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WELDING & CUTTING EQUIPMENT
KARA
KARA GROUP

CATALOGUE

KARA
CNC H-Beam
DRILLING MACHINE




KARA

KCHDM

KARA CNC PLATE DRILLING MACHINE

1. Possibility of Drilling H-Beam and Original and Assembled Box Beams
2. Possibility of Three Spindles Simultaneous Performance for Asymmetric Drilling on H and Box Beam Wing and Flange
3. Possibility of Tools Replacement for Each Spindle Independent of Their Performance While Drilling
4. Work-Piece Clamping During Whole Drilling Process
5. Using Double Ball Screw for Spindles Fast Movement While Positioning Drill Bit
6. Ineffectiveness of Work-Piece Assembly Methods Such as Split H and Box Beam and Stud Welding on the Precision of Drill Bit Position
7. Easy and Exact Installation Due to Using an Integrated Chassis along with Rails
8. A Robust and Integrated Main Gate Structure for Sustainability and less Vibration during Drilling Process
9. A Centralized Electric Power System for Noise Reduction, Cabling and Trouble-shooting Improvement
10. Using an Air-Conditioning System than a fan in Power Center for Cooling
11. Using an Optic Sensor to Locate Zero Point on Work-Piece than a Mechanical Step or Micro Switch
12. Possibility of Connecting Controller to Internal Network-Cable-Wireless
13. Having a Monitoring System for each Spindle
14. Possibility of Drilling, Tape Cutting and Surface Milling on Spindles Simultaneously
15. Equipped with Three Separate Hand Wheels for Each Process and Discrete Selection of each Axis
16. A Robust Clamping System for Keeping the Work-Piece Constant While Drilling
17. Equipped with CAN-OPEN Network System than the Old Analog System

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Main Technical Specifications

1	Effective workpiece dimensions	Web: 200 – 1200 mm / Flange: 200 - 500 mm Length: 2500 - 12000 mm / Thickness: 10 - 50 mm
2	Number of spindles	3 Spindles
3	Number of machine axes	10 AXES
4	Specifications and speed range of the spindle	AC Servo Motor: 18 kw / Max Spindle Speed: 3500 rpm Max Drilling Torque: 230 Nm. / Spindle Taper: BT 40
5	Machine's control system	PC Base - Promax ITALY, under network servo control, 10 Axis Simultaneous, Flex 3D – for G code generator (Lintec – Spain)
6	Machine's Control system features	Monitor: 17´ - Color – Touch Screen, USB, WIFI
7	Tool replacement system	Equipped with 3 magazines for each spindle Drilling, Milling
8	Tool replacement set	Linear Tool Change Magazine / Capacity: 4 Tools Tool Model: BT 40 / Max Tool Length: 320 mm
9	Type of drills	HSS: Max 35 mm (direct) HSS: Max 40 mm (with leading drill) Drill insert (spade drill) HSS: Max 24 mm
10	Maximum linear velocity of Y axis (Transverse movement of spindle)	6000 mm/min
11	Maximum X-axis linear velocity (Transverse spindle motion)	6000 mm/min
12	Maximum linear velocity of Z axis (Spindle transverse motion)	6000 mm/min
13	Effective x-axis motion course in three spindles	500 mm
14	Spindle movement accuracy	± 0.02
15	Machine's drilling accuracy	Depended to drill life and quality
16	Workpiece referencing system	By optic sensor install on gantry
17	Cooling system	Misting Coolant - Internal & External
18	Monitoring	3X (CCD Camera) + 32” LCD TV
19	Number of clamps holding the workpiece	2 vertical hydraulic clamps on the gate
20	Axis A motor and gearbox (Longitudinal movement of the workpiece)	AC Servo Motor: 3 Kw – 1000 rpm Low Backlash Gearbox Rack & Pinion + Linear Guide

