



**Made
in
Germany**

**Tiefbrunnenpumpe
Deep-well pump
Pompe pour puits profonds**

**D
GB
F**

Baureihe / Series / Série TM



**Betriebsanleitung
Operating Instructions
Manuel d'utilisation**

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Declaration of Conformity

We the following

ZEHNDER Pumpen GmbH
Zwönitzer Straße 19
08344 Grünhain-Beierfeld,

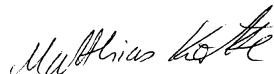
declare that the pump **Series TM** conform the following specifications:

- **EEC-low voltage specifications 2014/35 EU**
- **EMV-Specifications 2014/30 EU**
- **Machinery Directive 2006/42/EG**

Applied harmonised norms, particularly

- **EN 809**
- **EN 60 335-1**
- **EN 60 335-2-41**
- **EN 50 081-1**
- **EN 50 082-1**

Grünhain-Beierfeld, 22.06.2017



Matthias Kotte
Product development manager

ATTENTION!

The user has to know all information from this manual before switching on this pump. He has to consider this during usage of the pump or during maintenance.

- **A minimum distance between intake strainer of the pump and the bottom of the well of 500 mm is required!**
- **Use the pump only when submerged!**
- **Protect the pump against sand and stone** (otherwise the hydraulic of the pump will be blocked)
- **pump has no a built-in check valve, possibly depending on the application, a separate check valve is required**

1. General

1.1 Application

This operating instruction is valid for the deep-well pump series TM.

Non-compliance with the operating instructions - in particular with the safety instructions - as well as non-manufacturer modification or use of non-original spare parts will result in loss of guarantee coverage. The manufacturer accepts no liability for damage or injury resulting from incorrect use of the equipment.

This product may also pass as any other electrical equipment in cause of lacking electrical supply. If you may get any damages thereby, please calculate in accordance to the use an emergency power generator, a second pump and/ or a network independent alarm system. As the manufacturer we will be after the buying at your disposal for near information. In cause of defects or damages please contact your retail trader.

Manufacturer: ZEHNDER Pumpen GmbH
Zwönitzer Straße 19
08344 Grünhain-Beierfeld

Instruction last modified: 07/2022

1.2 Queries and Ordering

For queries and orders please contact your authorised retail trader.

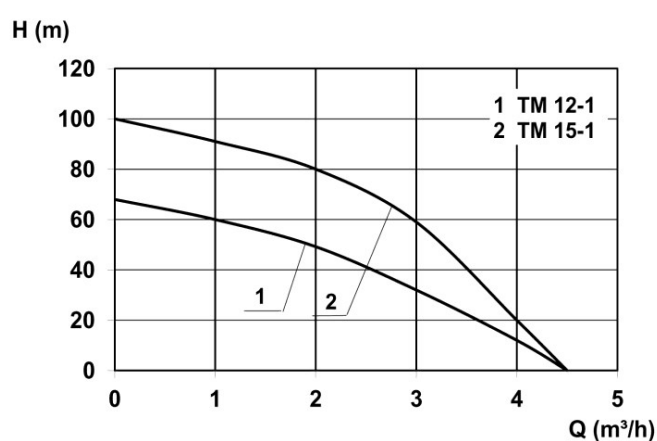
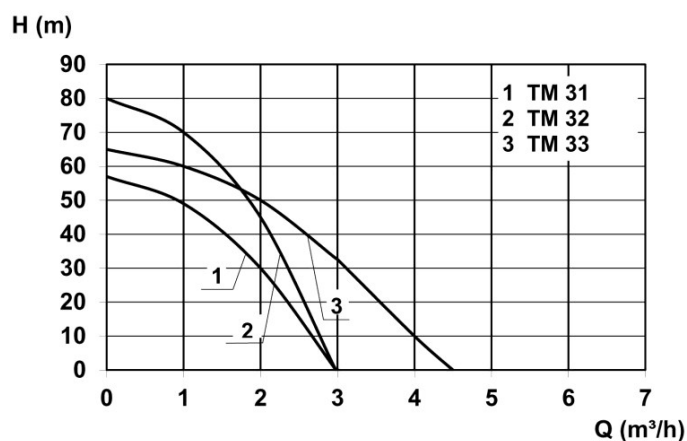
1.3 Technical data:

Type:	TM 12-1	TM 15-1	TM 31	TM 32	TM 33
Motor performance P ₁ [W]	1.200	2.100	860	1.130	1.130
Motor performance P ₂ [W]	800	1.200	460	640	640
Voltage	230 V 1~ 50 Hz				
Rated current [A]	5,2	9,3	3,8	5,2	5,2
Nominal speed [U/min]	2800	2800	2800	2800	2800
max. Supply volume [l/h]	4.500	4.500	3.100	3.100	4.500
max. Supply height [m]	68	100	57	80	65
Number of Stages	9	14	14	20	14
Discharge connection	G 1"	G 1"	G 1"	G 1"	G 1"
Weight [kg]	12	14	12	14	13
Main supply cable [m]	20	20	20	20	20
Pump diameter [mm]	ca. 100	ca. 100	ca. 78	ca. 78	ca. 78
Pump length [mm]	625	770	805	1000	845
Capacitor [µF]	20	30	16	20	20
max. Water temp. [°C]	35	35	35	35	35
max. submerge depth [m]	15	15	15	15	15
Protection class Pump	IP 68	IP 68	IP 68	IP 68	IP 68
Protection class Switchbox	IP 20	IP 20	IP 20	IP 20	IP 20

Minimum Efficiency Index (MEI) 4 "deep well pumps TM: **MEI ≥ 0,4**

Sound pressure level : LpA ≤ 70 dB(A)

Materials: Stainless steel, plastic



1.4 Areas of application

The pumps will be used to deliver clean water out of wells for irrigation, domestic water supply, etc. The pumps are designed for pumping thin, clean, non-explosive liquids, not containing solid particles or fibres. The maximum sand content of the water must not exceed 50 g/m³. A larger sand content will reduce the life of the pump and increase the risk of blocking. The temperature of the pumped liquid must not exceed 35 °C. The TM series pumps can be used in commercial and non-commercial applications.

2. Safety

(from: "VDMA-Standard publication 24 292")

These instructions for use contain general information, which should be noted when setting up, using and servicing the equipment. Installers and / or users must read and understand in detail these instructions prior to installation and servicing. These instructions must always be available at the site of the installation. All safety instructions must be fully observed.

2.1 Marking of information in the instruction for use



Danger symbol in accordance with DIN 4844 - W9,

for warnings regarding electrical current the following symbol is used



Danger symbol in accordance with DIN 4844 - W8

The word Attention or Caution is used to introduce safety instructions whose non-observance may lead to damage to the machine and its functions.

Advices on the pump, e.g. rotation direction arrow must be considered and kept readable.

2.2 Personal qualification

All personnel involved in the operation, maintenance, inspection and installation of the machine must be fully qualified to carry out the work involved. Personnel responsibilities, competence and supervision must be clearly defined by the operator. If the personnel in question is not already in possession of the requisite know-how, appropriate training and instruction must be provided. If required, the operator may commission the manufacturer/supplier to take care of such training. In addition, the operator is responsible for ensuring that the contents of the operating instructions are fully understood by the responsible personnel.

This appliance can be used by persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. This device shall not be used by children. Children shall not play with the device. Cleaning and user maintenance shall not be carried out by children.

2.3 Dangers arising due to non-compliance with safety advice

Ignoring of safety instructions can lead to danger of personnel and to the environment as well as causing possible damage to the equipment. Non-compliance with safety instructions can lead to the loss of right to claim damages. Non-compliance with safety instructions can lead for example to:

- Breakdown in important functions of the equipment
- Breakdown in prescript methods for maintenance and upkeep
- Danger of injury from electrical, mechanical or chemical sources
- Environmental damage resulting from leaks of environmentally dangerous substances

2.4 Safety conscious work

These safety instructions, as well as all national safety requirements and extra internal company precautions or such laid down by the owner of the equipment must be observed.

