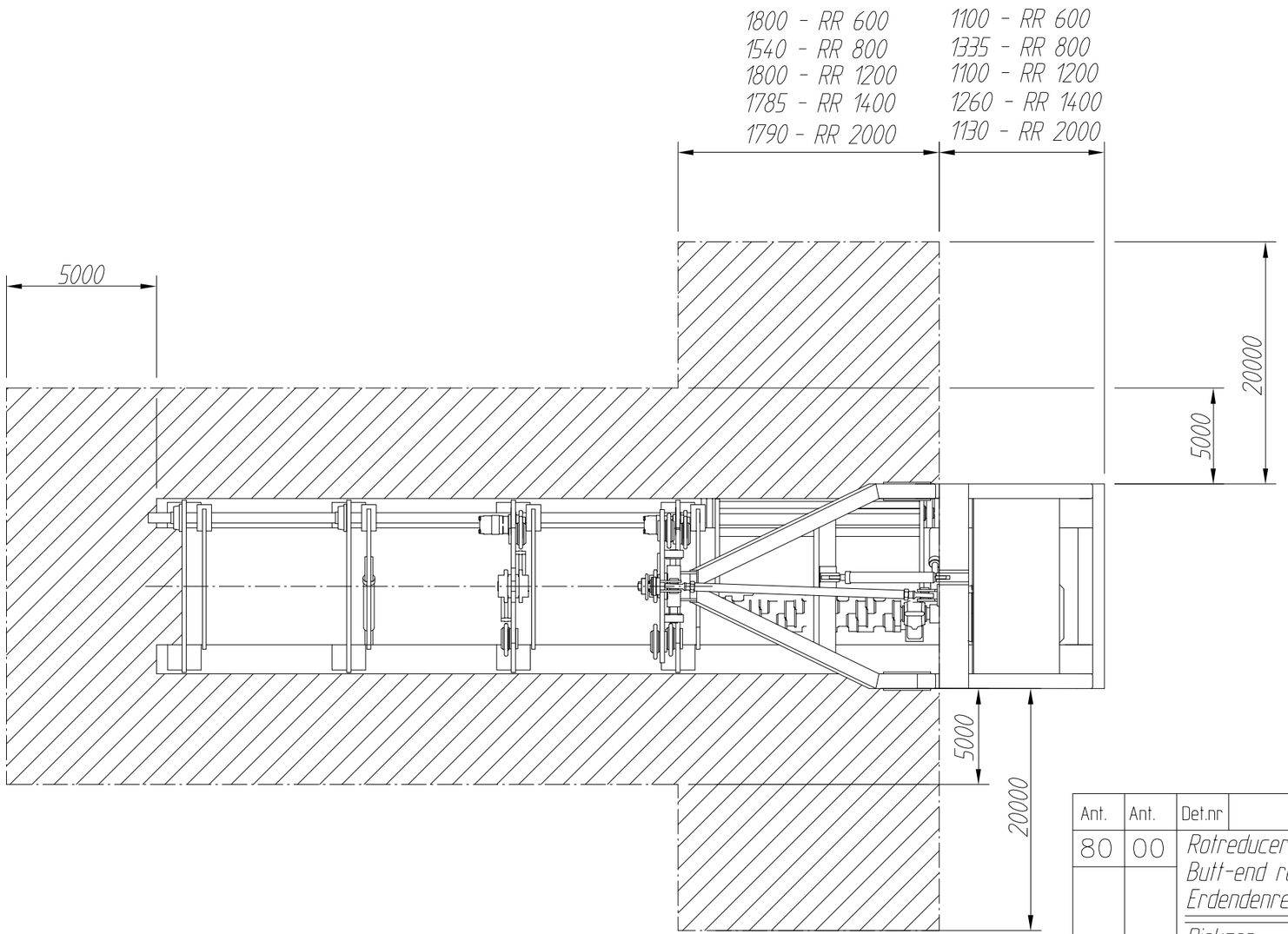
Skarpa hörn och kanter
brytes ca 0,3 x 45 grader

AUTOCAD

PROJ.

Fara!
Danger!
Gefahr!
Danger!
¡Peligro!
Pericol!

Förbjudet att vistas inom markerat område när maskinen är i drift !
Persons are not permitted within the marked area during operation !
Während des Betriebs der Maschine, ist der Aufenthalt im markierten Bereich verboten !
Defendu de se tenir a' l'interieur de la zone marquee pedant que la machine travaille!
¡No se permiten personas dentro del area marcado durante el funcionamiento!
Pe durata functionarii utilajului, accesul în zona marcata este interzis!



