BAUER

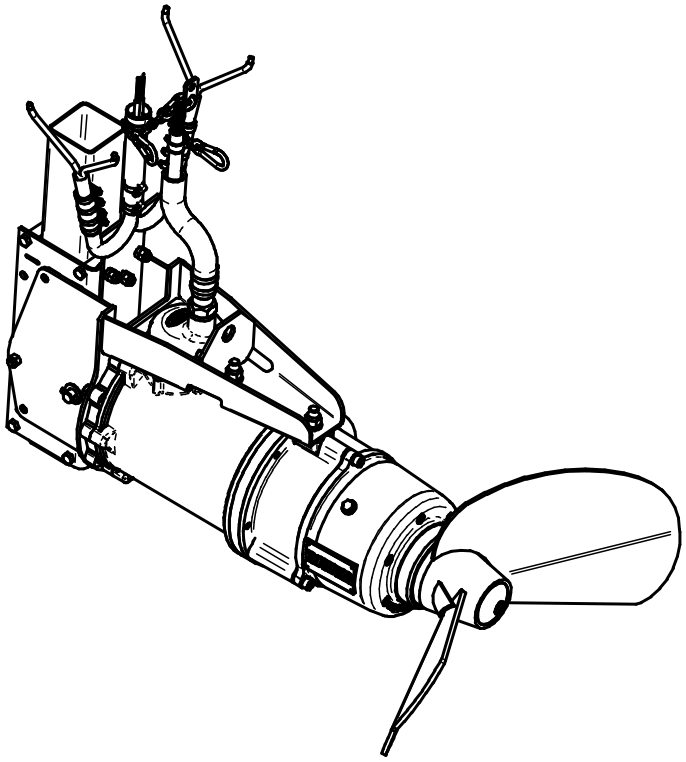
FOR A GREEN WORLD

OPERATING MANUAL

for

Submersible Motor Mixer

MSXH



Version: I - 2013

Submersible Motor Mixer MSXH E

Introduction

Thank you very much for purchasing a BAUER submersible motor mixer!

We take pleasure in presenting to you a **BAUER submersible motor mixer** that features state-of-the-art technology and top quality. This manual describes how to operate and maintain your **BAUER submersible motor mixer**. For reasons of clarity and due to the many options, this manual does not contain everything down to the last detail. In particular, it cannot possibly deal with every conceivable aspect of operation and maintenance. If you need further information or if you are faced with any special problem for which this manual does not give sufficient details, please do not hesitate to contact **BAUER company** at Kowaldstraße 2, A-8570 Voitsberg for the information you need.
Please note that the contents of this operating manual do neither form part of nor alter in any way any previous or existing agreement, promise or legal relationship. Commitments on the part of **BAUER** are based solely on the respective purchase contract, which also contains the complete and only valid warranty arrangement. Said contractual terms of warranty are neither extended nor limited by the contents of the present operating manual.
All information contained in the present manual is based on the latest product details available at the time of printing.
BAUER reserves the right to change without notice, without assuming any liability!
BAUER submersible motor mixers are designed for safe and reliable performance provided they are operated in compliance with the present operating manual. In spite of the simplicity of the mixer we therefore request that you read this manual carefully before putting your **BAUER submersible motor mixer** into operation! All instructions given for handling, operating and servicing the mixer must be strictly observed. On condition that these instructions are followed the mixer will operate trouble-free to your full satisfaction for many years!
Non-observance of our instructions may cause personal injury or damage to the equipment!

This operating manual is considered an integral part of the submersible motor mixer. Suppliers of new and used submersible motor mixers are advised to put down in writing that this manual was handed over together with the mixer.

Please make this manual available to your operating personnel. You are kindly requested to state the mixer type and serial number of the submersible motor mixer in all inquiries, correspondence, warranty problems or parts orders. These details are specified on the nameplate.

We hope you will enjoy working with your BAUER submersible motor mixer!

PRODUCT DETAILS

Type designation: Submersible motor mixer

Type number: MSXH

Serial number[1] : _____

Dealer: Name: _____

Address: _____

_____

Tel./Fax: _____

Date of delivery: _____

Manufacturer:

Röhren- und Pumpenwerk BAUER Ges.m.b.H.
Kowaldstr. 2
A - 8570 Voitsberg
Tel.: +43 3142 200 - 0
Fax: +43 3142 200 –320 /-340
e-mail: sales@bauer-at.com
www.bauer-at.com

Owner or operator: Name: _____

Address: _____

_____

Tel. / Fax: _____

Note: Please make a note of the type and serial number of your submersible motor mixer and its accessories! Be sure to specify these details every time you contact your dealer.

[1] In all warranty claims and correspondence relating to this machine it is essential to specify the complete serial number group including all letters. This applies to the machine itself and to any components involved. We cannot emphasise this point often enough.

General safety instructions

Symbols and terms

The CE symbol that has to be affixed on the machine by the manufacturer outwardly demonstrates compliance of the machine with the directives for machines and other relevant EU directives.

WARNING!	This "Warning" symbol refers to important safety instructions in this manual. Whenever you see this symbol be aware of possible injury hazards. Read the note following the symbol very carefully and inform the other operators accordingly.

CAUTION !	Non-observance of this instruction may cause damage to or destroy the machine or individual components.

NOTE	It is important to observe this note or condition!

	This symbol is a "WARNING from dangerous voltage" NON-OBSERVANCE may cause electric shock with harmful or even fatal consequences for the operator.

Qualified operators are persons who on account of their training, experience and instruction as well as their knowledge of relevant standards, rules, precautions to be taken for accident prevention and operating conditions, have been authorised by the person in charge of plant safety to perform the individual tasks required, and in doing so are able to recognise and avoid potential hazards. Among other things, knowledge of first-aid procedures is also required.

Product liability

As defined by the product liability law every farmer is also an entrepreneur!

According to §9 PHG (Product Liability Law), liability for damage to corporal things caused by defective products is expressly excluded. This exclusion of liability also applies to parts not manufactured by BAUER itself but purchased from external suppliers.

Non-conforming use will make expire the validity of the conformity certificate.

Duty to furnish information

Even if the customer passes on the machine later-on he is obliged to hand the operating manual on to the new receiver too. The receiver of the machine must be instructed with reference to the mentioned regulations.

Intended Use

- BAUER submersible motor mixers are built exclusively for normal use in agricultural applications, industrial facilities and biogas plants (intended use).
- Any use beyond such normal use is considered non-conforming. The manufacturer is not liable for damage resulting from such non-conforming use, the sole liability for damage from non-conforming use lies with the user.
- Intended use also includes compliance with the manufacturer's operating, maintenance and service instructions.
- The manufacturer's operating and maintenance instructions do not regard local security provisions.
- The BAUER submersible motor mixer may be used and operated only by persons who are familiar with the device and aware of the hazards involved.
- All rules relevant for accident prevention as well as any other generally valid specifications and regulations relating to safety, work medicine and traffic law must be strictly observed.
- Unauthorised modification of the machine releases the manufacturer from liability for damage resulting there from.

Index

1 GENERAL INSTRUCTIONS FOR SAFETY AND ACCIDENT PREVENTION

Check the machine for operational safety before every start-up.

1. In addition to the instructions contained in this manual, all specifications generally valid for safety and accident prevention must be observed, for instance when working in biogas plants: safety regulations for biogas plants!
2. The warning and instruction signs affixed to the machine give very important instructions for safe operation. Observing them serves your own personal safety!
3. Never put the machine into operation unless all guards and safety devices are completely mounted and in their proper working position!
4. Acquaint yourself with all equipment components and controls as well as their respective functions before starting to work. It is too late when the device is already running!
5. The operator's clothes should fit tightly. Avoid wearing loose clothes!
6. When handling slurry always keep in mind that the gasses produced are highly toxic and extremely explosive in combination with oxygen. Therefore, open fires, light tests, sparking and smoking are strictly forbidden!
7. Utmost care is required with regard to gasses in slurry and dung channels at open valves to the preliminary pit, before the main pit, or at cross channels. The same applies to mixing and withdrawal points when mixers or pumps are running!
8. When handling slurry always ensure sufficient ventilation!
9. Keep the machine clean to avoid fire hazards!

Tractor-driven machines

1. Before starting inspect the area around the machine (Children) ! Make sure your view is unrestricted!
2. Riding on the machine during transport is forbidden!
3. Couple the machine according to instructions and fasten it only at the specified points!
4. Be especially careful when coupling the machine to the tractor or uncoupling it!
5. Always adjust the supports in the proper position when coupling or uncoupling the machine (stability)!
6. Always mount balancing weights properly at the points provided!
7. Observe restrictions pertaining to axle load, total weight, and transport dimensions!
8. Inspect and mount all items required for transport such as lighting, warning signals and possible safety devices!

9. Mounted or trailed machines as well as balancing weights influence road behaviour, steering and braking capacity. Therefore make sure that proper steering and braking are possible!
10. Consider the projection and/or centrifugal mass of the machine when driving in curves!
11. It is forbidden to stay in the working range of the machine while it is operating !
12. Keep out of the turning and swivelling range of the machine!
13. Only operate hinged hydraulic frames when nobody is in the swivel range!
14. Externally powered machines (e.g. hydraulic) bear a crushing and shearing hazard!
15. Nobody is allowed between the tractor and the implement unless the tractor is secured by the parking brake and /or by wheel chocks
16. Hinged supports must always be folded up and secured before driving away!
17. Secure the machine and the tractor against rolling!

Tractor-mounted machines:

1. Before a machine is linked to or detached from the three-point linkage, the control device must be shifted to a position in which unintentional lifting or lowering is impossible!
2. When using the three-point linkage the linkage parameters of both tractor and attached machine must correspond, if not, they have to be matched accordingly!
3. The three-point linkage bears crushing and shearing hazards!
4. When operating the external control of the three-point linkage never step in-between tractor and the machine!
5. When the machine is in the transport position always make sure that the tractor's links are always properly secured on the sides.
6. When driving on the road with the machine lifted the control lever must be locked against lowering!

Trailed machines

1. When a machine is coupled to the draw bar make sure that the coupling point provides sufficient flexibility!

Power take-off (applies only to PTO driven machines)

1. It is not allowed to use any other types of PTO drive shafts except those prescribed by the manufacturer!
2. Drive shaft guard tube and guard cone as well as the PTO guard – also on the machine side - must be mounted and in good working order!
3. When using a PTO drive shaft always observe the specified overlap in transport and working position!
4. Never connect or disconnect the PTO drive shaft unless the PTO is stopped, the engine turned off, and the ignition key pulled out!
5. Make sure the drive shaft is always connected and secured properly!
6. Attach safety chain to keep the drive shaft guard from rotating with the shaft!
7. Before you turn on the PTO make sure that the selected tractor PTO speed corresponds with the permissible implement speed!
8. Before starting the PTO make sure that nobody is standing in the danger zone of the machine!
9. Never turn on the PTO when the engine is turned off or during a transport drive!
10. When working with the PTO nobody is allowed near the turning PTO or drive shaft!
11. Warning! The PTO shaft may continue turning due to its centrifugal mass after the PTO has been turned off! Keep clear of the machine during this time and do not touch until the PTO shaft stands absolutely still!
12. For cleaning, greasing, or adjusting the PTO driven implement or drive shaft, PTO and engine must be switched off and the ignition key pulled out!
13. Place the disconnected drive shaft on the provided support!
14. When drive shaft has been removed put the guard on the PTO shaft!
15. If a defect occurs repair it immediately before starting to work with the machine!

Hydraulic system

1. Hydraulic system is under high pressure!
2. When connecting hydraulic cylinders and motors, make sure the hydraulic hoses are connected as specified!
3. Before coupling the hydraulic hoses with the tractor's hydraulic system make sure that the entire hydraulic system is pressureless both on the tractor and implement side !
4. Inspect the hydraulic lines at regular intervals and replace them immediately in case of defects or aging. Replaced hoses must comply with the technical specifications of the implement manufacturer!
5. When looking for leaks use only suitable equipment because of the injury hazard involved!
6. Liquids emerging under high pressure (hydraulic oil) may penetrate the skin and cause serious injuries! An injured person must see a doctor immediately! Danger of infection!
7. Before working on the hydraulic system the machine must be lowered, the system depressurised and the engine turned off!

Electric-driven implements

1. All work beyond normal maintenance of the implement should be performed only by a professional electrician!
2. Defective or broken plugs and sockets must be replaced by a professional electrician!
3. Never pull a plug out of the socket at the flexible electric cord!
4. Extension cables for power supply should be used only temporarily! Never use such lines permanently as a substitute for the required fixed installations!
5. Flexible lines laid across traffic areas on the farm must have at least 5 m ground clearance!
6. Always turn off the power supply before you do any work on the machine!
7. Check all electric lines for visible defects before you put the machine into operation! Replace defective cables and do not start the machine before that!
8. Never use electric-driven implements in damp locations or locations exposed to fire hazard unless the machines have been adequately protected against moisture and dust!
9. Covering electric motors may cause heat concentration with high temperatures which could destroy the operating equipment and cause fires!

Hand-operated devices (valves)

1. Because of the slurry gasses produced in the lines, no slurry is allowed to remain in closed pipelines – bursting hazard!
2. Lay the pipelines with sufficient inclination and make sure that the selected closing order of valves allows all lines to be drained completely!
3. Protect the valves against unauthorised handling!
4. If a valve gets jammed do not apply force! Use only the operating levers supplied with the implement!
5. Observe the permissible maximum operating pressure of valves and pipelines when pumps are operated!
6. Service only when the tanks are empty!

Maintenance

1. Never perform any maintenance, service, cleaning or repair work unless the drive is turned off and the engine is standing still!
2. Check proper fit of all nuts and bolts regularly and tighten them, if necessary.
3. If maintenance work is required on the lifted machine always secure it by means of appropriate supports!
4. When exchanging tools with cutting edges always use proper tools and wear safe protective gloves.
5. Dispose of oil, grease and filters according to local laws and regulations!
6. Always turn off power before working on the electric system (safety regulations according to ÖVE EN 50110-1).
7. Spare parts must meet manufacturer's minimum technical specifications! This is the case for instance with original spare parts!

2 GENERAL

BAUER products are designed and manufactured carefully and subject to a system of continuous quality control. The submersible motor mixers fully meet the requirements of the agricultural practice and of biogas plants. They are best suited for homogenizing all kinds of slurries from thin liquid manure to viscous mixtures containing solids such as straw, fibres or clots. Short set-up times, easy handling and maximum performance reliability are further advantages of this mixer series. Mixer drive is electric by means of a three-phase submersible motor.

Before turning on a submersible motor mixer make sure net voltage complies with the data on the nameplate.

In order to be able to work efficiently with the maintenance-friendly submersible motor mixer it is helpful to operate it in connection with a hoisting device.

Although the mixer is simple in design you should study this manual carefully and strictly observe all operating and service instructions contained. On this condition your motor mixer will operate to your full satisfaction for many years!

Make this manual available to all operators handling the equipment. Serial number and mixer type are stamped into the nameplate. Please specify these data in your inquiries, correspondence, warranty matters and parts orders. We warrant for this pump according to our General Terms of Sale.

3 DESCRIPTION

The submersible motor mixer consists of a three-phase submersible motor with connecting cable, oil chamber, the planetary gear drive and the propeller. The electric motor has an output of 7.5, 11 or 15 kW, depending on the respective model.

