



ECO Ram Preformers and Extruders

Batch Fed Rubber Preforming Machines



...a lifetime of reliability and support



WHAT IS RUBBER PREFORMING?

A rubber Preformer is an ideal solution for the preparation of highly accurate blanks (or preforms) for compression moulding.

Its main benefit is to improve part quality, increase production speed and to reduce rejects and waste material.

It is a reliable and proven technology and has been adopted successfully by hundreds of rubber factories throughout the world.

Barwell is the company which designed the first rubber preformer and has been at the forefront of the industry for over 70 years.

What processes can a Preformer be used for?

- Preforms
- Masterbatch
- Extrusion profiling
- Pelletizing



barwell ECOrange
Ram preformers



ECO Ram Preformers and Extruders

The Barwell ECO range of high performance machines, low investment, energy and cost saving Ram Extruders and Preformers are specifically designed for the accurate and efficient processing of rubber and synthetic polymer compounds across multiple industries.

- Suitable for the production of rubber preforms/blanks, pellets, and also strips and cord extrusions
- A versatile and high quality processing system ensuring most types of compound can be processed to produce consistent and accurate product
- Enables quick colour and material changes to be made from FKM to Silicones

- Operator-friendly, requiring minimal user-training, increasing production capability
- An energy-saving method of production, significantly reducing power consumption
- A cost-cutting solution which reduces factory space usage, material wastage and labour costs, providing a quick return on investment
- Enables extrusion, cutting and check-weighing in one precise and efficient process
- Robust, safe, reliable and easy to maintain



FEATURES

- Large selection of batch sizes (1-80 Litres)
- Includes the proven Barwell scales feedback system for automatic weight adjustment to ensure rubber blank control
- Accuracy of up to +/- 1% by volume can be achieved for many applications
- Includes Omron Touch-screen operator user interface (Multi-language with password protection)
- Quick product set-up using product database on removable "Flash memory"
- Standard operating pressure of 210 bar / 3000 psi
- Cut to length (pulse cut) facility
- Front Loading Hard Chromed Extrusion Barrel
- Speeds up to 400 cuts per minute

OMRON

OPTIONS

- Extruder or Preformer
- Extended centre for easy cleaning
- Reversing conveyor
- Rear load option
- Barcode reader (ECO Plus only)
- Data capture - stores process information for recording process control data. Can be viewed via an Ethernet connection or remote VPN (ECO Plus only)
- General Purpose Head or Shoe Sole Head
- H-Series (High Pressure options)
- 800 cuts per minute cutter option
- Die-face conveyor
- Two range gearbox for low and high torque cutting
- You may also be interested in our range of ECO-NX Smart Preformers for Industry 4.0 factories



HOW DOES THE ECO WORK?

The basic principle of the ECO range is to extrude the prepared compound by means of a hydraulically powered ram.

The rate of the extrusion is monitored by a digital flow valve, permitting the operator to select precisely the rate at which the rubber is extruded.

An inverter controlled variable speed cutter (Preformers only) is located on the head of the machine and the extrudate is cut at the die face, to produce preforms or blanks, so variations in die swell do not affect the volumetric accuracy of the preforms.



BENEFITS

Low investment with a quick return

The ECO range is ideally suited to companies requiring a relatively low investment but without having to sacrifice essential criteria such as quality, accuracy and productivity. In most instances, a very quick payback is ensured through material and labour savings alone.

Highly accurate and consistent production

The ECO range can produce consistent target blank weight with an accuracy of up to +/- 1% by volume. As well as reducing scrap rate, ECO machines also allow processors greater ability to achieve product development plans.

A cost-cutting and sustainable method

Large savings can be achieved as extrusion, cutting and check weighing can be achieved using one machine. Factory space and energy savings are also significant, as the ECO range consumes very little power and occupies only a small amount of floor space compared to many alternative methods.

With reduced labour and wastage costs - there are no off-cuts or trimmings as with stamping methods - it is easy to see why the ECO range is so attractive to rubber processors.

Ease of operation and reduced downtime

Its simple design and robust construction features allow for easy installation, operation and on-going maintenance, ensuring that the machine always performs to its full potential and keeps downtime to a minimum.

The versatility of the machines allow quick material and colour changes to be made.

Improved product quality and processing flexibility

The preforms produced on an ECO are expertly profiled to fit subsequent mould cavities during the next stage of the production process, helping to reduce flash and improve flow. Three-dimensional preforms can be also produced.

