

5 AXIS DRILL GRINDING CENTER

For drills Ø 5 to 40 mm
Until 2 meters long



DETAILED DOCUMENTATION

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1. AVYAC MACHINES COMPANY

Avyac Machines factory in Veauche, France



MAIN AVYAC REPRESENTATIVES WORLDWIDE

Germany



Obere Hauptstr. 46
78582 Balgheim
Tel +49 7424/501190
www.haller-wst.de

Canada - United-States



WILLIAMS & WHITE
EQUIPMENT

Williams and White Equipment Canada
6307 Laurel St, Burnaby, BC V5B 3B3
Canada
Phone: 778.873.1942

Williams and White USA LLC
5565 Glenridge Connector NE STE 850
Atlanta, GA 30342
USA
Phone: 678.673.7411

AVYAC MACHINES, ZAC L'ORME LES SOURCES 42340 VEAUCHE - FRANCE
Tel. 04 77 53 99 12 - Fax 04 77 53 60 34
Mail : contact@avyac-machines.com - <http://www.avyac-machines.com>

2. PRESENTATION NC540 GRINDING CENTER

2.1. INTRODUCTION

LARGE RANGE DRILLS GRINDING CENTER NC540 5 AXIS

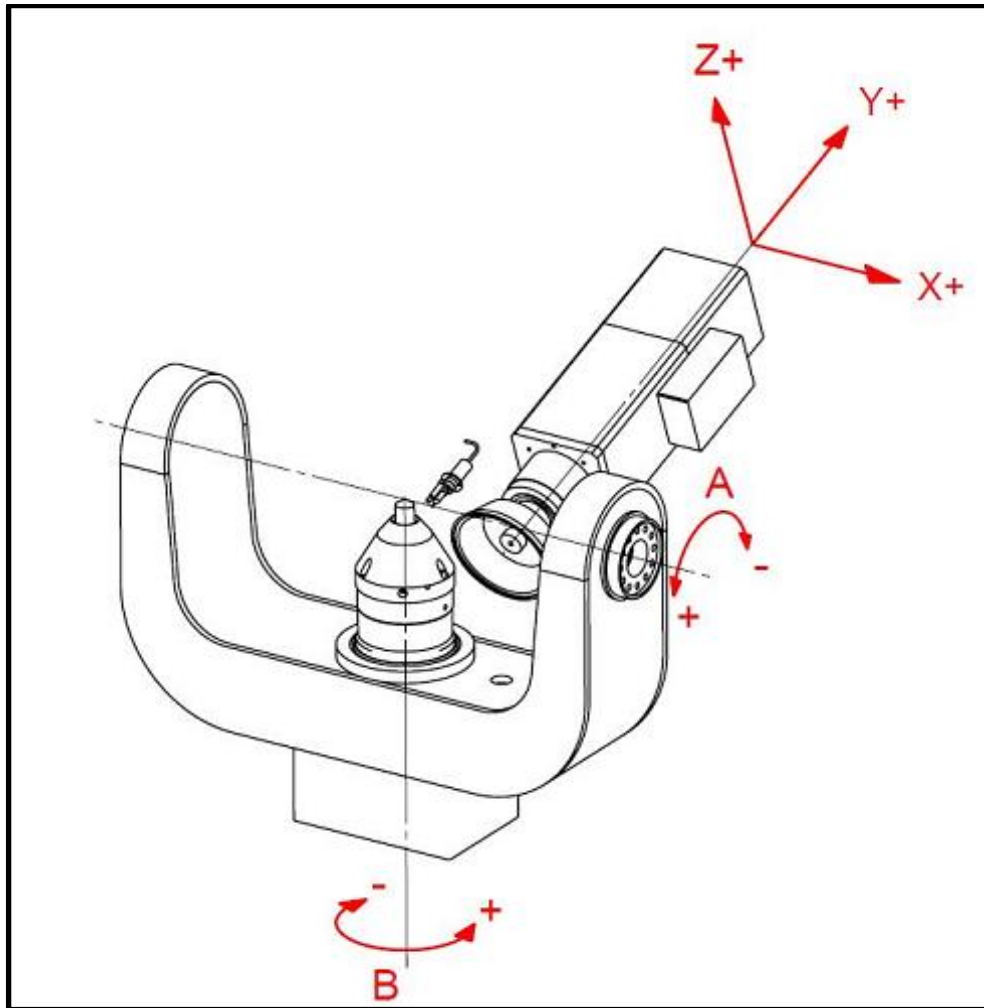
Equipped with a Siemens 840D SL numerical control

Tools Diameter: Global range from Ø5 to 40mm

Maximum length of tools

- **Standard machine :** Manual loading 1000 mm
Automatic loading 450mm
- **Extended machine:** Manual loading 2000 mm
Automatic loading 450mm

2.2. AXIS KINEMATIC



X AXIS: Stroke 250 mm –longitudinal slide

Y AXIS: Stroke 200 mm –transversal slide

X and Y slides are equipped with crossed roller design. They are driven by precision ball screws (diameter 16 mm and step 5 mm) and controlled by synchronous motors.

Z AXIS: Stroke 200 mm – Vertical slide.

Z axis is equipped with crossed roller and is driven by precision ball screw (diameter 16 mm and step 5 mm) and controlled by synchronous motor with brake.

The entire axes are controlled with synchronous motors with absolute coder (From B&R or SIEMENS for linear axis, hollow shaft motors from STOBBER for rotary axis).

A AXIS: Stroke 180° - specific rotary axis (supports the dividing tool holder)

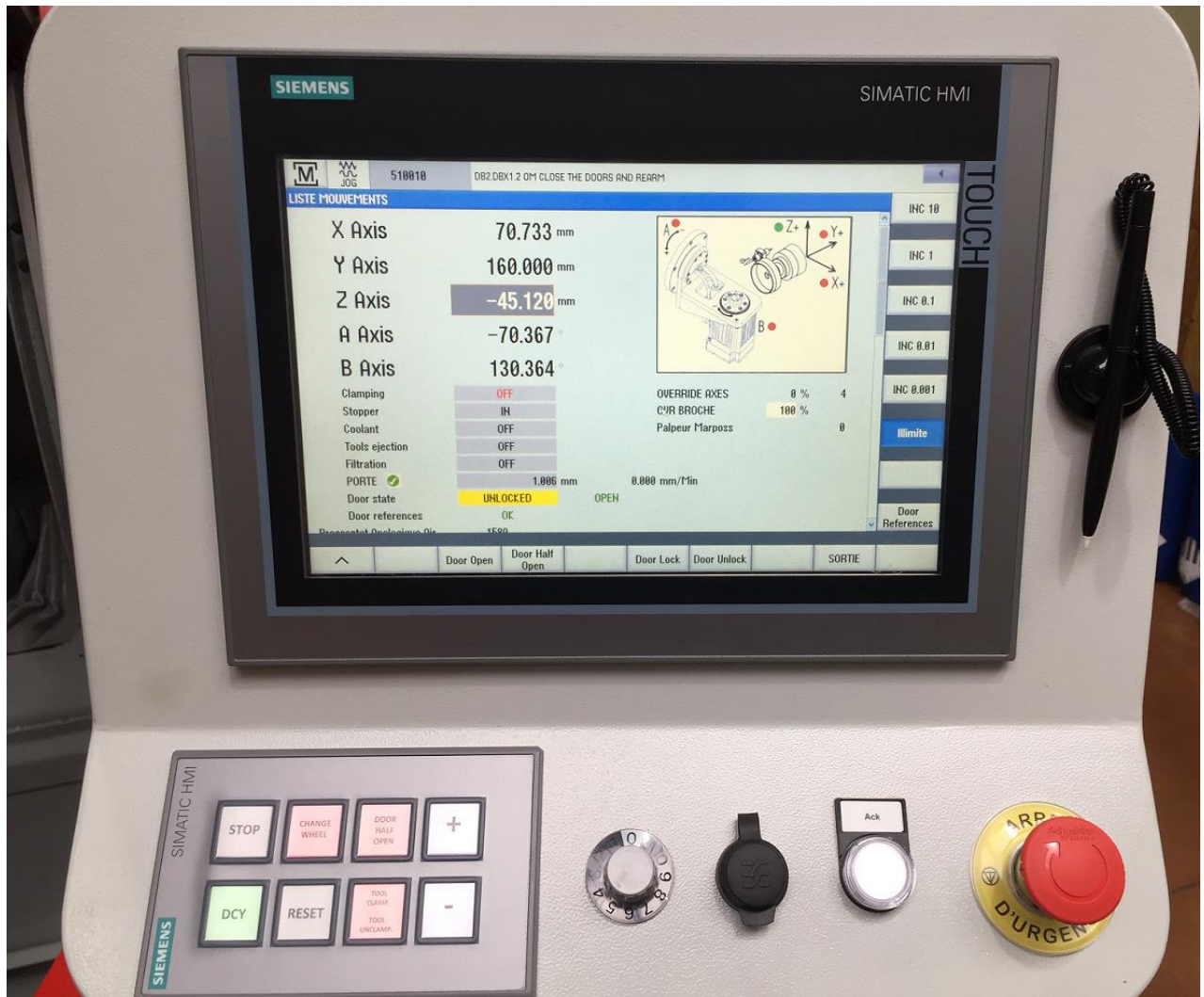
Inclination of the dividing tool holder allowing the evolution of clearance angles. Controlled by synchronous motor with brake.

