CRANKCASE TOLERANCES

Finish of Main Bores: 60-90 micro inches Ra.

Bore Tolerance: .001" (.025mm) up to 10.000" (250mm) bore

Out-of-Round: .001" (.025mm) max if horizontal is larger than vertical

Alignment

.002" (.050mm) max overall misalignment	(.001"-.025mm for HD or highly loaded engines)
.001" (.025mm) max misalignment on adjacent bores	(.0005"-.013mm for HD or highly loaded engines)

CRANKSHAFT TOLERANCES MAIN BEARING AND CRANKPIN JOURNALS

Finish of Journals: 15 micro inches Ra. or better (10 micro inches Ra. or better for HD or highly loaded engines)

Diameter Tolerance:

.0005" (.013mm) up to 1.500" (38mm) journal
.001" (.025mm) for 1.500" (38mm) to 10.000" (250mm) journal

Out-of-Round:

.0005" (.013mm) maximum up to 5.000" (125mm) journal	.0002"-.005mm for HD or highly loaded engines

(Never use a maximum out-of-round journal with a maximum out-of-round bore.)

Taper:

.0002" (.005mm) max up to 1.000" (25mm) long journal	.0001"-.003mm for HD or highly loaded engines
.0004" (.010mm) max for 1.000" (25mm) to 2.000" (50mm) long journal	.0002"-.005mm for HD or highly loaded engines
.0005" (.013mm) max for 2.000" (50mm) or longer journal	.0003"-.008mm for HD or highly loaded engines

Alignment:

.001" (.025mm) max misalignment on adjacent journals	.0005"-.013mm for HD or highly loaded engines
.002" (.050mm) max overall misalignment	.001"-.025mm for HD or highly loaded engines
Crankpin and main journals should be parallel within .001" (.025mm)	.0005"-.013mm for HD or highly loaded engines

Hour-Glass or Barrel Shape Condition: Same as taper

Oil Holes: Must be well blended into journal surface.

BEARING SPREAD

Main bearings: .005" (.13mm) to .020" (.50mm) in excess of crankcase bore diameter

Connecting rod bearings: .020" (.50mm) in excess of rod bore

CRANKSHAFT END CLEARANCE

Shaft Diameter	End Clearance
2.000"-2.750"	.003" - .007"
(50mm-70mm)	.075mm - .175mm)
2.813"-3.500"	.005" - .009"
(71mm-88mm)	(.125mm - .225mm)
3.500" or over	.007" - .011"
(89mm or over)	(.175mm - .275mm)

CONNECTING ROD TOLERANCES

Finish of Rod Bores: 60-90 micro inches Ra.

Rod Tolerance:

.0005" (.013mm) up to 3.250" (81mm) diameter
.001" (.025mm) from 3.250"(81mm)to 10.000" (250mm) diameter

Out-of-Round: .001" (.025mm) maximum if horizontal is larger than vertical

Taper:

.0002" (.005mm) up to 1.000" (25mm) length	.0001"-.003mm for HD or highly loaded engines
.0004" (.010mm) for 1.000" (25mm) to 2.000" 50mm) length	.0002"-.005mm for HD or highly loaded engines
.0005" (.013mm) for 2.000" (50mm) or longer	.0003"-.008mm for HD or highly loaded engines

Hour-Glass or Barrel Shape Condition: Same as taper

Parallelism: Between rod bore and wrist pin hole .001" (.025mm) in 5.000" (125mm)

Twist: .001" (.025mm) in 6.000" (150mm)

CONNECTING ROD END CLEARANCE

Fillets at end of crankpin should not bind on ends of rod bearing, .004" (.10mm) to .010" (.25mm) clearance recommended.

OIL CLEARANCE - RESIZED BEARINGS

The oil clearance shown in this catalog are for the factory manufactured precision sizes. When installing a resized bearing, adjust the oil clearance shown as follows:

For babbitt and TM- copper-lead: Add .0004" (.010mm) to both low and high limit

For TM-112 copper-lead: Add .0008" (.020mm) to low limit and .0004"(.010 mm) to high limit

PIN BUSHINGS

Resizing: Light Ream: .007"/.015" Bore: .015"/.030"