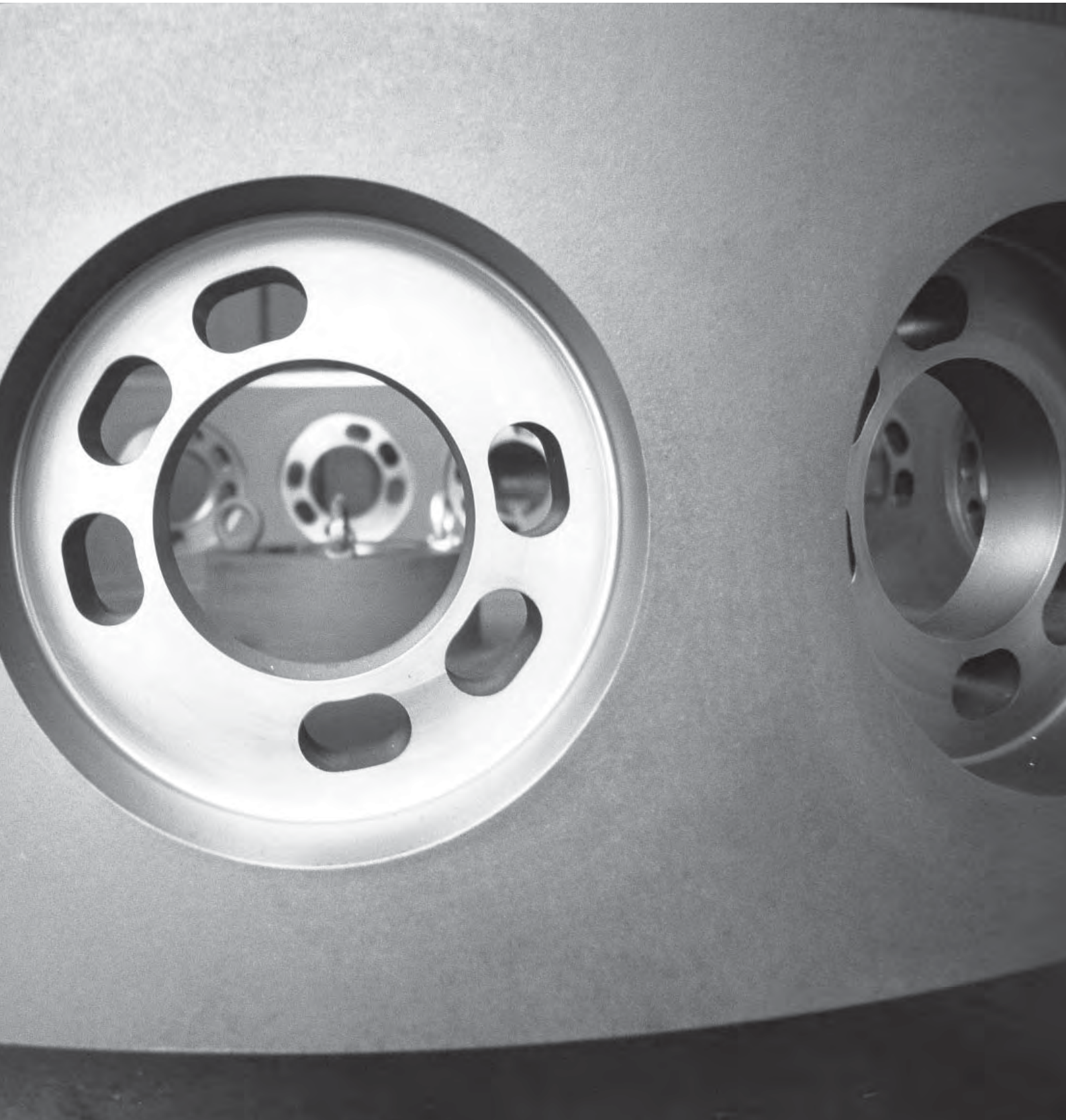


Maschinen, Anlagen, Apparate

# Maschinenbau Lohse GmbH



## Waste Technology

• Bio-mechanical Wet Treatment Plant	5
• Waste pulper	9
• Multisorter	13
• Rejectors	17
• Spiral Conveyors	21
• Sand Separators	23
• Dirt Traps	27
• Vortex Breakers	33
• Dewatering Presses	39
• Mounting and Service	41

## Paper Technology

• Raking Systems for Waste Paper Pulpers	43
• Rope Cutters	47
• Reject Drums	51
• Vibration Screens	53
• Safety Access Doors	59
• Roller Boards	63
• Construction and production to customer's drawings	65
• Repairs	67

## Tanks

• Pressure Tanks	69
------------------	----

## Fans

• Axial Fans	73
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## Manufacturing systems for subcontract work

• Cutting	78
• Surface processing methode	78
• Mechanical processing ...and much more!	79





### General approvals / Certificates

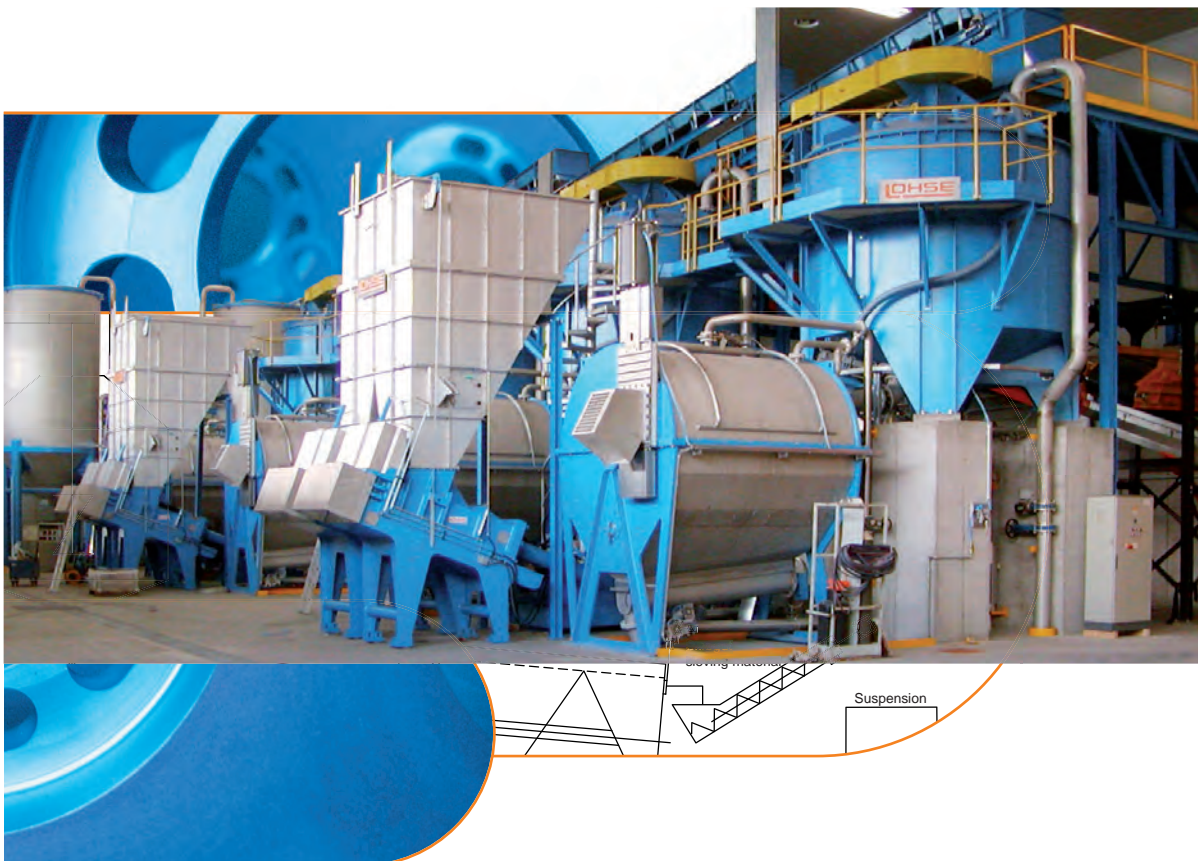
- QM-Managementsystem to DIN EN ISO 9001
- manufacturer to AD 2000
- certified to DIN EN ISO 3834-2 (quality requirements for welding methods)
- manufacturer qualification to DIN 18800 T7 for welding of steel constructions Class E
- qualified welder to EN 287 material groups W01;W03, W11
- qualified welder to DIN EN ISO 15614 material group W01
- approved specialist factory to § 19 I WHG
- X-ray test (RT) to EN 473
- Mobile spectral analysis with accuracy to laboratory standard (including C, P and S)
- noise level measurement
- authorisation to transfer stamp for certificates
- surface crack inspection (PT) to EN 473
- sealing test (Nekal)
- sealing test to DIN 25412 Part 2
- testing and acceptance acc. pressure vessel directive 97/23 EG
- layer thickness measurement
- wall thickness measurement
- temperature measurement (-50° C to +1150° C)



Mechanical Engineering

# Bio-mechanical Wet Treatment Plant

for biowaste, food-  
waste and household  
waste



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## Process technology for various organic waste for the wet fermentation

By the Lohse wet treatment technology with the help of „pulper-systems“ and sieving, a pumpable and well fermentable suspension is obtained with very low content of impurities.

First, in the waste pulper, the organic waste is dissolved by strong agitation while the heavy materials are separated.

In the downstream sieving device is the careful separation of another impurities from suspension. The suspension thus obtained can be pressed in a following digesting system.

The Lohse waste pulper and the following sieving device are manufactured in different sizes, according to the quantity of waste up to approx. 12 tons per hour.



waste dissolving



dewatering press

- Optimal separation of impurities by a wet liquid treatment
  - > low load in the suspension with impurities
  - > low formation of floating roofs
- Separation of impurities at the beginning of the process
  - > protection the following pumps and aggregates
  - > low pollution of digestable suspension
- It can be processed organic waste with drymatter content (DM) of about approx. 15% DM (e.g. food waste) to about approx. 50% DM (e.g. gassilage, manure, pre-sorted household waste)
- By the dissolving process in the waste-pulper the organic waste components are dissolved very well and the surface increases, the gas yield is higher.
- Grain size of waste < 150mm in the waste-pulper is enough, so no expensive shredding is necessary.
- stable construction and special materials for toughest operating
- low interference, low maintenance
- low running costs by few wearing parts
- closed system, therefore minimizing smell emissions
- fully automatic operation possible
- advanced and tested technology with more than 25 years experience



buffer tank



hydrocyclon



## Input:

biowaste



market waste



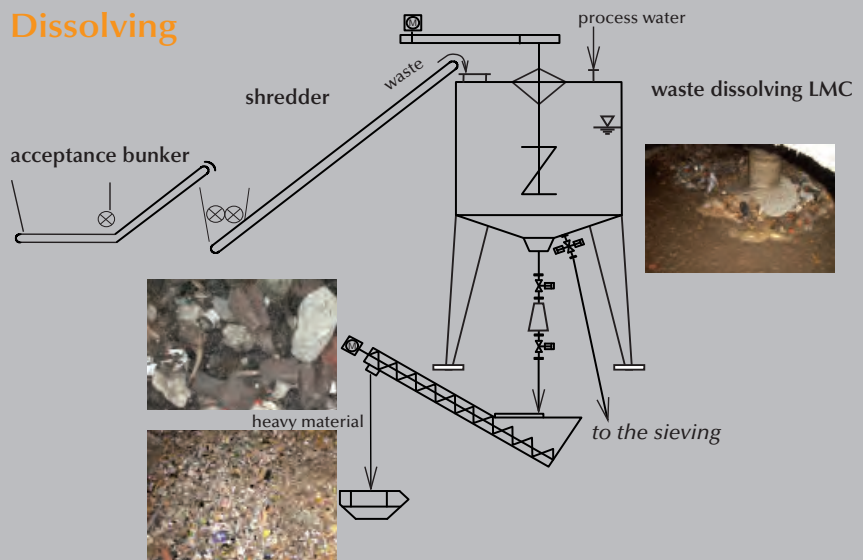
packed food



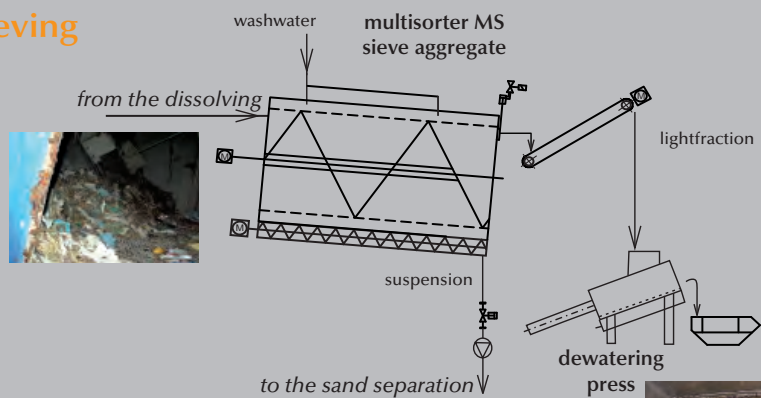
agricultural waste



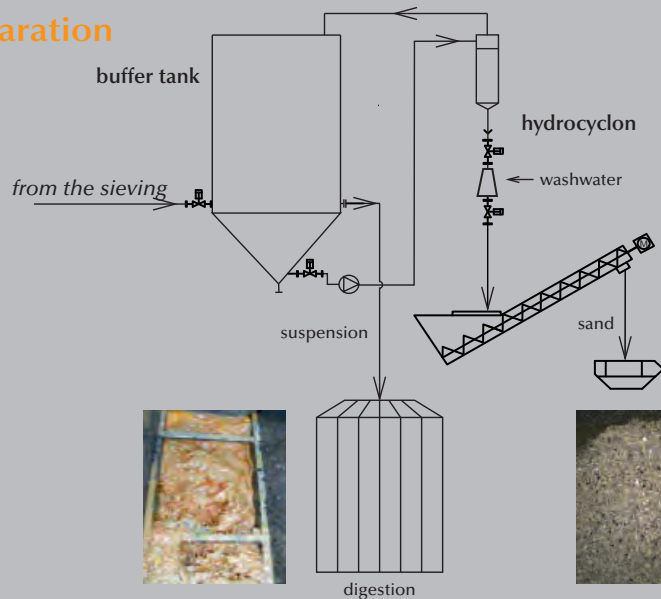
### Dissolving



### Sieving



### Sand Separation



Mechanical Engineering

# Waste Pulper LMC

for production of  
pumpable suspensions



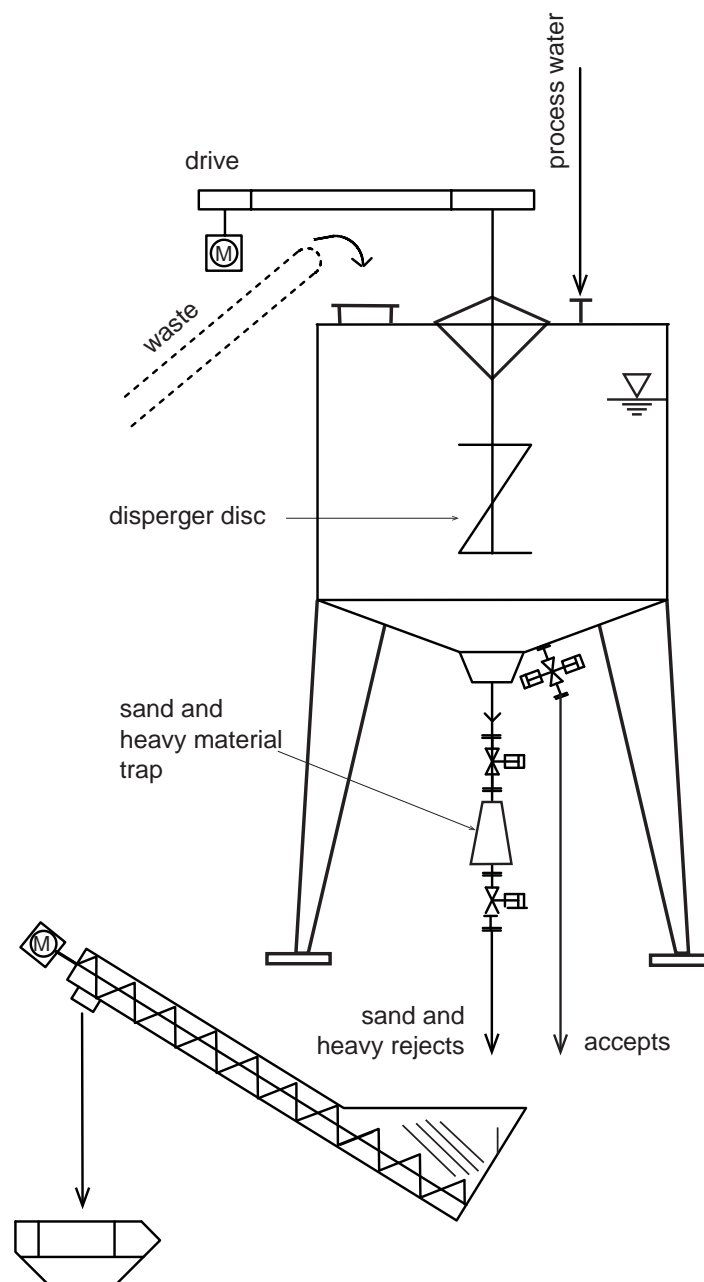
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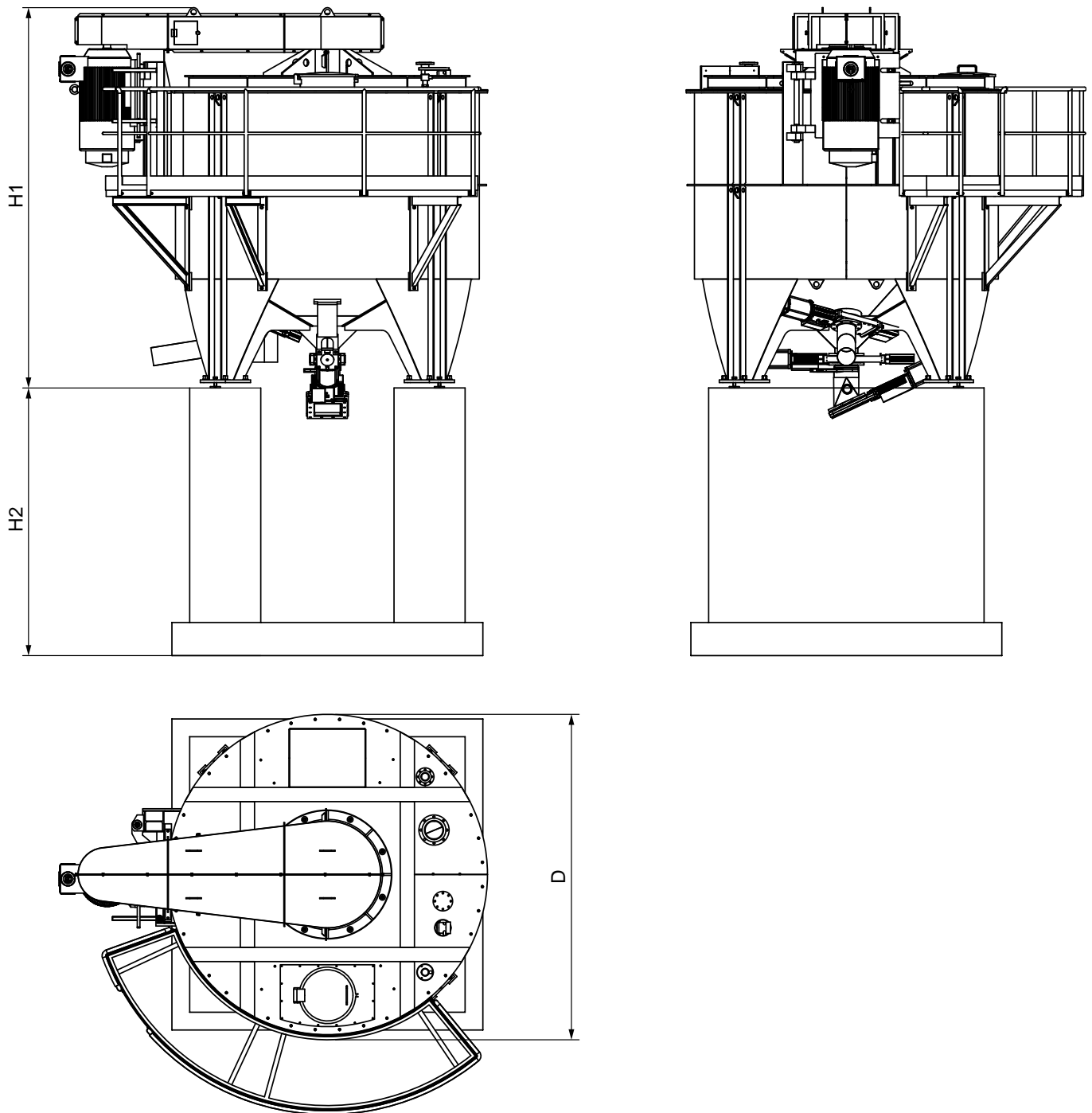
## Application

Waste pulper serve to separate a pumpable medium from organic waste and water. The waste is pulped and dissolved in the waste pulper. By means of a heavy materials dirt trap the rejected materials are separated from the accepted medium.

