

23 January 2017
Project Ref. Q1170277
Quote No. 17-SALSHQ-00678 Alt. 1 Ver. 1

BRADBROOK CONSULTING
55 EDEN STREET
KINGSTON UPON THAMES

KT1 1BW

For the Attention of : David Forastieri 02083399006

BOGNOR REGIS - WICKES - SHIPNEY ROAD

Dear Sir

Further to your recent enquiry we now take pleasure in confirming the attached quotation for the above scheme.

Every endeavour is made to ensure that all major suppliers of equipment and services purchased by Xylem Water Solutions UK Ltd have been subject to assessment conforming to the requirements of BS EN, ISO 9001 and as laid down in the Xylem Water Solutions Quality plan.

An excellent after-sales service is operated by our Company and is available on request to all Xylem Water Solutions UK Ltd customers.

All FLYGT equipment is backed by an excellent replacement and spares availability service. At your request we would be pleased to supply details of recommended spares for the pumps or equipment covered by this quotation.

We would point out that the pumping equipment offered has a guaranteed minimum 15 years spares availability from the last production model.

For your assistance we enclose explanatory literature and drawings relevant to the type of equipment offered.

Please quote our reference number on any correspondence relating to the enclosed.

We trust our quotation meets with your approval and assure you of utmost attention at all times. Should you require any further information then please do not hesitate in contacting the undersigned by return.

Yours faithfully,

James Elliott

Xylem Water Solutions UK Ltd.
Private Road No1, Colwick
Nottingham NG4 2AN



Our Sales Representative for your area is:
Mark Willson -- Tel +44 7825 546694
Mark.Willson@xyleminc.com
Service / Rental Central No. 0845 707 8012

Station 1

Qty	Description
2	Flygt submersible pump NP 3153.181 LT 53-624 9 kW With open self cleaning channel impeller designed for semi permanent wet well installation. NOTE! Guiding claw included, other installation equipmen to be ordered separately Main parts are made of Grey cast iron. Impeller material:grey cast iron The pumphouse is prepared for flush-valve. 3-phase motor, 50 Hz, 400 VYD, Rated power 9 kW. Rated current 21,00 A. Rated speed 955 RPM Max allowed ambient temperature of 40 dgr Celcius. Thermal contact for stator temp. monitoring. With 1 power cable: 10 m. SUBCAB 7G2,5+2x1,5 mm2 for YD-start. SmartRun possible: No Outlet type: Flange 250 mm. Inlet type: 0 Surface coating according to Flygt std. M0700.00.0004. Impeller material: Cast iron Shaft material: AISI 431 M0700.00.0004
2	Cast iron discharge connection Outlet connection 250mm NP16 Standard paint finish
2	Upper guide rail holder for 2" guide rails Galvanised mild steel
4	2" diameter pump guide rail - 6m length Galvanised mild steel
2	Galvanised mild steel lifting chain 500kg SWL 7m long with lifting rings at each end and every metre
2	Galvanised mild steel bow shackle 1.5t SWL
2	Stainless steel cable support grip For cable diameter 18-24mm
2	Alarm unit MiniCAS II 24V Supervision relay for temperature and leakage sensors
1	DELIVERY CHARGE Please note that the pump selection has been based upon the rising main being 250mm diameter. Customer is to ensure that pumps offered will fit within chamber.

Total Discounted Price (NETT) GBP £ 18,066.63

TENDER CLARIFICATION RELATING TO PUMPS - UNDER 50KW

Specification

All pumps are quoted rated as standard, non explosion-proof.

Unless otherwise advised, foul pump selections have been made on the basis of liquors having a maximum dry solids content of 2%.

Pumps to be performance tested to ISO 9906/Annex A.1/2 only. Our offer specifically excludes witness testing.

Pumps over 11kW will be fitted with F.L.S. Sensor to detect the moisture in stator windings.

The pump units offered for this application are fitted with an impeller suitable for solids handling as detailed in the specification, and are primarily designed for use on wastewater applications. It must, however, be appreciated that inadequate benching within the sump and/or the use of low level inlet sewers may promote the deposition of rags and solids during low inflow periods. In such pumping systems, a poor choice of pumping control method can significantly increase the risk of blockages. In particular, high pumping rates at low depths of flow e.g., at the end of a pumping cycle, can cause rapid re-suspension of the sediment, effectively increasing the solids concentration.

