300 SERIES · TECHNICAL CATALOG

300 SERIES

STAINLESS & ALLOY TUBE

SPECIFICATIONS

Austenitic Stainless Steel

4	ASTM	100%	20+
GRADES COVERED	STANDARDS	MTC CERTIFIED	YRS EXPERIENCE

BRAVA STAINLESS STEEL
Issued April 2026 · www.brava-steel.com · +1 (636) 591-5760

TECHNICAL DATASHEET
FOR PROFESSIONAL USE

INTRODUCTION

300 Series — Austenitic Stainless Steel

The workhorses of stainless: chromium-nickel austenitic grades offering excellent corrosion resistance, weldability, and formability across a wide temperature range. The most widely specified family for chemical, instrument, food, and general process service.

ABOUT BRAVA

BRAVA Stainless Steel is an international distributor specializing in seamless stainless and alloy tubes and pipes. Transformed from a manufacturer with 20+ years of experience in the tube and pipe industry, we bring extensive technical knowledge and industry know-how to every shipment. Our products are sourced through a rigorous three-point validation process (quality, experience, growth) and shipped from warehouses in China, Korea, Australia, and Indonesia — backed by 24/7 customer service.

GRADES IN THIS BROCHURE

#	GRADE	UNS	STANDARDS
01	**TP304 / TP304L**	S30400, S30403	A312/SA312 · A213/SA213 · A269
02	**TP316 / TP316L**	S31600, S31603	A312/SA312 · A213/SA213 · A269
03	**TP321 / TP321H**	S32100, S32109	A312/SA312 · A213/SA213 · A269
04	**TP310S / TP310H**	S31008, S31009	A312/SA312 · A213/SA213

300 SERIES

TP304 / TP304L

PRODUCT INFORMATION

304 provides useful resistance to corrosion in many environments ranging from moderately reducing to moderately oxidizing. Through the controlled addition of nitrogen, it is common for 304L to meet the mechanical properties of 304 straight grade. As a result, most products are dual certified as 304 and 304/304L.

APPLICABLE STANDARDS

- ASTM A312 / ASME SA312
- ASTM A213 / ASME SA213
- ASTM A269

SIZE RANGE

Outside Diameter (inch)	Wall Thickness (inch)	Length (m)
0.1874 – 16.0	0.0197 – 0.9059	< 18

CHEMICAL COMPOSITION (% BY WEIGHT)

Grade	UNS	Standard	C max	Mn max	P max	S max	Si max	Cr	Ni
TP304	S30400	A/SA 213	0.08	2.00	0.045	0.030	1.00	18.0–20.0	8.0–11.0
TP304	S30400	A 269	0.08	2.00	0.045	0.030	1.00	18.0–20.0	8.0–11.0
TP304	S30400	A/SA 312	0.08	2.00	0.045	0.030	1.00	18.0–20.0	8.0–11.0
TP304L	S30403	A/SA 213	0.035	2.00	0.045	0.030	1.00	18.0–20.0	8.0–12.0
TP304L	S30403	A 269	0.035	2.00	0.045	0.030	1.00	18.0–20.0	8.0–13.0
TP304L	S30403	A/SA 312	0.035	2.00	0.045	0.030	1.00	18.0–20.0	8.0–13.0

MECHANICAL PROPERTIES

Grade	UNS	Standard	Tensile Strength (MPa min)	Yield Strength (MPa min)	Elongation (% min)	Hardness (HRB max)
TP304	S30400	A/SA 213	515	205	35	90
TP304	S30400	A 269	—	—	—	90
TP304	S30400	A/SA 312	515	205	35	—
TP304L	S30403	A/SA 213	485	170	35	90
TP304L	S30403	A 269	—	—	—	90
TP304L	S30403	A/SA 312	485	170	35	—

Packing Condition: Polywooden cases. Alternative packing styles available on request to ensure product integrity throughout international transit.

300 SERIES

TP316 / TP316L

PRODUCT INFORMATION

With the addition of molybdenum, grades 316 and 316L stainless steel were developed to offer improved corrosion resistance compared to alloy 304/L. The increased performance of this austenitic chromium-nickel stainless makes it better suited for environments rich in salt air and chloride. Additionally, the low carbon content makes the alloy 316/L easy to weld.

APPLICABLE STANDARDS

- ASTM A312 / ASME SA312
- ASTM A213 / ASME SA213
- ASTM A269

SIZE RANGE

Outside Diameter (inch)	Wall Thickness (inch)	Length (m)
0.1874 – 16.0	0.0197 – 0.9059	< 18

CHEMICAL COMPOSITION (% BY WEIGHT)

Grade	UNS	Standard	C max	Mn max	P max	S max	Si max	Cr	Ni	Mo
TP316	S31600	A/SA 213	0.08	2.00	0.045	0.030	1.00	16.0–18.0	10.0–14.0	2.0–3.0
TP316	S31600	A 269	0.08	2.00	0.045	0.030	1.00	16.0–18.0	10.0–14.0	2.0–3.0
TP316	S31600	A/SA 312	0.08	2.00	0.045	0.030	1.00	16.0–18.0	10.0–14.0	2.0–3.0
TP316L	S31603	A/SA 213	0.035	2.00	0.045	0.030	1.00	16.0–18.0	10.0–14.0	2.0–3.0
TP316L	S31603	A 269	0.035	2.00	0.045	0.030	1.00	16.0–18.0	10.0–15.0	2.0–3.0
TP316L	S31603	A/SA 312	0.035	2.00	0.045	0.030	1.00	16.0–18.0	10.0–14.0	2.0–3.0

MECHANICAL PROPERTIES

Grade	UNS	Standard	Tensile Strength (MPa min)	Yield Strength (MPa min)	Elongation (% min)	Hardness (HRB max)
TP316	S31600	A/SA 213	515	205	35	90
TP316	S31600	A 269	—	—	—	90
TP316	S31600	A/SA 312	515	205	35	—
TP316L	S31603	A/SA 213	485	170	35	90
TP316L	S31603	A 269	—	—	—	90
TP316L	S31603	A/SA 312	485	170	35	—

Packing Condition: Polywooden cases. Alternative packing styles available on request to ensure product integrity throughout international transit.