## Design

- stable bearing assembly on the top
- closed tank
- centrally positioned dirt trap
- pulping tackle with removable wear parts
- components to optimize the dispersing process
- spiral conveyor to remove the heavy rejected materials





size		LMC4	LMC6	LMC8	LMC10	LMC12	LMC16	LMC20	LMC23	LMC26	LMC32
usable volume	m <sup>3</sup>	4	6	8	10	12	16	20	23	26	32
diameter D	mm	2250	2250	2900	2900	3400	3400	3800	3800	3800	3800
tank height H1	mm	–	–	3650	3950	4150	4670	5050	5320	5590	6120
base height H2	mm	–	–	variable							
complete height H1 + H2	mm	5500	6000	–	–	–	–	–	–	–	–
motor	kW	37	55	90	110	132	160	200	225	280	300
tare weight	kg	4800	5400	8600	10000	12000	12000	20000	20000	22000	22500

LMC4 + LMC6 with base of steel construction; from LMC8 with base of concrete



*LMC4 + LMC6 with base of steel construction*



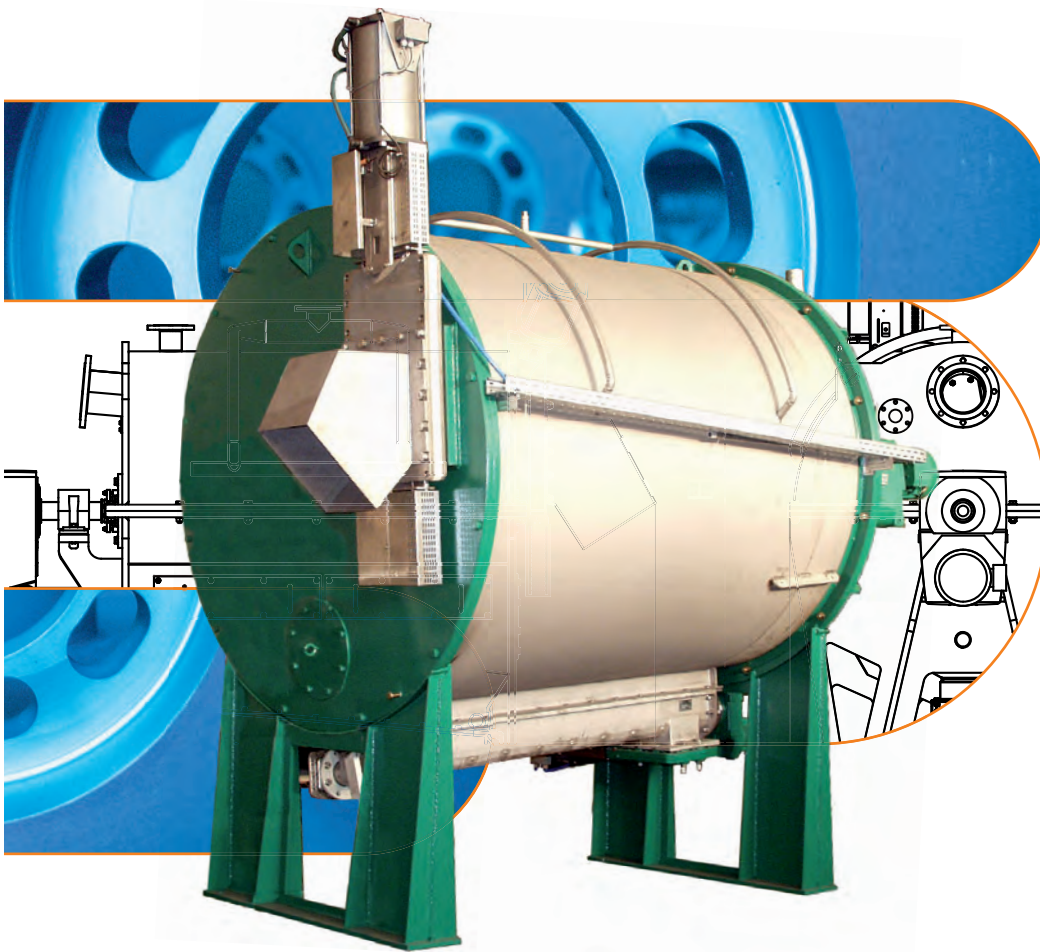
*from LMC8 with base of concrete*



Mechanical Engineering

# Multisorters MS

for separation  
of impurities  
from suspensions



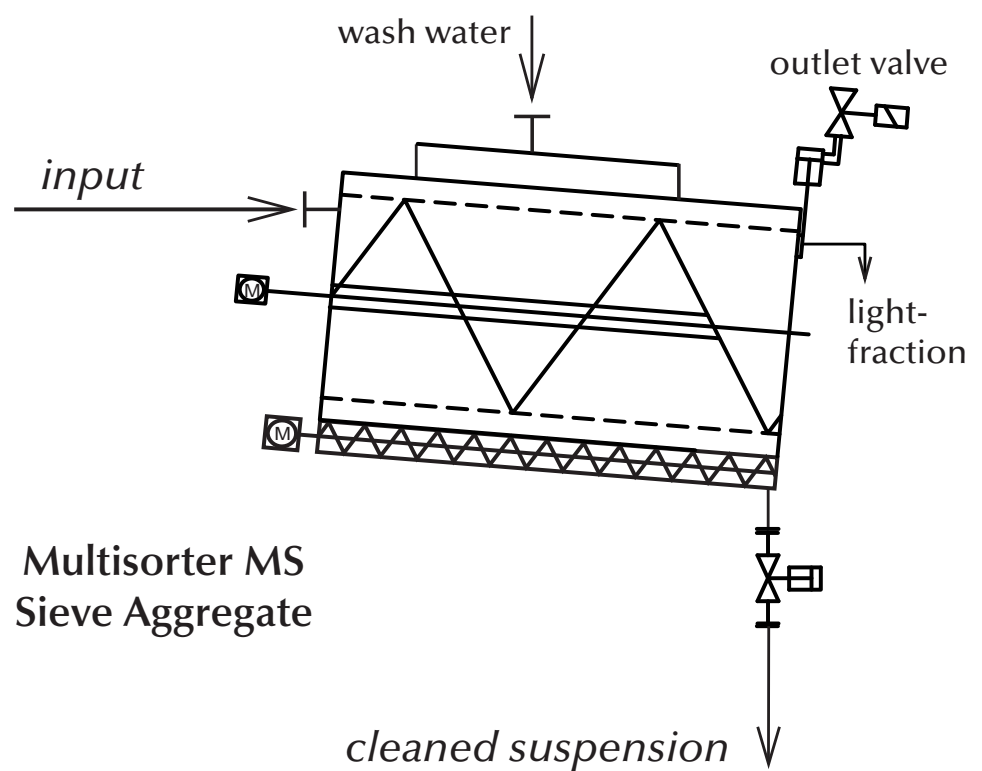
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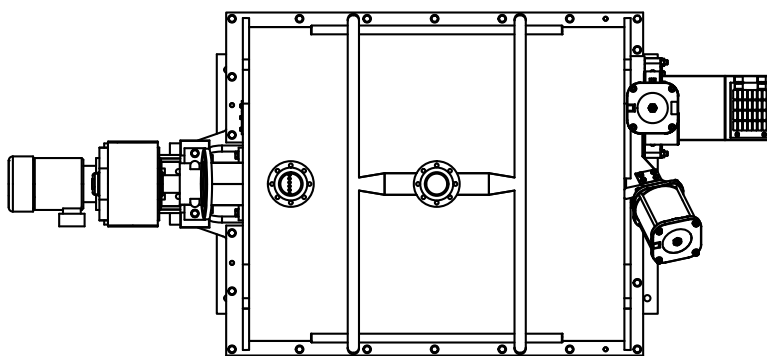
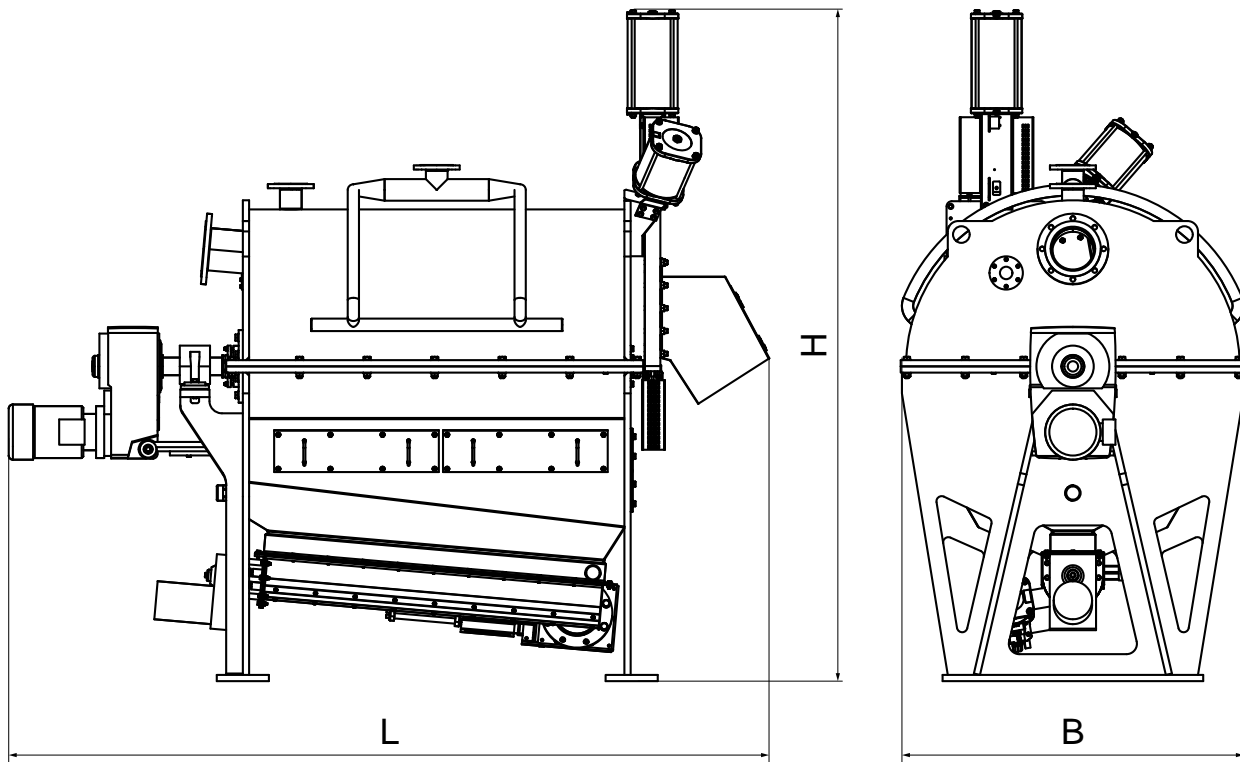
## Application

Multisorters are used to separate lightweight foreign materials from a suspension consisting of recycled paper or organic waste in water. In the multisorter the suspension is filtered by means of a vertical screen; the foreign materials are discharged separately. In addition, the foreign materials can be rinsed very effectively.

## Design

- closed tank
- fixed screen plate
- slowly rotating cleaning arms for cleaning the screen plate
- spiral conveyor for preventing sedimentation
- 2-part housing for better maintenance and assembly capability
- replacement of the screen without removing the rotor





size		MS3	MS6	MS10	MS14
usable volume	m <sup>3</sup>	3	6.5	9.6	13.8
diameter of sieve	mm	1350	1800	2200	2500
length L	mm	3650	4400	4800	5260
width B	mm	1660	2170	2420	2720
overall height H	mm	3250	4700	5150	5320
drive motor	kW	7.5	18.5	30	37
tare weight	kg	3800	4800	5600	7000

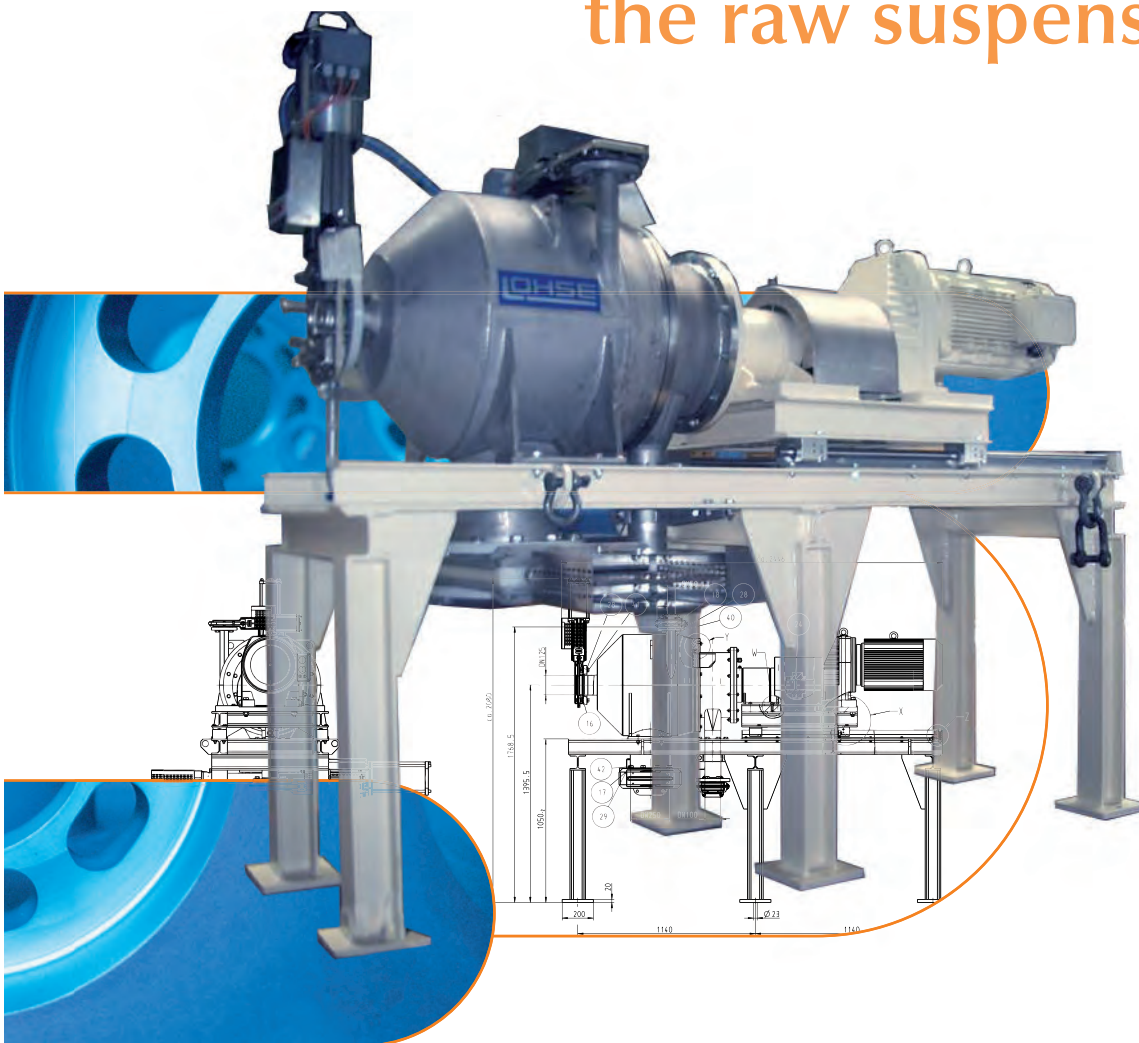




Mechanical Engineering

# Rejector

to purify and  
disintegrate  
the raw suspension



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## Application

The rejector is used as a sieving machine and serves to purify and disintegrate the raw suspension from waste pulping units or storage containers.

## Construction and function

The raw suspension is intermittently fed to the centre of the rejector. The rejector is a closed cylindrical container with a central disintegrator wheel to which a sieving unit is flange-mounted.

The disintegrator wheel installed in the container causes a pronounced rotational movement, which causes a disintegration of the raw suspension. The raw suspension which has been thus disintegrated flows through the sieve unit and is extracted by means of an upstream pump. Particles which are larger than the perforations of the sieve remain in the container and are held back.

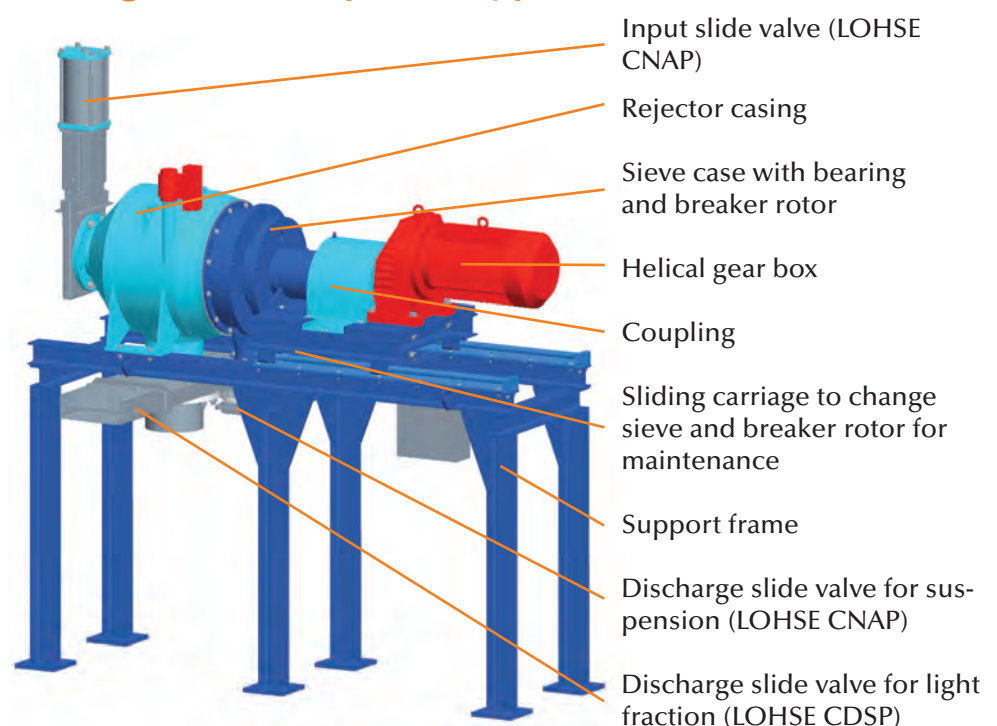
After a time, which can be adjusted, the foreign particles in the container become more concentrated. By the addition of flushing water, the fraction of foreign particles remaining in the container (material to be sieved) is washed out. After this, by opening a slide valve which is attached to the base of the container by means of a flange, the remaining contents in the container (the foreign particles) are removed from the rejector. Once the material to be sieved has been removed from the rejector, a new cycle begins.

Foreign bodies (cutlery, steel parts, stones, textiles, plastic film etc) remain in the container and are not forced through the sieve.

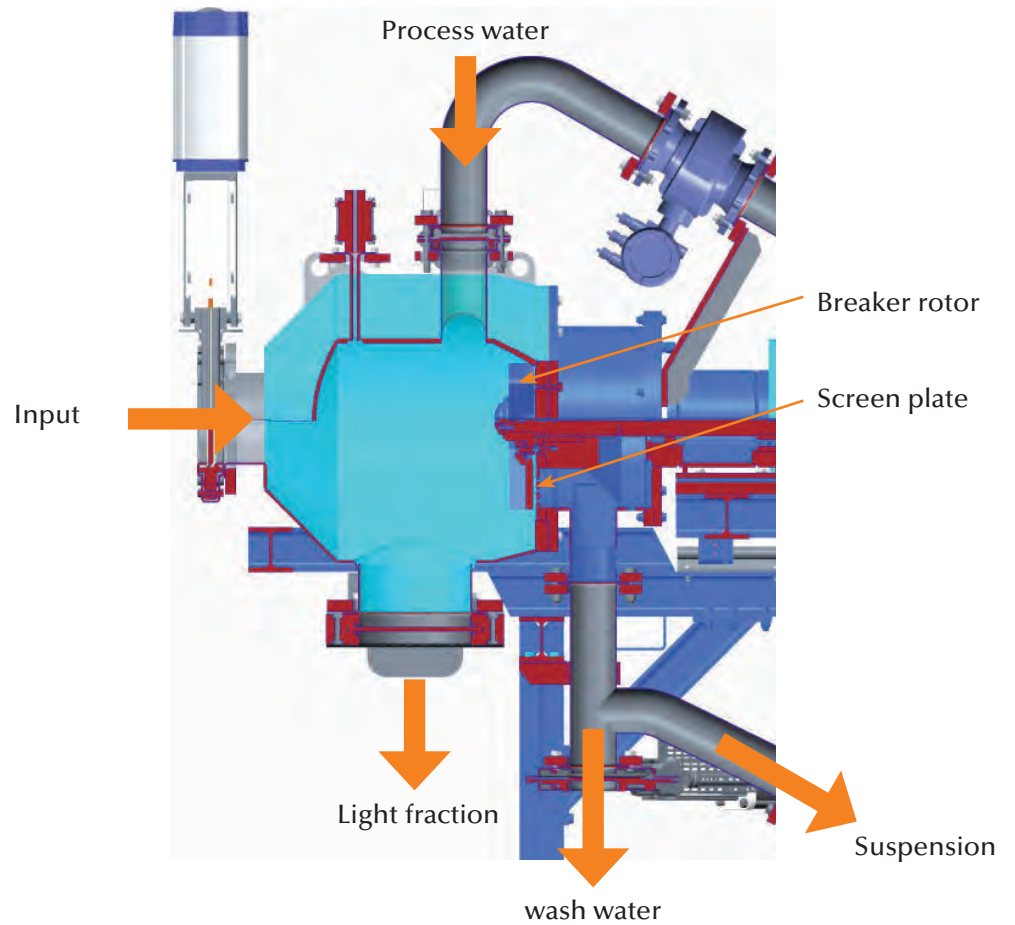
## Advantages

- less cost for wearing parts.
- lower energy consumption
- simple adaptation to various types of waste
- prevention of clogging of the following units due to clogging of rotating parts (macerator, agitators, etc.)
- possibility by washing the contaminants more organic material in the fermentation suspension
- low content of organic matter in the contaminant fraction
- low level of contaminants in the fermentation suspension due to gentle screening
- minimize the formation of floating debris by separating the light contaminants in the rejector

## Main components using the example of type F04



## Function using the example of type F04

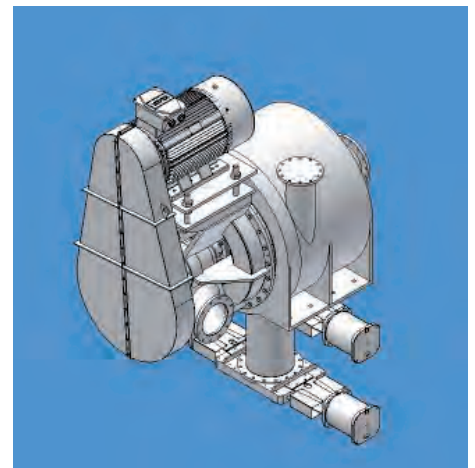
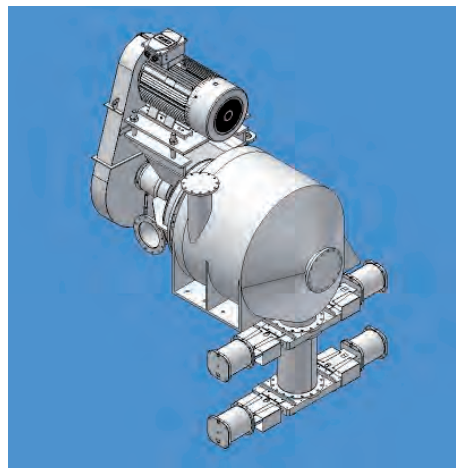


- Mailing of the raw suspension coming from the pulper or acceptance tank
- Separation the light fraction from raw suspension (plastic, wood, textiles) and other rest impurities (bones, metal, stones)
- Particlesize in accordance with hygienisation rules, stock preparation



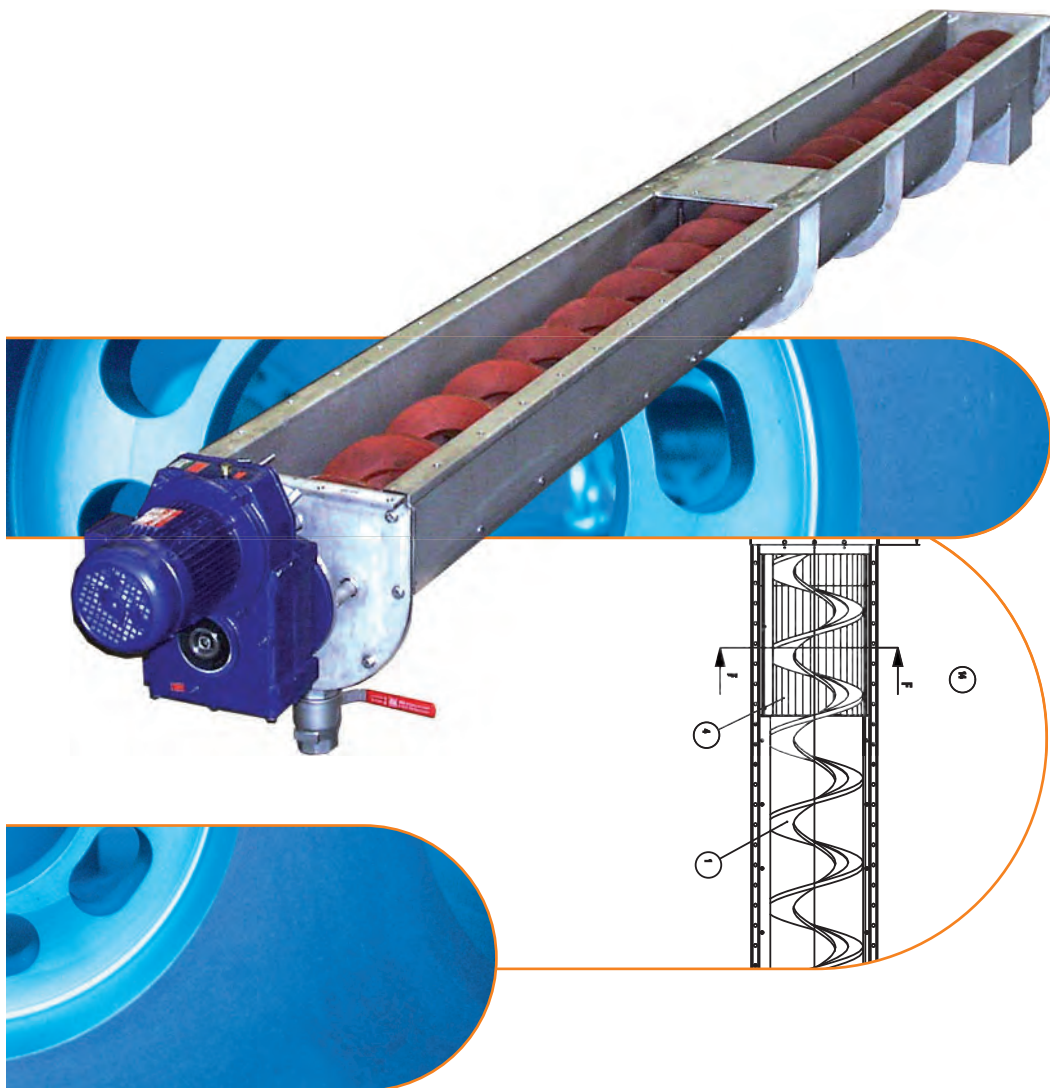
## Technical data

Type		F04	F10	P20
Throughput paper pulp TS 4–6%	m <sup>3</sup> /h	18	48	100
Throughput leftover TS 10–18%	m <sup>3</sup> /h	3–17	15–30	–
Useable volume tank	dm <sup>3</sup>	180	1000	2000
Tank diameter	mm	650	1200	1500
Impeller diameter	mm	410	950	960
Perforation	mm	4.2 – 12	4.2 – 12	5 – 10
Intake nozzle	mm	DN 125	DN 250	DN 350
Accepted stock nozzle	mm	DN 100	DN 20	DN 350
Reject discharge light fraction	mm	–	–	DN 250
Reject discharge light and heavy fraction	mm	DN 250	DN 500	DN 400
Flush water nozzle	mm	DN 50	DN 50	–
Speed impeller	1/min	555	322	380
AC motor	kW	22/30	45	90
Material tank		1.4571	1.4571	1.4571
Material support, frame (not in touch with medium)		S235JR painted	S235JR painted	St 37-2
Operating weight (filled)	kg	approx. 1700	approx. 4000	approx. 9500
Tare weight	kg	approx. 1400	approx. 3100	approx. 7500



Mechanical Engineering

# Spiral Conveyors



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## Application

Spiral conveyors are suitable for transporting various materials. The shaftless design allows dry and wet, coarse and fine-particle, homogenous and inhomogeneous materials to be conveyed.

