

5 AXIS DRILL GRINDING CENTER Ø 1 TO 8 mm*

*or 2 to 14.5 with option A60.02.000



DETAILED DOCUMENTATION

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1. AVYAC MACHINES COMPANY

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2. PRESENTATION NC18 GRINDING CENTER

2.1. INTRODUCTION

COMPACT DRILLS GRINDING CENTER NC18 5 AXIS

2 available versions:

Standard: with SIEMENS SINUMERIK ONE numerical control (Ref.: 860.00.001)

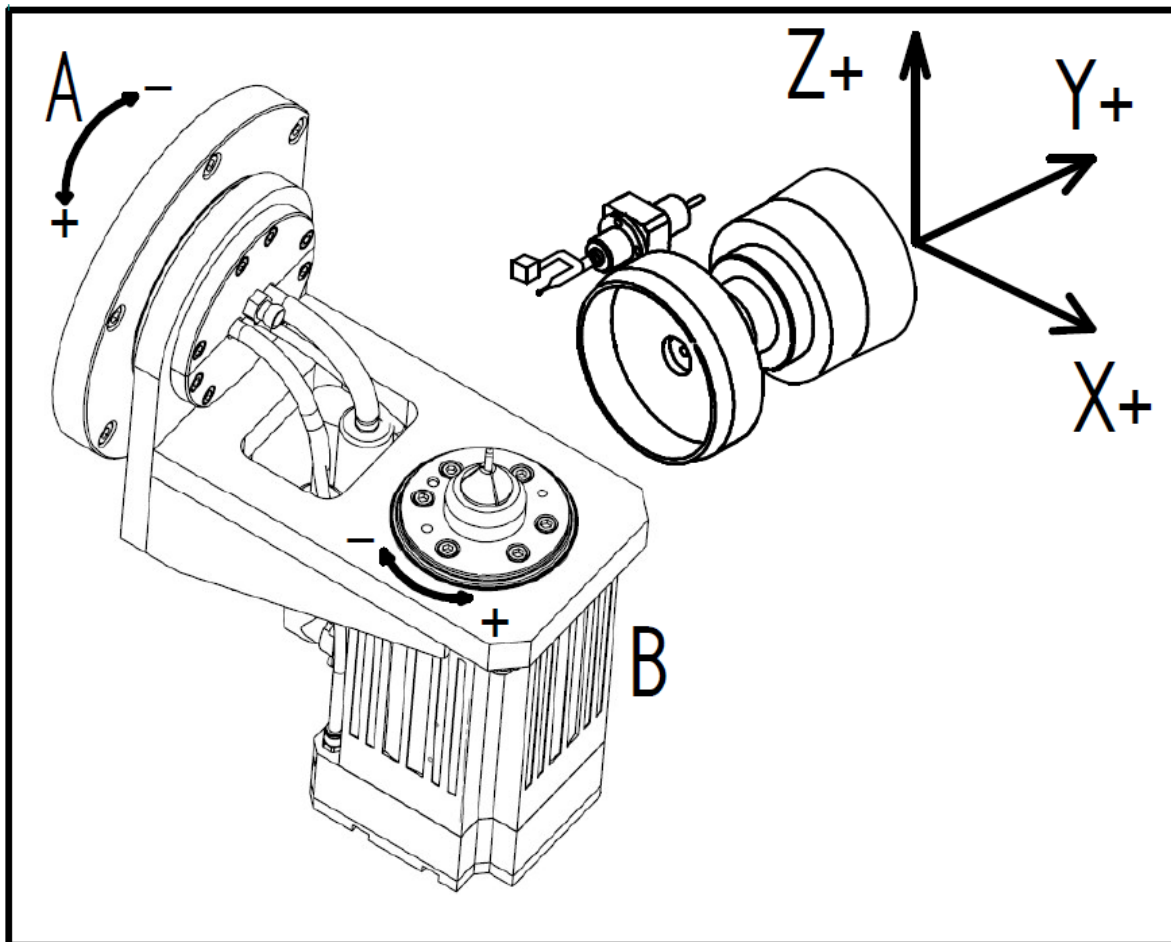
Or

In option: with B&R PPC2100 numerical control (Ref.: 860.00.011)

Tools Diameter: Standard Ø1 to 8 mm with W12 collets
 Optional Ø2 to 14.5 mm with W20 collets (option A60.02.000)
 Optional Ø3 to 14 mm with jaws chuck (option 860.05.018)

Maximum length of tools: 320mm (350mm with option 860.49.000)

2.2. AXIS KINEMATIC



X AXIS: Stroke 150 mm –longitudinal slide

Y AXIS: Stroke 125 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.

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, controlled by synchronous motor with brake. Automatic pneumatic locking of the drill into W12 collets (or W20 – option A60.02.000). Gravity-operated drill bit loading with no tools other than collets.

Z AXIS: Stroke 110 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.

All the axis are controlled with synchronous motors with absolute coder (For B&R and Siemens version).

2.3. NUMERICAL CONTROL

B&R version, POWER PANEL PPC2100, with colour touch screen 10"4 (640 x 480 pixels).
Bus POWERLINK.



Sample of screen – B&R version

SIEMENS SINUMERIK ONE version with operator front panel touch screen 12" TFT (1280x800 pixels). Ethernet Bus and connection SIEMENS "DRIVE-CLIQ"



Sample of screen – SIEMENS Version

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2.4. ELECTROSPINDLE

Compact, precise, pressurized and water tight motor grinding wheel spindle, with a speed of 3000 to 9000 rpm. Allows the use of borazon or diamond grinding wheel diameter 100 mm. The grinding wheel is assembled directly on the end of the motor shaft without any intermediate parts, ensuring perfect concentricity.

Three head motor. 2.2 kW, 230/400 Volts

Lubricated for life.

2.5. TOOL DETECTION

Probing precision: 5 microns

Sensor MARPOSS equipped with stylus (1 knife, 1 cubic 6 mm or 1 ball stylus Ø1 mm)

Used for:

- Detection of drill length
- Drill detection (to find the flute)
- Drill indexing (to find the lip position)
- Control the helix angle, the runout...

