

# DIESEL ENGINE

## KDP SERIES FOR FIRE PUMP

### Model: 4KDP-60

**Prime power** 60.0KW(80.0HP)/3000 rpm  
**Standby Power** 66.0KW(88.0HP)/3000 rpm

#### Engine Specifications

In-Line, 4 stroke, water-cooled, Natural Aspiration  
 Combustion type Direct injection  
 Cylinders - Bore x stroke 4 - 102 x 118 mm  
 Displacement 3857 cc  
 Firing order 1 - 3 - 4 - 2  
 Compression ratio 18 : 1  
 Dry weight Approx. 335 kg  
 Dimension(LxWxH) 885 x 640 x 810 mm  
 Rotation Anti-clockwise  
 Flywheel / Housing SAE # 10 / # 3

#### Fuel System

Injection pump Direct Injection type  
 Governor Mechanical type  
 Feed pump Mechanical type  
 Injection nozzle Multi-hole type/ 0.255 mm  
 Opening pressure 20+0.5MPa  
 Fuel filter Single Stage, Paper

#### Fuel Consumption

Prime power at 3000rpm 17.0 liters/h  
 Standby Power at 3000rpm 18.7 liters/h

#### Cooling System

Cooling method Fresh water forced type  
 Water pump Centrifugal, Belt driven  
 Max. water Temp 95 degree C.  
 Cooling Fan Blade 7EA - Ø 450 mm

#### Lubrication System

Lub. Oil Pan Capacity 7.5 liters  
 Max. allowable Oil Temp 110 degree C.  
 Min. 294 kPa  
 Max. 490 kPa  
 Oil pressure

