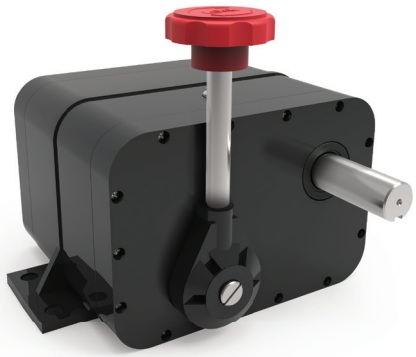
ZERO-MAX

VRT™ Drives

VRT-150, VRT-300

Installation Instructions for VRT Drives



Mounting

- The VRT may be mounted in any orientation as needed for the application (i.e. vertical, upside down, etc.).
- After you have determined your torque and verified your load, the VRT should be firmly bolted to a flat surface. Mount the VRT to the flat surface through the (4) mounting slots in the base of the VRT. Shims may be needed for proper alignment.

Connection to Input and Output

- When using chain and sprockets, mount the sprocket teeth as close to the Zero-Max VRT housing as possible to minimize overhung loads. Refer to maximum overhung load ratings listed on page 2. Avoid excessive chain tension.
- Timing belts and pulleys may be used instead of chain and sprockets; however, the use of V-belts is not recommended as they may not maintain an accurate overall ratio on the equipment.
- For direct coupling to the input or output shaft, align the two shafts carefully and use a good **flexible** shaft coupling where appropriate.

Operating Temperatures

The normal heat rise over ambient specifications is as follows:

Model	Temperature Rise	
VRT-150	20°C	36°F
VRT-300	22°C	40°F

VRT Input Speed, Output Speed, Ratio

- Recommended maximum input speed for the VRTs is 300 RPM. Lower input speeds are permissible although it is preferable to use higher input speeds and take as much reduction as possible from the output shaft to maximize precise speed control.
- Output Ratio is 0 to 0.25:1 of the input speed resulting in an Output Speed of 0-75 rpm with a 300 rpm input.
- Speed and torque capabilities can be expanded by use of sprocket ratios at the VRT input and/or output shafts.
- Direction of output rotation is specified at time of order and does not change with input rotation direction.

Calibration

- When used for Seeding and Fertilizing Applications, a calibration procedure is recommended to establish a set-point for the desired application rate. The manufacturer of the Seeder may already have an application chart or procedure provided. Otherwise, consider turning the input shaft a specified number of revolutions and weighing the amount of seed or fertilizer dispensed to ensure an accurate application rate.

Speed Change

- **Lever Control** – To change speed on units with Lever Control (LC), turn the red speed control knob counterclockwise to unlock, move the lever to the desired ratio setting and twist the knob clockwise to lock it. Speed may be changed at any time, running or not. Take care not to overtighten the locking mechanism as overtightening can damage the locking mechanism.
- If needed, the lever control can be relocated to a 6 o'clock or 9 o'clock orientation. To relocate, loosen the setscrews, remove the lever control, file off any burrs on the control shaft, and then remount the control lever in the preferred location. Tighten the setscrews to secure the lever control to the control shaft.
- **Screw Control** – On units with Screw Control (SC), change the ratio by rotating the control screw to any desired position at any time, running or not. If not factory installed, a Zero-Max Screw Control Kit can be purchased and added in the field.
- **No Control** – On units with no control mechanism (NC), a customer-supplied control may be attached to the control stub shaft and used to rotate the control shaft to the desired ratio setting. Speed may be changed at any time, running or not. Please reference VRT catalog for angular range of motion and torque required for the VRT control. Screw locations for the screw control and/or the housing case screws can be used for mounting a customer-supplied control. Case screws and Screw Control mounting screws have a recommended tightening torque of 10 in-lbs.

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Lubrication

- The Zero-Max VRT mechanism runs in oil and is filled at the factory with Chevron Delo 100 Motor oil SAE 40. If Chevron Delo 100 motor oil is not available, use Mobil-Delvac 1140. In an emergency, use a good grade of SAE 40 detergent motor oil. All new units will be filled at the factory with sufficient oil for any mounting orientation.

Lubricant Quantity

- The proper quantity of lubricant when refilling the VRT (from empty) is as follows:

Model	Lubricant Quantity	
	Ounces	Liters
VRT-150	43	1.273
VRT-300	95	2.812

Parts List

Part Description	Part No. For VRT-150	Part No. For VRT-300
Control Lever Assembly (complete)	D694110	D723110
Screw Control Assembly (complete)	D704310	D704410

Specifications

Model	Ratio	Speed Range (RPM)		Max Torque (in-lb)
		Input	Output	
VRT-150	0 to 0.25:1	0 - 300	0 - 75	150
VRT-300	0 to 0.25:1	0 - 300	0 - 75	300

Model	Overhung Load (lb)*		Thrust Load (lb)
	Output	Input	
VRT-150	40	30	75
VRT-300	50	40	100

* NOTE: At mid-point of Input and Output Shafts

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