HMD KONTRO Sealless Pumps

world-leading technology **world-leading company**

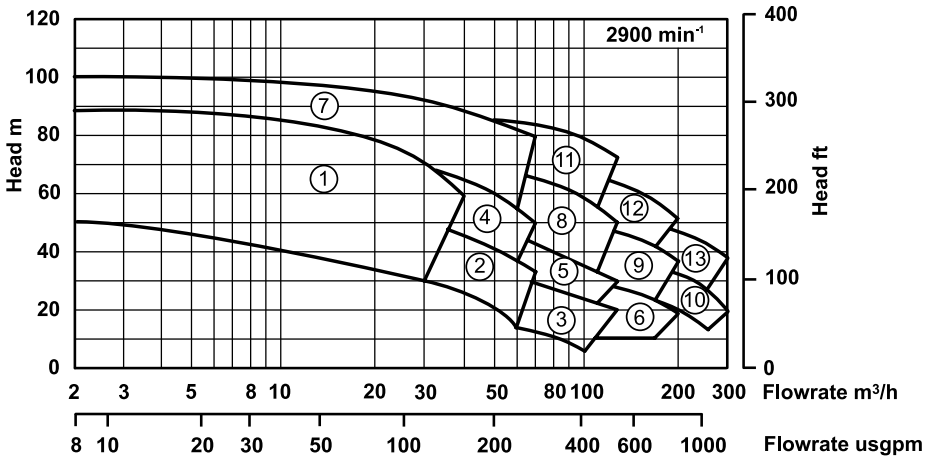
CS range

'E&F' drive

Technical Profile

Magnet drive, end suction, centrifugal pumps
Chemical service range

Performance of the CS range



Pump model

1	2E/H	**6**	3E/L	**11**	4F/H
2	2E/M	**7**	3F/X	**12**	4F/M
3	2E/L	**8**	3F/H	**13**	4F/L
4	3E/H	**9**	3F/M		
5	3E/M	**10**	3F/L		

Range capabilities

Model	Head	Flow	Temperature	Pressure	Viscosity Cst	Mounting
CS2 E	89 m 292 ft	120 m^3/h 528 usgpm	-80 to +450°C -112 to + 850°F	18.9 bar 275 psi	200	Close coupled (CC) Separate Mounted (SM)
CS3 E	78 m 255 ft	200 m^3/h 881 usgpm	-80 to +450°C -112 to + 850°F	18.9 bar 275 psi	200	Separate Mounted (SM)
CS3F	109 m 357 ft	300 m^3/h 1321 usgpm	-80 to +450°C -112 to + 850°F	18.9 bar 275 psi	200	Separate Mounted (SM)
CS4F	120 m 393 ft	300 m^3/h 1321 usgpm	-80 to +450°C -112 to + 850°F	18.9 bar 275 psi	200	Separate Mounted (SM)

Product overview

The CS product covers an hydraulic range that is split between four frame sizes, C, D, E & F. (For frame C, & D refer to separate Technical Profile)

The pumps are supplied with a range of Torque Ring Drives rated to match prime mover performance. Prime mover specifications of all denominations can be catered for.

The Torque Ring (induced) Drive, invented by HMD/Kontro, enables the pumps to operate at high temperatures without cooling. All the pumps covered by this range are particularly suited to handling high temperature mediums.

The standard materials of construction are carbon steel with carbon internal bearings.

Design range limits

The CS pump is designed to operate from -80°C up to +450°C,-112°C up to +850°F without the need for any ancillary cooling medium. Design working pressure is 18.9 bar, 275 psi.

Solids handling capability

The unit is capable of handling solids up to 1.5% w/w with 100 microns.

