

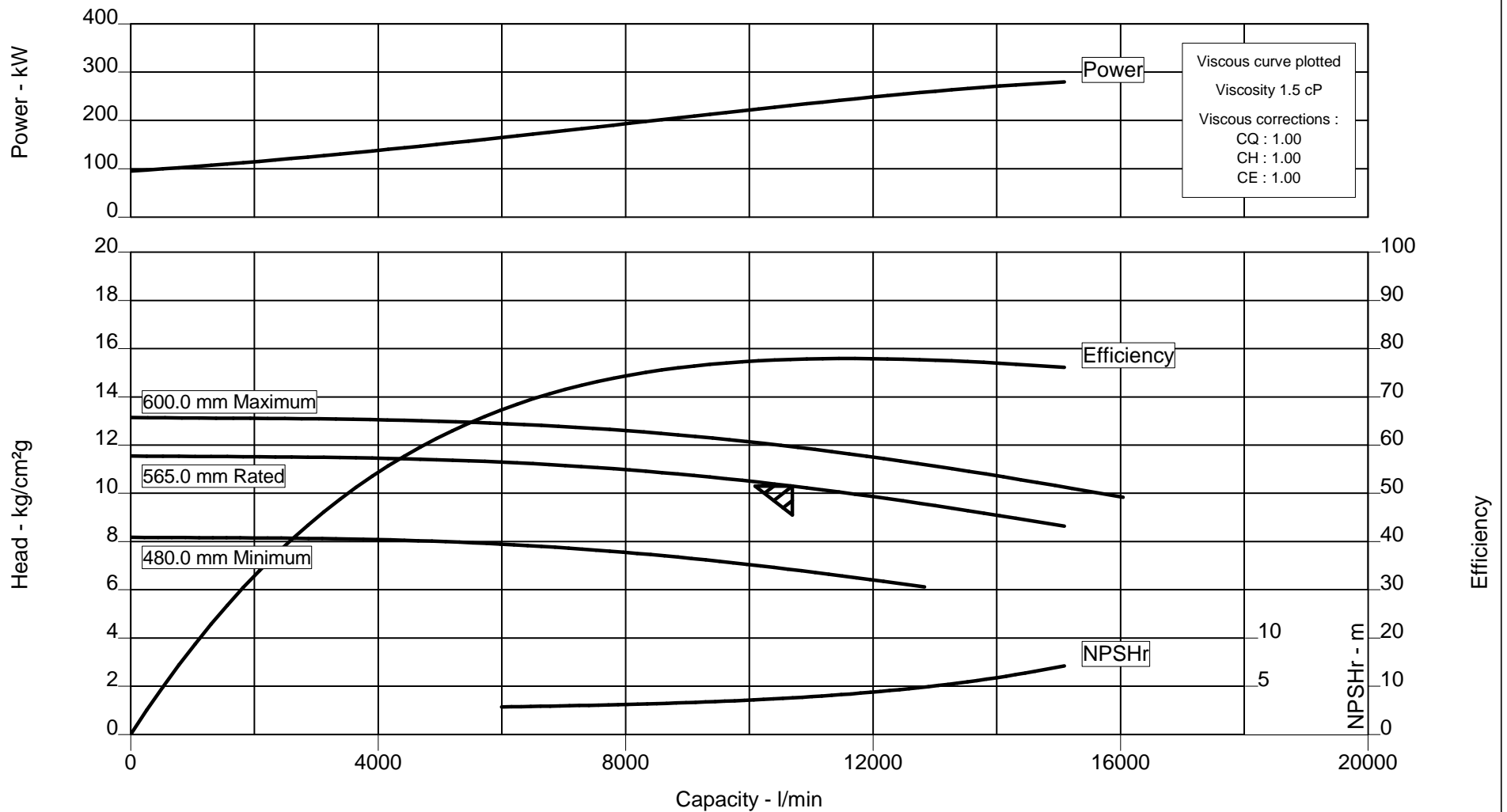
Customer : KRAKATAU STEEL
Item number : 324-J12,J22
Service : lean solution circulating pump
Vendor reference : 5237-00051
Date : March 8, 2011



Capacity : 10696.0 l/min
Head : 10.30 kg/cm²g
Specific gravity : 1.000
Pump speed : 1480 rpm

Pump size & type : 200-LNN-600
Based on curve no. : 921R1/1-AA
Number of stages : 1

CURVES ARE APPROXIMATE; PUMP IS GUARANTEED FOR ONE SET OF CONDITIONS, CAPACITY, HEAD, AND EFFICIENCY.

