Vapormatt | Profelis FR

Profelis file and rasp overview, technical specifications and options



Vapormatt

Vapormatt | Profelis FR

Overview

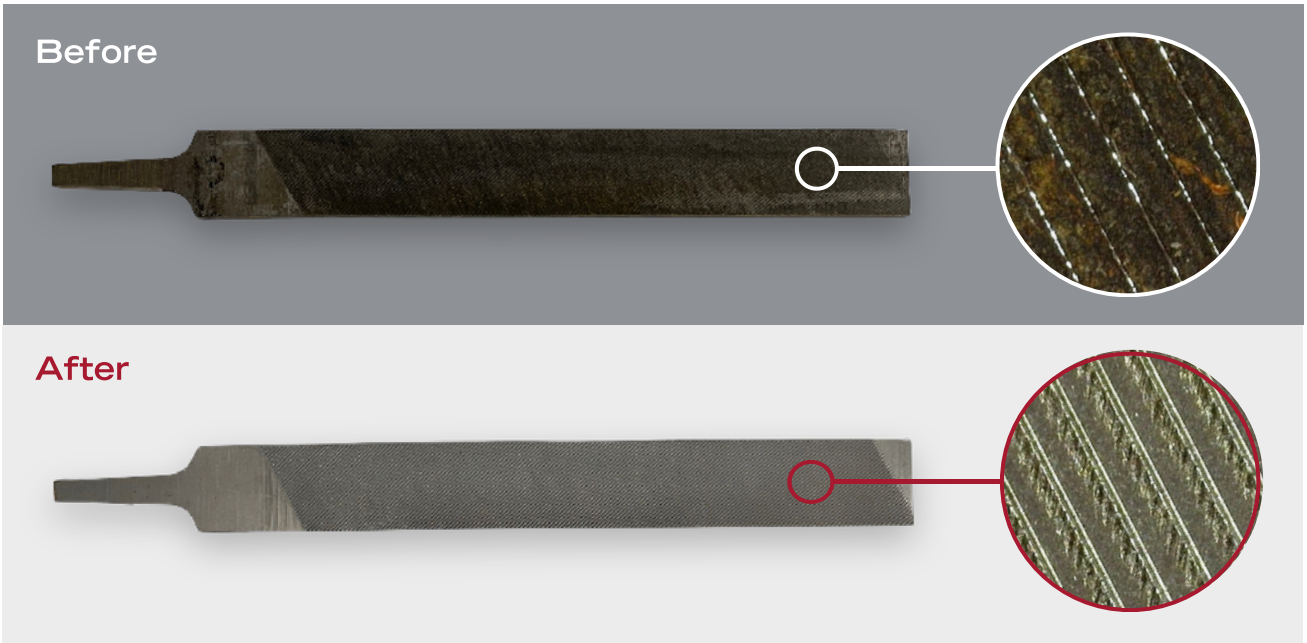
The Vapormatt Profelis FR (File and Rasp) is a dedicated wet blast conveyor machine designed for the surface cleaning and finishing of files, rasps and similar long products. It removes embedded swarf, metal fines, heat scale and grinding residues from file teeth, leaving a clean, sharp, even finish on every tooth. The system rinses and blow-dries automatically, making it suitable for inline production use.

Key features include:

- High-quality, stainless-steel cabinet
- In-line wet blasting, cleaning and drying for high-quality surface processing of all components
- Fully self-contained and ventilated unit on a medium footprint
- Extra-large access door for personnel convenience and safety
- Simple to use and highly intuitive colour HMI for rapid set-up and operation
- Powerful multi-gun blast chamber for maximum cleaning efficiency, configurable to include additional blast guns depending on requirements
- S-tank filtration system to help keep running costs to a minimum by cleaning and recirculating water for rinsing

File manufacturing applications

- Surface cleaning
- Removal of heat scale and quenching oil residues
- Sharpening of teeth
- Cosmetic improvement



Why wet blasting for files and rasps?

Hardening and quenching leave heat scale, quench residue and grinding fines in the teeth and gullets of every new file, spoiling its appearance. And a file straight from cutting and hardening is rarely as sharp as it could be.

Vapormatt wet blasting cleans and sharpens in a single pass. As each file travels past nozzles set at specific angles, the cleaning recipe flushes every tooth profile and gullet, and the sharpening recipe works on the cutting edge of each tooth. The result is a file that bites from its first stroke, with a clean, even finish.



Illustration, not to scale: lower-pressure nozzles flush each gullet, then higher-pressure nozzles sharpen the cutting edge.

Instead of steam slurry blasting: compressed air drives the slurry, so there is no boiler to run, no pressurised steam, and far less heat and noise.

