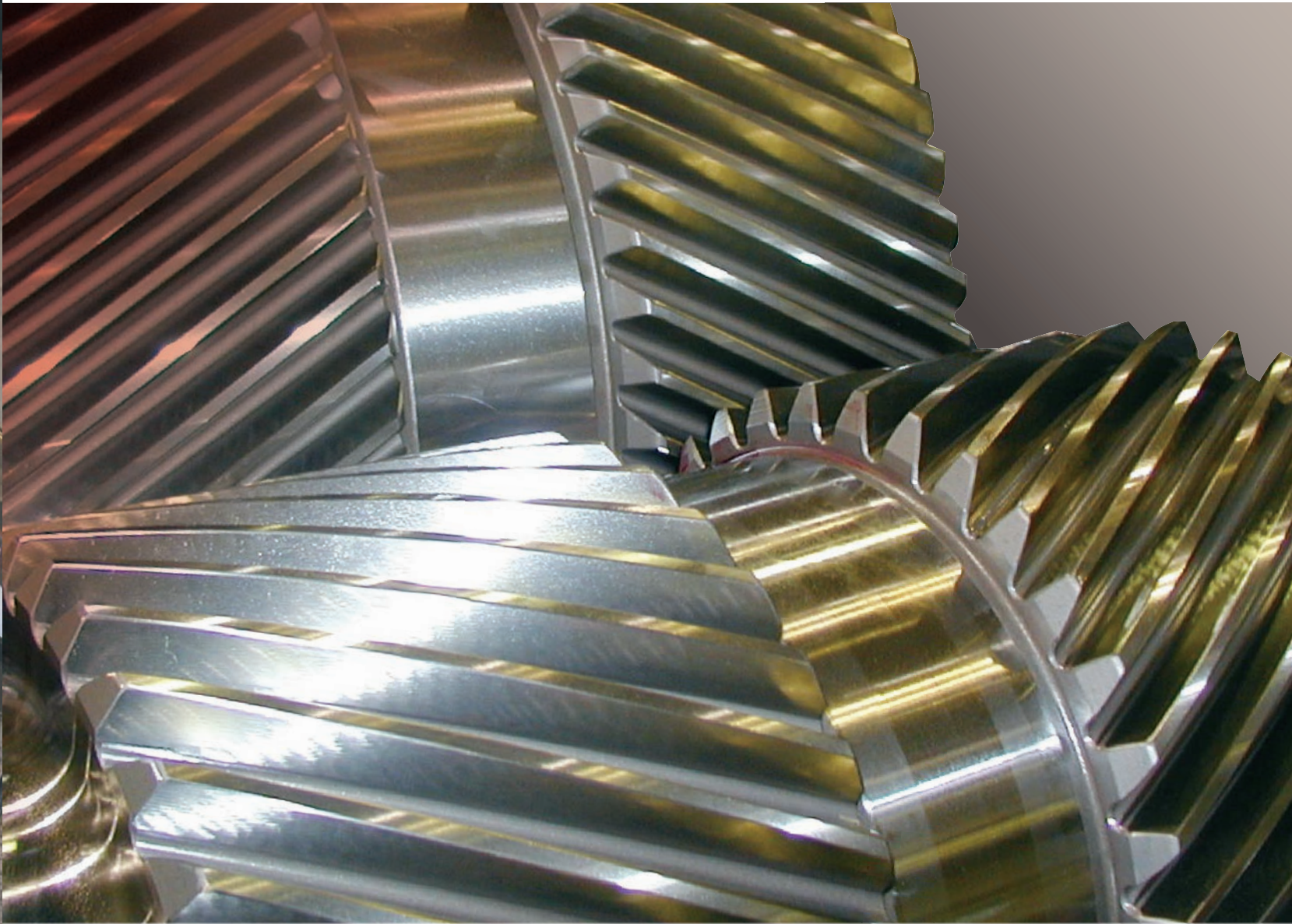
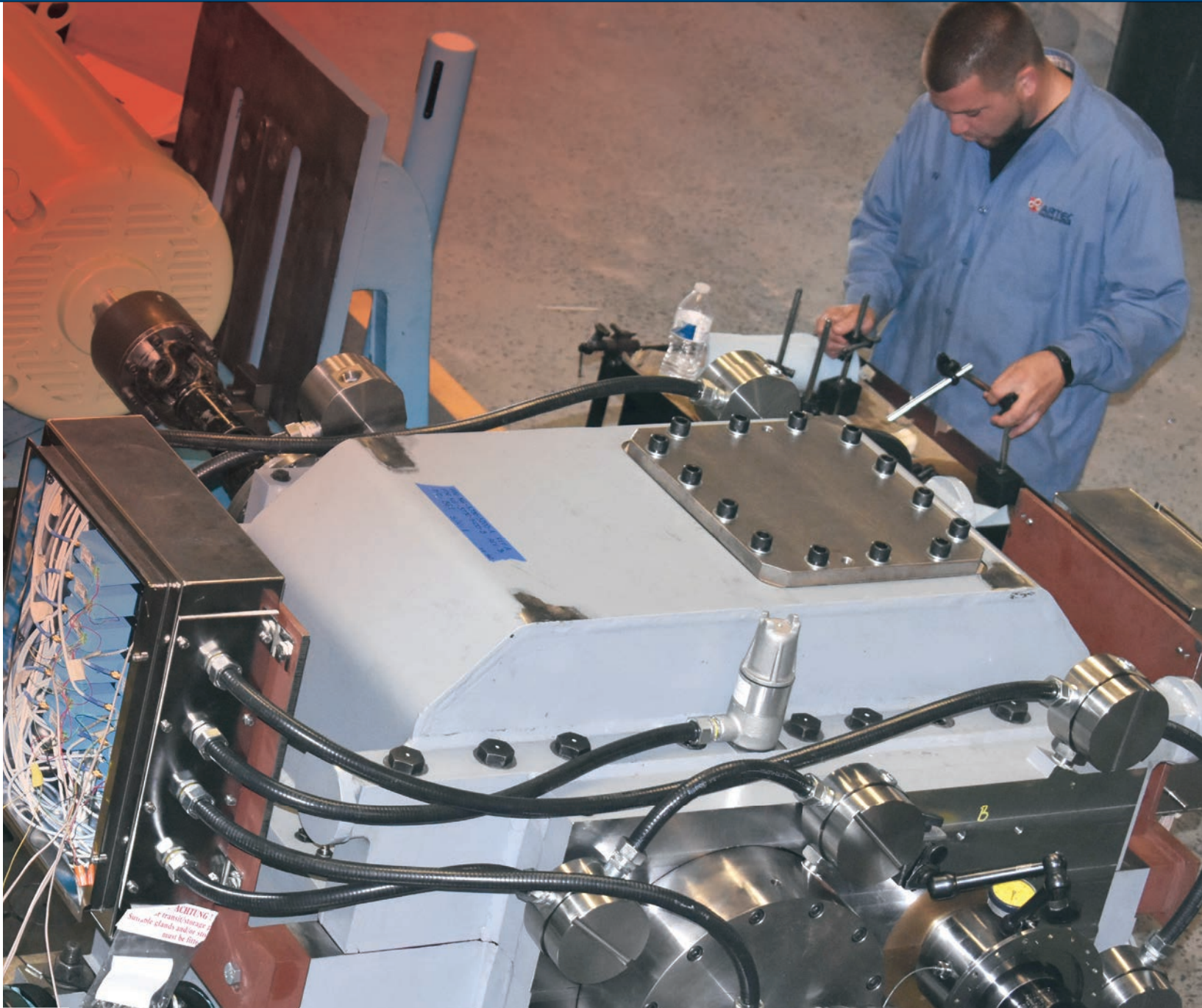
