



THICKENER AND CLARIFIER

3 TO 30 M DIAMETER · STANDARD DRIVE TO 67 800 NM

Gravity thickening and clarification for process and effluent duty. Filcare builds the mechanism — drive head, rake, feedwell and launder — to suit the tank, whether that tank is existing civil, new civil, or a steel tank in our scope. Underwater parts are mild steel rubber lined as standard for brine and chloride service.

3–30

M DIAMETER

67 800

NM STANDARD DRIVE

3–12

M/MIN TIP SPEED

MSRL

UNDERWATER

Torque protection: alarm 100 % · auto lift 100 % · trip 120 %

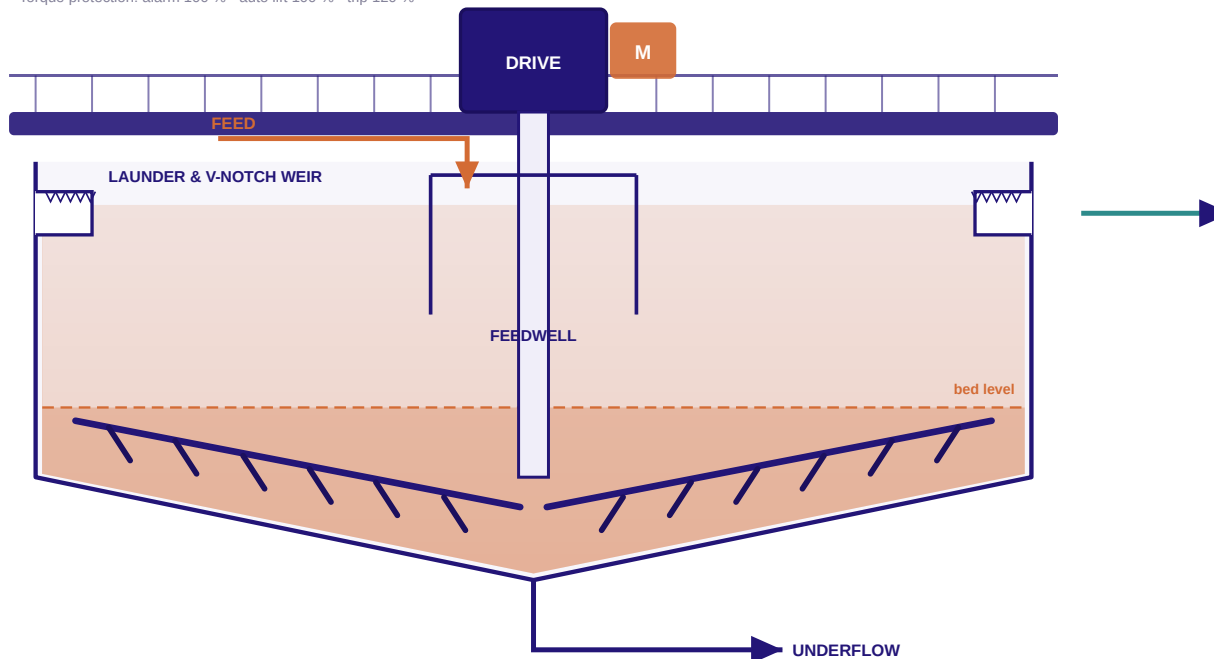


Fig. 1 – Sectional elevation

HOW IT WORKS

- 1 Feed enters a centre feedwell designed to dissipate velocity and promote flocculation without shearing the floc.
- 2 Solids settle to the floor; the rake sweeps them to a central cone at a tip speed slow enough to avoid resuspension.
- 3 Clarified overflow leaves over a peripheral launder weir, protected by a scum baffle.
- 4 Underflow is withdrawn at controlled density; rake torque is the process signal that tells the operator how dense the bed has become.
- 5 Torque protection acts in three stages — alarm, automatic rake lift, then drive trip — so the mechanism is never the thing that fails.

OPERATING ENVELOPE

PARAMETER	VALUE
Tank diameter	3 – 30 m standard; larger to enquiry
Standard drive range	To 50 000 ft-lb (67 800 Nm) rated torque
Torque required	$K \times D^2$ — see the selection table. Above the standard range the mechanism is built to enquiry with a larger slewing ring
Duty classes	Light $K=5$ · Medium $K=12$ · Heavy $K=22$, where $T(\text{ft-lb}) = K \times D(\text{ft})^2$
Rake tip speed	3 – 12 m/min, 6 m/min typical
Mounting	Bridge mounted to 24 m; column or centre-pier above
Rake lift	Manual screw or motorised, 300 – 600 mm travel
Torque sensing	Electro-mechanical as standard; convertible to load cell
Protection	Torque alarm 100 % · auto rake lift 100 % · drive trip 120 %
Drive	Helical-bevel or worm with slewing ring, 415 V 3-ph 50 Hz

SIZE AND SELECTION

Standard build sizes. Filtration areas are calculated from the geometry, not nominal. Intermediate and larger sizes are built to duty — send the slurry, the throughput and the target cake moisture and we will size it against a leaf or pilot test.

