ABS submersible mixer RW
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200
280

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1 General

1.1 Application areas

**ATTENTION** The maximum allowable temperature of the medium pumped is 40°C

The compact submersible mixers of the RW 200-280 series have been designed for a wide range of applications. Apart from the use in pump sumps - avoidance of deposits and floating crusts - the units are also ideal for a variety of mixing and stirring applications in sewage treatment plants and in industrial areas. The mixers can be installed independently of the tank shape or dimension. Depending on the intensity of mixing required and the flow formation needed, one or more mixers may be installed.

1.1.1 Approvals

The motors of the AS series have explosion-proof certification in accordance with Factory Mutual Class 1 Div. 1 Groups C and D.

Electrical safety of the AS series are UL and CSA approved.

The motors of the AS series are UL and CSA Approved when not FM approved.

Three-phase only, “CAUTION: Risk of Shock. Do not remove cord and strain relief. Do not connect conduit to mixer”, and “INSTALLER: This mixer is not provided with a supply connection, therefore one of the following means must be provided by the installer: (1) A suitably rated, grounding-type attachment plug must be provided for connection to the branch circuit supply, or (2) A Listed junction box, Listed outlet box, or Listed wiring compartment and their associated fittings must be provided by the installer for supply connection. This provision must reduce the likelihood of water entry during temporary, limited submersion. See Instruction Manual for Further Details. Only qualified personnel shall install the mixer.

Single ~ phase only, “WARNING Risk of electrical shock-this mixer is supplied with a grounding conductor and grounding-type attachment plug. To reduce the risk of electrical shock, be certain that it is connected only to a properly grounded, grounding receptacle, motor is thermally protected. To reduce risk of electrical shock, pull plug before servicing this mixer. This mixer has not been investigated for use in swimming pools.

1.1.2 Explosion-proof approvals

The motors of the AS series have explosion-proof certification in accordance with EEx d II B T4

1.1.3 Particular comments on the use of explosion-proof mixers in explosive zones.

1. Explosion-proof submersible mixers may only be operated with the thermal sensing system connected.
2. If ball type float switches are used, these must be connected to an intrinsically safe electrical circuit “Protection type EX (i)” in accordance with VDE 0165.
3. Dismantling and repair of submersible explosion-proof motors may only be carried out by approved personnel in specially approved work shops.

1.2 Technical Data

Maximum noise level ≤ 70 dB. This may be exceeded in certain circumstances.
1.2.1 Nameplate

We recommend that you record the data from the original nameplate on the nameplate illustration below and maintain it, together with your purchase receipt, as a proof for subsequent use. Always state the mixer type, item no. and serial no. in the field “Nr” in all Communications.

Legend

<table>
<thead>
<tr>
<th>Type</th>
<th>Pump type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nr./SN</td>
<td>Item No./Serial No.</td>
</tr>
<tr>
<td>UN</td>
<td>Rated Voltage</td>
</tr>
<tr>
<td>IN</td>
<td>Rated Current</td>
</tr>
<tr>
<td>P1N</td>
<td>Rated Input Power</td>
</tr>
<tr>
<td>P2N</td>
<td>Rated Output Power</td>
</tr>
<tr>
<td>n</td>
<td>Speed</td>
</tr>
<tr>
<td>Qmax</td>
<td>Max. Flow</td>
</tr>
<tr>
<td>Hmax</td>
<td>Max. Head</td>
</tr>
<tr>
<td>Ø Imp.</td>
<td>Impeller diameter</td>
</tr>
<tr>
<td>DN</td>
<td>Discharge diameter</td>
</tr>
<tr>
<td>SS</td>
<td>Water pressure tight</td>
</tr>
<tr>
<td>IP 68</td>
<td>Protection type</td>
</tr>
</tbody>
</table>

Figure 1 Nameplate Ex Version

Figure 2 Nameplate FM Version

Figure 3 Nameplate Standard Version
2 Safety

The general and specific health and safety hints are described in detail in the separate booklet Safety Hints. If anything is not clear or you have any questions as to safety make certain to contact the manufacturer ABS.

3 Transport

During transport the unit should not be dropped or thrown.

