Pump Performance Datasheet

Customer	:	Quote Number / ID	: 1141840
Customer ref. / PO	:	Model	: 20709-2P-15HP LCSE
Tag Number	: Hurley ENgineering	Stages	: 1
Service	: HYDONIC	Based on curve number	: RC9912-1-SS-6.31 Rev 0
Quantity	: 1	Basic model number	: -
		Date last saved	: 03/29/2020 11:44 PM

Operating Conditions

Flow, rated	: 283.5 USgpm
Differential head / pressure, rated (requested)	: 143.2 ft
Differential head / pressure, rated (actual)	: 143.2 ft
Suction pressure, rated / max	: 0.00 / 0.00 psi.g
NPSH available, rated	: Ample
Frequency	: 60 Hz

Performance

Speed, rated	: 3530 rpm
Speed, maximum	: 3530 rpm
Speed, minimum	: 900 rpm
Impeller diameter, rated	: 6.25 in
Efficiency	: 79.82 %
NPSH required / margin required	: 20.83 / 0.00 ft
nq (imp. eye flow) / S (imp. eye flow)	: 28 / 118 Metric units
MCSF	: 89.50 USgpm
Head maximum, rated speed	: 168.3 ft
Head rise to shutoff	: 13.50 %
Flow, best eff. point	: 283.5 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	: Near miss

Energy Indexes

PEI (VL)	: 0.40
ER (VL)	: 60

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

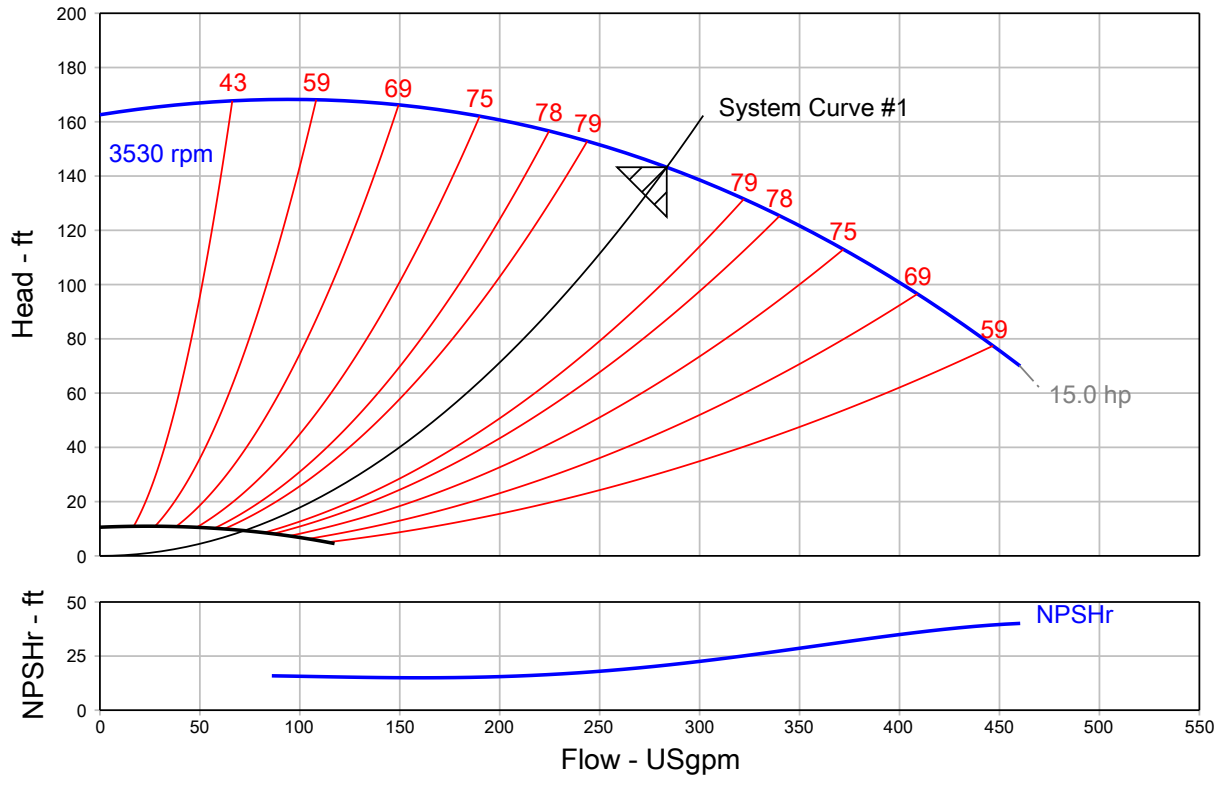
Material selected	: Cast Iron

Pressure Data

Maximum working pressure	: 72.81 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 (used)
Power, hydraulic	: 10.25 hp
Rated power (based on duty point)	: 12.85 hp
Max power (non-overloading)	: 15.01 hp
Nameplate motor rating	: 15.00 hp / 11.19 kW (Fixed)



