

# LET'S MOVE THE WORLD

INDUCTION  
HARDENED  
AND CHROME  
PLATED BARS

The logo for CMC Italia srl features the letters 'CMC' in a large, white, sans-serif font. A thin horizontal line is positioned above the 'C' and 'M', with a small circle centered above the 'C'. Below the 'C' and 'M', the letters 'Italia srl' are written in a smaller, white, sans-serif font.

CMC Italia srl



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# INDUCTION HARDENED AND CHROME PLATED BARS

C.M.C. ITALIA, specialized in the supply of hard chrome bars and tubes, is known for its ability to meet the needs of every individual customer, both in Italy and abroad.

Chromium-plated bars are among the flagship products distributed by C.M.C. ITALIA. Chromium plating is a process particularly suitable for bars to be used in non-aggressive environments where the rods are

not exposed to mechanical impacts. These products are also more resistant to corrosion and wear, making them more durable.

Available in various types of steel, standard chromium-plated bars can reach diameters ranging from 6 to 200 mm. C.M.C. ITALIA can provide these products in commercial lengths or with custom-cut sizes.

**STEEL GRADE:**  
C45E, 20MnV6, 42CrMo4  
Ø4 - 200 mm

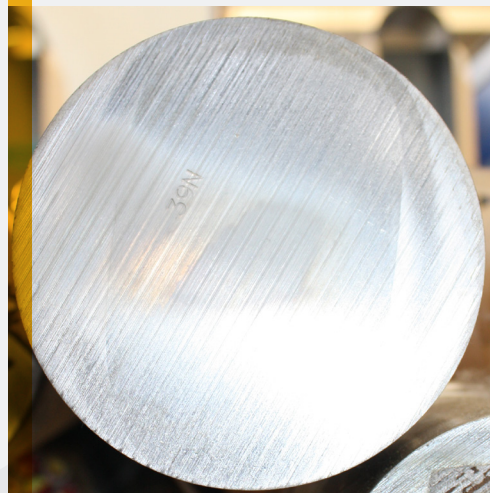
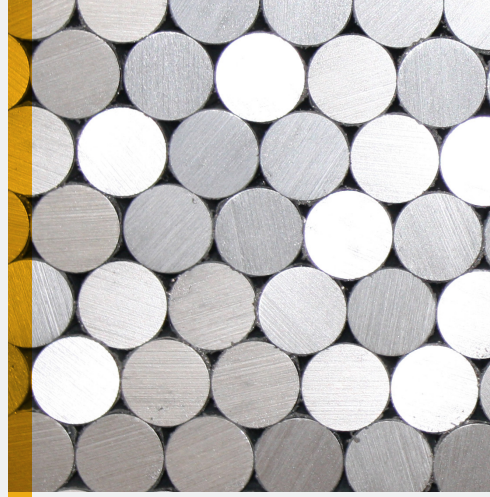
# HARD CHROME PLATED BARS

## DIMENSIONAL RANGE

DIAMETER		Kg/m	C45	20MnV6	42CrMo4 +QT	C45 induction hardened	C45 40-70 µm	20MnV6 Nickel Chrome	42CrMo4 +QT + IH
INCH	mm								
	4	0,10							
	5	0,15							
	6	0,22	√						
	8	0,39	√						
	10	0,62	√						
	12	0,89	√						
1/2"	12,7	0,99	√						
	14	1,21	√						
	15	1,39	√						
	16	1,58	√			√			
	18	2,00	√		√				
	20	2,47	√	√	√	√		√	√
	22	2,98	√	√	√	√		√	
	24	3,55	√						
	25	3,85	√	√	√	√		√	√
1"	25,4	3,98	√						
	28	4,83	√	√	√	√		√	
	30	5,55	√	√	√	√	√	√	√
	32	6,31	√	√	√	√		√	
	35	7,55	√	√	√	√	√	√	√
	36	7,99	√	√	√	√		√	√
	38	8,90	√						
	40	9,86	√	√	√	√	√	√	√
	42	10,88	√			√			
	45	12,48	√	√	√	√	√	√	
	50	15,41	√	√	√	√	√	√	√√
2"	50,8	15,90	√						
	55	18,85	√	√	√	√	√	√	√
	56	19,33	√	√	√	√		√	√
	60	22,19	√	√	√	√	√	√	√
	63	24,47	√	√	√	√		√	√
	65	26,05	√	√	√	√		√	√
	70	30,21	√	√	√	√	√	√	√
	75	34,66	√	√	√	√		√	√
3"	76,2	35,78	√						
	80	39,46	√	√	√	√	√	√	√
	85	44,54	√	√	√	√		√	√
	90	49,94	√	√	√	√	√	√	√
	95	55,61	√		√			√	√
	100	61,65	√	√	√	√	√	√	√
	105	67,92	√		√				
	110	74,60	√	√	√	√	√	√	√
	115	83,00	√		√			√	
	120	88,78	√	√	√	√		√	√
	125	96,25	√		√	√		√	√
	130	104,19	√		√	√		√	√
	140	120,83	√		√	√		√	√
	150	139,00	√			√		√	
	160	158,00	√			√		√	
	170	178,02	√			√			
	180	200,00	√						
	200	246,40	√						