It is imperative, therefore, that the pumping system be designed in such a way as to avoid the risk of such occurrences. Please contact us for further information if required.

We have not included for any equipment other than that detailed in the quotation. Unless specified, bolts and fixings are excluded.

Documentation

We are able to produce a detailed installation care and maintenance manual in an electronic format on a CD-ROM if required. Should you wish to take up this option at an additional cost, please indicate accordingly on any order issued.

Paint

Pumps are offered with Flygt standard epoxy paint finish to Specification MEC.9.1.

Variable Speed Drive

To be able to advise duties at reduced frequencies we require full system details including static head.

When using pumps in association with a variable frequency supply, either for speed control or phase conversion, it is important that the variable frequency drive parameters are correctly set to provide protection for the pump motor; particularly in respect of over current, over voltage and over frequency. The variable frequency drive default parameters may not provide suitable protection for submersible centrifugal pump motors. The pump sensors should be connected to an appropriate Flygt monitoring and supervision relay interlocked with the pump controls to prevent operation of the motor in the event of a fault occurring. Failure to ensure correct protection will invalidate any warranties, either expressed or implied, in respect of pump motors supplied by Xylem Water Solutions UK Ltd.

The VFD should not be sized according to the power at the duty point since this may result in a drive which is incapable of supplying the necessary power under all conditions. The VFD should be sized according to the motor input power, not the rated shaft power, to ensure it is capable of supplying the necessary full load current under all conditions. A drive manufacturer will normally be able to confirm the correct drive to be used providing they are in receipt of full details of the motor.

COMMERCIAL CONDITIONS - A

Despatch:	4 working weeks (Subject to availability) In addition to 3 working weeks for any special painting if requested.
Delivery:	Incoterms DAP - Delivered at Place, inclusive to UK Mainland Site Delivery Address only. Off loading by others.
Validity:	30 days from date of this quotation.
Terms:	STRICTLY NETT, subject to satisfactory credit checks and to payment within 30 Days of date of invoice.
Conditions:	Xylem Water Solutions UK Ltd - Conditions of Sale 'A'
V.A.T.	Extra where applicable.
Force Majeure:	Whilst we take all reasonable steps to deliver the goods within the delivery period, we do not accept any liability for failure to do so.
Credit:	This offer is made subject to satisfactory Credit arrangements being agreed between the Purchaser & Xylem Water Solutions UK Ltd and takes precedence over the afore-noted conditions. The despatch period may be affected by and delays in reaching any credit agreement.

All monitoring devices must be connected and commissioned in accordance with Xylem Water Solutions C&M Manuals to maintain warranty on pumps.

Xylem Services - Pump Station Commissioning

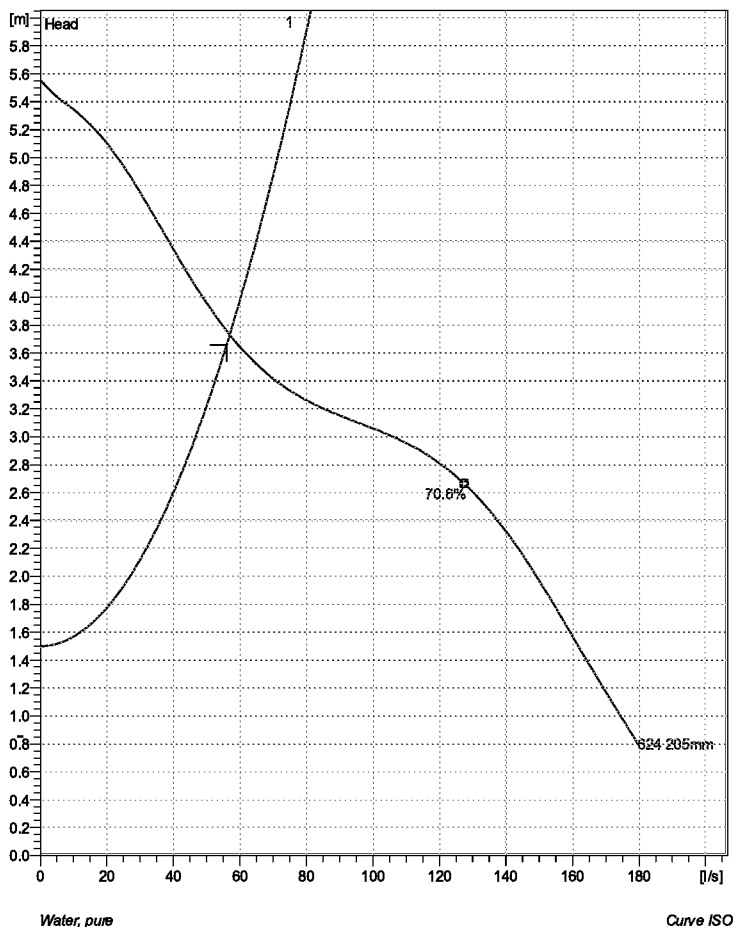
Xylem Water Solutions can commission your pumping station. This service is available by fully qualified and trained Service Engineers at **£770.00** NETT per station for mainland England and Wales. Prices for Scotland and other areas can be supplied upon request [NB: Any return visit will incur an extra cost of **£453.00**].

