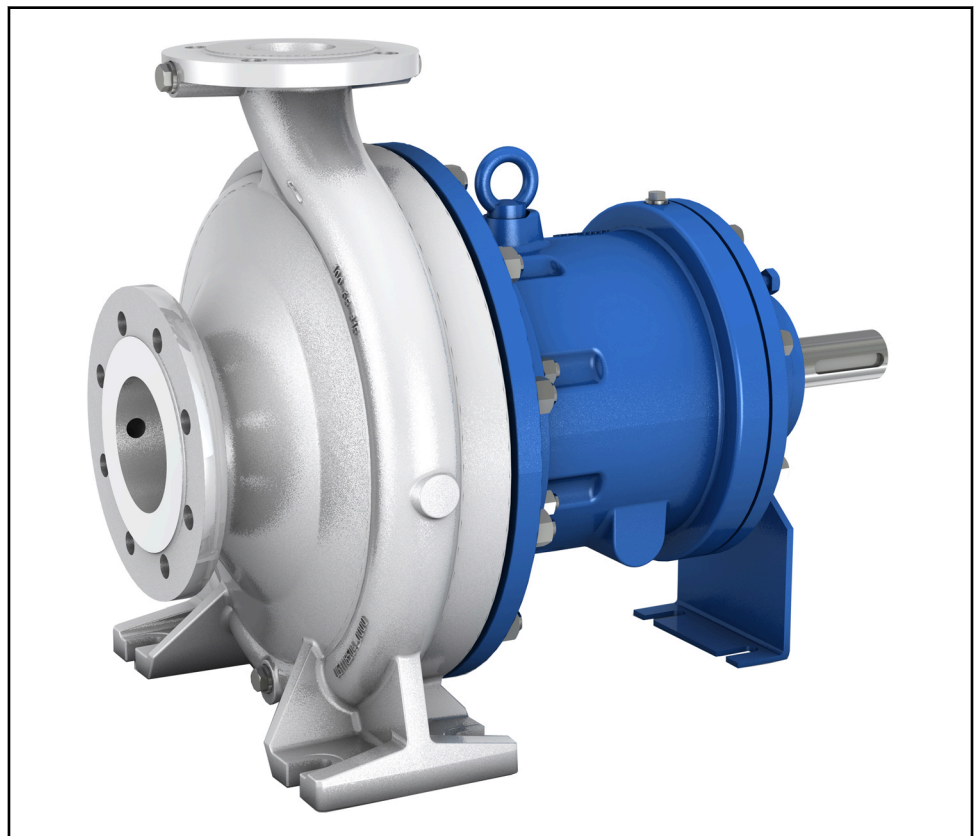


Mag-drive Pump

Magnochem

Type Series Booklet



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Type Series Booklet Magnochem

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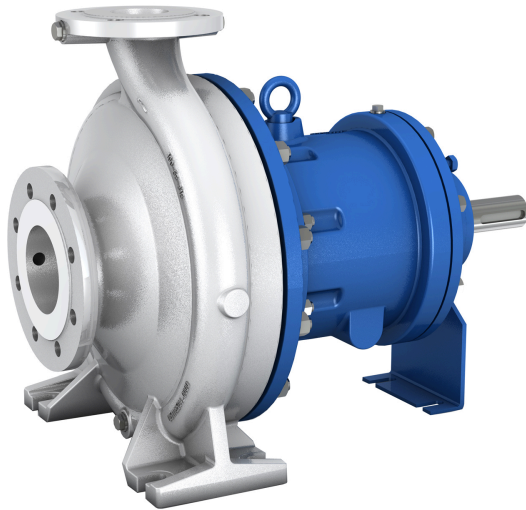
Contents

Seal-less Pumps	4
Mag-drive Pumps	4
Magnochem	4
Main applications	4
Fluids handled	4
Operating data	4
Designation	4
Design details	4
Automation	5
Materials	6
Coating and preservation	7
Product benefits	7
Acceptance tests/Guarantees	7
Pressure and temperature limits	8
Technical data	9
Selection charts	11
Dimensions and connections	14
Flange design	19
Scope of supply	19
Accessories	19
General assembly drawings	20
Detailed designation	30

Seal-less Pumps

Mag-drive Pumps

Magnochem



Main applications

- Chemical industry
- District heating
- Industrial recirculation systems
- Air-conditioning systems
- Condensate transport
- Cooling circuits
- Petrochemical industry
- Pipelines and tank farms
- Refineries
- Process engineering
- Hot-water heating systems
- Sugar industry

Fluids handled

- Aggressive fluids
- Explosive fluids
- Flammable fluids
- Toxic fluids
- Valuable fluids
- Fluids which are injurious to health
- Malodorous fluids

Operating data

Operating properties

Characteristic		Value
Flow rate	Q	Up to 1160 m ³ /h (50 Hz) Up to 1400 m ³ /h (60 Hz)

Characteristic		Value
Head	H	Up to 162 m (50 Hz)
		Up to 236 m (60 Hz)
Operating temperature	t ₁	-90 °C to +300 °C
Ambient temperature	t ₂	-20 °C to +40 °C
Operating pressure	p	Max. 40 bar

Designation

Example: MACD050-032-2501CCHX1A

Key to the designation

Code	Description
MACD	Type series (full name: Magnochem)
050	Nominal suction nozzle diameter [mm]
032	Nominal discharge nozzle diameter [mm]
250	Nominal impeller diameter [mm]
1	Hydraulic system, e.g. 1 = low-flow hydraulic system
C	Casing material, e.g. C = stainless steel
C	Impeller material, e.g. C = stainless steel
H	Additional code, e.g. H = heatable casing
X	Special design
1	Nominal diameter of magnetic coupling, e.g. 1 = 85 mm
A	Effective length of magnetic coupling, e.g. A = 10 mm

Further information on the designation

(⇒ Page 30)

Design details

Design

- Volute casing pump
- Horizontal installation
- Back pull-out design
- Single-stage
- Meets the technical requirements to ISO 5199
- Dimensions and ratings to ISO 2858 complemented by pumps of nominal diameters DN 25, DN 200 and DN 250

Pump casing

- Single or double volute, depending on the pump size
- Radially split volute casing
- Volute casing with integrally cast pump feet
- Replaceable casing wear rings
- Heatable
- Draining facility

Impeller type

- Closed radial impeller with multiply curved vanes
- Discharge-side sealing clearance reduces axial thrust

Shaft seal

- Seal-less, with magnetic coupling
- Containment shroud as sealing element
- **Optional:** with leakage barrier

Casing cover variants

- Internal circulation
- Low-boiling fluids
- External circulation
- Dead-end configuration

In addition:

- Flushing connection
- Heatable
- Draining facility
- Internal ring filter or main flow filter

Bearings

Drive-end bearings:

- Radial ball bearings/angular contact ball bearings with internal clearance C3
- Grease-packed for life (high melting point grease)
- **Optional:** oil lubrication

Pump-end bearing:

- Hydrodynamic plain bearings
- Product-lubricated

Bearings used

Type of lubrication	Pump nominal pressure	Leakage barrier model	Nominal diameter of magnetic coupling	Bearing bracket	Rolling element bearings	
					Pump end	Drive end
					320.01/321.01	321.02
Grease-lubricated	PN16/25/40	Not available or shaft seal ring ¹⁾	85	CS40	6209 ZZN C3	6209 ZZN C3
				CS50		
				CS60		
			123	CS40	6209 ZZN C3	6209 ZZN C3
				CS50		
				CS60		
			172	CS50	6209 ZZN C3	6209 ZZN C3
				CS60		
				CS80		
			235	CS50	6212 ZZN C3	6212 ZZN C3
				CS60		
				CS80		
265	CS80	6212 ZZN C3	6212 ZZN C3			
	CS40					
	CS50					
Oil-lubricated	PN16/25/40	Not available or shaft seal ring ¹⁾	85	CS40	6209 NZ C3	6209 NZ C3
				CS50		
				CS60		
			123	CS40	6209 NZ C3	6209 NZ C3
				CS50		
				CS60		
			172	CS50	6209 NZ C3	6209 NZ C3
				CS60		
				CS80		
			235	CS50	6212 NZ C3	6212 NZ C3
				CS60		
				CS80		
265	CS80	6212 NZ C3	6212 NZ C3			
	CS40					
	CS50					

Automation

Automation options:

- PumpDrive
- PumpMeter

¹⁾ Shaft seal ring up to PN16 max.

Materials

Overview of available materials

Part No.	Description	Material	Material variant S=standard, O=option										
			CC	CD	VV	VD	EG	EC	ED	YG	YC	YD	DD
102	Casing	Stainless steel 1.4408 / A743 Gr CF8 M	S	S	-	-	-	-	-	-	-	-	-
		Stainless steel 1.4408	-	-	S ²⁾	S ²⁾	-	-	-	-	-	-	-
		Duplex stainless steel 1.4593/1.4517/ A995 GR 1B	-	-	-	-	-	-	-	-	-	-	S
		Steel GP240GH+N/ A216 Gr WCB 1.7706	-	-	-	-	S	S	S	-	-	-	-
502.01 / 502.02	Casing wear ring	Grey cast iron GG/cast iron	-	-	-	-	O	O	O	O	O	O	-
		CrNiMo steel	O	O	O	O	-	-	-	-	-	-	-
		Duplex steel	-	-	-	-	-	-	-	-	-	-	O
		CrNi steel VG 434	-	-	-	-	O	O	O	O	O	O	-
		None	S	S	S	S	S	S	S	S	S	S	S
411.10	Joint ring	CrNi steel/graphite	O	O	O	O	O	O	O	S	S	S	O
		Thermoplastic	S	S	S	S	S	S	S	-	-	-	S
		Gylon 3501E	O	O	O	O	O	O	O	-	-	-	O
230	Impeller	Stainless steel 1.4408/ A743 GR CF8M	S	-	S	-	-	S	-	-	S	-	-
		Grey cast iron JL1040/ A48CL35 B	-	-	-	-	S	-	-	S	-	-	-
		Duplex stainless steel 1.4593/1.4517/A995 GR 1B	-	S	-	S	-	-	S	-	-	S	S
503	Impeller wear ring	CrNiMo steel	O	-	O	-	-	O	-	-	O	-	-
		Stainless steel 1.4027+QT	-	-	-	-	O	-	-	O	-	-	-
		Duplex steel	-	O	-	O	-	-	O	-	-	O	O
		None	S	S	S	S	S	S	S	S	S	S	S
920.95	Impeller nut	A4/AISI 316	S	S	S	S	S	S	S	S	S	S	-
		Duplex stainless steel 1.4462/ UNS S31803	-	-	-	-	-	-	-	-	-	-	S
940.01	Key	1.4571+C/A276 TP316 COND B	S	S	S	S	S	S	S	S	S	S	-
		Duplex stainless steel 1.4462/ UNS S31803	-	-	-	-	-	-	-	-	-	-	S
161	Casing cover	Stainless steel 1.4408 / A743 GR CF8M	S ³⁾	S ³⁾	-	-	-	-	-	-	-	-	-
		Stainless steel 1.4408	-	-	S ³⁾	S ³⁾	-	-	-	-	-	-	-
		Duplex stainless steel 1.4593/1.4517/A995 Gr CD4MCuN	-	-	-	-	-	-	-	-	-	-	S ³⁾
		Steel GP240GH+N / A216 Gr WCB	-	-	-	-	S ³⁾	S ³⁾	S ³⁾	S ³⁾	S ³⁾	S ³⁾	-
391.01	Bearing ring carrier	Stainless steel 1.4408/ A743 Gr CF8M	S	S	S	S	S	S	S	S	S	S	-
		Duplex stainless steel 1.4593/ /1.4517/A995 Gr CD4MCuN	-	-	-	-	-	-	-	-	-	-	S
545.21/ 545.22	Bearing bush	SSiC	S	S	S	S	S	S	S	S	S	S	S
529.21/ 529.22	Bearing sleeve	SSiC	S	S	S	S	S	S	S	S	S	S	S
		SiC, DLC-coated	O	O	O	O	O	O	O	O	O	O	O
386.01/ 386.02	Thrust bearing ring	SSiC	S	S	S	S	S	S	S	S	S	S	S
		SiC, DLC-coated	O	O	O	O	O	O	O	O	O	O	O
818.01	Inner rotor	1.4571-SAMCO	S	S	S	S	S	S	S	S	S	S	-
		1.4462-SAMCO	-	-	-	-	-	-	-	-	-	-	S
23-2.02	Auxiliary impeller	CrNiMo St INT	S	S	S	S	S	S	S	S	S	S	-
818.02	Outer rotor	ST-SAMCO	S	S	S	S	S	S	S	S	S	S	S
82-15	Containment shroud	1.4571-2.4610	S	S	S	S	S	S	S	S	S	S	-

2) Heatable casing optionally available.

3) Heatable casing cover optionally available.

