

PRODUCT DATA SHEET

Compact Screen & Grit Removal Package (ICE)

water | wastewater | sewage



OVERVIEW

This primary treatment machine provides screening and grit removal in a single compact process package plant.

First, the untreated sewage passes through a screw screen that removes the larger floating and suspended materials (screenings). The screened sewage then travels through a sedimentation tank where sand and heavier particles (grit) settle, for removal by a system of screws.

As an option, this system can be configured to remove fats, oils & grease (FOG).

ADVANTAGES

- No odours
- Small footprint & minimal civil works
- Low operating costs and maintenance
- Ease of installation and operation
- Low organic matter in the solid residue extracted
- Reduction up to 40% in volume of solids removed

FEATURES

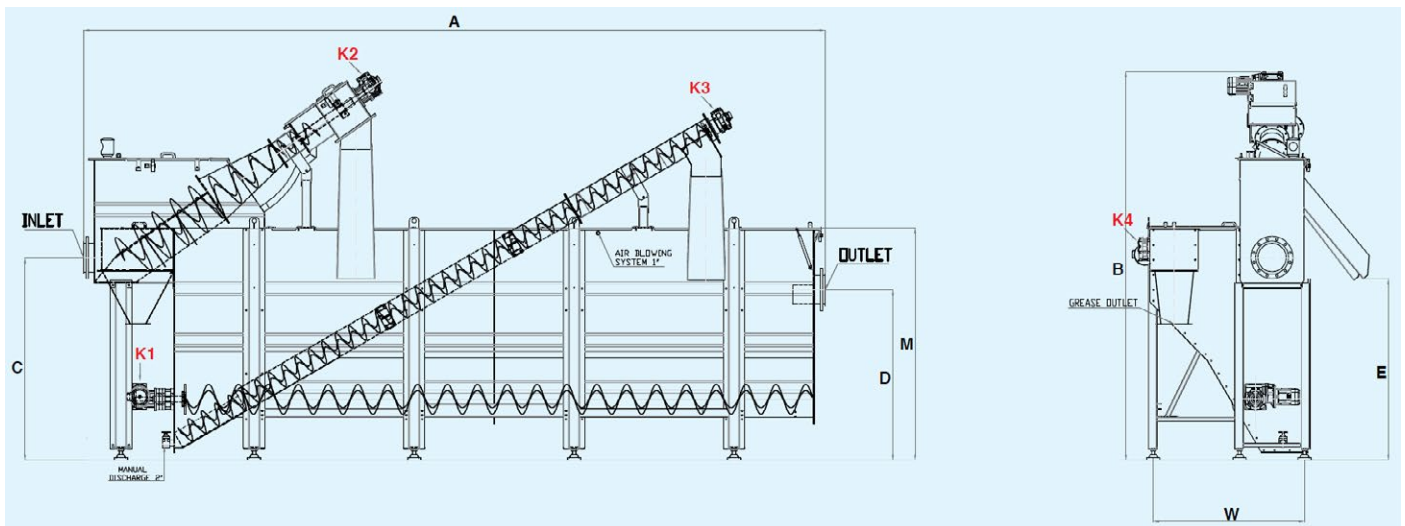
- Washing & compaction of screenings
- Extraction of sand
- Many options including FOG removal (on ICed version)



STANDARD SPECIFICATIONS

Parameter		Units	ICE-03	ICE-06	ICE-08	ICE-13	ICE-17	ICE-22	ICE-28	ICE-33	ICE-42	
Treatment Capacity* ¹		L/s	15	20	30	45	60	80	100	120	150	
Dimensions* ⁴	Total length (A)	mm	3,780	5,350	6,955	6,955	7,120	8,615	11,900	13,410	16,410	
	Total height (B)		2,780	2,780	3,055	3,640	4,220	4,220	4,340	5,235	5,235	
	Inlet height centreline (C)		1,400	1,400	1,400	1,900	1,900	1,900	1,900	2,470	2,470	
	Outlet height centreline (D)		1,100	1,100	1,100	1,600	1,600	1,600	1,600	2,265	2,265	
	Discharge chute height (E)		1,325	1,325	1,325	1,700	1,700	1,700	1,700	1,700	1,700	
	Settling tank height (M)		1,600	1,600	1,600	2,180	2,180	2,180	2,180	2,770	2,770	
	Settling tank width		971	971	971	996	996	996	1,311	1,311	1,311	
Inlet/outlet flange* ²		DN	200	200	250	250	300	350	400	450	500	
Empty weight		kg	1,100	1,250	1,400	1,950	2,200	2,350	2,800	6,800	7,200	
Screw screen in tank	Screen model* ³	SSB-mK	160	260	390	390	610	610	830	830	830	
	Loading basket	Ømm	273	356	456	456	616	616	712	712	712	
	Shaftless screw for transport & compaction		219	219	219	219	323	323	323	323	323	
	Gear reducer speed	rpm	11	11	11	11	8	8	8	8	8	
Grit system	Horizontal transport shaftless screw	Ømm	180	180	180	280	280	280	280	280	280	
	Shafted extraction screw		168	168	168	219	219	219	219	273	273	
	Horizontal screw gear reducer speed	rpm	5									
	Extraction screw gear reducer speed		5									
	Installed power* ^{4, 5}	K1	kW	0.55							0.75	
K2		0.75										
K3		0.37									0.55	
K4 (ICEd model only) (optional)		0.25		0.37								
Side channel blower (optional)		0.25		0.75					1.1			

