Here’s what to consider:

First, determine if the machine requires anchoring.

Before designing a foundation for a particular machine tool, two questions must be answered:

1) Does the machine require support from its foundation to maintain alignments between machine elements?
2) Will shock and vibration isolation be required to assure the desired levels of finish quality and accuracy?

An excellent example of a machine that requires a large amount of support to operate properly is the above illustrated horizontal-boring mill. In this application, the only connection between the machine column and work table (and hence spindle and work piece) is the floor or foundation.

In designing the foundation for an alignment-critical machine, these factors are important:

1) Foundation thickness. The stiffness of a foundation varies with the cube of its thickness. The stiffer the required support, the more concrete required.
2) All machine elements should be mounted on the same foundation block.
3) Local soil conditions must be taken into account to assure that the foundation will be stable on the soil on which it is placed.

Second, use correct foundation reinforcing designs and adequate methods of anchoring for the equipment being installed.

In order for the foundation to become an integral part of the machine tool structure, a connection of adequate rigidity must be provided. In many types of machinery, a means of adjusting the relationship of the machine base to the foundation is also necessary.

Several approaches may be followed:

1. Anchor Bolts and Shims: (generally inadequate where alignment requirements are critical.)