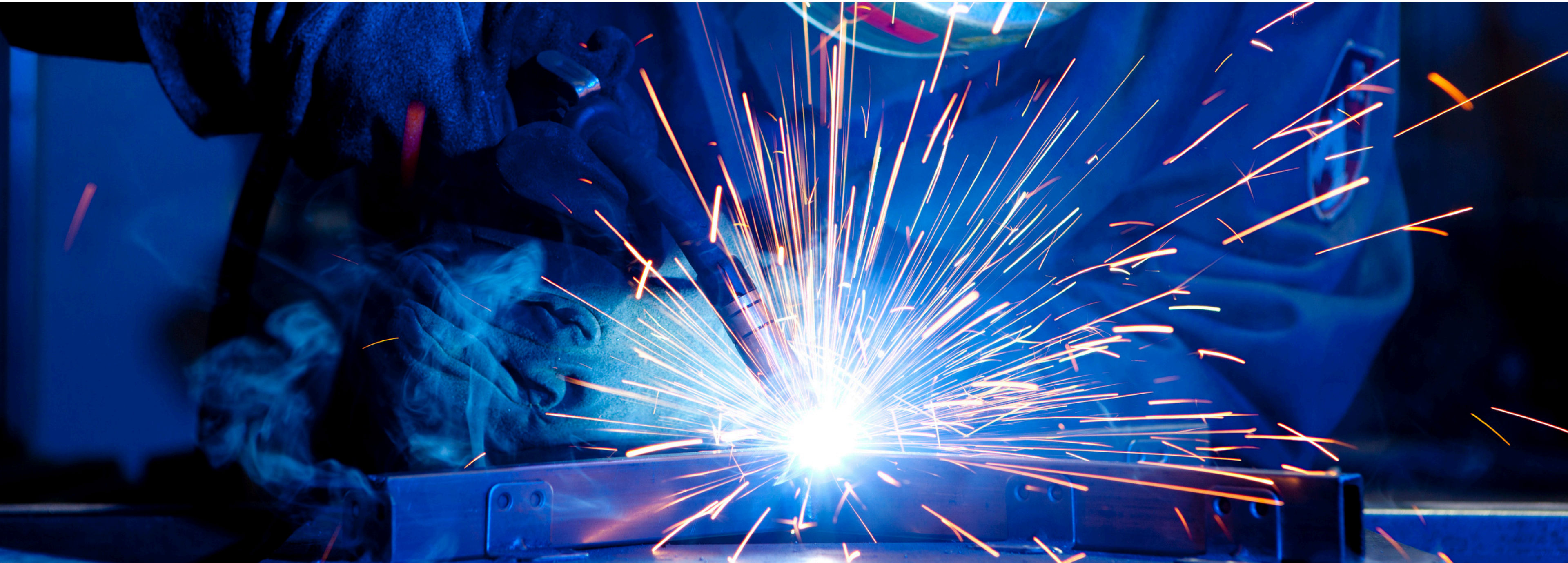


MAG welding (135)



MAG welding (135)

What you will learn from this presentation:

- Description of methods
- Description of welding equipment
- Burner position
- Welding positions
- Principle of the welding process
- Main welding parameters
- Inspection of welds and their defects
- Health and safety



