Series MTA

Magnetically Coupled Metallic Turbine Pump

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OVERALL TECHNICAL DATA

➢Different sizes:	MTA 25 / 37 / 49 / 78 / 1011 / 2021
➢Temperature:	-100° C (-150°F) up to 315°C (600°F)
➢Max. Flowrate:	9 m3/h (40 gpm) @ 2900 RPM 9,5 m3/h (42 gpm) @ 3500 RPM
➢Max. Head:	80 m (263 ft)@ 2900 RPM – 100 m (328 ft) @ 3500 RPM
➢Max. Spec. Gravity:	2 kg/dm3
➢Rotation:	Reversible
➢Pressure:	16 Bar (232 psi) – Hydrotest 25 Bar (363 psi) Special High Pressure pump available up to 250 Bar (3625 psi)
➢Solids:	5% weight with 150 micron
➢Materials:	SS316 L (std.) / Hastelloy C276 / Alloy 20
➢Bearings:	PTFEC / Pure Carbon / SiC
➢Mounting:	Close Couple or Long Coupled
➢Atex:	Available - EXII 2 G C T6 to T2

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FEATURES AND BENEFITS

MTA pumps are suitable for thin non-lubricating liquids and/or high differential pressure associated to a very low NPSH values. **MTA pumps are able to pump liquid containing up to 20% entrained gas.** MTA pumps can be equipped with frequency inverters or high speed gear boxes for very high head up to 500 m (1500 ft).

Features

- High head / low flow capability minimizes by-pass requirements.
- Heavy duty casing and impellers machined from wrought alloys.
- Heavy duty alloy containment shell for added safety.
- No wearing or metal to metal contact.
- Impeller design handles up to 20% entrained gas – **ideal for pumping liquified gases.**
- Self balancing impeller – no axial thrust loading.
- Replaceable impeller, reduces maintenance costs.
- High torque magnet rings suitable for direct starting motors.
- Pedestal mounting or close coupled design.
- Available with flanges connections.

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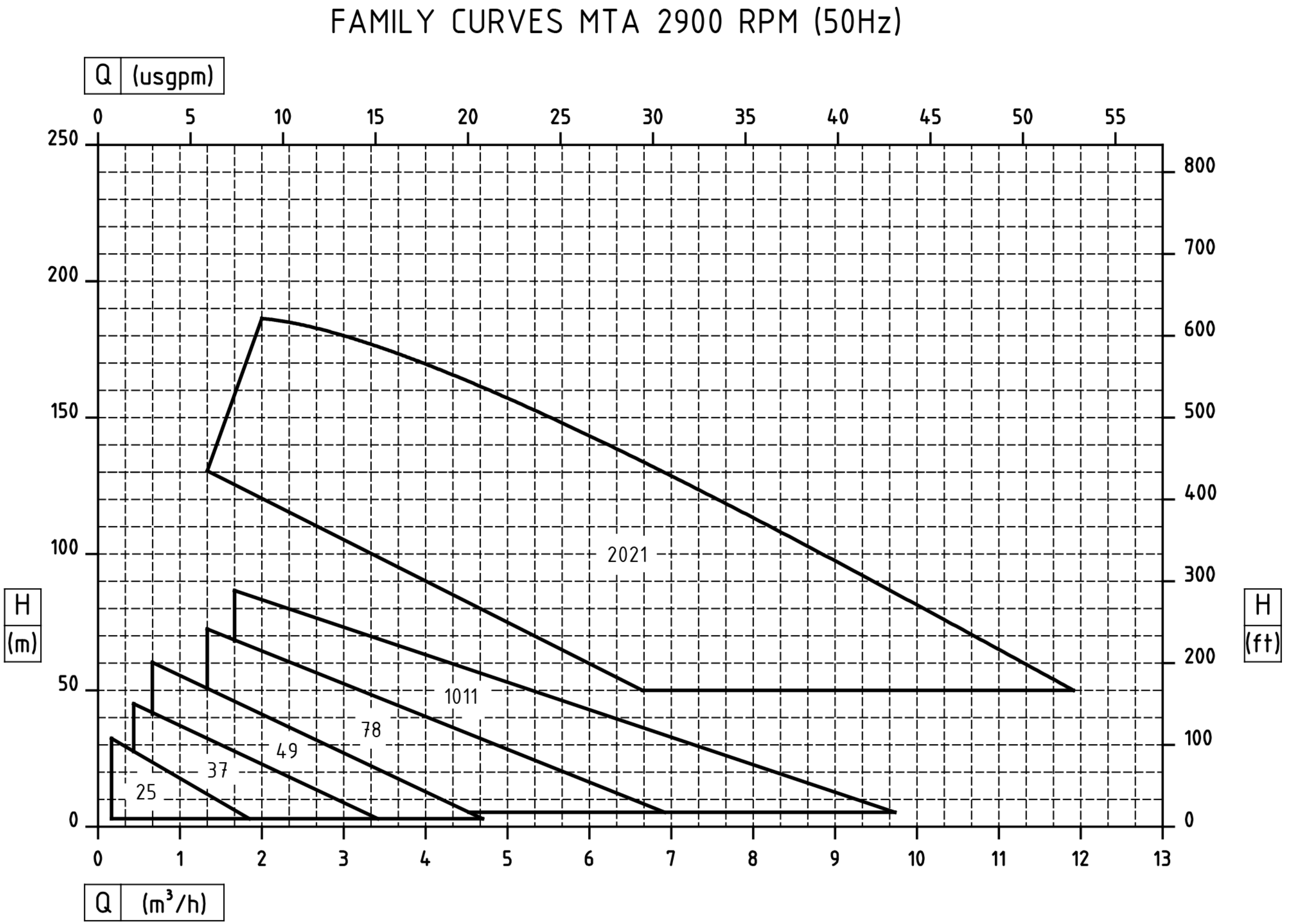