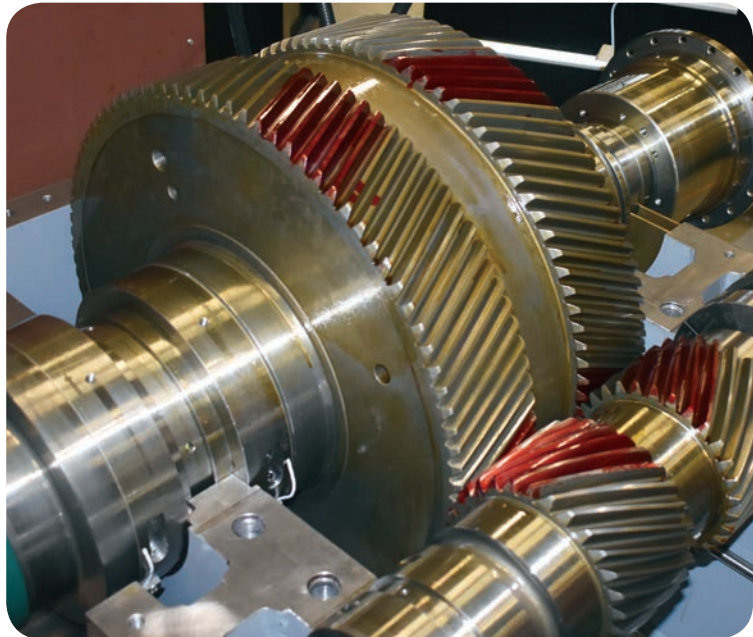
