



STUD BOLTS & NUTS



Piping Division

EUROGUARCO SpA
Italy

La Spezia, Plant 1



The Company

Established since 1958 in La Spezia by Luciano Ghirlanda, the company has gradually developed to become a trustworthy reference point in the global market, where it operates directly and through distributors and agents.



La Spezia, Plant 2



Cremona, Plant 2



The activity is mainly focused on the production of products for various industrial fields such as Oil & Gas, Marine, Rail, Mechanical and Chemical.

Besides the company distributes semi-finished products to various processing and installation industries.



Quality System

Euroguarco work in Quality Assurance System Certificate:

- ISO 9001
- ISO/TS 29001
- API 6D license
- EN 9100 (Aeronautical Industry)
- 97/23/CE (PED)
- ATEX



Certification

Euroguarco products have Certifications & Approvals required for use in various Industrial Sectors, among which:

- Oil & Gas (DIN-DVGW).
- Marine Industry (MED/IMO).
- Railway Industry (EN 45545).
- Navy.



Cremona, Plant 1





Products

Euroguarco offer the following 'one-stop shopping' service over a complete range of stud-bolts, nuts, threaded bars, rods and screws.

Conforming to all relevant international standards (i.e. ASME, API, BS, UNI), in carbon steel, stainless steel and special alloys.

All products can be coated as per client requirement, including zinc-coating, hot dip galvanization and PTFE-coating.

Quality Control & Testing

Euroguarco can satisfy all testing requirements, whether by in-house facilities or from external qualified laboratories next to the factory.

- Chemical analysis and mechanical tensile test of the materials:
 - Hardness survey
 - Impact test

- Visual and dimensional examinations.
- Hydraulic test.
- UT of welds.
- Any other NDE on request.



Studbolts

Type

EG Stud-bolts production includes the following range:

- Completely Threaded Stud-Bolts with 2 nuts
- Completely Threaded Bars without nuts
- Stud-Bolts with 1 nut

Dimensions

EG produces stud-bolts in accordance with the following standards:

- Stud Bolts **ASME B16.5, API Spec. 6A, B.S. 4882 and UNI6610**
- Nuts **ASME B18.2.2 and UNI 5587 - 5588 - 5591**

Thread is in accordance with:

ANSI/ASME B1.1

Inch Thread

- Stud Bolts up to 1" included UNC - 2A - over 1" 8 UN - 2A
- Nuts up to 1" included UNC - 2B - over 1" 8 UN - 2B

ANSI B1.13.M, UNI 5542 and UNI 5543

Meter Thread

- EG Standard production provides the following dimensional fields:
- from 3/8" to 5.1/2"
 - from M8 to M120.

Material

- ASTM A193** Gr.B5-B6-B7-B7M-B8-B8A-B8M-B8MA-B8T-B8TA-B16
- ASTM A194** Gr.2H-2HM-3-4-6-7-7M-8-8A-8M-8MA-8T-8TA
- ASTM A320** Gr.L7-L7M-L43-B8-B8A-B8M-B8MA-B8T-B8TA
- ASTM B453** Gr.660 CL. A-B-C

Marking

EG marks its stud-bolts production in accordance to the standards required:

- ASTM** A193-A194-A320-A453
- BSI** BS.4882

EG standard marking provides: to make other marking type only upon specific request during order.
Grade material, EG is in a position

Documents & Certificates

Standard certificates issued by EG are in accordance with:
DIN 50049/3.1B - EN 10204/3.1B

Surface and Protective Treatments

EG protects its products in the following ways:

Alloy stud-bolts	Oil treatment	
EG is able to supply, upon request, fittings with protection such as:		
ARC zinc-coated	according to	ASTM B633
Hot dip Galvanizing	according to	ASTMA153-A120
PTFE coating	according to	customers' indications

Packing

EG packing is made in CARTONS or BAGS or CASES.

Order Instructions

In order to achieve a better service, customers are kindly requested to clearly indicate the following information in the order as per set below:

Parameter name	Value (examples)
Quantity	N°25
Type of product	FULLY THREADED STUD-BOLTS
Number of nuts	N° 2 nuts
Dimension	1.1/2" x 450 mm
Threading normative and type	ANSI/ASME B1.1 – 8UN –2A/2B
Material type and grade	ASTM A193 - Gr. B7 – A194 –Gr.2H
Dimension normative	ASME B16.5 – ASMA B18.2.2
Normative for protective coating	ASTM A123 - Hot dip Galvanizing
Type of certification request for specific certification by external Bodies	DIN 50049 - EN 10204/3.1B

Useful Information

Maintenance

- Keep supplied pieces in the EG original packing.
- Do not store pieces in damp areas.
- Do not store pieces in contact with water Handle all.
- Threaded parts with care.

