



Department of Public Works & Transportation • Water & Wastewater Services

WATER & WASTEWATER ENGINEERING DIVISION

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WWS STANDARD LIFT STATION PUMPS

Date Issued: October 14, 2021

Date last Issued: January 22, 2021

Date First Issued: January 3, 2006

This document approved by the Broward County Water & Wastewater Services Technical Standards Committee.

Jeremy Seiden, P.E., BCEE, PMP, Committee Chair

Water and Wastewater Services (WWS) uses a suite of standard pumps for its wastewater lift stations. See *Product Specifications* for detailed requirements for these pumps. This document contains information on the current set of pumps which may change with each new procurement contract.

Electrical service shall be three (3) phase and 240 volts for all pumps rated from 3.0 up to and not including 20.0 horsepower. For all pumps rated 20.0 horsepower and above, the electrical service shall be three (3) phase and 480 volts.

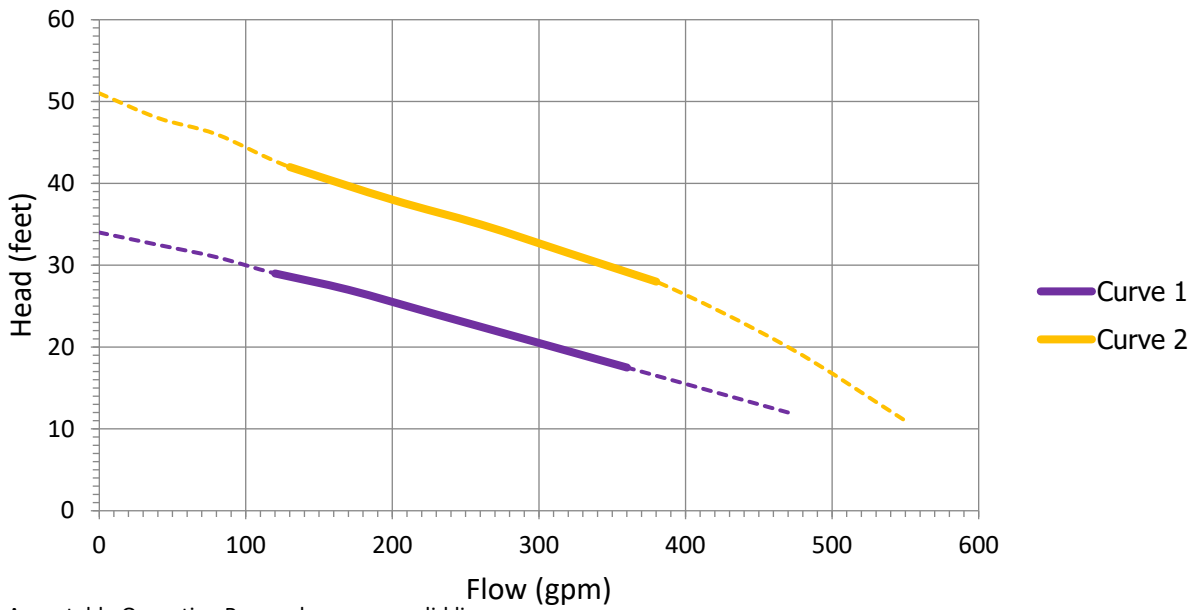
The Acceptable Operating Range is 40% to 120% of the flow at the best operating point.

The impeller shown is the only impeller allowed. For curves 14 through 17 only, the impeller may be trimmed to meet specific design considerations. All other impellers must be supplied untrimmed.

WWS Current Standard Pumps

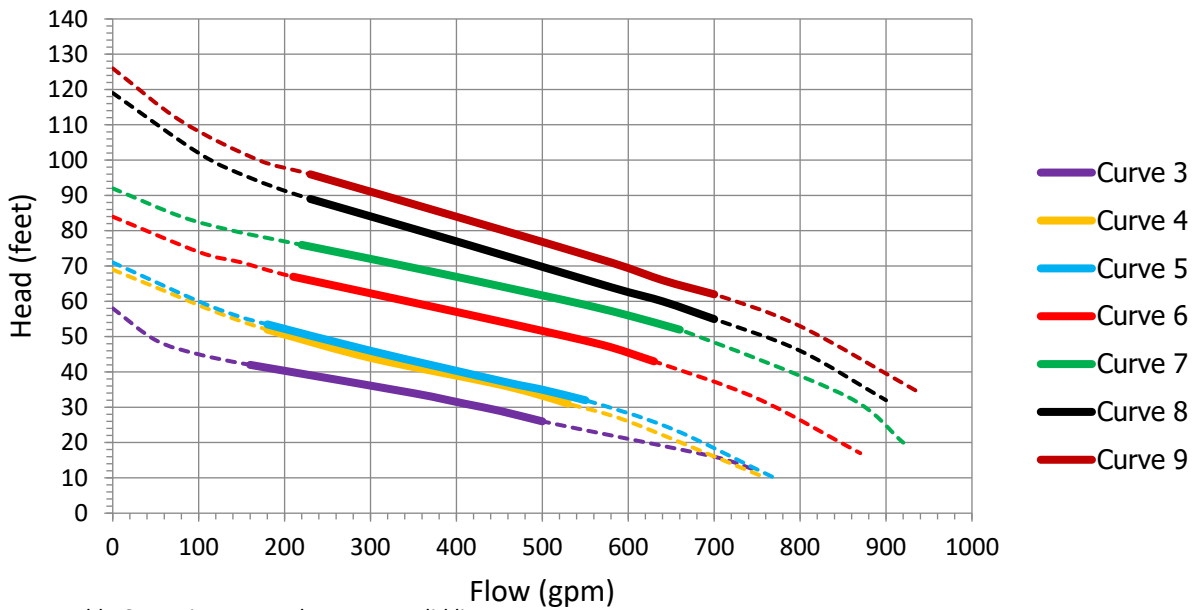
Curve	Acceptable Operating Range (gpm)	Mfg.	Model	Impeller \ Discharge	HP	Guide
1	120-360	Ebara	100DLBKFMU62.24 (480v) 100DLBKFMU62.2S (240v) 100DLBKFMU62.22 (240v)	DLK-C614-9203 \ 4" DLK-C614-9203 \ 4" DLK-C614-9203 \ 4"	3	2"
2	130-380	Ebara	100DLMBKFMU63.74 (480v) 100DLMBKFMU63.7S (240v) 100DLMBKFMU63.72 (240v)	DLMK-C607-9203 \ 4" DLMK-C607-9203 \ 4" DLMK-C607-9203 \ 4"	5	2"
3	160-500	Grundfos	SL1.30.A40.55.EX.4.61R.C (480v) SL1.30.A40.55.EX.4.61R.C (240v)	S-TUBE \ 4"	5.5	2"
4	180-530	HOMA	AMS434-200/7,5T/CFM (480v) AMS434-200/7,5T/CFM (240v)	7 - 7/8" \ 4" 7 - 7/8" \ 4"	7.5	2"
5	180-550	HOMA	AMS434-210/7,5T/CFM (480v) AMS434-210/7,5T/CFM (240v)	7-15/16" \ 4" 7-15/16" \ 4"	10	2"
6	210-630	HOMA	AMS434-220/10,4T/CFM (480v) AMS434-220/10,4T/CFM (240v)	8-11/16" \ 4" 8-11/16" \ 4"	10	2"
7	220-660	HOMA	AMS434-230/13P/CFM (480v) AMS434-230/13P/CFM (240v)	230mm \ 4" 230mm \ 4"	15	2"
8	230-700	HOMA	AMS434-248/15P/CFM (480v) AMS434-248/15P/CFM (240v)	9-3/4" \ 4" 9-3/4" \ 4"	15	2"
9	230-700	HOMA	AMS434-255-15P/CFM (480v) AMS434-255-15P/CFM (240v)	10" \ 4" 10" \ 4"	15	2"
10	320-960	HOMA	AMX644-260/20P/CFM (480v)	10-1/8" \ 6" 10-1/8" \ 6"	20	2"
11	260-760	HOMA	AMS434-260/20P/CFM (480v)	10-1/4" \ 4" 10-1/4" \ 4"	20	2"
12	260-780	Ebara	100DLMBKFMU61.8 (480v)	DLMK-C612-9203 \ 4"	25	3"
13	420-1260	HOMA	AMX644-300/30F/CFM (480v)	11-1/2" \ 6"	30	3"
14	500-1500	HOMA	AMX644-310/39.2F/CFM (480v)	12-5/16" \ 6"	40	3"
15	400-1260	Ebara	150DLFU63.7 (480v)	13.11 in. \ 6"	50	3"
16	480-1450	Ebara	150DLBFMU64.5 (480v)	DLY-C602-9203 \ 6"	60	3"
17	668-2000	Ebara	150DSC4AO (480v)	12.99 in \ 6"	75	3"
18	750-2250	Ebara	150DSC4BC (480v)	14.17 in. \ 6"	100	3"

WWS Current Standard Curves



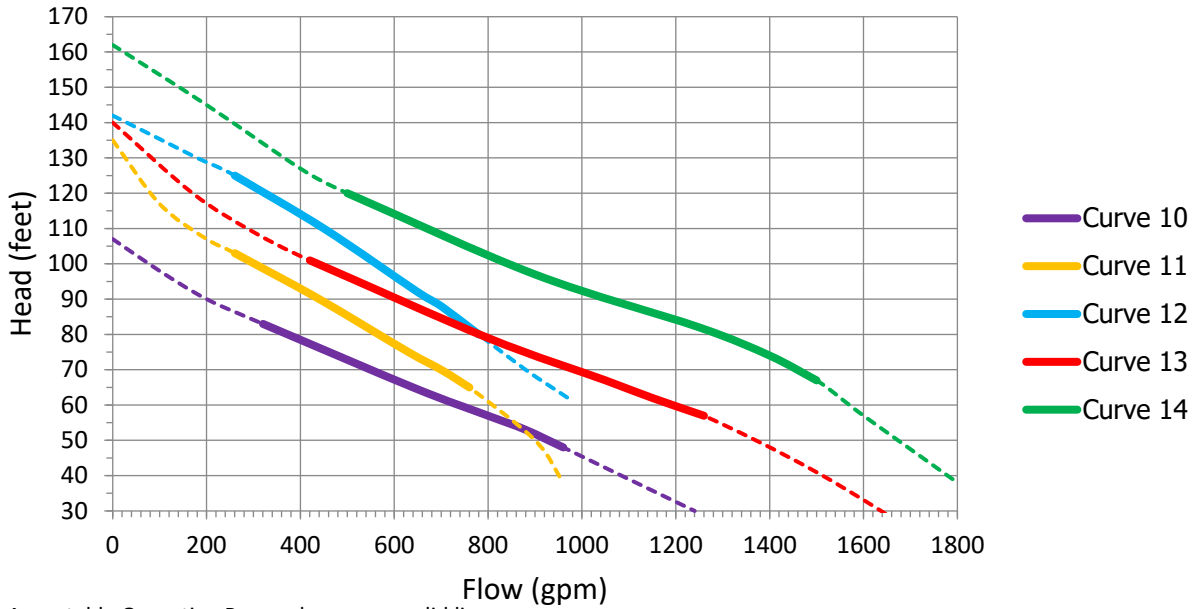
Acceptable Operating Range shown as a solid line.

WWS Current Standard Curves

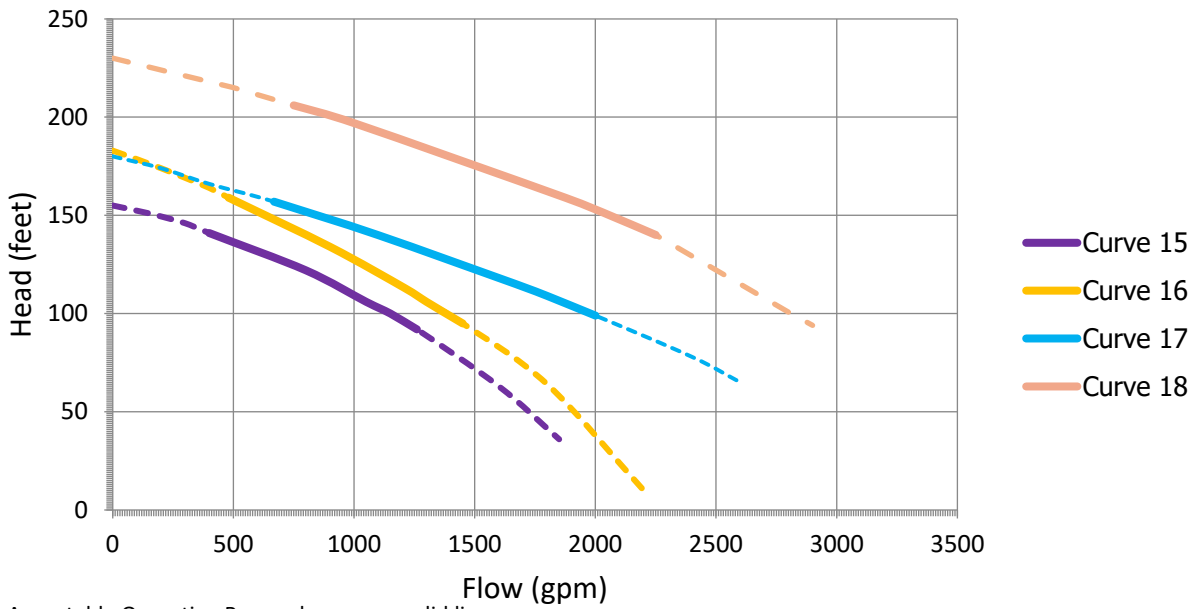


Acceptable Operating Range shown as a solid line.

