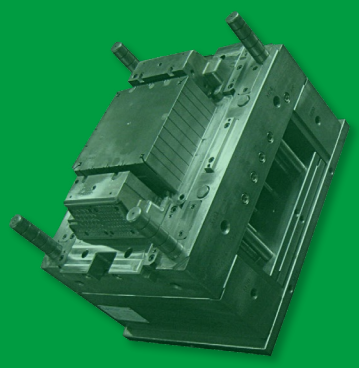
VR Stainless

Plastic mould steel



1 Main characteristics and applications

Pre-hardened Martensitic stainless Chromium steel with low Carbon, characterized by special alloying with the addition of Sulphur.

VR Stainless is used for core parts and mould bases of corrosion resistance plastic moulds or where equipment needs to be made with excellent workability and excellent corrosion resistance, dies for plastic extrusion, plastic and rubber molds.

VR Stainless offers the following advantages:
- high machinability.
- good corrosion resistance.
- uniform of hardness.
- improved weldability.
- good ductility.

2 Chemical composition (typical in weight %)

C	Mn	Si	Cr	Mo	P	S
0.06	1.1	0.40	12	Max 0.40	0.005	0.11

3 Production technology

EAF – LF – VOD - Forging/Rolling – Heat treatment QT

4 US specification

In according to standard EN10228-3 Class 4 and standard SEP 1921 Class E/d

5 Delivery condition

VR Stainless is in delivered quenched and tempered condition, with hardness range 280-325HB (29–36 HRC)

6 Mechanical properties

Approximate values

	Tensile test UNI EN ISO 6892-1					Impac test UNI EN ISO 148-1
Specimen dimension	**S_0**	**L_0**	**R_0 0,2%**	**Rm**	**A5**	**KvX-20°C**
a x b (mm)	(mm^2)	(mm^2)	(N/mm^2)	(N/mm^2)	(%)	(J)
25,1 x 11	276,1	95	786	1076	10	26
25 x 11	275	95	800	1078	10	24
25 x 11	275	95	1040	1074	11	24

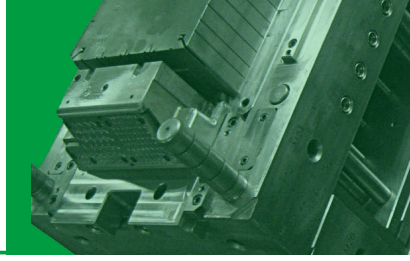
7 Inclusion content

Microcleanliness: to ASTM E 45 method A: The check must be carried out as per ASTM E 45 met. A.
The maximum permissible grade in the worst filed must be but not certificate:

ASTM E 45	At	Ah	Bt	Bh	Ct	Ch	Dt	Dh
max	-	-	1,5	1,0	1,0	0,5	1,0	0,5

Sulphide Type A, not considered for S 0,12%

VR TOOL STEELS® NLMK Verona

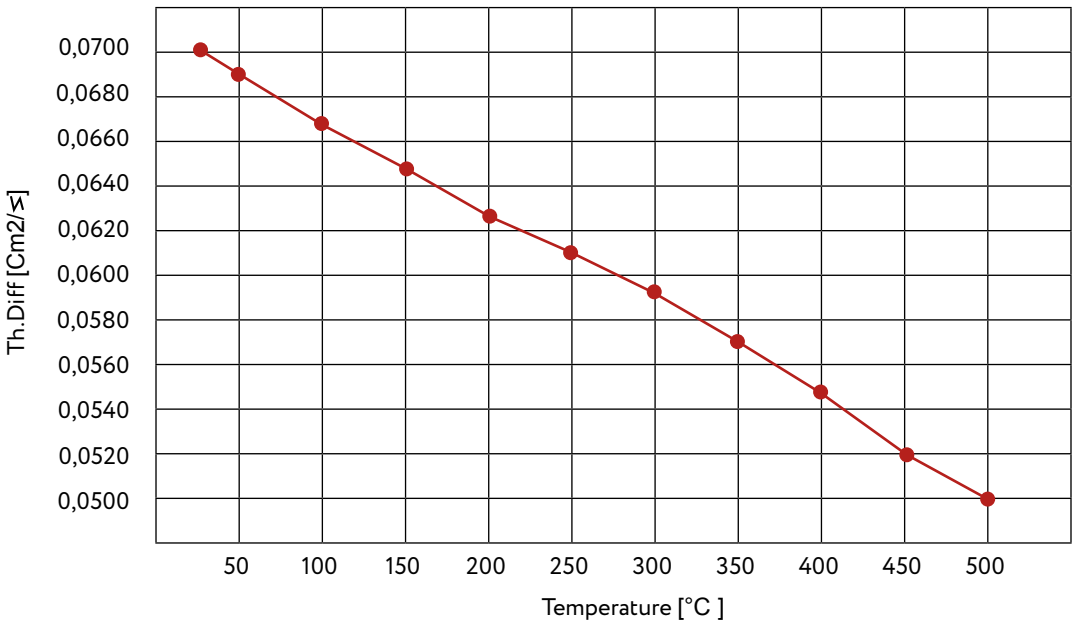


8 Physical data

Approximate values

PHYSICAL DATA

Temperature	20°C	100°C	200°C	300°C	500°C
Density	7522	7530	7549	7579	7643
Kg/m³					
Modules of elasticity	786-800 1040	-	-	-	-
N/mm²					
Coefficient of thermal expansion	-	4,66	6,74	9,03	11,24
from 20°C 1/k					
Thermal conducitivity	114	109	102	97	83
W/m °C					
mm²/s	7	6,6	6,2	5,91	4,97



NLMK Verona S.p.A
Via Antonio Salieri, 22 - 37050 Vallese di Oppeano (VR) - Italy
Tel. : +39 045 69 97 900 - Fax : +39 045 69 97 915
toolsteel.verona@eu.nlmk.com - toolsteels.nlmk.com