

Wearface-welded small diameter tubes  
Preventive protection against severe abrasion and erosion

# Casto Tubes



Small diameter, seamless CastoTubes for superior industrial performance:

- Extremely wear resistant, lightweight and easy-to-join
- Highly cost effective for rapid replacement of worn tubes
- Increase service life, plant availability and process productivity



WEAR TUBES

CastoTubes - the latest addition to our expanding range of semi-finished, anti-wear solutions for industry.

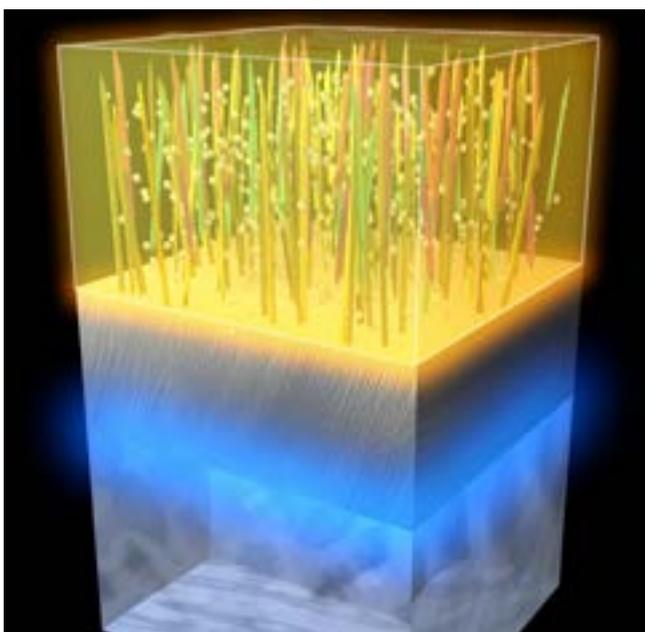
Basically it consists of easy-to-weld mild steel tubes which have been internally wearface-welded with TeroMaTec 4666 alloy thus maintaining the exceptional wear resistance of our well known 4666 CastoDur Diamond Plates. Furthermore, by avoiding expensive forming operations of flat plates into tubes, seamless small diameter CastoTubes offer many advantages:

- Highly cost effective
- Absence of harmful linear weld joints
- Exceptional wear resistance
- Perfectly round cross section
- Spiral welding minimises distortion
- Lightweight for handling
- Easy-to-join by welding or mechanical means



## CastoTubes coating

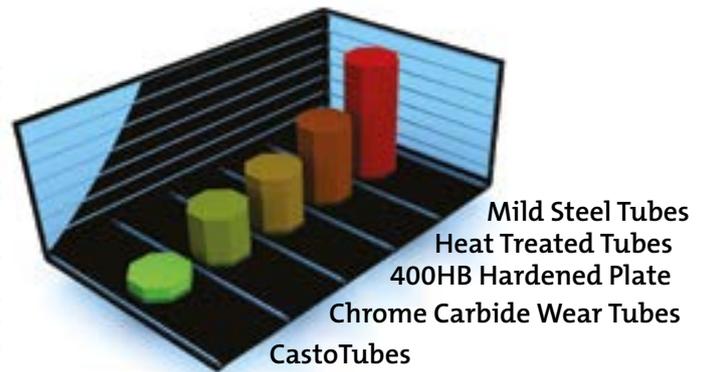
Applied internal coating thicknesses are typically 3 - 4.5 mm. The TeroMaTec 4666 wearfacing alloy contains multiple hard phases with hardnesses reaching 1500 - 2700 HV which resist abrasion and erosion up to 500°C. Alternative alloys and different base tube compositions for extreme service conditions (eg high temperature erosion), are available on request.



Controlled cooling during the manufacturing process produces densely dispersed hard phases. These are strongly oriented to provide superior wear resistance to conventional weld coatings.

