



GREENPUMPS

MAG - DRIVE SEAL- LESS PUMPS

CASTER 

GPCTA SERIES

**SEALLESS MAG-DRIVE DOUBLE
STAGE REGENERATIVE
TURBINE PUMP**



ZERO LEAKAGES FOR ENVIRONMENTAL SOLUTIONS

GREENPUMPS: TECNOLOGIA E AFFIDABILITÀ

GREENPUMPS è specializzata nella progettazione e nelle applicazioni dei processi per il trattamento acque, farmaceutici, chimici, petrolchimici e di raffinazione.

Ogni giorno ci impegniamo a progettare e produrre pompe a trascinamento magnetico che siano costruite con le tecnologie più avanzate. Tutte le pompe GREENPUMPS a trascinamento magnetico sono in conformità con la normativa "1990 EPA Clean Air Act".

La nostra missione è lavorare per il futuro dell'ambiente, senza emissioni nocive in atmosfera per poterlo preservare.

BENEFICI DELLE POMPE GREENPUMPS GPCTA

Le pompe della serie GPCTA sono una variazione delle pompa GPTA. Progettate appositamente per basso NPSHa, bassa portata e alta prevalenza.

Realizzazione doppio stadio. Primo stadio con girante di tipo Francis centrifuga che ha lo scopo di tenere basso il valore di NPSH richiesto e di inondare il secondo stadio che invece monta una girante tangenziale a turbina rigenerativa.

Le curve di funzionamento delle pompe GPCTA sono assimilabili a quelle delle pompe GPTA100 e GPTA200, mentre le specifiche di funzionamento sono come quelle della serie GPTA.

Disponibili a richiesta in versione 3 stadi, con 2 turbine booster.

GREENPUMPS: TECHNOLOGY INNOVATION AND RELIABILITY

GREENPUMPS is specialised in the design and application for water treatment, pharmaceutical, chemical, petrochemical and refinery applications. We continue every day to lead the way providing the most reliable sealless pumps available with the latest technology. All GREENPUMPS sealless equipments are engineered to comply with the new environmental rules "1990 EPA Clean Air Act". Our mission is working for the future giving "zero emission" to preserve our environment.

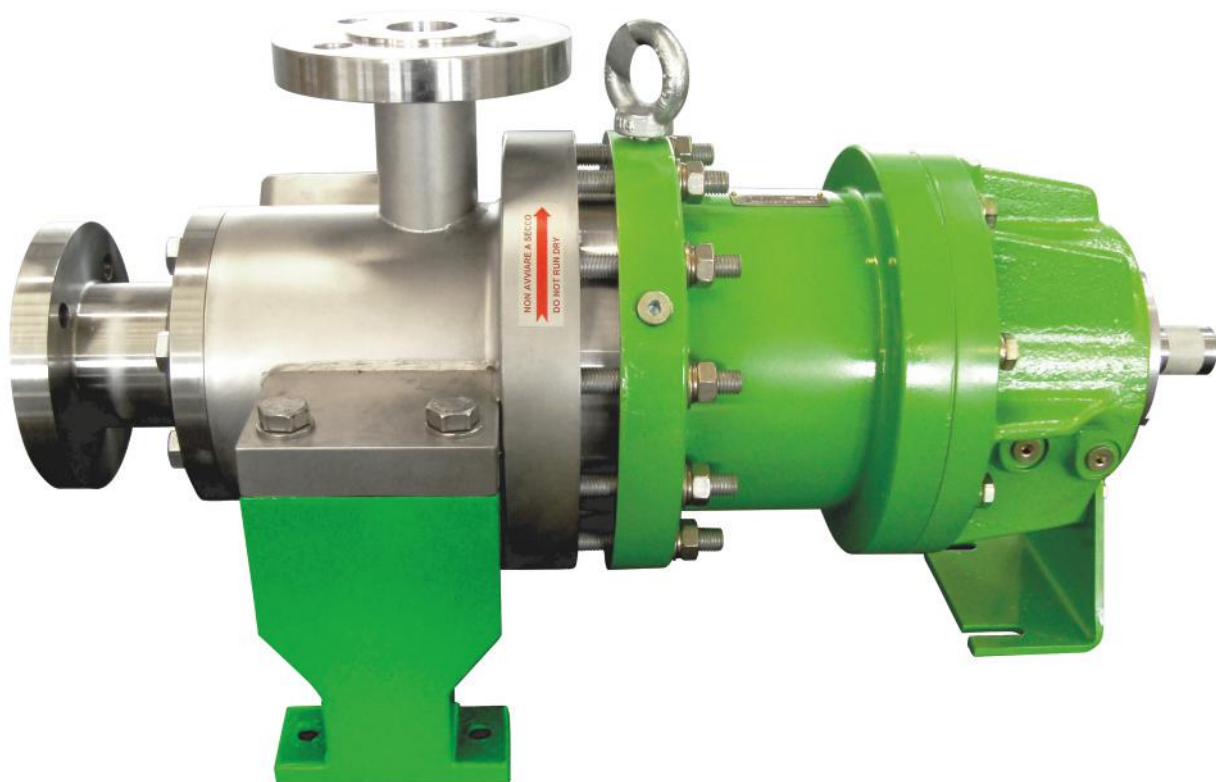
GREENPUMPS GPCTA BENEFITS

GREENPUMPS GPCTA pump series are a variation of GPTA pumps.