Options

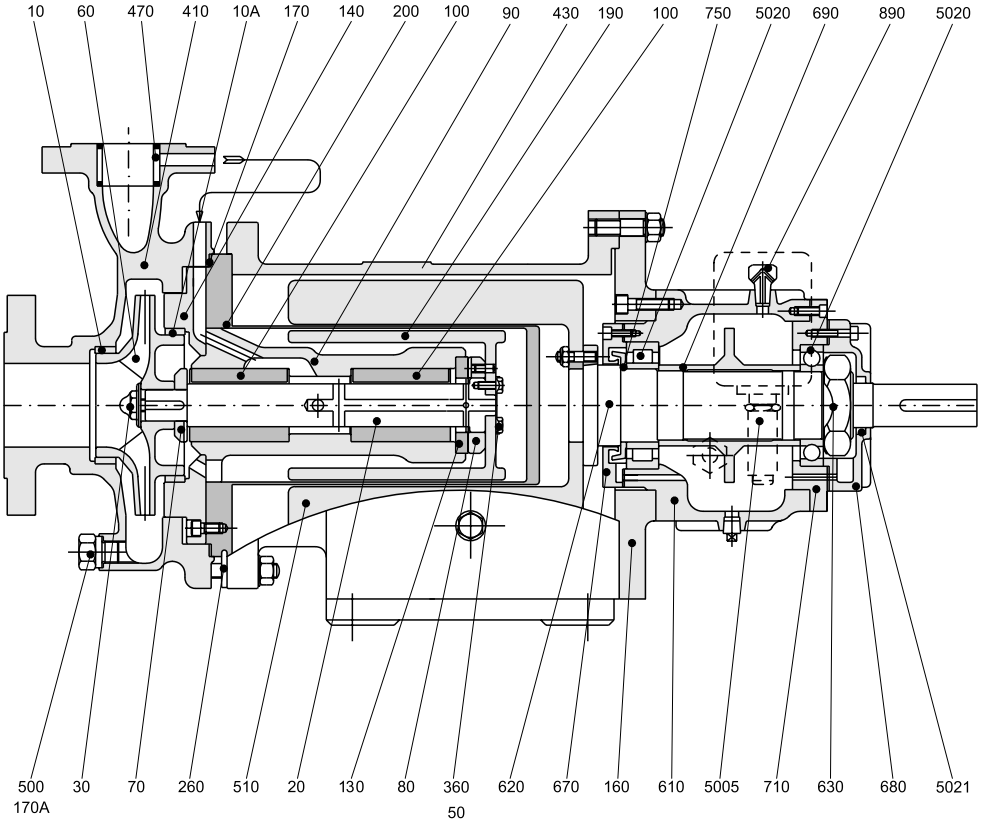
Materials of construction

Wetted parts	Stainless Steel
Gasket	Graphite

Other options

Jacketed pump casing
Secondary Control
Coupling housing drain
Coupling feed filtration
Large range of pump protection

Construction of CS 'E&F' pump



10	Neck Ring [Front]	Stainless Steel
10A	Neck Ring [Back]	Stainless Steel
20	Pump Shaft	316L Stainless Steel
30	Impeller Fixing	Stainless Steel
50	Coupling Washer	Stainless Steel
60	Impeller	Stainless Steel
70	Thrust Washer [Front]	Stainless Steel
80	Thrust Washer [Back]	Stainless Steel
90	Bush Holder	Stainless Steel
100	Bush [Kit]	Carbon
130	Thrust Pad	Carbon
140	Casing Plate	Stainless Steel
160	Adaptor Flange	Carbon Steel
170	Gasket [Casing]	CSF
170A	Gasket [Drain]	CSF
190	Torque Ring	Stainless Steel
200	Containment Shroud/Shell	Alloy C & 316L SS
260	Shroud Retention Plate	304 Stainless Steel
360	Coupling Fixing	Stainless Steel
410	Casing	Stainless Steel
430	Coupling Housing	SG Iron
470	Strainer Basket	Stainless Steel
500	Drain Plug	Stainless Steel
510	Outer Magnet Ring	Carbon Steel
610	Bearing Housing	SG Iron
620	Drive Shaft	Carbon Steel
630	Drive Shaft Nut [Kit]	Carbon Steel
670	Front Cap	Carbon Steel
680	Back Cap	SG Iron
690	Spacer	Carbon Steel
710	Race Housing	Carbon Steel
750	Oil Thrower	Proprietary
890	Breather/Filler Plug	Carbon Steel
5005	Constant Level Oiler	Proprietary
5020	Race [Kit]	Proprietary
5021	Oil Seal	Proprietary
********	Fixings [Kit]	Various

Flanges and Connections

Casing

Suction and discharge flanges are designed in accordance with the following relevant standards:

ANSI B16.5 Class 150 Machined with 1.5mm (0.06") high raised face having a continuous spiral groove.

