



Product Guide 2016

Tailings Management | Fines Recovery
Dewatering | Equipment & Chemicals

Welcome to



TONS PER HOUR™
Expert solutions for solid-liquid separation



Contents

Introduction	2
Filter Presses	3
Operation	4
Technical Specs	5
Plate Replacement	6
Part Replacement	7
Fabric Replacement	8
Engineering	9
Cyclones	10
Dewatering Screens	11
Clarifiers & Thickeners	12
Conveyor Belts	13
Augers	14
Flocculant Systems	16
Dust Control	19
Pumps	20
Valves	25



As a leader in the mineral processing industry for over 25 years, Tons Per Hour™ Inc. provides tailings management, fines recovery, dewatering equipment and chemicals, and wastewater treatment solutions. We offer flexible consignment, leasing and rental programs to suit individual customer needs.

Quality liquid-solid separation is critical to the modern mineral process industry focused on natural resource stewardship, environmental compliance, and water resource management. TPH is has partnered with quality manufacturers in both North and Latin American markets to provide quality products and unique solid-liquid separation solutions.

Our equipment line includes:

- Filter & belt presses
- Thickeners & clarifiers
- Slurry pumps & valves
- Flocculant preparation & metering systems
- Dewatering screens
- Complete turnkey solutions
- Laboratory services
- Engineering services



About Tons Per Hour/Jingjin Filter Presses

Quality Manufacturing

Tons Per Hour/Jingjin Filter Presses are built to our exacting standards and specifications by Jingjin Filter Presses — the world's leader and largest manufacturer of filter presses. In 2014, Jingjin implemented over 10,000 filter press solutions world-wide and over 6,000 presses have been placed in the mineral process industry for both tailings and mineral concentration dewatering since 2006.

With Tons Per Hour/Jingjin Filter Presses, you are ensured maximum reliability, efficient water recovery and stackable dry solids. Tons Per Hour, Inc. has recently placed presses in coal, industrial silica, limestone and gold.

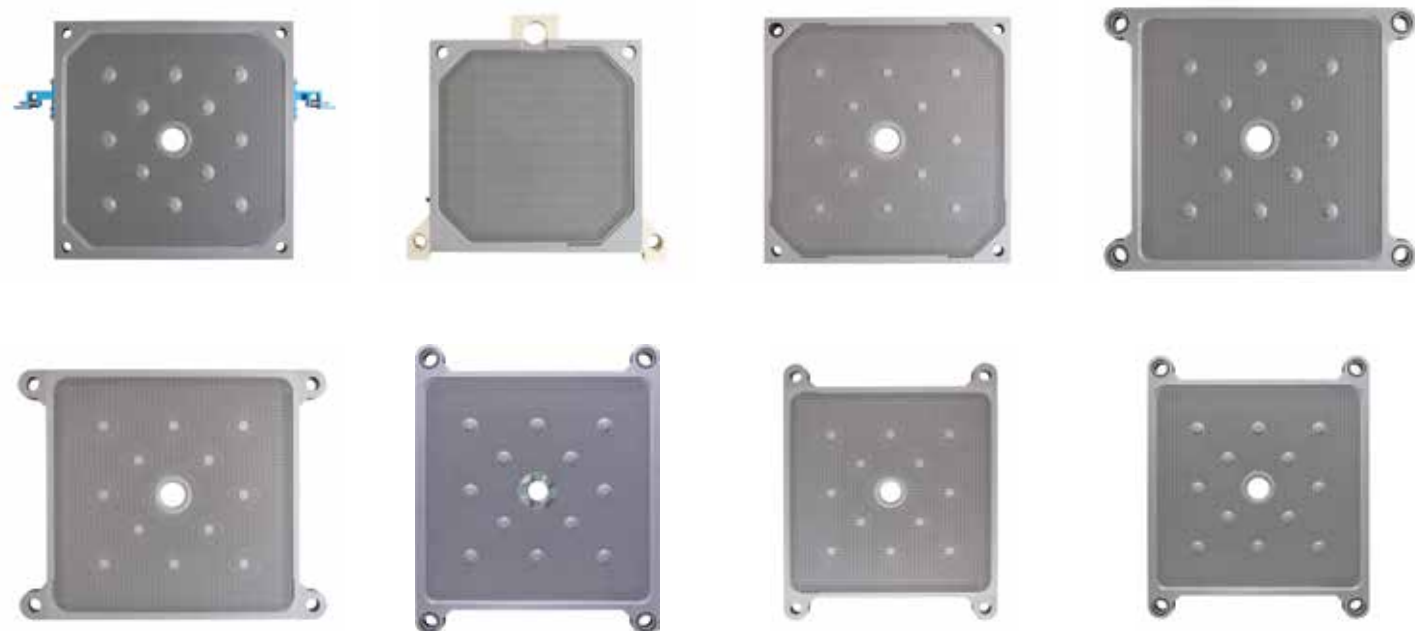
Advantages

- High capacity (up to 70 dry tons per hour per cycle)
- Extremely low moisture content (less than 20%)
- No chemical demand
- Low power consumption
- Completely automated (no operator required)
- Low maintenance cost
- Automated filter media shower system
- Precision manufacturing
- Proprietary processing algorithms
- Minimum wear/replacement parts
- ISO9001 and ISO14001 certified



Filter Presses - Plate Replacement

Our exclusive supplier, Jingjin Environmental, makes the majority of the plates for other press makers throughout the world. Jingjin owns and operates its own polyurethane production plant that operates within strict quality control parameters.



