

# VO618N Rack and Pinion Horizontal In/Out Positioner

## Description

See Figure 1. The VO618N rack and pinion horizontal in/out positioner moves powder spray guns in and out of a powder coating booth. The spray guns typically are mounted on either a VO618N vertical oscillator or fixed gun stand, which is bolted to the positioner.

Twelve standard rack and pinion positioners are available. Refer to Table 1 on page 2 for a description of the available configurations.

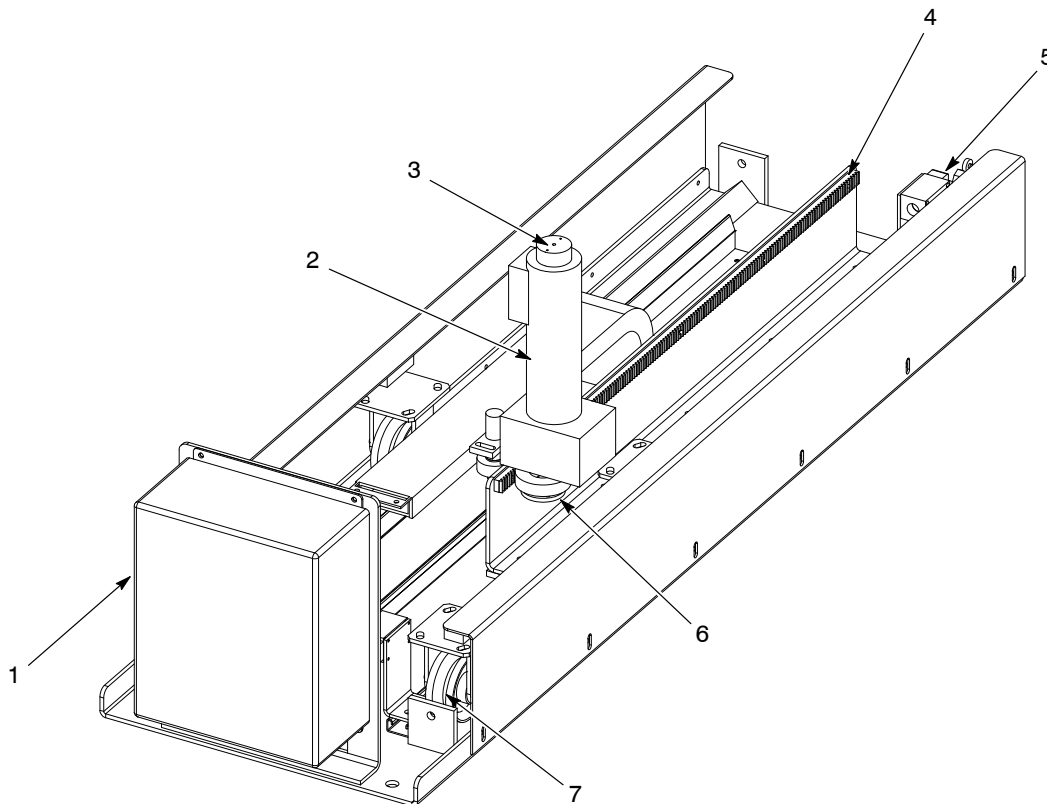


Figure 1 VO618N Rack and Pinion Horizontal In/Out Positioner

- |                            |                 |           |
|----------------------------|-----------------|-----------|
| 1. Positioner junction box | 4. Gear rack    | 6. Gear   |
| 2. Gear motor              | 5. Limit switch | 7. Caster |
| 3. Encoder                 |                 |           |

*Note:* The positioner carriage is part of the oscillator or gun stand and is not included with the positioner.