To enable commissioning to take place the connection of the electrical supply, connection of the rising main and the provision of water for testing, all of which are in the supply of others, is required for that time.

Prior to carrying out the commissioning our service centre will, upon request, provide a generic method statement/safe system of work and an off site risk assessment based on the information provided. Upon attending site the engineers will carry out an on site risk assessment and record the necessary control measures required to be taken.

NP 3153 LT 3~ 624

Technical specification



Note: Picture might not correspond to the current configuration.

General

Patented self cleaning semi-open channel impeller, ideal for pumping in most waste water applications. Possible to be upgraded with Guide-pin® for even better clogging resistance. Modular based design with high adaptation grade.

Impeller

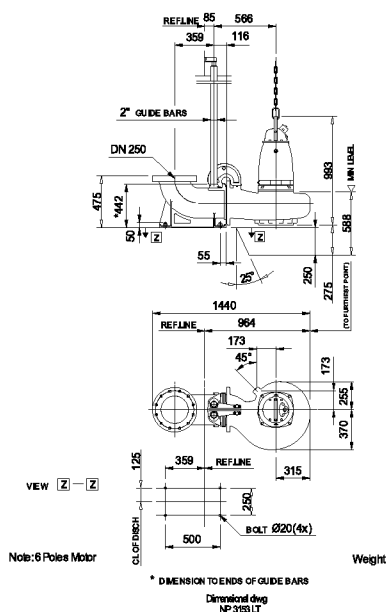
Impeller material	Grey cast iron
Discharge Flange Diameter	250 mm
Inlet diameter	205 mm
Impeller diameter	205 mm
Number of blades	3

Motor

Motor #	N3153.181 21-18-6AA-W 9KW
Approval	Standard
Stator variant	2
Frequency	50 Hz
Rated voltage	400 V
Number of poles	6
Phases	3~
Rated power	9 kW
Rated current	21 A
Starting current	88 A
Rated speed	955 rpm
Power factor	
1/1 Load	0.73
3/4 Load	0.66
1/2 Load	0.54
Motor efficiency	
1/1 Load	85.5 %
3/4 Load	87.0 %
1/2 Load	86.5 %

Configuration

Installation: P - Semi permanent, Wet



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NP 3153 LT 3~ 624

Performance curve



Pump

Discharge Flange Diameter 250 mm
Inlet diameter 250 mm
Impeller diameter 205 mm
Number of blades 3