Machines have excellent tolerance to faster accelerators due to no heat build-up during the extrusion process. This is a distinct advantage over using a screw extruder.

ECO machines have the capability to produce one-piece preforms too, meaning joint weaknesses are not an issue for the finished product. This is particularly beneficial to manufacturers of 'O' rings and oil seals.

Machines also allow for simultaneous screening. During extrusion, with many compounds, meshes can be fitted to remove material contamination or impurities.





SELECTING YOUR ECO

Extruder or Preformer?

A Preformer offers all the benefits of an extruder but is supplied with a high specification cutting module unit.

Most processors select this option for complete processing flexibility and to future proof production requirements.

ECO or ECO Plus?

The ECO PLUS is a premium version to provide greater flexibility for bespoke requirements, as well as enhanced usability due to larger and simpler controls with additional functionality and automation.

Additional standard features on ECO Plus machines

- 8" (200mm) Touch screen visible colour screen
- 2000 product database on removable "Flash memory" for quicker set-up
- Manual and automatic cycle
- Password level protection
- Prompt and error messages
- Alarm history (for faults)
- Extended centre as standard
- Reversing conveyor as standard
- Pressure 240 bar (3500 psi) as standard on ECO Plus 40 and above

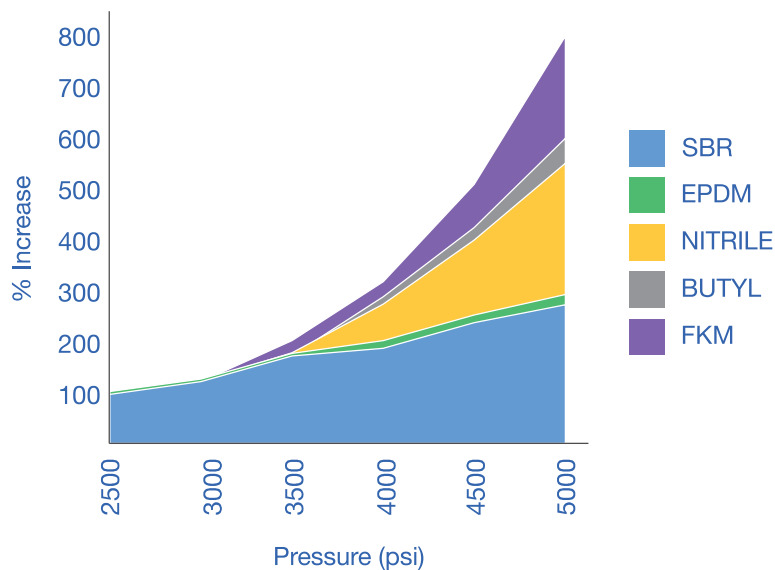


High Pressure option (ECO H-Series)

Developed to meet increasing demand from the rubber industry for machines capable of processing tough or special materials (e.g. automotive components) at production rates that are not achievable with the standard range of ECO Barwell Preformers.

At 350 bar (5000 psi) it can have up to 6 times more output than a standard 210 bar (3000 psi) machine.

This requirement has become more important where screening or filtering of materials is essential to reduce or eliminate contamination and remove impurities within the material. Although screening or filtering of materials has always been possible with any Barwell machine, outputs levels can be unacceptable.



The ECO H-series, with its increased compound extrusion pressure, overcomes the restriction of reduced outputs and allows production demands to be met without compromise.

The chart indicates the potential increases for various materials, although actual rates for a specific product would need to be clearly defined through material testing and subject to die size and whether screening is applied or not.



APPLICATIONS

Barwell ECO Preformers help companies to process products in a number of industries and sectors.

- Footwear
- Agricultural
- Sports and leisure
- Oil and gas
- Aerospace
- IT and communication
- Automotive
- Pharmaceutical
- Construction
- Military
- Ceramics



BARWELL ECO WEIGH SCALE LOOP SYSTEM

A system to ensure consistent and accurate blank weight with minimal operator input.

It is simple to use:

- Enter the target weight on the operator screen
- Place a part on the scales
- Press the print button and the cutter speed changes automatically to give you the correct weight

The operator has to make no physical changes to the machine settings.

This helps to ensure that waste compound is kept to a minimum. The Weigh Scale Loop System is standard on all ECO machines.



