

DOUBLE SUCTION SPLIT TYPE
CENTRIFUGAL PUMP

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1. GENERAL

Split type (SP) pumps are radial flow pumps which have horizontal shaft, in general, splittable upper and lower casings, double suction, single or multi stage, with or without diffuser. For special applications SP pumps can be produced with vertical shaft and for high pressure.

Utilization area of split type pumps are:

- Potable water supply systems
- Irrigation
- Industrial water supply to factories, complexes
- Sea water pumping
- Closed cycles for water cleaning, water cooling, filtering, condensate pumping etc.
- For pumping crude oil, petroleum products and other chemicals in chemical and petro-chemical industries.

Advantages are:

- Safe working in all conditions, high head and high pressure at discharge as well as suction.
- Easy and economical maintenance and repair,
- Motor can be coupled to the pump from both sides,
- Perfect design and modelling of casing & impeller; smooth running and low radial load are securing a high efficiency and long running life,
- Vertical and horizontal applicability.

1.1. Construction

1.1.1. Casing

From the shaft level, the pump is splittable into 2 parts, the upper and lower casing. In the lower casing, the suction and discharge flanges are in opposite position and on the same axis (however different flange positions are also possible). Upper casing acts as a cover to reach inner sides of the pump and to remove rotating parts easily.

It is easy to maintain and repair the pump, only by opening the upper casing without dismantling from pipe line and chassis.

Pump rotor is lifted without using any special tool. Due to the use of elastic coupling, the rotor can be removed without moving the motor.

Wear rings protect the casing. They are fixed to lower casing to avoid their rotation with the impeller.

In case of head $H_m > 100$ mWC, the pump casing is produced with double volute to decrease the radial load.

1.1.2. Impeller

Impellers are produced with double entry, radial flow and double awry blades. Impellers are fixed by means of impeller lock nuts on the shaft and shaft sleeves (some models have extended sleeves). Different impeller models can be used in the same pump to widen the working range of the pump and to adapt variable working conditions. Only by changing impeller, same pump can be run in different working points.

Double suction impellers balance the hydraulic axial load just like the impellers which run in back to back arrangement.

1.1.3. Bearings

In general, greased type ball bearings are used when specially requested or required for some applications, journal bearings can be used.

Bearing houses, which are rigidly fixed to lower body, can be removed together with the rotor, when unbolted. Bearings are protected from the pumped water by the seal and deflector.

Journal bearings can be lubricated with grease or thin clean water film (grease for bronze-stainless steel application, water lubrication for EPDM-stainless steel application).

1.1.4. Sealing

For the water leakage between pump shaft and its casing, graphite or teflon soft sealings are used. This considered as standard production, optionally or as per customer request, mechanical seals can be applied.

1.1.4.1. Soft sealing

Sealing rings and lantern rings are used in stuffing box assembly. Shaft sleeves are protecting the shaft from possible wear out in stuffing box area. Lantern ring feeds the sealing with pressurized water which is coming from the pump. In case of dirt or particle in the pumped water, the cyclone separator is securing the cleanliness of the water. The water flow can be controlled with a valve.



1.1.4.2. Mechanical sealing

According to special requests or in some special applications, split case pumps can be produced with mechanical seals. Type of the mechanical seal is selected according to application type. For more information, please get in contact with SMS.

2. INSTALLATION

2.1. Site

Pumping unit should be placed as close as possible to its pedestal. Floor space must be sufficient for installation works, inspection and maintenance. Be sure to allow for crane or hoist service.

2.2. Foundation

Foundation should be constructed according to the drawing of "Foundation Details". If requested, static and dynamic load diagrams are supplied to customer for designing the foundation details by their own technical services according to specific standards or conditions. Foundation block must be isolated from the building according to the drawing of "Foundation Details" to prevent the affects of vibration.

Anchor bolts must be positioned and levelled according to the drawings and before grouting they must be checked properly.

2.3. Preparation for installation

Pumping units are shipped fully assembled, in some cases driving units may be assembled at jobsite. Clean the working area and remove packing of the pumping unit. Check all bolts and nuts on entire unit to make ensure secure tightening. Check all necessary bolts and nuts for foundation, chassis and couplings.

2.4. Handling techniques

Utmost care should be shown in moving the pump. Pump should be lifted by sling, steel rope and chain from the marked area on lower casing (in case of using steel rope or chain, a protecting sheet should be used between pump body and rope or chain). Eyebolts on the upper casing are used to lift upper casing only for inspection and maintenance. Do not use eyebolts to lift the entire casing. General safety rules and procedures should be strictly followed while lifting.



Handling technique for complete pump

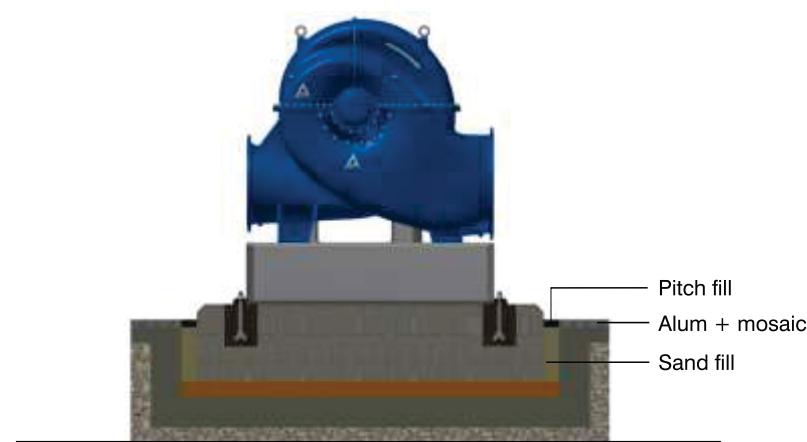


Handling technique for upper casing to assemble or disassemble

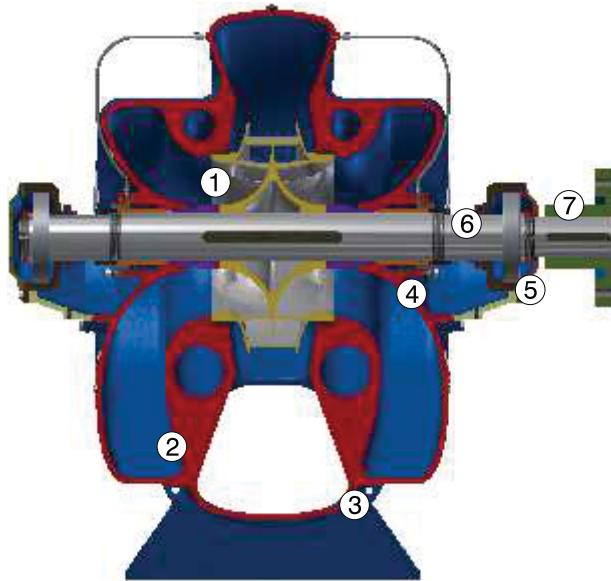
2.5. Installation of pump

Chassis is placed on the ready foundation, and after checking the alignment and levelling the anchor bolts are tightened. Locate the pump on chassis; make the alignment and levelling checks, by using the shaft axis as main reference for pump. Use shims to provide perfect levelling, tighten the bolts and make a final check.

2. 5.1. Horizontal installation



2.5.1.1. Technological advantages



① High performance impeller

- No axial load due to double suction impeller structure
- High efficiency due to smooth hydraulic profiles
- High suction ability due to double suction structure
- Easiness of assembling/disassembling
- Can be produced from different materials depending on the liquid property

② High efficiency and low NPSH value

- Low NPSH and high suction performance due to double suction structure
- High efficiency due to smooth suction profiles
- Proper and silent running
- Replaceable wearing rings on impeller (suction sides)
- Have low losses due to the low tolerance values between impeller-sealing ring

③ Casing

- Smooth and linear flow surfaces
- Has short shaft construction
- Drive connection from both sides
- Ability of maintenance and repair without moving the lower casing
- Easy assembling of upper to lower casing with liquid gasket and studs

④ Compatible sealing selection to liquid type

- Graphite or teflon soft sealing are used as standard
- High quality mechanical seals are used when necessary
- Shaft sleeves are used to prevent the wearing effect of seals on shaft
- Long life for stuffing box and shaft sleeve due to their special cooling

⑤ Long life bearings

- For long service life; very well protected and sealed grease lubricated, high quality antifriction bearings are used
- Easy maintenance and repair due to convenient design and structure

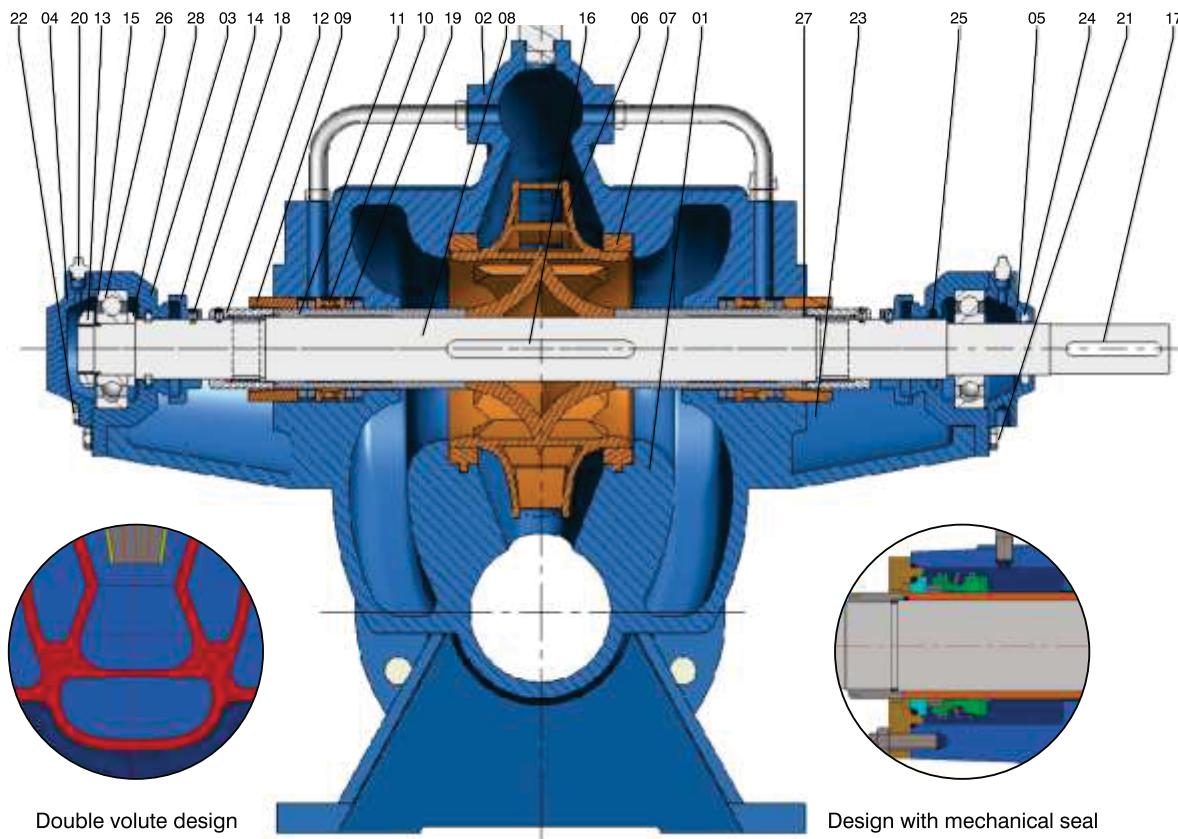
⑥ Shaft

- Pump shaft is completely isolated from the pumped liquid or water
- Shaft is protected from wear by sleeves
- Minimised distance between two bearings to ensure long service life
- Use of appropriate material for pumped liquid secures pump operation
- Fixing nuts ease the adjustment of the impeller position of the shaft
- Easy disassembling for maintenance

⑦ Coupling

- Specially SMS made elastic couplings which have high elasticity and strength

2.5.1.2. Parts list



PART NO	PART NAME	MATERIALS (STANDARD)	MATERIALS (OPTIONAL)
1	LOWER CASING	EN-GJS-400-15/500-7	AISI 304 - AISI 316
2	UPPER CASING	EN-GJS-400-15/500-7	AISI 304 - AISI 316
3	BEARING	EN-GJS-400-15/500-7	-
4	CLOSE COVER	EN-GJS-400-15/500-7	-
5	OPEN COVER	EN-GJS-400-15/500-7	-
6	IMPELLER	AISI 304 - BRONZE	AISI 316
7	CASING SEAL RING	BRONZE	AISI 304 - AISI 316
8	SHAFT	AISI 420 (X20Cr13)	AISI 304 - AISI 316
9	PACKING COVER	BRONZE	AISI 304 - AISI 316
10	LANTERN RING	BRONZE	AISI 304 - AISI 316
11	BUSH	AISI 304 - AISI 420	AISI 316
12	IMPELLER LOCK NUT	AISI 304 - AISI 420	AISI 316
13	SHAFT NUT	S170.2	AISI 304
14	DEFLECTOR	EN-GJS-400-15/500-7	AISI 304 - AISI 316 - BRONZE
15	SAFETY PLATE	CARBON STEEL	-
16	KEY	S150	AISI 304 - AISI 420
17	KEY	S150	AISI 304 - AISI 420
18	SETSCREW	A2	A4
19	PACKING	TEFLON	MECHANICAL SEAL
20	GREASER	-	-
21	BOLT	8.8 GALVANIZED STEEL	A2 - A4
22	BOLT	8.8 GALVANIZED STEEL	A2 - A4
23	STUD	AISI 304 - AISI 420	AISI 316
24	SEAL	-	-
25	SEAL	-	-
26	BEARING	-	-
27	O-RING	EPDM	-
28	SPACER SLEEVE	S170	-



2.5.2. Vertical installation

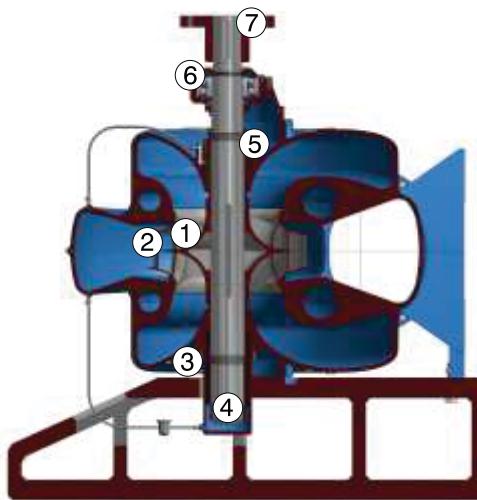


Directly driving of pump by motor



Directly driving of pump by motor
with intermediate shaft

2.5.2.1. Technological advantages



① High performance impeller

- No axial load due to double suction impeller structure
- High efficiency due to smooth hydraulic profiles
- High suction ability due to double suction structure
- Easiness of assembling/disassembling
- Can be produced from different materials depending on the liquid property

② High efficiency and low NPSH value

- Low NPSH and high suction performance due to double suction structure
- High efficiency due to smooth suction profiles
- Proper and silent running
- Replaceable wearing rings on impeller (suction sides)
- Have low losses due to the low tolerance values between impeller-sealing ring

③ Casing

- Smooth and linear flow surfaces
- Has short shaft construction
- Drive connection from both sides
- Ability of maintenance and repair without moving the lower casing
- Easy assembling of upper to lower casing with liquid gasket and studs
- Ability to be produced with double volute for heads over 100 meters
- Ability to select materials according to liquid or water property

④ Shaft

- Pump shaft is completely isolated from the pumped liquid or water
- Shaft is protected from wear by sleeves
- Minimised distance between two bearings to ensure long service life
- Use of appropriate material for pumped liquid secures pump operation
- Fixing nuts ease the adjustment of the impeller position of the shaft
- Easy disassembling for maintenance

⑤ Compatible sealing selection to liquid type

- Graphite or teflon soft sealing are used as standard
- High quality mechanical seals are used when necessary
- Shaft sleeves are used to prevent the wearing effect of seals on shaft
- Long life for stuffing box and shaft sleeve due to their special cooling

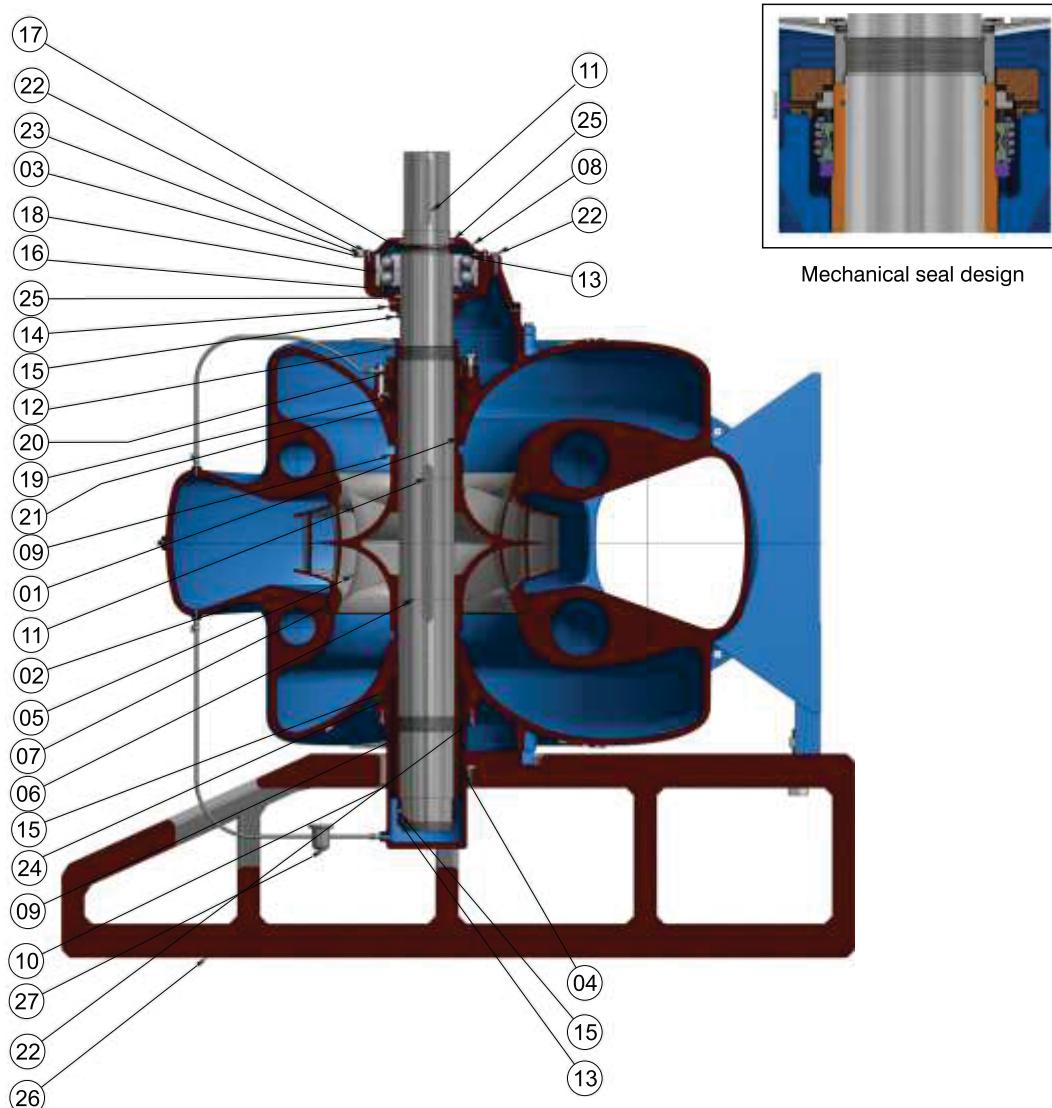
⑥ Long life bearings

- Double row angular ball bearings are opposing the axial and radial loads coming from the rotating upper parts of the pump to secure its long life
- Water lubricated journal bearing is preferred as lower bearing to ensure proper operation
- Antifriction bearing at the top, very well sealed and protected, is grease lubricated
- Easy maintenance and repair due to convenient design and structure

⑦ Coupling

- Specially SMS made elastic couplings which have high elasticity and strength

2.5.2.2. Parts list



PART NO	PART NAME	MATERIALS (STANDARD)	MATERIALS (OPTIONAL)
1	LOWER CASING	EN-GJS-400-15/500-7	AISI 304 - AISI 316
2	UPPER CASING	EN-GJS-400-15/500-7	AISI 304 - AISI 316
3	UPPER BEARING	EN-GJS-400-15/500-7	-
4	LOWER BEARING	EN-GJS-400-15/500-7	-
5	IMPELLER	AISI 304 - BRONZE	AISI 316
6	SHAFT	AISI 420 (X20Cr13)	AISI 304 - AISI 316
7	CASING SEAL RING	BRONZE	AISI 304 - AISI 316
8	COVER	EN-GJS-400-15/500-7	-
9	SHAFT BUSH	AISI 304 - AISI 420	AISI 316
10	BEARING BUSH	(AISI 304 - AISI 420 - BRONZE) + EPDM	-
11	KEY	Si50	AISI 304 - AISI 420
12	IMPELLER LOCK NUT	AISI 304 - AISI 420	AISI 316
13	SHAFT NUT	AISI 304 - AISI 420	AISI 316
14	DEFLECTOR	EN-GJS-400-15/500-7	AISI 304 - AISI 316 - BRONZE
15	SETSCREW	A2	A4
16	SPACER SLEEVE	Si70	-
17	SAFETY PLATE	CARBON STEEL	-
18	BEARING	-	-
19	LANTERN RING	BRONZE	AISI 304 - AISI 316
20	PACKING COVER	BRONZE	AISI 304 - AISI 316
21	PACKING	TEFLON	MECHANICAL SEAL
22	BOLT	8.8 GALVANIZED STEEL	A2 - A4
23	GREASER	-	-
24	O-RING	EPDM	-
25	SEAL	-	-
26	CHASSIS	EN-GJS-400-15/500-7/GG25/Si37.2	-
27	SEPARATOR	-	-



2.6. Coupling pump and motor

Place the motor on chassis in accordance with the installation drawings. Do the levelling and alignment of the motor shaft axis according to pump shaft axis. For a proper alignment and levelling use the techniques given in item 2.9. **“Connection of Flexible Coupling”**. After this control, tighten the bolts for motor-chassis mounting.

2.7. Preparation of stuffing box

Pumping units are shipped together with packed stuffing boxes. In case of long storage periods, soft packing should be renewed before first commissioning. The pumps which are dispatched from factory without connecting the sealing or sealing cooling system (in some cases, stuffing boxes can be sent as disassembled to avoid unwanted damages during shipment), has to be assembled or fixed at its final destination or site and controlled before start up.

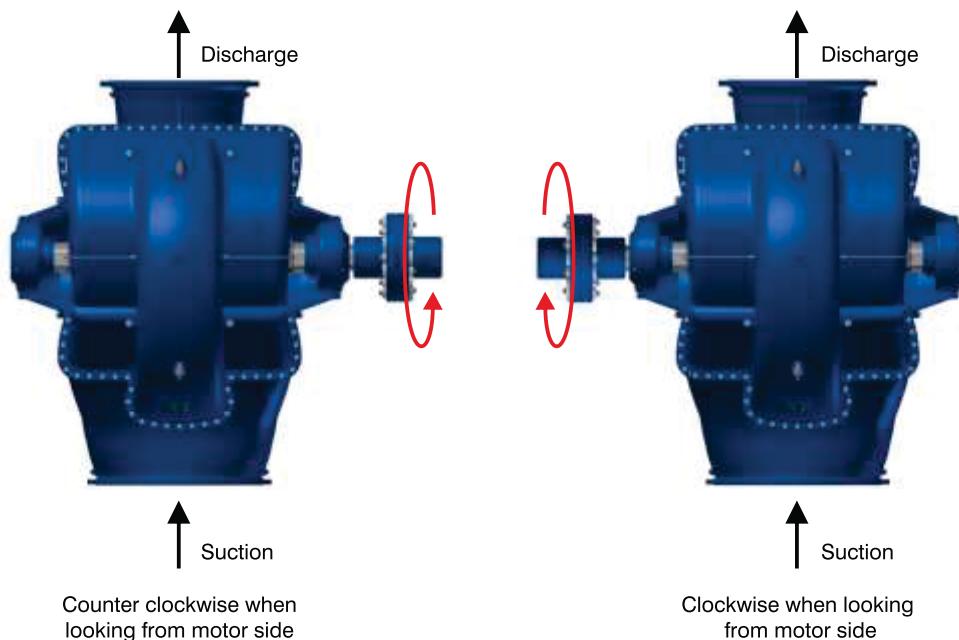
When the pumps are furnished with mechanical seals, the seals are installed and adjusted at factory before shipment. To protect the mechanical seal during transportation, extra fixtures are used to prevent the axial movement of the shaft; these fixtures must be removed during installation at site. To prepare the seal for operation, flush lines (if any) dispatched separately from main body, must be connected in accordance with the manufacturer's specifications. Installation drawings are attached to the pump and should be filed for future use to adjust the seal when the pump is disassembled. Please keep the drawing and the user manual of the mechanical seal to do maintenance accordingly.

2.8. Checking the sense of rotation

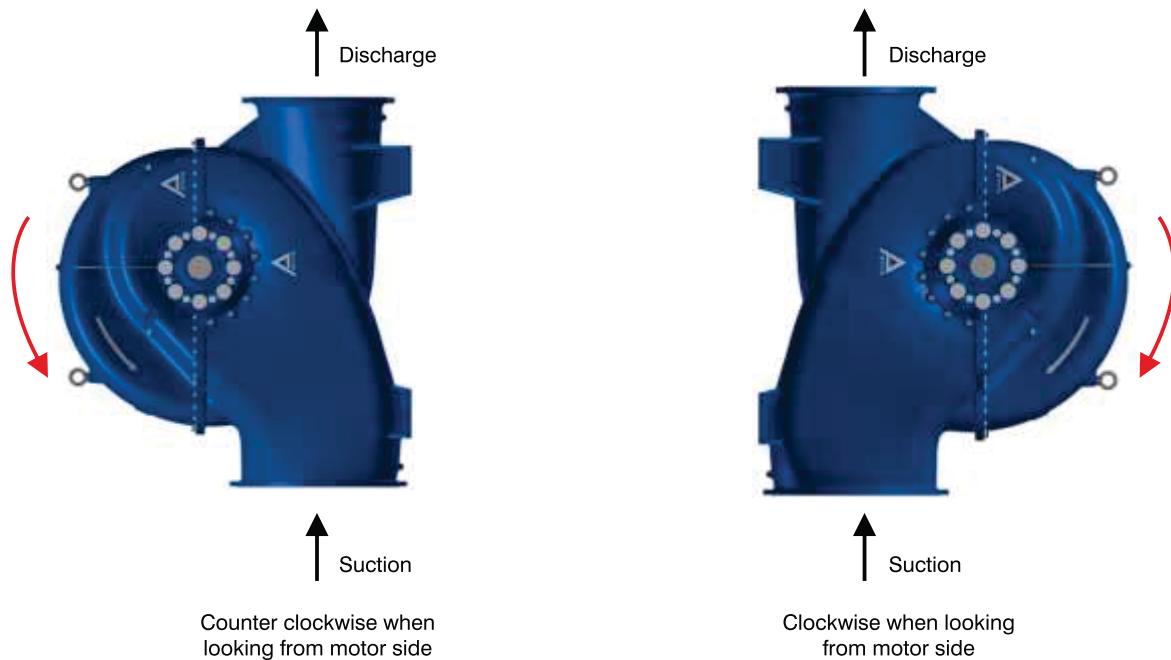
Before tightening the flexible coupling connection bolts, the motor sense of rotation should be checked. A rotation arrow is located on the pump upper casing. Serious damage can happen if the pump runs in wrong sense or direction. After all the electrical connections of the motor are done and before coupling it to the pump, it is always advised to run the pump for a very short time to be sure about its sense of rotation. After that control, the flexible coupling connection can be done.

Attention! Make sure that you never run the pump without liquid i.e. dry.

Sense of rotation / for horizontal arrangement



Sense of rotation / for vertical arrangement



2.9. Alignment of flexible coupling

In general, couplings are dispatched as assembled on the pump motor set. The installation and adjustment instructions must be strictly followed for coupling adjustment before commissioning. Misalignment of the couplings may cause vibration, noise, damage in the bearings, housings and couplings.

Three popular methods can be applied to check the alignment of the couplings:

- Ruler-Line gauge method (most used method, technicians can apply the description which is given below easily)
- Dial gauge method (it needs a rigid system and its calculation method is not easy, but when applied correctly, this method is more accurate in comparison with the ruler method)
- Computer aided laser measurement method (this is the most available accurate method; with the aid of computer adjustment it can be done easily and without mistakes)

The coupling halves are normally produced to meet H7/k6 standards. Before starting the coupling connection, it should be checked that the pump was levelled properly and its fixation bolts to chassis was tightened. Then it should be controlled that motor fixation bolts are loose. During coupling adjustment motor is moved slightly to its correct position.

Pump and driver shafts have to be well levelled and aligned as good as possible. If painting is noticed on the machined surfaces, it should be cleaned or removed immediately by means of a dissolvent before starting alignment (do not wipe or grind with any hand tool). To facilitate the parallel alignment, the couplings are of the same size. To check this concentric alignment, use a ruler at different points of coupling periphery and remain always parallel to the shaft.

There should be a gap between coupling halves for flexibility. This gap should be around 3 to 5 mm, but not more. Axial adjustment is made by sliding the motor on the chassis.

The angular alignment should be checked by inserting a feeler gauge into the space between the two coupling halves, at different points of the periphery. If the gap is the same at opposite points, this means that there is no angular misalignment.

After final fixation of motor bolts, alignment has to be checked once more and then bearings rubbers or cushions are inserted then the special coupling bolts and nuts are firmly tightened. Before this, sense of rotation should be checked as per 2.8.

Before running the pump set, be sure that the coupling guard is installed.

2.10. Connection of pipe

Connect the suction and the discharge pipes; it is recommended to use the minimum possible number of fittings. A dismantling piece and a valve must be used at the pump discharge for flow control. If there is positive pressure at the suction side, another valve and dismantling piece must be used there to facilitate the maintenance of the pump.

For priming the pump units, a vacuum pump is used. This vacuum pump can be connected by means of pipe network to serve all of the pumping station. Vacuum system can be designed for manual and automatic operation, and it is operated just before the start-up of pumping unit or station to fill the pumps with water or liquid to a certain level.

To maintain good suction and discharge flow conditions, pipe levelling should be done properly and suitable reductions and bends should be used. This will eliminate air gaps, cavitations and other possible problems, so, piping design drawings and all technical recommendations should be strictly followed.



3. POINTS TO CONSIDER DURING AND AFTER START-UP AND OPERATION

- All centrifugal pumps should be started up with closed discharge valve.
- Before stopping the pump, first close the valve on the discharge line, then stop the pump.
- In case of positive suction head, make sure that the suction valve is completely open.
- In case of negative suction head, make sure that no air gaps in the pump body.
- Make sure that water is coming from stuffing when the pump is running. Adjust the quantity of water as you wish by using the valve on stuffing cooling pipe.
- Stop the pump in case the temperature of pump bearings increases over 80°C.
- Follow up the current and power values of the motor from the control panel. If the readings are exceeding motor label values, please stop the pump.
- In case of availability of stand-by pumps in a station, run each of them in sequences of 8 hours.
- Do not run the pump more than 2 minutes with closed valve.
- Check the manometer at the discharge of pump to see whether the pump is running at its working point or not.
- For negative suction pumps, make sure that water level value of suction tank does not drop below its calculated minimum value.
- For positive suction pumps, by mean of manometer, make sure that pressure value in suction pipe does not drop below calculated minimum pressure value.
- In case of pump noise and vibration, please stop the pump. Check the flexible coupling and the connections of the pump on its chassis. Re-align the flexible coupling if needed.
- If you want to decrease the pump capacity of the temporarily, throttle or reduce the discharge valve.
- It is never allowed to adjust the discharge rate from the suction valve.
- In order not to damage the electrical motor, make sure that the voltage stays in the range of ±5% of the nominal voltage.
- To determine the sense of rotation of the pump, do not start up the electrical motor before vacuuming.
- Do not run the pump dry even for determination of the sense of rotation.
- After running the pump for 4000 hours, change the oil of the bearings completely. Wash the bearings with solvent, fill them with grease and reinstall. After that fill the new oil into pump bearing house. Overfilling of oil causes overheating on the bearings. The recommended oil is "Shell Alvania R3" or its equivalent.
- Change the gland packing of the pump when the packing boxed cover is squeezed up to the thickness of one unwrapped ring of packing. Joints of every twist should be misaligned. Recommended standard soft sealing material is "Teflon".
- Make sure that the water outlets of sealing are not clogged. Otherwise water will go the bearings. Stop the pump if the evacuation pipe is blocked. Do not re-run the pump before cleaning it.
- For inoperative pumps, especially during winter time, avoid freezing of the water in the pump. For that, drain the water out from the pump by opening the plugs under the suction and discharge. This emptying operation should be done with closed suction and discharge valves.
- To open the upper casing of the pump, first, turn off the suction and the discharge valves. Then open the plugs under the suction and the discharge ends. When water stop to come from these plugs, this means that there is no leakage from the suction or the discharge valves and the upper casing of the pump can be opened.
- For new pump installation, strengthen the chassis by filling concrete into it and follow all the notes given in the technical drawing for the basement.
- If vibration value of pump-motor bearing is read-out over 4 mm/sec for horizontal pump and 7 mm/sec for vertical pump, please stop the pump set immediately and do the necessary controls to find out the reason of high vibration. Usually, such a vibration is due to misalignment on the pump flexible coupling or because of un-tightened bolts on chassis.
- The pump should be running according to the values written on its name plate. Otherwise, please get in touch with factory.

4. MAINTENANCE AND REPAIR

To remove the upper casing of the pump for inspection or maintenance the below items should be followed:

- Disconnect the drive from power supply and take all precautions to avoid unwanted run of the pump during dismantling operation.
- Close all the valves.
- Remove the coupling screws.
- If needed, disassemble the sealing water feeding pipes, bearing lubricator pipes, manometer etc.
- Remove the gland packing.
- Remove the bolts holding the upper casing.
- Locate and tight the eyebolts for hoisting or lifting the upper casing.
- Remove the upper casing by lifting from the eyebolts.

For the disassembly of the rotating elements proceed as follows:

- Remove the bolts holding the bearing housing and the housing body together.
- Remove the complete rotor by lifting with sling.
- Do not lay the shaft-impeller-bearings assembly down on the floor which may cause damage.

5. OPERATIONAL PROBLEMS AND SOLUTIONS FOR PUMPS

5.1. Insufficient discharge

- The gap between the impeller and sealing ring might be over the acceptable limits. For that reason change the sealing ring.
- Manometric head value might be over the value written on the pump name plate. If the motor power is enough, use another impeller with bigger diameter.
- Impurities or unwanted particle might enter the pump. Open the upper casing and clean inside the pump as well as the impeller.
- Air might accumulate in the pump. In such case, first stop the pump, then evacuate the air and re-run the pump.
- If there is strainer or foot valve in suction side and there is a flow problem, please make sure that no dirt is accumulated and clog them.
- The valve in pump suction side might be closed or semi-closed. Make sure that the valve is open.
- Suction head value might be over the allowable suction head value. For that reason, wait until getting the designed or appropriate water level.
- Impeller might be broken and need to be changed.

5.2. No discharge

- The valve in pump suction side might be closed. Make sure that the valve is open.
- Air might accumulate in the pump. In such case, first stop the pump, then evacuate the air and re-run the pump.
- Manometric head value at closed valve is higher than the value given during the pump factory test. This will lead to air chambers inside the pump. To solve this problem, please empty the water in the discharge line until the closed valve value go down below the known test value.
- Alter the motor electrical connections, if the pump is operating in reverse direction.
- If there is strainer or foot valve in suction side and there is a flow problem, please make sure that no dirt is accumulated and clog them.
- Site suction head dropped below the allowable or design suction head value. In this case, please wait until the suction head increase to it requested value.
- Check if the used pipes at the pump discharge are obeying the hydraulic rules or not. Pipe diameter and pressure class should be according or suitable to the pump.
- Impeller might be broken and need to be changed.

5.3. Pump efficiency under its label value

- If the pump is not giving the requested or designed pressure head, please adjust the valve at the discharge by opening or closing it until getting the necessary head value. If it is not possible to get the designed value, you must get in touch with the factory to check or learn the impeller diameter.
- Mechanical problem might occur in the pump. So first stop the pump and inspect. Problem can be due to impeller, sealing rings or due unwanted particles in the pump or impeller. It can also depend on a broken bearing or misalignment of flexible coupling, etc...
- In case of cavitation, stop the pump and search for the reason behind. This can be due to a suction head drop below the allowable or design suction value, because of air entered the pump from the suction equipment, some dirt or particles stuck in the strainer or foot valve at suction side or a change in the pumped liquid temperature.
- The space or gap between the impeller and the sealing ring might be over its required value; this will lead to losses in capacity and decrease in efficiency. In such a case, please change the sealing ring.
- Low efficiency can be due to the measurement tools; to avoid that all measurement devices should be calibrated.
- Impeller might be broken and need to be changed.