300 SERIES

TP321 / TP321H

PRODUCT INFORMATION

TP321/H is a standard austenitic 18/8 chromium-nickel alloy with the addition of titanium, making it an excellent choice in elevated-temperature environments. The titanium stabilizes the material — removing its susceptibility to intergranular corrosion. 321 is therefore the stainless steel of choice for working environments up to 900°C.

APPLICABLE STANDARDS

- ASTM A312 / ASME SA312
- ASTM A213 / ASME SA213
- ASTM A269

SIZE RANGE

Outside Diameter (inch)	Wall Thickness (inch)	Length (m)
0.1874 – 16.0	0.0197 – 0.9059	< 18

CHEMICAL COMPOSITION (% BY WEIGHT)

Grade	UNS	Standard	C	Mn max	P max	S max	Si max	Cr	Ni	N max	Ti
TP321	S32100	A/SA 213	0.08 max	2.00	0.045	0.030	1.00	17.0–19.0	9.0–12.0	—	5×(C+N) – 0.70
TP321	S32100	A 269	0.08 max	2.00	0.045	0.030	1.00	17.0–19.0	9.0–12.0	—	5×(C+N) – 0.70
TP321	S32100	A/SA 312	0.08 max	2.00	0.045	0.030	1.00	17.0–19.0	9.0–12.0	0.10	5×(C+N) – 0.70
TP321H	S32109	A/SA 213	0.04–0.10	2.00	0.045	0.030	1.00	17.0–19.0	9.0–12.0	—	4×(C+N) – 0.70
TP321H	S32109	A/SA 312	0.04–0.10	2.00	0.045	0.030	1.00	17.0–19.0	9.0–12.0	0.10	4×(C+N) – 0.70

MECHANICAL PROPERTIES

Grade	UNS	Standard	Tensile Strength (MPa min)	Yield Strength (MPa min)	Elongation (% min)	Hardness (HRB max)
TP321	S32100	A/SA 213	515	205	35	90
TP321	S32100	A 269	—	—	—	90
TP321	S32100	A/SA 312 (≤3/8")	515	205	35	—
TP321	S32100	A/SA 312 (>3/8")	485	170	35	—
TP321H	S32109	A/SA 213	515	205	35	90

Grade	UNS	Standard	Tensile Strength (MPa min)	Yield Strength (MPa min)	Elongation (% min)	Hardness (HRB max)
TP321H	S32109	A/SA 312 (≤3/16")	515	205	35	—
TP321H	S32109	A/SA 312 (>3/16")	480	170	35	—

Packing Condition: Polywooden cases. Alternative packing styles available on request to ensure product integrity throughout international transit.

300 SERIES

TP310S / TP310H

PRODUCT INFORMATION

310S (UNS S31008) is the low-carbon version of the alloy, utilized for ease of fabrication. 310H (UNS S31009) is a high-carbon modification developed for enhanced creep resistance. In most instances the grain size and carbon content of the plate can meet both 310S and 310H requirements — making it ideal for high-temperature furnace and heat treatment service.

APPLICABLE STANDARDS

- ASTM A312 / ASME SA312
- ASTM A213 / ASME SA213

SIZE RANGE

Outside Diameter (inch)	Wall Thickness (inch)	Length (m)
0.1874 – 16.0	0.0197 – 0.9059	< 18

CHEMICAL COMPOSITION (% BY WEIGHT)

Grade	UNS	Standard	C	Mn max	P max	S max	Si max	Cr	Ni	Mo max
TP310H	S31009	A/SA 213	0.04–0.10	2.00	0.045	0.030	1.00	24.0–26.0	19.0–22.0	—
TP310H	S31009	A/SA 312	0.04–0.10	2.00	0.045	0.030	1.00	24.0–26.0	19.0–22.0	—
TP310S	S31008	A/SA 213	0.08 max	2.00	0.045	0.030	1.00	24.0–26.0	19.0–22.0	—
TP310S	S31008	A/SA 312	0.08 max	2.00	0.045	0.030	1.00	24.0–26.0	19.0–22.0	0.75

MECHANICAL PROPERTIES

Grade	UNS	Standard	Tensile Strength (MPa min)	Yield Strength (MPa min)	Elongation (% min)	Hardness (HRB max)
TP310H	S31009	A/SA 213	515	205	35	90
TP310H	S31009	A/SA 312	515	205	35	—
TP310S	S31008	A/SA 213	515	205	35	90
TP310S	S31008	A/SA 312	515	205	35	—

Packing Condition: Polywooden cases. Alternative packing styles available on request to ensure product integrity throughout international transit.

HOW TO ORDER

Request a Quote in Three Steps

01 · GETTING STARTED

Submit your specifications — grade, ASTM standard, OD, wall thickness, length, quantity, surface finish, and target delivery date. We respond within one business day with our most competitive quote drawn from our global supplier network.

02 · SOURCING & QUALITY CHECK

Based on your request, we locate the best options across our global inventories and run them through our rigorous QC process. Our dedicated QC teams in sourcing geographies physically inspect every item before clearance for shipment.

