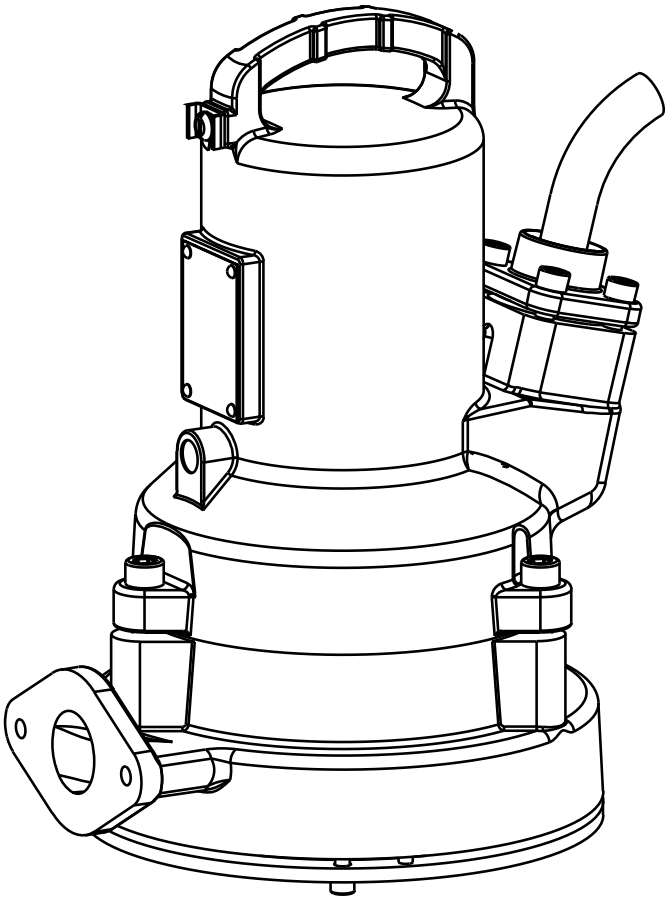
ABS Piranha submersible grinder pump

1008-00



15975074GB (07/2009)

GB

Installation and Operating Instructions

www.absgroup.com

ABS Piranha submersible grinder pump

50Hz		60Hz	
S10/4	M30/2	S10/4	M25/2
S12/2	M55/2	S16/2	M35/2
S13/4	M70/2	S18/2	M46/2
S17/2	M85/2	S26/2	M50/2
S21/2	M110/2	S30/2	M70/2
S26/2			M80/2
			M100/2
			M125/2

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1 General

1.1 Application areas

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

Piranha submersible grinder pumps have been designed for the pumping of sewage containing faecal matter from buildings and sites where the location is below the sewer level.

In addition Piranha pumps are ideal for effective and economical pressurised dewatering using pipes of small cross-sectional area, in private, municipal, and industrial applications.

The regulations of DIN EN 12056-4 as well as other local codes should be observed.

1.1.1 Explosion-proof approval

The motors of the Piranha series have explosion-proof certification in accordance with EEx d IIB T4

1.1.2 Particular comments on the use of explosion-proof pumps in explosive zones.

1. Explosion-proof submersible pumps 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.

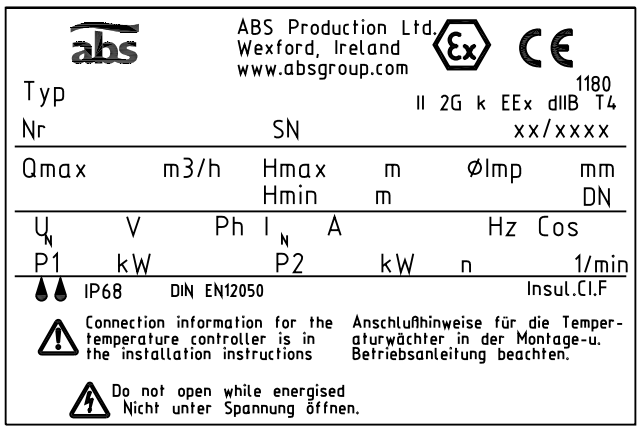
1.2 Technical data

Maximum noise level ≤ 70dB. 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 pump type, item no. and serial no. in the field “Nr” in all communications



