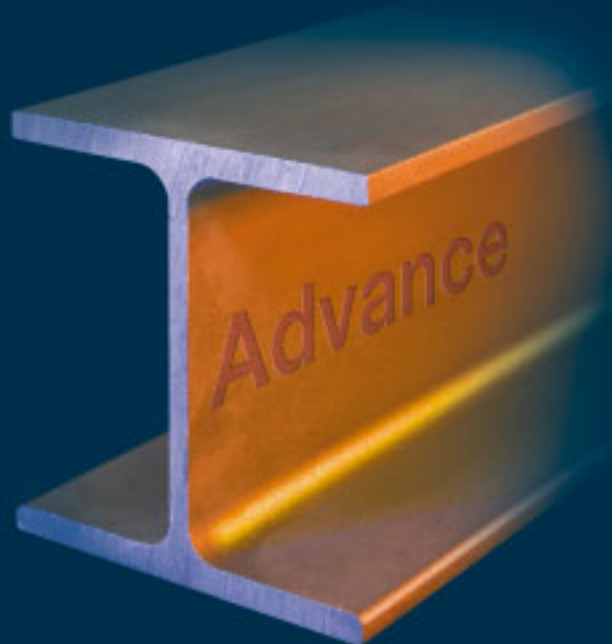


Corus Construction & Industrial

Advance[®] sections

CE marked structural sections

Foundations extract



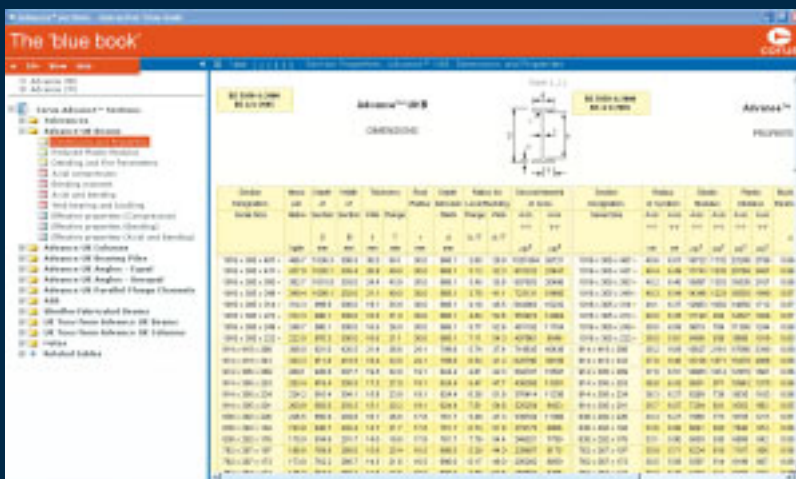
'The blue book'

A copy of the full interactive blue book for Advance® sections is available for download from www.corusconstruction.com.

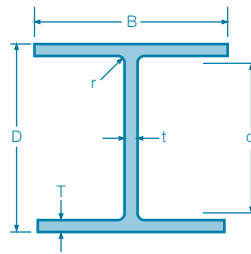
This essential tool for steel designers, presents section properties and member capacities in tabular form to BS 5950 -1 : 2000, and includes:

- Dimensions and properties
- Reduced plastic modulus
- Detailing and fire parameters
- Axial compression
- Bending moment
- Axial and bending
- Web bearing and buckling
- Effective properties (Compression, Bending, Axial and Bending)

Note: If you have not already done so, you may need to register with www.corusconstruction.com to download the software.