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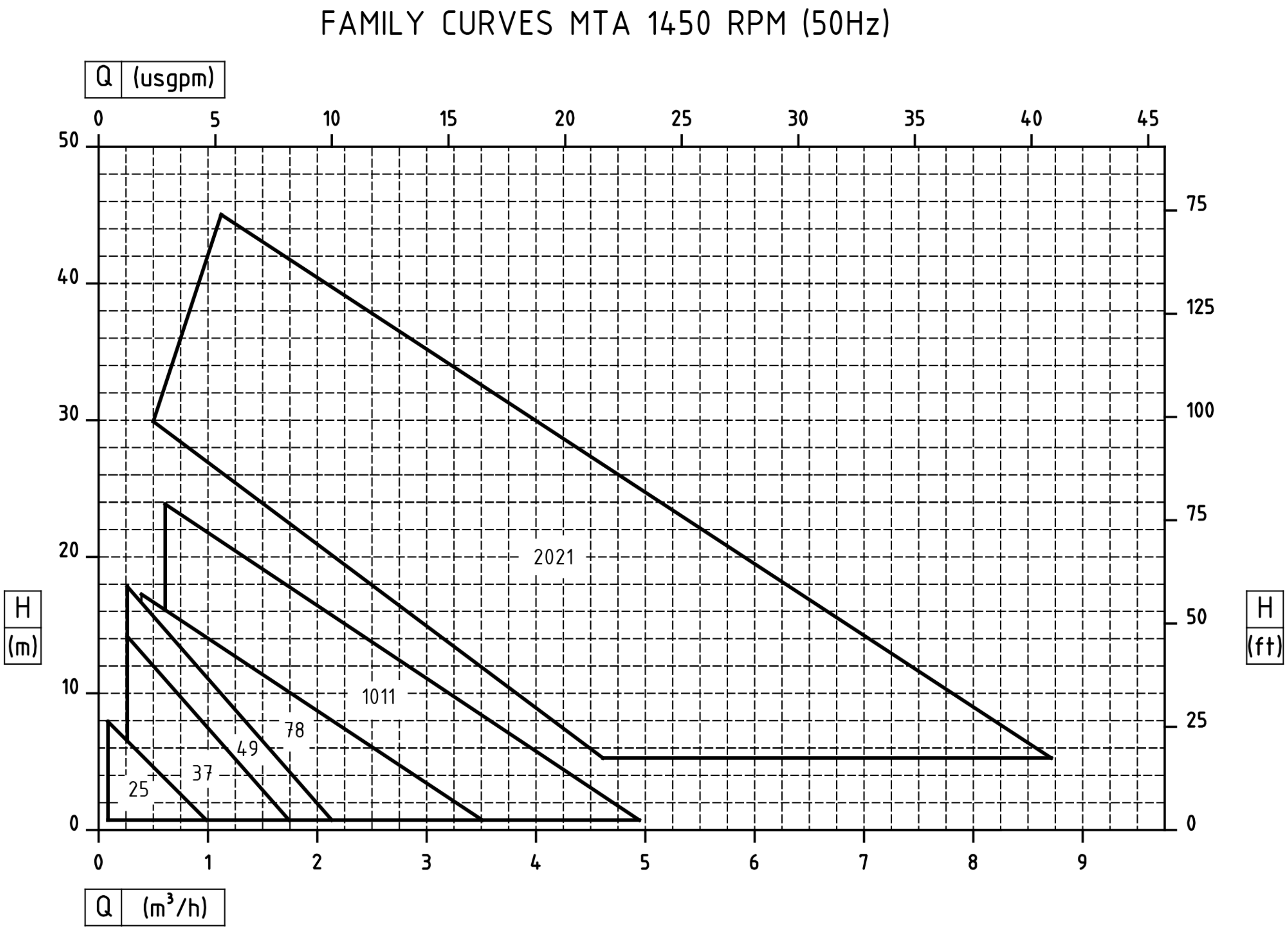

