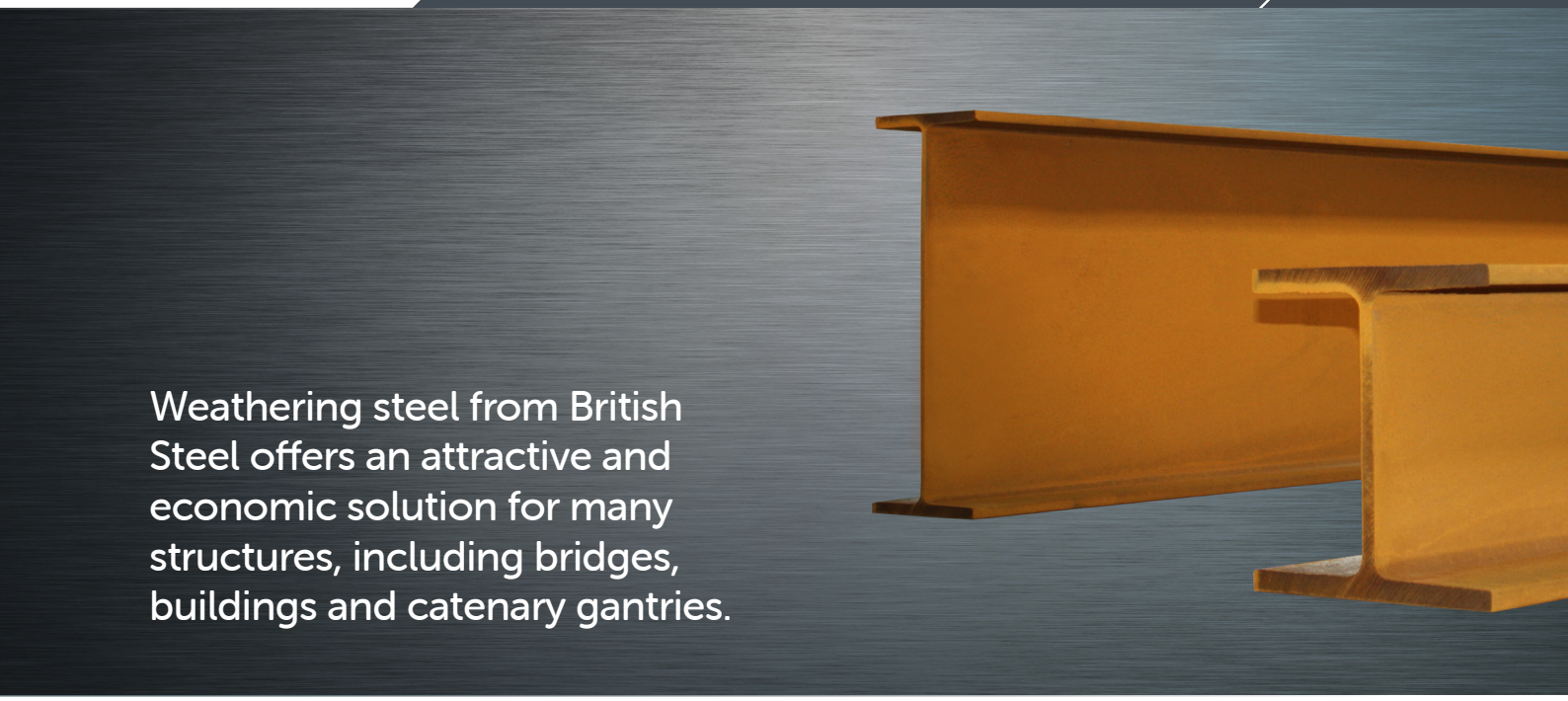
BRITISH STEEL

WEATHERING STEEL STRUCTURAL SECTIONS

Connecting with the environment

Technical datasheet

CONSTRUCTION



Weathering steel from British Steel offers an attractive and economic solution for many structures, including bridges, buildings and catenary gantries.

Self-protecting, durable and attractive, weathering steel is ideal for a whole range of outdoor structures in exposed locations.

Weathering steel is a high-strength, low alloy steel that defends itself from corrosion by forming a protective oxide patina, eliminating the need for paint or other protective coatings.

