



DELKOR FILTER PRESSES (FP)

Environmentally friendly dewatering of process slurries

Innovation out of tradition – It pays to talk to a specialist!

TAKRAF Group, through its established and well-known brands, TAKRAF and DELKOR, provides innovative technological solutions to the mining and associated industries. We leverage our experience, acquired over more than a century, to provide equipment, systems and services that best satisfy our clients' mining, comminution, material handling, liquid/solid separation and beneficiation requirements. Owners and operators around the world trust our engineered solutions to lower the total cost of ownership and reduce environmental impact by improving efficiency with safe and reliable equipment. For sustainable solutions backed by expert service you can rely on TAKRAF Group. **Visit us at www.takraf.com.**

We at TAKRAF Group are committed to environmental and social sustainability in all our business interactions and have adopted a Zero Harm approach under our global safety promise.

Owners and operators around the world are confident that TAKRAF Group provides the most suitable solution to their unique project requirements. We assist our clients in overcoming the most complicated challenges in transforming the resource industry towards a sustainable future. We focus on specific areas that are critical for reliable and sustainable operations, as it is here where we best support our clients with innovative solutions that save energy, lower environmental impact and meet or exceed operational requirements.

One focus area is liquid/solid separation, where we capitalize on our global DELKOR brand and its track record of thousands of successful installations. In line with our commitment to environmental sustainability, DELKOR dewatering and process equipment are specifically designed for the needs of the mining industry.

We leverage our global organization and aggregate our extensive expertise by offering a unique combination of both application experience and product based knowledge. Clients therefore benefit from direct technical discussions with our local specialists, who are able to draw upon this expertise and provide the most suitable local solution and service that enhances safety, improves sustainability, decreases costs and increases efficiency.

Our commitment is summarized by:

Safety | Reliability | Innovation | Sustainability

DELKOR FILTER PRESSES (FP)

DELKOR designs and supplies reliable filter presses for flexible operation and easy maintenance. A DELKOR filter press is suitable for a wide range of dewatering applications, from mineral concentrates and tailings filtration, to polishing and electrolytic processes; and from coarse to very fine materials in the mining, aggregates, chemical, iron & steel, food processing and water treatment sectors. Our filter presses boast a heavy-duty design and are customized according to our client's individual process requirements.

APPLICATIONS

Since each DELKOR FP is customized to the specific process requirement, they can be employed across a wide variety of industries and are not exclusive to mining applications. We boast references where our equipment has been successfully installed in various non-mining applications.

► **MINING**

- Tailings
- Mineral concentrates (copper-zinc-gold, nickel, lead, silver, cobalt)
- Merrill-Crowe process (to remove gold from a cyanide solution)
- Precipitation
- Leaching
- Rare earths
- Lithium
- Precious metals
- Electrolytic process (polishing)
- Acid mine drainage (wastewater)

► **NON-MINING**

- Fertilizer
- Metallurgical
- Chemical and pharmaceutical
- Soil washing/dredging
- Sand and gravel
- Municipality
- Oil and gas

PORTFOLIO SUMMARY

Within DELKOR, you can find a portfolio of 2 different filter press technologies. Our specialists can indicate the technology that is best suited to your specific requirements and process application.

Besides the standard machines listed below, we also provide tailor made solutions and machines with special sizes and characteristics based on the unique process requirements of our customers.

DELKOR FP OH – Overhead beam technology

Plate size	Chamber size		N° plates	
	From (mm)	To (mm)	Min	Max
1,000	15	50	20	120
1,200	25	60	20	120
1,500	25	60	40	180
2,000	25	60	60	215
2,500	25	60	60	215



DELKOR FP SB – Sidebar technology

Plate size	Chamber size		N° plates	
	From (mm)	To (mm)	Min	Max
630	15	50	20	50
800	15	50	20	50
1,000	15	50	15	120
1,200	20	50	15	120
1,500	25	60	15	120



DELKOR OVERHEAD FILTER PRESS (FP OH)

A DELKOR FP OH consists of a fabricated overhead frame supporting a moving head and filter plates positioned between the head frame and the moving head. Opening and closing of the plate pack is carried out by a dual-acting hydraulic cylinder controlled by a dedicated hydraulic power unit.