2.5 Safety information for the owner / operator

- Any parts of the machine which could be a possible source of hot or cold burns should be covered.
- Covering for moving parts (e.g. couplings) should not be removed while the machine is in use.
- Leak out of dangerous substances (e.g. explosives, poisons, hot liquids) have to be handled in such a way that no danger to persons or the environment may occur. Legal requirements must be observed.
- Danger resulting from electrical current must be prevented (For more information please consult the specifications of the VDE or your local electricity board).

2.6 Safety information for maintenance, inspection and fitting

Before carrying out any work on the pump, always disconnect the power plug and secure it against unauthorized reconnection!

The owner must ensure that all maintenance, inspection and fitting work is carried out by qualified and authorised personnel who are familiar with the operating instructions for equipment. In general all maintenance work must be carried out while the equipment is not in operation. The instructions for turning off the equipment contained in these operating instructions must be observed.

Pumps and units which carry hazardous materials must be decontaminated.

Immediately after completion of the work all safety and protection coverings should be reinstalled and / or switched on. Please observe all instructions set out in the section on "Installation / start up" before returning the machine to service.

2.7 Non-manufacturer modifications and spare part production

Modifications or alterations of the machine are only permitted after consultation with the manufacturer. Original spare parts and accessories authorised by the manufacturer ensure safety. The use of other parts can invalidate any liability of the manufacturer for consequential damage.

2.8 Unauthorised usage

The safety of the delivered pump is only guaranteed by usage according to the section - General of the instructions. The listed maximum ratings as per specification should under no circumstances be exceeded. The improper use of the pump, i.e. pumping of air or explosive media is strictly forbidden.

CAUTION Also, this submersible pump, as a fully automatic utensil may need supervision from time to time and ensure if left inactive for long periods that the electrical supply to the pump is switch off.

3. Description

The pumps of the type TM are designed as follows:

- switchbox with built-in capacitor and on/off - switch
- Built-in motor overload protection
- 20 m power supply cable with plug
- 1" pressure pipe connection (inside thread) TM 12-1, TM 15-1, TM 31, TM 32, TM 33
- mechanical seal
- Attention pump has no integrated check valve!



- This pump must be connected to an earthed outlet.
- Do not lower or lift the pump by means of the power cable.
- A damaged power cable must be replaced immediately by a qualified electrician. Danger of personal injury by electrical shock if operated with a damaged cable!
- If the pump is connected to an electric installation where an earth-leakage circuit breaker (ELCB) is used as an additional protection, this circuit breaker must trip out when earth fault currents exceeds 30 mA.



- Any operation of the pump next to a swimming pool or garden pond is only permitted if the unit is erected in accordance DIN VDE 0100 part 702 or the current edition of the IEE wiring regulations-BS 8771, and other local legislations. It is strictly forbidden to swim while using the pump in the swimming pool. If in doubt consult a qualified electrician.
- Pumps without indication that they are protected against the effect of freezing shall not be left outside during freezing weather conditions.

CAUTION It is allowed to start the pump at maximum 20 x per hour only! Also, a break of 60 sec. is required between two starts!

4. Installation and commencement of operation



Before carrying out any work on the pump, always disconnect the power plug and secure it against unauthorized reconnection!

Before installing and starting please check the pump for possible damages (i.e. during transport) to prevent personal injury by electrical shock.

- We recommend to install the pump in the well as deep as possible. But, the pump should never touch the ground or be submerged into sand or mud (**min. required distance to ground 500 mm!**).
- Avoid damages of the power supply cable when you are mounting the pump.
- For lowering the pump into the well you have to use the eye by means of a steel or Nylon cable. Please use therefore the lifting lug at the pump. The straining cable must not be used for pulling the pump with riser pipe out of the well.
- Do not lower or lift the pump by means of the motor cable. The power supply cable is to guide out of the well by means of the pressure pipe. It should be fixed to the pipe by means of cable ties every 3 m. For pumps fitted with plastic pipes, the expansion of the pipes when loaded should be taken into consideration, when deciding on the installation depth of the pump. When connecting plastic pipes, some slackness must be left between each cable clip as plastic pipes expand when loaded.

