PRODEC® 17-4 hits the mark with Quick Tech Machining by improving production speeds for their shotgun choke tubes.

Part Length: 2.6″

Diameter: 7/8″ diameter

Heat Treat Condition: H1075

Tool Type: Carbide Insert Drill

Feed: Increased from 0.0035″ to 0.005″ per revolution

RPM: Increased from 525 to 575

Specifications

UNS: S17400 **AMS:** 5643 **ASTM:** A564, A484

Chemical Composition, %

	Ni	Cr	Mo	Mn	Cu	Si	C	Cb+Ta	S	P	Fe
MIN	3.0	15.0	-	-	3.0	-	-	5 x C	-	-	-
MAX	5.0	17.5	0.50	1.0	5.0	1.0	0.07	0.45	0.03	0.04	balance

Case History

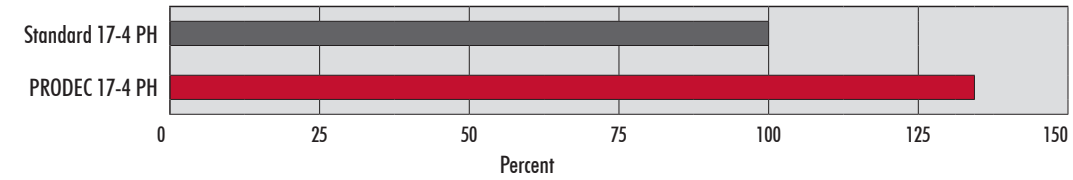
Quick Tech Machining put PRODEC 17-4 stainless bar to the test for manufacturing their choke tubes. Choke tubes are manufactured by drilling out the ID of a solid 17-4 bar, then turning and threading the OD and drilling exhaust ports. The most significant metal removal is achieved by drilling. By switching to PRODEC 17-4, metal removal rates were increased by over 50%, and tool life improved slightly despite increased speeds and feeds.

Choke tubes are an add-on accessory for shotguns. These aftermarket tubes are primarily used for competitive shooters and serious hunters to provide better accuracy. Choke tubes are screwed into the end of a shotgun barrel and tapered down, reducing the barrel opening. With high velocity shot passing through the ID of the choke tube, hardness and toughness are essential to avoid wall thinning due to abrasion and cracking due to fatigue. Lower-end choke tubes can be made from alloy steels or aluminum, but most competitive choke tubes are made from 17-4 stainless steel, a martensitic precipitation hardening stainless steel.

Choke tubes are typically machined in the heat-treated condition. After heat treatment, 17-4 becomes difficult to machine, acting more like a superalloy. Work hardening, chip control, built-up edge, and tool chipping are all problem areas.
PRODEC 17-4 is an enhanced machining version of 17-4 stainless. Trials have shown PRODEC 17-4 to provide up to 30% faster machining speeds without sacrificing tool life compared to standard 17-4. This enhanced machinability results from the PRODEC melting process, which reduces the quantity, size, and distribution of hard oxide inclusions. As a result, improved machining properties are realized in all heat-treated conditions (Condition A, H1150, H1025, etc).

Quick Tech Machining is a Partner of Game Accessories Pure Gold Chokes. Game Accessories is the sole distributor of Pure Gold Premium Shotgun Chokes. Game Accessories strives to supply customers with the best products available and back that up with the industry's excellent customer service and support. They provide Pure Gold Turkey Chokes, Sporting Clays Chokes, Buckshot Chokes, Card Chokes, and devastating Waterfowl Chokes.

Relative Machinability



Average Turning Speeds [Multiple V_{15} Tests with Carbide Tooling]