



Norm:

Numeric designation: no EN norm

Symbolic designation: no EN norm

#### CHEMICAL COMPOSITION %

| ALLOY DESIGNATION     |     | ELEMENTS |     |     |      |      |      |      |     |      |      |      |            |             |
|-----------------------|-----|----------|-----|-----|------|------|------|------|-----|------|------|------|------------|-------------|
|                       |     | Si       | Fe  | Cu  | Mn   | Mg   | Cr   | Ni   | Zn  | Pb   | Sn   | Ti   | Other each | Other total |
| 5075 MG<br>(INGOTS)   | Min | 7,5      | 0,7 | 3,0 | 0    | 0,55 | 0    | 0    | 0,7 | 0    | 0    | 0    | 0          | 0           |
|                       | Max | 9,5      | 1,2 | 4,0 | 0,50 | 0,75 | 0,15 | 0,20 | 1,2 | 0,10 | 0,10 | 0,15 | 0,05       | 0,25        |
| 5075 MG<br>(CASTINGS) | Min | 7,5      | 0   | 3,0 | 0    | 0,50 | 0    | 0    | 0,7 | 0    | 0    | 0    | 0          | 0           |
|                       | Max | 9,5      | 1,3 | 4,0 | 0,55 | 0,75 | 0,15 | 0,20 | 1,2 | 0,10 | 0,10 | 0,25 | 0,05       | 0,25        |

NOTE: Other each includes the limits of all elements unspecified in the grid.

#### MECHANICAL PROPERTIES

(Mechanical properties obtained from samples cast separately at +20°C room temperature)

| CASTING PROCESS<br>(condition) | TEMPER<br>DESIGNATION | Rm               | Rp02           | A          | HB               | R Fatigue*         |
|--------------------------------|-----------------------|------------------|----------------|------------|------------------|--------------------|
|                                |                       | Tensile strength | Yield strength | Elongation | Brinell hardness | Fatigue resistance |
|                                |                       | MPa              | MPa            | %          | HBW              | MPa                |
| HIGH PRESSURE<br>DIE CASTING   | F                     | 280 - 320        | 170 - 185      | 1,5 - 3    | 95 - 105         | 60 - 90            |
| HIGH PRESSURE<br>DIE CASTING   | T5                    | 310 - 330        | 250 - 260      | 1 - 2      | 95 - 105         | 60 - 90            |

\*Values for tests under rotating bending conditions up to 10<sup>7</sup> cycles

#### PHYSICAL PROPERTIES

(The following properties are spoilt by the variation of the chemical composition, by its metallurgic structure, casting integrity and casting conditions, therefore these values are approximate)

|                              |                        |                                              |                        |
|------------------------------|------------------------|----------------------------------------------|------------------------|
| SPECIFIC WEIGHT              | 2,7 Kg/dm <sup>3</sup> | ELECTRICAL CONDUCTIVITY                      | 13 - 17 MS/m           |
| SPECIFIC HEAT<br>(at 100 °C) | 0,92 J/gK              | THERMAL CONDUCTIVITY                         | 110 - 120 W/(m K)      |
| ELASTIC MODULUS              | 76 GPa                 | LINEAR THERMAL EXPANSION<br>(20 °C - 100 °C) | 22·10 <sup>-6</sup> /K |



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#### TECHNOLOGICAL FEATURES

(Quality indications)

|                                         |   |                                             |   |
|-----------------------------------------|---|---------------------------------------------|---|
| CASTABILITY                             | B | DECORATIVE ANODIZING                        | E |
| RESISTANCE TO HOT TEARING               | B | ABILITY TO BE WELDED                        | F |
| PRESSURE TIGHTNESS                      | C | ABILITY TO BE POLISHED                      | C |
| MACHINABILITY<br>(after cast)           | B | STRENGTH AT ROOM<br>TEMPERATURE             | B |
| MACHINABILITY<br>(after heat treatment) | - | STRENGTH AT ELEVATED<br>TEMPERATURE (200°C) | B |
| RESISTANCE TO CORROSION                 | D | DUCTILITY                                   | D |

A: EXCELLENT, B: GOOD, C: FAIR, D: POOR, E: NOT RECOMMENDED, F: UNSUITABLE

#### GUIDELINES FOR USE

The ingot re-melting process must be carried out as fast as possible and overheating must be avoided (maximum melting temperature 750°C). Iron tools that may be touched by the liquid metal must be specially painted to avoid spoiling the alloy. The best alloy purification results are achieved by treating the alloy with inert gases, such as nitrogen and/or argon, to remove dissolved hydrogen and any oxides in the liquid bath. A careful skimming of the bath is recommended. It is allowed to recycle sprues and casting appendages up to 40% out of the total charge weight.

**Heat Treatment** - The possible treatments and the properties to be potentially achieved are listed in the table "MECHANICAL PROPERTIES".

#### FURTHER FEATURES OF THE ALLOY

**Resistance to weathering and seawater** - Limited resistance to weathering; not suitable for applications directly touched by seawater.

#### USUAL APPLICATIONS

This alloy is suitable for complex castings, to get excellent mechanical properties, thanks to its good pressure tightness and weldability. It is used in the automotive, engine, railway, aeronautics and armoury industries.

This alloy **does not comply** with Standard **EN 601**.