

### **Product catalogue**

Cutting, bevelling & orbital welding machines

for thick walled tubes > 3 mm wall thickness



Join experience

#### **^**

### Frédéric Legrand - CEO and founder of AXXAIR -



#### **AXXAIR**

### - designer, manufacturer and distributor -

AXXAIR supports its customers in more than 60 countries worldwide by offering global orbital cutting, squaring, bevelling and welding solutions.

We focus heavily on the needs of users and have adopted a service-oriented approach. We begin by determining the user's needs in terms of preparing items for welding and, of course, orbital welding itself.

We then provide the user's personnel with training on this equipment, in order to ensure that users are able to independently manage the applications they may need to use.



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Understanding our customers and their needs, anticipating and meeting their expectations - these are AXXAIR's goals. We are able to respond to developments in our customers' ever-changing markets thanks to our various departments, R&D and Design Office.

AXXAIR offers unique and original tube working solutions. We believe that a lasting, high quality relationship with our customers is essential and have therefore developed local services to provide our customers with advice, by means of our subsidiaries and our distribution network.

AXXAIR is able to assist you at every stage of your project: creating samples, demonstrations, training, after-sales service, advice, etc.

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### Services and a team: - Join experience -

AXXAIR is your first point of contact for all tube working issues, from preparation to welding. With an experienced, responsive and committed team, AXXAIR will always suggest the most suitable solution.

"Join experience" sums up our philosophy, which is based on a community that always goes the extra mile.





### Our founding principles

#### Global Process

AXXAIR has been designing, manufacturing and distributing its orbital tube working machines since 1997.
Our business

is based upon

years
1997-2017
BRINGING SUCCESS
AND PERFORMANCE

the global tube
working process: preparation (cutting,
bevelling or squaring) and orbital welding.
Our overall product strategy allows us to
offer innovative solutions and adopt a global
approach to your tube and pipework projects.



#### Production

AXXAIR SAS is committed to maintaining industrial employment in France. To this end, 98% of manufacturing is carried out in the Rhone-Alpes region of France.

We sub-contract 100% of our production to partners, including machine shops, sheet metalworking sub-contractors, electronics specialists, etc.

We design all our machines in our in-house design office, which has an expert team of 3 staff.



### A Worldwide presence

AXXAIR is established in areas where customer demand is high, in order to be able to provide a local, high-quality service, with ever faster turnaround times.

Our products are distributed in more than 60 countries by our network of subsidiaries (in Korea, the USA and Germany) and our "distributor" partners, all of whom have been trained on our premises.

With a commercial strategy based on innovation, quality and performance, the AXXAIR Group, a family-owned company, has become a successful group, whose business is continually expanding both in France

ding both in France and on export markets.

### Sustainable development

AXXAIR is committed to the sustainable development of industrial activities. As a part of our sustainable approach, we have decided to stop producing printed catalogues.

In today's connected world, we believe that digital catalogues, with added features, are a practical and suitable alternative for everyone. We hope that you understand and will adopt this approach, for our good and the good of future generations.

This on-line catalogue can be printed, should you wish to do so, such that our vision is not imposed unilaterally.

However, we would like to encourage you not to print it, or to only print out the information that is of greatest interest to you.



### High quality for transporting fluids

A wide range of industries use tubes to transport fluids. The more sensitive the fluid, the more attention needs to be paid to all the connections, the majority of which are welded: tube to tube or tube to T or tube to elbow, for example.



The majority of tubes are made from stainless steel, in order to avoid corrosion and reactions between the tube and the fluid.

### The chemical and petrochemical industry

The fluids transported within these industries' facilities are among the most corrosive and therefore require thick walled tubes known as "pipes". These pipes are often made from stainless steel or other highly corrosion-resistant refractory materials, as well as black steel.

These pipes are cut, bevelled and then assembled orbital welding. by Depending on their wall thickness, pipes are welded using straightforward filler wire oscillation using AVC and systems. or

### Shipbuilding

Shipbuilding often requires large quantity of pipes with large wall thicknesses.

Their installation in confined spaces is often facilitated by the use of an orbital welding machine, because access is limited for welders.



### The energy industry

Conventional coal, nuclear or solar energy pipes generation industries use withstand to operating pressures.

This industry occasionally uses TIG orbital welding to allow welds to be inspected - 100% of welds are frequently inspected (thermal solar).

Pressurized is steam transported and requires perfect control of welded joints for continuous use.

#### Other markets

Seawater desalination systems also use pipes, as salt water corrodes tubes.

Compressed air pipework systems use large diameter pipes with large wall thickness (5 to 6 mm) in order to have sufficient strength.

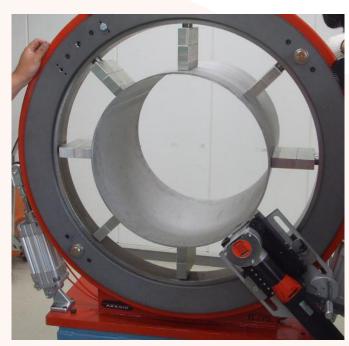


### **AXXAIR**'s orbital cutting



High quality cutting is guaranteed by orbital cutting machines, where the saw blade rotates around the tube.

This allows the tube geometry to remain intact: the tube is not distorted by clamping (stainless steel concentric jaws) or by cutting forces, as the blade follows the tube section and the tube does not rotate.



Orbital cutting is well suited to automatic welding, as it allows the seam to be closed cleanly providing a perfect seal for the penetration phase before adding the wire.

AXXAIR has the largest orbital cutting range

in the world with 11 different models for cutting tubes with diameters from 5 to 1100 mm!



#### FLEXIBILITY, PRODUCTIVITY

AXXAIR frames are quickly and easily scalable for bevelling and orbital welding.

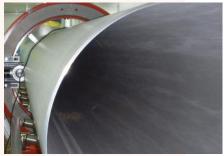
#### QUALITY

Cutting with no tube distortion, (multi-contact concentric clamping) ideal for thin walled stainless steel tubes. High quality geometric cutting (perpendicularity of <0.25 mm) and excellent surface quality (limited burring).

#### **PORTABILITY**

Portable machines, which are easy to move and can be used both on site or in a workshop. Perfect preparation for thick tubes before bevelling and welding with filler wire.









Please do not hesitate to contact us for all enquiries relating to orbital cutting technology.

We will be glad to share our know-how with you and to devise a solution that best meets your needs!





# NEW PRODUCTS in the CCx22 orbital cutting range



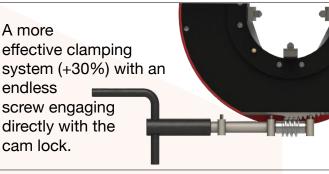
Customer satisfaction and our continuous improvement policy have led our developers to redesign part of our cutting programme. The aim is to provide easier and stronger clamping and sealing against chip. The level of quality is higher than ever and stability has been improved.



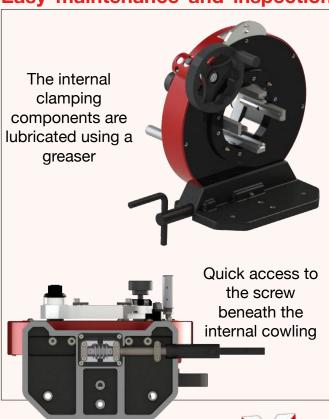


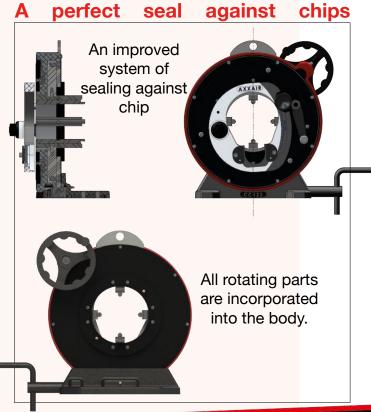
### **Easy handling**

Introduction of a lifting eye for use in a workshop or on site.



### Easy maintenance and inspection





## 122 - 172 - 222 - 322 👰



### **AXXAIR**

INNOVATIVE ORBITAL SOLUTIONS

#### No tube distortion

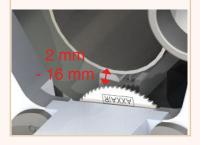
Concentric clamping



Stainless steel basic and auxiliary jaws as standard

# Reduced vibration and increased blade life

Optimised blade to jaw distance



### **Scalability**

Can be transformed into an orbital bevelling and welding machine

#### Continuous use

Electric rotary seal with anti-twist cable

\*depending on the type of steel



### Cutting quality

Rotation handle as standard

### **Uptake**

Dual output cutting motor with 2 blade positions

### **Cutting precision**

Perpendicularity of < 0.25 mm

### 1200W or pneumatic motor

(as required)

### **Cutting capacity:**

Up to a wall thickness of 15 mm\*

Easy hand	<u>lling and</u>
transpo	<u>rtation</u>
O O O	AXXAIR

Cu	tting range
122	ø5 - ø119 mm 0.25 - 4.5 "
172	ø16 - ø173 mm 0.625 – 6.625 "
222	ø55 - ø228 mm 2.375 – 8.625 "
322	ø141 - ø328 mm 5.563 – 12.750 "





### 122-172-222-322

### **Technical specification:**

### - Low-speed motor:

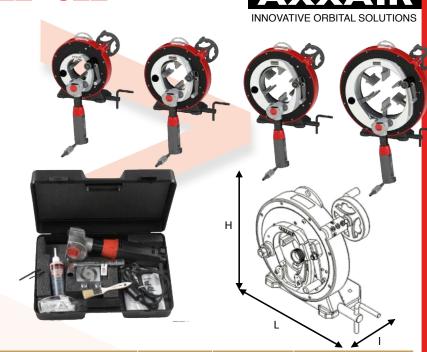
120V or 230V, 1200W, electronic speed variator with a cutting compensator Vibration level in accordance with standard EN 28662: <2.5m/s², Protection class: IP 20

Rotation speed (6 speed variations) from 30 RPM to 75 RPM

#### - Pneumatic motor:

60 to 110 rpm, air flow 1500 I/min at 6 bar

All motors are supplied in their own individual cases, including the necessary tools



			Tube cutting machine for the following diameters (in mm):		Customs	Dimensions
	Code	With basic jaws	With extra jaws (included)	weight	Code	(HxLxW in mm)
120V	122FS15	Ø29 - Ø119	Ø <mark>5</mark> - Ø99	44 kg		443 x 541 x 304
1200W	172FS15	Ø74 - Ø <mark>173</mark>	Ø <mark>16</mark> - Ø116	51 kg	846150 9000	493 x 566 x 304
low- speed	222FS15	Ø128 - Ø <mark>228</mark>	Ø <mark>55</mark> - Ø155	59 kg		548 x 594 x 304
motor	322FS15	Ø230 - Ø <mark>328</mark>	Ø141 - Ø239	71 kg		649 x 644 x 304
230V	122FS25	Ø29 - Ø119	Ø <b>5</b> - Ø99	44 kg	846150	443 x 541 x304
1200W	172FS25	Ø74 - Ø <mark>173</mark>	Ø <mark>16</mark> - Ø116	51 kg		493 x 566 x 304
low- speed	222FS25	Ø128 - Ø <mark>228</mark>	Ø <mark>55</mark> - Ø155	59 kg		548 x 594 x 304
motor	322FS25	Ø230 - Ø <mark>328</mark>	Ø141 - Ø239	71 kg		649 x 644 x 304
	122PD	Ø29 - Ø119	Ø <mark>5</mark> - Ø99	44 kg		443 x 541 x304
Pneu- matic	172PD	Ø74 - Ø <mark>173</mark>	Ø <mark>16</mark> - Ø116	51 kg	846150	493 x 566 x 304
matic	222PD	Ø128 - Ø <mark>228</mark>	Ø <mark>55</mark> - Ø155	59 kg	9000	548 x 594 x 304
	322PD	Ø230 - Ø <mark>328</mark>	Ø141 - Ø239	71 kg		649 x 644 x 304









### No tube distortion

Concentric clamping



Basic **stainless steel** jaws as standard

### **Uptake**

Dual output cutting motor with 2 blade positions

### **Cutting quality**

Rotation handle as standard

# Reduced vibration and increased blade life

Optimised blade to jaw distance



#### Continuous use

Electric rotary seal with anti-twist cable

### **Cutting precision**

Perpendicularity of < 0.4 mm



1200W or pneumatic motor

(as required)

Cutting capacity:
Up to a wall thickness
of 15 mm\*

Cutting range					
421	ø212 - ø422 mm 8.625 - 16"				
521	ø312 - ø522 mm 12.75 – 20"				
721	ø447 - ø725 mm 18 – 28"				
1100	ø711 - ø1016 mm 28 – 40"				

\*depending on the type of steel



### 421-521-721-1100

### **Technical specification:**

#### - Low-speed motor:

120V or 230V, 1200W, electronic speed variator with a cutting compensator

Vibration level in accordance with standard EN 28662: <2.5m/s², Protection class: IP 20

Rotation speed (6 speed variations) from 30 RPM to 75 RPM

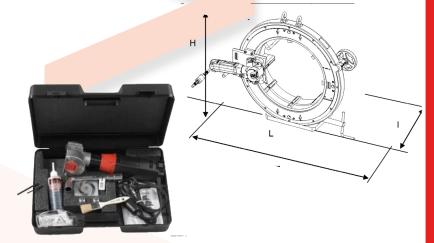
#### - Pneumatic motor:

60 to 110 rpm, air flow 1500 l/min at 6 bar

All motors are supplied in their own individual cases, including the necessary tools.