## Construction

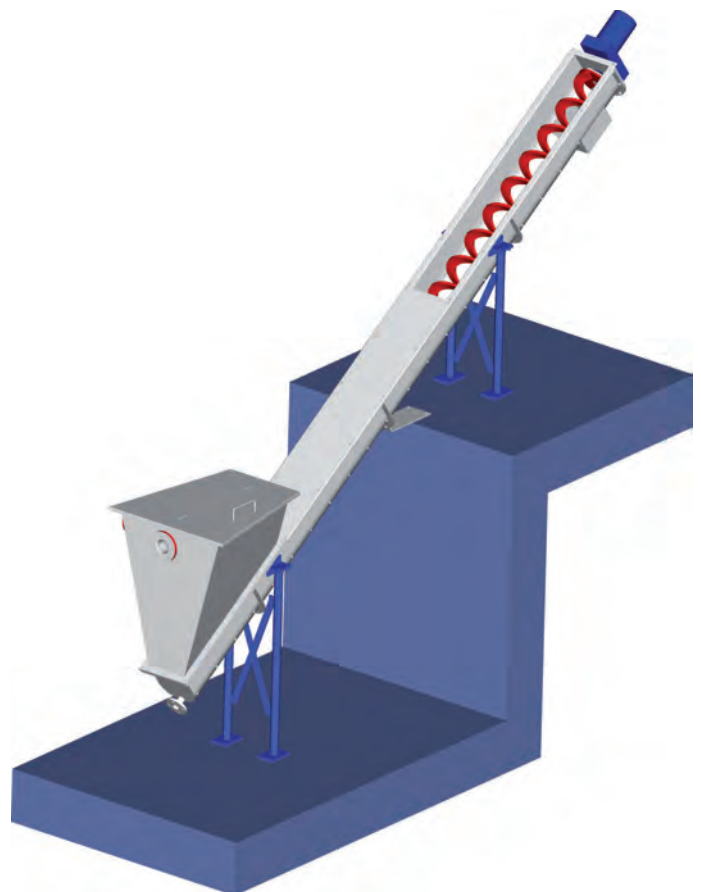
- U-shaped stainless steel tub including stiffeners for high rigidity
- screwed cover over U-shaped tub
- shaftless S355 stainless steel conveyor spirals
- wear resistant, stainless steel strip or plastic panel coating of U-shaped tub
- conveyor spirals supported on one side
- commercial flanged geared motor with hollow shaft
- optional sealing of drive shaft by stuffing box packing
- optional drainage area
- optional receiver tank for separation of sediments.

Individual application of spiral conveyors for transport is feasible in some industries. A spiral conveyor must therefore be designed for its application.

## Standard sizes

type	inside width vat [mm]	Ø spiral [mm]
U 200	200	160
U 320	320	280
U 500	500	460
U 600	600	530

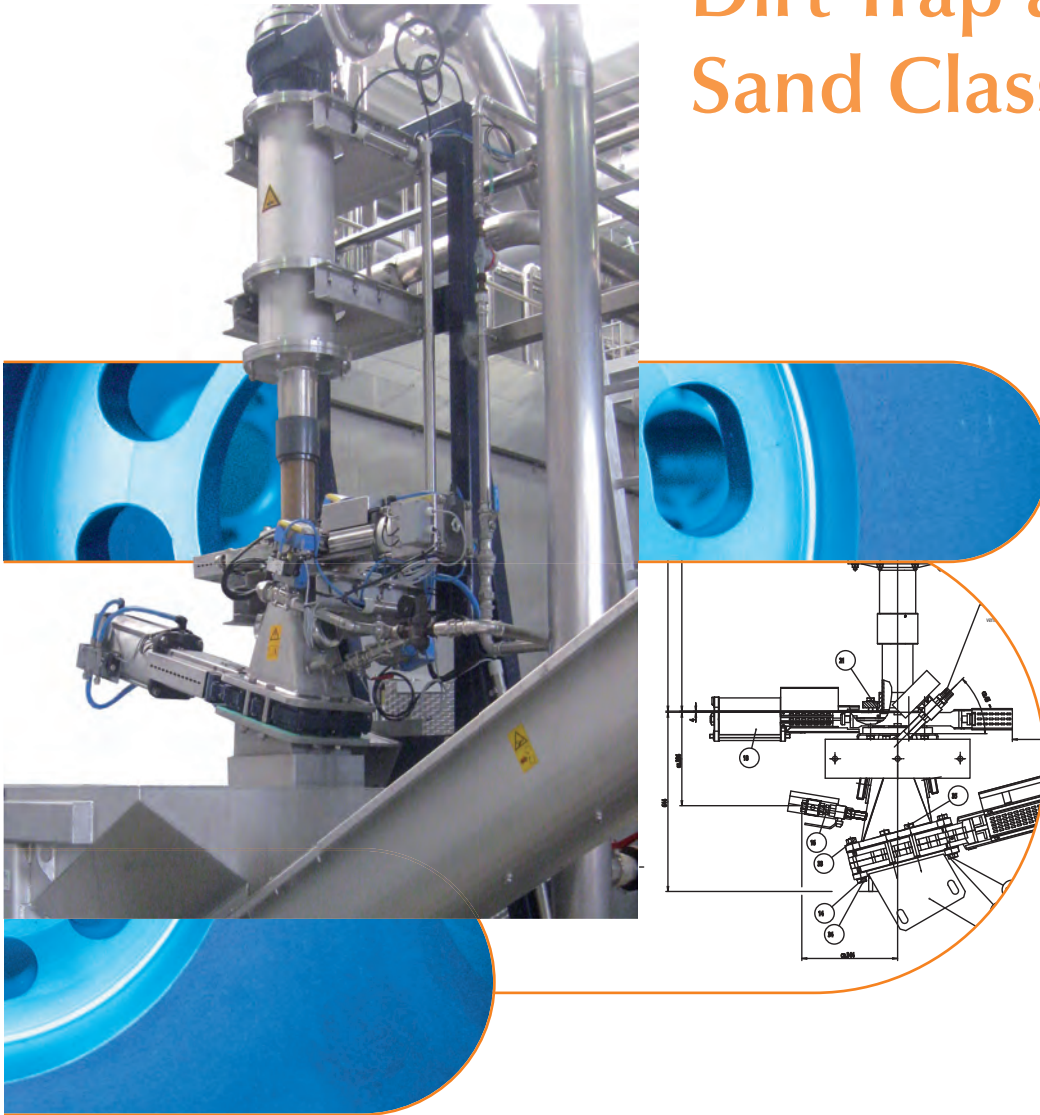
Other sizes on request.



Mechanical Engineering

# Sand Separators

## Hydrocyclone, Dirt Trap and Sand Classifier



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## Application

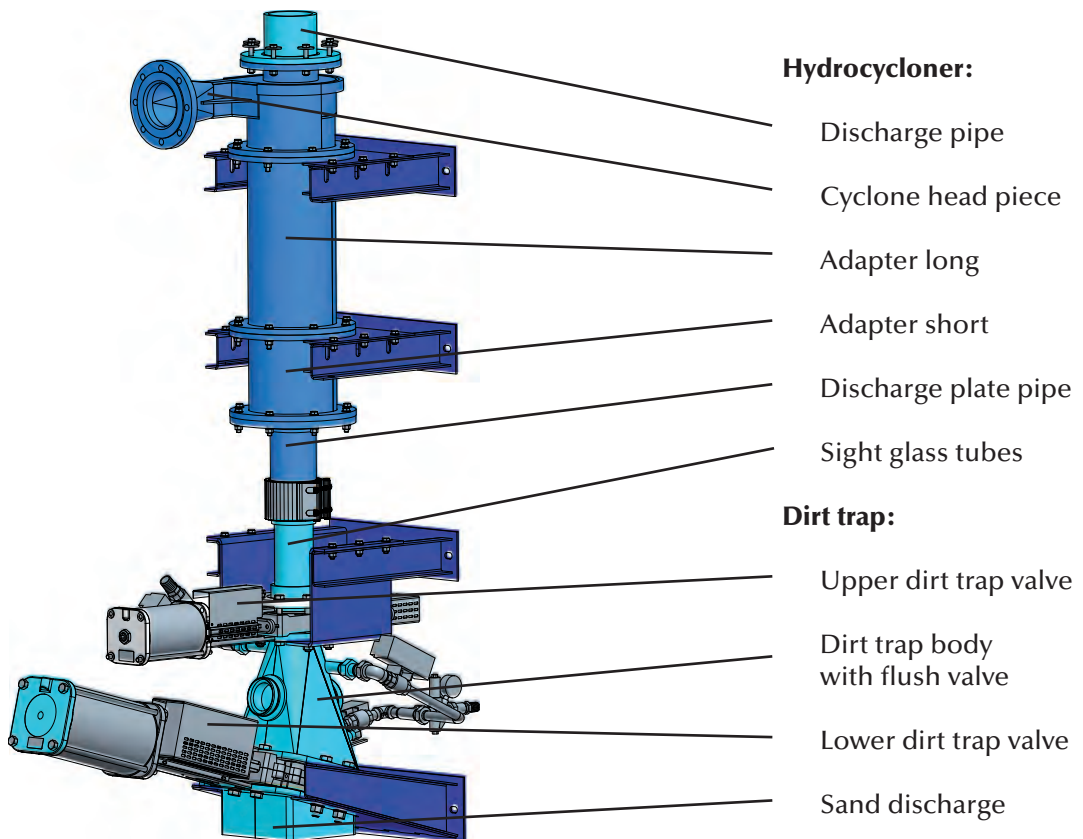
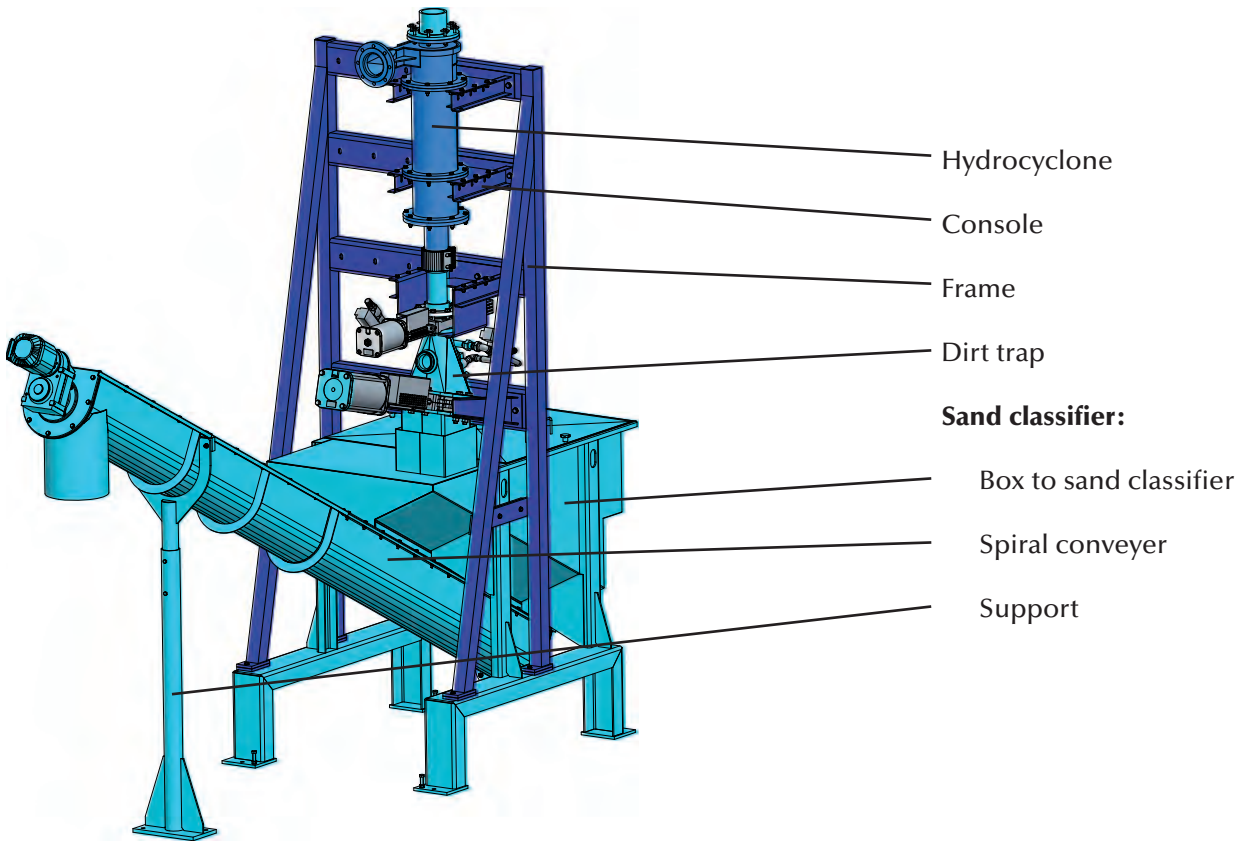
Sand separators are used for heavy contaminant separation from suspensions. Wire and pieces of metal sheet, in particular small, grainsize particles, such as glass and grit, will be separated.

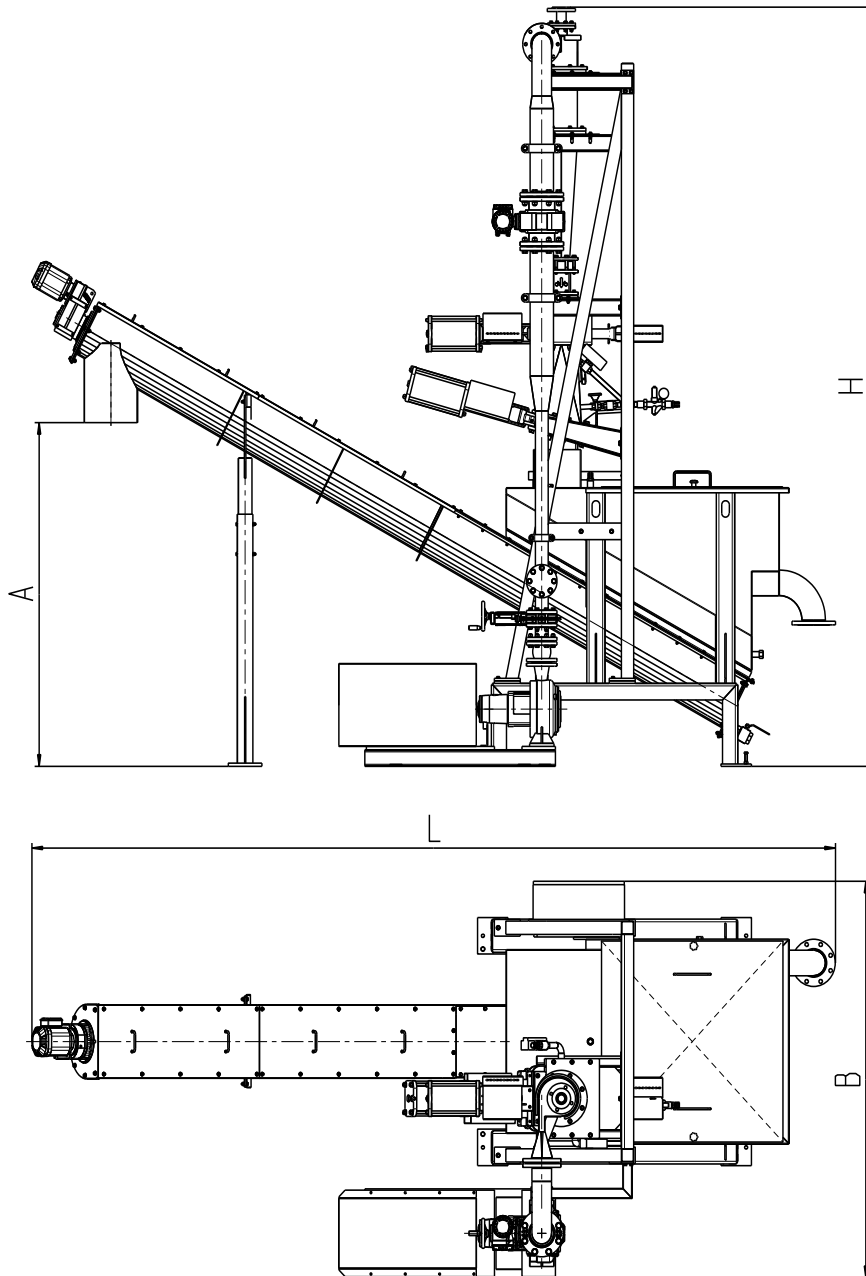
## Construction Sand Separator

- Hydrocyclone:
  - Headpiece including inlet and outlet pipes provided with wear-resistant inserts
  - Separating cone with wear-resistant insert
  - Intermediate pipe
- Dirt trap:
  - Two pneumatically operated special gate valves
  - Flush valve
- Sand classifier:
  - Box
  - Spiral conveyor

## Operation

The suspension entering the head-piece in tangential direction is subjected to high centrifugal acceleration based on the hydrocyclone principle. Under the effect of this, contaminants are flung to the wall of the separating cone, from where they sink into the dirt trap through an intermediate pipe, followed by the clean suspension being discharged from the headpiece of the grit separator in axial direction. Two looking glasses have been provided in the dirt trap for checking the sinking process. Heavy contaminants, such as adhering fibrous particles, are removed by the addition of backflow water to the dirt trap. Adjustable operating cycles of gate valves and dirt trap guarantee high adaptability to any level of contamination in the suspension.



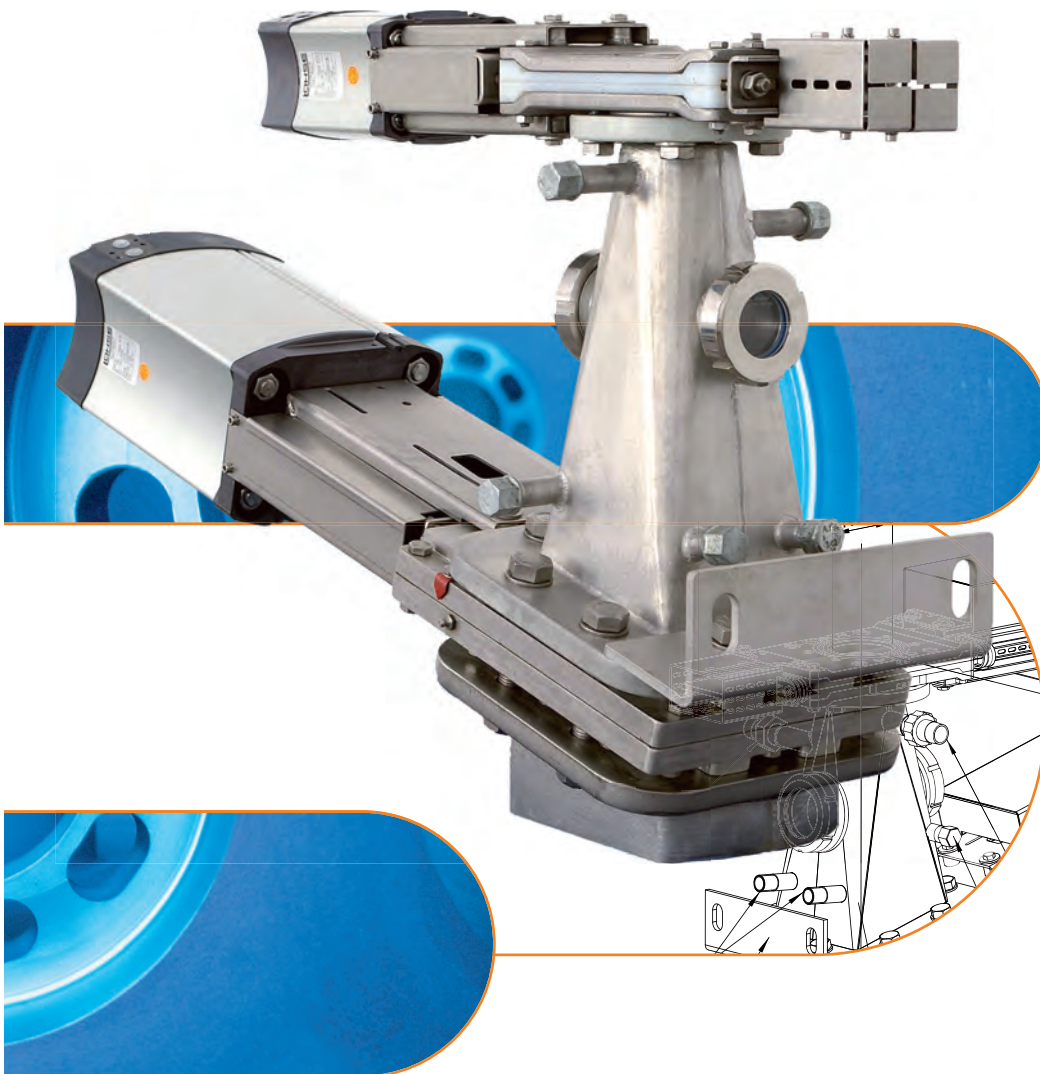


type		160T	200K	200T	250K	250T
throughput	[l/min]	500	950	800	2000	1800
pressure loss	[bar]	0.5 – 1.0	0.5 – 2.0	0.5 – 1.2	0.5 – 2.0	0.8 – 1.2
consistency	[% of weight]	2 – 20	2 – 12	2 – 20	2 – 12	2 – 20
outlet Ø	[mm]	50	50	50	150	150
inlet Ø	[mm]	80	125	125	125	125
default trap Ø	[mm]	100 – □250	100 – □250	100 – □250	125 – □250	125 – □250
particle size	[mm]	< 20	< 30	< 30	< 30	< 30
default length L	[mm]	5000	5000	5000	5000	5000
width B	[mm]	2400	2400	2400	2400	2400
height H	[mm]	4150	4570	4300	4300	4500
height of throw-off A	[mm]	2070	2070	2070	2070	2070

Mechanical Engineering

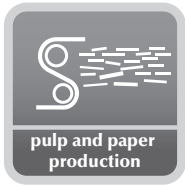
# Dirt Traps RSL

of stainless steel



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## Applications



The LOHSE dirt traps RSL have been specially designed for the removal of foreign particles from the cleaning process.

