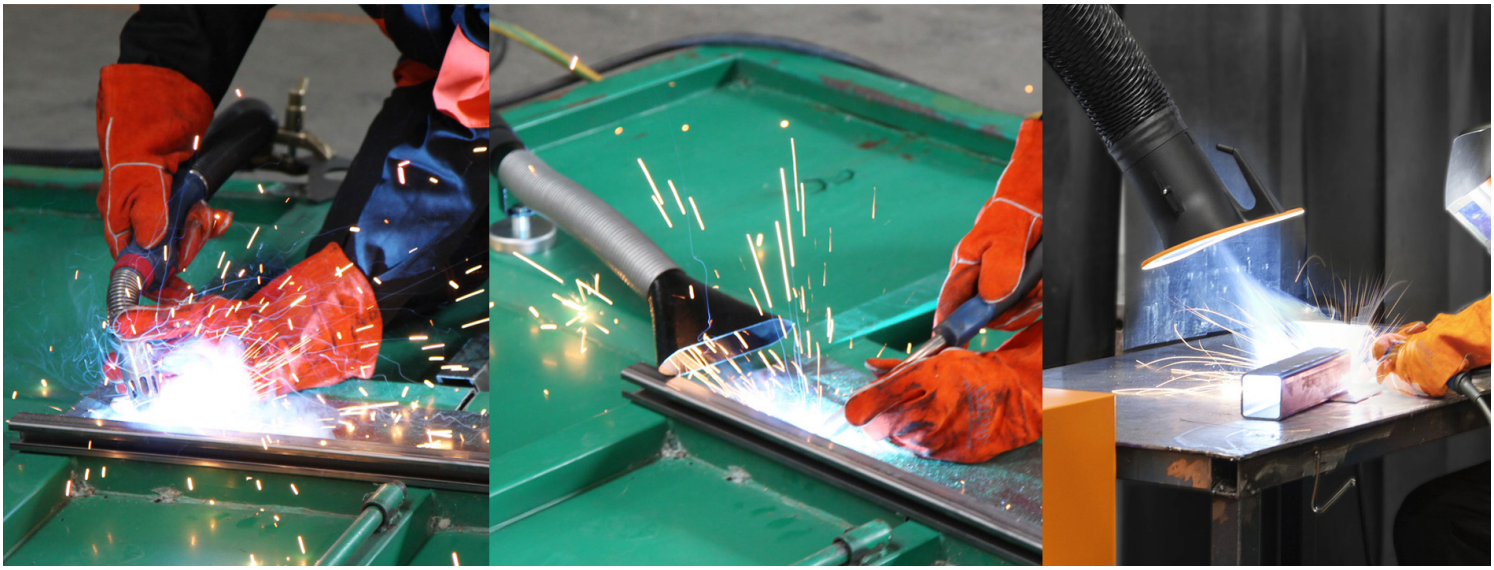
DIRECT EXTRACTION OF WELDING FUMES: SOURCE CAPTURE OVERVIEW

Posted on July 7, 2015 by Christian Wopen



Source captures are the first choice when it comes to the occupational safety equipment. They are used directly at the place where welding fumes emerge. Three types of source captures are applied for various requirements during welding works.

Numerous metal processing companies nowadays request room ventilation systems due to occupational safety issues. They expect a system that works for everyone and in the whole hall. However, an effective welding fumes capture works in a different way. Effective capture and filter system capture the welding fumes directly at the place where they emerge. Thanks to this hazardous substances do not get mixed with the air in the hall at all and they cannot build any welding fumes blanket over the heads of the workers.

Source captures are thus the first choice equipment and they shall always take priority. Room ventilation systems shall therefore only be considered as supplementary equipment for source captures.

However, there are various types of source captures. Metal processing companies have the choice between source captures integrated with the welding torch, high-vacuum source captures as well as low-vacuum source captures.

1. Low-vacuum source captures:

Low-vacuum source captures are in practice the most common solution. Welding fumes extraction is performed through an exhaust hood at the end of up to 10 meters long flexible exhaust arms. In ideal case these arms are unsupported and therefore they do not have to be hold by the welder during the welding process. A good low-vacuum source capture extracts the welding fumes also in a distance of 300 up to 400 mm, depending on its setup.

2. High-vacuum source captures:

A high-vacuum source capture allows on the other hand the extraction of welding fumes in the distance of up to 150 mm. Dangerous substances are captured directly at the weld joints using funnel-shaped or slotted suction nozzles. Due to low suction range of the nozzles, this type of source capture only extracts the welding fumes in a limited area. Therefore it is often necessary to reposition the device. High-vacuum source captures are usually mounted using magnets.

3. Source capture integrated with the welding torch:

Source captures Integrated with welding torch can be placed closest to the weld joints. They are available in two variants:

- as a suction nozzle integrated with the welding torch or
- as a suction pipe placed on the welding torch.

However, due to the immediate proximity they require low air flow volumes. However, small profiles that are suitable for low amounts of welding fumes require a high vacuum. These systems can cause restrictions during the welding torch handling and in some welding positions.