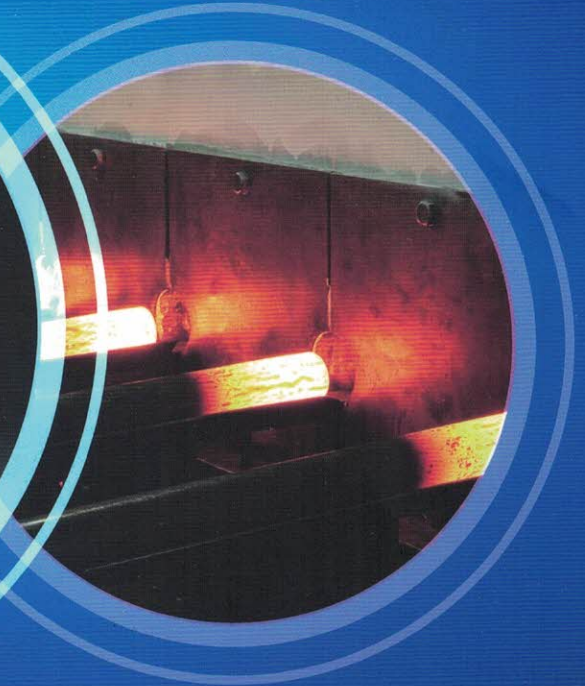


KS / ISO 인증업체

YOUNGSAN BOLT



품질과 기술로 앞서가는

주식회사 영산볼트

YOUNGSAN BOLT CO., LTD.

Greetings

인사말씀

항상 더 나은 제품과 서비스로
귀사와 함께 발전하는
기업이 되도록 노력하겠습니다.



대표이사 박재철

안녕하십니까

항상 저희 (주)영산볼트를 아끼고 도와 주시어 대단히 감사합니다.
저희 (주)영산볼트는 1990년 창업 이래 열간볼트만을 전문 생산
하여 왔음에 자부심을 갖습니다.

그간 귀사에 좀더 가까이 가기 위하여 원가 절감의 노력은 물론
더 좋은 제품을 생산하기 위해 품질 향상에 전력을 다 했습니다.
2006년 8월 ISO 9001인증과

2015년 4월 KS 인증을 받았습니다.

또한 그동안 성실을 바탕으로 국제청장 상을 3회 수상하였으며
우리은행으로부터 우량 중소기업으로 선정되었습니다.

이는 고객사 여러분의 많은 사랑과 협조하에 이룬 결과임을
다시한번 진심으로 감사의 말씀을 드립니다.

귀사가 필요로 하실때는 언제든지 옆에 있을것이며 귀사의 고견을
경청, 반영하겠습니다.

귀사의 많은 발전과 귀사 가족 여러분의 건강과 행운을 기원합니다.

감사합니다.

We are awlays appreciate for your continous support.

We are proud that we have been producing hot forging bolt and
dedicating to producing high
quality products with the competitive price through our internal
cost innovation since 1990.

To have more efficient quality and management control, we acquired
ISO 9001 certificate in August of 2006, and KS certification in April
of 2015.

We were awarded as the best tax payer company from Korea national
tax office and also as the best prominent small and medium sized
enterprise.

None of the our achivements could have ever been possible without
the co-operation and support of all of our valuable customers.

We will work with you as your business partner as we can do, and
always collect your opinion and reflect it to our business.

We sincerely hope you have great success and luck with your family.

Thank you

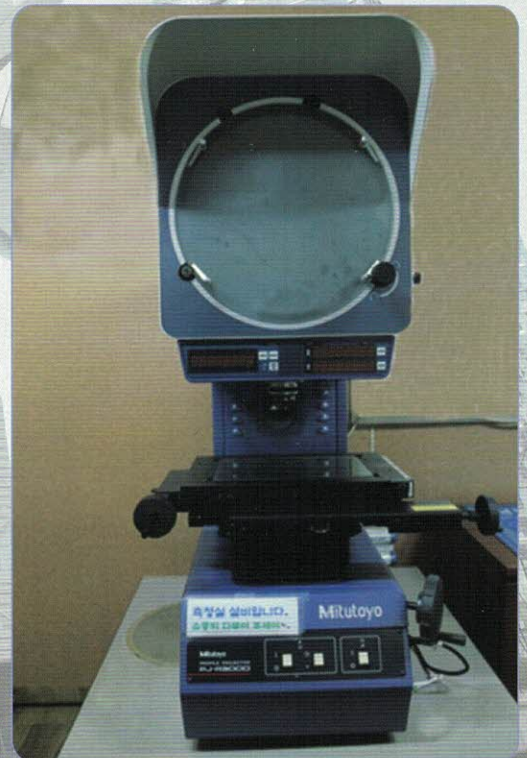


회사연혁

- 1990.07.01 영산볼트공업 설립/서울 구로구 구로5동 557-23
- 1995.04.30 인천남동공단으로 공장 이전/ 인천 남동구 논현동 436-8
현대자동차(주)/기아자동차(주) 1차 협력업체 등록
- 1997.05.01 반월공단으로 건물, 대지 구입 증축이전(현, 반월공단 3블럭12롯트)
- 2000.05.16 품질인증시스템 ISO 9002(QA-Q00907) 획득, 열간단조(볼트) KSS1503:14
- 2000.08.31 유망중소기업 선정
- 2001.03.03 우수모범납세자 표창장(제31366호) 수상
- 2002.11.12 품질인증시스템 ISO 9001(QA-Q00907) 전환승인
- 2002.04.22 한국산업기술대학교(신소재공학과) 가족회사 등록
- 2003.06.30 기업신용등급 인증 신용등급 "A"등급 판정
- 2004.09.24 부품.소재전문기업 제 1586호
- 2006.03.03 우수 모범납세자 표창장 (제 98호)
- 2008.03.02 우리나라 통계조사 표본사업체 지정
- 2010.03.03 우수 모범납세자 표창장 수상
- 2010.08.14 무재해 7배 목표달성 인증패(NO:201000998 및 깃발수령(2002.04.01~2010.05.19)
- 2010.12.08 클린사업장 인정
- 2011.08.22 모범 환경배출 업체 : 자율점검업소 지정(지정번호:제공단지도-322호)
(2011.08.22~2014.08.21)
- 2011.11.28 에버그린 기업환경인증서 : EvGn-M BC 002
- 2013.03.01 법인전환, 주식회사 영산볼트 설립
- 2014.07.25 에버그린 기업환경인증서 : EvGn-M BC 041
- 2014.09.18 모범 환경배출 업체 : 자율점검업소 재지정(지정번호:제공단지도-592호)
(2014.08.22~2019.08.21)
- 2015.04.15 6각 볼트 KS제품인증서 획득

History

- 01, Jul. 1990 Established at 557-23 Guro5dong Gurogu, Seoul as Youngsan bolt
- 30, Apr. 1995 Transferred to Namdong industrial complex in Incheon
Registered as the first supplier vender of Hyundai& Kia Auto group.
- 01, May. 1997 Expanded and moved to our own property in Banwol industrial complex in Ansan
- 16, May. 2000 Acquired ISO 9002 (QA-Q00907) Certificate for Hot rolled stamping (Bolt)
- 31, Aug. 2000 Nominated as the prominent small and medium sized enterprise from Woori bank
- 03, Mar. 2001 Awarded the 'best taxpayer company' from National tax office
- 12, Nov. 2002 Acquired ISO 9001 Certificate
- 22, Apr. 2002 Registered as the family member of Korea Polytechnic university
(Advanced material engineering)
- 30, June. 2003 Acquired A Grade by enterprise credit evaluation
- 24, Sep. 2004 Professional enterprise for Automotive in parts and new material section.
- 03, Mar. 2006 Awarded the 'best taxpayer company' from National tax office
- 03, Mar. 2006 Awarded the 'best taxpayer company' from National tax office
- 14, Aug. 2010 Achieve a sevenfold goal for uninjury record
- 08, Dec. 2010 Nominated as the Clean factory
- 22, Aug. 2011 Nominated as the exemplary environment exhaustion company
(2011.08~22~2014.08.21)
- 28, Nov. 2011 Acquired the Evergreen environment certificate
- 01, Mar. 2013 Conversion to a corporation
- 25, Jul. 2014 Acquired Evergreen environment company certificate
- 18, Sep. 2014 Nominated as the exemplary environment exhaustion company
(2014.08.22~2019.08.21)
- 15, Apr. 2015 Acquired KS certificate for Hexagon head bolt.