The unit should never be raised or lowered by the Power cable.

The unit is fitted with a lifting device to which a chain and shackle may be attached for transport purposes.

Any hoist used must be adequately dimensioned for the weight of the unit.

All relevant safety regulators as well as general good technical practice must be complied with.

4 Mounting and Installation

NOTE We recommend that original ABS installation accessories be used for mounting and installation of the mixer.

Particular attention must be paid to the safety regulations covering work in closed areas in sewageplants as well as good general technical practices.
4.1 Installation example, concrete sump

![Diagram of installation example](image)

*Figure 5 Installation example concrete sump*
4.2 Electrical Connection

⚠️ Before commissioning an expert should check that one of the necessary electrical protective devices is available. Earthing, neutral, earth leakage circuit breakers, etc. must comply with the regulations of the local electricity supply authority and a qualified person should check that these are in perfect order.

**ATTENTION** The power supply system on site must comply with VDE or other local regulations with regard to cross-sectional area and maximum voltage drop. The voltage stated on the nameplate of the mixer must correspond to that of the mains

The power supply cable must be protected by an adequately dimensioned slow-blow fuse corresponding to the rated power of the mixer.

⚠️ The incoming power supply as well as the connection of the mixer itself to the terminals on the control panel must comply with the circuit diagram of the control panel as well as the motor connection diagrams and must be carried out by a qualified person. All relevant safety regulators as well as general good technical practice must be complied with.

**ATTENTION** For use in the open air, the following VDE regulations apply:

Submersible mixers used outdoors must be fitted with a power cable of at least 10m length. Other regulations may apply in different countries.

Mixers for use in swimming pools, garden ponds and similar, must comply with European Standard 60335, Part 2, protection class I.

**NOTE** Please consult your electrician.

4.2.1 Wiring Diagrams

Three phase - RW S13/4D, S25/4D, S16/4D, S28/4D  Single phase - RW S18/4W

![Wiring diagram three phase](image1)

![Wiring diagram single phase](image2)

- **U1, V1, W1** = Live
- **PE** = Earth
- **Gr/Yel** = Green/Yellow
- **Di** = Seal Monitor
- **F1/FO** = Thermal sensor
- **S** = Start
- **C** = Neutral (common)
- **R** = Run

**ATTENTION** Explosion-proof motors may only be used in explosive zones with the thermal sensors fitted (Leads: FO, F1).

**ATTENTION** It is important to use the correct capacitors with single phase pumps, use of incorrect capacitors will lead to motor burn-out
4.2.2 Checking direction of rotation

The safety hints in the previous sections must be observed!

When three phase units are being commissioned for the first time and also when used on a new site, the direction of rotation must be carefully checked by a qualified person.

When checking the direction of rotation, the unit should be secured in such a manner that no danger to personnel is caused by the rotating impeller, or by the resulting air flow. Do not place your hand into the hydraulic system!

The direction of rotation should only be altered by a qualified person.

When carrying out the direction of rotation check as well as when starting the unit pay attention to the START REACTION. This can be very powerful.

ATTENTION
The direction of rotation is correct if the impeller/propeller rotates in a clockwise manner when viewing down from the top of the placed unit.

**NOTE** If a number of units are connected to a single control panel then each unit must be individually checked.

ATTENTION The mains supply to the control panel should have a clockwise rotation. If the leads are connected in accordance with the circuit diagram and lead designations, the direction of rotation will be correct.

4.2.3 Changing direction of rotation

The safety hints in the previous sections must be observed!

The direction of rotation should only be altered by a qualified person.

If the direction of rotation is incorrect then this is altered by changing over two phases of the power supply cable in the control panel. The direction of rotation should then be rechecked.

**NOTE** The direction of rotation measuring device monitors the direction of rotation of the mains supply or that of an emergency generator.
5 Commissioning

The safety hints in the previous sections must be observed!

