

# Vapormatt | Puma +

Overview, technical specifications  
and options



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## Overview

The Puma + is a highly versatile automated entry-level system that comes in a number of configurations. The Puma + Radial, Puma + Vertical, and Puma + Barrel are well suited to users that want to step up from a manual system for the added productivity automation offers. They are also suitable for users that need a fully featured automated system with a relatively medium footprint.

These machines are fitted with control systems that allow the operator to use recipes with different running cycle times depending on the components being blasted within the machine. The Puma + is ideal for the surface preparation of components whilst achieving the best results using Vapormatt technology.

### Key features include:

- Large working envelope that allows the Puma + to process a broad range of different components
- High quality stainless steel blast cabinet
- Medium footprint makes it ideal for busy workshops, production areas or anywhere where space is at a premium - especially close to a wall or a corner
- Easy access turntable via the wide opening door
- A range of turntable options and mats to suit different components
- Intuitive height adjustable multi-gun blast head
- All components for the filtering of abrasive are contained within the footprint of the main cabinet
- Simple to use, highly intuitive colour HMI for rapid set-up, operation, and cloud connectivity
- Manually adjustable blast pressure to ensure fragile components are not damaged
- A brightly lit cabinet and window wash ensure great visibility of the blast process to ensure great visibility of the blast process
- Hand operated water jet for post process rinsing
- Hand operated air jet for post process drying
- S-Tank filtration system to help keep running costs to a minimum by cleaning and recirculating water for rinsing and the window wash

## Industries and applications

The Puma + is suitable for a vast number of different industries and applications including:

### Industries

- Additive manufacturing
- Aerospace
- Aluminium extrusion dies
- Composites
- Cutting tools
- Hygienic surfaces
- Medical implants
- Medical instruments
- Round shank tools

### Applications

- Component cleaning
- Deburring
- Edge honing
- Paint stripping
- Peening
- Preparation for coating
- Preparation for composite bonding
- Preparation for sterilisation
- Surface activation for PVD/CVD coatings
- Surface improvement after casting

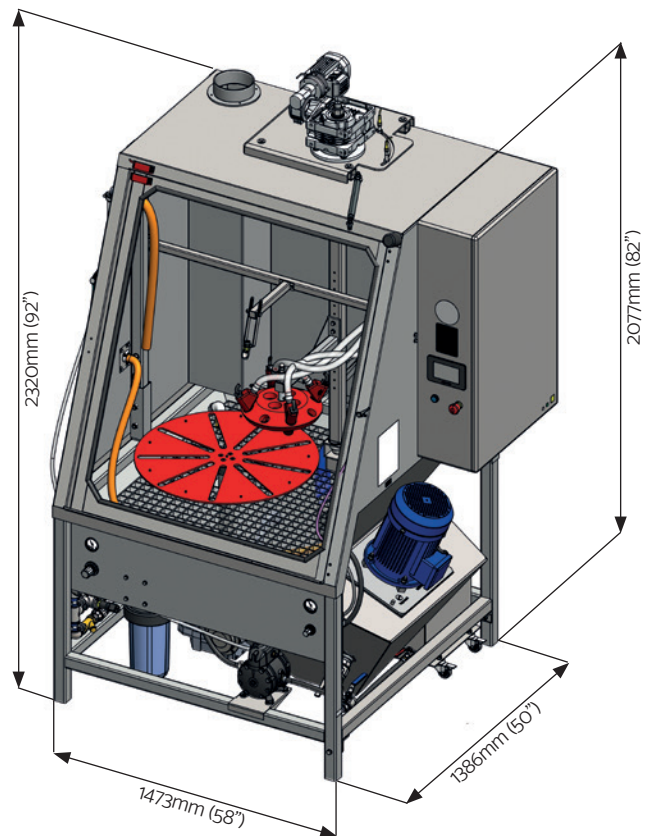


## Puma + Radial processing description

The Puma + Radial is designed to allow the component's surface to have full blast coverage in a medium size footprint whilst achieving the best results using Vapormatt technology, ideal for the surface preparation of components.

