

Faster ROI with up to 80.000 rpm on Swiss Type Lathes



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Customer: AxisWorks LLC

Application: 1/4" Hex Screw (Torx Hybrid)
Machine: Citizen L20 IX
CoolSpeed® Flex: CM-CE-F075-037-FL-A
Driven by: Coolant/Oil
Coolant Pressure: 48 bar
Spindle Speed: 60,000 rpm
DOC: 0.25 mm
TDOC: 2.41 mm
Stepover: 0.4 mm
SFM (Surface Feet per minute): 628
FPT (Female Pipe Thread): 0.00254 mm
Feed Rate: 0.61 m/min
Material: 303 Stainless Steel
Hardness: 174 BHN
Endmill: Harvey 1 mm (EDP# 73039-C3)



Part Size: 12.7 mm x 15.9 mm



About AxisWorks LLC:

AxisWorks LLC is primarily a job shop located in Tempe, AZ that specializes in providing quality machined components for the Aerospace, Medical, Semiconductor and Firearm industries. AxisWorks also manufactures bolt action rifles for long-range competition and long-range hunting applications.

Issue:

AxisWorks had a 24,000 rpm 1:4 gear driven speeder needing repair and was looking for a quick solution to continue their operation. Thanks to the effortless set-up and installation of CoolSpeed® Flex, they were able to continue their operation with minimal down-time. The spindle was installed at 48 bar (700 psi) achieving 60,000 rpm spindle speed. This higher speed reduced the total cycle time by 12 seconds per part. With 10,000 pcs needed, this equates to 33 hours of time saving per batch! In addition, the 1:4 gear driven speeder needed frequent repair which added additional cost of up to 50% of the price for a new unit for each repair.

Cost Savings Calculation Per Batch:

Parts produced per batch	10,000 psc
Machine hourly rate (USD)	\$120
Total Est. time with 1:1 head (h)	1264 (7:35 each)
Total time with 1:4 speeder (h)	317 (1:54 each)
New total time with CoolSpeed® (h)	283 (1:42 each)
Time savings vs. 1:4 speeder (h)	34
Part savings vs. 1:4 speeder (USD)	\$0.38
Time savings vs. 1:1 speeder (h)	981
Part savings vs. 1:1 speeder (USD)	\$11.8

ROI Calculations

Initial Investment Costs

CoolSpeed® Starter Set: \$2,560
1:4 Gear Driven Speeder: \$6,000 +

Time Savings

CoolSpeed® vs. 1:4 gear driven speeder: \$3,960
(\$120 X 34 hours saved)

CoolSpeed® vs. 1:1 gear driven head: \$117,720
(\$120 X 981 hours saved)

Repair Costs

CoolSpeed®: 2 set of bearing kits per batch (\$42 each)
Gear Driven: Repair every 3-6 months (\$1.5-2.5K) + down time

Tool Life

33% Longer tool life!

Machine Life

Saved gear driven tools on the sub 317 hours of runtime

ROI < 7 hours with est. batch savings of \$117,720 (vs. 1:1 head)

ROI < 183 hours with batch savings of \$3960 (vs. 1:4 head)

Testimonial:

We decided to give CoolSpeed® Flex a try since we had a 1:4 speeder head needing repair, 2,000 psi pump, it was US-Stock, had a low initial price point and could reach speeds up to 80,000 rpm. Ultimately, we settled in on 60,000 rpm. We were able to improve tool life and save the live tooling gears 317 hours of time by having them not engaged while cutting.

The coolant management system with CoolSpeed® Flex is a huge benefit over gear driven heads as well. I don't see why you would use any other speeder. – Eric Gross, AxisWorks

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