The motor is equipped with PTC thermistor detectors to protect it from overheating. Yet the motor protection will only be effective if the motor connecting cable is linked up not only with a star-delta starter but also with a suitable thermistor tripping device.
Thus the motor is protected from phase failure, undervoltage and high thermal load.
The control box that is available as part of the motor accessories, includes not only the starting contactor but also the thermistor tripping device. The red warning light lights up when the thermistor tripping device has responded.

NOTE!	The motor cable should be mounted to the control box only by a qualified technician. Check-up must be performed according to the wiring diagram! The wiring diagram is placed inside the control box. The control box must be tightly screwed and should preferably be installed under a roof where it is protected from the weather.

WARNING!	When connecting the system to power supply ensure the connecting cable is amply dimensioned and the turning direction of the motor is correct.

The motor is sealed by two mechanical seals mounted in series which are lubricated by the oil contained in the oil chamber. The bearing of the THREE-PHASE SUBMERSIBLE MOTOR is life-lubricated.

The submersible motor mixer MSXH is equipped with a leak detector which is only effective together with a relay mounted into the control box. (see chapter Accessories - Bauer Control Unit)

4 MOUNTING INSTRUCTIONS

4.1 Mounting of guide tube and guide tube bracket

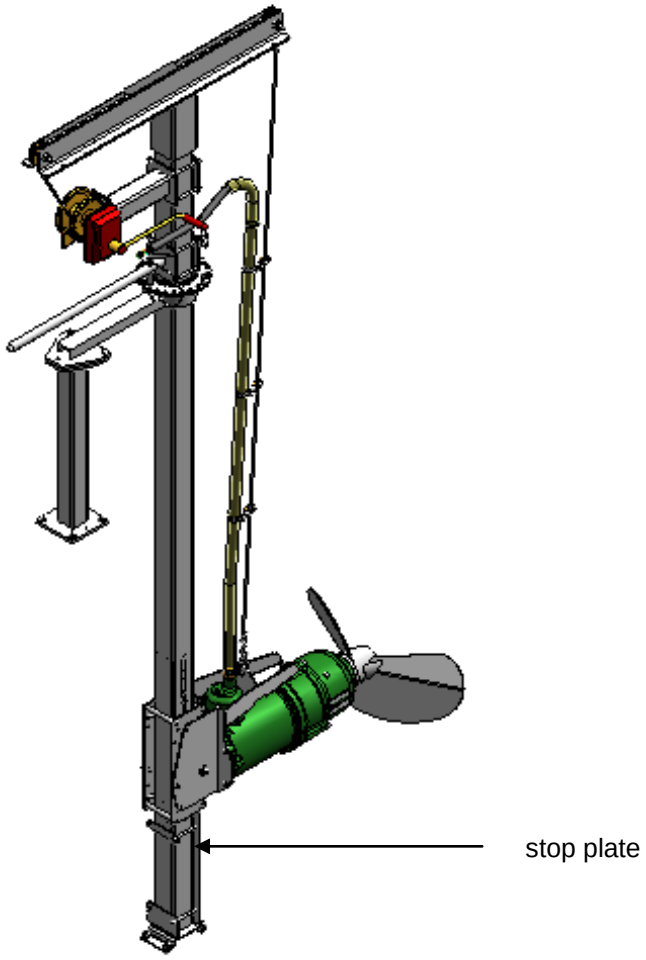
Slip the guide tube bracket over the guide tube and secure it at the silo edge / pit cover. Use a level to bring the guide tube into vertical position. Set and secure the bottom bearing accordingly. Make sure the stop plate of the bottom bearing is in front of the guide tube (beneath the mixer).

4.1.1 Reinforced Lift Pole

ATTENTION	After mounting fill up with concrete . See drawings 6171297.1 and 6179950.3 on pages 47 and 48

4.2 Mounting of cantilever arm and winch

Put the cantilever arm onto the guide tube and mount the holder for the winch and the crank with the clamping lugs according to the drawing.



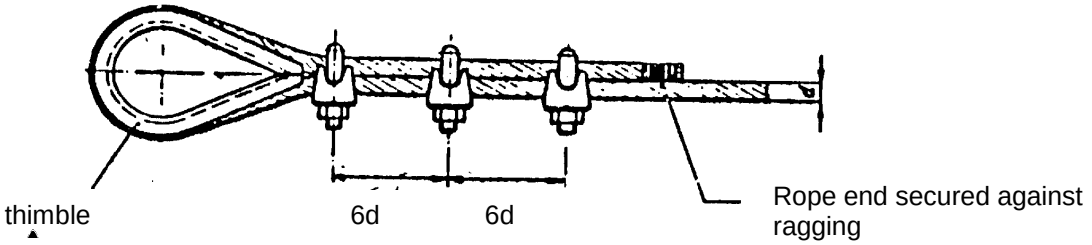
4.3 Mounting of mixer

Put the rope over the rope pulleys and attach its thimble at the mixer console. Use the winch to bring the mixer into a position under the guide tube bracket and secure the guide console at the bottom, behind the guide tube.
By changing the position of the mixer holder the mixer can be brought into a horizontal position – or it may be slightly inclined (+/-15°).

Lateral swivelling is limited by the two screw bolts affixed to the backing plate.

4.4 Mounting of rope

Wire rope clips



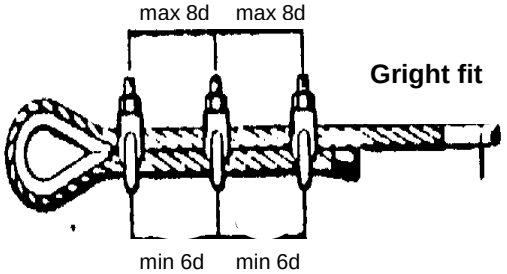
Number of wire rope clips needed for rope diameter of 8 mm: 3

Where to fix the rope clips:
First rope clip: Standard thimble: directly at the thim
Round thimble: twice the diameter of the thimble away from thimble

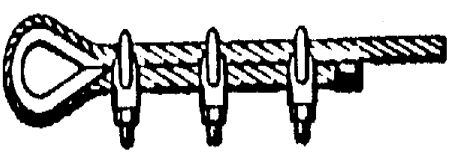
Second and third wire rope clip:
6 times the rope diameter from clip to clip (i.e. for rope diameter of 8 mm spacing between clips: about 48 mm)

Tighten rope clips after putting rope under traction.

CAUTION!	Make sure to mount the rope clamps correctly. The bracket of the clip must always be put onto the end of the rope which is not under traction.



Gright fit



Gwrong fit

5 ELECTRICAL CONNECTION

The electrical connection must imperatively be carried through by an approved electrician. The three-phase motor is protected from phase failure, low voltage and overloading by the thermal coil protection (PTC thermistors) together with the tripping device. Upon request, Bauer supplies fully wired electrical control units ready for connection. Weatherproof installation of the electrical control is recommended (inside a building or under a weather-proof hood at the manure tank).

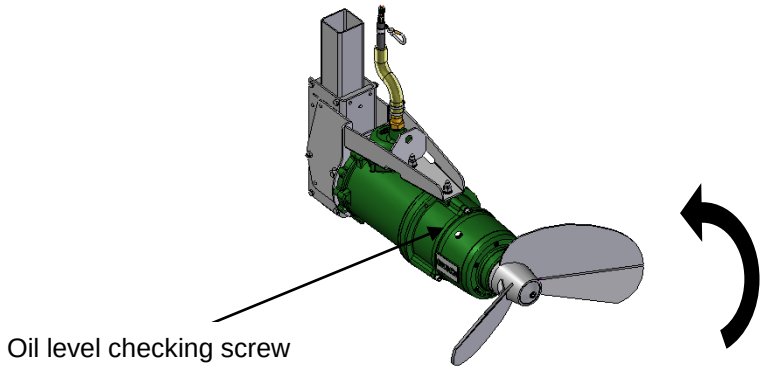
All mixers are equipped with an 8 m long electric cable (cable Ø 20 mm). The cable connection to the motor must not be dismounted!

Fix the electric cable to the traction rope by means of a stainless bolt-snap, which enables the cable to follow automatically lifting and lowering movements of the mixer. Attach the cable to the rope by means of the provided rope strap about 1 m above the upper edge of the console (see drawing) in order to prevent the cable loops from getting into the mixing propeller when lifting the mixer. Attach the upper-most bolt-snap to the backing plate. Check cable length to make sure the cable is not under traction when the mixer is completely lowered! Take care to place the cable in wide loops in order to prevent it from folding.

6 PUTTING INTO OPERATION

- When the motor mixer is put into operation for the first time make sure the supply voltage complies with the voltage specified on the motor nameplate.
- Before connecting the motor check the phase sequence for the turning direction of the motor.
- The motor mixer must work thrustwise.
- When looking onto the propeller it must turn anti clock wise!
- Never put the mixer into operation before having submerged it into the slurry.
- When connecting the motor strictly observe all regulations concerning electrical equipment as well as the instructions of the motor manufacturer (e.g. motor protection switch, possible locking of circuit breaker).
- Check setting of motor protection switch, see 018 2565.4, page 38

WARNING ! Check oil level in planetary gear before starting the machine! (Quality and quantity of oil see Technical Data).



- Bring submersible motor mixer in a horizontal position.
- Open oil level checking screw.
- Oil level must reach rim.

When the mixer has been set correctly and the leak detector has been activated, power supply will be turned off by the tripping device whenever the gear oil is polluted because of a defective seal.

6.1 Manual Operation

6.1.1 Control Box Components

Three contactors with timer for star-delta starting

Motor protection devices**:**

- Motor protective relay for current monitoring
- Thermistor tripping relay for temperature monitoring

6.1.2 Controls

Green key for motor start
Red key for motor shut-off

6.1.3 Connections

Power supply by means of 5-pole connecting cable directly attached to ingoing terminals.

Motor connected to terminal strip in control box

Warning:
Electrical connections to be made by approved eldctricians only!

Before tunring power supply on check tight fit of all screws and terminals.

Fuse protection of power supply see Technical Date page 36

6.1.4 Settings

Timer for star-delta changeover : approx. 3 seconds
Motor protective relay: IN x 0.58 see drawing no. 018 2565.4 Automatic Reset

6.1.5 Operation

- Press green key: the motor starts up and changes automatically from “star” to “delta” after about 3 seconds. The light of the green key is on.

- Press red key: the motor stops.

6.1.6 Malfunctions

- The red key is lighting up:
  The motor protection system has turned off the motor.
  Find the cause of the malfunction and remedy it.
  The light of the red key goes out.

- The motor cannot be started:
  Check power supply: Is main switch in position “ON”?
  Check control voltage fuse “F3”.

6.1.7 Safety instructions

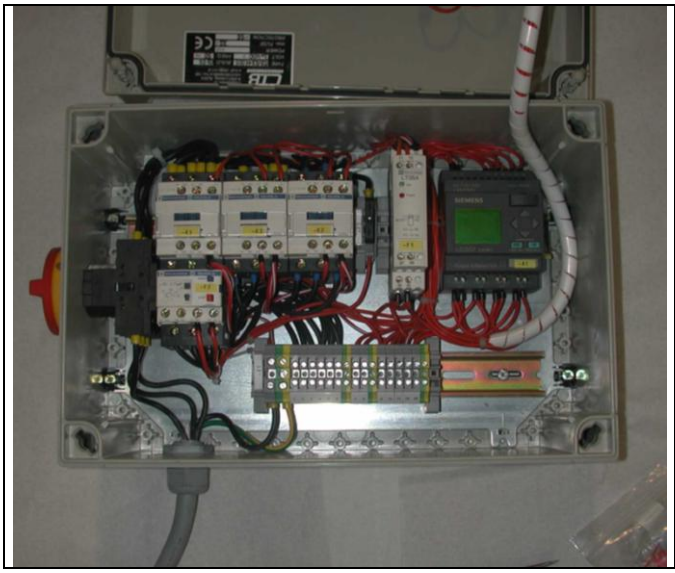
Always disconnect system from power supply before working on the starter.

6.2 INTERVAL OPERATION

6.2.1 Control Box Components

Three contactors with timer for star-delta start-up. Control unit LOGO for manual and interval operation.
Motor protection devices:

- Motor protecting relay
- Thermistor tripping relay for temperature monitoring



BAUER Control unit LOGO with timer for interval operation

Logo programming

6.2.2 Initial operation of timer logo

Before the initial operation the control panel has to be connected correctly according to the connection diagram.
Put switch „Hand 0 Intervall“ to 0.

After putting on the main switch time and date are blinking on the display

Date and time keep blinking until they are set.

Mo 15:30 2006-02-16

Setting of time and date

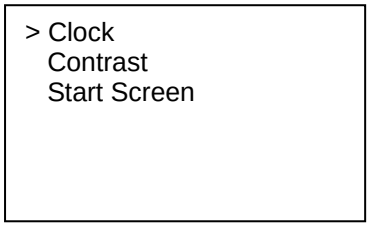
Press key ESC

The display is showing the following

> Stop Set Parameter Set Prg Name

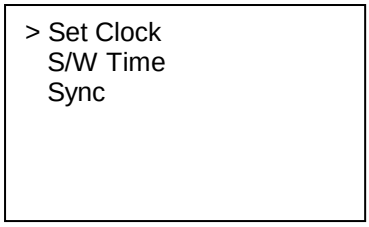
Confirm with key Cursor down ▼ (2 times), then set Cursor > to Set
Confirm with key OK (1 time)

The display is showing the following



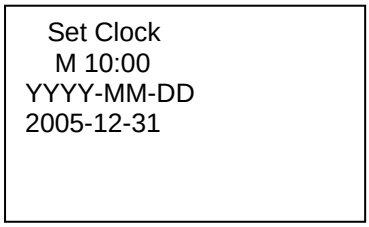
Confirm again with the key OK (1 time)

The display is showing the following



Confirm again with the key OK (1 time)

The display is showing the following



The Cursor stands blinking on weekdays

1.) Choose weekday: key ▼ or ▲
2.) Move the Cursor: key ◄ or ►
3.) Change the value in place: key ▼ or ▲
4.) Set the right time, repeat steps 2 and 3
5.) Set the correct date, repeat steps 2 and 3
6.) Confirm with key OK

Press the key ESC for returning to the main window

Date and time

B 9 Weekly clock timer

Every weekly clock timer has three cams for adjusting (B9 / 1,2,3), where you can parameterize a time window. Set the switching point and the stop position with the cams. The weekly timer puts on the interval operation at the switching point and off at the stop position.

Timing point:

Every time between 00:00 and 23:59 o´clock possible

--:-- means week day not chosen

Parameterizing window

This is how the parameterizing window B9/1 looks like (factory setting)

```
B9                    1
D  =MTWTFSS
On   = 22:00
Off   = 04:00
```

The letters behind the letter D (for day) refer to the weekdays

M : Monday
T : Tuesday
W: Wednesday
T : Thursday
F : Friday
S : Saturday
S : Sunday

The capital letter means: weekday chosen
ON – means weekday not chosen

B 9 Setting of weekly timer

This is how to enter timing points:

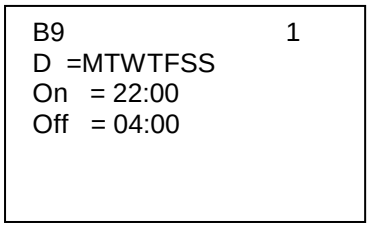
Press key ESC

The display is showing the following

```
>Stop
  Set Param
  Set
  Prg Name
```

Confirm with key ▼ and choose „Set Param“ and confirm with key OK

The display is showing the following



1.) Press key OK; the cursor is on the first weekday
2.) Choose one or more weekdays with the keys ▼ or ▲
3.) Move the cursor with the key ► to the next weekday
4.) Repeat the procedure until you have programmed all days
5.) Move the cursor with the key ► to the first position for the switching point
6.) Set the turn-on time
7.) Change the value at the position with the keys ▼ or ▲
8.) Between the positions move the cursor with the keys ◄and ►
9.) Move the cursor with the key ► to the first position of the stop time
10.) Set the stop time as described in steps 6-8.

