



We stand behind our products

CHROME PLATED STEEL BARS



STANDARD CHROME PLATED STEEL BARS

CHEMICAL COMPOSITION – IN % BY WEIGHT

Steel grade ASTM	European Standard EN	C	Si	Mn	P max.	S	Cr	Mo	Ni max.	Cu max.	V	N
1045	EN ISO 683-1	0.42 ÷ 0.50	0.10 ÷ 0.40	0.50 ÷ 0.80	0.025	max 0.035	max. 0.40	max. 0.10	0.4	0.3	-	-
1050	EN ISO 683-1	0.47 ÷ 0.55	0.10 ÷ 0.40	0.60 ÷ 0.90	0.025	max 0.035	max. 0.40	max. 0.10	0.4	0.3	-	-
10V45	EN 10267	0.34 ÷ 0.41	0.15 ÷ 0.80	1.20 ÷ 1.60	0.025	0.020 ÷ 0.060	max. 0.30	max. 0.08	-	-	0.08 ÷ 0.20	0.010 ÷ 0.020
4140	EN ISO 683-2	0.38 ÷ 0.45	0.10 ÷ 0.40	0.60 ÷ 0.90	0.025	max. 0.035	0.90 ÷ 1.20	0.15 ÷ 0.30	-	0.4	-	-



SPECS

Dimensions	0.25" - 6.25" (6mm-160mm)
Diameter tolerance	ISO h8 / other, on request
Roundness	max. 1/2 from diameter tolerance
Standard length	18-24 ft / on request, cut and special lengths
Surface roughness	Ra: max. 8 µinch
Chrome layer thickness	min. 0.0005" or min. 0.001" as per customer request
Chrome layer microhardness	min. 900 HV0.1
Straightness	Ø < 0.625": max. 0.0035 inch/ft Ø ≥ 0.625": max. 0.0024 inch/ft
Induction hardened	min. 50 HRC @0.05"

TABLE OF DIMENSIONS TOLERANCE

Dimension Ø inch	Dimension Ø mm	ISO h8 inch
0.25 < Ø ≤ 0.375	6 < Ø ≤ 10	0 / -0.00087
0.375 < Ø ≤ 0.75	10 < Ø ≤ 18	0 / -0.0011
0.75 < Ø ≤ 1.25	18 < Ø ≤ 30	0 / -0.0013
1.25 < Ø ≤ 2	30 < Ø ≤ 50	0 / -0.0015
2 < Ø ≤ 3.25	50 < Ø ≤ 80	0 / -0.0018
3.25 < Ø ≤ 4.75	80 < Ø ≤ 120	0 / -0.0021
4.75 < Ø ≤ 6.25	120 < Ø ≤ 160	0 / -0.0025

STANDARD DIMENSIONS RANGE

Yield point		Steel grade ASTM	Dimension Ø inch	Dimension Ø mm
KSI min.	N/mm² min.			
50	345	1045/1050	0.25" - 6.25"	6mm-160mm
75	517	1045/1045+QT 10V45	0.25" - 6.25" 0.75" - 6.25"	6mm-160mm 20mm-160mm
100	690	1045/1045+QT 4140+QT	0.25" - 6.25" 0.625" - 6.25"	6mm-160mm 15mm-160mm

CORROSION RESISTANCE LEVELS

MEDIUM corrosion resistance	HIGH corrosion resistance	EXTREME corrosion resistance
ASTM B117 ISO 9227 NSS	ASTM B117 ISO 9227 NSS	ASTM B117 ISO 9227 NSS
200-CB	500-CB	1000-CB
Rating 10 after 200 hours no corrosion	Rating 10 after 500 hours no corrosion	Rating 10 after 1000 hours no corrosion
Tested in our own laboratory according to ISO 9227 (ASTM B117), evaluated according to ISO 10289.		

10V45 steel grade has excellent machinability, good weldability and it is widely used in civil, mechanical and chemical engineering applications.

4140 steel grade has high hardenability and is an excellent material for the oil and gas industry, mining and automotive engineering.

