



**SELF-PRIMING
PUMPS
LP AND HP LINE**

Innovation and Technology combined with Quality

A 100% Brazilian
Company



Bombas Esco SA

Bombas Esco develops complete solutions for pumping different kinds of fluids, rationalizing the applications and placing all its experience, laboratories and technicians at customers' disposal.

Esco Master Line

Entirely manufactured in Brazil, Esco Master product line, models LP and HP, resulted from an innovative project that incorporates the most advanced available technology of self-repriming centrifugal pump.

The performance curve, comprising a range of rotation speeds, allows a better match of the pump to each application, also making it possible to assign a same pump model to diverse applications.

The Esco Master line offers a highly efficient operation for longer useful life than common centrifugal pumps. The internal design of the pump casing and its high precision iron casting process result in smooth surfaces, which assures a better performance.

LP and HP models design meets the requirements for installation in sewer lift stations, food industry, paper and cellulose, steel mills, agriculture, cattle rising, fish farming, petrochemical, flood control, among other applications.

Tests according to ISO 2548 standards, guarantee each pump performance before delivering, with the quality and reliability that give Bombas Esco the leadership in pumps manufacture and pumping solutions.

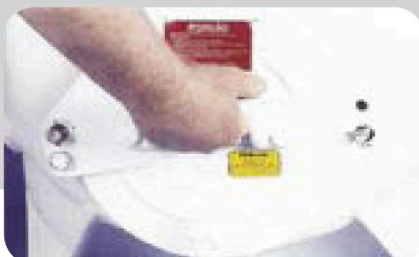
Automatic Self-repriming

Their outstanding operational achievement is the capability to automatically self-repriming after getting started, without needing the well known "foot valves" or any other device for this purpose in the suction line.

- High-pressure chamber
- Low-pressure chamber
- Impeller
- Oil lubricated Bearing and Seal Housing



Maintenance, Adjustments and Cleaning



The Self-priming pump Esco Master HP and LP feature an inspection cover for a fast and safe maintenance procedure.



To clean the pump just remove the inspection cover which features extracting screws and grabbing handles, without removing any other pump parts or piping.



An exclusive external regulation system allows adjusting the clearance between the impeller and the wear plate just using an Allen and a fixed wrench, without the need of any disassembling.



The pump features a replaceable wear plate easily accessed by disengaging the inspection cover, which also makes it possible to unclog the impeller or the volute by removing any solid material eventually stuck in them. The rotating assembly comprising bearings, shaft, mechanical seal, and impeller among other related parts that are essential for the pump operation, can be pulled out by the opposite side of the pump without disassembling any other pump parts or the piping. Its parts fit together in a single-unity assembly.

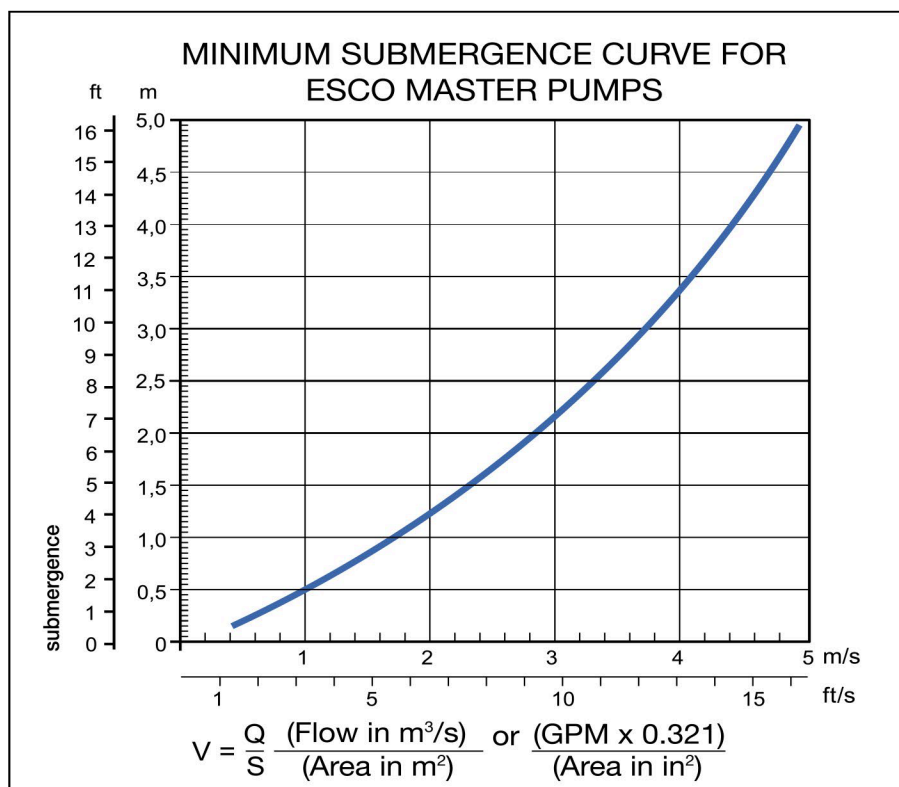
LP and HP Self-priming Models

Constructive materials

ESCO MASTER PUMPS - CONSTRUCTIVE MATERIALS								
ESCO MASTER	STANDARD	TYPE A	TYPE B	TYPE C	TYPE D	TYPE E	TYPE F	TYPE G
BODY	ASTM.A48CL30					CD4MCU	CF-8M	ADI
IMPELLER	ASTMA 536 65-45-12	A216 WCB	CD4MCU	CF-8M	ADI	CD4MCU	CF-8M	ADI
STEEL WEAR PLATE	SAE 1020	SAE 1020	AISI 316	AISI 316	AISI 316	AISI 316	AISI 316	AISI 316
DIE CAST WEAR PLATE	ASTM A 536-65-45-12	A216 WCB	CD4MCU	CF-8M	ADI	CD4MCU	CF-8M	ADI
INSPECTION COVER	ASTM.A48CL30	A216 WCB	CD4MCU	CF-8M	ADI	CD4MCU	CF-8M	ADI
BEARINGS HOUSING	ASTM.A48CL30					CD4MCU	CF-8M	ADI
MECHANICAL SEAL HOUSING	ASTM.A48CL30	A216 WCB	CD4MCU	CF-8M	ADI	CD4MCU	CF-8M	ADI
FLAP VALVE	NEOPRENE					VITON		
SHAFT STEEL SLEEVE	VC- 131							
FLANGE	ASTM.A48CL30				ADI	CF-8M	CF-8M	ADI
O-RING	BUNA		VITON					
SHAFT	ANSI 4140 HT	AISI 410						
MECHANICAL SEAL	SS 316 steel parts, Viton o'rings, Tungsten and Titanium Carbide rotating hard rings.							