ANSI B16.5 Class 300 Machined with 1.5mm (0.06") high raised face having a continuous spiral groove.

DIN 2545 PN40 Machined with a 2mm high raised face with a continuous spiral groove. (Note: these flanges are identical to BS 4504 PN40.)

Flange Loadings

Allowable flange loadings imposed by pipework are in accordance with Table 2 of API 610 8th edition and exceed the values in ANSI 5199 Annex C.

Drain Connections

The following drain options are available:

Standard: ½" BSP drain plug fitted with fully trapped gasket.
Option 1: No drain, boss left undrilled.
Option 2: ½" flanged drain rated to the casing flanges

Gauge Connections:

No provision for gauge connections has been made on this frame of pump.

Features and user benefits of the CS Pump range

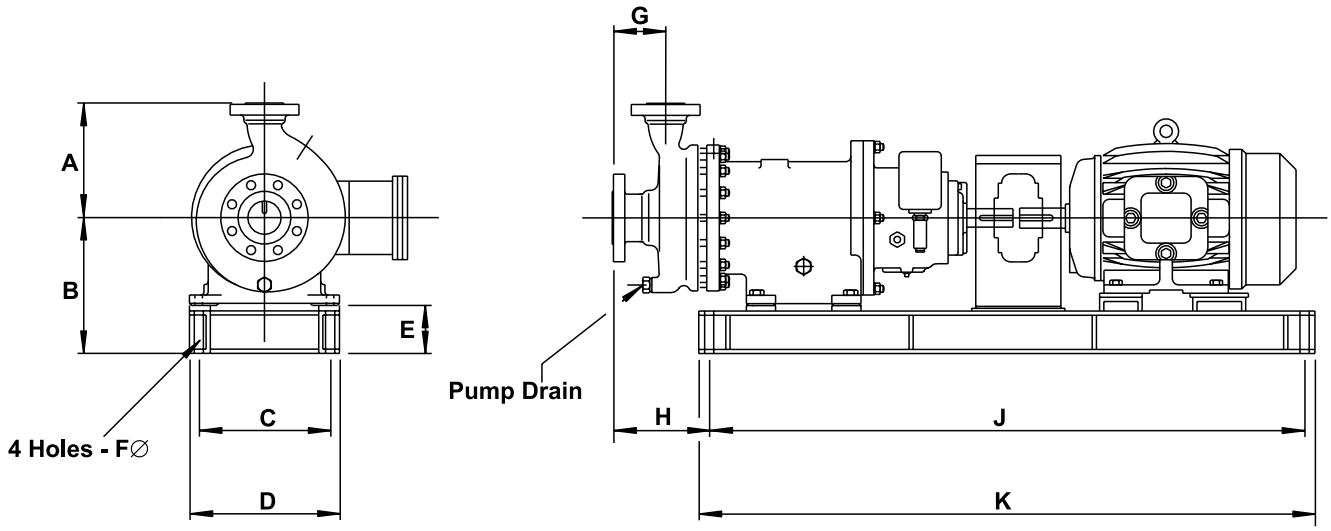
- **Seal/less design** - total product containment - ideal for hydrocarbon, petrochemical, toxic, aggressive, hot, crystallising and valuable product.
- Modular/Interchangeable high efficiency wet end, designed to ensure maximum flow/head coverage across all CS product ranges.
- Modular/Interchangeable high efficiency magnetic couplings.
- Choice of various metallic materials of construction.
- One joint casing/containment shroud/shell design
- Casing gasket fully confined to eliminate 'Blowout' risk.
- Various suction and discharge flange connection options.
- Maximum interchangeability exists between spare parts for the entire range.
- Cartridge assemblies allowing fast replacement of the rotating element.
- Internationally approved pressure vessel standard: ASME VIII code.