Confirm entries with the key OK

You get to the next cams B9/2 and B9/3 with the key ▼

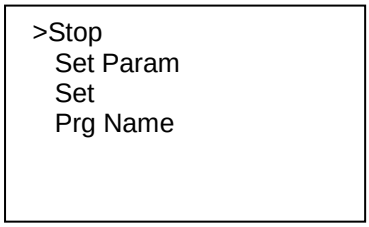
Confirm entries by pressing the key OK and then the key ESC 2 times.

In this way you return to the main menu

B 11 Setting of interval operation

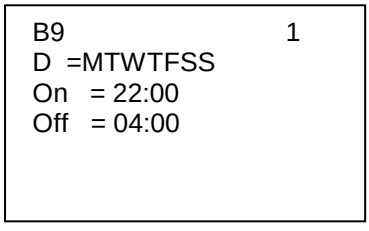
Press key ESC

The display is showing the following



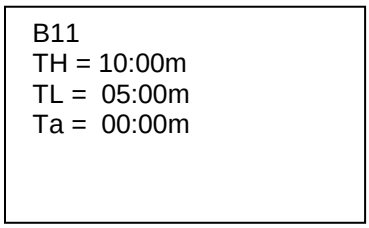
Confirm with the key ▼, choose „Set Param“ and confirm with the key OK

The display is showing the following



Press 4 times the key ▼

The display is showing the following



You can set the mixing times and pauses in the parameter B11

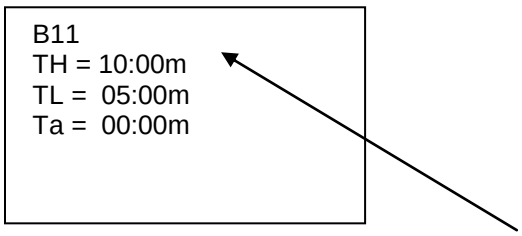
TH = mixing time
TL = pause
Ta = displays the present mixing times and pauses

Factory setting
TH = 10:00m
TL = 05:00m
Ta = 00:00m

Attention: if the weekly timer has not been programmed the interval tie is not working

Press the key OK; the cursor moves to TH and stands there blinking
Set the mixing time with the key ▼ or ▲ (example 10 m)
Move the cursor to the next position with the key ►
Set the mixing time with the key ▼ or ▲ (example 00 s)

Change to time period with the key ►



Set the time period with the key ▼ or ▲: s,m,h

s seconds
m minutes
h hours

Press the key ▼ and set duration of pause
Set duration of pause with the keys ▼ or ▲ (example: 05 m)
Move the cursor th the next position ►
Set duration of pause with the keys ▼ or ▲ (example: 00 s)

Confirm the entry with the key OK
Press 2 times ESC for returning to the main menu

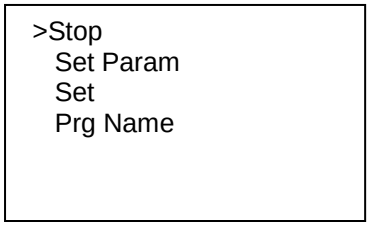
B 17 Operating hour meter

The current operating hours are shown on the display
There is no need to set anything

See operating hours :

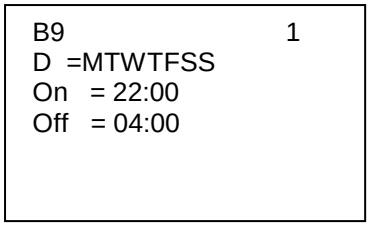
Press key ESC

The display is showing the following



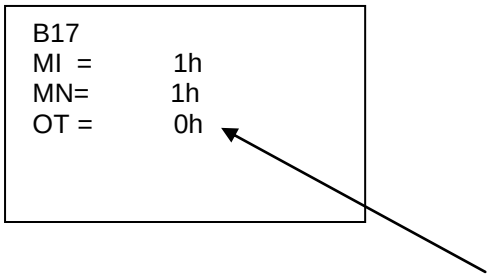
Confirm with key ▼ , choose „Set Param“ and confirm with key OK

The display is showing the following



Confirm 3 times with the key ▼

The display is showing the following



OT displays the consumed operating hours
Do not change parameter MI and MN !!
Press 2 times ESC for returning to the main menu

6.3 INTERVAL OPERATION AND LEVEL CONTROL for EXPLOSIVE ENVIRONMENT

Examinated according to Certificate TÜV 03 ATEX 2098 X

ATTENTION: Electrical equipment which is to be used in potentially explosive atmosphere must imperatively be designed, executed and its installation carried through by approved and licensed firms.

Attention : Be sure to mount the control unit always outside the potentially explosive atmosphere.

6.3.1 Control Box Components

Three contactors for star-delta start-up. Control unit LOGO for interval operation.
Motor protection devices:

- Motor protective relay for current monitoring
- Thermistor tripping relay for temperature monitoring

Gear box protection devices

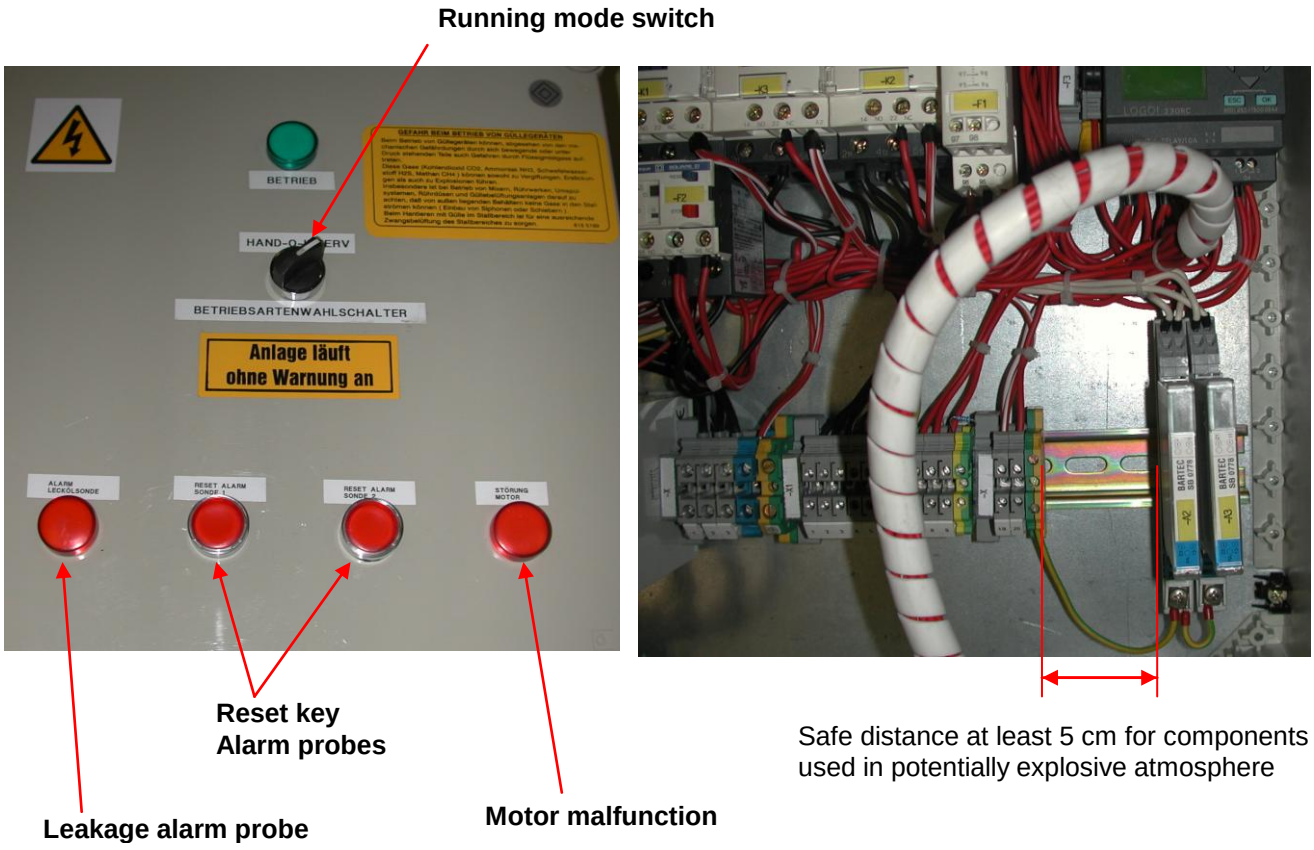
- Leak detector for detecting leakages in planetary gear drive

Safety devices for explosive environment

- Electronic monitoring equipment for level control

Interval operation

- Siemens LOGO 230RC



6.3.2 Control elements

Main switch red for power supply
Turn-switch black for manual or interval operation
Reset key red for probe 1
Reset key red for probe 2

Main switch ⟶

6.3.3 Connections

Power supply by means of 5-pole connecting cable directly attached to ingoing terminal.

Mixer connected to terminal strip in control box.

Warning:
Electrical connections must be carried through by approved eldctricians only!

Before tunring power supply on check tight fit of all screws and terminals.

Fuse protection of power supply see Technical Data

6.3.4 Settings

Motor protecting relay: see drawing no.: 018 2565.4 automatic reset (see page 38)

Interval operating: **Programming by means of control unit LOGO see 6.2**

6.3.5 Start-up

Put main switch to position 1

Put turn switch to position “manual operation” and wait for about 5 sec until LOGO is ready to work.

The motor is starting up and after about 3 sec it is changed over from “Star” to “Delta”.

The green light is on.

As long as the probes are submerged the motor is running continuously.

Put turn switch to position „O″. The motor stops.

Put turn switch to position „interval operation”.

The motor is running in interval operating mode according to programming.

Factory setting: from 10 o’clock p.m. to 04 o’clock a.m.

Interval operation**: 10 min „on” and 5 min „off”**

6.3.6 Malfunctions

- **The red light is on: „Motor malfunction″**
    - Thermistor tripping relay has responded (motor is overheating).
    - Running mode switch is not in position “0” but in position „manual“ or „interval“ when turning the motor on or after a power breakdown.

- **The red light is blinking: „Motor malfunction”**
    - Thermistor tripping relay has responded.
    - Find the cause and remedy.
    - Red light goes out.

- **The motor cannot be started up :**
    - check power supply.
    - check control voltage fuse „ F3 ″.

ATTENTION : When running in interval operation mode the timer may be in off mode (check programming).

- Check motor function in manual operating mode

- **<u>The red light for probe 1 or 2 is on:</u>**
  (Note: tripping device RDA 02 has turned the motor off)
  - Turn the switch for mode of operation to 0
  - Press reset key for about 3 seconds
  - Red light goes out – put turn switch to the required position after 15 seconds
  - The motor is starting up again.
  - The red light **„continues lightening“**:

    Check if
    - probes are really submerged
    - the mixer is not enough submerged
    - there is a loss of fluid inside the tank
    - Adjustment of the potentiometer for transmitting the medium not correct

Remedy the cause of the malfunction

Lower the mixer until the probes are below medium surface.

Add medium.

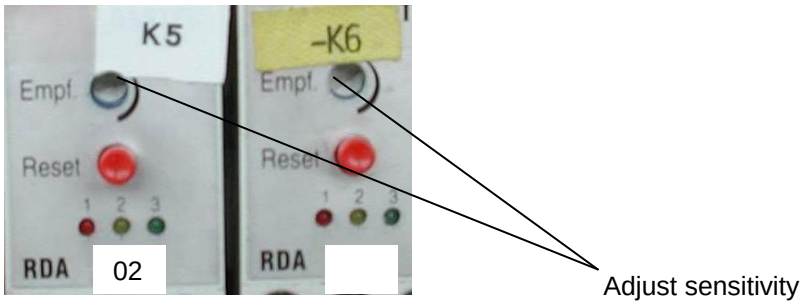
Tune the operating threshold of the potentiometer with the medium

Repeat start-up operation :

- **<u>The red light of the leak detector lights up:</u>**
  (Note: tripping device RDA 01 has turned the motor off)
  - Turn the switch for mode of operation to 0
  - Put **main switch** into position „**0**“, wait for 5 seconds, put it back to position „**1**” (power supply on)

  (This operation comes up to a reset function of the tripping device).

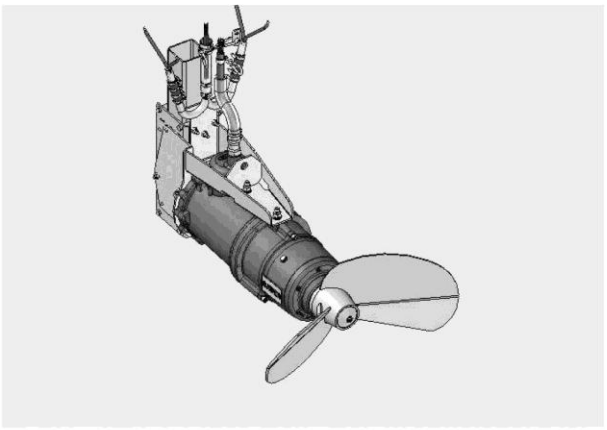
  If the light continues lightening check the mixer for leaks.



6.3.7 Safety instructions

Always shut down the power supply before working on the starter.

Leak detection



Features

- rugged design, qualified for industry application
- long life time by the use of high quality materials

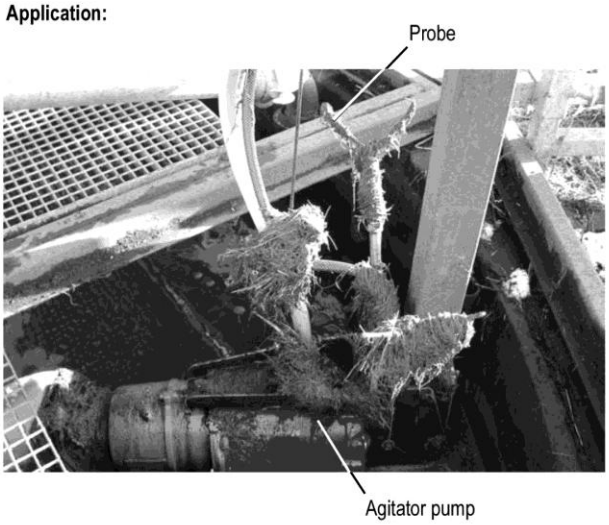
Description

The level niveau probe is using for safety deactivation of agitators inside from sludge tanks of biogas plant.

The probe essentially consists of two stainless steel electrodes, protected by a sturdy housing and a thick-walled Polyolefin shrinkable tubing. By the end of the electrodes there is 10 mm not insulated. That allows the measurement in the conductive liquid. Regarding the large electrode gap of 200 mm a functionality will be warranted. Disturbance e.g. foam formation and accrual of solids (straw) will be reduced for a minimum.

Function:
The probe will be mounted above the agitator, so that the probe will be stopped the agitator by leaving the sludge-liquid.
The status of the probe will be controlled by the monitoring device RDA 02.