Instead of acid cleaning and etching: no acid to store, neutralise or treat as waste, and the blast sharpens selectively, mainly at the back of each tooth.

Instead of dry blasting: the water cushions each particle, so it is gentle on fine tooth edges, with no dust and no dust extraction plant.

Proven on your files: we trial your own files, and your quality team judges the result with its own bite test before you commit.

Processing description

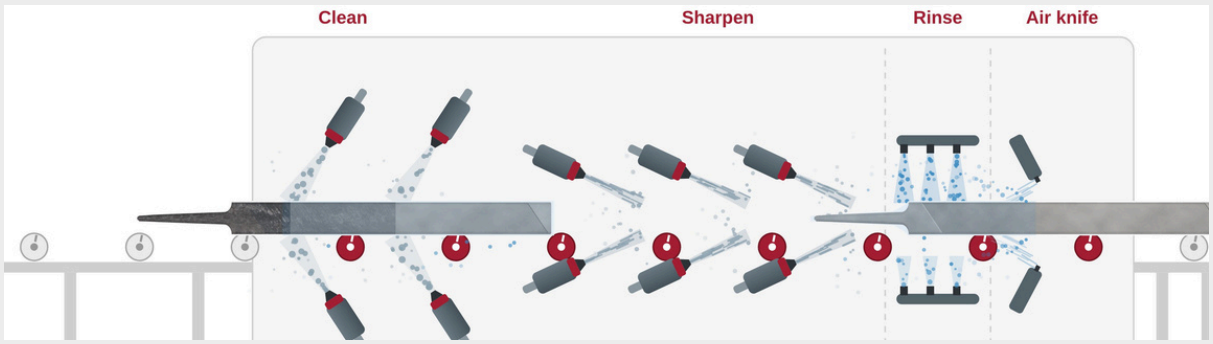
Products are conveyed continuously through the machine, which wet blasts, rinses and blows them off via the blast guns accommodated within the blast cabinet.

The products are introduced manually on an entry driven roller conveyor. The conveyor drives the products through the system.

The moving products move past the one set of fixed blast guns, rinsing nozzles and air knives which carry out the wet blasting, pre-rinsing, cleaning and drying processes.

There is an exit area where the files and rasps can be unloaded onto a tray, into a container or onto the customer's conveyor.

Built for production



Hand loading ----------→ **Unload onto a tray, into a container or onto the customer's conveyor**

Files are conveyed continuously through the machine, cleaned, rinsed and dried in a single pass. Illustrates the concept, not the exact nozzle layout.

Wet blasting

The wet blasting stage consists of a chamber incorporating a specialised sump unit, high volume blast pump and slurry mixing area, processing the products which are passing through the machine.

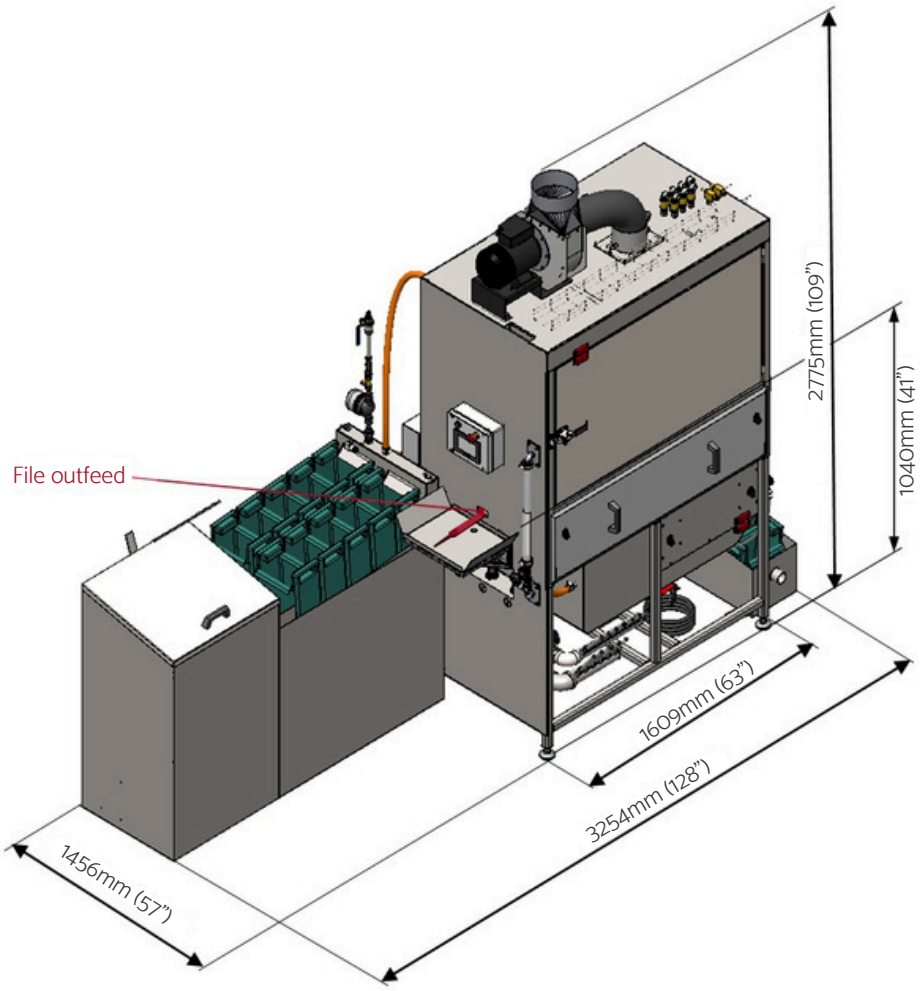
When the machine is turned off, the pump carries on running for a few seconds with the stirrer turned off, so the hoses do not block. The blast air then continues blowing compressed air for up to 10s after the blast pump has stopped, so no slurry contaminates the air lines.

