BRITISH STEEL

Tophat

Shaft guides for mining applications

BUILDING STRONGER FUTURES

British Steel's tophat shaft guides offer a high-quality, cost-effective hoisting system for use in vertical mineshafts. They're designed to give maximum productivity and service life in modern deep mine operations.

Hoisting benefits

Superior dimensional control and straightness make for a smoother, faster lift with better stability allowing greater hoisted mass.

Reduced maintenance

An open structure permits easy access for simpler and safer inspection. Greater wall thickness delivers both stability and anti-corrosion benefits.

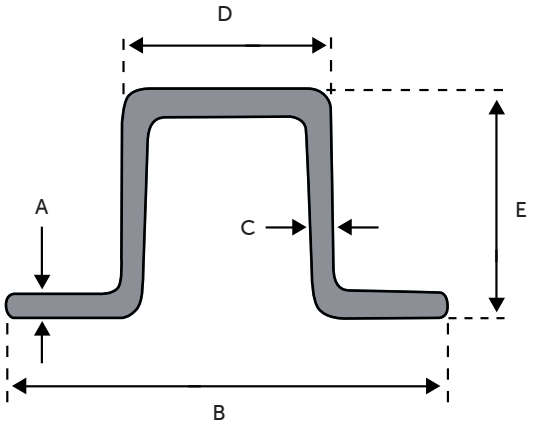
Quick and easy installation

Double-sided access allows quicker, simpler and cheaper installation.

Longer lifespan

With the potential to last more than 3 times longer than alternative solutions, tophat shaft guides offer significantly extended service life, which can cover the entire lifespan of the mine without the need for major refurbishment or replacement.

Standard dimensions



Size	Weight	Modulus Ixx (cm⁴)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
232 x 98mm*	45.27kg/m	671	16	232	13.4	152	98
305 x 102mm	55.07kg/m	997	12.7	305	15.9	152	102
320 x 150mm	71.39kg/m	2815	13.5	320	18	150	150
340 x 175mm	85.94kg/m	4392	15	340	20	175	175

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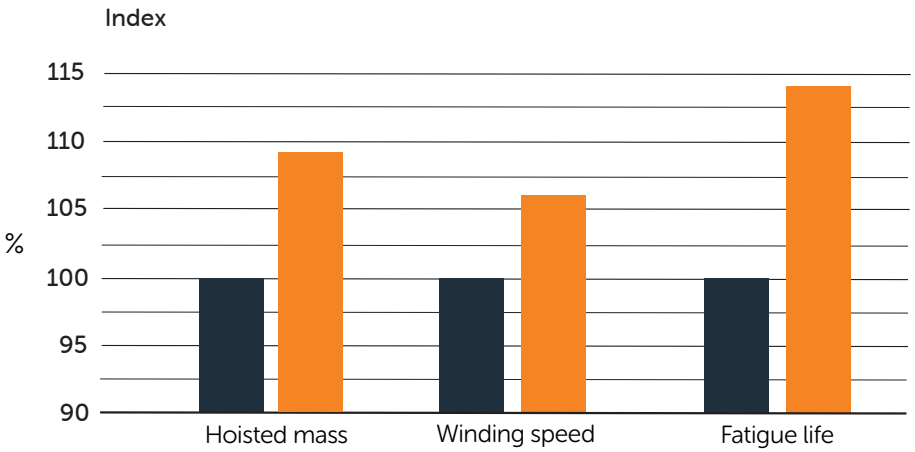
All 4 sizes offered with dimensions as follows:

- Straightness 5mm max over 12m length
- Twist 3mm max (typical < 1mm)
- Shaft guides are available in lengths from 6-17m, with a cutting tolerance of +100/-0mm
- Cold sawn lengths are also available to suit individual requirements, with a +0/-2mm cutting tolerance

Standard steel grades:

- EN 10025-2: 2004, S355JR+AR, S355J2+AR
- SANS 50025-2: 2009, S355JR+AR, S355J2+AR
- CSA G40.21-04: 2004, 300W, 350W, 350WT
- AS/NZS 3679.1: Grade 350

Relative performance



Key

Hollow section

British Steel tophat

**Based on 150 x 150 x 10 hollow section and 320 x 150 tophat*

- The chart shows the superior performance of tophat shaft guides relative to other guide rail sections on 3 different factors
- The analysis is based on the dynamic forces applied to the shaft steelwork in the plane of the guides only
- Graph assumes all guide sections are used with the same bunton spacing (i.e. shaft pocket spacing is already fixed)

Technical data

232x98mm (45.27kg/m) – SANS 50025:2 S355JR+AR

		Centroid	Centre of mass
Perimeter	771.917	X:116.165	X:116.165
Surface area	5773.66	Y:54.6141	Y:54.6141
Mass	45.2805	Z:-1.0599e-019	Z:-1.0599e-019

	Moments of inertia	Products of inertia
Centre of mass	X:55768.9	XY:-30.0664
	Y:212574	XZ:1.40654e-020
	Z:4268343	YZ:-5.64846e-018

Principal moments	Principal directions		
X:55768.9	1.000000	0.000912	0.000000
Y:212574	0.000912	1.000000	-0.000000
Z:268343	-0.000000	0.000000	1.000000

Radii of gyration	X	35.0946
	Y	68.5172
	Z	76.892

305x102mm (55.1kg/m) – SANS 50025:2 S355JR+AR

		Centroid	Centre of mass
Perimeter	941.042	X:152.36	X:152.36
Surface Area	7016.53	Y:50.7022	Y:50.7022
Mass	55.0278	Z:-1.62353e-014	Z:-1.62353e-014

	Moments of inertia	Products of inertia
Centre of mass	X:78195.5	XY:82.3751
	Y:343178	XZ:9.9699e-014
	Z:421374	YZ:1.43119e-012

Principal moments	Principal directions		
X:78195.5	1.000000	0.000311	0.000000
Y:343178	-0.000311	1.000000	0.000000
Z:421374	-0.000000	-0.000000	1.000000

Radii of gyration	X	37.6964
	Y	78.9712
	Z	87.507

320x150mm (71.39kg/m) – SANS 50025:2 S355JR+AR

		Centroid	Centre of mass
Perimeter	1140.91	X:159.968	X:159.968
Surface Area	9046.97	Y:74.9227	Y:74.9227
Mass	70.9517	Z:-4.78417e-014	Z:-4.78417e-014

	Moments of inertia	Products of inertia
Centre of mass	X:220763	XY:136.929
	Y:448707	XZ:-4.44512e-013
	Z:669470	YZ:4.48865e-011

Principal moments	Principal directions		
X:220763	1.000000	0.000601	-0.000000
Y:448707	-0.000601	1.000000	0.000000
Z:669470	0.000000	-0.000000	1.000000

Radii of gyration	X	55.7804
	Y	79.5243
	Z	97.1369

340x175mm (85.94kg/m) – SANS 50025:2 S355JR+AR

		Centroid	Centre of mass
Perimeter	1273.97	X:170.000	X:170.000
Surface Area	1107.68	Y:-89.1562	Y:-89.1562
Mass	85.94	-	-

	Moments of inertia	Products of inertia
Centre of mass	X:46099753.6	XY:0.0000
	Y:83962559.1	-
	-	-

Principal moments	Principal directions		
X:46099753.6	1.000000	0.000000	-
Y:83962559.1	0.000000	1.000000	-
-	-	-	-

Radii of gyration	X	64.4225
	Y	86.9423
	-	-

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