Part No.	Description	Material	Material variant S=standard, O=option										
			CC	CD	VV	VD	EG	EC	ED	YG	YC	YD	DD
		1.4462-2.4610	-	-	-	-	-	-	-	-	-	-	S
		Zirconium oxide	O ⁴⁾	O ⁴⁾	O ⁴⁾	O ⁴⁾	O ⁴⁾	O ⁴⁾	O ⁴⁾	O ⁴⁾	O ⁴⁾	O ⁴⁾	O ⁴⁾
		Titanium B367, Grade C-5	O ⁵⁾	O ⁵⁾	O ⁵⁾	O ⁵⁾	O ⁵⁾	O ⁵⁾	O ⁵⁾	O ⁵⁾	O ⁵⁾	O ⁵⁾	O ⁵⁾
132.01	Intermediate piece, containment shroud	Stainless steel 1.4408/A743 GR CF8M	S	S	-	-	-	-	-	-	-	-	-
		Stainless steel 1.4408	-	-	S	S	-	-	-	-	-	-	-
		Steel GP240GH+N/A216 Gr WCB	-	-	-	-	S	S	S	S	S	S	-
		Duplex stainless steel 1.4593/1.4517/A995 Gr CD4MCuN	-	-	-	-	-	-	-	-	-	-	S
210.03	Shaft (plain bearing)	Duplex stainless steel 1.4462/UNS S31803	S	S	S	S	S	S	S	S	S	S	S
		1.4313+QT780/A479 UNS S41500	O	O	O	O	O	O	O	O	O	O	-
344	Bearing bracket lantern	Steel GP240GH+N/A216 Gr WCB	S	S	S	S	S	S	S	S	S	S	S
210.01	Shaft (ball bearings)	Steel C45+N/A108 UNS G10450	S	S	S	S	S	S	S	S	S	S	S
420.97	Shaft seal ring	Steel GP240GH+N/A216 Gr WCB	O	O	O	O	O ⁶⁾	O ⁶⁾	O ⁶⁾	-	-	-	O ⁶⁾
		PS-SEAL® lip	GYLON®-MS	O	O	O	O	O	O	O	O	O	O

Coating and preservation

- Coating and preservation to KSB standard

Product benefits

- High operating reliability:
 - Only static seals are required.
 - Optional leakage barrier
 - Containment shroud protected by anti-rub feature
 - Self-draining facility of containment shroud
 - Pump does not need to be drained before drive unit is fitted/removed.
- Broad application range ensured by:
 - Product-lubricated plain bearings made of silicon carbide (DLC coating optionally available)
 - Modular design principle for hydraulic system and magnetic coupling
 - Large number of operating modes
 - Temperature maintenance and heating facility for casing and casing cover
- Low-maintenance design:
 - Grease-packed rolling element bearings sealed for life (30,000 h at operating temperatures under 80 °C) or oil-lubricated rolling element bearings (35,000 h)

- Inspection certificate 3.1 to EN 10204 on request

- Hydraulic test

The duty point of each pump is guaranteed according to ISO 9906/2A.

The following acceptance tests can be performed and certified at extra charge:

- Performance test to ISO 9906
- NPSH test
- Other tests (e.g. vibrations, strength) on request.
- Warranty
 - Warranties are given within the scope of the valid delivery conditions.

Acceptance tests/Guarantees

- Materials testing
 - Test report 2.2 on request
- Final inspection

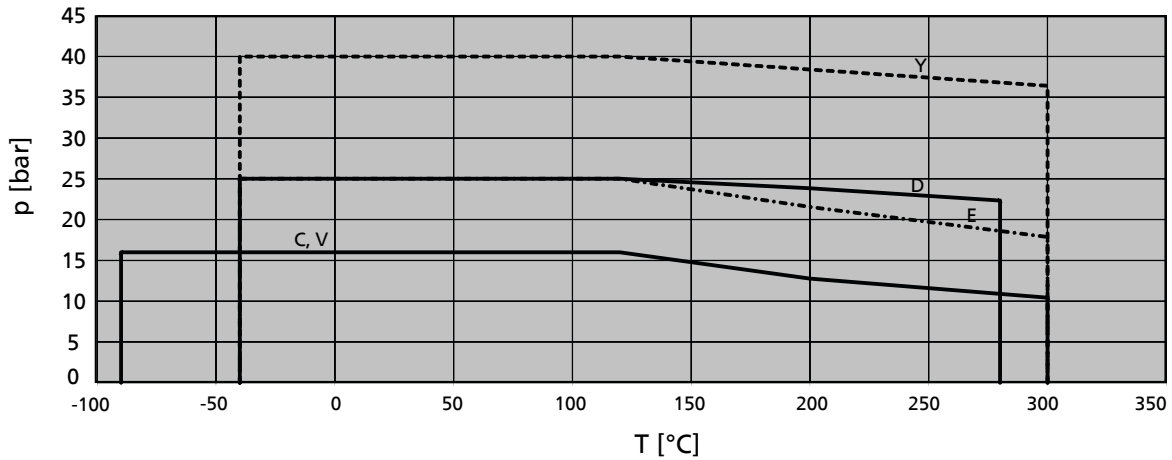
⁴⁾ For nominal magnetic coupling diameters 85/123/172 only

⁵⁾ For nominal magnetic coupling diameters 235/265 only

⁶⁾ Only applies up to PN16.

Pressure and temperature limits

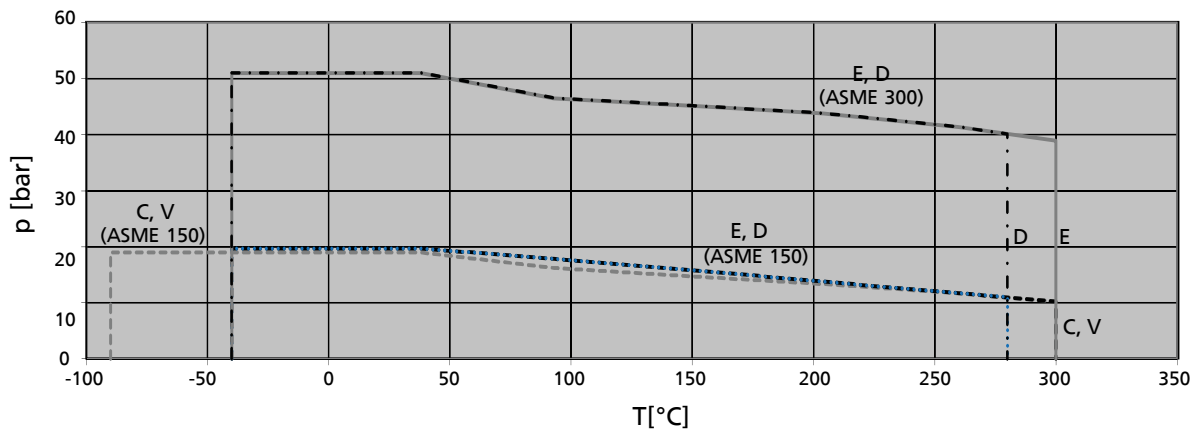
Pressure and temperature limits of hydraulic system



Pressure and temperature limits of hydraulic system

The pressure and temperature limits depend on the configuration.

Pressure and temperature limits of ASME flanges



Pressure and temperature limits of ASME flanges⁷⁾

On models with ASME flanges, the pressure and temperature limits are determined by the lowest value given in the diagram "Pressure and temperature limits of hydraulic system" and the diagram "Pressure and temperature limits of ASME flanges".

⁷⁾ If material Y (ASME 300) is used, the pressure and temperature limits are higher than those stipulated for the hydraulic system.

Technical data

Technical data

Size	Bearing bracket	Impeller					Shaft diameter at the coupling	Volute type ⁸⁾	Heatable casing	Heatable casing cover	Nominal diameter											
		Impeller outlet width	Free passage	Impeller inlet diameter	Impeller diameter						85		123		172		235		265			
					max.	min.					Magnetic coupling length [mm]											
		min		max		min					max		min		max		min		max			
		10	60	10	70	10					100	10	80	10	160	[mm]						
040-025-160	CS40	6	5,7	44	169	130	24	E	X	X	X	X	-	-	-	-	-	-	-	-	-	-
040-025-200	CS40	6	5,7	44	209	160	24	E	-	X	X	X	-	-	-	-	-	-	-	-	-	-
050-032-125.1	CS40	7	6,0	52	139	114	24	E	-	X	X	X	-	-	-	-	-	-	-	-	-	-
050-032-160.1	CS40	6	5,4	52	170	138	24	E	X	X	X	X	-	-	-	-	-	-	-	-	-	-
050-032-200.1	CS40	6	5,3	54	204	138	24	E	X	X	X	X	-	-	-	-	-	-	-	-	-	-
065-040-160.1	CS40	9	8,5	65	169	130	24	E	-	X	X	X	-	-	-	-	-	-	-	-	-	-
050-032-125	CS40	10	5,7	63	139	110	24	E	X	X	X	X	-	-	-	-	-	-	-	-	-	-
050-032-160	CS40	9	5,8	63	174	135	24	E	X	X	X	X	-	-	-	-	-	-	-	-	-	-
050-032-200	CS40	7	6,7	62	209	178	24	E	X	X	X	X	-	-	-	-	-	-	-	-	-	-
065-040-125	CS40	14	9,6	74	139	110	24	E	-	X	X	X	-	-	-	-	-	-	-	-	-	-
065-040-160	CS40	13	11,5	70	174	135	24	E	X	X	X	X	-	-	-	-	-	-	-	-	-	-
065-040-200	CS40	9	8,9	69	209	175	24	E	X	X	X	X	-	-	-	-	-	-	-	-	-	-
080-050-125	CS40	20	11,6	88	142	114	24	E	-	X	X	X	-	-	-	-	-	-	-	-	-	-
080-050-160	CS40	17	11,6	87	174	135	24	E	X	X	X	X	-	-	-	-	-	-	-	-	-	-
080-050-200	CS40	14	11,9	83	219	180	24	E	X	X	X	X	-	-	-	-	-	-	-	-	-	-
100-065-125	CS40	26	12,9	99	141	114	24	E	-	X	X	X	-	-	-	-	-	-	-	-	-	-
050-032-250.1	CS50	6	5,2	58	254	220	32	E	X	X	X	X	X	-	-	-	-	-	-	-	-	-
050-032-250	CS50	8	7,1	63	261	212	32	E	X	X	X	X	X	-	-	-	-	-	-	-	-	-
065-040-250	CS50	8	8,0	73	260	214	32	E	X	X	X	X	X	-	-	-	-	-	-	-	-	-
065-040-250.1	CS50	7	6,6	68	260	200	32	E	X	X	X	X	X	-	-	-	-	-	-	-	-	-
065-040-315	CS50	8	7,1	75	326	278	32	E	X	X	X	X	X	X	-	-	-	X	-	-	-	-
080-050-250	CS50	11	10,0	84	260	220	32	E	X	X	X	X	X	-	-	-	-	-	-	-	-	-
080-050-315.1	CS50	8	7,6	85	320	260	32	E	X	X	X	X	X	X	-	-	-	X	-	-	-	-
080-050-315	CS50	10	9,5	86	323	270	32	E	X	X	X	X	X	X	-	-	-	X	-	-	-	-
100-065-160	CS50	21	12,2	92	174	132	32	E	-	X	X	X	X	-	-	-	-	-	-	-	-	-
100-065-200	CS50	17	13,3	100	219	180	32	E	X	X	X	X	X	-	-	-	-	-	-	-	-	-
100-065-250	CS50	15	14,3	101	260	220	32	E	-	X	X	X	X	-	-	-	-	-	-	-	-	-
125-080-160	CS50	32	15,1	124	174	122	32	E	-	X	X	X	X	-	-	-	-	-	-	-	-	-
125-080-200	CS50	25	15,2	115	219	180	32	D	X	X	X	X	X	-	-	-	-	-	-	-	-	-
125-080-250	CS50	19	15,8	115	269	220	32	D	X	X	X	X	X	-	-	-	-	-	-	-	-	-
125-100-160	CS50	38	16,4	135	185	155	32	E	-	X	X	X	X	-	-	-	-	-	-	-	-	-
125-100-200	CS50	33	17,9	142	219	179	32	D	-	X	X	X	X	-	-	-	-	-	-	-	-	-
100-065-315	CS60	14	13	107	320	270	42	E	-	X	X	X	X	X	-	-	-	X	-	-	-	-
125-080-315	CS60	19	17,8	115	334	281	42	D	X	X	X	X	X	X	-	-	-	X	-	-	-	-
125-080-400	CS60	15	14,3	129	398	330	42	E	X	X	X	X	X	X	-	-	-	X	-	-	-	-
125-100-250	CS60	27	18,8	145	262	216	42	D	X	X	X	X	X	-	-	-	-	-	-	-	-	-
125-100-315	CS60	23	19,9	142	334	280	42	D	-	X	X	X	X	X	-	-	-	X	-	-	-	-
125-100-400	CS60	18	17,1	142	401	329	42	E	-	X	X	X	X	X	-	-	-	X	-	-	-	-
150-125-200	CS60	41	21,1	160	224	162	42	D	-	X	X	X	X	-	-	-	-	-	-	-	-	-
150-125-250	CS60	37	22,4	162	269	218	42	E	-	X	X	X	X	-	-	-	-	-	-	-	-	-
150-125-315	CS60	31	22,6	162	334	280	42	D	X	X	X	X	X	X	-	-	-	X	-	-	-	-
150-125-400	CS60	26	20,9	162	419	330	42	D	X	X	X	X	X	X	-	-	-	X	-	-	-	-
200-150-200	CS60	60	25,2	179	224	158	42	E	-	X	X	X	X	-	-	-	-	-	-	-	-	-
200-150-250	CS60	49	23,0	191	269	220	42	E	X	X	X	X	X	-	-	-	-	-	-	-	-	-
200-150-315	CS80	40	26,9	192	334	264	48	E	X	X	-	-	-	X	-	-	X	X	-	-	X	-
200-150-400	CS80	33	23,8	191	419	330	48	D	-	X	-	-	-	X	-	-	X	X	-	-	X	-
200-150-500	CS80	23	19,1	190	504	400	48	D	-	X	-	-	-	X	-	-	X	X	-	-	X	-
200-200-250	CS80	62	37,2	190	260	200	48	E	-	X	-	-	-	X	-	-	X	X	-	-	-	-
250-200-315	CS80	50	20,8	222	320	260	48	D	X	X	-	-	-	X	-	-	X	X	-	-	X	-

