

| ENG

COBOT

Can be integrated with any MIG/MAG – TIG – Plasma power source

Can be coordinated with external axes: linear or rotary

With additional functions of oscillation and arc control

Smart Wrist for easy programming

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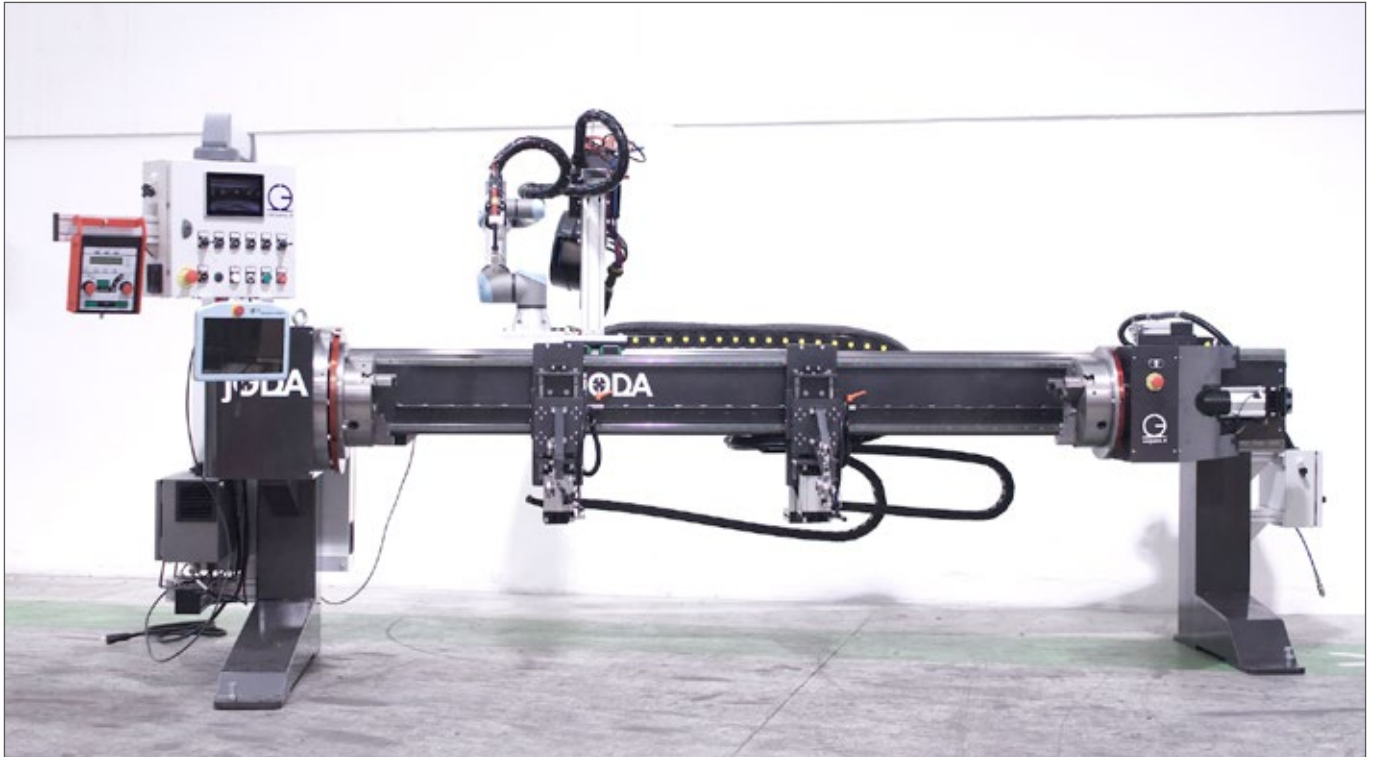
COBOT

COBOT FOR WELDING PROCESSES



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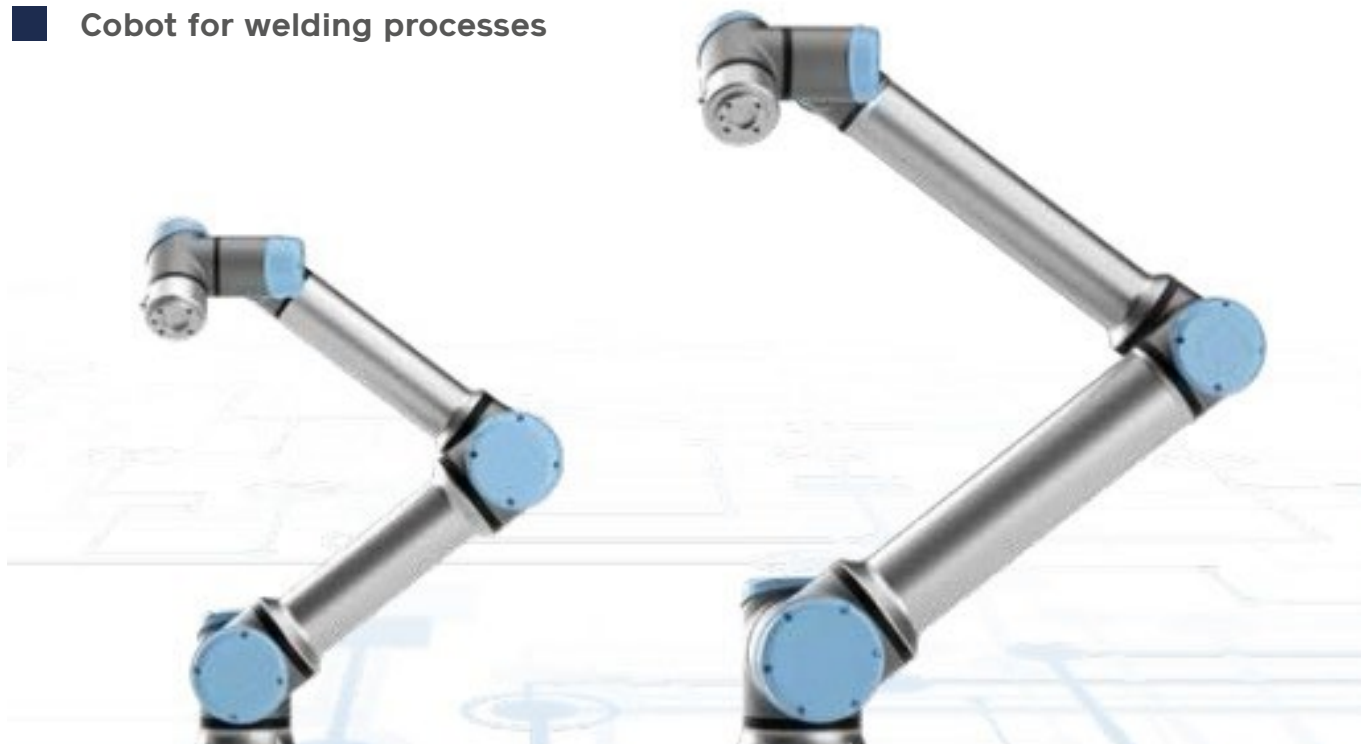
Since from the beginning, we have enthusiastically approached this new product, characterized by some surely innovative features:

- Possibility to drastically reduce the protective guards of the machine and to allow a simpler access for the operator thanks to the innumerable intrinsic safety features.
- Ease and speed in programming with reduced set up times.
- Overall costs lower than a conventional robot ones.

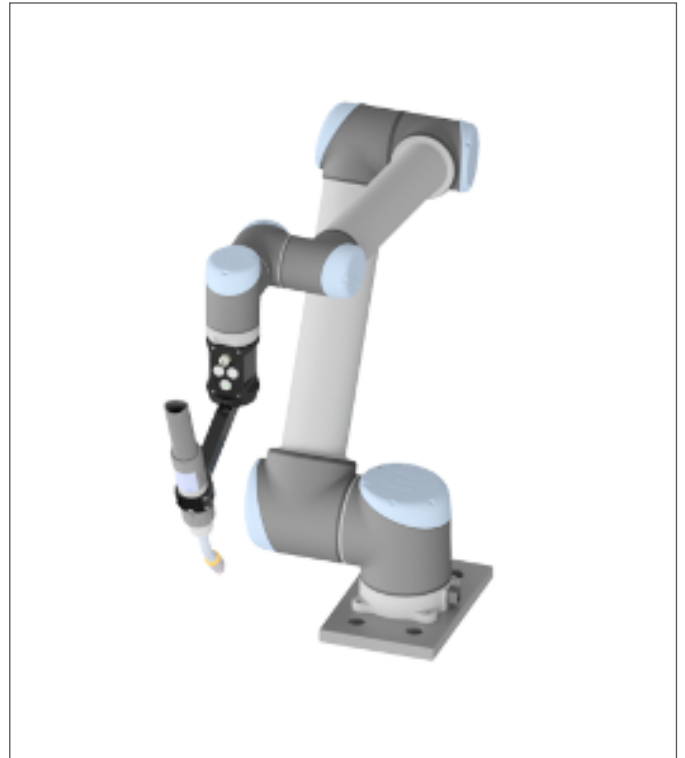
At the same time some gaps for the world of welding, which we wanted to fill before starting to integrate it into our plants, were evident such as:

- Interface with the main brands of welding machines.
- Integration with external motorized axes.
- Software for torch oscillation and Arc Voltage (current) Control.
- Predisposition for Industry 4.0 package.
- Complete EC declaration of conformity of the supply.

Cobot for welding processes



	UR5e	UR10e	UR20
Collaborative operation	17 advanced adjustable safety features, including the monitoring of robot elbow. Controls in remote mode accordingly with ISO10218 rule.	17 advanced adjustable safety features, including the monitoring of robot elbow. Controls in remote mode accordingly with ISO10218 rule.	17 advanced adjustable safety features, including the monitoring of robot elbow. Controls in remote mode accordingly with ISO10218 rule.
Certifications	EN ISO13849-1, Cat 3, PLd, e EN ISO 10218-1	EN ISO13849-1, Cat 3, PLd, e EN ISO 10218-1	EN ISO13849-1, Cat 3, PLd, e EN ISO 10218-1
Payload on the wrist	5 kg / 11 lbs	12,5 kg / 27.55 lbs	20 kg / 44.1 lbs
Outreaches	850 mm / 33.5 in	1300 mm / 51.2 in	1750 mm / 68.9 in
Freedom degrees	6 DOF rotary joints	6 DOF rotary joints	6 DOF rotary joints
Position repeatability	+/- 0,03 mm, under full load, accordingly with ISO9283	+/- 0,05 mm, under full load, accordingly with ISO9283	+/- 0,05 mm, under full load, accordingly with ISO9283
Weight	20,6 Kg	33,5 Kg	64 kg
Cobot installation position	Any orientation	Any orientation	Any orientation
Typical speed TCP	1 m/sec. / 39.4 in/sec	1 m/sec. / 39.4 in/sec	2 m/sec. / 78.8 in/sec
Force sensor on the wrist – Accuracy	0,3 Nm	0.6 Nm	1.0 Nm
Operating temperature	0-50°C	0-50°C	0-50°C



UR10e (UR5e – UR20) basic package designed for MIG/MAG welding

1. Mechanical arm with 6 interpolated axes
2. Insulated flange for arm fixing
3. Smart wrist with AIR POINT, FREE DRIVE and WIRE OUT
4. Robot torch with extractable lance and 4 m cable
5. Interface panel between generator and cobot and/or external axes
6. Pendant for programming of cobot, external axes and welding machine
7. Cobot power panel.

