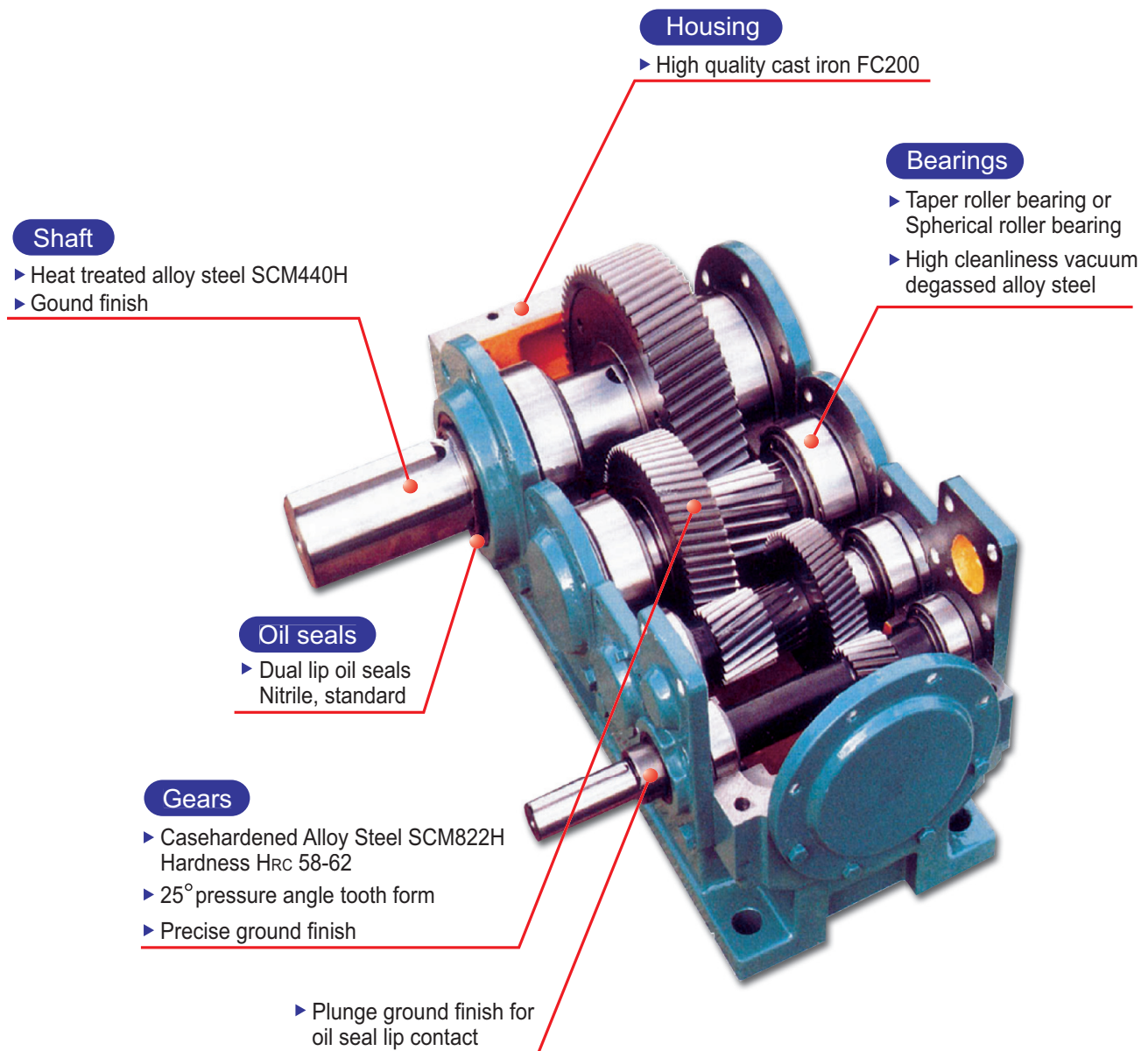


SUMITOMO PARAMAX®

Sumitomo has applied in excess of 50 years of speed reducer experience to the design and manufacture of PARAMAX 9000 series. During this time we have designed and built some of the largest, most durable and trouble-free speed reducers in the world. Our fully integrated engineering and production facilities are equipped to provide prompt delivery of products manufactured to exacting standards at a competitive price. A worldwide network of regional offices, sales representatives, distributors and service technicians provides qualified, on-the-spot field service wherever and whenever you need it.

PARAMAX® 9000 Series Design Features



Gearing

Gear design is based on the AGMA standards with tooth modifications developed with computer technology.

The resulting gearing has quieter operating characteristics, improved shock capacity, and longer life.

