

STRESS-FREE CLAMPING

The ice cube tray solidly stuck in the freezer or frost sticking to the windshields on winter mornings, are examples of the strong adhesive power of ice. This excellent adhesive¹ can link practically any material, whether rigid (metal, plastic, ceramic, graphite...) or flexible (rubber, neoprene, cloth...). It has the additional advantage, when it melts, of being reversible and leaving no residues.

Using these properties we have designed and developed a highly effective clamping system: **GF series icing plates**.

No more costly, specific assemblies. No more distortion and breakage due to clamping or unclamping... Whatever their shape, fragile parts are held firmly in place and without stress!

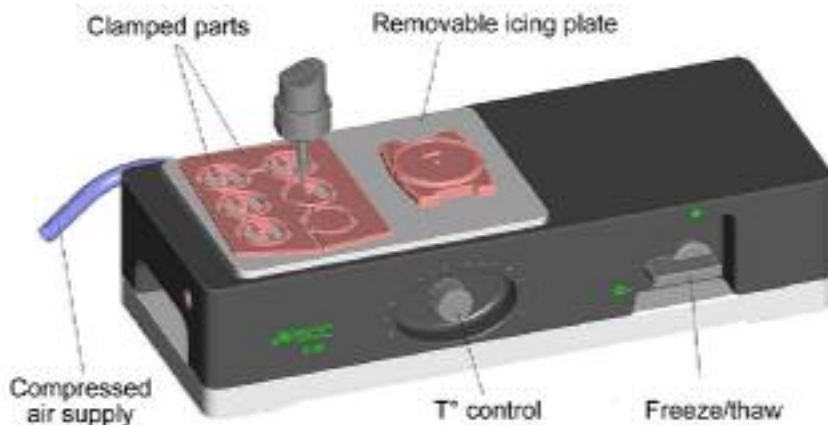
Plate cooling is achieved by means of a compressed-air heat exchanger². On some of our plates, the assembly is driven by a pneumatic control system². By utilizing the thermal inertia of the icing plate, this control system also saves compressed air. For long machining cycles the air consumption time is half the operating time.

Originally designed to meet the exacting demands in the space industry, the icing plates have since become a necessity in all fields involving the manufacture of delicate parts (medical, electronics, watchmaking, jewelry...).



UTILISATION

The compact and monoblock, **GF** icing plates can be quickly installed:



Connect the apparatus to the compressed air system³, spray water onto the icing plate and position the part to be machined. Then actuate the temp control button. Within seconds the water freezes and the part is clamped. Unclamping is done just as fast by reversing the freeze/thaw valve.

As there is no water thickness under the part, z-axis repeatability depends only on the referential.

Because the plate evacuates the calories generated by machining, standard lubrication is no longer necessary. Freezing increases the rigidity of a number of materials (plastics, raw ceramics, neoprene,...) thus improving surface condition.

⁽¹⁾ Tensile strength : ice = **214 lbs./sq. in.** (15 kg/cm²)
magnetization = 170 lbs./sq. in. (12 kg/cm²) , of vacuum = 14 lbs./sq. in. (1 kg/cm²)

⁽²⁾ Patented systems

⁽³⁾ Clean, dry compressed air (3.2.2. per AFNOR E 51.301)



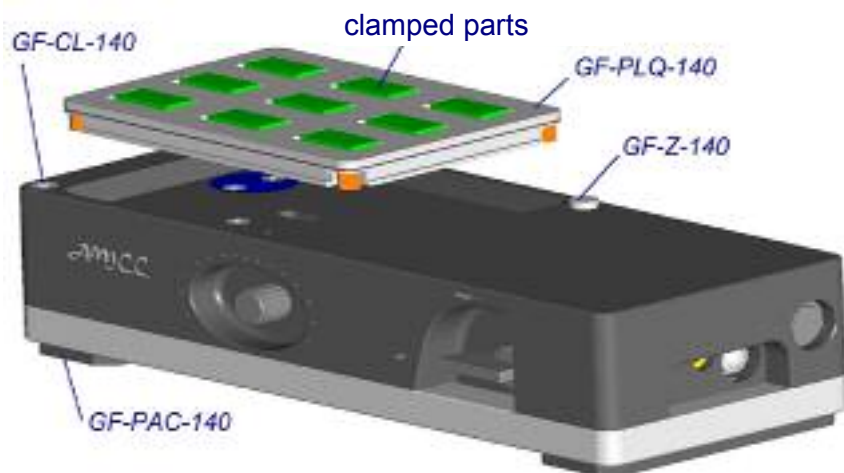
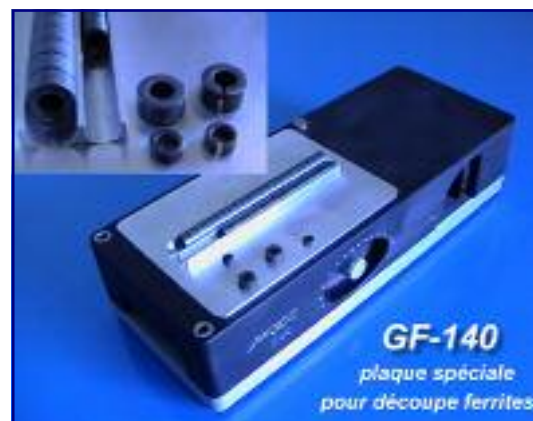
DATA SHEET : GF-140

GF-140 plates are used in milling, grinding and diamond dressing operations.

They are equipped with (patented) removable icing plates that can be machined as required.

Typically, recesses are bored into the removable plates to position the parts for finishing. Locating pins can also be used.

Like actual tools, these plates can be disassembled and stored after use for further manufacturing operations.



GF-140 can be fitted with optional equipment :

- **GF-PLQ-140** : removable icing plate
- **GF-CL-140** : 2 spindles for "X Y" positioning of planar templates designed to secure blanks to be machined.
- **GF-Z-140** : 1 non-freeze key "Z" for taking references even when the plate is covered with ice.
- **GF-PAC-140** : 2 steel shims for securing on magnetic grinder plate.

(Patented systems)



Our **GF-140** plates are supplied with carrying case, filter, wetting agent and pipette.

| référence | clamping surface | overall dimensions | instant consumption |
|---------------|------------------------------------|---|---------------------------------------|
| GF-140 | 5.51 x 3.94 inch (140 x 100 mm) | 11.34 x 5.67 x 2.68 inch (288 x 144 x 68 mm) | 14.67 CFM (24.8 m ³ /h) |

Operation with dry, clean compressed air: 3.2.2. per AFNOR E 51.301