B AXIS: Stroke 360° - Dividing tool holder

Conical Spindle, directly set on direct drive hollow shaft motor for a perfect concentricity (0.005 mm). Automatic pneumatic locking of the drill into W25 collets (or W32 – option A60.02.000). Loading of the drills by mean of attraction without specific equipment.

2.3. NUMERICAL CONTROL

SIEMENS 840D SL NC, SIMATIC ITC1200 with operator front panel 12" color TFT (1280x800 pixels). Ethernet Bus and connection SIEMENS "DRIVE-CLIQ"

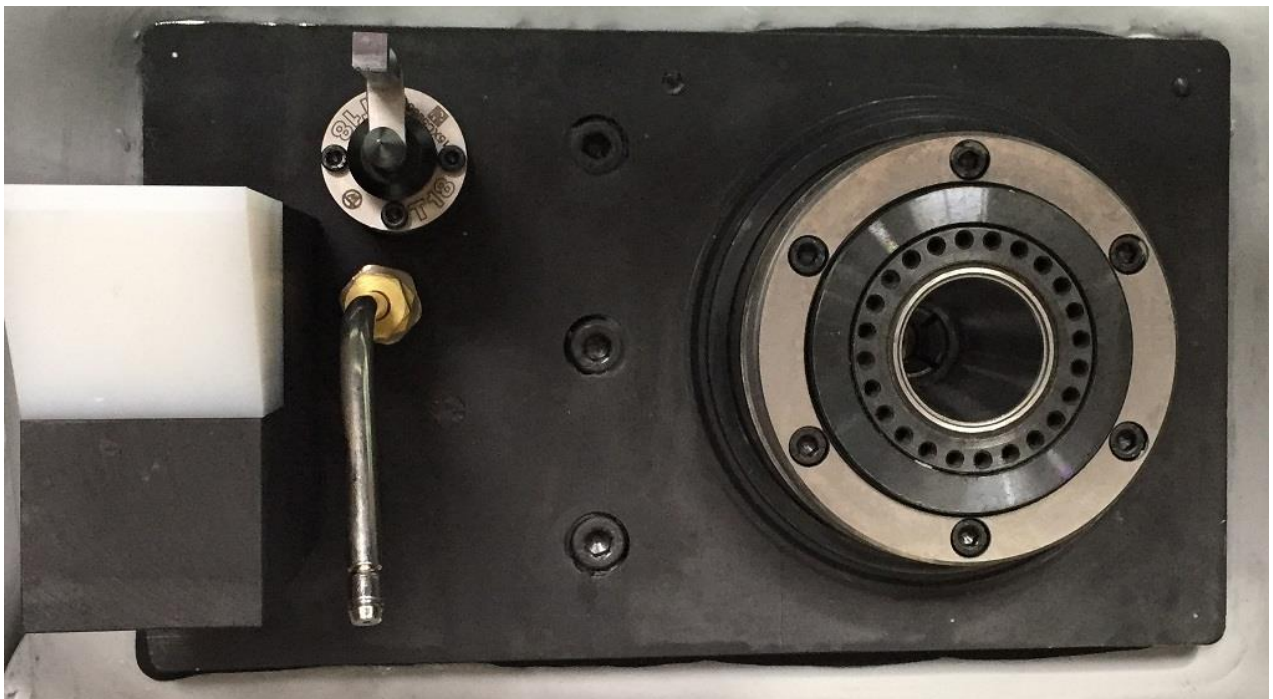
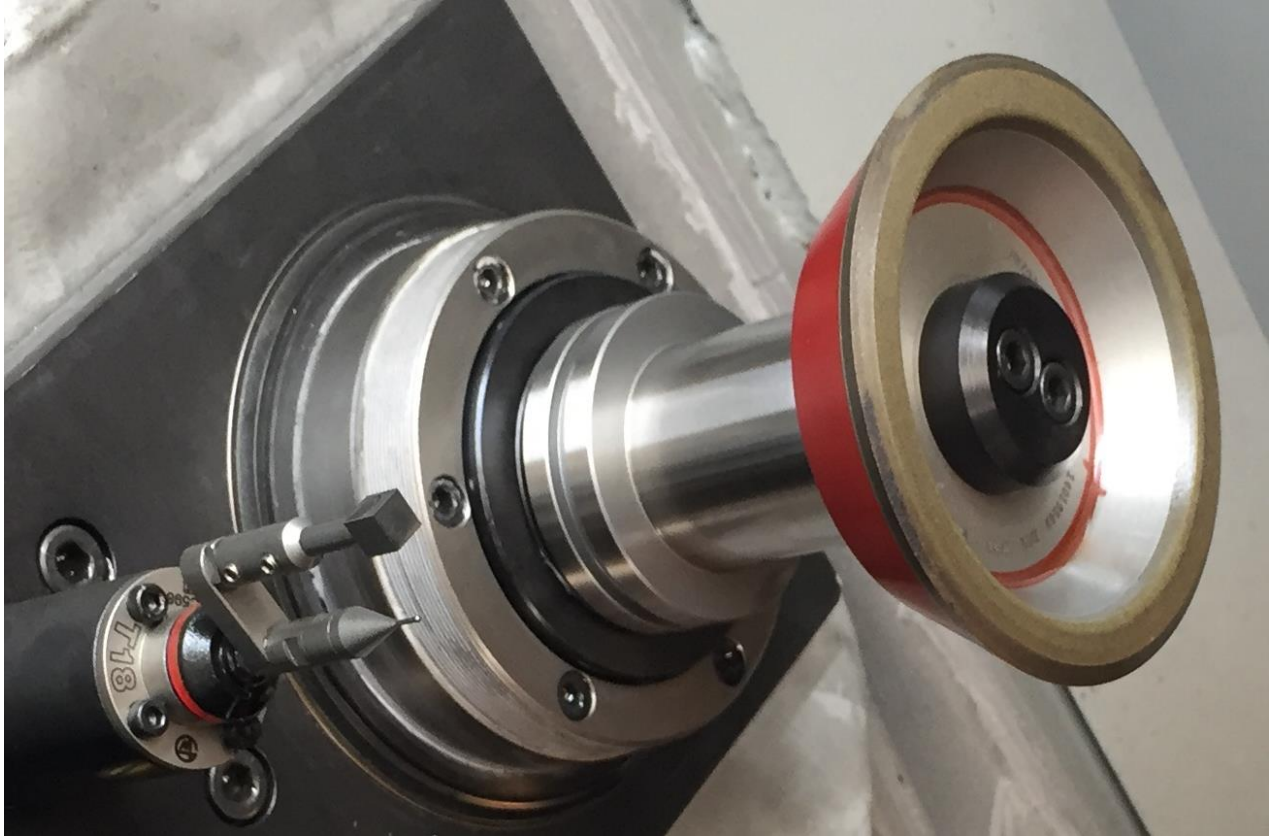


Sample of screen

2.4. ELECTROSPINDLE

Compact, precise and water tight motor grinding wheel spindle, with a speed of 3000 to 12000 rpm. Allows the use of borazon or diamond grinding wheel Dia.100-150 mm. Equipped with a grinding wheel device ISO 30 cone, pneumatic clamping.

