

303 HST[®]



Premium 303 for High Volume Screw Machines

Description

303 HST[®] bar is engineered to optimize machining performance on high-volume, screw machined products made from stainless steel 303 bar under one inch. 303 HST also delivers superior surface finish and product consistency. Outokumpu pioneered the development of stainless steels with optimal machinability by introducing PRODEC[®] in 1976. Now we've created 303 HST by controlling both chemistry and processing techniques to put the properties of the bar in the most desirable range for machining. 303 HST is PRODEC-treated for improved performance — important when used in CNC machines — making it equally effective with high-speed steel and carbide tooling.



Machineability

303 HST is specially designed for smaller diameter cold drawn rod in demanding machining applications where attainable speed is limited by machine capability and bar diameter.

303 HST:

- Is excellent for machining operations using high-speed steel tooling in screw-machine applications with multiple operations performed at the same bar speed.
- Is also excellent for carbide tooling and CNC machines;
- Produces good surface and chipping at higher speeds and feeds using high-speed steel tooling than standard 303.
- Performs well at the lower end of the carbide tooling SFM range to effectively pick-up where high speed steel tooling leaves off.
- Results in shorter cycle times — quicker production rates.

Available Products

Cold Drawn 3/16" – 1" round, hex, square

Standard Specs

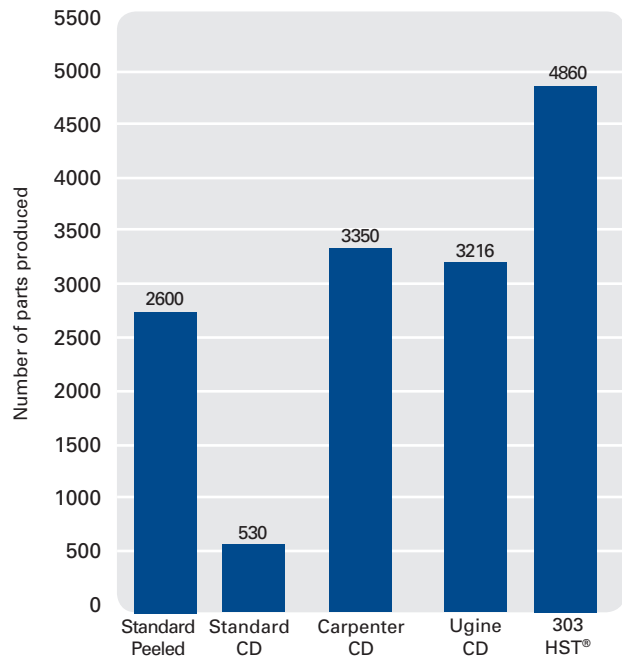
Industry standard 303 specs, including ASTM A484, A582, and AMS 5640 Type 1.

Special Features

- Diameter:
 - Rounds – Ground to 1/4 standard diameter tolerance
- Surface:
 - Rounds – Ground 32 RMS or better
 - Hex – 9/16" – 1" polished
- Packaging:
 - 1000lb boxes 1/2" and less
 - 1000lb to 2000lb paperwrapped bundles 1/2" to 1"
- Length: 12' + 2" /- 0"
 - Capable of 16'
- Chamfered both ends
- Eddy Current tested

303 Threading Test

Table 1



Machinability testing performed under the guidance of Outokumpu Stainless Research and Development.

Threading test was single point threading of 3/4" round bar. Number of parts produced was the measure of tool lifetime. Machining parameters (speeds/feeds/tooling) were chosen to simulate common screw machine conditions.

CD= Cold Drawn

Machining Guidelines

Table 2

Operation	Depth of cut or width (in)	HSS Tooling			Carbide Tooling		
		Cutting Speed (SFM)	Feed (IPR)	Tool Grade	Cutting Speed (SFM)	Feed (IPR)	Tool Grade
Turning	0.04	90-180	0.006-0.010	T15	150→	0.0025-0.012	P15-M25
	0.15	90-130	0.006-0.012	T15	150→	0.0025-0.012	P15-M25
Forming	0.20	110-175	0.001-0.0045	T15	150→	0.0025-0.012	P15-M25
	0.40	100-140	0.0015-0.004	T15	150→	0.0025-0.012	P15-M25
Cut-off or Grooving	0.04-0.15	Up to 120	0.001-0.005	T15	120-360	0.002-0.006	M25
Drilling	All	40-120	0.003-0.009	M35	80-870	0.0025-0.012	P15-M25
Reaming	All	40-120	0.003-0.025	M35	80-870	0.0025-0.012	P15-M25
Taping	All	Up to 120	N/A	M35	—	—	—
Single Point Threading	—	—	—	—	200-470	Thread Size: 3/4"-10"	M20
	—	—	—	—	200-470	Passes: 9-11	M20

- Small differences in cutting speed will affect tool lifetime
- Higher feed rate tends to give better surface and chip formation
- TiAlN coated high speed steel tools provide much longer tool lifetime than un-coated
- Results can vary depending upon tooling and machine set-up
- These are actual results obtained from production tests

Information given in this brochure may be subject to alterations without notice. Care has been taken to ensure that the contents of this publication are accurate but Outokumpu and its affiliated companies do not accept responsibility for errors or for information that is found to be misleading. Suggestions for or descriptions of the end use or application of products or methods of working are for information only and Outokumpu and its affiliated companies accept no liability in respect thereof. Before using products supplied or manufactured by the company the customer should satisfy himself of their suitability.

HST 303® and Prodec are trademarks of Outokumpu Stainless.

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 steel 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 the world's best stainless steel, technical know-how and support. We activate your ideas.



Outokumpu 3043 Crenshaw Parkway Richburg, SC 29729 USA
Tel. 1-888-458-4600 Fax 803-789-3177

www.outokumpu.com/stainless/na