

vallorbe[®]

SWISS



Tools for industrial molds



APPLICATION NOTE



Usines Métallurgiques de Vallorbe has been mastering the production processes of files and precision tools for more than 100 years, improving these processes on a continuous basis. Many innovations have enhanced the range of **Vallorbe®** products over the years but the file remains the absolute expression of our know-how.

Founded in 1899, the company is worldwide known as the preferred partner for professionals. The most demanding users trust **Vallorbe®** for the high-quality of their precision tools manufactured in the heart of the Jura Mountains in Switzerland. The superior quality results from a continuous search for technical excellence combined with an exceptional expertise. Files, rifflers, rasps, gravers and beading tools are used in various industries including forestry, jewelry, watchmaking, automotive, aerospace and musical instruments manufacturing. Our files and precision tools are sold in more than 80 countries through a network of nearly 300 distributors.

Partner with



INDUSTRIAL MOLD

a delicate manufacturing process



An industrial mold enables to produce thousands of very precise copies in large series which in many cases do not require any subsequent machining.

This production technique is used for many manufactured goods. For every product particularly those which form the visible parts of dashboards or cosmetics boxes for

example, the external appearance depends directly on the quality of the mold. Therefore accuracy and uniformity are essential elements.

After machining that requires careful control and experience, the mold undergoes various finishing operations such as polishing. Specialized tools are used in manufacturing industries to shape the molds. Because the cost of the molds is high, the choice of the right tools is important and **Vallorbe®** tools are the best choice.

VALLOBE SWISS®

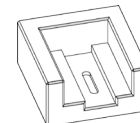
solutions provider

As a leading manufacturer of precision tools with over a century of tooling experience, **Vallorbe®** takes advantage of a comprehensive know-how in the design and production of solutions. Our products cover a large range of applications such as sharpening, deburring, precision fitting, beveling, chamfering or finishing work.

Once developed, industrial molds require a precision work. **Vallorbe®** files are perfectly designed for this high requirement. They are ideal to refine, polish and retouch angles, holes and small areas.

Our products offer various solutions and are adapted to all kind of metals (steel, stainless steel, aluminum, zinc, brass, etc.) and other materials such as ceramic, plastic and rubber.

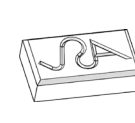
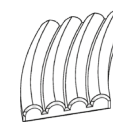
Example of different workpieces



Flat surface



Curves



Engraving



Narrow area



THE FAST WAY to the best tools

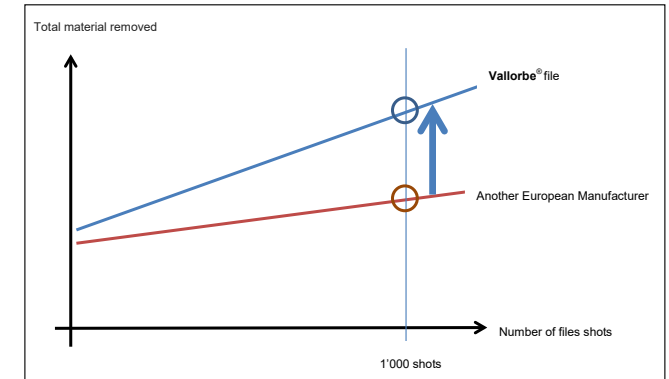
The cut is the most commonly used criteria to select files but it is not the only factor to determine performance. The characteristics of **Vallorbe®** files ensure constant and sustainable quality even after multiple uses. The effectiveness of our tools guarantees cost-saving and maximizes profitability.

Our technicians conduct specialized tests (removal of material, wear, etc.) in our metallurgical laboratory to compare the performance of **Vallorbe®** files with other files available on the market. The above graphic gives an example of their efficiency in comparison with other files.

On the world standard «Swiss Pattern» or commonly called «Swiss Cut», **Vallorbe®** offers a large scale of cuts (number of teeth per centimeter) from 000 to 10. The table below provides an overview of surface roughness of our products.

Files' test

Test carried out by our laboratory between a **Vallorbe®** flat file size 8" cut 00 and a file from the competition. This test was performed on a 125CR3 type steel sample.