#### Intake & Exhaust System

Max air restriction Clean 2 kPa / Dirty 5 kPa  
 Exhaust back Max 6 kPa

#### Engineering Data

Combustion Air 2.92m<sup>3</sup>/min  
 Exhaust Gas 6.76m<sup>3</sup>/min

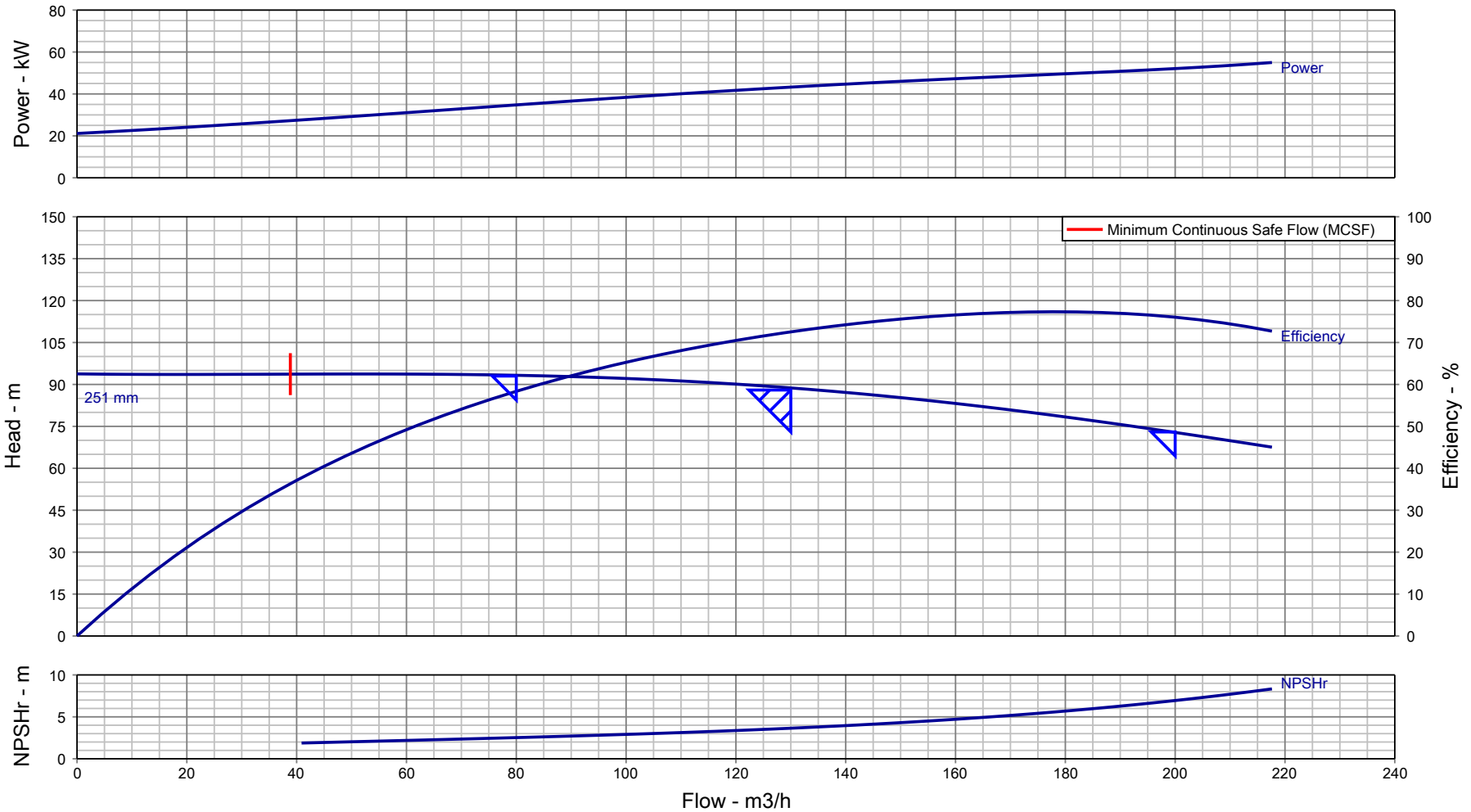
#### Electric System

Charging generator 13.5 V x 65 A  
 Starting motor 12 V x 3.7 kW  
 Battery 12 V x 120 Ah

#### Conversion Table

PS = kW x 1.3596 in. = mm x 0.0394  
 psi = kg/cm<sup>2</sup> x 14.2233  
 HP= PS x 0.98635

## Pump Performance Curve



Customer :	Pump Size/ Stages : DB 80/26/ 1	Flow, rated : 130.0 m <sup>3</sup> /h
Customer enquiry :	Speed, rated : 2965 rpm	Differential Head : 88.00 m
Project : Default	Based on curve number : HD10220A0 Rev 0	Fluid density rated : 0.998 kg/dm <sup>3</sup>
Quote number : 312657	Viscosity : 1.00 cSt	Efficiency : 72.54 %
Item number : 001	Cq/Ch/Ce/Cn [HI2010] : 1.00 / 1.00 / 1.00 / 1.00	Power, rated : 43.25 kW
Quantity : 1	Minimum recommended driver rating : 55.00 kW / 73.76 hp	NPSH required : 3.65 m
Date last saved : 09 Oct 2020 8:08 AM	Performance testing standard : ISO 9906 / ANSI-HI 14.6 Gr 2B	Liquid Type/ Application : Water

