

# Order Confirmation

#AWFS-19199-A

Ver. 1

AUG 6, 2019

CODE

U.M.

QUANTITY

9080254

NR

1

ROVER A FT SMART 1536

Numerically controlled machining centres ROVER A FT SMART

BIESSE has been certified ISO 9001 since 1995 and works in accordance with the UNI EN ISO 9001:2015 norms.

The running tests of each machining centre include the following stages:

- ☒ Intermediate control of operating units and pre-assembled components
- ☒ Non-stop running test as machining simulation for a minimum period of 10 hours
- ☒ Control of X and Y axes precision and positioning repeatability by means of an interferometric laser (VDI/3441 norm)
- ☒ Gauging of the X and Y axes through a software function: the values detected during the laser tests are elaborated by the N.C. and transmitted to the axes drives in order to improve the positioning precision
- ☒ Functional tests for routing and boring operations on panels positioned on all the machine origins

## Structure

Biesse design is based on a CAD product for solid modelling which allows to determine the possible structural distortions caused by static and dynamic loads and to dimension the most critical components, highlighting the most stressed areas which need strengthening.

- ☒ **Machine frame**  
The machine frame is made of thick electrowelded steel with a closed ring structure, properly strengthened in the most stressed areas.
- ☒ **Upright beam**  
The upright beam, mobile in the longitudinal direction (X axis) is made of electrowelded steel with gantry structure: thick steel sheets and reinforcing transversal elements grants a higher rigidity and allow to obtain the maximum accuracy.
- ☒ **Transversal and vertical carriages**  
The transversal carriage (Y axis) and the vertical carriage (Z axis) are made of an aluminium light alloy casting which is stabilized and then machined in a single setup for maximum precision.

## Movement of controlled axes

- ☒ **Axes drives and motor systems**  
Biesse uses Brushless motors, controlled by digital axes drives.  
The digital system Mechatrolink allows the following:
  - ☒ Higher machining speed, since a portion of the toolpath is controlled by the axis drive instead of the numerical control
  - ☒ Higher working precision, thanks to a faster data processing
  - ☒ Higher reliability, thanks to a reduced wiring system which eliminates electrical interferences that may occur on analogue systems
  - ☒ Reduced machine stops and downtime, thanks to the errors diagnostic with explanatory messages displayed directly on the N.C.
- ☒ **X and Y axes transmission system**  
For the operating unit movements along the longitudinal axis (X axis) and transversal axis (Y axis), Biesse uses the solution with pinion, rack with helical teeth and a precision reducer with single pinion.  
Both rack and pinions are built in accuracy class 6 (DIN 3962 norm).  
The mobile upright beam has two independent motors, one on each side of the machine frame.

✓ **Z axis transmission**

As the operating unit moves in the vertical direction (Z axis), BIESSE uses the ball-screw system in accuracy class ISO 5 with preloaded nut for backlash compensation and repeatability in positioning precision. The movement is transmitted to the screw through a flexible joint.

✓ **Axes guides**

All axes move on tempered and rectified steel linear guides by preloaded recirculating balls bearings. Each balls bearing is equipped with 4 sliding gaskets of which 2 internal and 2 external, to protect the bearing from chips and dust intrusion.

**Manual centralized lubrication system**

The centralized lubrication system with 2 greasing points allows using the pump supplied with the machine, to manually convey the grease to:

- ✓ Recirculating balls bearings of the X, Y and Z axes
- ✓ Rack and pinions system of the X and Y transmissions
- ✓ Ballscrew nut of the Z axis transmission

A warning appears on the screen signaling the lubrication needed.

**Work area**

✓ **FT Worktable**

The worktable is made of stratified phenolic, it includes a vacuum locking system for the pieces and it is machined with a 30mm pitch grid for the rapid placement of gasket or standard vacuum modules through an adaptor. The entire worktable is equipped with vacuum inlets (D=10mm) with 150mm center distance, and is supplied with patented plugs for a quick removal. The worktable can be configured based on need with M8 threaded inserts (pitch 30mm) for jig installation or other clamping equipment.

✓ **Working areas**

The machine has 1 working area with 2 left origins, 1 front and 1 rear.

✓ **Pneumatic reference stops**

The machine's origins are determined by a set of stops with pneumatic movement which grants maximum positioning precision.

The base machine includes:

- ✓ 2 pin reference stops for rear LH area
- ✓ 3 pin reference stops for front LH area
- ✓ 2 side stops (LH side)

✓ **Vacuum system and locking zones**

The vacuum system, needed for part locking, includes a buffer chamber which grants a constant and high level of vacuum ensuring a quick spread on the worktable during locking cycle and maximum vacuum force during machining operations.

The worktable is divided in 2 locking zones to optimize locking of panels with smaller dimension.

Vacuum locking is activated by the provided foot pedal positioned in front of the machine basement.

\* For size 1224 only one locking zone is possible

✓ **Prearrangement for the connection of minimum nr. 2 250 m<sup>3</sup>/h or 300 m<sup>3</sup>/h vacuum pumps, or more pumps when selected (max. 3).**

It includes the electrical components, vacuum distribution pipes, 1 analogic and 1 digital vacuum meter. The digital vacuum meter splits the vacuum minimum level, used during the spoilboard surfacing operation, from the higher level used during the standard production.

**Operating unit**

✓ **Prearrangement for Electrospindle**

Inclusive of electrical wiring to the electrical cabinet and pneumatic connections for the electrospindle.

\* Requires the selection of 1 electrospindle among those present in the pricelist.

**Safety protections**

- ☒ Operating unit cover, made of structural and protective plates with a front transparent panel in crushproof polycarbonate and rear side door for inspection and tooling of the operating units;
- ☒ Fixed safety strips;
- ☒ Emergency button placed in front of the machine;
- ☒ Emergency button positioned on the N.C.;
- ☒ Emergency button positioned on the PC console;
- ☒ The bumpers, positioned on the machine cover, together with the X axis speed limited to 25 mt/min, allow the operator to enter the working area in safety and in compliance with current regulations;
- ☒ Rear cable-holder chain with protective plates.

**Electric system**

The machine can be powered at 380/400/415V - 50/60Hz.

The electrical cabinet and the internal components comply with the CEI EN 60204-1 and CEI EN 60439-1 norms.

An auxiliary transformer supplies the connection voltage for the personal computer, the air conditioner and the electrospindle cooling fan, avoiding the use of the middle neutral wire, not always available.

The electronic equipment is powered by a stabilized 24V DC power supply.

The electrical cabinet is positioned next to the machine basement and the machine control unit is mobile near the machine's electrical cabinet.

- ☒ **Air conditioner for electrical cabinet**

It allows:

- ☒ The perfect working of all the electronic components inside the electric cabinet, even at very high temperatures, up to 40°C (104°F);
- ☒ A dust-free environment, since there are no aeration fans.

**Control system**

- ☒ **Numerical Control**

Biesse property BH660 control system is PC based.

The new Biesse technology WRT (Windows Real Time) extends the functionalities of Windows operative system by making it work in real time and able to directly control the machine avoiding not necessary hardware and increasing reliability and performance.

- ☒ **Desktop Personal Computer**

Main technical specifications:

- ☒ CPU Intel Core I5 or superior
- ☒ 8 GB RAM memory
- ☒ 128 SSD GB hard disk or superior
- ☒ Dedicated graphic card with VGA, HDMI and DVI video outputs
- ☒ 21.5" LCD
- ☒ Keyboard
- ☒ Mouse
- ☒ USB ports
- ☒ Ethernet card for network connection to an office PC

The technical specifications above may be subject to updates without prior notification.

Since the personal computer controls the machine processes BIESSE does not allow the installation of additional non-authorized software, under penalty of losing warranty.

- ☒ **Standard Hand-held control keyboard**

Inclusive of:

- ☒ Override for manual control of the programmed axes speed
- ☒ Emergency push button

- ☒ **Prearrangement for controls on remote keyboard**

Inclusive of all the wirings inside the electrical cabinet.

☒ **Statistic report**

Machine statistics is an software environment capable of collecting general information on machine events in order to monitor productivity and reliability over time.

Customers can choose directly which events to be recorded, in example the machine set-up, production, authorized pauses, lubrication cycles, etc.

