



Benbow
ENVIRONMENTAL

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DI/JR/vm
Ref: 110083_Addendum_1(Draft)
5 April 2011

Tony Barron
Austral Precast Pty Ltd
738-780 Wallgrove Road
HORSLEY PARK NSW 2175

Dear Tony,

**Re: Addendum to the Environmental Impact Statement for Lot 79 DP 27515, No. 33-41
Cowpasture Road WETHERILL PARK, Development Application No. 1323.1 / 2010**

Referring to the letter we received from you on 4/1/2011, we have prepared this addendum in response to the letter provided to you by Fairfield City Council (Quote No. 1323.1 / 2010). Please find details of this addendum as follows.

Matter No. 1

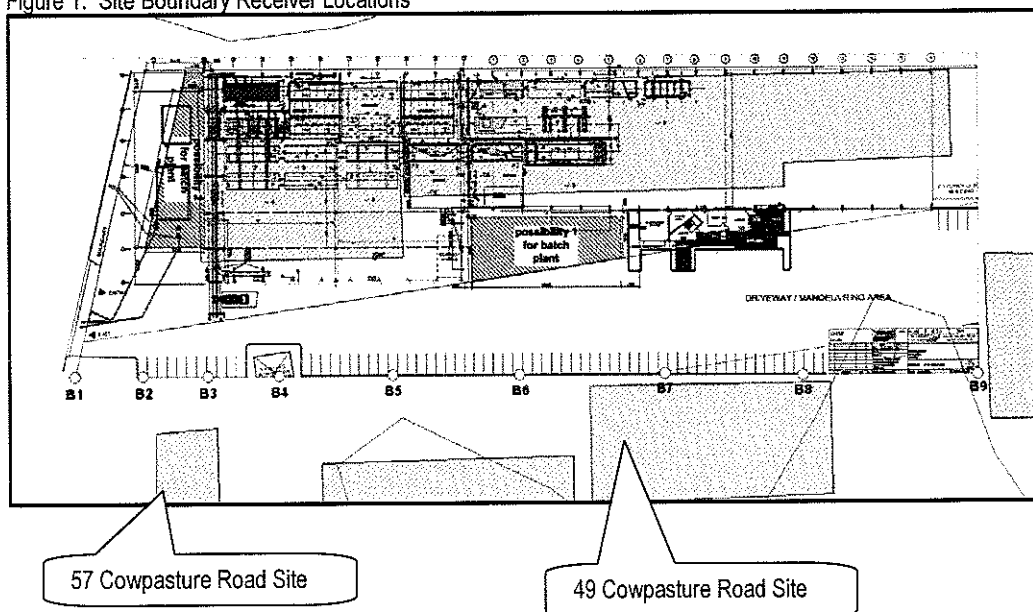
"An assessment of compliance to the Industrial Noise Policy at the nearest industrial receptor, that being the adjoining properties of No. 49 and 57 Cowpasture Road"

Benbow Environmental's Response:

Additional receivers were added to the model in locations corresponding to the Southern site boundary, i.e. the site boundary closest to the adjoining properties of No. 49 and 57 Cowpasture Road.

Figure 1 below shows the positions of these site boundary receivers on the modeled site map labeled B1 through B9.

Figure 1: Site Boundary Receiver Locations



Amenity Criterion

The amenity criterion is determined using the guidelines presented in Section 2.2 of the INP. Table 1 summarises the key information.

Table 1: NSW EPA Amenity Criteria - Recommended LAeq noise levels from industrial noise sources				
Type of Receiver	Indicative Noise Amenity Area	Period	Recommended LAeq noise level (dB(A))	
			Acceptable	Recommended Maximum
Residence	Urban	Day	60	65
		Evening	50	55
		Night	45	50
Industrial Premises*	All	When in use	70*	75*

Source: Table 2.1 NSW EPA INP

Note: * Applies to boundaries of the site.

The existing noise levels are compared to the acceptable noise levels provided in TABLE 1 above. TABLE 2 is used to derive the amenity criteria.

Table 2: Modification to Acceptable Noise Level (ANL1) to Account for Existing Levels of Stationary Noise	
Total Existing L_{Aeq} Noise Level From Industrial Sources	Maximum L_{Aeq} Noise Level for Noise from New Sources Alone
$\geq ANL + 2$	If existing noise level is likely to decrease in future: ANL - 10 If existing noise level is unlikely to decrease in the future: Existing level - 10
ANL + 1	ANL - 8
ANL	ANL - 8
ANL - 1	ANL - 6
ANL - 2	ANL - 4
ANL - 3	ANL - 3
ANL - 4	ANL - 2
ANL - 5	ANL - 2
ANL - 6	ANL - 1
$< ANL - 6$	ANL

Source: Table 2.2 NSW EPA INP

Note: ANL is the recommended acceptable L_{Aeq} noise level for the specific receiver, area and time of day.

Further to the above, where the character of the noise in question is assessed as particularly annoying (i.e. if it has an inherently tonal, low frequency, impulsive or intermittent character), then an adjustment of 5 dB(A) for each annoyance aspect, up to a total of 10 dB(A), is to be added to the measured value to penalise the noise for its potential increase in annoyance.

Table 4.1 of Chapter 4 of the NSW INP provides definitive procedures for determining whether a penalty or adjustment should be applied for increased annoyance. Specifically for tonal noise, a one-third octave (or narrow band analysis) is required and a 5 dB(A) penalty is applied to the measured or predicted level when the level of one-third octave band exceeds the level of the adjacent bands on both sides by:

- 5 dB(A) or more if the centre frequency of the band containing the tone is above 400 Hz;
- 8 dB(A) or more if the centre frequency of the band containing the tone is 160 to 400 Hz inclusive; and
- 15 dB(A) or more if the centre frequency of the band containing the tone is below 160 Hz.

Upon analysis of the one-third octave band frequency spectrum, noise emissions from this development's operations are determined not to be tonal or impulsive in character, and therefore this penalty does not apply. Based on TABLE 1 and TABLE 2 above, the amenity criteria applied to this assessment are displayed in TABLE 3 below.

Table 3: L_{Aeq} Amenity Noise Criterion, dB(A)				
Location	Period	L_{Aeq} Existing	L_{Aeq} Acceptable Level	L_{Aeq} Criteria
Site Boundaries	When In Use	-	70	70

Project Specific Noise Limits

Noise limits for the site can now be established in accordance with the principles and methodologies of the NSW INP, the measured background noise levels and the existing measured operational noise levels of the facility. According to the NSW INP, it is recommended that the more stringent noise limits be applied to protect the existing acoustic amenity from deteriorating.

The selected Project-Specific Noise Limit for the monitoring locations is presented in **TABLE 4** below.

Table 4: Project-Specific Noise Limits (PSNL), dB(A)						
Receiver	Indicative Noise Amenity Area	Period	Acceptable Noise Level	Amenity Limit ¹	Intrusive Limit L _{A90} +5dB(A)	PSNL
Site Boundaries	All	When In Use	70	70	-	70

After the southern boundary receiver locations shown in Figure 1 were added, the model was run with noise enhancing meteorological conditions, in accordance with the INP. The following conditions were considered:

- Condition A: Neutral – No wind, no temperature inversions;
- Condition B: Windy – 3 m/s wind from source to receiver; and
- Condition C: Temperature Inversion – 3°C/100 m temperature inversion with 2 m/s wind from source to receiver.

The modeled results are shown in **TABLE 5**, **TABLE 6**, and **TABLE 7** below.

Table 5: Modelled Noise Impacts, Daytime Period - NO CONTROLS - Site Boundary Receiver Locations, dB(A)

Site Boundary Location	Project Specific Noise Limit (PSNL)	Condition A	Condition B	Condition C
B1	70	62.8	63.5	63.5
B2	70	63.3	64.0	64.0
B3	70	63.8	64.8	64.8
B4	70	60.3	61.5	61.5
B5	70	49.8	51.8	51.8
B6	70	45.3	48.2	48.2
B7	70	36.6	37.8	37.8
B8	70	35.9	37.0	37.0
B9	70	34.7	35.4	35.4

Table 6: Modelled Noise Impacts, Evening Period - NO CONTROLS - Site Boundary Receiver Locations, dB(A)

Site Boundary Location	Project Specific Noise Limit (PSNL)	Condition A	Condition B	Condition C
B1	70	34.7	35.1	35.1
B2	70	32.6	33.5	33.5
B3	70	31.8	32.7	32.7
B4	70	23.6	24.8	24.8
B5	70	22.3	23.5	23.5
B6	70	18.3	20.6	20.6
B7	70	16.0	18.9	18.9
B8	70	14.9	18.6	18.6
B9	70	13.1	16.4	16.4

Table 7: Modelled Noise Impacts, Night Time Period - NO CONTROLS - Site Boundary Receiver Locations, dB(A)

Site Boundary Location	Project Specific Noise Limit (PSNL)	Condition A	Condition B	Condition C
B1	70	34.7	35.1	35.1
B2	70	32.6	33.5	33.5
B3	70	31.8	32.7	32.7
B4	70	23.6	24.8	24.8
B5	70	22.3	23.5	23.5
B6	70	18.3	20.6	20.6
B7	70	16.0	18.9	18.9
B8	70	14.9	18.6	18.6
B9	70	13.1	16.4	16.4

The predictive noise model has shown that compliance with Project Specific Noise Limits (PSNL) is expected at all considered Industrial site boundary receiver locations.

Based on the predicted results displayed above no additional noise controls are deemed necessary for the site when considering assessment of compliance to the Industrial Noise Policy at the nearest industrial receptor, that being the adjoining properties of No. 49 and 57 Cowpasture Road.

Matter No. 2

"Full details of the bulk liquid storage area, including updated plans of bunding and roofing"

Benbow Environmental's Response:

Details provided as per Drawing No. P100.TM.10-36/2.

Matter No. 3

"Full details of the concrete waste recycling system, including placement and liquid storage bunding"

Benbow Environmental's Response:

Details provided as per Drawing No. P100.TM.10-36/2 plus Addition Recycling System Documentation.

Matter No. 4

"Full details of the raw materials delivery area, including updated plans showing bunding and drainage of the in-ground hopper and cement / fly ash delivery area"

Benbow Environmental's Response:

Details provided as per Drawing No. P100.TM.10-36/2.

Matter No. 5

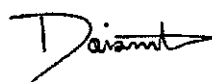
"Full details of trafficable bunds required by Consent no. 1232/2005 issued on 29th June 2006"

Benbow Environmental's Response:

Details provided as per Trafficable Bunds Documentation.

We trust this clarifies matter.

