

PRODUCT CATALOG

Advanced treatment solutions for water, wastewater and industries, from pre-treatment to tertiary treatment



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GERUM products – Quality designed and manufactured in Germany

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BELT SCREEN

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INECO TM

Equipment for mechanical pre-treatment



Quality designed and manufactured in Germany

INECO™ BELT SCREEN

General Information

GERUM offers under the brand and trademark name **INECO™** a wide range of equipment for pre-treatment as chain screens, screw screens, rotary screw screens, fine drum screens and sand classifiers.

The belt screen is a pre-treatment equipment for the remo-val of coarse material, fibers and garbage/solids in municipal and in various industrial treatment plants.

The **INECO**[™] belt screen can be customized to given channel dimensions and together with various screening openings it can be fit for any screening application.



Endless step chain with hooks of high durable glass fibre reinforced plastic



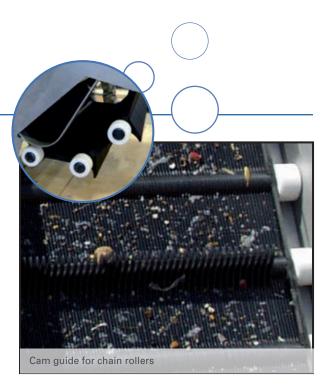
The main components of the machine are the left and right stainless steel frame with upper section, the endless chain with hooks, rotary cleaning brush, drive units and the discharge hopper.The screen is covered on the front and rear side as odour protection with removable hatches.



The fully automatic chain screen is equipped with an endless chain with hooks.

The **INECO**[™] belt screen is installed in raw water inlet channel and the collected material is carried safely by the chain hooks from the bottom of the channel up to the discharge hopper. During conveying the spacers of the belt are cleaned with a rotary brush system and wash water nozzles from remaining solids to avoid belt clogging.

The frame is made of material AISI 304 or 316 L. The endless chain with hooks is supplied in durable GFRP plastic, designed for high resistance. Optionally the hooks are also available in stainless steel. The **INECO™** belt screen is protected by tensiometers against overloading, to prevent ripping up of the endless step chain in case of dangerously increased load.



For fully automated operation the chain screen can be equipped with control panel, level transmitter and automatic solenoid valve for the wash water supply.

INECO™ BELT SCREEN

Features

- ✓ Frame material: AISI 304 or 316 L
- Endless chain material: high durable plastic GFRP
- ✓ Tension links available in GFRP
- ✓ Chain hooks available in GFRP
- ✓ Screen inclination 60° / 75° / 85°
- Chain width from 400 up to 2200 mm, up to 4000 mm as dual version
- Channel depth up to 12 m (more sizes on request)
- ✓ Opening 3 75 mm modular
- ✓ Low energy costs
- ✓ Brush drive 0.55 / 1.1 kW
- ✓ Belt drive 0.75 2.2 kW
- Long life span of endless step chain and drive units
- ✓ Very high hydraulic flow
- ✓ Easy link replacement
- Low maintenance costs
- Heavy duty frame structure and low chain weight
- Washing unit with rotating brush and spray nozzles





Rotary brush inside discharge hopper



Screening Handling

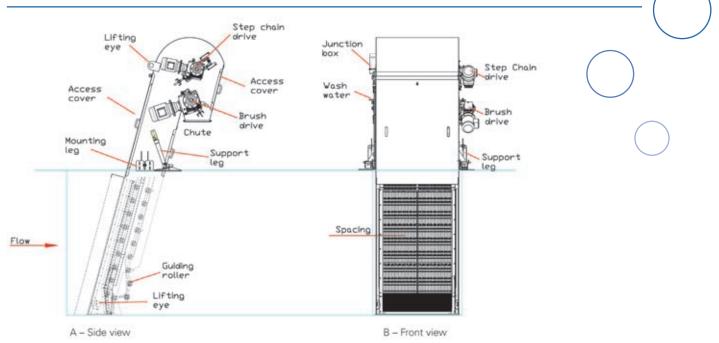
The chain screen installation can be further equipped with INECO[™] screening handling equipment, such as customized designed discharge chutes, shaftless or shafted screw conveyors, belt conveyors and screw compactors for screening dewatering.



2000-BS-2000 with screw conveyor, 4 out of totally 12 installed



Machine Parts



GERUM

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RAKED BAR SCREEN

INECO[™]

Equipment for mechanical pre treatment

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General Information

Called **INECO™** RAKED BAR SCREEN comes from years of Experience in the field of mechanical pre-treatment of waste water. The seperation of solids is regulated by the bar space and design of the screen panels.

The cleaning of the panel and the lifting of the screenings until the discharge area is guaranteed by combs (the number of which is proportional to the height of the screen), which are moved thanks to the sliding of roller chain driven in the upper zone by a toothed wheel.

The motion of these mechanical components is achieved by a geared motor. The advantage of the Raked Bar Screen is to be designed without mechanical components immersed in the effluent. The discharge of the screenings raised is obtained by a device called clean ridge.

TECHNICAL AND FUNCTIONAL DESCRIPTION

It is a screen that performs the function of screening and lifting/unloading of the coarse material separated **INECO**[™] RBS is installed in channel and is composed of lower zone of screening, composed from bars, positioned inclined and spaced from one another.

The distance between the bars represent the highest possible level that the raw water can reach upstream of the screen.

The cleaning of the grill and the lifting by a rake of the screenings is carried out from 2 ridges, which alternately pass between the bars by cleaning the spaces and lifting the screenings.

The discharge phase of screenings is guaranteed by a ridge-cleaner present in the top of the machine that provides cleaning of the ridge and the discharge of the screenings. The ridge are fixed to a roller chain connected by means of mechanical transmission to a geared motor unit.

The upper part of the machine is in fact provided with two sprockets on which the chain slides. In the lower part (inside the channel), is not present any mechanical section.

The chain runs on wear resistant roller, which prevent that the screenings may come in contact with the mechanical rake. The drive of the cleaning ridge can be done either by means of level sensor, that provides a signal of maximum level upstream to operate the same combs, or it is possible to use a time controlled operated rake ridge every 5 minutes (2 minutes of operation), regardless of the level upstream.