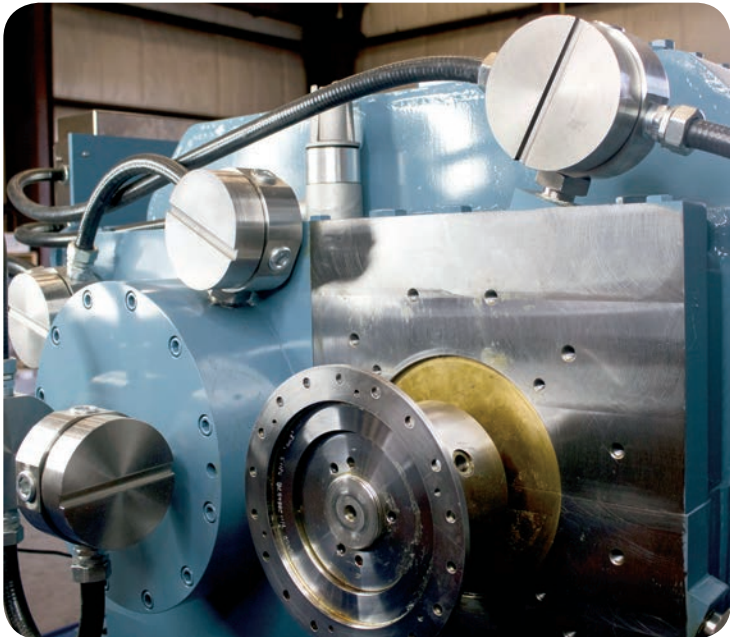
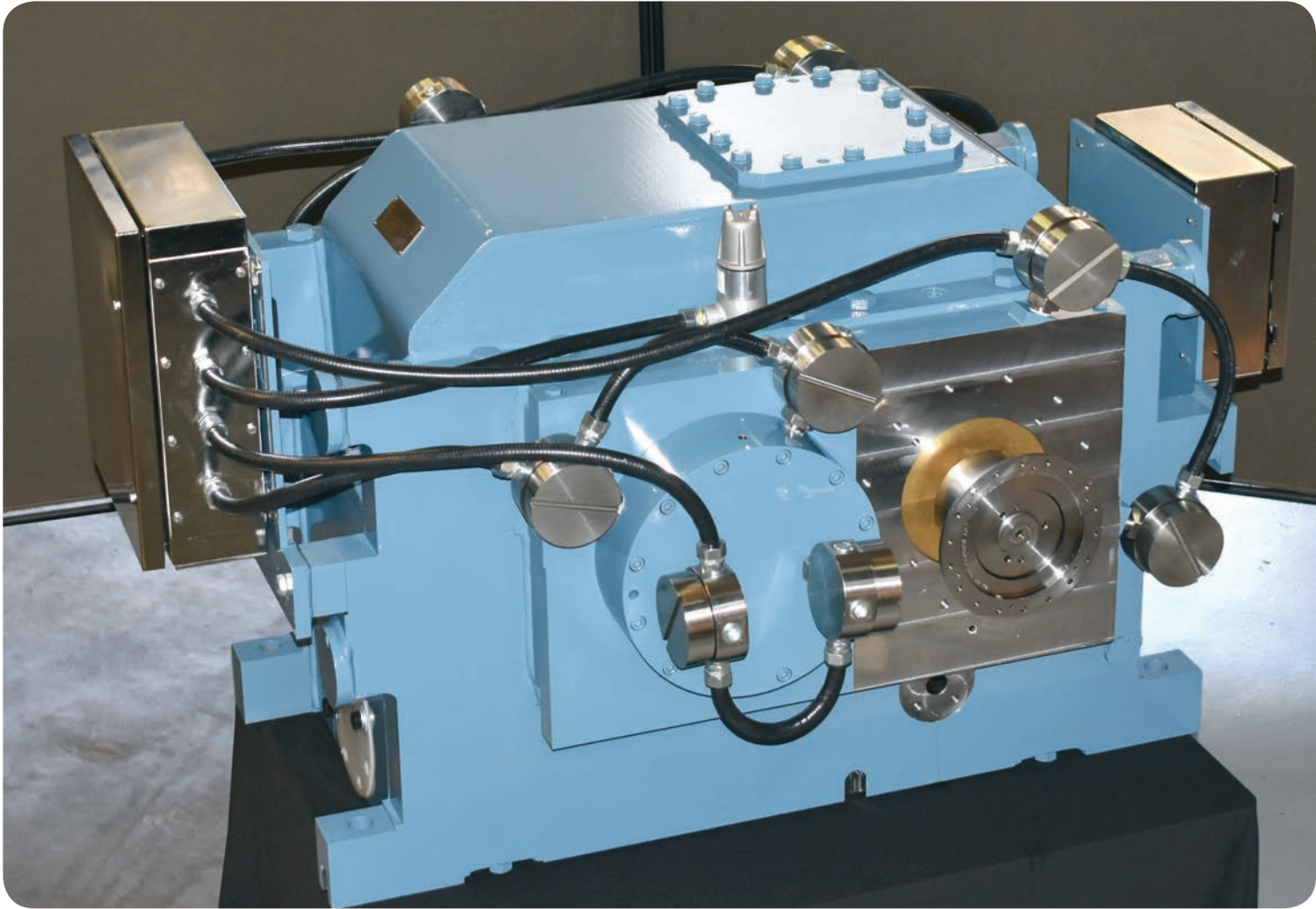