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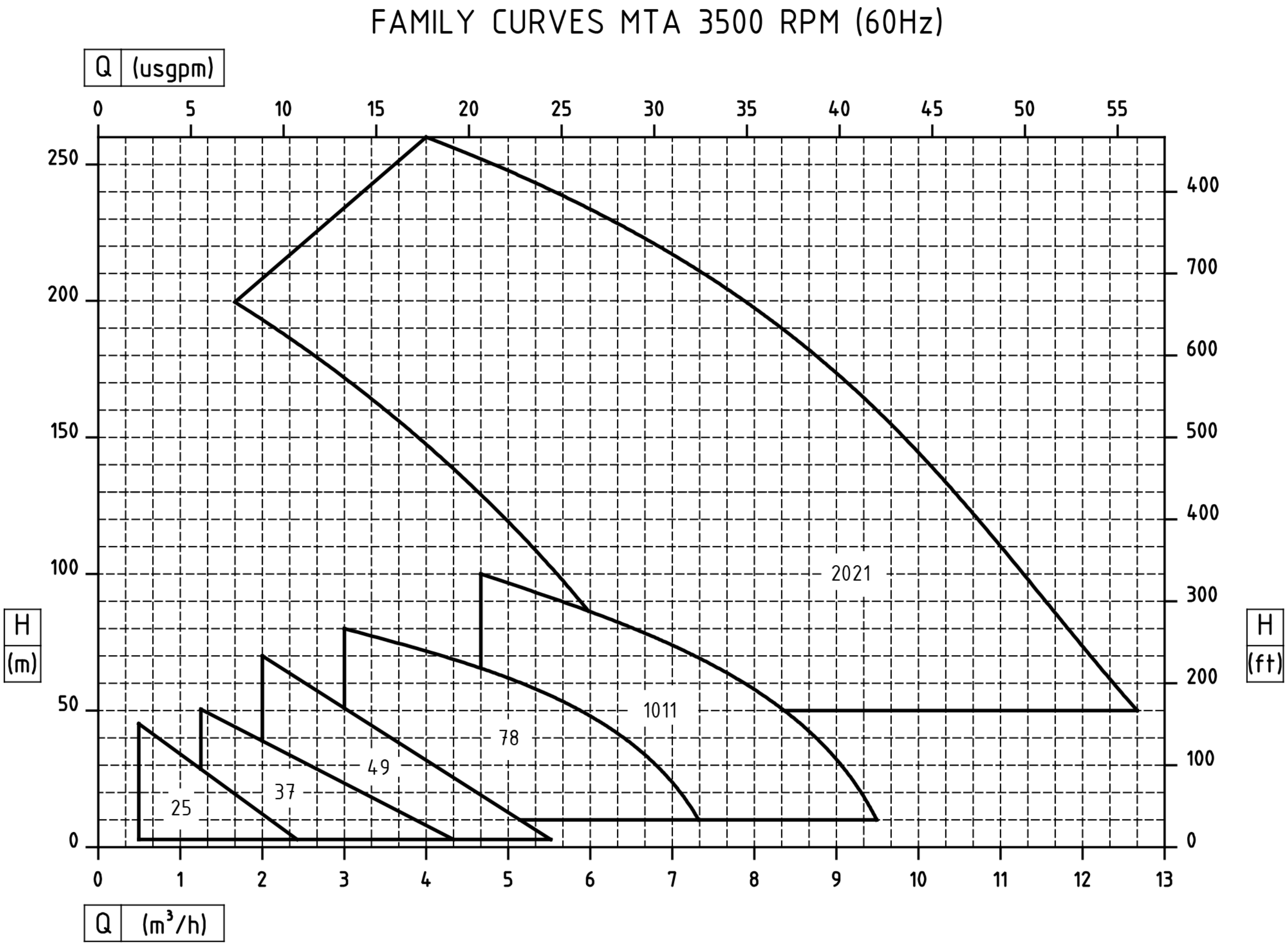