8) E = single volute, D = double volute

Size	Bearing bracket	Impeller					Shaft diameter at the coupling [mm]	Volute type ⁸⁾	Heatable casing	Heatable casing cover	Nominal diameter																								
		Impeller outlet width	Free passage	Impeller inlet diameter	Impeller diameter						85					123					172					235					265				
					max.	min.					Magnetic coupling length [mm]																								
		min		max		min					max		min		max		min		max		min		max												
		10		60		10					70		10		100		10		80		10		160												
250-200-400	CS80	40	18,4	222	404	320	48	D	X	X	-	-	X	X	X	-	-	X	X	X															
250-200-500	CS80	32	20,6	222	504	400	48	D	-	X	-	-	X	X	X	-	-	X	X	X															
300-250-315	CS80	73	26,7	270	324	260	48	D	X	X	-	-	X	X	X	-	-	X	X	X															

Weight

Weight

Size	Bearing bracket	Weight ⁹⁾ [kg]
40-25-160	CS40	72
40-25-200	CS40	85
50-32-125.1	CS40	69
50-32-160.1	CS40	72
50-32-200.1	CS40	86
50-32-250.1	CS50	148
50-32-125	CS40	69
50-32-160	CS40	72
50-32-200	CS40	85
50-32-250	CS50	148
65-40-125	CS40	70
65-40-160.1	CS40	76
65-40-160	CS40	74
65-40-200	CS40	87
65-40-250.1	CS50	148
65-40-250	CS50	149
65-40-315	CS50	250
80-50-125	CS40	75
80-50-160	CS40	77
80-50-200	CS40	90
80-50-250	CS50	152
80-50-315.1	CS50	249
80-50-315	CS50	255
100-65-125	CS40	80
100-65-160	CS50	140
100-65-200	CS50	141
100-65-250	CS50	163
100-65-315	CS60	266
125-80-160	CS50	143
125-80-200	CS50	155
125-80-250	CS50	179
125-80-315	CS60	285
125-80-400	CS60	323
125-100-160	CS50	159
125-100-200	CS50	167
125-100-250	CS60	189
125-100-315	CS60	294
125-100-400	CS60	336
150-125-200	CS60	191
150-125-250	CS60	197

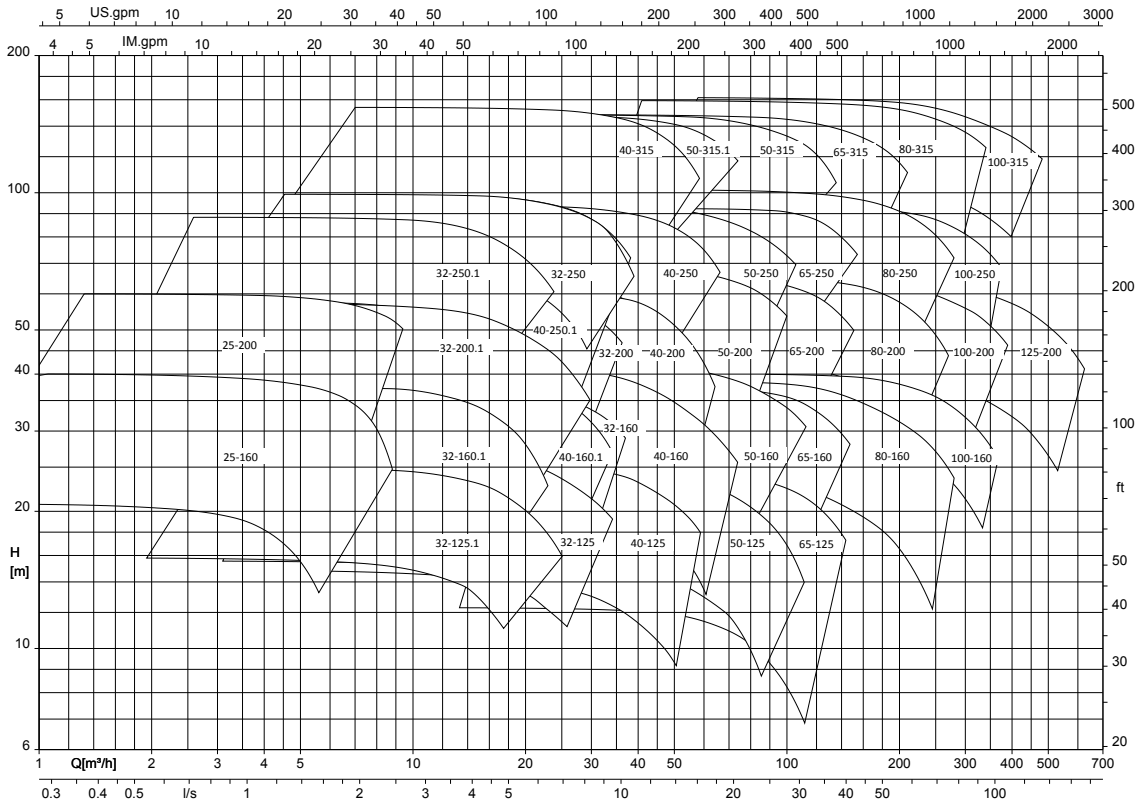
Size	Bearing bracket	Weight [kg]
150-125-315	CS60	319
150-125-400	CS60	390
200-150-200	CS60	231
200-150-250	CS60	225
200-150-315	CS80	412
200-150-400	CS80	501
200-150-500	CS80	588
200-200-250	CS80	457
250-200-315	CS80	501
250-200-400	CS80	419
250-200-500	CS80	653
300-250-315	CS80	634

8) E = single volute, D = double volute

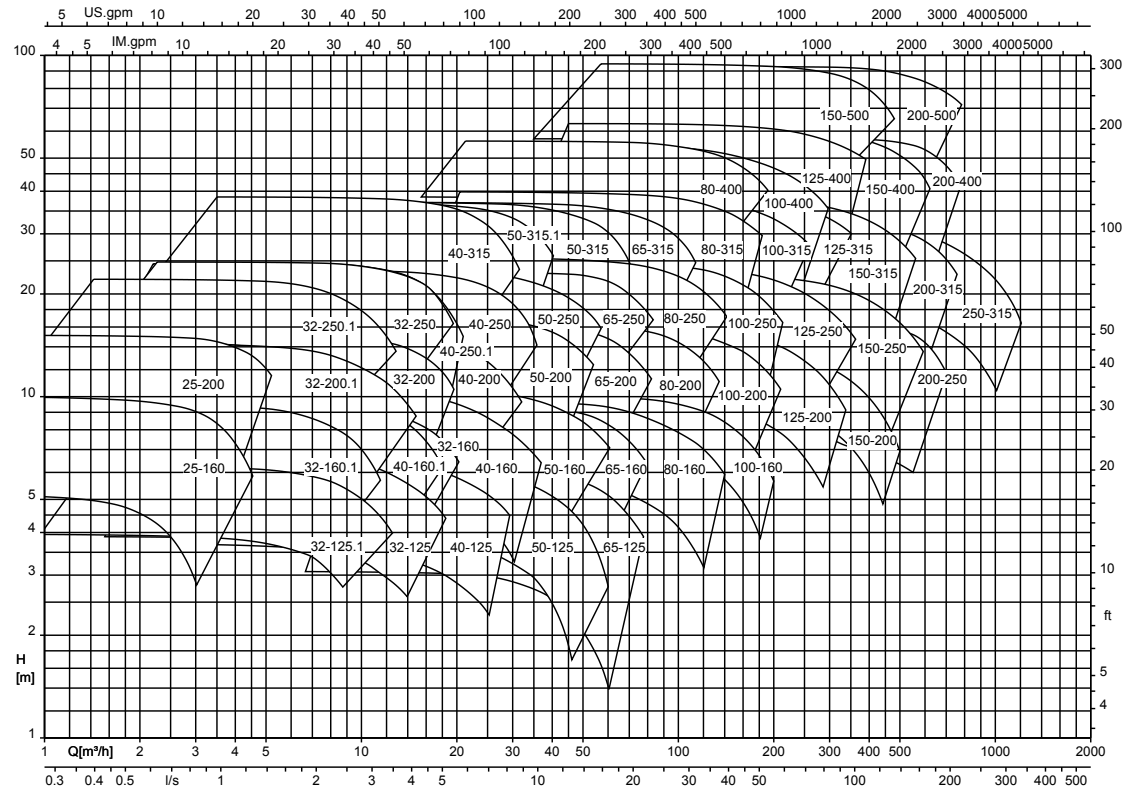
9) The weight data applies to a pump of max. possible length and with the largest magnetic coupling diameter. The weight data only applies to unheated models.

