

Stock – Stainless Steel Bars

Corrosion-, Acid- and
Heat-Resisting Grades

DEUTSCHE EDELSTAHLWERKE

Providing special steel solutions





Photo: Duplex steel microstructure

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* protected name
M = martensitic
PH = precipitation-hardening
A = austenitic
FA = ferritic-austenitic (duplex)

General data

Tolerances ISO 286 k12

Ø 20 – 30 mm	+0.21 / - 0 mm
Ø > 30 – 50 mm	+0.25 / - 0 mm
Ø > 50 – 80 mm	+0.30 / - 0 mm
Ø > 80 – 120 mm	+0.35 / - 0 mm
Ø > 120 – 180 mm	+0.40 / - 0 mm
Ø > 180 – 250 mm	+0.46 / - 0 mm
Ø > 250 – 315 mm	+0.52 / - 0 mm
Ø > 315 – 400 mm	+0.57 / - 0 mm
Ø > 400 – 500 mm	+0.63 / - 0 mm

Lengths

Ø 20.0 – 70 mm	6,000 – 6,200 mm, short length min. 3000 mm
Ø 70.1 – 200 mm	5,000 – 6,000 mm, short length min. 3000 mm
Ø 200.1 – 350 mm	3,000 – 6,000 mm, short length min. 2000 mm
Ø 350.1 – 550 mm	3,000 – 6,000 mm, short length min. 1000 mm

Bundle weight

Ø 20.0 – 70 mm	max. 1,000 kg
Ø 70.1 – 500 mm	max. 2,000 kg
Bar weight > 1,000 kg: individual bars per bundle at least 2 signode strips	

Surface defects

allowed defect depth	
Ø 20.0 – 75 mm	max. 0.01 x d
Ø > 75.1 mm	max. 0.75 mm
DIN EN 10277-1, Table 1, Class 3	

Surface

Ø 20.0 – 400 mm	peeled
Ø 400.1 – 500 mm	turned
Singular grinding marks are possible	



Ends

Ø 20.0 – 70 mm hot-sawed/cold-sawed ends, chamfered on both sides 45°/2-3 mm
Ø 70.1 – 400 mm deburred on both sides
Ø 400.1 – 500 mm deburred on both sides, center hole on both ends

Anti-mixing test

Spectro test

Marking

Adhesive labels for each bar and one bundle label per bundle
Dimensions ≤ 35 mm only bundle labels.
Information on adhesive label: trademark, heat, steelgrade, work inspector's stamp

Straightness

2 mm/m

Ultrasonic testing

	Ø [mm]	Basic test	also correspondent to	
martensitic and ferritic steels	20.0 – 150	EN 10308 Typ 1a, Tab.2, Kl. 4	EN 10228-3 Typ 1a, Tab.5, Kl.4	ASTM A388
	150.1 – 350	EN 10308 Typ 1a, Tab.2, Kl. 3	EN 10228-3 Typ 1a, Tab.5, Kl.3	ASTM A388
	350.1 – 500	EN 10308 Typ 1a, Tab.2, Kl. 2	EN 10228-3 Typ 1a, Tab.5, Kl.2	ASTM A388
austenitic and duplex steels	20.0 – 500	EN 10308 Typ 1a, Tab.3, Kl. 3	EN 10228-4 Typ 1a, Tab.4, Kl.3	ASTM A388

Certificate

EN 10204 / 3.1

in German, English and French

Information included: Melting process, casting process, reduction ratio heat treatment, ultrasonic test, Anti-mixing-test, chemical composition, mechanical properties



MATERIALS



1.4021 – Corrodur 4021

Chemical analysis

		C %	Si %	Mn %	P %	S %	Cr %	Mo %	Ni %
Ø ≤ 220 mm	min	0.16				0.010	12.0		
	max	0.25	1.0	1.0	0.040	0.030	14.0	0.50	0.50
Ø > 220 mm	min	0.16					12.0		
	max	0.25	1.0	1.0	0.040	0.015	14.0	0.50	0.50

Mechanical properties

	20 – 250 mm longitudinal	250.1 – 500 mm transverse
R_{p0.2} [MPa]	≥ 600	≥ 600
R_m [MPa]	800 – 950	800 – 950
A₅ [%]	≥ 12	for information
Z [%]	for information	for information
A_v ISO-V [J]	≥ 20	for information
HBW*	238 – 280	238 – 280

