3 TECHNICAL DATA

3.1 Data

Operating data	**CompaDis™ CDI2**	
	Max. permitted motor power rating	950 kW
	Nominal speed	1500 rpm
	Nominal throughput	250 t/d
	Minimum flow rate	100 t/d
	Maximum flow rate	300 t/d
	Maximum operating temperature	130 °C
	Maximum operating pressure	3 bar
Sealing water	Flow rate	0.5 - 5 l/min
	Pressure	0.5 bar above inlet pressure
	Temperature	< 20 °C
	Quality	75 microns (fresh water)
Weights	Complete machine, without main drive	approx. 3200 kg
	CompaFeed	3100kg
Actuating drive	Nominal rating	4 kW
	Nominal speed at 50 Hz	1500 rpm
	Enclosure	IP 55
Drive f. inlet screw	Nominal rating	22 kW
	Speed at 50 Hz	1500 rpm
	Rotational speed of screw	525
	Enclosure	IP 55
Main drive	Motor	see project data sheet and/or supplier documentation
	Coupling	see project data sheet and/or supplier documentation
Disperser filling	Disperser plates	see Parts Book

4 DESCRIPTION

4.1 Field of application

The CompaDis™CDI2 is used to break up fibre bundles and to mix in bleaching chemicals. The CompaDis™CDI2 detaches impurities, such as dirt specks, stickies, wax and resin, from the fibres and reduces their size.