☒ **Emergency recovery procedure**

This function allows operators to restart an interrupted working due to a machine emergency stop. The program restarts exactly from where it was interrupted, by following a specific procedure. The working can be restarted when the emergency stop happened during:

- ☒ A routing cycle with the electrospindle
- ☒ A drilling cycle with the boring head
- ☒ A cutting cycle with a blade
- ☒ An automatic tool changing cycle
- ☒ Any ISO instruction programmed movement

The introduction of this functionality avoids to discard half-finished components, saving money in case of valuable materials (rare woods, etc.) and time in case of long time execution parts.

☒ **Tool life calculation function**

The NC memorizes the distance covered by each routing tool and compares it to a value set by the operator.

When this set value is reached, a persistent warning message is displayed on the screen and repeated each time a given tool has reached the value set by the operator.

**Industry 4.0 - Integration with factory systems**

In trend with the evolution of industrial automation, the machine integrates some features able to improve the production quality of the plants.

In particular, it is possible to:

- ☒ Interconnect the machine to the IT systems of the factory, with remote loading of instructions and / or part programs by means of connection to the Ethernet network, with TCP-IP protocol, with IP address set by the user, for sending programs and job lists through appropriate interfacing libraries, supplied on customer request (PCQUO);
- ☒ Integrate the machine to the factory logistics system in an automated way. The machine publishes information about programs (unique ID, program status, distinguished name, time and start / end date, etc.), elementary machine states and tool changes. The information can be read by a MES thanks to the exchange protocol OPC-UA.

\* The software development to acquire the data exposed by the Rover machine through the OPC UA Server, the relative aggregation and integration in the MES / management systems are charged to the customer

\* For activation, please contact the authorized Biesse Service department

**Teleservice**

It allows an immediate and direct access to the machine numerical control via network. In this way it is possible to check machine data, user programs, input/output signals and system variables, and to install software updates, therefore granting:

- ☒ Real-time service intervention
- ☒ Quicker problem solving
- ☒ Consistent reduction of machine downtime
- ☒ Real-time software updates

The Teleservice support is free of charge for the whole warranty period.

**User documentation**

- ☒ Installation instructions
- ☒ Machine user manual
- ☒ Software user manual instructions
- ☒ Pneumatic and electrical diagrams

- ☒ InDocs CD containing the spare parts catalogue
- ☒ Factory assembling and testing declaration

#### Maintenance equipment

- ☒ Device for locking and unlocking tools from tool-holders
- ☒ Set of wrenches
- ☒ Greasing pump
- ☒ Grease for linear guides, rack and pinion lubrication
- ☒ Grease for boring head and aggregates lubrication

#### Technical specifications

Maximum axes speed X - Y - Z	25 - 60 - 20*	mt/min
Z axis stroke	408 (3-axes) - 488 (5-axes)	mm
Z axis piece passage	200 / 250**	mm
Z axis piece passage with Sweeper Arm	170	mm

The technical data shall be verified on detailed layout according to the operating units chosen on the machine

\* The Y axis speed depends on that of the X axis in interpolation: total speed 35 mt/min.

\*\* Increased Z axis piece passage available with optional code.

#### Numerically controlled machining center ROVER A FT SMART 1536

FT worktable dimension: X=3765mm; Y=1560mm

### Optional units

CODE	U.M.	QUANTITY
<b>7022396</b>	NR	1
Increase of the machine loadable piece to 250 mm		
* Incompatible with the Sweeping Arm		
* Please refer to technical layouts for working fields along Z		
<b>7022345</b>	NR	1
Opening front door for machine safety coverage in replacement of the fixed panel installed in the basic machine.		
It increases the accessibility of the operator to the front operating units of the machine.		
A safety device prevents the machine from starting when the door is open.		
* Mandatory for 5-axes unit and boring head		
<b>7000059</b>	NR	1

#### Wired remote keyboard

Keyboard controlling the main functions available for work area set-up, operating unit tooling and tool changers tooling.

The wired remote keyboard has an ergonomic shape, an easy-to-read display and is equipped with a magnetic device for its positioning on the panel support handles or the control cabinet.

In the presence of languages with special types, it can be selected one of the alternative languages that can be managed with ASCII types (32 to 127).

It includes:

- ☒ Emergency push-button
- ☒ 2 potentiometers
- ☒ Membrane keys to access the menus available on the display

3 programmable keys allow the immediate access to the most used functions

It allows the operator to:

- ☒ Reset the axes
- ☒ Move the axes in manual mode
- ☒ Adjust the axes speed by means of a potentiometer

- ✓ Control the vertical movement of the spindles of the boring unit for tooling purposes
- ✓ Control the vertical movement of the dust extraction hood during the work phases, for the visual control of all the operations being performed on the test panel
- ✓ Display all information relating to the work area set-up: panel supports positioning dimensions along the X axis, sliding bases positioning dimensions along the Y axis, type of vacuum module positioned on each sliding base with the respective orientation
- ✓ Check the state of input and output signals
- ✓ Activate the belt for the removal of chips, if present
- ✓ Perform tool change operations

\* If present, the selectors for the selection of the locking areas are not enabled

**7000205**

NR

1

#### Automatic lubrication system

At each set time interval, adjustable in the numerical control, the pump automatically sends the lubricant to the machine moving parts (linear guides and bearings, recirculating ball screws), with no machine downtime and no operator's intervention.

When the quantity of lubricant in the tank reaches the minimum, a warning message appears on the NC screen.

**7570062**

NR

1

Autotransformer for voltages different from 380/400/415V - 50/60Hz

#### Safety devices

CODE

U.M.

QUANTITY

**7022350**

NR

1

EC safety systems for machines equipped only with bumpers.

\* It includes programmable safety control unit in compliance with current European regulations

#### Working table

CODE

U.M.

QUANTITY

**7351049**

NR

1

Reference stops and origins for RIGHT area with pendular machining - stop stroke 60 mm

Inclusive of:

- 2 rear stops for RH area
- 3 front stops for RH area
- 2 RH side stops
- Program start for RH area on control keyboard
- Foot pedal for RH origins vacuum locking activation

The additional stops, with pneumatic lowering, create 2 additional origins for the correct reference of panels. The stops are automatically raised based on origin selection.

The pieces to be executed on the right origins are locked by pressing the pedal placed near the area to be activated.

\* For single machine requires the increment of 7 sensors for the detection of lowered stops, if selected

\* For machine with automatic unloading system (Sweeping Arm) includes the sensors for the detection of lowered stops

\* For size 1224 requires the selection of the Multizone

**7350909**

NR

1

Row of 6 additional stops positioned inside the FT worktable at about 470 mm from the front side and 2 additional side stops - stop stroke 140 mm.

The additional row of stops creates 2 extra origins inside the FT table, one on each side of the machine, which can be reached by all the operating units.

- \* Inclusive of 1 kit of polizene spacers
- \* Requires the reference stops and origins for RH area
- \* Requires the increment of 8 sensors for the detection of lowered stops, if selected
- \* Incompatible with another line of additional stops positioned inside the worktable
- \* Mandatory for horizontal machining with operating unit with 5 interpolating axes

**7351007**

NR

1

#### 8 zones Multizone vacuum system

The FT working table is divided into independent zones, each of which is automatically activated by the NC according the size and position of the programmed panel, granting the best vacuum optimization.

It allows the locking of panels with different dimensions minimizing vacuum dispersion, without any operator intervention.

- \* Requires the reference stops and origins for RH area

**7350960**

NR

22

#### Sensor for the detection of lowered stops

One sensor on each stop the machine is equipped with should be selected.

For FT machines with unloading or loading and unloading system and its relative prearrangement the sensors are included.

## Vacuum system and devices for vacuum locking

CODE

U.M.

QUANTITY

**7300984**

NR

2

#### 250 m3/h rotary vanes vacuum pump

- \* Oil-free working
- \* Flow rate: 250 m3/h at 50 Hz and 300 m3/h at 60 Hz
- \* Vacuum system required
- \* Cannot be used at an altitude over 1000 meters above sea level

## Vacuum modules applied on spoilboard

CODE

U.M.

QUANTITY

**7351109**

NR

4

Vacuum module applied on spoilboard - Size 132x146 - H74mm, with high friction surface, integrated sealing gasket of the vacuum and prearrangement for needles.

