

ROVALMA

THE STEEL INNOVATOR



FECRONI[®]-2700

High Hardness Martensitic Chromium
Powder-Metallurgical Steel

FECRONI[®]-2700

Fecroni[®]-2700 is a martensitic chromium steel, produced by powder metallurgy, which can reach very high hardness levels of up to 60 HRC. Fecroni[®]-2700 combines high corrosion resistance and high wear resistance. Moreover, the manufacturing of high purity, homogenous and controlled sized powders provides Fecroni[®]-2700 with an outstanding dimensional stability during heat treatment near net shape.

Applications

Fecroni[®]-2700 is mainly used in dies for the injection of corrosive and abrasive thermoplastics or thermosets. It has also very successfully been used in dies, rotary cutting shears and tools used in the food or pharmaceutical industries, requiring high hardness and high corrosion resistance steel, and in dies and inserts for ceramics or concretes, when the process involves corrosive products, as well as in gauges, or tools for grinding machines, EDM machines, or other parts requiring high resistance to corrosion combined with high hardness. The typical usage hardness range is between 52 – 60 HRC, depending on the application.

Physical and Thermal Properties

Properties	300 K	473 K	Unit
Density	7.73	7.68	g/cm ³
Linear Thermal Expansion Coefficient		11.8	$\times 10^{-6} / K$
Thermal Diffusivity	4.9	5.1	mm ² /s
Thermal Conductivity	17	19	W/m·K
Specific Heat Capacity	0.46	0.49	J/g·K

The values given in the tables are typical values (neither maximum nor minimum values), for properly heat treated materials at a hardness level of 58-60 HRC. Thermal conductivity values are calculated on the basis of thermal diffusivity values measured by laser flash.

Heat Treatment

Like most tool and other specialty steel grades, Fecroni[®]-2700 obtains its optimized mechanical and physical properties through a corresponding heat treatment prior to final machining. Depending on application requirements and objectives, the heat treatment strategy can be adapted in order to obtain the best possible compromise of desired mechanical and physical properties for a given application and production environs. For more detailed heat treatment guidelines or recommendations for your specific application and production environs, please, do not hesitate to contact ROVALMA S.A.

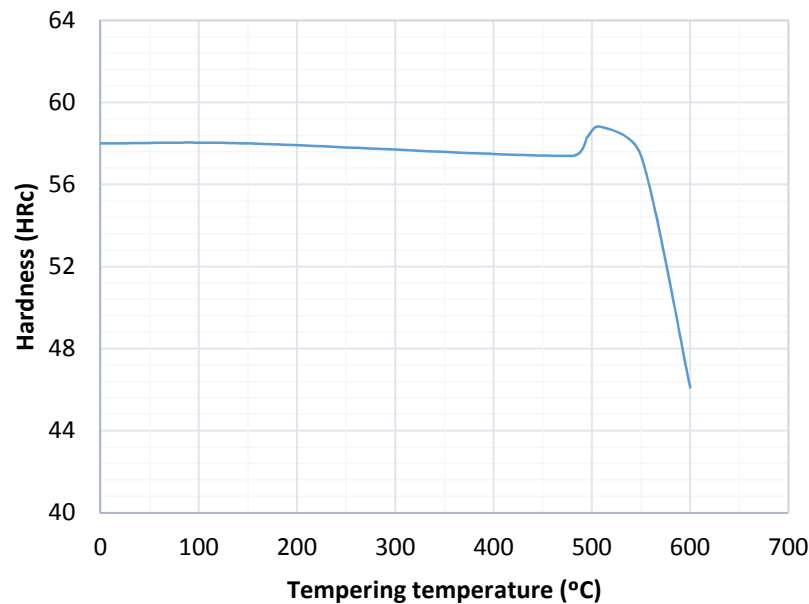
The following indications provide a general heat treatment guideline:

Hardening Fecroni®-2700

- Introduce the piece in the furnace at 100 °C or less.
- Heating from room temperature to 800 °C at a heating rate of 150 °C/h.
- Hold for homogenization until the core has reached the temperature of 800 °C.
- Heating from 800 °C to 1050 °C at a heating rate of 150 °C/h.
- Hold at 1080 °C for 20 minutes (see note with regard to holding times, further below).
- Cooling, using a N2 overpressure.
- Transfer immediately to tempering when piece reaches a temperature of about 50 – 80 °C.

Tempering Fecroni®-2700

- Start tempering immediately after quenching. At least 2 tempering cycles should be performed.



Note:

- We generally recommend that furnaces used for heat treatments should not be heated prior to the introduction of the material.
- Holding times start when the core reaches specified temperature levels, if no thermocouple is available, allow one (1) minute for every millimetre of thickness.
- In order to relieve tensions from rough-machining, it is generally recommendable to perform a stress relief treatment after rough machining, such that distortions resulting from stresses brought into the piece through the rough-machining can be corrected prior to the heat treatment. This is particularly true for severely machined pieces.

Designer & Provider of First-Class Tool Materials

ROVALMA, S.A. provides innovation in tool materials. Thanks to comprehensive research, innovative design and development, most recent production techniques as well as in depth quality control, we have achieved significant advances in the knowledge about material forming processes and generated important know-how regarding the production and optimal usage of our materials for a specific application. As a result, we can provide you with **first-class tool steels** for cold and hot work material forming processes and outstanding technical assistance.

We are proud to make our High Performance Tool Steels available to you for your specific applications. Do not hesitate to contact us for the latest information.

Application Engineering Service

In order to fully exploit the advantages and the potentials of ROVALMA's High Performance Tool Steels, we offer our customers the support of our Application Engineering Service. Our highly qualified and dedicated engineers can assist you in selecting the optimized grade for your application and provide you with the corresponding technical recommendations. It is our mission to increase the competitive-advantage of our customers and support them in achieving the highest possible cost-effectiveness.

You can access our service directly by sending an email to: ae-fast@rovalma.com.



ROVALMA, S.A. carries out ongoing research for many applications regarding the usage of the materials here presented. This research often brings along significant advances in the knowledge of a given process and thus important information regarding the best possible usage of the materials for a specific application. We strongly recommend to get in contact with ROVALMA, S.A. for the latest information regarding a specific application.

Rovalma S.A.
HT
C/ Apol·lo, 51
08228 Terrassa (Barcelona)
SPAIN
Tel. (+34) 935 862 949
Fax (+34) 935 881 860

Rovalma S.A.
Head Office
C/ Collita, 1-3
08191 Rubí (Barcelona)
SPAIN
Tel. (+34) 935 862 949
Fax (+34) 935 881 860

Rovalma GmbH
German Office
Geibelstraße 5
12205 Berlin
GERMANY
Tel. +49 (0)30 810 59 717
Fax +49 (0)30 810 59 715

www.rovalma.com

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