1. 로크웰경도기
Rockwell Hardness Tester
2. 투영기
Projector
3. 금속현미경
Metallographic Microscope
4. 만능재료시험기
Universal testing machine
5. 샤르피 충격시험기
Charpy Impact Tester



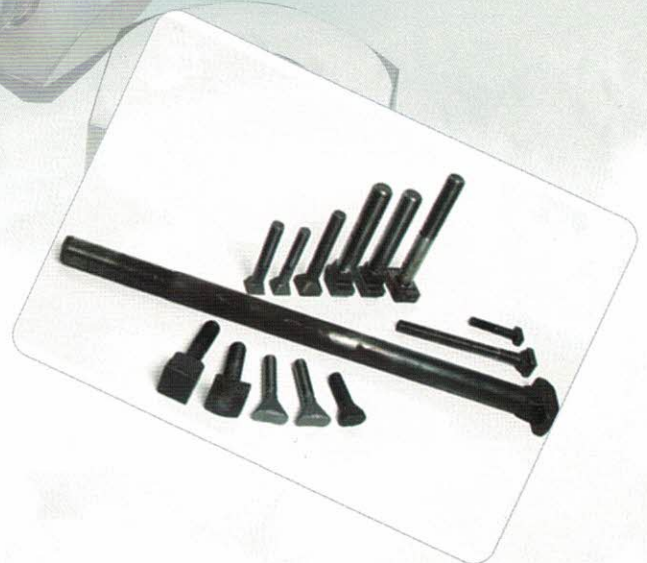
품명 : Hexagon Head Bolts &
Heavy Hex Head Bolts
강도 : 4.8, 8.8, 10.9, 12.9/B7, B8, A325, A490
재질 : S20C, S45C, 51B20, SCM440, SUS304, SUS316
규격 : Dia : M10 ~ M100
Length : 50mm ~ 1,000mm



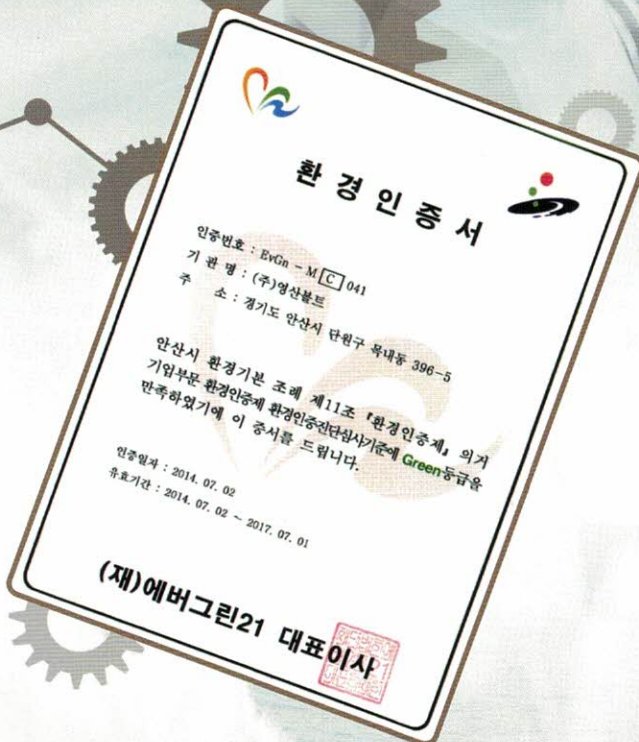
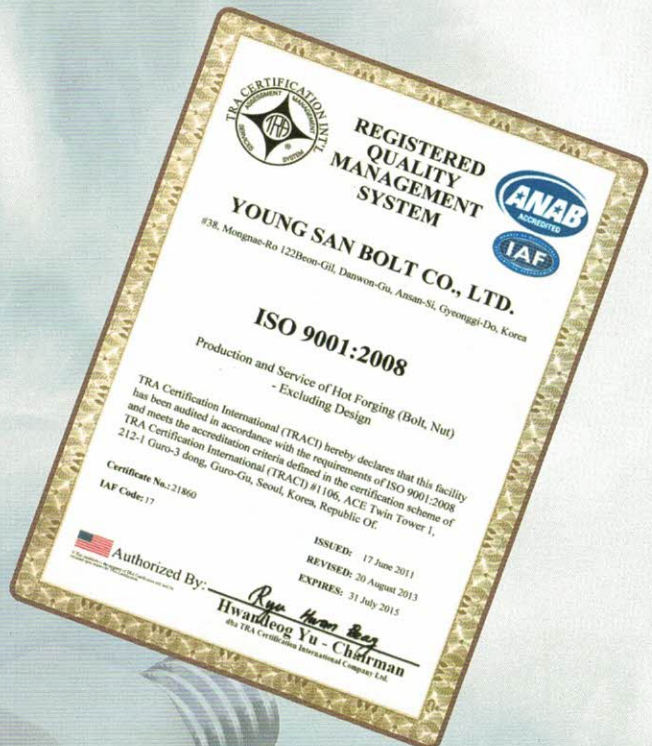
품명 : Pin Bolts
강도 : 10.9, 12.9
재질 : SCM440
규격 : Dia : M16 ~ M100
Length : 50mm ~ 1,000mm



품명 : Hexagon Socket Head bolts
강도 : 8.8, 10.9, 12.9
재질 : SCM440, SNCM5, SNCM8, SUS304
규격 : Dia : M16 ~ M100
Length : 50mm ~ 1,000mm



품명 : Square Head bolts &
강도 : 8.8, 10.9, 12.9
재질 : S20C, S45C, 51B20, SCM440,
SUS304, SUS316
규격 : Dia : M16 ~ M100
Length : 50mm ~ 1,000mm

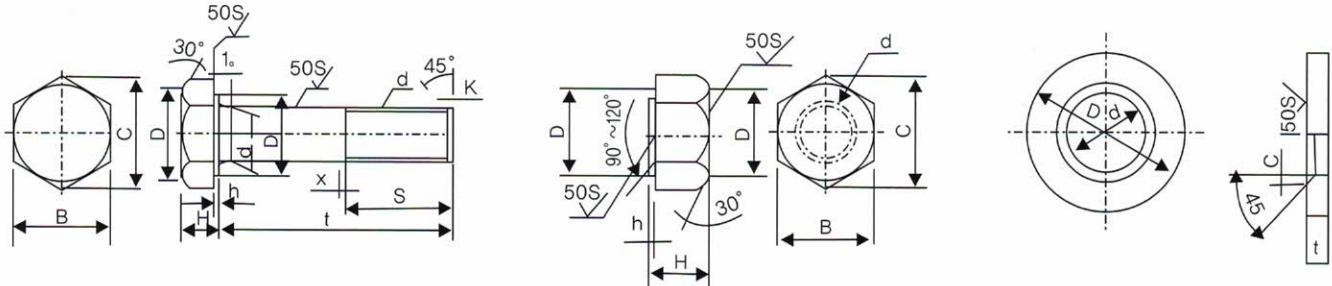


Friction Grip Type High Strength Hex Bolt, Nut, Washer Set



주식회사 영산볼트
YOUNGSAN BOLT CO., LTD.

마찰 접합용 고장력 육각 볼트 세트



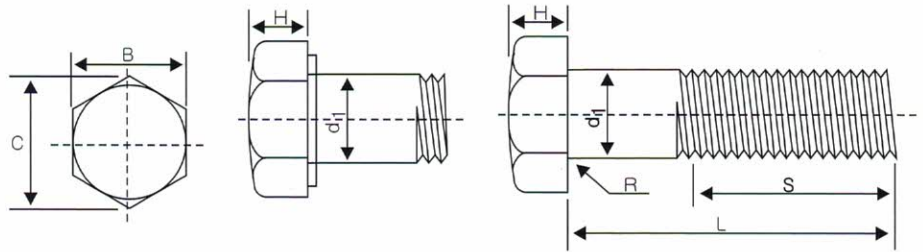
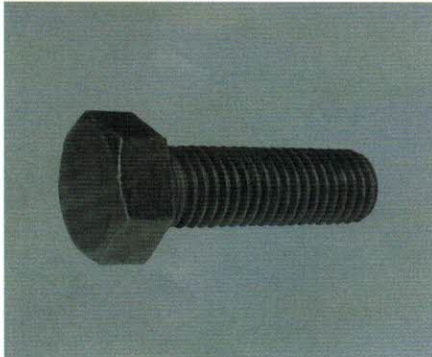
Dimension(KS B 1010/JIS B 1186)

Unit : mm

Nominal size of thread d x P	Bolt									Nut						Washer				
	d1	H	B	C app.	D app.	D1 min.	r	h	S	H	B	C app.	D app.	D1 min.	h	d	D	t	C app.	
M12 x 1,75	12	8	22	25,4	20	20	0,8~1,6	0,4	25	12	22	25,4	20	20	0,4	13	26	3,2	1,5	
M16 x 2,0	16	10	27	31,2	25	25	1,2~2,0		30	16	27	31,2	25	25		17	32	4,5		
M20 x 2,5	20	13	32	37	30	29			35	20	32	37	30	29		21	40		2,0	
M22 x 2,5	22	14	36	41,6	34	33	1,6~2,4	0,8	40	22	36	41,6	34	33	~	23	44	6,0		2,4
M24 x 3,0	24	15	41	47,3	39	38			45	24	41	47,3	39	38		25	48			
M27 x 3,0	27	17	46	53,1	44	43			50	27	46	53,1	44	43		28	56			
M30 x 3,5	30	19	50	57,7	48	47	2,0~2,8		55	30	50	57,7	48	47		31	60	8,0	2,8	

