Vise clamping inserts

SinterGrip
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Introduction / Product Overview SinterGrip

Our new product SinterGrip is born to satisfy the current need to clamp a workpiece for very few millimeters (with SinterGrip 3.5mm clamping surface)!

And this for the following reasons:

1. In order to machine the workpiece completely in a single operation. (especially for 5 axis machines)

2. In order to save money for the raw materials, especially when they have a big impact on the price (aluminium, titanium, etc.)

Indirectly to these reasons, and in order to improve the performance of the machine tool and the tools.

\[
\text{higher cutting speed} + \text{higher feed rate} = \\
\text{bigger volume of metal removed} = \text{less time to machine the workpiece},
\]

the market requires safe clamping, which could at the same time possibly avoid the deformations of the piece itself.

Only 3.5 mm clamping surface, no need of pre-machining the workpiece, clamping stability, higher cutting rate: SinterGrip brings only advantages compared to the traditional systems.

On the contrary, traditional systems need, for the clamping of the workpiece, a bigger clamping surface, with the result of waste of raw materials and greater possibility of deformation of the workpiece.
The advantages of the system

1. It doesn’t need to use a special machine or tool to realize the punching
2. It doesn’t need a pre-machining on the workpiece, (as dovetail or others)
   - It doesn’t require to use a new vise or other
   - Exceptional stability of the workpiece clamping
   - No vibrations
   - No deformations (by reducing the clamping force after the first punching)
   - Minimum depth of the workpiece clamping: **only 3.5 mm**
   - Huge savings in materials
   - Possibility to machine the workpiece with very short tools (for 5 axis machines)
   - Huge metal removal rate of = less time to machine the workpiece
   - Geometric couplings without any clearance
   - Different types of SinterGrip for different materials (aluminium, steel and hardned steel)
Technical features

SinterGrip are solid carbide serrated inserts type ISO P30:P35 and coated with method PVD

Coated cemented carbide currently represents 80 - 90 % of all cutting tool inserts. Its success as a tool material is due to its unique combination of wear resistance and toughness, and its ability to be formed in complex shapes.

Coated cemented carbide combines cemented carbide with a coating. Together they form a grade which is customized for its application.

The big advantage of SinterGrip is therefore the combination of this material together with its own teeth sharpening, the special tapered shape and the special triangular shape, coming from detailed studies by our technical department.

In a general sense, the insert with its own special section of pyramid shape and special teeth sharpening penetrates into the material of the workpiece and creates some coupling without any clearance, unloading the forces and the vibrations, becoming a sole body with the vise and the workpiece.

1. The special triangular shape creates a coupling without any clearance, in fact:
   - It divides the clamping forces;
   - It allows high coupling precision between the gripper (insert) and the jaw of the vise;
   - It absorbs the vibrations, allowing high stability.

2. The special tapered shape (5 degrees) of the inserts section:
   - Creates pull-down effect into the insert which is transferred to the workpiece, avoiding the lifting of the same.

3. The special teeth sharpening:
   - The lower angle is bigger than the upper one. This creates a pull-down effect on the workpiece;
   - Permits, after the engraving, to clamp the workpiece with a lower clamping force, avoiding any deformation of the same.

The combination of both elements (the tapered shape and the teeth sharpening) creates a double pull-down effect.
Technical features

Insert **SinterGrip** for steel (STD)

Insert **SinterGrip** for aluminium (ALU)

Insert **SinterGrip** for hard steel and titanium (until 50 - 54 HRC)

Engraving in aluminium

Depth penetration  
stop surface
Charts

The values indicate in the chart are those of the penetration of each tooth of the insert, in relation to the number of inserts used, the type of material and the clamping force.

The ratio between inserts and penetration depth is inversely proportional, that is, fewer inserts = more penetration.

Steel with tensile strength ≈ 980 N/mm²
5 Inserts/jaw - 10 Inserts total
clamping surface 3.5 mm

Steel with tensile strength ≈ 980 N/mm²
1 Inserts/jaw - 2 Inserts total
clamping surface 3.5 mm

Hardened steel HRC 50 - 54
5 Inserts/jaw - 10 Inserts total
clamping surface 3.5 mm

Steel with tensile strength ≈ 980 N/mm²
5 Inserts/jaw - 10 Inserts total
clamping surface 2 mm

Aluminium
5 Inserts/jaw - 10 Inserts total
clamping surface 3.5 mm

Example:
Steel with tensile strength ≈ 980 N/mm²
5 Inserts/jaw - 10 Inserts total
clamping surface 3.5 mm
Jaws

**SinterGrip** can be used with all the mechanical, mechanical-hydraulic or hydraulic clamping systems. For all the other clamping systems, please check the compatibility of these systems with grippers.

**STANDARD**

1. Shape of the self-centring seat of the inserts with dovetail interlocking
2. Fixing holes to the vise
3. Made of steel with tensile strength ≈ 1080 N/mm² + nitriding

Scope of delivery:
- 1 x Set of Jaws
- 1 x Set of Parallels (PP)
- 1 x Wrench Torx T9
- 1 Set Screws (10 pce.)

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Check the dimensions of your jaw before purchasing.

Special jaws "Standard" upon request
Scope of delivery:
- 1 x Set of Jaws
- 1 x Wrench Torx T9
- 1 Set Screws (10 pce.)

... and how it works

1. Take the necessary dimensions of your vise
2. Drill the jaws at the same height of the supports of the vise
3. Mill the jaws to the necessary height
4. Mount the kit on your vise

Order number  A    |  B    |  F  | No. Inserts
58453119    125  |  59   |  14  | 9
58453319    160  |  59   |  14  | 9
58453419    200  |  70   |  15  | 9
# SinterGrip Inserts

- **Sintergrip inserts**
The set includes 10 inserts

## Order number | Description
--- | ---
58450119 | Set 10 SinterGrip - inserts STD for steel

## Order number | Description
--- | ---
58450129 | Set 10 SinterGrip - inserts HRC for hardened steel / titanium until 50-54 HRC

## Order number | Description
--- | ---
58450139 | Set 10 SinterGrip - inserts for ALU

## Accessories

## Order number | Description
--- | ---
58450219 | Kit 10 VTX30 x inserts SinterGrip

## Order number | Description
--- | ---
58450310 | Screwdriver TORX T9

## Order number | Description
--- | ---
58450320 | Wrench TORX T9

## Order number | Description
--- | ---
58450410 | Special cutting tool D3

## Order number | Description
--- | ---
58450519 | Kit 10 protection inserts in aluminium