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

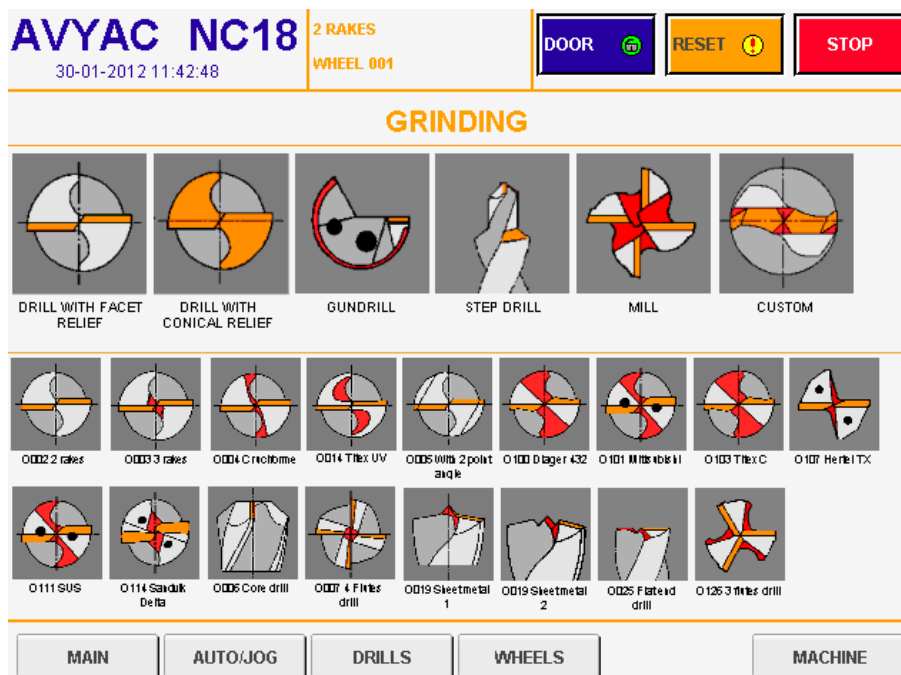
That it is manually or automatically with the option plate, the loading is done by gravity. The drill is guided in a tube (3 tubes diameters 9, 14 and 18 delivered with the machine), then slowed down by an intermediate plate (3 forms available) which is retracted automatically, to arrive finally on a plate of indexing (deadened by spring) which automatically positions the length of exit of the drill.

2.7. GRINDING SOFTWARE

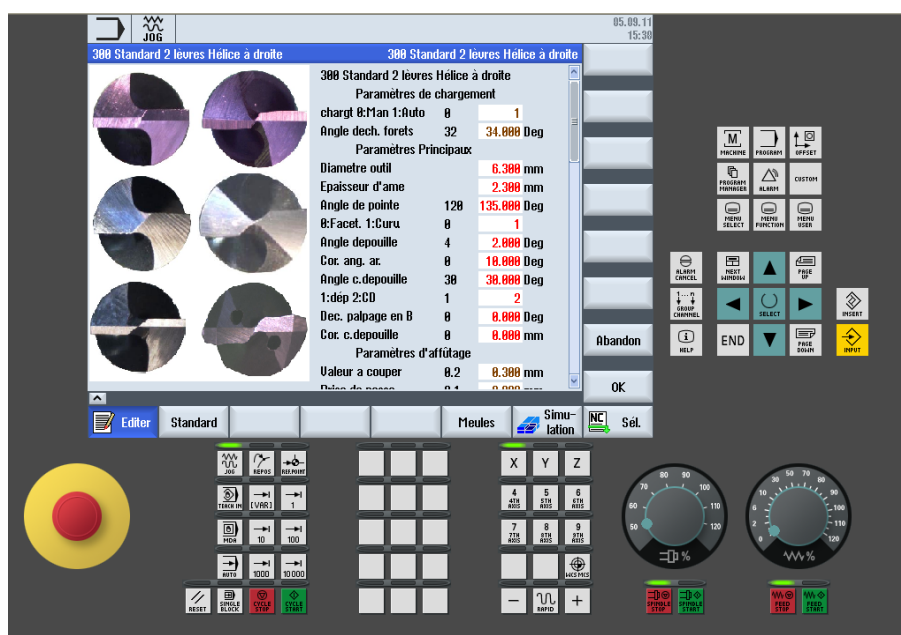
Graphic interface specific for drill grinding. Very easy to use.

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 in the grinding pack section.



Sample of screen – B&R version



Sample of screen – SIEMENS Version

2.8.ELECTRICAL CABINET

In conformity with CE and ELECTROMAGNETIC COMPATIBILITY

Three-phase electrical equipment (3phases + ground + neutral) 400V- 50Hz - 8kVA - 10A.

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

Ventilated

2.9.COOLANT DEVICE

Tank of decantation for the coolant liquid (capacity 80l) located in the frame.

Pump with flow of mini 60 L /min is driven thanks to digitally controlled system.

A pressure switch monitors the pressure of the lubrication fluid at the pump outlet.

2.10. COMPRESSED AIR

Allows:

To tighten the drill,

To stop the drill,

To eject the drill.

Pressure of network required: 5 bars.

Including a digital air pressure sensor, controlled by NC.

2.11. SAFETY

Electronically and mechanical safety-device.