GRUNDFOS

SUBMITTAL

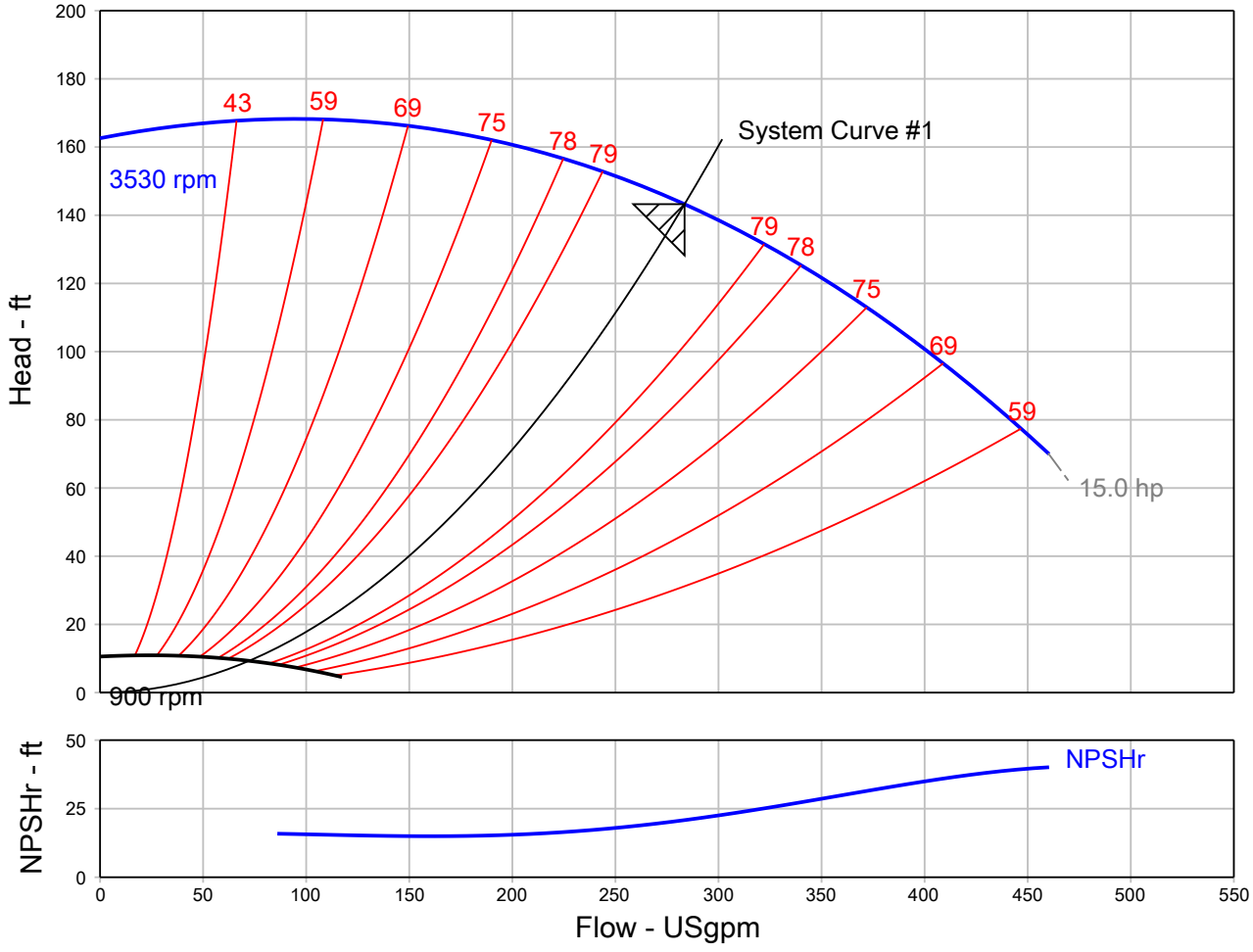
Grundfos Series LCSE - Split Coupled End Suction Pump with Integrated VFD

QUOTE NUMBER / ID 1141840	**UNIT TAG Hurley ENgineering**	**QUANTITY 1**
	SERVICE HYDONIC	
REPRESENTATIVE	**SUBMITTED BY**	**DATE**
ENGINEER	**APPROVED BY**	**DATE**
CONTRACTOR	**ORDER #**	**DATE**

