

# DIESEL ENGINE

# MODEL 6DSP-100

## Performances

Ratings		3000 rpm	
		PRIME	STAND-BY
Rated Output	kWm	90	100

Note:

**PRIME POWER:** The prime power is the maximum power available with varying loads for an unlimited number of hours. The average power output during a 24h period of operation must not exceed 80% of the declared prime power between the prescribed maintenance intervals and at standard environmental conditions. A 10% overload is permissible for 1 hour every 12 hours of operation.

**STAND-BY POWER:** The stand-by power is the maximum power available for a period of 500 hours/year with a mean load factor of 90% of the declared stand-by power. No kind of overloads is permissible for this use.

## Specifications

### Mechanical system

Engine model	6DSP-100
Engine type	In-line, 4 stroke, water cooled
Combustion type	Direct Injection
Cylinder type	Dry liner
Air intake type	Normally Aspirated
Cylinder No.	6
Bore*Stroke(mm)	102*118
Total displacement(L)	5.785
Compression ratio	17.5:1
Firing order	1-5-3-6-2-4
Injection timing	15°±1°
Speed governor	Mechanical ≤8%
Exhaust temperature (°C)	≤550
Mean Effective Pressure (KPa)	623
Noise Level(dBA)	≤93
Exhaust gas back pressure(KPa)	9
Exhaust flow (m <sup>3</sup> /h)	1549
Cooling air flow (m <sup>3</sup> /h)	900
Air for combustion flow (m <sup>3</sup> /h)	683
Piston Speed(m/s)	11.8
Dry weight (kg)	550
Dimension(L*W*H)(mm)	1068*609*1031 (with radiator)
Rotation	Counter clockwise viewed from flywheel
Flywheel housing/flywheel	SAE3/ 11.5"

**Mechanism**

Type	Over head valve
Valves per cylinder	2
Valve lash(cold state)	Air intake valve 0.30-0.40mm Exhaust valve 0.30-0.40mm

**Valve timing** (crankshaft rotating angel)

Air intake valve open	24.5° before top dead center
Air intake valve close	55.5° after bottom dead center
Exhaust valve open	54° before bottom dead center
Exhaust valve close	26° after top dead center

**Specific fuel consumption**

rpm	3000
Fuel consumption (g/kWh)	≤229

**Oil consumption**

Oil consumption(g/kWh)	≤1.63
------------------------	-------

**Fuel system**

Fuel injector pump	BQ pump
Governor model	RSV full range type
Feed pump	Mechanical type
Injection nozzle	multi holes type
Fuel filter	Spin-on type
Fuel	Diesel

**Lubrication system**

Type	Mixed type, pressure and splash lubrication
Oil pump Displacement/speed (L/min/r/min)	Inner and outer rotor type 80/2000
Oil filter	Spin-on type
Lube oil total system capacity	15L including pipes, filters etc.

