

CASE DESIGN GUIDELINES

Guidelines

Guidelines for providing a compact load to the worker through efficient container design are outlined in Table and Figure I.

Table I. Container Design Guidelines.

Characteristic	Guideline
Width	<ul style="list-style-type: none">• Avoid containers that are more than 14 inches wide.• Maximum acceptable width is 20 inches.
Length	<ul style="list-style-type: none">• Avoid containers longer than 20 inches (results in abduction at the shoulders which increases stresses and reduces strength).• Maximum acceptable length is 30 inches.
Depth	<ul style="list-style-type: none">• Avoid containers that are more than 6 inches deep (causes worker to bend elbows when handling the container).• Maximum acceptable depth is 18 inches.
Handles	<ul style="list-style-type: none">• Put handles on the container.• Figure II provides container handle dimensions.• Handle edges should be rounded.
Load	Keep the load stable and centered in the container.

Figure I. Recommended Container Design Dimensions for Containers that will be Manually Handled (Eastman Kodak, 1986)

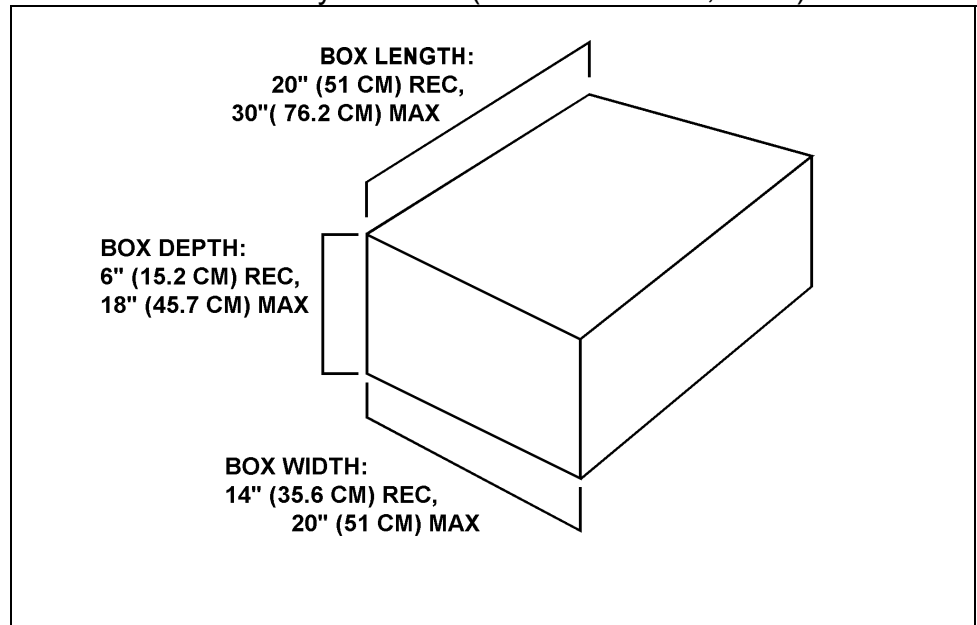
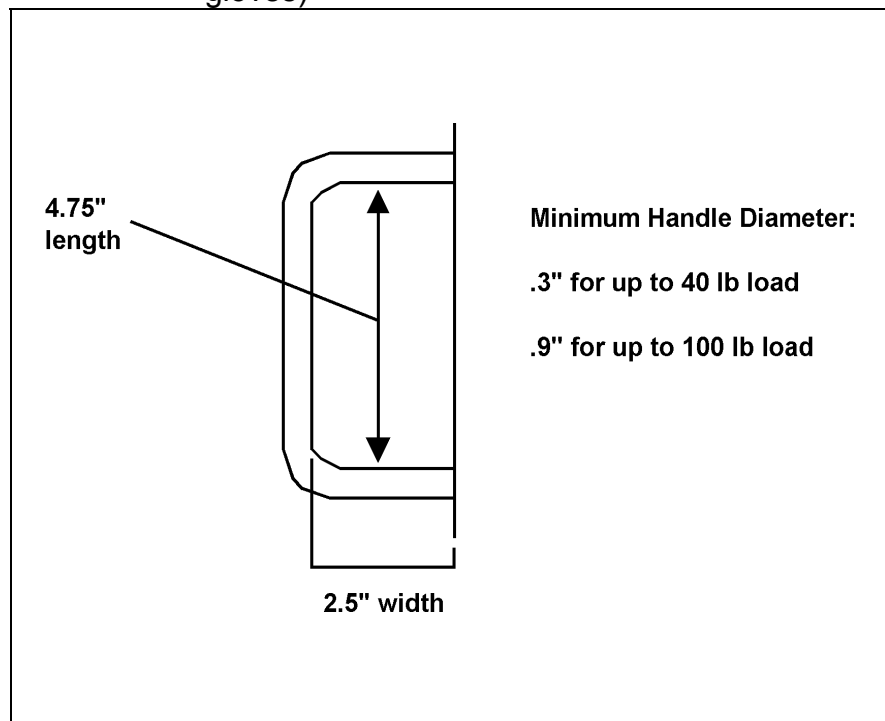


Figure II. Recommended Dimensions for Container Handles (from Humanscale, 1988; dimensions given for large male wearing work gloves)



Additional Handle Design Guidelines

For a cut-out handle, Eastman Kodak (1983) recommends minimum dimensions of 5" for the handle length and 2.5" for the handle width. Kodak also recommends the handle be angled 15 degrees away from the vertical, to keep the wrist angle near neutral.

Drury (1980) provides the following recommendations for container handles, based on several research studies:

1. Asymmetrically-positioned handles providing both horizontal and vertical stability are superior to symmetrically-positioned handles.
2. Optimal handle angle relative to the container changes as a function of the handling height of the task. For handling from floor to waist, handles oriented near horizontal are preferred. For handling from waist level or higher, handles angled near vertical are preferred.