Overall benefits to the user

- Ease of application
- Low capital cost
- Design ensures safe, leak free operation
- Low running costs
- Minimal spares holding
- Minimal downtime/fast maintenance
- Maximises on-line process time

Dimensions of CS 'E&F' pump

Dimensions are for guidance only



Pump size	A	B	E	F	G	H
CS2ECH	270/10.6"	326/12.8"	110/4.3"	22/0.86"	100/3.9"	197/7.7"
CS2ESM	250/9.8"	326/12.8"	110/4.3"	22/0.86"	100/3.9"	212/8.3"
CS2ESL	250/9.8"	326/12.8"	110/4.3"	22/0.86"	100/3.9"	217/8.5"
CS3ESH	275/10.8"	326/12.8"	110/4.3"	22/0.86"	100/3.9"	207/8.1"
CS3ESM	260/10.2"	326/12.8"	110/4.3"	22/0.86"	100/3.9"	217/8.5"
CS3ESL	260/10.2"	326/12.8"	110/4.3"	22/0.86"	125/4.9"	237/9.3"

Motor Frame	C	D	J	K	L
112	315/12.4	360/14.2"	1130/44.5"	1180/46.5"	1370/54"
132	315/12.4"	360/14.2"	1233/48.5"	1283/50.5"	1475/58"
160	315/12.4"	360/14.2"	1350/53.1"	1400/55.1"	1590/62.6"
180	315/12.4"	360/14.2"	1428/56.2"	1478/58.1"	1670/65.7"
200	355/14"	400/15.7"	1500/59"	1550/61"	1750/68.9"
213-215	305/12"	355/14"	1219/48"	1270/50"	1473/58"
254-256	355/14	406/16	1372/54"	1422/56"	1574/62"
284-286	406/16	457/18	1448/57"	1524/60"	1651/65"
326	406/16	457/18	1524/60"	1600/63"	1727/68"

Pump size	A	B	E	F	G	H
CS3FSX	300/11.8"	475/18.7"	152/6"	22/0.86"	125/4.9"	144/5.7"
CS3FSH	300/11.8"	475/18.7"	152/6"	22/0.86"	125/4.9"	150/5.9"
CS3FSM	325/12.8"	475/18.7"	152/6"	22/0.86"	125/4.9"	165/6.5"
CS3FSL	300/11.8"	475/18.7"	152/6"	22/0.86"	125/4.9"	183/7.2"
CS4FSH	310/12.2"	475/18.7"	152/6"	22/0.86"	125/4.9"	150/5.9"
CS4FSM	325/12.8"	475/18.7"	152/6"	22/0.86"	125/4.9"	165/6.5"
CS4FSL	355/14"	475/18.7"	152/6"	22/0.86"	125/4.9"	187/7.4"

Motor Frame	C	D	J	K	L
160	400/15.7"	460/18.1"	1500/59"	1560/61.4"	1700/66.9"
180	400/15.7"	460/18.1"	1570/61.8"	1630/64.2"	1765/69.5"
200	400/15.7"	460/18.1"	1660/65.3"	1720/67.7"	1860/73.2"
225	400/15.7"	460/18.1"	1690/66.5"	1750/68.9"	1890/74.4"
250	400/15.7"	460/18.1"	1740/68.5"	1800/70.9"	1935/76.2"
284-286	406/16"	457/18"	1575/62"	1651/65"	1778/70"
326	406/16"	457/18"	1651/65"	1727/68"	1880/74"
364-365	406/16"	457/18"	1727/68"	1803/71"	1930/76"

Dimensions shown are metric/imperial (inches).

Pressure limits

All parts are to be rated to the pressures shown below at 38°C (100°F)

Flange standard	Design pressure	
	316 St St	**Carbon Steel**
ANSI B16.5 Class 150	1.89 N/mm2 275 psi	1.89 N/mm2 275 psi
ANSI B16.5 Class 300	2.00 N/mm2 290 psi	2.00 N/mm2 290 psi
DIN 2545 PN 40	4.00 N/mm2 580 psi	4.00 N/mm2 580 psi

Component	Hydrostatic test value	
	316 St St	**Carbon Steel**
Casing	3.10 N/mm2 450 psi	3.10 N/mm2 450 psi
Containment Shroud/Shell	3.10 N/mm2 450 psi	3.10 N/mm2 450 psi

Temperature limits

Standard Range	-80°C to +350°C (-110°F to +660°F)
Option	-450°C (840°F)

For sub zero temperatures a suitable sealing compound (Loctite Multi Gasket or similar) is used to prevent the Ingress of moisture into the coupling housing between the containment shroud/shell, coupling/bearing and motor adaptor assembly interface.

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