Ex version nameplate

Legend		
Type	Pump type	
Nr./SN	Item No./Serial No.	
xx/xxxx	Production date (Week/Year)	
UN	Rated Voltage	V
IN	Rated Current	A
	Frequency	Hz
P1N	Rated Input Power	kW
P2N	Rated Output Power	kW
n	Speed	min-1
Qmax	Max. Flow	m3/h
Hmax	Max. Head	m
Ø Imp.	Impeller diameter	mm
DN	Discharge diameter	mm
SS	Water pressure tight	
IP 68	Protection type	

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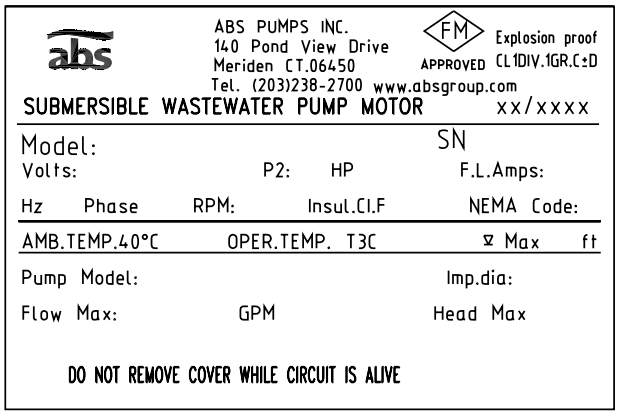

FM version nameplate

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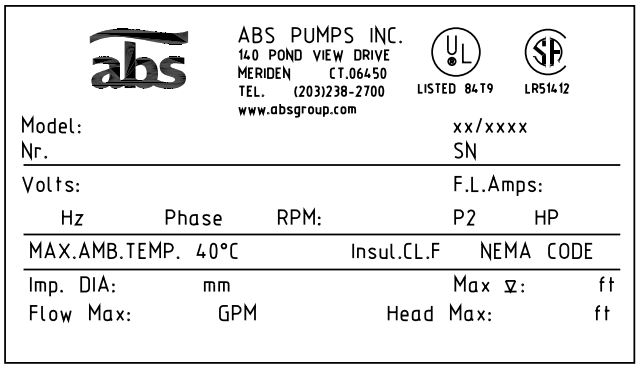
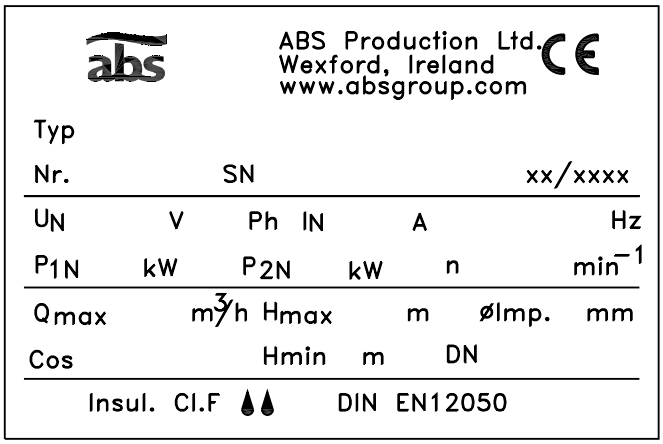
Legend		
Model	Pump type/ Item No.	
SN	Serial No.	
UN	Rated Voltage	
P2	Rated Output Power	HP
F.L.Amps	Full Load Amps	
Hz	Frequency	
Phase	Three/Single Phase	
RPM	Speed	min-1
Imp. dia	Impeller diameter	mm
Max. ▽	Max submersible depth	Ft
Flow Max.	Rated Discharge	GPM
Head Max.	Max. Head	Ft



Standard version nameplate

1004-00

Legend		
Model	Pump type/ Item No.	
SN	Serial No.	
UN	Rated Voltage	
P2	Rated Output Power	HP
F.L.Amps	Full Load Amps	
Hz	Frequency	
Phase	Three/Single Phase	
RPM	Speed	min-1
Imp. dia	Impeller diameter	mm
Max ▽	Max submersible depth	Ft
Flow Max.	Rated Discharge	GPM
Head Max.	Max. Head	Ft



