Pump Performance Datasheet

Customer	:	Quote Number / ID	: 1143354
Customer ref. / PO	:	Model	: 25953-4P-3HP VLSE
Tag Number	: Hurley Engineering	Stages	: 1
Service	: HYDRONIC	Based on curve number	: VLSE_25953_4P_3HP Rev 0.0
Quantity	: 1	Basic model number	: -
		Date last saved	: 04/03/2020 2:32 PM

Operating Conditions

Flow, rated	: 145.6 USgpm
Differential head / pressure, rated (requested)	: 45.94 ft
Differential head / pressure, rated (actual)	: 45.94 ft
Suction pressure, rated / max	: 0.00 / 0.00 psi.g
NPSH available, rated	: Ample
Frequency	: 60 Hz

Performance

Speed, rated	: 1775 rpm
Speed, maximum	: 1775 rpm
Speed, minimum	: 450 rpm
Impeller diameter, rated	: 7.47 in
Efficiency	: 64.61 %
NPSH required / margin required	: 6.34 / 0.00 ft
nq (imp. eye flow) / S (imp. eye flow)	: 24 / 106 Metric units
MCSF	: 43.20 USgpm
Head maximum, rated speed	: 58.79 ft
Head rise to shutoff	: 26.47 %
Flow, best eff. point	: 145.6 USgpm
Flow ratio, rated / BEP	: 100.00 %
Speed ratio (rated / max)	: 100.00 %
Head ratio (rated speed / max speed)	: 100.00 %
Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010]	: 1.00 / 1.00 / 1.00 / 1.00
Selection status	: Acceptable

Energy Indexes

PEI (VL)	: 0.45
ER (VL)	: 55

Liquid

Liquid type	: Cold Water
Additional liquid description	:
Solids diameter, max	: 0.00 in
Solids concentration, by volume	: 0.00 %
Temperature, max	: 68.00 deg F
Fluid density, rated / max	: 1.000 / 1.000 SG
Viscosity, rated	: 1.00 cP
Vapor pressure, rated	: 0.34 psi.a

Material

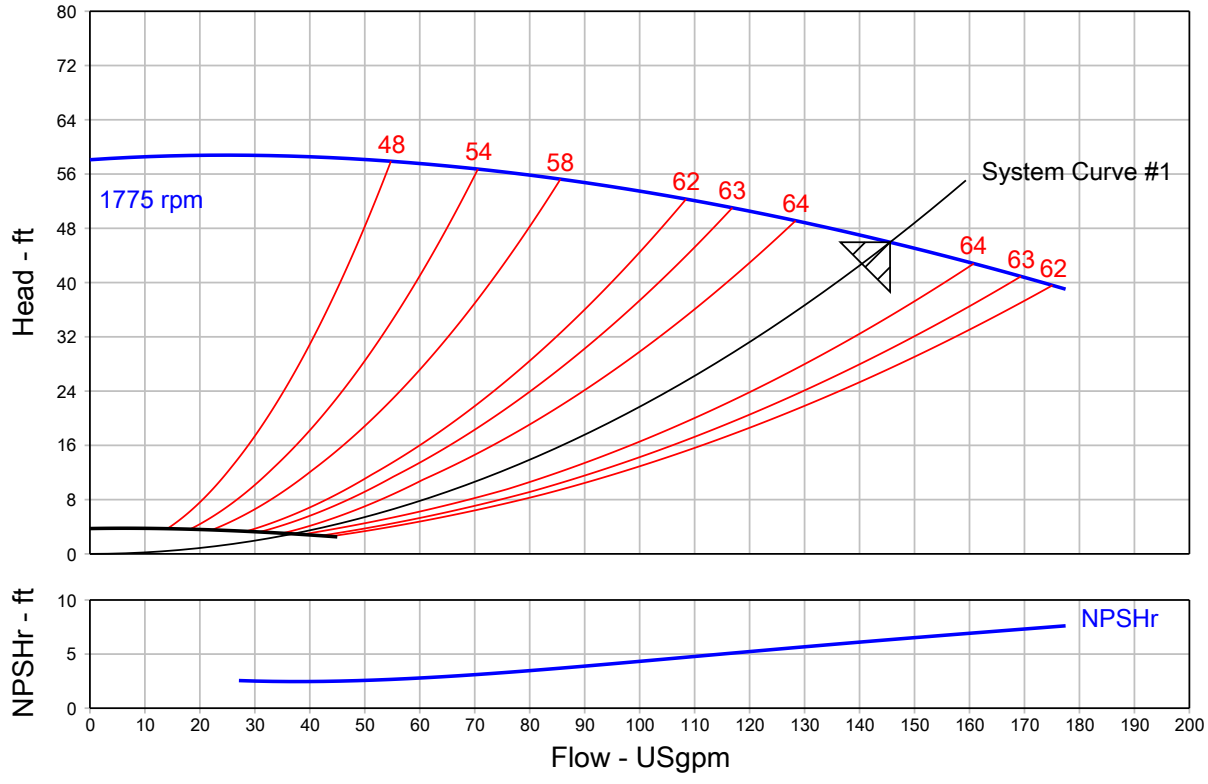
Material selected	: Cast Iron

Pressure Data

Maximum working pressure	: 25.44 psi.g
Maximum allowable working pressure	: 175.0 psi.g
Maximum allowable suction pressure	: 175.0 psi.g
Hydrostatic test pressure	: 263.0 psi.g

