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**GUIDI**  
since 1968

**AG**®  
**MARINE**  
**ACCESSORIES**

metal VS. plastic  
in marine accessories

A MATTER OF SAFETY AND  
RESPECT FOR THE ENVIRONMENT

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# metal VS. plastic

• in marine accessories •

*a matter of safety and respect for the environment*

One of the most fashionable trends these days is to come across as environmentally friendly or, better said, to **come across as green**. Needless to say, this attitude is then advertised, boasted about, almost showed off - from private citizens who recycle everything by the book to companies using words like *recycled* and *recyclable*.

We have intentionally described this phenomenon as *coming across as green*, rather than *being green*: this contradiction is a response to an urgent market demand or to the need for a communication strategy that will be winning thanks to today's widespread lack of clarity.

There are many eco-labelled products that bear reassuring wordings like: *natural*, *eco-friendly*, *green*, *100% recyclable*, *100% recycled*.

Consumers often do not have the time, the desire or the conscience to gather more information about the raw materials used for a product. They read the eco-label and feel reassured.

The responsibility for a product and the raw materials it is made of lies with the Manufacturer. Consumers, in turn, are responsible for their purchases, their choices.





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As always, we like to be clear and want to provide thorough **information** to anyone deciding to buy a Guidi product, ensuring their full **awareness**.

But, first and foremost, their peace of mind. Guidi Eco-label: **YOU CAN TRUST US**

**Plastic** and **non-ferrous metals** are two common materials used in many industrial and consumer applications. While both can be useful in many ways, there are some important differences between the two.

Let us start with an **in-depth analysis** and provide some **information** that will result in greater awareness

*“ 50% of plastic is used only once.  
Plastic beats marine life six to one. ”*

These are just two meaningful figures that can be easily found in statistics.

We manufacture marine accessories, so, in addition to **supplying reliable and durable products**, we should also be true to our values, shouldn't we?

In a nutshell, both plastic and non-ferrous materials offer specific advantages and disadvantages and can be used effectively for a variety of applications. However, choosing the right material depends on specific application needs and on the differences between the two in terms of mechanical properties, cost, and the recycling potential.

Our eco-label reads **TRUST US**: we want to rest easy at night and recommend bronze, brass or aluminium products depending on the needs, and because of their recycling properties.

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## NON-FERROUS METALS

Non-ferrous metals are metal-based materials that do not contain iron, such as bronze, brass, aluminium, copper and titanium.

They are used because of their resistance to corrosion, rust, and deformation, as well as their ability to conduct electricity and heat.

One of the main differences between plastic and non-ferrous metals is their mechanical strength. **Non-ferrous metals are generally harder and stronger than plastic**, which makes them ideal for many applications where greater strength and durability are required.

They may be more expensive, but their greater durability and quality should be taken into account when purchasing them.

A significant difference between these two types of materials lies in their recycling properties. **Non-ferrous metals are completely recyclable**, and the process is relatively simple and inexpensive.

This makes non-ferrous metals a more environmentally friendly choice than plastic.

## PLASTIC

Plastic is a synthetic polymeric material, a by-product of crude oil refinement.

It can be melted and moulded into a variety of different shapes, which makes it a very versatile material, ideal for a wide range of applications.

It is generally lightweight, corrosion-resistant and easy to clean.

Plastic can be moulded into complex shapes, which means it is ideal for many customised applications.

It is generally cheaper than non-ferrous metals.