Standard version nameplate

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Legend		
Type	Pump type	
Nr./SN	Item No./Serial No.	
xx/xxxx	Production date (Week/Year)	
UN	Rated Voltage	V
IN	Rated Current	A
	Frequency	Hz
P1N	Rated Input Power	kW
P2N	Rated Output Power	kW
n	Speed	min-1
Qmax	Max. Flow	m3/h
Hmax	Max. Head	m
Ø Imp.	Impeller diameter	mm
DN	Discharge diameter	mm
SS	Water pressure tight	
IP 68	Protection type	

2 Safety

The general and specific Health and Safety requirements are described in detail in the **Safety Instructions for ABS Products** booklet. 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.

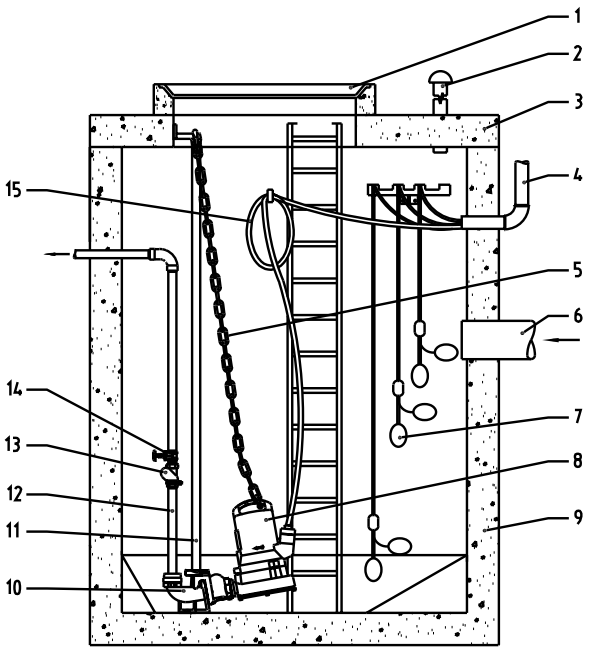
Any hoist used must be adequately dimensioned for the weight of the unit.

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

4 Mounting and installation

The regulations covering the use of pumps in sewage applications together with all regulations involving the use of explosion-proof motors should be observed.The cable ducting to the control panel should be sealed off in a gas-tight manner by the use of a foaming material after the cable and control circuits have been pulled through. In particular the safety regulations covering work in enclosed areas in sewage plants should be observed together with general good technical practice.

4.1 Installation example in concrete sump



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1	Sump cover
2	Venting line
3	Sump cover
4	Protective duct to the control panel for cable
5	Chain
6	Inflow line
7	Ball type float switch
8	Submersible pump
9	Concrete sump
10	Pedestal
11	Guide tube
12	Discharge line
13	Non-return valve
14	Gate valve
15	Power cable to motor

ATTENTION ***For those applications subject to Regulation DIN 1986, a backwash loop should be provided in the discharge line.***

4.2 Discharge Line

The discharge line must be installed in compliance with the relevant regulations.
DIN 1986/100 and EN 12056 applies in particular to the following:

- The discharge line should be fitted with a backwash loop (180° bend) located above the backwash level and should then flow by gravity into the collection line or sewer.
- The discharge line should not be connected to a down pipe.
- No other inflows or discharge lines should be connected to this discharge line.

ATTENTION! The discharge line should be installed so that it is not affected by frost.

The vent line is connected by means of a push-on sleeve to the vertical outlet at the top of the collection tank. It should be of constant cross-section (min. DN 70) and should have a continuous rise to above roof level.

4.3 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 pump 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 pump.

The incoming power supply as well as the connection of the pump 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 regulations as well as general good technical practice must be complied with.

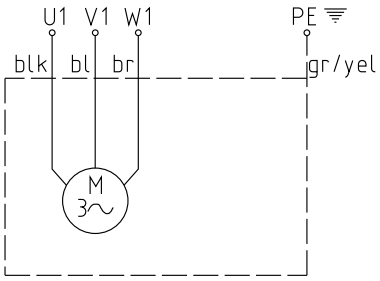
ATTENTION! For use in the open air, the following VDE regulations apply:

Submersible pumps used outdoors must be fitted with a power cable of at least 10 m length. Other regulations may apply in different countries.
Pumps for use in swimming pools, garden ponds and similar, must comply with European Standard 60335, Part 2, protection class I.