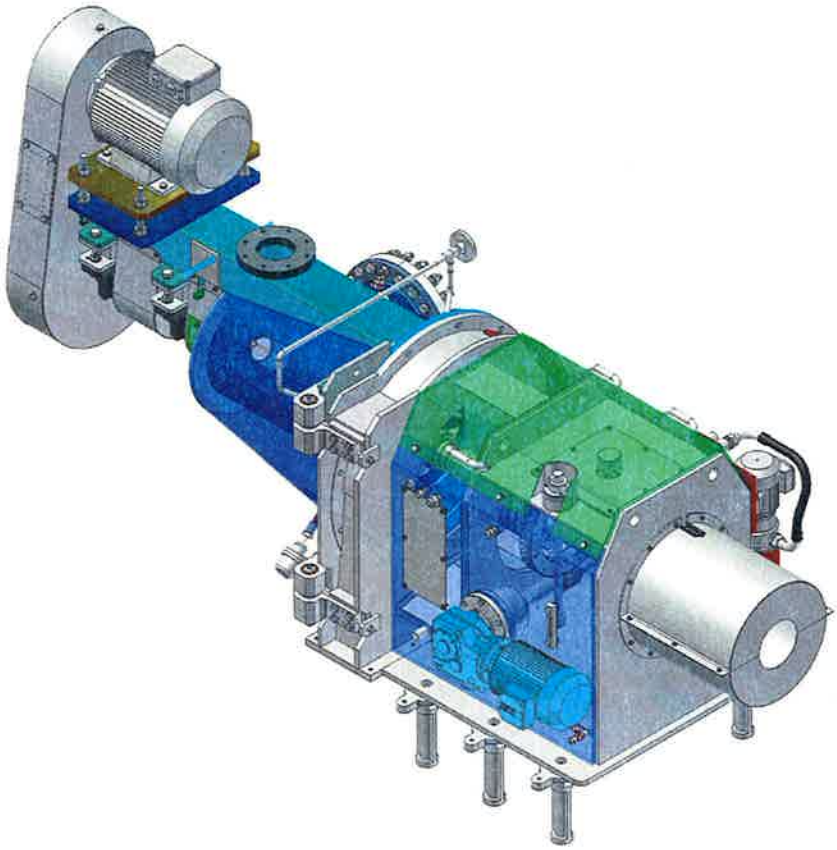

Fig. 4-1 CompaDis™ CDI2

4.2 Main plant components

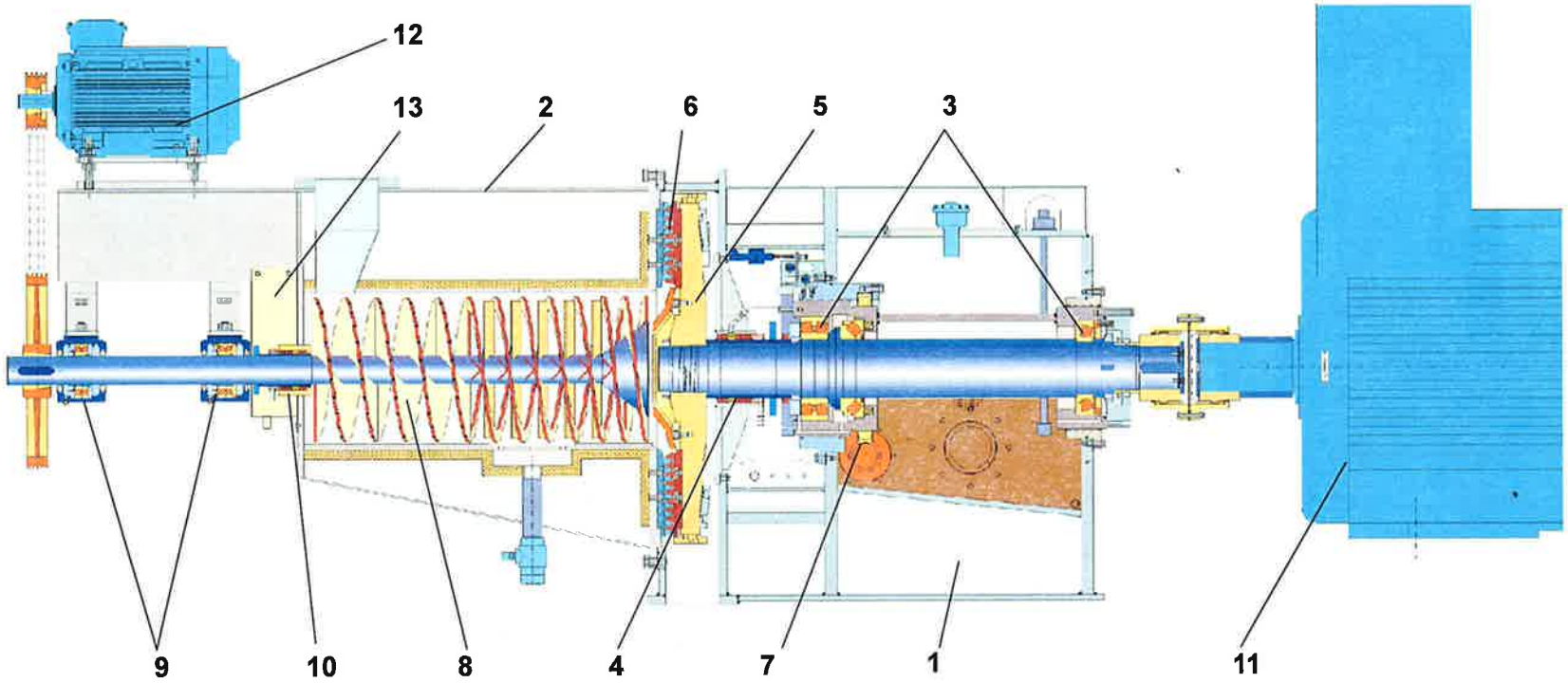

Fig. 4-2 CompaDis™ CDI2

Item	Component	Item	Component	Item	Component
1	Housing	6	Disperser filling	11	Main drive
2	Inlet casing	7	Adjusting device f. rotor	12	Drive for feed screw
3	Bearing assembly and rotor shaft	8	Feed screw CompaSlice™	13	Safety devices (not illustrated in full)
4	Rotor seal	9	Bearing assembly for feed screw		
5	Rotor	10	Seal for feed screw		

Housing (Item 1)

Function: The housing forms the process area in which the fiber bundles are pulped and screened. It holds the seal and the bearing housing of the rotor and forms the oil tank. The face end of the inlet casing (Item 2) closes off the process area. The bi-partite design guarantees easy access for maintenance work.

Design: Welded structure made of steel. All parts coming into contact with the medium are made of acid-proof stainless steel. The inlet casing (Item 2) can be swung out to the side after detaching the flange screws.

