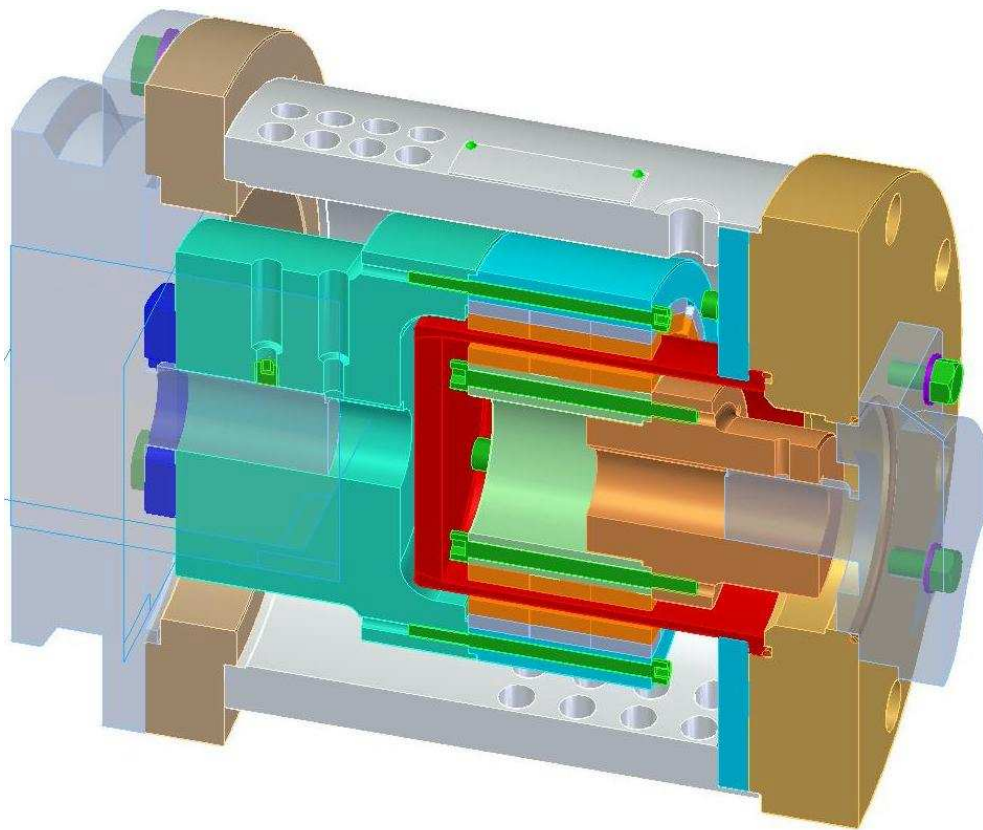


PERMANENT MAGNETIC COUPLINGS



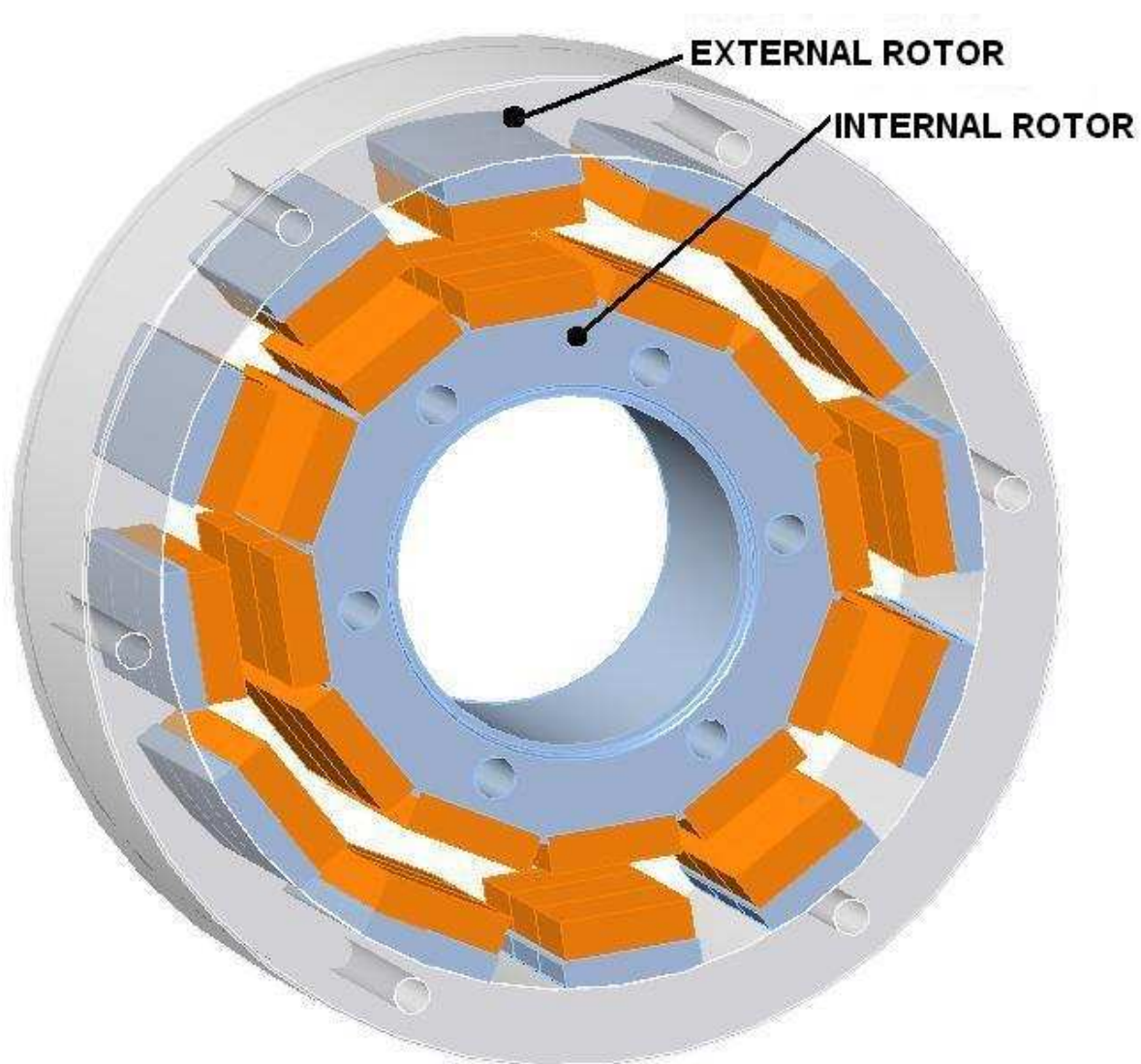
Made in Metau

- **General description**

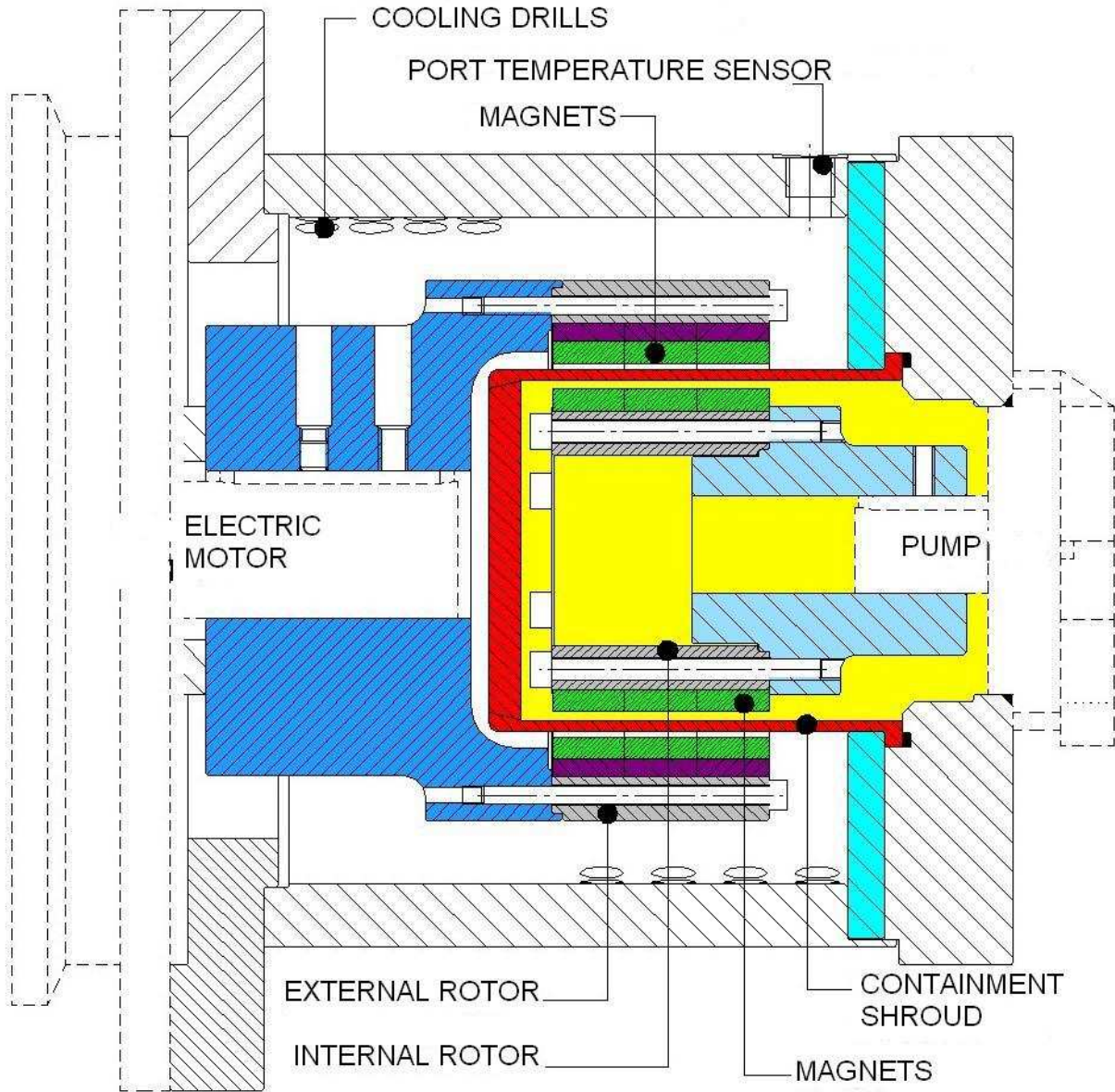
The GMDO is a permanent-magnetic coupling that transmits torque through magnetic forces between the internal and the external rotor.

It ensures a hermetic separation of the drive and the driven side in its main function as sealing element in pumps and agitators. For critical media like aggressive acids etc. it serves as a reliable seal and prevents serious leakages occurring.