Three head motor. 4.5 kW, 400 Volts



2.5.TOOL DETECTION

Probing precision: 5 microns

Sensor MARPOSS equipped with 2 stylus (1 cubic 6 mm, 1 with ball diameter 1 mm)

Used for:

- Detection of drill length
- Drill detection (to find the flute)
- Drill indexing (to find the lip position)

A compressed-air tube starts at the end of the cycle, during the loosening and of the unloading of the drill, to facilitate its ejection

2.6.DRILL LOADING AND BRAKE DEVICE

That it is manually or automatically with the option plate, the loading is done by gravity. The drill is guided in a tube, then slowed down by an intermediate plate (different forms available) which is retracted automatically, to arrive finally on a plate of indexing (deadened by spring) which automatically positions the length of exit of the drill.

2.7.GRINDING SOFTWARE

Graphic interface specific for drill grinding. Very easy to use.

Each parameter goes with a small obvious drawing allowing introducing value without thinking about sign, unit and so on ...

You can see the different grinding available on paragraph 3.

2.8.ELECTRICAL CABINET

In conformity with CE and ELECTROMAGNETIC COMPATIBILITY

Three head electrical equipment 400 volts - 50 Hz.

Lighting 24 V - 50 Hz by fluorescent tube, watertight IP65.

Suppresser – Ventilated

2.9.COOLANT DEVICE

Tank of decantation for the coolant liquid (capacity 200l) located in the frame.

Pump with flow of 90 L/mm is driven thanks to digitally controlled system.

2.10. COMPRESSED AIR

Allows : To tighten the drill, to give the probe position, and to get cold the electro spindle.

Pressure: 6 bars.

Including a digital air pressure sensor, controlled by NC. (ref. AVYAC T405.101)

2.11. SAFETY

Electronically and mechanical safety-device.

2.12. COLOR

Red RAL 3020, dark Grey RAL 7012 and light Grey RAL 7035

2.13. DIMENSIONS

Weight: 1750 kg (without option), 2000 kg (with filtration, version 2000)

Dimensions of Standard NC540 (feet included)

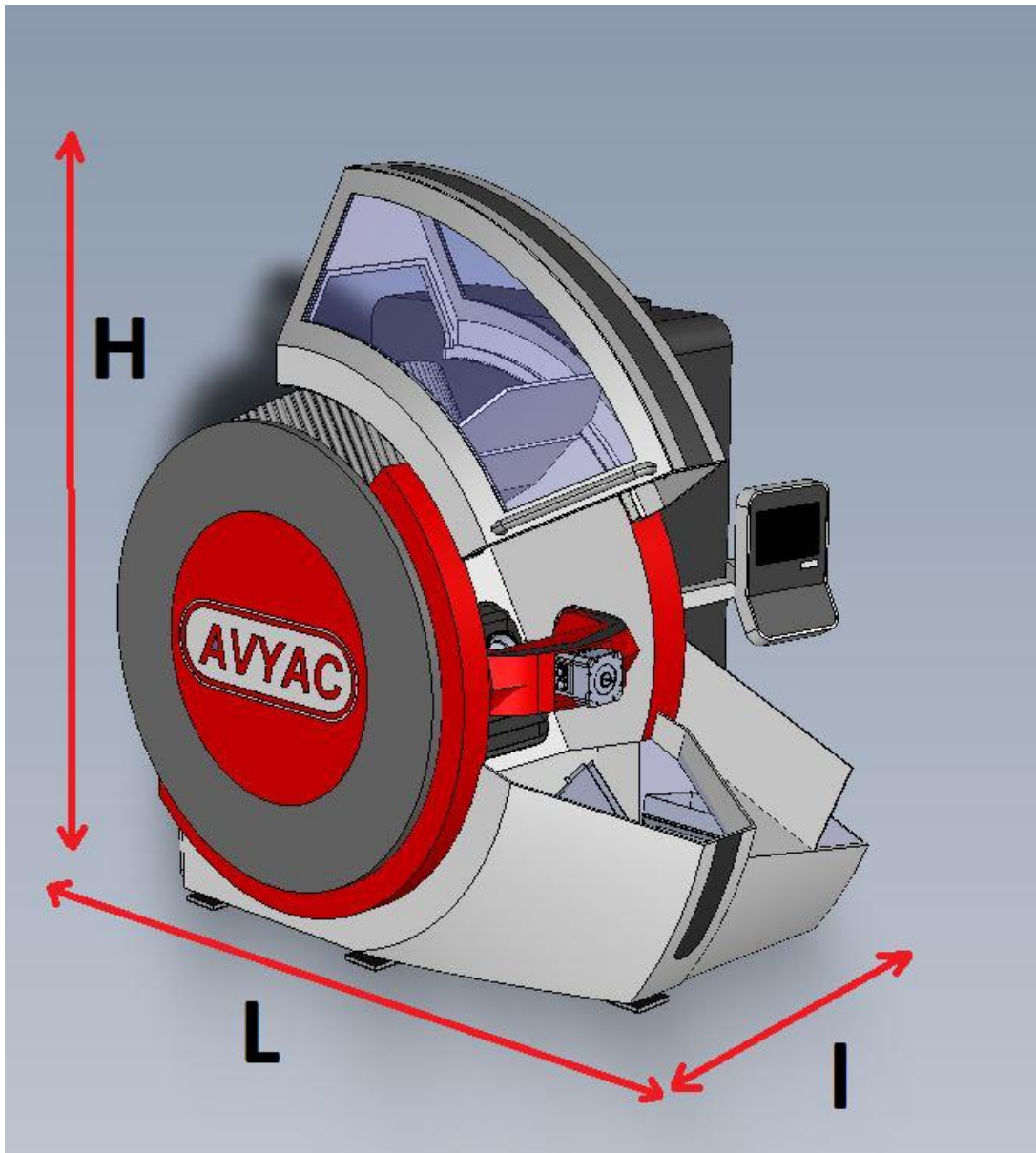
Door Closed (l, L, H): 1,70m x 2,40m x 2,40m (5.6ft x 7.9ft x 7.9ft)

Door Open (l, L, H): 1,70m x 2,40m x 2,65m (5.6ft x 7.9ft x 8.7ft)

Dimensions of Version 2000 NC540 (feet included)

Door Closed (l, L, H): 1,70m x 3,40m x 2,40m (5.6ft x 11.1ft x 7.9ft)

Door Open (l, L, H): 1,70m x 3,40m x 3,45m (5.6ft x 11.1ft x 11.3ft)



