Quantiam Wear Tiles

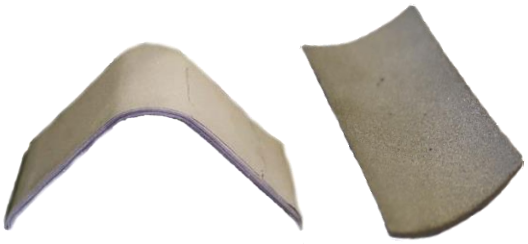
Product Datasheet

Q-Tile

Q-Tile is an evolutionary leap in wear material technology. Delivering superior wear corrosion performance, customized dimensions, flexible welding or brazing to common steel parts, vastly improving your return on investment.

Best-in-Class Performance

Outperforms commercially-available wear tiles, PTA applied Overlays and High Chrome White Cast Iron 28 Chrome (HCWCI 28) in most ASTM testing.

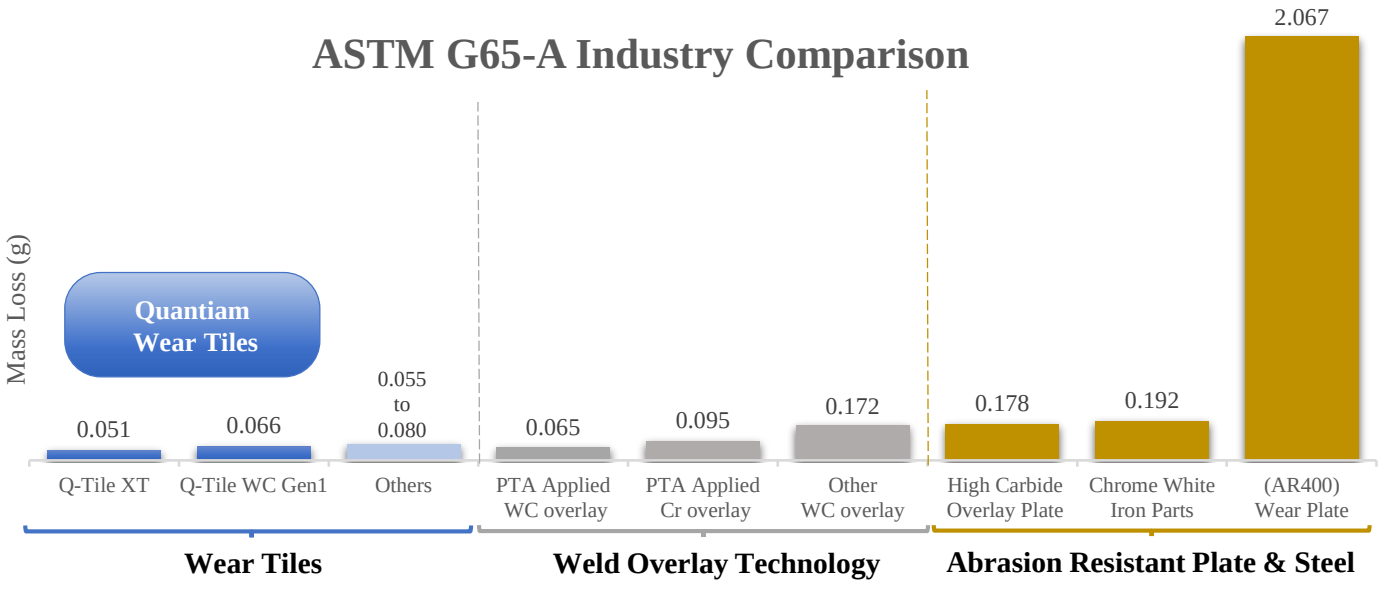


Custom Dimensions & Geometry

Length, width and thickness can be tailored to meet the needs of a wide variety of applications. Our unique manufacturing process enables Q-Tiles to protect curved surfaces.

Welded or Brazed

Q-Tile can be welded to any steel substrate using the Metal Inert Gas (MIG) technique, or brazed using industry-standard nickel-based brazes.



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Q-Tile Properties

Material Properties and Performance Testing		Wear-resistant Tiles			*Reference Steels*	
		Quantiam Q-Tile	Quantiam Q-Tile XT	*Competitor Products*	*HCWCI 28Cr*	*AR 400*
Wear Properties	ASTM G65-A Volume Loss (mm^3)	5.5	**3.2**	*3.0*	*19.7*	*266.6*
	ASTM G65-A Mass Loss (g)	0.066	**0.051**	*0.055 - 0.080*	*0.200*	*2.067*
	ASTM G99 Pin-on-Disk (x 10^6 μm^3)	2.2	**1.8**		*23.9*	*120.0*
	NRC SJE Volume Loss (mm^3) 90°	1.8	**0.6**		*14.4*	*75.0*
	NRC SJE Volume Loss (mm^3) 45°	2.0	**0.7**		*12.8*	*126.0*
Mechanical Properties	Rockwell Hardness (HRC)	50	**55**	*65 - 75*	*56*	*40*
	Vickers Hardness - Matrix (HV)	649	**575**	-	*812*	*370*
	Vickers Hardness - Carbides (HV)	1644	**1429**	*1500*		
	ASTM G171 Scratch Hardness (GPa)	8.9	**9.4**		*9.1*	*3.4*
	ASTM B406 Transv. Rupture Strength (MPa)	715	**945**	*600 - 650*	*984*	-
Physical Properties	Carbide Area Fraction (%)	37.3	**52.7**			
	Carbide Sizes (µm)	45 - 74	**45 - 177**			
	Porosity (%)	< 5	**< 0.5**			
	Density (g/cm^3)	10.6			*6.8*	*8.0*

Dimensions

Currently, representing amongst the largest tiles commercially available, Quantiam's tiles are available up to 6in (152mm) in width, 18in (457mm) in length, and 0.5in (12mm) in thickness. Larger sizes and a variety of custom geometries are available.

Tolerances

Tolerance can be guaranteed within +/- 0.002 in (0.5 mm) on any dimension.

Welding

Q-Tile can be welded using the MIG technique. Recommend Stainless Steel, Incoloy alloy or preferably Carbon Steel rods.

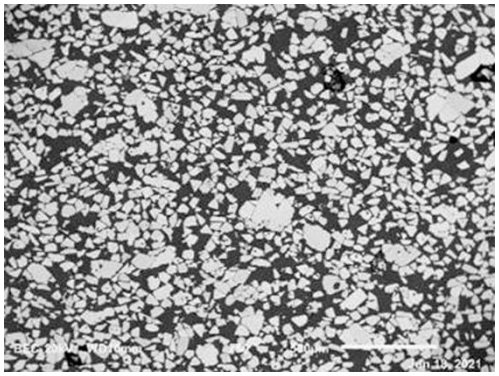
Brazing

Q-Tiles can be brazed to any steel substrate using common B-Nickel aerospace brazes.

Material Microstructure

Hard Phases Loading	40-80%
Matrix Phases	30-50%
Other Additions	<20%

Q-Tile microstructure is tailored to meet customer-specified performance requirements of wear, corrosion and other degradation mechanisms in application.



A Q-Tile Microstructure

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