Thomas L. Angle BSc, MSc, PE (Mech)

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PROFESSIONAL SUMMARY

Tom has 45 years of pump engineering experience, alternating numerous times between technical and management positions, depending on organizational requirements. After a 35-year career with WEMCO/Weir, in 2010 he relocated to Switzerland to take over the technical leadership of Hidrostal AG. In 2017, after retiring from Hidrostal, he founded the firm Swiss Flow Solutions GmbH. Swiss Flow Solutions provides worldwide consulting in the areas of mechanical engineering design for pumps, hydraulic and pump system analysis, energy savings analysis, on-site troubleshooting, and training /presentation services. (Click **here** to see his complete CV.)

- Have visited hundreds of customers and installations in the field to provide technical support and sales assistance for both equipment and system issues and problems.

- Have met with customers and resolved problems in over 25 countries.

- Able to relate with people at all levels in an organization, from mechanics to CEOs and across all cultural lines.

- Able to get diverse groups and individuals to work together.

- Continue to improve knowledge and job skills. Have taken over 40 classes and courses after completion of formal education.

- Approach technical problems with “hands on” ability and theoretical knowledge.

- Have specialized, unique knowledge in the areas of recessed impeller pumps, screw centrifugal pumps, and rotating case pitot tube pumps.

- Excellent overall mechanical engineering knowledge in relation to pumps. In particular, very strong technically in the areas of high speed bearings and lubrication and vibration.

Very active in the Hydraulic Institute, SWISSMEM and in EUROPUMP liaison since 1998. The SWISSMEM Pump Group consists of a number of pump producing companies located within Switzerland that are members of SWISSMEM (Swiss Mechanical Engineering Industries.) SWISSMEM in turn belongs to Europump, which is the European organization of each national pump association from the EU and other European countries. The purpose of this group is to represent the European pump industry and to write and influence standards related to pumps. The Hydraulic Institute is the association of US

pump manufacturers and so in theory corresponds to the various European national pump associations. In actual practice it is as large as EUROPUMP and performs the same functions in both representing the industry and as a standards writing organization.

PUMP RELATED ACTIVITIES

Active in the HYDRAULIC INSTITUTE since 1998 and I was a member of the following committees.

- Vibration
- Pump Piping
- Viscosity Correction
- Life Cycle Costing
- NPSH and Operating Region
- Efficiency Prediction
- Submersible Pump
- Test Standards
- Standards
- Technical Affairs Steering Committee
- I am presently involved in writing and approving a number of documents and standards as a representative of EUROPUMP
- I served as chairman of Pump Piping, Viscosity Correction, and the Standards Committees.

In February 2010 at the annual meeting I received the “Member of the Year” award. This award is given to one person each year for achievement in the support of pump standards writing and technical committee work.

Active in several joint Hydraulic Institute-EUROPUMP and ISO committees.

- One of four members representing the HI on the editing committee of the joint HI-EUROPUMP Life Cycle Cost document.
- Joint HI-EUROPUMP IPSC (International Pump Standards Committee) Working Group “Test Procedures”: One of four members representing the Hydraulic Institute on the editing committee with the task of harmonizing the Hydraulic Institute test standard with ISO 9906.
- Appointed as the US expert for ISO/TC 115/WG 5 “Definitions of terms”
- Represented EUROPUMP in the rewrite of the Hydraulic Institute “Variable Speed Pumping Guide”

Certified Instructor for the U.S. Department of Energy’s PSAT (Pumping System Assessment Tool) Program.

Completed the instructor class for the Hydraulic Institute’s “Pump Systems Matter” course.

Member of the team that developed the ASME Standard “Energy Assessment for Pumping Systems”, ASME EA-2-2009.

I am presently a member of the EUROPUMP Standards and Technical Commissions and also CEN TC 197.

I currently serve on the editorial board of Pumps and Systems magazine and contribute articles from time to time.

Certified Pumping System Specialist by the British Pump Manufacturers Association.

PROFESSIONAL EXPERIENCE

January 2017 Geschäftsführer / CEO
Present Swiss Flow Solutions GmbH

Provide worldwide technical support, analysis, and advice in all aspects of pump application and design.