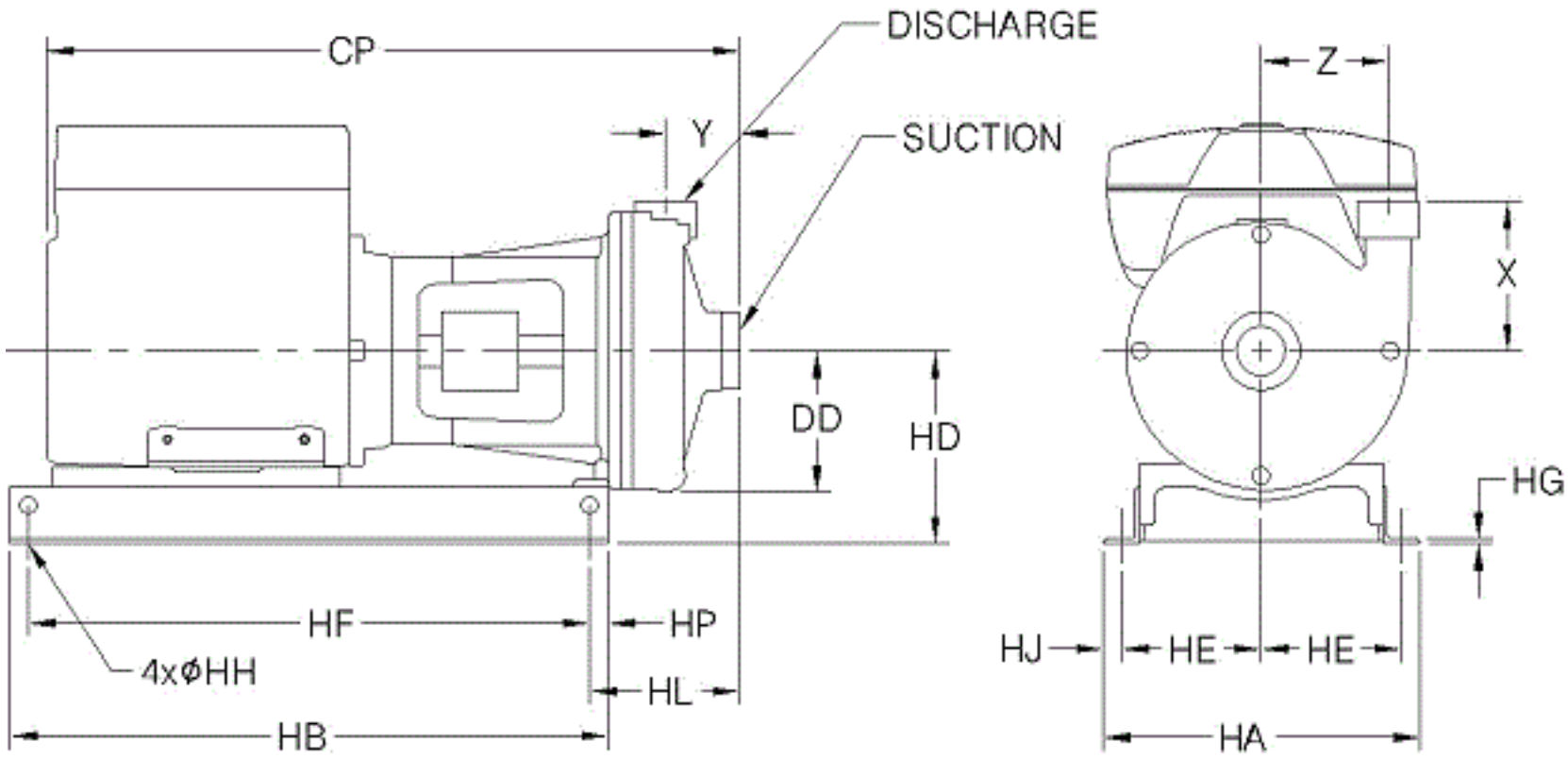
LCSE 20709-2P-15HP
3530 rpm

Part Number N/A

Conditions of Service		Pump Data		Motor Data	
Flow	283.5 USgpm	Impeller Diameter	6.25 in	Motor HP	15 HP
Head	143.2 ft	Efficiency	79.82 %	BHP	12.85
Liquid	Cold Water	Suction	2.5 in.	Enclosure	TEFC
Temperature	68.00 deg F	Discharge	2 in.	Voltage	460 V
NPSHr	20.83 ft	PEI (VL)	0.40	Phase	3 Phase
Viscosity	1.00 cP	ER (VL)	60	Cycle	60
Specific Gravity	1.000 SG			Frame Size	254TC



