# VERICUT World Wide

GKN Aerospace

Sandvik Sweden

# GKN AEROSPACE

CGTECH

# GKN AEROSPACE

**$2.5B International Aerospace Enterprise 32 sites - 12,000 people**

# GKN AEROSPACE

## Market & Customers

**Market**

**Business Mix**

**Sector**

**Customer Base**

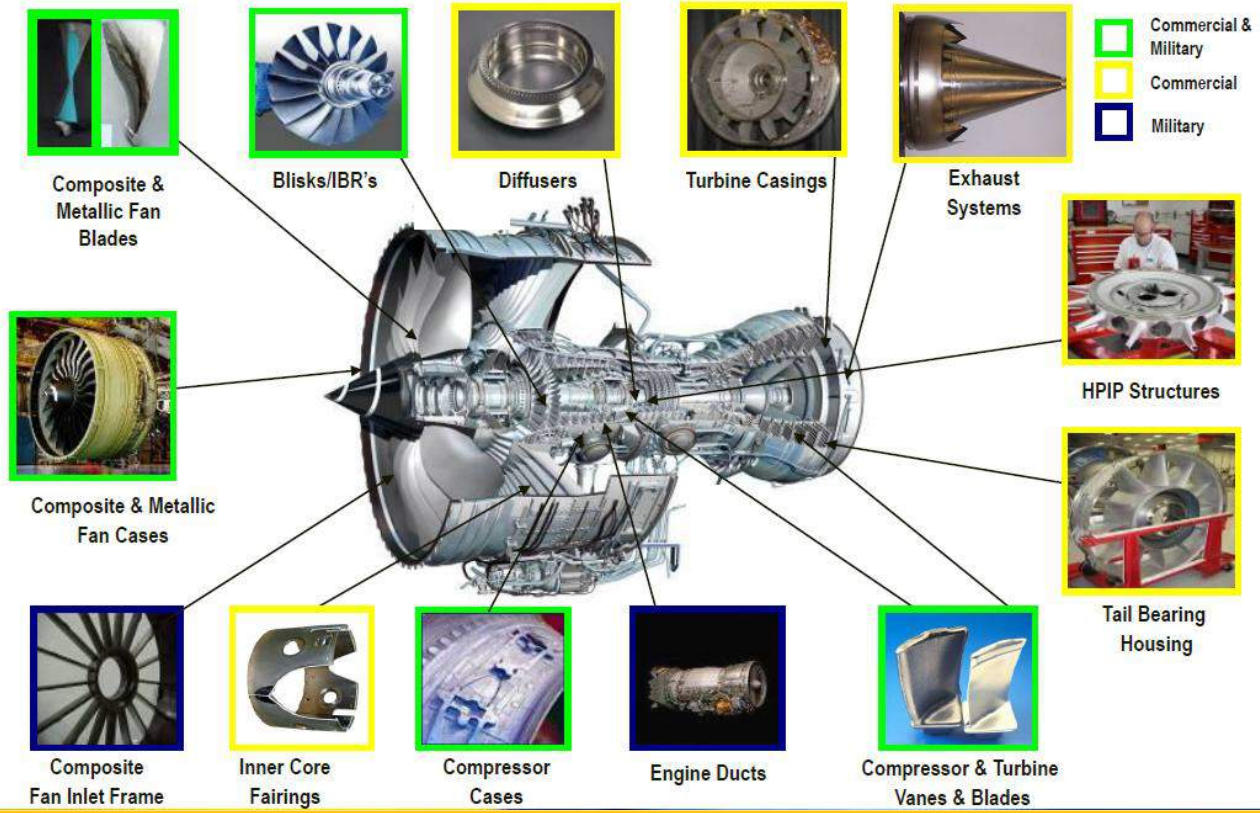
AIRBUS
Sikorsky A United Technologies Company
Rolls-Royce
BOEING
Cessna A Textron Company
imagination at work
Honeywell
Triumph Group, Inc.
LOCKHEED MARTIN
Aviation Partners Boeing
EMBRAER
Pratt & Whitney A United Technologies Company
NORTHROP GRUMMAN
GOODRICH
eurocopter
AgustaWestland
BAE SYSTEMS
Raytheon
bell helicopter
SPIRIT AEROSYSTEMS
HONDA
DASSAULT SYSTEMES
BOMBARDIER