Yours faithfully,
for Benbow Environmental



Duke Ismael
Environmental Engineer – Team
Leader – Air Group



Joshua Ridgway
Acoustical Engineer

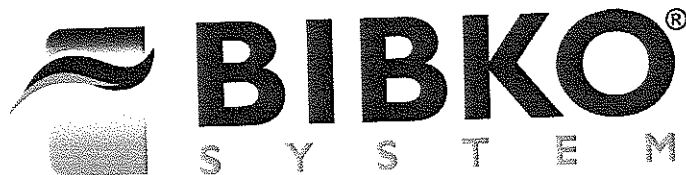
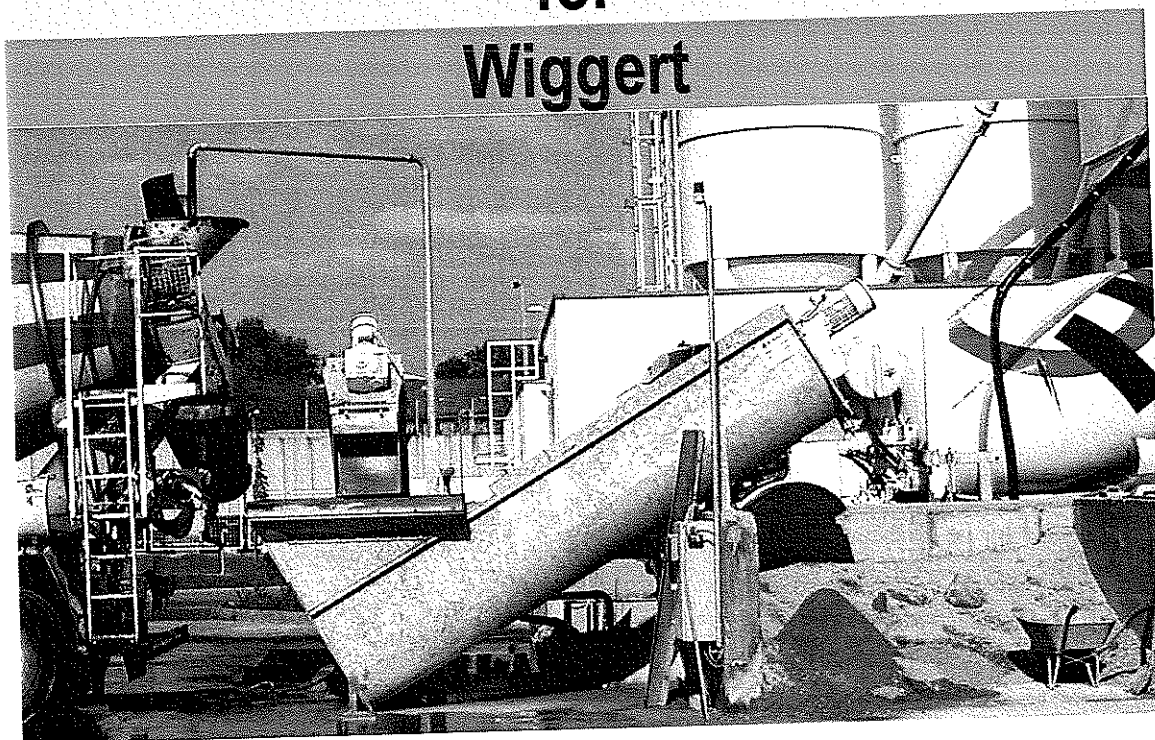


R T Benbow
Principal Consultant

RECYCLING-SYSTEME FÜR DIE BETON-INDUSTRIE · PROZESS- UND WASCHWASSERMANAGEMENT.
RECYCLING-SYSTEMS FOR THE CONCRETE INDUSTRY · PROCESS AND WASHWATER MANAGEMENT.



BIBKO® Readymix Recycling System Typ RWS-Concrete Washer for Wiggert



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BIBKO®-Concrete washer RWS

- ▶ Concrete wash-out capacity: up to 12 m³ / h
- ▶ Separating cut of 0.2 mm
- ▶ All bearings positioned outside water area
- ▶ A compact and economic unit which takes up little space
- ▶ Machine cover easily to open
- ▶ Complete galvanising
- ▶ Feed hopper with sizes of up to 3 m
- ▶ High discharge level up to 2.5 m
- ▶ Aggregate discharge dry enough for storage
- ▶ Mobile unit ready for operation

The recovery of residual concrete represents an economic profit for your business. The re-use of recycling water and the recovery of sand and gravel are a contribution to the protection of the environment. Recycling water and aggregates are again included into the production process for the production of unset concrete or finished concrete parts. This way, the use of natural resources and disposal sites can be reduced. Tidy factories, no discharging on the factory site. Savings in the payment of wages due to controllable operation, such as the washing out of the truck mixers on one spot.





Module 1: Recovery of material, sand and gravel, from residual concrete

The machinery is designed to wash the entire residual concrete in such a way that sand and gravel - free from cement - will be available for recovery. In effect, cement sludge water and residual concrete come from the following three places:

1. Residual concrete returned by the truck mixers.
2. Wash water from cleaning the truck mixer.
3. Residual concrete and wash water from the concrete mixing plant.

The truck mixer moves in reverse to the feed hopper so that the feed hopper of the mixer conveyor is positioned directly underneath the rinsing pipe. Then truck mixers are filled with an adjustable volume of recycling water via rinse water pipes. This recycling water is cleaning the drum and is then fed together with the residual concrete into the feeding hopper of the BIBKO® machine. Sand and gravel are recovered in the recycling machine.

The BIBKO®-Concrete washer RWS consists a strong screw washer. Under fully automatic control, fresh water, surface water and well water are fed into the machine, where they separate the fractions of sand, gravel and cement sludge water. The separating cut is of about 0.2 mm (0.0078 in). Since water sourced locally is a major concern, it is recycled in accordance with the counter current principle. Sand and gravel are conveyed via a screw. The fine components under 0.2 mm reach the agitator tank via the machine outlet.

Module 2: Re-use of recycling water

Crossbeams are mounted over the sludge water reservoir, to which electric agitators are attached. These agitators are designed to keep the fine grains (cement sludge) in suspension to prevent the fine grains from settling and thus from filling the reservoir. The agitators are operated intermittently. The operating and stop time can be regulated. A submersible pump pumps water out of the reservoir via a pipe, to the mixers water weighing batcher, where cement sludge water is used to produce new concrete. The sludge water can be used in various percentages together with fresh water.

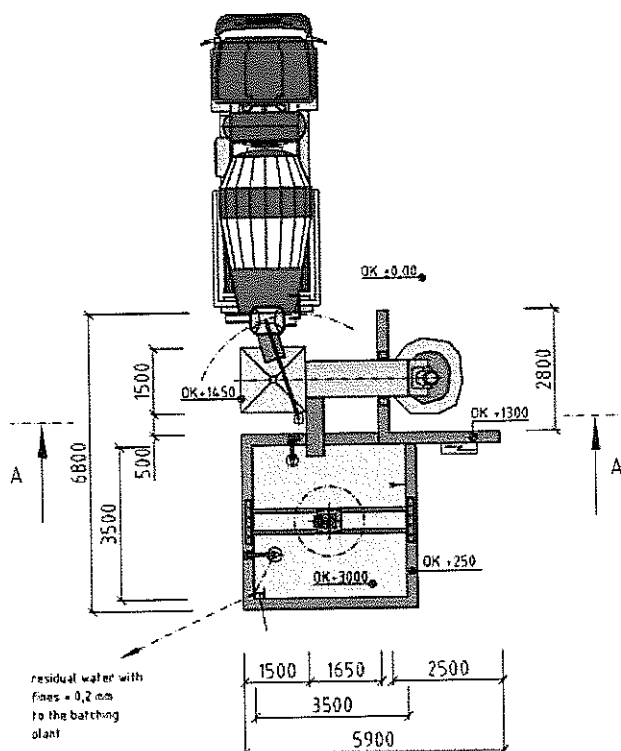
Experience made with a number of concrete factories has proved that the cement sludge water can fully be used without affecting the quality of the concrete. The sludge water reservoir is provided with a level regulator to avoid overfilling or a total emptying of the reservoir. This serves as a safeguard against the submerged pump and the stirring apparatus running dry. The sludge water is entirely recycled due to its use in the batching plant and the rinsing of truck mixers. Our system is equipped with an electric control unit to control all its functions and to facilitate its operation. In principle, the cement mixing vehicle is rinsed with sludge water from the sludge water reservoir. This ensures that a cycle is established and that the water household remains stable. When, due to the high rate of re-use of the sludge water incurred in production, a "minimum water level" is signalled, fresh water automatically flows into the machine where it then flows into the reservoir.

This way, the water is kept at a constant level and at the same time the machine is rinsed. Fresh water is also known as the surface water gathered (or water from the well), which can be included into the production process by our control component. This way, your water consumption can be reduced to a minimum, as our system prefers this water to the water from the local water supply.

