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INSTALLATION AND MAINTENANCE MANUAL



HdR SERIES PROGRAM WORM GEAR SPEED REDUCERS



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WORLDWIDE ELECTRIC CORPORATION
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MOUNTING INSTRUCTIONS / GENERAL INFORMATION

MOUNTING INSTRUCTIONS:

1. Leave protective sleeves on shafts for safe handling of speed reducer during installation. The sleeves are provided also to protect your hands from potential sharp edges and keyways.
2. Align all shafts accurately. Improper alignment can result in failure. Use flexible couplings to help compensate for slight misalignment.
3. When mounting, use maximum possible bolt size and secure reducer to a rigid foundation. Periodic inspection of all bolts is recommended.
4. Auxiliary drive components (such as sprockets, gears and pulleys) should be mounted on the shafts as close as possible to the housing to minimize effects of overhung loads. Avoid force fits that might damage bearings or gears.
5. For hollow-shaft speed reducers, place speed reducer as close as possible to supporting bearing on driven shaft. Spot-drill driven shaft for setscrews in severe applications.
6. Check and record gear backlash at installation and again at regular intervals. This should be done by measuring the rotary movement of the output shaft (rotating alternately clockwise and counterclockwise) at a suitable radius while holding the input shaft stationary. Gears should be replaced when the backlash exceeds four times the measurement taken at installation.
7. Gear drives are rated for 1750 input RPM and Class 1 Service (Service Factor 1.00), using Mobile SHC 634 synthetic lube.
8. Initial operating temperatures may be higher than normal during the break-in period of the gear set. For maximum life do not allow the speed reducer to operate continuously above 225°F at the gear case. In the event of overheating, check for overloads or high ambient temperatures. Keep shafts and vent plugs clean to prevent foreign particles from entering seals or gear housings.

VENT PLUG INFORMATION:

All WorldWide HdR Series Worm Gear Reducers are tested and then filled with Mobile SHC 634 synthetic lube. WorldWide worm gear reducers will not have the vent plug installed.

Remove the solid plug and install the pressure vent plug according to the following:

1. Vented plug must be installed in the uppermost position.
2. For all mounting positions where the vented plug is located in a horizontal plane, the vent hole must be pointed upward.
3. For all mounting positions where the vented plug is located in a vertical plane, the vent hole must point toward the center of the housing.

CAUTION:

- Worm Gear Reducers Are Not To Be Considered Fail Safe Or Self-Locking Devices. If These Features Are Required, A Properly Sized Independent Holding Device Should Be Utilized.
- Depending Upon Gear Geometry and Operating Conditions, Worm Gear Reducers May Or May Not Backdrive. Special Consideration Should Be Given To High Inertia Loads Connected To The Reducer Output Shaft. Consult Factory For Further Details.
- Reducers Driven By Brake Motors Must Be Sized To Accommodate Motor Driving, Brake and Inertia Loads To Prevent The Braking Torque Or Inertia Loads From Exceeding The Motor Rating.



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ENGINEERING DATA

CLASSES OF SERVICE:

All WorldWide HdR Series Worm Gear Reducers Are For A 1.00 Service Factor Or Class I Service. A 1.00 Service Factor Applied When The Use Of The Reducer Is For Continuous Service Free From Recurrent Shock Loading and Does Not Exceed 10 Hours Per Day. When Operating Conditions Are Different From Those Described Above, The Input Horsepower and Torque Ratings Shown Must Be Divided By The Appropriate Service Factor Indicated In The Table Below. The Catalog Ratings May Be Used Without Adjustments If The Actual Driven Machine Horsepower and Torque Requirements Are Multiplied By The Appropriate Service Factor Indicated In The Table Below.

