

TIE ROD INSTALLATION INSTRUCTIONS

REFERENCE MATERIAL

Form VEL1801- "Assembly Torque Specifications"

VESSELS WITH TIE RODS

- Filter vessels
- Clay vessels
- Monitor vessels containing
- 6" Aquacon® cartridges
- Filter/separator vessels (for coalescer and separators)

HARDWARE

- Tie rods
- Hardware (nuts, flat washers, lock washers, seal nuts)
- Cartridges
- Mounting adapters
- Center spacers
- End caps

MOUNTING CONFIGURATIONS

- With spider
- Without spider
- With seal nut

VERTICAL OR HORIZONTAL OPEN ENDED CARTRIDGES WITH SPIDER PLATE:

1. Screw a nut on one end of the tie rod to about 2" from the end. (See note, bottom of page 2.)
2. Slide a lock washer up against the nut on the shortened side of the tie rod.
3. Slide a mounting adapter (on vessels with integral cast-in or welded-in mounting adapters, no additional adapter is required) on the short side of the tie rod with the cartridge seal side facing the nut and washer.
4. While holding the mounting adapter on the end of the rod, screw the short end of the tie rod into the tie rod bar on the vessel. Screw in about one inch.
5. Install a cartridge over the tie rod and into place on the mounting adapter.
6. If cartridges are stacked, install center spacers between cartridges.
7. Place an end seal plate on the top or end of the cartridge (or cartridge stack) with the tie rod extending out from the end seal plate tie rod hole.
8. Adjust the tie rod by screwing it in or out until the amount extending beyond the end cap is 1-5/8". Remove the cartridges, spacers, and caps.
9. Screw the nut at the end of the tie rod down against the mounting adapter while preventing the tie rod from turning.
10. Tighten the nut to 5 foot pounds of torque.
11. Install the other tie rods so that they extend out from the mounting adapters the same length as the first rod.

**VERTICAL OR HORIZONTAL OPEN ENDED
CARTRIDGES WITH NO SPIDER PLATE:**

1. Screw a nut on one end of the tie rod to about 2" from the end. (See note below.)
2. Slide a lock washer up against the nut on the shortened side of the tie rod.
3. Slide a mounting adapter (on vessels with integral cast-in or welded-in mounting adapters, no additional adapter is required) on the short side of the tie rod with the cartridge seal side facing the nut and washer.
4. While holding the mounting adapter on the end of the rod, screw the short end of the tie rod into the tie rod bar on the vessel. Screw in about one inch.
5. Install a cartridge over the tie rod and into place on the mounting adapter.
6. If cartridges are stacked, install center spacers between cartridges.
7. Place an end seal plate on the top or end of the cartridge (or cartridge stack) with the tie rod extending out from the end seal plate tie rod hole.
8. Adjust the tie rod by screwing it in or out until the amount extending beyond the end seal plate is one (1) inch.
9. Remove the cartridges, spacers, and seal plates.
10. Screw the nut at the end of the tie rod down against the mounting adapter while preventing the tie rod from turning.
11. Tighten the nut to 5 foot pounds of torque.
12. Install the other tie rods so that they extend out from the mounting adapters the same length as the first rod.

**SEPARATOR WITH SEAL NUT (WITH OR WITHOUT
SPIDER PLATE):**

1. Screw a nut on one end of the tie rod to about 2" from the end. (See note below.)
2. Slide a lock washer up against the nut on the shortened side of the tie rod.
3. Slide a mounting adapter (on vessels with integral cast-in or welded-in mounting adapters, no additional adapter is required) on the short side of the tie rod with the cartridge seal side facing the nut and washer.
4. While holding the mounting adapter on the end of the rod, screw the short end of the tie rod into the tie rod bar on the vessel. Screw in about one inch.
5. Install a separator over the tie rod and into place on the mounting adapter so the tie rod extends from the end seal cap tie rod hole.
6. On double open ended separators, place an end seal plate on the top or end of the separator, with the tie rod extending out from the end seal plate tie rod hole.
7. Adjust the tie rod by screwing it in or out until the amount extending beyond the end seal plate is one (1) inch.
8. Remove the cartridges, spacers, and seal plates.
9. Screw the nut at the end of the tie rod down against the mounting adapter while preventing the tie rod from turning.
10. Tighten the nut to 5 foot pounds of torque.
11. Install the other tie rods so that they extend out from the mounting adapters the same length as the first rod.

NOTE:

1. In AHM06xxx, AVM06xxx, HM06xxx, and VM06xxx **Aquacon**® vessels, the nut should be screwed on to the tie rod to about 4" from the end instead of 2".
2. In three stage HVM-xxxx filter/separator vessels, the nut on the separator tie rods should be screwed on to the tie rod to about 4" from the end instead of 2".