* converted according to DIN EN ISO 18265, Table A.1

Forming	Ø ≤ 220 mm:	hot rolled
	Ø > 220 mm:	hot forged

Heat treatment	quenched and tempered QT 800
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Grades / Specifications	Stainless steel bars	
	Corrodur 4021, 1.4021, Type 420	
	Ø ≤ 160 mm	EN 10088-3, following: EN 10250-4, ASTM A 276
	Ø 160.1 – 220 mm	following: EN 10088-3, EN 10250-4, ASTM A 276
	Ø 220.1 – 250 mm	EN 10250-4, following: EN 10088-3, ASTM A 276
	Ø 250.1 – 500 mm	following: 10250-4, EN 10088-3, ASTM A 276

1.4028 – Corrodur 4028

Chemical analysis

	C %	Si %	Mn %	P %	S %	Cr %	Mo %
min	0.26				0.010	12.0	
max	0.35	1.0	1.0	0.040	0.030	14.0	0.50

Mechanical properties

	20 – 250 mm longitudinal	250.1 – 500 mm transverse
R_{p0,2} [MPa]	≥ 600	≥ 600
R_m [MPa]	850 – 1,000	850 – 1,000
A₅ [%]	≥ 12	for information
Z [%]	for information	for information
A_v ISO-V [J]	≥ 15	for information
HBW*	252 – 296	252 – 296

* converted according to DIN EN ISO 18265, Table A.1

Forming	Ø ≤ 220 mm:	hot rolled
	Ø > 220 mm:	hot forged

Heat treatment	quenched and tempered QT 850 and stress relieved
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Grades / Specifications	Stainless steel bars	
	Corrodur 4028, 1.4028	
	Ø ≤ 160 mm	EN 10088-3
	Ø > 160 – 500 mm	following: EN 10088-3

1.4034 – Corrodur 4034

Chemical analysis

	C %	Si %	Mn %	P %	S %	Cr %
min	0.43					12.5
max	0.50	1.0	1.0	0.040	0.030	14.5

Mechanical properties

	20 – 160 mm longitudinal	160.1 – 500 mm transverse
R_{p0.2} [MPa]	-	-
R_m [MPa]	≤ 800	≤ 800
A₅ [%]	-	-
Z [%]	-	-
A_v ISO-V [J]	-	-
HBW*	≤ 241	≤ 241

* converted according to DIN EN ISO 18265, Table A.1

Forming	Ø ≤ 220 mm:	hot rolled
	Ø > 220 mm:	hot forged

Heat treatment	annealed
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Grades / Specifications	Stainless steel bars
	Corrodur 4034, 1.4034
	Ø ≤ 500 mm EN 10088-3

1.4057 – Acidur 4057

Chemical analysis

	C %	Si %	Mn %	P %	S %	Cr %	Ni %
min	0.12					15.0	1.25
max	0.20	1.0	1.0	0.040	0.030*	17.0	2.50

* Depending on dimensioning, a sulphur range may be available for better machining.

Mechanical properties

	20 – 60 mm longitudinal	60.1 – 160 mm longitudinal	160.1 – 375 mm transverse	375.1 – 550 mm longitudinal
R_{p0.2} [MPa]	≥ 620	≥ 620	≥ 620	≥ 620
R_m [MPa]	800 – 900	800 – 900	800 – 900	800 – 900
A₅ [%]	≥ 14	≥ 12	≥ 8	for information
A₂₊ [%]	≥ 15	≥ 15	≥ 15	≥ 15
Z [%]	≥ 45	≥ 45	≥ 45	≥ 45
A_v ISO-V [J]	≥ 25	≥ 20	≥ 15	for information
HBW*	238 – 266	238 – 266	238 – 266	238 – 266

* converted according to DIN EN ISO 18265, Table A.1

Forming	Ø ≤ 220 mm:	hot rolled
	Ø > 220 mm:	hot forged

Heat treatment	quenched and tempered QT 800
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Grades / Specifications	Stainless steel bars	
	Acidur 4057, 1.4057, Type 431	
	Ø ≤ 160 mm	EN 10088-3, EN 10272, ASTM A 479, ASME SA 479, following: EN 10250-4, ASTM A 276
	Ø 160.1 – 220 mm	ASTM A 479, ASME SA 479, following: EN 10088-3, EN 10272, EN 10250-4, ASTM A 276
	Ø 220.1 – 375 mm	EN 10250-4, ASTM A 479, ASME SA 479, following: EN 10088-3, EN 10272, ASTM A 276
Ø 375.1 – 500 mm	ASTM A 479, ASME SA 479, following: EN 10088-3, EN 10272, EN 10250-4, ASTM A 276	

