

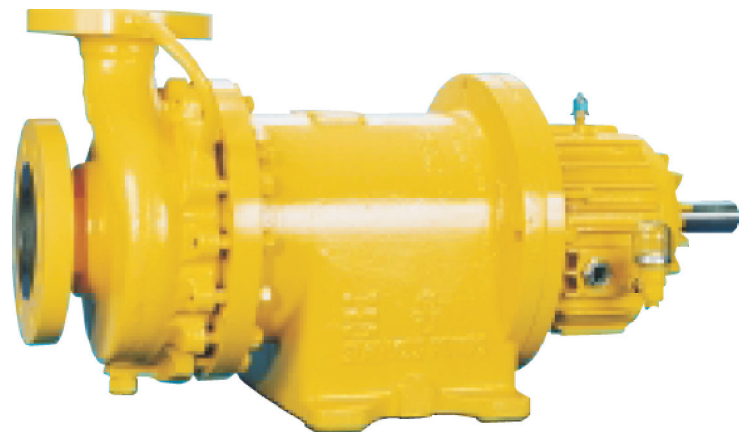
Technical Profile

CS Range 'E&F' Drive

Magnet drive, end suction, centrifugal pumps
Chemical service range

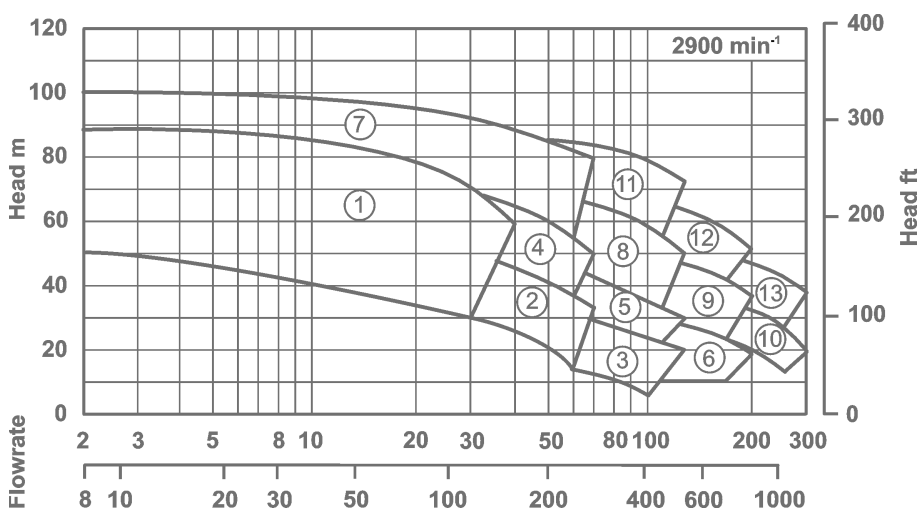
Isolating the pump from the heat source has always been essential in a hot oil system – until now. Thanks to its unique torque ring, the CS pump from Sundyne HMD Kontro requires no cooling fluids or heat exchangers during operation. The pump is totally self venting and the magnetic coupling is immersed in the hot oil. Not only that, but the torque ring design offers a built-in soft start for viscous liquids, and the energy created adds to the efficiency of the system.

Simple to operate and maintain, cost-effective to run and capable of operating up to 450°C without cooling – all this makes the Sundyne HMD Kontro CS pump the ideal choice.



HMD Kontro

Performance of the CS 'E&F' Drive 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		

Design range limits

The CS pump is designed to operate from -80°C up to 450°C, -112°F up to 850°F without the need for any ancillary cooling medium. Design working pressure is 20 bar, 290 psi.

Solids handling capability

The unit is capable of handling solids up to 1.5% w/w less than 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

