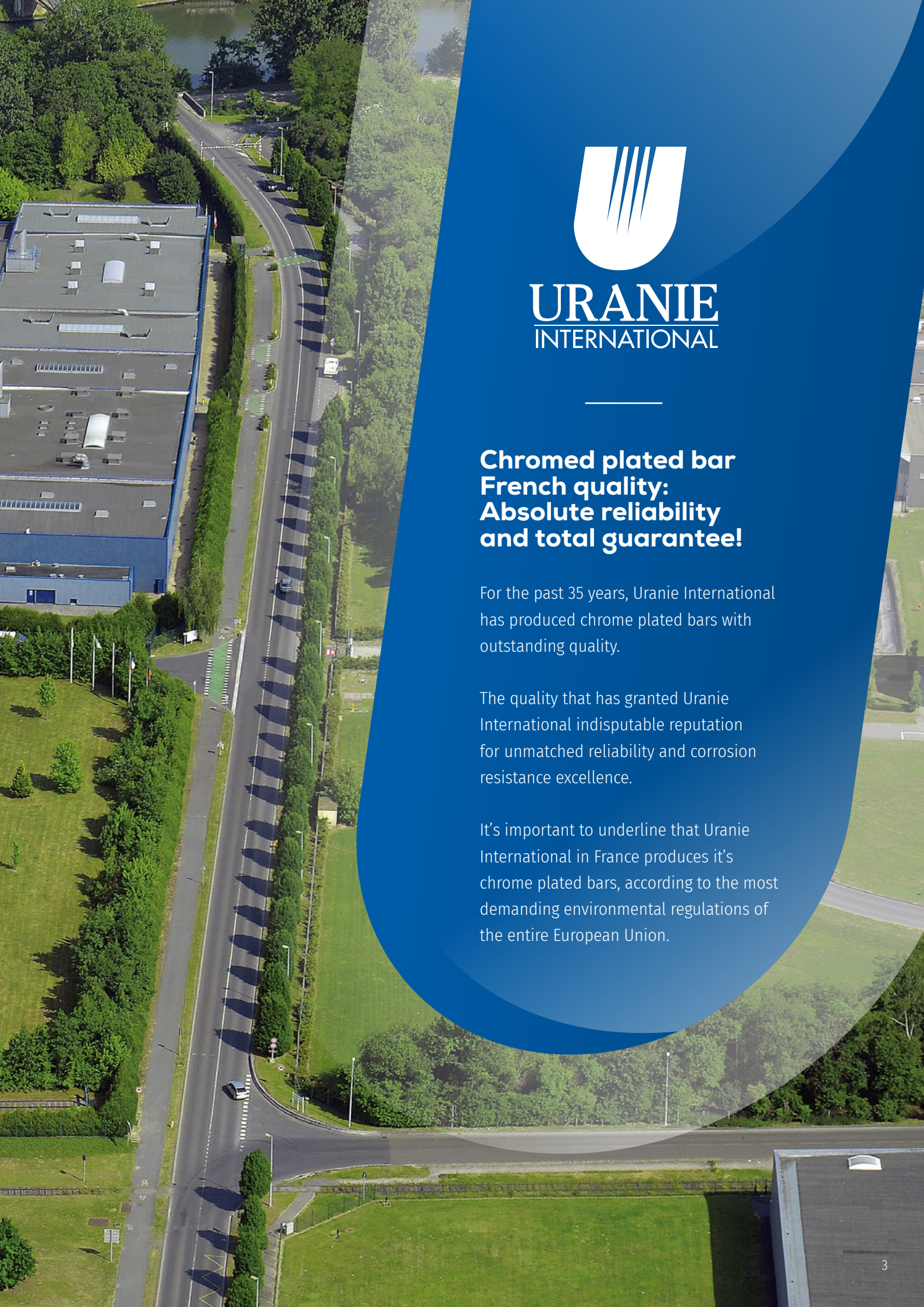

STRONGER
TO LAST
URANIE
INTERNATIONAL
WWW.URANIE-INTER.COM



URANIE
INTERNATIONAL

Chromed plated bar French quality: Absolute reliability and total guarantee!

For the past 35 years, Uranie International has produced chrome plated bars with outstanding quality.

The quality that has granted Uranie International indisputable reputation for unmatched reliability and corrosion resistance excellence.

It's important to underline that Uranie International in France produces it's chrome plated bars, according to the most demanding environmental regulations of the entire European Union.

President's message

URANIE manufactures the best chrome bar in the world. To do this, we have staff who are passionate about their work. The URANIE brand is the most loved by users of chrome bars. Our product is remarkable for its resistance to corrosion and its visual quality.

In recent years, customers have reoriented their purchases towards quality. So we must not disappoint them. All the people in the company, in whatever position, do a remarkable job and progress technically every single day.

"URANIE, despite the pressures of competition, has never sacrificed its quality. We have a pragmatic leadership with real convictions; there is no place for ''amateurs'' in the companies of tomorrow. The modernization of automation is the ally of production together with maintenance and methods. This allows us to have a standardization and a simplified use of machines, more precise diagnostics and flexibility in the process. So the quality of our chrome bars continues to be No.1 🥇 in the world.

Quality is more than ever at the heart of our identity."

Alain Liénard
Chairman Uranie International

"Our philosophy and, obviously that of the sales team, is to consider our customers as part of the URANIE family."

Alain Liénard

From 1986 to nowadays : Uranie's history

1986

Uranie was founded in Le Meux by Mr Alain Liénard

1989

Construction of Uranie 1 rectification hall

1989

Acquisition of METAMECA (France & Italy), a subsidiary of USINOR SACILOR

1996

Construction of Uranie 2 and at the same time a straightening and peeling line

1989

The quality of the bars produced presents a significant improvement in their mechanical properties and their resistance to corrosion. In less than 3 years, Uranie became a quality leader on the European market

1986, our production was 25 tons of chrome bars monthly

Today, it is 5 000 tons monthly

2007

Construction of Uranie 5 chrome-plating line to satisfy increasing demand

1999

Construction of Uranie 3 and implementation of the induction hardening line

2000

Construction of Uranie 4 with new stock area and new offices

2010-2020

Uranie reinforces its presence at the major world fairs in Germany, Italy, Turkey, China, Japan, Usa

2013-2022

Uranie continues to win market shares in Brazil, Canada, in the United States, India, Algeria, Thailand, Qatar...

Uranie International, the choice of excellence

Our mission

Since 1986, the company has operated under the leadership of the founder Mr Alain Liénard, seeking the continuous improvements and fostering the culture of productivity – which are the keys to its success. Excellent results are further confirmed by the constant development of new know-how, a guarantee of outstanding management and high value-added services.

Our vision

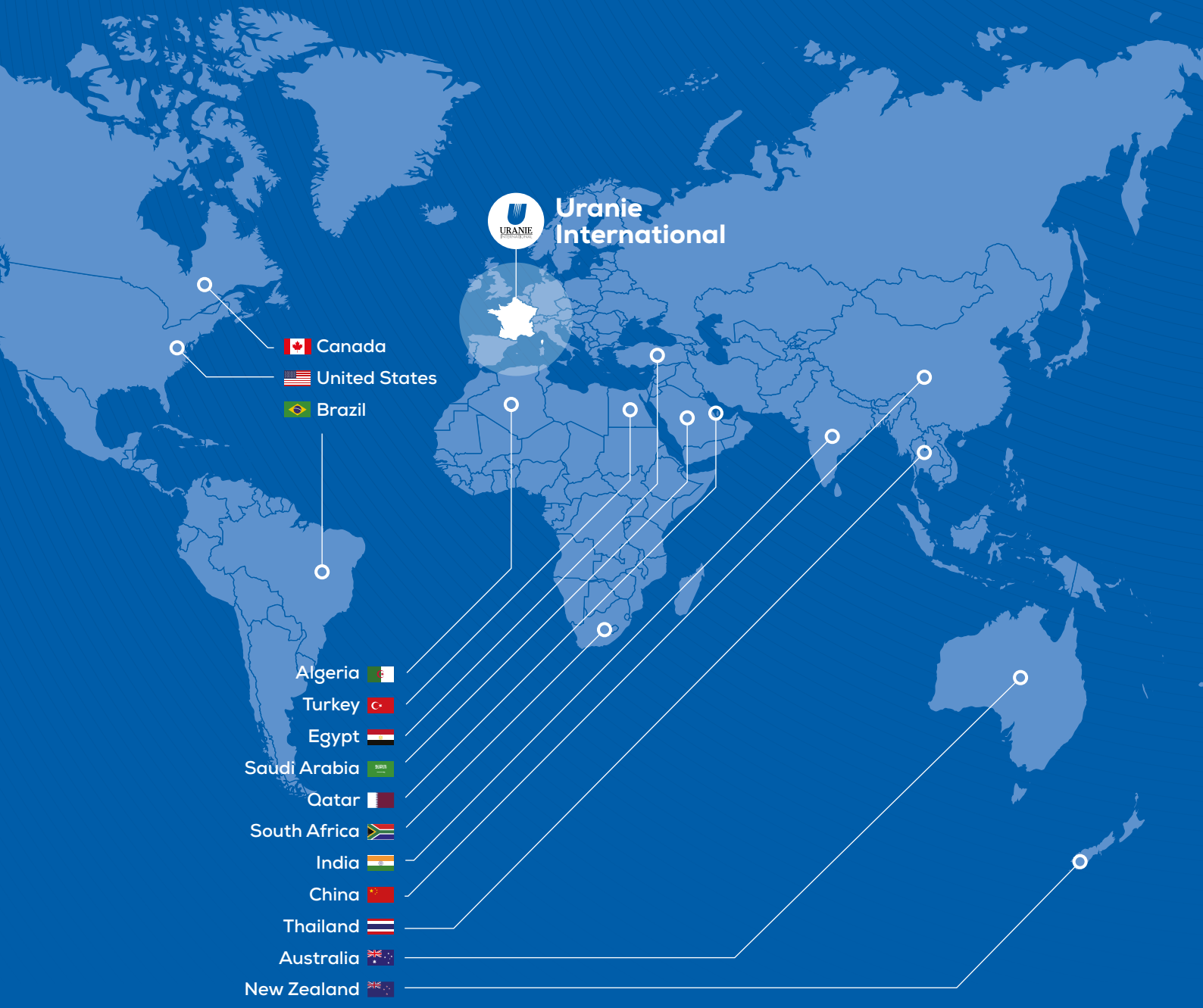
Consistently meet the highest expectations of our customers and remain a Top Quality Company in our market.

Our values

Offering Excellence through Quality products, personalized sales and technical support, investing in people and their well-being.

Market presence in the world

45 countries - Direct sales
Over 70 countries - indirect sales



We enjoy a leading position with our Thalachrome products which is a key element behind this successful business model.

A capillary sales and international purchase network

Independence, dynamism, competence, versatility and reactivity, combined with over 35 years of history

A tailor-made customer service, supported by the highest quality production range in the world

Key Figures

We manufacture a highly technical product with the highest level of quality. The bars must be “pampered” at all stages of the process, from the receipt of the material to the shipment of the finished product. Our current industrial success is due to the entire Uranie team, which has committed itself with energy, method and intelligence to their daily work.