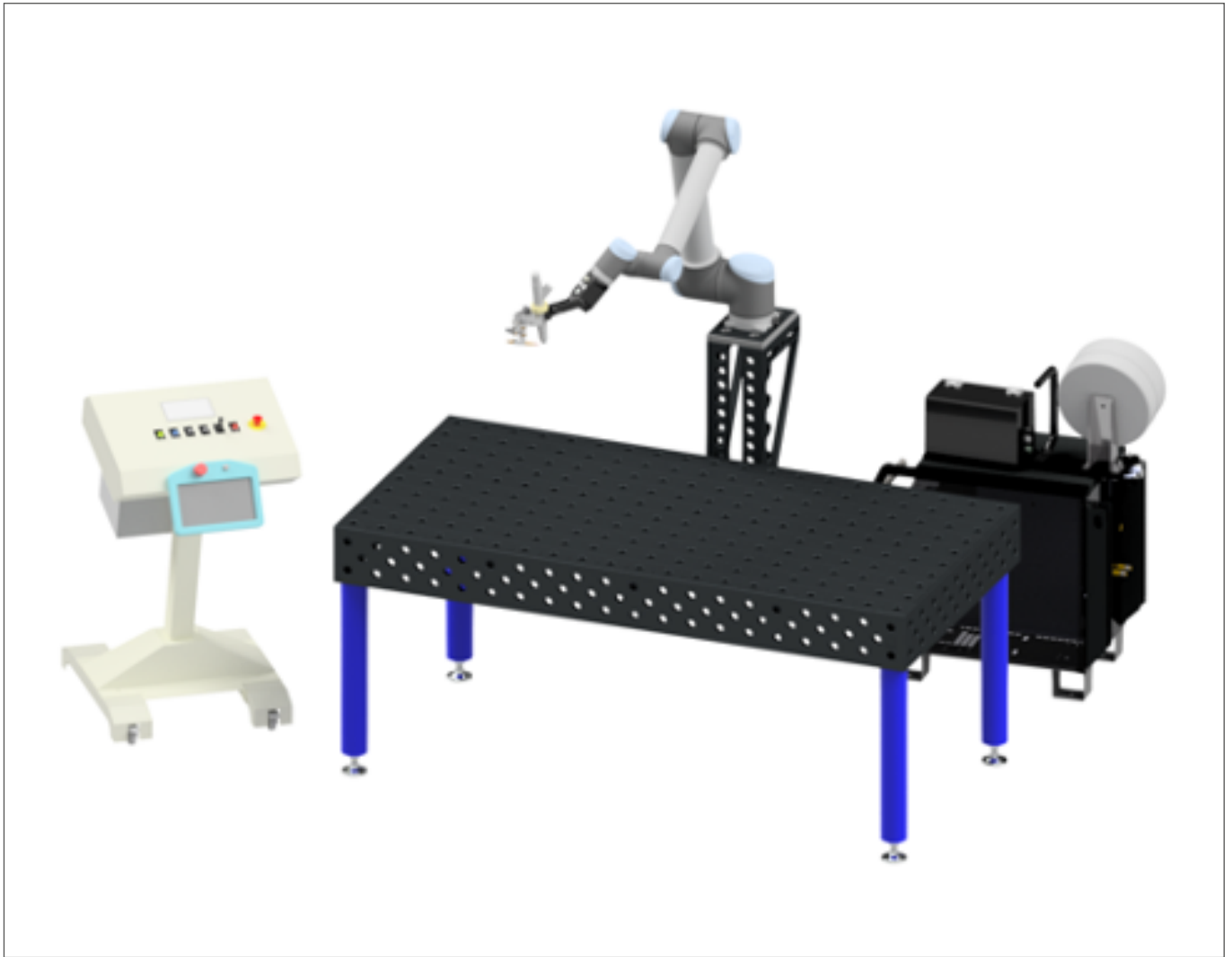
■ Package on table with MIG/MAG welding machine



Complete package with table and welding machine, MIG/MAG version

1. UR10e: Arm, control, interface, torch ... see previous page
2. Table DSK28.2010 (2412 alternatively) + 4 feet DSK28.620
3. 2 DSK28.ZC600 angle frames + fixing pins
4. MIG/MAG welding machine, with digital interface: in Can Open or Ethernet IP protocol
5. Support for torch cable with barbell

The assembly can be delivered with complete EC declaration of conformity



**Complete package with table and welding machine, TIG version
with or without cold wire feeder**

1. UR10e: Arm, control, interface, torch ... see previous page
2. Table DSK28.2010 (2412 alternatively) + 4 feet DSK28.620
3. 2 DSK28.ZC600 angle frames + fixing pins
4. MIG/MAG welding machine, with digital interface: in Can Open or Ethernet IP protocol
5. Collars for fixing the torch to the arm
6. VPR-4WD wire feeder programmable directly from the Cobot panel, complete with wire guide slide

The assembly can be delivered with complete EC declaration of conformity

Additional software packages and integration to our systems

- Multi-hole bench with protections and accessories, see our DESK catalogue
- Welding power source
- External axes, see the following pages with application examples
- Additional software features: Oscillation, AVC, Spot Welding.
- TIG or Plasma wire feeding systems, see our VPR-4WD
- Software package 4.0