Advance® UK Bearing Piles



| Designation | | Mass per metre kg/m | Depth of section D mm | Width of section B mm | Thickness of web t mm | Thickness of flange T mm | Root radius r mm | Depth between fillets d mm | Ratios for local buckling | | Second moment of area | | Radius of gyration | |
|----------------|-----|---------------------|-----------------------|-----------------------|-----------------------|--------------------------|------------------|----------------------------|---------------------------|---------|--------------------------|--------------------------|--------------------|-------------|
| Serial size | | | | | | | | | Flange B/2T | Web d/t | Axis x-x cm ⁴ | Axis y-y cm ⁴ | Axis x-x cm | Axis y-y cm |
| 356x368 | 174 | 173.9 | 361.4 | 378.5 | 20.3 | 20.4 | 15.2 | 290.2 | 9.28 | 14.3 | 51009 | 18463 | 15.2 | 9.13 |
| | 152 | 152.0 | 356.4 | 376.0 | 17.8 | 17.9 | 15.2 | 290.2 | 10.5 | 16.3 | 43972 | 15877 | 15.1 | 9.05 |
| | 133 | 133.0 | 352.0 | 373.8 | 15.6 | 15.7 | 15.2 | 290.2 | 11.9 | 18.6 | 37983 | 13680 | 15.0 | 8.99 |
| | 109 | 108.9 | 346.4 | 371.0 | 12.8 | 12.9 | 15.2 | 290.2 | 14.4 | 22.7 | 30632 | 10987 | 14.9 | 8.90 |
| 305x305 | 223 | 222.9 | 337.9 | 325.7 | 30.3 | 30.4 | 15.2 | 246.7 | 5.36 | 8.14 | 52699 | 17577 | 13.6 | 7.87 |
| | 186 | 186.0 | 328.3 | 320.9 | 25.5 | 25.6 | 15.2 | 246.7 | 6.27 | 9.67 | 42610 | 14143 | 13.4 | 7.73 |
| | 149 | 149.1 | 318.5 | 316.0 | 20.6 | 20.7 | 15.2 | 246.7 | 7.63 | 12.0 | 33067 | 10910 | 13.2 | 7.58 |
| | 126 | 126.1 | 312.3 | 312.9 | 17.5 | 17.6 | 15.2 | 246.7 | 8.89 | 14.1 | 27408 | 9002 | 13.1 | 7.49 |
| | 110 | 110.0 | 307.9 | 310.7 | 15.3 | 15.4 | 15.2 | 246.7 | 10.1 | 16.1 | 23563 | 7709 | 13.0 | 7.42 |
| | 95 | 94.9 | 303.7 | 308.7 | 13.3 | 13.3 | 15.2 | 246.7 | 11.6 | 18.5 | 20045 | 6529 | 12.9 | 7.35 |
| | 88 | 88.0 | 301.7 | 307.8 | 12.4 | 12.3 | 15.2 | 246.7 | 12.5 | 19.9 | 18425 | 5984 | 12.8 | 7.31 |
| | 79 | 78.9 | 299.3 | 306.4 | 11.0 | 11.1 | 15.2 | 246.7 | 13.8 | 22.4 | 16444 | 5326 | 12.8 | 7.28 |
| 254x254 | 85 | 85.1 | 254.3 | 260.4 | 14.4 | 14.3 | 12.7 | 200.3 | 9.10 | 13.9 | 12284 | 4215 | 10.6 | 6.24 |
| | 71 | 71.0 | 249.7 | 258.0 | 12.0 | 12.0 | 12.7 | 200.3 | 10.8 | 16.7 | 10071 | 3439 | 10.6 | 6.17 |
| | 63 | 63.0 | 247.1 | 256.6 | 10.6 | 10.7 | 12.7 | 200.3 | 12.0 | 18.9 | 8860 | 3016 | 10.5 | 6.13 |
| 203x203 | 54 | 53.9 | 204.0 | 207.7 | 11.3 | 11.4 | 10.2 | 160.8 | 9.11 | 14.2 | 5027 | 1705 | 8.55 | 4.98 |
| | 45 | 44.9 | 200.2 | 205.9 | 9.5 | 9.5 | 10.2 | 160.8 | 10.8 | 16.9 | 4100 | 1384 | 8.46 | 4.92 |

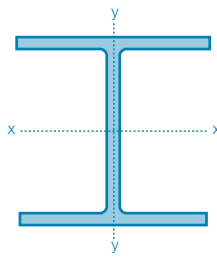
Dimensions and properties to BS4-1:2005.

Case study Automated Distribution Centre

Client: Corus
 Structural engineer: Corus Northern Engineering Services
 Civils contractor: Clugston
 Piling contractor: Steel Pile Installations Limited



Steel piling provides a sustainable foundation as it can be extracted from the site.