1.4104 – Corrodur 4104

Chemical analysis

	C %	Si %	Mn %	P %	S %	Cr %	Mo %
min	0.10				0.15	15.5	0.2
max	0.17	1.0	1.5	0.040	0.35	17.5	0.6

Mechanical properties

	20 – 60 mm longitudinal	60.1 – 160 mm longitudinal
R_{p0.2} [MPa]	≥ 500	≥ 500
R_m [MPa]	650 – 850	650 – 850
A₅ [%]	≥ 12	≥ 10
Z [%]	for information	for information
A_v ISO-V [J]	-	-
HBW*	203 – 265	203 – 265

* converted according to DIN EN ISO 18265, Table A.1

Forming	Ø ≤ 220 mm:	hot rolled
	Ø > 220 mm:	hot forged

Heat treatment	quenched and tempered QT 650
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Grades / Specifications	Stainless steel bars	
	Corrodur 4104, 1.4104	
	Ø ≤ 160 mm	EN 10088-3
	Ø > 160 – 500 mm	following: EN 10088-3

1.4122 – Acidur 4122

Chemical analysis

	C %	Si %	Mn %	P %	S %	Cr %	Mo %	Ni %
min	0.33					15.5	0.80	
max	0.45	1.0	1.0	0.040	0.030	17.5	1.30	1.0

Mechanical properties

	20 – 60 mm longitudinal	60.1 – 160 mm longitudinal	160.1 – 500 mm transverse
R_{p0.2} [MPa]	≥ 550	≥ 550	≥ 550
R_m [MPa]	750 – 950	750 – 950	750 – 950
A₅ [%]	≥ 12	≥ 12	for information
Z [%]	for information	for information	for information
A_v ISO-V [J]	≥ 20	≥ 14	for information
HBW*	235 – 299	235 – 299	235 – 299

* converted according to DIN EN ISO 18265, Table A.1

Forming	Ø ≤ 220 mm:	hot rolled
	Ø > 220 mm:	hot forged

Heat treatment	quenched and tempered QT 650
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Grades / Specifications	Stainless steel bars	
	Acidur 4122, 1.4122	
	Ø ≤ 160 mm	EN 10088-3
	Ø > 160 – 500 mm	following: EN 10088-3

1.4418 – Acidur 4418

Chemical analysis

	C %	Si %	Mn %	P %	S %	Cr %	Mo %	Ni %	N %
min						15.0	0.80	4.00	0.020
max	0.060	0.70	1.50	0.040	0.030*	17.0	1.50	6.00	

Mechanical properties

	20 – 160 mm longitudinal	160.1 – 250 mm transverse	250.1 – 400 mm transverse
R_{p0.2} [MPa]	≥ 750	≥ 750	≥ 750
R_m [MPa]	1,000 – 1,100	1,000 – 1,100	1,000 – 1,100
A₅ [%]	≥ 16	≥ 14	for information
Z [%]	for information	for information	for information
A_v ISO-V [J]	≥ 80	≥ 60	for information
A_v ISO-V [J] bei -40°C	≥ 42	≥ 42 (longitudinal)	for information (longitudinal)
HBW*	315 – 347	315 – 347	315 – 347

* converted according to DIN EN ISO 18265, Table A.1

Forming	$\varnothing \leq 170$ mm: hot rolled $\varnothing > 170$ mm: hot forged
Heat treatment	quenched and tempered QT 900
Grades / Specifications	Stainless steel bars Acidur 4418, 1.4418 $\varnothing \leq 250$ mm EN 10088-3 $\varnothing > 250 - 400$ mm following: EN 10088-3
Remark	restricted tensile strength R _m and yield strength R _{p0.2} compared with EN 10088-3

1.4542 – Acidur 4542

Chemical analysis

	C %	Si %	Mn %	P %	S %	Cr %	Mo%	Ni %	Cu %	Nb %	Nb+Ta %
min						15.00		3.00	3.00	5xC	0.15
max	0.070	0.70	1.00	0.040	0.030	17.00	0.60	5.00	5.00	0.450	0.45

Mechanical properties (in supplied condition - solution annealed)

		20 – 220 mm longitudinal
R_m	[MPa]	≤ 1,200
HRC		≤ 38
HBW*		≤ 360

* converted according to DIN EN ISO 18265, Table A.1

Mechanical properties (reference check - hardened - P1070 / H1025)