It allows to work both using the auxiliary vacuum system and without:

- ☒ With auxiliary vacuum system: the module is locked / released with the vacuum of the spoilboard and the piece is locked / unlocked with the auxiliary vacuum
- ☒ Without auxiliary vacuum system: locking and unlocking of the module and the piece occur simultaneously

- \* Requires the stops positioned inside the FT table
- \* Requires Multizone system



# Operating UNIT

CODE

U.M.

QUANTITY

**7212889**

NR

1

13 kW (17.4 HP) operating unit with 5 interpolating axes, HSK F63 adaptor and liquid cooling.

This unit allows the numerically controlled interpolation of the electrospindle on 5 axes.

A Brushless motor controlled by a digital drive and an Harmonic Drive reduction unit with no backlashes control the orientation of the operating unit.

The 5-axes operating unit is fixed directly to the vertical carriage (Z axis) with no interposed pneumatic movements, and therefore with no additional tolerances which could negatively influence the group rigidity and the working precision. Thanks to its relatively small dimensions, this unit can reach parts of the pieces to be worked which other types of 5-axes units available on the market cannot reach. The electrospindle is equipped with 2 front ceramic bearings and 2 rear ceramic bearings, which can work at a very high rotation speed, with a pressurization system which protects it from dust and with a blower which cleans the tool-holder during tool change. The dissipation of the heat produced by the electrospindle during machining operations is granted by a liquid cooling unit. The 5-axes operating unit does not require any periodic lubrication, since its components are lubricated for life.

Three veins of compressed air within the operating unit allow to use edgebanding aggregates with 3 air veins, copying units, aggregates with blowers, etc.

Technical specifications:

- ✓ 11 kW (15 HP) from 12.000 RPM to 20.000 RPM in S1 duty
- ✓ 13 kW (17.4 HP) from 12.000 RPM to 20.000 RPM in S6 duty
- ✓ Max. rotation speed: 24.000 RPM
- ✓ C axis: 360° non-stop rotation
- ✓ C axis rotation speed: 16 RPM
- ✓ B axis: 360° non-stop rotation
- ✓ Maximum angle undercut: - 10°
- ✓ B axis rotation speed: 16 RPM

The programming of workings which require the angular positioning of the 5-axes operating unit can be performed through bSolid, which allows to:

- ✓ Define a "virtual" face with a specific orientation in space and program the workings to be carried out on that face;
- ✓ Define the unit orientation and perform its angular positioning.

The programming of workings which require the interpolation on 5 axes of the operating unit can be performed through bSolid, with the additional module for 5 Axes Machining, or a specific software to be chosen among those available on the market, to be approved by BIESSE.

This software includes the control of the angular positioning of the unit.

During the programming, bSolid checks the possible collisions between movable parts and working table (included the locked piece).

Since there is no control on the actual working table set-up, the operator however must check the actual possible collisions by himself.

- \* Requires bSolid or another external software package approved by BIESSE to manage the 5 axes operating unit
- \* Requires a liquid cooling unit between liquid cooling box and heat exchanger
- \* The sensors on all the pneumatic stops are recommended
- \* Requires one automatic tool changer or Pick-up tool changer, where available
- \* It includes a suction hood with two positions, programmable by NC



**7212252**

NR

1

Suction hood with 12 positions controlled by NC, for electrospindle with 5 axes.

The NC determines the optimal position of the hood, according to the piece and the tool, in order to improve the effectiveness of the suction.

**7550008**

NR

1

Presetter for the measurement of the tool length with diameter up to 130mm

Digital device for tool length measurement by contact plate

The device checks the tool length and updates the values in the tool schedule of Numerical Control.

The diameter of the contact plate is 130mm.

We recommend the use of the blowing device for the cleaning of the reading surface.

The measurable lengths (min/max) must be verified on the specific layout.

\*Includes a special tool holder for the device setting.

**7570016**

NR

1

Liquid chilling unit for liquid cooled systems

The liquid chilling unit is equipped with a visual indicator for liquid level and is capable to chill two electrospindles or one electrospindle and one liquid cooled boring head.

The liquid chilling unit grants a longer life to the units even during the most severe operation by keeping the temperature within the normal levels.

The system has an internal flow control which can pop-up warning message on the N.C. screen if the flow is not sufficient.

Power consumption: 1600W

**7212197**

NR

1

Additional Z axis carriage for front operating units, with pneumatic stroke

This carriage can fit the boring unit and/or the panel origin and/or thickness detection probe.

The descent of the carriage is controlled by a pneumatic movement which lowers the front carriage from the rear one.

The boring unit is fixed directly to the front Z carriage, which vertical movement is pneumatically controlled.

\* It does NOT allow the subsequent retrofit of a boring head or detection probe

\* Retrofit NOT possible

**7200409**

NR

1

**BH25L Boring Head**

Working unit which can be equipped with 25 independent tools for single and multiple borings on 5 panel sides, and with a sawblade for grooves along X direction on panel's top face.

The spindles have a RH/LH alternated rotation and are driven by precision helical ground teeth gears which grants minimum noise emission and maximum machining accuracy.

The boring head is equipped with a manual lubrication system to be performed at a set time through the greasing pump, and it's reminded by a warning message on the N.C. screen.

The head is air cooled.

The unit is composed of:

- ☒ 18 vertical independent spindle with a pitch of 32mm (11 spindles along X axis and 7 spindles along Y axis)
- ☒ 3 horizontal independent spindles with double outlet with a pitch of 32mm (2 oriented along X axis and 1 oriented along Y axis)
- ☒ 1 sawblade with diameter 120mm for grooves along X axis (maximum cutting depth 25mm)

The spindles are driven by 1 inverter controlled motor (motor power 1.7 kW at 2800 rpm - 3 kW at 6000 rpm): the spindles rotation speed is programmable up to 6000 rpm to perform fast drilling cycles and reduce machining time.

Furthermore it is possible to program the correct rotation speed based on the tool and material to be processed.

The boring head is equipped with a dedicated dust collection hood which is automatically activated when the unit is in operation.

\* Requires the additional Z carriage with pneumatic stroke

\* Not compatible with rack toolchanger of 6/8 positions, if available

## Tool-carriers for automatic tool change

CODE

U.M.

QUANTITY

**7291219**

NR

1

Rack tool changer with 13 / 16 positions for 5 axes unit.

Installed on the left side of machine base frame, it allows to have up to 13 or 16 tools always available where required on the machine, therefore reducing the tool change time.

Thanks to its well-integrated position in the base frame, it provides a compact, simple and extremely reliable solution.

The pneumatic lowering allows maximum operability with the 5-axes unit.

Main specifications:

- ☒ 13 or 16 tool-holder position with centerdistance of : 100 mm
- ☒ tools which can be stored: 13 for size 12xx-15xx and 16 for size 18xx-22xx
- ☒ max. tool diameter: 300 mm – check the tool-changer layout for position with limitations
- ☒ max. tool length: check the tool-changer layout
- ☒ max. weight of tool or aggregate + tool: 7.5 kg

\* Includes pneumatic lowering along X

\* For tools weighing over 6 Kg requires the strengthened gripper

\* Mandatory for 300 mm sawblade

**7291218**

NR

1

8 positions Revolver Toolchanger, positioned on the X axis carriage for 5 axes unit.

Onboard of the X axis carriage, allows to store up to 8tools always available on each position of the machine and to perform toolchanging operations in a short time.

Technical specifications:

- ☒ Wheelbase between grippers: 115 mm
- ☒ Maximum loadable tools: 8 with max. diameter 110 mm
- ☒ Loadable aggregates: refer to the toolchanger layout
- ☒ Maximum tool diameter: refer to the toolchanger layout
- ☒ Maximum tool length: refer to the toolchanger layout
- ☒ Maximum weight of a tool or aggregate inclusive of the tool: 7.5 kg
- ☒ Maximum total weight: 32 kg

\* For tools weighing over 6 Kg requires the strengthened gripper

## Tool-holders and collets

CODE

U.M.

