



**nandodyne**  
engineering LLP



# Magnetic Drive Pump

## MODEL:- ND/MDM SERIES

The model is a metallic magnetic drive chemical process pump made of ductile iron, SS316, Alloy 20 and Hastelloy designed for normal and demanding chemical process applications. This seal less magnetic drive centrifugal pumps, the external magnet is directly connected to the motor shaft and it transmits the torque to the internal magnet.

The magnetic field created produces a rotation without physical contact between the part so the impeller spins and moves the fluid. The rear casing is placed between the two magnet joints and it hermetically closes the hydraulic part from the motor.

### Normal pumps problems

In case of conventional centrifugal pumps the integrity is always in question. The mechanical seal has forever been the weak point of pumps. The pumps are never 100% leak free and require regular maintenance and constant monitoring to the shaft seal. Antifriction bearing and the flushing plan systems. The availability and the life of the pumps is affected by the vulnerability of these components.

### Solutions/Benefits of Mag Drive pumps

- Mag Drive pumps are indeed the logical solution for safe, Zero emission pumping. This pump is designed to meet Zero Leakage and its now widely used in general industries.
- In aggressive acid, alkalis, toxic liquid etc. this MAG Drive pumps are commonly used.
- No seals to replace, so no maintenance and shutoff time.
- Emission free.
- No product loss.
- Flame proof/Explosion proof.
- No external lubrication is required for bearing.
- No vibration.
- No rigid foundation.



# Design Features for a Wide Range of Applications in the Chemical Process Industry

## IMPELLER

- Precision-cast stainless steel, optionally Hastelloy and other material
- Back vanes or balance holes reduce axial thrust
- Optional suction inducer:
  - reduces the NPSHr by 35-50%
  - permits smaller pumps at higher speeds = lower costs
  - is advantageous for media with gas content

## INNER MAGNET ASSEMBLY

- Inner magnet assembly with encapsulated magnets
- Integral axial vanes assure positive pressurized flushing flow to both lubricate and cool the plain bearings

## CAN

- Hastelloy C / SS 316L
- Non-welded, deep-drawn one-piece construction
- Rated for an operating pressure of 25 bar (360 psi), burst pressure > 150 bar (2175 psi)

## CASING

- Minimum corrosion allowance: 3mm
- Drain connection
- Replaceable housing wear ring (optional)
- Integrated connections for pressure and temperature monitors
- Jacketed housing for media heating or cooling on request

