Non Pre-load Bolt Assemblies
BS EN 15048 - 1 & 2

CE

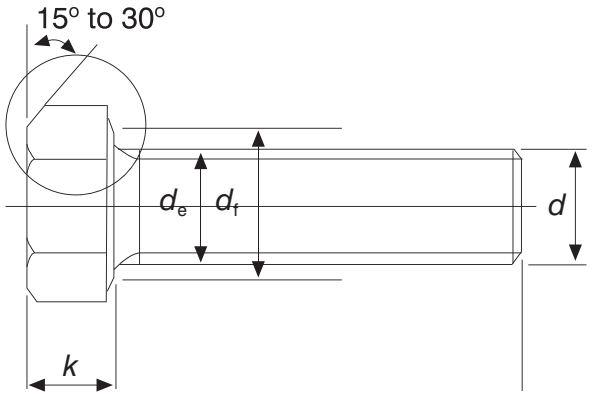
EN15048-1
Cert No:
0038/CPR/4006773/C

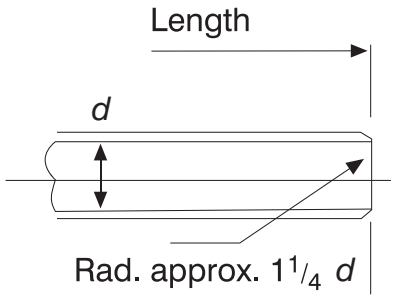
BAPP
Group of Companies

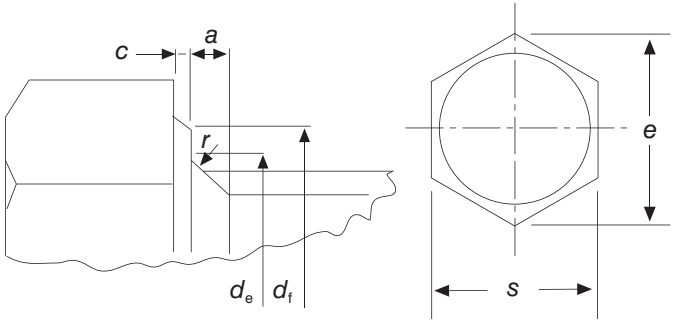
Non Pre-Load Bolt Assemblies SB

BS EN 15048-1 & 2:2007

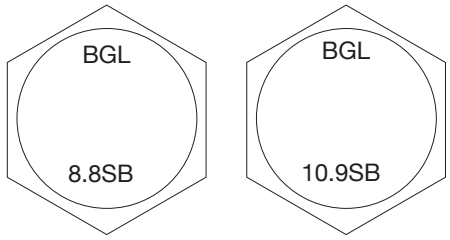
ISO 4017 Setscrew Dimensions. Classes 8.8SB & 10.9SB												
Nominal Size and Thread Dia. *d*	Pitch of Thread *p*	Plain Portion *a*	Width Across Flats *s*		Width Across Corners *e*	Diameter of Washer Face d_f	Depth of Washer Face *c*		Radius Under Head *r*	Transition Diameter d_e	Thickness of Head *k*	
	(coarse pitch series)	max.	max.	min.	min.	min.	max.	min.	min.	max.	max.	min.
M12	1.75	5.30	18.00	17.57	19.85	16.47	0.60	0.15	0.60	13.70	7.68	7.32
M16	2.00	6.00	24.00	23.16	26.17	22.00	0.80	0.20	0.60	17.70	10.29	9.71
M20	2.50	7.50	30.00	29.16	32.95	27.70	0.80	0.20	0.80	22.40	12.85	12.15
M24	3.00	9.00	36.00	35.00	39.55	33.25	0.80	0.20	0.80	26.40	15.35	14.65
M30	3.50	10.50	46.00	45.00	50.85	42.75	0.80	0.20	1.00	33.40	19.12	18.28
M36	4.00	12.00	55.00	53.80	60.79	51.11	0.80	0.20	1.00	39.40	22.92	22.08







BS EN 15048 Head Marking



Material		**Steel**
General Req.	International Standard	ISO 8992
Thread	Tolerance Class	6g
	International Standards	ISO 724, ISO 965-1
Mechanical Properties	Property class[a]	8.8SB or 10.9SB
	International Standards	ISO 898-1
Tolerances	Product grade	$d \leq 24$ mm and $l \leq 10\,d$ or 150 mm[a]: A $d > 24$ mm or $l > 10\,d$ or 150 mm[a]: B
	International Standard	ISO 4759-1
Finish - Coating		As Processed Requirements for electroplating are specified in ISO 4042. Requirements for hot dip galvanized coatings are specified in ISO 10684. Additional requirements or other finishes or coatings shall be agreed between the supplier and the purchaser.
Surface integrity		Limits for surface discontinuities are specified in ISO 6157-1.
Acceptability		Acceptance inspection is specified in ISO 3269.