Roughness value

Ra	12.5	6.3	3.2	1.6	0.8	0.4	0.2	0.1	0.05	0.025
N	10	9	8	7	6	5	4	3	2	1

Applications

Surface roughness	Roughing				Refinement	Prepolishing				
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Tools recommended

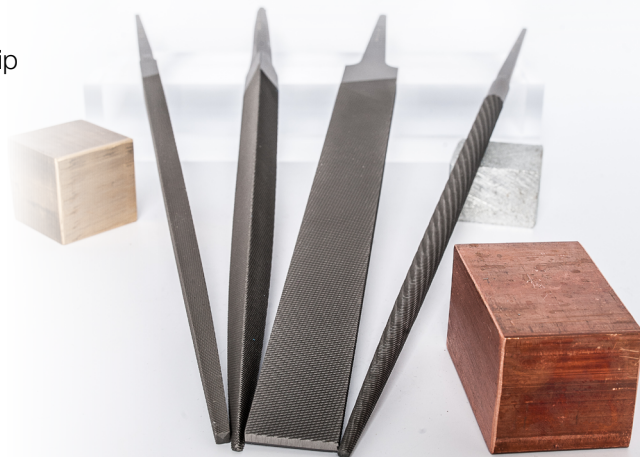
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BEST TOOLS *for industrial molds*

As a global benchmark **Vallorbe®** tools are known to be efficient and reliable products designed to remove material. They are made from high-carbon steel specially developed for files to get the best physical properties.

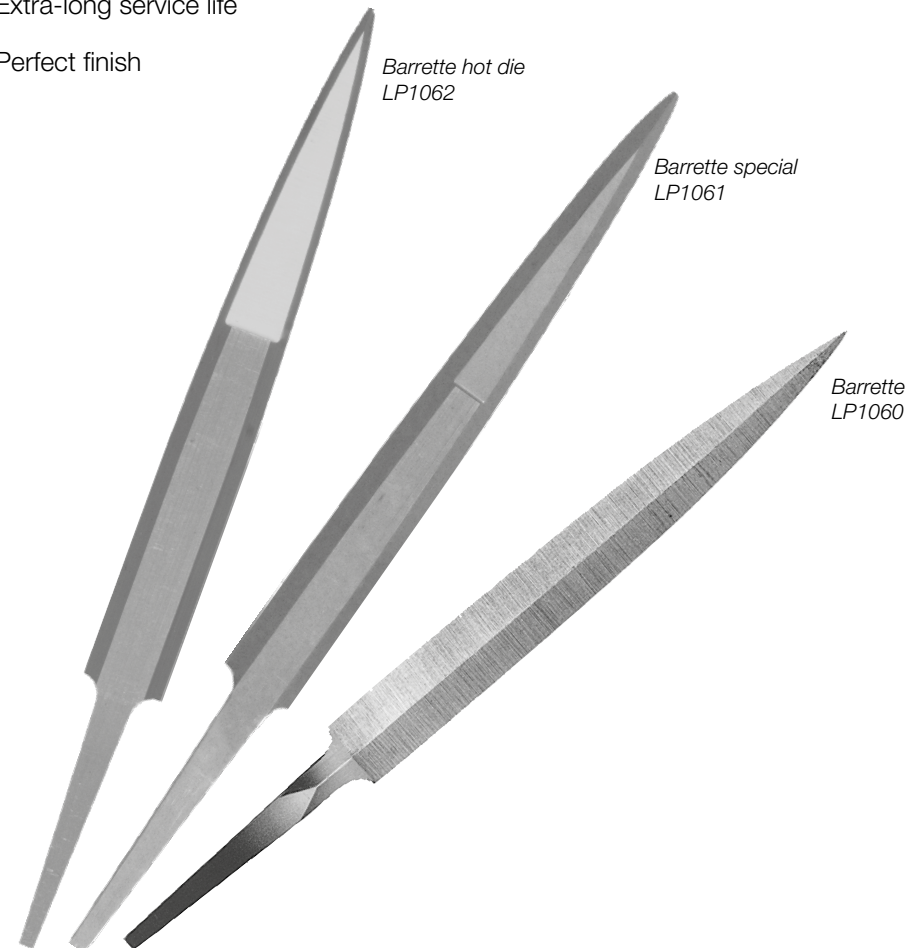
- SWISS MADE guarantee of quality for optimal results
- Heat hardening for better product stability
- Cut's regularity and precision thanks to a perfect control of the teeth geometry
- Efficient grinding over the entire files length
- Optimal hardness of 65-66 HRC and more with our **Valtitan®** files
- Constant high quality and exceptional durability
- High wear resistance
- No breakage, no cracking, no chipping
- Precise dimensions with very high manufacturing tolerances
- Ergonomic design and easy to use
- Sharp edges
- Cut up to the high end of the tip