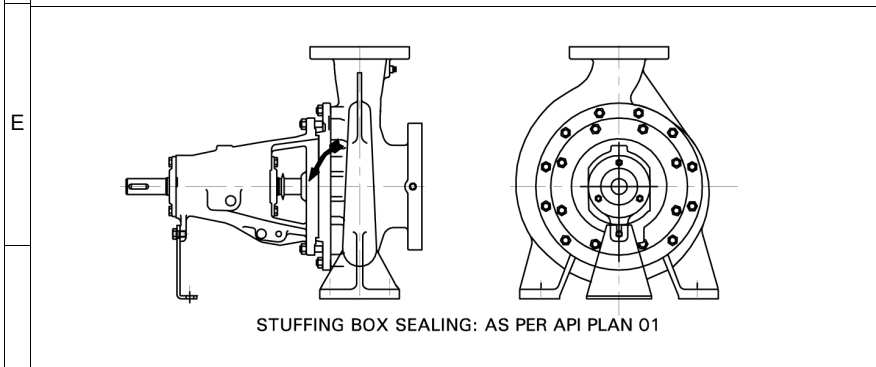
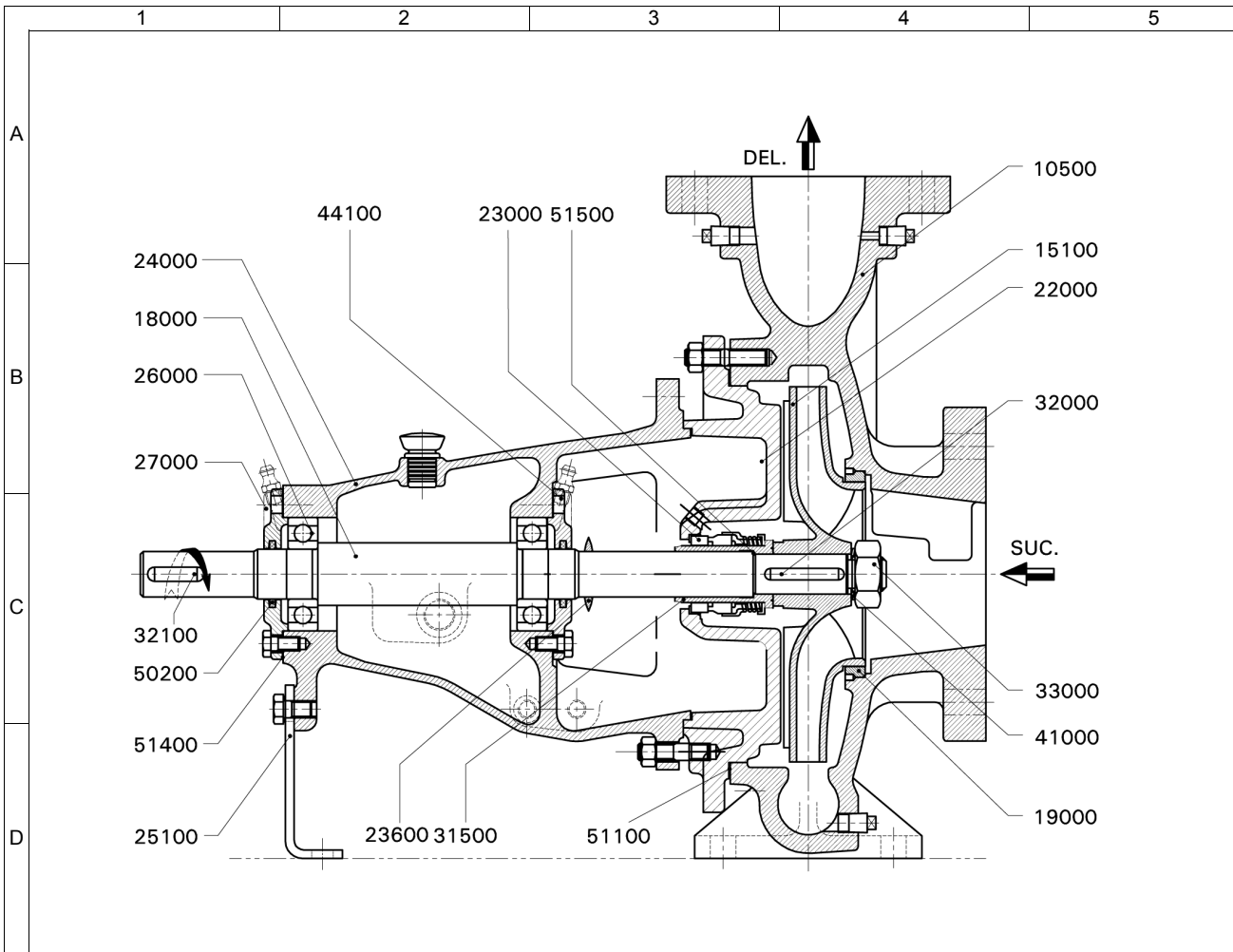
Notes: 1. Performance at shut off condition is approximate. 2. Rated impeller diameter is approximate. 3. Only duty point is guaranteed as per testing standard.