| Elastic modulus | | Plastic modulus | | Buckling parameter u | Torsional index x | Warping constant H dm ⁶ | Torsional constant J cm ⁴ | Area of section cm ² | Indicative P _{cy} values for Advance275 for L _c =3.5m kN | Designation Serial size |
|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-------------------------|----------------------|--|--|------------------------------------|--|----------------------------|
| Axis x-x cm ² | Axis y-y cm ² | Axis x-x cm ³ | Axis y-y cm ³ | | | | | | | |
| 2823 | 976 | 3186 | 1497 | 0.821 | 15.8 | 5.37 | 330 | 221 | 5150 | 174 356x368 |
| 2468 | 845 | 2767 | 1293 | 0.821 | 17.8 | 4.55 | 223 | 194 | 4510 | |
| 2158 | 732 | 2406 | 1118 | 0.822 | 20.1 | 3.87 | 151 | 169 | 4060 | |
| 1769 | 592 | 1956 | 903 | 0.823 | 24.2 | 3.05 | 84.6 | 139 | 3330 | |
| 3119 | 1079 | 3653 | 1680 | 0.826 | 9.55 | 4.15 | 943 | 284 | 6330 | 223 305x305 |
| 2596 | 881 | 3003 | 1366 | 0.827 | 11.1 | 3.24 | 560 | 237 | 5250 | |
| 2076 | 691 | 2370 | 1065 | 0.828 | 13.5 | 2.42 | 295 | 190 | 4180 | |
| 1755 | 575 | 1986 | 885 | 0.829 | 15.7 | 1.95 | 182 | 161 | 3520 | |
| 1531 | 496 | 1720 | 762 | 0.830 | 17.7 | 1.65 | 122 | 140 | 3160 | |
| 1320 | 423 | 1475 | 648 | 0.830 | 20.2 | 1.38 | 80.0 | 121 | 2720 | |
| 1221 | 389 | 1361 | 595 | 0.830 | 21.6 | 1.25 | 64.2 | 112 | 2510 | |
| 1099 | 348 | 1218 | 531 | 0.832 | 23.9 | 1.11 | 46.9 | 100 | 2240 | |
| 966 | 324 | 1092 | 498 | 0.825 | 15.6 | 0.607 | 81.8 | 108 | 2250 | 85 254x254 |
| 807 | 267 | 904 | 409 | 0.826 | 18.4 | 0.486 | 48.4 | 90.4 | 1880 | |
| 717 | 235 | 799 | 360 | 0.827 | 20.5 | 0.421 | 34.3 | 80.2 | 1660 | |
| 493 | 164 | 557 | 252 | 0.827 | 15.8 | 0.158 | 32.7 | 68.7 | 1240 | 54 203x203 |
| 410 | 134 | 459 | 206 | 0.827 | 18.6 | 0.126 | 19.2 | 57.2 | 1020 | |

We are committed to providing the highest possible standard of service to our sections customers and have embarked on a unique construction project which will minimise handling time, increase load flexibility whilst improving safety standards. The automated distribution centre, which will be the first of its kind for steel sections in Europe, is to be constructed adjacent to the Medium Section Mill at the Corus site in Scunthorpe. Capable of storing over 25kt of sections in bundles weighing up to six tonnes, the distribution centre will be over 150m long and about 30m high.

The storage system bundles steel ranging from six to 24m in length on racks with minimal clearance between the bundles and the computer stores their exact location. The stacker cranes, which are at the heart of the system, are 28m long and 29m high and capable of moving at three metres per second to place or retrieve the bundles. Positional control is key to the operation of this facility and consequently the structure needs to be stiff enough to limit movements under load.

Built on a part of the site that had been backfilled after extraction of the ironstone used in the steelmaking process many years ago, piled foundations were needed to limit differential movement of the floor slab over its length. Steel bearing piles were chosen as they could be driven hard through the variable fill material to found on the original floor of the quarry. The piles were designed to be spliced during installation, minimising the size of plant required and enabling a leader rig to be used for the first stage of driving with a rope suspended impact hammer to complete the process.

Benefits of steel

- Steel piling provides a sustainable foundation as it can be extracted from the site.
- Steel H piles can be easily extended or shortened if required.
- The strength of steel makes H piles ideal for end bearing on rock.

UK commercial offices and further information

Providing customer and market focus

Our commercial organisation is built around the market sectors that are most important to our customers. We operate an account management principle where our account managers will provide the lead in all business with individual customers.

The main commercial office is located in Scunthorpe, but we have account management teams based at our other UK sales offices.

Our highly trained and motivated staff will provide all customers with the level of support they need – whether it's information or personal attention - from the initial enquiry through to a full after sales service.

You can contact us in any of the following ways:

Main Commercial Office

Corus Construction & Industrial
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Scunthorpe
North Lincolnshire
DN16 1BP
Telephone: 01724 404040
Fax: 01724 405600

Regional Commercial Offices

Corus Construction & Industrial
London Business Office
Hampton House
20 Albert Embankment
London SE1 7TJ
Telephone: 020 7975 8457
Fax: 020 7975 8408

Corus Construction & Industrial
Steel House
Redcar
Cleveland TS10 5QW
Telephone: 01642 404040
Fax: 01642 489531

Corus Construction & Industrial
The Genesis Centre
Science Park South
Garrett Field
Birchwood
Warrington WA3 7BH
Telephone: 01925 822838
Fax: 01925 838769

Corus Construction & Industrial
PO Box 30
Motherwell
Lanarkshire ML1 1AA
Telephone: 01698 265033
Fax: 01698 230072

Further information

We have a comprehensive rolling programme that means we produce individual serial sizes more frequently than any other manufacturer and we publish a detailed rolling programme every week. Please contact us at Scunthorpe if you want to receive this information on a regular basis.