Welding method description

Arc welding MIG, MAG, TIG, MMA

MIG 131 – electric welding in inactive (inert) gas

MAG 135 – electric welding in active gas

TIG(WIG) 141 – welding with a non-consumable electrode

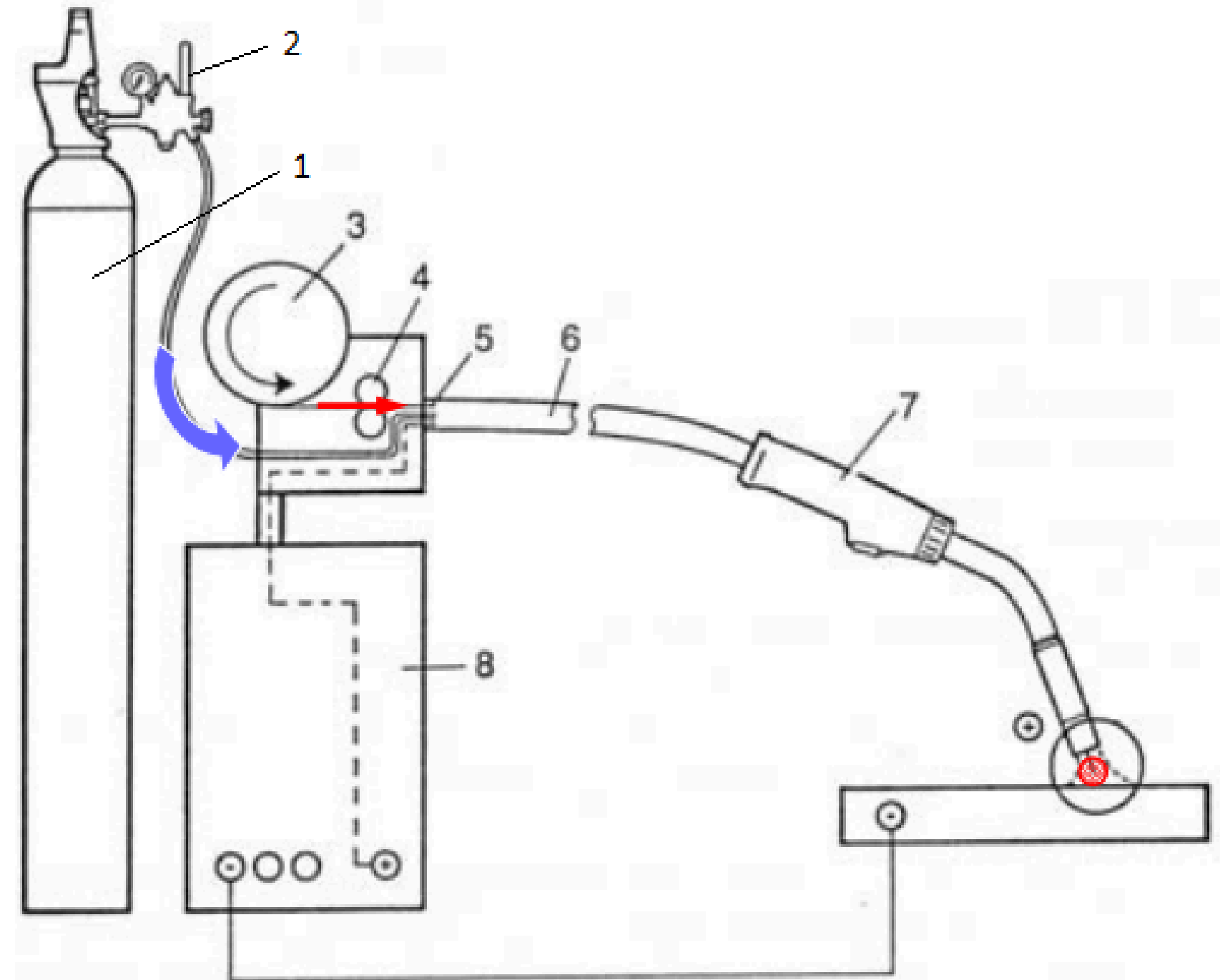
MMA 111 – electrode welding



Description of welding equipment

Main parts:

1. Pressure bottle gas
2. Pressure reducing valve
3. Coil with wire
4. Wire feeder
5. Welding hose attachment
6. Welding hose
7. Burner
8. Welding power source