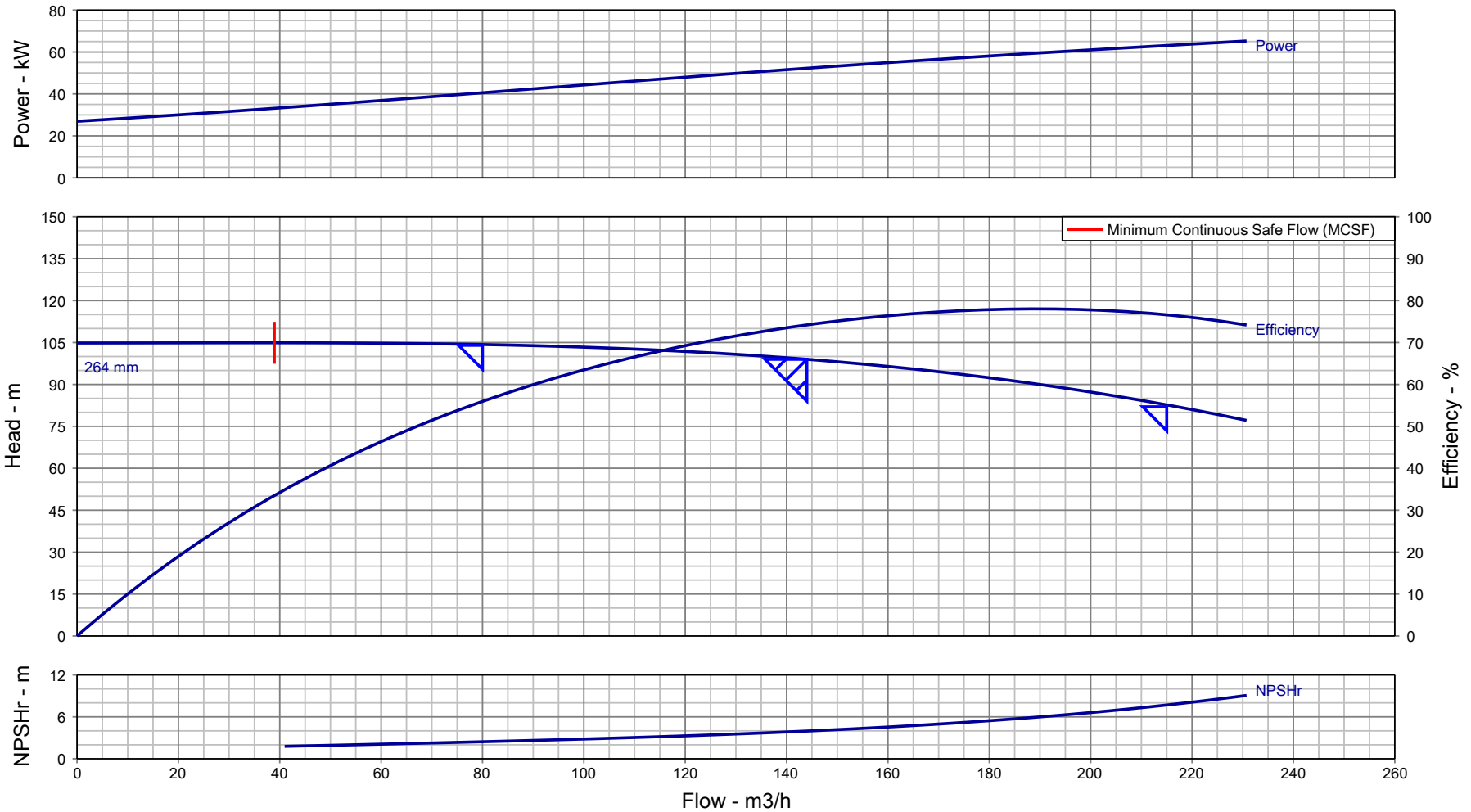
**Cooling system**

Cooling method	Water cooled, forced circulation
Coolant capacity: engine only	10L
Engine + radiator	21L
Water pump type	Centrifugal type driven by belt
Water pump capacity(L/min)	≥180
Thermostat	Opening temp.73°C
Cooling fan	Φ490mm, 7blades, PA

**Electronic system**

Charging alternator	14v/500w
AVR	Built-in type
Starting motor	12v/3.7kW
Battery capacity	12v/100Ah