At the outlet of the blast chamber, a recirculated rinse removes the majority of media from the products and returns it to the sump. An air knife also removes the majority of the dirty liquid, reducing contamination of the water in the next stage.

The process is completely contained within the watertight machine enclosures, and all pressurised conduits carrying abrasive slurry are also contained within the main cabinet.

The entire cabinet is ventilated to ensure the appropriate airflow within the equipment, avoiding general atmospheric and product recontamination after processing. To maintain optimum cleaning performance, broken media is continuously removed and topped up automatically. The top-up frequency is established once in service.

The process waste is collected via a series of settling tanks. Products of blasting removal and broken abrasive should be disposed of according to local disposal legislation.



Files are loaded at the infeed rollers, pass through wet blasting, rinsing and drying in one continuous run, and leave the machine in the exit area where the files can be unloaded onto a tray, into a container or onto the customer's conveyor.

Technical specification

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

Feature	Description
1	High-quality stainless-steel blast cabinet
2	Service and product access door
3	Exit zone with pre-rinse and blow off, to retain most of the abrasive within the blast zone
4	Up to 6 slot nozzles (3 at the top, 3 at the bottom) or 8 x Ø10mm Mk9 nozzles (4 at the top, 4 at the bottom)
5	50mm (1.97") high-efficiency Vapormatt slurry pump
6	Abrasive slurry system in polyurethane and rubber
7	Recirculated water pre-rinse nozzles and auto air wipes
8	Conveyor system through the machine, with an adjustable height between the top and bottom rollers to suit different file thicknesses
9	Product entry height 1040mm (41") from the floor, fixed
10	Manual air pressure control for the blast guns
11	Media separation system consisting of hydrocyclones, "S" tanks and stainless-steel reservoir tank

Feature	Description
12	Auto oil skimming to factory floor catchment tank
13	Auto abrasive dosing
14	Recirculated rinse water
15	Viewing window with wash bar
16	Manual rinse nozzle (recirculated water)
17	2 x 4.5kW rinse tank immersion heaters with thermostat
18	Forced centrifugal extraction unit to maintain a negative pressure within the machine. Exhaust needs ducting to external atmosphere.
19	Electrical control panel with 24V DC machine control circuits
20	HMI operator interface. All on-screen instructions will be in English. Units will be metric.
21	Ethernet card and site manager for remote control, machine diagnostics and minor program changes