Table 1 Positioner Configurations

Positioner Model	Available Travel Configurations	Mechanical Operation	PLC Location	Possible Positions
Fully Automatic	24 in. 30 in. 36 in. 60 in.	Electrically powered rack-and-pinion assembly	Two PLCs are used: <ul style="list-style-type: none"> <li>• booth control panel</li> <li>• positioner junction box</li> </ul>	Infinite
Automatic with Local Controller	24 in. 30 in. 36 in. 48 in. 60 in.	Electrically powered rack-and-pinion assembly	Positioner junction box	Infinite
Gun Blow-Off Automatic	36 in. 48 in. 60 in.	Electrically powered rack-and-pinion assembly	Booth control panel	2

## Theory of Operation

See Figure 1. A vertical oscillator or fixed gun stand is bolted directly to the casters (7). The gear motor (2) drives the gear (6) along the gear rack (4), moving the spray guns into or out of the booth. The PLC (which is mounted in the booth control panel and/or the positioner junction box (1)) and encoder (3) control the speed of the positioner and the position in which it stops. A limit switch (5) stops the positioner when it reaches the maximum travel distance.

## Installation



**WARNING:** Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

### Preparation

1. Remove the positioner from its crating.
  - NOTE:** If you find any damage to the positioner, contact the delivering carrier and your Nordson representative immediately.
2. Place the positioner in the appropriate location on or near the booth base.
  - NOTE:** Do not bolt the positioner to the floor at this time.
3. Mount the vertical oscillator or fixed gun stand to the positioner.

## Positioner Installation

### Vertical Oscillator Installation

**NOTE:** The oscillator is shipped with the positioner's gear motor, gear, and idler roller assembly installed in the oscillator cabinet. Make sure that the bolts securing the gear motor to the oscillator cabinet are tight.

See Figure 2.

1. Perform the *Preparation* procedure on page 2.
2. Remove the anti-tip brackets (3) from the positioner.
3. Use these steps to secure the vertical oscillator to the positioner:
  - a. Open the oscillator access door and loosen the bolts securing the idler roller assembly (8) to the vertical oscillator (1). Slide the idler roller away from the gear motor (9).
  - b. Loosen the bolts securing the gear rack (5) to the base. Slide the gear rack as far as possible to the right.
  - c. Carefully lower the oscillator onto the caster brackets (7). Be careful not to damage the gear (4) at the bottom of the oscillator.
  - d. Bolt the oscillator to the caster brackets using  $\frac{3}{8}$ -16 x 1-in. hex-head screws.
4. Use these steps to position the gear rack:
  - a. Push the oscillator to one end of the positioner base. Slide the gear rack against the gear and hand-tighten one of the gear rack bolts.
  - b. Lightly push the idler roller assembly against the gear rack and tighten the idler roller bolts. The idler roller should be able to freely travel against the gear rack with no binding.
  - c. Push the oscillator to the other end of the positioner base. The gear rack will center itself as you push the oscillator.
  - d. Securely tighten all bolts securing the gear rack to the base.
  - e. Push the oscillator along the length of the positioner to make sure that the idler roller travels the gear rack without binding. If binding is present at any point, adjust the idler roller position in the oscillator cabinet.

5. Route the oscillator's electrical wiring through the cable carrier (6).
6. Connect all wiring from the gear motor, oscillator motor, and sensors to the positioner junction box.
7. Install the anti-tip brackets onto the positioner. The wear blocks (2) should lightly touch or slightly clear the oscillator base plate.
8. Make any final adjustments to the position of the oscillator and positioner assembly in relation to the booth's gun slots.
9. Bolt the positioner to the floor using  $\frac{1}{2}$ -13 x  $3\frac{1}{2}$ -in. anchor bolts and flat washers.

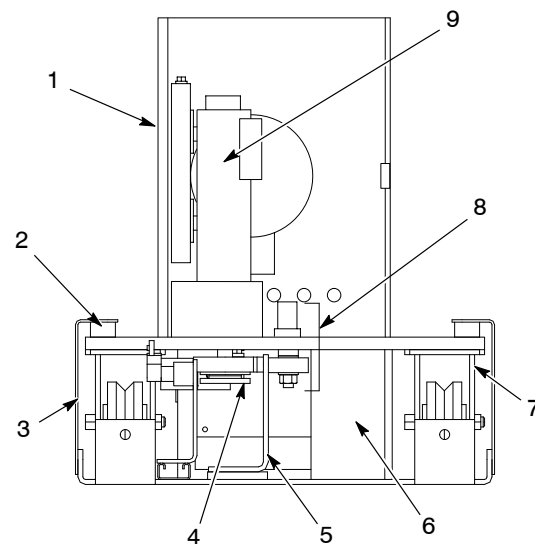


Figure 2 Positioner with VO618N Vertical Oscillator Installation

- |                        |                          |
|------------------------|--------------------------|
| 1. Vertical oscillator | 6. Cable carrier         |
| 2. Wear block          | 7. Caster bracket        |
| 3. Anti-tip bracket    | 8. Idler roller assembly |
| 4. Gear                | 9. Gear motor            |
| 5. Gear rack           |                          |