Main parts of the burner

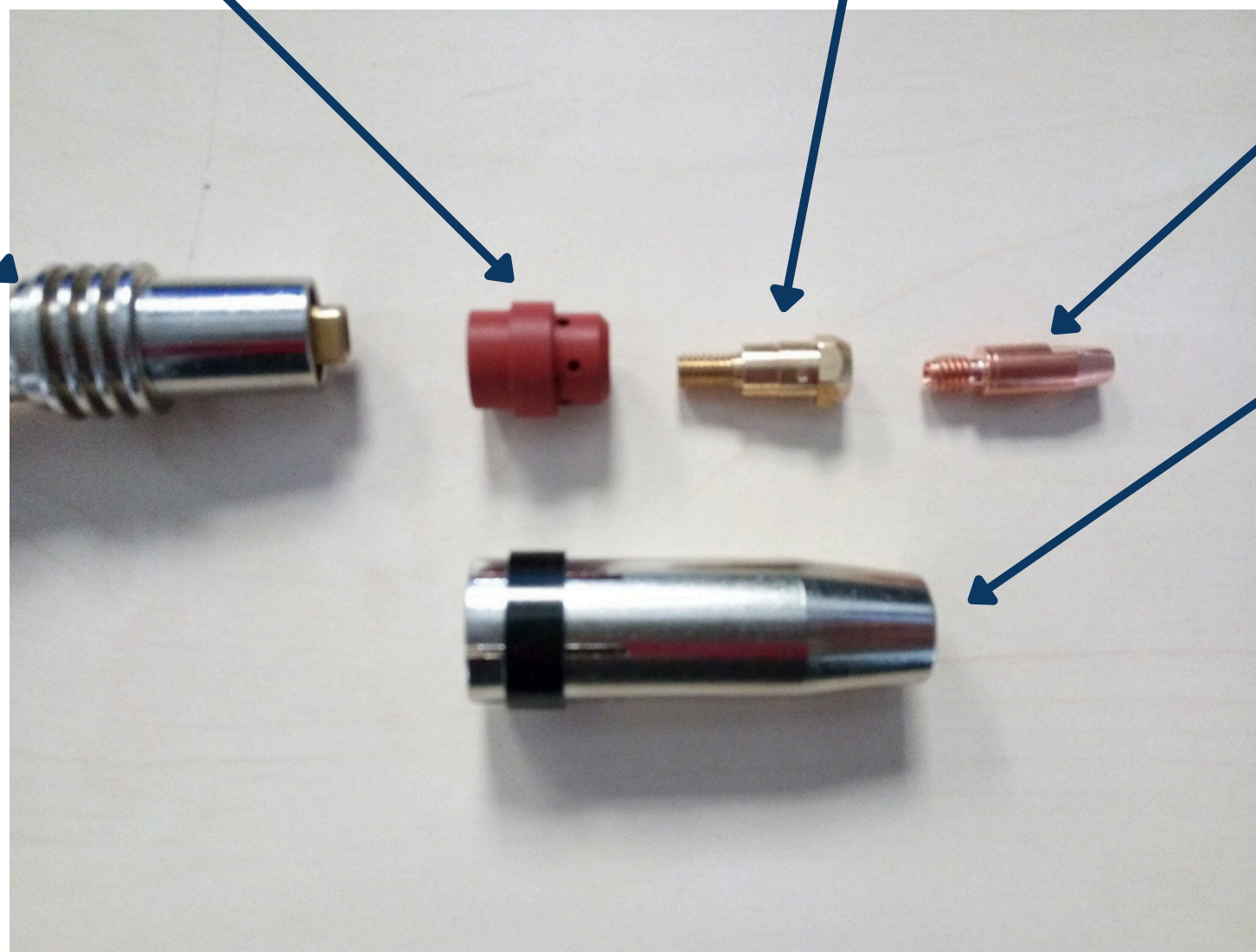