INECO™ RAKED BAR SCREEN

Further machine sizes are on request

- ✓ Available in material AISI 304 or AISI 316 L
- ✓ Screen space from 9 40 mm
- ✓ Discharge height up to 12 m
- Minimal maintenance
- Minimal footprint

- Low operation costs
- ✓ Life span of over 20 years
- ✓ Safe operation
- Control panel for automatic operation
- Industrial and municipal application

Technical Data

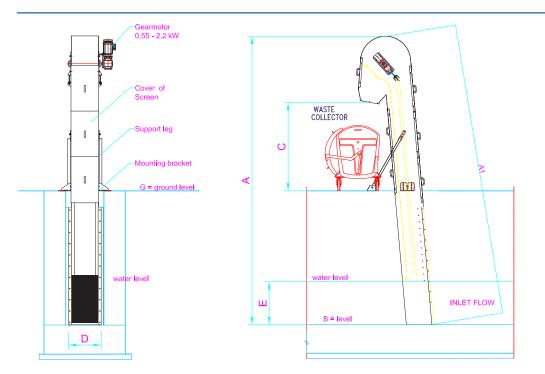
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Model RBS-series	400	800	1000	1200	1400	1800	2200	2600	3000		
Channel width D(mm)	400	800	1000	1200	1400	1800	2200	2600	3000		
Channel height B (mm)		Height varied as per clients requirement									
Bar section E height (mm)		Height varied as per clients requirement									
Discharge height C (mm)		Varied from 800 to 2200 mm									
Screen space (mm)				Varied	from 9 to	40 mm					

Intermediate size on request



INECO™ RAKED BAR SCREEN

Machine layout



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COMBINED PRE TREATMENT UNITS

INECO[™]

Equipment for mechanical pre treatment

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General Information

The **INECO**[™] Combined Pre Treatment Unit for pre-treatment of industrial or municipal waste water requires little installation space, no channel construction works and is easy to install and operate.

The unit combines screening, washing and compacting of solids and sand separation within one machine. Upon request also fat and oil removal system can be included and called DG. The inlet of the unit can be designed with a standard flange connection or with a perrot coupling with automatic valve for receipt of septic waters from discharging trucks.

First the waste water passes a screen basket to remove solids and then enters the settling tank. The separated solids are transported by the screw towards the ejection zone.

At the end of the transport section a compacting zone is available to dewater solids and subsequently reduce weight and volume. During the rotation of the screw the basket is cleaned via brushes. At the compaction zone a washing systems is installed to reduce the organic content of the screenings.

Then the waste water enters the grit separation tank where the sand is separated by a combination of reduced flow velocity and air injection. A slow rotating shaftless or shafted screw at the tank bottom collects the sand, which is then further removed out of the system by an inclined screw.

Units equipped with a grease removal system have additional a fine bubble air injection to flotate the fat and oil particles. These are further removed with scraper paddle that is travelling alongside the tank and discharged into the outlet box.

Level sensors detect the water levels for fully automatic operation. The set points start the rotation of the screw screen and the screening washing system. All sequences of the CU are PLC controlled.



Features

- Completely closed system
- Capacity from 10 up to 200 l/s and up to 350 l/sec on request
- ✓ Screen opening from 1 12 mm holes
- ✓ available in material AISI 304 or AISI 316 L
- Screw available in material AISI 304 / AISI 316 L or high carbon steel
- ✓ Perrot coupling incl. electric ball valve available
- ✓ Degreasing system available
- Screw screen with washing and compacting system

- Endless bagging unit available
- Manual bypass available
- ✓ No mechanical parts in contact with raw water
- Reduction of organic content of screenings
- ✓ Little maintenance
- Compact installation with low space requirement
- Low investment cost
- ✓ Volume and weight reduction of screenings
- Industrial and municipal application

Model CU-series	A (mm)	B (mm)	C (mm)	D1 (mm)	D2 (mm)	E (mm)	F (mm)	G (mm)	Flange
CU-15	4100	3000	3740	1400	1330	2230	1610	670	DN200/PN10
CU-30	7650	6000	3300	1400	1330	2580	1610	670	DN200/PN10
CU-45	10600	9000	3600	1340	1280	2580	1610	670	DN400/PN10
CU-60	7800	6000	4560	2000	1900	3150	2320	1030	DN250/PN10
CU-100	10500	9000	5850	2310	2150	4460	2650	1540	DN400/PN10
CU-130	12100	10500	5000	2000	1900	3200	2300	1030	DN300/PN10
CU-150	13600	12000	5000	2000	1900	3390	2300	1800	DN300/PN10
CU-200	13500	12000	5000	2000	1900	3390	2300	2120	DN300/PN10

Technical Data

Machine sizes from CU-10 up to CU-250 are abvailable"

Model CU–DG- series	A (mm)	B (mm)	C (mm)	D1 (mm)	D2 (mm)	E (mm)	F (mm)	G (mm)	Flange
CU-15-DG	4150	3000	3740	1720	1480	2400	1920	1250	DN250/PN10
CU-30-DG	7650	6000	4030	1600	1480	3020	1920	1250	DN300/PN10
CU-45-DG	10600	9000	4030	1600	1480	3000	1920	1680	DN350/PN10
CU-60-DG	7800	6000	5250	2040	1900	3000	2350	1680	DN300/PN10
CU-80-DG	10500	9000	5190	2040	1800	3900	2350	1820	DN400/PN10
CU-100-DG	10500	9000	5170	2040	1800	3720	2350	1820	DN400/PN10
CU-150-DG	12000	10500	5170	2040	1800	3720	2350	1820	DN400/PN10
CU-200-DG	13500	12000	5170	2040	1800	3720	2350	1820	DN400/PN10

Further machine sizes are on request

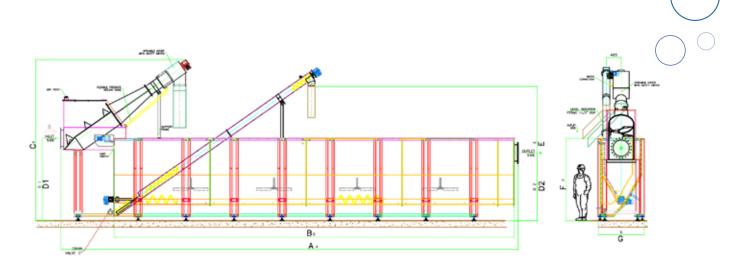
The flow rate is relating on inlet load, size of screen opening and retention time for sedimentation of grit particles

Additionally to the combined pre treatment unit the degreasing includes.