## Fixed Gun Stand Installation

**NOTE:** The fixed gun stand is shipped with the positioner's gear motor, gear, and idler roller assembly installed on the fixed gun stand base plate. Make sure that the bolts securing the gear motor to the gun stand base plate are tight.

See Figure 3.

1. Perform the *Preparation* procedure on page 2.
2. Remove the anti-tip brackets (3) from the positioner.
3. Use these steps to secure the fixed gun stand to the positioner:
  - a. Remove the motor cover (1) and loosen the bolts securing the idler roller assembly (8) to the base plate (7). Slide the idler roller away from the gear motor (9).
  - b. Loosen the bolts securing the gear rack (5) to the base. Slide the gear rack as far as possible to the right.
  - c. Carefully lower the gun stand onto the positioner. Be careful not to damage the gear (4) at the bottom of the gun stand.
  - d. Bolt the gun stand base plate to the caster brackets (6) using  $\frac{3}{8}$ -16 x 1-in. hex-head screws.
4. Use these steps to position the gear rack:
  - a. Push the gun stand to one end of the positioner base. Slide the gear rack against the gear and hand-tighten one of the gear rack bolts.
  - b. Lightly push the idler roller assembly against the gear rack and tighten the idler roller bolts. The idler roller should be able to freely travel against the gear rack with no binding.
  - c. Push the gun stand to the other end of the positioner base. The gear rack will center itself as you push the gun stand.
  - d. Securely tighten all bolts securing the gear rack to the base.
  - e. Push the gun stand along the length of the positioner to make sure that the idler roller travels the gear rack without binding. If binding is present at any point, adjust the idler roller position on the gun stand base plate.

5. Route the gear motor's electrical wiring through the cable carrier.
6. Connect all wiring from the gear motor to the positioner junction box.
7. Install the anti-tip brackets onto the positioner. The wear blocks (2) should lightly touch or slightly clear the gun stand's base plate (7).
8. Make any final adjustments to the position of the gun stand and positioner assembly in relation to the booth's gun slots.
9. Bolt the positioner to the floor using  $\frac{1}{2}$ -13 x  $3\frac{1}{2}$ -in. anchor bolts and flat washers.

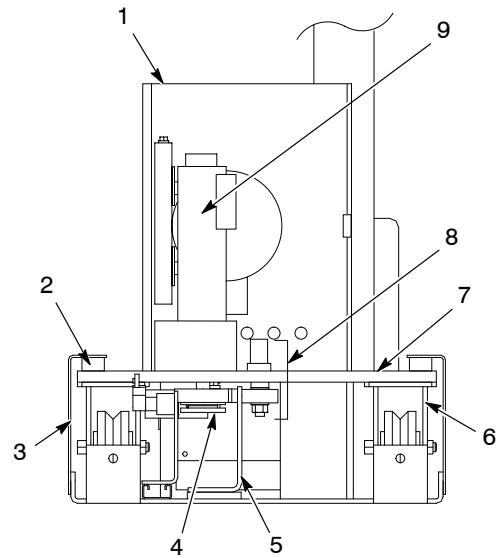


Figure 3 Positioner with Fixed Gun Stand Installation

- |                      |                          |
|----------------------|--------------------------|
| 1. Motor cover       | 6. Caster bracket        |
| 2. Wear block        | 7. Base plate            |
| 3. Anti-tip brackets | 8. Idler roller assembly |
| 4. Gear              | 9. Gear motor            |
| 5. Gear rack         |                          |

# Maintenance

Table 2 Maintenance Schedule

Component	Frequency	Procedure
Rack and Spur Gear	Weekly	Check for contaminants; clean and lubricate with a dry film of PTFE- or moly-based lubricant or grease as necessary.
V-Tracks	Biweekly	Check for contaminants and clean as required.
Idler Roller	Monthly	Manually check the travel of the idler roller along the rack. The idler roller should touch the rack mount, yet be able to spin by hand. Adjust the idler roller position inside the oscillator cabinet as necessary. Check for signs of wear; replace as necessary.
Gear Motor	Every 1000 hours	Check for shaft run-out and oil leaks; add oil as necessary.

