



# Raider® Plus Standard, Stainless Steel & Washdown Duty Installation Instructions

## Power Transmission Solutions

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**FORM**  
**9025**  
**Revised**  
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### ⚠ WARNING

- Disconnect and lock-out power before installation and maintenance. Working on or near energized equipment can result in severe injury or death.
- Do not operate equipment without guards in place. Exposed equipment can result in severe injury or death.
- Read and follow all instructions carefully.

### ⚠ CAUTION

- Periodic inspections should be performed. Failure to perform proper maintenance can result in premature product failure and personal injury.
- All electrical work should be performed by qualified personnel and compliant with local and national electrical codes.

### NOTICE

- Ensure shaft keys are fully captive prior to use. Reduced torque capacity will result from a key not fully engaged.
- High inertia loads can back-drive the reducer during shut-down, resulting in product damage. Contact Application Engineering for recommendations.
- Avoid excessive force on input and output shafts during installation, as bearing damage can result.
- Contact Application Engineering for recommendations for units running at slow speeds or unusual conditions.
- Contact Application Engineering if the unit operates longer than 100 hours at a temperature of 230 degrees F. High temperatures can damage seals and bearings.
- EP oil is not recommended for worm gear reducers. These oils often contain elements which can react with the bronze worm gear.

## Inspection

Inspect unit to make sure no damage has occurred during shipment.

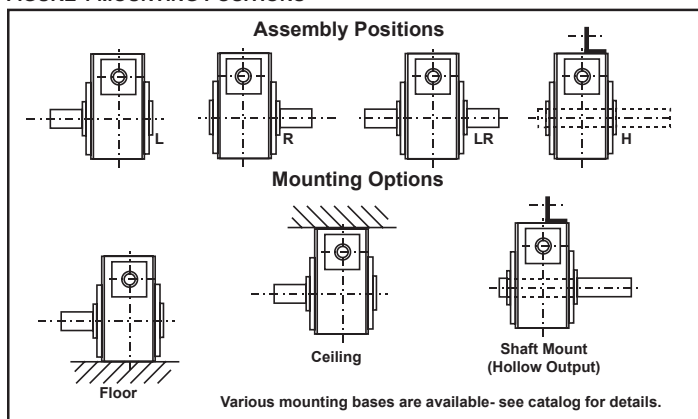
## Storage

Units should be stored in a clean, dry location. If units are to be stored for over six months, contact Application Engineering.

## Mounting

Mount units on a firm, flat surface which is sufficiently rigid to prevent vibration. Drive belts and chains should be within recommended limits of tightness. Couplings should be properly aligned and balanced. For drive recommendations refer to drive or equipment manufacturers or to Power Transmission Solutions.

FIGURE 1 MOUNTING POSITIONS



## Lubrication

The normal operating temperature of a worm gear reducer may be as high as 200°F. During initial break-in higher temperatures may occur. If the temperature exceeds 200°F for longer than 100 hours contact Power Transmission Solutions.

## 90 weight oil and EP oil are not recommended.

### Standard

1. Units are factory filled for worm top installation with an ISO viscosity grade 460 polyglycol based (H1 food grade) lubricant. For other mounting positions, the oil level must be adjusted. (See Table 1)
  - a. Flush the unit prior to refilling if changing oil type
  - b. Install the supplied breather/vent in the proper position per Figure 1 or 2

Lubricant Polyglycol

Ambient Temperature	5° F to 125° F
Viscosity Range (cSt at 40° C)	414 - 506
ISO Grade / AGMA Grade	460 / 140

2. The factory supplied lubricant does not require changing, however, the following periodic inspections are recommended:
  - a. Check oil level and add if necessary
  - b. Check breather/vent for proper operation
3. The normal operating sump temperature of a worm gear reducer maybe as high as 200° F for longer than 100 hours contact Application Engineering.

## Stainless Steel

1. Install breather (vent plug) supplied in correct location - see diagrams on the back of this card. Adjust the oil level if mounting other than in "worm top" position.
2. Change initial oil fill after 500 hours or 5 weeks.
3. Change oil every 10,000 hours service or 2 years. If severe operating conditions exist, change oil every 1 to 3 months.
4. **Do not mix synthetic polyglycol oil with synthetic hydrocarbon oils or mineral oils. Flush unit prior to refill.**

## Washdown Duty

1. Change initial oil after 500 hours service or 5 weeks
2. Change oil every 2500 hours service or 6 months. If severe operating conditions exist, change the oil every 1 to 3 months.

