

## Pump Performance Datasheet

Customer :	Quote number :
Customer reference :	Size : LVI 250-400
Item number : Default	Stages : 1
Service :	Based on curve number : LVI 250-250-400-6-50
Quantity : 1	Date last saved : 16 Nov 2023 7:17 PM

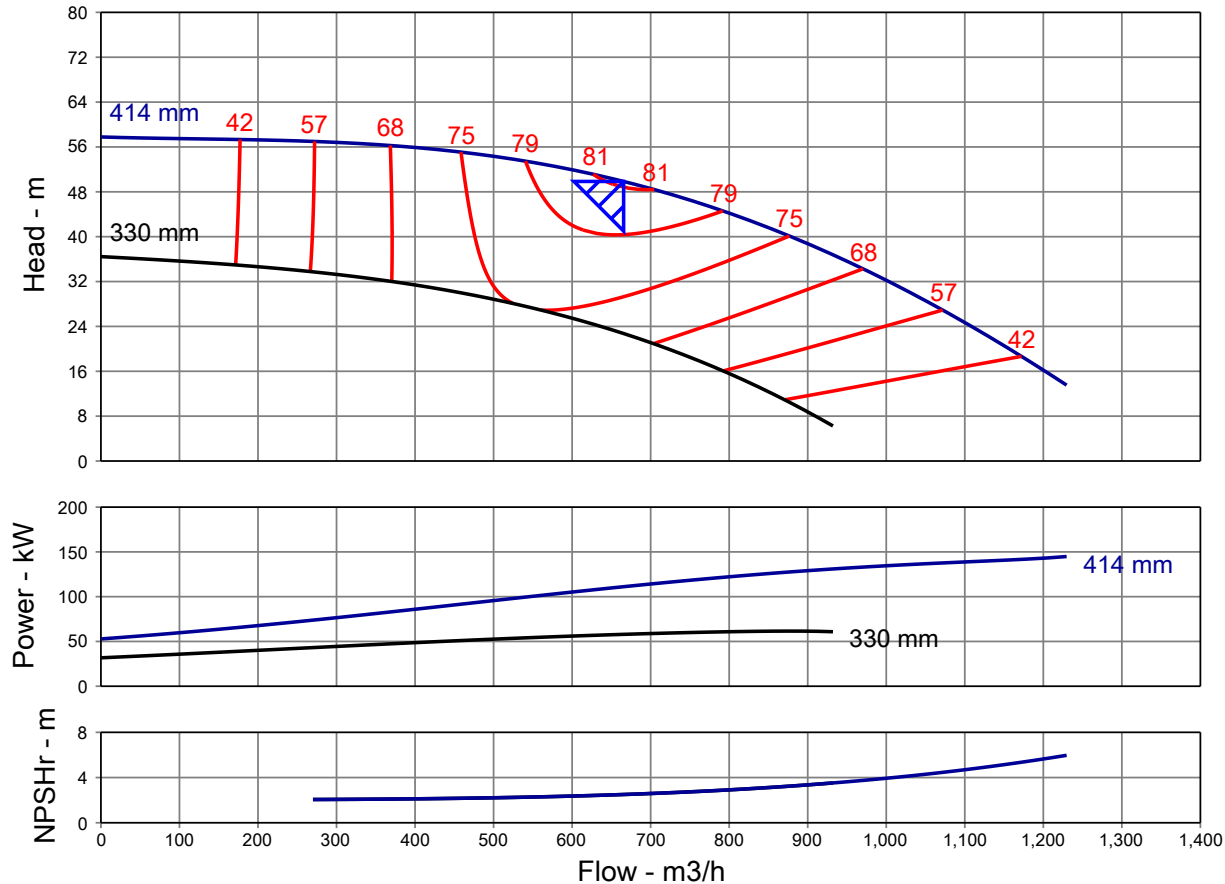
Operating Conditions	Liquid
Flow, rated : 665.6 m3/h	Liquid type : Water
Head, rated (requested) : 49.85 m	Additional liquid description :
Head, rated (actual) : 49.85 m	Solids diameter, max : 0.0 mm
Suction pressure, rated / max : 0.00 / 0.00 bar.g	Solids concentration, by volume : 0.00 %
NPSH available : Ample	Temperature : 20.00 deg C
Site Supply Frequency : 50 Hz	Fluid density : 0.999 / 0.999 kg/dm3
	Viscosity : 1.00 cSt
	Vapor pressure, rated : 0.00 bar.a