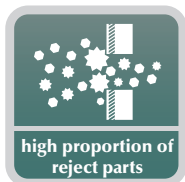
They are used to remove reject particles from fibrous media of various viscosity. They can be used in all types of cleaning machines, tanks and pipelines.

The maximum permissible operating temperature for LOHSE RSL dirt traps is 80 °C / 176° F (dirt traps for higher temperatures are available on request).

The maximum permissible operating pressure for LOHSE RSL dirt traps is 6 bar (dirt traps for higher pressures are available on request).



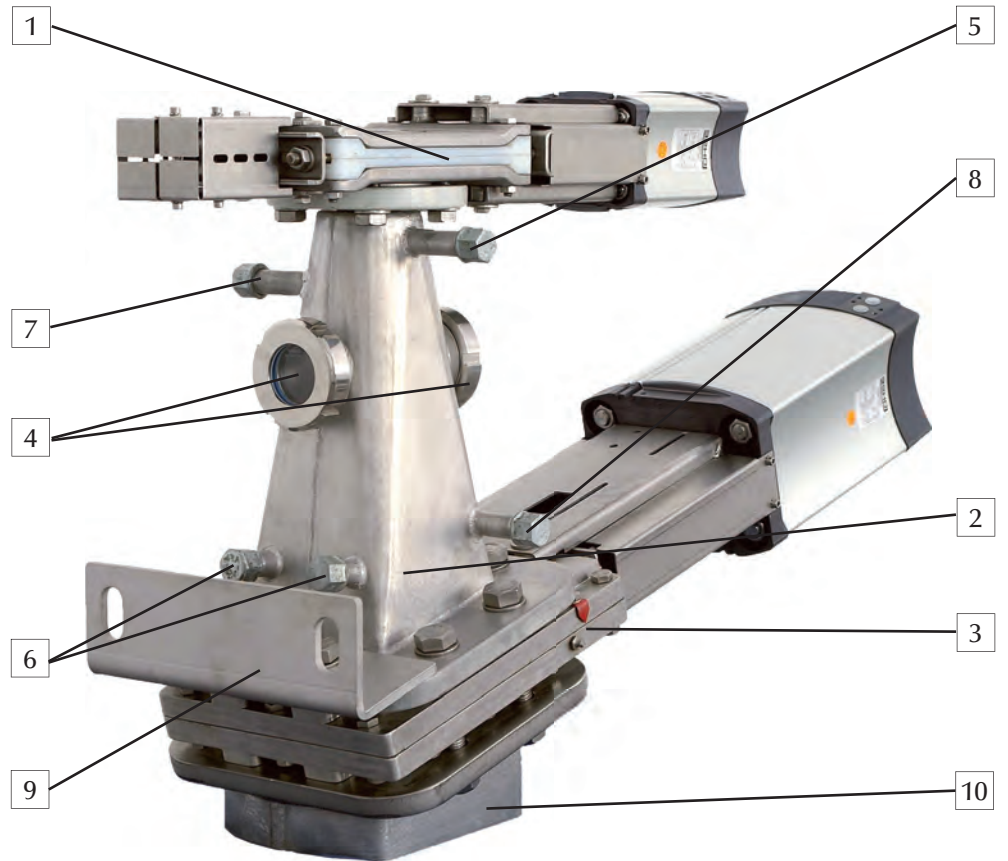
## Media



## Benefits

- the inclined positioning of the discharge valve prevents the build up of turbulence in the centre of the valve slide plate; as a result there is markedly less wear on the valve slide plate
- the right angular cross section of the discharge valve prevents small parts getting stuck between the valve body and the slide plate
- two back water connections prevent congestion in dead corners
- regulated heavy rejects removal: by means of 2 sight glasses an optimal adjustment of the back water level becomes possible
- pressure relief when at its highest level by means of an air extraction connection
- dirt trap volume can be selected (see list)

Construction



pos.	description	remark
1	inlet valve CDSVP/G	round cross-section
2	sluice chamber	round to rectangular
3	discharge valve AEQP/G	rectangular cross-section
4	sight glasses	
5	air relief C	periodical operating interval
6	cleaning/ filling connections A / B	periodical operating interval
7	flush water connection D	connection recommende by manufacturer
8	flush water connection E	connection recommende by manufacturer
9	attaching device	
10	outlet piece	

## Process description

### Start of dirt trap control

Power to solenoid valves	„on“
Water pressure	„ok“
Water	„supply ok“
Pump of cleaning machine	„off“
Compressed air for shut-off valve	„supply ok“
- Pressure	„ok“
- Flow control valve	„adjusted“

### START – Flushing phase of dirt trap

The moment the pump in front of the cleaning machine is started, the timer relay of the cycle control system is started.

After the cycle time has lapsed:

- Timer relay cycle time	„0“
- Upper shut-off valve	„closed“
- Lower shut-off valve	„open“
- Filling water solenoid valve	„open“
- FILLING timer relay	„on“ (10 to 20 sec.)
- Signal lower valve	„closed“ via exhaust air restrictor
- VENTING timer relay	„on“ (10 to 20 sec.)
- Signal lower valve	„closed“
- FILLING timer relay after time has lapsed	„off“
- Filling water solenoid valve	„closed“
- VENTING timer relay after time has lapsed	„off“
- Air relief solenoid valve	„closed“
- Upper shut-off valve	„open“

If required:

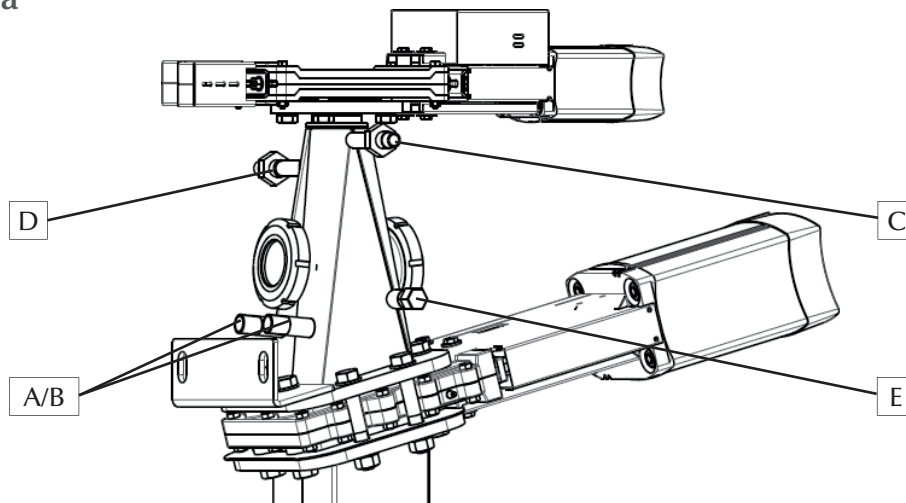
- Readjustment of dilution water by means of manually operated taps
- Next cycle time started through timer relay „on“ (5 to 120 minutes)

\* All values are approximate and must be adapted to the specific system!

### Interlocking:

- if there is no compressed air
- if there is no dilution water
- if there is no control voltage
- if there is no medium
- if the medium pressure drops in front of the cleaning machine

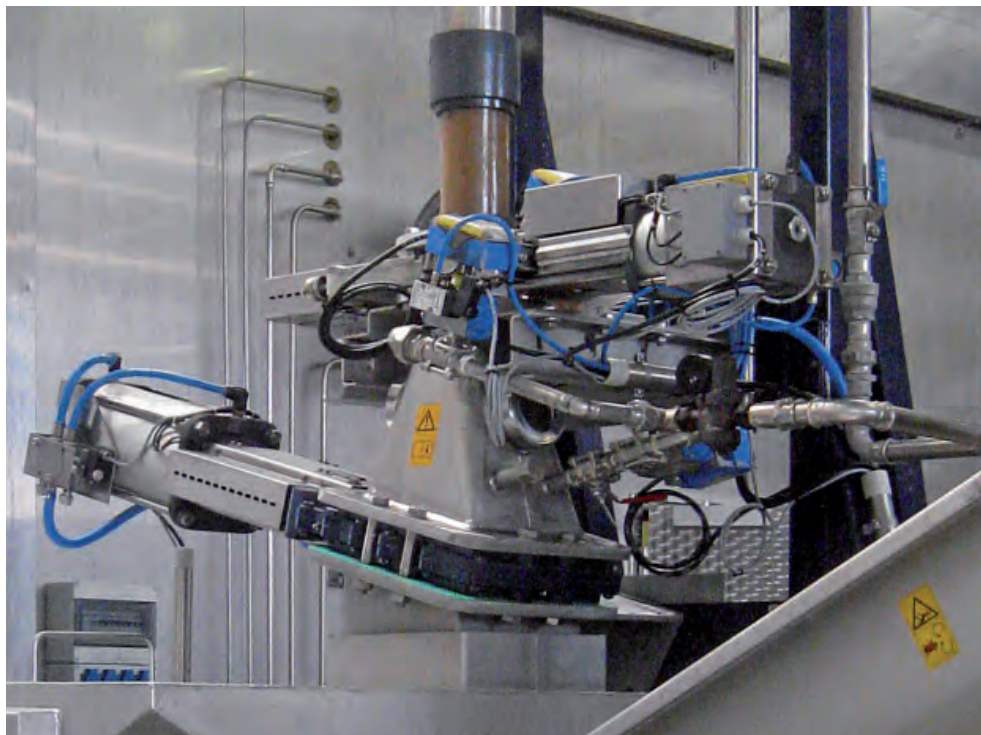
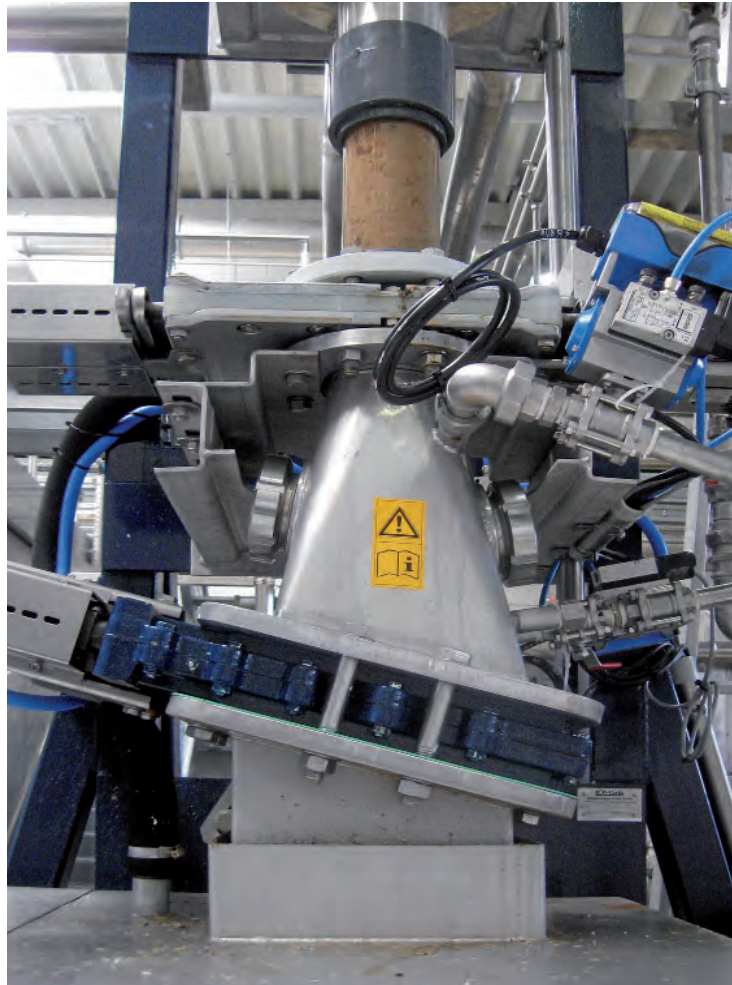
## Technical data



Type	Inlet valve Reject-valve type CDSVP/G	Outlet valve Reject-valve type AEQP/G	Volume ~ [l]	Overall height [mm]	Air relief C [inch]	cleaning/ filling connections A / B [inch]	flush water connect. D [inch]	flush water connect. E [inch]
RSL 50/150	DN 50	DN 150	5	682	1/2	3/4	1/2	3/4
RSL 65/150	DN 65	DN 150	5	682	1/2	3/4	1/2	3/4
RSL 80/150	DN 80	DN 150	5	695	1/2	3/4	1/2	3/4
RSL 100/150	DN 100	DN 150	8	635	1	3/4	1	3/4
RSL 100/200	DN 100	DN 200	11	650	1	3/4	1	3/4
RSL 100/250	DN 100	DN 250	15	634	1	3/4	1	3/4
RSL 125/250	DN 125	DN 250	15	635	1	3/4	1	3/4
RSL 150/200	DN 150	DN 200	13	660	1	3/4	1	3/4
RSL 150/250	DN 150	DN 250	17	662	1	3/4	1	3/4
RSL 200/250	DN 200	DN 250	22	745	1	3/4	1	3/4
RSL 250/300	DN 250	DN 300	40	823	1	3/4	1	3/4
RSL 300/400	DN 300	DN 400	~ 80	985	1	3/4	1	3/4

Outlet valve of grey cast iron (G) or stainless steel (E).

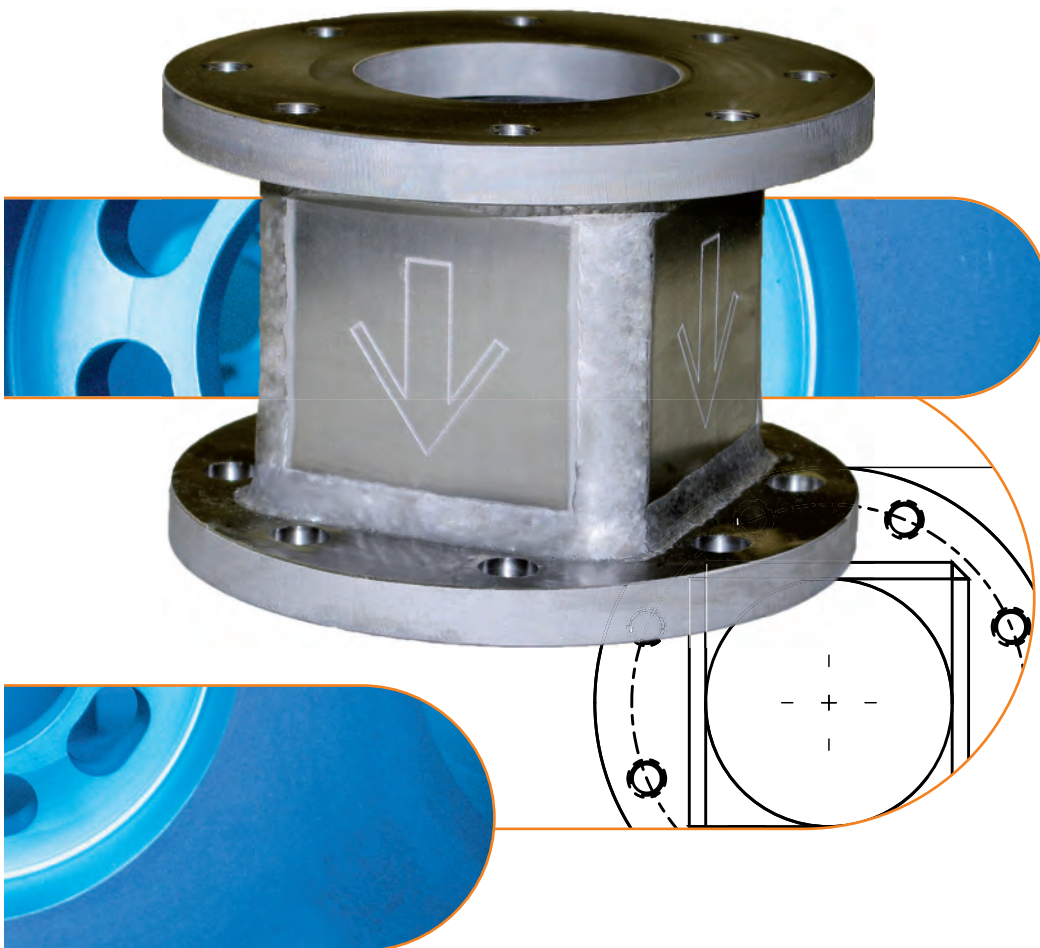




Mechanical Engineering

# Vortex Breakers

## RBrR and RBrQ



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## Vortex breakers for heavy component dirt traps

Ready-to-install intermediate component on cleaning machines

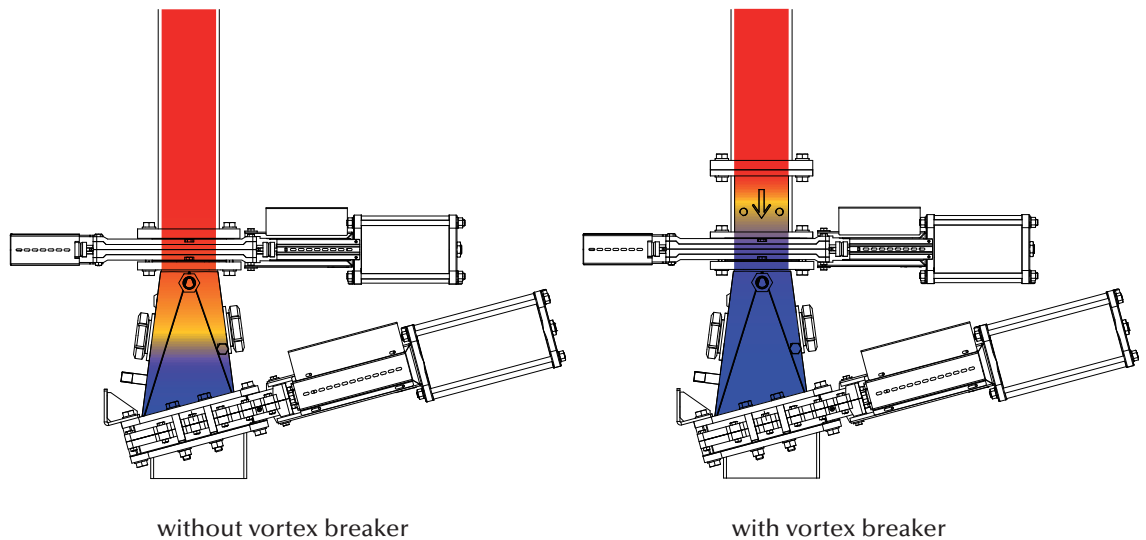
### Applications

In case of extreme wear on reject valves / dirt traps, e.g. high density cleaners.

### Function

The rectangular cross section slows down the rotation of the medium and the rotation does not penetrate to the valve.

### Rotation intensity

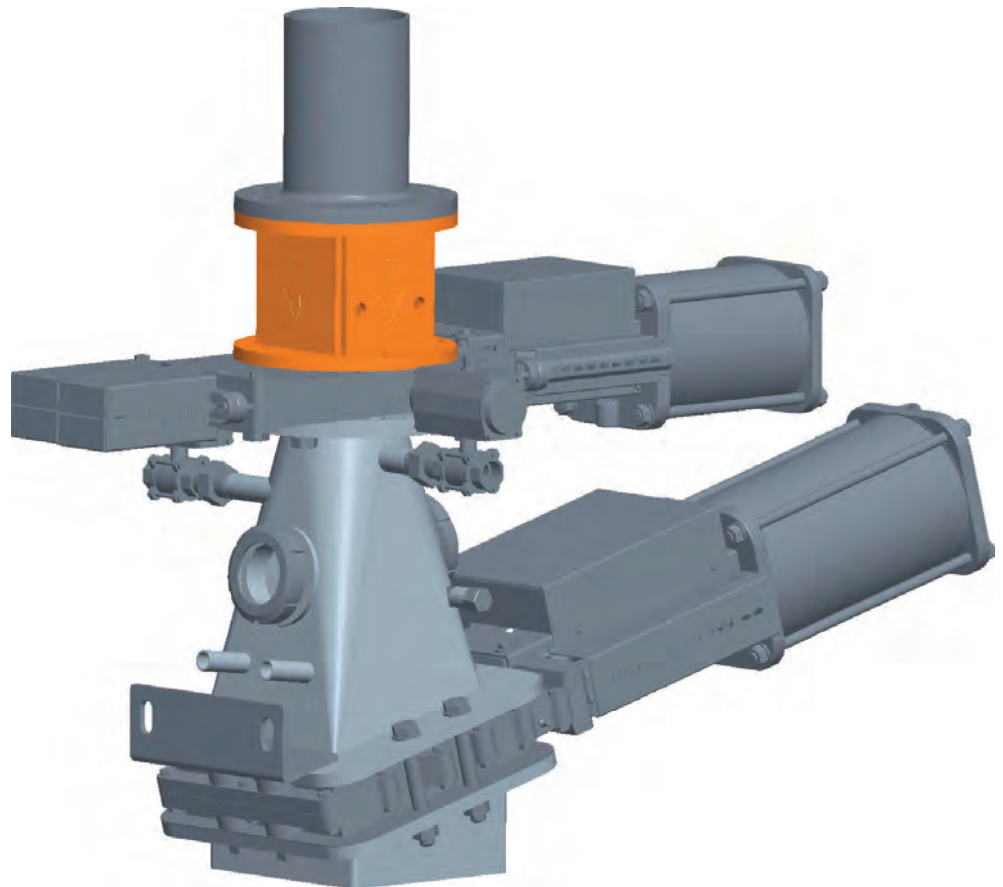


## Benefits

Minimisation of wear on the valve and trap container increases the service life, reduces maintenance, lowers costs and increases operational reliability. The fibre recovery (high density cleaner) is not impaired.

## Easy installation

The ready-to-install vortex breaker is integrated above the inlet valve of the dirt trap. It is adapted to different nominal diameters. Only the height of the overall machine changes – depending on the nominal diameter of the dirt trap – by the height of the respective rotary damper (see dimension sheet).



