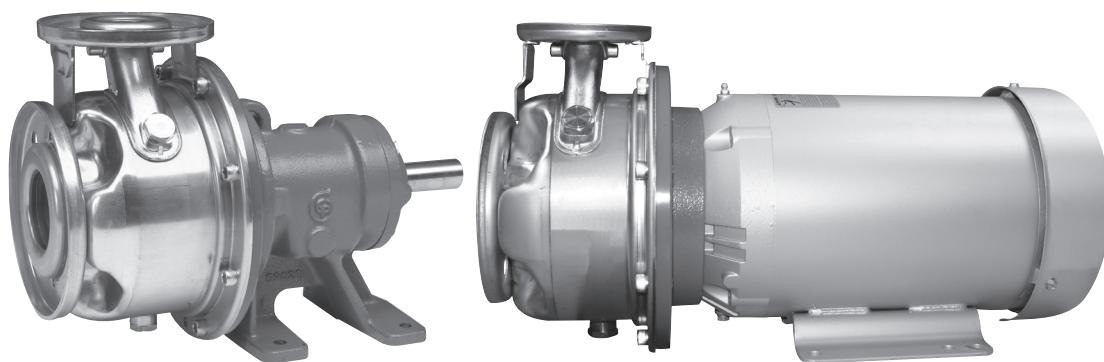


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TECHNICAL BROCHURE

BeSH R2



e-SH

316 STAINLESS STEEL END SUCTION CENTRIFUGAL PUMPS
EQUIPPED WITH NEMA PREMIUM EFFICIENT MOTORS

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GENERAL INTRODUCTION

The new and improved Goulds Water Technology e-SH Series is a high performance stainless steel centrifugal end-suction pump. The e-SH is fully made in AISI 316 stainless steel which makes it suitable for handling water as well as non-aggressive or moderately aggressive fluids. The pumps are equipped with interchangeable John Crane Type 21 mechanical seals, NEMA motors in single and three phase, and have a back pull-out design (impeller, bracket and motor can be extracted without disconnecting the pump body from the piping). The e-SH series pumps are available in the following configurations:

- **Close-coupled:** compact design that saves space and simplifies maintenance.
- **Frame mounted:** flexible-coupled with cast iron power frame (grease lubricated ball bearing assembly).
- **Bare shaft pump:** bare pump suitable to be coupled with a standard electric motor.

Pumps assembled at the factory are certified to the NSF/ANSI 61 Drinking Water System Components Standard.

HYDRAULIC SPECIFICATIONS

- Maximum flow: up to **1140 gpm**
- Maximum head: up to **464 ft TDH**
- Hydraulic performance compliant with **ANSI/HI 14.6 Grade 2B**
- Maximum temperature: up to 250 °F
- Maximum working pressure: 230 psi
- Suction and Discharge Flanges: mate with ANSI class 150 flanges.
- Enclosed impeller and replaceable wear ring: for high efficiency and maximum wear life.
- Connection dimensions according to EN 733 (except for ESH 25 models)

MOTOR SPECIFICATIONS

Close Coupled

- NEMA standard JM shaft open drip-proof, totally enclosed and explosion-proof enclosures, 60 Hz, 1750 or 3500 RPM.
- Single phase ODP (115/230V) 1750 RPM, 1-5 HP.
- Three phase ODP, TEFC, Explosion proof (208-230/460V).
3500 RPM, 2-100 HP
1750 RPM, 1-25 HP

Overload protection must be provided. Contactor with overload for single phase or starter with heaters for three phase ordered separately.

Frame Mounted

- NEMA standard T-frame open drip-proof, totally enclosed and explosion-proof (three phase only) enclosures, 60Hz, 1750 or 3500 RPM.
- Single phase (115/230V) 1750 RPM, 1-5 HP
- Three phase (208-230/460V)
3500 RPM, 3-125 HP
1750 RPM, 1-25 HP

Overload protection must be provided. Contactor with overload for single phase or starter with heaters for three phase ordered separately.

Optional: Rigid carbon steel bedplate, sheet metal coupling guard designed to OSHA specifications and T.B. Woods type "SC" spacer couplings.

APPLICATIONS

The **e-SH** is suitable for a wide range of non-aggressive to mildly aggressive fluids in commercial building, industrial & diverse OEM applications.

- Water intake
- Water transfer and circulation
- Pressure boosting
- Process cooling and heating
- Fluid transfer and transport
- Produced water transfer and boosting
- Boiler feed booster

PUMPED FLUIDS

- Groundwater
- Potable water
- Process water
- Gray/used water
- Heat transfer fluids
- Produced water

BENEFITS

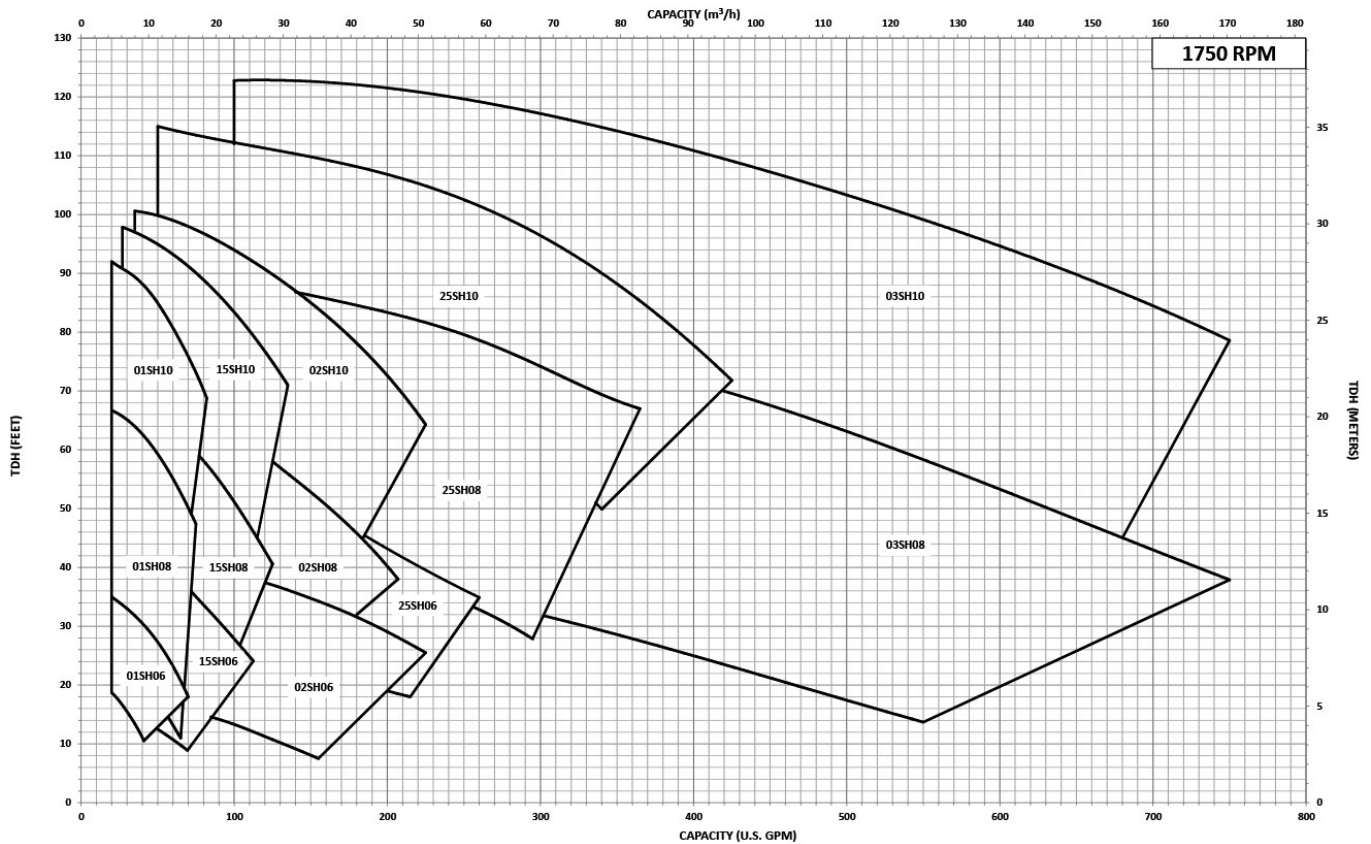
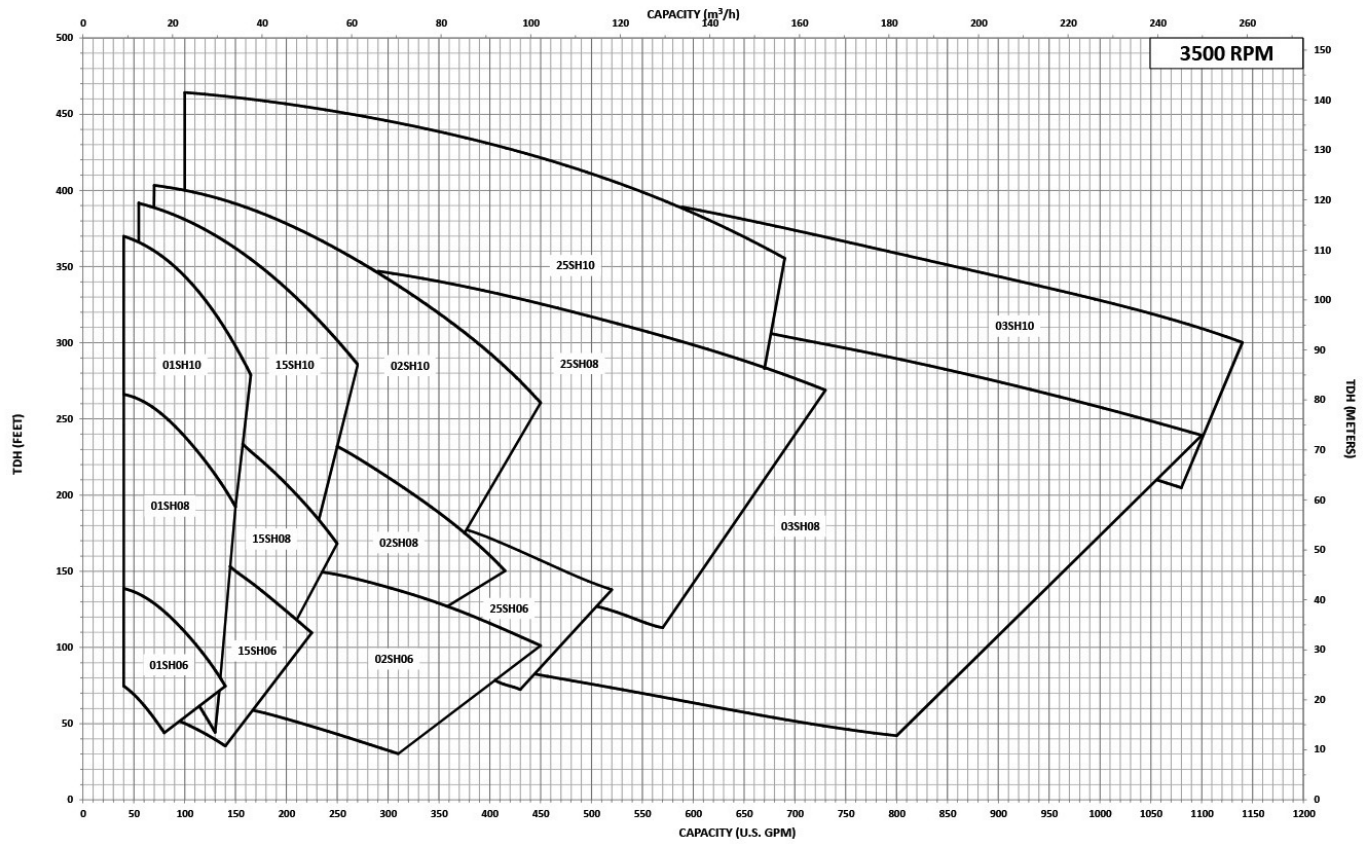
The GWT model e-SH provides the following benefits:

Reliability: the high quality production, the robust construction and operation, the easily interchangeable mechanical seals, and wear rings guarantee a continuous operation without faults and a shorter down time for maintenance.

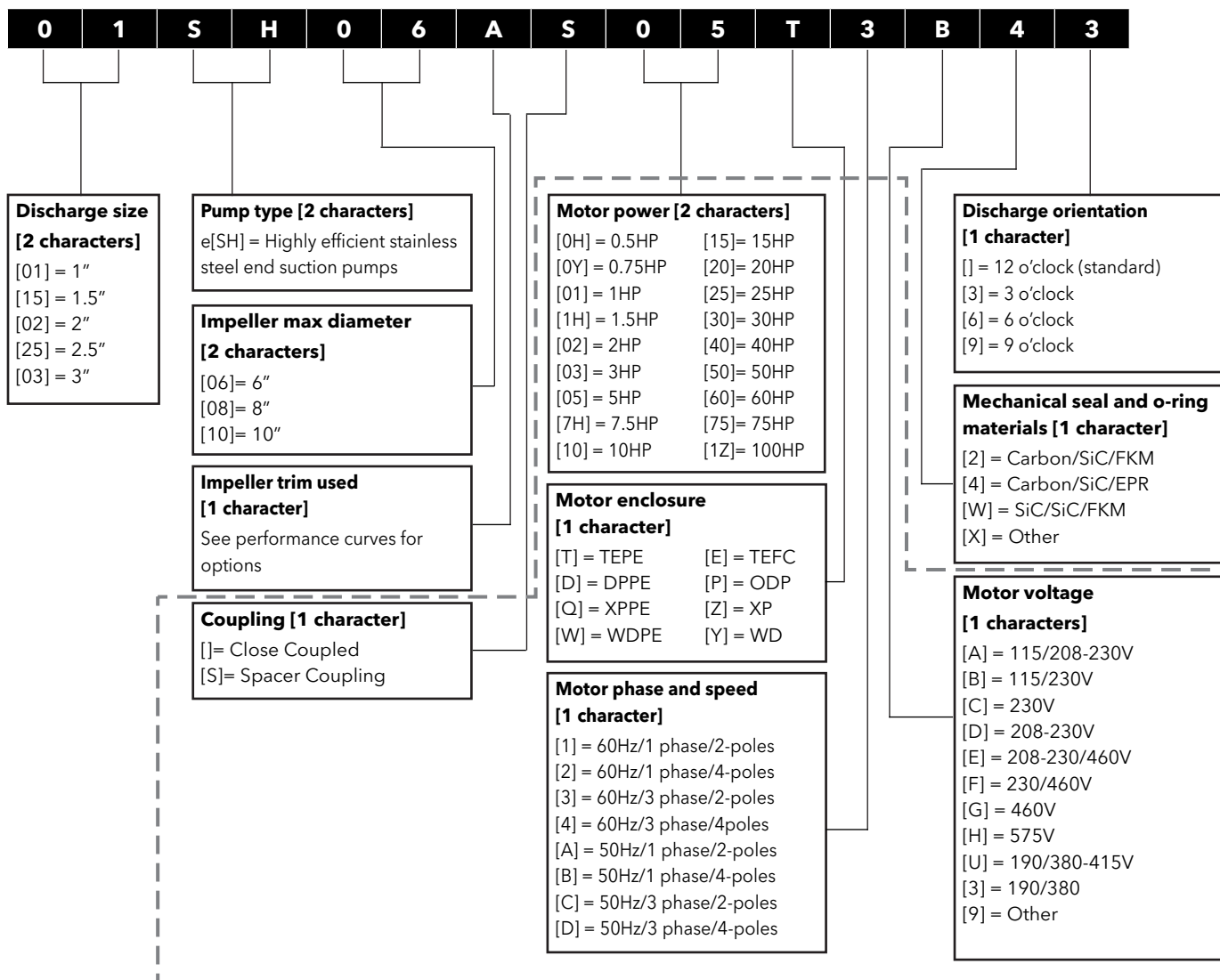
Total cost of ownership: the best hydraulic and electric efficiency and the easy and quick maintenance reduce the operation and maintenance costs and save energy.

Expert support: Since the proper selection and configuration of the e-SH pump is critical to long-term efficiency and dependability, give us a call. We are continuously working with our customers to help them in selecting the right pump for their specific application. Intellitronic X, our user-friendly online selection tool is also available to help you configure your pump. We'll assemble your pump and get it on its way. Intellitronic X is available at www.gouldsintellitronic.com.

PERFORMANCE COVERAGE AT 60 HZ, 2-POLES AND 4-POLES



e-SH SERIES PRODUCT NUMBERING SYSTEM



NOTE: For bareshaft pump, replace characters 8-13 by "FRM2" for 7/8" Imp. Bore or "FRM3" for 1 1/4" Imp. Bore
 For frame mounted pump, replace characters 9-13 by "FRM2" for 7/8" Imp. Bore or "FRM3" for 1 1/4" Imp. Bore

EXAMPLES

Close Coupled Pump

01SH06A05T3B43

Series e-SH, 1"x2"x6", used with impeller trim "A", 5HP motor, TEPE enclosure, 60 Hz / 3 phase / 2-poles, 115/230V, with mechanical seal C/SiC/EPR, discharge oriented at 3 o'clock.

Bareshaft Pump

01SH06AFRM24

Bare pump, series e-SH, 1"x2"x6", used with impeller trim "A", that will use an S-frame, with mechanical seal C/SiC/EPR.

Frame Mounted Pump with Motor (e-SHF)

01SH06ASFRM243 - "motor catalog number"

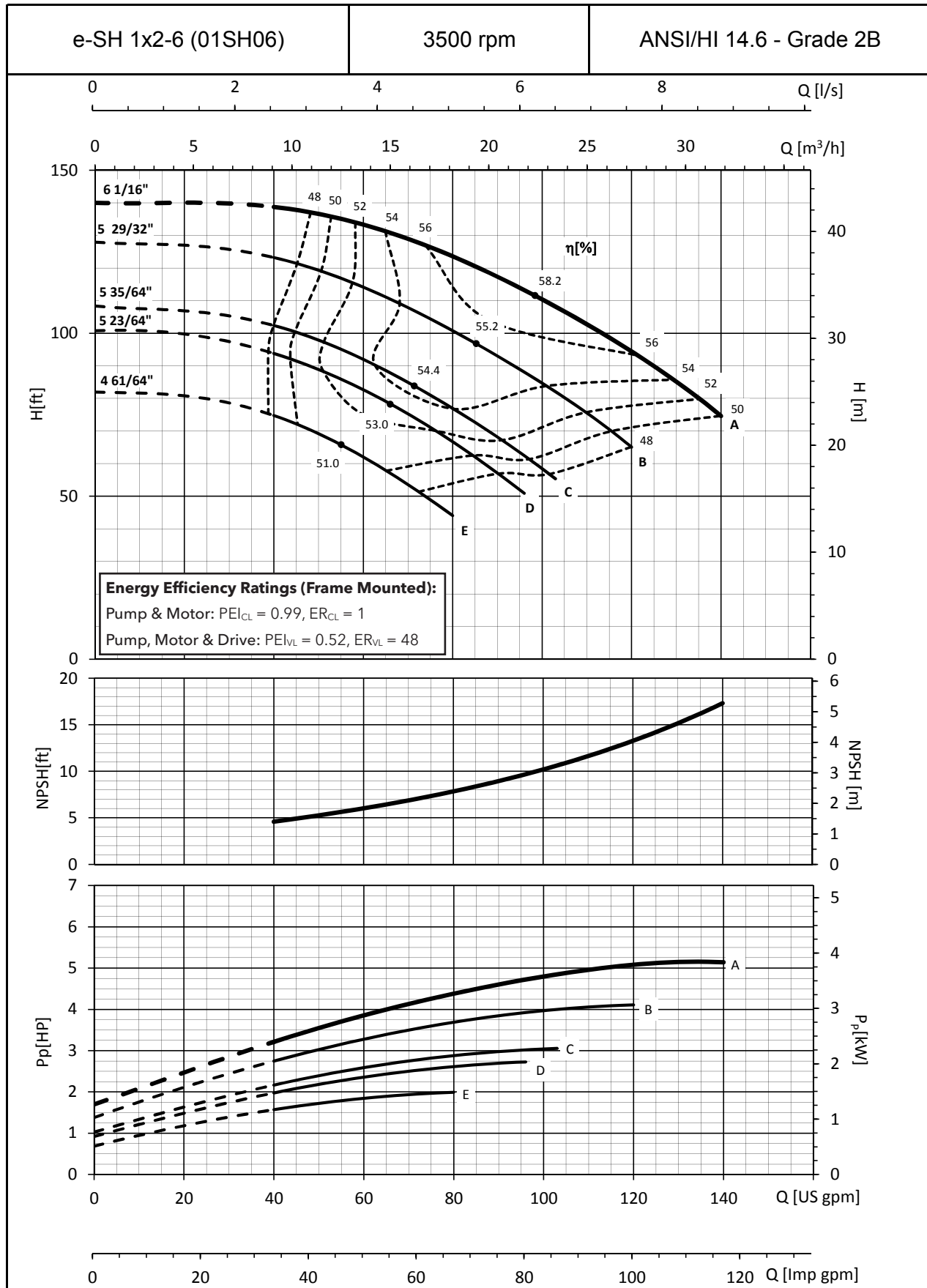
Frame mounted pump with motor, series e-SH, 1"x2"x6", used with impeller trim "A", spacer coupling, with mechanical seal C/SiC/EPR, discharge oriented at 3 o'clock

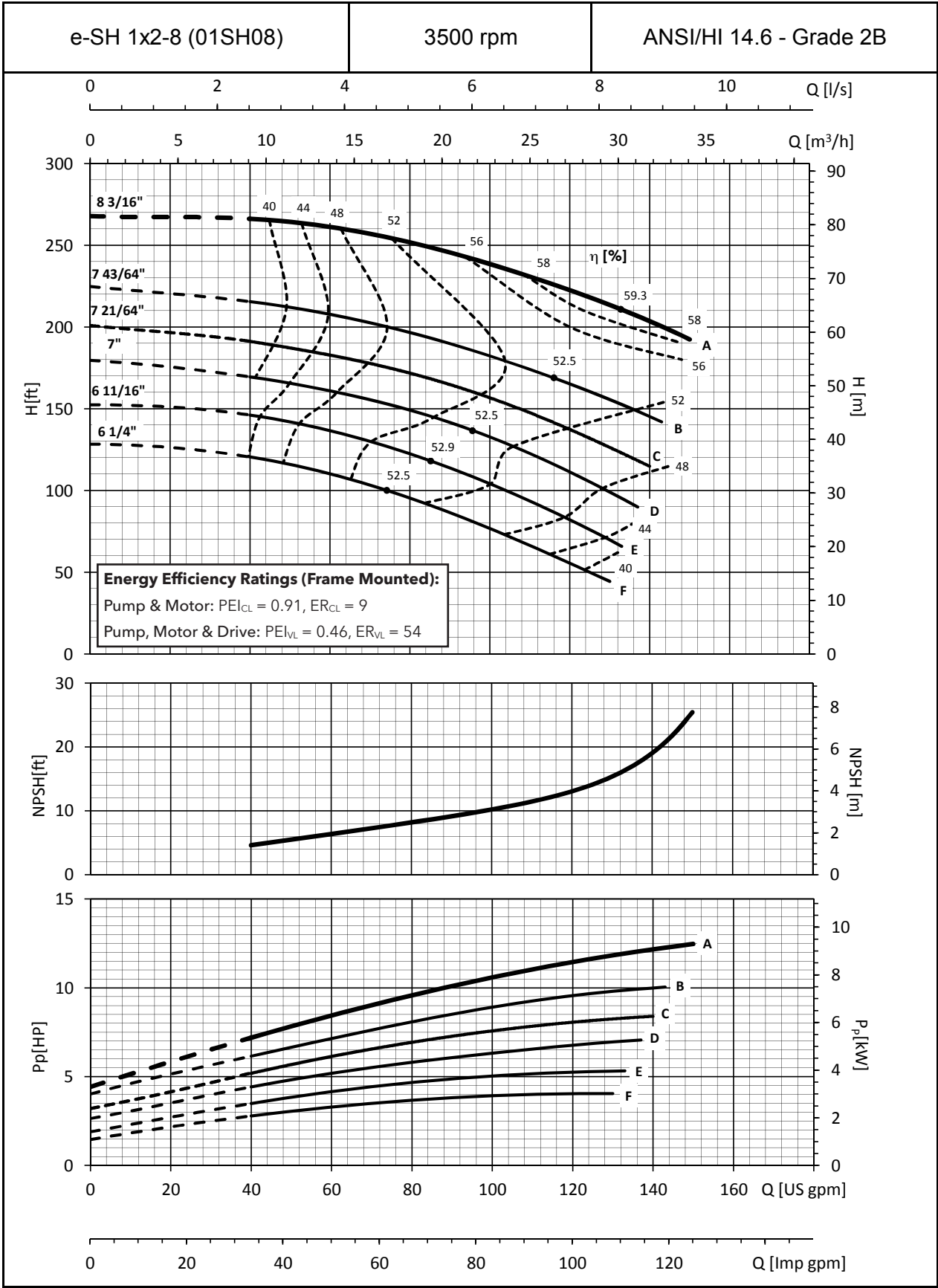
Frame Mounted Pump w/o Motor

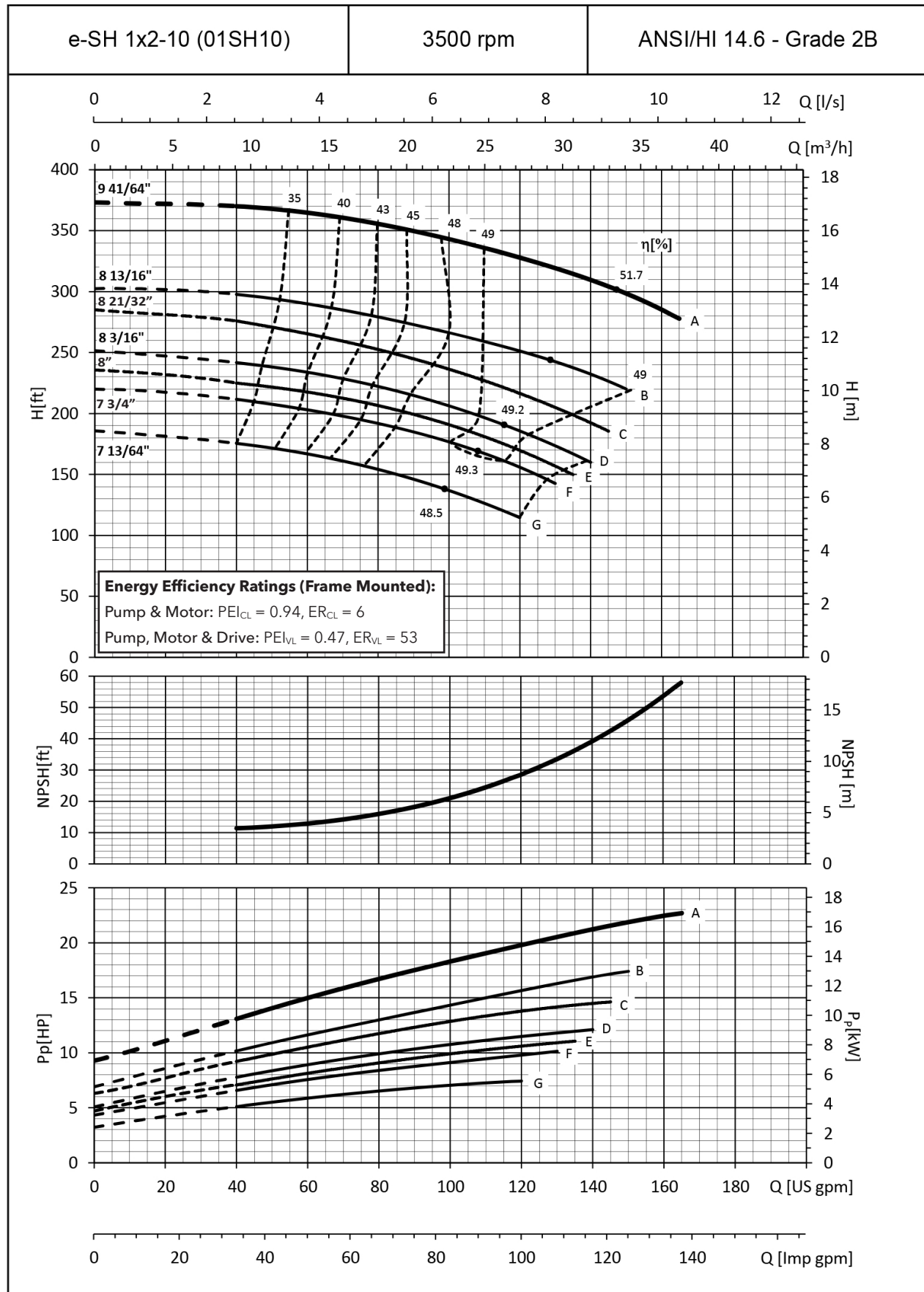
01SH06ASFRM24 - "base plate catalog number"

