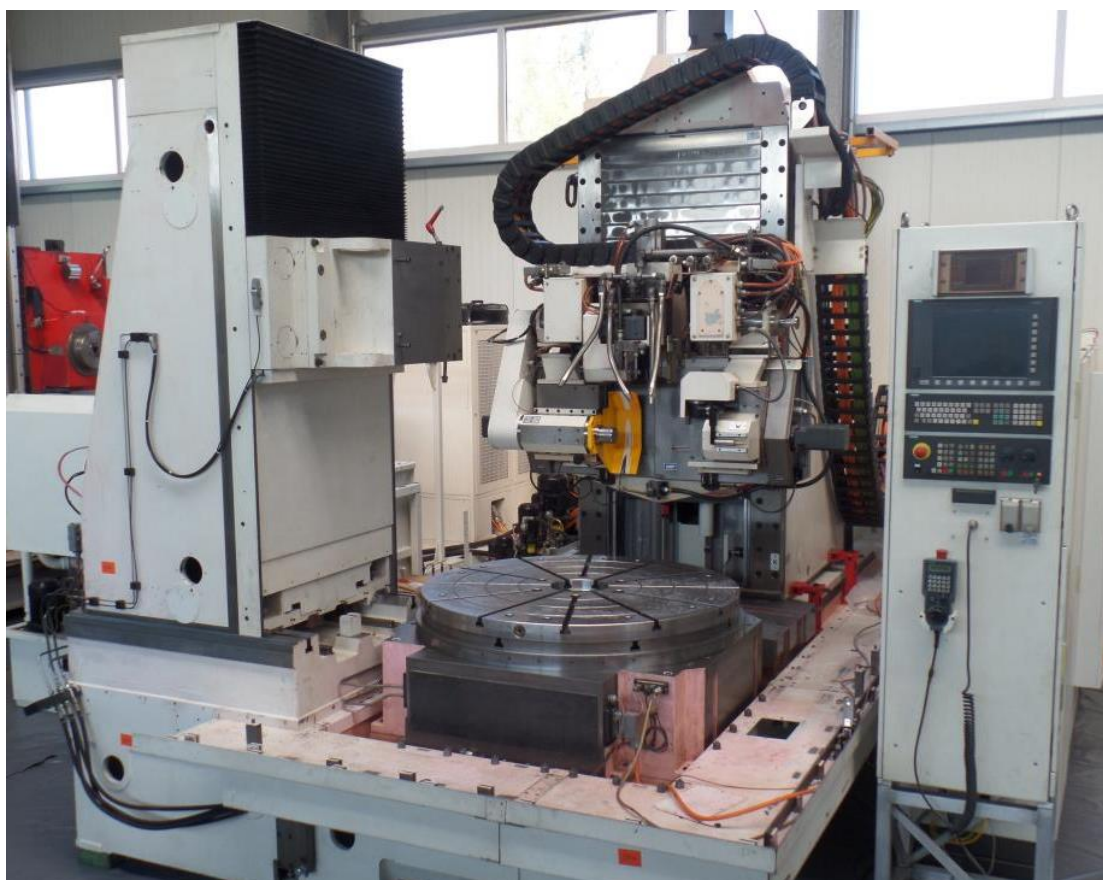


TECHNICAL DATA
CNC – Gear Grinding Machine

manufacturer	NILES
type	ZP 20
built	SIEMENS 840D
CNC-control	2006



CNC-Profile Grinding Machine for grinding **external and internal** spur and helical gears on cylindrical workpieces as well as any other profile or form which can be ground by the **single indexing method**.

working area

max. grind able diameter	2.000	mm
max. profile depth	75	mm
max. modul	34	mm
axis-distance rotary table – grinding wheel	300-1.210	mm (min.-max.)

travels

radial travel (Y)	910 mm
axial travel (X)	1.000 mm

Hydrostatic guideways in rotary table, Y-axis, X-axis - thereby no wear and no "stick slip"

grinding spindle

speed max.	3.130 min-1
power	25 kW
diam. spindle	80 mm
swivel range	+/- 45 °
grinding wheel diameter max.	400 mm
grinding wheel width max.	100 mm

workpiece table (C-axis)

table diameter	1.365 mm
table bore	Ø 650 x 220 mm
<i>diameter x depth</i>	Ø 475 x 300 mm
	Ø 400 x 500 mm
table load max.	180 kN

Hydrostatique guideway and Torque-motor

2. grinding carriage

Grinding-carriage "Z" with external grinding spindle "Z"

Grinding-carriage "W" for measuring device or internal grinding spindle

tailstock

Tailstock with steady-rest for max. work piece diam. 1.600 mm. Automatic movable up and down sliding bolts in bronze - diameter adjustable.

In case of grinding work piece with diam. bigger than 1.600 mm the tailstock can be adjusted outside of the working area.

internal grinding unit ZP 4

The internal grinding device is mounted on the grinding carriage "W" and consists of a swivel device and various grinding arms. The internal grinding spindle is driven by the grinding wheel drive "W" (25 kW).

For dressing, the grinding arm is swivelled into the dressing position and the grinding wheel is dressed with the CNC dressing device. The working range for each individual case is defined by to determine individual collision investigations.

grinding arm V300/350

Max. profile-depth	45 mm
Max. tooth-width - straight toothed	350 mm
Max. diam. grinding wheel	300 mm
Max. width grinding wheel	50 mm
Min. dressable diam. grinding wheel	180 mm
Max. modul two-flank grinding	ca. 20 mm
Max. modul one-flank grinding	ca. 24 mm

grinding-arm V300/370

Max. profile-depth	45 mm
Max. tooth-width - straight toothed	350 mm
Max. diam. grinding wheel	300 mm
Max. width grinding wheel	50 mm
Min. dressable diam. grinding wheel	180 mm
Helix angle max.	max. +/- 10 °
Max. modul two-flank grinding	ca. 20 mm
Max. modul one-flank grinding	ca. 24 mm

CNC-Steuerung

SIEMENS SINUMERIK 840 D with 7 CNC-axis plus spindle

All axis with digital servo units. 15"-TFT colour screen, SIMODRIVE 611 D,
PLC in S7, NCU 573

Dialog programming for automatic program-generating for part-programs for profile-grinding of
external gears with specific interface by KAPP-NILES with MICROSOFT WINDOWS® .

machine dimensions

machine-weight ca.	ca. 37.000 kg
space required ca.	7,1 x 7,4 x 4,6 m
Power required	75 kVA, 400 V, 50 Hz,
Pre-fuse	108 A

accessories

- NC-Dressing-Unit with 1 dressing-spindle for diamond-dressing-disc
- Complete coolant device (ca. 2.000 l) incl. band filter (400 l/min)
- Dust-exhauster
- Oil-coolant-system for lubrication-oil, coolant-oil and grinding-spindle
- Full-covering of the working-area
- Automatic grinding-head-swivelling and clamping stepless
- Touch-probe inside the working-area for gear measuring
- Electronical hand-wheel
- Power-display for grinding-motor with overload-advice
- Special-software for double-helical-gears
- Internal grinding unit ZP 4 with two (2) grinding-arms V 300/350 + V 300/370
- Automatically cut-splitting
- Measuring of tip- and root-diameter
- Electrical removing of the axis in case of emergency
- Telephone Diagnose system
- Machine in metrical performance
- Electrical equipment on DIN EN 60204/VDE 0113 part 1, power supply 400 V (50 Hz),
- Machine colour white RAL 9002 und red RAL 3003