Filter Presses - Fabric and Part Replacement

Tons Per Hour offers a wide range of replacement parts that can be used on our presses as well as other manufacturer's presses. Our hydraulic hoses are custom made in-house. Call us today to see how we can lower the cost of replacing your filter press consumable parts.



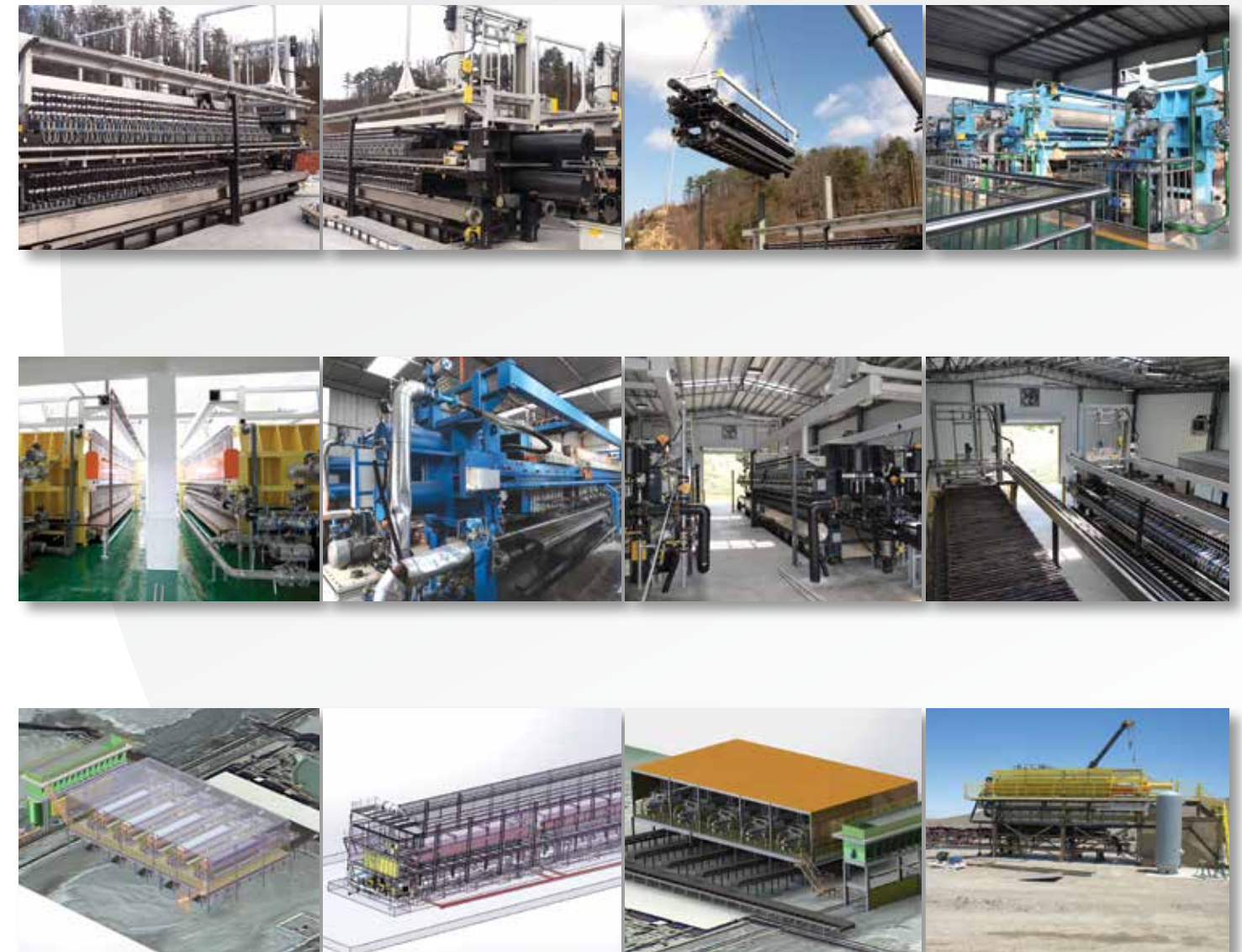
Filter Presses - Fabric and Part Replacement

Jingjin's state-of-the-art textile processing facility, built in 2013, uses German "Dornier" and Italian "Ramisch Guarneri" equipment to produce the best filter press fabric in the world. Under a strict quality control and quality assurance protocol, Jingjin is able to make world class filter cloth that minimizes cake-sticking issues and offers longer wear life. TPH can replace fabric from most other presses at lower cost and with greater durability — and pass the savings on to you.



