



**Porthole Beam™  
Section Properties Brochure**





**Established in 1969, Barnshaws has grown to become the world's premier specialist profile bending company; supplying market sectors such as construction, power generation, mining, transport and general manufacturing with shaped beams, tubes, plate and other profile section materials. More recent developments have seen the company's engineering expertise expand from mostly steel to non-ferrous materials including copper and aluminium as well as specialist materials such as Hardox.**

Barnshaws has ISO 9001- 2008 approval and was Europe's first bending company to achieve CE Marking of curved sections to Execution class 4, the highest standard available.

With facilities in the West Midlands, Manchester, Hamilton and Poland, Barnshaws can provide precision metal bending and profile cutting services, locally, nationally and internationally.

Equipped with the largest capacity bending machines in the world, Barnshaws can deliver curved sections up to 35 meters in length with the capacity to bend tubes and pipes up to 1,524mm outside diameter. In addition, the largest range of press brakes in the UK can accommodate materials up to 12 meters in length and form sections from materials with up to 80mm thickness.

The section tables included within this document give you all the data you need with regards to specifying Porthole Beams™. If you require different hole sizes, then Barnshaws can supply an Excel spread sheet similar to the tables designed by UMIST (University of Manchester Institute of Science and Technology) which can be amended to give the correct section properties.

Technical assistance on the bending of Porthole Beams™ is available free.



Oil & Gas UK



# European IPE Porthole Beam™ Section Properties – Summary

**Porthole Beam™ Section Properties in Floor Applications**

Serial size	Porthole Diameter	Porthole Spacing	Net Ix	Net Zxx	Net Sxx	Net area
	D	S	Ixxnet	Zxxnet	Sxxnet	Anet
mm x mm x kg/m	mm	mm	cm4	cm3	cm3	cm2
IPE 750 x 223	525	775	257700	6625	7054	193.8
IPE 750 x 210	525	775	242906	6269	6660	184
IPE 750 x 197	525	775	221489	5753	6099	169.1
IPE 750 x 185	525	775	205033	5353	5664	157.8
IPE 750 x174	525	775	188436	4946	5226	145.4
IPE 750 x161	525	775	169459	4471	4715	131.6
IPE 750 x 147	525	775	150183	3989	4200	117.7
IPE 750 x 137	525	775	146033	3879	4073	114.6
IPE 600 V	425	625	130085	4210	4511	157.5
IPE 600 R	425	625	101344	3334	3543	124.5
IPE 600 O	425	625	108704	3564	3794	133.3
IPE 600	425	625	84403	2813	2970	105
IPE 600 A	425	625	76651	2568	2698	95.4
IPE 550 V	390	575	93847	3316	3555	135.3
IPE 550 R	390	575	79679	2846	3030	115.4
IPE 550 O	390	575	72882	2622	2780	106.5
IPE 550	390	575	61633	2241	2365	90.7
IPE 550 A	390	575	55531	2030	2133	81.9
IPE 500 V	360	540	65199	2537	2708	112.9
IPE 500 R	360	540	55031	2167	2301	96.6
IPE 500 O	360	540	53114	2099	2224	93.8
IPE 500	360	540	44234	1769	1864	79.3
IPE 500 A	360	540	39664	1596	1674	70.8
IPE 450 V	320	480	42814	1861	1984	92.3
IPE 450 R	320	480	39314	1717	1826	84.8
IPE 450 O	320	480	37916	1663	1764	82.8
IPE 450	320	480	31173	1385	1461	68.7
IPE 450 A	320	480	27685	1239	1299	61.2
IPE 400 V	280	420	28201	1382	1473	77.3
IPE 400 R	280	420	26921	1323	1410	74.3
IPE 400 O	280	420	24976	1236	1312	69.2
IPE 400	280	420	21557	1078	1138	60.4
IPE 400 A	280	420	19009	958	1007	53.5
IPE 360 R	250	375	19001	1038	1107	64.9
IPE 360 O	250	375	17852	981	1042	61.1
IPE 360	250	375	15228	846	894	52.7
IPE 360 A	250	375	13661	764	804	47.5
IPE 330 R	225	330	13817	822	879	56.1
IPE 330 O	225	330	13103	785	835	53.5
IPE 330	225	330	11058	670	709	45.7
IPE 330 A	225	330	9613	588	620	40.1
IPE 300 R	200	300	9933	649	695	48.9
IPE 300 O	200	300	9461	622	664	46.8
IPE 300	200	300	7883	526	557	39.6
IPE 300 A	200	300	6766	456	481	34.3
IPE 270 R	190	280	6872	498	533	41.4
IPE 270 O	190	280	6518	476	507	39.6
IPE 270	190	280	5413	401	424	33.4
IPE 270 A	190	280	4603	345	362	28.7
IPE 240 R	170	255	4516	369	395	34.8
IPE 240 O	170	255	4082	337	359	31.8
IPE 240	170	255	3638	303	322	28.6
IPE 240 A	170	255	3077	260	274	24.5
IPE 220 R	155	230	3266	290	312	29.8
IPE 220 O	155	230	2929	264	281	27.2
IPE 220	155	230	2589	235	250	24.3
IPE 220 A	155	230	2162	199	210	20.6
IPE 200 R	140	210	2212	217	233	24.7
IPE 200 O	140	210	2069	205	219	23.3
IPE 200	140	210	1815	181	194	20.7
IPE 200 A	140	210	1488	151	160	17.2