- The machine offers an automated blasting cycle within an ergonomically designed cabinet to assist the operator with loading and unloading.
- Components are loaded onto the turntable via the loading door located at the front of the machine.
- A processing recipe to determine the length of the cycle can be selected from the control system interface.
- Abrasive concentration is set manually with the sight glass.
- The machine has a driven turntable with 4 blast nozzles located on a head that traverses across the turntable in a sweeping motion.
- The machine will automatically rotate the parts on the turntable and the blasting at a fixed speed.
- The process helps to remove paint and flatten and prepare the surface for re-painting. It can also remove welding, heat marks and machining blemishes and give a consistent surface finish.
- When the auto cycle has ended, components will need to be washed down with the manual wash-down gun. The parts can also be dried manually using the compressed blow-off gun.

Puma + Radial

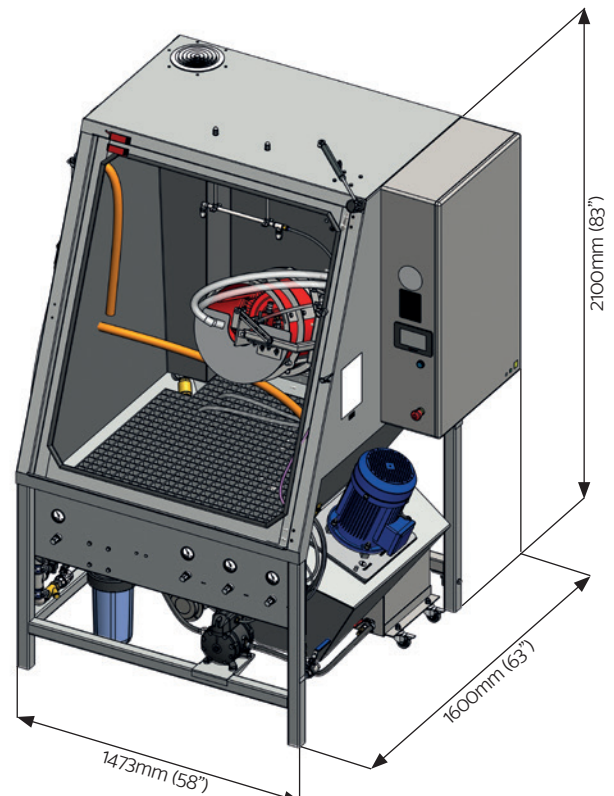


## Puma + Barrel processing description

The Puma + Barrel is designed to automatically process various small components such as additive manufactured parts. Vapormatt offers 2 capacity barrels 350 (14") and 500mm (20") OD, with a loading capacity of up to 50kg (110lb) dependent on the option selected. (See options for specific dimensions and load limits). The barrel is bi-directional making it ideal for surface cleaning and polishing. Replaceable abrasive-resistant food-grade lining is fitted into the barrel to aid the longevity of the barrel unit. \*Customer to specify required barrel capacity prior to order placement.

- The machine offers an automated blasting cycle within an ergonomically designed cabinet to assist the operator with loading and unloading.
- The machine has a driven barrel with up to 4 blast nozzles mounted on a swing arm, positioned to give maximum coverage of the components (the quantity of guns and their positioning is dependent on the barrel size selected), the swing arm assists the operator with easy loading and unloading - see optional items.
- Components are loaded into the barrel and the operator swings the gun arm back to the blasting position.
- A processing recipe is selected from the control system interface and is based on barrel rotation speed, timed rotational direction, and processing time.
- The processing time, rotational speed (between 1.7 to 6.8 rpm) and rotating direction can be changed via selectable recipes from the HMI interface.
- The machine barrel will automatically start rotating and the nozzles will start blasting.
- The automatic blasting process will continue at the recipe-defined speeds and times.
- When the blasting cycle has ended, parts will automatically be rinsed according to the recipe settings.
- Once the processing cycle is completed, the operator can move the blast gun swing arm and manually blow-off the majority of the water from the components using the compressed blow-off gun.

