

**MOSSVALE ON MANLY - STAGE 1  
SEWERAGE PUMPING STATION**

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**COMMISSIONED:**



## **MOSSVALE ON MANLY - STAGE 1 SEWERAGE PUMPING STATION**

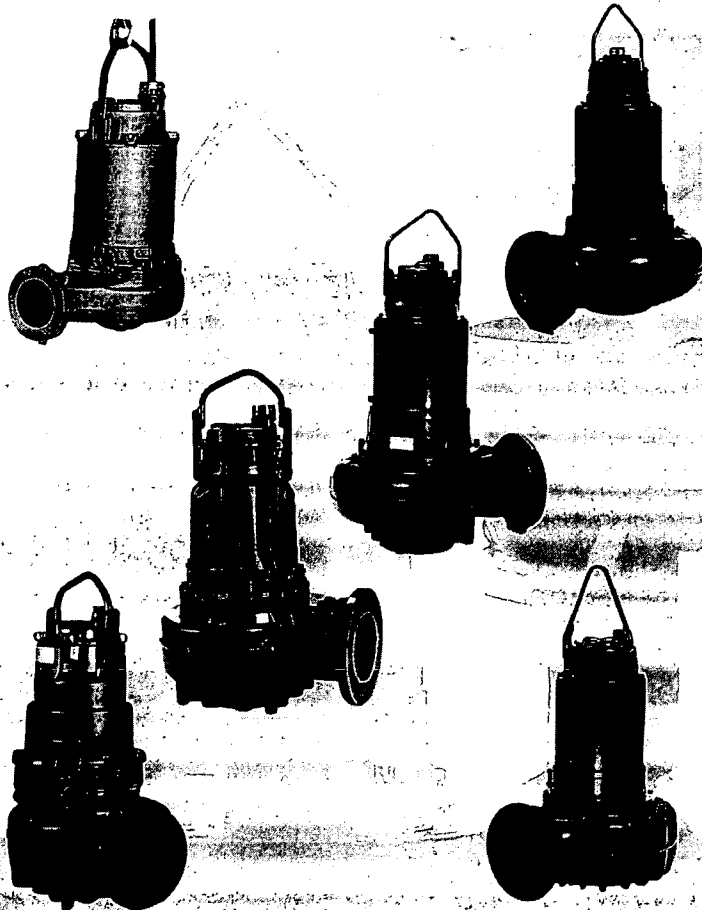
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# Installation, care and maintenance

3126/3140/3152/3170/3201/3300



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## SAFETY

This manual contains basic information on the installation, operating and maintenance and should be followed carefully. It is essential that these instructions are carefully read before installation or commissioning by both the installation crew as well as those responsible for operation or maintenance. The operating instructions should always be readily available at the location of the unit.

### Identification of safety and warning symbols



#### General Danger:

Non-observance given to safety instructions in this manual, which could cause danger to life have been specifically highlighted with this general danger symbol.



#### High Voltage:

The presence of a dangerous voltage is identified with this safety symbol.

### WARNING!

Non-observance to this warning could damage the unit or affect its function

### Qualifications of personnel

An authorized (certified) electrician and mechanic shall carry out all work.

### Safety regulations for the owner/operator

All government regulations, local health and safety codes shall be complied with.

All dangers due to electricity must be avoided (for details consult the regulations of your local electricity supply company).

### Unilateral modification and spare parts manufacturing

Modifications or changes to the unit/installation should only be carried out after consulting with ITT Flygt.

Original spare parts and accessories authorized by the manufacturer are essential for compliance. The use of other parts can invalidate any claims for warranty or compensation.

### Dismantling and re-assembly

If the pump has been used to pump hazardous media, care must be taken that, when draining the leakage, personnel and environment are not endangered.

All waste and emissions such as used coolant must be appropriately disposed of. Coolant spills must be cleaned up and emissions to the environment must be reported.

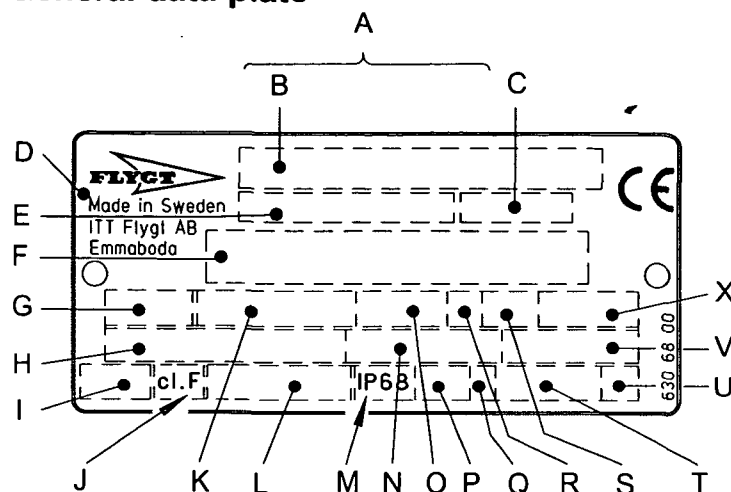
The pumping station must be kept tidy and in good order at all times.

All government regulations shall be observed.

The pictures in this manual may differ somewhat from the delivered pump depending on the hydraulic end configuration.

# DATA PLATE INTERPRETATION

## General data plate

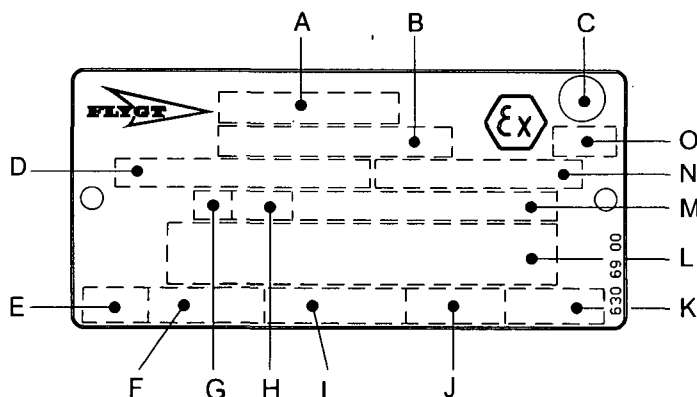


- A Serial number
- B Product code + Number
- C Curve code / Propeller code
- D Country of origin
- E Product number
- F Additional information
- G Phase; Type of current; Frequency
- H Rated voltage
- I Thermal protection
- J Thermal class
- K Rated shaft power
- L International standard
- M Degree of protection
- N Rated current
- O Rated speed
- P Max. submergence
- Q Direction of rotation: L=left, R=right
- R Duty class
- S Duty factor
- T Product weight
- U Locked rotor code letter
- V Power factor
- X Max. ambient temperature

## Approval plates

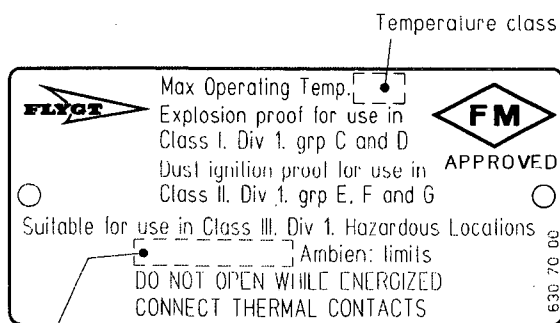
These approval plates apply to an explosion-proof submersible Flygt pump. The plates are used together with the general data plate on the pump.

- EN: European Norm  
ATEX Directive  
EN 50014, EN 50018, EN 1127-1  
Ex II 2 G EEx dII T4  
Ex I M 2 EEx dl



- A Approval
- B Approval authority + Approval Number
- C Approval for Class I
- D Approved drive unit
- E Stall time
- F Starting current / Rated current
- G Duty class
- H Duty factor
- I Input power
- J Rated speed
- K Controller
- L Additional information
- M Max. ambient temperature
- N Serial number
- O ATEX marking

- FM: Factory Mutual  
Class I Div. I Grp C and D  
Class II and III Div. I Grp E, F and G



Max. ambient temperature

# PRODUCT DESCRIPTION

## Introduction

Thank you for buying a submersible Flygt pump. In this Installation, Care and Maintenance manual you will find general information on how to install and service the 3126, 3140, 3152, 3170, 3201 or 3300 pump to give it a long and reliable life. In the Parts List you will find all the specific technical data for your pump.

## Application

This Installation, Care and Maintenance manual applies to a submersible Flygt pump. If you have bought an Ex-approved pump (please see approval plate on your pump or Parts List) special handling instructions apply as described in this document.

Depending on the hydraulic end, the pump is intended to be used for:

- pumping of waste water
- pumping of light liquid manure and urine
- pumping of sludge
- pumping of ground water
- pumping of sewage if the solids need to be cut into small pieces.

The pumps must not be used in highly corrosive liquids. See pH limits below.

The pump is available for permanent installation in a sump or portable installation with hose connection and stand.

In some applications, the pump is also available for a dry stationary installation on a base stand directly connected to the inlet and outlet lines.

For further information on applications, contact your nearest Flygt representative.

## Specific technical data

For specific technical data regarding your pump, please see Parts List.

## General technical data

**Liquid temperature:** max. 40°C (104°F). If the pump is not equipped with cooling jacket, the pump can be operated at full load only if at least half the stator housing is submerged.

The pump can be equipped for operation at temperatures up to 90°C (195°F). At increased temperatures, the pump must be completely submerged when operated at full load.

Higher temperatures than 40°C (104°F) are not permitted for Ex-approved pumps.

**Liquid density:** max. 1100 kg/m<sup>3</sup> (9.2 lb per US gal.)

**The pH of the pumped liquid:** 5.5—14 (for cast iron pumps).

**The pH of the pumped liquid:** 3—14 (for stainless steel pumps).

**Depth of immersion:** max. 20 m (65 ft).



- In some installations and at certain operating points on the performance curve, the noise level of 70 dB or the noise level specified for the actual pump may be exceeded.
- Only Ex-approved pumps may be used in an explosive or flammable environment.

## Warranty claim

Flygt pumps are high quality products with expected reliable operation and long life. However, should the need arise for a warranty claim, please contact your Flygt representative.

# GENERAL DESIGN OF A FLYGT PUMP

## Design

The pump is a submersible, electric motor-driven product.

### 1. Impeller

The pump is available with a wide range of impellers for different applications and capacities.

### 2. Shaft seals

The pump has two mechanical face seals – one inner and one outer, with an intermediate oil housing.

### 3. Shaft

The shaft is delivered with the rotor as an integral part. Shaft material: stainless steel or carbon steel.

### 4. Bearings

The support bearing of the rotor consists of a single-row roller bearing.

The main bearing of the rotor consists of a two-row angular contact ball bearing.

### 5. Oil housing

The oil lubricates and cools the seals and acts as a buffer between the pump housing and the electric motor.

### 6. Cooling

The stator is cooled by either the surrounding media or by forced circulation in a cooling jacket.

### 7. Motor

Squirrel-cage 1-phase or 3-phase induction motor for 50 Hz or 60 Hz.

The motor can be started by direct on-line or star-delta starting.

The motor can be run continuously or intermittently with a maximum of 15 evenly spaced starts per hour.

Flygt motors are tested in accordance with IEC 34-1.

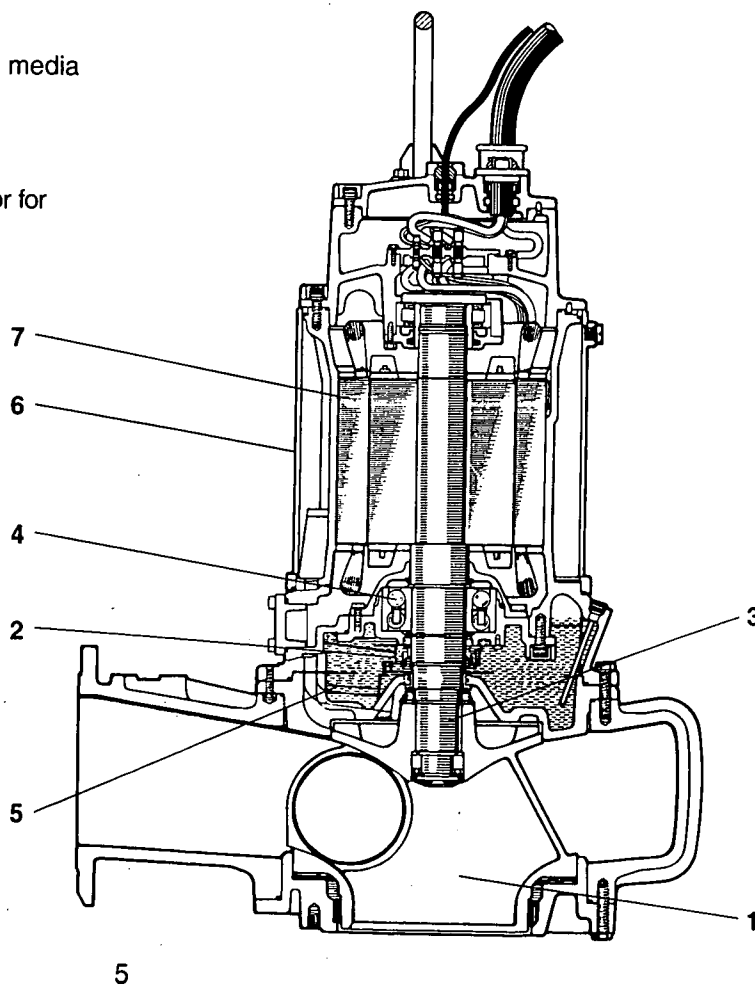
The stator is insulated in accordance with class F (155°C, 310°F). The motor is designed to deliver its rated output at  $\pm 5\%$  variation from the rated voltage. Without overheating the motor,  $\pm 10\%$  variation from the rated voltage can be accepted provided that the motor does not run continuously at full load. The motor is designed to operate at a voltage imbalance of up to 2% between the phases.

### Monitoring equipment

The stator incorporates thermal contacts connected in series.

The pump can be equipped with sensors for sensing water in the oil\* and/or stator housing.

\*Not applicable to Ex-approved pumps.



# INSTALLATION

## Handling equipment

Lifting equipment is required for handling the pump.



- Stay clear of suspended loads.
- Always lift the pump by its lifting handle - never by the motor cable or the hose.

The minimum height between the lifting hook and the floor shall be sufficient to lift the pump out of the sump.

The lifting equipment shall be able to hoist the pump straight up and down in the sump, preferably without the need for resetting the lifting hook.

Oversize lifting equipment could cause damage if the pump should stick when being lifted.

Make sure that the lifting equipment is securely anchored.

## General recommendations

To ensure proper installation, please see the dimensions on the dimensional drawing in the Parts List.

**NOTE!** The end of the cable must not be submerged. It must be above flood level, as water may penetrate through the cable into the junction box or the motor.

Check that the lifting handle and chain are in good condition.

For automatic operation of the pump (level control), it is recommended that the level regulators be used at low voltage. The data sheet delivered with the regulators gives the permissible voltage. Local rules may specify otherwise.

Clean out all debris from the sump before the pump is lowered down and the station is started.



**Special rules apply to installation in explosive atmosphere.**

- Intrinsically safe circuits are normally required (Ex i) for the automatic level control system by level regulators.
- Minimum stop level should be according to the dimensional drawing.
- The pump must never run dry.

## Safety precautions

In order to minimize the risk of accidents in connection with the service and installation work, the following rules should be followed:

1. Never work alone. Use a lifting harness, safety line and a respirator as required. Do not ignore the risk of drowning!
2. Make sure there are no poisonous gases within the work area.
3. Check the explosion risk before welding or using electric hand tools.
4. Do not ignore health hazards. Observe strict cleanliness.
5. Bear in mind the risk of electrical accidents.
6. Make sure that the lifting equipment is in good condition.
7. Provide a suitable barrier around the work area, e.g a guard rail.
8. Make sure you have a clear path of retreat!
9. Use safety helmet, safety goggles and protective shoes.
10. All personnel who work with sewage systems must be vaccinated against diseases to which they may be exposed.
11. A first-aid kit must be close at hand.
12. Note that special rules apply to installation in explosive atmosphere.

Follow all other health and safety rules and local codes and ordinances.



# ELECTRICAL CONNECTIONS



- Before starting work on the pump, make sure that the pump and the control panel are isolated from the power supply and cannot be energized.
- If the pump is equipped with automatic level control, there is a risk of sudden restart.
- All electrical equipment must be earthed. This applies to both pump equipment and any monitoring equipment.

Failure to heed this warning may cause a lethal accident. Make sure that the earth lead is correctly connected by testing it.



## NOTE for Ex version

- Electrical connections on the explosion-proof motor must be made by authorized personnel.  
Flygt disclaims all responsibility for work done by untrained, unauthorized personnel.
- The pump may be used only in accordance with the approved motor data stated on the pump's plates.
- Thermal contacts must be connected to protection circuit intended for that purpose according to the approval of the product.

All electrical work shall be carried out under the supervision of an authorized electrician.

Local codes and regulations shall be complied with.

Check on the data plate which voltage supply is valid for your pump.

Check that the main voltage and frequency agree with the specifications on the pump data plate.

If the pump can be connected to different voltages, the connected voltage is specified by a yellow sticker.

Connect the motor cable to the starter equipment as illustrated in the wiring diagrams.

## Conductors that are not in use must be isolated.

The cable should be replaced if the outer sheath is damaged. Contact a Flygt service shop.

Make sure that the cable does not have any sharp bends and is not pinched.

Under no circumstances may the starter equipment be installed in the sump.

**NOTE!** For safety reasons, the earth conductor should be approx. 50 mm (2.0") longer than the phase conductors. If the motor cable is jerked loose by mistake, the earth conductor should be the last conductor to come loose from its terminal. This applies to both ends of the cable.

Thermal contacts are incorporated in the stator. The thermal contacts can be connected to max 250 V, breaking current max 4 A. Flygt recommends that they be connected to 24 V over separate fuses to protect the other automatic equipment.

**NOTE!** If the pump optionally is equipped with thermistors in the stator winding, make sure that the thermistors are never exposed to voltages higher than 2.5 V. If the voltage exceeds this value, e.g. when the control circuit is being checked, the thermistors will be destroyed.

Make sure that the pump is correctly earthed (grounded).

When using a variable-frequency-drive (VFD) the shielded cable (type NSSHÖU.../3E+St) should be used. Contact your Flygt representative and ask your VFD-supplier for electrical limitations.