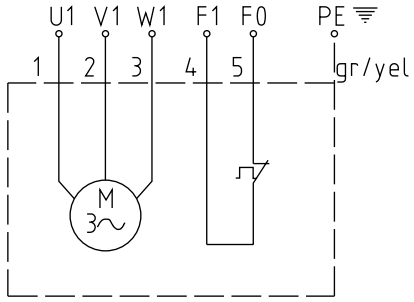
NOTE: Please consult your electrician.

4.3.1 Wiring diagrams

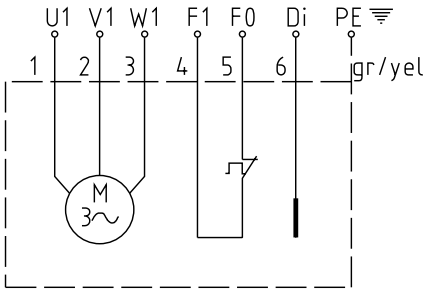
Three Phase: S12/2D, S13/4D, S16/2D, S17/2D, S18/2D, S21/2D, S25/2D, S26/2D, S35/2D, S46/2D, M30/2D



Three Phase Wiring

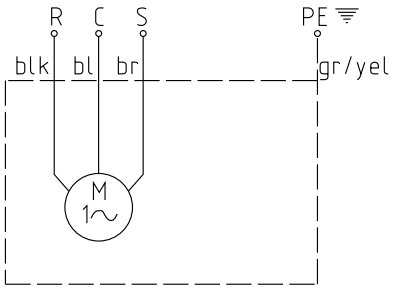


Three Phase Wiring with Temperature Limiter

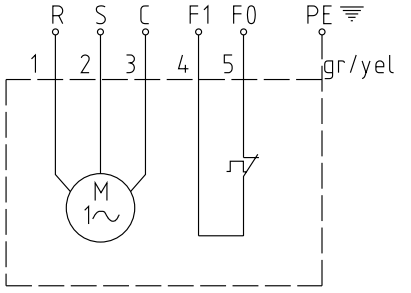


Three Phase Wiring with Temperature Limiter & DI

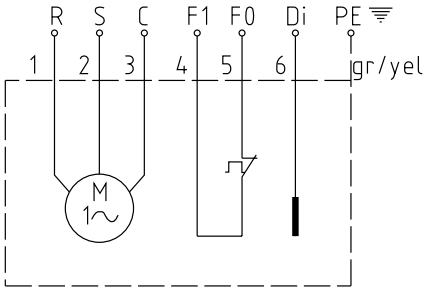
Single Phase: S10/4 W, S12/2 W, S16/2 W, S17/2 W, S18/2 W



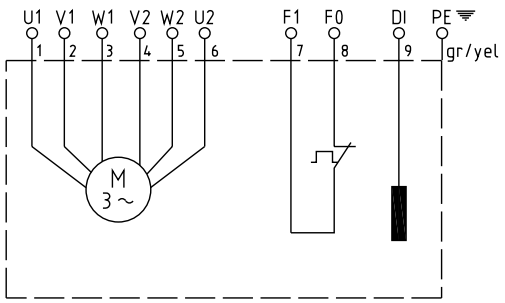
Single Phase Wiring



Single Phase Wiring with Temperature Limiter



Single Phase Wiring with Temperature Limiter & DI



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

ATTENTION! ***It is important to us the correct capacitors with single phase pumps, use of incorrect capacitors will lead to motor burn-out***

Three Phase Wiring with Temperature Limiter & DI - M30/2D, M55/2D, M70/2D, M85/2D, M125/2D

U1, V1, W1, U2, V2, W2	=	Live	br	=	Brown
PE	=	Earth	F1/FO	=	Thermal sensor
Gr/Yel	=	Green/Yellow	R	=	Run
blk	=	Black	S	=	Start
bl	=	Blue	C	=	Neutral (common)
Di	=	Seal monitor			

4.3.2 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

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ATTENTION!
The start reaction is anti-clockwise

Rotor rotation

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.***

4.3.3 Changing direction of rotation

The safety hints in the previous sections must be observed!