Studbolts

Recommended Flange Bolt Torque

40,000 PSI Stress		52,000 PSI Stress		Bolt Size	28 Kg/mm ²		37 Kg/mm ²	
Bolt Tension	Make Up Torque	Bolt Tension	Make Up Torque		Bolt Tension	Make Up Torque	Bolt Tension	Make Up Torque
lbf	ft-lbf	lbf	ft-lbf		Kg/m	N/m	Kg/m	N/m
5,674	45	7,448	59	1/2" - 13 UNC	8,451	61	11,093	79
9,026	86	11,846	113	5/8" - 11 UNC	13,444	116	17,644	153
13,355	150	17,528	196	3/4" - 10 UNC	19,892	203	26,107	265
18,482	239	24,257	313	7/8" - 9 UNC	27,528	324	36,130	424
24,229	361	31,800	474	1" - 8 UN	36,089	489	47,366	642
31,617	522	41,497	686	1,1/8" - 8 UN	47,093	707	61,809	930
39,987	726	52,483	953	1,1/4" - 8 UN	59,560	984	78,173	1,292
49,339	976	64,757	1,281	1,3/8" - 8 UN	73,490	1,323	96,455	1,736
59,672	1,277	78,320	1,676	1,1/2" - 8 UN	88,881	1,731	116,657	2,272
70,988	1,635	93,171	2,146	1,5/8" - 8 UN	105,736	2,216	138,778	2,909
83,284	2,054	109,311	2,695	1,3/4" - 8 UN	124,051	2,784	162,818	3,653
96,563	2,538	126,739	3,331	1,7/8" - 8 UN	143,830	3,441	188,777	4,516
110,824	3,093	145,456	4,060	2" - 8 UN	165,072	4,193	216,656	5,504
142,290	4,435	186,755	5,821	2,1/4" - 8 UN	211,940	6,012	278,171	7,892
177,683	6,116	233,209	8,028	2,1/2" - 8 UN	264,658	8,292	347,364	10,884
196,852	7,097	258,368	9,314	2,5/8" - 8 UN	293,211	9,622	384,839	12,627
217,003	8,176	284,817	10,731	2,3/4" - 8 UN	323,225	11,085	424,234	14,549
260,280	10,653	641,578	13,982	3" - 8 UN	387,642	14,443	508,780	18,956
307,424	13,585	403,495	17,830	3,1/4" - 8 UN	457,908	18,418	601,005	24,173
413,554	20,967	542,790	27,519	3,3/4" - 8 UN	615,988	28,427	808,485	37,310
442,541	23,157	580,834	30,393	3,7/8" - 8 UN	659,164	31,396	865,152	41,206
472,509	25,494	620,168	33,461	4" - 8 UN	703,802	34,564	923,740	45,366
602,200	36,412	790,388	47,790	4,1/2" - 8 UN	896,976	49,367	1,177,282	64,793
672,936	42,879	883,229	56,289	4,3/4" - 8 UN	1,002,338	58,135	1,315,569	76,316

Note:

Approximate figures have been drawn from the standard API Spec. 6A.

