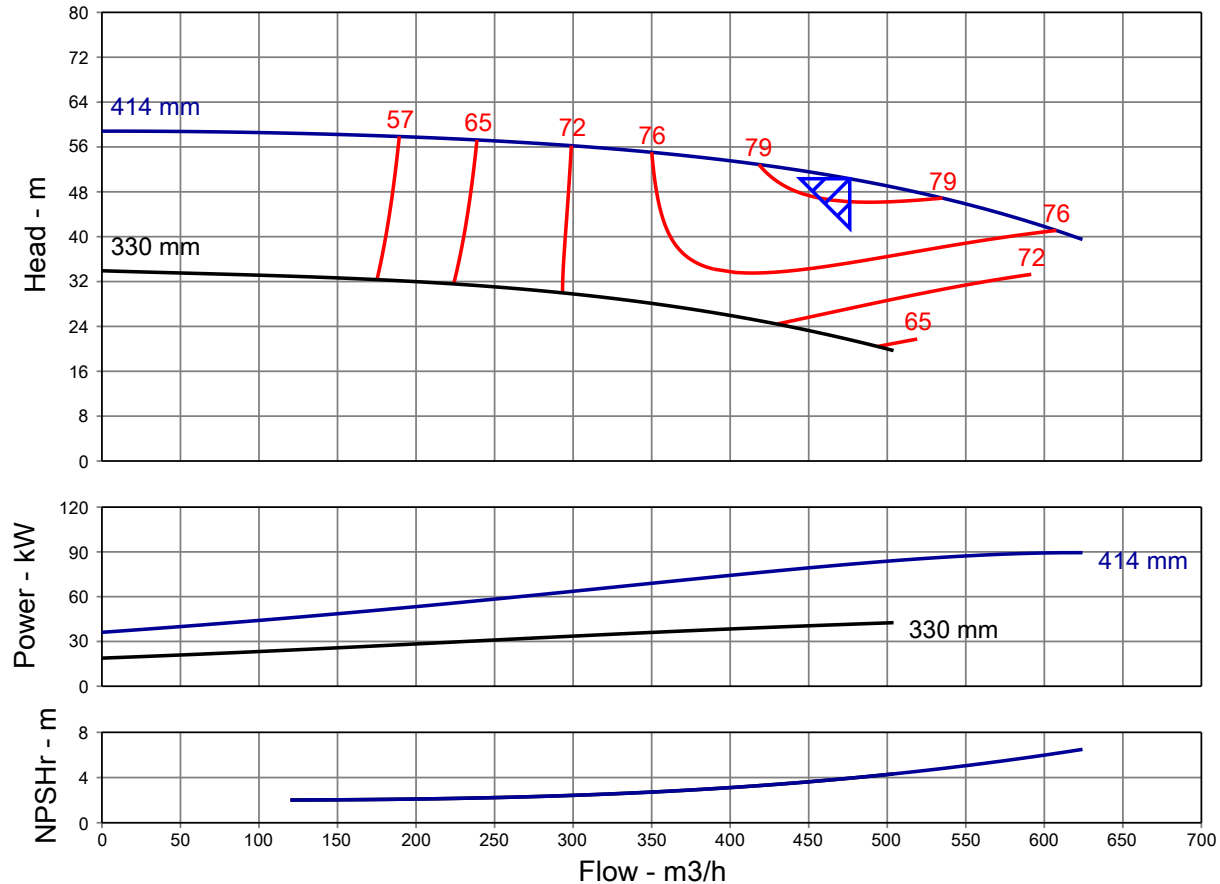


## Pump Performance Datasheet

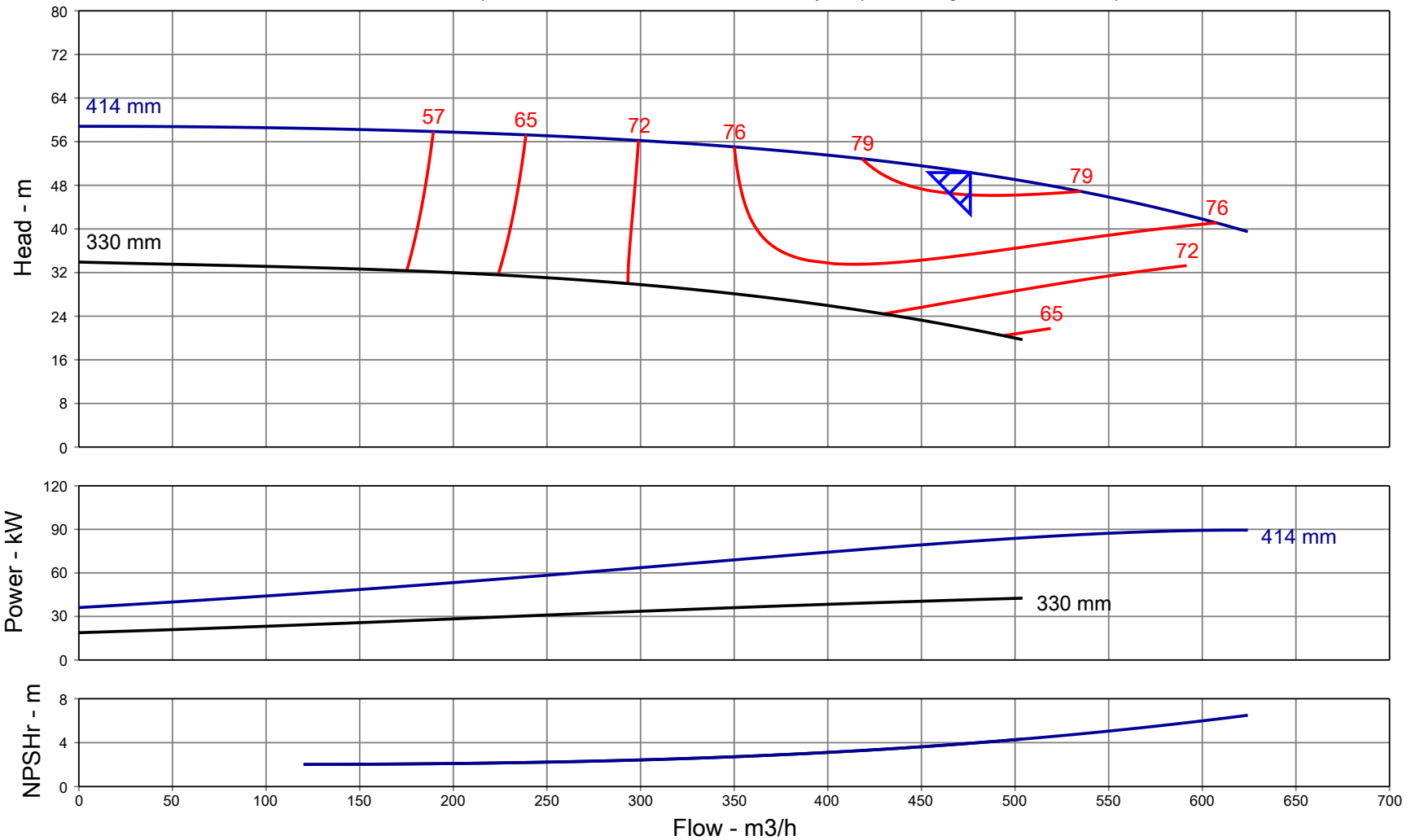
Customer :	Quote number :	Liquid
Customer reference :	Size : LVI 200-400	Liquid type : Water
Item number : Default	Stages : 1	Additional liquid description :
Service :	Based on curve number : LVI 200-200-400-4-50	Solids diameter, max : 0.0 mm
Quantity : 1	Date last saved : 16 Nov 2023 7:18 PM	Solids concentration, by volume : 0.00 %
<b>Operating Conditions</b>		Temperature : 20.00 deg C
Flow, rated : 476.1 m3/h	Liquid type : Water	Fluid density : 0.999 / 0.999 kg/dm3
Head, rated (requested) : 50.34 m	Additional liquid description :	Viscosity : 1.00 cSt
Head, rated (actual) : 50.34 m	Solids diameter, max : 0.0 mm	Vapor pressure, rated : 0.00 bar.a
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	