Uranie International - Key figures

Customer market breakdown

45%
Farm vehicles

35%
Construction equipment

20%
Handling

Total sales breakdown

72%
European union

19%
France

9%
Non-EU

URANIE
INTERNATIONAL

105
Million euro
total sales

180
Employees

123 000
Square meter
facility

20M€
invested over
the past 5 years

Customer type breakdown

72%
OEM's & cylinder producers

28%
Distributors

Applications

Energy

Solar power stations, hydraulic power stations, nuclear power stations, thermal power stations, wind turbine stations, etc.

Agriculture

Tractors, forklifts, trailers, combine harvesters, trenchers, front loaders, mower conditioners, skidders, sprayers, etc.

Industry

Presses, crushers, special machines, automatic doors, waste collection trucks, waste compactors, etc.

Construction equipment

Cranes, bulldozers, diggers, rigid dumpers, levellers, excavators, harvesters, forestry machines, pipe-layer tractors, snow ploughs, salt spreaders, etc.

Handling

Forklifts, mobile cranes, port cranes, lifts, frontal forklifts, hydraulic platforms, etc.

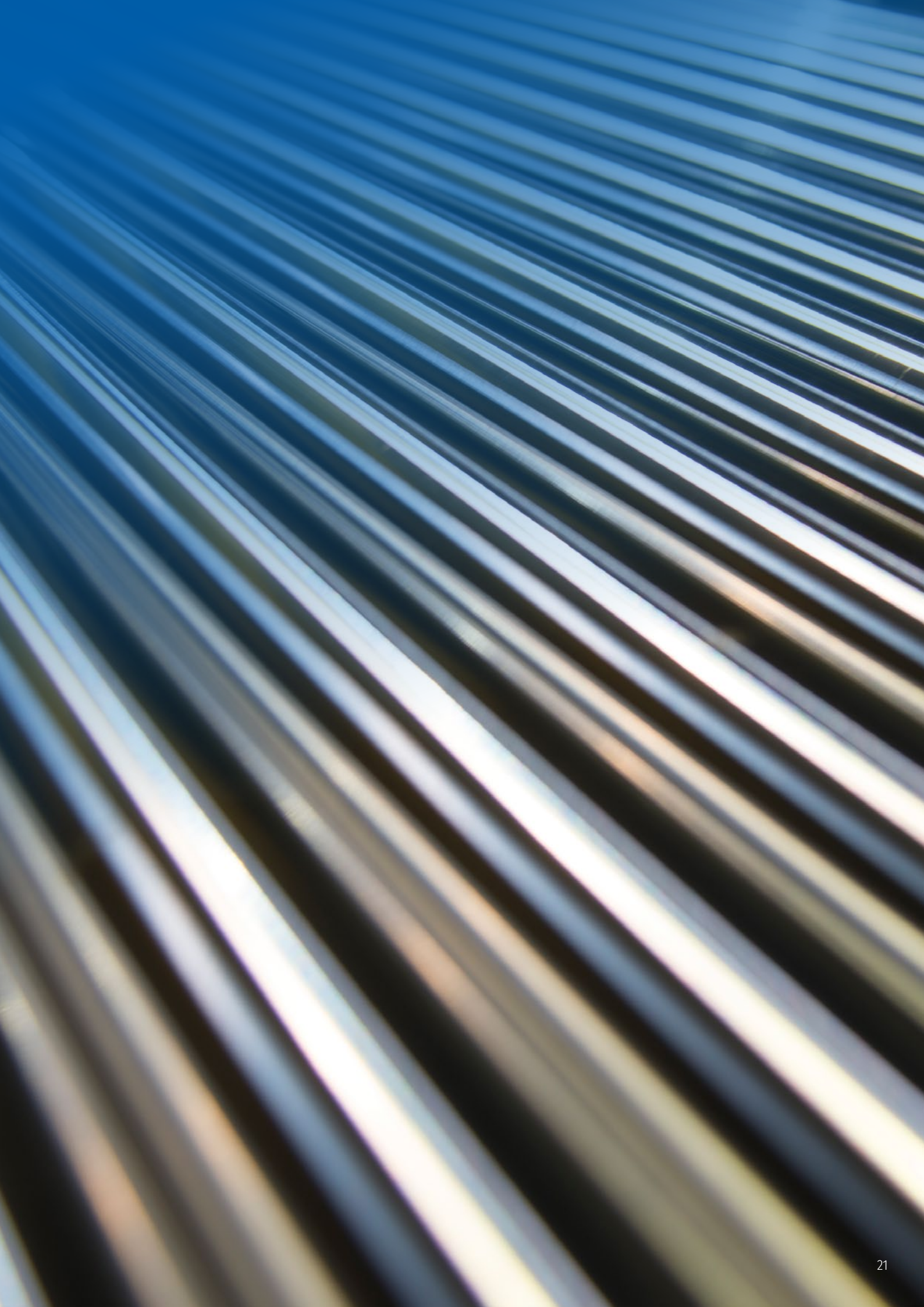
Transport

Trains, boats, lorries, aircraft, offshore platforms, etc.

A wide range of applications

Range of products

Thalachrome S | Thalachrome SE 120 | Thalachrome SE 250
Thalachrome SE 500 | Thalachrome SI | Thalachrome SIE 120
Thalachrome SIE 250 | Thalachrome SIE 500
Thalachrome SE CASS 64 | Thalachrome SE CASS 96
Thalachrome SIE CASS 64 | Thalachrome SIE CASS 96
Thalachrome STU



Thalachrome S

STANDARD
DIAMETER 16 - 160 MM

STEEL GRADES

C45E | C35E | 20MnV6 | 20MnV6X | 38MnVS6 | 38MnVS6X | 42CrMo4V

CHEMICAL ANALYSIS

Elements	C (%)	Si (%)	Mn (%)	S (%)	P (%)	V (%)	Cr (%)	Mo (%)	Ni (%)	N (%)	WERKSTOFF
C45E	0.42-0.50	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1191
C35E	0.32-0.39	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1181
20MnV6-20MnV6X	0.16-0.22	0.10-0.50	1.30-1.70	≤ 0.035	≤ 0.035	0.08-0.20	-	-	-	-	1.5217
38MnVS6-38MnVS6X	0.34-0.41	0.15-0.80	1.20-1.60	≤ 0.035	≤ 0.025	0.08-0.20	≤ 0.30	≤ 0.08	-	0.010-0.020	1.1303
42CrMo4V	0.38-0.45	≤ 0.40	0.60-0.90	≤ 0.035	≤ 0.035	-	0.90-1.20	0.15-030	-	-	1.7225

For steel grades C45E and C35E : Cr + Mo + Ni ≤ 0.63%

MECHANICAL PROPERTIES

Steel grade	Range Ø (mm)	Yield point (N/mm²)	Tensile strength (N/mm²)	Elongation %	PSI
C45E	Ø 16	≥ 340	≥ 620	≥ 10	45 000
	18 ≤ Ø ≤ 95	≥ 305	580 – 850	≥ 16	45 000
	95 < Ø ≤ 160	≥ 275	560 - 800	≥ 16	40 000
C35E	16 ≤ Ø ≤ 36	≥ 315	560 - 750	≥ 18	45 000
	36 < Ø ≤ 160	≥ 275	560 - 760	≥ 19	40 000
20MnV6	Ø 16	≥ 450	550 - 850	≥ 10	65 000
	18 ≤ Ø < 20	≥ 450	550 - 850	≥ 17	65 000
	20 ≤ Ø ≤ 65	≥ 450	550 - 850	≥ 18	65 000
	65 < Ø ≤ 160	≥ 390	530 - 850	≥ 21	55 000
20MnV6X	18 ≤ Ø ≤ 70	≥ 520	650 - 800	≥ 19	75 000
	71 ≤ Ø ≤ 90	≥ 520	650 - 800	≥ 21	75 000
	91 ≤ Ø ≤ 130	≥ 440	550 - 750	≥ 21	64 000
38MnVS6	20 ≤ Ø ≤ 160	≥ 520	800 - 950	≥ 12	75 000
38MnVS6X	25 ≤ Ø ≤ 125	≥ 580	850 - 1000	≥ 14	84 000
42CrMo4V	18 ≤ Ø ≤ 40	≥ 750	1000 - 1200	≥ 11	100 000
	41 ≤ Ø ≤ 100	≥ 650	900 - 1100	≥ 12	95 000
	101 ≤ Ø ≤ 125	≥ 550	800 - 950	≥ 13	80 000

TOLERANCE

- Ø 16 mm : f8
- Ø 18 to 160 mm : f7

CHROME THICKNESS

- Ø 16 to 18 mm : 15 µm mini
- Ø 19.05 to 160 mm : 20 µm mini

CHROMIUM PLATING

- Hardness : 900 $Hv_{0.1}$ min
- Microcracking : 5000 microcracks /mm² mini

SURFACE ROUGHNESS

- Ra : 0.07 to 0.20 µm
- Ry : 2.5 µm maxi

STRAIGHTNESS

- 0.2 mm/m maxi

STANDARD LENGTH

- 4,5 - 7,8 m

CORROSION RESISTANCE

	Rating 10 (no point of rust)	Rating 9 (less than 0.1 % of the surface corroded)
Neutral salt spray test according to ISO 9227 - Evaluation according to ISO 10289 :	120h00 mini NSS rating 10	312h00 mini NSS rating 9

	-	Rating 9 (less than 0.1 % of the surface corroded)
Acetic spray test according to ISO 9227 - Evaluation according to ISO 10289 :	-	48h00 ASS

Thalachrome SE 120

IMPROVED CORROSION RESISTANCE
DIAMETER 16 - 160 MM

STEEL GRADES

C45E | C35E | 20MnV6 | 20MnV6X | 38MnVS6 | 38MnVS6X | 42CrMo4V

CHEMICAL ANALYSIS

Elements	C (%)	Si (%)	Mn (%)	S (%)	P (%)	V (%)	Cr (%)	Mo (%)	Ni (%)	N (%)	WERKSTOFF
C45E	0.42-0.50	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1191
C35E	0.32-0.39	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1181
20MnV6-20MnV6X	0.16-0.22	0.10-0.50	1.30-1.70	≤ 0.035	≤ 0.035	0.08-0.20	-	-	-	-	1.5217
38MnVS6-38MnVS6X	0.34-0.41	0.15-0.80	1.20-1.60	≤ 0.035	≤ 0.025	0.08-0.20	≤ 0.30	≤ 0.08	-	0.010-0.020	1.1303
42CrMo4V	0.38-0.45	≤ 0.40	0.60-0.90	≤ 0.035	≤ 0.035	-	0.90-1.20	0.15-030	-	-	1.7225

