



Rubber Deflashing Machinery

Barwell Freeze Trim Cryogenic Deflashing Machine | Barwell Spin Trim Rubber Deflashing Machine



Rubber Deflashing

What is 'flash'?

During the production of a rubber, plastic, die-cast zinc, or rubber-metal combination product, layers or flaps of unwanted material are created because material overflows from within the mould cavity. This excess material is commonly known as 'flash'.

Rubber flash has two elements to it - the film of rubber projecting from the part along the mould's parting line (flash line) and the thickness of the flash.

The excess material (or flash) almost always needs to be effectively removed before the product is deemed to be in an aesthetically acceptable or 'fit for purpose' condition.

How is 'flash' removed?

Many factories still use manual methods to deflash their products, such as hand or mechanically assisted trimming, buffing or grinding. Some companies will also use more hazardous options like chemicals for this process.

Problems with these methods

In most instances these traditional methods are tedious, time-consuming, labour intensive or even dangerous, and are not always effective in producing a high quality finished part with all the flash sufficiently removed.

Barwell's solutions for removing 'flash'

Barwell has two versatile, automated, safe, and environmentally friendly methods of deflashing parts. These options have been specifically designed to produce a high quality finished product and to significantly increase processors' operational productivity, and to reduce labour costs as well.



barwell Freeze Trim
Cryogenic deflashing

barwell Spin Trim
Rubber deflashing machine

Cryogenic Deflashing

barwell Freeze Trim Cryogenic deflashing

Cryogenics is by far the most versatile and effective option of deflashing rubber parts.

The Freeze Trim is a compact range of time-saving and quality enhancing deflashing machines.

- Suitable for most rubber, plastic, die-cast zinc or rubber-metal products
- Deflashes parts using cryogenic freezing
- Separates the sprue and/or waste material from the finished parts
- Available in four capacity sizes to suit most common production requirements
- Exceptionally fast, automated and safe, improving operational efficiency
- Ideal for use in the automotive, oil and gas, aerospace, medical, electronics, and general rubber sectors



When should I use the Freeze Trim?

The Freeze Trim provides the user with complete processing flexibility, and it is ideal for those with large volume production, multiple part sizes and complexities (including those up to 250mm dia.), different materials, or when a high quality and pristine finish is paramount.

- Most small to large rubber and plastic parts
- Ideal for 'O' rings
- Metal deburring
- Zinc and aluminium castings
- Electronic components
- Medical items



Why should I use the Freeze Trim?

Exceptional part finish quality

A very high-quality product is produced as all parts are exposed to blast media, ensuring an even, clean and complete removal of inner and outer flash in one operation. Surface damage risk is virtually eliminated.

Increased production and processing flexibility

The fully automated process significantly decreases deflashing time, increasing production capacity when compared to other methods. It also offers complete flexibility to multi-material processors.

Reliable and simple operation with easy maintenance

Installation is simple, and minimal user training is required. It is easy to maintain and clean.

Time, tumble speed and media velocity can be programmed, simplified by the latest PLC controls and touch screen interface, giving access to a 2000 item database for easy retrieval of required set-up.

Reduced operational costs

Major savings can be made on labour costs, due to the speed of operation. Rejects are also dramatically reduced because of the higher and more consistent finish quality. Savings can also be made as the unit takes up considerably less factory space than most other processes.

The interface has a 'Cool-off' function, pre-set at -5°C . This allows the chamber to keep cool and not form moisture when operators are on breaks or between batches, saving time on their return to start up production again.

The use of gaseous nitrogen to circulate the media increases media life over the Auger method. It is also a quicker process due to shorter freezing time and faster speed.

Energy and Power consumption

Freeze Trims have very low power consumption and LN_2 usage due to its efficient, compact design and excellent thermal characteristics.

Safe and environmentally friendly

Blast media is reusable as it can be separated from the flash after production. The use of ' N_2 media assist' helps to avoid media sticking from moisture. The media can be used for approx. 300 cycles.