Nov 2015 Chef Ingenieur / Chief Engineer
Dec 2016 Hidrostal AG, Neunkirch Switzerland

Provide technical support and advice to all departments in Hidrostal AG as well as to Hidrostal representatives and daughter companies worldwide.

Jan 2011 Vice President of Engineering
Nov 2015 Hidrostal AG, Neunkirch Switzerland

This position is responsible for all aspects of Hidrostal pump technology including the technical office, the test lab, and R&D.

Much of my effort involved implementing process improvements and internal standards implementation because these things were not given adequate priority in the past.

In addition I represented (and still represent) the SWISSMEM Pump Manufacturers Group to the Europump Standards and Technical Commissions and I also represent Switzerland in the CEN TC 197 (Pumps) committee.

May 2005 Vice President of Product Engineering
Dec 2010 Weir Specialty Pumps, Salt Lake City, UT

Same position as previous, with less production engineering, but at a Vice President's level. This allowed me to concentrate more on technical issues and training.

In the 5 years I held this position the department was awarded 9 patents and had applications in place for 6 more.

Instituted process changes and modernization in the test lab to meet increasing testing requirements. Test lab order processing time was reduced by more than 50%.

June 2000 Director of Engineering and R&D
May 2005 Weir Specialty Pumps, Salt Lake City, UT

Responsible for production engineering, new product development, technical support, and test lab.

Took a department that was demoralized and non-productive due to a product relocation and three years of management neglect and turned it around. Coaxed back several key employees who had left and let go several under performing employees.

- Instituted process improvements to increase efficiency.
- Drastically reduced new product development times.
- Acted as Director of Technology, providing hands on technical support to customers and marketing.

May 1995 Director of Technology
Jun 2001 EnviroTech Pumpsystems, Fairfield, CA

This was a staff position as a technical consultant for all areas of the company in Salt Lake City and also for Weir worldwide.

May 1992 Director of Engineering and R&D
May 1995 EnviroTech Specialty Pumps, Sacramento, CA

Responsible for production engineering, new product development, technical support, and test lab.

In this position I was required to completely reorganize the technical areas because previously the company had been split into a pump company and a process company.

Jul 1991 Manager of R&D
May 1992 Wemco Pump, Sacramento, CA

Responsible for the new product development design group.

Jul 1986 Chief Engineer
Jul 1991 Wemco Division of Baker Hughes, Sacramento, CA

This was a staff position as a technical consultant for the company in Sacramento as well as the associated companies in the UK and France.

Nov 1982 Equipment Engineering Supervisor
Jul 1986 Wemco Division of Baker International, Sacramento, CA

Supervised six design groups and was responsible for all of production engineering. This position was responsible for all of the company's equipment lines.

Nov 1981 Senior Engineer
Nov 1982 Wemco Division of Envirotech Corporation, Sacramento, CA

This was a staff position as an in-house administrative specialist. At this time due to many issues much of the engineering process needed to be changed and documented, and this was my task for much of this time period.

Nov 1981 Wemco Division of Envirotech Corporation, Sacramento, CA
Jul 1977 Equipment Engineering Supervisor

In this position I was responsible for organizing a number of individuals into individual design groups, each with product responsibility, but able to provide support to the other groups when required.

Nov 1974 Engineer
Jul 1977 Wemco Division of Envirotech Corporation, Sacramento, CA

Supervised a design group responsible for the company's induced air oil-water separation equipment.

Dec 1973 Engineer
Oct 1974 MEE Industries, Rosemead, CA

Designed and installed high pressure mist systems for greenhouse cooling. Designed and did layout of high pressure fog systems for freeze protection.

May 1972 Jr. Development Engineer
Dec 1973 University of California, Riverside, CA

Assisted in the design and testing of citrus and avocado tree shaking equipment.

EDUCATIONAL and PROFESSIONAL QUALIFICATIONS

- BS in Engineering, University of California at Davis, March 1969
- MS in Engineering, University of California at Davis, March 1972
- Professional Engineering registration as a Mechanical Engineer in California.

Personal Information

Date of Birth: February 3, 1947