# GKN AEROSPACE

## Airframe & Niche Product Portfolio

# GKN AEROSPACE

## Engine Product Portfolio

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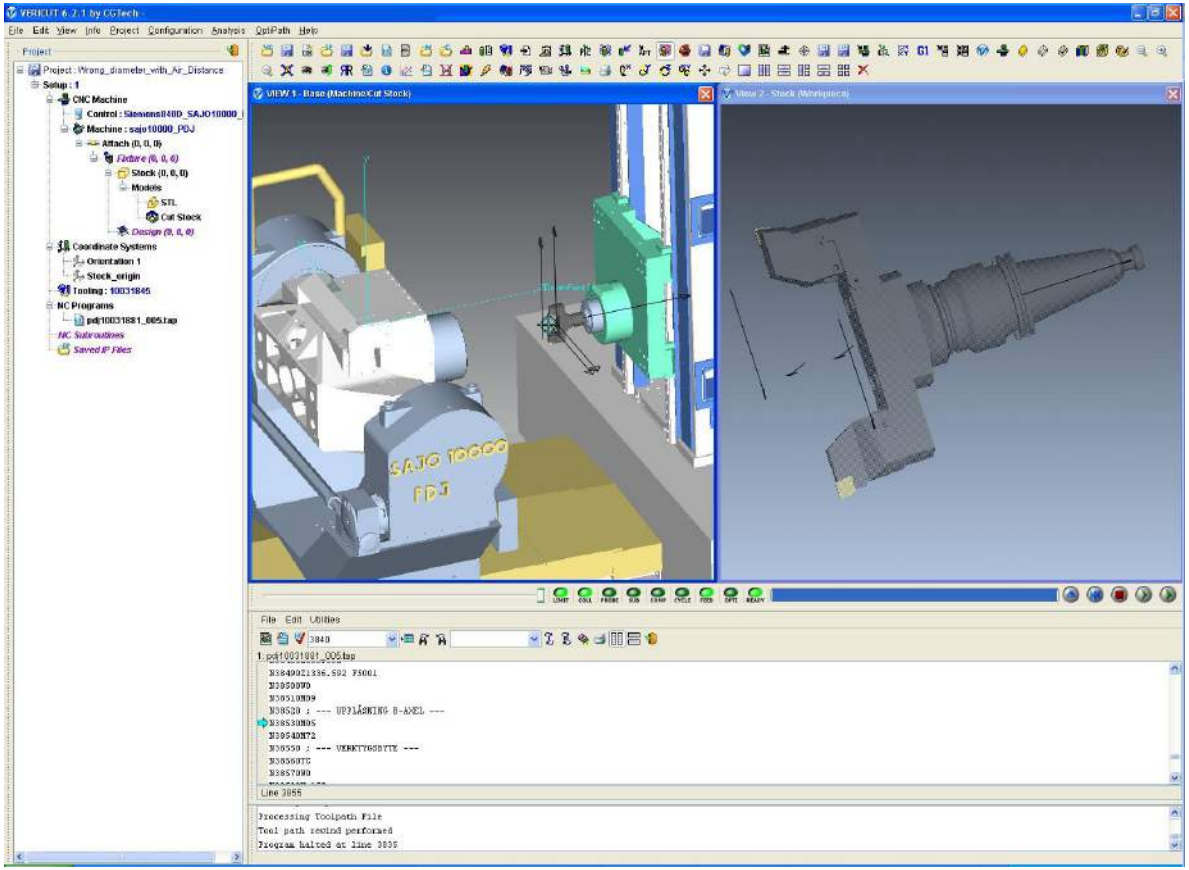
# GKN AEROSPACE Europe

July 2012 GKN buy
Volvo Aero

# Machine simulation at GKN - why?

- Limited time to test on the machine.
- To ”allow” programming mistakes,

  but also for refining of existing NC-programs in the shop.