QUANTITY

**7270058**

NR

1

Tool-holder with HSK F63 adaptor, equipped with a short flange for saw blade used on 5-axes unit

Main specifications:

- ☒ Flange diameter: 100mm
- ☒ Flange and pin for tool connection
- ☒ Rotation direction: Rh or Lh, according to the way the saw blade is assembled
- ☒ Supplied with keys for the set-up

## Tools

CODE	U.M.	QUANTITY
<b>7001109</b>	NR	1

300mm sawblade for tool-holder with flange

- ☒ Fastening through flange and counter shank head screws
- ☒ Number of teeth: Z=24
- ☒ Blade thickness: 3.2 mm.
- ☒ Max. rotation speed: 5800 rpm

\*For operating unit with 5 interpolating axes.

## Software

CODE	U.M.	QUANTITY
<b>7530392</b>	NR	1

### BSolid

3D CAD-CAM program to design, simulate and manage the machining processes of the Biesse machining centers and boring machines. The use of additional optional modules allows to expand and specialize the performance of the bSolid base module whether it is installed in the machine or in the office.

The software package running in Windows environment allows designing the final product, defining its machining, defining working table set-up, simulating the part machining on the 3D machine model and generating the machine needed programs.

CAD/CAM environment with the following functionalities:

#### CAD design and project:

- ☒ Commands for defining and editing parametric objects such as geometries, surfaces and texts.
- ☒ Commands for generating and modifying vertical, inclined and curved custom parametric faces.
- ☒ Non- parametric commands dedicated to the modification of geometries, surfaces and texts, such as: displacement, wheel, scale, symmetrical copy, trim, automatic fillet, union, etc.
- ☒ Manual dimensioning tools.
- ☒ Environment for inserting and modifying variables, using geometries, surfaces and all processes.
- ☒ Design visualization tools such as: zoom, view rotation, orthogonal view on customized faces.
- ☒ DXF (Technologic DXF), CIX, BPP, BMP, JPG, PNT, DAT, ICP file import. Importing files of large dimensions or containing many elements (e.g. points, lines, etc.) is not guaranteed.

#### CAD/CAM design and project:

- ☒ Fast and immediate 3D simulation of workpiece processing with visualization of material removal; useful for quickly and visually checking whether the programmed working sequence actually corresponds to the desired one until observing the machining results on the finished piece.
- ☒ Commands for routing, boring and cuts design on horizontal, vertical, inclined and curved faces with the capability to work on these faces in a 2D simplified way (therefore the 4 axis machining).
- ☒ Commands for 2D simple pockets design on standard faces and custom faces; the function automatically considers the characteristics of the geometry and the tool, with the possibility of choosing different types of path (eg: concentric, single direction, etc.).
- ☒ Independent management of multiple machines.
- ☒ Management of 5 axis machining only in positioning.
- ☒ Environment for creating and modifying of macros (also parametric).
- ☒ Custom tool design (routers, drill-bits, saw blades and their 3D shape). Graphic environment for simplified creation of 3D custom tools. The tool thus created, together with the 3D graphic environment with chip removal, allows to obtain immediate views of the finished piece. It allows to import drawings in dxf format

provided by external suppliers or created with other CAD systems. It also allows to assign control points for simplified programming.

- ✓ Management of aggregates supplied on the price list.
- ✓ Creation of simplified personalized aggregates. The use of this category of objects does not provide for collision control.
- ✓ Management of the deflectors supplied on the price list.
- ✓ Possibility to search and clone tools, aggregates and deflectors.
- ✓ Definition of machining sequences.
- ✓ 3D graphic environment to simplify the tooling of tools, aggregates and deflectors on the various magazines on the machine, with the possibility of perceiving even the overall dimensions.

### 3D Graphic simulation

- ✓ 3D graphic environment to help you manage the working surface, with the possibility of adding and removing the various types of vacuum modules available for machine configuration; it is also possible to graphically configure the panel supports and sliding bases present. Possibility of using the semi-automatic positioning command, which allows you to provide, when feasible, a proposal to configure the entire working surface, which can then be refined manually.
- ✓ Possibility to simulate the movements generated by the numerical control without the need to start the machine, with the removal of the material removed from the tools, ensuring the collision check with the volume of the piece not machined, excluding programs that require the repositioning of the piece.
- ✓ Ability to graphically verify or from the worklist the main causes of collision between the elements of the machine as represented in the graphic simulation environment. The graphic representation includes tools, electrospindles, aggregates, panel supports, sliding bases, locking systems provided in the price list and the volume of the workpiece as shown. Excluded are controls of machine components handled manually if not equipped with automatic control systems, or customized that are not represented consistently in the 3D graphic environment. The supporting structures, the external protections and the mechanical organs equipped with copying systems are not included from the machine control. Collision checking is more accurate if performed at 1x simulation speed or from the worklist by activating the appropriate function. It is advisable to check the technical documentation on the best modes to obtain more accurate simulations of the machine, equipment and tools. The simulation and automatic collision detection systems do not exclude the need to perform simulation in the machine.
- ✓ Easy programming for Multi-Piece machining. By activating this mode, in the graphic environment it is possible to display and modify the position of several pieces at the same time in the same working area. The pieces can easily be referred to the various origins or rotated according to the processing needs.
- ✓ bSolid allows to manage multiple Biesse machines with a single platform. A single software version installed in a computer allows to generate programs for different compatible Biesse machines with a simple selection of the same in the programming environment; for these uses the machines that must be managed by a single software version must have also installed a homogeneous version. The Biesse Service can be consulted to verify the possibility of making different Biesse machines homogeneous; this service could involve costs.

### Calculation of processing time

- ✓ Graphic simulation allows a calculation of the program execution time on the machine. The calculation is representative of reality because the movements of the machine are simulated using Numeric Control of the same. Keeping the production machines in line with the data present with the systems present in the office, it is possible to obtain data necessary for calculating estimates, as well as analyzing the actual feasibility with the tools and the technical characteristics of the machine itself. The calculation of the cycle times cannot consider the manual interventions of the operator.

### Work list

- ✓ Environment in which to collect and manage the list of programs to be executed with the possibility of importing it from external files in csv format, calculating the processing times of the entire program list, activating the preventive collision check and having the view of the workpiece for a fast recognition of the program. It allows to modify the data of the parametric programs in the same environment. Multiple lists can be created.

**Use with machine optional items**

- ✓ Barcode reader. The presence of a barcode reading tool, through the bSolid program, allows an easy use of the working process. bSolid allows to start programs directly by reading the data of individual programs or upload them to the work list.
- ✓ External loading and unloading systems. bSolid provides for the presence of automatic loading and unloading systems and their use through specific macros. The specific services are requested to be checked with the Biesse qualified staff.

\* The use of the bSolid application can require optional modules to complete the specific performance of some Biesse working centers technologies; contact the qualified Biesse staff to get the correct information.

\* Recommended requirements of the PC for installation in office:

- PC Intel Core I5 or I7
- At least 8 GB RAM
- Windows 7 64 bit Operating System
- nVidia OpenGL Accelerated Graphic Card with at least 1 GB RAM
- Resolution 1440x900 with 16M colors
- At least 10 GB of free space on the Hard Disk

**7530393**

NR

1

**bSolid - External format import**

Module for the import of external files.

The module allows opening the files displaying 2D and 3D geometries in the bSolid CAD environment.

\* Importing files of large dimensions or containing many elements (eg points, lines, etc.) is not guaranteed.

FORMATS	EXTENSION	VERSION
3D XML Format	.3dxml	v4.3
ACIS	.sat, .sab, .asat, .asab	R1 – 2017 1.0
CATIA V4	.model, .exp, .session	4.1.9 – 4.2.4
CATIA V5	.CATPart, .CATProduct, .CGR	V5R8 – 5-6R2016
3DExperience (CATIA V6)	.CATPart, .CATProduct, .CGR, .3dxml	Up to V6 R2016x
DWG	.dwg	2.5 – 2016
IGES – Initial Graphics exchange Specification	.igs, .iges	Fino a 5.3
Inventor	.ipt (V6 – V2017), .iam (V11 – V2017)	V11 – 2017
JT	.jt	JT 8.x and 9.x
NX	.prt	11 – NX 11
NX Direct	.prt	NX 1 – NX 11
Parasolid	.x_t, .xmt_txt, .x_b, .xmt_bin, .p_b, .xmp_bin, .p_t, .xmp_txt	9.0 – 29.0.137
Parasolid Direct	.x_t, .xmt_txt, .x_b, .xmt_bin, .p_b, .xmp_bin, .p_t, .xmp_txt	9.0.x – 29.0.x
Pro/E / Creo	.prt, .prt.*, .asm, .asm.*	16 – Creo 3.0
Solid Edge	.par, .asm, .psm	V18 – ST9
SolidWorks	.sldprt, .sldasm	98 – 2017
SolidWorks Direct	.sldprt, .sldasm	2003 – 2017
STEP	.stp, .step	AP203, AP214, AP242

STL	.stl	-
VDA-FS	.vda	1.0 – 2.0
XCGM	.xcgm	R2012 – 2017 1.1
Virtual Reality Modeling Language - WRL	.wrl	-
Laser Image - TAS	.tas	-

**7530394**

NR

1

**bSolid - Surface Design**

Module for surface design.