burner

seal

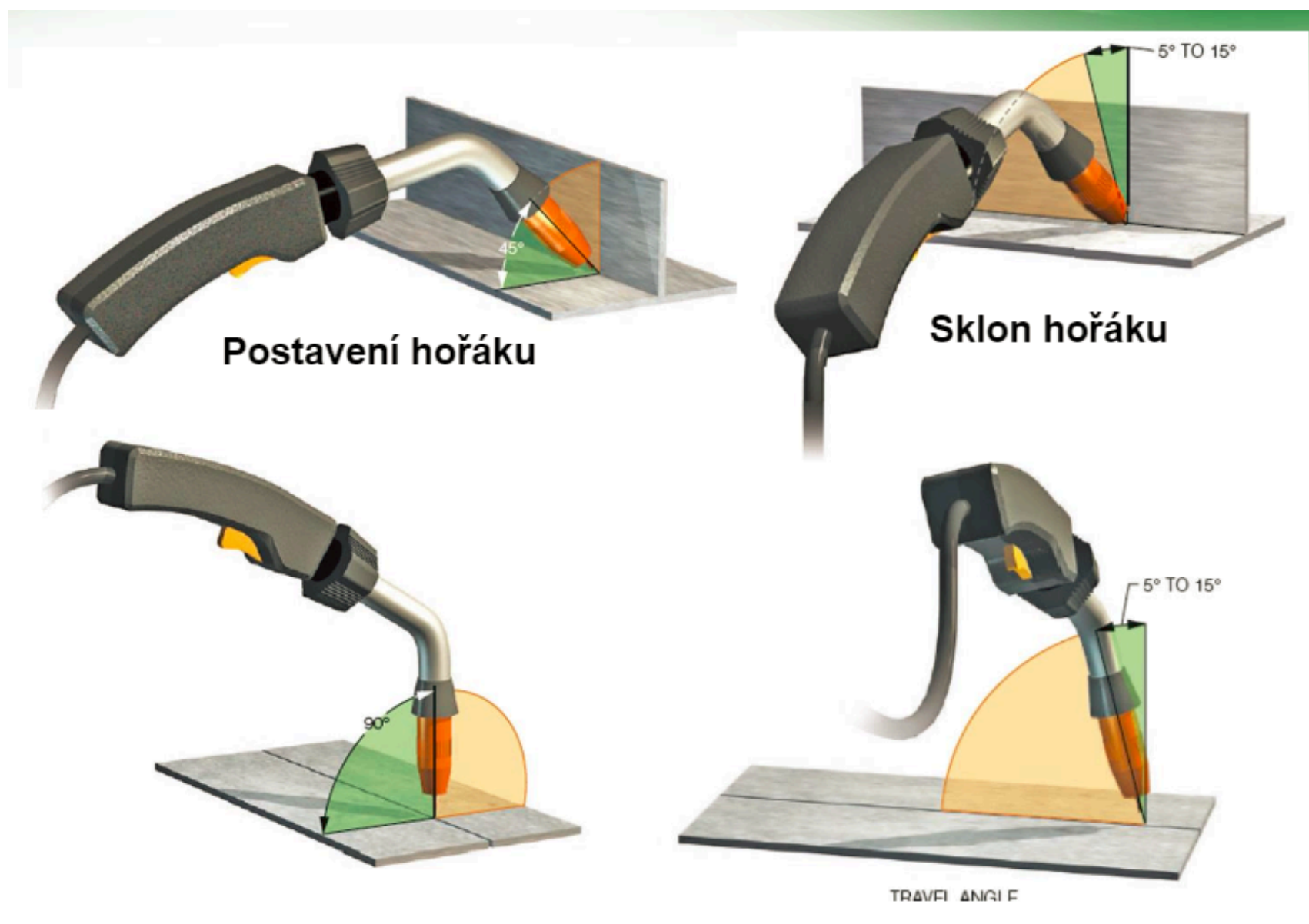
