

## Magnetic-drive pump (MAGdrive)

Grundfos CRN MAGdrive pumps operate according to a patented, magnetic-drive system that eliminates the need for shaft seals. The power from the motor is transmitted to the pump by magnetic force and not by a conventional coupling. Combined with a hermetically sealed liquid end, the pump is totally leak-free.

As all axial forces are absorbed in the MAGdrive system, the pump incorporates a standard ICE or NEMA motor with keyway and deep-groove ball bearing.



GrA4445

Fig. 1 CRN MAGdrive pumps

The MAGdrive solution is available for these pumps:

Pump type	CRN pumps with magnetic drive										
	1s	1	3	5	10	15	20	32	45	64	90
CRN(E)	●	●	●	●	●	●	●	●*	●*	●*	●*

● Available.

●\* Available up to 22 kW.

A soft starter is required on 18.5 and 22 kW motors.

### Features and benefits

CRN MAGdrive offers the following special features and benefits:

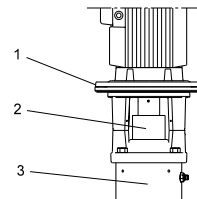
- a hermetically sealed drive system for 100 % leak-free pump operation
- special choice of materials and design for low energy loss
- simple pump design for ease of service
- unique pump design for efficient cooling of magnet by means of the pumped liquid
- ATEX version available.

## Applications

The CRN MAGdrive pump is suitable for wide selection of industrial applications such as:

- **Aggressive or corrosive liquids**  
Concentrated sulphuric acid, nitric acid, phosphoric acid, etc.
- **Toxic liquids**  
Trichloroethylene, chloroform, phenol, etc.
- **Flammable liquids**  
Petrol, jet fuels, LPG, alcohols, etc.
- **Hardening/curing liquids**  
Paint, glue, resins, etc.
- **Crystallising liquids**  
Glycol additives, naphthalene, sugar products, salts, etc.
- **Refrigerants**  
Ammonia, synthetic chemicals (CFC, HCFC, HCF), etc.

## Design



TM03 9149 3407

Fig. 2 MAGdrive system

Pos.	Designation	Materials
1	Motor stool	Cast iron. Stainless steel on request.
2	MAGdrive	
3	Pump head	Stainless steel (EN 1.4408).

The configuration of the CRN MAGdrive pump is almost identical to that of the standard CRN pump.

The following rubber parts solutions are available:

- EPDM
- FXM (Flouraz<sup>®</sup>)
- FFKM (Kalrez<sup>®</sup>)
- FKM (Viton<sup>®</sup>)

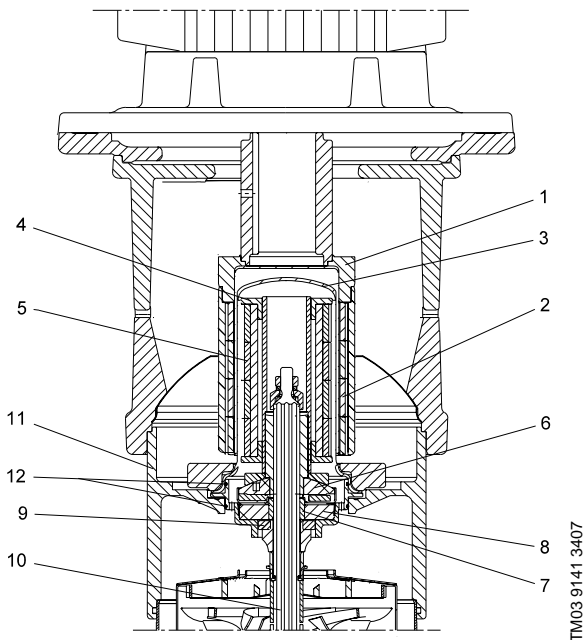
Connections available for CRN MAGdrive pumps:

Connection type	CRN	
	1s, 1, 3, 5, 10, 15, 20	32, 45, 64, 90
DIN, ANSI, JIS flange	●	●
PJE	●	●
FlexiClamp, union, oval flange, TriClamp	●	

● Available.

**Construction**

The magnetic field is generated by two magnets; the outer magnet is driven by the motor, and the inner magnet is connected to the pump. The two shafts are not connected.



**Fig. 3** Sectional drawing of MAGdrive system

Pos.	Designation	Material
1	Outer drive	1.4301
2	Outer magnets	NdFeB (neodymium)
3	Can	1.4539
4	Inner drive	1.4401
5	Inner magnets	NdFeB (neodymium)
6	Rotating thrust bearing	SiC Q <sub>1</sub> <sup>G</sup> (silicon carbide, carbon-filled)
7	Stationary thrust bearing	SiC Q <sub>1</sub> <sup>G</sup> (silicon carbide, carbon-filled)
8	Radial bearing	SiC (silicon carbide)
9	Upthrust bearing	Graflon (carbon-graphite-filled PTFE)
10	Drive/pump shaft	CRN 1s-5 : 1.4401 CRN 10-20 : 1.4460 CRN 32-90 : 1.4462
11	Pump head	1.4408
12	O-ring	EPDM, FKM, FXM, FFKM

**Operating conditions**

Maximum pressure: 25 bar.

Temperature range: -30 °C to +120 °C.

Viscosity range: 0.3 to 300 mPas.

**Technical data**

Motor range: 0.37 kW to 22 kW.

**Dimensions**

The height of the MAGdrive system typically makes the pump a little higher than a standard CRN pump. Some pump sizes have a larger motor than the standard range.

For dimensions and weights for CRN MAGdrive pumps, see page 140 to 152.

**Note:** When ordering a Grundfos MAGdrive, please state

- liquid temperature [°C]
- liquid viscosity [mPas]
- liquid density [kg/m<sup>3</sup>]
- frequency [Hz].

Above information is required for the selection of the correct MAGdrive/motor combination.

Subject to alterations.