



Design and Engineering Notes

HYPAN BARCO "Ball Type" Flexible Strut Joints can be installed in any position from vertical to horizontal. The joints at either end can be attached to a pipe, vessel or flatplate steel structure by butt-welding. Flexible strut joints should be located at a distance from any hot mass or surface to maintain their operating temperature below a maximum of 650°F (343°C).

The total load to which the joints will be subjected will determine the selection of the proper size. The total load includes: 1) normal operating load(s); 2) sudden or wind-shock loads; 3) the forces or loads involved in decreasing the distance between the supporting and supported structures when one or the other structure must move, like periodic thermal expansion and contraction. The distance decrease is a result of the supported pipe or structure moving axially. That causes the ball strut joint attached to it to describe an arc about the ball strut joint attached at the anchor point (see illustration above). This change in distance causes a positive deflection in the moving structure — it must be considered in design.

These deflections can be minimized by: 1) make the rigid strut between the joints as long as possible, consistent with good structural practice and considering the acceptable L/R ratio; 2) install the strut arrangement in the cold position so that this deflection takes place only during heat-up or cool-down (see illustration above).

For additional engineering assistance, please contact **HYPAN**.

How to Order

1. Determine tensile or compression load for your application. Select the ball end size to handle this load from the "Maximum Loading" table (see table 2).
2. Find the correct size in the "Dimensional Data" table (see table 3). Determine the strut joint Assembly Part Number and specify accordingly.

Shipping Notes: Each "Ball Type" Strut Joint is shipped separately—two are needed for each flexible strut. The center connecting pipe, weld reducers (if needed) and stubs for ends are to be furnished by the customer.