

INSTALLATION, LUBRICATION, SEALS



TABLE OF CONTENTS

<i>IronHorse® Worm Gearbox Installation</i>	<i>4-2</i>
<i>Installation Instructions</i>	<i>4-2</i>
<i>Vent Plug Installation</i>	<i>4-2</i>
<i>IronHorse® Worm Gearbox Lubrication & Mounting Orientations.</i>	<i>4-3</i>
<i>Lubrication Instructions</i>	<i>4-3</i>
<i>Lubricant Capacities and Mounting Orientations.</i>	<i>4-4</i>
<i>IronHorse® Worm Gearbox Seal Sizes.</i>	<i>4-4</i>
<i>Aluminum Worm Gearbox Input and Output Seal Sizes</i>	<i>4-4</i>
<i>Cast-Iron Worm Gearbox Input Seal Sizes.</i>	<i>4-5</i>

IRONHORSE® WORM GEARBOX INSTALLATION

Read these instructions thoroughly before installing or operating the gearbox.

INSTALLATION INSTRUCTIONS

- Leave the protective shaft sleeves in place for safe handling of the gearbox during installation.
- Add or partially drain oil as needed depending upon the mounting orientation.
(Refer to the lubrication section of this chapter for more information.)
- Install the vent plug.
- Align all shafts accurately, since improper alignment can result in premature failure.
Use flexible couplings to compensate for slight misalignment.
- For hollow-bore output gearboxes – Use anti-seize compound when inserting the load shaft into the hollow output shaft. It is preferable to size the load shaft with sufficient length to allow complete insertion through the hollow output shaft of the gearbox. This allows equal support of the load shaft by both of the output shaft bearings, and permits the use of the output shaft setscrews to lock the two shafts together on both sides of the gearbox. At minimum, the load shaft should be inserted at least half way into the hollow output shaft, and secured with the setscrews on the insertion end of the gearbox.
- Mount the gearbox to a rigid foundation, and use the maximum possible bolt size. Periodically inspect the mounting bolts. (Do NOT mount gearbox vertically with input shaft pointing downward. Refer to the lubrication section of this chapter for allowable mounting orientations.)
- Optional gearbox and motor mounting bases are available for ease of mounting and alignment.
- Mount auxiliary drive components such as sprockets, gears and pulleys on the gearbox shaft as close to the housing as possible in order to minimize the effects of overhung loads. Avoid force fits that might damage bearings or gears.
- 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 the shaft alternately clockwise and counterclockwise at a suitable radius while holding the input shaft stationary. The gearbox should be replaced when the backlash exceeds four times the measurement taken at installation.
- Gear drives are rated for 1750 input rpm and Class I Service (Service Factor 1.0), using Mobil synthetic lubricant. Units manufactured with first 4 serial numbers up to 2108 filled with Mobil SHC634 synthetic oil. Units manufactured with first 4 serial numbers from 2109 are filled with SHC632 synthetic oil.
- Initial operating temperatures may be higher than normal during the break-in period of the gear set. For maximum life, DO NOT ALLOW THE GEARBOX 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 housing.

VENT PLUG INSTALLATION

All IronHorse Worm Gearboxes are tested and filled with Mobil synthetic lubricant prior to shipment. All vent openings are plugged by the manufacturer to prevent the loss of lubricant in shipment. The vent plug is shipped loose in the package with all gearboxes. Cast iron gearboxes require a vent plug be installed prior to placing the gearbox in operation. Vent plug use with aluminum gearboxes is not required, but is optional. If a vent plug is used for the aluminum gearbox, the gearbox mounting position is restricted to position “A” for WGA-30M through WGA-50M and position “A” and “C” for WGA-63M through WGA-75M gearboxes.

- The vent plug should be installed in the uppermost position.
- For all mounting positions where the vent plug is located in a horizontal plane, the vent hole must point upward.
- For all mounting positions where the vented plug is located in a vertical plane, the vent hole must point toward the center of the gearbox housing.
- Failure to properly install the vent plug can lead to pressurization of the gearbox housing as operating temperature rises, resulting in leakage at the shaft seals.

IRONHORSE® WORM GEARBOX LUBRICATION & MOUNTING ORIENTATIONS

Lubricant selection is important to all gearboxes, and it is particularly critical for the worm gear type. An oil with special characteristics and a relatively high viscosity is required due to sliding action between the gear teeth where they mesh. Aside from improper gearbox selection, inadequate lubrication is the greatest factor contributing to premature worm gearbox failures. Improper lubrication also causes reduced gearbox performance.

LUBRICATION INSTRUCTIONS

IronHorse Worm Gearboxes are shipped to you filled with Mobil synthetic oil. Oil must be added or partially drained depending upon your mounting orientation, as shown in the Lubricant Capacities table.