This double stage construction pump is purposely designed for low NPSHa, low flow and high head applications. Firsts stage equipped with Francis vane centrifugal impeller in order to keep low the NPSH required and to flood the second and/or third stage that installs one/two regenerative turbine impellers.

Design curves of GPCTA pumps are similar to GPTA100 and GPTA200, while working specifications are like GPTA series. Three stages with two booster impellers available on request.



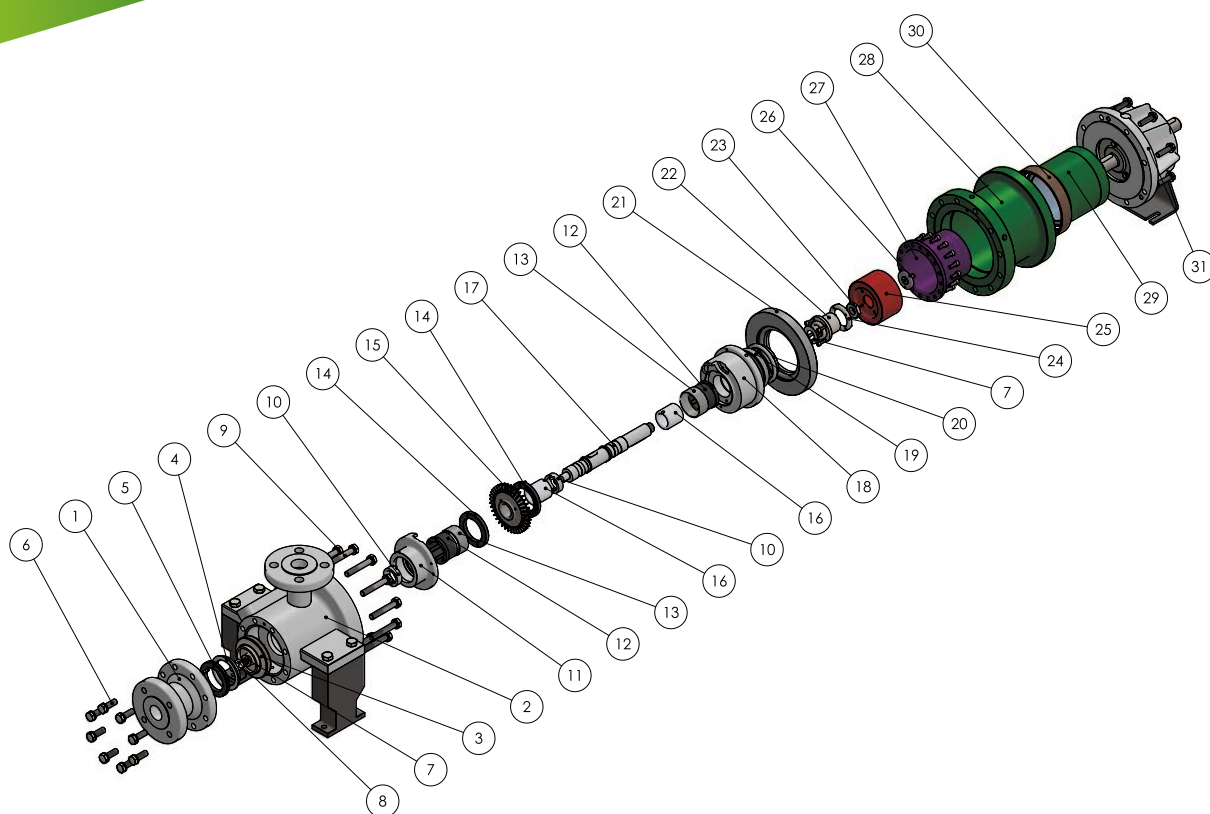


HIGH HEAD - LOW NPSH

Suitable for liquefied gas, condensate hydrocarbons, ammonia and cryogenic liquids.

- Flow up to 14 mc/h (50 us gpm)
- Head up to 400 mt (1200 ft)
- NPSH required less than 1 mt (3ft)
- API 685, barrel type, end suction, top discharge, centerline mounted.

