

# CRN MAGdrive

Custom-built multistage centrifugal pumps  
60 Hz



## Introduction to CRN MAGdrive

Grundfos CRN MAGdrive pumps operate according to a magnetic-drive system (patents pending) eliminating the need for shaft seals. The power from the motor is transmitted to the pump by magnetic force. Combined with a hermetically sealed liquid end, the pump is totally leak-free.

The pump incorporates a standard NEMA motor with keyway and deep-groove ball bearings.



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 30 HP.

A soft starter is required on 25 and 30 HP motors (2 pole).

A soft starter is required on all 4-pole motors.

### CRN MAGdrive features and benefits

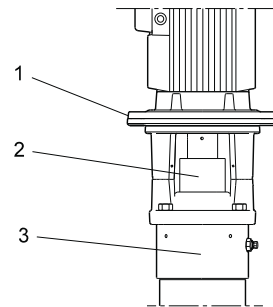
- hermetically sealed drive system for 100 % leak-free pump operation
- special design and materials for low energy loss
- simple pump design for ease of service
- unique pump design for efficient cooling of the MAGdrive by means of the pumped liquid
- NEMA explosion proof motors optional. Class I, Group D and Class II, Group F&G. UL Listed and CSA Certified.

## Applications

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

- Aggressive or corrosive liquids**  
Sulphuric acid, nitric acid, phosphoric acid, etc.
- Toxic liquids**  
Trichloroethylene, chloroform, phenol, etc.
- Flammable liquids**  
Petrol, jet fuels, LPG, alcohols, etc.
- Refrigerants**  
Ammonia, synthetic chemicals, etc.

## Design



TM03 9149 3407

Fig. 2 MAGdrive system

Pos.	Designation	Materials
1	Motor stool	Cast iron. Stainless steel on request.
2	MAGdrive	See page 5
3	Pump head	Stainless steel (AISI 316).

The standard CRN MAGdrive pump elastomer is EPDM. The optional CRN MAGdrive pump elastomers are:

- FXM (Flouraz®)
- FFKM (Kalrez®)
- FKM (Viton®)

## Connections

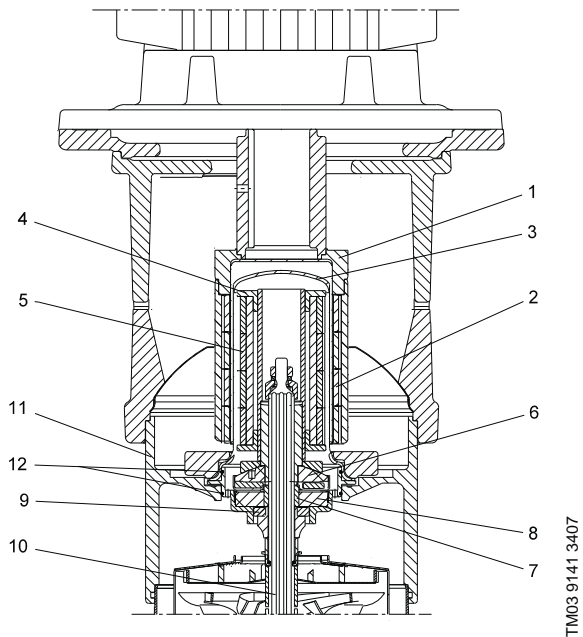
These connections available for CRN MAGdrive pumps:

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

A 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 shafts are not connected.



TM03 9141 3407

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

Pos.	Designation	Material
1	Outer drive	AISI 304 SS
2	Outer magnets	NdFeB (neodymium)
3	Can	AISI 904L SS
4	Inner drive	AISI 316 SS
5	Inner magnets	NdFeB (neodymium)
6	Rotating thrust bearing	SiC-g (silicon carbide, carbon-filled)
7	Stationary thrust bearing	SiC-g (silicon carbide, carbon-filled)
8	Radial bearing	SiC (silicon carbide)
9	Upthrust bearing	Carbon-graphite-filled PTFE
10	Drive/pump shaft	CRN 1s-5 : AISI 316 SS CRN 10-20 : AISI 329 SS CRN 32-90 : SAF 2205
11	Pump head	CF 8M (cast equiv. of AISI 316 SS)
12	O-ring	EPDM, FKM, FXM, FFKM

