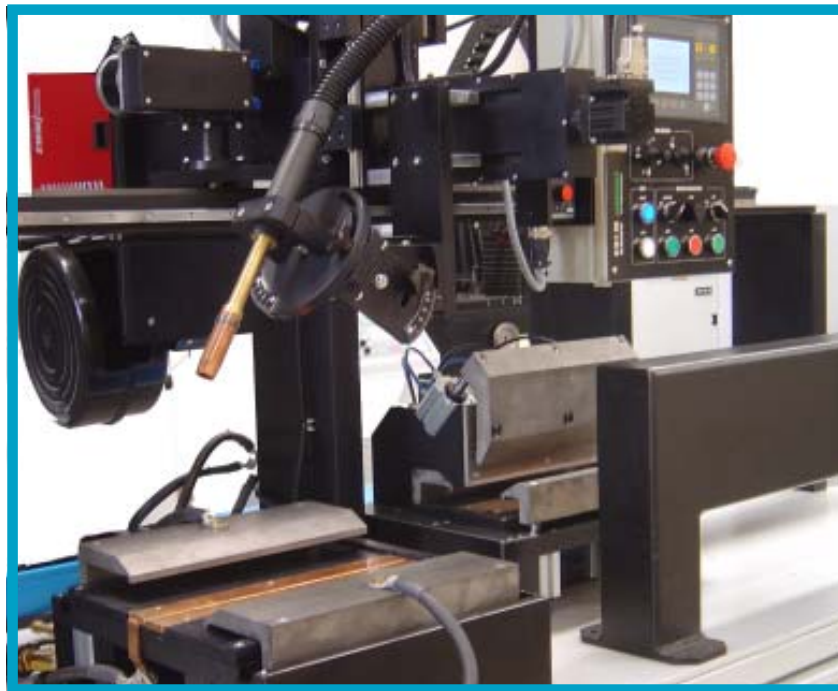


KOY **COMMERSALD** **MWT 170**
MATERIALI E IMPIANTI PER SALDATURA

PLANT FOR WELDING TESTS ON MIG/MAG WIRES



TO WELD
CHECK PLATES
HEAD-TO-HEAD AND
CORNER JUNCTIONS
IN ACCORDANCE WITH
UNI EN ISO 15614-1



COMMERSALD

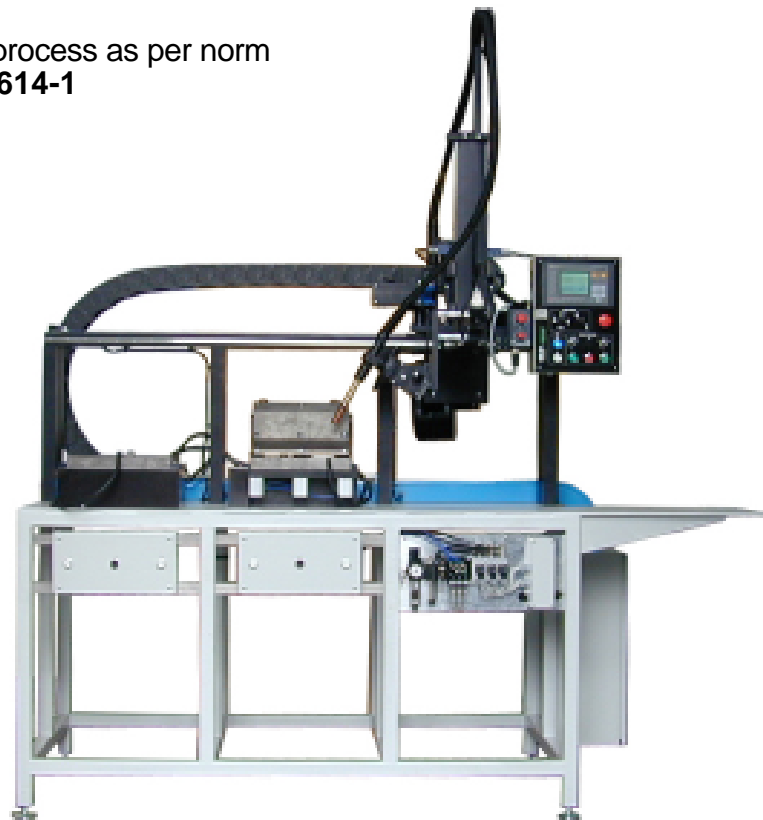
The new cartesian plant KOY MWT 170 is a semi-automatic machine for laboratory, planned and produced by Commersald to check and document the weldability differences in MIG/MAG wires in comparison with a sample lot.

In fact it is possible, by means of precise and documented controls, to highlight differences or anomalies in one tested lot, in respect of the parameters and of the features of a sample lot. The documentation consists of a printed graph, that shows the partial or complete results of the test, as well as the acceptability limits set by the operator.