Performance	Material
Speed criteria : Synchronous	Material selected : Standard
Speed : 1440 rpm	
Impeller dia. : 414 mm	
Impeller diameter, maximum : 414 mm	
Impeller diameter, minimum : 330 mm	
Efficiency : 81.21 %	
NPSH required / margin required : 2.50 / 0.00 m	
nq (imp. eye flow) / S (imp. eye flow) : 33 / 311 Metric units	
MCSF : -	
Head max. : 57.78 m	
Head rise to shutoff : 15.91 %	
Flow, best eff. point : 665.6 m3/h	
Flow ratio, rated / BEP : 100.00 %	
Diameter ratio (rated / max) : 100.00 %	
Head ratio (rated dia / max dia) : 100.00 %	
Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010] : 1.00 / 1.00 / 1.00 / 1.00	
Selection status : Acceptable	

Pressure Data	
Maximum working pressure	: 5.66 bar.g
Maximum allowable working pressure	: 16.00 bar.g
Maximum allowable suction pressure	: 2.50 bar.g
Hydrostatic test pressure	: 24.00 bar.g

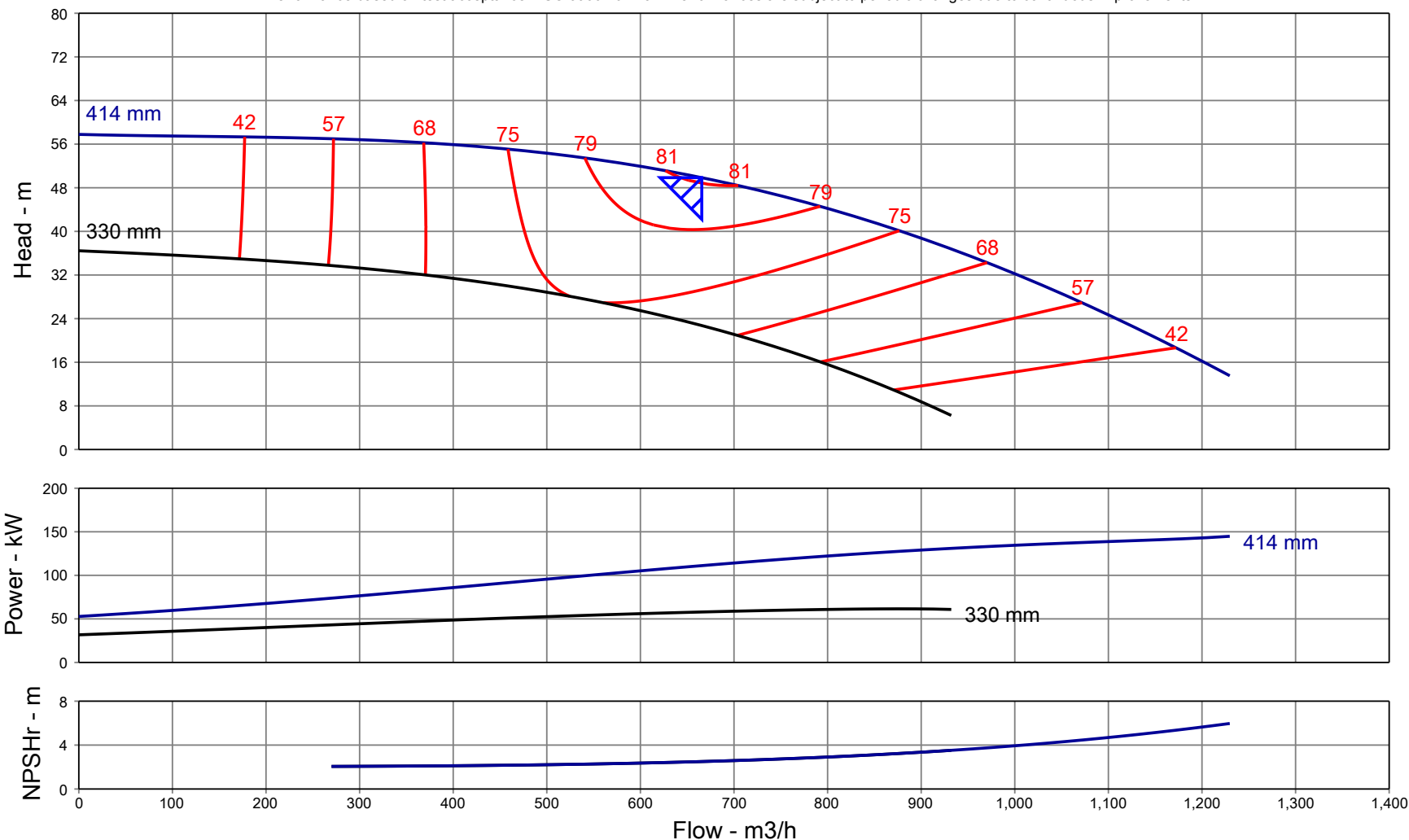
Driver & Power Data (@Max density)	
Driver sizing specification	: Maximum power
Margin over specification	: 0.00 %
Service factor	: 1.00
Power, hydraulic	: 90.25 kW
Power, rated	: 111 kW
Power, maximum	: 145 kW
Motor rating	: 149 kW / 200 hp