*1Theoretical, calculated using clean water; reference design basis: influent TSS 500 mg/L with up to 0.5% grit; typical performance: up to 90% removal efficiency for grit particles >200 µm and density > 1,650 kg/m³. *2Flanges are lap joint max 15mm thick with holes PN16 according to AS4087. *3Refer to MAK Water product data sheet SSB-mK for more details. *4Refer to schematic. *5Based on machine configuration, motor power could be different



STANDARD INCLUSIONS + OPTIONS

Equipment			Standard Supply	Optional Supply
Screw screen in tank	Rounded holes screen element	Ø6mm aperture	✓	–
		Custom aperture (3, 4, 5, 7 or 10mm)	–	✓
	Integrated screenings compaction		✓	–
	Screen basket cleaning, bolted nylon brushes		✓	–
	PE breathing valve on screen tank		✓	–
	PE pipe for returning liquid from compaction zone		✓	–
	Squared outlet spout		✓	–
	Bolted screenings compaction system cover		✓	–
	Lifting eyebolts		✓	–
Nord drives with compact motor gearboxes and cover guards			✓	–
Machine carpentry, inlet & outlet flanges, drive guards and open channel discharge chutes	SS304L, bolts A2 (SS304)		✓	–
	SS316L, bolts A4 (SS316)		–	✓
Bypass Chamber with 10mm manual bar screen			–	✓
Overflow from screen tank with flange *2			–	✓
Odour extraction port from tank with flange*2			–	✓
Enclosed pipe discharge chutes for screenings & grit			–	✓
All screws / anti-wear material (bolted plates on screws)	High-carbon steel painted / SS304L		✓	–
	SS304L / SS304L		–	✓
	SS316L / SS316L		–	✓
Washing	Compaction zone only, with ½” manual valve		✓	–
	Compaction zone with ½” manual valve and screening basket with 1” manual valve		–	✓
	Compaction zone with ½” manual valve and for grit with ½” manual valve		–	✓
	Compaction zone with ½” manual valve and screening basket with 1” manual valve and for grit with ½” manual valve		–	✓
Air sparging system for grit complete with blower, internal and external pipework*1			–	✓
Automatic Longopac bagging systems for screenings and grit with 1x 80m long bag each			–	✓
Drive motors premium efficiency	IP55		✓	–
	IP65 with thermistor overload protection		–	✓
Surface treatments*3			✓	–

*1Standard air blower system includes: motor TEFC premium efficiency IP55 with thermistor, 1" fittings with SS hoses, retention valve, pressure valve, pressure switch, suction filter, wiring & full installation, outdoors side installation, no additional protective covering, *2 Lap joint flange with holes PN16 according to AS4087 *3Stainless steel parts: stripping with acid solution, passivation with glass particles, final surfaces cleaning with anti-dust oil. Carbon steel parts: sandblasting SA 2.5 for external anti-rust paint RAL 5015

Instrumentation & Controls		Standard Supply	Optional Supply
Safety limit switches for screen opening hatches		✓	-
Screen tank level sensor	Conductive probe	✓	-
	Ultrasonic	-	✓
Solenoid valve kit(s) for selected washing system(s) 24VDC		-	✓
Wiring of all equipment and instrumentation to a junction box mounted on the equipment		-	✓
Mechanical over-torque protection for all drives (backlash free-ball model)		-	✓
Control Panel to AS/NZS3000, for external installation (supplied loose)		-	✓

MODEL SELECTION

- 03 Capacity - 15 L/s
- 06 Capacity - 20 L/s
- 08 Capacity - 30 L/s
- 13 Capacity - 45 L/s
- 17 Capacity - 60 L/s
- 22 Capacity - 80 L/s
- 28 Capacity - 100 L/s
- 33 Capacity - 120 L/s
- 42 Capacity - 150 L/s



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4 Machine carpentry, inlet & outlet flanges, drive guards and open channel discharge chutes in SS304L, bolts A2 (SS304) (standard)

6 Machine carpentry, inlet & outlet flanges, drive guards and open channel discharge chutes in SS316L, bolts A4 (SS316)

X Bypass chamber, without (standard)

M Bypass chamber with 10mm manual bar screen

X Rounded holes screen element 6mm (standard)

C Rounded holes screen element 3, 4, 5, 7, or 10mm

X All screws in high-carbon steel painted and anti wear material in SS304L (standard)

4 All screws and anti wear material in SS304L

6 All screws and anti wear material in SS316L

X Screen tank level sensor – conductive probe (standard)

U Screen tank level sensor – ultrasonic

X Washing system in screen compaction zone with manual valve (standard)

S Washing systems in screen compaction zone and screening basket with 2x manual valves

G Washing systems in screen compaction zone and for grit with 2x manual valves

A Washing systems in screen compaction zone and screening basket and for grit with 3x manual valves

X Solenoid valves for all washing systems, without (standard)

S Solenoid valves for all selected washing systems

X Automatic bagging systems for screenings & grit, without (standard)

L Longopac automatic bagging systems for screenings & grit

X Drive motors premium efficiency with IP55 protection (standard)

P Drive motors premium efficiency with upgraded IP65 protection & thermistor overload protection

X Wiring to a junction box, without (standard)

J Wiring to a junction box

X Control panel, without (standard)

C Control panel, for external installation

X Standard specification

C Custom specification

ICE - _ _ _ _ _ _ _ _ _ _ _ _ _ _