**Porthole Beam™ Section Properties in Roof Applications**

Porthole Diameter	Porthole Spacing	Net Ix	Net Zxx	Net Sxx	Net area
D	S	Ixxnet	Zxxnet	Sxxnet	Anet
mm	mm	cm4	cm3	cm3	cm2
525	650	257700	6625	7054	193.8
525	650	242906	6269	6660	184
525	650	221489	5753	6099	169.1
525	650	205033	5353	5664	157.8
525	650	188436	4946	5226	145.4
525	650	169459	4471	4715	131.6
525	650	150183	3989	4200	117.7
525	650	146033	3879	4073	114.6
425	525	130085	4210	4511	157.5
425	525	101344	3334	3543	124.5
425	525	108704	3564	3794	133.3
425	525	84403	2813	2970	105
425	525	76651	2568	2698	95.4
390	485	93847	3316	3555	135.3
390	485	79679	2846	3030	115.4
390	485	72882	2622	2780	106.5
390	485	61633	2241	2365	90.7
390	485	55531	2030	2133	81.9
360	450	65199	2537	2708	112.9
360	450	55031	2167	2301	96.6
360	450	53114	2099	2224	93.8
360	450	44234	1769	1864	79.3
360	450	39664	1596	1674	70.8
320	400	42814	1861	1984	92.3
320	400	39314	1717	1826	84.8
320	400	37916	1663	1764	82.8
320	400	31173	1385	1461	68.7
320	400	27685	1239	1299	61.2
280	350	28201	1382	1473	77.3
280	350	26921	1323	1410	74.3
280	350	24976	1236	1312	69.2
280	350	21557	1078	1138	60.4
280	350	19009	958	1007	53.5
250	310	19001	1038	1107	64.9
250	310	17852	981	1042	61.1
250	310	15228	846	894	52.7
250	310	13661	764	804	47.5
225	280	13817	822	879	56.1
225	280	13103	785	835	53.5
225	280	11058	670	709	45.7
225	280	9613	588	620	40.1
200	250	9933	649	695	48.9
200	250	9461	622	664	46.8
200	250	7883	526	557	39.6
200	250	6766	456	481	34.3
190	235	6872	498	533	41.4
190	235	6518	476	507	39.6
190	235	5413	401	424	33.4
190	235	4603	345	362	28.7
170	210	4516	369	395	34.8
170	210	4082	337	359	31.8
170	210	3638	303	322	28.6
170	210	3077	260	274	24.5
155	190	3266	290	312	29.8
155	190	2929	264	281	27.2
155	190	2589	235	250	24.3
155	190	2162	199	210	20.6
140	175	2212	217	233	24.7
140	175	2069	205	219	23.3
140	175	1815	181	194	20.7
140	175	1488	151	160	17.2

