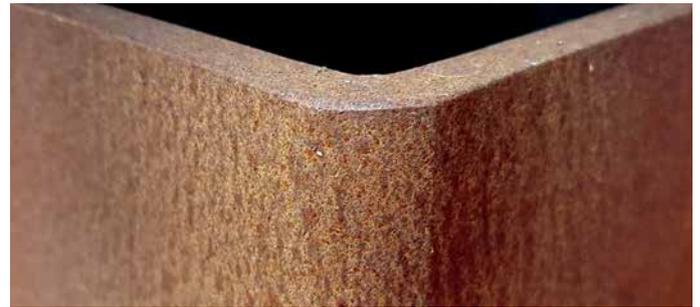


Celsius® Weathering Grade

Long life, hot finished hollow sections

Combining the corrosion resistance of weathering steel, with a true hot-finished structural hollow section, Celsius® is now available in weathering grade. Weathering steel forms a dense patina which protects it from oxygen, slowing corrosion for a useful life of 50 to 120 years without galvanizing or painting.



The final shape of Celsius® hollow sections is always formed at normalising temperature, giving an almost complete absence of internal stresses throughout. This gives excellent yield behaviour, coupled with low-temperature toughness making Celsius® Weathering Grade ideal for demanding structures.

The unique chemistry of Celsius® Weathering Grade, when exposed to atmospheric water, creates a protective patina which not only provides long-term resistance to corrosion, but also unique and natural aesthetics. Avoiding the necessity to galvanise or paint structures using Celsius® weathering Grade makes them very cost-effective and particularly so when considering the reduced requirement for ongoing maintenance.



Certification

Celsius® hollow sections are subject to specific inspection and testing and are supplied with an inspection certificate type 3.1 to EN 10204. All Celsius® sections undergo 100% weld line NDT inspection to either E4 or U5 standard.

Celsius® Weathering Grade hollow sections are manufactured and both CE and UKCA marked in accordance with EN10210-1&2:2006 grade S355J2H or S355K2H, manufactured from steel with improved atmospheric corrosion resistance (chemistry complies with the requirements for EN10025:-5 S355K2W).

Celsius Weathering Grade is also compatible with standards EN 10210-3 (S355J2WH, S355K2WH); ASTM A847; and BS7668:2016 (S355J2WH and S355K2WH).

Tolerances

Dimensional tolerances are to EN 10210: Part 2 except for corner radius which is max 2T (standard states max 3T).

Sustainability

The essential properties of steel make it the sustainable choice for a wide range of applications. Steel is strong, durable, versatile, re-usable and most importantly, it is 100% recyclable. Celsius® Weathering Grade takes this one step further by eliminating the necessity for additional costly protection such as galvanizing and painting.

We take sustainability very seriously and as well as being a member of ResponsibleSteel™, we have BES 6001 certification for all our hollow section manufacture. Celsius® is also available with a product specific Environmental Product Declaration (EPD).

Mechanical properties

Yield strength R_{eH} min N/mm ²	Tensile strength R_m N/mm ²	Elongation % min $L_0 = 5,65 \sqrt{S_0}$ specimen	Impact strength 10mm x 10mm		Carbon equivalent (CEV) max
T ≤ 16mm	3mm < T ≤ 100mm	T	°C	J	
355	470-630	22	-20	40	0.44

Chemical composition % by mass

C max	Si max	Mn	P max	S max	Nb max	V max	Al total	Ti max	Cr max	Ni max	Mo max	Cu	N max
0.16	0.50	0.50 min 1.50 max	0.025	0.008	0.050	0.10	0.020	0.03	0.40 min 0.65 max	0.40	0.10	0.25 min 0.40 max	0.012

Availability

Celsius® Weathering Grade is available across the size range indicated in the tables with minimum order quantities between 15t and 22t for most specifications. Intermediate sizes may also be available. Celsius® Weathering Grade is available in standard lengths from 6.0m to 14.5m for sizes up to 139.7, 100/100 or 120/80 and up to 15.3m for all other sizes.

We recognize that for many typical applications of Celsius Weathering Grade, only relatively small quantities are required and for this reason, we offer a select range of sizes on a small-quantity basis with minimum order quantities between 1.5t and 5t. These sizes have been selected to provide a good coverage of structural capability through the range to suit most applications using weathering steel. Designing such structures using these select sizes provides the optimum balance of efficient design and flexible availability. These sizes with enhanced availability are indicated on the dimensional tables. Minimum quantities for these specifications depend on lengths required - please contact your Tata Steel representative for full details.