## Pump Performance Curve



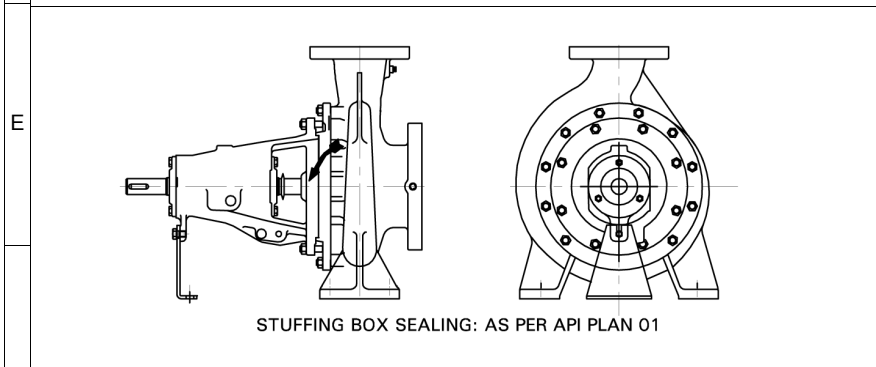
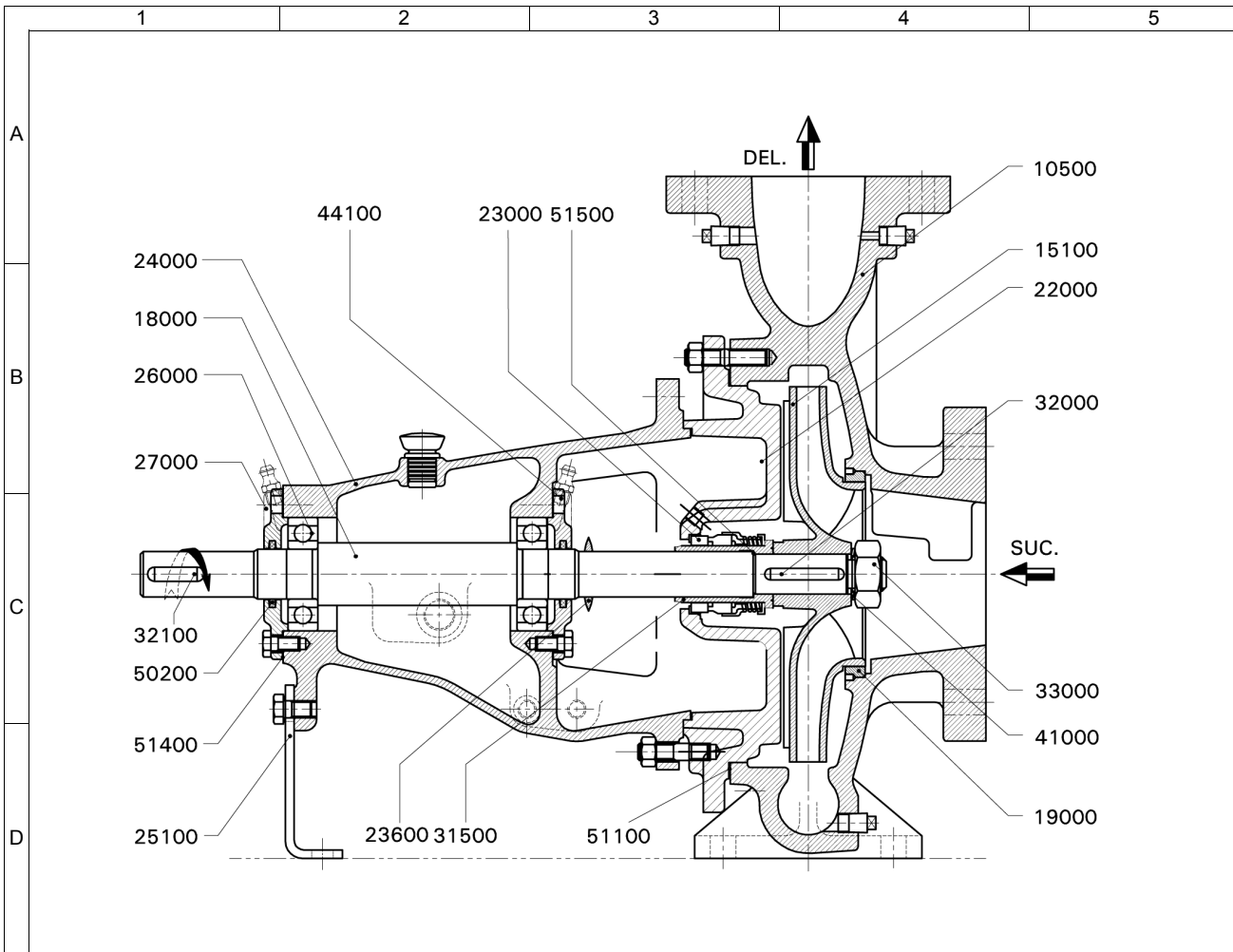
Customer :	Pump Size/ Stages : DB 80/26/ 1	Flow, rated : 144.0 m <sup>3</sup> /h
Customer enquiry :	Speed, rated : 2970 rpm	Differential Head : 99.00 m
Project : Default	Based on curve number : HD10220A0 Rev 0	Fluid density rated : 0.998 kg/dm <sup>3</sup>
Quote number : 312657	Viscosity : 1.00 cSt	Efficiency : 74.20 %
Item number : 001	Cq/Ch/Ce/Cn [HI2010] : 1.00 / 1.00 / 1.00 / 1.00	Power, rated : 52.25 kW
Quantity : 1	Minimum recommended driver rating : 75.00 kW / 101 hp	NPSH required : 3.97 m
Date last saved : 09 Oct 2020 9:33 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 9:33 AM
Service	: -	Quantity of pumps	: 1
Operating Conditions		Liquid	
Flow, rated	: 144.0 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	: 9.69 bar.g	Temperature, max	: 20.00 deg C
Head, rated (requested)	: 99.00 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
Performance		Viscosity, Rated / Max.	: 1.00 cSt / -
Pump speed, rated	: 2970 rpm	Driver & Power Data	