Grundfos Series LCSE - Split Coupled End Suction Pump with Integrated VFD



NOT FOR CONSTRUCTION, unless certified and referenced on order

Units	Frame	Suct	Disch	CP	DD	HA	HB	HD	HE	HF	HG	HH	HJ	HL	HP	X	Y	Z
inches	254TC	2.5	2	38.00	5.20	17.00	32.00	9.50	7.50	30.00	0.25	0.63	1.00	7.81	1.00	5.38	4.00	4.50

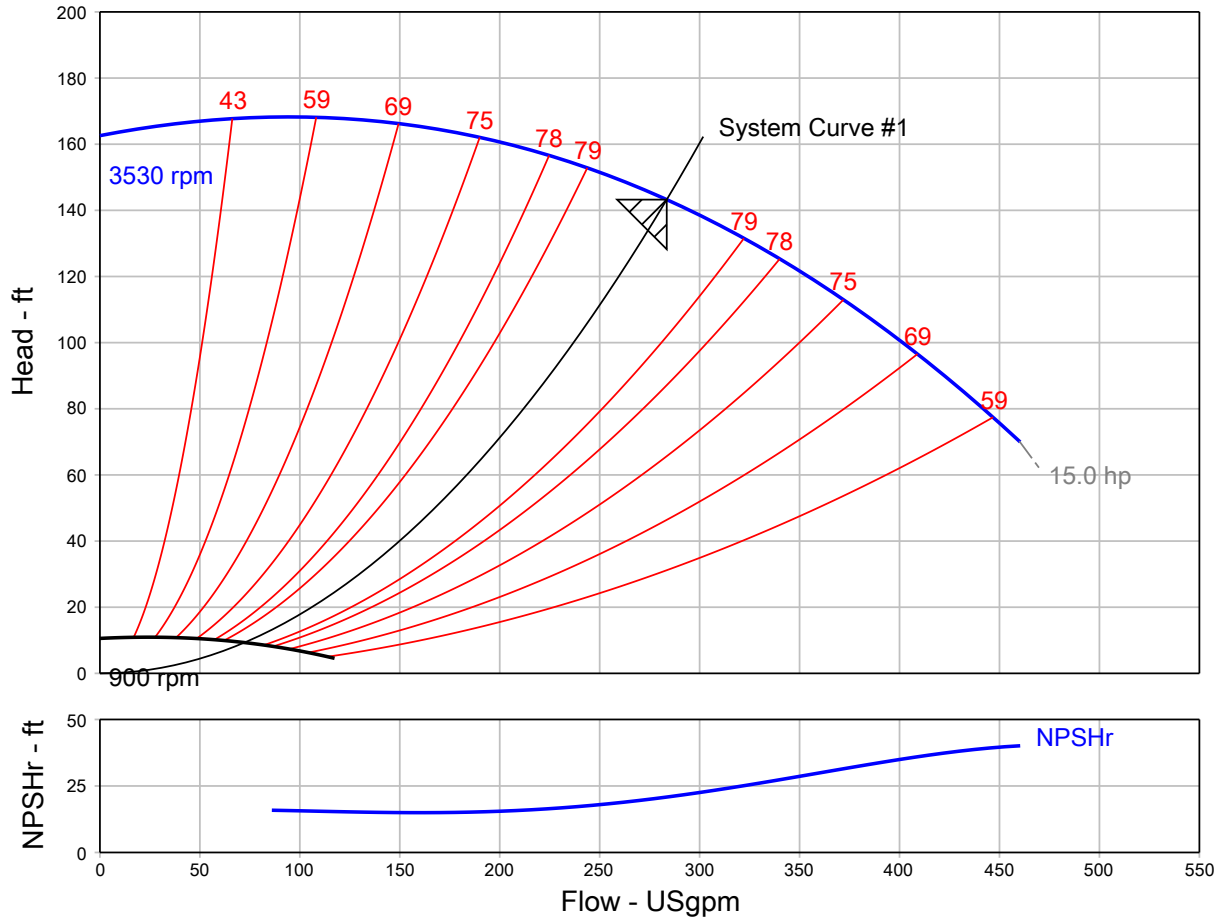
Grundfos Series LCSE - Split Coupled End Suction Pump with Integrated VFD