		20 – 220 mm längs	
R_{p0,2}	[MPa]	≥ 1,000	1040°C / 30 min / oil + 550°C / 4 hours / air
R_m	[MPa]	1,070 – 1,270	
A₅	[%]	≥ 10	
A_{gt}	[%]	≥ 12	
Z	[%]	≥ 45	
A_v ISO-V [J]		≥ 20	
HRC		35 - 40	

Forming	Ø ≤ 220 mm:	hot rolled
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Heat treatment	solution annealed
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Grades / Specifications	Stainless steel bars	
	Acidur 4542, 1.4542, Type 630	
	Ø ≤ 100 mm	EN 10088-3, ASTM A 564, ASME SA 564
	Ø ≤ 100.1 - 220 mm	ASTM A 564, ASME SA 564, following: EN 10088-3

Certificate	additional mechanical properties (condition of delivery and reference check)
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1.4301 / 1.4307 – Acidur 4301 / 4307

Chemical analysis

	C %	Si %	Mn %	P %	S %	Cr %	Mo%	Ni %	Cu%	N%
min					0.015	18.0		8.0		
max	0.030	0.75	2.0	0.040	0.030	19.0	0.75	10.0	0.75	0.10

Mechanical properties

	25 – 160 mm longitudinal	160.1 – 250 mm transverse	250.1 – 550 mm transverse
R_{p0.2} [MPa]	≥ 205	≥ 205	≥ 205
R_{p1.0} [MPa]	≥ 230	≥ 230	≥ 230
R_m [MPa]	515 – 700	515 – 700	515 – 700
A₅ [%]	≥ 45	≥ 35	≥ 35
A₂₊ [%]	≥ 40	≥ 40	≥ 40
Z [%]	≥ 50	≥ 50	≥ 50
A_{ISO-V} [J]	≥ 100	≥ 60	≥ 60
HBW	≤ 215	≤ 215	≤ 215
HRC	≤ 22	≤ 22	≤ 22

Forming	<p>Ø ≤ 220 mm: hot rolled</p> <p>Ø > 220 mm: hot forged</p>
Grain size	according to ASTM E 112 / 2 (and finer)
Heat treatment	solution annealed and quenched
Resistance of intergranular corrosion	ASTM A 262 Prac. E, EURONORM 114, ISO 3651-2
Grades / Specifications	<p>Stainless steel bars</p> <p>Acidur 4301/4307, 1.4301/4307 Nirocut, Type 304/304L</p> <p>Ø ≤ 250 mm EN 10088-3, AD2000 - W2 / W10, EN 10272, ASTM A 182 / 276 / 479, ASME SA 182 / 479, NACE MR0175 following: EN 10222-5</p> <p>Ø 250 – 550 mm ASTM A 182 / 276 / 479, ASME SA 182 / 479, NACE MR0175 following: EN 10088-3, EN 10272, EN 10222-5</p>
Certificate	grain size in addition

1.4305 – Acidur 4305

Chemical analysis

	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Cu %	N %
min					0.15	17.0	8.0		
max	0.10	1.0	2.0	0.045	0.35	19.0	10.0	1.0	0.11

Mechanical properties

	25 – 160 mm longitudinal	160.1 – 250 mm transverse	250.1 – 500 mm transverse
R_{p0,2} [MPa]	≥ 190	≥ 190	≥ 190
R_{p1,0} [MPa]	≥ 225	≥ 225	≥ 225
R_m [MPa]	500 – 700	500 – 700	500 – 700
A₅ [%]	≥ 35	for information	for information
A_{2*} [%]	for information	for information	for information
Z [%]	for information	for information	for information
HBW	≤ 230	≤ 230	≤ 230

Forming	Ø ≤ 210 mm:	hot rolled
	Ø > 210 mm:	hot forged

Heat treatment	solution annealed and quenched
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Grades / Specifications	Stainless steel bars	
	Acidur 4305, 1.4305 NIROCUT, Type 303	
	Ø ≤ 160 mm	EN 10088-3, ASTM A 582
	Ø > 160 – 500 mm	ASTM A 582, following: EN 10088-3

1.4401 / 1.4404 – Acidur 4401 / 4404

Chemical analysis

	C %	Si %	Mn %	P %	S %	Cr %	Mo %	Ni %	Cu %	N %
min					0.015	16.5	2.0	10.0		
max	0.030	1.0	2.0	0.045	0.030	18.0	2.5	13.0	0.70	0.10