Selection charts

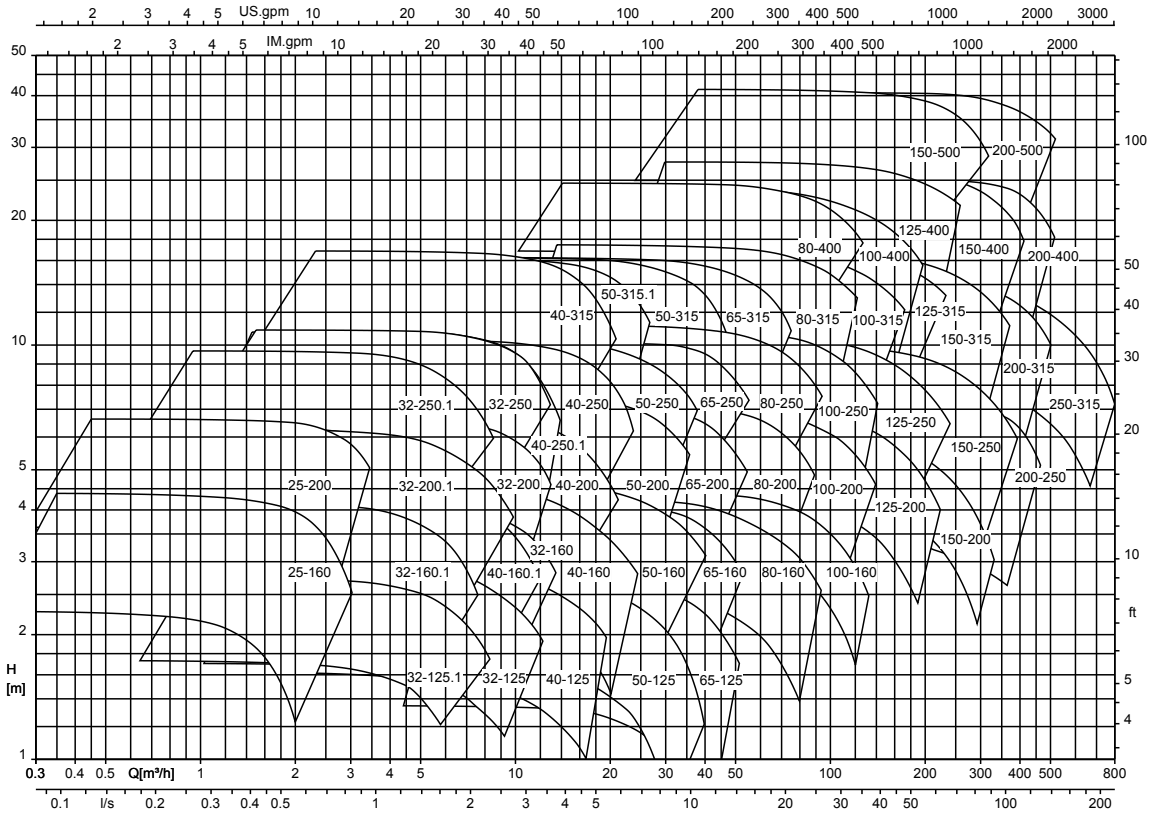
Magnochem, n = 2900 rpm



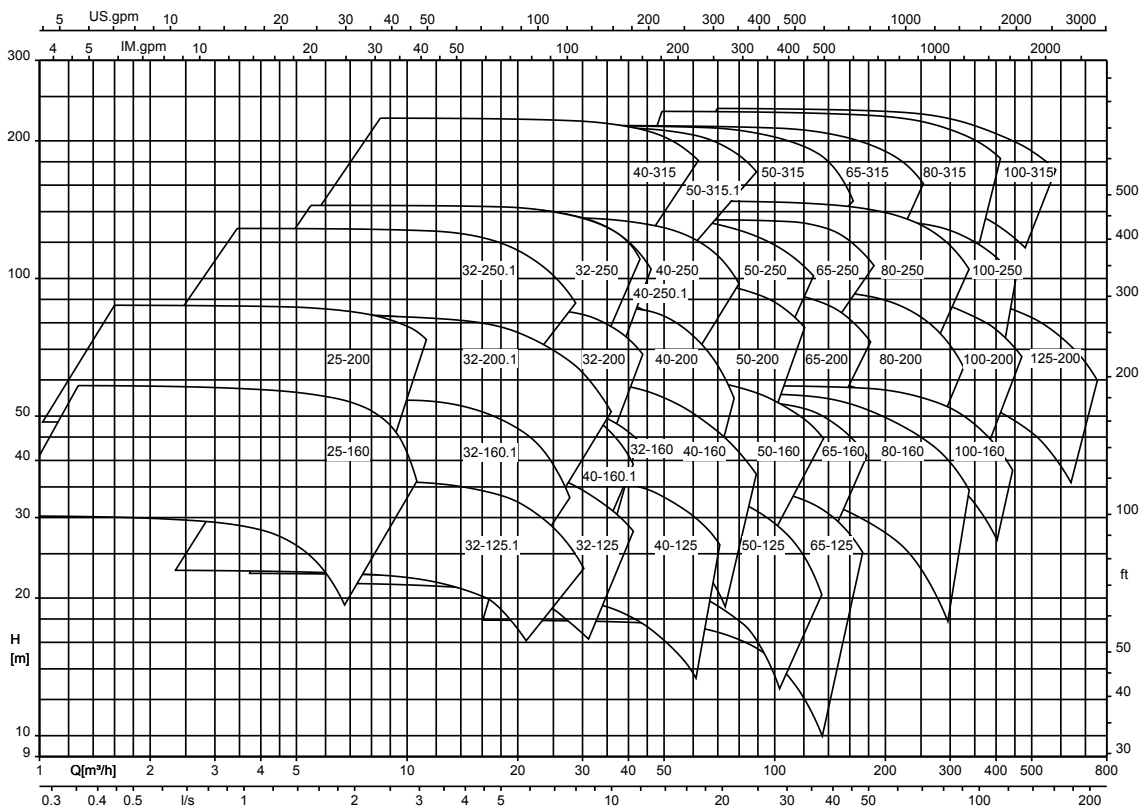
Magnochem, n = 1450 rpm



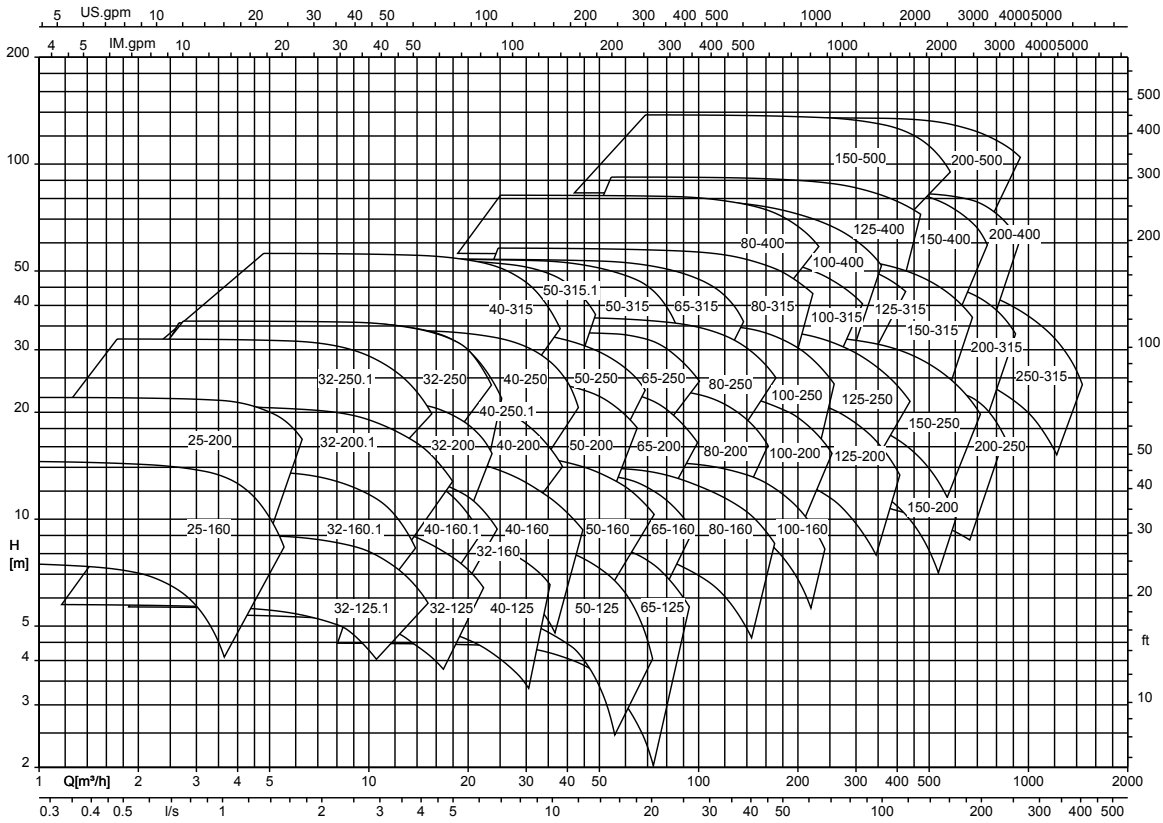
Magnochem, n = 960 rpm



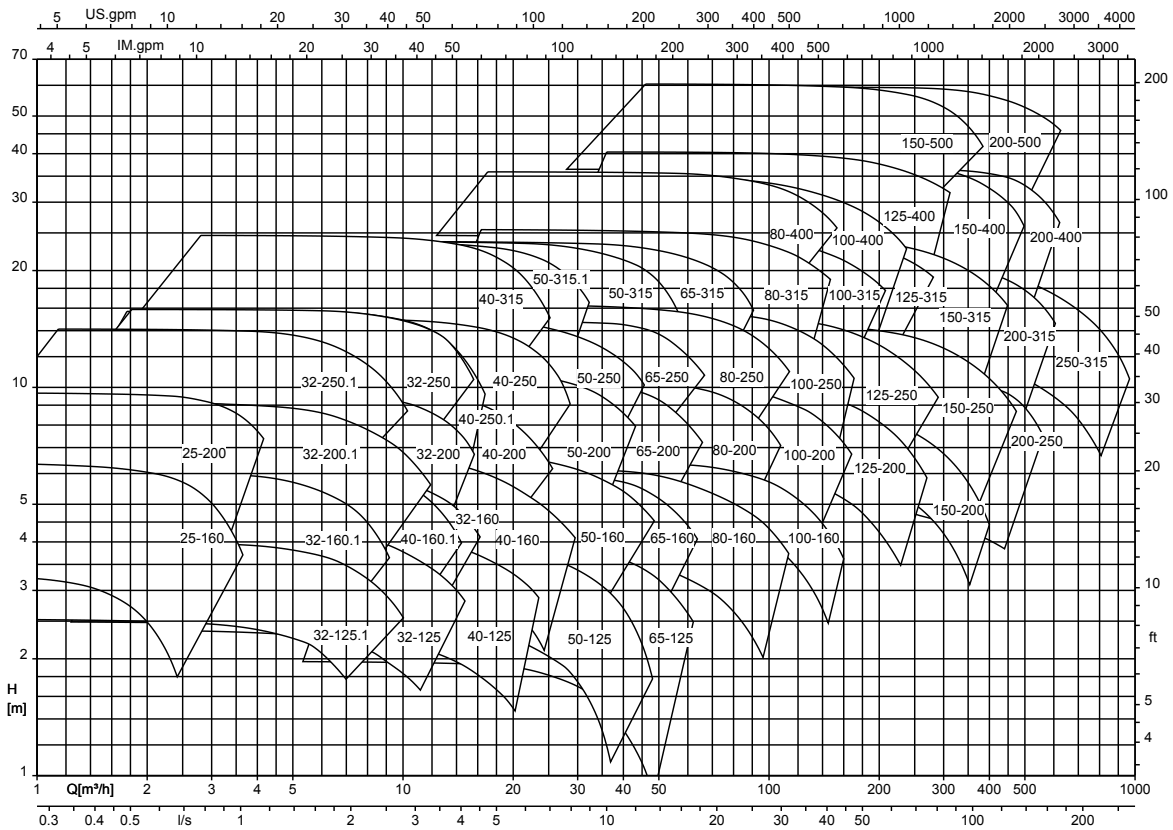
Magnochem, n = 3500 rpm



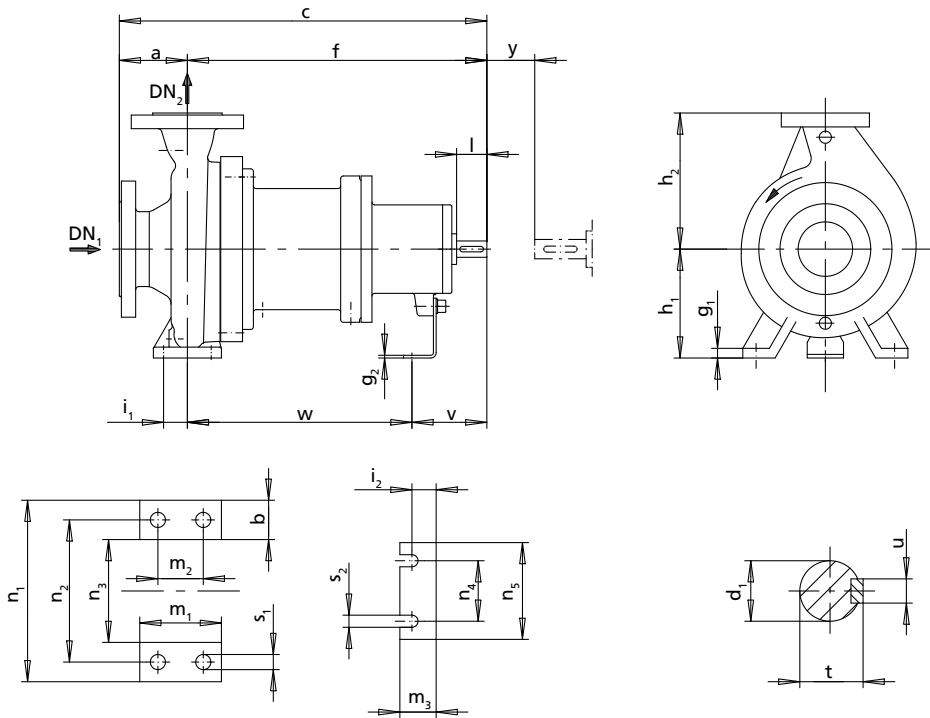
Magnochem, n = 1750 rpm



Magnochem, n = 1160 rpm



Dimensions and connections



Dimensions

Pump dimensions

Size	Bearing bracket	Pump dimensions [mm]														
		DN1	DN2	a	b	c	f	g1	g2	h1	h2	m1	m3	n1	n3	n5
040-025-160	CS40	40	25	80	50	465	385	15	4	132	160	100	48	240	140	160
040-025-200	CS40	40	25	80	50	465	385	15	4	160	180	100	48	240	140	160
050-032-125.1	CS40	50	32	80	50	465	385	15	4	112	140	100	48	190	90	160
050-032-160.1	CS40	50	32	80	50	465	385	15	4	132	160	100	48	240	140	160
050-032-200.1	CS40	50	32	80	50	465	385	18	4	160	180	100	48	240	140	160
050-032-250.1	CS50	50	32	100	65	600	500	18	4	180	225	125	48	320	190	160
050-032-125	CS40	50	32	80	50	465	385	15	4	112	140	100	48	190	90	160
050-032-160	CS40	50	32	80	50	465	385	15	4	132	160	100	48	240	140	160
050-032-200	CS40	50	32	80	50	465	385	18	4	160	180	100	48	240	140	160
050-032-250	CS50	50	32	100	65	600	500	18	4	180	225	125	48	320	190	160
065-040-125	CS40	65	40	80	50	465	385	15	4	112	140	100	48	210	110	160
065-040-160.1	CS40	65	40	80	50	465	385	15	4	132	160	100	48	240	140	160
065-040-160	CS40	65	40	80	50	465	385	15	4	132	160	100	48	240	140	160
065-040-200	CS40	65	40	100	50	485	385	18	4	160	180	100	48	265	165	160
065-040-250.1	CS50	65	40	100	65	600	500	18	4	180	225	125	48	320	190	160
065-040-250	CS50	65	40	100	65	600	500	18	4	180	225	125	48	320	190	160
065-040-315	CS50	65	40	125	65	625	500	18	6	200	250	125	48	345	215	160
080-050-125	CS40	80	50	100	50	465	385	18	4	132	160	100	48	240	140	160
080-050-160	CS40	80	50	100	50	485	385	18	4	160	180	100	48	265	165	160
080-050-200	CS40	80	50	100	50	485	385	18	4	160	200	100	48	265	165	160
080-050-250	CS50	80	50	125	65	625	500	18	4	180	225	125	48	320	190	160
080-050-315.1	CS50	80	50	125	65	625	500	18	6	225	280	125	48	345	215	160
080-050-315	CS50	80	50	125	65	625	500	18	6	225	280	125	48	345	215	160
100-065-125	CS40	100	65	100	65	485	385	18	4	160	180	125	48	280	150	160
100-065-160	CS50	100	65	100	65	600	500	18	4	160	200	125	48	280	150	160
100-065-200	CS50	100	65	100	65	600	500	18	4	180	225	125	48	320	190	160
100-065-250	CS50	100	65	125	80	625	500	20	6	200	250	160	48	360	200	160