Driver & Power Data (@Max density)

Motor sizing specification	: Max power (non-overloading)
Margin over specification	: 0.00 %
Service factor	: 1.00
Power, hydraulic	: 1.69 hp
Rated power (based on duty point)	: 2.61 hp
Max power (non-overloading)	: 2.84 hp
Nameplate motor rating	: 3.00 hp / 2.24 kW (Fixed)



GRUNDFOS

SUBMITTAL

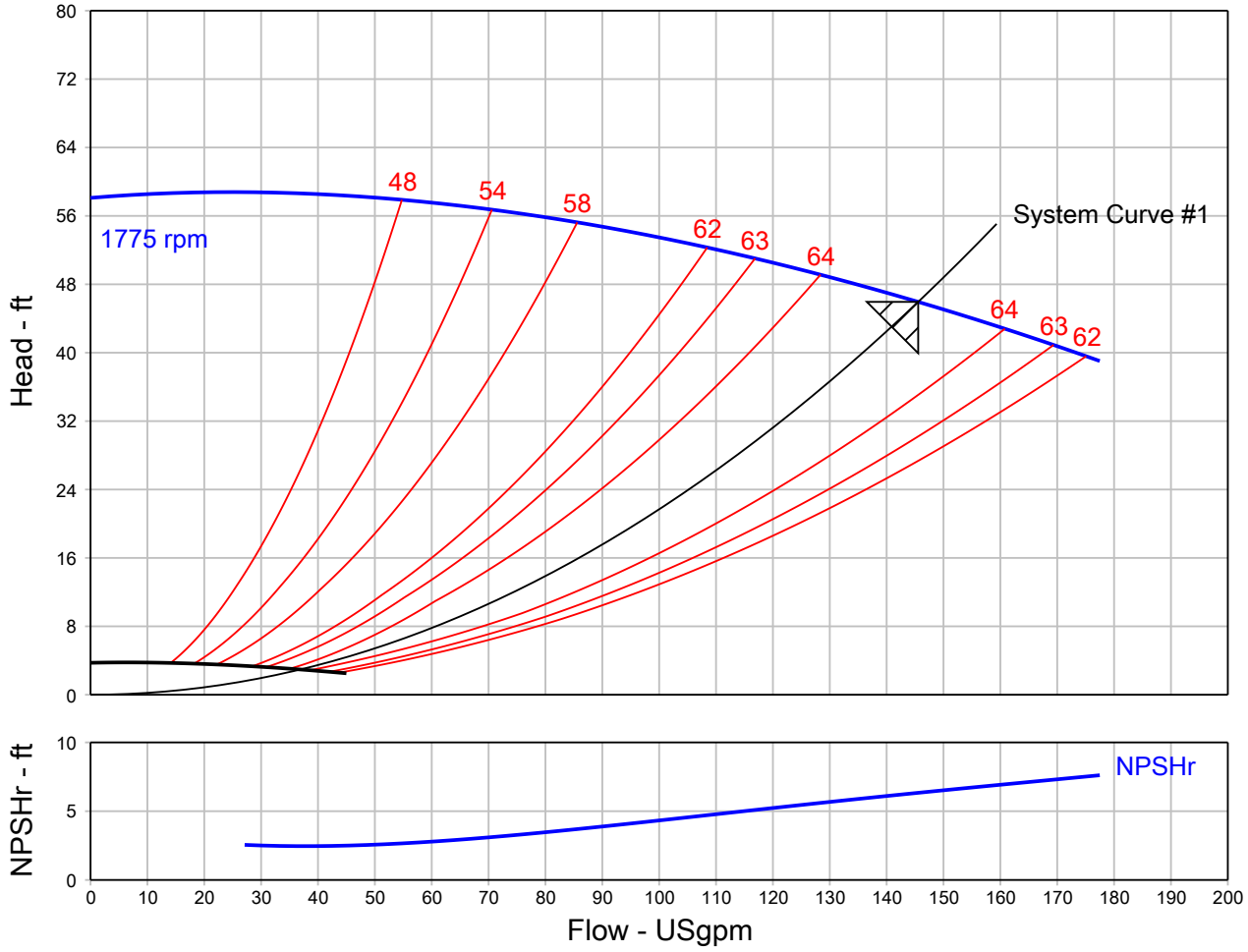
Grundfos Series VLSE - Split Coupled Vertical In-Line with Integrated VFD

QUOTE NUMBER / ID 1143354	**UNIT TAG Hurley Engineering SERVICE HYDRONIC**	**QUANTITY 1**
REPRESENTATIVE	**SUBMITTED BY**	**DATE**
ENGINEER	**APPROVED BY**	**DATE**
CONTRACTOR	**ORDER #**	**DATE**

