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Nota di contenuto	Introduction -- Application and definitions -- discharge capacity -- Inflow and outflow -- Hydraulic losses -- Power and efficiency -- Plant components and efficiency -- Measurements on hydropower screws -- Design flow for a hydropower screw -- Summary of - Formula symbols, calculation results -- Bibliography.
Sommario/riassunto	Water screw conveyors have been in use for centuries. Their invention is attributed to Archimedes. However, the idea of using this Archimedean screw also as a hydropower screw to convert hydraulic energy into electrical energy did not emerge until the 1990s. More recently, hydropower screws have been used very frequently at hydropower sites and have now also attracted increasing interest from scientists and users worldwide. This is due to the machine's very good efficiency, it's simple and inexpensive design, and its fish compatibility.

This book provides calculation fundamentals for hydropower screws. The author focuses on the description of the hydraulic processes and gives a design flow that can be used to design hydropower screws. The hydraulic behavior, dimensions, speed, efficiency, forces acting on the screw such as sag or lift, as well as the arrangement of the gearbox and the choice of generator are discussed. The theoretical equations, some of which are newly derived, are applied using examples. Finally, a design flow is given that can be used to easily adapt an optimally designed hydropower screw to a location. New findings presented in various scientific publications have been incorporated into the translation of the second German edition. In addition, experiments were carried out at different locations, which led to a better understanding of the available data basis. This has allowed the theoretical predictions of this book to be confirmed experimentally. In addition, the author has investigated a number of faulty installations and has been involved in the design of successful working waterpower plants equipped with hydropower screws. The author Dr.-Ing. Dirk Michael Nuernbergk is a Senior Design Engineer for analog circuit design, water wheels and hydropower screws.