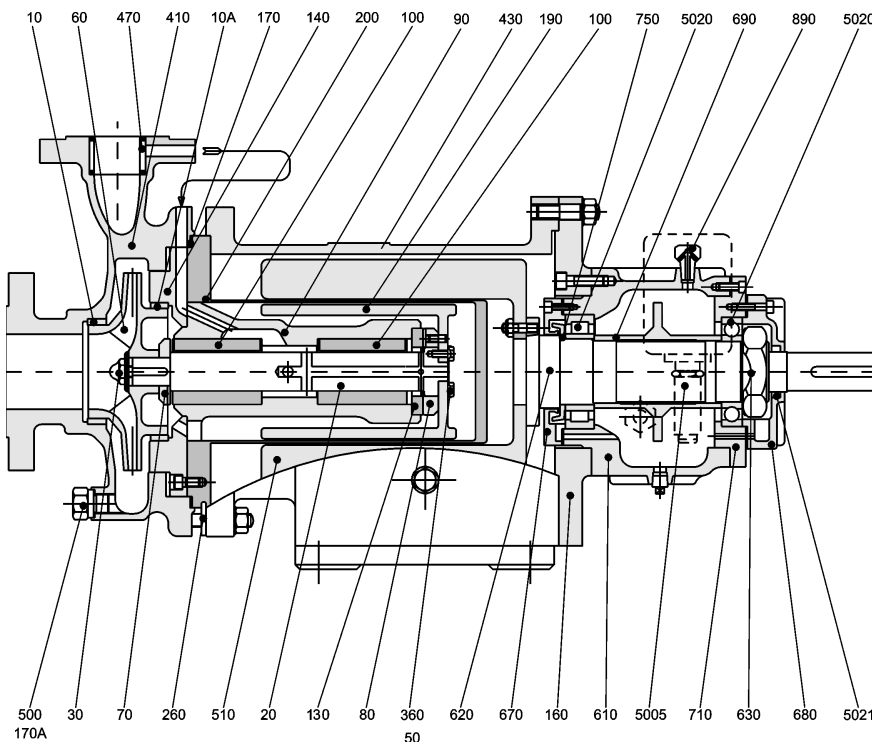
Key Design Features

- **No seals:** To minimise maintenance, all of the associated costs and eliminate potential leaks.
- **Sealless design:** For total containment, essential for hazardous, aggressive or valuable product.
- **Interchangeability of components:** For maximum convenience and reduced stock holding, operator training etc.
- **High efficiency wet end:** To benefit maximum flow / head coverage.
- **Wide choice of materials:** To allow a choice of various metals in the construction of your pump.
- **Casing gasket fully confined:** So eliminating risk of blowout.
- **Universal connection options:** So that suction and discharge flange connections can be configured to your exact requirements.
- **Modular rotating element cartridge:** Providing the most efficient way to perform replacements and manage your spare part inventory.

Benefits of CS pump range

- Ideal for heat transfer liquids.
- Sealless design – total product containment.
- No product cooling required for temperatures up to 450°C.
- One joint casing/containment shroud/shell.
- Fully confined to eliminate 'blowout' risk.
- Torque Ring drive positively contributes to the efficiency of the hot oil system.
- Built-in soft start feature.
- Ideal for viscous start up.

Construction of CS range



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]	CS
170A	Gasket [Drain]	FCSF
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 2543/2545 PN16 + PN40 Machined with a 2mm high raised face with a continuous spiral groove. (Note: these flanges are identical to BS4504 PN40.)

Flange Loadings

Allowable flange loadings imposed by pipework are in accordance with Table 4 of API 685 2nd edition and exceed the values in ANSI 5199 Annex C.

Drain Connections

The following drain options are available:

Standard: 1/2" BSP drain plug fitted with fully trapped gasket.

Option 1: No drain, boss left undrilled.

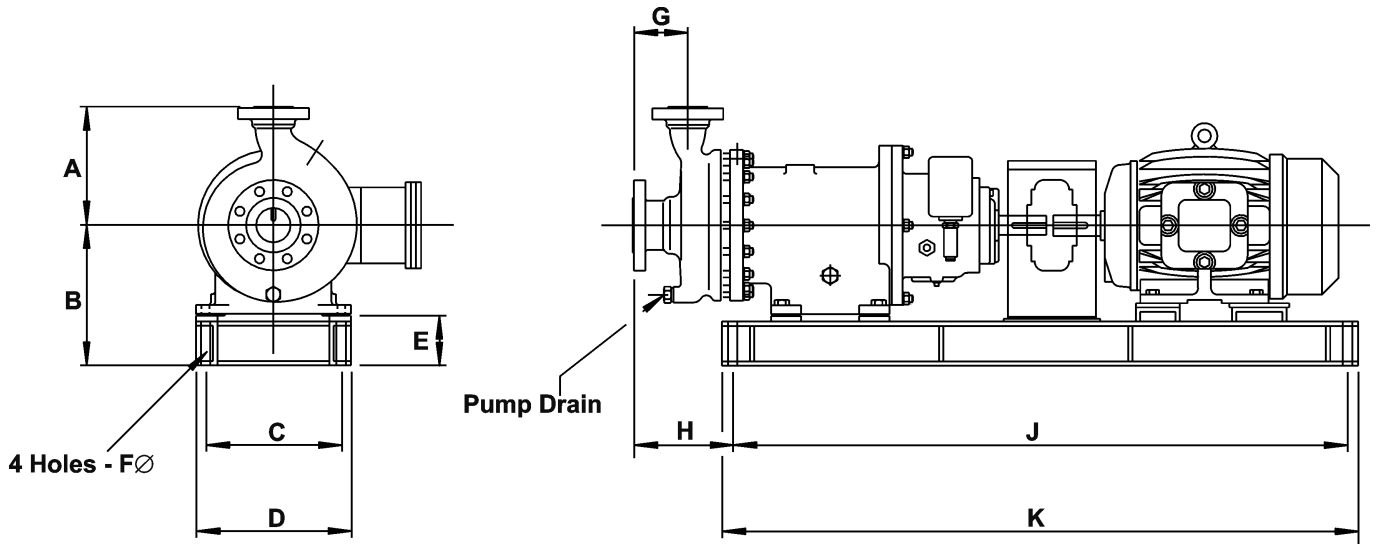
Option 2: 1/2" flanged drain rated to the casing flanges.