[a] Whichever is the shorter.

ISO 4017 Setscrew Mechanical Properties. Class 8.8SB					
Bolt Thread Dia	Tensile Strength	Proof Load	Elongation	Hardness Rockwell HRC	
	N/mm² min.	N/mm² min.	% min.	min.	max.
M12	830.00	660.00	12.00	23.00	34.00
M16	830.00	660.00	12.00	23.00	34.00
M20	830.00	660.00	12.00	23.00	34.00
M22	830.00	660.00	12.00	23.00	34.00
M24	830.00	660.00	12.00	23.00	34.00
M27	830.00	660.00	12.00	23.00	34.00
M30	830.00	660.00	12.00	23.00	34.00
M36	830.00	660.00	12.00	23.00	34.00
BS EN 15048 Assemblies also require a Charpy Impact Test to ISO 148-1					

IMPORTANT NOTE

It is a requirement of BS EN 15048 that the bolt, nut and washer assembly is supplied by one manufacturer who is responsible for the function of the assembly. All the components are identified with the manufacturer's mark. The coating of the assembly is under the control of the manufacturer.

ISO 4032 Nut Dimensions. Classes 8SB & 10SB

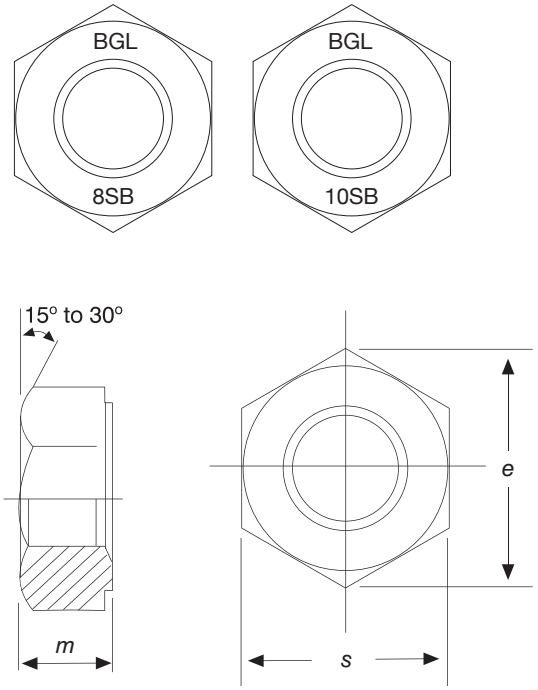
Nominal Size and Thread Dia. *d*	Pitch of Thread *p*	Width Across Flats *s*		Width Across Corners *e*	Thickness of Nut *m*	
		max.	min.	min.	max.	min.
M12	1.75	18.00	17.73	20.03	10.80	10.37
M16	2.00	24.00	23.67	26.75	14.80	14.10
M20	2.50	30.00	29.16	32.95	18.00	16.90
M24	3.00	36.00	35.00	39.55	21.50	20.20
M30	3.50	46.00	45.00	50.85	25.60	24.30
M36	4.00	55.00	53.80	60.79	31.00	29.40

Material		**Steel**
General Requirements	International Standard	ISO 8992
Thread	Tolerance Class	6H
	International Standards	ISO 724, ISO 965-1
Mechanical Properties	Property Class	8SB or 10SB
	International Standards	ISO 898-2
Tolerances	Product grade	*D* ≤ M16: A *D* > M16: B
	International Standard	ISO 4759-1
Finish - Coating		As Processed Requirements for electroplating are specified in ISO 4042. Requirements for hot dip galvanized coatings are specified in ISO 10684. Additional requirements or other finishes or coatings shall be agreed between the supplier & the purchaser.
Surface integrity		Limits for surface discontinuities are specified in ISO 6157-2.
Acceptability		Acceptance inspection is specified in ISO 3269.