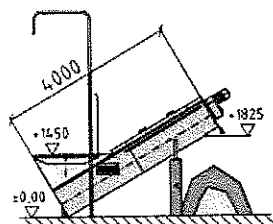


Basic solution - truck mixer wash out

RWS-Concrete washer
 for mixer trucks

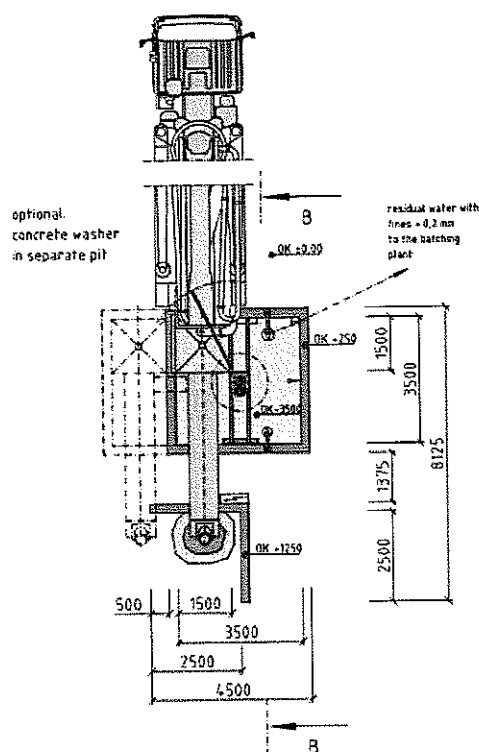


SECTION A-A

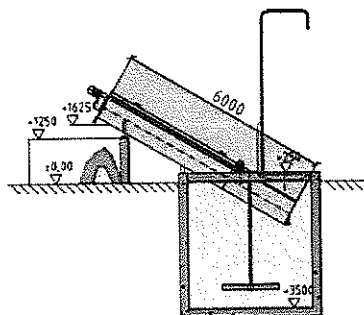


Solution 1 page 4 - truck mixer + concrete pumps wash out

RWS-Concrete washer
 for mixer trucks and concrete pumps

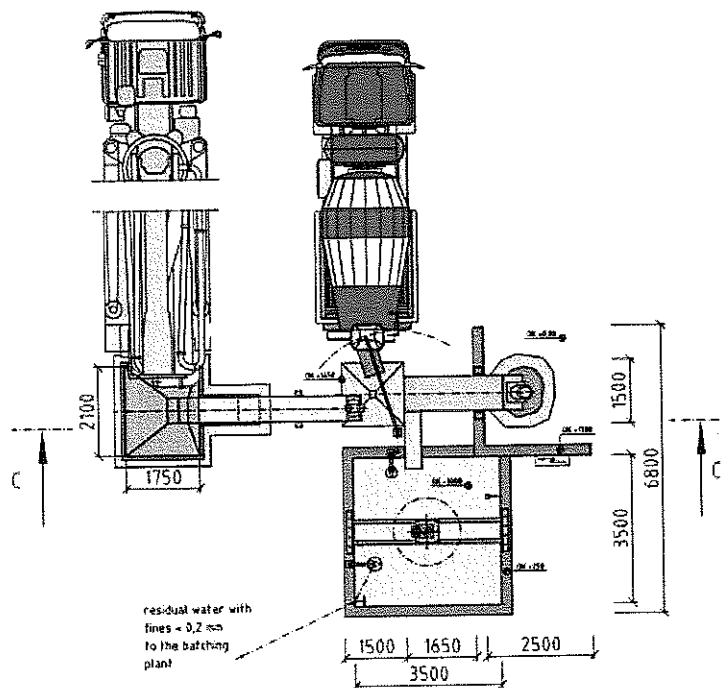


SECTION B-B

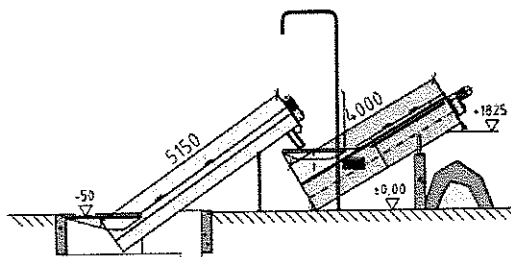


Solution 2 page 5 - truck mixer + concrete pumps wash out

RWS-Concrete washer with pump discharge conveyor
 for mixer trucks and concrete pumps



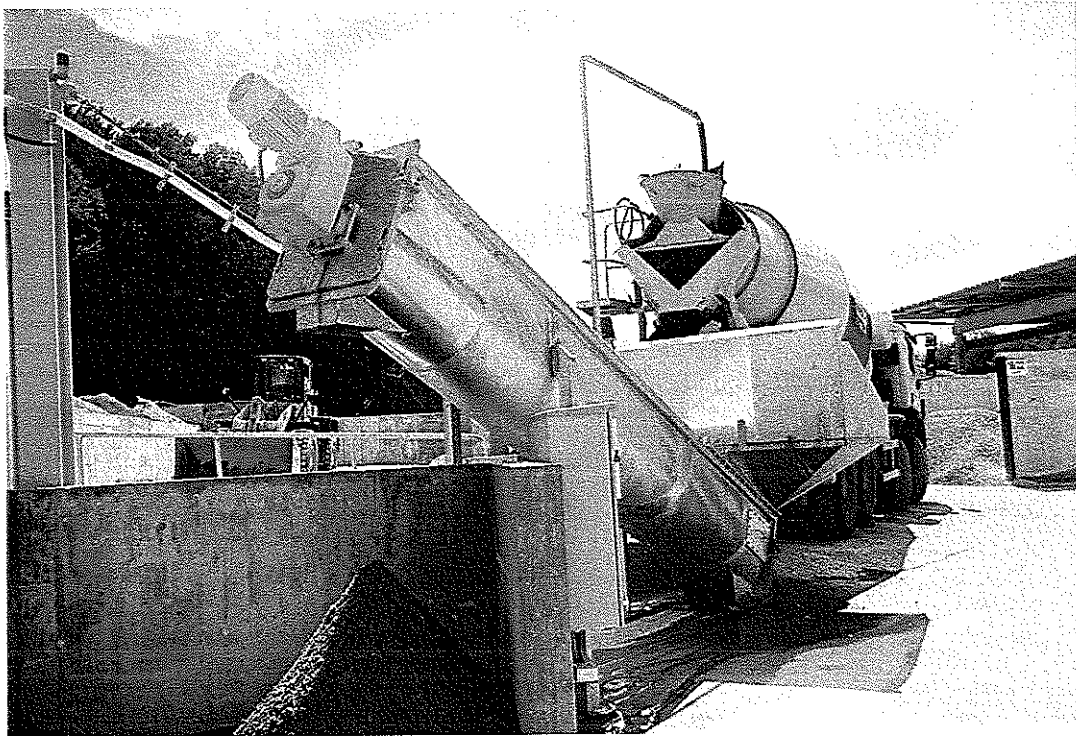
SECTION C-C



OPERATING INSTRUCTIONS

**Residual concrete recycling plant, BIBKO
system®**

Type RWS



**for
Company
Project no:**

Edition 04/11

-Right to make design changes reserved-



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1. General safety instructions

1.1 General safety regulations



These operating instructions contain basic instructions that are to be complied with during operation and maintenance. These operating instructions must be kept easily accessible at all times where the system is being used. The responsible specialists must read the operating instructions before commissioning.

- Before doing any work on electrical plants, **switch the units currentless** and **secure against reconnection**. Always comply with the procedure for putting the machine into standstill as described in the operating instructions.
- After completing work, the safety and protective devices must be reattached and put back into operation.
- Alternations and modifications to the plant are only permissible after consultation with the manufacturer.
- If genuine spare parts are not used, all liability for any consequences is nullified.

1.1.1 Symbols utilised and their meaning



Reference to additional information, e.g. operating instructions on special components



Use safety glasses



Helmet obligatory



Wear safety shoes



Wear safety gloves



Enable before working on the device



Access prohibited to unauthorised personnel



Do not switch during maintenance and repair work



Reaching in (while plant is running) prohibited



Warning



Never walk under the suspended load



Warning about dangerous electrical tension



Warning about automatic start



Danger of slipping

1.1.2 Intended use



The spiral washer is intended solely for charging liquefied residual and returned concrete. This plant separates the concrete into its components of sand/gravel and water with cement.

1.1.3 Approved operating and maintenance staff



Persons who have been instructed in the plant's operating principle are approved as operating staff. The operating staff must have the corresponding qualifications for operating, maintaining, inspecting and installing. If they do not have the required knowledge, the staff is to be accordingly trained.

Non-compliance with the safety and operating instructions can lead to both hazards to people and hazards to the environment and machine as the consequences.

Non-compliance with the safety instructions leads to the loss of rights to all compensation claims.

Along with the safety instructions listed in the operating instructions, the existing domestic regulations regarding accident prevention and any possible internal company work and safety regulations must likewise be observed.

1.1.4 Instructions for the operating company/operator



- Protection guards for moving parts must never be removed from a machine in operation.
- Hazards caused by electrical power must be excluded (refer country-specific VDE regulations and those of the local power supply companies for details).
- The operating company must ensure that all maintenance, inspection and installation work is performed by authorised and qualified specialists. They must intensively familiarise themselves with the operating instructions beforehand.
- Work on the machine only when it is in standstill. The procedures described in the operating instructions for putting the machine into standstill must always be complied with.
- All safety and protective devices must be attached and put back into operation after completing installation, inspection and maintenance work.
- Modifications and alterations to the machine are permitted only after consulting the manufacturer.
- If genuine spare parts are not used, all liability for any consequences is nullified.

1.2 Type RWS recycling system

During maintenance and repair work, always switch off the main switch and secure against reconnection. Bridging this safety device is prohibited.



Caution: The spiral washer runs in automatic mode in an interval (after 15 min. for 2.5 min.)

1.3 Electrical equipment



- The electrical equipment is installed in accordance with the VDE regulations; no risk exists when handled properly.
- Electrical malfunctions in the plant must only be repaired by trained electricians.
- The cable sheathing must never be damaged.
- If damage does occur, immediately switch off the electrical supply to this area, secure the area and commission an electrician with the repair.

1.4 Emissions

The following noise emissions occur:



1. Cycling of the wash-out machine
7m emission level 52 dB (A)
7m noise rating level 48 dB (A)
10m noise rating level 44 dB (A)
2. Stirrer cycling
7m emission level 59 dB (A)
7m noise rating level 52 dB (A)
10m noise rating level 48 dB (A)
3. Truck mixer during washing
10m emission level 75 dB (A)
10m noise rating level 67 dB (A)

The individual rated noise levels in points 1-3 result in determining a 10 m total rated noise level of 67 dB (A).

2. Operating principle of the type RWS recycling system

2.1. Material charging through truck mixer

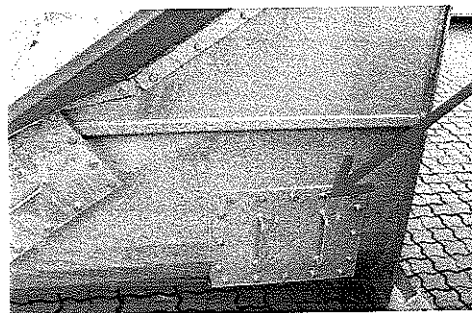
1. Drive the truck mixer in reverse until it is under the rinsing boom.
2. Align the discharge chute on the truck mixer to the machine opening
3. Then set the truck mixer drum to feed speed.
4. Press the **Rinsing boom** button.
Press the button 1 x per m³ return material
If there is already water in the drum, press the **New Start** button.
(The feed screw immediately starts turning)
5. Let the mixing vehicle drum run for at least 1 min. at high speed.
6. Then switch the mixing vehicle drum to discharge and charge the mixture slowly and uniformly into the wash-out machine funnel.

As soon as the **red flash lamp** illuminates, stop the material charging



⇒ **Overload hazard**

If the machine stops due to overloading, immediately empty it using emergency emptying.



Emergency

- If the mixing vehicle drum is not empty at the end of the washing time, restart the plant using the "New Start" button
(When you press the "New Start" button no water is conveyed via the rinse boom.)



Caution: Do not **switch off** the spiral washer's main switch!

The machine is put into an automatic rest (break) cycle when it is not washing out.

2.2. Dosing residual water

The water-sand cement mixture with the micro particles (residual water) flows out of the machine via a shoot into the stirrer basin.

The stirrer-drives integrated in the stirrer basin prevents the fine particles settling on the basin floor. They are kept suspended.

If the remaining water from the mixer controller is not requested, the residual water is conveyed by the mixing controller in the preset time in the water level gauge.