2.12. COLOR

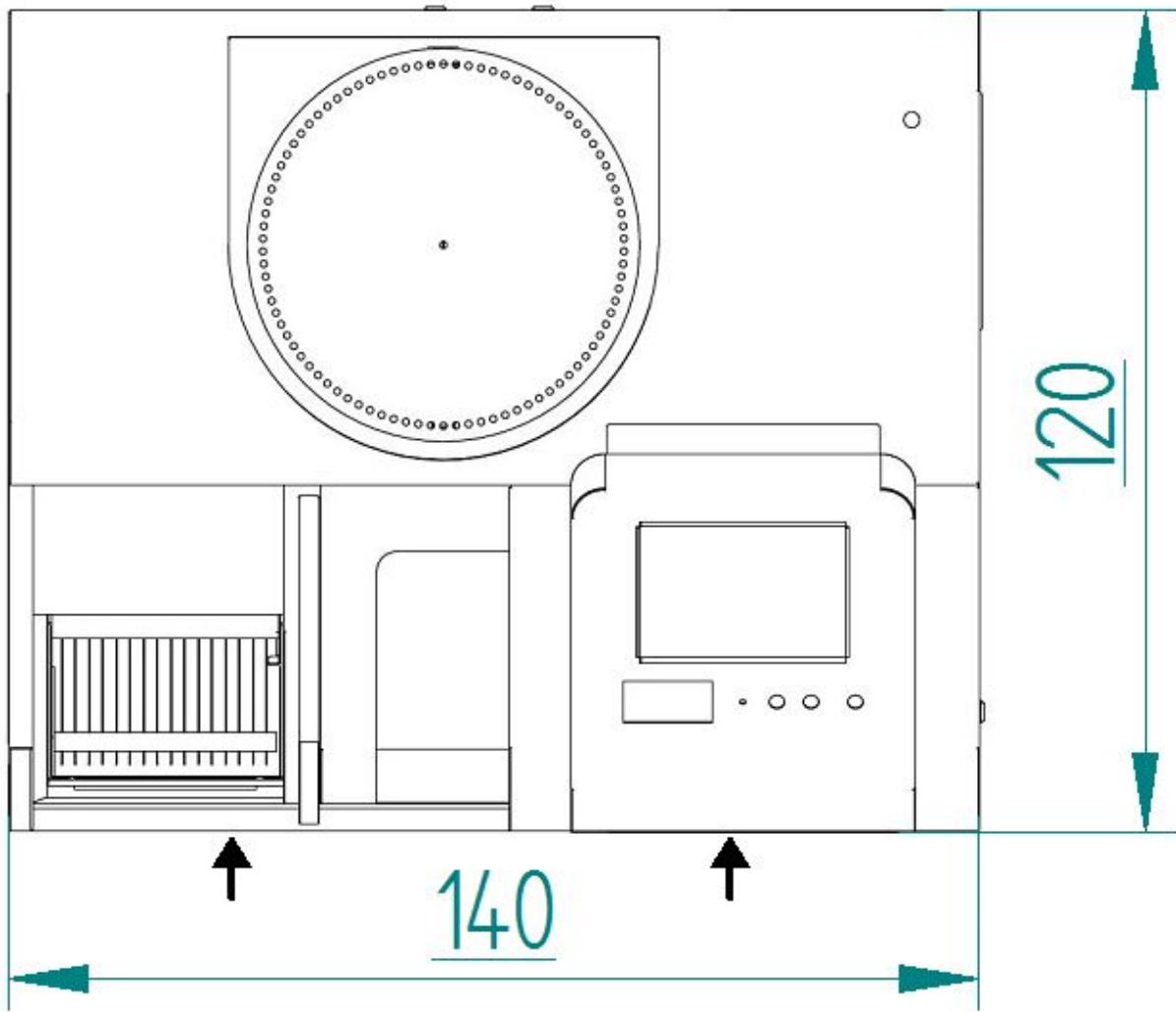
Red RAL 3020, dark Grey RAL 7012 and light Grey RAL 7035

2.13. DIMENSIONS

Weight: 1000 kg (2200 lb)

Dimensions of NC18 alone (large, long, height): 1,4m x 1,2m x 1,5m (4.6ft x 3.9ft x 5ft)

Some space is necessary to access to the right and back doors.



2.14. MAINTENANCE

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

3. THE GRINDING SOFTWARE

Diameters: From 1 to 8 mm (standard) or from 2 to 14.5 with option A60.02.000

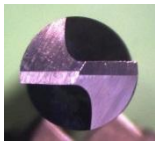
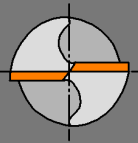
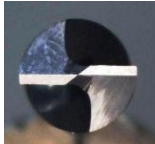
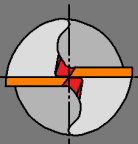
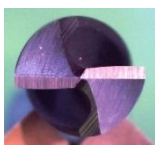
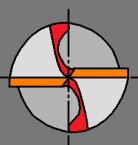
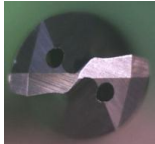
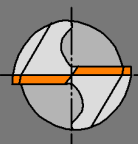
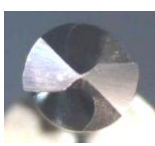
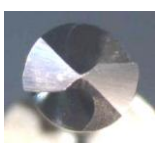
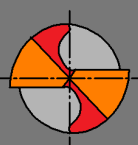
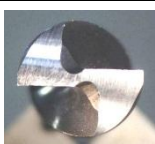
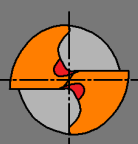
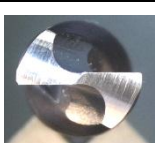
The machine is provided with the universal drills program.

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.

3.1. Universal drills program (860.80.001)

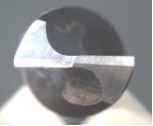
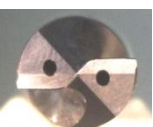
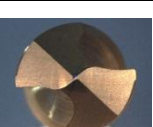
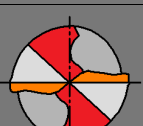
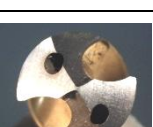
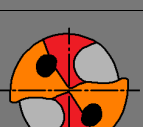
Programs for drills with 2 or 3 lips, with facets or conical relief, with or without thinning

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

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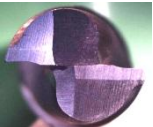
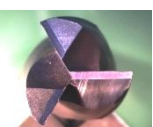
Photo	Drawing	Designation	Grinding AVYAC N°	Program+ Material required
		Special Type 014	014	PGM 300 + 1 short wheel holder + 1 wheel 12V9
		Special Type 100	100	PGM 100 + 1 short wheel holder + 1 wheel 12V9
		Special Type 101	101	PGM 300 + 1 short wheel holder + 1 wheel 12V9
		Special Type 102	102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

3.2. End mills grinding pack (860.80.003)

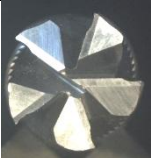
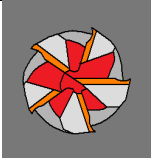
Special program for end mills, 2 to 5 lips, helix resharpening possible

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	

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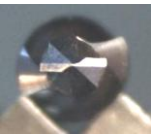
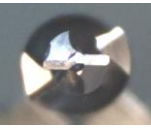
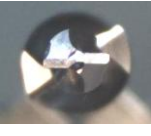
Photo	Drawing	Designation	Grinding AVYAC N°	Program+ Material required
		5 flutes end Mills, radius, chamfer	205	

Non-exhaustive list

Other grinding: Please consult us

3.3. Step drills grinding pack (860.80.004)

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

3.4. Gun drills grinding pack (860.80.005)

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

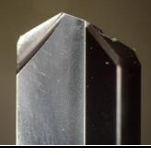
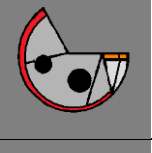
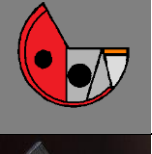
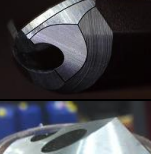
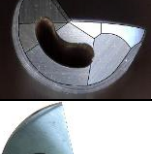
Clamping with collets is necessary.