Motor

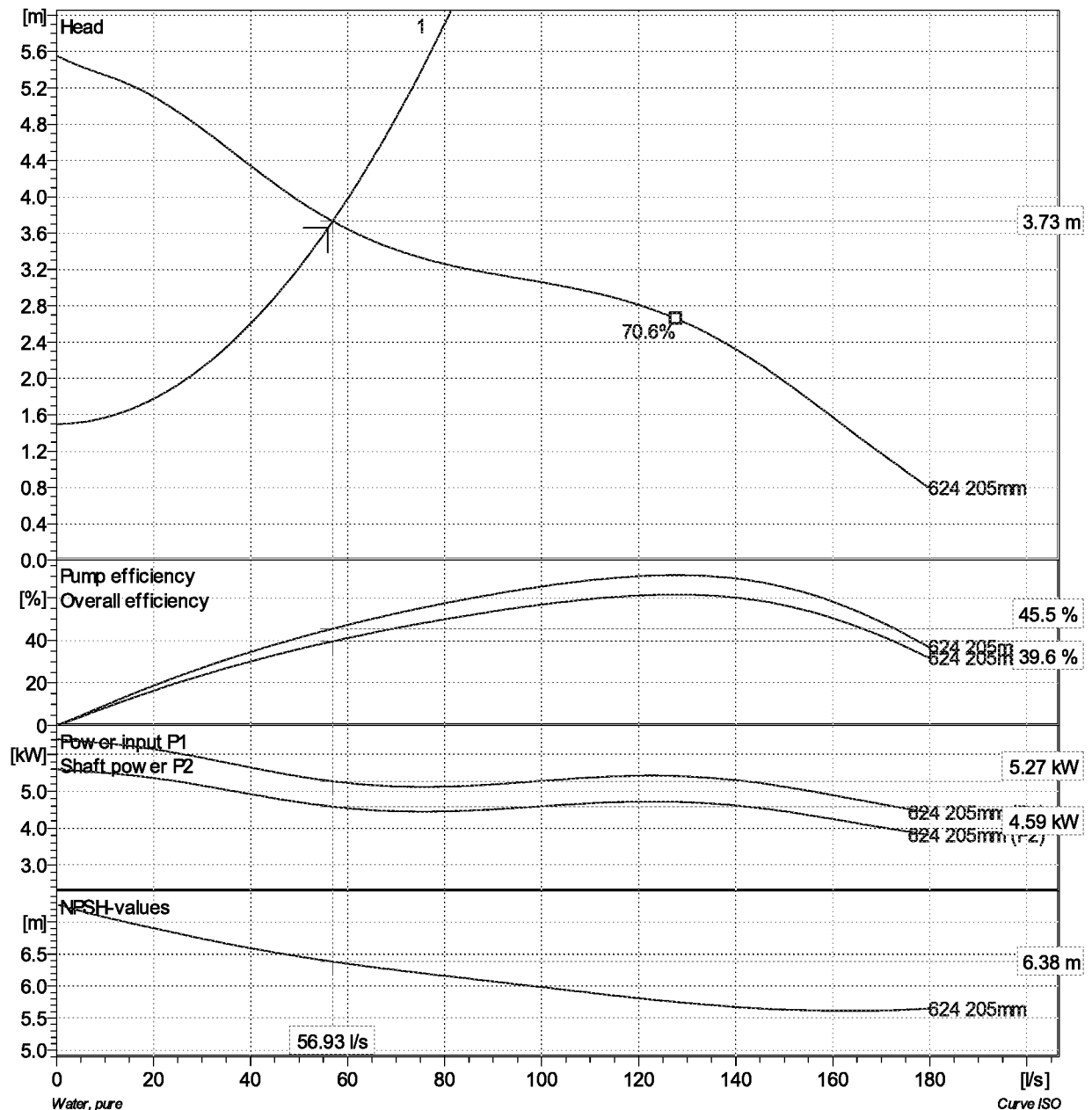
Motor # N3153.181 21-18-6AA-W 9KW
Approval Standard
Stator variant 2
Frequency 50 Hz
Rated voltage 400 V
Number of poles 6
Phases 3~
Rated power 9 kW
Rated current 21 A
Starting current 88 A
Rated speed 955 rpm