If the level switch in the stirrer basin reports minimum, water is initially requested via the yard water pump. If no yard water pump exists, the fresh water solenoid on the machine opens. This process occurs until the normal level in the stirrer basin has been reached.

2.3. Removing the remaining gravel

The material removed by the spiral conveyor is collected in the material box.



To prevent the material boxes overfilling, they should be emptied at least once daily.

3. Description of the individual components

3.1. Spiral washer

3.1.1. Technical data

	RWS-12	RWS-18
Solids discharge power	12 m³/h	18 m³/h
Trough width	700 mm	900 mm
Trough length	4,150 mm 5,150 mm 6,150 mm	4,150 mm 5,150 mm 6,150 mm
Trough height	700 mm	900 mm
Auger diameter	600 mm	800 mm
Flank lead	250 mm	250 mm
Worm thickness	8 mm	8 mm
Drive power	4.0 kW	5.5 kW
Water content, main water chamber	ca. 1 m³	
Solids grain size	Up to 32 mm	
Separation cut	0.2 mm	
Inlet height (OK funnel)	1,450 mm	
Outlet height (middle drain)	1,050 mm	
Bearing	Clamp system	

3.1.2. Functional description

The spiral washer is used to wash out the sand and grain portion in the concrete.

Concrete remnants from the mixing vehicles are conducted to the machine via the machine funnel.

The worm, located in the machine, moves the material through a water bath and subsequently to the ejection height.

In the water bath, the fine particles < 0.2 mm (sand/ cement particles) are washed out and reach the machine discharge in the stirrer basin.

The wash-out worm area over the water bath is used as the dewatering route for the material.

The wash-out process is started either using the *Rinse boom* or *New Start* button.

To prevent cement hardening in the machine, the machine has a rest (break) cycle. This is automatically activated when the wash-out process is not running.



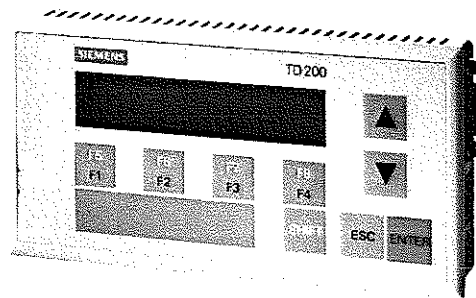
For this reason, do not switch off the main switch on the switch cabinet at night-time or on weekends.

4. Electrical control

4.1. SPS controller

4.1.1. Controller control panel

(Only in SPS controller- contactor control s. circuit diagram in appendix)



4.1.2. Key assignments

Description	Button
Automatic mode/ New start	F1
Stop the line	F2
Horn off	F4

- The other buttons are not assigned

4.1.3. Procedure for various modifications and states

Changing the preset times

- Press SHIFT button („s“ is lit in lower left of display)
- Press F4 button
- With the ▲▼ buttons, scroll through until you find the correct unit (e.g., pump, motor)
- Press the ENTER key and change the displayed values
- Use the ▲▼ button to change the value
- Copy with the ENTER key
- Exit the adjustment mode with the F4 button
- Press F1 (new start)

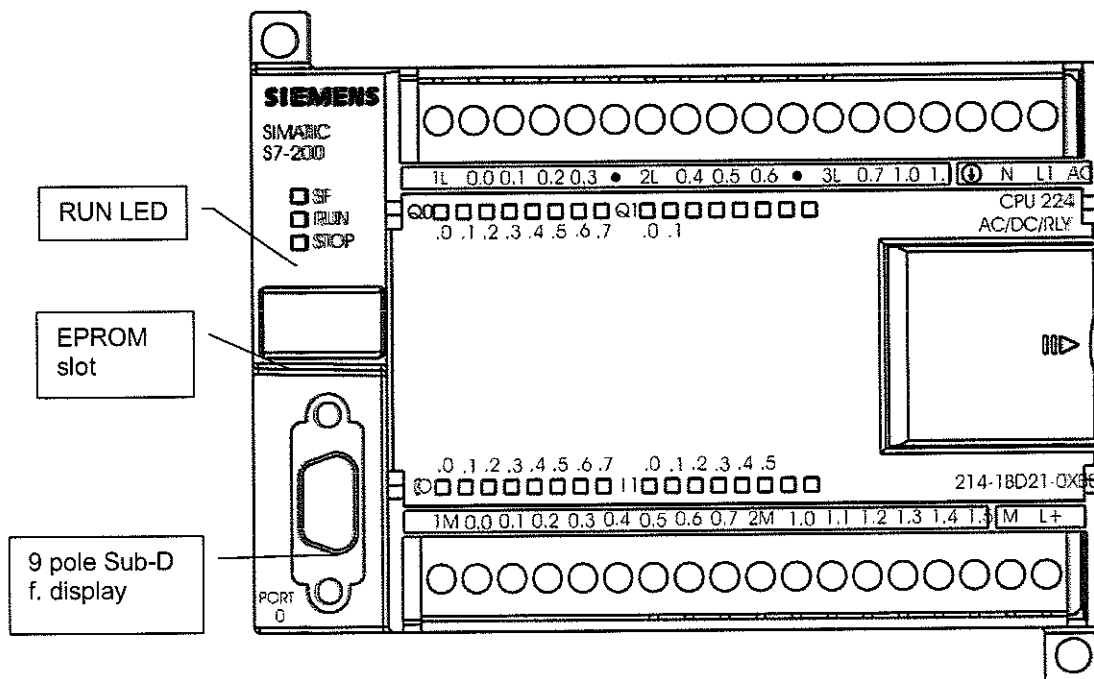
Limit switch / Emergency stop was pressed

- Re-lock the limit switch
- Acknowledge with the **ENTER** key

Download program modifications

The plant is delivered complete with the operational program.

If program changes need to be downloaded, proceed as below.



- Switch off controller using the main switch
- Pull off the cover flap in front of the EPROM slot
- Insert the EPROM in the EPROM slot
- Switch the controller back on with the main switch
- As soon as the RUN-LED is green, pull the EPROM back out
- Put the cover flap back on the EPROM slot
- Return the EPROM back to BIBKO

Address: BIBKO® Umwelttechnik & Beratung GmbH
 Attn: Mr Hummel
 Steinbeisstraße 1+2
 71717 Beilstein

5. Winter operation

5.1. Important during frost hazards

When winter conditions start, comply with the following points:



- If temperatures fall below 0° C, empty the spiral washer using emergency emptying.
- To restrain the cold that enters through the funnel or the drain area, it is recommended to cover these areas with styrofoam during the times when the machine is not being used (nights, weekends).

5.2. Machine heating (optional)

The machine heating ensures operation down to -5°C. When winter conditions start, comply with the following points:

No.	Description	Done
1	Check heating function (Fuse in switch cabinet to 1)	
2	Set heating to max power	
4	Shorten machine break time	
5	Increase wash time during pulse mode	

5.3. Shut down

- Empty the spiral washer via the emergency emptying.

5.4. Re-commissioning/restarting

When commissioning or starting, make sure the spiral washer is free of ice. If it is not, first secure that state.



Switching on the wash-out machine under icy conditions will damage it.

6. Lubrication and maintenance schedule

Maintenance schedule

General	Daily	Weekly	Mon.	1/2 yr	Annua lly	Opr. hrs.
Check emergency stop chain function			K			
Empty the material box	R					
Fresh water feeds		K/R				
Spiral washer	Daily	Weekly	Mon.	1/2 yr	Annua lly	Opr. hrs.
Main motor drive ¹				K	R	5000/ Ö *
Gear bearing				K	R	5000/ F *
Wash-out trough (interior)			R			
Funnel	K/R					
Worm wing (wear)			K			

¹ = Comply with original operating instructions

* = latest every 2 years

R = Clean

Ö = Change oil

K = (visual) check

U = Check for deposits

A = Lubricate

F = Add grease

5.5. Lubricant table

Spiral washer	ARAL	ESSO	Shell	BP	Other	Oil a. in l
Clamp system					HL3	
Main motor drive ¹	Degol BG220	Spartan EP220	Omala Oil 220	BP Energol GR- XP220		8,8

¹ = Comply with original operating instructions

7. Checklist for fault repair

7.1. General information

Make sure you comply with the following procedures during all maintenance work:



Main switch OFF



Close unit



Life threatening shocks

7.2. Spiral washer

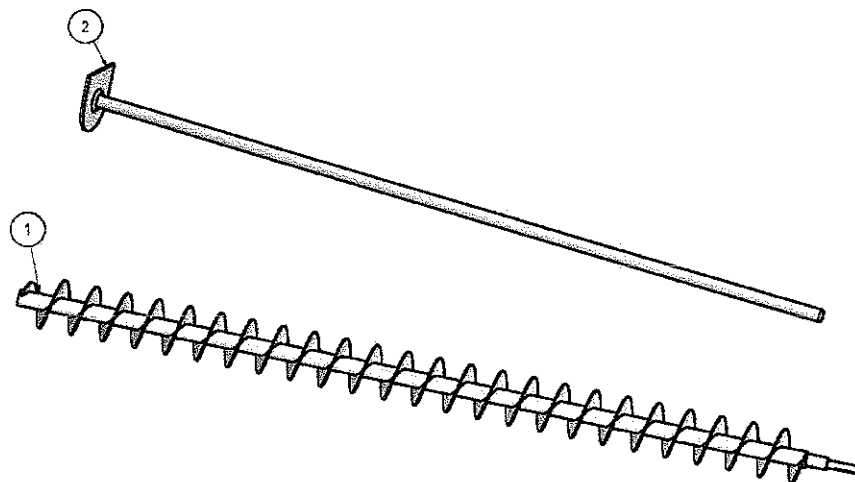
Fault	Cause	Measures
Machine does not start	Limit switch, dampers/ openings was activated	- Re-lock the limit switch - Acknowledge on switch cabinet
	Worm seated too tight	- Unscrew bolt on movable cover (longitudinal side of machine) - Open cover - If required, open the emergency emptying on the machine and empty machine - Free up interior spiral
	Limit switch on machine cover has triggered	- Close the machine cover - Acknowledge on switch cabinet
	No voltage on motor drive	Restore power supply
	Emergency stop button was activated	- Unlock the emergency-stop - Acknowledge on switch cabinet (ENTER key)
	Winding in motor defective	Contact BIBKO
Motor contactor has triggers	The motor is defective	Contact BIBKO
	Machine overfilled	- Empty machine (possibly via emergency emptying) - Feed material into machine more slowly
Rinse water does not flow out of funnel	Drain is clogged	Free up drain
Ice formation in the machine	Plant cycle runtime set too low	Increase cycle runtime

Washer does not convey any material	• Work flanks are slightly worn	• Decrease clearance to trough by adjusting the setscrews on the spiral conveyor
	• Work flanks are heavily worn	• Open the spiral conveyor cover • Weld on a new worm wing