		GUNDRILL 5/6 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

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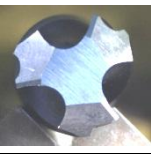
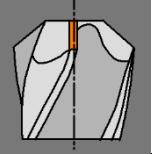
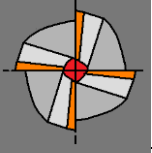
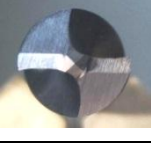
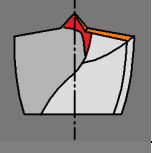
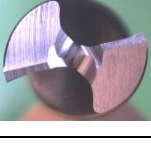
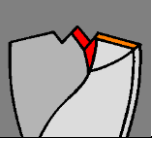
		GUNDRILL 2 flutes	148	PGM 300 + 1 short wheel holder + 1 wheel 12V9
		GUNDRILL with chips breaker	146	PGM 146 + 1 long wheel holder +1 wheel 12V9 +1 wheel 1A1
		GUNDRILL 7 facets	150	PGM 146 + 1 short wheel holder + 1 wheel 12V9
		Step GUNDRILL	151	PGM 151 + 1 short wheel holder + 1 wheel 12V9
		GUNDRILL with radius	151	PGM 151 + 1 short wheel holder + 1 wheel 12V9
		GUNDRILL Slash N8	141	PGM 141 + 1 short wheel holder + 1 wheel 12V9

Non-exhaustive list

Other grinding: Please consult us

3.5. Specific grinding program (860.80.002)

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	

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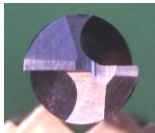
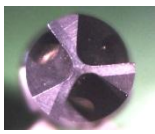
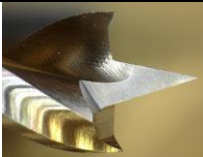
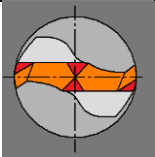
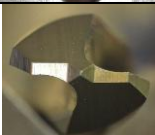
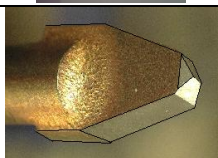
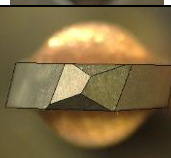
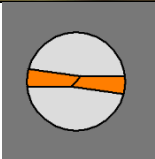
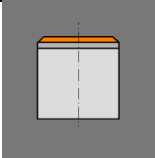
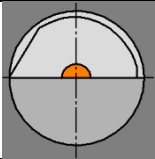
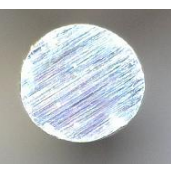
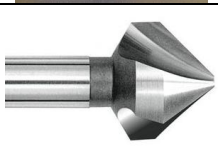
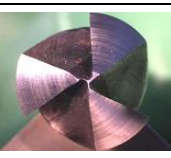
Photo	Drawing	Designation	Grinding AVYAC N°	Program+ Material required
		Flat end drill	025	
		3 flutes drill	126	PGM 300 + 1 short wheel holder + 1 wheel 12V9
		Wood Working Drill Brad point	060	PGM 60 + 1 short wheel holder + 1 wheel 12V9
		Dowel drill	060	PGM 60 + 1 short wheel holder + 1 wheel 12V9
		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

Photo	Drawing	Designation	Grinding AVYAC N°	Program+ Material required
		V for Gundrills	155	PGM 155 + 1 short wheel holder + 1 wheel 12V9

Non-exhaustive list

Other grinding: Please consult us

3.6. Customer drill grinding program (860.80.010)

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.

4. OPTIONS

4.1. Set B&R PPC2100 (ref. AVYAC 860.00.01X *)

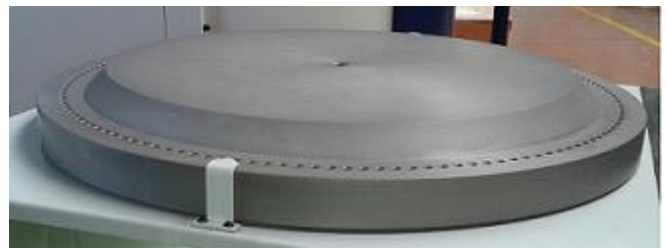
(* X = 1 for France, 2 for Europe, 3 for other countries)

Instead of Siemens configuration, installation of the complete B&R set including the screen, the computer, drives and controls.



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4.2. Loader with round table (ref. AVYAC 860.47.000)



The round table (diameter 600 mm) allows loading of 90 drills from diameter 1 to 8 mm (or 2 to 14.5 with option A60.02.000)

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 2 to 15 mm according to the diameters of drills.

The plate is ordered by CN and is pulled by a step motor of 6 Nm.

An inductive sensor (BALLUF) ensures the detection of the holes and then the perfect positioning of the plate.

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4.3. Transformers (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.

