37 Rutgers Street, Belleville, NJ 07109 (973) 759-4600 Fax (973) 759-6449 E-Mail: info@vac-u-max.com

CENTRAL VACUUM COMPONENTS

The information included in this document covers standard designs and components available from VAC-U-MAX. Custom components are also available for special conditions. Please contact VAC-U-MAX at 800-289-8228 or your local VAC-U-MAX Representative.

Straight Lengths

Tube

VAC-U-MAX supplies high-quality industrial-grade tube components to suit the specific needs of a central vac system. Tube is normally supplied for use with non-abrasive materials and it is available in several metals: aluminum, zinc-galvanized carbon steel, or 304 stainless steel. Tube is supplied in 20' straight lengths and is available in different wall thicknesses. Tube size is measured or specified by the outside diameter (OD). Most central vacuum systems are constructed using 16-gauge tube up to 3"OD size, and in 14-gauge tube over 4.0" OD size. For materials with moderate abrasive qualities, the tubing network may be constructed in minimum 11-gauge materials. Straight lengths of tubing supplied by VAC-U-MAX have straight ends and can be joined by several methods: compression couplings, slip couplings with shrink sleeves, or field butt-welding.

Pipe

VAC-U-MAX supplies high-quality industrial-grade pipe components to suit the specific needs of a central vac system. Pipe is normally supplied for use with abrasive materials and it is available in unpainted carbon steel or 304 stainless steel. Pipe is supplied in 21' random straight lengths and it is measured or specified by its inside diameter (ID) and is available in different wall thicknesses (i.e. "schedules"). Most central vacuum systems are constructed using schedule 40 pipe, although heavier schedules are also available. We do not recommend using different pipe schedules in a single network because it affects the OD dimension of the pipe and therefore complicates the joining methods. Pipe supplied by VAC-U-MAX has straight ends and several joining methods are available: compression couplings, field-welded flanges, or field butt-welding.

VAC-U-MAX does **not** approve of PVC or other plastic pipe materials for central vacuum systems due to poor airflow dynamics and tendency to build up static electricity to unsafe levels.

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Joining Methods

Compression Couplings

Compression couplings provide high-quality connections for central vacuum systems constructed of tubing or pipe. They provide an excellent barrier to leaks, but also provide excellent mechanical support for long tubing runs. They are also re-usable in case a central vac is re-routed, and are easily installed by any tradesman. Compression couplings also include an integral ground strap to provide electrical continuity between tube/pipe ends even if the ends are not in contact with each other. Compression couplings typically have a 3-bolt or 4-bolt design with an internal full-length gasket. VAC-U-MAX compression couplings include a “gasket protector”. If tubing or pipe is not cut square in the field, the coupling gasket can be pulled between the tube/pipe ends causing a restriction in the line and eventually wearing out the gasket to cause a vacuum leak. Our gasket protectors prevent that from occurring. Compression couplings tend to have a higher initial cost than shrink sleeves and slip couplings, but they result in a low “installed cost” because they only require one minute to install per joint. Compression couplings also provide a virtual clean-out port at every joint. They are also a good choice in a plant environment, which prevents devices such as heat guns or torches required to install shrink sleeves.

Shrink Sleeves and Slip Couplings

This joining method also provides a high-quality connection for a central vacuum system constructed of tube materials only (not pipe). It utilizes expanded (or bell-end) fittings for a male-female type of connection. The shrink sleeve is a polyolefin material that is melted across the joint to provide a vacuum seal and provides some structural rigidity. When two lengths of straight tubing are connected, a slip coupling provides the double-female dock for the tube ends. Two shrink sleeves are required for each slip coupling. Shrink sleeves and slip couplings may have a lower initial cost, but require a higher skill level from the installer. They are also single-use connections, requiring spare sleeves and couplings if the network is re-routed or if the tubing must be cut open to relieve a blockage. Shrink sleeves are preferred in some environments such as food facilities where a smooth outer surface is desired for easy cleaning.

Tube and Pipe Fittings

Elbows

Tubing elbows are available in 30-, 45-, and 90-degree bends of varying centerline radius. In general it is preferred to use the largest possible centerline available to fit the installation to reduce pressure drop and lessen the chance for blockages.
A large-radius elbow is considered to have a centerline radius not less than 8X the OD of the pipe/tube. Short-radius elbows are commonly 2X or 3X the OD of the tube/pipe for areas with restricted access.

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If pipe is used for the material of construction due to abrasive materials being conveyed, VAC-U-MAX uses blind pipe “T’s” in lieu of rounded elbows. Blind Pipe T’s allow a small build-up of material in a pocket that serves as the impact surface for the abrasive to reduce wear on the fitting. Pipe T’s are commonly used at the first bend on top of a pick-up point where the volume of material may be the greatest.

Fittings: Y-Tubes, T-Y’s, & Clean-out Ports

Y-tubes & T-Y fitting are used to change the direction of a tube/pipe run. They are available with the same construction materials mentioned under “Straight Lengths”. Customers must be aware of the Joining Method they plan to use for the network. The joining method will determine whether the fittings are constructed with “Expanded Ends” for shrink sleeves (tube only, not pipe), or “Straight Ends” for compression couplings or field welding. Y-tubes can be utilized at critical locations to provide clean-out ports in the central vacuum network. Other customers may prefer to use a joint with a compression coupling as a clean-out port.

Inlet Valves

SNAP-CAM Inlet Valves

VAC-U-MAX created the SNAP-CAM inlet valve as a heavy-duty alternative to commercial-duty inlet valves. SNAP-CAM’s utilize a proven cam-and-groove device to attach the vacuum hose to the network. SNAP-CAM’s are provided with adaptors to connect to either tube or pipe networks using either shrink sleeves or compression couplings. SNAP-CAM’s are well suited for abrasive materials due to their industrial construction. SNAP-CAM’s are available in carbon steel with nickel-chrome finish or stainless steel. Standard sizes (based on the tube/pipe network) are 2.0”, 2-1/8”, 2.5”, 3.0”, 4.0”. Select a camlock coupler from VAC-U-MAX to connect your hose to the SNAP-CAM inlet valve.

Commercial-duty inlet valves provide an economical device to connect a hose to a tubing network for free-flowing, non-abrasive materials. Commercial inlet valves provided by VAC-U-MAX have a clip on the cover to retain the hose adaptor in the inlet valve. Most inlet valves screw into a 90-degree adaptor elbow which is then connected to the tubing network with a shrink sleeve. Standard-duty inlet valves are supplied for 1.5” ID hose or 2.0” ID hose and are constructed of steel with nickel-chrome plating, or stainless steel. Escutcheon plates are available to provide a virtual flush-mount installation for the inlet valve for clean room environments.