SERVICE FACTORS:

Service Factors For Electric and Hydraulic Motors
(For Service Factors For Single Or Multi-Cylinder Engines, See Below)

| Duration Of Service (Hours Per Day) | Uniform Load | Moderate Shock | Heavy Shock | Extreme Shock |
|--|-----------------|-------------------|----------------|------------------|
| Occasional 1/2 Hour | --- * | --- * | 1.00 | 1.25 |
| Less Than 3 Hours | 1.00 | 1.00 | 1.25 | 1.50 |
| 3 - 10 Hours | 1.00 | 1.25 | 1.50 | 1.75 |
| Over 10 Hours | 1.25 | 1.50 | 1.75 | 2.00 |
| * Unspecified Service Factors Should Be 1.00 Or Agreed Upon By The User and Manufacturer | | | | |

Conversion Table For Single Or Multi-Cylinder Engines
To Find Equivalent Single Or Multi-Cylinder Service Factor

| Hydraulic Or Electric Motor | Single Cylinder Engines | Multi-Cylinder Engines |
|--------------------------------|----------------------------|---------------------------|
| 1.00 | 1.50 | 1.25 |
| 1.25 | 1.75 | 1.50 |
| 1.50 | 2.00 | 1.75 |
| 1.75 | 2.25 | 2.00 |
| 2.00 | 2.50 | 2.25 |


Normal Starting Or Occasional Peak Loads, Two Or Three Times Per Day, Up To 300% Of Catalog Rating At 1800 RPM Are Permissible. If Either The Frequency Or The Magnitude Of These Loads Exceed The Above Limits, A Higher Service Factor Is Required and The Application Should Be Referred To The Factory.



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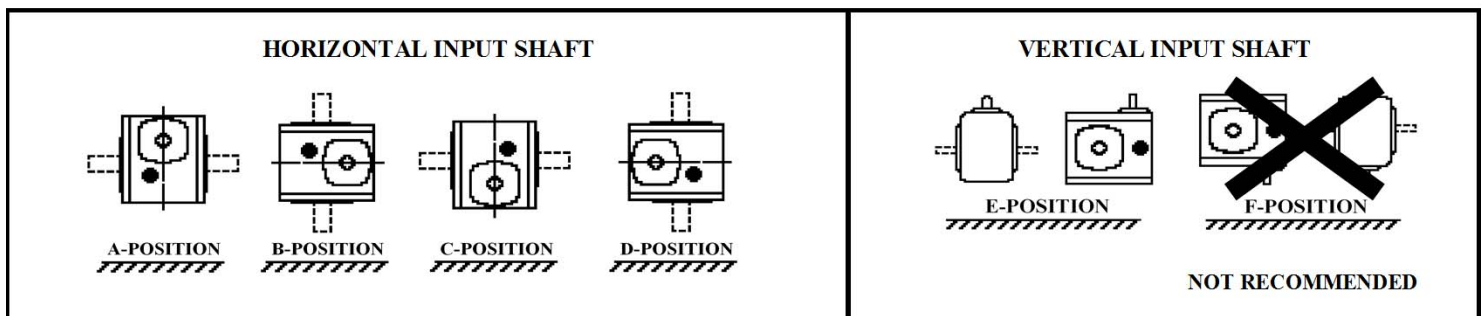
LUBRICATION SCHEDULE

| Recommended Lubricant | -30° To 225°F -34° To 107°C | 40° To 90°F 4.4° To 32.2°C | | 80° To 125°F 26.7° To 51.7°C | |
|---|---|-------------------------------|---------------------|--------------------------------------|---------------------|
| | AGMA Rating | 7 | 7 EP | 8 | 8 EP |
| ISO Grade | Synthetic | 460 | 460 | 680 | 680 |
|  | Mobil SHC 634 Synthetic | Mobil 600W Cylinder Oil | --- | Mobil Extra Hecla Super Cylinder Oil | Mobilgear 634 |
| Getty Refining Co. | Synthetic Recommendation Is Exclusively For Mobil SHC 634 | --- | Veedol Asreslube 95 | --- | Veedol Asreslube 98 |
| Lubrication Engr. Inc. | | Almasol 608 | --- | Almasol 609 | --- |
| Lubriplate | | --- | --- | SPO-288 | --- |
| Shell Oil Co. | | Omala J460 | Omala 460 | Omala J460 | Omala 680 |
| Texaco Inc. | | --- | Meropa 460 | --- | Meropa 680 |

CAUTION: Lubricants Are Compounded For Use In Worm Gears. Some Contain Non-Corrosive, Extreme Pressure Additives.