## BEARING CARTRIDGE

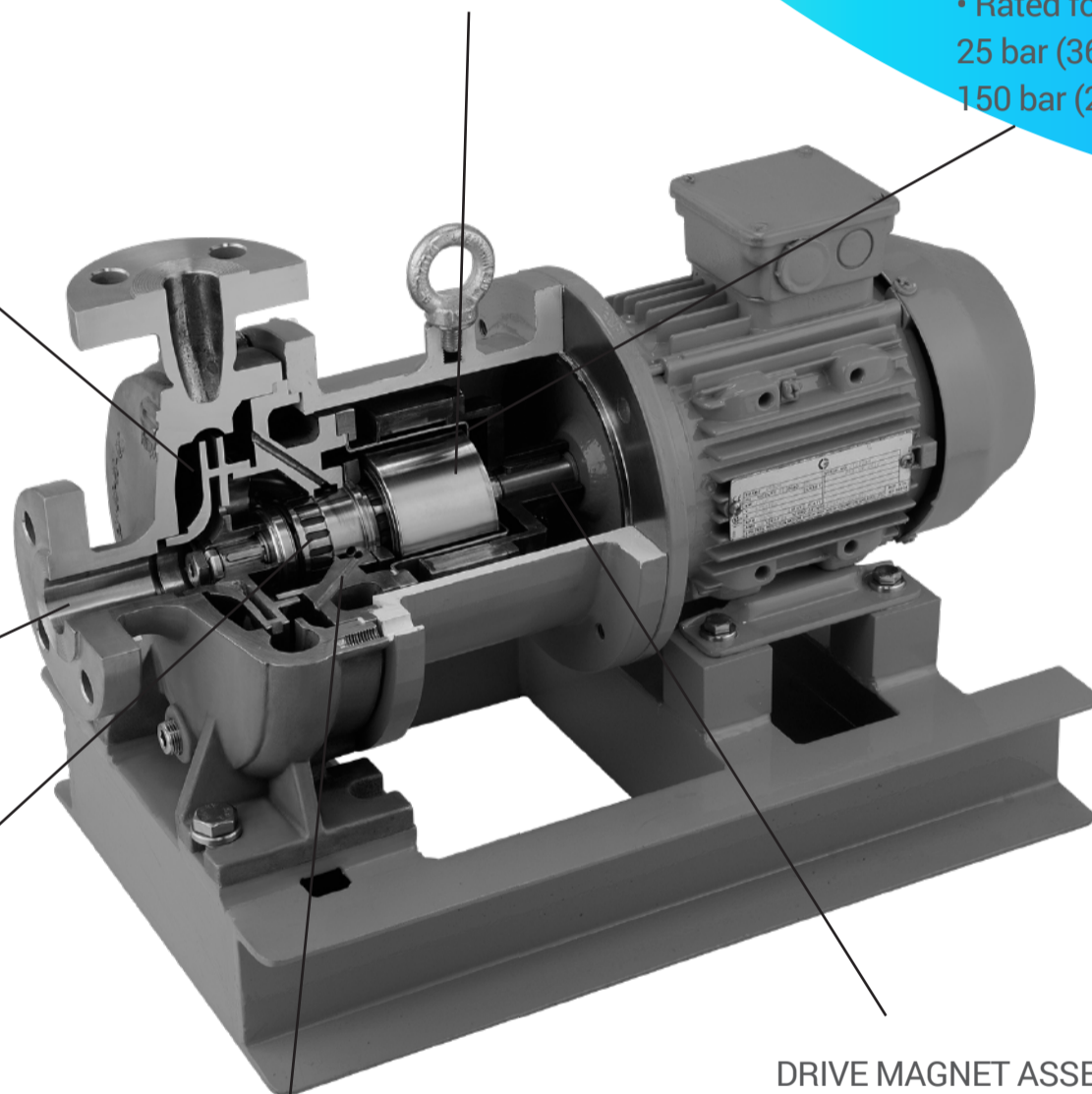
- Standard Pure Silicon Carbide SiC (SSiC), highly abrasionresistant, with universal chemical resistance, T.C
- Cartridge design eliminates measurements and fitting for simplified maintenance
- Optional Dryguard PLUS dry-running bearing system provide added safety during upset conditions
- High level of safety even in the event of plain bearing failure

## BACKPLATE

- Integrated possibilities for connecting
- Plain bearing flushing feature with external medium, on request with can drain
  - Temperature monitoring

## DRIVE MAGNET ASSEMBLY WITH HIGHPERFORMANCE PERMANENT MAGNETS

- Coupling ratings of up to 330 Nm (100 kW at 2900 rpm), variable through modular design
- Integral outer thrust ring prevents against contact with the can in the event of a roller bearing failure, Spark-free as an option