Mechanical properties

	20 – 160 mm longitudinal	160.1 – 250 mm transverse	250.1 – 550 mm transverse
R_{p0.2} [MPa]	≥ 205	≥ 205	≥ 205
R_{p1.0} [MPa]	≥ 235	≥ 235	≥ 235
R_m [MPa]	515 – 690	515 – 690	515 – 690
A₅ [%]	≥ 45	≥ 35	≥ 35
A_{2°} [%]	≥ 40	≥ 40	≥ 40
Z [%]	≥ 50	≥ 50	≥ 50
A_v ISO-V [J]	≥ 100	≥ 60	≥ 60
HBW	≤ 215	≤ 215	≤ 215
HRC	≤ 22	≤ 22	≤ 22

Forming	$\varnothing \leq 220$ mm: hot rolled $\varnothing > 220$ mm: hot forged
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Grain size	according to ASTM E 112 / 2 (and finer)
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Heat treatment	solution annealed and quenched
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Resistance of intergranular corrosion	ASTM A 262 Prac. E, EURONORM 114, ISO 3651-2
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Grades / Specifications	Stainless steel bars Acidur 4401/4404, 1.4401/4404 NIROCUT, Type 316/316L $\varnothing \leq 250$ mm EN 10088-3, AD2000 - W2 / W10, EN 10272, ASTM A 182 / 276 / 479, ASME SA 182 / 479, NACE MR 0175, following: EN 10222-5 $\varnothing 250.1 - 550$ mm ASTM A 182 / 276 / 479, ASME SA 182 / 479, NACE MR 0175, following: EN 10088-3, EN 10272, EN 10222-5
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Certificate	grain size in addition
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1.4541 – Acidur 4541

Chemical analysis

		C %	Si %	Mn %	P %	S %	Cr %	Ni %	Cu %	N %	Ti %
≤ Ø 160mm	min					0.012	17.0	9.0			5x(C+N)
	max	0.080	0.75	2.0	0.040	0.030	19.0	12.0	0.75	0.10	0.70
> Ø 160mm	min						17.0	9.0			5x(C+N)
	max	0.080	0.75	2.0	0.040	0.030	19.0	12.0	0.75	0.10	0.70

Mechanical properties

		25 – 160 mm longitudinal	160.1 – 250 mm transverse	250.1 – 550 mm transverse
R_{p0,2}	[Mpa]	≥ 205	≥ 205	≥ 205
R_{p1,0}	[MPa]	≥ 235	≥ 235	≥ 235
R_m	[MPa]	515 – 700	515 – 700	515 – 700
A₅	[%]	≥ 40	≥ 30	≥ 30
A_{2%}	[%]	≥ 40	≥ 40	≥ 40
Z	[%]	≥ 50	≥ 50	≥ 50
A_v ISO-V	[J]	≥ 100	≥ 60	≥ 60
HBW		≤ 215	≤ 215	≤ 215

Forming	Ø ≤ 220 mm: hot rolled
	Ø > 220 mm: hot forged

Grain size	according to ASTM E 112 / 2 (and finer)
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Heat treatment	solution annealed and quenched
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Resistance of intergranular corrosion	ASTM A 262 Prac. E, EURONORM 114, ISO 3651-2
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Grades / Specifications	Stainless steel bars
	Acidur 4541, 1.4541, Type 321
	Ø 25 – 250 mm EN 10088-3, AD2000 - W2 / W10, EN 10272, ASTM A 182 / 276 / 479, ASME SA 182 / 479, following: EN 10222-5
	Ø 250.1 – 550 mm ASTM A 182 / 276 / 479, ASME SA 182 / 479, following: EN 10088-3, EN 10272, EN 10222-5

Certificate	grain size in addition
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1.4571 – Acidur 4571

Chemical analysis

		C %	Si %	Mn %	P %	S %	Cr %	Mo %	Ni %	N %	Ti %
Ø ≤ 160mm	min					0.013	16.5	2.0	10.5		5x(C+N)
	max	0.080	1.0	2.0	0.040	0.030	18.0	2.5	13.5	0.10	0.70
Ø > 160mm	min						16.5	2.0	10.5		5x(C+N)
	max	0.080	1.0	2.0	0.040	0.030	18.0	2.5	13.5	0.10	0.70

