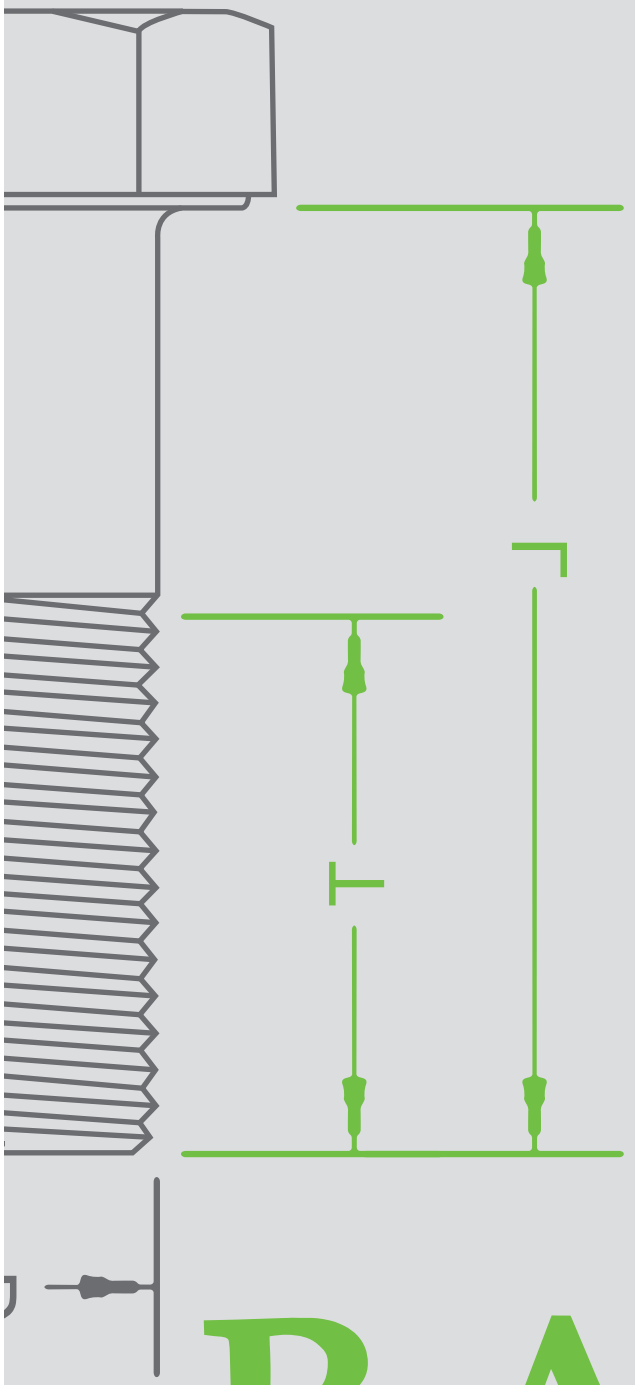
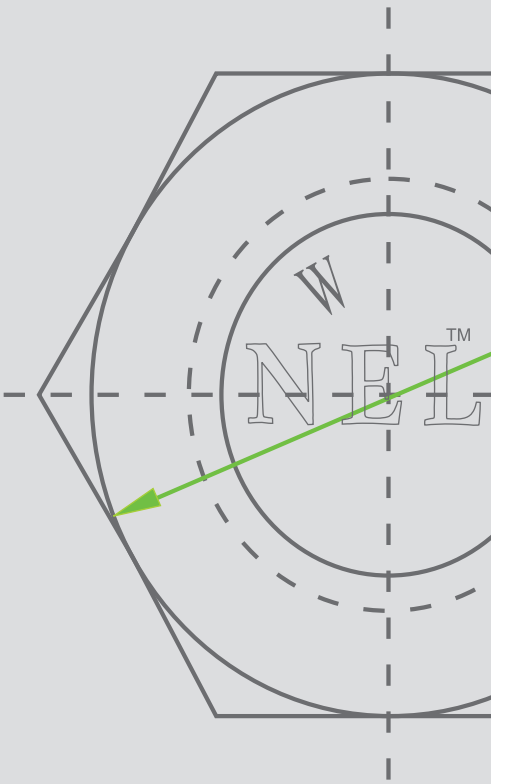