OUR PARTS in ACTION



A SERIES

HIGH SPEED TURBO GEAR DRIVES



ARTEC MACHINE SYSTEMS Inc.
sales@artec-machine.com | 1-203-484-2002
24 hour line: 203-589-6417 OR 203-675-0284
26 Commerce Drive
North Branford, CT 06471
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ARTEC’s “A” Series Parallel Shaft Gearboxes

ARTEC “A” Series parallel shaft gearboxes are designed and manufactured in accordance with the latest technical standards (AGMA, API and other standards or special designs upon request) and are based on proven Original MAAG Gear technology. As a result, ARTEC is able to offer highly efficient and reliable turbo gearboxes for a multitude of applications;

- Oil and Gas
- Power Generation
- Petrochemical Industry
- Steel Production
- Paper Industry
- Energy recovery
- Testbeds

FREE STANDING DESIGNS

- “A” Series type with steel casing for an extreme rigid construction
- Separate inspection covers for easy inspection and service access
- Gear ratio for all types:
 - Single stage ratios 1<10
 - Double stage ratios 1<50
- Single or double helical gearing calculated in according to API and AGMA standards.
- Hydrodynamic cylindrical sleeve or tilting pad bearings.

Design & Construction



PINION ROTORS

Pinions are made of case hardened alloy steel. Tooth flanks are designed using profile and longitudinal corrections to allow for bending, torsional, and thermal deflections during full operation.



GEAR ROTORS (WHEELS)

Gears are case hardened alloy steel. The tooth flanks are ground and matched to the mating pinion.



CASING

Casings are fabricated for custom applications and standard sizes. For applications where single-helical gearing is used, the gearbox can be connected to the driven or driving equipment using a rigid coupling. Axial Thrust Sharing between equipment can reduce the requirements for thrust bearings.



BEARINGS

Bearings are babbit (white metal) lined and machined. Gearboxes also come equipped with an adjustable bearing to allow for easier maintenance and adjustments of individual bearings.



LUBRICATION & INSTRUMENTATION

The oil supply can be integrated or separated depending on customer requirements. Artec gearboxes can be equipped to integrate into any preventative maintenance and equipment monitoring program.

Design Details

GEAR ROTOR TOOTHING MODIFICATIONS

Gears and pinions under load exhibit elastic deflections and the temperature across the teeth are asymmetric. Deformations and thermal expansion negatively impact tooth engagement. The tooth flanks are therefore modified during grinding to optimize load distribution at all loads and speeds. Compensation for torsion, bending and thermal effects is absolutely vital for high speed applications.

JOURNAL BEARINGS

Pressure-lubricated two, three or four-lobe bearings provide excellent load capacity and journal stability. Gears which operate at higher velocities are equipped with direct lubricated tilting pad bearings. Bearings are designed to minimize losses, while providing excellent stability at high circumferential speeds.

