

# DEMOMETER



HPCN TTN Network

*Opening the way*

## Flow meter modelling through parallel processing

Flow meters with restriction areas are a common feature of piping systems in power and chemical plants. Often these are off-standard applications (OSA) which must be purpose-specific. To provide the accuracy required by DIN, VDI/VDE and ASME standards, engineers must run three-dimensional calculations including all relevant geometric details and fluid dynamic processes. This in turn requires highly sophisticated CFD (computational fluid dynamics) capabilities, experience in fluid dynamics simulations, and expensive large-scale computing power.

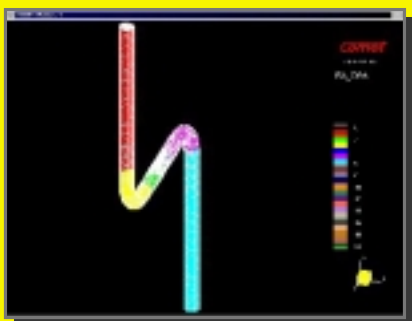
For many small and medium-sized companies, this has heretofore been an impossibility. The resources just weren't available.

**Now there is a solution.**

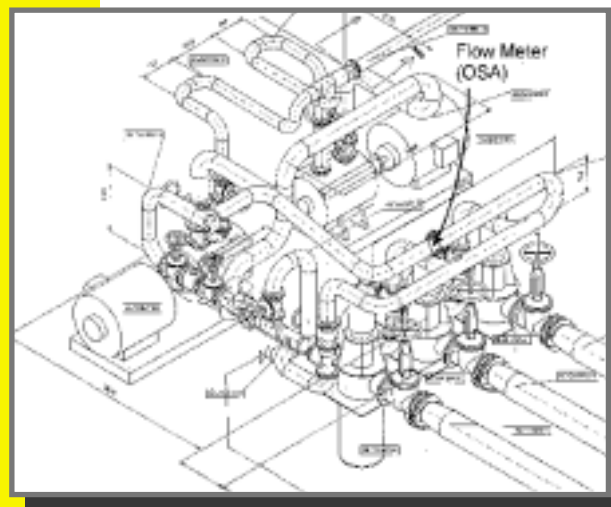
The DEMOMETER project brings together a powerful CFD program, a state-of-the-art GUI and a cluster of standard PCs in a network using Windows NT. This combination reduces the necessary knowledge base and distributes the computing tasks, finally making flow meter modelling practical for small and medium-sized enterprises.

**For Small and Medium-Sized Enterprises the DEMOMETER project means:**

- Modelling of optimum flow meter configurations
- Solutions can be generated in-house on standard PC workstations
- No experts or outside capacity necessary
- Fast reactions to customer needs
- Highly accurate modelling



*CFD (computational fluid dynamics) calculation*

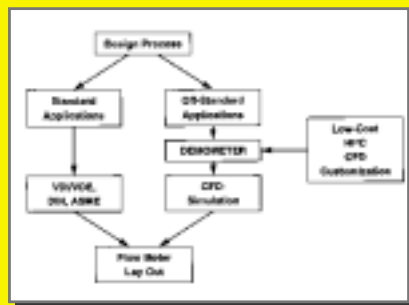


*Example of an off-standard application (OSA)*

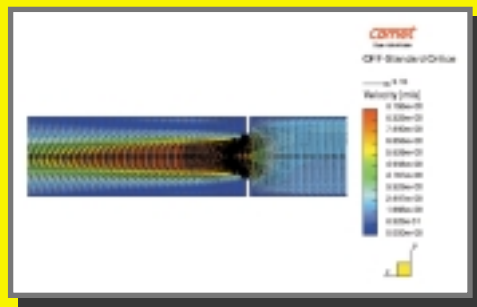
# Speeding the flow

## DEMOMETER eliminates the bottleneck:

Flow meter modelling takes substantial computing power, and until now small and medium sized enterprises had to rent capacity from research institutions and specialist firms. This was costly, making it hard for developers to test a large number of variants, in turn leading to inaccurate modelling and dissatisfied customers. Furthermore, since computing time was limited to prearranged time windows, fast reaction to customer needs was impossible.



The layout process



Calculated velocity distribution

DEMOMETER brings together three components to solve this problem:

1. Comet is a powerful ICCM continuum mechanics solution software.
2. MEDEVA is a sophisticated GUI that reduces the knowledge required for simulation and parallel computing to a few parameter entries and a sequence of actions.
3. HPCN technology networks a number of PCs so that they can perform tasks previously restricted to expensive mainframes.

With these technologies, DEMOMETER puts specialist expertise and mainframe power within reach of smaller enterprises. For the first time, they can easily model and design flow meters for off-standard applications.

## High Performance Computing and Networking Programme

The HPCN Programme is an EU initiative to make high-performance computing available to small and medium-sized enterprises. This is supported by a pan-European network of 21 Technology Transfer Nodes (TTNs). Each TTN acts as a resource centre, providing access to the combined know-how of the entire HPCN TTN Network and contacts to firms and experts engaged in other HPCN projects. Currently some 150 projects are underway.



For more information contact <http://caprice.dlr.de/demometer> or one of the DEMOMETER project partners:

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