Notice: Bombas Esco SA may alter the above described parts without previous communication.

Minimum Submergence Curve



Notice: Recommended Minimum Submergence x Suction Pipe Inlet Velocity.

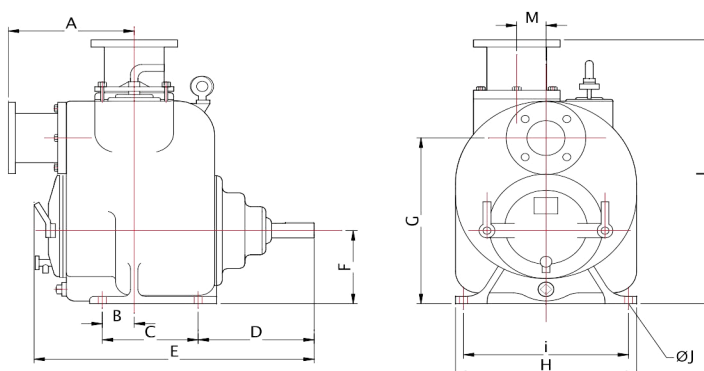
Horizontal Pumps

Self-repriming Esco Master LP

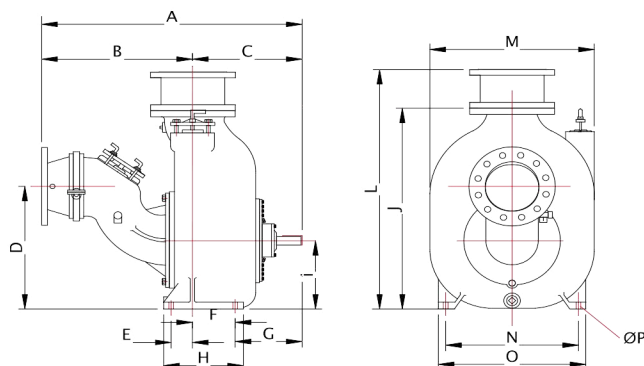
Product Description

Horizontal shaft self-repriming centrifugal pump, with semi-open impeller, is appropriate for pumping raw sewage. Upon request and technical analysis, it also applies for pumping other liquids with solids in suspension in industrial process and effluents in general. Sizes from 2" to 12", axial suction face, radial displacement discharge, capability of solid particles handling from 1.3/4" to 3", it automatically self-reprimes after a pumping interruption. Laboratory tests in the plant certify the operational outflow specified by the customers, ranging from 10 m³/h to 1.250 m³/h with the total dynamic discharge head ranging from 4 mH₂O to 40 mH₂O. The self-repriming capability varies from 1,5 mH₂O to 7,6 mH₂O of total dynamic suction lift depending on the rotation speed and pump model (according to the related performance curves in this catalogue). The pump can be electric or combustion engine driven, with direct coupling systems or pulley and belts. Pulleys are tightened on the shaft by means of conical sleeves for an easy assembly, maintenance and eventual adjustments.

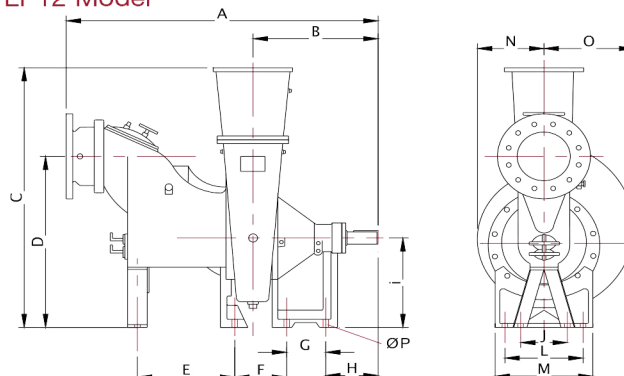
LP2, 3, 4, 6, 8 Model
(Dimensions in mm)



LP10 Model



LP12 Model



Model	LP2	LP3	LP4	LP6	LP8	LP10	LP12
A	236,0	286,0	313,5	408,5	412,8	1244,9	1621,5
B	54,0	76,2	77,8	78,0	101,6	720,9	650,0
C	163,2	228,6	280,0	280,0	304,8	524,0	1474,7
D	275,0	284,2	293,7	293,7	407,1	639,8	971,5
E	547,0	668,3	788,4	788,4	1023,1	101,6	95,3
F	151,5	190,5	222,2	222,2	330,2	204,3	270,1
G	318,0	431,8	494,3	494,3	723,9	320,0	203,2
H	308,3	433,0	508,0	508,0	704,9	381,0	68,8
I	281,0	394,0	457,2	457,2	635,0	355,6	508,0
J	Ø 14,0	Ø 18,0	Ø 18,0	Ø 18,0	Ø 22,0	1047,8	242,8
L	523,0	687,4	743,0	889,0	1068,3	1248	406,8
M	70,0	70,0	70,0	70,0	-	785,9	508,0
N	-	-	-	-	-	635,0	345,9
O	-	-	-	-	-	704,9	466,9
P	-	-	-	-	-	Ø 22,4	Ø 28,7



MODEL	LP2	LP3	LP4 a LP12
SOLID PARTICLES MAXIMUM DIAMETER	1.3/4"	2 1/2"	3"

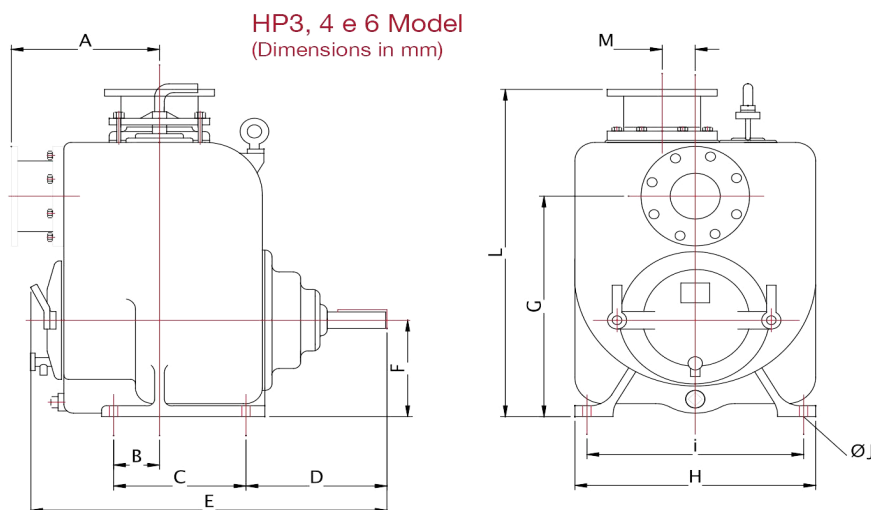
Horizontal Pumps

Self-priming Esco Master HP

Product Description

Horizontal shaft centrifugal self-priming pump, with semi-open impeller, is appropriate for pumping raw sewage. Upon request and technical analysis, it also applies for pumping other diverse liquids with solids in suspension in industrial process and effluents in general. Sizes from 3" to 6", axial suction face, radial displacement discharge, capability of solid particles handling up to 1.1/4", it automatically self-priming after a pumping interruption. Laboratory tests in the plant certify the operational outflow specified by the customers, ranging from 10 m³/h to 300 m³/h with the total dynamic discharge head up to 61 mH₂O. The self-priming capability varies from 1,5 mH₂O to 7,6 mH₂O of total dynamic suction lift depending on the rotation speed and pump model (according to performance curves in this catalogue).