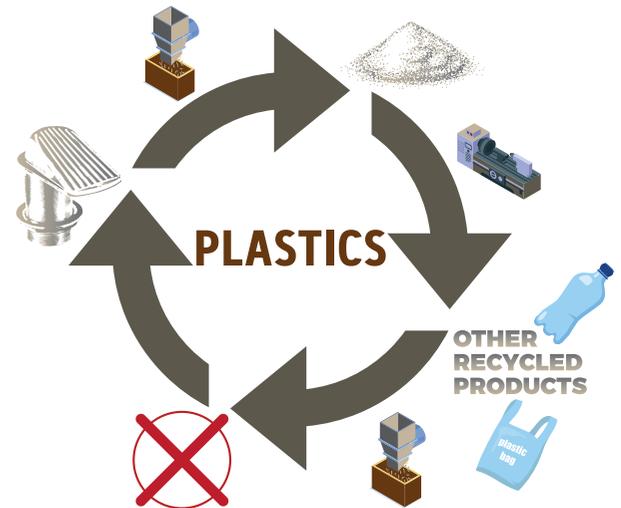
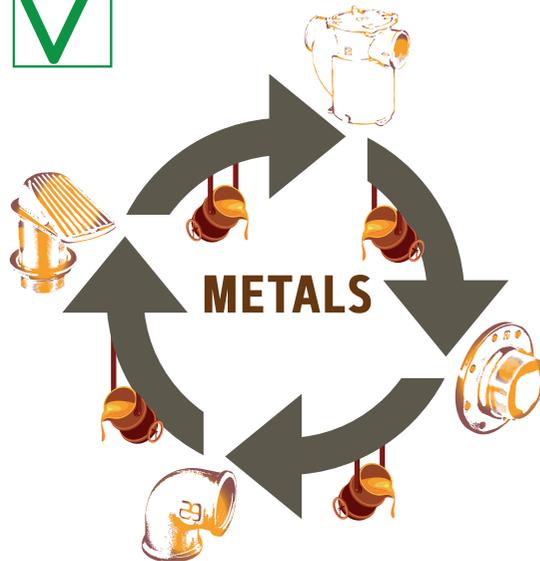
A significant difference between these two types of materials lies in their recycling properties. Plastic can be recycled, but **the recycling process is often complex and expensive**.

**After being used once, plastic cannot be 100% recycled and re-used.**



For nautical accessories like ours, the characteristics of the non-ferrous materials mentioned above are far superior and more reliable than those of all-plastic products. Moreover, non-ferrous materials have an excellent recycling potential.

**UNLIKE PLASTIC, METAL SCRAPS ALWAYS GO BACK TO THE SAME CYCLE.**



All our items are in bronze, brass and aluminium and are 100% recyclable. Because we recover and reuse chips and scraps, many of our products contain recycled material.

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# *the metals we use are truly green*

They are bronze, brass, aluminium - all non-ferrous metal materials.

A very important property of these materials is that they can be recycled several times without altering their chemical and physical properties.

Starting from the virgin raw material and then throughout its life, as it is used, recycled and taken back to being a raw material, the material does not lose its initial characteristics.

**It can be used almost indefinitely without degrading.**

All the turning scraps resulting from machining go back to the foundry and are re-used. All discarded products can return to the foundry and be reprocessed.

**This is not the case for plastic.**

Recycled plastic product labels often show a percentage, which indicates the amount of recycled raw material.

A certain amount of virgin raw material is necessary to grant stable physical and mechanical properties, like strength, resistance, and elasticity. In the case of technical products, a **small** percentage of recycled plastic needs to be added to a **large** percentage of virgin plastic.

**Unlike plastic, metal scraps always go back to the same cycle.**





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## *characteristics of some non-metal components found in Guidi products*

For some of our items, we need to use plastic or rubber components. We have not yet selected any suitable replacement material having equivalent characteristics and still being completely recyclable.

**The transparent covers of water strainers are in polycarbonate:** suitable for pleasure boating and for some civil applications in which the inner part of the water strainers needs to be visible. The resin we use is Lexan, which belongs to the polycarbonate family. It has high impact strength and resistance to temperature changes, greater elasticity and resistance to cutting and penetration.

**The covers of water strainer models Tirreno 1160 and 1160B are in Grilamid TR55.** This transparent cover is suitable for pleasure boating and some civil applications in which the inner part of the water strainers needs to be visible. Grilamid TR55 is a transparent polymer in granulate form having outstanding characteristics, including high resistance to chemicals and stress cracking. It has very high transparency, low moisture absorption, good flexural strength, and a high heat distortion temperature.

