VERTICAL TURBINE PUMP

FVT Series - 50Hz & 60Hz

Zirantec

www.zirantec.com

Zirantec

ZIRANTEC products are manufactured by well qualified and experienced Italian Pump Engineers in state of the art manufacturing facilities in Italy

CERTIFICATION

ZIRANTEC Pumps & Motors are from the house of **Fabbrica Italiana Pompe Sommergibili S.r.l.** a four decades old Italian company of high repute, offering complete waste water solutions around the world. Its current product portfolio includes world class Waste Water Pumps of various types, Multistage Centrifugal Pressure Booster Pumps, Borehole Submersible Pumps & Motors, End Suction Centrifugal Pumps, Industrial Pumps for various applications.

Founded as early as 1978 in Rozzano, South of Milan, Italy by Mr.Orfeo Agostini, the company has witnessed steady growth and market expansion continuously ever since. In these four decades of existence, the company has carved a niche for itself in the waste water and sewage pump market in Italy and other countries. Its products are employed in Municipal, Domestic and Industrial applications. The Company is well known for the unique and robust designs of its products and their workmanship. Due to its superior quality ZIRANTEC products are also exported to many European, African and Asian countries.

ZIRANTEC's products are conceived, designed and manufactured by well qualified and experienced Italian Pump Engineers in state of the art manufacturing facilities in Italy. These manufacturing plants are accredited with UNI EN ISO 9001:2015 Certification.

Over the years, the company has metamorphosed and ventured into manufacturing of high quality water pumps, for domestic, agricultural and industrial applications. In the due process, Fabbrica Italiana Pompe Sommergibili S.r.l. has shed its image of an exclusive sewage and waste water pumps manufacturer to a complete pump production company with an ability to manufacture diverse kinds of pumps for different applications.

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C O N T E N T S

VERTICAL TURBINE PUMP

Zirantec

MODEL IDENTIFICATION CODE

XXX XX X X XXX

FVT - Vertical Turbine Pumps

Bowl diameter (Inch)

Impeller Type
C-Closed Impeller
S - Semi Open Impeller

Type of flow
Nominal flow in m3/hr

Type of flow
V-Mixed flow
R-Radial flow
A-Axial flow

Example : FVT 11CV170 – Verticle Turbine Pumps; 11"Bowl; Closed impeller; Mixed flow; 170m3/hr;

VERTICAL TURBINE PUMPS (FVT SERIES)

DESCRIPTION

Vertical turbine pumps are single or multistage in construction and consist of column unit and drive unit assembly. FVT pumps are designed to operate without being affected by large fluctuations of the water level. These pumps are supplied with mixed flow or axial flow impeller for higher flow requirement. The transmission shaft in the column pipes are supported with line shaft bearing with self or external cooling arrangement. And submerged impellers allow the pump to start without need of priming. Ratchet arrangement provided on coupling to avoid reverse rotation.

- **Bowl**

  A diffuser with vanes cast integrally.
- **Impeller**

  Impellers are of mixed flow or axial flow.
- **Suction bell**

  Designed for smooth entry of water with minimum losses.
- **Strainer**

  Stainless steel basket type strainers are provided in standard installation in the suction bell to prevent large solids from entering the pump.
- **Shaft**

  The shaft materials provided are of high tensile strength.
- **Column pipe**

  Column pipes are designed in such a way to transfer the water smoothly from bowl assembly to discharge head and the pipes are made either in casted or fabricated.
- **Bearings**

  Line Shaft Bearing

  Cutlass bearings are of higher bond strength between rubber and shell material. Also provided in composite material like thordon and ferroform. Lubrication by self/external clear water.

  Oil lubrication will be provided with bronze bearing.
- **Discharge head**

  Either casted or fabricated discharge head is provided to direct flow from column pipe to discharge head located above the ground level.
- **Thrust Bearing**

  Antifriction type are provided for taking hydraulic axial thrust and weight of rotating unit. Lubrication with oil or grease.
- **Non-reverse ratchet**

  Non- revert ratchet assembly provided to prevent reverse rotation of pump due to back flow of the water in case of its tripping.
- **Motor stool**

  Rigid and rugged construction to ensure vibration-free operation of pumpset.
- **Coupling**

  Flexible pin bush type couplings are generally provided to couple pump and motor. For line shaft coupling either threaded barrel type or muff couplings are provided.
- **Drive**

  Electric motor with solid shaft is a standard arrangement on request we can provide vertical hollow shaft drive also. Engine driven pumps are provided with right angle gear drive.
- **Direction of rotation**

  Clockwise when viewed from driving end.

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TECHNICAL SPECIFICATIONS

Component	50Hz	60Hz
Maximum Flow	upto 16000m³/h	upto 70445 USGPM
Maximum Head	upto 250m	upto 820 Feet
Speed	720/960/1450/2900 RPM	860/1200/1750/3500 RPM
Impeller Type	Enclosed Impeller	Enclosed Impeller
Outlet Size	upto 900mm	upto 36"
Power	upto 2400kW	upto 3220kW
Liquid Temperature	upto 90°C	upto 194°F
Shaft Seal	Gland Packing, Mechanical Seal	Gland Packing, Mechanical Seal
Material of Construction (MOC)	Cast Iron, Bronze, Stainless steel, duplex and super duplex	Cast Iron, Bronze, Stainless steel, duplex and super duplex
Line shaft and Thrust Bearing Lubrication	Line shaft - Self & External Lubrication / Thrust bearing - Grease and oil	Cast Iron, Bronze, Stainless steel, duplex and super duplex
Maximum working Pressure	upto 25bar	upto 25bar

FEATURES

- Wide hydraulic ranges
- Dynamically balanced rotating parts
- Optional surface coating for better efficiency
- Customized material option
- Suction bell bearing provided for better stability

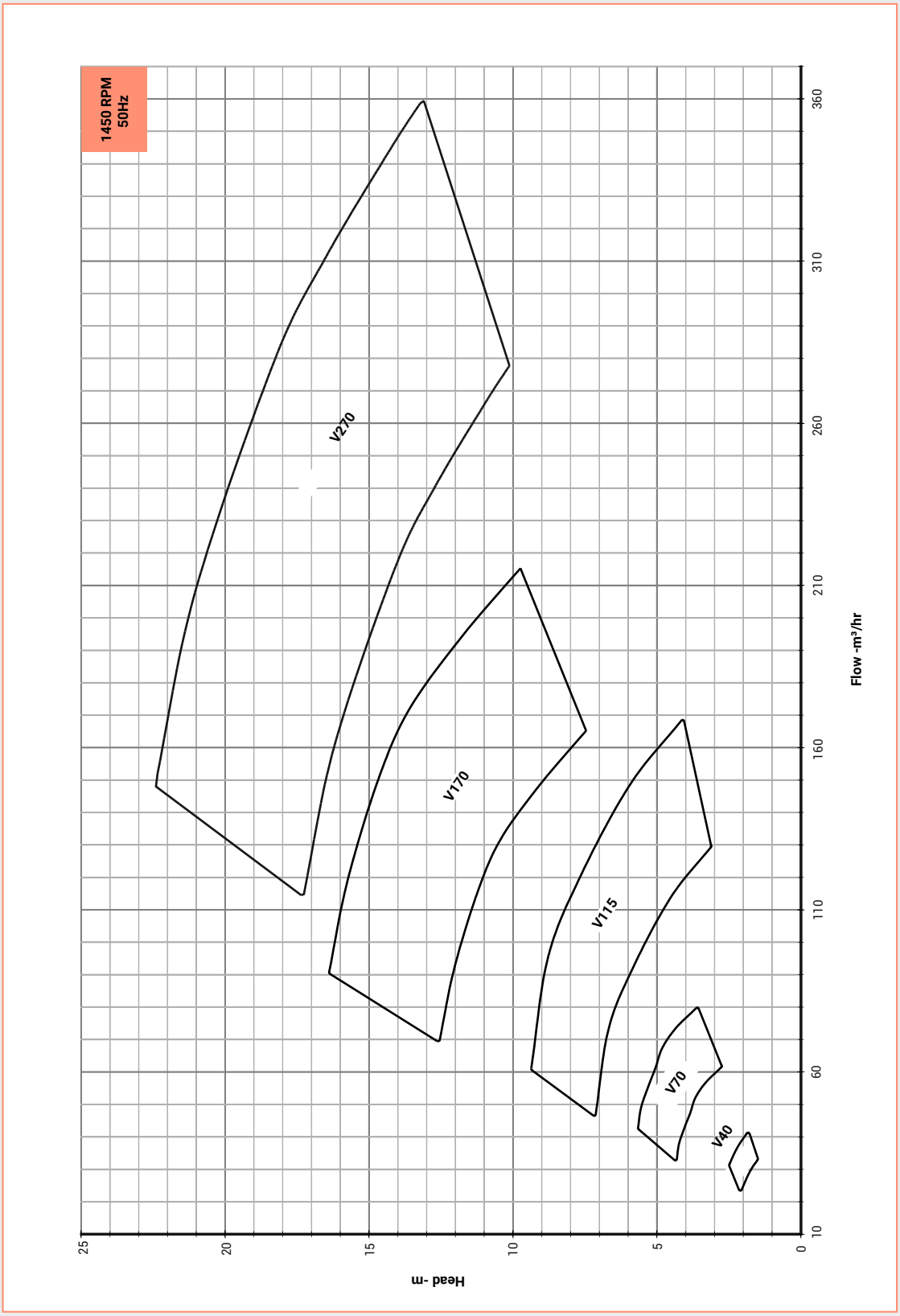
APPLICATION

- Raw water intake
- Main cooling water and makeup water supply in power plant
- Various application in steel, cement industry & refineries
- Community water supply
- Dock yard and Offshores platforms
- Flood Control
- Fire fighting
- Irrigation
- Water treatment plants

MATERIAL OF CONSTRUCTION

Component	Material	American standard (ASTM)	DIN
Bowl	CI with 2% NI	ASTM A48 Class 40	(0.6025)DIN 1691 GG25
Suction Bell	CI / CI with 2% NI	ASTM A48 Class 40	(0.6025)DIN 1691 GG25
Impeller	Bronze / CF8M / CF8 / CI	ASTMB 584 - C90500	DIN 1705 Rg 5
		ASTMA 351/743 Gr. CF8M	1.4408(GX5CrNiMo19-11-2)
		ASTMA 351 Gr. Cf8	1.4301(X5CrNi18-10)
		ASTM A48 Class 40	(0.6025)DIN 1691 GG25
Wear Ring	Bronze / CF8M / CF8 / CI	ASTMB 584 - C90500	DIN 1705 Rg 5
		ASTMA 351/743 Gr. CF8M	1.4408(GX5CrNiMo19-11-2)
		ASTMA 351 Gr. Cf8	1.4301(X5CrNi18-10)
		ASTM A48 Class 40	(0.6025)DIN 1691 GG25
Shaft	SS410 / SS316 / SS304	ASTMA 276 type 410	1.4006(X10Cr13)
		ASTMA 276 type 316	1.4401(X5CrNiMo17122)
		ASTMA 276 type 304	1.4301(X5CrNi18-10)
Sleeve	SS410 / SS316 / SS304	ASTMA 276 type 410	1.4006(X10Cr13)
		ASTMA 276 type 316	1.4401(X5CrNiMo17122)
		ASTMA 276 type 304	1.4301(X5CrNi18-10)
Pipe Column	Mild Steel	ASTM-A283 GR.D	DIN 1700 GR ST4-2 Fabricated Steel 44
Enclosing Pipe	Mild Steel	ASTM-A283 GR.D	DIN 1700 GR ST4-2 Fabricated Steel 44
Cone Pipe	CI / Mild Steel	ASTM A48 Class 40	(0.6025)DIN 1691 Gg25
		ASTM-A283 GR.D	DIN 1700 GR ST4-2 Fabricated Steel 44
Discharge Head	CI / Mild Steel	ASTM A48 Class 40	(0.6025)DIN 1691 Gg25
		ASTM-A283 GR.D	DIN 1700 GR ST4-2 Fabricated Steel 44
Motor Stool	CI / Mild Steel	ASTM A48 Class 40	(0.6025)DIN 1691 Gg25
		ASTM-A283 GR.D	DIN 1700 GR ST4-2 Fabricated Steel 44
Sole Plate	Mild Steel	ASTM-A283 GR.D	DIN 1700 GR ST4-2 Fabricated Steel 44
Strainer	SS304	ASTMA 276 type 304	1.4301(X5CrNi18-10)
Bearing Holder	CI	ASTM A48 Class 40	(0.6025)DIN 1691 GG25
Bowl and Line Shaft Bearing	Bronze / Ferroform	Bronze (LTB 4) / Ferroform	Bronze (LTB 4) / Ferroform
	/ Thordon / Rubber	Thordon / Rubber	Thordon / Rubber
Bearing Housing	CI	ASTM A48 Class 40	(0.6025)DIN 1691 GG25
Bearing Housing Cover	CI	ASTM A48 Class 40	(0.6025)DIN 1691 GG25
Key	SS410 / SS316 / SS304	ASTMA 276 type 410	1.4006(X10Cr13)
		ASTMA 276 type 316	1.4401(X5CrNiMo17122)
		ASTMA 276 type 304	1.4301(X5CrNi18-10)
Pump & Motor Coupling	CI	ASTM A48 Class 40	(0.6025)DIN 1691 GG25
Gland	CI	ASTM A48 Class 40	(0.6025)DIN 1691 GG25

FAMILY CURVE



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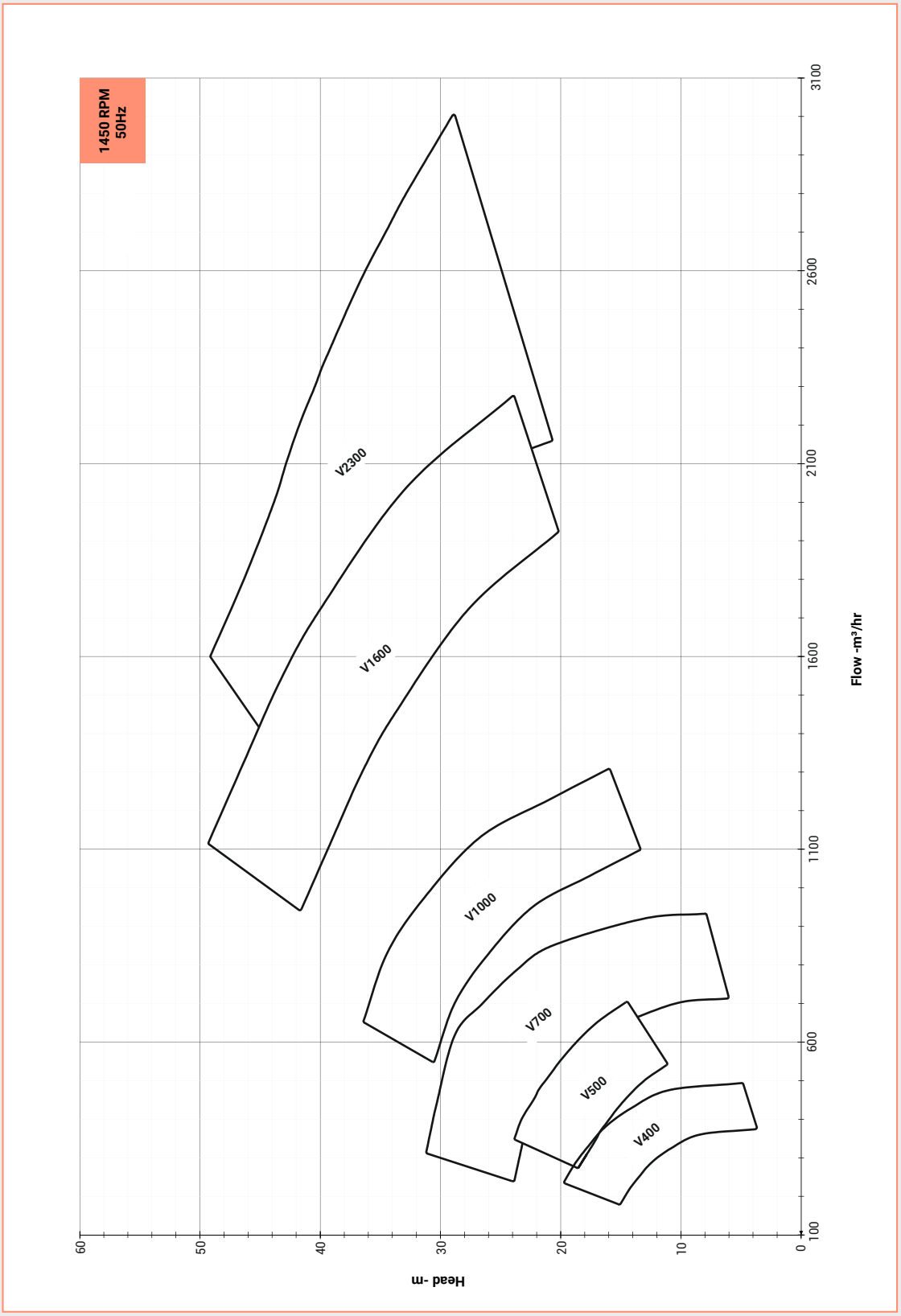

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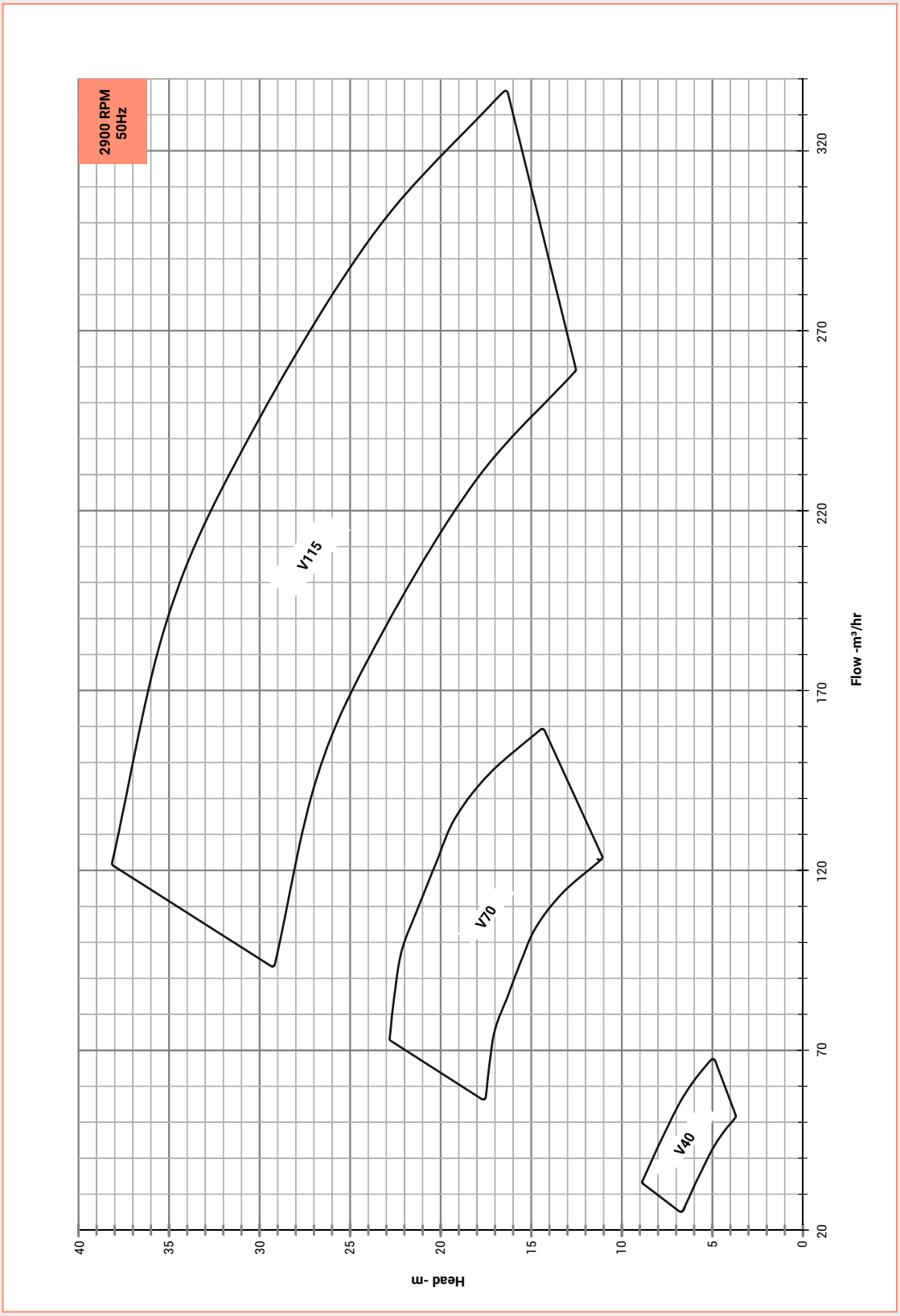

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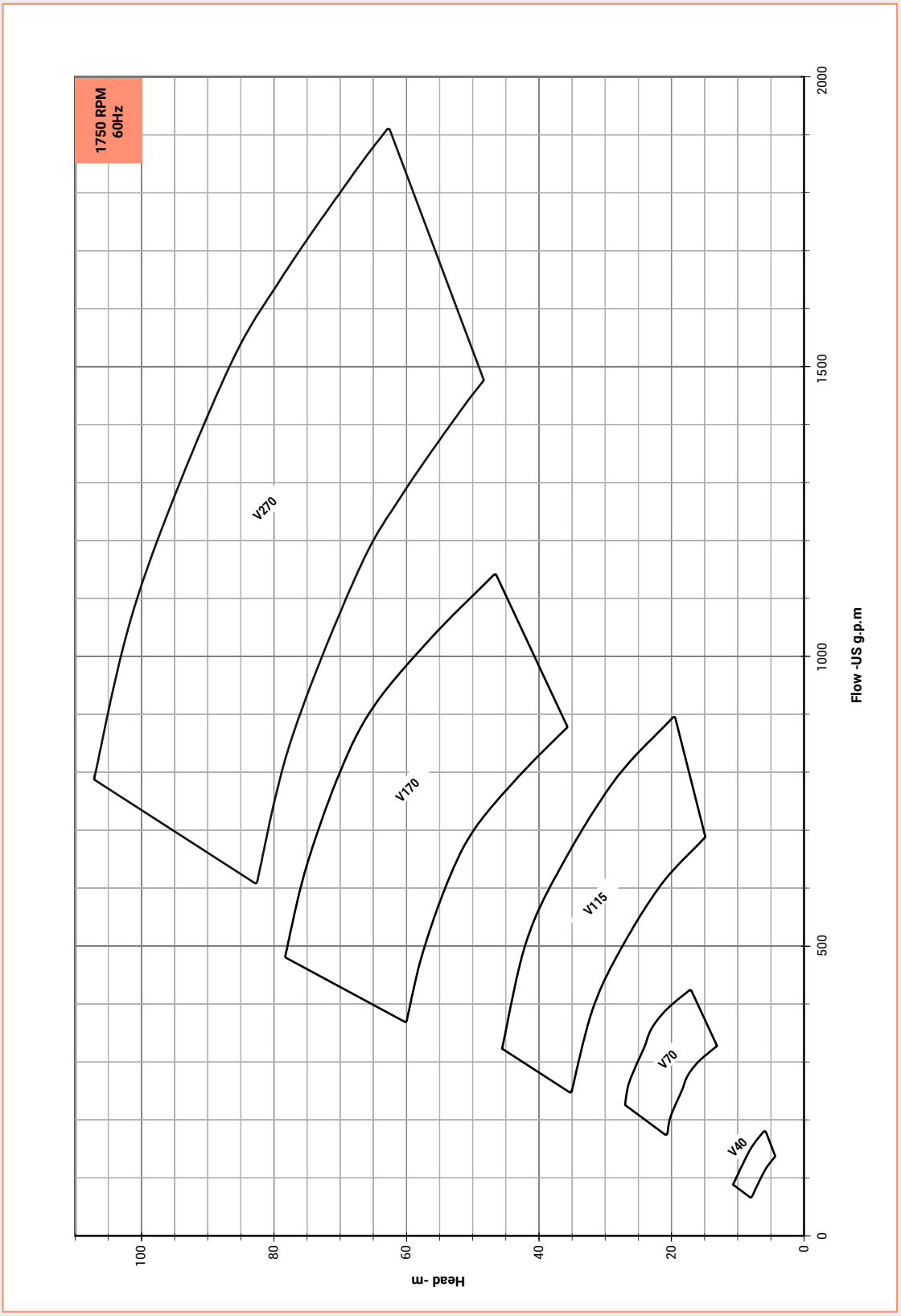