For steel grades C45E and C35E : Cr + Mo + Ni ≤ 0.63%

MECHANICAL PROPERTIES

Steel grade	Range Ø (mm)	Yield point (N/mm²)	Tensile strength (N/mm²)	Elongation %	PSI
C45E	Ø 16	≥ 340	≥ 620	≥ 10	45 000
	18 ≤ Ø ≤ 95	≥ 305	580 – 850	≥ 16	45 000
	95 < Ø ≤ 160	≥ 275	560 - 800	≥ 16	40 000
C35E	16 ≤ Ø ≤ 36	≥ 315	560 - 750	≥ 18	45 000
	36 < Ø ≤ 160	≥ 275	560 - 760	≥ 19	40 000
20MnV6	16	≥ 450	550 - 850	≥ 10	65 000
	18 ≤ Ø < 20	≥ 450	550 - 850	≥ 17	65 000
	20 ≤ Ø ≤ 65	≥ 450	550 - 850	≥ 18	65 000
	65 < Ø ≤ 160	≥ 390	530 - 850	≥ 21	55 000
20MnV6X	18 ≤ Ø ≤ 70	≥ 520	650 - 800	≥ 19	75 000
	71 ≤ Ø ≤ 90	≥ 520	650 - 800	≥ 21	75 000
	91 ≤ Ø ≤ 130	≥ 440	550 - 750	≥ 21	64 000
38MnVS6	20 ≤ Ø ≤ 160	≥ 520	800 - 950	≥ 12	75 000
38MnVS6X	25 ≤ Ø ≤ 125	≥ 580	850 - 1000	≥ 14	84 000
42CrMo4V	18 ≤ Ø ≤ 40	≥ 750	1000 - 1200	≥ 11	100 000
	41 ≤ Ø ≤ 100	≥ 650	900 - 1100	≥ 12	95 000
	101 ≤ Ø ≤ 125	≥ 550	800 - 950	≥ 13	80 000

TOLERANCE

- Ø 16 to 19.05 mm : f8
- Ø 20 to 160 mm : f7

CHROME THICKNESS

- Ø 16 to 18 : 20 µm mini
- Ø 19.05 to 160 mm : 25 µm mini

CHROMIUM PLATING

- Hardness : 900 $Hv_{0.1}$ min
- Microcracking : 5000 microcracks /mm² mini

SURFACE ROUGHNESS

- Ra : 0.07 to 0.20 µm
- Ry : 2.5 µm maxi

STRAIGHTNESS

- 0.2 mm/m maxi

STANDARD LENGTH

- 4,5 - 7,8 m

CORROSION RESISTANCE

Neutral salt spray test according to ISO 9227 - Evaluation according to ISO 10289 :

Rating 10 (no point of rust)	Rating 9 (less than 0.1 % of the surface corroded)
168h00 mini NSS rating 10	504h00 mini NSS rating 9

Acetic spray test according to ISO 9227 - Evaluation according to ISO 10289 :

-	Rating 9 (less than 0.1 % of the surface corroded)
-	72h00 ASS

Thalachrome SE 250

SUPERIOR CORROSION RESISTANCE
DIAMETER 16 - 160 MM

STEEL GRADES

C45E | C35E | 20MnV6 | 20MnV6X | 38MnVS6 | 38MnVS6X | 42CrMo4V

CHEMICAL ANALYSIS

Elements	C (%)	Si (%)	Mn (%)	S (%)	P (%)	V (%)	Cr (%)	Mo (%)	Ni (%)	N (%)	WERKSTOFF
C45E	0.42-0.50	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1191
C35E	0.32-0.39	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1181
20MnV6-20MnV6X	0.16-0.22	0.10-0.50	1.30-1.70	≤ 0.035	≤ 0.035	0.08-0.20	-	-	-	-	1.5217
38MnVS6-38MnVS6X	0.34-0.41	0.15-0.80	1.20-1.60	≤ 0.035	≤ 0.025	0.08-0.20	≤ 0.30	≤ 0.08	-	0.010-0.020	1.1303
42CrMo4V	0.38-0.45	≤ 0.40	0.60-0.90	≤ 0.035	≤ 0.035	-	0.90-1.20	0.15-030	-	-	1.7225

For steel grades C45E and C35E : Cr + Mo + Ni ≤ 0.63%

MECHANICAL PROPERTIES

Steel grade	Range Ø (mm)	Yield point (N/mm²)	Tensile strength (N/mm²)	Elongation %	PSI
C45E	16	≥ 340	620	≥ 10	-
	18 ≤ Ø ≤ 95	≥ 305	580 – 850	≥ 16	45 000
	95 < Ø ≤ 160	≥ 275	560 - 800	≥ 16	40 000
C35E	16 ≤ Ø ≤ 36	≥ 315	560 - 750	≥ 18	45 000
	36 < Ø ≤ 160	≥ 275	560 - 760	≥ 19	40 000
20MnV6	16	≥ 450	550 - 850	≥ 10	65 000
	18 ≤ Ø ≤ 19	≥ 450	550 - 850	≥ 17	65 000
	20 ≤ Ø ≤ 65	≥ 450	550 - 850	≥ 18	65 000
	65 < Ø ≤ 160	≥ 390	530 - 850	≥ 21	55 000
20MnV6X	16	≥ 450	550 - 850	≥ 10	65 000
	18 ≤ Ø ≤ 70	≥ 520	650 - 800	≥ 19	75 000
	71 ≤ Ø ≤ 90	≥ 520	650 - 800	≥ 21	75 000
	91 ≤ Ø ≤ 130	≥ 440	550 - 750	≥ 21	64 000
38MnVS6	20 ≤ Ø ≤ 160	≥ 520	800 - 950	≥ 12	75 000
38MnVS6X	25 ≤ Ø ≤ 125	≥ 580	850 - 1000	≥ 14	84 000
42CrMo4V	18 ≤ Ø ≤ 40	≥ 750	1000 - 1200	≥ 11	100 000
	41 ≤ Ø ≤ 100	≥ 650	900 - 1100	≥ 12	95 000
	101 ≤ Ø ≤ 125	≥ 550	800 - 950	≥ 13	80 000

TOLERANCE

- Ø 16 to 28.575 mm : f8
- Ø 30 to 160 mm : f7

CHROME THICKNESS

- Ø 16 to 19,05 mm : 25 µm mini
- Ø 20 to 160 mm : 30 µm mini

CHROMIUM PLATING

- Hardness : 900 Hv_{01} min
- Microcracking : 5000 microcracks /mm² mini

SURFACE ROUGHNESS

- Ra : 0.15 µm maxi
- Ry : 1.5 µm maxi

STRAIGHTNESS

- 0.2 mm/m maxi

STANDARD LENGTH

- 4,5 - 7,8 m

CORROSION RESISTANCE

Neutral salt spray test according to ISO 9227 - Evaluation according to ISO 10289 :

Rating 10 (no point of rust)	Rating 9 (less than 0.1 % of the surface corroded)
312h00 mini NSS rating 10	744h00 mini NSS rating 9

Acetic spray test according to ISO 9227 - Evaluation according to ISO 10289 :

-	Rating 9 (less than 0.1 % of the surface corroded)
-	100h00 ASS

Thalachrome SE 500

HIGH CORROSION RESISTANCE
DIAMETER 20 - 125 MM

STEEL GRADES

C45E | C35E | 20MnV6 | 20MnV6X | 38MnVS6 | 38MnVS6X | 42CrMo4V

CHEMICAL ANALYSIS

Elements	C (%)	Si (%)	Mn (%)	S (%)	P (%)	V (%)	Cr (%)	Mo (%)	Ni (%)	N (%)	WERKSTOFF
C45E	0.42-0.50	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1191
C35E	0.32-0.39	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1181
20MnV6-20MnV6X	0.16-0.22	0.10-0.50	1.30-1.70	≤ 0.035	≤ 0.035	0.08-0.20	-	-	-	-	1.5217
38MnVS6-38MnVS6X	0.34-0.41	0.15-0.80	1.20-1.60	≤ 0.035	≤ 0.025	0.08-0.20	≤ 0.30	≤ 0.08	-	0.010-0.020	1.1303
42CrMo4V	0.38-0.45	≤ 0.40	0.60-0.90	≤ 0.035	≤ 0.035	-	0.90-1.20	0.15-030	-	-	1.7225

For steel grades C45E and C35E : Cr + Mo + Ni ≤ 0.63%

MECHANICAL PROPERTIES

Steel grade	Range Ø (mm)	Yield point (N/mm²)	Tensile strength (N/mm²)	Elongation %	PSI
C45E	20 ≤ Ø ≤ 95	≥ 305	580 – 850	≥ 16	45 000
	95 < Ø ≤ 125	≥ 275	560 - 800	≥ 16	40 000
C35E	20 ≤ Ø ≤ 36	≥ 315	560 - 750	≥ 18	45 000
	36 < Ø ≤ 125	≥ 275	560 - 760	≥ 19	40 000
20MnV6	20 < Ø ≤ 65	≥ 450	550 - 850	≥ 18	65 000
	65 < Ø ≤ 125	≥ 390	530 - 850	≥ 21	55 000
20MnV6X	20 ≤ Ø ≤ 70	≥ 520	650 - 800	≥ 19	75 000
	71 ≤ Ø ≤ 90	≥ 520	650 - 800	≥ 21	75 000
	91 ≤ Ø ≤ 125	≥ 440	550 - 750	≥ 21	64 000
38MnVS6	20 ≤ Ø ≤ 125	≥ 520	800 - 950	≥ 12	75 000
38MnVS6X	25 ≤ Ø ≤ 125	≥ 580	850 - 1000	≥ 14	84 000
42CrMo4V	20 ≤ Ø ≤ 40	≥ 750	1000 - 1200	≥ 11	100 000
	41 ≤ Ø ≤ 100	≥ 650	900 - 1100	≥ 12	95 000
	101 ≤ Ø ≤ 125	≥ 550	800 - 950	≥ 13	80 000

TOLERANCE

- Ø 20 to 28.575 mm : f8
- Ø 30 to 125 mm : f7

CHROME THICKNESS

- Ø 20 to 125 mm : 30 µm mini

CHROMIUM PLATING

- Hardness : 900 Hv_{01} min
- Microcracking : 5000 microcracks /mm² mini

SURFACE ROUGHNESS

- Ra : 0.15 µm maxi
- Rt : 1.5 µm maxi

STRAIGHTNESS

- 0.2 mm/m maxi

STANDARD LENGTH

- 4,5 - 7,8 m

CORROSION RESISTANCE

Neutral salt spray test according to ISO 9227 - Evaluation according to ISO 10289 :

Rating 10 (no point of rust)	Rating 9 (less than 0.1 % of the surface corroded)
500h00 mini NSS rating 10	1008h00 mini NSS rating 9

Acetic spray test according to ISO 9227 - Evaluation according to ISO 10289 :

-	Rating 9 (less than 0.1 % of the surface corroded)
-	200h00 ASS

Thalachrome SI

INDUCTION HARDENING STANDARD
DIAMETER 16 - 125 MM

STEEL GRADES

C45E | C35E | 20MnV6 | 20MnV6X | 38MnVS6 | 38MnVS6X | 42CrMo4V

CHEMICAL ANALYSIS

Elements	C (%)	Si (%)	Mn (%)	S (%)	P (%)	V (%)	Cr (%)	Mo (%)	Ni (%)	N (%)	WERKSTOFF
C45E	0.42-0.50	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1191
C35E	0.32-0.39	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1181
20MnV6-20MnV6X	0.16-0.22	0.10-0.50	1.30-1.70	≤ 0.035	≤ 0.035	0.08-0.20	-	-	-	-	1.5217
38MnVS6-38MnVS6X	0.34-0.41	0.15-0.80	1.20-1.60	≤ 0.035	≤ 0.025	0.08-0.20	≤ 0.30	≤ 0.08	-	0.010-0.020	1.1303
42CrMo4V	0.38-0.45	≤ 0.40	0.60-0.90	≤ 0.035	≤ 0.035	-	0.90-1.20	0.15-030	-	-	1.7225

