

# WELDING

## WELDING

### OVERVIEW

#### The Occupations

Welder (combination, production, and manufacturing), Welder helpers, cutters

#### About the Occupations

Welding is the most common way of permanently joining metal parts. In this process, heat is applied to metal pieces, melting and fusing them to form a permanent bond. Because of its strength, welding is used in ship building, automobile manufacturing and repair, aerospace applications, and thousands of other manufacturing activities. Welding also is used to join steel beams in the construction of building, bridges, and other structures and to join pipes in pipelines, power plants, and refineries.

Welders work in a wide variety of industries, from car racing to manufacturing. The work that welders do and the equipment they use vary with the industry. Arc welding, the most common type of welding today, uses electrical currents to create heat and bond metals- together- but there are more than 100 different processes that a welder can use. The type of weld normally is determined by the types of metals being joined and the conditions under which the welding is to take place.

Cutters use heat to cut and trim metal objects to specific dimensions. The work of arm plasma, and oxy-gas cutters is closely related to that of welders. However, instead of joining metals, cutters use the heat from an electric arc, a stream of ionized gas called plasma, or burning gases to cut and trim metal objects to specific dimensions. Cutters also dismantle large objects, such as ships, railroad cars, automobiles, buildings, and aircraft. Some operate and monitor cutting machines similar to those used by welding machine operators.

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### CAREER OUTLOOK

### WORK ENVIRONMENT

Work Environment Characteristics for Welding-Related Positions

CATEGORY	DESCRIPTION
Employers	<ul style="list-style-type: none"> <li>• Manufacturing</li> <li>• Construction</li> <li>• Other Services (except public administration)</li> <li>• Wholesale Trade</li> </ul> <p>Welders and cutters may work outdoors, often in inclement weather, or indoors, sometimes in a confined area designed to contain sparks and glare. When working outdoors, they may work on scaffold or platform high off the ground. In addition, they may have to lift heavy objects and work in awkward positions while bending, stooping, or standing to work overhead.</p>
Typical Schedule	<p>Most welders and cutters work full time, and overtime is common. Many manufacturing firms have two or three 8-to-12 hour shifts each day, allowing the firm to continue production around the clock if needed. As a result, welders and cutters may work evenings and weekends.</p>
Tools and Equipment	<p>Welders and cutters are often exposed to number of hazards, including very hot materials and the intense light created by the arc. They wear safety shoes, heat-resistant gloves, goggles, masks, with protective lenses, and other equipment to prevent burns and eye injuries and to protect them from falling objects.</p> <p>The Occupational Safety and Health Administration requires that welders work in safely ventilated areas in order to avoid danger from inhaling gases and fine particles that can result from welding processes. Because of these hazards, welding and cutting workers have a rate of injuries and illnesses that is higher than the national average. However, they can minimize injuries if they follow safety procedures.</p>

## WORKER PORTRAIT

Skills, Aptitudes, and Interests for Welding-Related Positions

CATEGORY	DESCRIPTION
Skills and Aptitudes	<ul style="list-style-type: none"> <li>• Work well independently and with others</li> <li>• Detail orientated</li> <li>• Creative</li> <li>• Works well under pressure</li> <li>• Patience</li> <li>• Tentative</li> </ul>

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## DEGREE/CERTIFICATE

CONCENTRATION OPTIONS	DEGREE / CERTIFICATE TYPE	DEGREE PLANS
Welding Technology	Associate of Applied Science	<a href="#">View Degree Plan</a>
Welding Technology Level II	Certificate	<a href="#">View Degree Plan</a>
Gas Tungsten & Metal Arc Welding (GTMAW)	Certificate	<a href="#">View Degree Plan</a>
Shielded Metal Arc Welding (SMAW)	Certificate	<a href="#">View Degree Plan</a>
Entry Level Welding (EWC)	Certificate	<a href="#">View Degree Plan</a>
Production Welder (Dual Credit)	Certificate	<a href="#">View Degree Plan</a>

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