2.14. MAINTENANCE

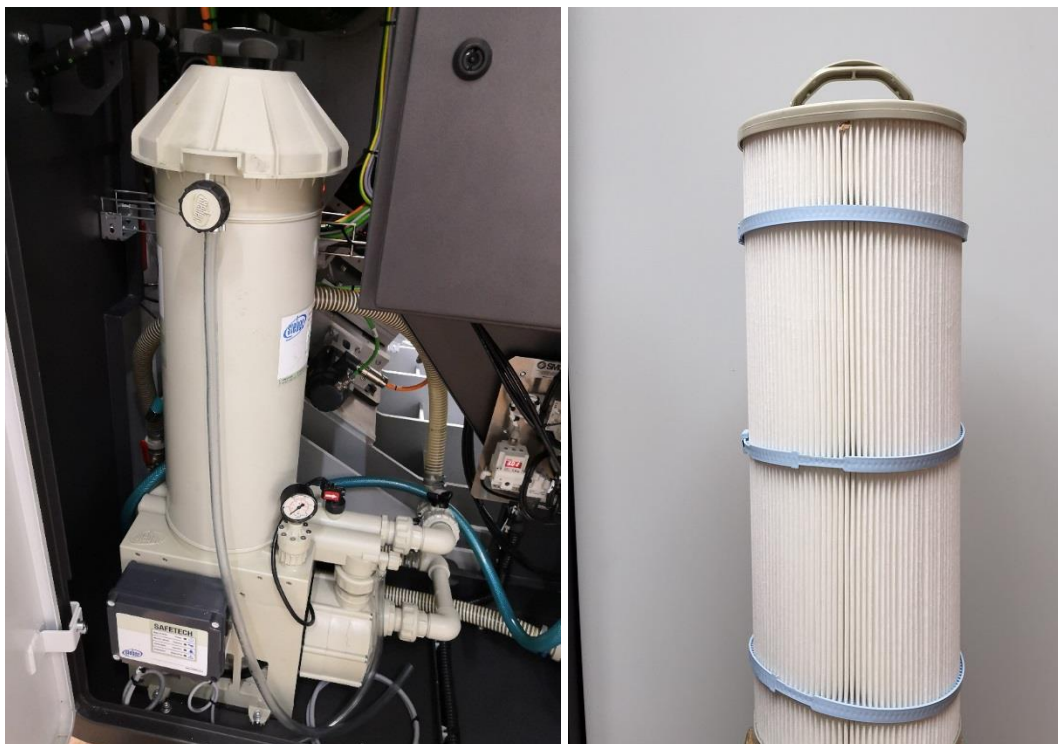
Very easy access for maintenance (board that can be dismantled)

3. OPTIONS

3.1. Oil filtration, standard or magnetic (ref. AVYAC A55.21.000)

A coolant filtration can be installed directly in the machine, for easy access and maintenance. This 5 μ or 20 μ filtration with cartridge is recommended to increase the quality of grinding and general machine maintenance, available for oil or emulsion coolant. It's also possible to use a magnetic cartridge instead of the standard one for HSS residue.

The filtration device is controlled with the machine NC.



3.2. Fire Extinguisher System (ref. AVYAC A55.25.000)

This automatic fire extinguisher system is highly recommended for machine grinding with oil coolant. The device consists in an automatic detection, a manual command, with visual and acoustic signal. The CO2 tank is set directly in the machine (5Kg bottle).



3.3. Transformer (ref. AVYAC A60.13.001 / A60.13.002)

The machine must be connected with an electrical network TN type (neutral connected to earth). Else, (IT or TT), it is necessary to set up an isolation transformer up stream the main disconnecting switch. The guaranty will not be applicable if those orders are not followed

Transformer of insulation: 10 KVA 400V/400V, 50/60 HZ: **A60.13.001**

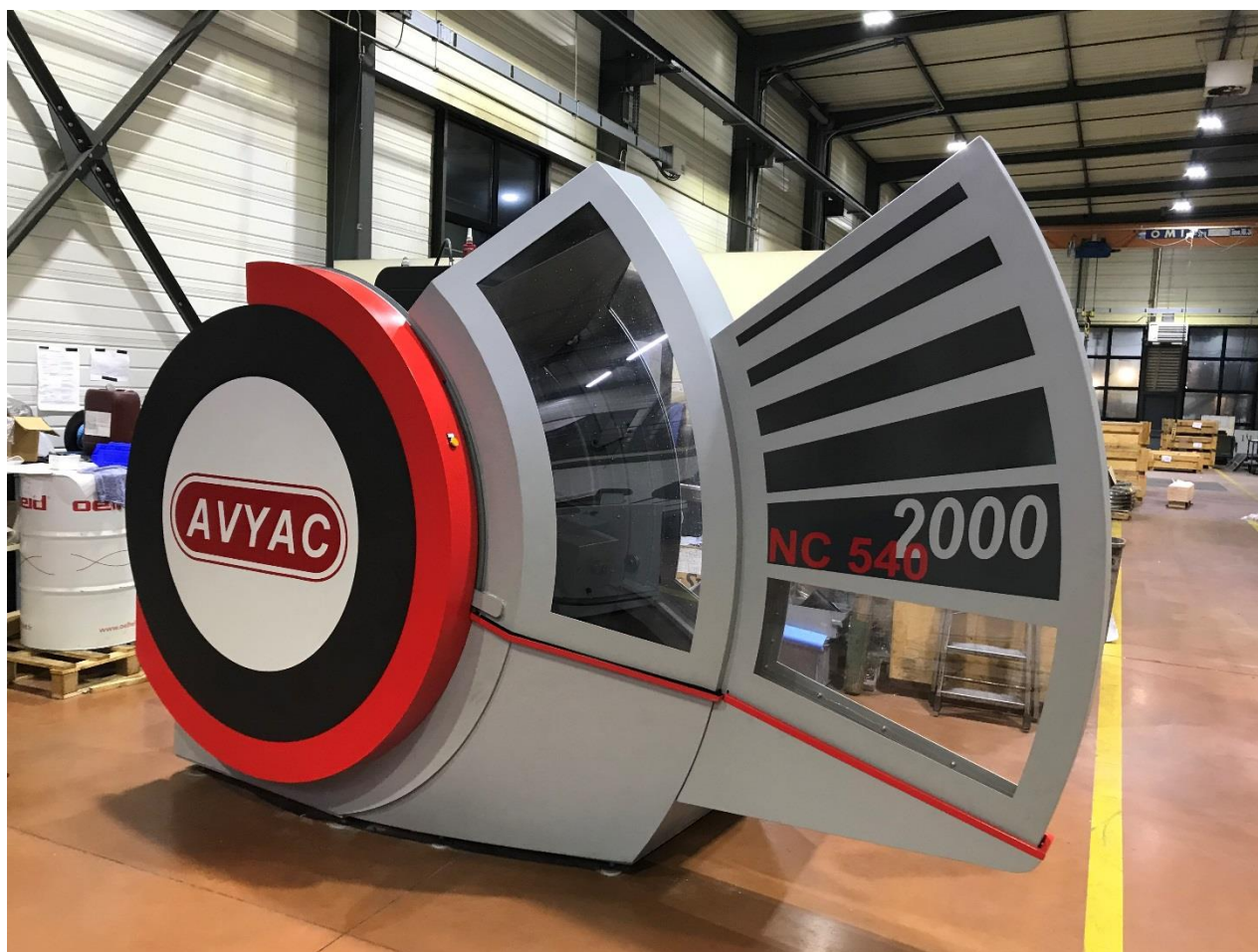
For connection to electrical network with 3 Phases 230V, 50HZ like in USA.

Transformer for USA: 10 KVA, 400V / 230V, 50/60 HZ: **A60.13.002**

A place is envisaged in the electrical equipment box for the transformer. This option thus does not generate additional obstruction.

3.4. Long frame for drills up to 2 m (ref. AVYAC 870.50.000)

Increase the size of the frame compared to standard frame to be able to grind drill up to 2m long.