# CNC-program - overview

- Vericut runs on the ISO-code (identical with the code sent to the CNC-machine).
- Errors are detected both if they are coming from the source code, or from the post processor.
- The external Fortran based post processor system is the main reason for using Vericut.

pfa10018610_006.tap - Notepad

File Edit Format View Help

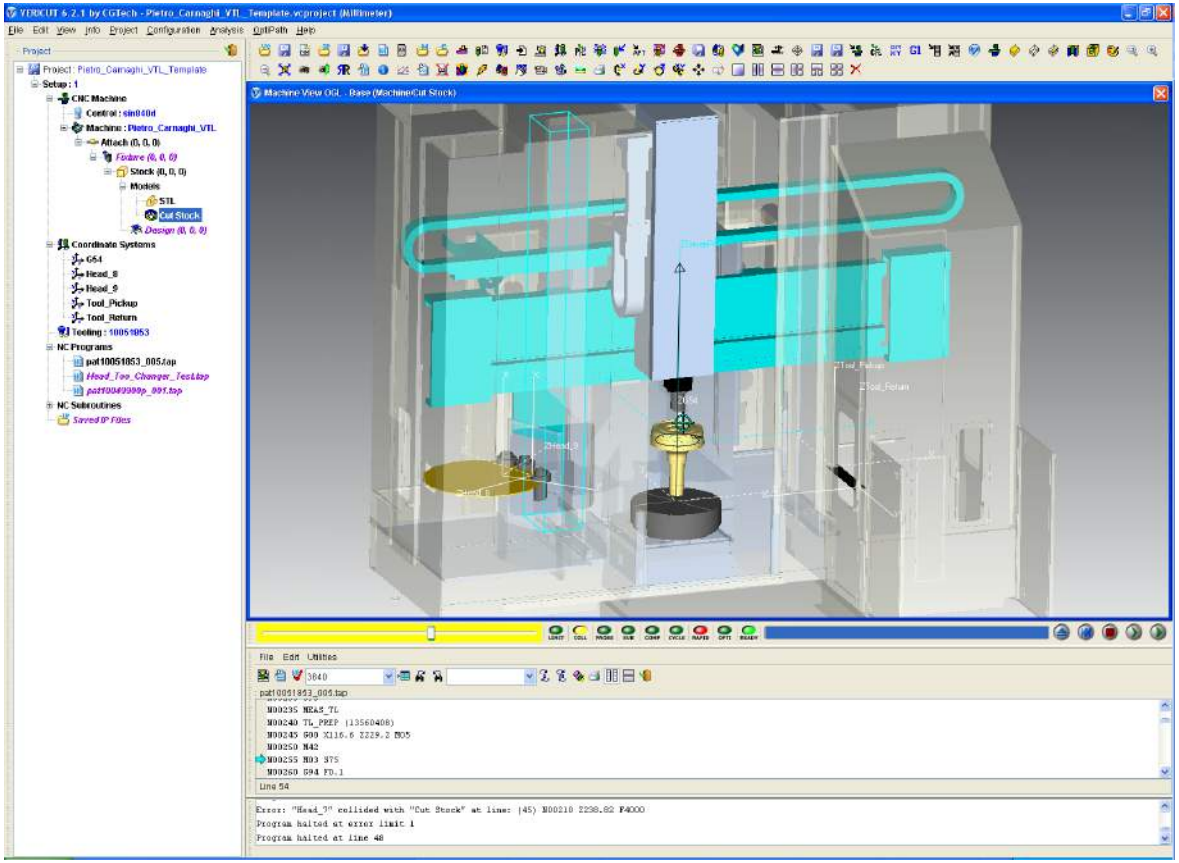
```
N000060 STOPRE
N000065 R1=0
N000070 STOPRE
N000075 VAC:
N000080 CYCLE800 ()
N000085 LIMS=400
N000090 ;***************************
N000095 ;DETTA NOLLAR G54-G599
N000100 ;*****************************
N000105 IF$P_SEARCH==1 GOTOF VAC
N000110 R1=1
N000115 VAC_START:
N000120 DM_ZOT(R1)
N000125 STOPRE
N000130 R1=R1+1
N000135 STOPRE
N000140 REPEAT VAC_START P=98
N000145 STOPRE
N000150 R1=0
N000155 STOPRE
N000160 VAC:
N000165 ;***************************
N000170 ;**   SATTER FIXTURHÖJD  **
N000175 ;***************************
N000180 STOPRE
N000185 DM_Z0500
N000190 IF $P_SEARCH==1 GOTOF VAC_JUMP
N000195 $P_UIFR[1,Z,TR]=175.897
N000200 $P_UIFR[1,C,TR]=65.96
N000205 STOPRE
N000210 $P_UIFR[2,Z,TR]=$P_UIFR[1,Z,TR]
N000215 $P_UIFR[2,C,TR]=$P_UIFR[1,C,TR]
N000220 STOPRE
N000225 VAC_JUMP:
N000230 ;*************************************
N000235 ;* VERIFIERING AV PROBE 6A PRNUM18 *
N000240 ;*************************************
N000245 M37
N000250 T="10026977"
N000255 M06
N000260 DM_DNUM(1)
N000265 G40 G17 G94 G90 G00 A0.
N000270 VNOM_DIA=2. ;NOM. DIAM.
N000275 IF $P_SEARCH==1 GOTOF VAC_JUMP
N000280 DM_MILL
N000285 G54  ;MILL
N000290 G00 X0. Y900. Z300. C=DC(0.)
N000295 CYCLE800 (0,"TC1",0,57,0,0,0,-90.,0,0,0,0,0,0)  ;KOORDINAT VRIDNING  -90. GRADER
N000300 Y-42. Z695. C=DC(309.04) A-90.
N000305 Z605.
N000310 _MVAR=6_SETV[0]=18.006_SETV[1]=15.009_ID=-20_KNUM=0
N000315 _VMS=0_TSA=0.01_FA=5_NMSP=2_PRNUM=18_TUL=0.010_TLL=-0.010
N000320 CYCLE977
N000325 Z611.
N000330 _TUL=0.045_TLL=-0.045
N000335 _MVAR=0_SETVAL=594.997_MA=3_KNUM=0_EVNUM=0_TSA=0.045_PRNUM=18_VMS=0
N000340 _NMSP=2_FA=5_MD=1
N000345 CYCLE978
N000350 Z695.
N000355 ;******************************
N000360 ;* VERIFIERAR FIXTURHÖJD *
N000365 ;******************************
N000370 Y-56.
N000375 Z588.
N000380 _TUL=0.035_TLL=-0.035
N000385 _MVAR=0_SETVAL=-49.552_MA=2_KNUM=0_EVNUM=0_TSA=0.035_PRNUM=18_VMS=0
N000390 _NMSP=2_FA=5_MD=0
N000395 CYCLE978
N000400 Y-55.9
```