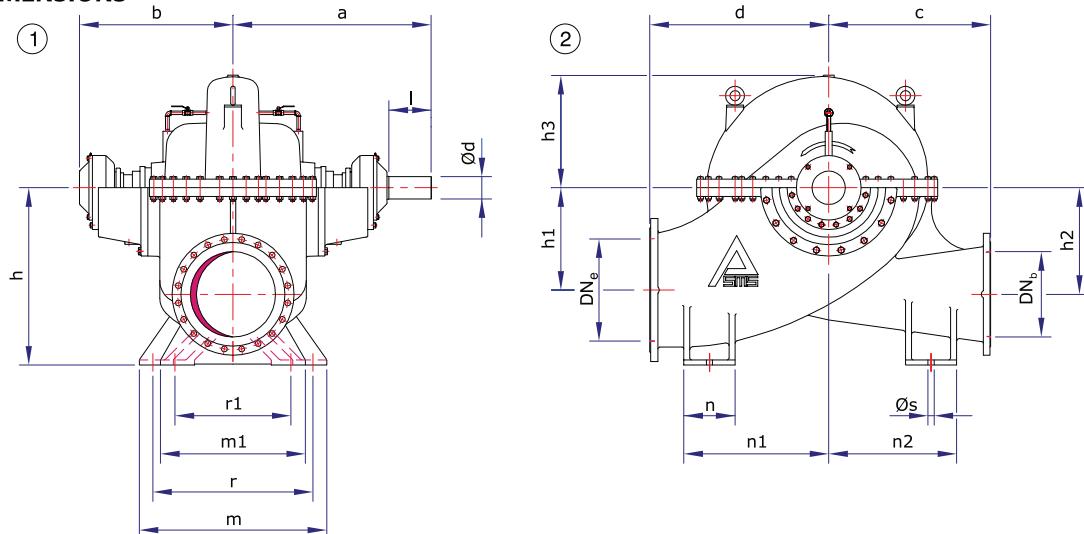
5.4. Excessive power consumption

- Manometric head value might be under the value written on the pump name plate. Please note that for centrifugal and semi-centrifugal impellers; pumps absorb more power when the head value is lower than its designed one; however it is the opposite case for mixed flow and propeller impellers.
- It can be due to cavitation; therefore stop the pump and follow the previous notes to find the reason.
- Mechanical problem might occur in the pump. So first stop the pump and inspect. Problem can be due to impeller, sealing rings or due unwanted particles in the pump or impeller. It can also depend on a broken bearing or misalignment of flexible coupling, etc.
- Density of the pumped liquid might be high. Check the density of liquid as well as its viscosity.
- Sealing of pump might be over tightened. Please stop the pump and check.
- Sealing might not getting enough water. Stop the pump and find the way to get the necessary water.
- There might be problem in the motor connection to power supply; please check.

5.5. Abnormal or excessive noise

- In case of cavitation, stop the pump and follow the previous notes to solve the problem.
- Misalignment in the flexible pump-motor coupling. Stop the pump and follow the previous notes to correct it.
- Foreign object might entered into the pump. Please check by disassembling the upper casing.
- Pump bearings might be broken. Check the bearings and change them if necessary.
- A part of the pump impeller might be broken which is causing an excessive noise while the pump is running. Replace the pump impeller with a new one.

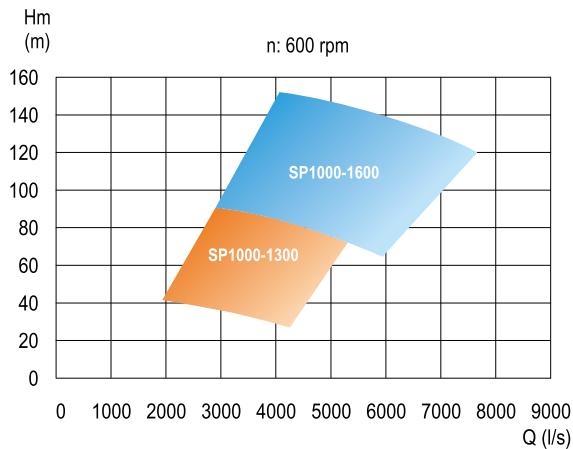
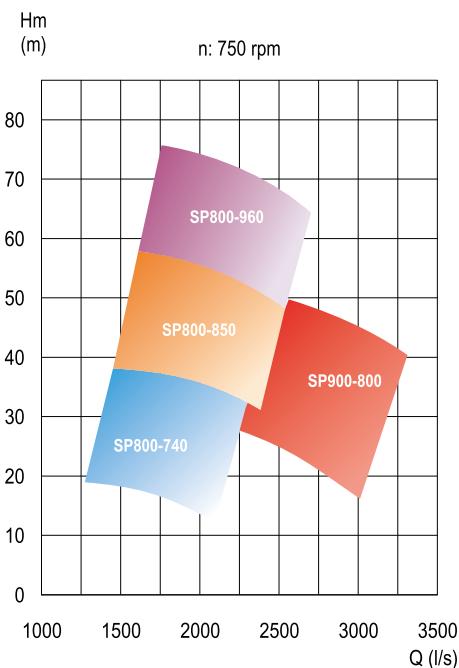
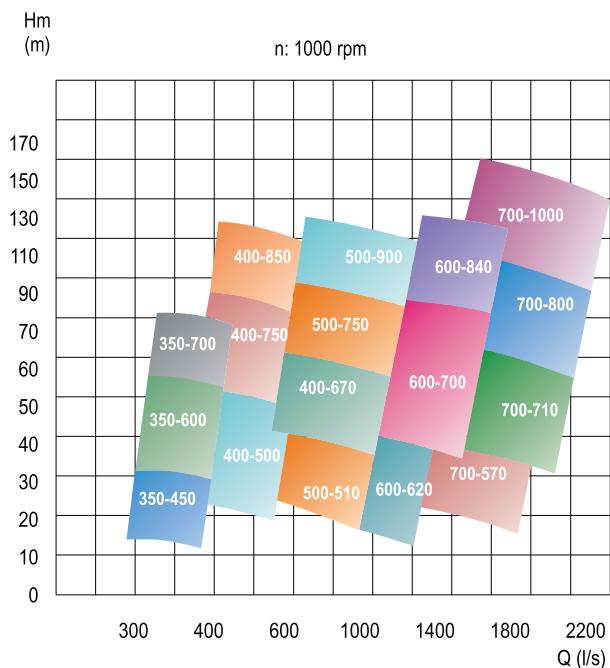
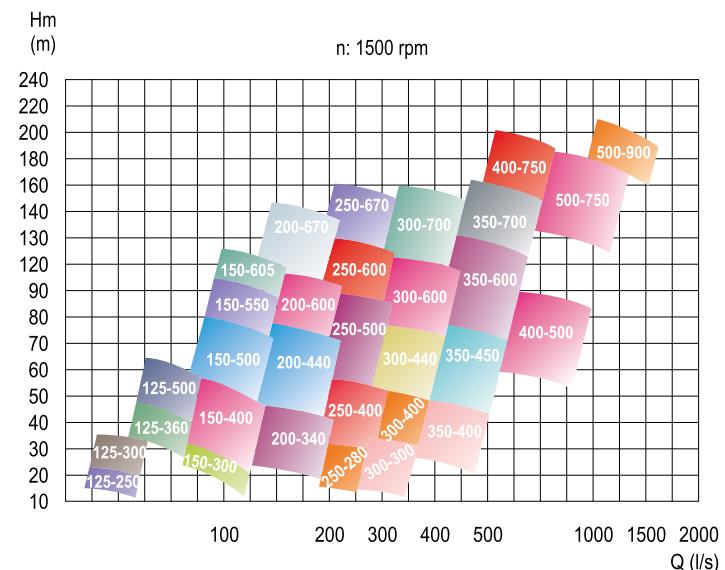
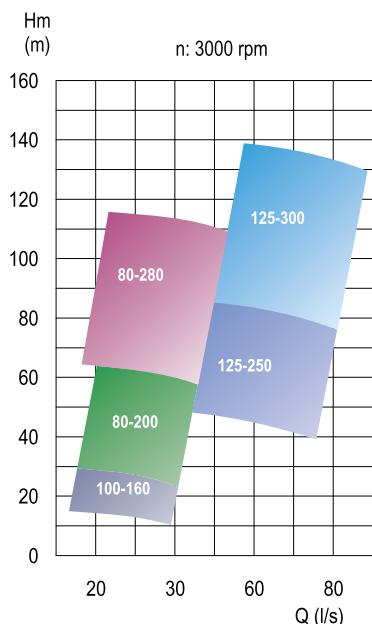
6. DIMENSIONS



SMS NO	SPLIT TYPE	FLANGE		PUMP DIMENSIONS									ASSEMBLY							SHAFT DIMENSIONS			WEIGHT kg
		DN _e	DN _b	a	b	c	d	h	h1	h2	h3	m	m1	n	n1	n2	r	r1	s	d	I		
483	80-200	125	80	334	263	200	250	280	143	163	260	260	-	70	160	130	210	-	19	24	60	104	
480	80-280	125	80	355	282	250	250	295	158	158	190	300	-	105	188	188	250	-	19	34	60	135	
482	100-160	125	100	334	263	200	250	420	127	127	155	260	-	70	160	130	210	-	19	24	60	90	
488	125-250	150	125	425	330	250	300	330	178	178	210	360	-	85	200	170	300	-	23	34	80	175	
489	125-300	150	125	490	365	300	350	369	215	215	235	380	-	100	250	220	330	-	23	39	110	230	
491	125-360	200	125	525	411	350	400	435	230	250	270	320	-	100	250	220	270	-	23	49	110	365	
490	125-500	200	125	525	411	350	400	455	271	271	309	320	-	100	250	220	270	-	23	49	110	325	
492	150-300	200	150	510	410	350	350	440	250	250	260	320	-	80	300	300	250	-	27	40	110	375	
493	150-400	250	150	530	416	400	450	485	276	276	315	360	-	100	300	250	250	-	23	49	110	420	
494	150-500	200	150	560	450	400	450	485	307	307	345	420	-	100	300	250	390	-	27	50	110	470	
494.5	150-550	250	150	560	450	450	500	532	318	318	368	400	-	130	365	365	350	-	23	50	110	540	
495	150-605	200	150	560	450	560	560	500	326	326	380	420	-	100	375	375	350	-	27	50	110	560	
496	200-340	250	200	575	461	350	425	495	279	279	320	400	-	100	300	250	370	-	23	49	110	500	
497	200-440	250	200	700	550	450	500	540	326	326	378	430	-	100	350	350	380	-	23	59	130	650	
498	200-600	250	200	695	550	500	550	570	357	357	410	500	-	120	380	330	450	-	23	68	140	960	
499	200-670	250	200	720	572	550	600	620	410	410	433	450	-	80	415	365	400	-	27	68	140	910	
501	250-280	300	250	585	471	400	500	540	296	296	364	400	-	100	300	250	330	-	23	49	110	550	
502	250-400	300	250	705	555	450	550	580	338	338	400	450	-	100	400	325	400	-	27	59	130	730	
503	250-500	300	250	720	572	550	550	550	300	325	405	450	-	100	325	325	400	-	27	68	140	820	
503.5	250-600	300	250	745	565	600	600	690	424	424	445	550	-	150	420	420	450	-	27	74	170	1235	
504	250-670	300	250	830	640	600	600	680	440	440	463	550	-	120	400	400	470	-	27	78	190	1450	
507	300-300	350	300	704	555	500	650	610	342	342	390	550	-	180	420	370	490	-	30	59	130	860	
510	300-400	350	300	737	589	550	650	620	355	355	400	600	-	180	500	400	530	-	27	68	140	1050	
508	300-440	350	300	760	611	550	600	675	389	389	455	600	-	180	440	390	530	-	27	68	140	1100	
505	300-600	350	300	820	665	750	750	725	455	455	470	600	-	200	540	540	500	-	33	80	160	1600	
506	300-700	350	300	900	695	750	800	740	525	525	525	690	-	180	640	560	510	-	35	87	200	1930	
511	350-400	450	350	775	625	550	650	705	380	380	450	750	-	200	500	400	680	-	27	75	140	1350	
514	350-450	450	350	825	670	600	700	700	371	371	450	710	-	200	570	470	600	-	33	80	160	1550	
512	350-600	400	350	900	695	700	800	835	493	493	520	725	-	207	610	550	660	-	33	87	200	2350	
513	350-700	400	350	920	730	700	800	825	470	470	535	850	-	210	600	600	710	-	35	95	190	2700	
523	400-500	500	400	880	675	625	850	845	440	515	515	907	-	255	515	490	787	-	34	74	170	2400	
528	400-670	500	400	1010	780	775	1015	865	420	565	600	950	700	250	650	550	800	550	33	100	210	3750	
525	400-750	500	400	970	750	800	850	850	470	470	555	800	-	250	550	550	700	-	31	100	210	3100	
529	400-850	500	400	1090	830	850	1015	865	420	565	640	950	700	250	650	550	800	550	33	100	250	3920	
515	500-510	600	500	900	715	600	850	925	520	520	590	700	-	200	650	450	660	-	31	80	190	2400	
526	500-750	600	500	1075	873	900	900	943	503	503	620	900	-	250	700	700	800	-	31	120	250	4100	
530	500-900	600	500	1165	900	950	1050	1040	600	625	660	1100	-	300	850	750	940	680	36	130	250	5000	
516	600-620	700	600	985	800	550	1000	1035	565	565	640	950	820	200	750	350	850	710	31	80	190	3450	
518	600-700	700	600	950	1210	1000	1100	1050	576	576	680	1100	-	300	800	800	800	-	41	120	250	4620	
527	600-840	800	600	1260	995	1100	1100	1160	613	613	740	1200	1100	350	800	800	1000	900	41	130	250	6750	
520	700-570	800	700	1300	1090	800	1300	1150	600	600	750	1200	900	350	900	600	1000	700	36	95	210	4450	
536	700-710	800	700	1230	1055	895	1200	1334	724	784	810	1200	900	350	900	850	1000	700	41	100	210	7300	
521	700-800	800	700	1348	1100	1200	1200	1200	650	650	760	1200	-	350	950	950	1000	-	41	160	280	7340	
531	700-960	800	700	1550	1304	1100	1450	1550	1000	1000	1060	1570	1370	410	1050	850	1320	1120	41	160	280	12600	
532	800-740	900	800	1365	1135	950	1450	1375	800	800	925	1400	1200	300	1250	750	1300	1100	36	100	210	8520	
533	800-850	900	800	1450	1190	1125	1400	1360	770	770	940	1300	1000	400	950	900	1100	800	36	115	250	9400	
534	800-960	900	800	1570	1270	1300	1400	1360	760	760	900	1300	1000	400	1000	1000	1100	800	36	135	280	10200	
535	900-800	1000	900	1470	1205	1100	1500	1550	912	912	1045	1550	-	400	1250	850	1350	-	41	130	250	11200	
540	1000-1300	1200	1000	1705	1335	1400	1800	1740	976	976	1160	1500	-	400	1400	1000	1300	-	41	200	350	18900	
542	1000-1600	1300	1000	1775	1420	1600	2000	2025	1200	1200	1350	1600	-	400	1600	1200	1400	-	41	245	400	30000	

Dimensions are in "mm".

7. PERFORMANCE ZONES





Performance Curves

3000rpm

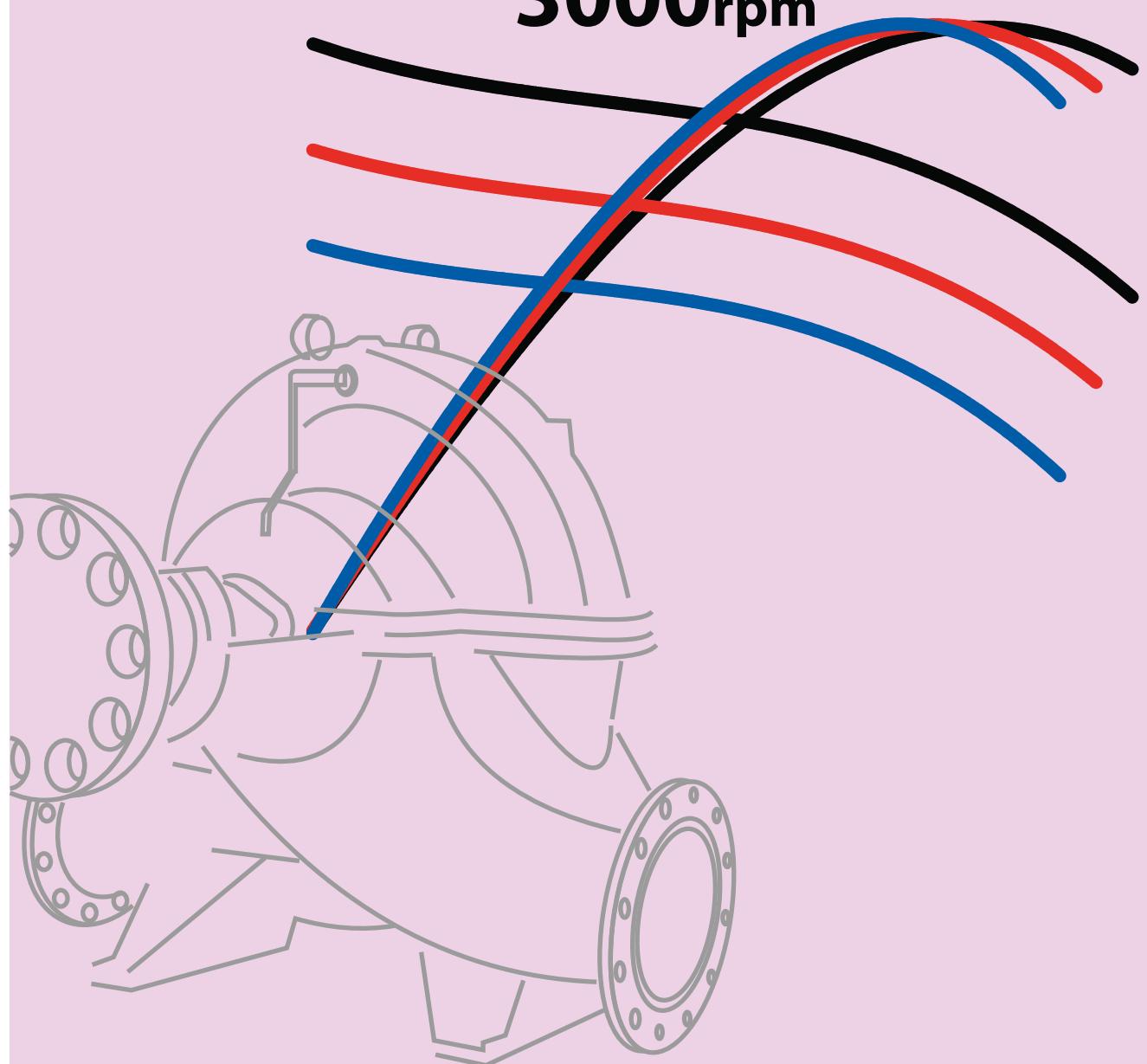
1500rpm

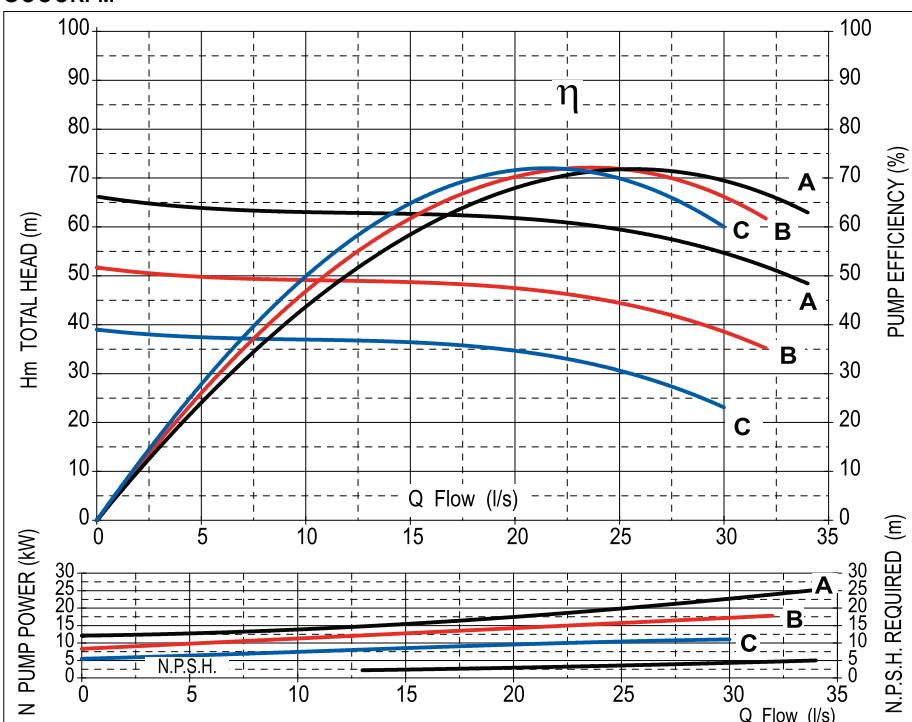
1000rpm

750rpm

600rpm

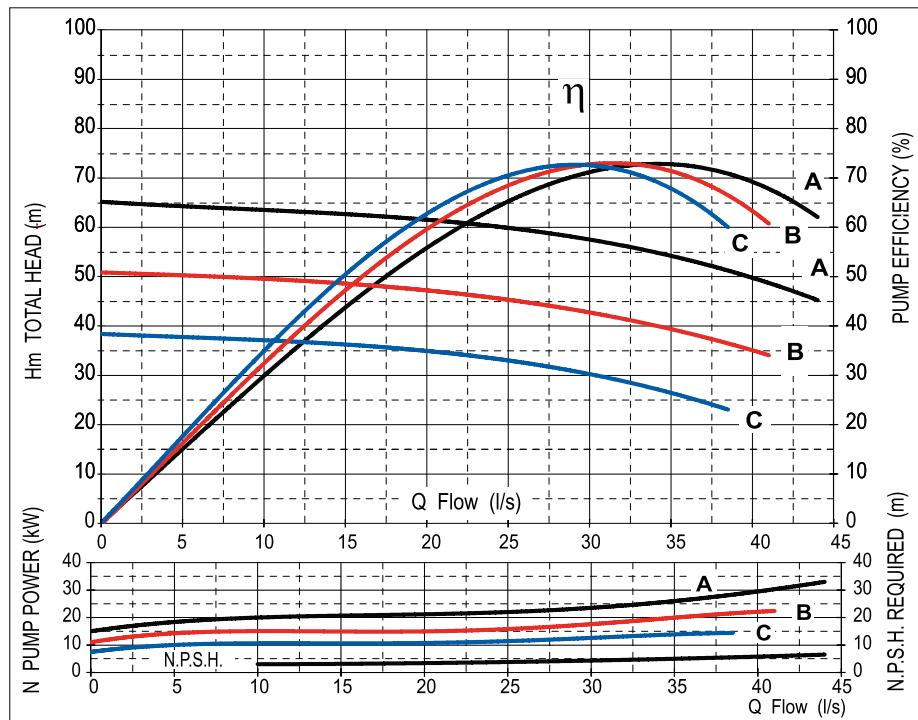
Performance Curves 3000rpm



3000RPM


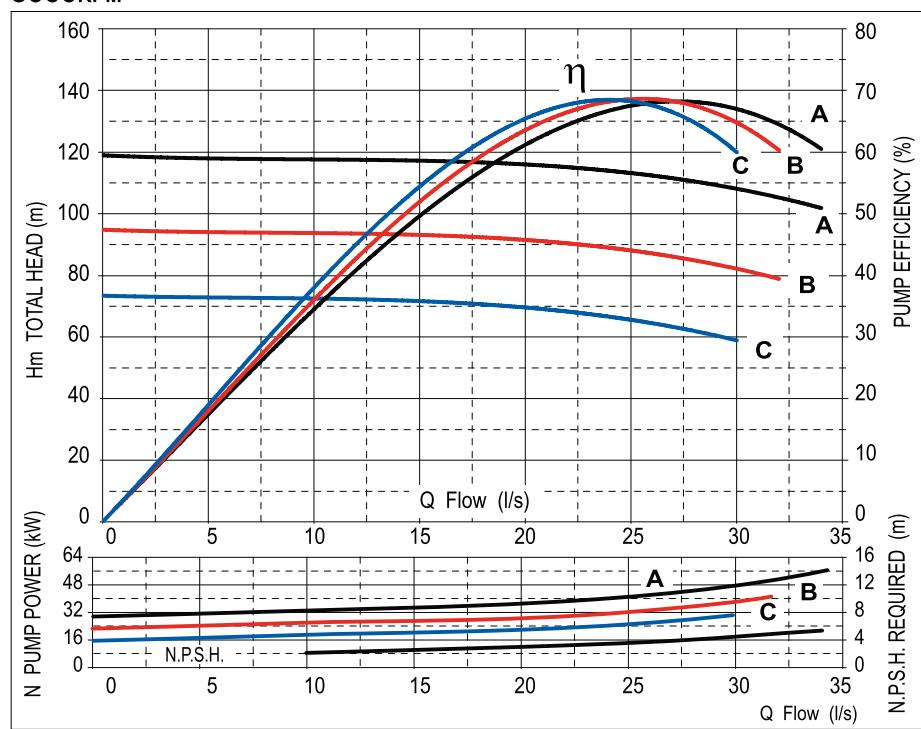
Barometric Head	0 m	Suction Diameter	DN125	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN80	
liquid Density	1g/cm³	Pump Weight	104kg	
Liquid viscosity	1 cs			
PUMP MODEL: SP80-200	SERIAL NO: 483A			

- A = Ø 215
- B = Ø 190
- C = Ø 165

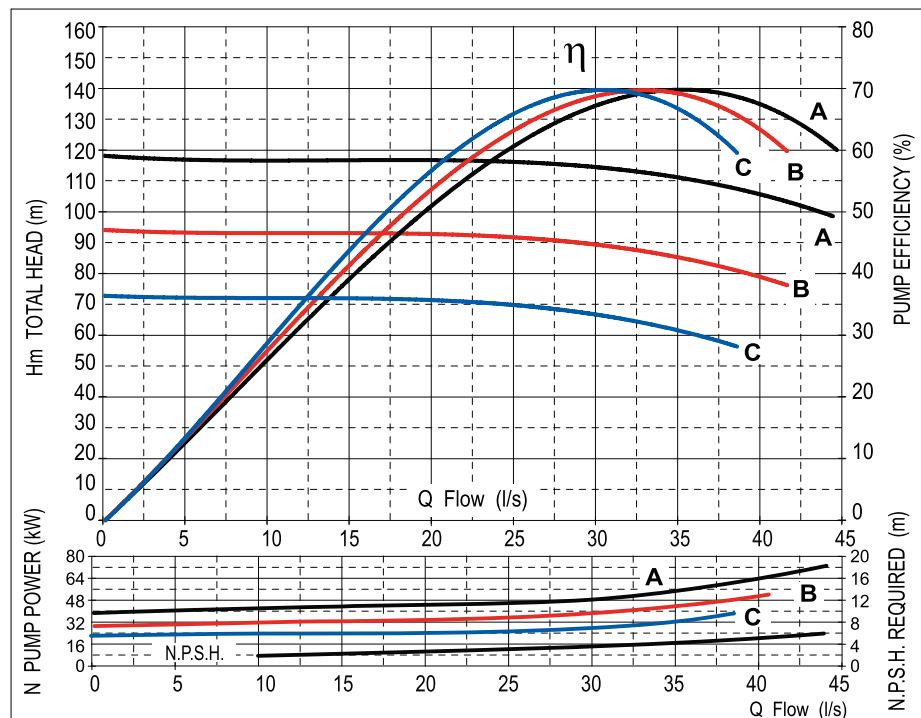
3000RPM


Barometric Head	0 m	Suction Diameter	DN125	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN80	
liquid Density	1g/cm³	Pump Weight	104kg	
Liquid viscosity	1 cs			
PUMP MODEL: SP80-200	SERIAL NO: 483B			

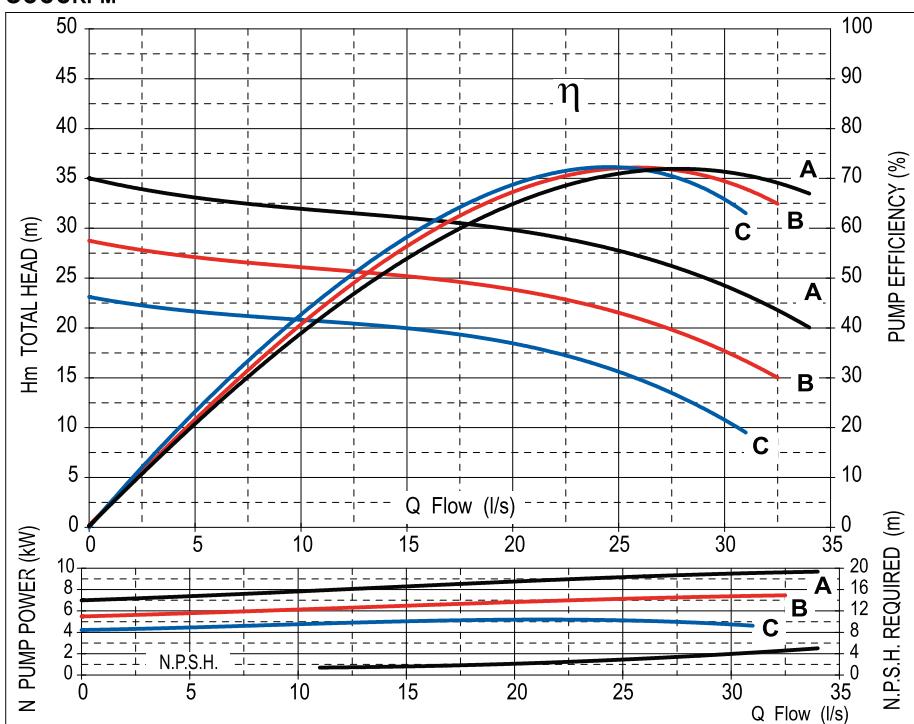
- A = Ø 215
- B = Ø 190
- C = Ø 165

3000RPM


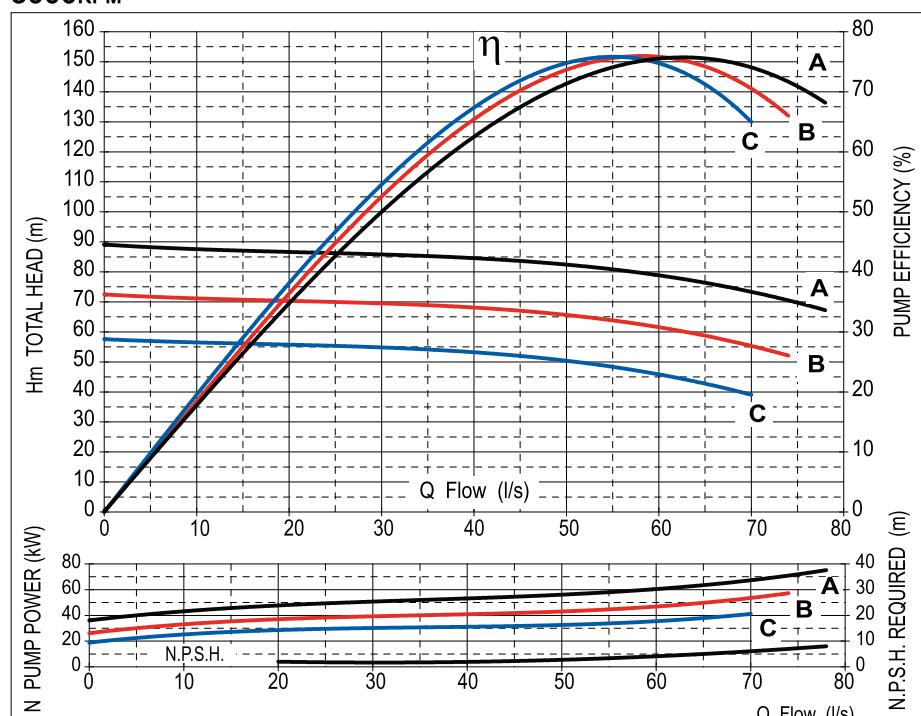
Barometric Head	0 m	Suction Diameter	DN125	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN80	
Liquid Density	1g/cm³	Pump Weight	135kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP80-280	SERIAL NO: 480A			

3000RPM


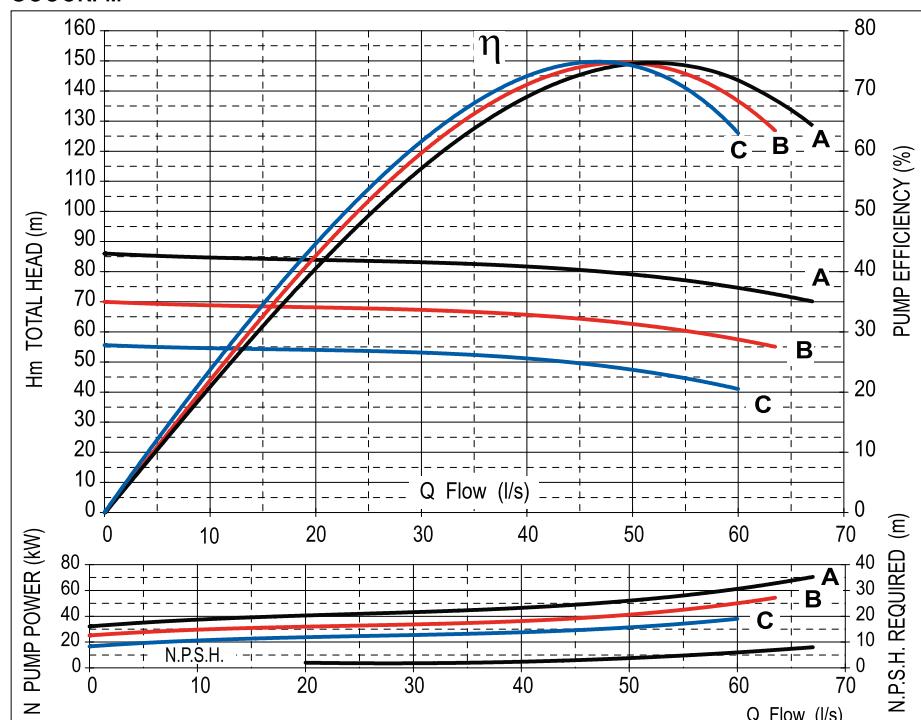
Barometric Head	0 m	Suction Diameter	DN125	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN80	
Liquid Density	1g/cm³	Pump Weight	135kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP80-280	SERIAL NO: 480B			

3000RPM


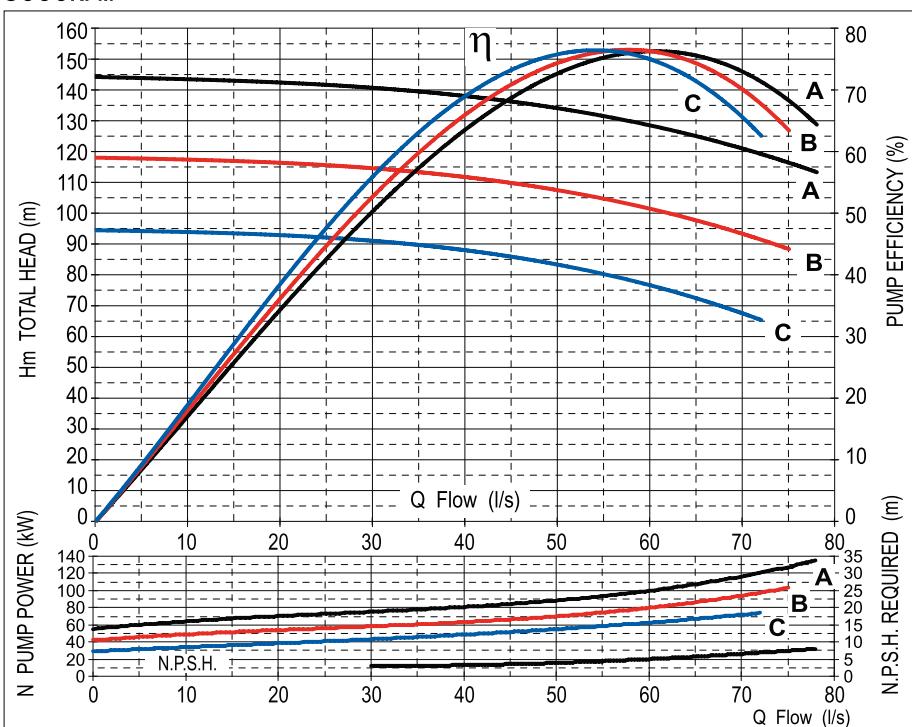
Barometric Head	0 m	Suction Diameter	DN125	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN100	● A = Ø 160
Liquid Density	1g/cm ³	Pump Weight	90kg	● B = Ø 145
Liquid Viscosity	1 cs			● C = Ø 130
PUMP MODEL: SP100-160		SERIAL NO: 482A		

3000RPM


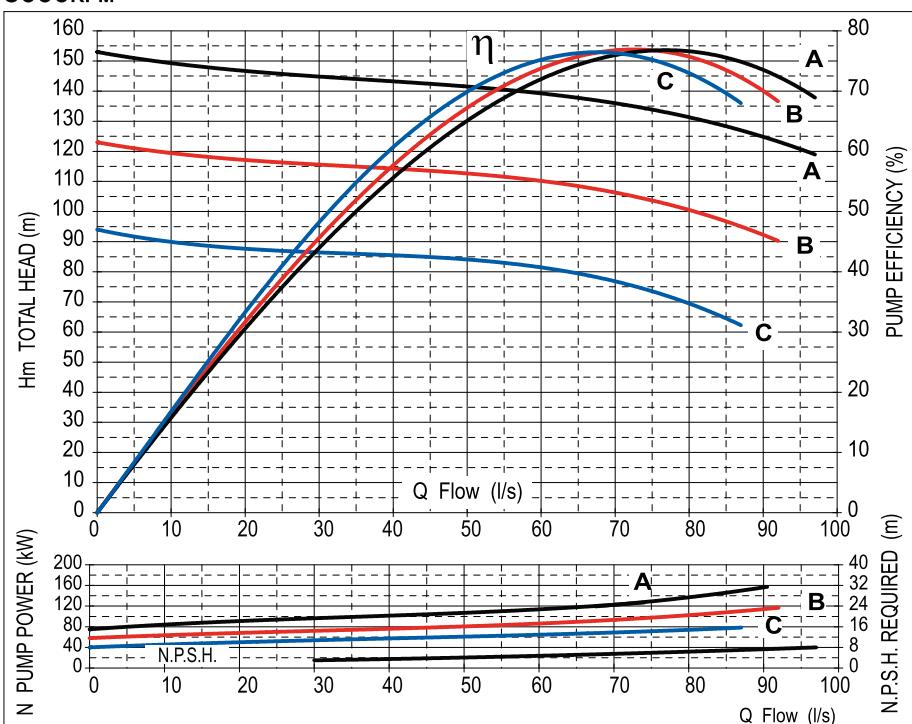
Barometric Head	0 m	Suction Diameter	DN150	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN125	
Liquid Density	1g/cm³	Pump Weight	175kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP125-250	SERIAL NO: 488A			