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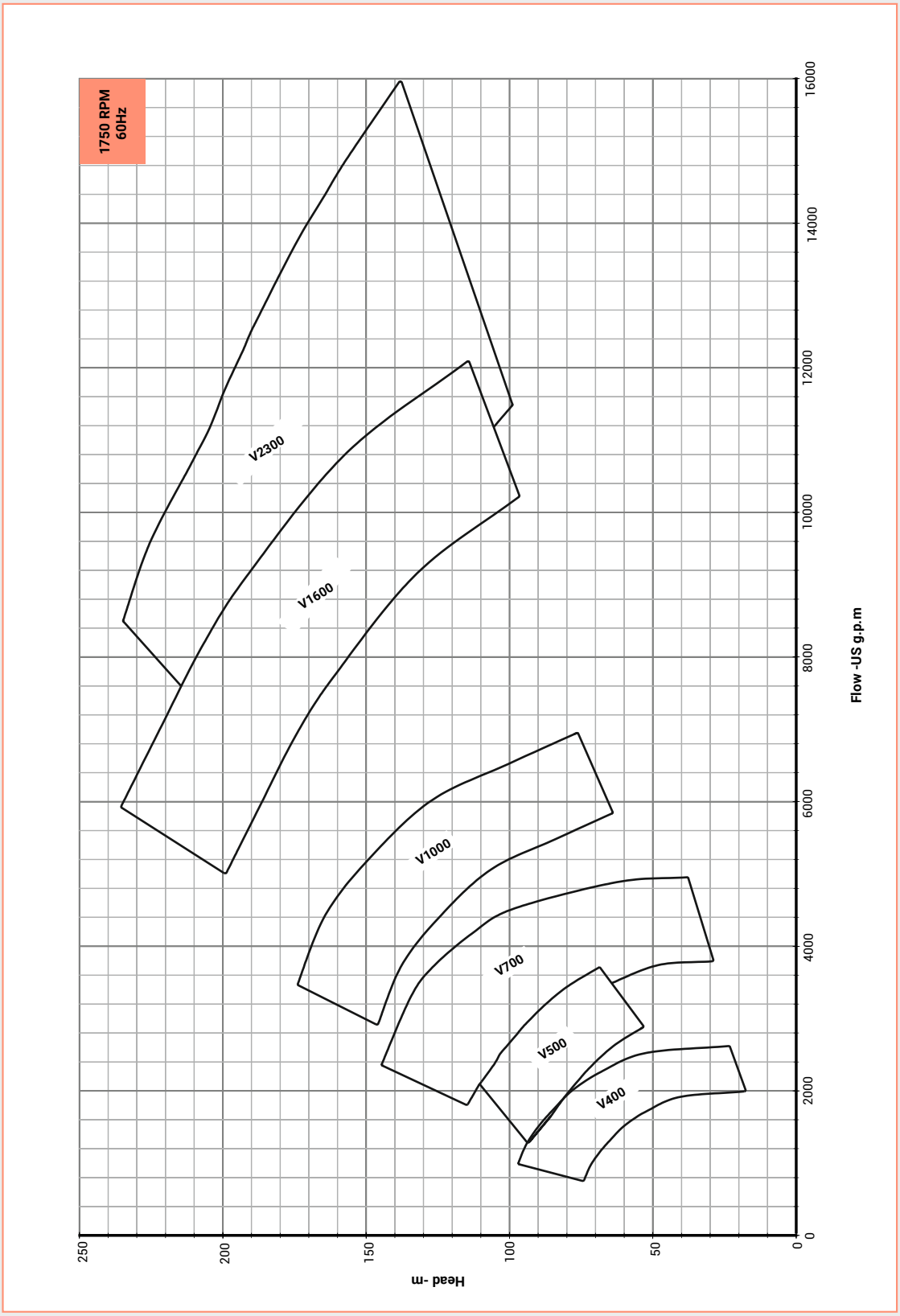

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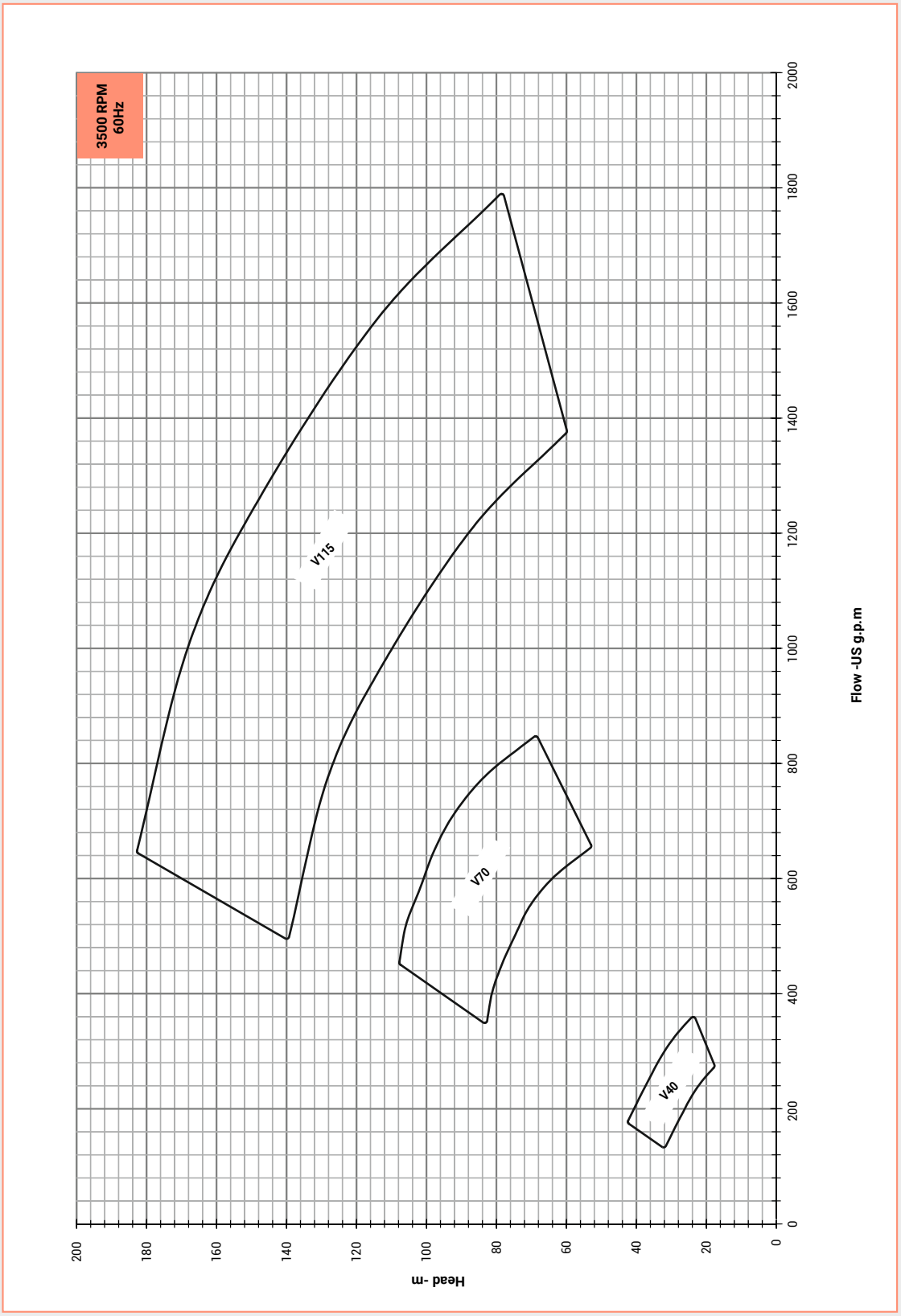

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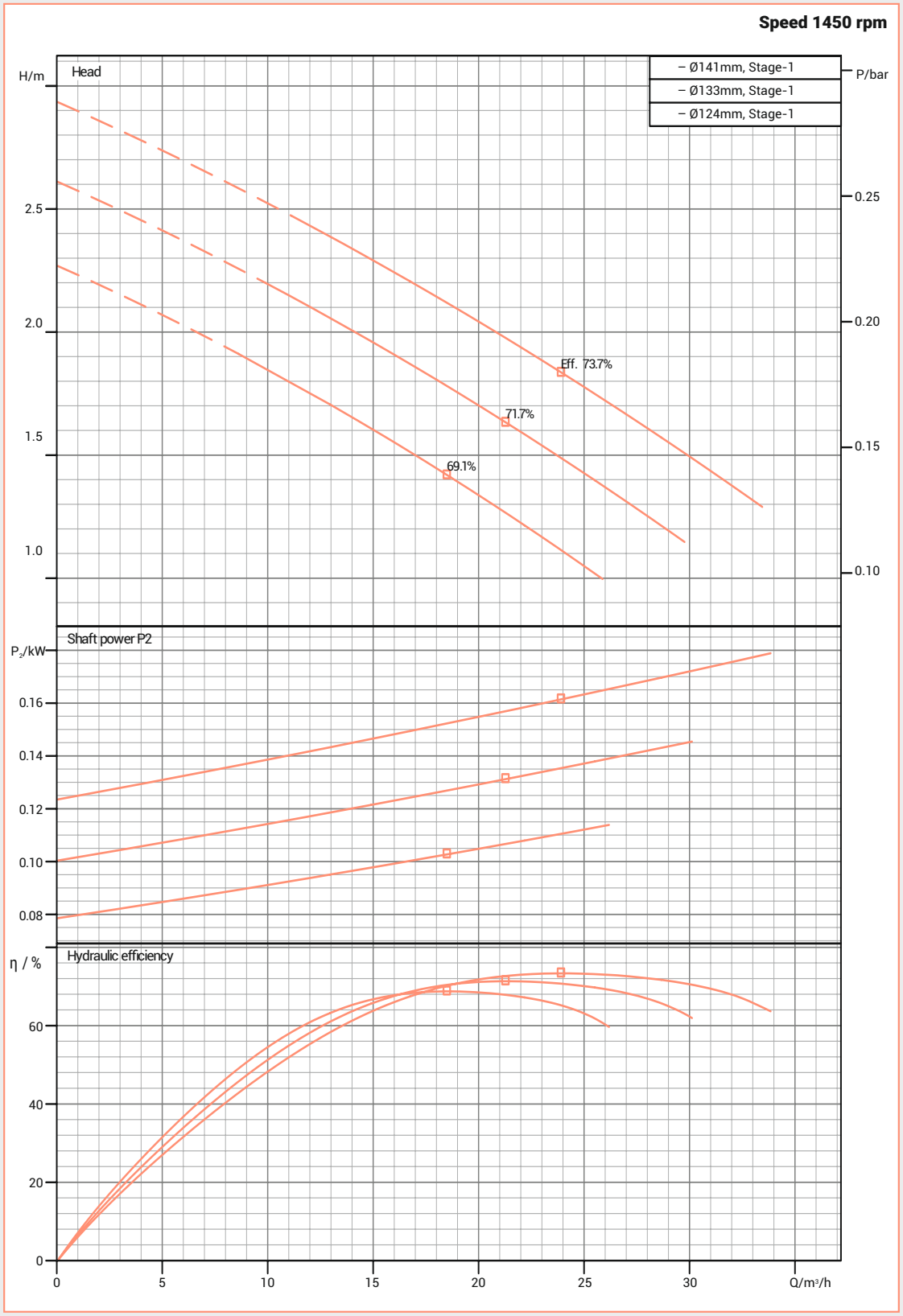
PERFORMANCE CURVES

FVT - 7CV40



-Performance to tolerance as per ISO 9906 Grade 2B.
-For safety kindly consider a margin of 0.5m higher of NPSH.
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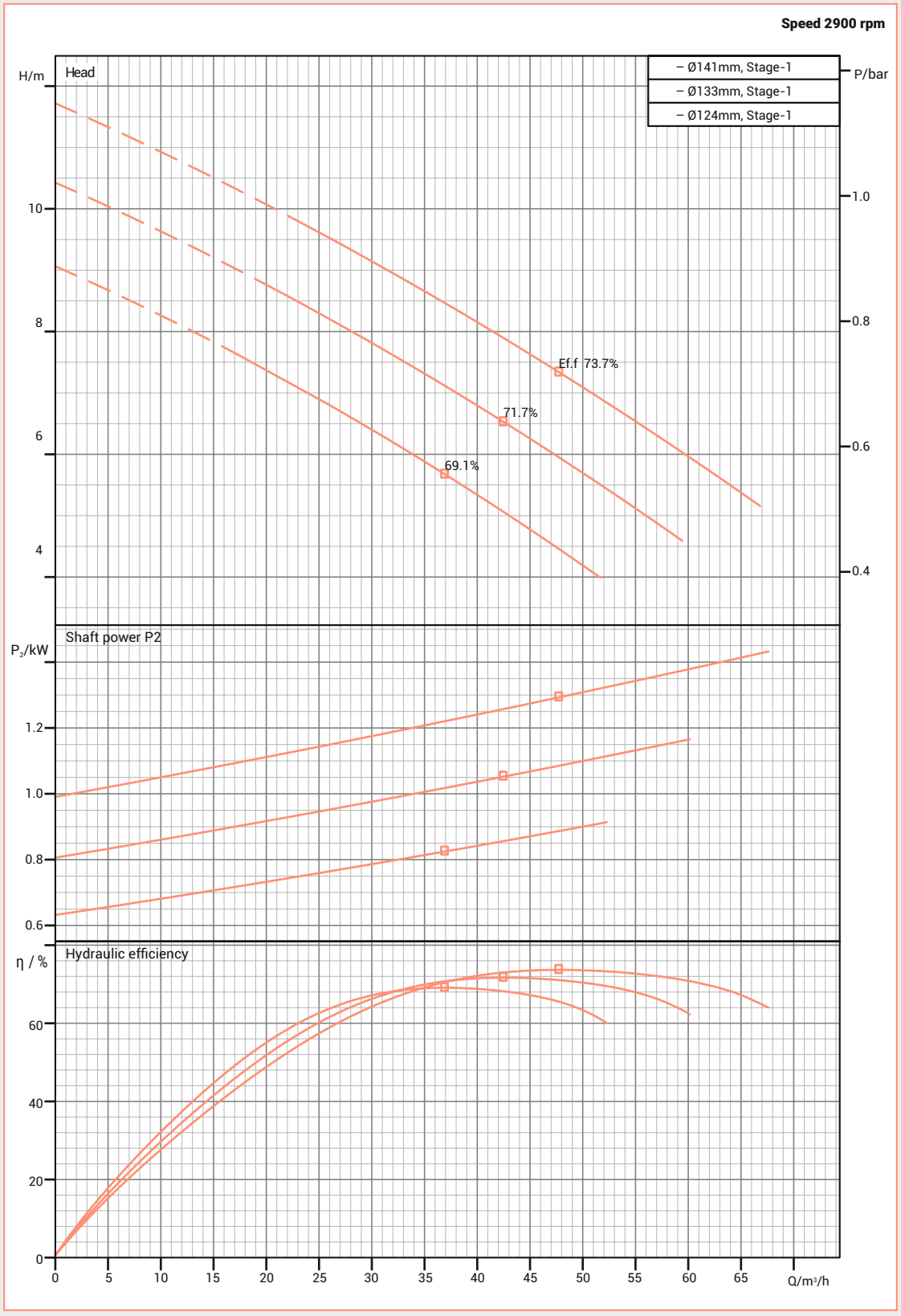
FVT - 7CV40



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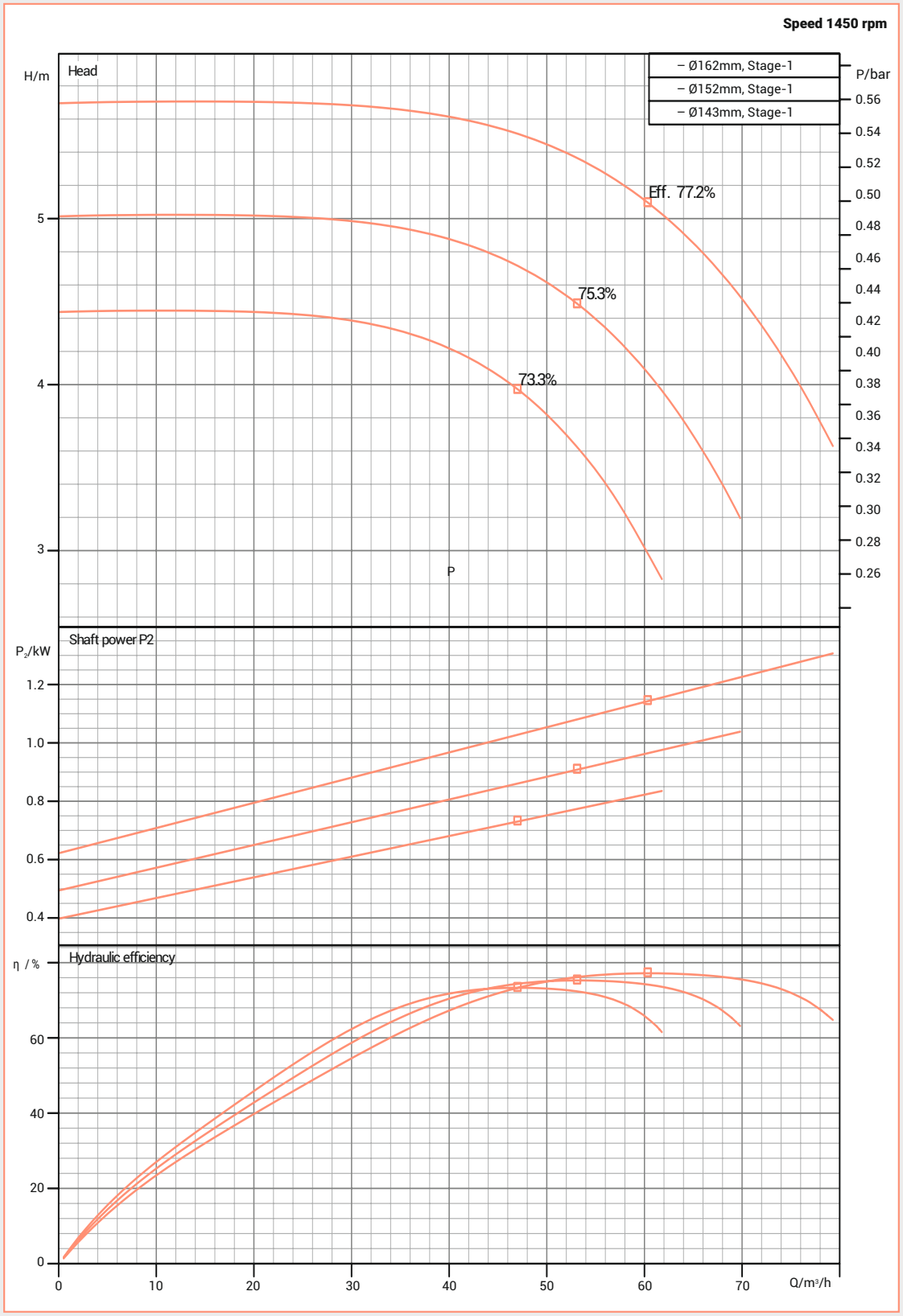
PERFORMANCE CURVES

FVT - 8CV70



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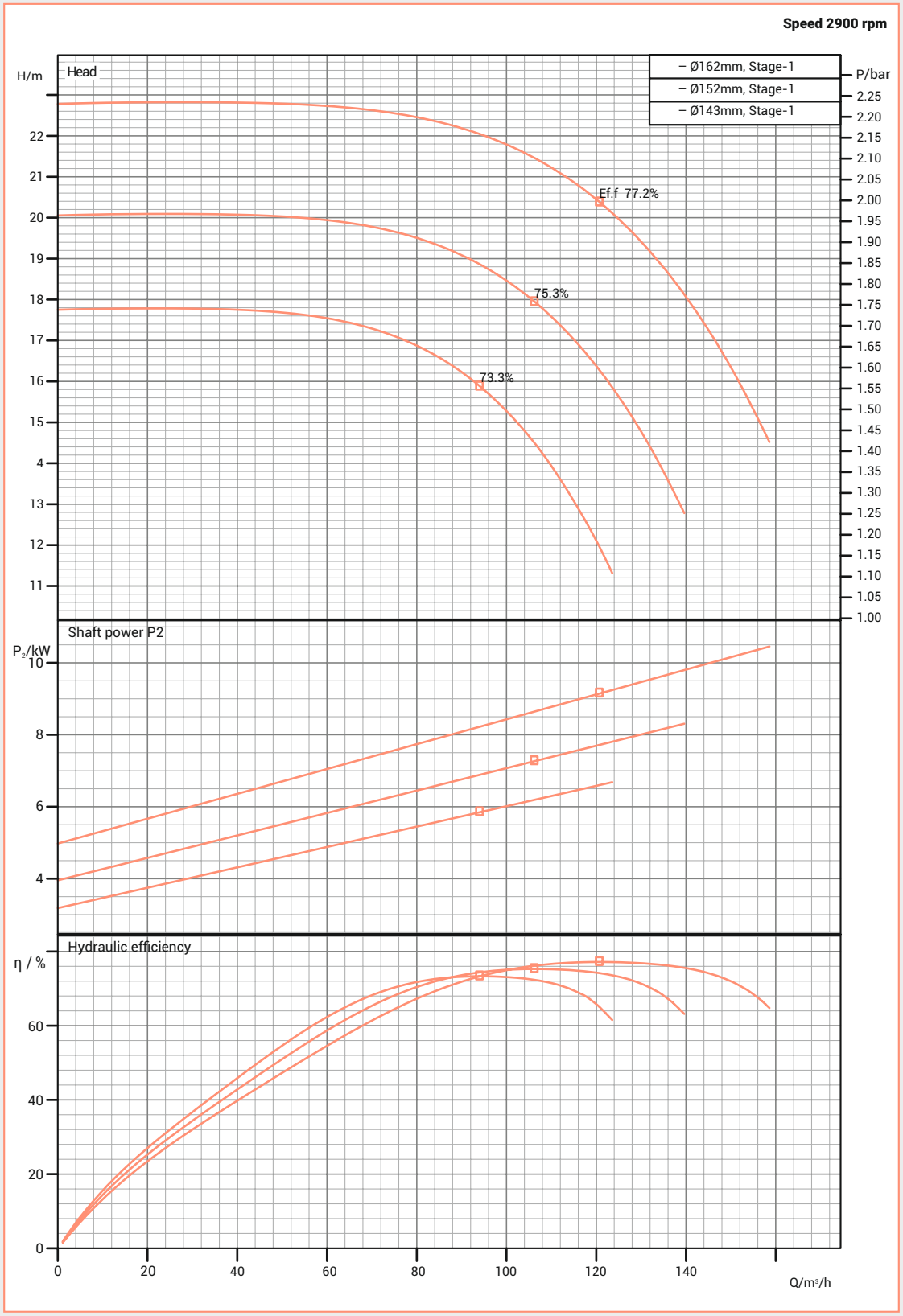

