

MARCH 2022

# THIN WALLED TUBES < 3mm WALL THICKNESSES

# ORBITAL CUTTING AND FACING



## **ORBITAL WELDING**





www.AXXAIR.com

ENGLISH LANGUAGE

# **Our founding principles**





Aidan Tagliaferro - 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.

#### "

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.

"

#### 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.







# Join experience

# **Our founding principles**

V3.2 - 03/2022

### **Global Process**

**AXXAIR** 

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

> Our business is based upon 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.

### 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 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.





Join experience

# Thin walled tube markets

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## Transporting sensitive fluids

Many industries are using tubes to transport fluids. The more sensitive the more attention has to be paid to all connections that are most of the time

welded: tube to tube or tube to T or tube to elbows for example. Most of those tubes are made of stainless steel in order to avoid corrosion and exchanges between the tube and the fluid.

### Food-processing industry

Food and beverage manufacturing are using a lot of Stainless steel tubes. It is necessary of course to correctly seal the connections but also to be sure the internal surface of the tube is correctly welded (penetration).

The purpose is always to avoid any retention zones that could pollute the liquids you transport in the tube.

Food processing

Beverage processing:

beer or wine manufacturing for example

### Semi-conductor industry

The manufacturing of electronic components needs to have a very highly controlled atmosphere (clean rooms) as well as very high level quality tubes for the process.

Those tubes are transporting pure gases or pure water and to be welded with a very high quality.

An example is the manufacturing of memory.





In this case the liquid that is transported is for producing medicine. In this case, even the inner surface of the tubes need to be electro polished to lower the possibility of interaction between liquid and tube surface.

As a consequence, the welds have to be with a very high quality of geometric aspects, in width, in surface finish. They are usually 100% X-rayed to guaranty the production will not be polluted.

#### Aeronautics industry

This industry is paying a lot of attention to weight and is therefore using a lot of aluminium components and almost all tubing is made with titanium tubes which is very light and resistant.

Welding titanium needs a very high gas protection inside and outside the tube.

Orbital closed head welding is the best solution for those applications.

- Aerospace
- Aircraft manufacturing











# **AXXAIR Orbital facing**



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Tube facing is used on thin tubes with a thickness of less than 3 mm. It consists in bringing into conformity the end of a tube or an accessory.

This conformity acts on three aspects:

the perpendicularity of the face of the tube the surface state of the face - potentially a length adjustment.

After the facing process, the face will be perpendicular to the axis of the tube, without burrs, with a low RA and the desired length.

Facing machines are used when the cutting process is not sufficiently precise for the application or when the cutting process generates burrs.

To give an exemple: abrasive cutting disc, band saw or tube cutter.



Tube with small diameters <25.4 mm are particularly concerned by the facing process. They are often cut with tube cutters or abrasive cutting machines. Generally speaking, tube must be faced before welding in order to obtain quality welds.

One category of tube is particularly concerned: electro-polished tube used in semiconductor or pharmaceutical industries.

It is forbidden to scratch the polished surface inside the tubes: the cuts are therefore only done with a cutting wheel. This process does not generate chips but only dust. The result of this cut is not exploitable without a facing operation which unrolls the chip towards the outside of the tube.

## FLEXIBILITY, PRODUCTIVITY

3 mm wall thickness

Our facing machines operate on battery or corded for more flexibility TIALN blades, reversible with two cutting edges guarantee optimal lifetime of consumables.

### QUALITY

Facing creates a clean and bur-free surface without tube deformation: sharpness and accuracy guaranteed.

Thin tube are therefore ready for welding.

### PORTABILITY

Our facing machines are lightweight and designed to be used on site as well as in the workshop.







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

We will be glad to share our know-how with you and find an adapted solution to your needs!