# Specifications & Technical Data Table



## ND-MDM

### SS Magnetic Drive Process Pump (Close Coupled)

#### Specifications

Flow upto : max. 100 m<sup>3</sup>/h and max. 440.2868 gallons

Head upto : max. 100 m

Max. Motor power : 30 HP

Temperature Range : -35°C to +250°C

Max. Working Pressure : PN16 / PN25

Max. Kinematic Viscosity : 0.5 to 350 mm<sup>2</sup>/s

Solid Handling Range : 5% hard Solids Upto  
150 microns diameter

Flange Class : Class 150 / Class 300

Drive : Close Couple

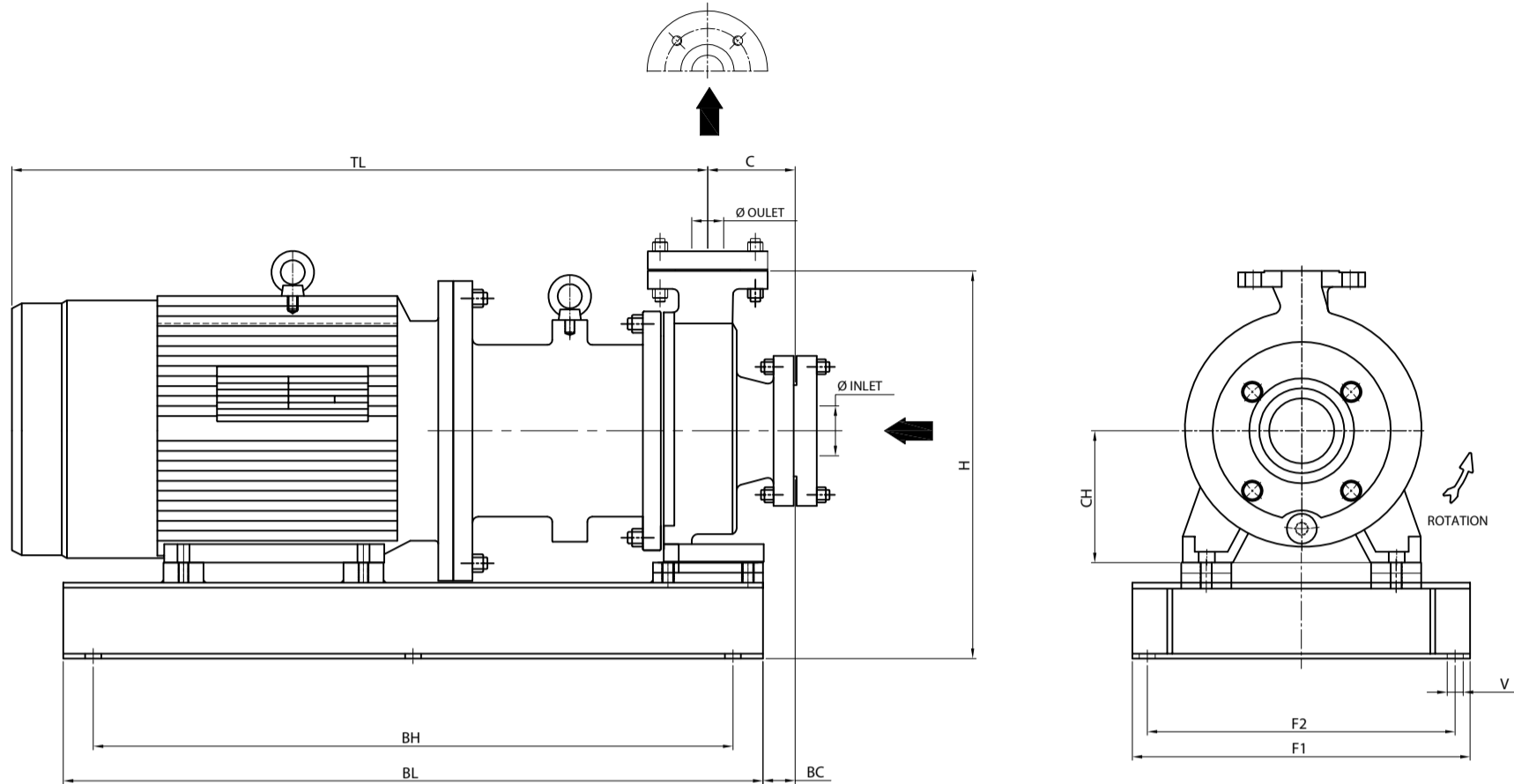
Impeller Type : Close

Magnets : Ferrite/Rare Earth/Specially Designed

#### Technical Data Table

Pump Model	2 POLE (2900 RPM)			4 POLE (1450 RPM)		
	Nominal Duty Point		Motor	Nominal Duty Point		Motor