Mechanical Properties(KS B 1010/JIS B 1186)

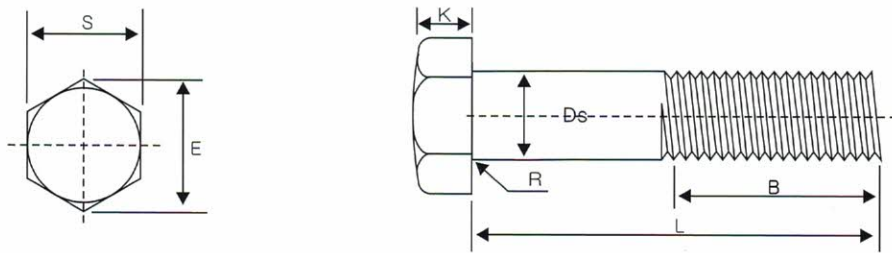
Bolt													Nut			Washer	
Class	Yielding Strength	Tensile Strength	Elongation	Reduction ratio in area	Hardness	Minimum Tensile Load(KN)							Class	Hardness	Proof Load	Class	Hardness
						Size											
	N/mm²	N/mm²	%	%	HRC	M12	M16	M20	M22	M24	M27	M30					
F8T	640 over	800 ~ 1,000	16 over	45 over	18~31	67	125	196	243	282	367	449	F8	HRB 85 ~ HRB 100	Same as minimum tensile load of bolt	F35	HRC 35 ~ HRC 45
F10T	900 over	1,000 ~ 1,200	14 over	40 over	27~38	84	157	245	303	353	459	561	F10	HRB 95 ~ HRC 35			
F13T	1,170 over	1,300 ~ 1,500	12 over	35 over	40~45	110	204	318	394	458	596	730	F13	HRC 30 ~ HRC 40			



KS B1002, JIS B1180

(Unit : mm)

BOLT Dia and Pitch		Basic	d1			H			B			C	R	S					
Coarse	Fine		Tolerance			Basic	Tolerance			Basic	Tolerance			App	Min	L ≤ 200	125 < L ≤ 200	L > 200	
			Fin	Semi Fin	Regu		Fin	Semi Fin	Regu		Fin	Semi Fin	Regu						
M6x1	—	6	0 -0.1	0 -0.2	+0.6 -0.15	4	± 0.15	± 0.25	± 0.6	10	0 -0.2	0 -0.6	0 -0.6	11.50	0.25	18	—	—	
M8x1,25	M8x1	8	0 -0.15	0 -0.2	+0.7 -0.2	5.5	± 0.2	± 0.3	± 0.8	13	0	0	0	15.00	0.4	22	—	—	
M10x1,5	M10x1,25	10	0 -0.2	0 -0.25	+0.9 -0.2	7				17	-0.25	-0.7	-0.7	19.60	0.4	26	—	—	
M12x1,75	M12x1,25	12				8				19	0 -0.35	0 -0.8	0 -0.8	21.90	0.6	30	36	—	
(M14x2,0)	(M14x1,25)	14				9				22				25.40	0.6	34	40	—	
M16x2	M16x1,5	16				10				24				27.70	0.6	38	44	—	
(M18x2,5)	(M18x1,5)	18				12	± 0.35	± 0.9	± 1.0	27	0 -0.4	0 -1.0	0 -1.0	31.20	0.6	42	48	—	
M20x2,5	M20x1,5	20	0 -0.25	0 -0.4	+1.2 -0.4	13				30				34.60	0.8	46	52	—	
(M22x2,5)	(M22x1,5)	22				14				30				37.00	0.8	50	56	—	
M24x3	M24x2	24				15				36				41.60	0.8	54	60	—	
(M27x3)	(M27x2)	27				17	± 0.25	± 0.4	± 1	41	0 -0.45	0 -1.2	0 -1.2	47.30	1	60	66	79	
M30x3,5	M30x2	30	0 -0.25	0 -0.4	+1.2 -0.7	19				46				53.10	1	66	72	85	
(M33x3,5)	(M33x2)	33				21				50				57.70	1	72	78	91	
M36x4	M36x3	36				23				55				63.50	1	78	84	97	
(M39x4)	(M39x3)	39				25	± 0.3	± 0.5	—	60	0 -0.55	0 -1.4	—	69.30	1	84	90	103	
M42x4,5	—	42	0 -0.3	0 -0.45	—	26				65				75.00	1.2	90	96	109	
(M45x4,5)	—	45				28				70				80.80	1.2	96	102	115	
M48x5	—	48				30				75				86.50	1.6	102	108	121	
(M52x5)	—	52				33	± 0.3	± 0.5	—	80				92.40	1.6	—	116	129	
M56x5,5	—	56	0 -0.3	0 -0.45	—	35				85	0 -0.55	0 -1.4	—	98.10	2	—	124	137	
(M60x5,5)	—	60				38				90				104	2	—	132	145	
M64x6	—	64				40				95				110	2	—	140	153	
(M68x6)	—	68				43				100				115	2	—	148	161	
—	M72x6	72	0 -0.3	0 -0.45	—	45	± 0.3	± 0.5	—	105	0 -0.55	0 -1.4	—	121	2	—	156	169	
—	(M76x6)	76				48				110				127	2	—	164	177	
—	(M80x6)	80				50				115				133	2	—	172	185	



ANSI B18.2.3.5M

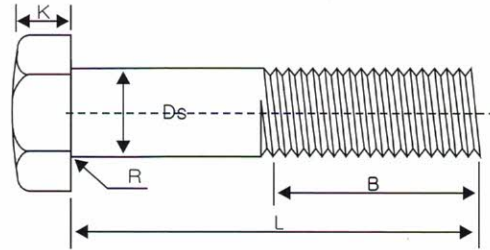
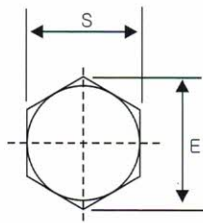
(Unit : mm)

Nominal Bolt Dia and Thread Pitch	Ds		S		E		K		R	B		
	Body Dia		Width Across Flats		Width Across Corners		Head Height		Radius of Fillet	Thread Length(Basic)		
										Bolt Lengths ≤125	Bolt Lengths >125 and ≤200	Bolt Lengths >200
M5x0.8	5.48	4.52	8.00	7.64	9.24	8.63	3.88	3.35	0.2	16	22	35
M6x1	6.19	5.52	10.00	9.64	11.55	10.89	4.38	3.85	0.3	18	24	37
M8x1.25	8.58	7.42	13.00	12.57	15.01	14.20	5.68	5.10	0.4	22	28	41
M10x1.5	10.58	9.42	16.00	15.57	18.48	17.59	6.85	6.17	0.4	26	32	45
M12x1.75	12.70	11.30	18.00	17.57	20.78	19.85	7.95	7.24	0.6	30	36	49
M14x2	14.70	13.30	21.00	20.16	24.25	22.78	9.25	8.51	0.6	34	40	53
M16x2	16.70	15.30	24.00	23.16	27.71	26.17	10.75	9.68	0.6	38	44	57
M20x2.5	20.84	19.16	30.00	29.16	34.64	32.95	13.40	12.12	0.8	46	52	65
M24x3	24.84	23.16	36.00	35.00	41.57	39.55	15.90	14.56	0.8	54	60	73
M30x3.5	30.84	29.16	46.00	45.00	53.12	50.55	19.75	17.92	1.0	66	72	85
M36x4	37.00	35.00	55.00	53.80	63.51	60.79	23.55	21.62	1.0	78	84	97
M42x4.5	43.00	41.00	65.00	62.90	75.06	71.71	27.05	25.03	1.2	90	96	109
M48x5	49.00	47.00	75.00	72.60	86.60	82.76	31.07	28.93	1.5	102	108	121
M56x5.5	57.20	54.80	85.00	82.20	98.15	93.71	36.20	33.80	2.0	—	124	137
M64x6	65.52	62.80	95.00	91.80	109.70	104.65	41.32	38.68	2.0	—	140	153
M72x6	73.84	70.80	105.00	101.40	121.24	115.60	46.45	43.55	2.0	—	156	169
M80x6	82.16	78.80	115.00	111.00	132.79	126.54	51.58	48.42	2.0	—	172	185
M90x6	92.48	88.60	130.00	125.50	150.11	143.07	57.74	54.26	2.0	—	192	205
M100x6	102.80	98.60	145.00	140.00	167.43	159.60	63.90	60.10	2.5	—	212	225