Application:



Explosion protection

The probe typ 17-85M1-6436/.... in accordance with DIN EN 50020:2003-08 as simple electriacl operating equipment for zone 1 groups IIB and temperature class T4 ambient temperature max. 80°C ist designed for connection to the saftey barrier type 17-1834-8000/0778

Technical data

Dimensions
25 mm diameter
ca. 230 mm height

Electrode gap
200 mm

Ambient temperature
-20 °C bis +80 °C

Measuring principle
conductive

Materials
housing : PTFE
Electrode: 6 mm V4 A stainless steel
Electrode insulation: Polyolefin

Alarm signalled
via RDA 02 monitoring device

Connector cable
10 m H07RN-F 3x1mm²

Maximum length: 400 m
shielded cable via terminal distributor

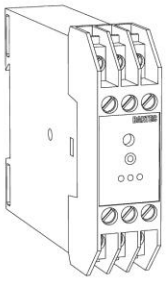
Capacity probe
$C_{max.}$ = 1,6 nF

Inductivity probe
$L_{max.}$ = 7 µH

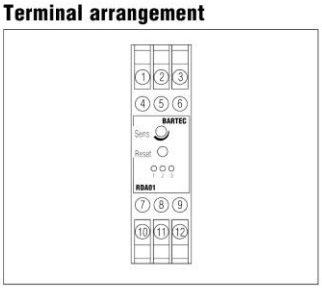
Terminating resistance
100 k Ohm

Weight
approx. 800 g

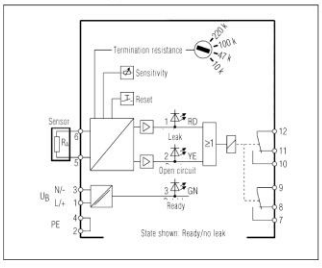
RDA Leakage detector



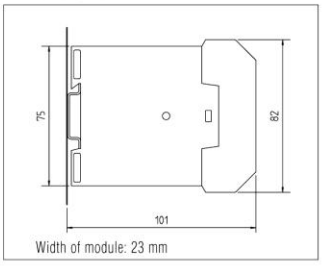
Terminal arrangement



Connection / function



Dimensions



Description

The RDA electronic evaluation unit is used with leakage detection sensors. Electro-conductive liquids of ≥ 2 µS/cm and light liquids such as oil on water can be detected. The RDA evaluates changes in resistance of the sensor. Leaks are indicated by LED buzzer and relay output. These signals remain in memory until a reset is carried out with the keypad. Probes and sensors with various termination resistances can be connected to the system for a variety of response sensitivity. A selector is available to adapt the RDA to various response sensitivities. A potentiometer is installed in the front panel of the enclosure for precision setting of detection sensitivity.

Features

- For electroconductive liquids (RDA01)
- For low density liquids on water (RDA02)
- Group alarm relay, 2 changeover contacts
- Piezo-buzzer
- Latching
- Reset button on front panel of enclosure
- Sensitivity setting
- R_A can be set
- High degree of EMC protection
- Fail safe relay tripping

Technical data

Supply voltage
AC 230 V / 50 Hz / 1,2 VA
DC 24 V ± 10 %

Ambient temperature
- 25 °C to + 60 °C

Indicators

Ready	green LED
Alarm	red LED
Open circuit	yellow LED

Output
Group alarm relay, 2 changeover contacts
AC 230 V / 0,3 A
DC 24 V / 1 A

Structure
Snap-on rail mounted enclosure for TS 35 rail IP 20, protection class II

Alarm reset
Button on front panel of enclosure

Sensitivity setting
Potentiometer on front panel of enclosure

Sensor termination resistance
settable to 10 kΩ; 47 kΩ; 100 kΩ; 220 kΩ

Sensor types
17-85M1-... / ...

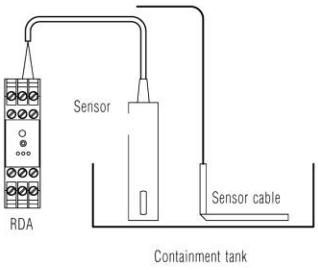
Directives / standards / approvals
89/336/EEC-EMC
73/23/EEC - Low voltage RL
Design approval Section § 19h WHG

RDA 01

Electroconductive liquids

Types:	
RDA01	17-85F4-2.22
Sensor	17-85M1-.../...

Example

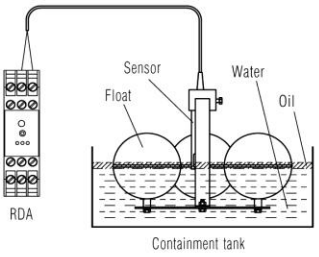


RDA 02

Low density liquids on water

Types:	
RDA02	17-85F4-2.32
Sensor	17-85M1-6456/..00
Float	17-85Z2-1000

Example



Selection chart			
Voltage	**Code**	**Detection**	**Code**
AC 230 V	**3**	RDA01 Electro-conductive liquids	**2**
DC 24 V	**4**	RDA2 Low density liquids on water	**3**

17-85F4-2 ☐☐2

Order number
Please enter code

Translation

(1) # EC-TYPE EXAMINATION CERTIFICATE

(2) Equipment or protective system intended for use in potentially explosive atmospheres **- Directive 94/9/EC**

(3) EC-Type Examination Certificate Number

TÜV 03 ATEX 2098 X

(4) Equipment: Safety Barrier
type 17-1834-0000/**** to type 17-1834-8000/****

(5) Manufacturer: Bartec GmbH

(6) Address: Max-Eyth-Straße 16
D-97980 Bad Mergentheim

(7) This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) The TÜV NORD CERT GmbH & Co. KG, TÜV CERT-Certification Body, notified body number N° 0032 in accordance with Article 9 of the Council Directive of the EC of March 23, 1994 (94/9/EC), certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential report N° 03 YEX550443.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50 014: 1997 **EN 50 020: 1994**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-type examination certificate relates only to the design, examination and tests of the specified equipment in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment or protective system must include the following:

II (1) G D [EEx ia] IIC

TÜV NORD CERT GmbH & Co. KG
TÜV CERT-Certification Body
Am TÜV 1
D-30519 Hannover
Tel.: 0511 986-1470
Fax: 0511 986-2555

Head of the Certification Body

TÜV NORD CERT

Hanover, 2003-06-23

(13) **SCHEDULE**

(14) **EC-TYPE EXAMINATION CERTIFICATE N° TÜV 03 ATEX 2098 X**

(15) Description of equipment

The safety barrier type is used for the limitation of the voltage and the current of non intrinsically safe circuits to intrinsically safe values. The intrinsically safe circuits are galvanically connected with the non intrinsically safe circuits.

The intrinsic safe circuits may also be fed into areas with dust explosion hazard, which require devices of category 1 or 2, if the connected devices meet the requirements of category 1D or 2D and have to be certified accordingly.

The maximum permissible ambient temperature is 60°C.

Electrical data

Input circuit ..... only for connection to a non intrinsically safe circuit
(Connectors 11 and 21) with a safety technical maximum voltage of
U_m = 250 V

Output circuits ..... in type of protection „Intrinsic safety" EEx ia/ib IIC
(Connectors 13, 23 and PA) resp. EEx ia/ib IIB
Characteristic line of the circuits: linear

The maximum values of voltage, current and power of the intrinsically safe circuits (U_o, I_o and P_o) and the maximum permissible values for the connected capacitances and inductances (C_o and L_o) in dependence of the type designation of the safety barrier as well have to be taken from the following tables:

DC-barriere positive/negative type 17-1834-1000/****

type 17-1834-1000/		U_o	I_o	P_o	EEx ia/ib IIC		EEx ia/ib IIB	
pos.	neg.	[V]	[mA]	[mW]	C_o[µF]	L_o[mH]	C_o[µF]	L_o[mH]
0710	1710	10	200	500	3	0,65	20,2	4
3710	4710	10	300	750	3	0,3	20,2	1,7
0715	1715	15	150	562	0,580	1,4	3,55	7
3715	4715	15	291	1091	0,580	0,24	3,55	1,8
0722	1722	22	150	825	0,165	1,4	1,14	7
3722	4722	22	213	1172	0,165	0,2	1,14	3,7
3729	4729	28	171	1197	--	--	0,65	3,6
0728	1728	28	93	651	0,083	2,1	0,65	14,6
3728	4728	28	120	840	0,070	1	0,65	7,7
0018		9,6	97	230	3,6	4	26	15
0027		20	36	180	0,22	25	1,41	100
2420	3420	27,3	208	1420	--	--	0,3	5
0613	1613	8,6	414	891	6,2	0,5	55	0,7
1206	2206	16,8	62	260	0,39	8	2,29	30
1250	2250	15	403	1510	0,58	0,3	3,55	0,8
2424		28,4	24	170	0,079	0,5	0,370	2

BA 02 04.00

Schedule EC-Type Examination Certificate N° TÜV 03 ATEX 2098 X

DC-double barrier positive/negative Typ 17-1834-4000/****

type 17-1834-4000/ pos.	neg.	U_o [V]	I_o [mA]	P_o [mW]	EEx ia/ib IIC C_o[µF]	L_o[mH]	EEx ia/ib IIB C_o[µF]	L_o[mH]
0764	1764	12/12	12/12	36/36	1,41	200	9	700
0767	1767	15/15	150/150	562/562	0,58	1,4	3,55	7
0796	1796	26/20	87/51	565/255	0,099/0,22	2,7/15	0,77/1,41	17,5/52
0779	1779	28/28	93/93	651/651	0,083	2,1	0,65	14,6
1350	2350	11,7/11,7	174/25	506/73	1,54	0,8/50	10,3	5/150
1351	2351	11,7/11,7	25/25	73/73	1,54	50	10,3	150
0768	1768	22/22	147/147	808/808	0,165	1,7	1,14	7
0788	1788	10/28	200/93	500/651	3/0,083	0,65/2,1	20,2/0,65	4/14,6
0017		5,4/5,4	10/10	13/13	65	250	1000	900
0020		15,8/15,8	190/190	750/750	0,478	0,6	2,88	4,4
3250	4250	15/15	387/387	1450/1450	0,58/0,58	1,3/1,3	3,55/3,55	0,8/0,8
4410	5410	27,3/27,3	147/147	1000/1000	--	--	0,3/0,3	5/5
4420	5420	27,3/27,3	208/208	1420/1420	--	--	0,3/0,3	5/5

The listed values are applicable to one barrier branch to be considered separately with regard to PA. In case of interconnection of the barrier branches current or voltage addition has to be observed, in which case a forward voltage of 1,8 V has to be added.

Typ 17-1834-4000/ pos.	neg.	U_o [V]	I_o [mA]	P_o [mW]	EEx ia/ib IIC C_o[µF]	L_o[mH]	EEx ia/ib IIB C_o[µF]	L_o[mH]
0030		5,9/5,9	59/59	87/87	43/43	10/10	**1000/1000**	40/40
0031		8,6/8,6	15/15	33/33	6,2/6,2	130/130	55/55	500/500

The listed values are applicable to one barrier branch to be considered separately with regard to PA. In case of interconnection of the barrier branches current or voltage addition has to be observed, in which case a forward voltage of 0.9 V has to be added.

DC-floating barrier type 17-1834-2000/****

type 17-1834-2000/	U_o [V]	I_o [mA]	P_o [mW]	EEx ia/ib IIC C_o[µF]	L_o[mH]	EEx ia/ib IIB C_o[µF]	L_o[mH]
1301	17,2	414	1612	0,36	0,4	2,11	0,7
1302	25,2	25	143	0,107	43,5	0,82	50
1303	29,4	248	1723	--	--	0,587	0,7
0021	19,1	203	970	0,254	5	1,56	4
0601	13,1	182	596	0,97	0,7	6	4,5
0023	19,1	22	106	0,254	6,5	1,56	20
2401	33,6	67	535	0,0492	1	0,230	5

BA 02 04.00

Schedule EC-Type Examination Certificate N° TÜV 03 ATEX 2098 X

DC-double barrier with one or two evaluation branches type 17-1834-5000/****

type 17-1834-5000/	U_o [V]	I_o [mA]	P_o [mW]	EEx ia/ib IIC		EEx ia/ib IIB	
				C_o[µF]	L_o[mH]	C_o[µF]	L_o[mH]
2427	26,3/26,3	300/102	115/671	0,097	0,35/1,9	0,74	1,7/11,7
2787	28/28	300/120	115/840	0,070	0,35/1	0,65	1,7/7,7
1787	28/28	93/100	651/40	0,083	2,1/4	0,65	14,6/15
0019	15,8/15,8	190/88	73/345	0,478	0,6/4,5	2,88	4,4/18

The listed values are applicable to one barrier branch to be considered separately with regard to PA. In case of interconnection of the barrier branches (Series connection) a voltage addition has to be observed, in which case a forward voltage of 1,6 V has to be added.
The listed values for the evaluation branch result in case of disturbance at wrong poling of the connected, non intrinsically safe circuit.

type 17-1834-5000/	U_o [V]	I_o [mA]	P_o [mW]	EEx ia/ib IIC		EEx i/ib IIB	
				C_o[µF]	L_o[mH]	C_o[µF]	L_o[mH]
0786	28/28	100/100	40/40	0,083	4	0,65	15

The listed values are applicable to one barrier branch to be considered separately with regard to PA. In case of interconnection of the barrier branches current or voltage addition has to be observed, in which case a forward voltage of 1,6 V has to be added.
The listed values result in case of disturbance at wrong poling of the connected, non intrinsically safe circuit.

DC-evaluation barrier type 17-1834-3000/*****

type 17-1834-3000/	U_o [V]	I_o [mA]	P_o [mW]	EEx ia/ib IIC		EEx ia/ib IIB	
				C_o[µF]	L_o[mH]	C_o[µF]	L_o[mH]
1502	16,8	330	130	0,390	0,3	2,29	1,5

The listed values result in case of disturbance at wrong poling of the connected, non intrinsically safe circuit.

AC-standard barrier type 17-1834-6000/*****

type 17-1834-6000/	U_o [V]	I_o [mA]	P_o [mW]	EEx ia/ib IIC		EEx ia/ib IIB	
				C_o[µF]	L_o[mH]	C_o[µF]	L_o[mH]
2710	10	200	500	3	0,65	20,2	4
1602	16,8	390	1638	0,39	0,8	2,29	0,9
0024	16,8	118	495	0,39	1,3	2,29	6,5
0026	6,3	225	355	31	0,5	720	3
0028	20,1	258	1300	0,772	0,2	1,39	3,3
0029	20,1	106	532	0,772	3,2	1,39	12
1203	27,1	66	449	0,085	1	0,4	5

BA 02 04.00

Schedule EC-Type Examination Certificate N° TÜV 03 ATEX 2098 X

Universal barrier type 17-1834-8000/****

type 17-1834-8000/	U_o [V]	I_o [mA]	P_o [mW]	EEx ia/ib IIC		EEx ia/ib IIB	
				C_o[µF]	L_o[mH]	C_o[µF]	L_o[mH]
0760	10/10	200/200	500/500	3	0,65	20,2	4
0765	15/15	150/150	563/563	0,58	1,4	3,55	7
0772	22/22	73/73	402	0,165	7	1,14	25
0778	28/28	47/47	329/329	0,083	10,5	0,65	50

The listed values are applicable to one barrier branch to be considered separately with regard to PA. In case of interconnection of the barrier branches a current addition has to be observed.