# European Wide Flange Porthole Beam™ Section Properties – Summary Properties

**Porthole Beam™ Section Properties in Floor Applications**

Serial size	Porthole Diameter	Porthole Spacing	Net Ix	Net Zxx	Net Sxx	Net area
	D	S	Ixxnet	Zxxnet	Sxxnet	Anet
mm x mm x kg/m	mm	mm	cm4	cm3	cm3	cm2
HE 1000 M	710	1065	659666	13089	13923	294.9
HE 1000 B	710	1065	588031	11761	12466	265.1
HE 1000 A	710	1065	504587	10194	10741	229.9
HE 1000 AA	710	1065	358779	7397	7761	168.4
HE 900 M	630	945	526642	11575	12356	291.7
HE 900 B	630	945	455551	10123	10744	254.5
HE 900 A	630	945	388760	8736	9222	220.2
HE 900 AA	630	945	269844	6203	6511	157.5
HE 800 M	560	840	411867	10120	10844	286.4
HE 800 B	560	840	333489	8337	8858	236
HE 800 A	560	840	281448	7125	7523	202
HE 800 AA	560	840	188411	4894	5127	139.6
HE 700 M	490	735	308711	8623	9279	280.1
HE 700 B	490	735	240233	6864	7307	222.7
HE 700 A	490	735	201084	5829	6162	189
HE 700 x 166	490	735	156645	4621	4848	150.8
HE 700 AA	490	735	129955	3879	4060	127.3
HE 650 M	450	675	265753	7957	8594	279.5
HE 650 B	450	675	198450	6106	6510	214
HE 650 A	450	675	164948	5155	5453	181.3
HE 650 AA	450	675	104408	3368	3527	119.8
HE 600 M	415	620	224892	7255	7868	276.9
HE 600 B	415	620	161768	5392	5758	205.7
HE 600 A	415	620	133457	4524	4790	172.1
HE 600 x 175	415	620	128300	4364	4616	166.6
HE 600 x 151	415	620	110191	3787	3984	144.9
HE 600 x 137	415	620	94472	3286	3444	126
HE 600 AA	415	620	84723	2968	3106	114.2
HE 550 M	380	570	188397	6587	7175	274.2
HE 550 B	380	570	129841	4721	5050	197
HE 550 A	380	570	106184	3933	4171	164.5
HE 550 AA	380	570	67611	2590	2713	109.3
HE 500 M	345	515	154714	5905	6469	271.6
HE 500 B	345	515	102238	4090	4384	189
HE 500 A	345	515	82864	3382	3592	156.6
HE 500 AA	345	515	51047	2163	2264	100.8
HE 450 M	310	465	126287	5284	5826	269.9
HE 450 B	310	465	76414	3396	3646	174.6
HE 450 A	310	465	60865	2767	2940	142.4
HE 450 x 124	310	465	53328	2452	2591	126.4
HE 450 AA	310	465	39407	1854	1943	96
HE 400 M	275	410	100461	4651	5174	268.3
HE 400 B	275	410	55340	2767	2977	160.9
HE 400 A	275	410	43164	2214	2354	128.8
HE 400 x 107	275	410	35907	1870	1976	108.5
HE 400 AA	275	410	29604	1566	1644	91.9
HE 360 M	245	365	82296	4167	4674	267.6
HE 360 B	245	365	41658	2314	2495	150.4
HE 360 A	245	365	31864	1821	1938	118.5
HE 360 AA	245	365	21937	1294	1360	85
HE 340 M	230	345	74241	3939	4440	267.7
HE 340 B	230	345	35443	2085	2249	143.4
HE 340 A	230	345	26727	1620	1724	111.2
HE 340 AA	230	345	18688	1168	1229	81.5
HE 320 M	220	330	66267	3692	4181	265.8
HE 320 B	220	330	29800	1862	2010	135.7
HE 320 A	220	330	22131	1428	1519	104.2
HE 320 AA	220	330	15740	1046	1099	77
HE 300 M	205	305	57692	3394	3857	260
HE 300 C	205	305	39801	2488	2759	192.2
HE 300 B	205	305	24380	1625	1753	126.5
HE 300 A	205	305	17650	1217	1294	95.6
HE 300 AA	205	305	13262	937	986	73.5
HE 280 M	190	285	38493	2483	2799	204.9
HE 280 B	190	285	18670	1334	1439	111.1
HE 280 A	190	285	13213	979	1040	82.1
HE 280 AA	190	285	10160	770	810	64.7
HE 260 M	175	260	30506	2104	2386	188.5
HE 260 B	175	260	14473	1113	1206	100.5
HE 260 A	175	260	10115	809	863	73.7
HE 260 AA	175	260	7691	630	664	57.6
HE 240 M	160	240	23676	1754	2002	171.2
HE 240 B	160	240	10919	910	989	90
HE 240 A	160	240	7507	653	697	64.8
HE 240 AA	160	240	5613	501	529	50
HE 220 M	150	225	14164	1180	1332	125.8
HE 220 B	150	225	7824	711	774	76.8
HE 220 A	150	225	5213	496	529	53.8
HE 220 AA	150	225	4001	390	411	42.5
HE 200 M	135	200	10332	939	1067	110.8
HE 200 B	135	200	5511	551	602	66
HE 200 A	135	200	3559	375	399	45
HE 200 AA	135	200	2831	304	322	36.7