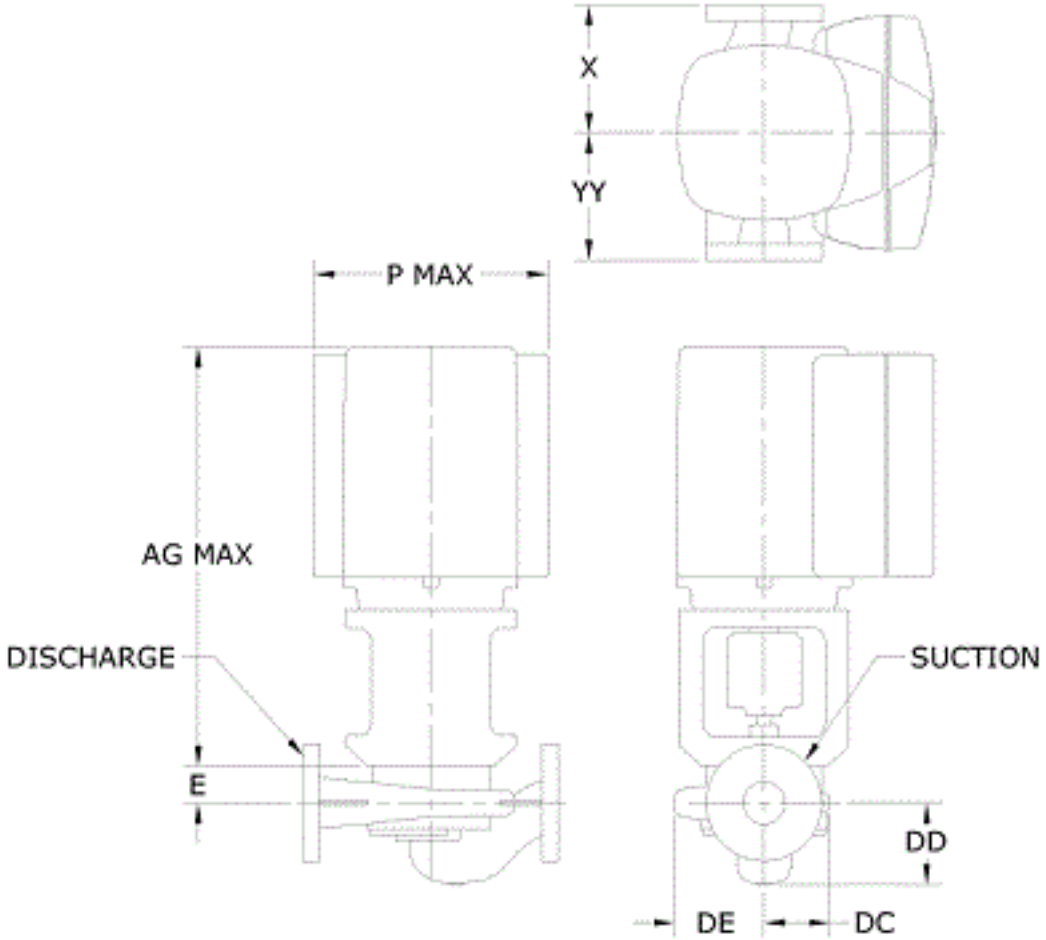
VLSE 25953-4P-3HP
1800 rpm

Part Number N/A

Conditions of Service		Pump Data		Motor Data	
Flow	145.6 USgpm	Impeller Diameter	7.47 in	Motor HP	3 HP
Head	45.94 ft	Efficiency	64.61 %	BHP	2.61
Liquid	Cold Water	Suction	2.5 in.	Enclosure	TEFC
Temperature	68.00 deg F	Discharge	2.5 in.	Voltage	460 V
NPSHr	6.34 ft	PEI (VL)	0.45	Phase	3 Phase
Viscosity	1.00 cP	ER (VL)	55	Cycle	60
Specific Gravity	1.000 SG			Frame Size	182TC



Grundfos Series VLSE - Split Coupled Vertical In-Line with Integrated VFD



NOT FOR CONSTRUCTION, unless certified and referenced on order

Units	Frame	S x D	AG (Max)	DC	DD	DE	E	P (Max)	X	YY
inches	182TC	2.5 X 2.5	28.50	6.13	6.38	6.63	1.88	13.30	9.50	9.50