3000RPM


Barometric Head	0 m	Suction Diameter	DN150	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN125	
Liquid Density	1g/cm³	Pump Weight	175kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP125-250	SERIAL NO: 488B			

3000RPM


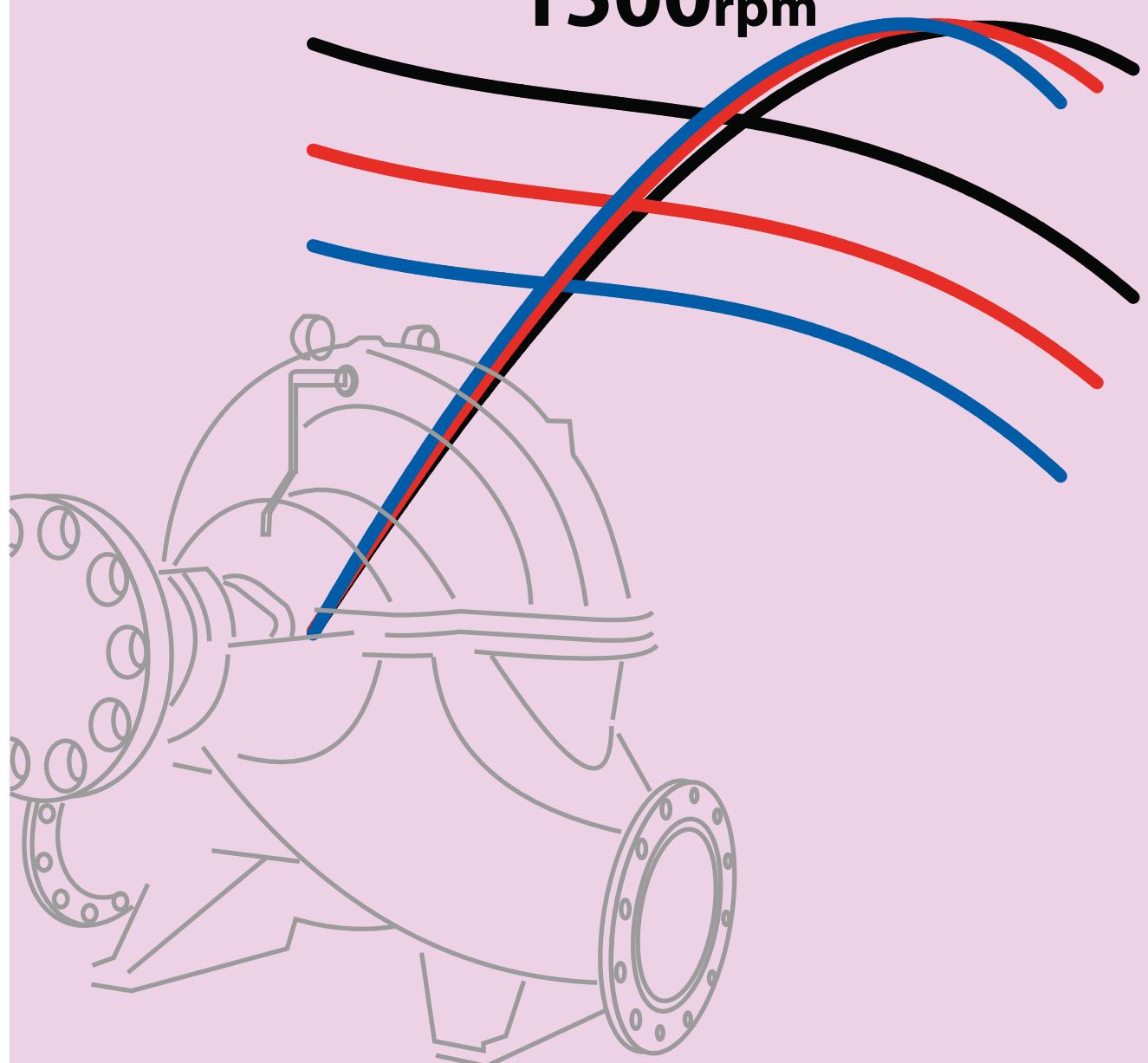
Barometric Head	0 m	Suction Diameter	DN150	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN125	
Liquid Density	1g/cm ³	Pump Weight	230kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP125-300		SERIAL NO: 489A		

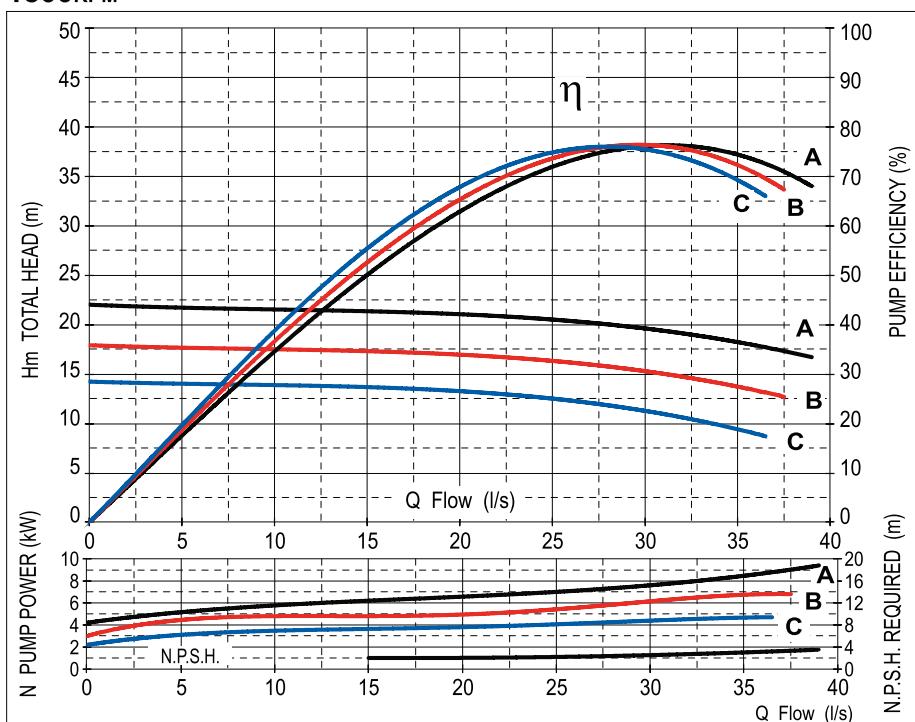
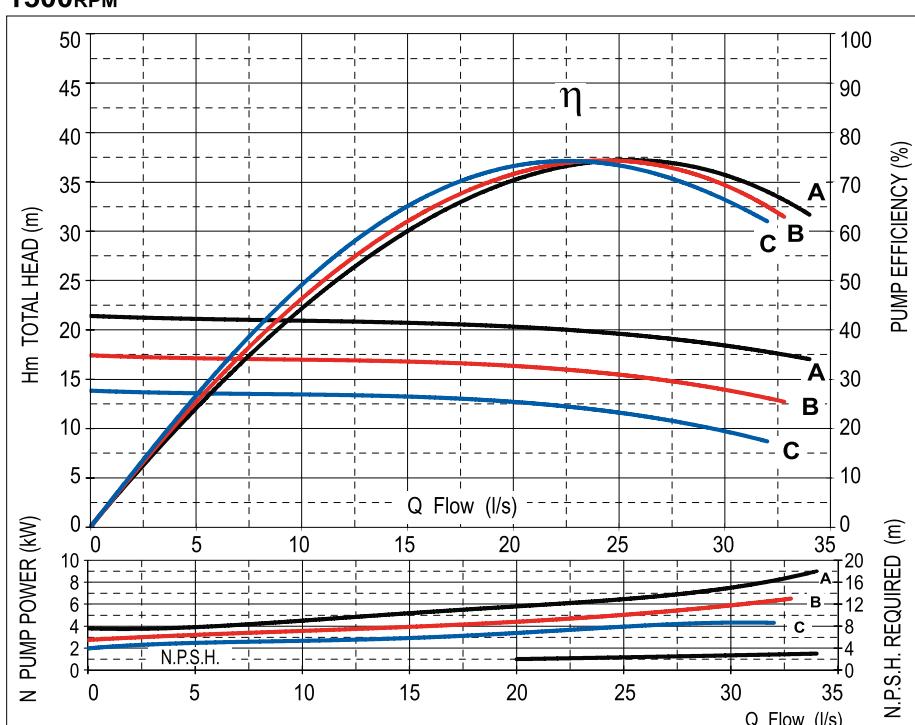
3000RPM


Barometric Head	0 m	Suction Diameter	DN150	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN125	
Liquid Density	1g/cm ³	Pump Weight	230kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP125-300		SERIAL NO: 489B		

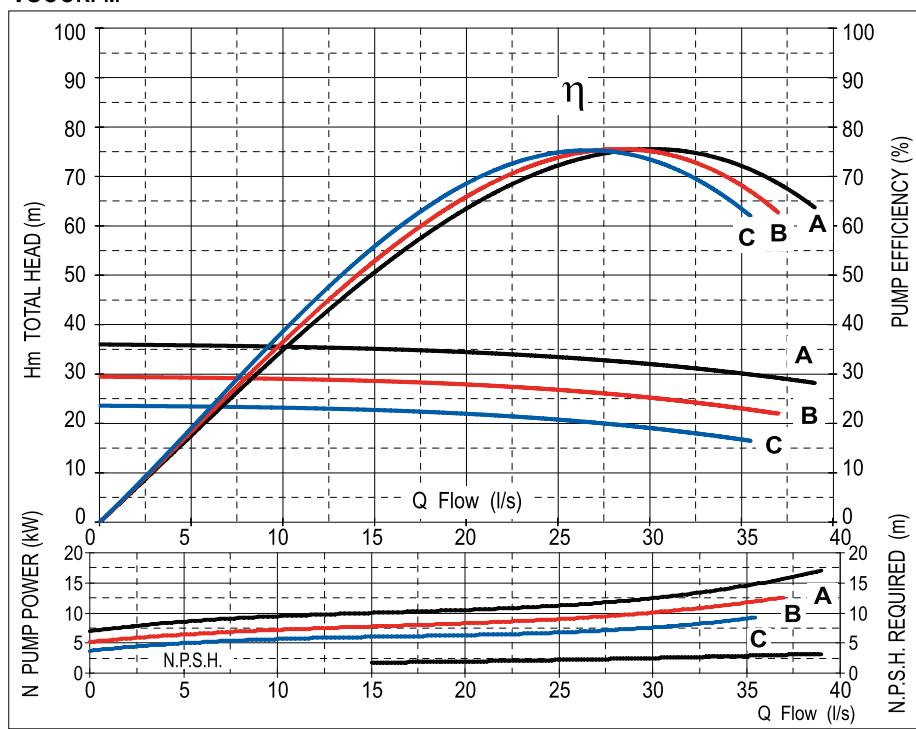
Performance Curves

1500rpm

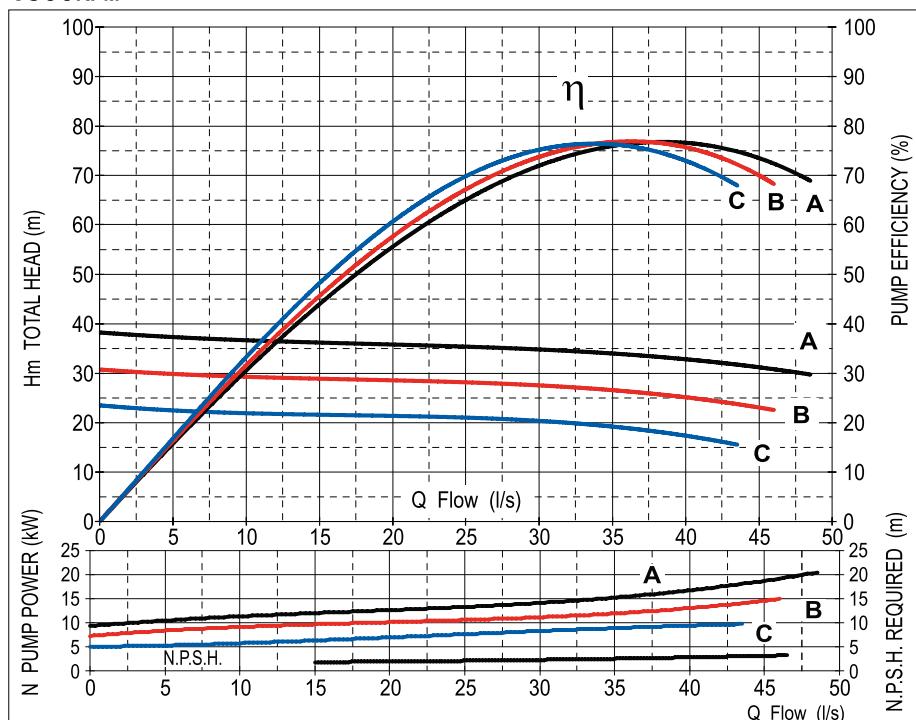


1500RPM

1500RPM


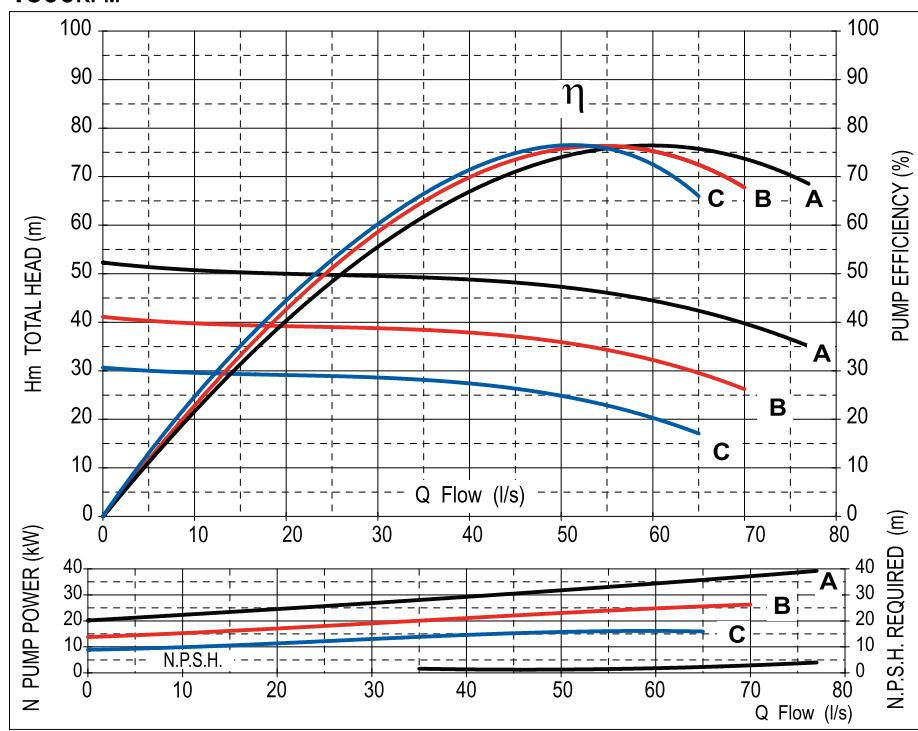
Barometric Head	0 m	Suction Diameter	DN150	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN125	
Liquid Density	1g/cm³	Pump Weight	175kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP125-250		SERIAL NO: 488B		

1500RPM


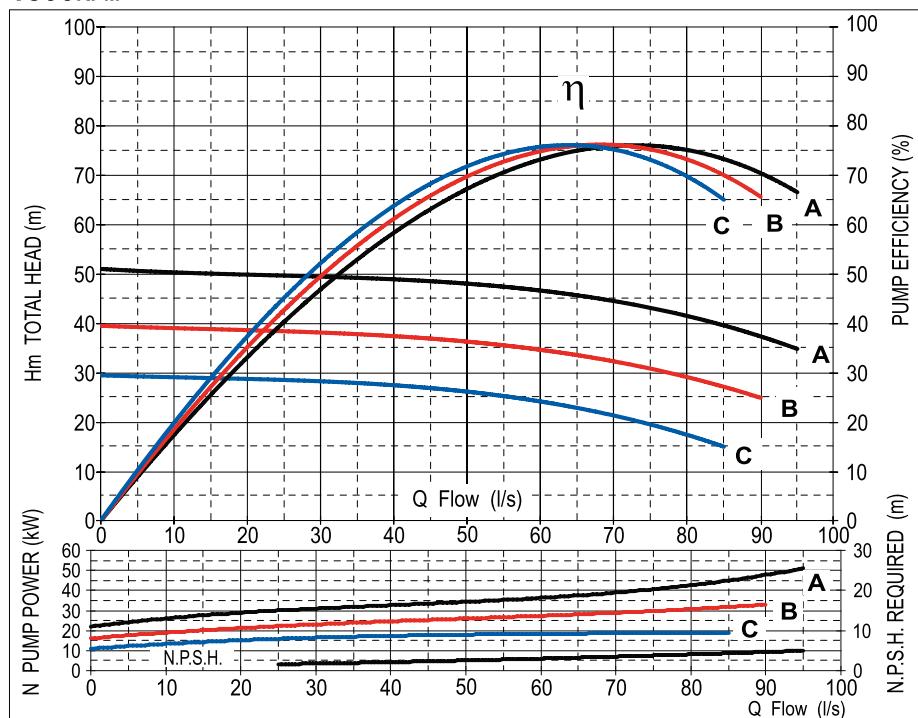
Barometric Head	0 m	Suction Diameter	DN150	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN125	
Liquid Density	1g/cm³	Pump Weight	230kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP125-300		SERIAL NO: 489A		

1500RPM


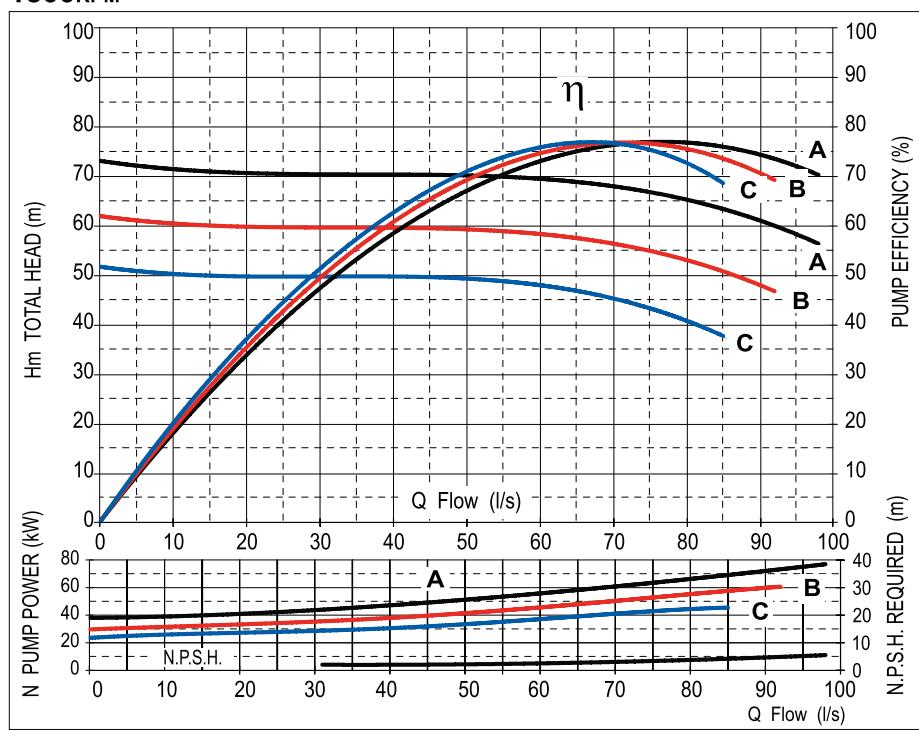
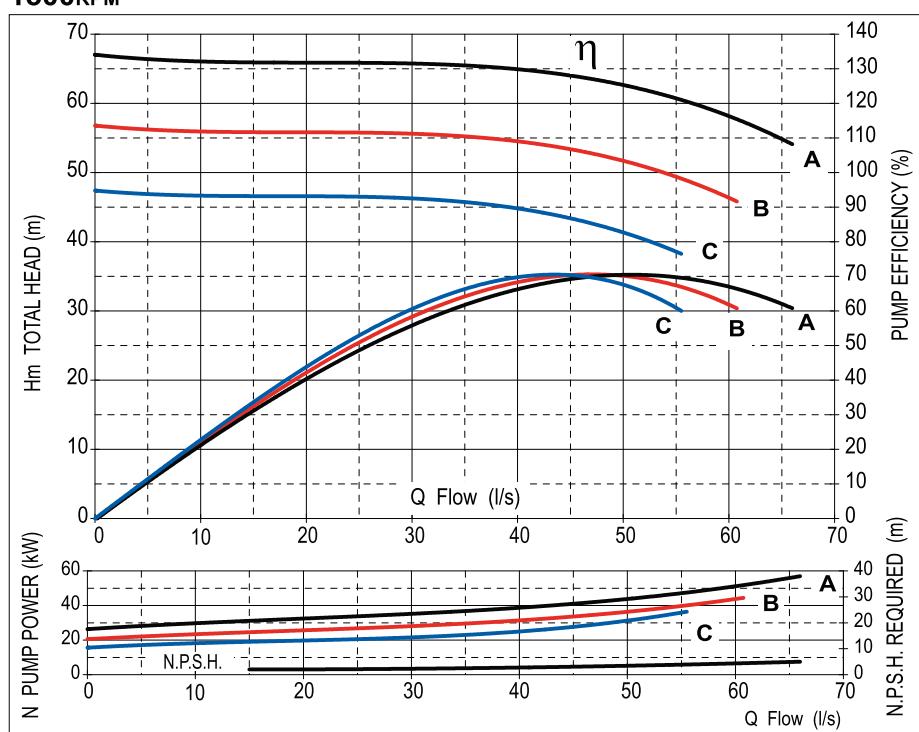
Barometric Head	0 m	Suction Diameter	DN150	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN125	
Liquid Density	1g/cm³	Pump Weight	230kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP125-300		SERIAL NO: 489B		

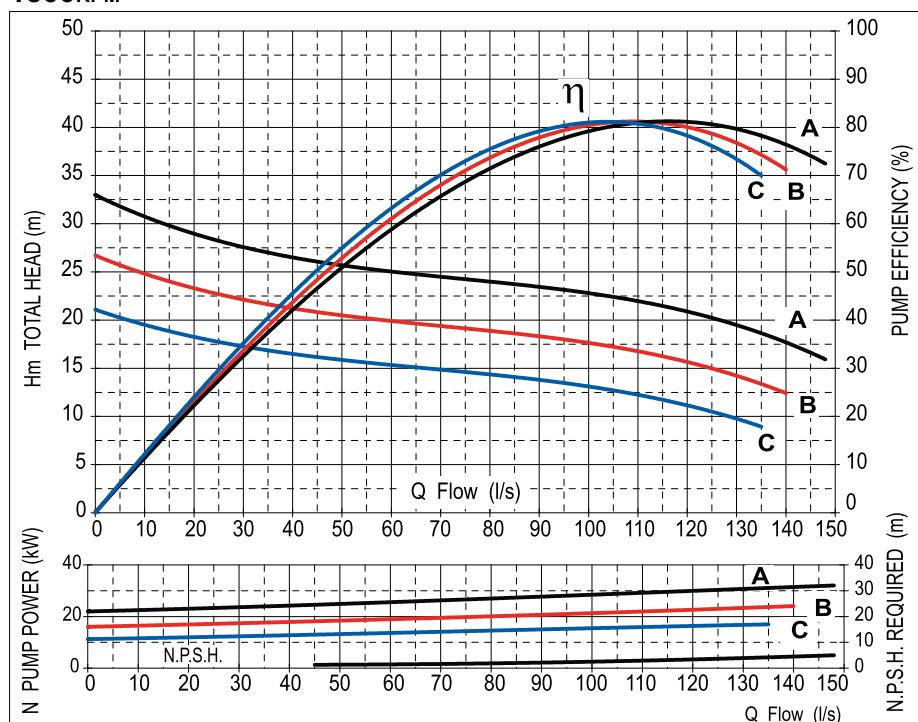
1500RPM


Barometric Head	0 m	Suction Diameter	DN200	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN125	
Liquid Density	1g/cm³	Pump Weight	365kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP125-360	SERIAL NO: 491A			

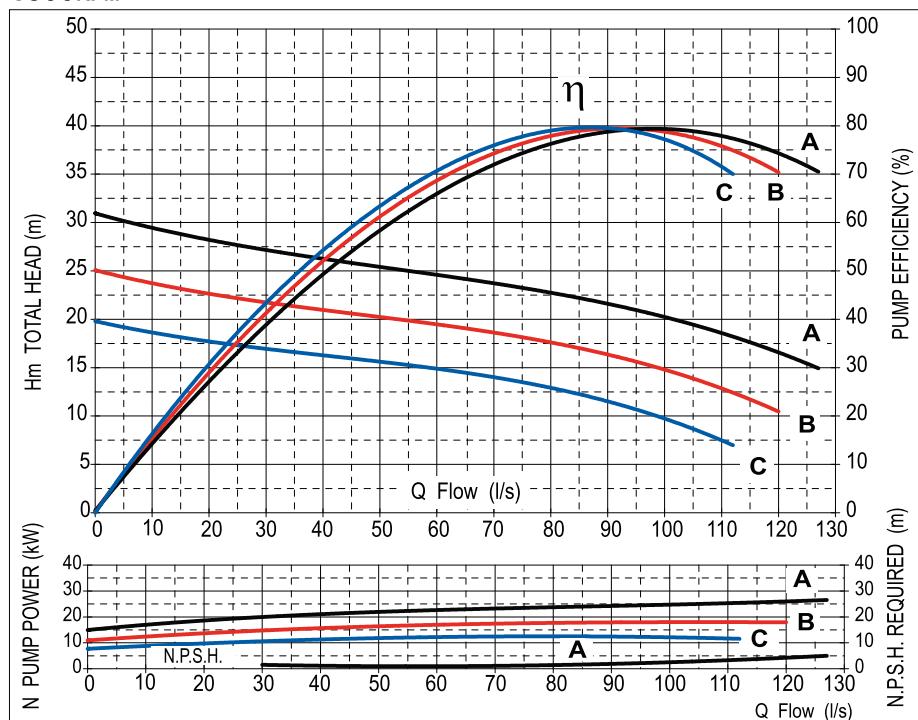
1500RPM


Barometric Head	0 m	Suction Diameter	DN200	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN125	
Liquid Density	1g/cm³	Pump Weight	365kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP125-360	SERIAL NO: 491B			

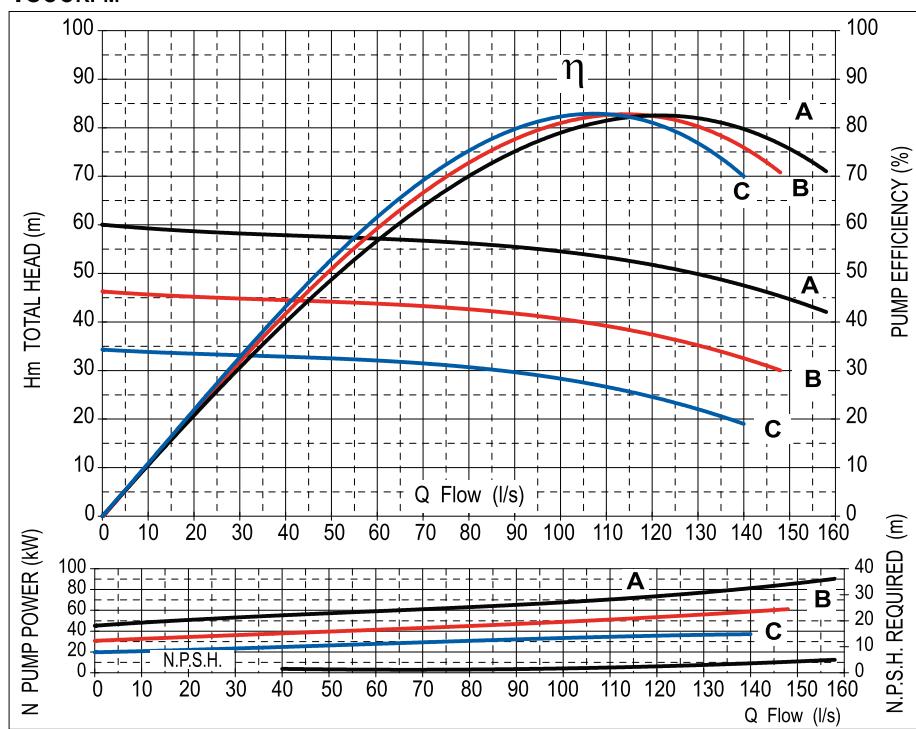
1500RPM

1500RPM


1500RPM


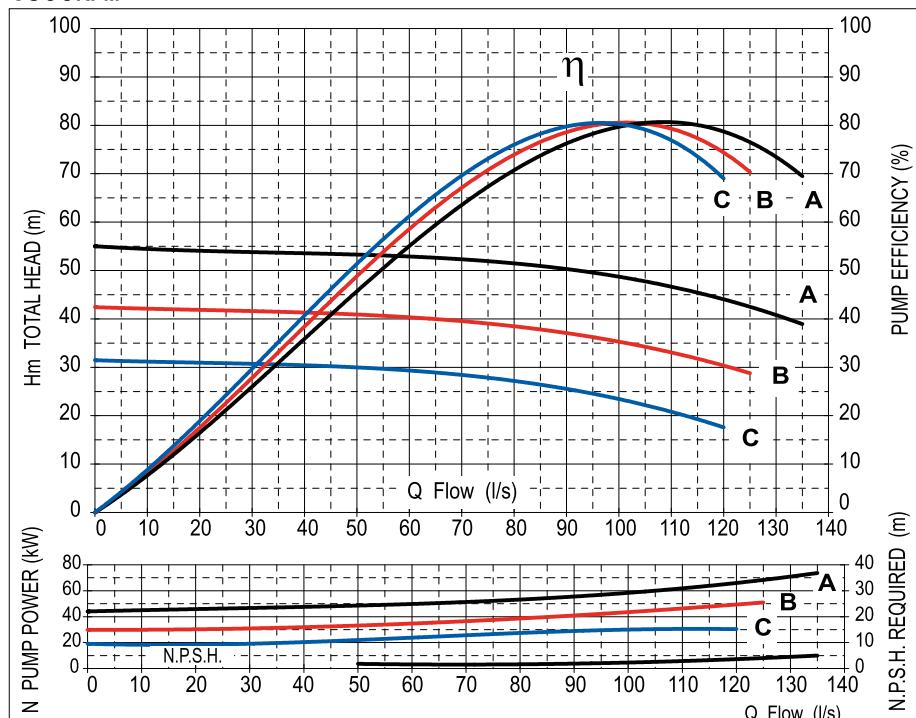
Barometric Head	0 m	Suction Diameter	DN200	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN150	
Liquid Density	1g/cm³	Pump Weight	375kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP150-300	SERIAL NO: 492A			

1500RPM


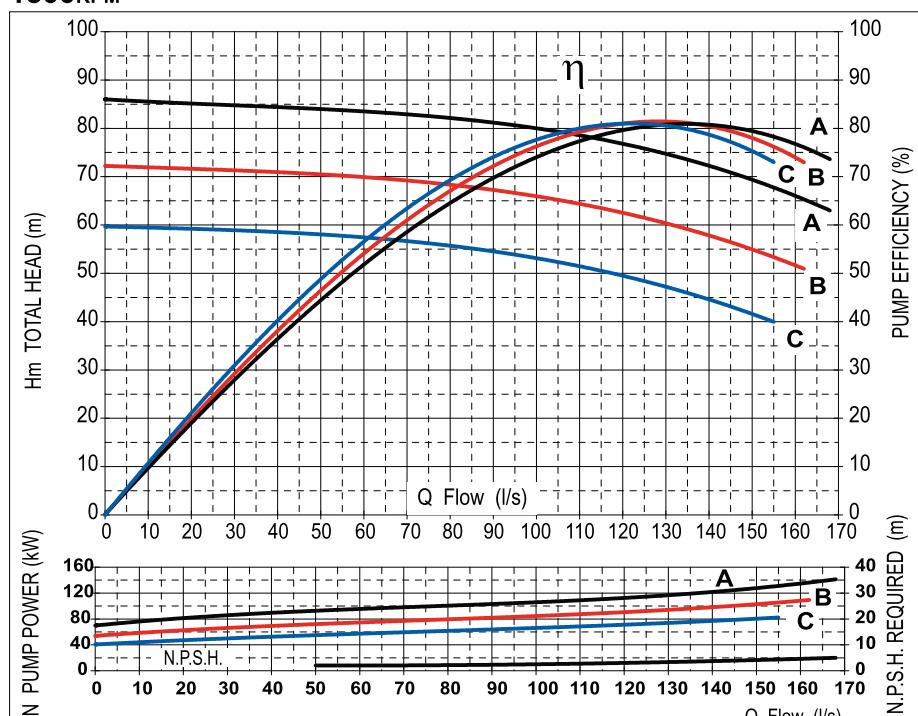
Barometric Head	0 m	Suction Diameter	DN200	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN150	
Liquid Density	1g/cm³	Pump Weight	375kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP150-300	SERIAL NO: 492B			

1500RPM


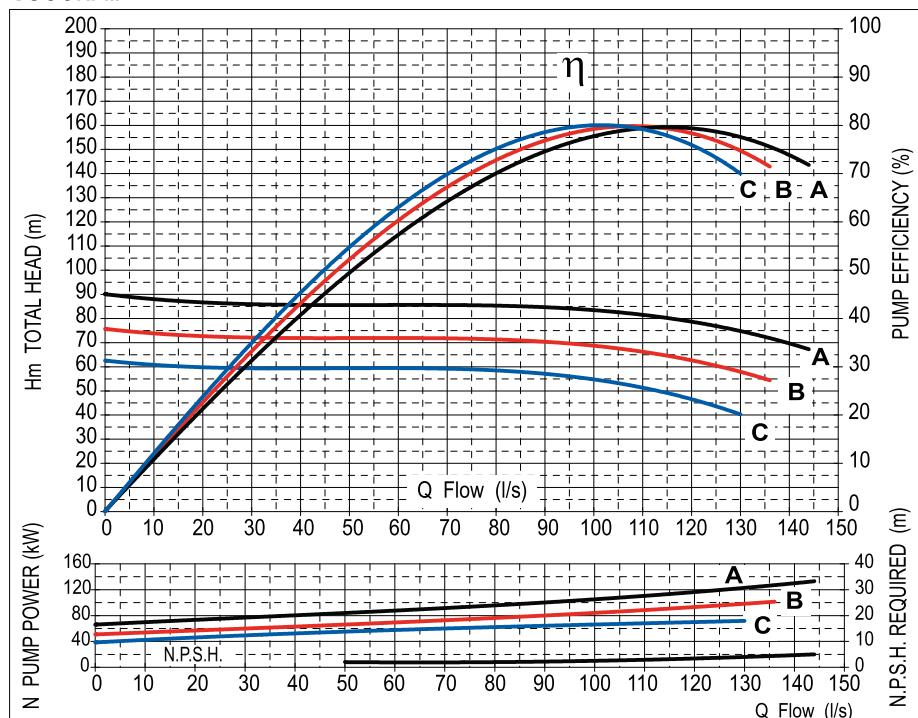
Barometric Head	0 m	Suction Diameter	DN250	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN150	
Liquid Density	1g/cm³	Pump Weight	420kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP150-400	SERIAL NO: 493A			

1500RPM


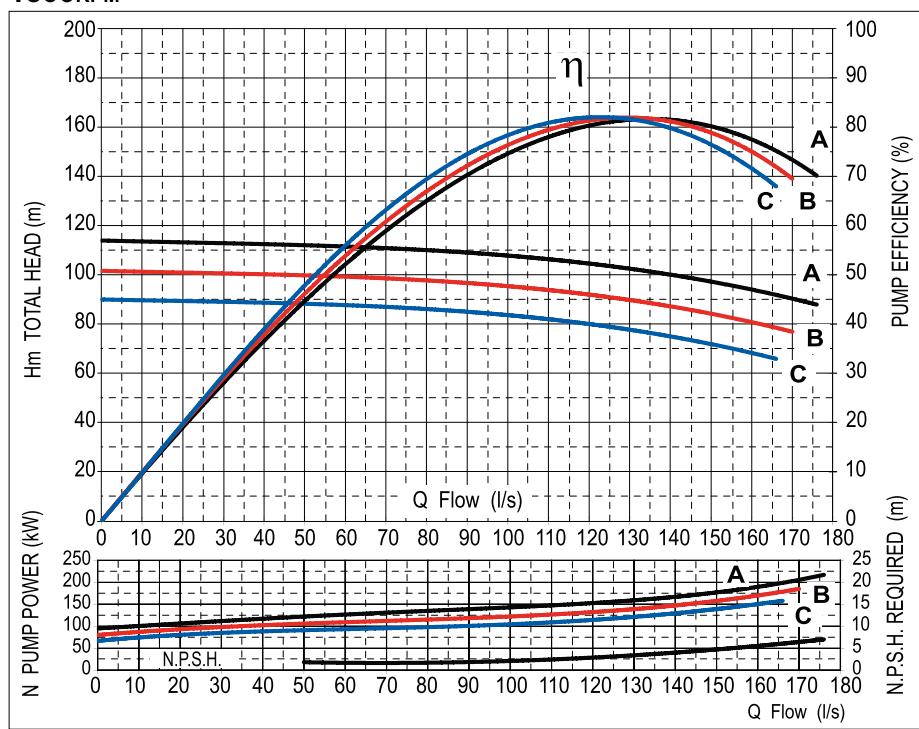
Barometric Head	0 m	Suction Diameter	DN250	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN150	
Liquid Density	1g/cm³	Pump Weight	420kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP150-400	SERIAL NO: 493B			