<b>Performance</b>		<b>Material</b>
Speed criteria : Synchronous	Speed : 1450 rpm	Material selected : Standard
Speed : 1450 rpm	Impeller dia. : 414 mm	
Impeller dia. : 414 mm	Impeller diameter, maximum : 414 mm	<b>Pressure Data</b>
Impeller diameter, maximum : 414 mm	Impeller diameter, minimum : 330 mm	Maximum working pressure : 5.76 bar.g
Impeller diameter, minimum : 330 mm	Efficiency : 79.76 %	Maximum allowable working pressure : 16.00 bar.g
Efficiency : 79.76 %	NPSH required / margin required : 3.94 / 0.00 m	Maximum allowable suction pressure : 2.50 bar.g
NPSH required / margin required : 3.94 / 0.00 m	nq (imp. eye flow) / S (imp. eye flow) : 28 / 188 Metric units	Hydrostatic test pressure : 24.00 bar.g
nq (imp. eye flow) / S (imp. eye flow) : 28 / 188 Metric units	MCSF : -	
MCSF : -	Head max. : 58.82 m	<b>Driver &amp; Power Data (@Max density)</b>
Head max. : 58.82 m	Head rise to shutoff : 16.85 %	Driver sizing specification : Maximum power
Head rise to shutoff : 16.85 %	Flow, best eff. point : 476.1 m3/h	Margin over specification : 0.00 %
Flow, best eff. point : 476.1 m3/h	Flow ratio, rated / BEP : 100.00 %	Service factor : 1.00
Flow ratio, rated / BEP : 100.00 %	Diameter ratio (rated / max) : 100.00 %	Power, hydraulic : 65.19 kW
Diameter ratio (rated / max) : 100.00 %	Head ratio (rated dia / max dia) : 100.00 %	Power, rated : 81.74 kW
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	Power, maximum : 89.49 kW
Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010] : 1.00 / 1.00 / 1.00 / 1.00	Selection status : Acceptable	Motor rating : 93.21 kW / 125 hp
Selection status : Acceptable		