3.5. Loader with round table – Standard unloading (ref. AVYAC 870.47.000)

The round table (diameter 1050 mm) installed on the back of the machine, allows an automatic loading of 90 drills from diameter 5 to 25 mm and up to 500mm long. The round table can be personalized at will according to the need of the customers. (drills diameters, length, driver...)

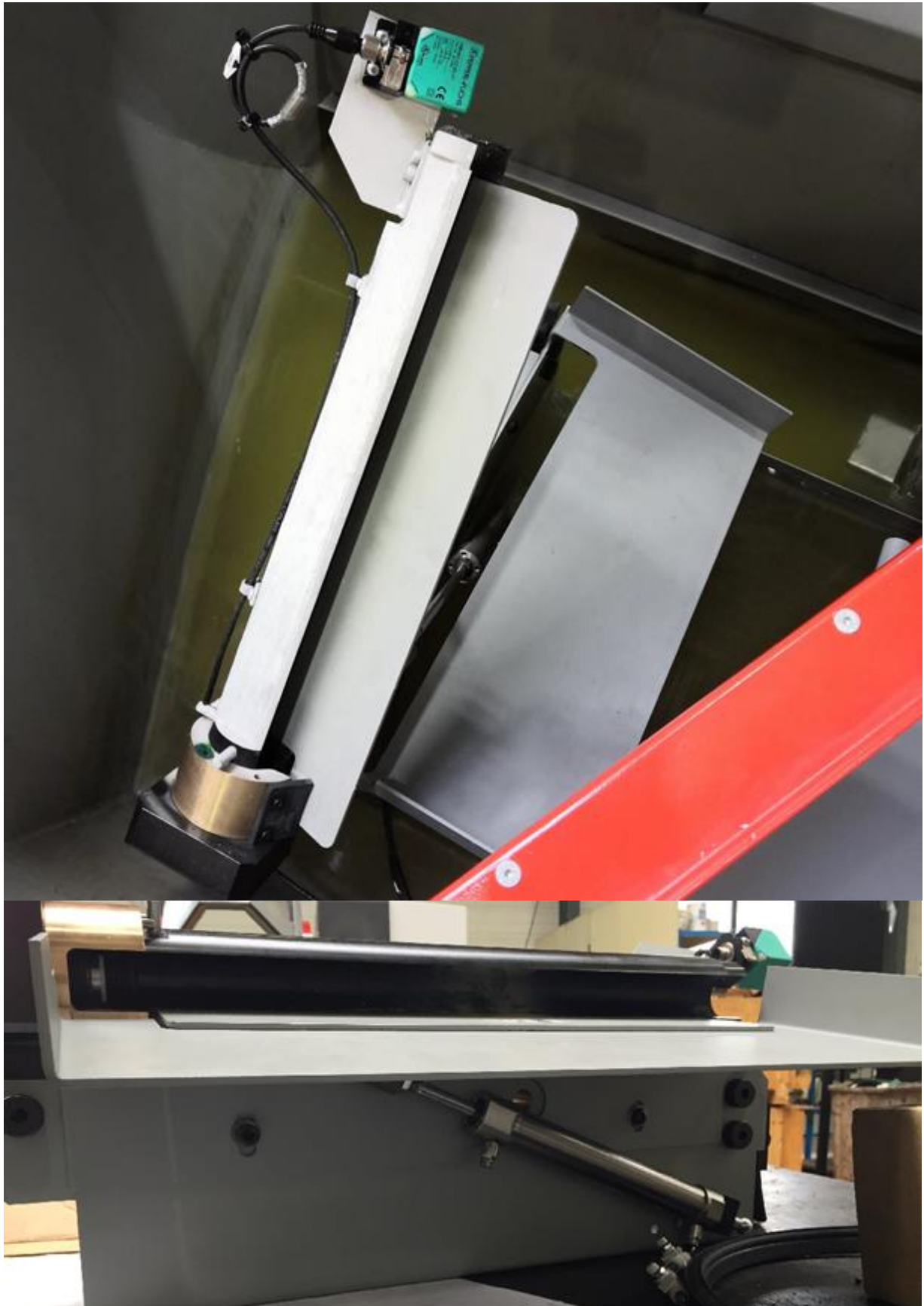
The height of the plate is variable according to the length of the drills to charge. The diameter of the holes can vary from 5 to 25 mm according to the diameters of drills. The plate is ordered by CN and is pulled by an absolute motor.

The standard unloading for HSS drills is included in this option.



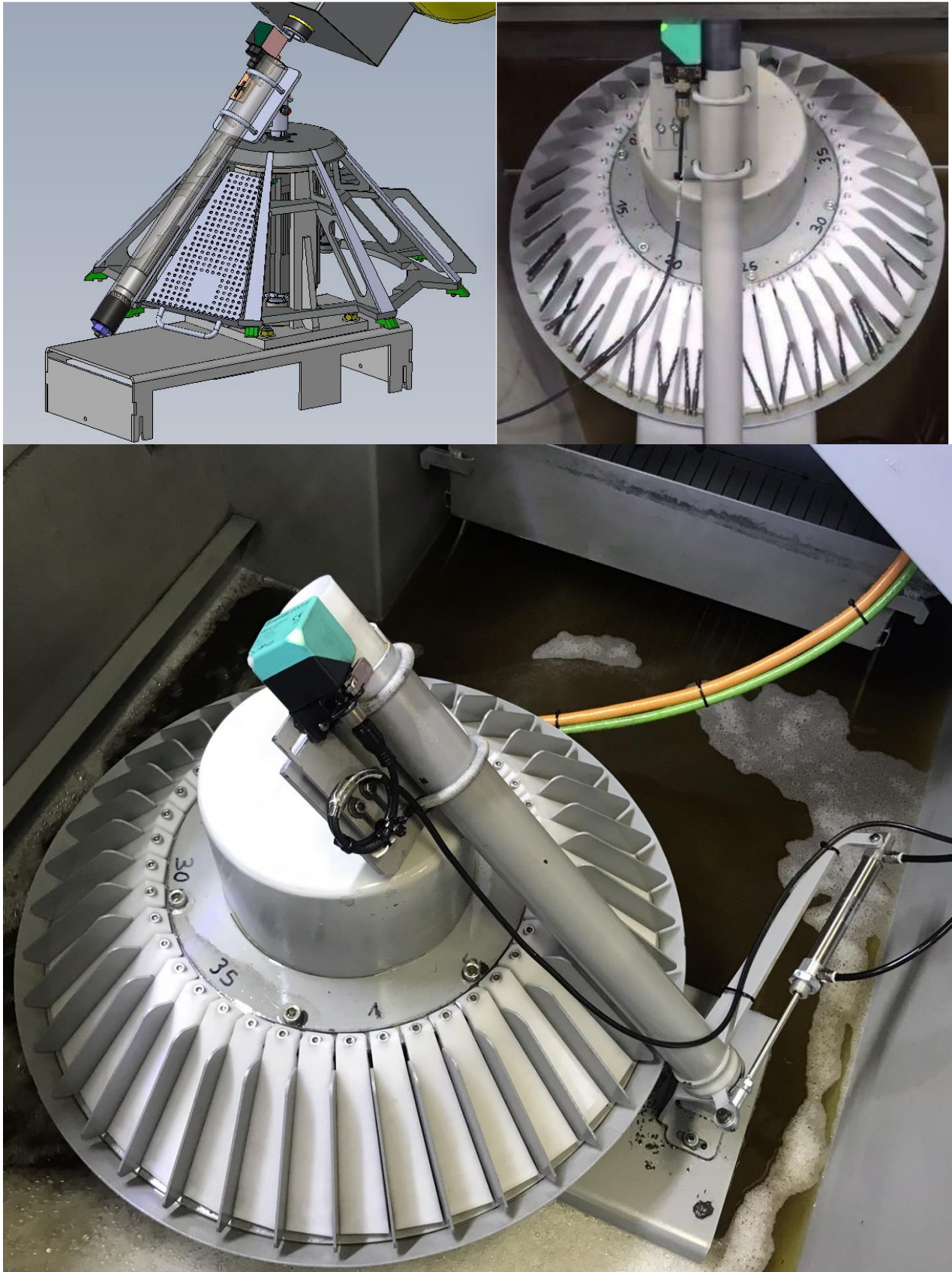
3.6. Unloading for carbide drills: (ref. AVYAC 870.47.050)

If you're grinding carbide drills, it will be necessary to choose this solution. The installation consist in a pneumatic actuator that prevents the drill from getting damaged when sliding into the basket.