Mechanical properties

		20 – 160 mm longitudinal	160.1 – 250 mm transverse	250.1 – 550 mm transverse
R_{p0.2}	[Mpa]	≥ 210	≥ 210	≥ 210
R_{p1.0}	[MPa]	≥ 245	≥ 245	≥ 245
R_m	[MPa]	515 – 700	515 – 700	515 – 700
A₅	[%]	≥ 45	≥ 35	≥ 35
A_{2%}	[%]	≥ 40	≥ 40	≥ 40
Z	[%]	≥ 50	≥ 50	≥ 50
A_v ISO-V	[J]	≥ 100	≥ 60	≥ 60
HBW		≤ 215	≤ 215	≤ 215

Forming	Ø ≤ 220 mm: hot rolled Ø > 220 mm: hot forged
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Grain size	according to ASTM E 112 / 2 (and finer)
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Heat treatment	solution annealed and quenched
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Resistance of intergranular corrosion	ASTM A 262 Prac. E, EURONORM 114, ISO 3651-2
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Grades / Specifications	Stainless steel bars
	Acidur 4571, 1.4571, Type 316Ti
	Ø 25 – 250 mm EN 10088-3, AD2000 - W2 / W10, EN 10272, ASTM A 182 / 276 / 479, ASME SA 182 / 479 following: EN 10222-5
Ø 250.1 – 550 mm	ASTM A 182 / 276 / 479, ASME SA 479 following: EN 10088-3, EN 10272, EN 10222-5

Certificate	grain size in addition
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1.4462 – Acidur 4462

Chemical analysis

	C %	Si %	Mn %	P %	S %	Cr %	Mo %	Ni %	N %
min						21.0	2.5	4.5	0.10
max	0.030	0.75	2.0	0.030	0.010	23.0	3.5	6.5	0.20

Mechanical properties

	25 – 160 mm longitudinal	160.1 – 350 mm transverse
R_{p0.2} [MPa]	≥ 450	≥ 450
R_m [MPa]	680 – 880	680 – 880
A₅ [%]	≥ 30	≥ 25
A_{2"} [%]	≥ 25	≥ 25
Z [%]	≥ 45	≥ 45
A_v ISO-V [J] RT	≥ 200	≥ 100
HBW	< 270	< 270
HRC	≤ 25	≤ 25
A_v ISO-V [J] -50°C	≥ 45	≥ 45 longitudinal

Forming	Ø ≤ 220 mm: hot rolled Ø > 220 mm: hot forged
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Heat treatment	solution annealed and quenched
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Resistance of intergranular corrosion	ASTM A 262 Prac. E, EURONORM 114, ISO 3651-2
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Grades / Specifications	Stainless steel bars Acidur 4462, 1.4462, F51, UNS S31803 Ø ≤ 160 mm EN 10088-3, EN 10272, ASTM A 182 / 276, NACE MR 0175, following: EN 10222-5 Ø 160,1 – 550 mm ASTM A 182 / 276, NACE MR 0175, following: EN 10088-3, EN 10272, EN 10222-5
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Certificate	ultrasonic testing in addition, with AD 2000 A4
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1.4828 – Permodur 4828

Chemical analysis

	C %	Si %	Mn %	P %	S %	Cr %	Ni %	N %
min		1.50				19.00	11.00	
max	0.020	2.00	2.00	0.045	0.015	21.00	13.00	0.11

Mechanical properties

	20 – 160 mm longitudinal
R_{p0.2} [MPa]	≥ 230
R_{p1.0} [MPa]	≥ 270
R_m [MPa]	550 – 750
A₅ [%]	≥ 30
Z [%]	-
HBW	≤ 223

Forming	hot rolled
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Heat treatment	solution annealed and quenched
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Grades / Specifications	Heat-resistant steel bars Permodur 4828, 1.4828 Ø ≤ 160 mm EN 10095
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1.4841 – Permodur 4841

Chemical analysis

	C %	Si %	Mn %	P %	S %	Cr %	Ni %	N %
min		1.5				24.0	19.0	
max	0.20	2.0	2.0	0.040	0.030	26.0	22.0	0.11

Mechanical properties

25 – 160 mm longitudinal	
R_{p0,2} [MPa]	≥ 230
R_{p1,0} [MPa]	≥ 270
R_m [MPa]	550 – 750
A₅ [%]	≥ 30
A_{2%} [%]	≥ 40
Z [%]	≥ 50
HBW	≤ 223

Forming	hot rolled
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Heat treatment	solution annealed and quenched
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Grades / Specifications	Heat-resistant steel bars Permodur 4841, 1.4841, Type 314 Ø ≤ 160 mm EN 10095, ASTM A 276
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STOCK LIST



