

TECHNICAL DATASHEET

ROTARY VACUUM DISC FILTER

MAXIMUM AREA IN MINIMUM FLOOR SPACE, 9 TO 429 M²

Where the duty is high tonnage and cake washing is not critical, a disc filter gives three to four times the filtration area of a drum filter on the same footprint. Sectors bolt to a central barrel; each disc filters on both faces, and area is added simply by adding discs.

9.4–429

M² AREA

2–12

DISCS

0.3–2.5

RPM

53–80

KPA VACUUM

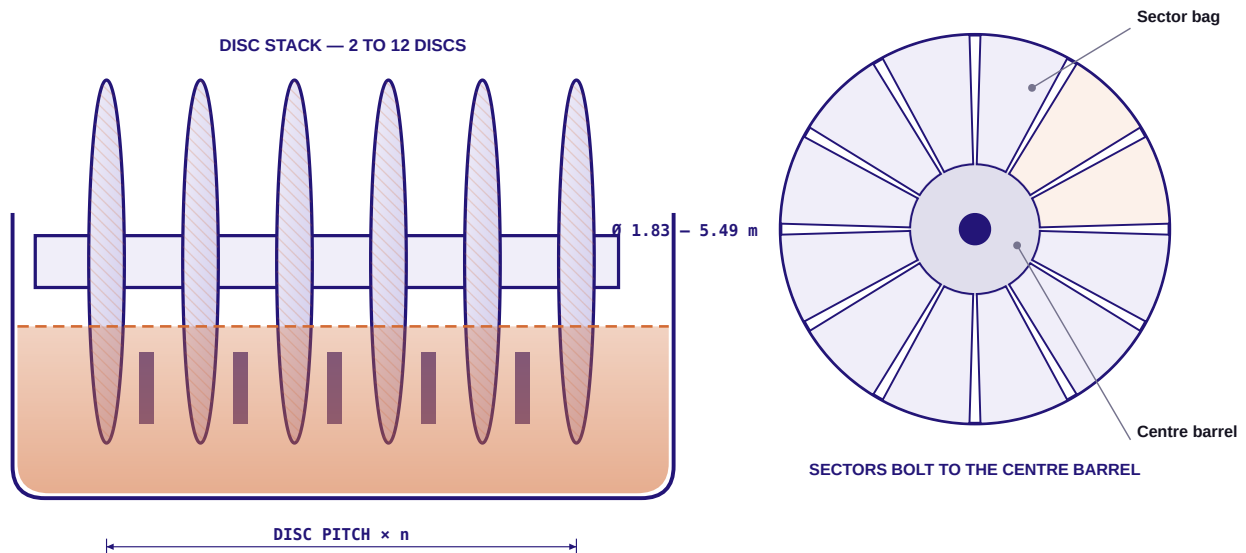


Fig. 1 – Disc stack arrangement and sector layout

HOW IT WORKS

- 1 Sectors are bolted radially to a hollow centre barrel, forming discs that rotate through a common vat.
- 2 Each sector is piped through the barrel to the automatic valve, so the filtration cycle repeats once per revolution on both faces.
- 3 Cake forms over the submerged arc, dewater over the exposed arc and is released by snap blow to scrapers positioned between the discs.
- 4 Because both faces filter, area per metre of machine length is very high — the reason the type dominates iron ore and pulp thickening duties.

OPERATING ENVELOPE

PARAMETER	VALUE
Filtration area	9 – 429 m ² depending on disc size and count
Discs per machine	2 – 12 standard
Disc speed	0.3 – 2.5 rpm, VFD
Submergence	30 – 38 %
Operating vacuum	400 – 600 mmHg (53 – 80 kPa)
Feed solids	10 – 60 wt%
Cake thickness	6 – 25 mm per face
Discharge	Snap blow with scraper blades between discs

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.

DISC Ø (FT)	DISC Ø (M)	HUB Ø (M)	AREA / DISC (M ²)	2 DISCS (M ²)	MAX DISCS	MAX AREA (M ²)
6	1.83	0.61	4.68	9.4	12	56.1
8	2.44	0.81	8.32	16.6	12	99.9
10	3.05	1.02	12.98	26.0	12	155.7
12	3.66	1.22	18.7	37.4	12	224.4
14	4.27	1.42	25.47	50.9	10	254.7
18	5.49	1.68	42.91	85.8	10	429.1

MATERIALS OF CONSTRUCTION

COMPONENT	OPTIONS
Sectors	Polypropylene · SS 316L · rubber lined MS
Centre barrel	Mild steel rubber lined · SS 316L
Vat	Mild steel rubber lined · SS 316L
Agitator	Oscillating rake, MSRL or SS
Automatic valve	Cast iron with SS wear plate, UHMWPE bridge blocks
Scraper blades	UHMWPE
Filter media	Sector bags — polyester / polypropylene monofilament

SCOPE OF SUPPLY

- Centre barrel with sectors and sector bags
- Vat with oscillating agitator and drive
- Automatic filter valve with wear plate and bridge blocks
- Main drive — helical-bevel geared motor with VFD
- Scraper assemblies and cake chutes between discs
- Snap blow air header with timing valve
- Filtrate receiver, moisture trap and barometric leg or pump
- Structural supports, walkway and handrail
- Local control panel

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
Sector quick-release	Wedge clamping for bag change without draining the vat
Cloth wash	Oscillating high-pressure spray between discs
Rubber lining	Full MSRL for chloride, acid and abrasive duty
Vacuum package	Liquid ring pump and separator, skid mounted
PLC / HMI	Valve timing, disc speed and vacuum trending

APPLICATIONS

- Iron ore and base metal concentrate dewatering
- Pulp thickening and stock washing
- Coal fines and flotation concentrate
- Kaolin, calcium carbonate and industrial minerals

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/FRC/01 · Rev 0 · Sep 2026.