The pump can be electric or combustion engine driven, with direct coupling systems or pulley and belts. Pulleys are tightened on the shaft by means of conical sleeves fix the pulleys to the shaft for an easy assembly, maintenance and eventual adjustments.



Model	HP3	HP4	HP6
A	236,0	286,0	313,5
B	54,0	76,2	77,8
C	163,2	228,6	280,0
D	275,0	284,2	293,7
E	547,0	668,3	788,4
F	151,5	190,5	222,2
G	318,0	431,8	494,3
H	308,3	433,0	508,0
I	281,0	394,0	457,2
J	Ø 14,0	Ø 18,0	Ø 18,0
L	523,0	687,4	743,0
M	70,0	70,0	70,0
N	-	-	-
O	-	-	-
P	-	-	-

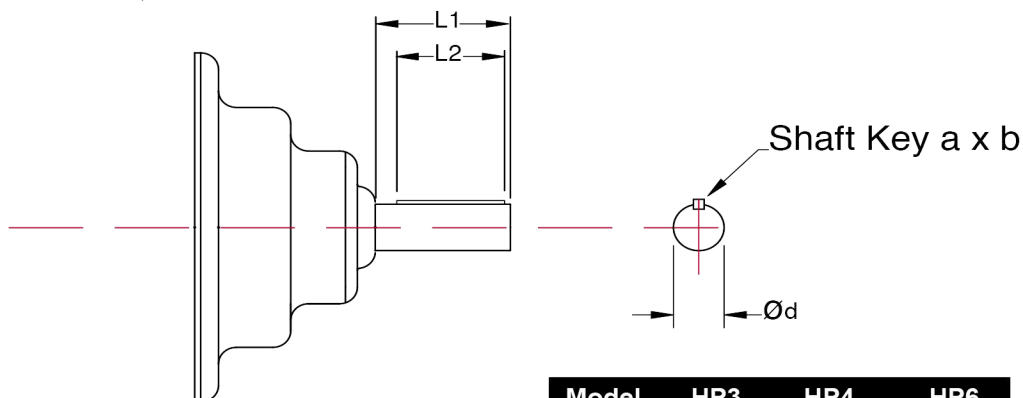


MODEL	HP3	HP4	HP6
SOLID PARTICLES MAXIMUM DIAMETER	13/16"	1 1/8"	1 1/4"

Drive End Shaft Dimensions

Line LP Pictures

Drive end shaft dimensions of self-repriming pumps.
(Dimensions in mm)



Model	HP3	HP4	HP6
Ød	38,1	38,1	44,45
L1	103,1	126,2	121,4
L2	76	90	90
a	9,52	9,52	9,52
b	9,52	9,52	9,52

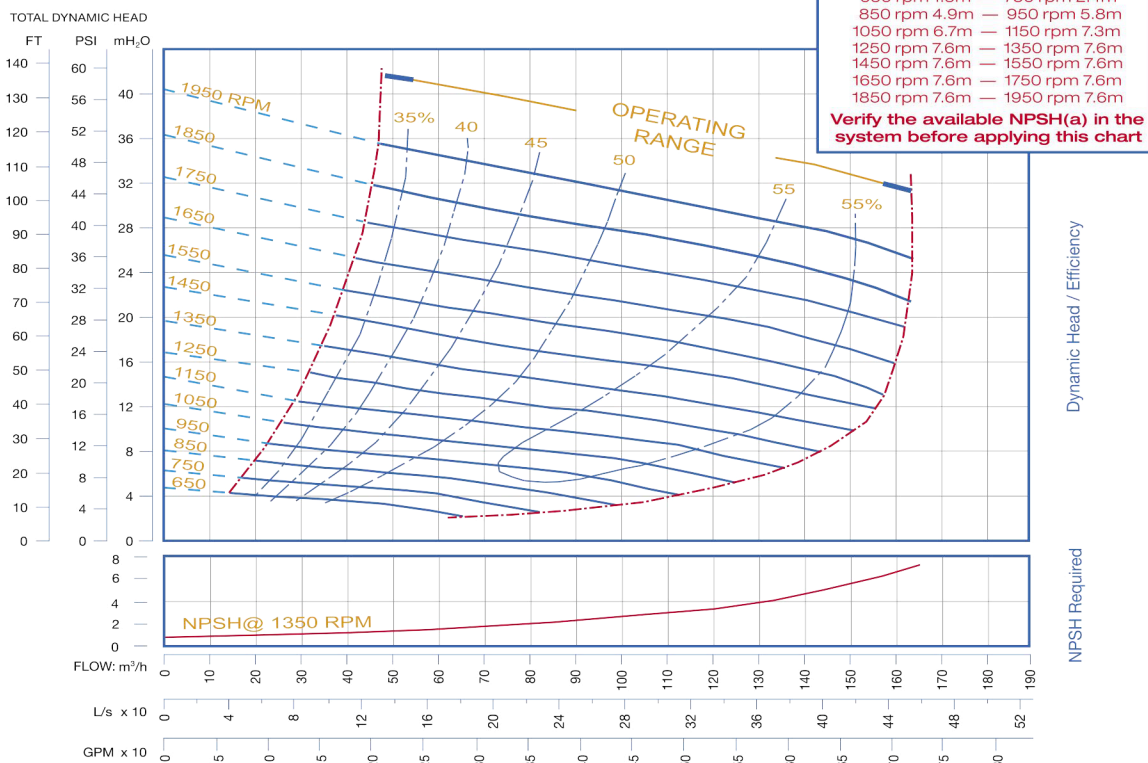
Model	LP2	LP3	LP4	LP6	LP8	LP10	LP12
Ød	38,1	38,1	38,1	38,1	44,45	44,5	69,9
L1	103	101,6	89	89	169,9	122,2	160,8
L2	95	76	90	90	127	127,0	127,0
a	9,52	9,52	9,52	9,52	9,52	9,52	16,6
b	9,52	9,52	9,52	9,52	9,52	9,52	16,6