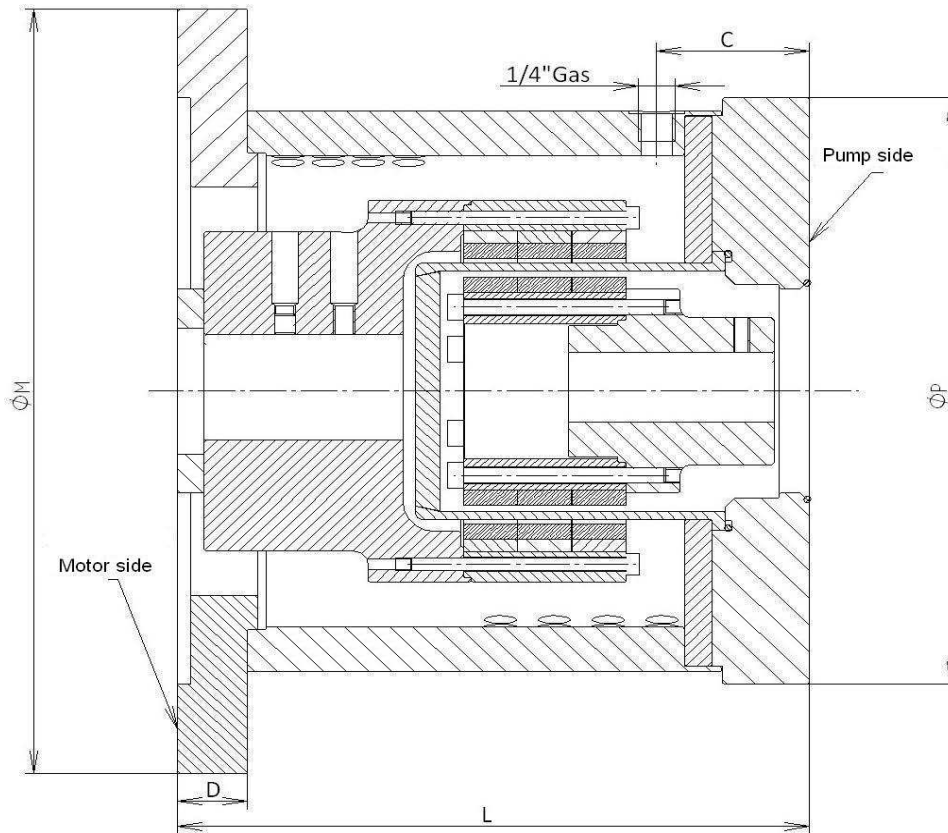
It ensures also to avoid vibrations, lateral load and radial loading on the pump shaft.



Design



• **Dimensions and Technical Data**



TYPE MAGNETIC COUPLING GMDO		Max. Torque [Nm] at 20°C (Magnets Neodymium Ne*)	Dimensions [mm]					ELECTRICAL MOTOR STD.	PUMP
SIZE	QUANTITY MAGNETS ROWS		C	D	L	øM	øP		
GR1	1	22,6	56,5	26	234,5	depending on which electrical motor	230	from size 080 to size 132	on request
	2	45,1							
	3	67,7							
GR2	2	88,1	58	36	287		260	from size 110 to size 180	on request
	3	132,1							
	4	176,2							
GR3	2	145,2	78,5	36	422,5		330	from size 160 to size 200	on request
	3	217,8							
	4	290,4							
	5	363							
	6	435,6							
	7	508,2							
	8	580,8							

* on request magnets in Samarium-Cobalt (SmCo) are also available

• Operating conditions and Performance

- Pressure inside containment shroud

A max. static pressure of 15 bar is allowed in the inside of the containment shroud (see on page 3), or a max. pulsating pressure of 5 bar. These two values are relative values to the ambient pressure of the coupling location.

Other more serious operating conditions are available on request.

- Operational speed

The max. operational speed of the GMDO coupling is 3.600 min^{-1} .

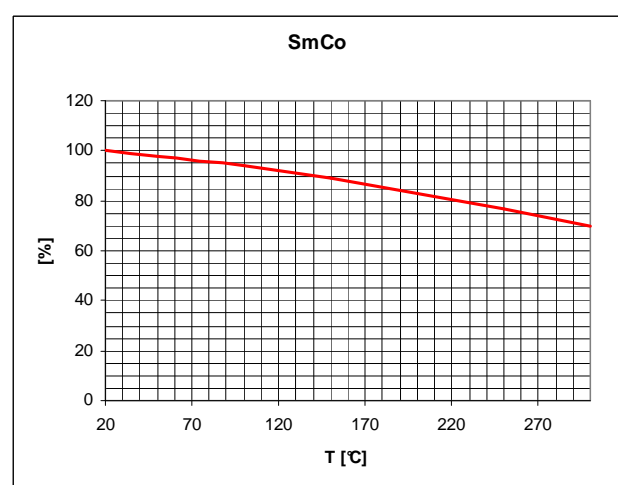
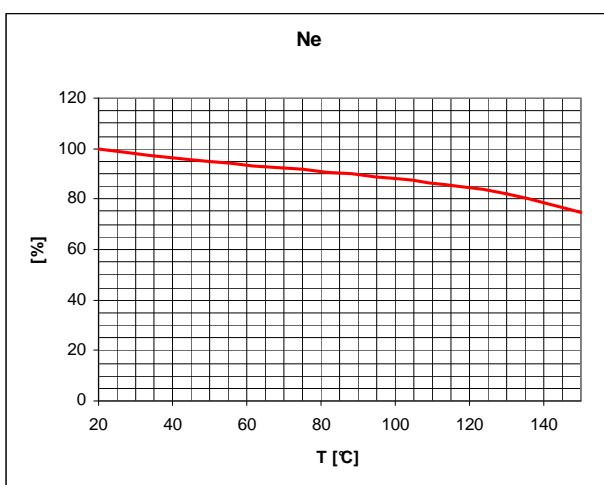
- ATEX