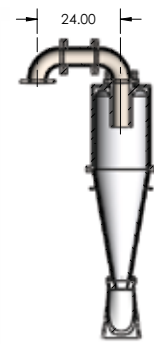
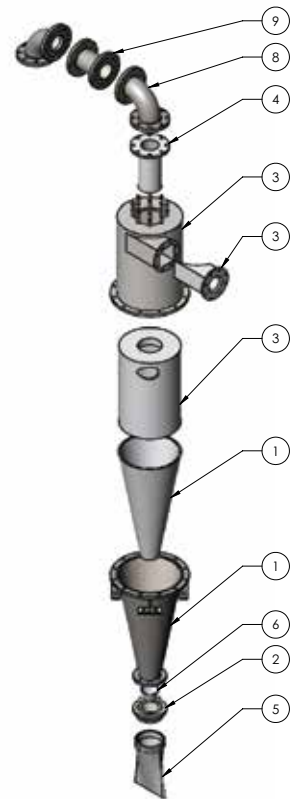
Plant Design & Engineering Services

TPH offers in-house engineering design services and can build your system from the ground up. We offer individual components, upgrades, or complete turnkey systems. If space is tight, we can custom design our equipment to fit into your existing footprint. Call us today for a free in-house inspection and audit.



Cyclones

Tons Per Hour offers cost-effective cyclones for nearly every application including efficient fines recovery, classification, and scrubbing. We provide both traditional hydrocyclones as well as Vacuum Assisted Cyclones (VAC). We offer a complete line of dewatering cyclones for classification, dewatering, and scrubbing.



Dewatering Screens

TPH offers a variety of durable, high quality, heavy duty dewatering screens manufactured in-house under strict quality control guidelines. Reducing the moisture of your washed sand products will improve your Sand Equivalent value (ASTM D2419-14) and significantly reduce moisture. Typically our dewatering screens reduce moisture in concrete sands to less than 10%.

Other features include:

- Up to 300 ton per hour capacity
- Stressed relieved bridges
- Polydeck® screen media
- Huck® bolted
- Galvanized coating available

Typical Screen Sizes:

SCREEN SIZE (FEET/METERS)	AREA (ft ² , m ²)
3x10 / 0.9x3	30 / 2.8
3x12 / 0.9x3.7	36 / 3.3
5x10 / 1.5x3	50 / 4.6
6x12 / 1.8x3.7	72 / 6.7
7x12 / 2.1x3.7	84 / 7.8
8x12 / 2.4x3.7	96 / 8.9

*other sizes by request



Clarifiers

Ultra-High Capacity (UHC) Clarifiers provide high flow, high tonnage capacities, low maintenance, a small footprint, and are pre-assembled to minimize installation time. Our clarifiers recover nearly 95% of the water from process slurry while maintaining the highest underflow density in the industry. They are completely pre-fabricated and can be erected in one day. We offer integrated cyclone support structures to reduce cost and allow gravity feed. The base structure can be utilized as a fresh water storage tank, a storage area, MCC, or a testing laboratory.

We offer:

- Flow capacity up to 7,000 GPM in a single unit
- Quick installation
- Low maintenance
- Clear reusable effluent
- Precise underflow density control
- Completely automated operations, including flocculant dosage, metered by our exclusive fiber optic metering system.



Deep Cone Thickeners

Our unique Deep Cone Thickener is perfect for low-flow applications and portable wash plants. It produces high density underflow solids and has an integrated cyclone support structure. This system discharges high density underflow solids through an automated pneumatic pinch-valve system.

You can expect:

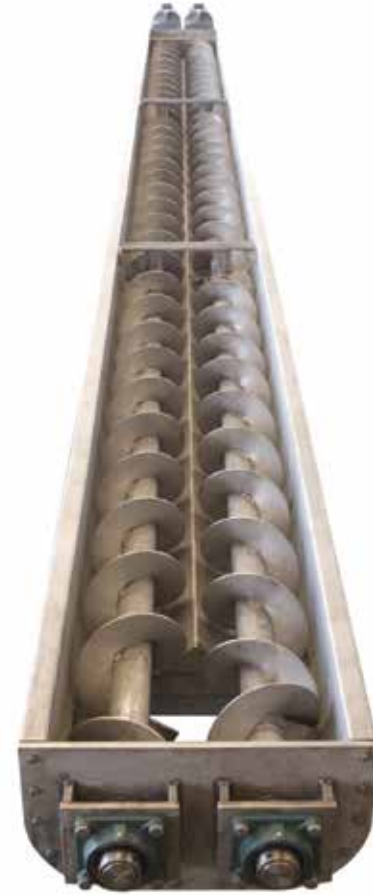
- Flow capacity up to 20,000 GPM in a single unit
- Up to 95% water recovery
- Quick installation and low maintenance
- No internal moving parts
- High density underflow



Conveyor Belts

Tons Per Hour offers a variety of heavy and light duty conveyor belt system for the mining, municipal waste sewage, and recycling industries. Our heavy duty systems are “best in the industry” and suitable for aggregate, construction, paving, and recycling operations. We offer a complete line of options including belt cleaners, covers, impact and return idlers, walkways, safety stop cables, discharge hoods, wind hoops, and galvanized coatings.