**Porthole Beam™ Section Properties in Roof Applications**

Porthole Diameter	Porthole Spacing	Net Ix	Net Zxx	Net Sxx	Net area
D	S	Ixxnet	Zxxnet	Sxxnet	Anet
mm	mm	cm4	cm3	cm3	cm2
525	650	257700	6625	7054	193.8
525	650	242906	6269	6660	184
525	650	221489	5753	6099	169.1
525	650	205033	5353	5664	157.8
525	650	188436	4946	5226	145.4
525	650	169459	4471	4715	131.6
525	650	150183	3989	4200	117.7
525	650	146033	3879	4073	114.6
425	525	130085	4210	4511	157.5
425	525	101344	3334	3543	124.5
425	525	108704	3564	3794	133.3
425	525	84403	2813	2970	105
425	525	76651	2568	2698	95.4
390	485	93847	3316	3555	135.3
390	485	79679	2846	3030	115.4
390	485	72882	2622	2780	106.5
390	485	61633	2241	2365	90.7
390	485	55531	2030	2133	81.9
360	450	65199	2537	2708	112.9
360	450	55031	2167	2301	96.6
360	450	53114	2099	2224	93.8
360	450	44234	1769	1864	79.3
360	450	39664	1596	1674	70.8
320	400	42814	1861	1984	92.3
320	400	39314	1717	1826	84.8
320	400	37916	1663	1764	82.8
320	400	31173	1385	1461	68.7
320	400	27685	1239	1299	61.2
280	350	28201	1382	1473	77.3
280	350	26921	1323	1410	74.3
280	350	24976	1236	1312	69.2
280	350	21557	1078	1138	60.4
280	350	19009	958	1007	53.5
250	310	19001	1038	1107	64.9
250	310	17852	981	1042	61.1
250	310	15228	846	894	52.7
250	310	13661	764	804	47.5
225	280	13817	822	879	56.1
225	280	13103	785	835	53.5
225	280	11058	670	709	45.7
225	280	9613	588	620	40.1
200	250	9933	649	695	48.9
200	250	9461	622	664	46.8
200	250	7883	526	557	39.6
200	250	6766	456	481	34.3
190	235	6872	498	533	41.4
190	235	6518	476	507	39.6
190	235	5413	401	424	33.4
190	235	4603	345	362	28.7
170	210	4516	369	395	34.8
170	210	4082	337	359	31.8
170	210	3638	303	322	28.6
170	210	3077	260	274	24.5
155	190	3266	290	312	29.8
155	190	2929	264	281	27.2
155	190	2589	235	250	24.3
155	190	2162	199	210	20.6
140	175	2212	217	233	24.7
140	175	2069	205	219	23.3
140	175	1815	181	194	20.7
140	175	1488	151	160	17.2

