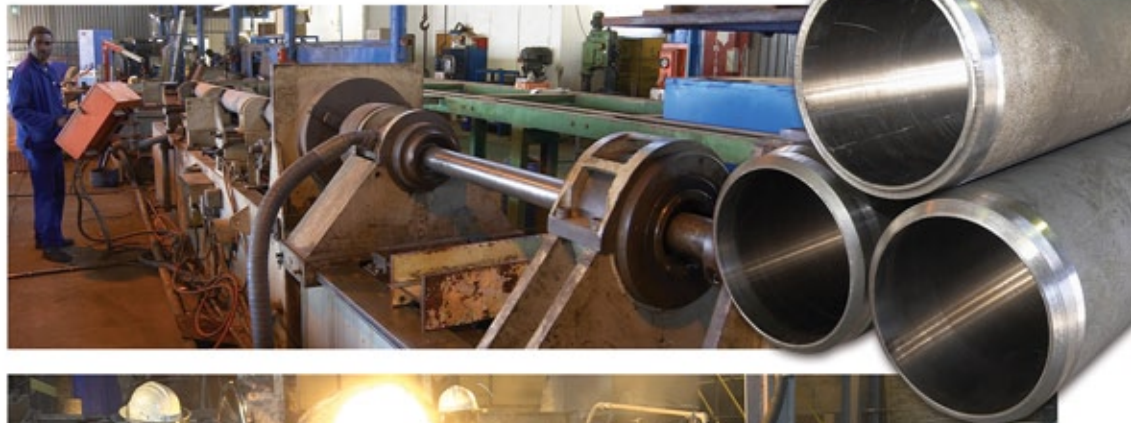


Centrifugally cast tube and pipe

Centrifugal casting has a distinct advantage over static casting due to the extreme gravitational forces present during solidification in conjunction with relatively fast solidification rates. These produce an extraordinary level of metal soundness and minimised segregation, both major contributing factors in achieving exceptional metallurgical integrity.

Steloy Castings produces centrifugally cast product up to 830mm in diameter and up to 5500mm long. Smaller diameter tube can be the longer, i.e. 5500mm long with an outer diameter ranging from 80mm to 200mm and an inner diameter as small as 32mm. Lower-density material remaining on the inner bore surface of the tube can be removed via machining, pull boring in particular.

Centrifugally cast tubes can be supplied in as-cast, partially machined and fully machined conditions. Machining on outer diameters involves turning while inner diameters are pull bored (1.6-3.2µm).



TUBES FOR HIGH-TEMPERATURE AND HIGH-PRESSURE APPLICATIONS (REFORMING & CRACKING)

These tubes – particularly reformer, cracking and catalyst tubes – are primarily produced for the petrochemical industry and manufactured in accordance with the general requirements of ASTM A608. Three major properties required are creep, scaling and corrosion resistance.

See the Steloy Castings website or material catalogue for more information and material grades.

Centrifugally cast tube and pipe

PIPES FOR HIGH-TEMPERATURE AND HIGH-PRESSURE APPLICATIONS

Prevailing temperatures in these applications are generally far lower than those associated with applications requiring tubes manufactured to ASTM A608. The following grades apply:

- ASTM A660 is the standard specification for carbon steel pipe and is suitable for fusion welding, bending and other forming operations. Grade chemistries are closely related to ASTM A216, used for static castings.
- ASTM A426 is the standard specification for ferritic alloy steel pipe and contains several grades of ferritic steel. Chemistries are closely related to ASTM A217, used for static castings.
- ASTM A451 is the standard specification for austenitic alloy steel pipe for use in high-temperature, corrosive or nuclear service and involves a number of austenitic steels. Chemistries are closely related to a number of those in ASTM A351, used for static castings. None of the alloys listed has a carbon content in excess of 0.20%, which means that the carbon content is much lower than that of grades listed in ASTM A608 or A297.



FERRITIC/AUSTENITIC STAINLESS STEEL PIPE FOR CORROSIVE ENVIRONMENTS

The standard specification, ASTM A872, covers a number of duplex stainless steels. Please note that the intended application is for corrosive environments and that prolonged exposure to elevated temperatures will lead to embrittlement. The chemistries of the grades listed in the specification are closely related to a number of those in ASTM A890, used for static castings.

ALTERNATIVE TO WROUGHT HOLLOW BAR

Due to the metallurgical integrity and flexibility in terms of chemistry and dimensions that can be achieved with centrifugal casting as well as the fact that there are fewer limitations with regard to minimum order quantities, there are few cases where centrifugally cast tube cannot be considered a suitable alternative to hollow bar. Steloy Castings produces a number of products for both direct use as thick-walled tubes (hollow bar) and indirect use, where tube is cut into smaller sections for use as cylinders or even rings and bushes.



CASTING TO CUSTOMER REQUIREMENT

Special provision is made to accommodate specific customer requirements. This includes:

- The customer provides a mutually acceptable specification, including acceptance criteria.
- Centrifugally cast tube is produced in accordance with the chemistry of other acknowledged cast specifications but mechanical properties (implicitly excluded) are subject to mutual agreement. A typical example is ASTM A958.
- Tubes can be supplied in as-cast condition, machined or cut and machined, and with or without heat treatment.
- Machining can include pull boring of the inner diameter and turning of the outer diameter.



Steloy Castings (Pty) Ltd

4 Cobalt Street, Ekandustria, Bronkhorstspuit, South Africa. PO Box 1591, Bronkhorstspuit 1020, South Africa
Tel: +27 13 933 3331 Fax: +27 13 933 3653 E-mail: info@steloy.com www.steloy.com

Steloy International

Tel: +1 303 759 3620 Fax: +1 866 865 2046
E-mail: mark@steloyusa.com www.steloyusa.com