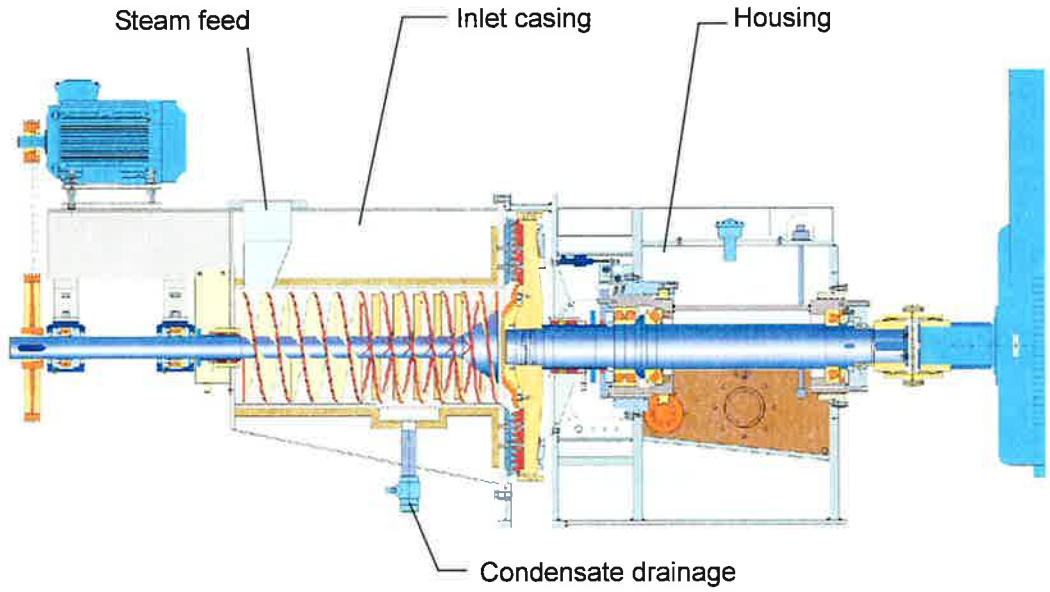

Fig. 4-3 Housing and inlet casing

Inlet casing (Item 2)

Function: In the inlet casing the fiber stock is heated using steam and brought from the feed screw to the rotor (Item 6). The inlet casing holds the seal and also the bearing housing for the feed screw. The face end of the inlet casing closes off the process area of the housing (Item 1).

Design: Welded structure made of steel. All parts coming into contact with the medium are made of acid-proof stainless steel. A set of disperser fillings is screwed onto the face end, facing the housing (Item 1). Two connections for steam feed are welded onto the top side of the inlet casing. The stock temperature is monitored by a resistance thermometer. Connections for adding the chemicals are provided at the side of the housing.

Bearing assembly with rotor shaft (Item 3)

Function: The shaft transmits the torque from the motor to the rotor. The bearing housing for the rotor has a movable mounting which can be adjusted in axial direction in the housing (Item 1)

Design: The rotor shaft is made of tempering steel. One shaft end has a conical shape for holding the rotor. The rotor shaft is supported in three anti-friction bearings running in an oil bath.

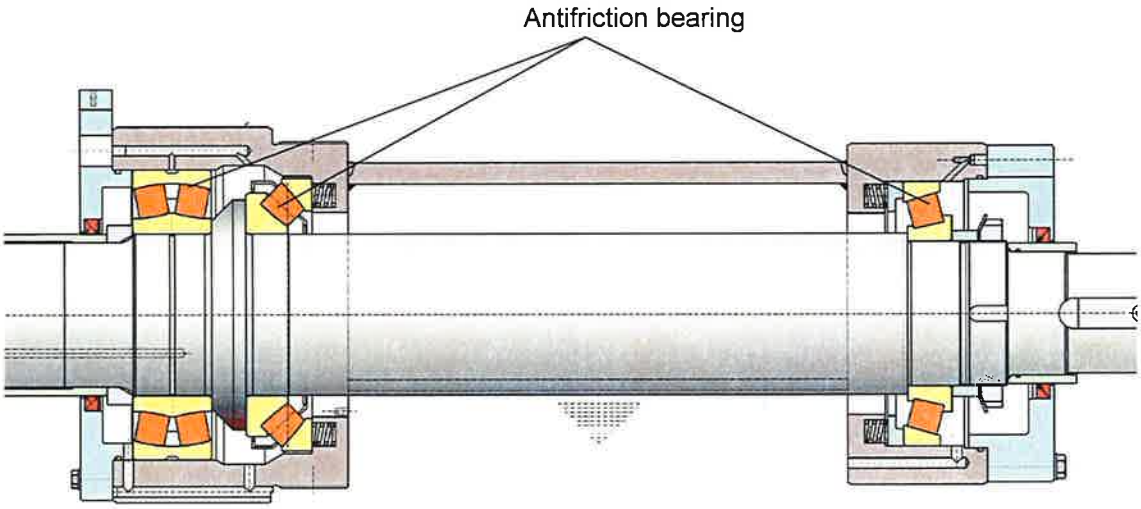

Fig. 4-4 Bearing assembly with rotor shaft

Rotor seal (Item 4)