Technical support

We want you to get the best from Celsius® hollow sections. Our technical engineers and trained sales staff are always happy to answer your questions on steel selection and application. We can also offer specific advice on the application of weathering grade steel and on welded joints, including software which can help in their design. For further technical/ design assistance email technicalmarketing@tatasteel.com

Square hollow sections (SHS)

mm	3.2	3.6	4.0	5.0	6.3	8.0	10.0	12.5	14.2	16.0	17.5
40/40	■	■	■	■	■	■					
50/50	■	■	■	■	■	■					
60/60	■	■	■	■	■	■	■				
70/70	■	■	■	■	■	■	■	■			
80/80	■	■	■	■	■	■	■	■	■		
90/90	■	■	■	■	■	■	■	■	■	■	
100/100	■	■	■	■	■	■	■	■	■	■	■
120/120	■	■	■	■	■	■	■	■	■	■	■
140/140	■	■	■	■	■	■	■	■	■	■	■
150/150	■	■	■	■	■	■	■	■	■	■	■
160/160	■	■	■	■	■	■	■	■	■	■	■
180/180	■	■	■	■	■	■	■	■	■	■	■
200/200	■	■	■	■	■	■	■	■	■	■	■
220/220	■	■	■	■	■	■	■	■	■	■	■
250/250	■	■	■	■	■	■	■	■	■	■	■
260/260	■	■	■	■	■	■	■	■	■	■	■
300/300	■	■	■	■	■	■	■	■	■	■	■
350/350	■	■	■	■	■	■	■	■	■	■	■
400/400	■	■	■	■	■	■	■	■	■	■	■

Key

■	Enhanced availability with MOQ 1.5t-5t
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Rectangular hollow sections (RHS)

mm	3.2	3.6	4.0	5.0	6.3	8.0	10.0	12.5	14.2	16.0	17.5
50/30	■	■	■	■	■	■					
60/40	■	■	■	■	■	■					
80/40	■	■	■	■	■	■	■				
90/50	■	■	■	■	■	■	■	■			
100/50	■	■	■	■	■	■	■	■			
100/60	■	■	■	■	■	■	■	■			
120/60	■	■	■	■	■	■	■	■	■		
120/80	■	■	■	■	■	■	■	■	■		
150/100	■	■	■	■	■	■	■	■	■	■	
160/80	■	■	■	■	■	■	■	■	■	■	
180/100	■	■	■	■	■	■	■	■	■	■	■
200/100	■	■	■	■	■	■	■	■	■	■	■
200/120	■	■	■	■	■	■	■	■	■	■	■
200/150	■	■	■	■	■	■	■	■	■	■	■
220/120	■	■	■	■	■	■	■	■	■	■	■
250/100	■	■	■	■	■	■	■	■	■	■	■
250/150	■	■	■	■	■	■	■	■	■	■	■
260/140	■	■	■	■	■	■	■	■	■	■	■
260/180	■	■	■	■	■	■	■	■	■	■	■
300/100	■	■	■	■	■	■	■	■	■	■	■
300/150	■	■	■	■	■	■	■	■	■	■	■
300/200	■	■	■	■	■	■	■	■	■	■	■
300/250	■	■	■	■	■	■	■	■	■	■	■
350/150	■	■	■	■	■	■	■	■	■	■	■
350/250	■	■	■	■	■	■	■	■	■	■	■
400/120	■	■	■	■	■	■	■	■	■	■	■
400/200	■	■	■	■	■	■	■	■	■	■	■
400/300	■	■	■	■	■	■	■	■	■	■	■
450/250	■	■	■	■	■	■	■	■	■	■	■
500/200	■	■	■	■	■	■	■	■	■	■	■
500/300	■	■	■	■	■	■	■	■	■	■	■

Circular hollow sections (CHS)

mm	3.2	3.6	4.0	5.0	6.3	8.0	10.0	12.5	14.2	16.0	17.5
42.4	■	■	■	■	■	■					
48.3	■	■	■	■	■	■					
60.3	■	■	■	■	■	■	■				
76.1	■	■	■	■	■	■	■	■			
88.9	■	■	■	■	■	■	■	■	■		
114.3	■	■	■	■	■	■	■	■	■	■	
139.7	■	■	■	■	■	■	■	■	■	■	■
168.3	■	■	■	■	■	■	■	■	■	■	■
193.7	■	■	■	■	■	■	■	■	■	■	■
219.1	■	■	■	■	■	■	■	■	■	■	■
244.5	■	■	■	■	■	■	■	■	■	■	■
273.0	■	■	■	■	■	■	■	■	■	■	■
323.9	■	■	■	■	■	■	■	■	■	■	■
355.6	■	■	■	■	■	■	■	■	■	■	■
406.4	■	■	■	■	■	■	■	■	■	■	■
457.0	■	■	■	■	■	■	■	■	■	■	■
508.0	■	■	■	■	■	■	■	■	■	■	■

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Language English PDF TST98:0122

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