Dual Spiral Auger Conveyor

Shaft-less Single Auger



Cake Breakers



Cake Breaker with Feed Belt



Automated Flocculate Blending System



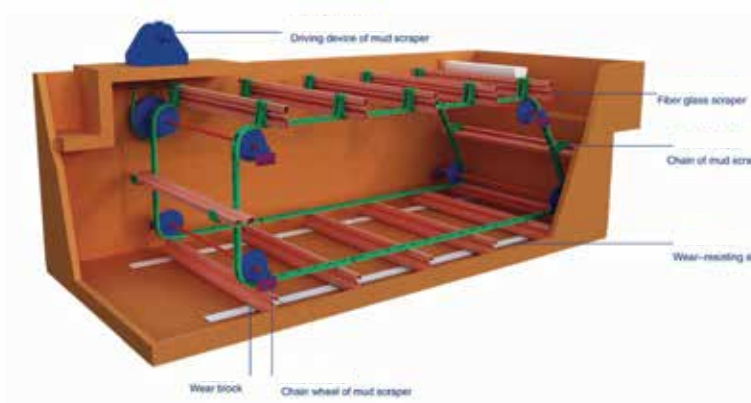
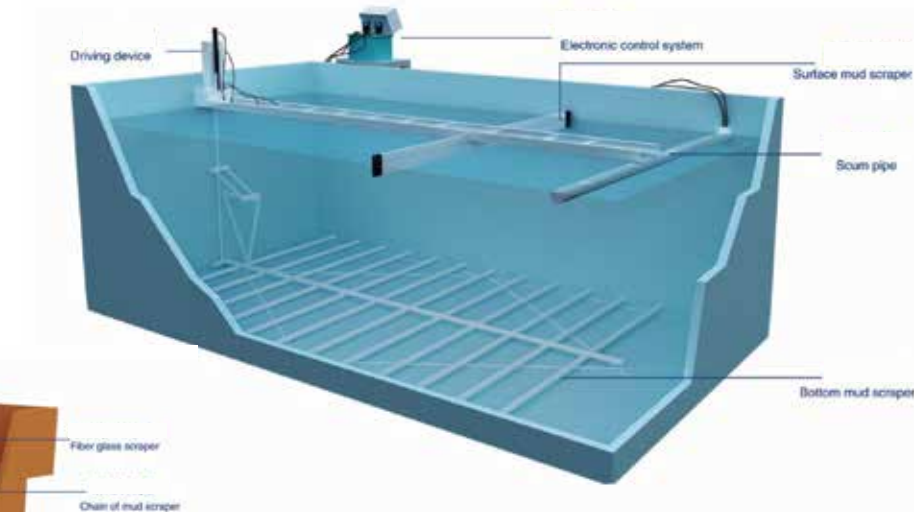
Mixing System



Blender Rod, Rubber Covered Blade



Thickener Rack Drive Pack



Automated Sludge Recovery System

Flocculant Systems and Chemicals

Our “Silver Bullet” system integrates a super-sack hanger with a dual-chambered tank. This allows for weather resistant flocculant blending in all environments. We use gentle mechanical agitation to ensure complete blending and activation which results in maximum cost savings and reduced maintenance.



Tons Per Hour’s Volumetric Feeder, with its unique wetting system, ensures even blending (no “fish eyes”), for consistent batching accuracy and maximum flocculant efficiency. This system coupled with our “Photo Eye” automatic dosage system provides trouble-free operation and a clean, safe work environment.

Our flocculation chemicals are the highest quality and most cost effective in the industry. We offer both dry and liquid anionic flocculants and a complete line of coagulants. Coupled with our blending and metering system, you can expect low consumption, low maintenance and fully automated dosing.



Dust Control

Dust from unpaved roads is not only a nuisance, but creates a safety hazard by reducing the driver’s visibility. Dust also affects the health of road users and increases wear-and-tear on vehicles.

Tons Per Hour offers a full range of dust control products including fog and foam products for crusher and conveyor belt transfer point control, and dust palliatives for surface dust control. We offer water-based, synthetic, and organic petroleum and nonpetroleum products that are safe and nontoxic. Most dust control products are custom blended in Oakland, California.





TDH slurry pumps are designed for continuous pumping of highly abrasive and high density slurries — with the greatest reliability — reducing downtime and maximizing production.

Unlike competing models, TDH slurry pumps will maintain high efficiencies over the entire wear life of their components. Continuous adjustment of impellers or adjustable liners is not required.



For interchangeability and maximum uptime, TDH casings for horizontal shaft slurry pumps (models T, P, R, N, D, and G) use the same base, bearing housings, bearings, and sealing options.