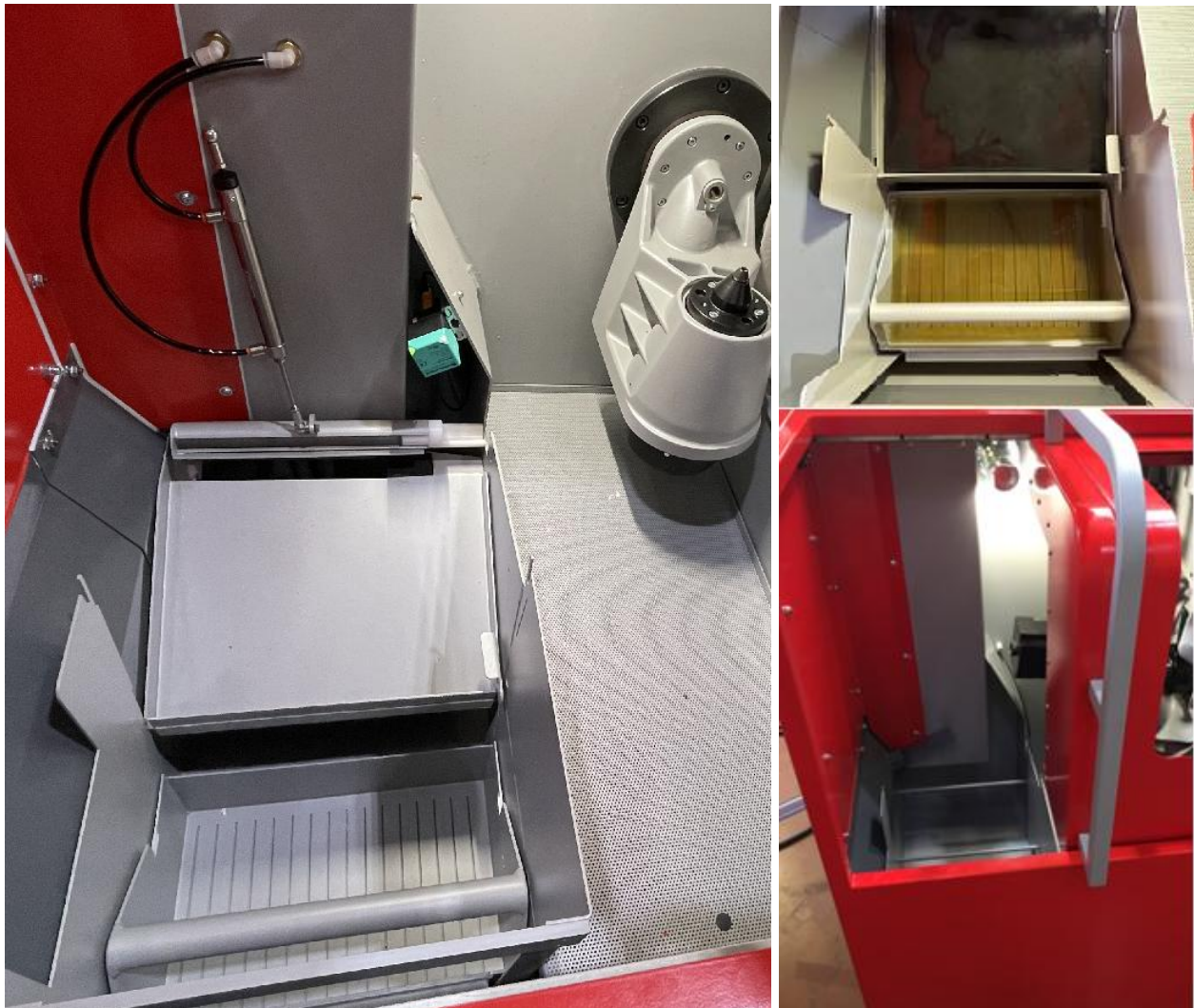
Transformer for USA: 10 KVA, 400V / 230V, 50/60 HZ: **A60.13.002**

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

4.4. Different collectors for automatic drills unloading

4.4.1. Internal collector for standard drills (ref. AVYAC A60.03.010)

The inner drill collector with its pneumatic cylinder is the standard solution for automated unloading of sharpened tools. By opening the door halfway, you have a safe access to the unloaded drills. You do not have to stop the machine. A perforated basket allows you to drain the tools and to recover them afterwards.



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4.4.2. Unloading by conveyor belt (ref. AVYAC 860.51.000)

This option allows for gentle unloading of the most fragile tools. A conveyor belt driven by a pneumatic rotary motor will avoid shocks between tools by depositing them gently in the submerged tank. As with the standard version, it is possible to open the door halfway during the cycle to remove sharpened tools.



Conveyor belt



Numbered tray and unloading carousel

4.4.3. Unloading by carousel 24 positions (ref. AVYAC 860.49.000)

This option allows a differentiated sharpening of the tools placed in the loader. The operator fills in a table indicating for each hole in the plate the sharpening to be done, as well as the number of the unloading basket. Combined with the 6-jaws clamping system, this option provides greater sharpening flexibility.

Unlike the previous unloading options, it is not possible to unload the baskets while the machine is running. It is necessary to open the door and stop the cycle in progress. Each of the 24 baskets can be removed from the carousel individually.

With few modifications of the loading system, it is possible to reach a maximum tool length of 350mm instead of standard 320mm (on demand).

4.5. Other clamping systems

4.5.1. W20 collets capacity 2 to 14.5 mm (ref. AVYAC A60.02.000)

Instead of capacity 1 to 8 mm, you can choose capacity 2 to 14.5 mm. The main difference consists in larger clamping system with bigger collets (26 collets W20 instead of 15 collets W12).

Maximum length for drills is still 320 mm.

The frame and dimensions of the machine are the same. Every other option is still available.



4.5.2. Jaws chuck system capacity 3 to 14 mm (ref. AVYAC 8600.5018)

Instead of clamping with collets, you can choose the new 6 jaws chuck clamping system. Its clamping range is from 3 to 14mm. The average accuracy at 20mm is 0.02mm.

Maximum length for drills is still 320 mm.

The scope of the 6 jaws are 30mm to maximize the accuracy.



4.6. Coolant Filtration from SIEBEC (ref. AVYAC A55.23.100)

A coolant filtration can be installed directly in the machine, with an 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. The filtration device is controlled with the machine NC.



Siebec filtration device with cartridge



Filtermist oil mist extractor

4.7. Oil mist extractor FILTERMIST S200 (ref. AVYAC A60.24.000)

Oil mist is removed from the air by centrifugal impaction. Clean oil is returned to machine. The system is installed directly on the top of the machine, besides the loader plate.

A perforated drum with specially designed vanes rotates at high speed. Oil mist is drawn into the unit and impacts on its vanes at high velocity. Special drum pads assist the coalescing process and filter out stray solid particles.

Centrifugal force pushes oil to the unit's outer case where it drains back to the machine for re-use or collection and clean air is returned to the workshop through the top of the unit.

The extraction tube of diameter Ø100mm, aspirates the oil mist directly in the working area. It allows the opening of the main door quickly after the end of drill grinding. The filter automatically starts when the cycle begins. It stops one minute after the end of the cycle.