PRECISION FILES *The largest selection of shapes for high-precision work*

In addition to our **Jewellery, Watchmaking & Industry** catalog where you will find all our precision files, we developed three specific models, specially designed for die makers

- Particularly recommended to shape corners
- Extra-long service life
- Perfect finish





NEEDLE FILES

Exceptional tools for extremely accurate work

- Recommended for finishing work, precision fitting and deburring
- Fine and pointed with tapered edges and sharp points
- Cut up to the high end of the tip
- Fine shape in order to work on small parts, such as slots, ridges or grooves
- Ideally suited to work on low or medium hardness materials such as steel, steel alloys and aluminum



RIFFLERS

Perfect for complex shapes

Vallorbe® rifflers are particularly recommended for die makers. They cover a wide range of applications such as beveling, deburring, filling and finishing work. Perfect for machining surfaces that are difficult to access, narrow, curved or complex, they are available in a large variety of different profiles.

- Cut at both ends with a safe uncut middle section for handling
- Perfect to refine surfaces, especially angles, holes and small areas difficult to access
- Specially designed and engineered for getting into crevices, corners, shapes and complex contours of molds
- Available in many different shapes, cuts and length (150 mm, 180 mm or 300 mm)

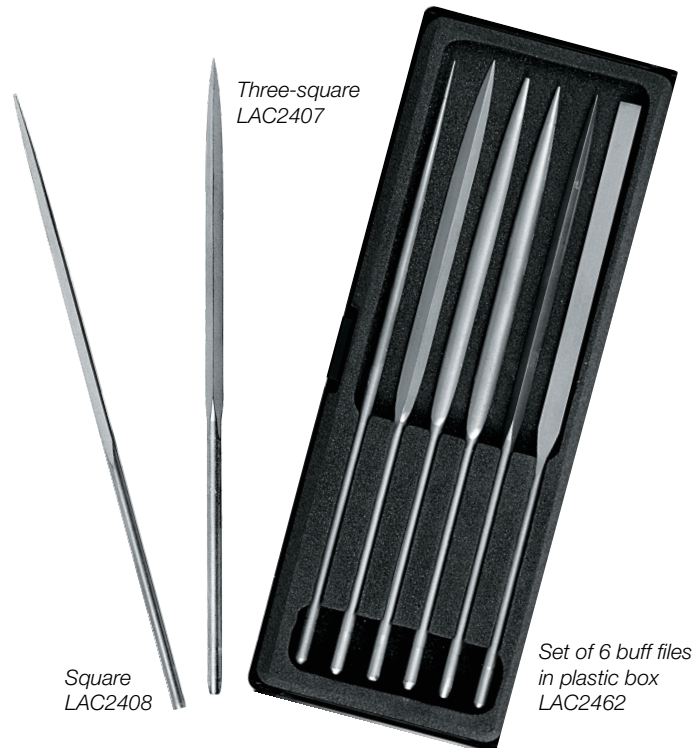




BUFF FILES

*Know-how and innovation
for the most demanding professionals*

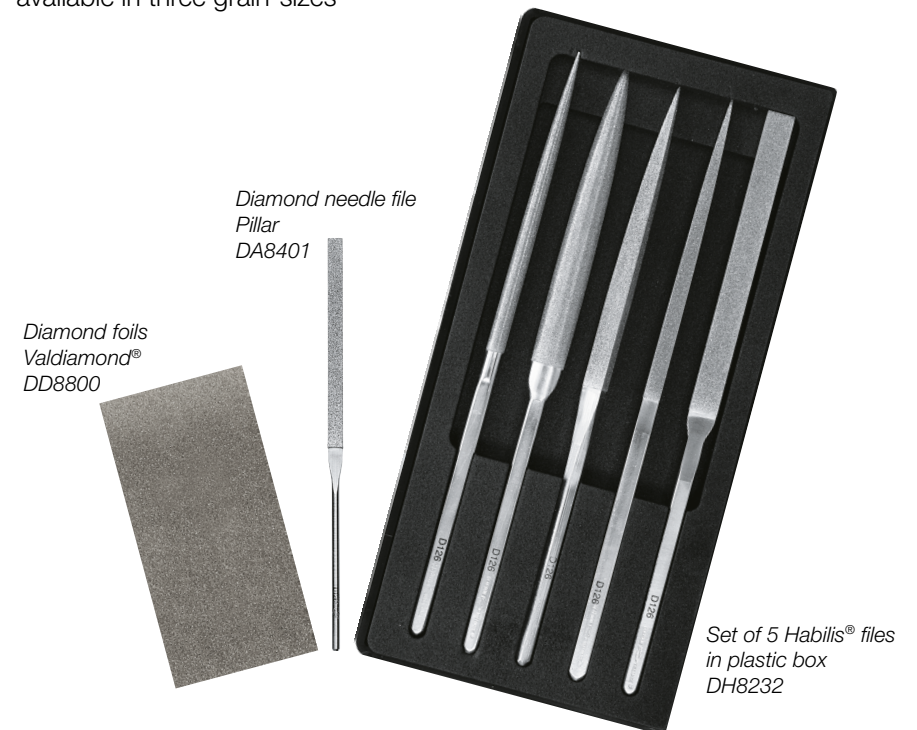
- Composite abrasive coating providing a suitable uniform particle size
- Recommended for prepolishing work
- Ideally suited to work on hard materials, such as titanium, carbide, hardened steel and steel alloys
- Anti-corrosion properties
- Ergonomic design
- No need to reshape
- Length of 140 mm