The steel's corrosion rate is so low that structures fabricated from unpainted weathering steel can achieve long lifespans – in some cases up to 120 years – with only minimal maintenance.

Benefits of using weathering steel in your project

Weathering steel offers significant advantages over other metals for structures that are exposed to the elements:

- Low maintenance: ideal for bridges and structures where access is difficult or dangerous
- Cost reduction: no need for protective painting and low maintenance reduces associated costs e.g. road or rail possession
- Environmental benefits: no volatile organic compounds from paint or disposal of blast-cleaning debris from future maintenance
- Attractive appearance: mature weathering steel often blends pleasingly with the environment, changing and improving with age
- Speed of construction: without site painting operations, overall construction time is reduced
- Enhanced safety: painting issues are eliminated and future maintenance risks are minimised

British manufacture – unrivalled offering

Our UK mills produce a comprehensive product range of bespoke sections with unrivalled availability and lead times. We're responsive and adaptable to customers' needs and take pride in giving great customer service and offering quality products made to precise requirements.

Quality assurance

As the only UK manufacturer of structural sections, our steel products are CE and UKCA marked and tested to the highest standards, providing quality and reassurance for the construction market.

We're ISO 9001: 2015 accredited and all material is tested to the highest standards in our independently approved ISO 17025 test houses, assuring full traceability.

Our weathering steels are produced according to EN 10025-5, and have similar mechanical properties to conventional S355 grades.

We're also Environmental and Sustainability Standard BES 6001 certified, guaranteeing commitment to responsibly sourced materials.

Exceptional technical support

Our team of experienced metallurgists provides dedicated technical support to customers, including detailed metallurgical analysis to solve specific processing challenges, and the development of new and more advanced grades of steel for increasingly demanding applications.

Weathering steel grade

The tables below indicate the standard mechanical properties and chemical composition for our weathering steel grades.

Mechanical properties

1. Tensile test

Specification	Grade	Minimum yield strength (MPa)						Tensile strength Rm (MPa)		Minimum elongation - A			
		Nominal thickness (mm)						Nominal thickness (mm)		Lo = 5,65 √So (%)			
		≤16	>16 ≤40	>40 ≤63	>63 ≤80	>80 ≤100	>100 ≤150	>3 ≤100	>100 ≤150	≥3 ≤40	>40 ≤63	>63 ≤100	>100 ≤150
EN 10025-5	S355J0W, J2W, K2W, J4W, J5W	355	345	335	325	315	295	470 - 630	450 - 600	22	21	20	18

2. Charpy-V notch impact test

Designation	Temperature °C	Minimum energy KV_2[a]
S355J0W	0	27
S355J2W	-20	27
S355K2W	-20	40
S355J4W	-40	27
S355J5W	-50	27

Chemical composition

		Chemical composition % by mass									
					min	max					
Specification	Grade	Mn	Cr	Cu	Al	C	Si	P	S	N	CEV
EN 10025-5	S355J0W	0.5 - 1.50	0.40 - 0.80	0.25 - 0.55	0.02	0.16	0.5	0.04	0.04	0.012	0.52
	S355J2W	0.5 - 1.50	0.40 - 0.80	0.25 - 0.55	0.02	0.16	0.5	0.035	0.035	-	05.2
	S355K2W	0.5 - 1.50	0.40 - 0.80	0.25 - 0.55	0.02	0.16	0.5	0.035	0.035	-	0.52
	S355J4W	0.5 - 1.50	0.40 - 0.80	0.25 - 0.55	0.02	0.16	0.5	0.035	0.025	-	0.52
	S355J5W	0.5 - 1.50	0.40 - 0.80	0.25 - 0.55	0.02	0.16	0.5	0.035	0.025	-	0.52

Weathering steel structural sections size range

Our weathering steel structural sections range covers a wide variety of profiles and sizes.

	Ranging from	Up to and including
Universal beams	356 x 171 x 45	1016 x 305 x 487
Universal columns	203 x 203 x 46	356 x 406 x 634
Universal bearing piles	203 x 203 x 45	356 x 368 x 174

Ability to offer up to 80mm flange thickness.

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