## Operating conditions

**Maximum pressure**  
362 PSI

**Temperature range**  
-4 °F to +248 °F

**Viscosity range**  
0.25 to 100 Centipoise

## Technical data

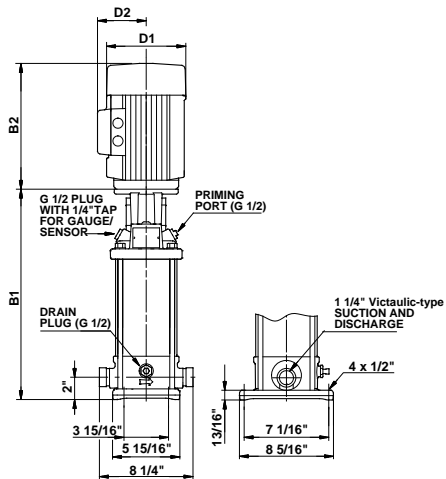
**Motor range**  
0.50 HP to 30 HP

**Dimensions**  
The height of the MAGdrive system typically makes the pump taller than a standard CRN pump.

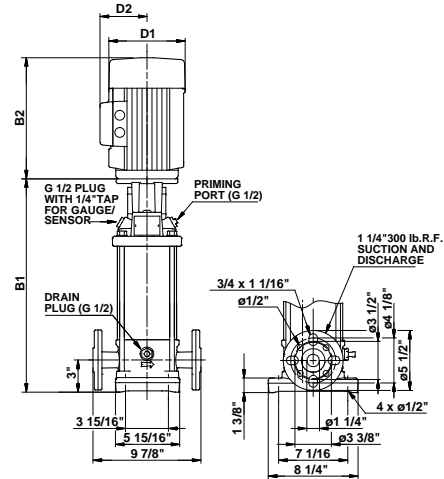
Some CRN MAGdrive pumps will have a larger motor than the standard range.

# Technical data

CRN MAGdrive  
CRN(E) 1



TM03 1454 2205



TM03 1453 2205

Pump type	Hp	Ph	PJE*	Dimensions					Ship Wt. [lbs]
				B1	B2	D1	D2	B1 + B2	
CRN 1-2	0.5	3	*	15.47	11.35	6.19	5.19	26.82	73
CRN 1-3	0.5	3	*	15.47	11.35	6.19	5.19	26.82	73
CRN 1-4	0.75	3	*	16.18	11.35	6.19	5.19	27.53	74
CRN(E) 1-5	0.75	3	*	16.88	11.35	6.19	5.19	28.23	75
CRN 1-6	1	3	*	17.59	11.35	6.19	5.19	28.94	77
CRN(E) 1-7	1	3	*	18.30	11.35	6.19	5.19	29.65	78
<b>CRN 1-8</b>	<b>1.5</b>	<b>3</b>	<b>*</b>	<b>19.01</b>	<b>11.97</b>	<b>6.19</b>	<b>5.19</b>	<b>30.98</b>	<b>83</b>
CRN 1-9	1.5	3	*	19.72	11.97	6.19	5.19	31.69	84
CRN(E) 1-10	1.5	3	*	20.43	11.97	6.19	5.19	32.40	79
CRN 1-11	1.5	3	*	21.14	11.97	6.19	5.19	33.11	81
CRN 1-12	2	3	*	21.84	12.85	6.19	5.19	34.69	87
CRN(E) 1-13	2	3	*	22.55	12.85	6.19	5.19	35.40	88
CRN(E) 1-15	2	3	*	23.97	12.85	6.19	5.19	36.82	109
CRN 1-17	3	3	*	26.51	12.55	7.19	5.72	39.06	127
CRN(E) 1-19	3	3	*	26.81	12.55	7.19	5.72	39.36	132
CRN 1-21	3	3	*	29.32	12.55	7.19	5.72	41.87	172
CRN(E) 1-23	5	3	*	30.74	13.93	8.50	6.87	44.67	193
CRN 1-25	5	3	*	32.16	13.93	8.50	6.87	46.09	195
CRN(E) 1-27	5	3	*	33.58	13.93	8.50	6.87	47.51	197

All pumps are three phase. All dimensions in inches unless otherwise noted.

\* PJE flanged pump B1 and B1+B2 dimension is one inch less than ANSI flanged pump and weight is approximately 9 lbs. less.

• Available