INDUCTION HARDENED CHROME PLATED STEEL BARS

CORRESPONDENCE BETWEEN STEEL GRADE AND SURFACE HARDNESS (ICB)

	ICB 1045	ICB 10V45	ICB 4140+QT
Surface hardness beneath the chrome layer	58±3 HRC	57±3 HRC	59±3 HRC



HARDENING DEPTH (SHD)

DIMENSION Ø INCH	DIMENSION Ø MM	1045 / 4140+QT	10V45
inch	mm	inch	inch
0.25 - 0.5	6 - 12	0.023 - 0.04	0.043 - 0.055
0.5 - 0.625	12 - 15	0.03 - 0.055	0.043 - 0.055
0.625 - 0.6875	15 - 18	0.043 - 0.06	0.043 - 0.055
0.75	19	0.047 - 0.06	0.043 - 0.055
0.787	20	0.047 - 0.06	0.043 - 0.055
0.875 - 1	22 - 25	0.055 - 0.067	0.043 - 0.055
1.125	28	0.06 - 0.07	0.043 - 0.055
1.25 - 1.375	30 - 36	0.06 - 0.075	0.05 - 0.067
1.5 - 1.625	38 - 40	0.067 - 0.09	0.05 - 0.067
1.625 - 1.75	42 - 45	0.067 - 0.09	0.067 - 0.09
2 - 3.25	50 - 80	0.087 - 0.1	0.067 - 0.09
3.25 - 4	82 - 100	0.087 - 0.13	0.067 - 0.09
4.25 - 4.75	105 - 120	0.1 - 0.14	0.067 - 0.09
5 - 5.5	125 - 140	0.1 - 0.14	0.067 - 0.09
5.75 - 7	145 - 180	0.11 - 0.16	0.067 - 0.09

INDUCTION HARDENED CHROME PLATED STEEL BARS

Extensively used for those applications requiring a high surface hardness and excellent resistance to surface impact (eg. mining equipment).

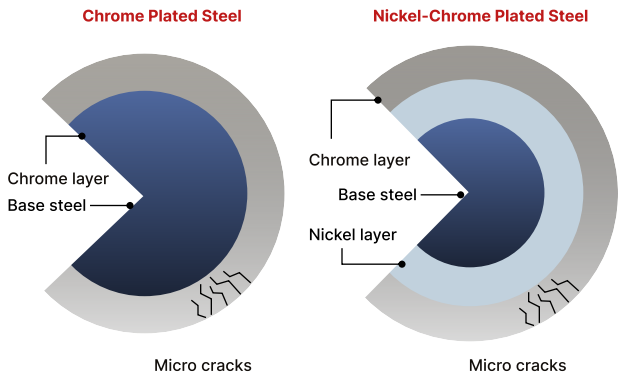
Offering greater strength and resistance to mechanical strokes, coupled with good core strength, the induction hardened and hard chrome plated steel bars are characterized by an extremely smooth surface finish, granting as well an excellent wear and corrosion resistance.

The surface does not withstand though a high, direct and continuous pressure, but only the one of hydraulic seals.

NICKEL-CHROME PLATED STEEL BARS

Dimensions	0.75" - 6.25" (19mm-160mm)
Diameter tolerance	ISO h8 / other, on request
Roundness	max. 1/2 diameter tolerance
Standard length	up to 19 ft / on request, cut lengths and special lengths
Surface roughness	max. Ra: 8 µinch
Nickel layer thickness	min. 0.0011"
Chrome layer thickness	min. 0.0010"
Nickel layer microhardness	min. 300HV0.1
Chrome layer microhardness	min. 900HV0.1
Straightness	max. 0.0024 inch/ft
Induction hardened	min. 50 HRC @0.05"

The nickel layer is completely free of cracks, pores and therefore, the material is isolated from the environmental corrosion, while the chrome layer ensures a great wear resistance.



CORROSION RESISTANCE LEVELS

	NCB 350		NCB 500	
Diameter inch	ASTM B117 ISO 9227 NSS	ASTM B287 ISO 9227 AASS	ASTM B117 ISO 9227 NSS	ASTM B287 ISO 9227 AASS
0.75" - 6.25" (19mm-160mm)	rating 10 after 1000h no corrosion	rating 10 after 350h no corrosion	rating 10 after 1500h no corrosion	rating 10 after 500h no corrosion
Tested in our own laboratory according to ISO 9227 (ASTM B117 and ASTM B287), evaluated according to ISO 10289.				