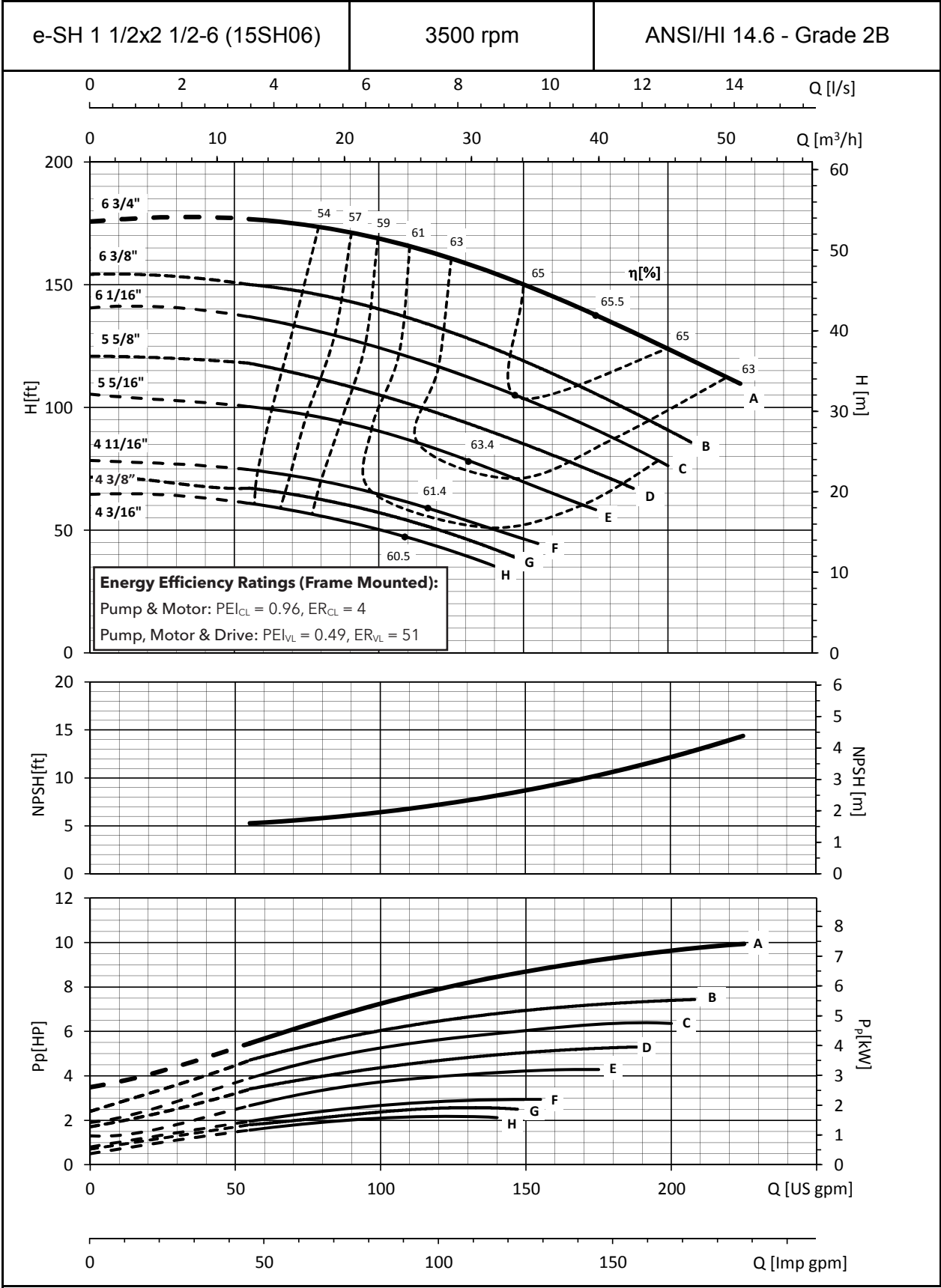
Frame mounted pump, series e-SH, 1"x2"x6", used with impeller trim "A", spacer coupling, with mechanical seal C/SiC/EPR.