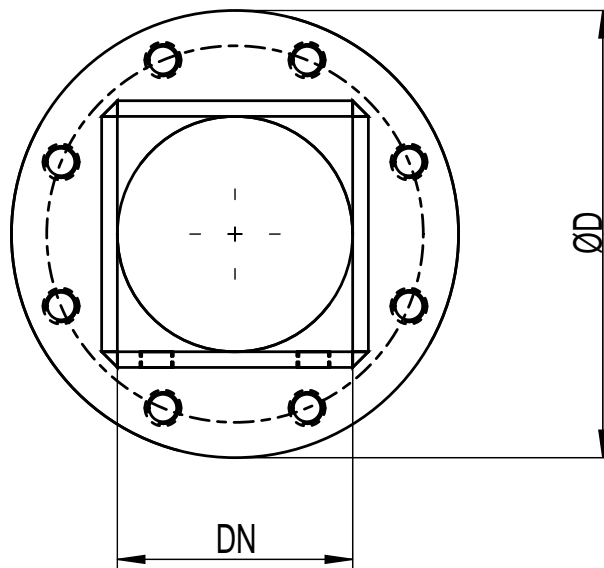
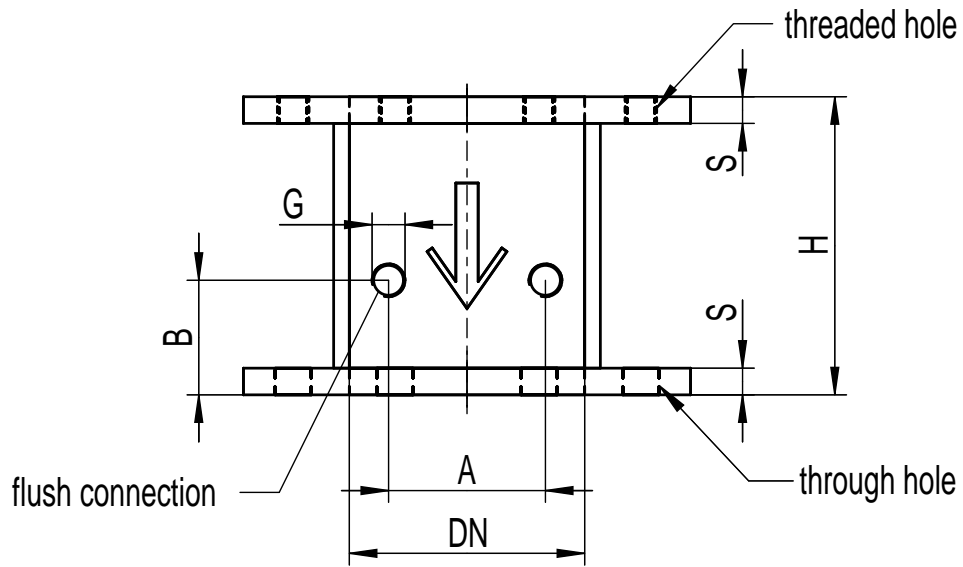
## Versions:

### Type RBrr

Round inlet and outlet of vortex breaker: suitable for round outlet of the cleaning machine and round inlet of the dirt trap / inlet valve..

### Type RBrrq

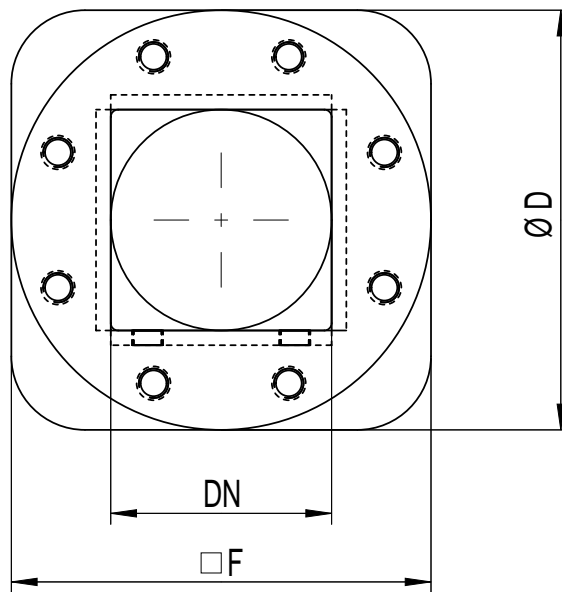
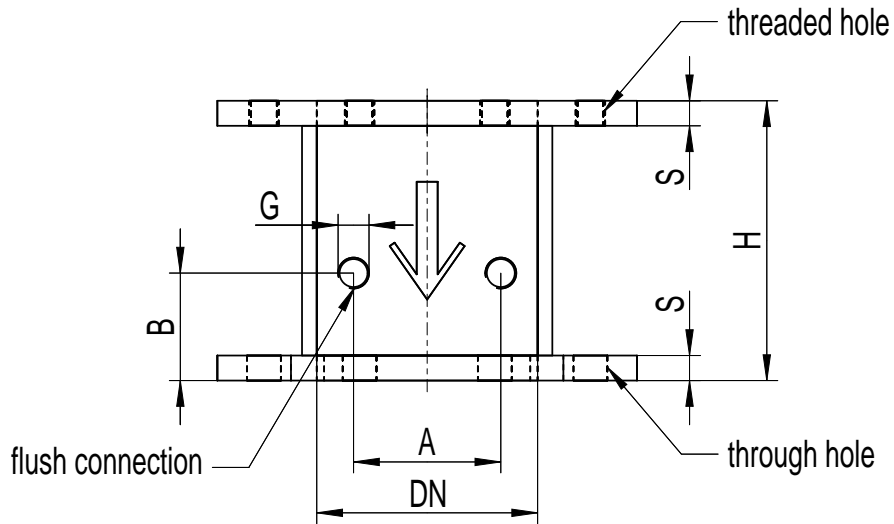
Round inlet and square outlet of vortex breaker: suitable for round outlet of the cleaning machine and square inlet of the dirt trap / inlet valve..



DN	A	B	G	S	H	ØD
50	25	43	1/4"	13	110	165
80	50	53	1/2"	13	120	200
100	60	63	1/2"	17	150	220
125	80	63	1/2"	17	175	250
150	100	73	1/2"	17	190	285
200	150	74	1/2"	18	220	340
250	200	74	1/2"	18	260	395
350	250	74	1/2"	23	350	505

Material: 1.4571

Dimensions in mm, flange dimensions to DIN EN 1092-1, PN 10.  
Further sizes on request.



DN	A	B	G	S	H	ØD	□ F
50	25	43	1/4"	13	110	165	165
80	50	53	1/2"	13	120	200	200
100	60	63	1/2"	17	150	220	220
125	80	63	1/2"	17	175	250	250
150	100	73	1/2"	17	190	285	285
200	150	74	1/2"	18	220	340	340
250	200	74	1/2"	18	260	395	395
350	250	74	1/2"	23	350	505	505

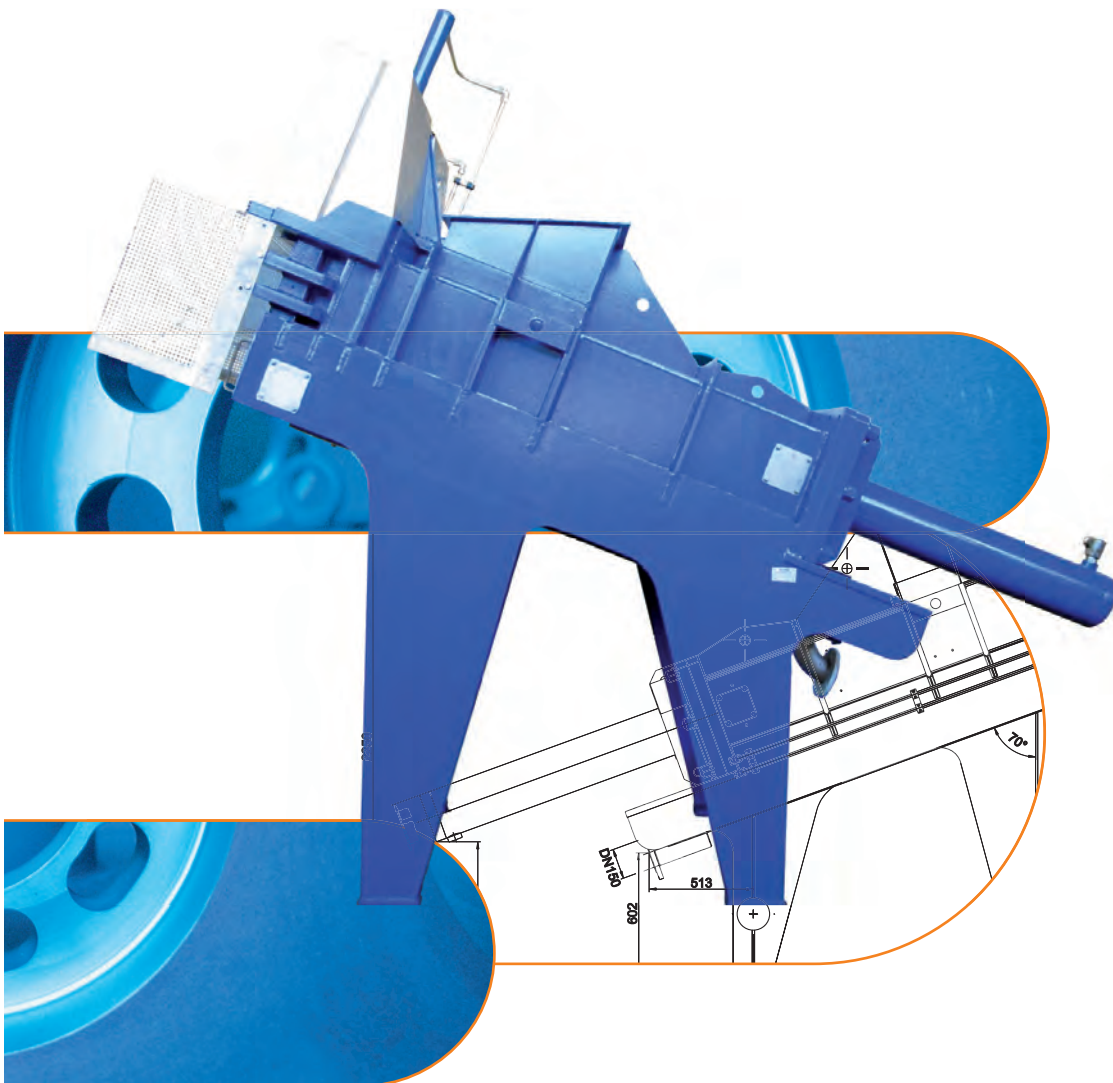
Material: 1.4571

Dimensions in mm,  
 flange dimensions inlet to DIN EN 1092-1, PN 10, outlet on request.  
 Further sizes on request.



Mechanical Engineering

# Dewatering Presses



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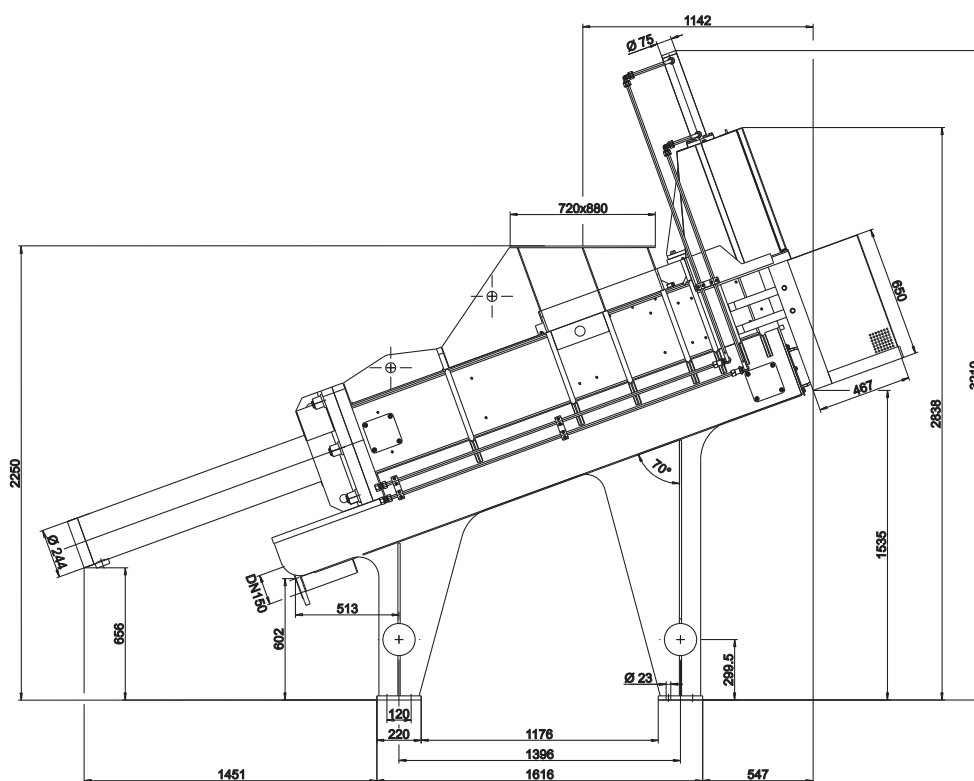


## Application and function

Dewatering press for dewatering reject from the waste paper pulpers. Plastic or metal wires are cut at the same time when dewatering process takes place. The pressed waste will be set out by a valve.

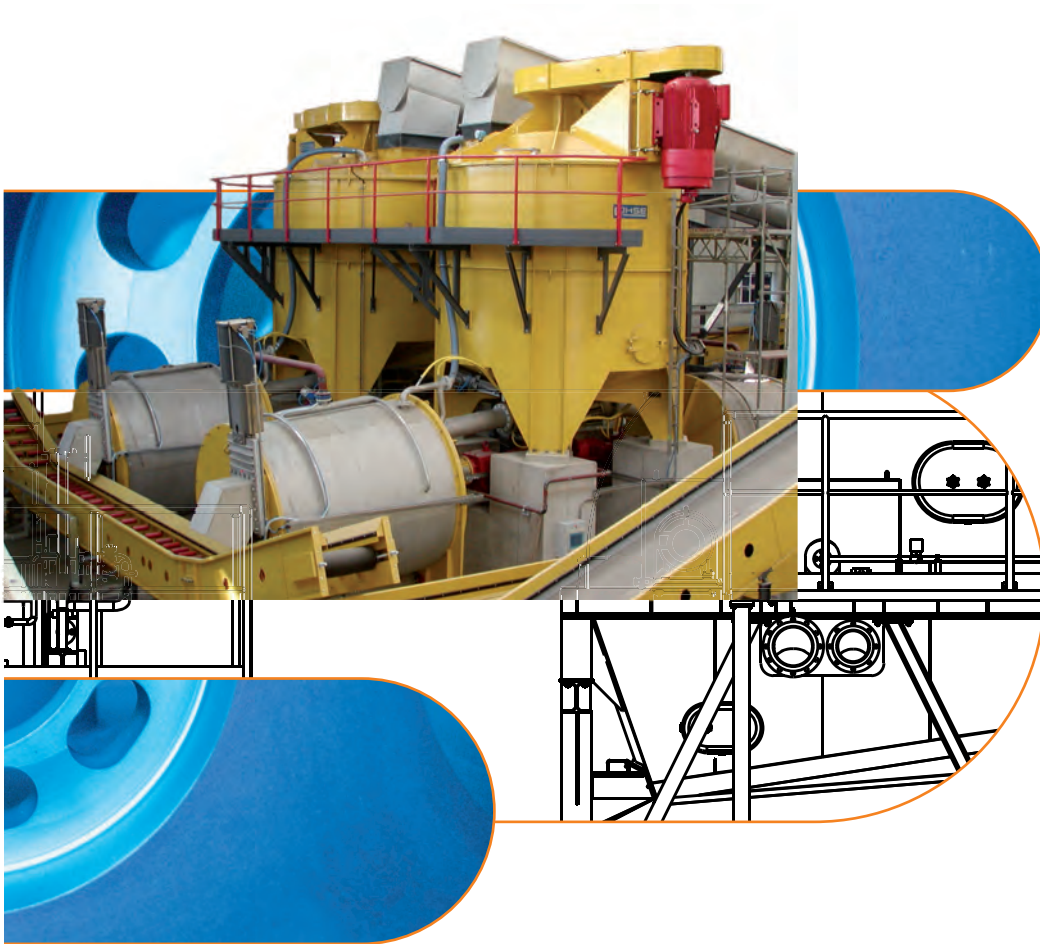
Its simple structure allows uninterrupted operation. Low follow-on costs due to few and simple replaceable wear parts.

technical data		LP03	LP07
cutting power	[kN]	700	700
spec. pressure	[bar]	58	29
dimension of punch area	[mm]	400 x 300	800 x 300
opening of inlet	[mm]	400 x 600	800 x 600
required power hydraulic unit	[kW]	9.2	9.2
motor	[kW]	11	11
oil pressure	[bar]	220	220
weight	[kg]	4000	4200
throughput	[m <sup>3</sup> /h]	3 – 4	7
dry content	[%]	40 – 60	40 – 50



Mechanical Engineering

# Mounting and Service for the Waste Technology



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Maschinenbau Lohse GmbH develops, builds and delivers bio-mechanical wet processing systems for biowaste, food scraps and residual waste - and has done so for more than 25 years.

As the result of many years of cooperation with our customers we specialise in treatment technology for various types of organic waste (e.g. biowaste, market waste, packaged foods, agricultural waste, etc.) for wet fermentation. We offer customised complete solutions with advanced, time-tested technology and can provide numerous references.

With this expertise we can offer the optimal and therefore most economical solution for diverse problems involving wear.

Our own design department and modern mechanical treatment department with an extensive machine park guarantee fast, flexible and reliable implementation.

### Technological production maintenance:



More and more industrial enterprises are benefiting from being able to concentrate purely on production. We help them to achieve this. The maintenance of technological production systems requires extensive knowledge of individual systems as well as familiarity with the production processes. Our maintenance service includes troubleshooting and repairs, adjustments, changing of process materials and replacement of wear parts.

### We perform repairs and maintenance for the following waste technology:



- waste pulpers
- multiple sorters
- sieve drums
- conveyor systems
- sand separators
- outward transfer devices
- reject presses
- subsurface waste bins

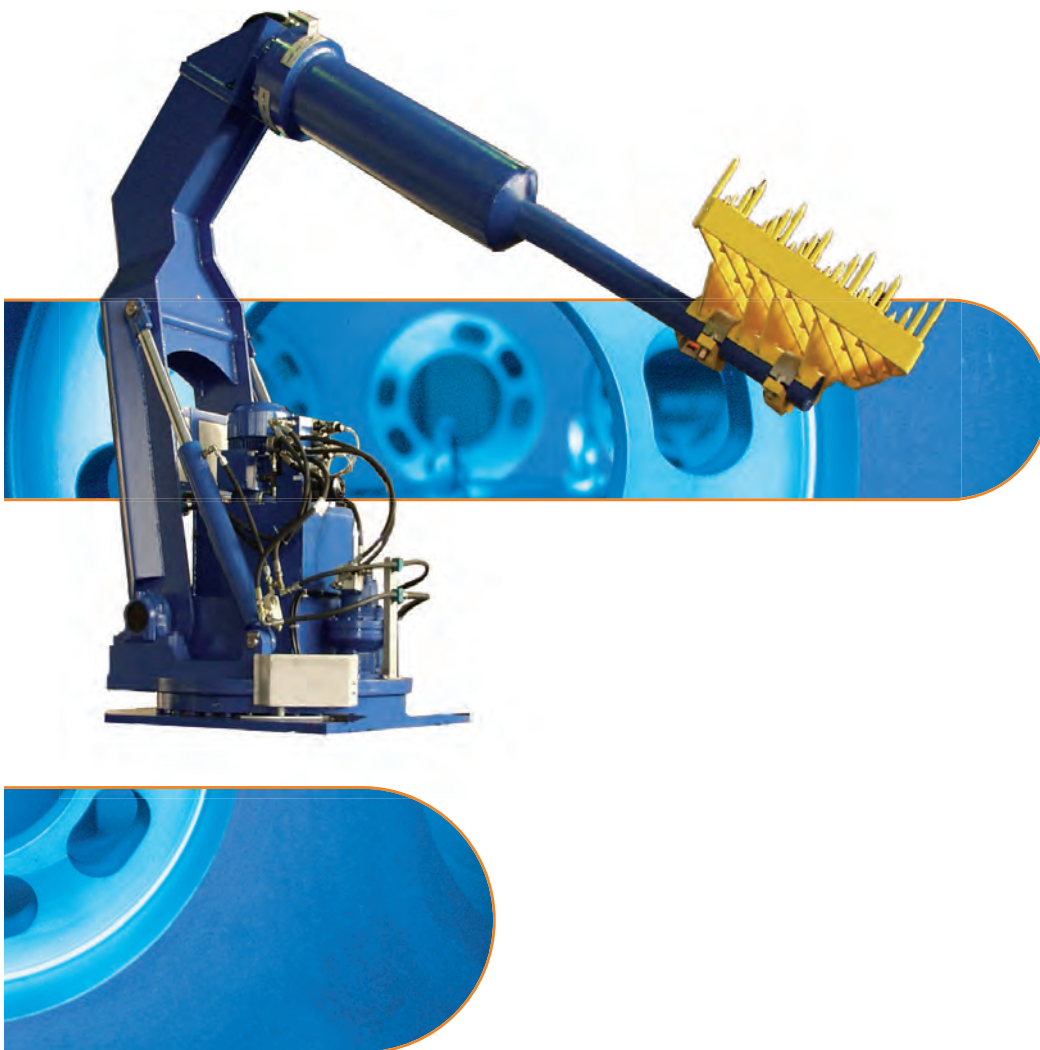
### In addition, we perform wage labour:

construction • cutting to size • rolling • edging • welding • metalworking, sand-blasting • pickling • turning • milling • drilling • punching, etc.  
various assembly work

Mechanical Engineering

# Raking Systems

## for Waste Paper Pulpers



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The suspension that rotates in the pulping process in the waste paper pulper spins the contrary material that came in with the waste paper, such as, e.g. wires, films, plastic and insoluble paper, into a rope. If only smaller disconnected ropes are formed, so that raking using a rope winch is very complicated, we recommend using Lohse raking systems, which can be adapted to the respective operations (periodic or continuous).

The system consists of a tried and tested basic unit, which can be combined with three different collecting devices.

## Type R (rake)

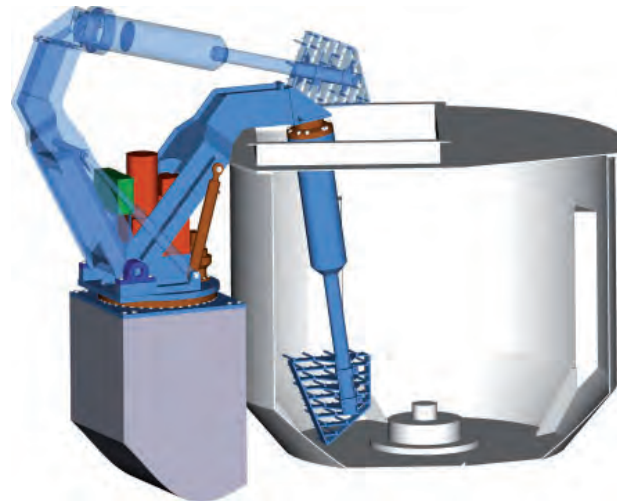
suitable for extracting contrary material that does not twist into a rope during the pulping process

## Type H (hook)

suitable for extracting contrary material that twists into short rope lengths during the pulping process

## Type K (combination)

suitable for extracting short rope lengths and short, non-ropeing contrary material



## Installation and function

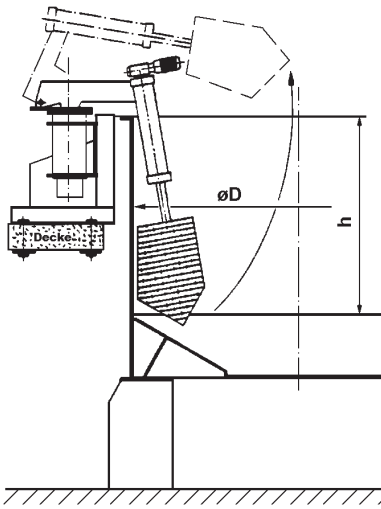
The stand-alone appliance is fastened to the floor next to the waste paper pulper. A discharge station (chute or funnel) into a transport container must be installed in the swivelling radius of the collecting arm, which runs contrary to the direction of the waste paper pulper. When at a standstill the swung out collecting arm stops above the discharge station.