	Q m <sup>3</sup> /h	H m	hp / kw	Q m <sup>3</sup> /h	H m	hp/kw
MDM 25 x 25-125	4	20	1/0.75	2	5	0.25/0.18
MDM 32 x 25-150	5	20	1.5/1.1	3	5	0.25/0.18
MDM 32 x 25-125	12.5	20	3/2.2 - 5/3.7	6.3	5	0.5/0.37
MDM 50 x 32-125	25	20	5/3.7 - 7.5/5.5	12.5	5	1/0.75
MDM 50 x 32-160	50	20	7.5/5.5 - 10/7.5	25	5	1.5/1.1
MDM 50 x 32-200	5	30	2/1.5	3	10	0.5/0.37
MDM 50 x 32-250	12.5	32	5/3.7 - 7.5/5.5	6.3	8	1/0.75
MDM 65 x 40-125	25	32	7.5/5.5 - 10/7.5	12.5	8	1.5/1.1
MDM 65 x 40-160	50	32	12.5/9.3 - 15/11	25	8	2/1.5
MDM 65 x 40-200	12.5	50	10/7.5 - 12.5/9.3	6.3	12.5	1.5/1.1
MDM 65 x 40-250	25	50	12.5/9.3 - 15/11	12.5	12.5	2/1.5
MDM 80 x 50-125	50	50	20/15 - 30/22.5	25	12.5	4/3
MDM 80 x 50-160	12.5	80	15/11 - 20/15	6.3	20	3/2.2
MDM 80 x 50-200	25	80	20/15 - 30/22.5	12.5	20	4/3