ANSI B18.2.1

(Unit : mm)

Nominal Size and Thread Pitch	Ds		S		E		K		R		B		
	Body Dia		Width Across Flats		Width Across Corners		Height		Radius of Fillet		Thread Length		
											Bolt Lengths ≤6 in	Bolt Lengths >6 in	
1/4 0.2500	0.260	7/16	0.438	0.425	0.505	0.484	11/64	0.188	0.150	0.03	0.01	0.750	1.000
5/16 0.3125	0.324	1/2	0.500	0.484	0.577	0.552	7/32	0.235	0.195	0.03	0.01	0.875	1.125
3/8 0.3750	0.388	9/16	0.562	0.544	0.650	0.620	1/4	0.268	0.226	0.03	0.01	1.000	1.250
7/16 0.4375	0.452	5/8	0.625	0.603	0.722	0.687	19/64	0.316	0.272	0.03	0.01	1.125	1.375
1/2 0.5000	0.515	3/4	0.750	0.725	0.866	0.826	11/32	0.364	0.302	0.03	0.01	1.250	1.500
5/8 0.6250	0.642	15/16	0.938	0.906	1.083	1.033	27/64	0.444	0.378	0.06	0.02	1.500	1.750
3/4 0.7500	0.768	1-1/8	1.125	1.088	1.299	1.240	1/2	0.524	0.455	0.06	0.02	1.750	2.000
7/8 0.8750	0.895	1-5/16	1.312	1.269	1.516	1.447	37/64	0.604	0.531	0.06	0.02	2.000	2.250
1 1.0000	1.022	1-1/2	1.500	1.450	1.732	1.653	43/64	0.700	0.591	0.09	0.03	2.250	2.500
1-1/8 1.1250	1.149	1-11/16	1.688	1.631	1.949	1.859	3/4	0.780	0.658	0.09	0.03	2.500	2.750
1-1/4 1.2500	1.277	1-7/8	1.875	1.812	2.165	2.066	27/32	0.876	0.749	0.09	0.03	2.750	3.000
1-3/8 1.3750	1.404	2-1/16	2.062	1.994	2.382	2.273	29/32	0.940	0.810	0.09	0.03	3.000	3.250
1-1/2 1.5000	1.531	2-1/4	2.250	2.175	2.598	2.480	1	1.036	0.902	0.09	0.03	3.250	3.500
1-3/4 1.7500	1.785	2-5/8	2.625	2.538	3.031	2.893	1-5/32	1.196	1.054	0.12	0.04	3.750	4.000
2 2.0000	2.039	3	3.000	2.900	3.464	3.306	1-11/32	1.388	1.175	0.12	0.04	4.250	4.500
2-1/4 2.2500	2.305	3-3/8	3.375	3.262	3.897	3.719	1-1/2	1.548	1.327	0.19	0.06	4.750	5.000
2-1/2 2.5000	2.559	3-3/4	3.750	3.625	4.330	4.133	1-21/32	1.708	1.479	0.19	0.06	5.250	5.500
2-3/4 2.7500	2.827	4-1/8	4.125	3.988	4.763	4.546	1-13/16	1.869	1.632	0.19	0.06	5.750	6.000
3 3.0000	3.081	4-1/2	4.500	4.350	5.196	4.959	2	2.060	1.815	0.19	0.06	6.250	6.500
3-1/4 3.2500	3.335	4-7/8	4.875	4.712	5.629	5.376	2-3/16	2.251	1.936	0.19	0.06	6.750	7.000
3-1/2 3.5000	3.589	5-1/4	5.250	5.075	6.062	5.782	2-5/16	2.380	2.507	0.19	0.06	7.250	7.500
3-3/4 3.7500	3.858	5-5/8	5.625	5.437	6.495	6.198	2-1/2	2.572	2.241	0.19	0.06	7.750	8.000
4 4.0000	4.111	6	6.000	5.800	6.928	6.612	2-11/16	2.764	2.424	0.19	0.06	8.250	8.500



ANSI B18.2.3.6M

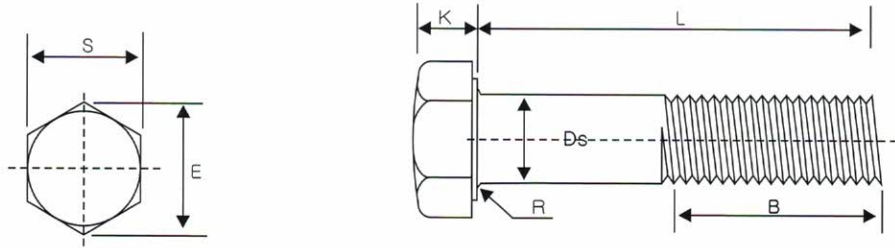
(Unit : mm)

Nominal Bolt Dia and Thread Pitch	Ds		S		E		K		R	B		
	Body Dia		Width Across Flats		Width Across Corners		Head Height		Radius of Fillet	Thread Length(Basic)		
										Bolt Lengths ≤125	Bolt Lengths >125 and ≤200	Bolt Lengths >200
M12x1,75	12,70	11,30	21,00	20,16	24,25	22,78	7,95	7,24	0,6	30,00	36,00	49,00
M14x2	14,70	13,30	24,00	23,16	27,71	26,17	9,25	8,51	0,6	34,00	40,00	53,00
M16x2	16,70	15,30	27,00	26,16	31,18	29,56	10,75	9,68	0,6	38,00	44,00	57,00
M20x2,5	20,84	19,16	34,00	33,00	39,26	37,29	13,40	12,12	0,8	46,00	52,00	65,00
M24x3	24,84	23,16	41,00	40,00	47,34	45,20	15,90	14,56	0,8	54,00	60,00	73,00
M30x3,5	30,84	29,16	50,00	49,00	57,74	55,37	19,75	17,92	1,0	66,00	72,00	85,00
M36x4	37,00	35,00	60,00	58,80	69,28	66,44	23,55	21,72	1,0	78,00	84,00	97,00

ANSI B18.2.1

(Unit : mm)

Nominal Size and Thread Pitch		Ds	S				E		K			R		B		
		Body Dia	Width Across Flats				Width Across Corners		Height			Radius of Fillet		Thread Length		
														Bolt Lengths ≤6 in	Bolt Lengths >6 in	
		Max	Basic	Max	Min	Max	Min	Basic	Max	Min	Max	Min	Max	Min	Basic	Basic
1/2	0,5000	0,515	7/8	0,875	0,850	1,010	0,969	11/32	0,364	0,302	0,03	0,01	1,250	1,500		
5/8	0,6250	0,642	11/16	1,062	1,031	1,227	1,175	27/64	0,444	0,378	0,06	0,02	1,500	1,750		
3/4	0,7500	0,768	1-1/4	1,250	1,212	1,443	1,383	1/2	0,524	0,455	0,06	0,02	1,750	2,000		
7/8	0,8750	0,895	1-7/16	1,438	1,394	1,660	1,589	37/64	0,604	0,531	0,06	0,02	2,000	2,250		
1	1,0000	1,022	1-5/8	1,625	1,575	1,876	1,796	43/64	0,700	0,591	0,09	0,03	2,250	2,500		
1-1/8	1,1250	1,149	1-13/16	1,812	1,756	2,093	2,002	3/4	0,780	0,658	0,09	0,03	2,500	2,750		
1-1/4	1,2500	1,277	2	2,000	1,938	2,309	2,209	27/32	0,876	0,749	0,09	0,03	2,750	3,000		
1-3/8	1,3750	1,404	2-3/16	2,188	2,119	2,526	2,416	29/32	0,940	0,810	0,09	0,03	3,000	3,250		
1-1/2	1,5000	1,531	2-3/8	2,375	2,300	2,742	2,622	1	1,036	0,902	0,09	0,03	3,250	3,500		
1-3/4	1,7500	1,785	2-3/4	2,750	2,662	3,175	3,035	1-5/32	1,196	1,054	0,12	0,04	3,750	4,000		
2	2,0000	2,039	3-1/8	3,125	3,025	3,608	3,449	1-11/32	1,388	1,175	0,12	0,04	4,250	4,500		
2-1/4	2,2500	2,305	3-1/2	3,500	3,388	4,041	3,862	1-1/2	1,548	1,327	0,19	0,06	4,750	5,000		
2-1/4	2,5000	2,559	3-7/8	3,875	3,750	4,474	4,275	1-21/32	1,708	1,479	0,19	0,06	5,250	5,500		
2-3/4	2,7500	2,827	4-1/4	4,250	4,112	4,907	4,688	1-13/16	1,869	1,632	0,19	0,06	5,750	6,000		
3	3,0000	3,081	4-5/8	4,625	4,475	5,340	5,102	2	2,060	1,815	0,19	0,06	6,250	6,500		



