

Industrial Drives



WESTECH[®]

WesTech Industrial Drives

WesTech is well known for providing top-quality process equipment for industrial and minerals liquid-solids separation. WesTech stands behind their equipment, which has proven to meet the toughest of requirements. The WesTech drive unit has helped earn this reputation.

WesTech clarifier and thickener drive units provide the rotational force necessary to turn rake arms in a circular basin, transporting settled solids to the center of the tank for removal. WesTech's drive design takes advantage of direct in-line, high-efficiency reducer and motor stacks. In addition, WesTech provides durable precision bearings, state-of-the-art torque protection, impeller or flocculator options, and rake lifting capabilities, combined as appropriate to result in off-the-shelf but customized designs for various process applications.

WesTech drives are ideal for applications in hard rock mining, acid mine drainage, coal preparation, flue-gas desulfurization, potash, chemical, petrochemical, pulp and paper, and much more.



Features and Benefits

- **Very High Torque Options**
- **Various Lubrication Options**
- **Numerous Drive Train Options**
- **Long Life and Proven Durability**
- **Ease of Maintenance**
- **High Efficiency**

Drive Approach

WesTech offers two drive approaches. First is a drive where the mechanism rake system is directly connected to a reducer. Second is a drive where a final stage slewing bearing is placed in-line between a reducer and the mechanism rake system.

Motors and Hydraulics

A direct coupled motor is selected for each drive to match available site power and conditions, regional geographic requirements, or plant specifications. Alternatively, WesTech drives can be hydraulically driven in lieu of electrically powered.

Reducers

For primary and secondary stage reductions, WesTech uses a mix of reduction types including helical and planetary gear boxes as well as cycloidal units to best match torque needs and drive design to process requirements.

Reduction Types



Cycloidal



Planetary Gear



Helical Gear

For final stage reduction, WesTech uses a precision locked raceway slewing bearing with integral gear.



The precision bearing can be found in other tough applications like overhead cranes, gun turrets, track hoes, and windmills.

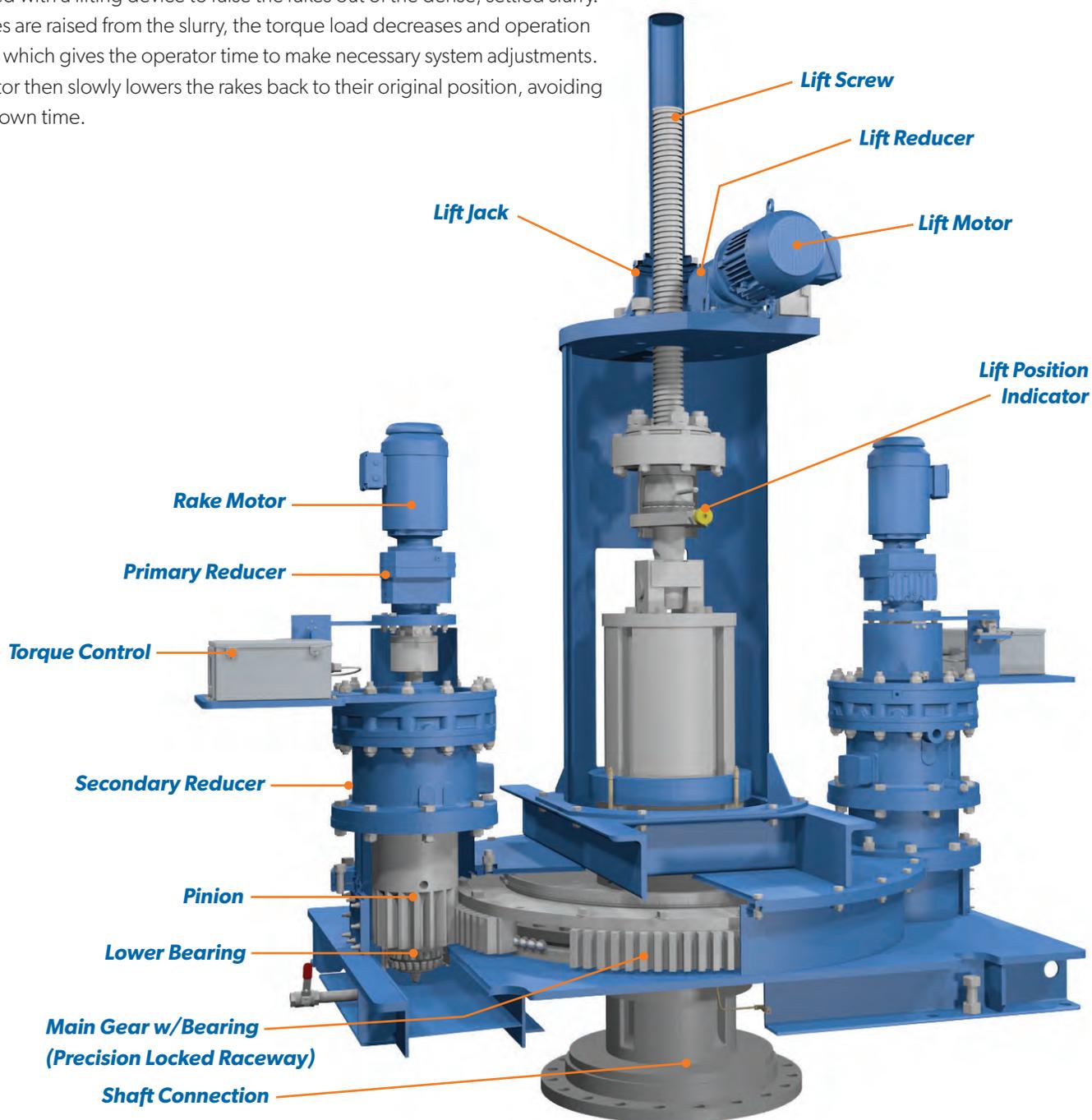
The locked race precision bearing easily resists the powerful overturning moments created by unbalanced loads in sedimentation basins.