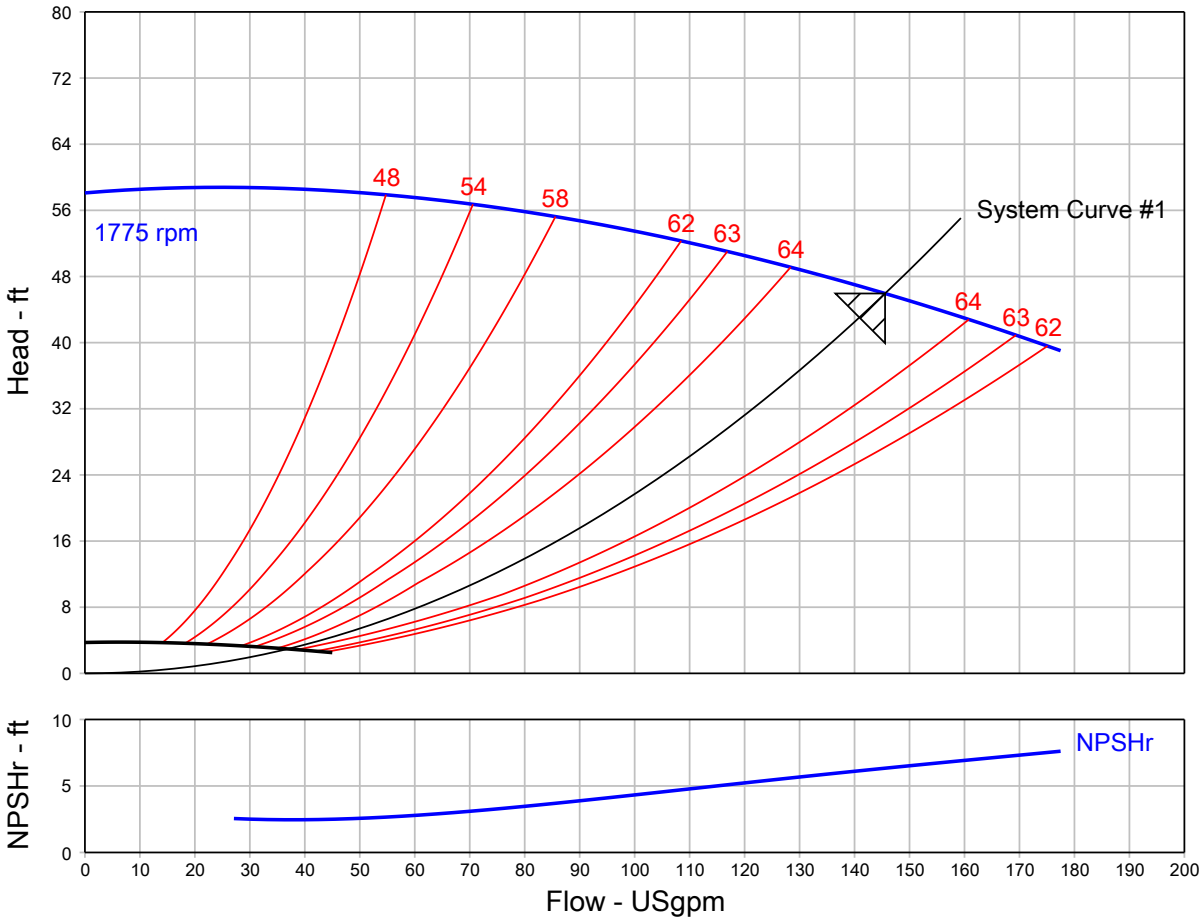
Grundfos Series VLSE - Split Coupled Vertical In-Line with Integrated VFD

QUOTE NUMBER / ID 1143354	UNIT TAG Hurley Engineering	VLSE 25953-4P-3HP

MATERIALS OF CONSTRUCTION			
PART	**MATERIAL**	**PART**	**MATERIAL**
Rotation Options	Clockwise	Impeller Washer	S.S., AISI-303
Base/Stand Type	No Stand Provided	Impeller Key	S.S., AISI-303
Connections	125# ANSI	Sleeve Material	Bronze, III932, C89835 or No Sleeves
Coupling Options	Rigid Radially Split Coupling	Wear Ring Type	Case Wear Ring
Wear Ring Material	NiAl-Bronze, ASTM-B148, C95500	Pump Coatings	Standard Paint
Seal Type	Type 21	Seal Material	Ceramic/Carbon/Buna
Casing	Cast Iron, ASTM-A48, CL 30	O-Rings	Buna N
Motor Shaft	Steel, AISI 1045 or S.S	Seal Flush Options	External Flush, plastic tubing
Backplate/Seal Plate	Cast Iron, ASTM-A48, CL 30	Gaskets	Vegetable Fiber
Motor Bracket	Cast Iron, ASTM-A48, CL 30	Casing Bolts	Steel, Grade 5
Impeller	Stainless Steel, AISI-304	Impeller Cap Screw	S.S., AISI-303