	Product	Tube cutting mach diameter	Net Customs		Dimensions	
	Code	With basic jaws	With extra jaws (included)	weight	Code	(HxLxW in mm)
120V 1200W	421FS15	Ø350 - Ø <mark>422</mark>	Ø <mark>212</mark> - Ø352	186 kg		802x838x315
low-	521FS15	Ø450 - Ø <mark>522</mark>	Ø <mark>312</mark> - Ø452	223 kg	84615 09000	905x889x315
speed	721FS15	Ø653 -Ø <mark>725</mark>	Ø <mark>447</mark> - Ø654	256 kg		1104x1077x315
230V 1200W	421FS25	Ø350 - Ø4 <mark>22</mark>	Ø <mark>212</mark> - Ø352	186 kg		802x838x315
low-	521FS25	Ø450 - Ø <mark>522</mark>	Ø <mark>312</mark> - Ø452	223 kg	84615 09000	905x889x315
speed	721FS25	Ø653 -Ø <mark>725</mark>	Ø <mark>447</mark> - Ø654	256 kg		1104x1077x315
Pneu-	421PD	Ø350 - Ø4 <mark>22</mark>	Ø <mark>212</mark> - Ø352	186 kg		802x838x315
matic	521PD	Ø450 - Ø <mark>522</mark>	Ø <mark>312</mark> - Ø452	223 kg	84615 09000	905x889x315
motor	721PD	Ø653 -Ø <mark>725</mark>	Ø <mark>447</mark> - Ø654	256 kg		1104x1077x315
	1100		On requ	est		







### **Orbital Cutting - Accessories**



Our support legs and stands have been designed to further facilitate cutting by ensuring that the machine is stable in different conditions: in a workshop or on site.

The great advantages of these products:

- lightness
- flexible handling
- easy to use



<b>Product Code</b>	Description	Net Weight	Customs Code	Dimensions (in cm)
CCPS21	Support legs	10 kg	84669 37000	103 x 32 x 11

Support legs for orbital cutting machines:

- quick assembly and dismantling
- height adjustment with screws
- storage box at the back
- optimum stability

<b>√122</b>	<b>√</b> 172	<b>√222</b>	√322	421	521	721	1100
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<b>Product Code</b>	Description	Net Weight	Customs Code	Dimensions (in cm)
CCSER1	Stand	10 kg	84669 37000	60 x 26 x 10

Simple stand for supporting tubes with height adjustment:

- quick assembly and dismantling
- height adjustment

<b>√</b> 122	√17 <b>2</b>	<b>√222</b>	√322	421	521	721	1100
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<b>Product Code</b>	Description	Net Weight	Customs Code	Dimensions (in cm)
CCSER2	Stand (with chrome steel bearings)	11 kg	84669 37000	60 x 26 x 10

Stand with chrome steel bearings for supporting tubes with height adjustment:

- quick assembly and dismantling facilitates tube feeding after each cut
- height adjustment

<b>√122 √172 √222 √322</b> 421 521 721 110
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### **Orbital Cutting - Accessories**



Our support benches help you to position and feed your tubes without the aid of stands. The height-adjustable table helps you easily and precisely set the height of your machine, for cutting tubes placed on the support bench.

The additional tube support bench allows you to position your longest tubes in a stable manner on all benches. We also recommend that you support the cut section in front of your cutting machine using one or more additional benches, depending on the length of the tube.



<b>Product Code</b>	Description	Net Weight	Customs Code	Dimensions (in cm)
CCBSB-X1	Height-adjus- table tube support bench	57 kg	84669 37000	184 x 95 x 51

Height-adjustable support bench, 1.5m

- stainless steel rollers
- height adjustment handle
- -1.5 m long

- maximum load 350 kg uniformly distributed
- min tube ø: 5 mm
- max tube ø: 321 mm
- compatible with machines 121 to 321

<b>√122</b>	<b>√</b> 172	<b>√222</b>	√322	421	521	721	1100
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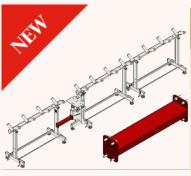


<b>Product Code</b>	Description	Net weight	Customs Code	Dimensions (in cm)
CCBSB-X2	Additional sup- port bench	38 kg	84669 37000	150 x 95 x 51

### Additional tube support bench:

- stainless steel rollers
- 1.5 m long
- maximum load 350 kg uniformly distributed
- min tube ø: 5 mm
- max tube ø: 321 mm
- compatible with machines 121 to 321

<b>√122</b>	<b>√</b> 172	√222	√322	421	521	721	1100
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<b>Product Code</b>	Description	Net Weight	Customs Code	Dimensions (in mm)
CCBSB-B005	Connecting bar	3 kg	84669 37000	100 x 80 x 402

### Connecting bar for CCBSB-X1 and CCBSB-X2:

- Allows the height-adjustable table to be connected to a bench placed in front of the machine

<b>√</b> 122	<b>√</b> 172	√222	√322	421	521	721		1100
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# Orbital Cutting - Accessories (End stop)



In addition to our CCBB-X1 and CCBB-X2 benches, we offer benches with an end stop system.

These stops are very simple to use and avoid all measurement errors.

They can be assembled on the <u>feed-in or</u> <u>feed-out</u> section of the cutting machine and are available <u>with a ruler or with an LCD</u> <u>display.</u>

### No pollution of the tube:

All parts that are in contact with the tube are made of stainless steel (the rollers but also the stop finger) - Lengths available:

1500 - 3000 - 4500 - 6000 - 7500 and 9000 mm

- Working stroke: Length 200 mm
- Delivered by module of 1500mm to be put together
- Max load per module:
   350 kg (evenly distributed)
- Max push on the stop: 10 kg

- Operating temperature: 0 - 50 ° C





Retractable stop:
In order to facilitate
the evacuation of
the cut, the stop
is manually
retractable.

**√122 √172 √222 √322** 421 521 721 1100



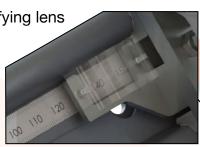




### Ruler

#### Ruler in mm

- Equipped with a magnifying lens
- Resolution 1.0 mm





- Resolution 0.1 mm

  Possibility of selecting the direction of counting, the position of the decimal point, the unit of measurement (mm or inches), reset / preset of the measurement, absolute / relative dimension.
- Battery powered. Lifetime of about 4 years. The discharged battery icon appears when battery replacement is required. Replacement is easily done without loss of the value and configuration parameters.





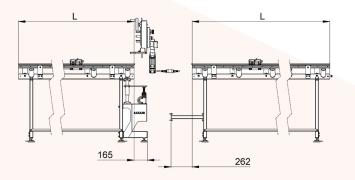
# Orbital Cutting - Accessories (End stop)



### Feed-in assembly

The parts are delivered unassembled in transport boxes, per module of 1,5 m.

They must be assembled, aligned and fixed to the ground. The magnetic ruler (with LDC display) or the ruler must be glued at the end of the assembly.





The system is delivered with the height-ajustable support bench (CCBSB-X1), additionnal support benches, the starting end stop module and its extensions.

Assembly	Reader	Length (in mm)	Working stroke (in mm)	Prod	uct code	Net weigh	ıt	Customs code
		1500	1300	CCBSE	B-AM-R-15	65 kg	l	
		3000	2800	CCBSE	B-AM-R-30	104 k	g	
	Ruler	4500	4300	CCBSE	B-AM-R-45	143 k	g	84669
on the	nulei	6000	5800	CCBSE	B-AM-R-60	163 k	g	37000
feed-in		7500	7300	CCBSE	B-AM-R-75	200 k	g	
		9000	8800	CCBSE	B-AM-R-90	238 k	g	
section of the		1500	1300	CCBSE	B-AM-D-15	65 kg	l	
cutting		3000	2800	CCBSE	B-AM-D-30	104 k	g	
line	LCD	4500	4300	CCBSE	B-AM-D-45	143 k	g	84669
	display	6000	5800	CCBSE	B-AM-D-60	163 k	g	37000
		7500	7300	CCBSE	B-AM-D-75	200 k	g	
		9000	8800	CCBSE	B-AM-D-90	238 k	g	
<b>√122</b>	<b>√</b> 172	√22	√322	421	521	721		1100

You can add CCBBSB-X2 modules to support the tube after the cutting process (in front of the cutting machine) with the CCBSB-B005 connecting bar (see previous pages).





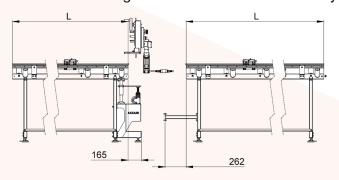




### Feed-out assembly

The parts are delivered unassembled in transport boxes, per module of 1,5 m.

They must be assembled, aligned and fixed to the ground. The magnetic ruler (with LDC display) or the ruler must be glued at the end of the assembly.





The system comes with: CCBSB-X2 support bench modules, the starting end stop module and its extensions, the CCBSB-B005 connecting bar.

<u>Attention:</u> For all references with AV (bench with end stop on the feed-out section) we must also deliver at least one CCBSB-X1 bench (height-adjustable support bench) to support the cutting machine.

Assembly	Reader	Length (in mm)	Working stroke (in mm)	Produ	ıct code	Net weight	Customs code
		1500	1300	CCBSE	8-AV-R-15	46 kg	
	Ruler	3000	2800	CCBSE	8-AV-R-30	85 kg	
		4500	4300	CCBSE	8-AV-R-45	124 kg	84669
on the		6000	5800	CCBSE	8-AV-R-60	163 kg	37000
feed-out		7500	7300	CCBSB	8-AV-R-75	201 kg	
reed-out		9000	8800	CCBSB	8-AV-R-90	240 kg	
section		1500	1300	CCBSE	8-AV-D-15	46 kg	
of the cutting		3000	2800	CCBSB	8-AV-D-30	85 kg	
line	LCD	4500	4300	CCBSE	8-AV-D-45	124 kg	84669
	display	6000	5800	CCBSB	8-AV-D-60	163 kg	37000
		7500	7300	CCBSB	8-AV-D-75	201 kg	
		9000	8800	CCBSE	8-AV-D-90	240 kg	
<b>√</b> 122	<b>√</b> 172	√22	√322	421	521	721	1100

**Dimensions** (in mm)

1100

Our support benches help you to position and feed your tubes without the aid of stands.

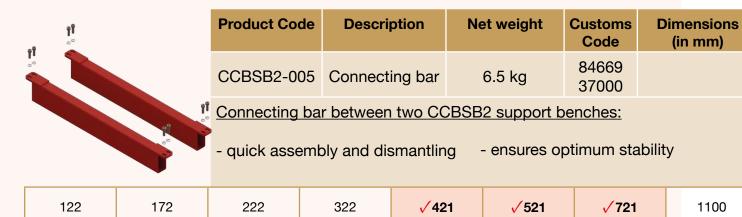
The height-adjustable table helps you easily and precisely set the height of your machine, for cutting tubes placed on the support bench. The additional tube support bench allows you to position your longest tubes in a stable manner on all benches.

We also recommend that you support the cut section in front of your cutting machine using one or more additional benches, depending on the length of the tube.

### These products are available on request

	100	Product Code	Descri	otion N	Net weight	Customs Code	Dimensions (in mm)
		CCBSB2-003	Heig adjustab		53.5 kg	84669 37000	
		Height-adjust			1 / 721 <u>:</u> - optimum sta	ability	
122	172	222	322	<b>√</b> 421	√521	√721	1100

		<b>Product Cod</b>	e Descri	ption N	et Weight	Customs Code	
		CCBSB2-00	4 Tube su	• •	72.8 kg	84669 37000	
N.	以	Tube suppor - quick asser - height adju	mbly and dis		21: - 1.5 m long - optimum st	tability	
122	172	222	322	√ <b>421</b>	√521	√721	







### **Orbital Cutting - Accessories**



### New autoline electric inverter:

Measures and displays the cutting/bevelling motor's power consumption

- enables the motor and cycle to be stopped in the event of overconsumption
- protects the motor and frees the operator from watching the machine
- detects whether the motor is straining and whether the blade is worn

Welding mode with prefab machine and SAXX generator: 4-button display (Start, Stop, Left, Right) with the addition of a generator connection cable

(Ref. SAEX-A02 for addition, more details in the "ORBITAL WELDING" section of the catalogue)

### 3.5 colour touch-screen allowing you to:

- enter the diameter and precisely adjust the feed speed in mm/min
- aid adjustment with a suggested motor speed and feed speed based on the type of material and the blade used
- perform quick and easy configuration
- display the cutting/bevelling motor's consumption
- display in English or French
- choose the unit of measure: mm or inch

This inverter is compatible with our previous 121, 171, 221, 321, 421, 521 and 721 models.

The previous SAEP-00/000 inverter cannot be fitted to our new122, 172, 222 and 322 models.



<b>Product Code</b>	Description	Net Weight	Customs Code	Dimensions (in mm)
SAEX-00	Autoline elec- tric inverter	6.3 kg	8515 900090	320 x 261x 193

### Autoline electric inverter for CC122 to 322:

- 110 V to 230 V

- easy to use

even rotation

- precise adjustment

<b>√122 √172 √222 √322</b> 421 521 721
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<b>Product Code</b>	Description	Net Weight	Customs Code	Dimensions (in mm)
SAEX-000	Autoline elec- tric inverter	6.3 kg	8515 900090	320 x 261x 193

#### Autoline electric inverter for CC421 to 721:

- 110 V to 230 V

- easy to use

even rotation

- precise adjustment

122	172	222	322	<b>√</b> 421	<b>√</b> 521	<b>√</b> 721	1100
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**√**1100

### **Orbital Cutting - Consumables**



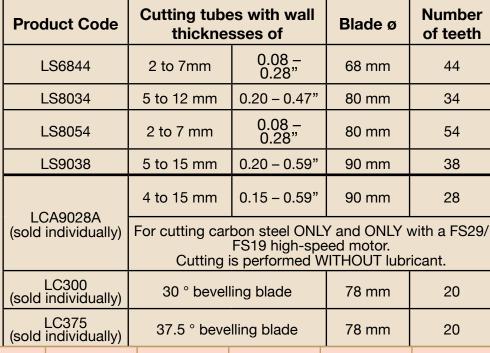
**Orbital cutting blades** 

**Customs Code:** 8202310000

High quality blades (HSS + Cobalt) sold in boxes of 5

-The tooth pitch & design are essential for chip evacuation, in order to achieve a high quality cut. AXXAIR has produced the most efficient blade design possible for various cutting applications.

