The paper presents and discusses a R&D-view on trends in development and best practise in modelling, simulation and design of both low-pressure and high-pressure tap water hydraulic components and systems for motion control as well as open-ended solutions various industrial applications. The focus is on the advantages using ordinary tap water and the range of application areas are illustrated with examples, in particular within the food processing industry, humidification operations, water mist systems for fire fighting, high water pressure cleaners, water moisturising systems for wood processing, lumber drying process and mobile machines and equipment that operate in environmentally sensitive surroundings. Today’s progress in water hydraulics includes electro-water hydraulic proportional valves and servovalves for design of motion control solutions for machines and robots. The remarkable property is that the components operate with pure water from the tap without additives of any kind. Hence water hydraulics takes the benefit of pure water as fluid being environmentally friendly, easy to clean sanitary design, non-toxic, non-flammable, inexpensive, readily available and easily disposable. The low-pressure tap water hydraulic systems cover up to around 50 bar, and 2-4 kW having a strong potential to compete with pneumatic and electrical solutions in many applications. The high-pressure water hydraulic systems cover typically up to 160 bar pressure from pump and to motors and actuators 140 bar. Recently, dedicated pumps and accessories running with sea-water as fluid are available. A unique solution is to use reverse osmosis to generate drinking water from sea-water, and furthermore for several off-shore applications. Furthermore, tap water hydraulic components of the Nessie® family and examples of measured performance characteristics are presented and the trends in industrial applications and need for future are discussed.