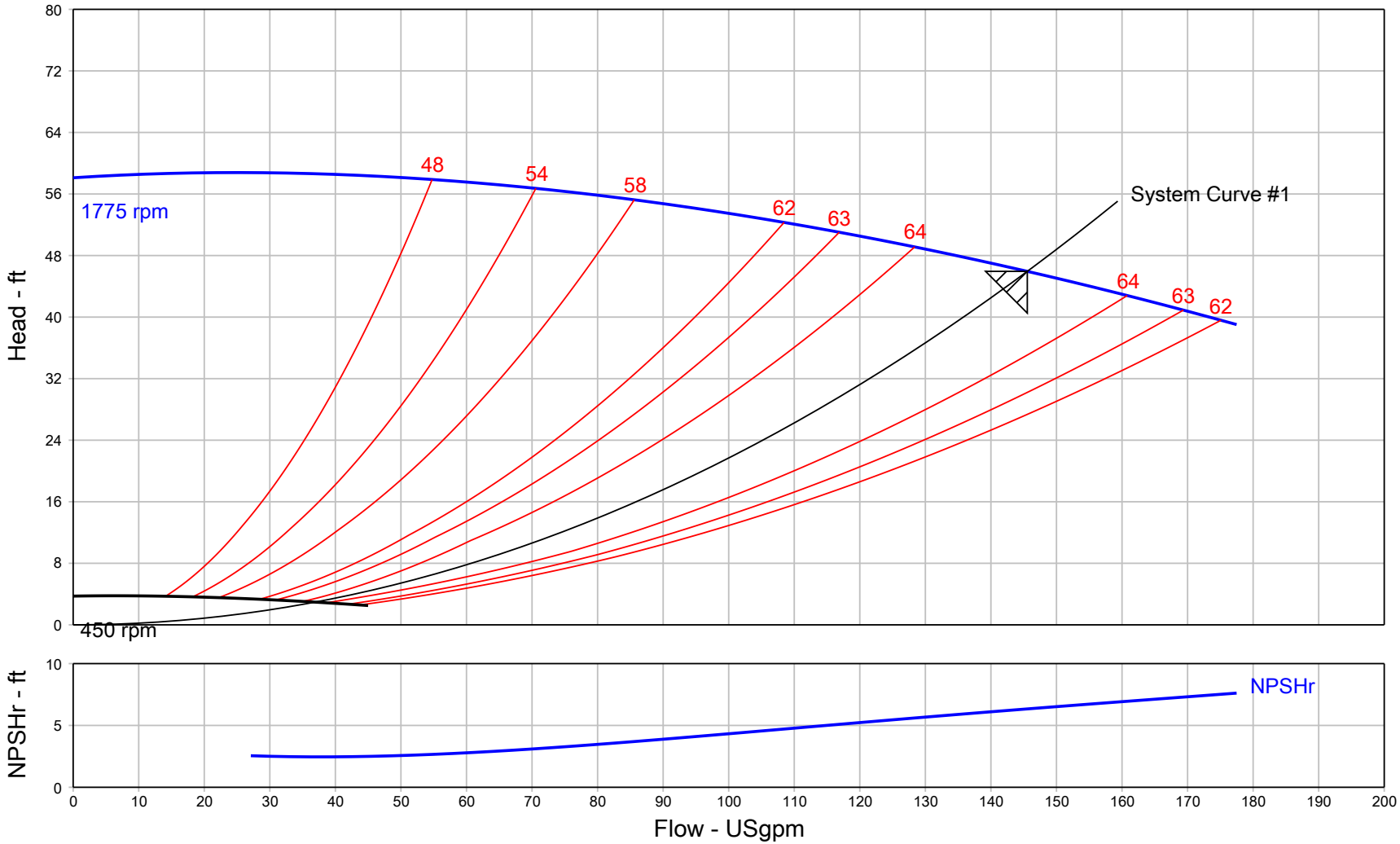
* All materials based on STANDARD configuration