Before commissioning the unit should be checked and a functional test carried out. Particular attention should be paid to the following:

- Have the electrical connections been carried out in accordance with regulations?
- Have the thermal sensors been connected?
- Is the seal monitoring device (where fitted) correctly installed?
- Is the motor overload switch correctly set?
- Have the power and control circuit cables been correctly fitted?
- Was the sump cleaned out?
- Have the inflow and outflows of the pump station been cleaned and checked?
- Is the direction of rotation correct - even if run via an emergency generator?
- Are the level controls functioning correctly?
- Are the required gates valves (where fitted) open?
- Do the non-return valves (where fitted) function easily?
- Has the motor connection cable been laid in such a manner that it cannot be caught up in the propeller?
- Is there adequate water coverage over the propeller?

6 Types of operating

Mixers may only be operated fully submerged.

**ATTENTION**  
*The mixer must be fully submerged in the medium. During operation no air must be drawn in by the propeller. A quiet flowing action in the medium must occur. The mixer must not vibrate excessively.*

Uneven liquid flow and vibrations may be caused by over active mixing in small tanks. Changing position or direction of the mixer may assist.

7 Maintenance

Before commencing any maintenance work the unit should be completely disconnected from the mains by a qualified person and care should be taken that it cannot be inadvertently switched back on.

When carrying out any repair or maintenance work, the safety regulations covering work in enclosed areas of sewage installations as well as good general technical practices should be followed.

**NOTE**  
*The maintenance hints given here are not designed for “do-it-yourself” repairs as special technical knowledge is required.*

**NOTE**  
*A maintenance contract with our works service department will guarantee you the best technical service under all circumstances.*
7.1 General maintenance hints

ABS submersible pumps are reliable quality products each being subjected to careful final inspection. Lubricated-for-life ball bearings together with monitoring devices ensure optimum pump reliability provided that the pump has been connected and operated in accordance with the operating instructions.

Should, nevertheless, a malfunction occur, do not improvise but ask your ABS customer service department for assistance.

This applies particularly if the unit is continually switched off by the current overload in the control panel, by the thermal sensors of the thermo-control system or by the seal monitoring system (DI).

Regular inspection and care is recommended to ensure a long service life.

**NOTE**  
The ABS service organisation would be pleased to advise you on any applications you may have and to assist you in solving your pumping problems.

**NOTE**  
The ABS warranty conditions are only valid provided that any repair work has been carried out in ABS approved workshop and where original ABS spare parts have been used.

7.2 Oil filling and Oil changing

Waste oil must be disposed of in the proper manner.

7.3 Filling Oil into the Oil Chamber

The mixers have been filled at the works with oil. These oils are not injurious to the environment. An oil change is only necessary if a fault occurs. When carrying out repairs only original spare parts, supplied by the manufacturer, should be used.

7.4 Cleaning

**ATTENTION**  
Make certain the propeller has completely stopped rotating before approaching the mixer.

In order to clean the propeller blades of fibrous material it is permissible to run the mixer in the opposite direction (incorrect direction) for a short period.

Changing the direction of rotation on control panels not fitted with a direction of rotation change-over switch may only be carried out by a qualified person, and for this reason this procedure is not authorised as a method of cleaning the propeller.

If the mixer is to be taken out of commission then it should be cleaned by hosing it down with clear water. If the unit is to remain out of service for a prolonged period then it should be stored in a dry and frost-proof location. If the unit is to be reinstalled after a prolonged period out of use then proceed as per Section 4.
Declarations of conformity


GB: Declaration of Conformity
DE: Konformitätserklärung
FR: Déclaration de Conformité
ES: Declaración de Confirmidad
IT: Dichiarazione di conformità
NL: Overeenkomstigheidsverklaring
SE: Försäkran om överensstämmelse
NO: Vakuutamme yksinomaan omalla vastuullamme, että seuraavat tuotteet
PL: Deklaracja z pełna odpowiedzialnością, ze urządzenia typu
HU: Megfelelőségi nyilatkozat
GR: Δήλωση εναρμόνισης
ET: Vastavusdeklaratsioon
SI: Izjava o skladnosti
SK: Vyhlasenie o zhode
BG: Декларация за съответствие

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SE: Försäkrar under eget ansvar att produkterna
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31-05-2010
Sean Roche
ABS Production Wexford Ltd.