8. Drawings of plant components

8.1. Worm boom

8.1.1. Exploded view



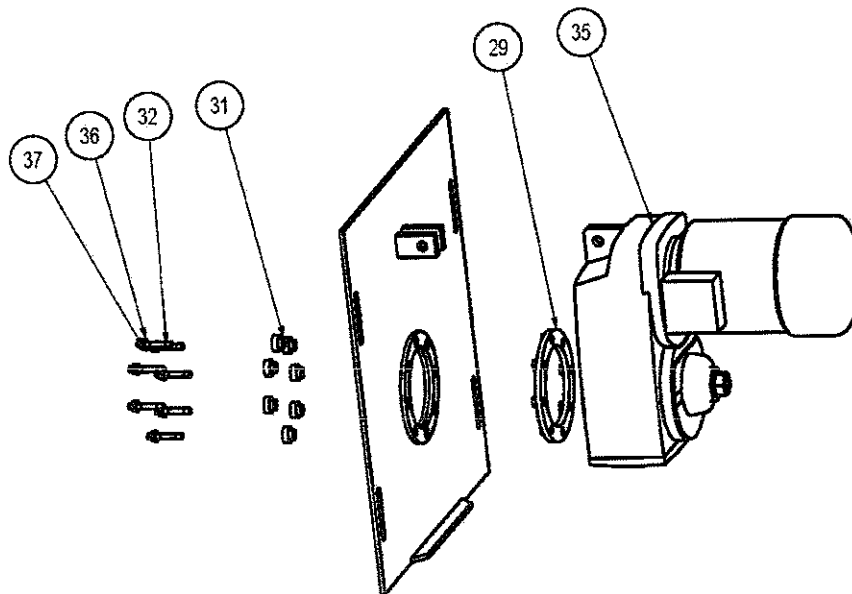
8.1.2. Spare parts list

Item	Designation	Order no.
1	Bearing mandrel Ø75 mm complete	50000100
2	Worm boom complete with bearing mandrel	10161102 (4m) 10161077 (5m) 10161101 (6m)

Right to make changes in the sense of technical progress reserved.

8.2. Type RWS drive unit

8.2.1. Exploded view



8.2.2. Parts list

Item	Each	Designation
29	1	Elastic flange
31	7	Elastic ring
32	7	Stud bolts
35	1	Motor
36	9	Washer
37	8	Hexagon nut

9. Appendix

9.1. Planning drawing

9.2. Electrical wiring diagram (controller)

9.3. Motor drive operating instructions

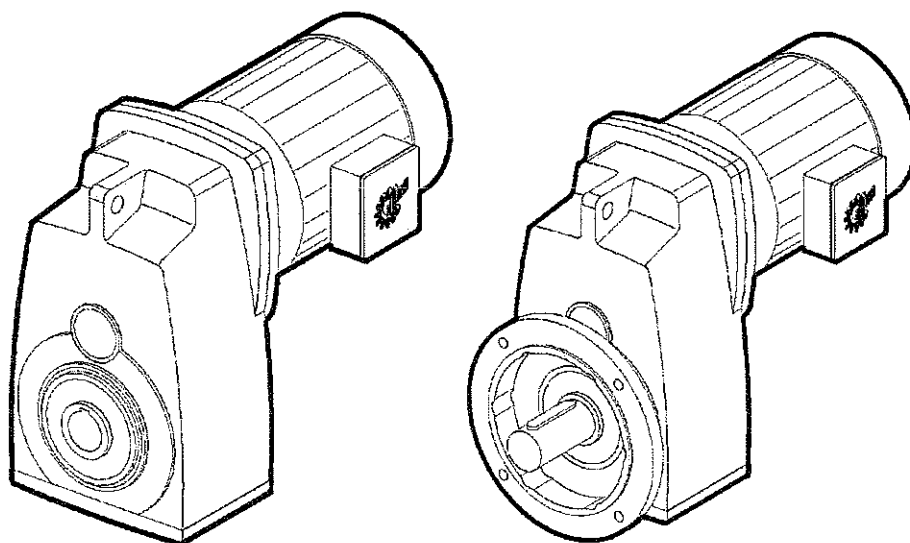
Betriebs- und Wartungsanleitung
Operating and Maintenance Instruction
Instructions de conduite et d'entretien

B 1020

09/2000



Diese Sicherheitshinweise sind aufzubewahren
These safety instructions must be kept available
Ces instructions de sécurité doivent être observées



Flachgetriebe

Helical Shaft Mounting Gearboxes

Réducteurs à arbres parallèles

⚠ Warnung

Es wird vorausgesetzt, daß die grundsätzlichen Planungsarbeiten der Anlage sowie Transport, Montage, Installation, Inbetriebnahme, Wartung und Reparaturen von qualifiziertem Personal ausgeführt bzw. durch verantwortliche Fachkräfte kontrolliert werden. Bei Arbeiten am Getriebemotor muß garantiert sein, daß keinerlei Spannung anliegt, und dieser gegen Wiedereinschaltung gesichert ist.

⚠ Warnung

Veränderungen gegenüber dem Normalbetrieb (höhere Leistungsaufnahme, Temperaturen, Schwingungen, Geräusche usw. oder Ansprechen der Überwachungseinrichtungen) lassen vermuten, daß die Funktion beeinträchtigt ist. Zur Vermeidung von Störungen, die ihrerseits mittelbar oder unmittelbar schwere Personen- oder Sachschäden bewirken könnten, muß das zuständige Wartungspersonal dann umgehend verständigt werden.

⚠ Im Zweifelsfall die entsprechenden Betriebsmittel sofort abschalten!

Aufstellung, Vorbereitung

- Transportösen am Getriebe sind für das Gewicht des Antriebs ausgelegt
- Fundamente ausreichend bemessen und schwingungsfrei ausführen
- Getriebe oder -motor fest und ohne Verspannung montieren
- ausreichende Belüftung vorsehen
- senkrechtes Innengewinde nach DIN 332 zum Aufziehen von Verbindungselementen auf die Wellen benutzen
- Schläge auf die Wellen vermeiden (Lagerbeschädigung!)
- Maschine und Getriebe möglichst mit elastischen Kupplungen verbinden
- vor dem Einschalten Abtriebsselemente aufziehen bzw. Paßfedern sichern
- bei Aufsteckgetrieben mit Drehmomentstütze Gummipuffer verwenden

Elektrischer Anschluß

- Motoranschluß nach Schaltbild vornehmen
- Übereinstimmung von Netzspannung und Frequenz mit den Typenschild-Daten sicherstellen
- Sichere Schutzleiterverbindung herstellen
- evtl. falsche Drehrichtung korrigieren durch Vertauschen von 2 Phasen
- Nicht benötigte Kabeleinführungsöffnungen und den Kasten selbst staub- und wasserdicht verschließen
- Überbelastung und Phasenausfall durch Schutzschalter vorbeugen
- Einstellen des Motorschutzschalters auf Nennstrom
- Schaltbilder auf der letzten Seite

Inbetriebnahme

- bei längeren Lagerzeiten besondere Vorkehrungen treffen (siehe Werknormblatt "Langzeitlagerung")
- Lage der Ölstandsschraube nach Bauformtabellen des entsprechenden Kataloges feststellen
- Prüfen des Ölstandes
- Entfernen des Verschlussstopfens vor Inbetriebnahme (Überdruck!), ggf. Druckentlüftungsschraube montieren
- Normale Erstbefüllung: siehe Schmierstofftabelle
- Luftgekühlte Motoren sind für Umgebungstemperaturen von -20°C bis +40°C sowie Aufstellungshöhen á 1.000 m über NN ausgelegt
- Der Einsatz im Ex-Bereich ist nicht zulässig, sofern nicht ausdrücklich hierfür vorgesehen

⚠ Caution

It is presumed that fundamental project work as well as all work with regard to transport, assembly, installation, starting-up, maintenance and repair is performed by qualified personnel or supervised by skilled labour taking overall responsibility. Make absolutely sure that no voltage is applied at all while work is being done on the geared motor. Drive must also be secured against switching on.

⚠ Caution

Any deviation from normal operating conditions (increased power consumption, temperature, vibrations, noise etc.) or warning signals by monitoring equipment suggest malfunction. Inform the responsible maintenance personnel at once to prevent the trouble from getting worse and causing, directly or indirectly, serious physical injury or material damage.

⚠ In case of doubt disconnect the machine immediately!

Preparing and performing installation

- Lifting devices on the drive are designed to carry the drive weight
- the foundation (base) should be of adequate size and vibration-proof
- install gear unit or geared motor rigid and braceless
- ensure sufficient ventilation
- make use of tapped hole (DIN 332) to suit fastening to the shaft end
- avoid shocks on shafts (bearing damage!)
- preferably use flexible coupling between output shaft and driven machine
- fit output elements to shaft end or secure feather key before starting the motor
- use torque arm with rubber buffer on shaft mounting gearboxes

Connection of motor

- Connect motor according to diagram
- make sure that mains voltage/frequency are in accordance with nameplate information
- make secure protective conductor connection
- if motor is running in reverse direction, interchange two phases
- Close unused cable entrances holes and the box itself in a dust- and watertight manner.
- install protective switches to prevent overload and phase failure
- set motor protection switch to nominal current
- wiring diagrams on the last page

Starting up

- in case of long-time storage take special precautions (as provided in works standard sheet "Extended Storage")
- check position of oil-level plug with help of mounting position tables in applicable catalogue
- check oil-level
- prior to starting-up, remove vent plug from vent screw if necessary
- if not specified otherwise, first oil filling as is shown in list of lubricants
- air-cooled motors are designed for ambient temperatures between -20°C and +40°C and for installation at altitudes á 1.000 m above M.S.L.
- Their use in hazardous areas is prohibited unless they are expressly intended for such use (follow additional instructions)

⚠ Avertissement

Il est impératif que les travaux fondamentaux de l'installation, ainsi que tous les travaux de transport, montage, installation, mise en exploitation, entretien et réparation soient accomplis par du personnel qualifié et contrôlés par des techniciens spécialisés dans ce domaine. Avant toute intervention sur le motoréducteur, il faut s'assurer que celui-ci n'est plus sous tension et que la remise sous tension soit interdite.

⚠ Avertissement

Si en utilisation normale, des modifications de fonctionnement apparaissent telles que puissance absorbée trop élevée, température élevée, vibrations fortes, bruit intense etc. ou en rapport avec les contrôles techniques, cela laisse supposer que différentes fonctions de l'appareil peuvent être détériorées. Pour éviter ensuite des problèmes, qui pourraient entraîner de graves accidents corporels ou de graves dégâts matériels, le personnel d'entretien compétent doit immédiatement être informé.