Stock list

Dimensions mm round	4021 QT MPa 800-950	4028 QT + stress relieved 850-1000	4034 annealed	4057 QT 800-950	4104 QT 650-850	4122 QT 750-950	4418 QT 1000-1100	4542 solution annealed max. 1200
20								
22	•							
23								
24								
25	•			•	•	•		•
26	•							
27	•							
28	•							
30	•	•	•	•	•	•		•
32								
34								
35	•	•	•	•	•	•		•
36	•							
37	•							
38								
40	•	•	•	•	•	•		•
42					•			
45	•	•	•	•	•	•		•
48	•							
50	•	•	•	•	•	•		•
55	•	•	•	•	•	•		
60	•	•	•	•	•	•	•	•
65	•	•	•	•	•	•	•	
70	•	•	•	•	•	•	•	•
75	•	•	•	•	•	•	•	
80	•	•	•	•	•	•	•	•
85	•	•	•	•	•	•	•	
90	•	•	•	•	•	•	•	•
95	•			•	•	•	•	
100	•	•	•	•	•	•	•	•
105	•			•	•	•		
110	•	•	•	•	•	•	•	•
115	•	•		•	•	•		
120	•	•	•	•	•	•	•	•
125	•	•		•	•	•	•	
130	•	•	•	•	•	•	•	•
135								
140	•	•	•	•	•	•	•	•
145							•	
150	•	•	•	•	•	•	•	•
155								
160	•	•	•	•	•	•	•	•
165					•		•	
170	•	•		•	•	•	•	
180	•	•	•	•	•	•	•	•
185								
190	•			•		•	•	

QT = quenched and tempered

Dimensions	4021	4028	4034	4057	4104	4122	4418	4542
mm round	QT	QT + stress relieved	annealed	QT	QT	QT	QT	solution annealed
MPa	800-950	850-1000		800-950	650-850	750-950	1000-1100	max. 1200
200	•	•		•	•	•	•	•
205			•					
210	•			•		•	•	
220	•	•		•		•	•	
225			•					
230	•	•		•		•	•	
240	•	•		•		•	•	
250	•	•		•		•	•	
260	•	•		•		•	•	
270				•		•		
275	•							
280		•		•		•	•	
285								
300	•	•		•		•	•	
310	•							
320		•						
325	•			•		•		
350	•	•		•		•		
375						•		
400	•			•		•		
425								
430						•		
450						•		
500						•		

Stock list

Dimensions mm round	4301/07 quenched NIROCUT	4305 quenched NIROCUT	4404/01 quenched NIROCUT	4541 quenched	4571 quenched	4462 quenched	4828 quenched	4841 quenched
20						•		
22								•
23								
24								•
25	•	•	•		•	•	•	•
26								
27								
28	•		•		•			
30	•	•	•		•	•	•	•
32	•		•		•			
34	•		•					
35	•	•	•		•	•	•	•
36			•					
37								
38	•		•		•			
40	•	•	•		•	•	•	•
42	•		•		•			
45	•		•		•		•	•
48					•			
50	•	•	•	•	•	•	•	•
55	•	•	•		•	•		•
60	•	•	•	•	•	•	•	•
65	•	•	•		•	•		
70	•	•	•	•	•	•		•
75	•		•		•	•		
80	•	•	•	•	•	•		•
85	•	•	•	•	•	•		
90	•	•	•	•	•	•		•
95	•	•	•		•	•		
100	•	•	•	•	•	•		•
105	•	•	•		•			
110	•	•	•	•	•	•		
115	•	•	•	•	•			
120	•	•	•	•	•	•		
125	•	•	•		•	•		
130	•	•	•	•	•	•		
135	•		•			•		
140	•	•	•	•	•	•		
145	•	•	•			•		
150	•	•	•	•	•	•		
155	•		•					
160	•	•	•	•	•	•		
165	•		•		•			
170	•	•	•	•	•	•		
180	•	•	•	•	•	•		
185	•		•					
190	•	•	•		•	•		