DO NOT USE Lubricants That Contain Sulphur and / or Chlorine Which Are Corrosive To Bronze Gears. Extreme Pressure Lubricants, In Some Cases, Contain Materials That Are Toxic. Avoid Use Of These Lubricants Where They Can Result In Harmful Effects.

CAUTION: Too Much Oil Will Cause Overheating and Too Little Will Result In Gear Failure. Check Oil Level Regularly. More Frequent Oil Changes Are Recommended When Operating Continuously, At High Temperatures Or Under Conditions Of Extreme Dirt Or Dust.



| Reducer Size | Approximate Capacity (Ounces) | | | | | |
|--------------|-------------------------------|---------------|---------------|--------------|--------------|--------------|
| | A | B | C | D | E | F |
| 133 | 5.82 Ounces | 8.52 Ounces | 8.52 Ounces | 7.62 Ounces | 6.92 Ounces | 6.92 Ounces |
| 154 | 11.64 Ounces | 15.74 Ounces | 15.74 Ounces | 14.44 Ounces | 13.54 Ounces | 13.54 Ounces |
| 175 | 11.64 Ounces | 18.74 Ounces | 18.74 Ounces | 17.24 Ounces | 15.14 Ounces | 15.14 Ounces |
| 206 | 19.41 Ounces | 28.41 Ounces | 28.41 Ounces | 26.71 Ounces | 21.81 Ounces | 21.81 Ounces |
| 237 | 24.07 Ounces | 35.17 Ounces | 35.17 Ounces | 33.77 Ounces | 29.67 Ounces | 29.67 Ounces |
| 262 | 34.55 Ounces | 48.25 Ounces | 48.25 Ounces | 45.85 Ounces | 41.05 Ounces | 41.05 Ounces |
| 325 | 73.75 Ounces | 102.55 Ounces | 102.55 Ounces | 97.75 Ounces | 88.05 Ounces | 88.05 Ounces |



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LIMITED WARRANTY

WorldWide Electric Corporation (The Company) Warranties It's Products To Be Free From Defects In Materials Or Workmanship To The Original Purchaser For A Period Of One (1) Year From The Date Of Purchase. For This Warranty To Be Effective, This Product Must Be Installed, Used and Maintained By The Original Purchaser In Accordance With Good Industry Standards. The Warranty Does Not Cover Normal Wear, Tear and Erosion From Use, Mis-use, Abuse Or Corrosion.

In The Event Of Failure, It Shall Be The Responsibility Of The Original Purchaser To Notify The Company Either In Writing Or By Telephone To Make Arrangements For The Correction Of The Problem. The Purchaser Shall Be Responsible For Transportation Charges Connected With The Return, Exchange Or Repair Of Parts. Returns Found Defective Upon Inspection By Our Warranty Department Or Authorized Warranty Service Agent Will Be Replaced Free Of Charge.

The Company Shall Not Be Liable For Any Labor Cost Connected With The Replacement Of The Equipment, The Replacement Of The Parts Or Adjustments To The Equipment By The Purchaser Or Their Contractor Without The Company's Prior Written Approval.

The Company, As The Exclusive Remedy Under This Warranty, Shall At It's Option Repair Or Replace Defective Items Or, If Agreed Upon, Refund The Purchase Price Less Reasonable Allowance For Depreciation In Exchange For The Product.

THE COMPANY MAKES NO OTHER WARRANTIES AND ALL IMPLIED OR EXPRESSED WARRANTIES AND REPRESENTATIONS, EXCEPT THAT OF TITLE, ARE DISCLAIMED. ALL IMPLIED WARRANTIES INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE OR USE BUT NOT LIMITED TO JUST THOSE THAT ARE DISCLAIMED. LIABILITY FOR CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES AND LOSSES UNDER ANY AND ALL WARRANTIES WHETHER IN CONTRACT, TORT OR OTHERWISE ARE EXCLUDED TO THE EXTENT EXCLUSION IS PERMITTED BY LAW.

