

# Natural gas dehydration optimized TEG contactor design

Natural gas dehydration with TEG is one of the main process steps in gas processing plants, providing a reliable and relatively economical method of water dew point control. The TEG contactor is the most important and expensive equipment in the dehydration unit. Optimizing the column dimensions in height and diameter, via the selection of advanced mass transfer and mist elimination technologies, can significantly reduce the CAPEX of the contactor. In offshore applications, the lower column weight and space will further reduce the CAPEX of the offshore platform or vessel.

## Optimizing mass transfer and mist elimination

Many TEG contactor designs have an integrated feed inlet scrubbing section in the bottom compartment of the TEG Contactor. The contactor height and diameter becomes therefore dependent on the following three process stages in the column:

- (1) Mist elimination in the inlet scrubbing section
- (2) Mass transfer in the absorption section
- (3) Mist elimination in the outlet scrubbing section.

Optimizing the column dimensions requires judicious selection of the appropriate mass transfer and mist elimination column internals, such that they typically don't limit the capacity of one of the other sections in the glycol contactor.

## Sulzer MellaGlycol™ and MKS Multi Cassette™

With the above process design considerations, the combination of MellaGlycol and MKS Multi Cassette, for mass transfer and mist elimination respectively, represent the most economical and state-of-the-art technology for TEG contactor designs.

The structured packing MellaGlycol is specifically developed for gas dehydration systems and allows enhanced column designs to maximize performance while minimizing capital and operating costs.

The MKS Multi Cassette is a hybrid mist eliminator, incorporating the advantages of wire-mesh and cyclonic mist eliminators. The MKS Multi Cassette offers outstanding separation efficiency and is competitive in terms of cost and height requirement.

## System approach in designing TEG gas dehydration

Successful natural gas dehydration depends on more than just the TEG contactor. The regeneration system, comprising of the still and stripper columns, as well as the auxiliary equipment plays an important role as well. Successful operation requires the right selection of equipment with the understanding of the entire process, under considerations of all various operational issues which could appear, for instance foaming, fouling, glycol degeneration and retrograde condensation.

## Summary

Sulzer's proposition of expertise for natural gas dehydration:

- Optimization of advanced mass transfer and mist elimination technologies, achieving CAPEX reduction.
- Revamp opportunities to increase capacity and/or enhance separation and mass transfer efficiency.
- Deep understanding of the process system design, including process, hydraulic and operational topics.