# ELECTRICAL CONNECTIONS

Remember that the starting current in direct on-line starting can be up to six times higher than the rated current. Make sure that the fuses or circuit breakers are of the proper rating.

The Parts List gives rated current. Fuse rating and cable shall be selected in accordance with local rules and regulations. Note that with long cables, the voltage drop in the cable must be taken into consideration, since the motor's rated voltage is the voltage that is measured at the terminal board in the pump.

The overload protection (motor protection breaker) for direct on-line starting shall be set to the motor rated current as given on the data plate.

Check the phase sequence in the mains with the phase sequence indicator.

If intermittent operation is prescribed (see Data Plate), the pump shall be provided with control equipment that provides such operation.

## Monitoring equipment

A plate in the junction box shows if the pump is equipped with sensors.

**CLS-30** is a leakage sensor for sensing water in the oil housing and initiates an alarm when the oil contains 30% water. Oil change is recommended after the alarm. If the sensor initiates an alarm shortly after the oil is changed, contact your nearest Flygt representative. The CLS sensor is installed in the bearing housing and goes down into the oil housing. The sensor is not applicable to Ex-approved pumps.



**CLS sensor body made of glass.  
Handle with care.**

The **FLS** sensor consists of a small float switch for sensing water in the stator housing. Its design makes it suitable for pumps in vertical installations. The FLS sensor is installed in the bottom of the stator housing.

The two sensors, CLS and FLS, can be used in the same pump. They are connected in parallel. Follow the instructions for monitoring equipment.

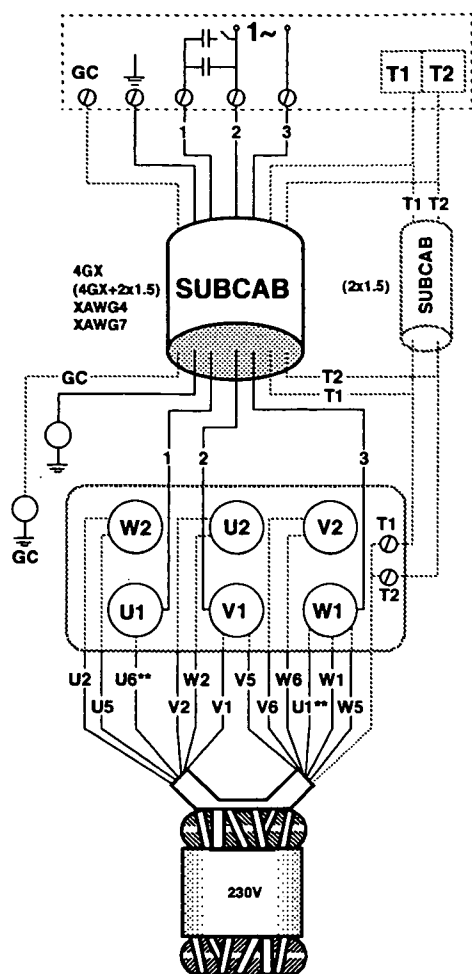
The **MiniCas II** is a monitoring relay to which CLS and/or FLS are connected.

Check:

- signals and tripping function.
- that relays, lamps, fuses and connections are intact.

Replace defective equipment.

# CABLE CHART



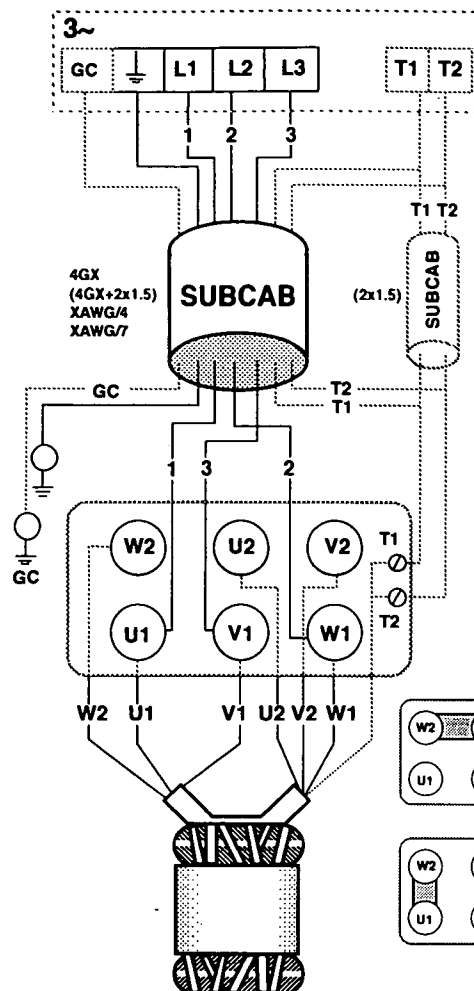
## Single-phase

### SUBCAB/SUBCAB AWG\*\*\*

Connection starter	Conductors
1	brown (red***)
2	black (black***)
3	blue (white***)
Earth	yellow/green
GC**	yellow
T1*	black T1/orange***
T2*	black T2/blue***

### Stator leads

U1 = red	U5 = red
V1 = brown	V5 = brown
W1 = yellow	W5 = yellow
U2 = green	U6 = green
V2 = blue	V6 = blue
W2 = black	W6 = black



## 3-phase, direct-on-line starting

### SUBCAB/SUBCAB AWG\*\*\*

Connection starter	Conductors
1	brown (red***)
2	blue (white***)
3	black (black***)
Earth	yellow/green
GC**	yellow
T1*	black T1/orange***
T2*	black T2/blue***

### Stator leads

U1 = red
V1 = brown
W1 = yellow
U2 = green
V2 = blue
W2 = black

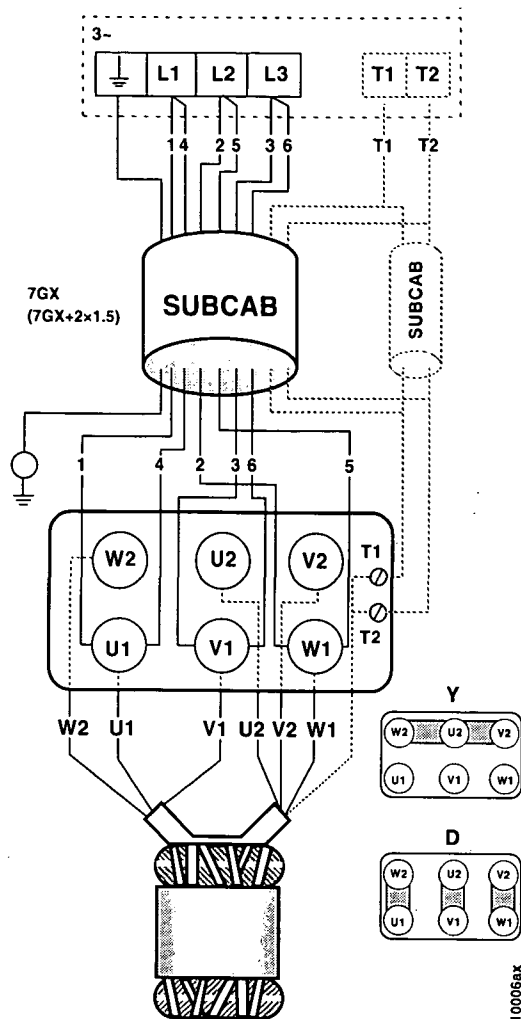
\* Terminal for connection of thermal contacts in the motor and monitoring equipment.

\*\* GC = Ground Check

\*\*\* SUBCAB/AWG

SUBCAB is a registered trademark of ITT Flygt AB for electrical cables.

# CABLE CHART



## 3-phase, direct-on-line starting

### SUBCAB 1+2

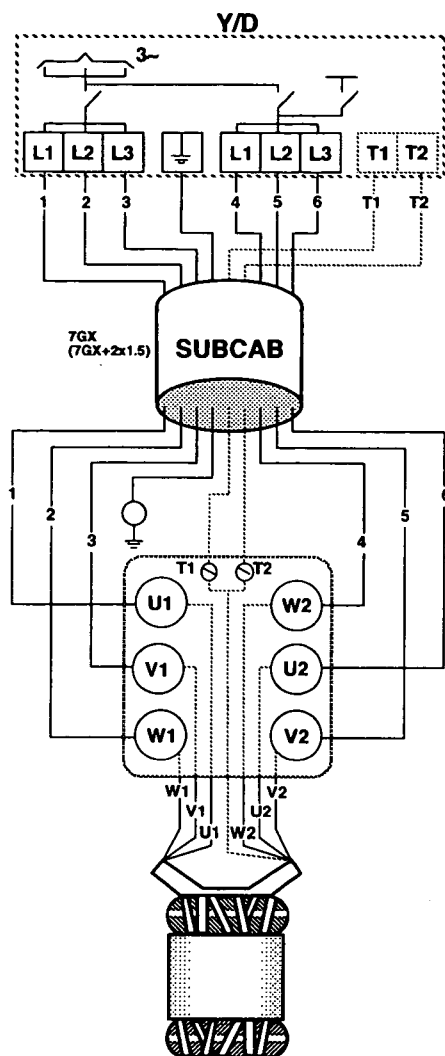
Connection	Conductors
starter	
1/4	brown
2/5	blue
3/6	black
Earth	yellow/green
T1*	black T1
T2*	black T2

### Stator leads

U1	= red
V1	= brown
W1	= yellow
U2	= green
V2	= blue
W2	= black

SUBCAB is a registered trademark of ITT Flygt AB for electrical cables.

# CABLE CHART



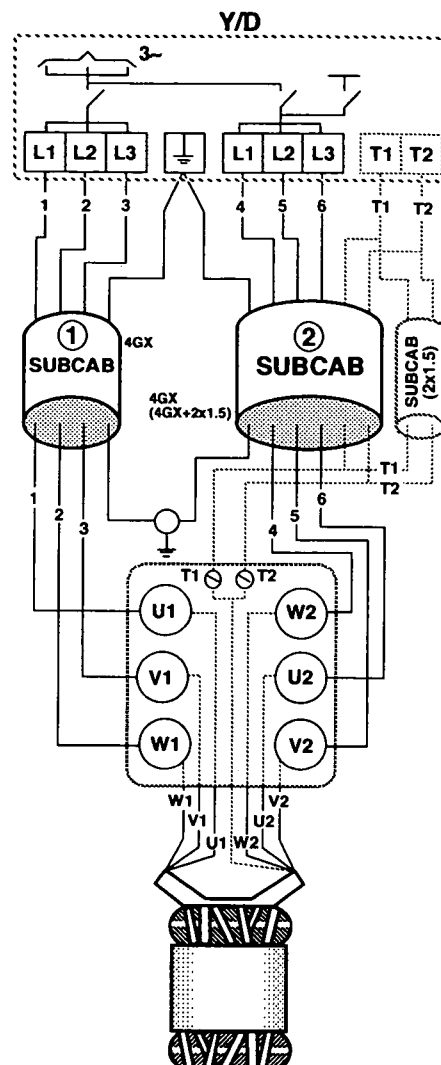
## 3-phase, star-delta starting

### SUBCAB

Connection starter	Conductors
1	black 1
2	black 2
3	black 3
4	black 4
5	black 5
6	black 6
Earth	yellow/green
T1*	black T1
T2*	black T2

### Stator leads

U1	= red
V1	= brown
W1	= yellow
U2	= green
V2	= blue
W2	= black



## 3-phase, star-delta starting

### SUBCAB 1+2

Connection starter	Conductors
1/4	brown
2/5	blue
3/6	black
Earth	yellow/green
T1*	black T1
T2*	black T2

### Stator leads

U1	= red
V1	= brown
W1	= yellow
U2	= green
V2	= blue
W2	= black

SUBCAB is a registered trademark of ITT Flygt AB for electrical cables.

# TRANSPORTATION AND STORAGE

The pump can be transported and stored in a vertical or horizontal position.



- Always lift the pump by its lifting handle – never by the motor cable or the hose.
- Make sure that the pump cannot roll or fall over and injure people or damage property.

The pump is frostproof as long as it is operating or is immersed in the liquid. If the pump is raised when the temperature is below freezing, the impeller may freeze.

The pump shall be run for a short period after being raised in order to discharge all remaining water.

A frozen impeller can be thawed by allowing the pump to stand immersed in the liquid for a short period before it is started. Never use a naked flame to thaw the pump.

For longer periods of storage, the pump must be protected against moisture and heat. The impeller should be rotated occasionally (for example every other month) to prevent the seals from sticking together.

After a long period of storage, the pump should be inspected before it is taken into operation. Pay special attention to the seals and the cable entry.

Follow the instructions under the heading "Before starting".

## OPERATION

### Before starting



- Before starting work on the pump, make sure that the pump is isolated from the power supply and cannot be energized.
- Make sure that the pump cannot roll or fall over and injure people or damage property.

Check that the visible parts on the pump and installation are undamaged and in good condition.

Check the oil level in the oil housing.

Remove the fuses or open the circuit breaker and check that the impeller can be rotated freely.

Check that the monitoring equipment (if any) works.

Check the direction of rotation. The impeller shall rotate clockwise, as viewed from above. When started, the pump will jerk in the opposite direction to the direction in which the impeller rotates. See the figure.

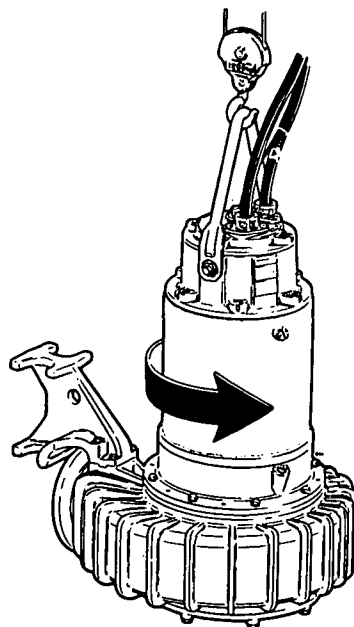
In the case of dry installation, check the direction of rotation through the inlet elbow access cover.

Transpose two phase leads if the impeller rotates in the wrong direction (3 ~).



In some installations the pump surface and the surrounding liquid may be hot. Bear in mind the risk of burn injuries.

### Starting jerk



Watch out for the starting jerk, which can be powerful.

# CARE AND MAINTENANCE



Before starting work on the pump, make sure that the pump is isolated from the power supply and cannot be energized.

This applies to the control circuit as well.



## NOTE for Ex version

All work on the explosion-proof motor section must be performed by personnel authorized by Flygt.

Flygt disclaims all responsibility for work done by untrained, unauthorized personnel.



Make sure that the pump cannot roll or fall over and injure people or damage property.

The following points are important in connection with work on the pump:

- Make sure that the pump has been thoroughly cleaned.
- Beware of the risk of infection.
- Follow local safety regulations.

The pump is designed for use in liquids which can be hazardous to health. In order to prevent injury to the eyes and skin, observe the following points when working on the pump:

- Always wear goggles and rubber gloves.
- Rinse the pump thoroughly with clean water before starting work.
- Rinse the components in water after dismantling.
- The oil housing may be under pressure. Hold a rag over the oil screw to prevent splatter.

Proceed as follows if hazardous chemicals have splashed into your eyes:

- Rinse your eyes immediately in running water for 15 minutes. Hold your eyelids apart with your fingers.
- Contact an eye specialist.

On your skin:

- Remove contaminated clothes.
- Wash your skin with soap and water.
- Seek medical attention, if required.

## Inspection

Regular inspection and preventive maintenance ensure more reliable operation.

The pump should be inspected at least once a year, but more frequently under severe operating conditions.

Under normal operating conditions, the pump should have a major overhaul in a service shop at least every third year for permanent installation and every year for portable pumps. This requires special tools and should be done by an authorized service shop.

If the seals have been replaced an inspection of the oil is recommended after one week of operation.

NOTE! Regular check of the condition of the lifting handle and chain is important.

## Inspection of hot water applications

Pumps in hot water applications shall undergo inspection or overhaul at a service shop as follows, depending on the time they have been submerged in the hot water:

Temp.	Mode of operation	Inspection	Shop overhaul
≤70°C (160°F)	Continuous	1000 hours	4000 hours
≤70°C (160°F)	Intermittent	twice a year	once a year
≤90°C (195°F)	Cont./Int.	6 times a year	twice a year

# OIL CHANGE

A check of the condition of the oil can show whether there has been leakage. Note! Air/oil mixture can be confused with water/oil mixture.

Insert a tube (or hose) into the oil hole. Cover the top end of the tube and take up a little oil from the bottom.

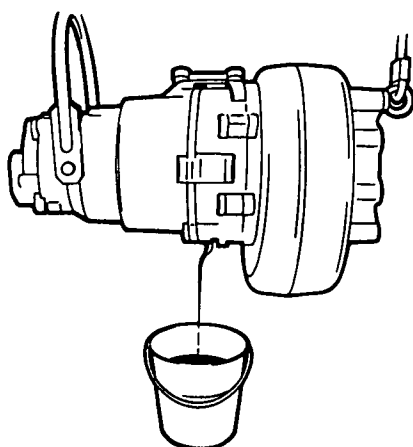
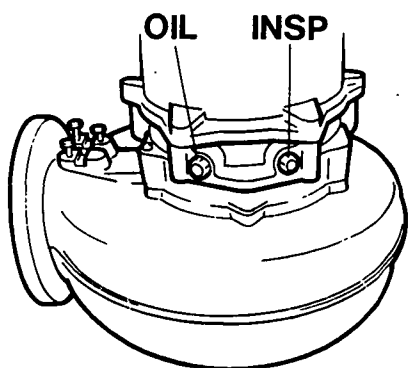
Change the oil if it contains too much water, i.e. if it is heavily emulsified (cream-like), or if the oil housing contains free water. Check again one week after changing the oil.



The oil housing may be under pressure. Hold a rag over the oil screw to prevent splatter.