Pump Performance Curve



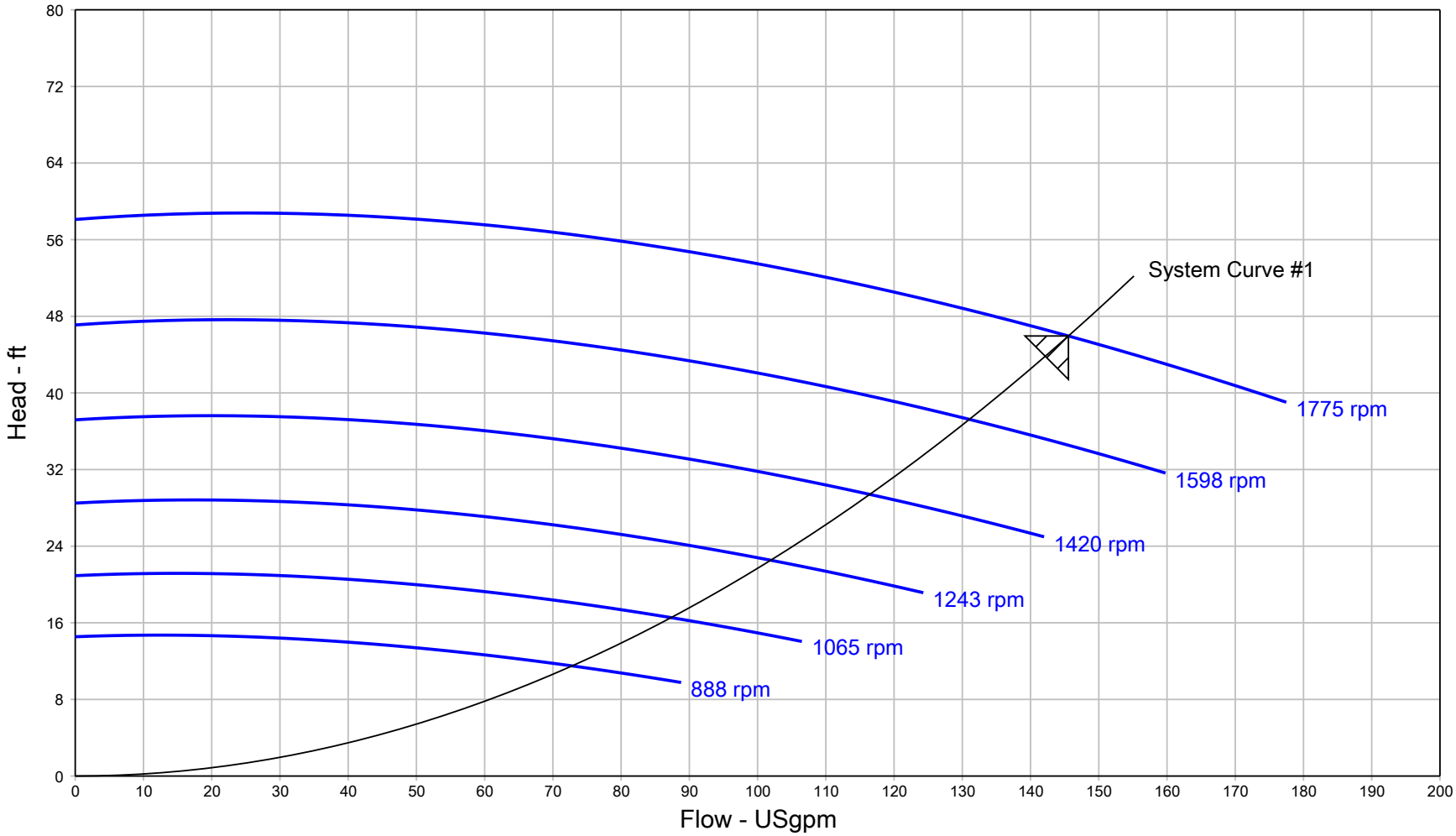
Customer	:	Model	: 25953-4P-3HP VLSE
Customer ref. / PO	:	Stages	: 1
Tag Number	: Hurley Engineering	Speed, rated	: 1775 rpm
Service	: HYDRONIC	Based on curve number	: VLSE_25953_4P_3HP Rev 0.0
Quantity	: 1	Efficiency	: 64.61 %
Quote Number / ID	: 1143354	Rated power (based on duty point)	: 2.61 hp
Date last saved	: 04/03/2020 2:32 PM	NPSH required	: 6.34 ft
Flow, rated	: 145.6 USgpm	Viscosity	: 1.00 cP
Differential head / pressure, rated	: 45.94 ft	Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010]	: 1.00 / 1.00 / 1.00 / 1.00
		Impeller diameter, rated	: 7.47 in
Fluid density, rated / max	: 1.000 / 1.000 SG	PEI (VL)	: 0.45
		ER (VL)	: 55

Pump Performance Curve



Project name	: VLSE project	Tag Number	: Hurley Engineering	Flow, rated	: 145.6 USgpm
Consulting engineer	:	Service	: HYDRONIC	Differential head / pressure, rated	: 45.94 ft
Customer	:	Model	: 25953-4P-3HP VLSE	Rated power (based on duty point)	: 2.61 hp
Customer ref. / PO	:	Quantity	: 1	Max power (non-overloading)	: 2.84 hp
Quote Number / ID	: 1143354	Quoted By (Sales Office)	: HURLEY ENGINEERING COMPANY	Efficiency	: 64.61 %
Date last saved	: 04/03/2020 2:32 PM			Impeller diameter, rated	: 7.47 in
Based on curve number	: VLSE_25953_4P_3HP Rev 0.0	Quoted By (Sales Engineer)	: Steven Leingang	PEI (VL)	: 0.45
		Stages	: 1	ER (VL)	: 55
		Speed, rated	: 1775 rpm		

Multi-Speed Performance Curve



Project name	: VLSE project	Tag Number	: Hurley Engineering	Speed, rated	: 1775 rpm
Consulting engineer	:	Service	: HYDRONIC	Flow, rated	: 145.6 USgpm
Customer	:	Model	: 25953-4P-3HP VLSE	Differential head / pressure, rated	: 45.94 ft
Customer ref. / PO	:	Quantity	: 1	Fluid density, rated / max	: 1.000 / 1.000 SG
Quote Number / ID	: 1143354	Quoted By (Sales Office)	: HURLEY ENGINEERING COMPANY	Viscosity	: 1.00 cP
Date last saved	: 04/03/2020 2:32 PM			Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010]	: 1.00 / 1.00 / 1.00 / 1.00
		Quoted By (Sales Engineer)	: Steven Leingang	Based on curve number	: VLSE_25953_4P_3HP Rev 0.0
		Stages	: 1		