⚠ Si vous êtes dans le doute, coupez immédiatement l'alimentation!

Mise en place, préparation

- Le matériel utilisé pour la manutention doit tenir compte du poids de l'équipement
- prendre largement les dimensions des embases et les réaliser exemptes de vibrations
- monter les réducteurs et motoréducteurs solidement et sans haubanage
- prévoir une aération suffisante
- prévoir le taraudage conforme à la norme DIN 332 pour monter des accouplements sur les arbres d'entrée et de sortie
- éviter de donner des coups sur les arbres (cela pourrait détériorer le roulement!)
- lier autant que possible la machine et le réducteur avec des accouplements élastiques
- avant la mise en service, enlever l'élément d'accouplement ou/et fixer la clavette
- utiliser pour l'exécution arbre creux avec bras de réaction une butée en caoutchouc

Branchements électriques

- brancher le moteur selon le schéma
- s'assurer que la tension du réseau et la fréquence correspondent aux données inscrites sur la plaque signalétique
- Le câble de raccordement doit être protégé
- corriger un éventuel mauvais sens de rotation par une inversion de deux phases
- Les entrées de câbles non utilisées doivent être obturées, la boîte elle-même devant être fermée de façon à être étanche à l'eau et à la poussière
- prévoir une protection électrique contre les surcharges, court-circuit et défaut de phases
- régler la protection électrique suivant l'intensité nominale du moteur
- schéma de branchement à la dernière page

Mise en fonctionnement

- si un stockage longue durée du réducteur est prévu, il faut prendre les dispositions nécessaires (voir spécification "Stockage longue durée")
- vérifier que la vis de niveau d'huile correspond à la position de montage du réducteur (voir catalogue)
- contrôler le niveau d'huile
- enlever la mèche de la vis d'évent avant la mise en route (pour éviter une surpression) ou fixer le clapet d'évent sur le réducteur
- pour le premier remplissage voir le tableau des lubrifiants
- les moteurs autoventilés sont dimensionnés pour des températures ambiantes comprises entre -20°C et +40°C, ainsi que pour une altitude á 1000 mètres au-dessus du niveau de la mer
- Leur utilisation dans des atmosphères explosives est interdite, à moins qu'elles ne soient expressément prévues à cet effet (respecter les indications supplémentaires)

Wartung MOTOR

- Staubablagerungen entfernen (Überhitzung!)
- Wälzlager ausbauen, reinigen und einfetten
- Es ist zu beachten, daß der gesamte Freiraum um das Lager ca. 1/3 mit Fett gefüllt ist
- Schmierstoffsorten siehe unten

Maintenance MOTOR

- remove dust deposit (overheating)
- dismount anti-friction bearings for cleaning and refill with grease
- ensure that the bearing cage is packed to about 1/3 with grease, distribute evenly
- select proper type of lubricating grease from following table

Entretien DU MOTEUR

- enlever la poussière du moteur (échauffement)
- démonter les roulements, les nettoyer et les regraisser
- la cage des roulements doit être remplie au 1/3 environ
- lubrifiant voir tableau ci-après

GETRIEBE

- regelmäßige Ölstandskontrolle
- Wechseln des Schmierstoffes alle 10.000 Betriebsstunden oder spätestens nach 2 Jahren.
- Doppelte Fristen bei synthetischen Produkten
- Verkürzung der Schmierstoffwechselintervalle bei extremen Betriebsbedingungen (hohe Luftfeuchtigkeit, aggressive Umgebung und hohe Temperaturschwankungen)
- Verbinden des Schmierstoffwechsels mit gründlicher Reinigung des Getriebes

GEARBOX

- regular oil level check
- change lubricant every 10.000 working hours or after two years at the latest.
- combine the lubricant change with thorough cleaning of gear unit
- lubricant changing intervals will be twice as long if synthetic products are used
- extreme working conditions (high air humidity, aggressive media and large temperature variations) call for reduced lubricant changing intervals

DU REDUCTEUR

- vérifier régulièrement le niveau d'huile
- vidanger le lubrifiant après 10.000 heures de fonctionnement ou au plus tard après 2 ans d'utilisation.
- profiter de la vidange pour effectuer un nettoyage approfondi du réducteur
- pour des lubrifiants synthétiques, ce délai peut être doublé
- réduire les intervalles entre les vidanges dans des conditions d'utilisation extrêmes (hygrométrie élevée, ambiance agressive ou variations importantes des températures)

Δ Synthetische und mineralische Schmierstoffe nicht miteinander mischen! Das gilt auch für die Entsorgung der Schmierstoffe!

Δ Synthetic and mineral lubricants must not be mixed either for filling or for disposal!

Δ Des lubrifiants synthétiques et minéraux ne doivent pas être mélangés! Ceci s'applique également pour le retraitement des lubrifiants!

ÖLFÜLLMENGE [cm³]			CAPACITY [cm³]			QUANTITE DE LUBRIFIANT [cm³]						
Bauform		Waagerechte Anordnung Horizontal position Position horizontale										
Mounting position	Flachgetriebe zweistufig		Helical Shaft Mounting Gearboxes double reduction				Réducteurs à arbres parallèles à deux trains d'engrenages					
Positions de montage	1282	2282	3282	4282	5282	6282	7282	8282	9282	10282 *	11282 *	
H 1	900	1.650	3.150	4.700	7.500	17.000	25.000	37.000	74.000	90.000	165.000	
H 2	900	1.900	3.250	4.750	7.500	12.000	20.000	30.000	55.000	40.000	145.000	
H 3	950	1.800	3.150	4.700	7.200	14.000	21.000	31.000	59.000	82.000	140.000	
H 4	950	1.800	3.150	4.700	7.200	10.000	15.000	31.000	69.000	60.000	100.000	
Bauform		Senkrechte Anordnung Vertical position Position verticale										
Mounting position	Flachgetriebe zweistufig		Helical Shaft Mounting Gearboxes double reduction				Réducteurs à arbres parallèles à deux trains d'engrenages					
Positions de montage	1282	2282	3282	4282	5282	6282	7282	8282	9282	10282 *	11282 *	
H 5	1.200	2.000	4.100	5.400	8.800	17.500	27.000	41.000	72.000	90.000	195.000	
H 6	1.300	2.400	4.100	6.100	8.800	14.000	21.000	33.000	70.000	90.000	160.000	
Bauform		Waagerechte Anordnung Horizontal position Position horizontale										
Mounting position	Flachgetriebe dreistufig		Helical Shaft Mounting Gearboxes triple reduction				Réducteurs à arbres parallèles à trois trains d'engrenages					
Positions de montage	1382	2382	3382	4382	5382	6382	7382	8382	9382	10382 *	11382 *	
H 1	1.450	1.700	4.100	5.900	12.500	16.500	22.000	34.000	73.000	85.000	160.000	
H 2	1.150	1.900	3.300	4.900	8.700	9.600	18.000	25.000	45.000	38.000	140.000	
H 3	1.100	1.500	3.300	4.900	8.300	12.500	19.000	30.000	60.000	80.000	135.000	
H 4	1.100	1.500	3.300	4.900	8.300	14.000	23.000	35.000	65.000	80.000	155.000	
Bauform		Senkrechte Anordnung Vertical position Position verticale										
Mounting position	Flachgetriebe dreistufig		Helical Shaft Mounting Gearboxes triple reduction				Réducteurs à arbres parallèles à trois trains d'engrenages					
Positions de montage	1382	2382	3382	4382	5382	6382	7382	8382	9382	10382 *	11382 *	
H 5	1.700	3.100	5.600	8.300	14.000	18.000	25.000	38.000	74.000	80.000	210.000	
H 6	1.600	2.600	4.100	6.800	12.000	13.000	20.000	32.000	70.000	80.000	155.000	
* Die Getriebetypen SK 10282 / SK 10382 und SK 11282 / SK 11382 werden im Normalfall ohne Öl geliefert.												
* Types SK 10282 / SK 10382 and SK 11282 / SK 11382 are supplied without lubricant as a standard.												
* Les réducteurs SK 10282 / SK 10382 et SK 11282 / SK 11382 sont livrés sans huile.												
Die Normalbefüllung der Getriebe ist Mineralöl. Synthetisches Öl ist gegen Mehrpreis lieferbar.												
Standard lubricant for the gearboxes is mineral-oil. Synthetic oil is available at a surcharge.												
Les réducteurs sont remplis d'huile minérale. Ils peuvent être remplis d'huile synthétique contre supplément de prix.												
HINWEIS / REMARK / REMARQUE:												
Ölfüllmengen sind ca. Angaben. Öl niveau anhand der Ölkontrollschraube prüfen.												
Filling quantities are approx. figures. Oil level must be checked according to oil-level plugs.												
Les quantités d'huile sont données à titre indicatif. Vérifier la quantité d'huile grâce à la vis de niveau d'huile.												

Hohlwelle mit Schrumpfscheibe - Montage - Demontage und Wartungshinweise Hollow shaft with shrink-discs - Assembly - Dismantling suggestions and maintenance Exécution des arbres creux avec frette de serrage - Montage - Démontage et entretien

Schrumpfscheiben-Typ, Sach-Nr. und Drehmomentangabe für Spannschrauben
Shrink-disc type, part-no. and torque of locking screws
Indication du type de frette et du couple de serrage et no. ident.

Spannflansche
Locking hub
disques de serrage

Vollwelle der Maschine
Customer's solid shaft
arbre plein machine

Spannschrauben DIN 934 (933) - 10.9
Locking screws DIN 934 (933) - 10.9
Vis de serrage DIN 934 (933) - 10.9

Wellenschaft und Hohlwellenbohrung
Solid shaft and bore of hollow shaft
arbre et alésage arbre creux

**FETTFREI
GREASE-FREE
SANS GRAISSE**

Die Schrumpfscheiben werden vom Hersteller einbaufertig geliefert. Sie sollen vor der Montage nicht mehr auseinandergenommen werden.

Shrink-discs are supplied ready for installation and should not be taken apart before mounting.

Les frettes de serrage sont livrées prêtes à monter par le fabricant et ne doivent donc pas être démontées avant le montage.

Hohlwelle des Getriebes
Hollow-shaft (gearbox)
arbre creux du réducteur

Zwischen halbgewächster Innenring
Dual half-split inner ring
deux bagues intérieures fendues

Montageablauf:

1. Entfernen der Transportsicherung zwischen den Flanschen, falls vorhanden.
2. Anziehen der Spannschrauben (leicht von Hand) bis das Spiel zwischen den Flanschen und dem Innenring beseitigt ist. Der Innenring muß noch leicht drehbar sein.
3. Einfetten der Bohrung des Innenringes, dadurch leichte Montage der Schrumpfscheibe auf die Getriebebohrung.
4. Aufsetzen des Getriebebohrung auf die Maschinenwelle.