BASIL

Fastener Industries

TECHNICAL HANDBOOK

ISO : 9001 - 2008 Certified

INDIA | USA

About Us

Our motto *"Quality Delivered."* is the reason we set up our Manufacturing Plant. We have been supplying Fasteners to our clients through our trading house since 1970. Through this experience, we realized that there is a gap for quality & specialized Fasteners in the market. We have built a new, state-of-the-art manufacturing unit in the Industrial State of India, Vadodara, Gujarat. This unit is run by an experienced manufacturing team of NEL™. This synergy has helped us achieve impeccable growth at an unprecedented pace.

Industry experience and knowledge of this business has enabled us to ensure the highest standards of quality, safety, cost, and productivity keeping in mind the most optimal cost compared to our competitors. Our products range from high tensile fasteners and bolts in Stainless Steel, Mild Steel and Alloy Steel items conforming to rigid international standards such as DIN, ASTM, BS, ANSI, IS and ISO etc. We also have our own in-house testing facility. We can make special grades based on the client's requirement.

Our products are used in building Automobiles, Railway Wagons, Railway Engines, Agricultural Pump set, Electronic equipments setting up of steel Cement, Paper, Chemical, Fertilizer & Petro Chemical Plant, Thermal Atomic Power station etc.

Quality Control

At Basil our policy on testing and certification is simple: we test 100% of our production lots to ensure absolute quality. Throughout every step of the manufacturing process we utilize in-process controls and conduct mechanical and dimensional audits to continuously monitor our quality. Final inspections are then conducted in our accredited lab prior to packaging. It's this kind of rigorous testing which has earned us our quality system registrations including ISO 9001-2008.

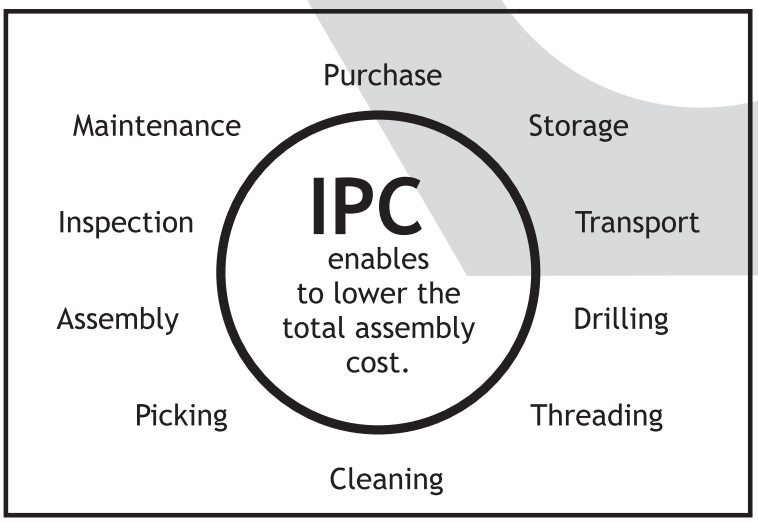
BSCIC NABCB QM 030 ISO 9001 REGISTERED

PRODUCT	SIZE RANGE				EQUIVALENT STANDARDS					
	Diameter		Length							
	Metric	Inch*	Metric	Inch*	IS	ISO	DIN	BS	ANSI	JIS
Hex Head Bolts	M8 to M80	5/16" to 3"	10 to 300mm	1/2" to 12"	1364	4014 4017	931 933	1083 1768	B18.2.1	B1180
Hex Nuts	Nut Grade 8/5	5/16" to 3"	---	---	1364	4032	934	1083 1768	B18.2.4.1M B18.2.2	B1181
High Strength Structural Bolts, Nuts, washers	M12 TO M80	1/12" to 3"	40 to 300mm	1 1/2" to 12"	3757 6623 6649	7412 4775 7415	6914 6915 6916	4395	B18.2.3.7M B18/2/4.6M	B1186
Stud With 2 Heavy nuts	Stud/Nut 8 TO 80	1/2" to 3"	60 to 500mm	2.1/4" to 27"					A193 A194	
Special Products	M8 TO 80	5/16" to 3"	12 to 410mm	3/8" to 12"	As per customer specifications					

SPECIAL GRADE FASTENERS: ASTM A307 Gr.A&B, ASTM A325 8S, HSFG BOLTS, ASTM A490 AND ALL RANGE OF FASTENERS UNC, UNF, BSW etc.