- 1 ft-lb = 1.3558 N-m
- 1 lb/ft = 1.4895 Kg/m
- 1 psi = 0.0703 Kg/cm²



Studbolts

Lenght-L		Weights 1,000 PCS							
Inch	mm	D	1/2"	5/8"	3/4"	7/8"	1	1,1/8"	1,1/4"
2,3/8"	60	Kg	111	186	-	-	-	-	-
		LBS	245	410	-	-	-	-	-
2,1/2"	65	Kg	115	192	-	-	-	-	-
		LBS	154	423	-	-	-	-	-
2,3/4"	70	Kg	119	198	-	-	-	-	-
		LBS	262	437	-	-	-	-	-
3"	75	Kg	123	205	317	-	-	-	-
		LBS	271	452	699	-	-	-	-
3,1/8"	80	Kg	127	211	327	-	-	-	-
		LBS	280	465	721	-	-	-	-
3,1/4"	85	Kg	131	217	336	-	-	-	-
		LBS	289	478	741	-	-	-	-
3,1/2"	90	Kg	135	224	345	504	-	-	-
		LBS	298	494	761	1,111	-	-	-
3,3/4"	95	Kg	139	230	354	516	-	-	-
		LBS	306	507	780	1,138	-	-	-
4"	100	Kg	143	236	364	529	-	-	-
		LBS	315	520	802	1,166	-	-	-
4,1/8"	105	Kg	147	243	343	542	-	-	-
		LBS	324	536	822	1,195	-	-	-
4,1/4"	110	Kg	151	249	382	554	-	-	-
		LBS	333	549	842	1,221	-	-	-
4,1/2"	115	Kg	155	255	391	567	794	-	-
		LBS	342	562	862	1,250	1,750	-	-
4,3/4"	120	Kg	159	261	400	580	811	-	-
		LBS	351	575	882	1,279	1,788	-	-
5"	125	Kg	-	268	410	593	828	-	-
		LBS	-	591	904	1,307	1,825	-	-
5,1/8"	130	Kg	-	274	419	605	844	1,129	-
		LBS	-	604	924	1,334	1,861	2,489	-
5,1/4"	135	Kg	-	280	428	618	861	1,151	-
		LBS	-	617	944	1,362	1,898	2,537	-
5,1/2"	140	Kg	-	287	437	631	877	1,172	1,463
		LBS	-	633	963	1,391	1,933	1,584	3,225
5,3/4"	145	Kg	-	293	447	643	894	1,194	1,490
		LBS	-	646	985	1,418	1,971	2,632	3,285
6"	150	Kg	-	299	456	656	911	1,215	1,517
		LBS	-	659	1,005	1,446	2,008	2,679	3,344
For Each 10 mm		Kg	8	13	18	25	33	43	54
		LBS	18	29	40	55	73	95	119

Studs Material:

Nuts Material:

Thread:

Lenght:

Weight:

Dimensions:

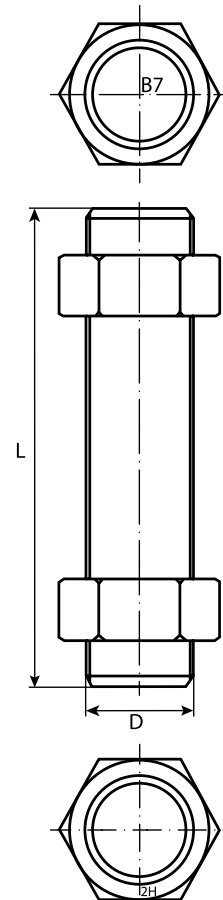
Alloy Steel ASTM A193 Grade B7
Carbon Steel ASTM A194 Grade 2H
ASME B 1.1 - UNC UP to 1"-
8UN 1.1/8" and over.

Inches/mm.
LBS/1000 Pieces.
ASME B16.5

These stud-bolts are manufactured also in steel ASTM A320 GR. L7, ASTM A193 GR. B16 and stainless steel ASTM A193 GR. B8 (AISI 304),

GR. 8T (AISI 321), GR. 8M (AISI 316) and any other type of alloy or stainless steel.