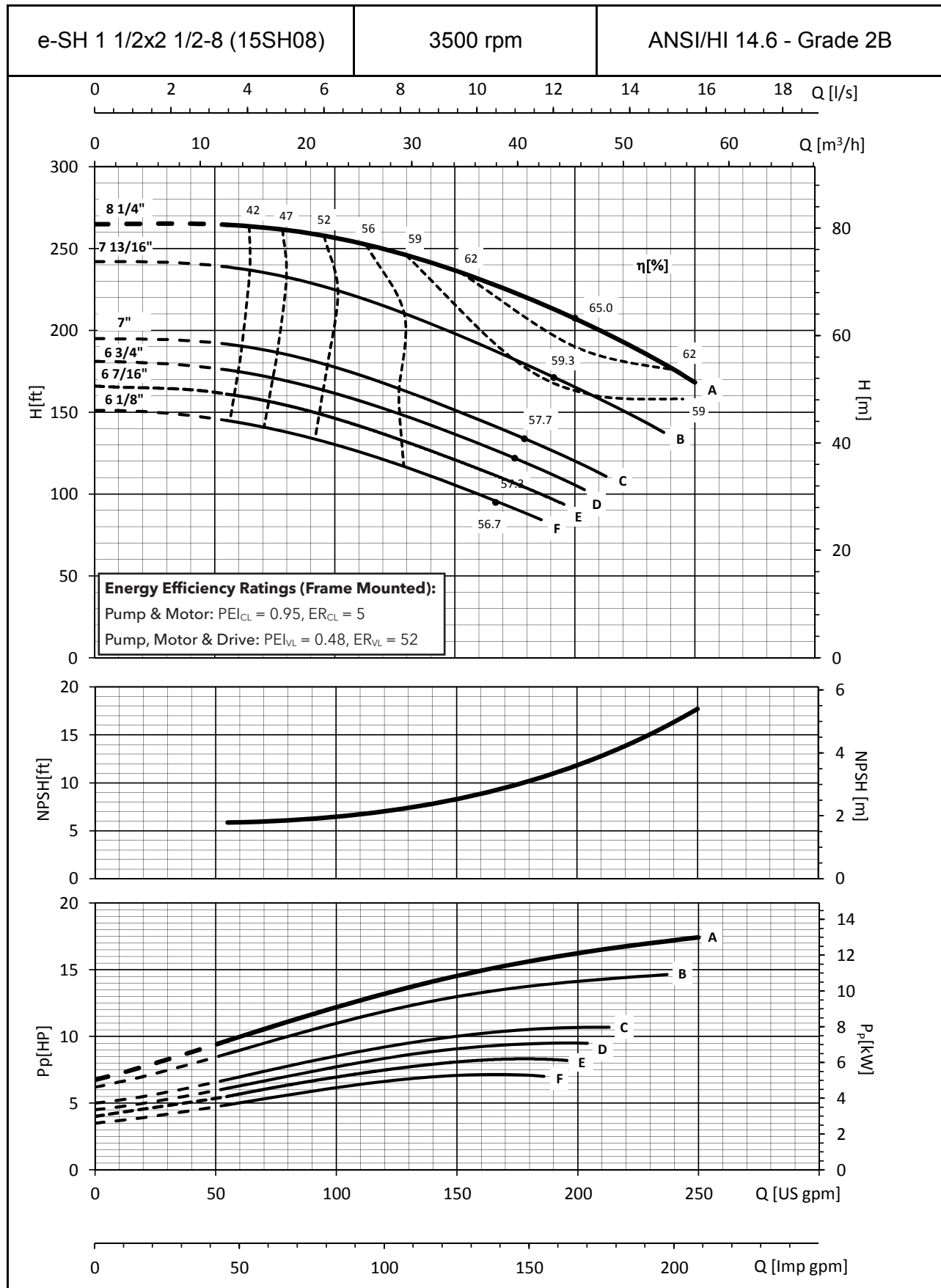
PERFORMANCE CURVES AT 60 HZ, 2-POLES

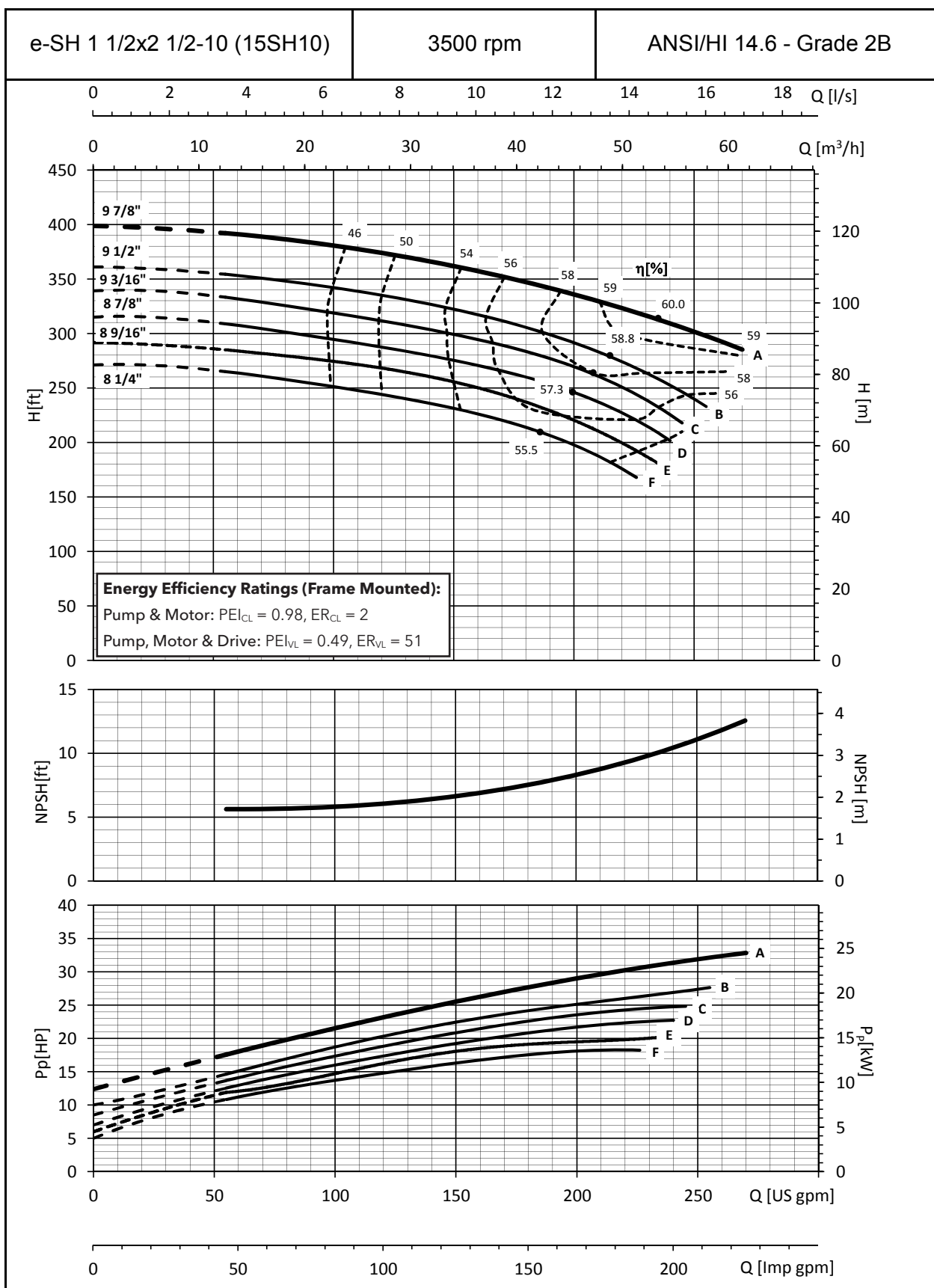


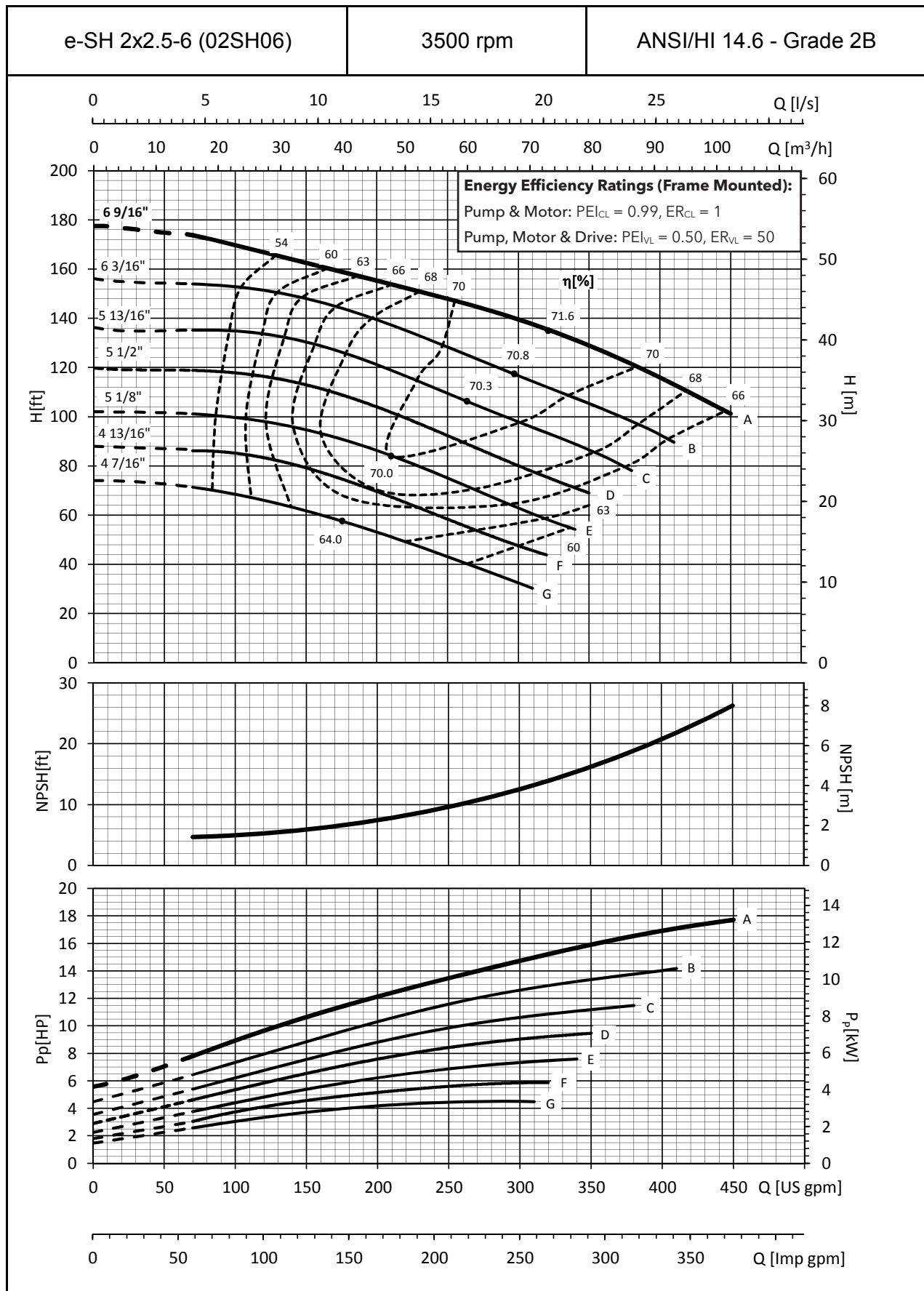


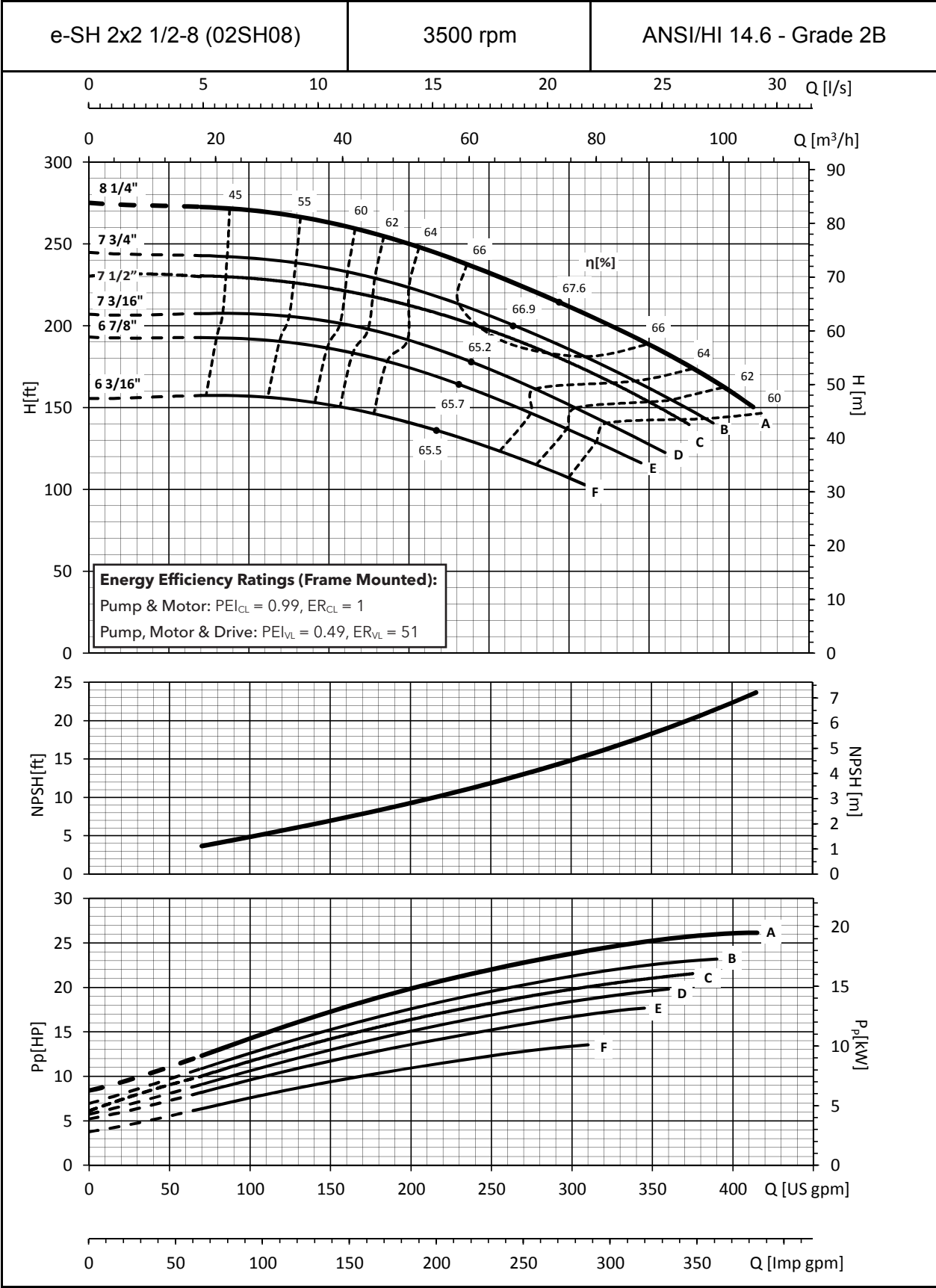


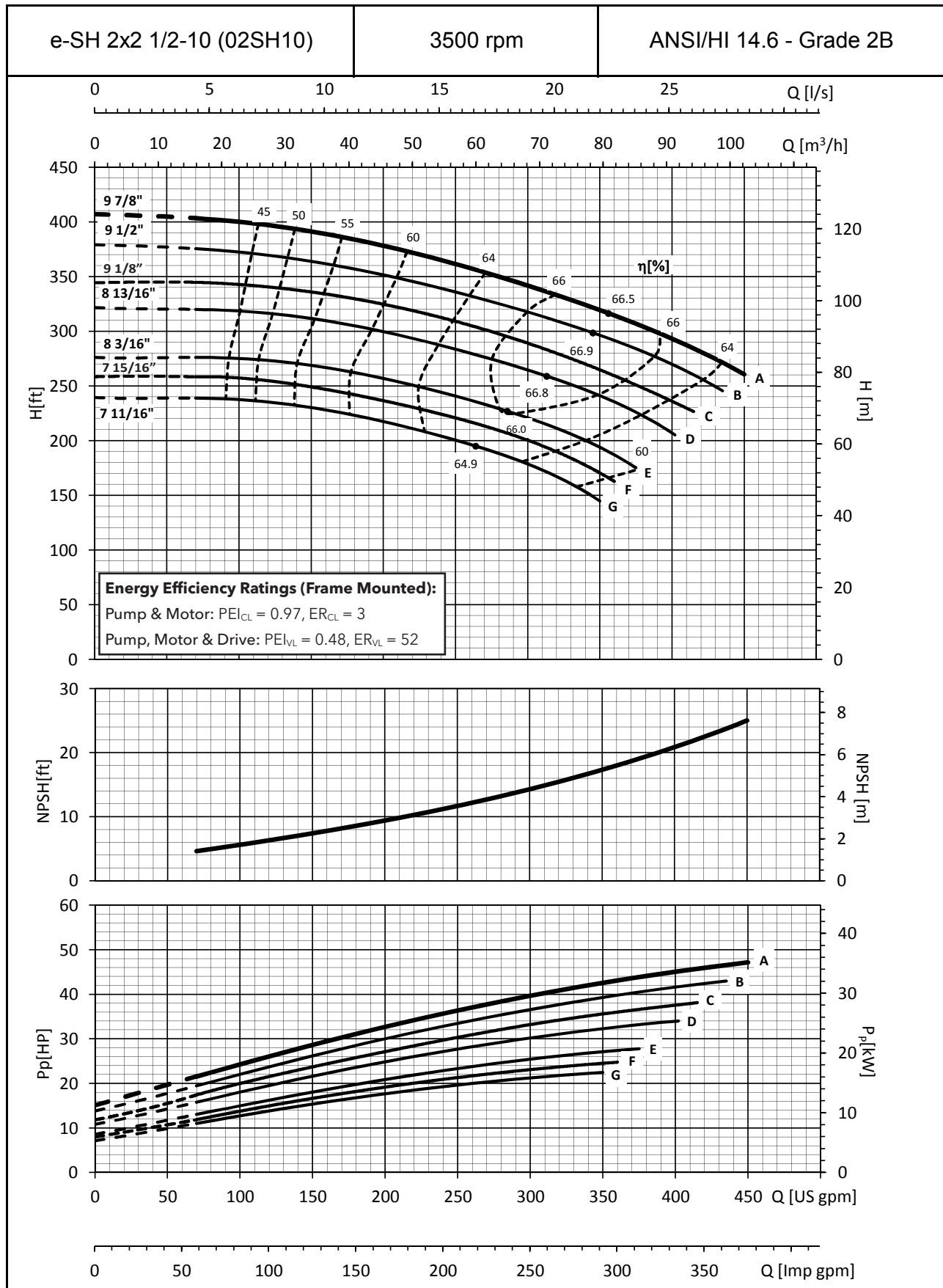


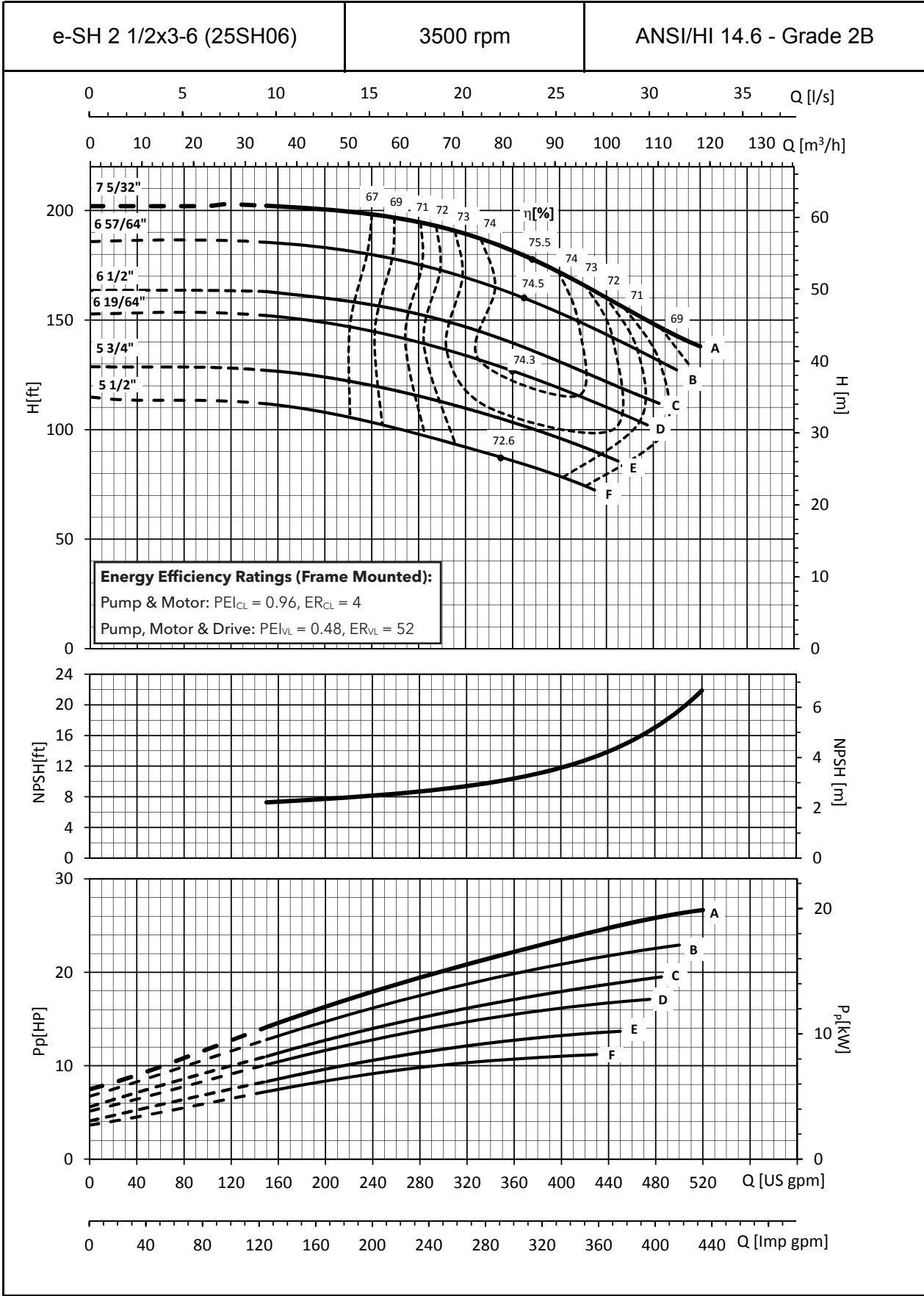


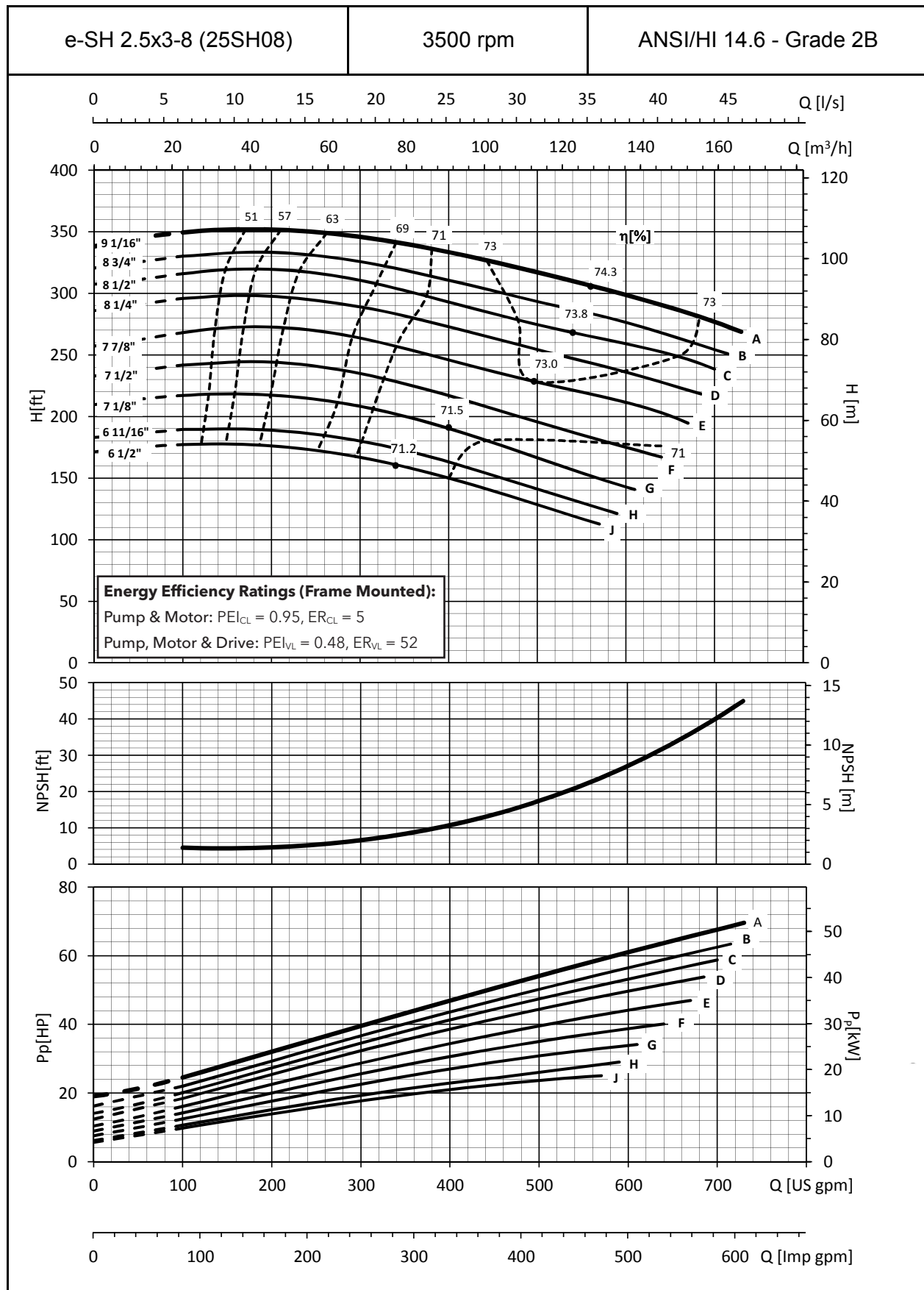


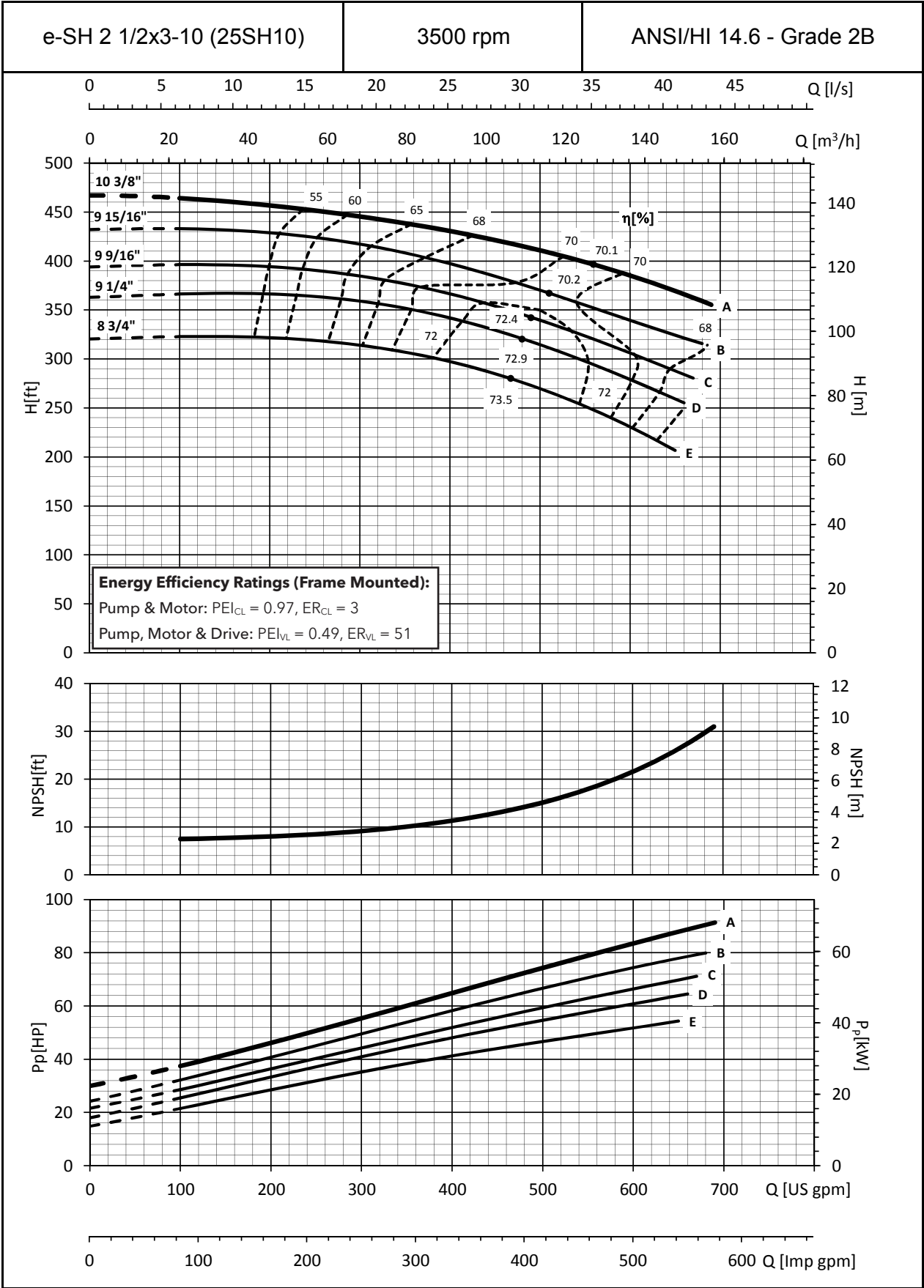


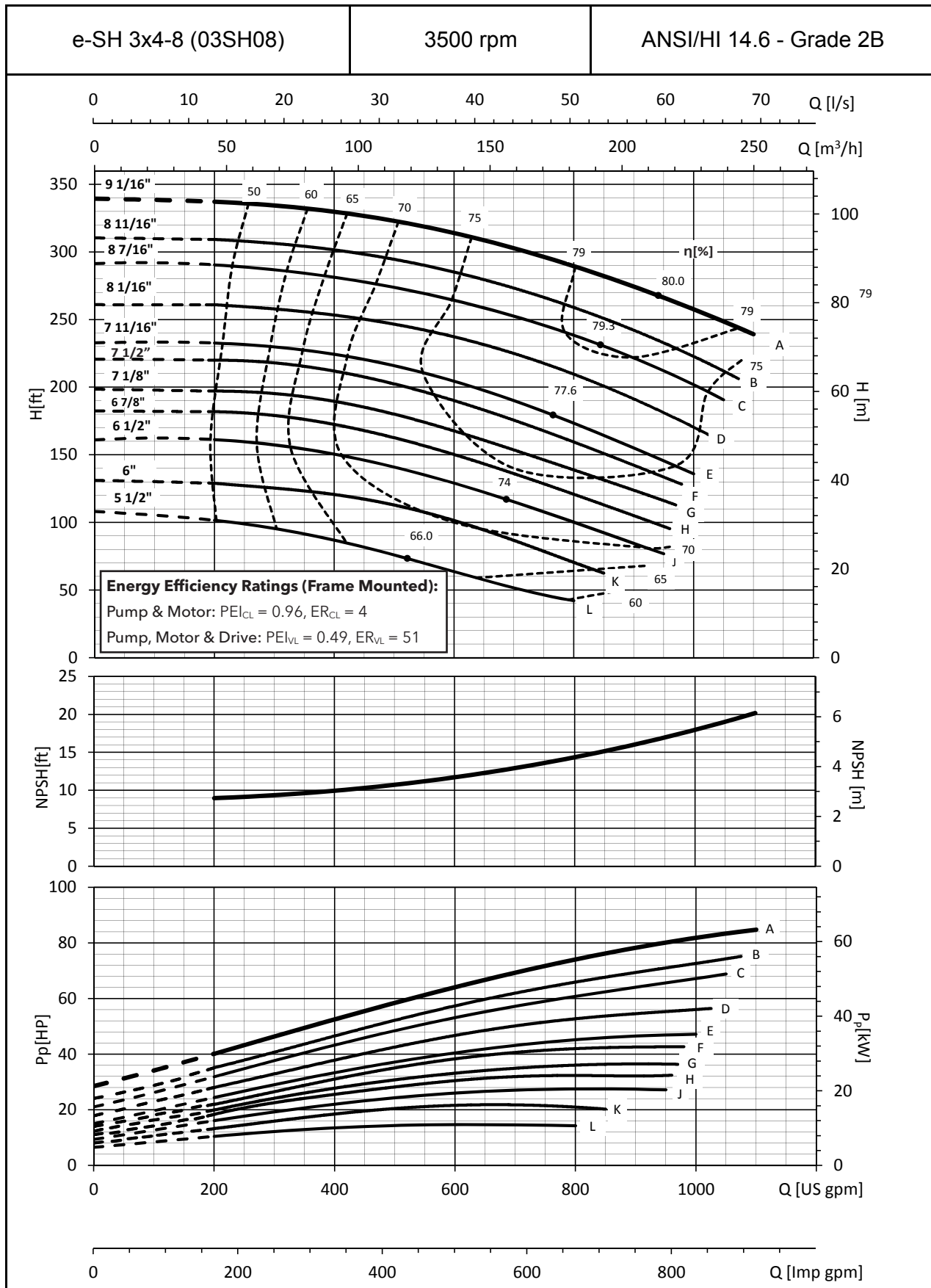


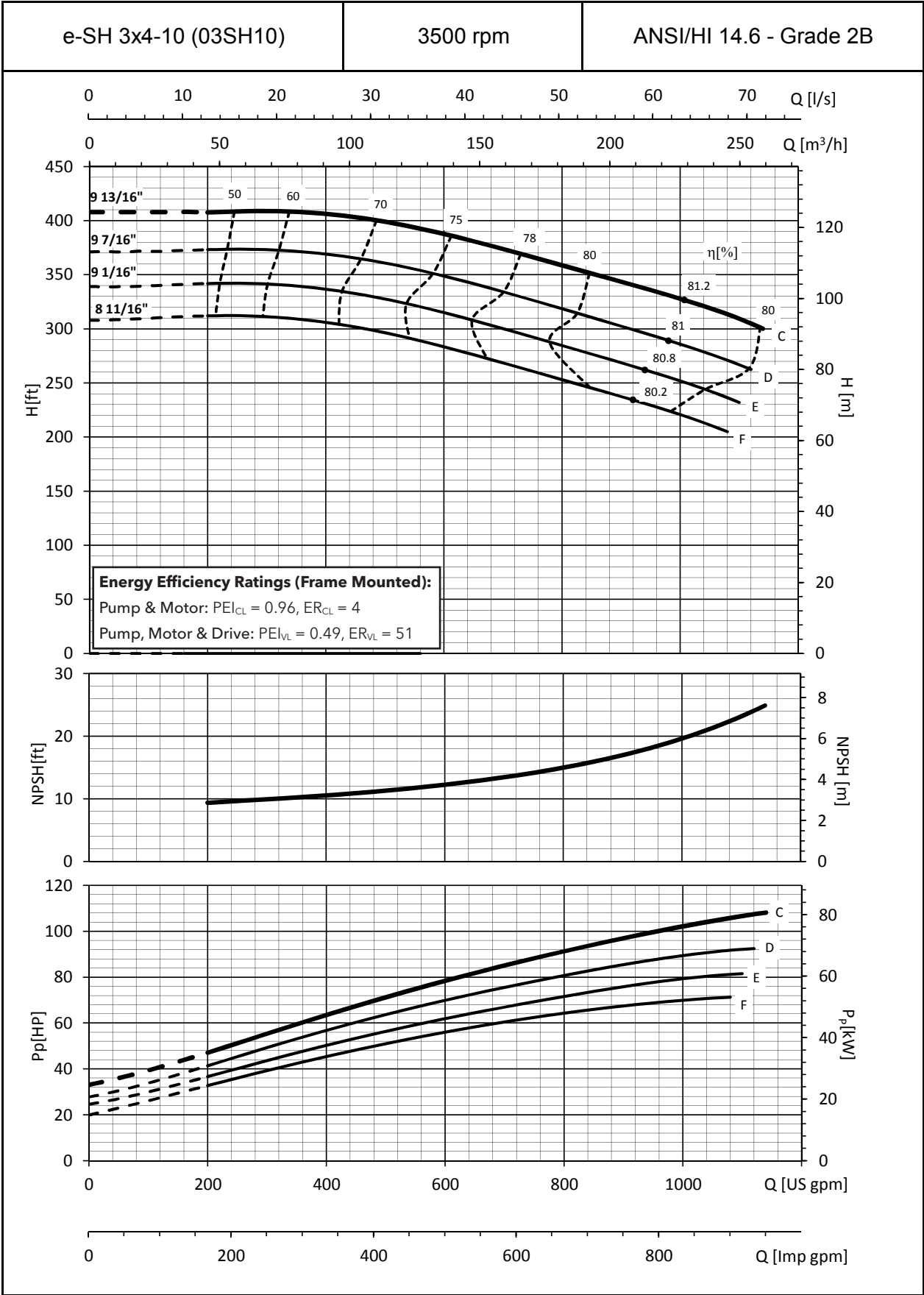




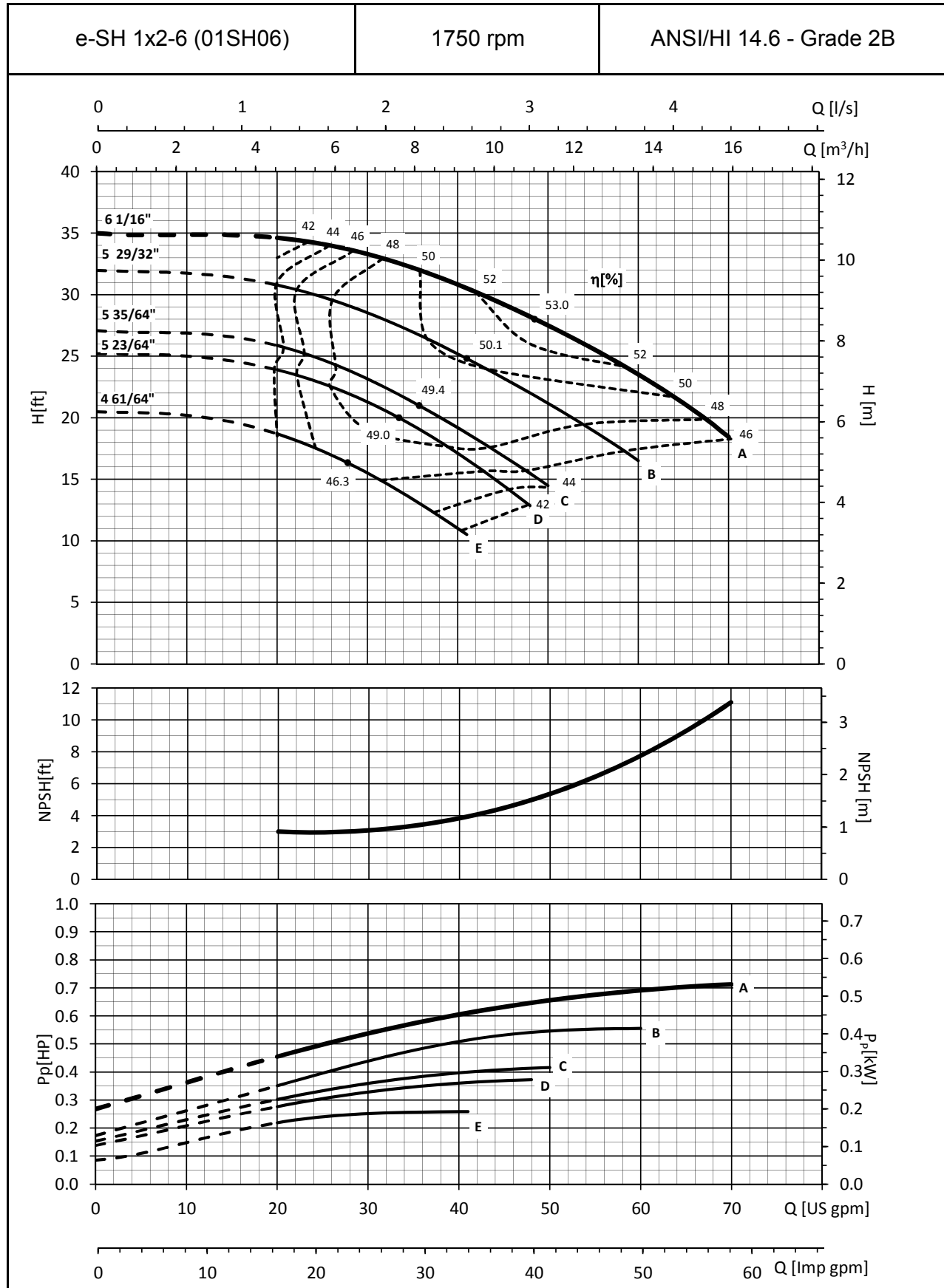


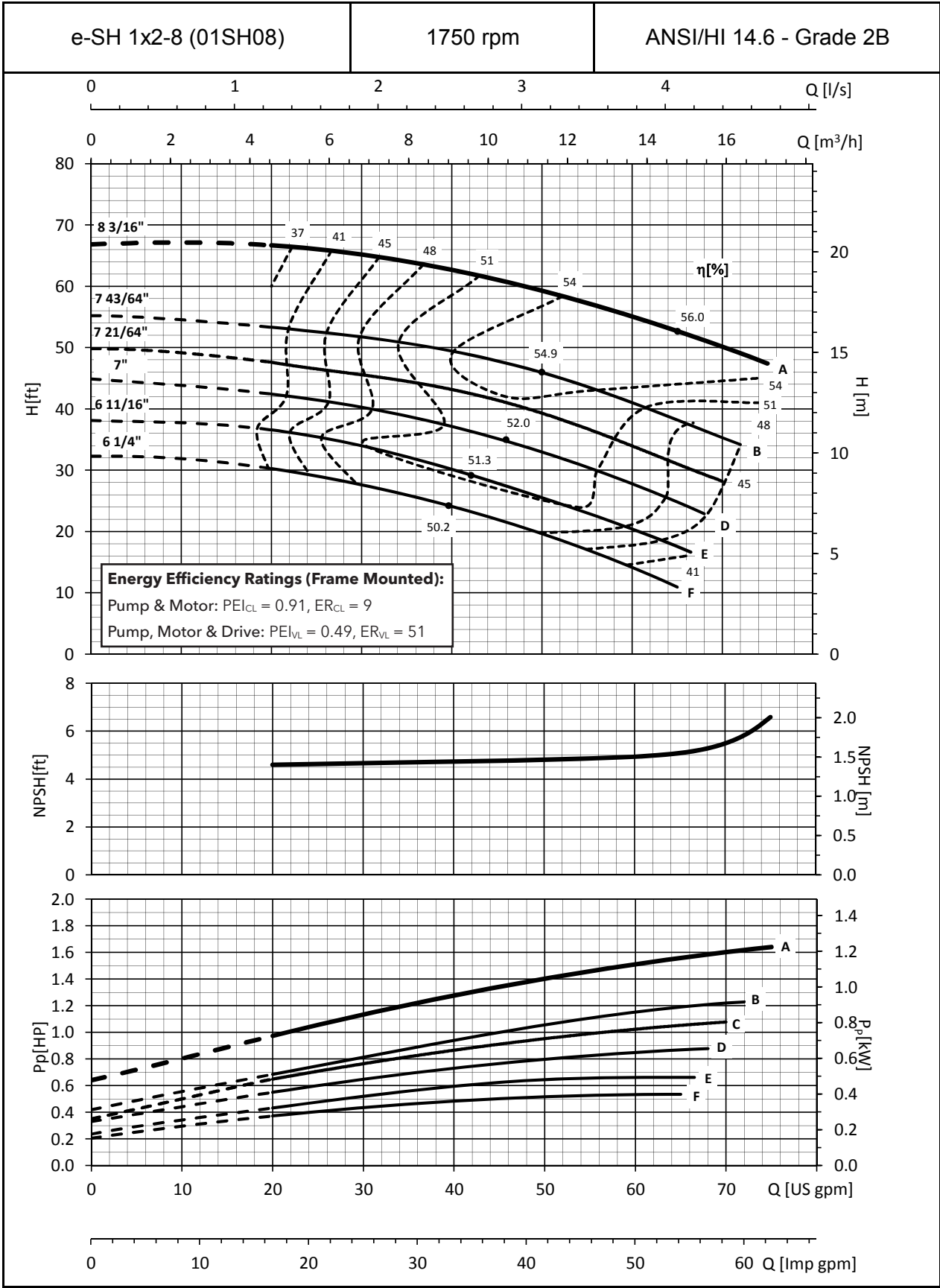


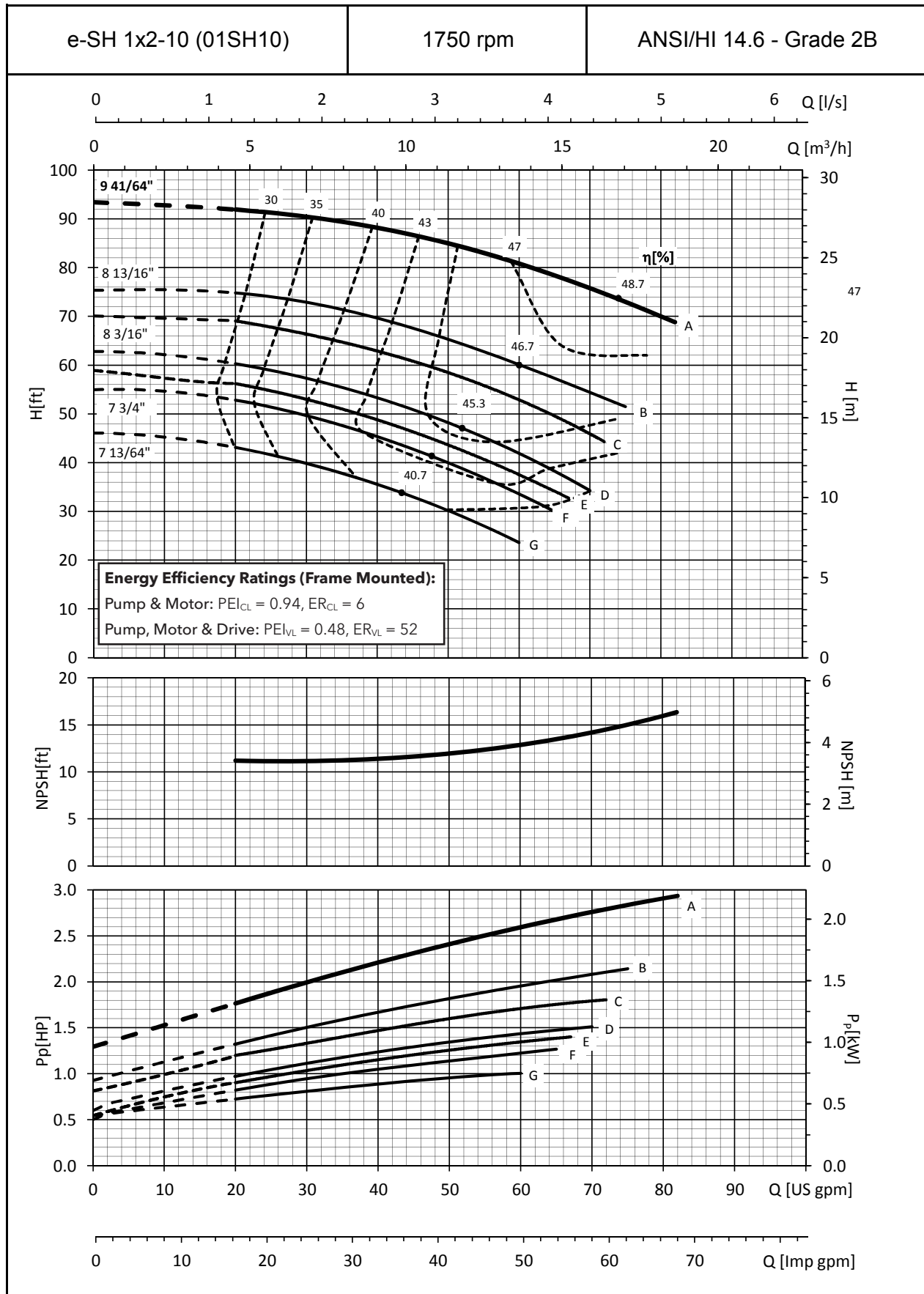


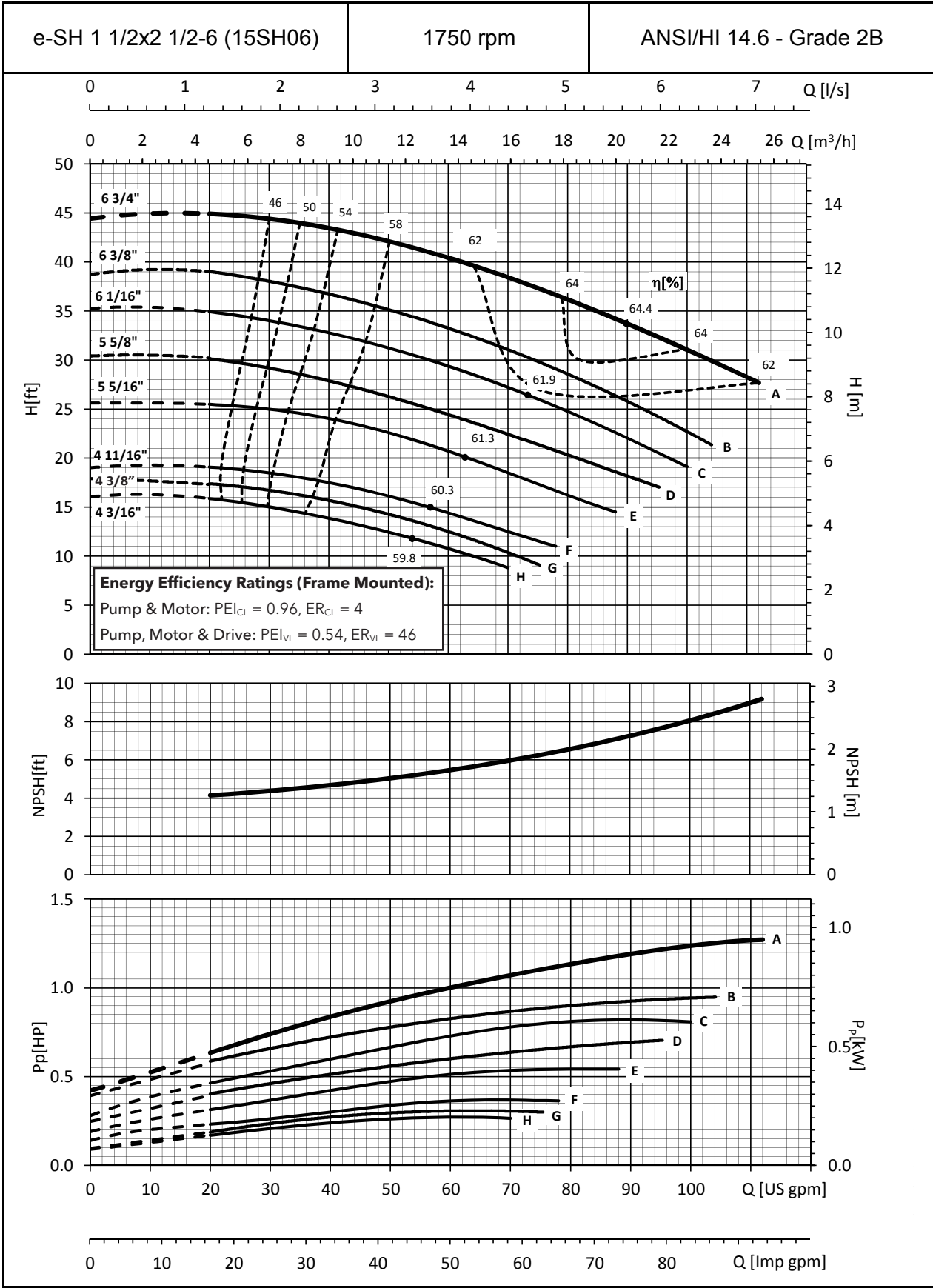


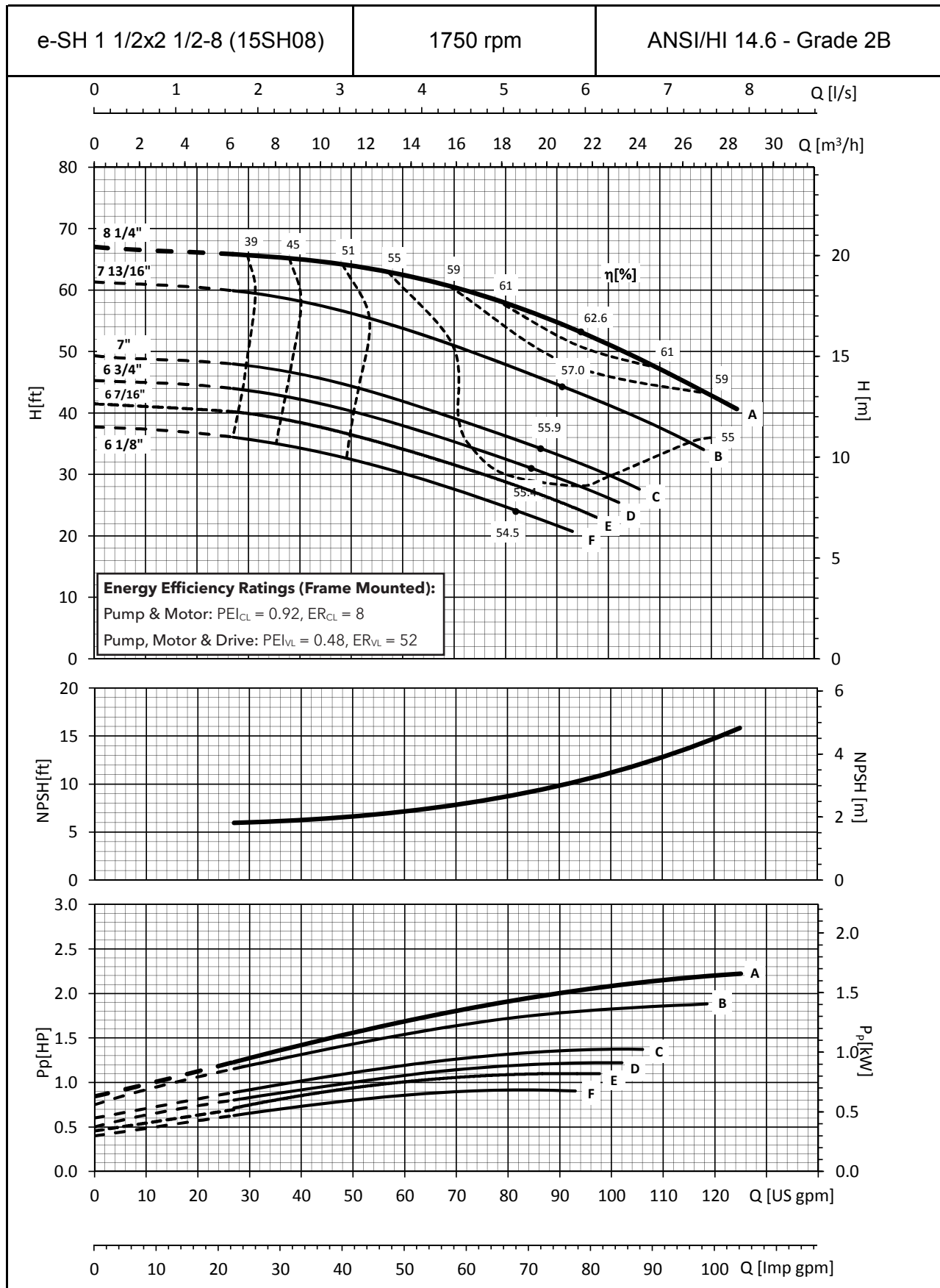
PERFORMANCE CURVES AT 60 HZ, 4-POLES

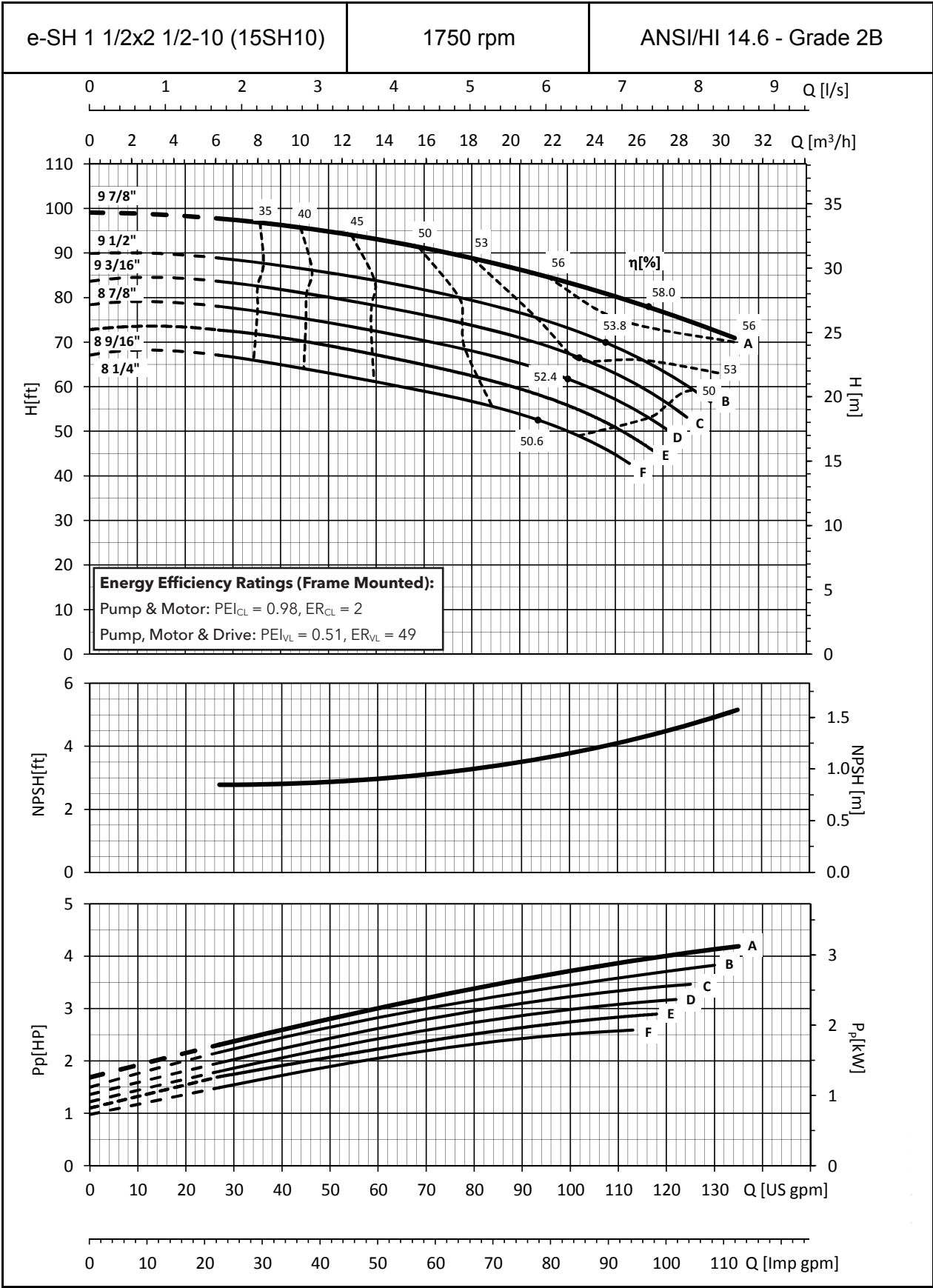


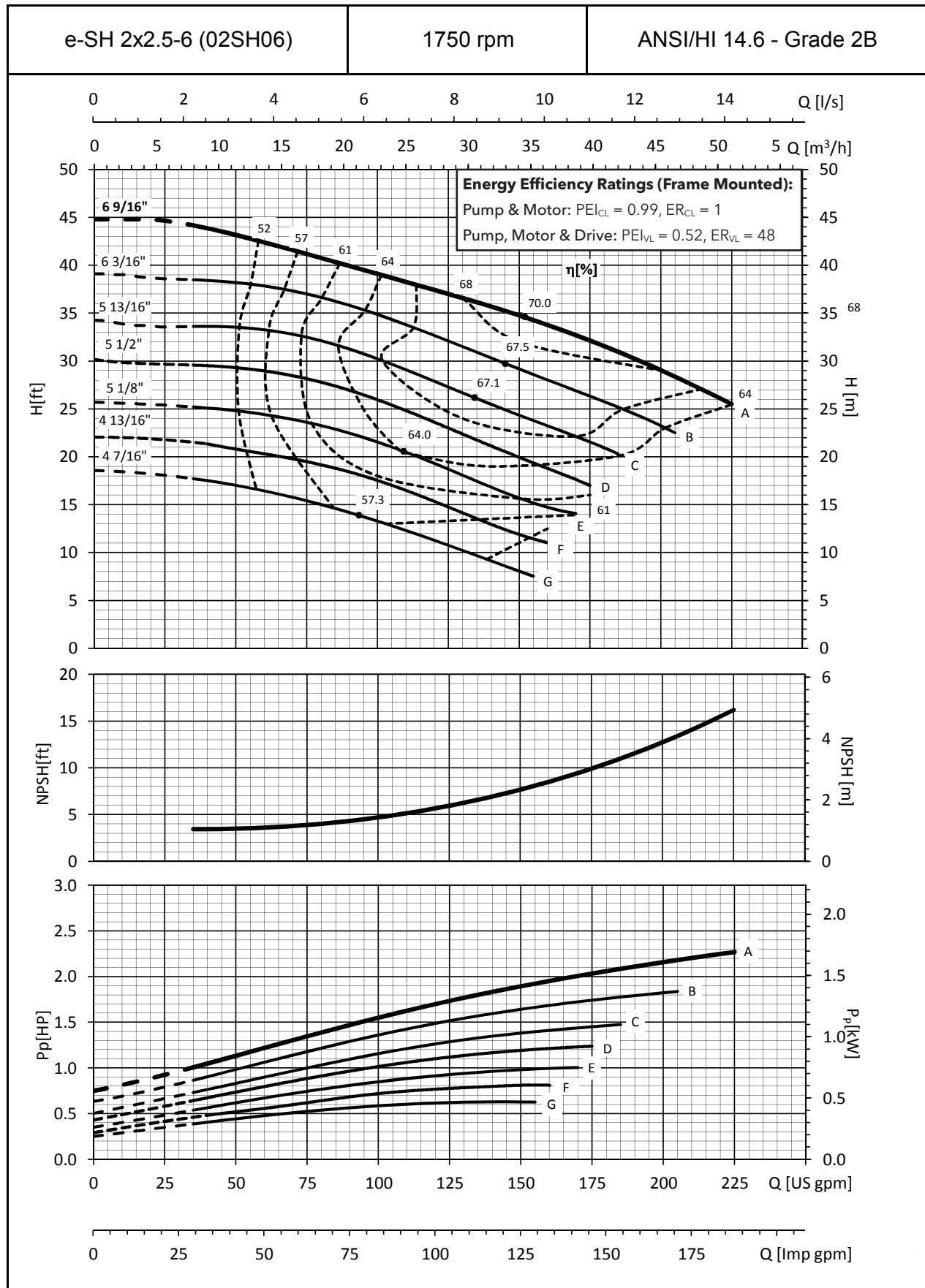


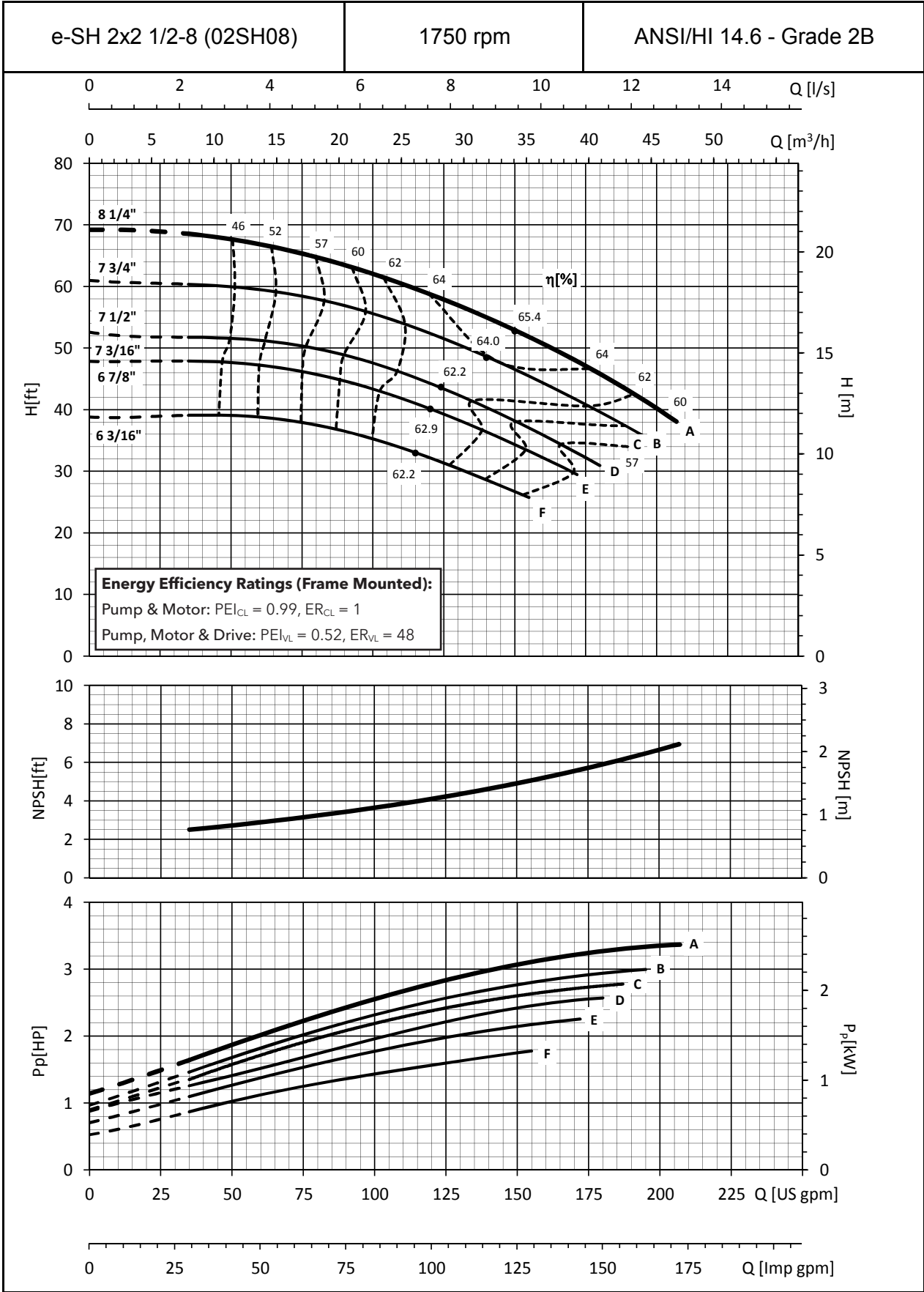


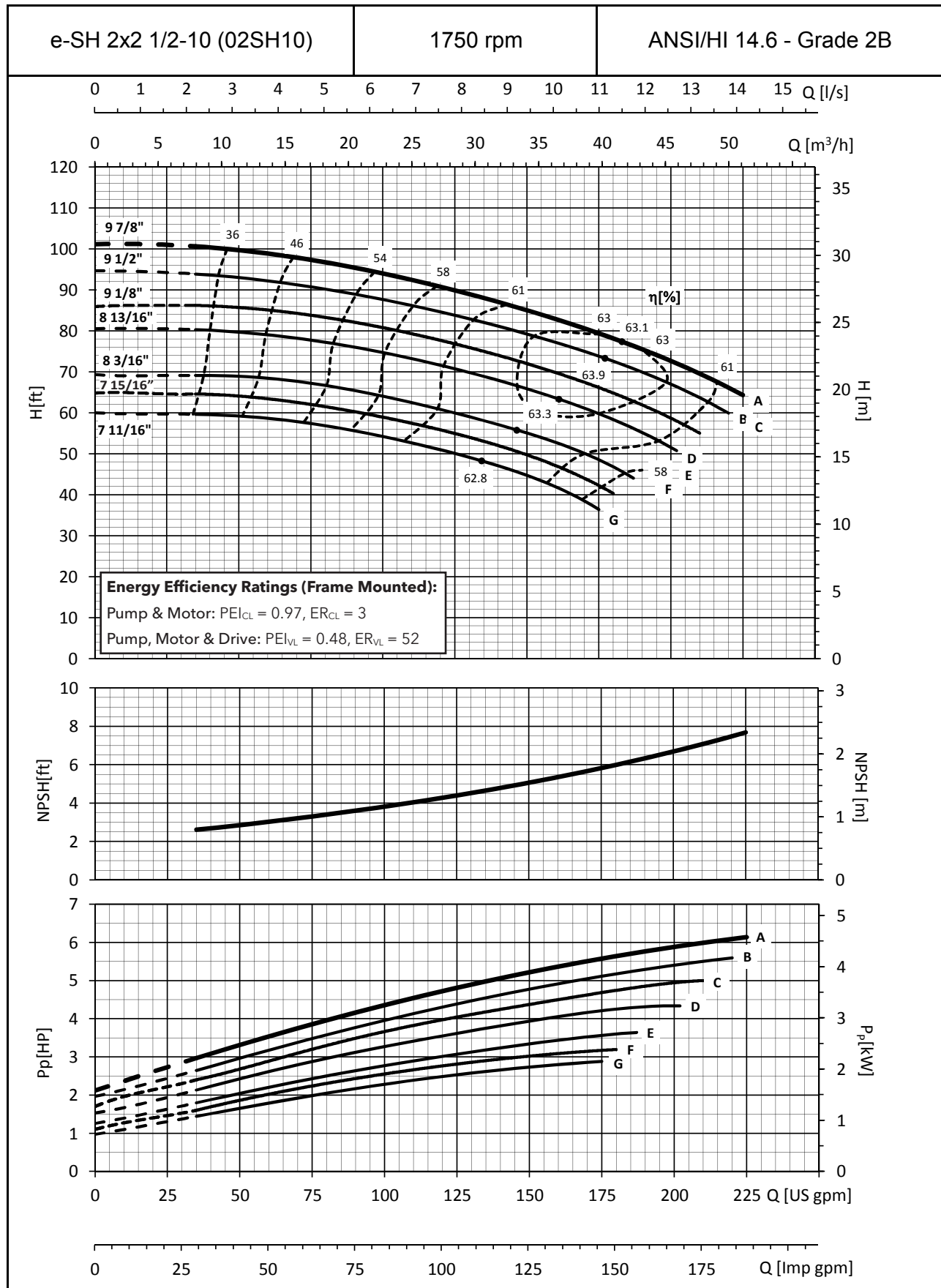


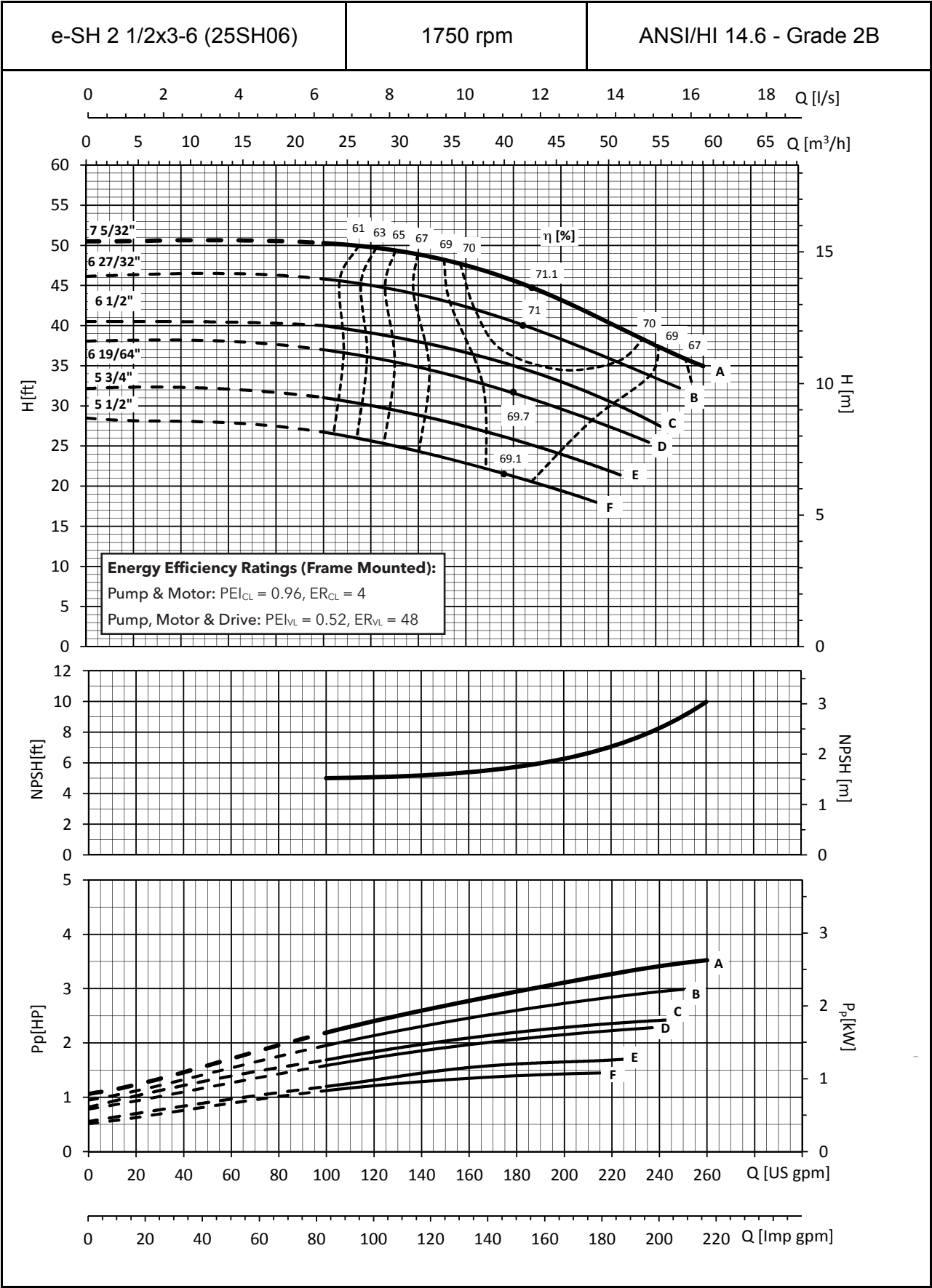


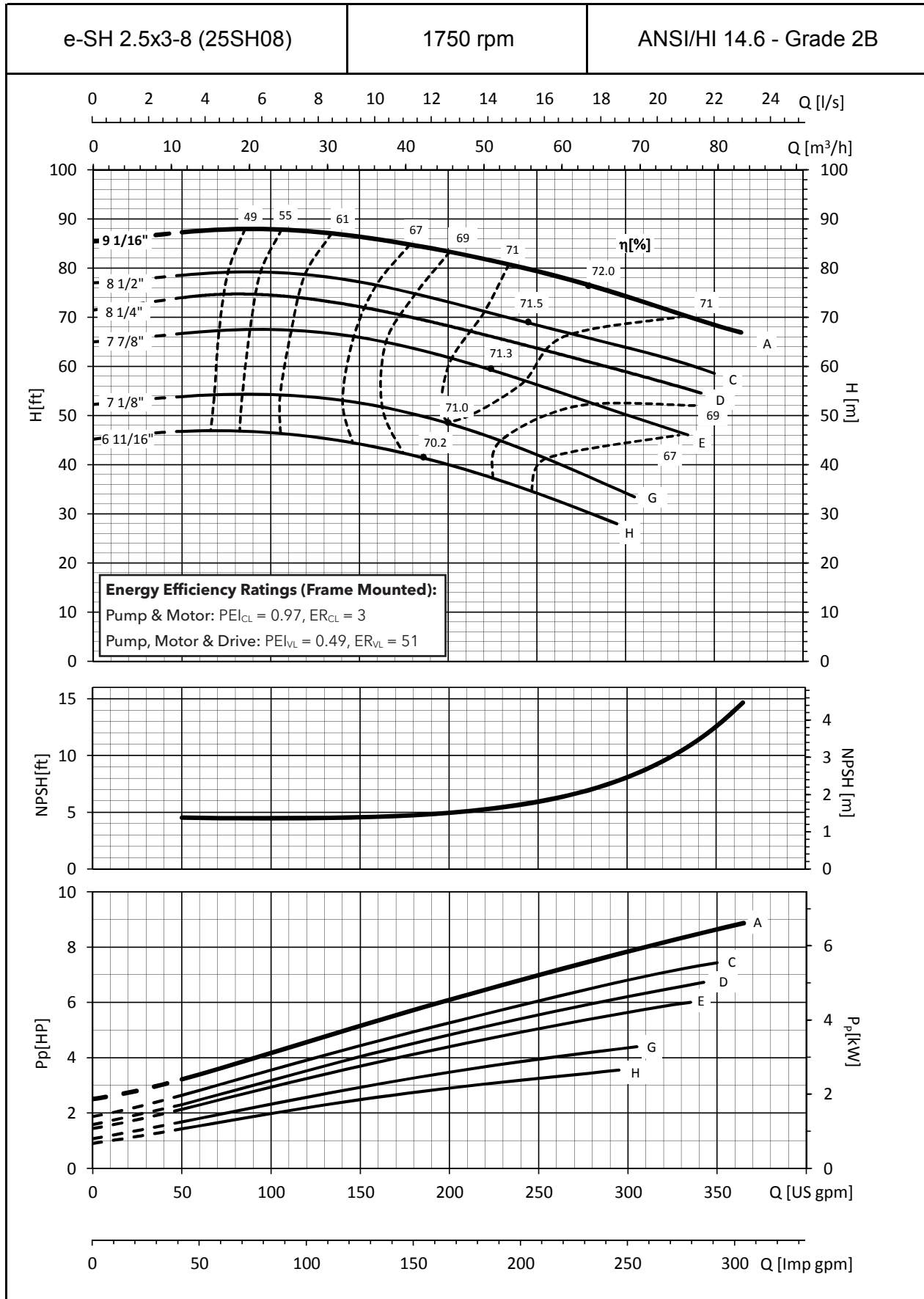


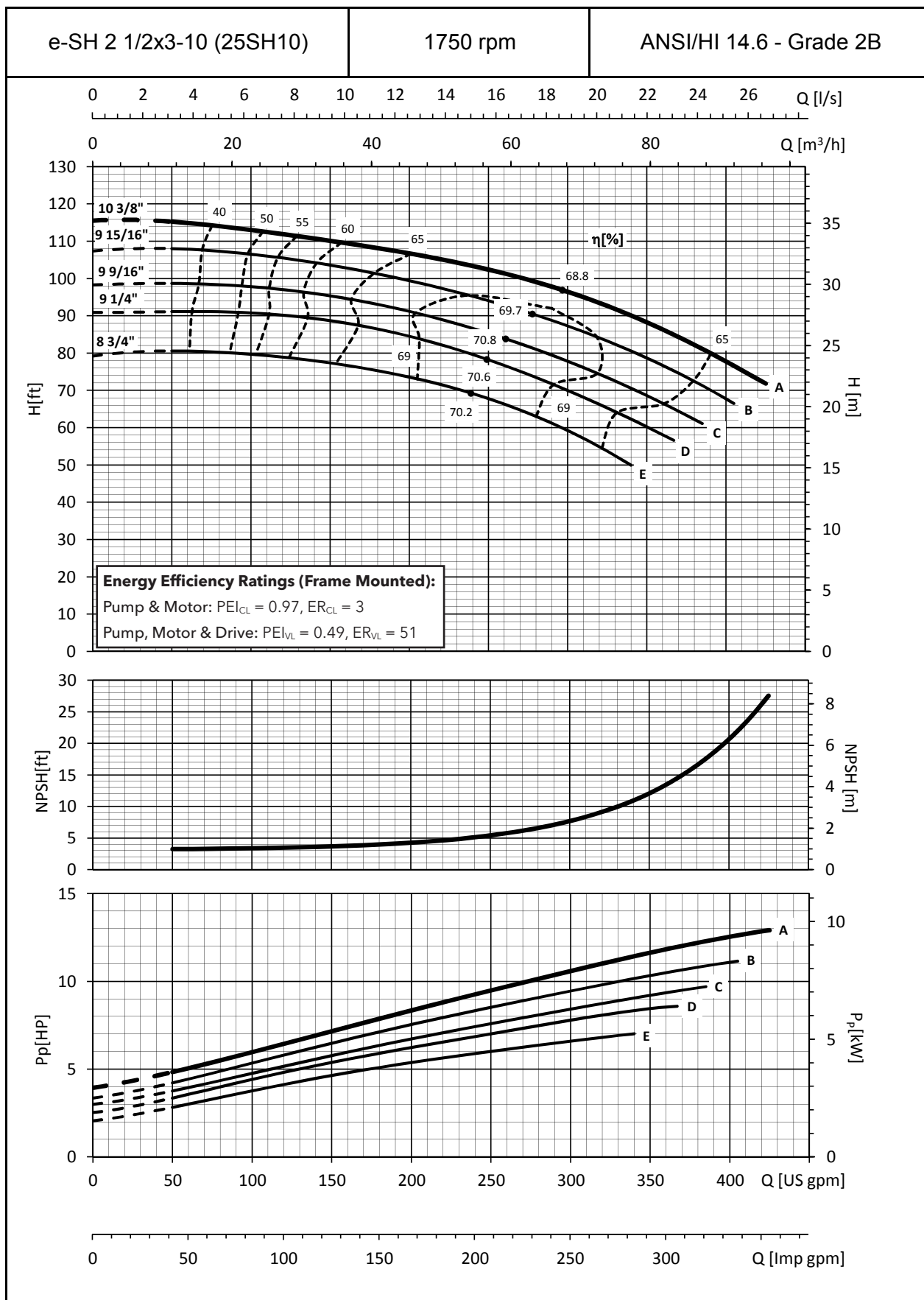


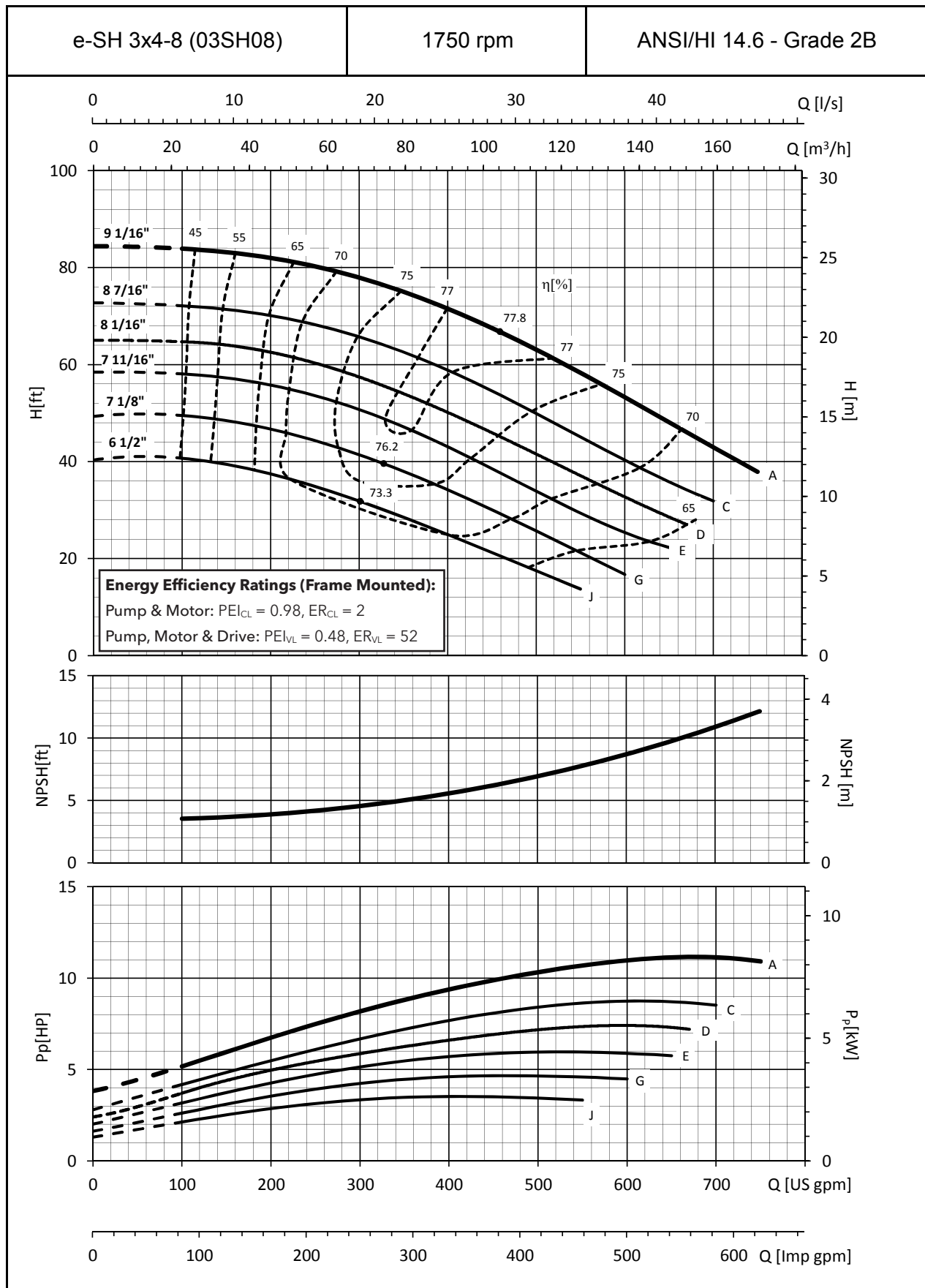


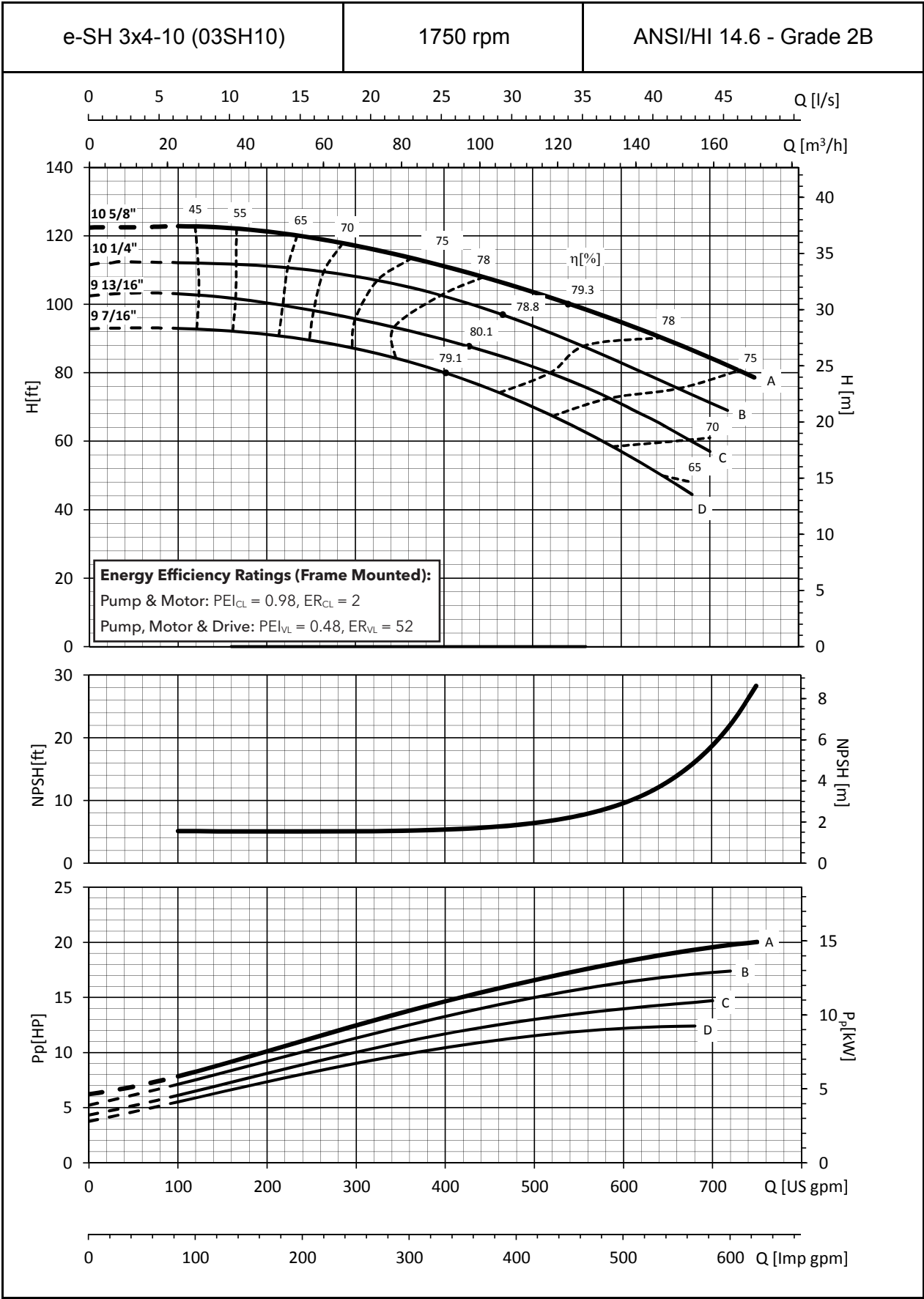












e-SH SERIES STANDARD IMPELLER TRIMS

e-SH S-Group

Impeller Code	Pump Size							
	1x2-6 01SH06	1½x2½-6 15SH06	2x2½-6 02SH06	2½x3-6 25SH06	1x2-8 01SH08	1½x2½-8 15SH08	2x2½-8 02SH08	1x2-10 01SH10
	Diameter (in)							
A	6 ¹ / ₁₆	6¾	6 ⁹ / ₁₆	7 ⁵ / ₃₂	8 ³ / ₁₆	8¼	8¼	9 ⁴¹ / ₆₄
B	5 ²⁹ / ₃₂	6 ³ / ₈	6 ³ / ₁₆	6 ²⁷ / ₃₂	7 ⁴³ / ₆₄	7 ¹³ / ₁₆	7¾	8 ¹³ / ₁₆
C	5 ³⁵ / ₆₄	6 ¹ / ₁₆	5 ¹³ / ₁₆	6½	7 ²¹ / ₆₄	7	7½	8 ²¹ / ₃₂
D	5 ²³ / ₆₄	5 ⁵ / ₈	5½	6 ¹⁹ / ₆₄	7	6¾	7 ³ / ₁₆	8 ³ / ₁₆
E	4 ⁶¹ / ₆₄	5 ⁵ / ₁₆	5 ¹ / ₈	5¾	6 ¹¹ / ₁₆	6 ⁷ / ₁₆	6 ⁷ / ₈	8
F	6 ¹ / ₁₆	4 ¹¹ / ₁₆	4 ¹³ / ₁₆	5½	6¼	6 ¹ / ₈	6 ³ / ₁₆	7¾
G		4 ³ / ₈	4 ⁷ / ₁₆					7 ¹³ / ₆₄
H		4 ³ / ₁₆						

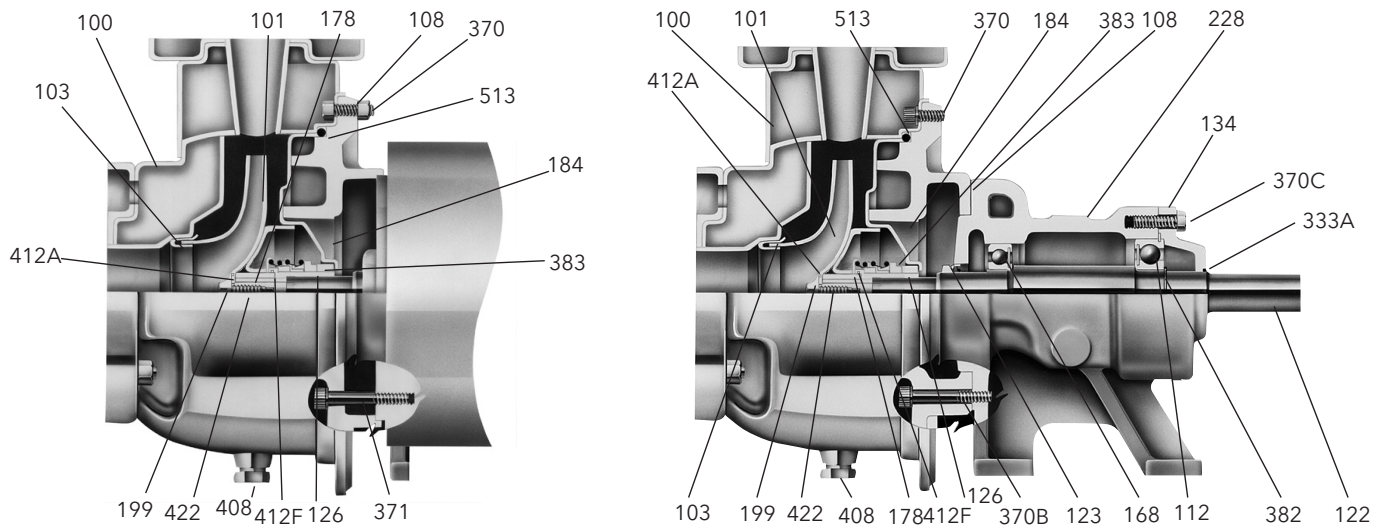
eSH M-Group (140JM, 180JM & 210JM)

Impeller Code	Pump Size				
	1½x2½ -10 15SH10	2x2½-10 02SH10	2½x3-8 25SH08	2½x3-10 25SH10	3x4-8 03SH08
	Diameter (in)				
A	9 ⁷ / ₈	9 ⁷ / ₈	9 ¹ / ₁₆		9 ¹ / ₁₆
B	9½	9½		9 ¹⁵ / ₁₆	