ISO 4032 Nut Proof Loads. Classes 8SB & 10SB

Nut Thread Diameter	Proof Load (KN)	
	8SB	10SB
M12	74.2	88.5
M16	138.2	164.9
M20	225.4	259.7
M24	324.8	374.2
M30	516.1	594.7
M36	751.6	866.0

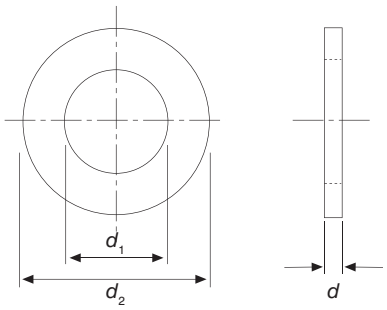
BS EN 15048 Head Marking



ISO 7091 Washer Dimensions (100 HV Min.)

Nominal Size of Bolt or Screw	Inside Diameter d_1		Outside Diameter d_2		Thickness *h*	
	max	min	max	min	max	min
M12	13.93	13.50	24.00	22.70	2.80	2.20
M16	17.93	17.50	30.00	28.70	3.60	2.40
M20	22.52	22.00	37.00	35.40	3.60	2.40
M24	26.52	26.00	44.00	42.40	4.60	3.40
M30	33.62	33.00	56.00	54.10	4.60	3.40
M36	40.00	39.00	66.00	64.10	6.00	4.00

Material		**Steel**
Mechanical Properties	Hardness Class	100 HV
	Hardness range	100 HV to 200 HV
Tolerances	Product grade	C
	International Standard	ISO 4759-3
Finish - Coating		As Processed Requirements for electroplating are specified in ISO 4042. Requirements for hot dip galvanized coatings are specified in ISO 10684. Additional requirements or other finishes or coatings shall be agreed between the supplier and the purchaser.
Workmanship		Parts shall be free of irregularities or detrimental defects. No protruding burrs shall appear on the washer.
Acceptability		Acceptance procedure covered in ISO 3269.



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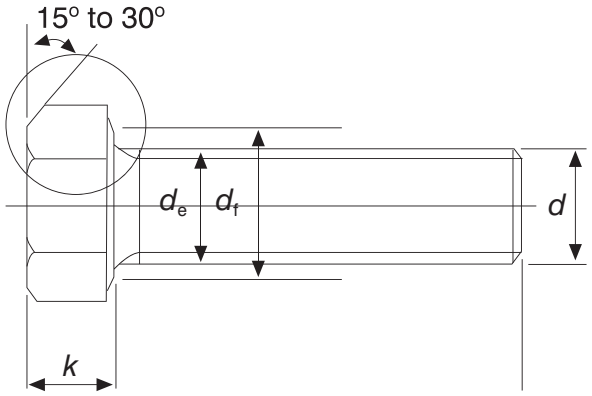
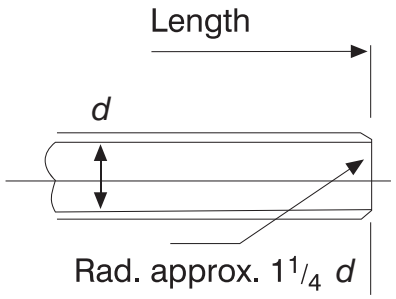
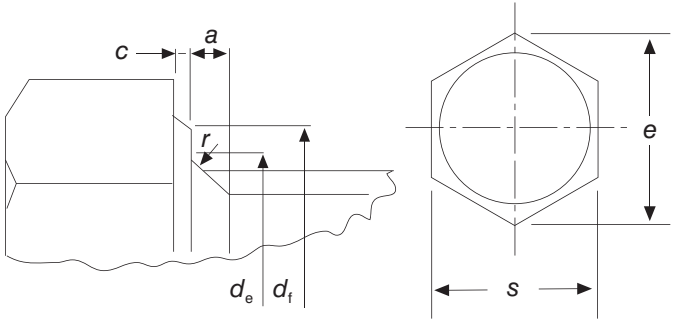
Non Pre-Load Bolt Assemblies SB

BS EN 15048-1 & 2:2007

ISO 4017 Setscrew Dimensions. Class A4-80SB												
Nominal Size and Thread Dia. *d*	Pitch of Thread *p*	Plain Portion *a*	Width Across Flats *s*		Width Across Corners *e*	Diameter of Washer Face d_f	Depth of Washer Face *c*		Radius Under Head *r*	Transition Diameter d_e	Thickness of Head *k*	
	(coarse pitch series)	max.	max.	min.	min.	min.	max.	min.	min.	max.	max.	min.
M12	1.75	5.25	18.00	17.57	19.85	16.47	0.60	0.15	0.60	13.70	7.68	7.32
M16	2.00	6.00	24.00	23.16	26.17	22.00	0.80	0.20	0.60	17.70	10.29	9.71
M20	2.50	7.50	30.00	29.16	32.95	27.70	0.80	0.20	0.80	22.40	12.85	12.15
M24	3.00	9.00	36.00	35.00	39.55	33.25	0.80	0.20	0.80	26.40	15.35	14.65
M30	3.50	10.50	46.00	45.00	50.85	42.75	0.80	0.20	1.00	33.40	19.12	18.28
M36	4.00	12.00	55.00	53.80	60.79	51.11	0.80	0.20	1.00	39.40	22.92	22.08