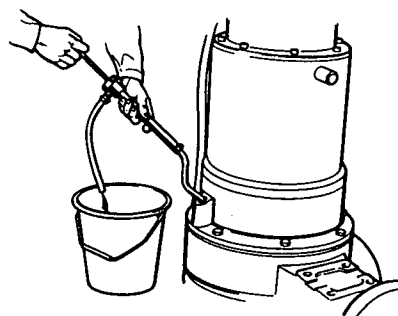
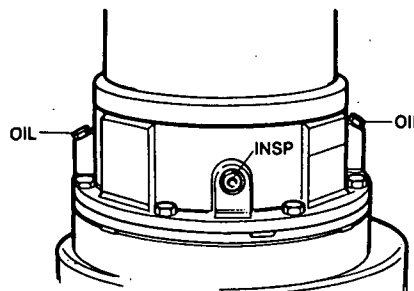
## 3126 / 3140 / 3152

1. Suspend the pump horizontally from an overhead crane.
2. Unscrew the oil housing screw marked "oil out". Emptying the oil must be done through the "oil out" hole. Turn the pump so that the oil hole faces downwards. It is easier to drain the oil if the oil hole screw "oil in" is also removed.



## 3170 / 3201 / 3300

1. Unscrew the oil housing screw marked "oil out". Emptying the oil must be done through the "oil out" hole.
2. Pump out the oil. Using the oil drainage pump 83 95 42 or an equivalent pump. Make sure that the suction tube goes all the way down to the oil housing bottom.



## 3126 / 3140 / 3152 / 3170 / 3201 / 3300

3. Install the "oil out" screw and fill with oil through the other hole. It is important that the oil be added through the hole marked "oil in" since the oil housing must contain some air for pressure equalization. A paraffin oil with viscosity close to ISO VG15 (e.g. Mobile Whiterex 309) is recommended. The pump is delivered from the factory with this type of oil. In applications where poisonous properties are of less concern, a mineral oil with viscosity up to ISO VG32 can be used.

➤ Please see Parts List for the correct volume and tightening torque.

4. Always replace the O-rings under the oil housing screws with new ones.



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[www.flygt.com](http://www.flygt.com)

Active 29/01/2014

# TEST REPORT

## PRODUCT

Serial No. 3300.181		Performance curve No. 53- 460-00-2060		Motor module/type 193	Voltage (V) 415
Base module 060	Impeller No. 481 72 01	Gear type	Gear ratio	Imp.diam/Blade angle	Water temp °C 22

## TEST RESULTS

Pump total head H (m)	Volume rate of flow Q (l/s)	Motor input power P (kW)	Voltage U (V)	Current I (A)	Overall efficiency $\eta$ (%)
63.57	1.8	34.61	418	60.5	
60.46	16.8	39.17	417	65.8	
56.04	35.2	43.79	417	73.2	
51.46	58.1	50.30	417	83.1	
46.92	82.9	57.43	417	94.1	

Accepted after ISO2548C/B	Test facility Lindas Q2 Sweden	Test date 02-02-02	Time 13:30	Chief tester 42
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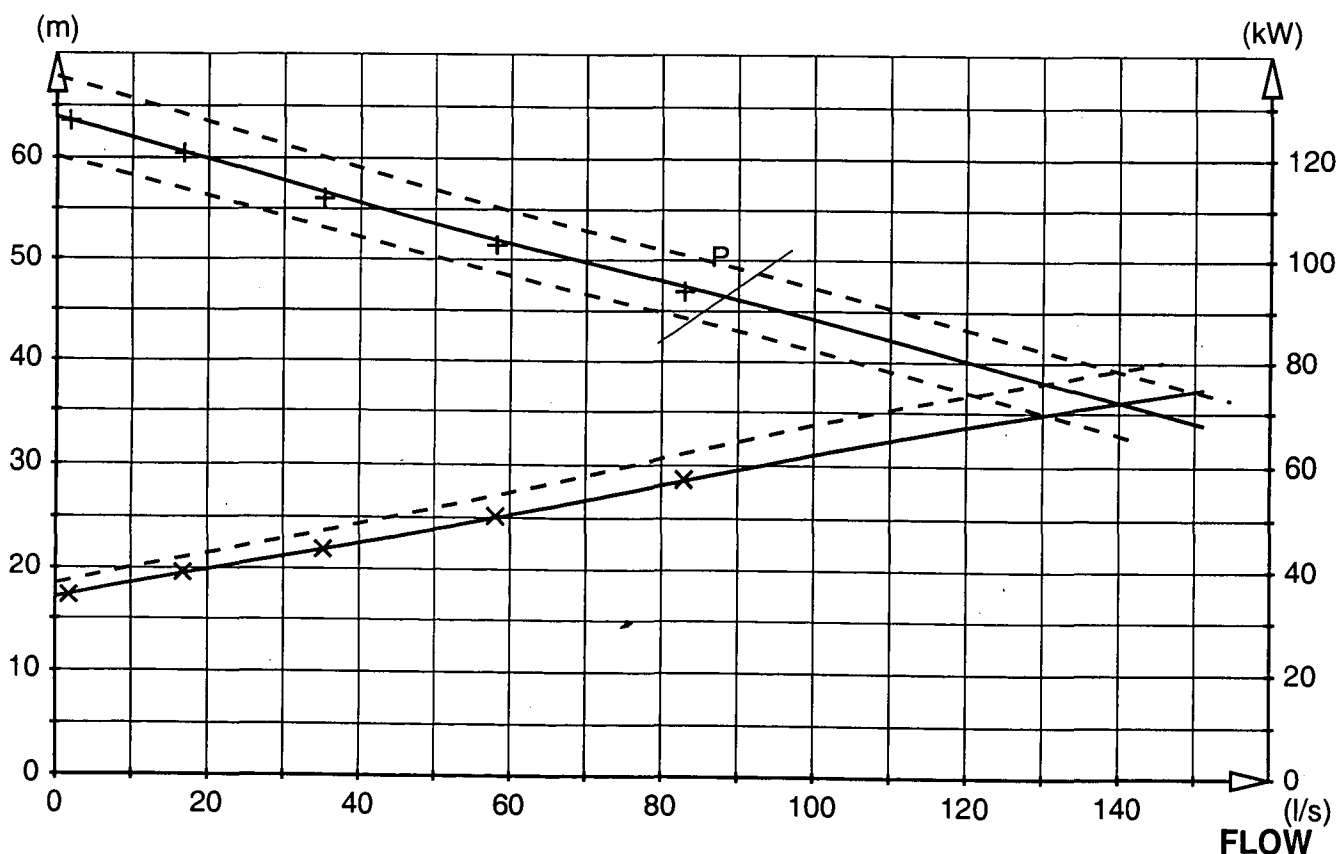
455137/2

## PLOTTED TEST RESULTS

Measured point: + = Q/H  
X = Q/P  
Duty point:  $\diamond$  = Q/H  
 $\square$  = Q/P  
 $\triangle$  = Q/ETA overall  
Calculated point:  $\wedge$  = Q/ETA overall  
1

### TOTAL HEAD

### INPUT POWER



# TEST REPORT

## PRODUCT

Serial No. 3300.181		Performance curve No. 53- 460-00-2060		Motor module/type 193	Voltage (V) 415
Base module 060	Impeller No. 481 72 01	Gear type	Gear ratio	Imp.diam/Blade angle	Water temp °C 21

## TEST RESULTS

Pump total head H (m)	Volume rate of flow Q (l/s)	Motor input power P (kW)	Voltage U (V)	Current I (A)	Overall efficiency $\eta$ (%)
64.47	0.8	34.68	415	60.8	
59.41	25.8	41.64	416	71.4	
56.25	38.2	45.12	416	76.3	
51.26	62.0	52.00	416	86.7	
46.22	88.8	59.33	416	98.0	

Accepted after ISO2548C/B	Test facility Lindas Sweden	Test date Q2 02-02-02	Time 12:09	Chief tester 2050
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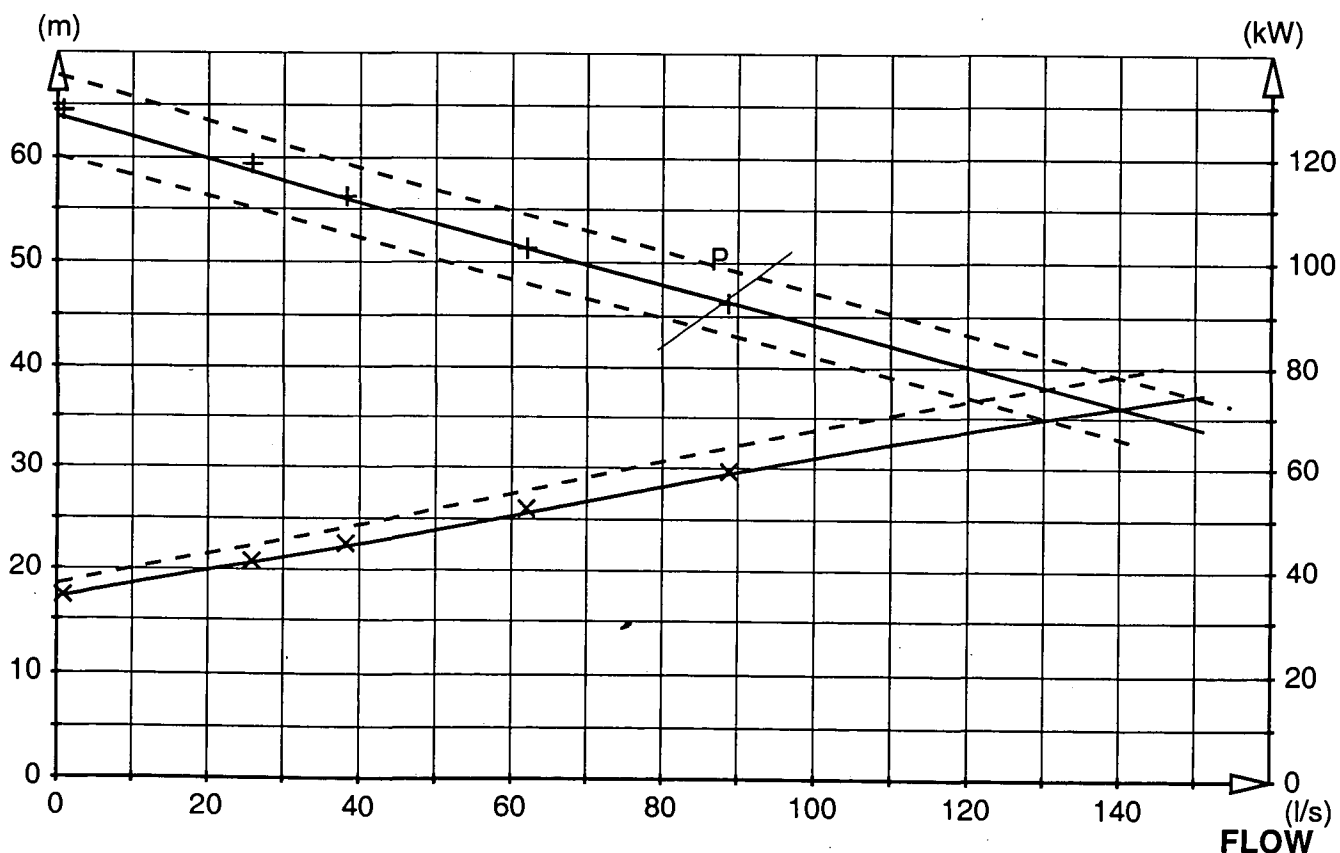
ORD.NR455137 POS2

## PLOTTED TEST RESULTS

Measured point: + = Q/H  
X = Q/P  
Duty point:  $\diamond$  = Q/H  
 $\square$  = Q/P  
 $\triangle$  = Q/ETA overall  
Calculated point:  $\wedge$  = Q/ETA overall  
1

TOTAL HEAD

INPUT POWER



**TILLVERKNINGSKORT, produkter**  
**PRODUCTION CARD, products**



Listnr	Vår/Our order	Pos.nr/Item No.	Antal/pos	Sen. packn datum	Säljst.	Fällspråk	BÄNK14
5	455137	2	7	2002-02-06	5032	EN	

Tillverkn.nr/Serial No.	060 0	193	260	373	452	599	697	706	800	917
3300.181-0210082										

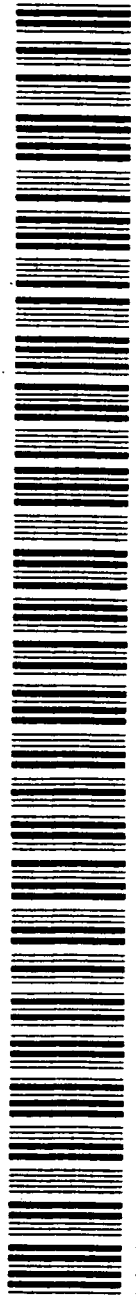
Stycklisteför

Info

Lagerplats CP 3300 HT FLYGT PUMP CODE 460 54 KW, 415VD-96A, 3-PH, 50 HZ, 1470 RPM, 59 KW		Namnskytt 621 06 00		Kontroll-provning/Inspection-Test Kontrollplan Montering 1. Monteringskontroll/ Assembly check 2. Täthetsprov/ Tightness Test 3. Olja påfylld/ Oil filled 4. Spänningsprov/ Dielectric test 5. Leveransprovning/ Acceptance test 6. Packing/ Packing	
Produktnr/Product No. 3300.181-0753		Emballage 21 07 26(CS)			
Löpnr/Seq No. 0210082		Från 21			
Meddelande 900					

Streckkod

3300 181 0210082 534609360 5032



16:02744 Stralms 4.00 BH2685/140709 Mac

29/1

# TILLVERKNINGSKORT, produkter PRODUCTION CARD, products

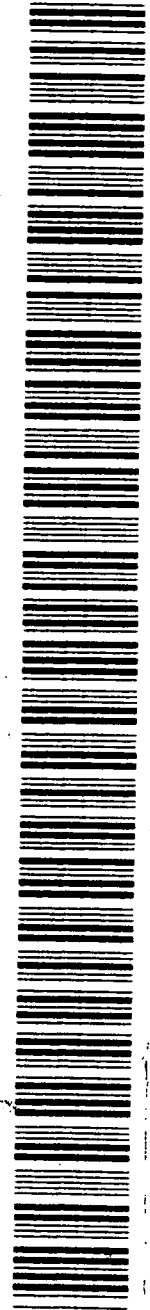


List nr	Vår/Our order	Pos.nr/item No.	Antal/pos	Ser. packn.datum	Säljst.	Fälspråk	BANK14
2	455137	2	7	2002-02-06	5032	EN	

Tillverkn.nr/Serial No.	060 0	193	260	373	452	599	697	706	800	917
3300.181-0210079										

Info		Namnskyt		621 06 00		Kontroll-provning/Inspection-Test	
Enballage		21 07 26 (CS)				Kontrollplan Montering	
Lagerplats		CP 3300 HT FLYGT PUMP CODE 460				1. Monteringskontroll/ Assembly check	
Produktnr/Product No.		54 KW, 415VD-96A,				2. Täthetsprov/ Tightness Test	
Löpnr/Seq No.		3-PH, 50 HZ, 1470 RPM, 59 KW				3. Olja påfyll/ Oil filled	
Produktnr/Product No.		3300.181-0753				4. Spänningsprov/ Dielectric test	
Löpnr/Seq No.		0210079				5. Leveransprovning/ Acceptance test	
Modellande		21				6. Packning/ Packing	
Produktvikt		900					
Streckkod							

3300 181 0210079 534609360 5032

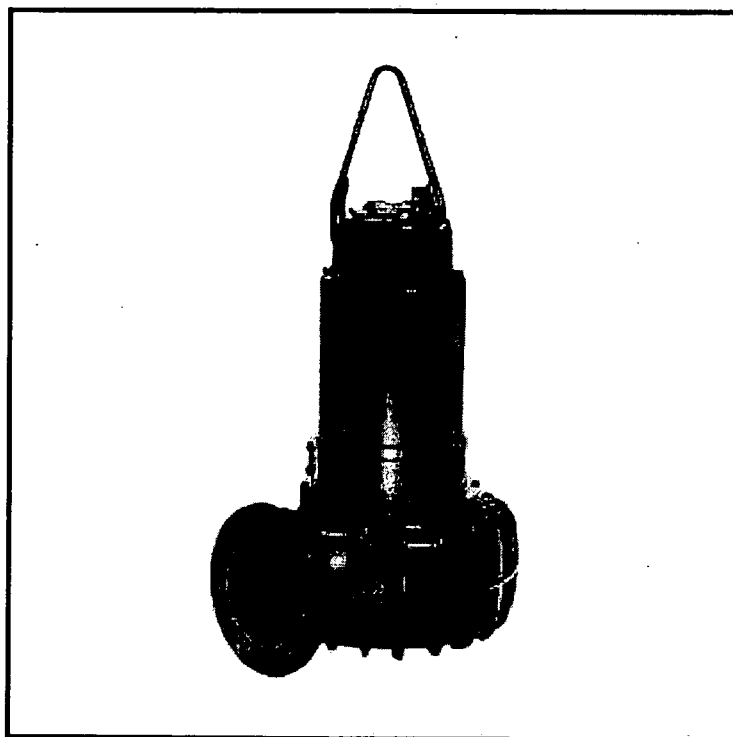




## **FLYGT SUBMERSIBLE PUMP**

### **PARTS LIST CP 3300 HT**

**SERIAL NO 3300.181 0210082**



**ITT FLYGT LTD.  
P O BOX 1425  
LEVEL 4 THE OCTAGON 99 PHILLIP STR**

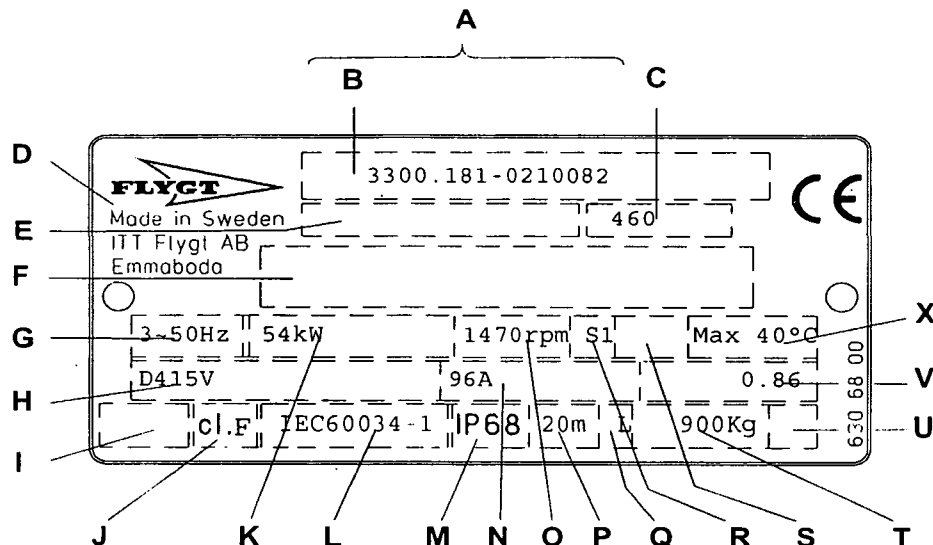
**PARRAMATTA NSW 2124  
AUSTRALIA  
TELEPHONE NO: 2-92020600**

Flygt



**ITT Industries**

## DATAPLATE

**FLYGT CP 3300 HT**
**DATE: 2002-01-25**
**SERIAL NO: 3300.181 0210082**

**Dataplate interpretation:**

- |  |  |
|--|--|
| <b>A</b> Serial number                     | <b>M</b> Degree of protection                  |
| <b>B</b> Product code + Number             | <b>N</b> Rated current                         |
| <b>C</b> Curv code / Propeller code        | <b>O</b> Rated speed                           |
| <b>D</b> Country of origin                 | <b>P</b> Max. submergence                      |
| <b>E</b> Product number                    | <b>Q</b> Direction of rotation R=right, L=left |
| <b>F</b> Additional information            | <b>R</b> Duty class                            |
| <b>G</b> Phase; Type of current; Frequency | <b>S</b> Duty factor                           |
| <b>H</b> Rated voltage                     | <b>T</b> Product weight                        |
| <b>I</b> Thermal protection                | <b>U</b> Locked rotor code letter              |
| <b>J</b> Thermal class                     | <b>V</b> Power factor                          |
| <b>K</b> Rated shaft power                 | <b>X</b> Max. ambient temperature              |
| <b>L</b> International standard            |  |

(1 kg = 2.2 pound, 1 Lit=0.26 US gallon, 1 l = 0,22 UK gallon)

**Recommended spare parts:**

See REC. column: **A** = Parts for inspection and maintenance  
**B** = Parts for major overhaul

For service;

To ensure long operating life use Flygt Bearing Grease 90 20 61 (Cartridge).