WWS Current Standard Curves



WWS Current Standard Curves



PUMP MANUFACTURER'S CURVES
(see following pages)



Ebara Submersible Sewage Pump

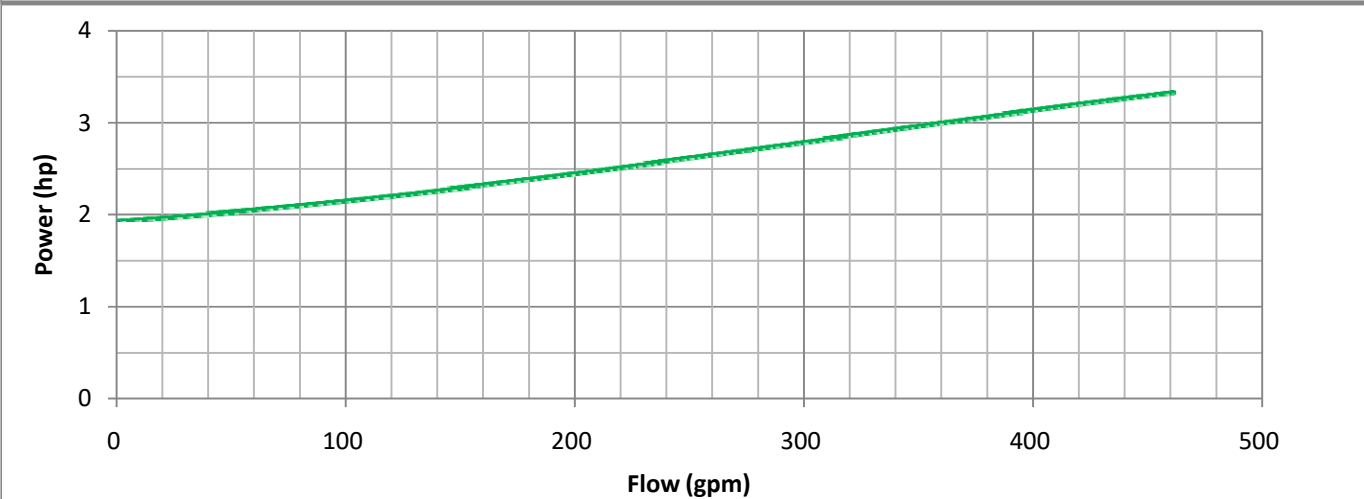
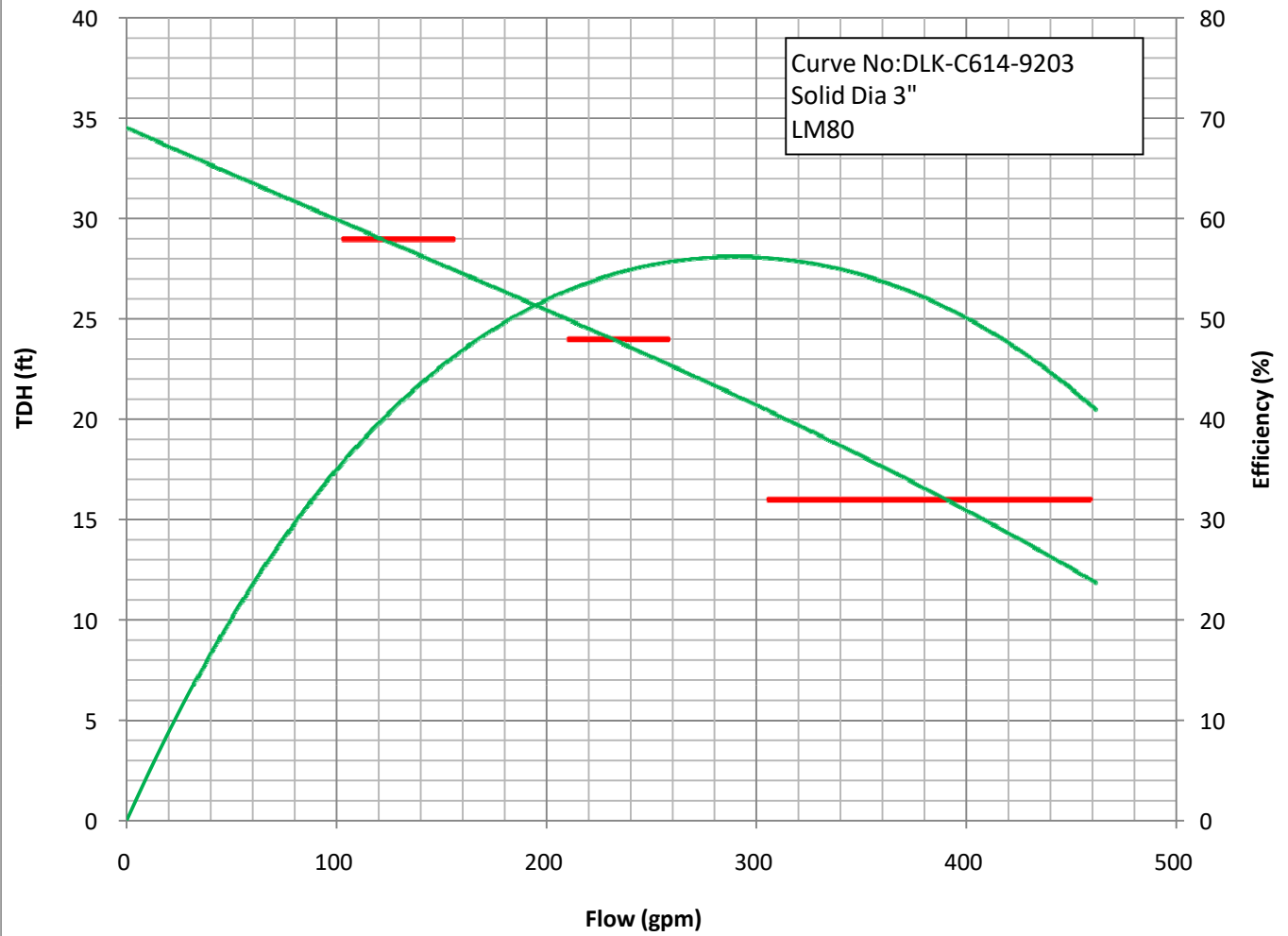
Performance Curve 1

Model: **100DLBKFMU62.22/4**

HP: **3**

FLA: **9.2/4.6**

Date: **3/11/11**





Ebara Submersible Sewage Pump

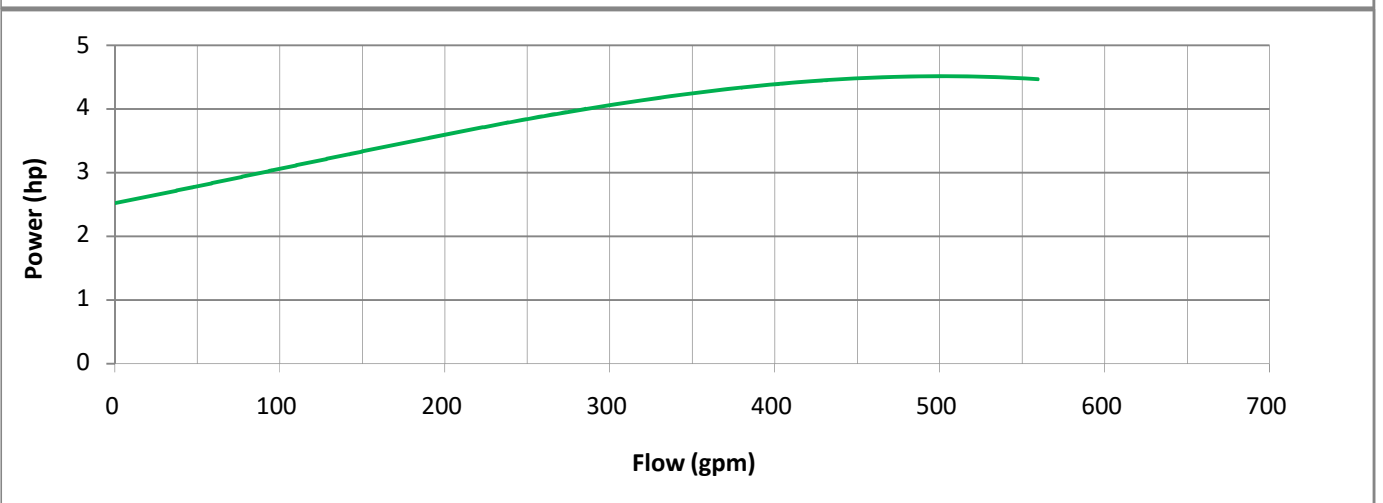
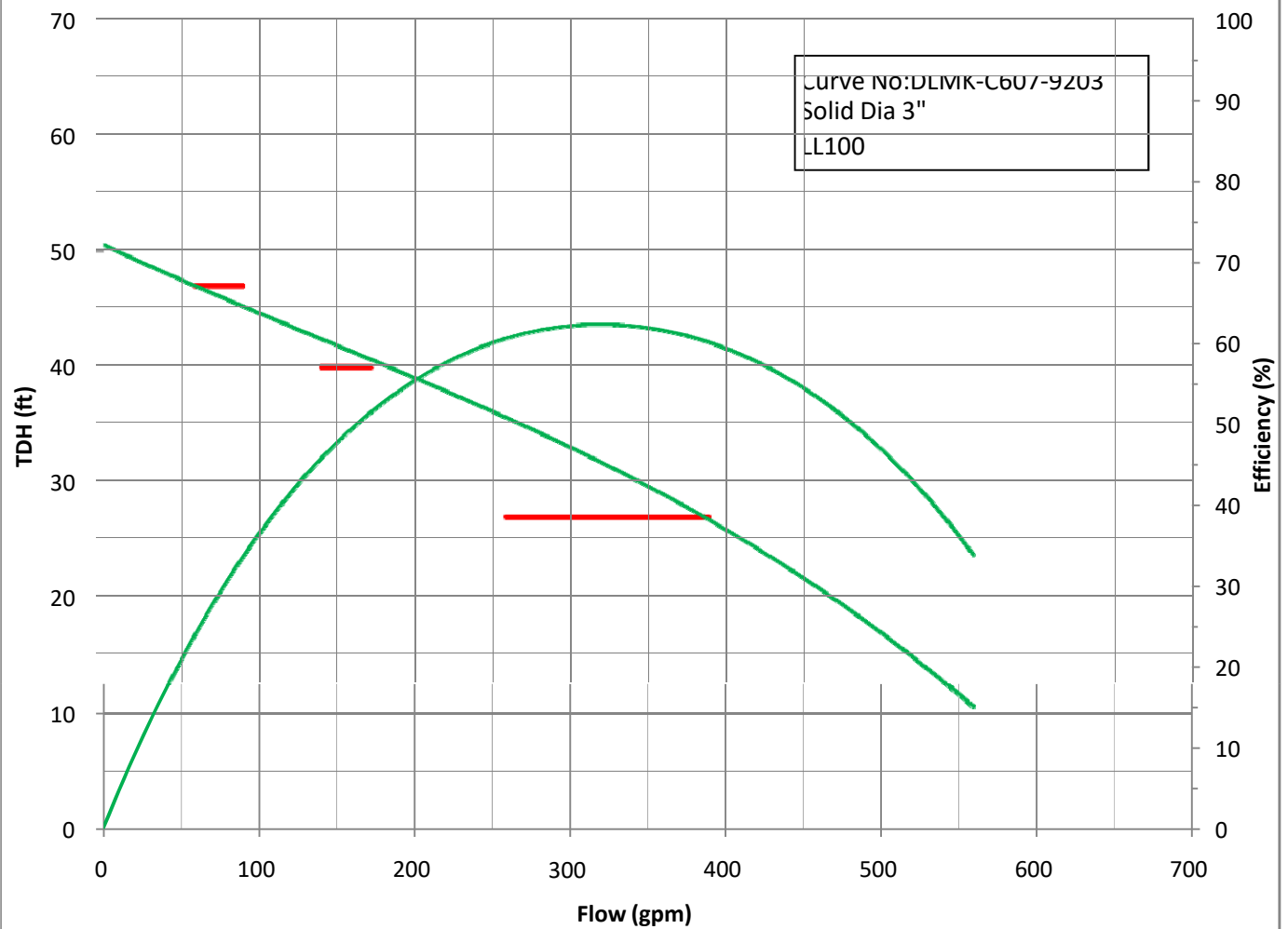
Performance Curve 2