QUOTE NUMBER / ID 1141840	UNIT TAG Hurley ENgineering	LCSE 20709-2P-15HP

MATERIALS OF CONSTRUCTION			
PART	**MATERIAL**	**PART**	**MATERIAL**
Rotation Options	Clockwise	Impeller Washer	S.S., AISI-303
Base/Stand Type	Steel Base / Cast Iron	Impeller Key	Steel, AISI 1045
Bushing	Vesconite	Coupling Options	Rigid Aluminum Axially Split Coupling
Wear Ring Material	Vesconite	Pump Coatings	Standard Paint
Seal Type	Type 21	Seal Material	Ceramic/Carbon/Buna
O-Rings	Buna N	Casing	Cast Iron, ASTM-A48, CL 30
Backplate/Seal Plate	Cast Iron, ASTM-A48, CL 30	Seal Flush Options	External Flush, plastic tubing
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		

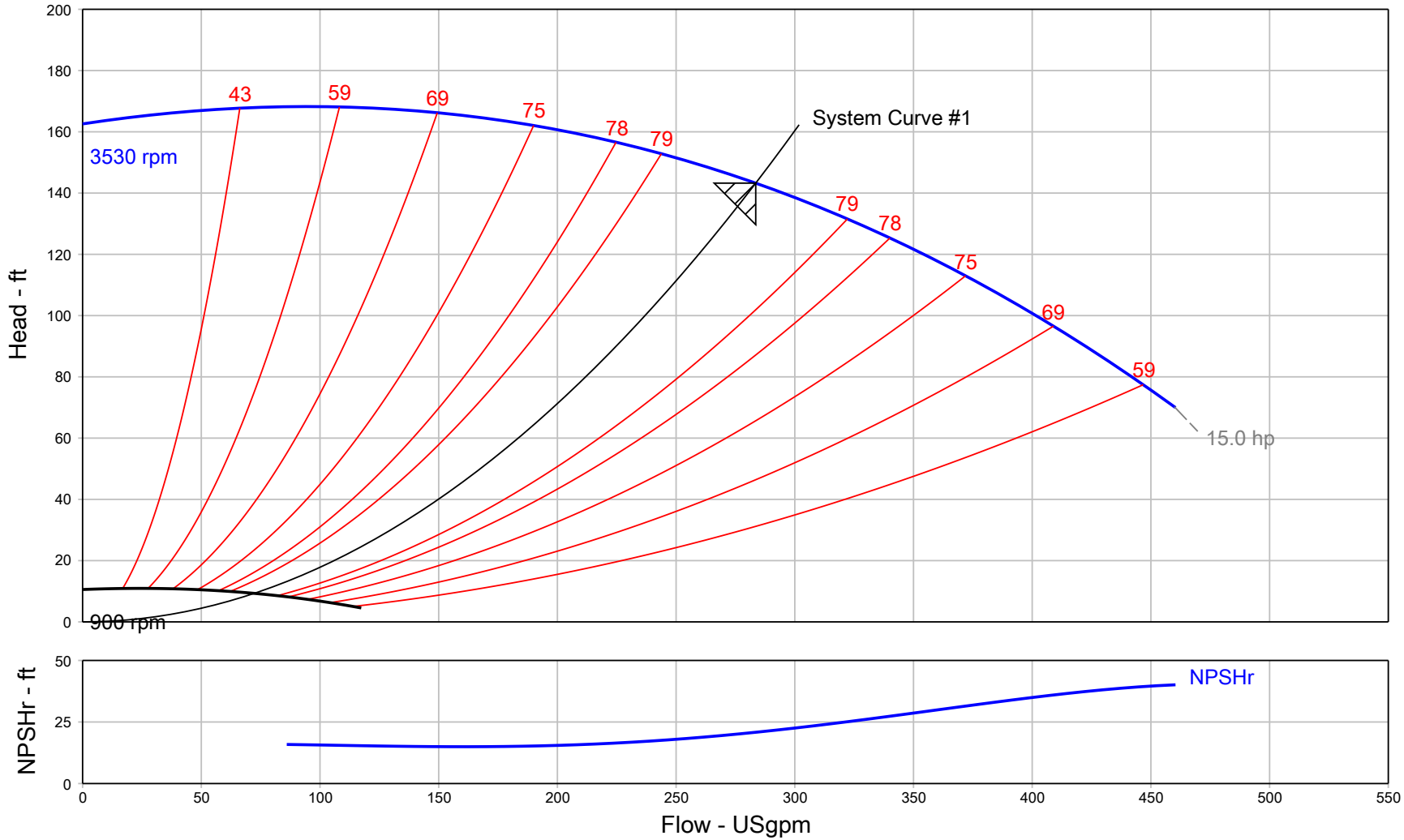
* All materials based on STANDARD configuration