Shaft Drive

A shaft drive is provided when the entire mechanism is supported by a full-span bridge. The bridge-mounted drive transmits power to the solids collecting rakes through a center drive shaft. WesTech offers many gear sizes driven by single or multi-pinion reducer stacks, to meet a wide range of process torque requirements.

Optional Lift

In heavy-duty industrial applications where torque can peak rapidly, drives can be provided with a lifting device to raise the rakes out of the dense, settled slurry. As the rakes are raised from the slurry, the torque load decreases and operation continues, which gives the operator time to make necessary system adjustments. The operator then slowly lowers the rakes back to their original position, avoiding any shut-down time.

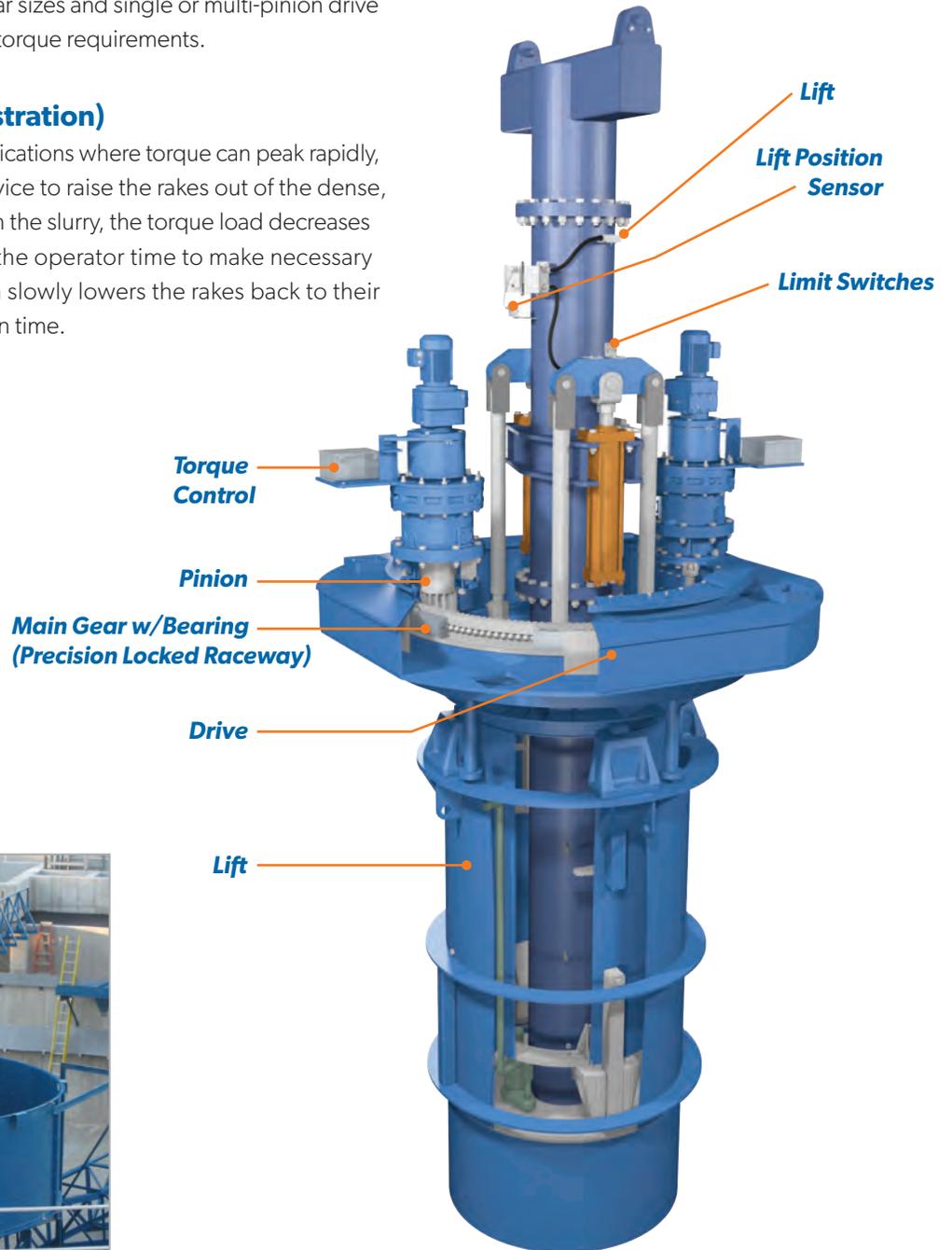


Cage Drive

A cage drive rests on a stationary column mounted in the center of the tank. A half or full-span bridge then attaches to the robust housing of the drive unit. The column-mounted drive turns the sludge collection system through a center cage mechanism. WesTech offers different gear sizes and single or multi-pinion drive stacks, to meet a wide range of process torque requirements.

Optional Lift (As shown in illustration)

In heavy-duty industrial and minerals applications where torque can peak rapidly, drives can be provided with a lifting device to raise the rakes out of the dense, settled slurry. As the rakes are raised from the slurry, the torque load decreases and operation continues, which gives the operator time to make necessary system adjustments. The operator then slowly lowers the rakes back to their original position, avoiding any shut-down time.