Liquid nitrogen is safely recycled or vented into the atmosphere. Operators cannot cut their hands as with manual trimming, and there are no safety concerns such as; splash backs from molten baths or harmful toxic fumes or dust as with chemicals.

Features

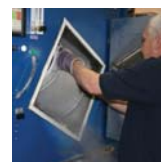
- Available in four compact sizes
- Automatic powered door available on selected models
- 20,000 rpm impeller provides high 'impact' speed and is hardened for longer life
- High quality AC motors and Omron HMI, inverters and PLC
- In-line flash and media separator
- Thick insulation maintains cryogenic temperature
- Does not require a dryer for the media
- Long media life (approx. 300 cycles)
- Media and flash exit to Separator
- Suitable for media size between 0.15mm – 1mm
- Only three moving 'wear' parts
- Supplied with an Ambient Vapouriser to convert liquid nitrogen to gaseous nitrogen
- CE compliant with special built-in safety features

User-operator interface

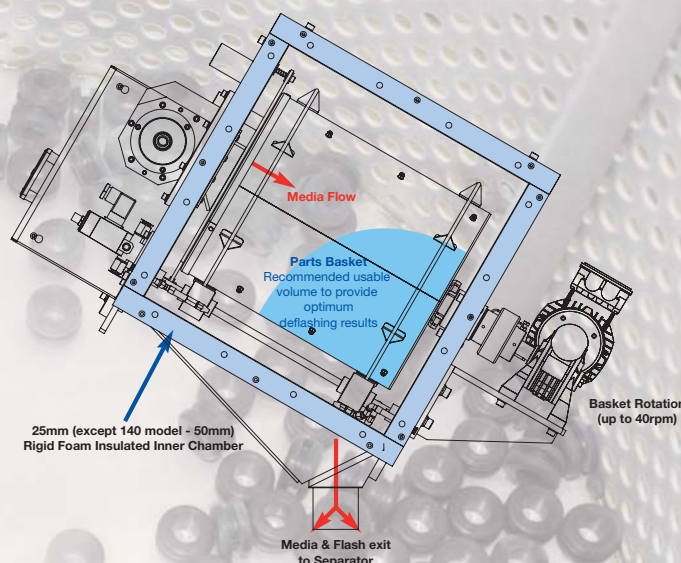
- An easy to use large colour touch-screen operator interface, including multi-language support and QWERTY keypad
- 2000 item product database enables a large number of cycles to be pre-set, making production quicker and consistent
- High-quality Omron HMI interface with manual or automatic operation, features include: daily maintenance checks, password protection, process checklist and onscreen diagnostics
- Barcode reader option aids production control



How does the Freeze Trim work?



1. Moulded parts are placed in a perforated stainless steel parts basket and inserted into the blast chamber. The basket should only be filled one third full, as parts need to be allowed to tumble and move freely to effectively deflash in the chamber.
2. Liquid nitrogen (LN₂) is injected into a highly insulated chamber in which moulded rubber parts are tumbled and rapidly cooled.
3. Plastic shot is then projected at the tumbling parts using a high-speed impeller which directs and throws the polycarbonate media into the rotating basket, breaking off the brittle flash on impact, leaving a high quality, flash less moulding.
4. The deflashed parts remain in the basket and the machine then separates the reusable plastic shot from the rubber debris (flash and dust), except on the 10L table top machine, where it is recirculated.