Join experience



# Join experience

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INNOVATIVE ORBITAL SOLUTIONS

# **DC25 MA - DC65 MA**

# **Technical characteristics:**

Thickness < 3 mm (0,12") according to material

Burr-free tube squaring and edge breaking machine used after a band saw cut or on electro-polished tubes. Ideal tool to face a band saw cut before automatic welding

### 18 V Drill / Driver motor:

- 220-240 V ~ 50 / 60Hz or 100-120V ~ 60Hz

- High rotation torque

- Rugged reduction housing which allows heat dissipation and optimal durability

- Come with two 18V Li-Power, 5.2 Ah batteries and a fast battery charger

- 2 mechanical speeds + electric speed variator :

Speed 1 : 0-500 tr/min (rpm) Speed 2 : 0-1700 tr/min (rpm)

<u>All motors are supplied in their own individual</u> cases, including the necessary tools

#### **DC25**

There are two mounting positions for the blade to cover the range of diameter.



# **DC65**

Adjustment of the tool support by sliding: allows easy adjustment



according to diameter and optimization of tool wear.

- 30° and 45° outside bevel possible with optional tool holder

- Facing and bevelling in one operation
- Possibility to use two tools simultaneously



	Product Code	Facing machine for the following diameters (mm)	Net weight	Minimal straight length of tube	Dimensions (HxLxI in mm)
120 V	DC25-MA1	Ø3 - Ø25.4 0.1 - 1"	2.5 kg	With standard jaws : 9mm (0.354") With micro-fit jaws : 5mm (0,196")	285 x 220 x 75
Drill / Driver	DC65-MA1	Ø3 - Ø63.5 0.1 - 2.5"	5.5 kg	With standard jaws : 10mm (0,393")	140 x 325 x 250
230 V	DC25-MA2	Ø3 - Ø25.4 0.1 - 1"	2.5 kg	With standard jaws : 9mm (0.354") With micro-fit jaws : 5mm (0,196")	285 x 220 x 75
Drill / Driver	DC65-MA2	Ø3 - Ø63.5 0.1 - 2.5"	5.5 kg	With standard jaws : 10mm (0,393")	140 x 325 x 250

Join experience







- Special handy design
- Work without return shock
- Rugged reduction housing which allows heat dissipation and
- optimal durability

Facing range						
DC25-MS	ø3 - ø25.4 mm 0.1 - 1"					
DC65-MS	ø3 - ø63.5 mm 0.1 – 2.5"					





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INNOVATIVE ORBITAL SOLUTIONS

# **DC25 MS - DC65 MS**

# **Technical characteristics:**

Thickness < 3 mm (0,12") according to material

Burr-free tube squaring and edge breaking machine used after a band saw cut or on electro-polished tubes. Ideal tool to face a band saw cut before automatic welding

# Mains motor 1100 W:

- 220-240 V ~ 50 / 60Hz **or**
- 100-120V ~ 60Hz
- High rotation torque
- Two speed gearbox with variable speed drive
- High quality speed controller
- Immobilizer protection
- Housing reducer in cast aluminium

- 2 mechanical speeds + electric speed variator : Speed 1 : 0-1000 tr/min (rpm) Speed 2 : 0-3100 tr/min (rpm)

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

### **DC25**

There are two mounting positions for the blade to cover the range of diameter.



### **DC65**

Adjustment of the tool support by sliding: allows easy adjustment



according to diameter and optimization of tool wear.

- 30° and 45° outside bevel possible with optional tool holder
- Facing and bevelling in one operation
- Possibility to use two tools simultaneously



	Product Code	Facing machine for the following diameters (in mm)	NetMinimal straightweightlength of tube		Dimensions (HxLxI in mm)
1100W 120 V	DC25-MS1	Ø3 - Ø25.4 0.1 - 1"	2.5 kg	With standard jaws : 9mm (0.354") With micro-fit jaws : 5mm (0,196")	300x 370 x 76
Mains motor	DC65-MS1	Ø3 - Ø63.5 0.1 – 2.5"	5.5 kg	With standard jaws : 10mm (0,393")	132 x 345 x 340
1100W 230 V	DC25-MS2	Ø3 - Ø25.4 0.1 - 1"	2.5 kg	With standard jaws : 9mm (0.354") With micro-fit jaws : 5mm (0,196")	300x 370 x 76
Mains motor	DC65-MS2	Ø3 - Ø63.5 0.1 – 2.5"	5.5 kg	With standard jaws : 10mm (0,393")	132 x 345 x 340