BS EN 15048 Head Marking

Material		**Stainless Steel**
General Requirements	International Standard	ISO 8992
Thread	Tolerance Class	6g
	International Standards	ISO 724, ISO 965-1
Mechanical Properties	Property Class	A4-80SB
	International Standards	ISO 3506-1
Tolerances	Product grade	$d \leq 24$ mm and $l \leq 10\,d$ or 150 mm[a]: A $d > 24$ mm or $l > 10\,d$ or 150 mm[a]: B
	International Standard	ISO 4759-1
Finish - Coating		Clean and Bright
Acceptability		Acceptance inspection is specified in ISO 3269.

[a] Whichever is the shorter.

ISO 4017 Setscrew Mechanical Properties. Class A4-80SB			
Bolt Thread Dia. *d*	Tensile Strength	Stress at 0.2% Permanent Strain	Elongation After Fracture
	MPa min.	MPa min.	mm min.
M12	800.00	600.00	0.3*d*
M16	800.00	600.00	0.3*d*
M20	800.00	600.00	0.3*d*
M22	800.00	600.00	0.3*d*
M24	800.00	600.00	0.3*d*
M27	800.00	600.00	0.3*d*
M30	800.00	600.00	0.3*d*
M36	800.00	600.00	0.3*d*
BS EN 15048 Assemblies also require a Charpy Impact Test to ISO 148-1			

IMPORTANT NOTE

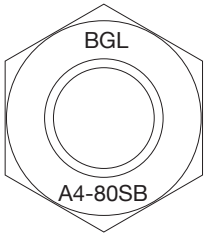
It is a requirement of BS EN 15048 that the bolt and nut assembly is supplied by one manufacturer who is responsible for the function of the assembly. All the components are identified with the manufacturer's mark. The coating of the assembly is under the control of the manufacturer.

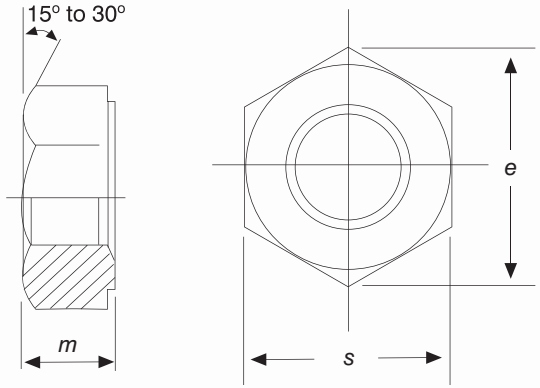
ISO 4032 Nut Dimensions. Class A4-80SB						
Nominal Size and Thread Diameter *d*	Pitch of Thread *p*	Width Across Flats *s*		Width Across Corners *e*	Thickness of Nut *m*	
		max.	min.	min.	max.	min.
M12	1.75	18.00	17.73	20.03	10.80	10.37
M16	2.00	24.00	23.67	26.75	14.80	14.10
M20	2.50	30.00	29.16	32.95	18.00	16.90
M24	3.00	36.00	35.00	39.55	21.50	20.20
M30	3.50	46.00	45.00	50.85	25.60	24.30
M36	4.00	55.00	53.80	60.79	31.00	29.40

ISO 4032 Nut Proof Loads. Class A4-80SB	
Nut Thread Dia.	Property Class
	A4-80SB
	MPa Min.
M12	800
M16	800
M20	800
M24	800
M30	800
M36	800

Material		**Stainless Steel**
General Requirements	International Standard	ISO 8992
Thread	Tolerance Class	6h
	International Standards	ISO 724, ISO 965-1
Mechanical Properties	Property Class	A4-80SB
	International Standards	ISO 3506-2
Tolerances	Product grade	*D* ≤ M16: A *D* > M16: B
	International Standard	ISO 4759-1
Finish - Coating		Clean and Bright A method for passivation is specified in ISO 16048.
Acceptability		Acceptance inspection is specified in ISO 3269.

BS EN 15048
Nut Markings





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