Source code - NX → Post processing → ISO-code

Sent to Vericut and CNC-machine

# Machine simulation @ GKN Sweden - 2013

- 30+ machines available in Vericut
- ≈ 35 users
- 14 licenses
- Running on 7.2.1
- The requirements and expectations on the machines have increased. For instance,
probe cycles have to be supported and
sub programs from the machine control have to be taken care of.
- Accurate 3D-models on the machine and on cutting tools are crucial.

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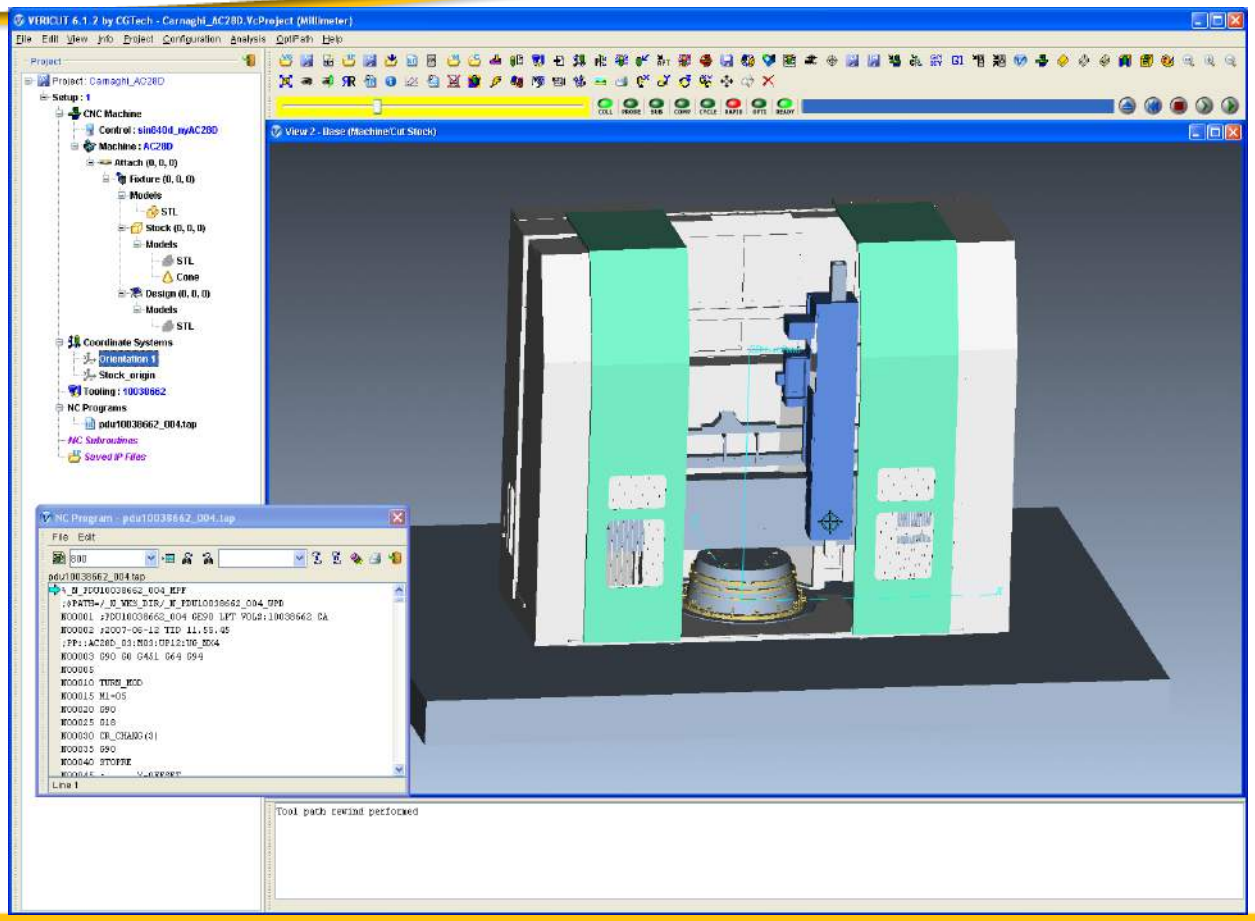
# Machine types