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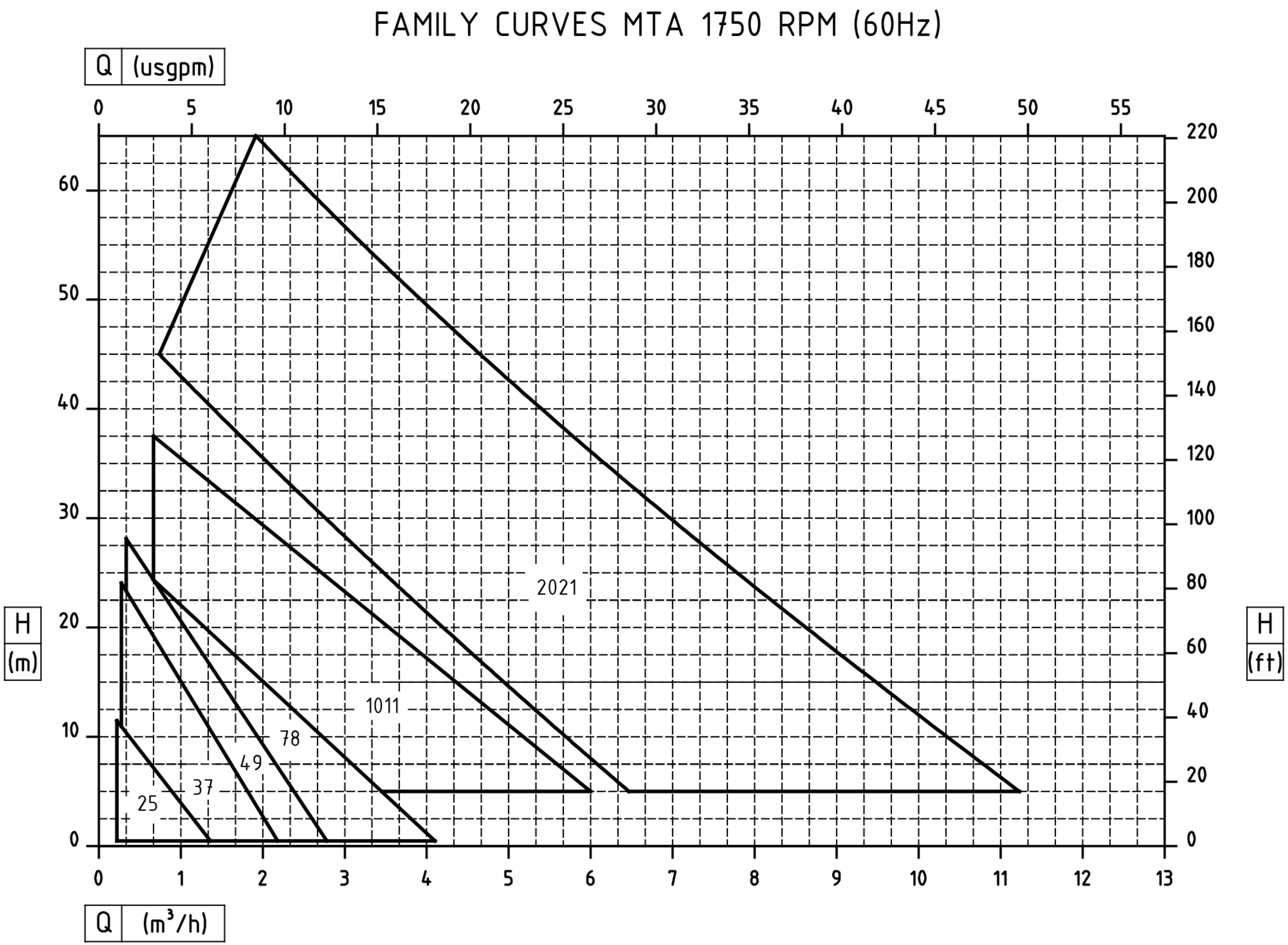