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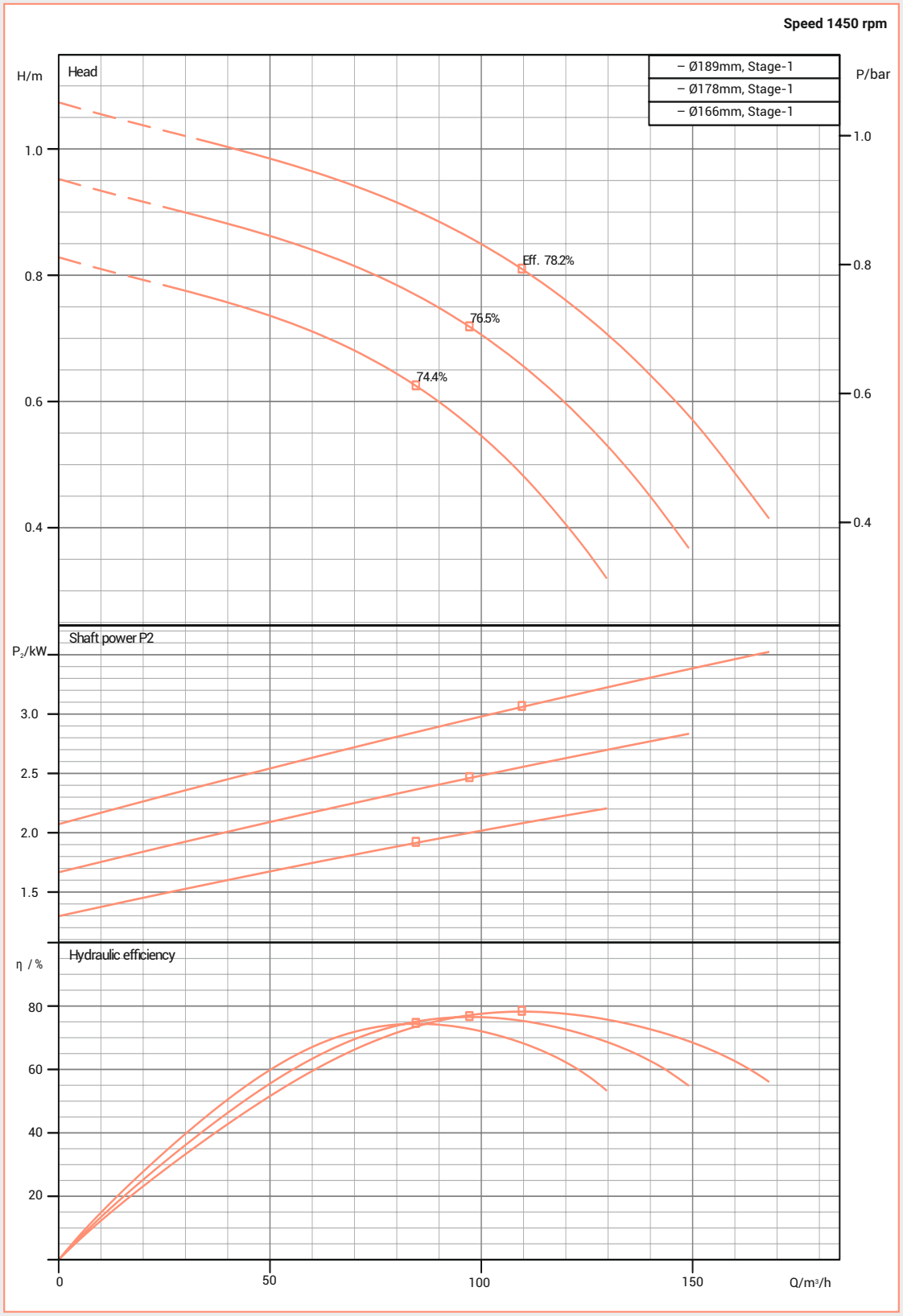
PERFORMANCE CURVES

FVT - 9CV115



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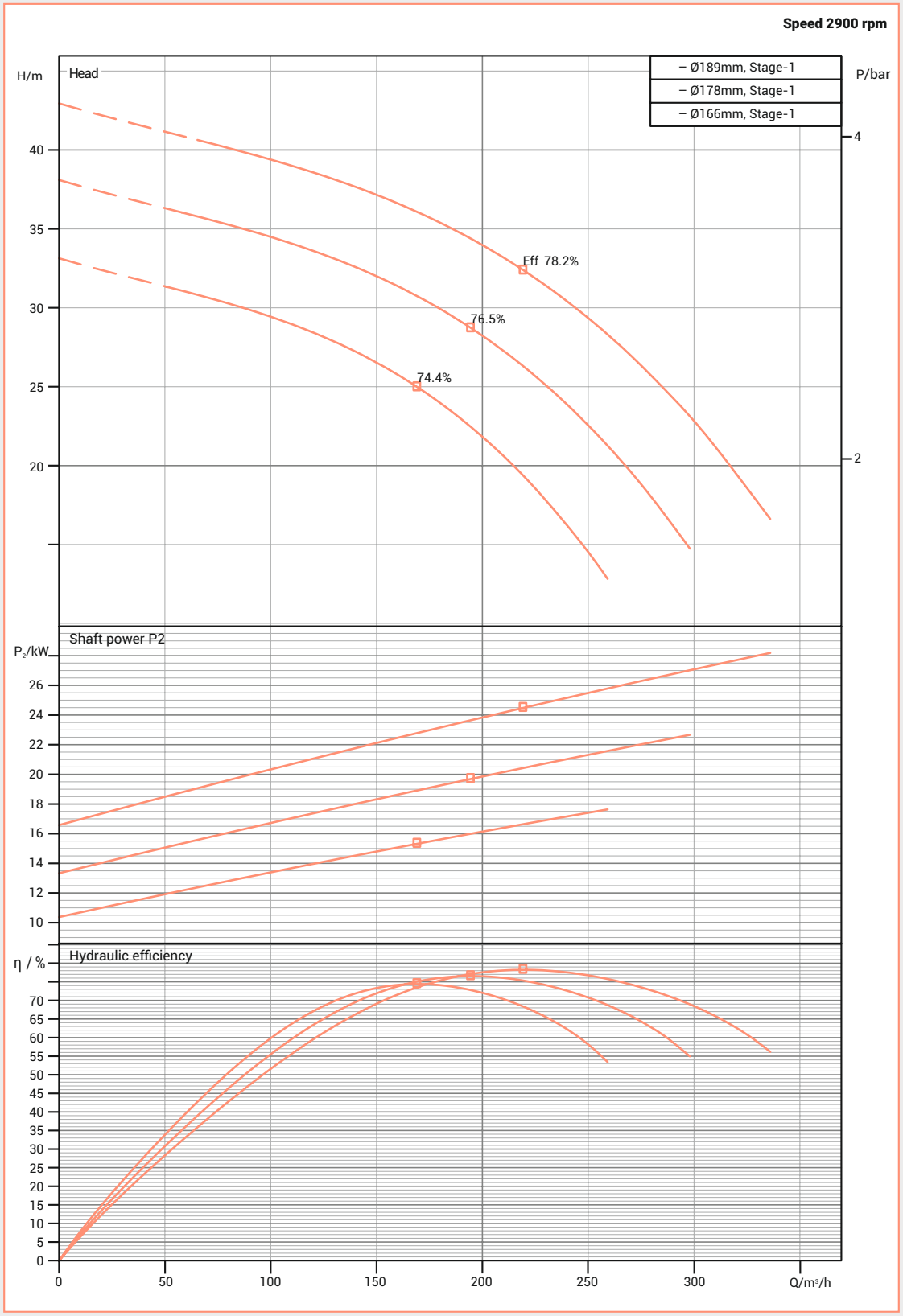

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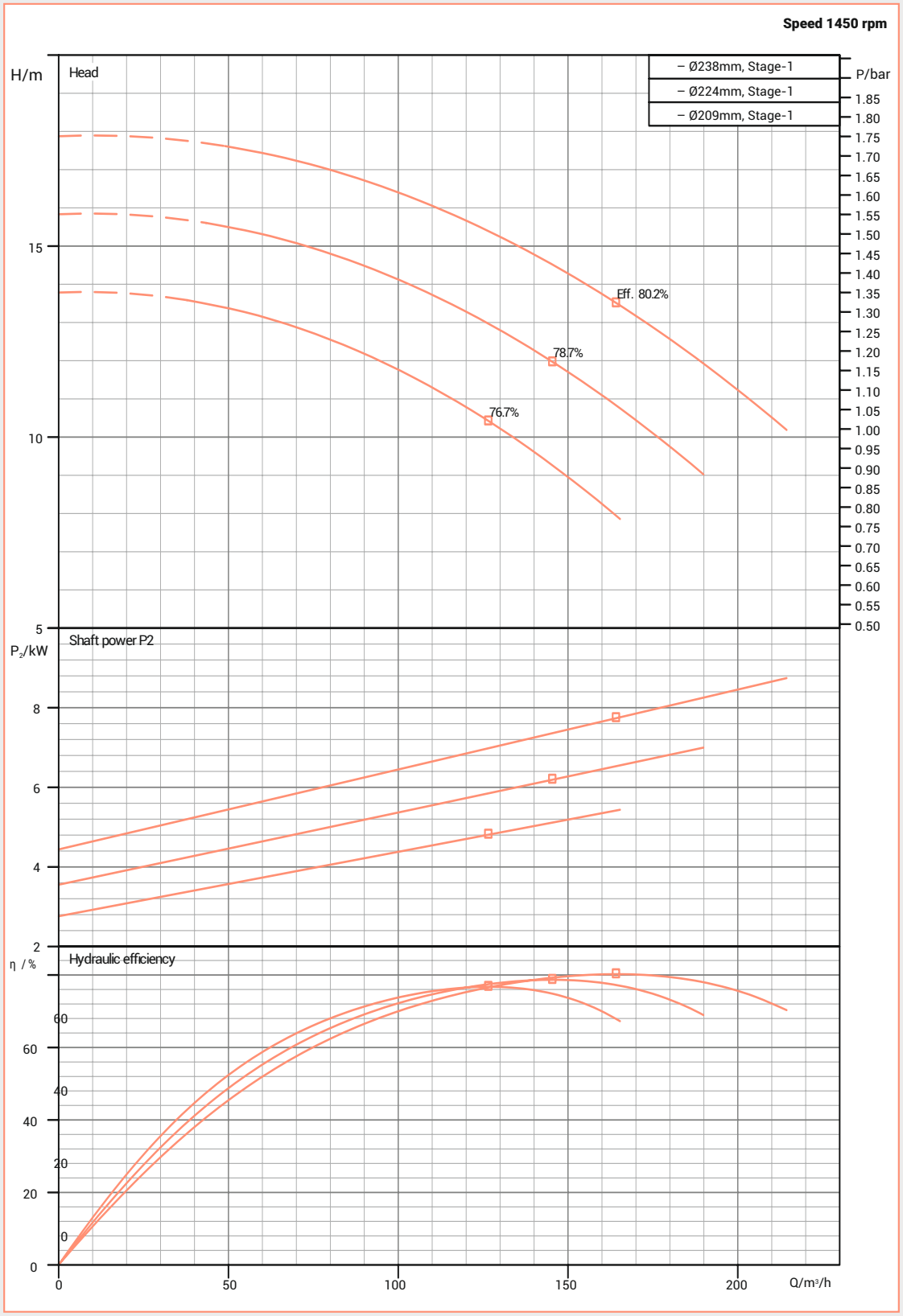
PERFORMANCE CURVES

FVT - 11CV170



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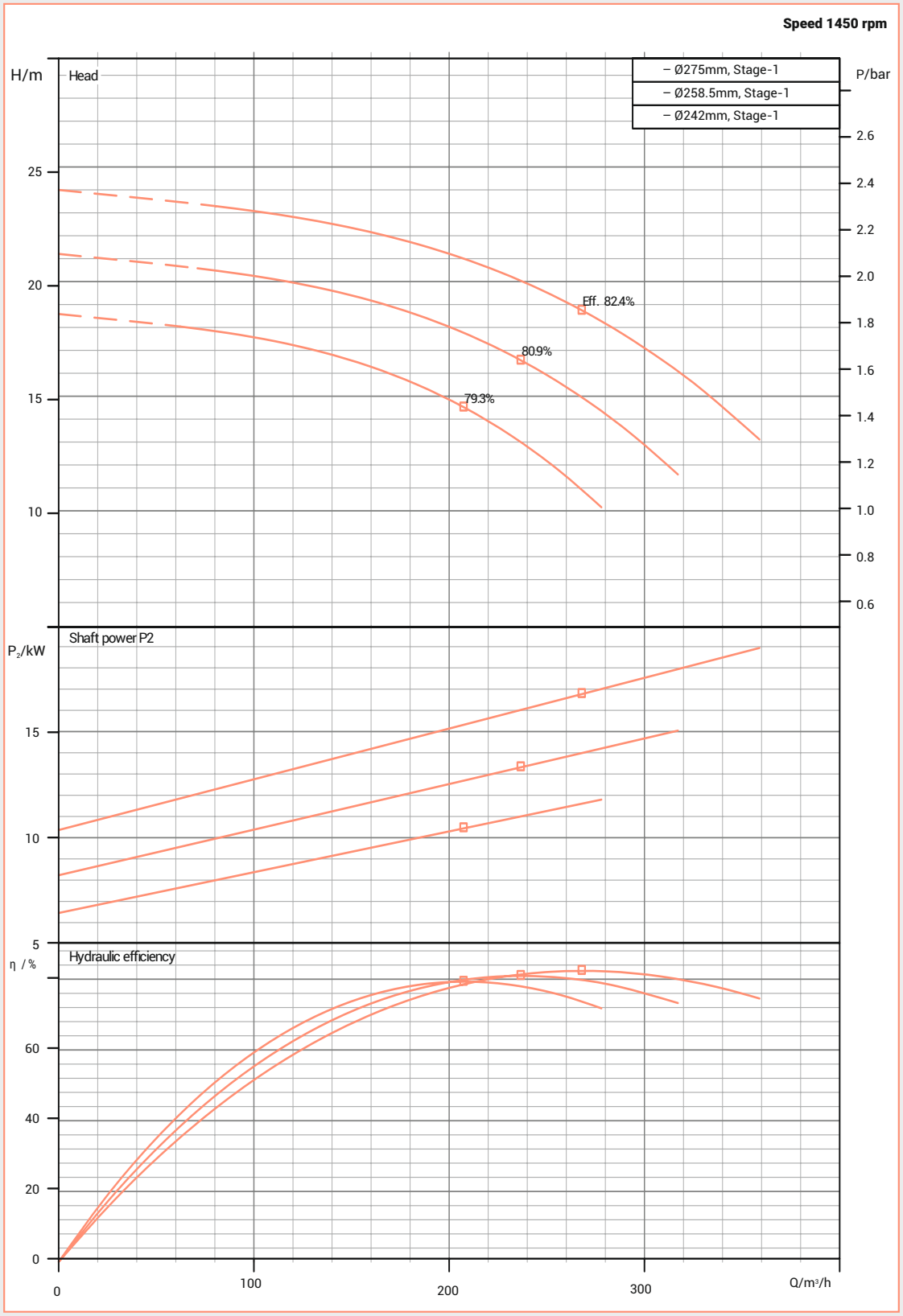
PERFORMANCE CURVES

FVT - 13CV270



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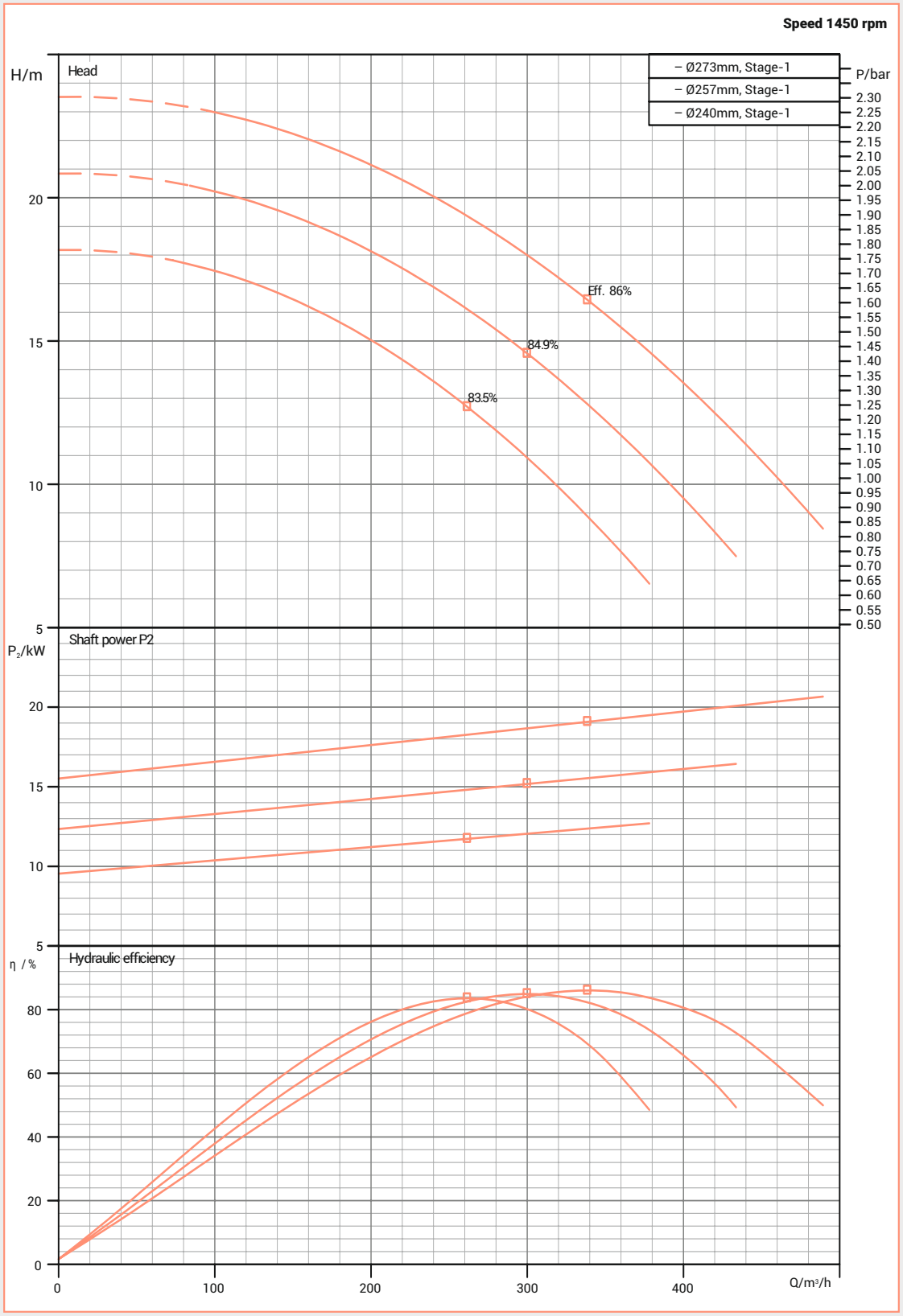
PERFORMANCE CURVES

FVT - 14CV400



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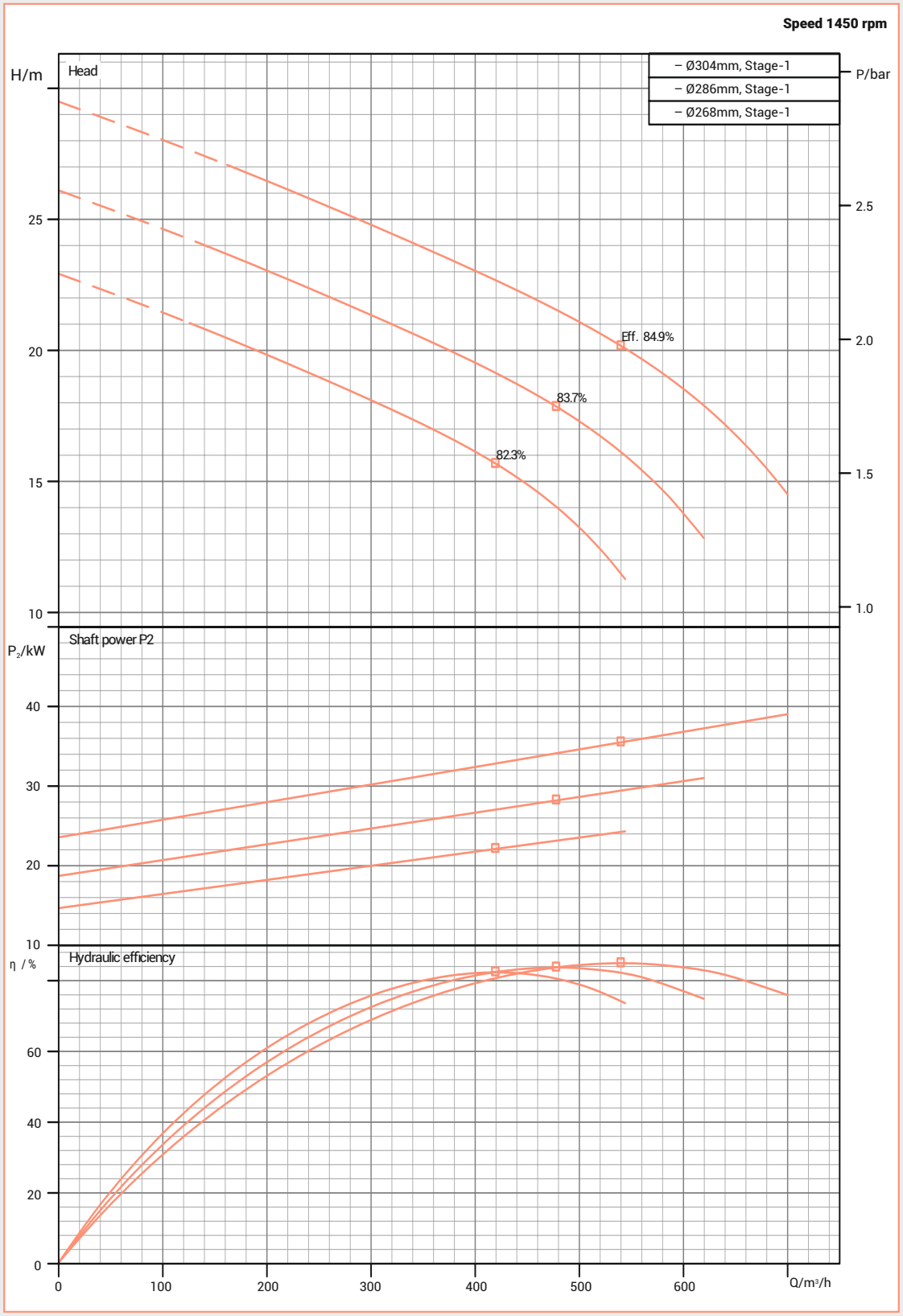
PERFORMANCE CURVES