ANSI B18.3.3M

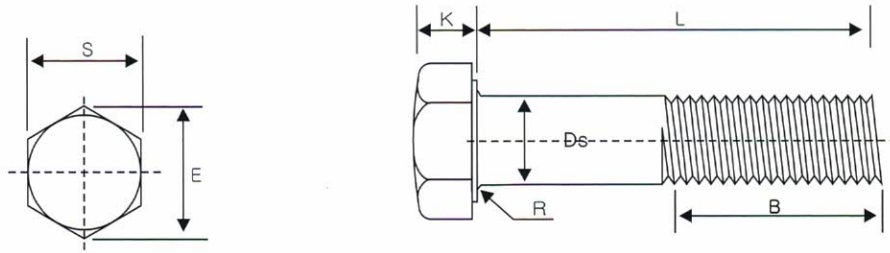
(Unit : mm)

Nominal Bolt Dia and Thread Pitch	Ds		S		E		K		R	B		
	Body Dia		Width Across Flats		Width Across Corners		Head Height		Radius of Fillet	Thread Length(Basic)		
										Bolt Lengths ≤125	Bolt Lengths >125 and ≤200	Bolt Lengths >200
M12x1,75	12,00	11,37	21,00	20,67	24,25	23,35	7,76	7,24	0,6	30	36	49
M14x2	14,00	13,73	24,00	23,67	27,71	26,75	9,09	8,51	0,6	34	40	53
M16x2	16,00	15,73	27,00	26,67	31,18	30,14	10,32	9,68	0,6	38	44	57
M20x2,5	20,00	19,67	34,00	33,00	39,26	37,29	12,88	12,12	0,8	46	52	65
M24x3	24,00	23,67	41,00	40,00	47,34	45,20	15,44	14,56	0,8	54	60	73
M30x3,5	30,00	29,67	50,00	49,00	57,74	55,37	19,48	17,92	1,0	66	72	85
M36x4	36,00	35,61	60,00	58,80	69,28	66,44	23,38	21,72	1,0	78	84	97

ANSI B18.2.1

(Unit : mm)

Nominal Size and Thread Pitch		Ds	S				E		K			R		B	
		Body Dia	Width Across Flats				Width Across Corners		Height			Radius of Fillet		Thread	Length
														Bolt Lengths ≤6 in	Bolt Lengths >6 in
Max	Basic	Max	Min	Max	Min	Basic	Max	Min	Max	Min	Basic	Basic			
1/2	0,5000	0,5000	7/8	0,875	0,850	1,010	0,969	5/16	0,323	0,302	0,025	0,015	1,250	1,500	
5/8	0,6250	0,6250	1-1/16	1,062	1,031	1,227	1,175	25/64	0,403	0,378	0,045	0,020	1,500	1,750	
3/4	0,7500	0,7500	1-1/4	1,250	1,212	1,443	1,383	15/32	0,483	0,455	0,045	0,020	1,750	2,000	
7/8	0,8750	0,8750	1-7/16	1,438	1,394	1,660	1,589	35/64	0,563	0,531	0,065	0,040	2,000	2,250	
1	1,0000	1,0000	1-5/8	1,625	1,575	1,876	1,796	39/64	0,627	0,591	0,095	0,060	2,250	2,500	
1-1/8	1,1250	1,1250	1-13/16	1,812	1,756	2,093	2,002	11/16	0,718	0,658	0,095	0,060	2,500	2,750	
1-1/4	1,2500	1,2500	2	2,000	1,938	2,309	2,209	25/32	0,813	0,749	0,095	0,060	2,750	3,000	
1-3/8	1,3750	1,3750	2-3/16	2,188	2,119	2,526	2,416	27/32	0,878	0,810	0,095	0,060	3,000	3,250	
1-1/2	1,5000	1,5000	2-3/8	2,375	2,300	2,742	2,622	15/16	0,974	0,902	0,095	0,060	3,250	3,500	
1-3/4	1,7500	1,7500	2-3/4	2,750	2,662	3,175	3,035	1-3/32	1,134	1,052	0,095	0,060	3,750	4,000	
2	2,0000	2,0000	3-1/8	3,125	3,025	3,608	3,449	1-7/32	1,263	1,175	0,095	0,060	4,250	4,500	
2-1/4	2,2500	2,2500	3-1/2	3,500	3,388	4,041	3,862	1-3/8	1,423	1,327	0,095	0,060	-	5,000	
2-1/4	2,5000	2,5000	3-7/8	3,875	3,750	4,474	4,275	1-17/32	1,583	1,479	0,095	0,060	-	5,500	
2-3/4	2,7500	2,7500	4-1/4	4,250	4,112	4,907	4,688	1-11/16	1,744	1,632	0,095	0,060	-	6,000	
3	3,0000	3,0000	4-5/8	4,625	4,475	5,340	5,102	1-7/8	1,935	1,815	0,095	0,060	-	6,500	



ASME B18.2.3.7M

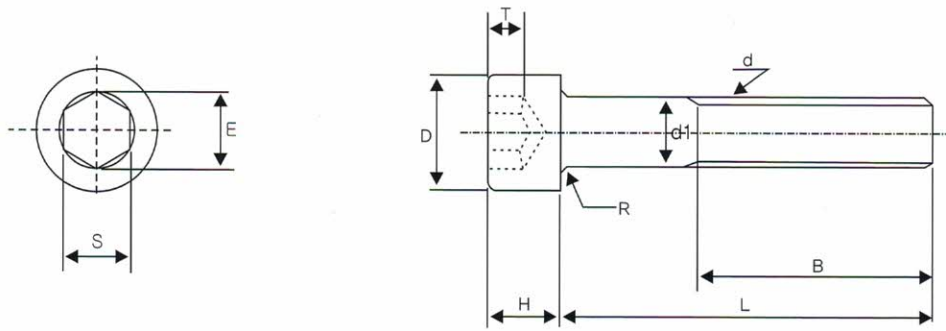
(Unit : mm)

Nominal Bolt Dia and Thread Pitch	Ds		S		E		K		R	B	
	Body Dia		Width Across Flats		Width Across Corners		Head Height		Radius of Fillet	Thread Length(Basic)	
	Max	Min	Max	Min	Max	Min	Max	Min	Min	Bolt Lengths ≤125	Bolt Lengths >200
M16x2	16,70	15,30	27,00	26,16	31,18	29,56	10,75	9,25	0,6	31	38
M20x2,5	20,84	19,16	34,00	33,00	39,26	37,29	13,40	11,60	0,8	36	43
M22x2,5	22,84	21,16	36,00	35,00	41,57	39,55	14,90	13,10	0,8	38	45
M24x3	24,84	23,16	41,00	40,00	47,34	45,20	15,90	14,10	1,0	41	48
M27x3	27,84	26,16	46,00	45,00	53,12	50,85	17,90	16,10	1,2	44	51
M30x3,5	30,84	29,16	50,00	49,00	57,74	55,37	19,75	17,65	1,2	49	56
M36x4	37,00	35,00	60,00	58,80	69,28	66,44	23,55	21,45	1,5	56	63

ASME B18.2.6

(Unit : mm)

Nominal Size and Basic Bolt Dia		Ds		S			E		K			R		B
		Body Dia		Width Across Flats			Width Across Corners		Height			Radius of Fillet		Thread Length
		Max	Min	Basic	Max	Min	Max	Min	Basic	Max	Min	Max	Min	Basic
1/2	0,5000	0,515	0,482	7/8	0,875	0,850	1,010	0,969	5/16	0,323	0,302	0,031	0,009	1,00
5/8	0,6250	0,642	0,605	1-1/16	1,062	1,031	1,227	1,175	25/64	0,403	0,378	0,062	0,021	1,25
3/4	0,7500	0,768	0,729	1-1/4	1,250	1,212	1,443	1,383	15/32	0,483	0,455	0,062	0,021	1,38
7/8	0,8750	0,895	0,852	1-7/16	1,438	1,394	1,660	1,589	35/64	0,563	0,531	0,062	0,031	1,50
1	1,0000	1,022	0,976	1-5/8	1,625	1,575	1,876	1,796	39/64	0,627	0,591	0,093	0,062	1,75
1-1/8	1,1250	1,149	1,098	1-13/16	1,812	1,756	2,093	2,002	11/16	0,718	0,658	0,093	0,062	2,00
1-1/4	1,2500	1,277	1,223	2	2,000	1,938	2,309	2,209	25/32	0,813	0,749	0,093	0,062	2,00
1-3/8	1,3750	1,404	1,345	2-3/16	2,188	2,119	2,526	2,416	27/32	0,878	0,810	0,093	0,062	2,25
1-1/2	1,5000	1,531	1,470	2-3/8	2,375	2,300	2,742	2,622	15/16	0,974	0,902	0,093	0,062	2,25