- Motor driven scraper paddle system with two limit switches
- 2. External blower with integrated fine bubble diffusers
- 3. Grease separating hopper



Machine layout



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SCREW SCREEN



INECO[™]

Equipment for mechanical pre treatment

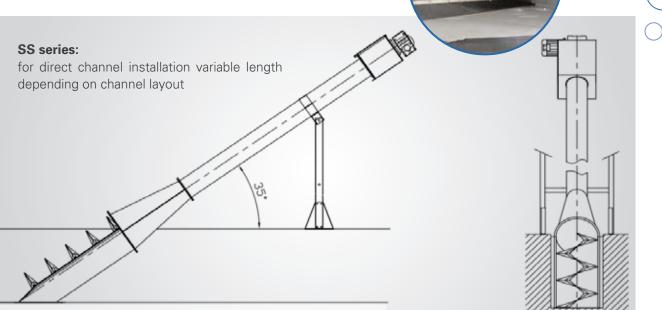


General Information

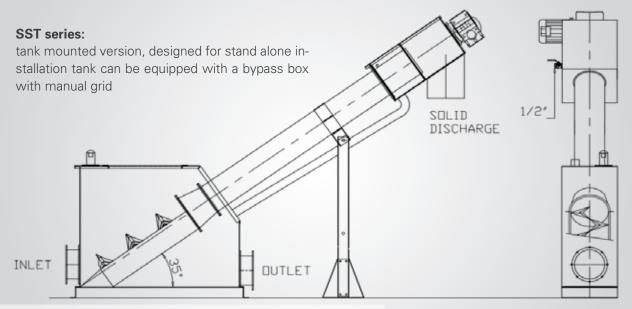
The **INECO**[™] screw screen series combine separation, transport and subsequent dewatering of the solids out of the waste water. The coarse material is collected in the loading basket of the unit. The rise of the raw water level starts the screw conveyor and the screenings are transported to the discharge zone. During the rotation of the screw the basket is cleaned via brushes mounted on the screw. Additional a wash water bar with nozzles is available for the basket. At the top of the machine optional a compacting zone to dewater the solids and reduce discharge weight and volume is available.

The screw screen will be delivered in different series to meet customer requirements and installation demands.

Machine layouts



Machine drawing for screw screen w/o tank and w/o compacting unit



Machine drawing for screw screen with tank and w/o compacting unit

INECO™ SCREW SCREEN

Features

- ✓ Available in material AISI 304 or AISI 316 L
- Screw available in material AISI 304 / AISI 316 L or high carbon steel
- ✓ Wedge wire from 0,25 3 mm
- ✓ Hole pattern from 1 10 mm
- ✓ Different inclination angles available
- ✓ Self cleaning via brushes
- ✓ Washing systems for basket
- Washing system in conveyor section and compaction zone
- Minimal maintenance

- ✓ Low rotation speed
- Low operation costs
- Volume and weight reduction with compacting system
- ✓ Endless bagging unit
- ✓ Life span of over 20 years
- ✓ Safe operation
- ✓ Tank version is fully enclosed for odour control
- Heating system
- ✓ No mechanical parts in contact with raw water
- ✓ Industrial and municipal application

Technical Data: SS series

	INECO™ SCREW SCREEN tank installed											
Model	Basket (mm)	Inlet /Outlet	Tank width (mm)	Discharge h. (mm)	RPM	Drive (kW)						
200-SS	200	300	430	adjustable	11	0,75						
300-SS	300	350	430	adjustable	11	0,75						
400-SS	400	450	455	adjustable	11	0,75						
500-SS	500	550	575	adjustable	11	0,75						
600-SS	600	650	685	adjustable	9	1,1						
700-SS	700	750	800	adjustable	13	2,2						

Technical Data: SST series

	INECO™ SCREW SCREEN tank installed												
Model	Basket (mm)	Inlet /Outlet	Tank width (mm)	Discharge h. (mm)	RPM	Drive (kW)							
200-SST	200	DN 150	370	1.435	11	0,75							
300-SST	300	DN 200	410	1.500	11	0,75							
400-SST	400	DN 250	550	1.500	11	0,75							
500-SST	500	DN 300	600	1.500	11	0,75							
600-SST	600	DN 400	700	1.800	9	1,1							
700-SST	700	DN 500	920	2.000	9	1,1							

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Flow rate

INECO™	SCREW SCRE	EN flow rate	depending on	basket size a	nd screen ope	nings
Opening	Basket 200 Ø	Basket 300 Ø	Basket 400 Ø	Basket 500 Ø	Basket 600 Ø	Basket 700 Ø
0,5 mm Wedge	45 m³/hr	60 m³/hr	85 m³/hr	180 m³/hr	280 m³/hr	360 m³/hr
1 mm Ø	75 m³/hr	90 m³/hr	120 m³/hr	270 m³/hr	360 m³/hr	520 m³/hr
2 mm Ø	70 m³/hr	90 m³/hr	130 m³/hr	230 m³/hr	330 m³/hr	490 m³/hr
3 mm Ø	100 m³/hr	130 m³/hr	180 m³/hr	320 m³/hr	470 m³/hr	730 m³/hr
6 mm Ø	160 m³/hr	200 m³/hr	300 m³/hr	450 m³/hr	600 m³/hr	970 m³/hr
9 mm Ø	200 m³/hr	250 m³/hr	370 m³/hr	500 m³/hr	690 m³/hr	1200 m³/hr

The flow rate is relating on inlet load mg/l and based on 200 mg/l as well sizes of the particles

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ROTARY SCREW SCREEN

INECO[™]

Equipment for mechanical pre treatment

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INECO™ ROTARY SCREW SCREEN

General Information

The **INECO**[™] Rotary Screw Screen combines separation, transport and subsequent dewatering within one machine. The water flows into the drum and solids are held back by wedge wire or perforated panels. Via rotation of the basket and the screw conveyor the screenings/solids are transported to the compacting and ejection zone. Both screen and screw are driven with one common motor.

During the rotation the basket is cleaned via plastic bolted brushes to prevent clogging. The Rotary Screw Screen can be equipped with a washing systems in the drum, the transport and the compacting zone to separate organics.

The Rotary Screw Screen is designed for direct channel installation. The unit can be moved out of the channel by a rotating system for maintenance reason.

A level sensor detects raw water level for fully automatic operation and starts the rotation of the screw and subsequently of the outer rotary drum and the optional screening washing system.

At the end of the transport section the compacting zone is dewatering the solids and subsequently reduce weight and volume of the discharged screenings.