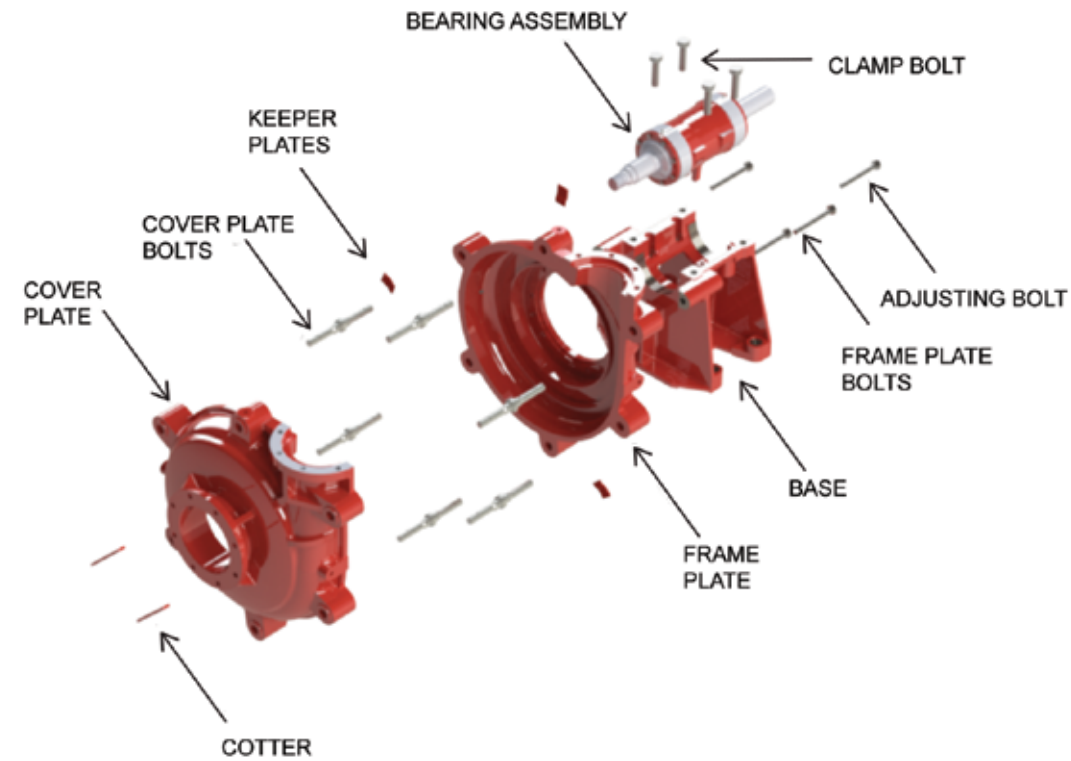
All pumps and parts are centrally warehoused in Houston, Texas for fast service and delivery.



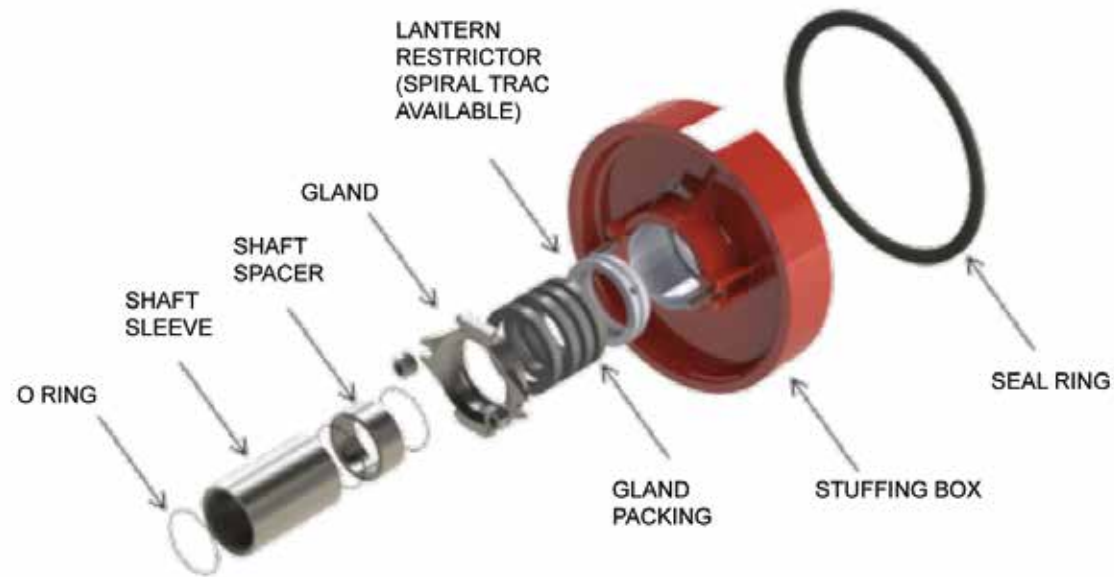
Series Summary

SERIES	TYPE	DISCHARGE DIAMETER	HEAD	FLOW RATE	CASING PRESSURE
		inch (mm)	feet (meters)	US gpm (m ³ /hour)	MWP PSI (bar)
T	Heavy duty	1-14 (25-350)	240 (73)	16,000 (3,600)	300 (20.7)
R	Low Head/ High Volume	3-18 (75-450)	180 (55)	24,000 (5,500)	150 (10.3)
D	Dredge	4-10 (100-250)	150 (46)	6,000 (1,362)	150 (10.3)
V	Vertical Cantilever	1.5-10 (40-250)	16 (50)	6,000 (1,362)	150 (10.3)
P	High Head/ Heaviest Duty	1-4 (25-100)	325 (100)	4,500 (900)	500 (35)
N	Unlined – High Chrome	2-10 (500-250)	240 (73)	6,500 (1,475)	150 (10.3)
G	Gravel	6-8 (150-200)	240 (73)	6,000 (1362)	150 (10.3)
F	Vertical Froth	2-6 (50-150)	80 (24)	1,000 (225)	100 (6.9)