Power factor

1/1 Load 0.73
3/4 Load 0.66
1/2 Load 0.54

Motor efficiency

1/1 Load 85.5 %
3/4 Load 87.0 %
1/2 Load 86.5 %

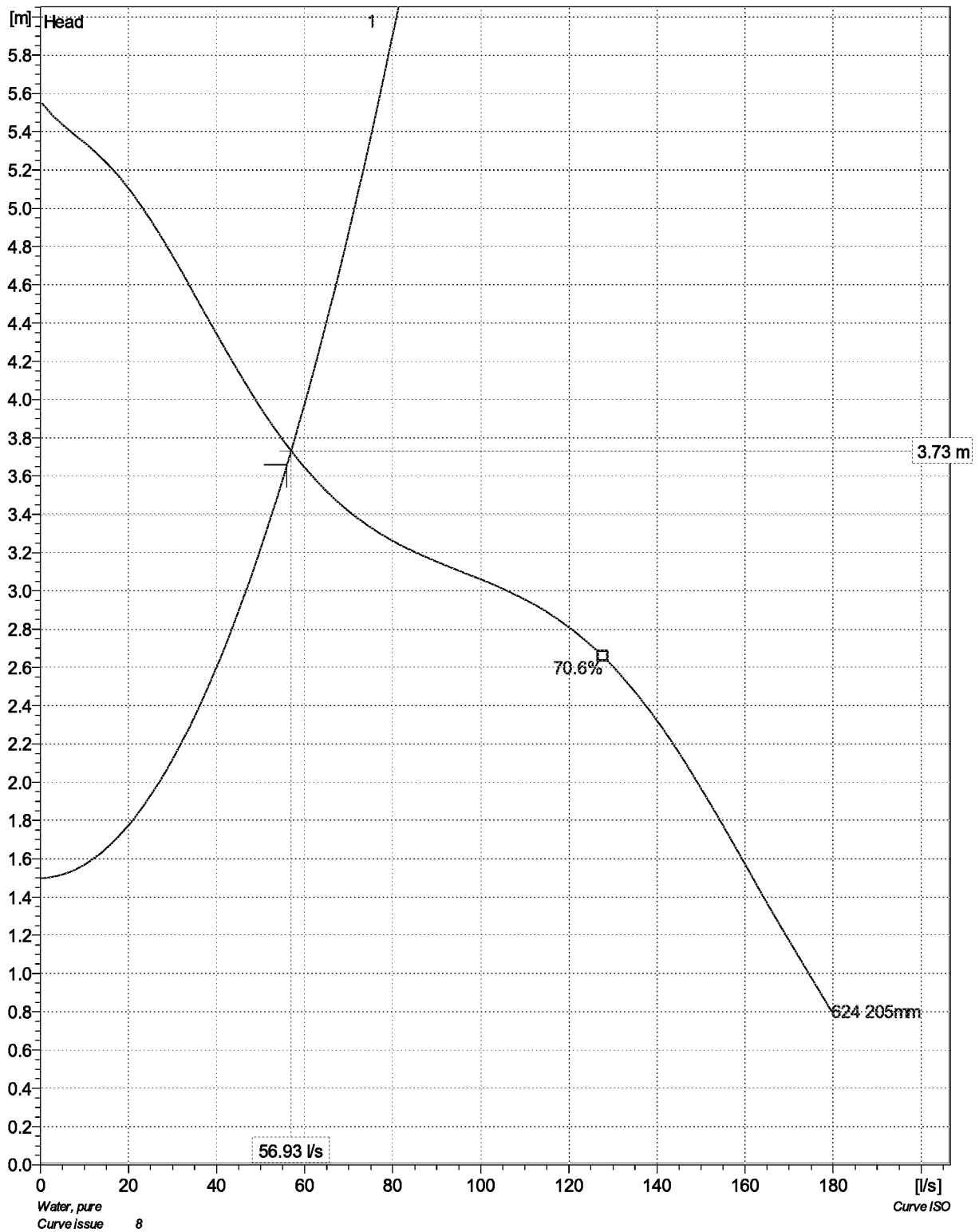


Duty point

Flow 56 l/s
Head 3.66 m
Guarantee ISO_9906_Grade No

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NP 3153 LT 3~ 624 Duty Analysis

