

# HYDRORAM AB

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Branch of business: Hydraulic consultation in the field of complex pipe system calculations.

## **Summary**

We have been active for 15 years in the field of advanced hydraulic calculations of district heating and cooling and other complex pipe systems. However, the company Hydroram AB is transformed from the company OLA ROSSING AB in januari 2003. We are familiar to conventional and unconventional solutions in several large systems.

Experiences from hydraulic calculations in more than 30 different district heating and cooling systems.

Often works with supervision, checking hydraulic solutions made by others. Extensive knowledge about hydraulic transients (waterhammer) in complex pipe systems. Selling education to energy distributors, consultants and Universities

Developing and selling programs for advanced calculations in complex pipe systems.

## **Examples of assignments**

We have made technical studies regarding hydraulic behaviour for almost all district heating and cooling systems in the Stockholm region.

Educations in system knowledge for staff of heat distribution companies ( e.g. Gothenburg Energy and Stockholm Energy) and other consulting companies as FVB. We have participated in several projects ( e.g. in Riga) as subconsultant to FVB, handling hydraulic distribution.

We have made plans for safe sectioning in several district heating systems including transient calculations of valve closures and pump trips.

We have participated as hydraulic consultant in several integrations of larger district heating systems.

We have made safety studies regarding hydraulic transients in several systems, e.g. mine water, sewage water, vinyl chloride.

We have made research projekt for Fjärrvärmeföreningen, branch organisation for swedish district heating.

## **International Projects**

1992, Edmonton, Canada, district heating and cooling, through FVB.  
1995, Doga, Turkey, district heating, through Göteborg Energy International.  
1996, Chicago, USA, district cooling, through FVB.  
1997, Fourteen Tunisian sewage water pumping systems, through Kvaerner Water.  
1998, Istanbul, Turkey, freshwater pumping, through ABS pumps.  
1998, Kralkizi and Gökzu, Turkey, freshwater pumping, through ABS pumps.  
1998, Riga, Latvia, district heating, through FVB.  
1998, Windsor, Canada, district cooling, through FVB/Kattner.  
2001, Baltimore, district cooling, through FVB/Kattner.

## **Staff**

### **Ola Rossing**

Education: Bachelor of Science, Chalmers University of Technology, branch of operation.

1987-1989, Chalmers University of Technology, Institution of Thermo and Fluid-dynamic, research engineer working with hydraulic calculations in district heating systems and assisting in the education courses.

1990-2003 Ola Rossing AB.

2003- Hydroram AB

### **Gunnar Larsson**

Education: PhD on dynamics in district heating systems, Chalmers University of Technology,

1999- 2001 Works half time at Chalmers as a researcher.

1999- 2001 Works half time at Ola Rossing AB as hydraulic expert.

2001-2003 Ola Rossing AB.

2003- Hydroram AB

## References

### **District heating and cooling distribution companies:**

Stockholm/Birka Energi/Fortum Värme  
Göteborg Energi AB  
Gothenburg Energy International Corp.  
Södertörns fjärrvärme AB  
Söderenergi AB  
Norrenergi AB  
Sigtuna Energi AB  
Graninge Energi AB  
Uddevalla Energi AB  
Orust Kommun  
Halmstad Energi AB  
Trollhättan Energi AB  
Jämtkraft AB  
Karskoga Energi & Miljö AB  
Varberg Energi AB  
Jönköping Energi AB  
Umeå Energi AB  
Vattenfall AB  
Kungälv Energi AB  
Säter Energi AB  
Öresundskraft AB  
Växjö Energi AB

## **Other companies**

FVB AB

SWECO AB

Nicon Industri AB

SwedPower AB

LKAB

ÅF AB

Stockholm Vatten AB

Birka Teknik & Miljö AB

Chalmer University of Technology

Högskolan i Borås

Hydro Plast AB

CMC Byggadministration AB

ABS pumps International AB

VA-Ingenjörerna AB

STF AB

Svenska Fjärrvärmeföreningen / Svensk Fjärrvärme AB

Siemens Industrial Turbomachinery AB

Midroc Engineering AB