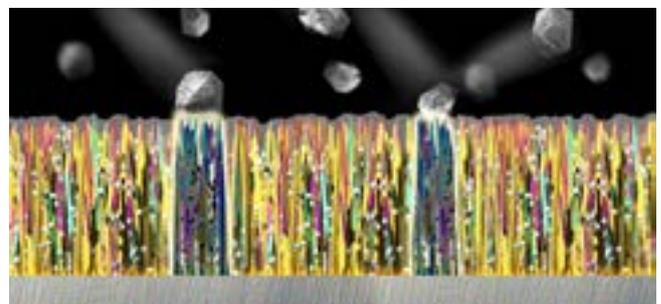
## CastoTubes wear resistance

Relative Wear Rates



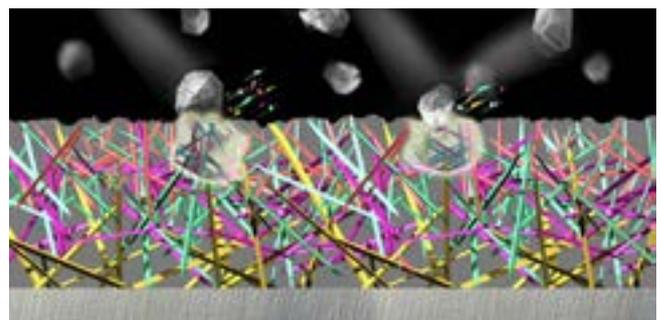
CastoTubes are engineered for exceptional wear resistance as illustrated by the laboratory abrasion wear test data above. This performance results from:

1. Ultra-hard phases anchored in a tough matrix. Their hardness is typically 2-3 times higher than the most abrasive media used in industrial processes.
2. Unique geometry of hard phases achieved by controlled cooling of weld solidification kinetics. These tend to nucleate as a dispersion between other needle shaped phases which are strongly oriented and firmly anchored within the matrix. This prevents premature “washing out” of the hard phases from the “softer” matrix by wear mechanisms.



Dense dispersion of strongly oriented hard phases maximise wear resistance

Conventional, randomly solidified alloys tend to wear out much faster due to the early loss of hard particles from the matrix before contributing their useful wear resistance.



Conventional weld structure with random oriented hard phases which wear out faster

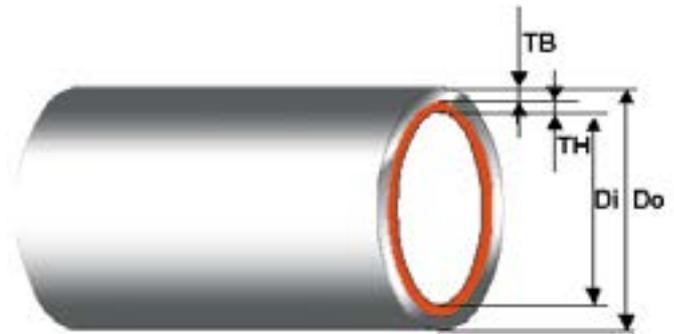
## Standard CastoTubes Range

Tubes with a minimum diameter of 82 mm are available, with a maximum length of 3 m.

CastoTubes can be fitted with standard flanges so that the replacement of worn out tubes can be done quickly and easily.

Virtually any inner diameter from the 82 - 303 mm range can be produced by applying a different wearfacing thickness inside the standard base tube.

This allows a close mating joint to the existing installation thus avoiding turbulent media flow.



Maximum length 3 meters

Item n°	Inner diam Di (mm)	Base tube		Wear facing TH (mm)
		Outer diam Do (mm)	Wall TB (mm)	
0082 CT 0640	82	101,6	5,6	4,0
0100 CT 0735	100	121,0	7,1	3,5
0123 CT 0630	123	139,7	5,6	3,0
0150 CT 0635	150	168,0	5,6	3,5
0175 CT 0630	175	193,7	6,3	3,0
0200 CT 0635	200	219,1	6,3	3,5
0250 CT 0835	250	273,0	8,0	3,5

Additional dimensions are available on request.

### Flanged joints

CastoTubes are available with slip-on or integral flanges in accordance with DIN standards.

Other types of flange joints are also available upon request.



### Elbows

Elbows are fabricated by cutting CastoTubes into wedges and reassembling them according to customer specifications for the pipe bend geometry.

100mm internal diameter flanged complete elbow (bottom) and detail (right)





## Applications

Castolin offers a comprehensive range of solutions for virtually all wear-intensive tube systems in industries like

- Mines and quarries
- Sand and gravel pits
- Shredders and recycling plants
- Iron and steel mills
- Cement and ready-mix concrete plants
- Brickworks
- Foundries and coking plants
- Incineration plants and electric power stations



## Your resource for protection, repair and joining solutions

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