Performance based on test acceptance - ISO 9906:2012 3B. Performances are subject to periodic changes due to continuous improvements.



### Pump Performance Curve

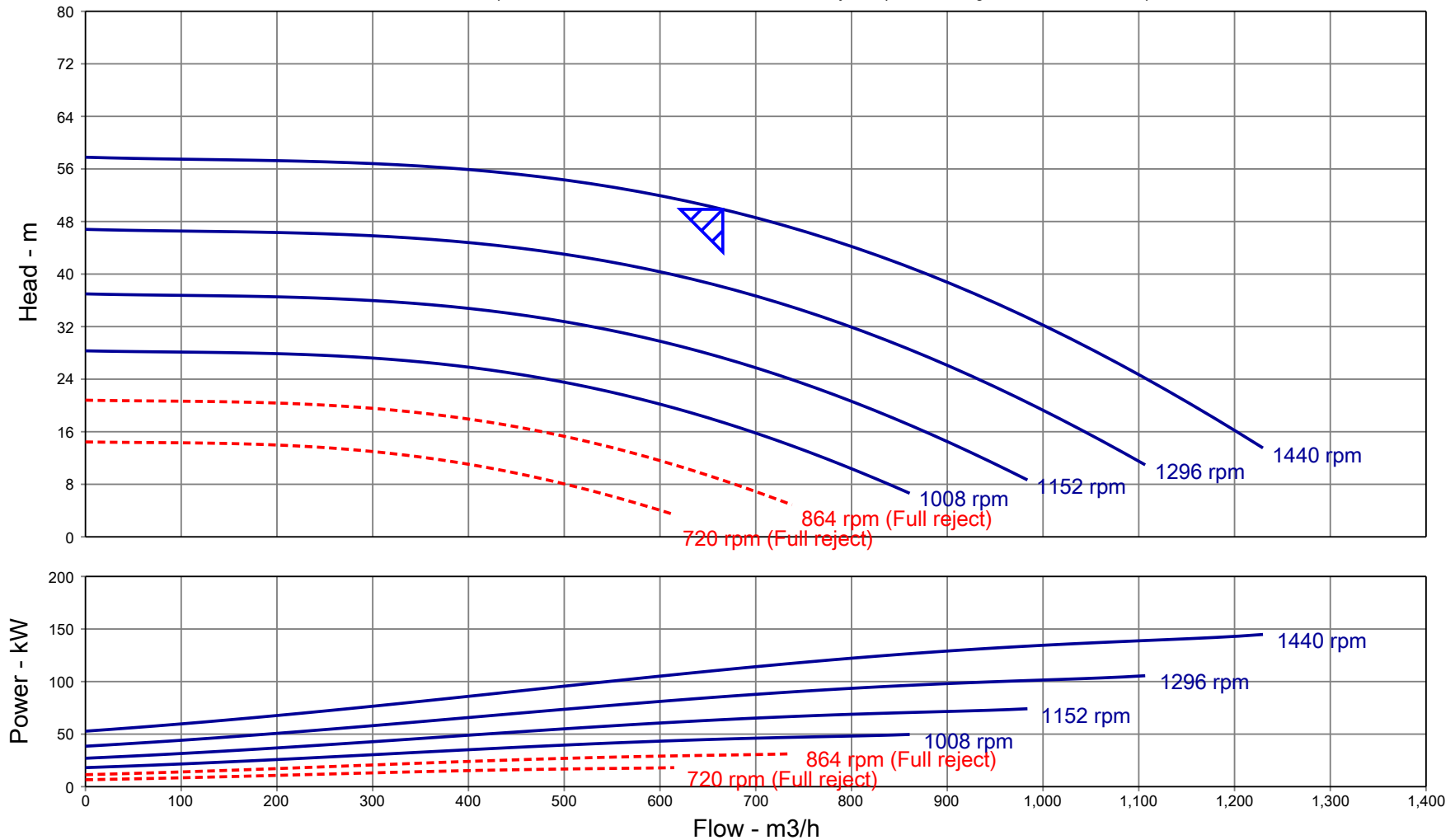
Performance based on test acceptance - ISO 9906:2012 3B. Performances are subject to periodic changes due to continuous improvements.



