

Fellbach, May 2016

## Interactive Design Aids according to BS EN 1993

*Calculation templates for design of steel structures*

In line with its motto "Nothing beats a great template." Veit Christoph GmbH, a software company specializing in computer programs for engineers now delivers its leading-edge software VCmaster complete with a large number of interactive design aids to BS EN.

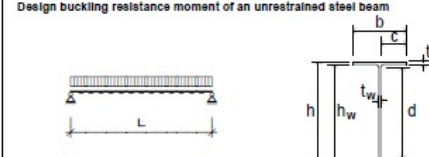
These ready for use templates have been thoroughly researched and verified and are now available amongst others for design of steel structures according to BS EN 1993.

They are extensively annotated with corresponding parameters for components, profiles, coefficients and materials being stored in a large number of linked databases. All design aids are freely editable, thus fully customizable to the individual needs of the engineering office.


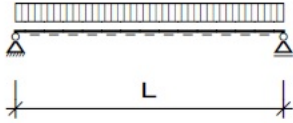
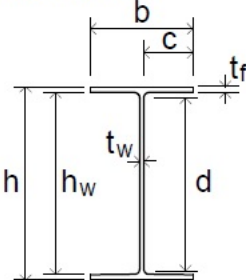
VCmaster is seamlessly integrated into the familiar planning process, with several interfaces guaranteeing data transfer from virtually every external software application. With VCmaster algorithms can be generated quickly and without prior programming knowledge. Additionally formulae are presented in a precise mathematical form.

Implementing VCmaster with its clever calculation templates into the daily work-flow will not only help save time, but ultimately will help cutting down on operating costs.

For more information about the design aids according to BS EN 1993 please visit [www.vcmaster.com](http://www.vcmaster.com).

EXAMPLES TO EUROCODE Steel Design to EN 1993		BS EN Page: 5
		
<b>Design buckling resistance moment of an unrestrained steel beam</b>		
<b>Properties</b>		
Adopted serial size	-	254x146x43
Steel	-	S275
Depth h	-	259.60 mm
Breadth b	-	147.30 mm
2nd moment of area I <sub>y</sub>	-	677.00 cm <sup>4</sup>
Plastic modulus W <sub>pl,y</sub>	-	566.00 cm <sup>3</sup>
Warping constant I <sub>w</sub>	-	0.103 dm <sup>6</sup>
Torsion constant I <sub>t</sub>	-	23.90 cm <sup>4</sup>
Beam span L	-	5.00 m
<b>Calculation of M<sub>cr</sub></b>		
C <sub>1</sub>	-	1.00
M <sub>cr</sub>	-	125.13 kNm
$M_{cr} = C_1 \cdot \frac{\pi^2 \cdot E \cdot I_y}{L^2} \cdot \sqrt{\frac{I_w}{I_y} + \frac{L^2 \cdot G \cdot I_t}{\pi^2 \cdot E \cdot I_y}}$		
<b>Calculation of the design buckling resistance moment M<sub>b,Rd</sub></b>		
λ <sub>LT</sub>	-	1.115 kNm
α <sub>LT</sub>	-	0.34
λ <sub>LT,0</sub>	-	0.40
β	-	0.75
Φ <sub>LT</sub>	-	1.088
χ <sub>LT</sub>	-	0.629
r	-	1.000
χ <sub>LT,mod</sub>	-	0.629
M <sub>b,Rd</sub>	-	97.90 kNm
$M_{b,Rd} = \frac{\chi_{LT,mod} \cdot \eta \cdot W_{pl,y} \cdot f}{\gamma_{M1}} = \frac{0.629 \cdot 275.00 \cdot 566.00}{10^3}$		
Interactive Design Aids for Structural Engineers		

**Example: Interactive Design Aids to BS EN 1993 – Design of Steel Structures**

	<h2 style="margin: 0;">EXAMPLES TO EUROCODE</h2> <p style="margin: 0;">Steel Design to EN 1993</p>	<h2 style="margin: 0;">BS EN</h2> <p style="margin: 0;">Page: 5</p>																		
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