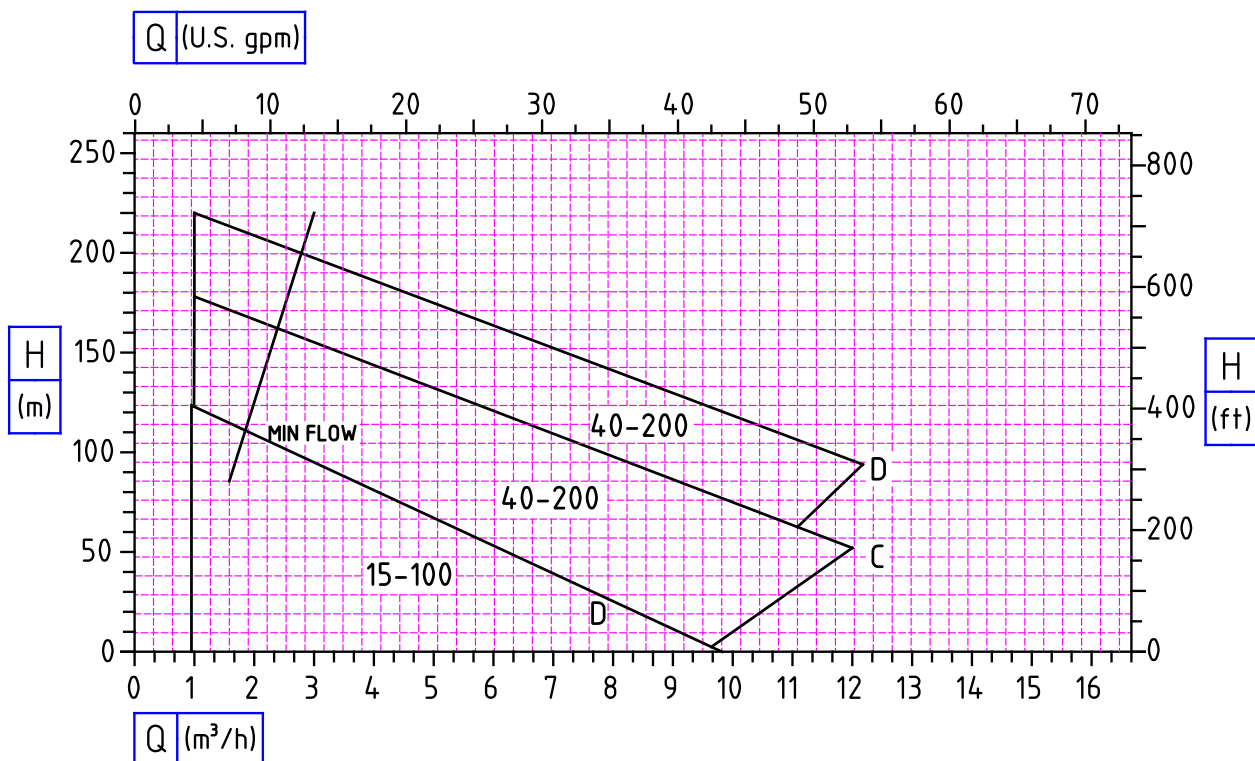




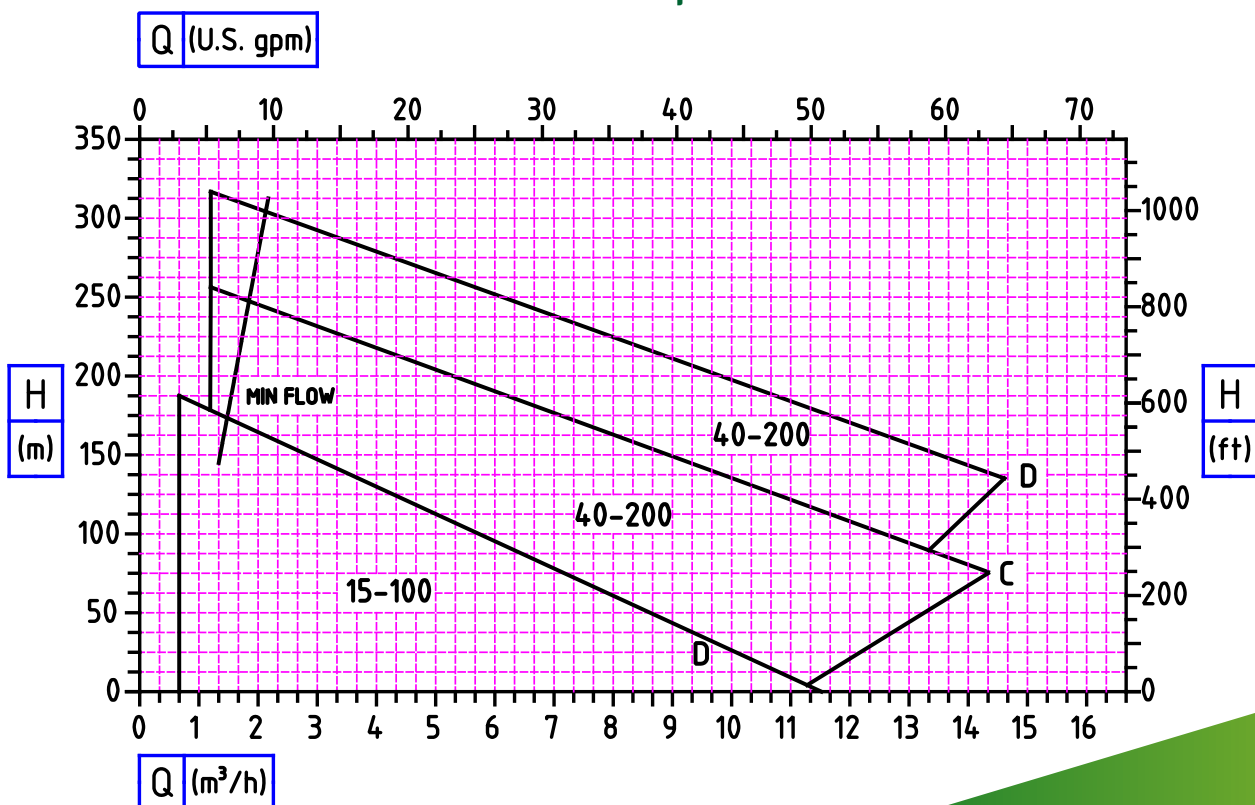
Rif. / Ref.	Descrizione / Description	Rif. / Ref.	Descrizione / Description
1	Flangia anteriore / <i>Front flange</i>	17	Albero / <i>Shaft</i>
2	Corpo pompa / <i>Pump casing</i>	18	Anello voluta posteriore / <i>Rear ring</i>
3	Girante centrifuga / <i>Centrifugal impeller</i>	19	Anello conico anteriore / <i>Front conical ring</i>
4	Reggispinta girante centrifuga / <i>Centrifugal impeller thrust bearing</i>	20	Anello conico posteriore / <i>Rear conical ring</i>
5	Reggispinta anteriore / <i>Front thrust bearing</i>	21	Flangia adattamento bicchiere / <i>Rear casing adaptor plate</i>
6	Viteria flangia anteriore / <i>Front flange screw</i>	22	Anello magnete interno / <i>Inner magnet ring flange</i>
7	Rondella bloccaggio / <i>Nut lockwasher</i>	23	Dado posteriore / <i>Rear nut</i>
8	Ogiva / <i>Ogive</i>	24	Anello posteriore girante / <i>Rear impeller ring</i>
9	Viteria corpo pompa / <i>Pump casing screw</i>	25	Magnete interno / <i>Inner magnet</i>
10	Distanziale / <i>Spacer</i>	26	Rondella serraggio magnete esterno / <i>External magnet nut lockwasher</i>
11	Anello voluta anteriore / <i>Front ring</i>	27	Bicchiere di contenimento / <i>Containment shell</i>
12	Bussola / <i>Stationary bearing</i>	28	Supporto pompa / <i>Bracket</i>
13	Camicia bussola / <i>Stationary bearing ring</i>	29	Magnete esterno / <i>External magnet ring</i>
14	Reggispinta / <i>Thrust bearing</i>	30	Anello di strisciamento / <i>Rub ring</i>
15	Girante turbina / <i>Turbine impeller</i>	31	Supporto cuscinetti / <i>Bearing frame</i>
16	Boccola albero / <i>Sleeve bearing</i>		