03 · GET YOUR PRODUCTS

We prepare packing per your specification and handle every customs document. Mill test certificates accompany each shipment. Your only job is to receive the product on time, in spec, and ready to install.

CONTACT A BRAVA SPECIALIST

Phone	+1 (636) 591-5760
General Inquiries	info@brava-steel.com
Technical Support	tech@brava-steel.com
Warehouses	China · Korea · Australia · Indonesia
Customer Service	24/7 (US Eastern & Asia-Pacific time zones)
Standard Lead Time	35 – 40 days
Minimum Order Quantity	20 ft (straight tubing)
Documentation	Mill Test Certificate (MTC) included with every shipment

400 SERIES · TECHNICAL CATALOG

400 SERIES

STAINLESS & ALLOY TUBE

SPECIFICATIONS

Ferritic & Martensitic Stainless Steel

7	ASTM	100%	20+
GRADES COVERED	STANDARDS	MTC CERTIFIED	YRS EXPERIENCE

BRAVA STAINLESS STEEL
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TECHNICAL DATASHEET
FOR PROFESSIONAL USE

INTRODUCTION

400 Series — Ferritic & Martensitic Stainless Steel

Straight-chromium stainless steels engineered for wear resistance, formability, magnetic response, and high-temperature stability. Widely deployed in automotive, appliance, and high-temperature furnace applications.

ABOUT BRAVA

BRAVA Stainless Steel is an international distributor specializing in seamless stainless and alloy tubes and pipes. Transformed from a manufacturer with 20+ years of experience in the tube and pipe industry, we bring extensive technical knowledge and industry know-how to every shipment. Our products are sourced through a rigorous three-point validation process (quality, experience, growth) and shipped from warehouses in China, Korea, Australia, and Indonesia — backed by 24/7 customer service.

GRADES IN THIS BROCHURE

#	GRADE	UNS	STANDARDS
01	**TP410**	S41000	A268/SA268
02	**TP405**	S40500	A268/SA268
03	**TP430**	S43000	A268/SA268
04	**TP430Ti**	S43036	A268/SA268
05	**TP439**	S43035	A268/SA268
06	**TP446**	S44600	A268/SA268
07	**TP444**	S44400	A268/SA268

400 SERIES

TP410

PRODUCT INFORMATION

Type 410 is hardenable, straight-chromium stainless that combines the superior wear resistance of high-carbon alloys with the excellent corrosion resistance of chromium stainless steels. Oil quenching from temperatures between 1800°F to 1950°F (982–1066°C) produces the highest strength, wear resistance, and corrosion resistance. Used where strength, hardness, and wear resistance must combine with corrosion resistance.

APPLICABLE STANDARDS

- ASTM A268 / ASME SA268

SIZE RANGE

Outside Diameter (inch)	Wall Thickness (inch)	Length (m)
0.6252 – 8.6260	0.0472 – 0.50	< 15

CHEMICAL COMPOSITION (% BY WEIGHT)

Grade	UNS	Standard	C max	Mn max	P max	S max	Si max	Cr
TP410	S41000	A/SA 268	0.15	1.00	0.04	0.03	1.00	11.5–13.5

MECHANICAL PROPERTIES

Grade	UNS	Standard	Tensile Strength (MPa min)	Yield Strength (MPa min)	Elongation (% min)	Hardness (HRB max)
TP410	S41000	A/SA 268	415	205	20	95

Packing Condition: Polywooden cases. Alternative packing styles available on request to ensure product integrity throughout international transit.

400 SERIES

TP405

PRODUCT INFORMATION

Alloy 405 is a 12% chromium stainless steel designed to be used in the as-welded condition. Unlike other grades of 12% chromium stainless, 405 is not vulnerable to extensive hardening through air cooling from high temperatures.

APPLICABLE STANDARDS

- ASTM A268 / ASME SA268

SIZE RANGE

Outside Diameter (inch)	Wall Thickness (inch)	Length (m)
0.6252 – 8.6260	0.0472 – 0.50	< 15

CHEMICAL COMPOSITION (% BY WEIGHT)

Grade	UNS	Standard	C max	Mn max	P max	S max	Si max	Cr	Ni max	Al
TP405	S40500	A/SA 268	0.08	1.00	0.04	0.03	1.00	11.5–14.5	0.50	0.10–0.30

MECHANICAL PROPERTIES

Grade	UNS	Standard	Tensile Strength (MPa min)	Yield Strength (MPa min)	Elongation (% min)	Hardness (HRB max)
TP405	S40500	A/SA 268	415	205	20	95

Packing Condition: Polywooden cases. Alternative packing styles available on request to ensure product integrity throughout international transit.

400 SERIES

TP430

PRODUCT INFORMATION

Grade 430 is a ferritic, straight-chromium, non-hardenable grade combining good corrosion resistance and formability with useful mechanical properties. Its ability to resist nitric acid attack permits its use in specific chemical applications, while automotive trim and appliance components represent its largest fields of application.

APPLICABLE STANDARDS

- ASTM A268 / ASME SA268

SIZE RANGE

Outside Diameter (inch)	Wall Thickness (inch)	Length (m)
0.6252 – 8.6260	0.0472 – 0.50	< 15

CHEMICAL COMPOSITION (% BY WEIGHT)

Grade	UNS	Standard	C max	Mn max	P max	S max	Si max	Cr
TP430	S43000	A/SA 268	0.12	1.00	0.04	0.03	1.00	16.0–18.0

MECHANICAL PROPERTIES

Grade	UNS	Standard	Tensile Strength (MPa min)	Yield Strength (MPa min)	Elongation (% min)	Hardness (HRB max)
TP430	S43000	A/SA 268	415	240	20	90

Packing Condition: Polywooden cases. Alternative packing styles available on request to ensure product integrity throughout international transit.