Lubrication kit 84 15 40 contains two 90 20 61 and one 84 15 30 (Grease gun).

The O-ring kit contains a full set of O-rings. Position no 800.

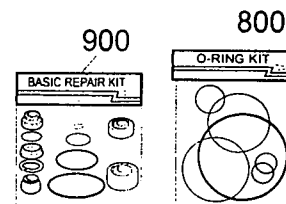
The Basic Repair kits contain both inner and outer Mechanical seals, bearings and a O-ring kit. Position no 900.

A complete set of tools can be ordered for repair and maintenance work, i.e. standard hand tools and special tools for seal change and hydraulic-end use.

Order:

This partlist can be used as an order form by marking out the number of parts in the Qty/Order column.

Please send or fax the form to your Flygt representative.





## PARTS LIST

**FLYGT CP 3300 HT**

**SERIAL NO 3300.181 0210082**

Item no	Partno	Rec	Denomination	Qty/ord.
1	342 10 00		Lifting handle compl	1
2	84 34 07	B	Hexagon head bolt M16X60-A2-70	2
3	342 20 00	B	Sleeve	2
5	342 21 00		Washer	2
6	83 38 94	B	Disc spring B-56X28,5X2-1	2
7	83 45 59		Cable tie 200X2,4 PA 6/6 -55+105	1
8	630 68 00		Data plate USE 6306801 AS SPARE PART	2
9	404 12 00		Instruction plate	1
9	426 71 00		Connection plate	1
9	426 75 00		Connection plate	1
9	427 13 00		Marking tape	1
9	550 24 00		Connection plate	1
10	82 20 88		Drive screw 4X5-A2-70	10
24	394 77 14		Cable entry unit	1
24.1	81 73 64	B	Slotted screw	2
24.3	82 23 55	B	Hexagon nut	2
26	81 41 55		Hexagon head screw M12X30-A2-70	2
28	82 41 02	AB	Washer 37,5X60X2-A2-70	2
28	82 41 03	AB	Washer 39,5X60X2-A2-70	2
29	84 35 62	AB	Seal sleeve (35)-37 MM	1
29	84 35 63	AB	Seal sleeve (37)-39 MM	1
32	319 03 11		Entrance cover	1
33	82 75 00	AB	O-ring 269,3X5,7 NBR	1
34	80 30 46		Parallel pin CP-H8-8X16-2346	1
35	82 01 05		Socket head screw M16X40-A2-70	4
37	391 30 00		Bearing housing	1
38	82 75 06	B	O-ring 359,3X5,7 NBR	1
39	80 30 46		Parallel pin CP-H8-8X16-2346	1
40	82 01 05		Socket head screw M16X40-A2-70	6
43	426 82 00		Terminal board unit	1
44	82 74 81	B	O-ring 139,5X3,0 NBR	1
45	81 41 06		Hexagon head screw M8X25-A2-70	4
46	82 35 16		Washer 8-A2-A 140	4
49	83 42 34	B	End sleeve 25,0MM2; L=15MM	6
52	94 05 15	B	Insulating hose pvc	1.56 m

Ordered by:

Company:.....Ref:.....Tel:.....Date:.....

## PARTS LIST

Item no	Partno	Rec	Denomination	Qty/ord.
53	81 41 04		Hexagon head screw M8X20-A2-70	4
56	303 09 00	B	Earthing plate	4
58	391 32 00	B	Cover	1
59	82 59 21	B	Retaining ring SGA 72	1
60	393 03 00		Washer	1
61	84 53 75	B	Roller bearing (75X160X37)	1
65	391 33 00		Bearing cover	1
66	391 31 00		Ring	1
67	82 73 30	B	Seal strip	1
68	81 41 32		Hexagon head screw M10X30-A2-70	4
69	531 43 00		Stator housing	1
70	82 01 05		Socket head screw M16X40-A2-70	4
73	319 14 00		Shaft unit	1
79	530 28 44		Stator 35-28-4a	1
80	80 23 58		Parallel pin CP-H8-8X50-1650	1
82	319 12 01		Outer casing	1
83	82 75 10	B	O-ring 439,3X5,7 NBR	1
84	82 78 88	B	O-ring 460,0X8,0-1 NBR	1
86	283 13 01		Slotted screw	2
87	82 73 91		O-ring 22,2X3,0 NBR	2
89	279 76 01		Pipe	1
92	374 81 03		Plate	1
93	81 73 42		Slotted screw M4X12-A4-70	2
105	503 45 00		Bearing housing	1
106	84 25 73	B	Seal ring	1
107	374 56 00	B	Retaining ring	1
108	82 44 26		Supporting washer 90X110X3,5	2
109	83 37 03	B	Ball bearing 3318 C3 GLAPP(90X190X73)	1
110	503 34 00		Bearing cover	1
111	82 75 02	B	O-ring 289,3X5,7 NBR	1
112	81 41 55		Hexagon head screw M12X30-A2-70	4
114	617 99 01	B	Mechanical seal WCCR/WCCR	1
114.7	82 81 94		O-ring	1
114.8	641 25 00		Spring housing unit	1
117	374 57 00		Washer	1
118	319 19 00		Washer	1
119	81 73 86		Slotted screw M8X12-A4-70	4
120	428 22 01	B	Inspection screw	2
122	82 73 90	AB	O-ring 19.2X3.0 NBR	2
126	411 16 02		Cover	1
127	82 74 07	AB	O-ring 74.2X5.7 NBR	1

Ordered by:

Company:.....Ref:.....Tel:.....Date:.....

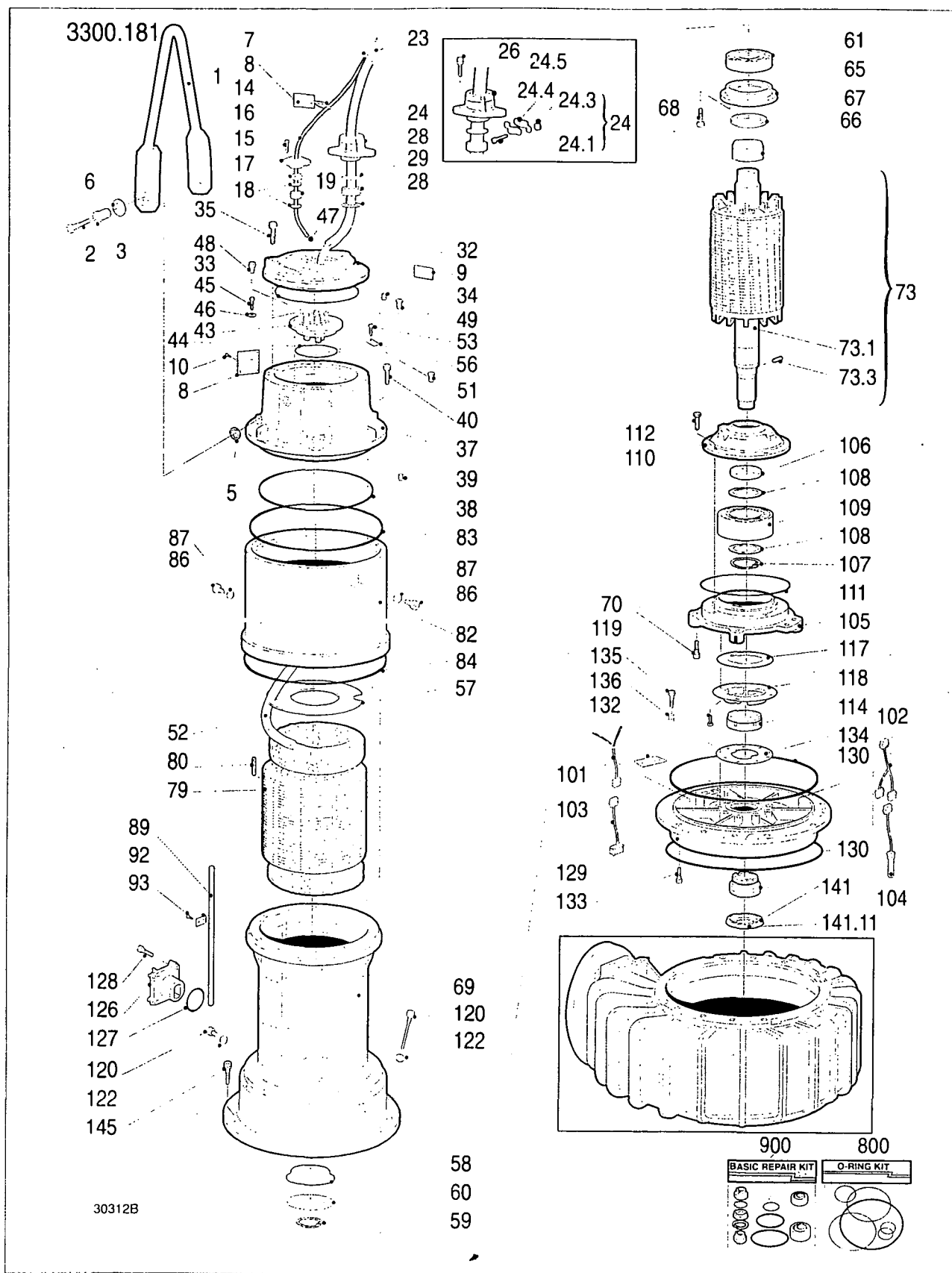
## PARTS LIST

Item no	Partno	Rec	Denomination	Qty/ord.
128	82 00 52		Socket head screw M10X30-A2-70	4
129	620 78 00		Oil housing	1
130	82 75 12	B	O-ring 479,3X5,7 NBR	2
132	646 59 00	B	Gasket compl.	1
133	81 41 34		Hexagon head bolt M10X40-A2-70	5
134	319 20 00		Washer	1
135	306 73 00		Hexagon screw	9
136	302 21 00		Compression spring	9
141	337 79 11	B	Mechanical seal WCCR/WCCR-TYPE S	1
141.1	82 81 54		O-ring	1
141.2	82 81 55		O-ring	1
141.6	82 61 20		Retaining ring	1
141.11	574 26 00		Seal ring	1
145	84 34 09		Hexagon head bolt M16X70-A2-70	8
150	434 49 03		Hub	1
151	82 00 71		Socket head screw M12X40-A2-70	2
152	82 74 12	B	O-ring 99,1X5,7 NBR	1
153	434 48 00		Insert ring upper	1
154	82 00 49		Socket head screw M10X20-A2-70	2
158	481 72 01	B	Impeller unit	1
158.1	345 25 02	AB	Wear ring	1
165	84 59 12		Locking assembly 55X85	1
179	82 75 10		O-ring 439,3X5,7 NBR	1
184	314 88 05	AB	Ring	1
191	434 50 00	B	Suction cover	1
197	84 34 11		Hexagon head bolt M16X80-A2-70	8
198	81 41 55		Hexagon head screw M12X30-A2-70	2
200	319 36 00		Pump housing	1
209	305 79 00		Guiding claw	1
210	84 34 37		Hexagon head bolt M20X110-A2-70	2
214	84 34 30		Hexagon head screw M20X60-A2-70	2
800	80 32 41		O-rings kit 3300.090,091,180,181	1
900	601 89 24		Basic repair kit 3300.090,091,180,181	1
	90 17 52		Paraffin oil	13 l
	90 20 54		Bearing grease ESSO UNIREX N3	0.16 kg
...	.....		.....	....
...	.....		.....	....
...	.....		.....	....
...	.....		.....	....

Ordered by:

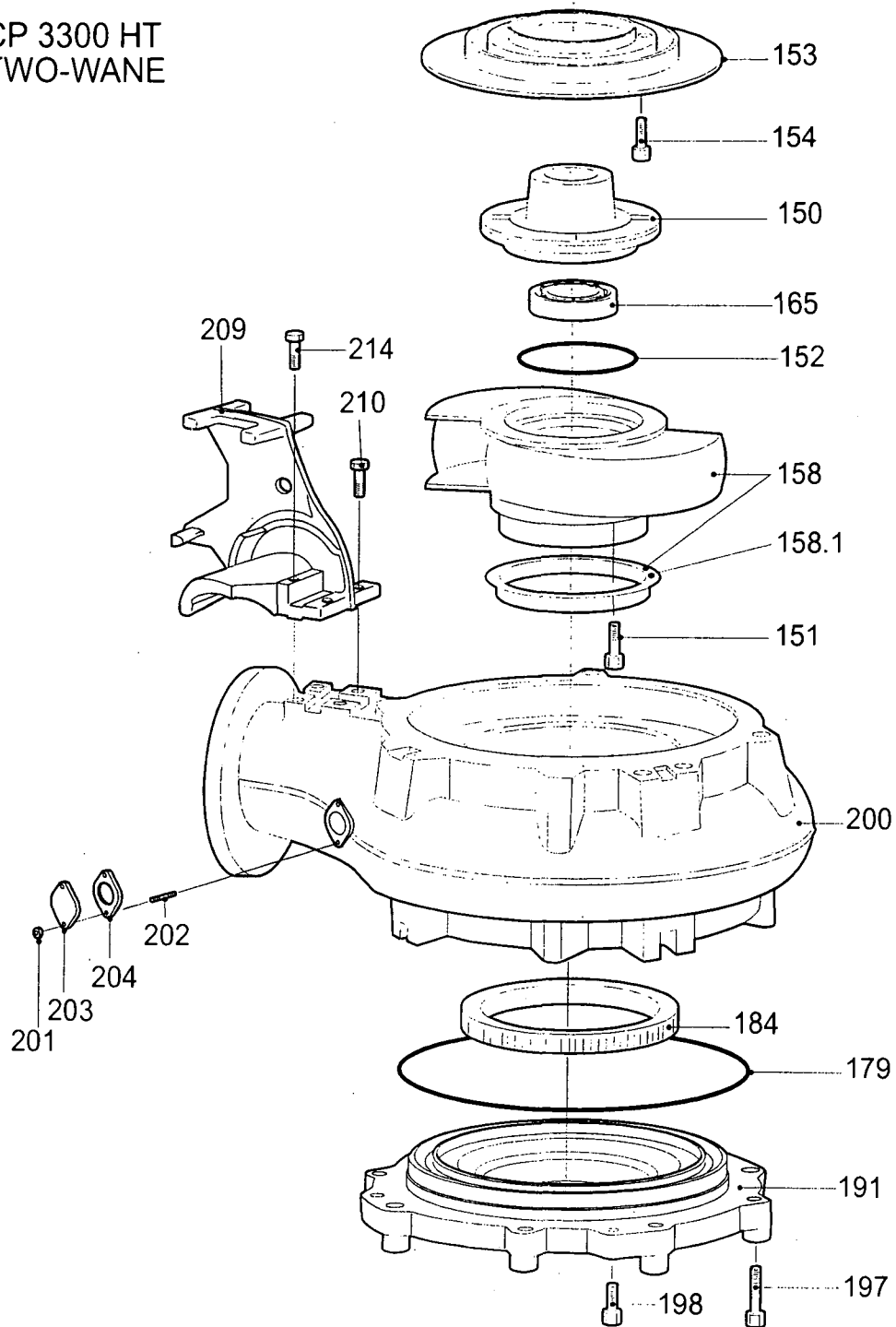
Company:.....Ref:.....Tel:.....Date:.....