Threaded Full Length with two Hexagonal Heavy Nuts



Studbolts

Threaded Full Length with two Hexagonal Heavy Nuts



Length-L		Weights 1,000 PCS													
Inch	mm	D	5/8"	3/4"	7/8"	1"	1 1/8"	1 1/4"	1 3/8"	1 1/2"	1 5/8"	1 3/4"	1 7/8"	2"	
6, 1/4"	160	Kg	312	474	681	944	1,258	1,571	2,003	-	-	-	-	-	
		LBS	688	1,045	1,501	2,081	2,773	3,453	4,416	-	-	-	-	-	
6, 3/4"	170	Kg	324	493	707	977	1,301	1,625	2,069	-	-	-	-	-	
		LBS	714	1,087	1,559	2,154	2,868	3,582	4,561	-	-	-	-	-	
7"	180	Kg	337	511	732	1,011	1,344	1,625	2,136	2,586	-	-	-	-	
		LBS	743	1,127	1,614	2,229	2,963	3,702	4,709	5,701	-	-	-	-	
7, 1/2"	190	Kg	-	530	758	1,044	1,387	1,733	2,202	2,666	-	-	-	-	
		LBS	-	1,168	1,671	2,229	3,058	3,821	4,855	5,877	-	-	-	-	
7, 7/8"	200	Kg	-	548	783	1,044	1,430	1,768	2,268	2,745	-	-	-	-	
		LBS	-	1,208	1,726	2,374	3,153	3,937	5,000	6,052	-	-	-	-	
8, 1/8"	210	Kg	-	566	808	1,111	1,473	1,840	2,334	2,825	3,472	-	-	-	
		LBS	-	1,248	1,781	2,449	3,247	4,056	5,146	6,228	7,654	-	-	-	
8, 3/4"	220	Kg	-	-	834	1,144	1,516	1,894	2,400	2,904	3,566	-	-	-	
		LBS	-	-	1,839	2,522	3,342	4,175	5,291	6,402	7,862	-	-	-	
9"	230	Kg	-	-	859	1,177	1,599	1,948	2,466	2,984	3,660	-	-	-	
		LBS	-	-	1,894	2,595	3,525	4,295	5,437	6,578	8,069	-	-	-	
9, 1/2"	240	Kg	-	-	884	1,210	1,602	2,002	2,532	3,063	3,754	4,496	-	-	
		LBS	-	-	1,949	2,668	3,532	4,414	5,582	6,753	8,276	9,912	-	-	
9, 3/4"	250	Kg	-	-	910	1,244	1,645	2,056	2,598	3,143	3,848	4,606	-	-	
		LBS	-	-	2,006	2,743	3,627	4,533	5,728	6,929	8,483	10,154	-	-	
10, 1/4"	260	Kg	-	-	935	1,277	1,688	2,110	2,664	3,222	3,942	4,716	5,535	-	
		LBS	-	-	2,061	2,815	3,721	4,652	5,873	7,103	8,690	10,397	12,202	-	
10, 5/8"	270	Kg	-	-	-	1,310	1,731	2,164	2,730	3,302	4,036	4,826	5,662	6,615	
		LBS	-	-	-	2,888	3,816	4,771	6,019	7,280	8,898	10,639	12,482	14,583	
11"	280	Kg	-	-	-	1,344	1,774	2,218	2,796	3,381	4,130	4,936	5,789	6,760	
		LBS	-	-	-	2,963	3,911	4,890	6,164	7,454	9,105	10,882	12,762	14,903	
11, 1/2"	290	Kg	-	-	-	1,377	1,817	2,272	2,962	3,461	4,224	5,046	5,916	6,906	
		LBS	-	-	-	3,036	4,006	5,009	6,530	7,630	9,312	11,124	13,042	15,225	
11, 3/4"	300	Kg	-	-	-	1,410	1,860	2,236	2,928	3,540	4,318	5,156	6,043	7,051	
		LBS	-	-	-	3,108	4,101	5,128	6,455	7,804	9,519	11,367	13,322	15,545	
12, 3/4"	325	Kg	-	-	-	-	1,968	2,461	3,094	3,739	4,553	5,431	6,361	7,415	
		LBS	-	-	-	-	4,339	5,425	6,821	8,243	10,037	11,973	14,023	16,347	
13, 3/4"	350	Kg	-	-	-	-	2,075	2,595	3,259	3,937	4,789	5,706	6,679	7,779	
		LBS	-	-	-	-	4,575	5,721	7,185	8,679	10,558	12,579	14,724	17,149	
14, 3/4"	375	Kg	-	-	-	-	-	-	-	4,136	5,024	5,980	6,997	8,143	
		LBS	-	-	-	-	-	-	-	9,118	11,076	13,183	15,425	17,952	
15, 3/4"	400	Kg	-	-	-	-	-	-	-	4,135	5,259	6,255	7,314	8,506	
		LBS	-	-	-	-	-	-	-	9,116	11,594	13,790	16,124	18,752	
16, 3/4"	425	Kg	-	-	-	-	-	-	-	-	-	-	7,632	8,870	
		LBS	-	-	-	-	-	-	-	-	-	-	-	16,825	19,555
17, 3/4"	450	Kg	-	-	-	-	-	-	-	-	-	-	7,950	9,234	
		LBS	-	-	-	-	-	-	-	-	-	-	-	17,526	20,357
18, 3/4"	475	Kg	-	-	-	-	-	-	-	-	-	-	-	8,268	9,597
		LBS	-	-	-	-	-	-	-	-	-	-	-	-	18,228
19, 3/4"	500	Kg	-	-	-	-	-	-	-	-	-	-	-	8,580	9,961
		LBS	-	-	-	-	-	-	-	-	-	-	-	-	18,915
For Each 10 mm		Kg	13	18	25	33	43	54	66	79	94	110	127	145	
		LBS	28,66	39,68	55,11	72,75	94,8	119,05	145,5	174,16	207,23	242,5	279,98	319,66	