- If a tool, e. g. a chain pipe wrench, is used when the riser pipe is fitted to the pump, the pump must only be gripped by the pump discharge chamber.
- When connecting plastic pipes, a compression coupling should be used between the pump and the first pipe section.
- Make sure that the well is capable of yielding a minimum quantity of water corresponding to the pump capacity. Do not start the pump until it is completely submerged in the liquid. Start the pump and do not stop it until the pumped liquid is completely clean, as otherwise the pump may choke up.



To avoid damages of the mechanical seal and the motor you should never let the pump run dry or pump against closed valves!

5. Service / Maintenance

Before carrying out any work on the pump, always disconnect the power plug and secure it against unauthorized reconnection!

The pumps are normally maintenance free. Deposits and wear may occur. For that purpose service kits and service tools are available on request. You will find a topical overview about our service partners at www.zehnder-pumpen.de.

We explicitly mention that spare parts and accessories which are not delivered and checked by Zehnder are strictly forbidden. The built in and use of such products may negatively affect the constructive set properties under these circumstances. For damages which arise by using of non-original spare parts and accessories Zehnder will refuse any liability and warranty. For faults which you can not repair by yourself you should contact our customer service or a qualified person.

6. Warranty

This pump carries a 24 month manufacturer warranty. The warranty period begins with the date of purchase by the end user. Proof of purchase should be retained. Within this period we will remove all kind of shortcoming due to failures of material or assembling. It is up to us either to repair or to replace the pump.

This warranty does not cover damage cause by improper use or wear and tear (impeller and mechanical seal). Also, there will be no warranty given in case of unauthorised repair of the pump.

Consequential damages caused by failing of the pump are not covered by the manufacturer.

7. Disposal



For EU-countries only. Do not dispose the pump into the domestic waste.

In accordance to the European guideline 2012/19/EU concerning electrical and electronic equipment and implanting into national law used electrical tools have to be collected separately and supplied to an environmentally compatible recycling.

8. Technical Modification

... without prior notice.

9. Spare part lists

Spare parts list TM 12-1 / TM 15-1

Pos. No.	Qty.	Item-no. TM 12-1	Qty.	Item-no. TM 15-1	Designation
20	1	13908	1	13842	Pump housing complete
30	1	13856	1	13856	Intake strainer
31	2	10378	2	10378	Protection plugs
40	1	13829	1	13952	Stator EBE
50	1	13874	1	13911	Rotor EBE
55	1	13875	1	13726	Pump shaft
60	1	13819	1	13819	End shield on drive side
70	1	13821	1	13821	End shield on non-drive side
75	4	13167	4	13167	O-Ring 83 x 3
80	0,41	18600	0,41	18600	Oil (technical white oil)
100	9	13880	14	13880	Diffuser
110	8	19381	13	19381	Impeller complete
110	1	19835	1	19835	Impeller reduced
115	9	13881	14	13881	Diffuser Cover 4"
120	1	15770	1	15770	Lens head screw M5 x 16 A2
130	1	15390	1	15390	Washer R 5,5 A2
140	1	13691	1	13691	Mechanical Seal TEN.FG/14
160	1	13893	1	13893	Final end shield
170	1	11896	1	11896	Gasket d7 D16 x 6
180	1	12335	1	22335	Screw for cord grip
185	2	11902	2	11902	Cord grip
190	1	13747	1	13747	Strain relief
200	1	13129	1	13129	Tension relief
210	1	13894	1	13894	Mounting bracket
215	2	15413	2	15413	Bolt M6 x 16 –A2
220	1	19830	1	19830	Bearing 6201 ZZ CO
230	1	13794	1	13794	Ondular washer GR 32 DIN 2192
240	1	14077	1	14077	Bearing 6302
250	1	12179	1	12179	Bushing D=10mm, 8x10x26, plated
260	1	10269	1	10269	Collar bush MF15
265	1	15396	1	15396	Washer 8 x 16 x 2 DIN 1440
270	1	15316	1	15316	Cir-clip 14 x 1
280	1	13750	1	13750	Washer 14 x 28 x 3
290	20	12477	20	12477	Cable H07 RN-F 4x1
300	1	13787	1	13795	Switch Box complete
300.20	1	(20µF) 14413	1	(30µF) 10958	Capacitor
330	1	15360	1	15363	Screw
340	1	16452	1	16452	Seal
	1	11428	1	11429	Hydraulics complete
	1	14096	1	14096	Conversion kit floating extraction