1500RPM


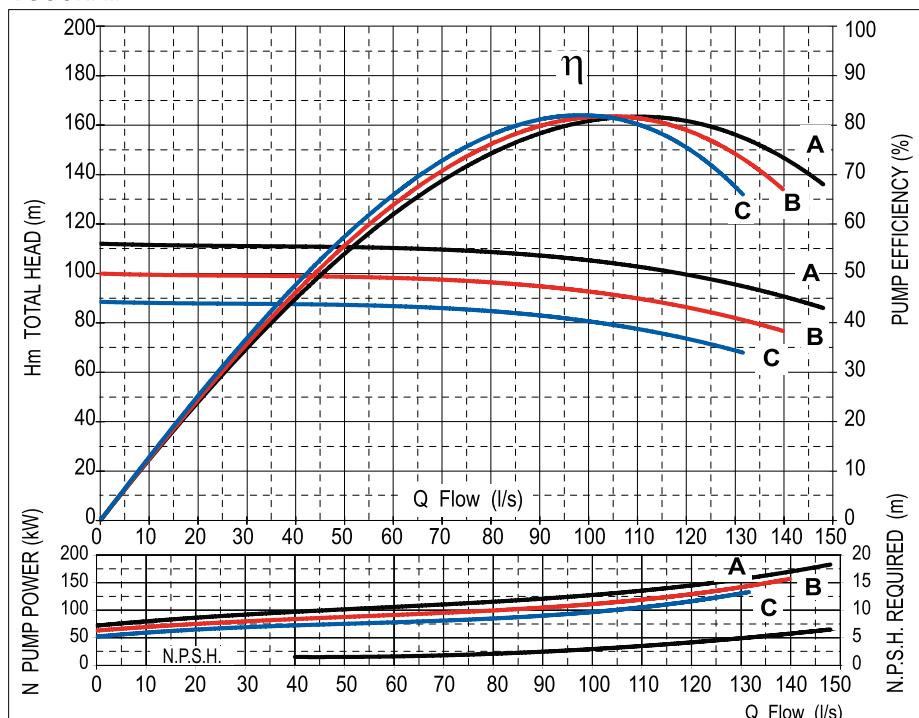
Barometric Head	0 m	Suction Diameter	DN200	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN150	
Liquid Density	1g/cm³	Pump Weight	470kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP150-500	SERIAL NO: 494A			

1500RPM


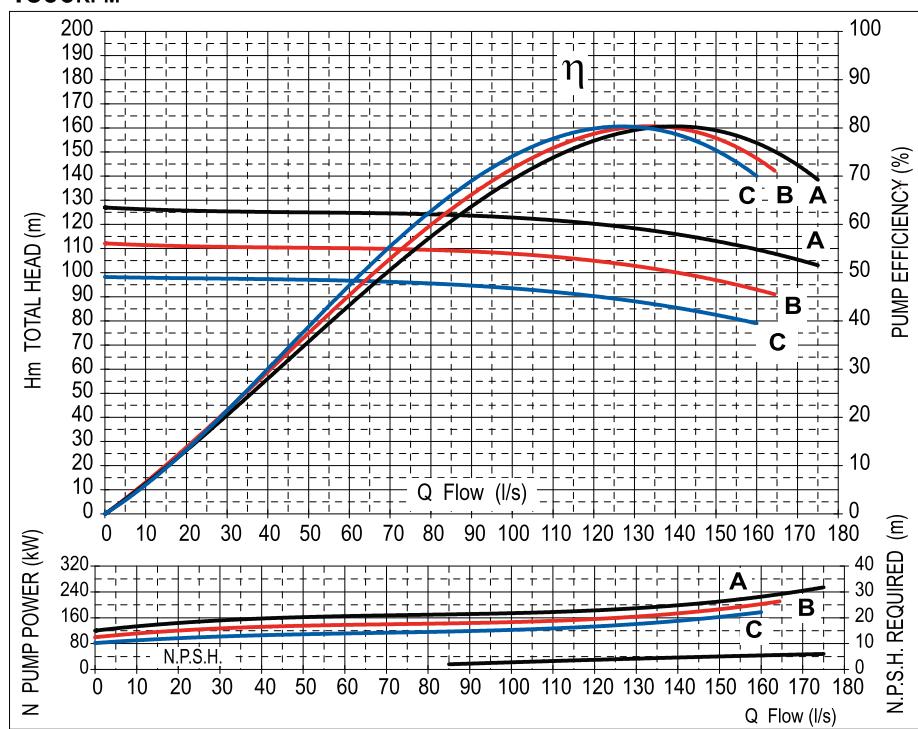
Barometric Head	0 m	Suction Diameter	DN200	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN150	
Liquid Density	1g/cm³	Pump Weight	470kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP150-500	SERIAL NO: 494B			

1500RPM


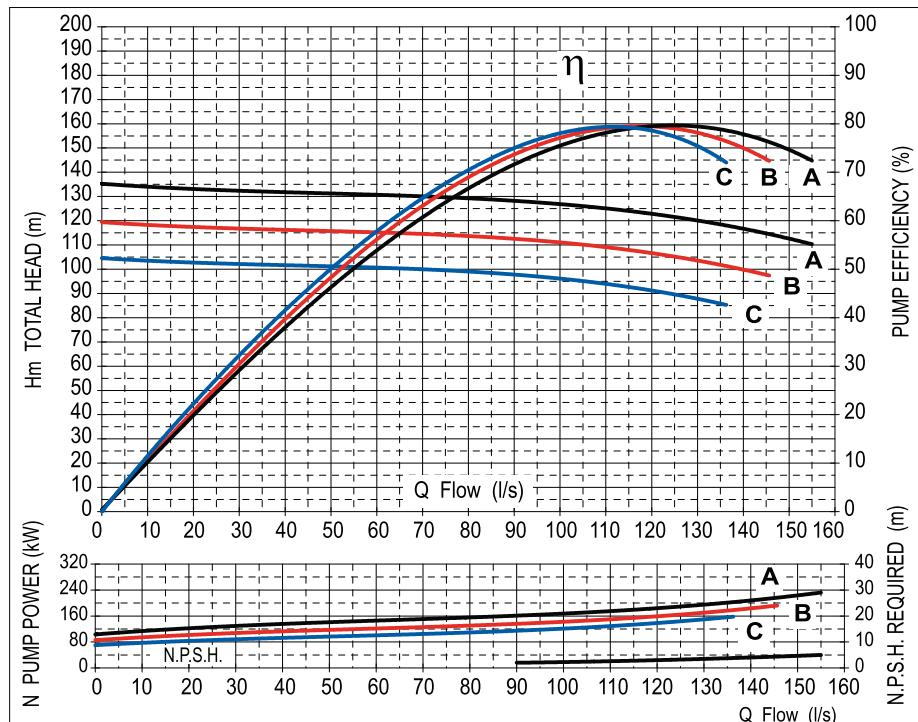
Barometric Head	0 m	Suction Diameter	DN250	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN150	
Liquid Density	1g/cm³	Pump Weight	540kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP150-550	SERIAL NO: 494.5A			

1500RPM


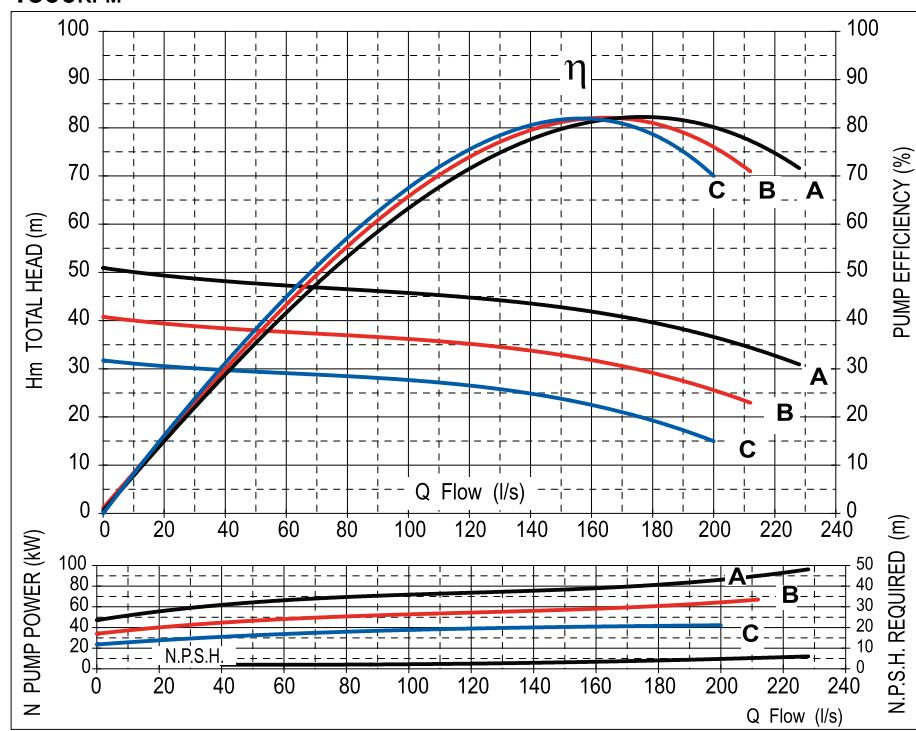
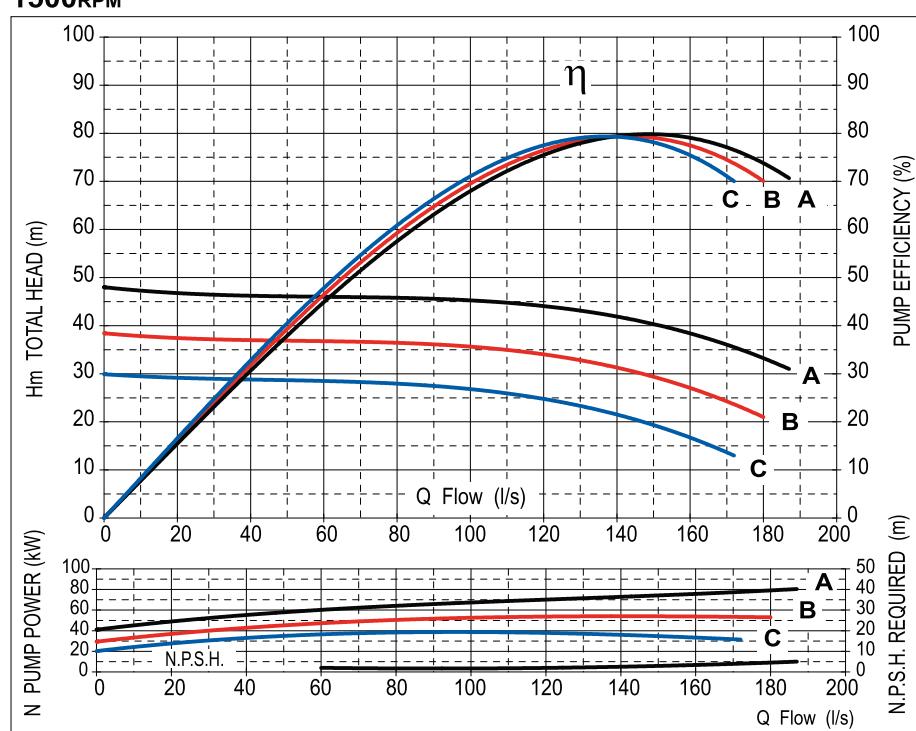
Barometric Head	0 m	Suction Diameter	DN250	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN150	
Liquid Density	1g/cm³	Pump Weight	540kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP150-550	SERIAL NO: 494.5B			

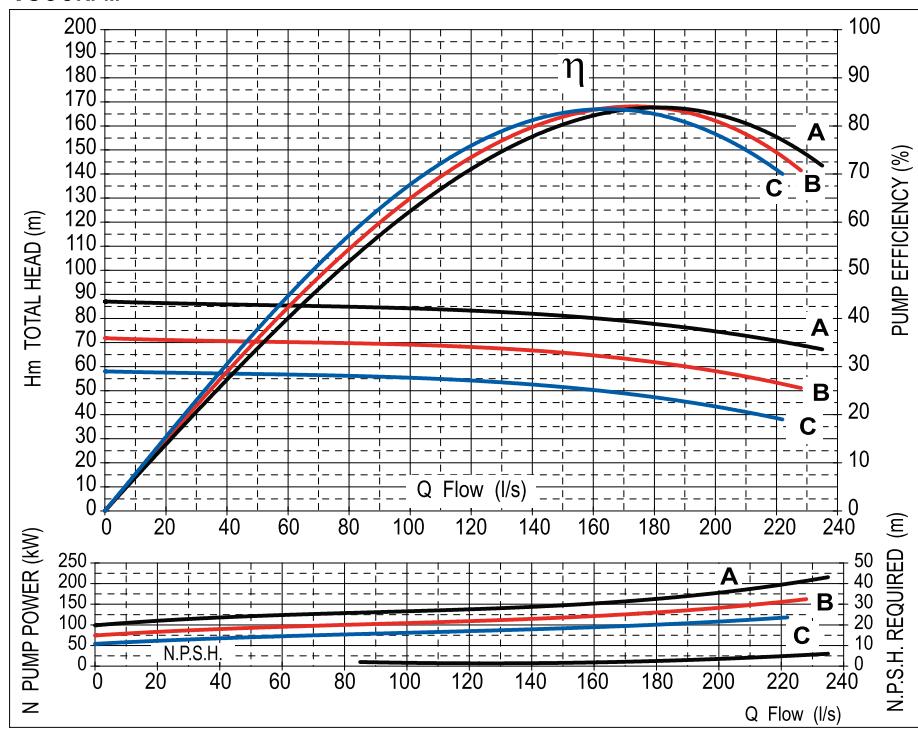
1500RPM


Barometric Head	0 m	Suction Diameter	DN200	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN150	
Liquid Density	1g/cm³	Pump Weight	560kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP150-605	SERIAL NO: 495A			

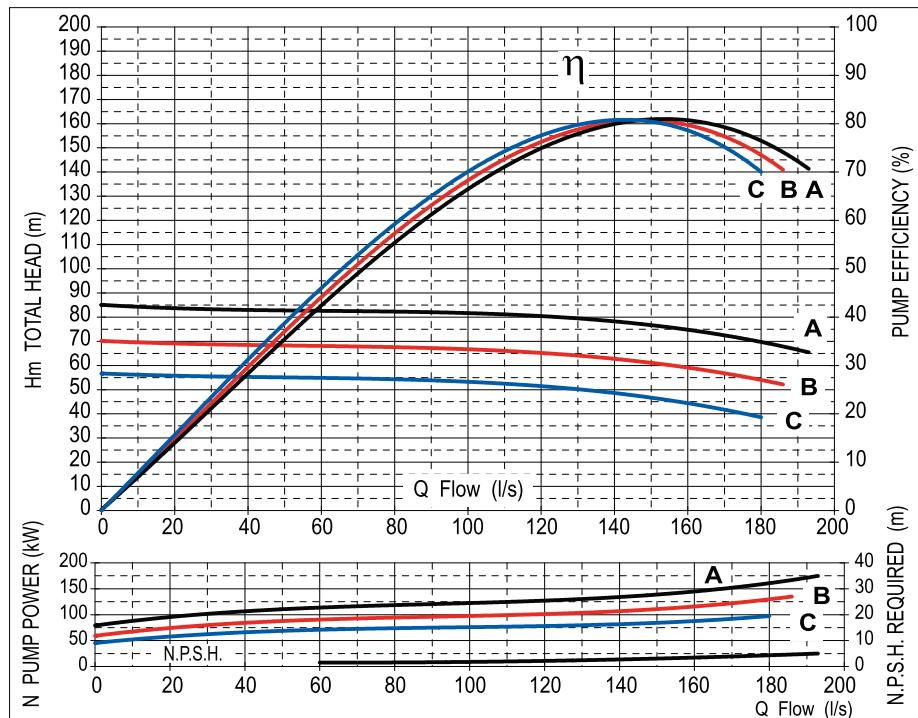
1500RPM


Barometric Head	0 m	Suction Diameter	DN200	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN150	
Liquid Density	1g/cm³	Pump Weight	560kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP150-605	SERIAL NO: 495B			

1500RPM

1500RPM


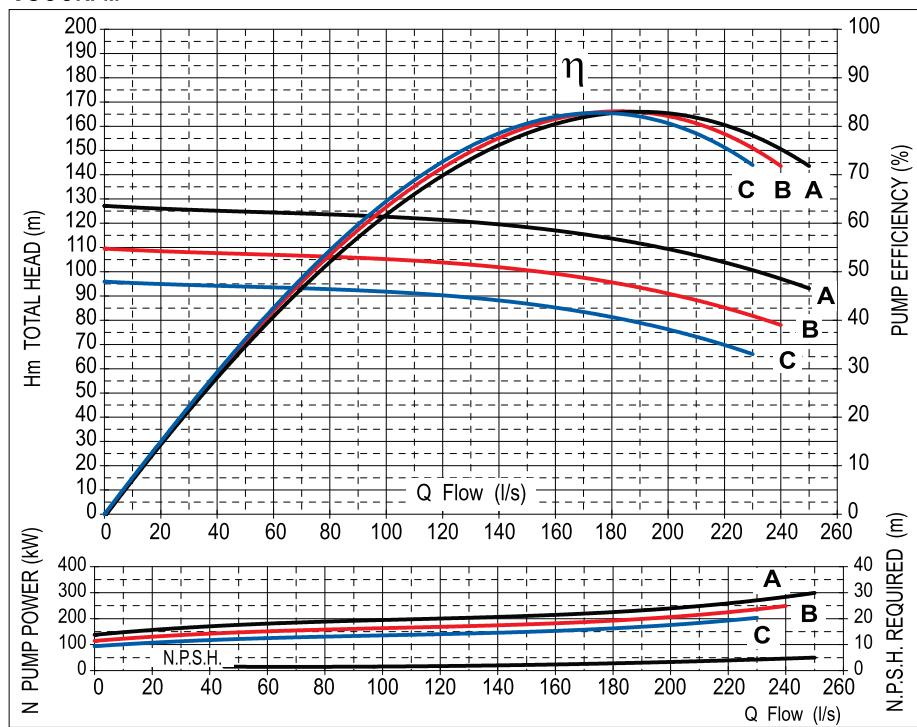
1500RPM


Parameter	Value	Parameter	Value	Parameter	Value
Barometric Head	0 m	Suction Diameter	DN250	IMPELLER DIA	
Liquid Temperature	20°C	Discharge Diameter	DN200		
Liquid Density	1g/cm ³	Pump Weight	650kg		
Liquid Viscosity	1 cs				
PUMP MODEL:	SP200-440	SERIAL NO:	497A		

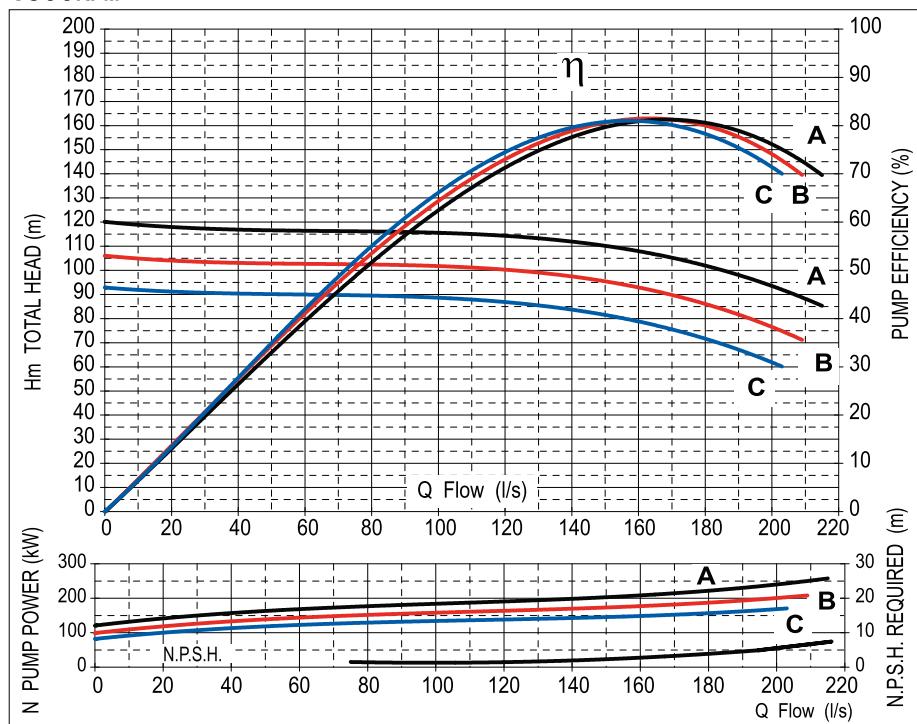
1500RPM


Parameter	Value	Parameter	Value	Parameter	Value
Barometric Head	0 m	Suction Diameter	DN250	IMPELLER DIA	
Liquid Temperature	20°C	Discharge Diameter	DN200		
Liquid Density	1g/cm ³	Pump Weight	650kg		
Liquid Viscosity	1 cs				
PUMP MODEL:	SP200-440	SERIAL NO:	497B		

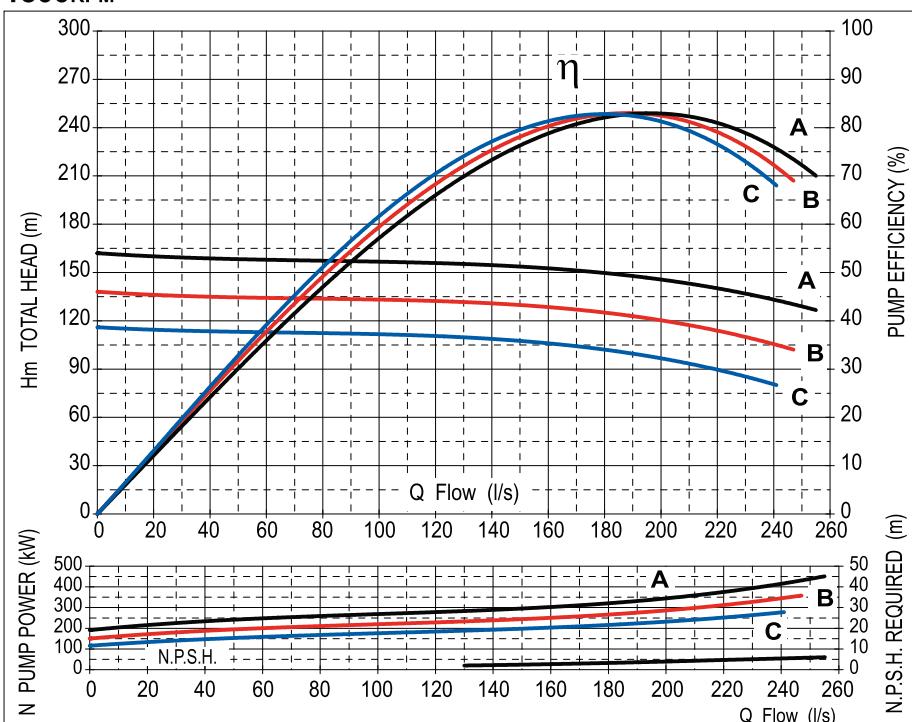
Legend:
● A = Ø 490
● B = Ø 445
● C = Ø 400

1500RPM


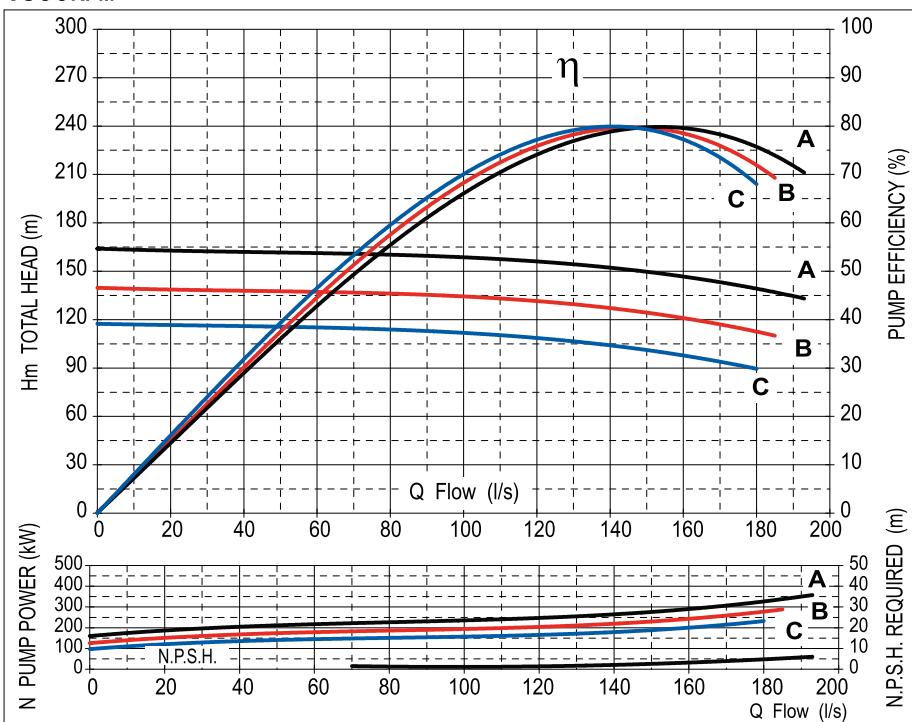
Barometric Head	0 m	Suction Diameter	DN250	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN200	
Liquid Density	1g/cm ³	Pump Weight	960kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP200-600		SERIAL NO: 498A		

1500RPM


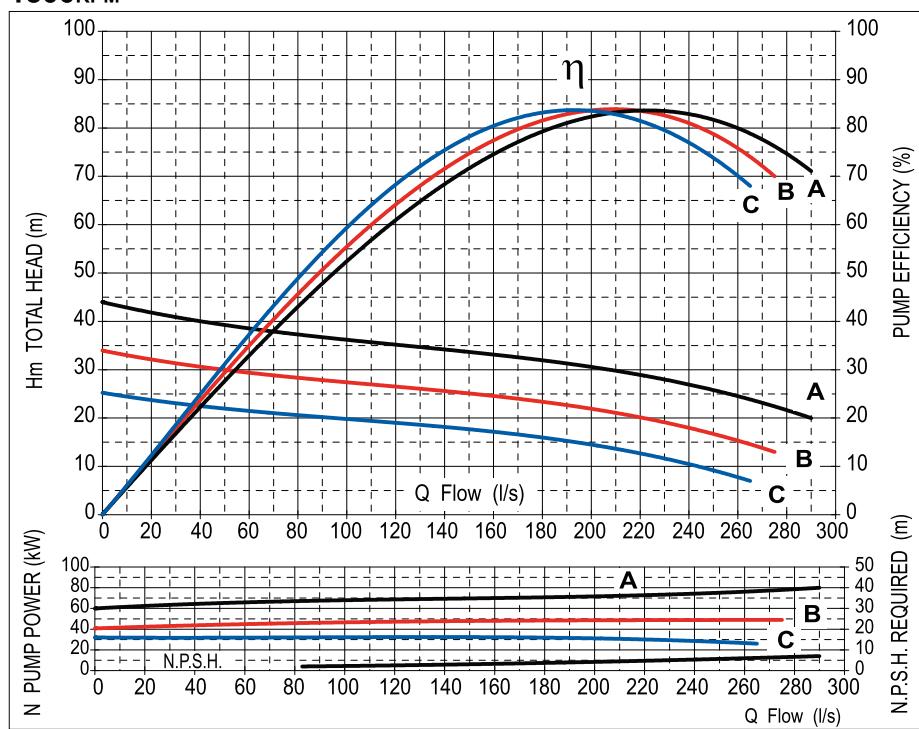
Barometric Head	0 m	Suction Diameter	DN250	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN200	
Liquid Density	1g/cm ³	Pump Weight	960kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP200-600		SERIAL NO: 498B		

1500RPM


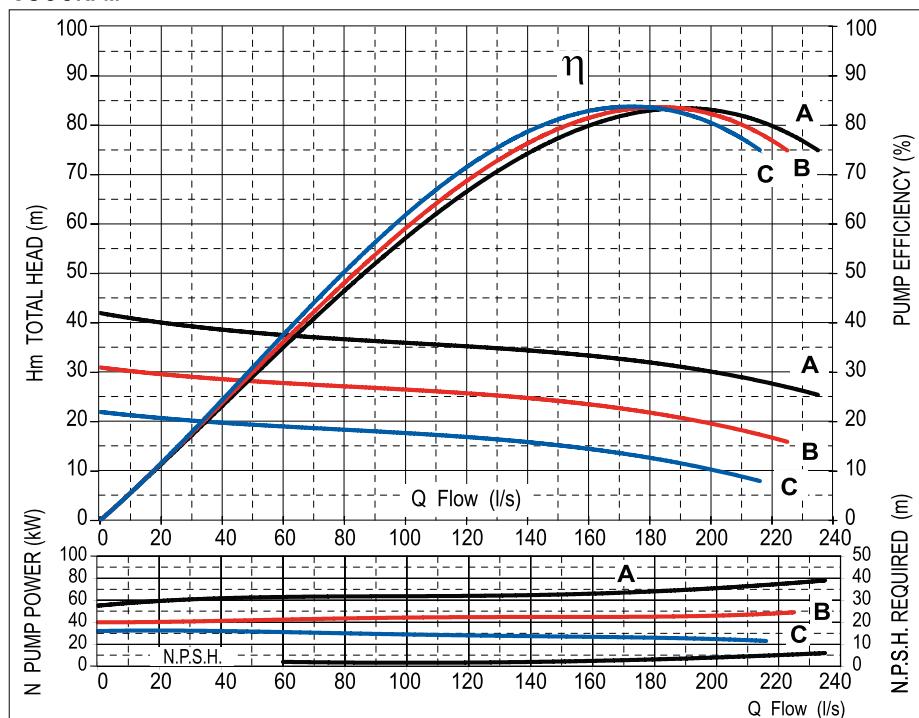
Barometric Head	0 m	Suction Diameter	DN250	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN200	
Liquid Density	1g/cm ³	Pump Weight	910kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP200-670	SERIAL NO: 499A			

1500RPM


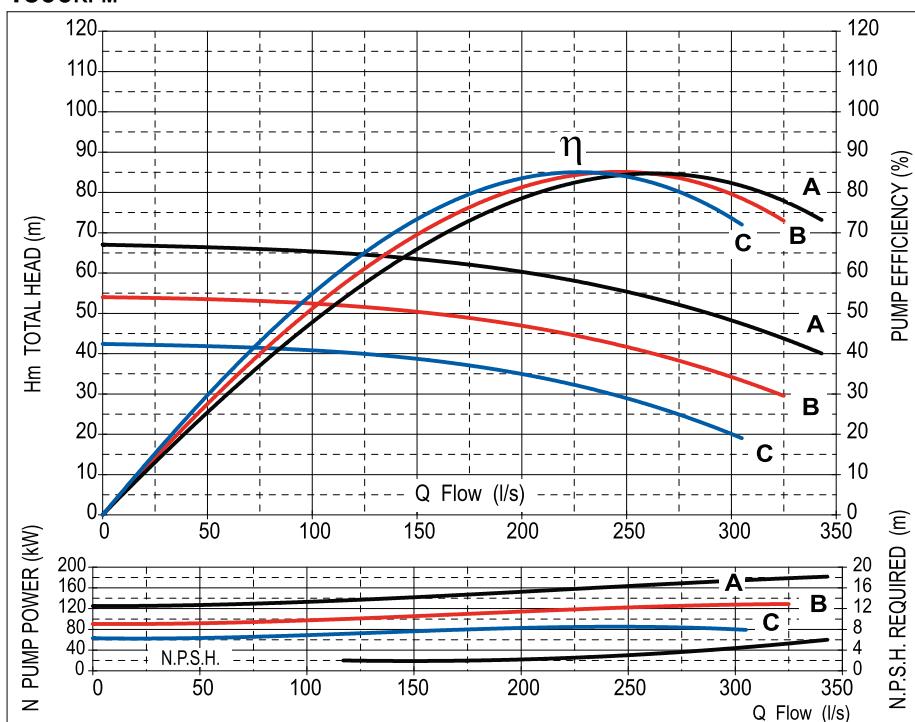
Barometric Head	0 m	Suction Diameter	DN250	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN200	
Liquid Density	1g/cm ³	Pump Weight	910kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP200-670	SERIAL NO: 499B			

1500RPM


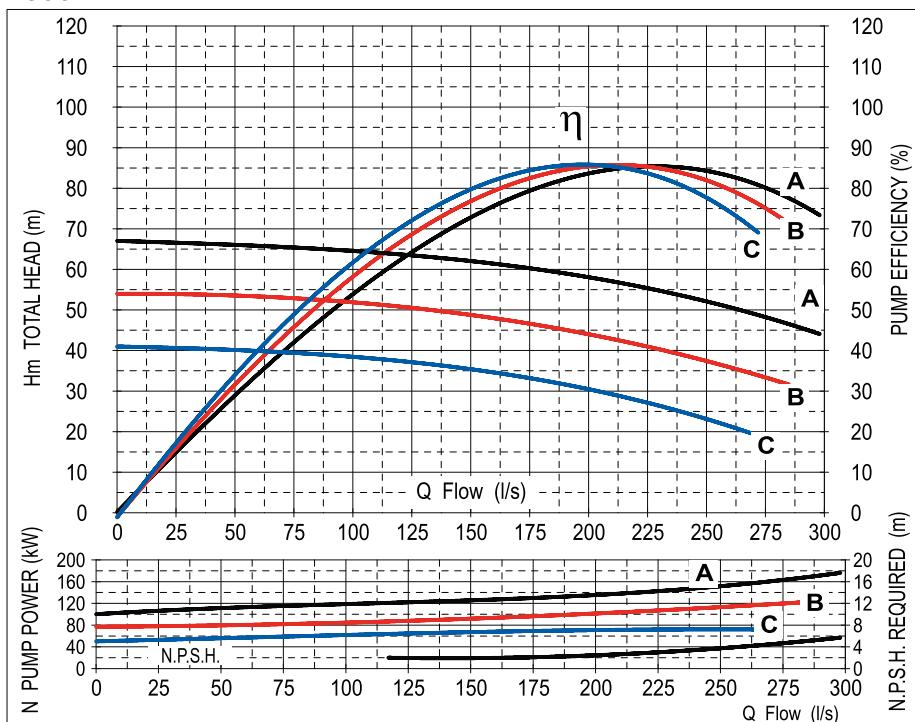
Barometric Head	0 m	Suction Diameter	DN300	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN250	
Liquid Density	1g/cm³	Pump Weight	550kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP250-280		SERIAL NO: 501A		

1500RPM


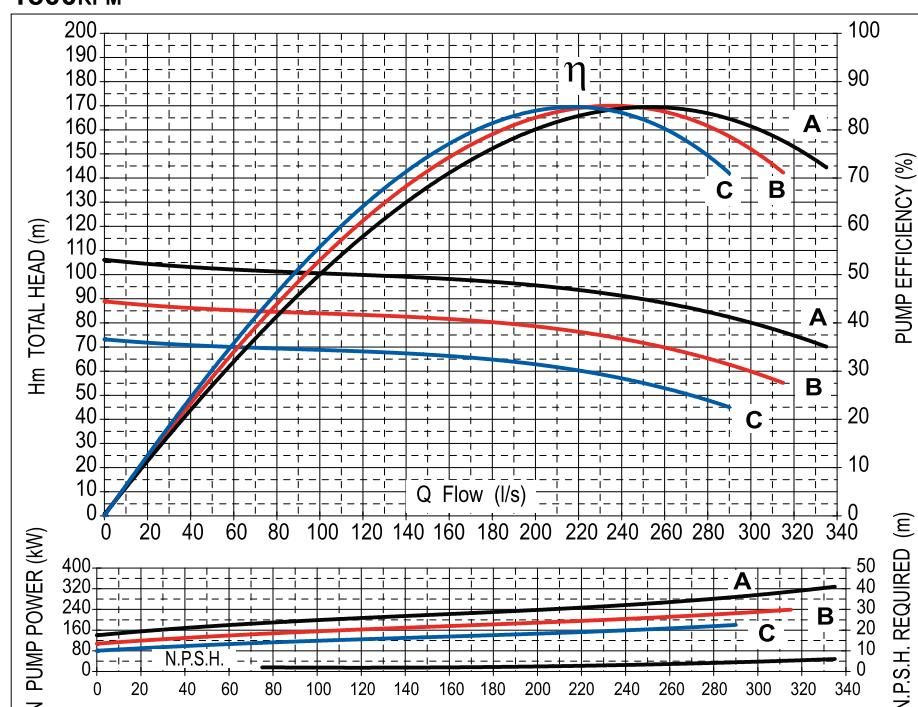
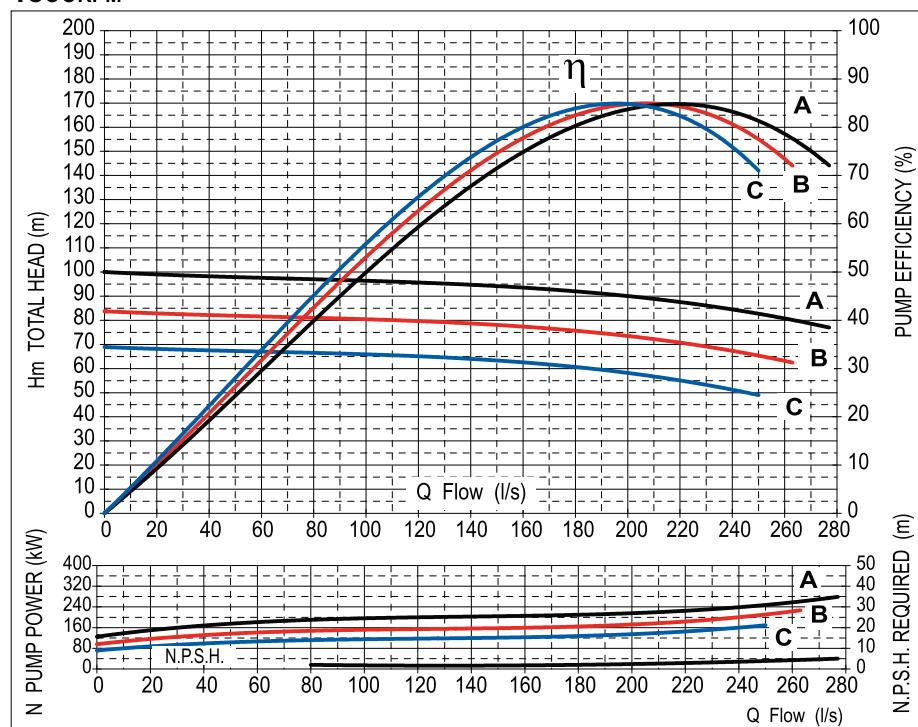
Barometric Head	0 m	Suction Diameter	DN300	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN250	
Liquid Density	1g/cm³	Pump Weight	550kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP250-280		SERIAL NO: 501B		

