

THE DACAPO COMPANY

Dacapo DB2001 Strip-wind builder



The Dacapo 2001 is a modern reliable strip wind builder, built on the base of an Orbitread® 2001.

The bed frame, front end and other mechanical parts are kept from the original builder. The builder is upgraded with:

- ✓ New electric cabinet with PLC control and variable speed extruder drive
- ✓ New PC based operator workstation
- ✓ New spin motor and gear box
- ✓ New winding radius adjustment motor and screw
- ✓ New Azimuth motor and gear box
- ✓ Refurbished roller die with new electric motor instead of the hydraulic system, and a line camera sensor for strip width control
- ✓ New heavy duty extruder gearbox with close coupled direct drive motor
- ✓ New thrust bearing block with radial support bearings
- ✓ New extruder screw
- ✓ New feed section with replaceable liner
- ✓ New or refurbished extruder barrel
- ✓ New pneumatic system
- ✓ New 2 zone temperature control system

Altogether, this will give a modern, reliable strip wind builder, easy to operate and maintain.

The extruder is a plasticscrew type extruder with a variable speed motor drive to allow for a large range of rubber compounds and tyre sizes.

The roller die at the front end of the extruder produces a very uniform rubber strip to build tyres with a minimum of variations in the applied tread weight.

Dacapo LTD
Phone: +44 (0)1843 863829
Fax: +44 (0)1843 862954

dacapo@thedacapocompany.com
www.thedacapocompany.com

THE DACAPO COMPANY

The control system continuously supervises the building process through several sensors and measurement devices to eliminate any errors in the built result:

- *The extruder temperature. The compound should be extruded under optimal conditions.*
- *The strip width. A line camera at the roller die measures the strip width. The measurement is used by the control system to correct the width by adjusting the speed of the roller die.*
- *Rubber temperature (option). A temperature sensor at the roller die measures the temperature of the extruded rubber strip.*

The PC is the operator's interface to the builder. The PC is used to create building programs, to select which building program to use and to store statistical and measurement data.

- *A building program is created using a graphical picture of the tyre. The tyre profile is divided in 1 to 25 zones. Building program data for each zone is entered to a table. A practically unlimited number of building programs can be stored.*
- *The operator Changes to a new tyre size by selecting the adherent building program from a list. Extruder temperatures, extruder speed, tread profile etc are automatically set for the new building program without any other intervention from the operator. To change the building program takes less than 5 seconds unless the extruder temperature changes too.*
- *After finishing the building of a tyre, the PC stores all process data in a database. This data can be retrieved by tyre, by building program or by batch.*

Several builders could be networked together or to a server. A common database for building programs and process data can then be used.

THE DACAPO COMPANY

Builder features

Standard builder equipment

- ✓ Integral 75 mm plasticscrew extruder
- ✓ Integral temperature control system, 2 zones.
- ✓ Variable speed extruder motor drive.
- ✓ Roller die to produce a very uniform rubber strip.
- ✓ PC operator workstation (common to all Dacapo builder)

Options

- ✓ Temperature sensor to measure the extruded strip temperature.
- ✓ 30 kW extruder motor with extended extruder for increased output
- ✓ 75mm plasticscrew or 90mm pin extruder
- ✓ Strip break sensor
- ✓ Vision system

Alarms - prevent building a tyre

- ✓ The extruder temperatures are outside the set tolerances

Warnings - continue the building process

- ✓ Extruder load warning limit
- ✓ Extruder temperatures
- ✓ Extruded rubber temperature (option)

Alarms - stop the building process

- ✓ Extruder high load
- ✓ Broken strip (option)

Data storing

Per building program or size

- ✓ Number of built tyres
- ✓ Average building time
- ✓ Total rubber consumption

Per batch

- ✓ Operator
- ✓ Batch start time
- ✓ Batch stop time
- ✓ Number of built tyres
- ✓ Average building time
- ✓ Total rubber consumption

Per operator

- ✓ Operator log-in time
- ✓ Operator log-out time
- ✓ Number of built tyres
- ✓ Average building time
- ✓ Total rubber consumption

Per tyre

- ✓ Building program / size
- ✓ Tyre ID
- ✓ Date / time
- ✓ Operator
- ✓ Rubber compound name
- ✓ Rubber compound batch
- ✓ Rubber compound lot
- ✓ Rubber used weight
- ✓ Building time
- ✓ Extruder mean load
- ✓ Extruder speed
- ✓ Strip mean / max / min stretch
- ✓ Extruder mean temperatures
- ✓ Extruded mean / max / min strip temperature (option)

Dacapo LTD

Phone: +44 (0)1843 863829

Fax: +44 (0)1843 862954

dacapo@thedacapocompany.com

www.thedacapocompany.com

THE DACAPO COMPANY

Technical specification

Physical dimensions

Weight	2,900kg
Size (L x D x H, mm)	3230 x 1600 x 2000

Utility requirements

Air	7-10 bar, clean dry air
Main supply	385 – 500 VAC (3 phase + PE)
Frequency	50 –60 Hz
Nominal current	60A

Extruder

Type	75-mm plastiscrew [LD 10:1]
Motor size	18.5kW
Speed	72 RPM
Capacity	Approx.4 kg/min [depending on compound]
Typical building time	12" < 20s 15" < 40 s 25" < 400 s

Tyre size capacity

Maximum diameter	1500 mm
Bead width	125 mm - 460 mm with standard hub assembly
Bead diameter	12" - 25" with standard hub assembly
Maximum tyre weight	205 kg [including rim]

Water temperature control system

Number of zones	2
Temperature accuracy	±1.5°
Chiller system	not included, choose from: <ul style="list-style-type: none">▪ Customer supplied cooling water▪ External fan chiller▪ External processing water chiller

Regulations and standards

The builder is designed to fulfill regulations and standards for the European and American market. For the EU market the following will apply:

- ✓ Machine safety regulations EN292-1 and EN292-1 following the provision of directive 89/392/EEC with amendments
- ✓ EMC regulations following the provisions of directive 89/336/EEC
- ✓ Electrical equipment of machines EN 60-201-1 following the provisions of directive 73/23/EEC

Spare parts and service

The builder is designed using only well known high quality components. Spare parts are available Worldwide from the suppliers as well as through Dacapo LTD.

PLC system	Modicon	from	Schneider automation
Motor drives	Altivar 58	from	Telemecanique
Vision system	Visionscape	from	RVSI Acuity
Gear boxes	various models	from	Benzler
Pneumatics		from	Rexroth
Etc.			

Dacapo LTD
Phone: +44 (0)1843 863829
Fax: +44 (0)1843 862954

dacapo@thedacapocompany.com
www.thedacapocompany.com