- About 40% of the machines in Vericut are lathes, most of them vertical, from Doerries, Carnaghi etc. with Siemens 840D- or older Siemens controls.
- About 60% are newer Mill/Turn machines plus newer and older mill machines from Deckel Maho, Mazak, SAJO, etc.
- 3D-models are supplied by the machine vendor on the newer machines.



# SANDVIK

SANDVIK

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# SANDVIK 150 Years

## Heritage

Founded 1862 in Sandviken, Sweden

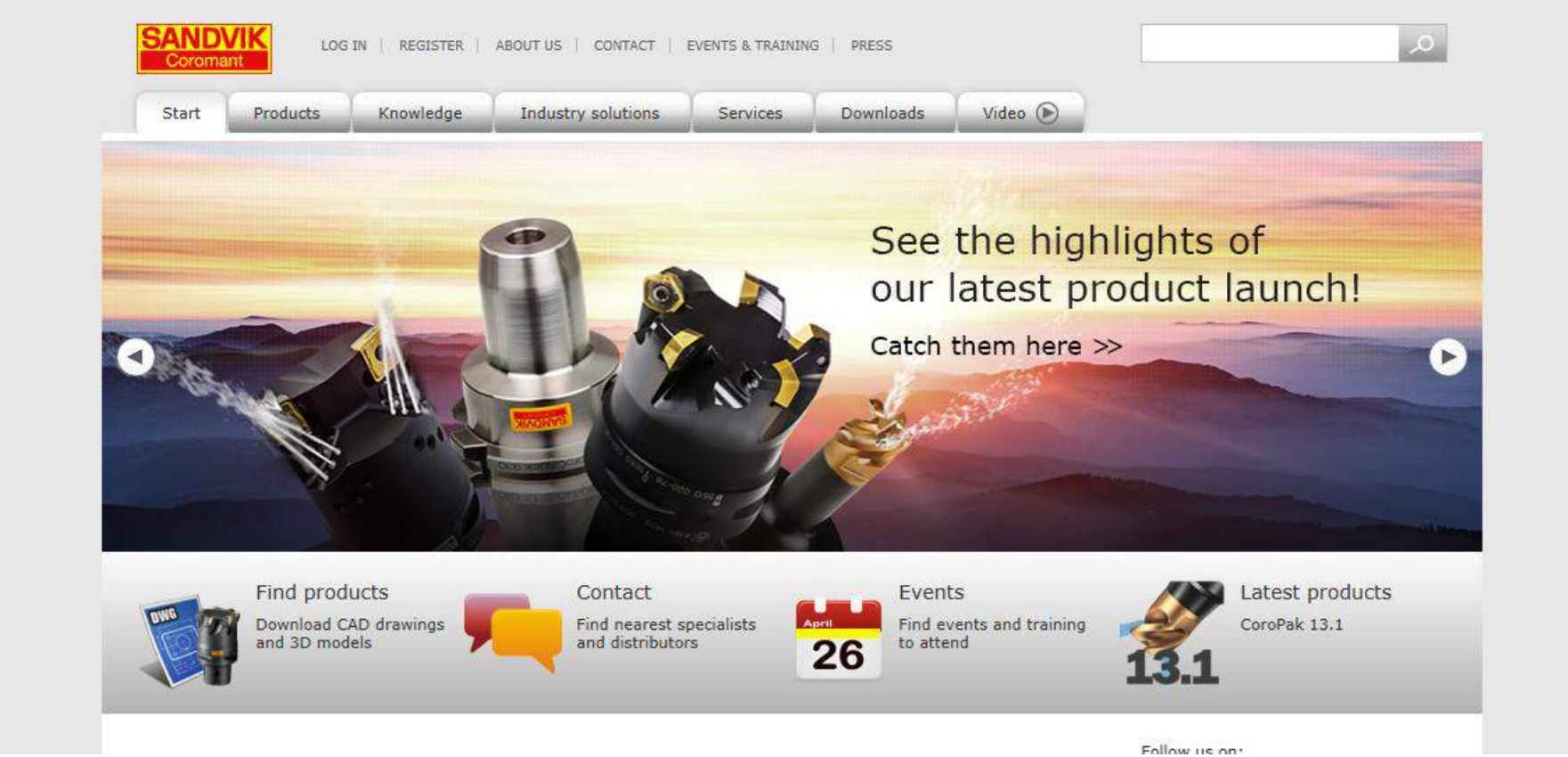
Göran Fredrik Göransson redesigned the Bessemer furnace to mass-produce steel