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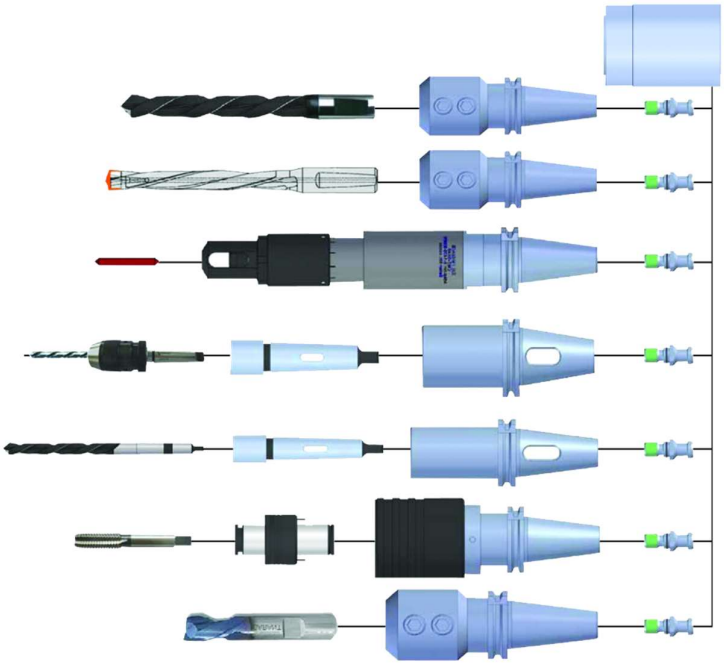
Main Technical Specifications

21	Y-axis motor and gearbox (Transverse spindle movement)	AC Servo Motor: 2 x (1Kw – 1000 rpm) Direct Flexible Coupling Ball Screw + Linear Guide
22	X-axis motor and gearbox (Longitudinal movement of spindle)	AC Servo Motor: 2 x (1Kw – 1000 rpm) Direct Flexible Coupling Ball Screw + Linear Guide
23	Z-axis motor and gearbox (Spindle forward motion)	AC Servo Motor: 1Kw – 1000 rpm Electrical Break Pulley and Timing Belt Ball Screw + Linear Guide
24	Panel's degree of protection	IP52
25	Machine's Electric Power Consumption	Nominal Current @ max. load = 380 V – 50 Hz – 3 Ph - 90 A
26	Unit cooling system	AC Motor 0.25 KW – 1400 rpm
27	Overall Machine's Dimension (mm)	L: 2400 mm, W: 7000 mm, H: 3200 mm
28	Overall Machine's Weight (kg)	80700 kg
29	Infeed Conveyor Length	12m
30	Outfeed Conveyor Length	12m
31	Weight per Linear Meter	750 kg/m