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



### Pump Performance Curve

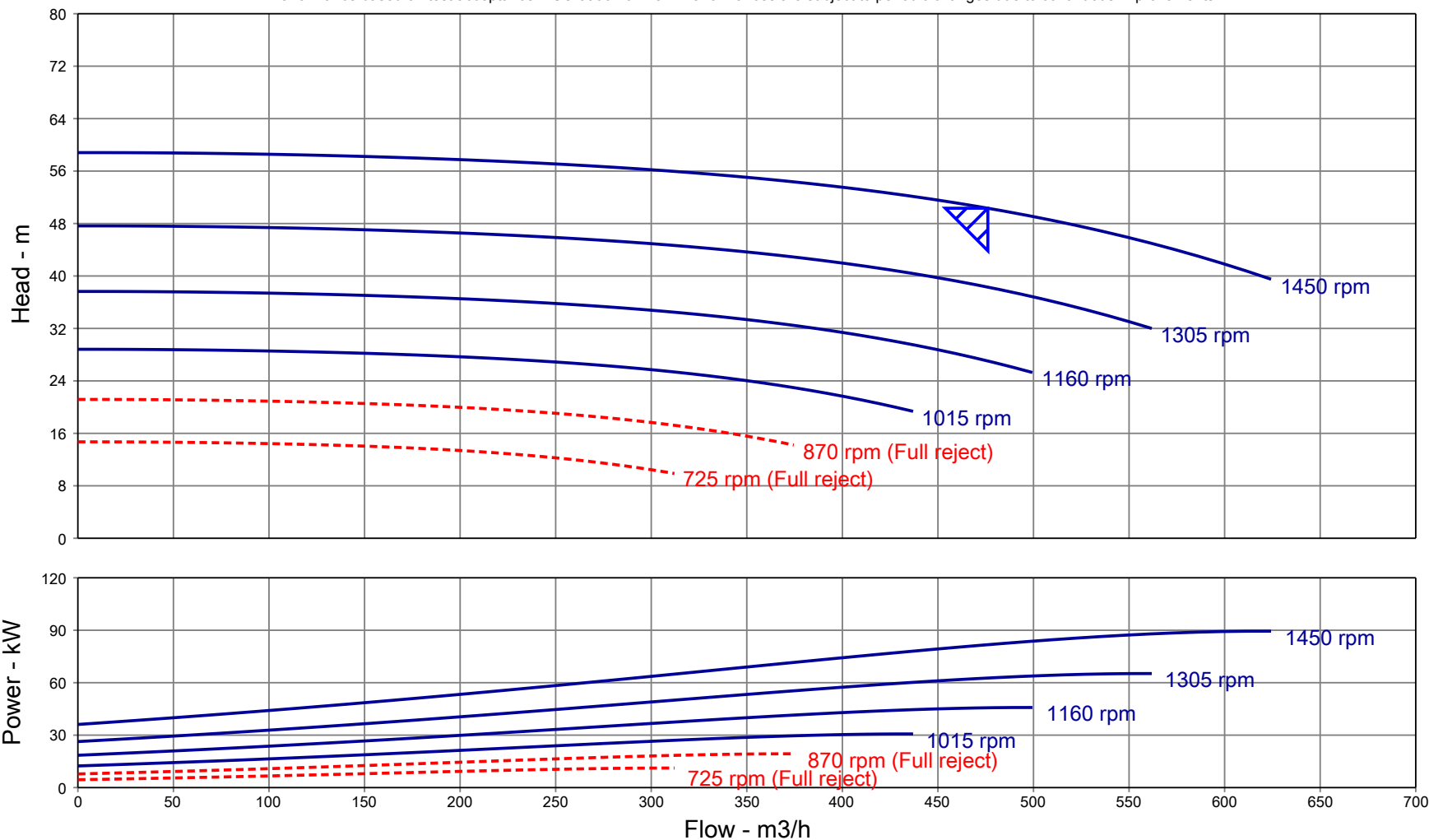
Performance based on test acceptance - ISO 9906:2012 3B. Performances are subject to periodic changes due to continuous improvements.



Customer :	Size : LVI 200-400	Flow, rated : 476.1 m <sup>3</sup> /h
Customer reference :	Stages : 1	Head, rated : 50.34 m
Item number : Default	Speed : 1450 rpm	Fluid density : 0.999 / 0.999 kg/dm <sup>3</sup>
Service :	Based on curve number : LVI 200-200-400-4-50	Viscosity : 1.00 cSt
Quantity : 1	Efficiency : 79.76 %	Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010] : 1.00 / 1.00 / 1.00 / 1.00
Quote number :	Power, rated : 81.74 kW	
Date last saved : 16 Nov 2023 7:18 PM	NPSH required : 3.94 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 : 79.76 %	Head, rated : 50.34 m
Service :	Power, rated : 81.74 kW	Speed : 1450 rpm
Quantity : 1	NPSH required : 3.94 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 7:18 PM		Viscosity : 1.00 cSt
Size : LVI 200-400		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 200-400
Customer reference :	Quote number :	Stages : 1
Item number : Default	Date last saved : 16 Nov 2023 7:18 PM	Speed : 1450
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)	1450	-	-	-	-	-
Head (m)	58.82	-	-	-	-	-
Efficiency (%)	3.35	-	-	-	-	-
Power, rated (kW)	36.69	-	-	-	-	-
Motor efficiency (%)	100.00	-	-	-	-	-
Drive/gear efficiency (%)	100.00	-	-	-	-	-
System curve	-	-	-	-	-	-
Energy, total (kWh)	6,427,666.6	-	-	-	-	6,427,666.6
Energy cost, per year	\$ 32,138.33	-	-	-	-	\$ 32,138.33
Energy cost, total present value	\$ 482,022.89	-	-	-	-	\$ 482,022.89