PROCESSING MATERIAL FLEXIBILITY

The ECO range is capable of processing most types of compound, including:

- Silicone
- NBR
- FKM
- CR
- HNBR
- ACM
- EPDM
- SBR
- EVA
- And many more



SUPPORT

Barwell has always taken the approach that a customer needs to be supported for the lifetime of the machine.

- Machine specification expertise
- Commissioning and servicing packages available
- Operator training
- Technical support
- Genuine Barwell Spares and Consumables to ensure optimum performance
- Expert material processing advice

barwell Support
Advice | Spares | Service 

Regular servicing is an investment and will reduce processing time and cost, improve production quality and increase machine life.



ENHANCED SAFETY

Health and safety is a primary concern for those responsible for machine maintenance and operator safety. Barwell machines are manufactured with safety in mind and are supplied with a number of features to ensure safe operation.

Barwell machines are compliant with CE regulations.



Technical Data

Machine Information									
Model	ECO-1	ECO-2	ECO5	ECO20	ECO40	ECO40R	ECO60	ECO60R	ECO80
ECO/ECO Plus Length (mm)	1380/1380 1670 with Conveyor	1860/1860 2270 with Conveyor	2830/3395	3620/4165	4540/5060	5150/5920	5150/5920	6130/7220	6130/7220
Width (mm)	910	910	915	1100	1100	1100	1100	1100	1100
ECO/ECO Plus Height (mm)	1280	1280	1700/1645	1770/1690	1750/1700	1750/1700	1750/1700	1750/1700	1750/1700
Weight (Kg)	350	400	800	3000	3800	4200	4200	4800	5000
Batch Size (Litres)	1	2	5	20	40	40	60	60	80
ECO/ECO Plus Pressure (bar)	210/210	210/210	210/210	210/210	210/240	210/240	210/240	210/240	210/240
Head Options	GP	GP	GP	GP	GP/SH	GP/SH	GP/SH	GP/SH	GP/SH
320 Head Option at 210 bar, Max Die dia. 320mm	–	–	–	–	Option	Option	Option	Option	Option
Load Position	Front	Front	Front	Front	Front	Front or Rear	Front or Rear	Front or Rear	Front or Rear
Cutter Speeds (rpm) Standard Options	11-110 / 22-220 / 50-500	11-110 / 22-220 / 50-500	20-200 / 50-500	20-200 / 50-500	20-200 / 40-400	10-100 / 20-200 / 40-400	10-100 / 20-200 / 40-400	10-100 / 20-200 / 40-400	10-100 / 20-200 / 40-400
Cutter Speeds (rpm) Upgraded Options	–	–	–	80-800	12-65 & 50-285 15-100 & 95-500 80-800	12-65 & 50-285 15-100 & 95-500 80-800	12-65 & 50-285 15-100 & 95-500 80-800	12-65 & 50-285 15-100 & 95-500 80-800	12-65 & 50-285 15-100 & 95-500 80-800
Front Die Change	–	–	–	YES	YES	YES	YES	YES	YES
Barrel Dia. (mm)	80	80	100	203	254	254	254	254	254
Max. Output (Kg/hr)	20	30	75	270	450	600	600	650	700
Max. Die Size (mm)	40	40	76	127	190 (320*)	190 (320*)	190 (320*)	190 (320*)	190 (320*)
Max. Blank Weight (g)	50	50	100	300	2000	2000	2000	2000	2000
Total Power (Kw)	4	5	13	19	26	31	31	31	31
Conveyor Width Standard/Wide (mm)	90/-	90/-	200/600	460/850	460/850	460/850	460/850	460/850	460/850
Oil Reservoir (Litres)	16	16	60	200	200	200	200	240	240
Air Supply (bar)	–	–	–	6-10	6-10	6-10	6-10	6-10	6-10
Water Supply at 25°C (L/min)	15	15	15	20	35	35	35	35	35

Note: *with 320mm head option. Note: High pressure versions (350 bar / 5000 psi) are also available - please request dimensions. Data is based on the Prefomer option being selected and is calculated with the machine being run under recommended operating conditions. Contact us to discuss any special requirements or if you require an Extruder. Due to the diversity of processing, material and screening requirements, results cannot be given on the H-series. It is recommended that tests are conducted during the machine specification stage to ensure that the machine will meet your requirements. We recommend that as much information as possible is given before any purchase to ensure that the most appropriate machine is specified. GP= General Purpose Head SH = Shoe Sole Head R = Rear Load.



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...a lifetime of reliability and support