Pump Performance Curve



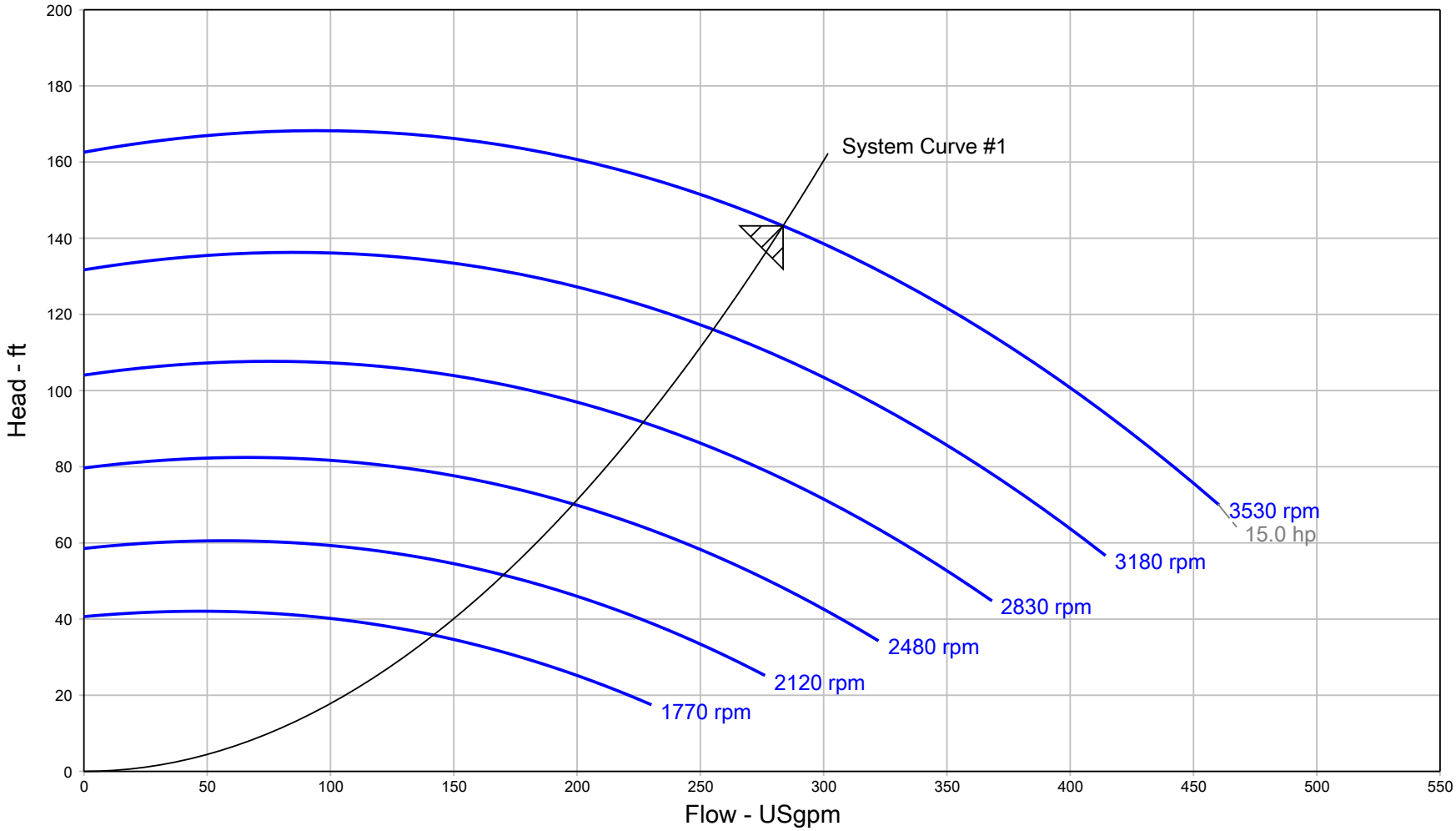
Customer	:	Model	: 20709-2P-15HP LCSE
Customer ref. / PO	:	Stages	: 1
Tag Number	: Hurley ENgineering	Speed, rated	: 3530 rpm
Service	: HYDONIC	Based on curve number	: RC9912-1-SS-6.31 Rev 0
Quantity	: 1	Efficiency	: 79.82 %
Quote Number / ID	: 1141840	Rated power (based on duty point)	: 12.85 hp
Date last saved	: 03/29/2020 11:44 PM	NPSH required	: 20.83 ft
Flow, rated	: 283.5 USgpm	Viscosity	: 1.00 cP
Differential head / pressure, rated	: 143.2 ft	Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010]	: 1.00 / 1.00 / 1.00 / 1.00
		Impeller diameter, rated	: 6.25 in
Fluid density, rated / max	: 1.000 / 1.000 SG	PEI (VL)	: 0.40
		ER (VL)	: 60