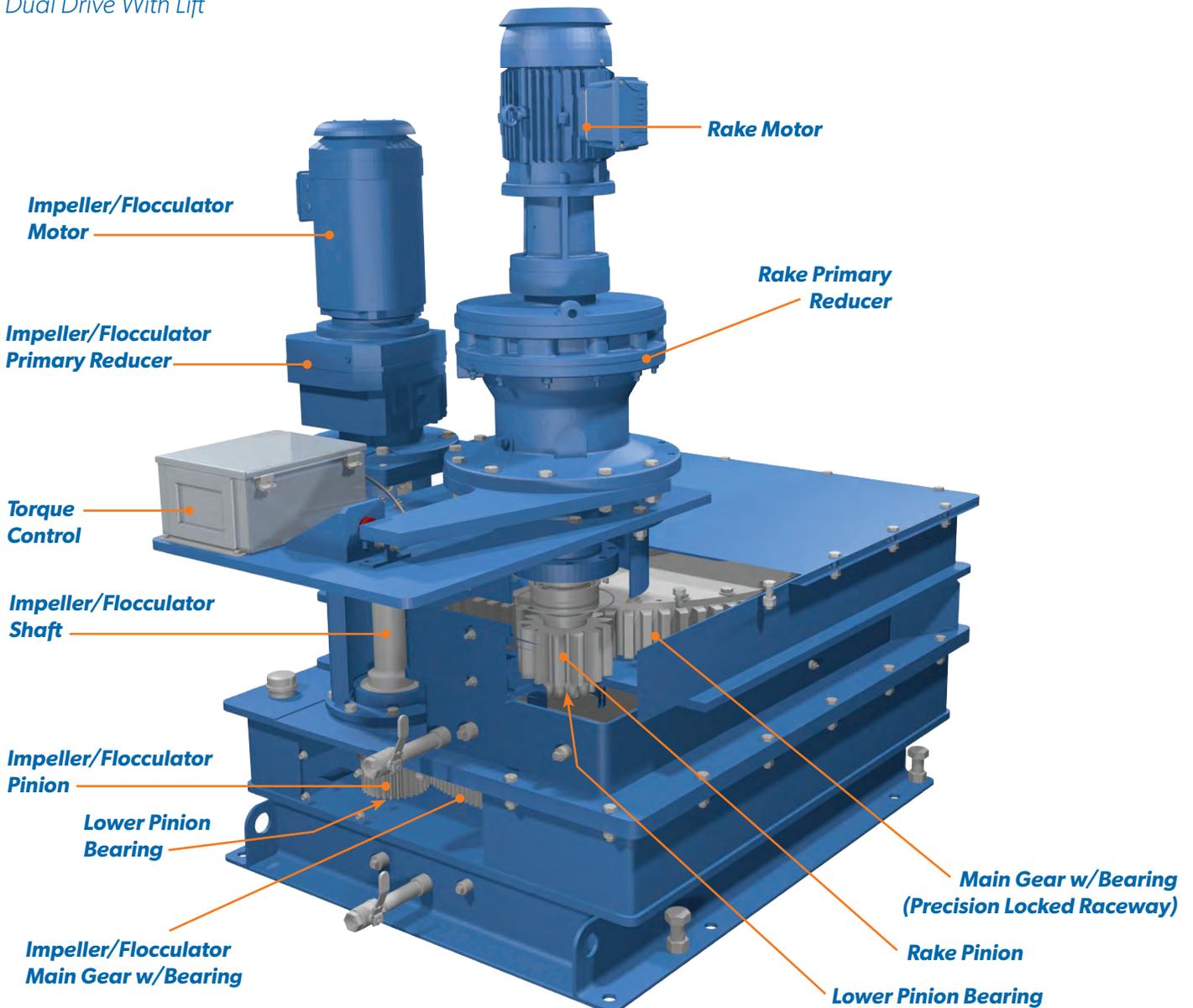
Cage Drive Without Lift

Dual Drive



A dual drive is used in solids CONTACT CLARIFIERS™ and flocculating clarifiers. The robust drive rotates the sludge scraping system at a slow constant speed through a reduction stack and slewing bearing (with integral gear) connected to the mechanism. Another reduction stack and slewing bearing (with integral gear) drive a second shaft connected to the centrifugal impeller or flocculator. The speed of the impeller or flocculator is typically changed by a variable-speed motor control. This allows the operator to fine tune the mix zone for the most efficient process. The maintenance-friendly and highly efficient dual drive is an integral part of the WesTech solids contact and flocculating technologies and is an industry leader in drive products. The WesTech dual drive can be provided as either a shaft drive or cage drive version, with an available lift option on the shaft drive model.