A breakthrough and an innovation started the company 150 years ago

150 years
THE SANDVIK JOURNEY

SANDVIK

# SANDVIK Coromant

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# VERICUT @ SANDVIK Coromant

First purchased  VERICUT in 1997

Have 30 Seats Worldwide

# VERICUT @ SANDVIK Coromant

## 2011 Change to Manufacturing methods

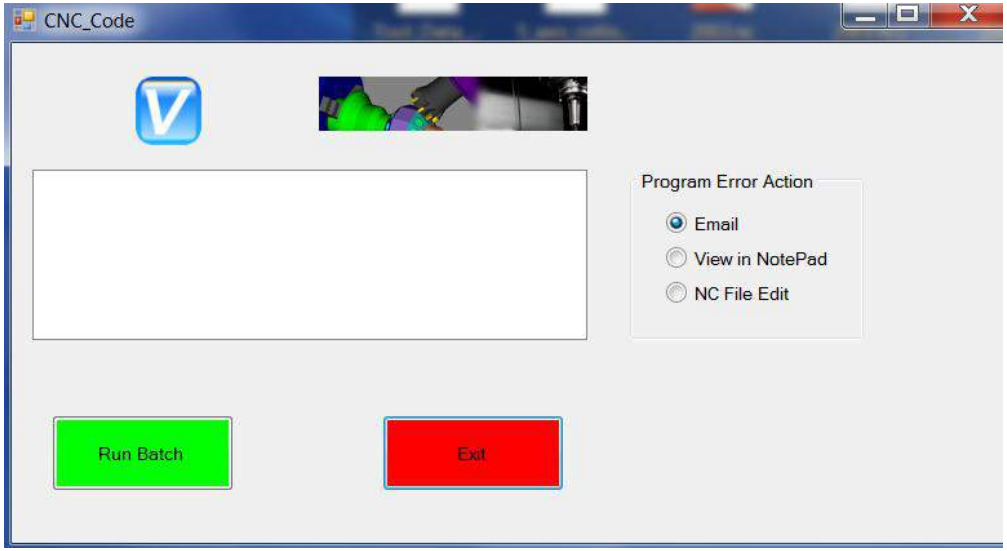
EVERY program must be NEW and VERIFIED. Why?

- New Tooling
- New Machines
- New Process

# VERICUT @ SANDVIK Coromant

## Automate VERICUT

- VERICUT Batchmode



# Questions

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