The seperation of solids is regulated by the bar space and design of the screen panels. The cleaning of the panels.



INECO™ ROTARY SCREW SCREEN

Advantages

- ✓ Inclination angle 35°
- Direct channel installation or as stand alone build in a tank
- ✓ available in material AISI 304 or AISI 316 L
- Screw available in material AISI 304 / AISI 316
 L or high carbon steel
- ✓ Screen opening from 1 mm 10 mm
- ✓ High flow rate
- Filtering basket with wedge wire or punched holes for MBR
- ✓ Self cleaning via brushes

- ✓ Sizes from 600 3000 mm drum Ø available depending on flow rate and screen openings
- ✓ Washing system available
- Endless bagging unit available
- Low rotation speed
- Reduction of organic content of screenings
- Little maintenance
- Volume and weight reduction of screenings by integrated compacting section
- Industrial and municipal application

Dimensions	RSS 800	RSS 1200	RSS 1600	RSS 200	RSS 2400	RSS 2600	RSS 3000
А	800	1.200	1.600	2.000	2.400	2.600	3.000
В	800	1.200	1.600	2.000	2.400	2.600	3.000
С	590	940	1.200	1.600	2.000	2.100	2.200

Flow Rate

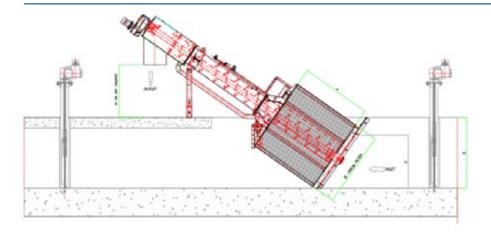
Dimensions	RSS 800	RSS 1200	RSS 1600	RSS 200	RSS 2400	RSS 2600	RSS 3000
Opening	RSS 800	RSS 1200	RSS 1600	RSS 2000	RSS 2400	RSS 2600	RSS 3000
0,5 mm Ø	110 m³/hr	290 m³/hr	590 m³/hr	950 m³/hr	1.480 m³/hr	1.850 m³/hr	2.050 m³/hr
1 mm Ø	270 m³/hr	470 m³/hr	970 m³/hr	1.750 m³/hr	2.450 m³/hr	3.000 m³/hr	3.300 m³/hr
2 mm Ø	270 m³/hr	430 m³/hr	1.000 m³/hr	1,600 m³/hr	2.100 m³/hr	2.400 m³/hr	2.900 m³/hr
3 mm Ø	330 m³/hr	560 m³/hr	1.250 m³/hr	1.900 m³/hr	2.500m³/hr	2800 m ³ /hr	3.300 m³/hr
6 mm Ø	700 m³/hr	1.350 m³/hr	3.000 m³/hr	4.500 m ³ /hr	5.700 m³/hr	7.300 m³/hr	8.200 m³/hr
9 mm Ø	920 m³/hr	2.200 m³/hr	3.400 m³/hr	5.300 m³/hr	6.300 m³/hr	7.800 m³/hr	9.200 m³/hr

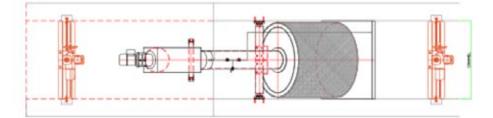
Further screen openings on request, The flow rate is based on 200 ppm solid content

Technical Data

С

Machine layout





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SCREW WASH COMPACTOR

INECO[™]

Equipment of sludge, screenings and garbage handling

For our nature and our future

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General Information

The **INECO**[™] screw compactor Co is a completely closed unit and combines drainage, transport and compacting within one machine and covers multi inlet hoppers, depending on the screw length.

The draining section is closed to the inlet hopper and the solids are transported within the U-trough towards the compacting section.

The shaftless screw has no internal supports and allows treatment without blockage even with fibrous material.

The loading zone is equipped with a washing system and organic particles are separated from the waste.

Due to the dewatering and compacting a volume reduction of up to 40% can be reached. The discharge can be equipped with an endless bagging unit.

In opposite to the Co series the W-Co consist of a short horizontal inlet screw with 0° inclination for only one inlet hopper and on the discharge side of the compacting stage one so called duck neck outlet pipe for the dewatered screenings.

Washing zone of screenings is part of W-Co.





INECO™ SCREW WASH COMPACTOR

Features

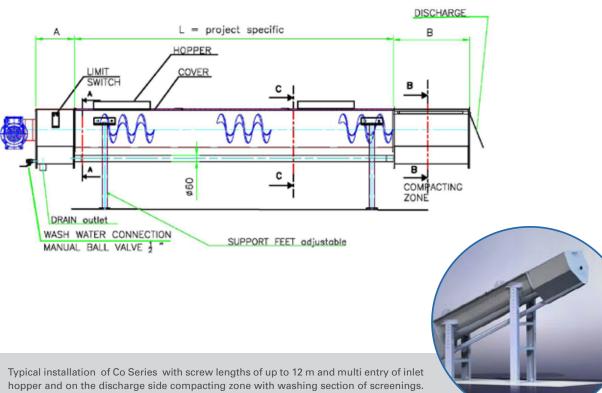
- ✓ Capacity up to 8 m³/h and with Co 600 up to 22 m³/h
- ✓ Available length up to 10 m with multi inlet hopper as Co series
- ✓ Series W-Co with duck neck outlet with single inlet hopper
- ✓ Inclination adjustable from 3° 35° valid for **Co** series
- ✓ Volume and weight reduction up to 55 % depending on application and model
- ✓ Available in material AISI 304 or AISI 316 L
- ✓ Screw available in material AISI 304 / AISI 316 L or high carbon steel

Technical Data of Co series

- ✓ Wear bars in material AISI or HDMW/HDPE
- No internal supports
- Completely closed system and in this case odourless
- ✓ Shaftless screw
- Low erection and maintenance costs
- No jamming or blocking
- ✓ Outlet adaptable, horizontal or vertical for **Co** series
- Endless bagging unit for Co series
- ✓ No mechanical parts in contact with raw water
- Industrial and municipal application

Model	Flow (m³/h)	Ø screw (mm)	drive (kW)	inclination	А	В	L
Co-200	2	200	1,1	3° - 35°	360	500	up to 8 m
Co-300	5	300	3,0	3° - 35°	360	720	up to 10 m
Co-400	8	400	5,5	3° - 35°	465	920	up to 10 m