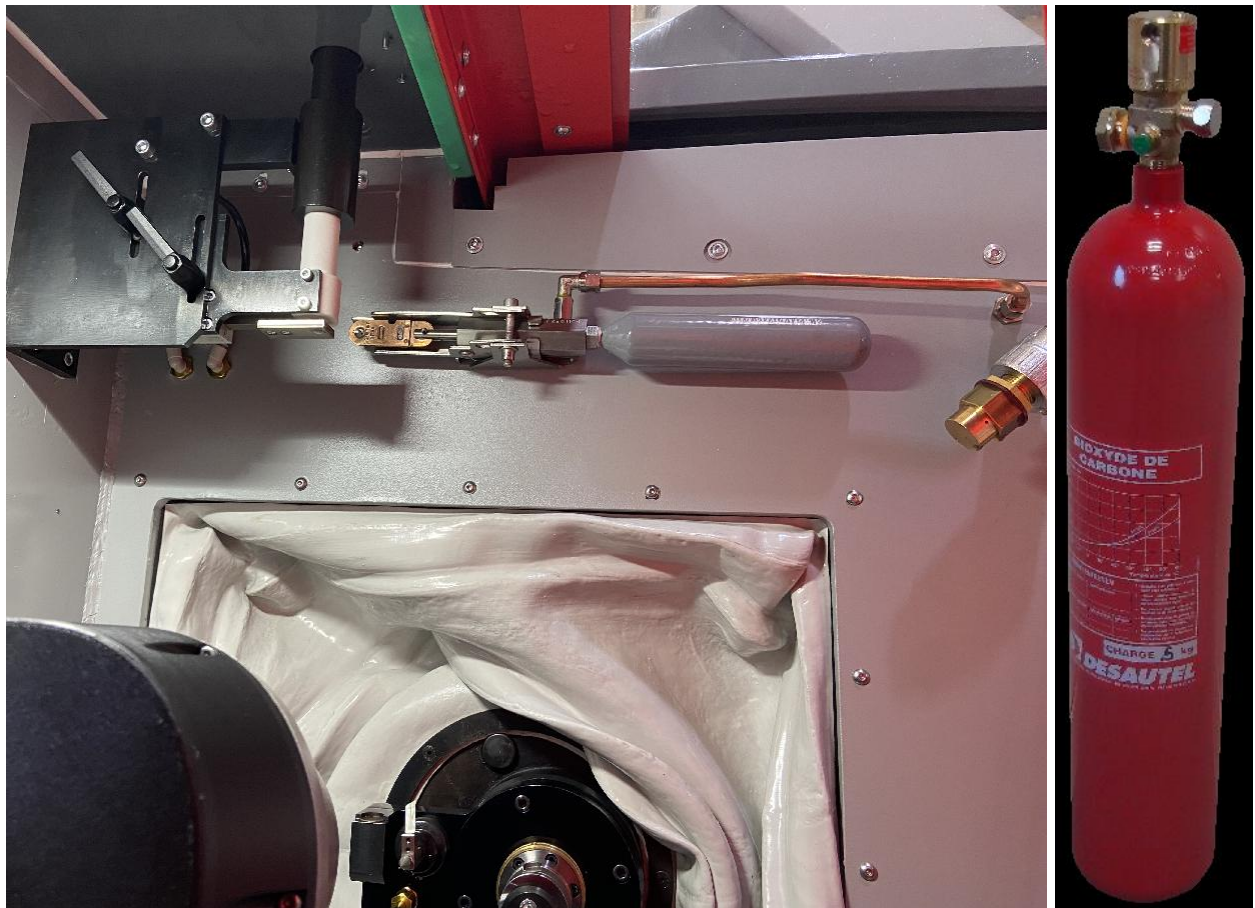
This option is highly recommended for machine working with oil coolant.

4.8. Fire Extinguisher System for machine with oil coolant (ref. AVYAC A60.14.000)

An automatic fire extinguisher system is essential for all machine grinding with oil coolant.

Desautel's USINEX system uses a thermo-pneumatic trigger located in the machine's working area. If an excessive temperature is reached, the trigger's fuse breaks and strikes an 80 g CO2 cartridge, sending a pneumatic trigger command to the system's gas cylinder. This device consists in an automatic detection, a manual command, a visual and acoustic signal. The CO2 bottle is set directly in the machine (2Kg bottle).

A yearly maintenance is recommended to control the pressure and check the bottle.



4.9. Connection to centralized filtration device (ref. AVYAC A55.23.300)

4.9.1. Lift pump to external centralized oil filtration

Installed instead of the standard coolant pump, this pump lift the coolant with dirt from the machine working area to the customer external filtration.

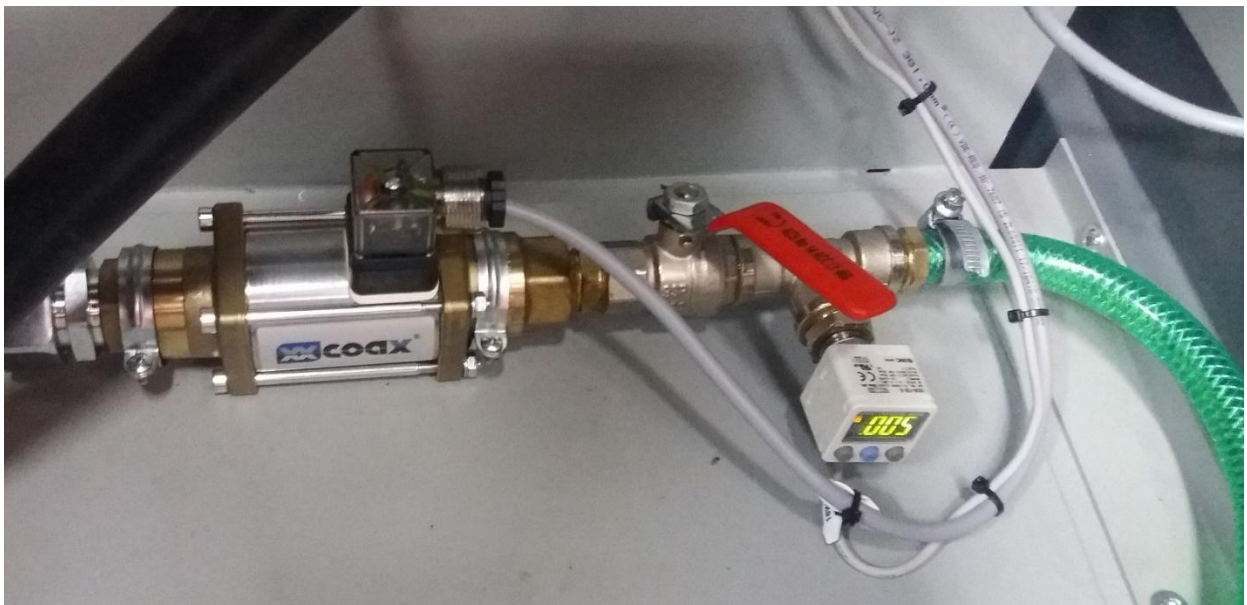
The pump and connectors sizing have to be decided with the customer.