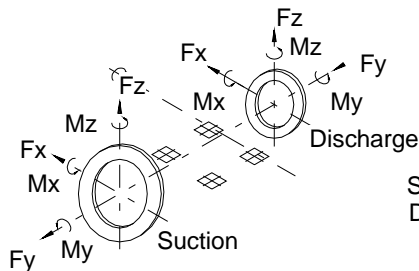
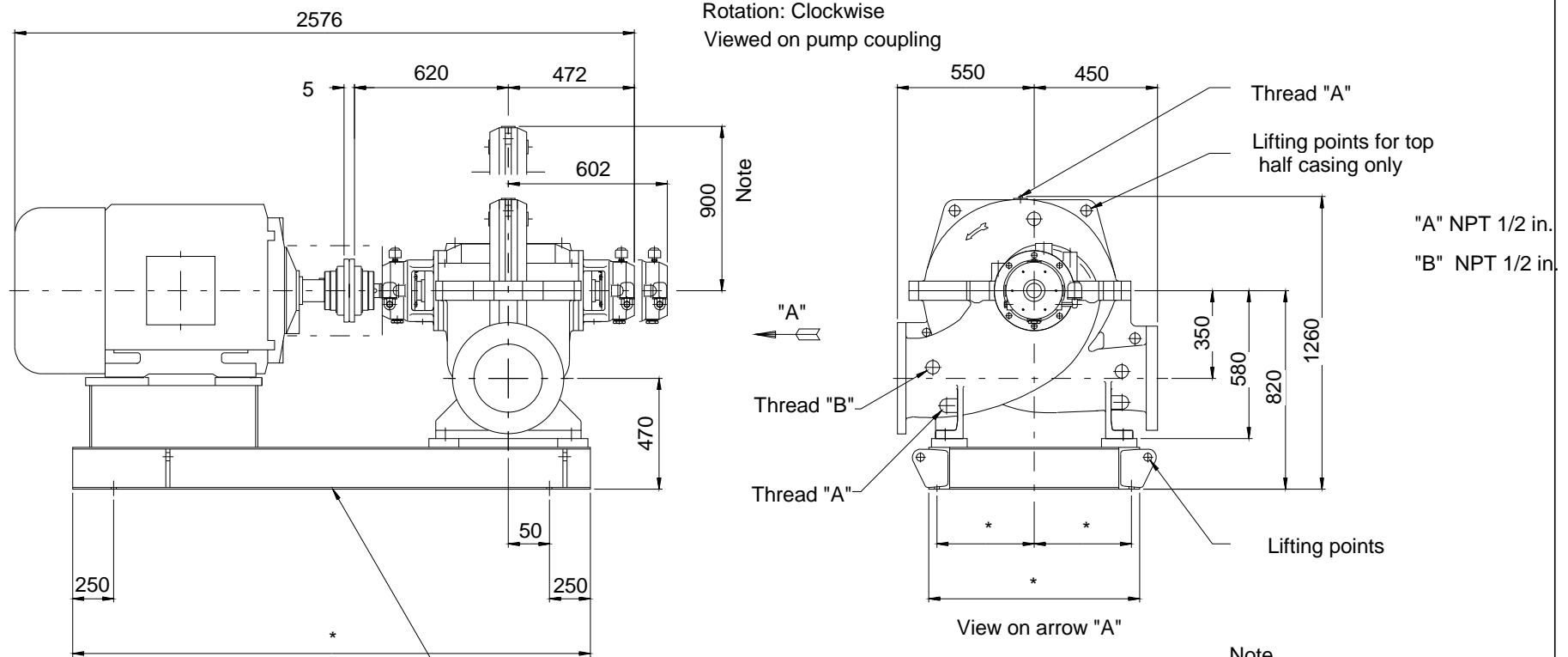


Customer	: KRAKATAU STEEL	Pump / Stages	: 200-LNN-600	/ 1
Customer reference	: KRAKATAU STEEL PRO	Based on curve no.	: 921R1/1-AA	
Item number	: 324-J12,J22	Vendor reference	: 5237-00051	
Service	: lean solution circulating pump	Date	: March 8, 2011	