Function: The seal prevents the pulp from escaping from the housing. The seal must have a continuous supply of sealing water. The connecting dimension and water requirement are indicated in the arrangement drawing.

Design: Stuffing box with five packing rings and one lantern ring.

Rotor (Item 5)

Function: The disperser filling (Item 6) is mounted on the rotor. The rotor and bearing can slide back and forth in axial direction in order to set the disperser gap.

Design: The rotor sits on the cone of the drive shaft. Four scrapers are screwed on round the circumference of the rotor.

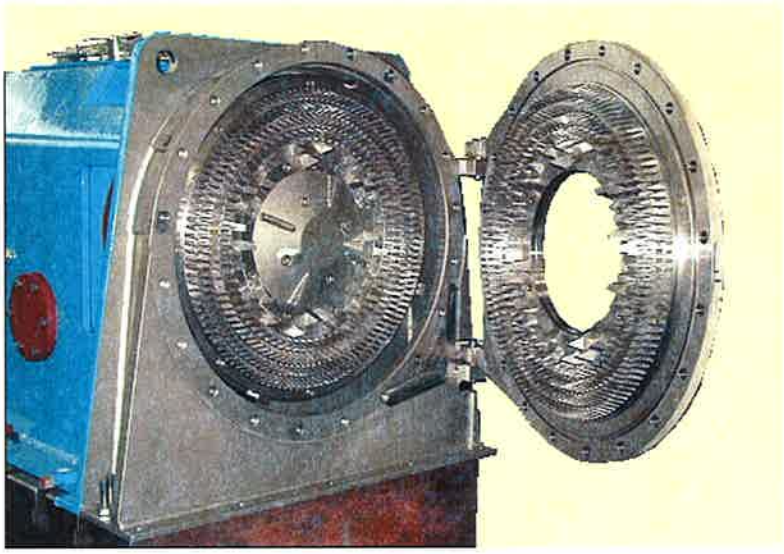

Fig. 4-5 Rotor

Disperser filling (Item 6)

Function: The fibre bundles are broken up between the stationary and the rotating disperser fillings. Since the disperser fillings have profiles, the pulp is conveyed outwards radially.

Design: One disperger filling comprises eight segments. One disperser filling each is screwed to the rotor and to the stator.

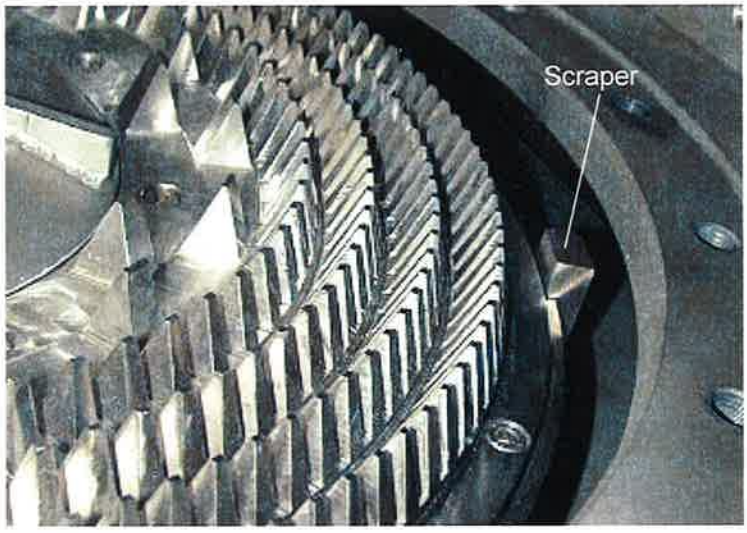

Fig. 4-6 Disperser filling

Adjusting device for rotor (Item 7)

Function: The rotor with bearing assembly is moved back and forth in axial direction by means of an electro-mechanical adjusting drive in order to set the gap between rotor and stator. The position of the rotor is measured by a displacement transducer. If there is no supply of pulp or one of the safety devices is triggered, the adjusting drive disengages and returns to the starting position.

