LCC-M200-610.4K AF M1 (LCC 24 C H 6- / / 3ME 5- 5/ 8)
Oil lubricated CBA, Shaft seal: KE, Closed shroud impeller, Face-to-face bearings
Pump assembly: 4005X-17 Multi-speed water curve: E 26B-05 Hydraulic data file: B306D-93

All values are scaled to given speed and turndown. Pump performance data is based on the best available information for each pump. Where performance guarantees are required, contact your GIW representative.

Operating Condition

Flow	750.0	m³/h	Efficiency (water)	80.1	%
Head	47.0	m	Efficiency (solids)	79.4	%
Speed	903.0	RPM	% BEPQ	90.3	%
NPSHA	6.0	m	Suction velocity	4.11	m/s
NPSHR	2.7	m	Solids throughput	55.8	tonne/h

Slurry

Fluid S.G.	0.983		Particle shape factor	0.260	
Solids S.G.	2.650		Miller number (G75)	112	
Slurry S.G.	1.030		Relative slurry abrasivity	1.00	
Concentration by volume	2.81	%	Service class	Class 1	
Concentration by weight	7.22	%	% passing < 40 µm	9.4	%
D50	200	µm	% passing < 200 µm	50.0	%
D85	460	µm	Sliding friction factor	0.50	
Topsize	1340	µm	pH	6.7	
Fines < 74 µm	18.8	%	Chlorides	0	ppm
Slurry type	Settling		Temperature	60.0	°C
Pipe loss model	Four component		Fluid dynamic viscosity	0.466	cP
			Fluid w/ fines viscosity	0.471	cP

Pump Properties

Suction diameter	254.0	mm	Pump specific speed, N_s (SI)	24.6	
Discharge diameter	203.2	mm	Suction specific speed, N_{ss} (SI)	176.3	

Impeller

Turndown ratio	1.000		Shroud	Closed	
Full diameter	609.6	mm	Vane tip speed	28.8	m/s
Actual diameter	609.6	mm	Sphere passage	101.6	mm
Theoretical diameter	609.6	mm	Rotation	RH	

Pump Performance Derates

Derating model	Four Component	
Slurry effect head	0.87	%
Slurry effect efficiency	0.87	%
Slurry effect NPSHR	0.87	%

Pump Performance

	Flow [m³/h]	Head [m]	Efficiency	Power [kW]	NPSHR [m]
	0.0	53.8	0.0%	43.6	1.3
	211.2	53.6	48.9%	64.8	1.7
	415.3	52.0	69.0%	87.7	1.9
	631.4	49.1	77.6%	111.9	2.1
Duty	750.0	47.0	79.4%	124.3	2.7
BEP	830.6	45.4	79.8%	132.5	3.3
120% Duty	900.0	43.9	79.5%	139.3	4.1
	1053.9	40.3	77.2%	154.0	6.8
	1265.1	34.6	70.0%	175.0	12.7
	1476.3	28.1	58.6%	198.1	23.5

Messages

Info Derates expressed vertically, relative to water

Shaft Loads

Impeller end radial load	-3,909	N	Pump total power	124.3	kW
Axial thrust load	33,250	N	Recommended motor power	186	kW
Drive end radial load*	2,867	N			

* Assumes a direct coupled motor.

ANSI/HI 1.1 - 1.2 2000 Hydrotest pressure of 641.5 kPa allowed.

Bearing Life

Bearing	C [N]	P [N]	L10 life
Impeller	631,673	9,844	> 200 khrs
Hydraulic Institute recommended minimum L10 bearing life for duty: **18 khr**			
Drive	841,032	45,797	> 200 khrs
Hydraulic Institute recommended minimum L10 bearing life for duty: **18 khr**			

Shaft Deflection

Shaft deflection: **0.063 mm** (**1119.3 mm** from drive end)

Hydraulic Institute recommended maximum shaft deflection: **1.016 mm**.

Shaft Design Stress

Shaft stress excess safety factor: **3.28** (**961.0 mm** from drive end)
This is based on a fatigue life calculation. Infinite shaft life would be expected with 99% reliability for a value of 1.0 and above.

Plug stress excess safety factor: **2.64**.
Sleeve or taper ring face stress: **69 MPa** (**961.0 mm** from drive end)

Weights and Mass Moments

Impeller material	28G	
Pump gross weight	1271	kg
Shaft torsional stiffness	1.038E+6	N·m/rad

Component	Inertia [kg·m²]
Impeller (dry)	4.7
Impeller w/ fluid	5.90
Impeller w/ mixture	5.96
Shaft	0.17

Allowable Flange Loads

Maximum allowable flange (nozzle) loads per ANSI/HI 12.1-12.6-2011:

Flange	Diameter [mm]	Fx [N]	Fy [N]	Fz [N]	Mx [N·m]	My [N·m]	Mz [N·m]
Discharge	203.2	11,690	9,340	19,030	5,690	5,690	8,620
Suction	254	20,720	13,380	10,710	9,670	6,380	6,380

Pump Type	Model	Vane Diameter	Free Passage	Frame Size	Seal Type	Curve Number	Performance Basis (TP)
LCC-M 200-610		610 mm	102x109 mm	4	P,M	E 26B-05	B306D-93

Clear Water Performance Curve is valid for clear water only. The effects of specific gravity, viscosity and solids on performance with slurry must be accounted for. Alternate choice for frame size or seal type may also have some effects. Refer to SLYSEL output for RPM, Efficiency, and Power corrected for the effect of slurry.