DIAMOND FILES

Bright solutions for perfect surfaces

- Diamond surface treatment made from carefully selected diamonds precisely bonded to obtain the best physical properties for added strength and resistance to wear
- Ideally suited to work on glass, ceramics, tungsten carbide, hardened steel, hard and ultra-hard materials
- We offer this special coating for a selection of our products : needle files (DA) and **Habilis®** files (DH)
- Our range also consists of flexible and self-adhesive **Valdiamond®** diamond foils, available in three grain-sizes





VALTITAN® FILES

The world hardest steel file

Developped exclusively by and for **Usines Métallurgiques de Vallorbe**, the **Valtitan®** treatment is a specific surface coating that gives the products a higher surface hardness than a « standard » file. Using a **Valtitan®** file is preferred for difficult and hard materials.

We removed the yellow tails from our **Valtitan®** tools to limit our carbon footprint impact.

- Their special chromium coating gives them an exceptional surface hardness of 72 HRC
- Thermal barrier anabling the **Valtitan®** files to retain their hardness when retouching on hot parts or non-hardened molds
- Anti-corrosion properties
- Can be used in harsh, corrosive or humid environments
- Greater chip removal and do not clog
- Ideally suited to work on plastics, stainless steel, titanium and aluminum
- Higher performance and longer service life than a « standard » file, in particular with Bakelite, Araldite, nylon and polycarbonate plastic

We offer this special coating for a selection of our products: precision files (LPV) and needle files (LAV). On request other items may also receive this treatment



*Valtitan® precision file
Hand
LPV1163*

*Valtitan® needle file
Halfround
LAV2402*

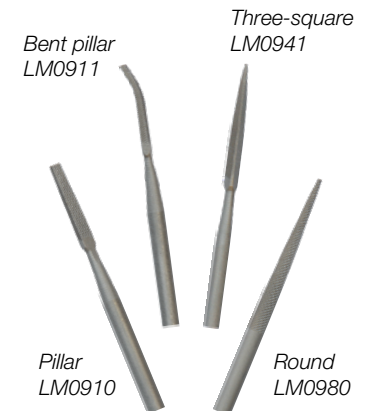


MICRO-FILES FOR MOTORIZED SOLUTIONS

The grinding of Vallorbe® files for motorized systems

In the constant search for excellence and innovation, we continually develop new products. As part of this process, we now propose motorized tooling solutions. **Vallorbe®** micro-files perfectly adapt to the handpiece of their micromotor. Designed for precision operations, power tools provide optimal results and greatly facilitate the user's work.

- Specially designed for motorized systems
- Adapted for various handpieces
- Thanks to their size they easily reach small areas difficult to access
- Very long service life
- Available in four shapes: pillar, bent pillar, three-square, round
- Cut from 25 teeth/cm to 66 teeth/cm
- Motorized movement recommended: linear