### 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 : \$ 482,022.89
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 : \$ 482,022.89

### Pump Performance - Additional Data

Customer :	Quote number :
Customer reference :	Size : LVI 200-400
Item number : Default	Stages : 1
Service :	Speed : 1450 rpm
Quantity : 1	Intellicode :
	Date last saved : 16 Nov 2023 7:18 PM

Performance Data	Stage, Speed and Solids Limits
Head, maximum diameter, rated flow : 50.34 m	Stages, maximum : 1
Head, minimum diameter, rated flow : 21.63 m	Stages, minimum : 1
Head max. : 58.82 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
MCSF adjustment factor : 1.00	
NPSHR adjustment factor, total : 1.00	
NPSHR slope correction factor : 1.00	
User applied performance adjustment comments :	
NPSH margin dictated by pump supplier : 0.00 m	
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 : 56.37 kW/1000 rpm	Driver speed, full load : 1450 rpm
Torque, maximum power, rated speed : 61.72 kW/1000 rpm	Driver speed, rated load : 1450 rpm
Torque, driver power, full load speed : 64.28 kW/1000 rpm	Driver efficiency, 100% load : N/A
Torque, driver power, rated speed : 64.28 kW/1000 rpm	Driver efficiency, 75% load : N/A
Torque, pump shaft limit : -	Driver efficiency, 50% load : N/A
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	58.82	-	-	36.12
Shutoff, maximum diameter	0.00	58.82	-	-	36.12
MCSF	-	-	-	-	-
Rated flow, minimum diameter	476.1	21.63	67.46	-	41.52
Rated flow, maximum diameter	476.1	50.34	79.76	-	81.74
BEP flow, rated diameter	476.1	50.34	79.76	3.94	81.74
120% rated flow, rated diameter	571.3	44.24	77.79	5.43	88.37
End of curve, rated diameter	624.3	39.51	74.98	6.49	89.48
End of curve, minimum diameter	504.0	19.70	63.41	4.32	42.58
End of curve, maximum diameter	624.3	39.51	74.98	6.49	89.48
Maximum value, rated diameter	-	58.82	79.76	-	89.49
Maximum value, maximum diameter	-	-	79.76	-	89.49

System differential pressure	@ Density, rated	@ Density, max
Differential pressure, rated flow, rated diameter (bar)	4.93	4.93
Differential pressure, shutoff, rated diameter (bar)	5.76	5.76
Differential pressure, shutoff, maximum diameter (bar)	5.76	5.76

Discharge pressure	@ Suction pressure, rated	@ Suction pressure, max	@ Suction pressure, rated	@ Suction pressure, max
Discharge pressure, rated flow, rated diameter (bar.g)	4.93	4.93	4.93	4.93
Discharge pressure, shutoff, rated diameter (bar.g)	5.76	5.76	5.76	5.76
Discharge pressure, shutoff, maximum diameter (bar.g)	5.76	5.76	5.76	5.76

Ratios	
Maximum flow / rated flow, rated diameter : 131.12 %	Head rated diameter / head minimum diameter, rated flow : 232.74 %



### Pump Performance - Additional Data

#### Construction

Vertical In-Line Pump Classifications	: Standard	
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