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# DC115-AM - 221-AM

# **Technical characteristics:**

Thickness  $< 3 \text{ mm} (0,12^{"})$  according to material

Burr-free tube squaring and edge breaking machine used after a band saw cut or on electro-polished tubes. Ideal tool to face a band saw cut before automatic welding

- Accurate manual advance: 4/1000" (0,1 mm) step graduation

- Sliding adjustment of tool holder offers easy diameter change and optimal tip wearing

- 30° and 45° outside edge breaking possible with optional tool holder

- Squaring and edge breaking in one operation

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

- Motor 1100W, large speed range (2 gears): Screw and wheel drive to optimize the speed range and eliminate vibrations





	Product Code	Facing machine for the following diameters (in mm)	Net weight	Minimal straight length of tube	Dimensions (HxLxI in mm)
120V	DC115-AM1	Ø12 - Ø115 0.5" - 4.5"	11 kg	28 mm 1.102"	219x314x462
Moteur 1100W	DC221-AM1	Ø50 - Ø220 2" - 8.5 "	21 kg	39 mm 1.535"	327x425x540
230 V Moteur 1100W	DC 115-AM2	Ø12 - Ø115 0.5" - 4.5"	11 kg	28 mm 1.102"	219x314x462
	DC221- AM2	Ø50 - Ø220 2" - 8.5 "	21 kg	39 mm 1.535"	327x425x540







# 3 mm wall thickness

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# 3 mm wall thickness

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# DC115-BM - 221-BM

# **Technical characteristics:**

# Thickness < 3 mm (0,12") according to material

Burr-free tube squaring and edge breaking machine used after a band saw cut or on electro-polished tubes. Ideal tool to face a band saw cut before automatic welding

- Accurate manual advance: 4/1000" (0,1 mm) step graduation

- Sliding adjustment of tool holder offers easy diameter change and optimal tip wearing

- 30° and 45° outside bevel possible with optional tool holder

- Squaring and beveling in one operation

- Possibility to use two (DC115) or three (DC221) tools simultaneously

- Delivered in high quality protection case

<u>All motors are supplied in their own individual cases, including the necessary tools</u>

![](_page_12_Picture_14.jpeg)

Wide range of use with stainless steel concentric clamping for all diameters

![](_page_12_Picture_16.jpeg)

	Product Code	Facing machine for the following diameters (in mm)	Net weight	Minimal straight length of tube	Dimensions (HxLxI in mm)
120V Motour	DC115-BM1	Ø12 - Ø115 0.5" - 4.5"	37 kg	58 mm 2.283"	219x314x462
Moteur 1100 W	DC221-BM1	Ø50 - Ø220 2" - 8.5 "	55 kg	62 mm 2.440"	327x425x540
230 V Moteur 1100 W	DC 115-BM2	Ø12 - Ø115 0.5" - 4.5"	37 kg	58 mm 2.283"	219x314x462
	DC221- BM2	Ø50 - Ø220 2" - 8.5 "	55 kg	62 mm 2.440"	327x425x540

# Join experience

![](_page_12_Picture_20.jpeg)

![](_page_12_Picture_21.jpeg)

Join experience

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# **Orbital Facing - 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 facing the 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.