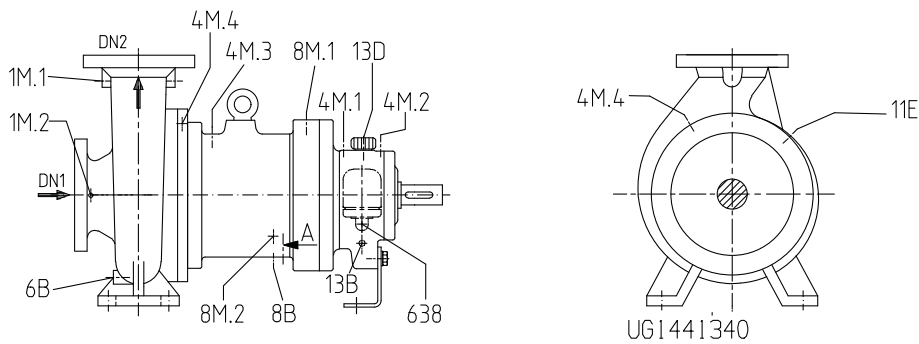
Size	Bearing bracket	Pump dimensions [mm]														
		DN1	DN2	a	b	c	f	g1	g2	h1	h2	m1	m3	n1	n3	n5
100-065-315	CS60	100	65	125	80	655	530	20	6	225	280	160	48	400	240	160
125-080-160	CS50	125	80	125	65	625	500	18	4	180	225	125	48	320	190	160
125-080-200	CS50	125	80	125	65	625	500	18	4	180	250	125	48	345	215	160
125-080-250	CS50	125	80	125	80	625	500	18	6	225	280	160	48	400	240	160
125-100-160	CS50	125	100	125	80	625	500	18	6	200	280	160	48	360	200	160
125-100-200	CS50	125	100	125	80	625	500	18	6	200	280	160	48	360	200	160
125-080-315	CS60	125	80	125	80	655	530	20	6	250	315	160	48	400	240	160
125-080-400	CS60	125	80	125	80	655	530	20	6	280	355	160	48	435	275	160
125-100-250	CS60	125	100	140	80	670	530	18	6	225	280	160	48	400	240	160
125-100-315	CS60	125	100	140	80	670	530	18	6	250	315	160	48	400	240	160
125-100-400	CS60	125	100	140	100	670	530	20	6	280	355	200	48	500	300	160
150-125-200	CS60	150	125	140	80	670	530	20	6	250	315	160	48	400	240	160
150-125-250	CS60	150	125	140	80	670	530	20	6	250	355	160	48	400	240	160
150-125-315	CS60	150	125	140	100	670	530	20	6	280	355	200	48	500	300	160
150-125-400	CS60	150	125	140	100	670	530	20	6	315	400	200	48	500	300	160
200-150-200	CS60	200	150	180	100	710	530	20	6	280	400	200	48	550	350	160
200-150-250	CS60	200	150	160	100	690	530	20	6	280	375	200	48	500	300	160
200-150-315	CS80	200	150	160	100	830	670	20	8	315	400	200	60	550	350	200
200-150-400	CS80	200	150	160	100	830	670	20	8	315	450	200	60	550	350	200
200-150-500	CS80	200	150	180	100	850	670	22	8	375	500	200	60	550	350	200
200-200-250	CS80	200	200	180	100	850	670	22	8	355	425	200	60	550	350	200
250-200-315	CS80	250	200	200	100	870	670	22	8	355	450	200	60	550	350	200
250-200-400	CS80	250	200	180	100	850	670	22	8	355	500	200	60	550	350	200
250-200-500	CS80	250	200	200	100	870	670	22	8	425	560	200	60	660	460	200
300-250-315	CS80	300	250	250	130	920	670	26	8	400	560	260	60	690	430	200

Dimensions of pump feet and shaft end

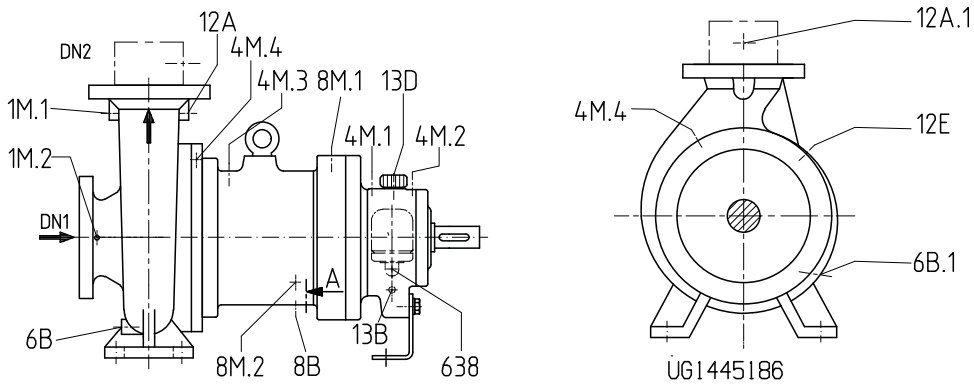
Size	Bearing bracket	Shaft end [mm]					Pump feet [mm]									
		d1	l	t	u	y	i1	i2	m2	n2	n4	s1	s2	v	w	
040-025-160	CS40	24	50	27	8	100	35	20	70	190	110	14	14	100	285	
040-025-200	CS40	24	50	27	8	100	35	20	70	190	110	14	14	100	285	
050-032-125.1	CS40	24	50	27	8	100	35	20	70	140	110	14	14	100	285	
050-032-160.1	CS40	24	50	27	8	100	35	20	70	190	110	14	14	100	285	
050-032-200.1	CS40	24	50	27	8	100	35	20	70	190	110	14	14	100	285	
050-032-250.1	CS50	32	80	35	10	100	47,5	20	95	250	110	14	14	130	370	
050-032-125	CS40	24	50	27	8	100	35	20	70	140	110	14	14	100	285	
050-032-160	CS40	24	50	27	8	100	35	20	70	190	110	14	14	100	285	
050-032-250	CS50	32	80	35	10	100	47,5	20	95	250	110	14	14	130	370	
050-032-200	CS40	24	50	27	8	100	35	20	70	190	110	14	14	100	285	
065-040-125	CS40	24	50	27	8	100	35	20	70	160	110	14	14	100	285	
065-040-160.1	CS40	24	50	27	8	100	35	20	70	190	110	14	14	100	285	
065-040-160	CS40	24	50	27	8	100	35	20	70	190	110	14	14	100	285	
065-040-200	CS40	24	50	27	8	100	35	20	70	212	110	14	14	100	285	
065-040-250.1	CS50	32	80	35	10	100	47,5	20	95	250	110	14	14	130	370	
065-040-250	CS50	32	80	35	10	100	47,5	20	95	250	110	14	14	130	370	
065-040-315	CS50	32	80	35	10	100	47,5	20	95	280	110	14	14	130	370	
080-050-125	CS40	24	50	27	8	100	35	20	70	190	110	14	14	100	285	
080-050-160	CS40	24	50	27	8	100	35	20	70	212	110	14	14	100	285	
080-050-200	CS40	24	50	27	8	100	35	20	70	212	110	14	14	100	285	
080-050-250	CS50	32	80	35	10	100	47,5	20	95	250	110	14	14	130	370	
080-050-315.1	CS50	32	80	35	10	100	47,5	20	95	280	110	14	14	130	370	
080-050-315	CS50	32	80	35	10	100	47,5	20	95	280	110	14	14	130	370	
100-065-125	CS40	24	50	27	8	100	47,5	20	95	212	110	14	14	100	285	
100-065-160	CS50	32	80	35	10	100	47,5	20	95	212	110	14	14	130	370	
100-065-200	CS50	32	80	35	10	140	47,5	20	95	250	110	14	14	130	370	

Size	Bearing bracket	Shaft end [mm]					Pump feet [mm]									
		d1	l	t	u	y	i1	i2	m2	n2	n4	s1	s2	v	w	
100-065-250	CS50	32	80	35	10	140	60	20	120	280	110	18	14	130	370	
100-065-315	CS60	42	110	45	12	140	60	20	120	315	110	18	14	160	370	
125-080-160	CS50	32	80	35	10	140	47,5	20	95	250	110	14	14	130	370	
125-080-200	CS50	32	80	35	10	140	47,5	20	95	280	110	14	14	130	370	
125-080-250	CS50	32	80	35	10	140	60	20	120	315	110	18	14	130	370	
125-080-315	CS60	42	110	45	12	140	60	20	120	315	110	18	14	160	370	
125-080-400	CS60	42	110	45	12	140	60	20	120	355	110	18	14	160	370	
125-100-160	CS50	32	80	35	10	140	60	20	120	280	110	19	14	130	370	
125-100-200	CS50	32	80	35	10	140	60	20	120	280	110	18	14	130	370	
125-100-250	CS60	42	110	45	12	140	60	20	120	315	110	18	14	160	370	
125-100-315	CS60	42	110	45	12	140	60	20	120	315	110	18	14	160	370	
125-100-400	CS60	42	110	45	12	140	75	20	150	400	110	23	14	160	370	
150-125-200	CS60	42	110	45	12	140	60	20	120	315	110	19	14	160	370	
150-125-250	CS60	42	110	45	12	140	60	20	120	315	110	18	14	160	370	
150-125-315	CS60	42	110	45	12	140	75	20	150	400	110	23	14	160	370	
150-125-400	CS60	42	110	45	12	140	75	20	150	400	110	23	14	160	370	
200-150-200	CS60	42	110	45	12	180	75	20	150	450	110	24	14	160	370	
200-150-250	CS60	42	110	45	12	180	75	20	150	400	110	23	14	160	370	
200-150-315	CS80	48	110	51	14	180	75	39	150	450	140	23	18	170	500	
200-150-400	CS80	48	110	51	14	180	75	39	150	450	140	23	18	170	500	
200-150-500	CS80	48	110	51	14	180	75	39	150	450	140	23	18	170	500	
200-200-250	CS80	48	110	51	14	180	75	39	150	450	140	23	18	170	500	
250-200-315	CS80	48	110	51	14	180	75	39	150	450	140	23	18	170	500	
250-200-400	CS80	48	110	51	14	180	75	39	150	450	140	23	18	170	500	
250-200-500	CS80	48	110	51	14	180	75	39	150	560	140	23	18	170	500	
300-250-315	CS80	48	110	51	14	180	95	39	190	560	140	28	18	170	500	

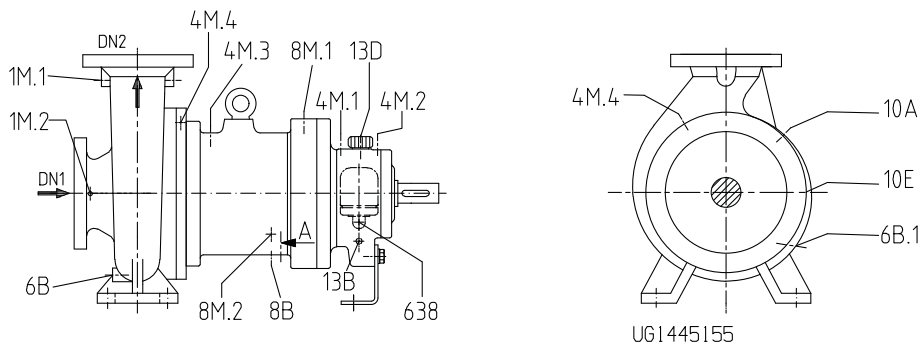
Connections



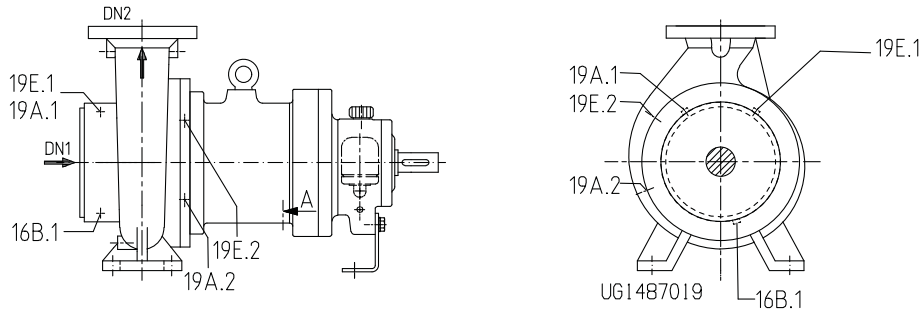
Connections for operating modes: internal circulation and low-boiling fluids



Connections for operating modes: external circulation and external circulation with main flow filter