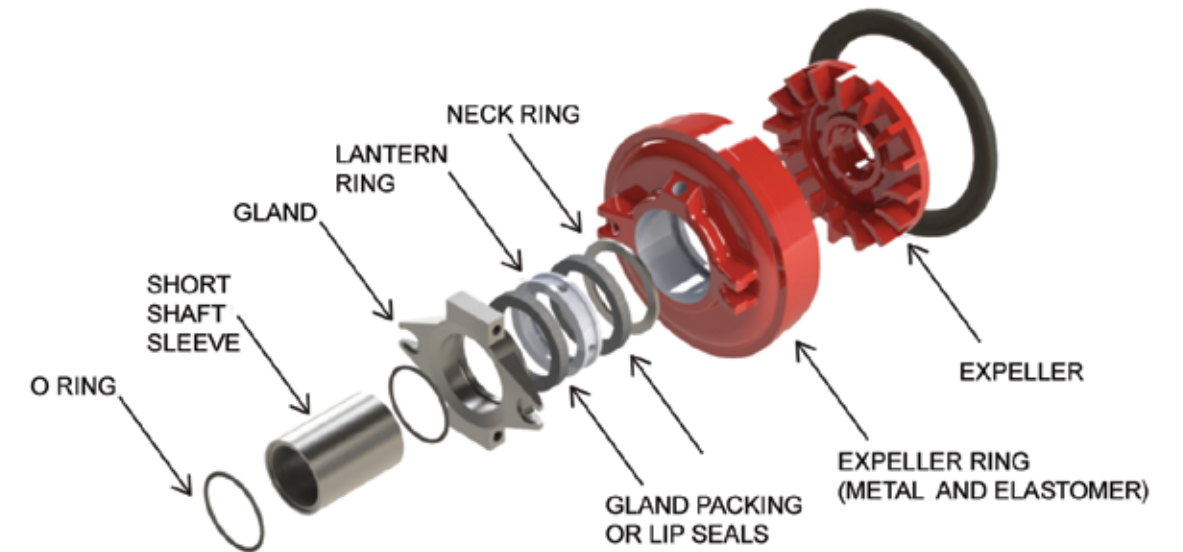
Typical Frame Assembly Parts
(Variations may occur between models)