A cleaning cycle is initiated when the waste paper pulper is pumped off and the residual suspension in the tank has been diluted back down to a material density of 1.5% to 3% with the required process water for the next pulping process. A hydraulic rotary actuator swings the collecting device from its starting position into the collecting position above the waste paper pulper. Two hydraulic lifting cylinders lowers the collecting arm into the waste paper pulper in its collecting position, where it remains for a period determined in experiments. On expiry of this dwell time the collecting arm is lifted out of the waste paper pulper and stops above the waste paper pulper for a defined draining period. The loaded collecting device then swings out over the edge of the waste paper pulper to the discharge station. Here a hydraulic rotary actuator turns the collecting arm so that the rejects fall out of the teeth.

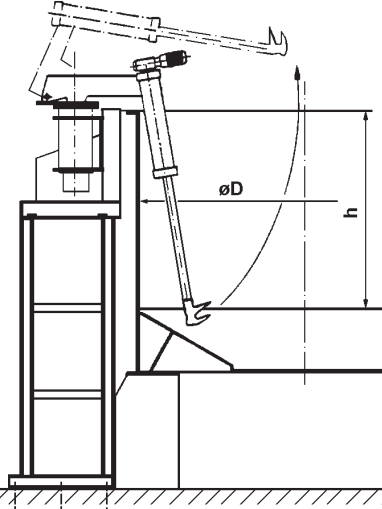
The collecting process can be repeated several times, depending on the contrary material.

The control sequence can be carried out at an integrated electric switchgear cabinet in manual or in automatic mode.

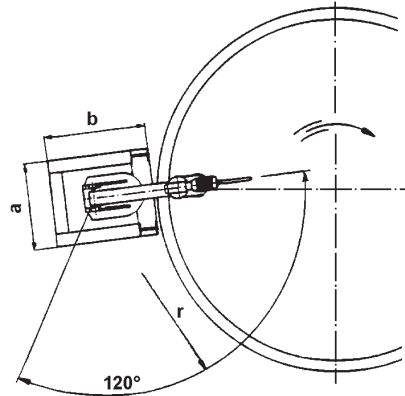
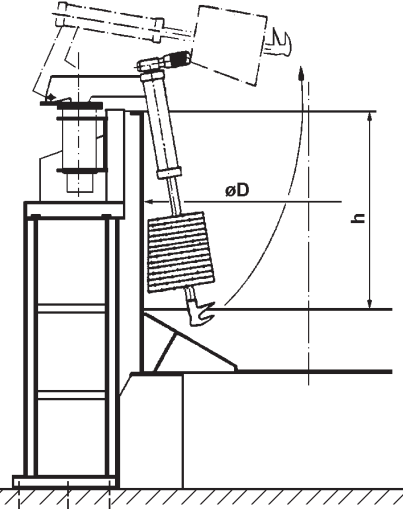
## Type R



## Type H



## Type K



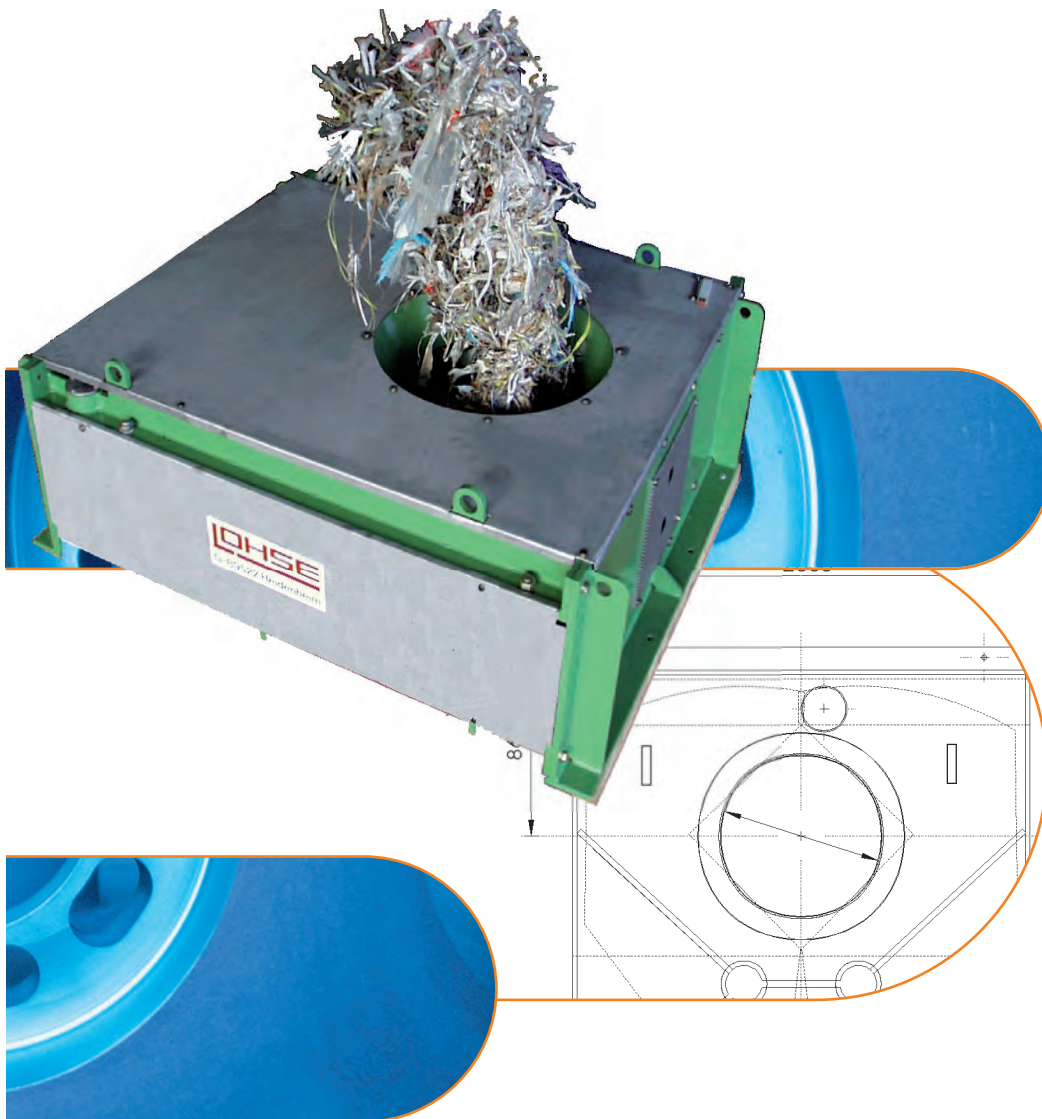
## Technical data

size		1	2	3
dip in depth / waste paper pulper	h [mm]	$\leq 2700$	$\leq 3300$	$> 3300$
swinging distance	r [mm]	2700 ... 3000		
swinging angle	[angle]	120		
operation (depending of reject volume and pulpersize)		periodic		
interval time (depending of reject volume and pulpersize)		adjustable by timer		
diving time pulper	[min.]	0,5 ... 1		
total operation time	[min.]	4		
reject weight aprox. (balanced on waste paper mix B12 / B19)				
type R (rake)	~ [kg]	20 ... 30	30 ... 40	40 ... 50
type H (hook)	~ [kg]	20	30	40
type K (combination)	~ [kg]	25	35	45
hook drive	[kW]	1,5	2,2	3
swinging drive	[kW]	2,2	3	4
hydraulic drive	[kW]	7,5	11	15
height drive (rakearm in top position before swinging)	[mm]	max. height 1800 above pulper top		
basic dimensions	a x b [mm]	1100 x 1500		
place of installation		beside pulper		



Mechanical Engineering

# Rope Cutters



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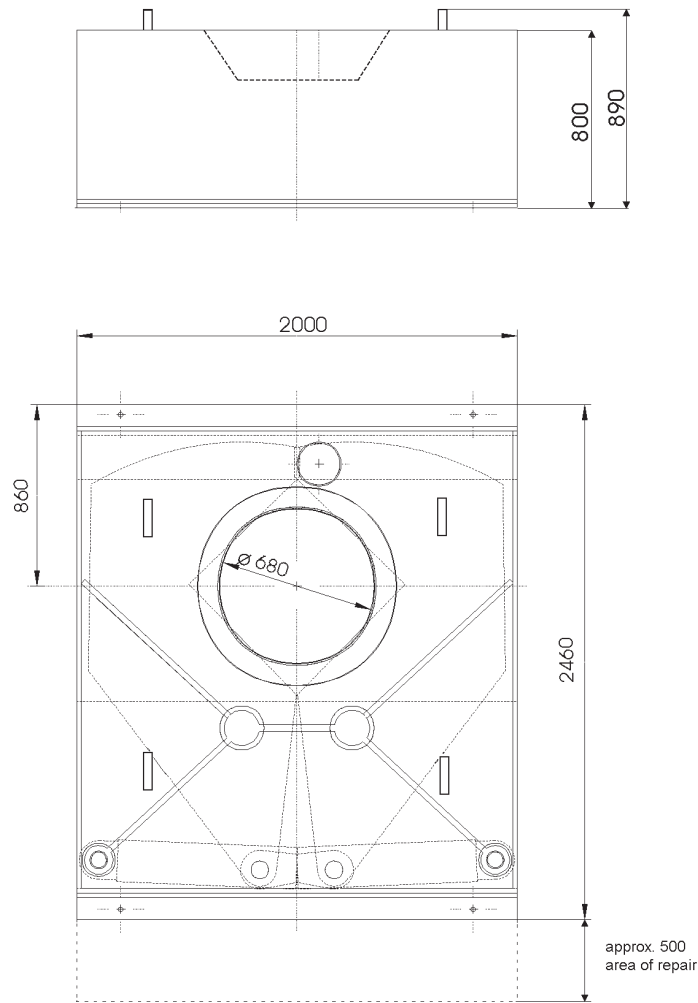


The suspension that rotates on the pulping process in the waste paper pulper spins the contrary material that came in with the waste paper, such as, e.g. wires, films, plastic and insoluble paper, into a rope. This rope is drawn out of the waste paper pulper with a rope winch. The rope winch is driven with a suitably variable interval switching. Depending on the amount of contrary material in the waste paper to be processed, and on the size of the pulper, endless ropes with a diameter of between 150 mm and 500 mm are formed. For disposal purposes these ropes must be cut into transportable pieces. This is done with a Lohse rope cutter, which is installed behind the rope winch in such way that the rope emerging from the winch is led without force via a funnel into the cutting opening. Lengths vary between 300 mm and 3000 mm, depending on customers' wishes.

The rope cutter consists of two cutter bars with four integrated reversing scissor blades, which are moved in the opposite direction to the middle of the scissors by means of a hydraulic cylinder. The rope is cut through without interrupting production and without an increased risk of accident.

The hydraulic cylinders are operated and the cutting procedure is controlled with an external hydraulic unit coordinated to the rope cutter. Manual or automatic mode can be selected with a preselection switch. In manual mode the cutting procedure can be initiated at any time by pressing a switch at the switch-gear cabinet. Automatic mode is possible if the controller is integrated correspondingly with the waste paper pulper operations. If the waste paper pulper is switched off during a cutting procedure, this is carried out and the cutter bar then returns to the starting position.

Lohse rope cutters DW 700 - for a rope diameter up to 650 mm



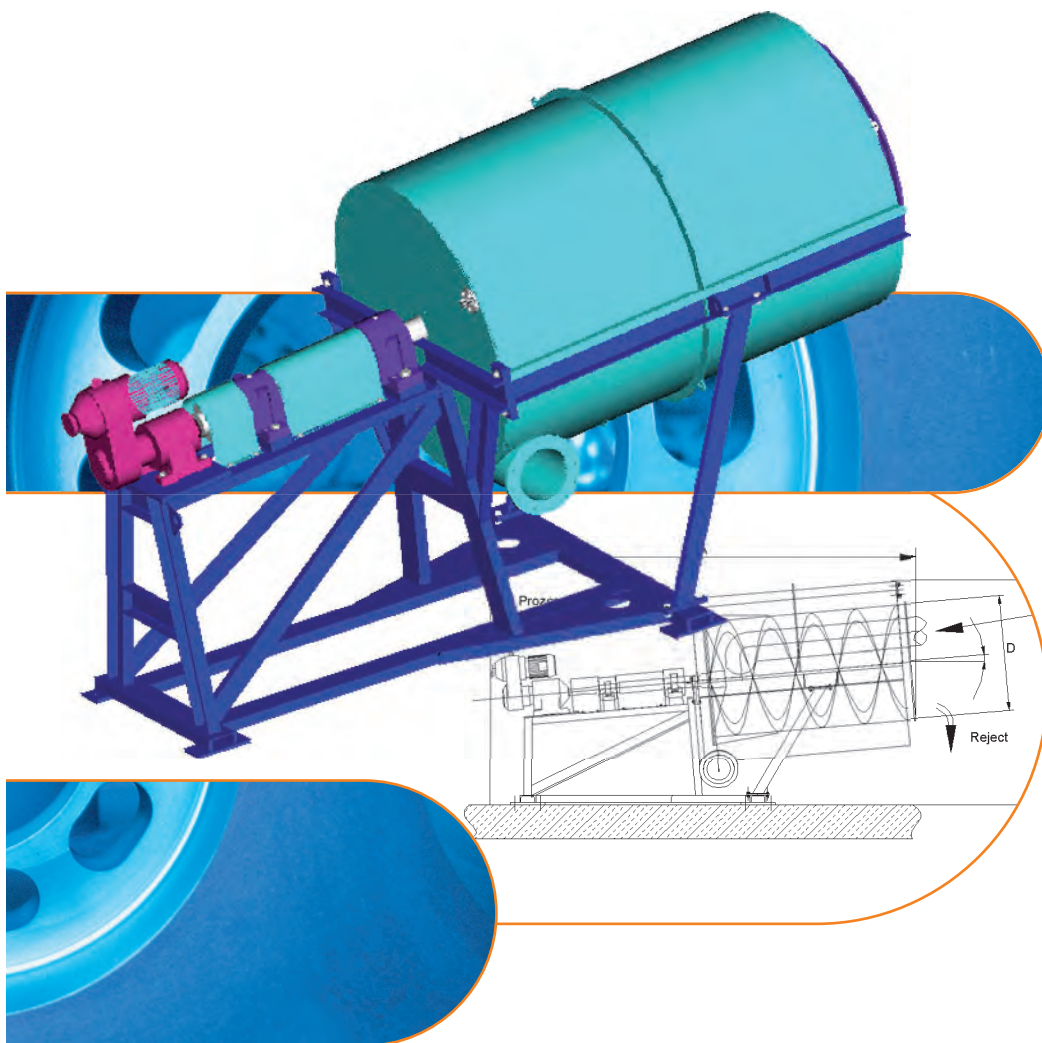
## Technical data

size		DW 700
cut opening	[mm]	700 x 700
hopper opening	[mm]	Ø 680
cutting force	[kN]	ca. 500
cutting time	[sec.]	ca. 130
cutting intervals (depending on ragger speed)		adjustable by timer
hydraulic driver motor	[kW]	5.5
hydraulic pressure max.	[bar]	220
width	[mm]	2000
height	[mm]	890
length	[mm]	2460
weight	[kg]	ca. 4800



Mechanical Engineering

# Reject Drums



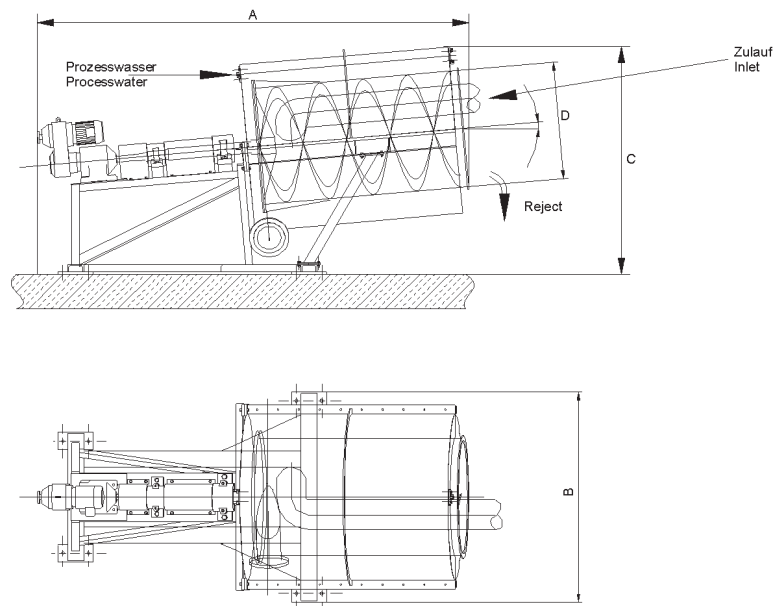
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## Application

The reject drums remove medium and coarse dirt and foreign bodies of all kinds from pumping suspension. They are available in different sizes and with different sizes and types of holes, depending on throughput and application.

## Construction

- drum sieve at a slight angle, fixed on one side
- adjustable belt drive adapts rotational speed to the individual application
- free-standing
- container for desired material under sieve
- spray tube
- built-in parts inside rotating sieve for mixing and transportation of reject material



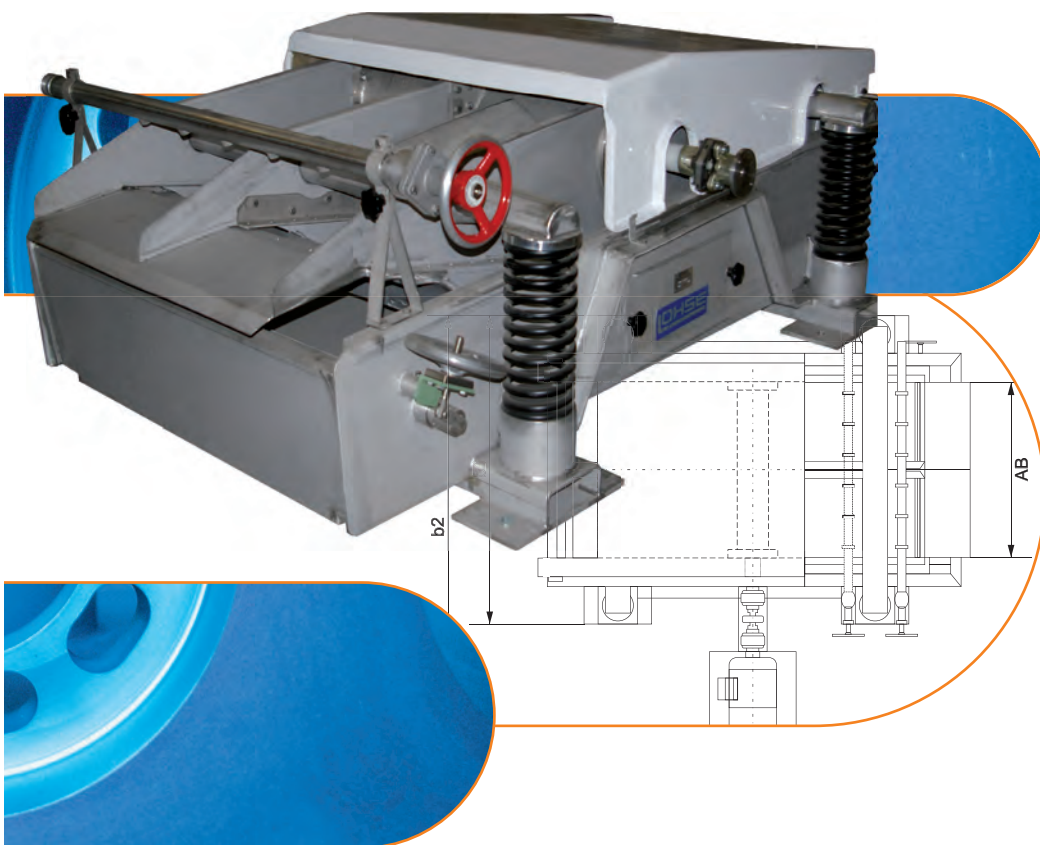
## Technical data

size		02	03	04	09	014	022
open area	[m <sup>2</sup> ]	2.5	3	4.5	9	14.5	22
hole size	[mm]	16	16	16	16	16	16
consistency inlet approx.	[%]	2	2	2	2	2	2
production (various depending plate dimension pulper, quality waste paper and defibrating efficiency pulper)	[l/min]	720	900	1500	3480	5820	9000
length max. A	[mm]	2900	3000	3600	4400	5200	6100
width max. B	[mm]	1800	1800	1800	2000	2600	3000
height max. C ( frame of drum can be adjusted to various height)	[mm]	1880	1900	1950	2500	3000	3500
sieve diameter D	[mm]	800	800	1000	1250	1600	2000
sieve length L	[mm]	1000	1250	1600	2300	2800	3500
drum length over all	[mm]			1750	2500	3210	
weight unloaded	[kg]	1000	1200	1350	2950	3750	5400
spraypipes (installation of 2 spraypipes possible – add. price)	numb.	1	1	1	1	1	1
drive motor	[kW]	2.2	2.2	2.2	5.5	5.5	11
drum speed	[1/min]	4.3 ... 26 free adjustable					

Mechanical Engineering

# Vibration Screens

Type 500 K,  
Type 1000 K,  
Type 1000 SCH



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## Application

Due to the optional use of perforated and slotted sheets vibration screens are suitable for any grading tasks encountered in the paper industry, both in the low and high-density range.

## Construction

- stainless steel or steel grading tub with protective rubber coating
- screen basket supported by sprung stainless steel cross bars within the tub, screen basket provided with a baffle frame
- waterproof enclosed unbalance support including permanently set unbalance mass
- easily replaceable perforated or slotted sheet screens
- type B3 drive motor including an articulated shaft, adjustable baffle flap for back-up of accepts
- spray pipe for fibrous return water
- plastic folding canopy

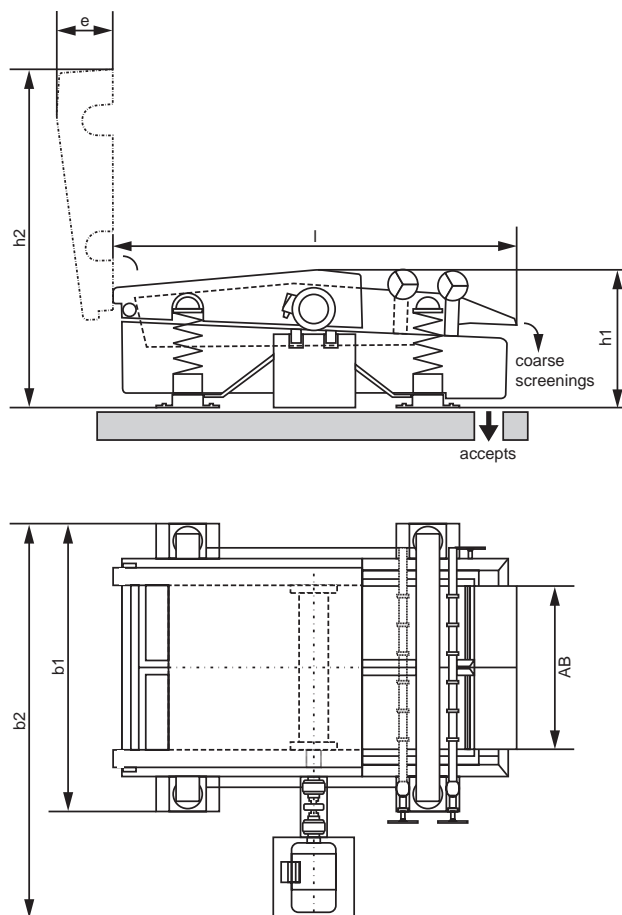
## Operation

The vibration screens is suitable for universal use. Due to its design and allowing the use of perforated or slotted sheets for grading, the grader is easily adjusted to any type of fibrous material.

Due to fast removal of coarse screenings based on a relatively high vibration frequency of the screening basket and the chosen vibration amplitude being higher than the maximum fibre length encountered, smooth operation without any spinning or blocking will be feasible. Improved removal of coarse screenings by use of a baffle flap below the screening sheet.