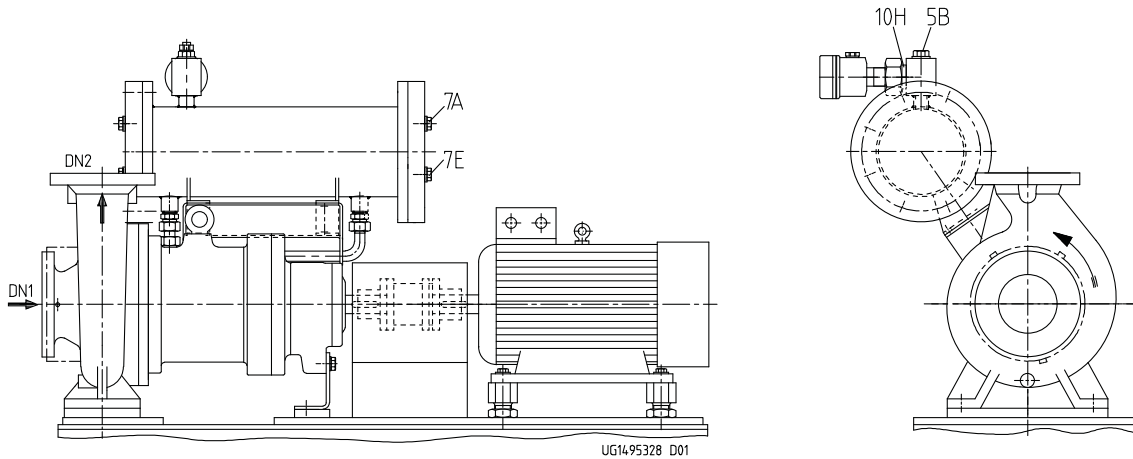


Connections for dead-end configuration operating mode



Connections for heating¹⁰⁾

¹⁰⁾ Only possible for operating modes: internal circulation, low-boiling fluids and dead-end configuration



Connections for heat exchanger

Connections at the volute casing

Connection	Discharge nozzle			Description
	≤ DN 50	DN 65 - DN 80	≥ DN 100	
1M.1	G1/4	G3/8	G1/2	Pressure gauge
1M.2	G1/4	G3/8	G1/2	Pressure gauge
6B ¹¹⁾	G1/4	G3/8	G1/2	Fluid drain (volute casing)
12A	G1/4	G3/8	G1/2	Circulation liquid OUT
16B.1		G1/4		Condensate drain (volute casing)
19A.1		G3/8		Heating liquid OUT (volute casing)
19E.1		G3/8		Heating liquid IN (volute casing)

Connections for casing cover 161, bearing bracket lantern 344, bearing bracket 330, main flow filter

Connection	Bearing bracket CS40/CS50/CS60 with MD 85/123/172	Bearing bracket CS50/CS60 with MD 235 Bearing bracket CS80 with MD 172/235/265	Description
4M.1		G1/4	Temperature monitoring of rolling element bearing, pump end
4M.2		G1/4	Temperature monitoring of rolling element bearing, motor end
4 M.3		G1/4	Temperature monitoring of containment shroud, PT 100
4M.4		G1/4	Temperature monitoring of containment shroud, thermocouple
6B.1	G1/4	G1/2	Containment shroud drain
8B		G1/4	Bearing bracket lantern drain
8M.1		G1/4	Leakage monitoring (gas, vapour)
8M.2		G3/4	Leakage monitoring (liquid)
10A	G1/4	G1/2	Barrier fluid OUT
10E	G1/4	G1/2	Barrier fluid IN
11E	G1/4	G1/2	Flushing liquid, containment shroud IN
12A.1	G1/4	G1/2	Main flow filter OUT
12E	G1/4	G1/2	Circulation liquid IN
13B		G1/4	Oil drain
13D		Diameter 20	Vent plug
19A.2		G3/8	Heating liquid OUT (casing cover)
19E.2		G3/8	Heating liquid IN (casing cover)
638		Rp 1/4	Constant level oiler

11) Design with DN 15 flange if drain line is provided.

Connections for heat exchanger

Connection	Heat exchanger size	Connection	Description
7A	76	G 3/8	Cooling liquid OUT
	115	G 3/4	
	152	G 1	
7E	76	G 3/8	Cooling liquid IN
	115	G 3/4	
	152	G 1	
5B	76	G 3/4	Venting
	115		
	152		
10H	76	G 1	Monitoring and check
	115		
	152		

Flange design
Overview of available flange designs

Material	Standard	Pressure class
C	EN 1092-1	PN16
	Drilled to ASME B16.5	Class 150
V	EN 1092-1	PN16
	Drilled to ASME B16.5	Class 150
E	EN 1092-1	PN16
	Drilled to ASME B16.5	Class 150/Class 300
E	EN 1092-1	PN25
	Drilled to ASME B16.5	Class 150/Class 300
Y	EN 1092-1	PN40
	Drilled to ASME B16.5	Class 300
D	EN 1092-1	PN16
	Drilled to ASME B16.5	Class 150/Class 300
D	EN 1092-1	PN25
	Drilled to ASME B16.5	Class 150/Class 300
Heatable casing	EN 1092-1	PN16
	Drilled to ASME B16.5	Class 150

Scope of supply

Depending on the model, the following items are included in the scope of supply:

- Pump
- KSB surface-cooled IEC frame three-phase current squirrel-cage motor
- Flexible coupling with or without spacer
- Coupling guard
- Baseplate (to ISO 3661), cast or welded, for pump and motor, in torsion-resistant design

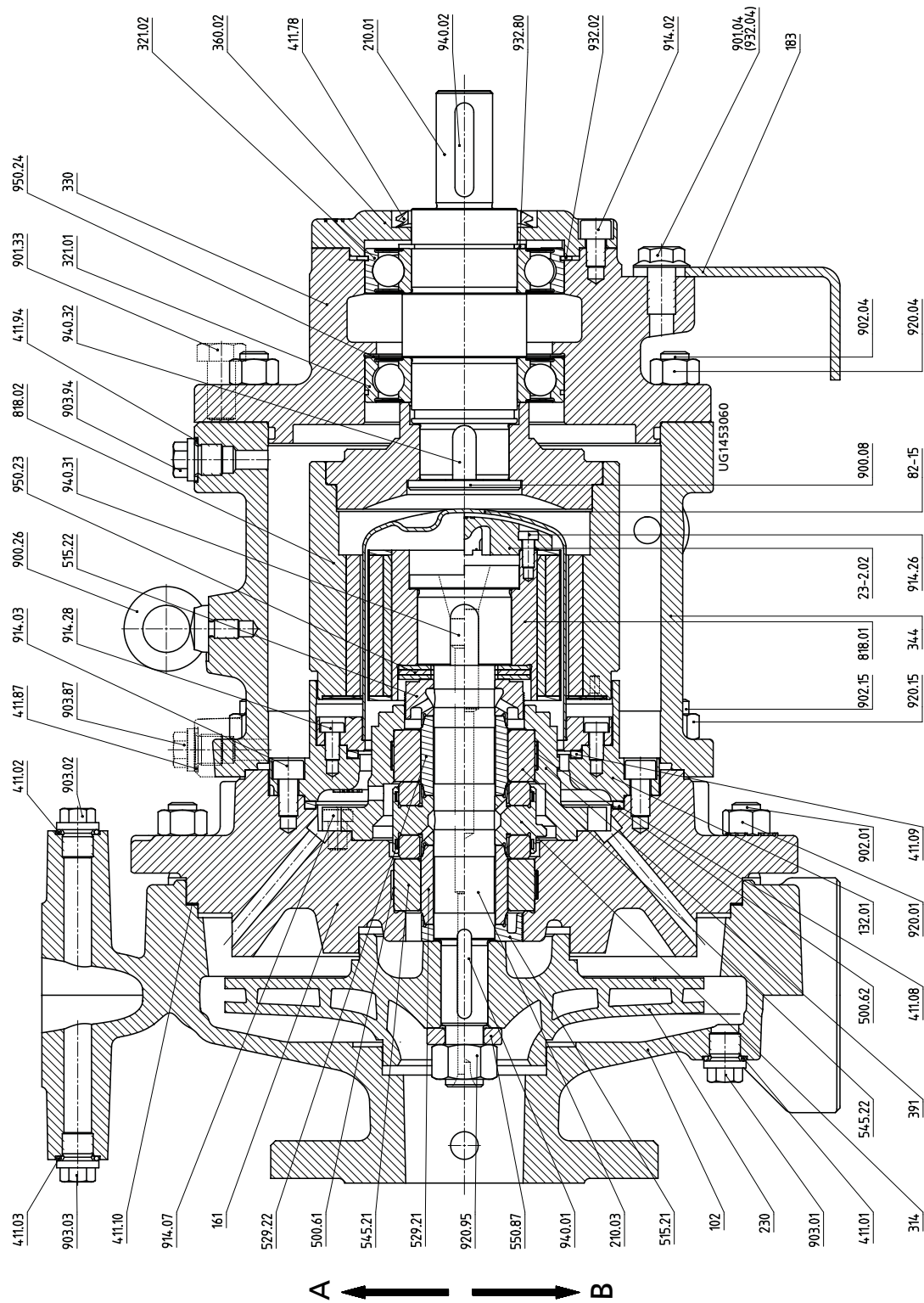
- Monitoring of pump power to detect dry running and/or asynchronous operation of the magnetic coupling and to protect against overload operation
 - Motor load monitor
- Other accessories on request
 - Temperature monitoring of rolling element bearings by means of PT100 sensor

Electronic analysis equipment as well as additional components for operation in potentially explosive atmospheres can also be ordered from KSB.

Accessories

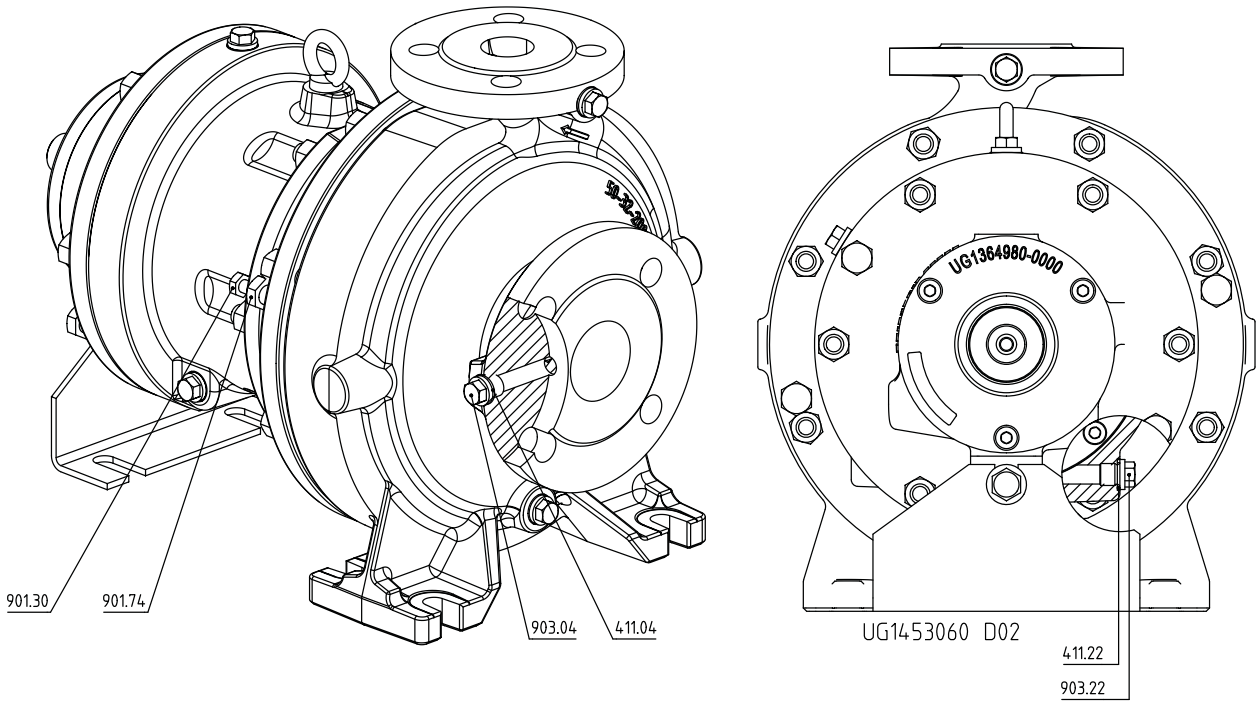
- Temperature monitoring, metal containment shroud
 - PT100
 - Mineral-insulated thermocouple
- Fill level monitoring to protect against dry running
 - Liquiphant level transmitter
- Monitoring for containment shroud leakage
 - Liquiphant level transmitter
 - Contact pressure gauge
 - Pressure switch
 - Pressure transducer

