Vapormatt | Cougar +

Overview, technical specifications and options

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Overview

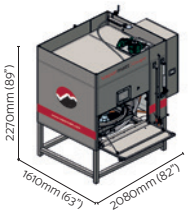
The Cougar + automatic wet blasting system is highly versatile and operator-friendly. It is particularly well suited to heavy users thanks to its durability, reliability and repeatability of processing.

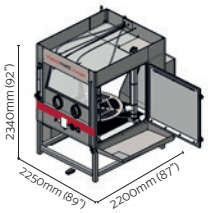
Key features include:

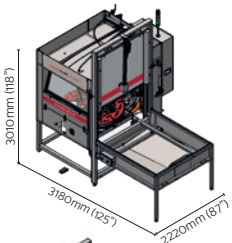
- Large working envelope of max. 1200mm (48") dia. when blasting from above only (1000mm (40") dia. if blasting from above and below), which allows the Cougar + to process a vast range of different components of all shapes and sizes
- High-quality stainless-steel blast cabinet
- Accessible slide-out turntable for ease of loading and unloading
- A range of turntable options and mats are available to suit the components being processed
- Highly configurable to perfectly match production requirements and components, see the list of configuration options below
- Powerful multi-gun blast head, and for relevant applications, the option of double above and below blast heads for maximum productivity
- Simple to use and highly intuitive colour HMI for rapid set-up and operation
- Hand-operated water and air jets for rapid post-process rinsing and drying
- Window wash to ensure great visibility of the blast process
- S-tank filtration system to help keep running costs to a minimum by cleaning and recirculating water for rinsing and window washing. Moving Bed filter option for especially dirty components
- Sight glass allows quick and easy measurement of blast media concentration levels, important for consistent wet blasting

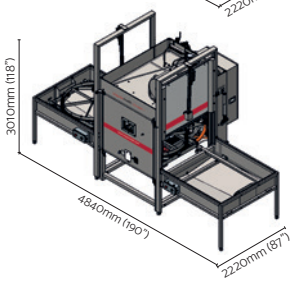
Configurations

The Cougar + machine is available in four different configurations:









		No.	Radial single	Radial dual	Linear vertical	Linear vertical with B axis	Manual work-station	Single trolley and load end	Twin trolley and load end
Fold down door	As well as making loading and unloading easier, the turntable slides out halfway to allow the loading of heavier components when lifted by a central overhead point. (max. load 450kg (992lb) UDL)	1	●						
		2	●				●		
		3		●					
		4		●			●		
		5			●				
		6			●		●		
		7				●			
		8				●	●		
Swing door	This large side door enables the loading of taller components, and the turntable slides out halfway to allow the loading of heavier (higher than 350mm (13.78") components when lifted by a central overhead point. (max. load 450kg (992lb) UDL)	9	●						
		10	●				●		
		11		●					
		12		●			●		
		13			●				
		14			●		●		
		15				●			
		16				●	●		
Single vertical door	The single-powered vertical door and load end allows the turntable to fully slide out for max. loading convenience, it also allows for heavier components. (max. load 1000kg (2205lb) UDL)	17	●					●	
		18	●				●	●	
		19		●				●	
		20		●			●	●	
		21			●			●	
		22			●		●	●	
		23				●		●	
		24				●	●	●	
Twin vertical doors	Dual turntables, powered vertical doors and load ends for loading convenience and max. productivity. Whilst one set of components is being processed, the other turntable can be loaded. (max. load 1000kg (2205lb) UDL)	25	●						●
		26	●				●		●
		27		●					●
		28		●			●		●
		29			●				●
		30			●		●		●
		31				●			●
		32				●	●		●

Industries and applications

Thanks to the versatility of the Cougar + and its multiple configuration options, it's well suited to numerous different industries and applications including:

Industries

- Cutting tools
- Round shank tools
- Medical implants
- Medical instruments
- Additive manufacturing components
- Hygienic surfaces for food
- Jet engine components
- Aircraft wheels
- Extrusion die cleaning

Applications

- Component cleaning
- Deburring
- Preparation for composite bonding
- Surface activation for PVD/CVD coatings
- Paint stripping
- Surface improvement after casting

Processing description

The machine will automatically wet blast component surfaces.
The turntable has a diameter of 1200mm (47.24").