Depending on the graded size, the pulp will pass through one or two inlets towards the screening basket. Screened coarse screenings are carried out through the screening basket projecting from of the grader. In order to support the grading effect, accepts are dammed by an adjustable overflow flap within the tub. Overflowing accepts will leave the grader by an aperture in the tub bottom.

A spray pipe is used for back-washing of any good fibres adhering to coarse screenings. The vibration screens is covered by a plastic canopy. This canopy and the screening basket may be easily folded up and/or removed for cleaning.



Technical data

screening size		500	1000
low-density pulp screening			
pulp density	[%]	2	2
throughput	[t/24h]	3 – 11	10 – 33
high-density pulp screening			
pulp density	[%]	2 – 4,5	2 – 4,5
throughput	[t/24h]	5 – 23	15 – 65
AB (working width)	[mm]	~ 500	~ 1000
b1	[mm]	1040	1800
b2	[mm]	~ 1510	~ 2450
e	[mm]	~ 290	~ 405
h1	[mm]	~ 710	~ 910
h2	[mm]	~ 1480	~ 2530
l	[mm]	~ 1760	~ 2510
engine power	[kW]	1.1	1.1
empty weight	[kg]	420	1300



## Application

This robust vibration screen with a large screening area is used in wood grinding plants as a means to catch tailings and thus to separate the splinters and tailings from ground wood.

## Construction

- stainless steel grading tub
- screen basket supported by sprung stainless steel cross bars within the tub
- waterproof enclosed unbalance support including permanently set unbalance mass
- easily replaceable perforated sheet screens
- type B3 drive motor including an articulated shaft, adjustable baffle flap for back-up of accepts
- spray pipe for fibrous return water

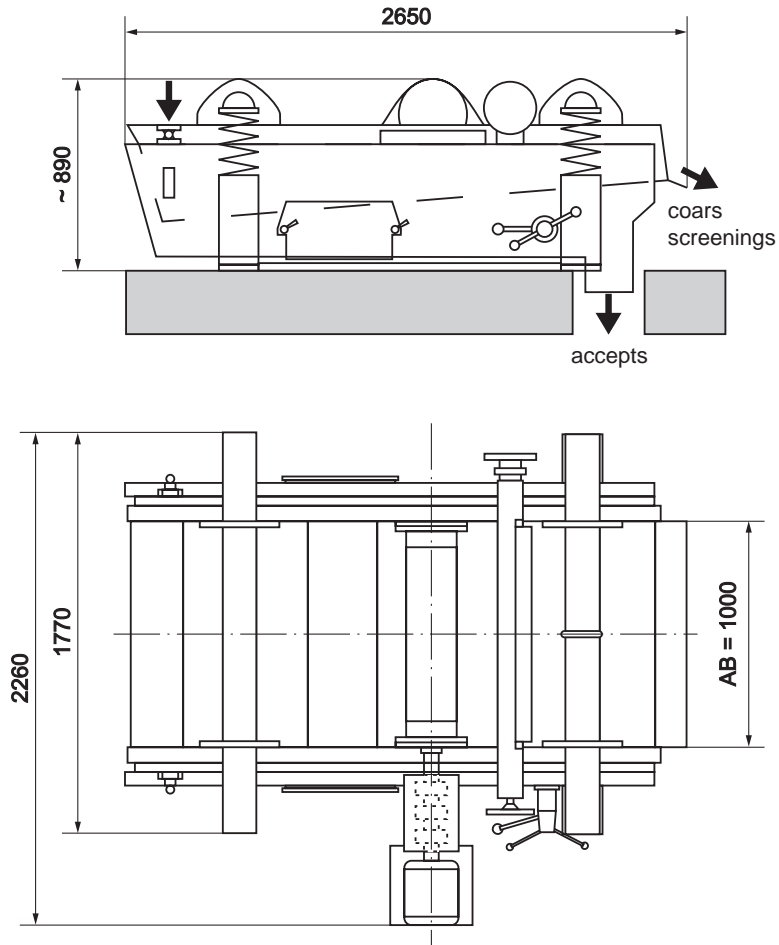
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A spray pipe is used for back-washing of any good fibres adhering to coarse screenings. The screening basket may be easily folded up and/or removed for cleaning.



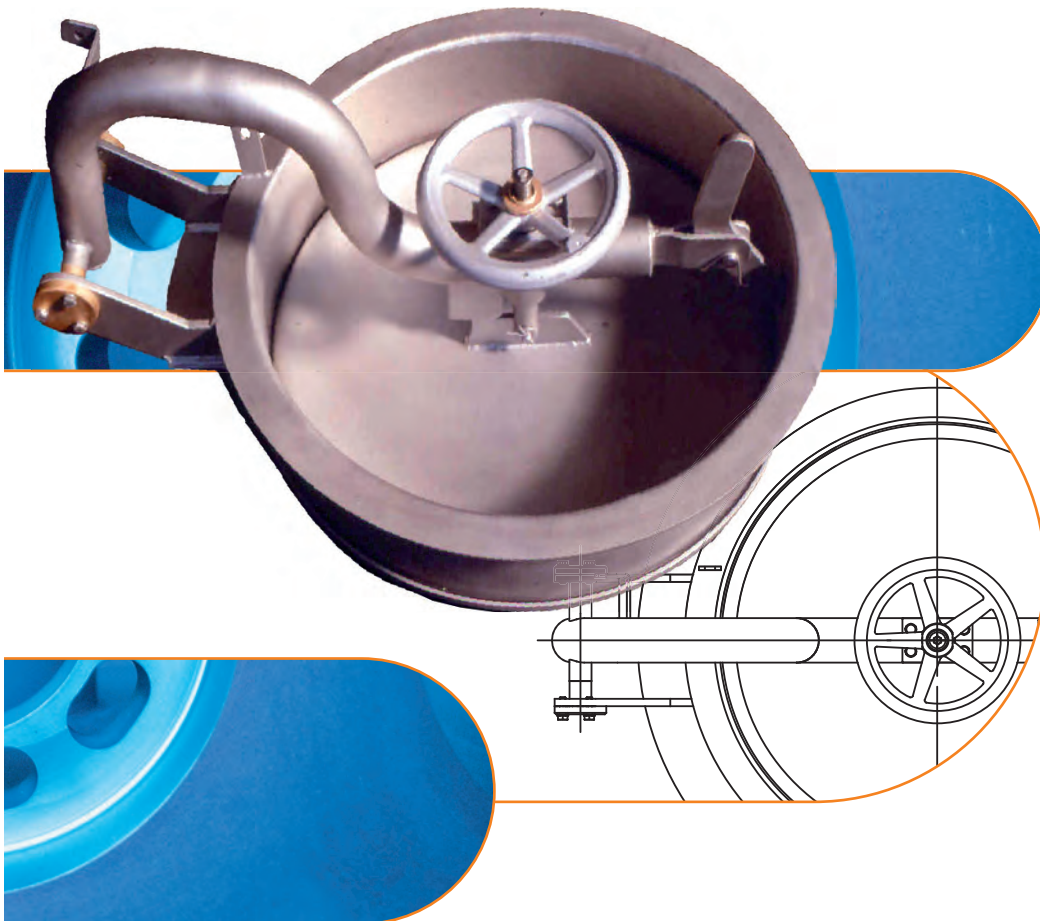
### Technical data

throughput (depending on type and density of pulp and on perforation of sheet screen)	[t/24h]	60 ... 80
stock consistency	[%]	2
perforation of sheet screen	Ø [mm]	4 ... 6
usage of splash water	[l/min]	~ 150
pressure of splash water min.	[bar]	2
speed	[1/min]	1500
engine power	[kW]	3
empty weight	[kg]	1300



Mechanical Engineering

# Safety Access Doors



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The UVV (regulations for the prevention of industrial accidents) stipulates that vats and containers must have an opening at their deepest point with an inside diameter of at least 0.6 m that can be sealed tightly to safeguard against unauthorised or accidental opening and which enables a rapid aeration or ventilation as well as safe access for actions such as the performance of maintenance, service or repair work.

The Lohse Safety Access Door (manhole cover) seals reliably and has been inspected by the mutual indemnity association (Berufsgenossenschaft).



### Safety

Our opening system provides safety and security:  
The opening of the seal occurs independent of unlatching. This prevents accidental opening of a possibly full container.

### Use

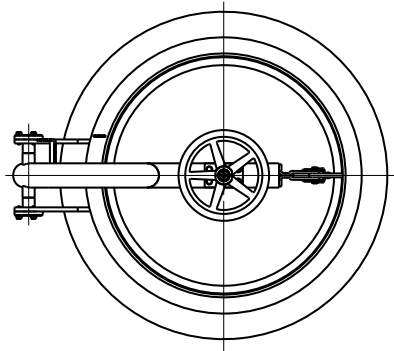
Our safety access door is extremely versatile and can be used

- in pressure and vacuum environments
- with round and rectangular containers made of steel, stainless steel and concrete

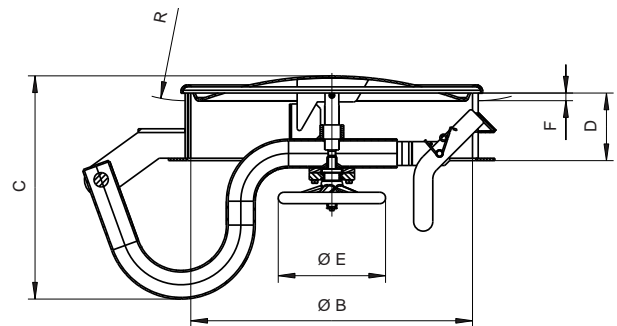
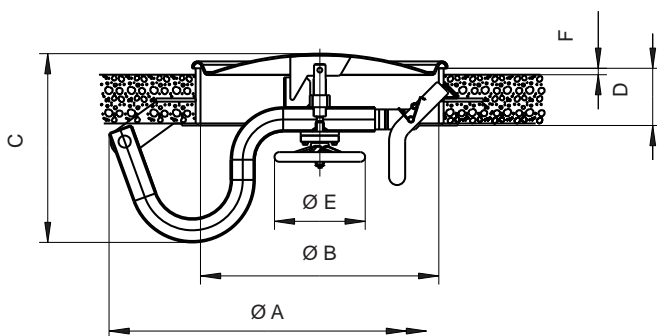
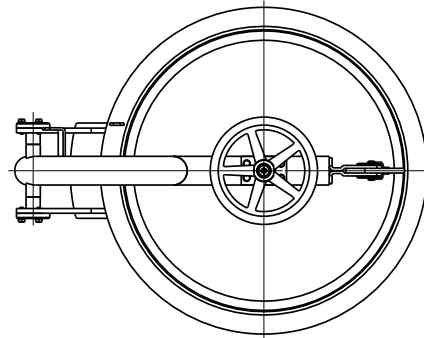
### Materials

All parts coming in contact with the stored medium are made of DIN 1.4571 stainless steel. All parts not coming in contact with the medium, such as strengthening ribs and binders, are made of DIN 1.4301 stainless steel. The hand wheel is made of aluminium. Bushings and hinge bolts are made of cast copper. The concrete cast parts are made of DIN 1.4301 stainless steel.

## Model B4



## Model S4

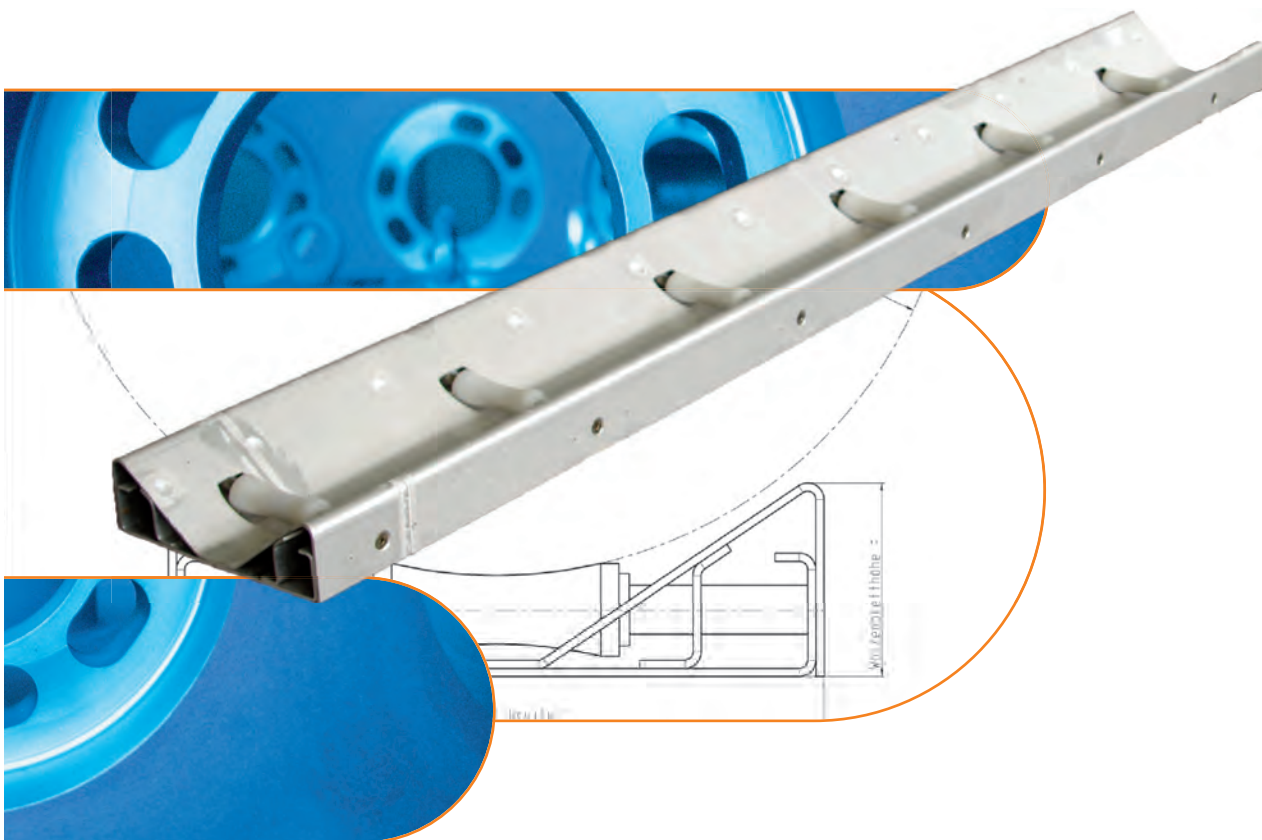


nominal size	A	B	C	D	E	F	R	operating pressure
Ø 600 B4	1070	600	430	142	225	16	–	max. 20m water column
Ø 600 S4	–	600	430	142	225	16	see information	max. 20m water column



Mechanical Engineering

# Roller Boards



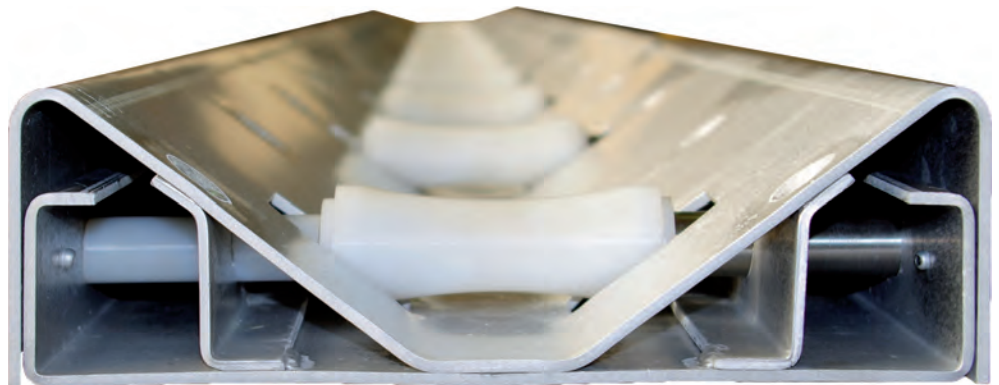
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## Application

Roller boards are tools to assist the change-over of rolls on paper machines.

*detail: contour*



## Construction

- welded edge-profile with support angle
- frame material of aluminium or chrome nickel steel
- rollers of PE
- special application: with stand
- special application: extendable roller board

*Detail: roll*



## Specifications

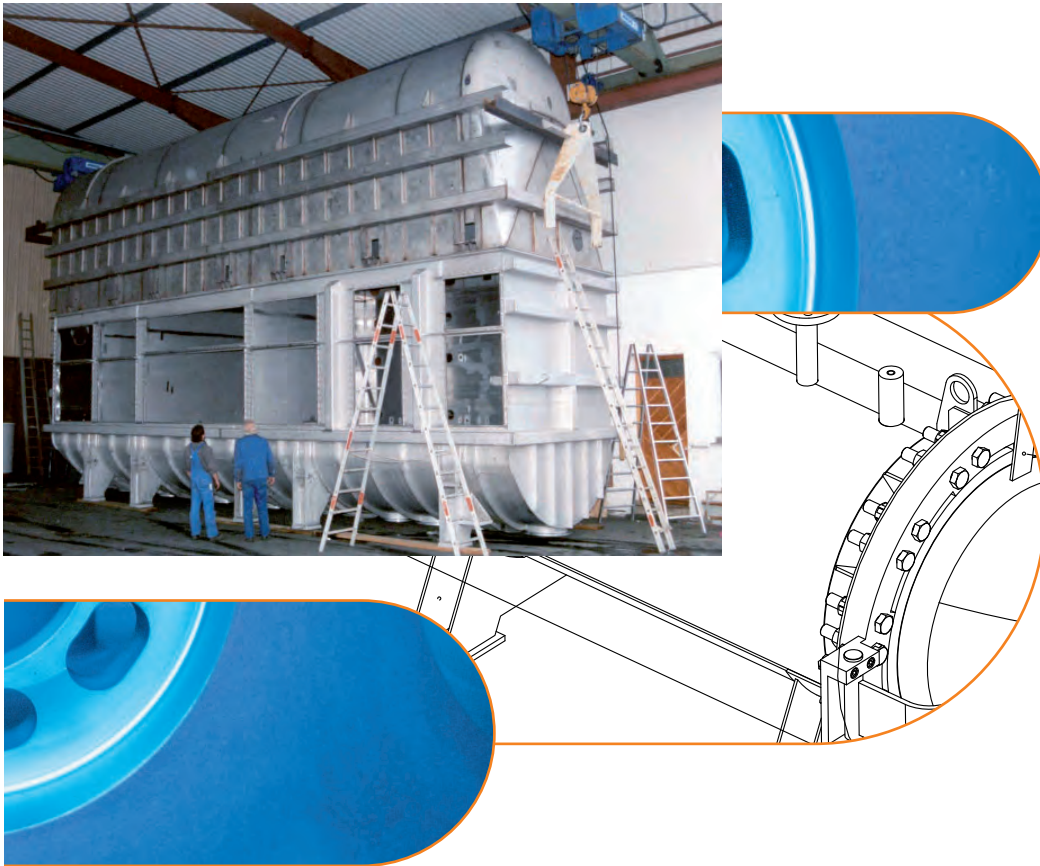
- for rolls up to a length of 6 m
- for roll diameters of 150 – 800 mm
- for rolls weights up to 2 tons depending on which roller board specification

## Bespoke

Customer specific requirements are possible on request.

Mechanical Engineering

# Construction and production on behalf of the customer



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For both new designs and the manufacture of steel and stainless steel products, pressure vessels, fans, machinery and equipment to existing plans, you have chosen the right partner in Maschinenbau Lohse GmbH.

We are working individually to your ideas or plans, design with the problem in mind, manufacture to your specifications, from prototypes to serial production.

**Your ideas are in the right hands!**

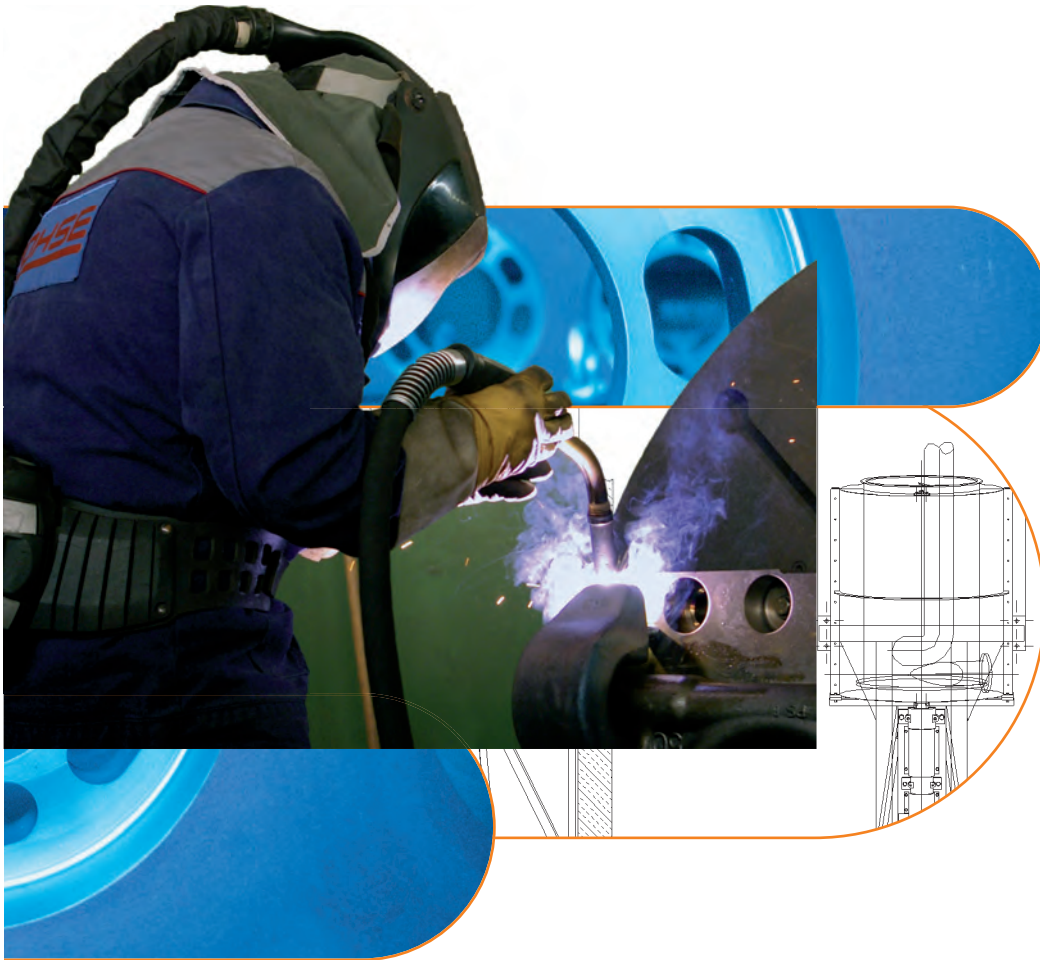
Innovation, a high degree of technical know-how and many years of experience of committed employees will allow us to realise and supply your products within the shortest possible time.



Mechanical Engineering

# Repairs

for the paper industry

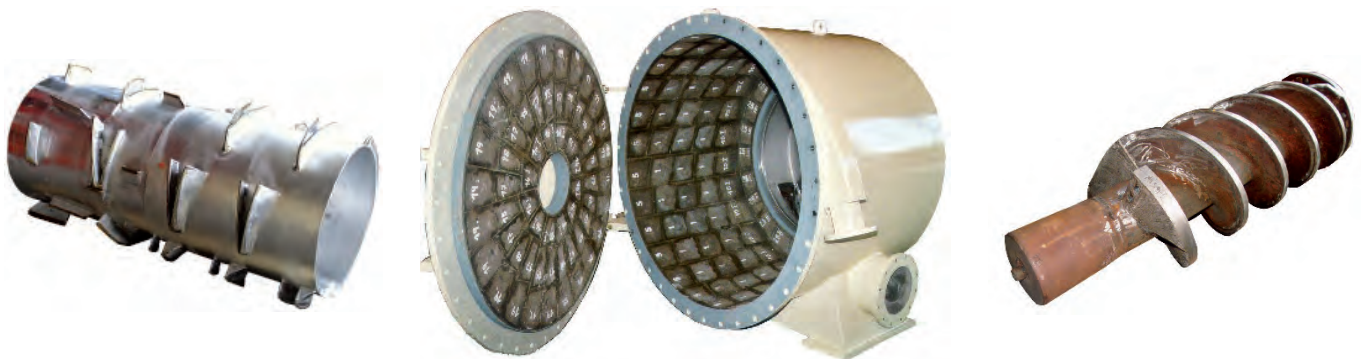


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For decades, Maschinenbau Lohse GmbH has been supplying fixtures, apparatus, vessels and ventilators for the paper and waste disposal industries.