AC-double barrier type 17-1834-7000/*****

type 17-1834-7000/	U_o [V]	I_o [mA]	P_o [mW]	EEx ia/ib IIC		EEx ia/ib IIB	
				C_o[µF]	L_o[mH]	C_o[µF]	L_o[mH]
0761	9/9	100/100	225/225	4,9	3,5	40	14
1761	9/9	25/25	56/56	4,9	40	40	200
2764	12/12	12/12	36/36	1,41	200	9	700
0766	12/12	80/80	240/240	1,41	6	9	22
0201	5,3/5,3	178/178	236/236	71	0,8	1000	4,5
1766	12/12	160/160	480/480	1,41	1	9	6
0014	9,5/9,5	6/6	14/14	3,7	900	27	1000
0015	7,4/7,4	118/118	220/220	11,9	2,3	195	10
0016	8,8/8,8	98/98	215/215	5,5	4	46	15
0022	4,4/4,4	6/6	6/6	100/100	600/600	1000/1000	1000/1000
0751	5/5	990/990	1240/1240	4/4	0,095/0,095	16/16	0,38/0,38
0305	4,4/4,4	11/11	12/12	100	250	1000	1000

The listed values are applicable to one barrier branch to be considered separately with regard to PA. In case of interconnection of the barrier branches current or voltage addition have to be observed.

Supply barrier type 17-1834-0000/****

Output circuits ..... in type of protection „Intrinsic safety" EEx ia/ib IIC
(Connectors 13, 23 and PA) resp. EEx ia/ib IIB
Characteristic line of the circuits: trapezoidal

type 17-1834-0000/	U_o [V]	I_o [mA]	R_i [Ω]	P_o [mW]	EEx ia/ib IIC		EEx ia/ib IIB	
					C_o[µF]	L_o[mH]	C_o[µF]	L_o[mH]
0604	6,5	246	74	1040	0,5	1	1	5

BA 02 04.00

Schedule EC-Type Examination Certificate N° TÜV 03 ATEX 2098 X

(16) Test documents are listed in the test report No. 03YEX550443.

(17) Special conditions for safe use

1. The PA terminal has to be connected with the potential compensation of the explosion hazardous area.
2. Since the intrinsically safe circuits are galvanically connected with the earth potential, potential compensation has to exist in the complete course of the erection of the intrinsically safe circuits.
3. It has to be guaranteed, that only parts of the safety barrier belonging together (Upper part of the barrier and socket) are mounted.
4. The intrinsically safe circuits of the AC-double barrier type 17-1834-7000/0751 have to be erected in such way, that the requirements of table 1 of EN 50 020:1994 are met.

(18) Essential Health and Safety Requirements

no additional ones

BA 02 04.00

7 MAINTENANCE

The wire rope is made from stainless V4A material. Nevertheless check the rope regularly and do replace it if it is worn. Incidental greasing or lubricating will increase its useful lifetime.
Spray the entire rope winch (with casing) frequently with oil to protect it from corrosion.
Check mixing propeller! Remove strings (cords and the like) which got entangled around the propeller. They may cause extreme vibrations thus making the motor run out of round. Whenever the mixer starts running joltingly it is absolutely necessary to clean the mixing propeller!

Before lifting, transporting or repairing the mixer always switch off power at the main switch and secure the control box from any unintentional switching.

Do not touch the revolving parts of the mixer before having switched off power supply and secured the mixer from unintentional turning on.

When the mixer is running it must always be fixed and engaged to the guide tube. The guide tube must be tightly clamped inside the guide tube bracket.

! When the mixer is running it must always be submerged in the medium for cooling the motor and gaskets.

Always switch off and lock main switch when lifting the mixer.

! Never use the power cable in order to haul or lift the mixer!

CLEANING

If the mixer will not be used for a longer time clean and rinse it thoroughly with water to prevent it from unnecessary corrosion. A crust of dried sludge on the mixer hinders cooling of the running mixer.

CABLE CHECK

Check intactness of cable – is it damaged, twisted, squeezed or the like? With a damaged cable fluid may come into the mixer. Faulty parts must be replaced immediately.

CHECKING THE LIFTING DEVICE

Check wear and corrosion of hoisting chains and wire ropes. Whenever there are traces of material fatigue replace affected parts immediately. Check rope winch, lifting hook and shackles as to wear or rupture and clean and lubricate at the same time. This should be done at least every six months.

LUBRICATION AND MAINTENANCE SCHEDULE

Always turn power off when changing oil or lubricating, and secure the mixer from unintentional switching on.

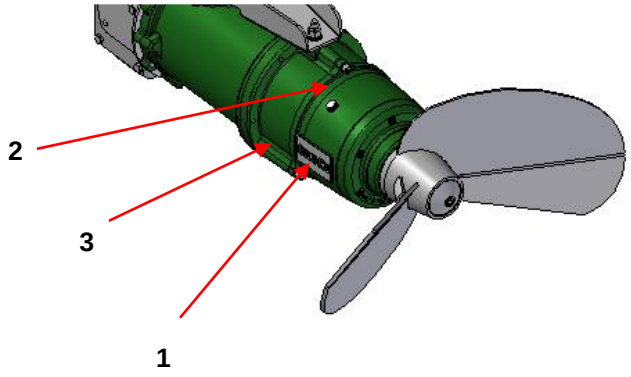
Interval	after 750 operating hours	every six months	after 2000 houres
OIL CHANGE / OIL CHECK	First oil change: unscrew filling bolt too for complete draining. Tightening torque for filling and drain bolts: M16x1.5 = 34 NM	Remove level checking screw and check oil level and quality. (The colour of the oil must not be white!) Tightening torque for filling and drain bolts: M16x1.5 = 34 NM	Change oil Unscrew filling bolt to allow complete emptying at draining hole. Tightening torque for filling and drain bolts: M16x1.5 = 34 NM
Rope winch		Clean, lubricate and check wear	
Electric cable and general overhauling	Tighten bolts and nuts	Check wear, twisting and possible rupture. Tighten bolts and nuts.	
Level control probes	Tighten hose clips of connections	Clean and check hose connections of probes	

Oil quality: SAE 90 gear oil; quantity: 6.5 l
Shell Spirax S2 G 80W-90

Attention: An overpressure may be created inside the oil casing.

OIL CHANGE

1. Unscrew bolts 1, 2 and 3
2. Drain oil
3. Put back bolts 1 and 3
4. Fill in oil up to level checking screw 2 according to instructions.
5. Put back level checking screw 2.



CAUTION !	Wrap thread of bolts and screws with teflon tape or muffle it with thread sealant before screwing to ensure absolute leak tightness.

8 TROUBLE-SHOOTING

Before lifting, moving or repairing the mixer always turn off main switch and secure the device from unintentional switching on.

The submersible motor mixer runs but works poorly	
Possible causes	**Check and repair**
The submersible motor mixer runs backward	Check correct direction of rotation. Call electrician in case of wrong direction of rotation.
Propeller and hub are blocked up.	Lift the machine. Clean propeller and hub.
The propeller is loose, worn or partly damaged.	Check tight seat and possible wear of propeller. Replace propeller if necessary.

The submersible motor mixer does not start	
Possible causes	**Check and repair**
No voltage or failure in control box	Check whether motor protection has responded. Check whether system voltage is available. If not, check system voltage fuse.
Rupture of motor cable	Visual check. Check whether cable and other connections are faultless. Call electrician for further checks.
Propeller is blocked	Check whether propeller is clean and easily moving. Clean propeller and check possible blockage inside gearbox.
	If the above mentioned measures are not successful, please contact the BAUER after-sales service or a licensed workshop

The submersible motor mixer starts, but the motor protection shuts it down	
Possible causes	**Checking and repair**
Faulty voltage	Check voltage. L1-L2-L3 400V~ L1-N 230V~ Check feed cable fuses
Mechanical causes	Check smooth working of motor, gear and propeller
Motor failure	Inspection by BAUER after-sales service or by a licensed workshop

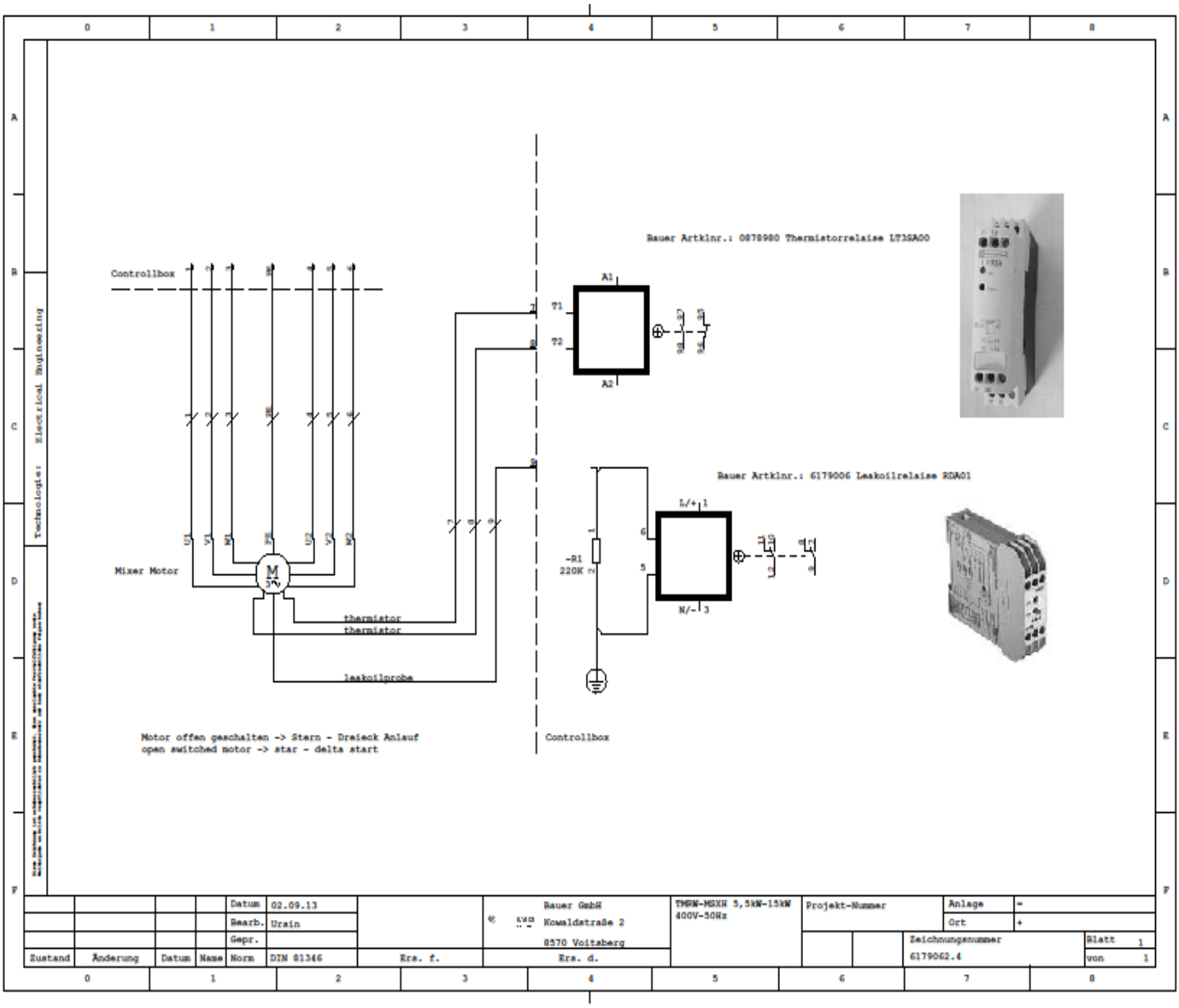
9 TECHNICAL DATA

Speed	n	[min -1]		1450	1400	1450
Cosinus Phi	Cos phi	[1]		0,81	0,84	0,86
Frequency	Frequency	[Hz]		50	50	50
Protection	Protection	IP		68	68	68
Working temperature range	+0 to +40	°C				
Gearbox						
Bearing of propeller shaft			taper roller bearing			
Gear oil EP 680, EP 90		[lt.]		6,5	6,5	6,5
Oil name:	Shell Spirax S2 G 80W-90					
Transmission		[i]		4,6	4,6	4,6
Propeller speed at 50 Hz		[min -1]		315	304	315
Propeller Ø at 50 Hz		[mm]		600	665	750
Weight		[kg]		163	179	198

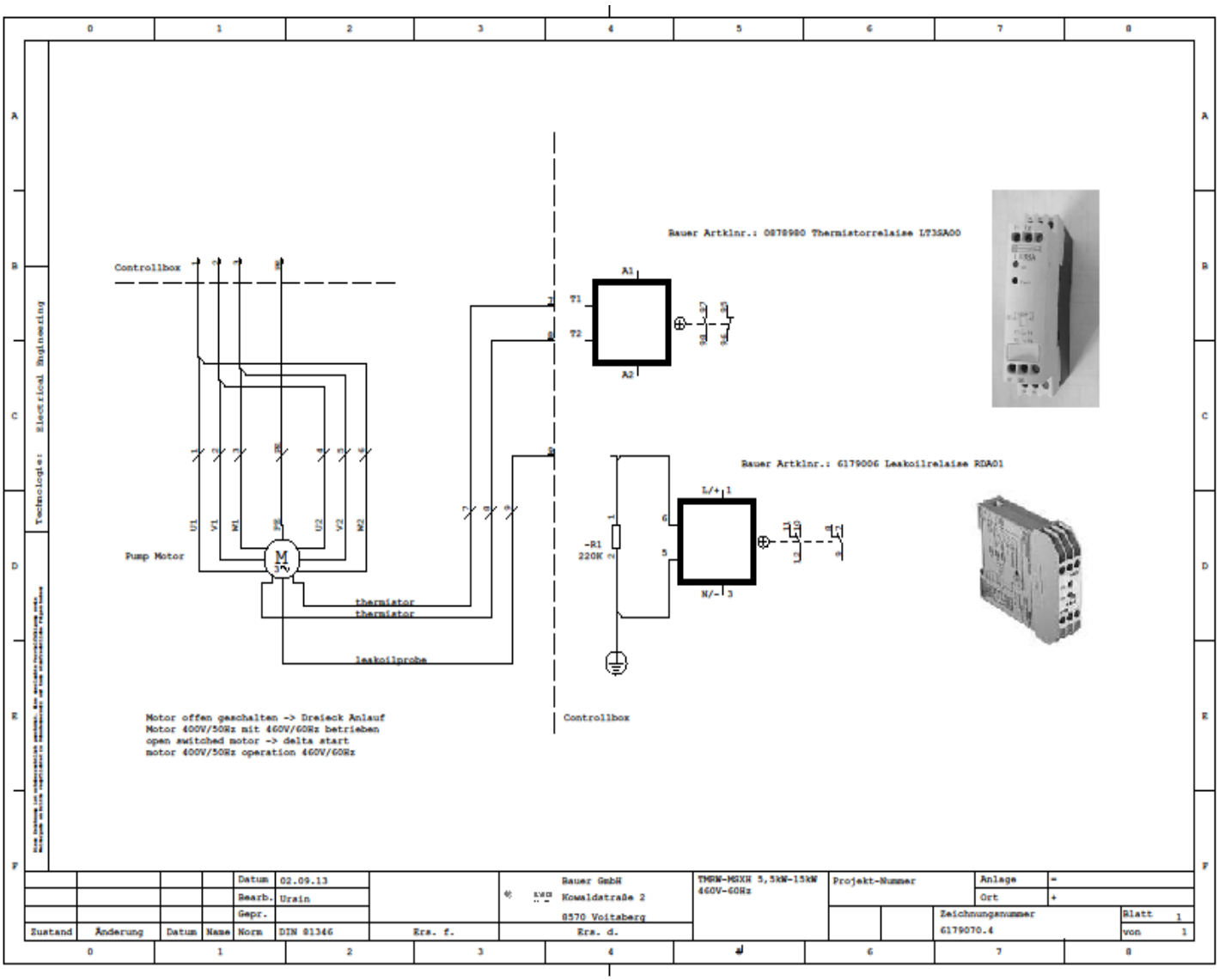
Feed cable fuse				25 A/C	32 A/C	50 A/C
Minimum cross section of feed cable (depending on line length etc.)				5X4mm² Cu	5X6mm² Cu	5X10mm² Cu