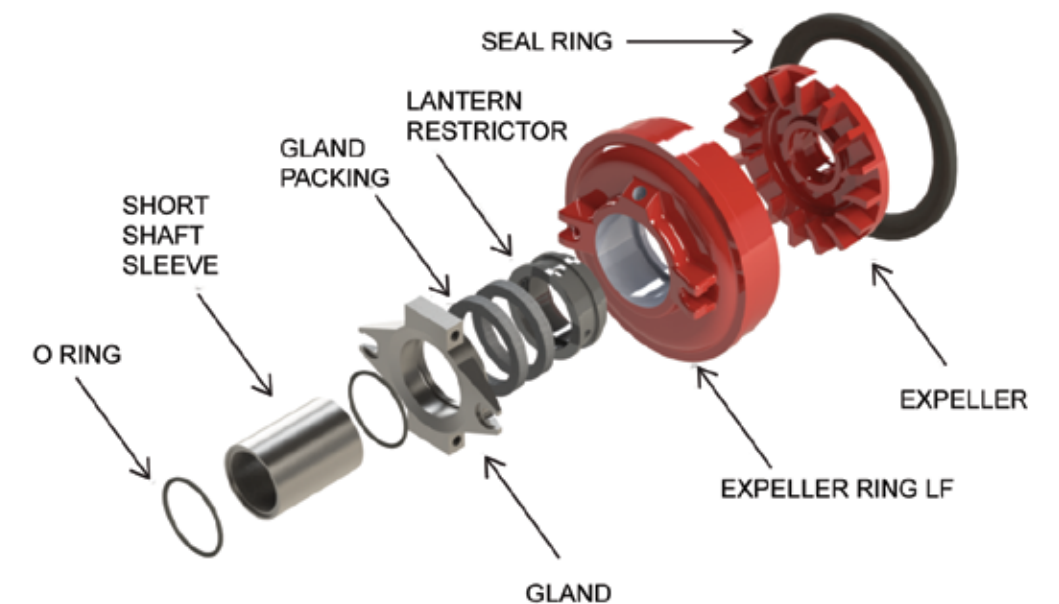
Typical Stuffing Box Assembly Parts



Typical Dynamic Seal Assembly Parts
Grease Lubricated



Typical Dynamic Seal Assembly Parts
Water Lubricated



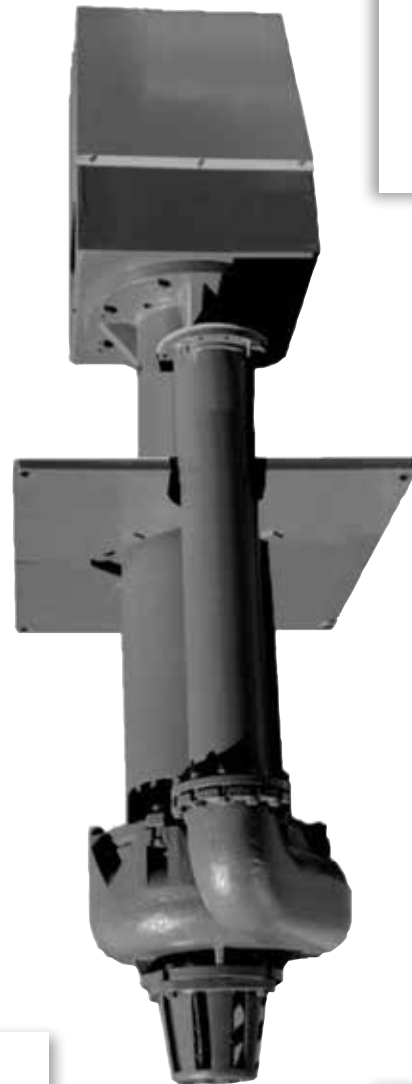
Typical Applications

Continuous or "Snore" Operation

Abrasive Slurries

High Density Slurries

Large Particle Slurries



Sump Drainage

Washdown

Floor Drainage

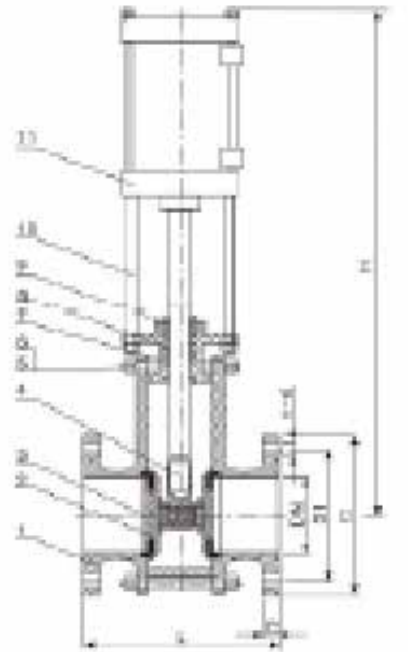
Mixing

Pneumatic Double Disc Gate Valve

Product Information:

Pneumatic double disk gate valves are commonly used in the mining, paper making, and chemical industries. The valve plate and seat are manufactured using highly durable ceramics making them ideal for abrasive slurries. This valve can tolerate 1.0 MPa of pressure and up to 200°C.

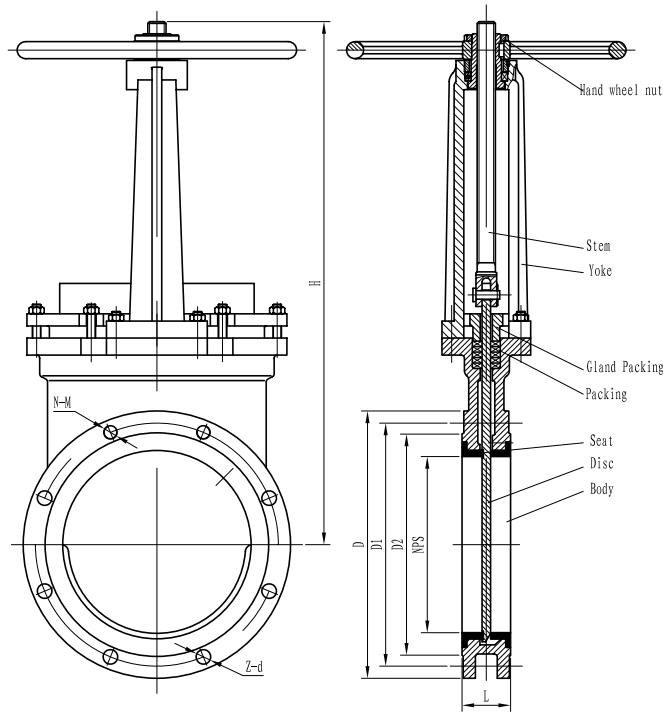
The valve mid-body is welded WCB steel using a seamless steel tube. The pneumatic load required for it to open is very low. Its high wear resistance and good sealing performance make it an ideal choice.



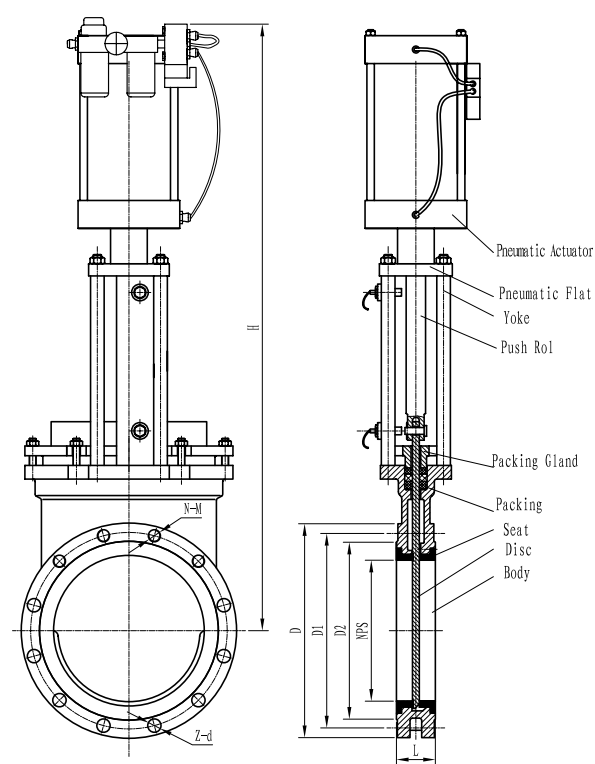
Technical Specifications:

NO.	PART NAME	MATERIAL
	Connection Dimension	Face to Face Dimension/Flange
	Material Science	Carbon Steel/Stainless Steel
1	Body	WCB
2	Valve Plate	Composite Engineering Ceramics
3	Valve Seat	Composite Engineering Ceramics
4	Stem	2Cr13
5	Studs	35CrMoVA
6	Nut	25
7	Midbody	WCB
8	Packing	Flexible Graphite
9	Packing Gland	2Cr13
10	Holder	Q235
11	Pneumatic Actuator	

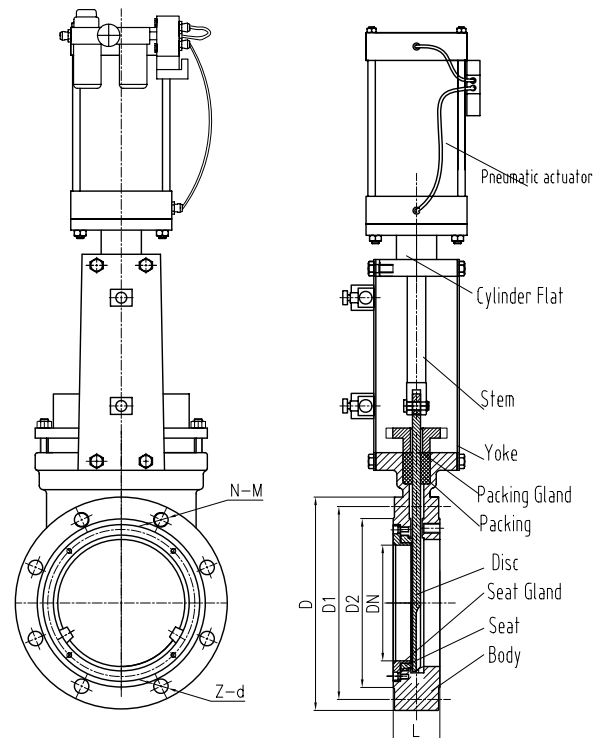
Handle Ceramic Knife Gate Valve



Pneumatic Knife Gate Valve



High Pressure Ceramic Knife Gate Valve



All of our customer support needs can be met with a combination of in-house service personnel, full time engineering staff, professional chemists, contract service representatives, and a growing dealer network.

In house, we offer the following services & analytical capabilities:

Design and Build Services:

- Plant lay-out drawings
- P&ID diagrams
- Flowcharts
- Stoichiometric and mass balance calculation

Consultation Services:

- Tailings waste analysis for possible beneficial uses
- Diagnosis, retro-fit, and design improvement for competing filter presses (and other equipment)

Laboratory Capabilities:

- Testing services
- Sieve size particle distribution
- Particle size by laser diffraction
- Shape and surface analysis using Stokes Law settling
- Elemental analysis by x-ray fluorescence (XRF)
- Mineral analysis x-ray diffraction (XRD)
- Novel waste usage technologies (e.g. enzymatic stabilization, unique binders, mechanical activation, fly ash activation)

PROCESS EQUIPMENT

Belt Presses • Clarifiers • Cyclones • Dewatering Screens • Filter Presses • Thickeners • Flocculant Blending • Toshiba Flow Meters • Non-Nuclear Density Meters
• Slurry Pumps • Valves

AUTOMATION AND CONTROLS

Ultrasonic Liquid Level Controllers • PLC, HMI and VFD Programming
• Flocculate Batching Systems • Flocculate Metering Systems

LIQUID-SOLIDS SEPARATION CHEMICALS

Flocculants • Coagulant • Dispersant

PIPE | HDPE

Custom Made HDPE Fittings • Electro Fusion Couplers • Fusion Machines
• Rubber Lined Steel Pipe • Ceramic Lined Elbows & Fittings

FILTRATION SYSTEMS

Water • Oil • Fuel • Hydraulic

SCREENS

Dewatering • Incline Screens • Horizontal Screens

SLURRY PUMPS AND VALVES

Horizontal Slurry Pumps • Vertical Slurry Pumps • Pneumatic, Manual Pinch Valve
• Electric and Butterfly Valves • Butterfly and Check Valves

WASH PLANTS

Complete (Design and Build) • Portable • Skid Mounted

ENGINEERING & LAB SERVICES

Engineering Design Build • Turnkey Systems • In-house Lab Testing
• Beneficial Uses • Consultation



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