Enriching Lives

## Pump Performance Datasheet

General				
Customer	:		Quote number	: 312657
Customer Enquiry No.	:		Pump model	: DB 80/26
Project	:	Default	Stages	: 1
End user	:	-	Based on curve number	: HD10220A0 Rev 0
Tag number	:	001	Date last updated	: 09 Oct 2020 8:08 AM
Service	:	-	Quantity of pumps	: 1
Operating Conditions		Liquid		
Flow, rated	:	130.0 m3/h	Liquid handled	: Water
Suction pressure, rated / max	:	0.00 bar.g / 0.00 bar.g	Additional liquid description	: Fresh Water
Discharge pressure, rated	:	8.69 bar.g	Temperature, max	: 20.00 deg C
Head, rated (requested)	:	88.00 m	Solids diameter, max	: 0.00 mm
NPSH available, rated	:	Value not specified	Solids in suspension by volume	: 0.00 %
Frequency	:	50 Hz	Specific gravity, rated / max	: 0.998 / 0.998 kg/dm3
			Viscosity, Rated / Max.	: 1.00 cSt / -
Performance		Driver & Power Data		
Pump speed, rated	:	2965 rpm	Driver sizing specification	: Maximum Power
Impeller Dia, Rated (Approx.)	:	251 mm	Margin over specification	: 0.00 %
Impeller diameter, maximum	:	264 mm	Power, rated	: 43.25 kW
Impeller diameter, minimum	:	205 mm	-	: -
Efficiency at duty point	:	72.54 %	-	: -
NPSH required / margin required	:	3.65 m / 0.50 m	Driver Rating	: 55KW
MCSF	:	38.85 m3/h	Pressure Data	
Cq/Ch/Ce: [-]	:	1.00 / 1.00 / 1.00	Maximum working pressure	: 9.18 bar.g
Water eq. duties (Qw/Hw/Ew)	:	130.0 m3/h / 88.00 m / 72.54 %	Maximum allowable working pressure	: 16.00 bar.g
Suction / Delivery nozzle size	:	100 mm / 80.00 mm	Maximum allowable suction pressure	: 1.96 bar.g
Noise level	:	90 dB	Hydrostatic test pressure	: 18.34 bar.g
Vibration level (RMS)	:	5.1 mm/s	Construction	
Test standard	:	ISO 9906 / ANSI-HI 14.6 Gr 2B	Basic construction	: End Suction Pump-OH1
Starting condition	:	Closed Delivery Valve	Impeller type	: Enclosed
Material		Selection status	: Acceptable	
MOC Code	:	16MOC	Rec. Pipe Size (Suc / Del)	: 200 mm / 150 mm
Material (Casing / Impeller / Shaft)	:	CI IS210:FG260 (012) / CI IS210:FG260 (012) / ST ST ASTM A276-410 ANLD (253)		
-	:	-		



**NOTES:**

- " \* " INDICATES RECOMMENDED SPARES.
- FASTENERS IN LIQUID CONTACT ARE IN CS

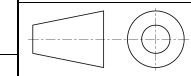
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PART NO.	PART DESCRIPTION	MAT. CODE	MOC DESCRIPTION
10500	PUMP CASING	012	CI IS210:FG260
15100*	IMPELLER	012	CI IS210:FG260
18000*	PUMP SHAFT	253	ST ST ASTM A276-410 ANLD
19000*	WEAR RING - SUCTION SIDE	012	CI IS210:FG260
22000	CASING COVER	012	CI IS210:FG260
23000*	MECHANICAL SEAL	998	DIN SEAL
23600*	LIQUID DEFELCTOR	370	NATURAL RUB ASTM D2000AA-70SHORE/7MPa
24000	BEARING HOUSING	012	CI IS210:FG260
25100	SUPPORT FOOT	042	MS IS:5986-Fe410WA (OLD-IS:1079)
26000*	DEEP GROOVE BALL BEARING	000	STEEL
27000	BEARING COVER DE & NDE	012	CI IS 210-FG 260
31500*	SHAFT SLEEVE - MECHANICALSEAL	565	ST ST ASTMA276-410(210/250BHN)-ANLD
32000*	KEY FOR IMPELLER	253	ST ST ASTM A276-410 ANLD
32100	KEY FOR COUPLING	053	CS IS1570:40C8 HOT RLD
33001*	IMPELLER NUT	664	AUS ST ASTMA194/194M-8M-UNS S31600 (NUT)
41000*	LOCK WASHER-IMPELLER NUT	054	SPRING ST IS:4072-80C6
44100	GREASE NIPPLE	444	CS IS:1367 Part3 CL4.6 CDP
50200*	FELT RING	375	FELT
51100*	GASKET-CASING COVER	702	NON ASBESTOS FERROLITE NAM37 OR EQ
51400*	GASKET-BEARING COVER	702	NON ASBESTOS FERROLITE NAM37 OR EQ
51500*	GASKET-SHAFT SLEEVE	702	NON ASBESTOS FERROLITE NAM37 OR EQ