Design: The gear motor drives the worm gear, which is connected to the rotor bearing, via a screw shaft.

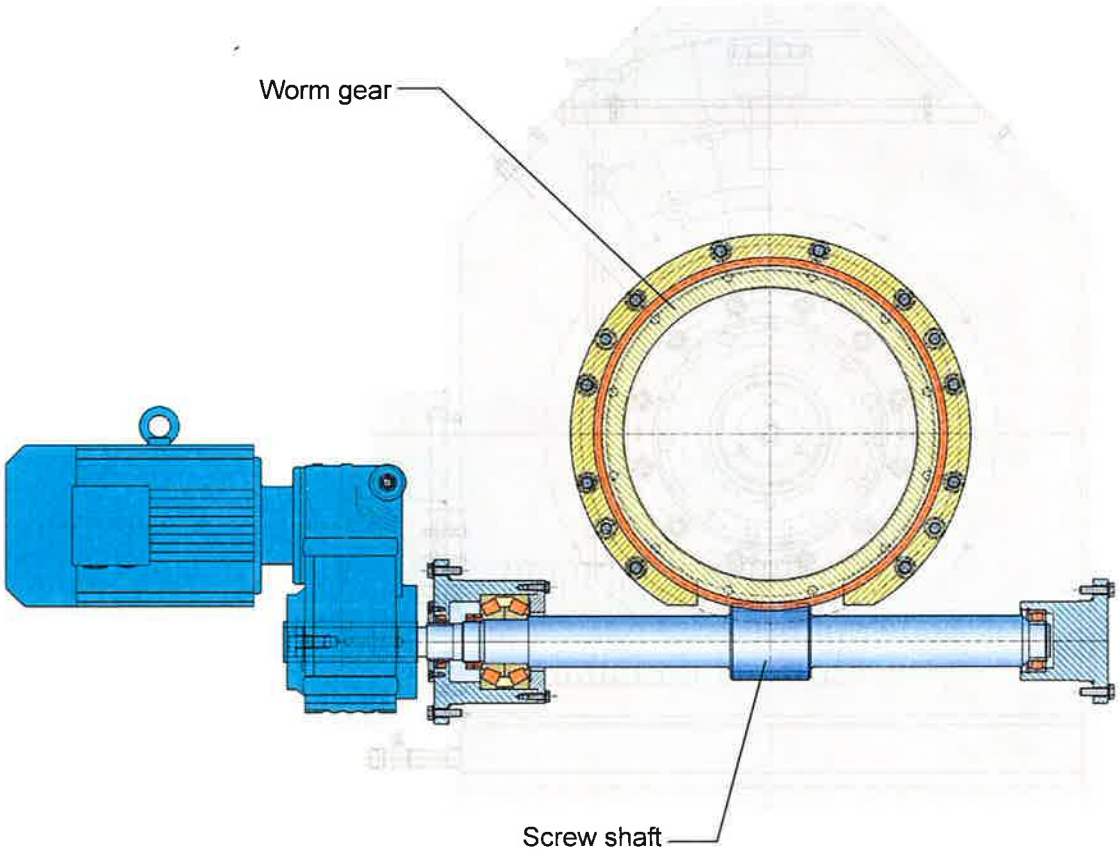

Fig. 4-7 Adjusting device f. rotor

Feed screw CompaSlice™ (Item 8)

Function: The feed screw tears fiber flocs from the plug coming from the plug screw and conveys the fiber pulp to the rotor. Here the pulp is heated with steam, then chemicals are added to it and mixed in thoroughly.

Design: The feed screw is made of acid-proof stainless steel. The screw flighting is welded to the shaft.