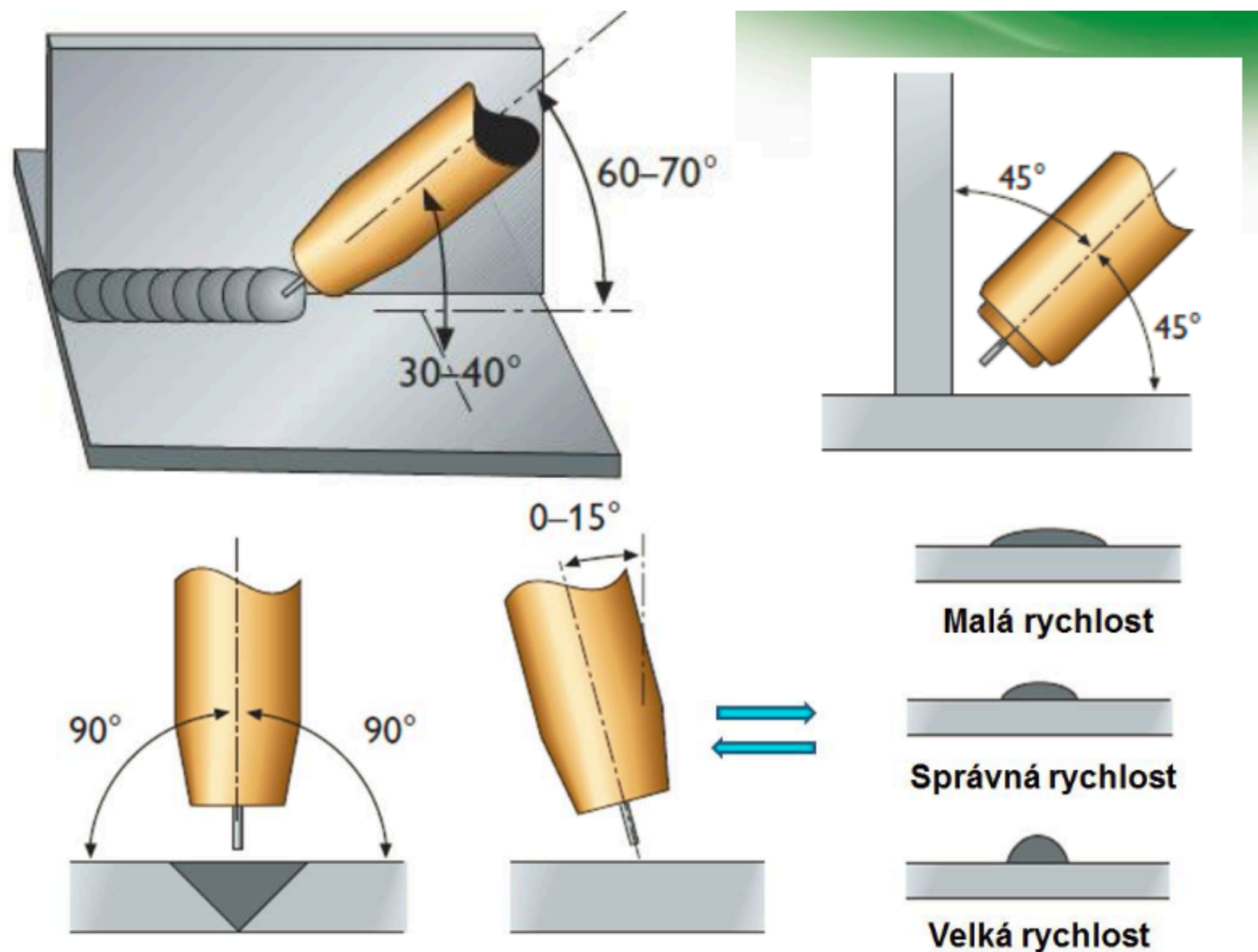
tip holder