Gear Oil; conforming DIN 51517 Part3, ISO 12925-1 Type CKC, AGMA 9005-D94EP-5EP;
ISO Viscosity Grade: 220

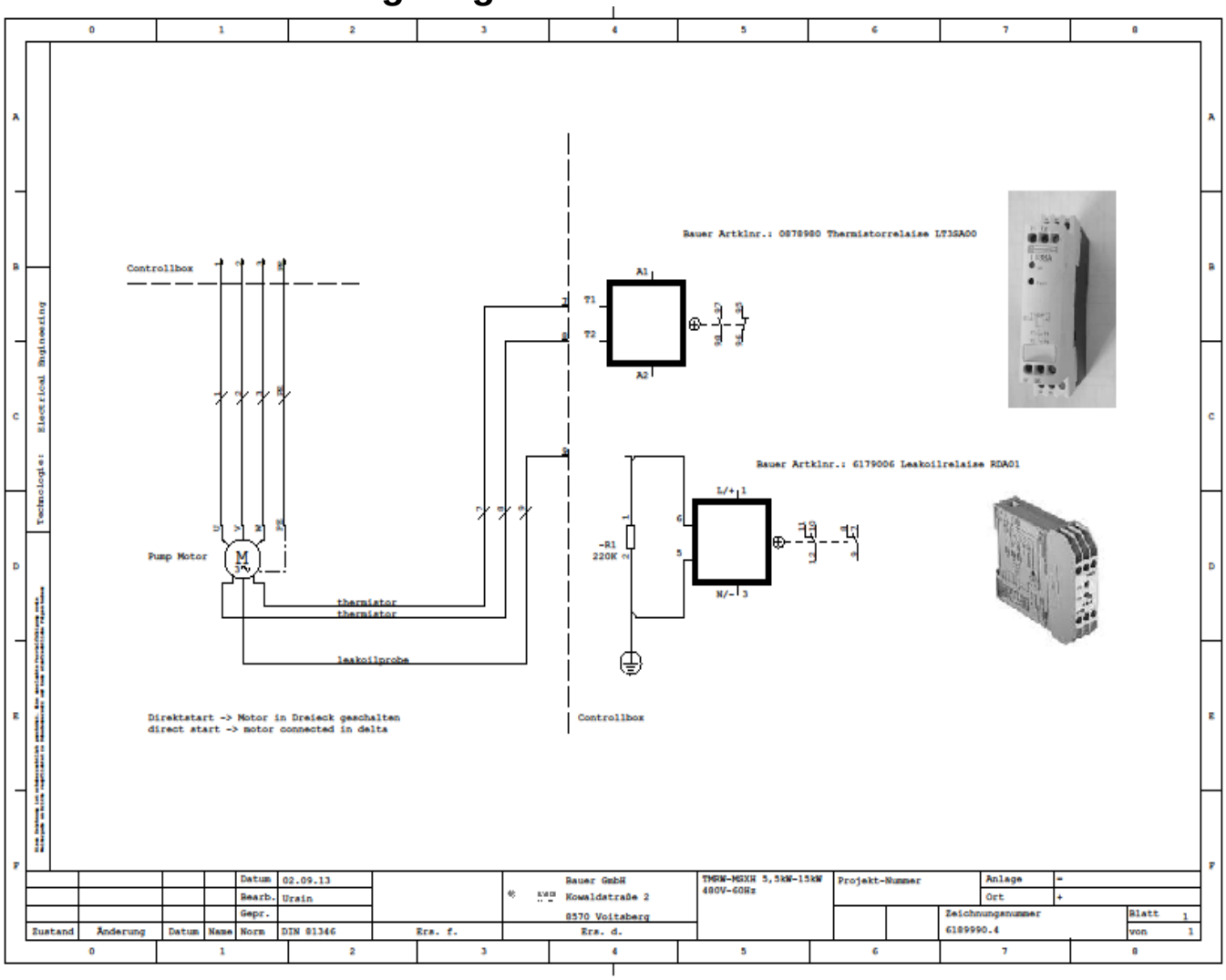
Wiring diagram 400 V 50 HZ star- delta start



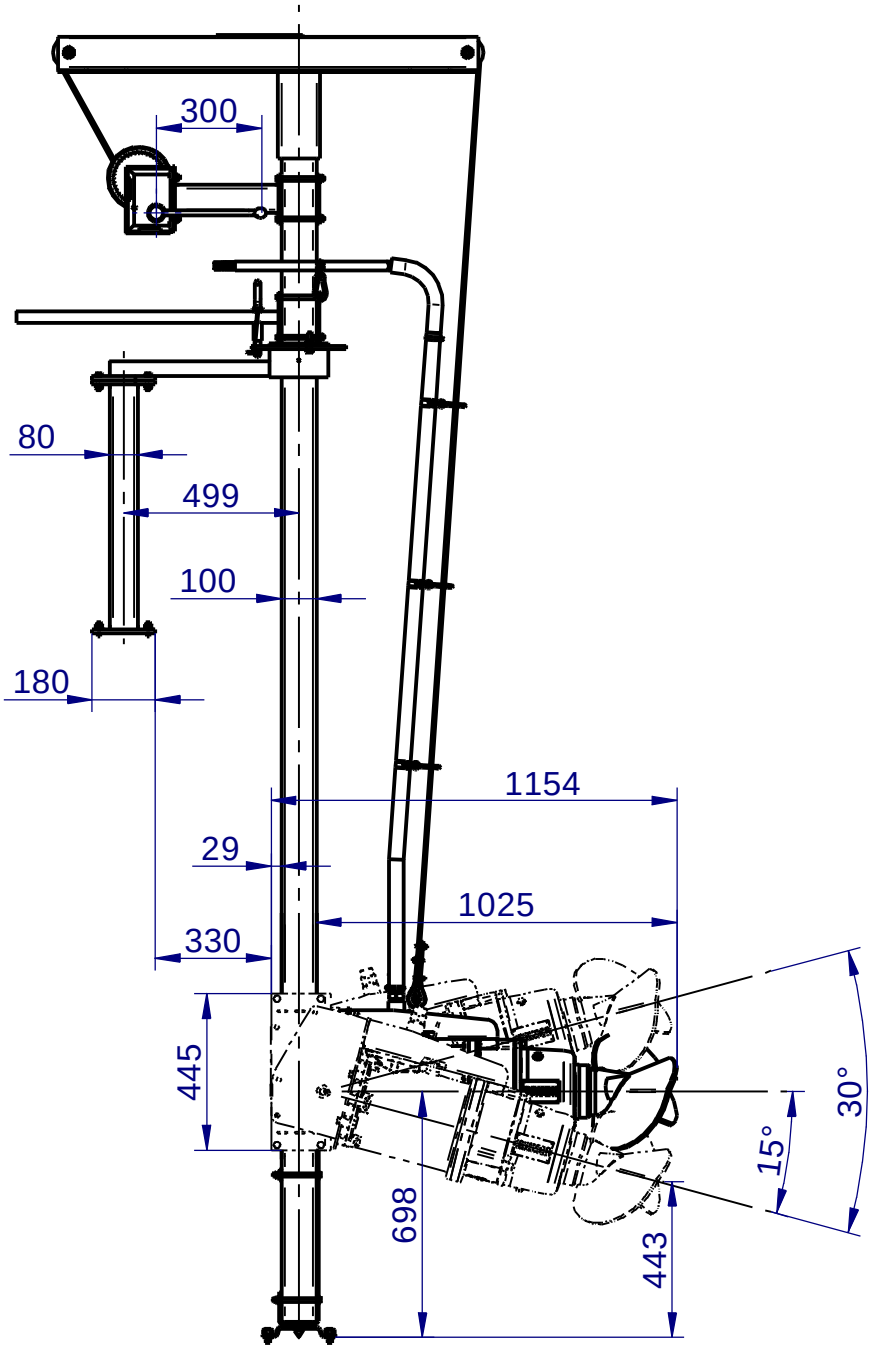
Wiring diagram 400 V 50 HZ with 460 V 60HZ running delta start