Model: **100DLMBKFMU63.72/4**

HP: **5**

FLA: **14.2/7.1**

Date: **7/21/10**



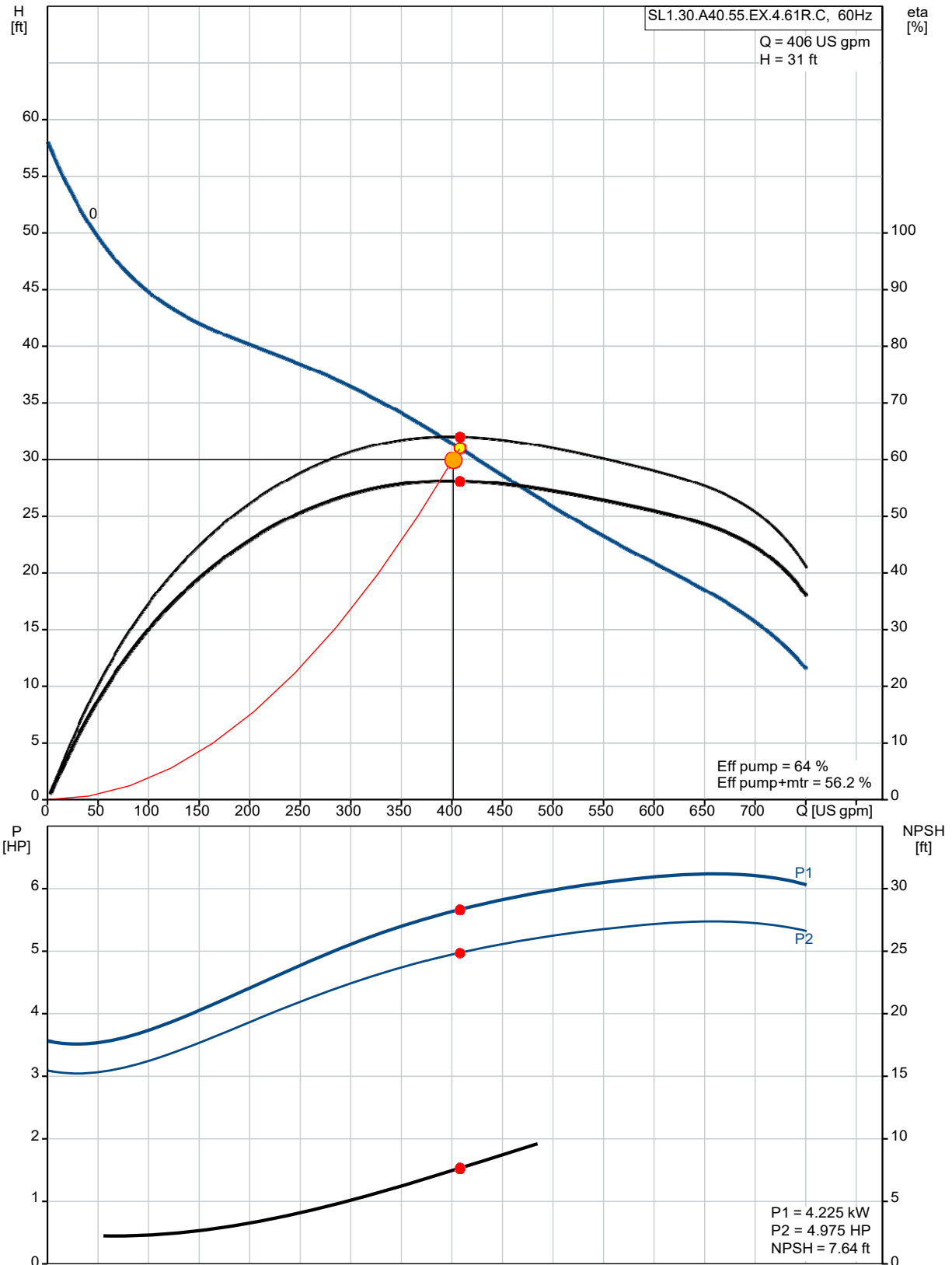


Company name:
Created by:
Phone:

Performance Curve 3

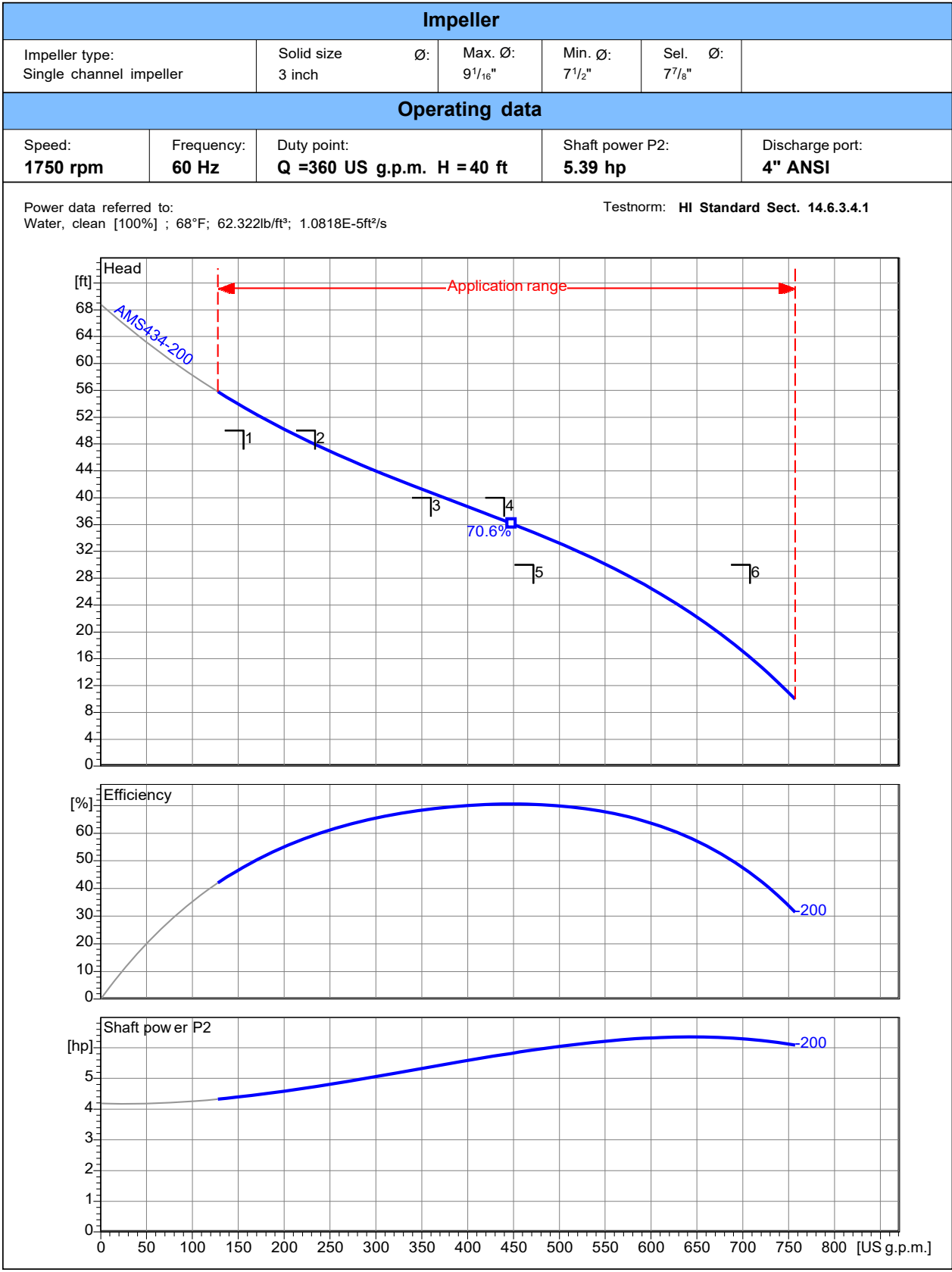
Date: 1/18/2018

99030144 SL1.30.A40.55.EX.4.61R.C 60 Hz



Performance Curve 4

AMS434-200/7,5T/C FM



2.0.1 - 26.11.2013 (Build 100)

Project	Project no.:	Created by: nyackerman	Page: 2	Date: 2018-01-17
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Performance Curve 5

AMS434-210/7,5T/C FM



Impeller

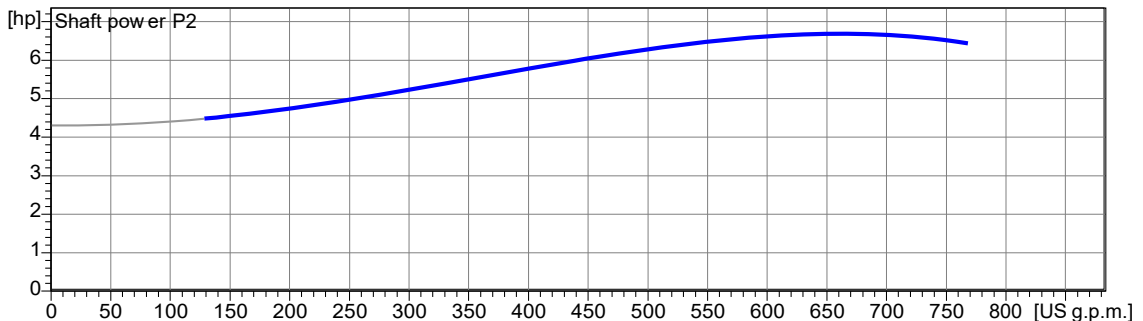
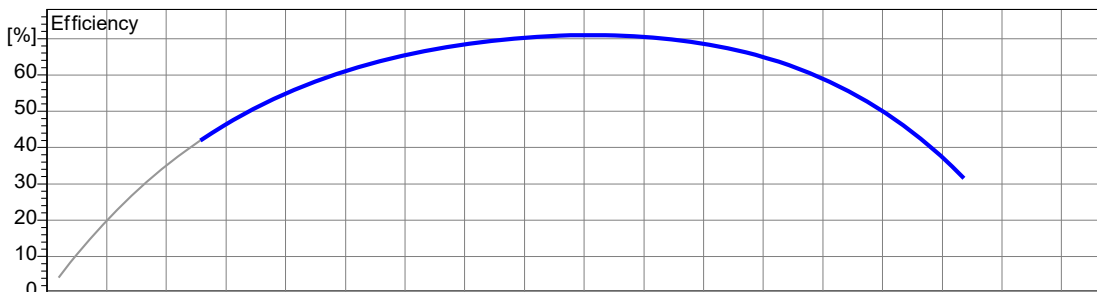
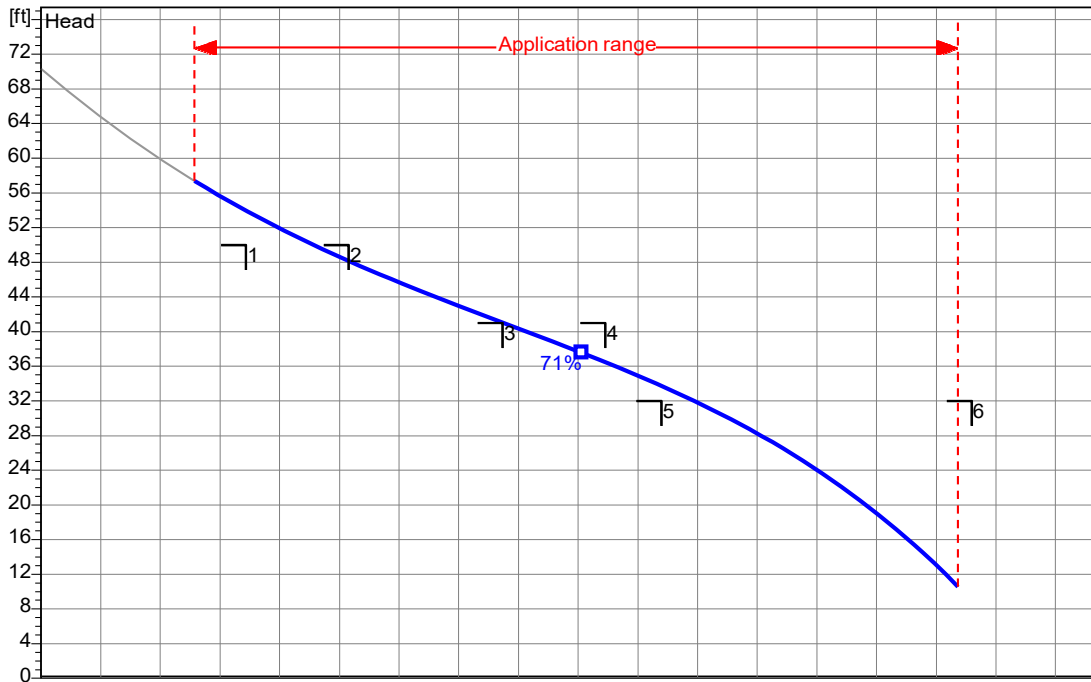
Impeller type: Single channel impeller	Solid size 3 inch	Ø:	Max. Ø:	Min. Ø:	Sel. Ø: 7 ¹⁵ / ₁₆ "	
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Operating data