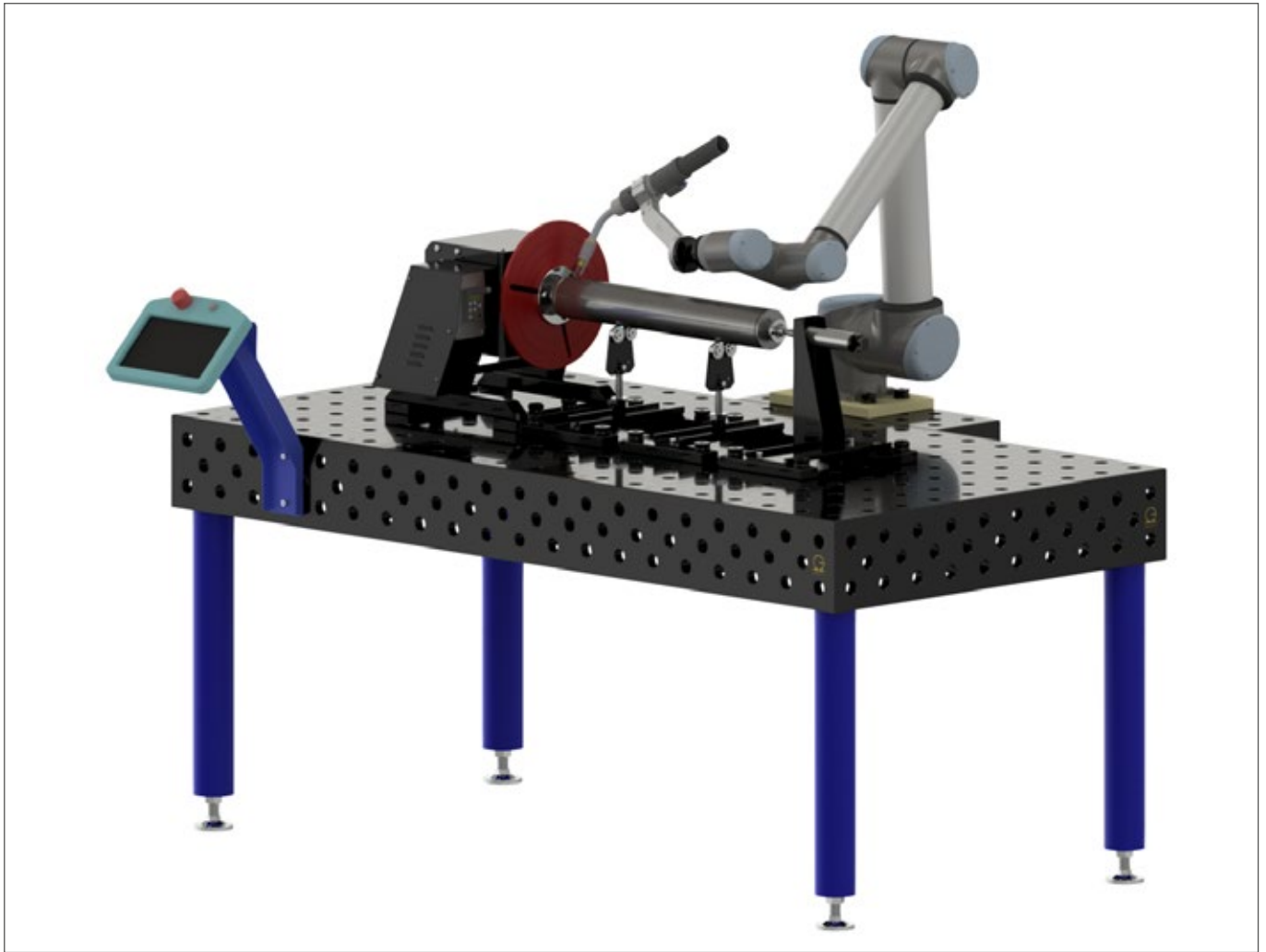




UR10e installed on 2 opposing tables

In this application, the Cobot is fixed between the two tables DESK2x1 in a raised position.

This solution allows the arm to move over the welding rays protection panels. The panels divide the area into three zones, but they can be easily moved in order to modify the support areas accordingly with the sizes of the pieces to be welded.