# EXPLODED VIEW



## HYDRAULIC PARTS

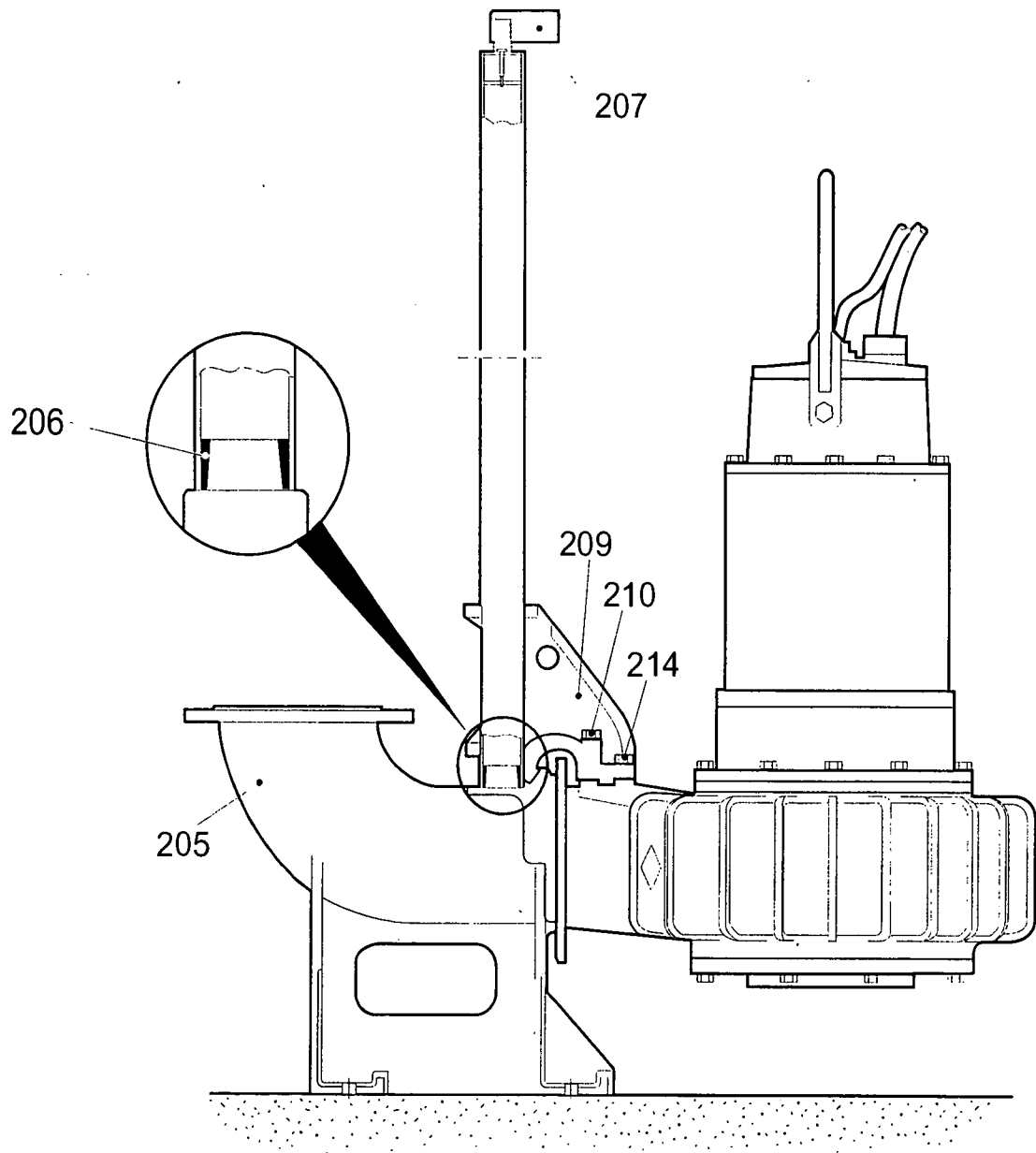
CP 3300 HT  
TWO-WANE



30362

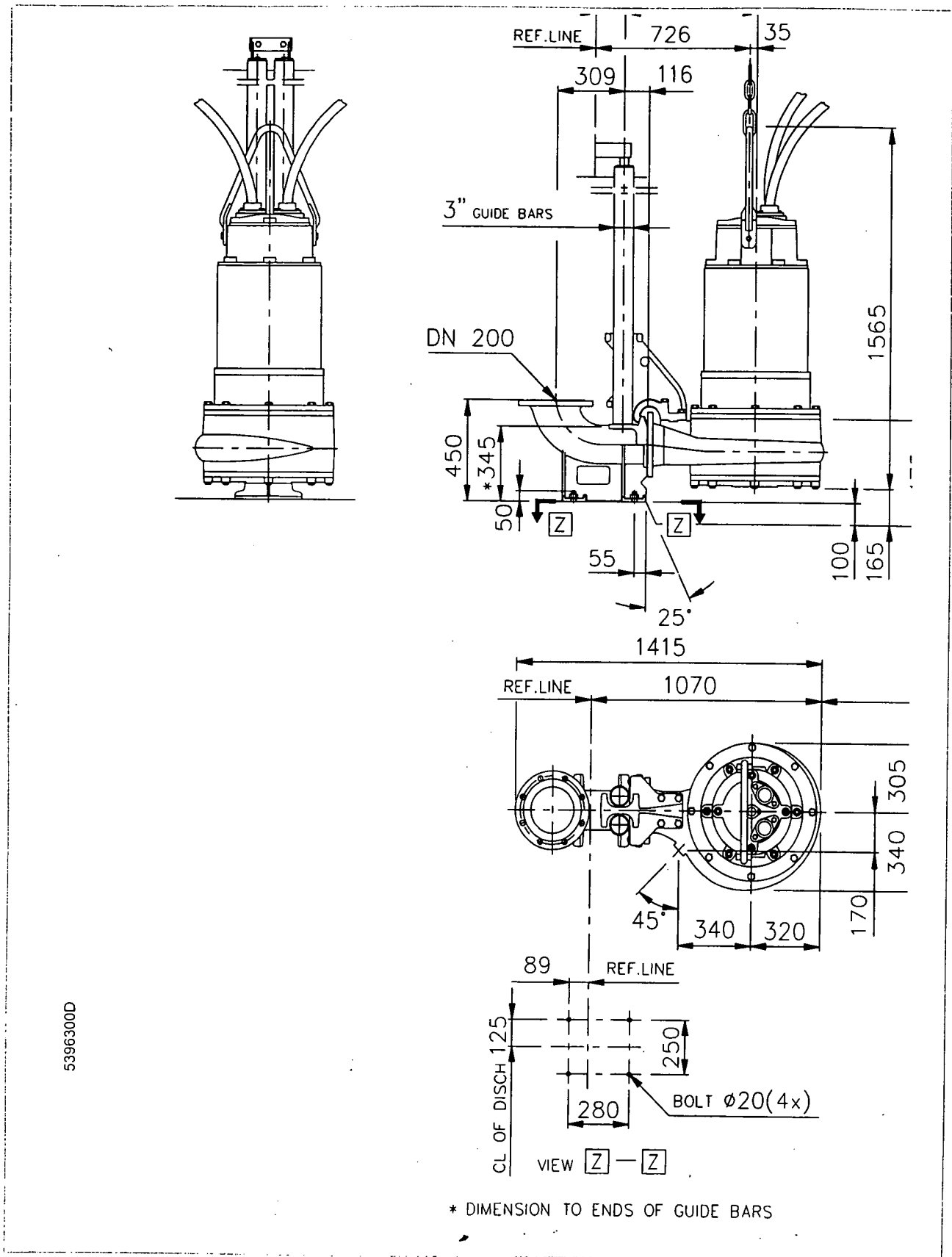
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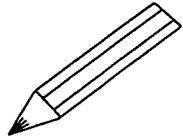
CP 3300.091/181



30389

## DIMENSIONAL DRAWING





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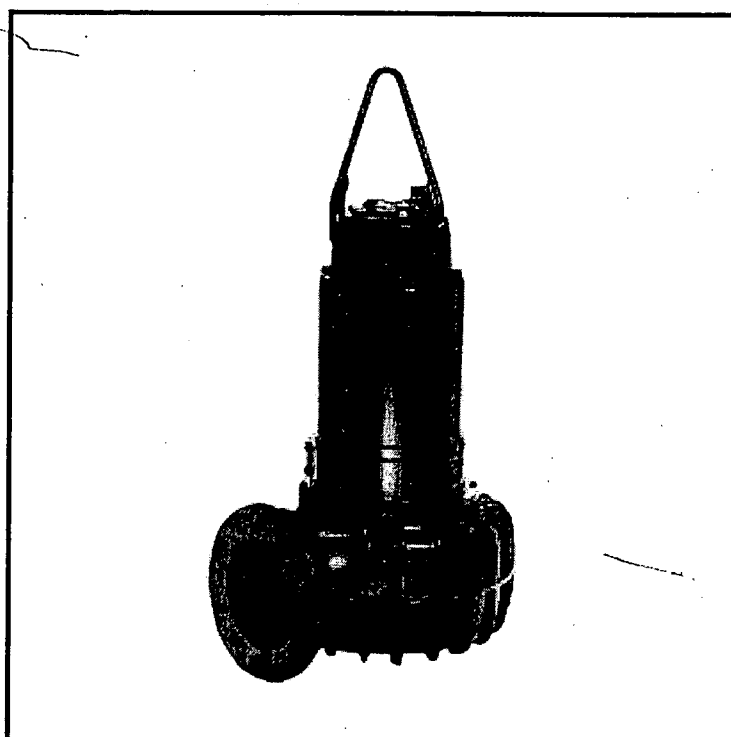




## FLYGT SUBMERSIBLE PUMP

### PARTS LIST CP 3300 HT

SERIAL NO 3300.181 0210079



ITT FLYGT LTD.  
P O BOX 1425  
LEVEL 4 THE OCTAGON 99 PHILLIP STR

PARRAMATTA NSW 2124  
AUSTRALIA  
TELEPHONE NO: 2-92020600

Flygt



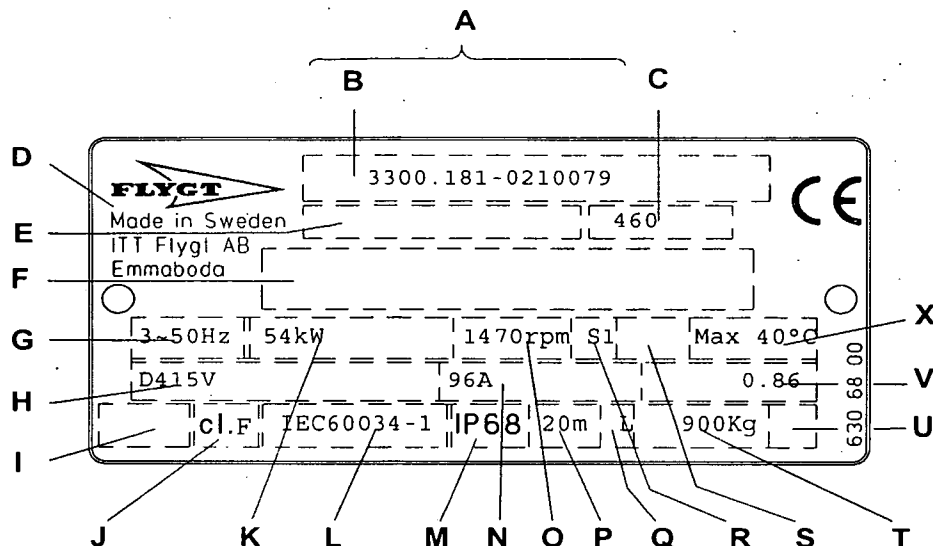
ITT Industries

# DATAPLATE

**FLYGT CP 3300 HT**

**DATE: 2002-01-25**

**SERIAL NO: 3300.181 0210079**



## Dataplate interpretation:

- |  |  |
|--|--|
| <b>A</b> Serial number                     | <b>M</b> Degree of protection                  |
| <b>B</b> Product code + Number             | <b>N</b> Rated current                         |
| <b>C</b> Curv code / Propeller code        | <b>O</b> Rated speed                           |
| <b>D</b> Country of origin                 | <b>P</b> Max. submergence                      |
| <b>E</b> Product number                    | <b>Q</b> Direction of rotation R=right, L=left |
| <b>F</b> Additional information            | <b>R</b> Duty class                            |
| <b>G</b> Phase; Type of current; Frequency | <b>S</b> Duty factor                           |
| <b>H</b> Rated voltage                     | <b>T</b> Product weight                        |
| <b>I</b> Thermal protection                | <b>U</b> Locked rotor code letter              |
| <b>J</b> Thermal class                     | <b>V</b> Power factor                          |
| <b>K</b> Rated shaft power                 | <b>X</b> Max. ambient temperature              |
| <b>L</b> International standard            |  |

(1 kg = 2.2 pound, 1 Lit=0.26 US gallon, 1 l = 0,22 UK gallon)

## Recommended spare parts:

See REC. column: **A** = Parts for inspection and maintenance  
**B** = Parts for major overhaul

For service;

To ensure long operating life use Flygt Bearing Grease 90 20 61 (Cartridge).

Lubrication kit 84 15 40 contains two 90 20 61 and one 84 15 30 (Grease gun).

The O-ring kit contains a full set of O-rings. Position no 800.

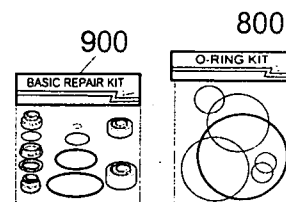
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Please send or fax the form to your Flygt representative.



## PARTS LIST

### FLYGT CP 3300 HT

### SERIAL NO 3300.181 0210079

Item no	Partno	Rec	Denomination	Qty/ord.
1	342 10 00		Lifting handle compl	1
2	84 34 07	B	Hexagon head bolt M16X60-A2-70	2
3	342 20 00	B	Sleeve	2
5	342 21 00		Washer	2
6	83 38 94	B	Disc spring B-56X28,5X2-1	2
7	83 45 59		Cable tie 200X2,4 PA 6/6 -55+105	1
8	630 68 00		Data plate USE 6306801 AS SPARE PART	2
9	404 12 00		Instruction plate	1
9	426 71 00		Connection plate	1
9	426 75 00		Connection plate	1
9	427 13 00		Marking tape	1
9	550 24 00		Connection plate	1
10	82 20 88		Drive screw 4X5-A2-70	10
24	394 77 14		Cable entry unit	1
24.1	81 73 64	B	Slotted screw	2
24.3	82 23 55	B	Hexagon nut	2
26	81 41 55		Hexagon head screw M12X30-A2-70	2
28	82 41 02	AB	Washer 37,5X60X2-A2-70	2
28	82 41 03	AB	Washer 39,5X60X2-A2-70	2
29	84 35 62	AB	Seal sleeve (35)-37 MM	1
29	84 35 63	AB	Seal sleeve (37)-39 MM	1
32	319 03 11		Entrance cover	1
33	82 75 00	AB	O-ring 269,3X5,7 NBR	1
34	80 30 46		Parallel pin CP-H8-8X16-2346	1
35	82 01 05		Socket head screw M16X40-A2-70	4
37	391 30 00		Bearing housing	1
38	82 75 06	B	O-ring 359,3X5,7 NBR	1
39	80 30 46		Parallel pin CP-H8-8X16-2346	1
40	82 01 05		Socket head screw M16X40-A2-70	6
43	426 82 00		Terminal board unit	1
44	82 74 81	B	O-ring 139,5X3,0 NBR	1
45	81 41 06		Hexagon head screw M8X25-A2-70	4
46	82 35 16		Washer 8-A2-A 140	4
49	83 42 34	B	End sleeve 25,0MM2; L=15MM	6
52	94 05 15	B	Insulating hose pvc	1.56 m

Ordered by:

Company:.....Ref:.....Tel:.....Date:.....

## PARTS LIST

Item no	Partno	Rec	Denomination	Qty/ord.
53	81 41 04		Hexagon head screw M8X20-A2-70	4
56	303 09 00	B	Earthing plate	4
58	391 32 00	B	Cover	1
59	82 59 21	B	Retaining ring SGA 72	1
60	393 03 00		Washer	1
61	84 53 75	B	Roller bearing (75X160X37)	1
65	391 33 00		Bearing cover	1
66	391 31 00		Ring	1
67	82 73 30	B	Seal strip	1
68	81 41 32		Hexagon head screw M10X30-A2-70	4
69	531 43 00		Stator housing	1
70	82 01 05		Socket head screw M16X40-A2-70	4
73	319 14 00		Shaft unit	1
79	530 28 44		Stator 35-28-4a	1
80	80 23 58		Parallel pin CP-H8-8X50-1650	1
82	319 12 01		Outer casing	1
83	82 75 10	B	O-ring 439,3X5,7 NBR	1
84	82 78 88	B	O-ring 460,0X8,0-1 NBR	1
86	283 13 01		Slotted screw	2
87	82 73 91		O-ring 22,2X3,0 NBR	2
89	279 76 01		Pipe	1
92	374 81 03		Plate	1
93	81 73 42		Slotted screw M4X12-A4-70	2
105	503 45 00		Bearing housing	1
106	84 25 73	B	Seal ring	1
107	374 56 00	B	Retaining ring	1
108	82 44 26		Supporting washer 90X110X3,5	2
109	83 37 03	B	Ball bearing 3318 C3 GLAPP(90X190X73)	1
110	503 34 00		Bearing cover	1
111	82 75 02	B	O-ring 289,3X5,7 NBR	1
112	81 41 55		Hexagon head screw M12X30-A2-70	4
114	617 99 01	B	Mechanical seal WCCR/WCCR	1
114.7	82 81 94		O-ring	1
114.8	641 25 00		Spring housing unit	1
117	374 57 00		Washer	1
118	319 19 00		Washer	1
119	81 73 86		Slotted screw M8X12-A4-70	4
120	428 22 01	B	Inspection screw	2
122	82 73 90	AB	O-ring 19.2X3.0 NBR	2
126	411 16 02		Cover	1
127	82 74 07	AB	O-ring 74.2X5.7 NBR	1

Ordered by:

Company:.....Ref:.....Tel:.....Date:.....