Studs Material:
Nuts Material:
Thread:

Alloy Steel ASTM A193 Grade B7
 Carbon Steel ASTM A194 Grade 2H
 ASME B 1.1 - UNC UP to 1"-
 8 UN 1.1/8" and over.

Length:
Weight:
Dimensions:

Inches/mm.
 LBS/1000 Pieces.
 ASME B16.5

These stud-bolts are manufactured also in steel ASTM A320 GR. L7, ASTM A193 GR. B16 and stainless steel ASTM A193 GR. B8 (AISI 304),

GR. 8T (AISI 321), GR. 8M (AISI 316) and any other type of alloy or stainless steel.

Studbolts

D	C		H		Pitch	Weights 1000 Pcs	
	mm	Inch	mm	Inch		Kg	lbs
1/2"	22	0,87	12,5	0,49	13	30	66
5/8"	27	1,06	16	0,63	11	52	114
3/4"	32	1,26	19	0,75	10	85	187
7/8"	36	1,42	22	0,87	9	130	286
1"	41	1,61	25	0,98	8	194	427
1,1/8"	46	1,81	28	1,1	8	270	595
1,1/4"	50	1,97	32	1,26	8	335	738
1,3/8"	55	2,16	35	1,38	8	450	992
1,1/2"	60	2,36	38	1,5	8	550	1,212
1,5/8"	65	2,56	42	1,65	8	715	1,576
1,3/4"	70	2,76	45	1,77	8	890	1,962
1,7/8"	74	2,91	48	1,89	8	1,070	2,358
2"	79	3,11	50	1,97	8	1,285	2,832
2,1/4"	89	3,5	56	2,2	8	1,800	3,968
2,1/2"	98	3,86	62	2,44	8	2,425	5,346
2,3/4"	108	4,25	68	2,68	8	3,300	7,275
	117	4,61	75	2,95	8	4,140	9,126

Material:

Carbon Steel ASTM A194 Grade 2H, ASTM A194 Gr. 3-4-7 and in Stainless Steel Gr. 8 (AISI 304), Gr. 8T (AISI 321) and Gr. 8m (AISI 316)

Thread:

ASME B 1.1 - UNC UP to 1" - 8 UN 1.1/8" and over.

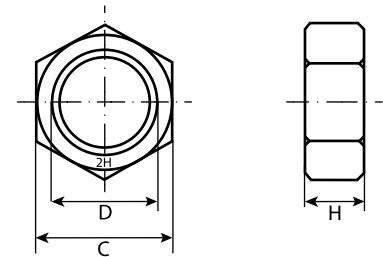
Weight:

LBS/1000 Pieces.

Dimensions:

Inch.

Heavy Hexagonal Nuts



D	Pitch	Weights 1000 Pcs	
		Kg	lbs
1/2"	13	0,79	1,74
5/8"	11	1,26	2,78
3/4"	10	1,84	4,06
7/8"	9	2,54	5,6
1"	8	3,33	7,34
1,1/8"	8	4,3	9,48
1,1/4"	8	5,39	11,88
1,3/8"	8	6,61	14,57
1,1/2"	8	7,95	17,53
1,5/8"	8	9,41	20,74
1,3/4"	8	11	24,25
1,7/8"	8	12,72	28,04
2"	8	14,56	32,1

Material:

Alloy Steel ASTM A193 Grade B7

Thread:

ASME B 1.1 - UNC UP to 1" - 8 UN 1.1/8" and over.

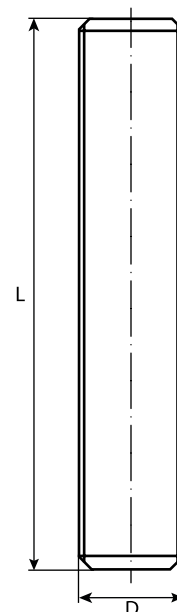
Weight:

LBS/1 mt.

Dimensions:

Inches.