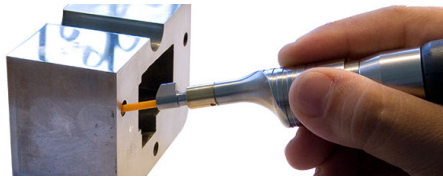




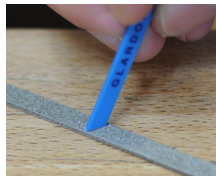
CERAMIC FIBER FILES

For an efficient and uniform surface finish

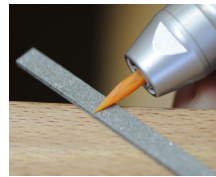
- For precise prepolishing or polishing work
- Perfect to refine surfaces, especially angles, holes, curves and small areas difficult to access
- Excellent performance for materials under 57 HRC
- Allows flexibility and a high breaking strength
- Fully usable
- Can be used both on the tip and on the side
- Do not leave abrasive particles, no scratch on the workpiece
- Available in many profiles and grains
- Using lubricant increases polishing efficiency and prevents from fouling
- Can be used by hand or motorized solution
- The use of a motorized system improves effectiveness
- Motorized movement recommended: linear, rotating



Motorized utilisation with a handpiece



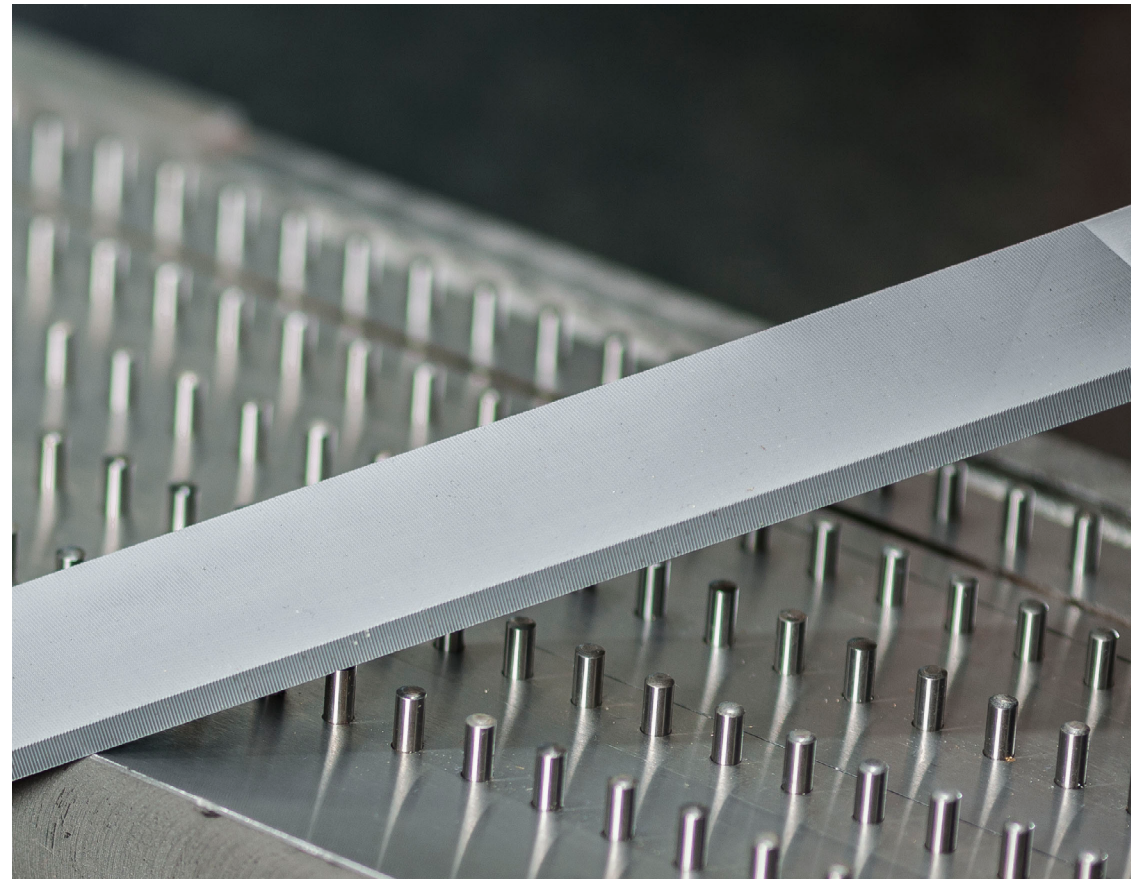
Pillar ceramic fiber file



Round ceramic fiber file

The quality of our products is the result of a unique know-how and a professional workmanship without compromise. If you cannot find the solution for your particular needs in our product range we also develop special tools for specific applications.

Visit our website www.vallorbe.com for more information about our products and services. For more details, scan the Quick Response (QR) code on the back page of this document with your phone or please contact us directly, we will be happy to assist you.





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