

Series	Description
NIMAX-CB	Hard Chrome Plated Steel Bars steel grade: C45E, C35E, 20MnV6, 38MnVS6, 42CrMo4 / Ø6 - 160 mm / Ø1/4" - 6"

Steel grades correspondents

EN	Werkstoff	DIN	B.S.	UNI	JIS	GOST	AISI SAE ASTM
C45E	1.1191	Ck45	080M46	C45	S45C	45	1045
C35E	1.1181	Ck35	080M36	C35	S35C	35	1035
-	1.5217	20MnV6	55M	-	-	-	A572
38MnVS6	1.1303	38MnSiVS5	-	-	-	-	(10V45) *
42CrMo4	1.7225	42CrMo4	708M40	42CrMo4	SCM440(H)	40ChFA	4140

* equivalent

Chemical composition - in % by weight

Steel grade	C	Si	Mn	P	S	Cr	Mo	Ni	V	N
C45E	0.42 ÷ 0.50	max. 0.40	0.50 ÷ 0.80	max. 0.030	max. 0.035	max. 0.40	max. 0.10	max. 0.40	-	-
C35E	0.32 ÷ 0.39	max. 0.40	0.50 ÷ 0.80	max. 0.030	max. 0.035	max. 0.40	max. 0.10	max. 0.40	-	-
20MnV6	0.16 ÷ 0.22	0.10 ÷ 0.50	1.30 ÷ 1.70	max. 0.035	max. 0.035	-	-	-	0.08 ÷ 0.20	-
38MnVS6	0.34 ÷ 0.41	0.15 ÷ 0.80	1.20 ÷ 1.60	max. 0.025	0.020 - 0.060	max. 0.30	max. 0.08	-	0.08 ÷ 0.20	0.010 ÷ 0.020
42CrMo4	0.38 ÷ 0.45	max. 0.40	0.60 ÷ 0.90	max. 0.025	max. 0.035	0.90 ÷ 1.20	0.15 ÷ 0.30	-	-	-

Mechanical properties

Steel grade	Diameter Ø mm	Tensile strength R _m N/mm ²	Yield point R _{p0.2} N/mm ²	Elongation A ₅ %	Hardness * Brinell N/mm ²	Norm
C45E	6 < Ø ≤ 16	min. 710	min. 500	min. 5	218 - 319	EN 10277-5
	16 < Ø ≤ 40	min. 650	min. 410	min. 7	200 - 298	
	18 ≤ Ø ≤ 100	min. 580	min. 305	min. 16	172 - 242	EN 10083-2
	100 < Ø ≤ 160	min. 560	min. 275	min. 16	172 - 242	
C35E	6 < Ø ≤ 16	min. 600	min. 420	min. 6	178 - 298	EN 10277-5
	16 < Ø ≤ 40	min. 580	min. 320	min. 8	172 - 263	
	18 ≤ Ø ≤ 100	min. 520	min. 270	min. 19	154 - 207	EN 10083-2
	100 < Ø ≤ 160	min. 500	min. 245	min. 19	154 - 207	
20MnV6	6 < Ø ≤ 25	min. 700	min. 620	min. 10	213 - 260	Technical data according to internal norm
	19 < Ø ≤ 80	min. 600	min. 460	min. 18	159 - 172	
	80 < Ø ≤ 160	min. 550	min. 420	min. 18	159 - 172	
38MnVS6	20 < Ø ≤ 160	800 - 950	min. 460 **	min. 12	240 - 290	EN 10267
42CrMo4+QT	6 < Ø ≤ 16	1100 - 1300	min. 900	min. 10	298 - 359	EN 10083-3
	16 < Ø ≤ 40	1000 - 1200	min. 750	min. 11	298 - 359	
	40 < Ø ≤ 100	900 - 1100	min. 650	min. 12	271 - 331	
	100 < Ø ≤ 160	800 - 950	min. 550	min. 13	240 - 286	

Note:

Impact energy: min. 27J at -20° C for 20MnV6

Impact energy: min. 35J at 20° C for 42CrMo4+QT

* The hardness values are for information only

** On request for diameters between 20 < Ø < 90 mm we can provide material with R_{p0.2} min. 520 N/mm²

Hard Chrome Plated Steel Bars

steel grade: C45E / C35E, 20MnV6 / 38MnVS6, 42CrMo4



Series **NIMAX 120-CB** - C45E / C35E
NIMAX 120-CBM - 20MnV6 / 38MnVS6
NIMAX 120-CBV - 42CrMo4+QT

Dimensions	Ø6 - 160 mm / Ø1/4" - 6"
Diameter tolerance	ISO f7 / other, on request
Roundness	max. 1/2 from diameter tolerance
Standard length	5000 - 7500 mm / on request cut lengths and special lengths
Surface roughness	Ra: max. 0.20 µm
Chrome layer thickness	Ø < 20 mm: min. 15 µm Ø ≥ 20 mm: min. 20 µm
Chrome layer microhardness	min. 900 HV0.1
Straightness	Ø ≤ 16 mm: max. 0.3 mm/1000 mm Ø > 16 mm: max. 0.2 mm/1000 mm

- ✓ *The hard chrome surface of the bars confers corrosion and wear resistance, reduces friction, improves durability and through abrasion tolerance ensures good oil holding as well.*
- ✓ *Commonly used for non aggressive, indoor applications, for rods not exposed to mechanical strokes or blows.*
- ✓ *The smooth appearance of the hard chrome surface is conferred by an attentive preparation of the steel bars before plating.*

Table of dimensions - tolerance

Diameter mm	ISO f7 µm	Diameter mm	ISO f7 µm
Ø = 6	-10 / -22	30 < Ø ≤ 50	-25 / -50
6 < Ø ≤ 10	-13 / -28	50 < Ø ≤ 80	-30 / -60
10 < Ø ≤ 18	-16 / -34	80 < Ø ≤ 120	-36 / -71
18 < Ø ≤ 30	-20 / -41	120 < Ø ≤ 160	-43 / -83

Upon request we can provide chrome plated bars with different levels of corrosion resistance

Diameter mm	Standard product	Medium corrosion resistance	High corrosion resistance
	NIMAX 120-CB NIMAX 120-CBM NIMAX 120-CBV	NIMAX 200-CB NIMAX 200-CBM NIMAX 200-CBV	NIMAX 500-CB NIMAX 500-CBM NIMAX 500-CBV
Ø < 20	rating 9 after 72 h in NSS	-	-
Ø ≥ 20	rating 9 after 120 h in NSS	rating 9 after 200 h in NSS	rating 9 after 500 h in NSS

Tested in our own laboratory according to ISO 9227, evaluated according to ISO 10289. On request we can test our products in AASS fog chamber.