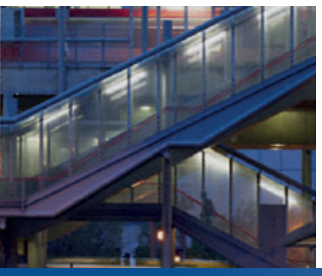

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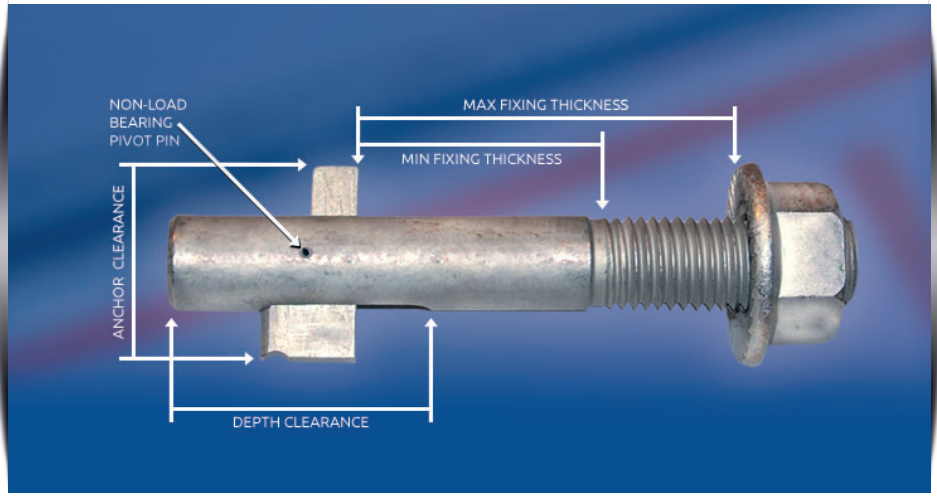
BLIND BOLT

Blind Bolt Product Specification - Geomet 500B - Property Class 10.9

Product Code	Bolt Size	Box Qty	Hole Diameter	Fixing Thickness Min	Fixing Thickness Max	Anchor Clearance	Depth Clearance	Minimum Hole Centres
BB0850DTASM	M8 x 50	50	9	9	24	19	25	20
BB1060DTASM	M10 x 60	40	11	10	30	23	30	20
BB1095DTASM	M10 x 95	20	11	25	65	23	30	20
BB10130DTASM	M10 x 130	20	11	55	100	23	30	20
BB1270DTASM	M12 x 70	20	13	12	35	26	35	25
BB12120DTASM	M12 x 120	25	13	30	85	26	35	25
BB12180DTASM	M12 x 180	20	13	80	140	26	35	25
GBB1475DTASM	M14 x 75*	20	15	14	35	32	38	32
GBB14125DTASM	M14 x 125*	20	15	28	82	32	38	32
GBB14185DTASM	M14 x 185*	20	15	75	142	32	38	32
GBB1690DTASM	M16 x 90*	20	17	13	43	36	43	35
GBB16130DTASM	M16 x 130*	15	17	40	75	36	43	35
GBB16180DTASM	M16 x 180*	10	17	55	125	36	43	35
GBB20110DTASM	M20 x 110*	10	22	21	56	44	56	48
GBB20140DTASM	M20 x 140*	8	22	21	86	44	56	48
GBB20180DTASM	M20 x 180*	10	22	80	120	44	56	48
GBB20250DTASM	M20 x 250*	10	22	130	185	44	56	48
GBB24130DTASM	M24 x 130*	5	26	21	66	53	64	60
GBB30140DTASM	M30 x 140*	5	32	27	60	65	72	75



Blind Bolt Product Specification - Hot Dip Galvanised - Property Class 10.9

Product Code	Bolt Size	Box Qty	Hole Diameter	Fixing Thickness Min	Fixing Thickness Max	Anchor Clearance	Depth Clearance	Minimum Hole Centres
GBB1690HDG	M16 x 90*	20	17	13	43	36	43	35
GBB20110HDG	M20 x 110*	10	22	21	56	44	56	48
GBB24130HDG	M24 x 130*	5	26	21	66	53	64	60

* = We strongly recommend the use of our installation gauges when installing these bolts!