C	9 ³ / ₁₆	9 ¹ / ₈	8½	9 ⁹ / ₁₆	8 ⁷ / ₁₆
D	8 ⁷ / ₈	8 ¹³ / ₁₆	8¼	9¼	8 ¹ / ₁₆
E	8 ⁹ / ₁₆	8 ³ / ₁₆	7 ⁷ / ₈	8¾	7 ¹¹ / ₁₆
F	8¼	7 ¹⁵ / ₁₆			
G		7 ¹¹ / ₁₆	7 ¹ / ₈		7 ¹ / ₈
H			6 ¹¹ / ₁₆		
J					6½
K					6
L					5½

e-SH M-Group (254JM-365TCZ)

Impeller Code	Pump Size					
	1½x2½ -10 15SH10	2x2½-10 02SH10	2½x3-8 25SH08	2½x3-10 25SH10	3x4-8 03SH08	3x4-10 03SH10
	Diameter (in)					
A	9 ⁷ / ₈	9 ⁷ / ₈	9 ¹ / ₁₆	10 ³ / ₈	9 ¹ / ₁₆	10 ⁵ / ₈
B	9½	9½	8¾	9 ¹⁵ / ₁₆	8 ¹¹ / ₁₆	10¼
C	9 ³ / ₁₆	9 ¹ / ₈	8½	9 ⁹ / ₁₆	8 ⁷ / ₁₆	9 ¹³ / ₁₆
D	8 ⁷ / ₈	8 ¹³ / ₁₆	8¼	9¼	8 ¹ / ₁₆	9 ⁷ / ₁₆
E	8 ⁹ / ₁₆	8 ³ / ₁₆	7 ⁷ / ₈	8¾	7 ¹¹ / ₁₆	9 ¹ / ₁₆
F	8¼	7 ¹⁵ / ₁₆	7½		7½	8 ¹¹ / ₁₆
G		7 ¹¹ / ₁₆	7 ⁷ / ₈		7 ¹ / ₈	
H			6 ¹¹ / ₁₆		6 ⁷ / ₈	
J			6½		6½	
K					6	
L					5½	

PUMP CROSS-SECTION AND MAIN COMPONENTS



MATERIALS OF CONSTRUCTION

Item No	Name	Material	Reference Standards
100	Casing	Stainless steel 316L	EN 10088-1-X2CrNiMo17-12-2 (1.4404)
101	Impeller (01SH06, 01SH08, 01SH10, 1XSH06, 1XSH08, 1XSH10, 02SH08, 02SH10)	Stainless steel 316L	EN 10088-1-X2CrNiMo17-12-2 (1.4404)
	Impeller (02SH06, 2XSH06, 2XSH08, 2XSH10, 03SH08, 03SH10)	Stainless steel CF8M	ASTM A744
103	Wear ring	Stainless steel 316L	EN 10088-1-X2CrNiMo17-12-2 (1.4404)
108	Adapter	Gray cast iron class 20B	ASTM A48
112	Ball bearing (outboard)	Steel	
122	Pump shaft	Steel grade 1213	ASTM A108
123	Deflector	Buna-N	ASTM D2000
126	Shaft sleeve	Stainless steel 316	ASTM A276
134	Bearing cover	Gray cast iron class 20B	ASTM A48
168	Ball bearing (inboard)	Steel	
178	Impeller key	Steel	AISI 316L
184	Seal housing	Stainless steel 316L	EN 10088-1-X2CrNiMo17-12-2 (1.4404)
193	Grease fitting (M-group only)	Steel	
199	Impeller washer	Stainless steel CF8M	ASTM A744
228	Bearing frame	Gray cast iron class 20B	ASTM A48 Class 20
333A	Lip seal (1XSH10, 02SH10, 2XSH08, 2XSH10, 03SH08, 03SH10)	Steel/Buna-N	
	V-ring (01SH06, 01SH08, 01SH10, 1XSH06, 1XSH08, 02SH06, 02SH08, 2XSH06)	Buna-N	ASTM D2000
370	Casing bolt with nut (casing to adapter)	Stainless Steel	ASTM F593/F594