400 SERIES

TP430Ti

PRODUCT INFORMATION

Stainless steel type 430Ti is a non-hardenable steel containing chromium and titanium, belonging to the ferritic family. It is widely valued for its formability and good corrosion properties — used across automotive, appliance, and architectural applications.

APPLICABLE STANDARDS

- ASTM A268 / ASME SA268

SIZE RANGE

Outside Diameter (inch)	Wall Thickness (inch)	Length (m)
0.6252 – 8.6260	0.0472 – 0.50	< 15

CHEMICAL COMPOSITION (% BY WEIGHT)

Grade	UNS	Standard	C max	Mn max	P max	S max	Si max	Cr	Ni max	Ti
TP430Ti	S43036	A/SA 268	0.10	1.00	0.04	0.03	1.00	16.0–19.5	0.75	5×C – 0.75

MECHANICAL PROPERTIES

Grade	UNS	Standard	Tensile Strength (MPa min)	Yield Strength (MPa min)	Elongation (% min)	Hardness (HRB max)
TP430Ti	S43036	A/SA 268	415	240	20	90

Packing Condition: Polywooden cases. Alternative packing styles available on request to ensure product integrity throughout international transit.

400 SERIES

TP439

PRODUCT INFORMATION

439 is a ferritic stainless steel designed to resist corrosion in oxidizing environments from fresh water to boiling acids. Type 439 is a titanium-stabilized 18% chromium alloy that may be used in many oxidizing environments where Type 304 is considered adequate in terms of general corrosion but is subject to chloride stress-corrosion cracking.

APPLICABLE STANDARDS

- ASTM A268 / ASME SA268

SIZE RANGE

Outside Diameter (inch)	Wall Thickness (inch)	Length (m)
0.6252 – 8.6260	0.0472 – 0.50	< 15

CHEMICAL COMPOSITION (% BY WEIGHT)

Grade	UNS	Standard	C max	Mn max	P max	S max	Si max	Cr	Ni max	N max	Al
TP439	S43035	A/SA 268	0.07	1.00	0.04	0.03	1.00	17.0–19.0	0.50	0.04	0.15

MECHANICAL PROPERTIES

Grade	UNS	Standard	Tensile Strength (MPa min)	Yield Strength (MPa min)	Elongation (% min)	Hardness (HRB max)
TP439	S43035	A/SA 268	415	205	20	90

Packing Condition: Polywooden cases. Alternative packing styles available on request to ensure product integrity throughout international transit.

400 SERIES

TP446

PRODUCT INFORMATION

ASTM A268 TP446 is a ferritic, non-heat-treatable stainless that offers good resistance to high-temperature corrosion and oxidation. Suitable for service between 1500–2100°F, although elevated-temperature strength is quite low. 446 stainless tube is widely used for furnace parts, oil burners, heat exchangers, kiln liners, glass molds, and stationary soot blowers in steam boilers.

APPLICABLE STANDARDS

- ASTM A268 / ASME SA268

SIZE RANGE

Outside Diameter (inch)	Wall Thickness (inch)	Length (m)
0.6252 – 8.6260	0.0472 – 0.50	< 15

CHEMICAL COMPOSITION (% BY WEIGHT)

Grade	UNS	Standard	C max	Mn max	P max	S max	Si max	Cr	Ni max	N max
TP446-1	S44600	A/SA 268	0.20	1.50	0.04	0.03	1.00	23.0–27.0	0.75	0.25
TP446-2	S44600	A/SA 268	0.12	1.50	0.04	0.03	1.00	23.0–27.0	0.50	0.25

MECHANICAL PROPERTIES

Grade	UNS	Standard	Tensile Strength (MPa min)	Yield Strength (MPa min)	Elongation (% min)	Hardness (HRB max)
TP446-1	S44600	A/SA 268	485	275	18	95
TP446-2	S44600	A/SA 268	450	275	20	95

Packing Condition: Polywooden cases. Alternative packing styles available on request to ensure product integrity throughout international transit.

400 SERIES

TP444

PRODUCT INFORMATION

Grade 444 is a 2% molybdenum-alloyed ferritic stainless with medium chromium that can be used in many corrosive environments. As a ferritic stainless, it has high resistance to chloride-induced stress-corrosion cracking. Because of its titanium alloying, 444 can be welded in all section thicknesses without becoming susceptible to intergranular corrosion.

APPLICABLE STANDARDS

- ASTM A268 / ASME SA268

SIZE RANGE

Outside Diameter (inch)	Wall Thickness (inch)	Length (m)
0.6252 – 8.6260	0.0472 – 0.50	< 15

CHEMICAL COMPOSITION (% BY WEIGHT)

Grade	UNS	Standard	C max	Mn max	P max	S max	Si max	Cr	Ni max	Mo	N max
18Cr-2Mo	S44400	A/SA 268	0.025	1.00	0.04	0.03	1.00	17.5–19.5	1.00	1.75–2.50	0.035

MECHANICAL PROPERTIES

Grade	UNS	Standard	Tensile Strength (MPa min)	Yield Strength (MPa min)	Elongation (% min)	Hardness (HRB max)
18Cr-2Mo	S44400	A/SA 268	415	275	20	95

Packing Condition: Polywooden cases. Alternative packing styles available on request to ensure product integrity throughout international transit.

HOW TO ORDER

Request a Quote in Three Steps

01 · GETTING STARTED

Submit your specifications — grade, ASTM standard, OD, wall thickness, length, quantity, surface finish, and target delivery date. We respond within one business day with our most competitive quote drawn from our global supplier network.

