



# Bar Products **OUTOKUMPU**

## Bar Program

Items shown are produced regularly for quick delivery from stock or within competitive industry lead-times. Please check our website for availability and call an Outokumpu representative.

### Round Bar (in inches)

	303	304L	304H	316L	316H	317L	410	416	430	430F	15-5 ESR	Alloy 218
3/16-1 CDA	X	X	X	X	X	X	X	X	X	X		X <sup>A</sup>
1/2-1 CFA	X	X	X	X	X	X	X	X	X	X	X	
>1-3 3/4 CFA	X	X	X	X	X	X	X	X	X	X	X	X
2-3 1/2 HRART	X	X	X	X	X	X	X	X	X	X	X	X
>3 1/2-7 HRART	X	X	X	X	X	X	X	X				
>7-10 HRART	X	X	X	X	X	X						

	17-4	2205+2	253 MA	254 SMO	321	347	309	310	904L	LDX 2101	304 HN	XM-19
3/16-1 CDA				X	X				X			
1/2-1 CFA	X		X		X	X	X	X	X	X		
>1-3 3/4 CFA	X	X	X	X	X	X	X	X	X	X	X <sup>C</sup>	X <sup>D</sup>
2-3 1/2 HRART	X	X	X	X	X	X	X	X	X	X	X <sup>C</sup>	X <sup>E</sup>
>3 1/2-7 HRART	X <sup>B</sup>	X		X	X	X	X	X	X	X		
>7-10 HRART					X	X						

A: Alloy 218 only available down to 3/4" C: 304 HN only available from 1 3/8" to 3 1/2" HS E: XM-19 only available from 1 3/8" to 3 1/2" HS  
 B: 17-4 only available up to 5 1/4" D: XM-19 annealed only available from 1" to 3 1/2"

NOTE: 303, 304L, 316L and 317L come standard as PRODEC

### Hex

	303	304L	316L	321	347	LDX 2101	416
3/16"-1"	X	X	X	X	X	X	
1"-1-3/4" *	X	X	X	X	X	X	X

\*Full size range available mid 2009. Some sizes available now. Call to inquire.

### Square

	303	304L	316L	321	347	LDX 2101
3/8"-7/8"	X	X	X	X	X	X

### Length Capabilities

3/16"-5/8" CDA	12' STD, 16' Max
>5/8"-1" CDA	12' STD, 14' Max
1/2"-3 3/4" CFA	12' STD, 24' Max
2"-3 1/2" HRART	12' STD, 24' Max
>3 1/2"-7" HRART	12' STD, 30' Max
>7"-10" HRART	Inquire

### Special Programs

LDX 2101, 303 HST, Extrusion Billet, Stainless Rebar, Wire Rod, Billet, CF Conversion

### Other value features of our Bar program:

- Polished surface** — CD and CF products 9/16" to 3" (including hex and squares to 1")
- Chamfering** — Two sides in drawn products and one side for CF products through 3"
- Eddy Current testing** — Standard for 303 and 416 grades. Available upon request in other grades.
- Centerless Grinding** — 1/4- to 1/2"-standard tolerance available in 3/16" to 4" diameters
- Lengths** — For sizes through 1" 12' exact (+ 2", -0), R/Ls over 1", Lengths to 24' over 9/16" round.
- Continuous line marking** — Available in sizes 1 1/8" to 3 1/2"
- Complete program** — Standard and special grades, in sizes from 3/16" to 10" round, 3/8" to 1 5/16" CD squares, and 1/4" to 1 5/8" hex.
- Quality** — Outokumpu Bar is ISO 9001 approved. Each bundle is "X-ray" grade assured.