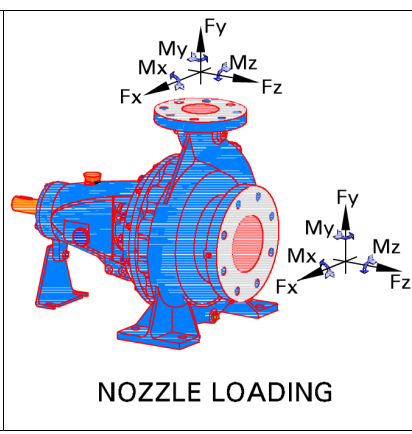
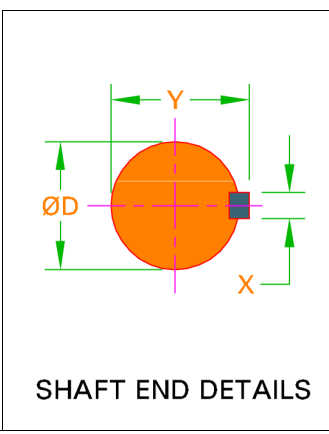
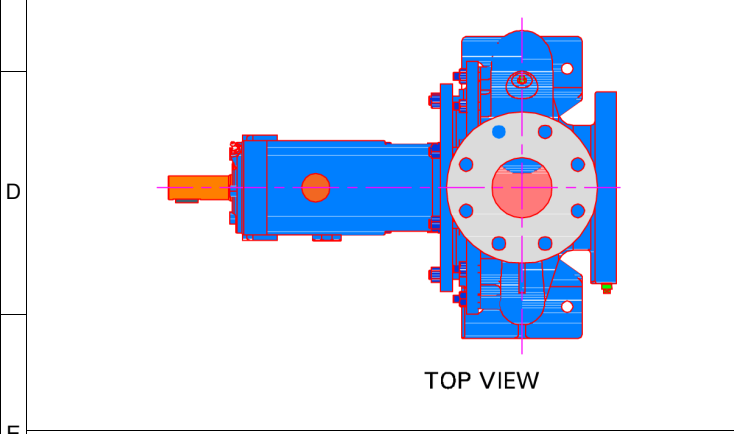
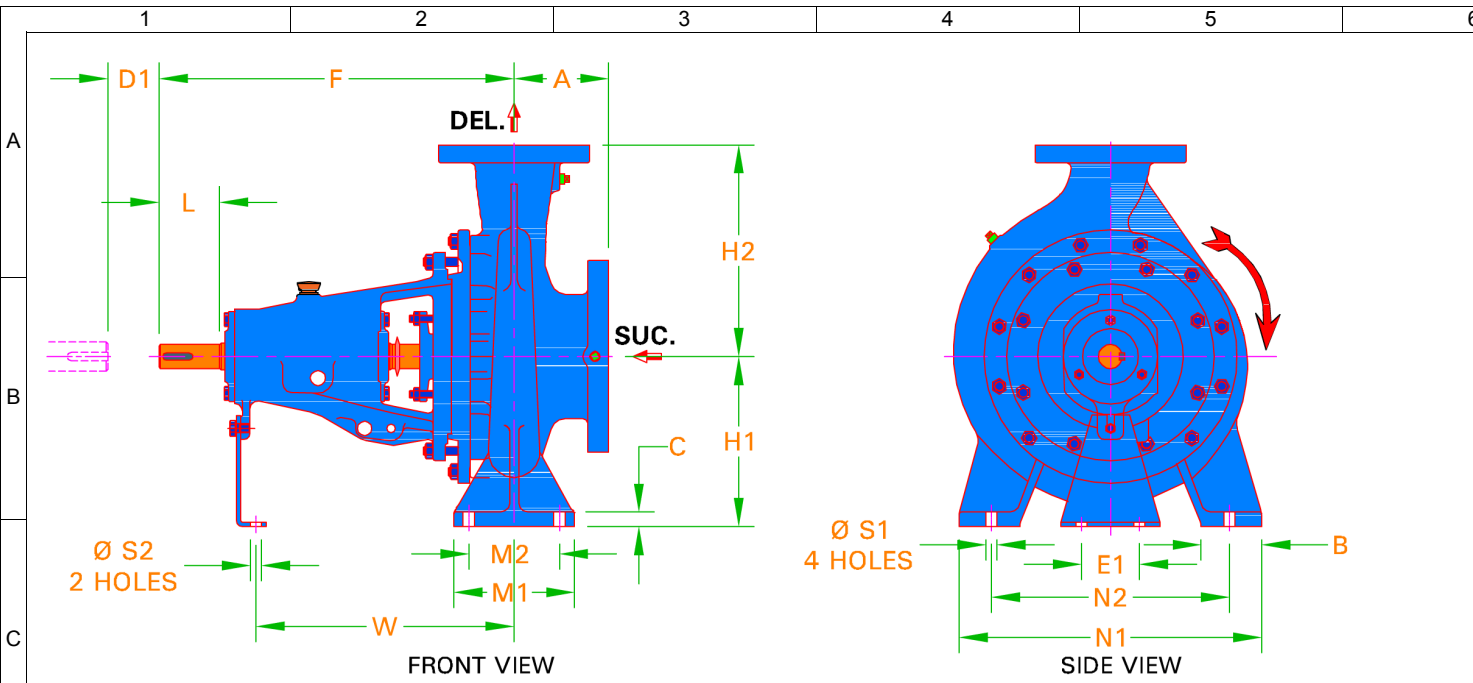
PUMP	DB 80/26	MOC	16
ENQUIRY NO./DATE	/	QUANTITY	1
PO. NO./DATE	-	TAG NO.	001
QUOTATION NO.	0	DATE.	-
O/A. NO.	-	MISI.	-
CUSTOMER	-		
END USER	-		
PROJECT	Default		
CONSULTANT	-		
SERVICE	-		