General assembly drawings

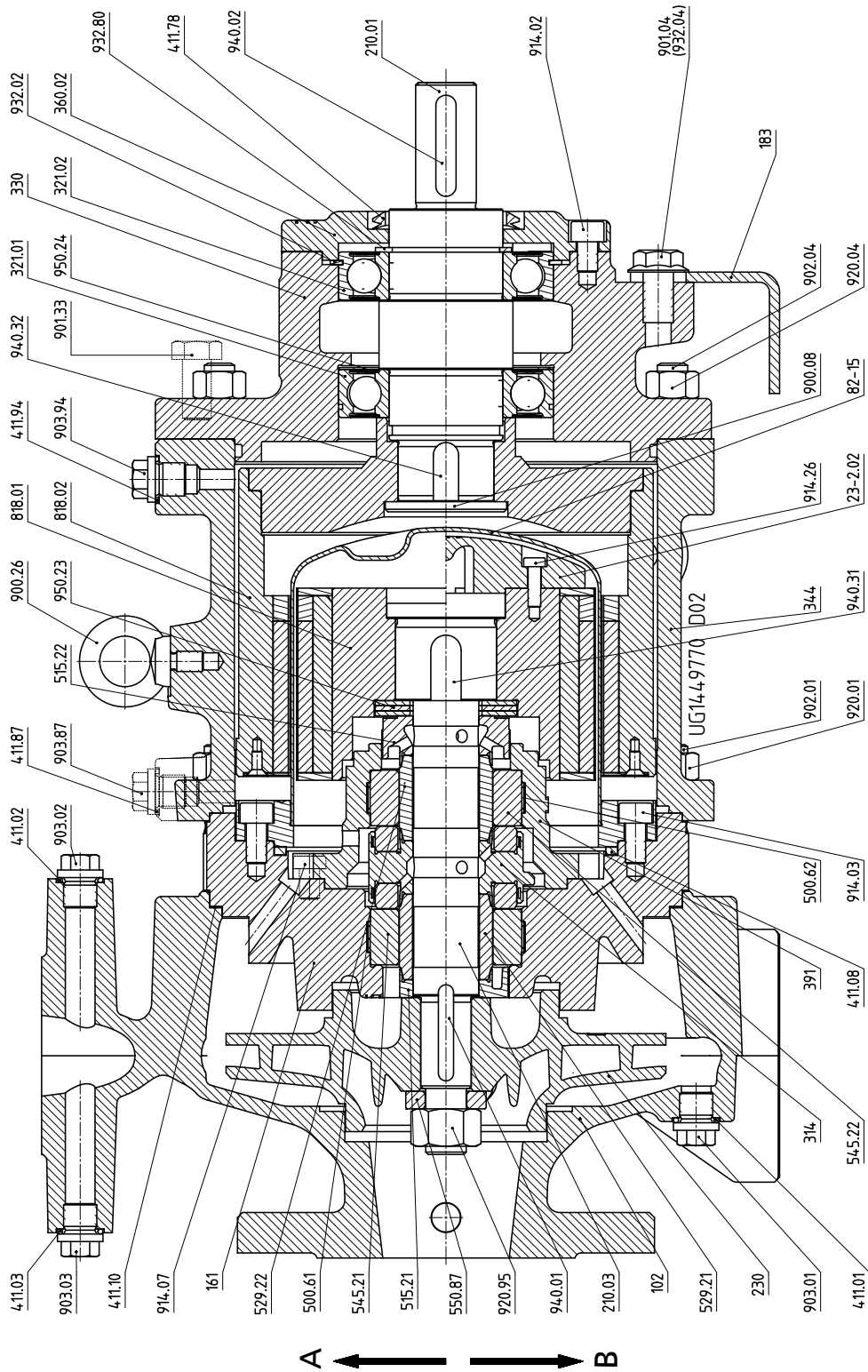


General assembly drawing of model with bolted cover and intermediate piece

A	Internal circulation, external circulation	B	Low-boiling fluids, dead-end configuration
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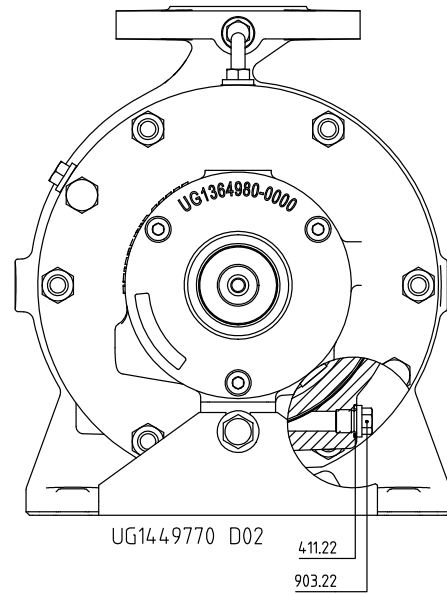
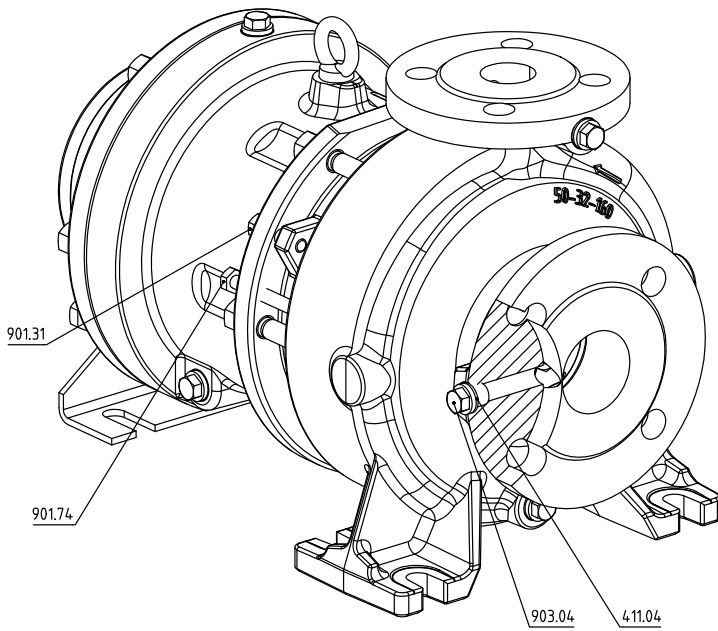


Discharge cover fastening at pump casing on designs with bolted cover

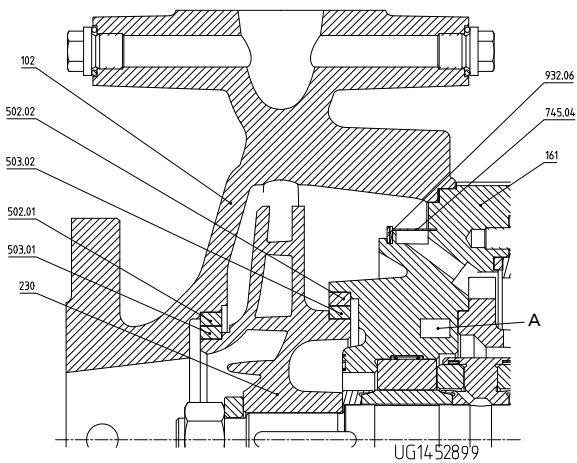


General assembly drawing of model with clamped cover and without intermediate piece

A	Internal circulation, external circulation	B	Low-boiling fluids, dead-end configuration
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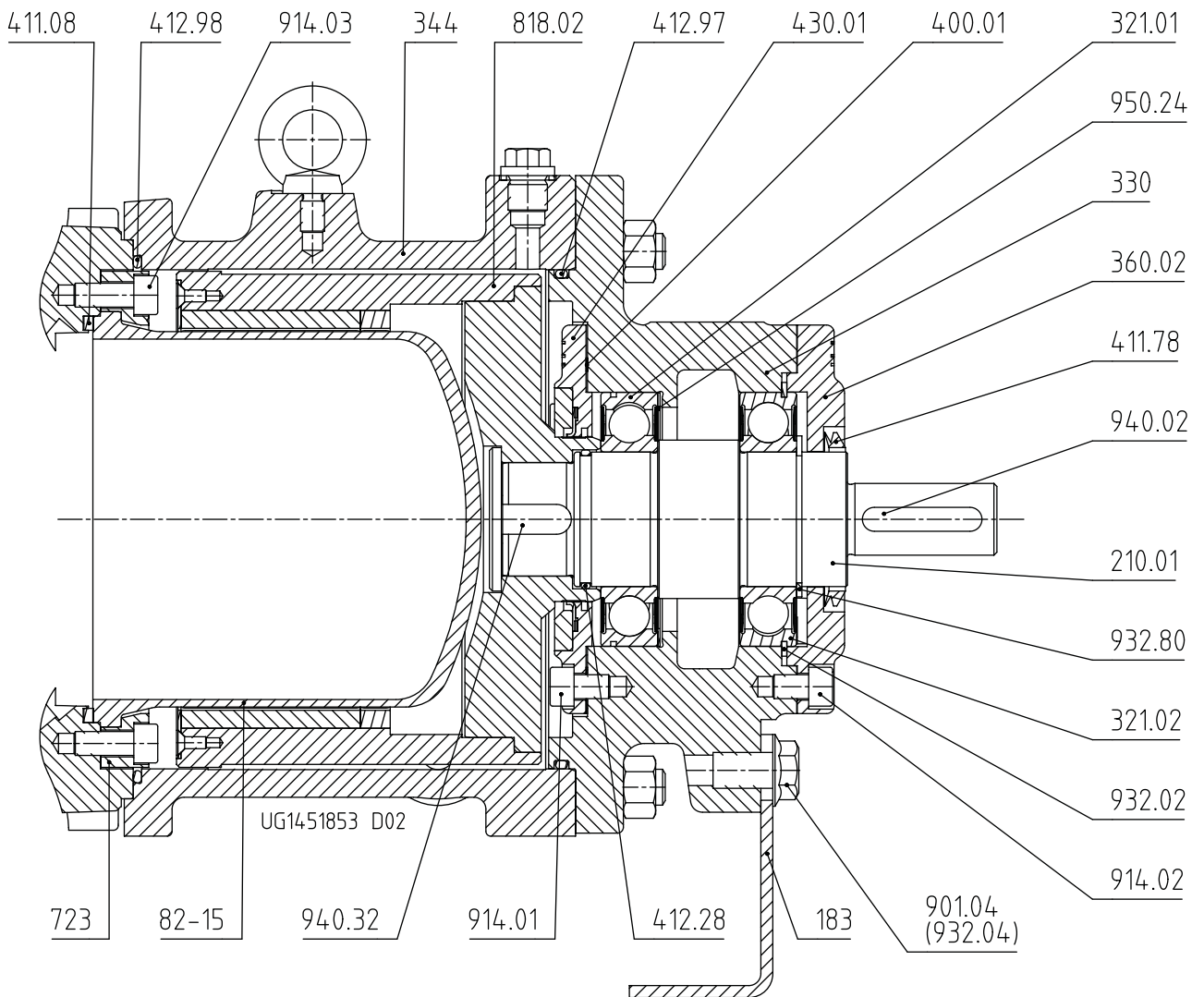


Discharge cover fastening at pump casing on designs with clamped cover

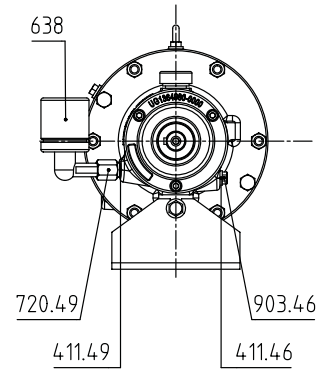
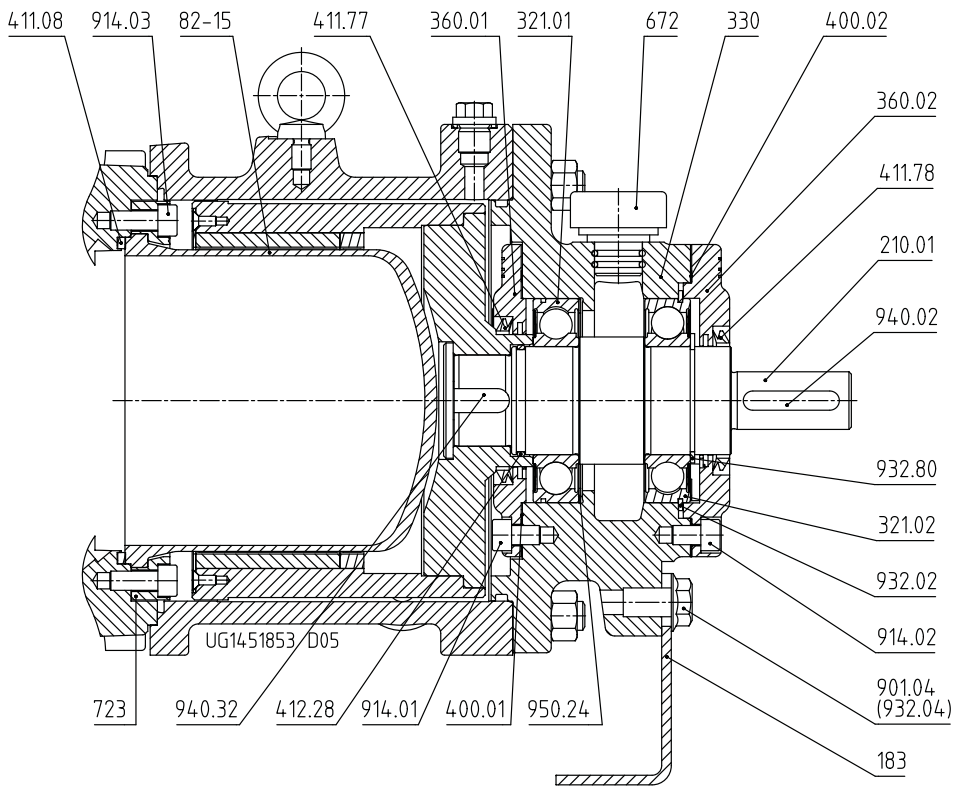