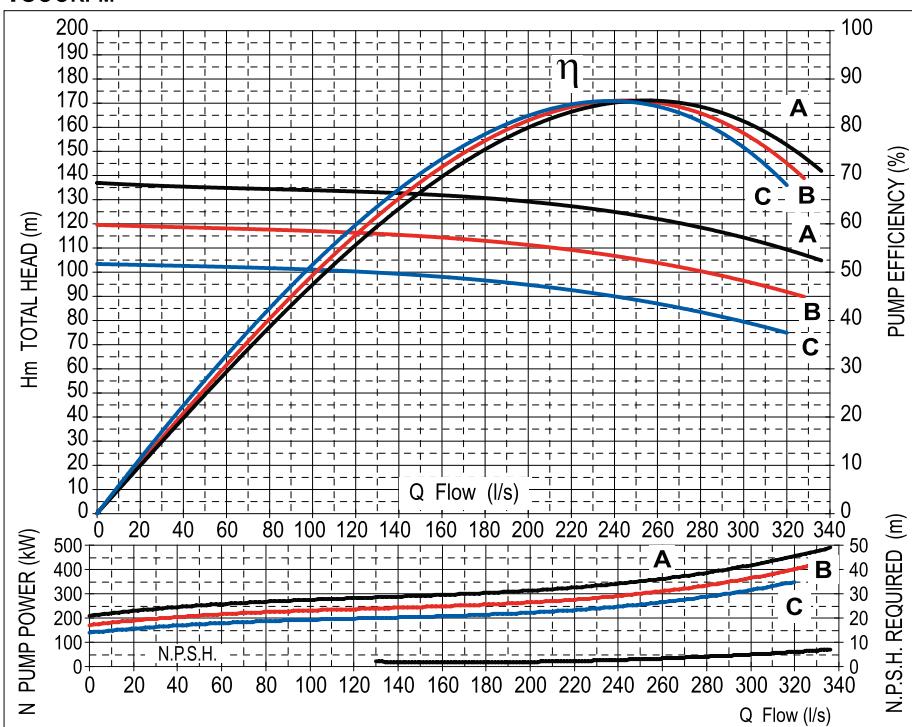
1500RPM


Barometric Head	0 m	Suction Diameter	DN300	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN250	
Liquid Density	1g/cm³	Pump Weight	730kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP250-400	SERIAL NO: 502A			

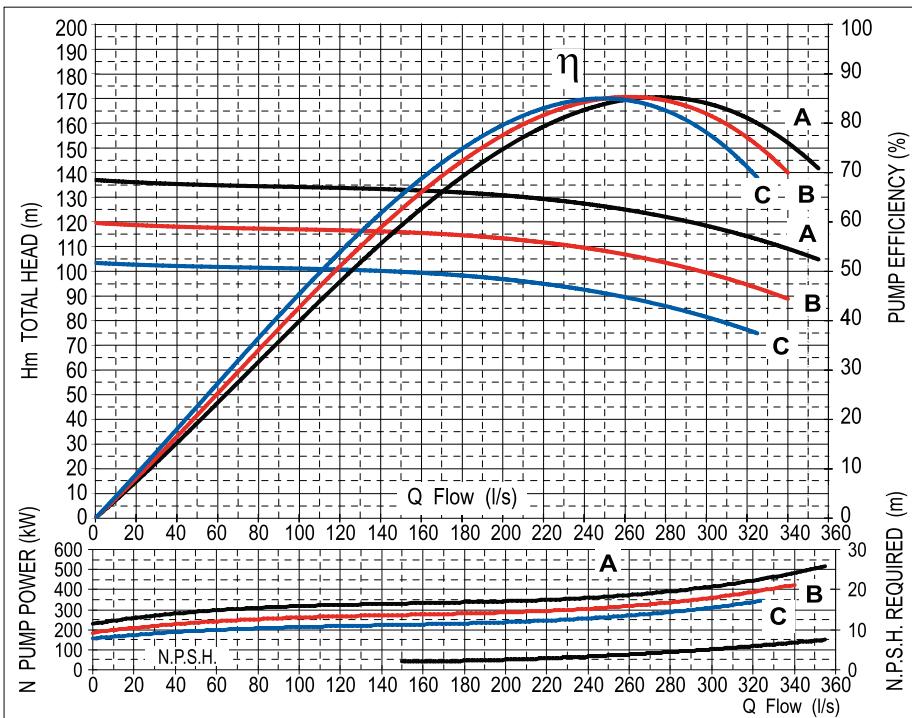
1500RPM


Barometric Head	0 m	Suction Diameter	DN300	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN250	
Liquid Density	1g/cm³	Pump Weight	730kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP250-400	SERIAL NO: 502B			

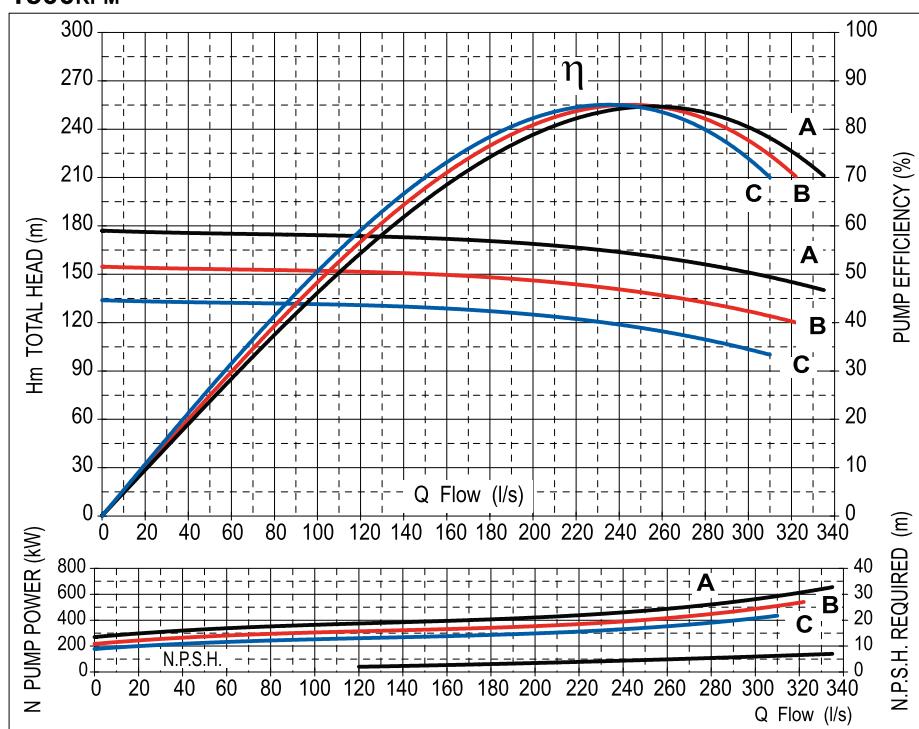
1500RPM

1500RPM


1500RPM


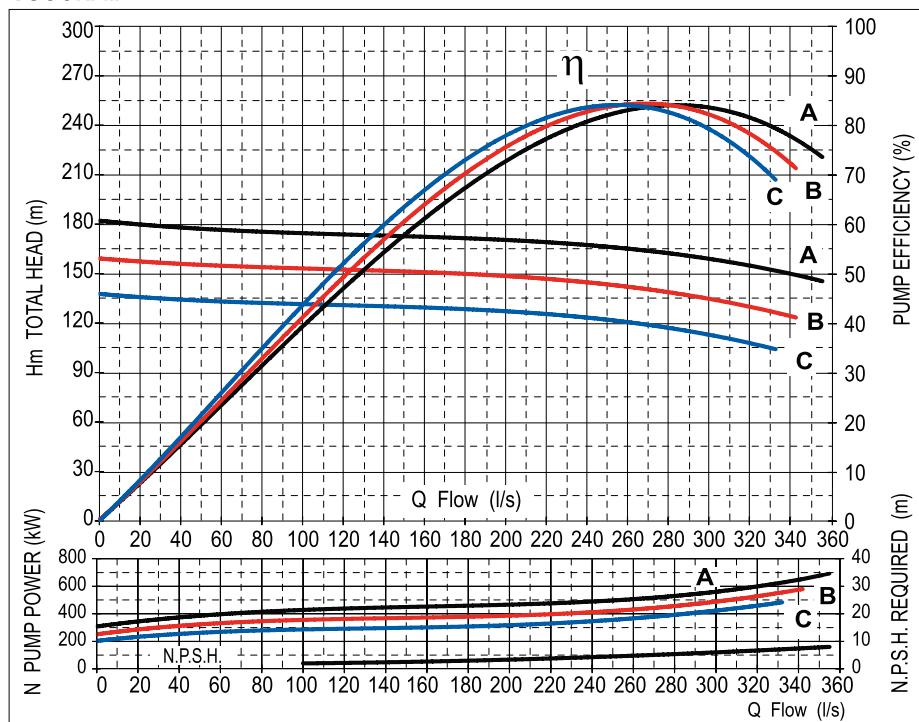
Barometric Head	0 m	Suction Diameter	DN300	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN250	
Liquid Density	1g/cm³	Pump Weight	1235kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP250-600	SERIAL NO: 503.5A			

1500RPM


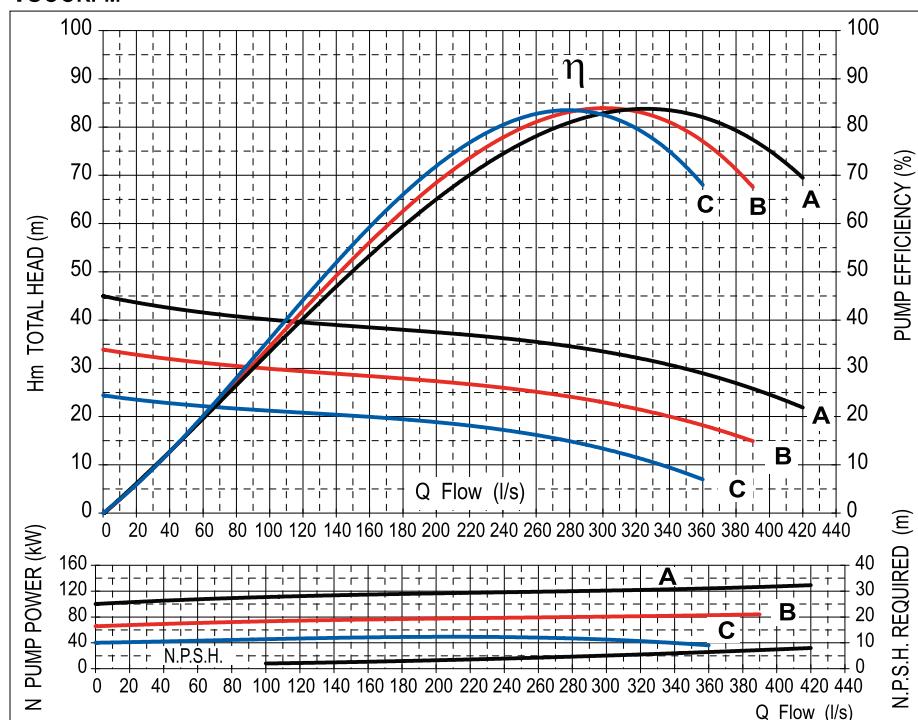
Barometric Head	0 m	Suction Diameter	DN300	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN250	
Liquid Density	1g/cm³	Pump Weight	1235kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP250-600	SERIAL NO: 503.5B			

1500RPM


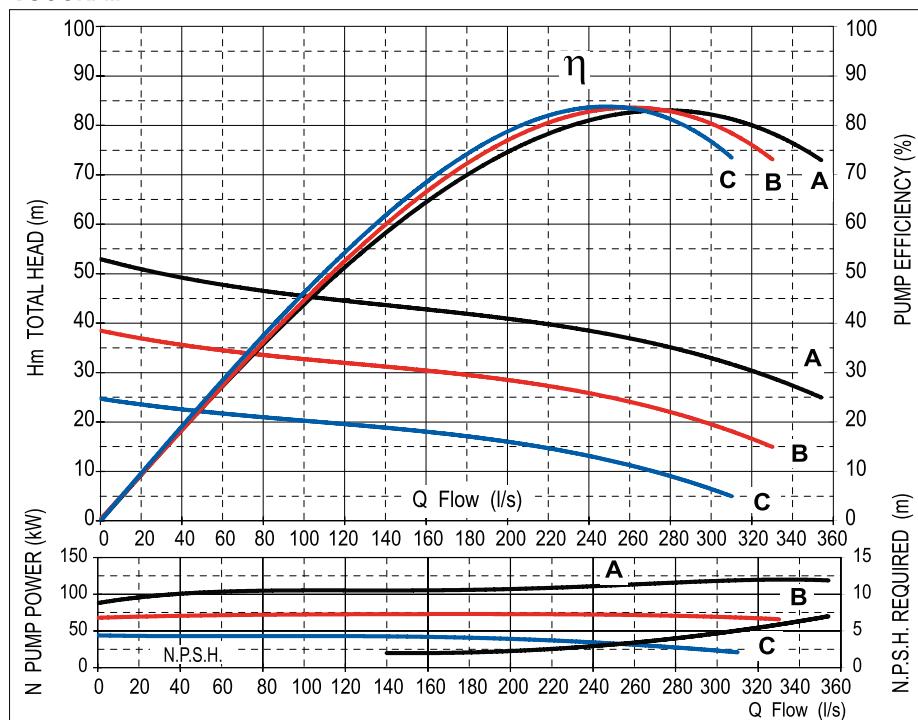
Barometric Head	0 m	Suction Diameter	DN300	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN250	
Liquid Density	1g/cm³	Pump Weight	1450kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP250-670	SERIAL NO: 504A			

1500RPM


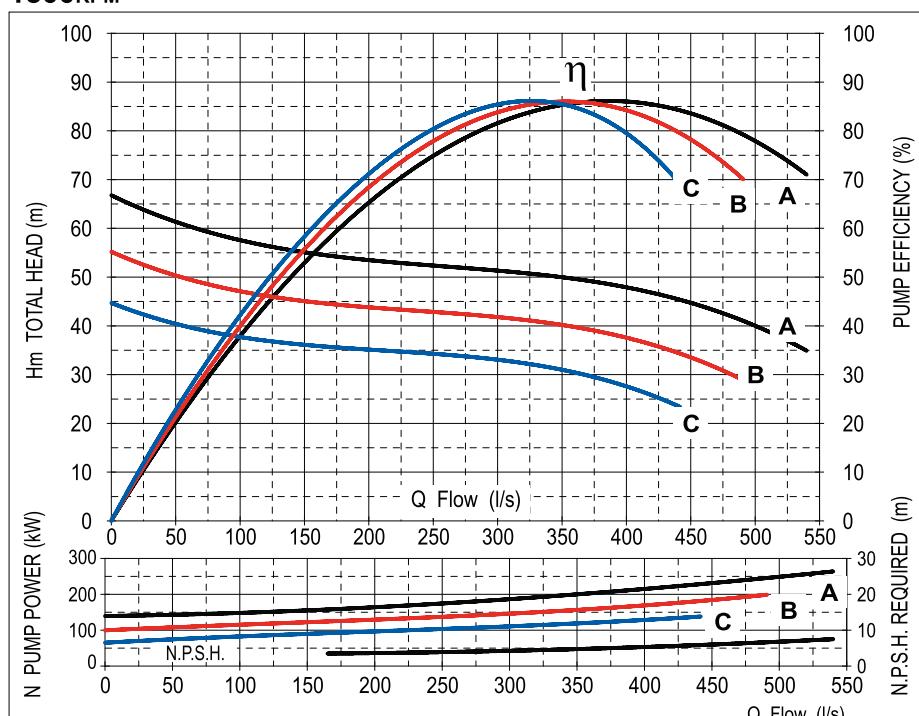
Barometric Head	0 m	Suction Diameter	DN300	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN250	
Liquid Density	1g/cm³	Pump Weight	1450kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP250-670	SERIAL NO: 504B			

1500RPM


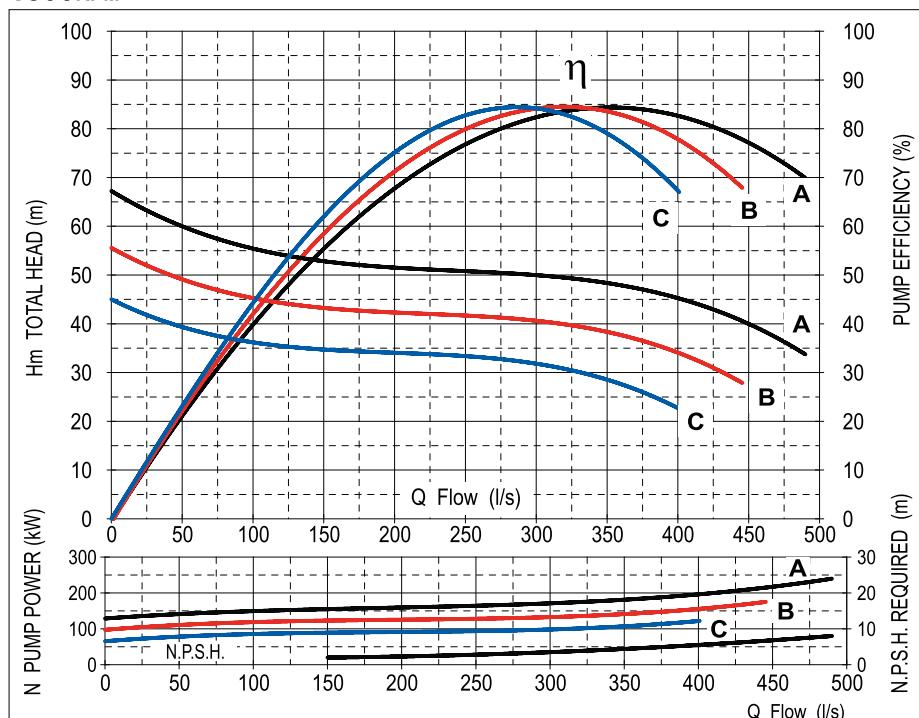
Barometric Head	0 m	Suction Diameter	DN350	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN300	
Liquid Density	1g/cm ³	Pump Weight	860kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP300-300				SERIAL NO: 507A

1500RPM


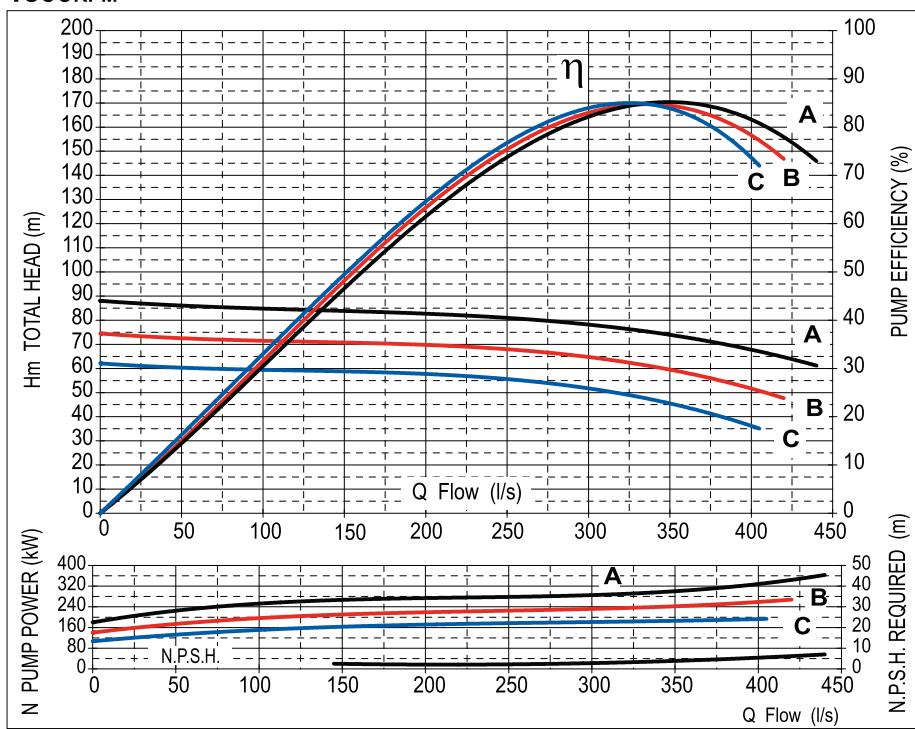
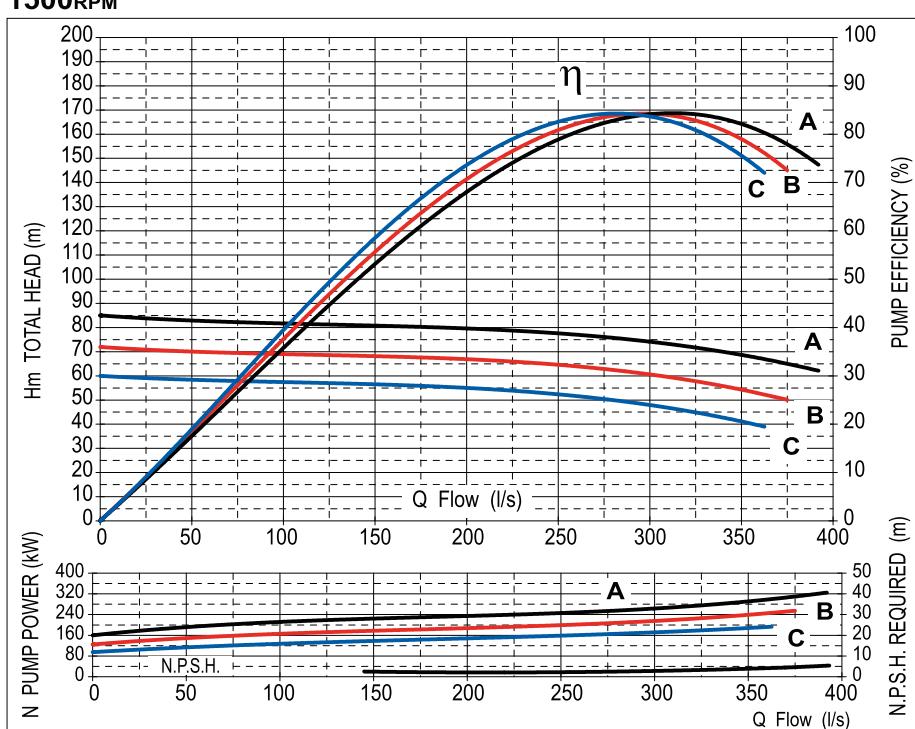
Barometric Head	0 m	Suction Diameter	DN350	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN300	
Liquid Density	1g/cm ³	Pump Weight	860kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP300-300				SERIAL NO: 507B

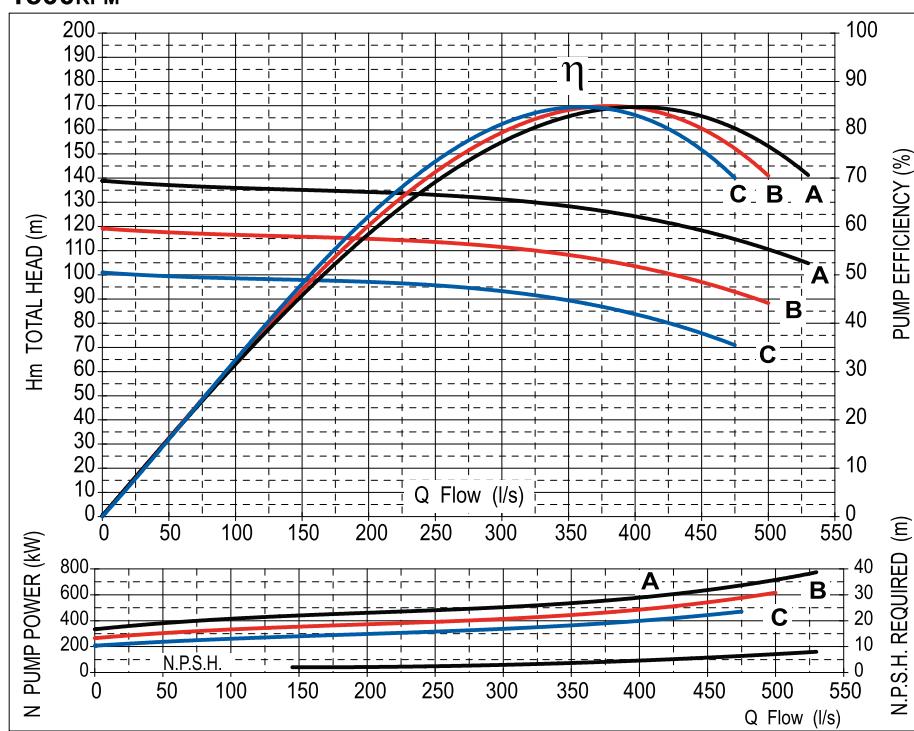
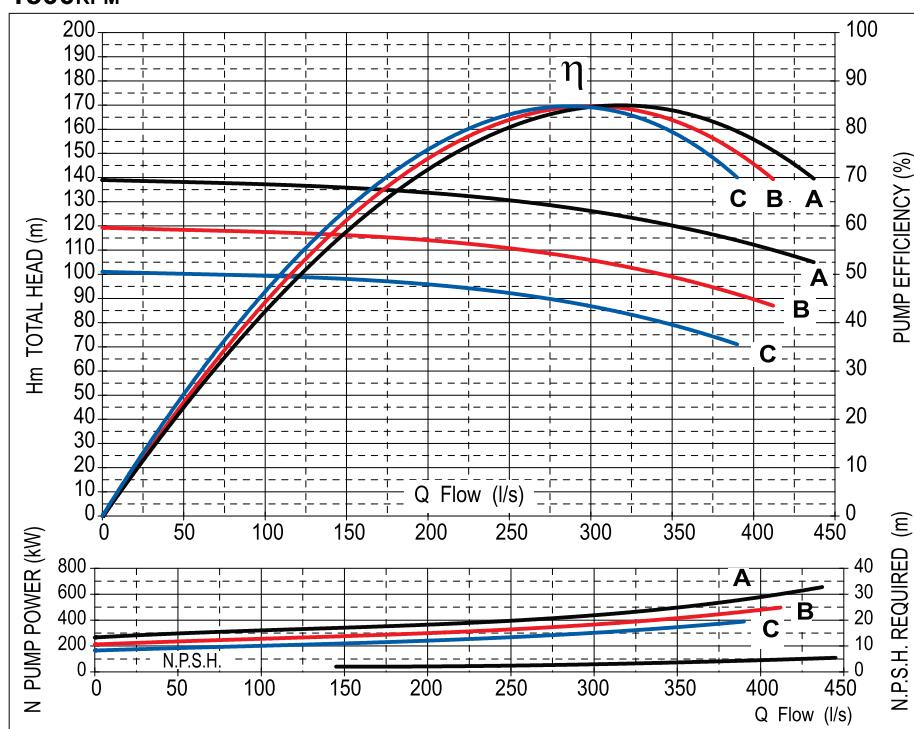
1500RPM


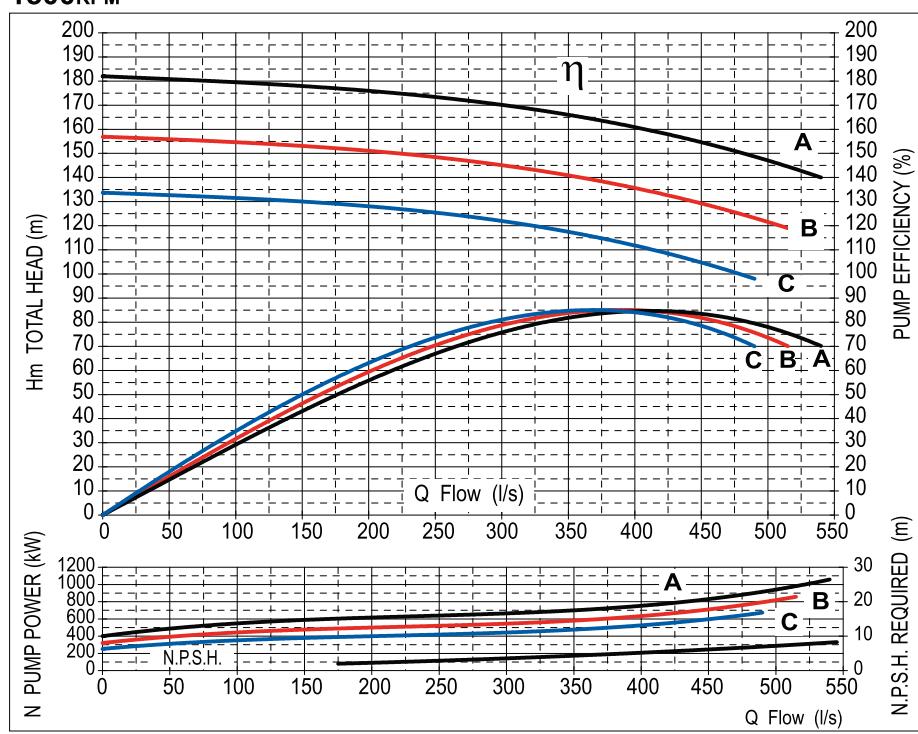
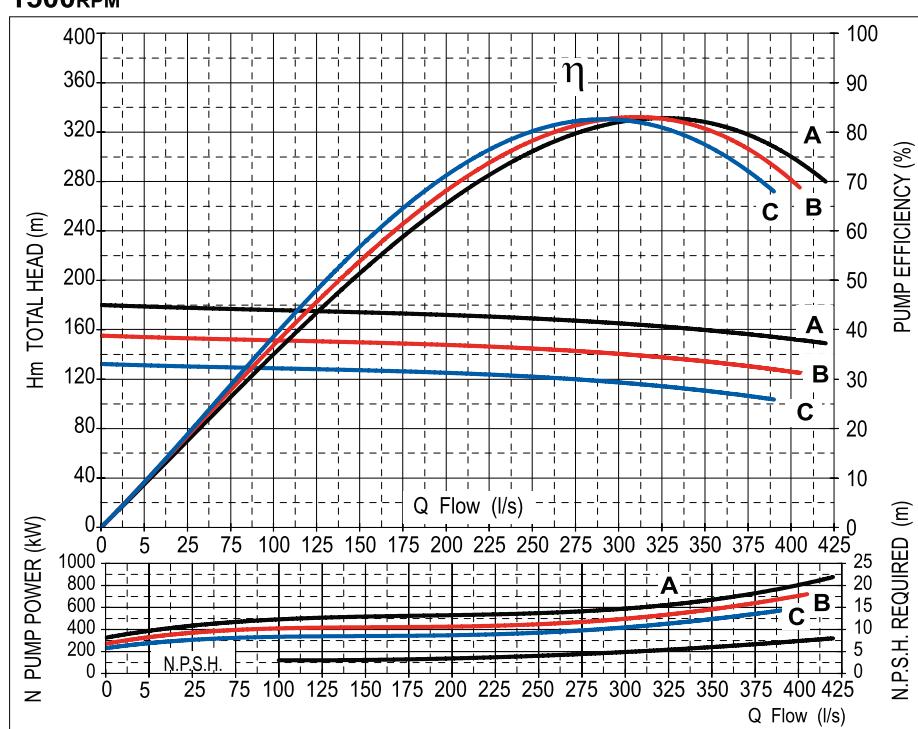
Barometric Head	0 m	Suction Diameter	DN350	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN300	
Liquid Density	1g/cm³	Pump Weight	1050kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP300-400		SERIAL NO: 510A		

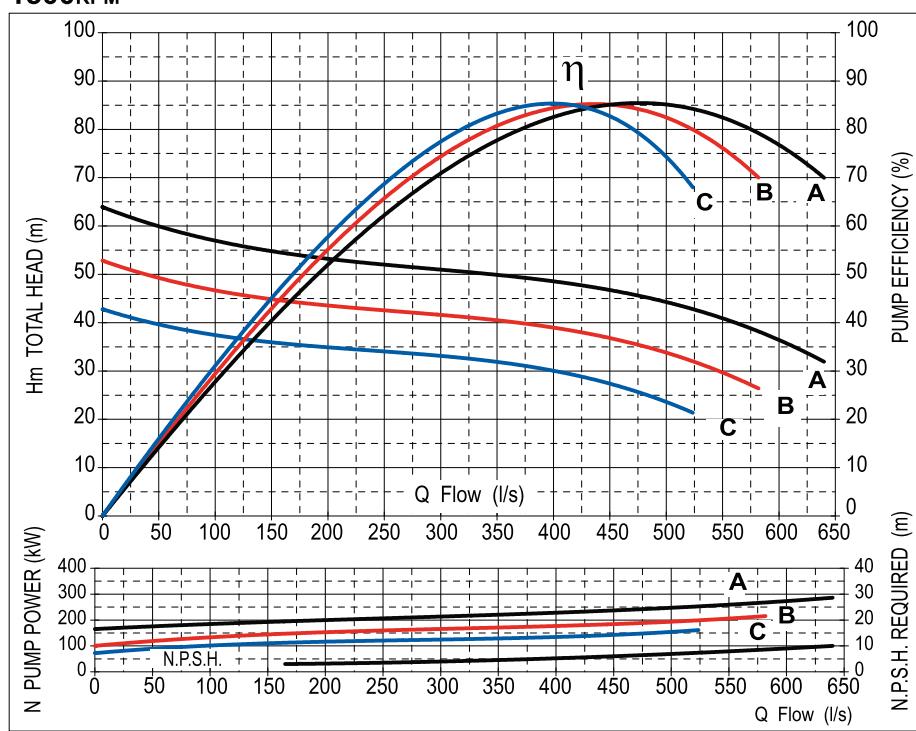
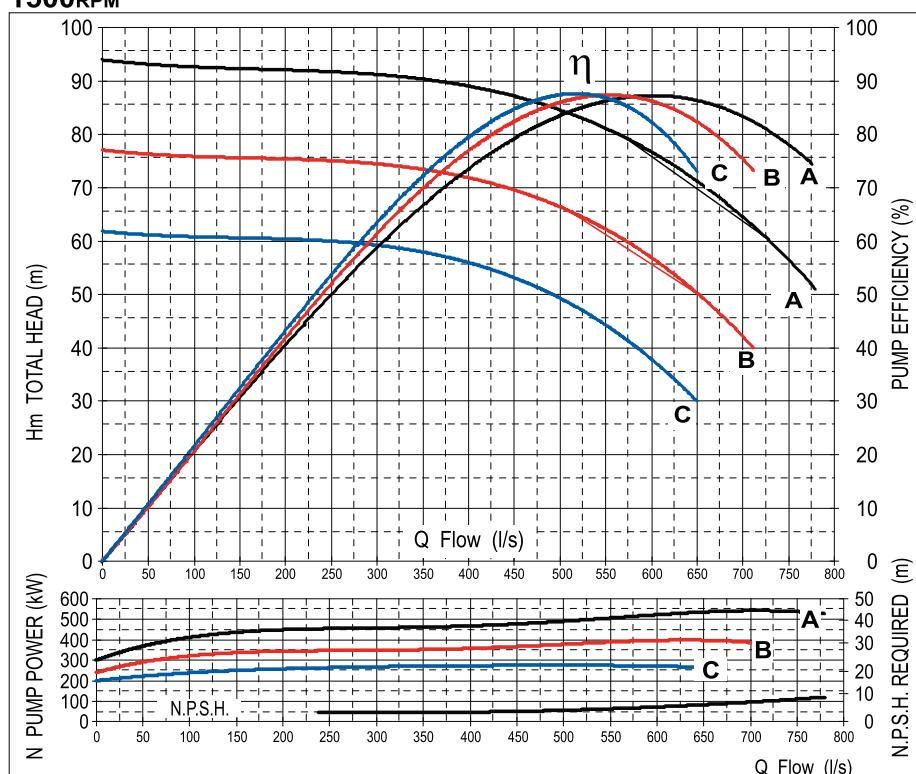
1500RPM


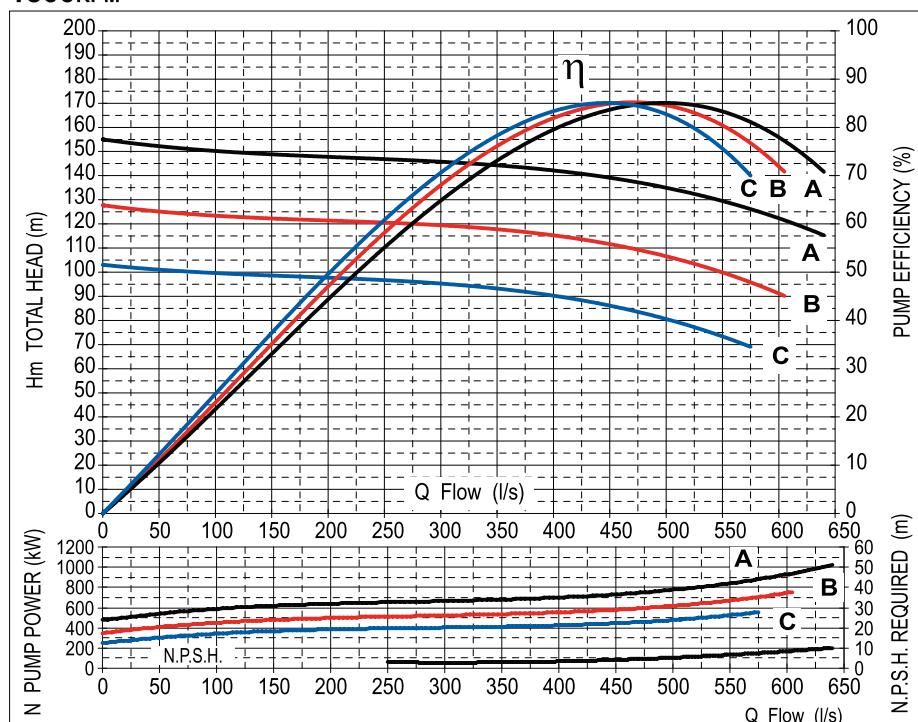
Barometric Head	0 m	Suction Diameter	DN350	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN300	
Liquid Density	1g/cm³	Pump Weight	1050kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP300-400		SERIAL NO: 510B		