ATEX-version on request (with a port for a temperature sensor)

- Operating temperature

The max. operating temperature is 120°C . With increased temperature a torque reduction is obtained. On the diagrams below the coupling power is shown in confront with the operational temperature. One diagram with the magnets in Neodymium (Ne) and the other with magnets in Samarium-Cobalt (SmCo).

Operating temperature more than 120°C for other applications are available on request.



- Power

A part of the motor power is absorbed from the magnetic coupling GMDO. We have three reasons for this, and they are: Eddy current, magnetic hysteresis and hydrodynamic resistance. The eddy current and the magnetic hysteresis are only a minimal part of this power absorption, but we have not to disregard the hydrodynamic resistance. This resistance depends on the medium of the pump, and from the moment when the internal rotor is immersed in the medium. For that reason it's important to know the viscosity of the medium and the operational speed to determine the main power of the magnetic coupling.

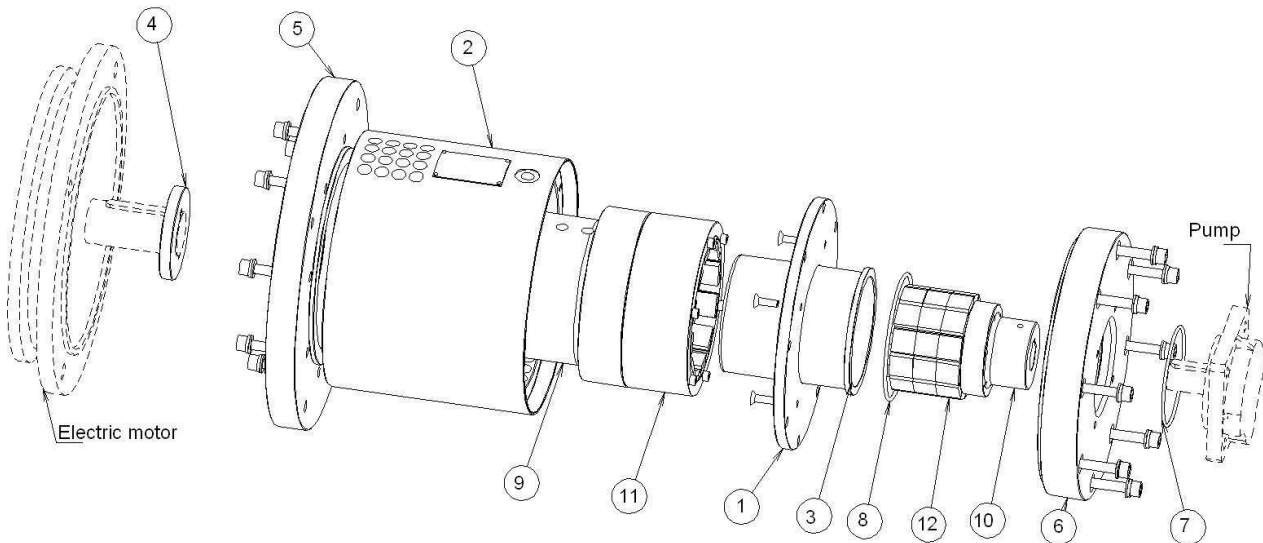
The diagrams represent samples of magnetic couplings GMDO, who are shown in different operating conditions.