CURVE FUNZIONAMENTO DESIGN CURVES

GPCTA 2900 rpm 50hz

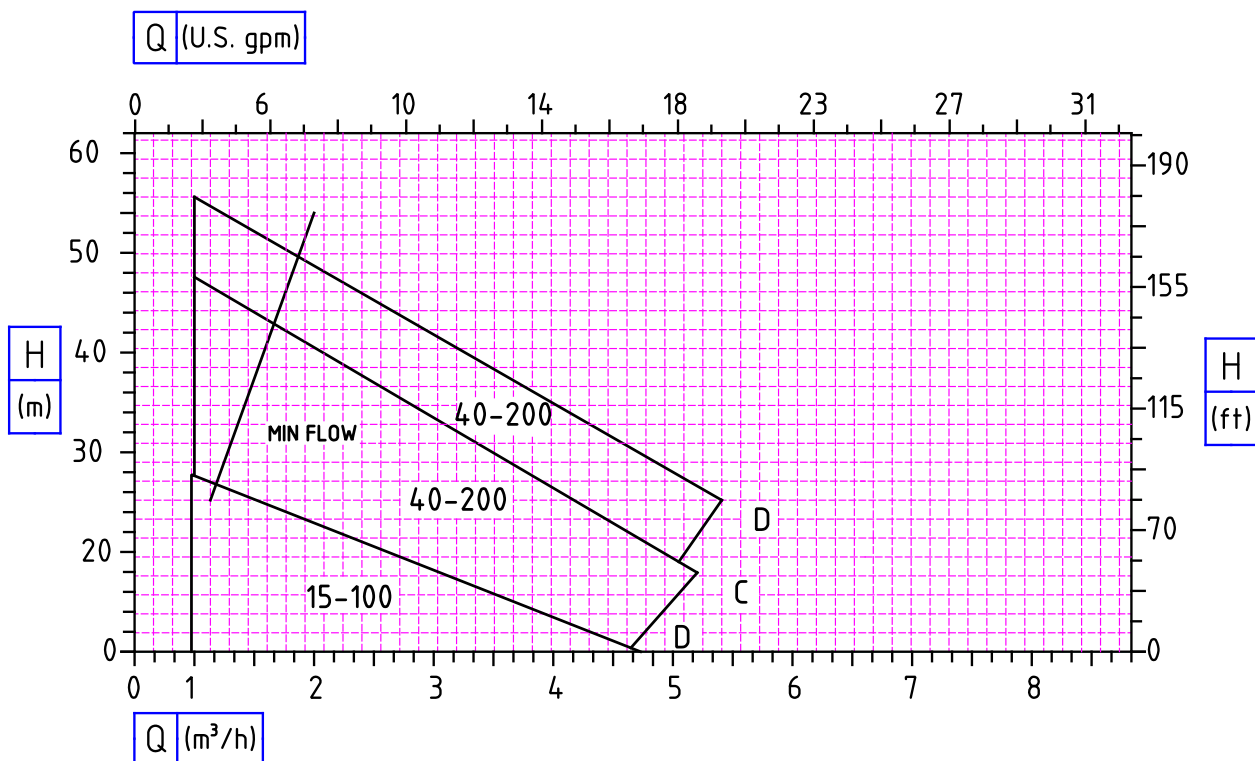


GPCTA 3500 rpm 60hz

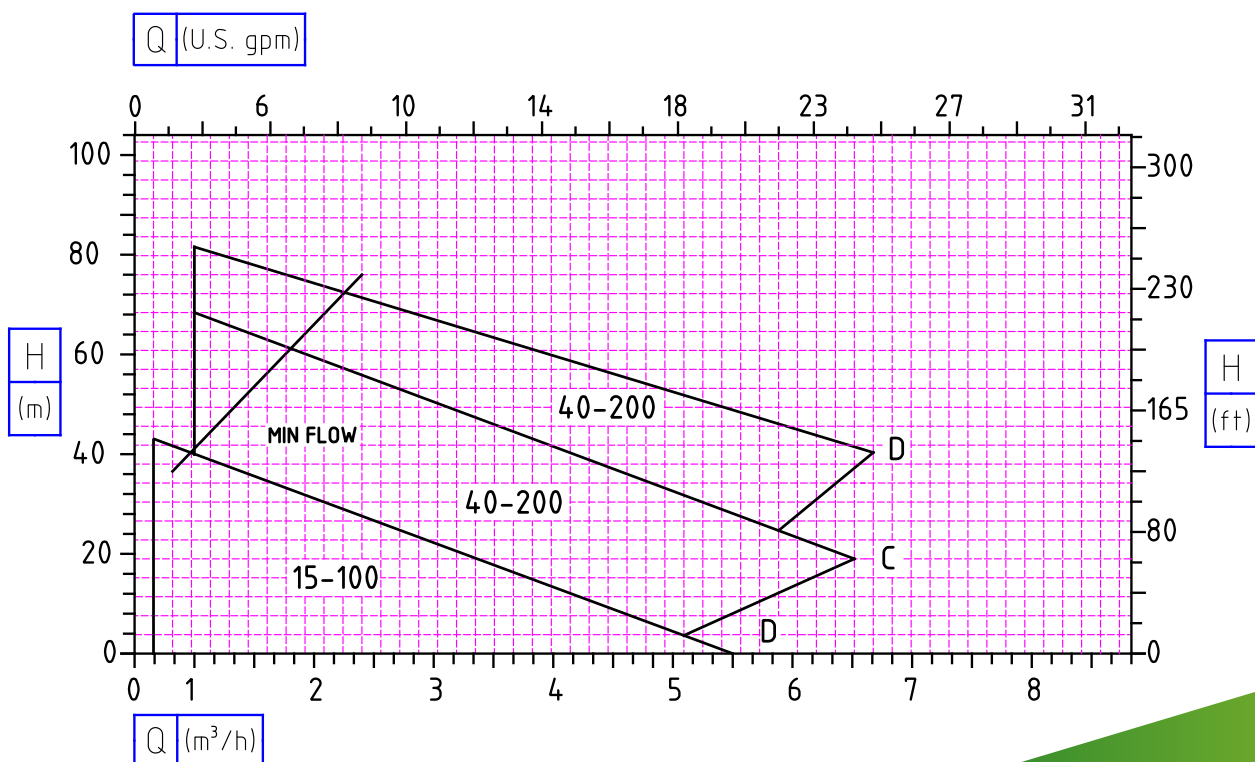


CURVE FUNZIONAMENTO DESIGN CURVES

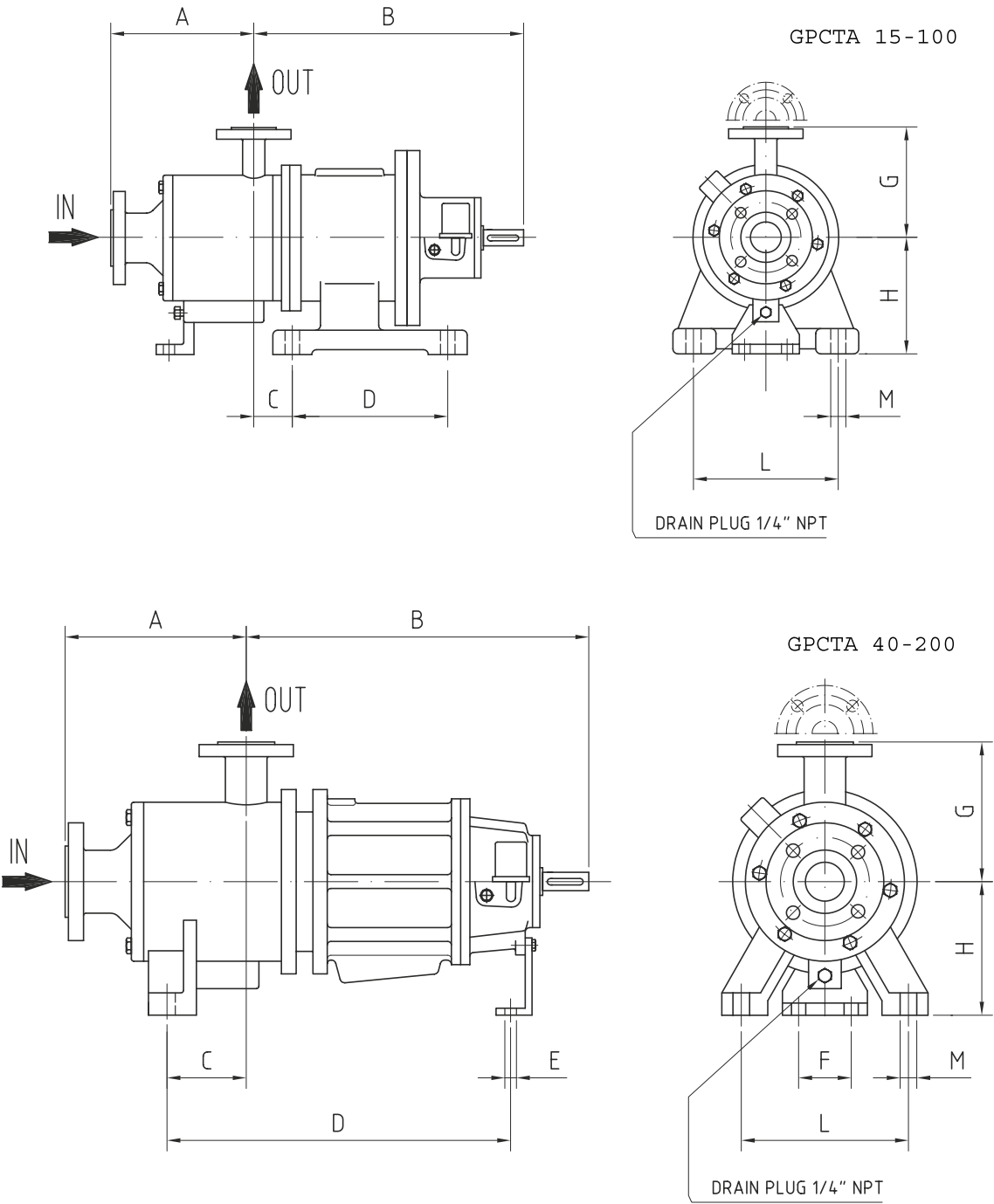
GPCTA 1450 rpm 50hz



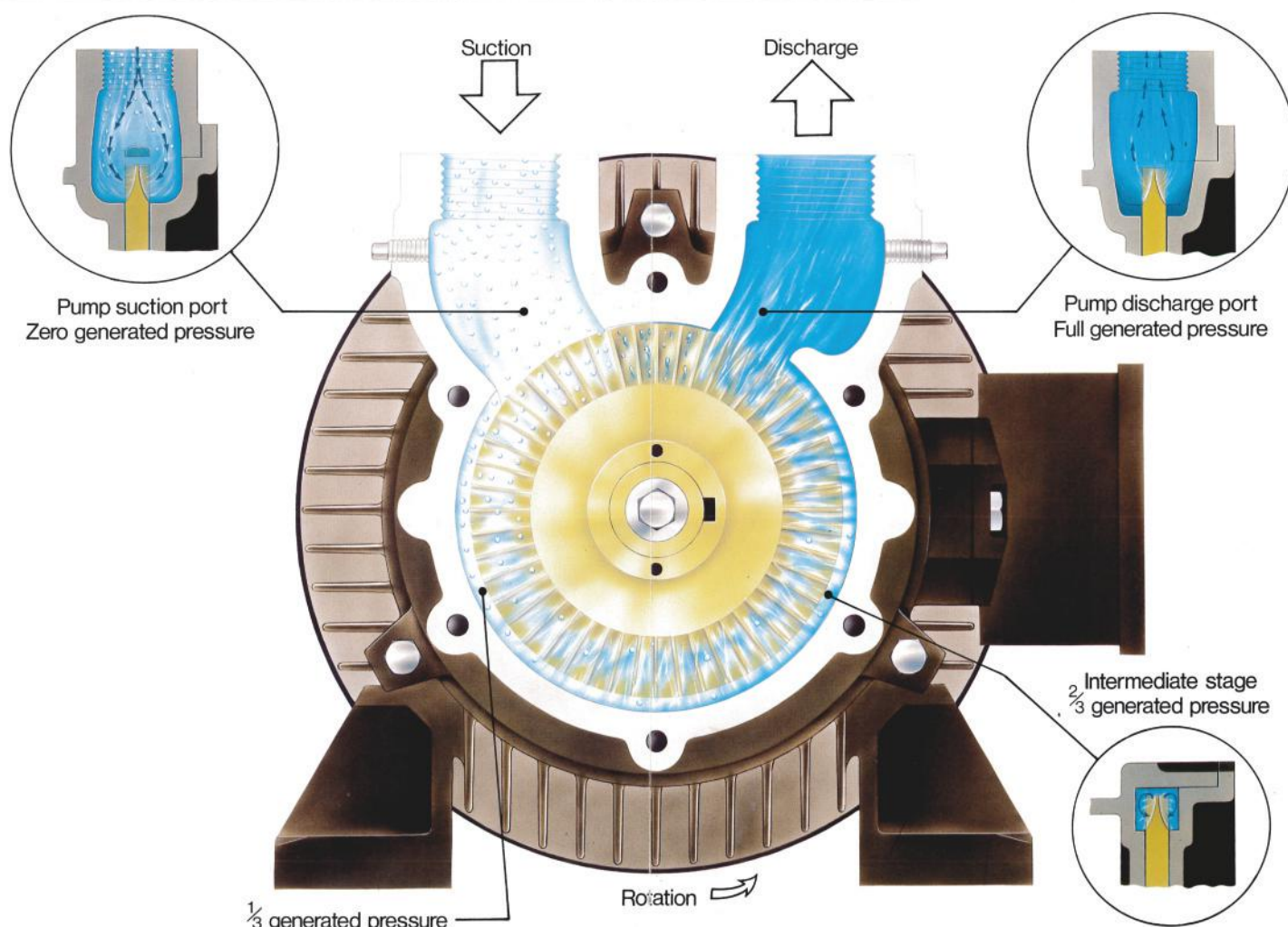
GPCTA 1750 rpm 60hz



DIMENSIONI INDICATIVE **OVERALL DIMENSIONS**



PUMP TYPE	OVERALL DIMENSIONS										PORTS FLG		mm
	A	B	C	D	E	F	G	H	L	M	SUCT.	DISCH.	inches
	162	395	56	250			135	175	220	14	DN 40	DN 25	40 kg
	6"3/8	15"1/2	2"1/4	9"7/8			5"3/8	6"7/8	8"5/8	1/2"	DN 1"1/2	DN 1"	88 lbs
	203	536	75	481	14	110	185	160	190	14	DN 50	DN 40	135 kg