Material Grades: SS304, SS316, SS304L, SS316L, SS321, SS347, SS410, B8, B8M, B8T, B7, 8.8, 10.9, 12.9, 4.6

NEL™



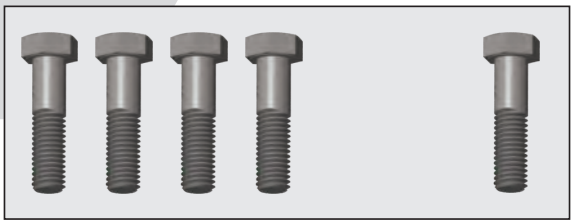
Strength Grade	Tensile Strength	Yield Strength	Yield Index (4.6=100)
4.6	400 MPa	240 MPa	100
8.8"	800 MPa	640 MPa	266
10.9"	1000 MPa	900 MPa	375

*High Tensile

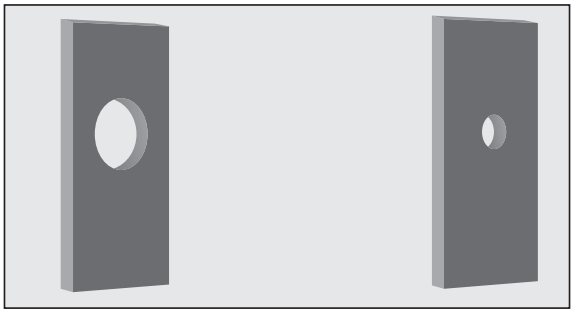
Advantages of High Tensile Fasteners.
Maximum Strength with Minimum of Fasteners.

Where you need 4 Mild Steel Bolts to do a specific job,

Just 1 High Tensile Bolt is enough



Where a given size of Mild Steel Bolt is needed for a particular job, smaller size of High Tensile Bolt will do. And in lesser numbers.

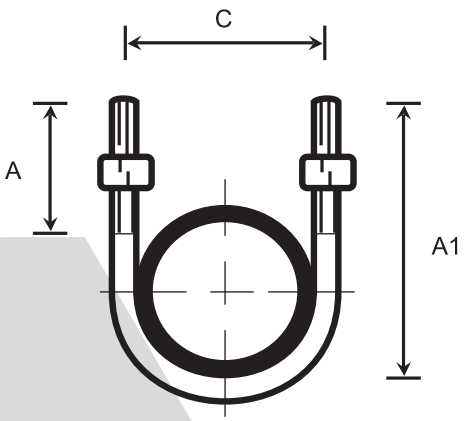


U Bolt Standard
for Steel Pipe

Nominal Pipe Size					
Imperial	Metric	A	A1	C	Thread Size
1/2	15	30	48	29	m6
3/4	20	30	53	35	m6
1	25	30	60	42	m6
1 1/4	32	40	70	52	m10
1 1/2	40	40	75	60	m10
2	50	40	85	72	m10
2 1/2	65	40	100	88	m10
3	80	40	115	103	m12
4	100	40	140	130	m12
5	125	40	165	153	m12
6	150	50	195	182	m12
7	175	50	225	209	m12
8	200	50	244	240	m16
9	225	50	275	264	m16
10	250	50	315	293	m16
12	300	50	360	342	m16
14	350	85	395	378	m16
16	400	85	485	428	m16
18	450	85	540	478	m16
20	500	85	595	528	m16