3 mm wall thickness

		Product Code	Product Code Description			t Dimens	ions (in cm)
	all and the second second	CCBSB-X1	SB-X1 Height-adjustable tube support bench			184 >	< 95 x 51
		Height-adjus	table suppo	rt bench, 1.	<u>5 m :</u>		
		<ul> <li>stainless store</li> <li>height adjust</li> <li>maximum logurity</li> <li>uniformly distribution</li> </ul>	eel rollers stment hanc oad 350 kg tributed	lle - mii - ma	n tube ø: 5 m ax tube ø: 321	m mm	
DC25-MA	DC65-MA	DC25-MS	DC65-MS	DC115-AM	DC221-AM	√DC115-BM	√DC221-BM

		Product Code	Desc	ription	Net weight	Dimensi	ions (in cm)	
		CCBSB-X2	CCBSB-X2 Additional support bench		38 kg	150 x	x 95 x 51	
***		Additional tub	Additional tube support bench, 1.5 m :					
	•	<ul> <li>stainless ste</li> <li>maximum lo</li> <li>uniformly distr</li> </ul>	el rollers ad 350 kg ributed	- min - max	tube ø: 5 mm tube ø: 321 m	าทา		
DC25-MA	DC65-MA	DC25-MS	DC65-MS	DC115-AM	DC221-AM	√DC115-BM	√DC221-BM	

		Product Code	Des	cription	Net weigh	Dimensions (in cm)	
		CCSA21	Pneuma	8.2 kg	560 x 2	200 x 190	
-		Pneumatic cla	mping for I	DC115-BM /	<u>DC221-BM</u>		
DC25-MA	DC65-MA	DC25-MS	DC65-MS	DC115AM	DC221AM	√DC115BM	√DC221BM

![](_page_13_Picture_8.jpeg)

![](_page_13_Picture_9.jpeg)

![](_page_14_Picture_1.jpeg)

# **Orbital Facing - Accessories**

![](_page_14_Picture_5.jpeg)

### Clamping jaws

<u>Clamping jaws for orbital facing machines:</u> A set of jaws is necessary for each outside diameter of tube to be machined

For machine	Product Code	Diameter of the tube					
DC25	DCM25-XX	3 mm à 25.4 mm	1/8" - 1"				
DC65	DCM65-XX	3 mm à 63.5 mm	1/8" - 2.5"				
DC115	DCM115-XXX	12 mm à 115 mm	1/2" - 4.5"				
DC221	DCM221-XXX	50 mm à 220 mm	2" - 8.5"				

√DC25-MA	√DC65-MA	√DC25-MS	√DC65-MS	√DC115-AM	√DC221-AM	DC115-BM	DC221-BM
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Jaws for micro-fitting

Stainless steel micro-fitting jaws for DC25 ONLY

- Straight length : 4,3 mm mini

			Product	Code		Diamete	er of the tub	e
* E			DCM25-M	F03.18		3,18 mm	1/8	8 "
			DCM25-M	F06.00		6 mm	0.2	36"
	-		DCM25-M	F06.35		6.35mm	1/4	4"
	R		DCM25-MF08.00		8.00 mm		0.3	15 "
		and the second s	DCM25-MF10.00		10.00 mm 0.394 "		94 "	
			DCM25-MF12.00			12.00 mm 0.472 "		72 "
			DCM25-M	DCM25-MF12.70		12.7 mm	1/2	2"
√DC25-MA	DC65-MS	√DC25-MA	DC65-MS	DC115-	٩M	DC221-AM	DC115-BM	DC221-BM
	2000 1110		2000 110	201107		002217401	20110 81	D GLET BII

![](_page_14_Picture_14.jpeg)

![](_page_14_Picture_15.jpeg)

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![](_page_15_Picture_1.jpeg)

# **Orbital Facing - Accessories**

![](_page_15_Picture_5.jpeg)

Description **Dimensions (in mm) Product Code** Net weight Ø 76 DCM6525 Spacer 0.022 kg Spacer for fitting DC25 jaws on a DC65 DC25-MA VDC65-MA DC25-MS VDC65-MS DC115-AM DC221-AM DC115-BM DC221-BM

