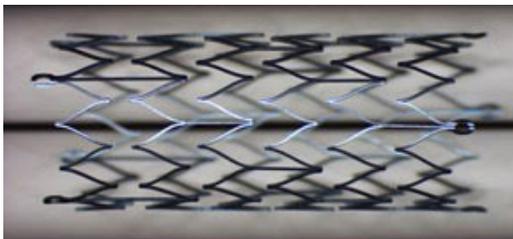


Stent



In [medicine](#), a **stent** is either an expandable wire form or perforated tube (conventionally perforated by means of laser cutting) that is inserted into a natural conduit of the body to prevent or counteract a disease-induced localized flow constriction. The main purpose of a stent is to overcome important decreases in vessel or duct diameter. Stents are often used to diminish pressure differences in blood flow to organs beyond an obstruction in order to maintain an adequate delivery of [oxygen](#). Although perhaps the most popular use of stents is linked to the [coronary arteries](#), they are widely used in several other structures, such as peripheral [arteries](#) and [veins](#), [bile ducts](#), [esophagus](#), [colon](#), [trachea](#) or large [bronchi](#), [ureters](#), and [urethra](#). Artificial heart valves made of biological tissues such as porcine heart valves or bovine pericardial valves are wrapped around a "valve stent" to hold the valves in the anatomical position while implanted in the heart. Likewise there are diseased aortic valves that are replaced with the porcine valves without the stent "stentless", using a different surgical implantation technique.



Prior to deployment, a stent is collapsed into a small diameter; current stents are self-expandable or can be dilated using an inflatable balloon. After expansion, stents are affixed to the vessel or duct wall by their own radial tension. These devices are most commonly inserted under fluoroscopic guidance or [endoscopy](#), procedures that are generally less invasive than conventional [surgery](#). This makes stents suitable for patients with advanced disease or those for whom otherwise the risk of major surgery is high. In addition, [general anesthesia](#) is usually not required for stent insertion. For these reasons, stents have offered clear benefits over conventional surgery that include, overall, shorter recovery periods and hospital stays, together with decreased morbidity and mortality in appropriately selected patients, that is, as long as their placement is clinically and reasonably indicated. One of the weak points of vascular stents, however, is the development of a thick [smooth muscle](#) tissue inside the [lumen](#), the so-called [neointima](#). Development of a neointima is variable but can at times be so severe as to re-occlude the vessel lumen ([restenosis](#)), especially in the case of smaller diameter vessels, which often results in reintervention. Thus, there is a strong body of research focusing on the reduction of neointima after stent placement. Considerable improvements have been made, including the use of more bio-compatible materials, anti-inflammatory [drug-eluting stents](#), [resorbable stents](#), and others. Fortunately, even if stents are eventually covered by neointima, the minimally invasive nature of their deployment makes reintervention possible and usually straightforward.

More information at: <http://en.wikipedia.org/wiki/Stents>