Speed: 1750 rpm	Frequency: 60 Hz	Duty point: Q =387 US g.p.m. H = 41 ft	Shaft power P2: 5.7 hp	Discharge port: 4" ANSI
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Power data referred to:
Water, clean [100%] ; 68°F; 62.322lb/ft³; 1.0818E-5ft²/s

Testnorm: **HI Standard Sect. 14.6.3.4.1**

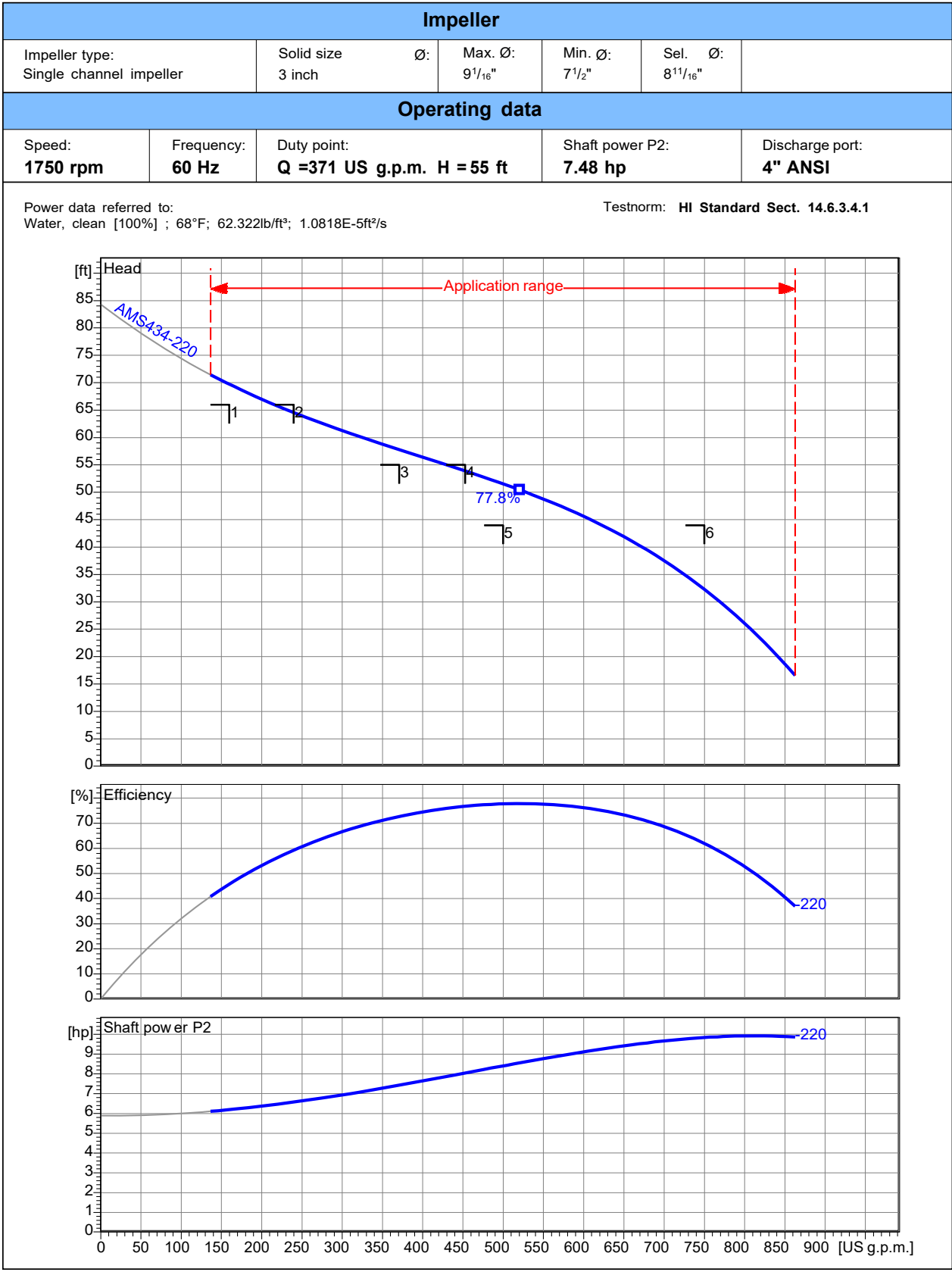


2.0.1 - 26.11.2013 (Build 100)

Project	Project no.:	Created by: nyackerman	Page: 2	Date: 2018-01-17
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Performance Curve 6

AMS434-220/10,4T/C FM

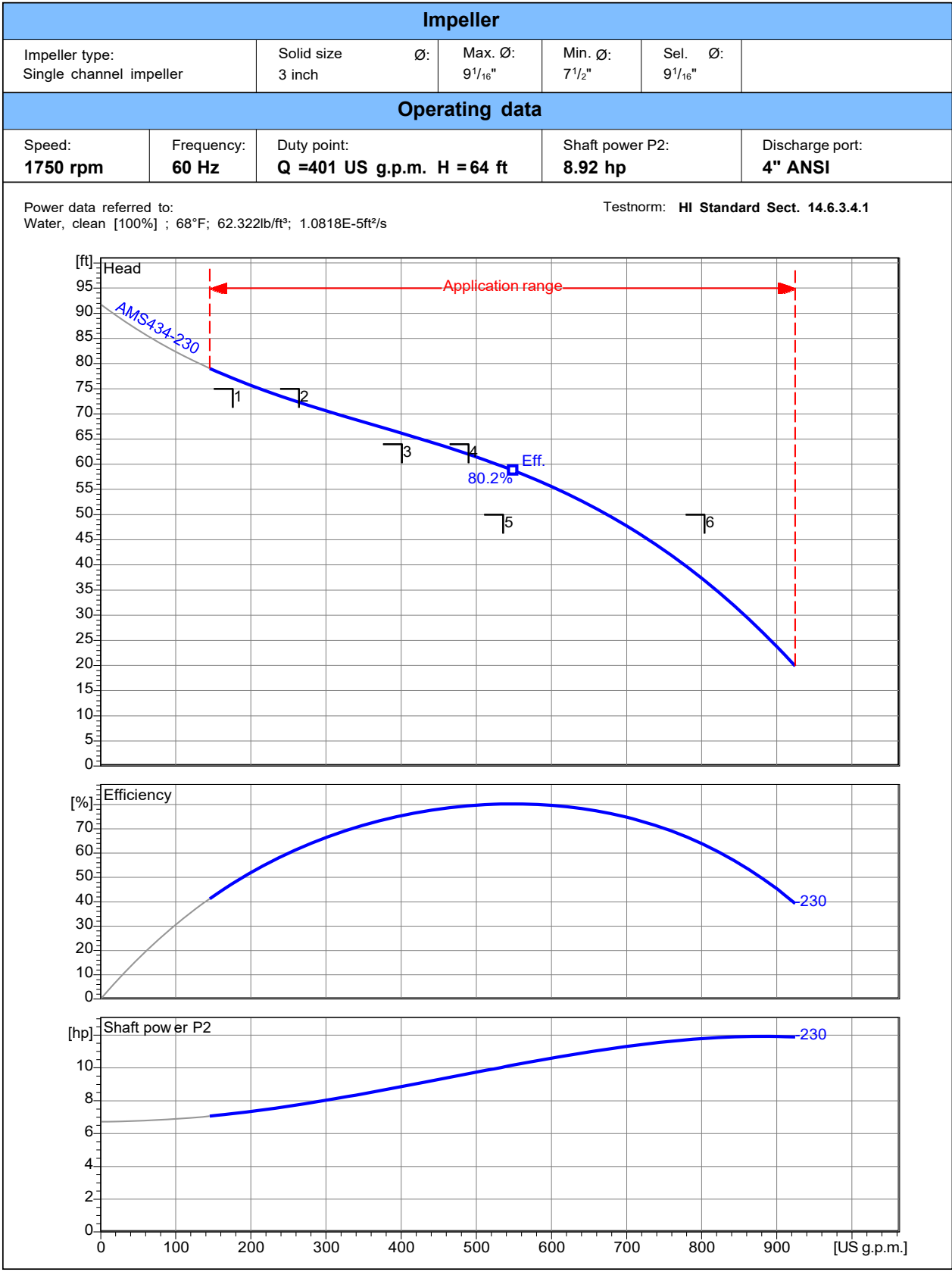


2.0.1 - 26.11.2013 (Build 100)

Project	Project no.:	Created by: nyackerman	Page: 2	Date: 2018-01-17
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Performance Curve 7

AMS434-230/13P/C FM

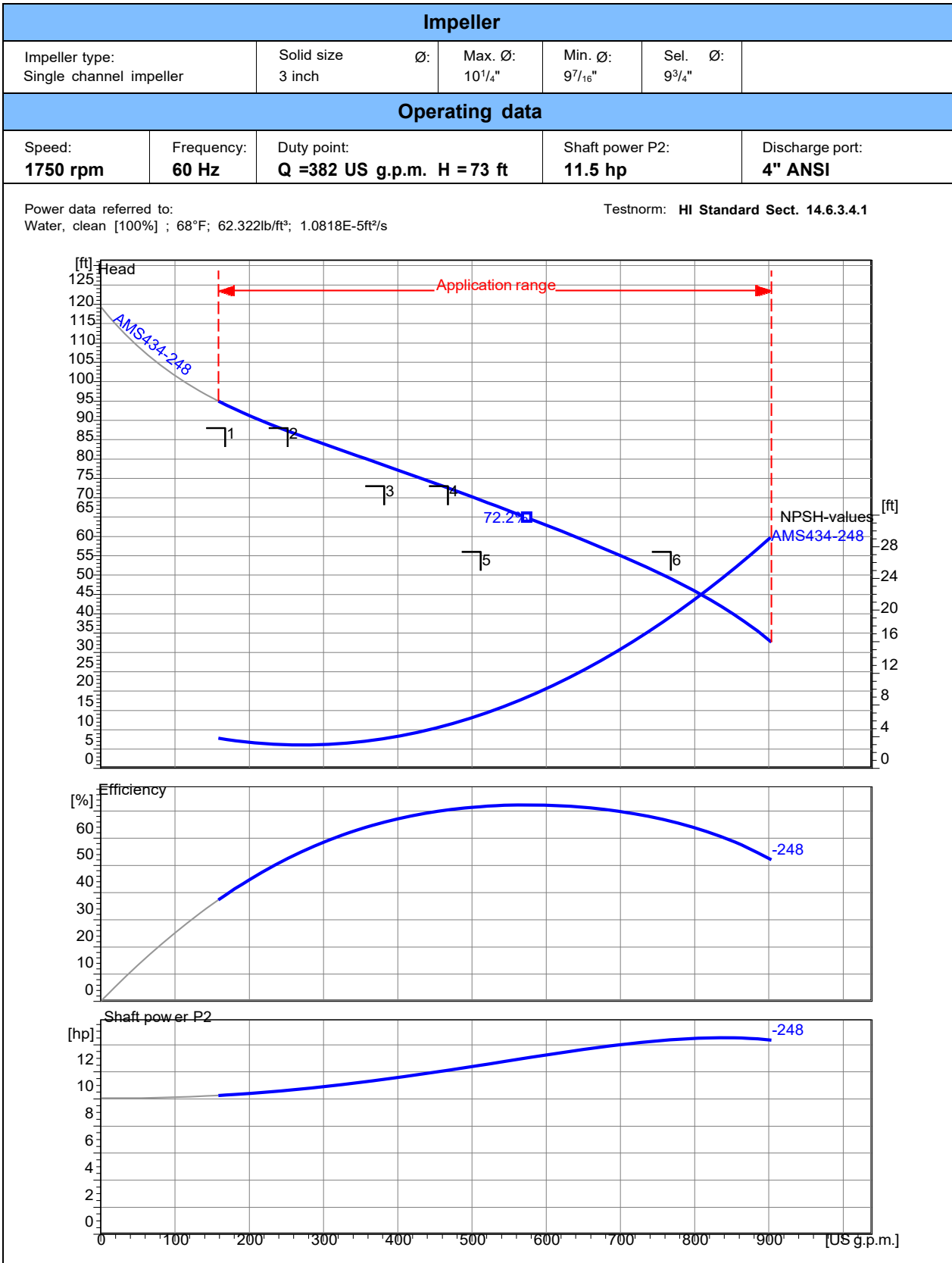


2.0.1 - 26.11.2013 (Build 100)