Line LP Pictures

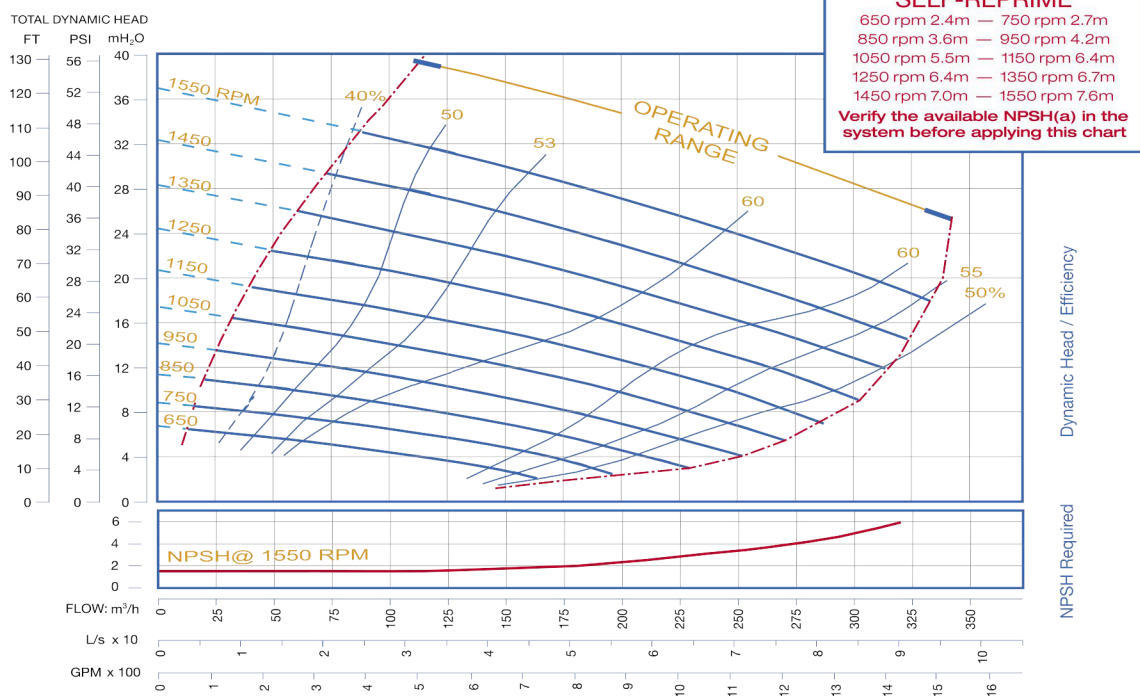


Performance Curves - LP Model

LP4

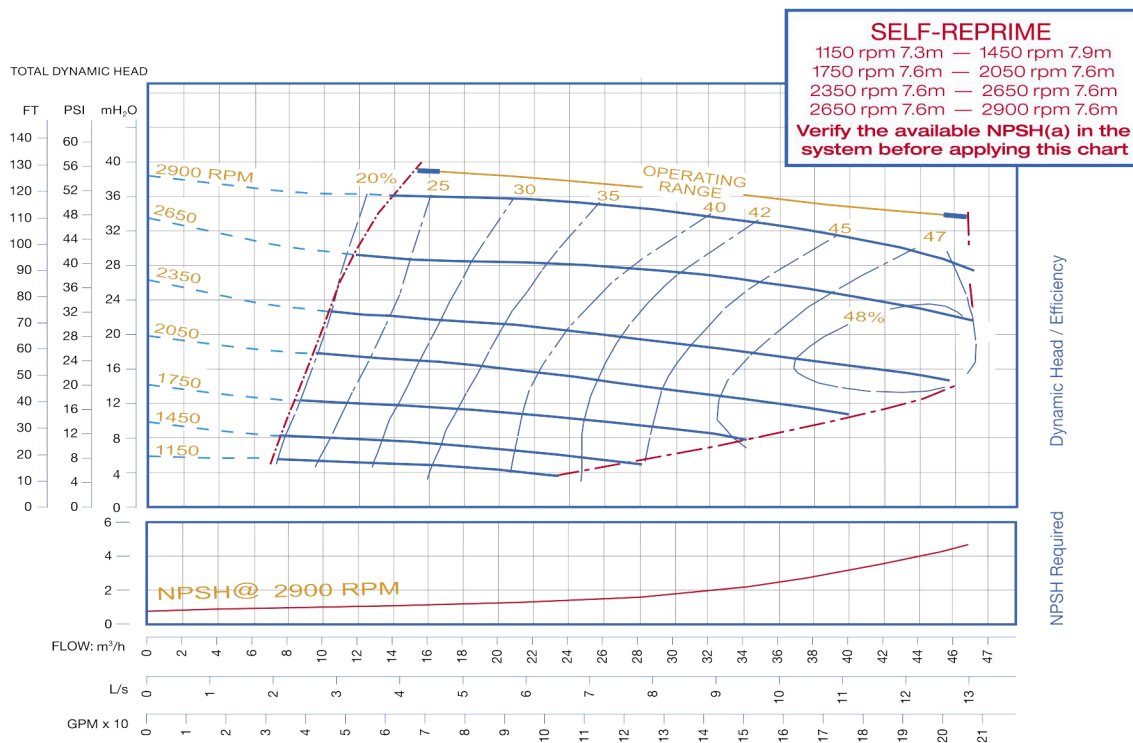


LP6

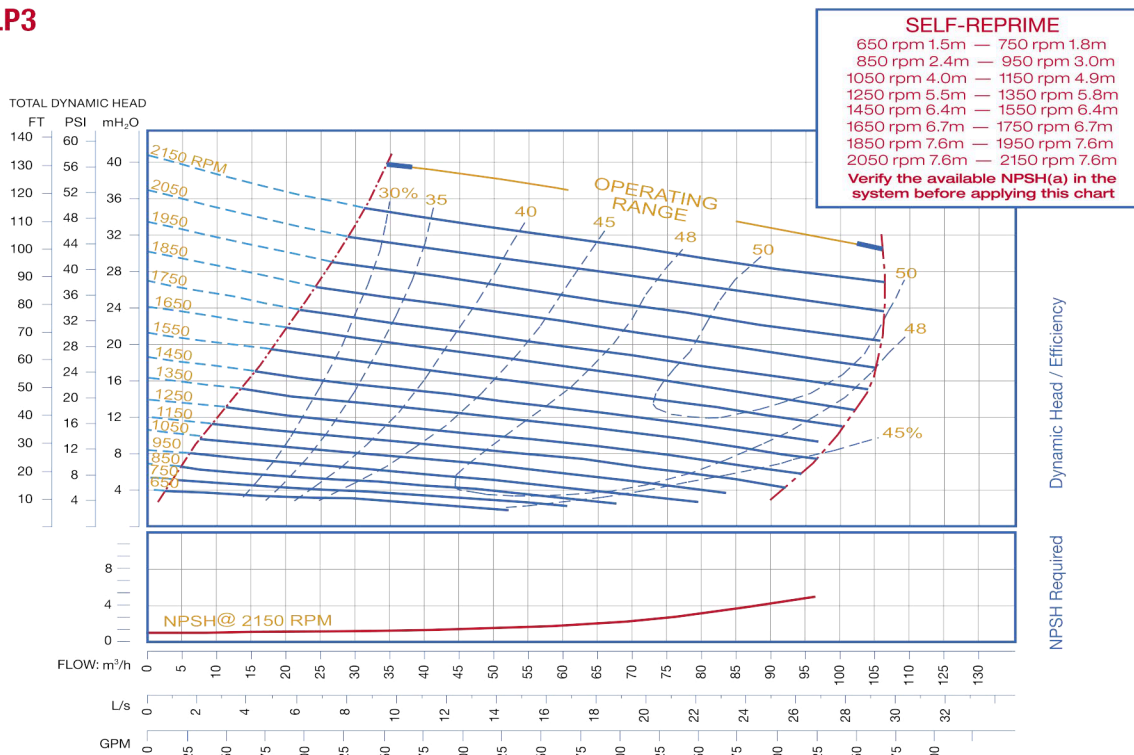


Performance Curves - LP Model

LP2

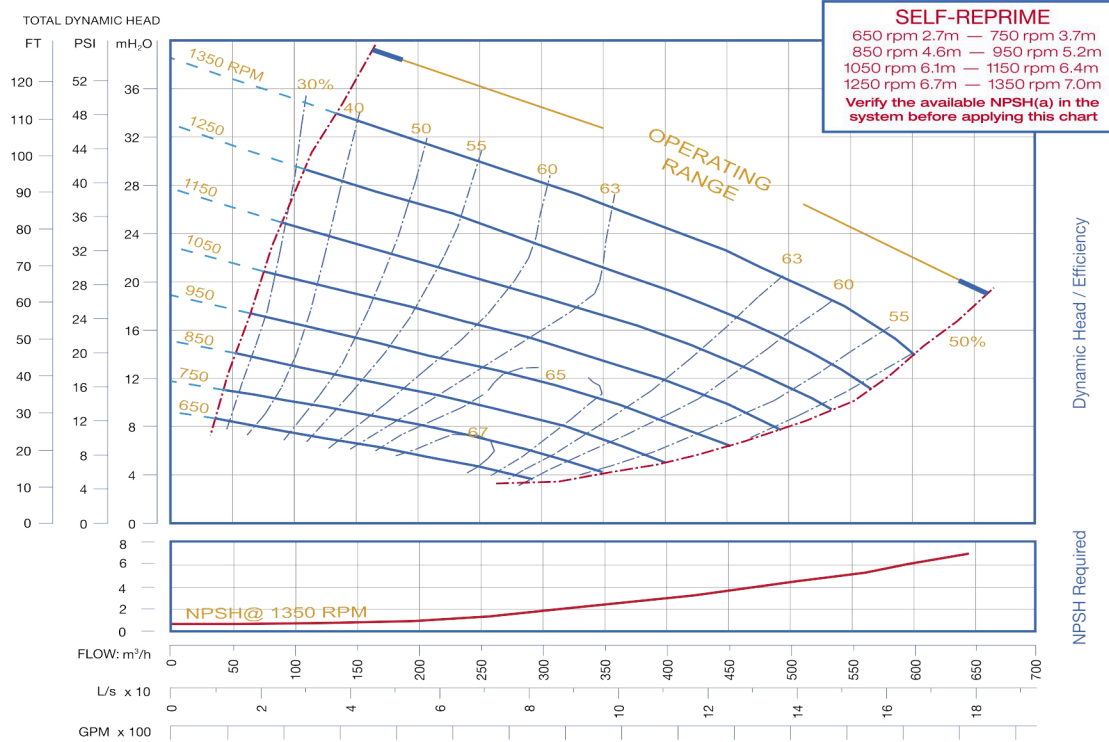


LP3

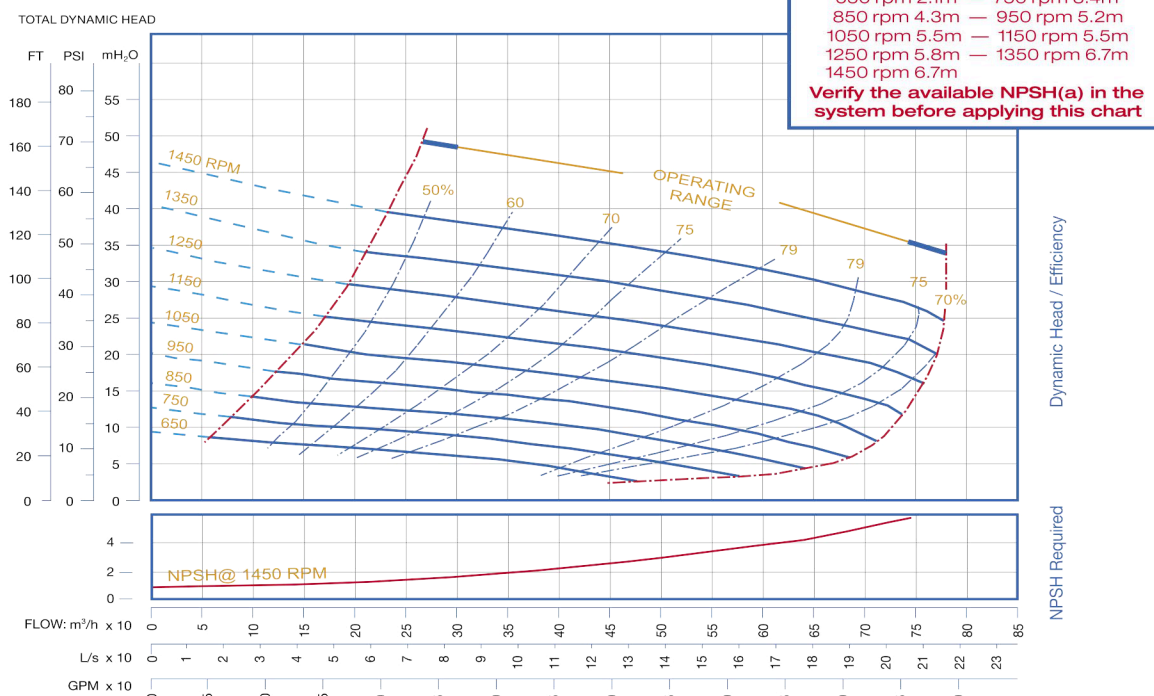


Performance Curves - LP Model

LP8

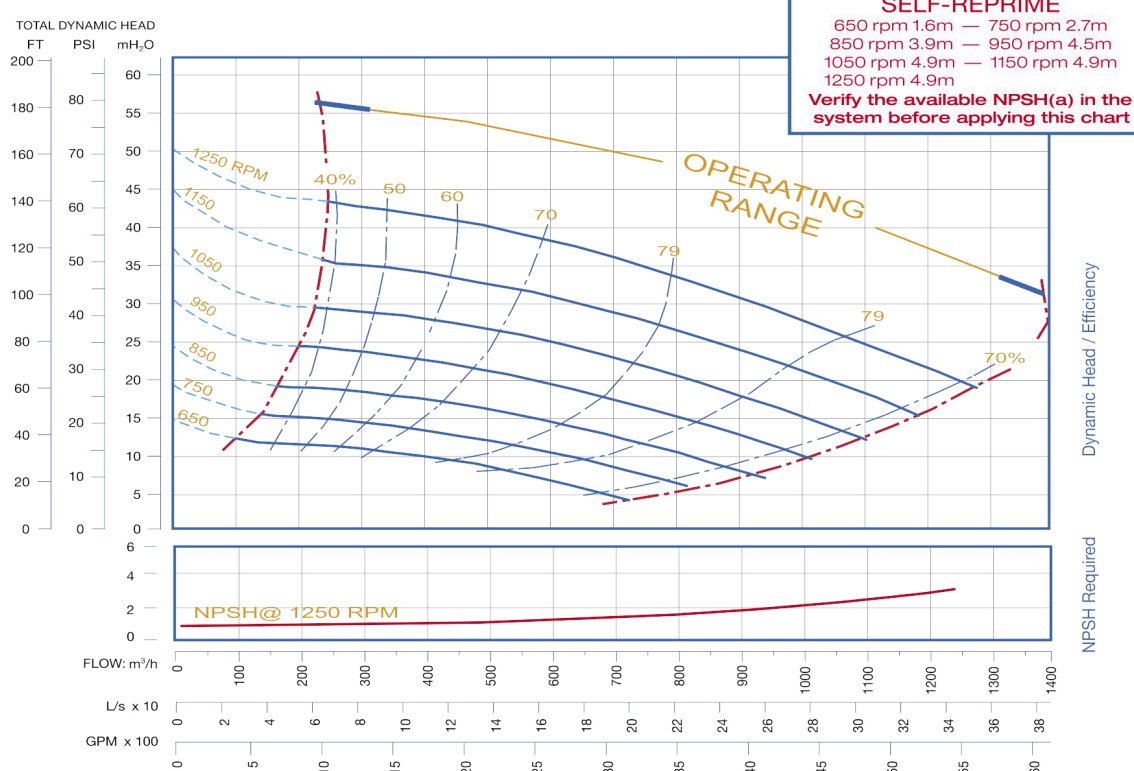


LP10

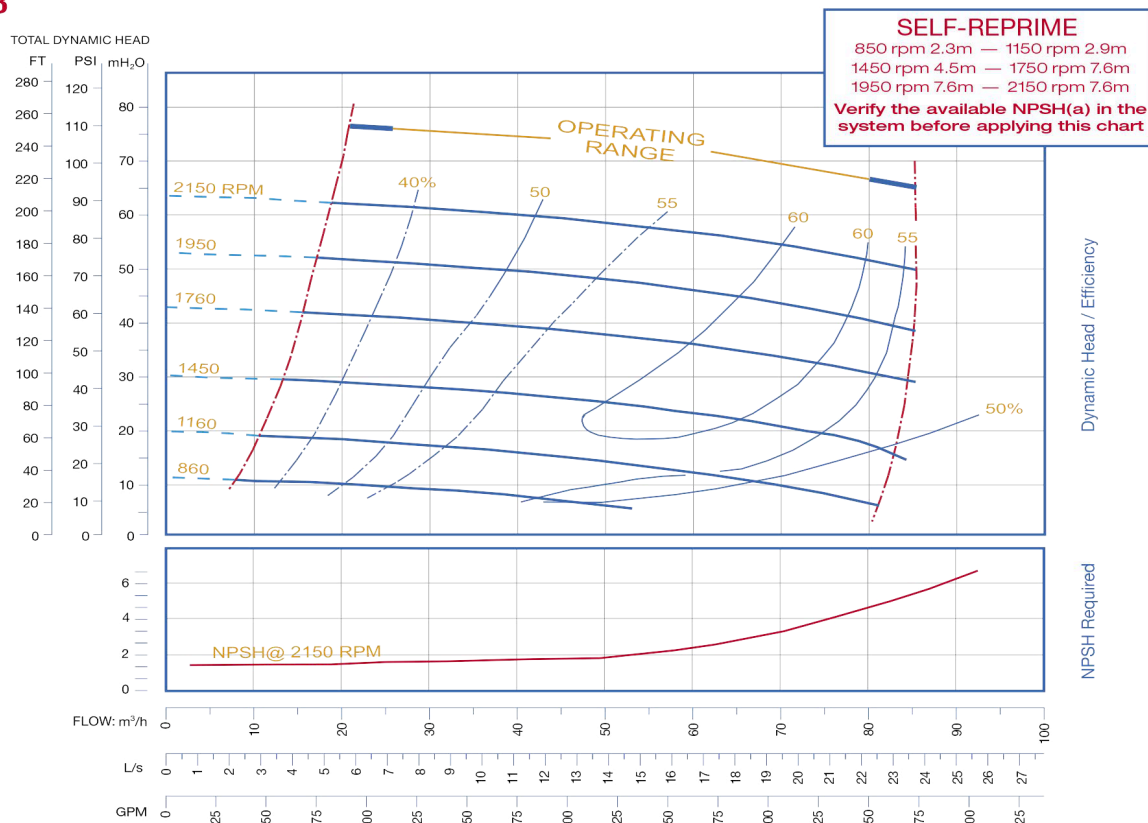


Performance Curves LP and HP Models

LP12

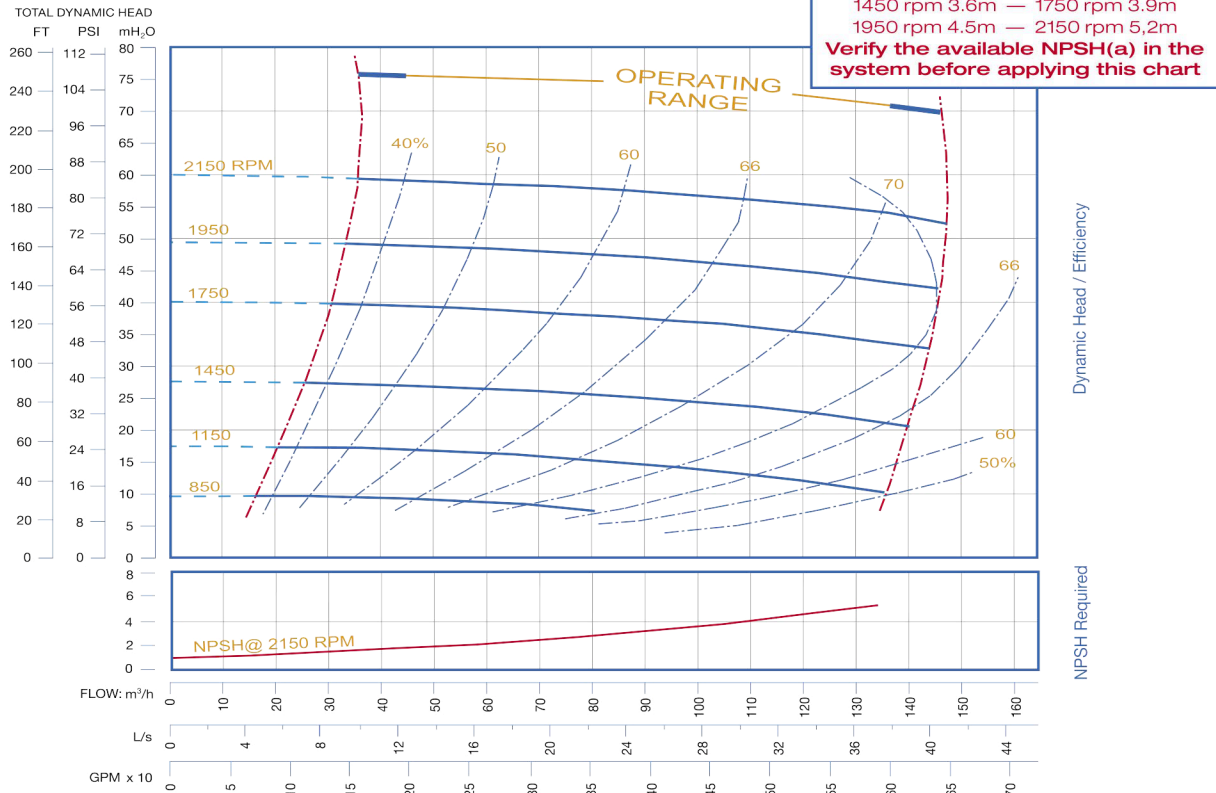


HP3

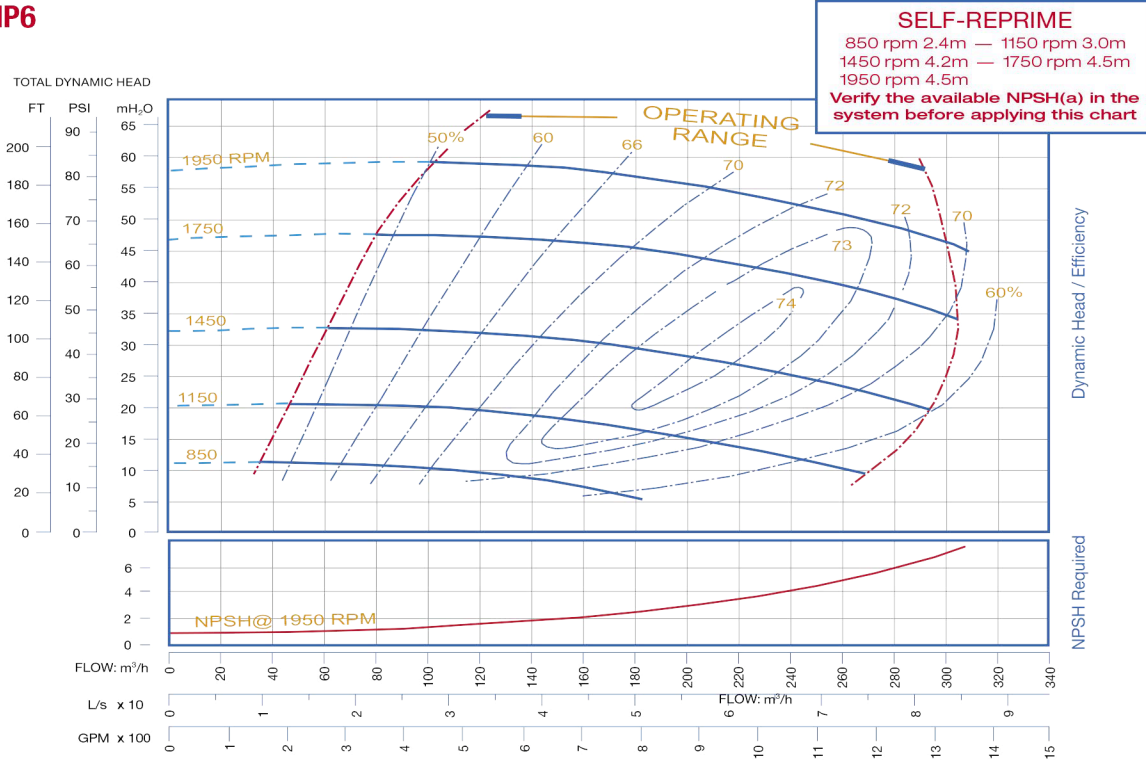


Performance Curves - HP Model

