Heat treatable for greater hardness and strength

Outokumpu Dura range

outokumpu
high performance stainless steel

outokumpu.com/dura

We believe in a world that lasts forever

Outokumpu is a global leader in the advanced materials business, creating stainless steels that are efficient, long lasting, and recyclable. A strong customer focus, sustainability, and technical excellence are at the heart of everything we do.

As an open and approachable company, our customers rely on our advice to help them select products that will deliver the best long-term performance for their needs.

With over a century of innovation behind us and some of the best minds in the business, we continue to develop pioneering materials to meet the demands of tomorrow.

The durability of stainless steel means that it is not only the best, but also the most economically sustainable choice for a wide range of applications. All of our products are made from an average of 85% recycled material and are fully recyclable at the end of their lifecycles.

Together with our customers and partners, we are building a world that lasts forever.

Stay up to date on our latest innovations, follow market trends, and get inspired by success stories – subscribe to our magazines and newsletters **outokumpu.com/newsletter**

The inside view

Heat treatable to provide hardness and strength

Outokumpu's legacy of innovation and consistent quality means we have the right product for every application. By grouping our products into ranges based on performance, rather than stainless steel type, we aim to make choosing the best product for your application easier.

The Dura range contains 14 martensitic and precipitation hardening stainless steel products designed for applications that demand a high level of surface hardness.

In addition to improved hardenability, these products are characterized by high strength and wear resistance. For this reason, the main alternatives to the Dura range products are carbon steels rather than other ranges of stainless steel.

Dura range products are usually sold as solution annealed and then age hardened for use in applications that require hardness and a higher corrosion resistance than carbon steel can offer – everything from high quality knives and scalpels to aircraft landing gear. The precipitation hardening products are hardened by a special mechanism involving the formation of precipitates within the microstructure. Both martensitic and precipitation hardening stainless steels are magnetic.

All Dura range products are readily available around the globe and are delivered from mills that are well known for their on-time delivery accuracy. You can depend on Outokumpu stainless steels to reliably and consistently meet the specifications that your application demands. Our experts can also create products that are custom-made to your precise specifications.

Our customers rely on us to deliver the best advice, and we can often find more cost-effective solutions that help you to avoid over-specifying materials.

Contact us at **outokumpu.com/contacts** to find out what product is right for your next project.

Andrea Volkert, Outokumpu

If you're looking for high-strength stainless steels that don't require heat treatment, check the Forta range temper rolled products.

Choosing the right product

Choosing the right stainless steel for the application is key to ensuring both the cost effectiveness and success of your project. Take a look at the individual Outokumpu Dura range products – and the applications they are best suited for – to get an idea of your options.

Key products

Dura 420/4021

A very popular martensitic stainless steel that is corrosion resistant in water and steam.

Typical applications

- Cutting utensils
- Surgical instruments
- Press plates
- Brake discs
- Valves
- Mechanical parts

Product forms
C, H, P, B, R, S

Dura 420/4034

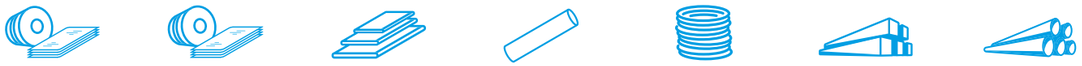
A high-hardness martensitic stainless steel that is corrosion resistant in water and steam.

Typical applications

- Professional kitchen knives
- Surgical instruments
- Press plates
- Brake disks

Product forms
C, H, S

Product forms



C
Cold rolled coil and sheet

H
Hot rolled coil and sheet

P
Quarto plate

B
Bar

R
Wire rod

S
Semifinished (bloom, billet, ingot & slab)

T
Pipe

Dura range applications

- Professional and high quality kitchen knives
- Blades in food processing equipment
- Shears and surgical instruments
- Valves, axles, pump parts, and nozzles
- Wear-resistant surfaces
- Springs
- Press plates
- Brake discs
- Mechanical parts
- Measuring tools
- Printing industry
- Retaining rings
- Gears
- Aircraft parts