Project	Project no.:	Created by: nyackerman	Page: 2	Date: 2018-01-17
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Performance Curve 8

AMS434-248/15P/C FM

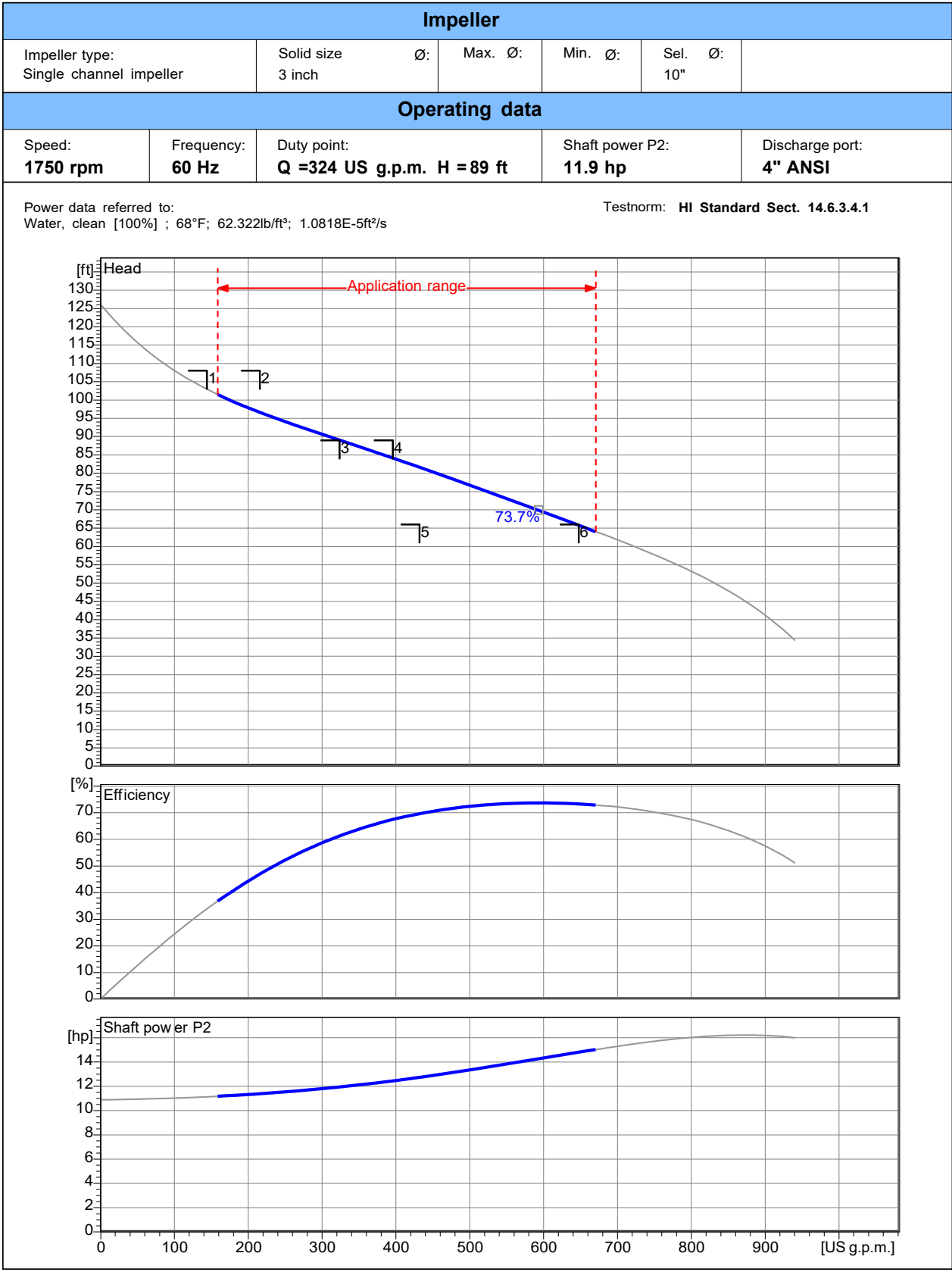


2.0.1 - 26.11.2013 (Build 100)

Project	Project no.:	Created by: nyackerman	Page: 2	Date: 2018-01-17
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Performance Curve 9

AMS434-255/15P/C FM



2.0.1 - 26.11.2013 (Build 100)

Project	Project no.:	Created by: nyackerman	Page: 2	Date: 2018-01-22
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Performance Curve 10

AMX644-260/20P/C FM



Impeller

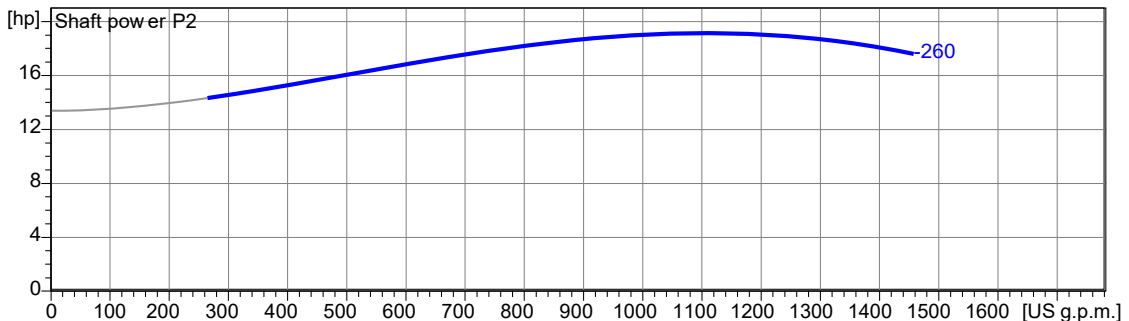
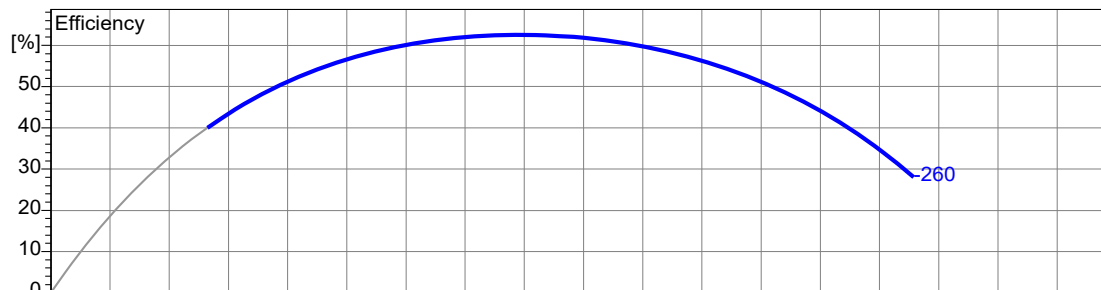
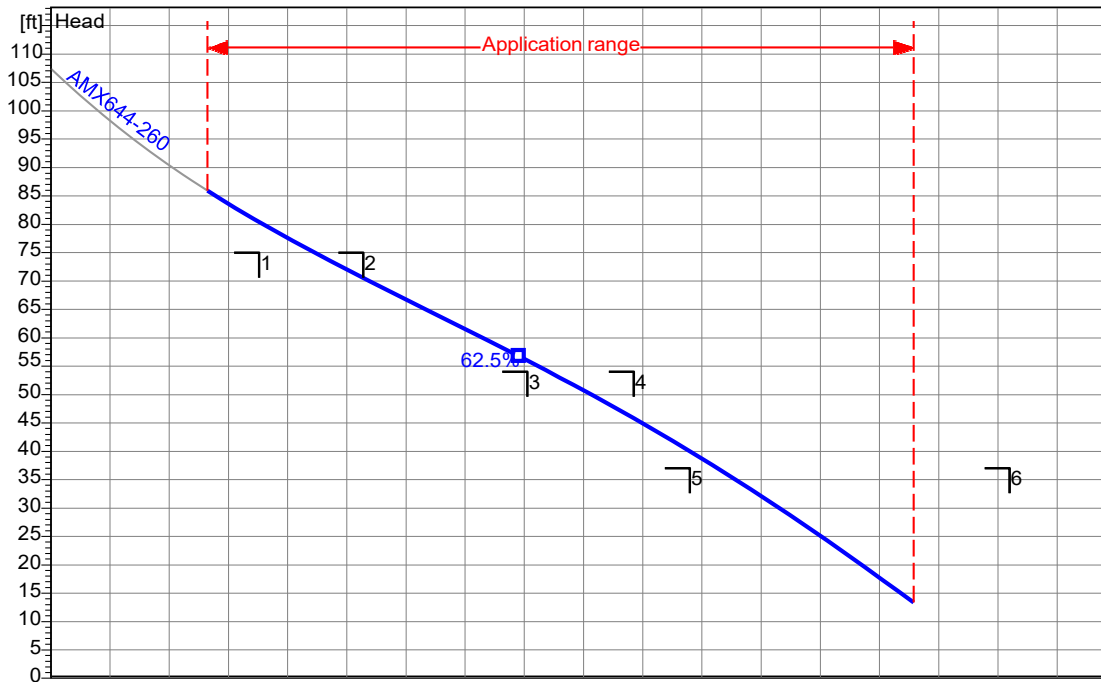
Impeller type: Single channel impeller	Solid size 4 inch	Ø:	Max. Ø: 12 ⁵ / ₁₆ "	Min. Ø: 10 ³ / ₈ "	Sel. Ø: 10 ³ / ₈ "
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Operating data

Speed: 1750 rpm	Frequency: 60 Hz	Duty point: Q =805 US g.p.m. H = 54 ft	Shaft power P2: 18.3 hp	Discharge port: 6" ANSI
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Power data referred to:
Water [100%] ; 68°F; 62.322lb/ft³; 1.0818E-5ft²/s

Testnorm: **P2>10kW, HI Standard Grade 2B**
P2<10kW, HI Standard Sect. 14.6.3.4.1