top

nozzle



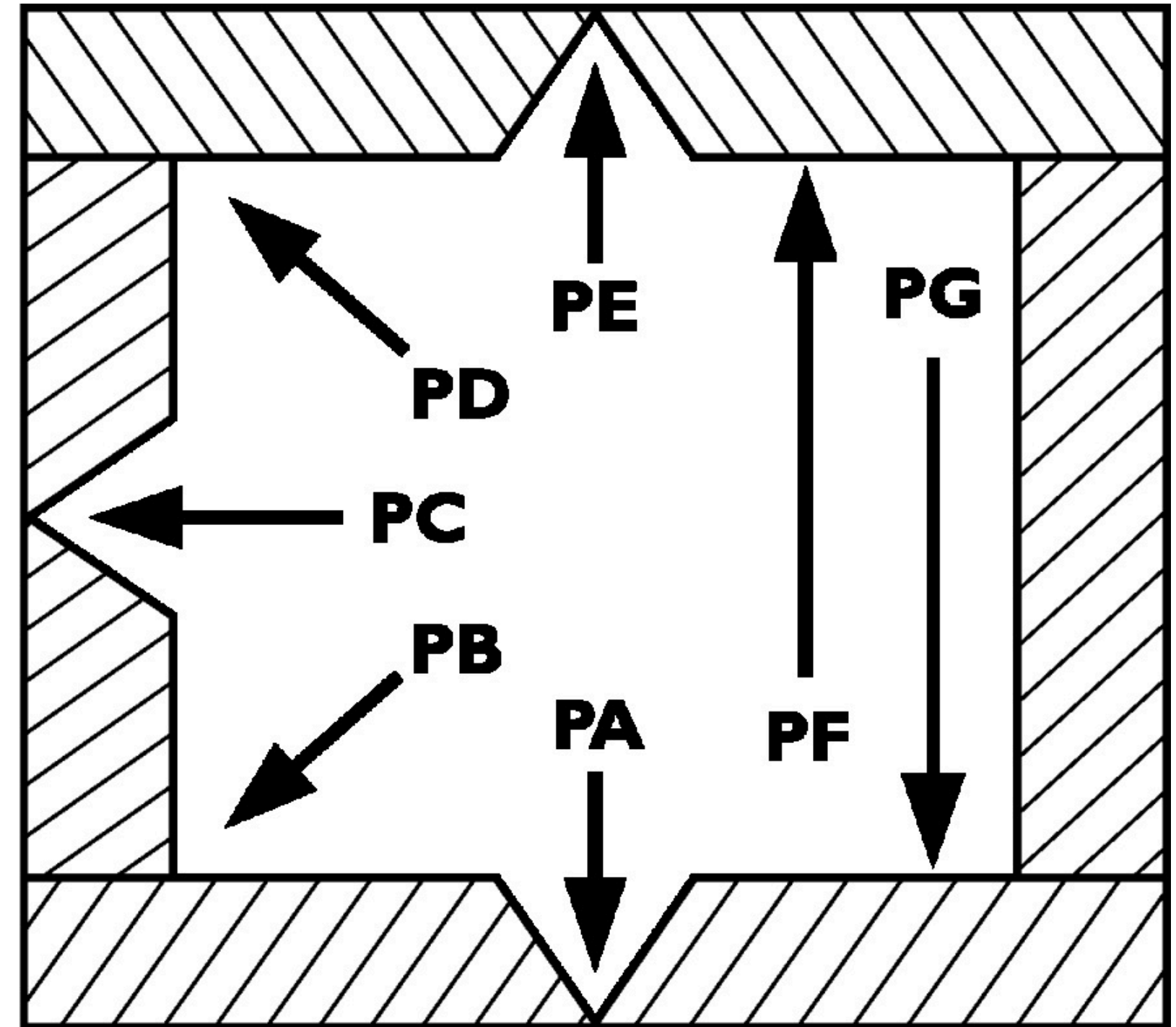
Nozzle position



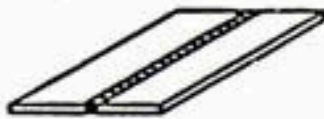
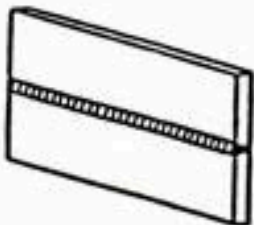
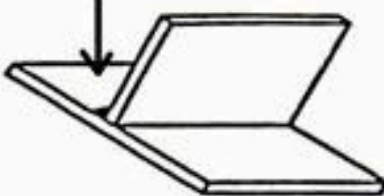
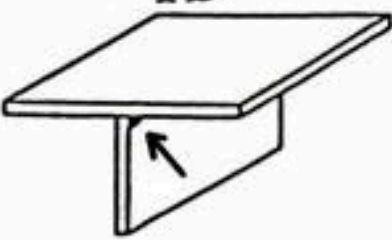
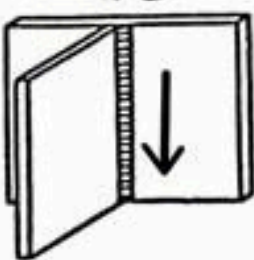
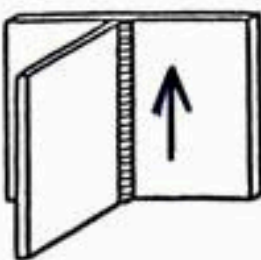
Welding positions

KOUTOVÉ SVÁRY (FW)