Standard Finish Zinc Plated

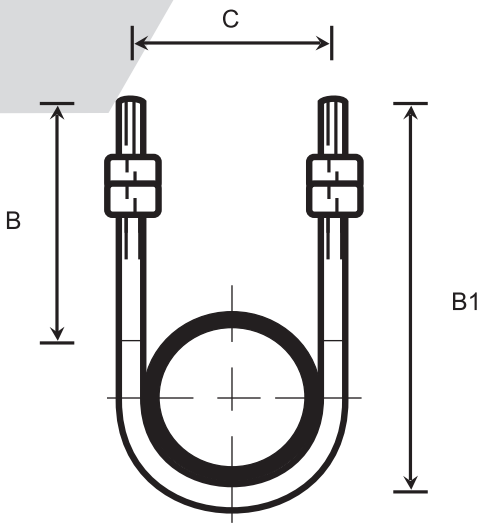
Other Thread Sizes Available



U Bolt Extended
for Steel Pipe

Nominal Pipe Size					
Imperial	Metric	B	B1	C	Thread Size
1/2	15	75	97	29	m6
3/4	20	75	103	35	m6
1	25	75	111	42	m6
1 1/4	32	85	122	52	m10
1 1/2	40	85	127	60	m10
2	50	85	140	72	m10
2 1/2	65	85	152	88	m10
3	80	90	168	103	m12
4	100	90	193	130	m12
5	125	90	213	153	m12
6	150	90	240	182	m12
7	175	95	265	209	m12
8	200	95	298	240	m16
9	225	95	315	264	m16
10	250	95	349	293	m16
12	300	95	387	342	m16

Standard Finish Zinc Plated



Thread Size Comparison

METRIC PRODUCTS							UNIFIED INCH PRODUCTS				B.S. INCH PRODUCTS					
SIZE	THREAD PITCH & T.P.L.				Major Dia		SIZE	T.P.I.		Major Dia	SIZE	T.P.I.		Major Dia	T.P.I.	Major Dia
	COARSE		FINE													
	PITCH (mm)	T.P.I.	PITCH (mm)	T.P.I.	mm	Inch		UNC	UNF	Inch		BSW	BSF	Inch	BA	Inch
M3	0.50	51	---	---	3.00	0.118	#5	40	44	0.125	1/8	40	---	0.125		
							#6	32	40	0.138	5 BA				43.1	0.126
											4 BA				38.5	0.142
M4	0.70	36	---	---	4.00	0.157	#8	32	36	0.164	3 BA	24	32	0.187	34.8	0.161
M5	0.80	32	---	---	5.00	0.197	#10	24	32	0.190	3/16					
											2 BA				31.3	0.185
											1 BA				28.2	0.209
M6	1.0	25	---	---	6.00	0.236	1/4	20	28	0.250	1/4	20	26	0.250	25.4	0.236
											0 BA					
M8	1.25	20	1.00	25	8.00	0.315	5/16	18	24	0.313	5/16	18	22	0.313		
M10	1.50	17	1.25	20	10.00	0.394	3/8	16	24	0.375	3/8	18	20	0.375		
											7/16	14	18	0.438		
M12	1.75	14.5	1.25	20	12.00	0.472	1/2	13	20	0.500	1/2	12	16	0.500		
(M14)	2.00	12.5	1.50	17	14.00	0.551										
M16	2.00	12.5	1.50	17	16.00	0.630	5/8	11	18	0.625	5/8	11	14	0.625		
(M18)	2.50	10	1.50	17	18.00	0.709										
M20	2.50	10	1.50	17	20.00	0.787	3/4	10	16	0.750	3/4	10	12	0.750		
(M22)	2.50	10	1.50	17	22.00	0.866	7/8	9	14	0.875	7/8	9	11	0.875		
M24	3.00	8.5	2.00	13	24.00	0.945	1	8	12	1.000	1	8	10	1.000		
							1 1/8	7	12	1.125	1-1/8	7	9	1.125		
(M27)	3.00	8.50	2.00	13	27.00	1.063										
M30	3.50	7.25	2.00	13	30.00	1.181	1-1/4	7	12	1.250	1-1/4	7	9	1.250		
(M33)	3.50	7.25	2.00	13	33.00	1.299	1-1/2	6	12	1.500	1-1/2	6	8	1.500		
M36	4.00	6.40	3.00	8.5	36.00	1.417										
(M39)	4.00	6.40	3.00	8.5	39.00	1.535										
M42	4.50	5.60	3.00	8.5	42.00	1.653										