-Often preferred to our competitors' blades, AXXAIR blades are compatible with the majority of other orbital cutting machines.





**√122** 

**√172** 

**√222** 

**√**322

Product CodeDescriptionVolumeCustoms CodeCCLUHliquid lubricant250 ml3403198000High performance oil lubricant, sold in packs of 5:

**√**521

**√**721

- Recommended for all FS cutting motors

**√**422

- Safety data sheet available on request

<b>√</b> 122	<b>√</b> 172	<b>√222</b>	√322	<b>√</b> 422	<b>√</b> 521	<b>√</b> 721	<b>√</b> 1100
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### 1 machine - 3 applications

AXXAIR

The AXXAIR Group was the first to offer a triple and exclusive solution, from preparation to orbital welding:

the global process

For more than 20 years, a single machine frame (122, 172, 222 and 322) has enabled three operations to be carried out:

cutting, bevelling and orbital welding.



### 1 machine - 3 applications





INNOVATIVE ORBITAL SOLUTION					
<b>Product Code</b>	Description	Net weight	<b>Customs Code</b>		
FS xx / MOPD	Cutting motor	5 kg	8466937000		

Low-speed / high-speed / pneumatic motor with dual output (uptake):

	Product Code	Frame
120V	Low-speed motor: FS15	122
1200	High-speed motor: FS19	172
230V	Low-speed motor: FS25	172
2300	High-speed motor: FS29	222
Pneu- matic	MOPD	322

To use this motor you will need to order: suitable cutting blades for the tube thickness you want to cut and, if necessary, lubricant.

All the information you need, with the relevant product codes, appears in the orbital cutting accessories and consumables section of this catalogue.



Product Code	Description	Net Weight	Customs Code
GA10 - x - xx	Bevelling motor kit	5 kg	8466937000

120V / 230V carbide motor supplied with a chip shield and a workpiece guide tailored to the frame of your cutting / prefab welding machine:

	Product Code	Frame
	GA10-1-120	122
	GA10-1-170	172
120V	GA10-1-220	222
	GA10-1-320	322

	Product Code	Frame
	GA10-2-120	122
	GA10-2-170	172
230V	GA10-2-220	222
	GA10-2-320	322

To use this motor and bevel your tubes you will need to order: one or more milling heads and carbide inserts.

All the information you need, with the relevant product codes, appears in the orbital bevelling accessories and consumables section of this catalogue. ("thick" catalogue)



<b>Product Code</b>	Description	Net Weight	Customs Code
SX - KIT x	Torch kit	depending on the chosen product	8466937000

KIT for upgrading a CC/GA to an SX Air / Water / AVC+OSC torch

Cooling	Product Code	Frame
AIR	SX-2KITA	122
	SX-2KITE	172
Water	SX-2KIT-NAOF (AVC/OSC)	222 322

To use this KIT and to prefab weld, you will need to order: a suitable AXXAIR welding generator for the tubes you want to weld. All the information you need, with the relevant product codes, appears in the orbital welding section of this catalogue.



### **AXXAIR**'s orbital bevelling



The success of an orbital weld relies primarily on preparation of the parts to be welded. Of the various preparation steps, a good quality bevel, which is suitable for the welding process, is essential.

Following orbital cutting, the face of the tube is perfectly perpendicular and free of burrs. At this point, bevelling is essential to ensure that the weld bead's geometry is appropriate, particularly on the inside (penetration).



Above a thickness of 3 mm, simple fusion involves a melt volume that is too significant to guarantee proper geometric control of the weld bead.

To remedy this, bevelling reduces the quantity of material to be fused in order to achieve proper penetration.

As a result, several passes are usually needed to finish the weld bead (filling and finishing). The bevel shape is created by the welding equipment used.

### AXXAIR'S UNIQUE AND **PATENTED**CONCEPT

AXXAIR's orbital bevelling machines use a carbide milling head rotating at high speed to remove a large quantity of chips in a single rotation of the tool around the tube (orbital).

This patented process avoids the need for lubricant: no more cleaning/washing of parts before welding! The carbide inserts' ability to remove chips is 10x greater than those used traditionally with HSS tools (High-speed Steel).

#### FLEXIBILITY, PRODUCTIVITY

Implementation, setting/adjustment and bevelling are quick and easy. Each machine's diameter range is very broad and does not require specific jaws.

AXXAIR's frames are **scalable** for orbital cutting and welding.

#### QUALITY

The surface created by carbide milling is clean and free of burrs and is, therefore, ready for welding.

Our process also includes a workpiece guide outside the tube, which takes account of "pipe" ovalisation defects. This ensures that the bevel is more uniform over the entire circumference.

#### **PORTABILITY**

Portable machines, which are easy to move and can be used both on site or in a workshop. Perfect preparation for thick tubes before welding with filler wire.









Please do not hesitate to contact us for all enquiries relating to orbital bevelling technology.

We will be glad to share our know-how with you and to devise a solution that best meets your needs!





### AXXAIR's orbital bevelling

- V- or J-Bevel? -



There are two types of bevel, which depend on the manual or automatic welding process used: the V-bevel and the J-bevel (or "Tulip").

These names relate to the fact that, when assembled, the two prepared edges assume the shape of these letters.

In orbital welding, the two root faces of the bevelled parts are placed in contact with each other.

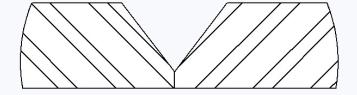
All that is required is a simple fusion of the two root faces and for the bevel to be subsequently filled with wire.

#### V-bevel

For manual TIG welding, a V-bevel is preferable, with or without a root face, depending on the manner in which the parts are married. It is called a V-bevel as, once the parts have been married, the resulting shape looks like the letter V.

The root face generally prevents the edges being distorted when the parts are handled, along with a collapse on the first pass (penetration).

For manual welding, the parts are married leaving a small gap, which specifically allows the wire to be inserted manually, including from inside the tube (penetration geometry). The bevel angles routinely used are 30, 37.5 and 45°.



These angles are determined by the application, the thickness of the parts to be welded and the material used. We offer 3 milling heads for orbital V-bevels, each corresponding to one of these angles.





### J-bevel (tulip)

This shape is essential for automated welding, especially for orbital welding.



The root face of this type of bevel enables a delicate "tube-tube" type assembly to be created; this generally allows for a single fusion penetration, which represents a better way of precisely controlling the penetration's geometry. This type of preparation also reduces the volume of metal required to fill the bevel. The angle of a J-bevel is shallower (generally 15 to 20°) depending on the application.

The root face must be sufficiently long to allow a single fusion bead to be created, without overlapping onto the edges of the bevel: a root face thickness of 1.6 to 2 mm with a root face length of 2 to 2.5 mm. These adjustments are easily made and relate to the carbide milling head (unlike adjustment using HSS tools).







As the accessories (elbows, T unions, flanges, etc.) are generally prepared with V-bevels, many welds will need to be of the V-J type, which is difficult to achieve. Consequently, the quality of orbital welding accessories is generally a key criteria to be taken into consideration.



Contact us to find the perfect solutions for your needs!





### **NEW PRODUCTS**

in the CCx22 orbital bevelling range



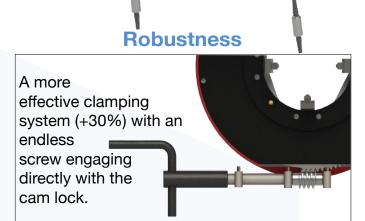
Customer satisfaction and our continuous improvement policy have led our developers to redesign part of our bevelling programme.

The aim is to provide easier and and stronger clamping and sealing against chip. The level of quality is higher than ever and stability has been improved.

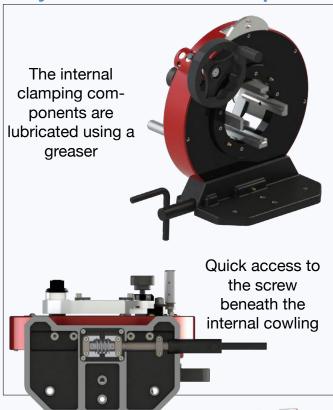


### **Easy handling**

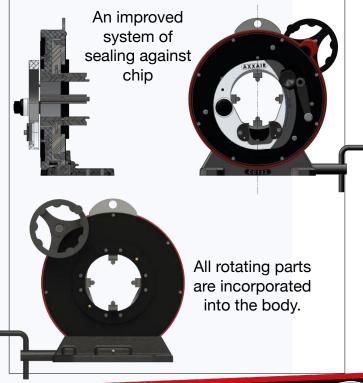
Introduction of a lifting eye for use in a workshop or on site.



### Easy maintenance and inspection



### A perfect seal against chips









## AXXAIR INNOVATIVE ORBITAL SOLUTIONS

### No tube distortion Concentric

clamping



Stainless steel basic and auxiliary jaws as standard

### V-bevel or J-bevel without lubricant

Screwed-on carbide inserts, 10x faster than HSS inserts



### **Global Process**

Can be transformed into an orbital cutting and welding machine

#### Continuous use

Electric rotary seal with anti-twist cable



### **Tool life**

Rotation handle as standard: increases the life of tools

### Workpiece guide

Workpiece guide that takes account of the ovality of tubes



### 1500 W motor

Supplied with a chip shield



## Easy handling and transportation



Bevelling range					
122	ø15 - ø119 mm ø5/8" - ø4,5 "				
172	ø33 - ø173 mm ø1,3 - ø6,625 "				
222	ø55 - ø228 mm ø2.35 to ø8,625 "				
322	ø141 - ø328 mm ø5,5 to ø12,75 "				









### **Technical specification:**

- 1500 W, 120 V or 230 V motor

Vibration level in accordance with standard EN 28662: <2.5m/s², Protection class: IP 20

Rotation speed (6 speed variations) from 2200 RPM to 6500 RPM

- V-bevel at 30°, 37.5° or 45° or J-bevel at 10° depending on the milling head.

All motors are supplied in their own individual cases, including the necessary tools



End-stop handle

Milling head



Product Code		Tube bevelling machine for the following diameters (in mm):		Net	Customs	Dimensions (HxLxW in
		With basic jaws	With extra jaws (included)	weight	Code	mm)
	€GA122-1	Ø29 to Ø119	Ø <b>15</b> to Ø99	42 kg		443 x 541 x 304
1200W	GA172-1	Ø74 to Ø <b>173</b>	Ø33 to Ø116	49 kg	846190 0000	493 x 566 x 304
	<sup>€</sup> 6A222-1	Ø128 to Ø <b>228</b>	Ø <b>55</b> to Ø155	57 kg		548 x 594 x 304
	<sup>€</sup> GA322-1	Ø230 to Ø <b>328</b>	Ø <b>141</b> to Ø239	71 kg		649 x 644 x 304
	A122-2	Ø29 to Ø119	Ø <b>15</b> to Ø99	42 kg		443 x 541 x 304
230V 1200W	GA172-2	Ø74 to Ø <b>173</b>	Ø33 to Ø116	49 kg	846190	493 x 566 x 304
	ॐ <u> </u>	Ø128 to Ø <b>228</b>	Ø <b>55</b> to Ø155	57 kg	0000	548 x 594 x 304
	ÁA322-2	Ø230 to Ø <b>328</b>	Ø141 to Ø239	71 kg		649 x 644 x 304

Please contact us for large diameters and special adaptations







Our support legs and stands have been designed to further facilitate bevelling by ensuring that the machine is stable in different conditions: in a workshop or on site.

The great advantages of these products:

- lightness
- flexible handling
- easy to use



<b>Product Code</b>	Description	Net Weight	Customs Code	Dimensions (in cm)
CCPS21	Support legs	10 kg	84669 37000	103 x 32 x 11

Support legs for orbital bevelling machines:

- quick assembly and dismantling
- height adjustment with screws
- storage box at the back
- optimum stability

√GA122	√GA172	√GA222	√GA322
V	V 9	V 3	V 0 10



<b>Product Code</b>	Description	Net Weight	Customs Code	Dimensions (in cm)
CCSER1	Stand	10 kg	84669 37000	60 x 26 x 10

Simple stand for supporting tubes with height adjustment:

- quick assembly and dismantling
- height adjustment

√GA122	√GA172	√GA222	√GA322	



<b>Product Code</b>	Description	Net Weight	Customs Code	Dimensions (in cm)
CCSER2	Stand (with chrome steel bearings)	11 kg	84669 37000	60 x 26 x 10

Stand with chrome steel bearings for supporting tubes with height adjustment:

- quick assembly and dismantling
- height adjustment

 facilitates tube feeding after each cut

√GA122	√GA172	√GA222	√GA322
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Our support benches help you to position and feed your tubes without the aid of stands. The height-adjustable table helps you easily

The height-adjustable table helps you easily and precisely set the height of your machine, for cutting and bevelling tubes placed on the support bench.

The additional tube support bench allows you to position your longest tubes in a stable manner on all benches.