		Product Code Description Net weight Dimensions (in mm)						
		DC65-P300	DC65-P300 Tool holder for bevelling 0.028 kg 22 x 13 x 28.5					
9	For	Tool holder for - Tool holders a - Corner break - Possibility to machines' rang *exeption for t - If facing and l	breaking the are supplied ing is possib face the tube ges* the DC65: preaking core	corner at 30° without blade le on the who e and break th ners at the sa	<u>:</u> ie machine's ra ne corner at th me time: reduc	ange e same time c ced range : 20	on the whole ) - 53 mm	
DC25-MA	√DC65-MA	DC25-MS	DC25-MS <b>vdc65-MS vdc115-AM vdc21-AM vdc115-BM vdc221-B</b>					
		Dreduct Octo	De		Naturi		ione (in mar)	

![](_page_15_Picture_8.jpeg)

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Product Cod	e De	Description		Net weight		Dimensions (in mm)	
DC65-P450	Tool hold	lder for bevelling		0.026 kg		22 x 12.5 x 28.5	
Tool holder for breaking the corner at 45°:							
<ul> <li>Tool holders are supplied without blades</li> <li>Corner breaking is possible on the whole machine's range</li> <li>Possibility to face the tube and break the corner at the same time on the whole machines' ranges*</li> </ul>							
*exeption for the DC65: - If facing and breaking corners at the same time: reduced range : 20 - 53 mm							

DC25-MA <b>\$\sqrt{DC65-MA}\$</b> DC25-MS <b>\$\sqrt{DC65-MS}\$ \$\sqrt{DC115-AM}\$ \$\sqrt{DC221-AM}\$ \$\sqrt{DC115-BM}\$ \$\sqrt{DC15-BM}\$</b>	21-BM
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![](_page_15_Picture_11.jpeg)

![](_page_15_Picture_12.jpeg)

**Orbital Facing - Consumables** 

3 mm wall thickness

In order to fit the different types of tubes, applications and your organization's requirements, AXXAIR offers two inserts for orbital facing. Each insert has been developed for a specific application.

All of our inserts are double sided with two cutting edges and get a TiALN treatment, which improve the insert steadiness. This treatment ensures excellent heat resistance.

- Double sided inserts with two cutting edges, made of HSS-E, **TiALN** treatment - Cutting angle adapted to high speed use or for hard materials **Product Code** 

DC-OUT1	inserts	0.028 kg
DC-UOUT1	Single unit insert	0.002 kg

VDC25-MS √DC65-MS √DC115-AM √DC221-AM √DC115-BM √DC221-BM VDC25-MA VDC65-MA

# Join experience

VDC65-MA

VDC25-MS

**DC25-MA** 

**HIGH PERFORMANCE** inserts for orbital facing

**PERFORMANCE** inserts for orbital facing

Description

**Net weight** 

- Double sided inserts with two cutting edges, made of HSS, TiALN treatment

- Special design with acute cutting angle for high-purity applications without burr

Product Code	Description	Net weight	Dimensions			
DC-OUT3	Box of 10 inserts	0.03 kg	12.5 x 40 x 100 mm			
DC-UOUT3	Single unit insert	0.003 kg	4.5 x 9.5 x 9.5 mm			
√DC65-MS √DC115-AM √DC221-AM √DC115-BM √DC221-BM						

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![](_page_16_Picture_13.jpeg)

![](_page_16_Picture_14.jpeg)

![](_page_16_Picture_15.jpeg)

![](_page_16_Picture_16.jpeg)

V3.2 - 03/2022

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**Dimensions** 

12.5 x 40 x 100 mm

4 x 9.5 x 9.5 mm

![](_page_17_Picture_0.jpeg)

# **Global Locations:**

![](_page_17_Figure_2.jpeg)

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#### **OUR BRANDS**

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![](_page_17_Picture_26.jpeg)

![](_page_17_Picture_27.jpeg)

![](_page_17_Picture_28.jpeg)