



BEN HUR Digital

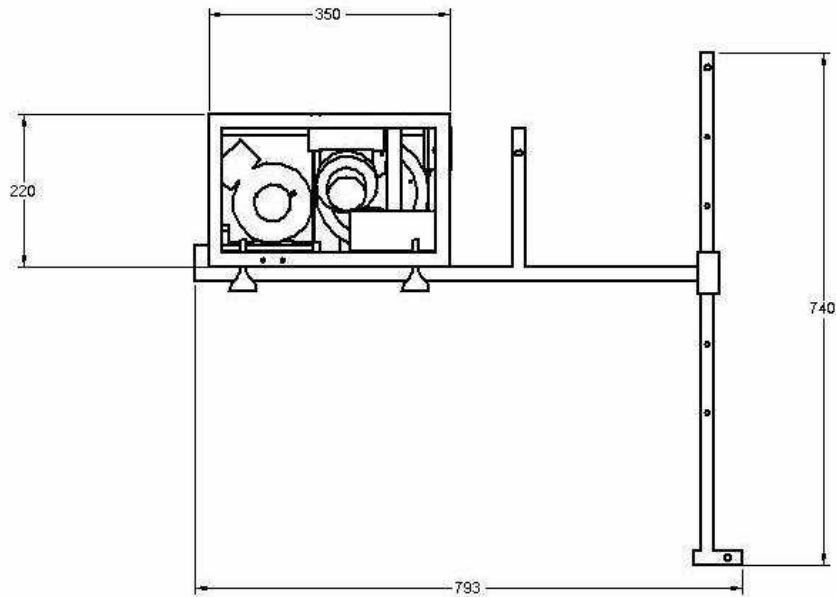
Training and analysis device for swimming

General description

Ben Hur Digital is a training and scientific analysis device for swimming. It is composed of a low-voltage (30 V) DC motor and a drum around which a nylon cable is rolled up. The swimmer is harnessed at one end of the thread. Motor and drum are connected by a chain transmission. All this is caged into a stainless steel frame, to be put by the pool. DC motor can work both as an engine and as a brake. In the first case (assisted swimming) it pulls the swimmer, in the second case (resisted swimming) it resists to the swimmer advancing in water. In both cases it can be controlled in force and speed, allowing a wide range of training and measurements. Force and speed can be tuned from a portable hand-held console. Velocity and force data are acquired by a DAQ system and saved on PC for further analysis. The machine is provided with mechanical and electrical safety devices, ensuring maximum safety to the user. Software and manuals are available in Italian and English

Features

- ◆ **Stainless steel (AISI 304) frame and fasteners**
- ◆ **Low voltage (30V) motor**
- ◆ **Chain transmission**
- ◆ **Reduced size, weight and inertia with respect to previous versions**
- ◆ **Digital motor drive for enhanced control**
- ◆ **Maximum towing speed 3m/s**
- ◆ **Maximum towing force 200N**
- ◆ **Maximum braking force 240N**
- ◆ **IP54 protection**
- ◆ **Adjustable arm for underwater towing**
- ◆ **Highly customisable**



General characteristics

- ◆ **Machine size (excluding arm): 350x350x240 (mm)**
- ◆ **Electric power unit size: 600x400x300 (mm)**
- ◆ **Weight: 20kg (machine) + 20kg (Electric power unit)**
- ◆ **Voltage: 220V AC to Epu, 30V DC to the motor**
- ◆ **Complying to EU safety standards**
- ◆ **OS: Windows XP, Vista**
- ◆ **Kit includes machine, electric power unit, cables, software, user's manual in paper and electronic format**
- ◆ **Guarantee: 24 months**

Applications

- ◆ **Training of high level swimmers: assisted swimming improves neuromuscular skills while resisted swimming improves strength**
- ◆ **Measurement of athlete's characteristics: strength, drag, power**
- ◆ **Scientific research**

Customisation

- ◆ **Customised transmission ratio for increasing force or speed**
- ◆ **AISI 316 steel frame**
- ◆ **Signal output for external acquisition systems interfacing**
- ◆ **Manuals and software in French, German or Spanish**
- ◆ **Special mechanical interfaces can be designed for integration with all sorts of equipment**

_____ Motor specification

- ◆ **Mechanical Power: 650W**
- ◆ **Voltage: 30V DC**
- ◆ **Nominal current: 33A**
- ◆ **Nominal torque: 2,8 Nm**
- ◆ **Max speed: 2500 rpm**
- ◆ **Protection degree: IP54**
- ◆ **Insulation class: F**

_____ Transmission specification

- ◆ **Type: chain**
- ◆ **Chain pitch: 6mm**
- ◆ **Transmission ratio: 13/80**
- ◆ **Protected by magnetic switch against carter removal**

_____ Data acquisition system specifications

- ◆ **Speed measured by high resolution (1024 ppr) encoder**
- ◆ **Force measured by motor current**
- ◆ **Max sampling rate: 200 Hz**
- ◆ **Acquisition controlled by PC graphic interface**



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