For steel grades C45E and C35E : Cr + Mo + Ni ≤ 0.63%

MECHANICAL PROPERTIES

Steel grade	Range Ø (mm)	Yield point (N/mm²)	Tensile strength (N/mm²)	Elongation %	PSI
C45E	16	≥ 340	620	≥ 10	-
	18 ≤ Ø ≤ 95	≥ 305	580 – 850	≥ 16	45 000
	95 < Ø ≤ 125	≥ 275	560 - 800	≥ 16	40 000
C35E	16 ≤ Ø ≤ 36	≥ 315	560 - 750	≥ 18	45 000
	36 < Ø ≤ 125	≥ 275	560 - 760	≥ 19	40 000
20MnV6	16	≥ 450	550 - 850	≥ 10	-
	18 ≤ Ø ≤ 19	≥ 450	550 - 850	≥ 17	-
	20 ≤ Ø ≤ 65	≥ 450	550 - 850	≥ 18	65 000
	65 < Ø ≤ 125	≥ 390	530 - 850	≥ 21	55 000
20MnV6X	18 ≤ Ø ≤ 70	≥ 520	650 - 800	≥ 19	75 000
	71 ≤ Ø ≤ 90	≥ 520	650 - 800	≥ 21	75 000
	91 ≤ Ø ≤ 125	≥ 440	550 - 750	≥ 21	64 000
38MnVS6	20 ≤ Ø ≤ 125	≥ 520	800 - 950	≥ 12	75 000
38MnVS6X	25 ≤ Ø ≤ 125	≥ 580	850 - 1000	≥ 14	84 000
42CrMo4V	18 ≤ Ø ≤ 40	≥ 750	1000 - 1200	≥ 11	100 000
	41 ≤ Ø ≤ 100	≥ 650	900 - 1100	≥ 12	95 000
	101 ≤ Ø ≤ 125	≥ 550	800 - 950	≥ 13	80 000

INDUCTION HARDENING

Depth:

- Ø 16 mm : 0.5 to 1.0 mm
- Ø 18 to 40 mm : 1.0 to 2.0 mm
- Ø 42 to 80 mm : 1.25 to 2.5 mm
- Ø 82.55 to 125 mm : 2.0 to 3.0 mm

Hardness:

- C45E : 55 to 60 HRC
- C35E : 52 to 57 HRC
- 20MnV6-20MnV6X : 42 to 52 HRC
- 38MnVS6 38MnVS6X : 55 to 60 HRC
- 42CrMo4V : 55 to 60 HRC

TOLERANCE

- Ø 16 to 19,05 mm : f8
- Ø 20 to 125 mm : f7

CHROME THICKNESS

- Ø 16 to 18 mm : 20 µm mini
- Ø 19,05 to 125 mm : 20 µm mini

CHROMIUM PLATING

- Hardness : 900 $Hv_{0,1}$ min
- Microcracking : 5000 microcracks /mm² mini

SURFACE ROUGHNESS

- Ra : 0.07 to 0.20 µm
- Ry : 2.5 µm maxi

STRAIGHTNESS

- 0.2 mm/m maxi

STANDARD LENGTH

- 4.5 - 7.8 m

CORROSION RESISTANCE

Neutral salt spray test according to ISO 9227 - Evaluation according to ISO 10289 :

Rating 10 (no point of rust)	Rating 9 (less than 0.1 % of the surface corroded)
120h00 mini NSS rating 10	312h00 mini NSS rating 9

Acetic spray test according to ISO 9227 - Evaluation according to ISO 10289 :

-	Rating 9 (less than 0.1 % of the surface corroded)
-	48h00 ASS

Thalachrome SIE 120

IMPROVED CORROSION RESISTANCE
DIAMETER 16 - 125 MM

STEEL GRADES

C45E | C35E | 20MnV6 | 20MnV6X | 38MnVS6 | 38MnVS6X | 42CrMo4V

CHEMICAL ANALYSIS

Elements	C (%)	Si (%)	Mn (%)	S (%)	P (%)	V (%)	Cr (%)	Mo (%)	Ni (%)	N (%)	WERKSTOFF
C45E	0.42-0.50	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1191
C35E	0.32-0.39	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1181
20MnV6-20MnV6X	0.16-0.22	0.10-0.50	1.30-1.70	≤ 0.035	≤ 0.035	0.08-0.20	-	-	-	-	1.5217
38MnVS6-38MnVS6X	0.34-0.41	0.15-0.80	1.20-1.60	≤ 0.035	≤ 0.025	0.08-0.20	≤ 0.30	≤ 0.08	-	0.010-0.020	1.1303
42CrMo4V	0.38-0.45	≤ 0.40	0.60-0.90	≤ 0.035	≤ 0.035	-	0.90-1.20	0.15-030	-	-	1.7225

For steel grades C45E and C35E : Cr + Mo + Ni ≤ 0.63%

MECHANICAL PROPERTIES

Steel grade	Range Ø (mm)	Yield point (N/mm²)	Tensile strength (N/mm²)	Elongation %	PSI
C45E	16	≥ 340	620	≥ 10	-
	18 ≤ Ø ≤ 95	≥ 305	580 – 850	≥ 16	45 000
	95 < Ø ≤ 125	≥ 275	560 - 800	≥ 16	40 000
C35E	20 ≤ Ø ≤ 36	≥ 315	560 - 750	≥ 18	45 000
	36 < Ø ≤ 125	≥ 275	560 - 760	≥ 19	40 000
20MnV6	16	≥ 450	550 - 850	≥ 10	-
	18 ≤ Ø ≤ 19	≥ 450	550 - 850	≥ 17	-
	20 ≤ Ø ≤ 65	≥ 450	550 - 850	≥ 18	65 000
	65 < Ø ≤ 125	≥ 390	530 - 850	≥ 21	55 000
20MnV6X	18 ≤ Ø ≤ 70	≥ 520	650 - 800	≥ 19	75 000
	71 ≤ Ø ≤ 90	≥ 520	650 - 800	≥ 21	75 000
	91 ≤ Ø ≤ 125	≥ 440	550 - 750	≥ 21	64 000
38MnVS6	20 ≤ Ø ≤ 125	≥ 520	800 - 950	≥ 12	75 000
38MnVS6X	25 ≤ Ø ≤ 125	≥ 580	850 - 1000	≥ 14	84 000
42CrMo4V	18 ≤ Ø ≤ 40	≥ 750	1000 - 1200	≥ 11	100 000
	41 ≤ Ø ≤ 100	≥ 650	900 - 1100	≥ 12	95 000
	101 ≤ Ø ≤ 125	≥ 550	800 - 950	≥ 13	80 000

INDUCTION HARDENING

Depth:

- Ø 16 mm : 0.5 to 1.0 mm
- Ø 18 to 40 mm : 1.0 to 2.0 mm
- Ø 42 to 80 mm : 1.25 to 2.5 mm
- Ø 82.55 to 125 mm : 2.0 to 3.0 mm

Hardness:

- C45E : 55 to 60 HRC
- C35E : 52 to 57 HRC
- 20MnV6-20MnV6X : 42 to 52 HRC
- 38MnVS6-38MnVS6X : 55 to 60 HRC
- 42CrMo4V : 55 to 60 HRC

TOLERANCE

- Ø 16 to 19,05 mm : f8
- Ø 20 to 125 mm : f7

CHROME THICKNESS

- Ø 16 to 18 mm : 20 µm mini
- Ø 19,05 to 125 mm : 25 µm mini

CHROMIUM PLATING

- Hardness : 900 $Hv_{0.1}$ min
- Microcracking : 5000 microcracks /mm² mini

SURFACE ROUGHNESS

- Ra : 0.07 to 0.20 µm
- Ry : 2.5 µm maxi

STRAIGHTNESS

- 0.2 mm/m maxi

STANDARD LENGTH

- 4.5 - 7.8 m

CORROSION RESISTANCE

Neutral salt spray test according to ISO 9227 - Evaluation according to ISO 10289 :

Rating 10 (no point of rust)	Rating 9 (less than 0.1 % of the surface corroded)
168h00 mini NSS rating 10	504h00 mini NSS rating 9

Acetic spray test according to ISO 9227 - Evaluation according to ISO 10289 :

-	Rating 9 (less than 0.1 % of the surface corroded)
-	72h00 ASS

Thalachrome SIE 250

SUPERIOR CORROSION RESISTANCE
DIAMETER 16 - 125 MM

STEEL GRADES

C45E | C35E | 20MnV6 | 20MnV6X | 38MnVS6 | 38MnVS6X | 42CrMo4V

CHEMICAL ANALYSIS

Elements	C (%)	Si (%)	Mn (%)	S (%)	P (%)	V (%)	Cr (%)	Mo (%)	Ni (%)	N (%)	WERKSTOFF
C45E	0.42-0.50	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1191
C35E	0.32-0.39	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1181
20MnV6-20MnV6X	0.16-0.22	0.10-0.50	1.30-1.70	≤ 0.035	≤ 0.035	0.08-0.20	-	-	-	-	1.5217
38MnVS6-38MnVS6X	0.34-0.41	0.15-0.80	1.20-1.60	≤ 0.035	≤ 0.025	0.08-0.20	≤ 0.30	≤ 0.08	-	0.010-0.020	1.1303
42CrMo4V	0.38-0.45	≤ 0.40	0.60-0.90	≤ 0.035	≤ 0.035	-	0.90-1.20	0.15-030	-	-	1.7225

For steel grades C45E and C35E : Cr + Mo + Ni ≤ 0.63%

MECHANICAL PROPERTIES

Steel grade	Range Ø (mm)	Yield point (N/mm²)	Tensile strength (N/mm²)	Elongation %	PSI
	16	≥ 340	620	≥ 10	-
C45E	18 ≤ Ø ≤ 95	≥ 305	580 – 850	≥ 16	45 000
	95 < Ø ≤ 125	≥ 275	560 - 800	≥ 16	40 000
C35E	16 ≤ Ø ≤ 36	≥ 315	560 - 750	≥ 18	45 000
	36 < Ø ≤ 125	≥ 275	560 - 760	≥ 19	40 000
	18 ≤ Ø ≤ 19	≥ 450	550 - 850	≥ 17	-
	20 ≤ Ø ≤ 65	≥ 450	550 - 850	≥ 18	65 000
20MnV6	20 ≤ Ø ≤ 65	≥ 450	550 - 850	≥ 18	65 000
	65 < Ø ≤ 125	≥ 390	530 - 850	≥ 21	55 000
	20 ≤ Ø ≤ 70	≥ 520	650 - 800	≥ 19	75 000
20MnV6X	71 ≤ Ø ≤ 90	≥ 520	650 - 800	≥ 21	75 000
	91 ≤ Ø ≤ 125	≥ 440	550 - 750	≥ 21	64 000
38MnVS6	20 ≤ Ø ≤ 125	≥ 520	800 - 950	≥ 12	75 000
38MnVS6X	25 ≤ Ø ≤ 125	≥ 580	850 - 1000	≥ 14	84 000
	20 ≤ Ø ≤ 40	≥ 750	1000 - 1200	≥ 11	100 000
42CrMo4V	41 ≤ Ø ≤ 100	≥ 650	900 - 1100	≥ 12	95 000
	101 ≤ Ø ≤ 125	≥ 550	800 - 950	≥ 13	80 000