A level sensor is necessary to control and manage the different oil level in the machine tank, to avoid overflows or vacuum pumping.



4.9.2. Solenoid valve for coolant

The solenoid valve from COAX takes place in the clean coolant circuit between the filtration and the machine working area. A pressure sensor is set directly after the valve to check the presence of liquid during grinding operations.



4.10. Gravity drainage to centralized filtration and return via solenoid valve (Ref. AVYAC A55.23.350)

4.10.1. Oil evacuation by gravity system

A chute guides the used oil by gravity to a large opening in the machine's central bulkhead. The customer can attach an adaptation to suit his installation.



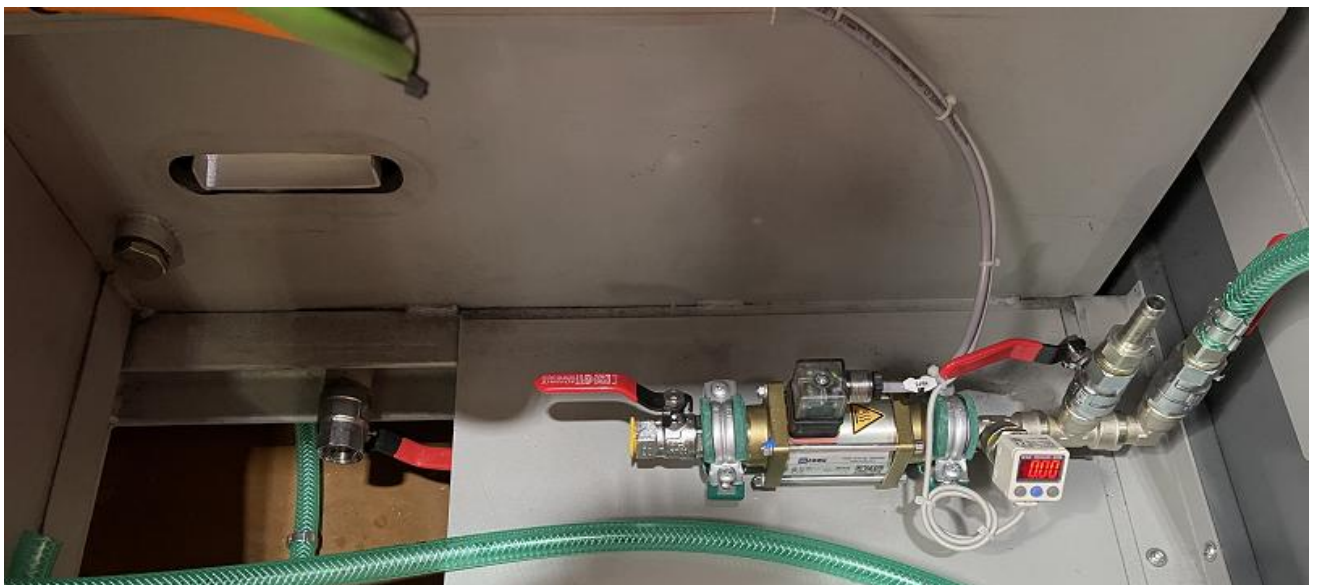
Oil guide slide



Adaptation to evacuation, customer design

4.10.2. Cutting fluid return via solenoid valve

A COAX solenoid valve is installed in the clean oil return circuit from the central filtration system to the machine. The pressure switch installed directly after the solenoid valve checks for the presence of liquid during the grinding phases.

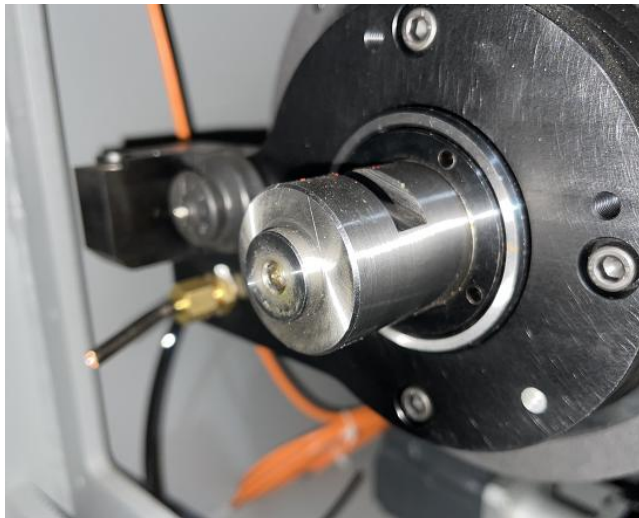


4.11. Option HSK40 spindle (ref. AVYAC A60.13.010)

In the standard configuration, the machine is supplied with a specially machined electro-spindle to enable the grinding wheel to be mounted directly on the nose (for 20mm-bore wheels).

The HSK40 option replaces the standard electro-spindle with an electro-spindle adapted to HSK40 attachments, enabling the grinding wheel to be prepared outside the machine for dressing, balancing and measuring operations.