1500RPM

1500RPM


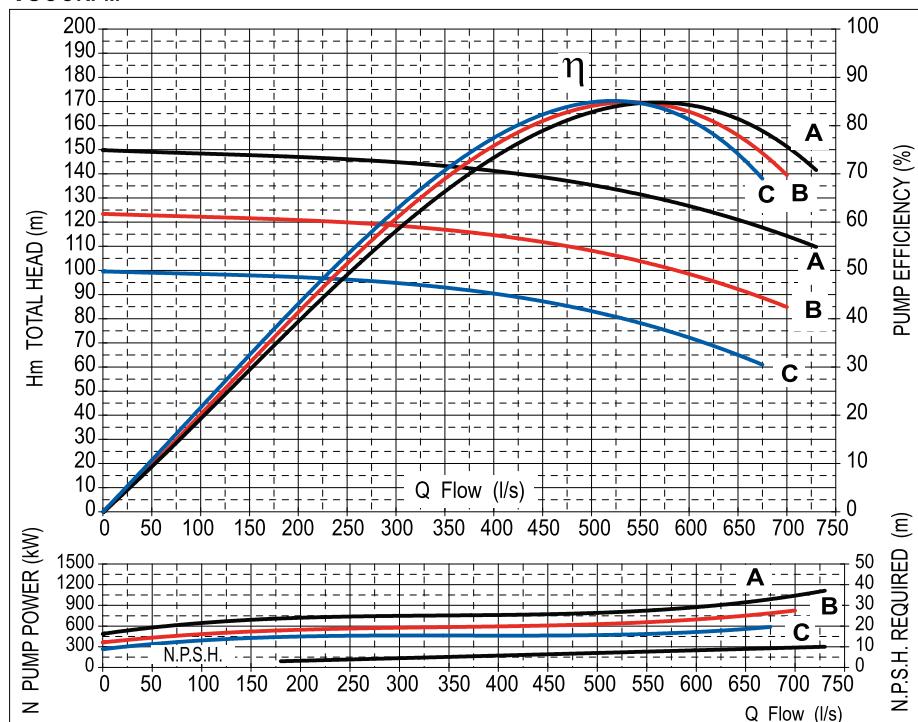
1500RPM

1500RPM


1500RPM

1500RPM


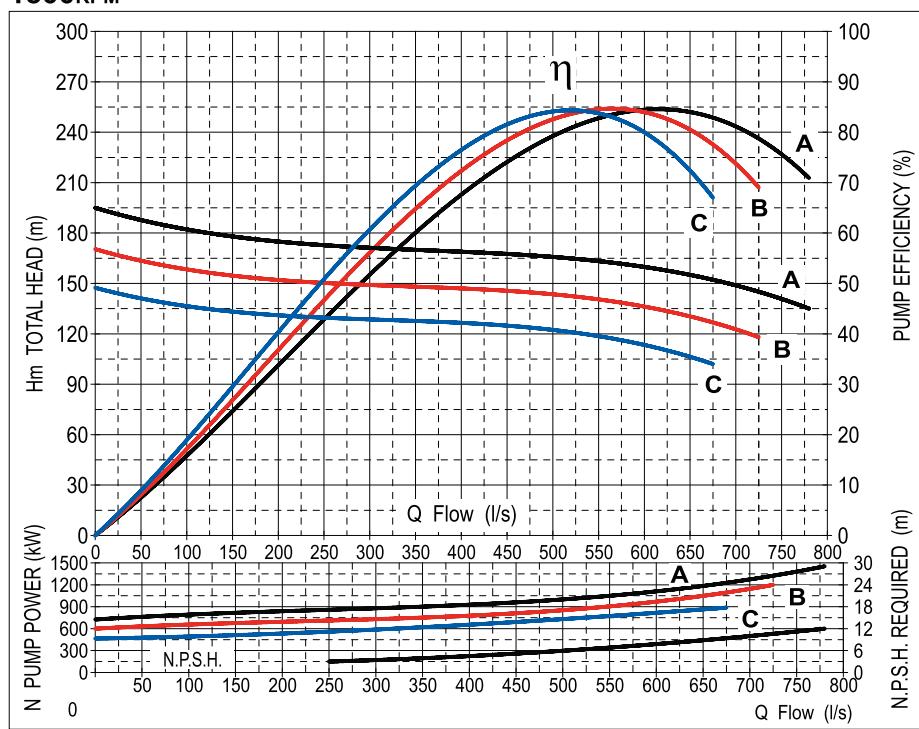
1500RPM

1500RPM


1500RPM


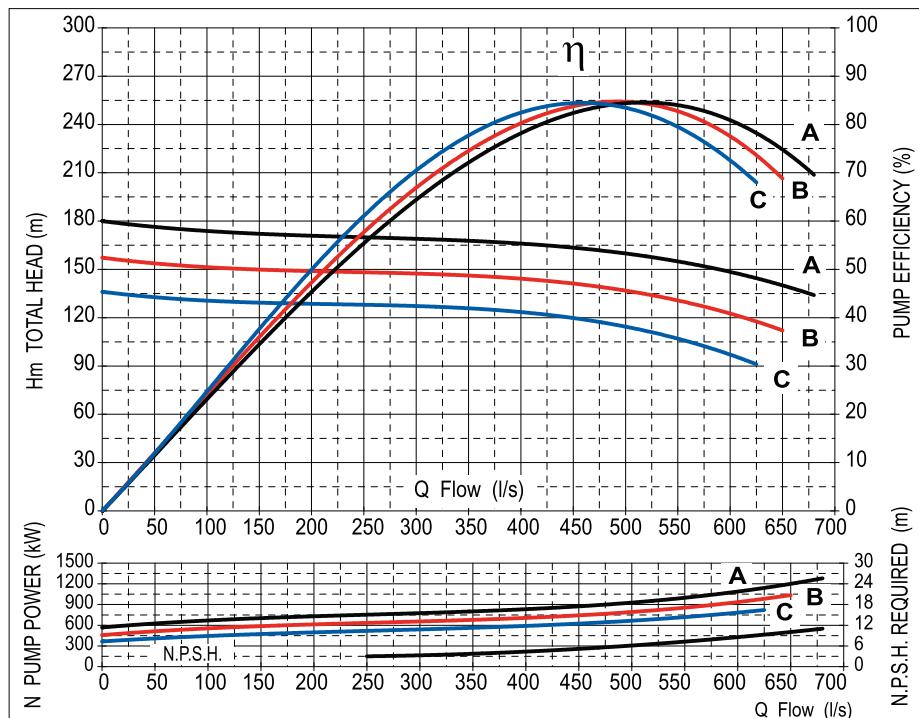
Barometric Head	0 m	Suction Diameter	DN400	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN350	
Liquid Density	1g/cm³	Pump Weight	2350kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP350-600		SERIAL NO: 512A		

1500RPM


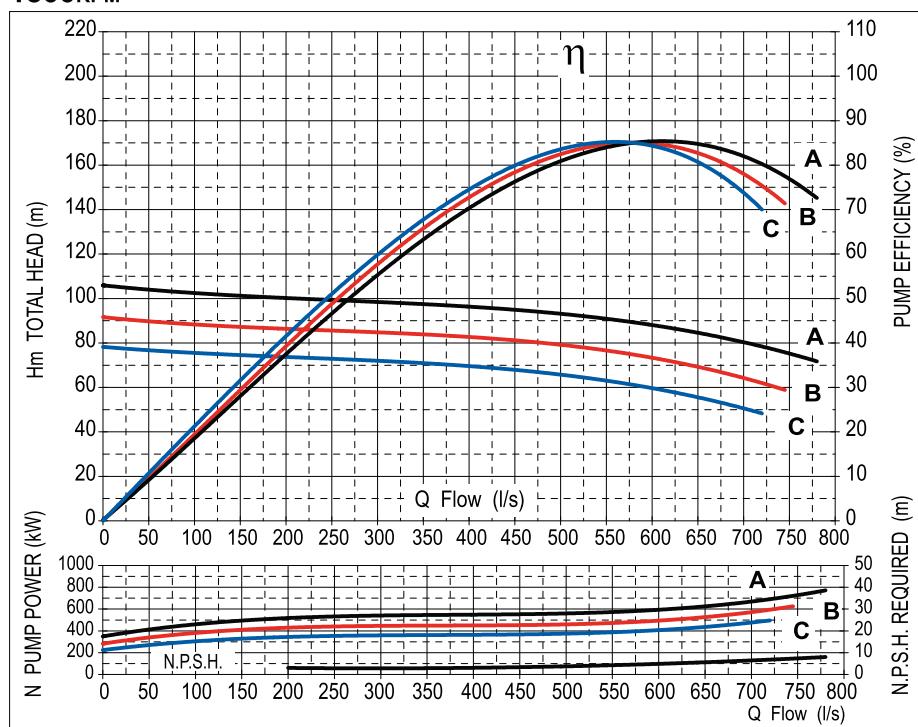
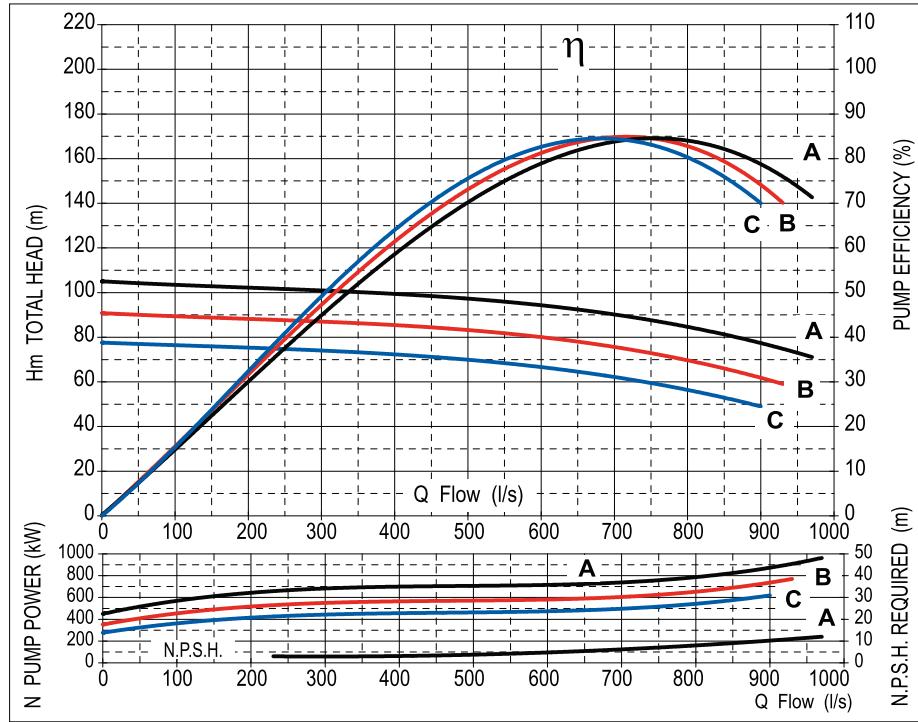
Barometric Head	0 m	Suction Diameter	DN400	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN350	
Liquid Density	1g/cm³	Pump Weight	2350kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP350-600		SERIAL NO: 512B		

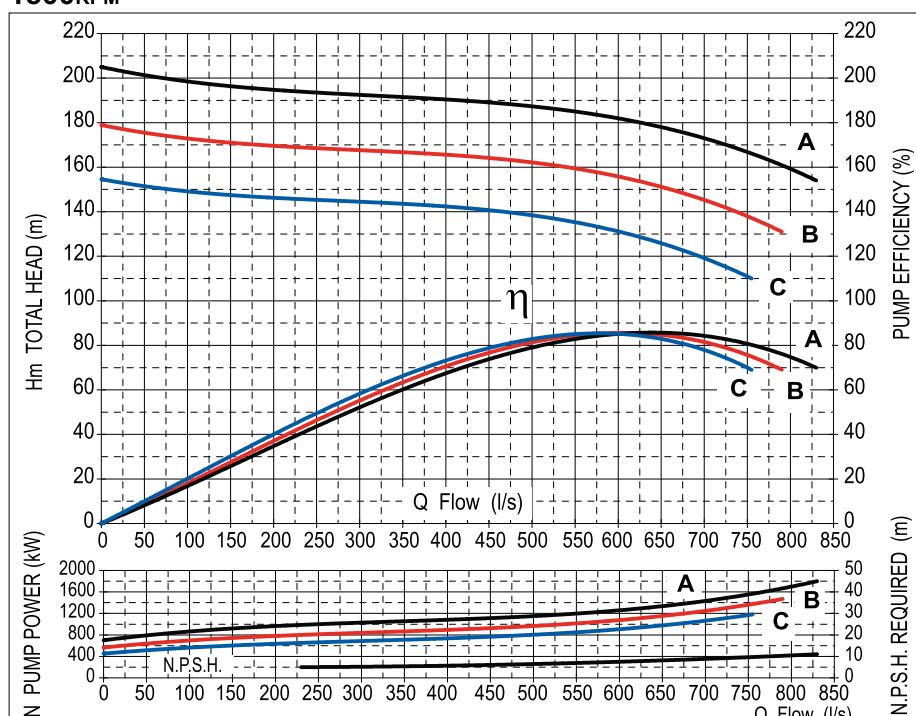
1500RPM


Barometric Head	0 m	Suction Diameter	DN400	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN350	
Liquid Density	1g/cm³	Pump Weight	2700kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP350-700		SERIAL NO: 513A		

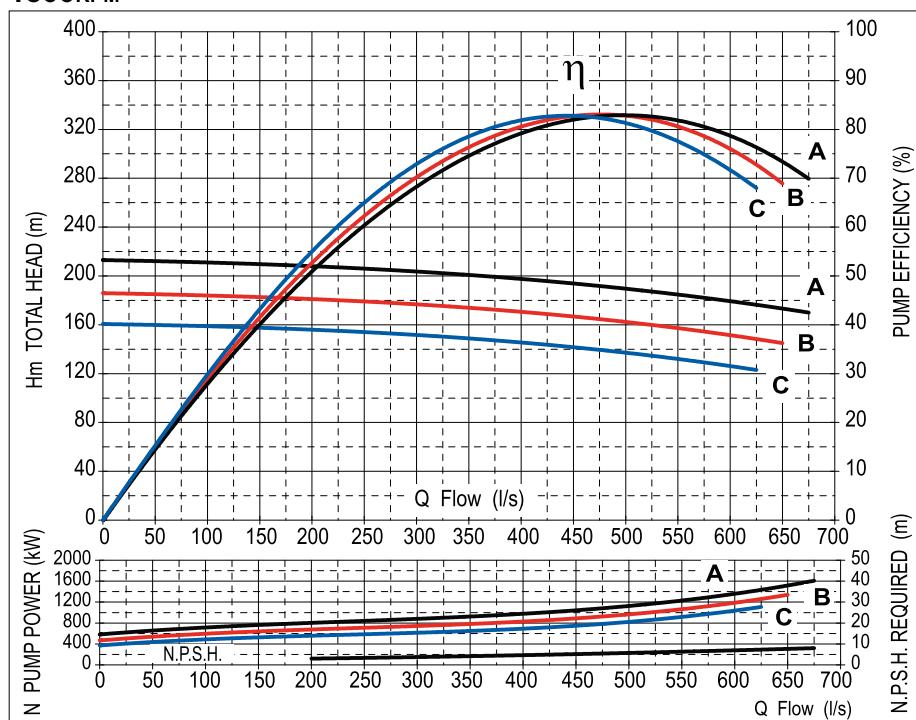
1500RPM


Barometric Head	0 m	Suction Diameter	DN400	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN350	
Liquid Density	1g/cm³	Pump Weight	2700kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP350-700		SERIAL NO: 513B		

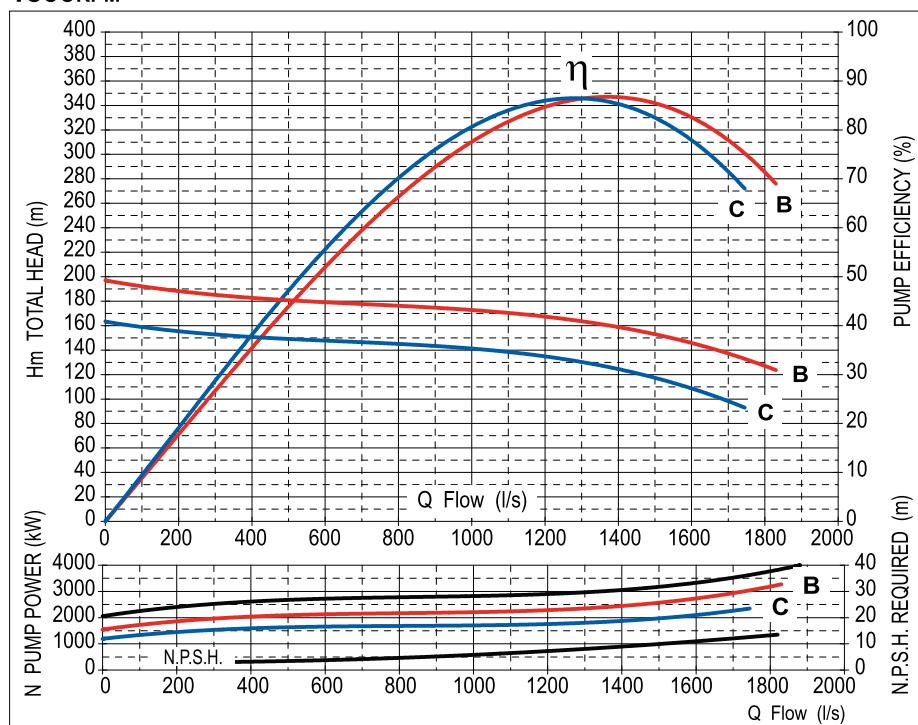
1500RPM

1500RPM


1500RPM


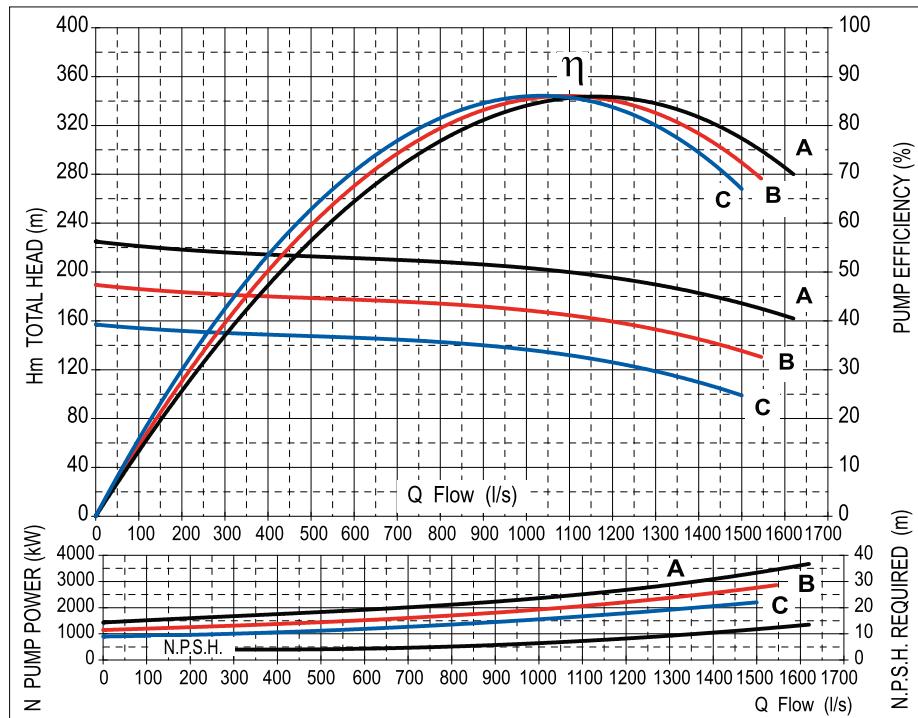
Barometric Head	0 m	Suction Diameter	DN500	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN400	
Liquid Density	1g/cm³	Pump Weight	3100kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP400-750		SERIAL NO: 525A		

1500RPM


Barometric Head	0 m	Suction Diameter	DN500	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN400	
Liquid Density	1g/cm³	Pump Weight	3100kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP400-750		SERIAL NO: 525B		

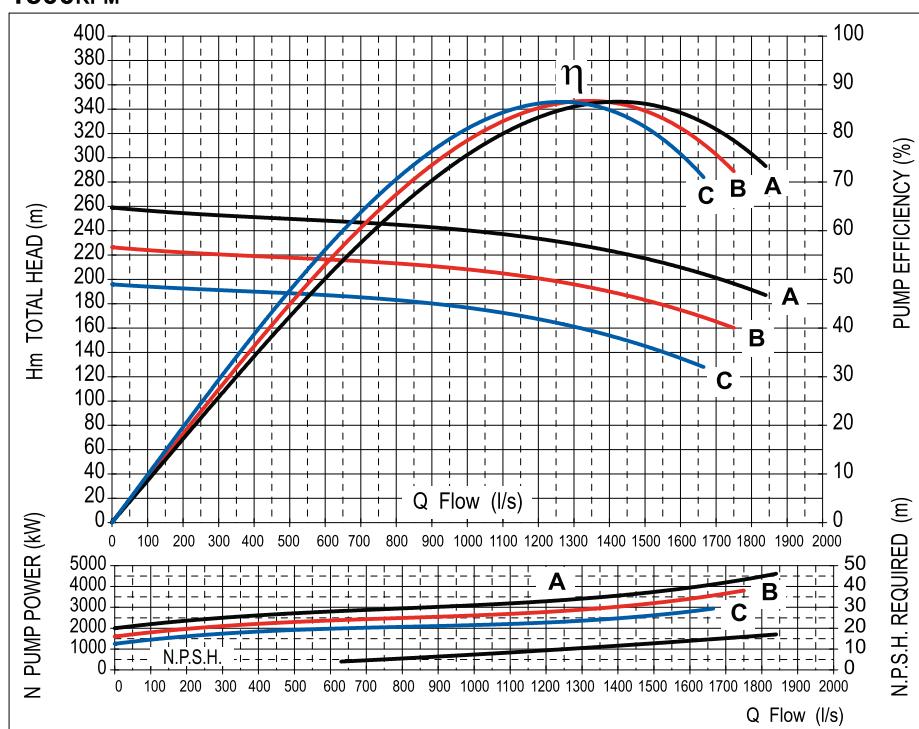
1500RPM


Barometric Head	0 m	Suction Diameter	DN600	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN500	
Liquid Density	1g/cm ³	Pump Weight	4100kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP500-750				SERIAL NO: 526A

1500RPM


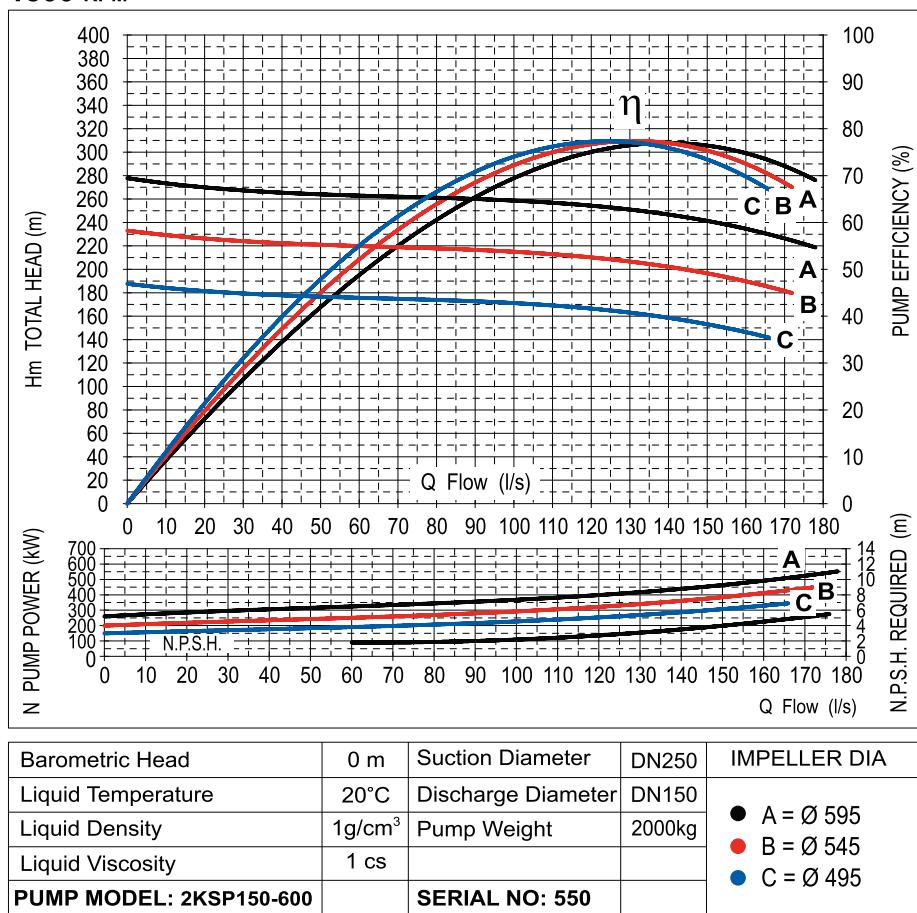
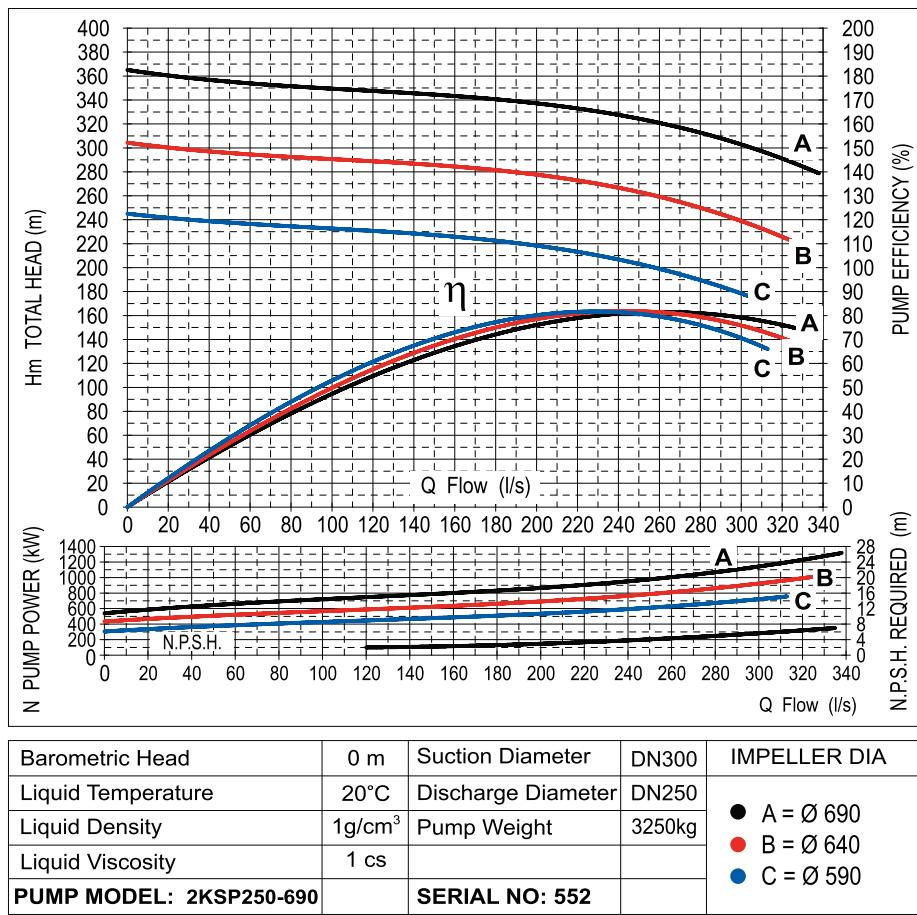
Barometric Head	0 m	Suction Diameter	DN600	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN500	
Liquid Density	1g/cm ³	Pump Weight	4100kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP500-750				SERIAL NO: 526B

1500RPM



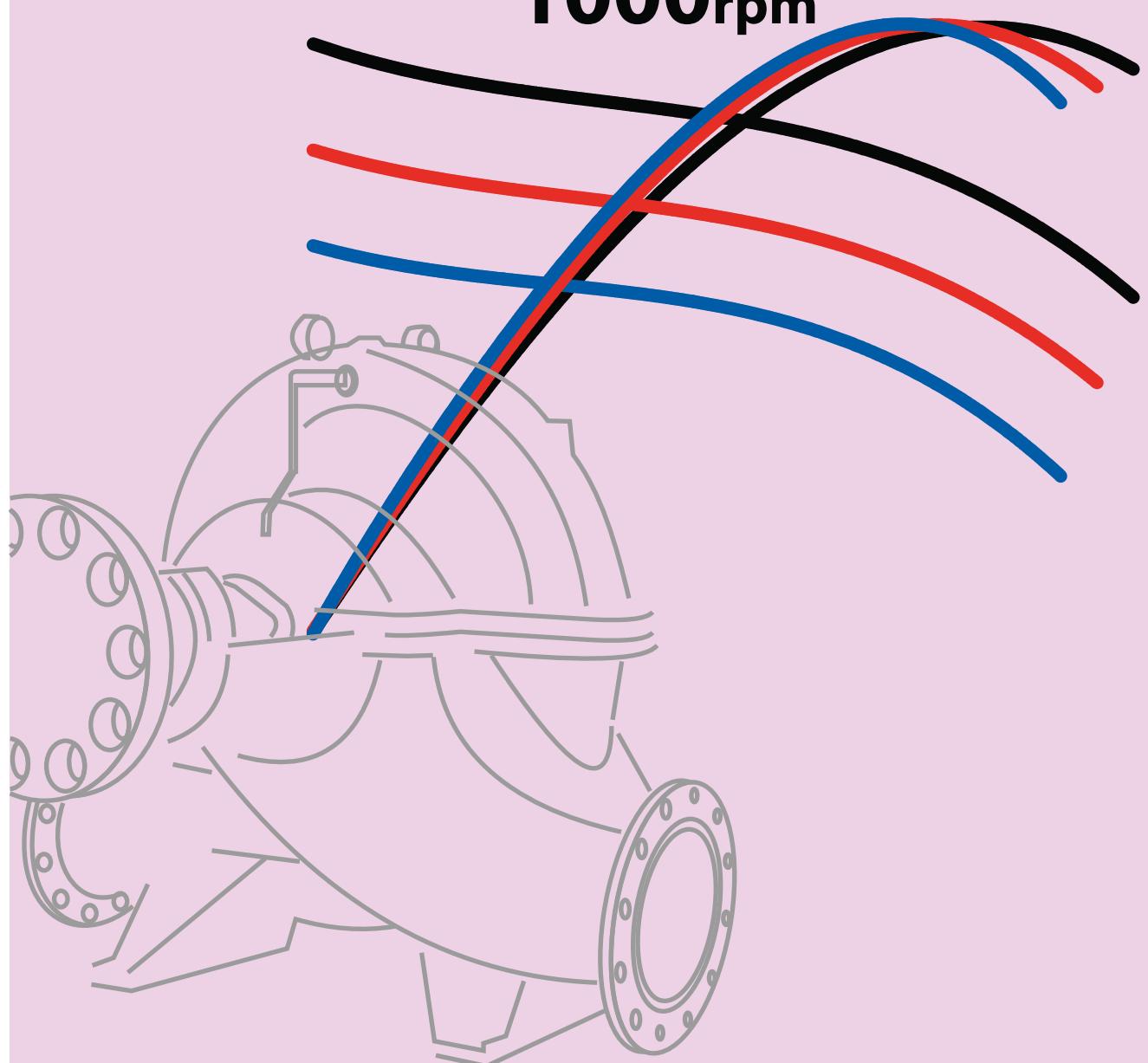
Barometric Head	0 m	Suction Diameter	DN600	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN500	
Liquid Density	1g/cm ³	Pump Weight	5000kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP500-900		SERIAL NO: 530B		

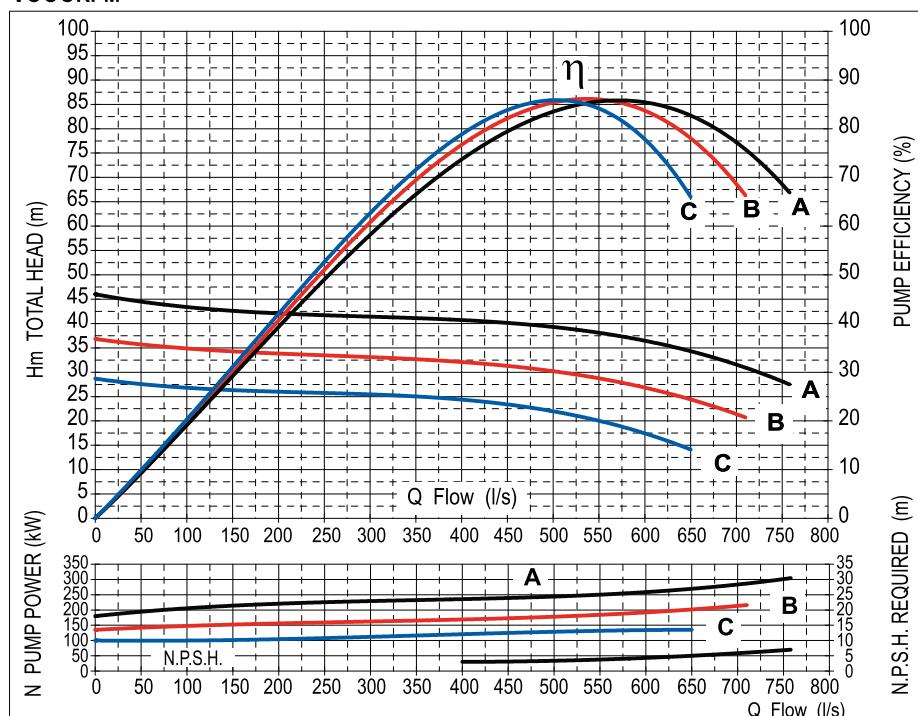
- A = Ø 845
- B = Ø 790
- C = Ø 735

1500 RPM

1500 RPM


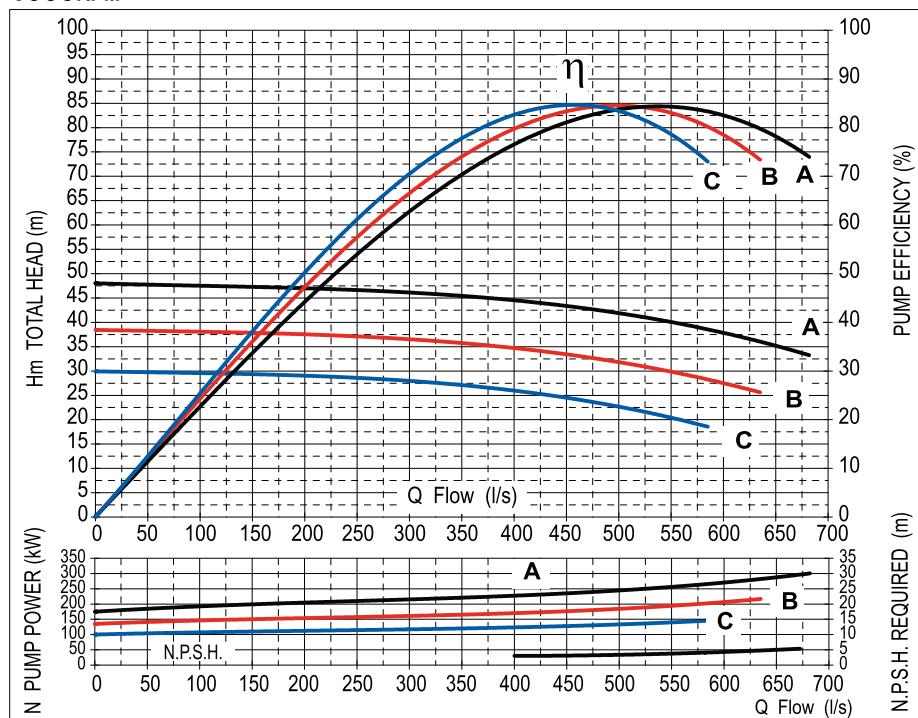
Performance Curves

1000rpm

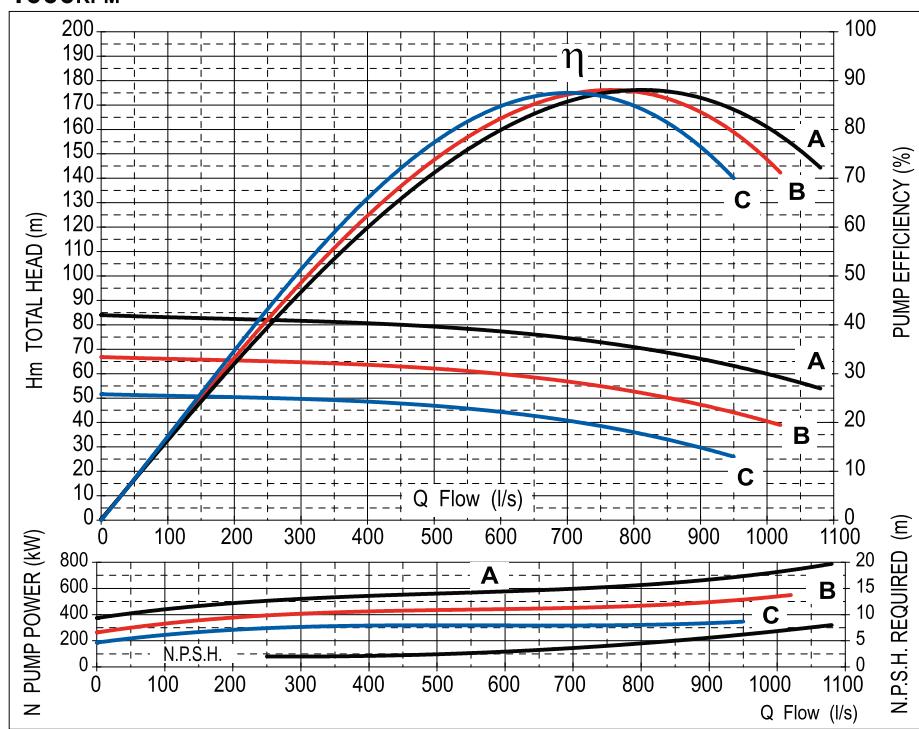
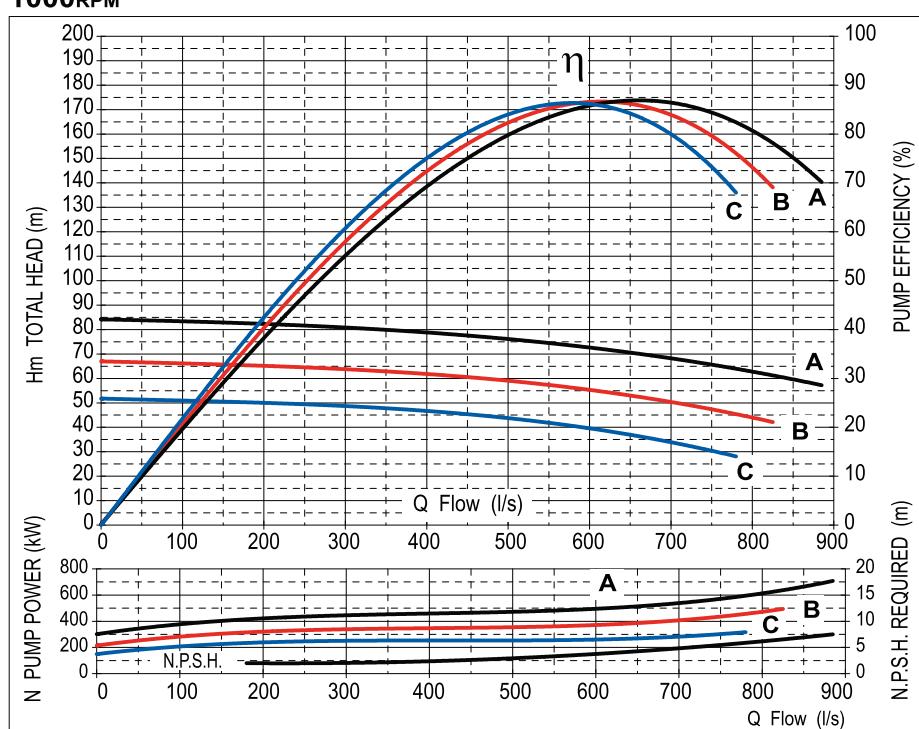


