NC software solution for drill breakage detection

*PRO*SIN

Monitoring solution % at a bargain price

SINUMERIK SOLUTION PROVIDER

- **excellent retrofitting capabilities**

- **good value, because no separate hardware must be purchased**

- **no additional sensors**

- **for machining centers, drilling machines and drilling stations**

- **for all hardware platforms of the SINUMERIK 810D or 840D control systems**

- **ideal for machining centers and drilling machines employed in the mass production of metal components (e.g. in the automobile industry)**

- **Variant for contact detection available (Gap- and Dress-Control on grinding machines)**

- **absolutely minimal scope of operator actions via SINUMERIK operating unit**

- **unbeatable fast installation**

- **detection of missing holes or drills for drilling operations from a diameter of 2 mm in aluminium**
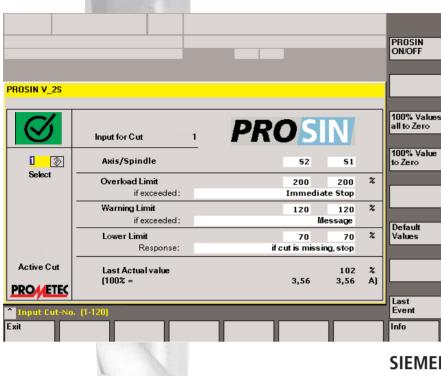
~~additional hardware~~

~~extra sensors~~

~~technology-PC-card~~

PRO*METEC*
PRO*SIN*

**All you need:
The PROMETEC
*PRO*SIN software
and
a single
SINUMERIK licence**

PROSIN V_2S	
Input for Cut	1 **PROSIN**
1 Select	Axis/Spindle	S2 S1
	Overload Limit	200 200 %
	if exceeded:	Immediate Stop
	Warning Limit	120 120 %
	if exceeded:	Message
	Lower Limit	70 70 %
	Response:	if cut is missing, stop
Active Cut	Last Actual value (100% =	102 %
PROMETEC		3,56 3,56 A)

Input Cut-No. (1-120)

Softkeys: PROSIN ON/OFF, 100% Values all to Zero, 100% Value to Zero, Default Values, Last Event, Exit, Info

Clearly arranged within a single screen: operating status, cut number and monitoring parameters

operation with SINUMERIK Softkeys and number block

Learning of comparision values by a push of a button

Variants: for up to four independent or synchronous Spindles

SIEMENS certified solution

SINUMERIK SOLUTION PROVIDER

Economical alternative

Machine tool OEMs are always looking for ways to improve their existing series of machines. One of these improvements for example is objective and repeatable detection of overload situations and of dull, broken or missing drilling tools like fluted drills, thread cutters, reamers, etc.

PROSIN enables drill breakage monitoring by reading the electrical current values of the digital drives: If a tool breaks, the current value for the corresponding drive will change, with the current increasing for a dull tool.

PROSIN utilises the load sensor signals from the SIMODRIVE main and feed drives and analyses these signals in accordance with overload, prewarning, and missing limits for each drilling cut. Up to 120 cuts are available.

With PROSIN, fluted drills 2 mm in diameter and larger can be monitored for breakage when used with steel, cast iron or aluminum. The actual current values are read out in the interpolation cycle of the controller. Typical values in this context will range from 8 to 12 milliseconds.

Clearly arranged interface

A special monitor screen is provided for configuring the NC program operations to be monitored, with this screen integrated into the standard user interface of the CNC. This screen allows you to enter and optimize the settings for the cuts to be monitored on one or more tools, and to display the actually measured values. As part of the SINUMERIK Solution Provider Program, SIEMENS certified PROSIN drill break detection software in August 2001.

This tool monitoring package is of particular interest for mass production of metal parts, such as in the automotive supplier industry, where quality needs to be increased while at the same time reducing costs. A further benefit lies in how easy it is to retrofit existing machines, whose functionality can be expanded in a very short time.