

# DuroPlast<sup>®</sup> NCS

## Technical Datasheet

|                   |           |                         |     |     |     |         |
|-------------------|-----------|-------------------------|-----|-----|-----|---------|
| Short Name        | ~ CW111C  | Chemical                | Ni  | Si  | Cr  | Cu      |
| Code              | CuNi2SiCr | Composition             | 2.4 | 0.7 | 0.5 | balance |
| Material-No.(old) | ~ 2.0855  | (Reference values in %) |     |     |     |         |

|                     |                                                                                                                                                         |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Material Properties | High thermal conductivity combined with good hardness and high-temperature. Good retention to tempering. Not suitable for case hardening and nitriding. |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|

|              |                                                                                                                                                                                                                                                                    |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Applications | <ul style="list-style-type: none"> <li>– Plastic injection molds: Solid molds or inserts (core and cavity side)</li> <li>– Tips for hot runner systems</li> <li>– Plunger tips for horizontal die casting machines</li> <li>– Molds for gravity casting</li> </ul> |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

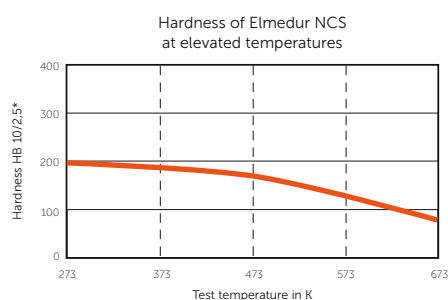
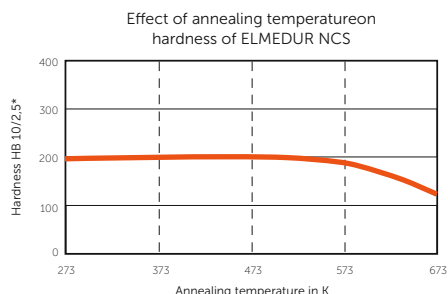
|                                          |                       |                    |           |
|------------------------------------------|-----------------------|--------------------|-----------|
| Mechanical Properties (Reference values) | Conditions            |                    | aged      |
|                                          | Hardness              | HB 62,5/2,5        | 190 – 240 |
|                                          | Tensile strength      | N/mm <sup>2</sup>  | min. 650  |
|                                          | Yield strength        | N/mm <sup>2</sup>  | min. 500  |
|                                          | Elongation L = 5 D    | %                  | 10 – 15   |
|                                          | Modulus of elasticity | kN/mm <sup>2</sup> | 140       |

|                     |                                                            |                       |                       |
|---------------------|------------------------------------------------------------|-----------------------|-----------------------|
| Physical Properties | Electrical conductivity<br>20 °C (293 K)                   | MS/m                  | ca. 26                |
|                     | Coefficient of thermal expansion<br>20 – 100°C (293-373 K) | $\frac{1}{K}$         | 16.0•10 <sup>-6</sup> |
|                     | Specific heat                                              | $\frac{J}{g \cdot K}$ | 0.42                  |
|                     | Thermal conductivity<br>20 °C (293 K)                      | $\frac{W}{m \cdot K}$ | 160                   |
|                     | Density                                                    | g/cm <sup>3</sup>     | 8.78                  |

|          |                                                                              |
|----------|------------------------------------------------------------------------------|
| Products | Depending on Rods and Plates size: cold drawn, extruded or forged executions |
|----------|------------------------------------------------------------------------------|

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### Machining Directions (Reference values)

| Turning                  | Tungsten Carbide K20          | HSS THYRAPID 1.3207           |
|--------------------------|-------------------------------|-------------------------------|
| Cutting speed (m/min)    | up to 150                     | up to 60                      |
| Rake angle               | 6 – 18                        | 15 – 25                       |
| Feed and depth of cut of | as to required surface finish | as to required surface finish |
| Chip breaker             | recommended                   | recommended                   |

| Milling               | Tungsten Carbide K20 | HSS THYRAPID 1.3207 |
|-----------------------|----------------------|---------------------|
| Cutting speed (m/min) | up to 150            | up to 60            |
| Rake angle            | positive             | positive            |
| Feed (mm/min)         | c. 200               | c. 80               |

| Drilling              | Twist drills in acc. with DIN 338                                                                                                               |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Cutting speed (m/min) | max. 20                                                                                                                                         |
| Chip flow             | For a better chip flow, drills with an enlarged twist angle should advantageously be used. We recommend contacting the respective manufactures. |
| Spark eroding         | EDM and wire cutting is possible                                                                                                                |
| Polish ability        | good                                                                                                                                            |

| Standards/<br>Tolerances |                                                   |
|--------------------------|---------------------------------------------------|
| DIN EN 12 163            | Round bars for general purpose                    |
| DIN EN 12 165            | Forging billets                                   |
| DIN EN 12 167            | Profiles and rectangular bars for general purpose |

All statements as to the properties or utilization of the materials and products mentioned in this datasheet are only for the purpose of description. Guarantees in respect of the existence of certain properties or utilization at the material mentioned are only valid if agreed upon in writing.