02 · SOURCING & QUALITY CHECK

Based on your request, we locate the best options across our global inventories and run them through our rigorous QC process. Our dedicated QC teams in sourcing geographies physically inspect every item before clearance for shipment.

03 · GET YOUR PRODUCTS

We prepare packing per your specification and handle every customs document. Mill test certificates accompany each shipment. Your only job is to receive the product on time, in spec, and ready to install.

CONTACT A BRAVA SPECIALIST

Phone	+1 (636) 591-5760
General Inquiries	info@brava-steel.com
Technical Support	tech@brava-steel.com
Warehouses	China · Korea · Australia · Indonesia
Customer Service	24/7 (US Eastern & Asia-Pacific time zones)
Standard Lead Time	35 – 40 days
Minimum Order Quantity	20 ft (straight tubing)
Documentation	Mill Test Certificate (MTC) included with every shipment

SPECIAL STEEL · TECHNICAL CATALOG

SPECIAL STEEL

STAINLESS & ALLOY TUBE

SPECIFICATIONS

Duplex, Super Duplex & Super Austenitic Alloys

7	ASTM	100%	20+
GRADES COVERED	STANDARDS	MTC CERTIFIED	YRS EXPERIENCE

BRAVA STAINLESS STEEL
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TECHNICAL DATASHEET
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INTRODUCTION

Special Steel — Duplex, Super Duplex & Super Austenitic Alloys

Engineered alloys for the most aggressive service environments — chloride stress-corrosion cracking, sour service, high-temperature creep, and acid attack. Includes duplex 2205/2507, super-austenitic 904L, and high-temperature 253MA.

ABOUT BRAVA

BRAVA Stainless Steel is an international distributor specializing in seamless stainless and alloy tubes and pipes. Transformed from a manufacturer with 20+ years of experience in the tube and pipe industry, we bring extensive technical knowledge and industry know-how to every shipment. Our products are sourced through a rigorous three-point validation process (quality, experience, growth) and shipped from warehouses in China, Korea, Australia, and Indonesia — backed by 24/7 customer service.

GRADES IN THIS BROCHURE

#	GRADE	UNS	STANDARDS
01	**S31803 (Duplex 2205)**	S31803	A789/SA789 · A790/SA790
02	**S32205**	S32205	A789/SA789 · A790/SA790
03	**S32750 (Super Duplex 2507)**	S32750	A789/SA789 · A790/SA790
04	**S32760 (Super Duplex)**	S32760	A789/SA789 · A790/SA790
05	**347 / 347H**	S34700, S34709	A312/SA312 · A213/SA213 · A269
06	**N08904 (904L)**	N08904	A312/SA312 · A213/SA213 · A269
07	**253MA**	S30815	A312/SA312 · A213/SA213

SPECIAL STEEL

S31803 (Duplex 2205)

PRODUCT INFORMATION

S31803 (COLDUPLEX) is a standard grade of duplex stainless steel based on 22% chromium and 5% nickel — often referred to as Alloy 2205. The most widely used duplex grade due to its combination of very good general corrosion resistance and high strength. Not generally suitable above 300°C due to brittle micro-constituent precipitation, nor below -50°C due to ductile-to-brittle transition.

APPLICABLE STANDARDS

- ASTM A789 / ASME SA789
- ASTM A790 / ASME SA790

SIZE RANGE

Outside Diameter (inch)	Wall Thickness (inch)	Length (m)
0.3937 – 8.6260	0.03937 – 0.50	< 15

CHEMICAL COMPOSITION (% BY WEIGHT)

UNS	Standard	C max	Mn max	P max	S max	Si max	Cr	Ni	Mo	N
S31803	A/SA 789	0.03	2.00	0.03	0.02	1.00	21.0–23.0	4.5–6.5	2.5–3.5	0.08–0.20
S31803	A/SA 790	0.03	2.00	0.03	0.02	1.00	21.0–23.0	4.5–6.5	2.5–3.5	0.08–0.20

MECHANICAL PROPERTIES

UNS	Standard	Tensile Strength (MPa min)	Yield Strength (MPa min)	Elongation (% min)	Hardness (HRC max)
S31803	A/SA 789	620	450	25	30
S31803	A/SA 790	620	450	25	30

Packing Condition: Polywooden cases. Alternative packing styles available on request to ensure product integrity throughout international transit.

SPECIAL STEEL

S32205

PRODUCT INFORMATION

The S32205 grade is a restricted-chemistry version that maintains chromium, molybdenum, and nitrogen at higher levels than S31803. Composed of 21–23% chromium, 4.5–6.5% nickel, 3–3.5% molybdenum, with controlled manganese and silicon — engineered for harsher chloride-bearing service. Prone to embrittlement above 300°C and especially between 370–540°C with prolonged exposure.

APPLICABLE STANDARDS

- ASTM A789 / ASME SA789
- ASTM A790 / ASME SA790

SIZE RANGE

Outside Diameter (inch)	Wall Thickness (inch)	Length (m)
0.3937 – 8.6260	0.03937 – 0.50	< 15

CHEMICAL COMPOSITION (% BY WEIGHT)

UNS	Type	Standard	C max	Mn max	P max	S max	Si max	Cr	Ni	Mo	N
S32205	—	A/SA 789	0.03	2.00	0.03	0.02	1.00	22.0–23.0	4.5–6.5	3.0–3.5	0.14–0.20
S32205	2205	A/SA 790	0.03	2.00	0.03	0.02	1.00	22.0–23.0	4.5–6.5	3.0–3.5	0.14–0.20

MECHANICAL PROPERTIES

UNS	Type	Standard	Tensile Strength (MPa min)	Yield Strength (MPa min)	Elongation (% min)	Hardness (HRC max)
S32205	—	A/SA 789	655	485	25	30
S32205	2205	A/SA 790	655	450	25	30

Packing Condition: Polywooden cases. Alternative packing styles available on request to ensure product integrity throughout international transit.