370B	Hex head cap screw (adapter to bearing frame)	Steel	SAE J429 Grade 5
370C	Hex head cap screw (bearing frame to cover)	Steel	SAE J429 Grade 6
371	Hex head cap screw (adapter to motor)	Steel	SAE 1200
382	Retaining ring	Steel	
383	Mechanical seal	See Chart	
408	Drain plug - 3/8 BSP	Stainless steel	EN 10088-1-X5CrNiMo17-12-2 (1.4401)
412A	O-ring, impeller	FKM (standard version)	ASTM D2000
412F	O-ring, shaft sleeve	FKM (standard version)	ASTM D2000
422	Impeller Stud	Carbon steel	ASTM A307
513	O-ring	FKM (standard version)	ASTM D2000

MOTOR SIZING

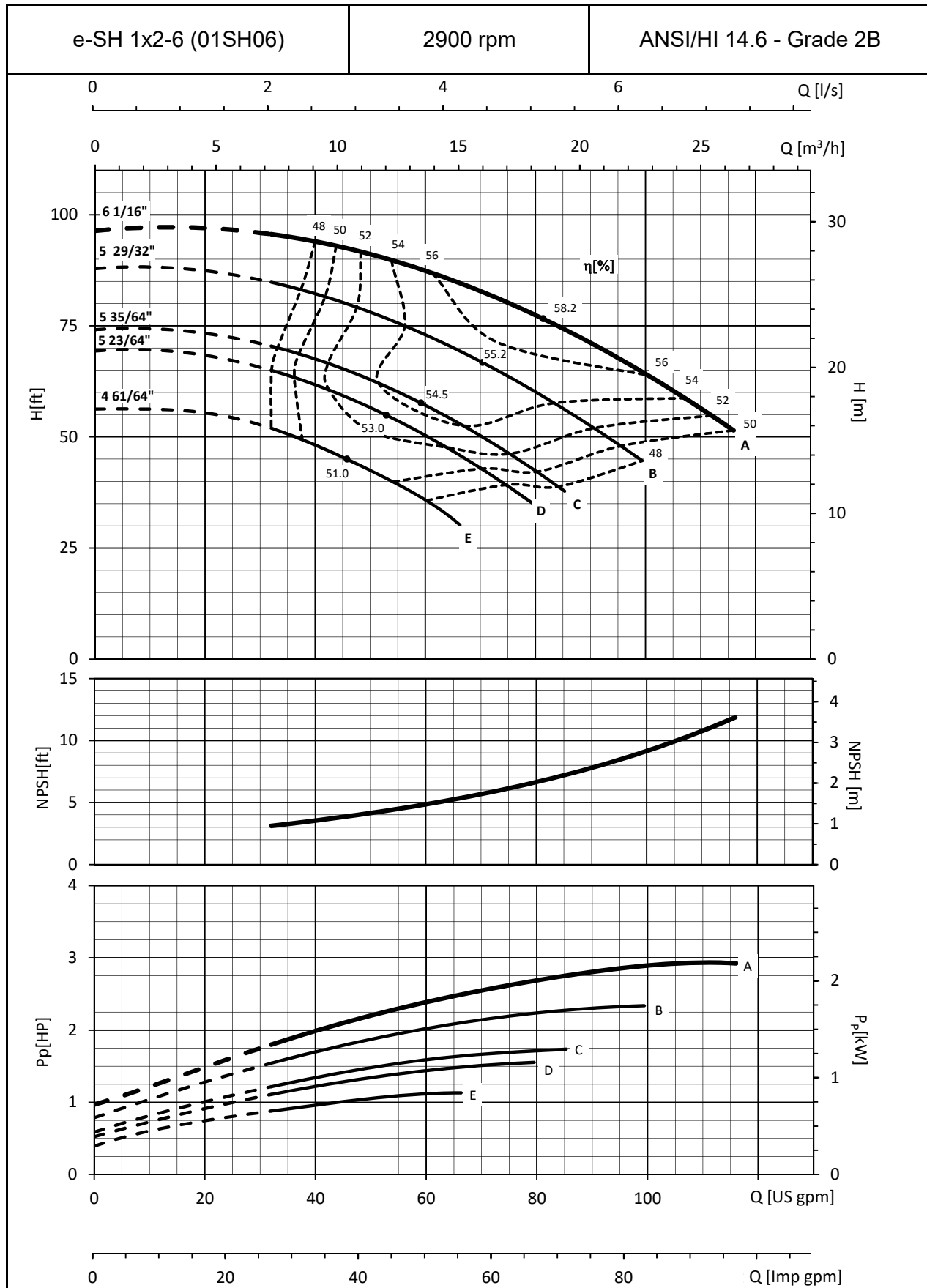
Pump Size	3500 RPM				1750 RPM			
	Trim	Maximum HP draw	Motor Selection using SF = 1	Motor Selection using SF = 1.15	Trim	Maximum HP draw	Motor Selection using SF = 1	Motor Selection using SF = 1.15*
			Rated HP	Rated HP			Rated HP	Rated HP
01SH06	A	5.2	7½	5	A	0.7	¾	¾
	B	4.1	5	5	B	0.6	¾	½
	C	3.1	5	3	C	0.4	½	½
	D	2.7	3	3	D	0.4	½	½
	E	2.0	2	2	E	0.3	½	½
01SH08	A	12.5	15	15	A	1.6	2	1½
	B	10.0	10	10	B	1.2	1½	1½
	C	8.4	10	7½	C	1.1	1½	1
	D	7.1	7½	7½	D	0.9	1	1
	E	5.3	7½	5	E	0.7	¾	¾
	F	4.1	5	5	F	0.5	½	½
01SH10	A	22.7	25	20	A	2.9	3	3
	B	17.4	20	20	B	2.1	3	2
	C	14.6	15	15	C	1.8	2	2
	D	12.1	15	15	D	1.5	1½	1½
	E	11.0	15	10	E	1.4	1½	1½
	F	10.1	15	10	F	1.3	1½	1½
	G	7.4	7½	7½	G	1.0	1	1
15SH06	A	9.7	10	10	A	1.1	1½	1
	B	7.4	7½	7½	B	0.9	1	1
	C	6.4	7½	7½	C	0.8	1	¾
	D	5.3	7½	5	D	0.7	¾	¾
	E	4.3	5	5	E	0.5	½	½
	F	2.9	3	3	F	0.4	½	½
	G	2.5	3	3	G	0.3	½	½
	H	2.2	3	2	H	0.3	½	½
15SH08	A	17.5	20	20	A	2.2	3	2
	B	14.6	15	15	B	1.9	2	2
	C	10.7	15	10	C	1.4	1½	1½
	D	9.5	10	10	D	1.2	1½	1
	E	8.2	10	7½	E	1.1	1½	1
	F	7.0	7½	7½	F	0.9	1	1
15SH10	A	32.2	40	30	A	4.2	5	5
	B	27.6	30	25	B	3.8	5	5
	C	24.9	25	25	C	3.5	5	5
	D	22.7	25	20	D	3.2	5	3
	E	20.2	25	20	E	2.9	3	3
	F	18.3	20	20	F	2.6	3	3
02SH06	A	17.7	20	20	A	2.3	3	2
	B	14.2	15	15	B	1.8	2	2
	C	11.5	15	10	C	1.5	1½	1½
	D	9.5	10	10	D	1.3	1½	1½
	E	7.6	10	7½	E	1.0	1	1
	F	5.9	7½	7½	F	0.8	1	¾
	G	4.5	5	5	G	0.6	¾	½

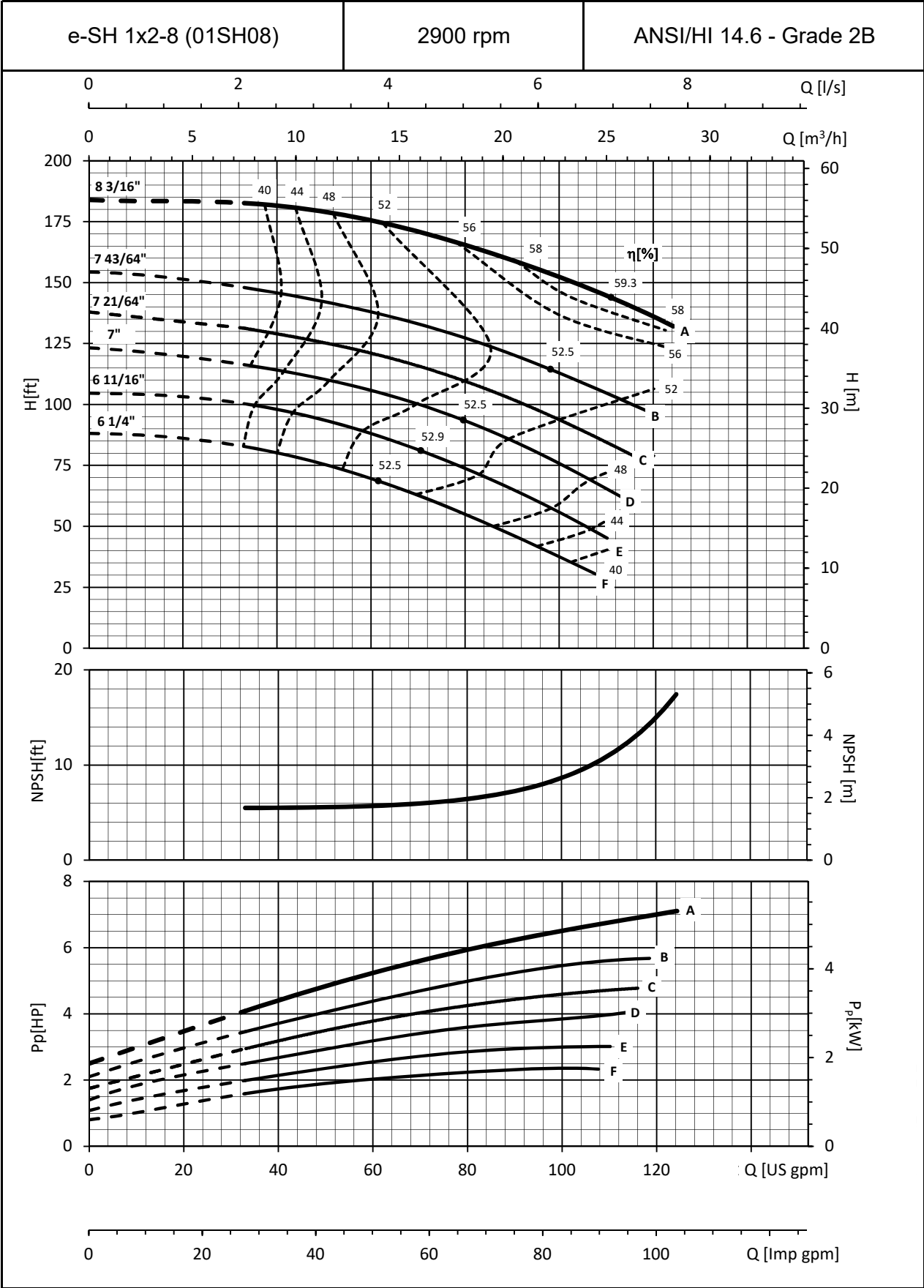
MOTOR SIZING (cont.)

