MIG / MAG welding, guiding principles and GYS range
## 4 big families of welding machines

<table>
<thead>
<tr>
<th></th>
<th>Definition</th>
<th>Welding</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMA</td>
<td>Metal Manual Arc</td>
<td>Consumable electrode (filler)</td>
<td>Building site, craftsmen repair, hobby, ...</td>
</tr>
<tr>
<td>TIG</td>
<td>Tungsten Inert Gas</td>
<td>Infusible electrode (with/without filler)</td>
<td>Workshop, manufacture, piping, alimentary (stainless),...</td>
</tr>
<tr>
<td>MIG</td>
<td>Metal Inert gas</td>
<td>Advanced fusible wire is semi-automatic (filler)</td>
<td>Workshop with important productivity, automobile carriage-builder, iron work...</td>
</tr>
<tr>
<td>MAG</td>
<td>Metal active gas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spotter</td>
<td>Pointeuse</td>
<td>Welding by resistance</td>
<td>Car body repair shop</td>
</tr>
</tbody>
</table>
4 big families of welding machines

- Spot welder
- TIG
- MMA
- MIG / MAG
**MIG/MAG welding, general**

**MIG** : Metal electrode welding with inert gas (argon, helium or mixture). These mixtures are mainly used for welding of sensitive stainless steel, and aluminium and copper alloy.

**MAG** : Metal electrode welding with active gas (protection gas contains active elements such as oxygen and carbon dioxide).
MIG/MAG welding consists in using a metallic wire as electrode on a welding wire reel of 5 or 15 kg and a protection gas (CO2 or special mixture). The wire can be made of copper-covered steel, stainless steel or alu, or flux cored. By this way, protection gas is not necessary, it comes from the combustion of the wire.

A MIG/MAG welding product is set up by a generator of direct current, a drive system of the wire integrated in the product or external, a torch and earth cable. A flowmeter is necessary.
The arc welding between the wire (pushed directly through a torch) and the part to be welded, makes the wire melt in continuous small drops in fusion that make the solder alloy.

By moving the torch, you get the slag.

The current and the speed wire must be set up according to the thickness of the part to be welded. The more important, the more the speed and the current must be important.
MIG/MAG welding

- Nozzle
- Electrode wire or continue electrode
- Contact tube
- Welding arc
- Protection gas
- Métal de base
- Solder alloy
- Slag
Avantages of MIG/MAG welding

• Very easy process, no use of high qualified people
• Very flexible and adaptive
• No welding slag so few finish is necessary
• High speed of fusion (twice to three times the speed of manual welding)
• High productivity and results of very good quality
• Less current
Choose according to:

- **The diameter of the wire electrode you use**
- **The capacity of the product in Amp (single phase / three phases),**
- **The number of drive rollers of the wire**
- **Other options (discontinuous welding, spot welding, 2 T / 4 T, « 2 wire feeders in 1 », separated wire feeder, …)
How to choose a MIG/MAG?

- Current
- Fuse
- Diameter of the wire
- Number of the motor rollers
- Original equipped
- Setting up of the speed
- Amp for a use at 40% or 60% of time
- Use in Amp
- No load voltage
- Connection of the torch
- Isolation standards
- Size and weight

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### Product line MIG/MAG of GYS (compact MIG/MAG)

<table>
<thead>
<tr>
<th>Model</th>
<th>Ph</th>
<th>Ø max</th>
<th>60% A max</th>
<th>2 in 1</th>
<th>Special Car body workshops</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monomig</td>
<td>3</td>
<td>1Ph</td>
<td>1.2</td>
<td>130</td>
<td></td>
</tr>
<tr>
<td>Universal 3P &amp; 2P</td>
<td>2</td>
<td>1Ph</td>
<td>0.8</td>
<td>90</td>
<td>X</td>
</tr>
<tr>
<td>Trimig</td>
<td>3</td>
<td>3Ph</td>
<td>1.2</td>
<td>160</td>
<td>(1 model)</td>
</tr>
<tr>
<td>Duomig</td>
<td>1</td>
<td>3Ph</td>
<td>1</td>
<td>130</td>
<td>X X</td>
</tr>
</tbody>
</table>

**Duomig**: 2 welding wire reels in the same Machine for the different sheets to be welded (Alu / Cusi3, steel)
# Product line MIG/MAG of GYS

(MIG/MAG with separated wire feeder)

<table>
<thead>
<tr>
<th></th>
<th>Mod.</th>
<th>Ph</th>
<th>Ø max</th>
<th>60% A max</th>
<th>New</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAGYS</td>
<td>2</td>
<td>3Ph</td>
<td>1.2</td>
<td>290</td>
<td>Int&amp;Ext wire reel</td>
</tr>
<tr>
<td>GENEYS</td>
<td>2</td>
<td>3Ph</td>
<td>1.6</td>
<td>350</td>
<td>Ext wire reel</td>
</tr>
</tbody>
</table>

- **MAGYS**: 1 incorporated wire feeder + 2 separated one connectable with or without water cooler.
- **GENEGYS**: generator to connect to a separated wire feeder with or without water cooler.