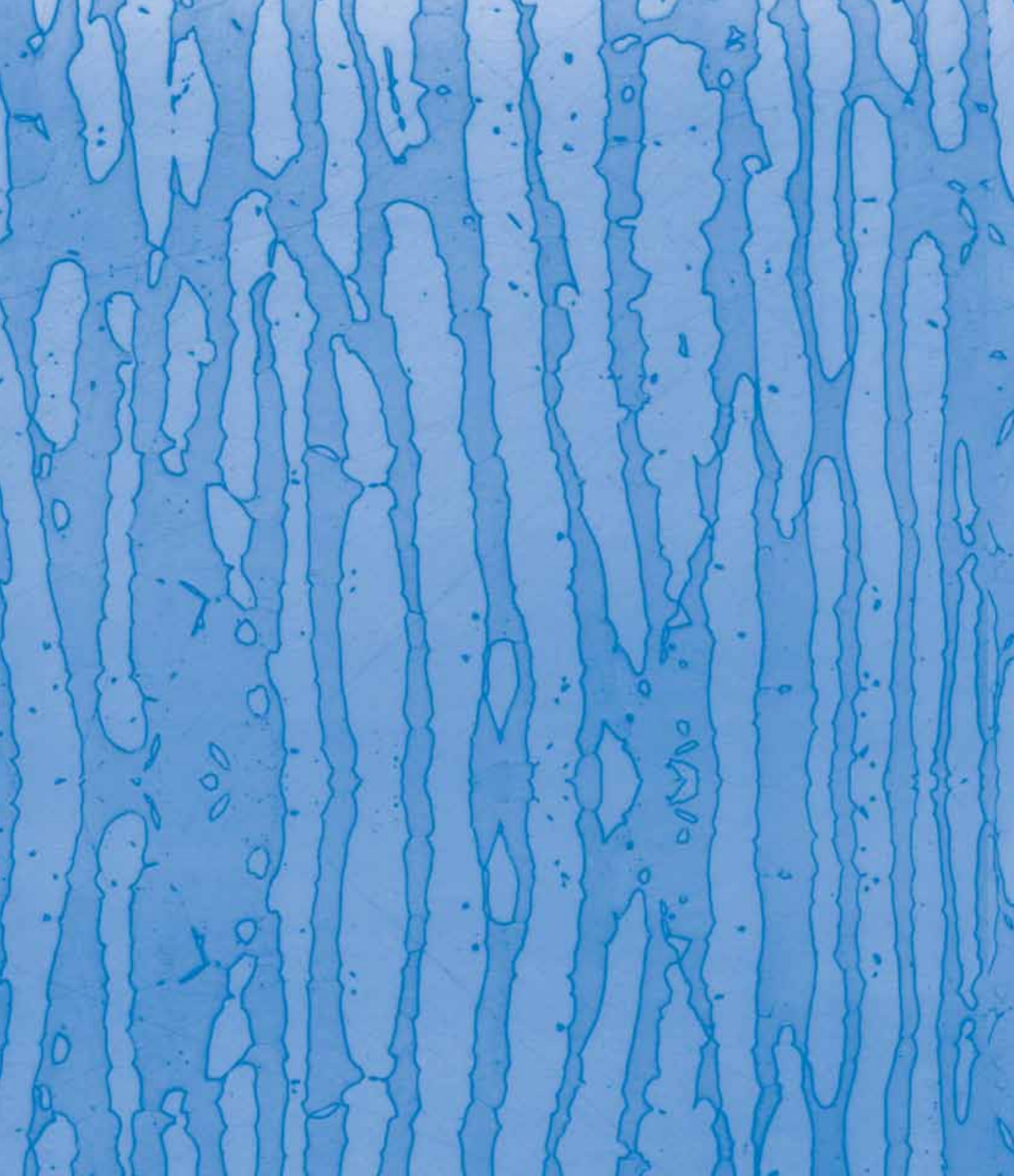
Dimensions mm round	4301/07 quenched NIROCUT	4305 quenched NIROCUT	4404/01 quenched NIROCUT	4541 quenched	4571 quenched	4462 quenched	4828 quenched	4841 quenched
200	•	•	•	•	•	•		
205								
210	•	•	•		•	•		
220	•	•	•	•	•	•		
225								
230	•	•	•		•	•		
240	•		•		•	•		
250	•		•	•	•	•		
260	•		•		•	•		
270	•		•		•			
275								
280	•			•	•	•		
285			•					
300	•		•	•	•	•		
310								
320								
325	•		•		•			
350	•		•		•			
375			•		•			
400	•		•		•			
425			•					
430								
450	•		•		•			
500	•		•		•			

Note

Because stock lists are updated several times per year, please refer to www.dew-stahl.com for the latest version.

General note (liability)

Information about the quality or usability of materials or products is for descriptive purposes only. Confirmations in relation to the existence of certain characteristics or with reference to a certain application always require a special written agreement. Printing errors, omissions and changes excepted.



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