

Pump Technical Datasheet

Project: Kearn Document Number: KFT40130P-L08-0003-001



Service Description

Equipment description	-	450L
Tag number	-	4400-160-P-6866A, 4400-160-P-6867A, 4400-160-P-6868A, 4400-160-P-6869A
Quantity	-	1
Application type	-	-

Duty Information

Flowrate	Q	m ³ /hr	1657.08
Slurry head	H _m	m	12.20
Water head	H _w	m	12.60

Slurry Information

Solids SG	S	-	2.70
Fluid SG	S _f	-	1.00
Slurry SG	S _m	-	1.07
Solids concentration by weight	C _w	%	10.39
Solids concentration by volume	C _v	%	4.12
d50 particle size	d ₅₀	µm	20
Maximum particle size		mm	-
Particle shape		-	-
Temperature	T	°C	20
pH		-	-

Hydraulic Operating Data

NPSHr	m	-
HR	-	0.97
ER	-	0.97
Pump efficiency η	%	81.5
Hydraulic power	kW	75
VSD loss	%	-
Drive loss	%	2
Non overbading factor	-	1.2
Minimum motor power	kW	89.48

Pump Selection

Size	-	450 L
F rame	-	ST
Framerating	kW	560
Impeller	-	STL45147
Vane diameter	mm	922
Curve number	-	ESY8623
Pump speed	rpm	313
Impeller tip speed	m/s	15

Sealing

Seal type	-	Gland
Utility water flow rate	l/min	N/A
Utility water feed pressure	kPa	N/A

Materials

Liners	-	A05 Ultrachrome® 27% Cr
Impeller	-	A05 Ultrachrome® 27% Cr
Shaft	-	E05 Wrought K1045 Carbon Steel
Pump casing	-	D21 - SG Iron

Drive Information

Motor speed	rpm	N/A
Motor power	kW	N/A
Poles	-	N/A
Drive type	-	N/A
Drive arrangement	-	N/A
Drive ratio	-	N/A

Pressure

Pump working pressure	kPa	128
Max casing pressure	kPa	1030

Bearing Life & Stress Calculations

Stage	-	1
Wet end life	L ₁₀	> 100000
Drive end life	L ₁₀	> 100000
Stress @ drive end	-	OK (7) %
Stress @ wet end	-	OK (32) %
Stress @ thread	-	OK (20) %

Intake Allowable Flange Loads

Axial load	F _y	N	77500
Force in x-z	F _{xz}	N	38750
Torsional moment	M _y	Nm	13550
Bending moment	M _{xz}	Nm	27100

Discharge Allowable Flange Loads

Axial load	F _z	N	30900
Force in x-y	F _{xy}	N	15450
Torsional moment	M _z	Nm	5200
Bending moment	M _{xy}	Nm	10400

Vertical Cantilever Pump Details

Spindle length	D	mm	-
Suction pipe length		mm	-

Mass

Rotating element mass	kg	680
Polar mass moment of inertia	kgm ²	82.48
Pumpset mass	kg	-