The module provides commands for surface design in the space in the following modes:

- ☒ Geometry extrusion
- ☒ Geometry extrusion along a path
- ☒ Geometry revolution around an axis
- ☒ Creation from several sections (skin)
- ☒ Union of open sections on 4 contiguous faces
- ☒ Extrusion between 2 sections
- ☒ Extrusion between 2 sections along a path

\* The machining of designed surfaces requires at least one module on the choice between:

- bSolid – 3 Axis Machining
- bSolid – 5 Axis Machining (for machine with 5 Axis Unit)

**7530395**

NR

1

**bSolid - Surfaces From Image**

Module for surface creation from images, files obtained from point tracing and by "glow" process ("camber" effect from 2D closed geometries).

The module provides commands to create surfaces in the following modes:

- ☒ Import of image files in BMP and JPG formats
- ☒ Import of files obtained from point tracing (.PNT) or from laser device (.DAT)
- ☒ Creation from 2D closed geometries by "glow" process

\* The machining of designed surfaces requires at least one module on the choice between:

- bSolid – 3 Axis Machining
- bSolid – 5 Axis Machining (for machine with 5 Axis Unit)

**7530396**

NR

1

**bSolid - 3D Engraving**

Module for engraving on bi-dimensional geometries (2D).

The module requires the use of conic tools, therefore the programmed interpolating movements in the three axis X,Y,Z will give the effect of "sharp corner".

**7530409**

NR

1

**bNest - Software module for nesting process applications**

bNest allows to create nesting projects including the item list with related quantities to be produced and the list of boards to be used with the target of minimize the used material and the machining timings. The optimization process result is a list of bSolid programs (.bSolid) containing all the machining of parts positioned inside the used boards.

It includes the following features:

**Environment for manual nesting project creation**

1. It's possible to add or take items off an existing nesting project, optimize or delete them, check the nesting optimized cut layouts.

**Data import from ERP or external design application**

2. A standard solution as spreadsheet file (.csv format) is used in order to keep easy the data exchange between software applications.



3. The imported data will be used for production and labelling as well.
4. The import rules are configurable thus they can easily adapt to customer needs.

#### **Item, board and material management**

5. Dedicated environments where the operator can edit, check and fix all the information of parts, boards and materials.
6. The item registry describes the item properties (dimensions, material, program, parameters).
7. The material registry lists all usable materials. The material registry can be filled in also with a data import from the company ERP system (through .csv files).
8. bNest will automatically split the list of processable items in groups according material, thickness and grain.

#### **Supported formats**

9. It's possible to import the following file formats: bSolid, cix, bpp, cid, dxf (in the bNest compatible format).

#### **Nesting optimization methods**

10. Free-form shape is supported.
  11. Sizing: piece arrangement following pattern bands along X direction
  12. Guillotine cut: piece arrangement as a beam saw pattern replacing the saw with a router
  13. Common cut: piece arrangement so that almost all cut paths are in common between the pieces
- \* In methods 3 and 4 the detachment routing paths are in part (4) or in whole (3) in common between adjacent pieces thus the operator should take this into account

#### **Integration with bSolid**

14. It's possible to create items directly in the bSolid Cad-Cam environment joining each designed program with the materials defined by the operator.
15. It allows opening the nesting results when the operator needs to edit, simulate or get the machining cycles times.

#### **Generation of complementary programs**

16. Automatic generation of complementary programs containing all the machinings, concerning the single piece, programmed on faces different from the upper one
17. The complementary programs can be used only on Rover machining centers.

#### **Automatic cluster management**

18. Automatic cluster management can be enabled. The pieces are coupled and then inserted into the nesting resulting scheme following a grid layout
- \* Compatible only with Free-Shape nesting or Common Cut methods

#### **Cloning results**

19. It is possible to enable the cloning of the nesting scheme (and related labels) along the X and / or Y direction. This option allows the splitting of board into bands of equal size (band length and width) and space them according to an offset set by the user.
- \* Compatible only with Free Shape or Sizing methods

#### **Management of holes**

20. Automatic recognition of internal holes management. This option prevents the labels from being put on scraps and that these are considered in the percentage calculation of panel occupation.
- \* for pieces with open path it's compatible only with the "Workpiece dimensions" option as overall size to be considered
- \* It does not allow the piece insertion inside the holes

**Off-cuts crumbling**

21. Using specific parameters, it's possible to break the cut-off parts to simplify their offloading by the operator.

**Cleaning cycles**

22. It's possible to add to the nesting results one or more cleaning cycles using the sweeping arm.

**Auxiliary geometries**

23. It's possible the automatic generation of auxiliary geometries used i.e. for detensioning cuts. These geometries creation is based on the routing machining.

**Labelling:**

24. Automatic management of label applier or manual label printing with dedicated touch-screen device
25. Only for automatic management, it's possible to automatically optimize the label positions to avoid any label scratch or damage during the router machining.
- \* It requires the automatic adhesive label printing and application system or the auxiliary working station for adhesive labels visualization and printing.

**Manual management of re-usable material:**

26. Manual definition of re-usable parts (dimensions, material, grain and thickness).
27. Manual integration of available re-usable parts for their use in any nesting projects.

**Automatic management of re-usable material:**

28. bNest provides the automatic definition of the material not used in the nesting layouts (re-usable part creation) and the labelling of re-usable defined parts (using a dedicated label editor).
- \* It requires the dedicated module for re-usable part management.

**Machining sequence**

29. The machining are listed in the right order able to minimize both the tool-changers and the machine movements leaving as last the through machining for optimize the vacuum part locking.
30. It's possible to create machining sequence to separate the parts from the smallest to the widest ones.

**Project report:**

- ☒ Board used quantity exportable in a .csv file
- ☒ Optimized pieces quantity exportable in a .csv file

\* It requires bSolid.

\* The Nesting optimization is not compatible with bSolid programs containing curved faces, 3D surfaces and relative processing programmed with "3 axes machining" and "5 axes machining" modules (roughing, finishing with 3 axes and 5 axes)

\* It is not possible to export the programs resulting from the nesting in CIX format

\* The resulting schemes will include only the compatible machinings (see above) programmed on upper face.

All the compatible machinings programmed on a face other than the upper one can be inserted in complementary programs

**7530468**

NR

1

**bNest - Graphic editor for manual editing of nesting results**

The graphic editor is accessible from the nesting results environment of a bNest project and allows you to easily modify one or more resulting schemes by manually adjusting the position and rotation of the pieces and / or adding or removing pieces of the same project.

All operations take into account the interference between pieces, wastes and trims of the panel.

Particularly suitable for free-form nesting of shaped pieces.

Below is a summary of the main commands:

- ☒ Drag & drop on pieces, zoom, copy, paste
- ☒ Adding / removing nesting schemes
- ☒ Addition / removal, rotation, alignment etc. of the pieces
- ☒ Elimination and / or recalculation of reusable remains

\* Not available with the guillotine-cut calculation method

\* Requires bNest

**7530397**

NR

1

**bSolid - 3 Axis machining**

Module for surface roughing and finishing with dedicated tools and machine interpolating movements in the 3 axis X, Y, Z.

The module provides commands to assign to a surface a rework and / or a roughing or finishing operation in the following modes: parallel, radial, concentric, spiral, constant Z and curve tracking.

\* The design of surfaces over which it's possible to apply these machining requires at least one module on the choice between:

- ☒ bSolid - External format import.
- ☒ bSolid - Surfaces Design.
- ☒ bSolid - Surfaces from image.