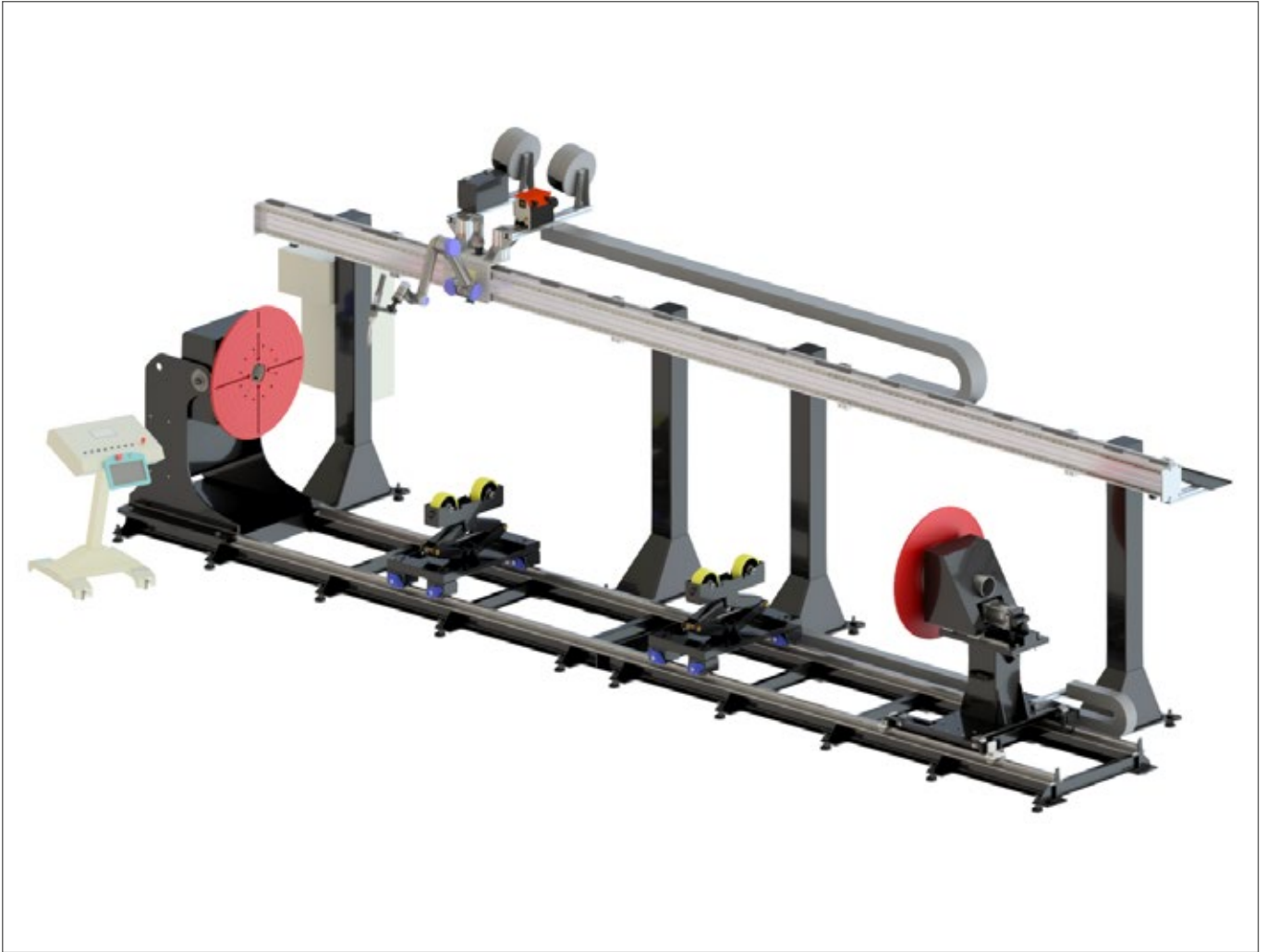
UR10e integrated to ONE turntable positioner with pneumatic tailstock

An example of our station for the welding of DESK tables legs.

ONE positioner is managed by Cobot teach pendant, on which is possible to set the following parameters:

- Workpiece diameter
- Rotation speed
- Overlapping
- Rotation delay after arc triggering
- Tailstock open/close controls

Turntable positioner and pneumatic tailstock are fixed to the table by means of bored holes.



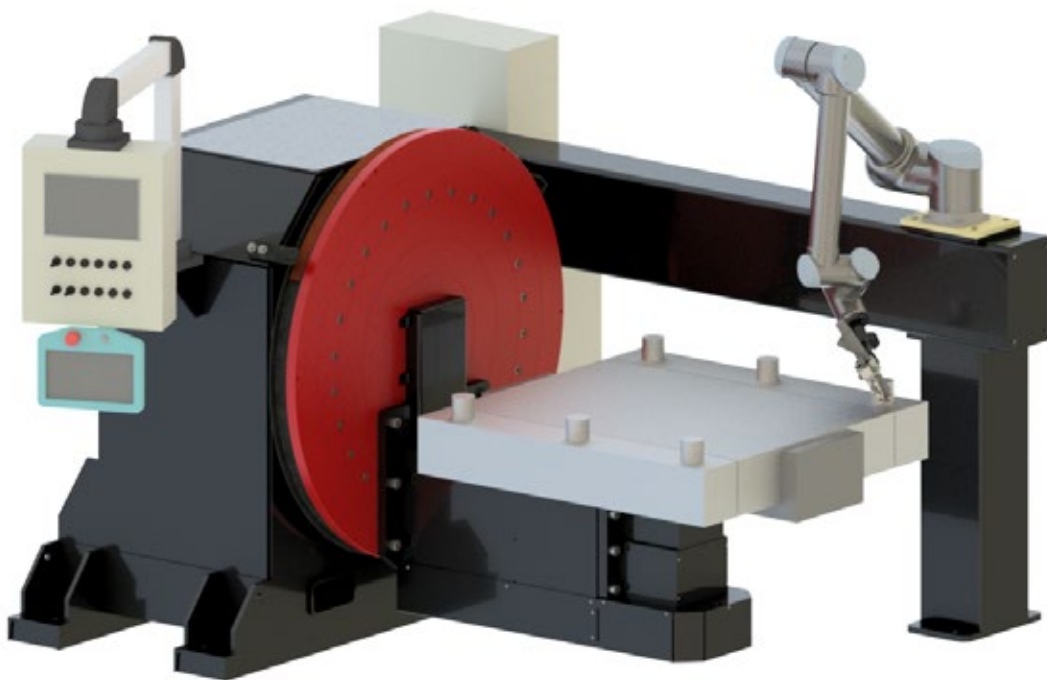
UR5e integrated to TWELVE turn and tilt table positioner with pneumatic tailstock and JACK10 idle dollies

Plant is designed for MIG/MAG or cold-wire TIG welding of flanged pipes or cylindrical workpieces.

Since workpieces diameter is less than 600mm, we choose to use the 5kg capacity UR5e Cobot

- Three are the external axes:
- Longitudinal axis for Cobot positioning
- Table rotation axis
- Table tilting axis

The possibility of tilting the table allows to weld also small workpieces without employing the pneumatic tailstock.



UR10e with 2-orthogonal axes positioner

The parts must be welded on each side, by both longitudinal and circular welds on fittings.

The two-axes positioner allows workpiece placement on all the 6 faces without the need of repositioning by the operator.



UR5e with Joda Midi lathe

This machine is designed for circular welding of flanges and of their reinforcement squares.

UR5e Cobot, with 850mm outreach, installed on a motorized longitudinal axis allows to weld flanges along the entire length of the pipe in a single placement, thanks also to the rotation of the motorized headstock.