<b>Product Code</b>	Description	Net Weight	Customs Code	Dimensions (in cm)
CCBSB-X1	Height-adjus- table tube support bench	57 kg	84669 37000	184 x 95 x 51

#### Height-adjustable support bench, 1.5m

- stainless steel rollers
- height adjustment handle
- -1.5 m long

- maximum load 350 kg uniformly distributed
- min tube ø: 5 mm
- max tube ø: 321 mm
- compatible with machines 121 to 321



<b>Product Code</b>	Description	Net weight	Customs Code	Dimensions (in cm)
CCBSB-X2	Additional support bench	38 kg	84669 37000	150 x 95 x 51

#### Additional tube support bench:

- stainless steel rollers
- 1.5 m long
- maximum load 350 kg uniformly distributed
- min tube ø: 5 mm
- max tube ø: 321 mm
- compatible with machines 121 to 321



<b>Product Code</b>	Description	Net Weight	Customs Code	Dimensions (in mm)
CCBSB-B005	Connecting bar	3 kg	84669 37000	100 x 80 x 402

### Connecting bar for CCBSB-X1 and CCBSB-X2:

- Allows the height-adjustable table to be connected to a bench placed in front of the machine









### New autoline electric inverter:

Measures and displays the cutting/bevelling motor's power consumption

- enables the motor and cycle to be stopped in the event of overconsumption
- protects the motor and frees the operator from watching the machine
- detects whether the motor is straining

Welding mode with prefab machine and SAXX generator: 4buttondisplay (Start, Stop, Left, Right) with the addition of a generator connection cable. (Ref. SAEX-A02 for addition, more details in the "ORBITAL WELDING" section of the catalogue)

### 3.5 colour touch-screen allowing you to:

- enter the diameter and precisely adjust the feed speed in mm/min
- aid adjustment with a suggested motor speed and feed speed based on the type of material and wall thickness
- perform quick and easy configuration
- display the cutting/bevelling motor's consumption
- display in English or French
- choose the unit of measure: mm or inch

This inverter is compatible with our previous **121,171,221, 321** models.

The previous SAEP-00/000 inverter cannot be fitted to our new 122, 172, 222 and 322 models.



<b>Product Code</b>	Description	Net Weight	Customs Code	Dimensions (in mm)
SAEX-00	Autoline elec- tric inverter	6.3 kg	8515 900090	320 x 261x 193

#### Autoline electric inverter for GA122 to 322:

- 110 V to 230 V easy to use
- even rotation
   precise adjustment

√GA122	√GA172	√GA222	√GA322
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This milling head is a tool holder. It creates the shape of the final bevel based on the initial choice, with the necessary angulation.

The milling head can be easily changed for different bevel angles.



<b>Product Code</b>	Description	Net Weight	<b>Customs Code</b>
TV-300	30° V milling head KIT with a roller and 3 inserts	1 kg	84669 37000

### V milling head for a 30° bevel + guide roller:

- Supplied with 3 fitted inserts

This milling head allows you to remove a maximum of 8 mm of the wall thickness, excluding the root face

√GA122	√GA172	√GA222	√GA322



<b>Product Code</b>	Description	Net Weight	<b>Customs Code</b>
TV-375	37.5° V milling head KIT with a roller and 3 inserts	1 kg	84669 37000

### V milling head for a 37.5° bevel + guide roller:

- Supplied with 3 fitted inserts

This milling head allows you to remove a maximum of 7 mm of the wall thickness, excluding the root face

√GA122	√GA172	√GA222	√GA322



<b>Product Code</b>	Description	Net Weight	<b>Customs Code</b>
TV-450	45° V milling head KIT with a roller and 3 inserts	1 kg	84669 37000

#### V milling head for a 45° bevel + guide roller:

- Supplied with 3 fitted inserts

This milling head allows you to remove a maximum of 6.5 mm of the wall thickness, excluding the root face

√GA122	√GA172	√GA222	√GA322
V GAILE	V MAII Z	V GALLE	V GAULE



<b>Product Code</b>	Description	Net Weight	<b>Customs Code</b>
TJ-100	10° J milling head KIT with 6 rollers and 6 inserts	1 kg	84669 37000

#### **J milling head** for a tulip bevel + guide rollers:

- Supplied with 6 fitted inserts

This milling head allows you to remove a maximum of 8 mm of the wall thickness, excluding the root face

√GA122	√GA172	√GA222	√GA322
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30



### **Orbital Bevelling - Consumables**



Our carbide inserts provide an operating speed that is 10x that achieved with an HSS tool.

Our carbide inserts create an even bevel with a clean surface and no burrs.

It does not alter the nature of the material. There is less wear on the insert, thanks to the cleanness of the cut.



<b>Product Code</b>	Description	Net Weight	<b>Customs Code</b>
PC30-08-B02	Carbide inserts (12 mm) TIN coated for bevels	70 g	84669 40000

Carbide inserts for orbital bevelling (box of 10):

- Usable with all AXXAIR milling heads
- Inserts usable on 4 sides
- Always change all inserts at the same time

	√GA122	√GA172	√GA222	√GA322	
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<b>Product Code</b>	Description	Net Weight	<b>Customs Code</b>
KS30	Insert locking screw	1g	84669 400
Locking screw for carbide inserts			

√GA122	√GA172	√GA222	√GA322
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### 1 machine - 3 applications



The AXXAIR Group was the first to offer a triple and exclusive solution, from preparation to orbital welding:

the global process

For more than 20 years, a single machine frame (122, 172, 222 and 322) has enabled three operations to be carried out:

cutting, bevelling and orbital welding.



### 1 machine - 3 applications





INNOVATIVE ORBITAL SOLUTION			
<b>Product Code</b>	Description	Net weight	<b>Customs Code</b>
FS xx / MOPD	Cutting motor	5 kg	8466937000

Low-speed / high-speed / pneumatic motor with dual output (uptake):

	Product Code	
120V	Low-speed motor: FS15	122
1200	High-speed motor: FS19	172
230V	Low-speed motor: FS25	
230V	High-speed motor: FS29	222
Pneu- matic	MOPD	322

To use this motor you will need to order: suitable cutting blades for the tube thickness you want to cut and, if necessary, lubricant.

All the information you need, with the relevant product codes, appears in the orbital cutting accessories and consumables section of this catalogue.



<b>Product Code</b>	Description	Net Weight	Customs Code
GA10 - x - xx	Bevelling motor kit	5 kg	8466937000

120V / 230V carbide motor supplied with a chip shield and a workpiece guide tailored to the frame of your cutting / prefab welding machine:

	Product Code	Frame
	GA10-1-120	122
120V	GA10-1-170	172
	GA10-1-220	222
	GA10-1-320	322

	Product Code	Frame
	GA10-2-120	122
230V	GA10-2-170	172
	GA10-2-220	222
	GA10-2-320	322

To use this motor and bevel your tubes you will need to order: one or more milling heads and carbide inserts.

All the information you need, with the relevant product codes, appears in the orbital bevelling accessories and consumables section of this catalogue. ("thick" catalogue)



<b>Product Code</b>	Description	Net Weight	Customs Code
SX - KIT x	Torch kit	depending on the chosen product	8466937000

KIT for upgrading a CC/GA to an SX Air / Water / AVC+OSC torch

Cooling	Product Code	Frame
AIR	SX-2KITA	122
Water	SX-2KITE	172
	SX-2KIT-NAOF (AVC/OSC)	222 322

To use this KIT and to prefab weld, you will need to order: a suitable AXXAIR welding generator for the tubes you want to weld. All the information you need, with the relevant product codes, appears in the orbital welding section of this catalogue.

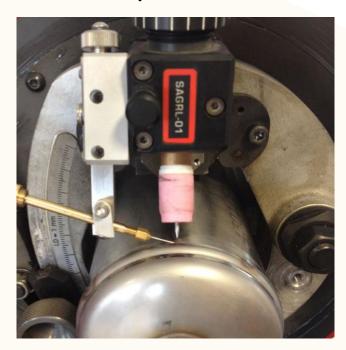
### **Orbital welding** (Prefabrication)



Orbital welding involves rotating a Tungsten electrode around a tube to weld it to other tubes or accessories.

Our programme incorporates a unique and atypical orbital welding machine for so-called "prefab" because it cannot be brought to the tube, it is the tube that is brought to the machine.

It is an axial loading machine which involves being able to pull out the tube as well as the welded accessory.



These machines that use standard cutting and bevelling frames have the advantage of being very robust and easy to use.

In fact, the SX range is mainly intended for workshop or building site prefabrication use. These machines are also used to carry out repeatable production welding on suitable elements.

Our machines can all be equipped with either an air-cooled torch or a water-cooled torch. with or without filler metal.

### FLEXIBILITY, PRODUCTIVITY

Welding with a water or air cooled torch with or without filler metal. It allows production of medium to large series of welding sub-assemblies.

The diameter range of each machine is very wide and does not require specific jaws.

#### **QUALITY AND REPEATABILITY**

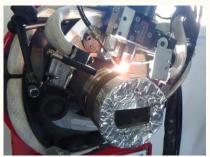
TIG welding without tube distortion (multi-contact concentric clamping). Mechanical or motorised tracking and axial adjustment optimize the quality of your welds.

#### **EASY TO USE**

Robust and intuitive, it is adapted to any operator profile.









Please do not hesitate to contact us for all enquiries relating to orbital welding technology.

We will be glad to share our know-how with you and to devise a solution that best meets your needs!







### **NEW PRODUCTS** In the SXx22 orbital welding range



We have decided to strengthen this part of our range of orbital welding machines.









Robustness. improved seating, more "positive" clamping and continuity guided the choices of our developers and pilot customers.

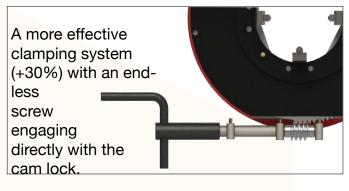
The **stability** of the assembly has been greatly improved by the redesign of support plate.



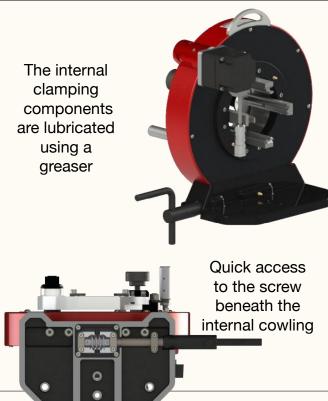
### **Easy handling**

Introduction of a lifting eye for use in a workshop or on site.

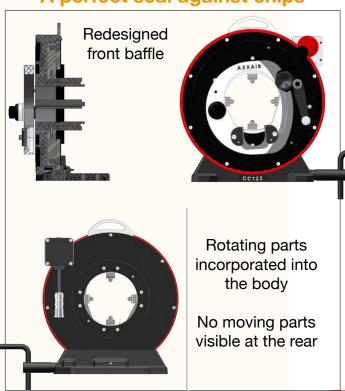
### Robustness



### Easy maintenance and inspection



### A perfect seal against chips







### SX122 - 172 - 222 - 322 (simple wire)





Concentric clamping

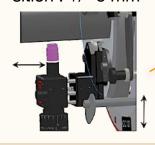


Stainless steel basic and auxiliary jaws as standard



### Accurate positioning

Axial adjustment of the electrode position: facilitates location of the parts to be welded Adjustment of the electrode's axial position: +/-5 mm



### **Constant distance:** electrode-tube

Connect to the

SAXX range welding

generator

Mechanical tracking of tube ovalization from the outside.



### Micrometric adjustment of the height of the arc

Accuracy of adjustment without specific tooling



### Easy handling and transportation



### Compatible With the **SAXX** generators



Welding range		
22		ø119 mm 5" - 4.5 "
72	ø16 - 0.625	ø173 mm " – 6.625

ø141 - ø328 mm 322 <mark>5.563"</mark> – 12.750 "

222

ø55 - ø228 mm

2.375" - 8.625 "







### SX122 - 172 - 222 - 322 (simple wire)



### **Technical characteristics:**

Machines for TIG orbital prefab welding, water cooled.

For optimum use, the ambient temperature must be between 0 °C and + 40 °C.

Compatible with AXXAIR type SAXX welding generators, we have an automatic parameter calculation mode.

The generator will offer you parameters adapted to the characteristics of the tubes / accessories to be welded.

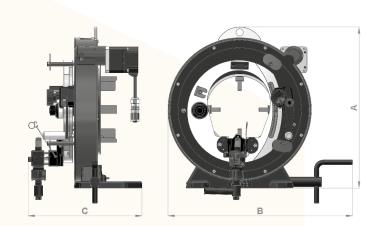
The machine can be supplemented by a wire feed system. For details, please refer to accessories.

A welding generator with liquid cooling system must be used when welding using these weld module. Cf welding generator characteristics

For welding with an AVC / OSC system please refer to following pages of this catalogue in order to choose a machine already provided with this system.

8 -	INNOVATIVE (	DRBITAL SOLUTIONS

Model	Operating factor of 100%
SX-xx2-E (WATER)	200 A.



		Product	Tube welding machine for the following diameters (in mm):		Net	Customs	Dimensions
		Code	With basic jaws	With extra jaws (included)	weight	code	(AxBxC in mm)
		SX122-E	Ø29 - Ø119	Ø <mark>12</mark> - Ø99	45 kg		446 x 541 x 350
	Water coold EAU	SX172-E	Ø74 - Ø <mark>173</mark>	Ø <mark>16</mark> - Ø116	52 kg	85153 10000	493 x 566 x 350
		SX222-E	Ø128 - Ø <mark>228</mark>	Ø <mark>55</mark> - Ø155	60 kg		548 x 594 x 350
		SX322-E	Ø230 - Ø <mark>328</mark>	Ø141 - Ø239	73 kg		649 x 644 x 350



### **AXXAIR**'s orbital welding

### **Sweep Multi-pass TIG welding**

- AVC/OSC system -

### Motorised voltage control: AVC

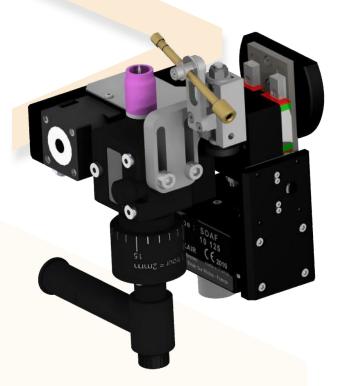
Motorised Arc Voltage Control is often abbreviated to AVC. Arc voltage is directly linked to the distance between the tube to be welded and the electrode. In other words, this option ensures the correct tube-electrode distance is maintained electronically during welding.

