

EXAPTplus CNC cycles

The practice- and shopfloor-close usability and flexibility of EXAPTplus is thereby underlined that also CNC cycle-oriented NC programming is supported. The long-running and difficult to handle single-record output is replaced by a compact, process plan-oriented, clear and easy comprehensible NC-control data output.

Especially the following advantages are offered to the user:

- person-neutral working in the manufacturing by uniform, continuous proceeding in the preceding generation of NC control programs with EXAPT systems (off-line programming) and their machine-close adaption on the CNC (on-line programming)

- global result reliability in the engineering chain along the entire process from the part model via the workpiece model up to the machining model

- feeding with shorter and more transparent NC control data

- better real-time behaviour of the CNC

Performance features

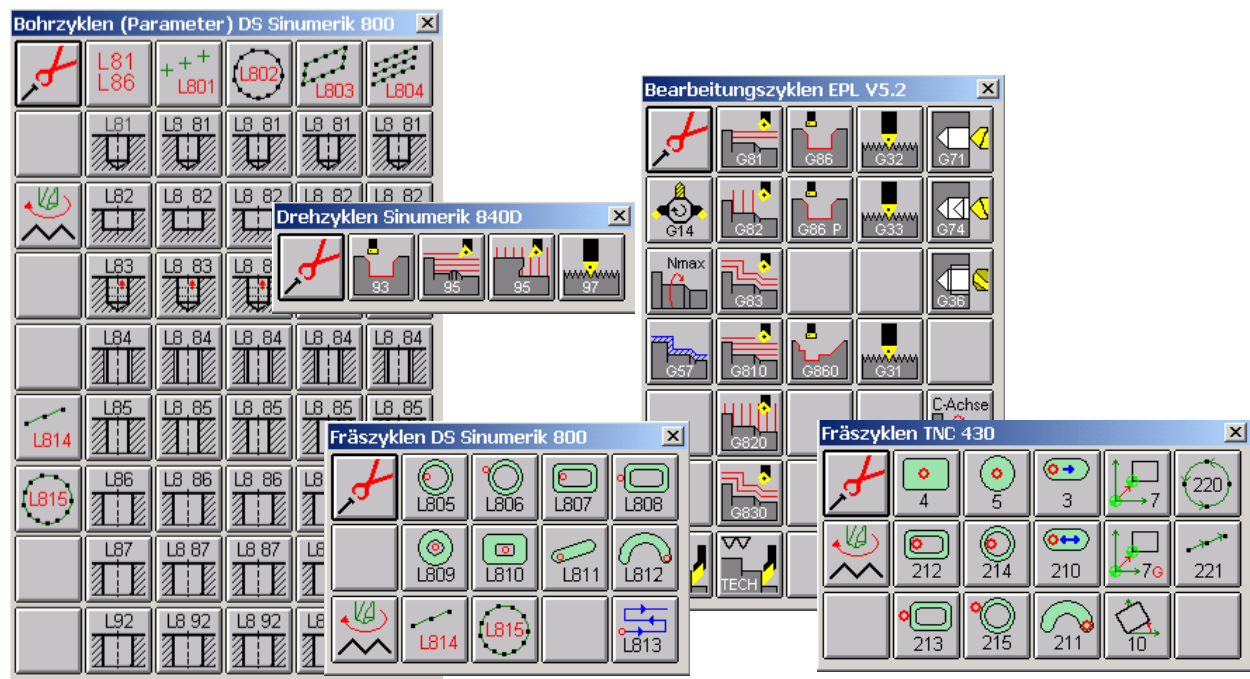
- availability of all benefits of the EXAPT system around the CNC cycle formatting, starting from the CAD data transfer via the manufacturing-oriented process planning, the uniform user interface and the generating of all essential manufacturing data for pre-setting, set-up and calculation up to a detailed result check

- continuous use of the object-oriented, uniform EXAPT technology standards for the manifold features of the many different CNC cycles in the NC programming

- unified parameterisation of machining sections (machining objects) using the automatic technology methods of the EXAPT systems

- flexible figurable graphic-interactive operator guidance for parameterisation of CNC cycles

- interpretation of the CNC cycles for simulation and time calculation



System modules

Overview in extracts of available CNC cycle packages with different features for the processes turning/drilling/milling:

Sinumerik 880
Sinumerik 840C
Sinumerik 810D
Sinumerik 840D

Heidenhain TNC415
Heidenhain TNC426/430

Gildemeister EPM
Gildemeister EP10
Gildemeister EPL2
Gildemeister EPL5.2

Traub TX8H

Fanuc 16/18TB
Fanuc 10T

Further packages on request

System requirements

EXAPTplus Basic system
EXAPTplus Variant programming
EXAPTplus Menu configuration

Depending on the extension level:
EXAPT technology modules Turning, Drilling, Milling
EXAPTpdo NCV - NC data administration
Postprocessor expansions

Installation requirements

EXAPT systems are based on Windows for the use on single PCs or servers in the network compound. Required hardware configurations depend on the software constellation and the user-related quantity of data. More details follow in the current EXAPT-recommendation for hardware configuration.

Drehzyklen Sinumerik 840D

CYCLE95 Abspannzyklus mit Hinterschnitt - längs

Bearbeitungslage	außen	innen	
MID Zustelltiefe	mm	5	
FAL2 Schlichtaufmaß in Z	mm		
FALX Schlichtaufmaß in X	mm		
UARI Bearbeitungsart	Schruppen	Schlichten	komplett
FF1 Vorschub Schruppen	mm/U	0.6	
FF2 Vorschub Eintauchen	mm/U	0.25	
FF3 Vorschub Schlichten	mm/U		
DT Verweilzeit zum Spänebrechen	CYCLE95 Abspannzyklus mit Hinte...		
DAM Weglänge zum Spänebrechen			
URT Abhebeweg beim Schruppen			
Schnittgeschwindigkeit			

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N0175
CYCLE95 ("L71", 5., 0.5, 0.5, 0.6, 0.35, 1, 0., 0.)

% N L71 SPF
; $PATH=/_N MKS_DIR/_N MPD
N0005 G01 X85. Z-20.447
N0010 G01 X85. Z-26.366
N0015 G01 X90. Z-30.696
.
N0045 G03 X130. Z-67.44 I-0.44 K-1.642
N0050 G01 X130. Z-83.
N0055 G01 X156.414
N0060 G01 X170. Z-89.793
N0065 M17
    
```

CNC cycle longitudinal turning with EXAPTplus
Example for Sinumerik 840D

Bohrzyklen Si...

Zyklus 83 Tieflochbohren

RTP Rückzugsebene	(rel. zur Geometrie)	10
RFP Referenzebene	(rel. zur Geometrie)	2
SDIS Sicherheitsabstand		
DP Endbohrtiefe	(rel. zur Geometrie)	-50
FDPR erste Bohrtiefe		15
DAM Degressionsbetrag		2
DTB Verweilzeit auf Bohrtiefe		
DTS Verweilzeit am Anfangspunkt		
FRF Vorschubfaktor für erste Bohrtiefe		1
UARI Bearbeitungsart	Spänebre...	
Vorschub	mm	0.12
Vorschubangabe in	mm/U	

```

N0060 MCALL CYCLE83 (10, 2, , -50, , 15, 2, , 1, 0)
N0070 z10.
N0080 X55. Y65.981
N0090 X25.
N0100 X10. Y40.
N0110 X25. Y14.019
N0120 X55.
N0130 MCALL
    
```

CNC cycle deep-hole drilling with EXAPTplus
Example for Sinumerik 840D