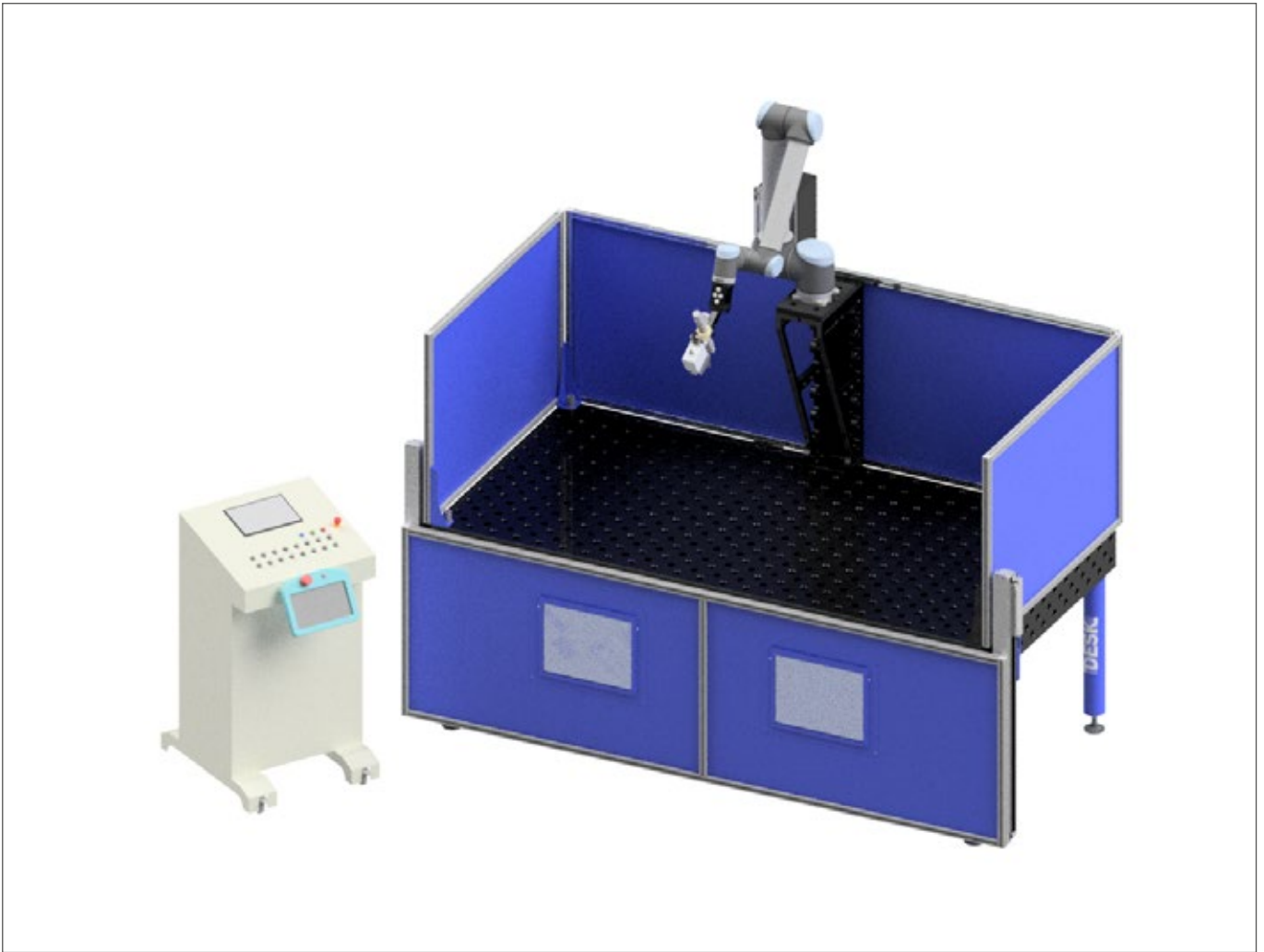
The plant is completed by pneumatic dollies for workpieces placement before closing the tailstock.



UR5e with Joda Midi lathe and DESK bench

In this case, the longitudinal axis has been extended in order to allow Cobot to work either on the lathe or on DESK bench.