FVT - 15CV500



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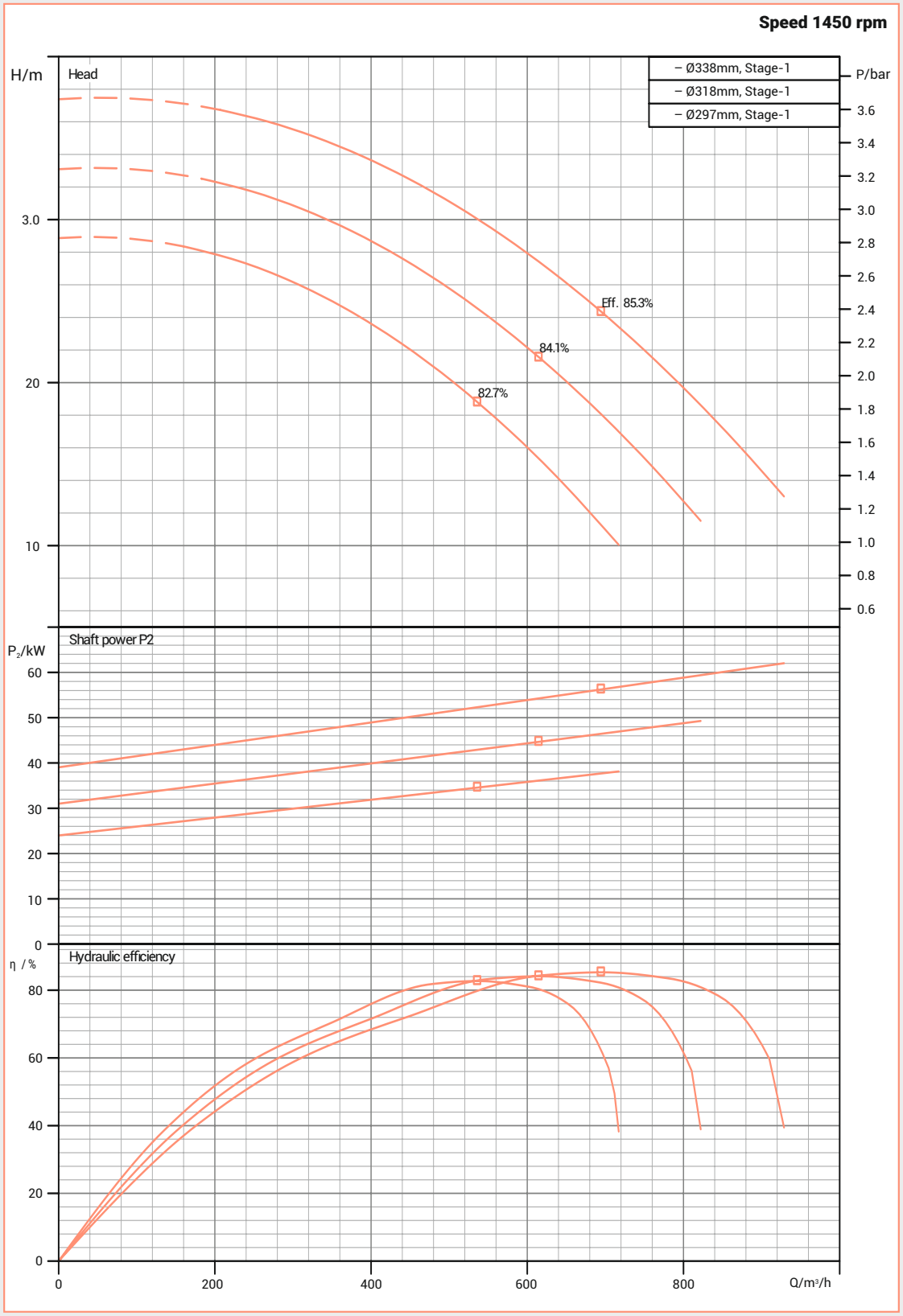
PERFORMANCE CURVES

FVT - 16CV700



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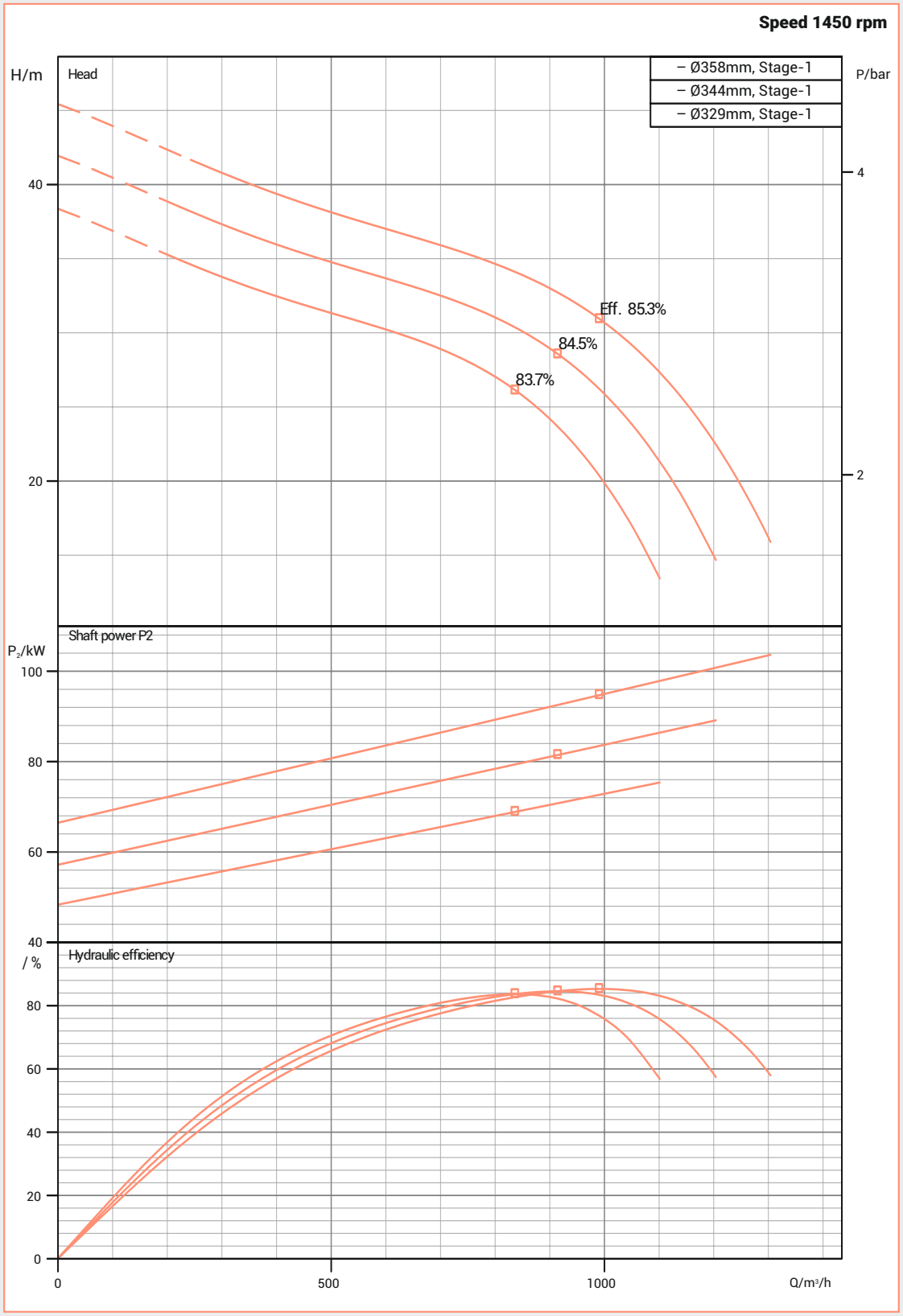
PERFORMANCE CURVES

FVT - 19CV1000



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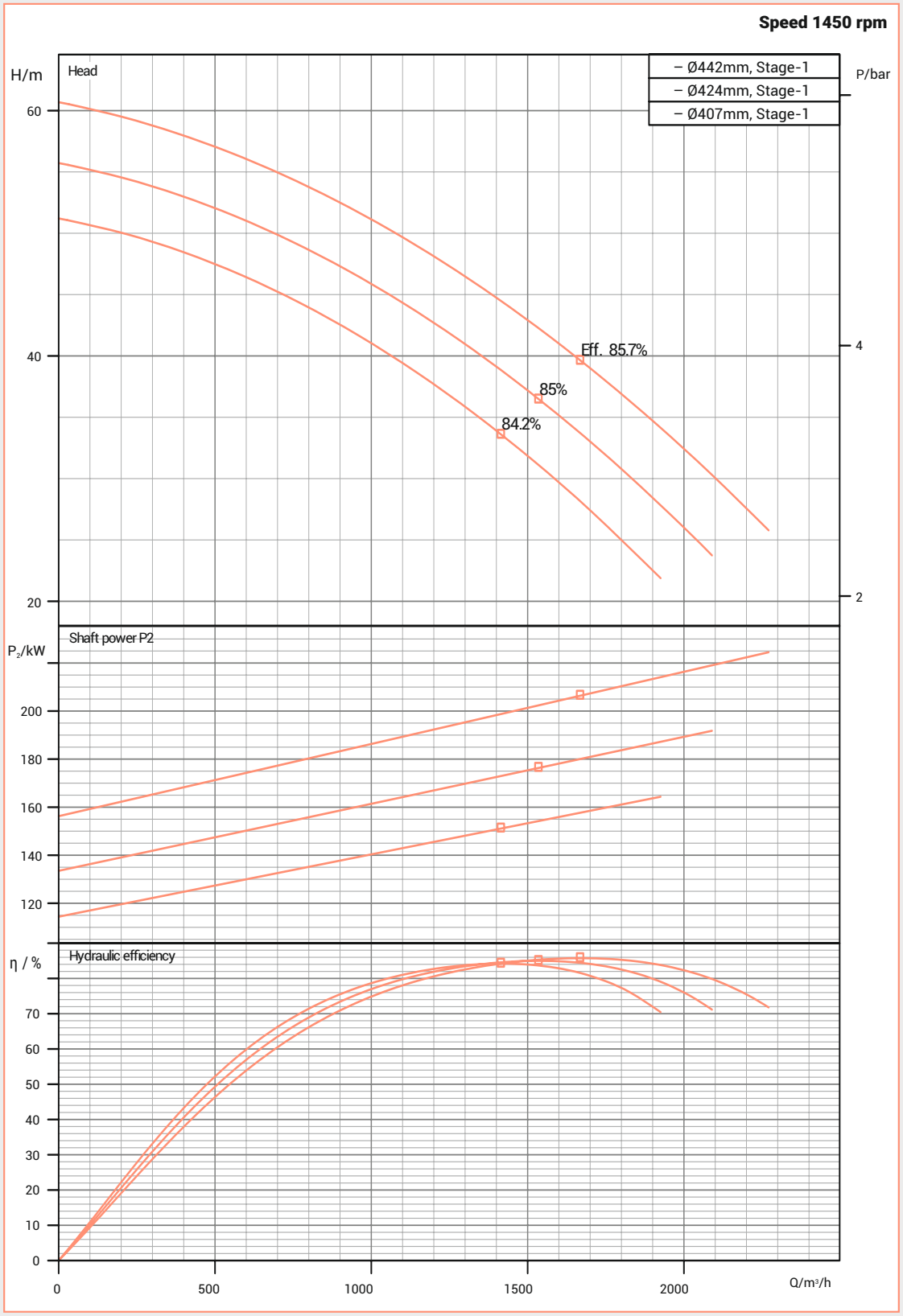
PERFORMANCE CURVES

FVT - 22CV1600



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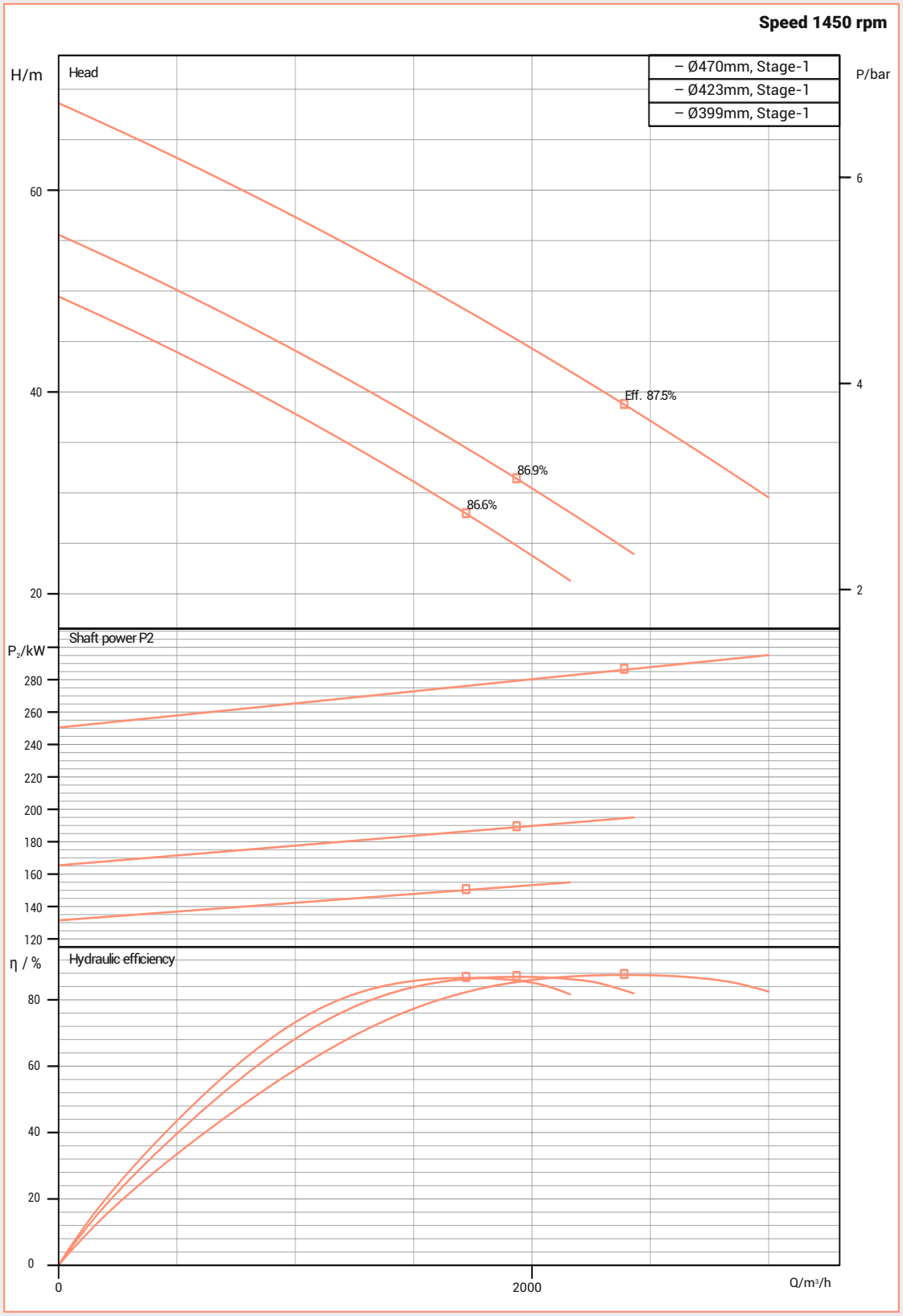
PERFORMANCE CURVES

FVT - 23CV2300



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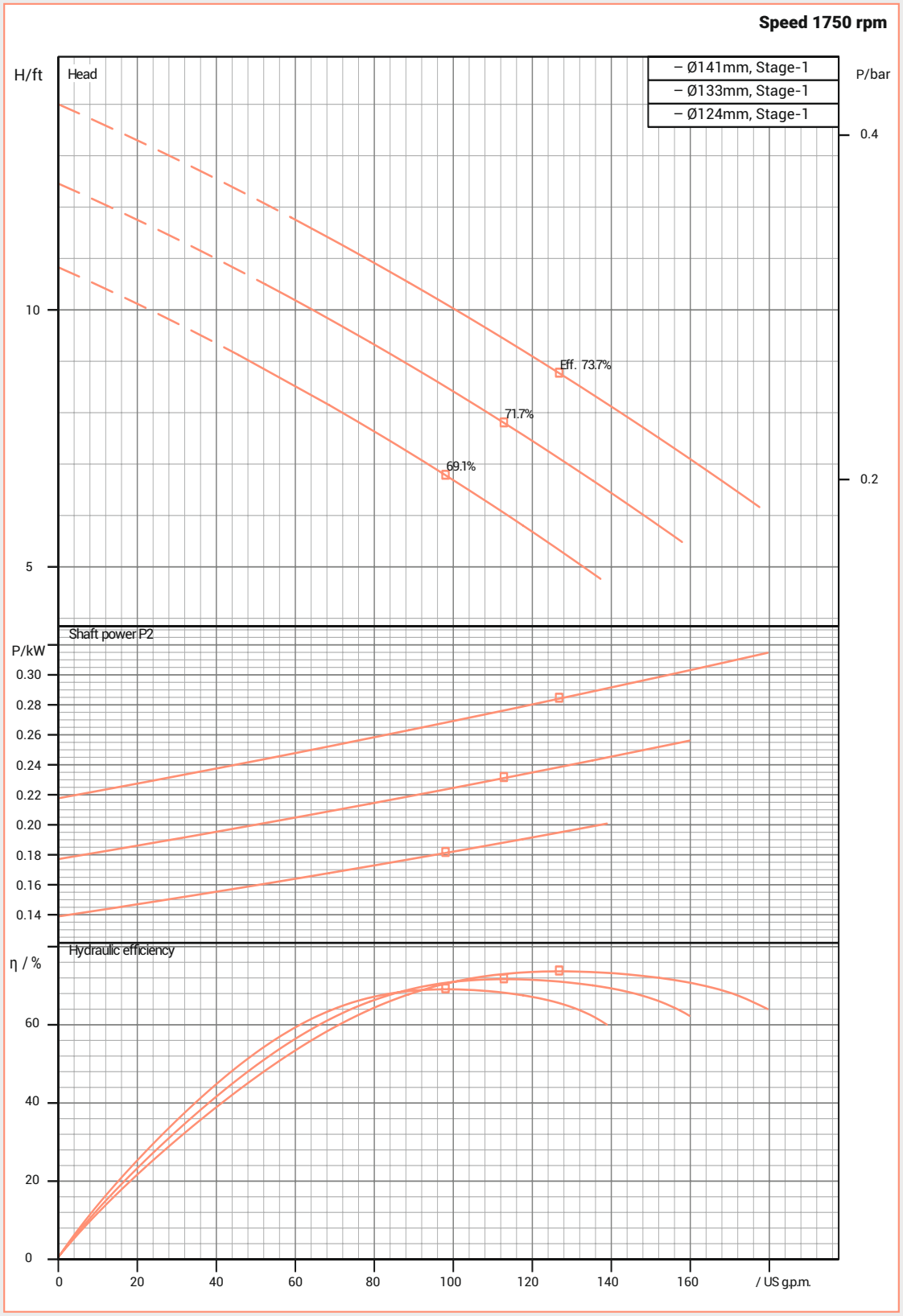
PERFORMANCE CURVES

FVT - 7CV40



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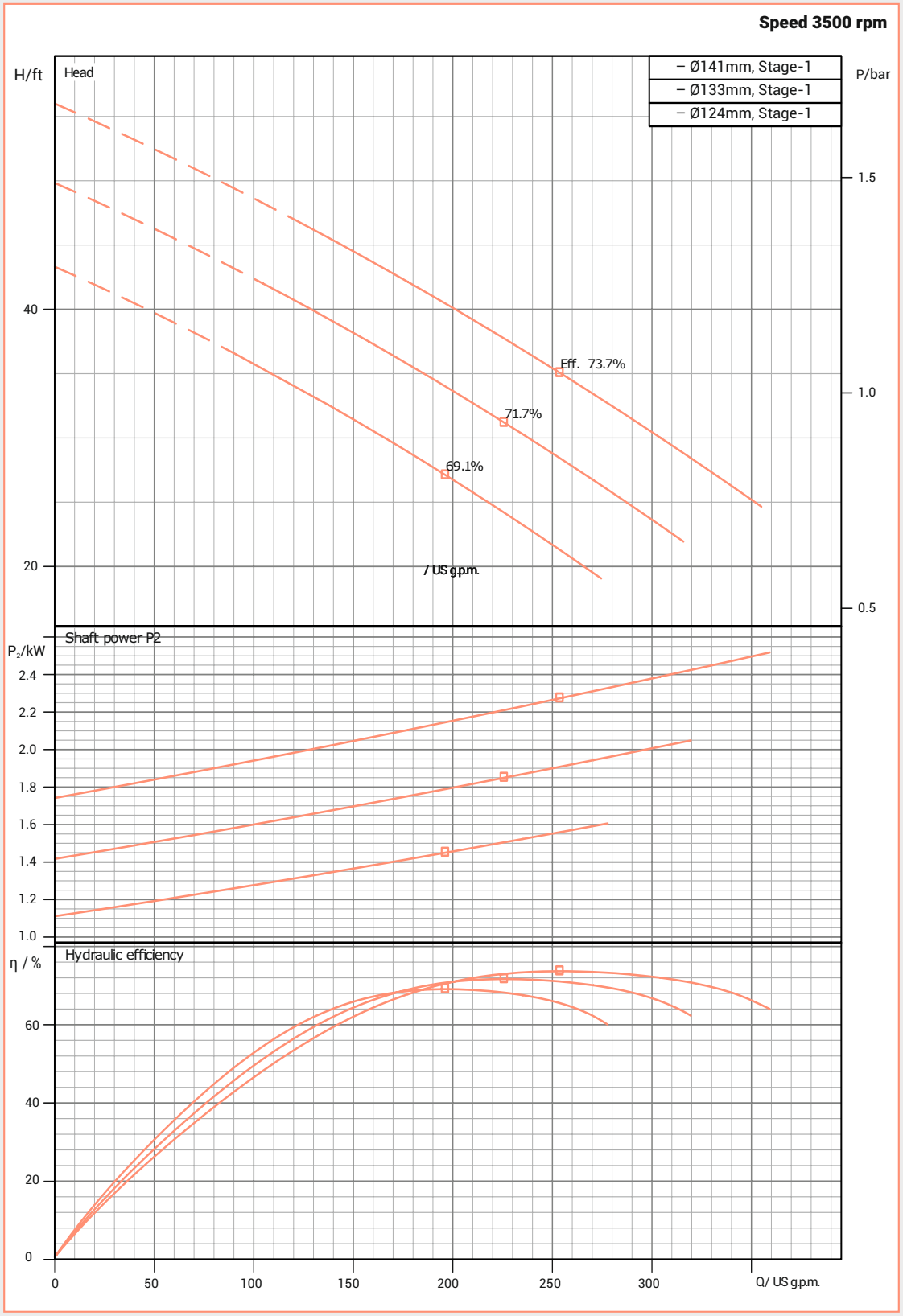