The Cougar + is available with the following automated blast configurations:

Radial single: This gun crown configuration is fitted with four or eight (depending on configuration) Ø10mm (0.39") or Ø12mm (0.47") wet blast nozzles above the turntable. The nozzles are mounted on a moving arm that traverses across the surface of the turntable. The machine first blasts the top side of the component which is then manually rinsed, the component is then turned over and the process is repeated.

Radial dual: This gun crown configuration is fitted with eight or twelve (depending on configuration) Ø10mm (0.39") or Ø12mm (0.47") wet blast nozzles, four above and four below the turntable. The nozzles are mounted on a moving arm which traverses across the surface of the turntable. The machine blasts the top side and the underside of the components simultaneously which are then manually rinsed.

Linear vertical: This configuration is fitted with up to four Ø10mm (0.39") or Ø12mm (0.47") wet blast nozzles on a vertical arm that moves in a linear motion as the components are rotated on the turntable. Components can be held in satellites so the machine can blast the components from the side. Components are then manually rinsed.

Linear vertical with B axis: This configuration is fitted with up to four Ø10mm (0.39") or Ø12mm (0.47") wet blast nozzles on a rotating head with 180° motion at the end of a vertical arm as the components are rotated on the turntable. Components can be held in satellites so the machine can blast the components from the side. Components are then manually rinsed.

The Cougar + is available with the following load configurations:

Fold-down door: One turntable mounted on a trolley that slides out halfway from the cabinet for external loading, with a standard weight loading of 450kg (992lb) UDL.

Swing door: One turntable mounted on a trolley that slides out halfway from the cabinet for external loading. The swing door allows the loading of components higher than 350mm (13.78"), with a standard weight loading of 450kg (992lb) UDL.

Single vertical door: One turntable mounted on a trolley and a single load end that allows the trolley and turntable assembly to be fully taken out of the cabinet for external loading, with a standard weight loading of 1000kg (2205lb) UDL.

Twin vertical doors: Two turntables mounted on trolleys and two load ends allow the trolley and turntable assemblies to be fully taken out of the cabinet for external loading, with a standard weight loading of 1000kg (2205lb) UDL.

Technical specification

The following features are included within the machine's basic specification.

Feature	Description
1	Stainless steel cabinet, with abrasion-resistant lining and external stainless steel box section main support frame.
2	Internal dimensions are generally 1350mm deep (54"), 1400mm (56") wide and height 950mm (38") over the turntable to the roof (depending on configuration).
3	High volume abrasive pump direct driven by 4kW (4 guns) or 5.5kW (8 guns) IP55 motor.
4	Low-level load-bearing sump grids, UDL 50kg (110lb).
5	Single manual rinse nozzle.
6	Viewing window with wash bar
7	Fittings in the blast cabinet that are in contact with the abrasive slurry are made from non-corrosive materials.
8	DN32 (1¼" BSP) cabinet sump decant valve and fittings, allows partial drain down of machine water without removal of the settled abrasive.
9	150mm (6") diameter ventilation/air extraction outlet with optional air extraction/filtration unit fitted to the roof of the machine.
10	Manual component blow-off nozzle and hose.
11	Heavy-duty inline abrasive level sight glass for monitoring of the abrasive level within the machine.
12	Hydrocyclones and s-tanks to automatically remove abrasive particles that have degraded below a pre-set level.
13	Replaceable abrasive-resistant sheet lining to protect the interior of the cabinet.
14	Heavy-duty air-powered diaphragm pump for rinse water return from the filter system, feeding a manual wash-down nozzle fitted inside the blast cabinet. Inline cartridge filters complete the recirculated water to a fully closed-loop system.
15	All electrical components and the control panel are housed in an enclosure positioned at the rear of the machine. The machine is controlled via an HMI (Human Machine Interface). All on-screen units will be metric. The cabinet entry door is fitted with a safety switch that shuts down the machine if it is opened.
16	24V DC machine control circuits.