Customer :	Size : LVI 250-400	Flow, rated : 665.6 m <sup>3</sup> /h
Customer reference :	Stages : 1	Head, rated : 49.85 m
Item number : Default	Speed : 1440 rpm	Fluid density : 0.999 / 0.999 kg/dm <sup>3</sup>
Service :	Based on curve number : LVI 250-250-400-6-50	Viscosity : 1.00 cSt
Quantity : 1	Efficiency : 81.21 %	Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010] : 1.00 / 1.00 / 1.00 / 1.00
Quote number :	Power, rated : 111 kW	
Date last saved : 16 Nov 2023 7:17 PM	NPSH required : 2.50 m	

### Multi-Speed Performance Curve

Performance based on test acceptance - ISO 9906:2012 3B. Performances are subject to periodic changes due to continuous improvements.



Customer :	Stages :	Nominal speed :
Customer reference :	Based on curve number :	Flow, rated :
Item number : Default	Efficiency : 81.21 %	Head, rated : 49.85 m
Service :	Power, rated : 111 kW	Speed : 1440 rpm
Quantity : 1	NPSH required : 2.50 m	Impeller dia. : 414 mm
Quote number :	Site Supply Frequency : 50 Hz	Fluid density : 0.999 / 0.999 kg/dm <sup>3</sup>
Date last saved : 16 Nov 2023 7:17 PM		Viscosity : 1.00 cSt
Size : LVI 250-400		Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010] : 1.00 / 1.00 / 1.00 / 1.00

### Life Cycle Cost Datasheet

Customer :	Quantity : 1	Size : LVI 250-400
Customer reference :	Quote number :	Stages : 1
Item number : Default	Date last saved : 16 Nov 2023 7:17 PM	Speed : 1440
Service :		

### Load Profiles and Energy Costs

Expected pump life: 20 years	Load Profile #1	Load Profile #2	Load Profile #3	Load Profile #4	Load Profile #5	Total
Flow: ( m3/h )	7.69	-	-	-	-	-
Operation: ( hours per year )	8,760	-	-	-	-	8,760
Energy cost, present value (\$ per kWh)	0.1	-	-	-	-	-
Speed (rpm)	1440	-	-	-	-	-
Head (m)	57.75	-	-	-	-	-
Efficiency (%)	2.27	-	-	-	-	-
Power, rated (kW)	53.29	-	-	-	-	-
Motor efficiency (%)	100.00	-	-	-	-	-
Drive/gear efficiency (%)	100.00	-	-	-	-	-
System curve	-	-	-	-	-	-
Energy, total (kWh)	9,336,041.9	-	-	-	-	9,336,041.9
Energy cost, per year	\$ 46,680.21	-	-	-	-	\$ 46,680.21
Energy cost, total present value	\$ 700,127.46	-	-	-	-	\$ 700,127.46

### Life Cycle Cost Calculation

Additional Annual Costs	Additional One-time Costs, Year 0	Interest and Inflation Rates
Routine maintenance cost : 0.00	Initial investment cost : 0.00	Interest rate, % : 6.00
Repair cost : 0.00	Installation and commissioning cost : 0.00	Inflation rate, % : 3.00
Operating cost : 0.00	Other one-time costs, year 0 : 0.00	<b>Total Net Present Value Costs</b>
Downtime cost : 0.00	<b>Additional One-time Costs, Year 20</b>	Total energy cost : \$ 700,127.46
Environmental cost : 0.00	Decommissioning cost : 0.00	Total additional annual cost : \$ 0.00
Other annual costs : 0.00	Other one-time costs, year 20 : 0.00	Total additional one-time cost : \$ 0.00
Total, present value : \$ 0.00	Total, present value : \$ 0.00	Total life cycle cost : \$ 700,127.46