Construction Datasheet

Project name	: VLSE project	Tag Number	: Hurley Engineering
Consulting engineer	:	Service	: HYDRONIC
Customer	: HURLEY ENGINEERING COMPANY	Model	: 25953-4P-3HP VLSE
Customer ref. / PO	:	Quantity	: 1
Quote Number / ID	: 1143354	Quoted By (Sales Office)	: HURLEY ENGINEERING COMPANY
Date last saved	: 04/03/2020 2:32 PM	Quoted By (Sales Engineer)	: Steven Leingang

Construction

Nozzle	Size (in.)	Nozzle Configuration	Pos'n
Suction	2.5	125# ANSI	-
Discharge	2.5	125# ANSI	-

Orientation / Configuration	: Vertical
Rotation	: Clockwise
Wear Ring Configuration	: Single - Case
Discharge Elbow Size	: -
Subplate	: -
Sump Depth (feet)	: -
Bearing Frame	: -
Bearing Frame Foot	: -
Bearing Type (Radial/Thrust)	: -
Bearing Lubrication	: Regreasable
Thrust Bearing	: -
Intermediate Bearing	: -
Lower Bearing	: -
Bearing Housing Accessories	: -
PACO Construction code	: 28-25953-130268-25B2MS1

Baseplate, Coupling and Guard

Baseplate	: Not Applicable
Drip Pan	: -
Coupling	: Rigid, Axial Split Coupling (aluminum) RASC1
Guard	: OSHA Approved

Seal & Packing Construction

Sealing Method	: Single Seal, Type 21
Seal Material	: Buna Carbon Ceramic SS-Spring and Hardware
Packing Gland	: -
Lantern Ring	: -
Recirculation Lines	: Nylon Tubing with Brass Fittings

Weights (Approx.)

Pump	: 128.0 lb
Baseplate	: -
Driver	: 56.79 lb
Estimated Shipping gross weight	: 184.8 lb

Motor Information

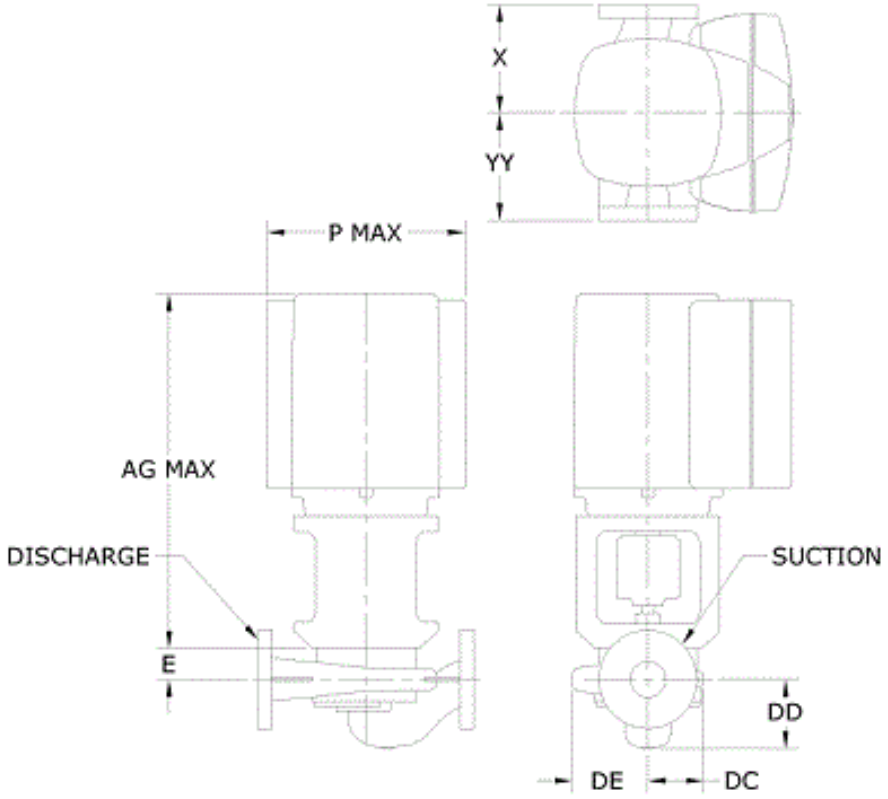
Manufacturer	: Grundfos MLE, HMI 300
Frame Size	: 182TC
Power	: 3.00 hp
RPM	: 1800 rpm
Enclosure	: TEFC
Operating Power Supply	: 460/3/60
Efficiency	: IE5
Service factor	: 1.15
Motor Application	: Intergrated Variable Frequency Drive
Motor Options/Accessories	: -
Cord Length (feet)	: -