INDUCTION HARDENING

Depth:

- Ø 16 mm : 0.5 to 1.0 mm
- Ø 20 to 40 mm : 1.0 to 2.0 mm
- Ø 42 to 80 mm : 1.25 to 2.5 mm
- Ø 82.55 to 125 mm : 2.0 to 3.0 mm

Hardness:

- C45E : 55 to 60 HRC
- C35E : 52 to 57 HRC
- 20MnV6-20MnV6X : 42 to 52 HRC
- 38MnVS6-38MnVS6X-42CrMo4V 55 to 60 HRC

TOLERANCE

- Ø 16 to 28,575 mm : f8
- Ø 30 to 125 mm : f7

CHROME THICKNESS

- Ø 16 to 19,05 mm : 25 µm mini
- Ø 20 to 125 mm : 30 µm mini

CHROMIUM PLATING

- Hardness : 900 $Hv_{0.1}$ min
- Microcracking : 5000 microcracks /mm² mini

SURFACE ROUGHNESS

- Ra : 0.15 µm maxi
- Ry : 1.5 µm maxi

STRAIGHTNESS

- 0.2 mm/m maxi

STANDARD LENGTH

- 4.5 - 7.8 m

CORROSION RESISTANCE

Neutral salt spray test according to ISO 9227 - Evaluation according to ISO 10289 :	Rating 10 (no point of rust)	Rating 9 (less than 0.1 % of the surface corroded)
	312h00 mini NSS rating 10	744h00 mini NSS rating 9
Acetic spray test according to ISO 9227 - Evaluation according to ISO 10289 :	-	Rating 9 (less than 0.1 % of the surface corroded)
	-	100h00 ASS

Thalachrome SIE 500

HIGH CORROSION RESISTANCE
DIAMETER 20 - 125 MM

STEEL GRADES

C45E | C35E | 20MnV6 | 20MnV6X | 38MnVS6 | 38MnVS6X | 42CrMo4V

CHEMICAL ANALYSIS

Elements	C (%)	Si (%)	Mn (%)	S (%)	P (%)	V (%)	Cr (%)	Mo (%)	Ni (%)	N (%)	WERKSTOFF
C45E	0.42-0.50	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1191
C35E	0.32-0.39	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1181
20MnV6-20MnV6X	0.16-0.22	0.10-0.50	1.30-1.70	≤ 0.035	≤ 0.035	0.08-0.20	-	-	-	-	1.5217
38MnVS6-38MnVS6X	0.34-0.41	0.15-0.80	1.20-1.60	≤ 0.035	≤ 0.025	0.08-0.20	≤ 0.30	≤ 0.08	-	0.010-0.020	1.1303
42CrMo4V	0.38-0.45	≤ 0.40	0.60-0.90	≤ 0.035	≤ 0.035	-	0.90-1.20	0.15-030	-	-	1.7225

For steel grades C45E and C35E : Cr + Mo + Ni ≤ 0.63%

MECHANICAL PROPERTIES

Steel grade	Range Ø (mm)	Yield point (N/mm²)	Tensile strength (N/mm²)	Elongation %	PSI
C45E	20 ≤ Ø ≤ 95	≥ 305	580 – 850	≥ 16	45 000
	95 < Ø ≤ 125	≥ 275	560 - 800	≥ 16	40 000
C35E	20 ≤ Ø ≤ 36	≥ 315	560 - 750	≥ 18	45 000
	36 < Ø ≤ 125	≥ 275	560 - 760	≥ 19	40 000
20MnV6	20 < Ø ≤ 65	≥ 450	550 - 850	≥ 18	65 000
	65 < Ø ≤ 125	≥ 390	530 - 850	≥ 21	55 000
20MnV6X	20 ≤ Ø ≤ 70	≥ 520	650 - 800	≥ 19	75 000
	71 ≤ Ø ≤ 90	≥ 520	650 - 800	≥ 21	75 000
	91 ≤ Ø ≤ 125	≥ 440	550 - 750	≥ 21	64 000
38MnVS6	20 ≤ Ø ≤ 125	≥ 520	800 - 950	≥ 12	75 000
38MnVS6X	25 ≤ Ø ≤ 125	≥ 580	850 - 1000	≥ 14	84 000
42CrMo4V	20 ≤ Ø ≤ 40	≥ 750	1000 - 1200	≥ 11	100 000
	41 ≤ Ø ≤ 100	≥ 650	900 - 1100	≥ 12	95 000
	101 ≤ Ø ≤ 125	≥ 550	800 - 950	≥ 13	80 000

INDUCTION HARDENING

Depth:

- Ø 20 to 40 mm : 1.0 to 2.0 mm
- Ø 42 to 80 mm : 1.25 to 2.5 mm
- Ø 82.55 to 125 mm : 2.0 to 3.0 mm

Hardness:

- C45E : 55 to 60 HRC
- C35E : 52 to 57 HRC
- 20MnV6-20MnV6X : 42 to 52 HRC
- 38MnVS6-38MnVS6X : 55 to 60 HRC
- 42CrMo4V : 55 to 60 HRC

TOLERANCE

- Ø 20 to 28,575 mm : f8
- Ø 30 to 125 mm : f7

CHROME THICKNESS

- Ø 20 to 125 mm : 30 µm mini

CHROMIUM PLATING

- Hardness : 900 Hv_{01} min
- Microcracking : 5000 microcracks /mm² mini

SURFACE ROUGHNESS

- Ra : 0.15 µm maxi
- Rt : 1.5 µm maxi

STRAIGHTNESS

- 0.2 mm/m maxi

STANDARD LENGTH

- 4.5 - 7.8 m

CORROSION RESISTANCE

	Rating 10 (no point of rust)	Rating 9 (less than 0.1 % of the surface corroded)
Neutral salt spray test according to ISO 9227 - Evaluation according to ISO 10289 :	500h00 mini NSS rating 10	1008h00 mini NSS rating 9
Acetic spray test according to ISO 9227 - Evaluation according to ISO 10289 :	-	Rating 9 (less than 0.1 % of the surface corroded)
	-	200h00 ASS

Thalachrome SE CASS 64

DIAMETER
25 - 55 MM

THE JAPANESE STANDARD CHROME BAR

STEEL GRADES

C45E | C35E | 20MnV6 | 20MnV6X | 38MnVS6 | 38MnVS6X | 42CrMo4V

CHEMICAL ANALYSIS

Elements	C (%)	Si (%)	Mn (%)	S (%)	P (%)	V (%)	Cr (%)	Mo (%)	Ni (%)	N (%)	WERKSTOFF
C45E	0.42-0.50	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1191
C35E	0.32-0.39	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1181
20MnV6-20MnV6X	0.16-0.22	0.10-0.50	1.30-1.70	≤ 0.035	≤ 0.035	0.08-0.20	-	-	-	-	1.5217
38MnVS6-38MnVS6X	0.34-0.41	0.15-0.80	1.20-1.60	≤ 0.035	≤ 0.025	0.08-0.20	≤ 0.30	≤ 0.08	-	0.010-0.020	1.1303
42CrMo4V	0.38-0.45	≤ 0.40	0.60-0.90	≤ 0.035	≤ 0.035	-	0.90-1.20	0.15-030	-	-	1.7225

For steel grades C45E and C35E : Cr + Mo + Ni ≤ 0.63%

MECHANICAL PROPERTIES

Steel grade	Range Ø (mm)	Yield point (N/mm²)	Tensile strength (N/mm²)	Elongation %	PSI
C45E	25 ≤ Ø ≤ 55	≥ 305	580 – 850	≥ 16	45 000
20MnV6	25 ≤ Ø ≤ 55	≥ 450	550 - 850	≥ 18	65 000
20MnV6X	25 ≤ Ø ≤ 55	≥ 520	650 - 800	≥ 19	75 000
38MnVS6	25 ≤ Ø ≤ 55	≥ 520	800 - 950	≥ 12	75 000
38MnVS6X	25 ≤ Ø ≤ 55	≥ 580	850 - 1000	≥ 14	84 000
42CrMo4V	25 ≤ Ø ≤ 40	≥ 750	1000 - 1200	≥ 11	100 000
	41 ≤ Ø ≤ 55	≥ 650	900 - 1100	≥ 12	95 000

TOLERANCE

- Ø 25 to 28,575 mm : f8
- Ø 30 to 55 mm : f7

CHROME THICKNESS

- Ø 25 to 55 mm : 30 µm mini

CHROMIUM PLATING

- Hardness : 900 $Hv_{0.1}$ min
- Microcracking : 5000 microcracks /mm² mini

SURFACE ROUGHNESS

- Ra : 0.10 µm mini
- Rt : 1.0 µm maxi

STRAIGHTNESS

- 0.2 mm/m maxi

STANDARD LENGTH

- 4,5 - 7,8 m

CORROSION RESISTANCE

CASS test according to ISO 9227 - Evaluation according to ISO 10289 :

Rating 10 (no point of rust)	Rating 9 (less than 0.1 % of the surface corroded)
64h00 mini rating 10	-

Thalachrome SE CASS 96

DIAMETER
25 - 55 MM

THE JAPANESE STANDARD CHROME BAR

STEEL GRADES

C45E | C35E | 20MnV6 | 20MnV6X | 38MnVS6 | 38MnVS6X | 42CrMo4V

CHEMICAL ANALYSIS

Elements	C (%)	Si (%)	Mn (%)	S (%)	P (%)	V (%)	Cr (%)	Mo (%)	Ni (%)	N (%)	WERKSTOFF
C45E	0.42-0.50	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1191
C35E	0.32-0.39	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1181
20MnV6-20MnV6X	0.16-0.22	0.10-0.50	1.30-1.70	≤ 0.035	≤ 0.035	0.08-0.20	-	-	-	-	1.5217
38MnVS6-38MnVS6X	0.34-0.41	0.15-0.80	1.20-1.60	≤ 0.035	≤ 0.025	0.08-0.20	≤ 0.30	≤ 0.08	-	0.010-0.020	1.1303
42CrMo4V	0.38-0.45	≤ 0.40	0.60-0.90	≤ 0.035	≤ 0.035	-	0.90-1.20	0.15-030	-	-	1.7225

For steel grades C45E and C35E : Cr + Mo + Ni ≤ 0.63%

MECHANICAL PROPERTIES

Steel grade	Range Ø (mm)	Yield point (N/mm²)	Tensile strength (N/mm²)	Elongation %	PSI
C45E	25 ≤ Ø ≤ 55	≥ 305	580 – 850	≥ 16	45 000
20MnV6	25 ≤ Ø ≤ 55	≥ 450	550 - 850	≥ 18	65 000
20MnV6X	25 ≤ Ø ≤ 55	≥ 520	650 - 800	≥ 19	75 000
38MnVS6	25 ≤ Ø ≤ 55	≥ 520	800 - 950	≥ 12	75 000
38MnVS6X	25 ≤ Ø ≤ 55	≥ 580	850 - 1000	≥ 14	84 000
42CrMo4V	25 ≤ Ø ≤ 40	≥ 750	1000 - 1200	≥ 11	100 000
	41 ≤ Ø ≤ 55	≥ 650	900 - 1100	≥ 12	95 000