AVC can indeed be of huge benefit, especially in mechanised welding, and the more sensors there are to guide the machine, the less user intervention is required.

#### The two most frequent applications:

- When you do not wish to measure the external diameter physically using a feeler probe; AVC requires no contact with the tube and the sensor is more accurate and responsive than with physical tracking.
- When wire welding and the deposition rate beneath the electrode is not fully controlled. this can obviously affect the arc length. In this case, AVC means you never go near the soldering bath.





#### Fusion+OSC+wire:

This welding method combines AVC movement with oscillation of the torch and wire. This method is used for multi-pass welding of high thickness materials.

Torch oscillation is where the electrode is swung left and right in a linear motion so that each side of the joint can be kept liquid as welding progresses.

Oscillation brings an improvement in the number of passes, and therefore significantly improves productivity.

This system, when combined with AVC, is the only effective way of filling a tulip joint in multi-pass TIG welding.

These systems are available on prefabrication machines and open heads.





### SX122 - 172 - 222 - 322 (AVC/OSC)

### INNOVATIVE ORBITAL SOLUTIONS

### No tube distortion

Concentric clamping



Stainless steel basic and auxiliary iaws as standard

# **Water Cooled**

AXXAIR



### Connect to the SAXX range welding generator

**Rotating** 

### Control of the wire

regulation of the wire by the SAXX generators

### **Constant distance:** electrode-tube

**Motorised** setting and control of the distance tubeelectrode (AVC)

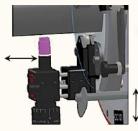
regulates the arc voltage, the distance between the electrode and the tube

Welding range

### Multi-pass welding

### Mortorised axial sweep (OSC)

Movement of the electrode's axial position: +/- 10 mm



Easy handling and

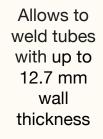
transportation

### system



### ø12 - ø119 mm 122 0.25" - 4.5 " ø16 - ø173 mm 172 0.625" - 6.625" ø55 - ø228 mm 222 2.375" - 8.625 " ø141 - ø328 mm 322 <mark>5.563"</mark> – 12.750 "

# AVC/OSC









### **Technical characteristics:**

Orbital TIG welding machine for prefabrication with AVC/OSC system, water cooled.

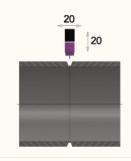
For optimum use, the ambient temperature must be between 0 °C and + 40 °C.

These machines are intended for orbital TIG welding. This range of products may be used for tube-to-tube, tube-to-elbow, tube-to-ferrule and T-joint welding, as well as SMS connectors and other work pieces.

Compatible with AXXAIR type SAXX-210 and SAXX-300 welding generators, we have an automatic parameter calculation mode.

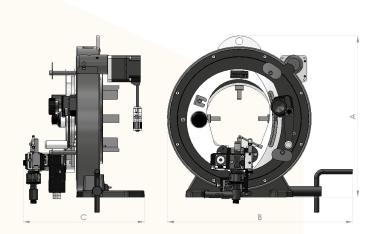
The generator will offer you parameters adapted to the characteristics of the tubes / accessories to be welded.

Oscillation range: 20 mm, AVC range: 20 mm Max speed: 15 mm/s



Model	Operating factor of 100%
SX-xx2-NAOF	200 A

(WATER)



			Tube welding machine for the following diameters (in mm)		Net	Customs code	Dimensions (AxBxC in mm)
	Product Code		With basic jaws	With extra jaws (included)	weight		
	Water Cooled	SX122-NAOF	Ø29 - Ø119	Ø <mark>12</mark> - Ø99	46 kg	85153 10000	446 x 541 x 346-371
		SX172-NAOF	Ø74 - Ø <mark>173</mark>	Ø <mark>16</mark> - Ø116	53 kg		493 x 566 x 346-371
		SX222-NAOF	Ø128 - Ø <mark>228</mark>	Ø <mark>55</mark> - Ø155	61 kg		548 x 594 x 346-371
		SX322-NAOF	Ø230 - Ø <mark>328</mark>	Ø141 - Ø239	74 kg		649 x 644 x 346-371











Our support legs and stands have been designed to further facilitate welding by ensuring that the machine is stable in varied conditions: in the workshop or on site.

The great advantages of these products are:

- lightness
- flexible handling
- ease of use



<b>Product Code</b>	Description	Description Net weight		Dimensions (in cm)
CCPS21	Support legs	10 kg	84669 37000	103 x 32 x 11

Support legs for orbital welding machine:

- quick assembly and dismantling
- height adjustment with screws

√SX122-E	√SX172-E	√SX222-E	√SX322-E	√SX122-NAOF	√SX172-NAOF	√SX222-NAOF	√SX322-NAOF



<b>Product Code</b>	Description	Net weight	Customs code	Dimensions (in cm)
CCSER1	Stand	10 kg	84669 37000	60 x 26 x 10

Simple stand for supporting tubes with height adjustment:

- quick assembly and dismantling
- height adjustment

√SX122-E	√SX172-E	√SX222-E	√SX322-E	✓SX122-NAOF	V SX172-NAOF	✓ SX222-NAOF	✓ SX322-NAOF



<b>Product Code</b>	Description	Net weight	Customs code	Dimensions (in cm)
CCSER2	Stand (with chrome steel bearings)	11 kg	84669 37000	60 x 26 x 10

Stand with chrome steel bearings for supporting tubes with height adjustment:

- quick assembly and dismantling
- height adjustment









Our support benches help you to position and feed your tubes without the aid of stands.

The height-adjustable table helps you easily and precisely set the height of your machine, for welding tubes placed on the support bench.

The additional tube support bench allows you to position your longest tubes in a stable manner on all benches.

We also recommend that you support the tube in front of your machine using one or more additional benches, depending on the length of the tube.



<b>Product Code</b>	Description	Net weight	Customs code	Dimensions (in cm)
CCBSB-X1	Height- adjustable tube support bench	57 kg	84669 37000	184 x 95 x 51

Height-adjustable support bench, 1.5m:

- stainless steel rollers

- maximum load 350 kg

- height adjustment handle

min tube ø: 5 mmmax tube ø: 321 mm



<b>Product Code</b>	Description	Net weight	Customs code	Dimensions (in cm)
CCBSB-X2	Additional sup- port bench	38 kg	84669 37000	150 x 95 x 51

#### Additional tube support bench:

- stainless steel rollers

- 1.5 m long

- maximum load 350 kg

min tube ø: 5 mmmax tube ø: 321 mm



<b>Product Code</b>	Description	Net weight	Customs code	Dimensions (in mm)
CCBSB-B005	Connecting bar	3 kg	84669 37000	100 x 80 x 402

#### Connecting bar for CCBSB-X1 and CCBSB-X2:

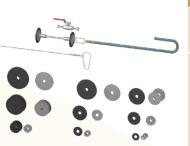
- Allows the height-adjustable table to be connected to a bench placed in front of the machine

√SX122-E	√SX172-E	√SX222-E	√SX322-E	√SX122-NAOF	√SX172-NAOF	√SX222-NAOF	√SX322-NAOF
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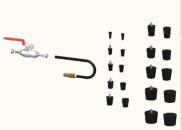
<b>Product Code</b>	Description	Net weight	Customs code	Packaging (in cm)
SKIF-01	Gas protection KIT	2.9 kg	85159 00090	35 x 30 x 9.5

#### Gas membrane protection KIT for tubes Ø 40 to 120 mm

- consists of: 9 sets of membranes with washers, 1 gas pipe 6 m,
- 1 metal cable, 1 gas valve 1/4 turn, 1 carabiner

Inerting the tubes during welding allows more gas savings as we only inert the area to be welded.

SX122-E /SX172-E /SX222-E 



<b>Product Code</b>	Description	Net weight	Customs code	Packaging (in cm)
SKIB-01	Gas protection	2 kg	85159 00090	35 x 30 x 9.5

Gas plug protection KIT for tubes Ø 6 to 41 mm

- consists of: 10 sets of perforated plugs, 1 gas inlet union,1 hose Ø 4/6 length 5

Facilitates and accelerates inerting. Avoids the use of adhesive paper.

√SX122-E √SX172-E √SX222-E √SX322-E √SX122-NAOF ✓SX172-NAOF ✓SX222-NAOF ✓SX322-NAOF



<b>Product Code</b>	Description	Net weight	Customs code	Dimensions (in mm)
SADFP-02	Wire guide	0.05 kg	85159 00090	51 x 90 x 65
Wire guide for SX	X			

SX122-NAOF SX172-NAOF SX222-NAOF SX322-NAOF √SX172-E √SX222-E √SX322-E SX122-E



<b>Product Code</b>	Description	Net weight	Customs code	Dimensions (in cm)
SADF2X	Wire dispenser	12 kg	85159 00090	59.7 x 38.4 x 24

#### Wire Dispenser for SAXX, cable sheath 5 m max:

- Supplied with SAXX power supply-connection cable and teflon sheath to guide the wire
- Drive pressure adjusted by adjustable spring, with handle.

**SX122-E** SX222-E √SX172-E







<b>Product Code</b>	Description	Net weight	Customs code	Plastic box (in cm)
SKTDI-30	Inclined torch	0.3 kg	85159 00090	12 x 17.5 x 4
20° inclined tor	ob kit			

<u>√SX122-E</u> <u>√SX172-E</u> <u>√SX222-E</u> <u>√SX322-E</u> SX122-NAOF   SX172-NAOF   SX222-NAOF   SX322-NAOF	√SX122-E	√SX172-E	√SX222-E	√SX322-E	SX122-NAOF	SX172-NAOF	SX222-NAOF	SX322-NAOF
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<b>Product Code</b>	Description	Net weight	Customs code	Plastic box (in cm)				
SKTDI-45	Inclined torch	0.3 kg	85159 00090	12 x 17.5 x 4				
45° inclined torch kit								

√SX122-E	√SX172-E	√SX222-E	√SX322-E	SX122-NAOF	SX172-NAOF	SX222-NAOF	SX322-NAOF
V SAIZZ-L	V SAIIZ-L	V SAZZZ-L	V SASZZ-L	OX 122-INAOI	SX172-INACI	ONZZZ-INACI	SAUZZ-INACI



### Orbital welding (Prefabrication) - Consumables



Our electrodes are specifically sharpened at 20° with a flat.

This increases the life of the electrodes.



<b>Product Code</b>	Description	Net weight	Customs code	Plastic box (cm)
SCE16-50	Electrodes	0.02 kg	85159 00010	5.5 x 4.5 x 1

Electrode diameter 1.6 mm, length 50mm

- Box of 10 electrodes

√SX122-E	√SX172-E	√SX222-E	√SX322-E	√SX122-NAOF	√SX172-NAOF	√SX222-NAOF	√SX322-NAOF



<b>Product Code</b>	Description	Net weight	Customs code	Plastic box (cm)	
SCE24-50	Electrodes	0.05 kg	85159 00010	5.5 x 4.5 x 1	

Electrode diameter 2.4 mm, length 50mm

- Box of 10 electrodes

√SX122-E	√SX172-E	√SX222-E	√SX322-E	√SX122-NAOF	√SX172-NAOF	✓ SX222-NAOF	✓ SX322-NAOF	



<b>Product Code</b>	Description	Net weight	Customs code	Plastic box (cm)
SKTD-xx	Replacement torch	0.3 kg	85159 00090	12 x 17.5 x 4

#### Replacement kit for straight torch Ø 1.6 mm or Ø 2.4

- consists of: 5 nozzles, 2 plugs 9/20, 2 long electrode clamps, 10 electrodes (Ø 1.6 mm or Ø 2.4) and 2 mesh diffusers

Ø electrode	Kit Product Code				
1.6 mm	SKTD-01				
2.4 mm	SKTD-02				

SX122-E √SX172-E √SX222-E √SX322-E ✓SX122-NAOF ✓SX172-NAOF ✓SX222-NAOF ✓SX322-NAOF



### 1 machine - 3 applications



For more than 20 years the AXX-AIR group has specialized in triple and exclusive orbital welding preparation solutions:

### global process

A single machine frame (122, 172, 222 and 322) makes it possible to carry out three operations: **Cutting, bevelling and orbital welding.** 

### **BUT CAUTION,**

The SX-xx2 machine is dedicated to prefab welding. Its automatic rotation allows only orbital welding work.



To use the machine frame for several operations (prefab welding, cutting and / or bevelling), a cutting or bevelling machine must be ordered with the welding KIT adapted to your needs.

You will find all the information in the relevant catalogues.



Cutting motor, bevelling motor or orbital welding torch interface 46

### Orbital welding (Open heads)



Our range of open welding heads (SATO series) allows you to make very high quality welds in a minimal space.

On these heads you will find a mechanical tracking system to keep a constant arc height. The torch can tilt to weld at an angle.

Open heads are mainly recommended for the agro-food, pharmaceutical, chemical sectors, for wall thicknesses less than but also greater than 3 mm.



This type of machine can be used to weld carbon steel tubes.

Open heads offer very wide welding possibilities thanks to the inclination of the torch and the addition of filler metal. The clamping range is achieved without the addition of jaws.

The tracking system is by roller so as not to scratch the tube. All the parts in contact with the tube are made of stainless steel so as not to contaminate it.