Dual Drive With Lift

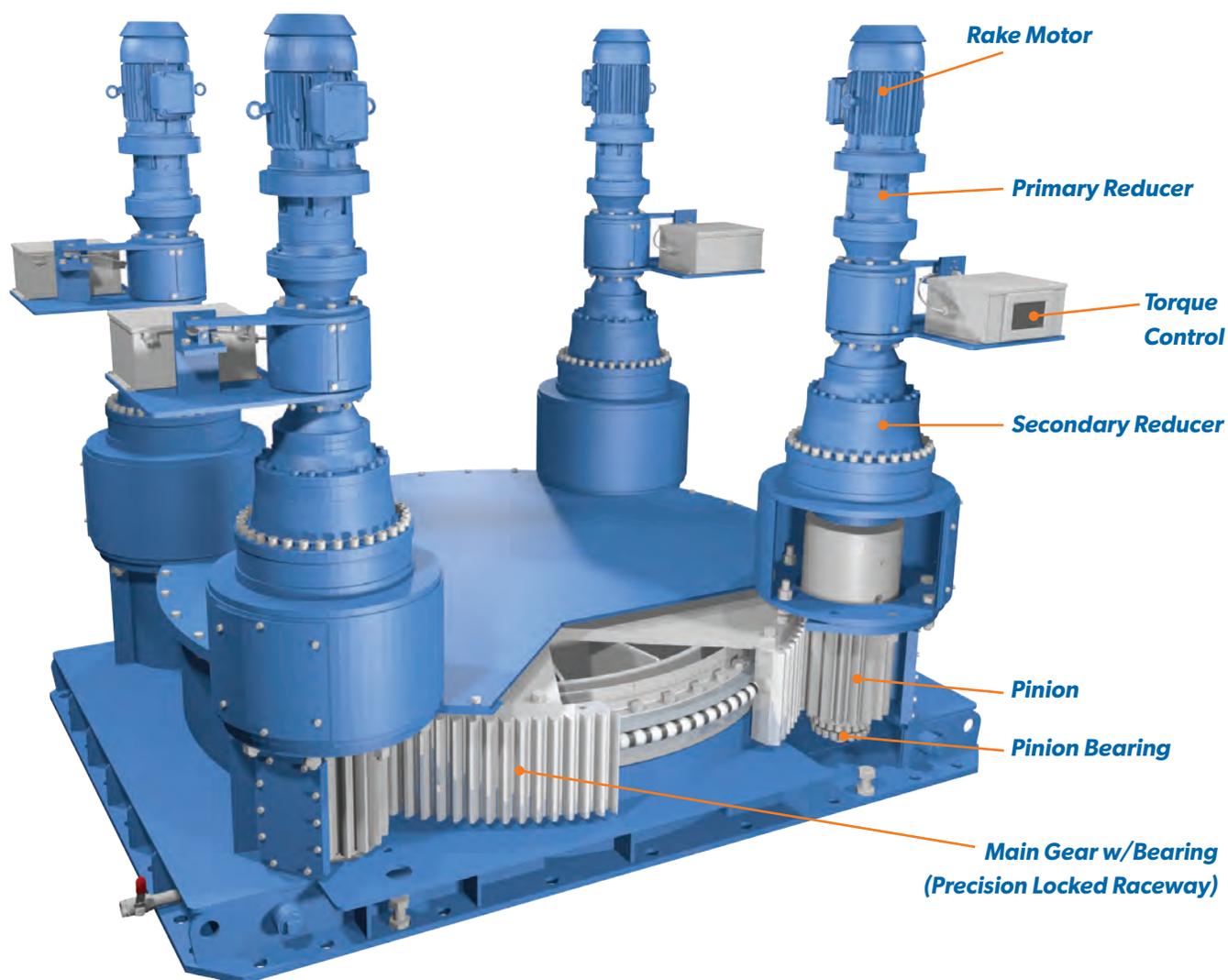


Paste Thickener Drive

Paste thickener drives offer extra heavy-duty high torque designs to power the raking mechanism through heavy solids concentrations without the need of lifting the rakes. Thickening a stream to produce paste offers unique advantages. The drive is designed to withstand heavy loading and is a critical component to the paste thickening process. The WesTech PasteThick™ drive can be provided as either a shaft drive (as shown in illustration) or cage drive version.



Cage Drive



Traction Drive

A WesTech traction drive thickener can be used as an alternative to the conventional center drive thickener. Typically, for minerals applications when the required diameter exceeds 75m, the TitanTraction™ thickener becomes economically viable. For diameters exceeding 100m, the TitanTraction thickener is the preferred choice. The TitanTraction thickener is a column-supported unit driven by a tractor using a rail at the periphery of the tank with the rake/cage assembly pivoting around the center column.



A rim drive is attached to the end of a half or full span walkway and travels around the perimeter of the tank. Motive force is transmitted from the rim drive through the walkway, then to the attached sludge collection system in the tank. WesTech offers a variety of rim drives for several applications.