HP4



HP6

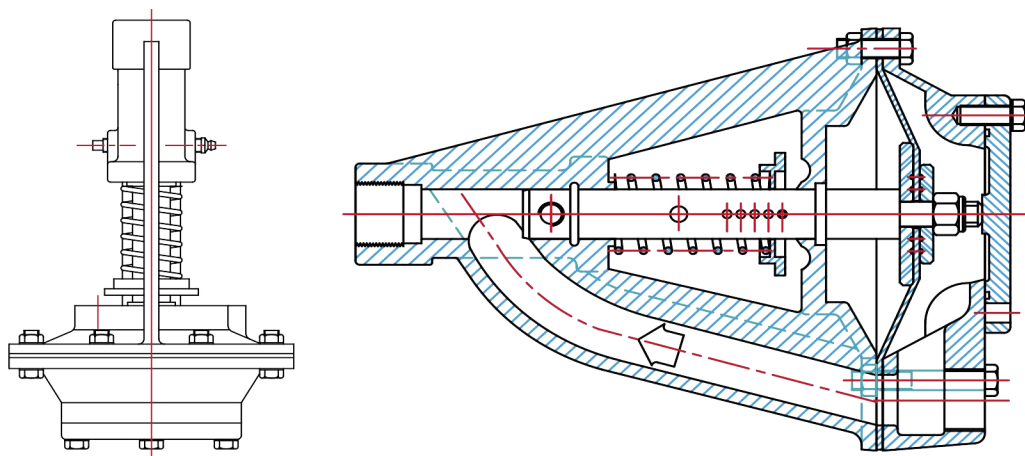


Automatic Air Relief Valve

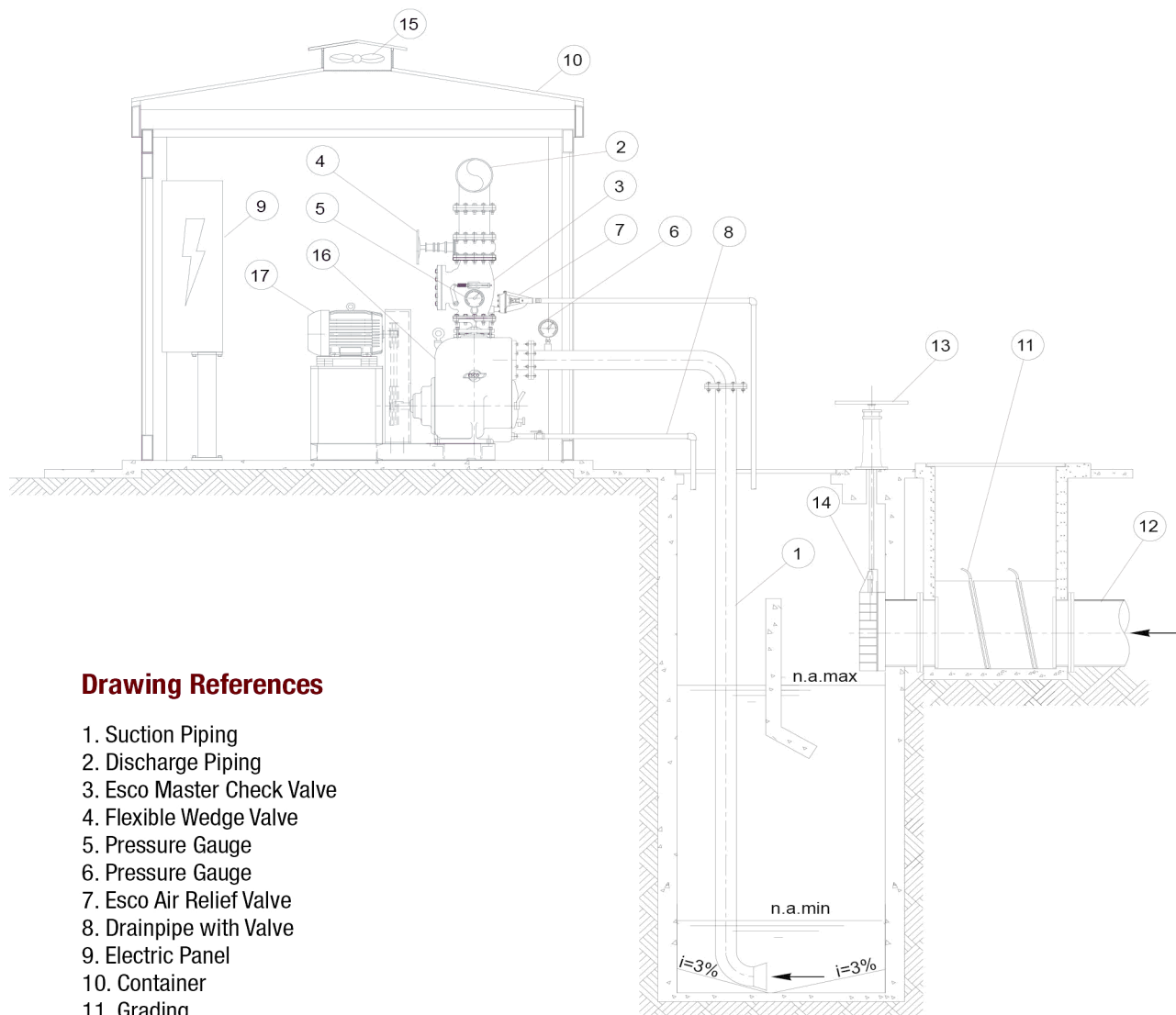
Bombas Esco S.A., always concerned in searching for solutions to meet its customers' demands, besides manufacturing Esco Master sewage pumps, largely supplied worldwide, committed itself to provide sewage- pumping installations with the best technology. This resulted in the introduction of the sets of valves for these applications, unavailable until then in the Brazilian market, strengthening the leadership and innovativeness of Bombas Esco SA.