SPECIAL STEEL

S32750 (Super Duplex 2507)

PRODUCT INFORMATION

S32750 is the standard grade of super-duplex stainless steel based on 25% chromium, 7% nickel, with significant additions of molybdenum, manganese, and nitrogen. Offers high strength and excellent resistance to chloride stress-corrosion cracking, while the molybdenum and nitrogen levels enhance pitting, crevice, and general corrosion resistance.

APPLICABLE STANDARDS

- ASTM A789 / ASME SA789
- ASTM A790 / ASME SA790

SIZE RANGE

Outside Diameter (inch)	Wall Thickness (inch)	Length (m)
0.3937 – 8.6260	0.03937 – 0.50	< 15

CHEMICAL COMPOSITION (% BY WEIGHT)

UNS	Type	Standard	C max	Mn max	P max	S max	Si max	Cr	Ni	Mo	N
S32750	—	A/SA 789	0.03	1.20	0.035	0.02	0.80	24.0–26.0	6.0–8.0	3.0–5.0	0.24–0.32
S32750	2507	A/SA 790	0.03	1.20	0.035	0.02	0.80	24.0–26.0	6.0–8.0	3.0–5.0	0.24–0.32

MECHANICAL PROPERTIES

UNS	Type	Standard	Tensile Strength (MPa min)	Yield Strength (MPa min)	Elongation (% min)	Hardness (HRC max)
S32750	—	A/SA 789	800	550	15	32
S32750	2507	A/SA 790	800	550	15	32

Packing Condition: Polywooden cases. Alternative packing styles available on request to ensure product integrity throughout international transit.

SPECIAL STEEL

S32760 (Super Duplex)

PRODUCT INFORMATION

S32760 is a super-duplex stainless engineered for the most aggressive chloride and acidic environments — popular for subsea oil-and-gas, desalination, and aggressive chemical service. With 25% chromium, 7% nickel, copper additions, and high nitrogen content, it delivers superior pitting resistance and strength.

APPLICABLE STANDARDS

- ASTM A789 / ASME SA789
- ASTM A790 / ASME SA790

SIZE RANGE

Outside Diameter (inch)	Wall Thickness (inch)	Length (m)
0.3937 – 8.6260	0.03937 – 0.50	< 15

CHEMICAL COMPOSITION (% BY WEIGHT)

UNS	Standard	C max	Mn max	P max	S max	Si max	Cr	Ni	Mo	N	Cu
S32760	A/SA 789	0.03	1.00	0.03	0.01	1.00	24.0–26.0	6.0–8.0	3.0–4.0	0.20–0.30	0.50–1.00
S32760	A/SA 790	0.03	1.00	0.03	0.01	1.00	24.0–26.0	6.0–8.0	3.0–4.0	0.20–0.30	0.50–1.00

MECHANICAL PROPERTIES

UNS	Standard	Tensile Strength (MPa min)	Yield Strength (MPa min)	Elongation (% min)	Hardness (HRC max)
S32760	A/SA 789	750	550	25	32
S32760	A/SA 790	750	550	25	32

Packing Condition: Polywooden cases. Alternative packing styles available on request to ensure product integrity throughout international transit.

SPECIAL STEEL

347 / 347H

PRODUCT INFORMATION

347 is a stabilized austenitic chromium-nickel steel containing columbium, which allows for the elimination of carbide precipitation and consequently intergranular corrosion. 347H is stabilized by additions of chromium and tantalum, offering higher creep and stress-rupture properties for elevated-temperature service.

APPLICABLE STANDARDS

- ASTM A312 / ASME SA312
- ASTM A213 / ASME SA213
- ASTM A269

SIZE RANGE

Outside Diameter (inch)	Wall Thickness (inch)	Length (m)
0.1874 – 16.0	0.0197 – 0.9059	< 18

CHEMICAL COMPOSITION (% BY WEIGHT)

Grade	UNS	Standard	C	Mn max	P max	S max	Si max	Cr	Ni	Nb
TP347	S34700	A/SA 213	0.08 max	2.00	0.045	0.030	1.00	17.0–20.0	9.0–13.0	10×C ~ 1.10
TP347	S34700	A 269	0.08 max	2.00	0.045	0.030	1.00	17.0–19.0	9.0–12.0	10×C ~ 1.10
TP347	S34700	A/SA 312	0.08 max	2.00	0.045	0.030	1.00	17.0–19.0	9.0–13.0	10×C ~ 1.00
TP347H	S34709	A/SA 213	0.04–0.10	2.00	0.045	0.030	1.00	17.0–19.0	9.0–13.0	8×C ~ 1.10
TP347H	S34709	A/SA 312	0.04–0.10	2.00	0.045	0.030	1.00	17.0–19.0	9.0–13.0	8×C ~ 1.00

MECHANICAL PROPERTIES

Grade	UNS	Standard	Tensile Strength (MPa min)	Yield Strength (MPa min)	Elongation (% min)	Hardness (HRB max)
TP347	S34700	A/SA 213	515	205	35	90
TP347	S34700	A 269	—	—	—	90
TP347	S34700	A/SA 312	515	205	35	—
TP347H	S34709	A/SA 213	515	205	35	90
TP347H	S34709	A/SA 312	515	205	35	—

Packing Condition: Polywooden cases. Alternative packing styles available on request to ensure product integrity throughout international transit.