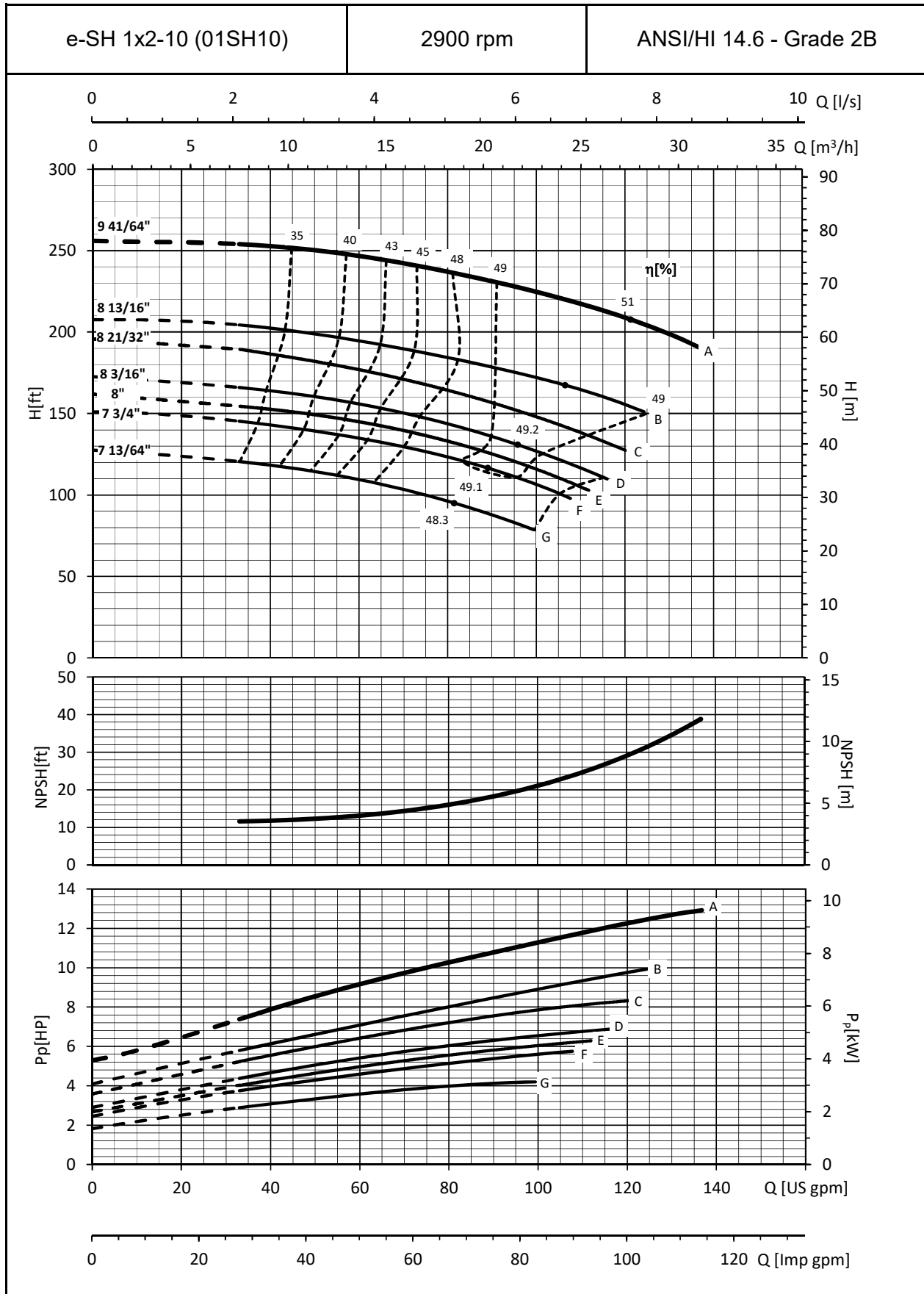
Pump Size	3500 RPM				1750 RPM			
	Trim	Maximum HP draw	Motor Selection using SF = 1	Motor Selection using SF = 1.15	Trim	Maximum HP draw	Motor Selection using SF = 1	Motor Selection using SF = 1.15*
			Rated HP	Rated HP			Rated HP	Rated HP
02SH08	A	26.5	30	25	A	3.4	5	3
	B	23.5	25	25	B	3.0	3	3
	C	21.5	25	20	C	2.8	3	3
	D	19.9	20	20	D	2.6	3	3
	E	17.8	20	20	E	2.3	3	2
	F	13.6	15	15	F	1.8	2	2
02SH10	A	47.1	50	50	A	6.2	7½	7½
	B	42.9	50	40	B	5.6	7½	5
	C	38.1	40	40	C	5.0	5	5
	D	33.9	40	30	D	4.3	5	5
	E	27.6	30	25	E	3.6	5	5
	F	24.7	25	25	F	3.2	5	3
	G	22.4	25	20	G	2.9	3	3
25SH06	A	27.1	30	25	A	3.5	5	5
	B	22.9	25	20	B	3.0	3	3
	C	19.5	20	20	C	2.4	3	3
	D	17.1	20	15	D	2.3	3	2
	E	13.7	15	15	E	1.7	2	1½
	F	11.2	15	10	F	1.4	1½	1½
25SH08	A	69.6	75	75	A	8.9	10	10
	B	63.4	75	60				
	C	58.7	60	60	C	7.4	7½	7½
	D	53.8	60	50	D	6.7	7½	7½
	E	46.0	50	40	E	6.0	7½	7½
	F	40.0	40	40				
	G	34.5	40	30	G	4.4	5	5
	H	29.0	30	30	H	3.6	5	5
	J	26.4	30	25				
25SH10	A	91.5	100	100	A	12.7	15	15
	B	80.0	100	75	B	11.1	15	10
	C	71.5	75	75	C	9.7	10	10
	D	65.0	75	60	D	8.6	10	7½
	E	54.5	60	50	E	6.9	7½	7½
03SH08	A	85.0	100	75	A	11.1	15	10
	B	75.0	75	75				
	C	69.0	75	60	C	8.6	10	7½
	D	57.0	60	50	D	7.3	7½	7½
	E	47.0	50	50	E	6.0	7½	7½
	F	43.0	40	40				
	G	36.5	40	40	G	4.8	5	5
	H	33.0	40	30				
	J	27.0	30	25	J	3.6	5	5
	K	20.0	20	20				
03SH10	L	14.3	15	15				
	C	108	100	100	A	20.0	20	20
	D	93	100	100	B	17.3	20	20
	E	82	100	75	C	14.7	15	15
	F	71	75	75	D	12.4	15	15