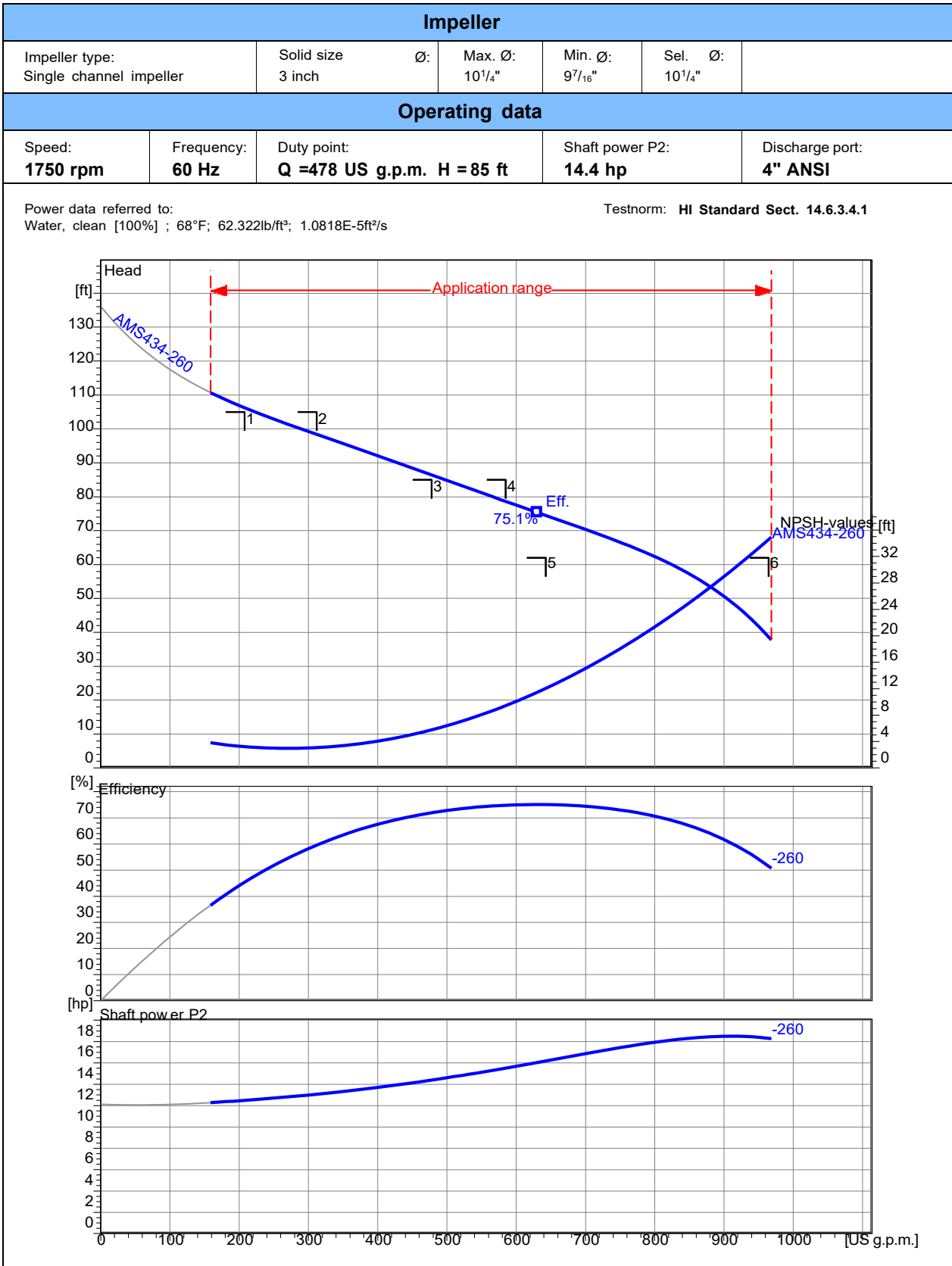


2.0.1 - 26.11.2013 (Build 100)

Project	Project no.:	Created by: nyackerman	Page: 2	Date: 2018-01-17
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Performance Curve 11

AMS434-260/20P/C FM



2.0.1 - 26.11.2013 (Build 100)

Project	Project no.:	Created by: nyackerman	Page: 2	Date: 2018-01-17
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Ebara Submersible Sewage Pump

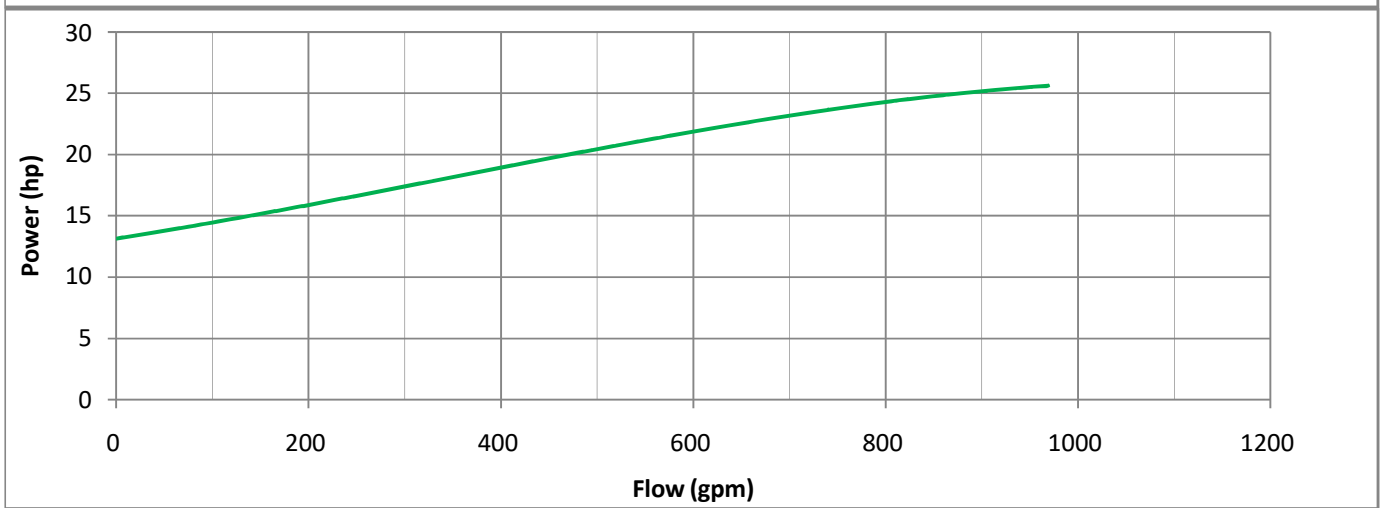
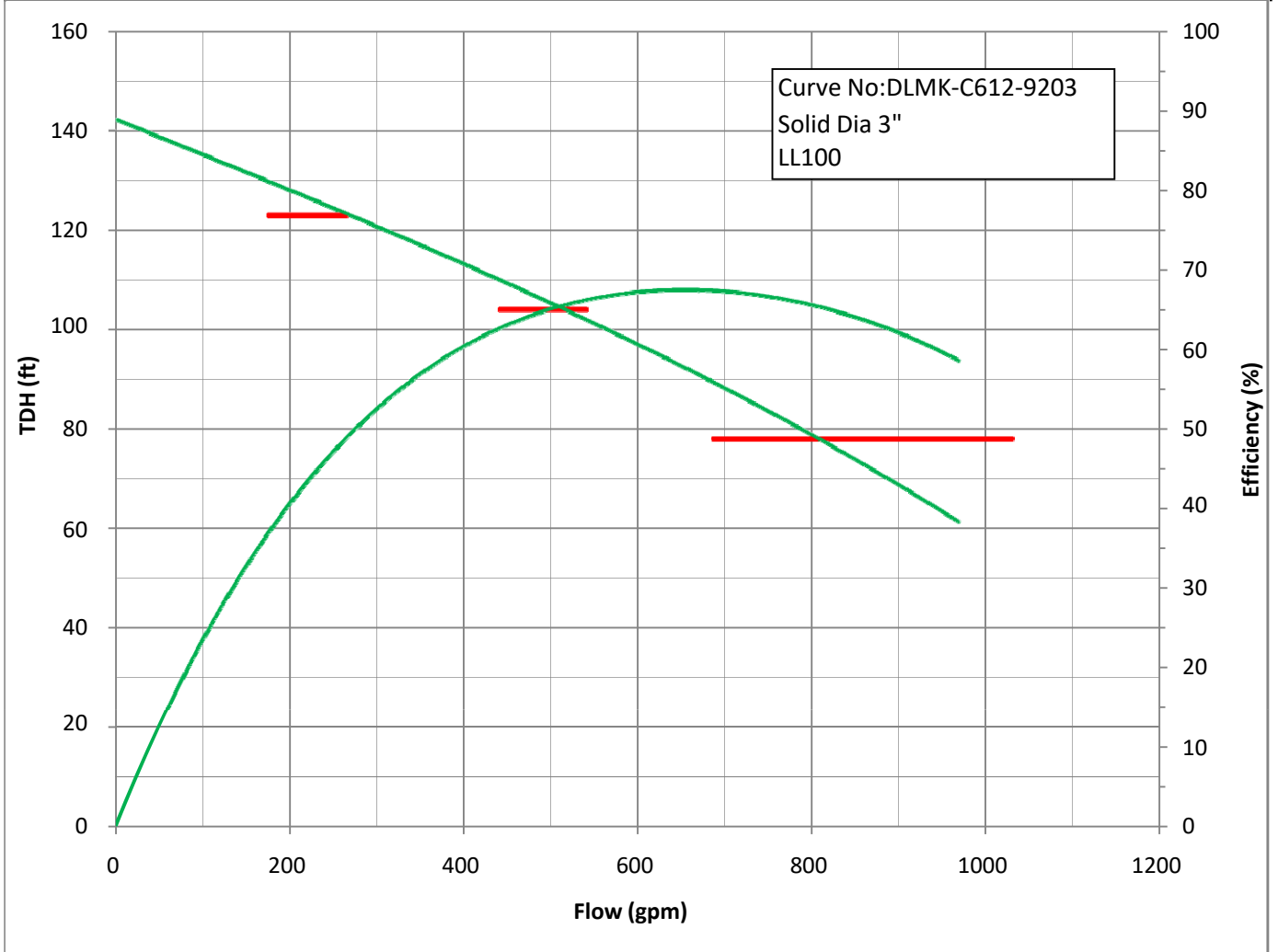
Performance Curve 12