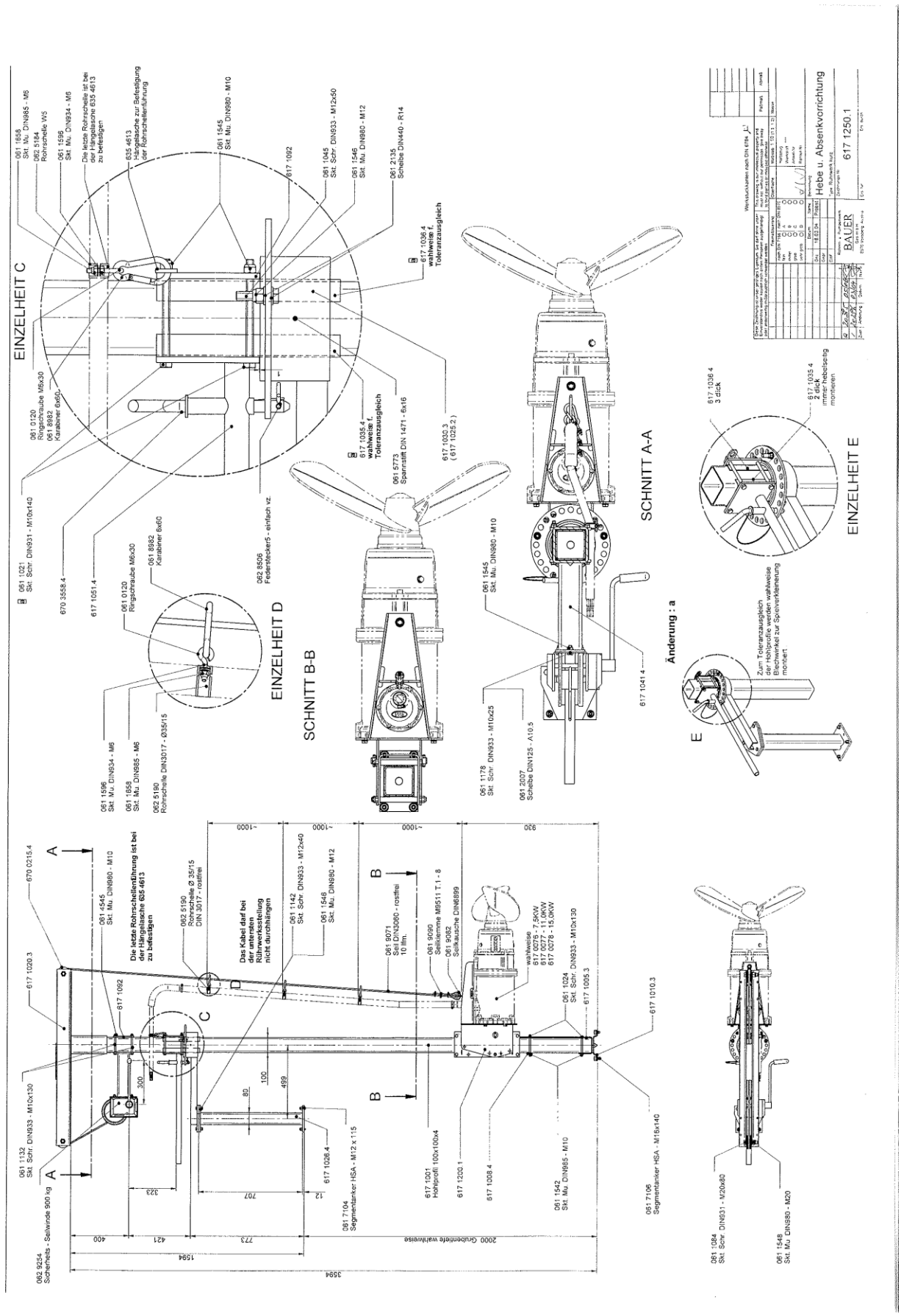
Wiring diagram 480 V 60 HZ delta start



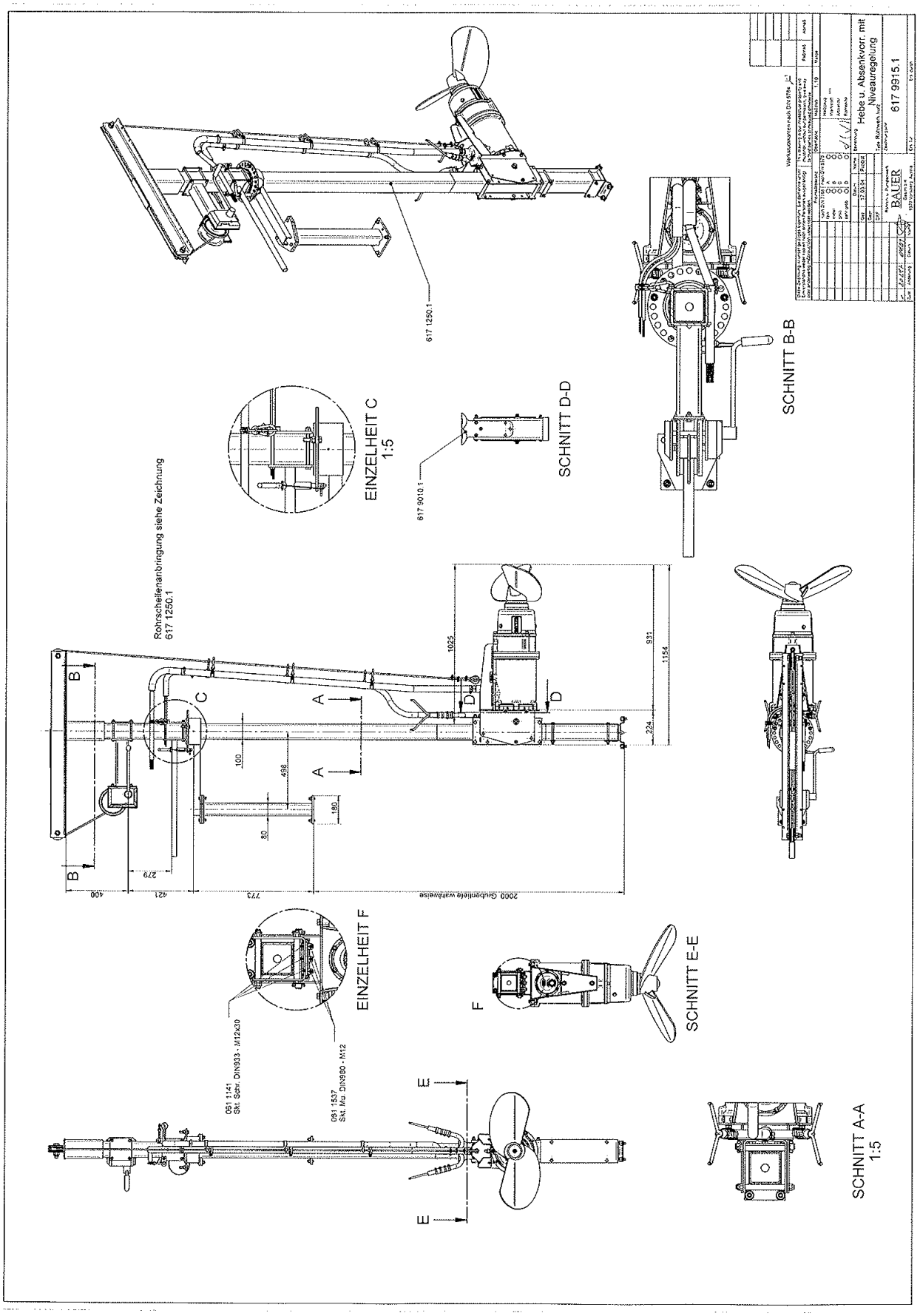
Lifting and lowering device

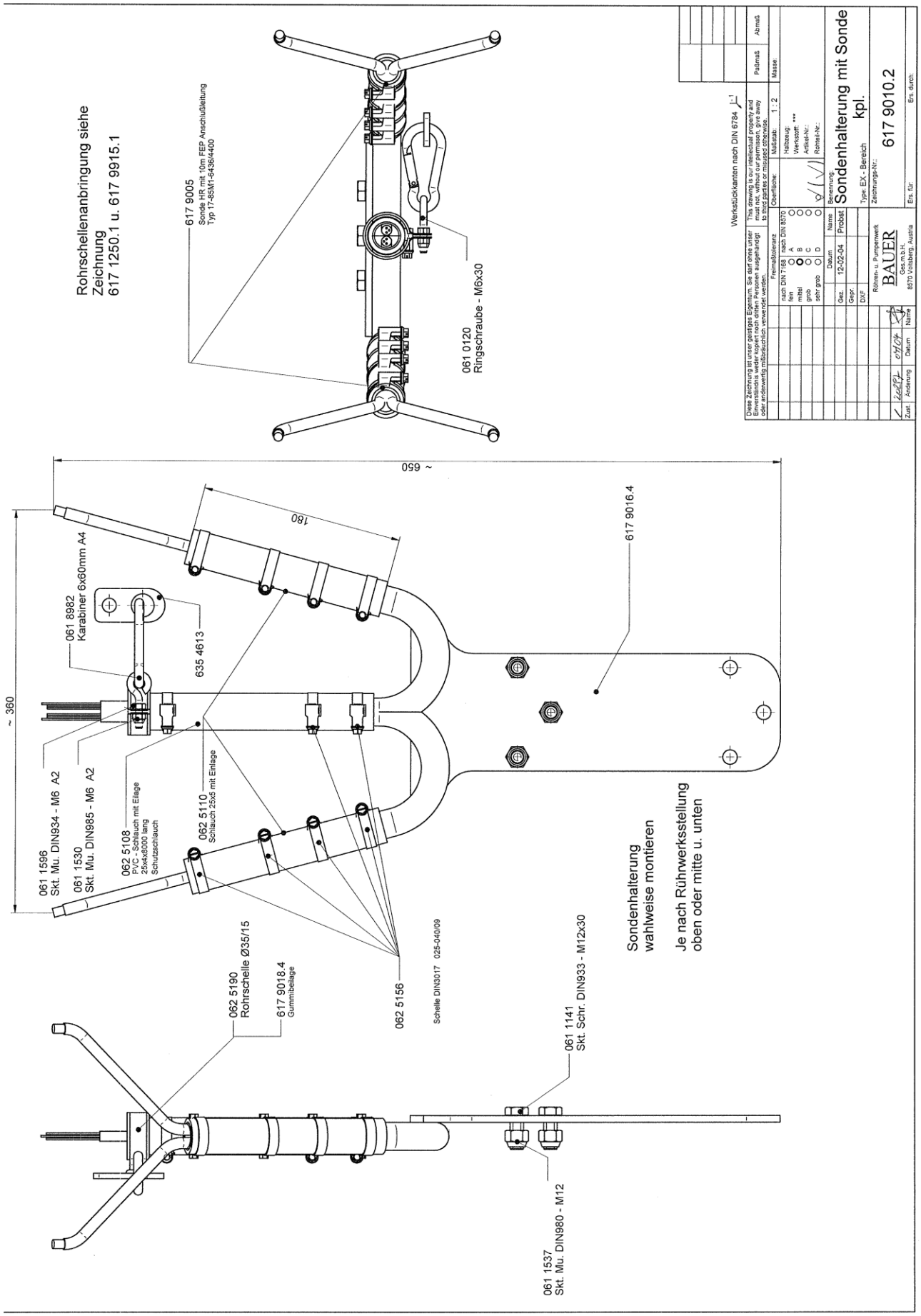


617 9916


EINZELHEIT C
EINZELHEIT D
SCHNITT B-B
SCHNITT A-A
EINZELHEIT E
Änderung : a
Hebe u. Absenkvorrichtung
617 1250.1
BAUER

617 1250


617 1250.1
617 9010.1
SCHNITT D-D
EINZELHEIT C
1:5
SCHNITT B-B
Rohrschelleenanbringung siehe Zeichnung
617 1250.1
EINZELHEIT F
SCHNITT E-E
SCHNITT A-A
1:5
Hebe u. Absenkvor. mit
Niveauregelung
617 9915.1
BAUER


Rohrschellenanbringung siehe
Zeichnung
617 1250.1 u. 617 9915.1
617 9005
Sonde HR mit 10m FEP Anschlußleitung
Typ 17-85M1-6436/4400
061 0120
Ringschraube - M6x30
~ 650
180
~ 360
061 8982
Karabiner 6x60mm A4
635 4613
617 9016.4
061 1596
Skt. Mu. DIN934 - M6 A2
061 1530
Skt. Mu. DIN985 - M6 A2
062 5108
PVC - Schlauch mit Einlage
25x4x5000 lang
Schutzschlauch
062 5110
Schlauch 25x5 mit Einlage
062 5190
Rohrschelle Ø35/15
617 9018.4
Gummibellage
062 5156
Schelle DIN3017 025-040/09
061 1141
Skt. Schr. DIN933 - M12x30
061 1537
Skt. Mu. DIN980 - M12
Sondenhalterung
wahlweise montieren
Je nach Rührwerksstellung
oben oder mitte u. unten
Werkstückkanten nach DIN 6784
Diese Zeichnung ist unser geistiges Eigentum. Sie darf ohne unser Einverständnis weder kopiert noch dritten Personen ausgehändigt bzw. zugänglich gemacht oder sonstwie verwertet werden.
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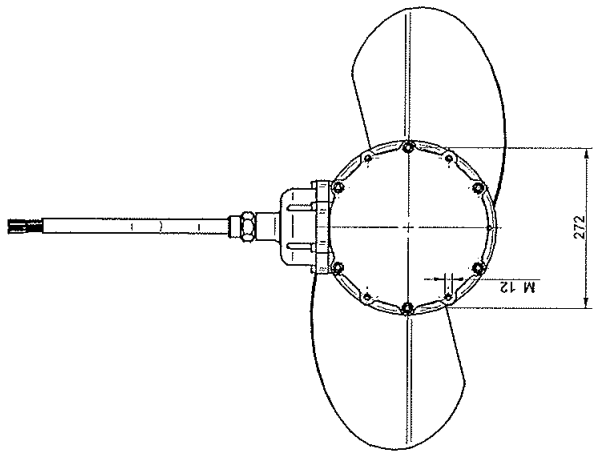
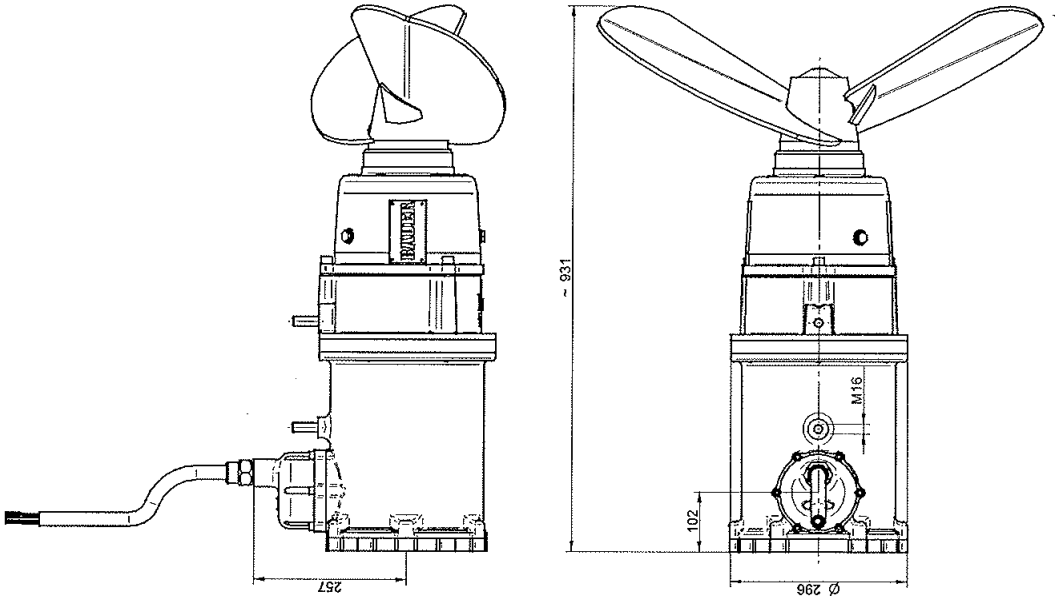
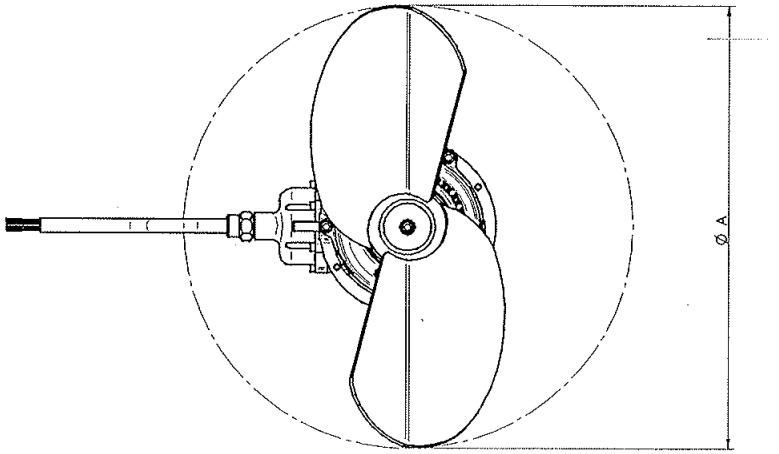
Freimaßtoleranz
nach DIN 7168 | nach DIN 8570
fein
mittel
grob
sehr grob
Oberfläche:
Maßstab: 1 : 2
Halbzeug: ***
Werkstoff: ***
Artikel-Nr.:
Rohteil-Nr.:
Datum
Name
Gez. 12-02-04 Probst
Gepr.
Norm
Benennung:
Sondenhalterung mit Sonde kpl.
Type: EX - Bereich
Zeichnungs-Nr.:
617 9010.2
Rühren- u. Pumpenwerk
BAUER
Ges.m.b.H.
8570 Voitsberg, Austria
Paßmaß
Abmaß
Masse
Ers. für:
Ers. durch:
Zust. Änderung Datum Name







Art. Nr.:	Bennenung	A [mm]
617 0076	TMRW / 7,5KW / 400V / 50Hz	600
617 0077	TMRW / 11,0KW / 400V / 50Hz	665
617 0078	TMRW / 15,0KW / 400V / 50Hz	750

617 9920

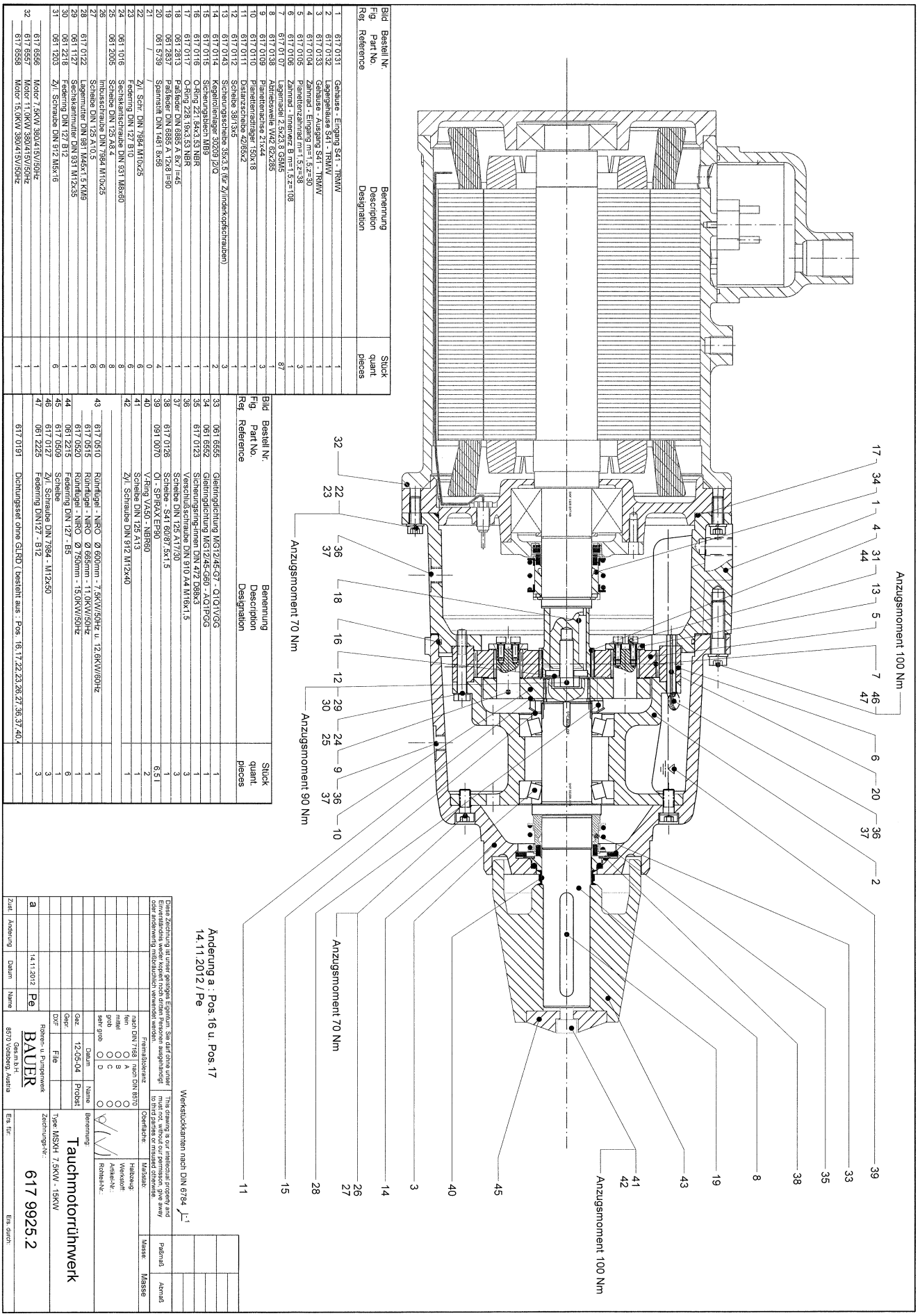


Bild Fig. Ref.	Bestell Nr. Part No. Reference	Benennung Description Designation	Stück quant. pieces
1	617 0131	Gehäuse - Eingang S41 - TRMW	1
2	617 0132	Lagergehäuse groß - TRMW	1
3	617 0133	Gehäuse - Ausgang S51 - TRMW	1
4	617 0104	Zahnrad - Eingang m=1,5;z=30	1
5	617 0105	Planetenzahnrad m=1,5;z=38	3
6	617 0106	Zahnrad - Innenverz. B m=1,5;z=108	1
7	617 01 07	Lagernadel 2,5x23,8 G5Ms	87
8	617 0138	Abtriebswelle W42 62x285	1
9	617 0109	Planetennachse 21x44	3
10	617 0110	Planetenradträger 150x18	1
11	617 0111	Distanzscheibe 42/65x2	1
12	617 0112	Scheibe 38/13x5	1
13	617 0143	Sicherungsscheibe 35x3,5 (für Zyl/inderkopfschrauben)	3
14	617 0114	Kegelrollenlager 30209 j2/Q	2
15	617 0115	Sicherungsblech M69	1
16	617 0116	O-Ring 221,84x3,53 NBR	1
17	617 0117	O-Ring 228,19x3,53 NBR	1
18	061 2813	Paßfeder DIN 6885 A 8x7 l=45	1
19	061 2837	Paßfeder DIN 6885 A 12x8 l=90	1
20	061 5739	Spannstift DIN 1481 8x56	4
21	/	/	0
22		Zyl. Schr. DIN 7984 M10x25	6
23		Federring DIN 127 B10	6
24	061 1016	Sechskantschraube DIN 931 M8x60	8
25	061 2005	Scheibe DIN 125 A8,4	8
26		Imbusschraube DIN 7984 M10x25	6
27		Scheibe DIN 125 A10,5	6
28	617 0722	Lagermutter DIN 981 M45x1,5 KM9	1
29	061 1218	Sechskantmutter DIN 931 M12x35	1
30	061 1218	Federring DIN 127 B12	1
31	061 1203	Zyl. Schraube DIN 912 M5x16	6
	617 6556	Motor 7,5KW 380/415V/50Hz	1
	617 6557	Motor 11,0KW 380/415V/50Hz	1
32	617 6558	Motor 15,0KW 380/415V/50Hz	1