Freeze Trim Technical Data

Feature	BFT10	BFT20	BFT40	BFT40AD	BFT140
Unit Length (mm)	1000	1340	1340	1340	1440
Unit Width (mm)	900	1185	1185	1325	1625
Unit Height (mm)	1045	2080	2080	2080	2420
Unit Weight (Kg)	300	600	600	750	1000
Ambient Vapouriser Provided (Weight: 100 kg Length: 500mm Width: 500mm Height: 1610mm)	✓	✓	✓	✓	✓
Refrigerant (Liquid Nitrogen LN ₂ @ 212°C)	LN ₂ @ 3.5 bar (50 psi)	LN ₂ @ 3.5 bar (50 psi)	LN ₂ @ 3.5 bar (50 psi)	LN ₂ @ 3.5 bar (50 psi)	LN ₂ @ 3.5 bar (50 psi)
Media Flow System (Gaseous Nitrogen)	N ₂ @ 2.5 bar (35 psi)	N ₂ @ 2.5 bar (35 psi)	N ₂ @ 2.5 bar (35 psi)	N ₂ @ 2.5 bar (35 psi)	N ₂ @ 2.5 bar (35 psi)
Parts Basket Diameter (mm)	250	300	330	330	610
Parts Basket Depth (mm)	250	300	400	400	480
Powered Door	–	–	–	✓	✓
Basket Standard Perforation (mm)	6	6	6	6	10
Maximum Basket Volume (Litres)	10	20	35	35	140
Usable Volume (Litres)	3	7	12	12	50
Media Throwing Wheel Dia. (mm)	100	100	100	100	150
Media Throwing Wheel Speed (rpm)	20,000	20,000	20,000	20,000	18,000
Media Type (suitable for media from 0.15mm to 1.00mm)	Polycarbonate	Polycarbonate	Polycarbonate	Polycarbonate	Polycarbonate
HMI Touch Screen Size	5" colour	8" colour	8" colour	8" colour	8" colour
Total Power (Kw)	2	3	3	3	4
Air Supply (bar / psi)	6-10 / 87-145	6-10 / 87-145	6-10 / 87-145	6-10 / 87-145	6-10 / 87-145

Liquid Nitrogen (LN ₂) Cycle Time and Consumption (litres)					Liquid Nitrogen (LN ₂) Cool Down Time and Consumption			N ₂ Vaporiser Consumption	
Cycle Time (min.)	Temperature (°C)				Temperature (°C) range	Time (min.)	Consumption (litres)	Time (min.)	Consumption (litres)
	-45	-75	-100	-120					
5	2.1	4.2	6.3	7.7	26 to - 45	0.5	3.5	5	1.4
10	4.9	5.6	7.7	9.1	26 to - 75	1.2	4.2	10	2.5
15	6.3	8.4	10.5	11.9	26 to - 100	1.4	4.9	15	3.7
					26 to - 120	1.5	6.0		

IMPORTANT: Thickness of flash should not exceed 0.1mm or deflashing may not be possible. Note: Calculated estimates for BFT40 based nominal basket load factor.



Download full technical data
from our website

Deflashing using High-speed Spinning

barwell *Spin Trim*

Rubber deflashing machine

The Barwell Spin Trim is a simple and automated method of deflashing rubber parts.

- Ideal for the effective deflashing of small to medium size rubber parts
- Deflashes parts using high-speed spinning
- Optional time-saving take-off waste separator sorts out the good parts from the waste material
- Single size machine for small batch operation
- A safe, affordable and automated process
- Quick, simple and effective, reducing operational costs
- Ideal for use in the automotive, oil and gas, aerospace, medical, electronics, and general rubber sectors



When should I use the Spin Trim?



The Spin Trim is ideal for the deflashing of small to medium size moulded rubber parts - up to approx. 75mm dia. or equivalent, in different cross sections - that do not have excessive flash, or for more excessively flashed product when the application doesn't require a pristine finish.

- 'O' Rings
- Grommets
- Seals and gaskets
- Caps
- Other small rubber parts

Use in conjunction with the Barwell Freeze Trim

It can also be used as a cost-effective first stage process for the deflashing of more complex parts or those with excessive flash before using a Barwell Freeze Trim cryogenic deflashing machine.

The benefit of having a two-stage process is that it reduces the time taken during cryogenic deflashing, including the amount of liquid nitrogen used, reducing operational costs. It can remove up to 90% of waste rubber, meaning you can then put more product into the Freeze Trim and also reduce cycle times by up to 50%.

