



ELECTRIC AND MAGNETIC FIELDS (EMF) IN WELDING

INTRODUCTION

Electric and magnetic fields are often referred to as “electromagnetic fields,” or EMF. There is concern that EMF may affect your health. All electric welding processes create EMF.

IS EMF HARMFUL?

Many scientific tests have been, and are still being, conducted by governmental and private agencies to determine if EMF is harmful to our health. Studies to date indicate that there is no confirmed evidence of health problems from EMF.

HOW DO I MINIMIZE EXPOSURE?

- Do not place your body between the welding electrode and work cables. Route cables on the same side of your body.
- Route the welding cables close together. Secure them together with tape or cable ties. Parallel cables cause each other’s magnetic fields.
- Connect the work cable to the workpiece as close to the weld zone as practical.

- Keep the welding power source and cables as far away from you as practical.
- Never coil a welding cable around your body.
- Consult the EMF Data Sheet (in the equipment instruction manual) for non-thermal effects, exposure indices (EIs) and the distances to the welding circuit (for each operation mode, as applicable).

INFORMATION SOURCES

Occupational Safety and Health Administration (OSHA). *Code of Federal Regulations*, Title 29 Labor, Part 1910, available from U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250–7954 (telephone: 800–321–6742; website: www.osha.gov).

Environmental Protection Agency (EPA). *Electric and Magnetic Fields from Power Lines*, U.S. Environmental Protection Agency, Office of Radiation and Indoor Air Radiation Protection Division, 1200 Pennsylvania Avenue, NW Washington, DC 20460-0001 (website: www.epa.gov).

United States Congress, Office of Technology Assessment. *Biological Effects of Power Frequency Electric & Magnetic Fields - Background Paper*, OTA-BP-AE-63, May 1989, available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

American Conference of Governmental Industrial Hygienists (ACGIH). *Documentation of the Threshold Limit Values and Biological Exposure Indices*, available from ACGIH, 1330 Kemper Meadow Drive, Cincinnati, OH 45240-1634 (telephone: 513-742-2020; website: www.acgih.org).

National Electrical Manufacturers Association (NEMA). Q & A: Biological Effects of Electric & Magnetic Fields, available from NEMA, 1300 17th St N #900, Arlington, VA 22209 (telephone 703-841-3282; website: www.nema.org).

The National Institute for Occupational Safety and Health (NIOSH). EMF (Electric and Magnetic Fields), available from NIOSH, Patriots Plaza 1, 395 E Street, SW, Suite 9200, Washington, DC 20201 (telephone 800-232-4636; website: www.cdc.gov/niosh)

European Agency for Safety and Health at Work (EU-OSHA). Directive 2013/35/EU – Electromagnetic Fields, available from EU-OSHA; (website: www.osha.europa.eu/en)

International Commission on Non-Ionizing Radiation Protection (ICNIRP). Low Frequency Guidelines, available from ICNIRP; (website: www.icnirp.org)