The welded samples can be also used to qualify the process as per norm
UNI EN ISO 15614-1

COMPOSITION OF THE PLANT

- 1 - Mainframe
- 2 - Three cartesian axis (X Y Z)
- 3 - Oscillator of the torch
- 4 - Graduated articulated joints for torch holding
- 5 - Jig for flat welding
- 6 - Jig for corner welding
- 7 - Accessory to weld long workpieces
- 8 - Control panel with programmed PLC
- 9 - Power panel
- 10 - EWM welding machine complete of software



CARTESIAN AXIS AND OSCILLATOR

- X - Longitudinal axis for welding
- Y - Transversal axis for oscillation
- Z - Vertical axis for release

The oscillation parameters are managed by means of the PLC that is placed on the mobile control panel, as well as the driving of the X and Z axis.

JIGS

On the working flat of the structure there are two jigs with knives in nitrided steel with copper inserts, to hold the reverse of the welding. The jigs are used to lock and unlock pneumatically the workpieces by means of a set of cylinders pushing 200 kos each ; the cylinders are driven by two safety pushbuttons.

In addition the machine is equipped with a strong mobile support, that can be employed to hold workpieces 1000 mm long, used to make tests of slinding of the wire in its shealth.



There are two manual slides with graduated nonius to **change the angle of incidence of the welding torch**, in respect of the two main motions (longitudinal and transversal).

The motion range on the longitudinal tilting is 0°-30°.

The motion range on the transversal tilting is 0°-60°.

CONTROL PANELS

The **mobile control panel** is mounted on the trailer of the longitudinal axis, so that the operator always works closed to the welding area. The mobile control panel is comprising of all devices to drive the motion of the axis and of the PLC to set the oscillation parameters.

The **control panel of the welding machine** is placed in the front side of the welding machine and it is used to set the welding parameters.

Both panles are connected to a computer, which is programmed to save data and to manage the reports.



HOW TO SET THE MACHINE TO START THE TESTS

Once the “**reference product**” is chosen, a form must be filled in, to record the best welding parameters that have been obtained by a skilled operator.

This form must report the acceptability range, shown by two lines in a diagram; the parameters recorded during the test must be within the range to make the tested product accepted.

Each diameter of wire, each thickness of the plate and type of material must have its own form. The plant Commersald KOY WMT 170, with the welding machine EWM, must be coupled with a computer (with the software Q-DOC 9000), with a printer and an interface to obtain data on serial line PC INT X10.

The parameters that can be managed by the software are:

- < Arc tension;
- < Welding current;
- < Real sliding speed of the wire;
- < Nominal sliding speed of the wire;
- < Adjustment of the nominal welding tension;
- < Current consumption of the motor of the wire feeder; this parameter offers an idea of possible jams due to bad sliding of the wire in the sheath. During this test the support for long workpieces is employed.

All above data can be seen at the same time, or the operator can choose which to exclude. For example because he doesn't need to control some of them, or perhaps because the flow curves are so closed one to the other to make the graph difficult to be read.

SEQUENCE OF THE OPERATIONS TO MAKE THE TEST

Employing the cartesian plant **KOY MWT 170**, we have the following standard sequence to make corner weldings:

A - The operator places the workpiece on the machine and locks it. Then he sets the length of the bead and the welding parameters of the reference product. The torch must be tilted in both directions, as per what stated in the form.

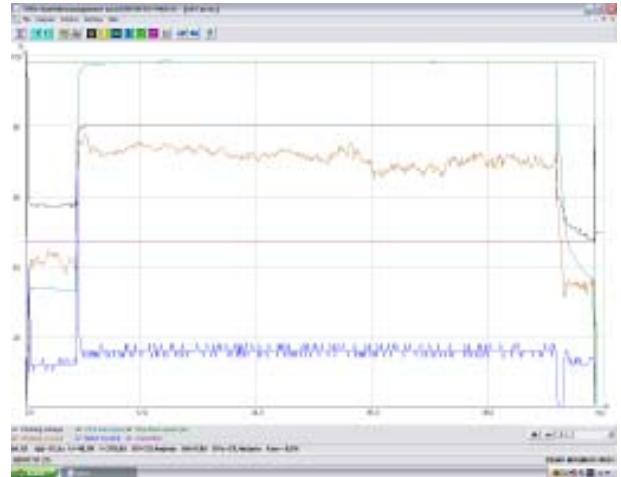
B - The worker places the torch in one end of the workpiece and he makes a spot-welding; this operation must be repeated in the other end and in the center.

C - Finally, the operator turns the workpiece, places again the torch at one end and starts the test.

While welding, the operator adjusts the set parameters until the result is good at eyesight. At the same time the software Q-DOC 9000 records the real parameters of the test and shows them in a graph.

The operator can choose whether to print them or to save them in a file or as well to compare these data with the standard acceptability parameters.

Of course the same operation must be repeated for the flat welding test, where the operator must set the oscillation parameters, too.



Dimensions of the machine	mm.	1600 X 1000
Weight of the machine	Kg.	700
Max stroke of the axis	mm.	X =1350 Y = 100 Z = 500
Max speed of the trailer	cm / min	200
Dimension of the workpiece	mm.	L=350 H=150 Spessore 2,5/10
Weight of the workpiece (max)	Kg.	8,2
Electric power	----	400V - 32 A - (56-60 Hz 3F+N+T)
Pneumatic power	Bar / min	6
Max acoustic pressure	dBA	70
Max diameter of the wire	mm.	1,60
Max welding current	A.	400
Max oscillation amplitude	mm.	40

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