### Pump Performance - Additional Data

Customer :	Quote number :
Customer reference :	Size : LVI 250-400
Item number : Default	Stages : 1
Service :	Speed : 1440 rpm
Quantity : 1	Intellicode :
	Date last saved : 16 Nov 2023 7:17 PM

Performance Data	Stage, Speed and Solids Limits
Head, maximum diameter, rated flow : 49.85 m	Stages, maximum : 1
Head, minimum diameter, rated flow : 22.73 m	Stages, minimum : 1
Head max. : 57.78 m	Pump speed limit, maximum : 1750 rpm
Efficiency adjustment factor, total : 1.00	Pump speed limit, minimum : 950 rpm
Power adjustment, total : 0.00 kW	Curve speed limit, maximum : 1750 rpm
Head adjustment factor, total : 1.00	Curve speed limit, minimum : 950 rpm
Flow adjustment factor, total : 1.00	Variable speed limit, maximum : -
Flow adjustment factor, efficiency only (shift BEP) : 1.00	Variable speed limit, minimum : -
Flow adjustment factor, end-of-curve only, total : 1.00	Solids size limit : 0.0 mm

Mechanical Limits	Typical Driver Data
MCSF adjustment factor : 1.00	Driver speed, full load : 1440 rpm
NPSHR adjustment factor, total : 1.00	Driver speed, rated load : 1440 rpm
NPSHR slope correction factor : 1.00	Driver efficiency, 100% load : N/A
User applied performance adjustment comments :	Driver efficiency, 75% load : N/A
NPSH margin dictated by pump supplier : 0.00 m	Driver efficiency, 50% load : N/A
NPSH margin dictated by user : 0.00 m	
NPSH margin used (added to 'required' values) : 0.00 m	

Mechanical Limits	Typical Driver Data
Torque, rated power, rated speed : 77.18 kW/1000 rpm	
Torque, maximum power, rated speed : 101 kW/1000 rpm	
Torque, driver power, full load speed : 104 kW/1000 rpm	
Torque, driver power, rated speed : 104 kW/1000 rpm	
Torque, pump shaft limit : -	
Radial load, worst case : -	
Radial load limit : -	
Impeller peripheral speed, rated : -	
Impeller peripheral speed limit : -	

Various Performance Data	Flow (m3/h)	Head (m)	Efficiency (%)	NPSHr (m)	Power (kW)
Shutoff, rated diameter	0.00	57.78	-	-	52.80
Shutoff, maximum diameter	0.00	57.78	-	-	52.80
MCSF	-	-	-	-	-
Rated flow, minimum diameter	665.6	22.73	71.05	-	57.93
Rated flow, maximum diameter	665.6	49.85	81.21	-	111
BEP flow, rated diameter	665.6	49.85	81.21	2.50	111
120% rated flow, rated diameter	798.7	44.27	78.76	2.91	122
End of curve, rated diameter	1,229.7	13.53	31.26	5.97	145
End of curve, minimum diameter	932.1	6.25	26.06	3.52	60.84
End of curve, maximum diameter	1,229.7	13.53	31.26	5.97	145
Maximum value, rated diameter	-	57.78	81.21	-	145
Maximum value, maximum diameter	-	-	81.21	-	145

System differential pressure	@ Density, rated	@ Density, max
Differential pressure, rated flow, rated diameter (bar)	4.88	4.88
Differential pressure, shutoff, rated diameter (bar)	5.66	5.66
Differential pressure, shutoff, maximum diameter (bar)	5.66	5.66

Discharge pressure	@ Suction pressure, rated	@ Suction pressure, max	@ Suction pressure, rated	@ Suction pressure, max
Discharge pressure, rated flow, rated diameter (bar.g)	4.88	4.88	4.88	4.88
Discharge pressure, shutoff, rated diameter (bar.g)	5.66	5.66	5.66	5.66
Discharge pressure, shutoff, maximum diameter (bar.g)	5.66	5.66	5.66	5.66

Ratios	
Maximum flow / rated flow, rated diameter : 184.75 %	Head rated diameter / head minimum diameter, rated flow : 219.31 %



### Pump Performance - Additional Data

#### Construction

Vertical In-Line Pump Classifications	: Standard	
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