It also means that a higher quality part is produced as the cryogenic and media blasting process can concentrate on polishing and fine trimming.

Why should I use the Spin Trim?

The Spin Trim offers a quick and cost effective solution to separate the sprue and/or the unwanted flash surrounding the part.

It is able to do this in a very short period of time (usually between one to two minutes).

It offers considerable advantages to processors over manual methods of deflashing:

- Reduction in production time
- Reduction in labour costs
- Increases production capacity
- Enhanced part quality

- Improved operator safety
- Additional factory space
- Automated production

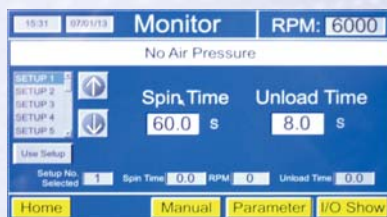


How does the Spin Trim work?



The process is quick, requiring minimal operator skills.

1. A vacuum screening plate is selected and fitted dependent on the size and type of product.
2. Parts are then placed into the three-compartment safety chamber - allowing for the next batch of parts to be deflashed immediately after the first.
3. The chamber should only be filled to about one third full of its capacity for effective spinning. Once secured in the spin chamber and the cycle settings have been made, an internal mechanically propelled disc spins the rubber parts at high speed, resulting in the excess flash and sprue/connections being removed.



4. The small flash is sucked away by an integral vacuum and the deflashed parts and larger flash including sprue, exit via a chute into a dump bin (or an optional Barwell automatic waste separator unit).

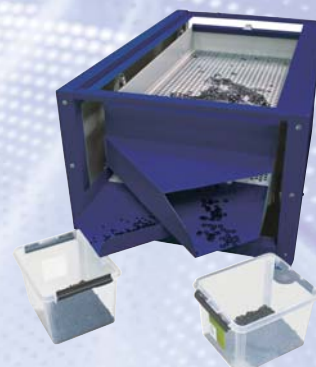
Spin Trim Waste Separator

This simple to operate and compact optional extra will reduce sorting out the flash and good parts from hours down to minutes, providing huge time and labour cost savings as a result.

It is supplied with 14 perforated sheets of differing hole sizes (6-32mm) to suit the product to be deflashed.

The upper perforated sheet allows the good parts and small flash to fall through and the lower perforated sheet then allows this flash to fall to the bottom, leaving the deflashed parts in the middle of the separator.

Boxes at the end collect the parts and flash. The large flash is manually removed from the upper sheet by hand or vacuum.



Spin Trim Features / Technical Data

- Capacity 14L (usable volume 4L)
- For loads of a maximum of 1 kg
- Up to 7000 rpm spin speed
- Adjustable cycle time
- Supplied with 7 vacuum screening plates providing process flexibility
- High-quality Omron PLC and inverter
- Multi-language simple-to-use colour operator interface angled for easy viewing
- Stores up to 20 process set-ups
- Insulated for sound reduction
- CE compliant with special built-in safety features

Dimensions (mm)	Length: 1700 Width: 550 Height: 1100
Weight (Kg)	310
Power Supply	380V-440V 3 phase, neutral and earth. Total maximum connected load 5kW. 220V single phase for the vacuum machine
Air Supply	1/4" BSP maximum permissible pressure of 5.5 bar (85 psi)
Capacity Size (Litres)	14 L (maximum chamber fill 4 L)
Maximum rpm	7000



Download full technical data from our website



Support

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You can see videos of Barwell deflashing machines in action on our YouTube channel (accessed via our website).



We can also test your products on one of our demo machines, so you can see how we can save you money and improve your process, before you buy.

Our Sales and Support departments can provide advice on choosing the correct machine as well as technical support, genuine spare parts and worldwide service.

We have over 50 years' export experience and over 20 sales and service agents throughout the world.

Barwell also manufactures a wide range of preformers, extruders, and cooling equipment for the rubber industry.

Please visit our website for full details www.barwell.com



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