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Universal processors ROBOQBO Qbo

Roboqbo S.r.l. (Italy) · bowl 8–550 l · vacuum, heating to 120 °C, shock cooling · sauces, creams, fillings, confectionery masses



Qbo 70-4 with a built-in steam generator and a touch control panel — photo by the manufacturer Roboqbo S.r.l.

Application

Qbo is a universal vacuum system for the complete cycle: one bowl cooks, cools, reduces, kneads, refines, cuts, mixes, homogenises and grinds the product. A single machine replaces several machines of a conventional line, and the whole process — from the raw material to the finished pasteurised product — takes place in a closed vessel, without transfers and without contact with air.

Fields of use: sauces and delicatessen, ready meals, confectionery and chocolate, ice cream, dairy products, restaurants and catering plants. The main item of this data sheet is the Qbo 70 with a 70 l bowl; the same machine is built in a range from 8 to 550 l.

Operations carried out in one bowl

— cooking and pasteurising;
— shock cooling;
— reducing and concentrating under vacuum;
— kneading of heavy masses;
— grinding and cutting;
— mixing and emulsifying;
— homogenising;
— refining and grinding into a paste;
— automatic washing of the bowl.

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How it works

A blade rotates in a sealed bowl of AISI 316L stainless steel; the speed varies steplessly from 30 to 2000 rpm, so one and the same machine both kneads a heavy mass slowly and grinds the product at high speed. At the same time a scraper blade driven from the lid takes the product off the walls, so the heating is even and nothing burns on.

Heating and cooling are controlled automatically, and the pressure in the bowl is adjusted from a deep vacuum to overpressure. Working under vacuum lowers the boiling point and removes oxidation: the product is reduced in minutes where a conventional line takes hours, and it keeps its colour, aroma and nutritional properties. The finished product is discharged by tilting the bowl or by pneumatic extrusion through the discharge opening.

Key systems

— built-in steam generator;
— APS fast heating up to +120 °C;
— shock cooling from 120 °C to 10 °C by a combined system;
— a complete system for working under vacuum and under overpressure;
— pneumatic extrusion for emptying the bowl;
— automatic washing;
— energy consumption of about 0.1 kW per kilogram of product — the figure depends on the type of product.

Control

The Qbo-4 panel: a 10.1-inch touch display with 1280 × 800 resolution and Roboqbo’s own software. All production parameters are set and monitored from the panel; recipe storage, HACCP data logging, online support, a built-in operating manual and data backup are provided. Interfaces: USB, Ethernet (LAN); a wireless network is an option.

The 2012 commercial offer for this machine describes the previous generation of control: a PLC with a touch screen, a seven-phase program, USB and a modem for remote support. The mechanics and the thermal data have not changed since; the control system has, so the panel configuration should be confirmed when ordering.

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Technical data of the Qbo 70

Parameter	Value
Model	Qbo 70; the current version is Qbo70-4, the commercial offer names Qbo703-316
Bowl capacity	70 l
Material	AISI 316L stainless steel
Blade speed	infinitely variable, 30–2000 rpm
Maximum temperature	120 °C
Maximum vacuum	minus 990 mbar
Heating	built-in maintenance-free steam generator with an energy saving system; APS fast heating
Power supply	three-phase 400 / 220 / 200 V, 50 / 60 Hz
Power consumption	57.6 kW — the version with a built-in steam generator according to the 2012 offer; for Qbo70-4 with an integrated generator the manufacturer states 27 kW
Dimensions (L × W × H)	1654 × 1408 × 1816 mm
Net weight	605 kg without the steam generator · 650 kg with it
Execution	floor-standing

The Qbo-4 range

For all models: AISI 316L stainless steel, three-phase supply 400 / 220 / 200 V 50 / 60 Hz, maximum temperature 120 °C, steplessly variable blade speed. The weight is given without the steam generator / with it. The dimensions in this table come from the general catalogue of the range; more precise data for the Qbo 70 are in the table above.