Gauge Connections:

No provision for gauge connections has been made on this range of pumps.

Dimensions of CS 'E&F' pump

Dimensions are for guidance only



CS 'E&F' pump

Pump size	A	B	E	F	G	H	Motor Frame	C	D	J	K	L
CS2ECH	270/10.6"	326/12.8"	110/4.3"	22/0.86"	100/3.9"	197/7.7"	112	315/12.4"	360/14.2"	1130/44.5"	1180/46.5"	1370/54"
CS2ESM	250/9.8"	326/12.8"	110/4.3"	22/0.86"	100/3.9"	212/8.3"	132	315/12.4"	360/14.2"	1233/48.5"	1283/50.5"	1475/58"
CS2ESL	250/9.8"	326/12.8"	110/4.3"	22/0.86"	100/3.9"	217/8.5"	160	315/12.4"	360/14.2"	1350/53.1"	1400/55.1"	1590/62.6"
CS3ESH	275/10.8"	326/12.8"	110/4.3"	22/0.86"	100/3.9"	207/8.1"	180	315/12.4"	360/14.2"	1428/56.2"	1478/58.1"	1670/65.7"
CS3ESM	260/10.2"	326/12.8"	110/4.3"	22/0.86"	100/3.9"	217/8.5"	200	355/14"	400/15.7"	1500/59"	1550/61"	1750/68.9"
CS3ESL	260/10.2"	326/12.8"	110/4.3"	22/0.86"	125/4.9"	237/9.3"	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	Motor Frame	C	D	J	K	L
CS3FSX	300/11.8"	475/18.7"	152/6"	22/0.86"	125/4.9"	144/5.7"	160	400/15.7"	460/18.1"	1500/59"	1560/61.4"	1700/66.9"
CS3FSH	300/11.8"	475/18.7"	152/6"	22/0.86"	125/4.9"	150/5.9"	180	400/15.7"	460/18.1"	1570/61.8"	1630/64.2"	1765/69.5"
CS3FSM	325/12.8"	475/18.7"	152/6"	22/0.86"	125/4.9"	165/6.5"	200	400/15.7"	460/18.1"	1660/65.3"	1720/67.7"	1860/73.2"
CS3FSL	300/11.8"	475/18.7"	152/6"	22/0.86"	125/4.9"	183/7.2"	225	400/15.7"	460/18.1"	1690/66.5"	1750/68.9"	1890/74.4"
CS4FSH	310/12.2"	475/18.7"	152/6"	22/0.86"	125/4.9"	150/5.9"	250	400/15.7"	460/18.1"	1740/68.5"	1800/70.9"	1935/76.2"
CS4FSM	325/12.8"	475/18.7"	152/6"	22/0.86"	125/4.9"	165/6.5"	284-286	406/16"	457/18"	1575/62"	1651/65"	1778/70"
CS4FSL	355/14"	475/18.7"	152/6"	22/0.86"	125/4.9"	187/7.4"	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).

Range capabilities

Model	Head	Flow	Design Temperature	Design Pressure	Viscosity cSt	Mounting
CS2 E	89 m 292 ft	120 m ³ /h 528 USgpm	-80 to 450°C -112 to 850°F	20 bar 290 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	20 bar 290 psi	200	Separate Mounted (SM)
CS3 F	109 m 357 ft	300 m ³ /h 1321 USgpm	-80 to 450°C -112 to 850°F	20 bar 290 psi	200	Separate Mounted (SM)
CS4 F	120 m 393 ft	300 m ³ /h 1321 USgpm	-80 to 450°C -112 to 850°F	20 bar 290 psi	200	Separate Mounted (SM)

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 MPa 275 psi	1.89 MPa 275 psi
BS 4504 Class 300	2.0 MPa 290 psi	2.0 MPa 290 psi
DIN 2543 PN 40	4.0 MPa 580 psi	4.0 MPa 580 psi

Component	Hydrostatic test values	
	316 St St	
Casing	3.1 MPa 450 psi	3.1 MPa 450 psi
Containment Shroud/Shell	3.1 MPa 450 psi	3.1 MPa 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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