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CROSS SECTIONAL DRAWING

DRAWING NO.	TC02-1
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PUMP DUTIES			
CAPACITY	130.0 m <sup>3</sup> /h	EFFICIENCY	72.54 %
TOTAL HEAD	88.00 m	PUMP INPUT	43.25 kW
DENSITY	0.998 kg/dm <sup>3</sup>	NPSHR	3.65 m

FLANGE DRILLING STANDARD AND DETAILS					
SUCTION	BS EN1092 PN16 FF		DELIVERY	BS EN1092 PN16	
	NOM. SIZE	RF DIA.	P.C.D.	NO OF HOLES	HOLE DIA.
SUCTION	100 mm	N.A.	180 mm	8	18.0
DELIVERY	80.00 mm	N.A.	160 mm	8	18.0

ALLOWABLE NOZZLE LOADING						
	FORCES			MOMENTS		
	Fx	Fy	Fz	Mx	My	Mz
SUCTION	91.00 kgf	227.0 kgf	182.0 kgf	1,353 N.m	677 N.m	677 N.m
DELIVERY	68.00 kgf	170.0 kgf	136.0 kgf	1,020 N.m	510 N.m	510 N.m

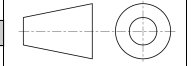
TAPPING DETAILS	
DESCRIPTION	SIZE / TYPE
Suction Gauge	1/4"BSP
Delivery Gauge	1/4"BSP
Casing Drain	3/8"BSP
Casing Vent	NA
Bearing Cooling in / out	NA
Pad Cooling in / out	NA
Priming in	NA
Base Drain	NA

DIRECTION OF ROTATION FROM DE		CLOCKWISE	
PUMP	DB 80/26	PUMP WT.	91.00
REC. DRIVER RATING	55KW	GD*2	0.03 kg
ENQ. NO./DATE	/	RATED SPEED	2965R
PO. NO./DATE	-	QUANTITY	1
QUOTATION NO.	0	TAG NO.	001
O/A NO.	-	DATE	-
CUSTOMER	-	MISI	-
END USER	-		
PROJECT	Default		
CONSULTANT	-		
SERVICE	-		

**NOTES:**  
 • ALL DIMENSIONS ARE IN mm  
 • DIM 'D1' INDICATES THE DISTANCE REQUIRED TO REMOVE BACK PULL OUT ASSEMBLY.

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A	F	H1	H2	B	C	M1	M2	N1	N2	S1	E1	S2	W	-	D
125	470	200	280	80.00	16.00	160	120	400	315	18.00	110	14.00	267	-	32.00
X	Y	L	D1	-	-	-	-	-	-	-	-	-	-	-	-
10.00	35.00	80.00	140	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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PUMP OUTLINE DRAWING