THRUST BEARINGS

Integrated tapered land is standard or tilting pad thrust bearings with direct lubrication can be provided if it is technically required.

INSTRUMENTATION

Standard instrumentation includes:

- RTD’s or Thermocouples on each radial bearing
- RTD’s or Thermocouples on each thrust bearing, loaded and unloaded side (active/inactive side)
- Provisions for mounting two shaft-vibrations probes (90 apart) on each bearing
- Provision on casing for mounting accelerometer
- Other provisions according to customer requirements
- Keyphaser if requested



THE “A” SERIES GEARBOX

The rotors can be offset horizontally or vertically and are housed in ridged welded construction in two halves with an easy access inspection cover for easy maintenance. The gears are typically carburized, hardened and ground, single helical or double helical. Reduction of noise and vibrations is key. ARTEC’s design incorporates toothing lead modification accounting for bending, torsional and thermal deflection - thus ensuring perfect tooth contact pattern in any load situation. The bearings ensure a high rotor dynamic stability with the least possible oil consumption and losses.

KEY FEATURES:

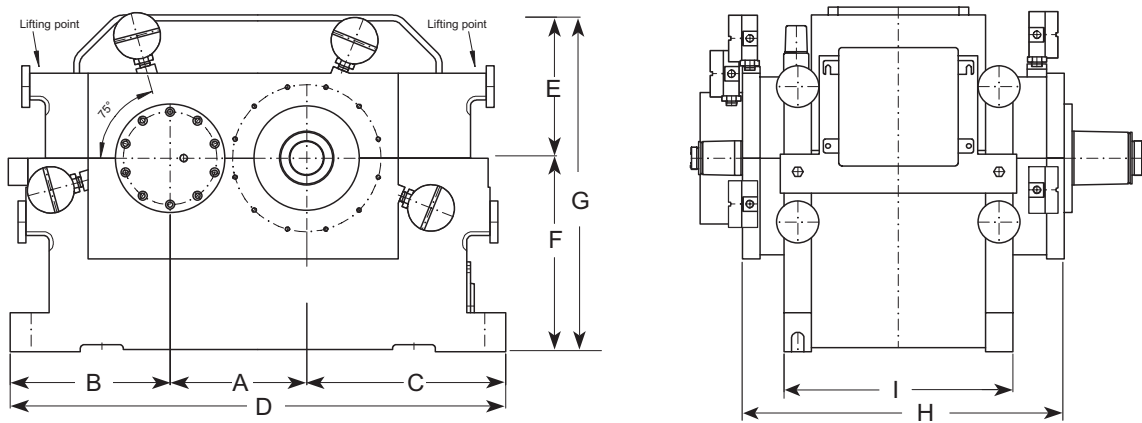
- Optimum center distance and optimum tooth width
- Tothing is ground in longitudinal direction and in the direction of the profile to compensate for pre-calculated distortion that can occur in operation: resulting in optimum tooth contact pattern under full load
- Bearings are designed to create a stable dynamic environment
- Welded steel casing- extremely rigid design
- 4-point support casing for ease of alignment
- Adjustable radial bearing for perfect tooth contact pattern
- Single-helical or double- helical toothing

MONITORING EQUIPMENT

A full range of monitoring equipment is available to complement the gearboxes. Items include integrated resistance thermometer sensors. Conforming to the requirements of API 670 or other standards, radial and axial vibration sensors can be installed on all bearings.

SHAFT DRIVEN OIL PUMP

Most commonly gearboxes operate with lube oil from a common system. Alternatively shaft driven oil pumps can be integrated into the gearbox.



Type	A	B	C	D	E	F	G	H	I	FW _M	Center Distance	API BR Range
A250	250	166	284	800	285	515	800	575	475	275	250	3 - 10
A300	300	230	370	900	320	625	945	625	525	325	300	10 – 23
A350	350	245	425	1,120	375	710	1,085	675	575	375	350	23 – 36
A380	380	250	430	1,060	380	735	1,115	805	705	405	380	36 – 45

*All Dimensions in mm (*non-binding*)

GEARBOX MODEL SELECTION

$$BR_{Base\ Rating} = \frac{Horse\ Power \times RF \times API_{service\ factor}}{Pinion\ Speed\ [rpm]}$$

Where, $u = \frac{Output\ Speed\ [rpm]}{Input\ Speed\ [rpm]}$ and $RF_{ratio\ Factor} = \frac{(u+1)^3}{u}$

Use the formula for Base Rating and above table to determine appropriate model.