SPECIAL STEEL

N08904 (904L)

PRODUCT INFORMATION

Grade 904L is a non-stabilized austenitic stainless with low carbon content. This high-alloy stainless contains added copper to improve resistance to strong reducing acids such as sulphuric acid. The steel is also resistant to stress-corrosion cracking and crevice corrosion. Grade 904L is non-magnetic and offers excellent formability, toughness, and weldability.

APPLICABLE STANDARDS

- ASTM A312 / ASME SA312
- ASTM A213 / ASME SA213
- ASTM A269

SIZE RANGE

Outside Diameter (inch)	Wall Thickness (inch)	Length (m)
0.6252 – 12.7520	0.0472 – 0.50	< 15

CHEMICAL COMPOSITION (% BY WEIGHT)

Grade	UNS	Standard	C max	Mn max	P max	S max	Si max	Cr	Ni	Mo	N max
904L	N08904	A/SA 213	0.02	2.00	0.04	0.03	1.00	19.0–23.0	23.0–28.0	4.0–5.0	0.10
904L	N08904	A 269	0.02	2.00	0.04	0.03	1.00	19.0–23.0	23.0–28.0	4.0–5.0	0.10
904L	N08904	A/SA 312	0.02	2.00	0.04	0.03	1.00	19.0–23.0	23.0–28.0	4.0–5.0	0.10

MECHANICAL PROPERTIES

Grade	UNS	Standard	Tensile Strength (MPa min)	Yield Strength (MPa min)	Elongation (% min)	Hardness (HRB max)
904L	N08904	A/SA 213	490	215	35	90
904L	N08904	A 269	—	—	—	90
904L	N08904	A/SA 312	490	215	35	—

Packing Condition: Polywooden cases. Alternative packing styles available on request to ensure product integrity throughout international transit.

SPECIAL STEEL

253MA

PRODUCT INFORMATION

253MA combines excellent service properties at high temperatures with ease of fabrication. It resists oxidation up to 1150°C and provides superior service to Grade 310 in carbon-, nitrogen-, and sulphur-containing atmospheres. Strengthened by nitrogen and rare-earth additions for outstanding creep performance.

APPLICABLE STANDARDS

- ASTM A312 / ASME SA312
- ASTM A213 / ASME SA213

SIZE RANGE

Outside Diameter (inch)	Wall Thickness (inch)	Length (m)
0.6732 – 6.6260	0.0831 – 0.2799	< 12

CHEMICAL COMPOSITION (% BY WEIGHT)

Grade	UNS	Standard	C	Mn max	P max	S max	Si	Cr	Ni	N	Ce
253MA	S30815	A/SA 213	0.05–0.10	0.80	0.04	0.03	1.40–2.00	20.0–22.0	10.0–12.0	0.14–0.20	0.03–0.08
253MA	S30815	A/SA 312	0.05–0.10	0.80	0.04	0.03	1.40–2.00	20.0–22.0	10.0–12.0	0.14–0.20	0.03–0.08

MECHANICAL PROPERTIES

Grade	UNS	Standard	Tensile Strength (MPa min)	Yield Strength (MPa min)	Elongation (% min)	Hardness (HRB max)
253MA	S30815	A/SA 213	600	310	40	95
253MA	S30815	A/SA 312	600	310	35	—

Packing Condition: Polywooden cases. Alternative packing styles available on request to ensure product integrity throughout international transit.

HOW TO ORDER

Request a Quote in Three Steps

01 · GETTING STARTED

Submit your specifications — grade, ASTM standard, OD, wall thickness, length, quantity, surface finish, and target delivery date. We respond within one business day with our most competitive quote drawn from our global supplier network.

02 · SOURCING & QUALITY CHECK

Based on your request, we locate the best options across our global inventories and run them through our rigorous QC process. Our dedicated QC teams in sourcing geographies physically inspect every item before clearance for shipment.

03 · GET YOUR PRODUCTS

We prepare packing per your specification and handle every customs document. Mill test certificates accompany each shipment. Your only job is to receive the product on time, in spec, and ready to install.

CONTACT A BRAVA SPECIALIST

Phone	+1 (636) 591-5760
General Inquiries	info@brava-steel.com
Technical Support	tech@brava-steel.com
Warehouses	China · Korea · Australia · Indonesia
Customer Service	24/7 (US Eastern & Asia-Pacific time zones)
Standard Lead Time	35 – 40 days
Minimum Order Quantity	20 ft (straight tubing)
Documentation	Mill Test Certificate (MTC) included with every shipment

LOW ALLOY STEEL · TECHNICAL CATALOG

LOW ALLOY STEEL

STAINLESS & ALLOY TUBE

SPECIFICATIONS

Chrome-Moly Boiler & Pressure Tubing

4	ASTM	100%	20+
GRADES COVERED	STANDARDS	MTC CERTIFIED	YRS EXPERIENCE

BRAVA STAINLESS STEEL
Issued April 2026 · www.brava-steel.com · +1 (636) 591-5760

TECHNICAL DATASHEET
FOR PROFESSIONAL USE

INTRODUCTION

Low Alloy Steel — Chrome-Moly Boiler & Pressure Tubing

Chrome-molybdenum (Cr-Mo) boiler and superheater tubing for high-temperature, high-pressure service. The backbone of fossil power generation, refining, and petrochemical heater applications.

ABOUT BRAVA

BRAVA Stainless Steel is an international distributor specializing in seamless stainless and alloy tubes and pipes. Transformed from a manufacturer with 20+ years of experience in the tube and pipe industry, we bring extensive technical knowledge and industry know-how to every shipment. Our products are sourced through a rigorous three-point validation process (quality, experience, growth) and shipped from warehouses in China, Korea, Australia, and Indonesia — backed by 24/7 customer service.