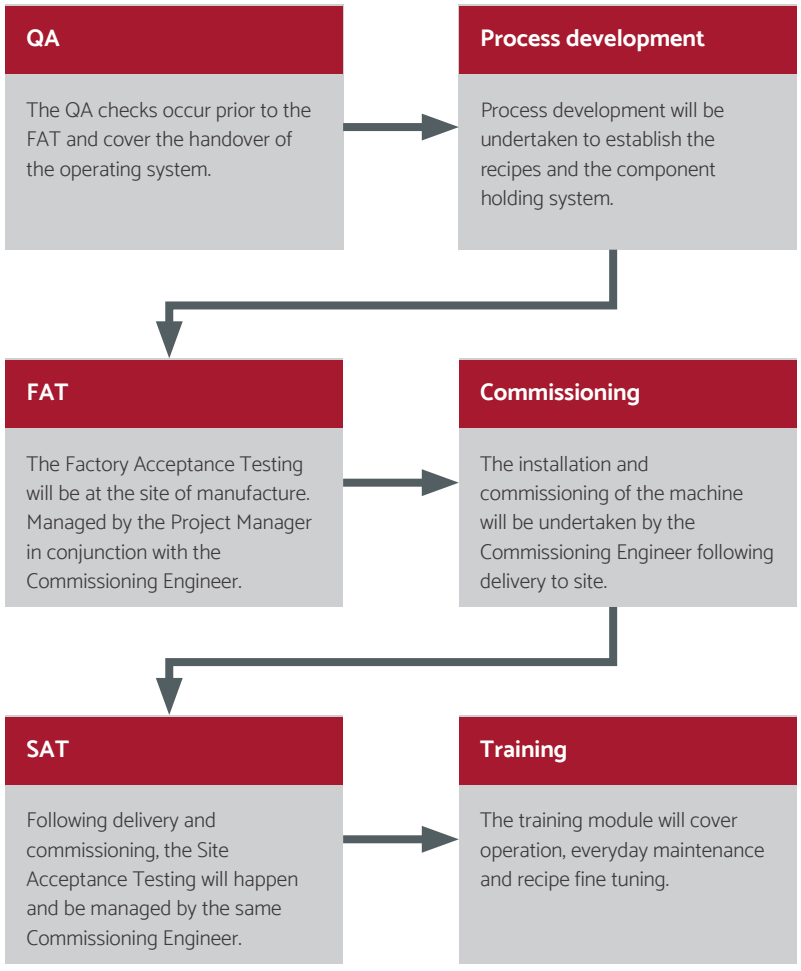
Typical throughput: around 1,000 files an hour for a 200mm file, cleaned and sharpened in one pass. Heavier work, such as coarse rasps, runs more slowly. Rates are proved on your own files and demonstrated on the machine before any offer.

Optional items

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

Feature	Cabinet enhancement
1	Translation of the operation manual, HMI screen and labels into other languages
2	A programmable ANDON status beacon allows the progress of production/process of the unattended machine to be monitored at a distance from the unit itself
Feature	**Filtration and re-circulation**
3	Automatic moving bed paper filter, 685mm size unit
4	Forced extraction with filter unit to maintain a negative pressure within the machine. The filter unit removes mist and dust, allowing exhaust to workshop atmosphere. Will include an additive dosing system.
Feature	**Process functionality**
5	Fine media dosing and filtration system with motor-driven screw conveyor and hopper. Integrates pneumatic vibrator and low-level switch. Suitable for 400 mesh media and smaller, ideal for non-specular finishes. Includes large automatic moving bed filter.

Technical acceptance process



Services to be provided by the customer

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

Service	Requirement
Electricity	Operating voltage: 400/480V AC 3 phase Frequency: 50/60Hz Load 35A The supply should be fitted with an RCCD
Air supply	Pressure 6 - 7 bar (90 - 100 psi) Consumption 18.7 Nm^3/min (658 SCFM) (6 x slot nozzles at 5.5 bar (80 psi)) or 9.1 Nm^3/min (320 SCFM) (8 x Ø10mm nozzles at 5.5 bar (80 psi)) Connection Rp 2 (2" BSP) Quality ISO 8573-1: class 5.6.4
Water supply	For machine fill and top-up Pressure 2 - 7 bar (30 - 100 psi) Volume 13 L/min (3 gpm) intermittent flow Connection Rp 0.5 (1/2" BSP) Drinking quality
Drainage	Floor level. The drain should incorporate a grit trap. Estimated flow: 9 L/min (2 gpm)
Vent or extraction	Forced air exhaust extraction unit fitted to maintain a negative pressure within the machine. Exhaust needs ducting to the external atmosphere
Foundations	A waterproof flat, level floor is required to take a point load of 500kg (1102lb) Machine weight (empty) = 2100kg (4630lb) Total machine weight (with water but no components) = 2600kg (5732lb) The weight is approximate and will be confirmed at shipping time.
Network	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. Vapormatt uses a dedicated platform for its remote access services, with connection methods being cellular, Wi-Fi and Ethernet. The machine is fitted with Vapormatt's preferred platform provider as standard.

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, 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 | Profelis FR

Ref: BTS-017-A

Talk to us about your file cleaning and sharpening requirements

E&OE



For further information contact:

Vapormatt Ltd
Vapormatt Innovation Centre
Robins Drive
Bridgwater
TA6 4DL
United Kingdom

t +44 (0) 1823 257976
e sales@vapormatt.com

Vapormatt.com

Vapormatt