With its unique symmetrical clamping system, its stepping motor control, this range offers a very wide range of use.

You can choose between heads provided with or without an AVC/OSC system.

### FLEXIBILITY, PRODUCTIVITY

AXXAIR open heads are available or without filler metal. They have an optimized rotation sweep positions of feed motor to choose from. High duty cycle (water cooled torch).

#### QUALITY AND REPEATABILITY

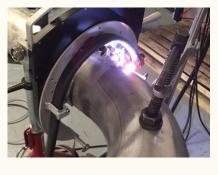
The SATO range is connected to our orbital generators, which permanently control all the welding parameters, guaranteeing repeatable and quality welds.

#### **PORTABILITY**

In order to allow you to weld in restrictive conditions and locations, the size of rotating elements and the weight of the machines have been optimized. Our machines are supplied with integrated remote control and 5 m welding cable allowing the operator to work remotely from the generator.









Please do not hesitate to contact us for all enquiries relating to orbital welding technology.

We will be glad to share our know-how with you and to devise a solution that best meets your needs!



### SATO-40 - 80 -115 - 1

INNOVATIVE ORBITAL SOLUTIONS





### Roller mechanical profile tracking

Constant arc voltage without marking the tube



### Compatible With the **SAXX** generators

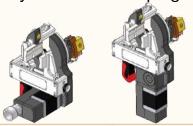


### **Transport**

These heads are delivered in their individual transport case



### Straight or **Angled motor** Symmetrical clamping



### **Axial Adjustment**

Wheel for axial adjustment of the position of the electrode

### **Protection**

High protection against arcing outside the electrode

### Torch angle adjustment

Welding flanges and short T angle



### Locked open position

### **Motorization** with encoder

**Allows** STARTING IN ALL **ANGULAR** electrode positions

Welding range							
SATO 40	ø 10 - ø 40 mm 0.4- 1.5 "						
SATO 80	ø 19 - ø 80 mm 0.75 – 3 "						
SATO 115	ø 19 - ø 115 mm 0.75 – 4.5 "						
SATO 170	ø 25 - ø 170 mm 1 – 6.625 "						
SATO 220	ø 38 - ø 220 mm 1.5 - 8.265 "						



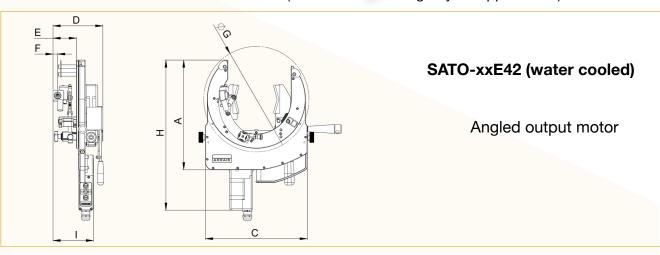
### SATO-40 - 80 -115 - 170 -220



### **Technical characteristics:**

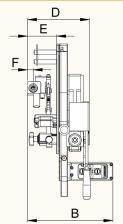
- WATER cooled head
- Mechanical profile tracking: constant arc height without marking the tube
- Quick symmetrical tightening by lever
- Motorization with encoder: allows starting from any angular position of the electrode
- Wide diameter range
- Inclination and axial adjustment of the electrode
- Small rotation sweep from the centre of the tube
- Compact design

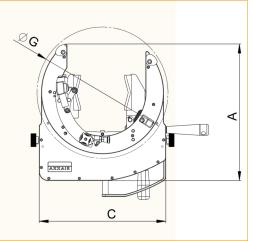
### Choice of two different models (to choose according to your applications)



### SATO-XXE41 (water cooled)

Straight output motor





	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	l mm
SATO-40	169	183 to 191	142	116 to 126		13	Ø140	270	
SATO- 80	181	186 to 196	160	116 to 126				279	
SATO-115	265	186 to 196	230	133 to 143	57 to 67		Ø224	363	113 to 121
SATO-170	312	186 to 196	290	133 to 143			Ø294	410	121
SATO-220	353	186 to 196	350	133 to 143			Ø350	451	





### SATO-40 - 80 -115 - 170 -220





Moteur	Cooling	Product Code	Welding machine for tubes of the following diameters (in mm)	Net weight	Customs	Dimensions (AxBxC in mm)
		SATO-40E42	ø 10 - ø 40 mm	3.8 kg		169 x 183 x 142
	WATER	SATO-80E42	SATO-80E42 ø 19 - ø 80 mm 4.2 kg			181 x 186 x 160
Angled motor		SATO-115E42	ø 19 - ø 115 mm	6.7 kg	85153 10000	265 x 186 x 230
		SATO-170E42	ø 25 - ø 170 mm	8 kg		312 x 186 x 290
		SATO-220E42	ø 38 - ø 220 mm	9.4 kg		353 x 186 x 350
		SATO-40E41	ø 10 - ø 40 mm	3.8 kg		169 x 191 x 142
		SATO-80E41	ø 19 - ø 80 mm	4.2 kg		181 x 196 x 160
Straight motor	WATER	SATO-115E41 Ø 19 - Ø 115 mm 6.7 k		6.7 kg	85153 10000	265 x 196 x 230
		SATO-170E41	ø 25 - ø 170 mm	8 kg		312 x 196 x 290
		SATO-220E41	ø 38 - ø 220 mm	9.4 kg		353 x 196 x 350





### **AXXAIR**'s orbital welding

### **Sweep Multi-pass TIG welding**

- AVC/OSC system -

### Motorised voltage control: AVC

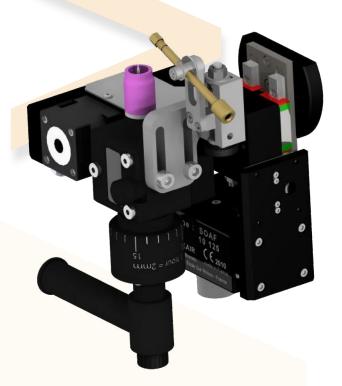
Motorised Arc Voltage Control is often abbreviated to AVC. Arc voltage is directly linked to the distance between the tube to be welded and the electrode. In other words, this option ensures the correct tube-electrode distance is maintained electronically during welding.

AVC can indeed be of huge benefit, especially in mechanised welding, and the more sensors there are to guide the machine, the less user intervention is required.

#### The two most frequent applications:

- When you do not wish to measure the external diameter physically using a feeler probe; AVC requires no contact with the tube and the sensor is more accurate and responsive than with physical tracking.
- When wire welding and the deposition rate beneath the electrode is not fully controlled. this can obviously affect the arc length. In this case, AVC means you never go near the soldering bath.





#### Fusion+OSC+wire:

This welding method combines AVC movement with oscillation of the torch and wire. This method is used for multi-pass welding of high thickness materials.

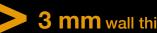
Torch oscillation is where the electrode is swung left and right in a linear motion so that each side of the joint can be kept liquid as welding progresses.

Oscillation brings an improvement in the number of passes, and therefore significantly improves productivity.

This system, when combined with AVC, is the only effective way of filling a tulip joint in multi-pass TIG welding.

These systems are available on prefabrication machines and open heads.

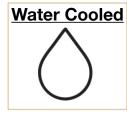


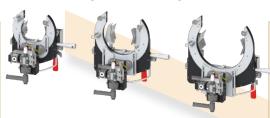


### SATO-115 - 170 -220 (AVC/OSC)

#### Control of the wire

regulation of the wire by the SAXX generators





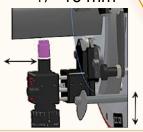
### **Protection**

High protection against arcing outside the electrode

### Multi-pass welding

### Mortorised axial sweep (OSC)

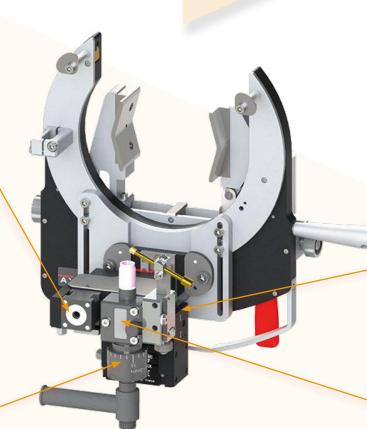
Movement of the electrode's axial position: +/- 10 mm



### **Constant distance:** electrode-tube

**Motorised setting** and control of the distance tubeelectrode (AVC)

regulates the arc voltage, the distance between the electrode and the tube



### **Transport**

These heads are delivered in their individual transport



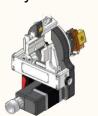
### **Motorization with** encoder

Allows STARTING IN ALL ANGULAR electrode positions

### **AVC/OSC** system

Allows to weld tubes with up to 12.7 mm wall thickness

### Straight or **Angled motor** Symmetrical clamping





### Compatible with the 210 and 300 SAXX generators



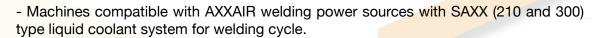
Welding range								
SATO 115	ø 19 - ø 115 mm 0.75 – 4.5 "							
SATO 170	ø 25 - ø 170 mm 1 – 6.625 "							
SATO 220	ø 38 - ø 220 mm 1.5 - 8.265 "							

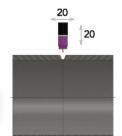


### SATO-115 - 170 -220 (AVC/OSC)

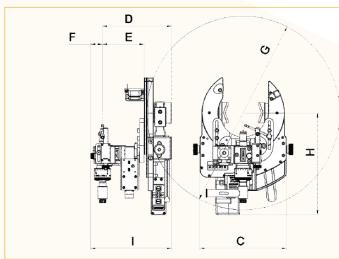
### Caractéristiques techniques:

- WATER cooled head with AVC/OSC system
- Quick symmetrical tightening by lever
- Motorization with encoder: allows starting from any angular position of the electrode
- Wide diameter range
- For optimum use, the ambient temperature must be between 0 °C and + 40 °C.
- Oscillation range: 20 mm, AVC range: 20 mm, max speed: 15 mm/s





### Choice of two different models (to choose according to your applications)

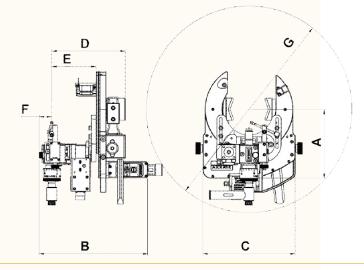


SATO-xxE52 (water cooled with AVC / OSC system)

Angled output motor

### SATO-xxE51 (water cooled with AVC / OSC system)

Straight output motor



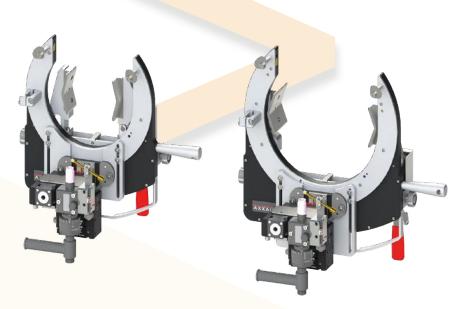
	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	l mm
SATO-115	171	246-271	230		85-110	31.5	680	269	194-219
SATO-170	201		290	146-171			750	299	
SATO-220	220		350				800	318	



### **SATO-115 - 170 -220** (AVC/OSC)





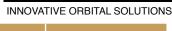


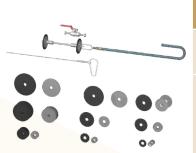
Moteur	Cooling	Product code	Welding machine for tubes of the fol- lowing diameters (in mm)	Net weight	Customs code
		SATO-115E52	ø 19 - ø 115 mm	10.6 kg	
Angled motor	WATER	SATO-170E52	ø 25 - ø 170 mm	12.7 kg	85153 10000
		SATO-220E52	ø 38 - ø 220 mm	15.1 kg	
	WATER	SATO-115E51	ø 19 - ø 115 mm	10.6 kg	
Straight Motor		SATO-170E51	ø 25 - ø 170 mm	12.7 kg	85153 10000
		SATO-220E51	ø 38 - ø 220 mm	15.1 kg	



### Orbital welding (Open heads) - Accessories





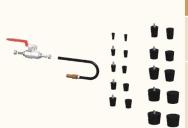


<b>Product Code</b>	Description	Net weight	Customs code	Packaging (in cm)
SKIF-01	Gas protection KIT	4.5 kg	85159 00090	35 x 30 x 9.5

#### Gas membrane protection KIT for tubes Ø 40 to 120 mm

- consists of: 9 sets of membranes with washers, 1 gas pipe 6 m,
- 1 metal cable, 1 1/4 turn gas valve, 1 carabiner

Inerting the tubes during welding allows more gas savings as we only inert the area to be welded.



<b>Product Code</b>	Description	Net weight	Customs code	Packaging (in cm)
SKIB-01	Gas protection KIT	1.7 kg	85159 00090	35 x 30 x 9.5

### Gas plug protection KIT for tubes Ø 6 to 41 mm

- Consists of: 10 sets of perforated plugs, 1 gas inlet connector,
- 1 hose Ø 4/6 length 5 metres

Facilitates and accelerates inerting. Avoids the use of adhesive paper.



<b>Product Code</b>	Description	Net weight	Customs code	Dimensions in mm
SATOB-02	Two axis wire guide	0.05 kg	85159 00090	51 x 90 x 65

#### SATO Two axis wire guide:

- For use with the SAXX genrators

	/CATO 40E4v	/CATO 90E4w	/CATO 115E4v	√SATO-170E4x	/CATO 000E4v	SATO-	SATO-	SATO-
ı	V 5A1U-4UE4X	V SAIU-OUE4X	V SAIU-IISE4X	V SAIU-1/0E4X	V SAIU-220E4X	115E5x	170E5x	220E5x



<b>Product Code</b>	Description	Net weight	Customs code	Dimensions (in cm)
SADF2X	Wire drum	12 kg	85159 00090	59.7 x 38.4 x 24

#### Wire Dispenser for SAXX-200, duct 5 m max:

- Supplied with the SAXX power supply-connection cable and Teflon duct to guide the wire
- Drive pressure adjusted by adjustable spring, with handle.



