WELDING DISCONTINUITY

by:

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To identified and familiarized on weld defects, weld and base metal discontinuities are applied. In weld, some welder’s primary concern in any kind of work is ensuring his/her weld sound ideally a sound weld should have no discontinuities for this reason it’s important for the inspector examining the weld to be able to spot a variety of weld discontinuities is defined as an interruption of the typical structure of a material such as a lack of correlation in its mechanical metallurgical or physical attributions.

Porosity is defined as a cavity-types when gas is entrapment during solidifying metal. The trapped gas comes from either, the gas use in the welding process or gas released from chemical reaction that occurred during the welding process. There are four main reason for the presence of gases that cause porosity result dirty contaminated with hydrocarbons such as oil, grease, or paint when gas is trapped in solidifying metal oxides or water leaks from poor maintenance of cooling systems. Gas that contaminated from its source or from its delivery system, incorrect welding condition or techniques.

Porosity often is classified by its shape and distribution with the weld, such as uniformly or randomly scattered, cluster or linear. Faulty or dirt materials it may also affect to weld face of joint or adjacent weld beads. Because it may also produce gas, gas becomes trapped in the form of porous in the weld these two weld discontinuities.

Incomplete Joint Penetration is result when the weld fails to extend completely through the joint thickness. The amount of joint penetration as required should be specified on drawings. The accessibility of the heat source and filler rod to the face area determines whether that level of joint penetration can be achieved moisture.
Undercut is a surface discontinuity that results from melting of the base metal at either the weld toe or the root takes the form of a mechanical incision at this location. Use of excessive travel speed will also cause undercut.

Overlap the protrusion of weld metal beyond the toe or weld root of the weld joint without fusion. The resulting discontinuity is a severe mechanical notch on the surface. This discontinuity is similar to incomplete fusion—the difference is the location where the fusion failed to take place. This discontinuity can be caused by incorrect welding techniques or insufficiency of current. The allowable maximum limits for these discontinuities are determined by the welded component's performance specifications and are specified in the relevant welding code standard or specification.

References:
http://www.jwes.or.jp/en/