



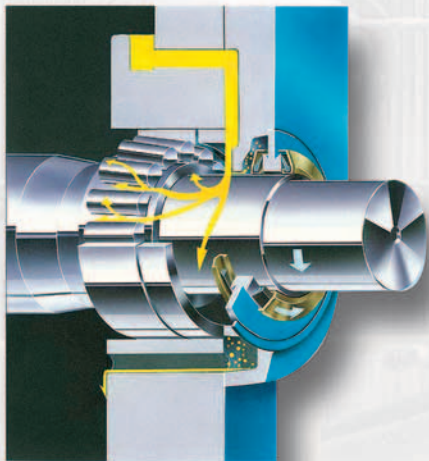
**ENTORNO
INDUSTRIAL**

 **Chemineer**

HT & HTM

High-Torque

Mixers

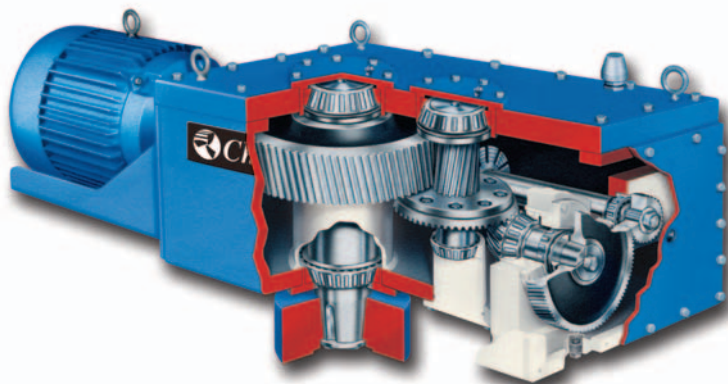


Chemineer HT & HTM

The Chemineer HT and HTM agitators offer proven, reliable experience in demanding processes such as chemical reactors, fermentations (gas dispersion), polymer reactors (PVC, natural rubber, PTA, PE, polystyrene, etc.), flue gas desulfurization (FGD), mining, waste treatment, and many others.

Chemineer HT and HTM gear drives provide long service life, low maintenance and operating costs, and unmatched performance in your critical processes with these features and benefits:

- Spiral bevel & helical gearing increasing service life with minimum power loss and low noise/vibration levels
- Oversized solid internal shafting minimizes low speed shaft deflection, thereby extending gear and bearing life
- Spherical and tapered roller bearings throughout the drive providing 100,000 hr. minimum L-10 lives
- Fail safe splash lubrication for gearing and bearings on the HT units and combination splash/integral pump lubrication on HTM units
- Dry well seal eliminates oil leakage
- Mechanical run tested prior to delivery ensuring proper operation in the field
- Agitator drives assembled in factory prior to shipment (gearbox, motor, pedestal, seal) to ensure proper fit-up & tolerances



HT Drive

- Right angle drive provides balanced design and reduces headroom requirements
- Parallel shaft option for HTM units
- Independent beam mounting or tank flange mounting options

The Chemineer HT was the first gearbox manufactured by an agitator supplier available to industry. Introduced in 1972 many of those original HT's are still operating today, an amazing thirty plus years service life. Torque ratings are up to 1.3 million in-lbs (1,000 hp+) for the HT, 2.5 million in-lbs. (2,000 hp+) for the HTM parallel shaft design, and 7 million in-lbs. (5,000 hp+) for the HTM right angle units.

The HT and HTM agitators are the best in class for your demanding application. With proven and reliable field experience, they are always the right choice.



HTM Drive

Shafts

Standard shaft design is solid and keyed to drive the impellers through the process fluid. Optional designs include pipe shafting to reduce the weight of the system and welded hubs to the shaft.

Chemineer machines and straightens agitator shafting in our factory with lathes handling shafts over 30 feet in length. In-tank couplings, either welded or removable, are available to minimize the length and weight of individual sections. All shafting is straightened by Chemineer to within a total indicated runout of 0.003" per foot (0.25 mm per meter) of shaft length to minimize vibration and maximize gearbox and seal life.