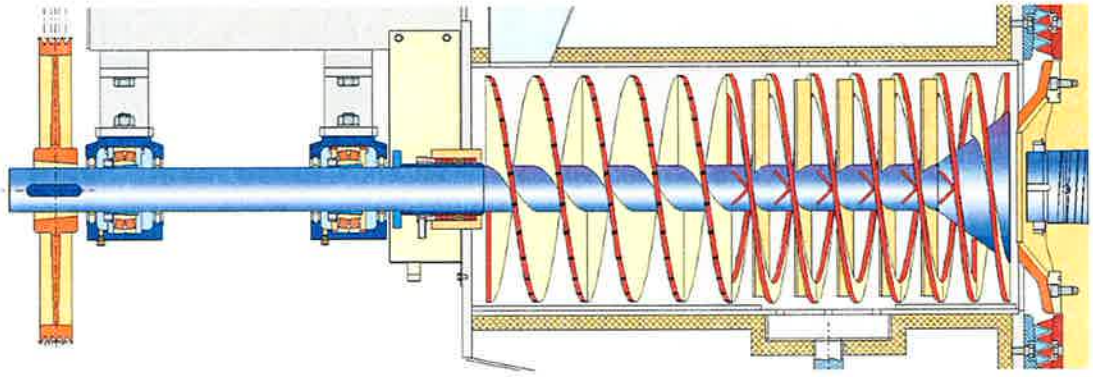

Fig. 4-8 Feed screw

Bearing assembly for feed screw (Item 9)

Function: Holding and supporting the feed screw.

Design: The feed screw runs in two self-aligning roller bearings. The pedestal bearing housings are mounted on a bracket at the inlet casing.

Seal for feed screw (Item 10)

Function: The seal prevents the pulp from escaping from the inlet casing. The seal must have a continuous supply of sealing water. The connecting dimension and water requirement are indicated in the arrangement drawing.

Design: Stuffing box with five packing rings and one lantern ring.

Main drive (Item 11)

Function: The drive turns the rotor of the CompaDis™.

Design: The three-phase motor is connected to the rotor via a curved teeth coupling.

Drive for feed screw (Item 12)

Function: The drive turns the feed screw of the CompaDis™.

Design: Three-phase motor with V-belt drive.

Safety guards (Item 13)

Function: Protects the rotating parts of the CompaDis™ outside the housing against foreign objects and against contact.

Design: The covers are made of brass.