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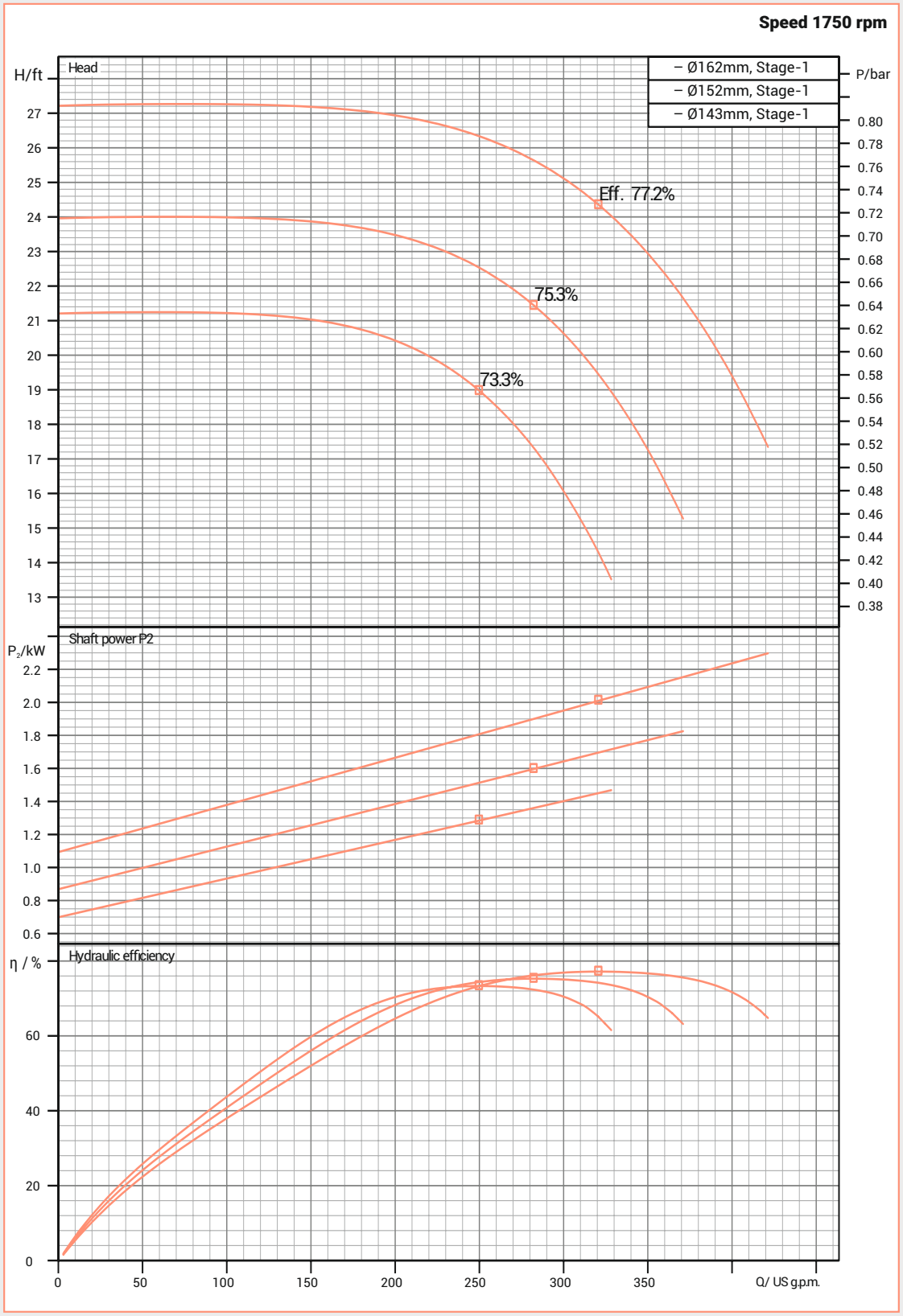

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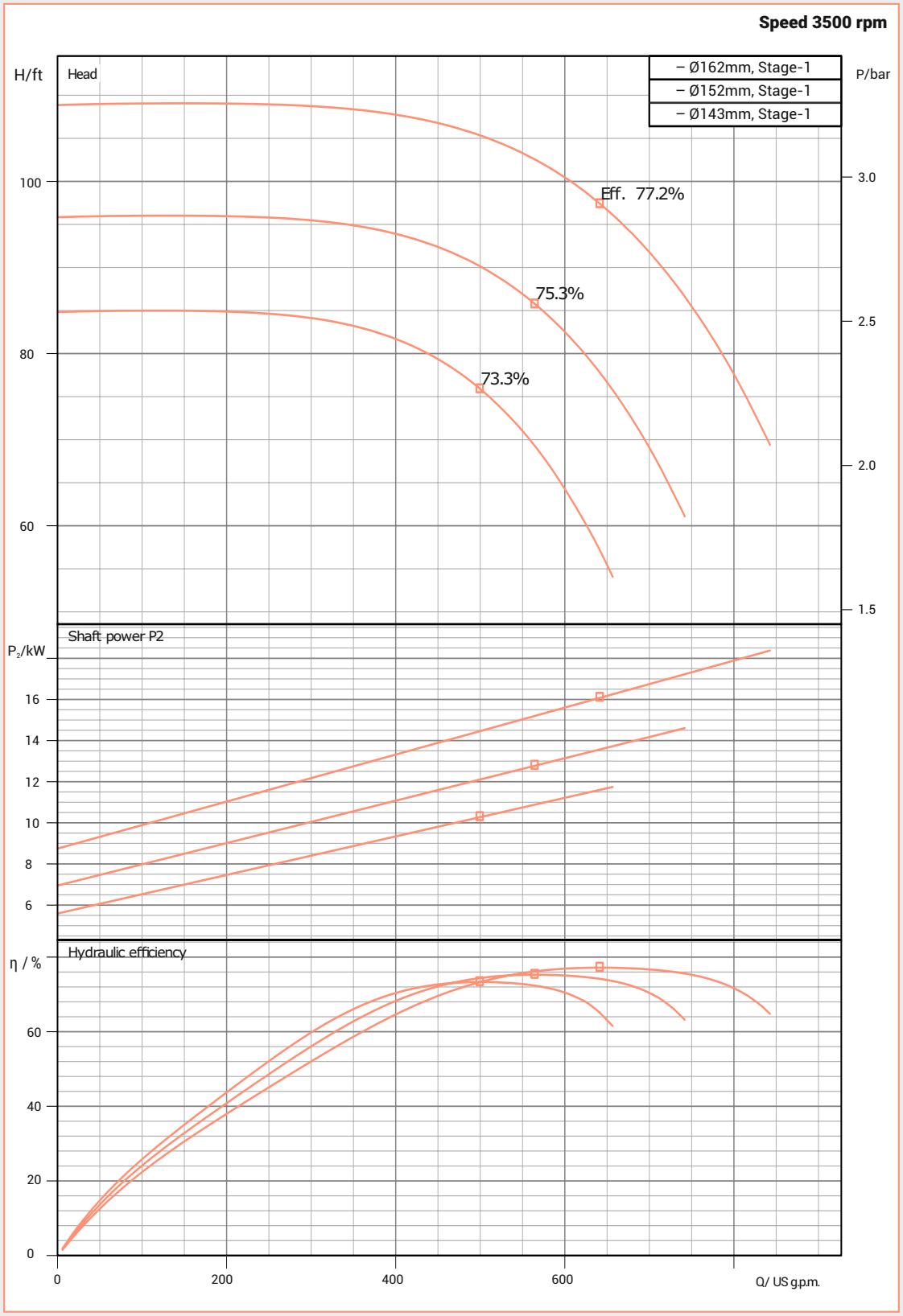

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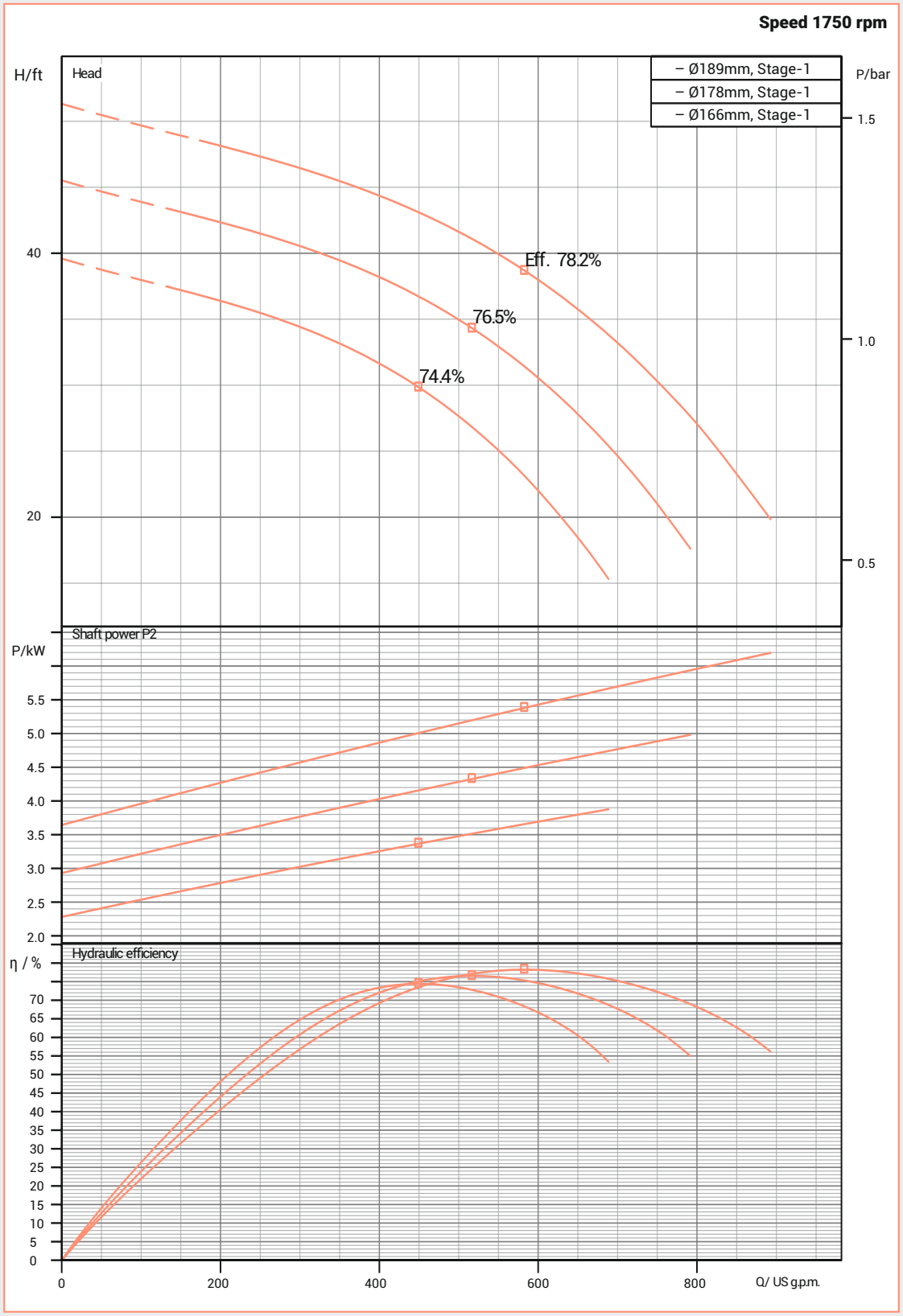
PERFORMANCE CURVES

FVT - 9CV115



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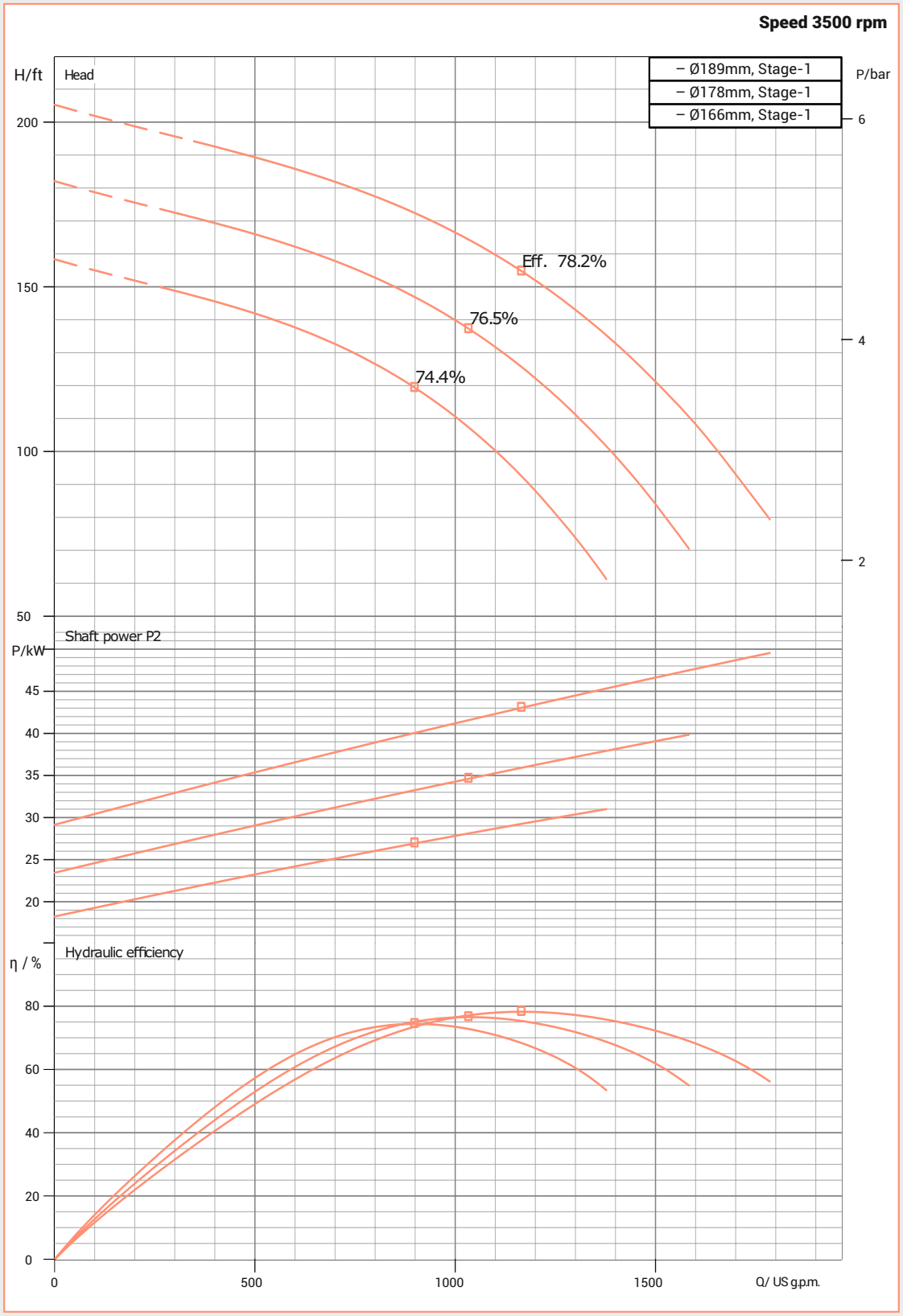

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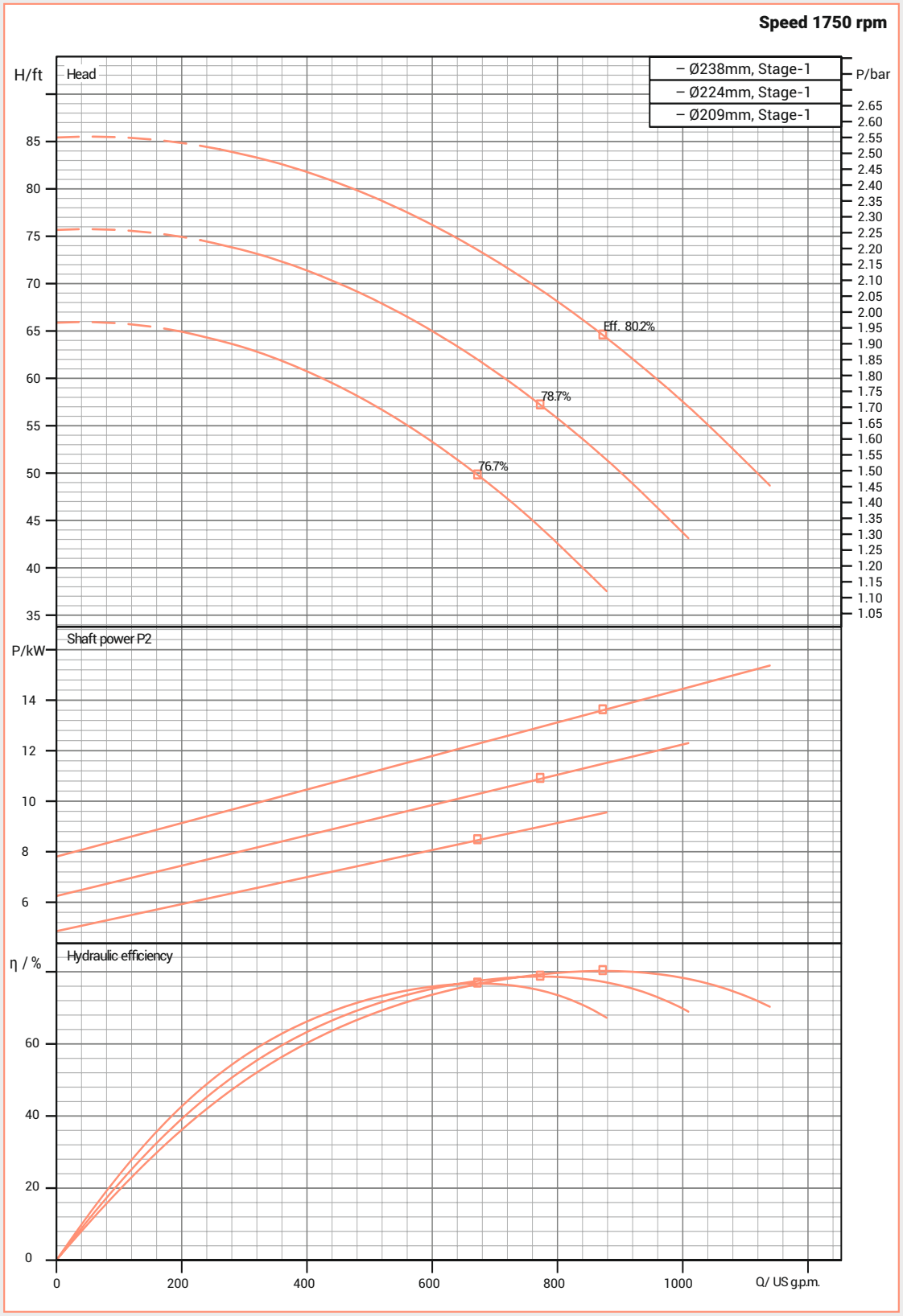
PERFORMANCE CURVES

FVT - 11CV170



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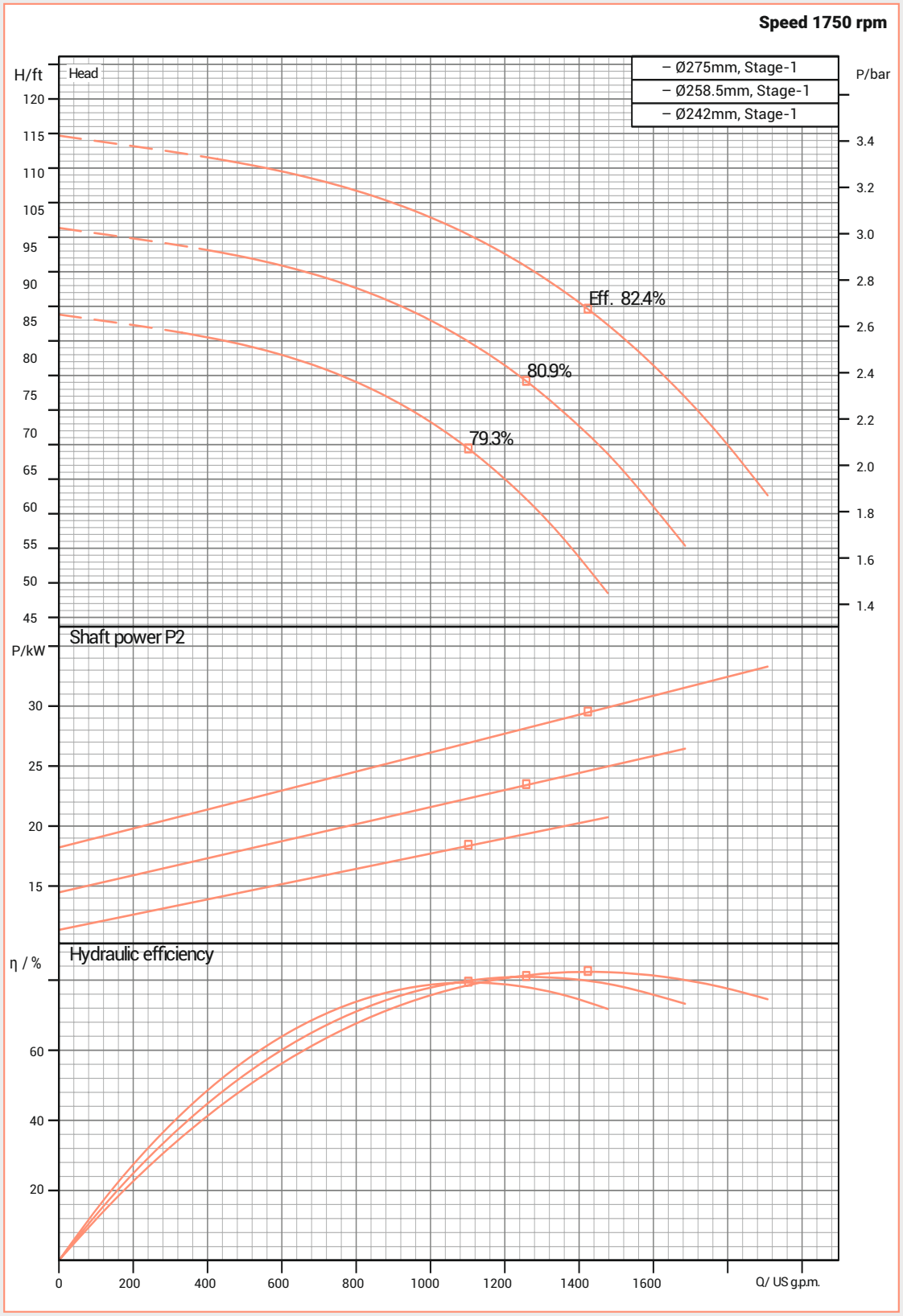
PERFORMANCE CURVES

FVT - 13CV270



-Performance to tolerance as per ISO 9906 Grade 2B.
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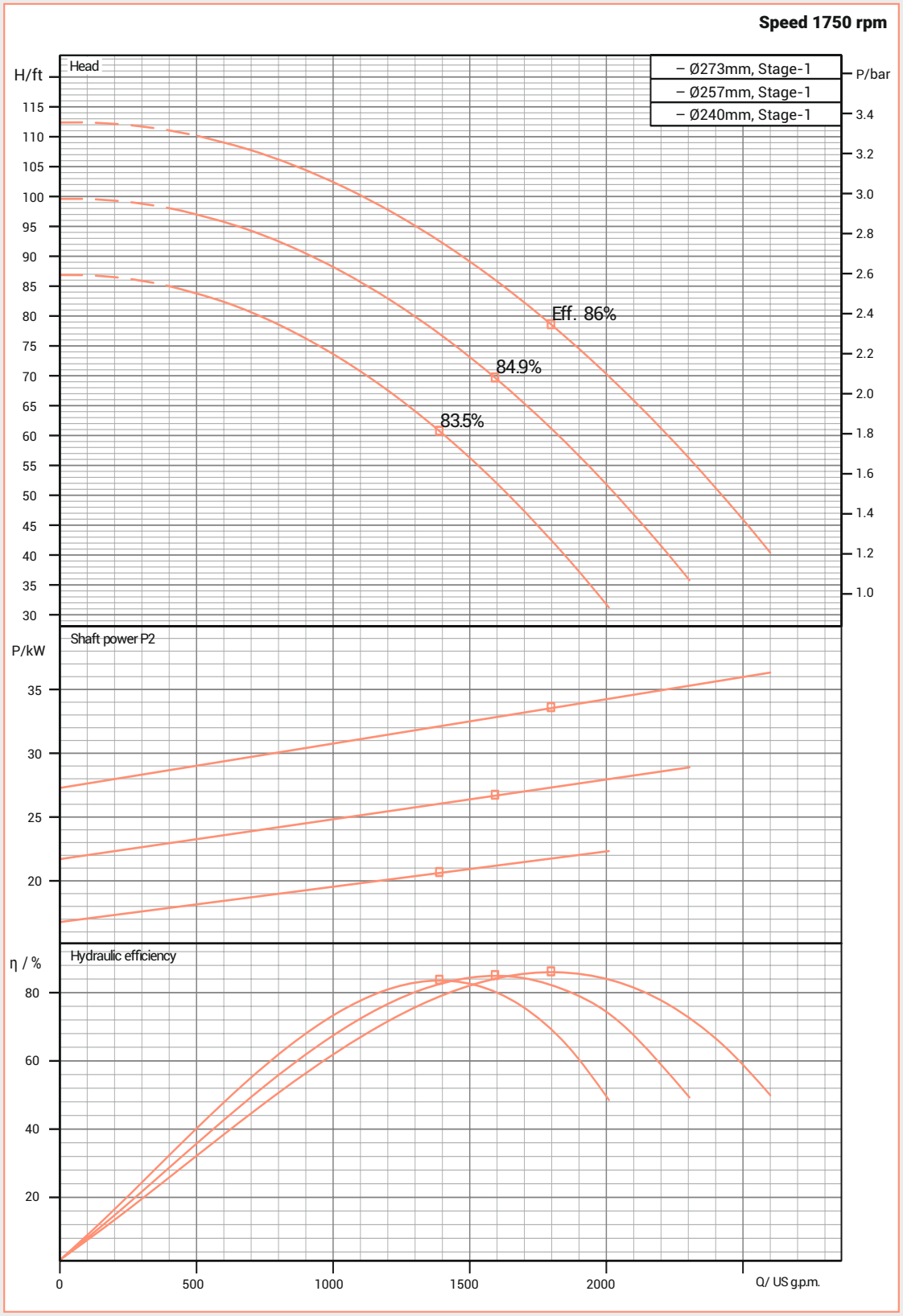
In view of continuous development, the informations / descriptions / specification / illustration are subjected to change without notice.