KS B1003, JIS B1176

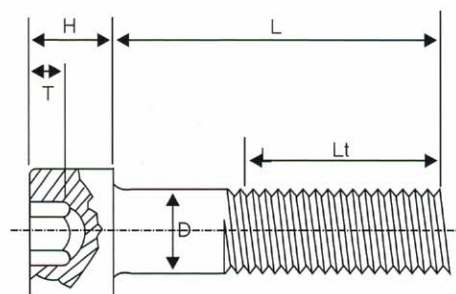
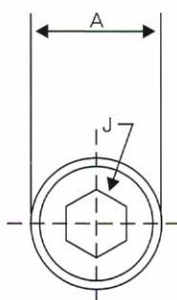
(Unit : mm)

Nominal Size	Pitch	d1		D		H		S		E	T	R	B
		Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Min	Basic
M5	0.80	5.00	4.82	8.72	8.28	5	4.82	4.095	4.02	4.58	2.5	0.20	22
M6	1.00	6.00	5.82	10.22	9.78	6	5.70	5.095	5.02	5.72	3	0.25	24
M8	1.25	8.00	7.78	13.27	12.73	8	7.64	6.095	6.02	6.86	4	0.40	28
M10	1.50	10.00	9.78	16.27	15.73	10	9.64	8.115	8.025	9.15	5	0.40	32
M12	1.75	12.00	11.73	18.27	17.73	12	11.57	10.115	10.025	11.43	6	0.60	36
M14	2.00	14.00	13.73	21.33	20.67	14	13.57	12.142	12.032	13.72	7	0.60	40
M16	2.00	16.00	15.73	24.33	23.67	16	15.57	14.142	14.032	16.00	8	0.60	44
M18	2.50	18.00	17.73	27.33	26.67	18	17.57	14.142	14.032	16.00	9	0.60	48
M20	2.50	20.00	19.67	30.33	29.67	20	19.48	17.230	17.050	19.44	10	0.80	52
M22	2.50	22.00	21.67	33.39	32.61	22	21.48	17.230	17.050	19.44	11	0.80	56
M24	3.00	24.00	23.67	36.39	35.61	24	23.48	19.275	19.065	21.73	12	0.80	60
M27	3.00	27.00	26.67	40.39	39.61	27	26.48	19.275	19.065	21.73	13.5	1.00	66
M30	3.50	30.00	29.67	45.39	44.61	30	29.48	22.275	22.065	25.15	15.5	1.00	72
M33	3.50	33.00	32.61	50.39	49.61	33	32.38	24.275	24.065	27.43	16.5	1.00	78
M36	4.00	36.00	35.61	54.46	53.54	36	35.38	27.275	27.065	30.85	19	1.00	84
M39	4.00	39.00	38.61	58.46	57.54	39	38.38	27.275	27.065	30.85	20	1.00	90
M42	4.50	42.00	41.61	63.46	62.54	42	41.38	32.330	32.080	36.57	21	1.20	96
M45	4.50	45.00	44.61	68.46	67.54	45	44.38	32.330	32.080	36.57	23	1.20	102
M48	5.00	48.00	47.61	72.46	71.54	48	47.38	36.330	36.080	41.13	24	1.60	108
M52	5.00	52.00	51.54	78.46	77.54	52	51.26	36.330	36.080	41.13	26	1.60	116

HESAGON SOCKET CAP SCREWS



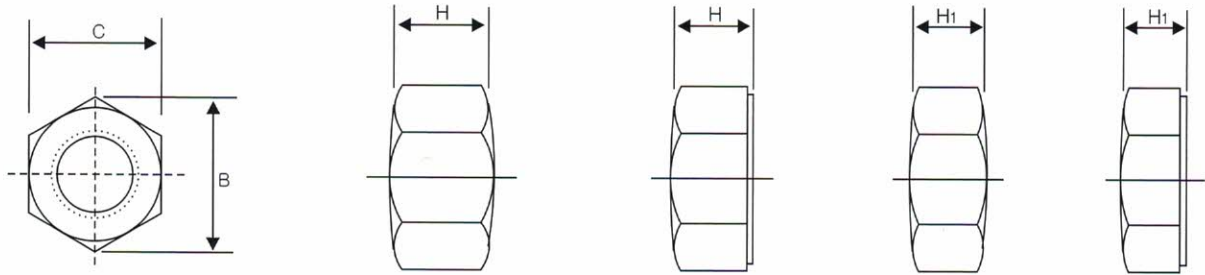
주식회사 영산볼트
YOUNGSAN BOLT CO., LTD.



ANSI B18.3

(Unit : mm)

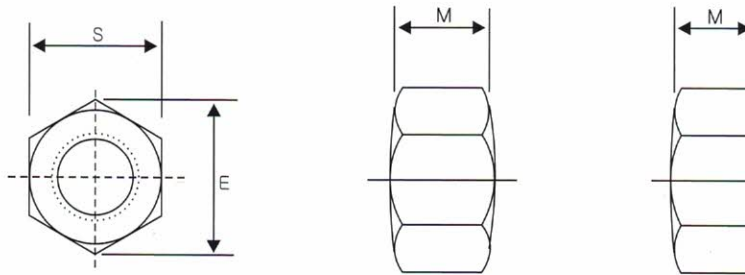
Nominal Screw or Basic screw Dia		D		A		H		J		T	Lt
		Body Dia		Head Diameter		Head Height		Hexagon Socket size		Key Engagement	Thread Length
		Max	Min	Max	Min	Max	Min	Max	Min	Min	Min
1/4	0.2500	0.2500	0.2435	0.375	0.365	0.250	0.244	3/16	0.188	0.120	1.00
5/16	0.3125	0.3125	0.3053	0.469	0.457	0.312	0.306	1/4	0.250	0.151	1.12
3/8	0.3750	0.3750	0.3678	0.562	0.550	0.375	0.368	5/16	0.312	0.182	1.25
7/16	0.4375	0.4375	0.4294	0.656	0.642	0.438	0.430	3/8	0.375	0.213	1.38
1/2	0.5000	0.5000	0.4919	0.750	0.735	0.500	0.492	3/8	0.375	0.245	1.50
5/8	0.6250	0.6250	0.6163	0.938	0.921	0.625	0.616	1/2	0.500	0.307	1.75
3/4	0.7500	0.7500	0.7406	1.125	1.107	0.750	0.740	5/8	0.625	0.370	2.00
7/8	0.8750	0.8750	0.8647	1.312	1.293	0.785	0.864	3/4	0.750	0.432	2.25
1	1.0000	1.0000	0.9886	1.500	1.479	1.000	0.988	3/4	0.750	0.495	2.50
1-1/8	1.1250	1.1250	1.1086	1.688	1.665	1.125	1.111	7/8	0.875	0.557	2.81
1-1/4	1.2500	1.2500	1.2336	1.875	1.852	1.250	1.236	7/8	0.875	0.620	3.12
1-3/8	1.3750	1.3750	1.3568	2.062	2.038	1.375	1.360	1	1.000	0.682	3.44
1-1/2	1.5000	1.5000	1.4818	2.250	2.224	1.500	1.485	1	1.000	0.745	3.75
1-3/4	1.7500	1.7500	1.7295	2.625	2.597	1.750	1.734	1-1/4	1.250	0.870	4.38
2	2.0000	2.0000	1.9780	3.000	2.970	2.000	1.983	1-1/2	1.500	0.995	5.00
2-1/4	2.2500	2.2500	2.2280	3.375	3.344	2.250	2.232	1-3/4	1.750	1.120	5.62
2-1/2	2.5000	2.5000	2.4762	3.750	3.717	2.500	2.481	1-3/4	1.750	1.245	6.25
2-3/4	2.7500	2.7500	2.7262	4.125	4.090	2.750	2.730	2	2.000	1.370	6.88
3	3.0000	3.0000	2.9762	4.500	4.464	3.000	2.979	2-1/4	2.250	1.495	7.50
3-1/4	3.2500	3.2500	3.2262	4.875	4.837	3.250	3.228	2-1/4	2.250	1.620	8.12
3-1/2	3.5000	3.5000	3.4762	5.250	5.211	3.500	3.478	2-3/4	2.750	1.745	8.75
3-3/4	3.7500	3.7500	3.7262	5.625	5.584	3.750	3.727	2-3/4	2.750	1.870	9.38
4	4.0000	4.0000	3.9762	6.000	5.958	4.000	3.976	3	3.000	1.995	10.00



KIS B1012, JIS B1181

(Unit : mm)