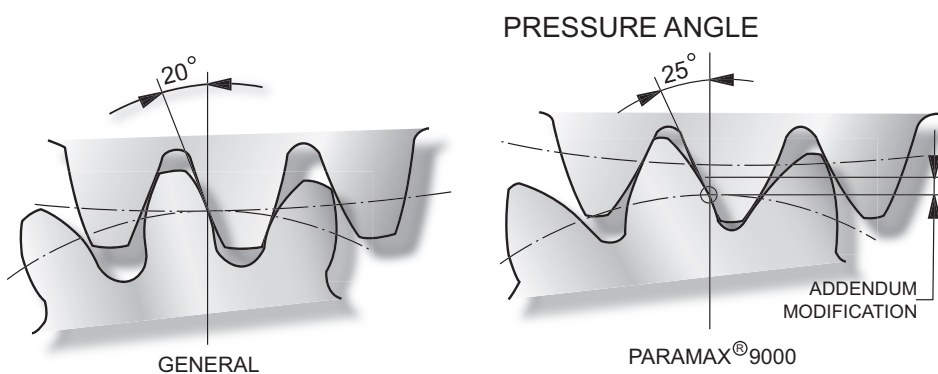
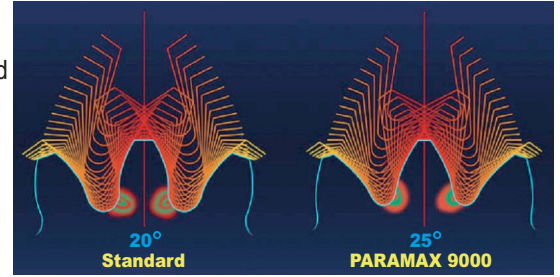
Every PARAMAX[®] 9000 series speed reducer is designed with precisely balanced gear combinations. All gearing is produced from vacuum degassed alloy steel.

Helical gears are produced by protuberance hobbing with 25° normal pressure angle hobs at increased helix angles.

This produces stronger and quieter gearing. The gears are then heat treated using a gas carburizing process to a hardness of 58-62 Rockwell "C" scale.

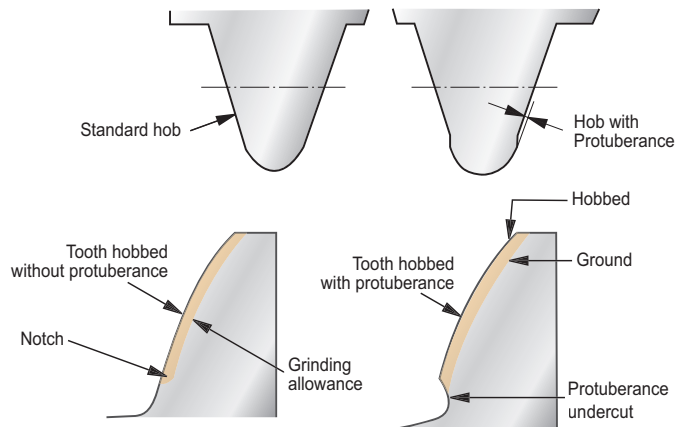
Then the gears are finish ground to the highest standards accuracy.

PARAMAX[®] 9000 gearing is inspected for accuracy of helix lead angle, involute profile, and pitch error.



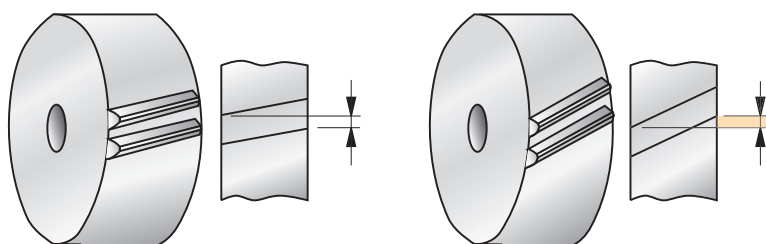
In comparison with ordinary pressure angle (20 deg), 25 deg pressure angle permits a tooth form with thicker dedendum. This translates into higher tooth strength rating, an essential feature for shock load applications.

PROTUBERANCE HOB/STANDARD HOB



Protuberance hobbing, ensures smooth tooth profile to minimize stress concentration.

HIGHER HELIX ANGLE/STANDARD



Helix angle, up to 15 degrees. Provides lower noise level and increased capacity.

Overlap Ratio less than 1.0

PARAMAX[®] Overlap Ratio bigger than 1.0

Housings

Housings are manufactured from high-quality cast iron and are designed not only to satisfy the most strict engineering and manufacturing requirements but also with a view toward functional appearance. The result is a housing with clean, efficient lines for easy maintenance yet built to withstand severe external loads.

Standard features include oil level dipstick, inspection access holes, air breather, magnetic drain plug and lifting lugs.

Shafts

Shafts are manufactured from high alloy steel and are heat treated under strict quality control conditions. Special care is exercised during design to prevent reduction in fatigue strength due to stress concentration.

Bearings

Shafts of PARAMAX® 9000 gear units are mounted on tapered roller bearings or self-aligning spherical roller bearings.

Sizes of these bearings are selected with an adequate safety margin in order to provide sufficient strength to absorb radial and thrust loads which could occur simultaneously.

Seals

Standard PARAMAX® 9000 gear units incorporate innovative seal designs which provide lower maintenance and greater reliability. Plunge ground wear sleeves are used wherever possible to eliminate abrasive wear damage to the shaft surface.

Horizontal mounted units are equipped with dual lip oil seals on both high speed and low speed shafts.

Lubrication

For most applications, oil bath lubrication is standard for horizontal reducers.

Cooling

Normally, heat from the drive is dissipated through the housing surface. Depending upon the application, an additional cooling system may be required to increase the cooling efficiency. New designed fan for PARAMAX® 9000 series and conduct air cowling gain larger thermal capacity. This system benefit for severe situation like continuous operation, even if compact gearbox size.

Fan blade size comparison