Alternatives

Outokumpu name	Typical applications	Product forms
Dura 410/4006 A martensitic stainless steel that is corrosion resistant in water and steam. Mainly supplied as plate or long product for mechanical engineering applications.	• Valves • Axles • Pump parts • Brake discs	C, H, P, B, R, S
Dura 4024 A martensitic stainless steel with slightly better hardenability than Dura 410/4006 that is corrosion resistant in water and steam.	• Mechanical engineering applications • Surgical instruments	C, H
Dura 4120 Similar to Dura 420/4021 but with improved corrosion resistance and high-temperature strength.	• Mechanical parts such as shafts • Water and steam turbine blades • Beater blades (especially in the paper industry) • Press plates	C, H
Dura 420/4028 A martensitic stainless steel that is corrosion resistant in water and steam.	• Cutting utensils • Surgical instruments • Measuring tools • Wear-resistant mechanical parts • Valves	C, H, B, S
Dura 4419 Similar to Dura 420/4028, but with improved corrosion resistance and high-temperature strength.	• Valves • Axles • Pump parts • Brake discs	C, H
Dura 420/4031 A martensitic stainless steel with medium-high hardness that is corrosion resistant in water and steam.	• Cutting utensils • Surgical instruments • Measuring tools • Wear-resistant mechanical parts	C, H, S
Dura 4122 Outokumpu's most corrosion-resistant martensitic stainless steel. Good resistance in moderately corrosive, low-chloride containing environments and very good mechanical properties and wear resistance. Medium-high hardness.	• Surgical instruments • Food processing equipment • Mechanical parts • Machine and pump construction	C, H, S

Outokumpu name	Typical applications	Product forms
Dura 4110 A high-hardness martensitic stainless steel with improved corrosion and wear resistance compared to Dura 420/4034.	• Knife blades • Scissors • Surgical cutting tools • Measuring tools • Pump construction • Valves	C, H
Dura 4116 Similar to Dura 4110 but with elevated wear resistance.	• Cutting instruments that undergo partial hardening	C, H

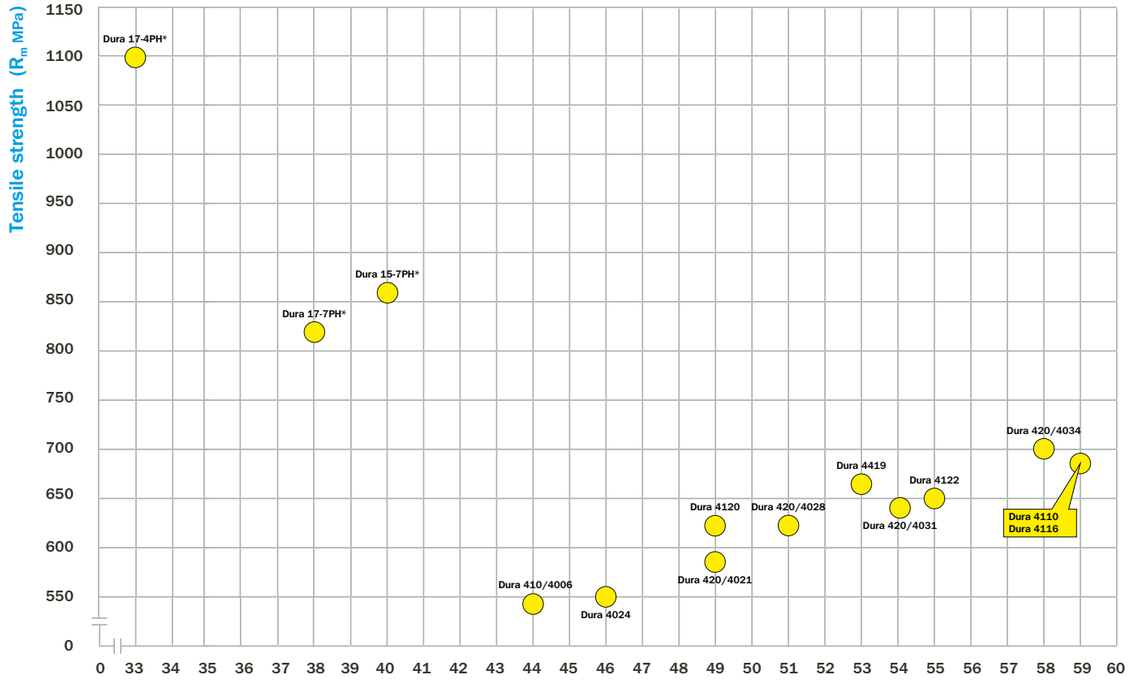
Precipitation hardening stainless steels

Precipitation hardening stainless steels are heat treated to achieve tensile strengths that are up to four times higher than austenitic steels like Core 304/4301.