TOLERANCE

- Ø 25 to 28,575 mm : f8
- Ø 30 to 55 mm : f7

CHROME THICKNESS

- Ø 25 to 55 mm : 30 µm mini

CHROMIUM PLATING

- Hardness : 900 $Hv_{0.1}$ min
- Microcracking : 5000 microcracks /mm² mini

SURFACE ROUGHNESS

- Ra : 0.10 µm mini
- Rt : 1.0 µm maxi

STRAIGHTNESS

- 0.2 mm/m maxi

STANDARD LENGTH

- 4,5 - 7,8 m

CORROSION RESISTANCE

CASS test according to ISO 9227 - Evaluation according to ISO 10289 :

Rating 10 (no point of rust)	Rating 9 (less than 0.1 % of the surface corroded)
-	96h00 mini rating 9

Thalachrome SIE CASS 64

DIAMETER
25 - 55 MM

THE JAPANESE STANDARD INDUCTION HARDENED CHROME BAR

STEEL GRADES

C45E | C35E | 20MnV6 | 20MnV6X | 38MnVS6 | 38MnVS6X | 42CrMo4V

CHEMICAL ANALYSIS

Elements	C (%)	Si (%)	Mn (%)	S (%)	P (%)	V (%)	Cr (%)	Mo (%)	Ni (%)	N (%)	WERKSTOFF
C45E	0.42-0.50	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1191
C35E	0.32-0.39	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1181
20MnV6-20MnV6X	0.16-0.22	0.10-0.50	1.30-1.70	≤ 0.035	≤ 0.035	0.08-0.20	-	-	-	-	1.5217
38MnVS6-38MnVS6X	0.34-0.41	0.15-0.80	1.20-1.60	≤ 0.035	≤ 0.025	0.08-0.20	≤ 0.30	≤ 0.08	-	0.010-0.020	1.1303
42CrMo4V	0.38-0.45	≤ 0.40	0.60-0.90	≤ 0.035	≤ 0.035	-	0.90-1.20	0.15-030	-	-	1.7225

For steel grades C45E and C35E : Cr + Mo + Ni ≤ 0.63%

MECHANICAL PROPERTIES

Steel grade	Range Ø (mm)	Yield point (N/mm²)	Tensile strength (N/mm²)	Elongation %	PSI
C45E	25 ≤ Ø ≤ 55	≥ 305	580 – 850	≥ 16	45 000
20MnV6	25 ≤ Ø ≤ 55	≥ 450	550 - 850	≥ 18	65 000
20MnV6X	25 ≤ Ø ≤ 55	≥ 520	650 - 800	≥ 19	75 000
38MnVS6	25 ≤ Ø ≤ 55	≥ 520	800 - 950	≥ 12	75 000
38MnVS6X	25 ≤ Ø ≤ 55	≥ 580	850 - 1000	≥ 14	84 000
42CrMo4V	25 ≤ Ø ≤ 40	≥ 750	1000 - 1200	≥ 11	100 000
	41 ≤ Ø ≤ 55	≥ 650	900 - 1100	≥ 12	95 000

INDUCTION HARDENING

Depth:

- Ø 25 to 40 mm : 1.0 to 2.0 mm
- Ø 42 to 55 mm : 1.25 to 2.5 mm

Hardness:

- C45E : 55 to 60 HRC
- C35E : 52 to 57 HRC
- 20MnV6-20MnV6X : 42 to 52 HRC
- 38MnVS6 38MnVS6X : 55 to 60 HRC
- 42CrMo4V : 55 to 60 HRC

TOLERANCE

- Ø 25 to 28,575 mm : f8
- Ø 30 to 55 mm : f7

CHROME THICKNESS

- Ø 25 to 55 mm : 30 µm mini

CHROMIUM PLATING

- Hardness : 900 $Hv_{0.1}$ min
- Microcracking : 5000 microcracks /mm² mini

SURFACE ROUGHNESS

- Ra : 0.10 µm mini
- Rt : 1.0 µm maxi

STRAIGHTNESS

- 0.2 mm/m maxi

STANDARD LENGTH

- 4,5 - 7,8 m

CORROSION RESISTANCE

CASS test according to ISO 9227 - Evaluation according to ISO 10289 :

Rating 10 (no point of rust)	Rating 9 (less than 0.1 % of the surface corroded)
64h00 mini rating 10	-

Thalachrome SIE CASS 96

DIAMETER
25 - 55 MM

THE JAPANESE STANDARD INDUCTION HARDENED CHROME BAR

STEEL GRADES

C45E | C35E | 20MnV6 | 20MnV6X | 38MnVS6 | 38MnVS6X | 42CrMo4V

CHEMICAL ANALYSIS

Elements	C (%)	Si (%)	Mn (%)	S (%)	P (%)	V (%)	Cr (%)	Mo (%)	Ni (%)	N (%)	WERKSTOFF
C45E	0.42-0.50	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1191
C35E	0.32-0.39	≤ 0.40	0.50-0.80	≤ 0.035	≤ 0.035	-	≤ 0.40	≤ 0.10	≤ 0.40	-	1.1181
20MnV6-20MnV6X	0.16-0.22	0.10-0.50	1.30-1.70	≤ 0.035	≤ 0.035	0.08-0.20	-	-	-	-	1.5217
38MnVS6-38MnVS6X	0.34-0.41	0.15-0.80	1.20-1.60	≤ 0.035	≤ 0.025	0.08-0.20	≤ 0.30	≤ 0.08	-	0.010-0.020	1.1303
42CrMo4V	0.38-0.45	≤ 0.40	0.60-0.90	≤ 0.035	≤ 0.035	-	0.90-1.20	0.15-030	-	-	1.7225

For steel grades C45E and C35E : Cr + Mo + Ni ≤ 0.63%

MECHANICAL PROPERTIES

Steel grade	Range Ø (mm)	Yield point (N/mm²)	Tensile strength (N/mm²)	Elongation %	PSI
C45E	25 ≤ Ø ≤ 55	≥ 305	580 – 850	≥ 16	45 000
20MnV6	25 ≤ Ø ≤ 55	≥ 450	550 - 850	≥ 18	65 000
20MnV6X	25 ≤ Ø ≤ 55	≥ 520	650 - 800	≥ 19	75 000
38MnVS6	25 ≤ Ø ≤ 55	≥ 520	800 - 950	≥ 12	75 000
38MnVS6X	25 ≤ Ø ≤ 55	≥ 580	850 - 1000	≥ 14	84 000
42CrMo4V	25 ≤ Ø ≤ 40	≥ 750	1000 - 1200	≥ 11	100 000
	41 ≤ Ø ≤ 55	≥ 650	900 - 1100	≥ 12	95 000

INDUCTION HARDENING

Depth:

- Ø 25 to 40 mm : 1.0 to 2.0 mm
- Ø 42 to 55 mm : 1.25 to 2.5 mm

Hardness:

- C45E : 55 to 60 HRC
- C35E : 52 to 57 HRC
- 20MnV6-20MnV6X : 42 to 52 HRC
- 38MnVS6-38MnVS6X : 55 to 60 HRC
- 42CrMo4V : 55 to 60 HRC

TOLERANCE

- Ø 25 to 28,575 mm : f8
- Ø 30 to 55 mm : f7

CHROME THICKNESS

- Ø 25 to 55 mm : 30 µm mini

CHROMIUM PLATING

- Hardness : 900 $Hv_{0,1}$ min
- Microcracking : 5000 microcracks /mm² mini

SURFACE ROUGHNESS

- Ra : 0.10 µm mini
- Rt : 1.0 µm maxi

STRAIGHTNESS

- 0.2 mm/m maxi

STANDARD LENGTH

- 4,5 - 7,8 m

CORROSION RESISTANCE

CASS test according to ISO 9227 - Evaluation according to ISO 10289 :

Rating 10 (no point of rust)	Rating 9 (less than 0.1 % of the surface corroded)
-	96h00 mini rating 9

ON REQUEST

Thalachrome STU

HARD CHROMIUM PLATED TUBES

STEEL GRADES

E355+SR | E410+N

CHEMICAL ANALYSIS

Steel grade	C (%)	Si (%)	Mn (%)	S (%)	P (%)	Al (%)	V (%)
E355+SR	0.22 maxi	0.55 maxi	1.60 maxi	0.040 maxi	0.025 maxi	0.20 maxi	-
E410+N	0.16-0.22	0.10-0.50	1.30-1.70	0.040 maxi	0.030 maxi	0.010-0.060	0.06-0.17

MECHANICAL PROPERTIES

Steel grade	Yield point (N/mm^2)	Tensile strength (N/mm^2)	Elongation (%)	Impact test -20°C
E355+SR	420 N/mm^2 mini	580-850 N/mm^2	10%	-
E410+N	450 N/mm^2 mini	550-700 N/mm^2	15%	27 joules

TOLERANCE

Ø 20 - 100 mm : ISO f7

CHROME THICKNESS

Thalachrome STU : 20 µm mini
Thalachrome STU120 : 25 µm mini
Thalachrome STU250 : 30 µm mini

SURFACE ROUGHNESS

Thalachrome STU et STU120 :
Ra : 0.07 - 0.20 µm
Ry : 2.5 µm maxi

Thalachrome STU250 :
Ra : 0.15 µm maxi
Rt : 1.5 µm maxi

STRAIGHTNESS

0.2 mm/m maxi

CHROMIUM PLATING

900 $HV_{0.1}$ mini

CORROSION RESISTANCE

Hard Chromium Plated Tubes	Rating 10 (no point of rust)	Rating 9 (less than 0.1 % of the surface corroded)
Thalachrome STU	120h mini NSS rating 10	312h00 mini NSS rating 9
Thalachrome STU120	168h mini NSS rating 10	504h00 mini NSS rating 9
Thalachrome STU250	312h mini NSS rating 10	744h00 mini NSS rating 9

Packaging

URANIE products are packed with modern technology with materials adapted to different needs and destinations in order to arrive in perfect condition.

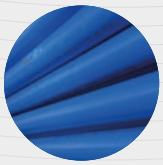
THE STANDARD THALACHROME PACKAGING IS MADE OF CARDBOARD TUBE AS EXPLAINED BELOW:

Black striped tube (standard)
Thalachrome S + SI

Green striped tube (high corrosion resistance)
Thalachrome SE 120, SE 250, SE 500, SIE 120, SIE 250, SIE 500, CASS SE 64, CASS SE 96, CASS SIE 64, CASS SIE 96

Cardboard tubes are manufactured internally according to the needs of the produced diameter.

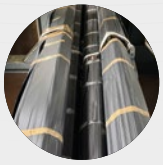
MOREOVER, WE CAN ALSO PROTECT THE BARS WITH PLASTIC SLEEVES:



Blue plastic sleeve (standard)
Thalachrome S + SI

Green plastic sleeve (high corrosion resistance)
Thalachrome SE 120, SE 250, SE 500, SIE 120, SIE 250, SIE 500, CASS SE 64, CASS SE 96 CASS SIE 64, CASS SIE 96

FOR CONTAINER SHIPMENTS:



The bars are double packed in semiflex (thick black plastic packaging) to protect them from humidity.