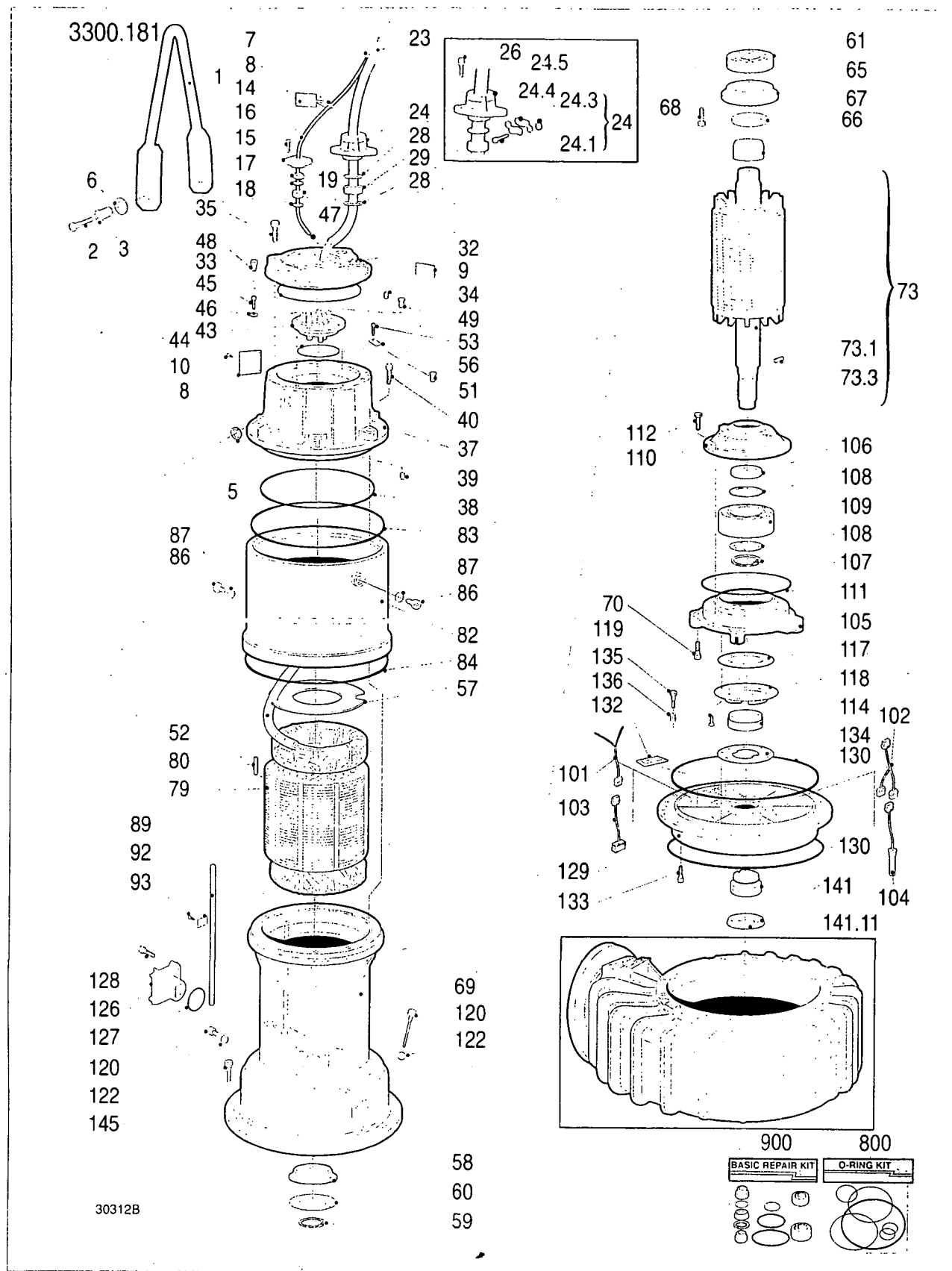
## PARTS LIST

Item no	Partno	Rec	Denomination	Qty/ord.
128	82 00 52		Socket head screw M10X30-A2-70	4
129	620 78 00		Oil housing	1
130	82 75 12	B	O-ring 479,3X5,7 NBR	2
132	646 59 00	B	Gasket compl.	1
133	81 41 34		Hexagon head bolt M10X40-A2-70	5
134	319 20 00		Washer	1
135	306 73 00		Hexagon screw	9
136	302 21 00		Compression spring	9
141	337 79 11	B	Mechanical seal WCCR/WCCR-TYPE S	1
141.1	82 81 54		O-ring	1
141.2	82 81 55		O-ring	1
141.6	82 61 20		Retaining ring	1
141.11	574 26 00		Seal ring	1
145	84 34 09		Hexagon head bolt M16X70-A2-70	8
150	434 49 03		Hub	1
151	82 00 71		Socket head screw M12X40-A2-70	2
152	82 74 12	B	O-ring 99,1X5,7 NBR	1
153	434 48 00		Insert ring upper	1
154	82 00 49		Socket head screw M10X20-A2-70	2
158	481 72 01	B	Impeller unit	1
158.1	345 25 02	AB	Wear ring	1
165	84 59 12		Locking assembly 55X85	1
179	82 75 10		O-ring 439,3X5,7 NBR	1
184	314 88 05	AB	Ring	1
191	434 50 00	B	Suction cover	1
197	84 34 11		Hexagon head bolt M16X80-A2-70	8
198	81 41 55		Hexagon head screw M12X30-A2-70	2
200	319 36 00		Pump housing	1
209	305 79 00		Guiding claw	1
210	84 34 37		Hexagon head bolt M20X110-A2-70	2
214	84 34 30		Hexagon head screw M20X60-A2-70	2
800	80 32 41		O-rings kit 3300.090,091,180,181	1
900	601 89 24		Basic repair kit 3300.090,091,180,181	1
	90 17 52		Paraffin oil	13 l
	90 20 54		Bearing grease ESSO UNIREX N3	0.16 kg
...	.....		.....	....
...	.....		.....	....
...	.....		.....	....
...	.....		.....	....

Ordered by:

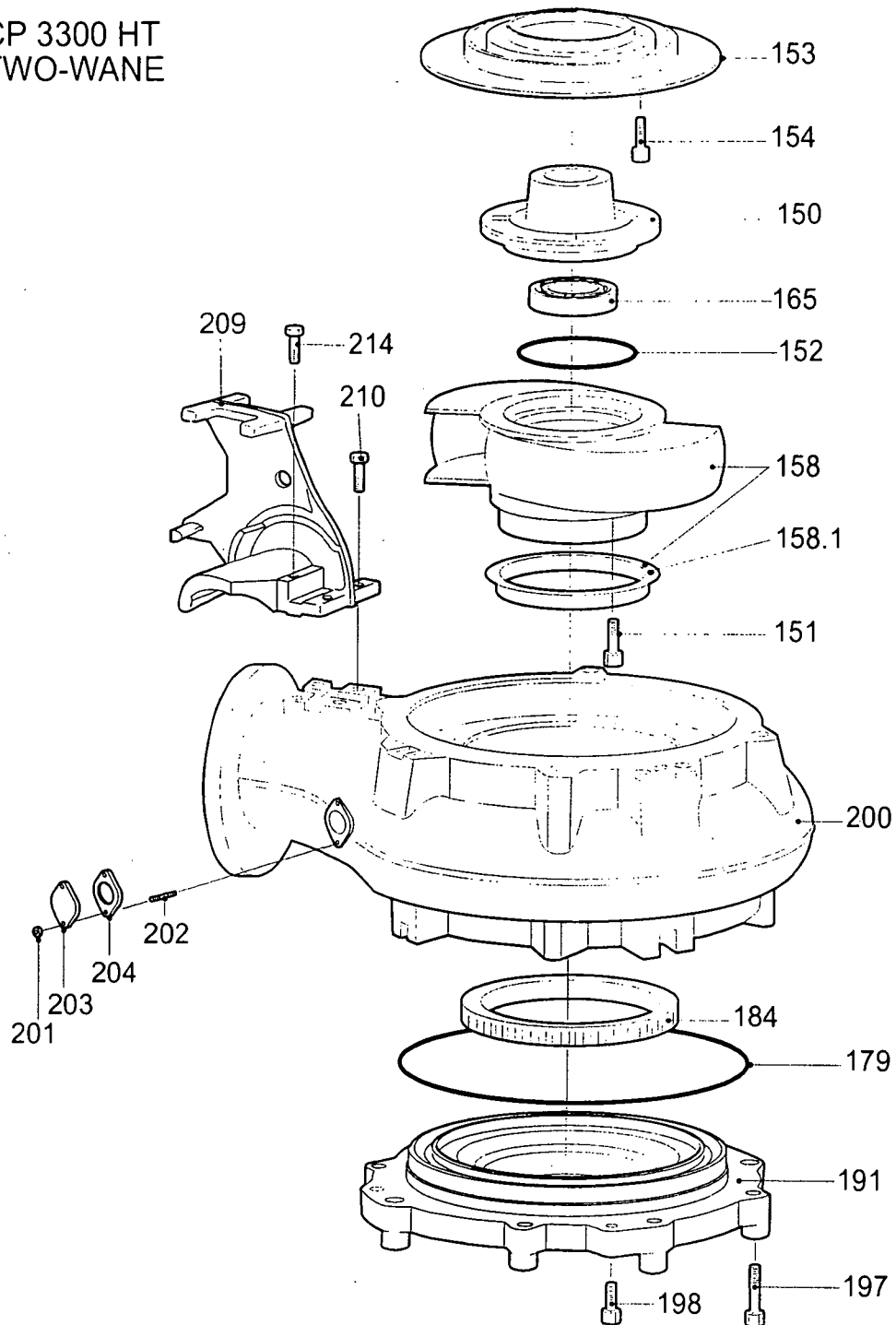
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# EXPLODED VIEW



## HYDRAULIC PARTS

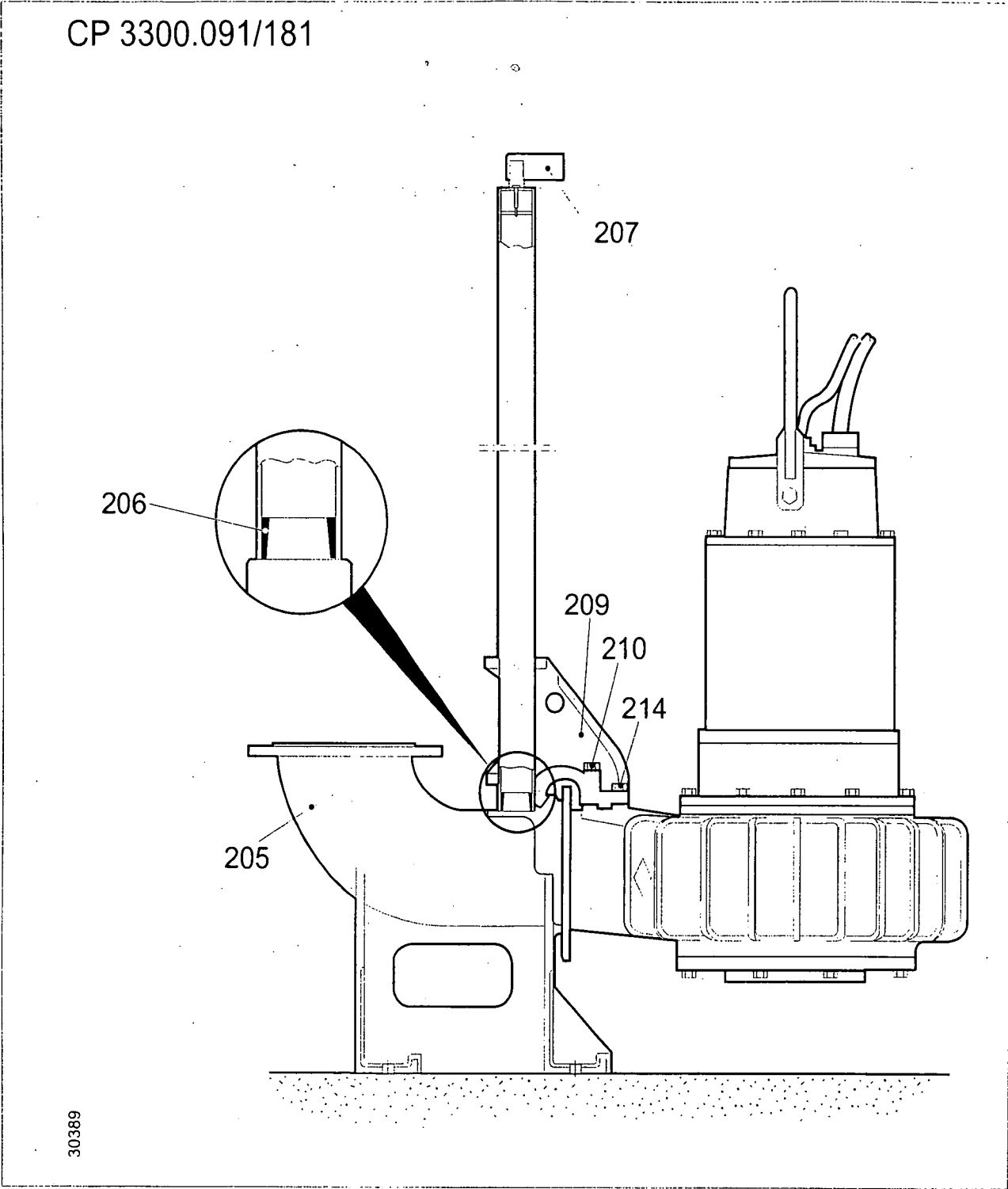
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TWO-WANE



30362

CONNECTION

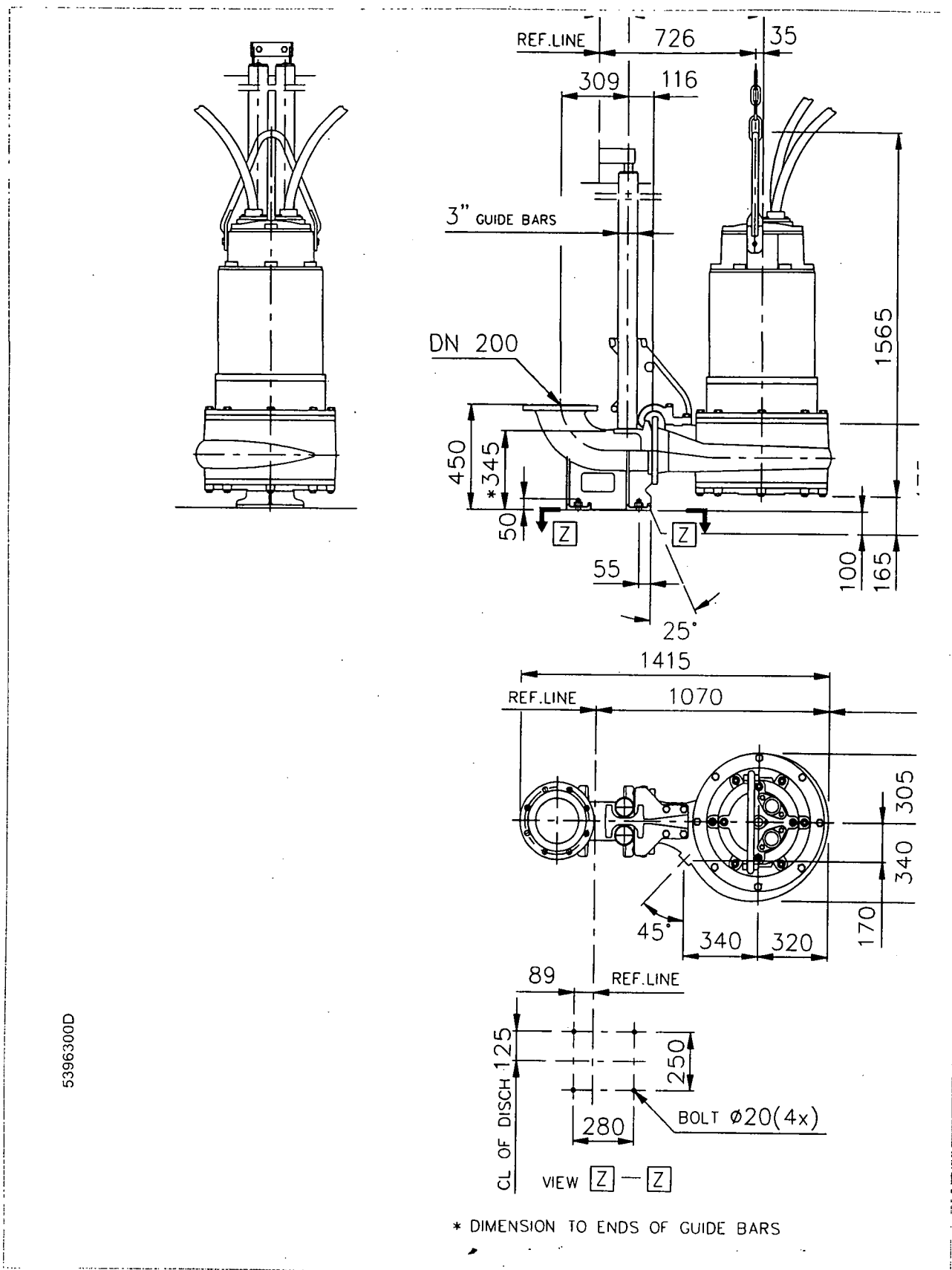
CP 3300.091/181

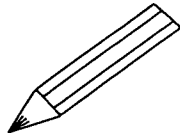


30389



## DIMENSIONAL DRAWING





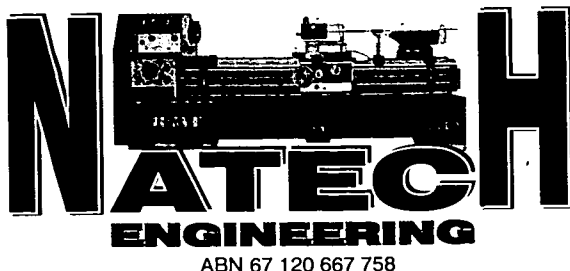
A large rectangular area containing horizontal dotted lines for writing. The lines are evenly spaced and extend across the width of the page, providing a guide for handwriting practice.

Flygt



ITT Industries

[www.flygt.com](http://www.flygt.com)



DATE: 27/08/02

**NATECH ENGINEERING**  
**REDUCTION GEARBOX**  
**SERIAL NO: R-1101SS**  
**68-34R**

THE 68-34R GEARBOX WAS DESIGNED FOR TOXIC CONDITIONS AS A REDUCTION BOX FOR A SEWERAGE PLANT. THE 68-34 IS A STRONG AND RELIABLE GEARBOX FOR THE APPLICATION REQUIRED AND COULD ALSO BE USED AS A STEP-UP GEARBOX IF ROTATED.

THE 68-34R GEARBOX IS MADE FROM HIGH QUALITY 316 STAINLESS STEEL, AS THE SURROUNDING ENVIRONMENT REQUIRES THE STAINLESS STEEL TO COMPENSATE FOR THE CORROSIVE NATURE OF SEWERAGE.

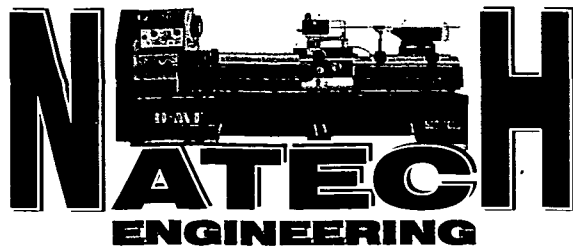
THE 68-34R GEARBOX HAS BEEN DESIGNED FOR HAND ROTATION ONLY. TO AVOID EXCESSIVE WEAR, THE GEARBOX SHOULD BE RETURNED FOR SERVICE EVERY 500 HOURS OF USE OR EVERY 12 MONTHS.