Drilling Machine Toolkit

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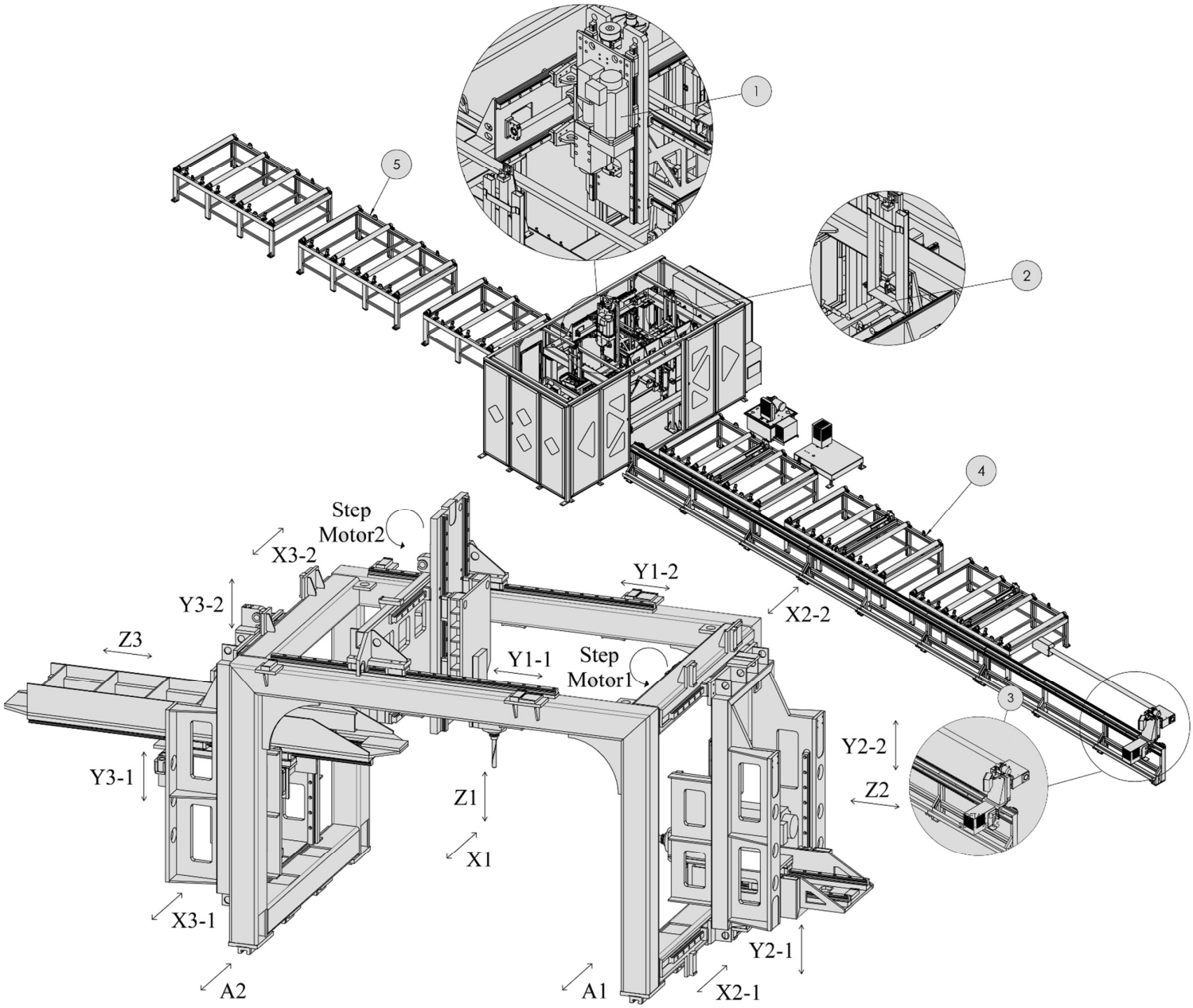

No.	Item
1	Drilling Unit Spindle
2	2 Tools replacement System
3	3 Workpiece Pusher
4	4 Infeed Conveyor
5	5 Outfeed Conveyor

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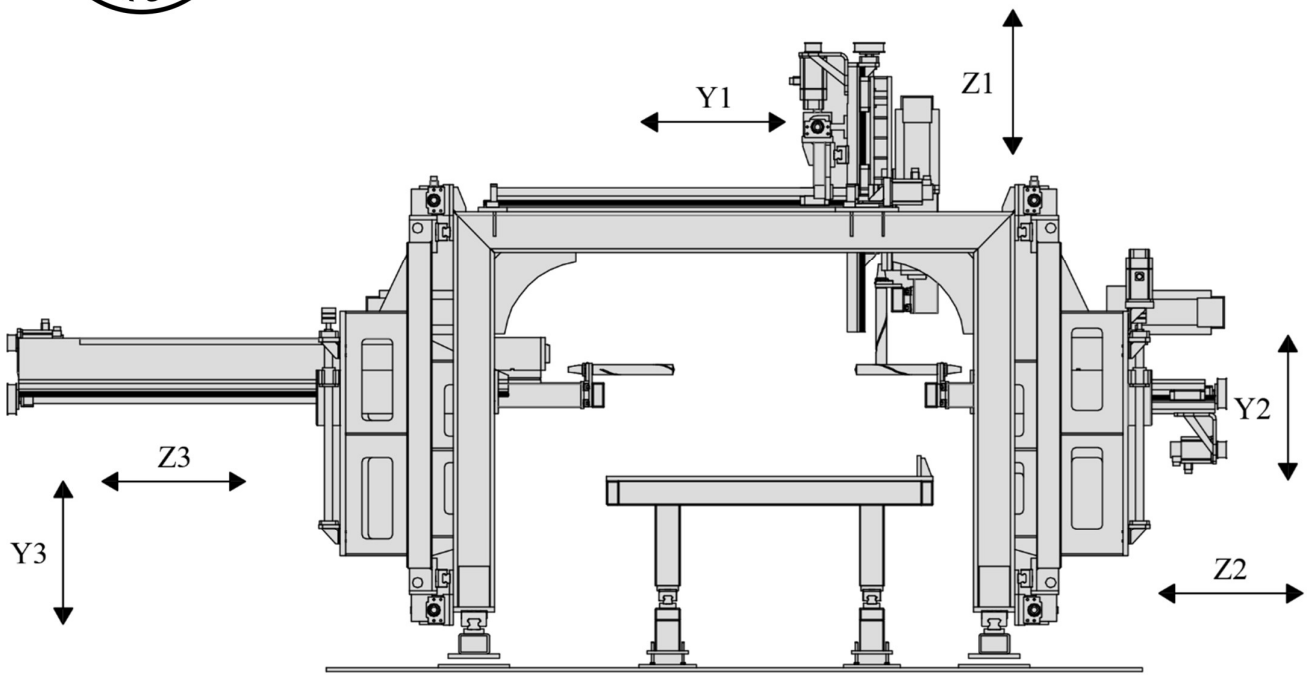

