

Simon-Ellis Superabrasives, Inc.

Case Study

(Hardened Gear O.D. Turning of Gear Teeth & Turing Faces)

Part: Hardened Gear
Size: Approximately 38" (965mm) Diameter and 10" (254mm) wide
Face: Approximately 2" wide near O.D. on both sides
Hardness: 59 -62 Rc
Stock: Approximately 0.025" (0.635mm) radial on O.D and same for Face
In3: 30 per part
Interruptions: Heavy going across the gear teeth
Tool: Simon-Ellis Superabrasives - GT-701B

Present Process:

O.D.:

In-feed /pass: 0.0125 (0.3175mm)
Traverse: 0.004 I.P.R.(0.10mm per pass)
S.F.P.M.: 550 (168 M/min.)

Face:

In-feed /pass: 0.0125 (0.3175mm)
T S.F.P.M.: 550 (168 M/min.)
Traverse: 0.004 I.P.R. (0.10mm per pass)

of passes: 2

of edges: 10 per part

Results of Simon-Ellis GT-701B

O.D.:

In-feed /pass: 0.025(0.635mm)
Traverse: 0.004 I.P.R.(0.10mm per pass)
S.F.P.M.: 550 (168 M/min.)

Face:

In-feed /pass: 0.025 (0.635mm)
T S.F.P.M.: 550 (168 M/min.)
Traverse: 0.008 I.P.R. (0.20mm per pass)

of passes: 1

of edges: 1 per 2 parts

Results:

The Simon-Ellis GT-701B reduced cycle time (in the cut) in half (total cycle time reduction of 45 minutes) and increased parts per edge by a factor of 20