ATTENTION: the pump medium has to be free of ferromagnetic particulates, otherwise the power of the magnetic coupling will be reduced.

• **Components and Material**



Pos	Description	Material
1	Containment shroud flange	Aluminium 6082
2	Bellhousing	Aluminium 6082
3	Containment shroud	AISI 304
4	Distance ring motor side	Aluminium 6082
5	Adapter flange motor side	Aluminium 6082
6	Adapter flange pump side	Aluminium 6082
7	O ring	Viton
8	O ring	Viton
9	Flange hub motor side	Aluminium 6082
10	Flange hub pump side	Aluminium 6082
11	Magnet external ring	Fe520
12	Magnet internal ring	Fe520

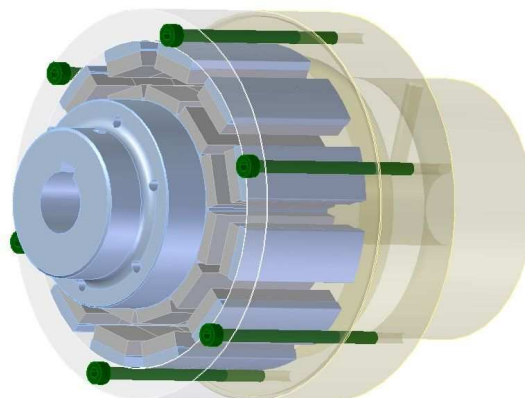
Technical data for coupling dimensioning

INPUT DATA **CUSTOMER :**

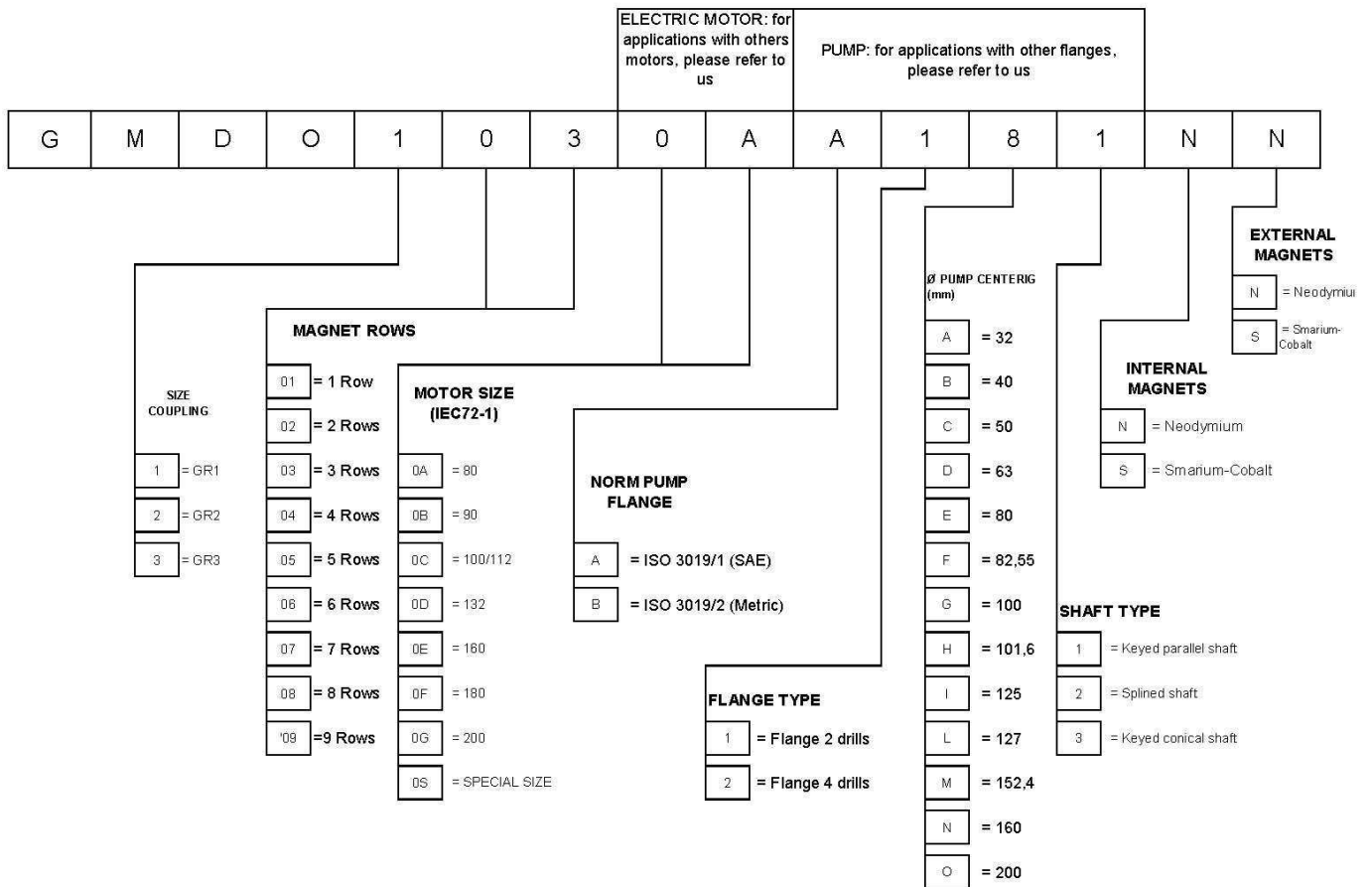
ELECTRIC MOTOR	Input rating (continuous rating S1)	[Kw]
	Number of poles	
	Nominal operational speed	[min ⁻¹]
	Tear torque (continuous rating S1)	[Nm]
	Start (softly or direct)	