Due to the geometric configuration of the rim drive clarifier, extremely high continuous operating torques can be obtained from this type of system.

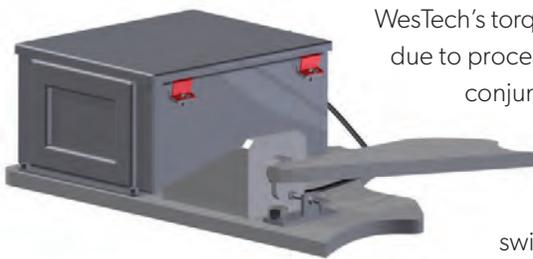
Retrofits and Upgrades



WesTech's robust, heavy-duty drive units are proven workhorses in mining and industrial applications. Under the most extreme operating conditions, WesTech's drives perform with minimal operator attention and provide long-lasting service.

WesTech is experienced in upgrading existing equipment and retrofitting our drives to mechanisms from any manufacturer. With every drive retrofit, WesTech visits the site to inspect the existing equipment, thoroughly record connection measurements, and plan for any special installation requirements.

Torque Control



WesTech's torque control unit senses increasing load on the mechanism due to process or mechanical upsets. WesTech uses a load cell in conjunction with a digital display and transmitter to measure torque and allow monitoring, both locally at the drive and remotely. As torque on the mechanism increases, pre-set switches in the control unit are actuated. These switches are designed to deliver any or all of the following: send an alarm to the operator, lift the rake system if applicable, and/or cut power to shut down the system. These torque set points are factory tested and guaranteed to be correct.





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