√ = Standard diameters.

On request we can supply not standard diameters.



# CHROME LAYER CHARACTERISTICS

## STANDARD CHROME LAYER:

$\varnothing < 20 \text{ mm} = \text{min. } 15 \mu\text{m}$

$\varnothing \geq 20 \text{ mm} = \text{min. } 20 \mu\text{m}$

## HIGH THICKNESS CHROME LAYER:

40-70  $\mu\text{m}$  on the radius

## MULTILAYER CHROME PLATING

## NICKEL CHROME

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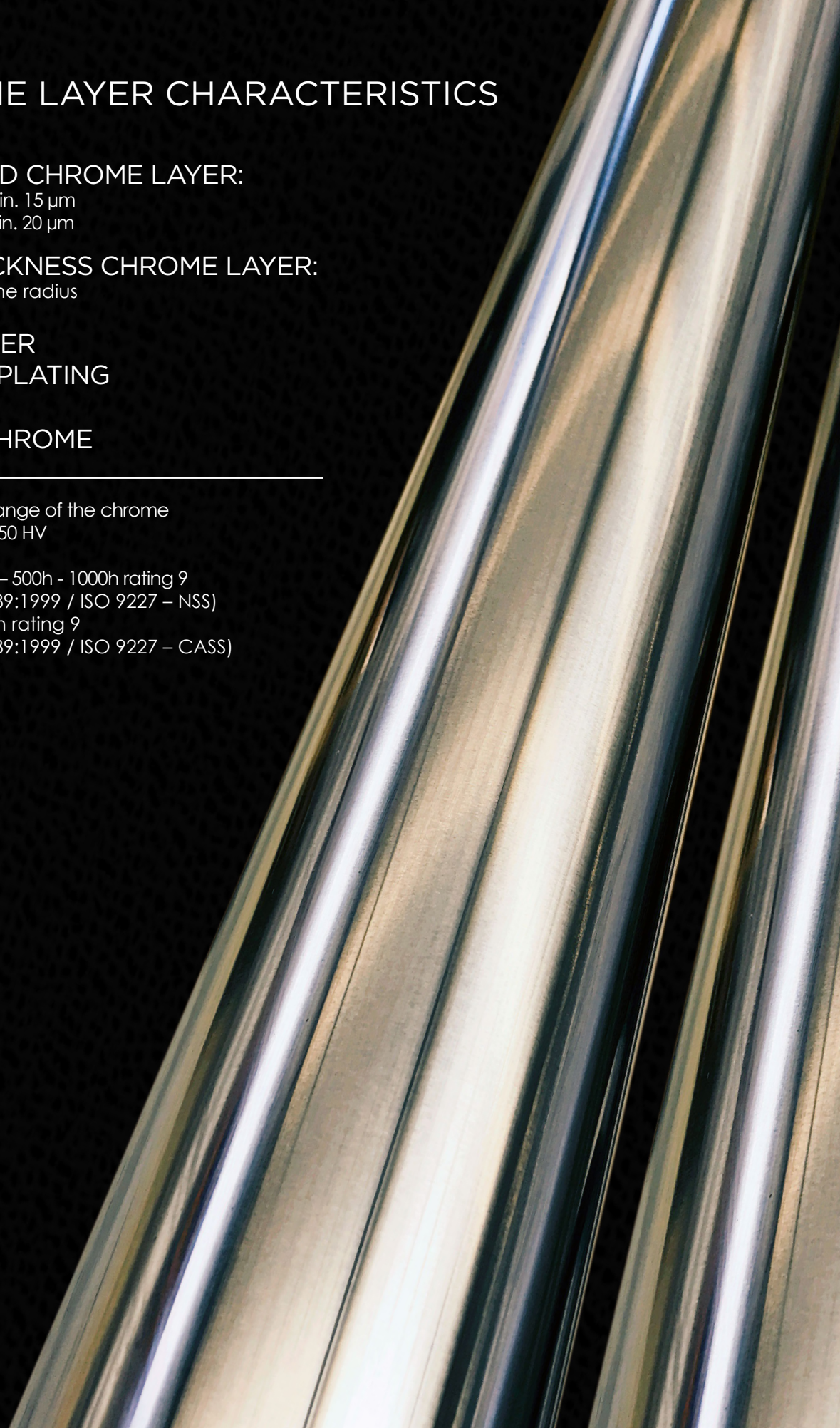
The hardness range of the chrome layer is 900 - 1050 HV