Optional items

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

Feature	Cabinet enhancement
1A	Labels in non-English
1B	Translation of operation manual

Feature	Loading and component handling
2	Manual workstation which includes A single manual process gun. Glove ports fitted with gauntlet gloves, easily replaced from outside of the machine. The ports are protected with a hinged steel plate when processing in automatic. Air pressure regulator and gauge mounted on machine front panel. Window wash/wipe unit and light.
3	Component holding mat 12mm (0.47") includes design, manufacture, and project management.
4	Protective polyethylene turntable mat - Ø1200mm (48")

Feature	Slurry system enhancement
5	4.5kW cabinet sump and rinse tank immersion heaters with thermostat. These improve degreasing capability and promote faster drying.
6	Auto chemical dose unit to maintain levels of degreaser, corrosion inhibitor and biocide chemicals.

Feature	Filtration and re-circulation
7	Forced centrifugal extraction unit to maintain a negative pressure within the machine. Exhaust needs ducting to the external atmosphere.
8	Forced extraction unit to maintain a negative pressure within the machine. The filter unit removes mist and dust and allows exhaust to workshop atmosphere. Will include an additive dosing system.
9	Automatic moving bed paper filter. Paper width 685mm (26.97"). High-level base tank, overflow to the sump, connected to closed-loop recirculating rinse package.
10	Drain tank and pump Excess water is directed to a reservoir. When the reservoir is full a diaphragm pump pumps the waste to the customer's drain, which can be located within 20m (66') and up to 5m (16') above the machine. The drain must incorporate a grit trap.

Feature	Blast gun alternatives
11	Extra blast gun with hoses, 12mm (0.47") nozzle, 1.7Nm³/min (60 SCFM) at 5.5 bar (80 psi), Mk 7 gun body (for workstation)

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.

Services to be provided by the customer

Service	Requirement
Electricity	Typical supply: 400V, 3 phase, 50/60Hz, 43 amp supply. This is dependent on automation configuration. To be confirmed at time of order. For other electrical supply requirement please consult our sales team.
Compressed air	Pressure 5 - 7 bar (75 - 100 psi) Volume max 4.6Nm³/min (160 SCFM) (4 x Ø10mm (0.39") nozzles at 5.5 bar (80 psi)) Volume max 9200L/min (320 SCFM) (8 x Ø10mm (0.39") nozzles at 5.5 bar (80 psi)) Connection DN40 (1½" BSP) Air quality to ISO 8573-1: Class 5.6.4
Water supply	Clean water pressure 2 - 4 bar (30 - 60 psi) Volume 13L/min (2.86 gpm) intermittent flow. Connection DN15 (½" BSP) Drinking quality
Drain	Floor level with grit trap
Vent or extraction	150mm (6") diameter stainless steel connection which can be extended to the outside of the building the by end user. (See option: extraction and filter unit)
Foundation	A waterproof flat and level floor is required to take a point load of 500kg (1102lbs)

Technical acceptance process

QA
The QA checks occur prior to the FAT and covers the handover of the operating system.

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Process development
Process development will be undertaken to establish the recipes and the component holding system.

FAT
The Factory Acceptance Testing will be at the site of manufacture. Managed by the Project Manager in conjunction with the Commissioning Engineer.

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Commissioning
The installation and commissioning of the machine will be undertaken by the Commissioning Engineer following delivery to site.

SAT
Following delivery and commissioning, the Site Acceptance Testing will happen and be managed by the same Commissioning Engineer.

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Training
The training module will cover operation, every day maintenance and recipe fine tuning.

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