### Orbital welding (Open heads) - Accessories



5 or 10 metres welding cable extensions



To increase the operating distance between the welding head and the SAXX generator, we offer cable extensions.

The choice of the cable is made according to the cooling of the torch (water or air) and with or without filler metal.

Cooling			Length	Product Cod	de	Net weight	Customs		ensions C in mm)
WATED	WITHOUT		5 metres	SAFS-05M	K	7 kg	85159	40 x	59 x 25
WATER WIRE		1	10 metres SAFS-10MX		14 kg	00090	40 x 59 x 25		
√SATO-40E4	√SATO-80	E4x 🗸	/SATO-115E4x	√SATO-170E4x	√SAT	O-220E4x	SATO- 115E5x	SATO- 170E5x	SATO- 220E5x

Cooling		Length	Product Co	de	Net weight	Customs code		ensions C in mm)
WATER	WATER WIRE		SAFS-05M)	(F	7 kg	85159	40 x	59 x 25
WAIER			SAFS-10M)	(F	14 kg	00090	40 x	59 x 25
√SATO-40E4	1x √SATO-80	0E4x √SATO-11	5E4x <b>√SATO-170E4</b> x	√SAT	O-220E4x	SATO- 115E5x	SATO- 170E5x	SATO- 220E5x

Cooling		Length	Product Cod	de	Net weight	Customs		ensions C in mm)
WATER	WIRE WITH AVC/OSC	10 metres	SAFS-10MO	sc	14 kg	85159 00090	40 x	59 x 25
SATO-40E4x	SATO-80E4	SATO-115E4x	SATO-170E4x	SATO	0-220E4x	√SATO- 115E5x	√SATO- 170E5x	✓SATO- 220E5x







### Orbital welding (Open head) - Consumables



Our electrodes are specifically sharpened to 20° with a flat.

This increases the life of the electrodes.



<b>Product Code</b>	Description	Net weight	Customs code	Plastic box (cm)
SCE16-50	Electrodes	0.02 kg	85159 00010	5.5 x 4.5 x 1

Electrode diameter 1.6 mm, length 50mm

- Box of 10 electrodes





<b>Product Code</b>	Description	Net weight	Code code	Plastic box (cm)
SCE24-50	Electrodes	0.05 kg	85159 00010	5.5 x 4.5 x 1

Electrode diameter 2.4 mm, length 50mm

- Box of 10 electrodes

/CATO 40E4v	/CATO 90E4w	/CATO 115E4v	√SATO-170E4x	/CATO 000E4w	√SATO-	√SATO-	√SATO-
V SAIU-4UE4X	V SAIU-OUE4X	V SAIU-IISE4X	V SAIU-1/UE4X	V SAI U-220E4X	115F5v	170F5v	220F5v



<b>Product Code</b>	Description	Net weight	Customs code	Plastic box (cm)
SKTO-01	Replacement torch	0.3 kg	85159 00090	12 x 17.5 x 4

Replacement kit for open head torch Ø 1.6 mm or Ø 2.4

- Consists of: 4 long nozzles and 2 short nozzles, 4 electrode clamps, 20 electrodes  $\varnothing$  1.6 and 20  $\varnothing$  2.4 electrodes, 2 Teflon rings, 1 short cap type 9/20 and 1 screw-driver FACOM

✓SATO-40E4x ✓SATO-80E	/CATO 115E4w	/CATO 170E4v	/CATO 000E4v	√SATO-	√SATO-	√SATO-
V SAIO-40E4X V SAIO-60E	4X V SAIU-IISE4X	V SAIU-170E4X	V 3A10-220E4X	115 <b>E</b> 5x	170E5x	220E5x





### **Orbital welding** (Tube-to-tube sheet)



Our tube-to-tube sheet welding heads, fully water-cooled, are designed for heat exchanger production applications in various industries such as aeronautics, agri-food or energy production.

Indeed, heat exchangers play an increasingly important role in industry and this welding head allows the economical, reliable and very high quality assembly of the tubes on the plates.

The SATP-80X covers virtually all common tube to tube sheet configurations in both stainless steel, titanium and black steel.



In tube to tube sheet applications, preparation is a very important aspect to guarantee repeatable and quality welding results. The following steps are discussed at each project and are essential to ensure the success of your process:

- Length of the tube in relation to the tube sheet (dressing operation)
- Centring of the tubes on the tube sheet:

This operation consists in bringing the tube into contact with the end of the hole in the tube sheet in order to avoid collapsing associated with the clearance between the tube and tube sheet if this operation is neglected.

Centring machines allow this essential operation. This centring also allows the weld gases to be evacuated through the back of the plate. Centring is often neglected but avoids much inconvenience during production.

### FLEXIBILITY, PRODUCTIVITY

This head can weld in simple fusion or with the supply of wire The wire feed is mounted on the head (1 kg reel) and rotates with the torch to ensure controlled wire output.

#### QUALITY AND REPEATABILITY

The specific mandrel of our SATP with centring by balls pushed by springs allows positioning while allowing fast installation and especially ensuring that the head can easily be brought out of the tube in the case of excess internal weld thickness.

#### **PORTABILITY**

Portable machines, which are easy to move and usable directly on site.









Please do not hesitate to contact us for all enquiries relating to tube sheet welding technology.

We will be glad to share our know-how with you and to devise a solution that best meets your needs!







### SATP-80X





### **Water Cooled**





### Wire holder 1 kg



### **Tilting head**

Water cooled with tilting wire



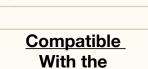
### **Mandrel**

Concentric



### **system**

tightening from the inside of the tube





### **Flexibility**

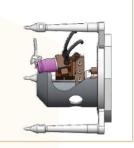
Head and wire adjustment trolley



### stops

**Positioning** 

Adjustable stops for better tube sheet stability



Electric motor with wire feed



### Welding range

SATP-80X

ø 10 - ø 80 mm 0.4 - 3 "





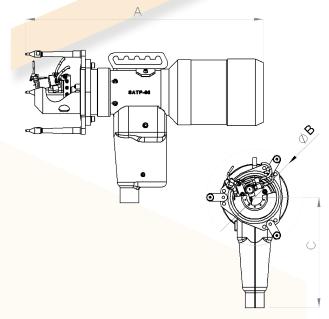
### SATP-80X

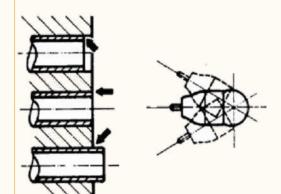
The SATP-80X covers virtually all common tube to tube sheet configurations in stainless steel as well as in titanium or black steel.

#### **Technical characteristics:**

- Rotating gas, current and cooling seal
- Tilting water cooled head
- Head and wire adjustment trolley
- Built-in rotating wire dispenser (Ø 0.8 mm)
- Wire speed from 0 to 1.5 m / min
- Cycle startup integrated in the handle for better ergonomics
- The head is fully cooled allowing a maximum welding current of 200A
- Specific mandrel with ball centring pushed by springs: precise positioning and quick installation.







- 3 tube-to-tube sheet welding configurations
- Outside diameter of the straight torch tube: 12 82 mm
- External diameter of the tube if torch tilted at 30 °: 12 40 mm

Product Code	Description	Net weight (Without spool)	ø wire	Max Wire Speed	Customs code	Dimensions (AxBxC mm)
SATP-80X	Welding head SATP-80X ø10 to ø78 mm Supplied with wire dispenser	7.5 kg	0.8 mm	200 cm/min	85153 10000	451 x 182 x 210





### Orbital welding (Tube to tube sheet) - Accessories



The mandrel used must be chosen according to the inner diameter of the tube to be welded to the tube sheet.

Depending on the mandrel used, it will be necessary to choose the compatible spindle.





#### **SATP** mandrels

**Customs code 8515900090** 

#### **SATP Centring mandrels:**

Tube inner ø (mm)	Mandrel Product Code	On spindle
9.8 to 10.3 mm	SATP-M11	
10.3 to 10.8 mm	SATP-M12	
10.8 to 11.3 mm	SATP-M13	CATD DO1
11.3 to 11.8 mm	SATP-M14	SATP-B01
11.8 to 12.3 mm	SATP-M15	
12.3 to 13.0 mm	SATP-M16	
12.8 to 14.0 mm	SATP-M21	
13.8 to 15.0 mm	SATP-M22	
14.8 to 16.0 mm	SATP-M23	
15.8 to 17.0 mm	SATP-M24	SATP-B02
16.8 to 18.0 mm	SATP-M25	SAIF-BUZ
17.8 to 19.0 mm	SATP-M26	
18.8 to 20.5 mm	SATP-M27	
19.8 to 22.5 mm	SATP-M28	



✓SATP-80X





### Orbital welding (Tube to tube sheet) - Accessories



### **SATP** mandrels (continued)

**Customs code 8515900090** 

**SATP Centring mandrels:** 

0	
0	

Tube inner ø in mm	Mandrel Product Code	On spindle
22.3 to 24.8 mm	SATP-M29	
24.5 to 27.0 mm	SATP-M30	
26.5 to 29.0 mm	SATP-M31	
28.5 to 31.0 mm	SATP-M32	
30.5 to 33.0 mm	SATP-M33	
32.5 to 36.0 mm	SATP-M34	SATP-B03
35.5 to 39.0 mm	SATP-M35	
38.5 to 42.0 mm	SATP-M36	
41.5 to 45.0 mm	SATP-M37	
44.5 to 48.0 mm	SATP-M38	
47.5 to 51.0 mm	SATP-M39	
50.5 to 54.0 mm	SATP-M40	
53.5 to 58.0 mm	SATP-M41	
57.5 to 62.0 mm	SATP-M42	
61.5 to 66.0 mm	SATP-M43	SATP-B04
65.5 to 70.0 mm	SATP-M44	
69.5 to 74.0 mm	SATP-M45	
73.5 to 78.0 mm	SATP-M46	

**✓**SATP-80X

### **SATP Spindles**

**Customs code 8515900090** 

Spindles for SATP mandrel:



Product Code	For Mandrel
SATP-B01	M11 to M16
SATP-B02	M21 to M28
SATP-B03	M29 to M39
SATP-B04	M40 to M46

**√SATP-80X** 





### Orbital welding (Tube to tube sheet) - Consumables



Our electrodes are specifically sharpened to 20° with a flat.

This increases the life of the electrodes.



<b>Product Code</b>	Description	Net weight	Customs code	Plastic box (cm)
SCE246B	Electrodes	0.05 kg	85159 00010	5.5 x 4.5 x 1

Electrodes ø 2.4 mm, length 39.5mm for SATP:

- Box of 10 electrodes

✓SATP-80X



### **Orbital welding** (Welding generators)



Our new range of AXXAIR welding generators has been designed to facilitate the use and programming of your equipment.

Intuitively, you will have access to sophisticated functions allowing you to make the most demanding welds with ease.

Particular attention has been paid to the choice of technologies used, while favouring as much as possible standard commercial components, in order to facilitate access to parts.

This flexibility will be a genuine asset for your future projects and allow you to be competitive in all your work.



The axis board that controls the motors used on the heads was specifically designed to be able to control various motors and servo systems: DC, brushless, stepping motors, and also encoders and tachometers.

Here, the innovation resides in the ability to easily control the motors used in our competitors' heads so as to offer greater flexibility to our customers that already have them. A 32-pin "quickfit" connector allows interaction between our generator and AXXAIR welding heads and other brands.

### FLEXIBILITY, PRODUCTIVITY

With the latest touch screen interface, we offer you all the possibilities including the most advanced while taking into account the users.

#### QUALITY AND REPEATABILITY

A classification system for programmes by welding configuration (diameter, thickness and head type) allow you to find the corresponding programme for the welding application you are looking for very easily. Each configuration can hold 9 programmes.

#### **PORTABILITY**

In order to facilitate mobility on site or in the workshop, transport trolleys for generators are recommended. thus enabling management of the generator and its gas cylinder.









Please do not hesitate to contact us for all enquiries relating to orbital welding generators.

We will be glad to share our know-how with you and to devise a solution that best meets your needs!







### **SAXX-210**

# Gas management completely assured

2 separate gas lines, free choice of inerting gas flow management



Gas flow is controlled on the generator using the buttons (flow rate displayed on screen)

### **Water cooling**



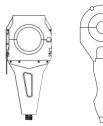


### **AXXAIR**

INNOVATIVE ORBITAL SOLUTIONS

# Compatible with closed welding heads:

AMI, Polysoude, ESAB, Orbitec and Orbitalum



### Interface 5.7 colour touch screen + WiFI (optional)

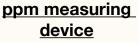
13 languages, possibility of remote control by smartphone or tablet





### Integral printer:

Printing program and real parameters



Capable of managing the thresholds by sending an electrical impulse to the station to to start the welding



### Axis for added metal

Possibility of using Step mode

### Acquisition and documentation

Records the last 999
welds + weldreport
(formatting of data and
presentation of
instructions in the form
of demos)

## display 4 m long cable

Remove control

USB front panel
200 programmes per
USB stick (multiple
sticks can be used)
Remote update
possible









### **SAXX-210**

#### **Technical characteristics:**

### **Duty cycle:**

23	0 <b>V</b>	110	O V
50 %	210 A		
60 %	180 A	60 %	127 A
100 %	160 A	100 %	110 A

#### **Power supply:**

- Single phase network with earth
- Supply voltage: 110 to 230 V +/-15%
- Input current consumed 25A at 230V and 32A at 110V
- Frequency: 50 / 60Hz
- Cable supplied: HO7RN-F 3x2.5 mm² black length 3m

#### Gas supply:

- Maximum inlet pressure: 5 bars
- Maximum flow rate: 50 I / min per gas line
- Inlet connectors: M12x100 male
- Outlet connectors: female blanking union Series 20

#### **Technology:**

- Colour touch screen 5"
- 13 languages
- Up to 16 users with passwords and custom permissions
- Simple and intuitive programming with automatic parameter calculation and programming assistance
- 200 programs in 20 sectors maximum / key





#### Intelligence:

- Alarms: More than 30 alarms to protect the system and check that welding is normal.
- Welding voltage measured in increments of 0.1 A
- Minimum pulse time of 50 ms (modifiable via "operator dynamics")

#### **Integrated printer:**

- 32 characters / line
- Print program and actual parameters

#### **Auxiliary connector:**

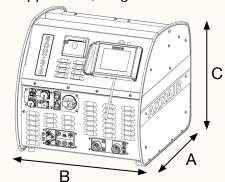
- Possibility of triggering the welding start via an oxygen meter (dry contact).