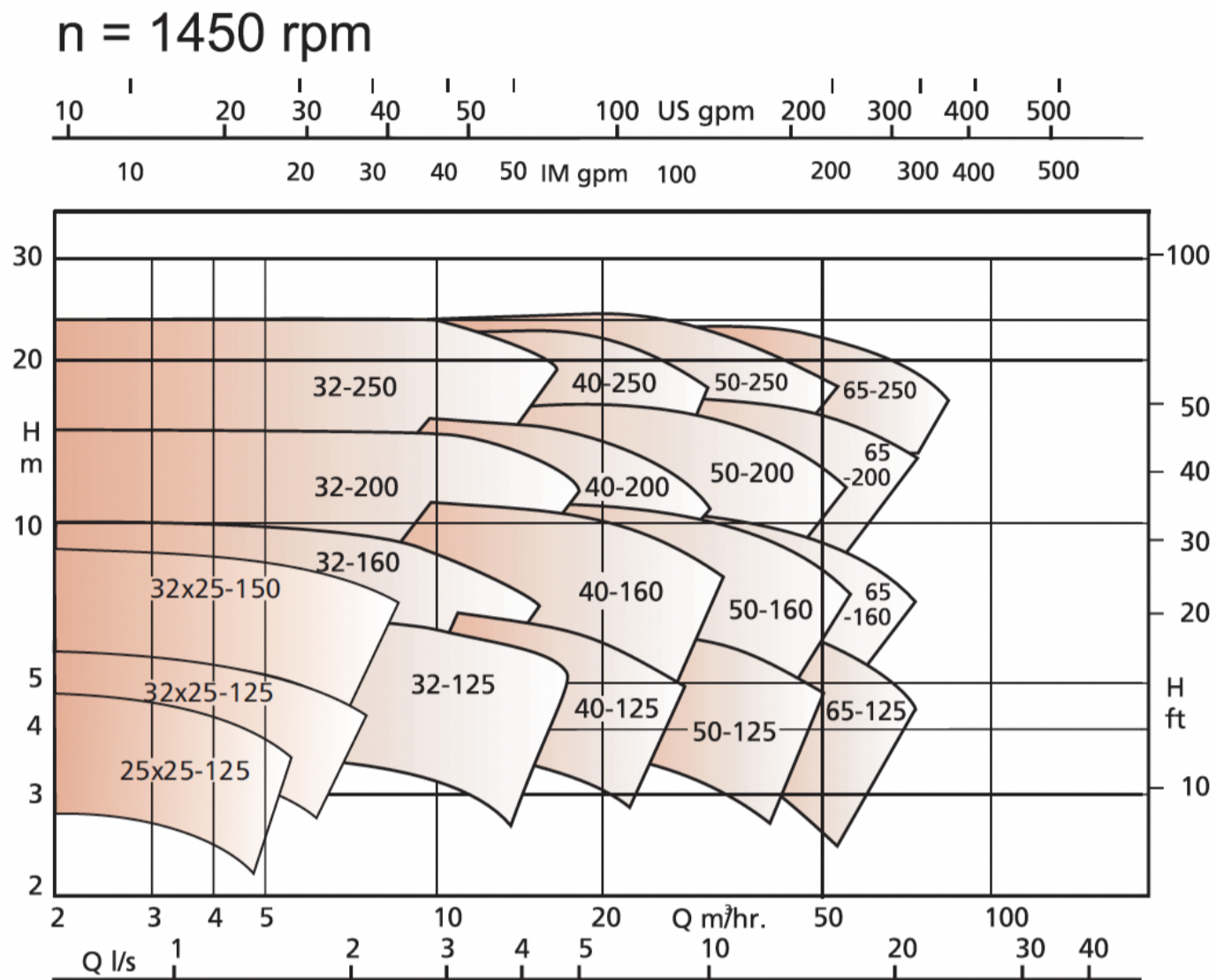
# Technical Specification



Dimension Table

Pump Model	Size Description			Dimension In Millimeters									
	Ø Inlet mm	Ø Outlet mm	Impeller (nominal) mm	Pump			Support						
				C	TL	H	CH	BL	BH	BC	F1	F2	V
MDM 25 x 25-125	25	25	125	82	425	112	340	465	405	62	300	270	Ø16
MDM 32 x 25-150	32	25	125	82	475	112	340	465	405	62	300	270	Ø16
MDM 32 x 25-125	50	32	125	80	665	112	338	604	554	46	338	308	Ø16
MDM 50 x 32-125	65	40	125	80	665	112	338	604	554	46	338	308	Ø16
MDM 50 x 32-160	80	50	125	100	700	132	380	650	600	50	338	308	Ø16
MDM 50 x 32-200	32	25	150	82	475	112	340	465	405	62	300	270	Ø16
MDM 50 x 32-250	50	32	160	80	665	132	380	604	554	46	338	308	Ø16
MDM 65 x 40-125	65	40	160	80	665	132	380	604	554	46	338	308	Ø16
MDM 65 x 40-160	80	50	160	100	800	160	430	650	600	50	338	308	Ø16
MDM 65 x 40-200	50	32	200	80	720	160	430	700	675	50	350	320	Ø16
MDM 65 x 40-250	65	40	200	100	800	160	430	700	675	50	350	320	Ø16
MDM 80 x 50-125	80	50	200	100	900	160	470	750	700	50	450	410	Ø16
MDM 80 x 50-160	50	32	250	100	800	180	490	700	675	50	400	370	Ø16
MDM 80 x 50-200	65	40	250	100	850	180	500	750	700	50	450	410	Ø16

# Performance Curves



## Industries:

- Chemical Processing : basic and fine chemicals
- Agrochemicals, speciality chemicals
- Pharmaceuticals
- Biotechnology processing
- Food and beverage
- Pulp and Paper