## Specifications

Grade	UNS	ASTM	ASME	Federal	AMS
303	S30300	A 582	NA	NA	5640
304 / 304L	S30400 / S30403	A 276, A 479	SA-479, SA-276	QQS 763F	5639, 5647, QQS 763
316 / 316L	S31600 / S31603	A 276, A 479	SA-479, SA-276	QQS 763F	5648, 5653, QQS 763
317 / 317L	S31700 / S31703	A 276, A 479	SA-479, SA-276	QQS 763F	QQS 763
LDX 2101	S32101	A 276, A 479	SA-479, SA-276		
410	S41000	A 276, A 479	SA-479, SA-276	QQS 763F	5612, 5613, QQS 763
416	S41600	A 582			5610
430	S43000	A 276, A 479	SA-479, SA-276		5627
430F	S43020	A 582			
15-5 ESR	S15500	A 564	SA-564		5659
Alloy 218	S21800	A 276, A 479			5848
17-4	S17400	A 564	SA-564		5643
2205 Code Plus Two	S31803 / S32205	A 276, A 479	SA-479, SA-276		
253 MA	S30815	A 276, A 479	SA-479, SA-276		
254 SMO	S31254	A 276, A 479	SA-479, SA-276		
321 / 321H	S32100 / S32109	A 276, A 479	SA-479, SA-276		5645
347 / 347H	S34700 / S34709	A 276, A 479	SA-479, SA-276		5646
309, 309H, 309S	S30900 / S30909 / S30908	A 276, A 479	SA-479, SA-276		5650
310, 310H, 310S	S31000 / S31009 / S31008	A 276, A 479	SA-479, SA-276		5651
304HN	S30452				
XM-19	S20910	A 276, A 479	SA-479, SA-276		

## Tolerances — Stainless Steel Bar

Conforms to ASTM A 484						
Round Bar/Cold Finished		Round Bar/Hot Rolled and Rough Turned			Square Bar and Hexagons/Cold Finished	
Size	Tolerances	Size	Tolerances Size	Out of Round	Size	Tolerances
Under $\frac{5}{16}$ "	+/-0.001	Over 2" to 2 $\frac{1}{2}$ "	+ $\frac{1}{32}$ -0	0.023	Under $\frac{5}{16}$ "	+0.00 -0.002
$\frac{5}{16}$ " up to but excluding $\frac{1}{2}$ "	+/-0.0015	Over 2 $\frac{1}{2}$ " to 3 $\frac{1}{2}$ "	+ $\frac{3}{64}$ -0	0.035	Over $\frac{5}{16}$ " to under $\frac{1}{2}$ "	+0.00 -0.003
$\frac{1}{2}$ " up to but excluding 1"	+/-0.002	Over 3 $\frac{1}{2}$ " to 4 $\frac{1}{2}$ "	+ $\frac{1}{16}$ -0	0.046	$\frac{1}{2}$ " up to and including 1"	+0.00 -0.004
1" up to but excluding 1 $\frac{1}{2}$ "	+/-0.0025	Over 4 $\frac{1}{2}$ " to 5 $\frac{1}{2}$ "	+ $\frac{5}{64}$ -0	0.058	Over 1" up to and including 2"	+0.00 -0.006
1 $\frac{1}{2}$ " up to and including 3 $\frac{1}{4}$ "	+/-0.003	Over 5 $\frac{1}{2}$ " to 6 $\frac{1}{2}$ "	+ $\frac{1}{8}$ -0	0.070	Over 2" up to and including 3"	+0.00 -0.008
Over 3 $\frac{1}{4}$ " up to and including 4 $\frac{1}{2}$ "	+/-0.005	Over 6 $\frac{1}{2}$ " to 8"	+ $\frac{5}{32}$ -0	0.085	Over 3"	+0.00 -0.010
Over 4 $\frac{1}{2}$ " up to and including 6"	+/-0.008	Over 8" to 12"	+ $\frac{3}{16}$ -0	0.094		

## Straightness Tolerances for Machine-Straightened Bar

Rough Turned	Cold Finished
$\frac{1}{8}$ " in any 5' but may not exceed $\frac{1}{8}$ " x length in feet 5	$\frac{1}{16}$ " in any 5' but may not exceed $\frac{1}{16}$ " x length in feet 5

## Weight Formulas for Steel

Weight estimates per linear foot

$$\begin{aligned} \text{Rounds} &= D^2 \times 2.6729 \\ \text{Hex} &= D^2 \times 2.9473 \\ \text{Sq} &= D^2 \times 3.4032 \end{aligned}$$

Outokumpu is a global leader in stainless steel. Our vision is to be the undisputed number one in stainless, with success based on operational excellence. Customers in a wide range of industries use our stainless steel and services worldwide. Being fully recyclable, maintenance-free, as well as very strong and durable material, stainless is one of the key building blocks for sustainable future.

What makes Outokumpu special is total customer focus — all the way, from R&D to delivery. You have the idea. We offer world-class stainless steel, technical know-how and support. We activate your ideas.

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