Outokumpu name	Typical applications	Product forms
Dura 17-7PH A precipitation hardening stainless steel with high strength and hardness, good corrosion resistance, and satisfactory formability (depending on heat treatment/condition).	• Retaining rings • Springs • Valves • Gears • Aircraft parts	C, B, R, S
Dura 17-4PH A martensitic precipitation hardening steel with high strength and hardness, good corrosion resistance, and satisfactory formability (depending on heat treatment/condition).	• Oil field equipment • Chemical process equipment • Fittings • Pump shafts • Gears • Paper mill equipment • Aircraft parts • Valves	C, B, R, S
Dura 15-7PH A precipitation hardening stainless steel with high strength and hardness, good corrosion resistance, and satisfactory formability (depending on heat treatment/condition).	• Retaining rings • Springs • Valves • Gears • Aircraft parts	C, S

Product performance comparison

Strength vs. Hardness



*Minimum HRC value

Note: values shown are Outokumpu typical values. For more values by product, please see **steelfinder.outokumpu.com**

Product properties

Dura range

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Steel designations				Performance			Typical chemical composition, % by mass					
		ASTM			R_m [2]	Grade						
Outokumpu name	EN	Type	UNS	HRC [1]	MPa	family	C	Cr	Ni	Mo	N	Others
Dura 420/4021	1.4021	420	S42000	49	580	M	0.2	13.0	–	–	–	–
Dura 420/4034	1.4034	420	S42000	58	700	M	0.45	13.7	–	–	–	–
Alternatives												
Dura 410/4006	1.4006	410	S41000	44	540	M	0.12	12.0	–	–	–	–
Dura 4024	1.4024	–	–	46	550	M	0.16	13.2	–	–	–	–
Dura 4120	1.4120	–	–	49	620	M	0.21	13.3	–	–	–	–
Dura 420/4028	1.4028	420	S42000	51	620	M	0.3	12.5	–	–	–	–
Dura 4419	1.4419	–	–	53	660	M	0.38	13.3	–	0.9	–	–
Dura 420/4031	1.4031	420	S42000	54	640	M	0.38	13.5	–	–	–	–
Dura 4122	1.4122	–	–	55	650	M	0.41	16.1	–	1.0	–	–
Dura 4110	1.4110	–	–	59	680	M	0.5	14.8	–	0.63	–	–
Dura 4116	1.4116	–	–	59	680	M	0.5	14.4	–	0.55	–	V
Precipitation hardening												
Dura 17-7PH	1.4568	631	S17700	min 38	820	PH	0.08	17.0	7.0	–	–	Al
Dura 17-4PH	1.4542	630	S17400	min 33	1100	PH	0.02	15.5	4.8	–	–	Nb Cu
Dura 15-7PH	1.4574	632	S15700	min 40	860	PH	0.08	14.5	7.5	2.2	–	Al

[1] Achievable Rockwell hardness. [2] Tensile strength in mill condition (cold rolled strip, annealed).

Note: values shown are Outokumpu typical values. For more values by product, please see **steelfinder.outokumpu.com**

Stainless steel types

Martensitic stainless steels are characterized by high strength and high wear resistance. Corrosion resistance is limited and weldability decreases with increasing strength (i.e. increasing carbon content).

Precipitation-hardening products have a higher alloy content than martensitic stainless steels. They contain nickel and, in order to achieve hardening by aging, additions of copper, aluminum, titanium, niobium, and molybdenum. Depending on the chemical composition, their microstructure after final heat treatment is austenitic, semi-austenitic, or martensitic.


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H430

Working towards forever.

We work with our customers and partners to create long lasting solutions for the tools of modern life and the world's most critical problems: clean energy, clean water, and efficient infrastructure. Because we believe in a world that lasts forever.

1554EN-GB:1. May 2015. Erweko, Finland.

outokumpu classic

Moda	Core	Supra
Mildly corrosive environments	Corrosive environments	Highly corrosive environments

outokumpu pro

Forta	Ultra	Dura	Therma	Prodec	Deco
Duplex & other high strength	Extremely corrosive environments	High hardness	High service temperatures	Improved machinability	Special surfaces

outokumpu
high performance stainless steel

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