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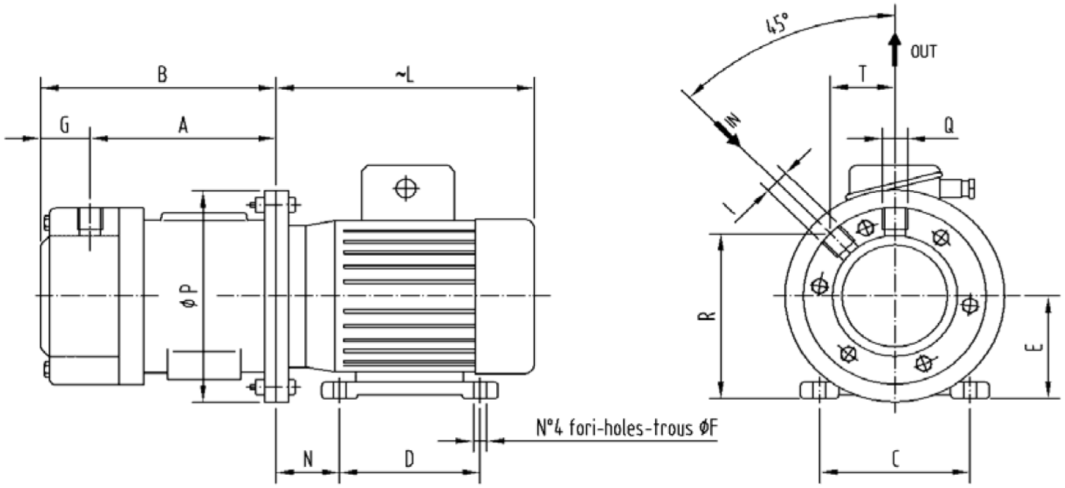

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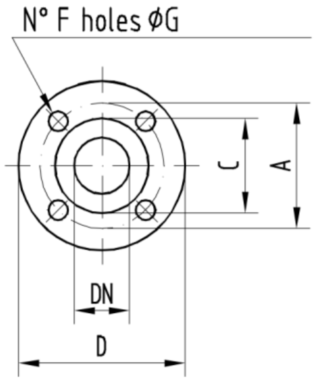

FLANSCH / FLANGES

DN	UNI PN 16				
	D	C	A	F	G
15	95	45	65	4	14
20	105	58	75	4	14

Ø	ANSI 150 RF				
	D	C	A	F	G
1/2"	88,9	34,9	60,3	4	15,9
3/4"	98,4	42,9	69,8	4	15,9

Typ Type	DNs / I		DNd / Q		Abmessungen / Dimensions mm														
	mm	Gas	mm	Gas	A	B	C	D	E	F	G	L	M	N	O	P	R	S	T
MTA 25	15	1/2"	15	1/2"	151	184	112	90	71	7	33	210	88	45	88	160	109	54	38
MTA 37	20	3/4"	20	3/4"	155	190	125	100	80	9	35	230	98	50	100	200	124	61	44

Motor / Motor I.E.C. 50Hz		
B3/B5	kW 2P	kW 4p
71 B	0,55	0,37
80 B	1,1	0,75

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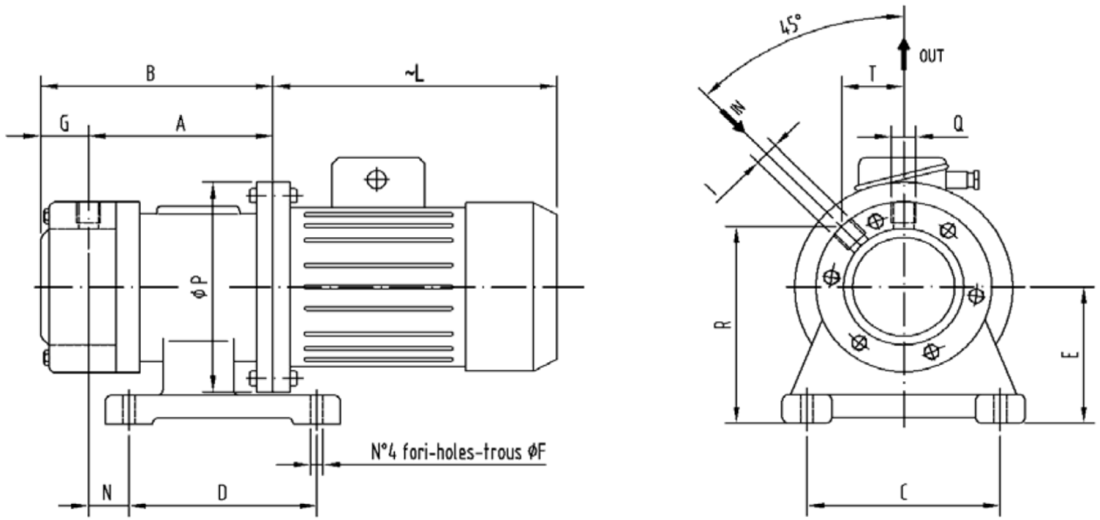
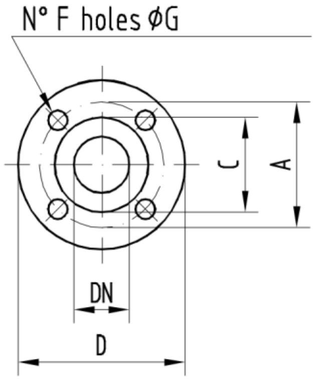