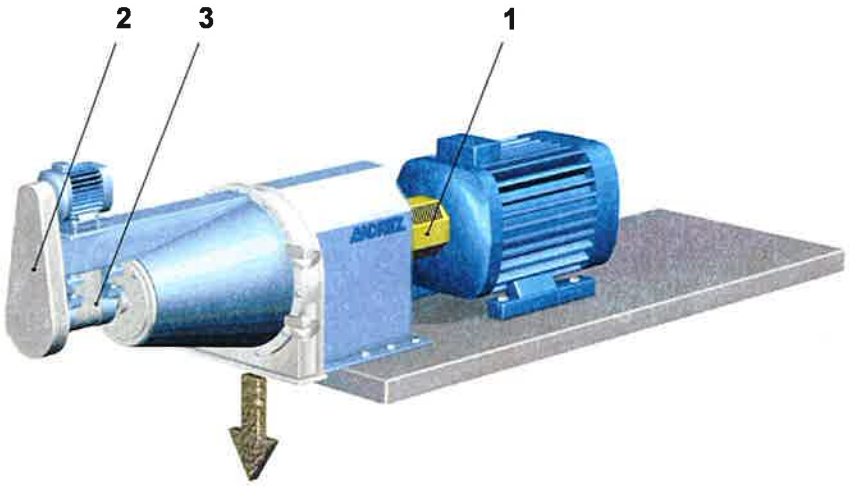

Fig. 4-9 Safety covers at CompaDis™

Item	Component
1	Coupling guard
2	V-belt cover
3	Cover for screw shaft

4.3 Technological description

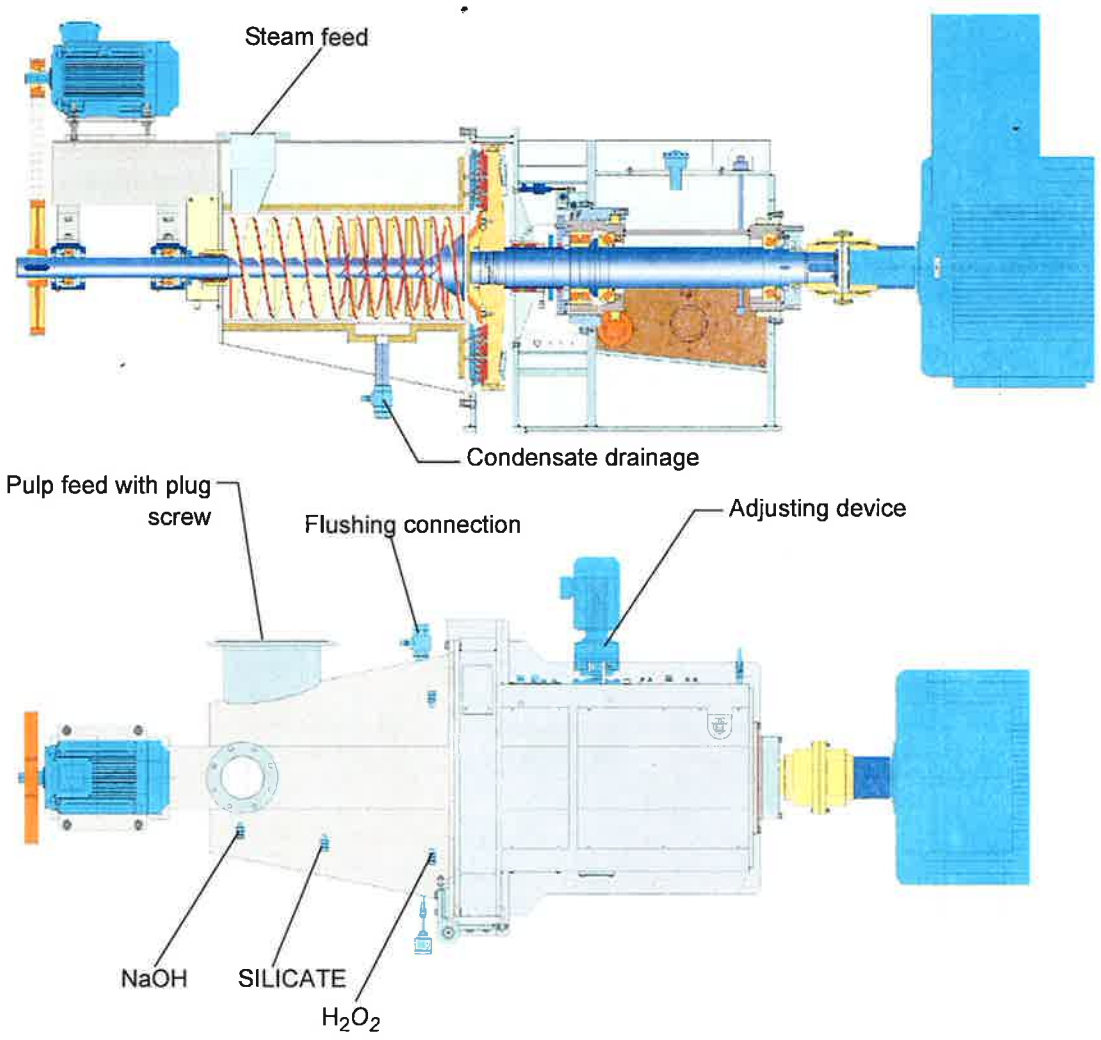

Fig. 4-10 CompaDis™ CDI2

Pulp with a consistency of 30% is fed from the plug screw to the feed screw. In the CompaSlice™ the pulp is heated by steam to approximately 95°C and treated with bleaching chemicals. The pulp is reduced to flocs by the feed screw and then fed to the disperger unit. The pulp flows through the disperser fillings from the inside to the outside. During this process the fibre bundles are broken down by the force of the friction without being chopped up. Thanks to the considerable shearing forces, impurities such as dirt specks, stickies, wax and resins are detached from the fiber and dispersed. The dispersed pulp leaves the housing through the discharge branch.

The pulp quality after dispersing is determined by the input of specific energy to the pulp. The energy input is largely determined by means of the gap between rotor and stator.

4.4 Machine monitoring equipment

The CompaDis™ has the following monitoring equipment:

- Proximity switch for monitoring the final positions in rotor adjustment
- Temperature probe in the inlet casing
- Temperature probe in the oil tank
- Vibration monitoring unit to monitor the anti-friction bearings at the rotor shaft
- Gap measuring