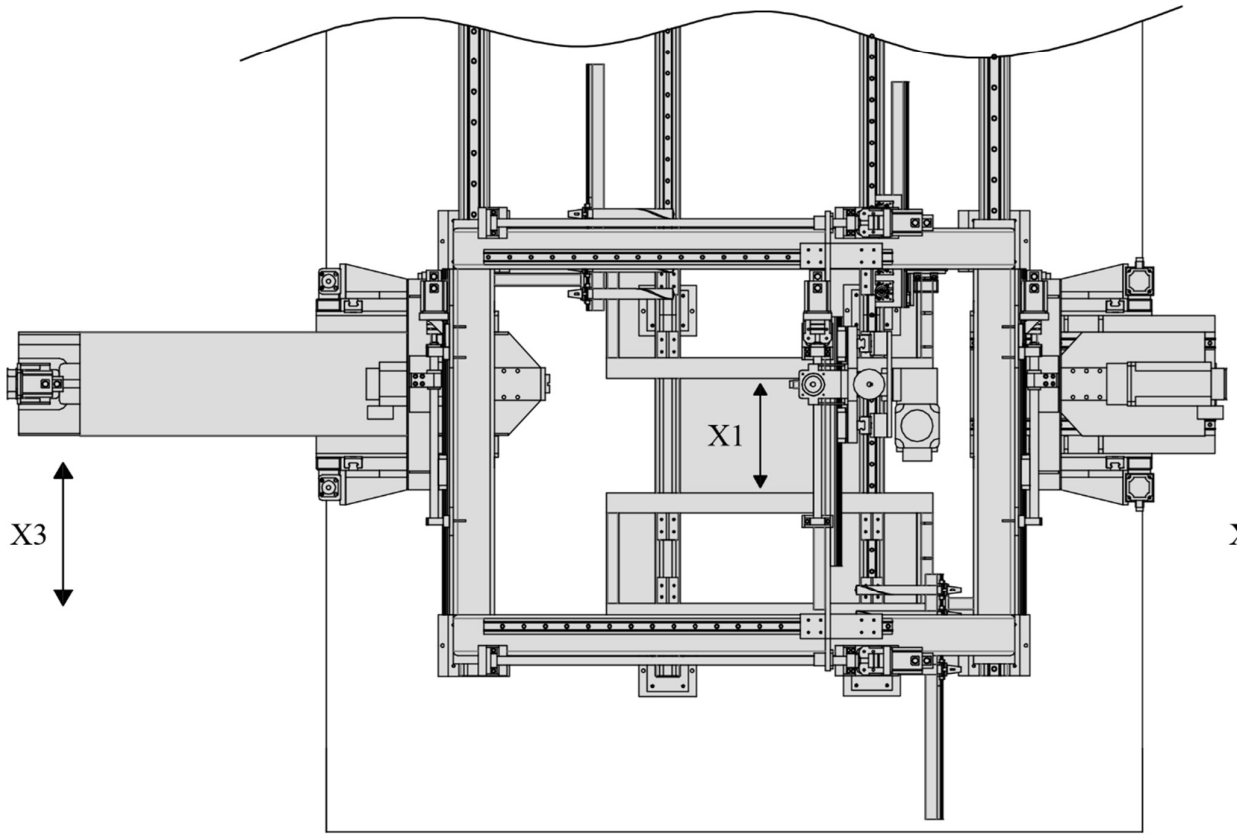

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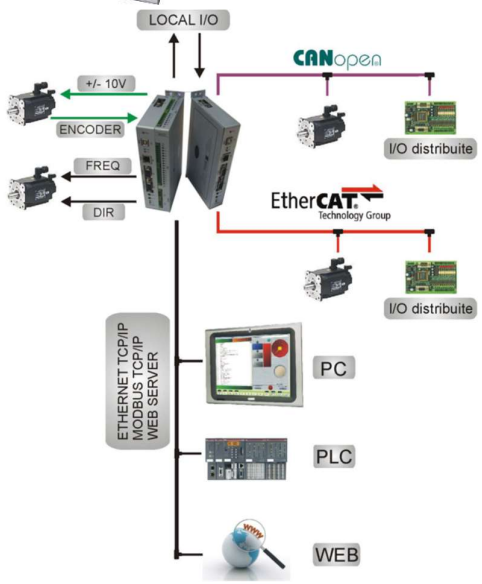
Machine Control System

Promax (Italy)



NG WARP (Preliminary)

Technical Specifications:

- New Processor Cold Fire 410 Mips
- 16 axes +/-10 V- 32 axes STEP/DIR
- 64 axes Can Open or Ethercat
- RAM 64 Mb, FLASH 64 Mb, 32Kb battery
- SSD 64 Mb with Fat 16
- 1 x Ethernet 10/100 TCP/IP
- 1 X ETHERCAT CoE
- 1 RS232 - 1 RS232/485
- Max 128 Inputs PNP 24 Vdc Opto
- Max 112 Outs 1,2 A 24 Vdc Opto
- 8 Analog Inputs 12 Bit
- Plc cycle
- Linear Interpolation, Circular, Elicoidal
- TCP/IP Modbus
- Component Framework .NET
- Gear and Ecam
- VTB language