OPTION



FLANSCHE / FLANGES

DN	UNI PN 16				
	D	C	A	F	G
25	115	68	85	4	14

Ø	ANSI 150 RF				
	D	C	A	F	G
1"	107,9	50,8	79,4	4	15,9

Typ Type	DNs / I		DNd / Q		Abmessungen / Dimensions mm														
	mm	Gas	mm	Gas	A	B	C	D	E	F	G	L	M	N	O	P	R	S	T
MTA 49	25	1"	25	1"	186	223	155	193	136	12	37	270	111	69	121	200	185	66	49
MTA 78	25	1"	25	1"	215	256	220	250	175	14	41	340	133	56	133	250	230	86	55
												340							
MTA 1011	25	1"	25	1"	215	256	220	250	175	14	41	340	133	56	133	250	230	86	55
												340							

Motor / Motor I.E.C. 50Hz		
B5	kW 2P	kW 4p
90	2,2	1,5
100		2,2
112	4	
100		2,2
112	5,5	

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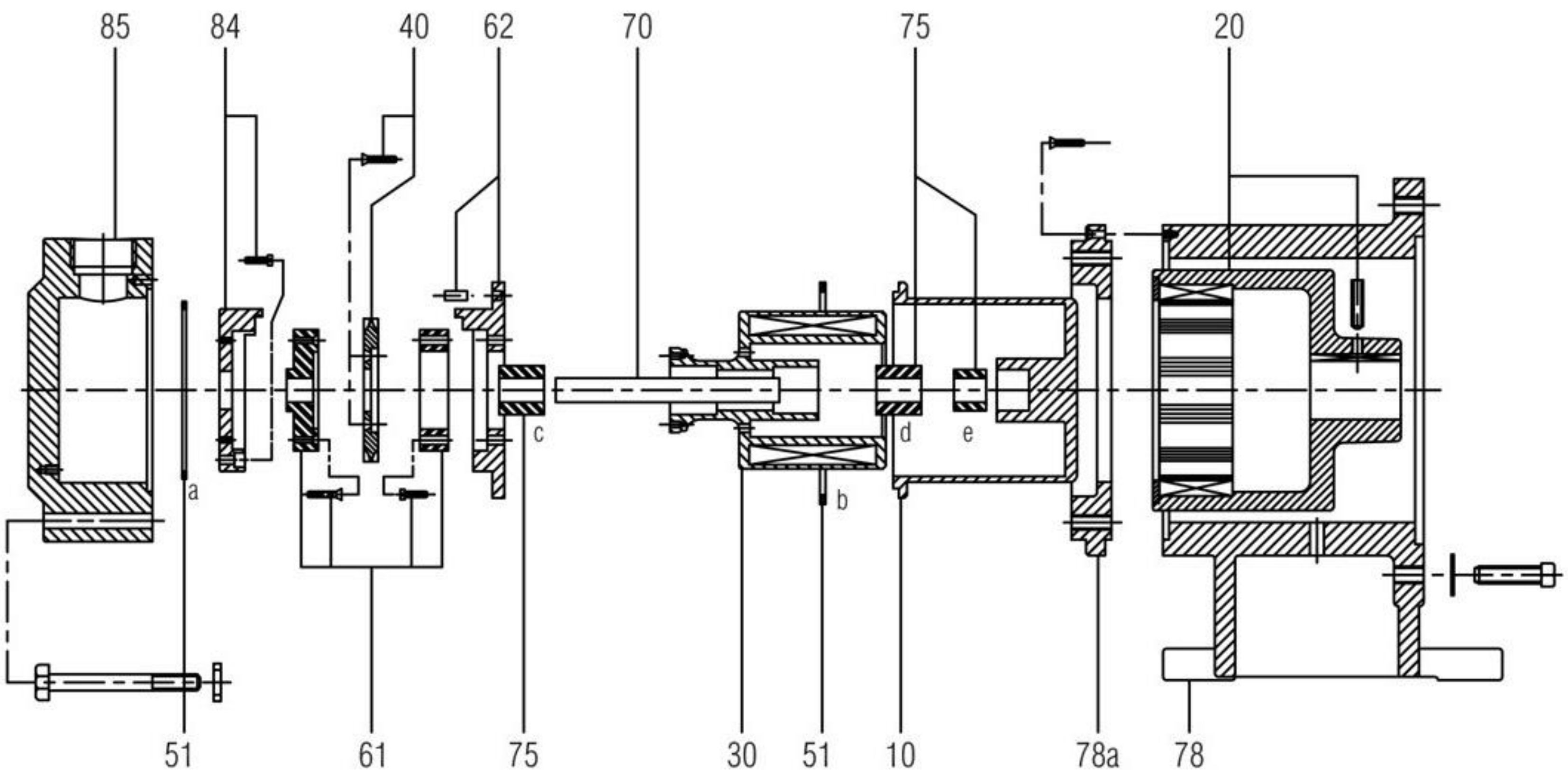