STANDOUT FEATURES AND ADVANTAGES

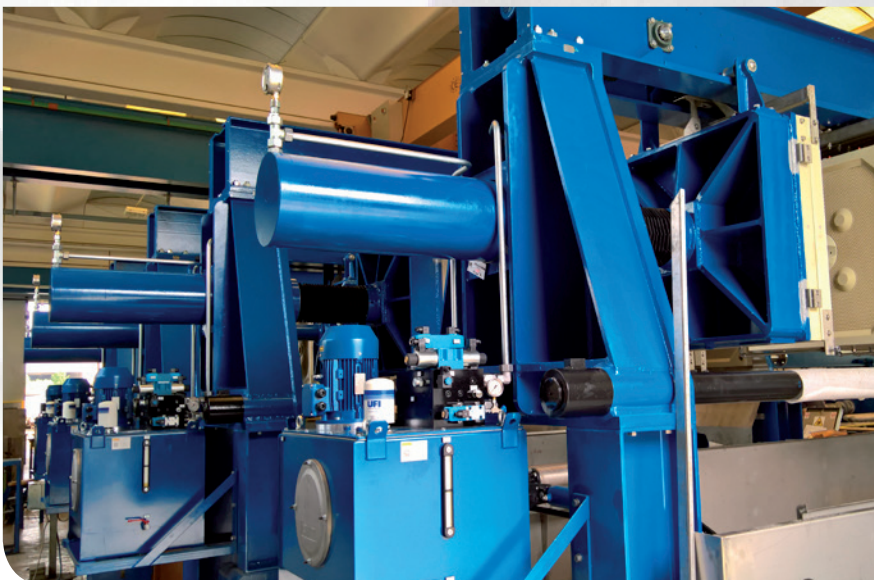
- Heavy-duty design
- Plate configuration is tailored to process requirements. Plates can be recessed or mixed membrane from 20 mm to 60 mm with an air blowing provision. Low moisture in the cake
- Fast-push hydraulic closing system ensures the automatic correct alignment of plates
- Complete plate pack opened one-by-one with up to 215 chambers
- Drive and fast shifting plates (less than 3 sec/plate)
- Easy maintenance: free space between plates of about approximately 800 mm
- Total protection of the automatic plate shifting device mechanism from dust and leakages
- No cake residue between plates. Completely accessible from the sides

This technology provides its best performance and is best-suited to the following areas:

- Tailings
- Fertilizer
- Leaching
- Rare earths
- Chemical and pharmaceutical

DELKOR FP OH data table

Plate size	mm	1,000	1,200	1,500	2,000	2,500
Operating pressure	bar	Up to 25 bar Min - Max	Up to 25 bar Min - Max	Up to 25 bar Min - Max	Up to 25 bar Min - Max	Up to 25 bar Min - Max
Chambers	#	20 - 120	20 - 120	40 - 180	60 - 215	60 - 215
Press volume	ltr	770 - 4,630	1,078 - 6,460	3,500 - 1,590	8,900 - 35,260	14,400 - 51,600
Filtration area	m ²	34 - 203	48 - 290	140 - 637	410 - 1,470	600 - 2,200
Max production	t/h	Up to 30	Up to 50	Up to 100	Up to 200	Up to 300



DELKOR SIDEBAR FILTER PRESS (FP SB)

Our **DELKOR FP SB** consists of a fabricated sidebar frame supporting a moving head and filter plates positioned between the head frame and the moving head. Opening and closing of the plate pack is carried out by a dual-acting hydraulic cylinder controlled by a dedicated hydraulic power unit.

