

## Average Chemical analysis

C%	Si%	Mn%	S%	C.E%(*)
0.47	0.25	0.65	0.02	0.65

\*CE=%C+%Mn/6+(%Cu+%Ni)/15+(%Cr+%Mo+%V)/5

Average calculated using max lower/upper values allowed by the current EN standards.

## Mechanical Properties

Ø mm	Tensile Strength Rm N/mm <sup>2</sup>	Yield Point Rp0.2 N/mm <sup>2</sup>	Elong. A5%	HB min.	Norm
6<Ø≤16	min. 710	min. 500	min. 6	200	EN 10277-5
16<Ø≤19.05	min. 650	min. 410	min. 7	200	EN 10277-5
20<Ø≤100	min. 580	min. 305	min.16	180-225	EN 10083-2
100<Ø≤200	min. 560	min. 275	min.16	180-225	EN 10083-2

## Corresponding standards

A-CHROME	EN	DIN	BS	AFNOR	ASTM
A-CHROME 50	C45E	Ck45	080N45	Xc45	1045

Residual Magnetism Max. 50 Gauss

## Tolerance Range according to ISO 286-2

## Table for ISO-f7 in µm

Size (mm)	upper	lower
>6-10	-13	-28
>10-18	-16	-34
>18-30	-20	-41
>30-50	-25	-50
>50-80	-30	-60
>80-120	-36	-71
>120-180	-43	-83
>180-250	-50	-96

## Chrome Layer:

Φ > 20 mm - 20my

Φ ≤ 19.05mm - 15my

## Surface Roughness

The surface roughness (Ra) is always less than 0.20 my and normally in the average of 0.05-0.15 my, the Rt is less than 2.0 my and with an average of 0.5-1.5 my.

### Surface Hardness

The Chrome Layer hardness is 900 HV 0.1 min

### Straightness

$\Phi < 20 \rightarrow 0.3/1000 \text{ mm}$

$\Phi \geq 20 \rightarrow 0.2/1000 \text{ mm}$

### Roundness

The out of roundness is maximised at 50% of the diameter tolerance range.

### Diameter tolerance

ISO-f7 is standard; Other tolerance can be supplied upon request.

### Delivery Lengths

Production lengths are between 4500-10000 mm

Standard lengths for diam

< 60 mm 5600-6200 mm average 6100-0/+100 mm

> 60 mm 6200-7200 mm average 7100-0/+100 mm

The 'unchromed length' of each bar, i.e. the distance at each end over which the Chrome-Layer properties and tolerance can not be guarantee, is aproximative 150 mm per end, i.e 300 mm in total per bar for the material produced on the conventional horizontal bath, for the material chromed on the continuous lines the unchromed length is ab. 15-20mm of each end. Fixed, cut length can be supplied if required, but at a premium price.

### Weldability & Machinability

A-CHROME 50 has good weldability with conventional way or by friction welding without difficulty. The machinability of A-CHROME 50 is good compare to the other grades and can achive the max cutting speed of 30m/min using the proper coated carbide tools.

### Marking

Each bar is marked outside over the plastic or cardboard tube with : manufacturing date,product name,diameter,tolerance range,standard corrosion,heat No. to facilitate full traceability.

Rod end will be printed in blue



### Corrosion Resistance

The chromium layer generated in hard-chrome plating process contains micro-cracks, our A-CHROME products are made by a controlled distribution of cracks. Special pre-finishing surface and polishing after chroming ensure a very high corrosion resistance. The Corrosion resistance for hard chrome plated bars are based on a salt spray test following the ISO 9227 standard combined with the ISO 10289 for the evaluation of the rating.

ISO9227	ASTM	DIN50021	Salt Spray Test
NSS	B117	SS	Neutral Salt Spray
AASS	B287	ESS	Acetic Acid Salt Spray
CASS	B368	CASS	Copper-accelerated acetic acid salt spray

*Salt spray tests we are capable to perform internally.*

#### A-CHROME

Standard Corrosion resistance for  $\Phi < 20$  R9/120h NSS; for  $\Phi \geq 20$  R10/120h NSS and R9/200h NSS.

#### A-CHROME EXTRA

Standard Corrosion resistance  $\Phi \geq 20$ -140 R10/120h NSS and  $\Phi \geq 20$ -140 R9/500h NSS.

#### A-CHROME EXTRA PLUS

Standard Corrosion resistance for  $\Phi \geq 20$ -140 R10/500h NSS.

*\*DOUBLE CHROME ON REQUEST*

### Packaging

A-CHROME can be supplied with two different packaging options: • Paper Tubes • White Plastic Sleeve

On request with additional cost:

- Seaworthy protected for overseas shipment by aluminium foil
- Wooden boxes



Our products packaging is recyclable

### Certifications

ISO 9001	ISO 14001	OHSAS 18001
----------	-----------	-------------