3.7. Indexed unloading in a rotary basket (ref. AVYAC 870.48.000)

The unloading in a rotary basket is useful if you want the grind different diameter of drills and then sort them in different basket.



3.8. Mist catching Filtermist (ref. AVYAC A55.24.000)

Filtration using centrifugation with impact
Auto cleaning system with constant efficacy
Flow 1250m³/h
Diameter of aspiration : 150mm
For whole oil: add a finishing filter.
Filter for dry smoke (carbide drills): **A55.24.006**

A55.24.003 : maintenance set

A55.24.004 : Oil filter

A55.24.005 : Air filter



3.9. Electrostatic Mist catching El Baron (ref. AVYAC A55.27.000)

(Variant with system with centrifugation A55.24.000)
Aspiration's flow 200 to 550 m³/h
Supplied with aspiration box for integration into the machine
Supplied with 1 electrostatic cell as spare part



3.10. *Connection to centralized filtration (ref. AVYAC A55.21.001)*

Installed instead of the coolant pump, the solenoid valve controlled by the machine NC can connect your machine to the central filtration of the factory. An adapted pump will lift the polluted coolant to the filtration, the valve and electronic levels will manage the clean coolant back in the machine, directly use for lubrication.



For other adaptations, please contact us.



3.11. *Guaranty extension*

Guaranty extension for 2 years (1+1): **860.60.011** for France

Guaranty extension for 2 years (1+1): **860.60.012** for Europe

Guaranty extension for 2 years (1+1): **860.60.013** for other countries

3.12. *Option internet remote access (ref. AVYAC A60.05.000)*

Modem M2Me solution.

Save your programs and backup with this encrypted modem by **Etic Telecom**.

Easy to use, it's highly recommended for software maintenance, updates, after sales services.



4. THE GRINDING SOFTWARE

Diameters: From 5 to 40 mm

The machine is provided with the universal drills program.

All extra grinding request is an option. Depending on the programs required, the accessories must be chosen to cover the clamping systems, the wheels holders and the type of wheel required.

For other grinding, please consult us.

4.1. Universal drills program (855.80.001)

Programs for drills with 2 or 3 lips, with facets or conical relief, with or without thinning

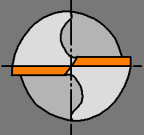
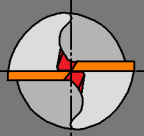
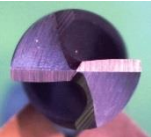
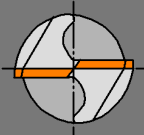
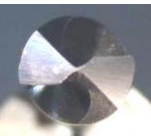
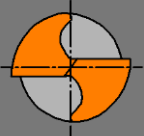
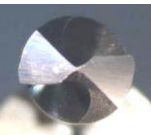
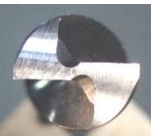
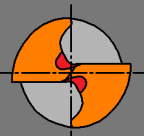
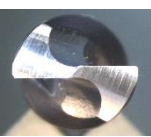
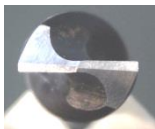
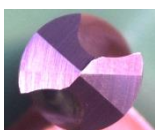
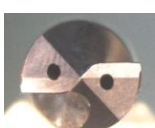
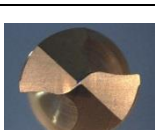
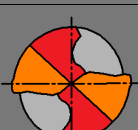
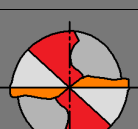
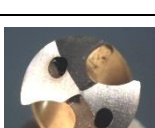
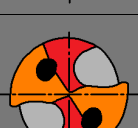
Photo	Drawing	Designation	Grinding AVYAC N°	Program+ Material required
		2 rakes	002	PGM 300 + 1 short wheel holder + 1 wheel 12V9
		3 rakes	003	PGM 300 + 1 short wheel holder + 1 wheel 12V9
		Cruciform	004	PGM 300 + 1 short wheel holder + 1 wheel 12V9
		With 2 point angles (for instance First to 120° and second one to 90°)	005	PGM 300 + 1 short wheel holder + 1 wheel 12V9
		Conic relief form A	010	PGM 302 + 1 short wheel holder + 1 wheel 1A1
		Conic relief form C	011	PGM 302 + 1 short wheel holder + 1 wheel 1A1
		Conic relief form B	012	PGM 302 + 1 long wheel holder + 1 wheel 12V9 + 1 wheel 1A1
		Special Type 013	013	PGM 302 + 1 long wheel holder + 1 wheel 12V9 + 1 wheel 1A1

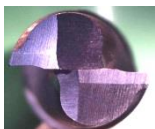
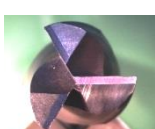
Photo	Drawing	Designation	Grinding AVYAC N°	Program+ Material required
		Special Type 014	014	PGM 300 + 1 short wheel holder + 1 wheel 12V9
		Special Type 100	100	PGM 100 + 1 short wheel holder + 1 wheel 12V9
		Special Type 101	101	PGM 300 + 1 short wheel holder + 1 wheel 12V9
		Special Type 102	102	PGM 302 + 1 short wheel holder + 1 wheel 1A1
		Special Type 103	103	PGM 100 + 1 short wheel holder + 1 wheel 1A1
		Special Type 110	110	PGM 302 + 1 short wheel holder + 1 wheel 1A1

Non-exhaustive list

Other grinding: Please consult us

4.2. End mills grinding program (855.80.003)

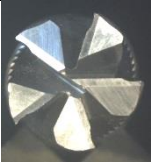
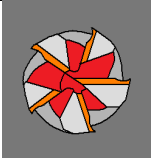
Special program for end mills, 2 to 5 lips, helix resharpening possible

Photo	Drawing	Designation	Grinding AVYAC N°	Program+ Material required
		2 flutes end Mills, radius, chamfer	202	
		3 flutes end Mills, radius, chamfer	203	
		4 flutes end Mills, radius, chamfer	204	

AVYAC MACHINES, ZAC L'ORME LES SOURCES 42340 VEAUCHE - FRANCE

Tel. 04 77 53 99 12 - Fax 04 77 53 60 34

Mail : contact@avyac-machines.com - <http://www.avyac-machines.com>

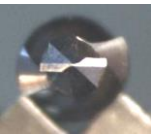
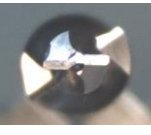
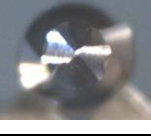
Photo	Drawing	Designation	Grinding AVYAC N°	Program+ Material required
		5 flutes end Mills, radius, chamfer	205	

Non-exhaustive list

Other grinding: Please consult us

4.3. Step drills grinding program (855.80.004)

Programs for one step or more, can require forms wheels

Photo	Drawing	Designation	Grinding AVYAC N°	Program+ Material required
		Step drill form A	032	
		Step drill form B	033	
		Step drill form B'	034	
		Step drill form C	035	

Non-exhaustive list

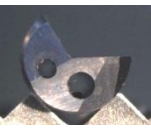
Other grinding: Please consult us

4.4. Gun drills grinding program (855.80.005)

Programs for Gundrills with 1 or 2 lips, from 4 to 7 facets, with chamfer or radius.