Marking

URANIE proceed to an ink-jet marking on the cardboard tube or on the plastic sleeve to guarantee the identification and the traceability of the product, even after cutting, containing the following information:

- **Uranie Logo**
- **Trademark Name**
- **Diameter**
- **Steel grade**
- **Heat number**

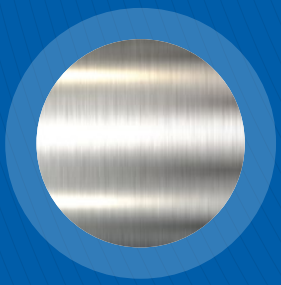
Thalachrome, the real corrosion resistance

The future is more relevant than ever. URANIE remains a unique brand producing a premium product. Corrosion resistance will be central to our future.


URANIE
INTERNATIONAL
THALACHROME S Ø45

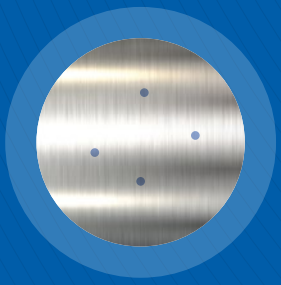
Accelerated corrosion tests & resistance / products

Neutral, Acetic & Cupro Acetic tests.
Test performed on each production batch confirms the excellent & consistent corrosion resistance of Uranie International hard chrome plated bars.



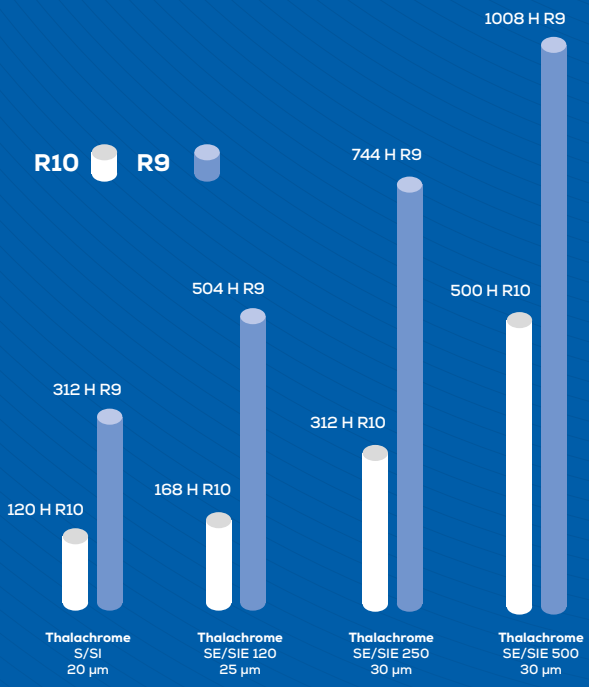
After 120 hours exposure (neutral test)

No corrosion
« rating 10 »



After 312 hours exposure (neutral test)

0,1% maxi of the surface is corroded
« rating 9 »



Salt spray cabinets under NFA 05-109

Uranie is not using any kind of passivation liquids or wax to enhance, increase or save chrome bars from premature corrosion as normally made by almost all the competitors on the market.

Corrosion resistance test

The following tests are performed in Uranie International laboratories located within the plant:

- Neutral salt spray test (NSS)
- Acetic salt spray test (AASS)
- Cupro Acetic salt spray test (CASS)
- Corrodekote Test (CLAAS specification)
- Climatic chamber test
- Adhesion test
- Microcracks test

Tests defined by

- ISO 9227 (NSS)
- ISO 9227 (ASS)
- ISO 9227 (CASS)
- ISO 4541 (Corrodkote test)

Equivalent to

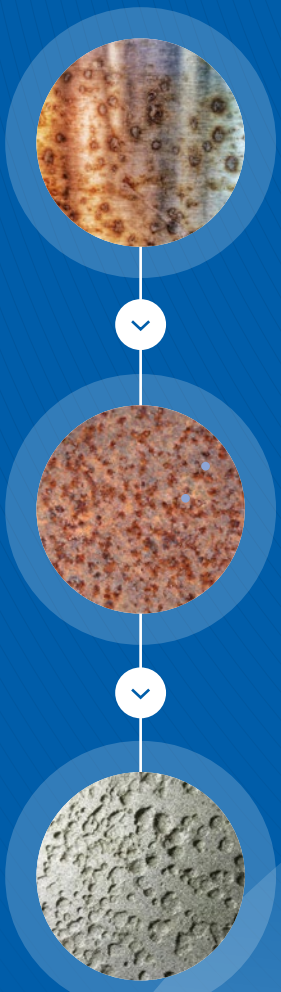
- ASTM B117 | ISO 3768 | DIN 50021 (NSS)
- ASTM B287 | ISO 3769 | DIN 50021 (ASS)
- ASTM B368 | ISO 3770

Test as per NF EN ISO 9227. Interpretation of the results as per NF EN ISO10289

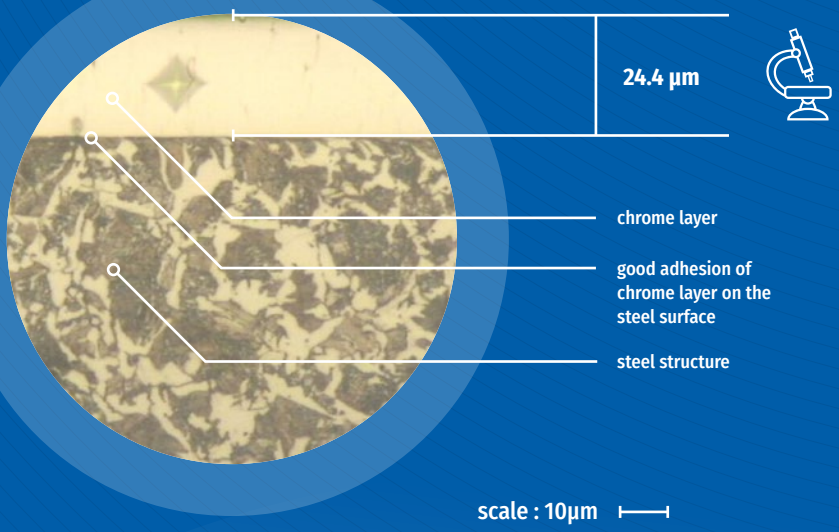
ISO 9001

Corrosion resistance What is it?

Surface corrosion progress



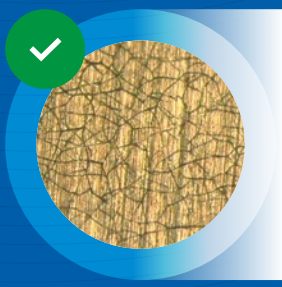
The corrosion resistance of hard chrome-plated bars is related to hard chrome adhesion on the substrate and on the steel surface and quality of chrome deposit



Hard chrome plated bars Technical overview

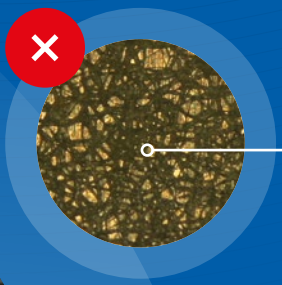
Cracks & micro-cracks

(The structures are represented in the same scale)



Micro-cracks › 5 000 Cracks/mm² : **conformity (URANIE)**

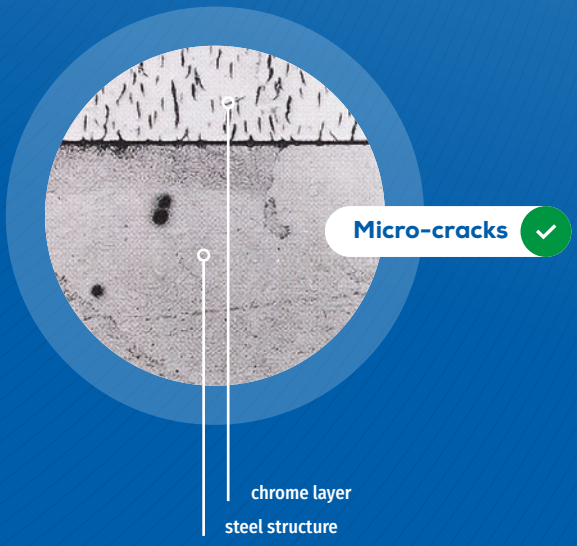
Macro-cracks non-conformity (competitor)

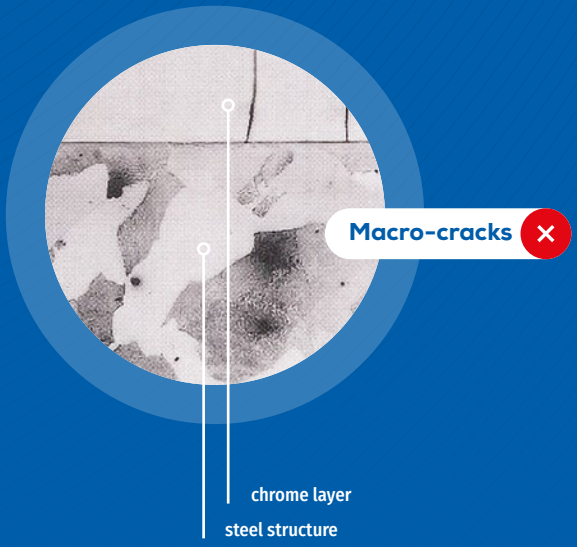


› 10 000 micro-cracks non-conformity (competitor)

Transversal chrome & steel structure analysis

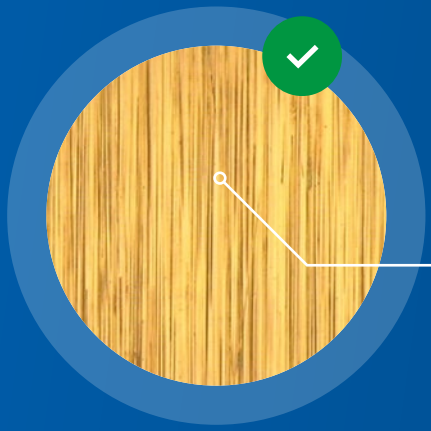
(The structures are represented in the same scale)





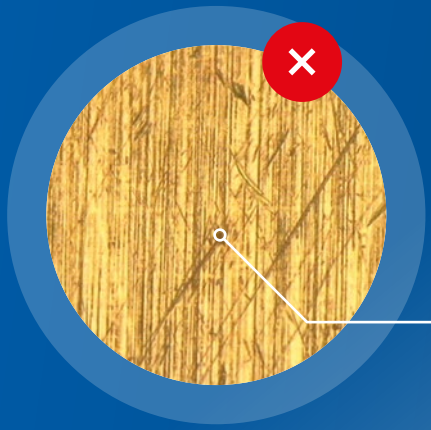
The surface preparation "the key of success"

The surface preparation quality before chroming guarantees the perfect and long lasting performance of the chrome-plated bars. That's the reason why Uranie outperforms the competition by excellent grinding and polishing of the bars before plating.