NEL™

MECHANICAL REQUIREMENTS FOR CARBON STEEL EXTERNALLY-THREADED METRIC FASTENERS

Property Class Designation	Nominal Size of Product	Material and Treatment	Mechanical Requirements						Property Class Ident. Marking
			Proof Load Stress, MPa	Tensile Yield Strength, MPa, Min.	Tensile Ultimate Strength, MPa, Min.	Prod. Hardness, Rockwlel			
						Surface, Max.	Core		
							Min.	Max.	
4.6	M5-M100	low or medium carbon steel	225	240	400	--	B67	B95	4.6
4.8	M1.6-M16	low or medium carbon steel, fully or partially annealed	310	340	420	--	B71	B95	4.8
5.8	M5-M24	low or medium carbon steel, cold worked	380	420	520	--	B82	B95	5.8
8.8	M16-M72	medium carbon steel, quenched and tempered	600	660	830	30N56	C23	C34	8.8
A325M Type 1	M16-M36								A325M 8S
8.8	M16-M36	low carbon boron steel, quenched and tempered	600	660	830	30N56	C23	C34	8.8
A325M Type 2									A325M 8S
A325M Type 3	M16-M36	atmospheric corrosion resistant steel, quenched and tempered	600	660	830	30N56	C23	C34	A325M 8S3
9.8	M1.6-M16	medium carbon steel, quenched and tempered	650	720	900	30N58	C27	C36	9.8
9.8	M1.6-M16	low carbon boron steel, quenched and tempered	650	720	900	30N58	C27	C36	9.8
10.9	M5-M20	medium carbon steel, quenched and tempered	830	940	1040	30N59	C33	C39	10.9
10.9	M5-M100	medium carbon alloy steel, quenched and tempered	830	940	1040	30N59	C33	C39	10.9
A490M Type 1	M12-M36								A490M 10S
10.9	M5-M36	low carbon boron steel, quenched and tempered	830	940	1040	30N59	C33	C39	10.9
A490M Type 2	M12-M36								A490M 10S
A490M Type 3	M12-M36	atmospheric corrosion resistant steel, quenched and tempered	830	940	1040	30N59	C33	C39	A490M 10S3
12.9	M1.6-M100	alloy steel, quenched and tempered	970	1100	1220	30N63	C38	C44	12.9

Mechanical Properties

USA	German	UK	Japan	Tensile test(min)				Hardness (Max)				
AISI	W-Nr	DIN KURZNAME	BS	JIS	Y/S		T/S		Elongation	HB	HRB	Hv
					kg/mm2	N/mm2	kgf/mm2	N/mm2				
301	14310	X12Cr Ni 177	301S21	SUS 301	21	206	53	520	40	187	90	200
304	14301	XDCr Ni 189	304S16	SUS304	21	206	53	520	40	187	90	200
304L	14306	X3Cr Ni 89	304S12	SUS 304L	18	177	49	481	40	187	90	200
305	14303	X5Cr Ni 1911	305S19	SUS 305	18	177	49	481	40	187	90	200
310S	14841	X 15 Cr Ni Si 2520	310S24	SUS 310S	21	206	53	520	40	187	90	200
316	14401	X15 Cr Ni Mo 1810	306S16	SUS 316	21	206	53	520	40	187	90	200
316L	14435	X15 Cr Ni Mo 1812	306S12	SUS 316 L	18	177	49	481	40	187	90	200
430	14016	X8Cr 17	430S17	SUS 430	21	206	46	451	22	183	88	200
434	14113	-	-	SUS 434	21	206	46	451	22	183	88	200
410	14006	X10 Cr 13	410S21	SUS 410	21	206	45	441	20	200	93	210
420	14021	X 20 Cr 13	420S29	SUS 420 J1	23	226	53	520	18	223	97	234
420	14034	X 40 Cr 13	420S45	SUS 420 J2	23	226	55	539	18	235	99	247