Puma + Barrel

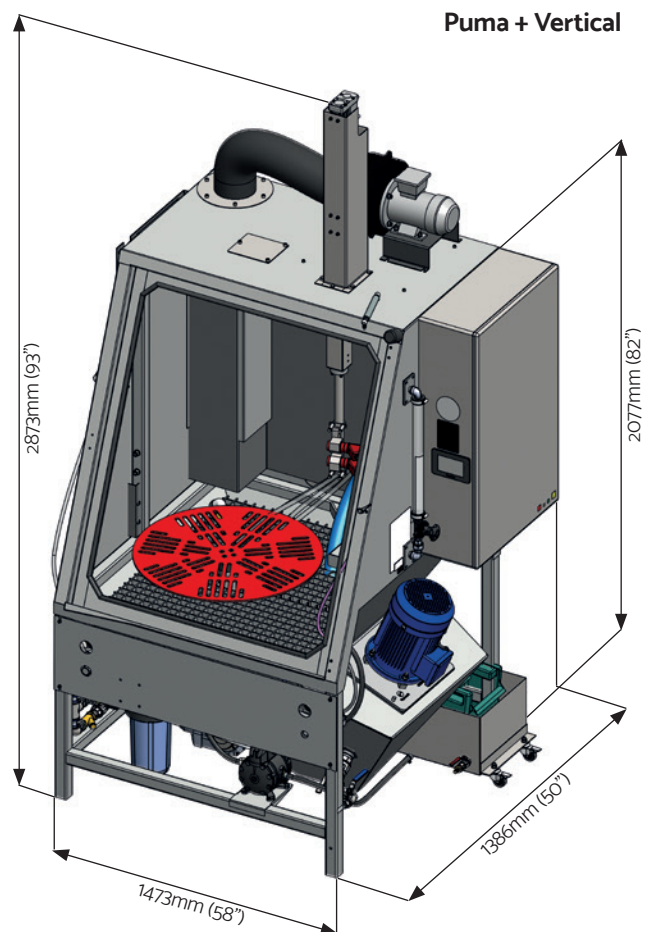




## Puma + Vertical processing description

The Puma + Vertical is designed to automatically process taller component's surfaces to have full blast coverage in a medium size footprint whilst achieving the best results using Vapormatt technology.

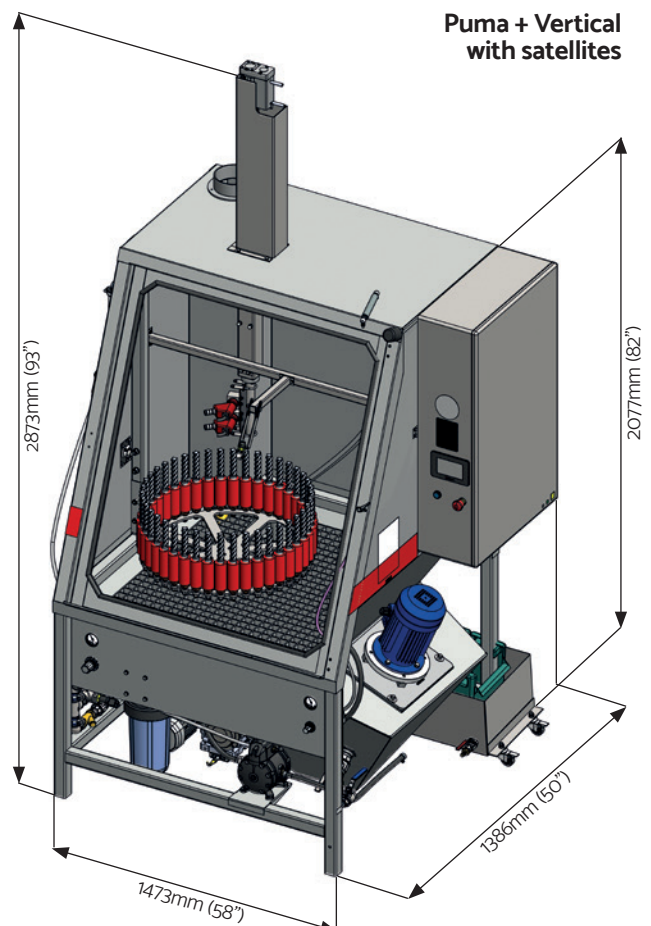
- The machine offers an automated blasting cycle within an ergonomically designed cabinet to assist the operator with loading and unloading.
- The machine has a driven turntable with 2 blast nozzles mounted on a vertical oscillation arm located on the side of the turntable.
- Components are loaded onto the turntable, bespoke holders or fixtures can be designed (see options) around the periphery of the turntable.
- A processing recipe is selected from the control system interface and is based on Z-axis movement speed and maximum component height required from the turntable.
- The processing speed and length can be changed via selectable recipes from the HMI interface.
- The machine turntable will start rotating at a fixed speed and the nozzles will start blasting above the component to ensure a uniform slurry mixture is achieved before the Z-axis moves down at the recipe-defined speed.
- Once the bottom is reached, the gun can either be stopped and move back to the top or it can continue blasting on the way to the top. The process recipe is fully adjustable and can be programmed via the HMI.
- When the auto cycle has ended, parts will need to be washed down with the manual wash-down gun. The parts can also be dried manually using the compressed blow-off gun.