Bild Fig. Ref.	Bestell Nr. Part No. Reference	Benennung Description Designation	Stück quant. pieces
33	061 6555	Gleitringdichtung MG12/45-G7 - QTQTVGG	1
34	061 6552	Gleitringdichtung MG12/45-G60 - AQTPGG	1
35	617 0123	Sicherungsring-innen DIN 472 D88x3	1
36		Verschlußschraube DIN 910 A4 M16x1,5	3
37		Scheibe DIN 125 A17/30	3
38	617 0126	Scheibe - S41 60/87,5x1,5	1
39	091 0070	Öl - SPIRAX EP90	6,5 l
40		V-Ring VA50 - NBR60	2
41		Scheibe DIN 125 A13	1
42		Zyl. Schraube DIN 912 M12x40	1
43	617 0510	Rührflügel - NiRO Ø 600mm - 7,5KW/50Hz u. 12,6KW/60Hz	1
	617 0515	Rührflügel - NiRO Ø 665mm - 11,0KW/50Hz	1
	617 0520	Rührflügel - NiRO Ø 750mm - 15,0KW/50Hz	1
44	061 2215	Federring DIN 127 - B5	6
45	617 0509	Scheibe	1
46	617 0127	Zyl. Schraube DIN 7984 - M12x50	3
47	061 2225	Federring DIN127 - B12	3
	617 0191	Dichtungssatz ohne GLRD (besteht aus : Pos. 16,17,22,23,26,27,36,37,40,4	1

Änderung a : Pos.16 u. Pos.17
14.11.2012 / Pe

Werkstückkanten nach DIN 6784 $\sqrt{}^{-1}$

Zust.	Änderung	Datum	Name
a		14.11.2012	Pe

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Freimaßtoleranz nach DIN 7168: fein, mittel, grob, sehr grob; nach DIN 8570: A, B, C, D

	Datum	Name
Gez.	12-05-04	Probst
Gepr.		
Norm		

Oberfläche

Maßstab

Halbzeug:

Werkstoff:

Artikel-Nr.:

Rohteil-Nr.:

Benennung:

Tauchmotorrührwerk

Type: MSXH 7,5KW - 15KW

Zeichnungs-Nr.:

617 9925.2

Ers. für:

Ers. durch:

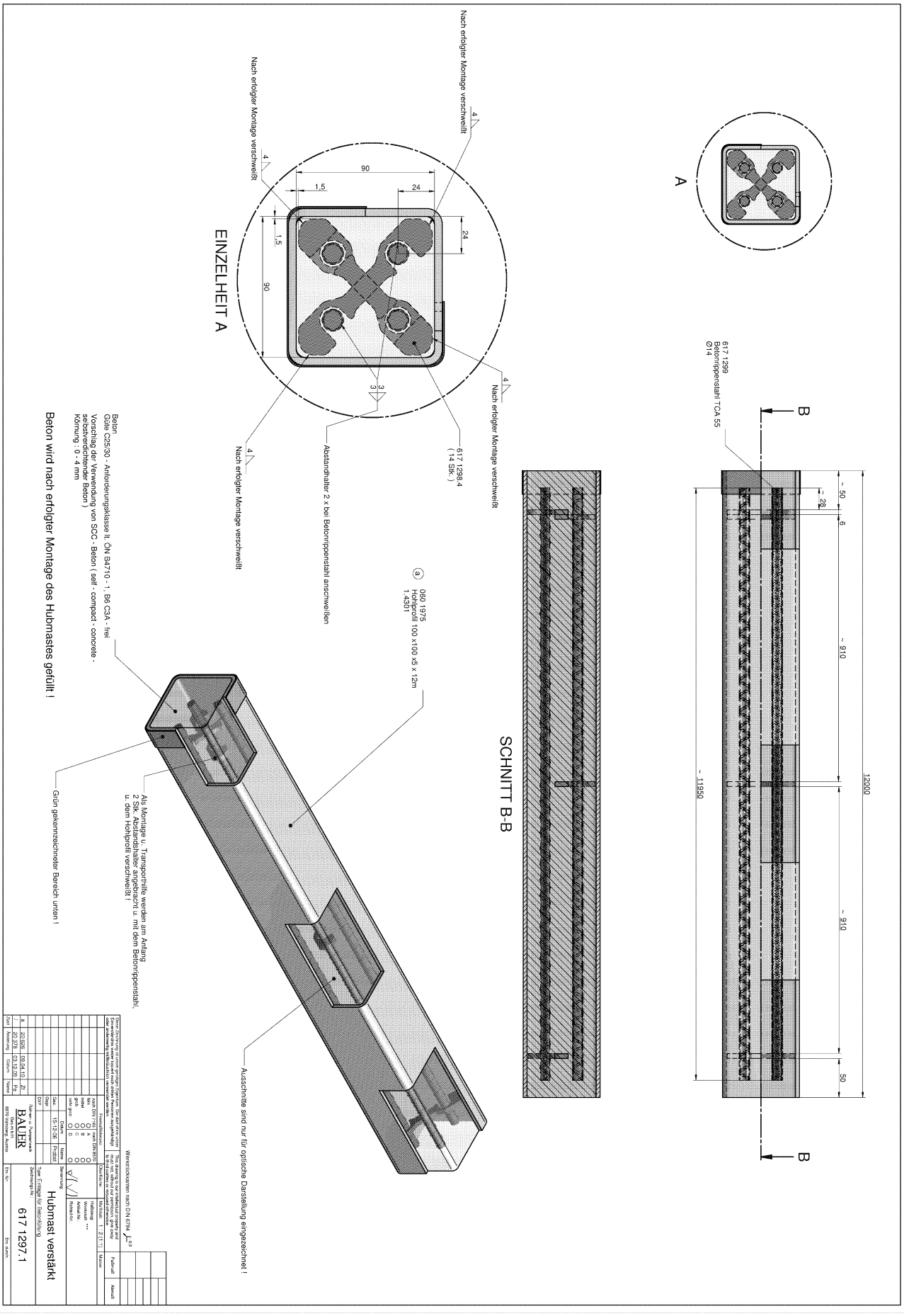
Rohren- u. Pumpenwerk
BAUER
Gesellschaft m.b.H.
8570 Voitsberg, Austria

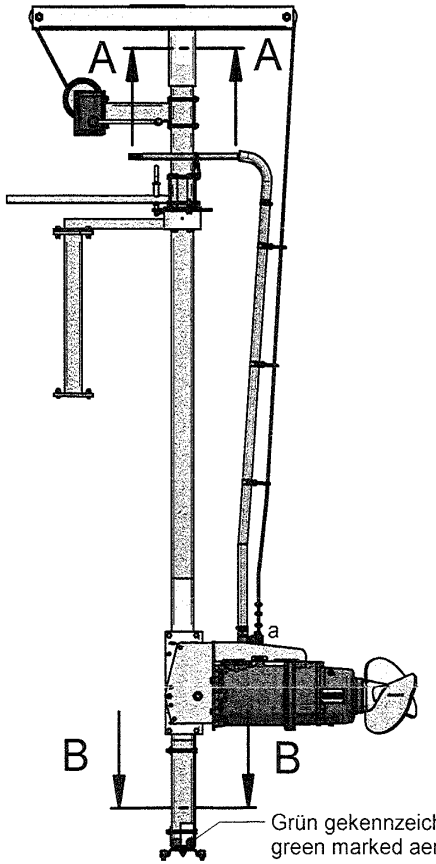
Masse

Maßstab

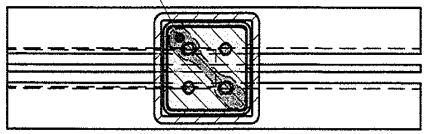
Papiermaß

Abmaß


A
B
B
617 1299
Betonrippenstahl TCA 55
Ø14
12000
~ 1950
~ 910
~ 910
~ 50
~ 28
6
50
SCHNITT B-B
EINZELHEIT A
Nach erfolgter Montage verschweißt
Nach erfolgter Montage verschweißt
Nach erfolgter Montage verschweißt
Nach erfolgter Montage verschweißt
Nach erfolgter Montage verschweißt
90
1,5
24
24
1,5
90
617 1298.4
(14 Stk.)
Abstandhalter 2 x bei Betonrippenstahl anschweißen
(a) 060 1975
Hohlprofil 100 x100 x5 x 12m
1.4301
Beton
Güte C25/30 - Anforderungsklasse lt. ÖN B4710 - 1 B6 C3A - frei
Vorschlag der Verwendung von SCC - Beton (self - compact - concrete -
selbstverdichtender Beton)
Körnung: 0 - 4 mm
Beton wird nach erfolgter Montage des Hubmastes gefüllt !
Als Montage u. Transporthilfe werden am Anfang
2 Stk. Abstandshalter angebracht u. mit dem Betonrippenstahl
u. dem Hohlprofil verschweißt !
Grün gekennzeichneter Bereich unten !
Ausschnitte sind nur für optische Darstellung eingezeichnet !
Hubmast verstärkt
617 1297.1
BAUER



1 Stk. Abstandhalter oben
1 pc spacer top



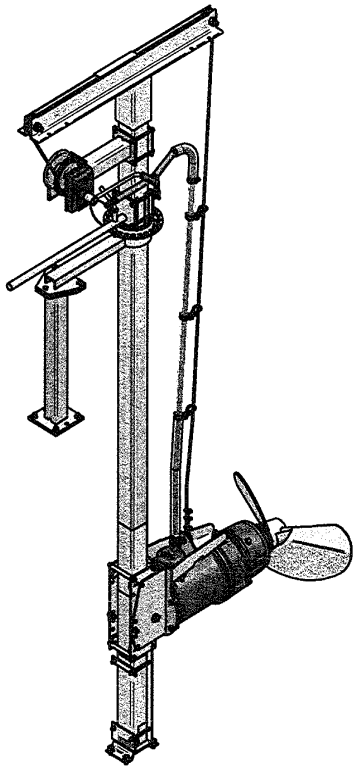
SECTION A-A

Attention:

When assembling the lifting pole with the concrete ribsteel make sure that the end with the 2 welded spacers are at the bottom (green marked aerea)

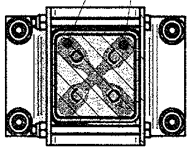
Achtung :

Bei der Montage des Hohlprofils mit Betonrippenstahl u. Abstandhalter ist darauf zu achten, daß die 2 Stk. verschweißten Abstandhalter unten am Boden montiert werden. (Grün gekennzeichneter Bereich)



Verschweißte Abstandhalter (2 Stk.) unten
welded spacer (2 pc) bottom

Grün gekennzeichneter Bereich unten !
green marked aerea bottom !



SECTION B-B

Werkstückkanten nach DIN 6784 $\sqrt{}^{-0,5}$

Diese Zeichnung ist unser geistiges Eigentum. Sie darf ohne unser Einverständnis weder kopiert noch dritten Personen ausgehändigt oder anderwertig mißbräuchlich verwendet werden.				This drawing is our intellectual property and must not, without our permisson, give away to third parties or misused otherwise.				Paßmaß	Abmaß
				Freimaßtoleranz			Oberfläche:	Maßstab: 1:20(1:5)	Masse:
				nach DIN 7168		nach DIN 8570		Halbzeug:	
				fein	○	A ○		Werkstoff: ***	
				mittel	○	B ○		Artikel-Nr.:	
				grob	○	C ○		Rohteil-Nr.:	
				sehr grob	○	D ○			
					Datum	Name	Benennung:		
				Gez.	05.12.05	probst	Hebe u. Absenkvorrichtung		
				Gepr.					
				DXF			Type: Hubmast verstärkt		
a	20 423	18-01-07	Pe	Röhren- u. Pumpenwerk BAUER Ges.m.b.H. 8570 Voitsberg, Austria			Zeichnungs-Nr.: 617 9950.3		
	20378	03/12/05							
Zust.	Änderung	Datum	Name				Ers. für:	Ers. durch:	

10 CONFORMITY CERTIFICATE

EC Declaration of Conformity

according to EC Directive 2006/42/EC

The manufacturer

Röhren- und Pumpenwerk BAUER Gesellschaft m.b.H.
Kowaldstraße 2, 8570 Voitsberg, Austria
phone +43 3142 200-0; fax: +43 3142 200-320/-340

herewith confirms that the machine component mentioned below

Designation of machine	**Submersible Motor Mixer MSXH**
Machine type / basic units	**MSXH 5,5; 7,5; 11; 11 Eco; 15**
Consists of	**Submersible Motor Mixer with Ex-Protection**

corresponds analogously to the requirements of the Machinery Directive 2006/42/EC.
In case of a modification of the machine not accorded with BAUER GmbH, this declaration will cease to be valid.

The following standards as amended have been applied analogously:

DIN EN ISO 12100-1	Safety of machines – Basic concepts, general principles for design, Part 1: Basic terminology, metodology
DIN EN ISO 12100-2	Safety of machines – Basic concepts, general principles for design, Part 2: Technical principles and specfications
DIN EN 60204-1	Safety of machines - Electrical equipment of machines, Part 1: General requirements
EN ISO 14121-1	Safety of machines – Risk assessment

Norms related to products

EN ISO 13857	Safety of machines, safety clearance to secure no touching hazard area with upper extremities.
DIN EN 349	Safety of machine, minimum clearance to avoid crushing body parts
DIN EN 809	Pumps and pump units for liquids - Common safety requirements

The documents belonging to the machine according to annex VII, part B have been attached.
The machine component must not be put into operation unless it has been proven that the machine where the machine component shall be installed, corresponds to the regulations of the EC Machinery Directive (2006/42/EC). The CE mark is applied by the operator as final manufacturer.

Person in charge of documentation: Thomas Theissl, Kowaldstraße 2, 8570 Voitsberg, Austria,

Technical Designer in Charge

Commercial Manager