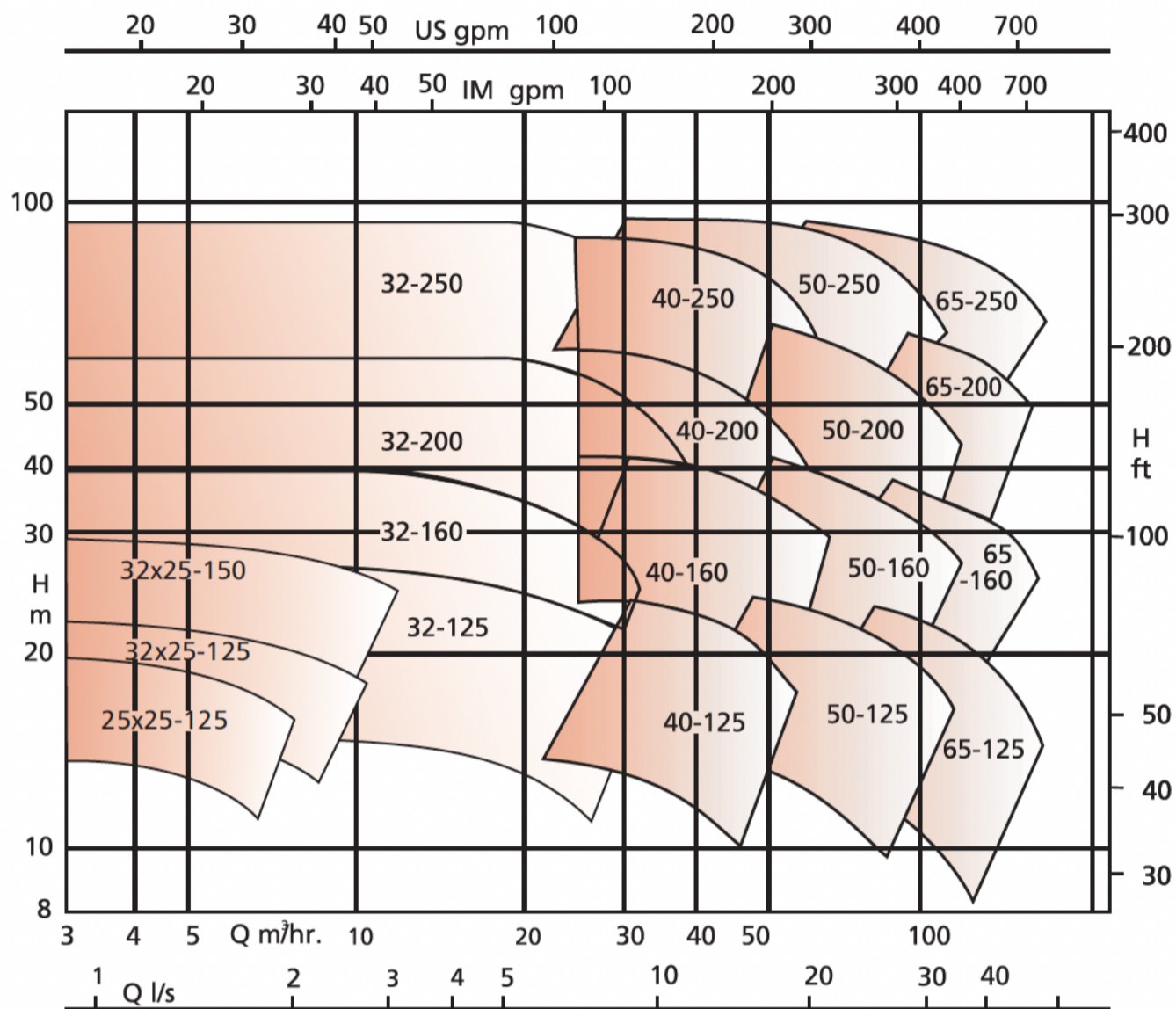
## Processes:

- Aseptic Processes
- Chlor-alkali electrolysis
- MDI Processes
- Refrigeration and heating cycles
- Tank unloading
- TDI Processes



# Performance Curves

n = 2900 rpm



## Fluids

- Hydrogen peroxide
- Molten Sulphur
- Nitric Acid
- Oleum
- Phosgene
- Phosphoric acid
- Potassium hydroxide solution
- Sodium hydroxide solution
- Sulphuric acid
- Toluene
- Solvents
- Alkalis
- Toxic liquids
- Corrosive liquids



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