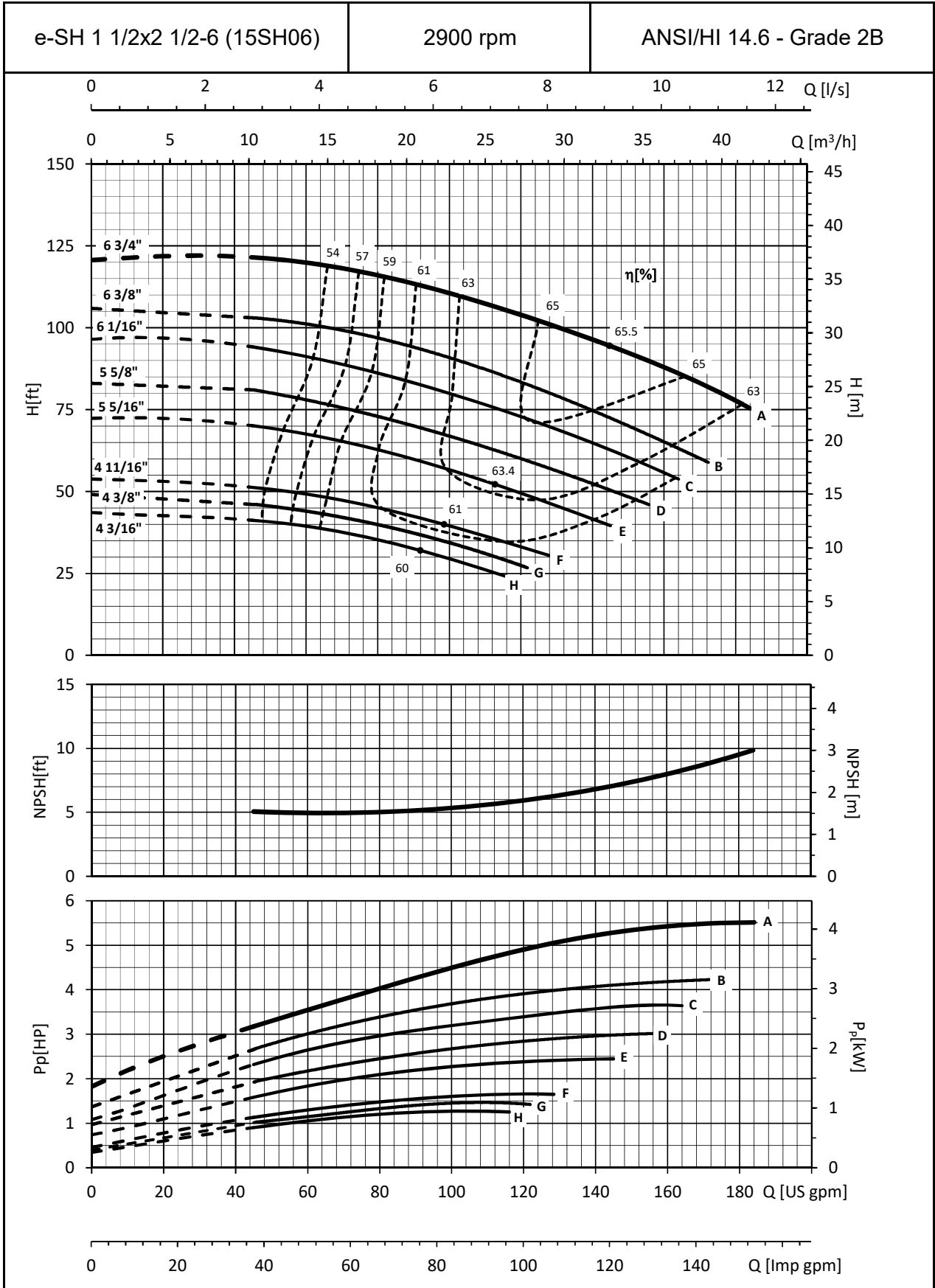
*SF=1.25 for motors with HP<1

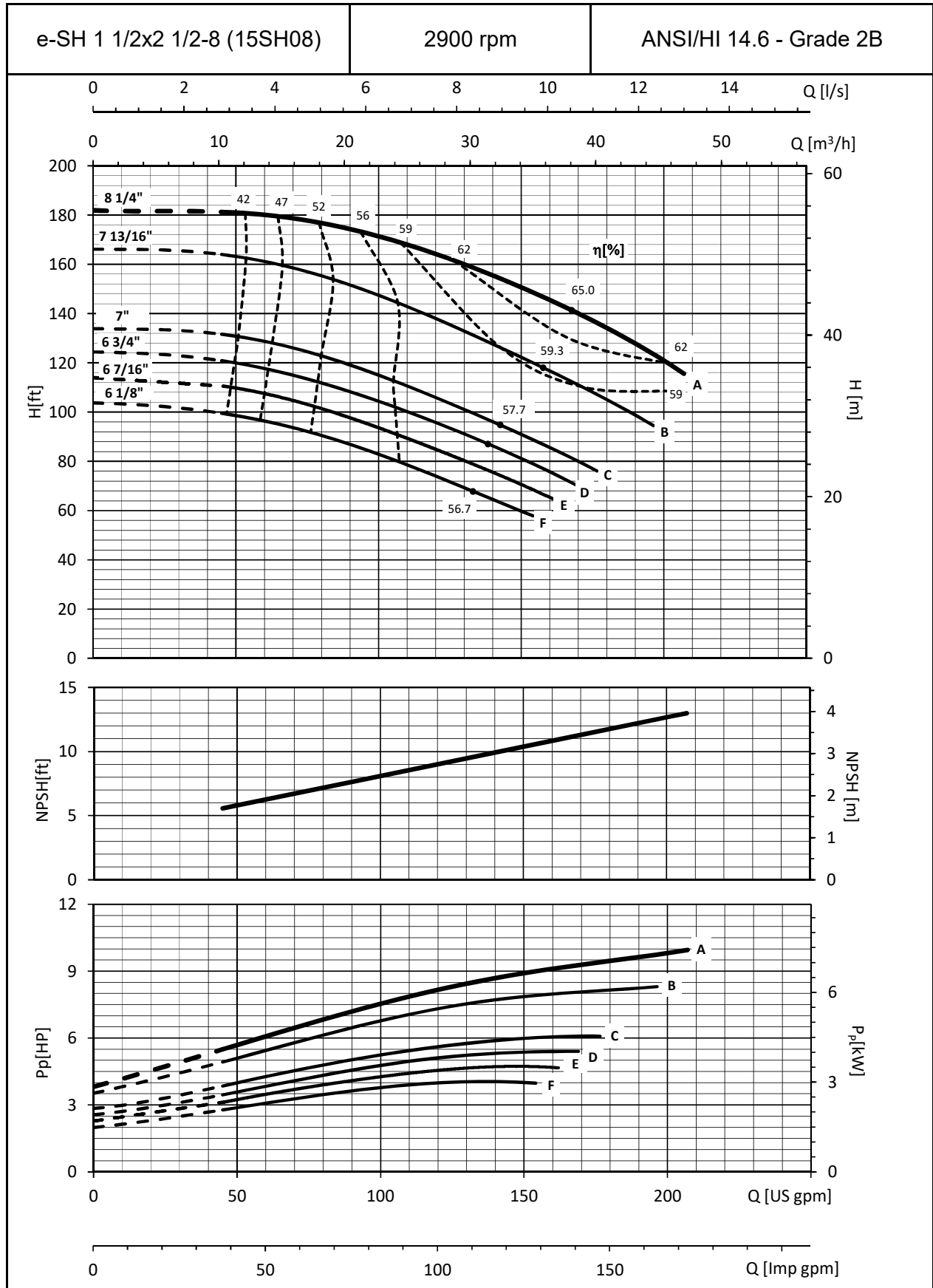
PERFORMANCE CURVES AT 50 HZ, 2-POLES

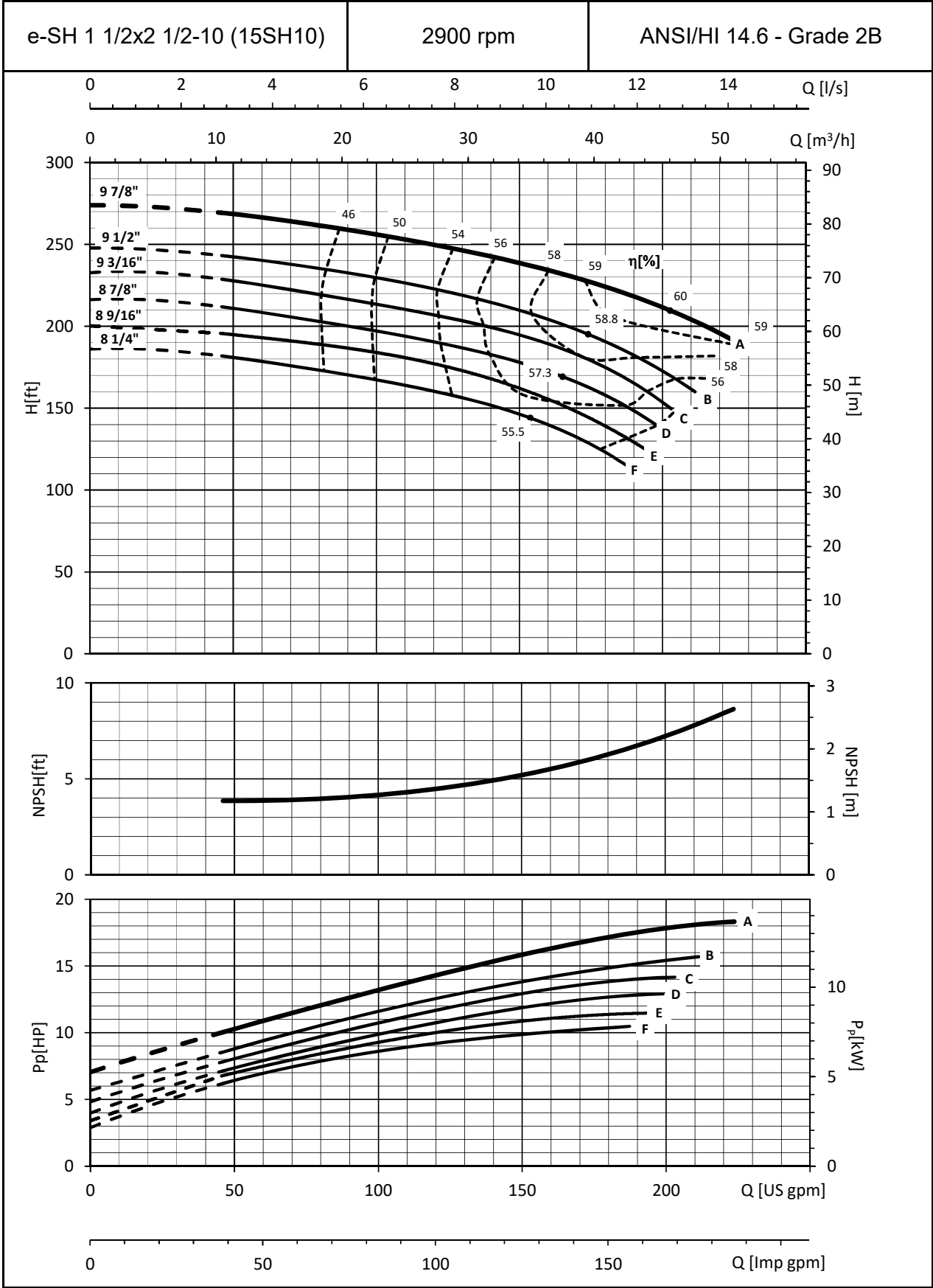


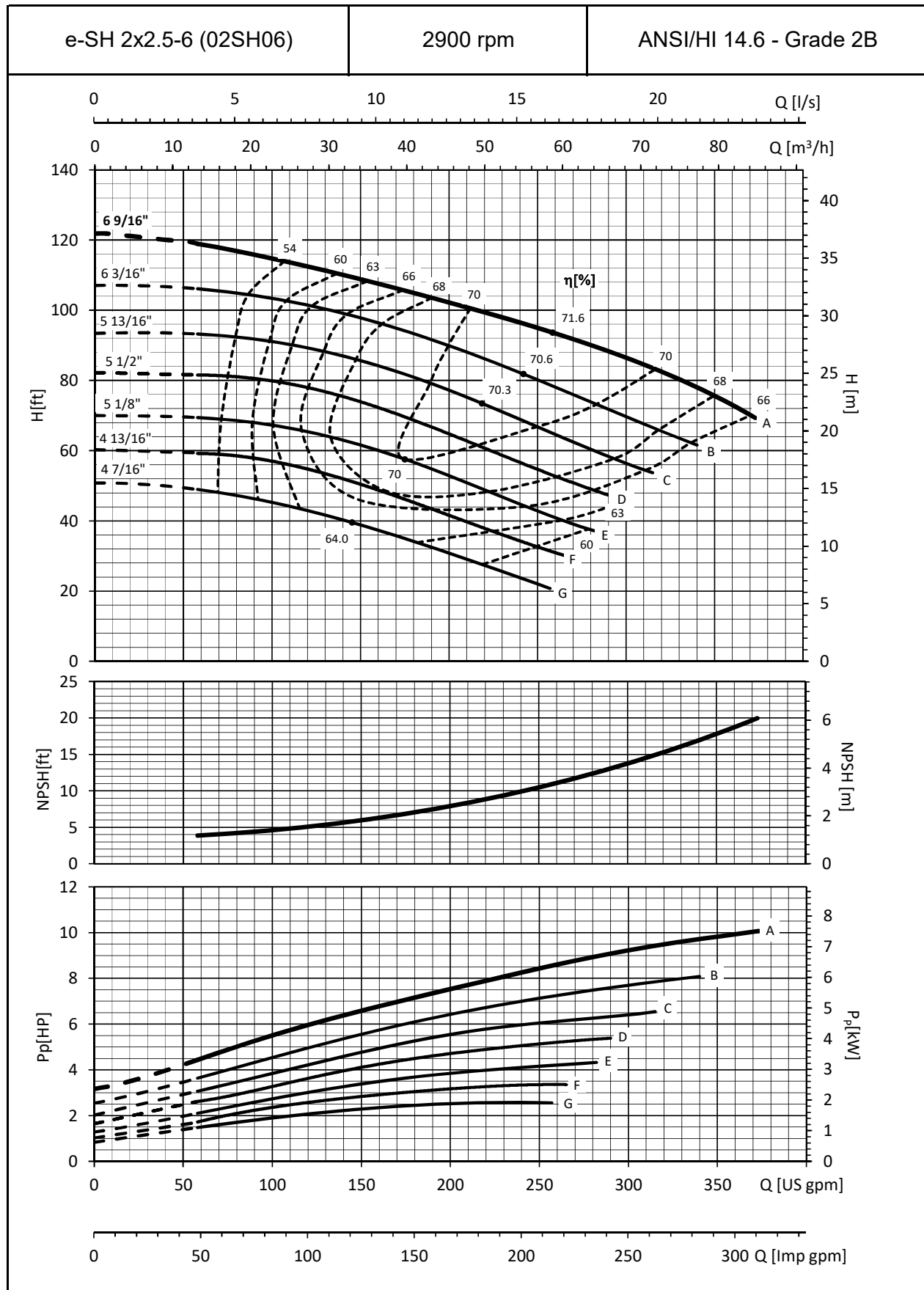


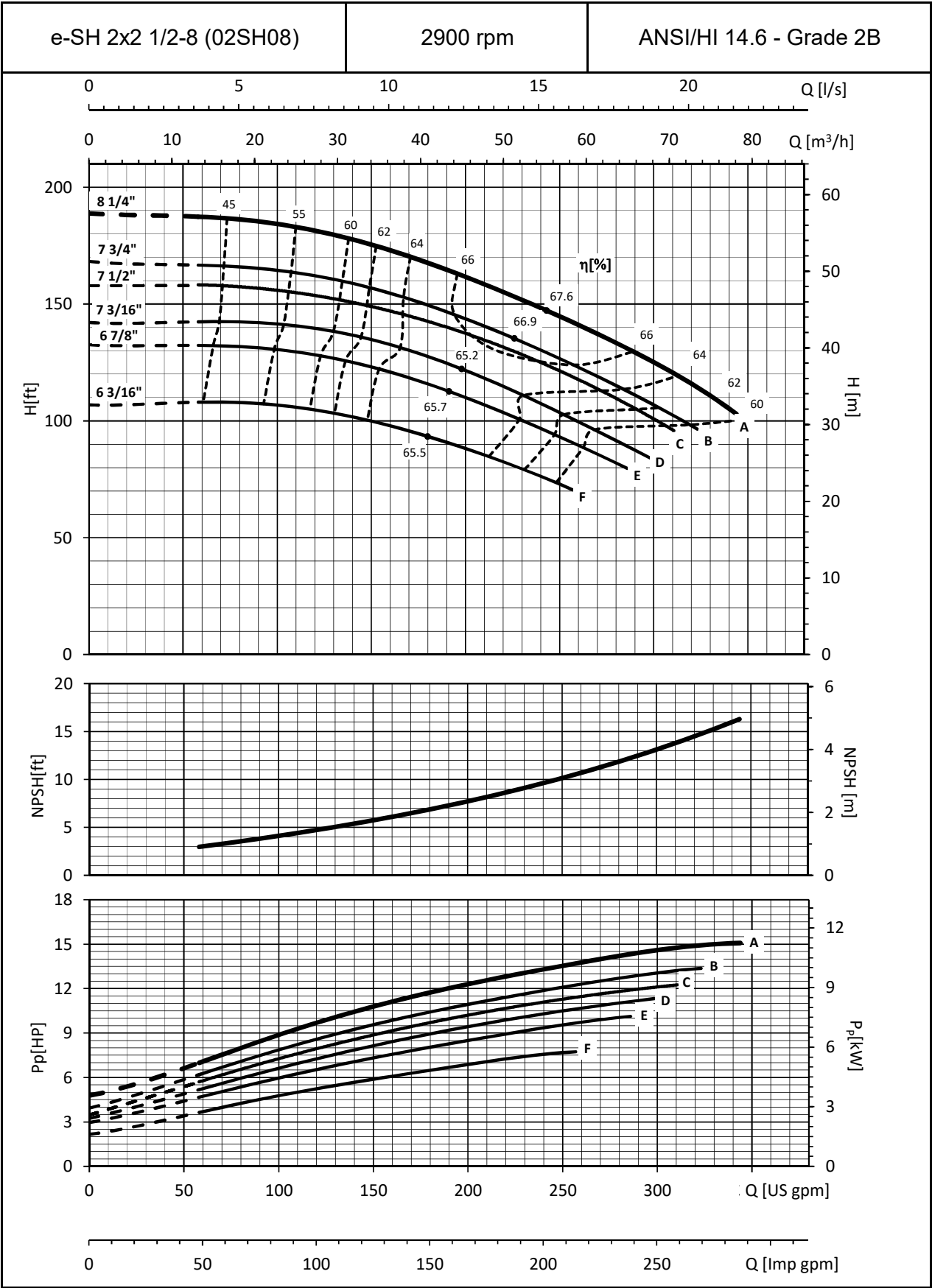


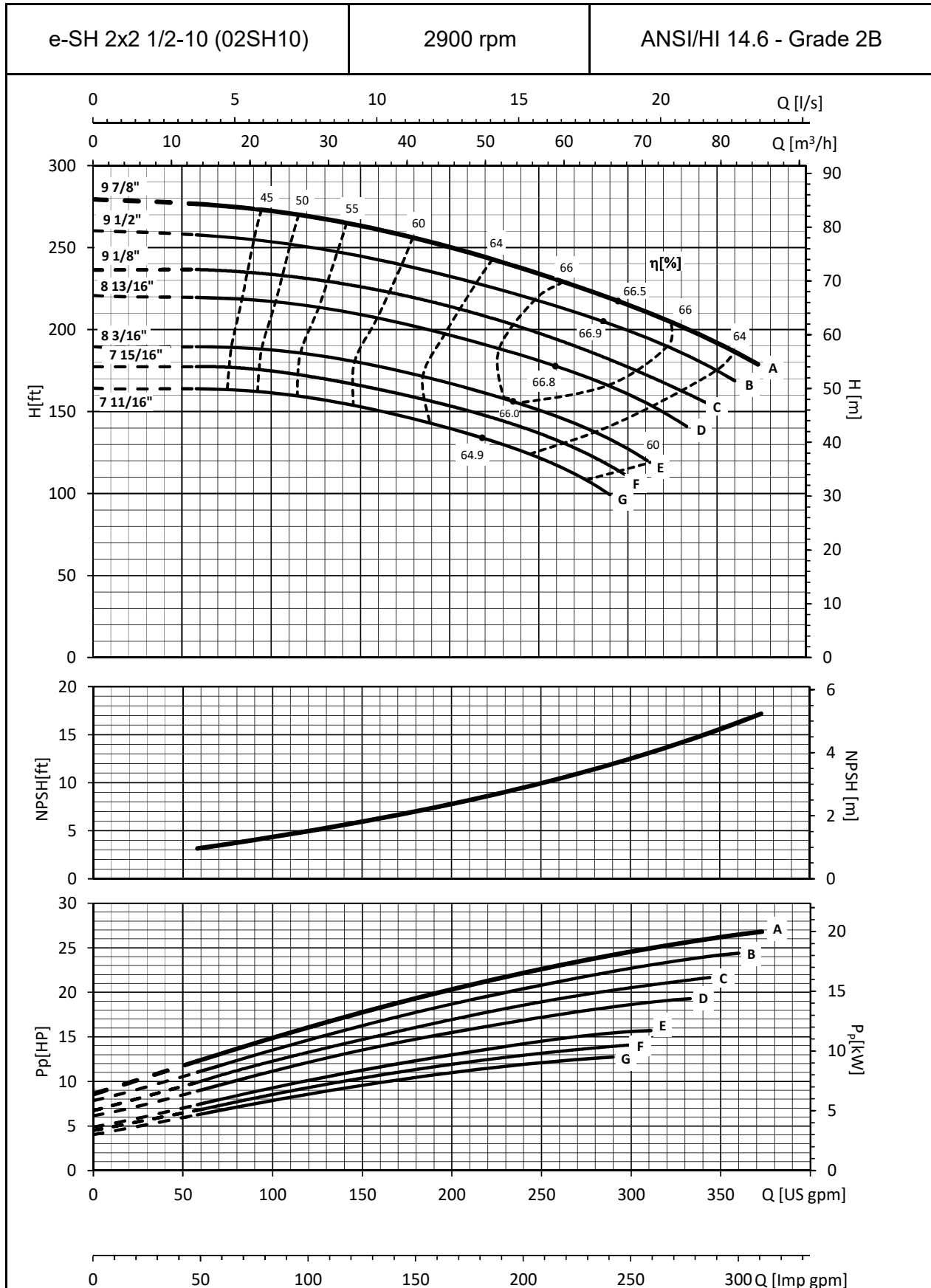


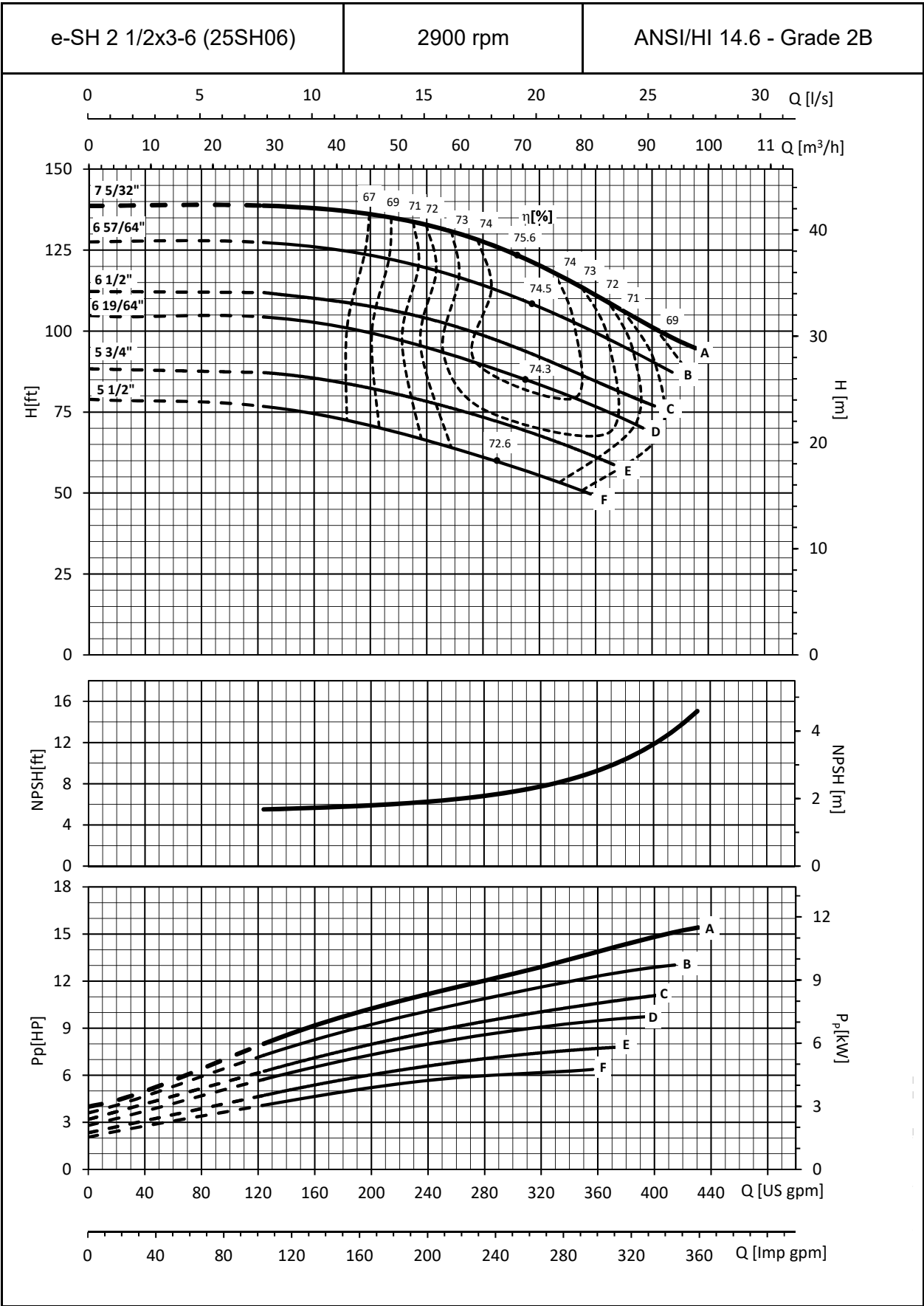


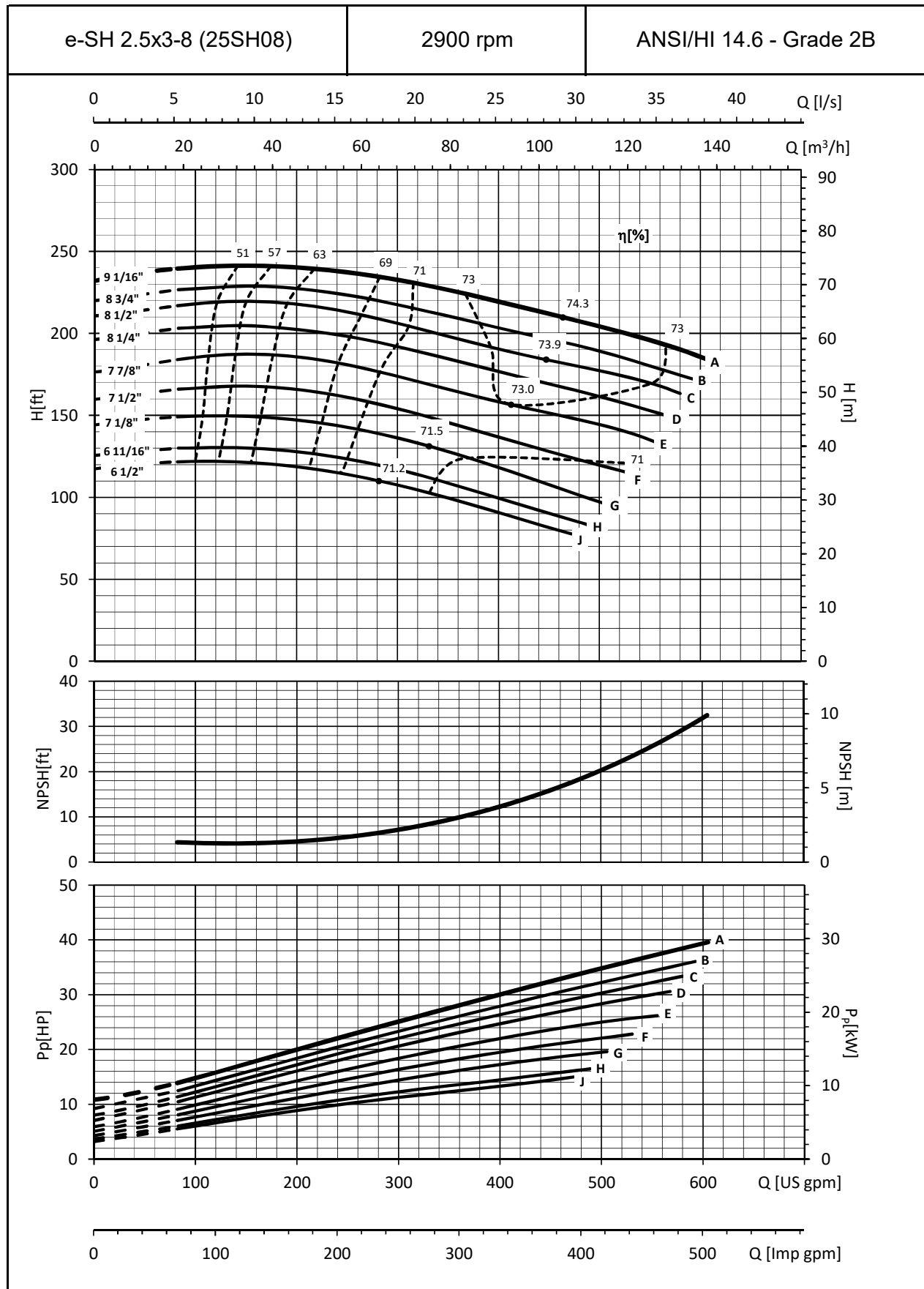


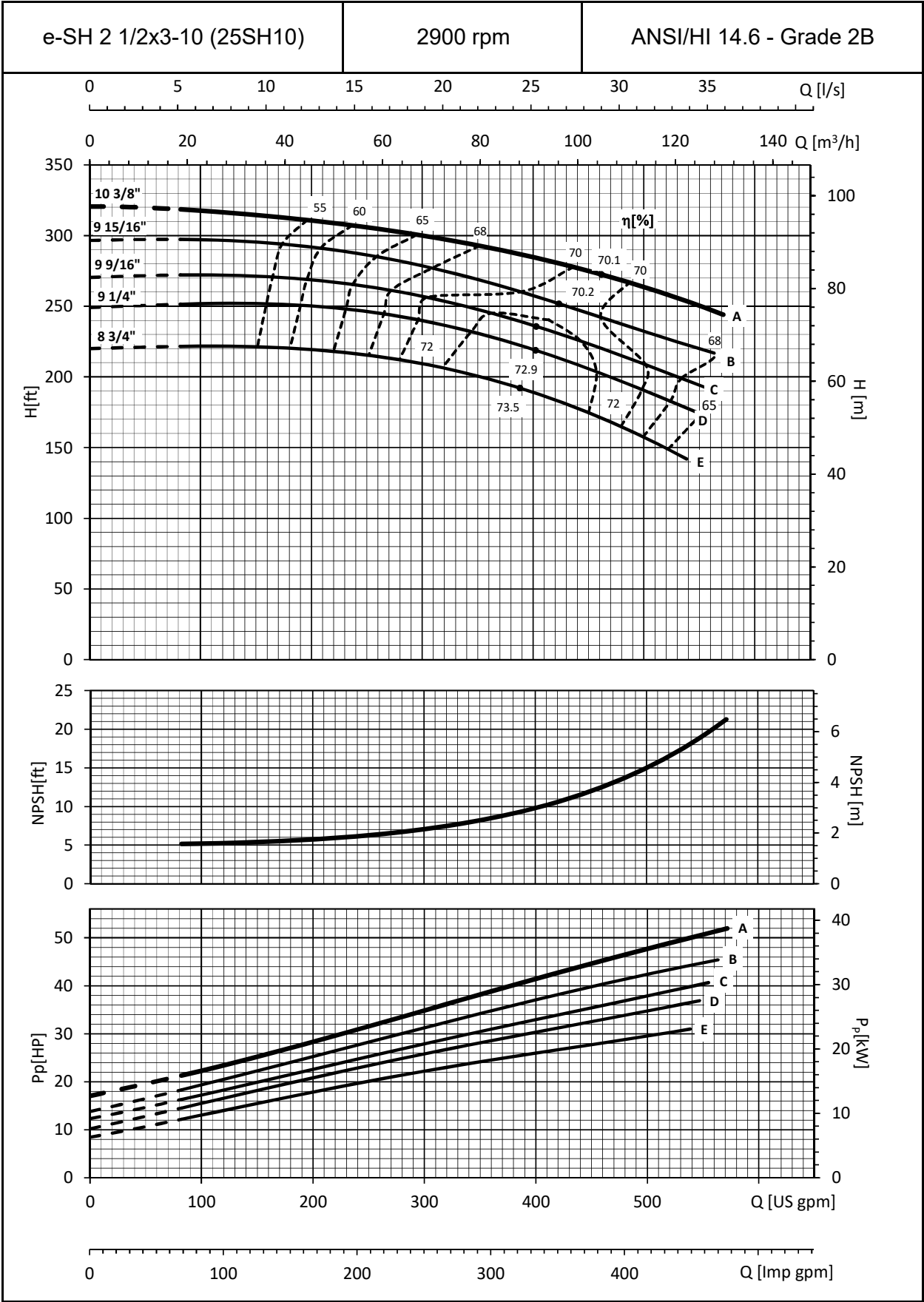


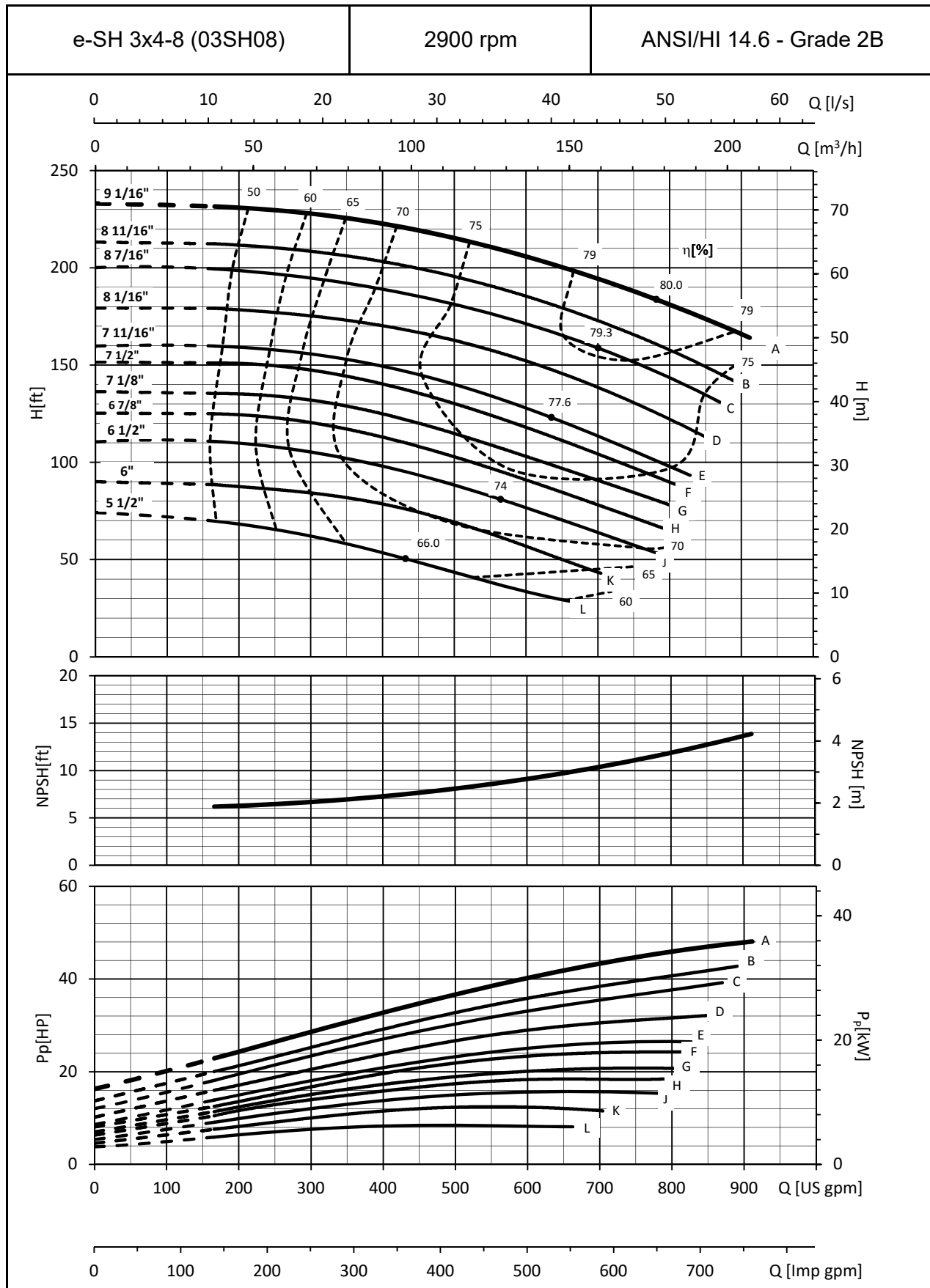


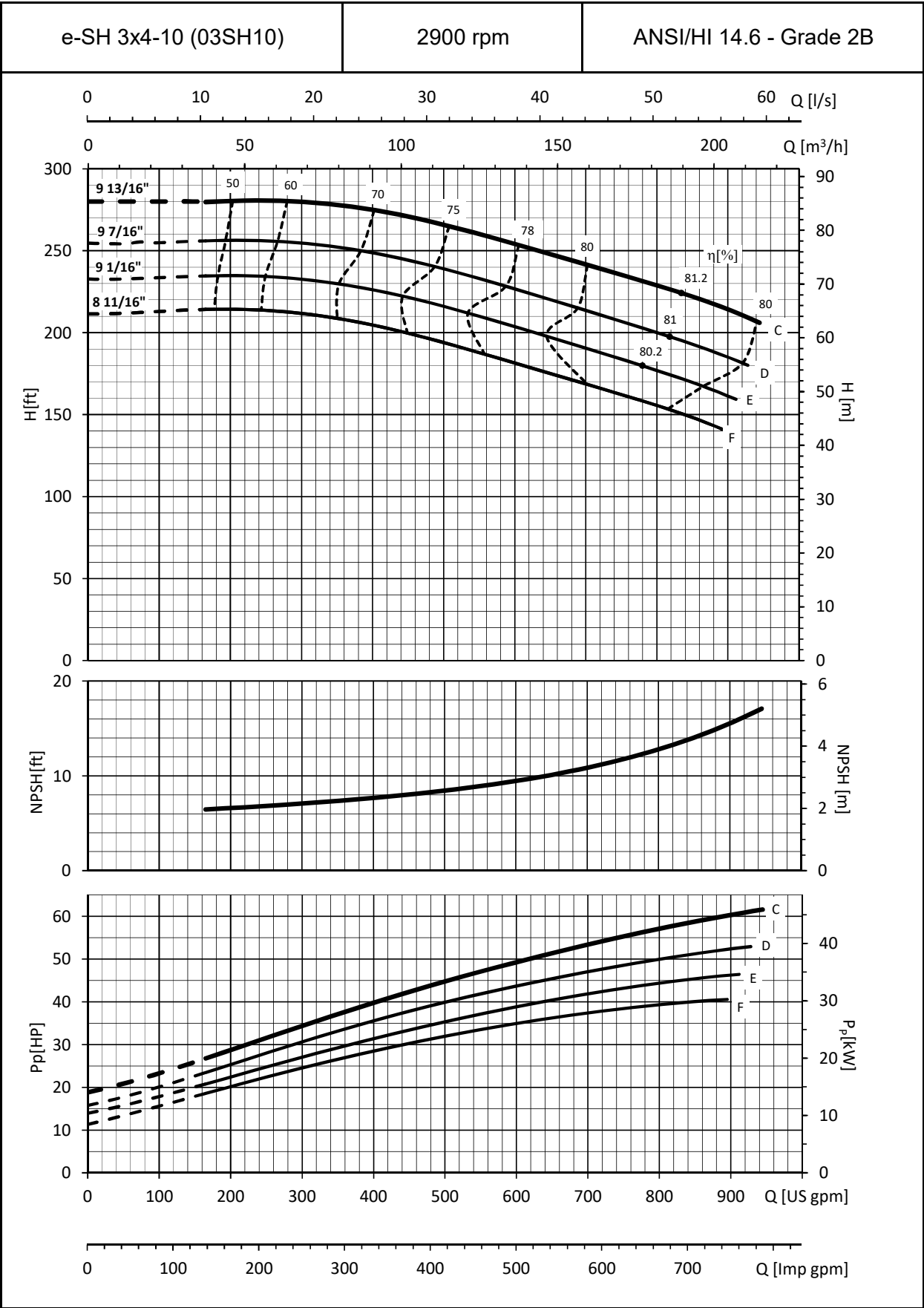






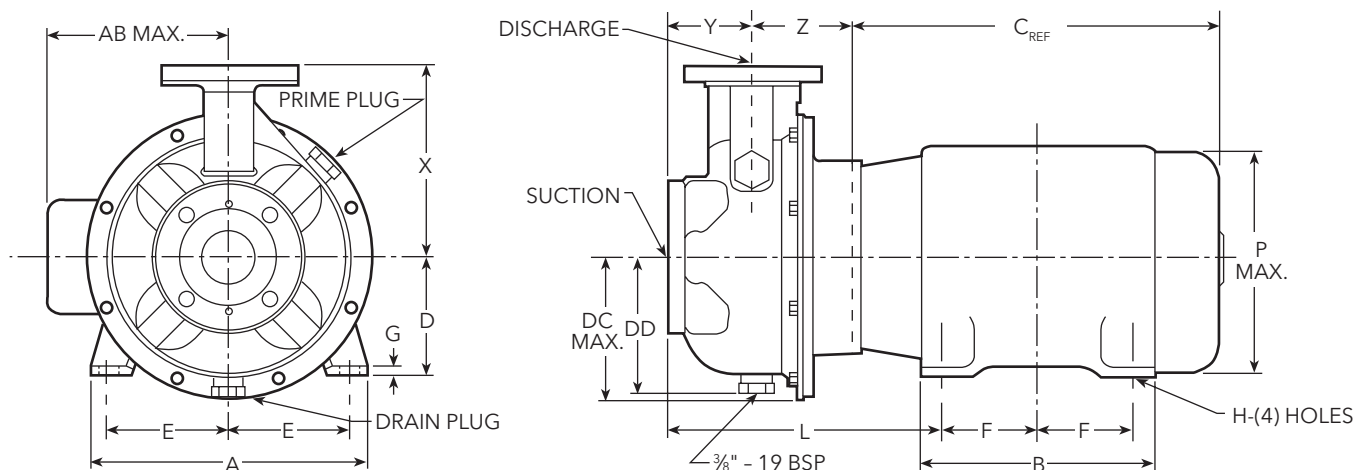






e-SH CLOSE COUPLED S-GROUP - DIMENSIONS AND WEIGHTS

(All dimensions in inches and weights in lbs. Do not use for construction purposes.)



Pump	Pump Size	150 lb. Flange		DC Max.	DD	X	Y	Z	Dimensions "L" (Motor Frame Size)				Weight (lbs.)
		Suction*	Discharge*						143/145	182/184	213/215	254/256	
01SH06	1 x 2 - 6	2	1	5	4 ⁵ / ₈	6 ³ / ₈	3 ³ / ₈	3 ⁷ / ₈	9 ⁷ / ₈	10 ¹ / ₂	11 ¹ / ₂	—	36.5
01SH08	1 x 2 - 8			5 ⁵ / ₈	5 ¹ / ₄	7 ¹ / ₈			10 ³ / ₄	11 ³ / ₈	12 ³ / ₈	12 ⁷ / ₈	49.2
01SH10	1 x 2 - 10			6 ⁷ / ₈	6 ¹ / ₄	8 ⁷ / ₈			4	10 ³ / ₄	11 ³ / ₈	12 ³ / ₈	12 ⁷ / ₈
15SH06	1½ x 2½ - 6	2½	1½	5	4 ⁵ / ₈	6 ³ / ₈	3¼		9¾	10 ³ / ₈	11 ³ / ₈	—	37.7
15SH08	1½ x 2½ - 8			5 ⁵ / ₈	5¼	7 ¹ / ₈	4	3 ⁵ / ₈	10½	11 ¹ / ₈	12 ³ / ₈	12 ⁵ / ₈	48.2
02SH06	2 x 2½ - 6		2	5	4 ⁵ / ₈								37.9
02SH08	2 x 2½ - 8			6	5¾								7 ⁷ / ₈
25SH06	2½ x 3 - 6	3	2½										

* For use with ANSI class 150 mating flanges.

NOTE:

1. Pumps shipped in vertical discharge as standard. For other orientations, remove casing bolts, rotate discharge to desired position, and tighten ³/₈ - 16 bolts to 20 ft./lbs., ⁷/₁₆ - 14 bolts to 20 ft./lbs.
2. ALL dimensions in inches.
3. Motor dimensions may vary with motor manufacturer.
4. Not for construction purposes.