Homogenous & regular chrome polishing

URANIE INTERNATIONAL



Casual, irregular and aggressive polishing

- Consumables, lubricants out of control
- No control of the cutting parameters

Competitor

Uranie International Production flow

4

Straightening

5

Cutting to length

6

Chamfering & peeling

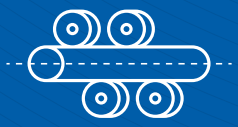
10

Gross grinding

11

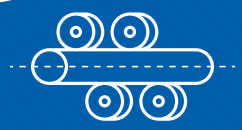
Finish grinding

12



Polishing

16



Polishing

17

Packing

18

Samples cutting

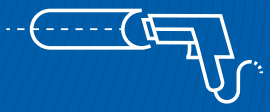
1

Reception of raw material

2

General material inspection

3



Spectrometer check

7

Straightening

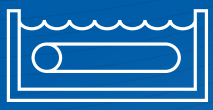
8

Gross grinding

9

Induction hardening

13



Chemical cleaning

14

Chroming

15

Cleaning

19

Corrosion resistance testing

20

Truck / container loading operations

Thalachrome, the choice of excellence

Our Unique Selling Proposition (USP) is: "Uranie The Choice Of Excellence".

Beyond manufacturing the chrome bars, the mission of our company is to be the world number 1.

The diversity of the solutions proposed in the different THALACHROME variables that Uranie has developed since 1986.
Then the diversity of your needs in a world that is changing at an incredible speed and for various sectors such as agriculture, construction material, handling and others.

Finally, we will continue in this context, thanks to the operational program of excellence put in place, which is based on 3 fundamental points: Commitment, Flexibility and Transparency.

100% reliable steel

Uranie International offers a rigorous selection of steel grades adapted to the context of use for its chrome-plated bars: excellent chrome plating, machining and welding.

Strict supplier selection

Rolled steel suppliers have been strictly selected and produce according to the Uranie International technical specifications.

Rigorous selection

The suppliers of hot rolled steel are selected, approved and produce according to Uranie specifications.

Strict quality inspection

On receipt raw material is carefully inspected before being accepted into stock.

Specific steel

Steel grades are chosen according to the specific use of hard chrome plated bars: C45E, C35E, 20MnV6, 38MnVS6, 42CrMo4V. Improved mechanical properties (x) and ultrasonic controls can be provided on demand.

Stock

URANIE hold 3 months of raw material stock cover.

100% reliable raw materials

The surface quality before chroming guarantees the quality of chromed bars. That's the reason why at Uranie International, the operations to prepare the polished and ground bars before plating are meticulesly performed.

Peeling

Purchased with a stock allowance hot rolled bars are peeled to remove surface steel defects, improve the geometry and calibrate to requested size.

Straightening

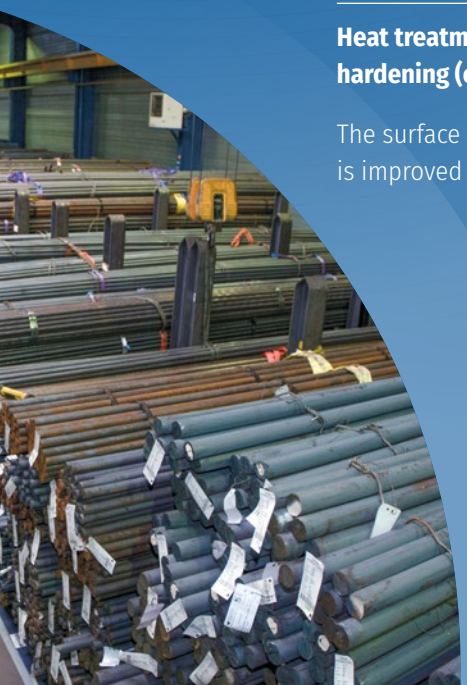
Straightening is performed twice, before and after the peeling to guarantee perfect straightness.

Heat treatment induction hardening (optional)

The surface hardness is improved with an excellent control of the hardness depth and of the hardness grade, thanks to a fully automatic heat treatment machine, taking into account the different parameters like the steel grade, the diameter and the customer's technical specifications.

Grinding and polishing

These operations performed in-line on centerless grinding machines allow to reach the perfect dimensional precision and surface finish.



100% high-performance production tool

The quality of the surface before chrome plating determines the quality of a chrome plated bar. This is why, at Uranie International, the operations to prepare rectified bars are subjected to rigorous and meticulous controls to eliminate any products presenting a flaw.

Ultra modern production equipment

Innovative technical capabilities and modern machinery pool are dedicated to ensure the best quality and the highest productivity.

Optimised process

Only one production flow with no interruptions and no space for potential contamination and invisible corrosion issues.

Reliability / Traceability

The exclusive process developed by Uranie International allows control of all the processing steps in one production plant.

Reactivity / Flexibility

4 chroming lines working 24/7.

Annual production

60 000 tons

100% controlled process

Controls before chroming

- Spectrometry
- Anti mixing check
- Dimensional
- Form defect
- Straightness
- Roughness
- Visual defects
- Hardness surface depth

Controls during chroming

- Temperature of chrome baths
- Amperage
- Chrome density
- Control of the chrome bath chemistry
- Dimensional Conductivity

Controls after chroming

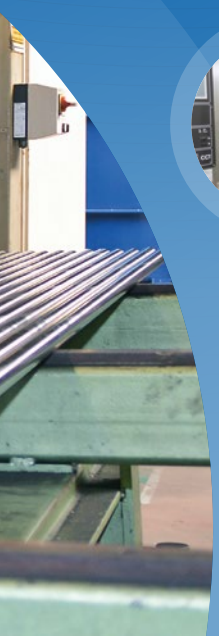
- Chrome thickness
- Visual defects
- Roughness
- Dimensional
- Form defect
- Length of the bars/pieces
- Perpendicularity

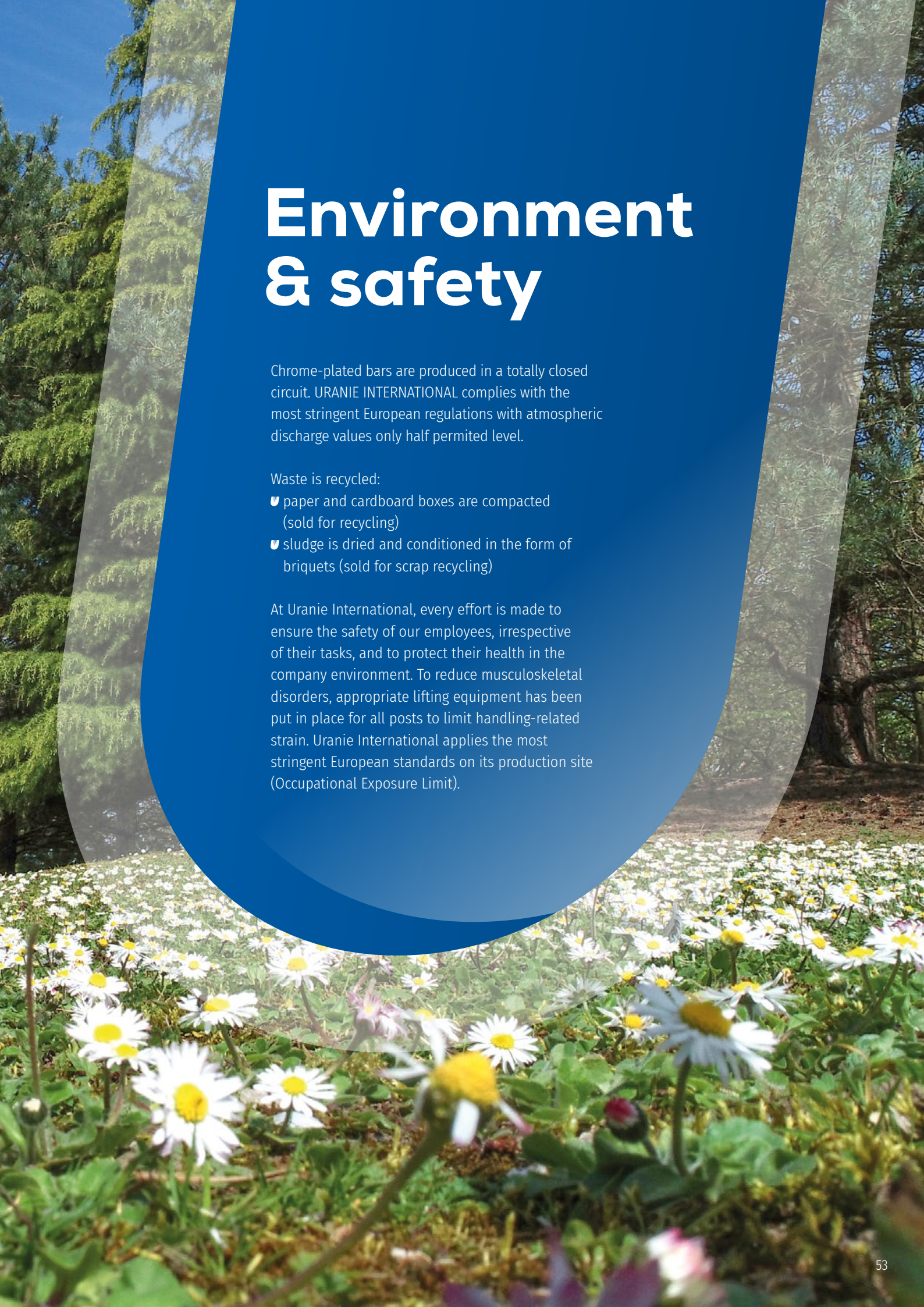
Laboratory controls Chrome bars

- Chrome hardness
- Heat treatment depth
- Adhesion test
- Resistance to corrosion
- Microcracking
- Resistance to corrosion

Laboratory controls Process

- Verification of chrome baths
- Verification of lubricants
- Verification of water





Environment & safety

Chrome-plated bars are produced in a totally closed circuit. URANIE INTERNATIONAL complies with the most stringent European regulations with atmospheric discharge values only half permited level.

Waste is recycled:

- paper and cardboard boxes are compacted (sold for recycling)
- sludge is dried and conditioned in the form of briquets (sold for scrap recycling)

At Uranie International, every effort is made to ensure the safety of our employees, irrespective of their tasks, and to protect their health in the company environment. To reduce musculoskeletal disorders, appropriate lifting equipment has been put in place for all posts to limit handling-related strain. Uranie International applies the most stringent European standards on its production site (Occupational Exposure Limit).

Research & development

In Uranie International we adopt a “Lean" manufacturing approach and use all its principles.

Modern performance indicators, efficient management system and the increase in the net operational rate of the production equipment (auto-maintenance) are the base for our outstanding quality.

The engineers at Uranie International, in collaboration with design departments, are constantly working on the development and improvement of production processes.

360° customized IT management

Uranie strength and flexible management is also present in the IT department, where we have a team of people able to personalize our ERP system according to our specifications which guaranties improved connection with our customers. Many partners let Uranie control & guarantee best stock level management that respect production programs & Just-In-Time service...

- ERP compatible with our customers
- ERP system manage consignment stocks

URANIE
INTERNATIONAL

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VAT FR27337520720
E-mail : uranie@uranie-inter.com

www.uranie-inter.com

How to get to Uranie International

From Paris Charles-De-Gaulle Airport
40 min | 48 km by A1

From Paris Downtown
1 h 30 min | 72 km by A1

From Beauvais Airport
50 min | 61 km by N31

graffiti.fr - novembre 2022