

SECTION 11326 - GRIT CYCLONES

City of San Diego, CWP Guidelines

PART 1 - GENERAL

1.1 WORK OF THIS SECTION

- A. The WORK of this Section includes providing cyclone type separators and appurtenances as part of a combined grit separation, and dewatering classifier unit with structural frames, mounting brackets, piping, special tools and spare parts. Cyclone separators shall be mounted on grit dewatering units specified in Section 11327.
- B. The WORK also requires that one manufacturer be made responsible for furnishing the WORK of this Section and the WORK of Section 11327, but without altering or modifying the CONTRACTOR'S responsibilities under the Contract Documents.
- C. The WORK additionally requires that the one manufacturer who accepts the indicated responsibilities shall manufacture, as a minimum, the classifier and the cyclone.

1.2 RELATED SECTIONS

- A. The WORK of the following Section applies to the WORK of this Section. Other Sections of the Specifications, not referenced below, shall also apply to the extent required for proper performance of this WORK.
 - 1. Section 11000 Equipment General Provisions
 - 2. Section 11199 Horizontal Recessed Impeller Pumps
 - 3. Section 11327 Grit Classifiers

1.3 SHOP DRAWINGS AND SAMPLES

- A. The following shall be submitted in compliance with Section 01300:
 - 1. Fabrication drawings with full dimensions, including plan and cross section views and mounting support details.
 - 2. Factory test data showing grit separation performance and required inlet flow rate, inlet pressure and underflow to grit classifier.

1.4 SERVICES OF MANUFACTURER

- A. **Inspection, Startup and Field Adjustment:** An authorized service representative of the manufacturer shall visit the site for no less than [3] days to furnish the indicated services.
- B. **Instruction of OWNER'S Personnel:** The authorized service representative shall also furnish the indicated services for instruction of the OWNER'S personnel in the operation and maintenance of the equipment including step-by-step troubleshooting procedures with necessary test equipment for not less than [2] days.

PART 3 - PRODUCTS

NTS: Each grit pump is sized for a minimum flow of 250 gpm. The capacity of the cyclone shall therefore be at least 250 gpm and could be more depending upon the number of grit pumps it serves.

2.1 EQUIPMENT REQUIREMENTS

- A. **Performance:** The grit cyclone separators, in combination with the grit classifier equipment, shall remove at least 95 percent of the 150-mesh grit with a specific gravity of 2.65 or greater from the inlet grit slurry. Each cyclone shall treat [] gpm flow from the grit chambers.
- B. **Cyclone Design:** The cyclone shall have an involuted feed entry with a minimum [4]-inch inlet and a [6]-inch outlet with adapters designed to fit the piping layout indicated. The cyclone shall include inlet head cylinder, upper cone section, replaceable neoprene liner, 500 BHN minimum vortex finder, fixed apex and inlet pressure gauge with diaphragm assembly. Pressure gauge shall be 0-15 psig calibrated in 0.2 psig increments. The [4-] [6-] inch underflow from the cyclone shall discharge into a screwtype grit classifier complying with Section 11327. The bottom cone shall be hinged to provide easy access for cleaning or removal of the apex assembly, without disconnecting piping.
- C. **Materials:** The equipment shall be fabricated with the following materials and parts:

Cone housing -	Aluminum
Cone lining	- Neoprene
Flanged inlet, overflow ports	- Cast iron, ASTM A 48, Class 25; ANSI 125 lb FF flanges
Inlet head housing	- Cast iron, ASTM A 48, Class 25
Inlet head liner	- Neoprene
Vortex finder	- Ni-hard, Brinell hardness of 500
Apex housing	- Aluminum
Apex liner	- Neoprene
Cylinder housing	- Steel, ASTM A 131, (1015)
Cylinder lining -	Neoprene
Retainer ring	- Steel, ASTM A 131, (1015 to 1020)
Hardware	- Type 316 stainless steel

2.2 NAMEPLATES, TOOLS, AND SPARE PARTS

A. **Spare Parts:** The WORK includes the following spare parts:

1. 1 set of liners
2. 2 sets of all gaskets

Spare parts shall be stored in boxes, and identified with the equipment number by means of stainless steel or solid plastic name tags attached to the box.

2.3 MANUFACTURERS

A. Grit cyclones shall be manufactured by one of the following (or equal):

Envirex, Inc. (Rexnord Company)
Wemco (Envirotech Corp.)

PART 3 - EXECUTION

3.1 GENERAL

A. Installation of the cyclone separators equipment shall be in strict accordance with the manufacturer's installation instructions and shop drawings.

3.2 FIELD TESTING

A. After installation, equipment and systems shall be tested with grit pump discharge and adjusted for proper operation at the manufacturer's recommended inlet pressure and flow without excessive noise, vibration and overheating. Equipment shall be adjusted and checked for misalignment, clearances and supports. Adjustment shall be accomplished by increasing or decreasing the speed of the horizontal recessed impeller grit pump(s) feeding each grit cyclone separator. The equipment manufacturer shall certify proper installation of grit separators prior to startup.

** END OF SECTION **