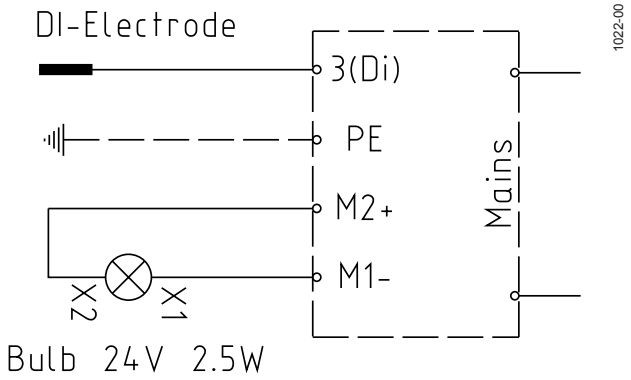
The direction of rotation should only be altered by a qualified person.

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

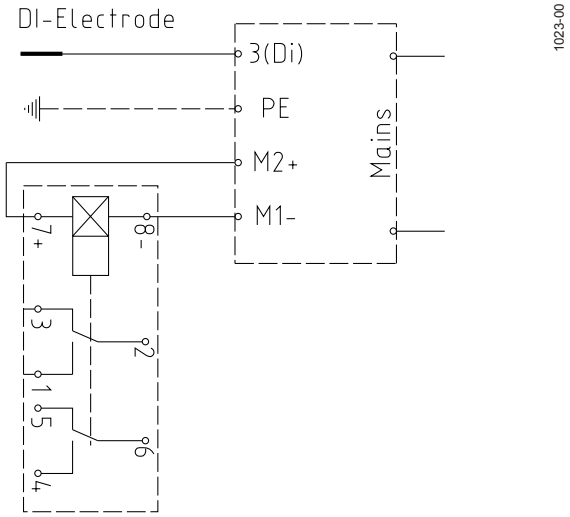
NOTE: ***The direction of rotation measuring device monitors the direction of rotation of the mains supply or that of an emergency generator***

4.3.4 Connection of the seal monitoring device in the oil chamber

In order to integrate the seal monitoring device to a control panel supplied by the customer, it is essential that the ABS DI-module is installed in accordance with the following control circuit diagrams:



Di Module (connection of neon bulb)



Di Module with relay for individual signaling

ATTENTION! ***Maximum contact loading 2 amps***

NOTE: ***ABS DI-module with relay for individual signalling (not supplied as standard)***

5 Commissioning

In explosive zones, care must be taken that during switching on and operation the pump section is filled with water (dry running) or alternatively is submerged or under water (wet installation). Ensure that the minimum submergence given in the data sheet is observed. Other types of operation e.g. snore operation or dry running are not allowed.

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?

6 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 pratices 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.***

6.1 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.***

6.1.1 Shredding system

The shredding system of the Piranha is a wearing part, and as such may need to be replaced. A reduction in cutting performance can reduce the output. We recommend that the shredding be inspected regularly. This is particularly so if sewage containing sand is being pumped.Regular inspection and care is recommended to ensure a long service life.
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.***

6.2 Commentary on maintenance of Lifting Stations in accordance with EN 12056.

It is recommended that the lifting station be inspected monthly and its function checked.

In accordance with EN regulations, the lifting station should be maintained by a qualified person at the following intervals:

- in commercial premises - every three months.
- in apartment blocks - every six months.
- in a single family home - once a year.
- In addition we recommend that a maintenance contract be taken out with a qualified company.

6.3 Oil filling and oil changing

The oil chamber between the motor and the hydraulic section has been filled at manufacture with lubricating oil.

An oil change is only necessary if a fault occurs.

The lighting up of the inspection control indication in the control panel by the DI-electrode fitted in the pump means that there is water in the motorhousing (only Piranha M55/2- M125/2).

Have the mechanical seal unit checked by your ABS service centre.