Model with volute casing and ring filter, heating chamber, casing and impeller wear rings

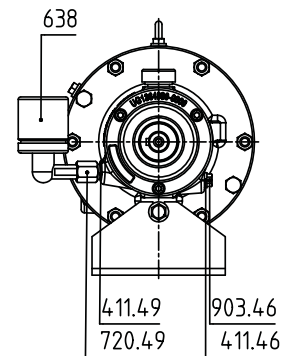
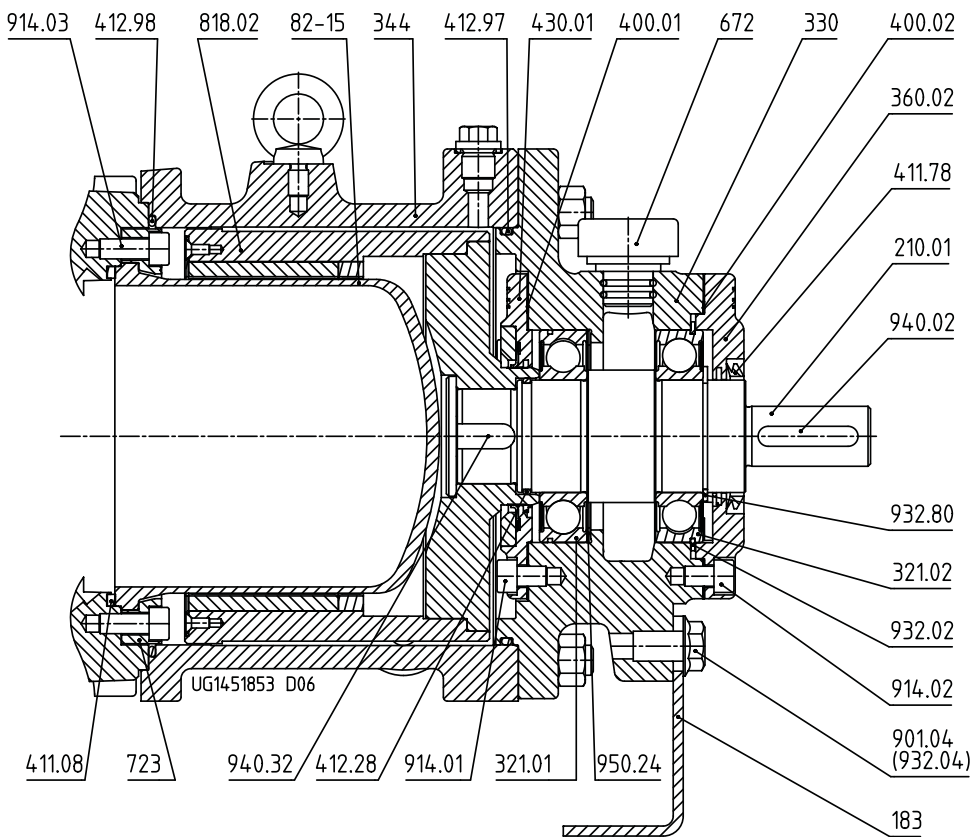
A	Heating chamber
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Model with bearing bracket with grease lubrication and shaft seal ring



Model with bearing bracket with oil lubrication and without leakage barrier



Model with bearing bracket with oil lubrication and shaft seal ring

List of components

Part No.	Comprising	Description
102	102	Volute casing
	411.01 ¹²⁾ /.02 ¹²⁾ /.03 ¹²⁾ /.04 ¹²⁾	Joint ring
	502.01 ¹²⁾	Casing wear ring
	902.01	Stud
	903.01 ¹²⁾ /.02 ¹²⁾ /.03 ¹²⁾ /.04 ¹²⁾	Screw plug
	920.01	Hexagon nut
161	161	Casing cover
502.02 ¹²⁾	502.02 ¹²⁾	Casing wear ring
183	183	Support foot
210.01	210.01	Shaft
	900.08	Screw
	932.02/80	Circlip
	940.02/.32	Key
210.03	210.03	Shaft
	550.87	Disc
	920.95	Nut
	940.01/.31	Key
230	230	Impeller
	503.01 ¹²⁾ /.02 ¹²⁾	Impeller wear ring
23-2.02	23-2.02 ¹²⁾	Auxiliary impeller
	914.26 ¹²⁾	Hexagon socket head cap screw
310	310	Plain bearing assembly
	500.61	Locking element
	500.62	Locking element
	515.21	Taper lock ring
	515.22	Taper lock ring
	529.21	Plain bearing sleeve
	529.22	Plain bearing sleeve
	545.21	Plain bearing bush
545.22	Plain bearing bush	
314	314	Thrust bearing
320.01	320.01	Angular contact ball bearing
314.01/.02	314.01/.02	Thrust bearing
321.01	321.01	Radial ball bearing
321.02	321.02	Radial ball bearing
330	330	Bearing bracket
344	344	Bearing bracket lantern
360.02	360.02	Bearing cover
391	391	Bearing ring carrier
411.08	411.08	Joint ring
411.09	411.09	Joint ring
411.10	411.10	Joint ring
411.22 /.87 /.94	411.22 /.87 /.94	Joint ring
411.78	411.78	Joint ring
509.02	509.02	Intermediate ring
818.01	818.01	Inner rotor
818.02	818.02	Outer rotor
82-15	82-15	Containment shroud
	132.01	Containment shroud intermediate piece
	723 ¹³⁾	Containment shroud flange
	914.03	Hexagon socket head cap screw
	914.28	Hexagon socket head cap screw
900.26	900.26	Eyebolt
901.04	901.04	Hexagon head bolt
901.30	901.30	Hexagon head bolt
901.31	901.31	Hexagon head bolt
901.33	901.33	Hexagon head bolt
901.74	901.74	Hexagon head bolt

¹²⁾ Not on all versions

¹³⁾ For ceramic containment shroud only

Part No.	Comprising	Description
902.04	902.04	Stud
902.15	902.15	Stud
903.22 / .87 / .94	903.22 / .87 / .94	Screw plug
914.02	914.02	Hexagon socket head cap screw
914.07	914.07	Hexagon socket head cap screw
920.04	920.04	Nut
920.15	920.15	Nut
932.04	932.04	Locking disc
950.23	950.23	Disc spring
950.24	950.24	Wave spring
Models with oil-lubricated rolling element bearings		
360.01	360.01	Bearing cover
400.01	400.01	Gasket
	400.02	Gasket
	411.77	Joint ring
	411.78	Joint ring
	412.28	O-ring
411.46	411.46	Joint ring
411.49	411.49	Joint ring
638	638	Constant level oiler
672	672	Venting device
720.49	720.49	Fitting
903.46	903.46	Screw plug
Models with leakage barrier – shaft seal ring		
412.28/.97/.98	412.28/.97/.98	O-ring
430.01	430.01	Shaft seal
	400.01	Gasket
	914.01	Hexagon socket head cap screw
Casing cover design with ring filter		
745.04	745.04	Filter
932.06	932.06	Circlip

Plain bearings arrangement

Overview of plain bearings arrangement

Hydraulic system	Bearing bracket	Nominal diameter of magnetic coupling				
		85	123	172	235	265
		1 ¹⁴⁾	2 ¹⁴⁾	3 ¹⁴⁾	4 ¹⁴⁾	5 ¹⁴⁾
040-25-160	CS40	A31	A31	-	-	-
040-25-200	CS40	A31	A31	-	-	-
050-32-125.1	CS40	A31	A31	-	-	-
050-32-160.1	CS40	A31	A31	-	-	-
050-32-200.1	CS40	A31	A31	-	-	-
050-32-250.1	CS50	B31	B31	A31	-	-
050-32-125	CS40	A31	A31	-	-	-
050-32-160	CS40	A31	A31	-	-	-
050-32-200	CS40	A31	A31	-	-	-
050-32-250	CS50	B31	B31	A31	-	-
065-40-125	CS40	A31	A31	-	-	-
065-40-160.1	CS40	A31	A31	-	-	-
065-40-160	CS40	A31	A31	-	-	-
065-40-200	CS40	A31	A31	-	-	-
065-40-250.1	CS50	B31	B31	A31	-	-
065-40-250	CS50	B31	B31	A31	-	-
065-40-315	CS50	B31	B31	A31	A21	-
080-50-125	CS40	A31	A31	-	-	-
080-50-160	CS40	A31	A31	-	-	-
080-50-200	CS40	A31	A31	-	-	-
080-50-250	CS50	B31	B31	A31	-	-
080-50-315.1	CS50	B31	B31	A31	A21	-

¹⁴⁾ Nominal diameter of magnetic coupling as per name plate

Hydraulic system	Bearing bracket	Nominal diameter of magnetic coupling				
		85	123	172	235	265
		1 ¹⁴⁾	2 ¹⁴⁾	3 ¹⁴⁾	4 ¹⁴⁾	5 ¹⁴⁾
080-50-315	CS50	B31	B31	A31	A21	-
100-65-125	CS40	A31	A31	-	-	-
100-65-160	CS50	B31	B31	A31	-	-
100-65-200	CS50	B31	B31	A31	-	-
100-65-250	CS50	B31	B31	A31	-	-
100-65-315	CS60	B31	B31	A31	A21	-
125-80-160	CS50	B31	B31	A31	-	-
125-80-200	CS50	B31	B31	A31	-	-
125-80-250	CS50	B31	B31	A31	-	-
125-80-315	CS60	B31	B31	A31	A21	-
125-80-400	CS60	B31	B31	A31	A21	-
125-100-160	CS50	B31	B31	A31	-	-
125-100-200	CS50	B31	B31	A31	-	-
125-100-250	CS60	B31	B31	A31	-	-
125-100-315	CS60	B31	B31	A31	A21	-
125-100-400	CS60	B31	B31	A31	A21	-
150-125-200	CS60	B31	B31	A31	-	-
150-125-250	CS60	B31	B31	A31	-	-
150-125-315	CS60	B31	B31	A31	A21	-
150-125-400	CS60	B31	B31	A31	A21	-
200-150-200	CS60	B31	B31	A31	-	-
200-150-250	CS60	B31	B31	A31	-	-
200-150-315	CS80	-	-	B22	C22	A22
200-150-400	CS80	-	-	B22	C22	A22
200-150-500	CS80	-	-	B22	C22	A22
200-200-250	CS80	-	-	B22	C22	-
250-200-315	CS80	-	-	B22	C22	A22
250-200-400	CS80	-	-	B22	C22	A22
250-200-500	CS80	-	-	B22	C22	A22
300-250-315	CS80	-	-	B22	C22	A22

¹⁴⁾ Nominal diameter of magnetic coupling as per name plate

Plain bearings arrangement

Description	Detailed view
<p>Case A21 Bearing brackets CS50 and CS60 Magnetic coupling 235</p>	
<p>Case A22 Bearing bracket CS80 Magnetic coupling 265</p>	
<p>Case B22 Bearing bracket CS80 Magnetic coupling 172</p>	
<p>Case C22 Bearing bracket CS80 Magnetic coupling 235</p>	
<p>Case B31 Bearing brackets CS50 and CS60 Magnetic couplings 85 and 123</p>	

Detailed designation

Product code example

Position																															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
M	A	C	D	0	5	0	-	0	3	2	-	2	5	0	1	C	C	-	X	1	A	E	N	-	-	1	3	2	S	6	B
See name plate and data sheet																					See data sheet										

Key to the designation

Position	Code	Description
1-4	Pump type	
	MACD	Magnochem
	MACB	Magnochem Bloc
5-16	Size	
	050	Nominal suction nozzle diameter [mm]
	032	Nominal discharge nozzle diameter [mm]
	2501	Nominal impeller diameter [mm]
17	Pump casing material	
	C	1.4408/A743CF8M
	E	GP240GH+N/WCB
	Y	1.7706
	V	1.4408
18	Impeller material	
	D	Noridur 1.4593/1.4517/A995 CD4MCuN
	G	JL 1040/A48CL35
	C	1.4408/A743CF8M
19	Heatable model	
	-	Standard
	H	Heatable casing
20	Special design	
	X	Special design
21	Magnetic coupling diameter	
	1	85
	2	123
	3	172
	4	235
	5	265
22	Magnetic coupling length	
	A	10
	B	20
	C	30
	D	40
	E	50
	F	60
	G	70
	H	80
	I	90
	J	100
	K	110
	L	120
	M	130
23-26	Operating modes	
	EN--	External circulation
	EP--	Dead-end configuration
	EP-H	Dead-end configuration, heatable
	IN--	Internal circulation
	IN-H	Internal circulation, heatable
	INR-	Internal circulation, ring filter
	INRH	Internal circulation, ring filter, heatable

Position		Code	Description
		IP--	Low-boiling fluids
		IP-H	Low-boiling fluids, heatable
		IPR-	Low-boiling fluids, ring filter
		IPRH	Low-boiling fluids, ring filter, heatable
27-30	IEC motor size		
		090S	090S
		100L	100L
		112M	112M
		...	Other
31	Number of poles		
		2	2 poles
		4	4 poles
		6	6 poles
32	Product generation		
		B	Magnochem Global Pump product generation



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