**The "U"-shaped profiles for water strainer impurity gatherers are in NBR:** a nitrile rubber with good flexural strength. It has excellent mechanical, tensile and tear strength, is resistant to deformation, abrasion and tearing, and has good resistance to low and high temperatures, as well as aggressive mineral oils, oil-derived hydrocarbons, the elements, steam and water, hot water (+ 100 °C), sea water, and salt solutions.

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**The blue handwheel of valve 2260 is in self-extinguishing ABS:** a hard material with excellent chemical and heat resistance. It is extremely robust, resilient, shiny and resistant to scratching, salt water and ageing.

**The black handwheels of non-stick valves are in PA6+GF:** an extruded polyamide polymer modified with glass fibre. It has outstanding mechanical properties and a low friction coefficient; excellent wear and tear, tensile and abrasion resistance; it retains its characteristics even under repeated stress, and is exceptionally resistant to compression and bending. It is also highly resistant to ageing, the elements and low temperatures, has an excellent dimensional stability, and its mechanical properties remain very good even as temperature increases.

**The O-rings are in Neoprene (polychloroprene), EPDM and NBR:** synthetic rubbers resistant to salt water. Among their main features are their high elasticity, excellent resistance to permanent deformation, abrasion, cutting and crushing, as well as oxidation and ageing. These materials are highly resistant to cold, degradation and fire.

**The O-rings of ball valves 2300 and 2400 are in EPDM rubber.** EPDM rubber is a terpolymer with excellent physical, mechanical and elastic properties. It is resistant to the elements, ageing, heat, and low temperatures. It delivers high water impermeability and is resistant to salt water and chemicals. It has a good impact, abrasion, tensile and ultimate strength.





**The ball of Siphonbreak valve item No. 1250, is in EPDM 35 SH:** a synthetic rubber ensuring excellent resistance to ageing, heat, oxygen, and the elements. It is also resistant to hot steam, hot water and polar media, including diluted alkalis and acids, alcohols, ketones, salt solutions and silicone oils.

The 35 SH blend is softer, so as to guarantee excellent tightness even at low water pressure.

**The ball of pushbutton cock item No. 1130 is in TGB60 rubber:** a 60 SH blend of NBR rubber, a nitrile rubber suitable for the passage of hydrocarbons (anti-oil) and, therefore, highly resistant to oils. It is watertight, resistant to high and low temperatures, and has good elasticity, flexibility, and compressive strength. It has good resistance to tearing and abrasion.

**The ball of valve 2400 is in PPS:** a semi-crystalline thermoplastic polymer with excellent mechanical properties and very good thermal, chemical and mechanical resistance. It is resistant to high temperatures and has a low water absorption. PPS has an excellent dimensional stability and outstanding wear resistance and friction behaviour.

An additional surface treatment is performed on the valve ball to increase resistance to fouling.

Where necessary, we use **transparent lubricant PTFE:** it lubricates and protects all components while reducing wear and friction. It improves sliding, even with porous materials, without any greasing or dripping. It adheres to surfaces and does not attract dirt, it ensures easy sliding between the parts, leaves no oily residues, does not form sludge. It is resistant to the elements and watertight.

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**The holding bracket of filter models Tirreno 1160 and 1160B is in Nylon PA66, the handle or opening key is in Nylon PA6. The universal key for *pump out* and deck fillers is in Nylon PA66.**

Nylon is a polymer having excellent mechanical properties and a low friction coefficient. It is very resistant to impacts, wear, and abrasion. It has an excellent strength and a high fatigue strength, and retains its characteristics even under stress. It has good resistance to ageing and the elements. It remains stable even at high temperatures and has good self-extinguishing properties. It is resistant to chemicals, including oils and solvents.

**These are the only not-completely-recyclable components we use.**

**Our technical department is carrying out studies and technical tests - also in cooperation with third parties - to increasingly minimise the use of non-fully-recyclable materials.**



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