GRADES IN THIS BROCHURE

#	GRADE	UNS	STANDARDS
01	**T11**	K11597	A213/SA213
02	**T22**	K21590	A213/SA213
03	**T9**	K90941	A213/SA213
04	**T5**	K41545	A213/SA213

LOW ALLOY STEEL

T11

PRODUCT INFORMATION

T11 tube material is a low-alloy ferritic steel containing carbon, silicon, manganese, nickel, phosphorus, chromium, sulfur, and molybdenum. The 1¼Cr-½Mo composition gives T11 tube material excellent strength and corrosion resistance — popular for boiler tubes, superheaters, and pressure vessels.

APPLICABLE STANDARDS

- ASTM A213 / ASME SA213

SIZE RANGE

Outside Diameter (inch)	Wall Thickness (inch)	Length (m)
0.75 – 3.50	0.065 – 0.2161	< 14

CHEMICAL COMPOSITION (% BY WEIGHT)

Grade	UNS	Standard	C	Mn	P max	S max	Si	Cr	Mo
T11	K11597	A/SA 213	0.05–0.15	0.30–0.60	0.025	0.025	0.50–1.00	1.00–1.50	0.44–0.65

MECHANICAL PROPERTIES

Grade	UNS	Standard	Tensile Strength (MPa min)	Yield Strength (MPa min)	Elongation (% min)	Hardness (HRB max)
T11	K11597	A/SA 213	415	205	30	85

Packing Condition: Polywooden cases. Alternative packing styles available on request to ensure product integrity throughout international transit.

LOW ALLOY STEEL

T22

PRODUCT INFORMATION

ASME SA213 Boiler T22 (2¼Cr-1Mo) tube contains manganese, carbon, phosphorus, sulfur, molybdenum, nickel, silicon, and chromium. This combination delivers high corrosion resistance, high-temperature tolerance, and excellent pressure capacity — used heavily in superheaters, reheaters, and high-temperature service.

APPLICABLE STANDARDS

- ASTM A213 / ASME SA213

SIZE RANGE

Outside Diameter (inch)	Wall Thickness (inch)	Length (m)
0.75 – 3.50	0.065 – 0.2161	< 14

CHEMICAL COMPOSITION (% BY WEIGHT)

Grade	UNS	Standard	C	Mn	P max	S max	Si max	Cr	Mo
T22	K21590	A/SA 213	0.05–0.15	0.30–0.60	0.025	0.025	0.50	1.90–2.60	0.87–1.13

MECHANICAL PROPERTIES

Grade	UNS	Standard	Tensile Strength (MPa min)	Yield Strength (MPa min)	Elongation (% min)	Hardness (HRB max)
T22	K21590	A/SA 213	415	205	30	85

Packing Condition: Polywooden cases. Alternative packing styles available on request to ensure product integrity throughout international transit.

LOW ALLOY STEEL

T9

PRODUCT INFORMATION

T9 is a 9Cr-1Mo low-alloy steel grade engineered for elevated-temperature service in petroleum refining and petrochemical applications. The high chromium content provides superior oxidation resistance for service in cracker furnaces, reformers, and reactor internals.

APPLICABLE STANDARDS

- ASTM A213 / ASME SA213

SIZE RANGE

Outside Diameter (inch)	Wall Thickness (inch)	Length (m)
0.75 – 3.50	0.065 – 0.2161	< 14

CHEMICAL COMPOSITION (% BY WEIGHT)

Grade	UNS	Standard	C max	Mn	P max	S max	Si	Cr	Mo
T9	K90941	A/SA 213	0.15	0.30–0.60	0.025	0.025	0.25–1.00	8.00–10.00	0.90–1.10

MECHANICAL PROPERTIES

Grade	UNS	Standard	Tensile Strength (MPa min)	Yield Strength (MPa min)	Elongation (% min)	Hardness (HRB max)
T9	K90941	A/SA 213	415	205	30	89

Packing Condition: Polywooden cases. Alternative packing styles available on request to ensure product integrity throughout international transit.

LOW ALLOY STEEL

T5

PRODUCT INFORMATION

T5 is a 5Cr-½Mo low-alloy chromium-molybdenum steel commonly used for high-temperature service in the petrochemical industry, particularly in refining process units. Provides good resistance to sulfidation and high-temperature hydrogen attack.

APPLICABLE STANDARDS

- ASTM A213 / ASME SA213

SIZE RANGE

Outside Diameter (inch)	Wall Thickness (inch)	Length (m)
0.75 – 3.50	0.065 – 0.2161	< 14

CHEMICAL COMPOSITION (% BY WEIGHT)

Grade	UNS	Standard	C max	Mn	P max	S max	Si max	Cr	Mo
T5	K41545	A/SA 213	0.15	0.30–0.60	0.025	0.025	0.50	4.00–6.00	0.45–0.65

MECHANICAL PROPERTIES

Grade	UNS	Standard	Tensile Strength (MPa min)	Yield Strength (MPa min)	Elongation (% min)	Hardness (HRB max)
T5	K41545	A/SA 213	415	205	30	85

Packing Condition: Polywooden cases. Alternative packing styles available on request to ensure product integrity throughout international transit.

HOW TO ORDER

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Technical Support	tech@brava-steel.com
Warehouses	China · Korea · Australia · Indonesia
Customer Service	24/7 (US Eastern & Asia-Pacific time zones)
Standard Lead Time	35 – 40 days
Minimum Order Quantity	20 ft (straight tubing)
Documentation	Mill Test Certificate (MTC) included with every shipment