Screwed Rods Full Length



On request we can supply these bars with length of 2-3 meters or

commercial length.

Studbolts

Threaded Full Length with Two Hexagonal Heavy Nuts



ø		M12	M14	M16	M18	M20	M22	M24	M27	M24	M33
		Weights x 1000 PCS									
60	Kg	87	126	167	233	-	-	-	-	-	-
	LBS	192	278	368	514	-	-	-	-	-	-
65	Kg	90	131	173	231	-	-	-	-	-	-
	LBS	188	289	381	509	-	-	-	-	-	-
70	Kg	94	136	180	239	-	-	-	-	-	-
	LBS	207	300	397	527	-	-	-	-	-	-
75	Kg	97	141	186	247	323	-	-	-	-	-
	LBS	214	311	410	545	712	-	-	-	-	-
80	Kg	101	146	193	256	334	-	-	-	-	-
	LBS	223	322	425	564	736	-	-	-	-	-
85	Kg	105	150	200	264	344	421	544	-	-	-
	LBS	232	331	441	582	758	928	1,199	-	-	-
90	Kg	108	155	206	272	354	433	559	-	-	-
	LBS	238	342	454	600	760	955	1,232	-	-	-
95	Kg	112	160	213	280	364	446	574	-	-	-
	LBS	247	353	470	617	803	983	1,285	-	-	-
100	Kg	115	165	219	288	375	459	589	-	-	-
	LBS	254	364	483	635	827	1,012	1,299	-	-	-
105	Kg	119	170	226	296	385	472	603	-	-	-
	LBS	262	375	498	653	849	1,041	1,329	-	-	-
110	Kg	123	175	233	305	395	484	618	-	-	-
	LBS	271	386	514	672	871	1,067	1,362	-	-	-
115	Kg	126	180	239	313	406	497	633	868	-	-
	LBS	278	397	527	690	895	1,096	1,396	1,914	-	-
120	Kg	130	185	246	321	416	510	648	887	-	-
	LBS	287	408	542	708	917	1,124	1,429	1,956	-	-
125	Kg	-	-	252	329	426	522	683	906	-	-
	LBS	-	-	556	725	939	1,151	1,462	1,997	-	-
130	Kg	-	-	259	337	437	535	678	925	1,211	-
	LBS	-	-	571	743	963	1,180	1,495	2,039	2,870	-
135	Kg	-	-	266	346	447	548	692	945	1,234	-
	LBS	-	-	586	763	986	1,208	1,526	2,063	2,721	-
140	Kg	-	-	272	354	457	560	707	964	1,258	1,570
	LBS	-	-	600	780	1,008	1,235	1,559	2,125	2,773	3,461
145	Kg	-	-	279	362	468	573	722	983	1,281	1,599
	LBS	-	-	615	798	1,032	1,283	1,592	2,167	2,824	3,525
150	Kg	-	-	285	370	478	586	737	1,200	1,305	1,628
	LBS	-	-	628	816	1,054	1,292	1,625	2,209	2,877	3,569
For Each 10 mm	Kg	7	10	13	16	21	25	30	38	47	58
	LBS	15	22	30	35	46	55	66	84	104	128

Studs Material:
Nuts Material:
Thread:

Alloy Steel ASTM A193 Grade B7
 Carbon Steel ASTM A194 Grade 2H
 UNI 5542 - 5543 - M36 - >
 M 52 M Fine Pitch.

Length:
Weight:
Dimensions:

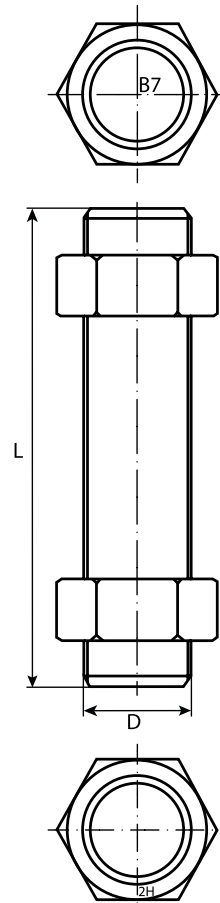
mm.
 LBS/1000 Pieces.
 UNI 6610

Studbolts are manufactured also in of alloy or stainless steel.