# Parts

## Positioner Part Numbers

Positioner Model	Travel	Part
Fully Automatic	24 in.	1018071
	30 in.	1018095
	36 in.	1018092
	60 in.	1016126
Automatic with Local Controller	24 in.	1039428
	30 in.	1039429
	36 in.	1039460
	48 in.	1039461
	60 in.	1039462
Gun Blow-Off Automatic	36 in.	1018799
	48 in.	1020038
	60 in.	1018798

## Positioner Replacement Parts

See Figure 4.

Item	Part	Description	Quantity	Note
1	1018062	ROLLER, idler	1	
2	1018063	BEARING, thrust, bronze	1	
3	1018060	MOTOR, gear	1	
4	1018058	SENSOR, encoder	1	
5	1017999	24-in. RACK, gear	1	
5	1018094	30-in. RACK, gear	1	
5	1018093	36-in. RACK, gear	1	
5	1020037	48-in. RACK, gear	1	
5	1018091	60-in. RACK, gear	1	
6	1018059	SWITCH, limit	1	
7	1018061	GEAR, spur	1	

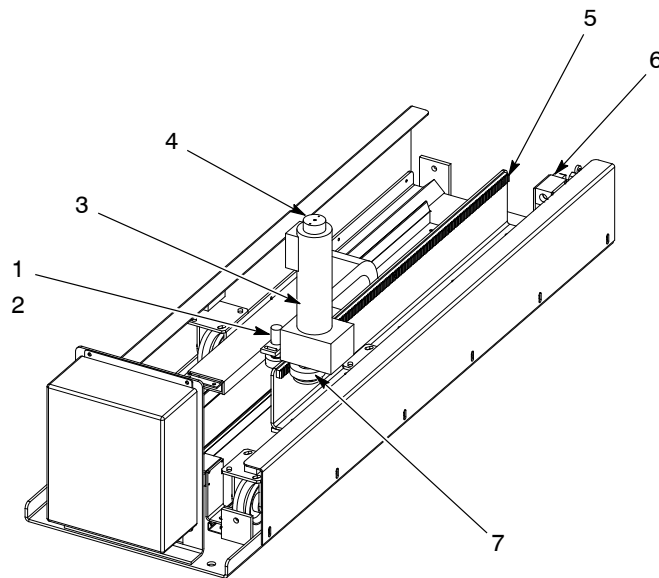


Figure 4 Positioner Replacement Parts

## Fixed Gun Stands

See Figure 5.

Item	Part	Description	Quantity	Note
1	1015953	STAND, gun positioning, with cover	1	
2	-----	• COVER, fixed gun stand	1	

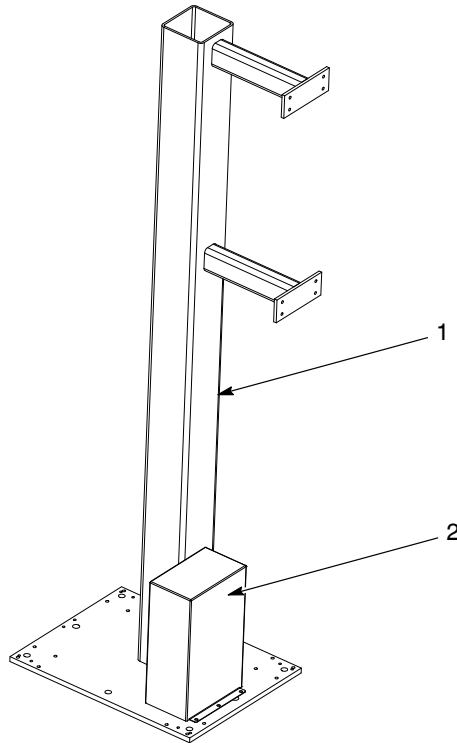


Figure 5 Fixed Gun Stand Parts

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