



Figure 10.2 (continued)

diameter. With animal cell cultures, baffles cause shear damage; instead of baffles bottom-drive axial impellers slightly offset from center are used.

The vessel itself is almost always stainless steel. Type 316 is used on all wetted parts, type 304 on covers and jackets. With plant and animal cell tissue cultures, a low-carbon version (type 316L) is often used. Many bench-scale fermenters are glass vessels with stainless-steel cover plates. Glass fermenters are rarely used at the 50 l scale, and material considerations limit the maximum size of glass vessels to about 500 l. The use of stainless steel and glass is called for by the need to sterilize the reactor and the corrosive and/or abrasive nature of many fermentation media.