Studbolts

D		M16	M18	M20	M22	M24	M27	M30	M33	M36	M39	M42	M45	M48	M45
160	Kg	299	386	499	611	767	1,040	1,352	1,685	2,132	-	-	-	-	-
	LBS	659	551	1,100	1,347	1,691	2,293	2,981	3,715	4,700	-	-	-	-	-
170	Kg	312	403	519	637	796	1,079	1,399	1,743	2,203	-	-	-	-	-
	LBS	688	889	1,144	1,404	1,755	2,379	3,084	3,843	4,857	-	-	-	-	-
180	Kg	325	419	540	662	826	1,117	1,445	1,801	2,274	2,792	-	-	-	-
	LBS	717	924	1,190	1,549	1,821	2,463	3,186	3,970	5,013	6,155	-	-	-	-
190	Kg	-	-	560	687	856	1,155	1,482	1,858	2,345	2,876	-	-	-	-
	LBS	-	-	1,235	1,515	1,887	2,546	3,289	4,096	5,101	6,340	-	-	-	-
200	Kg	-	-	581	713	885	1,194	1,539	1,916	2,416	2,960	-	-	-	-
	LBS	-	-	1,281	1,572	1,951	2,632	3,393	4,224	5,328	6,526	-	-	-	-
210	Kg	-	-	602	738	915	1,232	1,586	1,974	2,487	3,044	3,680	-	-	-
	LBS	-	-	1,327	1,627	2,017	2,716	3,496	4,352	5,483	6,711	8,113	-	-	-
220	Kg	-	-	-	763	945	1,270	1,833	2,031	2,558	3,128	3,378	-	-	-
	LBS	-	-	-	1,682	2,083	2,800	3,800	4,478	5,639	6,896	7,447	-	-	-
230	Kg	-	-	-	789	974	1,309	1,680	2,089	2,629	3,212	3,876	-	-	-
	LBS	-	-	-	1,739	2,147	2,886	3,704	4,805	5,796	7,081	8,545	-	-	-
240	Kg	-	-	-	814	1,004	1,347	1,727	2,147	2,700	3,296	3,974	4,732	-	-
	LBS	-	-	-	1,795	2,213	2,970	3,807	4,733	5,952	7,266	8,761	10,432	-	-
250	Kg	-	-	-	840	1,034	1,385	1,774	2,204	2,771	3,380	4,072	4,846	-	-
	LBS	-	-	-	1,852	2,279	3,053	3,911	4,859	6,109	7,451	9,977	10,683	-	-
260	Kg	-	-	-	865	1,063	1,424	1,821	2,262	2,841	3,463	4,170	4,959	5,825	6,954
	LBS	-	-	-	1,907	2,343	3,139	4,015	4,987	6,263	7,634	9,193	10,933	12,842	15,331
270	Kg	-	-	-	-	-	1,462	1,868	2,320	2,912	3,547	4,268	5,072	5,955	7,107
	LBS	-	-	-	-	-	3,223	4,118	5,115	6,420	7,820	9,409	11,182	13,128	15,668
280	Kg	-	-	-	-	-	1,501	1,915	2,377	2,983	3,631	4,367	5,186	6,085	7,260
	LBS	-	-	-	-	-	3,309	4,222	5,240	6,576	8,005	9,627	11,433	13,415	16,005
290	Kg	-	-	-	-	-	1,539	1,982	2,435	3,054	3,715	4,465	5,289	6,214	7,413
	LBS	-	-	-	-	-	3,393	4,325	5,368	6,733	8,190	9,843	11,628	13,590	16,343
300	Kg	-	-	-	-	-	1,577	2,009	2,493	3,125	3,799	4,563	5,412	6,344	7,585
	LBS	-	-	-	-	-	3,477	4,429	5,496	6,889	8,375	10,060	11,931	13,986	16,678
325	Kg	-	-	-	-	-	-	2,126	2,637	3,302	4,009	4,808	5,696	6,889	7,947
	LBS	-	-	-	-	-	-	4,687	5,813	7,280	8,838	10,600	12,557	14,702	17,520
350	Kg	-	-	-	-	-	-	2,243	2,781	3,480	4,218	5,053	5,979	6,993	8,329
	LBS	-	-	-	-	-	-	4,945	6,131	7,672	9,299	11,140	13,161	15,417	18,362
375	Kg	-	-	-	-	-	-	-	-	-	4,428	5,298	6,263	7,318	8,711
	LBS	-	-	-	-	-	-	-	-	-	9,762	11,680	13,807	16,133	19,204
400	Kg	-	-	-	-	-	-	-	-	-	4,638	5,543	6,546	7,642	9,093
	LBS	-	-	-	-	-	-	-	-	-	10,225	12,220	14,431	16,847	20,046
425	Kg	-	-	-	-	-	-	-	-	-	-	6,830	7,966	9,475	
	LBS	-	-	-	-	-	-	-	-	-	-	15,057	17,562	20,883	
450	Kg	-	-	-	-	-	-	-	-	-	-	7,113	8,291	9,857	
	LBS	-	-	-	-	-	-	-	-	-	-	16,278	21,731		
475	Kg	-	-	-	-	-	-	-	-	-	-	-	8,615	10,239	
	LBS	-	-	-	-	-	-	-	-	-	-	-	18,993	22,573	
500	Kg	-	-	-	-	-	-	-	-	-	-	-	8,940	10,621	
	LBS	-	-	-	-	-	-	-	-	-	-	-	19,709	23,415	
For Each 10 mm	Kg	13	16	21	25	30	38	47	58	71	84	98	113	130	115
	LBS	29,68	35,27	46,3	55,11	66,14	83,77	103,6	127,9	156,5	185,2	217	249,1	286,6	337,3