Screw sizes up to 600 Ø and with flow rate of up to 22 m³/h available



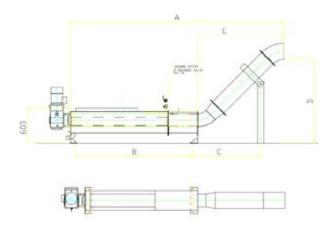
Inclination 3° to 35° depending on length and application

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Technical Data of W-Co series									$\left(\right)$
	Model	Flow (m³/h)	Ø screw (mm)	drive (kW)	inclination	Hopper	Α	D	$\bigcap^{(i)}$
	200-WCo	2	200	3,0	0°	1	3200	1400	\bigcirc
	300-WCo	4	300	5,5	0°	1	4200	1500	
	400-WCo	6,5	400	7	0°	1	4500	1500	

Technical Data of W-Co series

Note: the lengths of duck neck E can be modified as per client's request





W-Co series screw wash compactor with the unique duck neck discharge pipe, build as horizontal screw for hopper loading and integrated washing section of screenings.

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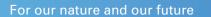
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SAND CLASSIFIER

INECO[™]

Equipment for mechanical pre treatment



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Quality designed and manufactured in Germany

Sector in

INECO™ SAND CLASSIFIER

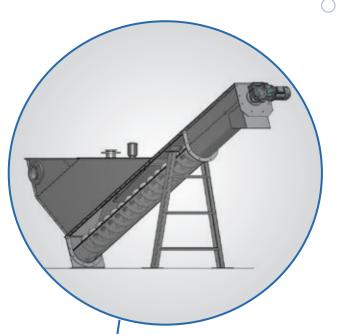
General Information

This **INECO™** series of **GERUM™** consist of a rectangular decanting hopper, shaft less screw conveyor and optional sand washing in the transport section. The process of sand classifying is a combination of vortex and gravity feed. For enhancing the separation process a blower system can be ordered on request.

In the completely encapsulated sand classifier the water sand mix enters on top of the hopper and the solid particles settle to the tank bottom.

The screw conveys settled sand towards the discharge outlet, which can be equipped with washing nozzles.

The clarified water is discharged at the side. Low speed of the screw guaranteed a very high efficiency of sand removal and static dewatering during transport. Sand classifiers separate even fine sand with particles down to $200 \ \mu m$.





Features

- ✓ High efficiency
- ✓ Low erection and maintenance costs
- ✓ Available in material AISI 304 or AISI 316 L
- Screw available in material AISI 304 / AISI 316 L or high carbon steel
- Long retention time for better settling process
- Completely closed system
- ✓ Minimal maintenance

- ✓ Life span of over 20 years
- ✓ Safe operation
- ✔ Robust design
- ✓ Heating system available
- No mechanical parts in contact with raw water
- Industrial and municipal application
- Optional sand washing in transport section available

Model	Flow I/s	Inlet	Outlet	Drive	A (mm)	B (mm)	C (mm)	Weight (kg)
SC 5	6	DN 80	DN 100	0,37 kW	1500	3700	1250	500
SC 10	11	DN 100	DN 150	0,37 kW	1600	4.500	1.100	650
SC 15	15	DN 150	DN 200	0,37 kW	1800	4.850	1150	750
SC 20	22	DN 150	DN 200	0,37 kW	1900	5.400	1550	1.000
SC 30	28	DN 200	DN 250	0,37 kW	2350	6.200	1550	1.650
SC 40	36	DN 200	DN 250	0,55 KW	2550	6.700	1700	1.800

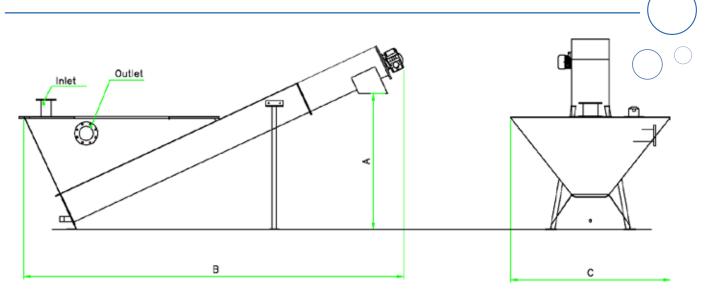
Model	Flow I/s	Tank capacity m ³	Sand extraction capacity m³/h
SC 5	6	0,4	0,25
SC 10	11	0,9	0,4
SC 15	15	1,5	0,4
SC 20	22	2	0,5
SC 30	28	3	0,6
SC 40	36	3,8	0,7

Estimated data

Technical Data

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Machine layout



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FINE DRUM SCREEN



Equipment for mechanical pre treatment

For our nature and our future

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INECO™ Fine Drum Screen TE/TI - Series

These drum screens are mainly designed for screening of industrial waste water, such as originating from food industrie, breweries, ...The fine drum screens are designed as self cleaning, slow rotating drum and are available in two series:

- TE series with externally fed drum, doctor blade and integrated screening press.
- TI series with internally fed drum and internal screw for the removal of screenings.

Both series are stand alone units, which are fully covered to minimize odour problems and are equipped with a self cleaning nozzle system.

The TI series is recommended for fast settling, sticky particles.

Features

- ✓ Available in material AISI 304 or 316 L
- Compact solution with little footprint
- Encapsulated
- Integrated overflow weir
- ✓ TE series with optional compactor
- Wedge wire or perforated plates
- Self cleaning nozzle system
- ✓ TI series drum diameter 1000 1800 mm drum length up to 4500 mm





- TE series drum diameter 300 950 mm drum length up to 2500 mm
- Optional control panel with solenoid valve for wash water supply

INECO™ Screw Conveyor / Screw Compactor SCO/Co- Series

Shaftless screw conveyors of SCO series allow conveying of screenings and sticky and entangling material due to absence of internal shaft. The main machine parts are the trough, rotat-ing screw, inlet and outlet hopper.

The screw compactor of the Co series is a completely closed unit and combines drainage, conveying and compacting with-in one machine. The draining section is closed to the inlet hop-per and the solids are transported within the U-trough towards the compacting section. **WCo** series with washing system and duck neck of the compacted screenings.