NGWarp is the new controller Promax HIGH end. Fully compatible with NG35 but with a processor about 3 times more powerful. NgWarp integrates ETHERCAT on a dedicated Ethernet channel. Equipped with operating system RTOS (Real Time Operating System) you can manage sessions INTERPOLATION IN MULTIPROCESS.

Axes:
ANALOG +/- 10V max 16
CAN OPEN max 64 and I/O
ETHERCAT max 64 and I/O
STEP/DIR. Max 32 freq Max 25 Mhz
Through a second Ethernet port, you can manage the following protocols:
MODBUS TCP/IP
WEB SERVER
RPC (remote procedure call)
DEBUG
There are also two RS232 serial ports, one of which can be configured RS4845. Both ports operate the ODBUS RTU protocol.

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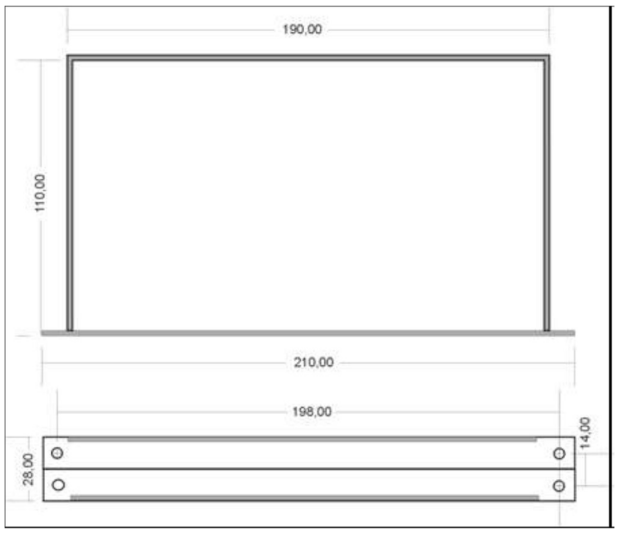
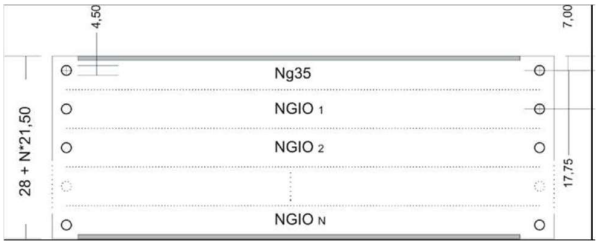
NGWarp CPU