Ant.	Ant.	Det.nr	Benämning/beteckning	SIS	Art./ritn.nr
80	00		Rotreducerare Reductor de extremos de troncos Butt-end reducer Reducteur de souches Erdendenreduzierer		

Riskzon Zona de peligro
Danger zone Zone dangereuse
Sicherheitszone

Skala	
Ritad JJ	Dat. 94-11-22
Konstr.	Godk.
Ersätter	Filnamn
Ersatt av	Urspr.
Ritn.nr 311670	

BRUKS ARBRÅ SWEDEN Telefon: 0278-40500 Telefax: 0278-41903

Nr	Ant	Ändring	Datum	Inf.	Godk.

För ej toleranssatta mått gäller:
På maskinbearbetade ytor +- IT14/2
På ej maskinbearbetade ytor +- IT17/2

Skarpa hörn och kanter
brytes ca 0,3 x 45 grader

AUTOCAD

PROJ. E

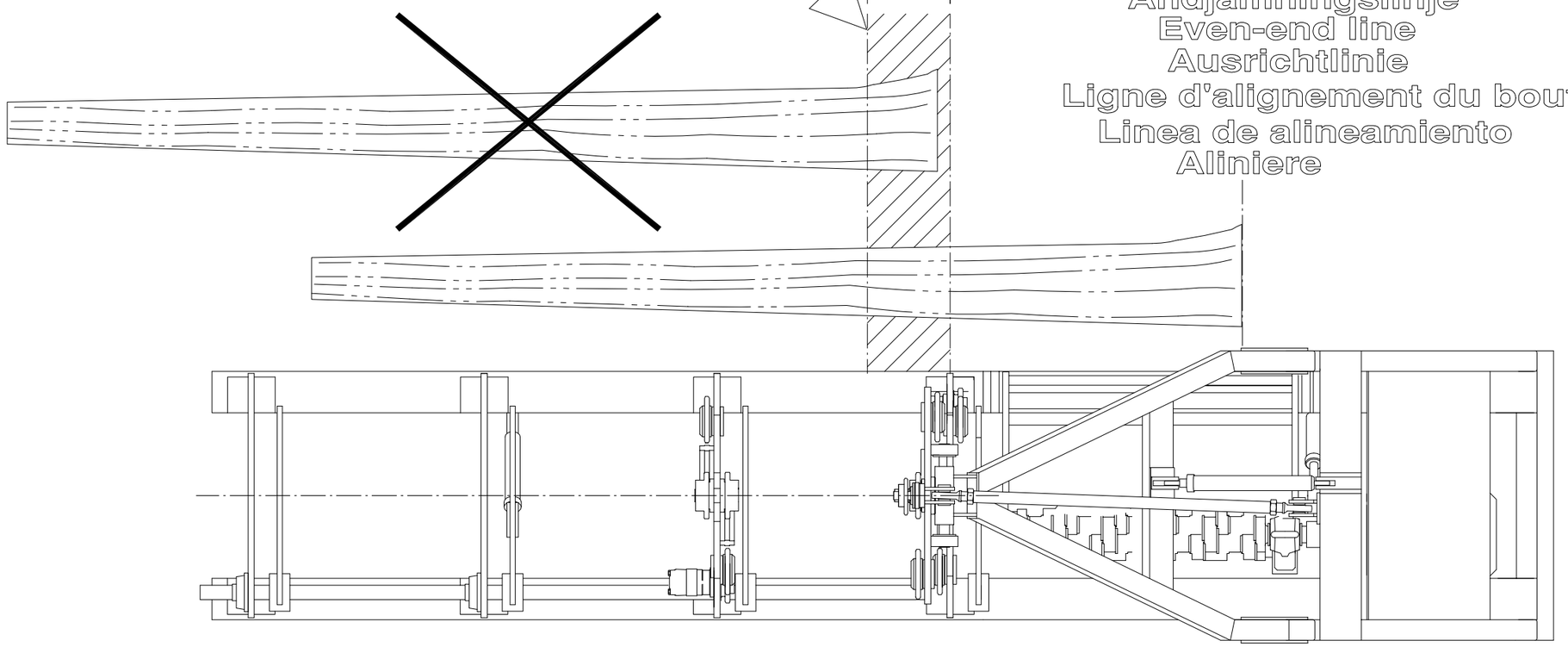
STOCKÄNDEN FÅR EJ PLACERAS INOM MARKERAT OMRÅDE!
LOG-END IS NOT TO BE PLACED WITHIN MARKED AREA!
DER ERDENDE DARF NICHT IM MARKIERTEN GEBIET PLACIERT WERDEN!
DÉFENDU DE PLACER LE BOUT DANS LA ZONE MARQUEE ´
EL FINAL DE TRONCO NO PUEDE COLOCARSE DENTRO DEL AREA MARCADO
Capatul busteanului nu poate fi plasat în zona marcata!

Fara!
Danger!
Gefahr!
Danger!
¡Peligro!
Pericol!