# Porthole™ British Universal Beam Section Properties – Summary Properties

## Porthole Beam™ Section Properties in Floor Applications

Serial size	Porthole Diameter	Porthole Spacing	Net Ix	Net Zxx	Net Sxx	Net area
	D	S	Ixxnet	Zxxnet	Sxxnet	Anet
mm x mm x kg/m	mm	mm	cm4	cm3	cm3	cm2
1016 x 305 x 487	700	1050	935650	18061	19525	410
1016 x 305 x 437	700	1050	833011	16240	17465	368.7
1016 x 305 x 393	700	1050	737957	14527	15551	329.2
1016 x 305 x 349	700	1050	662789	13149	14005	297.3
1016 x 305 x 314	700	1050	589606	11792	12510	266.3
1016 x 305 x 272	700	1050	506838	10238	10809	231.5
1016 x 305 x 249	700	1050	434138	8858	9329	201.5
1016 x 305 x 222	700	1050	362267	7467	7847	171
914 x 419 x 388	650	975	670625	14563	15410	354.9
914 x 419 x 343	650	975	581402	12753	13431	310.9
914 x 305 x 289	650	975	459573	9920	10510	241.3
914 x 305 x 253	650	975	396708	8639	9113	210.6
914 x 305 x 224	650	975	340012	7470	7856	182.7
914 x 305 x 201	650	975	290743	6439	6756	157.9
838 x 292 x 226	600	900	310720	7303	7706	192.4
838 x 292 x 194	600	900	252740	6013	6317	158.8
838 x 292 x 176	600	900	220800	5289	5548	140
762 x 267 x 197	525	775	221189	5747	6092	169.1
762 x 267 x 173	525	775	188056	4935	5213	144.9
762 x 267 x 147	525	775	153065	4060	4274	119.8
762 x 267 x 134	525	775	136230	3633	3817	108
686 x 254 x 170	450	675	159289	4598	4897	151.8
686 x 254 x 152	450	675	140376	4084	4332	134.6
686 x 254 x 140	450	675	126884	3713	3930	122.2
686 x 254 x 125	450	675	109115	3219	3402	106.4
610 x 305 x 238	430	640	197309	6207	6635	223.9
610 x 305 x 179	430	640	143658	4633	4895	167.4
610 x 305 x 149	430	640	118082	3856	4049	139.3
610 x 229 x 140	430	640	103120	3342	3536	121.7
610 x 229 x 125	430	640	90726	2964	3126	107.8
610 x 229 x 113	430	640	79966	2632	2768	96.3
610 x 229 x 101	430	640	68823	2284	2396	83.9
533 x 210 x 122	375	550	70459	2588	2750	107.4
533 x 210 x 109	375	550	61722	2288	2420	95.5
533 x 210 x 101	375	550	56774	2116	2232	88.5
533 x 210 x 92	375	550	50792	1906	2005	79.1
533 x 210 x 82	375	550	43321	1640	1722	69
457 x 191 x 98	340	500	41996	1798	1903	86.2
457 x 191 x 89	340	500	37581	1622	1711	78.3
457 x 191 x 82	340	500	33807	1470	1545	70.3
457 x 191 x 74	340	500	30372	1329	1393	64
457 x 191 x 67	340	500	26596	1173	1225	56.6
457 x 152 x 82	325	475	33586	1442	1534	70.9
457 x 152 x 74	325	475	29924	1295	1374	63.3
457 x 152 x 67	325	475	26355	1151	1215	56.4
457 x 152 x 60	325	475	23183	1020	1073	49.9
457 x 152 x 52	325	475	19196	854	895	41.9
406 x 178 x 74	275	410	25664	1243	1321	68.4
406 x 178 x 67	275	410	22805	1114	1180	61.3
406 x 178 x 60	275	410	20231	996	1050	54.8
406 x 178 x 54	275	410	17386	864	909	47.8
406 x 140 x 46	275	410	14512	720	759	39.9
406 x 140 x 39	275	410	11401	573	603	32.1
356 x 171 x 67	250	375	18275	1006	1069	62.8
356 x 171 x 57	250	375	14985	837	883	52.4
356 x 171 x 51	250	375	13176	742	780	46.4
356 x 171 x 45	250	375	11159	635	666	39.8
356 x 127 x 39	250	375	9311	527	556	33.3
356 x 127 x 33	250	375	7468	428	449	27.1
305 x 165 x 54	200	300	11173	720	767	53
305 x 165 x 46	200	300	9452	617	653	45.3
305 x 165 x 40	200	300	8103	534	563	39.3
305 x 127 x 48	200	300	8975	577	621	43.2
305 x 127 x 42	200	300	7663	499	534	37.4
305 x 127 x 37	200	300	6698	440	468	33
305 x 102 x 33	200	300	6061	388	415	28.6
305 x 102 x 28	200	300	4966	322	343	23.9
305 x 102 x 25	200	300	4068	267	284	20
254 x 146 x 43	180	270	6194	477	508	41.8
254 x 146 x 37	180	270	5231	409	432	35.9
254 x 146 x 31	180	270	4121	328	344	28.9
254 x 102 x 28	180	270	3699	284	302	24.8
254 x 102 x 25	180	270	3123	243	257	21.2
254 x 102 x 22	180	270	2564	202	213	17.7