Operating Conditions		Materials / Specification	
Capacity	: 10696.0 l/min	Material column code	: G1
Water Capacity (CQ=1.00)	: 10696.0 l/min	Pump specification	:
Normal capacity	: -	Other Requirements	
Total Developed Head	: 10.30 kg/cm²g	Hydraulic selection : No specification	
Water head (CH=1.00)	: 10.30 kg/cm²g	Construction : No specification	
NPSH available (NPSHa)	: 8.0 m	Test tolerance : Hydraulic Institute Level A	
NPSHa less NPSH margin	: -	Driver Sizing : Max Power(MCSF to EOC)with SF	
Maximum suction pressure	: 0.2 kg/cm²g		
Liquid			
Liquid type	: Other		
Temperature / SG	: 71 °C / 1.000		
Solid Size - Actual / Limit	: - / 0.00 mm		
Viscosity / Vapor pressure	: 1.5 cP / 0.40 kg/cm²a		

Performance			
Hydraulic power	: 180 kW	Impeller diameter	
Pump speed	: 1480 rpm	Rated	: 565.0 mm
Efficiency (CE=1.00)	: 77.8 %	Maximum	: 600.0 mm
		Minimum	: 480.0 mm
NPSH required (NPSHr)	: 3.8 m	Suction specific speed	: 8000 US units
Rated power	: 231 kW	Minimum continuous flow	: 2820.9 l/min
Maximum power	: 280 kW	Maximum head @ rated dia	: 11.5 kg/cm²g
Driver power	: 280 kW / 375 hp	Flow at BEP	: 11609.0 l/min
Casing working pressure	: 11.7 kg/cm²g	Flow as % of BEP	: 92.1 %
(based on shut off @ cut dia)		Efficiency at normal flow	: -
Maximum allowable	: 15.8 kg/cm²g	Impeller dia ratio (rated/max)	: 94.2 %
Hydrostatic test pressure	: 40.8 kg/cm²g	Head rise to shut off	: 12.1 %
Est. rated seal chamb. press.	: -	Total head ratio (rated/max)	: 86.3 %

The figure contains four performance graphs for a pump. The top graph shows Power (kW) vs Capacity (l/min), with a single curve rising from approximately 100 kW at 0 l/min to 280 kW at 16000 l/min. The second graph shows Head (kg/cm²g) vs Capacity (l/min) for three impeller diameters: 600.0 mm (Maximum), 565.0 mm (Rated), and 480.0 mm (Minimum). The 600 mm curve starts at ~13.5 kg/cm²g and drops to ~10 kg/cm²g at 16000 l/min. The 565 mm curve starts at ~12.5 kg/cm²g and drops to ~8 kg/cm²g. The 480 mm curve starts at ~8 kg/cm²g and drops to ~6 kg/cm²g. The third graph shows Efficiency vs Capacity (l/min), with a curve rising from ~40% at 0 l/min to ~78% at 16000 l/min. The bottom graph shows NPSHr (m) vs Capacity (l/min), with a curve rising from ~3.8 m at 0 l/min to ~10 m at 16000 l/min. A legend box indicates: 'Viscous curve plotted', 'Viscosity 1.5 cP', and 'Viscous corrections: CQ: 1.00, CH: 1.00, CE: 1.00'. A note states: 'CURVES ARE APPROXIMATE. PUMP IS GUARANTEED FOR ONE SET OF CONDITIONS, CAPACITY, HEAD, AND EFFICIENCY.'



	Maximum Moments(Lb-Ft) and Forces(Lb)					
	Mx	My	Mz	Fx	Fy	Fz
Suction	3.70	1.80	2.80	1.20	1.50	1.00
Discharge	2.60	1.30	1.90	0.85	1.10	0.70

Multiply by 1000

Flanges Drilled PN25/PN16

	Bore	P.C.D.	No of Holes	Size of Holes
Suction	250 mm	355 mm	12	26 mm
Discharge	200 mm	310 mm	12	28 mm

Holes drilled off centre equi spaced

All dimensions are in millimeters unless otherwise specified

Not To Scale

Typical Drawing, not certified

Certified Drawing available with order

Customer : KRAKATAU STEEL	Pump size & type : 200-LNN-600	Drawing number : C772/001/P01
Item number : 324-J12,J22	Pump speed / Stages : 1480 rpm / 1	Date : March 8, 2011
Service : lean solution circulating pump	Flow / Head : 10696.0 l/min / 10.30 kg/cm ² g	Certified by / Date :
Customer PO # :	Driver power / Frame : 280 kW / 375 hp / 355SM	Seal type : P-50
Vendor reference : 5237-00051 Rev. N	Volts / Phase / Hz : 415 / 3 / 50	Seal flush plan : Plan 11