Pump Performance Curve



Project name	: LCSE Project NC	Tag Number	: Hurley ENgineering	Flow, rated	: 283.5 USgpm
Consulting engineer	:	Service	: HYDONIC	Differential head / pressure, rated	: 143.2 ft
Customer	:	Model	: 20709-2P-15HP LCSE	Rated power (based on duty point)	: 12.85 hp
Customer ref. / PO	:	Quantity	: 1	Max power (non-overloading)	: 15.01 hp
Quote Number / ID	: 1141840	Quoted By (Sales Office)	: HURLEY ENGINEERING COMPANY	Efficiency	: 79.82 %
Date last saved	: 03/29/2020 11:44 PM			Impeller diameter, rated	: 6.25 in
Based on curve number	: RC9912-1-SS-6.31 Rev 0	Quoted By (Sales Engineer)	: Steven Leingang	PEI (VL)	: 0.40
		Stages	: 1	ER (VL)	: 60
		Speed, rated	: 3530 rpm		

Multi-Speed Performance Curve



Project name	: LCSE Project NC	Tag Number	: Hurley ENgineering	Speed, rated	: 3530 rpm
Consulting engineer	:	Service	: HYDONIC	Flow, rated	: 283.5 USgpm
Customer	:	Model	: 20709-2P-15HP LCSE	Differential head / pressure, rated	: 143.2 ft
Customer ref. / PO	:	Quantity	: 1	Fluid density, rated / max	: 1.000 / 1.000 SG
Quote Number / ID	: 1141840	Quoted By (Sales Office)	: HURLEY ENGINEERING COMPANY	Viscosity	: 1.00 cP
Date last saved	: 03/29/2020 11:44 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	: RC9912-1-SS-6.31 Rev 0
		Stages	: 1		

Construction Datasheet

Project name	: LCSE Project NC	Tag Number	: Hurley ENgineering
Consulting engineer	:	Service	: HYDONIC
Customer	: HURLEY ENGINEERING COMPANY	Model	: 20709-2P-15HP LCSE
Customer ref. / PO	:	Quantity	: 1
Quote Number / ID	: 1141840	Quoted By (Sales Office)	: HURLEY ENGINEERING COMPANY
Date last saved	: 03/29/2020 11:44 PM	Quoted By (Sales Engineer)	: Steven Leingang

Construction

Nozzle	Size (in.)	Nozzle Configuration	Pos'n
Suction	2.5	NPT	-
Discharge	2	NPT	-

Orientation / Configuration	: Horizontal
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	: -
Thrust Bearing	: -
Intermediate Bearing	: -
Lower Bearing	: -
Bearing Housing Accessories	: -
PACO Construction code	: 24-20709-14036A-25H1MS1

Baseplate, Coupling and Guard

Baseplate	: Welded Steel Fabrication
Drip Pan	: No drip pan
Coupling	: Rigid, Axial Split Coupling (aluminum) RASC3
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	: 45.00 lb
Baseplate	: 29.00 lb
Driver	: 130.3 lb
Estimated Shipping gross weight	: 204.3 lb