NSS 96h - 200h - 500h - 1000h rating 9

(RULE ISO 10289:1999 / ISO 9227 - NSS)

CASS 64h - 72h rating 9

(RULE ISO 10289:1999 / ISO 9227 - CASS)



# TECHNICAL CHARACTERISTICS

## TECHNICAL CHARACTERISTICS

DIAMETER	TOLERANCE ISO	STRAIGHTNESS	SURFACE ROUGHNESS		ROUNDNESS	CHROME LAYER HARDNESS
		MAX	R <sub>a</sub> MAX	R <sub>t</sub> MAX		
< 20	f7 h6 h7	1,0/1000mm	0,2µm	3,00µm	1/2 Tolerance	> 900 HV <sub>(0,1)</sub>
≥ 20	f7 h6 h7	0,5/1000mm	0,2µm	3,00µm	1/2 Tolerance	> 900 HV <sub>(0,1)</sub>

## MECHANICAL PROPERTIES

STEEL							
UNI	C45E		C55E	42CrMo4		20MnV6	38MnVS6
	EN 10277		ENISO 683-1	ENISO 683-2		EN 10267	EN 10267
mm	<Ø40	≥Ø40	4<Ø<100	≤Ø100	>Ø100	6<Ø<200	20≤Ø≤120
Yield point Re N/mm <sup>2</sup>	>410	>275	>330	>650	>500	>420	>520
Tensile strength Rm N/mm <sup>2</sup>	650-1050	560-780	640-950	900-1300	750-950	min.550	800-950
Elongation A <sub>5</sub> % min.	>5	>16	>11	>10	>13	>10	>12
Resilience Kv min J -20°C	-		-	min.35J/20°C		27	-
Hardness HB	min.172		min.198	min.240		min.155	min.240

## CHEMICAL ANALYSIS

STEEL	C%	NI%	Cr%	S%	Si%	Mn%	P%	Mo%
C45E	0,42-0,50	0,40	0,40	0,04	0,15-0,40	0,50-0,80	0,035	0,10
C55E	0,52-0,60	0,40	0,40	0,04	0,40	0,60-0,90	0,035	0,10
42CrMo4	0,38-0,45	-	0,90-1,20	0,035	0,40	0,60-0,90	0,035	0,15-0,30
38MnVS6	0,34±0,41	-	max0,3	0,02-0,06	0,15±0,80	1,20±1,60	0,025	-
20MnV6	0,16-0,22	-	-	0,035	0,10-0,40	1,30-1,70	0,035	max0,08

## INDUCTION HARDENED CHARACTERISTICS

STEEL	SURFACE HARDNESS	HARDENING DEPTH
C45E	52 - 60 HRC	0,4 - 3,4 mm
C55E	60 - 64 HRC	0,4 - 3,4 mm
42CrMo4	52 - 58 HRC	0,4 - 3,4 mm
38MnVS6	55 - 60 HRC	0,4 - 3,4 mm
20MnV6	42 - 48 HRC	0,4 - 3,4 mm

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