Impeller Dia, Rated (Approx.)	: 264 mm	Driver sizing specification	: Maximum Power
Impeller diameter, maximum	: 264 mm	Margin over specification	: 0.00 %
Impeller diameter, minimum	: 205 mm	Power, rated	: 52.25 kW
Efficiency at duty point	: 74.20 %	-	: -
NPSH required / margin required	: 3.97 m / 0.50 m	-	: -
MCSF	: 38.92 m3/h	Driver Rating	: 75KW
Cq/Ch/Ce: [-]	: 1.00 / 1.00 / 1.00	Pressure Data	
Water eq. duties (Qw/Hw/Ew)	: 144.0 m3/h / 99.00 m / 74.20 %	Maximum working pressure	: 10.27 bar.g
Suction / Delivery nozzle size	: 100 mm / 80.00 mm	Maximum allowable working pressure	: 16.00 bar.g
Noise level	: 90 dB	Maximum allowable suction pressure	: 1.96 bar.g
Vibration level (RMS)	: 5.1 mm/s	Hydrostatic test pressure	: 18.34 bar.g
Test standard	: ISO 9906 / ANSI-HI 14.6 Gr 2B	Construction	
Starting condition	: Closed Delivery Valve	Basic construction	: End Suction Pump-OH1
		Impeller type	: Enclosed
		Selection status	: Acceptable
		Rec. Pipe Size (Suc / Del)	: 200 mm / 150 mm
Material			
MOC Code	: 16MOC		
Material (Casing / Impeller / Shaft)	: CI IS210:FG260 (012) / CI IS210:FG260 (012) / ST ST ASTM A276-410 ANLD (253)		
-	: -		