PERFORMANCE CURVES

FVT - 14CV400



-Performance to tolerance as per ISO 9906 Grade 2B.
-For safety kindly consider a margin of 0.5m higher of NPSH.
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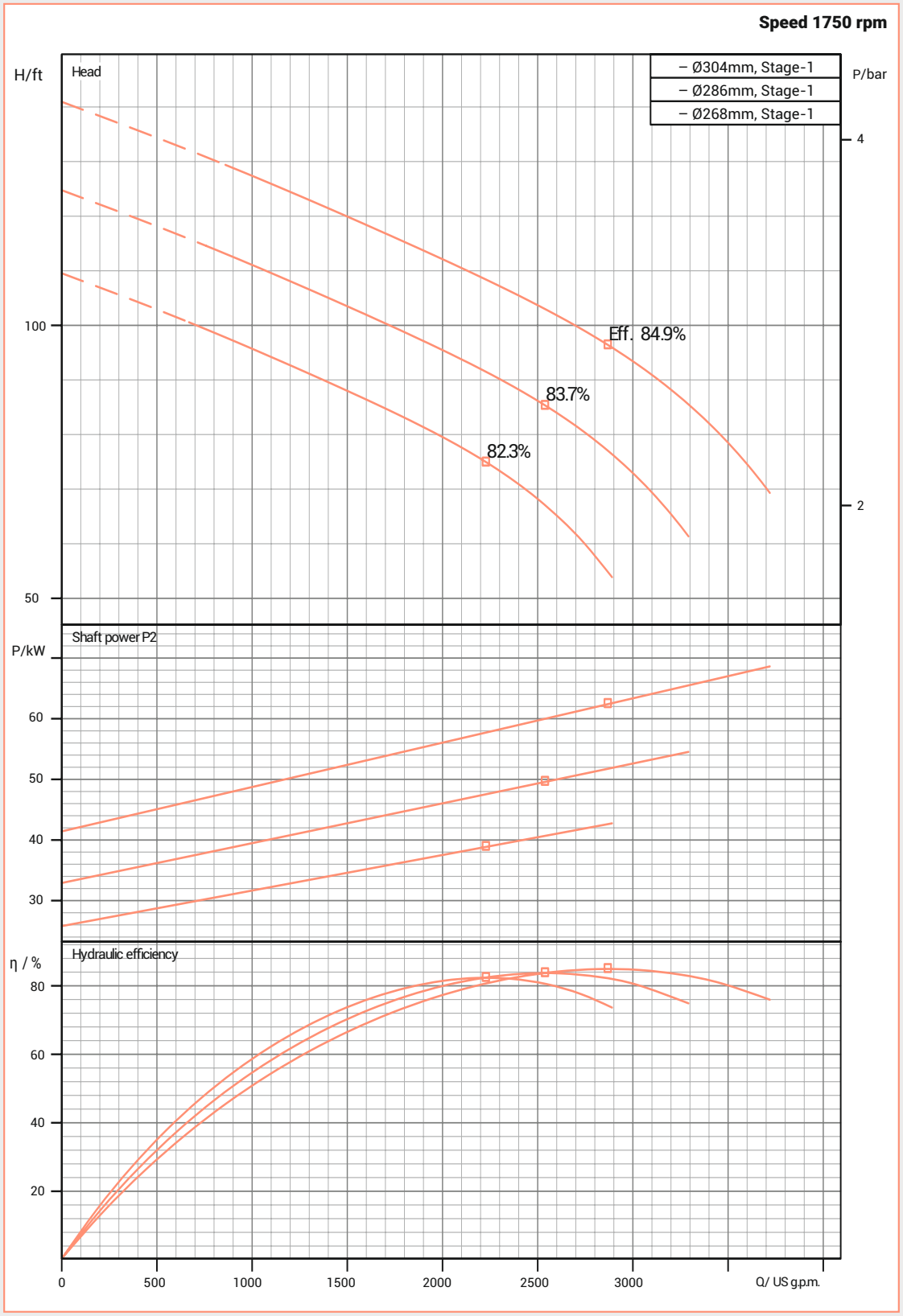
PERFORMANCE CURVES

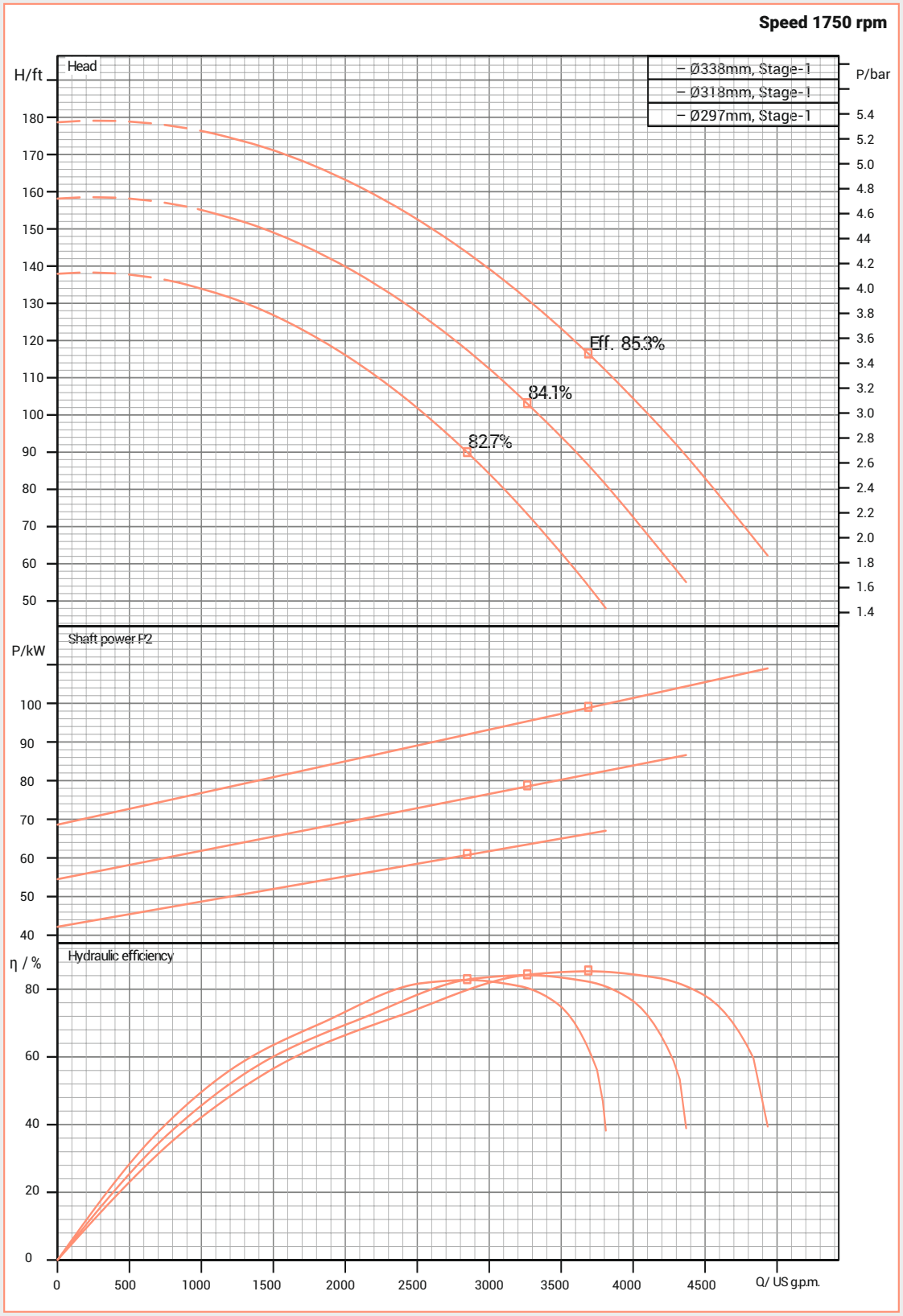
FVT - 15CV500



-Performance to tolerance as per ISO 9906 Grade 2B.
-For safety kindly consider a margin of 0.5m higher of NPSH.
In view of continuous development, the informations / descriptions / specification / illustration are subjected to change without notice.

PERFORMANCE CURVES

FVT - 16CV700



-Performance to tolerance as per ISO 9906 Grade 2B.
-For safety kindly consider a margin of 0.5m higher of NPSH.
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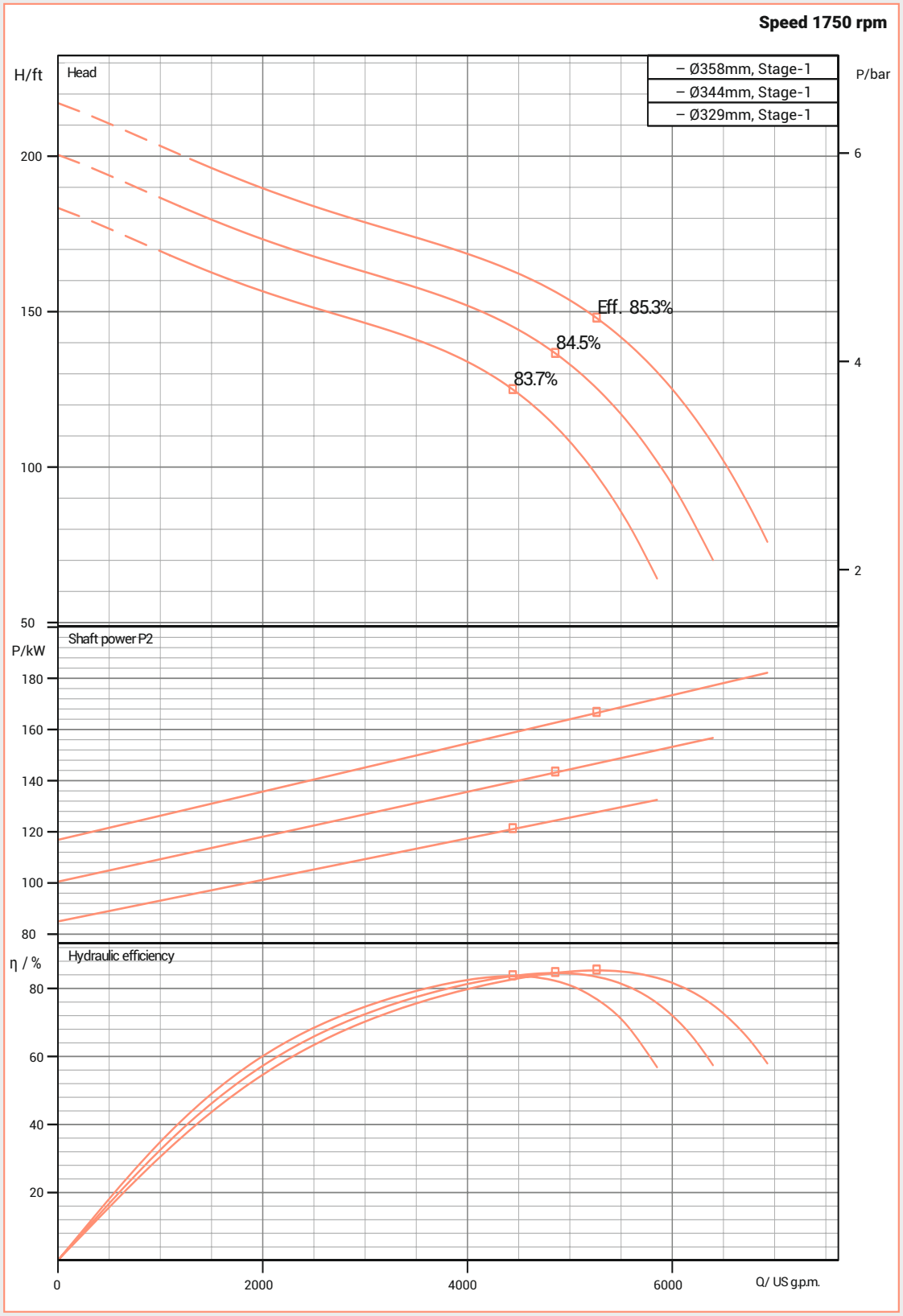
PERFORMANCE CURVES

FVT - 19CV1000



-Performance to tolerance as per ISO 9906 Grade 2B.
-For safety kindly consider a margin of 0.5m higher of NPSH.
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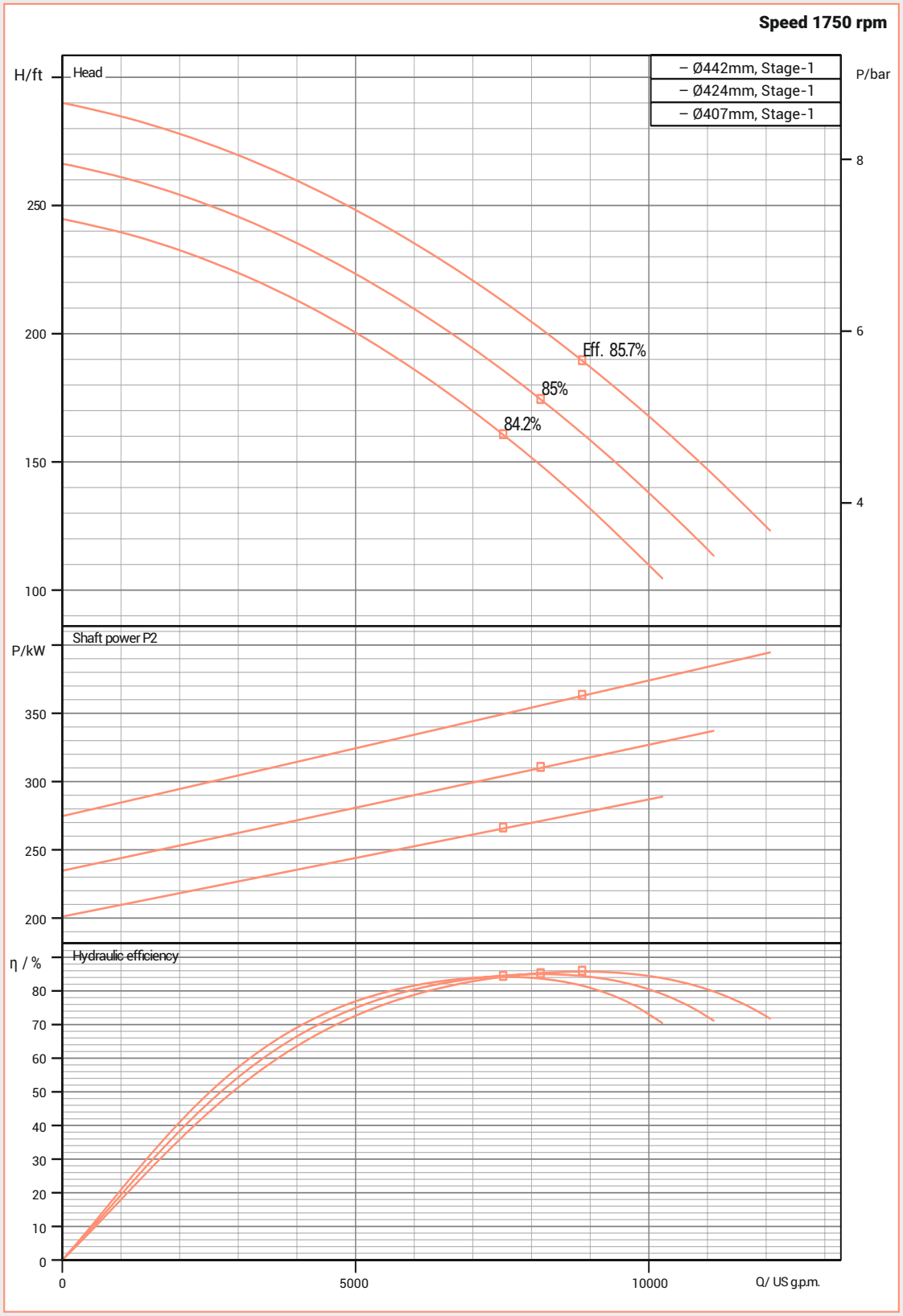
PERFORMANCE CURVES

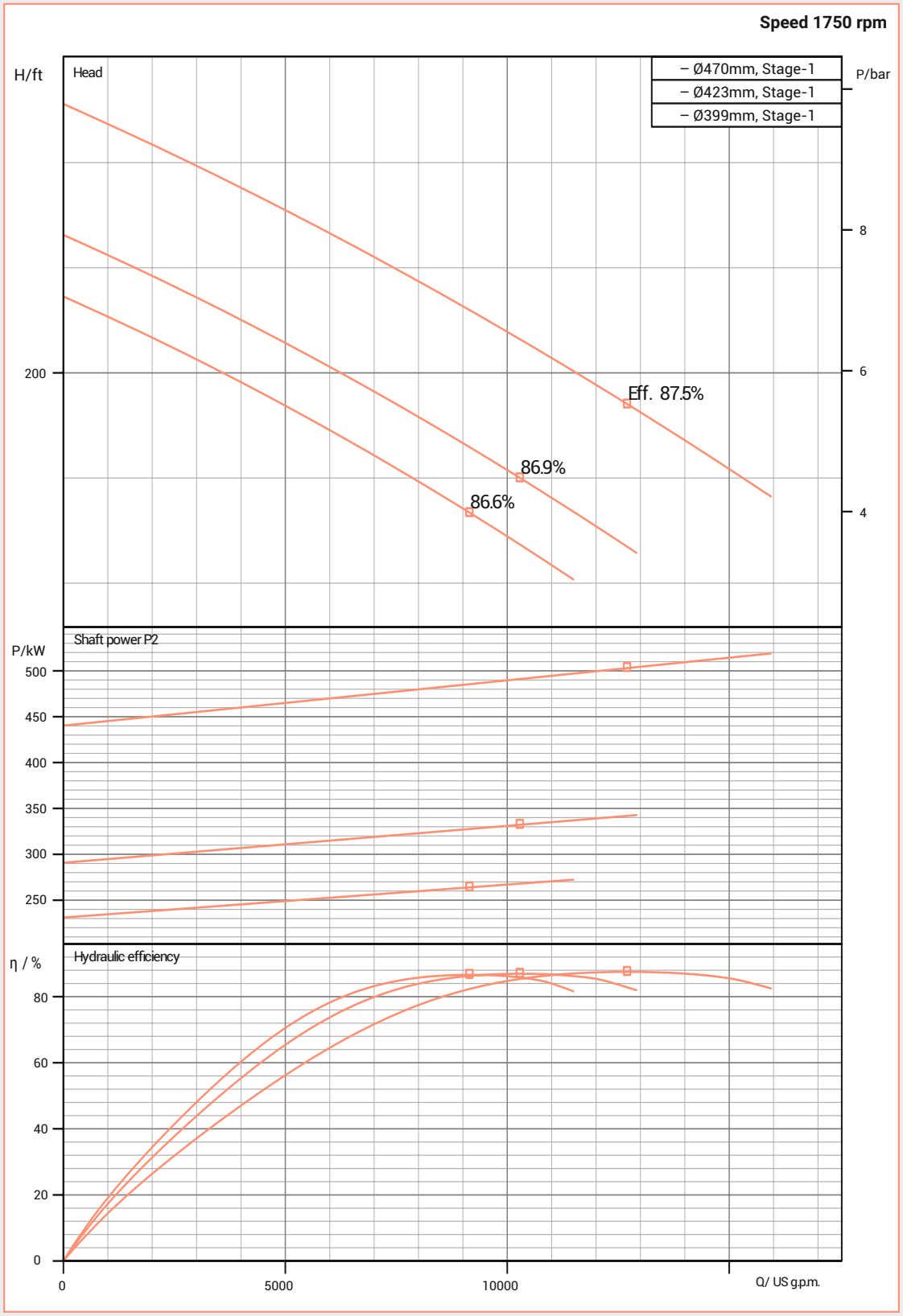
FVT - 22CV1600



-Performance to tolerance as per ISO 9906 Grade 2B.
-For safety kindly consider a margin of 0.5m higher of NPSH.
In view of continuous development, the informations / descriptions / specification / illustration are subjected to change without notice.

