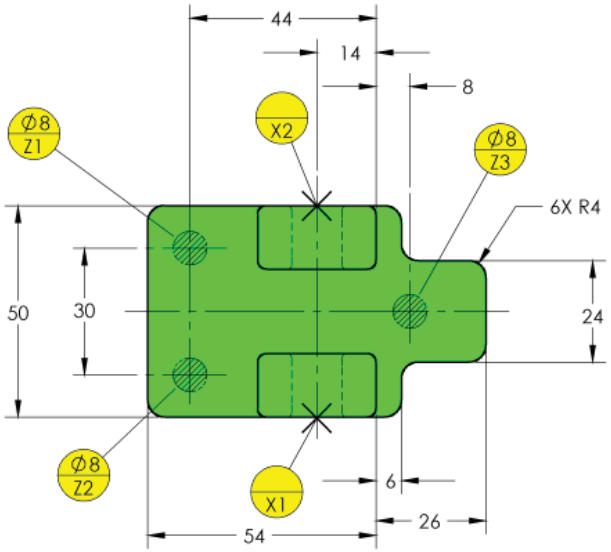
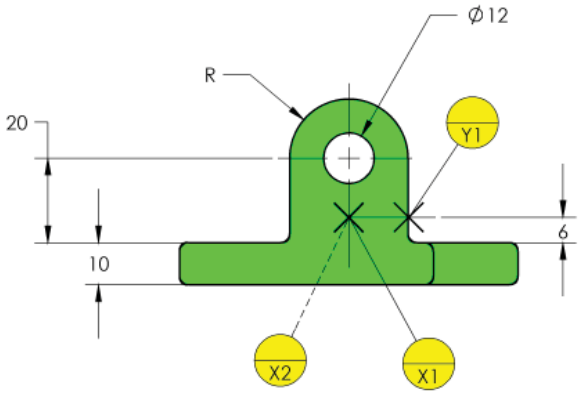
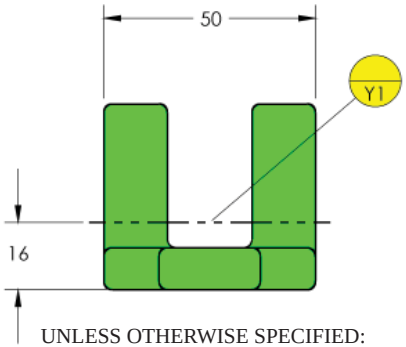
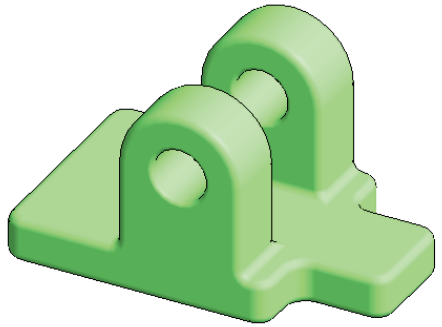
The Casting, Forgings, and Molded Parts Standard, Y14.8, shows how a general profile tolerance may be used to locate the surfaces of castings and forgings. This approach also works well for weldments that are to be machined. In the example illustrated, datum targets were used to establish datum planes Z, Y and X. A general note indicates that all dimensions without tolerance are basic. A profile tolerance is controlling all surfaces of the casting relative to the datum targets. Companies going to this method to control the casting surface find that they will reduce their machining set up time by 20 percent. The foundry is told exactly where to put the cast material from the datum targets. If these same targets are used to machine the part, and the machined surfaces are within the cast material, the company is certain that all machined surfaces will clean up (in other words, there will be stock there to remove in the machining operation). This method also reduces the likelihood of tool crashes and minimizes air cuts.

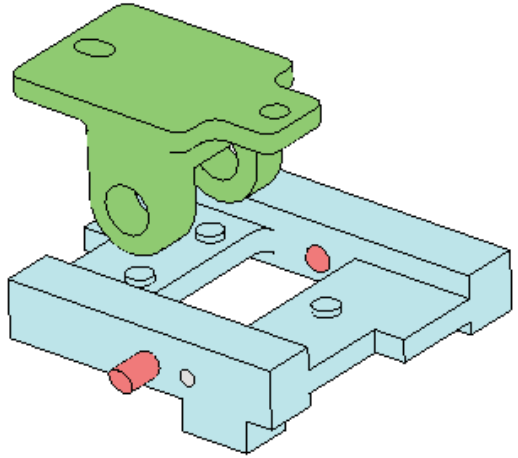






UNLESS OTHERWISE SPECIFIED:
UNTOLERANCED DIMENSIONS ARE BASIC
⌓ 2 Z Y X





This figure shows a machining print of the same part where the machined surfaces that will serve as functional datums are being controlled relative to the datum targets (cast datums). All of the remaining machined surfaces are controlled relative to the datum reference frame established by A, B and C.