Screw conveyor with 2 inlet hoppers ready to ship

Features

- External structure available in AISI 304 or 316 L
- ✓ Screw available in AISI 304, 316 L or high carbon steel
- ✓ Available length up to 36 m
- ✓ Inclination adjustable up to 30°
- Delivered including cover and adjustable support feet
- Minimal maintenance
- ✓ No mechanical parts in contact with waste
- ✓ Dewatering/compacting of screenings up to 55%





SURFACE AERATORS

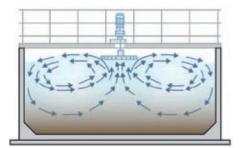


Technology for Waste Water Treatment

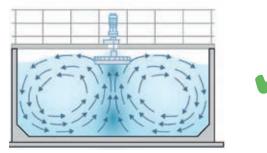


Advantages

- Excellent mixing in the total reactor tank with a guaranteed liquid-flow of up to 0.3 m/s.
- ✓ High oxygen-supply-efficiency of 2.1 2.4 kg O₂ /kWh
- ✓ No remission of oxygen supply after decades
- Aerators available in material AISI 304 or AISI 316 L
- ✓ Controlled by O₂-sensor and frequency converter for optimized power consumption
- ✓ Fixed or floating construction available
- Only one aerator for mixing and aeration
- Easy maintenance without emptying the reactor tank
- ✓ No clogging up
- High α-factor of 0.9 / 0.95
- Very long lifetime with calculated operation time of over 100,000 hours (for the drive unit) under working conditions.
- ✓ Up to four SBR cycles per day are possible
- ✓ Shallow splash height, thus large spread diameter
- Low rotation speed of the aerator depending on its size 26 – 130 rpm.



Standard Surface Aerator: Shallow current sedimentation at tank bottom



BIOJET™ Surface Aerator: Deep effecting current & central vertical flow

High speed aerators with more than 700 rpm produce a kinetic energy, which promotes growth of unwanted thread-shaped organisms and at the same time destroys the necessary multicellular microorganisms. Critics of surface aeration at times mention problems due to aerosol generation and sensitivity towards frost. Years of experience, however, have shown that these assertions can be neglected. Freezing only occurs after extremely long periods of heavy frost, but these problems can be prevented and solved during the engineering phase.

Tank Applications

GERUM know how is a guarantee for longterm client satisfaction.

Technical data	Tank length (m)	Water level max (m)	Volume (m³)
BIOJET™ ST 800	7.5	2.5	170
BIOJET™ ST 1000	10.0	3.5	400
BIOJET™ ST 1300	12.0	4.0	650
BIOJET™ ST 1500	14.5	4.5	1100
BIOJET™ ST 1700	16.5	5.0	1500
BIOJET™ ST 1900	18.5	5.0	2000
BIOJET™ ST 2100	21.0	5.5	2800
BIOJET™ ST 2300	22.5	5.5	3100
BIOJET™ ST 2600	24.5	6.0	3900
BIOJET™ ST 3000	26.0	6.0	4000



Two **BIOJET™** ST 1300 with the unique one cell floating construction in a rectangular tank



BIOJET™ ST-2600 with 110 kW motor



BIOJET[™] ST 2100 – 37 kW motor, fixed installation

Surface installation



Dimensions

Technical data	Diameter (mm)	Speed max. (rpm)	Power (kW)	O ₂ Supply* (kg O ₂ /h) in clean water condition	Spread diameter (m)	Splash height (m)
BIOJET™ ST 800	850	128	2.2 - 4	4.4 - 8	4.3	0.4
BIOJET™ ST 1000	1000	108	4 - 7.5	8 – 15	7.2	0.4
BIOJET™ ST 1300	1350	84	9.2 – 15	18.5 – 30	8.9	0.5
BIOJET™ ST 1500	1550	70	15 – 22	30 - 44	10.3	0.5
BIOJET [™] ST 1700	1700	66	18.5 – 30	37 – 60	12.0	0.5
BIOJET™ ST 1900	1900	56	30 – 37	60 – 74	15.0	0.6
BIOJET [™] ST 2100	2100	46	37 – 55	74 – 110	15.2	0.6
BIOJET™ ST 2300	2350	42	55 – 90	110 – 180	15.7	0.6
BIOJET™ ST 2600	2650	36	90 - 110	180 - 220	16.3	0.6
BIOJET™ ST 3000	3000	33	110 – 160	220 – 320	17.8	0.7

* O2-transfer measured in clean water condition/more sizes on request

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FLOATING DECANTER



Equipment for biological process



Quality designed and manufactured in Germany

BIOJET™ FLOATING DECANTER

General Information

Gerum engineers have over 28 years of experience in manufacturing, design and installation of floating decanters.

Gerum R&D has developed a floating decanter with minimized maintenance intervals and optimized decanter flow and life time. An important part of the system is its robust nature. Energy consumption is negligible due to little winding time per decanting cycle, controlled by own developed control panel.

During the biological processes of aeration, mixing and sedimentation, the skimmer with floating cell of the **Gerum FD** is raised up and stays in over flow position or stand by position. Depending on the process the motor winch lowers the decanting head with the skimmer to the water surface during or at the end of the sedimentation process

CONSOLE

to start the decanting cycle. In order to prevent discharging of floated sludge or foam, the skimmer is immersed under the water surface (adjustable up to 200 mm).

After the decanting process the FDW motor winch lifts up the decanting head to the initial position as so called stand by position and to be ready for the next decanting cycle.

Floating cell with skimmer

Detail of swivel join

FDW 1000 motor winch with control box and FD 450 decanter during factory test phase.

BIOJET™ FLOATING DECANTER

Features

- High efficiency floating decanter
- ✓ Retrofitting of existing SBR plant
- Immersed skimmer to prevent discharge of floating sludge and foam
- ✓ Available in material AISI 304 or AISI 316 L
- ✓ Decanting flow range from 40 530 l/s
- Floating skimmer with adjustable immersion depth (up to 200 mm)
- ✓ Decanter also usable as emergency over flow
- ✓ Free swivel join
- Negligible energy consumption
- Minimal maintenance
- ✓ Self lubricating winder and stainless steel rope
- ✓ Winch drive 0.18 2.2 kW
- Speed 2.2 2.4 m/min
- Life span over 20 years

- No disturbance of flow during aeration and mixing (nitrification and denitrification)
- Possible decrease of decanting time from 1 hour down to 30 minutes