Dimensions Determined by JM Motor Frame

JM Frame	A	AB Max.	B	D	E	F	G	C Max.	H Dia.	P Max.	Motor Wt. (lbs.)
143JM	6 ¹ / ₂	5 ³ / ₄	6	3 ¹ / ₂	2 ³ / ₄	2	1 ¹ / ₈	11 ³ / ₁₆	11 ¹ / ₃₂	7 ³ / ₁₆	50
145JM						2 ¹ / ₂					54
182JM	8 ⁵ / ₈	6 ⁷ / ₈	6 ¹ / ₂	4 ¹ / ₂	3 ³ / ₄	2 ¹ / ₄	3 ³ / ₁₆	13 ⁴ / ₅	13 ¹ / ₃₂	8 ⁵ / ₈	76
184JM						2 ³ / ₄					101
213JM	9 ¹ / ₂	8 ² / ₅	8	5 ¹ / ₄	4 ¹ / ₄	2 ³ / ₄	3 ³ / ₁₆	15 ¹⁴ / ₂₅	10 ⁷ / ₂₅	10 ⁷ / ₂₅	134
215JM						3 ¹ / ₂					169
254TCZ	11 ¹ / ₂	10 ² / ₅	11 ¹ / ₂	6 ¹ / ₄	5	4 ¹ / ₈	7 ⁷ / ₈	20 ¹ / ₂₀	17 ¹ / ₃₂	13 ¹³ / ₅₀	276
256TCZ						5					298

Motor Frame Selections

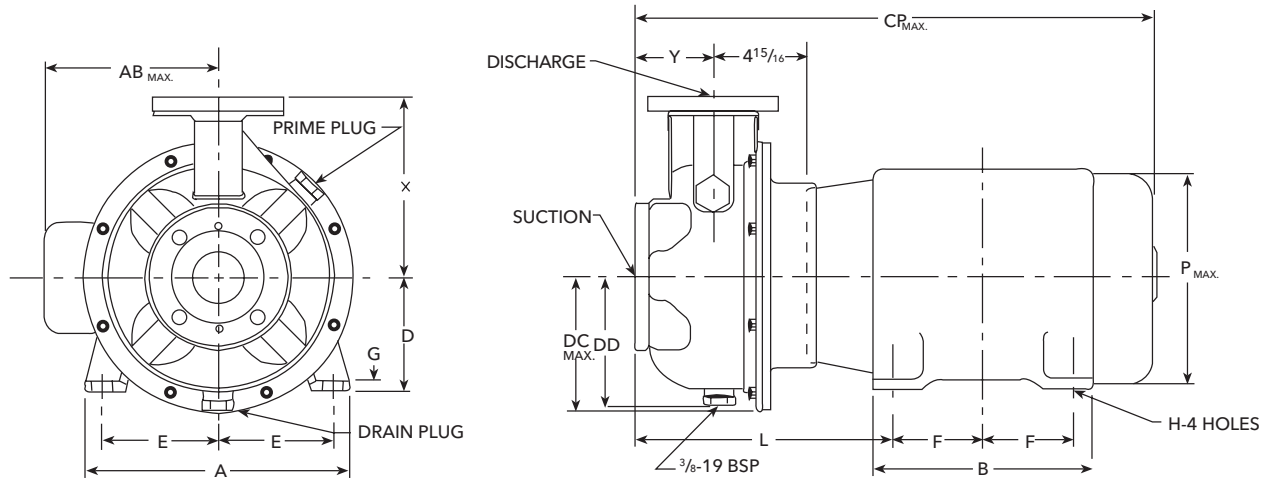
Motor Frame	Motor Horsepower							
	3500 RPM				1750 RPM			
	1 PH		3 PH		1 PH		3 PH	
	ODP*	TEFC*	ODP*	TEFC*	ODP*	TEFC*	ODP*	TEFC*
143JM	—	—	—	—	—	—	1	1
145JM	2	2	2-3	2	1-1 ¹ / ₂	1-1 ¹ / ₂	1 ¹ / ₂ -2	1 ¹ / ₂ -2
182JM	3	3	5	3	2	2-3	3	3
184JM	5	5	7 ¹ / ₂	5	3	—	5	5
213JM	7 ¹ / ₂	—	10	7 ¹ / ₂	5	—	7 ¹ / ₂	7 ¹ / ₂
215JM	10	—	15	10-15	—	—	—	—
254TCZ	—	—	20	15**	—	—	—	—
256TCZ	—	—	25	20	—	—	—	—

* Premium efficiency where required by Department of Energy regulations.

** Frame size for 208-230/460 Voltage TEPE motor.

e-SH CLOSE COUPLED M-GROUP - DIMENSIONS AND WEIGHTS

(All dimensions in inches and weights in lbs. Do not use for construction purposes.)



Dimensions "L" Determined by Pump and Motor

Pump	Pump Size	Suction*	Discharge*	CP Max.	DC Max.	DD	X	Y	Wt. (lbs.)	Motor Frame Size							
										140	180	210	250	280	320	360	
15SH10	1½ x 2½-10	2½	1½	34¾	6⅞	6¼	8⅕	4	92.1	11⅞	12½	13½	13⅞	14⅜	-		
02SH10	2 X 2½-10		2	36¾	6⅞	6⅞			86						15		
25SH08	2½ X 3-8	3	2½						6⅞	6⅞						85.9	-
25SH10	2½ X 3-10						4				3				37¾	6⅞	6⅝
03SH08	3 X 4-8	108.3	12⅞	13½	14⅞	15⅜		16									
03SH10	3 X 4 -10								113.2	-		-					

* For use with ANSI class 150 mating flanges.

NOTES:

1. Pumps shipped in vertical discharge as standard. For other orientations, remove casing bolts, rotate discharge to desired position, and tighten ⅜ - 16 bolts to 20 ft./lbs., ⅞ - 14 bolts to 20 ft./lbs., ½ - 13 bolts to 40 ft./lbs.
2. Motor dimensions may vary with motor manufacturer.
3. Not for construction purposes.

Dimensions Determined by JM Motor Frame

JM Frame	A	AB Max.	B	D	E	F	G	H Dia.	P Max.
145JM	6½	5¾	6	3½	2¾	2½	⅞	11/32	7⅜
182JM	8⅝	6⅞	6½	4½	3¾	2¼	3/16	9/20	8⅝
184JM						2¾			
213JM	9½	8⅞	8	5¼	4¼	2¾	3/16		10⅝
215JM						3½			
254JM	11½	10⅞	11½	6¼	5	4⅞	7/8	17/32	13¼
256JM						5			
284JM	12¾	16⅞	12⅞	7	5½	4¾	1⅞		15⅞
286JM						5½			
324JM	14½	14⅞	14	8	6¼	5¼	⅞	69/100	17⅞
326JM						6			
364TCZ	17	18⅞	15	9	7	5⅞	7/8		19½

364TCZ and 365TCZ frames are built with 326JM shaft extensions. Dimensions may vary with manufacturer.

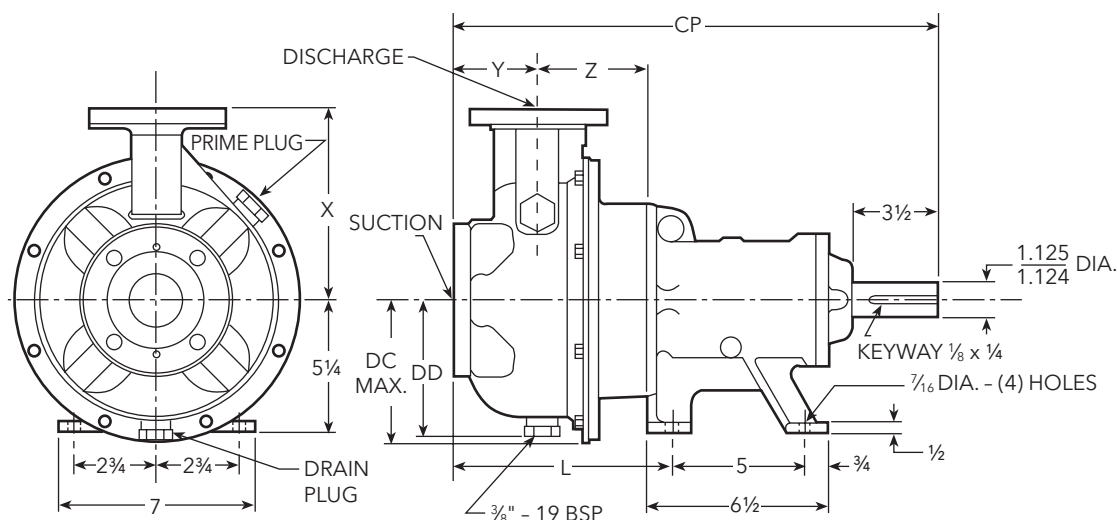
Motor Frame Selections

Frame	Motor Horsepower						Wt. Max.
	3500 RPM		1750 RPM				
	3 PH		1 PH		3 PH		
	ODP*	TEFC*	ODP*	TEFC*	ODP*	TEFC*	
145JM	-	-	-	-	2	2	57
182JM	-	-	2	2, 3	3	3	77
184JM	-	-	3	-	5	5	97
213JM	10	-	5	-	7½	7½	141
215JM	15	10	-	-	10	10	155
254JM	20	15	-	-	15	15	265
256JM	25	20	-	-	20	20	320
284JM	30	25	-	-	25	25	419
286JM	40	30	-	-	-	-	422
324JM	50	40	-	-	-	-	562
326JM	60	50	-	-	-	-	625
364TCZ	75	60	-	-	-	-	775
365TCZ	100	75, 100	-	-	-	-	905

364TCZ and 365TCZ frames are built with 326JM shaft extensions.

* Premium efficiency where required by Department of Energy regulations.

e-SH FRAME MOUNTED S-GROUP - DIMENSIONS AND WEIGHTS



Dimensions and Weights - Bare Pump Only

Pump	Pump Size	150 lb. Flange		DC Max.	DD	CP Max.	L	X	Y	Z	Weight (lbs.)	
		Suction*	Discharge*									
01SH06	1 x 2 – 6	2	1	5	4¾	16¾	7⅞	6⅝	3⅝	3⅝	56	
01SH08	1 x 2 – 8			5⅝	5⅝			7⅞			64	
01SH10	1 x 2 – 10			6⅝	6⅝			17⅞⁄₁₆			8¾	8⅞
15SH06	1½ x 2½ – 6	2½	1½	5	4¾	16⅞⁄₁₆	7¾	6⅝	3¼	3⅝	57	
15SH08	1½ x 2½ – 8			5⅝	5⅝	17⅞⁄₁₆		8½			7⅞	4
02SH06	2 x 2½ – 6		2	5	4¾		7⅞		7⅞⁄₁₆		57	
02SH08	2 x 2½ – 8			6	5¾						7⅞⁄₁₆	
25SH06	2½ x 3 – 6		3			2½						

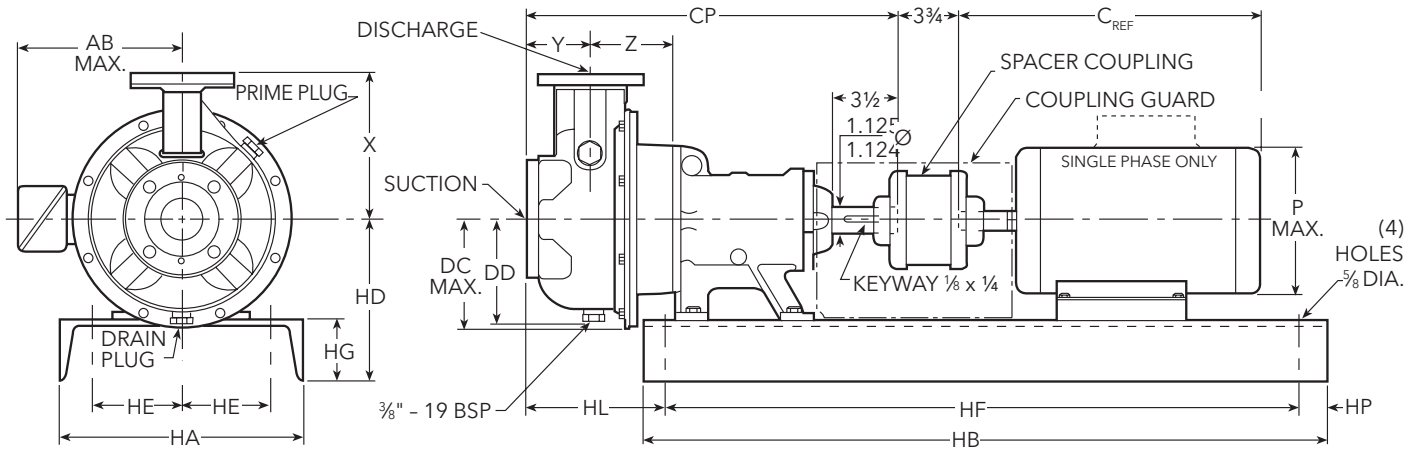
* For use with ANSI class 150 mating flanges.

NOTE:

- Pumps will be shipped with top vertical discharge as standard.
For other orientations, remove casing bolts, rotate discharge to desired position, and tighten 3/8-16 bolts to 20 ft./lbs., 7/16 - 14 bolts to 20 ft./lbs.
- ALL dimensions in inches.
- Not for construction purposes.

e-SH S-GROUP ENGINEERING DATA

Channel Steel Bedplate, Clockwise Rotation Viewed from Drive End



Dimensions and Weights - Determined by Pump

											Dimension "HL" Determined by Pump and Bedplate				
											Motor Frame Size				
Pump		Suction*	Discharge*	CP	DC Max.	DD	X	Y	Z	Wt. (lbs.)	143/145	183/184	213/215	254/256	284/286
01SH06	1 X 2-6	2	1	16 3/4	5	4 3/4	6 3/8	3 3/8	3 7/8	56	9 1/8	7 5/8	3 7/8		
01SH08	1 X 2-8			16 3/4	5 5/8	5 3/8	7 1/8			64					
01SH10	1 X 2-10			17 1/16	6 7/8	6 3/8	8 3/8	4		86					
15SH06	1 1/2 X 2 1/2-6	2 1/2	1 1/2	16 7/16	5	4 3/4	6 3/8	3 1/4	4	57	9 1/4	7 3/4	4		
15SH08	1 1/2 X 2 1/2-8			16 7/16	5 5/8	5 3/8	7 1/8			66					
02SH06	2 X 2 1/2-6		2	17 1/16	5	4 3/4				57					
02SH08	2 X 2 1/2-8									68					
25SH06	2 1/2 X 3-6				6	5 3/4	7 15/16			59					

* For use with ANSI Class 150 mating flanges.

NOTES:

1. All pumps shipped in vertical discharge position. May be rotated in 90° increments. Tighten 3/8" - 16 casing bolts to 20 ft./lbs. torque.
2. Dimensions in inches.
3. Motor dimensions may vary with motor manufacturer.
4. Not to be used for construction purposes.

Available Motor and Bedplate Dimensions and Weights

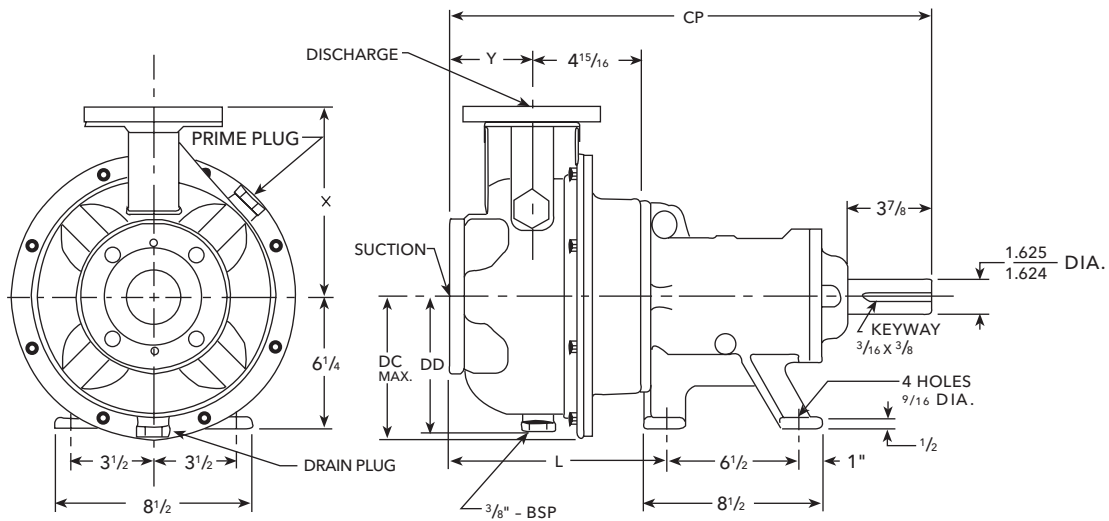
Motor Frame	HP @ 3500 RPM				HP @ 1750 RPM				AB Max.	C _{REF}	P Max.	Wt. Max.	Bedplate Data									
	1 PH		3 PH		1 PH		3 PH						HA	HB	HD**	HE	HF	HG	HP*	Wt. (lbs.)	Motor Shim	Bearing Frame Shim
	ODP***	TEFC***	ODP***	TEFC***	ODP***	TEFC***	ODP***	TEFC***														
143T					1	1	1	1	5¼	13⅜	6⅝	45	10	28	8	3⅜	24	2⅜	¾	48	1¾	—
145T	2	2	2 - 3	2	1½	1½	1½ - 2	1½ - 2		14¼		53									¾	
182T	3	3	5	3	2	2	3	3		16⅝		74										
184T	5	5	7½	5	3 or 5	3	5	3	5⅝	18⅞	7⅞	95	12	31	8¼	4¼	29	3	1	65	¾	—
213T			10	7½					7⅞	18	9⅝	116										
215T			15	10					7⅞	19⅞	9⅝	136										
254T			20	15					10⅞	21⅞	13	266	13	42	10¼	5¼	38½	4	1¾	110	—	1
256T			25	20					10⅞	23⅜		264										
284TS			30	25					12⅝	24⅞	15	392	15	44	10½	5⅜	40½	3½	124	—	1¼	
286TS			40	30					12⅝	26⅞		432										

Dimensions and weights vary with manufacturers. Dimensions in inches and weights in lbs.

* "HP" Dimensions at motor end only.

** "HD" Dimension for 254T/256T motor frame on 1 x 2-10 only is 11"; A 3/4" motor shim and a 1 3/4" bearing frame shim are required.

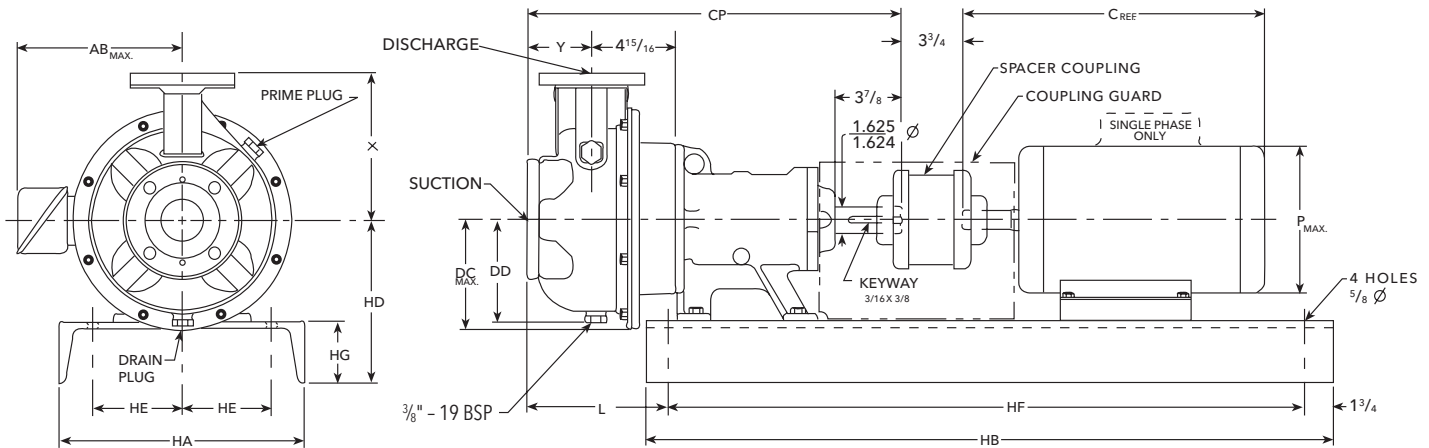
*** Premium efficiency where required by Department of Energy regulations.



Pump	Pump Size	Suction*	Discharge*	CP	DC Max.	DD	L	X	Y	Weight (lbs.)
15SH10	1½ x 2½-10	2½	1½	23	6⅞	6⅝	10¼	8 ¹⁵ / ₁₆	4	125
02SH10	2 x 2½-10		2							125
25SH08	2½ x 3-8	3	2½		6⅞	5⅞				125
25SH10	2½ x 3-10							134		
03SH08	3 x 4-8	4	3	24	6⅞	6⅝	11¼	9 ¹⁵ / ₁₆	5	136
03SH10	3 x 4-10				7⅞	7⅝		11⅞		148

e-SH M-GROUP ENGINEERING DATA

Channel Steel Bedplate, Clockwise Rotation Viewed from Drive End



Dimensions and Weights - Determined by Pump

Pump	Pump Size	Suction*	Discharge*	CP	DC Max.	DD	L	X	Y	Weight (lbs.)
15SH10	1½ x 2½-10	2½	1½	23	6⅞	6⅞	10⅞	8¹⁵⁄₁₆	4	125
02SH10	2 x 2½-10		2		6⅞	6⅞				125
25SH08	2½ x 3-8	3	2½		6⅞	5⅞				125
25SH10	2½ x 3-10				6⅞	6⅞	134			
03SH08	3 x 4-8	4	3	24	6⅞	6⅞	11⅞	9¹⁵⁄₁₆	5	136
03SH10	3 x 4-10				7⅞	7⅞				11⅞

NOTE:

1. Pumps will be shipped with top vertical discharge as standard. For other orientations, remove casing bolts, rotate discharge to desired position and tighten ¾ - 16 bolts to 20 ft./lbs., ½ - 13 bolts to 40 ft./lbs.
2. ALL dimensions in inches.
3. Not for construction purposes.

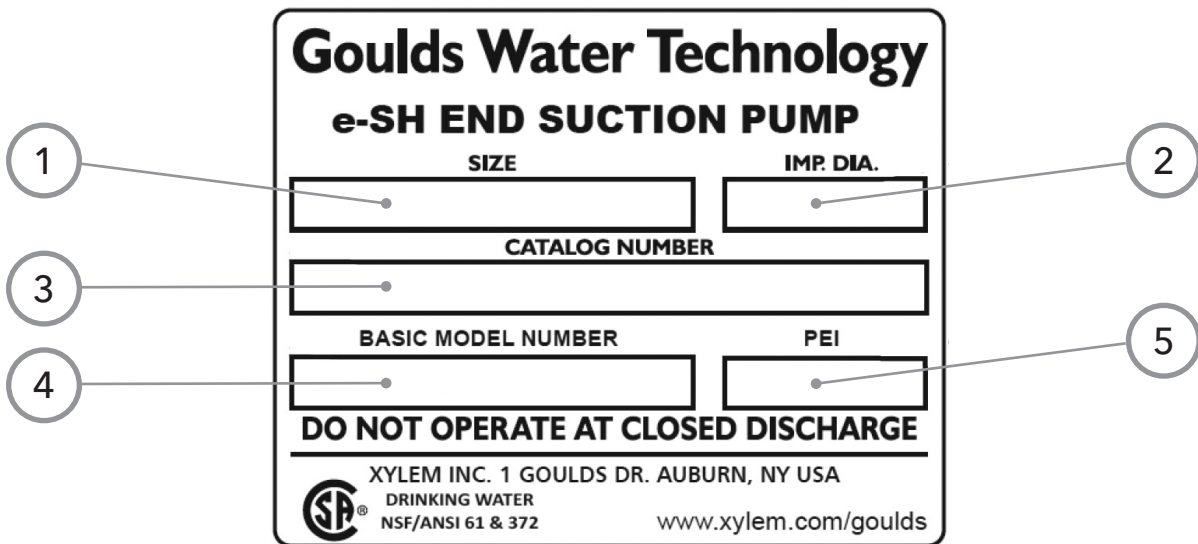
* For use with ANSI class 150 mating flanges

Available Motor and Bedplate Dimensions and Weights

Motor Frame	HP @ 3500 RPM		HP @ 1750 RPM - T-Frame Only				AB Max.	C _{REF}	P Max.	Wt. Max.	Bedplate Data							
	3 PH		1 PH		3 PH						HA	HB	HD	HE	HF	HG	Wt. (lbs.)	
	ODP	TEFC	ODP	TEFC	ODP	TEFC												
184T			3 or 5	3	5	5	5⅞	18⅞	7⅞	95	13	42	10¼	5¼	38½	4	111	
213T					7½	7½	7⅞	18	9⅝	116								
215T	15				10	10	9⅞	19⅞	13	136								
254T	20	15			15	15	9½	21⅝	13	266								
256T	25	20			20	20		23⅜		264	15	44	10½	5¾	40½	3½	124	
284TS/T	30	25			25	25	12⅝	24⅞	15	392								
286TS/T	40	30						26⅞		422								
324TS/T	50	40					14⅞	28¾	17⅜	592	18	48	12	7¼	44½	4	183	
326TS/T	60	50						30¼										634
364TS/T	75	60					15⅝	31⅞	18⅞	834			13					
365TS/T	100	75						32⅞										1000
405TS/T		100					18	36⅞	20⅞	1060	22	56	14	7¼	52½	4	214	

Dimensions and weights vary with manufacturers. Dimensions in inches and weights in lbs.

NAMEPLATE



LEGEND

1. Pump size
2. Impeller trim
3. Pump Identification Code (per existing nomenclature)
4. Basic Model Number (per DOE definition)
5. Pump Energy Index

MECHANICAL SEALS

List of Materials

Materials				Part No.	
Rotary Ring	Stationary Ring	Elastomers	Metal Parts	180-210 Frames	250-360 Frames
Carbon	Sil-Carb	FKM	316SS	10K27	10K45
		EPR		10K19	10K20
Sil-Carb		FKM		10K64	10K65

***Note:** for limits and recommendations of each combination of materials, contact factory.

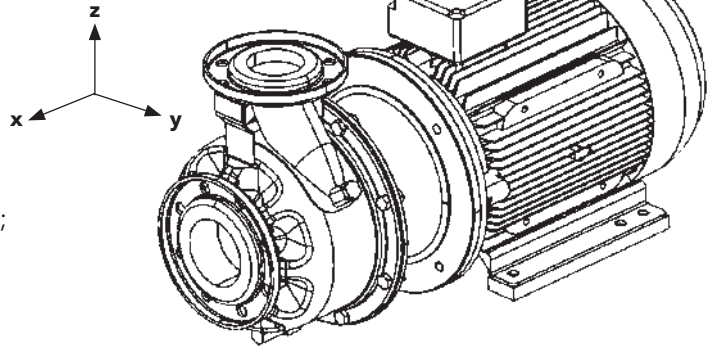
TECHNICAL APPENDIX

NOZZLE LOADING

When the applied loads do not attain the maximum values allowed, one of these loads may exceed the normal limit, provided the following supplementary conditions are satisfied:

- any component of a force or of a moment shall be limited to 1.4 times the maximum allowable value;
- the actual forces and moments acting on each flange meet the condition:

$$\left(\frac{\sum |F_{x,y,z}|}{\sum |F_{max}|} \right)^2 + \left(\frac{\sum |M_{x,y,z}|}{\sum |M_{max}|} \right)^2 \leq 2$$



Size	Suction									Discharge								
	Size	Fx max	Fy max	Fz max	ΣF max	Mx max	My max	Mz max	ΣM max	Size	Fx max	Fy max	Fz max	ΣF max	Mx max	My max	Mz max	ΣM max
		[lbf]	[lbf]	[lbf]	[lbf]	[lbf]	[lbf-ft]	[lbf-ft]	[lbf-ft]		[lbf]	[lbf]	[lbf]	[lbf]	[lbf]	[lbf-ft]	[lbf-ft]	[lbf-ft]
01SH06	2"	93	84	76	147	258	184	212	381	1"	31	28	35	55	120	83	97	176
01SH08																		
01SH10																		
15SH06	2.5"	117	105	96	184	277	198	226	409	1.5"	49	45	56	87	192	133	155	280
15SH08																		
15SH10																		
02SH06	2.5"	117	105	96	184	277	198	226	409	2"	67	61	74	117	207	148	170	305
02SH08																		
02SH10																		
25SH06	3"	141	127	115	221	295	212	240	435	2.5"	84	76	93	147	221	159	181	327
25SH08																		
25SH10																		
03SH08	4"	188	169	152	295	323	231	268	478	3"	101	92	112	177	236	170	192	348
03SH10																		



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