## Puma + Vertical with satellites processing description

The Puma + Vertical (with satellites) is designed to automatically process round shank tools such as solid carbide end mills, drill bits and taps. Round shank tools from 3mm (0.12") to 25.4mm (1") in diameter and up to 300mm (12") in length can be processed.

- The machine offers an automated blasting cycle within an ergonomically designed cabinet to assist the operator with loading and unloading.
- The machine has a driven turntable with 2 blast nozzles mounted on an arm located in the centre of the turntable, which has a linear vertical motion.
- Components are loaded into holders around the periphery of the turntable (maximum 42).
- A processing recipe is selected from the control system interface and is based on Z-axis movement speed and maximum component height required from the turntable.
- The processing speed and length can be changed via selectable recipes from the HMI interface.
- The machine turntable will automatically index to the first satellite position and the nozzles will start blasting whilst table moves into position.
- The satellite motor then starts at a fixed speed and the Z-axis moves down at the recipe-defined speed.
- Once the bottom is reached, the gun moves back to the top and the turntable indexes to the next position. This process repeats until all satellites have been blasted.
- When the auto cycle has ended, parts will need to be washed down with the manual wash-down gun. The parts can also be dried manually using the compressed blow-off gun.



## Technical specification

The following features are included with each machine's basic configurations.

| Feature | Description                                                                                                                                                                                            |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Stainless steel cabinet - 2mm (0.08") stainless steel 304<br>Sump 3mm (0.12") stainless steel 304                                                                                                      |
| 2       | Manually adjustable height of guns on the Vertical model and gun crown on Radial model mounted on oscillation unit                                                                                     |
| 3       | Front loading with a turntable max load (for Vertical it is the combined weight of 42 tools mounted on satellites) of 150kg (330lb)                                                                    |
| 4       | Polyurethane abrasive pump                                                                                                                                                                             |
| 5       | Load bearing sump grids, 50kg (110lb) max load                                                                                                                                                         |
| 6       | Up to 4 x Vapormatt Mk3 blast gun. 10mm (0.39") nozzle, 1.13Nm <sup>3</sup> /min @ 5.5 bar (40 SCFM @ 80 psi)                                                                                          |
| 7       | Ø700mm (28") driven turntable (fixed speed 10 RPM), loading height 875mm (34") (Puma + Radial and Vertical)                                                                                            |
| 8       | Standard barrel - 350mm (14") OD (Puma + Barrel)<br>Dimensions: Ø338mm (13") ID x 260mm (10")<br>Load capacity: Up to 20kg (44lb)<br>Fitted with up to 2 blast nozzles<br>Variable speed 1.7 – 6.8 rpm |
| 9       | Manual rinse nozzle that uses re-circulated water                                                                                                                                                      |
| 10      | Toughened safety glass viewing window unit and wash bar                                                                                                                                                |
| 11      | Sump overflow pipe<br>Sump capacity is 148L (32.5 gal)<br>Abrasive charge is between 6 - 12kg (13 - 27lb)                                                                                              |
| 12      | Sump heater                                                                                                                                                                                            |
| 13      | Integral LED unit                                                                                                                                                                                      |
| 14      | Clear S-Tank filtration system with reservoir tank                                                                                                                                                     |
| 15      | Recirculated rinse system                                                                                                                                                                              |
| 16      | Component blow-off nozzle                                                                                                                                                                              |
| 17      | Sump water decant valve, allows partial drain down of machine                                                                                                                                          |

## Optional items

The following features can be added to the machine's basic specification.

| Feature | Cabinet enhancements                                           |
|---------|----------------------------------------------------------------|
| 1       | Translation of HMI, operation manual and labels in non-English |

| Feature | Loading and component handling                                                                                                                                                                        |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2       | The radial and vertical models only: Bespoke turntable top, component mat and holding fixture(s)<br>Includes design, manufacture and project management                                               |
| 3       | Large barrel - 500mm (20") OD<br>Dimensions: Ø488mm (19") ID x 260mm (10")<br>Load capacity: Up to 50kg (44lb)<br>Fitted with up to 4 blast nozzles.<br>Variable speed rotation between 1.7 – 6.8 rpm |

| Feature | Filtration                                                                                                                                                                                            |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4       | Forced centrifugal extraction unit to maintain a negative pressure within the machine.<br>Exhaust needs ducting to external atmosphere.                                                               |
| 5       | Forced extraction unit to maintain a negative pressure within the machine.<br>The filter unit removes mist and dust and allows exhaust to workshop atmosphere will include an additive dosing system. |