Shafting is available in most metals including carbon steel, 304/316 stainless steel, duplex stainless steel, Hastelloy®, Inconel®, Monel® and titanium. Shafts can also be coated with a variety of coverings and coatings such as rubber, neoprene, Hypalon®, Teflon® and FRP.

Many large volume processes require shaft support inside the vessel via a steady bearing. Chemineer

has once again proven to be a leader with installation, operation, and maintenance friendly designs. Our unique "Adjustable Steady Bearing" makes quick work of bearing to shaft alignment ensuring long steady bearing component and gearbox/seal bearing life. Installation and maintenance personnel agree this is the best way to align a steady bearing on large equipment. Pad, bracket, tripod and sanitary steady bearings are available design options.

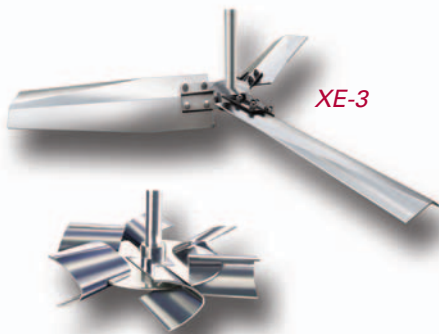


Adjustable Tripod Steady Bearing

Impellers

The process design begins with the impeller and Chemineer application engineers and sales representatives are the best at designing the right impeller for the job. Fermentations using BT-6 and Maxflo W impellers, FGD applications using high efficiency HE-3 impellers, high viscosity polymer reactors using a double flight helix impeller, and pulp and paper and mining using HE-3 or Maxflo W impellers are just a few of the many applications where Chemineer process technology boosts your process performance.

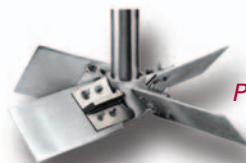
A variety of mechanical designs are available to suit your particular needs. Standard construction utilizes a hub which is key driven and set screw attached to the shaft with bolted extension blades. Also available are welded hubs with welded or bolted blades. For sanitary requirements, polish of the impellers and shaft, use of acorn nuts and bolts with o-rings, and a variety of "Smoothline" impeller designs are available to meet your needs. See Impeller Bulletin 710 for further information.



BT-6 Gas Dispersion Impeller



Maxflo W



Pitched Blade Turbine



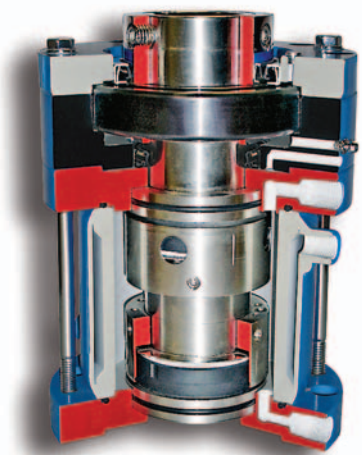
HE-3



Helix Impeller

Seals

For processes requiring the vessel to be sealed against the environment, Chemineer offers a variety of sealing options. For lower pressure applications, stuffing box seals are often used. Higher pressure and critical applications typically utilize double mechanical seals. The standard Chemineer double mechanical cartridge is completely bench pressure testable to ensure sealing



Double Mechanical Seal

performance before installation. Other mechanical seal options include steam lubricated or purged seals for sanitary applications, high pressure seals and split seals.

Changing a mechanical seal cartridge on large equipment can often prove difficult and time consuming. The Chemineer drop collar system engages in the mounting flange as the coupling bolts are removed, thereby supporting the shaft and impeller system. The tapered coupling and spacer spool are easily removed and the seal cartridge is then taken off the unit. There is no blocking of the shaft, pulling of the shaft up through the gearbox, removal of the gearbox, or disengaging the steady bearing.

A seal shut-off feature is available to seal off the tank contents during seal change by using o-rings and gaskets on the drop collar, keeping harmful vapors out of the plant environment. Chemineer's easy seal change feature is further simplified with an optional Jacks-n-Rails assembly.

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