TUPÉ SVÁRY (BW)



Welding positions

POLOHY SVAŘOVÁNÍ PLECHŮ PODLE ISO 6947	
TUPÉ SVÁRY (BW)	KOUTOVÉ SVÁRY (FW)
PA  VODOROVNÁ SHORA PC  VODOROVNÁ NA SVISLÉ STĚNĚ PE  NAD HLAVOU PG  SVISLÁ - SHORA DOLŮ PF  SVISLÁ - ZDOLA NAHORU	PA  DO ÚŽLABÍ PB  VODOROVNÁ SHORA PD  NAD HLAVOU PG  SVISLÁ - SHORA DOLŮ PF  SVISLÁ - ZDOLA NAHORU



Main welding parameters

Welding current I (A)

The more current, the greater the corrosion and vice versa

A



Welding voltage U (V)

The more tension, the wider the weld and vice versa.

V



Electrical quantities in welding

Quantity Units

- Electrical power W(Watt)
- Electric current A (Ampere)
- Electrical voltage V (Volt)
- Electrical resistance Ω (Ohm)



Inspection of welds and their defects

We visually inspect welds for the following defects:

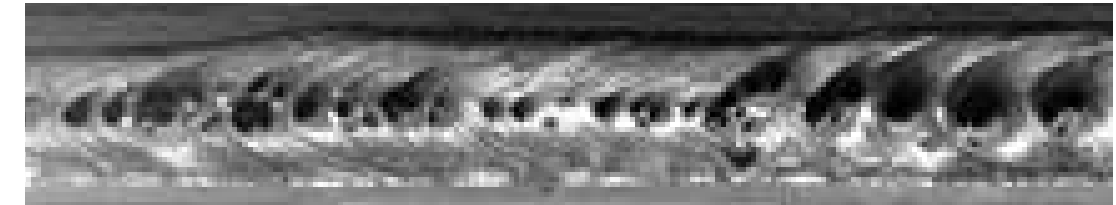
Weld out of position



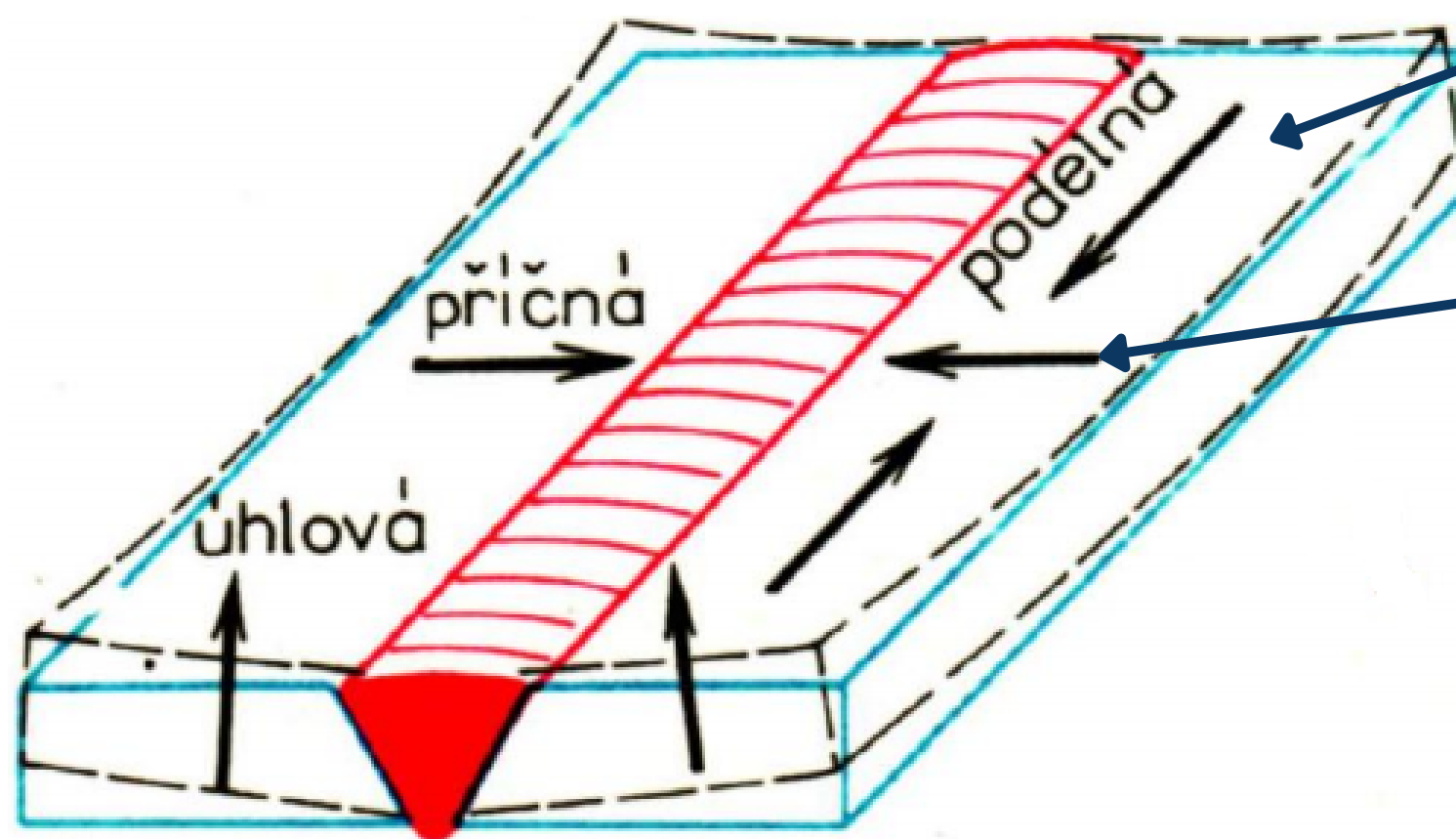
Svar - propal



Reply to question



Welding deformation



Longitudinal deformation acts in the direction of the weld axis

Transverse deformation acts perpendicular to the weld axis



Do you have
questions?



Occupational Health and Safety Welding



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What you will learn from this presentation

- Use of PPE
- Occupational hazards
- Workplace and welding power source
- Fire extinguisher



Use of Personal Protective Equipment

- When welding, it is necessary to observe a number of safety precautions. In particular, this concerns protection against electric shock, burns and metal spatter, fire, and smoke emissions.
- Use protective equipment – welding gloves, welding helmet, apron, welding sleeves, sleeves
- Do not use PPE contaminated with oil or flammable substances.



Occupational hazards

Electric shock

- Prevent the welder from touching live parts of the welding source.