**7530398**

NR

1

**bSolid - 5 Axes Machining**

Module for surface machining with 5 Axis Unit and interpolating movements on all 5 available axes (X, Y, Z, C, B)

The module includes the following commands:

- ☒ Roughing and finishing assignment to three-dimensional surfaces
- ☒ Wrapping and projecting on a curved surface a tool path lying on a plane
- ☒ Following 2D or 3D curves with any kind of tool

The assigned machining allows the use of 5 Axis Unit in continuous during the job.

For a 3 axis surface roughing and finishing with a 5 axis machine it's suggested anyway the selection of 3 Axis Machining modules.

\* The design of surfaces over which it's possible to apply these machining requires at least one module on the choice between:

- ☒ bSolid - External format import
- ☒ bSolid - Surfaces Design
- ☒ bSolid - Surfaces from image

\* It requires a machine with a 5 Axes Unit

**7530213**

NR

1

**Additional license for bSolid**

It allows the installation and the use of bSolid on 1 additional PC station.

\* It includes 1 hardware USB key for software activation

\* It requires the bSolid software

**7530214**

NR

8

**Extra license for a single additional bSolid module**

It allows the installation and the use of one or more additional bSolid modules on 1 PC station enabled by the extra key included in the bSolid additional license.

\* Quantity depending from the quantity of additional modules selected

\* It requires the additional license for bSolid

# IoT SOPHIA

CODE	U.M.	QUANTITY
7550042	NR	1
SOPHIA - IoT Connection		

SOPHIA is the IIoT platform (Industrial Internet of Things) which aims to generate greater value for the customer through the connection of the machine and the collection and analysis of processing data. A project that fits fully into the digital transformation movement that is characterizing the fourth industrial revolution.

SOPHIA detects, verifies, points out and resolves problems encountered by the user during the use of the machine, as well as plans, on the basis of the data provided, maintenance operations/technical interventions and spare parts supply. Specifically, it includes:

- Permanent connection of the machine to service centers.
- Team dedicated to the diagnostic monitoring of the single machine.
- Mobile App with continuous monitoring of the status and performance of the machine.

## SERVICES DETAILS

### Remote Diagnostics

The Biesse service, through the control panel, continuously monitors the machine in operation. The constant flow of data provides and historicizes every significant event during the entire period of activity of the machine.

SOPHIA IoT provides a bidirectional communication between the end user and the service, thus ensuring the shortest reaction time.

The data is transmitted via Internet, encrypted and certified, to our cloud platform and made available to customer service for remote assistance.

### A faster and more efficient service:

SOPHIA IoT optimizes intervention times and increases their effectiveness.

SOPHIA IoT automatically recognizes the most common causes of machine downtime and immediately activates the reference service.

SOPHIA IoT is based on a constantly evolving dynamic architecture. This guarantees a constant increase in performance.

### Mobile APP:

All SOPHIA IoT Biesse technology in a simple app!

Performance indicators and Statistics: monitoring of machine performance on the basis of three fundamental indicators: Availability, Efficiency and Effectiveness. The indicators are viewable both in real time and as aggregation of historical data, in order to have a temporal and detailed view of the machine. The statistics show the main operating data of the machine: hours of ignition and automatic, downtime, etc.

Advanced indicators: indicators specific to the type of machine, with the possibility to select the indicator of interest, the period of analysis and the level of aggregation desired (month, day, hour or half hour).

Notifications in the app: push notification system for production and maintenance management. The notifications in question can be sent at the beginning of an event, or independently when the end of the useful life of a component or a maintenance expiry approaches (preventive maintenance). For each notification it is possible to consult and / or modify its status, declaring to have read the notification itself.

Assistance requests and machine downtime: real-time tracking of service requests and machine down events. For each event it is possible to monitor, facilitate and make the resolution process effective by attaching documents, comments, photos or videos.

Video Assistance: ability to communicate in streaming, chat, take photos and record videos, share documents in order to make the resolution process faster and more effective.

Technical Documentation: access to the complete technical documentation of the machine (manuals, diagrams, exploded view and spare parts list) in the SOPHIA Parts application, and the possibility to download the documents, so as to have access also in offline mode.

The SOPHIA IoT app is accessible, via compatible mobile devices, with a non-exclusive and non-transferable license, subject to the conditions to be accepted on first use.

The SOPHIA services are provided to the Purchaser for a period of 12 months from the moment they are activated (or 12 months from the purchase of the Machine) and are automatically renewed for a fee at the price list of SOPHIA package, unless buyer's cancellation takes place within 30 days before the end of the service.

The price for renewals may vary depending on market requirements or correlation with changes in production costs, staffing or auxiliary services, subject to any legislative provisions with impact on sales prices.

#### DATA MANAGEMENT

Technical data and information related to SOPHIA services can be collected and used by Biesse to perform its performance, and be used in aggregate and statistical form to supply, improve and develop, in general, products / services Biesse technologies.

#### PRE-INSTALLED SOFTWARE

The terms of use of the BIESSE Software (including those functional to the "Sophia" Services) are detailed in the applicable sales conditions. The Software, pre-installed and / or made available are licensed without exclusivity and will be usable only for Machines purchased, excluding any transfer right or sublicense. The Software Property, and any rights not expressly granted, are and will remain of the property of BIESSE (and / or its software vendors). The costs of physical connection and the costs of connectivity are charged to the Purchaser.

The SOPHIA IoT platform requires:

- Internet connection,
- Online registration for service, above, as specified in the separate user manual and/or document supplied to Buyer.

XU\_TOOLINGKIT001 1

- 2 HSK F63 ER 40 Tool Holders
- 1 12/11 mm ER 40 Collet
- 1 20/19 mm ER 40 Collet
- 1 80 x 20 mm Spoilboard Fly Cutter Diamond Tipped
- 3 5 x 10 x 70 mm RH Drill Bits
- 3 5 x 10 x 70 mm LH Drill Bits
- 2 8 x 10 x 70 mm RH Drill Bits
- 2 8 x 10 x 70 mm LH Drill Bits
- 1 35 x 10 x 70 mm Hinge Bit RH
- 1 12mm 2 Flute Compression Router Bit

FL1074 4

Flat Table Vacuum Cups FULL SIZE 74mm tall 145x132x74mm

FL1074H 5

Flat Table Vacuum Cups HALF SIZE 74mm tall 75x132x74mm

FL1074Q

5

Flat Table Vacuum Cups QUARTER SIZE 74mm tall 50x132x74mm

## Sophia Rewards - \$4,320

Credit note issued once machine is paid in full. Sophia Rewards valid for future purchases of parts and tooling on the Parts Sophia portal and app only.

Visit PARTS SOPHIA Portal Registration: <https://parts.biessegroup.com/LoginPage.aspx>

Click REGISTRATION and COMPLETE customer contact information

Accept terms/conditions and hit SEND

PARTS SOPHIA allows you to purchase parts, check availability and track purchases online 24/7 – and registered users can download the free App on Apple App Store (for iOS) and Google Play Store (for Android) PARTS SOPHIA. May not be combined with any other show promotions or in addition to other promotions

## Software Training (BGABTR05)

Biesse America provides a comprehensive, 5-day, introductory training on software programming techniques. Prior to the delivery of the machine, two people will attend the training class at Biesse North America Training Center at no additional charge, where training is given in a classroom setting.

Airfares, hotel, meals and other will be at customer expense.

Participants must have basic computers skills and knowledge on how to use Windows operating systems.

Additional trainees may be added at a flat rate of \$895 each.

Hands-on training is not included. The installing technician will provide hands-on, machine operation and maintenance training at the customer's facility during installation if installation is included.

## Installation (BGAB012)

The first phase of installation (BGABTR05) consists of a session of classroom training in our Biesse North America Training Center. The second phase of installation (BGABINS) consists of up to 120\* hours of onsite machine installation and refresher training to reinforce the first phase of training. In the mutual interest to have a successful installation within the 120\* hours, it is very important that the Customer and Biesse America are aware and agree on the following duties.