ITEM	DESCRIPTION	PART NO.
OIL	HYPERGEAR SAE 80W-90 3.9 LITRE CAPACITY	O-918958
LARGE GEAR	PITCH- 2.5 MODULE TEETH- 68 OD- 174.3 TOOTH DEPTH- 5.62mm BORE- 40mm WITH 12mm KEY BOSS- 80mm IN DIAMETER AND 25mm IN LENGTH GEAR FACE WIDTH- 25mm MATERIAL- K1045	G-174681
SMALL GEAR	PITCH- 2.5 MODULE TEETH- 34 OD- 89.65mm TOOTH DEPTH- 5.62mm BORE- 40mm WITH 12mm KEY BOSS- 70mm IN DIAMETER AND 25mm IN LENGTH GEAR FACE WIDTH- 25mm MATERIAL- K1045	G-896341

**NATECH  
ENGINEERING**

**21 Kamholtz Crt  
Ashmore 4214  
Queensland**

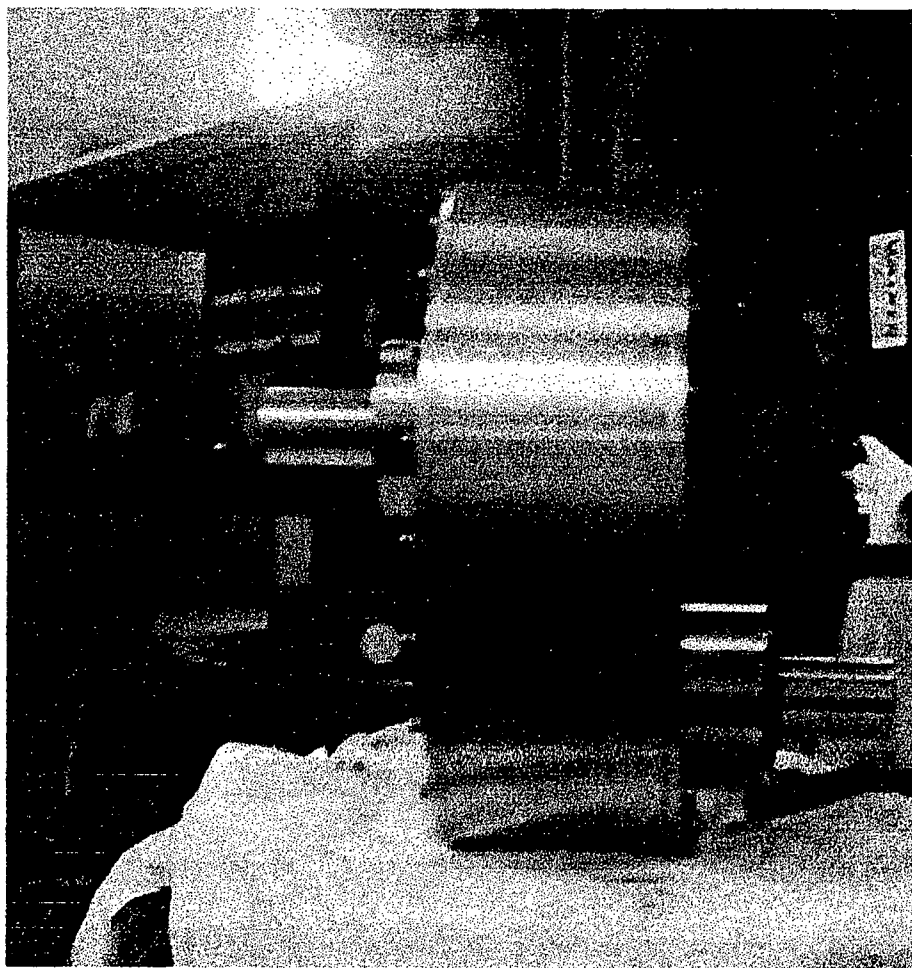
**Phone/Fax:  
(07) 5597 1622**



ABN 67 120 667 758

## 2:1 REDUCTION GEARBOX

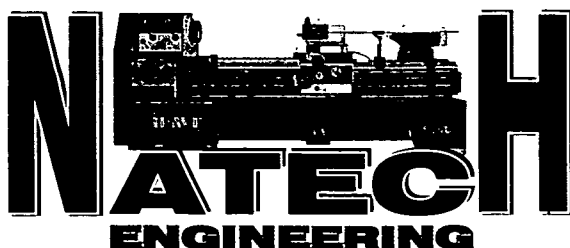
68-34R



**NATECH  
ENGINEERING**

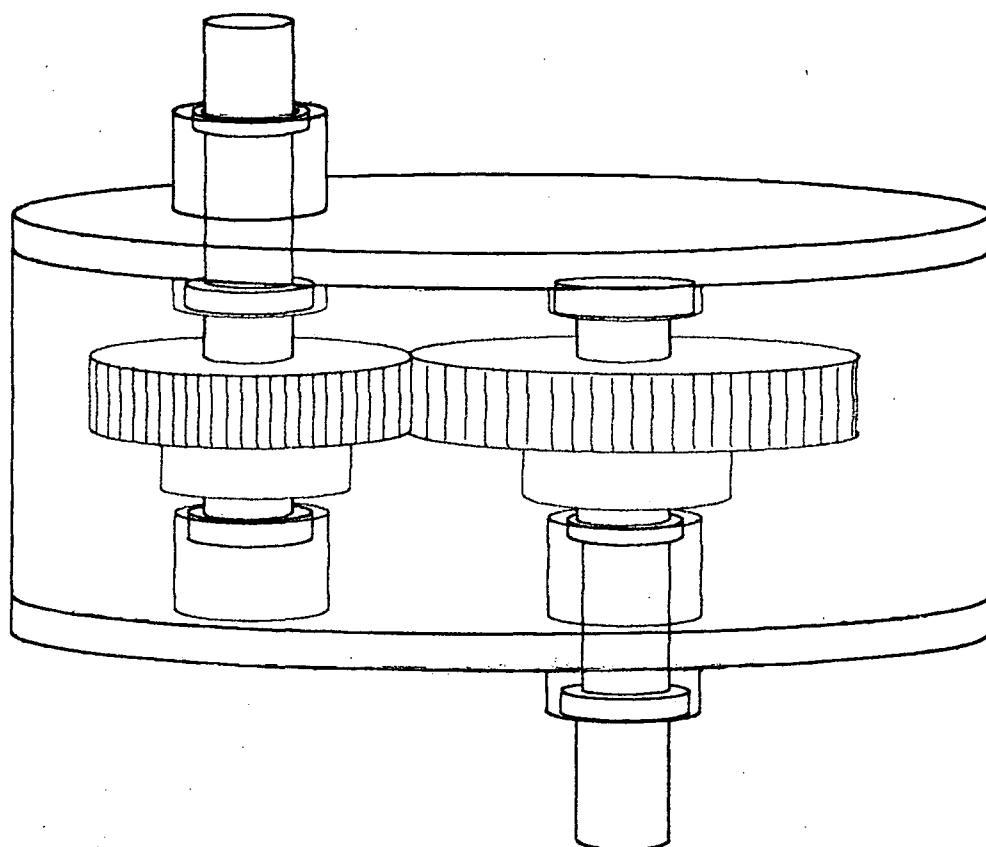
**21 Kamholtz Crt  
Ashmore 4214  
Queensland**

**Phone/Fax:  
(07) 5597 1622**



ABN 67 120 667 758

# **2:1 REDUCTION** **GEARBOX** **68-34R**



**NATECH  
ENGINEERING**

**21 Kamholtz Crt  
Ashmore 4214  
Queensland**

**Phone/Fax:  
(07) 5597 1622**

**THANKYOU FOR CHOOSING**  
**NATECH ENGINEERING**

**tyco**  
Flow Control

**Tyco Water**

**Tyco Water Pty Ltd**  
ABN 75 087 415 745  
Customer Centre Gold Coast  
63 Currumbin Creek Road  
PO Box 150  
Currumbin QLD 4223

Phone: (07) 5589 4400  
Fax: (07) 5534 7079  
Email: ccg@tycowater.com

### SUPPLIER'S CONFORMANCE CERTIFICATE

<b>CERTIFICATE NO:</b>	11/07/211	<b>DATE:</b>	11/07/02
<b>CUSTOMER:</b>	JOBLIN CONTRACTORS	<b>ORDER NO.</b>	MOSSVALE
<b>INVOICE NO:</b>	583254	<b>TRANS NO:</b>	414373

We certify that Tyco Water Customer Centre Gold Coast is licenced by Quality Assurance Services to AS/NZS ISO 9002 Quality systems-Model for quality assurance in production, installation and servicing (Licence No. 5459).

Tyco Water manufacturing sites are also licenced by Quality Assurance Services as follows:

**Currumbin Manufacturing Facility**  
63 Currumbin Creek Road  
Currumbin Queensland

Products: Ductile iron fittings, valves, flanged pipe, couplings and other pipeline components

*Quality System*

AS/NZS ISO 9001-1994 Quality systems-Model for quality assurance  
in design, development, production, installation and servicing Licence No. QEC 0017

*StandardsMark*

AS/NZS2280-1999	Ductile Iron Pressure Pipes & Fittings	Licence No.1199
AS2638-1999	Sluice Valves for Waterworks Purposes	Licence No.1200
AS3952-1991	Water Supply - DN80 Spring Hydrant Valve for General Purposes	Licence No 1202
AS3579-1993	Cast Iron Wedge Gate Valves for General Purposes	Licence No.2234

**Yennora Manufacturing Facility**

Dursley Road  
Yennora NSW

Products: Ductile iron pipe

*Quality System*


AS/NZS ISO 9001-1994 Quality systems-Model for quality assurance  
in design, development production installation and servicing Licence No. QEC 0015

*StandardsMark*

AS/NZS2280-1999	Ductile Iron Pressure Pipes & Fittings	Licence No. 0883
-----------------	--	------------------

We further certify that the items supplied for the above Order/Contract have been manufactured and tested in accordance with the appropriate Australian product standards.

Other ancillary products supplied with this Order/Contract have been purchased from approved/certified manufacturers according to the requirements of AS/NZS ISO 9002.

  
\_\_\_\_\_  
Quality Assurance Officer / Representative

**tyco**  
Flow Control

**Tyco Water**

**Tyco Water Pty Ltd**  
ABN 75 087 415 745  
Customer Centre Gold Coast  
63 Currumbin Creek Road  
PO Box 150  
Currumbin QLD 4223

Phone: (07) 5589 4400  
Fax: (07) 5534 7079  
Email: ccg@tycowater.com

### SUPPLIER'S CONFORMANCE CERTIFICATE

<b>CERTIFICATE NO:</b>	11/07/210	<b>DATE:</b>	11/07/02
<b>CUSTOMER:</b>	JOBLIN CONTRACTORS	<b>ORDER NO.</b>	MOSSVALE
<b>INVOICE NO:</b>	583253	<b>TRANS NO:</b>	406663

We certify that Tyco Water Customer Centre Gold Coast is licenced by Quality Assurance Services to AS/NZS ISO 9002 Quality systems-Model for quality assurance in production, installation and servicing (Licence No. 5459).

Tyco Water manufacturing sites are also licenced by Quality Assurance Services as follows:

**Currumbin Manufacturing Facility**

63 Currumbin Creek Road  
Currumbin Queensland

Products: Ductile iron fittings, valves, flanged pipe, couplings and other pipeline components

*Quality System*

AS/NZS ISO 9001-1994	Quality systems-Model for quality assurance in design, development, production, installation and servicing	Licence No. QEC 0017
----------------------	--	----------------------

*StandardsMark*

AS/NZS2280-1999	Ductile Iron Pressure Pipes & Fittings	Licence No.1199
AS2638-1999	Sluice Valves for Waterworks Purposes	Licence No.1200
AS3952-1991	Water Supply - DN80 Spring Hydrant Valve for General Purposes	Licence No 1202
AS3579-1993	Cast Iron Wedge Gate Valves for General Purposes	Licence No.2234

**Yennora Manufacturing Facility**

Dursley Road  
Yennora NSW

Products: Ductile iron pipe

*Quality System*

AS/NZS ISO 9001-1994	Quality systems-Model for quality assurance in design, development production installation and servicing	Licence No. QEC 0015
----------------------	--	----------------------

*StandardsMark*

AS/NZS2280-1999	Ductile Iron Pressure Pipes & Fittings	Licence No. 0883
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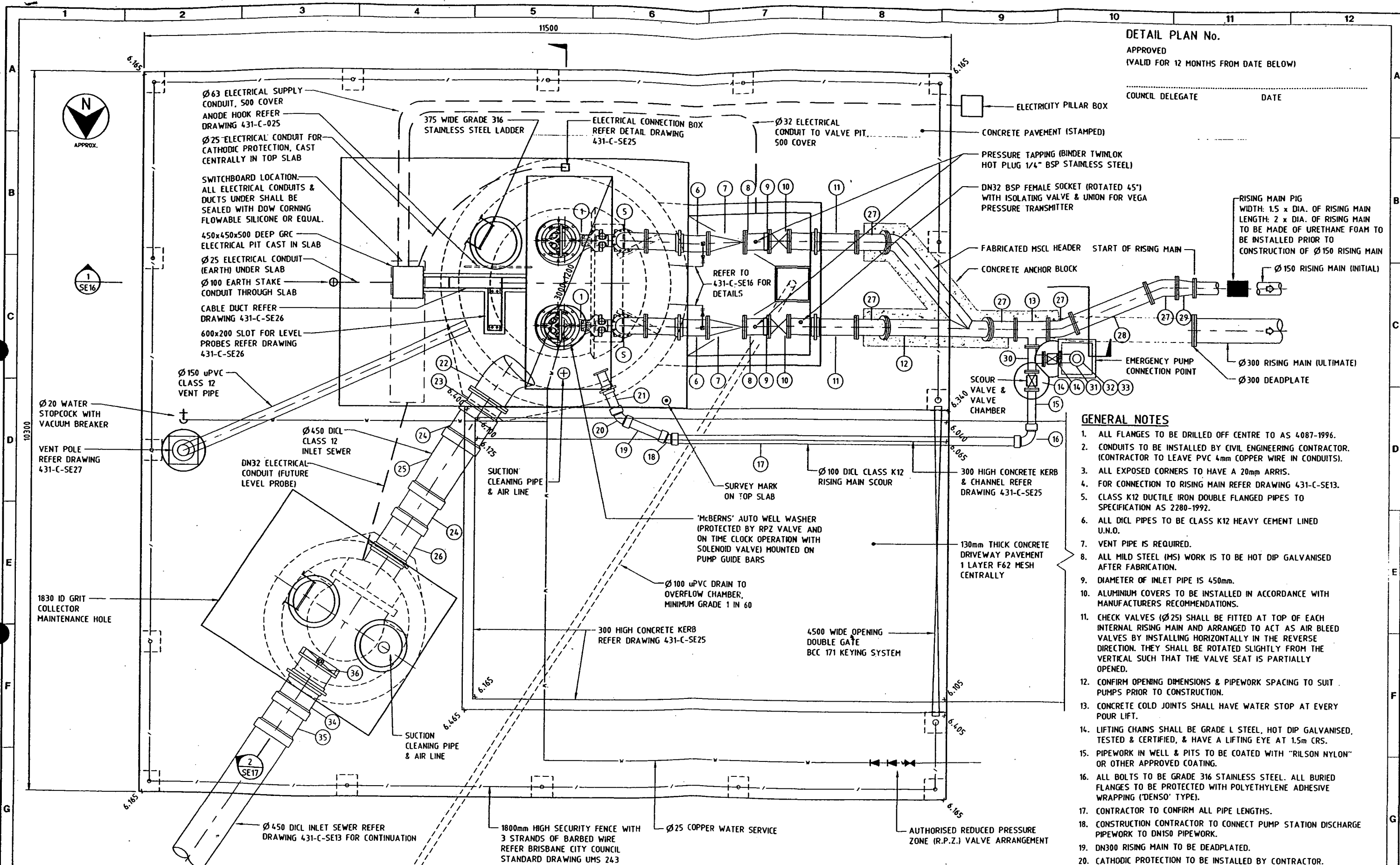
We further certify that the items supplied for the above Order/Contract have been manufactured and tested in accordance with the appropriate Australian product standards.

Other ancillary products supplied with this Order/Contract have been purchased from approved/certified manufacturers according to the requirements of AS/NZS ISO 9002.