PERFORMANCE CURVES

FVT - 23CV2300



-Performance to tolerance as per ISO 9906 Grade 2B.
-For safety kindly consider a margin of 0.5m higher of NPSH.
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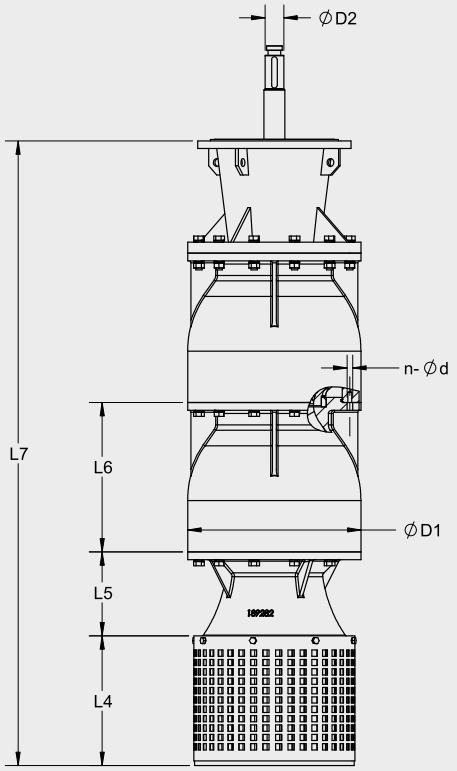
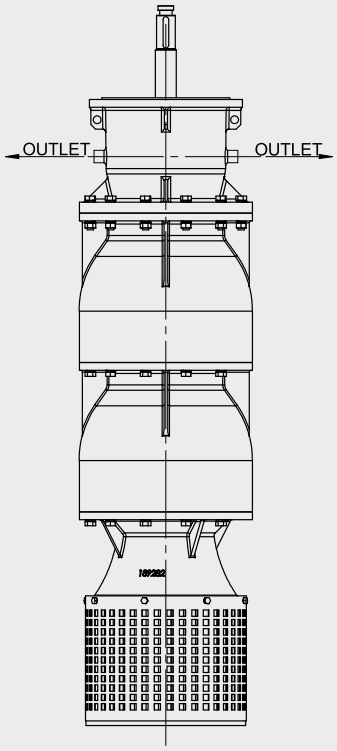
GENERAL DIMENSION AND MOUNTING DETAILS
BOWL ASSEMBLY



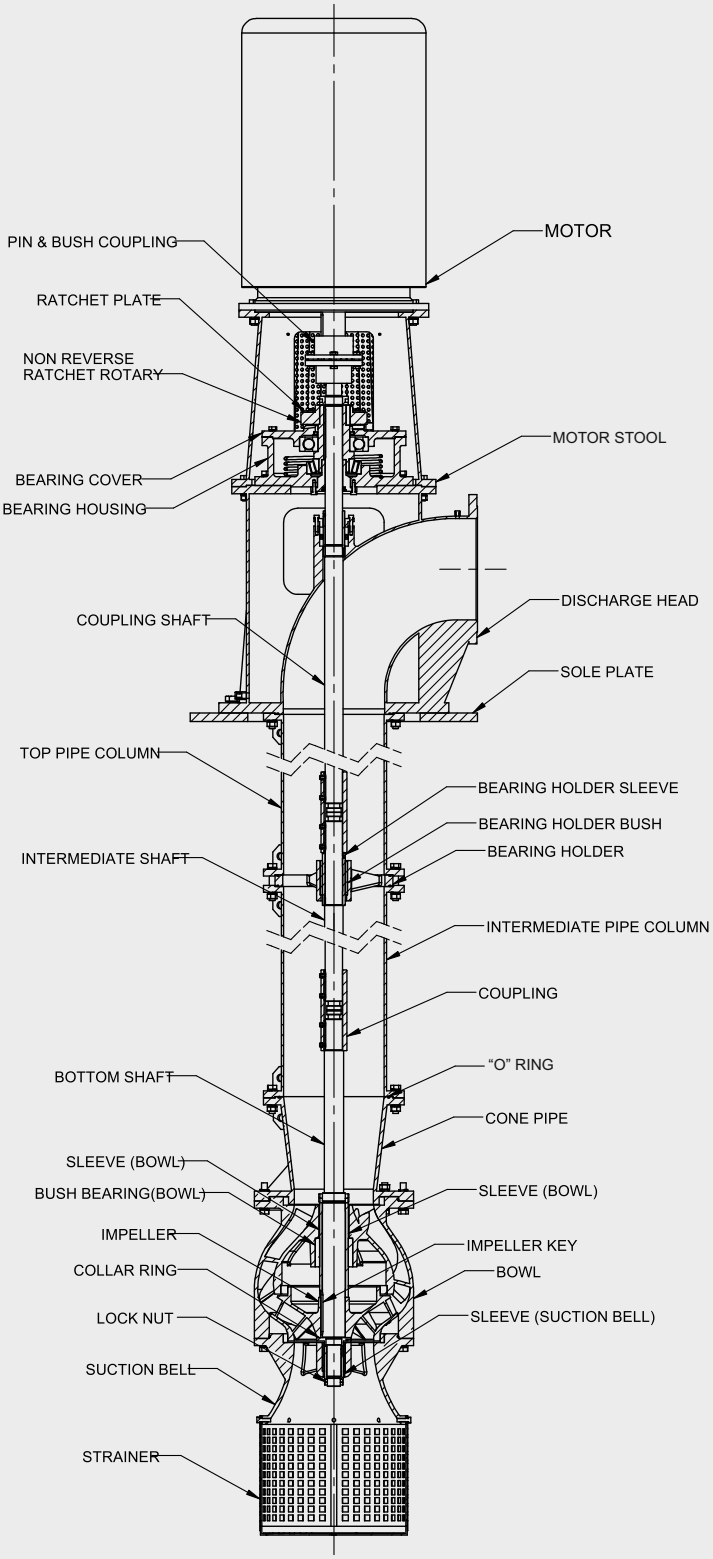
SELF WATER LUBRICATION



EXTERNAL CLEAR WATER / OIL LUBRICATION

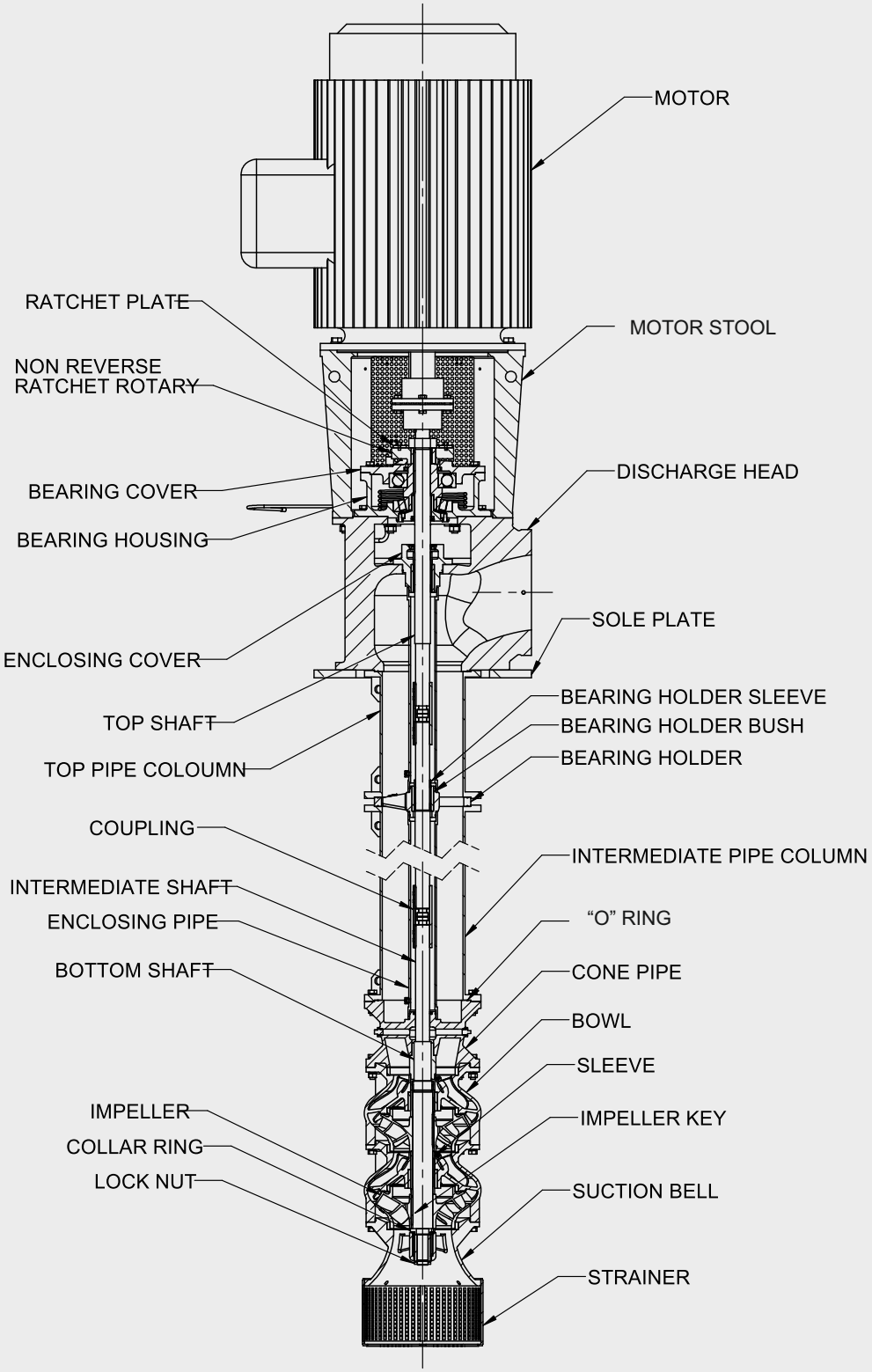
Model	L4	L5	L6	L7	D1	D2	n - Ød
FVT - 40	200	90	116	619	175	25	8 - Ø11
FVT - 70	200	100	134	646	202	30	8 - Ø11
FVT - 115	212	108	155	688	235	35	8 - Ø12
FVT - 170	209	170	175	734	282	40	12 - Ø14
FVT - 270	212	160	201	782	325	45	12 - Ø14
FVT - 400	213	168	230	825	340	50	12 - Ø14
FVT - 500	214	185	249	920	365	55	12 - Ø18
FVT - 700	320	205	276	1077	408	60	12 - Ø18
FVT - 1000	355	235	418	1316	484	65	12 - Ø18
FVT - 1600	400	269	478	1506	554	65	12 - Ø22
FVT - 2300	431	287	476	1662	574	75	12 - Ø22
FVT - 3300	479	320	533	1853	638	75	12 - Ø22
FVT - 4500	602	385	672	2379	803	85	16 - Ø22
FVT - 5500	638	440	756	2554	850	95	16 - Ø22
FVT - 7300	698	485	830	2833	930	95	20 - Ø22
FVT - 9500	818	555	970	3263	1090	100	24 - Ø22

CROSS SECTION VIEW WITH SOLID SHAFT MOTOR FOR SELF WATER LUBRICATION



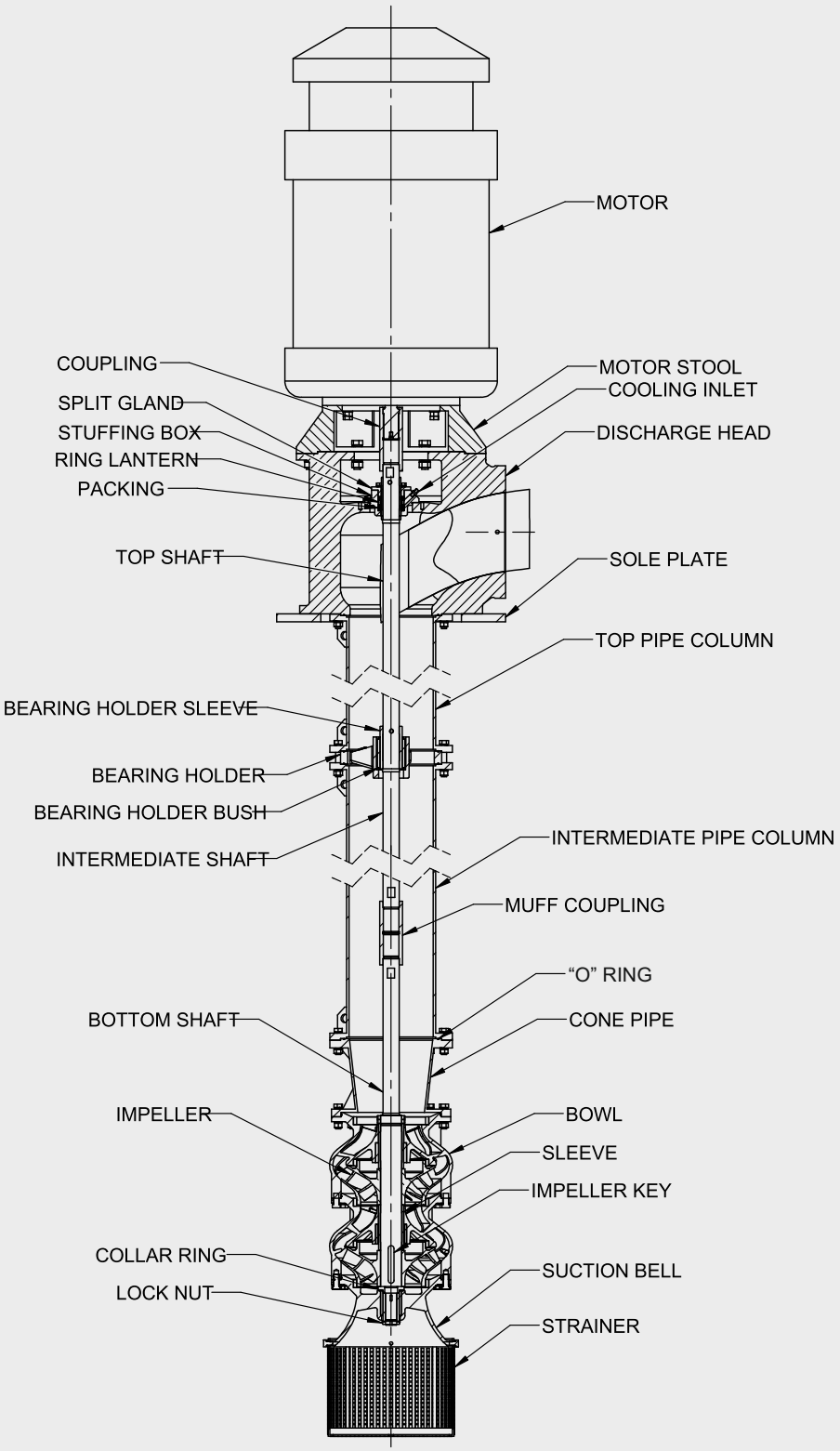
In view of continuous development, the informations / descriptions / specification / illustration are subjected to change without notice.

CROSS SECTION VIEW WITH SOLID SHAFT MOTOR FOR OIL LUBRICATION



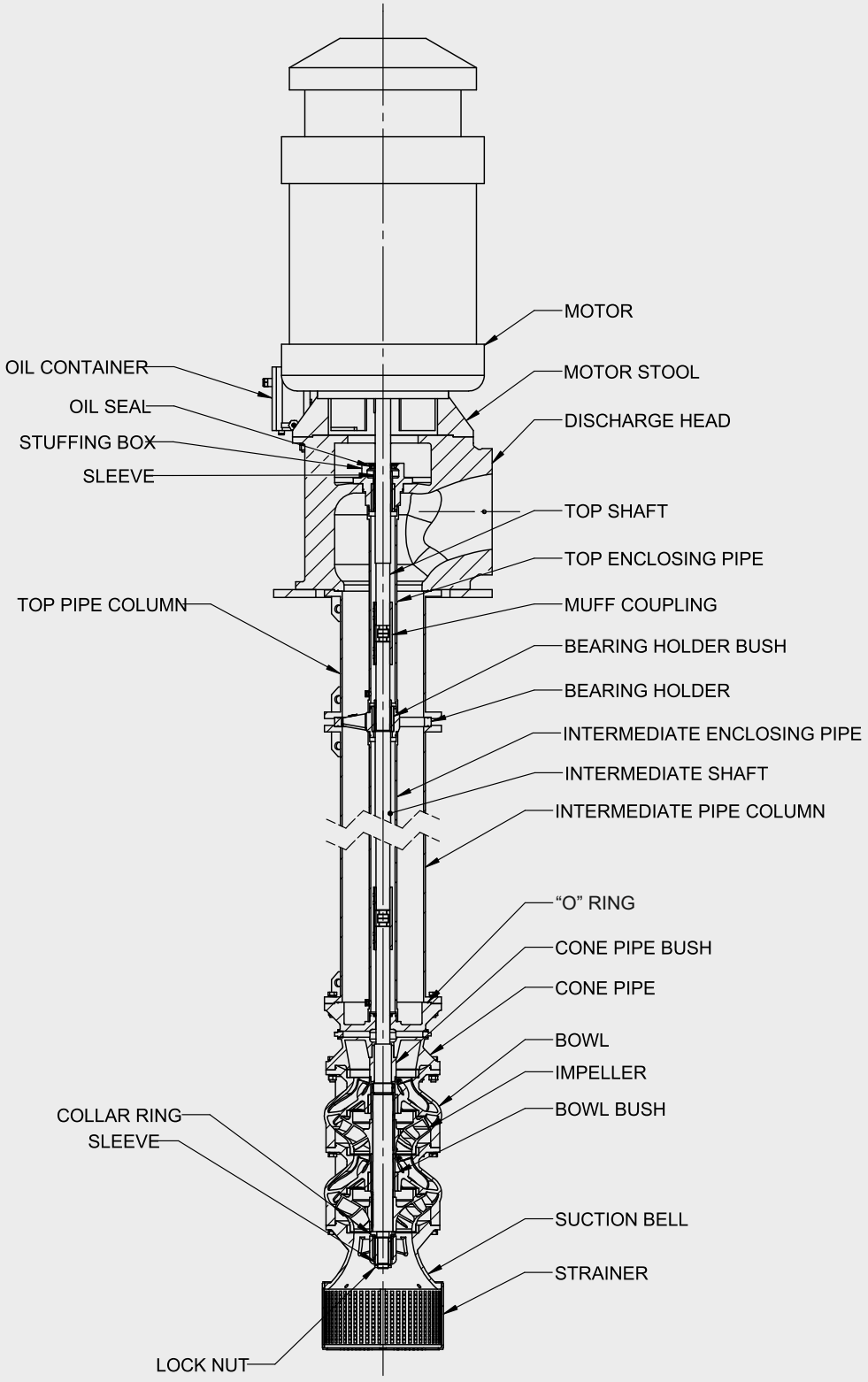
In view of continuous development, the informations / descriptions / specification / illustration are subjected to change without notice.

CROSS SECTION VIEW WITH VERTICAL HOLLOW SHAFT MOTOR FOR SELF WATER LUBRICATION



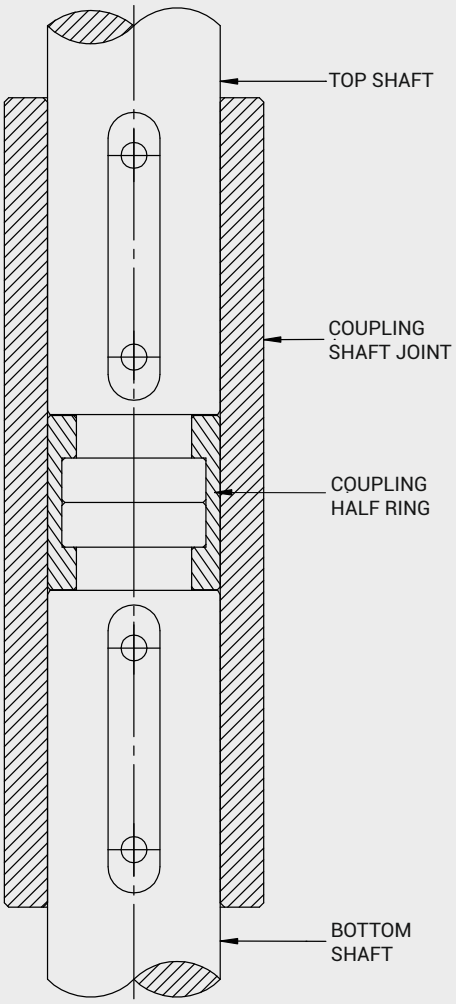
In view of continuous development, the informations / descriptions / specification / illustration are subjected to change without notice.

CROSS SECTION VIEW WITH VERTICAL HOLLOW SHAFT MOTOR FOR OIL LUBRICATION

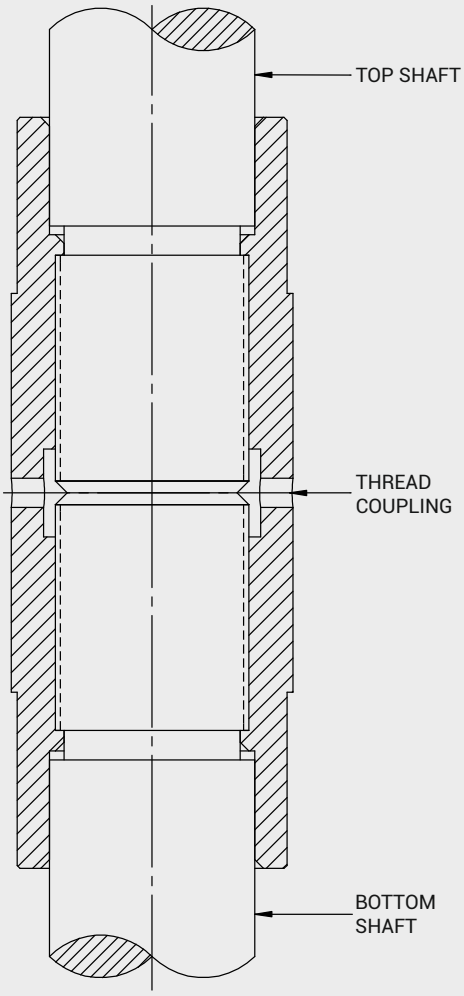


In view of continuous development, the informations / descriptions / specification / illustration are subjected to change without notice.