STANDARD DIMENSIONS RANGE

Yield point		Steel grade ASTM	Dimension Ø inch	Dimension Ø mm
KSI min.	N/mm² min.			
50	345	1045/1050	0.75" - 6.25"	19mm-160mm
75	517	1045/1045+QT 10V45	0.75" - 6.25" 0.75" - 6.25"	19mm-160mm 19mm-160mm
100	690	1045/1045+QT 4140+QT	0.75" - 6.25" 0.75" - 6.25"	19mm-160mm 19mm-160mm

The nickel and chrome plating technology is the solution to extreme environments with intense corrosion:

- off shore, marine conditions;
- wind, solar and aerospace sector;
- agriculture, mining industry, oil and gas industry.

As per your request, we can produce Nickel-Chrome plated steel tubes.

CHROME PLATED STAINLESS STEEL BARS

CHEMICAL COMPOSITION – IN % BY WEIGHT

Steel grade	C	Si max.	Mn max.	P max.	S max.	Cr	Mo	Ni	N	Cu
AISI 420	0.16 ÷ 0.25	1.00	1.50	0.04	0.03	12.00 ÷ 14.00	-	-	-	-
AISI 431	0.12 ÷ 0.22	1.00	1.50	0.04	0.03	15.00 ÷ 17.00	-	1.50 ÷ 2.50	-	-
AISI 304	max. 0.07	1.00	2.00	0.045	0.03	17.50 ÷ 19.50	-	8.00 ÷ 10.50	max. 0.10	-
AISI 316	max. 0.07	1.00	2.00	0.045	0.03	16.50 ÷ 18.50	2.00 ÷ 2.50	10.00 ÷ 13.00	max. 0.10	-
AISI 630	max. 0.07	0.70	1.50	0.04	0.03	15.00 ÷ 17.00	max.0.60	3.00 ÷ 5.00		3.00 ÷ 5.00

SPECS

Dimensions	Ø1/4" - 4" / Ø6 - 100 mm
Diameter tolerance	ISO h8 / other, on request
Roundness	max. 1/2 from diameter tolerance
Standard lengths	3000 - 6500 mm
Special lengths	On request we can offer cut to fix lengths pieces
Surface roughness	Ra: max. 8 µinch
Chrome layer thickness	min. 0.0005" or min. 0.001" as per customer request
Chrome layer microhardness	min. 900 HV0.1
Straightness	Ø < 0.625": max. 0.0035 inch/ft Ø ≥ 0.625": max. 0.0024 inch/ft

TABLE OF DIMENSIONS TOLERANCE

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1.25< Ø ≤2	30 < Ø ≤ 50	0 / -0.0015
2< Ø ≤3.25	50 < Ø ≤ 80	0 / -0.0018
3.25< Ø ≤4.75	80 < Ø ≤ 120	0 / -0.0021

CHROME PLATED STAINLESS STEEL BARS

Obtained trough a chrome plating process over a stainless steel base material, this product not only satisfies certain oxidation resistance requirements, given by the used type of stainless steel, but also different mechanical demands.

Granting higher corrosion resistance, generally used in automotive, food and pharmaceutical industries, the stainless steel grades with higher Nickel content provide a good impact resistance even at lower temperatures (-4°F).

CORROSION RESISTANCE LEVELS

DIAMETER	STEEL GRADE	NSS
Ø1/4" - 4" / Ø6 - 100 mm	AISI 420	rating 9 after 200 hours
	AISI 431	rating 9 after 500 hours
	AISI 304	rating 9 after 1000 hours
	AISI 316	rating 9 after 1200 hours
	AISI 630	rating 9 after 1450 hours
Tested in our own laboratory according to ISO 9227, evaluated according to ISO 10289.		