Automatic Air Relief Valve for ease of self-repriming

Automatic air relief valve is appropriate for the raw sewage lift station installations, features a diaphragm operated shut off/opening system regulated by a spring action device, is set in place by a threaded connection and fits a drainpipe return to the suction sump.



Typical Installation of a Complete Sewer Lift Station



Drawing References

1. Suction Piping
2. Discharge Piping
3. Esco Master Check Valve
4. Flexible Wedge Valve
5. Pressure Gauge
6. Pressure Gauge
7. Esco Air Relief Valve
8. Drainpipe with Valve
9. Electric Panel
10. Container
11. Grading
12. Sewage Main
13. Sluice Gate Valve Pedestal
14. Sluice Gate Valve
15. Fan
16. Esco Master Pump (LP or HP model)
17. Electric Motor

Esco Master Self-priming Pumps Features & Advantages

- **High and dry:** Only suction pipe in the pump;
- **Acess:** pump is at floor level for ease of installation and maintenance;
- **Wearing Parts:** minimum number of wearing parts;
- **Foot valves:** Not required;
- **Air Handling:** Automatically self-reprimes following suction breaks;
- **Back Pull Out:** easy maintenance or repair by removing the sigle-piece rotating assembly without disturbing existing piping;
- **Drive:** Standard off-the-shelf motors;
- **Impeller:** Solid particles higher handling capabilities;
- **Inspection Cover:** no special tools are required for an ease of unclogging the pump or replacing the wear plate;
- **Coupling:** Direct or pulley and belt shaft end drive connection;
- **Pump Out Vanes (impeller):** placed on the impeller backwards, prevent solid particles from building up in that region;
- **Settled Solid Matter:** allows an odorless operation by reducing solid matters settling down on the sump bottom.



ESCO PUMP USA

Houston, TX

281-749-7844

www.escopumpusa.com