LINE SHAFT COUPLING TYPES

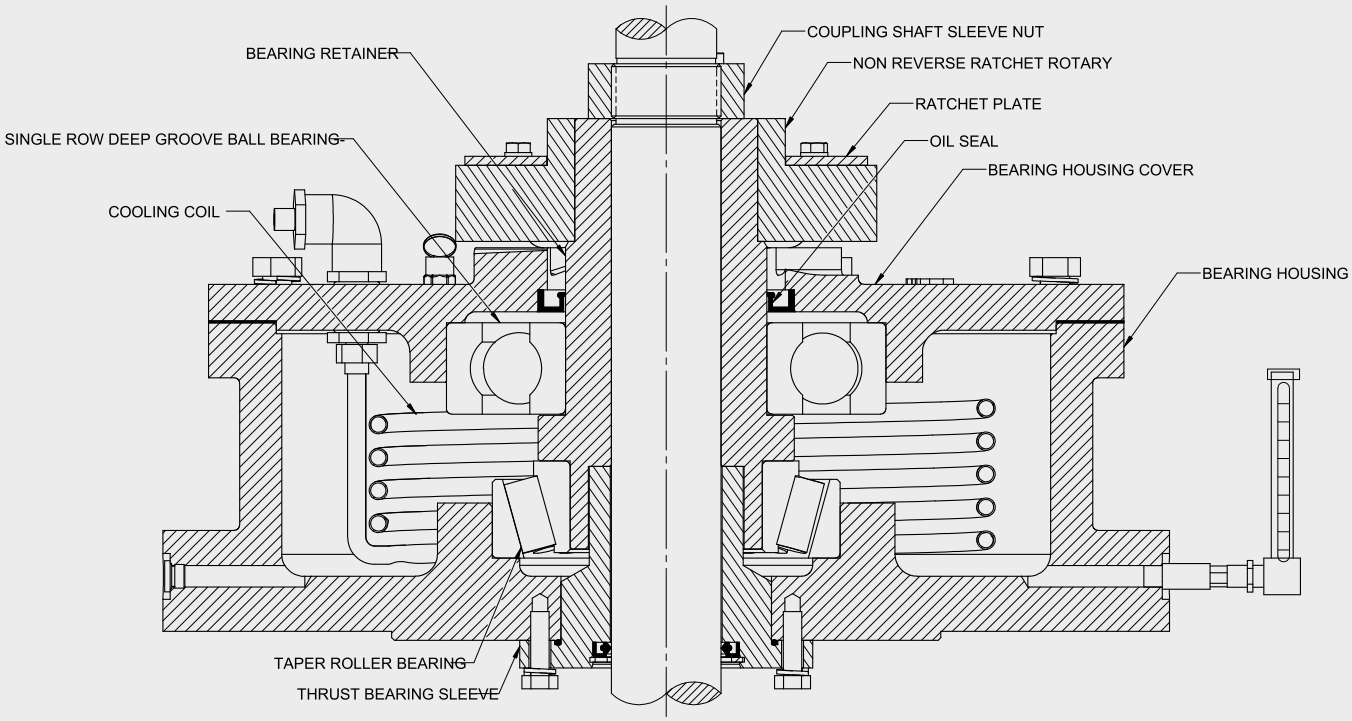


MUFF COUPLING



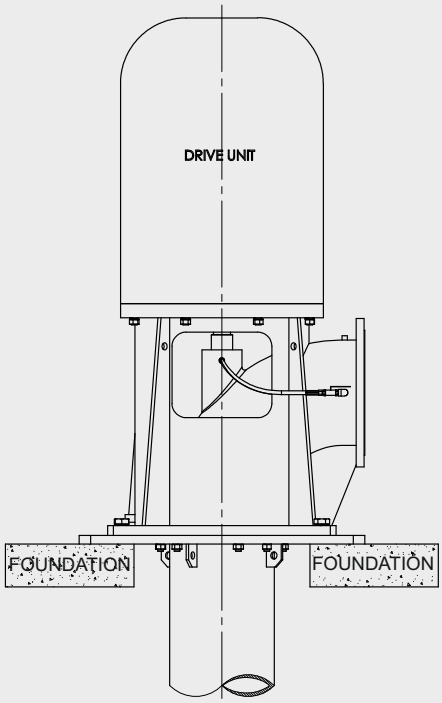
THREAD COUPLING

THRUST BEARING WITH RATCHET ARRANGEMENT

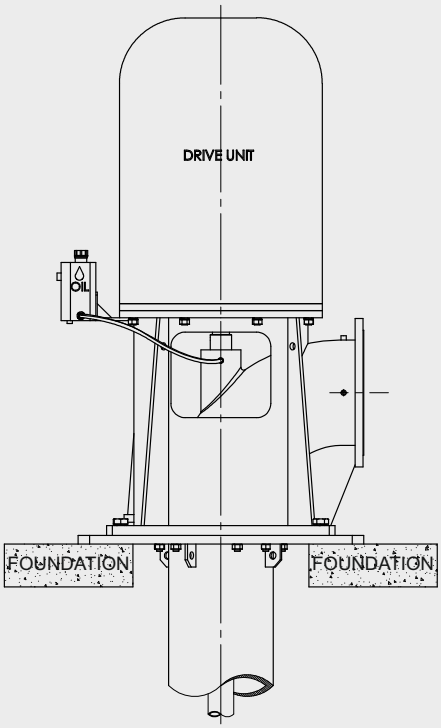


THRUST BEARING WITH RATCHET ARRANGEMENT - ANTIFRICTION BEARING

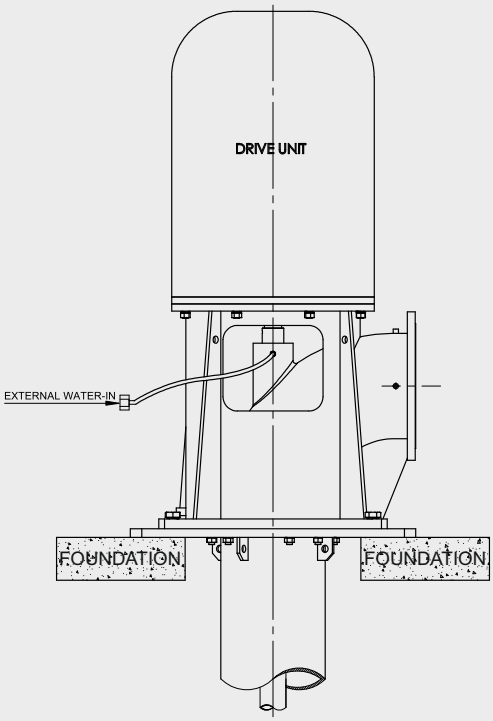
LUBRICATION ARRANGEMENT



SELF WATER LUBRICATION



OIL LUBRICATION



EXTERNAL CLEAR WATER LUBRICATION

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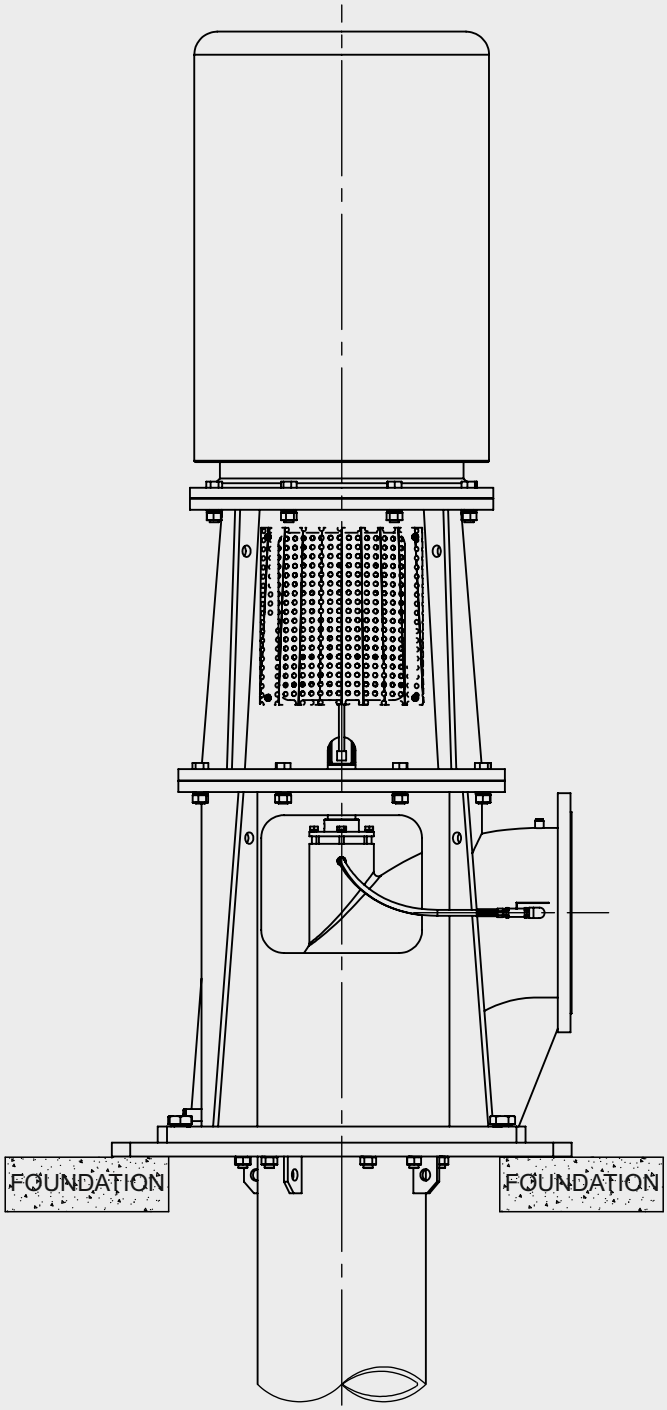
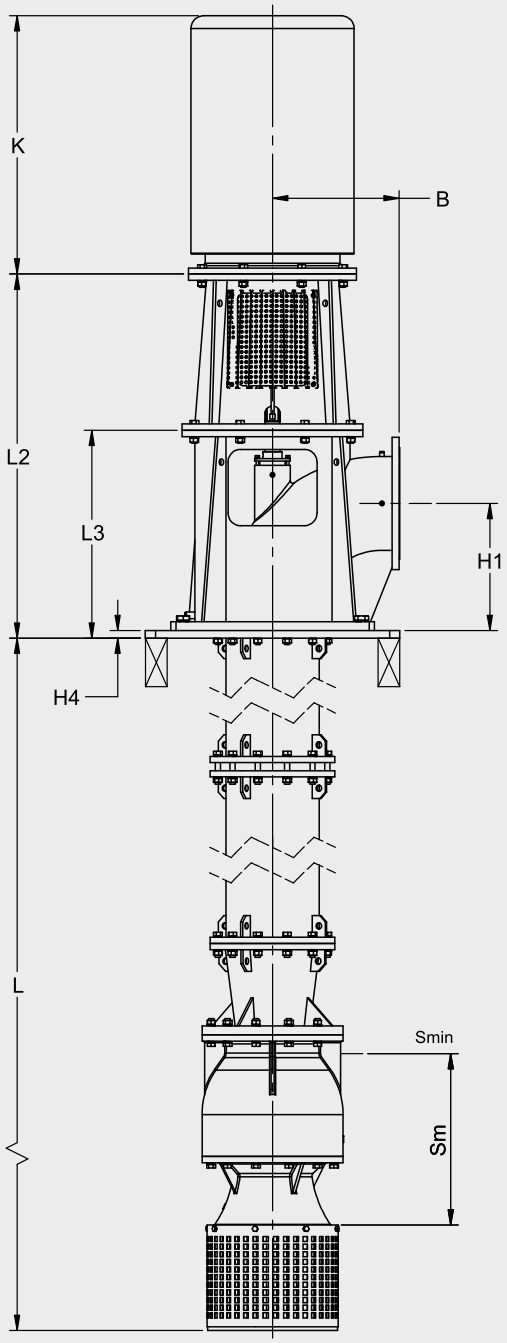
DISCHARGE HEAD WITH ABOVE GROUND ARRANGEMENT

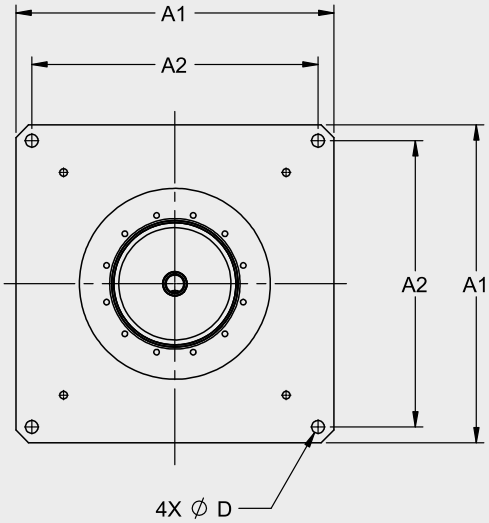


ABOVE GROUND ARRANGEMENT
DISCHARGE HEAD - MOTOR DRIVEN

GENERAL ARRANGEMENT DRAWING (GAD) WITH SOLID SHAFT MOTOR



SOLE PLATE



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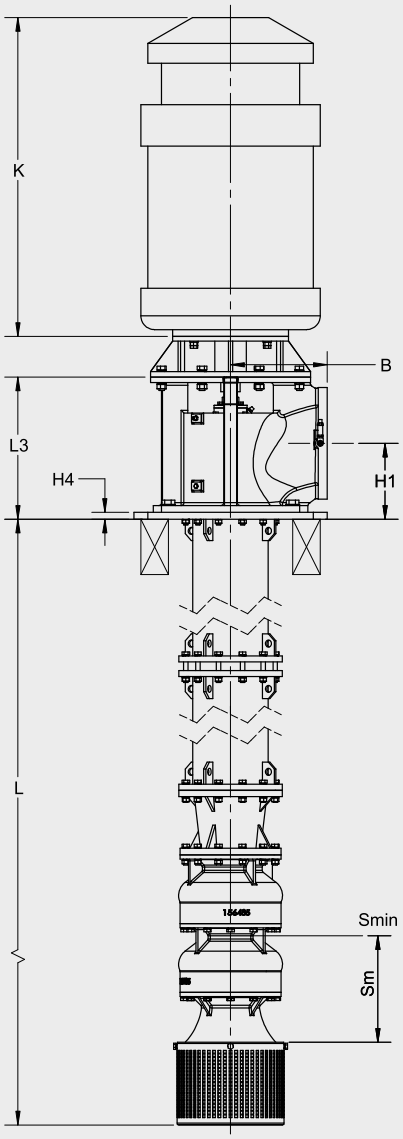
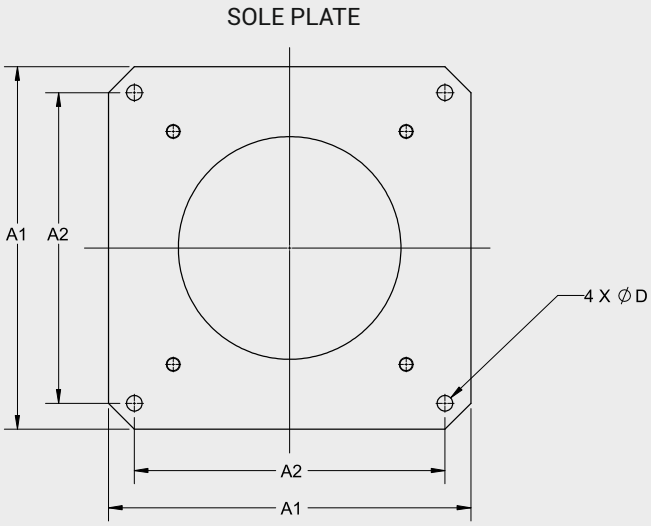
GENERAL DIMENSION & MOUNTING DETAILS FOR SOLID SHAFT MOTOR

MODEL	DN	A1	A2	n- ∅D	H1	H4	B	Sm	L2	L3
FVT40	150	520	430	4 - 30	175	25	260	295	800	405
FVT70	150	520	430	4 - 30	175	25	260	330	800	405
FVT115	150	520	430	4 - 30	175	25	260	380	800	405
FVT170	150	520	430	4 - 30	175	25	260	485	850	405
FVT270	200	560	450	4 - 30	200	25	280	535	910	445
FVT400	200	560	450	4 - 30	200	25	280	585	940	445
FVT500	250	560	450	4 - 30	250	30	350	635	1165	515
FVT700	250	560	450	4 - 30	250	30	350	740	1165	515
FVT1000	300	750	650	4 - 40	300	30	375	840	1300	746
FVT1600	350	750	650	4 - 40	350	35	375	1040	1350	788
FVT2300	450	900	750	4 - 40	450	35	500	1245	1350	800
FVT3300	500	1300	1200	8 - 40	560	35	630	1425	1552	958
FVT4500	700	1700	1500	8 - 40	770	40	850	1700	2089	1420
FVT5500	700	1700	1500	8 - 40	770	40	850	1855	1923	1268
FVT7300	800	1800	1650	8 - 40	870	40	900	2085	2071	1418
FVT9500	900	2000	1840	8 - 40	970	40	950	2340	2610	1640

GENERAL ARRANGEMENT DRAWING (GAD) WITH VERTICAL HOLLOW SHAFT MOTOR





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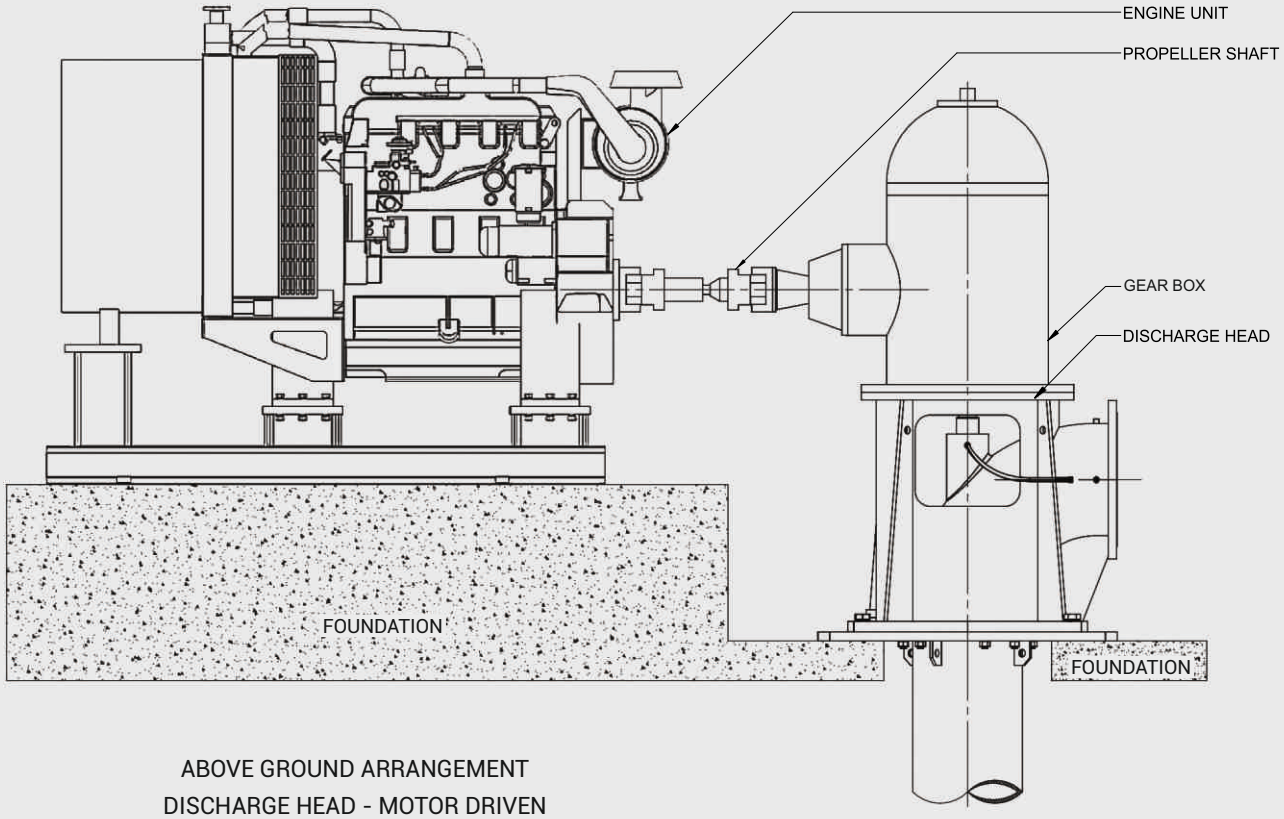
GENERAL DIMENSION & MOUNTING DETAILS FOR VERTICAL HOLLOW SHAFT MOTOR

MODEL	DN	A1	A2	n- ∅D	H1	H4	B	Sm	L3
FVT40	150	520	430	4 - 30	175	25	260	295	405
FVT70	150	520	430	4 - 30	175	25	260	330	405
FVT115	150	520	430	4 - 30	175	25	260	380	405
FVT170	150	520	430	4 - 30	175	25	260	485	405
FVT270	200	560	450	4 - 30	200	25	280	535	445
FVT400	200	560	450	4 - 30	200	25	280	585	445
FVT500	250	560	450	4 - 30	250	30	350	635	515
FVT700	250	560	450	4 - 30	250	30	350	740	515
FVT1000	300	750	650	4 - 40	300	30	375	840	746
FVT1600	350	750	650	4 - 40	350	35	375	1040	788
FVT2300	450	900	750	4 - 40	450	35	500	1245	800
FVT3300	500	1300	1200	8 - 40	560	35	630	1425	958
FVT4500	700	1700	1500	8 - 40	770	40	850	1700	1420
FVT5500	700	1700	1500	8 - 40	770	40	850	1855	1268
FVT7300	800	1800	1650	8 - 40	870	40	900	2085	1418
FVT9500	900	2000	1840	8 - 40	970	40	950	2340	1640

ENGINE DRIVEN PUMP WITH RIGHT ANGLE GEAR BOX



ABOVE GROUND ARRANGEMENT
DISCHARGE HEAD - MOTOR DRIVEN

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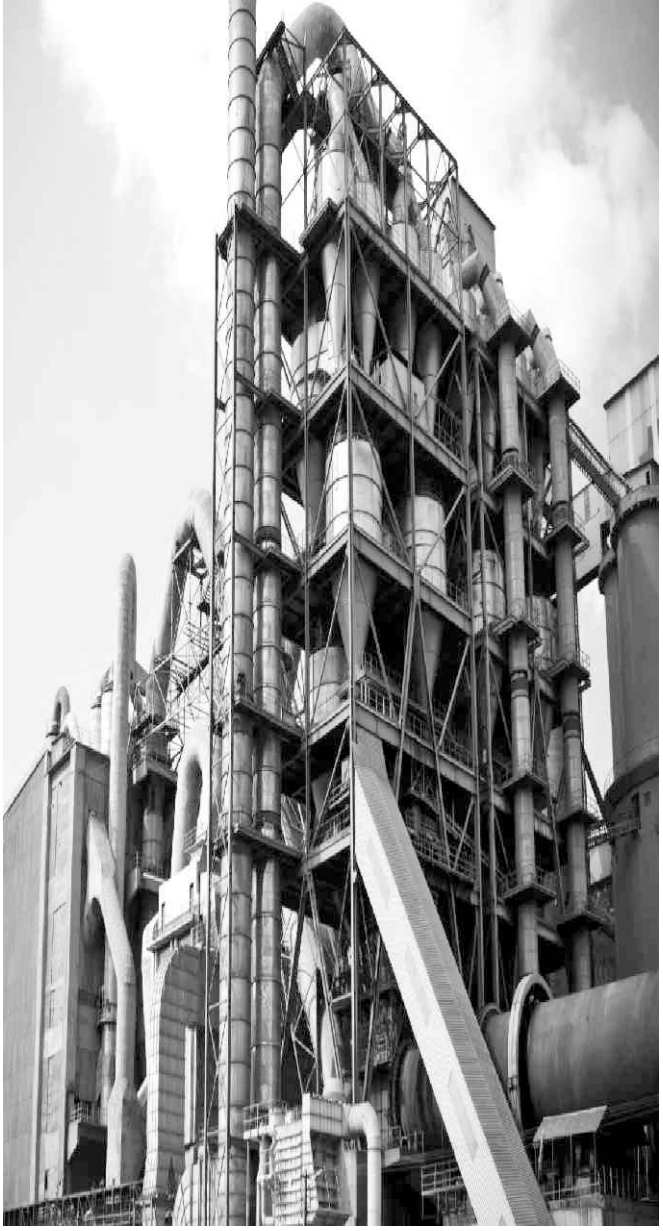
NOTES



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