

HANDBOOK ON ACRYLICS FOR SUBMERSIBLES, HYPERBARIC CHAMBERS AND AQUARIA

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At this critical time in the development of acrylic plastic structural technology, one book consolidates the conceptual and applied data in a convenient volume. **HANDBOOK ON ACRYLICS FOR SUBMERSIBLES, HYPERBARIC CHAMBERS AND AQUARIA** summarizes the theories, test data, and work experience accumulated over the years in the design, fabrication and operation of acrylic structural components of submersibles, hyperbaric chambers, and aquaria. The fully illustrated 1000 page handbook solves current, practical engineering problems in the design of the pressure resistant acrylic structural components over the whole pressure range from full vacuum to 20,000 psi (138 MPa).

Engineers and designers involved in the research and development of acrylic viewports, acrylic pressure hulls for submersibles and hyperbaric chambers, and panels for aquaria will find this book both useful and illustrative. This fully documented design handbook is ideally suited for engineers, designers, operators, and inspectors of pressure vessels who need to know and understand the technology of viewport and hyperbaric chamber development. Particular emphasis is placed on the effect of dynamic, short-term, cyclic, and long-term pressure loading on the structural integrity of the acrylic pressure resistant components. In addition, the safety factors recommended for their design, to preclude catastrophic failure, are covered in a separate section on the ANSI/ASME PVHO-1 Safety Standard.

The book demonstrates in a practical, hands-on fashion the relationship between good engineering practices and uncompromised, safe acrylic viewports, submersibles, hyperbaric chambers, and aquaria. Materials, fabrication processes, distribution of stresses and strains in standard window shapes, critical pressures, bonding techniques, deterioration of acrylic material, and surfaces finishes are all discussed for the benefit of the designer. In addition, the designer, operator and/or inspector is made aware of how to care for acrylic in storage and in service and what things may harm or even destroy the usefulness of the acrylic. Using the information presented herein allows the engineer to design, fabricate and test numerous acrylic structures which will be safe, economical and long lasting.



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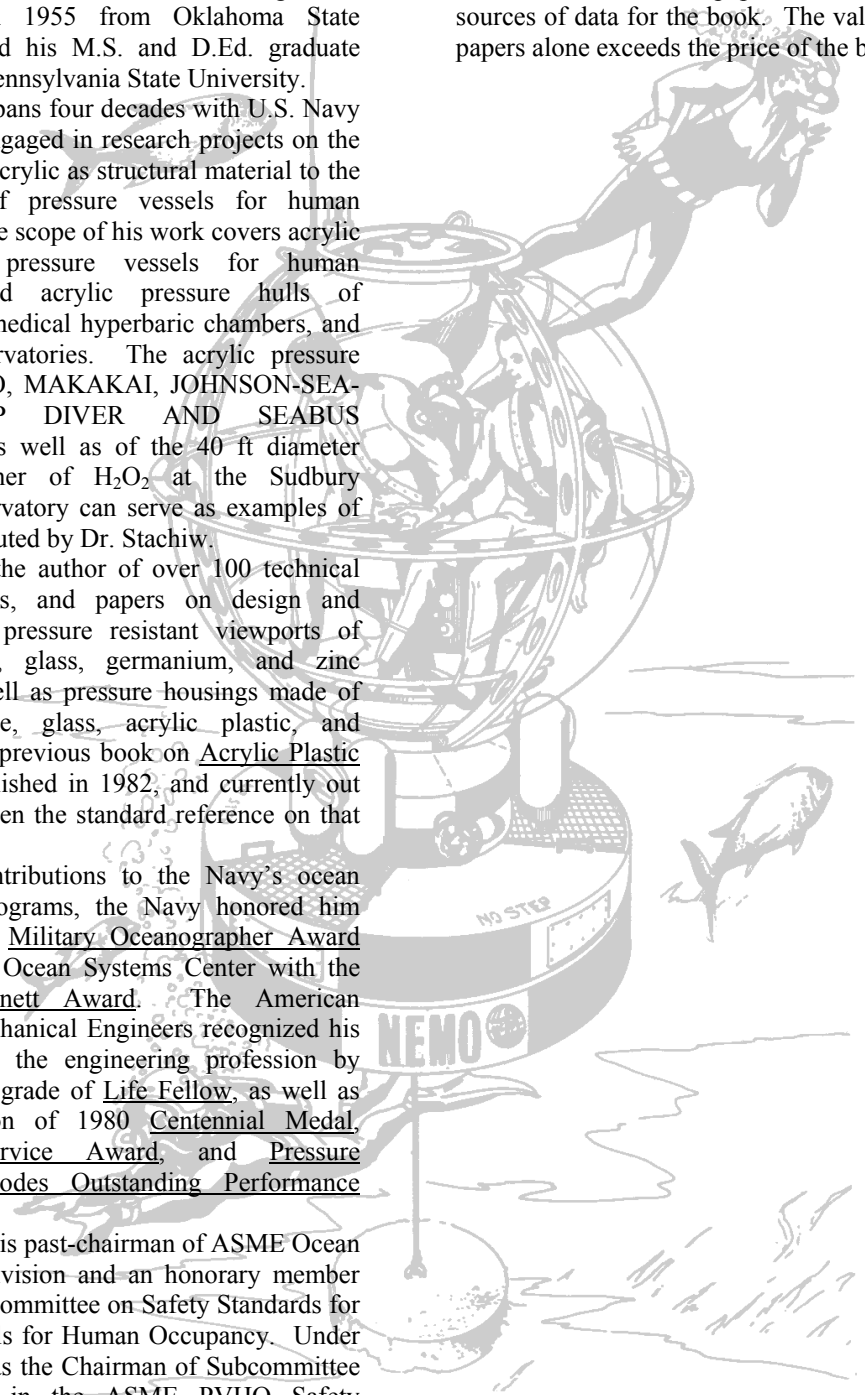
He also is the author of over 100 technical reports, articles, and papers on design and fabrication of pressure resistant viewports of acrylic plastic, glass, germanium, and zinc sulphide, as well as pressure housings made of wood, concrete, glass, acrylic plastic, and ceramics. His previous book on Acrylic Plastic Viewports published in 1982, and currently out of print, has been the standard reference on that subject to date.

For the contributions to the Navy's ocean engineering programs, the Navy honored him with the 1970 Military Oceanographer Award and the Naval Ocean Systems Center with the Lauritsen Bennett Award. The American Society of Mechanical Engineers recognized his contribution to the engineering profession by election to the grade of Life Fellow, as well as the presentation of 1980 Centennial Medal, Dedicated Service Award, and Pressure Technology Codes Outstanding Performance Certificate.

Dr. Stachiw is past-chairman of ASME Ocean Engineering Division and an honorary member of the ASME Committee on Safety Standards for Pressure Vessels for Human Occupancy. Under his leadership as the Chairman of Subcommittee on Viewports in the ASME PVHO Safety Standard Committee from 1972 to 1987, the Safety Standard for acrylic viewports was written, edited and published in 1977 as an ANSI/ASME PHVO-1 Safety Standard. He is a member of the Marine Technology Society, New York Academy of Science, Sigma Xi, Phi Kappa Phi, Pi Tau Sigma, and Pi Mu Epsilon Honorary

Societies, each a leader in their technical specialty.

Purchasers of the book will receive free of charge two CD's of the collected papers on acrylic windows and submersibles authored by Dr. Stachiw. These papers are the original sources of data for the book. The value of these papers alone exceeds the price of the book.



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