

Standard: **UNI EN 1676 and 1706**

Alloy group: **Al Si 10 Mg**

Alloy designation: **EN AB and AC 43200 Al Si 10 Mg (Cu)**

Replaces: **DIN 233**

CHEMICAL COMPOSITION %

| ALLOY | | ELEMENTS | | | | | | | | | | | | |
|-------------|-----|----------|------|------|------|------|----|------|------|------|----|------|-----------------------|-------------------|
| | | Si | Fe | Cu | Mn | Mg | Cr | Ni | Zn | Pb | Sn | Ti | Individual impurities | Global impurities |
| EN AB 43200 | min | 9,0 | | | | 0,25 | | | | | | | | |
| | max | 11,0 | 0,55 | 0,30 | 0,55 | 0,45 | - | 0,15 | 0,35 | 0,10 | - | 0,15 | 0,05 | 0,15 |
| DIN 233 | min | 9,0 | | | 0,1 | 0,20 | | | | | | | | |
| | max | 11,0 | 0,60 | 0,3 | 0,4 | 0,50 | - | 0,15 | 0,35 | 0,05 | - | 0,15 | 0,05 | 0,15 |

MECHANICAL FEATURES DETECTED FROM SEPARATE CASTING TEST SPECIMENS

| Casting process | Temper designations | Rm Tensile strenght | | Sp 0,2 Yield strenght | | A Elongation | | HB Brinell hardness | |
|---------------------------------------------|---------------------|------------------------|-----------|--------------------------|-----------|-----------------|----------|------------------------|----------|
| | | EN 1706 | DIN 1725 | EN 1706 | DIN 1725 | EN 1706 | DIN 1725 | EN 1706 | DIN 1725 |
| | | Mpa | N/mm2 | Mpa | N/mm2 | % | % | HBW | HB |
| SAND (as cast) Hardened and Aged artif. | F | 160 | 170 - 230 | 80 | 90 - 110 | 1 | 1 - 4 | 50 | 50 - 70 |
| | T6 | 220 | 220 - 320 | 180 | 180 - 260 | 1 | 1 - 3 | 75 | 80 - 110 |
| SHELL (as cast) Hardened and Aged artif. | F | 180 | 200 - 260 | 90 | 100 - 140 | 1 | 1 - 3 | 55 | 65 - 85 |
| | T6 | 240 | 240 - 320 | 200 | 210 - 280 | 1 | 1 - 3 | 80 | 85 - 115 |
| PRESSURE DIE (as cast) | Gd | | | | | | | | |

PHYSICAL PROPERTIES (indicative values subject to the UNI EN and ex DIN Standards)

| | | | |
|----------------------------------|-------------------------|------------------------------------------|-------------------|
| DENSITY | 2.69 Kg/dm ³ | THERMAL CONDUCTIVITY at 20°C | 130 - 170 W/(m K) |
| MELTING RANGE or MELTING POINT | 530 °C | LINEAR THERMAL EXPANSION from 20 t 100°C | - |
| | 600 °C | LINEAR THERMAL EXPANSION from 20 t 200°C | 22.0-10-6/°C |
| SPECIFIC HEAT (at 100)° | 0.90 J/Gk | LINEAR THERMAL EXPANSION from 20 t 300°C | - |
| LINEAR SHRINKAGE IN SAND | 1.0 - 1.2 % | SUGGESTED MAXIMUM TEMPERATURE | 780 °C |
| LINEAR SHRINKAGE IN SHELL PROCES | 0.5 - 0.8 % | SUGGESTED CASTING TEMPERATURE | |
| ELECTRIC CONDUCTIVITY | 16 - 24 MS/m | °in sand | 680 - 750 °C |
| MODULUS OF ELASTICITY | 7400 Kg/mm ² | °in shell | 680 - 730 °C |
| | | °in pressure die | - |

TECHNOLOGICAL FEATURES, QUALITATIVE INDICATIONS

| | | | |
|--------------------------------------------|-----------|---------------------------|-----------|
| STRENGTH AT ELEVATED TEMPERATURE(to 200°C) | MEDIUM | RESISTANCE TO HOT TEARING | SMALL |
| GENERAL RESISTANCE TO CORROSION | LOW | PRESSURE TIGHTNESS | GOOD |
| MACHINABILITY | GOOD | WELDABILITY | EXCELLENT |
| CASTABILITY | EXCELLENT | DECORATIVE ANODISING | LOW |
| POLISHING | MEDIUM | PROTECTIVE ANODISING | |

COMPARISON WITH EQUIVALENT OR SIMILAR FOREIGN STANDARDS

| | ITALY | GERMANY | FRANCE | G.B.R. | USA | ISO | JAPAN | TURKEY |
|------------|----------|----------------|-------------|-------------|----------------|-----------|----------------|---------|
| | UNI | (Din1725/5-86) | (NFA57-105) | (BS1490-88) | (ASTM B179-82) | (3522-84) | (JIS H2211-92) | (ETIAL) |
| Equivalent | | DIN 233 | AS 9 G | | | | | |
| Similar | UNI 5074 | | | | 361.1 | | D3 S | |

HEAT TREATMENTS

Heat treatments are not generally performed on this alloy; however, the following treatments can be performed to increase the mechanical properties of the same:

525°C for 4 - 8 hours. Hardening at

160°C for 6 - 10 hours. Complete Artificial Aging at