Since many oils are not suitable for worm gears, it is very important to use the proper lubricant type. It is also very important to keep the oil free from oxidation and contamination by water or debris. For longer service life, the gearbox should be periodically drained (preferably while warm) and refilled to the proper level with a recommended gear oil. Non-synthetic oils should be changed every 6 months or 250 hours of operation under normal operating conditions. However, synthetic lubricants have increased resistance to thermal and oxidation degradation, and do not need to be changed as frequently.

Synthetic lubricant should be changed every 6,000 hours of operation or every two years, whichever ever comes first.



WARNING: SOME LUBRICANTS CONTAIN NON-CORROSIVE EXTREME PRESSURE ADDITIVES. DO NOT USE LUBRICANTS THAT CONTAIN SULPHUR AND/OR CHLORINE, WHICH ARE CORROSIVE TO BRONZE GEARS. ALSO, SOME EXTREME PRESSURE LUBRICANTS CONTAIN MATERIALS THAT ARE TOXIC. AVOID THE USE OF THESE LUBRICANTS WHERE HARMFUL EFFECTS CAN OCCUR.

LUBRICANT CAPACITIES AND MOUNTING ORIENTATIONS

WARNING: TOO MUCH OIL WILL CAUSE OVERHEATING, AND TOO LITTLE OIL 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.

IronHorse Aluminum Worm Gearbox Lubricant Capacities						
Gearbox Mounting Orientation	A	B	C	D	E	F
Gearbox Part Number	Approx Capacity (fl oz)					
WGA-30M-xxx-xx	1.35	1.18	1.01	1.18	1.69	
WGA-40M-xxx-xx	2.71	2.37	2.03	2.37	3.38	
WGA-50M-xxx-xx	3.38	2.87	2.54	2.87	4.23	
WGA-63M-xxx-xx	8.45	7.44	6.43	7.44	10.48	
WGA-75M-xxx-xx	16.91	14.54	12.51	14.54	20.97	
Position "A" only if vent plug is used for WGA-30M through WGA-50M. Position "A" and "C" only if vent plug is used for WGA-63M through WGA-75M. *Gearboxes are shipped filled with oil sufficient for mounting orientation "A". Oil must be added to gearboxes installed in other mounting orientations.						

IronHorse Cast-Iron Worm Gearbox Lubricant Capacities						
Gearbox Mounting Orientation	A*	B	C	D	E	F
Gearbox Part Number	Approx Capacity* (fl oz)					
WG-175-xxx-x	11.64	18.74	18.74	17.24	15.14	Not Allowed
WG-206-xxx-x	19.41	28.41	28.41	26.71	21.81	
WG-237-xxx-x	24.07	35.17	35.17	33.77	29.67	
WG-262-xxx-x	34.55	48.25	48.25	45.85	41.05	
WG-325-xxx-xx	73.75	102.55	102.55	97.75	88.05	
*Gearboxes are shipped filled with oil sufficient for mounting orientation "A". Oil must be added to gearboxes installed in other mounting orientations.						

Gearbox Mounting Orientations					
Horizontal Input Shaft				Vertical Input Shaft	
A	B	C	D	E	F

IRONHORSE® WORM GEARBOX SEAL SIZES**ALUMINUM WORM GEARBOX INPUT AND OUTPUT SEAL SIZES**

Aluminum Worm Gearbox Seal Sizes		
Model #	Input Seals (mm)	Output Seals (mm)
WGA-30M-xxx-xx	25 x 62 x 7	25 x 47 x 7
WGA-40M-xxx-xx	25 x 35 x 7	30 x 40 x 7
WGA-50M-xxx-xx	30 x 47 x 7	40 x 62 x 8
WGA-63M-xxx-xx	35 x 52 x 8	45 x 65 x 10
WGA-75M-xxx-xx	45 x 60 x 10	50 x 72 x 8

CAST-IRON WORM GEARBOX INPUT SEAL SIZES

Cast-Iron Worm Gearbox Input Seal Sizes			
Gearbox Sizes		WG-xxx-xxx-D/H/L/R Input Seals (mm)	WG-xxx-xxx-D/L/R Output <u>Shaft</u> Seals (mm)
			WG-xxx-xxx-H Output <u>Hollow Bore</u> Seals (mm)
175	(56C input)	30 x 42 x 8	24 x 45 x 8
206			40 x 62 x 9
237			45 x 68 x 10
262	(56C input)	45 x 62 x 8	50 x 72 x 12
	(182/4TC input)		60 x 82 x 12
	(56C input)	30 x 42 x 8	70 x 95 x 13
325	(145TC input)	35 x 42 x 8	
	(182/4TC input)	45 x 62 x 8	