	8"	21"1/8	3"	19"	1/2"	4"3/8	7"1/4	6"1/4	7"1/2	1/2"	DN 2"	DN 1"1/2	298 lbs



THE TURBINE REGENERATIVE PRINCIPLE

From the Suction Port area, liquid is directed to both sides of the impeller at its perimeter.

Due to its multi-vane construction, the liquid is instantly thrown outwards by centrifugal force.

As the liquid enters the side channels of the pump casing, a strong drawing force is produced at the pump's suction with the forward direction of the pump's rotation.

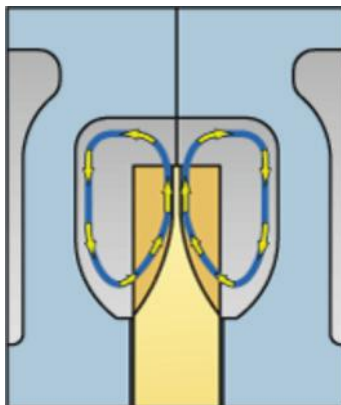
The liquid is then returned instantly to the root of the next impeller vane for further reengagement.

This develops more and more pressure with the spiral regenerative action to the liquid finally producing its fully generated pressure, where it is sealed off from the suction side by a breaker, and the liquid leaves the pump at the discharge port. Each impeller is double-faced and the regenerative action occurs on both sides of the impeller.

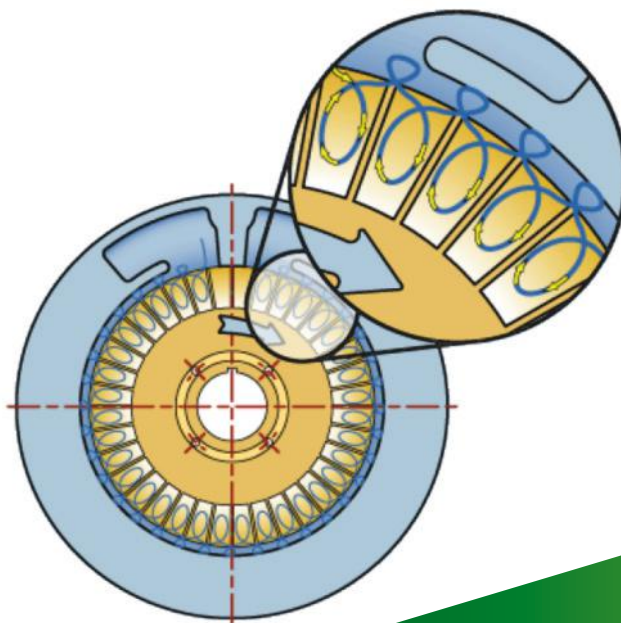
As both sides of the impeller and the side channels of the casings are EXACTLY EQUAL, the pumping action is inherently smooth and balanced. The impeller magnet floats freely within the liquid filled casings finding its own point of equilibrium ensuring long life and trouble-free service.