TANK Ø (M)	SETTLING AREA (M ²)	MOUNTING	LIGHT T (FT-LB)	MEDIUM T (FT-LB)	HEAVY T (FT-LB)	HEAVY T (NM)	DRIVE RANGE
3	7.1	Bridge	500	1200	2100	2900	Standard
6	28.3	Bridge	1900	4700	8500	11600	Standard
9	63.6	Bridge	4400	10500	19200	26000	Standard
12	113.1	Bridge	7800	18600	34100	46200	Standard
15	176.7	Bridge	12100	29100	53300	72200	Extended — to enquiry
18	254.5	Bridge	17400	41900	76700	104000	Extended — to enquiry
21	346.4	Bridge	23700	57000	104400	141600	Extended — to enquiry
24	452.4	Bridge	31000	74400	136400	184900	Extended — to enquiry
27	572.6	Column / centre pier	39200	94200	172600	234100	Extended — to enquiry
30	706.9	Column / centre pier	48400	116300	213100	289000	Extended — to enquiry

MATERIALS OF CONSTRUCTION

COMPONENT	OPTIONS
Underwater parts	MSRL — mild steel rubber lined (standard for brine)
Rake arms and blades	MSRL · SS 316L · MS epoxy
Squeegees	Neoprene · natural rubber · UHMWPE
Feedwell	MSRL · SS 316L · FRP
Launder and weir	SS 316L · FRP · MS epoxy
Bridge and walkway	Mild steel, hot-dip galvanised or epoxy
Drive head	Cast steel housing, slewing ring bearing

SCOPE OF SUPPLY

- Drive head with slewing ring, geared motor and torque sensing
- Rake arms with replaceable blades and squeegees
- Centre shaft or torque tube
- Rake lifting device — manual or motorised
- Centre feedwell with de-aeration and flocculant addition point
- Peripheral launder, V-notch weir plate and scum baffle
- Access bridge with walkway, handrail and toe plate
- Underflow cone and offtake connection
- Local control panel with torque indication and interlocks

NOT INCLUDED

- Civil foundation, grouting, anchor bolts and civil works
- Erection, alignment and commissioning supervision unless separately quoted
- Slurry feed pump, vacuum pump and filtrate pump unless listed in scope
- Power, air, water and effluent lines up to the equipment terminal points
- Instrumentation beyond the items listed in scope of supply
- Any statutory approvals, insurance or third-party inspection charges

OPTIONS

OPTION	WHAT IT DOES
Motorised rake lift	Auto lift on torque alarm, with position indication
Load cell torque sensing	4–20 mA torque output to plant DCS
High-rate feedwell	Deep-cone type for flocculated high-rate duty
Flocculant dosing skid	Preparation, ageing and dosing with in-line mixer
Bed level instrument	Ultrasonic or optical interface tracking
Full rubber lining	All wetted steel lined for chloride and acid service
Steel tank in scope	Shop-fabricated or site-welded tank with floor cone

APPLICATIONS

- Brine clarification for chlor-alkali and soda ash
- Water and wastewater primary and secondary clarification
- Mineral concentrate and tailings thickening
- Neutralisation and effluent sludge thickening
- Sugar, starch and food process clarification

UTILITIES AT BATTERY LIMIT

PARAMETER	VALUE
Power	415 V ± 10 %, 3-phase, 50 Hz, 4-wire
Control supply	240 V AC 1-phase / 24 V DC
Instrument air	6 bar (g), oil-free, dew point –20 °C
Vacuum	By Filcare-supplied pump or client system, at battery limit
Wash water	Client supply at 3 bar (g), free of suspended solids > 200 µm

INSPECTION AND TEST

- Material test certificates (EN 10204 3.1) for all pressure-retaining and wetted plate
- Dye-penetrant examination of wetted welds
- Hydrostatic / leak test of vat, drum and filtrate lines
- Dimensional inspection against approved GA drawing
- No-load trial run at works: rotation, valve timing, agitator sweep
- Drive and gearbox test certificates from the OEM

PAINTING AND FINISH

Surface preparation to SA 2½, two coats epoxy primer (2 × 40 µm DFT) and two coats epoxy finish (2 × 50 µm DFT). Stainless steel parts supplied pickled and passivated, unpainted.

TO RECEIVE AN OFFER

Send us:

Slurry description and solids concentration · required throughput · target cake moisture · wash requirement · slurry temperature and pH · materials already proven in your plant.

TALK TO US

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Offers are prepared by Mr. T. Srikanth. Machine down? The same number takes breakdown calls.

Filcare reserves the right to alter specifications in the course of development. Dimensions, weights and powers in this datasheet are for selection and budget purposes; certified data is issued with the approved general-arrangement drawing. Document FIL/DS/FTC/01 · Rev 0 · Sep 2026.