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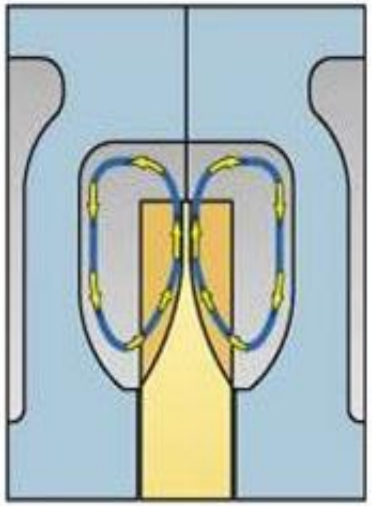
WORKING PRINCIPLE OF A REGENERATIVE TURBINE PUMP

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 capabilty of a MT / MTA regenerative turbine pump, close internal clearances are required. In many cases, depending on the size of the pump, impeller to casing clearances may be as little as 0,5 mm 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 to the inner diameter 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 morepressure. The multiple cycles through the turbine vanes are called regeneration, hence the name regenerative pump. The overall result of this process is a pump with pressure building capability ten or more times than of a centrifugal pump with 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 axial direction of the motor that must be carried by the axial thrust or motor bearings. MT / MTA 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-belancing and center the impeller in the close clearance impeller cavity, while not burdening the axial thrust bearings with excessive thrust loads.

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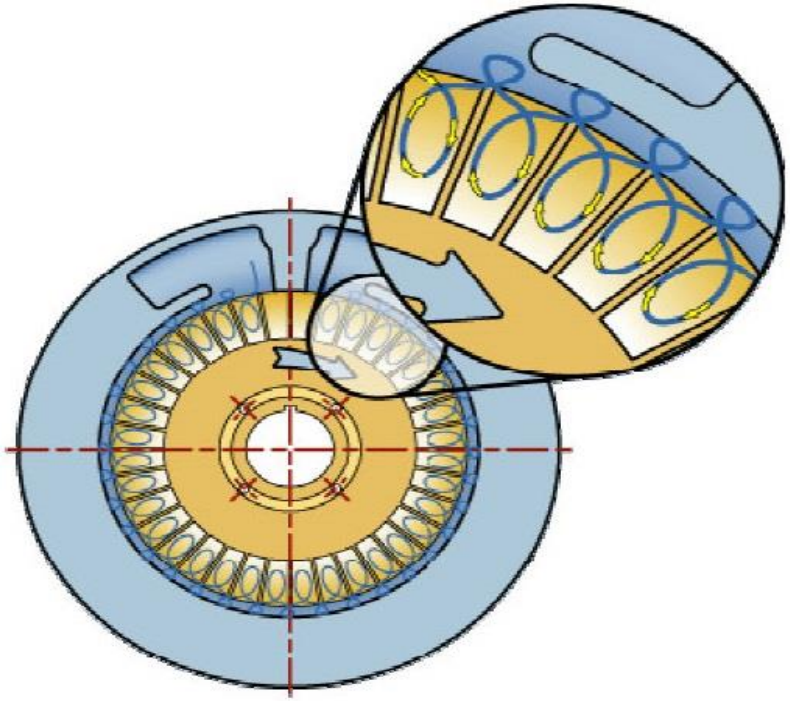
REGENERATIVE TURBINE IMPELLER