**NOTES:**

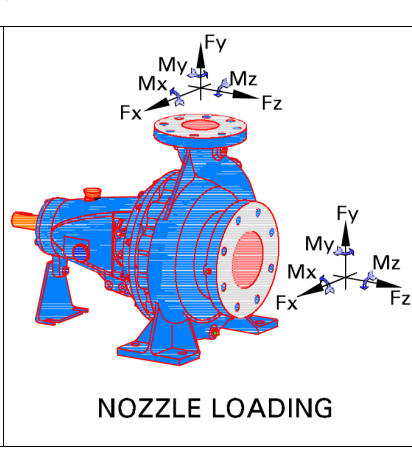
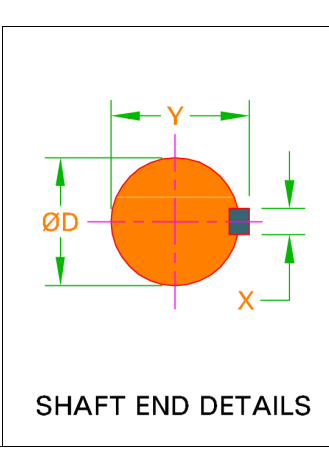
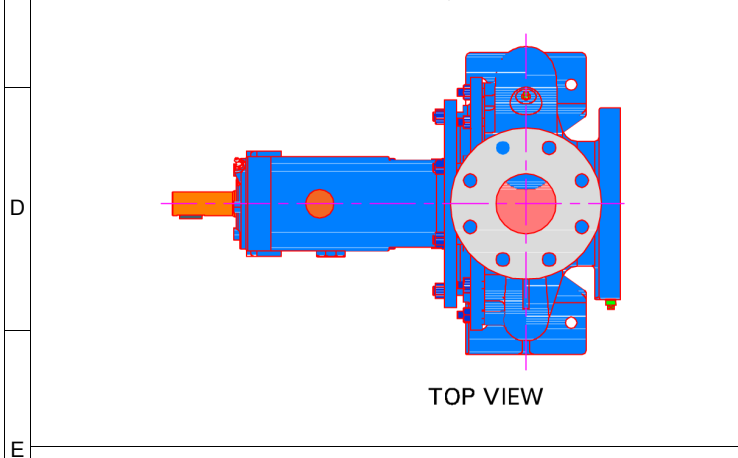
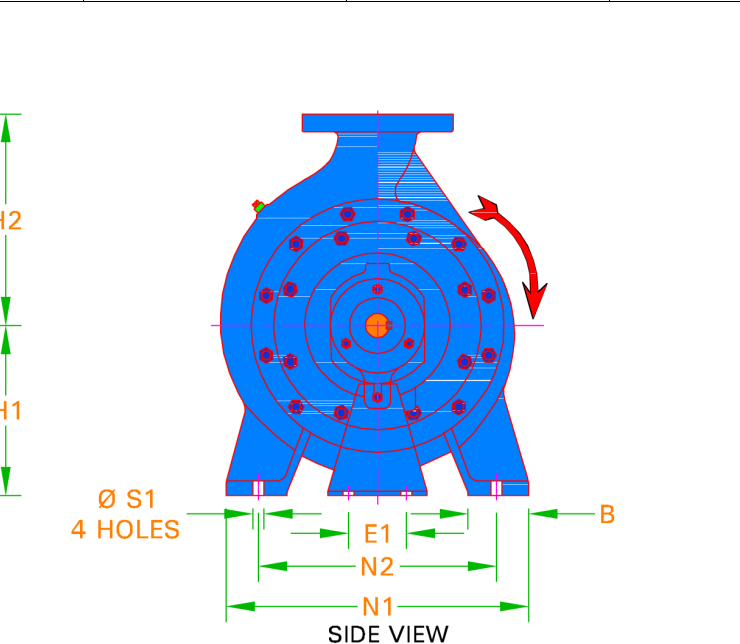
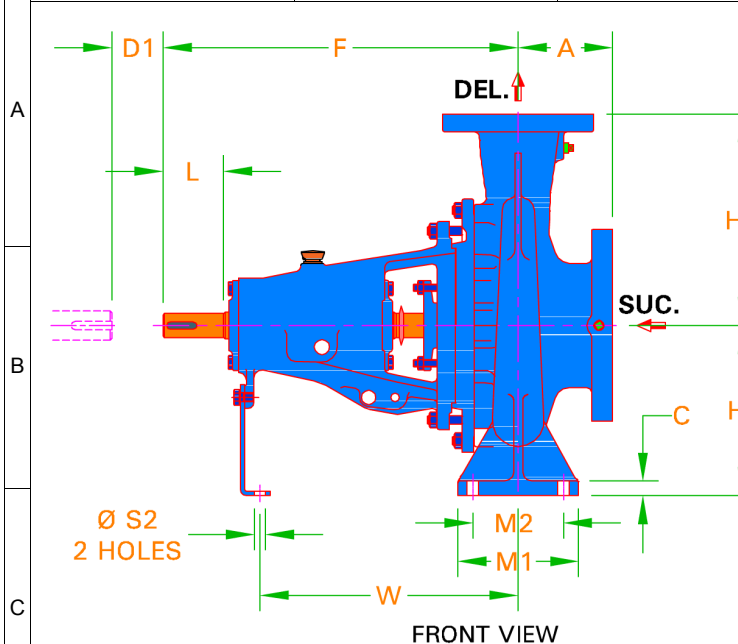
- " \* " INDICATES RECOMMENDED SPARES.
- FASTENERS IN LIQUID CONTACT ARE IN CS

**IMPORTANT: THIS DRAWING IS THE PROPERTY OF Kirloskar Brothers Limited. AND MUST NOT BE USED OR COPIED WITHOUT THEIR PRIOR AUTHORITY IN WRITING.**

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	-		

**Kirloskar Brothers Limited**  
KIRLOS KARVADI - 416308, DIST.- SANGLI (INDIA)



Enriching Lives

PUMP DUTIES			
CAPACITY	144.0 m <sup>3</sup> /h	EFFICIENCY	74.20 %
TOTAL HEAD	99.00 m	PUMP INPUT	52.25 kW
DENSITY	0.998 kg/dm <sup>3</sup>	NPSHR	3.97 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
		GD*2	0.03 kg
REC. DRIVER RATING	75KW	RATED SPEED	2970R
ENQ. 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	-		

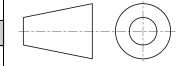
**NOTES:**  
 • ALL DIMENSIONS ARE IN mm  
 • DIM 'D1' INDICATES THE DISTANCE REQUIRED TO REMOVE BACK PULL OUT ASSEMBLY.

**IMPORTANT: THIS DRAWING IS THE PROPERTY OF Kirloskar Brothers Limited AND MUST NOT BE USED OR COPIED WITHOUT THEIR AUTHORITY IN WRITING.**

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	-	-	-	-	-	-	-	-	-	-	-	-

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Kirloskar Brothers Limited**  
 KIRLOS KARVADI - 416308, DIST. - SANGLI (INDIA)

PUMP OUTLINE DRAWING

DRAWING NO. TL02-1-