Nominal size pitch		H				H ₁				B				C
Coarse	Fine	Basic	Tolerance			Basic	Tolerance			Basic	Tolerance			App
			Fin	Semi Fin	Regu		Fin	Semi Fin	Regu		Fin	Semi Fin	Regu	
M6x1	—	5	0 -0.3	0 -0.48	±0.6	3.6				10	0 -0.2	0 -0.6	0 -0.6	11.5
M8x1,25	M8x1	6,5				5	0 -0.3	0 -0.48	±0.6	13	0 -0.25	0 -0.7	0 -0.7	15
M10x1,5	M10x1,25	8	0 -0.36	0 -0.58	±0.8	6				17				19,6
M12x1,75	M12x1,25	10				7				19				21,9
(M14x2,0)	(M14x1,5)	11				8	0 -0.36	0 -0.58	±0.8	22				25,4
M16x2	M16x1,5	13				10				24	0 -0.35	0 -0.8	0 -0.8	27,7
(M18x2,5)	(18x1,5)	15	0 -0.43	0 -0.70	±0.9	11				27				31,2
M20x2,5	M20x1,5	16				12				30				34,6
(M22x2,5)	(M27x2)	18				13	0 -0.43	0 -0.70	±0.9	32				37
M24x3	M30x2	19				14				36	0 -0.4	0 -1,0	0 -1,0	41,6
(M27x3)	(M33x2)	22				16				41				47,3
M30x3,5	M36x3	24	0 -0.52	0 -0.84	±1,0	18				46				53,1
(M33x3,5)	(M39x3)	26				20				50				57,7
M36x6	—	29				21				55				63,5
(M39x4)	—	31				23	0 -0.52	0 -0.84	±1,0	60				69,3
M42x4,5	—	34				25				65	0 -0.45	0 -1,2	0 -1,2	75
(M45x4,5)	—	36				27				70				80,8
M48x5	—	38	0 -0.62	0 -1,0	±1,2	29				75				86,5
(M52x5)	—	42				31				80				92,4
M56x5,5	—	45				34				85				98,1
(60x5,5)	—	48				36				90				104
M64x6	—	51				38				95				110
(M68x6)	—	54				40	0 -0.62	0 -1,0	±1,2	100	0 -0.55	0 -1,4	0 -1,4	115
—	M72x6	58				42				105				121
—	(M76x6)	61				46				110				127
—	M80x6	64	0 -0.74	0 -1,2	±1,5	48				115				133
—	(M85x6)	68				50				120				139
—	M90x6	72				54				130				150
—	(M95x6)	76				57				135				156
—	M100x6	80				60	0 -0.74	0 -1,2	±1,5	145	0 -0.65	0 -1,6	0 -1,6	167
—	M110x6	88				65				155				179
—	(M120x6)	96	0 -0.87	0 -1,4	±1,8	72				170				196



ANSI B18.2.4.6M

(Unit : mm)

Nominal Nut dia and Thread Pitch	S		E		M		Weight (g/pcs)	
	Width Across Flats		Width Across Corners		Thickness			
	Max	Min	Max	Min	Max	Min		
M12x1,75	21,00	20,16	24,25	22,78	12,3	11,9	24,7	
M14x2	24,00	23,16	27,71	26,17	14,3	13,6	36,9	
M16x2	27,00	26,16	31,18	29,56	17,1	16,4	55,4	
M20x2,5	34,00	33,00	39,26	37,29	20,7	19,4	10,6	
M22x2,5	36,00	35,00	41,57	39,55	23,6	22,3	132	
M24x3	41,00	40,00	47,34	45,20	24,2	22,9	183	
M27x3	46,00	45,00	53,12	50,85	27,6	26,3	263	
M30x3,5	50,00	49,00	57,74	55,37	30,7	29,1	340	
M36x4	60,00	58,80	69,28	66,44	36,6	35,0	586	
M42x4,5	70,00	67,90	80,83	77,41	42,0	40,4	900	
M48x5	80,00	77,60	92,38	88,46	48,0	46,4	1,350	
M56x5,5	90,00	87,20	103,92	99,41	56,0	54,1	1,910	
M64x6	100,00	96,80	115,47	110,35	64,0	62,1	2,620	
M72x6	110,00	106,40	127,02	121,30	72,0	70,1	3,460	
M80x6	120,00	116,00	138,56	132,24	80,0	78,1	4,450	
M90x6	135,00	130,50	155,88	148,77	90,0	87,8	6,330	
M100x6	150,00	145,00	173,21	165,30	100,0	97,8	8,610	

ANSI B18.2.2

(Unit : mm)

Nominal Size or Basic Major dia of Thread		S			E		M			Weight (g/pcs)	
		Width Across Flats			Width Across Corners		Thickness				
		Basic	Max	Min	Max	Min	Basic	Max	Min		
1/4	0.2500	1/2	0.500	0.488	0.577	0.556	15/64	0.250	0.218	5	
5/16	0.3125	9/16	0.562	0.546	0.650	0.622	19/64	0.314	0.280	9	
3/8	0.3750	11/16	0.688	0.669	0.794	0.763	23/64	0.377	0.341	15	
7/16	0.4375	3/4	0.750	0.728	0.866	0.830	27/64	0.441	0.403	22	
1/2	0.5000	7/8	0.875	0.850	1.010	0.969	31/64	0.504	0.464	31	
9/16	0.5625	15/16	0.938	0.909	1.083	1.037	35/64	0.568	0.526	43	
5/8	0.6250	1-1/16	1.062	1.031	1.227	1.175	39/64	0.631	0.587	57	
3/4	0.7500	1-1/4	1.250	1.212	1.443	1.382	47/64	0.758	0.710	92	
7/8	0.8750	1-7/16	1.438	1.394	1.660	1.589	55/64	0.885	0.833	141	
1	1.0000	1-5/8	1.625	1.575	1.876	1.796	63/64	1.012	0.956	205	
1-1/8	1.1250	1-13/16	1.812	1.756	2.093	2.002	1-7/64	1.139	1.079	285	
1-1/4	1.2500	2	2.000	1.938	2.309	2.209	1-7/32	1.251	1.187	376	
1-3/8	1.3750	2-3/16	2.188	2.119	2.526	2.416	1-11/64	1.378	1.310	496	
1-1/2	1.5000	2-3/8	2.375	2.300	2.742	2.622	1-15/32	1.505	1.433	633	
1-5/8	1.6250	2-9/16	2.562	2.481	2.959	2.828	1-19/32	1.632	1.556	988	
1-3/4	1.7500	2-3/4	2.750	2.662	3.175	3.035	1-23/32	1.759	1.679	1,450	
1-7/8	1.8750	2-15/16	2.938	2.844	3.392	3.242	1-27/32	1.886	1.802	2,013	
2	2.0000	3-1/8	3.125	3.025	3.608	3.449	1-31/32	2.013	1.925	2,769	
2-1/4	2.2500	3-1/2	3.500	3.388	4.041	3.862	2-13/64	2.251	2.155	3,596	
2-1/2	2.5000	3-7/8	3.875	3.750	4.474	4.275	2-29/64	2.505	2.401	4,617	
2-3/4	2.7500	4-1/4	4.250	4.112	4.907	4.688	2-45/64	2.759	2.647	5,788	
3	3.0000	4-5/8	4.625	4.475	5.340	5.102	2-61/64	3.013	2.893	7,172	
3-1/4	3.2500	5	5.000	4.838	5.774	5.515	3-3/16	3.252	3.124	8,761	
3-1/2	3.5000	5-3/8	5.375	5.200	6.207	5.928	3-7/16	3.506	3.370	10,568	
3-3/4	3.7500	5-3/4	5.750	5.562	6.640	6.341	3-11/16	3.760	3.616		
4	4.0000	6-1/8	6.125	5.925	7.073	6.755	3-15/16	4.014	3.862		