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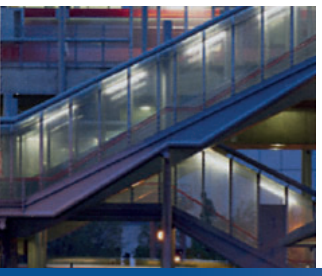

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BLIND BOLT

High Tensile Geomet 500B - Blind Bolt - Design to BS 5950-1

Diameter	Tension Capacity P_t (kN)	Shear Capacity Over Thread P_s, thread (kN)	Shear Capacity Over Slot P_s, slot (kN)	Bearing Capacity in 10mm Plate S275 P_b (kN)	Bearing Capacity in 10mm Plate S355 P_b (kN)	Recommended Tightening Torque (Nm)
M8	9.8	14.6	7.9	20.7	24.8	15
M10	14.1	23.2	15.8	27.6	33.0	24
M12	22.4	33.7	22.0	32.2	38.5	30
M14	34.8	46.0	29.0	36.8	44.0	34
M16	38.8	62.7	43.0	46.0	55.0	50
M20	71.4	97.9	63.4	55.2	66.0	65
M24	116.7	141.0	87.8	64.4	77.0	75
M30	174.5	224.0	137.2	80.5	96.3	85

These values are suitable for design to BS 5950-1 and can be used without further reduction for comparison to factored loads. Bearing resistances for different plate thicknesses can be calculated by scaling the values in proportion to the thickness, but should only be used where the distance from the centre line of the hole to the end of the plate is greater than 2*d*.

Combined tension and shear should satisfy the following equation:

$$\frac{F_s}{P_s} + \frac{F_t}{P_t} \leq 1.4$$

Important Note: The above tension resistances make no allowance for the deformation or yield of the connected parts. An appropriate design model for connections in hollow sections can be found in Joints in Steel Construction: Simple Connections

High Tensile Geomet 500B Blind Bolt - Design to BS EN 1993-1-8

Diameter	Tension Resistance $F_{t,Rd}$ (kN)	Shear Resistance Over Thread $F_{v,Rd}$ thread (kN)	Shear Resistance Over Slot $F_{v,Rd}$ slot (kN)	Bearing Resistance in 10mm Plate S275 $F_{b,Rd}$ (kN)	Bearing Resistance in 10mm Plate S355 $F_{b,Rd}$ (kN)	Recommended Tightening Torque (Nm)
M8	9.8	14.6	9.1	65.6	75.2	15
M10	14.1	23.2	19.0	82.0	94.0	24
M12	22.4	33.7	26.4	98.4	112.8	30
M14	34.8	46.7	29.0	114.8	131.6	34
M16	38.8	62.7	49.1	131.2	150.4	50
M20	71.4	97.9	76.1	164.0	188.0	65
M24	116.7	141.0	105.4	196.8	225.6	75
M30	174.5	224.0	164.6	246.0	282.0	85

These are design values for use with BS EN 1993-1-8, and a partial safety factor of γ_{M2} = 1.25 has already been applied.
Bearing resistances should be calculated from BS EN 1993-1-8, Table 3.4, taking *d* as the nominal diameter of the bolt.

These design resistances are suitable for design to BS EN 1993 and can be compared directly with design loads. The quoted bearing resistances assume k_1 = 2.5 and α_b = 1.0. For different arrangements the bearing resistance should be calculated using the expression in Table 3.4 of BS EN 1993-1-8, with *d* as the nominal diameter of the blind bolt.

Combined tension and shear should satisfysatisfy the following equation:

$$\frac{F_{v,Ed}}{F_{v,Rd}} + \frac{F_{t,Ed}}{1.4F_{t,Rd}} \leq 1.0$$

Important Note: The above tension resistances make no allowance for the deformation or yield of the connected parts. An appropriate design model for connections in hollow sections can be found in Joints in Steel Construction: Simple Connections

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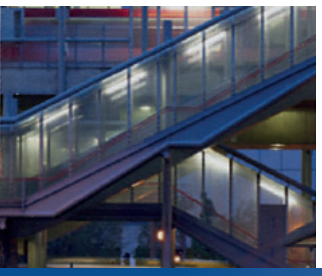