(GPTA - GPT) REGENERATIVE TURBINE PRINCIPLES

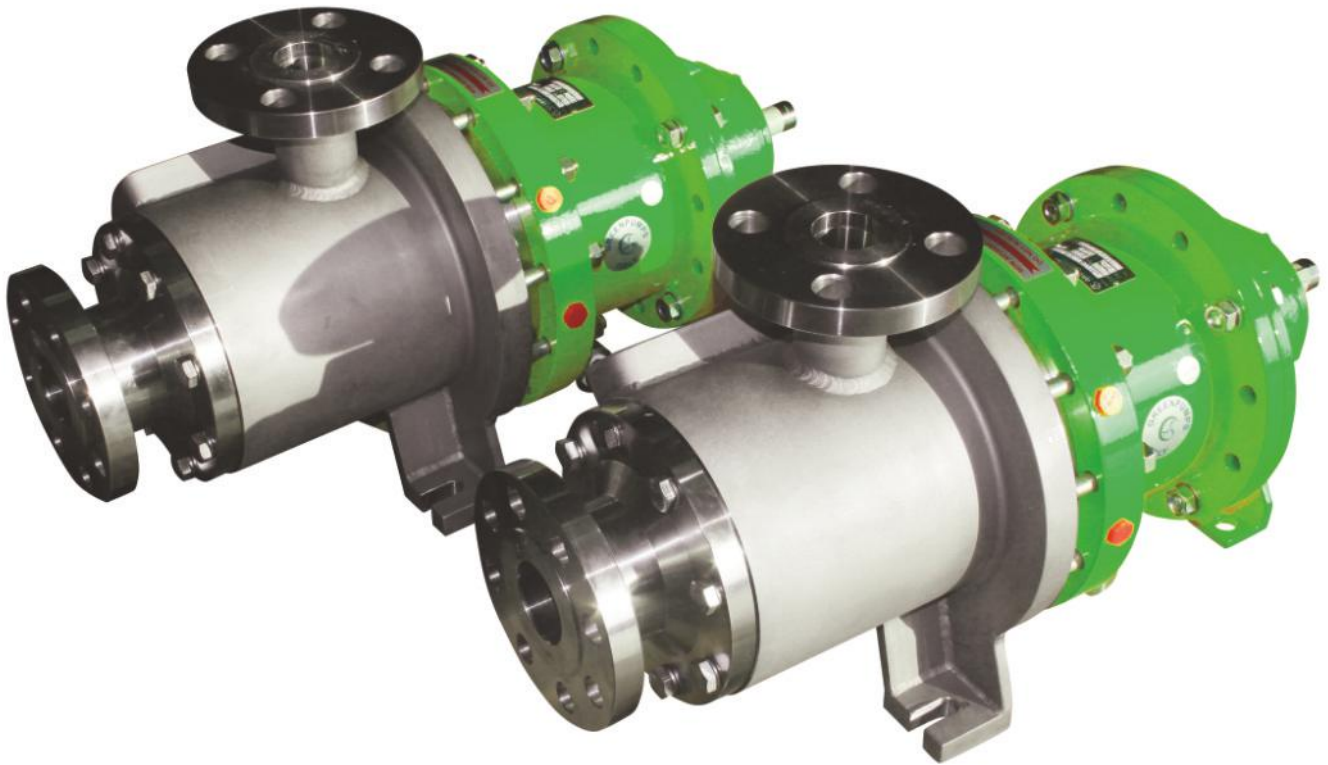
The primary difference between a centrifugal and a regenerative turbine pump is that fluid only travels through a centrifugal impeller once, while in a turbine, it takes many trips through the vanes. Referring to the cross-section diagram, the impeller vanes move within the flow-through area of the water channel passageway. Once the liquid enters the pump, it is directed into the vanes, which push the fluid forward and impart a centrifugal force outward to the impeller periphery. An orderly circulatory flow is therefore imposed by the impeller vane, which creates fluid velocity. Fluid velocity (or kinetic energy) is then available for conversion to flow and pressure depending on the external system's flow resistance as diagrammed by a system curve.



It is useful to note at this point, that in order to prevent the internal loss of the pressure building capability of an GPTA - GPT regenerative turbine, close internal clearances are required. In many cases, depending on the size of the pump, impeller to casing clearances may be as little as one-thousandth of an inch on each side. Therefore, these pumps are suitable for use only on applications with clean fluids and systems. In some cases, a suction strainer can be used successfully to protect the pump. Next, as the circulatory flow is imposed on the fluid and it reaches the fluid channel periphery, it is then redirected by the specially shaped fluid channels, around the side of the impeller, and back into the I.D. of the turbine impeller vanes, where the process begins again. This cycle occurs many times as the fluid passes through the pump. Each trip through the vanes generates more fluid velocity, which can then be converted into more pressure. The multiple cycles through the turbine vanes are called regeneration, hence the name regenerative turbine. The overall result of this process is a pump with pressure building capability ten or more times that of a centrifugal pump with the same impeller diameter and speed. In some competitive designs, you will find that only a single-sided impeller is used. That design suffers from a thrust load in the direction of the motor that must be carried by the motor bearings. GPTA - GPT turbines use a two-sided floating impeller design that builds pressure equally on both sides. This has the advantage of allowing the pump pressure to hydraulically self-center the impeller in the close clearance impeller cavity, while not burdening the motor bearings with excessive thrust loads.



GPCTA DOUBLE STAGE, LONG COUPLED CONFIGURATION



MATERIAL = SS316 CASING WITH HASTELLOY C276 WETTED PARTS FOR UNKNOWN LIQUID

SPECIAL CONFIGURATION AS API 685 AND DOUBLE CONTAINMENT SHELL WITH MECHANICAL SEAL ON COUPLING HOUSING

NPSHa 1,5 m (5 ft)

CLIENT SYNGENTA SHANGHAI CHINA – 8PCS SOLD



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