- After an electric shock, the affected worker must always be taken to a doctor immediately.

Radiation

- UVA – use PPE – causes skin redness and burns

Burn

- We will use appropriate PPE to protect against metal slag splashes.

Noise

- wear earplugs

Fumes, fumes and aerosols

- The welding process produces toxic compounds
- Carbon dioxide is a colorless gas, heavier than air, non-toxic, with a slight sour odor, non-breathable - displaces oxygen



Workplace

The workplace must be:

- Equipped with a non-flammable floor.
- Maintain order in the workplace.
- Forced ventilation is required in workplaces where heavy and light non-ferrous metals are continuously welded.
- At every new workplace, it is primarily necessary to assess the risks to see if it is work with increased danger.
- All metal objects must be electrically conductively connected to the weld or the possibility of electrically conductive contact of persons at the welding workplace with these objects must be prevented.
- The safe alternating voltage of live parts in safe areas must be 50V.
- Welding workplaces are also: Technological stations and handling areas where welding-related operations are performed.



Welding power source (welder)

- Check the condition of the machine and cables before use.
- Have the damaged machine repaired, mark it as "FAILURE".
- Always turn off the power source when leaving.
- Protect the wires from damage and moisture.
- Do not overload the power supply or cables.
- When working with multiple sources – mark the cables and maintain the same polarity.
- Do not manipulate the terminals while the power supply is on.
- Do not wrap cables around your body.
- Ensure quick disconnection in case of an accident.



Fire extinguisher

To extinguish electrical equipment, use only:

- Powder



- Snow CO²



Questions?



Thank you for your attention.