1	CPU	MFC 5441x Cold Fire 32 Bit 250 Mhz 410 Mips
2	RAM	64 Mb ram – 64Mb flash code – 32 Kb ram clock with battery 64 Mb flash Disk
3	RS232/485	2 - RS232 1 /485 with MODBUS RTU master/slave
4	ETHERNET	1 - RJ45 10-100 Mb: TCP/P – MDBUS TCP/IP – WEB SERVER – RPC (remote procedure call) - DEBUG
5	ETHERCAT	1 - Master 100 Mb/sec CoE Can Over Ethercat
6	CANOPEN	2 – Master/Slave DS301 – DS401 – DS402 baud from 10 Kb/sec up to 1 Mb/sec
7	INTERPOLATION	Linear – Circular – Elicoidal – Linear fast - Gear - Ecam – Interpolation ULTIPROCESS
8	AXES	Up to 16 +/- 10V with encoder (max 1 Mhz) up to 64 Can Open or Ethercat up to 32 STEP/DIR LINE DRIVE Freq max 25 MHZ
9	ANALOG INPUTS	8 - 10-bit 4-20 Ma or 0-10V (all voltage with external resistor)
10	POWER SUPPLY	18-35 Vdc - 2,6 W max ONLY CPU
11	TEMPERATURE	From -20ºC to 70ºC
12	IP LEVEL	IP20
13	DIMENSION	W 30 H 190 D 110 (mm)

NGWARP LOCAL BUS EXPANSIONS

1	NGIO	16 – Digital Input PNP 24 VDC Opto / 14 - Digital Out 24 VDC opto 1,2 A 2 - I encoder Input Line Drive 5 V freq Max 1 Mhz 2 – Analog Out +/- 10 V 12 bit 2 – Rele' Out Max 35 V - 1 A
2	NGPP+	16 - Digital Input PNP 24 VDC Opto 14 - Digital Out 24 VDC opto 1,2 A 4 - Axes STEP/DIR line drive freq MAX 25 MHZ 4 – Fast interrupt Input 1 - Analog Out 0 - 10 V 12 bit





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ISOUS FEATURES

1	Interpolated Axes	9 for 8 processes
2	Positioned Axes	32 for 8 processes
3	Interpolation	Linear, Circular, Helicoidal, HSM, 3D, R.T.C. P
4	Rotative Access	9
5	Axes resolution	Min. 0.000001 mm
6	FEED Resolution	Min. 0.001 mm/min
7	Canned Cycles	G81, G82, G83, G84
8	M Functions	Inside PC in G Code – Inside CN in VTB
9	Subroutines	Gosub – Goto a label
10	Variables / Array	32767 – Double
11	Mathematics	SQRT, LOG, SIN, COS, TAN, ASIN, ACOS
12	Conditionals Cycles	IF, ELSE, END-IF
13	Iterative Cycles	LOOP, END_LOOP
14	Gcode Dimensions	Without Limit – Utilization PC RAM
15	PLC	Base I/O from Gcode – Real Time from VTB
16	Tool Compensation	Diameter – Length
17	Work Origins	256
18	Offset Origins	256
19	Tools per Head	256
20	Heads	256
21	Backlash	On all axes
22	HandWheel	On all axes
23	TANGENTIAL AXIS	Definable – with special Interpolation
24	Gantry Axes	Definable for each axis
25	Master/ Slave Axes	From Gcode G108
26	AFC	Adapted Feed Control
27	3D Interpolation	With Calculation automatic 3D threshold edge
28	Filters	N.U.R.B.S (Non-Uniform Rational Bspline) NOISE RLS (Remove Len Segmenti) SMOOTHING MILD
29	Recovery Processing	From Line Number, TN, From Marker
30	Retrace	From JOG Axes and resume from any point
31	Preview	3D with check out of limits
32	Editor Gcode	Intelligence with Help On line
33	Axes limit Management	After work
34	Work Plane	On each pair of Axes
35	User interface	Customizable
36	Plugin	From ProMax Store
37	S.O.	Windows 7 – Windows 8.1 – Windows 10