



DISTRIBUTION

ENGINEERED SERVICES

COATINGS

## DUBRIC HYDRAULIC / PNEUMATIC CYLINDER REPAIR AND PERFORMANCE UPGRADE SERVICES

### INSPECTION PROCESS

- ✓ COMPLETELY DISASSEMBLE ALL COMPONENTS
- ✓ CLEAN ALL COMPONENTS
- ✓ VISUALLY INSPECT ALL COMPONENTS FOR WEAR, CRACKING & CORROSION
- ✓ PERFORM AND RECORD PRECISION MEASUREMENT OF ALL COMPONENTS
  - ROD DIAMETER EVERY 6" ON AXIAL PLANE, 90 DEGREES OPPOSED
  - ROD STRAIGHTNESS – MOUNT ROD BETWEEN MACHINE CENTERS AND MEASURE FOR TOTAL INDICATED RUNOUT EVERY 6"
  - PISTON DIAMETER 90 DEGREES OPPOSED
  - INSIDE BARREL DIAMETER EVERY 6", 90 DEGREES OPPOSED
  - INSIDE GLAND DIAMETER, 90 DEGREES OPPOSED
  - PISTON GROOVE INSIDE DIAMETER, 90 DEGREES OPPOSED
  - PISTON GROOVE WIDTH, 90 DEGREES OPPOSED
  - GLAND SEAL AND WIPER GROOVE DIAMETERS, 90 DEGREES OPPOSED
  - GLAND SEAL AND WIPER GROOVE WIDTH
  - BARRELL END CAP SEAL GROOVES WIDTH & DEPTH
  - PISTON TO ROD O RING GROOVE WIDTH & DEPTH

**ALL DIMENSIONS, CLEARANCES AND SURFACE FINISHES MUST MEET OR EXCEED OEM SPECIFICATIONS**



## TYPICAL UPGRADES FOR EXTENDED CYLINDER LIFE

- ✓ HIGH TENSILE STRENGTH, ABRASION RESISTANT THERMOSET POLYESTER SEALS AND WIPERS – IMPROVED CONFIGURATIONS MAY REQUIRE MODIFICATIONS TO MOUNTING GROOVES
- ✓ INCREASE SLIDING FIT LOAD BEARING AREAS ON PISTON AND GLAND WHERE POSSIBLE
- ✓ FABRICATE NEW PISTONS AND GLANDS UTILIZING BRONZE OR SIMILAR MATERIALS WITH IMPROVED COMPRESSION STRENGTH & IMPROVED LUBRICATION RETENTION PROPERTIES
- ✓ INSTALL REPLACEABLE WEAR RINGS ON PISTON AND GLAND WEAR SURFACES
- ✓ FABRICATE NEW RODS USING HIGHER TENSILE & YEILD STRENGTH MATERIALS THAN OEM
- ✓ USE CHROME PLATING ON RODS WITH .0020” MINIMUM THICKNESS VS TYPICAL OEM THICKNESS OF .0005”

## ASSEMBLY / COMPLETION PROCESS

- ✓ HONE CYLINDER BORE FOR GLAZE REMOVAL AND TO ESTABLISH CORRECT SURFACE FINISH FOR OPTIMAL SEALING
- ✓ POLISH ROD AS APPROPRIATE
- ✓ INSTALL SEALS / WIPERS / PISTON RINGS
- ✓ ASSEMBLE ALL COMPONENTS
- ✓ TORQUE ALL FASTENERS PER OEM SPECIFICATIONS
- ✓ PERFORM DYNAMIC TESTING USING HYDRAULIC OIL OR AIR AS APPROPRIATE
- ✓ CHECK FOR PROPER RETRACTION AND EXTENSION
- ✓ CONFIRM THAT INTERNAL AND EXTERNAL LEAKAGE CONTROL PERFORMANCE MEETS OR EXCEEDS OEM SPECIFICATIONS
- ✓ PAINT CYLINDER
- ✓ INSTALL PROTECTIVE PLUGS AND CAPS ON PORTS AND EXPOSED ROD ENDS