Quality Assurance Officer / Representative





FILENAME: 431CSE15.DWG  
 DATE: 23/05/02 - 8:04 pm  
 LOCATION: A:\CASH\JOBS\URB\CD00431\100\CAD\CIVIL\DWG\

REV	DATE	BY	CHK	APP	DESCRIPTION
F	23.05.02	AMS	JEE	JEE	AMENDED TO COUNCIL REQUIREMENTS
E	10.05.02	AMS	JEE	JEE	AMENDMENTS AS PER BRISBANE WATER REVIEW
D	26.04.02	AMS	JEE	JEE	AMENDMENTS AS PER BRISBANE WATER REVIEW
C	12.04.02	AMS	JEE	JEE	AMENDMENTS AS PER BRISBANE WATER REVIEW
B	28.02.02	AMS	JEE	JEE	ISSUED FOR COUNCIL APPROVAL
A	18.01.02	AMS	JEE	JEE	PRELIMINARY ISSUE FOR CO-ORDINATION

NO	DRAWING NUMBER	REFERENCE DRAWING TITLE
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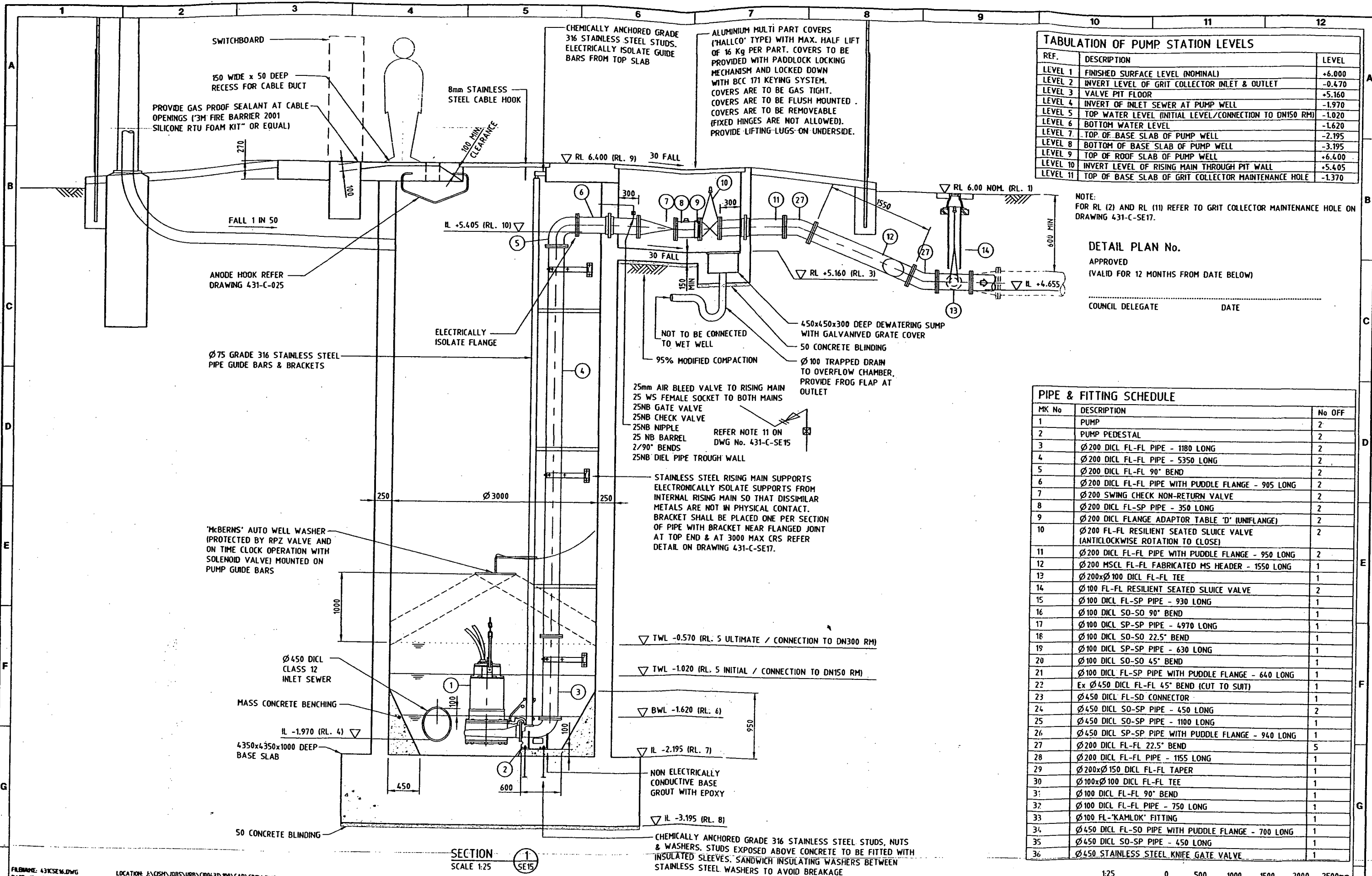
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 ACN 001 024 055  
 369 Ann Street  
 Brisbane QLD 4000 Australia  
 Telephone (07) 3244 7100  
 Facsimile (07) 3244 7300

**mossvale**  
 ON MANLY

**CLIENT**  
 THE MIRVAC GROUP  
**PROJECT**  
 MOSSVALE ON MANLY - STAGE 1  
**DRAWN**  
 CBB  
**DESIGNED**  
 ANS  
**DRAFTING CHECK**  
**REVIEWED**  
**PROJECT MANAGER**  
**APPROVED**  
**PROJECT DIRECTOR**

**TITLE**  
 SEWAGE PUMPING STATION  
 GENERAL ARRANGEMENT  
**SCALE**  
 AS SHOWN  
**SKM PROJECT No**  
 C100431.100  
**DRAWING No**  
 431-C-SE15  
**AMT**  
 F



FILENAME: 431CSE16.DWG		LOCATION: J:\CISH\JOBS\URB\CD0431\100\CAD\CIVIL\DWG			
DATE: 03/05/02 - 7:01 pm		XREF: -			
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E	04.05.02	AMS	JEE	JEE	AMENDMENTS AS PER BRISBANE WATER REVIEW
D	26.04.02	AMS	JEE	JEE	AMENDMENTS AS PER BRISBANE WATER REVIEW
C	02.04.02	AMS	JEE	JEE	PUMP WELL AMENDED, VALVE PIT AMENDED
B	26.02.02	AMS	JEE	JEE	ISSUED FOR COUNCIL APPROVAL
A	08.01.02	AMS	JEE	JEE	PRELIMINARY ISSUE FOR CO-ORDINATION
Rev	DATE	DRAWING CHECK	DESIGN CHECK	REV'D BY	APP'D BY
					AMENDMENT

No	DRAWING NUMBER	REFERENCE DRAWING TITLE
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Facsimile (07) 3244 7300

**mossvale**  
ON MANLY

**CLIENT**  
THE MIRVAC GROUP

**PROJECT**  
MOSSVALE ON MANLY - STAGE 1

**DRAFTER**  
CBB

**DESIGNED**  
ANS

**DRAFTING CHECK**  
DESIGN REVIEW

**REVIEWED**  
PROJECT MANAGER

**APPROVED**  
PROJECT DIRECTOR

**TITLE**  
SEWAGE PUMPING STATION  
SECTIONS & DETAILS  
SHEET 1 OF 2

**SCALE**  
AS SHOWN

**SKM PROJECT No**  
C100431.100

**DRAWING No**  
431-C-SE16

**AMDT**  
F

DETAIL PLAN No.

APPROVED  
(VALID FOR 12 MONTHS FROM DATE BELOW)

COUNCIL DELEGATE: DATE:

CAST IRON  
VALVE BOX &  
COVER CAST  
INTO TOP SLAB

2 No. CLASS D  
MAINTENANCE HOLE  
COVERS & FRAMES

1" DIA. "SURELOCK" GRADE 316  
STAINLESS STEEL CLAW COUPLING  
TYPICAL

VACTOR PIPE COUPLING  
REFER DRAWING 431-C-025  
TYPICAL

UPVC ELECTRICAL  
TERMINATION BOX  
10mm JOINTEX  
TYPICAL

Ø200. DICL  
DISCHARGE PIPE

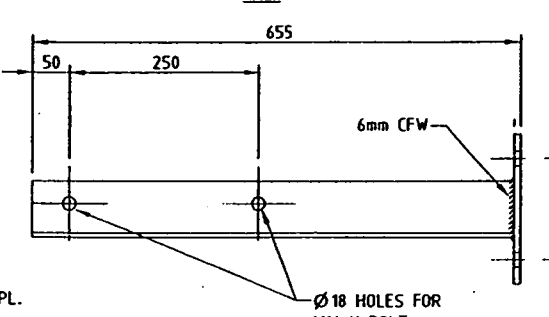
M16 GRADE 316  
STAINLESS STEEL U-BOLT

2mm THICK NEOPRENE

10mm THREAD  
PROTRUDING MIN.

75x75x6 EA.

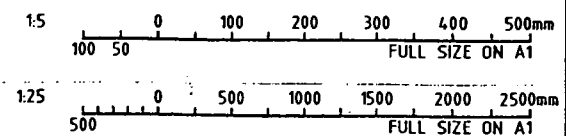
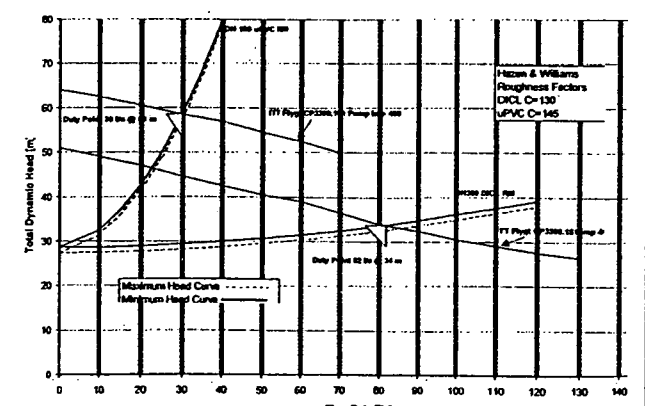
PLAN



DETAIL - DISCHARGE PIPE SUPPORT BRACKET  
(6 REQUIRED)

NOTE: SCALE 1:5  
ALL MATERIAL TO BE GRADE 316 STAINLESS STEEL

Wakerley PS System Curves - DN150 uPVC/ DN300 DICL Rising Mains



SECTION 2  
SCALE 1:25

1830 ID GRIT COLLECTOR  
MAINTENANCE HOLE

DETAILS OF KNIFE GATE  
VALVE, SPINDLE,  
SUPPORT, NON RISING  
BEARING & REDUCTION  
GEARBOX REFER  
DRAWINGS 431-C-SE21,  
431-C-SE22 431-C-SE23

32 NOML PE100 PN16 P.E.  
AIR LINE FIXED TO SUCTION  
CLEARING PIPE WITH  
STAINLESS STEELTIES OR  
POLY WELDED

160 OD PE80B PN12.5 P.E.  
VACTOR PIPE FIXED TO  
WALL WITH HDPE BRACKETS  
AT 1500 CRS WITH  
STAINLESS STEEL ANCHORS

ANODE HOOK

M20 THREADED BAR GRADE 316L  
STAINLESS STEEL WELDED TO WELL  
WALL REINFORCEMENT & BENT UP  
TO 20mm BELOW TOP OF SLAB

375 WIDE GRADE 316  
STAINLESS STEEL LADDER  
WITH DEFORMED S/S BAR  
RUNGS

M16 GRADE 316  
STAINLESS STEEL  
CHEMICAL ANCHORS,  
EMBED 110mm

END ELEVATION

ELEVATION

375 WIDE GRADE 316  
STAINLESS STEEL  
LADDER  
WITH DEFORMED S/S  
BAR RUNGS

BAR SCREEN SUPRT BRACKET  
GMS BAR SCREEN REFER  
DRAWING 431-C-SE24  
FOR DETAILS

Ø450 DICL  
CLASS 12  
INLET SEWER

BAR SCREEN LOCATING  
PIN REFER DRAWING  
431-C-SE24 FOR  
DETAILS

THICKEN WALL TO  
PROVIDE MIN. 100  
COVER TO FLANGES

CUT 45° BEND TO SUIT  
SHAPE OF BENCHING

AUTO WELL WASHER  
MOUNTED ON PUMP  
GUIDE BARS

WL -0.570 (RL. 5 ULTIMATE / CONNECTION TO DN300 RM)

TWL -1.020 (RL. 5 INITIAL / CONNECTION TO DN150 RM)

BWL -1.620 (RL. 6)

IL -2.195 (RL. 7)

IL -3.195 (RL. 8)

HOOK SHAPED 32 NOM PIPE  
GRADE 316 STAINLESS STEEL  
CONNECTED TO AIR LINE WITH  
2 STAINLESS STEEL CLIPS

FILENAME: 431CSE17.DWG LOCATION: J:\CISH\JOBS\URB\CD0431\100\CAD\CIVIL\DWG\ XREF: -  
DATE: 12/05/02 - 6:48 pm

NO.	DATE	DRAWING	DESIGN	CHECK	REV'D	P.MGR	APP'D	P.DIR	AMENDMENT
1	13.05.02	ANS	JEE	JEE	WLC				AMENDED TO COUNCIL REQUIREMENTS
2	14.05.02	ANS	JEE	JEE	WLC				AMENDMENTS AS PER BRISBANE WATER REVIEW
3	12.04.02	ANS	JEE	JEE	WLC				AMENDMENTS AS PER BRISBANE WATER REVIEW
4	12.04.02	ANS	JEE	JEE	WLC				AMENDMENTS AS PER BRISBANE WATER REVIEW
5	26.02.02	ANS	JEE	JEE	WLC				ISSUED FOR COUNCIL APPROVAL
6	18.01.02	ANS	JEE	JEE	WLC				PRELIMINARY ISSUE FOR CO-ORDINATION

NO.	DRAWING NUMBER	REFERENCE DRAWING TITLE
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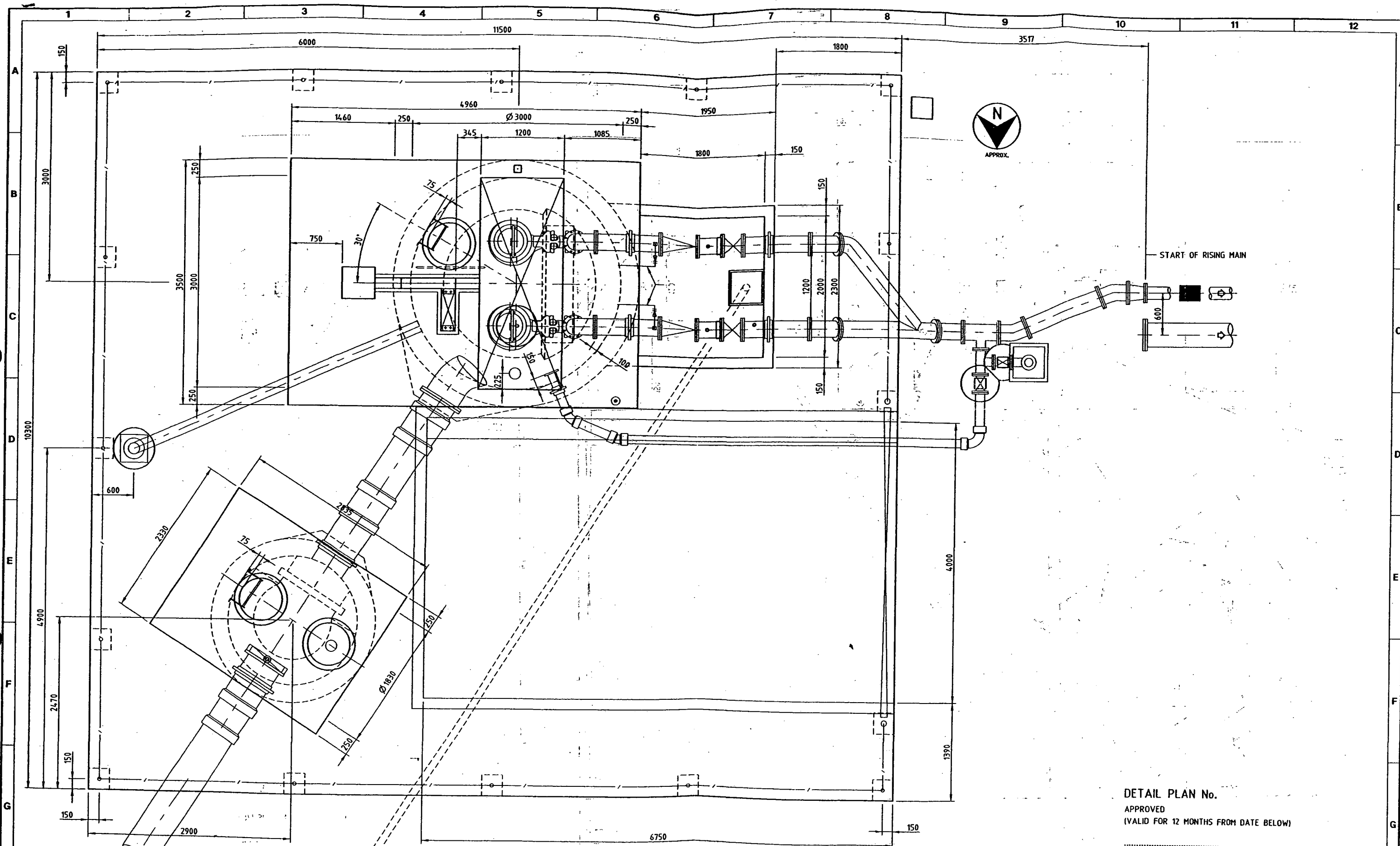
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369 Ann Street  
Brisbane QLD 4000 Australia  
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Facsimile (07) 3244 7300

mossvale  
ON MANLY

CLIENT THE MIRVAC GROUP	PROJECT MOSSVALE ON MANLY - STAGE 1
DRAFTER CBB	DRAFTING CHECK JEE
DESIGNED ANS	DESIGN REVIEW JEE
REVIEWED PROJECT MANAGER JEE	APPROVED PROJECT DIRECTOR JEE

TITLE SEWAGE PUMPING STATION SECTIONS & DETAILS SHEET 2 OF 2	SCALE AS SHOWN	SIN PROJECT No C100431.100	DRAWING No 431-C-SE17	AMDT F
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DETAIL PLAN No.  
APPROVED  
(VALID FOR 12 MONTHS FROM DATE BELOW)

COUNCIL DELEGATE \_\_\_\_\_ DATE \_\_\_\_\_

1:25  
0 500 1000 1500 2000 2500mm  
FULL SIZE ON A1

FILENAME: 43KSE18.DWG  
DATE: 10/05/02 - 3:13 pm  
LOCATION: J:\CISM\JOBS\URB\000431\100\CAD\CIVIL\DWG\ XREF: 43KSE15

NO	DATE	DRAWING CHECK	DESIGN REVIEW	REV'D P.MOR	APP'D P.DIR	AMENDMENT
E	10.05.02					AMENDMENTS AS PER BRISBANE WATER REVIEW
D	25.04.02	AMS	JEE	JEE	WLC	DRIVEWAY MOVED
C	12.04.02	AMS	JEE	JEE	WLC	PUMP WELL ROOF SLAB AMENDED
B	26.02.02	AMS	JEE	JEE	WLC	ISSUED FOR COUNCIL APPROVAL
A	10.01.02	AMS	JEE	JEE	WLC	PRELIMINARY ISSUE FOR CO-ORDINATION

NO	DRAWING NUMBER	REFERENCE DRAWING TITLE

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Facsimile (07) 3244 7300

**mossvale.**  
ON MANLY

CLIENT: THE MIRVAC GROUP  
PROJECT: MOSSVALE ON MANLY - STAGE 1  
DRAFTER: CBB  
DESIGNED: ANS  
DRAFTING CHECK: [Signature]  
DESIGN REVIEW: [Signature]  
REVIEWED PROJECT MANAGER: [Signature]  
APPROVED PROJECT DIRECTOR: [Signature]

TITLE: SEWAGE PUMPING STATION SETOUT PLAN  
SCALE: AS SHOWN  
SIN PROJECT No: C100431.100  
DRAWING No: 431-C-SE18  
AMDT: E