As a supplier to the paper industry we have gained enormous experience in the problems of wear during many years of close cooperation with our customers. The knowledge thus gained has enabled us to supply the optimum and consequently most cost-effective solutions to the various problems of wear.

Our own design department and modern mechanical processing department with extensive machinery resources are the guarantees for a fast, flexible and reliable processing of the jobs.



The following repair and maintenance work will be performed for the paper industry:

- any type of pulper
- vibration screens
- perforated sheets with and without carrier frames
- breaker rotors
- helical breakers
- any sorting machines and sizes including basalt linings
- screening and soaking drums
- centricleaners
- heavy-item collecting bin on pulper
- components for pressurised belt filter
- steel and stainless steel structures
- fans
- pressure worms
- various grades of hard coatings

In addition, we perform the following subcontract work:

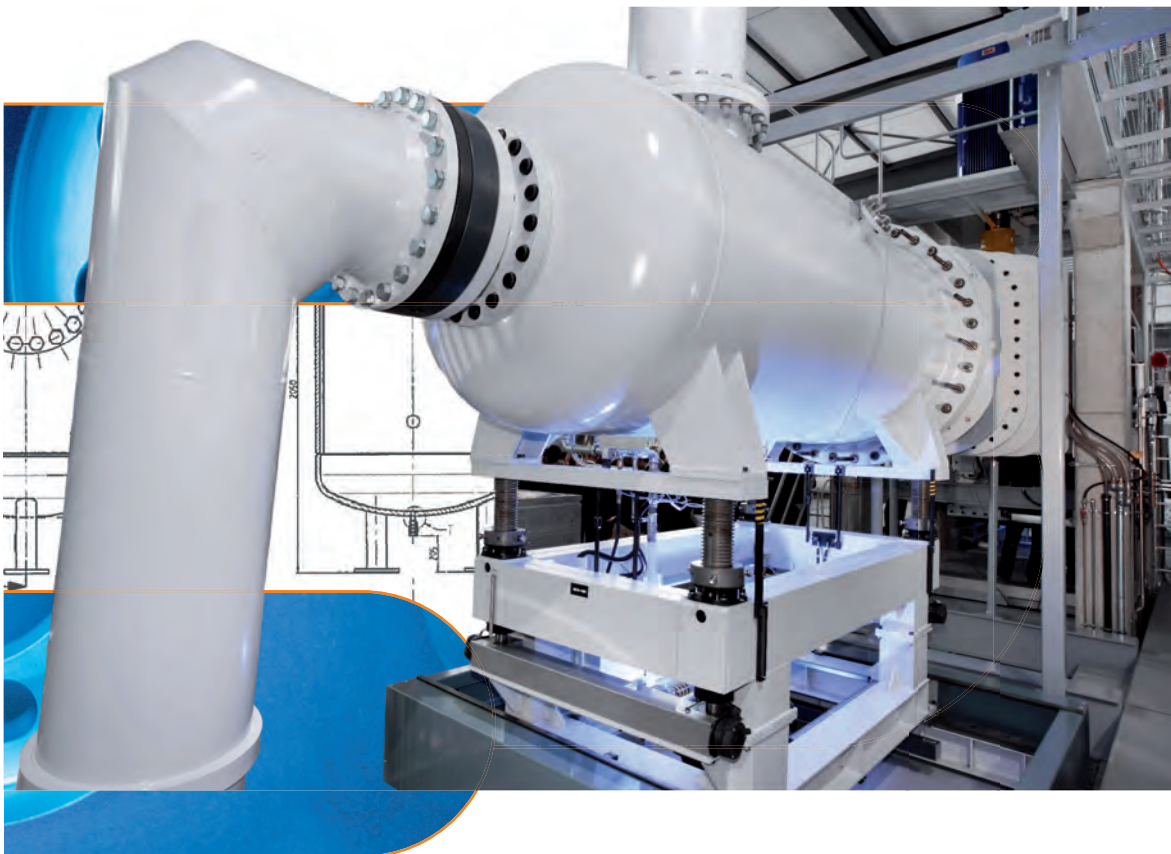
Design, cutting, rolling, edging, welding, locksmith work, grit-blasting, pickling, turning, milling, drilling, punching, etc.  
Range of assembly work.



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# Pressure Tanks

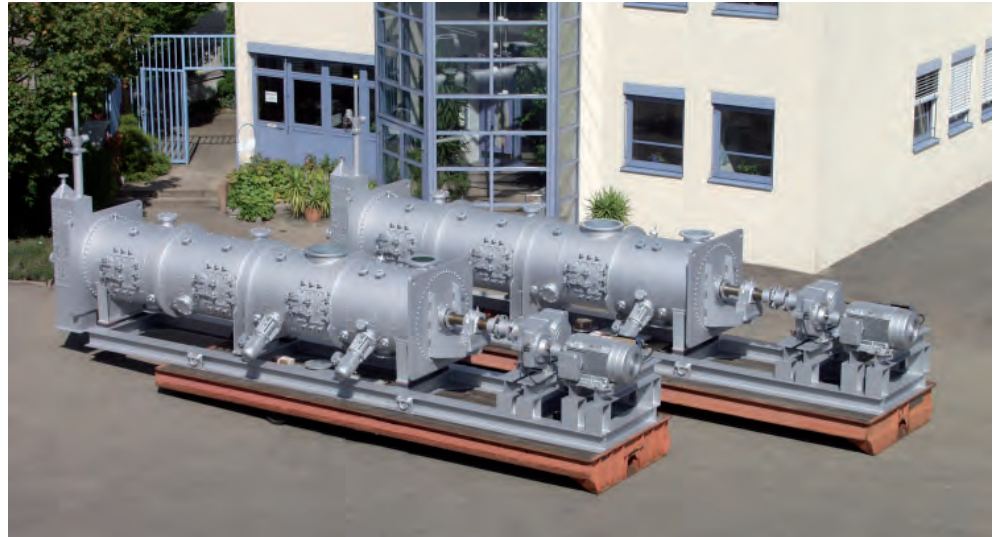
for the industrial sector



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## Pressure tanks made of steel plates or stainless steel in job production

In the field of „custom-made products“, we regard ourselves as problem solvers. We produce custom-made pressure tanks and compressed-air tanks for your individual requirements.



## Precision work

We manufacture pressure tanks and compressed-air tanks according to customer specifications:

- pressure tanks for air, nitrogen, water and argon up to PN 60 / 50°C
- category III and IV tanks
- heatable pressure tanks with double jacket
- pressure tanks with driven quick-acting closures
- pressure-loaded equipment, e.g. pipe sections
- custom-made special tanks
- accessories, e.g. fittings

All tanks are manufactured according to approved processes and formalities.

## Approvals

ZApprovals are possible according to the European Directives **PED 97/23/EC, EN 2009/105/EC, AD-2000 Leaflet HPO**, for example.

We are certified according to **DIN EN ISO 9001**, a specialised company **certification according to sec. 19 I of the German Federal Water Act** is present. Examinations and acceptance tests by the German Technical Inspection Association (**TÜV**) or other certified classification societies are no problem at all.



## Maximum dimensions

diameter	3000 mm
length / height	12 m
unit weight	12 to
wall thickness	25 mm

Further pressures, temperatures and dimensions upon request.



## Contact us!

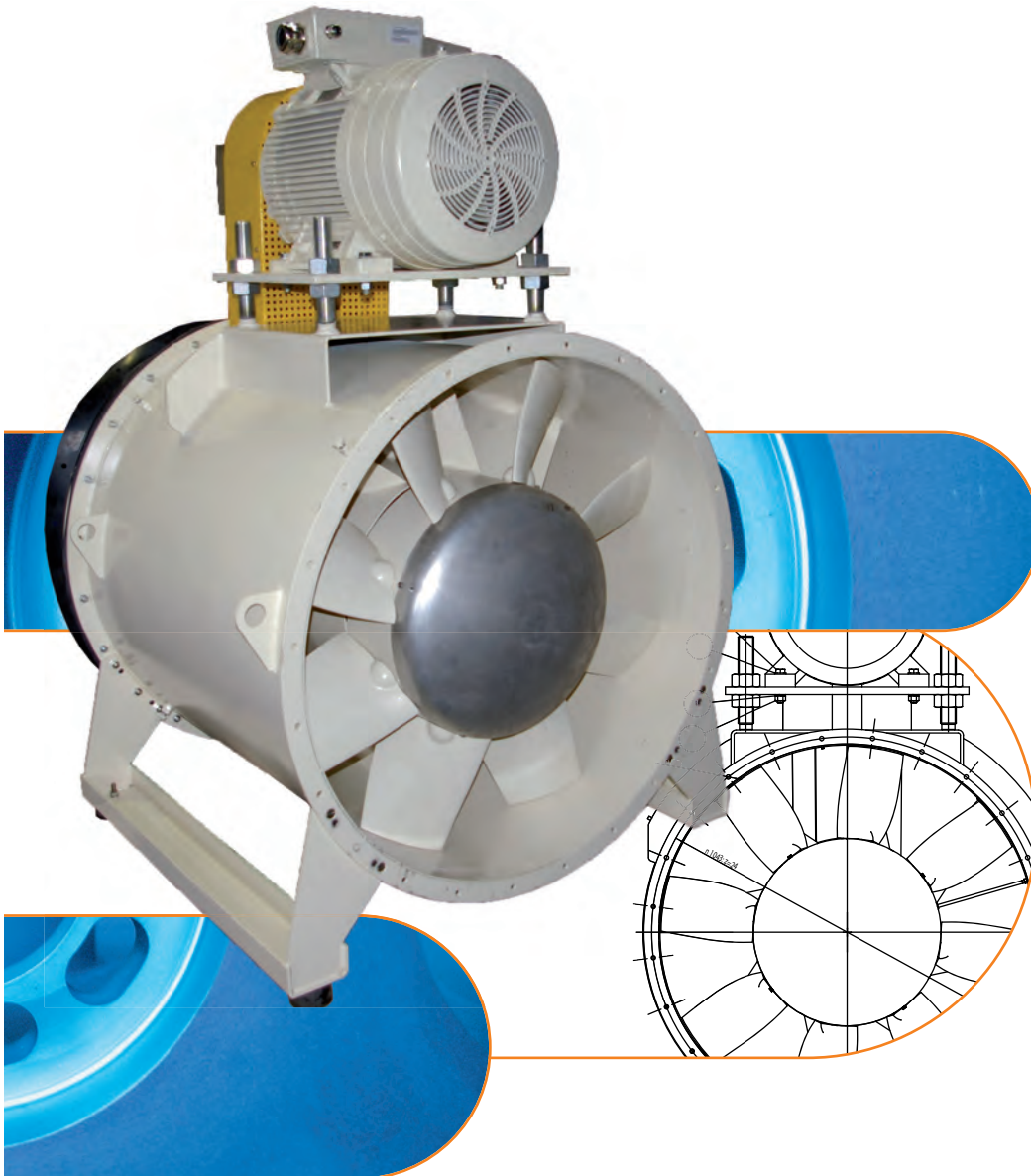
Our competent staff are familiar with the most challenging tasks due to their long-time experience.





Mechanical Engineering

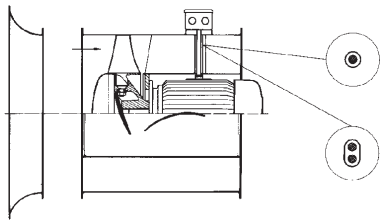
# Axial Fans



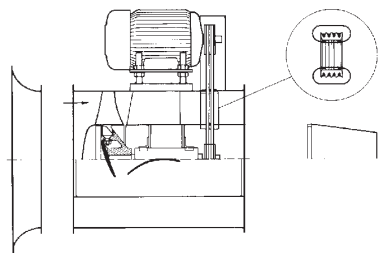
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The fans will have impeller blades which can be adjusted, stepless during stand still.

The axial fan program M 80 consists as a standard of 2 x 15 different sizes and arrangements, direct driven or belt driven.



A-drive (direct drive)



C-drive (belt drive)

Direct drive	Belt drive
400.250.6.A/M80	400.250.6.C/M80
500.315.6.A/M80	500.315.6.C/M80
630.315.6.A/M80	630.315.6.C/M80
630.400.6.A/M80	630.400.6.C/M80
800.500.8.A/M80	800.500.8.C/M80
800.315.6.A/M80	800.315.6.C/M80
800.250.6.A/M80	800.250.6.C/M80
1000.630.8.A/M80	1000.630.8.C/M80
1000.500.8.A/M80	1000.500.8.C/M80
1000.315.6.A/M80	1000.315.6.C/M80
1250.630.8.A/M80	1250.630.8.C/M80
1250.500.8.A/M80	1250.500.8.C/M80
1600.630.8.A/M80	1600.630.8.C/M80
1600.500.8.A/M80	1600.500.8.C/M80
2000.630.8.A/M80	2000.630.8.C/M80

Through direct drive the fan speed can be varied in the following steps:  
750 – 1000 – 1500 – 3000 rpm at 50 Hz / 900 – 1200 – 1800 – 3600 rpm at 60 Hz

Through belt drive a wider range of speed can be obtained. These variations give a wide working area for the axial fan M 80. It is possible to obtain capacities from 360000 m<sup>3</sup>/h using fan 2000.630.8A/M 80 down to 1800 m<sup>3</sup>/h with the fan 400.250.6A/M 80. It is further possible to obtain pressure up to 3600 Pa with the fan 800.500.8C/M 80.



## High efficiency axial fan

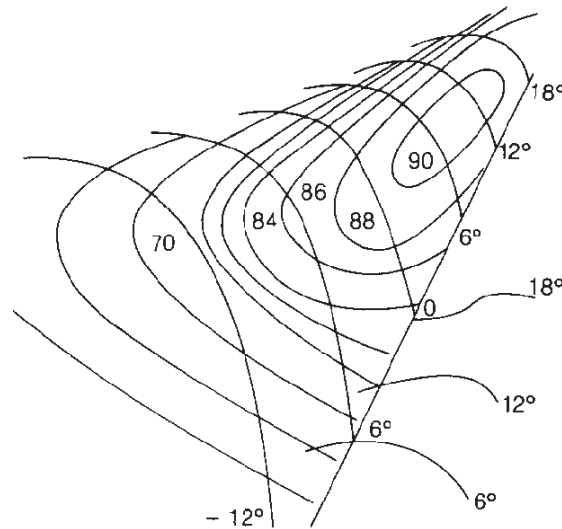
Through work done in Voiths research laboratory, it has been possible to optimize the profile of the wings, which gives a very high efficiency. In the medium pressure area efficiencies up to 90%, and in high pressure areas 85% can be obtained. Taking into consideration today's high energy prices, these are very important factors when the pay back is considered.

The technical design when manufacturing the fan housing and impellers gives the best results with regard to leakage losses between impeller and inlet cone. In that way it is possible to keep a high efficiency.

The complete unit with central tube, cables – and belt covers have an aerodynamic optimum design.

With belt driven fans, it is possible as accessories instead of the cover which is located on the outlet of the central tube, to mount a rear piece which will be formed as an inside diffuser. In that way it is possible to regain part of the static pressure.

A special inlet cone can be mounted on fans with open inlet, and the inlet loss will then be reduced. A special designed cover over the fan wheel hub ensures a best possible inlet air flow.



## The axial fan with the low noise

A high efficiency alone is not sufficient to obtain a max. reduction in the total noise level. By reducing the amount of impeller wings, f. inst. from 12 to 8 or from 8 to 6, it is without doubt possible to find a reduction in the sound pressure.

The frequency based evaluation of the total sound pressure level at a given distance in dB(A) based on the customer's required working point, can be calculated with a computer based on empiric measurements.

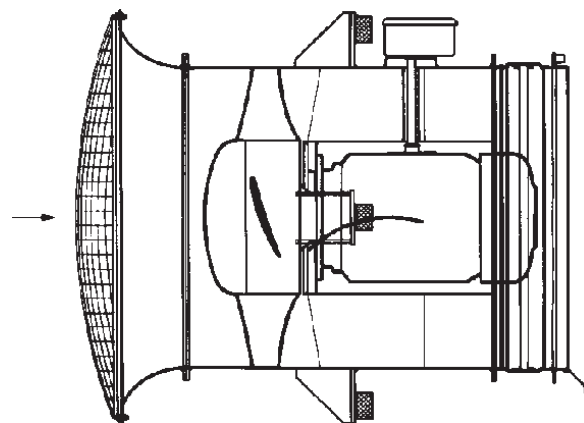
## The axial fan having max. stability

Through several decades of experience in production of fans and other process equipment for the industry, we are aware of our responsibility with regard to safe operation for the equipment. The best material selection together with good craftsmanship is of great importance, whether the fan shall be installed in conjunction with a paper machine, for ventilation of large production areas or utilized in the offshore industry under severe conditions.

Dependent on the design, the motor can be flanged directly to the central tube and the fan impeller mounted directly on to the motor shaft. Using belt drive where the bearings and the shaft are mounted into the central tube, the central tube will be fixed in the center of the fan housing through heavy gauge guide vanes.

For obtaining a max. stability, heavy gauge materials are utilized. Fan requiring motor powers of 75 kW or above, has as a standard 5 mm sheet metal thickness. Flanges on fan sizes up to 1200 are at least 8 mm. For fan sizes 1250 up to 2000, a flange thickness of 12 mm will be used. The flanges are fully welded to the fan housing.

The fan impeller wings and hub are made in cast silumin G-A1 Si 10 Mg. Profile thickness in the impeller wing is for example for a fan having a hub diameter of 630 mm up to 37 mm. This indicates the great stability of the fan impeller. An impeller for fan 1250.500.8 has a weight 59 kgs.



## The axial fan having a max. flexibility

The axial fan type M 80 will as a standard be delivered in St. 37.2, precoated and painted with a top coat. If required the fan can be supplied epoxy painted or hot dipped galvanized.

In cases where there are special requirements with regard to corrosion resistants, the fan can be made in special corrosion resistant materials as aluminium or various grades of stainless steel. Does the fan operate in areas where condensation occurs, the impeller hub will be drained.

Running at high temperatures and direct drive, the motor can be supplied with insulation class F. Using belt drive and at high temperature the bearings can be greased with high temperature grease.

The fan can be delivered with brackets for vertical- or horizontal erection.

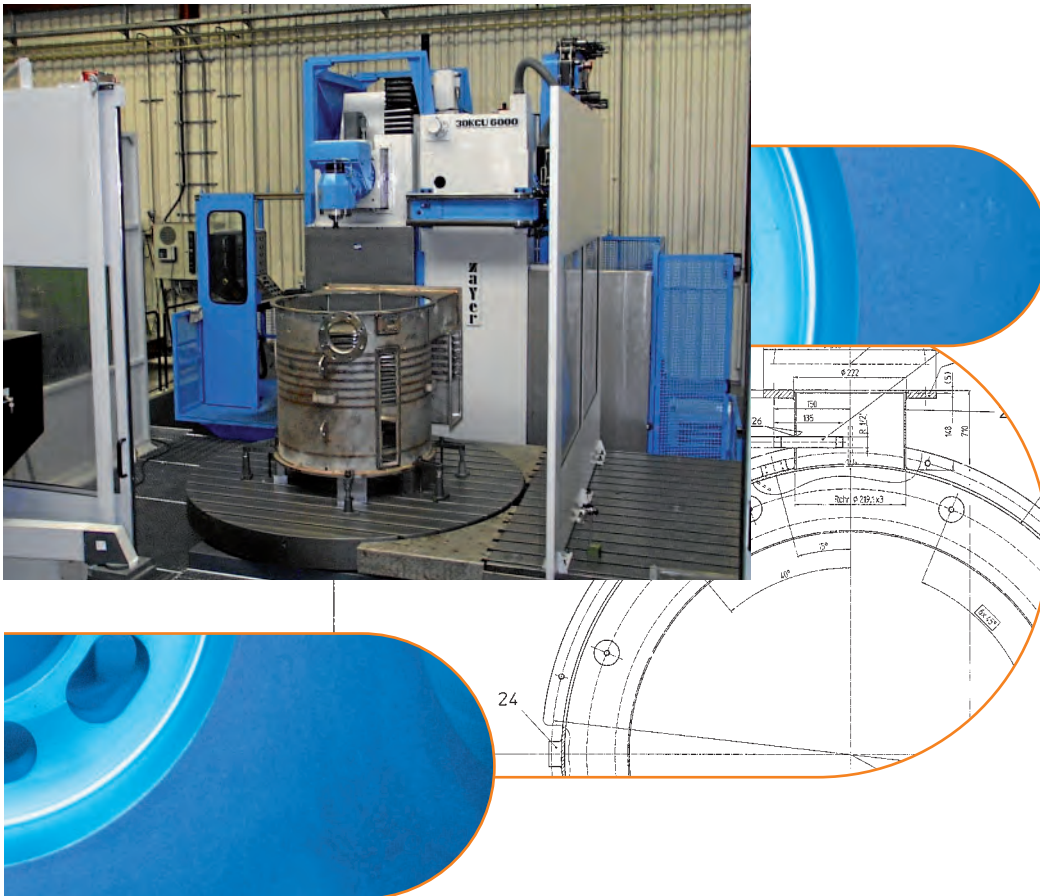
## Accessories

The following accessories in various materials can be supplied:

- inlet cone with protection grill
- inlet- and outlet compensators
- diffusor
- mounting frames
- epoxy painting
- galvanizing

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# Subcontract Work



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## Cutting

### Ultra-high pressure waterjet cutting robot

#### WARICUT HWE-P6030/2-2D

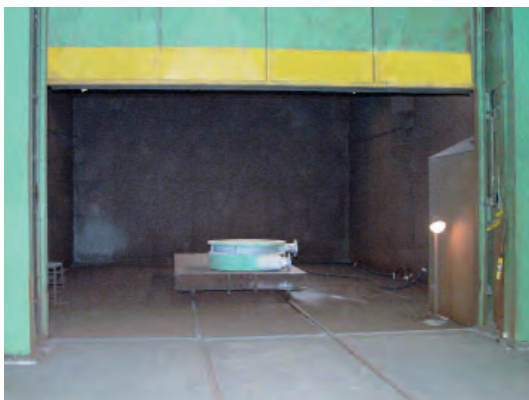
CNC-controlled with two cutting heads  
 processing size: 6050 mm x 3050 mm  
 sheet thickness max.: 150 mm



## Plasma cutting equipment

### erlcut e545

NC-controlled, with oxacetylen blowpipe and plasma burner  
 power source: HiFocus 440 i neo  
 processing size: 3050 mm x 12500 mm  
 sheet thickness max.: VA stainless steel = 35 mm  
 steel = 150 mm



## Surface processing methode

### Sandblasting equipment

cabin dimensions: 8 m x 5 m x 4 m  
 weight: 12 to



### Spray pickling line

part dimensions: 15 m x 6 m x 4,5 m  
 weight: 10 to

### Caustic dipping

size of tank: 2.8 m x 1.2 m x 1.4 m



## Mechanical processing

### Milling

part dimensions: max. 6000 x 1500 x 2000 mm

### Turning

turning  $\varnothing$ : max. 2000 mm  
turnning length: max. 3000 mm



... and much more!







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