GEAR PUMP – PISTON PUMP	Pump type	
	Max. displacement	[cm ³ /rev]
	Max. pressure suction port pump	[bar]
	Max. pressure outlet port pump	[bar]
	Max. displacement at max. pressure (only for variable displacement pumps)	[cm ³ /rev]
	Pressure at max. variable stroke (1) or (4)	[bar]
	Max. pressure at min. variable stroke (only for variable displacement pumps)	[bar]

MEDIUM	Pump medium	
	Max. temperature pump medium	[°C]
	Min. temperature pump medium	[°C]
	Max. viscosity pump medium	[cSt]
	Min. viscosity pump medium	[cSt]



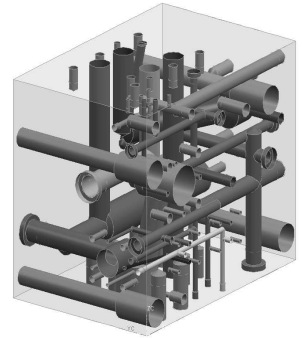
• Type code



- **Other activities**

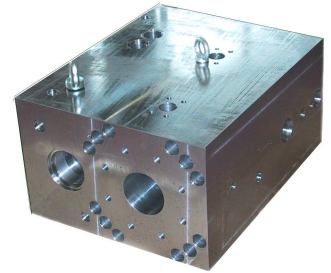
- **Engineering**

Hydraulic system design, manifolds, power packs, test benches, with modern 3D-CAD-System (UNIGRAPHICS).



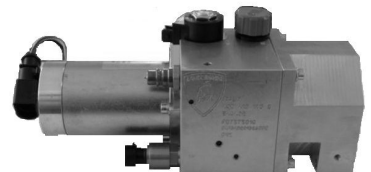
- **Workshop**

Our production is able to manufacture manifolds in steel, cast iron and aluminium alloys. A modern and flexible park of CNC machines allows to realize mechanical machining of high quality.



- **SYSTEMS**

Metau Engineering srl, thanks to the synergy among Engineering, mechanical workmanship, assembly and testing united by the experience and the professionalism of the team, is able to deliver a **COMPLETE SYSTEM** to the customers.



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