Motor Information

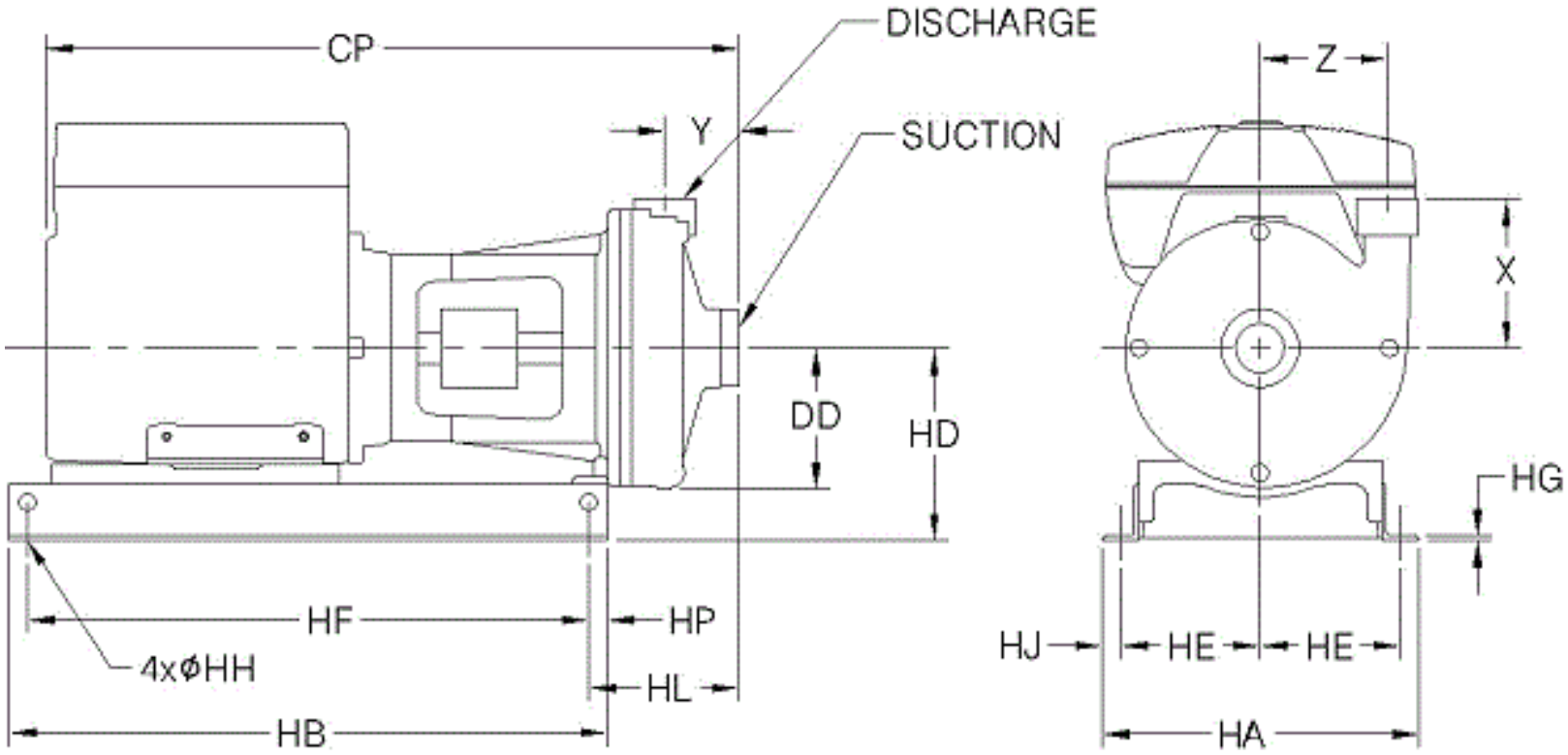
Manufacturer	: Grundfos MLE, HMI 300
Frame Size	: 254TC
Power	: 15.00 hp
RPM	: 3600 rpm
Enclosure	: TEFC
Operating Power Supply	: 460/3/60
Efficiency	: IE5
Service factor	: 1.15
Motor Application	: Suitable for Variable Speed Drive
Motor Options/Accessories	: -
Cord Length (feet)	: -

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	: Vesconite
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 Manufacturer's Paint

General Arrangement

Project name	: LCSE Project NC	Tag Number	: Hurley ENgineering
Consulting engineer	:	Service	: HYDONIC
Customer	: HURLEY ENGINEERING COMPANY	Model	: 20709-2P-15HP LCSE
Customer ref. / PO	:	Quantity of pumps	: 1
Quote Number / ID	: 1141840	Quoted By (Sales Office)	: HURLEY ENGINEERING COMPANY
Date last saved	: 03/29/2020 11:44 PM	Quoted By (Sales Engineer)	: Steven Leingang



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Units	Frame	Suct(in)	Disch(in)	CP	DD	HA	HB	HD	HE	HF	HG	HH	HJ	HL	HP	X	Y	Z	Weight ea
inches	**254TC**	**2.5**	**2**	**38.00**	**5.20**	**17.00**	**32.00**	**9.50**	**7.50**	**30.00**	**0.25**	**0.63**	**1.00**	**6.93**	**1.00**	**5.38**	**4.00**	**4.50**	**204.3**

Conditions of Service		Motor Data			
Flow: 283.5 USgpm	Fluid: Cold Water	HP: 15	Encl: TEFC	Phase: 3	Efficiency: IE5
TDH: 143.2 ft	Temp.: 68.00 deg F	RPM: 3530 rpm	Hz: 60	Voltage: 460	S.F.: 1.15