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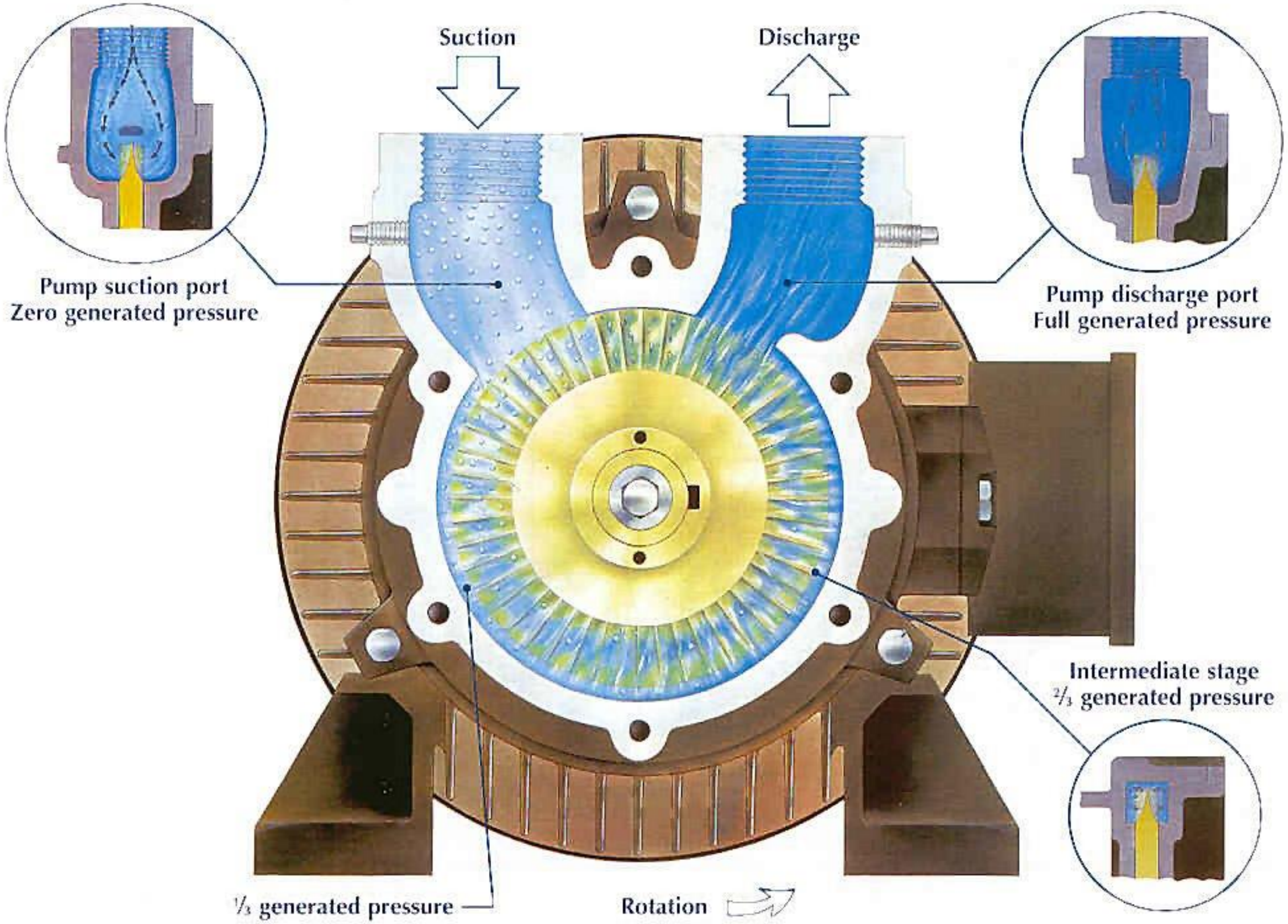
single-stage regenerative turbine pumps



The Turbine Regenerative Principle

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