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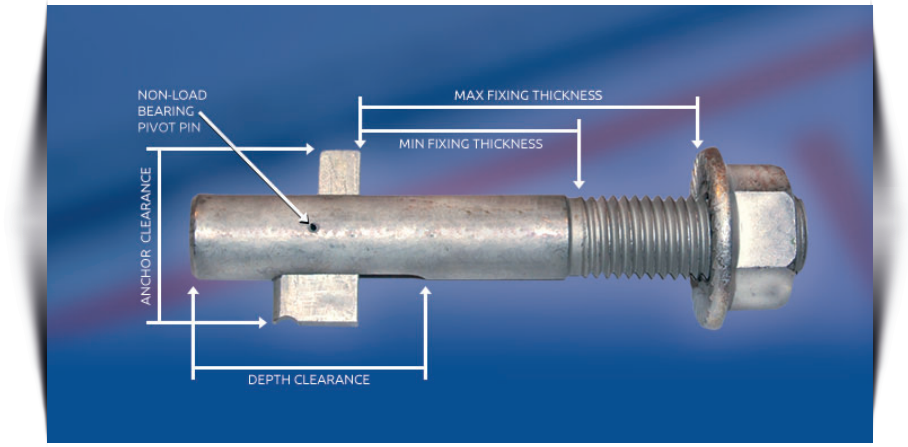
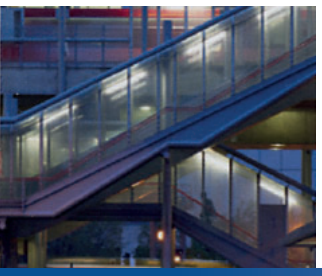
BLIND BOLT

Blind Bolt Product Specification
Stainless Steel A4-70

Product Code	Bolt Size	Box Qty	Hole Diameter	Fixing Thickness Min	Fixing Thickness Max	Anchor Clearance	Depth Clearance	Minimum Hole Centres
BB0850A4ASM	M8 x 50	50	9	9	24	19	25	20
BB1060A4ASM	M10 x 60	40	11	10	30	23	30	20
BB1290A4ASM	M12 x 90	20	13	12	55	26	35	25
GBB16100A4ASM*	M16 x 100*	20	17	13	53	36	43	35

* = We strongly recommend the use of our installation gauges when installing these bolts!





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BLIND BOLT

Stainless Steel Blind Bolt Design to BS 5950

Diameter	Tension Capacity P_t (kN)	Shear Capacity Over Thread P_s, thread (kN)	Shear Capacity Over Slot P_s, slot (kN)	Bearing Capacity in 10mm Plate S275 P_b (kN)	Bearing Capacity in 10mm Plate S355 P_b (kN)	Recommended Tightening Torque (Nm)
M8	5.3	10.3	6.5	20.7	24.8	15
M10	12.7	16.2	11.1	27.6	33.0	22
M12	21.4	23.6	15.4	32.2	38.5	28
M16	42.8	44.0	30.1	46.0	55.0	45

These capacities are suitable for design to BS 5950-1 and can be compared directly with factored loads. Bearing resistances for different thicknesses can be calculated by scaling the values given in proportion to the thickness, but should only be used when the end distance is greater than 2*d*.

Bolts subject to combined tension and shear should satisfy the following expression: $\frac{F_s}{P_s} + \frac{F_t}{P_t} \leq 1.4$

Important Note: The above tension resistances make no allowance for the deformation or yield of the connected parts. An appropriate design model for connections in hollow sections can be found in Joints in Steel Construction: Simple Connections

Stainless Steel Blind Bolt Design to BS EN 1993-1-8

Diameter	Tension Capacity $F_{t,Rd}$ (kN)	Shear Resistance Over Thread $F_{v,Rd}$ thread (kN)	Shear Capacity Over Slot $F_{v,Rd}$ slot (kN)	Bearing Capacity in 10mm Plate S275 $F_{b,Rd}$ (kN)	Bearing Capacity in 10mm Plate S355 $F_{b,Rd}$ (kN)	Recommended Tightening Torque (Nm)
M8	5.3	12.3	7.8	65.6	75.2	15
M10	12.7	19.5	13.3	82.0	94.0	22
M12	22.0	28.3	18.4	98.4	112.8	28
M16	42.9	52.8	36.1	131.2	150.4	45

These design resistances are suitable for design to BS EN 1993 and can be compared directly with design loads. The quoted bearing resistances assume $k_1 = 2.5$ and $\alpha_b = 1.0$. For different arrangements the bearing resistance should be calculated using the expression in Table 3.4 of BS EN 1993-1-8, with *d* as the nominal diameter of the blind bolt.

Bolts subject to combined tension and shear should satisfy the following expression: $\frac{F_{v,Ed}}{F_{v,Rd}} + \frac{F_{t,Ed}}{1.4F_{t,Rd}} \leq 1.0$

Important Note: The above tension resistances make no allowance for the deformation or yield of the connected parts. An appropriate design model for connections in hollow sections can be found in Joints in Steel Construction: Simple Connections

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