Furthermore, due to the significant investment that has taken place at our Scunthorpe and Teesside rolling mills, we can produce structural sections to the most demanding requirements. Subject to volume, in addition to those listed in this brochure, our tight manufacturing control enables us to produce bespoke sections where the depth and flange/web thickness of a section can be tailored to the particular needs of the project. Please contact us at Scunthorpe if you want to discuss particular product requirements beyond our standard range.

Offices and agents for Corus products

Europe

Ireland

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Dublin 2, Ireland

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Fax: (00) 3531 676 5413

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Norh Klontoe, Wattana

Bangkok 10110, Thailand

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Fax: (00) 84 8 823 0030

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Corus International

503/504 Raheja Chambers

213 Backbay Reclamation

Mumbai - 400 021, India

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Fax: (00) 91 22 228 75148

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Ed. Buenos Aires, sala 306

22640-102, Rio de Janeiro

RJ-Brazil

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Fax: (00) 55 212 246 1740

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Repco Ltda

Casillia 9030, Correo 3

Vina del Mar, Chile

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Fax: (00) 56 32 978475

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George Raikes Representaciones

Anglo Colombiana (Raikes)

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Santafe de Bogota, Colombia

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Fax: (00) 57 12 103685

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Heliopolis, Cairo, Egypt

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Fax: (00) 20 241 86116

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Dizengoff Trading Co. 1952 Ltd.

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Herzlia 46120

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Yusuf Bin Ahmed Kanoo

PO Box 37, Dammam 31411

Saudi Arabia

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Fax: (00) 966 3 857 9750

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Corus Celik Ticaret AS

Asik Kerem Sokak No 30 Kat 3

Dikilitas, Besiktas 34349

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Corus Middle East

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Corus in construction

Corus is an international manufacturer, processor and distributor of steel and aluminium products and provides related services in design, technology and consultancy. We have manufacturing operations in a number of countries, with major plants in the UK, the Netherlands, Germany, France, Canada, the USA, Norway and Belgium, as well as sales offices and service centres all over the world.

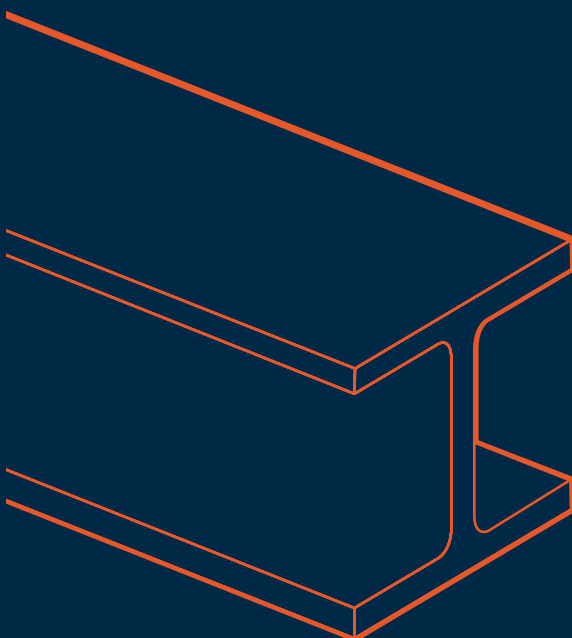
Construction is the single largest market for Corus products, accounting for over 30 per cent of turnover by value. As well as our new *Advance* section range, Corus manufactures structural plate and hollow sections, steel floor decking, a full range of cladding and roofing products including the Colorcoat® and Kalzip® brands, a variety of other building products, including the Catnic® brand, and systems such as light-steel framing and modular construction.

Market driven development has been key to the ongoing success of structural steel in the UK. Working closely with our customers and designers has led to the development of products and systems such as Slimdek®, Slimflor® and Bi-Steel®. Corus is also committed to improving the effective application of steel in construction. Long-term investment in developments such as plastic design, fire engineering and composite construction has helped position structural steel as the preferred choice for the structural frame of industrial and commercial buildings in

the UK. Research work on acoustics and vibration performance is now also showing steel to be an effective choice in the health and residential markets. Significant work on steel's contribution to sustainable development is ongoing along with the production of application guidance to help in the introduction of harmonised European design codes and ensure that construction clients, customers and designers are able to continue to make the most effective use of steel.

Corus operates a free technical advisory service to assist with all aspects of the use of our products from initial material selection through to structural design and associated issues including fire engineering, corrosion, acoustic and vibration performance.

To find out more about the range of construction products and systems we offer, or for advice on their application, contact our technical hotline on +44 (0) 1724 405060, or visit our website at www.corusconstruction.com



www.corusgroup.com

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