STANDOUT FEATURES AND ADVANTAGES

- Heavy-duty design
- Plate configuration is tailored to process requirements. Plates can be recessed or mixed membrane from 20 mm to 60 mm with an air blowing provision. Low moisture in the cake
- Multiple options regarding opening type can be selected: all at once, one-by-one, batch or manual
- Fast-pull hydraulic closing system ensures the correct alignment of plates
- Fully-automated plate shaker for cake discharge

This machine provides its best performance and is best-suited to the following areas:

- Mineral concentrates (copper-zinc-gold, nickel, lead, silver, cobalt)
- Merrill-Crowe process (to remove gold from a cyanide solution)
- Lithium
- Electrolytic process (polishing)
- Metallurgical
- Municipality

DELKOR FP SB data table

Plate size	mm	630	800		1,000	
Opening technology		At once	At once	At once	One by one	Batch
Operating pressure	bar	Up to 15 bar Min - Max	Up to 15 bar Min - Max	Up to 15 bar Min - Max	Up to 15 bar Min - Max	Up to 15 bar Min - Max
Chambers	#	19 - 50	19 - 50	14 - 40	39 - 120	50 - 120
Press volume	ltr	117 - 512	221 - 944	275 - 1,540	760 - 4,690	965 - 3,480
Filtration area	m ²	8 - 20	16 - 44	20 - 70	55 - 205	74 - 205
Max production	t/h	Up to 3	Up to 5	Up to 8	Up to 12	Up to 14
					1,200	
				At once	One by one	Batch
				15	15	15
				Min - Max	Min - Max	Min - Max
				14 - 40	39 - 120	50 - 120
				380 - 2,145	1,060 - 6,550	1,330 - 6,550
				30 - 95	80 - 290	105 - 290
				Up to 11	Up to 13	Up to 28
					1,500	
				At once	One by one	Batch
				15	15	15
				Min - Max	Min - Max	Min - Max
				14 - 40	49 - 140	50 - 120
				620 - 3,460	2,148 - 12,330	2,175 - 10,560
				48 - 150	160 - 530	160 - 450
				Up to 18	Up to 30	Up to 43



DELKOR FILTER PRESS (FP)

OPTIONAL FEATURES

Each **DELKOR FP** can be fully customized with a set of optional features that can be suggested by your local DELKOR specialist on the basis of your specific process requirements. The most important are:

CLOTH WASHING

- High-pressure cloth washing
Technical characteristics:
 - Pressure up to 100 bar (1,450 psi)
 - Washing time: 1 minute/plate
 - Weekly washing cycle
 - Complete cloth regeneration
- Low-pressure cloth washing
Technical characteristics:
 - Pressure up to 5 bar (72.5 psi)
 - Washing time: 30 seconds all at once
 - Cloth washing every cycle
 - Complete washing of the external plate frame for improved sealing between plates



DRIP TRAYS – ENVIRONMENTAL SUSTAINABILITY

DELKOR offers an automatic spillage collection and re-routing device that collects cloth washing and drip water. The structural part of the drip tray doors are made from painted carbon steel, while the parts directly in contact with filtered water are made out of a variety of materials and coatings which will be specifically chosen for your specific slurry to be treated.

OTHER OPTIONAL FEATURES FOR YOUR DELKOR FP

- Fast filling with double end feeding
- Different types of detection of the end of filtration: flow meter, pressure transducer and/or load cells
- Compressed air systems for air blow/core blow
- Remote control of operations
- Safety devices and solutions that comply with local regulations
- Integration with plant automation
- Slurry pump for feeding filter press
- Belt conveyor for cake discharge
- Cake breaker



