



## **Corroplast FM**

The corrosion-resistant steel  
for complex plastic moulds

## „All stainless“- mould construction

Moulds made of corrosion-resistant tool steel are indispensable in the plastics processing industry.

The tools, which are used in an environment characterized by heat, condensation and coolant, must meet highest standards. But this is not all:

Today's market situation requires a higher machining volume due to increasing numbers of cavities and borings, which leads to additional challenges for mould makers.

With Corroplast FM, Deutsche Edelstahlwerke

presents the solution for mould makers, who don't accept compromises regarding corrosion resistance and machinability of the raw material.

Compared to established plastic mould steels, Corroplast FM sets new standards with regard to its machinability and unchanged corrosion resistance. For this reason, it is optimally suited for complex base and mounting plates, mould frames and plastic moulds with common surface finish. With the developed analysis, based on simulation technology, and the improved microstructure of Corroplast FM, the users thus have new possibilities to optimize their process costs.



## Corroplast FM at a glance

Benefits for plastic manufacturers.

High profitability and efficiency: The very good machinability and homogenous microstructure of Corroplast FM result in increased productivity without loss of quality.

Good stability despite time-consuming machining of the raw material: Even for filigree components and limited cavity spacing.

Consistent corrosion-resistance: Even when additional corrosion-resistant materials are used, which combined with other steels would have triggered contact corrosion.

No obstruction of the water flow rate and heat dissipation due to corrosion products or algae growth in the cooling bore holes.

Good thermal conductivity results in a high cycle time.

Facilitated maintenance: Even in difficult climatic conditions with high humidity or in saline coastal air.



# Corroplast FM

Well packaged with Corroplast FM.

Each year more than 300 million tons of plastics are used worldwide. The largest proportion is used by the packaging industry.

Plastic has made unparalleled progress here, which is set to continue. Due to the growing international requirement of plastic packaging, the plastic manufacturers are forced to be increasingly efficient in their production. Additionally, the expectations on packaging design and quality are increasing.

The outstanding machining properties and the stable corrosion-resistance make Corroplast FM to the ideal material for the packaging industry.

**Here some application examples are given:**

## **PET bottle production**

Corroplast FM as setup material for injection moulds, in which preforms are produced.

## **Packaging for medical products**

Corroplast FM for rubber processing moulds.

## **Liquid food packaging**

Corroplast FM as steel for blow moulds, in which containers for drinks are produced.

## **General food packaging**

Corroplast FM as setup material for injection moulds, in which container lids are injected.

## **Packaging for the cosmetics industry**

Corroplast FM as plastic mould steel for tools in which cosmetic bottles are manufactured with most diverse design requirements. Furthermore, Corroplast FM is also suited for the production of plastic and natural rubber parts within the automotive industry.

**Your application was not included? Please contact our experts in order to benefit from Corroplast FM.**

## **General note (liability)**

Printing errors, omissions and changes accepted. Product-specific data sheets have priority over the information provided in this brochure. The desired performance characteristics are binding only if they are exclusively agreed upon at the conclusion in a contract.

**Chemical composition (in weight-%)**

C	Mn	S	Cr	Additions
0.22	1.60	0.12	12.50	+

**Physical properties**

Density in kg/dm <sup>3</sup>	7.6
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Coefficient of thermal expansion in 10 <sup>-6</sup> /K	
20 - 100 °C	8.5
20 - 200 °C	10.0
20 - 300 °C	15.2
20 - 400 °C	14.6
20 - 500 °C	14.3

Thermal conductivity in W/(m K)	
20 °C	22.2
150 °C	22.6
350 °C	23.2

**Mechanical properties**

The following table summarizes the mechanical properties of the Corroplast FM in as-delivered condition.

Heat treatment diameter in mm	13
Yield strength $R_{p0.2}$ in MPa	720
Tensile strength $R_m$ in MPa	900
Elongation A in %	10
Reduction of area Z in %	26

**Machining values Corroplast FM (hardness 270 - 315 HB)**

Tool	Hobbing / slot milling Ø 25	Face milling Ø 120	Round plate Ø 66	Drilling
Cutting Material	K 15	P 40 cut	P 40 cut	Solid carbide
Cutting speed $v_c$ in m/min	80	160	160	80
Feed per tooth $f_z$ in mm	0.4	0.8	0.7	0.3
Depth of cut $a_p$ in mm	5 / 10	2.5 / 3.5	2 / 3	55
Width of cut $a_e$ in mm	25.0	-	-	18.5
Stability of the machine, clamping + workpiece	+++	+++	+++	+++



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