BOLTS

Grade Mark	Specification	Fastener Description	Material	Nominal Size Range	Mechanical Properties			
					Proof Load (Min)	Yield Strength (Min)	Tensile Strength (Min)	Elongation (Min)%
	SAE J429 Gr. 2	Bolts, Screws, Studs	Low or Medium Carbon Steel	1/4-3/4 7/8-1 1/2	(Psi) 55,000 33,000	(Psi) 57,000 36,000	(Psi) 74,000 60,000	18 18
	SAE J429 Gr. 5		Medium Carbon Steel Quenched & Tempered	1/4-1 1/8-1 1/2	85,000 74,000	92,000 81,000	120,000 105,000	14 14
	SAE J429 Gr. 8		Medium Carbon Alloy Steel Quenched & Tempered	1/4-1 1/2	120,000	130,000	105,000	12
	ASTM A307 Gr. A		Low or Medium Carbon Steel	1/4-4	-	-	60,000	18
	ASTM A307 Gr. B				-	-	60,000-100,000	-
	A325	High Strength Structural Bolts	Medium Carbon Steel Quenched & Tempered	1/2-1 1 1/8-1 1/2	85,000 74,000	92,000 81,000	120,000 105,000	14 14
	A325		Low Carbon Martensitic Steel, Quenched & Tempered	1/2-1	85,000	92,000	120,000	14
	A490		Alloy Steel Quenched & Tempered	1/2-1 1/2	120,000	130,000	150,000 170,000	14
	B7	Bolts, Screws, Studs for High Temperature Service	AISI 4140 AISI 4142 or AISI 4145	1/2-2 1/2 2 1/2-4	-	105,000 95,000	125,000 115,000	16 16
	B7M			1/2-2 1/2	-	80,000	100,000	18
	B16		Cr-Mo-Va Alloy Steel	1/2-2 1/2	-	105,000	125,000	18
	B8		AISI 304	1/4 and Larger	-	30,000	75,000	30
	L7	Bolts, Screws, Studs for Low Temperature Service	AISI 4140 AISI 4141 AISI 4145	1/2-2 1/2	-	105,000	125,000	16
	B8		AISI 304	1/4 and Larger	-	30,000	75,000	30
	BC	Bolts, Studs	Alloy Steel Quenched & Tempered	1/4-2 1/2 2 1/2-4	-	109,000 99,000	125,000 115,000	16 16
	KS B1002 JIS B1180, DIN 267-3 Class 4.6	Bolts, Screws, Studs	KS D3752 JIS G4051 S20C		(kg/mm) 22.6	(kg/mm) 24	(kg/mm) 40-55	25
	KS B1002 JIS B1180, DIN 267-3 Class 8.8		KS D3752 JIS G4051 S45C	M12-M48	58.2	64	80-100	12
	KS B1002 JIS B1180, DIN 267-3 Class 10.9		KS D3711 JIS G4051 SCM 435 SCM 440		79.2	90	100-120	9

Grade Mark	Specification	Fastener Description	Material	Nominal Size Range	Mechanical Properties			
					Proof Load (Min)	Yield Strength (Min)	Tensile Strength (Min)	Elongation (Min)%
	12.9	KS B1002 JIS B1180 DIN 267-3 Class 12.9	KS D3711 JIS G4105 SCM 435 SCM 440		(kg/mm) 95.0	(kg/mm) 108	(kg/mm) 120-140	8
	F8T	KS B1010 JIS B1186 Class F8T	KS D3752 JIS G4051 S45C		-	64	80-100	16
	F10T	KS B1010 JIS B1186 Class F10T	KS D3711 JIS G4105 51B 20 SCM 435 SCM 440	M12-M30	-	90	100-120	14
	F10T	KS B1010 JIS B1186			-	95	110-130	14

Grade Mark	Specification	Fastener Description	Material	Nominal Size Range	Proof Load (Min)	Hardness	
						HrB	HrC
	KS B1012 JIS B1181 DIN 267-4 Class 4		KS D3752 JIS G4051 S20C		(kg/mm) 40	49 Min.	30 Max.
	KS B1012 JIS B1181 DIN 267-4 Class 8	Nuts for General Structural and Mechanical Uses on Metric Bolts		M20-M48	80	88 Min.	30 Max.
	KS B1012 JIS B1181 DIN 26704 Class 10				100	-	18-36
	KS B1012 JIS B1181 DIN 267-4 Class 12				120	-	25-36
	KS B1010 JIS B1186 F8	Nuts for High Strength Structural Bolts	KS D3752 JIS G4051 S45C	M12-M30	80	85-100	-
	KS B1010 JIS B1186 F10				100	95 Min.	35 Max.
	JIS G4051 S45C			M16-M48	-	94 Min.	28 Max.
	ASTM A307 Gr. A & B SAE J995 Gr. 2		AISI 1020 JIS G4051 S20C JIS G3101 SS41	1/4-1 1/2	(Psi) 90,000	68 Min.	32 Max.
	SAE J995 Gr. 5	Nuts for General Structural and Mechanical Uses on Inch Bolts		1/4-1 1/2 1 1/8-1 1/2	120,000 105,000	-	32 Max.
	SAE J995 Gr. 8			1/4-5/8 3/4-1 1 1/8-1 1/2	150,000	-	24-32 26-34 26-36
	ASTM A194 Gr. 2H		AISI 1045 JIS G4051 S45C		175,000	-	24-38
	ASTM A563 Gr. C (for A325 Bolts)			1/2-2	144,000	78 Min.	38 Max.

METRIC HEAVY HEX STRUCTURAL BOLT/NUT/2WASHER

Unit : g/set

Length	Diameter	16	20	22	24	27	30	36
30		180						
35		187	330					
40		194	338	426				
45		202	346	441	584			
50		209	359	456	602	831		
55		217	371	471	620	854	1,101	
60		225	383	486	638	877	1,129	1,848
65		233	396	501	656	900	1,157	1,888
70		240	408	516	674	923	1,185	1,928
75		246	419	531	692	946	1,213	1,968
80		255	431	546	709	969	1,241	2,008
85		263	443	561	727	992	1,269	2,048
90		270	455	576	745	1,015	1,297	2,088
95		276	467	591	763	1,038	1,325	2,128
100		286	479	606	780	1,061	1,353	2,168
105		293	491	621	798	1,084	1,381	2,208
110		301	503	636	816	1,107	1,409	2,248
115		308	515	651	834	1,130	1,437	2,288
120		316	527	666	851	1,153	1,465	2,328
125		323	539	681	869	1,176	1,493	2,368
130		331	551	696	887	1,199	1,521	2,408
135		339	562	711	905	1,222	1,549	2,448
140		346	574	726	923	1,245	1,577	2,488
145		354	586	741	940	1,268	1,605	2,528
150		361	598	756	958	1,291	1,633	2,568
155		369	610	771	976	1,314	1,661	2,608
160		377	622	786	994	1,337	1,689	2,648
165		384	634	801	1,011	1,360	1,717	2,688
170		392	646	816	1,029	1,383	1,745	2,728
175		399	658	831	1,047	1,406	1,773	2,768
180		407	670	846	1,065	1,429	1,801	2,808
185		414	682	861	1,083	1,452	1,829	2,848
190		422	694	876	1,100	1,475	1,857	2,888
195		430	706	891	1,118	1,498	1,885	2,928
200		437	718	906	1,136	1,521	1,913	2,968
NUT		57	110	138	192	263	340	586
2PW		32	44	64	88	110	134	150

INCH HEAVY HEX STRUCTURAL BOLT/NUT/2WASHER

Unit : g/set

Length	Diameter	5/8"	3/4"	1"	1-1/8"	1-1/4"	1-3/8"	1-1/2"
30		174	273					
35		182	284					
40		189	295					
45		197	306					
50		205	317	713	931			
55		212	328	732	955			
60		220	340	751	980	1,274	1,618	2,018
65		228	351	771	1,004	1,306	1,655	2,062
70		235	362	790	1,028	1,337	1,693	2,107
75		243	373	809	1,052	1,369	1,731	2,151
80		251	384	828	1,076	1,400	1,769	2,196
85		258	395	848	1,101	1,432	1,807	2,240
90		266	406	867	1,125	1,464	1,844	2,285
95		274	417	886	1,149	1,495	1,882	2,329
100		282	429	906	1,173	1,527	1,920	2,374
105		289	440	925	1,197	1,558	1,958	2,418
110		297	451	944	1,221	1,590	1,996	2,463
115		305	462	963	1,246	1,622	2,033	2,508
120		312	473	983	1,270	1,653	2,071	2,552
125		320	484	1,002	1,294	1,685	2,109	2,597
130		328	495	1,021	1,318	1,716	2,147	2,641
135		335	506	1,041	1,342	1,748	2,184	2,686
140		343	518	1,060	1,367	1,780	2,222	2,730
145		351	529	1,079	1,391	1,811	2,260	2,775
150		358	540	1,098	1,415	1,843	2,298	2,819
155		366	551	1,118	1,439	1,874	2,336	2,864
160		374	562	1,137	1,463	1,906	2,373	2,909
165		382	573	1,156	1,488	1,937	2,411	2,953
170		389	584	1,175	1,512	1,969	2,449	2,998
175		397	595	1,195	1,536	2,001	2,487	3,042
180		405	607	1,214	1,560	2,032	2,525	3,087
185		412	618	1,233	1,584	2,064	2,562	3,131
190		420	629	1,253	1,608	2,095	2,600	3,176
195		428	640	1,272	1,633	2,127	2,638	3,220
200		435	651	1,291	1,657	2,159	2,676	3,265
NUT		57	100	218	286	378	499	643
2PW		32	40	98	130	160	192	228



영산볼트 찾아오시는 길





품질과 기술로 앞서가는

주식회사 영산볼트

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