## Porthole Beam™ Section Properties in Roof Applications

Porthole Diameter	Porthole Spacing	Net Ix	Net Zxx	Net Sxx	Net area
D	S	Ixxnet	Zxxnet	Sxxnet	Anet
mm	mm	cm4	cm3	cm3	cm2
700	875	935650	18061	19525	410
700	875	833011	16240	17465	368.7
700	875	737957	14527	15551	329.2
700	875	662789	13149	14005	297.3
700	875	589606	11792	12510	266.3
700	875	506838	10238	10809	231.5
700	875	434138	8858	9329	201.5
700	875	362267	7467	7847	171
650	825	670625	14563	15410	354.9
650	825	581402	12753	13431	310.9
650	825	459573	9920	10510	241.3
650	825	396708	8639	9113	210.6
650	825	340012	7470	7856	182.7
650	825	290743	6439	6756	157.9
600	750	310720	7303	7706	192.4
600	750	252740	6013	6317	158.8
600	750	220800	5289	5548	140
525	675	221189	5747	6092	169.1
525	675	188056	4935	5213	144.9
525	675	153065	4060	4274	119.8
525	675	136230	3633	3817	108
450	575	159289	4598	4897	151.8
450	575	140376	4084	4332	134.6
450	575	126884	3713	3930	122.2
450	575	109115	3219	3402	106.4
425	535	197729	6220	6655	224.8
425	535	143980	4643	4910	168.1
425	535	118351	3865	4061	139.9
425	535	103420	3351	3550	122.3
425	535	90997	2973	3139	108.4
425	535	80219	2641	2780	96.8
425	535	69063	2292	2407	84.4
375	475	70459	2588	2750	107.4
375	475	61722	2288	2420	95.5
375	475	56774	2116	2232	88.5
375	475	50792	1906	2005	79.1
375	475	43321	1640	1722	69
325	410	42469	1818	1931	88
325	410	38016	1641	1737	79.9
325	410	34218	1488	1570	71.8
325	410	30745	1346	1415	65.4
325	410	26948	1189	1247	57.9
325	410	33586	1442	1534	70.9
325	410	29924	1295	1374	63.3
325	410	26355	1151	1215	56.4
325	410	23183	1020	1073	49.9
325	410	19196	854	895	41.9
275	350	25664	1243	1321	68.4
275	350	22805	1114	1180	61.3
275	350	20231	996	1050	54.8
275	350	17386	864	909	47.8
275	350	14512	720	759	39.9
275	350	11401	573	603	32.1
250	320	18275	1006	1069	62.8
250	320	14985	837	883	52.4
250	320	13176	742	780	46.4
250	320	11159	635	666	39.8
250	320	9311	527	556	33.3
250	320	7468	428	449	27.1
200	250	11173	720	767	53
200	250	9452	617	653	45.3
200	250	8103	534	563	39.3
200	250	8975	577	621	43.2
200	250	7663	499	534	37.4
200	250	6698	440	468	33
200	250	6061	388	415	28.6
200	250	4966	322	343	23.9
200	250	4068	267	284	20

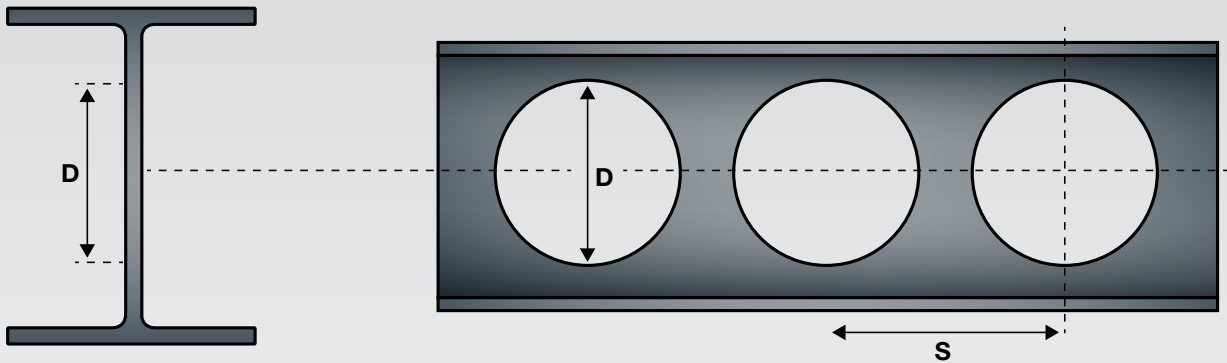
# Porthole™ Universal Column Section Properties – Summary Properties