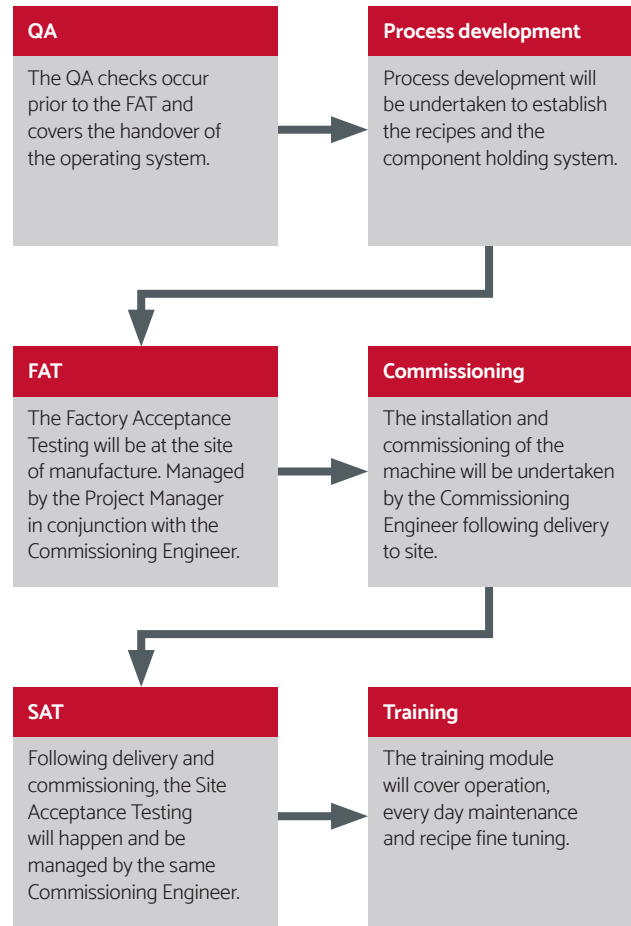


## Services to be provided by the customer

The following services are required for the machine to be run correctly.

| Service      | Requirement                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electricity  | 400V AC, 3 phase, 50/60Hz, 25amp<br>Must be protected by residual current device (RCD or "Earth trip") and isolation switch within reach of the machine.                                                                                                                                                                                                                                                 |
| Air supply   | Connection Rp 1 (1" BSP)<br>External pressure regulator recommended<br>Pressure 2 - 7 bar (30 - 100 psi)<br>Flow 1.13 Nm <sup>3</sup> /min (40 SCFM) per Mk3 gun<br>Maximum flow 4.53 Nm <sup>3</sup> /min (160 SCFM)<br>Quality DIN ISO 8573-1 class 5.6.4                                                                                                                                              |
| Water supply | Connection ½" hose or Rp 0.5 (½" BSP)<br>Max pressure 7 bar (100 psi)<br>Flow intermittent 13L/min (2.9 gpm)                                                                                                                                                                                                                                                                                             |
| Weight       | 350kg (772lb) (includes filter unit)<br>The weight is approximate and will be confirmed at shipping time.                                                                                                                                                                                                                                                                                                |
| Networking   | The machine runs on a closed Ethernet network, and connection to the internet is required prior to commissioning to allow program changes and machine diagnosis to be carried out.<br>Vapormatt uses a dedicated platform for its remote access services, with connection methods being cellular, Wi-Fi and Ethernet.<br>The machine is fitted with Vapormatt's preferred platform provider as standard. |

## Technical acceptance process



## Dedicated project management and the Vapormatt Promise

We always ensure our machines operate to the specification agreed upon with the customer, that's the Vapormatt Promise.

To achieve this every customer is assigned a dedicated project leader from order to installation.

Project management includes our detailed technical acceptance process, see opposite, a key part of which is our factory acceptance testing (FAT). This is where the customer's wet blasting system is extensively tested, often with the actual components the customer will be regularly processing, before it leaves us.

Vapormatt support doesn't end there, our aftermarket support includes spares, servicing and Vapormatt 4.0, our Industry 4.0 solution, to ensure maximum production uptime.









# Vapormatt

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