Clamping with collets is necessary.

		GUNDRILL 5 Facets standard*	140	PGM 146 + 1 short wheel holder + 1 wheel 12V9
		GUNDRILL 2 flutes standard*	145	PGM 300 + 1 short wheel holder + 1 wheel 12V9

		GUNDRILL 2 flutes*	148	PGM 300 + 1 short wheel holder + 1 wheel 12V9
		GUNDRILL 7 facets*	150	PGM 146 + 1 short wheel holder + 1 wheel 12V9
		Step GUNDRILL*	151	PGM 151 + 1 short wheel holder + 1 wheel 12V9

Non-exhaustive list

Other grinding: Please consult us

* For long drills (>500mm), the use of a form wheel can be required to grind specific operations like the chamfer on Gundrills.

4.5. Specific grinding program 855.80.002

Programs on demand: metal sheet, woodworking, concrete, ceramic, three lips, flat drills, engraving tools, punch pin, countersink, others.

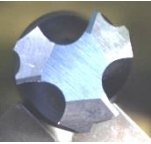
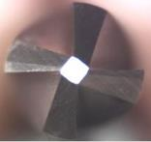
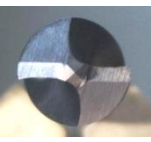
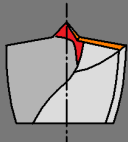
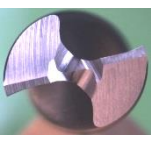
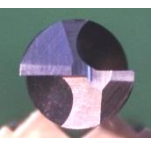
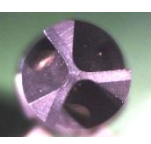
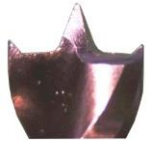
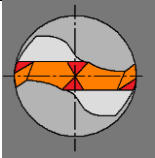
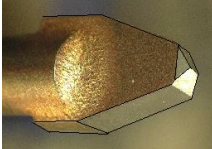
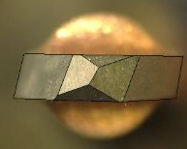
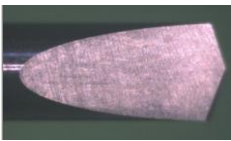
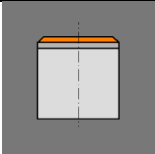
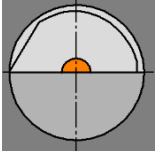
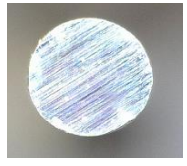
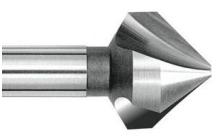
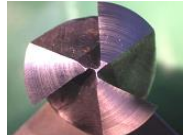
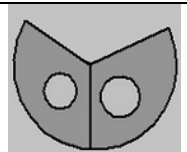
Photo	Drawing	Designation	Grinding AVYAC N°	Program+ Material required
		Core drills (3, 4 flutes)	006	
		4 flutes drill (Point angle 90°)	007	
		Standard grinding for sheet metal	019	
		Specific grinding for sheet metal	021	
		Flat end drill	025	
		3 flutes drill	126	PGM 300 + 1 short wheel holder + 1 wheel 12V9

Photo	Drawing	Designation	Grinding AVYAC N°	Program+ Material required
		Wood Working Drill Brad point	060	PGM 60 + 1 short wheel holder + 1 wheel 12V9
		Woodworking drill E form	065	PGM 65 + 1 long wheel holder + 1 form wheel + 1 wheel 1A1
		Glass and ceramic drill		
		Type 61	061	
		Type 62	062	PGM 062 + 1 short wheel holder + 1 wheel 12V9
		Engraving Tools	063	PGM 063 + 1 short wheel holder + 1 wheel 12V9
		Pin Punch		
		Countersink drill	250	PGM 250 + 1 short wheel holder + 1 wheel 12V9
		V for Gundrills	155	PGM 155 + 1 short wheel holder + 1 wheel 12V9

Non-exhaustive list

Other grinding: Please consult us

4.6. Customer drill grinding program (855.80.010)

We require drawing and samples for feasibility tests.

This reference is including the creation and optimization of a special program.

After study, we will indicate if the grinding requires a specific wheel holder or grinding wheel.

5. ACCESSORIES

5.1. Wheel holder for electro spindle ISO30 4,5 KW with automatic clamping

		Wheel holder for 1 wheel with internal diameter 20 mm	110.48.000
		Wheel holder for 1 wheel with internal diameter 32 mm	110.49.000
		Wheel holder for 2 wheels with internal diameter 20 mm	110.50.000

5.2. 6 jaws chuck

To tighten HSS drills directly on the screw.

	6 jaws chuck capacity 5 to 15 (standard jaws)	833.41.000
	6 jaws chuck capacity 15 to 27 (standard jaws)	833.42.000
	6 jaws chuck capacity 27 to 40 (standard jaws)	833.43.000
	6 jaws chuck capacity 5 to 15 (short jaws)*	833.40.000
	6 jaws chuck capacity 5 to 15 (long jaws)**	833.44.000

* for short drills

** for small diameters

5.3. Chuck for biconical collets

To tighten carbide drills directly on the screw and gun drills.

	chuck capacity 2,5 to 15,75	A33.23.000
	chuck capacity 16 to 32	A33.24.000

Caution: Collets are not delivered with the chuck (to order separately)

5.4. Chuck for W25 or W31.75 special collets

To tighten carbide drills and Gundrills.

		W25 Chuck capacity 2 to 19	A55.03.000
		W31.75 Chuck capacity 3 to 25	A55.04.000

Pay attention : Collets are not supplied with chuck (to order separately)

5.5. Manual chuck for biconical collets

To be used with 6 jaws chuck 833.43.000.

	Manual chuck (need A5535002 or A5535004)	A55.35.000
	For collet T840... from 2 to 16mm (for standard collets)	A55.35.002
	For collet T830... from 2 to 21mm (for long collets)	A55.35.004

5.6. Biconical collets

For chuck A33.23.000 and A33.24.000 and A55.35.000.

	Standard collets	
	Set of 4 collets diameter 2 to 2,75 (step 0,25mm)	T840001
	Set of 8 collets diameter 3 to 4,75 (step 0,25mm)	T840002
	Set of 45 collets diameter 5 to 16 (step 0,25mm)	T840003
	Set of 64 collets diameter 16,25 to 32 (step 0,25mm)	T840004
	Set of 15 collets diameter 2 to 16 (step 1mm)	T840005
	Set of 16 collets diameter 17 to 32 (step 1 mm)	T840006
	Long collets	
	Set of 4 long collets diameter 2 to 2,75 (step 0,25mm)	T830001
	Set of 12 long collets diameter 3 to 5,75 (step 0,25mm)	T830002
	Set of 61 long collets diameter 6 to 21 (step 0,25mm)	T830003
	Set of 8 long collets diameter 3 to 5 (step 1mm)	T830008
	Set of 15 long collets diameter 6 to 21(step 1mm)	T830009

Collets can also be ordered on unit.

5.7. Shank holder for drills back introducing



	Standard	Courts
Shank holder MT1	833.46.256	A32.03.001
Shank holder MT2	833.46.257	A32.03.002
Shank holder MT3	833.46.258	A32.03.003
Shank holder MT4	833.46.259	A32.03.004
Extension for shank holder	T816.025	

5.8. Reduction case Shank – Cylindrical

To back introduce the drills with cylindrical handle – diameter 5 to 20 mm.



set of 11 collets MT1 Ø5 to 10 : **T829501**
 set of 10 collets MT2 Ø10.5 to 14.5 : **T829502**
 set of 11 collets MT3 Ø15 to 20 : **T829503**
 Set of 5 collets MT3 Ø 21 to 25 : **T829504**

5.9. W25 system for collet W25

To tighten carbide drills with handle – used with 6 jaws chuck 833.43.000.