Model: **100DLMBKFMU6182/4**

HP: **25**

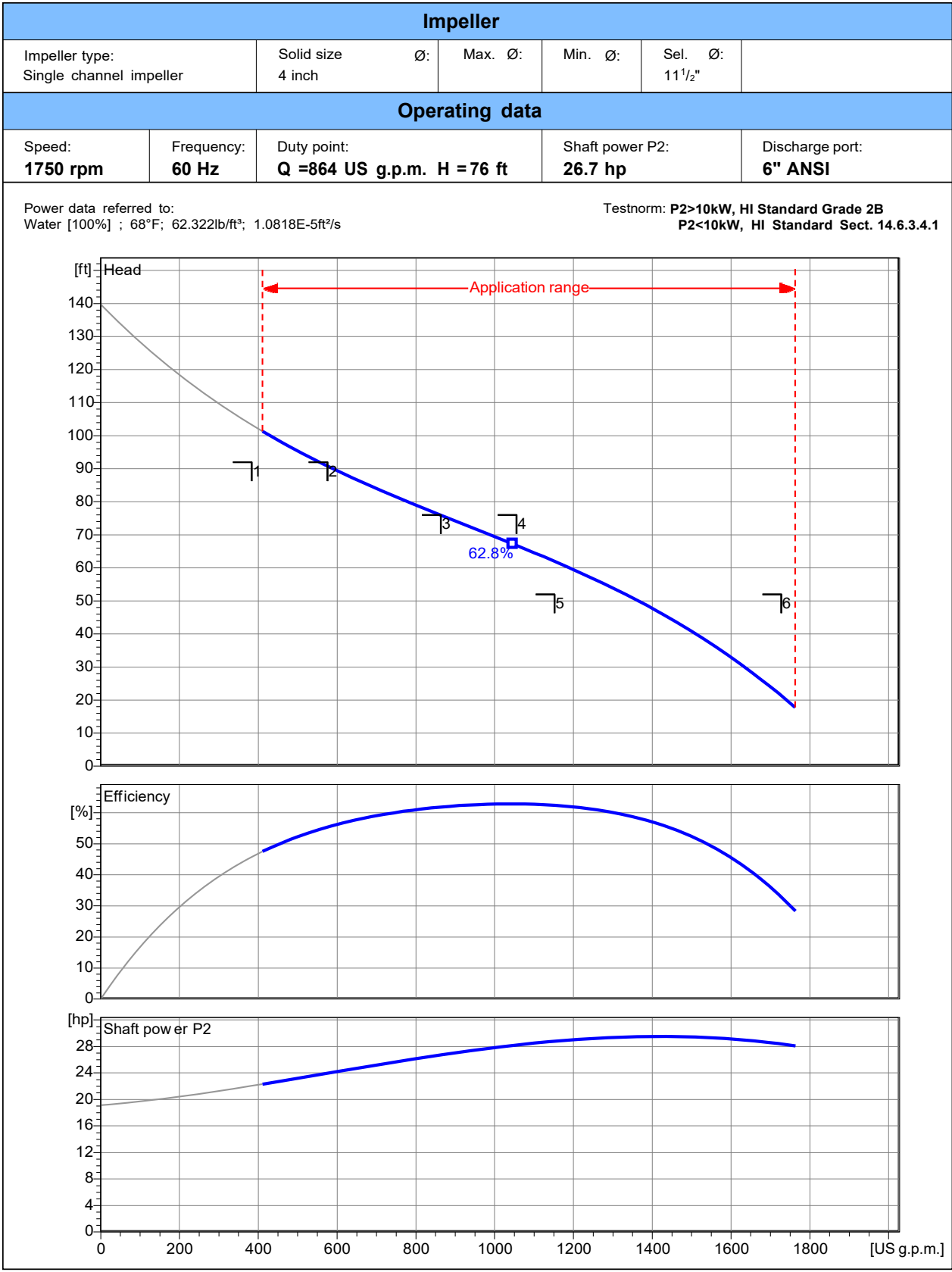
FLA: **66.6/33.3**

Date: **7/1/10**



Performance Curve 13

AMX644-300/30F/C FM

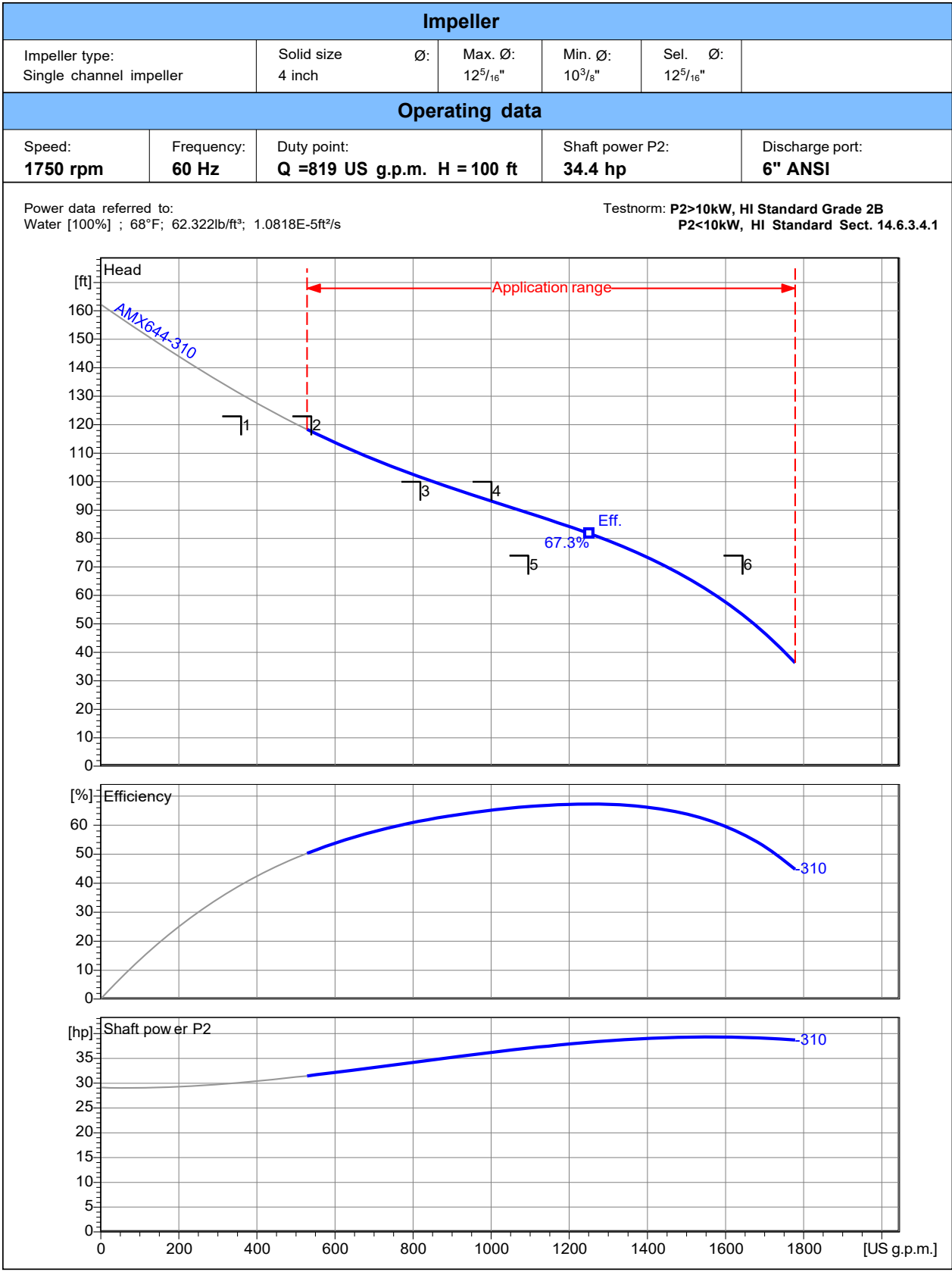


2.0.1 - 26.11.2013 (Build 100)

Project	Project no.:	Created by: nyackerman	Page: 2	Date: 2018-01-17
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Performance Curve 14

AMX644-310/39,2F/C FM



2.0.1 - 26.11.2013 (Build 100)

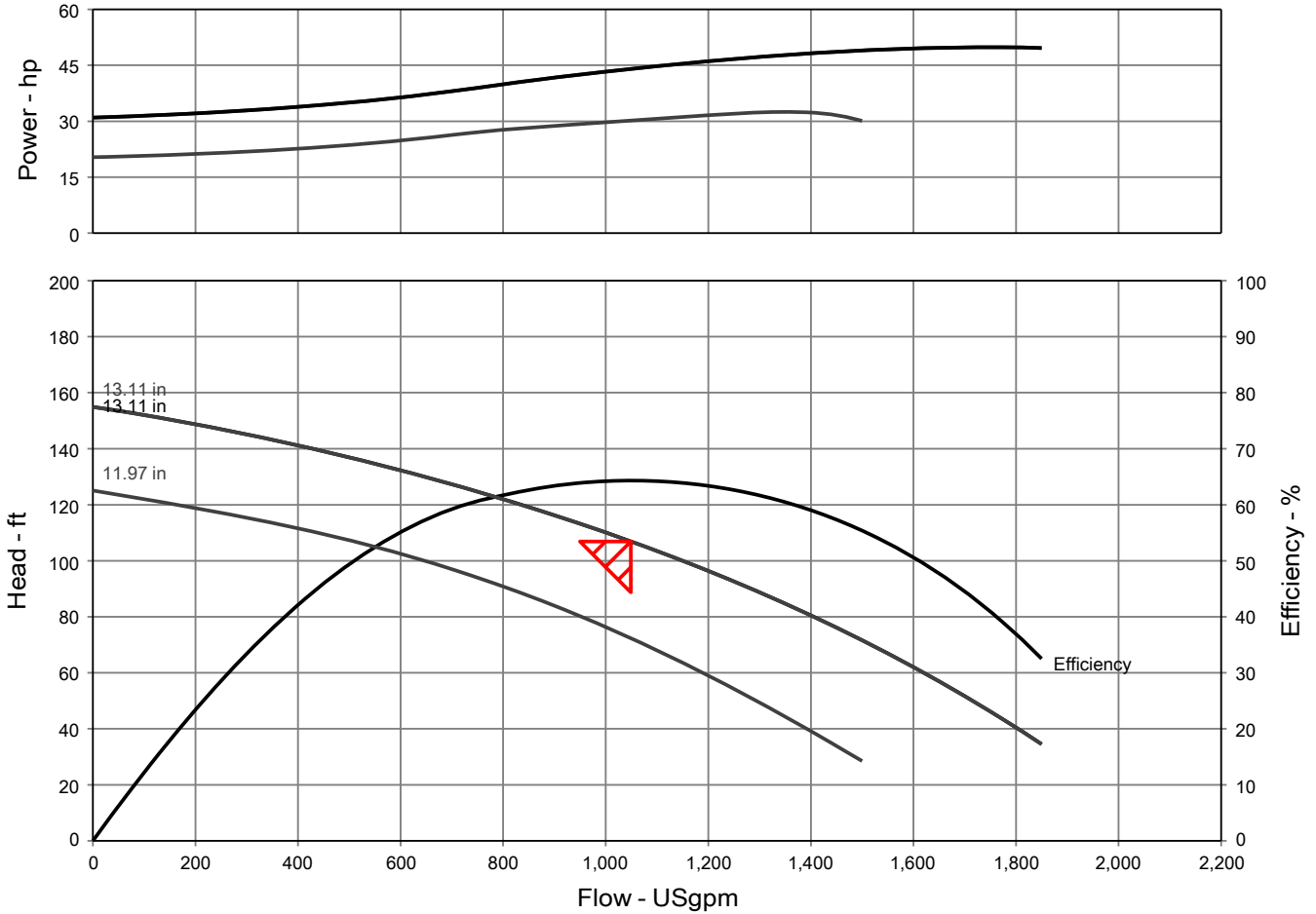
Project	Project no.:	Created by: nyackerman	Page: 2	Date: 2018-01-17
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Customer : BROWARD COUNTY
 Reference : 50 HP PUMP CURVE

Pump Performance Curve 15

Ebara Quotation System 17.3.1.0



Item number	: Default	Product Description	: 150DLFU637
Service	:	Stages	: 1
Quantity	: 1	Speed, rated	: 1770 rpm
Quote number	:	Based on curve number	: DLY-C602-9203
Date last saved	: 11 Jul 2017 11:19 AM	Efficiency	: 64.29 %
Flow, rated	: 1,049.3 USgpm	Power, rated	: 44.05 hp
Differential head / pressure, rated	: 106.9 ft	NPSH required	: -
Fluid density, rated / max	: 1.000 / 1.000 SG	Viscosity	: 1.00 cP
		Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010]	: 1.00 / 1.00 / 1.00 / 1.00



Ebara Submersible Sewage Pump

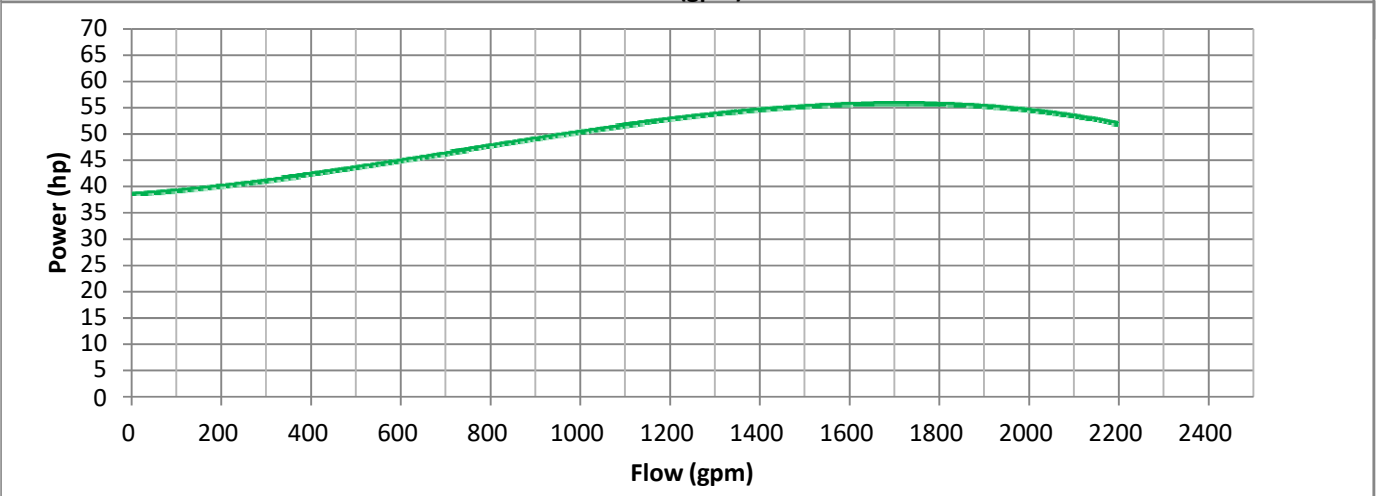
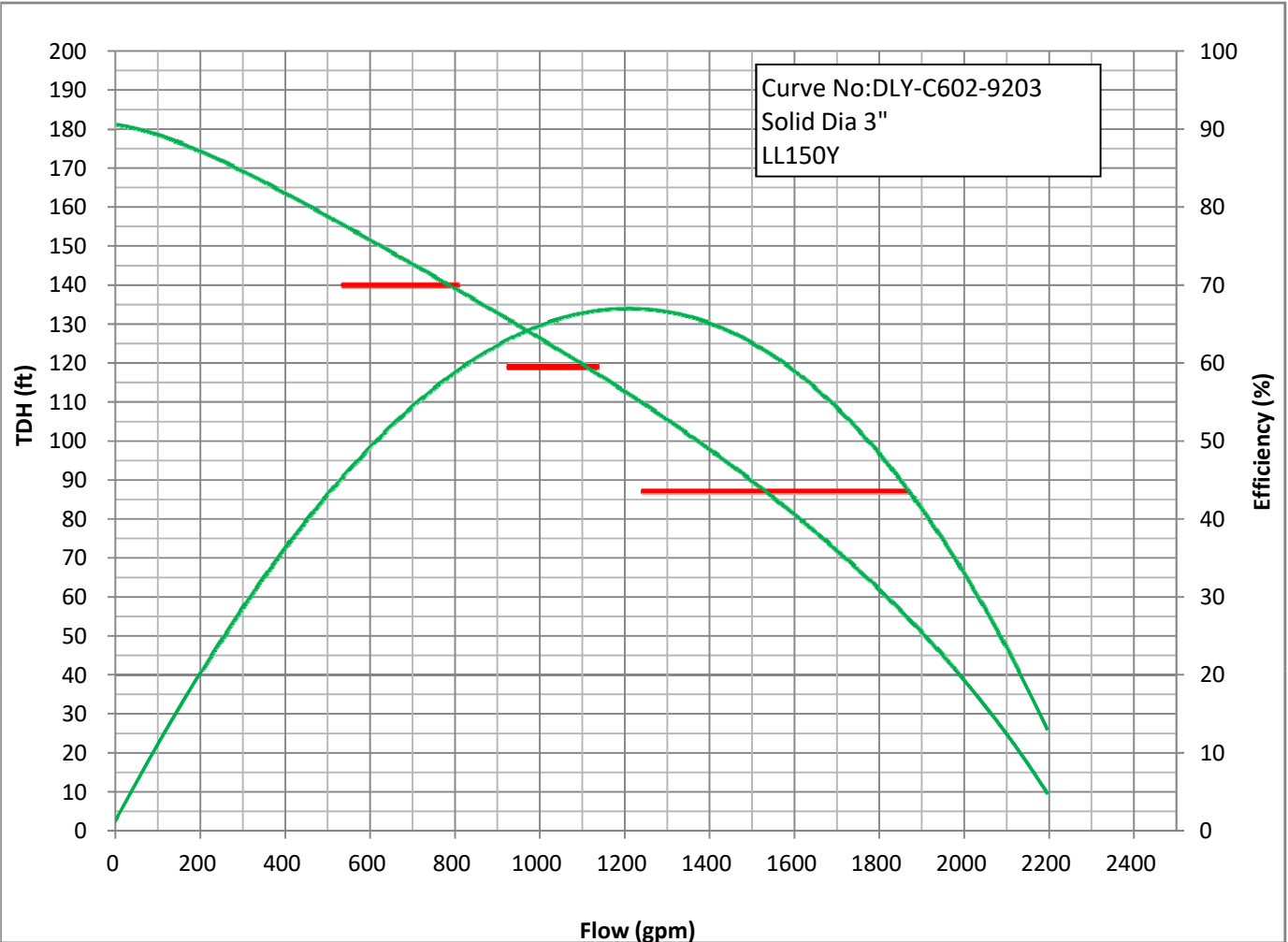
Performance Curve 16