### **Cooling connector:**

- Max pressure: 5 bars
- Cooling power according to standard CEI60974-2: 1.4 kW
- Liquid connectors: female blanking union Series 21

### Wi-fi: (Option)

Remote control of the screen on smartphone or tablet via application, range: 20 to 30 m



	<b>Product Code</b>	Description	Net weight	Code code	Dimensions A x B x C (mm)
	SAXX-210	Orbital station 210 A., with double gas lines and wire axis	44 kg	85153 10000	562 x 620 x 545
Option	SWIFI	Wifi antenna for SAXX-210 for remote control	-	85159 00090	-
Option	SAVCOSC	AVC OScillation axis for SAXX-300	-	85159 00090	-



### **>**3

### **SAXX-300**

# Gas management completely assured

2 separate gas lines, free choice of inerting gas flow management



Gas flow is controlled on the generator using the buttons (flow rate displayed on screen)

### **Integral printer:**

Printing program and real parameters

### Compatible with AVC/OSC system

### ppm measuring device

Capable of managing the thresholds by sending an electrical impulse to the station to to start the welding



### Water cooling





# AXXAIR INNOVATIVE ORBITAL SOLUTIONS

# Compatible with closed welding heads:

AMI, Polysoude, ESAB, Orbitec and Orbitalum



### Interface 5.7 colour touch screen + WiFI (optional) 13 languages,

13 languages,
possibility of
remote control by
smartphone or
tablet



# Remove control display 4 m long cable



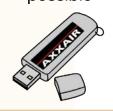
Possibility of using Step mode

### Acquisition and documentation

Records the last 999
welds + weldreport
(formatting of data and
presentation of
instructions in the form
of demos)

### **USB** front panel

200 programmes per USB stick (multiple sticks can be used) Remote update possible







# SAXX-300

### **Technical characteristics:**

### **Duty cycle:**

400 V				
30 %	300 A			
60 %	240 A			
100 %	210 A			

#### **Power supply:**

Three phase main with earth
Supply voltage: 400 V +/-15%
Maximum current on main: 24A

- Frequency: 50/60Hz

- Cable: HO7RN-F 4x2.5 mm² black length 3m

#### Gas supply:

- Maximum inlet pressure: 5 bars

- Maximum flow rate: 50 I / min per gas line

- Inlet connectors: M12x100 male

- Outlet connectors: female blanking union Series 20

#### **Technology:**

- Colour touch screen 5"
- 13 languages
- Up to 16 users with passwords and custom permissions
- Simple and intuitive programming with automatic parameter calculation and programming assistance
- 200 programs in 20 sectors maximum / key

#### Wi-fi: (Option)

Remote control of the screen on smartphone or tablet via application, range: 20 to 30 m





#### Intelligence:

- Alarms: More than 30 alarms to protect the system and check that welding is normal.
- Welding voltage measured in increments of 0.1 A
- Minimum pulse time of 50 ms (modifiable via "operator dynamics")

#### **Integrated printer:**

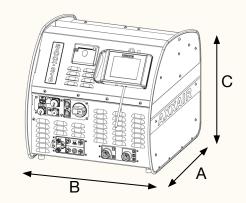
- 32 characters / line
- Print program and actual parameters

#### **Auxiliary connector:**

 Possibility of triggering the welding start via an oxygen meter (dry contact).

#### **Cooling connector:**

- Max pressure: 5 bars
- Cooling power according to standard CEI60974-2: 1.4 kW
- Liquid connectors: female blanking union Series 21



	<b>Product Code</b>	Description	Net weight	Code code	Dimensions A x B x C (mm)
	SAXX-300	Orbital station, 300A, 380V with double gas line and wire axis	44 kg	85153 10000	562 x 620 x 545
Option	SWIFI	Wifi antenna for SAXX-300 for remote control	-	85159 00090	-
Option	SAVCOSC	AVC OScillation axis for SAXX-300	-	85159 00090	-











<b>Product Code</b>	Description	Net weight	Customs code	Dimensions (in cm)
SACG-300	Trolley	55 kg	81515 900090	83 x 56 x 118

Trolley for SAXX-210 generator:

- Module for transporting the SAXX-210 welding station and gas cylinders up to 10.5 m<sup>3</sup>

√SAXX-210 **√**SAXX-300



<b>Product Code</b>	Description	Net weight	Customs code	Dimensions (in cm)
SPPM-10	PPM reader	2 kg	81515 900090	12 x 6 x 15

### PPM reader compatible with SAXX generators

- Integrated pump
- Trigger threshold adjustment
- Upper and lower tolerance adjustment
- Connected to the SAXX, it only allows welding to be triggered when the threshold is reached. The SPPM-10 guarantees the interior inerting of the tubing and the desired good colouration

<b>Product Code</b>	Description	Net weight	Customs code	Dimensions (in cm)
SPPM-C10	Extention for SPPM-10	0.5 kg	81515 900090	40 x 59 x 25

10 metres extention cable for SPPM-10 (Ppm reader)

**SAXX-210** √SAXX-300



<b>Product Code</b>	Description	Net weight	Customs code	Dimensions (in cm)
SAFS-G01	Gas splitter pipe	0.2 kg	81515 900090	22 x 22 x 22

#### Gas splitter pipe:

- For connecting the back and front purge gas to the same cylinder. To be used in combination with a pressure regulator for an industrial gas cylinder.

√SAXX-210 **√**SAXX-300









Product Code	Description	Net weight	Customs code	Dimensions
SAFS- ADAMI1	Adapter kit	1.2 kg	85159 00090	L < 40 cm

Adapter kit for connecting the following heads to SAXX generators:

- AMI Models 8 and 9
- SATF-xxMI and SATF-xxMIH

**√SAXX-210** 

√SAXX-300



Product Code	Description	Net weight	Customs code	Dimensions
SAFS- ADORBI1	Adapter kit	1.2 kg	85159 00090	L < 50 cm

Adapter kit for connecting the following heads to SAXX generators:

- Orbitalum ORBITALWELD models

(ORBIWELD38S.ORBIWELD76S and ORBIWELD115S)

**√**SAXX-210

√SAXX-300



Product Code	Description	Net weight	Customs code	Dimensions
SAFS-ADPO- LY1	Adapter kit	0.9 kg	85159 00090	L < 50 cm

Adapter kit for connecting the following heads to SAXX generators:

- MW Polysoude models (MW40, MW 65, MW115, MW170, MU IV 38, MU IV 115, UHP250, UHP500 and UHP1500)

√SAXX-210

√SAXX-300



Product Code	Description	Net weight	Customs code	Dimensions
SAFS- ADORBITEC	Adapter kit	0.3 kg	85159 00090	L < 50 cm

Adapter kit for connecting the following heads to SAXX generators:

- Orbitec models: OSW40, OSW80 and OSW170

√SAXX-210

√SAXX-300



Product Code	Description	Net weight	Customs code	Dimensions
SAFS- ADESAB	Adapter kit	0.5 kg	85159 00090	L < 50 cm

Adapter kit for connecting the following heads to SAXX generators:

- ESAB models: PRB17-49, PRB33-90 and PRB60-170

**√**SAXX-210

**√**SAXX-300







<b>Product Code</b>	Description	Net weight	Customs Code	Dimensions (in cm)
SAFS- AD01	Adaptor	0.411 kg	85159 00090	I: < 35 cm

Adaptor for new generations of welding heads:

- SATF-xxNDX
- SATF-xxNDHX
- SATO-xxE41 SATO-xxE42 SATO-xxE43 SATO-xxE44 on welding power sources SASL

√SAXX-210

**√**SAXX-300



<b>Product Code</b>	Description	Netr weight	Customs Code	Dimensions (in cm)
SAFS- AD02	Adaptateur	0.48 kg	85159 00090	I: 35 cm

Adaptor for previous generation of welding heads:

- SATF-xxND
- SATO-xxE01 et SATO-xxE02 on new power sources SAXX

**√SAXX-210** 

**√**SAXX-300



<b>Product Code</b>	Description	Net weight	Customs code	Packaging (in cm)
SAMD-NL	Pressure regulator	1.1kg	81515 900090	16 x 14.5 x 17

Pressure regulator 30 I / min compatible with:

- Finland, Netherlands, Sweden, Denmark

√SAXX-210

**√**SAXX-300



<b>Product Code</b>	Description	Net weight	Customs code	Packaging (in cm)
SAMD-FR	Pressure regulator	1.1kg	81515 900090	16 x 14.5 x 17

Pressure regulator 30 I / min compatible with:

- Algeria, Angola, France, Greece, Syria, Tunisia, Sudan, Lebanon, Morocco, Portugal, Gabon, Ivory Coast, Senegal, Chad, Mauritania, Congo, Guinea, Mali, Belgium

√SAXX-210

**√**SAXX-300









<b>Product Code</b>	Description	Net weight	Customs code	Packaging (in cm)
SAMD-AL	Pressure regulator	1.1kg	81515 900090	16 x 14.5 x 17

Pressure regulator 30 I / min compatible with:

- Germany, Austria, Bosnia Herzegovina, Croatia, Hungary, Israel, Switzerland, Macedonia, Montenegro, Poland, Serbia, Slovenia, Korea, Czech Republic

√SAXX-210 **√**SAXX-300



<b>Product Code</b>	Description	Net weight	Customs code	Packaging (in cm)
SAMD-UK	Pressure regulator	1.1kg	81515 900090	16 x 14.5 x 17

Pressure regulator 30 I/min compatible with:

- South Africa, Saudi Arabia, Brunei, Egypt, United Arab Emirates, Hong Kong, India, Singapore, Yemen, Indonesia, Iraq, Ireland, Jordan, Kuwait, Liberia, Libya. Sri Lanka, Malaysia, Malta, New Zealand, Nigeria, Pakistan, Peru, United Kingdom, Vietnam

**√SAXX-210 √**SAXX-300



<b>Product Code</b>	Description	Net weight	Customs code	Dimensions (in cm)
SATMX-E	TIG Manual torch	2.1kg	81515 900090	22 x 22 x 22

#### TIG Manual torch water cooled:

- Allows manual tacking and welding with the SAXX generators

√SAXX-210 √SAXX-300



<b>Product Code</b>	Description	Net weight	Customs code	Dimensions (in cm)
SADF2X	Wire dispenser	12 kg	85159 00090	59.7 x 38.4 x 24

Wire Dispenser for SAXX, cable sheath 5 m max:

- Supplied with the SAXX power supply-connection cable and teflon sheath to guide the wire
- Drive pressure adjusted by adjustable spring, with handle.

**√SAXX-210 √**SAXX-300





### Orbital welding (SAXX) - Consumables





<b>Product Code</b>	Description	Net weight	Customs code	Packaging (in cm)
SACW-C006	Cooling liquid	3.3kg	38200 00090	15 x 15 x 27
Cooling liquid (3l container)				

**√SAXX-210 √**SAXX-300



<b>Product Code</b>	Description	Net weight	Customs code	Packaging (in cm)
SIMP-02	Rolls printer	0.7kg	85159 00090	29 x 9.5 x 5

Rolls for integral printer (set of 10)

√SAXX-210 **√**SAXX-300



<b>Product Code</b>	Description	Net weight	Customs code	Packaging (in cm)
SUSBX210	USB stick	0.02kg	85159 00090	6 x 2 x 1

#### USB stick for SAXX-210:

USB stick with software for recording welding programmes and the WeldReport

√SAXX-210 **SAXX-300** 



<b>Product Code</b>	Description	Net weight	Customs code	Packaging (in cm)
SUSBX300	USB stick	0.02kg	85159 00090	6 x 2 x 1

### USB stick for SAXX-300:

USB stick with software for recording welding programmes and the WeldReport

SAXX-210 **√**SAXX-300





### Our teams at your service

Knowing our customers and their needs, anticipating and meeting their expectations by always proposing the best solution:



this is AXXAIR's objective. Please do not hesitate to contact us for all enquiries relating to our products and services.

#### Advice and estimates

Advise and support you and offer the best overall system for your requirements and applications.



### ✓Samples

Create your samples as required from your tubes and requirements.



#### ✓ Rental

Rental of our orbital machines from our rental equipment.





### **✓** Demonstrations

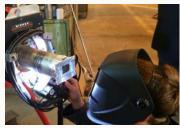
Organize demonstrations on your sites or via video conference from our showroom.



### √Training

Orbital technology training on your sites or on our own.

Leave with your training certificate.



### √Repairs and maintenance

Find a solution to your problems and repair your machines as soon as possible.

Count on our after-sales service, always listening to you!











# Join experience



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To find a qualified AXXAIR partner in your country!

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