One of two BIOJET™ FD 300 with FDW 500 motor winch and external control panel

Model BIOJET™ Floating Decanter	Flow capacity I/sec	Pipe Ø	L1 (max) mm Pipe length	L2 mm Width of floating head	H1 (min)
FD 100	Up to 50	DN 100	2500	1000	400
FD 150	Up to 80	DN 150	3000	1000	500
FD 200	Up to 130	DN 200	3000	1500	500
FD 250	Up to 180	DN 250	3500	1500	500
FD 300	Up to 240	FD 300	4000	1800	600
FD 350	Up to 300	FD 350	4500	1800	600
FD 400	Up to 350	FD 400	5000	2200	700
FD 450	Up to 400	FD 450	5000	2200	800
FD 500	Up to 470	FD 500	5500	2200	800

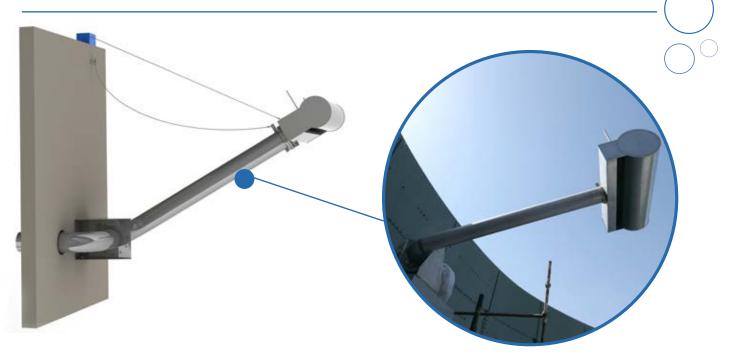
The flow rate is relating on the pressure differential, TSS content of water and pipe length L1 can vary. Sizes up to FD 600 available and intermediate sizes on request. Flow capacity measured after swivel join.

Model BIOJET™ Motor Winch	Floating decanter size	Rope Ø mm	Rope length	Motor power kW	Voltage
FDW 500	DN 100 – DN 300	5/6	Up to 8 m	0,18 - 0,37	1
FDW 1000	DN 350 – DN 450	8	Up to 8 m	0.55 – 1,1	1
FDW 1500	DN 500 – DN 600	10/12	Up to 10 m	1,5 - 2,2	1

1 = depending on countries regulation

Technical Data

Example of as build



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MICRO STAR FILTER

INECO[™]

Equipment for Filtration and Tertiary Treatment ... A NEW DEFINITION OF DISC FILTER

For our nature and our future

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INECO™ MICRO STAR FILTER

Significant characteristics and operating principle

The Micro Star Filter is available as channel or stand alone tank version and can be equipped with filter cloths from $6 - 100 \,\mu$ m. Due to the innovative star segment design the MSS filter has 40% more filtration surface and higher pessure difference than same size products on the market. This design results in comparable filter surface to footprint ratio to Disc Filters, thus reducing investment cost.

The Micro Star Filter is equipped with easy-changeable star segments, reject hopper, wash water pump, spraying system and sensors. Further ad-



vantages among the possibility to feed the raw water by gravity and the high pressure difference are the negligible maintenance and energy costs. The washing cycle starts only on request, which results in a very low electrical consumption and little reject water quantity.

The water is filtrated from the inside to the outside. A rise in the water level starts the rotation and the integrated pumps clean the filter simultaneously with spray nozzles along the star segment length. The reject water is collected in the hopper and discharged by gravity into a sludge tank.

Advantages

- Channel installation (A series) or stand alone (B series)
- ✓ Available with drum of 1 m and 2 m diameter
- ✓ Drum length starting from 500 mm up to 7000 mm
- ✓ Available in material AISI 304 or 316 L
- ✓ Filter pore size from 6 100 µm
- ✓ Filter cloth available in AISI 316 L or PES
- ✓ Very long lifetime of 316 L filter cloths
- ✓ Rigid and torsion resistant drum design
- ✓ Easy and fast change of star segments
- Including all required periphery for operation
- Significant higher submerged filter area compared to disc filters
- ✓ Strong and proven sealing system
- No external water demand due to reuse of filtered water
- High machine availability due to long life timecomponents
- ✓ Very small foot print, comparable to disc filters
- ✓ Flow rates up to 1,400 l/s
- Negligible maintenance and energy costs



MSS A20-4000 channel version with control panel



Applications

Tertiary Treatment for domestic and industrial treatment plants:

- ✓ Reduction of TSS and of solid bound parameter as BOD, N
- ✓ Additional removal of Phosphor after precipitation
- ✓ Protection of membrane plants, UV system, ...

Filtration of surface water and well water:

- ✓ Removal of algae
- ✓ Drinking water treatment
- Cooling water filtration
- ✓ Rain/Stormwater treatment

Material recovery:

✓ Fibres, plastic,... ✓ Any valuable material

Installations



2 x MSS A20-3000 - channel version



2 x MSS A20-4000 - channel version

Industrial application such as:

- ✓ Food industry
- ✓ Power plants

✓ Fish farms

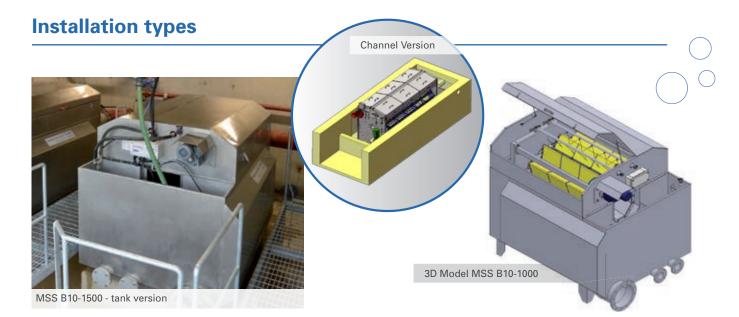
- Steel industry 1
- Textile factory
- Paper industry



Application: Tertiary treatment, pre-filtration before Reverse Osmosis; size comparison of MSS B10-3000 in the front and the sand filter in he back, which has only one quarter of the MSS filter capacity.



