

CASTING CONSULTANTS, INC.

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BACKGROUND SUMMARY

Edward S. Szekeres received a BS and MS in Welding Engineering from The Ohio State University and began his career in Metals Joining at the U. S. Steel (USS) Research Laboratory in Monroeville, PA. He later obtained a Ph.D. in Materials Engineering from Rensselaer Polytechnic Institute. Returning to USS Research as Group Leader-Alloy Development, he directed projects on new and improved alloy steels. Subsequently assigned to the position of Section Supervisor-Continuous Casting he became responsible for developing casting procedures; solving solidification-related problems; evaluating product quality; and improving designs; for slab, bloom, billet and rounds casters.

After promotion to Research Consultant-Continuous Casting, he served as Special Task Force Leader in the development of steelmaking, strand casting, plate rolling, pipe forming and welding procedures for the production of Arctic-grade line pipe. Other projects involved (1) study of hydrogen-assisted cracking in as-cast 9% Nickel Steel slabs, (2) mechanism of elevated-temperature surface cracking in strand cast product, (3) evaluation of the effect of electromagnetic stirring in square- and round-section strands, (4) study of seam-type imperfections in D&I sheet steel, (5) techniques for retaining quality in high-speed billet casting, (6) tundish re-designs based on water modeling, and (7) specification of new casting facilities. Included were numerous visits to overseas plants as well as consulting and technology sales for U. S. Steel's engineering subsidiary (UEC).

In 1984, Dr. Szekeres established Casting Consultants, Inc., specializing in strand casting technology and solidification-related problems. Major projects have included:

- * Quality audits at various slab, bloom, and billet casting facilities.
- * Analysis of mold-level control-system problems on slab casters.
- * Assistance in engineering new single- and dual-strand slab casters.
- * Re-design of the spray system on a mini-mill billet caster.
- * Concepts and preparation of a specification for a new dual-strand bloom caster.
- * Solving of quality problems in slab casting Al-killed sheet steel and plate steel.
- * Analysis of operating and quality problems in the strand casting of lead.
- * Report on the effects of hydrogen in strand cast steel.
- * Tundish design modifications for producing auto-quality LCAK steel slabs.
- * Analysis of strand bulging strains for various slab casters.
- * Re-design of the mold for a rounds caster.
- * Full-scale water model studies of billet and slab caster tundishes.
- * Solution of breakout problems in the casting of steel rounds, billets and slabs.
- * Study of cracking problems in as-solidified centrifugally-cast rolls.

Casting Consultants, Inc., has also provided assistance in specification writing for design and up-grading of strand casting facilities, as well as analyses of breakouts, as-cast structures, surface and/or internal quality problems, and steelmaking practices for strand casting.

Dr. Szekeres lectures widely on strand casting technology, including in-house educational and training seminars. He serves as a lecturer and co-director in the Brimacombe Continuous Casting Course presented annually in Vancouver, BC, Canada. He also served as a lecturer in the University of Michigan Annual Conference on Continuous Casting of Steel during most of the 20 years that the course existed. In addition, he has instructed in AISE (now AIST) courses on Continuous Casting and in numerous Iron & Steel Society Continuing Education Courses on both billet and slab quality and slab caster maintenance. He is a registered Professional Engineer in Ohio and Pennsylvania, holds an IIW/IIS International Welding Engineer Diploma, and is a member of both ASM International and AIST. E-mail messages or inquiries can be sent to <casting@fesdigital.com> and further information may be found at the website: <<http://fesdigital.com/cci>>.