U.S.A.	GERMANY	GERMANY	FRANCE	JAPAN	ITALY	SWEDEN	U.K.	E.U.	SPAIN	RUSSIA
AISI	DIN 17006	W.N. 17007	AFNOR	JIS	UNI	SIS	BSI	EURONORM	UNE	GOST
301	X 12 CrNi 17 7	1.4310	Z 12 CN 17-07	SUS 301	X 12 CrNi 1707	23 31	301S21	X 12 CrNi 17 7	X 12 CrNi 17-07	
302	X 5 CrNi 18 7	1.4319	Z 10 CN 18-09	SUS 302	X 10 CrNi 1809	23 31	302S25	X 10 CrNi 18 9	X 10 CrNi 18-09	12KH18N9
303	X 10 CrNiS 18 9	1.4305	Z 10 CNF 18-09	SUS 303	X 10 CrNiS 1809	23 46	303S21	X 10 CrNiS 18 9	X 10 CrNiS 18-09	
304	X 5 CrNi 18 10 X 5 CrNi 18 12	1.4301 1.4303	Z 6 CN 18-09	SUS 304	X 5 CrNi 1810	23 32	304S15 304S16	X 6 CrNi 18 10	X 6 CrNi 19-10	08KH18N10 06KH18N11
305			Z 8 CN 18-12	SUS 305	X 8 CrNi 1812	23 33	305S19	X 8 CrNi 18 12	X 8 CrNi 18-12	
309	X 15 CrNiS 20 12	1.4828	Z 15 CN 24-13	SUH 309	X 16 CrNi 2314		309S24	X 15 CrNi 23 13		
310	X 12 CrNi 25 21	1.4845		SUH 310	X 22 CrNi 2520		310S24			20KH23N18
316	X 5 CrNiMo 17 12 2	1.4401	Z 6 CND 17-11	SUS 316	X 5 CrNiMo 1712	23 47	316S31	X 6 CrNiMo 17 12 2	X 6 CrNiMo 17-12-03	
316 L	X 2 CrNiMo 17 13 2	1.4404	Z 2 CND 17-12	SUS 316L	X 2 CrNiMo 1712	23 48	316S11	X 3 CrNiMo 17 12 2	X 2 CrNiMo 17-12-03	03KH17N14M2
330	X 12 NiCrSi 36 16	1.4864	Z 12NCS 35-16	SUH 330						
321	X 6 CrNiTi 18 10 X 12 CrNiTi 18 9	1.4541 1.4878	Z 6 CNT 18-10	SUS 321	X 6 CrNiTi 1811	23 37	321S31	X 6 CrNiTi 18 10	X 6 CrNiTi 18-11	08KH18N10T
347	X 6 CrNiNb 18 10	1.4550	Z 6 CNNb 18-10	SUS 347	X 6 CrNiNb 1811	23 38	347S31	X 6 CrNiNb 18 10	X 6 CrNiNb 18-11	08KH18N12B
904L		1.4939	Z 12 CNDV 12-02							
UNS31803	X 2 CrNiMoN 22 5	1.4462								
UNS32760	X 3 CrNiMoN 25 7	1.4501	Z 3 CND 25-06Az							
403	X 6 Cr 13 X 10 Cr 13 X 15 Cr 13	1.4000 1.4006 1.4024	Z 12 C 13	SUS 403	X 12 Cr 13	23 02	403S17	X 10 Cr 13 X 12 Cr 13	X 6 Cr 13	12Kh13
405	X 6 CrAl 13	1.4002	Z 6 CA 13	SUS 405	X 6 CrAl 13		405S17	X 6 CrAl 13	X 6 CrAl 13	
409	X 6 CrTi 12	1.4512	Z 6 CT 12	SUH 409	X 6 CrTi 12		409S19	X 5 CrTi 12		
410	X 6 Cr 13 X 10 Cr 13 X 15 Cr 13	1.4000 1.4006 1.4024	Z 10 C 13 Z 12 C 13	SUS 410	X 12 Cr 13	23 02	410S21	X 12 Cr 13	X 12 Cr 13	12Kh13

These are austenitic grades • These are ferritic grades • These are ferritic-austenitic grades (otherwise known as Duplex and Superduplex)

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