An oil change, if the inspection lamp does light, is only necessary when carrying out repair work.

Repair work on explosion-proof submersible pumps may only be carried out by approved personnel in approved workshops.

When carrying out repairs only original spare parts, supplied by the manufacturer, should be used.
The DI-electrode fitted in explosion-proof pumps indicates that there is moisture in the motor area.

6.4 Cleaning

If the pump is used for transportable applications, then in order to avoid deposits of dirt and encrustation it should be cleaned after each usage by pumping clear water. In the case of fixed installation, we recommend that the functioning of the automatic level control system be checked regularly. By switching the selection switch (switch setting “HAND”) the sump will be emptied. If deposits of dirt are visible on the floats then these should be cleaned. After cleaning, the pump should be rinsed out with clear water and a number of automatic pumping cycles carried out.

6.5 Venting of the volute

After lowering the pump into a sump full of water, an air lock may occur in the volute and cause pumping problems. To clear the air lock, raise the pump in the medium and then lower it again. If necessary, repeat this venting procedure.

Declaration of conformity

As defined by: Machinery Directive 98/37/EC, EMC-Directive 89/336/EC, Low Voltage Directive 73/23/EC, ATEX 94/9/EC, Construction Directive 89/106/EC

GB: Declaration of conformity
DE: Konformitätserklärung
FR: Déclaration de Conformité
ES: Declaración de Confirmidad
PT: Declaracão de conformidade
IT: Dichiarazione di conformità
NL: Overeenkomstigheidsverklaring
SE: Försäkran om överensstämmelse
NO: Samsvarserklæring
DK: Overensstemmelseserklæring
FI: Vaatimustenmukaisuusvakuutus
PL: Deklaracja zgodnosci
HU: Megfelelõségi nyilatkozat
GR: Δήλωση εναρμόνισης
ET: Vastavusdeklaratsioon
CZ: Prohlášení o shodši
SI: Izjava o skladnosti
SK: Vyhlásenie o zhode
TR: Uygunluk beyanı

ABS Production Wexford Ltd, Clonard Road, Wexford, Ireland

GB: Declare under our sole responsibility that the products
DE: Erklärt eigenverantwortlich, daß die Produkte
FR: Déclarons sous notre seule responsabilité que les produits
ES: Declaramos bajo nuestra exclusiva responsabilidad que los productos
PT: Declaramos sob nossa única responsabilidade que os produtos
IT: Dichiariamo sotto la nostra esclusiva responsabilità che i prodotti
NL: Verklaren geheel onder eigen verantwoordelijkheid dat de produkten
SE: Försäkrar under eget ansvar att produkterna
NO: Erklærer på eget ansvar, at følgende produkter
DK: Erklærer på eget ansvar, at følgende produkter
FI: Vakuutamme yksinomaan omalla vastuullamme, että seuraavat tuotteet
PL: Deklaruje z pelna odpowiedzialnoscia, ze urzadzenia typu
HU: Felelösségünk teljes tudatában kijelentjük, hogy a termékek
GR: Dhlönoyme me apokleistikq maw eyuýnh óti ta proïónta
ET: Deklareerime ainuvastutajana, et tooted
CZ: Prohlašuje na vlastní odpovìdnost, že výrobky
SI: Izjavljamo, da so z našo izključno odgovornostjo izdelki
SK: Vyhlasujeme na našu zodpovednost', že výrobky
TR: Bu ürünlerin tek sorumlusunun biz olduğunu beyan ederiz:

Products:
ABS submersible grinder pump Piranha S12 - M120
Ex II 2G k EEx d IIB T4

