

- ▶ **Diameters greater than 6 ft [1.8 m]**
- ▶ **Suitable for vapor-only, mixed liquid-vapor or flashing feeds**

Vapor horns have been utilized primarily for two phase inlets of refinery fractionators. These devices are designed to provide both bulk phase separation of the vapor and liquid as well as initial distribution of the feed vapor. Performance of these feed inlet devices is critical to ensure adequate gas oil quality and yield, maximum column capacity and proper wash bed performance. Koch-Glitsch's proprietary enhanced vapor horn, an extension of conventional vapor horn technology, provides improved vapor distribution and de-entrainment of the feed.

For vapor/liquid phase separation, the open bottom construction and the centrifugal action induced to the feed stream will direct entrained liquid particles to the column wall, where they will flow down into the column sump or collector tray below.

The patented enhanced vapor horn employs baffles, in a proprietary arrangement, to avoid excessive impingement and feed splashing which can result in the formation of small liquid particles that are more likely to be re-entrained. The baffles help break the high feed inlet velocity for both improved vapor distribution and de-entrainment. Uniform velocity (in both the vertical and horizontal direction) is desired to minimize re-entrainment of liquid.

Once the bulk phase separation is complete and the swirling motion is no longer desirable, patented anti-swirl baffles eliminate the cyclonic motion of the vapor.

Koch-Glitsch has applied both large scale laboratory testing and CFD analysis to evaluate, optimize and validate the de-entrainment and vapor distribution performance. Koch-Glitsch has hundreds of commercial installations of this technology in columns with diameters up to 50 ft [15 m].

## Construction Details

The enhanced vapor horn is available in any weldable metal and is designed for field welded assembly to provide maximum strength and reliability.

This technology can be successfully adapted to a wide variety of feed inlet configurations including both radial and tangential feed nozzles as well as the use of multiple feed inlets.

## Design Options

- Radial or tangential inlets
- Multiple feed inlets
- Heavy-duty design for increased uplift protection
- CFD analysis
- Wear plates