**Porthole Beam™ Section Properties in Floor Applications**

Serial size	Porthole Diameter	Porthole Spacing	Net Ix	Net Zxx	Net Sxx	Net area
	D	S	Ixxnet	Zxxnet	Sxxnet	Anet
mm x mm x kg/m	mm	mm	cm4	cm3	cm3	cm2
356 x 406 x 634	280	420	266092	11213	13307	674.72
356 x 406 x 551	280	420	219199	9622	11255	584.12
356 x 406 x 467	280	420	176451	8083	9298	494.76
356 x 406 x 393	280	420	141002	6730	7622	415.32
356 x 406 x 340	280	420	117634	5789	6478	358.52
356 x 406 x 287	280	420	95746	4865	5369	302.72
356 x 406 x 235	280	420	75714	3974	4326	247.48
356 x 368 x 202	270	400	63554	3393	3671	212.45
356 x 368 x 177	270	400	54758	2974	3193	187.12
356 x 368 x 153	270	400	46572	2573	2741	161.79
356 x 368 x 129	270	400	38544	2168	2289	135.92
305 x 305 x 283	230	340	76153	4169	4751	298.36
305 x 305 x 240	230	340	61868	3510	3943	253.1
305 x 305 x 198	230	340	48963	2881	3187	208.07
305 x 305 x 158	230	340	37148	2271	2471	164.66
305 x 305 x 137	230	340	31411	1960	2114	142.26
305 x 305 x 118	230	340	26453	1682	1799	122.4
305 x 305 x 97	230	340	21246	1380	1461	100.23
254 x 254 x 167	190	285	28903	1999	2251	176.52
254 x 254 x 132	190	285	21655	1568	1731	138.93
254 x 254 x 107	190	285	16778	1258	1368	111.68
254 x 254 x 89	190	285	13681	1051	1131	93.43
254 x 254 x 73	190	285	10918	859	914	76.76
203 x 203 x 86	150	225	9092	818	906	90.95
203 x 203 x 71	150	225	7337	680	743	75.4
203 x 203 x 60	150	225	5861	559	603	62.3
203 x 203 x 52	150	225	5037	489	523	54.45
203 x 203 x 46	150	225	4366	430	457	47.9
152 x 152 x 37	115	170	2109	261	283	37.9
152 x 152 x 30	115	170	1666	211	227	30.825
152 x 152 x 23	115	170	1176	154	163	22.53

**Porthole Beam™ Section Properties in Roof Applications**

Porthole Diameter	Porthole Spacing	Net Ix	Net Zxx	Net Sxx	Net area
D	S	Ixxnet	Zxxnet	Sxxnet	Anet
mm	mm	cm4	cm3	cm3	cm2
290	365	265125.7	11172.6	13239.2	670
290	365	218343.5	9584.9	11194.8	579.9
290	365	175723.9	8049.7	9247.3	491.2
290	365	140380.8	6700.8	7578.6	412.3
290	365	117093.8	5762.5	6439.7	355.9
290	365	95286.7	4841.8	5336.8	300.5
290	365	75340.4	3954.9	4300.1	245.6
270	340	63553.6	3393.1	3671.3	212.5
270	340	54758	2974.4	3192.6	187.1
270	340	46572.5	2573.1	2740.8	161.8
270	340	38544.1	2167.8	2289.5	135.9
235	295	75971.6	4159.4	4735	297
235	295	61712.6	3501.4	3929.5	252
235	295	48834.4	2873.5	3176.3	207.1
235	295	37041.2	2264.8	2461.9	163.9
235	295	31317.5	1954.3	2106.5	141.6
235	295	26372.2	1677.1	1792.3	121.8
235	295	21179.3	1375.7	1455.3	99.7
195	245	28813.6	1993.3	2241.5	175.6
195	245	21584.6	1562.4	1723.6	138.2
195	245	16719.1	1253.8	1362.3	111
195	245	13633.6	1047.5	1126.1	92.9
195	245	10878.6	856.2	910.2	76.3
155	195	9054.9	815	900.7	90.3
155	195	7307.7	677.3	738.9	74.9
155	195	5833.3	556.6	599.5	61.8
155	195	5013.8	486.3	519.6	54.1
155	195	4344.6	427.6	453.8	47.5
120	150	2094.8	258.9	280.2	37.5
120	150	1654.4	209.9	224.6	30.5
120	150	1166.5	153.1	161.1	22.2



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