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When installing a new extruder, or relocating an existing extruder, it is important that site selection, site preparation, handling equipment, and extruder alignment are given careful consideration prior to the arrival of the extruder on site. A properly installed and well thought out extruder installation will give you many years of trouble free service, reduced down-time for preventive maintenance, and provide a safe work environment for your operators. When selecting a site for the extruder, consider the following:

- Provide adequate space for screw installation and removal in front of the extruder.
- Provide adequate space for screw removal tools behind the extruder.
- Provide space for raw material and finished goods removal.
- Be sure that columns and walls do no block access to electrical cabinet doors.
- Ample room should be provided on both sides of the extruder so the operator can safely service the machine during operation.
- Allow sufficient headroom for necessary rigging during installation.
- Determine if the electrical service at the new site is adequate to power the new extruder and install a new service if required.
- Does the new site have proper lighting and ventilation for safe operation of the new equipment?
- Determine other utility requirements (i.e., water, air, etc.) and install them in the proper location.
- Plan a route from the loading dock to the installation site and check for adequate clearance in aisle-ways and doorways.
- All of the information required to accomplish the above can be obtained from the extruder manufacturer prior to the arrival of the extruder at the site.
- Once the site has been selected, it must be prepared to receive the extruder.

It is generally required that the extruder be mounted on a firm, level concrete floor. It is important that the thickness of the floor is checked to determine that it is adequate to support the weight of the extruder, and that it meets the requirements of all local building codes. If you are unsure of the load-carrying capacity of your floor, consult a local civil engineering firm to assist you. If second-story installation is unavoidable, consult structural engineers before moving the extruder into place.

When the extruder arrives, it must be lifted off of the shipping skid, moved to the installation site, and set into place. Depending upon the size of the extruder and the type of handling equipment you have available, you may require the assistance of an outside rigging firm. The rigger will need to know the weight and size of the extruder that they are going to be handling and any height, width, and weight limitations you may have at your installation site. The rigger may want to visit the site prior to the installation date to determine what rigging equipment can be used. Contact the extruder manufacturer for an arrangement drawing that shows the overall dimensions, lifting points, and load distribution of your extruder.

Extruder alignment is important to prevent premature barrel and screw wear. A properly aligned barrel will increase extruder efficiency because the power transmitted to the screw will be used to process the polymer and not to wear the barrel or screw. During shipping, barrel and screw alignment can be lost. This alignment must be reset when the extruder is installed. Alignment is accomplished by leveling, borescoping, if applicable, and lagging the extruder to the floor. Leveling the extruder is an important and relatively simple procedure. The extruder manual will outline this procedure in detail.

For installation of extruders smaller than 3-1/2, 24:1 L/D, the leveling procedure is adequate to realign the screw and barrel. Due to the length of the barrel, installation of extruders 3-1/ 2, 24:1 L/D, and larger, require borescoping in addition to leveling to insure screw and barrel alignment. Borescoping is done to precisely align the

longer barrel and screw in the extruder. Although borescoping is not required for extruders smaller than 3-1/ 2, 24:1 L/D, it is highly recommended that 2-1/2, 24:1 L/D extruders and larger are borescoped for optimum barrel and screw life.

Because the leveling procedure is relatively easy and requires only a precision machinists level, shims, and common wrenches, a service technician should not be required. On the other hand, borescoping is somewhat more complicated and requires the use of sophisticated optical alignment instrumentation and the aid of a technical specialist. Contact the extruder manufacturer for assistance.

Finally, the machine should be firmly secured to the floor with the proper fastening system. If this is not done, the accurate alignment of leveling and borescoping will not be maintained. Also, excessive vibration may occur causing process problems.

If an extruder is properly installed and maintained, you will have a safe, efficient machine that meets or even exceeds your production requirements.

- Rick Boulanger, Davis-Standard Corporation

See also:

- Borescoping
- Borescoping an extruder
- Machinery installation
- Screw installation and removal
- Screw maintenance

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