Spare part drawing: see page 23

Spare parts list TM 31/ TM 32/ TM 33

Pos. No.	Qty.	Item-no. TM 31	Qty.	Item-no. TM 32	Qty.	Item-no. TM 33	Designation
20	1	13702	1	14003	1	14018	Pump housing complete
30	1	13713	1	13713	1	13713	Intake strainer
31	2	10376	2	10376	2	10376	Protection plugs
40	1	13805	1	14016	1	14016	Stator EBE
50	1	13724	1	14009	1	14009	Rotor EBE
55	1	13726	1	14011	1	13726	Pump shaft
60	1	13727	1	13727	1	13727	End shield on drive side
70	1	13729	1	13729	1	13729	End shield on non-drive side
75	4	11853	4	11853	4	11853	O-Ring 60 x 3
80	0,2	16800	0,25	16800	0,25	16800	Oil (technical white oil)
100	14	13735	20	13735	14	13735	Diffuser
110	13	19832	19	19832	13	19833	Impeller complete
110	1	19836	1	19836	1	19837	Impeller reduced
115	14	13739	20	13736	14	13736	Diffuser Cover 3"
120	1	15770	1	15770	1	15770	Lens head screw M5 x 16 A2
130	1	15390	1	15390	1	15390	Washer R 5,5 A2
140	1	13691	1	13691	1	13691	Mechanical Seal TEN.FG/14
160	1	13746	1	137461	1	13746	Final end shield
170	1	11869	1	11869	1	11869	Gasket d7 D16 x 6
180	1	12335	1	12335	1	12335	Screw for cord grip
185	2	11902	2	11902	2	11902	machine à laver
190	1	13747	1	13747	1	13747	Cord grip
200	1	13129	1	13129	1	13129	Tension relief
210	1	13748	1	13748	1	13748	Mounting bracket
215	2	15413	2	15413	2	15143	bolt M6 x 16 –A2
220	1	19830	1	19830	1	19830	Bearing 6201 ZZ CO
230	1	13794	1	13794	1	13794	Ondular washer GR 32 DIN 2192
240	1	13151	1	13151	1	13151	Bearing 6202 C3
250	1	12179	1	12179	1	12179	Bushing D=10mm, 8x10x26, plated
260	1	10269	1	10269	1	10269	Collar bush MF15
265	2	15396	2	15396	2	15396	Washer 8 x 16x 2 DIN 1440
270	1	15316	1	15316	1	15316	Circlip 14 x 1
280	1	13750	1	13750	1	13750	Washer 14 x 28 x 3
290	20	12477	20	12477	20	12477	Cable H07 RN-F 4x1
300	1	137780	1	13782	1	13793	Switch Box complete
300.20	1	(16µF) 10979	1	(20µF) 14113	1	(20µF) 14113	Capacitor
310	2	13124	2	13124	2	13124	rubber cap
330	1	15363	1	15363	1	15363	Seal
340	1	16452	1	16452	1	16452	Hydraulics complete
		11433		11434		11435	Conversion kit floating extraction

Spare part drawing: see page 23

Ersatzteilzeichnung / Spare parts drawing / Dessin des pièces de rechange