Maschinenwellenschaft und Hohlwellenbohrung müssen im Bereich der Schrumpfscheibe absolut fettfrei sein.

Die Maschinenwelle vor der Montage im Bereich, welche später Kontakt mit der Bronzebuchse der Hohlwelle hat, einfetten. Die Bronzebuchse nicht einfetten, um bei der Montage eine Befettung des Schrumpfscheibes zu vermeiden.

5. Durch leichtes Anziehen der Spannschrauben positionieren sich die Spannflansche automatisch.
6. Festziehen der Spannschrauben der Reihe nach im Uhrzeigersinn über mehrere Umläufe - nicht überkreuz - 1/4 bis 1/2 Schraubenumdrehung pro Umlauf. Die Spannschrauben mit einem Drehmoment Schlüssel bis zu dem auf der Schrumpfscheibe oder in der Maßtafel angegebenen Anzugsdrehmoment anziehen.

Demontageablauf:

1. Spannschrauben der Reihe nach über mehrere Umläufe lösen, pro Umlauf ca. 1/4 Umdrehung. Spannschrauben nicht aus ihrem Gewinde entfernen - Unfallgefahr!!
2. Die Spannflansche sind vom Konus des Innenringes zu lösen.
3. Abnehmen des Getriebes von der Maschinenwelle.

Wartung der Schrumpfscheiben:

Eine montierte Schrumpfscheibe ist wartungsfrei. War eine Schrumpfscheibe längere Zeit im Einsatz und wurde demontiert, dann ist sie vor der erneuten Montage zu zerlegen und zu reinigen. Nach der Reinigung sind die Kegelflächen (Konus) der Spannflansche und des Innenringes mit Molykote G-Rapid Plus oder vergleichbarem Schmierstoff einzustreichen. Die Schrauben sind im Gewinde und Kopflage mit normalem Fett zu behandeln.

Installation instructions:

1. Remove transportation spacers (if provided) located between outer collars.
2. Lightly handtighten locking screws to eliminate play between outer collars and inner ring. You should still be able to easily turn inner ring.
3. Lightly lubricate the bore of the shrink-disc to facilitate easy mounting onto hollow-shaft of reducer.
4. Fit shrink-disc onto hollow-shaft and mount hollow-shaft/reducer onto solid shaft.

Hollow- and solid shaft must be clean and free from any lubricant.

Exception: Grease solid shaft at end where it will make contact with bronze bushing of the hollow-shaft when it is mounted. Never grease the front of the solid shaft which makes contact under the shrink-disc. Tighten locking screws only after mounting the hollow-shaft onto the solid shaft.

5. Now tighten locking screws only lightly to position outer collars.
6. Use torque wrench and equally tighten all screws one after another (never cross wise) in a clockwise or counter clockwise sequence by approximately 1/4 to 1/2 turn until specified tightening torque (per table) is reached.

Removal:

1. Loosen locking screws in sequence in several steps by using approximately 1/4 turns. Danger - Do not remove locking screws completely.
2. Loosen the outer collars from the double tapered inner ring.
3. Remove hollow-shaft/reducer from solid shaft.

Maintenance:

An installed shrink-disc is maintenance free. Before reinstalling (after prolonged use) it should be taken apart and thoroughly cleaned. Relubricate the taper of the outer collars and of the inner ring with Molykote G-Rapid plus or equivalent. Regrease screw threads and head contact area with multipurpose grease.

Procédure de Montage:

1. Les éventuelles protections de transport placées entre les surfaces de serrage doivent être retirées.
2. Les vis de serrage doivent être légèrement serrées à la main, jusqu'à ce qu'il n'y ait plus de jeu entre les surfaces de serrage. L'anneau intérieur doit toutefois pouvoir encore être tourné aisément.
3. L'alésage (D1) de la bague intérieure de la frette doit être légèrement graissé. De la sorte, le montage de la frette sur l'arbre creux est facilité.
4. Positionner l'arbre creux réducteur sur l'arbre machine.

L'arbre machine et l'arbre creux doivent absolument être exempt de graisse - au niveau de la liaison par frette.

Préalablement au montage, l'arbre machine doit être graissé à l'endroit du positionnement prévu de la bague bronze de l'arbre creux. Ne pas graisser la bague bronze, pour éviter un graissage du siège de la frette lors du montage.

5. Serrer légèrement les vis de serrage de la frette, afin que les surfaces de serrage se positionnent automatiquement.
6. Serrer les vis dans le sens des aiguilles d'une montre les unes après les autres, en plusieurs fois, en faisant à chaque fois d'1/4 à 1/2 tour de vis. Ne pas serrer en diagonale! Utiliser une clef dynamométrique pour le serrage. Les couples de serrage sont indiqués sur les frettes, ou doivent être relevés sur les plans.

Procédure de démontage:

1. Les vis de serrage doivent être desserrées dans l'ordre, les unes après les autres, en plusieurs fois, avec environ 1/4 de tour par vis à chaque fois. Ne pas sortir les vis du filetage. Risque d'accident!!
2. Le plan de serrage doit être écarté du cône de la bague intérieure.
3. Retirer le réducteur de l'arbre machine.

Entretien des frettes de serrage:

Une frette de serrage montée ne nécessite aucun entretien. Si une frette utilisée depuis un certain temps est démontée, un nettoyage préalable à toute nouvelle utilisation est nécessaire. Après nettoyage, les surfaces coniques de serrage et la bague intérieure doivent être enduites de Molykote G-Rapid Plus ou d'un type de graisse analogue. Les filetages et têtes de vis doivent être graissés normalement.

Hinweis:

Diese Tabelle stellt vergleichbare Schmierstoffe unterschiedlicher Hersteller dar. Innerhalb einer Viskosität und Schmierstoffsorte kann der Ölhersteller gewechselt werden. Beim Wechsel der Viskosität bzw. der Schmierstoffsorte muß Rücksprache mit uns gehalten werden, da sonst keine Gewährleistung für die Funktionstüchtigkeit unserer Getriebe übernommen werden kann.

Note:

This table lists compatible lubricants of different suppliers. Within the same viscosity class and type of lubricant the supplier can be chosen freely. In case you change the viscosity class resp. the type of lubricant you should contact us in advance as otherwise we cannot assure the proper function of our drive and the warranty becomes void.

Indication:

Ce tableau présente les lubrifiants comparables des différents fabricants. Si l'on respecte les critères de viscosité et le type de lubrifiant, on peut utiliser n'importe quelle marque d'huile après le vidange. Afin de pouvoir garantir un bon fonctionnement de nos réducteurs, veuillez nous consulter avant de remplacer un lubrifiant par un autre possédant des caractéristiques différentes de viscosité et de type.

Schmierstoffarten / Type of lubricant / Type de lubrifiant												
Schmierstoffart Type of lubricant Type de lubrifiant	Umgebungstemp. Ambient temp. Temp. ambiante	ARAL	BP	ELF	DEA	ELSO	FUCHS	KLÜBER	Mobil	Optimol	Shell	Tribol
Mineralöl Mineral oil Huile minérale	Schneckengetriebe 0 ... 40°C	Degol BG 680	---	Alpha SP 680	Falcon CLP 680	---	Renolin CLP 680 Plus	Klüberoil GEM 1-680	Mobilgear - 636 - XMP 680	Optigear BM 680	Shell Omala 680	Tribol 1100/680
	ISO VG 220 -5 ... 40°C (normal)	Degol BG 220	Energol GR-XP 220	Alpha SP 220 Alpha MW220 Alpha MAX 220	Falcon CLP 220	Spartan EP 220	Renolin CLP 220 Plus	Klüberoil GEM 1-220	Mobilgear 630 Mobilgear XMP 220	Optigear BM 220	Shell Omala 220	Tribol 1100 / 220
	ISO VG 100 -15 ... 25°C	Degol BG 100 BG 100 plus	Energol GR-XP 100	Alpha SP 100 Alpha MW 100 Alpha MAX 100	Falcon CLP 100	Spartan EP 100	Renolin CLP 100 Plus	Klüberoil GEM 1-100	Mobilgear - 627 - XMP 110	Optigear BM 100	Shell Omala 100	Tribol 1100 / 100
	ISO VG 15 -15 ... 15°C	Vitaloil 1010	Barthol HV 15	Hyacin AW5 15 Hyacin SP 15 Hyacin ZZ 15	Astron HVL 15	Unkvis J13	Renolin B 15 HV	ISO-FLEX MT 30 ROT	Mobil DTE 11 M	Ultra 10	Shell Tetra T 15	Tribol 943 AW 22
Synthetisches Öl Synthetic oil Huile synthétique	Schneckengetriebe -5 ... 60°C	Degol GS 680	Energol SG-XP 680	---	---	---	Renolin PG 680	Klüberynth GH 6-680	Glygoyle HE 680	Optiflex A 680	Shell Tivella S 680	Tribol 800 / 680
	ISO VG 220 -25 ... 60°C	Degol GS 220	Energol SG-XP 220	Alphasyn PG 220	Polydea PGLP 220	Glycolube 220	Renolin PG 220	Klüberynth GH 6-220	Glygoyle HE 220	Optiflex A 220	Shell Tivella WB Tivella S 220	Tribol 800/ 220
Biologisch abbaubares Öl Biodegradable oil Huiles biodegradables	Schneckengetriebe -5 ... 40°C	---	---	---	---	---	Plantogear 580 S	---	---	---	---	---
	ISO VG 680 -5 ... 40°C	---	---	---	---	---	Plantogear 220 S	Klüberynth GEM 2-220	---	Optisyn BS 220	---	Tribol BioTop 1418 / 220
Lebensmittel- verträgliches Öl ¹⁾ Food-grade oil ¹⁾ Huiles pour environnement alimentaire ¹⁾	Schneckengetriebe -5 ... 40°C	---	---	---	---	---	Bel-Ray No-Tox Synt. Worm Gear Oil 680	Klüberoil 4 UH1-680N Klüberynth UH1 5-680	---	Optileb GT 680	Shell Cassida Fluid GL680	Tribol FoodProof 1800 / 680
	ISO VG 680	---	---	---	---	---	Bel-Ray No-Tox Synt. Worm Gear Oil 680	Klüberoil 4 UH1-680N Klüberynth UH1 5-680	---	Optileb GT 680	Shell Cassida Fluid GL680	Tribol FoodProof 1800 / 680
	ISO VG 220 -25 ... 40°C	Eural Gear 220	---	Vitalube GS 220	---	Gear Oil FM 220	Bel-Ray No-Tox Gear Oil 90	Klüberoil 4 UH1-220N Klüberynth UH1 5-220	Mobil DTE FM 220	Optileb GT 220	Shell Cassida Fluid GL220	Tribol FoodProof 1810 / 220 oder 1800 / 220
Synth. Fießfett Synth. fluid grease Graisse fluide synthétique	-25 ... 60°C	Aralub BAB EP0	Energol GSF	Alpha Gel 00	---	Fießfett S 420	Renolit LX-PG 00	Klüberynth GE 46-1200 Klüberynth UH1 14-1600 ¹⁾	Glygoyle Grease 00	Obeon UF 00	Thella Comp. A Thella GL 00	Tribol 800 / 1000