Model: 150DLBFMU6452/4

HP: 60

FLA: 146/73

Date: 4/1/11





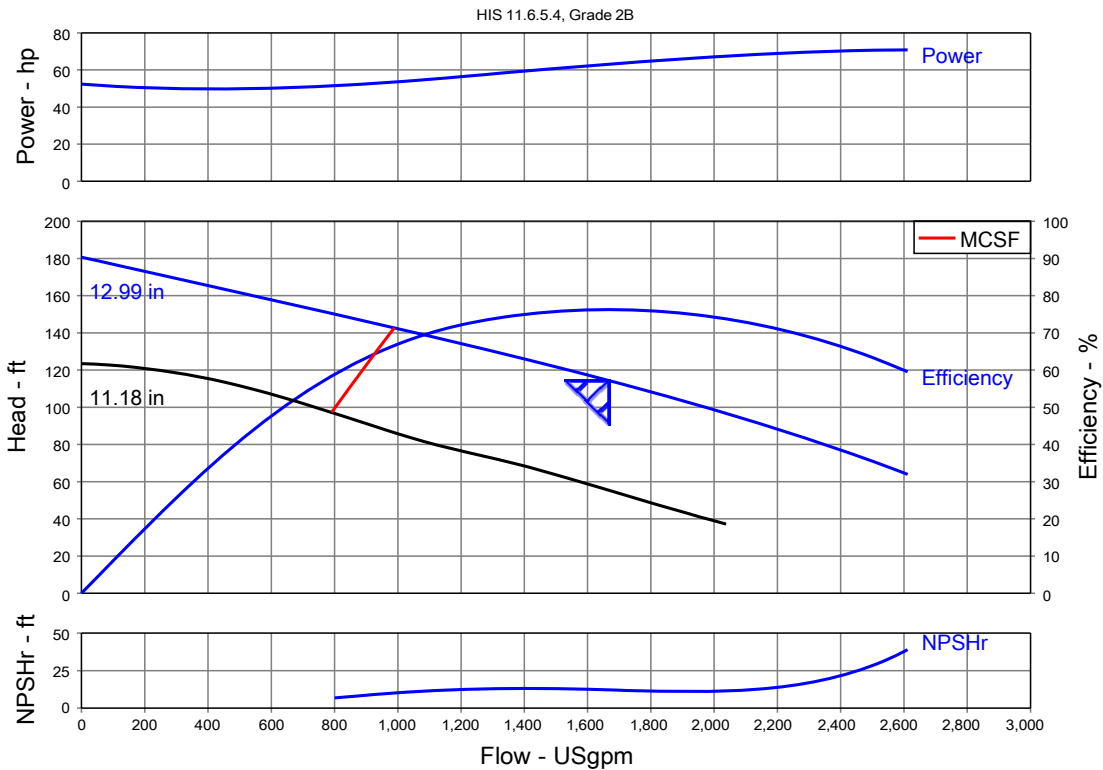
Customer :
Reference :

Pump Performance Curve 17

Ebara Quotation System 21.4.0

Item number	001	Product Description	: 150DSC4AO
Service	:	Stages	1
Quantity	1	Based on curve number	: AO
Quote number	1106438	Date last saved	: 12 Oct 2021 2:04 PM

Operating Conditions		Liquid	
Flow, rated	: 1,666.6 USgpm	Liquid type	: Cold Water
Differential head / pressure, rated (requested)	: 114.3 ft	Additional liquid description	:
Differential head / pressure, rated (actual)	: 114.4 ft	Solids diameter, max	: 0.00 in
Suction pressure, rated / max	: 0.00 / 0.00 psi.g	Solids concentration, by volume	: 0.00 %
NPSH available, rated	: Ample	Temperature, max	: 68.00 deg F
Site Supply Frequency	: 60 Hz	Fluid density, rated / max	: 1.000 / 1.000 SG
Performance		Viscosity, rated	: 1.00 cP
Speed criteria	: Synchronous	Vapor pressure, rated	: 0.00 psi.a
Speed, rated	: 1780 rpm	Material	
Impeller diameter, rated	: 12.99 in	Material selected	: Standard
Impeller diameter, maximum	: 12.99 in	Pressure Data	
Impeller diameter, minimum	: 11.18 in	Maximum working pressure	: 78.18 psi.g
Efficiency	: 76.23 %	Maximum allowable working pressure	: N/A
NPSH required / margin required	: 12.18 / 0.00 ft	Maximum allowable suction pressure	: N/A
Ns (imp. eye flow) / Nss (imp. eye flow)	: 2,078 / 11,146 US Units	Hydrostatic test pressure	: N/A
MCSF	: 988.7 USgpm	Driver & Power Data (@Max density)	
Head, maximum, rated diameter	: 180.6 ft	Driver sizing specification	: Rated power
Head rise to shutoff	: 57.99 %	Margin over specification	: 0.00 %
Flow, best eff. point	: 1,666.6 USgpm	Service factor	: 1.00
Flow ratio, rated / BEP	: 100.00 %	Power, hydraulic	: 48.11 hp
Diameter ratio (rated / max)	: 100.00 %	Power, rated	: 63.11 hp
Head ratio (rated dia / max dia)	: 99.93 %	Power, maximum, rated diameter	: 70.78 hp
Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010]	: 1.00 / 1.00 / 1.00 / 1.00	Minimum recommended motor rating	: 75.00 hp / 55.93 kW
Selection status	: Acceptable		

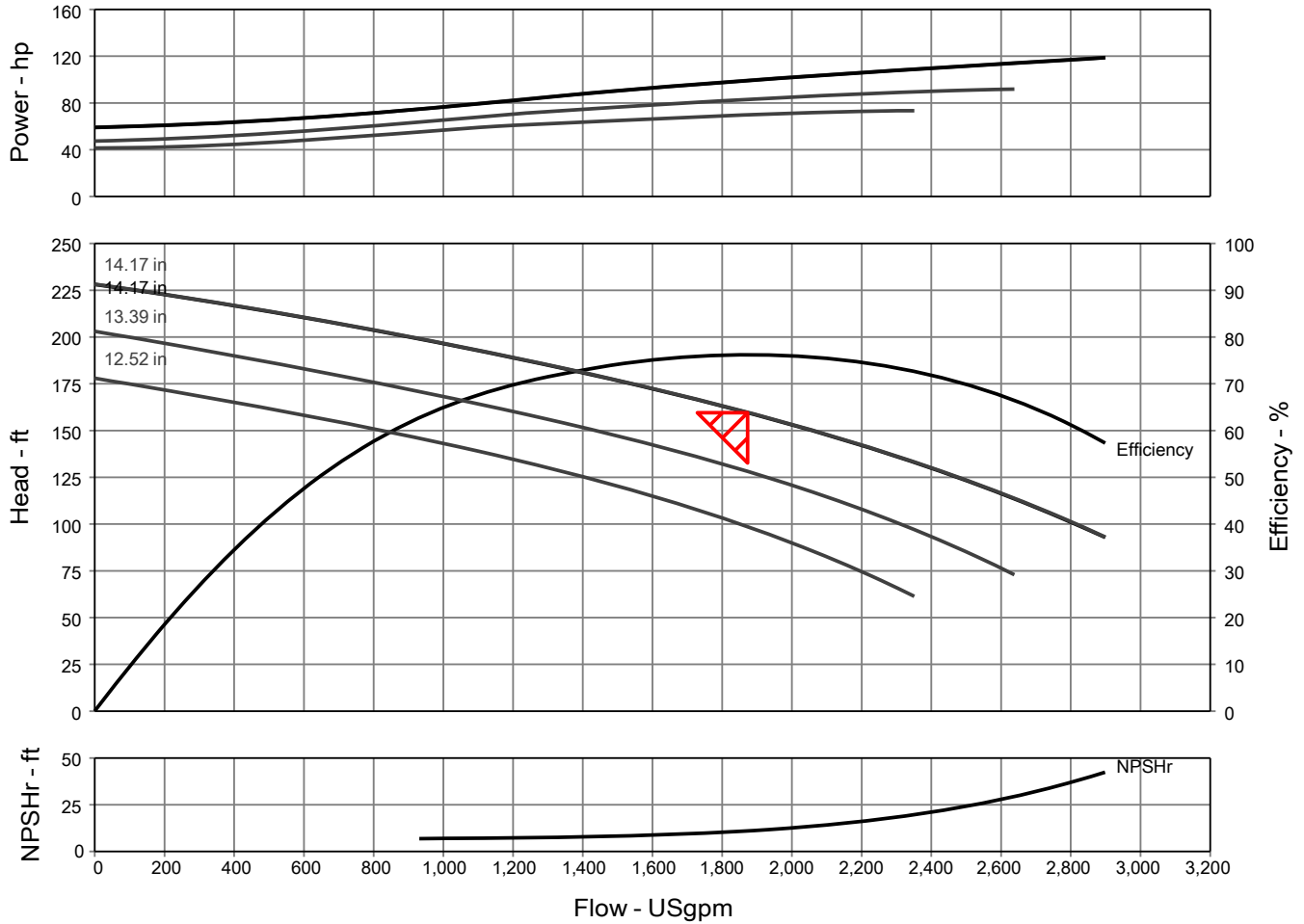




Customer : BROWARD COUNTY
 Reference : 100 HP PUMP CURVE

Pump Performance Curve 18

Ebara Quotation System 17.3.1.0



Item number	: Default	Product Description	: 150DSC4BC
Service	:	Stages	: 1
Quantity	: 1	Speed, rated	: 1780 rpm
Quote number	:	Based on curve number	: BC
Date last saved	: 11 Jul 2017 11:16 AM	Efficiency	: 76.17 %
Flow, rated	: 1,873.3 USgpm	Power, rated	: 99.07 hp
Differential head / pressure, rated	: 159.5 ft	NPSH required	: 10.96 ft
Fluid density, rated / max	: 1.000 / 1.000 SG	Viscosity	: 1.00 cP
		Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010]	: 1.00 / 1.00 / 1.00 / 1.00