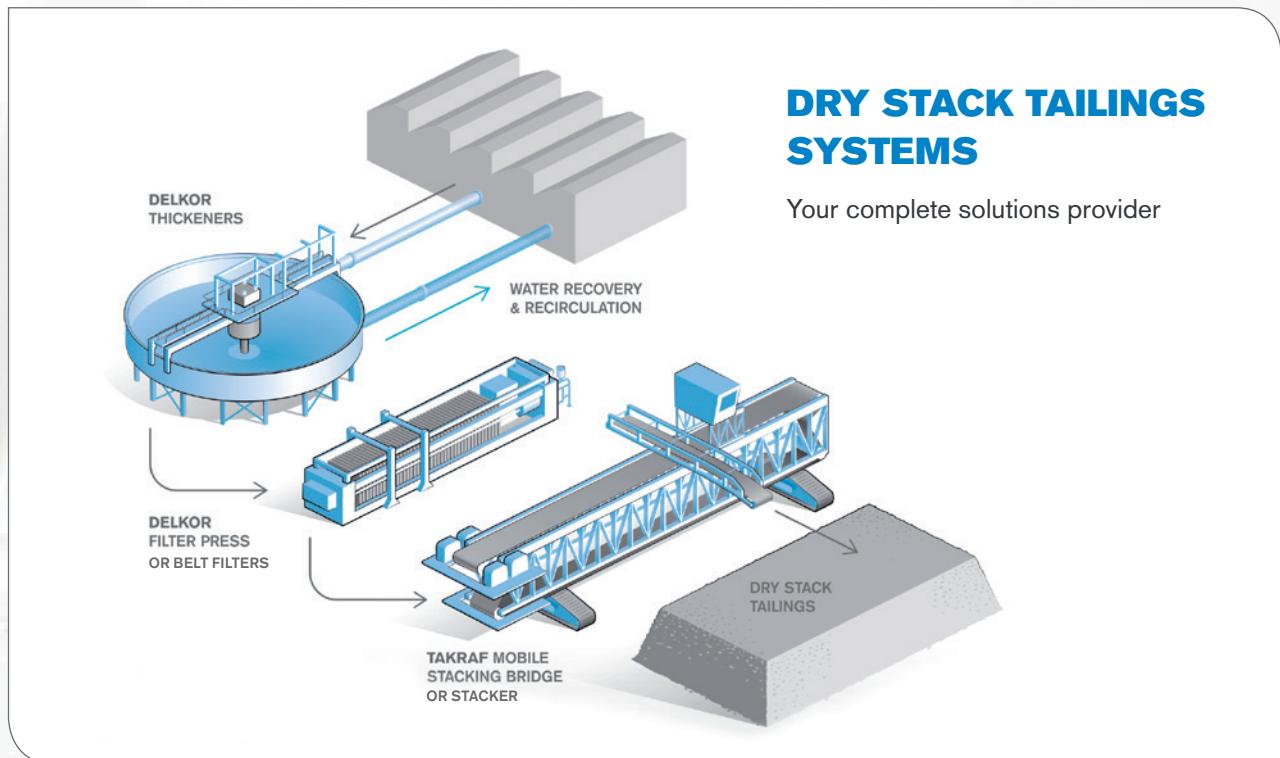
COMPLETE PLANT FOR SOLID/LIQUID SEPARATION

By combining **TAKRAF** and **DELKOR** products we are able to provide complete turn-key solutions and equipment for tailings, minerals and soil processing. One important example is represented by the dewatering of mining tailings.