*\*Installation hours are subject to change*

### **Biesse America Duties:**

- ☒ Provide comprehensive training in Biesse North America Training Center
- ☒ Advise and register Customer in advance for training sessions
- ☒ Unpack machine, level, and anchor to the floor
- ☒ Install the Machine according to the manufacturer checklist (when installation is included)
- ☒ Set the machine to operating conditions
- ☒ Train Customer on Machine operating procedures
- ☒ Review and train operators on Machine safety and maintenance procedures
- ☒ Review process to order replacement parts



**Customer Duties:**

- ☒ Attend operator and programmer training session in Biesse America Training Center
- ☒ Prepare the floor where machine will be placed in accordance to Biesse Specifications
- ☒ Offload and position Machine in location to be installed, with Machine maintaining machine in original packaging
- ☒ Provide the Labor Force and handling equipment (crane, forklift, etc.) to unload, uncrate and position the machine
- ☒ Provide the tools and material required for anchoring machine to the floor (hammer-drill and bit)
- ☒ Contract a Licensed Electrician to complete the electrical connection to the machine
- ☒ Complete an electrical ground as it is mandatory and necessary
- ☒ Provide, install and complete Dust extraction and final connection to the machine as specified in the machine data
- ☒ Complete Pneumatic connection ready as specified in the machine data
- ☒ Phone line connection for Tele-Service
- ☒ Customer is obliged to complete and have ready all items above prior to arrival of Biesse Technician for the installation (when included). Extended installation time due to incomplete pre-installation Customer Duties will be at Customer expense.

**Not Included (please call for cost estimates):**

- ☒ Onsite programming training, application training or programming of customer pattern/samples
- ☒ Networking
- ☒ 3rd Party software integration
- ☒ Material needed for testing (panels, tooling, etc)
- ☒ Local electrical requirements such as UL may require inspection by an independent agency, and the cost of any inspection and certification will be the responsibility of the customer (The machine is built in compliance with the International Electrical Code (IEC-204)
- ☒ Additional training, exceeding the included installation hours, can be provided on site at standard technician daily rates plus expenses.

## Biesse Service

**You can reach our Support Center at 1-877-524-3773.**

**Biesse 24/7 Phone Support**

Included with each machine is Biesse 24/7 Phone Support. This service provides 24 hours, seven days a week support for users of Biesse machines. Just by calling 1-877-524-3773 and then extension 911 you will reach a technician that can get you the help you need.

**Teleservice**

The Teleservice option is an exciting technology developed by Biesse Group Canada to reduce the cost of ownership for numerically controlled machines.

With the Teleservice package, Biesse technicians can guide the operator to solutions for data errors by viewing the data on the Numerical Control. This eliminates human communication errors and also helps the technician reach a quick resolution as opposed to traditional telephone support. In addition, Biesse technicians can take control of the NC for diagnostic purposes. This allows the quick and efficient resolutions without the expense and lag-time associated with on-site service.

This means more profit for your company and a more rewarding ownership experience.

**Biesse Teleservice is Powered by Webex**

- ☒ Webex uses standard HTTPs protocols making a secure connection to a support representative, thus avoiding changes made to corporate firewalls at the Customer's site to allow the connection.
- ☒ Webex is a powerful utility, that works across many platforms, the only requirement is to have a internet connection at the machine. (High speed Recommended)

To have Teleservice working, you must provide an Internet connection at the Numerical Control with a public IP address (modem not included);

An additional non-dedicated telephone line for voice communication is suggested.

**Price: included for the first 12 months**

## Warranty

### **BSPS Standard 12 MONTHS PARTS – 12 MONTHS LABOR**

**12 Months Parts** warranty is included with this offer. Biesse guarantees the replacement and/or repair of any defective **Parts** during the 12 month warranty period which begins upon machine delivery, or, upon installation if included. As for any other aspect not expressly modified by this Section please refer to Article 12 of Biesse America Terms and Conditions of Sale. It is understood and agreed that, except for the modifications contained herein, the above mentioned Article 12 shall remain in full force and effect.

**12 Months Labor** warranty is included. Our remote services, including phone, email, and web-based support, have proven to provide the most immediate and efficient technical support to our Customers. In the event that **Onsite Services** are required after initial remote support, Biesse is engaged to send a Certified Technician to your premises free of charge. Customers are obliged to cooperate with Biesse to avoid unnecessary onsite services for minor repairs.

## Delivery

Delivery to Customer location is included (unless otherwise indicated). Price includes standard delivery for machines in stock. Standard delivery for stock machines is 2 weeks following executed Order Confirmation and receipt of 30% deposit. Requests for express delivery for stock machines must be indicated at the time of order to ensure proper handling. Requests for express delivery will accrue additional charges and such charges will be indicated in the Order Confirmation. Express rates vary by model and final destination.

## Machine Voltage

FREQUENCY	60 Hz
VOLTAGE VARIATIONS	Within $\pm 10\%$
ALTITUDE	0 ÷ 1000 m

## Buyer Factory Voltage

208	VOLTAGE
60	FREQUENCY

CUSTOM STORE FRONT

# Machine Loading & Unloading Instructions


## B Transport


The machine can be dispatched using various forms of transport (road, rail, sea, air), and the method is usually agreed with the customer at the time of purchase. The machine is divided into a number of parts for transport purposes, and this appendix contains a list of the parts to be dispatched (see page 199).

### B.1 Parts to be transported

For transport, the machine has to be disassembled into the parts indicated in the following paragraphs.

### B.2 Unloading the machine

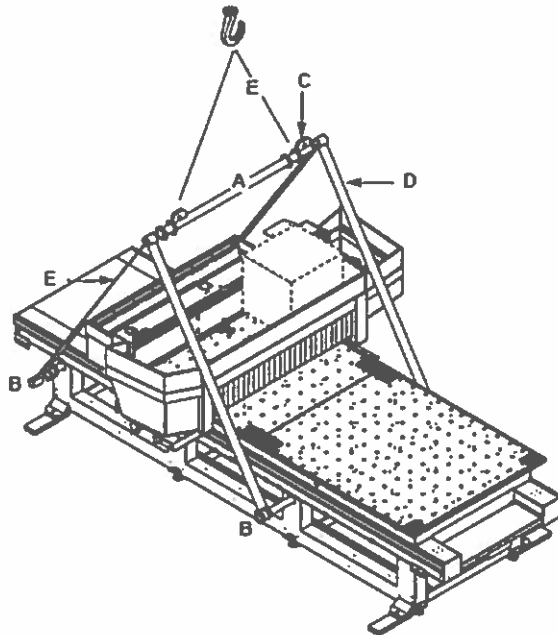
 Lifting and transfer operations necessary to unload the machine and position it in its final location must be carried out by staff in possession with the necessary technical training, according to the indications here below.

 Employ means and equipment (bars, ropes, etc.) of adequate load-bearing capacity when carrying out lifting operations. Before lifting any of the components, remove the anchoring devices (nails, ropes ...) used to secure the machine to the vehicle during transport.






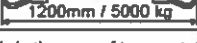
After unloading the main structure, remove the boards and vibration damper plates located under the base, as described on page 202.

## Lifting the machine

To lift the main structure of the machine use the method illustrated below. No particular procedures are necessary to lift the remaining parts.



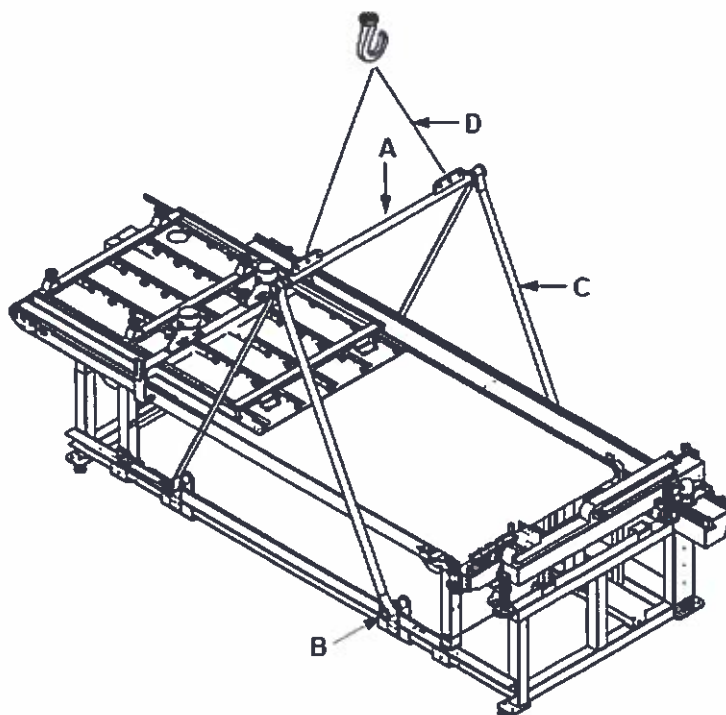
## ROVER A G FT

Material	Quantity	Supplied
A 	1	yes
B 	2	yes
C 	2	no
D  3000mm / 3000kg	2	yes*
E  2500 mm / 3000 kg	2	yes
F  1200mm / 5000 kg	2	no






\* only in the case of transportation in a container.