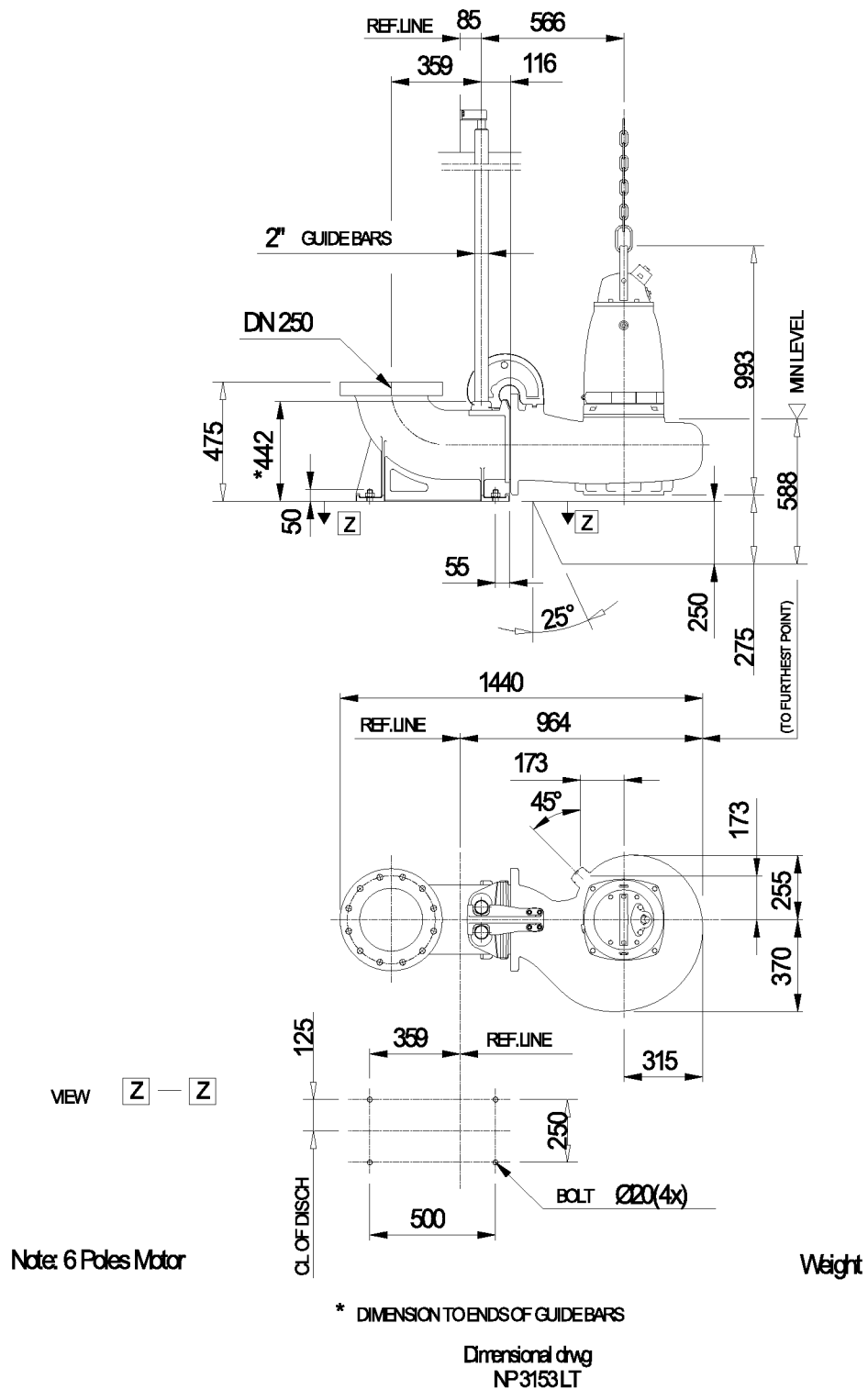


Pumps running /System	Individual pump			Total			Pump eff.	Specific energy	NPSHre
	Flow	Head	Shaft power	Flow	Head	Shaft power			
1	56.9 l/s	3.73 m	4.59 kW	56.9 l/s	3.73 m	4.59 kW	45.5 %	0.0257 kWh/m³	6.38 m

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NP 3153 LT 3~ 624

Dimensional drawing



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Pumped fluid		Water	Number of pumps	1		
Flow		56 l/s	Nature of system	Single head pump		
Static head		1.5 m	Layout	Wet well installation		
Viscosity		1 mm²/s	Calculation mode	Colebrook		
Friction loss						
Common discharge side pipe						
Piping 1 (8)						
Type	Ø / mm	? or L	Qty.	v / m/s	k / mm	H / m
Discharge Connection: DN 250	249	0.3	1	1.15		0.02022
Elbows: DN 250	249	0.6	2	1.15		0.04044
Inlet: DN 250	249	1	1	1.15		0.06741
Non-return valves: DN 250	249	0.9	1	1.15		0.06067
T-piece: DN 250	249	0.4	1	1.15		0.02696
VALVE: DN 250	249	0.3	1	1.15		0.02022
Piping: Cast Iron_New_GB DN 250 / CLind	249	1.5 m	1	1.15	0.15	0.007639
Total friction head						0.2436
Piping 2 (2)						
Type	Ø / mm	? or L	Qty.	v / m/s	k / mm	H / m
Piping: MDPE_New_GB DN 250 / SDR11	203	121 m	1	1.73	0.15	1.762
Outlet: DN 250	203	1	1	1.73		0.1532
Total friction head						1.916
Friction loss head						2.16 m
Total static head						1.5
Total head						3.66 m