Schmierstoffarten für Wälzlager / Type of lubricant for anti friction bearings / Type de lubrifiant pour roulements à rouleaux												
Schmierstoffart Type of lubricant Type de lubrifiant	Umgebungstemp. Ambient temp. Temp. ambiante	ARAL	BP	ELF	DEA	ELSO	FUCHS	KLÜBER	Mobil	Optimol	Shell	Tribol
Fett (Mineralölbasis) Grease (mineral oil basis) Graisse (base huile minérale)	+30 ... 60°C (normal)	Aralub HL 2	Energol LS 2	Spherol AP 2 LZV-EP	Glissando 20	Mehr-zweckfett Beacon2	Renolit FWA 180	Klüberplex BEM 41-132	Mobilux 2	Longtime PD 2	Shell Alvania R2	Tribol 4020/220-2
	+50 ... 40°C	Aralub SEL 2	---	Spherol EPL2	---	---	Renolit JP 1619	---	---	Longtime PD 1	Shell Alvania RL 2	Tribol 3785
Synthetisches Fett Synthetic grease Graisse synthétique	+25 ... 80°C	Aralub SKL 2	---	Product 783/48	Discor B EP 2 LF	Beacon 325	Renolit S 2 Renolit HLT 2	ISO-FLEX TOPAS NCA 52 PETAMO GHY 133 N	Mobiltemp SHC 32	Optitemp LG 2	Aero Shell Grease 18 oder 7	Tribol 3499
Biologisch abbaubares Fett Biodegradable Grease Graisse biodegradables	-25 ... 40°C	Aralub BAB EP 2	BP Bio-grease EP 2	Botec	Dolfin E EP 2	---	Plantogel 2 S	Klüberoil M 72-82	Schmierfett UE 100 B	EP 584	Shell Alvania RL 2	Mobil-Akay BioTop 3458
Lebensmittelverträgliches Fett ¹⁾ Food-grade grease ¹⁾ Graisse pour environnement alimentaire ¹⁾	-25 ... 40°C	Eural Grease EP 2	BP Energol FM 2	Vitalube HT Grease 2	Tamux FRA 1	Carum 330	Renolit G 7 FG 1	Klüberynth UH1 14-151	Mobil-grease FM 102	Obeon UF 2	Shell Cassida RLS 2	Mobil-Akay Food-Proof 823-2 FM

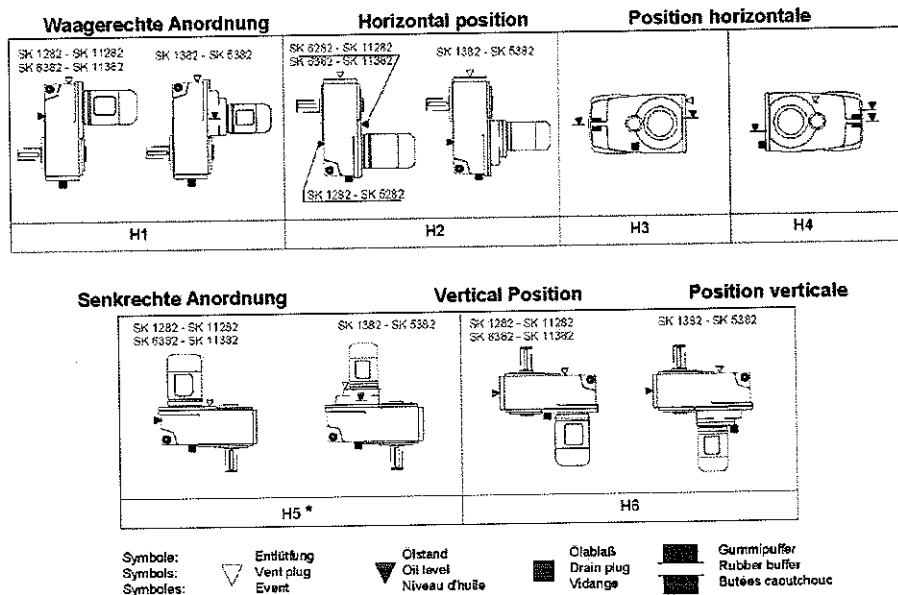
- * Bei Umgebungstemperaturen unterhalb -30°C und oberhalb 60°C sind Wellendichtringe in besonderer Werkstoffqualität einzusetzen
- * With ambient temperatures below -30°C and above approx. 60°C shaft sealing rings of a special material quality must be used
- * Lors d'une température ambiante inférieure à -30°C ou supérieure à environ 60°C, il y a lieu d'utiliser des joints d'étanchéité spéciaux

¹⁾ Lebensmittelverträgliche Öle + Fette nach Vorschrift H1 / FDA 178.3570

¹⁾ Food grade lubricants with USDA-H1 approval FDA 178.3570

¹⁾ Huiles pour environnement alimentaire + graisses suivant prescription H1 / FDA 178.3570

BAUFORMEN MONTING POSITIONS POSITIONS DE MONTAGE



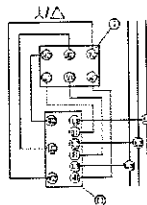
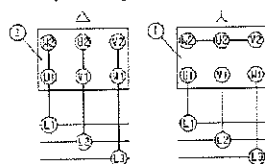
* Bauform H5 mit Ölausgleichsbehälter (siehe Katalog G1000)

* Mounting position H5 with lubricant expansion unit (see catalogue G1000)

* Position de montage H5 avec réservoir de compensation de niveau d'huile (voir catalogue G1000)

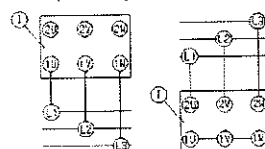
Schaltbilder / Wiring diagrams / Schémas de branchement

Drehstrom-Motor mit Kurzschlußanker
Three phase squirrel-cage motor
Moteur triphasé à cage d'écureuil

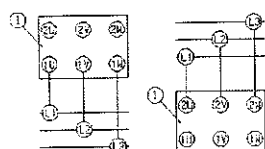


- i) Klemmbrett
Terminal board
Plaque à bornes
- ii) Schalter
Switch
Démarreur

Drehstrom-Motor mit Kurzschlußanker, in Dahlander-Schaltung
Three phase squirrel-cage motor, Dahlander connection
Moteur triphasé à cage d'écureuil, couplage Dahlander



Drehstrom-Motor, polumschaltbar, zwei getrennte Wicklungen
Three phase motor, polechanging, two separate windings, two speeds
Moteur triphasé à commutation de pôles, deux bobinages séparés, deux vitesses



niedrige
low
inférieure

- Drehzahl
- speed
- vitesse

- hohe
- high
- supérieure

niedrige
low
inférieure

- Drehzahl
- speed
- vitesse

- hohe
- high
- supérieure

9.4. Declaration of conformity

BIBKO® Umwelttechnik & Beratung GmbH
Steinbeisstraße 1+2
71717 Beilstein

EC Declaration of Conformity
in accordance with the **EC Machinery Directive 2006/42/EC**

We herewith declare that the below designated machine, based on its conception and design, and the version we distribute comply with the basic safety and health requirements in the EU Machine Directive. This declaration loses its validity in case of modifications made to the machine we have not authorised.

Machine designation: **Residual concrete recycling plant, BIBKO system®**

Machine type: **RWS 12/18**

Machine no.: **0000**

Applicable EC directives: **EC Machinery Directive 2006/42/EC**
Directive 2004/108/EC on Electromagnetic Compatibility

Harmonised norms: **DIN EN 12100-1 und -2:2004**
Machine Safety, General terms and Basic Design Principles

EN 60 204-1:2006
Electrical Equipment on Industrial Machines

DIN EN ISO 13857:2008
Machinery Safety – Safety distances to prevent hazard zones being reached by upper and lower limbs

The required safety precautions are checked during the machine approval and confirmed on the "machine card with acceptance protocol". This declaration of conformity is only valid in connection with the signed acceptance protocol.

Date / City 01.04.11, Beilstein

Manufacturer signature:



Position of the undersigned: pp Frank Häußermann

MARKER 25

TRAFFICABLE BUNDOS TO BE INSTALLED AT ALL ENTRANCES INTO THE FACTORY

FLOOR BUNDING

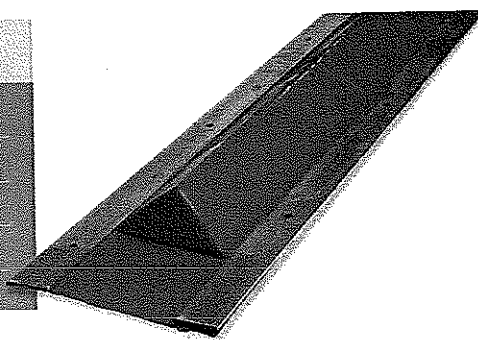
An ideal way to create secure bunded areas in workshops, liquid storage areas and across warehouse doorways to contain spills.

Flexible floor bunding

Manufactured from high density foam encased in high frequency welded heavy-duty PVC and secured to the ground. The triangular profile collapses down as a vehicle drive over it and springs back to shape after it passes

Available in

4mL x 50mmH
4mL x 75mmH
50mm 90° (corner piece)
75mm 90° (corner piece)



Rubber floor bunding

Rubber floor bunding is a cost effective solution for liquid storage and containment requirements in a wide variety of workplaces. The high density rubber compound and unique extrusion hole design allow for secure fastening enabling heavy vehicle and forklifts traffic

Available in

5m lengths
Bunding kits

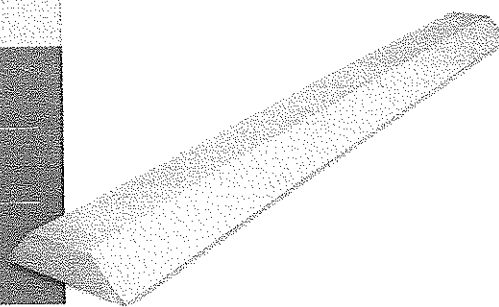


EVA floor bunding

EVA floor bunding is a convenient bunding solution made from EVA foam. The adhesive film on the bottom allows for a fast and easy installation without the need for other tool use.

Available in

970mmL x 140mmW x 25mmH
970mmL x 140mmW x 40mmH



THIS BUNDING WILL BE USED.

