Tapered Screw Press

Rugged construction for continuous operation

Highly effective moisture removal and compression of process flows.

Cost-effective dewatering solutions.
Tapered Screw Press

Features

- Extremely rugged construction designed for continuous, 24 hour/day, year round operation.
- Precisely manufactured, tapered screw and cylinder designs with internal volumes sized to suit compression rates.
- Split cylinders and covers for ease of inspection and maintenance.
- Mechanical type seal for elimination of leakage and shaft wear.
- Double-tapered locking sleeve to maximize shaft strength.
- Axial screw adjustment for more accurate control of screw to cylinder clearance and extended screw life.
- Interchangeability of components with other popular makes.
- Availability in several sizes and in both single and double barrel models. Metallurgy according to application.
- Vapor-proof covers to meet environmental concerns.
- Constant speed or optional variable speed drive.

Typical Applications

- Corn fiber and germ
- Wheats and grains
- Vegetable pulps and residues
- Spent brewery hops and grains
- Fruit and vegetable peels
- Citrus fruit peels and pectins
- Grape and wine processing
- Paper stock furnishes and residues
- Sugar beet furnishes and residues
- Commercial residues
- Industrial waste and sludge
- Municipal sludge

The screw press can be supplied in either single or double barrel models. Each screw is fitted with three screen cylinders, one inlet draining cylinder, and two heavy duty pressing cylinders. The draining cylinder is a half screw designed to allow for preliminary drainage of the feed prior to entering the pressing section. The two pressing cylinders are of a split and taper pinned design allowing them to be easily removed without major disassembly of the machine. Each pressing cylinder consists of a lined cage. This enables the user to replace the liner at the production site in a matter of hours, saving money in both replacement cost and down time.

The pressing zone is housed with vapor tight covers. The split design permits easy removal. Both the screw and the cylinders are built on a taper. As the clearance between the screw and the cylinder is important to the performance of the press, this tapered design allows periodic clearance adjustments as the screw and the cylinders wear. The adjustment is simply done by moving the screw in the axial direction with an externally located adjusting nut.

We offer an optional mechanical seal designed especially for this type of application. The mechanical seal features a water flush box and a seal face lock. The seal face lock is essential to the design as it provides a way to lock the seal faces together when screw adjustments are being made. The implementation of the mechanical seal eliminates the shaft wear caused by traditional packing boxes and it also prevents product leakage. The seal rotates in an oversized spherical roller bearing housed on a sliding base.

The bearing housing on the discharge end contains a spherical thrust bearing as well as a radially loaded spherical bearing. The thrust bearing floats on the shaft and is pre-loaded by die springs. The radial bearing is mounted on a stepped sleeve which can move in the axial direction relative to the shaft. The stepped sleeve transmits the thrust load to the thrust bearing via a special lock nut that is bolted to it. The bearing arrangement allows the clearance between the screw and the cylinders to be adjusted by simply loosening the bolts on the lock nut and then turning it relative to the shaft.

The press is driven by an electric motor, V-belt drive, and reducer. The reducer is coupled to the screw using a sliding gear coupling. The slide in the coupling is adequate to accommodate any screw adjustments. To maximize shaft strength, the key, and keyway have been replaced by a double-tapered locking sleeve to lock the coupling to the shaft. The drive can be located on either end of the press.

Additional features include quick release cam latches on all inspection ports and access doors. A spray system on the outside of the cylinder assembly can be furnished to wash down the cylinder exteriors and/or provide dilution to the effluent, if required. A restriction cone that controls the back pressure in the press can be supplied for certain applications.

Design information requirements

- Application and purpose
- Moisture content of feed
- Required discharge concentration
- Through-put rate
- Dewatering characteristics including any required press-zone retention times.
In sensitive applications, the screw can be fitted with pyramidal flights to enhance pressing performance. These special flights help reduce the thrust load and increase pressing capacity by distributing pressing forces throughout the product. This helps eliminate high and low pressure zones. It also reduces shear forces that can damage a sensitive product.

An added feature of the screw press is the use of a double-tapered locking sleeve on the drive end to lock the coupling to the shaft. This not only does away with a key but also maximizes shaft strength through eliminating the stress concentrations associated with keyways.

Kadant Black Clawson press cages incorporate a replaceable screen liner for rapid and cost effective screen replacement.