CUSTOM OPTIONS

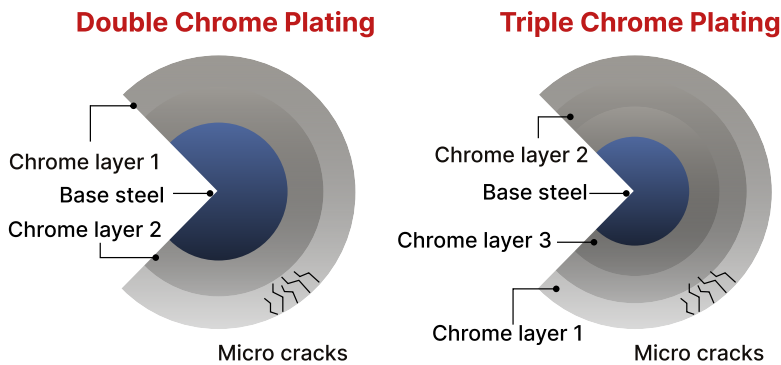
DOUBLE, TRIPLE CHROME PLATING

Double chrome plating

For components subject to strong corrosion stress, we recommend our double-chrome plating process, which was developed and tested in our laboratory. Rating 10 after 500 hours.

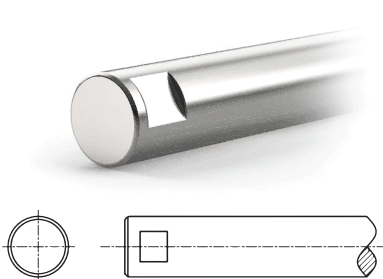
Triple chrome plating

This process was developed to produce hard chrome layers with very high corrosion resistance. Rating 10 after 1000 hours.

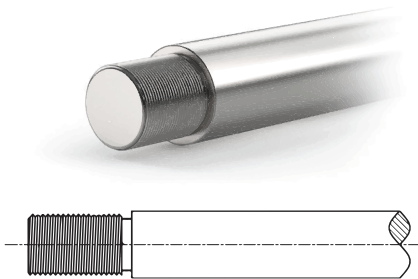


CUSTOMIZED MACHINING

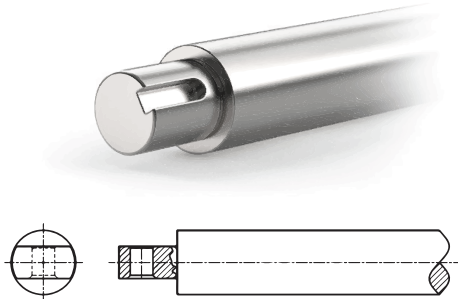
Crosswise groove



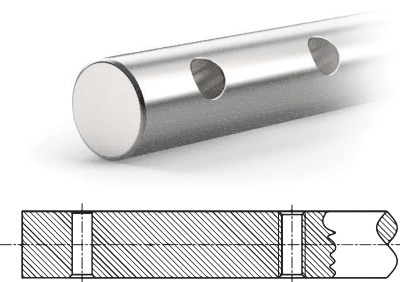
Outside diameter thread



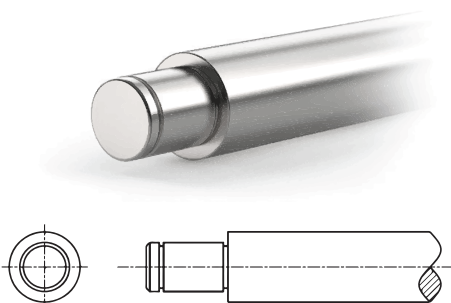
End for mount with clevis clamp



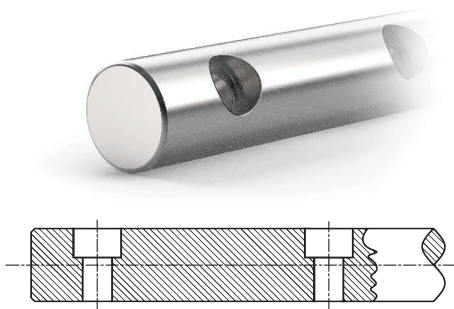
Tapped or drilled holes radially through shaft



Grooves for snap ring



Radial drilling holes, bored



On request we can perform customized cutting and machining according to drawing. We work with the latest technology and our CNC machines can perform high quality turning, milling, threading and drilling.



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Contact Us:

1 (973) 344-5313

info@magisterhyd.com

www.magisterhyd.com