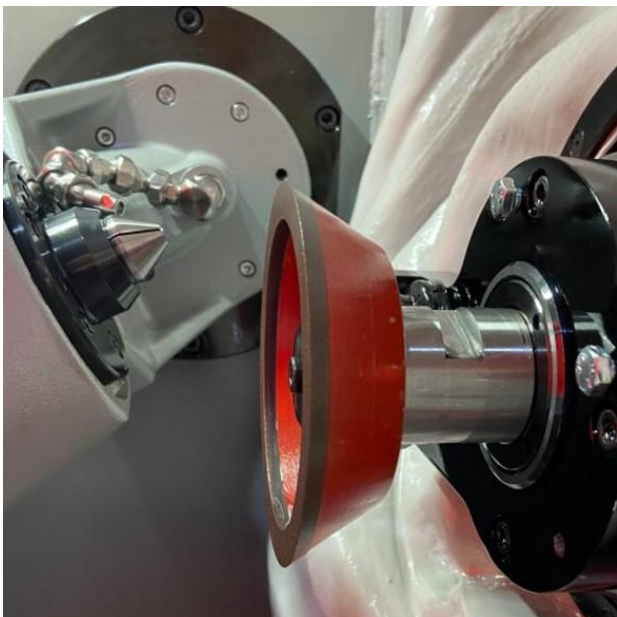
In particular, it allows two grinding wheels to be used, thanks to an elongated wheel-holder nose.



Standard Electro-spindle



Option electro-spindle with HSK40



Standard electro-spindle with single wheel



Short and long wheel holders for HSK40

4.12. Option internet remote access (ref. AVYAC A60.05.000)

Avyac choose the M2Me device from ETIC TELECOM to allow remote maintenance on automated machines. Easy to install and to use, Avyac or the trained personal can accede to the machine by using 3G RAS Router or directly the existing Internet access of the factory.



4.13. 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

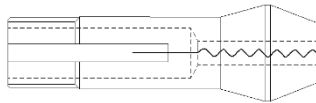
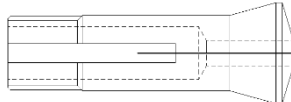
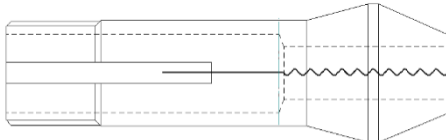
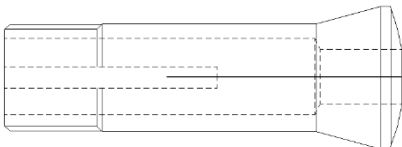
4.14. Retention tray + adaptation (ref. 86094003)

Floor protection tray, anti-drip. Dimensions adaptable on request.



5. ACCESSORIES

5.1. Collets

Collets	Reference	Drawing
Set of 15 collets W12 Ø 1 to 8 - 0.5 by 0.5 (supplied with standard machine) 4 jaws with Z form	T836000/A2	
Set of 8 collets W12 Ø 1 to 8 - 1 by 1 3 jaws standard	T852000/A1	
Set of 26 collets W20 Ø 2 to 14.5 - 0.5 by 0.5 (supplied with option A60.02.000) 4 jaws with Z form	T834000/A2	
Set of 13 collets W20 Ø 2 to 14 - 1 by 1 3 jaws standard Lot de 13 pinces W20 standard Ø 2 à 14 de 1 en 1 - 3 mors standard	T850000/A1	

The collets are also available to the unit. Specific diameters on request.

5.2. Grinding 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

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innovative fluid technology

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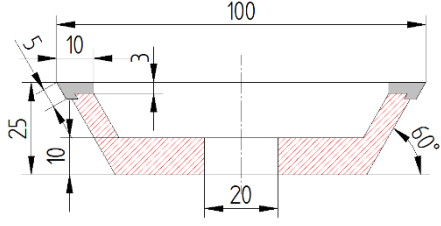
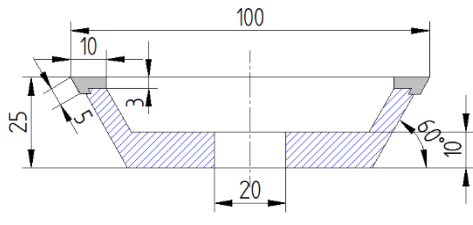
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5.3. Grinding wheels

AVYAC works with local suppliers who guarantee our customers the best quality and shortest delivery times for grinding wheels. The majority of the grinding programs are developed to work with a single wheel that performs all the operations.

We also have a wide range of shaped wheels, as well as wheels of different diameters depending on the application.

Ref AVYAC	Form	Characteristic	Grinding cycle
	AVYAC STANDARD WHEELS		
T822.034		CBN 12V9 D100 grain 76 C100 Binding resin	HSS Universal
T822.042		DIAMOND 12V9 D100 grain 76 C100 Binding resin	Carbide Universal

Non-exhaustive list.

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 to France: **870.57.001**

Shipping to Europe: **870.57.002**

Shipping to 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 2 days NC18 France: **860.70.001**

Fitting and training in customer plant 2 days NC18 Europe: **860.70.002**

Fitting and training in customer plant 3 days NC18 Export: **860.70.003**

7. STANDARD SUPPLY

AVYAC NC18 with numerical control B&R PPC2100 (Colour touch screen 10.4') and B&R motorisation (absolute coders): **860.00.012 (Europe) or 860.00.013 (Other countries)**

AVYAC NC18 with numerical control SIEMENS SINUMERIK ONE (Colour touch screen 12') and Siemens motorisation (absolute coders): **860.00.002 (Europe) or 860.00.003 (Other countries)**

Including:

Welded mechanic frame color Gray RAL 7035 (86001000)

Sheet thickness 3 mm Carterisation (86003000) including:

- 1 electronically and mechanically safety device (MECALECTRO) for main door
- 2 access doors for maintenance
- 1 board for electrical access
- 1 tank for emulsion (capacity app. 80 liters)

Cross table XYZ on which are mounted:

- 1 Electro-spindle with wheel holder (for wheel Ø100 boring Ø20) power 2.2 KW
- MARPOSS sensor device for drill detection, equipped with 2 stylus
- 1 stop for drill length indexing

Drill holder dividing device for collets W12 (86005000) - Axis B (or W20 with option A60.02.000) mounted on rake orientation device (axis A)

Electrical set 400V, 50 Hz, numerical control and motors with absolute coders (according to customer inquiry), with integrated light 24V DC (86013000)

Set for coolant, lubrication and air including (86014000):

- Coolant device with pump (60l/min)
- Pneumatic set from SMC

Tool set for working (86020000) including:

- 1 set of 15 high precision collets from diameter 1 to 8 mm (T836000/A2)
- 1 CBN wheel (T822.034)
- 1 diamond wheel (T822.042)

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

- 1 drawing for electric, pneumatic coolant
- 1 user book
- 1 documentation for B&R or SIEMENS control

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