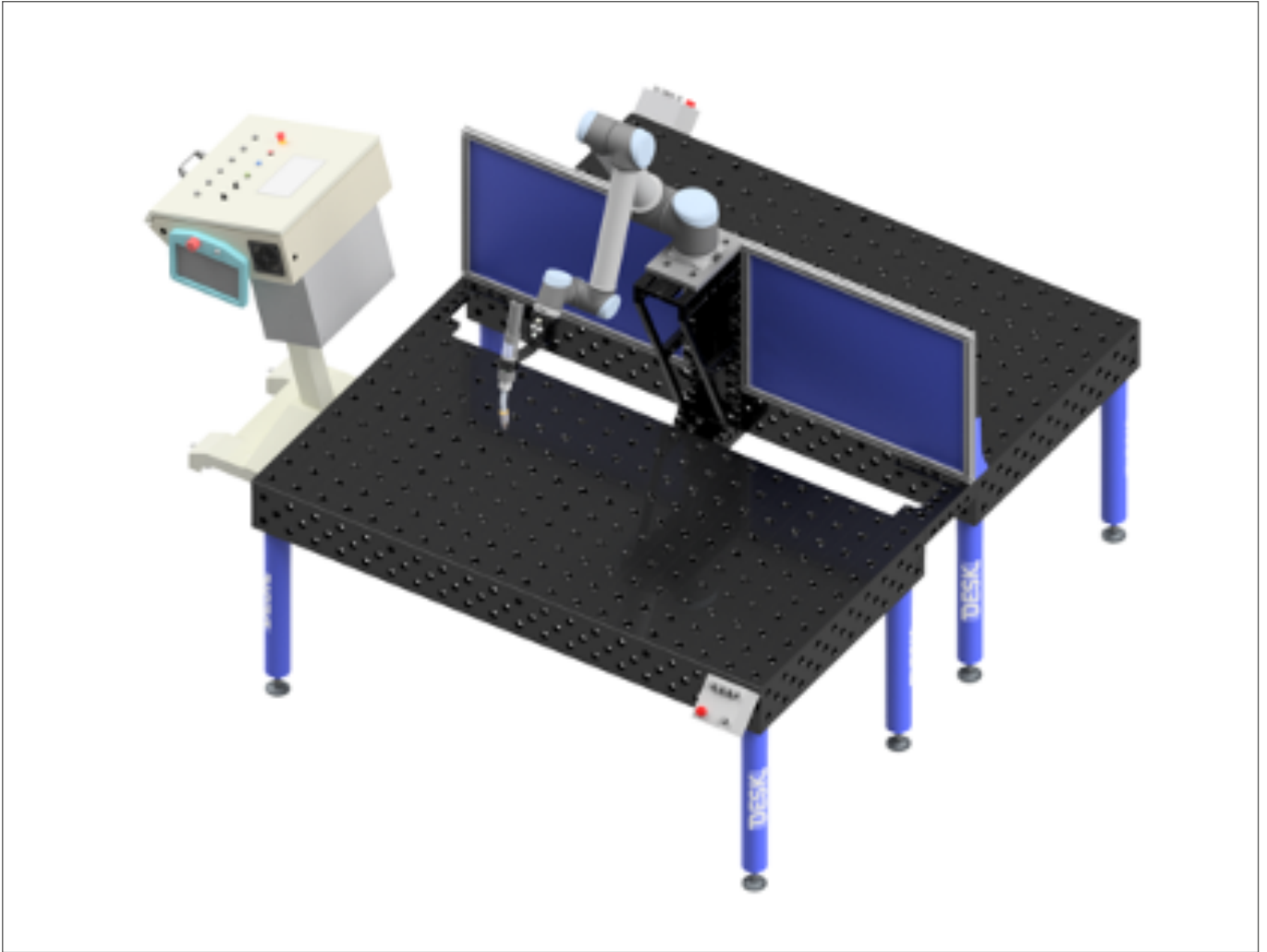
This is a particularly interesting application because it greatly expands the field of use of the system.



UR10e with Desk bench and pneumatic guards

To protect the areas surrounding the workstation from welding projections, fixed guards have been inserted at the rear and side of the table, as well as a front pneumatic guard with downward opening.

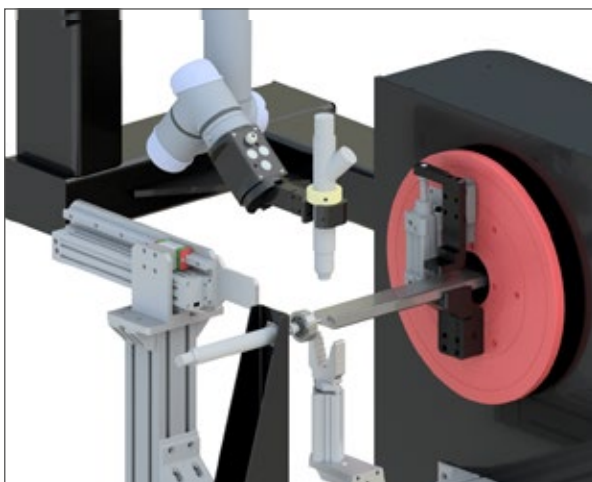
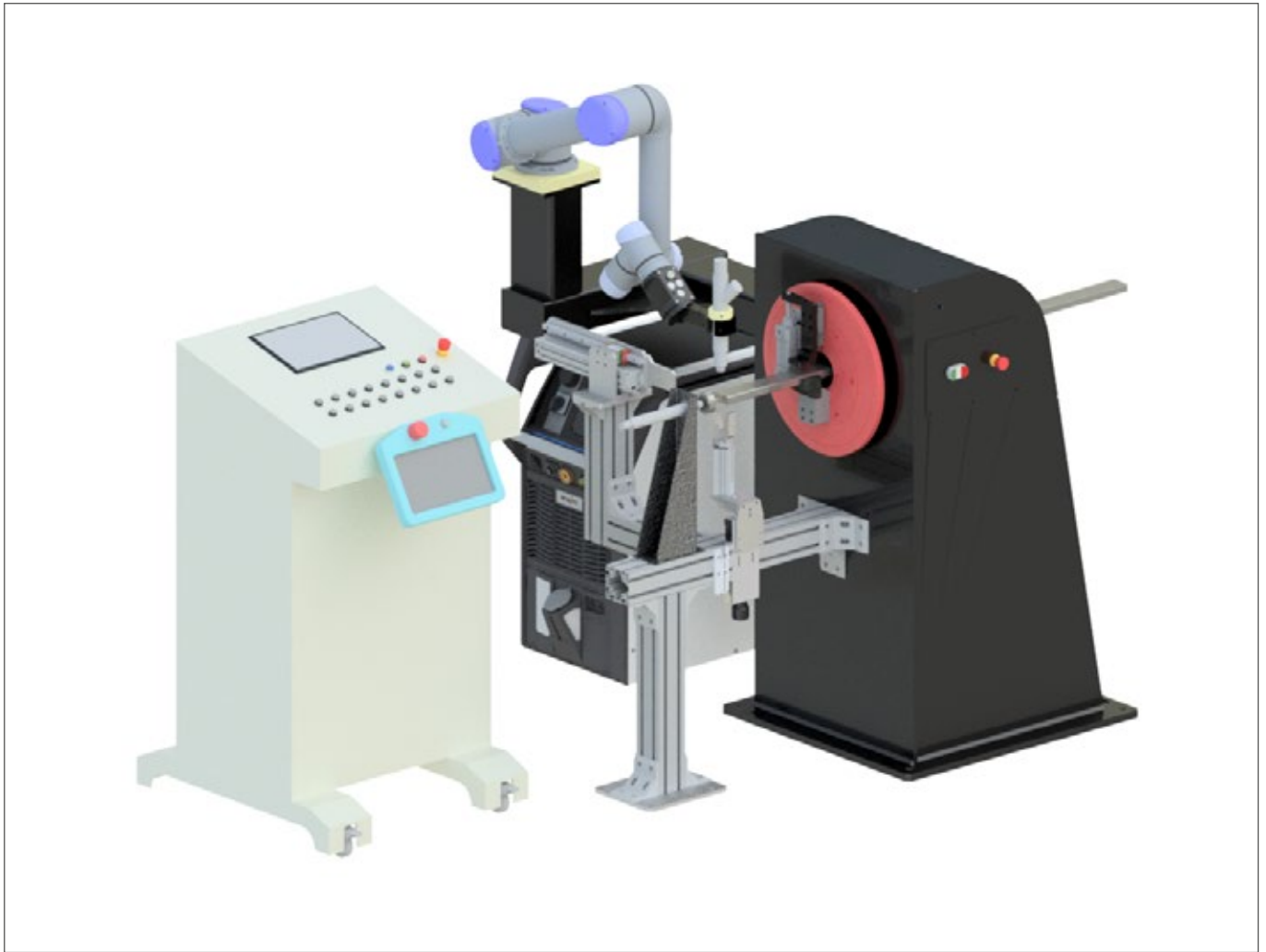
This way the operator is protected during the welding operations and still has easy access to the workstation during piece loading/unloading.