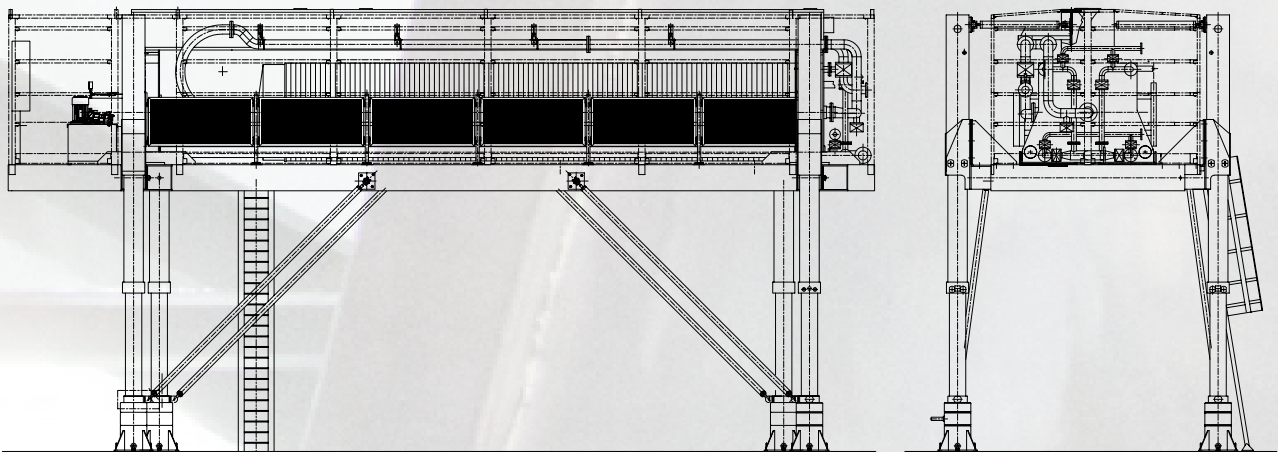
DRY STACK TAILINGS (DST) SYSTEMS

DST systems are particularly suited to mining operations operating in areas where water conservation is critical – they also provide other significant environmental and safety benefits.

Typical DST System Flow Sheet



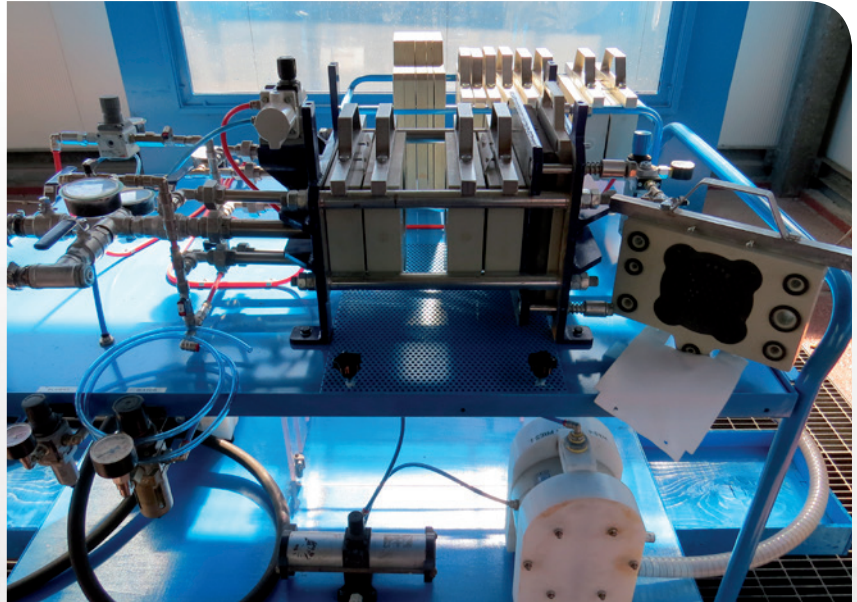
We also supply special equipment designed for dedicated applications, such as containerized filter presses and mobile dewatering plants of various sizes and custom made features.



Typical arrangement of a mobile plant for dewatering.

LABORATORY AND AFTER SALES SUPPORT

DELKOR specialists around the world provide support for sizing solutions in solid/liquid separation. We offer various possibilities for the execution of tests for slurries with pilot units, in our laboratories located around the world or directly on site.



OUR GLOBAL DELKOR PRESENCE

DELKOR is able to provide comprehensive client support services around the world. We can also propose customized maintenance solutions, such as spare parts supply, stock management and/or maintenance contracts.



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