Simple Pumping for Viscous Products

PC-SC - Progressive Cavity Pump - Strip Clean

Application

The Progressice Cavity Pump is used in a wide range of applications, eg. fruit and vegetable processing, food and beverage, pharmaceutical and chemical industries.

The pump is used for pumping neutral or corrosive, uncontaminated or abrasive products as well as products containing gases or tending to froth. The pump handles both high and low viscosity products even with fibrous or solid material.

The PC-SC Progressive Cavity Strip Clean Pump can easily be cleaned by way of dismantling.

Operation

Self-priming rotary positive displacement pump whose pumping elements are the rotating eccentric screw (rotor) and the fixed stator. In any cross-sectional plane, the two are in contact with one another at two points, and along the length of the conveying elements, these points form two sealing lines. The material contained in the sealed enclosed cavities which are formed as the rotor turns is displaced axially and with complete continuity from the suction to the discharge side of the pump.

Despite the fact that the rotor rotates, no turbulence is produced. The constant chamber volume assures an extremely gentle low-surge pumping action.

Standard design

The progressive pump is an eccentirc block type screw pump where the pump and drive are flanged together to a block unit by means of a lantern.

The outlet section, stator, sucsion casing and lantern are held together by external tie rods which can be undone easily.

The suction casing on all sizes is designed to have a particualrly large flow section. All product wetted metal parts of the pump are precision ground. The suction and outlet section are mirror polished on the outside. The stator, which is vulcanised into a tubular casing or a cast casing (uniform rubber wall thickness), is provided at both ends with external collars vulcanised to it. These provide a safe seal from the suction casing and outlet section and also protect the stator casing against corrosion.

An interchangeable housing for a stuffing box or mechanical seal is placed between the lantern and the suction casing (pumps can be converted retrospectively to a different tye of seal).

The drive torque is transmitted via an easily removable drive pin to the hollow shaft and from there via the coupling rod to the rotor. The coupling rod terminates at both ends in the universal joints which are encapsulated to form a liquid tight seal. These pin-type universal joints are of particularly simple and rugged design and are able to withstand the eccentric movement of the rotor without any difficulty.

An option to the PC-SC pump is the PC-T pump which is a painted, trolley-mounted pump.

Shaft seal

Shafts are sealed by uncooled stuffing boxes or by uncooled non-balanced single-acting mechanical seals which require no maintenance.

The mechanical seal chambers are manufactured to accept any seals which conform to DIN 24960 (short design).

The material pairings and type of seal are adapted to suit the particular operating conditions which exist in any given case.

Bearing

The drive shaft/hollow shaft is supported in special heavy duty bearings in the electric motor, geared motor or variable-speed gear. These bearings are desinged to withstand the appearing thrust loads.

All block-pump drive units are fitted with special bearings. This allows unrestricted use of the associated pumps within their permissible operation limits.

Drive

Electric motors, geared motors or variable-speed gears, either TEFC ir fkameproof, can be supplied. For possible types of drives, please see “options” on the last page.

The connecting flanges of all types of drives aupplied are interchangeable with one another within one pump size. The possibility to convert an existing pump to a different type of drive is a significant advantage.

Technical data:

Maximum inlet pressure: ..... 12 bar
Temperature range: ..... max. 100°C
Maximum outlet pressure, single stage: ..... 6 bar
Maximum outlet pressure, two-stage: ..... 12 bar

Materials:

Product wetted parts: 1.4404 (316L)
Product wetted seals: ..... EPDM
Other seals:..... Sic., NBR

Voltage and Frequency:

≤ 3 kW: ..... 230/400 V, 50 Hz
≥ 4 kW: ..... 400/690 V, 50 Hz

Maximum Solid Size Capability:

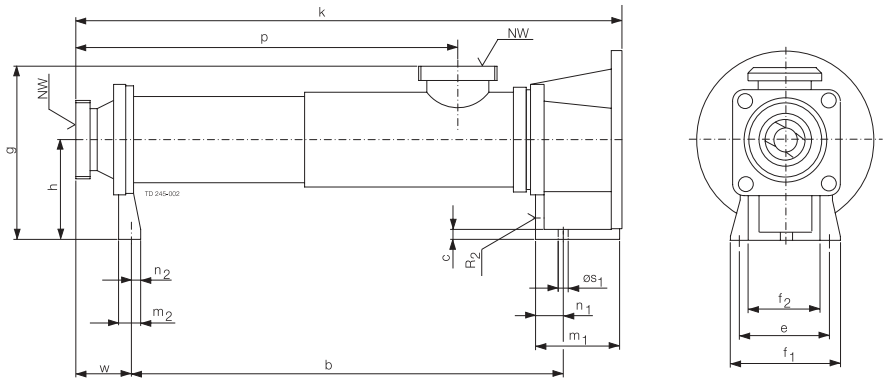
Pump size	12	25	50	100	200	380
max. particle size mm	2	3	3	3.8	5	6.8
max. fibre length mm	35	42	42	48	60	79

Increases in the solids content and particle size require a reduction of the pump speed.

Replaceability of parts

The components of all eccentric screw pumps are produced to a modular system. It is thus simple and inexpensive to maintain a stock of spares even where pumps of different designs belonging to different series are used in the same installation.

Dimensions



All dimensions in mm

PUMP	12.2	25.1	25.2	50.1	50.2	100.1	100.2	200.1	200.2	380.1	550.1
b	397	356	482	390	632	480	783	606	938	755	909
c	11	11	11	11	11	13	13	14	14	14 14	
e	95	95	95	95	95	105	105	120	120	120	120
f_1	120	120	120	120	120	137	137	155	155	155	155
f_2	70	70	70	70	70	85	85	100	100	80	80
g	173	173	173	173	180	209	224	243	255	253	253
h	100	100	100	100	100	125	125	140	140	140	140
k	516	486	612	520	739	634	910	766	1098	904	1058
m_1	98	98	98	98	86	110	95	118	118	118	118
m_2	30	30	30	30	30	35	35	38	38	25	25
n_1	33	33	33	33	43	35	48	39	39	39	39
n_2	10	10	10	10	10	11	11	13	13	12	12
NW	40	50	50	50	50	65	65	80	80	100	100
p	327	313	439	347	550	431	695	536	835	630	784
R_2	Rp 3/8	Rp 3/8	Rp 3/8	Rp 3/8	Rp 3/8	Rp ½	Rp ½	Rp 3/4	Rp 3/4	Rp 3/4	Rp 3/4
ø s1	12	12	12	12	12	14	14	14	14	14	14
w	50	61	61	61	61	76	76	78	78	67	67

Suction/pressure connection

Pump / DN_1 / DN_2	12.2	25.1	50.1	100.1	200.1	380.1
	Threaded connection acc. to DIN 11 851					
40	Rd 65 x 1/6					
50		Rd 78 x 1/6				
65				Rd 95 x 1/6		
80					Rd 110 x 1/4	
100						Rd 130 x 1/4

Outlet for gland leakage

Pump	12.2	25.1	50.1	100.1	200.1	380.1
	Straight internal thread to DIN 2999, part 1					
R_2	R 1/4	R 1/4 R 1/4	R 3/8		R 3/8	R 3/8

Options

A) Pump accessories - Stator setting devices, electrical heaters, bridge breakers

B) Drivers - Electric motors, geared motors, variabl e speed transmissions, reduction gearboxes, internal combustion engines, pneumatic and hydraulic drives

C) Base plates - Standard and special versions, mounting flanges

D) Safety arrangements - Bypass lines with safety or regulating valves, dry run protection (conductive, capacitive, thermal, etc.)

E) Other accessories - Electrical, hydraulic and pneumatic control arrangements, filter systems, metering equipment, seal liquid and circulating systems for shaft seals, valves, flanges, flexible pipes

F) Available as painted, trolley-mounted pump - please specify PC-T model

Ordering

Please state the following when ordering:

- Flow rate, pressure and temperature
- Media type
- Media viscosity
- Media density
- Connections