UR10e double station

The cobot works alternately on one of the two workstations while the operator loads/unloads the piece on the other.

This way the loading/unloading operation takes place in a masked time with considerable advantages on productivity.



System with UR5e and coordinated positioner for round/square/rectangular pipes

This plant allows TIG welding, without tack welding, of sealing caps for square, rectangular or round pipes.

The pipe locking, cap approaching and centering devices are automatic.



NOTE

[illegible]



GENERAL SUPPLY CONDITIONS

1. SUPPLY OBLIGATION ARRANGEMENT

The following general terms of business are always to be considered applicable to every order made by the buyer. Therefore, any supply clause written by the buyer on his orders or any other document given to the seller, which may result to be conflicting with the present general conditions, will be considered not written. The buyer has to forward the orders to the seller in writing. The seller reserves the authority to accept telephone and verbal orders. The order is to be considered executed when the buyer receives the written acceptance of the same (order confirmation) by the vendor or, in the absence thereof, automatically 15 days after the order receipt by the seller. All offers and prices are just an indication and are not binding. Therefore the seller considers himself to be bound only to what is declared in his order confirmations.

2. TERMS FOR DELIVERY

The delivery dates indicated by the seller as well as the ones written on the buyers' orders have to be considered just as an indication and are not binding and are subject to the punctual supply by the buyer of all the specifics, to the variations due to the availability of the goods with the suppliers or to reasons of force majeure: delays in the delivery due to said availability variations are not attributable to the seller, who is not in duty bound to the compensation for damages suffered by the buyer. Reasons of force majeure have also to be considered the accidents (industrial injury, disease, etc) and any other circumstances which may cause a total or partial job reduction, as well as the lack of raw materials, troubles with transportation, etc. The seller reserves the authority to suspend the delivery of the goods if the buyer has not seen to the payment of the invoices relative to other supplies whose terms of payment are overdue. The goods are understood as being delivered for all intents and purposes to the buyer from the time they were picked up by the carrier or the buyer himself at the seller's warehouse.

3. PAYMENT AND TERMS OF PAYMENT

The payments have to be made to the seller's domicile and in accordance with the established conditions. In the event of a delay, the due amounts of money will automatically imply the charge of interests based on the official discount rate plus 5 points. In the event of a non-payment, the buyer is to be considered in default without the necessity of any formal notice by the seller. The presence of possible faults and/or defects in the products does not excuse the buyer for suspending the payment of the invoices. Should the client suspend and/or delay the payments, the seller may suspend the supplies, with the authority to consider the contract automatically terminated by rights and to demand for damages.

4. WARRANTY

CARPANO EQUIPMENT guarantees the products for a period of 24 months starting from the delivery date, for a daily work cycle of 8 hours. The warranty is intended ex works CARPANO EQUIPMENT. CARPANO EQUIPMENT guarantees the performance of its products in accordance with the instructions written in the relative manuals. For the products based on job orders, the warranty is pertaining to the specifics agreed with the client.

5. VOID WARRANTY

In case of any tampering or unauthorized intervention the warranty shall be deemed void.

6. LIABILITY FOR DAMAGE

The seller's liability is limited only to the obligations above and it's expressly agreed that the seller does not accept any liability for damages resulting from any cause connected with the use and utilization of the sold products.

CARPANO EQUIPMENT is not responsible and for no reason whatsoever may the expenses be charged for:

- Machine downtime.
- Direct or in direct damage due to the non-operation of the equipment.
- Working hours spent to solve possible problems on the equipment.

7. RESERVATION OF OWNERSHIP

Until the payment in full of any credit resulting from business relations has taken place, included any additional credit and until the payment of bills and cheques has been made, the property in the goods remains in the seller.

8. COMPETENT COURT

It's established that the court of Bologna will be the sole competent court for every dispute relative to this contract.

9. APPLICABLE LAWS

The applicable law is the Italian law.



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