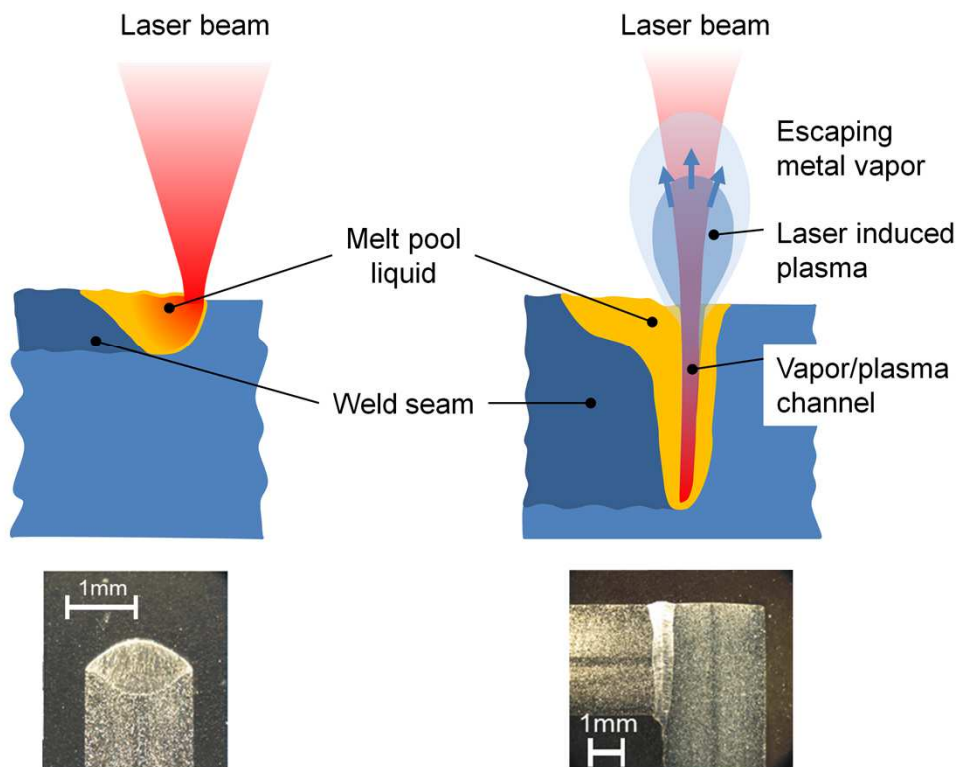


Procedural Principle Laser Beam Welding



For laser beam welding exist several variants of processing. Dependend on the laser type, the way of focussing and the application of wire or powder in addition different seam geometries and performance characteristics result. Heat conduction welding with a laser beam (left side in picture) is limited in penetration depth to approximately 0.5 mm but the surface of seam fulfils highest standards by means of appearance. For deep penetration welding up to eight millimeter and coexistent small width of seam (width/depth = 1/10) laser beam intensity of at least 10^6 W/cm² are necessary. Thus a keyhole is formed, which enables the deep penetration of the laser beam and improved absorption by multi-reflections. Wire or powder in addition are used for bridging of gaps, cladding or defined alloying of the melt pool. **ERLAS** copes with these processes and transfers them in an optimum to applications.