Center Distance	Refer to Figure	Oil Capacity (ounces)							
		Shaft Out				Hollow Out			
		Worm Top (1)	Worm Bottom (2)	Worm vertical	Output vertical	Worm Top (1)	Worm Bottom (2)	Worm vertical	Output vertical
1.33	2	3.5	8.5	7.5	6.5	3.5	8	7.0	6.5
1.54	2	10	17	16.5	15	8	14.5	15.5	13.5
1.75	2	8.5	20.5	17	15	7	16.5	14.5	12.5
2.06	2	11	27	22	19.5	8	20.5	18.5	16
2.37	2	15.5	30	29	25	12	24.5	26.0	21.5
2.62	2	26	46	42.5	37.5	16.5	26	31.5	27
3.00	2	44.5	80.5	76.5	70	33.5	61.5	65.0	57
3.25	2	47	101	76	70.5	36	80	65.0	57.5
3.75	3	138	115	140	100	100	115	121.0	81.0
4.50	3	205	180	182	157	188	180	173.5	148.5
5.16	3	324	216	240	198	283	216	219.5	177.5
6.00	3	512	366	400	274	421	366	354.5	228.5

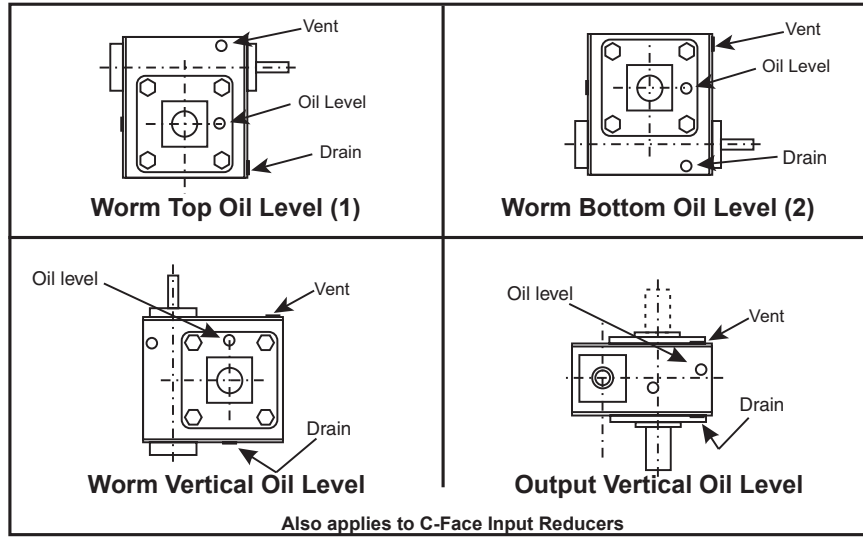
Note (1) Units are filled with polyglycol 460 oil with amount for this mounting position

Note (2) Not recommended

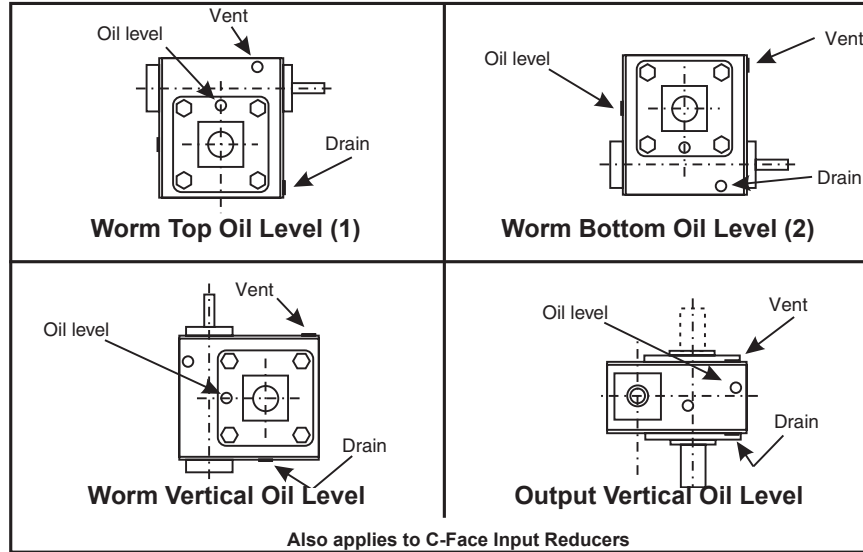
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**FIGURE 2 CENTER DISTANCE 1.33 - 3.25**



**FIGURE 3 CENTER DISTANCE 3.75 - 6.00**



**For Warranty Service Call**  
**Power Transmission Solutions**  
 MAYSVILLE, KY 41056  
 Phone (800) 626-2093 Fax (606) 564-2079  
 Give complete Nameplate Data, including Identification Number

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