Materials

Case	: Cast Iron, ASTM A48 - Class 30
Motor Bracket	: Cast Iron, ASTM-A48, CL 30
Impeller	: Stainless Steel, AISI-304 (H304)
Impeller Cap Screw and Washer	: Stainless Steel, AISI-303
Impeller Key	: Stainless Steel, AISI 316
Case wear ring	: Tin Bronze, ASTM B584-90500 (B18)
Impeller wear ring	: -
Pump Shaft	: Stainless Steel, AISI-303
Sleeve	: -
Line Shaft	: -
Column	: -
Discharge Pipe	: -
Discharge Elbow	: -
Suction Elbow	: -
Subplate	: -
Hardware	: Steel, Grade 5
O Rings	: Buna N
Pump Coatings	: Standard Manufacturers Paint

General Arrangement

Project name	: VLSE project	Tag Number	: Hurley Engineering
Consulting engineer	:	Service	: HYDRONIC
Customer	: HURLEY ENGINEERING COMPANY	Model	: 25953-4P-3HP VLSE
Customer ref. / PO	:	Quantity of pumps	: 1
Quote Number / ID	: 1143354	Quoted By (Sales Office)	: HURLEY ENGINEERING COMPANY
Date last saved	: 04/03/2020 2:32 PM	Quoted By (Sales Engineer)	: Steven Leingang



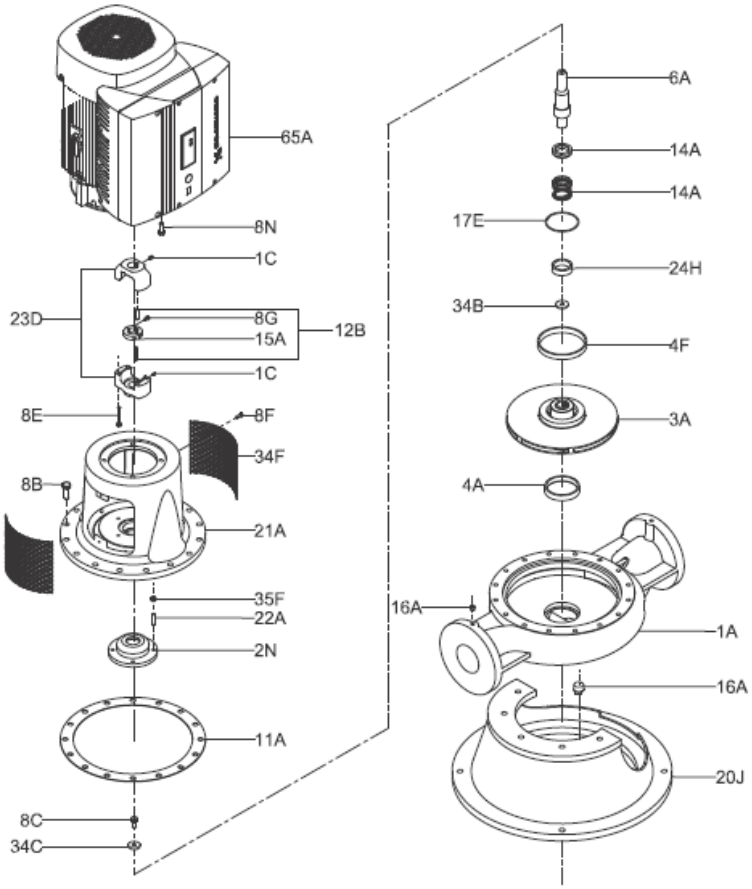
NOT FOR CONSTRUCTION, Unless certified and referenced on order

Units	Frame	S x D (in.)	AG (Max)	DC	DD	DE	E	P (Max)	X	YY	Weight ea
inches	**182TC**	**2.5 X 2.5**	**28.50**	**6.13**	**6.38**	**6.63**	**1.88**	**13.30**	**9.50**	**9.50**	**184.8**

Conditions of Service		Motor Data			
Flow: 145.6 USgpm	Fluid: Cold Water	HP: 3	Encl: TEFC	Phase: 3	Efficiency: IE5
TDH: 45.94 ft	Temp.: 68.00 deg F	RPM: 1800 rpm	Hz: 60	Voltage: 460	S.F.: 1.15

Grundfos VLSE Cross Section

Type VLSE, cross section and parts list



Pos.	Description	Pos.	Description
1A	Volute	14A*	Seal assembly
1C	Set screw	15A	Locating ring
2N	Seal cap	16A	Pipe plug
3A*	Impeller	17E	Seal cap o-ring
4A*	Case wear ring	20J	Cast iron stand
4F	Balance ring	21A	Motor bracket
6A	Pump shaft	22A	Seal cap studs
8B	Volute screw	23D	Coupling halves
8C	Pump shaft screw	24H	Bushing
8E	Coupling screw	34B*	Impeller washer
8F	Coupling guard screw	34C	Pump shaft washer
8G	Locating ring screw	34F	Coupling guard
8N	Motor screw	35F	Seal cap nut
11A*	Volute gasket	65A	Motor
12B	Coupling key		

* Recommended spare parts