1210 - RR 300
1435 - RR 600
1120 - RR 800
1435 - RR 1200
1415 - RR 1400
1415 - RR 2000

400

Ändjämningslinje
Even-end line
Ausrichtlinie
Ligne d'alignement du bout
Linea de alineamiento
Aliniere



Ant.	Ant.	Det.nr	Benämning/beteckning	SIS	Art./ritn.nr
80	00		Rotreducerare Réducteur de souches Butt-end reducer Reductor de extremos de troncos Erdendenreduzierer		

Ändjämning Alignement du bout de tronc
Even-end alignment Alineamiento uniforme
Stammausrichtung

Skala

Ritad JJ | Dat. 94-11-22

Konstr. | Godk.

Ersätter | Filnamn

Ersatt av | Urspr.

BRUKS ARBRÅ SWEDEN Telefon: 0278-40500 Telefax: 0278-41903

Ritn.nr 311669

Nr	Ant	Ändring	Datum	Inf.	Godk.

För ej toleranssatta mått gäller:
På maskinbearbetade ytor +- IT14/2
På ej maskinbearbetade ytor +- IT17/2

Skarpa hörn och kanter brytes ca 0,3 x 45 grader

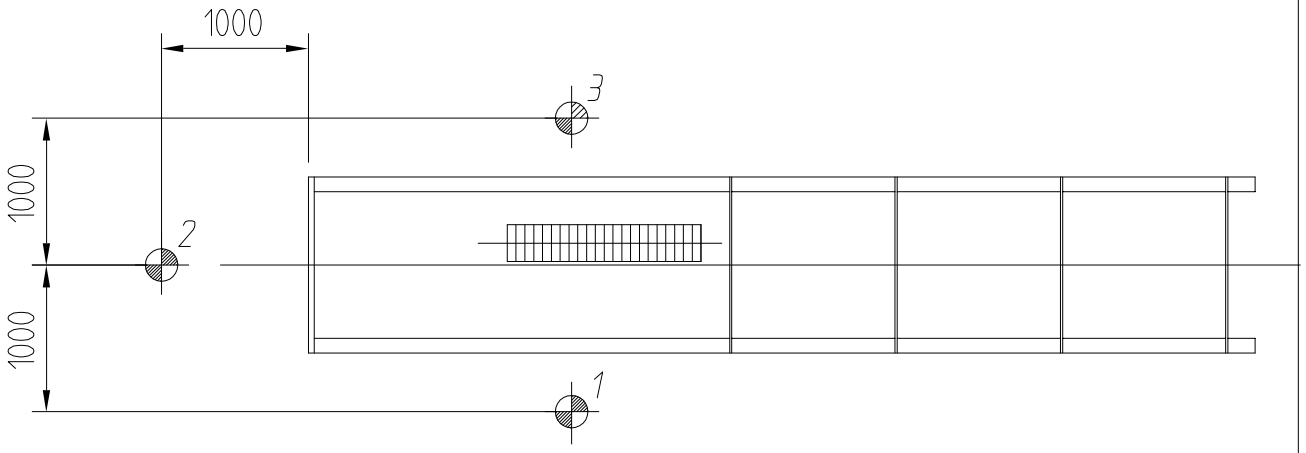
AUTOCAD

PROJ. E

Plats/Site/Ort/Lugar:	SCA Timber Tunadals Sågverk
Mätinstrument/Measurement instrument Messgerät/Instrumentos de medicion:	Brüel & Kjaer 2218, 2225
Mäthöjd/Measuring height Messhöhe/Altura de la medicion:	1600 mm
Datum/Date/Datum/Fecha:	1994-02-21

Fruset virke
Frozen timber
Gefrierholz

Mätningen utförd av: Measurement done by: Messung ausgeführt von: Medidas facilitadas por:	Arbetsmiljöutveckling AB Norra Kilaforsvägen 83 S-821 30 Bollnäs S-821 30 Bollnäs



Mätpunkt Measurepoint Messpunkt Punto medido	Max ljudtrycksnivå Max noise level Max Lärmniveau Nivel de ruidos maximo	
1	87 dBA	(Tomgång/No-load/Leerlauf/Sin carga)
1	107 dBA	(Reducering/Reducing/Reduzierung/Reduciendo)
2	83 dBA	(Tomgång/No-load/Leerlauf/Sin carga)
2	102 dBA	(Reducering/Reducing/Reduzierung/Reduciendo)
3	87 dBA	(Tomgång/No-load/Leerlauf/Sin carga)
3	107 dBA	(Reducering/Reducing/Reduzierung/Reduciendo)

Ant.	Ant.	Det.nr	Benämning/beteckning	SIS	Art./ritn.nr
80	00		RR 2000 Bullernivåmätning Noise level measurement Geräuschpegelmessung Meicion del nivel de ruido		

Skala	
Ritad JJN	Dat. 960117
Konstr.	Godk.
Ersätter	Filnamn
Ersatt av	Urspr.
Ritn.nr 410961	

BRUKS ARBRÅ SWEDEN Telefon: 0278–642500 Telefax: 0278–642540