W25 mandrel A34.60.000

W25 short mandrel A55.36.000

5.10. W25 collets

For A34.60.000 or A55.36.000 or A55.03.000

W25 special collets		
	Set of 12 collets Ø 3 to 14mm, step 1 mm	T835000/A1
	Set of 6 collets Ø15 to 20mm, step 1 mm	T835000/A2
	Set of 23 collets Ø3 to 14 mm, step 0.5 mm	T835000/A3
	Set of 12 collets Ø14.5 to 20 mm, step 0.5 mm	T835000/A4
	Set of 23 collets 4 jaws, Z form Ø3 to 14 mm, step 0.5 mm	T837000/A1
	Set of 10 collets 4 jaws Z form Ø14.5 to 19 mm, step 0.5 mm	T837000/A2

Collet can be ordered separately: consult us

5.11. W31.75 collets

For A55.04.000

Collets W31.75		
	Set of 12 collets Ø 3 to 14mm, step 1 mm	T838000/A1
	Set of 11 collets Ø15 to 25 mm, step 1 mm	T838000/A2
	Set of 27 collets Ø3 to 14 mm, step 0,5 mm	T838000/A3
	Set of 21 collets Ø14.5 to 25 mm, step 0.5 mm	T838000/A4
	Set of 27 collets 4 jaws Z form Ø3 to 14 mm, step 0.5 mm	T839000/A1
	Set of 27 collets 4 jaws Z form Ø14.5 to 25 mm, step 0.5 mm	T839000/A2

Collet can be ordered separately: consult us

5.12. Special mandrel for special collets

(to tighten special carbide drills)



Set special mandrel for special collets diam
40 sell with 9 cylindrical collets diam 6, 8,
10, 12, 14, 16, 18, 20, 25 & 3 conical collets
MT1, MT2, MT3

A34.47.000

5.13. Oil

Emulsion or plain oil for coolant, oil for air pressure system.

Avyac works with the manufacturer Oelheld and recommends the use of **Sintogrind TTK** or **TCX-630** grinding oils (approx. 100L required)

5 l cutting oil Emulsion T429.007	5 l cutting oil Emulsion T429.008	5l MOBIL DTE Oil light T429.013
		
for HSS only	For HSS and Carbide	Air Pressure System

oelheld[®]
innovative fluid technology

5.14. Long drills holder (for gundrill)

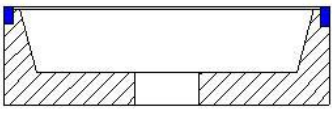
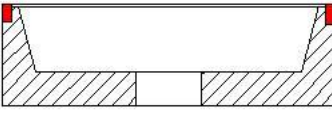
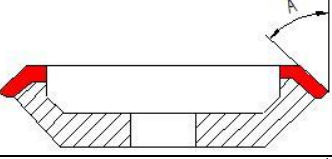
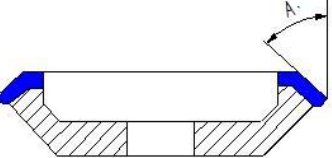
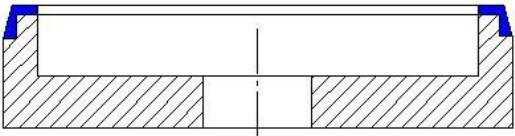
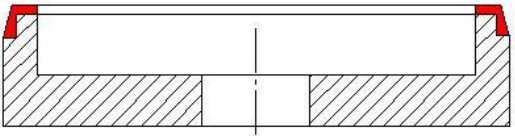


Long drills holder

A55.02.000

5.15. Wheels

Avyac works with local suppliers to provide his customers the best quality and best delivery time for grinding wheels. Most of the programs are developed to work with only one standard wheel for all grinding operations.

N°	Form	Characteristic	Grinding cycle	For drill diameter*:
T822.002		DIAMOND 6A9 D100, Bor. 20 mm grain 126, C100 Binding resin	100 140	3 to 20 mm
T822.003		CBN 6A9 D100, Bor. 20 mm grain 151, C100 Binding resin	002 003 004 006	10 to 40 mm
T822.012 *		CBN Form special Angle A change D100, Bor. 20 mm Grain 126, C100 Binding resin	032 (HSS)	3 to 27 mm
T822.013 *		DIAMOND Form special Angle A change D100, Bor. 20 mm Grain 126, C100 Binding resin	032 (CARBIDE)	3 to 20 mm
T822.100		DIAMOND 6A9 D150, Bor. 32 mm grain 126, C100 Binding resin	100 107 140	3 to 32 mm
T822.101		CBN 6A9 D150, Bor. 32 mm grain 126, C100 Binding resin	002 003 004 006	3 to 40 mm

No-exhaustive list.

* For wheels T822.012 and T822.013: Angle A depends with the angles of point and step:

6. SERVICES

6.1. Packaging

References:

Packaging France: **870.56.001**: Protection of the fragile parts, wooden floor and open box.

Packaging Europe: **870.56.002**: Protection of the fragile parts, wooden floor and open box.

Packaging International: **870.56.003**: Protection of the fragile parts, wooden floor and closed box with fumigation certificate, vacuum-packed protection for maritime transport.

6.2. Shipping

The shipping is included with standard supply. For France and Europe, it includes complete shipping until customer plant (without unloading). For other countries, standard incoterm for maritime transport is CIF (Cost, Insurance and Freight).

References:

Shipping France: **870.57.001**

Shipping Europe: **870.57.002**

Shipping International: **870.57.003**

6.3. Warranty

Standard warranty: parts & labour during 1 year (or 5000 hours) excluding travel cost

6.4. Training

References:

Fitting and training in customer plant 3 days NC540 France: **870.70.001**

Fitting and training in customer plant 3 days NC540 Europe: **870.70.002**

Fitting and training in customer plant 3 days NC540 Export: **870.70.003**

7. STANDARD SUPPLY

AVYAC NC540 with numerical control SIEMENS 840 DSL (Colour touch screen 12") and Siemens motorisation (absolute coders): **870.00.002 (Europe) or 870.00.003 (Other countries)**

Including:

Welded mechanic frame color Gray RAL 7035 (87001000)

Sheet thickness 3 mm Carterisation (87003000) including:

- 1 electronically and mechanically safety device for main door
- 1 board for electrical access
- 1 tank for emulsion (capacity app. 200 liters)

Cross table XYZ on which are mounted:

- 1 Electro-spindle with wheel holder (for wheel Ø100-Ø150 boring Ø20) power 4.5 KW
- MARPOSS sensor device for drill detection, equipped with 2 stylus
- 1 stop for automatic drill length indexing
- 1 stop for manual drill length indexing

Electrical set 400V, 50 Hz, numerical control and motors with absolute coders (according to customer inquiry), with integrated light 24V DC (87013000)

Drill holder dividing device for collets W25 / 6 jaws chuck / Chuck for biconical collets - Axis B mounted on rake orientation device (axis A)

Set for coolant, lubrication and air including (87014000):

- Coolant device with pump (90l/min)
- Pneumatic set from SMC

Tool set for working (87020000) including:

- 1 CBN wheel (T822.034)
- 1 diamond wheel (T822.042)
- 1 set of keys (flat + BTR)

Complete documentation paper or CD or USB stick (English) including:

- 1 drawing for electric, pneumatic coolant
- 1 user book
- 1 documentation for SIEMENS control

Guaranty: parts & labour during 1 year (or 5000 hours) excluding travel cost