GB: To which this declaration relates are in conformity with the following standards or other normative documents
DE: Auf die sich diese Erklärung bezieht, den folgenden und/oder anderen normativen Dokumenten entsprechen
FR: Auxquels se réfère cette déclaration sont conformes aux normes ou à d'autres documents normatifs
ES: Objeto de esta declaración, están conformes con las siguientes normas u otros documentos normativos
PT: Aque se refere esta declaracáo está em conformidade com as Normas our outros documentos normativos
IT: Ai quali questa dichiarazione si riferisce sono conformi alla seguente norma o ad altri documenti normativi
NL: Waarop deze verklaring betrekking heeft, in overeenstemming zijn met de volgende normen of andere normatieve documenten
SE: Som omfattas av denna försäkran är i överensstämmelse med följande standarder eller andra regelgivande dokument
NO: Som dekkes av denne erklæringen, er i samsvar med følgende standarder eller andre normative dokumenter
DK: Som er omfattet af denne erklæring, er i overensstemmelse med følgende standarder eller andre normative dokumenter
FI: Joihin tämä vakuutus liitty, ovat seuraavien standardien sekä muiden sääntöämääräävien asiakirjojen mukaisia
PL: Do których odnosi sie niniejsza deklaracja sa zgodne z nastepujacymi normami lub innymi dokumentami normatywnymi.
HU: Amelyekre ez a nyilatkozat vonatkozik, megfelelnek a következõszabványokban és egyéb szabályozó dokumentumokban leírtaknak.
GR: Τα οποία αφορά η παρούσα δήλωση είναι σύμφωνα με τα ακόλουθα και/ή άλλα πρότυπα κανονιστικά έγγραφα
ET: Mida käespöev deklaratsioon puudutab, on vastavuses järgmiste standardite ja muude normatiivdokumentidega.
CZ: Na které se toto prohlášeni vztahuje, jsou v souladu s následujícími normami nebo jinými normativními dokumenty.
SI: Na katere se ta izjava nanaša, skladni z naslednjimi standardi ali drugimi normativnimi dokumenti.
SK: Na ktoré sa vz ahuje toto vyhlásenie, zodpovedajú nasledujúcim štandardom a iným záväzným dokumentom.
TR: Bu açıklamada belirtilen standartlar veya diğer normatif dokümanlarla uygunluk içindedir.

DIN EN 12050-1, EN 60079-1:2007, EN 60335, EN 50014, EN 50018, EN 13463, EN ISO 12100-1 & EN 12100-2

GB: Motor Type Examination BASEEFA 03ATEX0716X or BASEEFA 03ATEX0717X.
DE: Motortypprüfung BASEEFA 03ATEX0716X oder BASEEFA 03ATEX0717X
FR: Examen de type de moteur BASEEFA 03ATEX0716X ou BASEEFA 03ATEX0717X
ES: Inspección de modelo de motor BASEEFA 03ATEX0716X o BASEEFA 03ATEX0717X.
PT: Exame de Tipo do Motor BASEEFA 03ATEX0716X ou BASEEFA 03ATEX0717X.
IT: Verifica tipo motore BASEEFA 03ATEX0716X o BASEEFA 03ATEX0717X.
NL: Motortypebeproeving BASEEFA 03ATEX0716X of BASEEFA 03ATEX0717X.
SE: Motortypundersökning BASEEFA 03ATEX0716X eller BASEEFA 03ATEX0717X.
NO: Motortypeundersøkelse BASEEFA 03ATEX0716X eller BASEEFA 03ATEX0717X.
DK: Motortypeundersøgelse, BASEEFA 03ATEX0716X eller BASEEFA 03ATEX0717X.
FI: Moottorin tyyppitarkastus BASEEFA 03ATEX0716X tai BASEEFA 03ATEX0717X.
PL: Ocena zgodności typu silnika BASEEFA 03ATEX0716X lub BASEEFA 03ATEX0717X.
HU: Motor típus vizsgálata: BASEEFA 03ATEX0716X vagy BASEEFA 03ATEX0717X.
GR: Εξέταση τύπου κινητήρα BASEEFA 03ATEX0716X ή BASEEFA 03ATEX0717X.
ET: Mootori tüübitunnistus BASEEFA 03ATEX0716X või BASEEFA 03ATEX0717X.
CZ: Kontrola typu motoru BASEEFA 03ATEX0716X nebo BASEEFA 03ATEX0717X.
SI: Preverjanje tipa motorja BASEEFA 03ATEX0716X ali BASEEFA 03ATEX0717X.
SK: Kontrola typu motora BASEEFA 03ATEX0716X alebo BASEEFA 03ATEX0717X.
TR: Motor Tip İncelemesi BASEEFA 03ATEX0716X veya BASEEFA 03ATEX0717X.

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