

# TRANSFER OF HYDROGEN AND HELIUM THROUGH CORRUGATED, FLEXIBLE TUBES

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The transfer of liquid gas or cold gas through corrugated tubes is an alternative to rigid systems for the use in reactor technique.

## Advantages:

- Flexibility for easy installation
- These tubes together with their associated terminations and hardware are assembled, leak-tested and evacuated at the factory. This permits simple and cost saving installation on site. All tubes are helium leak-tested with a sensitivity of  $10E^{-9}$  mbar l/sec. Following the leak test, the vacuum space is pumped down to the operation vacuum level and properly sealed. The vacuum integrity is guaranteed as a result of the high degree of cleanliness observed during production and from the use of a specially selected getter material inside the vacuum space.

## Disadvantage:

- Pressure is limited to 20 bar

To fulfil all rules of the reactor safety, different tests have to be done. Because of the longitudinal weld of the corrugated tube, a bursting test of different sizes gives the best information of the liability of this kind of tube. It can be shown that the bursting pressure of such a tube is more than 5 times higher than the max. working pressure.



Corrugated tube type 39/44  
Wall thickness: 0.4 mm  
Material: 1.4571

bar	% lengthening
-	-
5.0	0.32
10.0	0.53
16.0	0.95
24.0	3.58
135.0	36.00

[1] Klaus Schippl; "Transfer of Hydrogen and Helium through Corrugated, Flexible Tubes"; Nexans Deutschland Industries AG & Co KG, Kabelkamp 20, 30179 Hannover – Germany, Phone no. +49 511 676-3250, Fax no. +49 511 676-3777, e-mail Klaus.Schippl@nexans.com; 8<sup>th</sup> March 2001