 The equipment supplied must not be used for other machines or other purposes.

## Loading pallet and unloading belt lifting



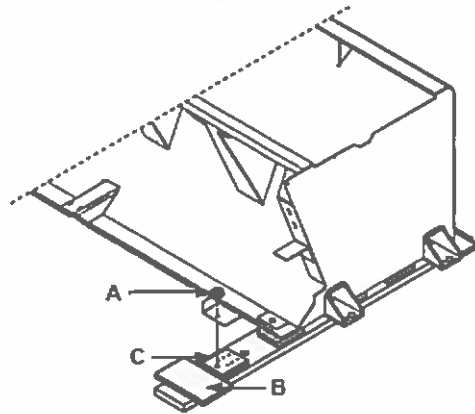
### Loading pallet and unloading belt

Material	Quantity	Supplied
A 	1	yes
B 	4	yes
C 	2	no
D  2500mm / 6000 kg	4	yes
E  1200mm / 6000 kg	2	no



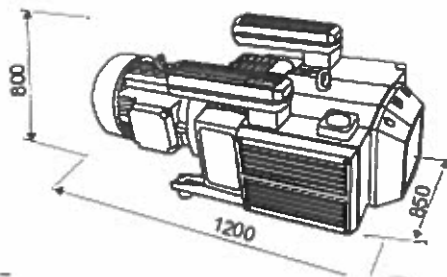
### Removal of the boards and vibration damper plates

Before resting the main structure on the ground, unscrew the nuts A and remove the wooden boards B and the vibration damper plates C from under the base.

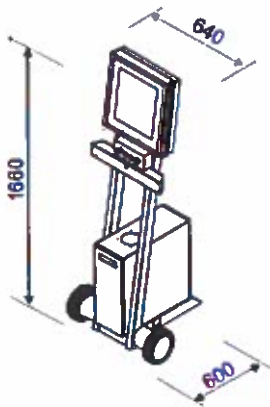


### Vacuum pump dimensions

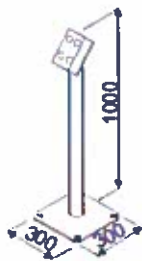
Becker VTLF2.250



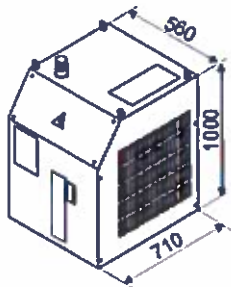
**Overall dimensions of the console**



**Dimensions of the working area button pad**



**Working dimensions of the refrigerator**



# Terms and Conditions of Sale

The foregoing Order Confirmation by BIESSE AMERICA and/or its Affiliates ("Seller") for the sale of certain machines or other items ("machines" or "goods") is subject to the following terms and conditions.

## **1. Contract formation**

The machines that are subject of this Agreement tend to be expensive, complex and subject to varying availability. Accordingly, statements by sales personnel as well as data and descriptions regarding machines and installations are subject to change, and therefore they are not binding upon Seller unless and until expressed in a written order acceptance or confirmation as described in this paragraph, and such acceptance or confirmation is received by Buyer. Seller will be bound only upon an agreement comprised of an order from Buyer and a written acceptance or confirmation by Seller, signed by an authorized Officer of Seller. Buyer acknowledges that it has been advised that no agent, employee, representative or dealer of Seller has any authority to bind Seller to any affirmation, promise, representation, or warranty concerning any of the products and, unless such affirmation, promise, representation, or warranty is specifically set forth in this Agreement, it does not form a basis of this bargain and shall not be enforceable against Seller. All understandings between the parties shall be as set forth in those documents, provided that these terms and conditions shall be deemed incorporated in the contract between Seller and Buyer. Seller objects to any terms and conditions in an order from Buyer which vary the terms hereof (for clarification, an "acknowledgement" of an order is not an acceptance). Unless otherwise agreed in writing, Buyer's acceptance of delivery of any part of the goods sold hereunder, or any payment by Buyer for such goods shall constitute Buyer's acceptance of all terms and conditions herein. In any event the machine shall be accepted if Buyer begins using it for production.

## **2. Delivery, shipment, title, risk of loss and claims**

Delivery of goods covered hereby shall be F.O.B. at the port of entry nearest the Buyer unless otherwise specified by the Seller. Seller may, at its option, ship all of the goods covered hereby at one time or in portions from time to time. Seller shall make reasonable efforts to ship goods for delivery on or about the time stated or estimated on the confirmation of order, although time shall not be of the essence with regard to delivery of the goods. Under no circumstances will Seller be responsible for or incur any liability for damages, costs or expenses of any nature (whether general, consequential, as a penalty or as liquidated damages or otherwise) due to any delays in delivery or failure to make delivery at an agreed or specified time. Unless otherwise agreed in writing, Seller shall have absolute discretion as to mode and routing of shipments. Title and ownership to the goods shall remain with the Seller until Seller has received full payment therefore. Risk of loss of the goods shall pass to the Buyer upon identification of the goods to the contract. Responsibility for, and expense of preparing and filing, claims against carriers for loss or damage to goods in transit shall be that of Seller, unless F.O.B. point is something other than Buyer's facility.

## **3. Price adjustment**

The prices of goods covered hereby are based on the current price levels of Seller's supplies who are manufacturers of goods. In the event that, between the date of the order confirmation and the date of delivery of the goods, the cost of the goods to Seller is increased by an increase in supplier's price level, then, unless otherwise specified in the order confirmation, Buyer agrees that the amount of such increase shall be added to the price of the goods. The price to be paid by Buyer for such item shall be adjusted in the same percentage that the price level of Seller's supplies for such item increases. Should there be changes adverse to Seller in currency exchange rates or in import duties or transportation costs affecting the goods sold hereunder between the date of the order confirmation and the date of delivery of the goods, Seller may adjust the price to be paid by Buyer for goods sold hereunder, in the same percentage that the currency exchange shall have changed and may add the amount by which duties and transportation costs change.

## **4. Advance payments**

Seller will start execution of the order only upon receipt of the advance sum agreed at the time of order confirmation. Should the Buyer cancel the order or unreasonably delay delivery, the Seller will retain the advance sum. Should compensation for the damages exceed the sum, the Buyer will have to pay the excess costs. No interest shall be payable upon advance payments or deposits to Buyer.

## **5. Cancellation**

Orders frequently require a significant commitment by Seller during the period prior to delivery. An order by Buyer shall not be withdrawn for thirty (30) days to allow time for issuance of an order confirmation. After delivery of an order confirmation as described in paragraph 1, Buyer may not cancel or unreasonably delay delivery or acceptance of goods. If delivery or acceptance is unreasonably delayed by Buyer, or if the order is cancelled other than in accordance with these terms and conditions, Buyer shall pay the agreed price of the goods, and Buyer shall pay reasonable charges of Seller in handling and storing the goods which have been identified to Buyer.

## **6. Termination**

Upon written notice to Buyer, Seller may cancel this Agreement, while retaining its rights to possible damages, in the event Buyer ceases conducting business in the normal course, admits its insolvency, makes an assignment for the benefit of creditors or becomes the subject of any judicial or administrative proceedings in bankruptcy, receivership or reorganization.

## **7. Force majeure**

Seller shall have no liability for any non-performance or delay in performance caused by circumstances beyond Seller's control including, but not limited to, acts of God, fire, flood, war, government action, accident, labor trouble or shortage, inability to obtain material, equipment or transportation, or failure of Seller's suppliers to furnish the goods.