Model	Bowl · dimensions · weight
Qbo8-4	8 l · 85 × 65 × 88 cm · 120 / 127 kg · bench-top version
Qbo15-4	15 l · 98 × 90 × 147 cm · 215 / 247 kg
Qbo25-4	25 l · 103 × 92 × 155 cm · 345 / 370 kg
Qbo40-4	40 l · 120 × 105 × 160 cm · 380 / 410 kg
Qbo70-4	70 l · 145 × 130 × 180 cm · 605 / 650 kg
Qbo120-4	120 l · 180 × 152 × 177 cm · 1100 kg
Qbo250-4	250 l · 209 × 182 × 217 cm · 1700 kg
Qbo350-4	350 l · 243 × 185 × 223 cm · 2400 kg
Qbo550-4	550 l · 259 × 210 × 240 cm · 2900 kg

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Standard equipment of the machine

— heating and cooling system with control; the supply of the heat carrier and of compressed air is not included;
— visualisation, control and monitoring of the temperature;
— system controlling and monitoring the vacuum and the pressure in the bowl;
— infinitely variable blade speed from 30 to 2000 rpm;
— bowl tilting system for discharging the product;
— automatic movements of the bowl, the lid and the interlocks;
— product discharge opening with a pneumatic valve;
— bowl scraper blade driven from the lid, movable and removable;
— blade with a lock, cutting edges with a micro-serration;
— inspection window with a glass;
— vessel on the lid for adding liquids;
— washing system with three programs; nozzles for rinsing the areas that are hard to reach, overpressure for spraying both fluid and thick liquids;
— built-in steam generator with an energy saving system.

Working tools included

— mixing blade;
— vertical blade;
— smooth knife;
— micro-serrated knife;
— basket for candied fruit — also suitable for steam cooking;
— Aeroqbo — a device for introducing air, a modified atmosphere or carbon dioxide: for whipped and foamed products;
— Bilia — a ball refining system for nut pastes, pralines and water-free creams;
— Leonardo;
— Basqet.

The purpose of the Leonardo and Basqet tools is not described in the manufacturer’s available materials — to be confirmed when ordering.

Options

— liquid loading device — continuous addition of liquid ingredients at any stage of the process; needed for emulsions such as mayonnaise;
— double cooling — two different refrigerants for lower temperatures or faster cooling, the second circuit being closed;
— built-in compressor;
— silent external compressor;
— reinforced motor for the blade shaft drive — it holds a full load on viscous products;
— direct steam injection — heating by injecting steam into the bowl, either on its own or together with the standard indirect heating;
— steam cleaning device — steam filtration; recommended together with direct steam injection;
— sampling device — a sample without stopping the process, several times per cycle;
— weighing system — weighing during loading and monitoring of the weight loss while reducing, with a tare function;
— CIP washing — automatic cleaning with dosing of the detergents, recirculation and rinsing;
— water meter — control of the amount of water in the bowl from the control panel;
— refractometer — it measures the dry matter content (°Bx) during the process;
— pressure monitoring in the water heater;
— additional opening in the lid.

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Indicative output

Manufacturer’s data for the Qbo 70: maximum batch and cycle time. The actual figures depend on the recipe, on the raw material and on the program selected.

Product	Batch and cycle time
Tomato sauce	45 kg · 12 min
Tomato paste 14 °Bx	40 kg · 15–20 min
Béchamel	50 kg · 10 min
Bolognese sauce	50 kg · 25 min
Mayonnaise	50 kg · 5 min
Pasteurised pesto	45 kg · 8 min
Vegetable creams	55 kg · 10–12 min
Soups	55 kg · 10–12 min
Gazpacho	45 kg · 10 min

Supply and service

Delivery and packing, commissioning with a Roboqbo specialist, staff training, a 12-month warranty, post-warranty service and spare parts. The model of the range and the set of options are selected for the customer’s recipes and volumes.

The data are indicative; the manufacturer reserves the right to change them without notice. The exact configuration is agreed when ordering.