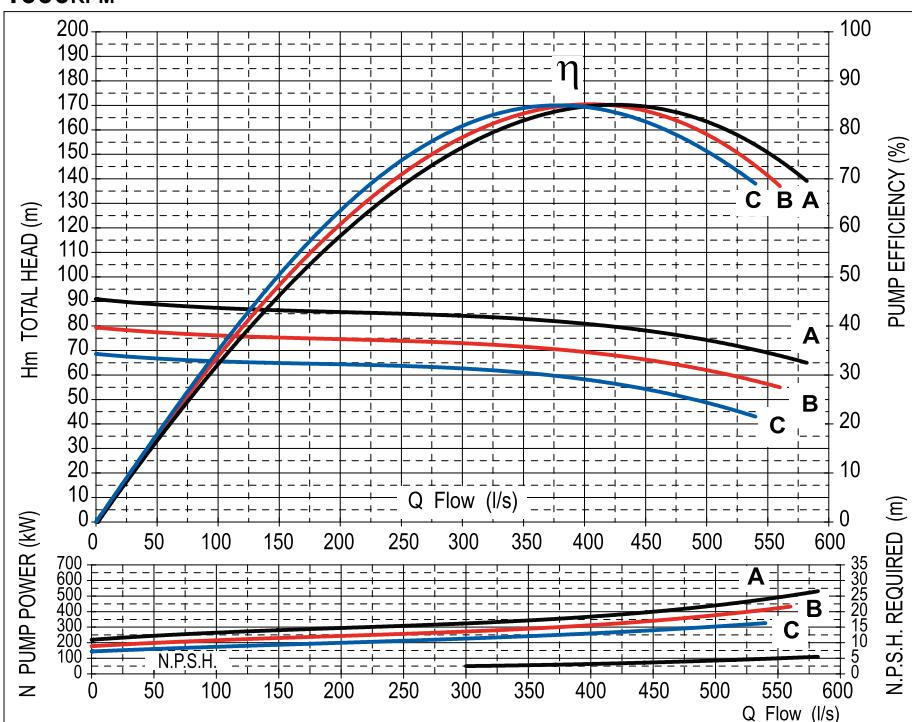
1000RPM


Barometric Head	0 m	Suction Diameter	DN500	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN400	
Liquid Density	1g/cm ³	Pump Weight	2400kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP400-500			SERIAL NO: 523A	

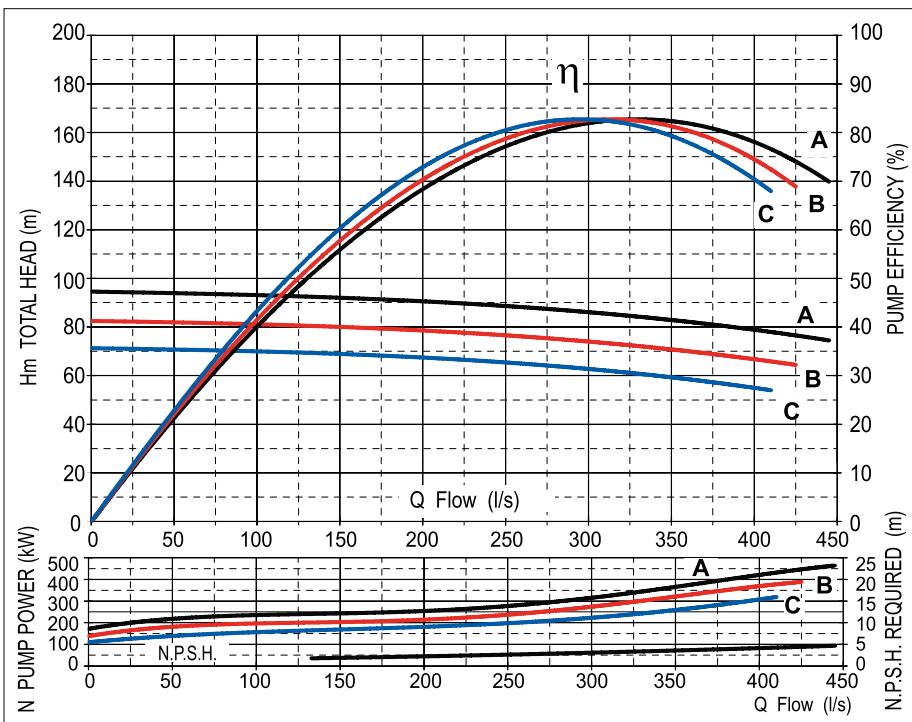
1000RPM


Barometric Head	0 m	Suction Diameter	DN500	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN400	
Liquid Density	1g/cm ³	Pump Weight	2400kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP400-500			SERIAL NO: 523B	

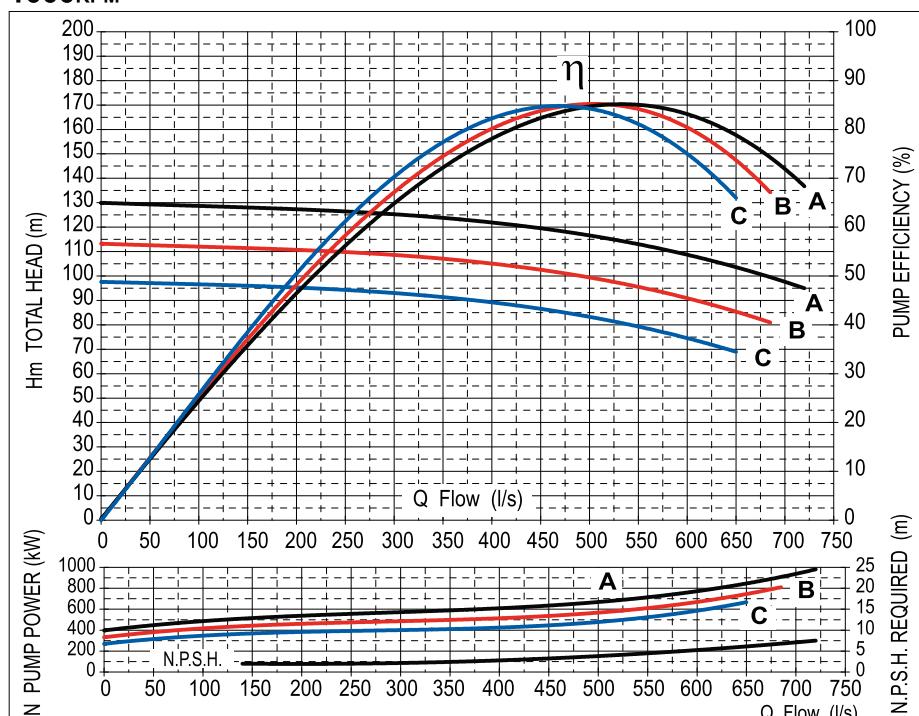
1000RPM

1000RPM


1000RPM


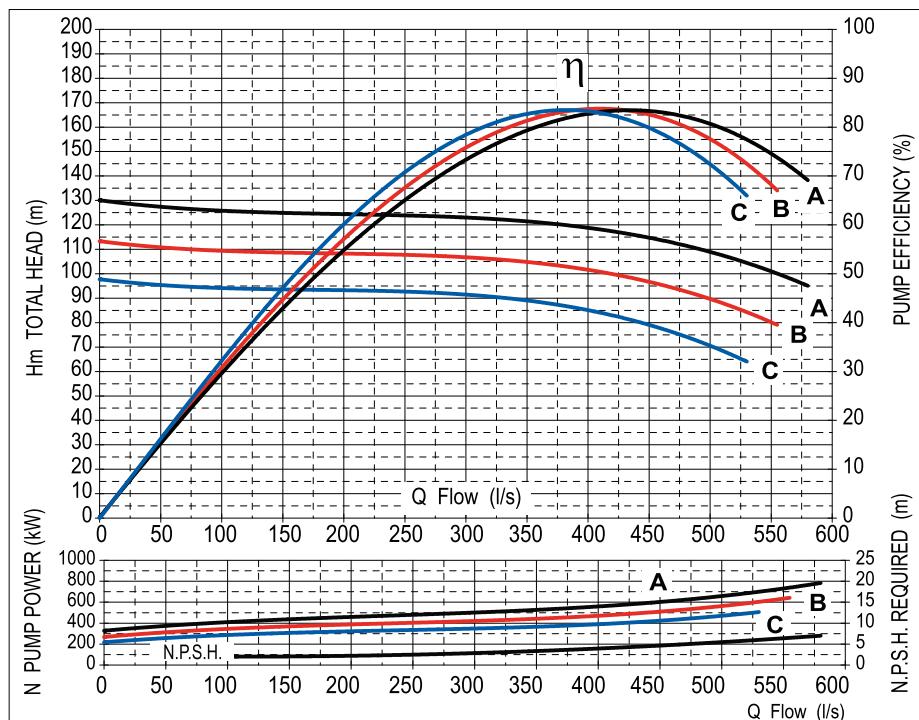
Barometric Head	0 m	Suction Diameter	DN500	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN400	
Liquid Density	1g/cm³	Pump Weight	3100kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP400-750	SERIAL NO: 525A			

1000RPM


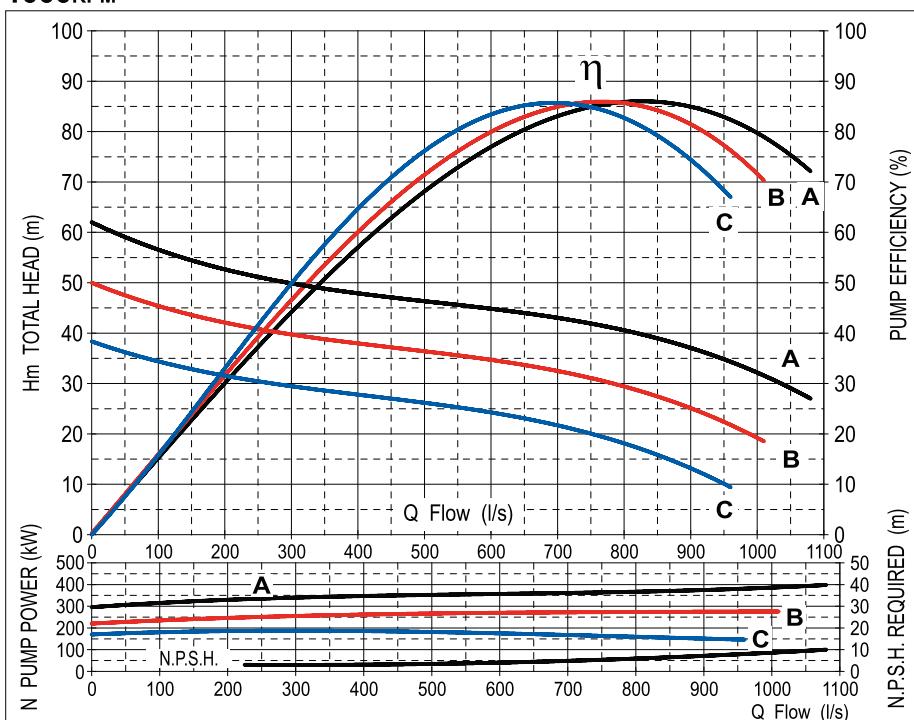
Barometric Head	0 m	Suction Diameter	DN500	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN400	
Liquid Density	1g/cm³	Pump Weight	3100kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP400-750	SERIAL NO: 525B			

1000RPM


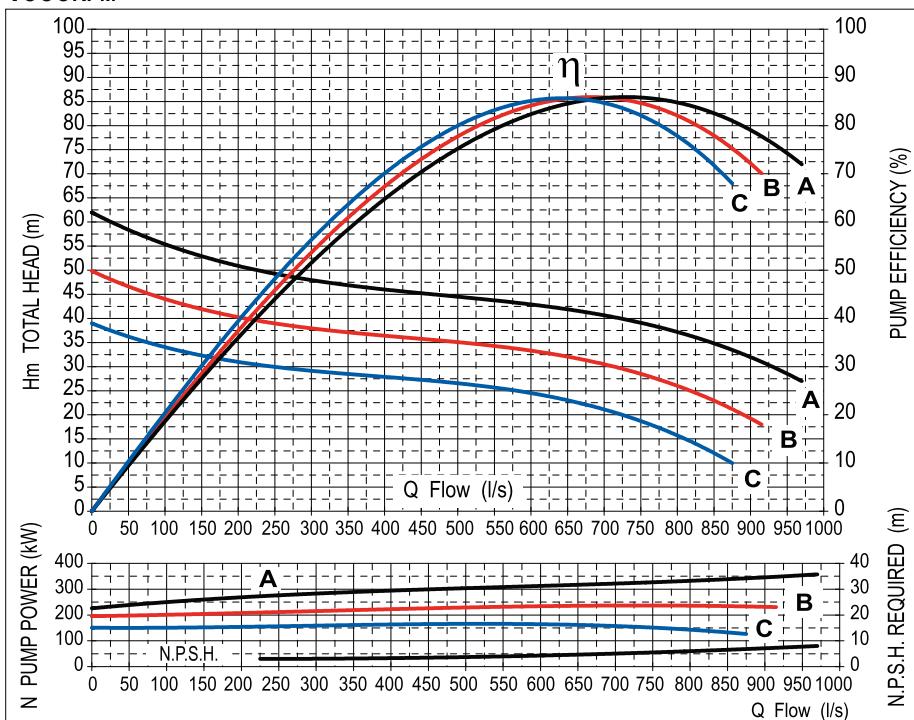
Barometric Head	0 m	Suction Diameter	DN500	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN400	
Liquid Density	1g/cm³	Pump Weight	3920kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP400-850		SERIAL NO: 529A		

1000RPM


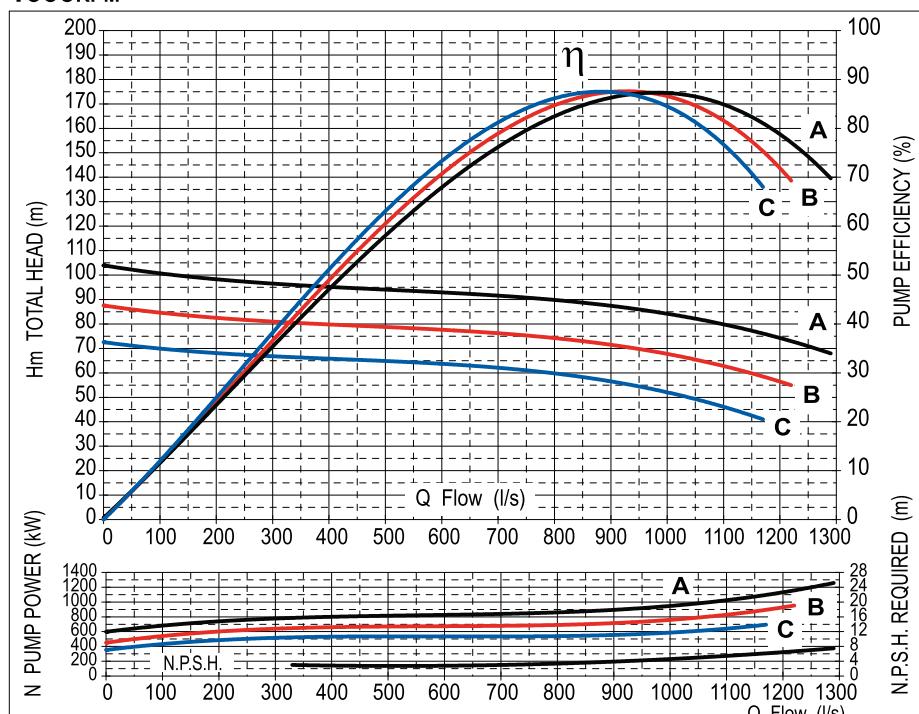
Barometric Head	0 m	Suction Diameter	DN500	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN400	
Liquid Density	1g/cm³	Pump Weight	3920kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP400-850		SERIAL NO: 529B		

1000RPM


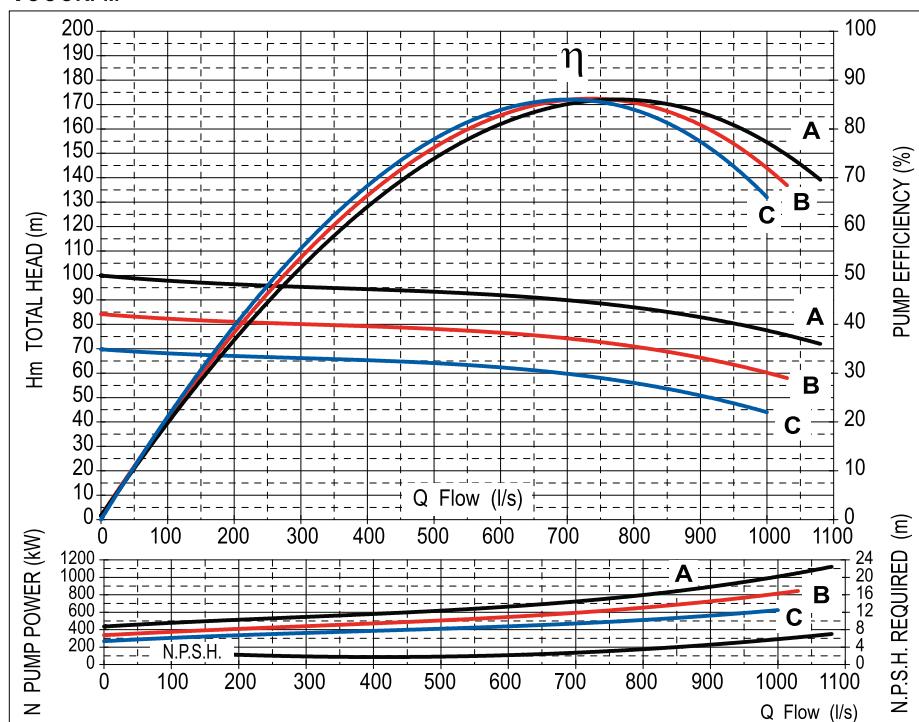
Barometric Head	0 m	Suction Diameter	DN600	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN500	
Liquid Density	1g/cm³	Pump Weight	2400kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP500-510	SERIAL NO: 515A			

1000RPM


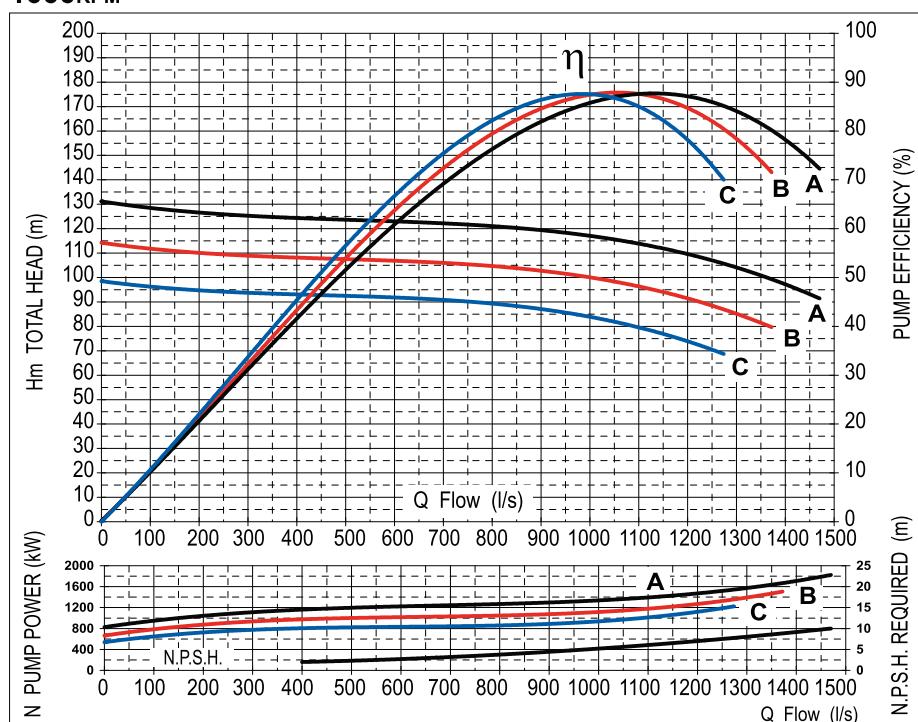
Barometric Head	0 m	Suction Diameter	DN600	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN500	
Liquid Density	1g/cm³	Pump Weight	2400kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP500-510	SERIAL NO: 515B			

1000RPM


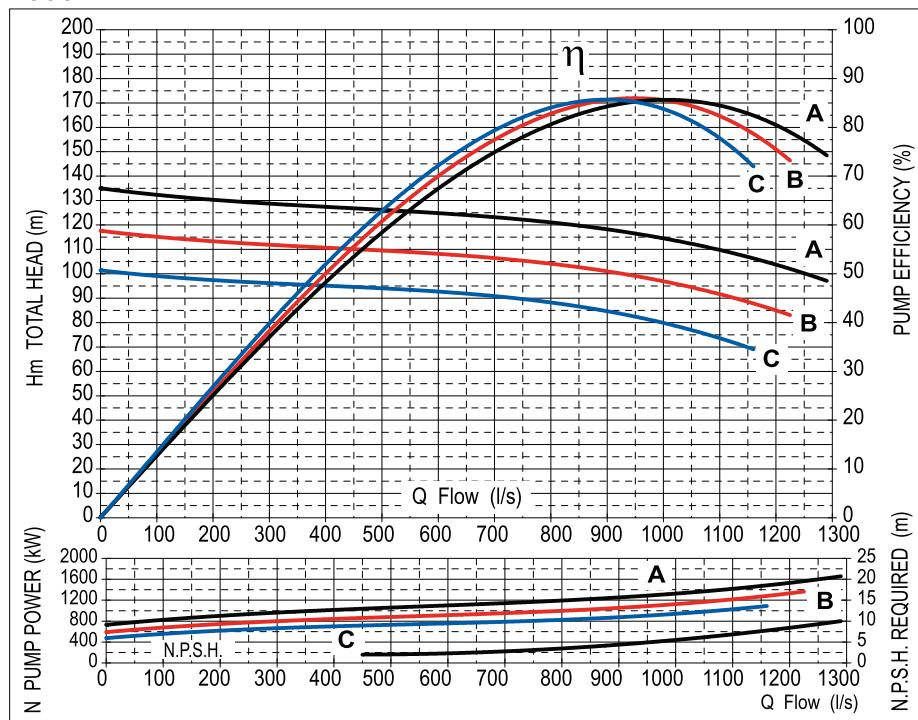
Barometric Head	0 m	Suction Diameter	DN600	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN500	
Liquid Density	1g/cm³	Pump Weight	4100kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP500-750		SERIAL NO: 526A		

1000RPM


Barometric Head	0 m	Suction Diameter	DN600	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN500	
Liquid Density	1g/cm³	Pump Weight	4100kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP500-750		SERIAL NO: 526B		

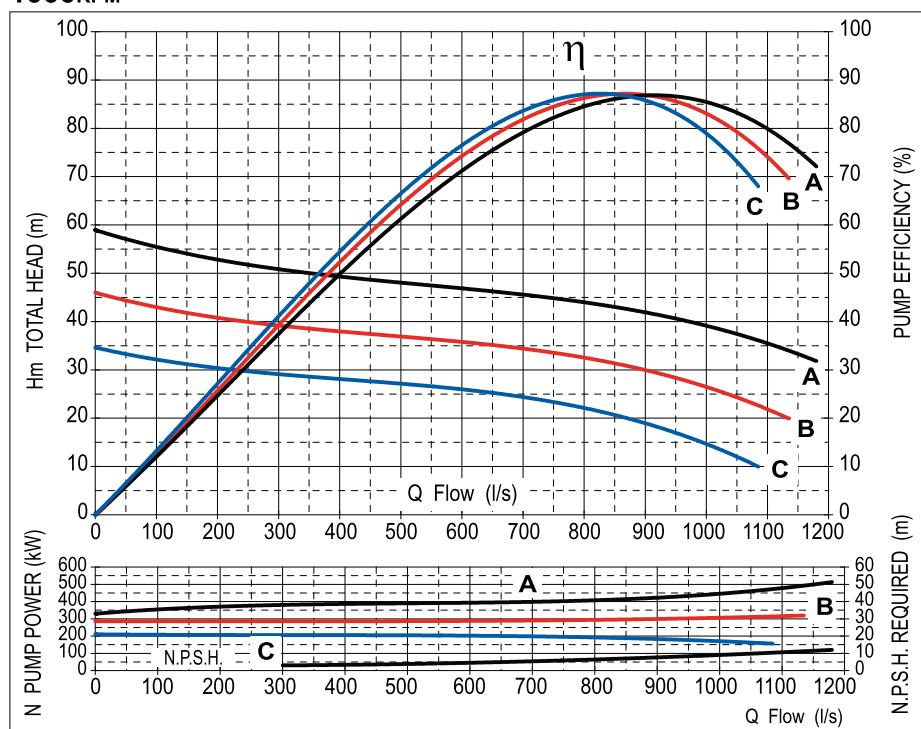
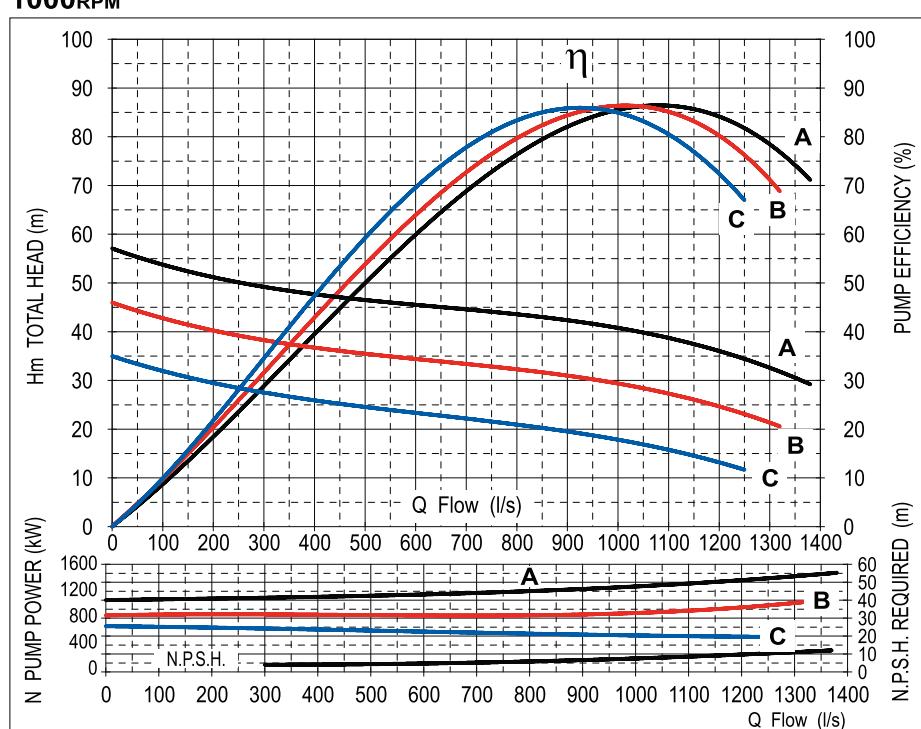
1000RPM


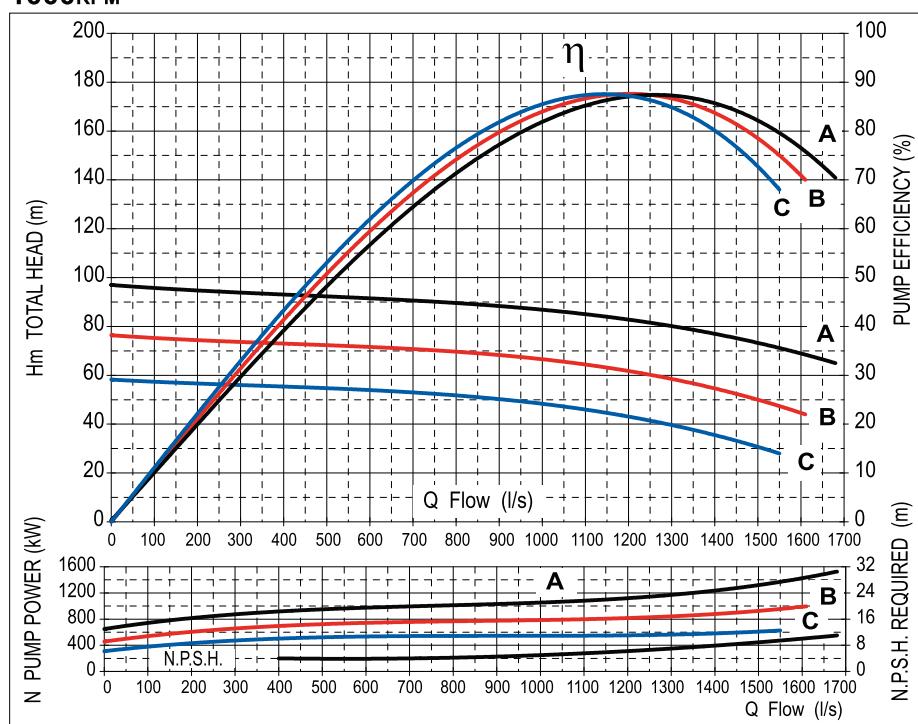
Barometric Head	0 m	Suction Diameter	DN600	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN500	
Liquid Density	1g/cm ³	Pump Weight	5000kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP500-900				SERIAL NO: 530A

1000RPM


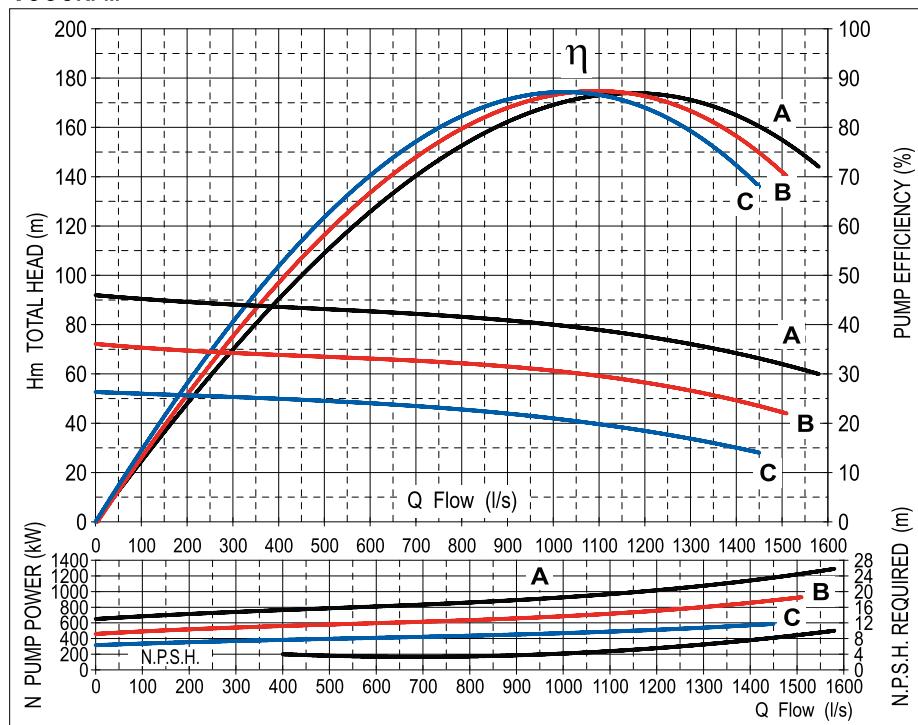
Barometric Head	0 m	Suction Diameter	DN600	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN500	
Liquid Density	1g/cm ³	Pump Weight	5000kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP500-900				SERIAL NO: 530B

Legend:
● A = Ø 910
● B = Ø 845
● C = Ø 780

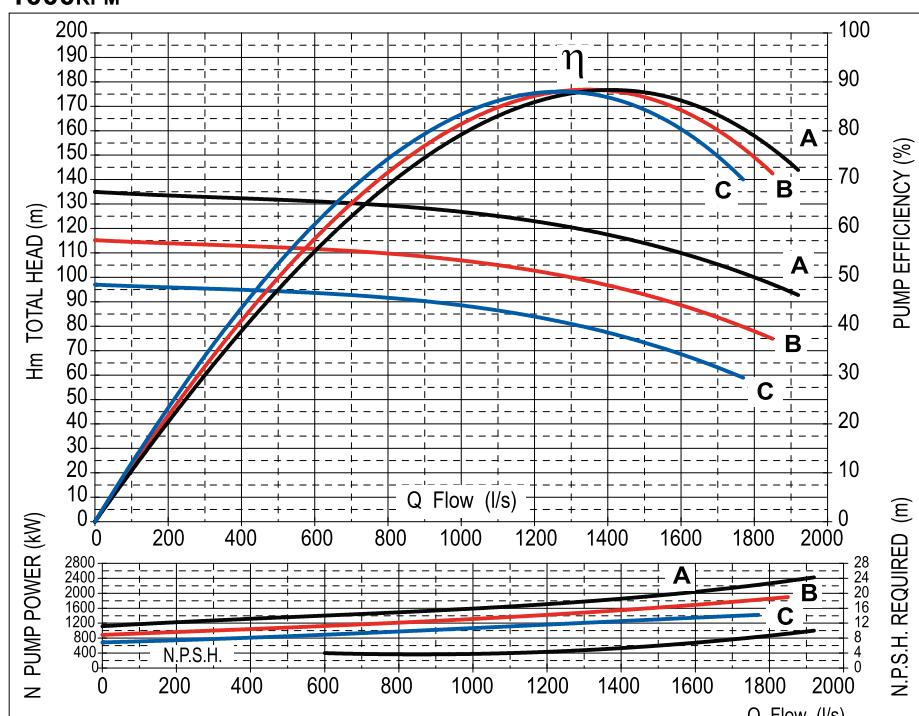
1000RPM

1000RPM


1000RPM


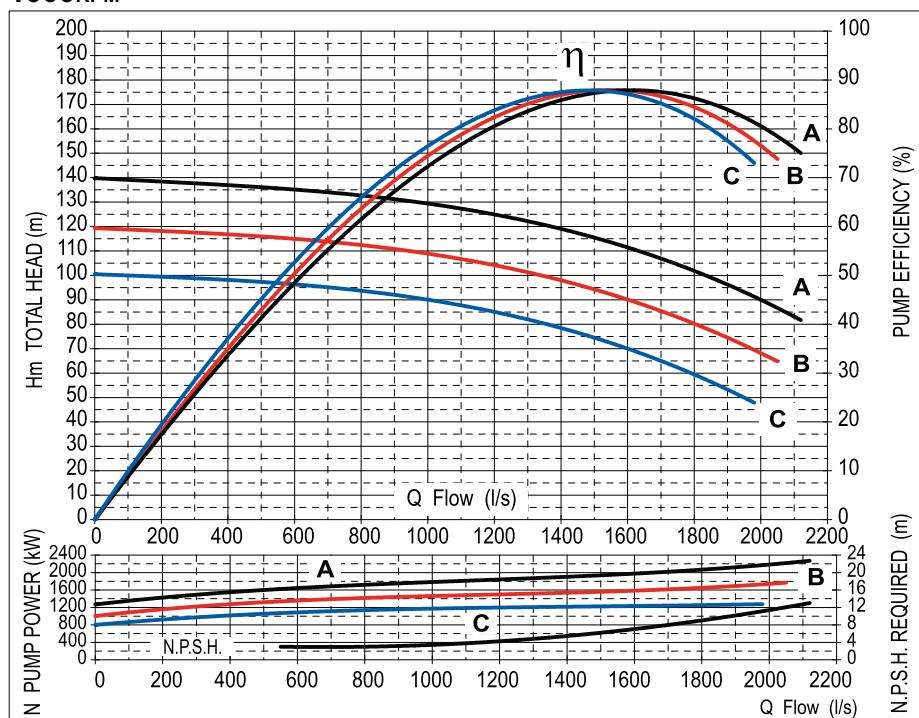
Barometric Head	0 m	Suction Diameter	DN700	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN600	● A = Ø 800
Liquid Density	1g/cm³	Pump Weight	4620kg	● B = Ø 710
Liquid Viscosity	1 cs			● C = Ø 620
PUMP MODEL: SP600-700	SERIAL NO: 518A			