MSS B10-1500 - tank version outdoor installation



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Basic Data*

Series 10:

Machine size	Total available filter area
A / B 10-0500	2,5 m ²
A / B 10-1000	5,0 m ²
A / B 10-1500	7,5 m ²
A / B 10-2000	10 m ²
A / B 10-3000	15 m²
A / B 10-3500	17,5 m²
A / B 10-4000	20 m²

Series 20:

Machine size	Total available filter area
A / B 20-2500	25 m²
A / B 20-3000	30 m²
A / B 20-3500	35 m²
A / B 20-4000	40 m ²
A / B 20-4500	45 m²
A / B 20-5000	50 m ²
A / B 20-6000	60 m²
A / B 20-7000	70 m ²

* more sizes on request

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MICRO DISC FILTER



INECO[™]

Equipment for Filtration and Tertiary Treatment



INECO™ MICRO DISC FILTER

KEY FACTS

- ▶ Up to 65% of submerged disc filter area
- Unique sealing system
- ▶ Up to 36 discs-maximum filter area of approx 209m2
- I4 segments per disc leading to re-duced maintenance and costs
- ► Filter doth available from5 to30µm(standard 10/20µm).
- Drum diameter of up to 2.22m(maxi-mum filtration.
- Capacity whilst still fitting into a sea freight container.
- ► Wash water pressure of 7.5 bar.

Size matters Thanks to the inaeased filtration surface

to footprint ratio you are rewarded with reduced initial

invest-ment costs and space needed.

Description

Water enters the drum horizontally, only feed by gravity. The abundance of additional pumps for feeding raw water into the drum leads to significantly reduced energy consumption and fewer maintenance costs. Water flows through the

increased filtration area (thanks to the disc-principle) while

solids are held back within the filtration mash. The drum won't move most of the time.

Saturated segments lead to an increase in water levels inside the drum, This triggers an automatic washing cycle. Increased filtration area leads to reduced water levels thus to an automated stop of (the machine. No human interaction is needed

Advantages

- ✓ In-house made long lifer roller bearings and an increased amount of filter segments for reduces maintenance costs
- Sturdy frame and segments combined with an easily accessible nozzle system
- Increased pressure differential decreased shock loads to fine filter
- Mesh size can be adjusted to any kind of projectdepending on client' needs



HOW IT WORKS

1-Feed by gravity

Raw water enters the inside of the drum feed by gravity. No need for pumps, no additional electricity costs and no headaches from maintenance.

2-Raw water is getting filtered

Water flows through the filtration mesh custome made to your requirements)) and particles are hold back

3-filtered water leaves the machine

4-cleaning process

The machine won't move most of the time, thus not require any electricity.

Only when lower discs areas are clocked from removed solids, the water level inside the drum will rise, an ultrasonic sensor measures the water level and triggers the washing process at the start level.

The strongly build discslead10 opererational reliability while allowing the highest flows possible.

5-Filter stops automatically after cleaning

As solids get removed water inside the drum decreases thus leading to more available filtration space. Water level decreases until stop point and the machine will stop automatically without the need for an operator

HOW IT BENEFITS YOU

1-Available as stand-alone or channel version

MDS filtration devices are tailored to your needs. Not the other way around

2-RELLABLE

Frames made of stainless steel or GFRP and mesh available in PES or stainless steel (on request) can withstand unexpected shock loads and sharp particles

3-Reduced floor space and investment costs

Up to 65% of submerged filtration areas Signify-cantly reduce investment costs

4-Easy, Interruption-free maintenance

Segments/discs can be changed while machine is still fully operational

5-Significantly lower electricity costs

Only one to 20 washing cycles per day Depending on raw water thus leading to a dramatic decrease in electricity costs and TCO

6-No wash water supply needed

Machine utilizes filtered clean water for washing process

7-high flow rates guaranteed

Up to750 l/s per machine multiple machines can work together

Operation principle of our disc filtration machines

The Micro-disc Filter is available as channel or stand-alone tank version .It can be equipped with filter doth reaching from 5 to 30µm (other poresizes on request).It utilizes a small footprint with reduced energy consumption thus making it the perfect solution for your tertiary treatment ,drinking water solutions, and industrial water treatment needs

KEY FACTS

- Up to 65% of total surface submerged
- ▶ Up to 2.800m3/hr throughput capacity
- Filtration by gravity-no need for previous pumps
- Main star-filter(fine filter)removes smaller particles.
- Suitable for tertiary treatment, algae removal, aquaculture or drinking water.
- More discs than competition thus reducing initial investment costs and space needed

INECO™ MICRO DISC FILTER

Applications

Tertiary Treatment for domestic and industrial treatment plants

- Reduction of TSS and solidly bound parameter as BOD, N
- Additional removal of Phosphor after precipitation
- ✓ Protection of membrane plants, UV system,...

Tertiary Treatment for domestic and industrial treatment plants

- Removal of algae
- Cooling water filtration
- ✓ Rain /Stormwater treatment

Industries

- ✓ Food industry
- Power plants
- Steel industry
- Textile factory
- Paper industry

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ABOUT US History

The company was established in 1982 as TESTECH GmbH, later re-named in TE (Technique Environment) Engineering GmbH as supplier/ manufacturer of equipment for environment and water treatment.

In 2011 GERUM took over the completely production line of TE Engineering GmbH and operates since 2014 independent in manufacturing and sales.

Since this time additional products as been added to the sales portfolio

GERUM merchandised the products under the following reg. trademarks as **BIOJET**, **INECO, TESTECH, BIODISC, ELECTROFLOC** and **TESTFLOT**. Even **GERUM** is a reg. trademark of the company.





INECO™ – Equipment for pre treatment



Pre treatment machines for the removal of coarse material and fibers in municipal and in various industrial treatment plants. **INECO™** products comes with a wide range of fine drum screens, screw screens, step chain screens, rotary screw screens and sand classifier for small to large hydraulic flows.

INECO[™] – Equipment for pre treatment



The **INECO™** Combined Unit series combines screw screen, sand classifier for grit removal and optional grease trap within one unit. This concept requires little installation space, no channel construction works and is easy to install and operate.

INECO™ – Equipment for tertiary treatment



Micro Star Filter is an innovative product for various fine filtration applications. The **INECO™** MSS series is available as channel or stand alone tank version and can be equipped with different filter cloths from 6 – 100 mm and up to 70 m² filter area.

BIOJET™ – Equipment for biological process



Low speed **BIOJET™** surface aerator series for high oxygen transfer rates lead to central suction and thus better mixing performance. The **BIOJET™** OCF surface aerator series with the unique one cell floating system are suitable for high water

level variations. BIOJET™ ST surface aerator series are for fixed installation.

BIOJET™ – Equipment for biological process



The **BIOJET™** FD fixed and floating decanting units for fast and safe discharge of the treated water is an additional product of this trade mark.

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