1000RPM


Barometric Head	0 m	Suction Diameter	DN700	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN600	● A = Ø 780
Liquid Density	1g/cm³	Pump Weight	4620kg	● B = Ø 700
Liquid Viscosity	1 cs			● C = Ø 620
PUMP MODEL: SP600-700	SERIAL NO: 518B			

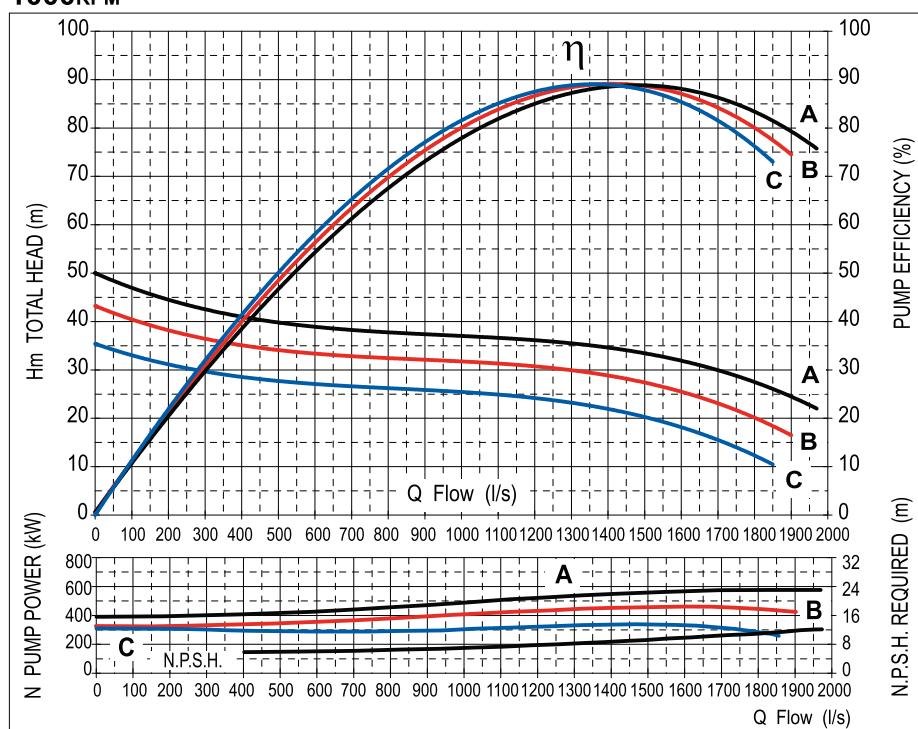
1000RPM


Barometric Head	0 m	Suction Diameter	DN800	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN600	
Liquid Density	1g/cm³	Pump Weight	6750kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP600-840		SERIAL NO: 527A		

1000RPM


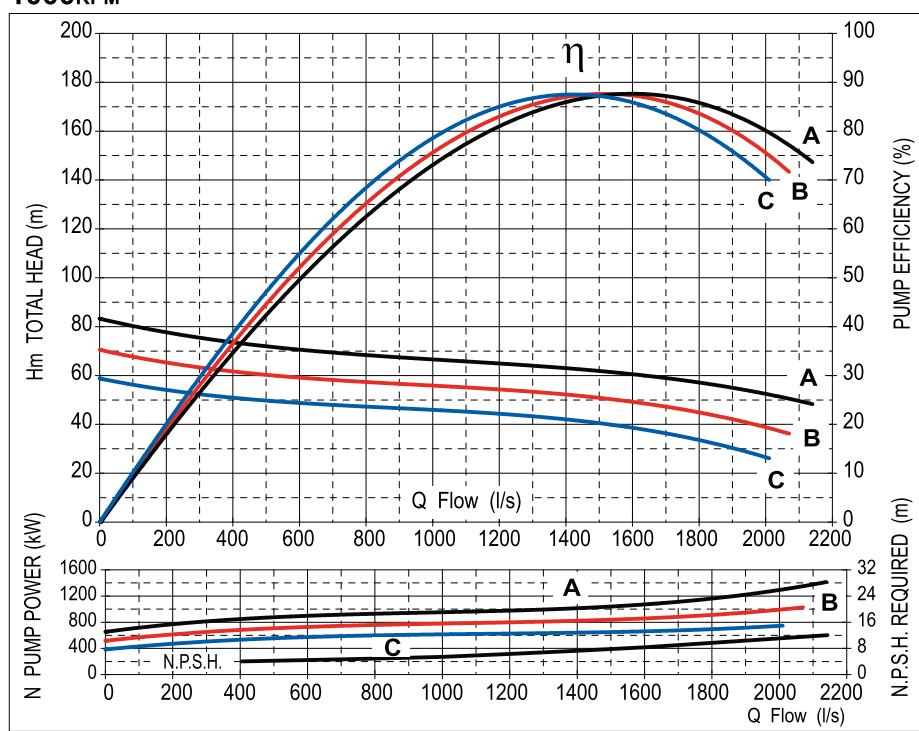
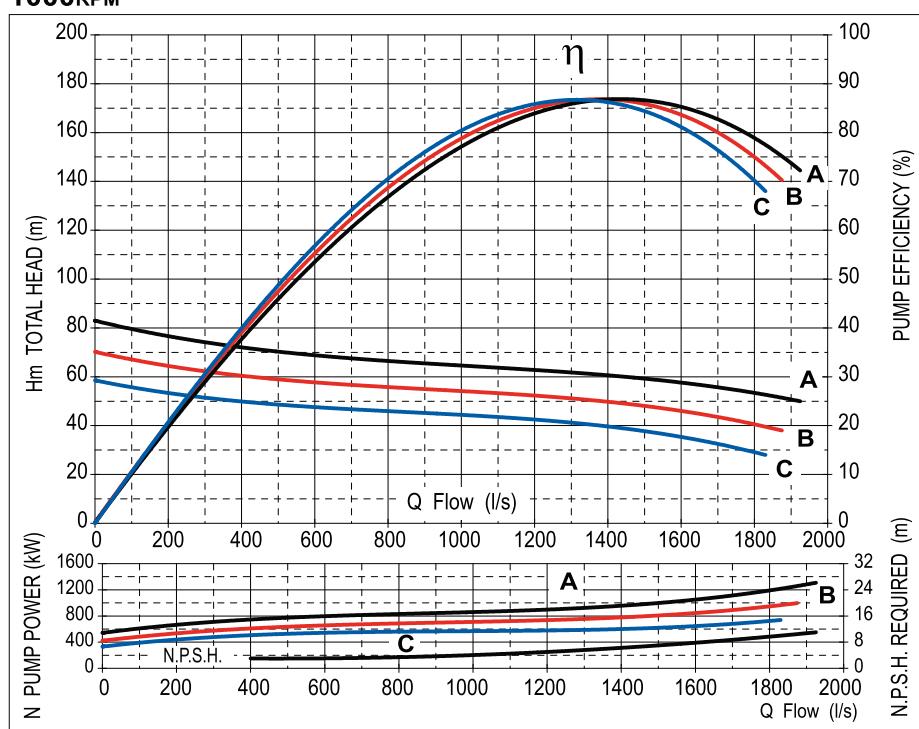
Barometric Head	0 m	Suction Diameter	DN800	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN600	
Liquid Density	1g/cm³	Pump Weight	6750kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP600-840		SERIAL NO: 527B		

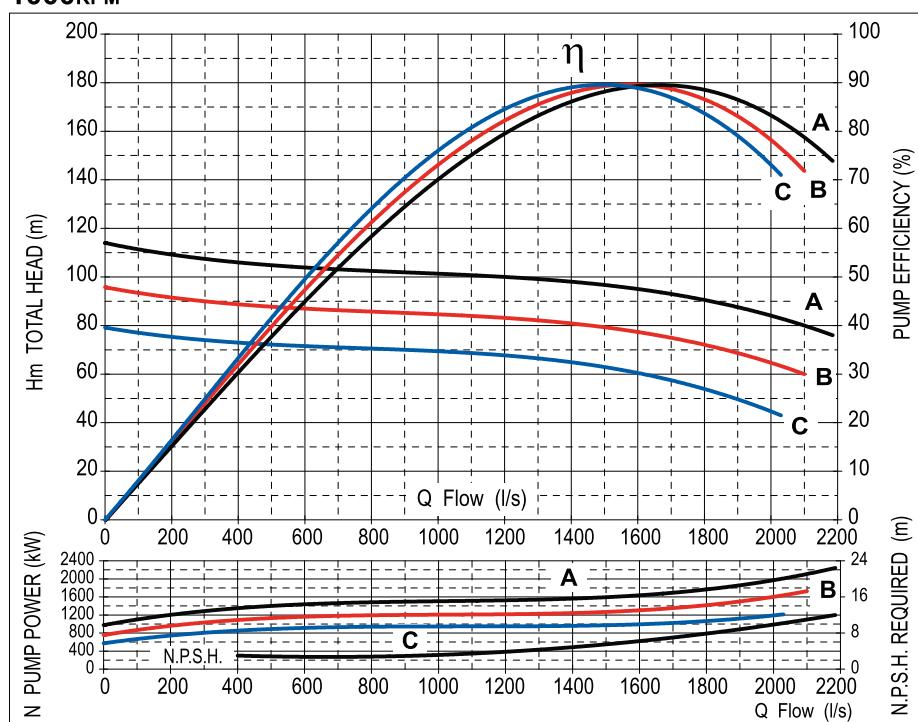
1000RPM



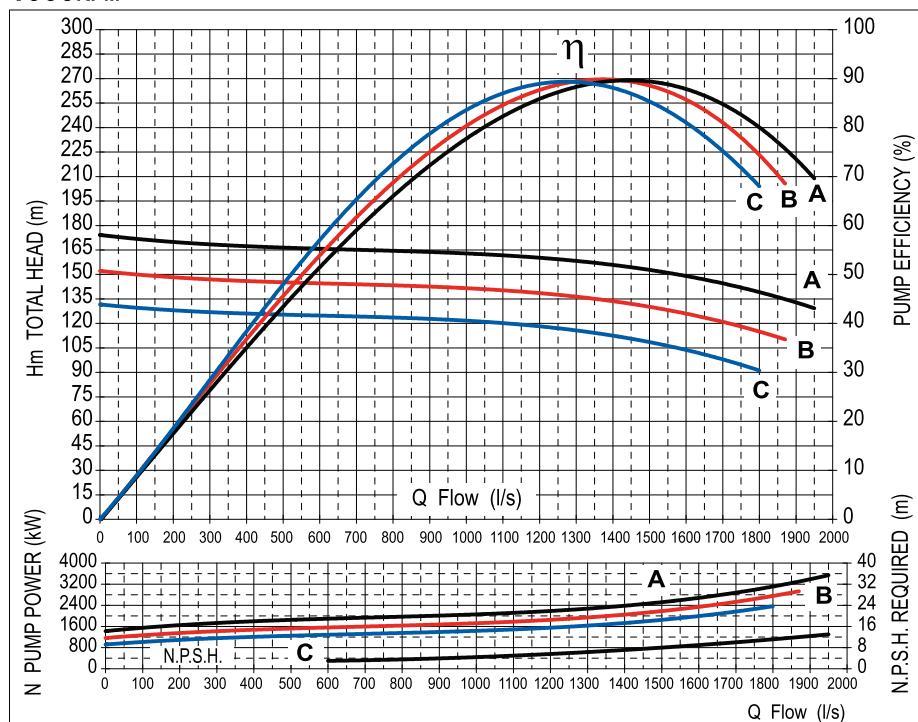
Barometric Head	0 m	Suction Diameter	DN800	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN700	
Liquid Density	1g/cm ³	Pump Weight	4450kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP700-570		SERIAL NO: 520A		

- A = Ø 570
- B = Ø 530
- C = Ø 480

1000RPM

1000RPM


1000RPM


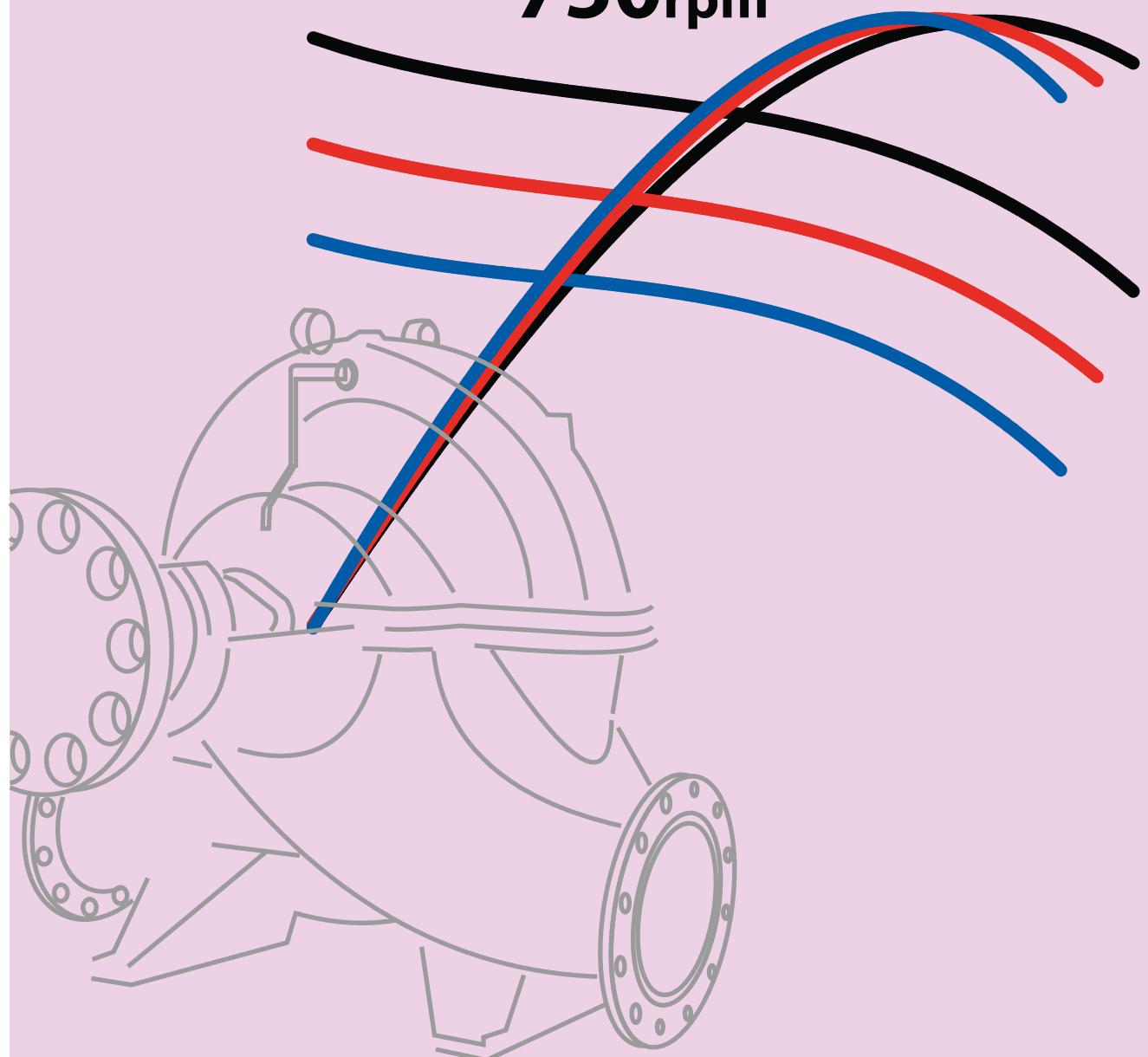
Barometric Head	0 m	Suction Diameter	DN800	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN700	● A = Ø 840
Liquid Density	1g/cm³	Pump Weight	7340kg	● B = Ø 770
Liquid Viscosity	1 cs			● C = Ø 700
PUMP MODEL: SP700-800	SERIAL NO: 521A			

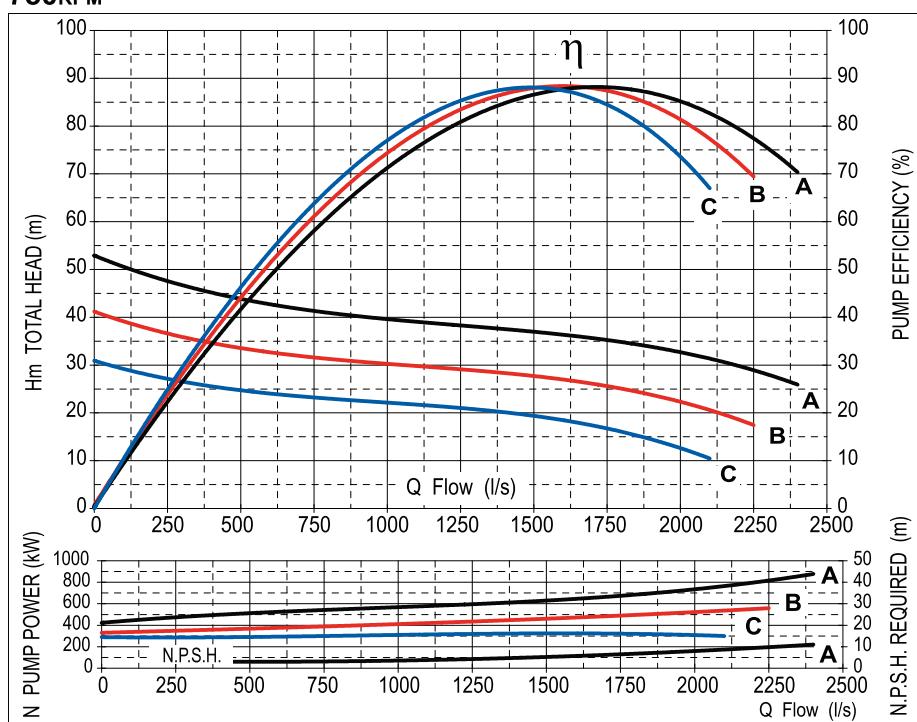
1000RPM


Barometric Head	0 m	Suction Diameter	DN800	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN700	● A = Ø 995
Liquid Density	1g/cm³	Pump Weight	12600kg	● B = Ø 930
Liquid Viscosity	1 cs			● C = Ø 865
PUMP MODEL: SP700-1000	SERIAL NO: 531A			

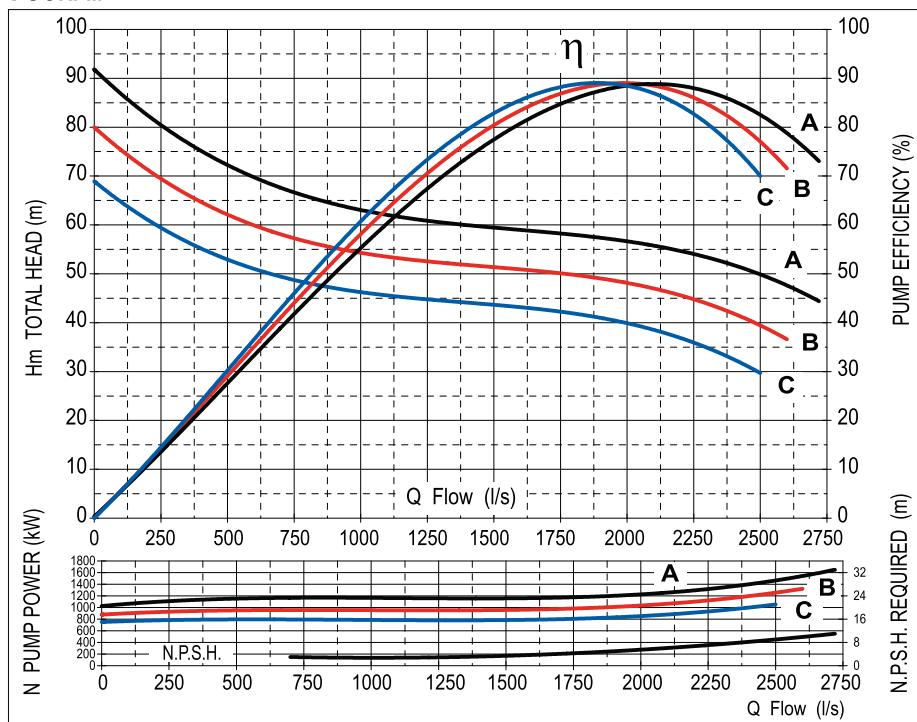
Performance Curves

750rpm

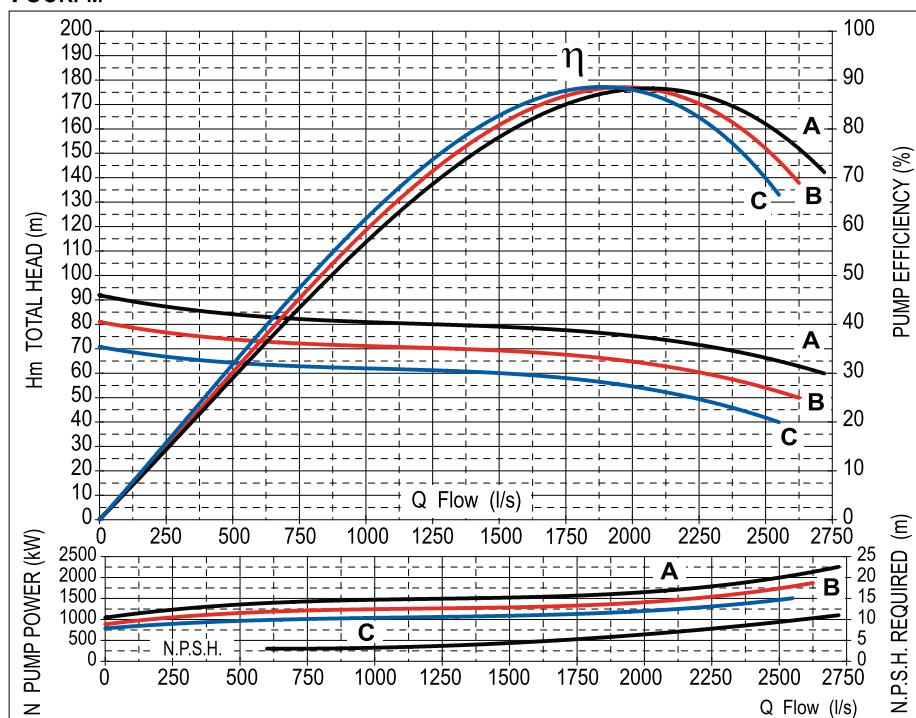
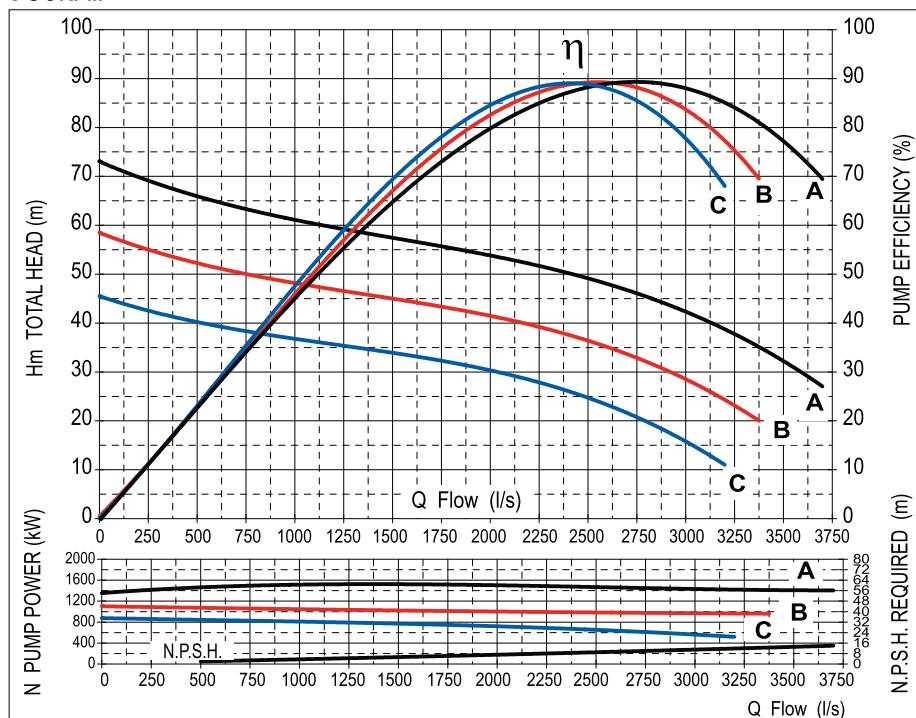


750RPM


Barometric Head	0 m	Suction Diameter	DN900	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN800	● A = Ø 850
Liquid Density	1g/cm³	Pump Weight	8520kg	● B = Ø 750
Liquid Viscosity	1 cs			● C = Ø 650
PUMP MODEL: SP800-740		SERIAL NO: 532A		

750RPM


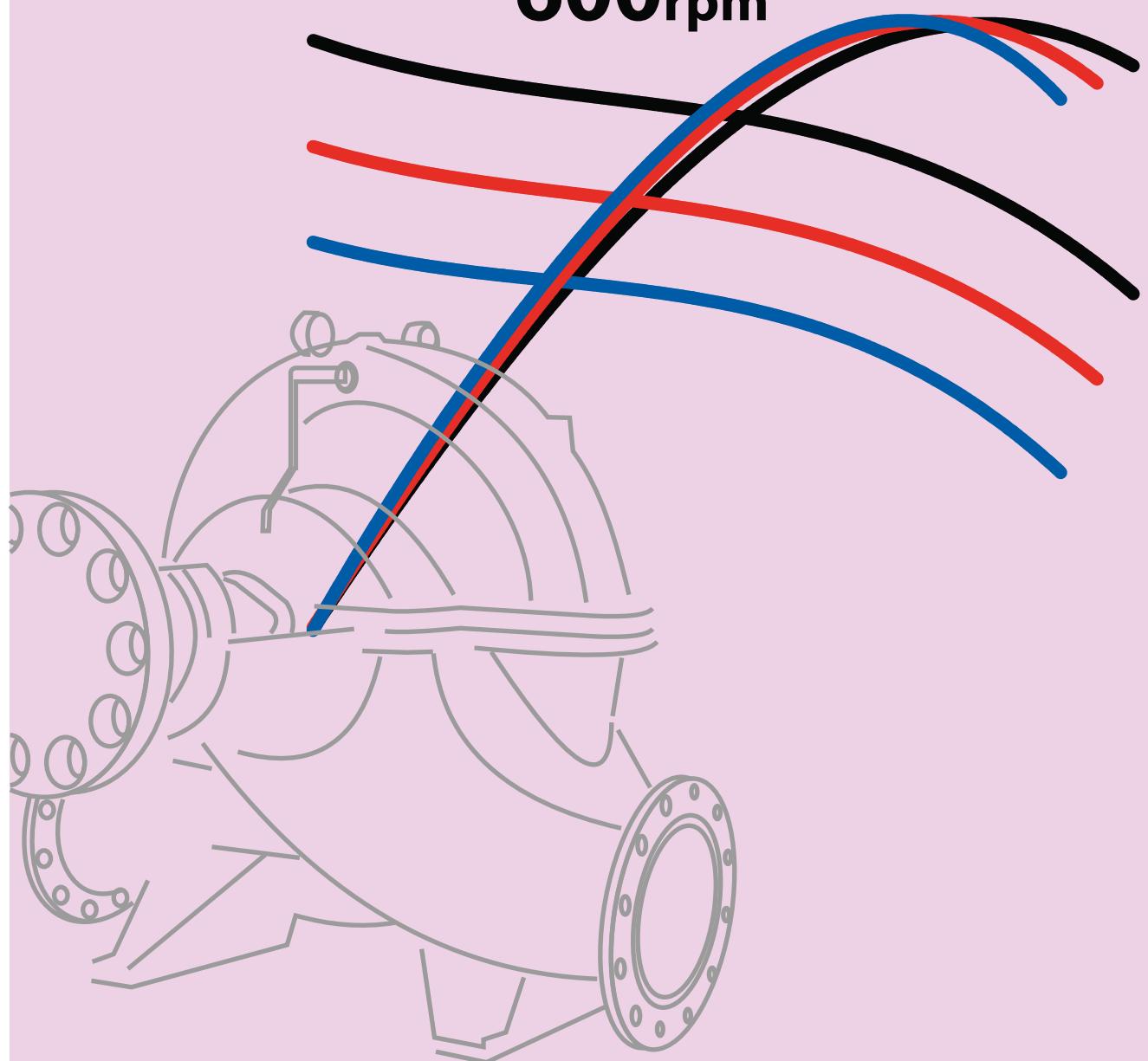
Barometric Head	0 m	Suction Diameter	DN900	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN800	● A = Ø 900
Liquid Density	1g/cm³	Pump Weight	9400kg	● B = Ø 840
Liquid Viscosity	1 cs			● C = Ø 780
PUMP MODEL: SP800-850		SERIAL NO: 533A		

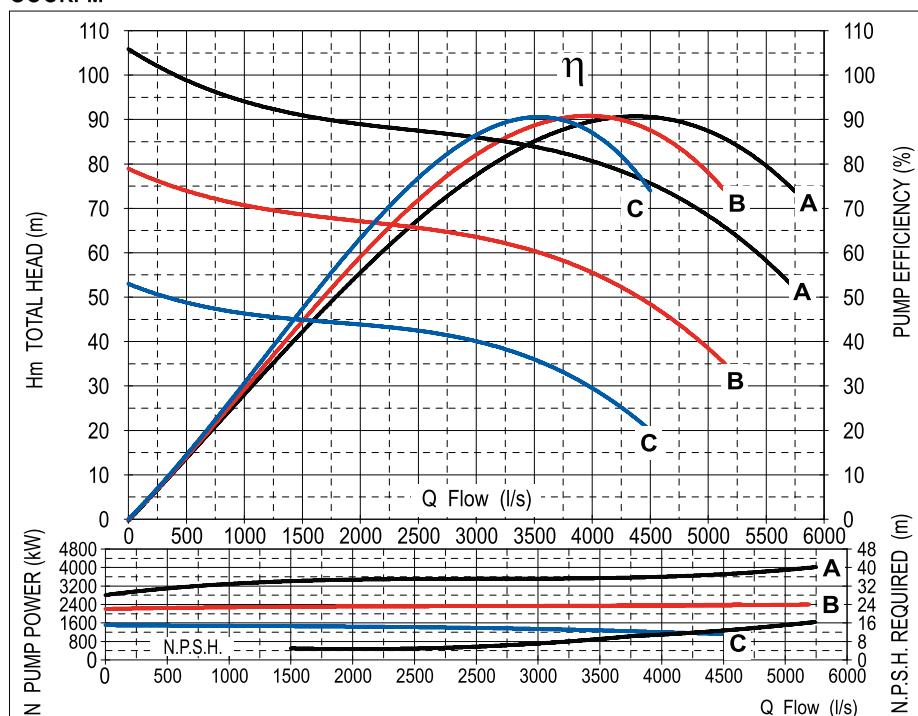
750RPM

750RPM




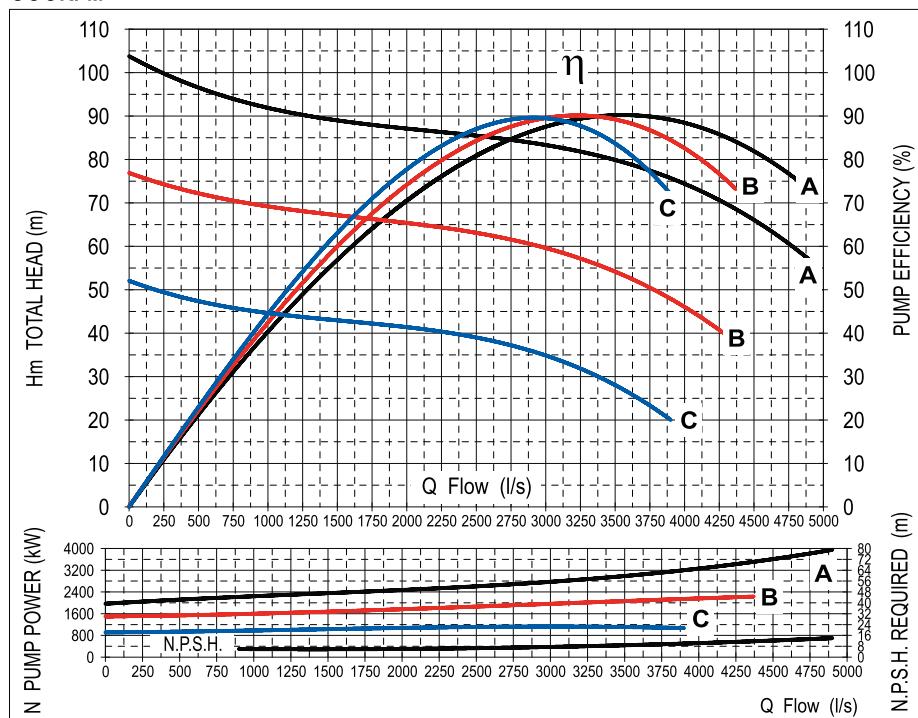
Performance Curves

600rpm



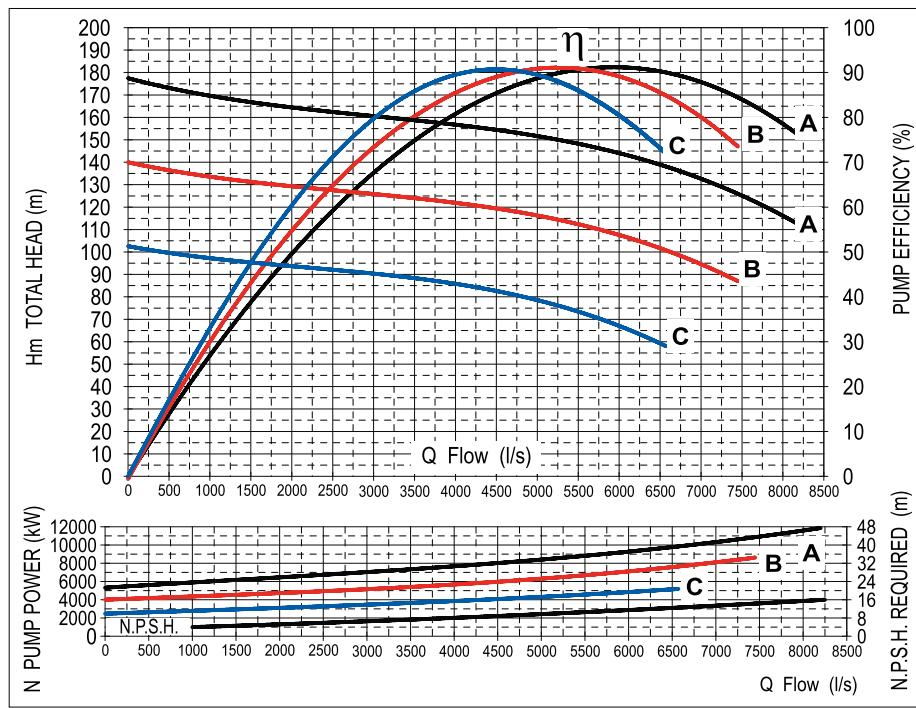
600RPM


Barometric Head	0 m	Suction Diameter	DN1200	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN1000	
Liquid Density	1g/cm³	Pump Weight	18900kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP1000-1300		SERIAL NO: 540A		

600RPM


Barometric Head	0 m	Suction Diameter	DN1200	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN1000	
Liquid Density	1g/cm³	Pump Weight	18900kg	
Liquid Viscosity	1 cs			
PUMP MODEL: SP1000-1300		SERIAL NO: 540B		

600RPM



Barometric Head	0 m	Suction Diameter	DN1300	IMPELLER DIA
Liquid Temperature	20°C	Discharge Diameter	DN1000	● A = Ø 1750
Liquid Density	1g/cm³	Pump Weight	30000kg	● B = Ø 1550
Liquid Viscosity	1 cs			● C = Ø 1350
PUMP MODEL: SP1000-1600		SERIAL NO: 542A		

WARRANTY

Warranty Duration: All Samsun Makina Sanayi A.Ş. and Products are guaranteed for 12 months from taking them into operation or 18 months from the shipping date, whichever comes first.

End-user Responsibilities: Warranty service must be performed by an authorized service. If the End-user is unable to locate or obtain warranty service from any Authorized Services or Representatives, he should call the factory at the given number and ask for the After Sales Department, which will then arrange him a special warranty service.

Warranty service will be performed during normal working hours.

The end-user must present his Warranty Certificate together with the product invoice upon request.

The end-user is responsible for normal care.

This warranty only applies to officially and accepted claims breakdowns, it does not cover any defect, malfunction, etc. resulting from misuse, abuse, lack of normal care, corrosion, freezing, modification, unauthorized or improper repair or installation, accident, acts of nature or any other application done contrary to Samsun Makina Sanayi A.Ş. Installation, Operation and Maintenance Manual.

Limitations And Exclusions: If any Samsun Makina Sanayi A.Ş. part is repaired or replaced, the new part shall be warranted for only the remainder of the original warranty period.

Warranty Claims should be well explained and accompanied with photos and transferred to Samsun Makina Sanayi A.Ş., within a maximum of one week (5 working days) including the day of breakdown. Otherwise this breakdown will be considered immediately out of warranty.

Consequential damages, due to unclaimed failure(s) or problem(s) observed during operation are not covered by this warranty.

No claim may be made against Samsun Makina Sanayi A.Ş. products based on any oral warranty.

The end-user should take all necessary precaution against any breakdown or failure in Samsun Makina Sanayi A.Ş. Product. Lost profits, delay, or any other loss due to unavailability of Samsun Makina Sanayi A.Ş. products during failure or reparation is out of Samsun Makina Sanayi A.Ş. Company Inc. responsibility.

NECESSARY INFORMATION FOR INQUIRY

Below details will help us to offer the most proper alternative for your needs.

Required capacity, Q	: l/s or m ³ /h
Required total manometric head, Hm	: m
Speed	: rpm
Liquid type	:
Viscosity	:
Pump installation type	: Horizontal or vertical
Site altitude	:
Pump elevation level from water level	:
Casing material	:
Impeller material	:
Motor starting type	: With variable speed drive, soft starter, direct
Voltage	:
Frequency	:
Motor isolation class	:
Motor cooling type	:
Ambient temperature	:



HYDRO BENELUX S.A

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