Threaded Full Length with Two Hexagonal Heavy Nuts



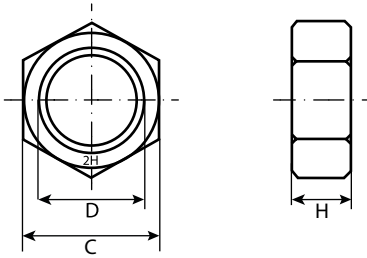
Studs Material:
Nuts Material:
Thread:

Alloy Steel ASTM A193 Grade B7
Carbon Steel ASTM A194 Grade 2H
UNI 5542 - 5543 - M36 - >
M 52 M Fine Pitch.
mm.
LBS/1000 Pieces.
UNI 6610

Length:
Weight:
Dimensions:

Studbolts

Heavy Hexagonal Nuts H=D



D	C		Pitch	Weights		1000 PCS	
	mm	mm		Kg	Lbs		
M12	19	12	2	20	45		
M14	22	14	2	32	69		
M16	24	16	2	41	89		
M18	27	18	3	58	128		
M20	30	20	3	49	108		
M22	32	22	3	95	209		
M24	36	24	3	137	302		
M27	41	27	3	200	441		
M30	46	30	4	284	626		
M33	50	33	4	361	796		
M36	55	36	3	474	1,045		
M39	60	39	3	612	1,349		
M42	65	42	3	776	1,711		
M45	70	45	3	966	2,130		
M48	75	48	3	1,180	2,601		
M52	80	52	3	1,430	3,153		

Material:

Carbon Steel ASTM A194 Grade 2H, ASTM A194 Gr. 3-4-7 and in Stainless Steel Gr. 8 (AISI 304), Gr. 8T (AISI 321) and Gr. 8 m (AISI 316)

Thread:

UNI 5542 - 5543
(M12 ÷ M33 Great Pitch, M36 ÷ M52M Fine Pitch.)

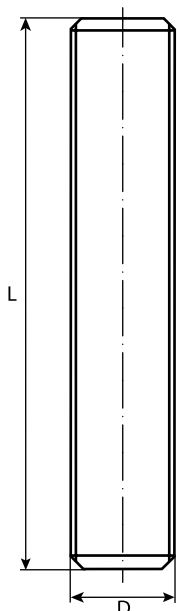
Weight:

Kg OR LBS /1000 Pieces

Dimensions:

mm.

Screwed Rods Full Length



D	Pitch	Weights 1000 Pcs	
		Kg	lbs
M12	1,75	0,72	1,59
M14	2	0,98	2,16
M16	2	1,32	2,91
M18	2,5	1,65	3,64
M20	2,5	2,07	4,56
M22	2,5	2,5	5,51
M24	3	2,98	6,57
M27	3	3,86	8,51
M30	3,5	4,72	10,41
M33	3,5	5,81	12,81
M36	3	7,15	15,76
M39	3	8,45	18,63
M42	3	4,87	10,74
M45	3	11,42	25,18
M48	3	13,07	28,81
M52	3	15,4	33,95

Material:

Alloy Steel ASTM A193 Grade B7

Thread:

UNI 5542 - 5543

Weight:

Kg/mt. - LBS/mt.

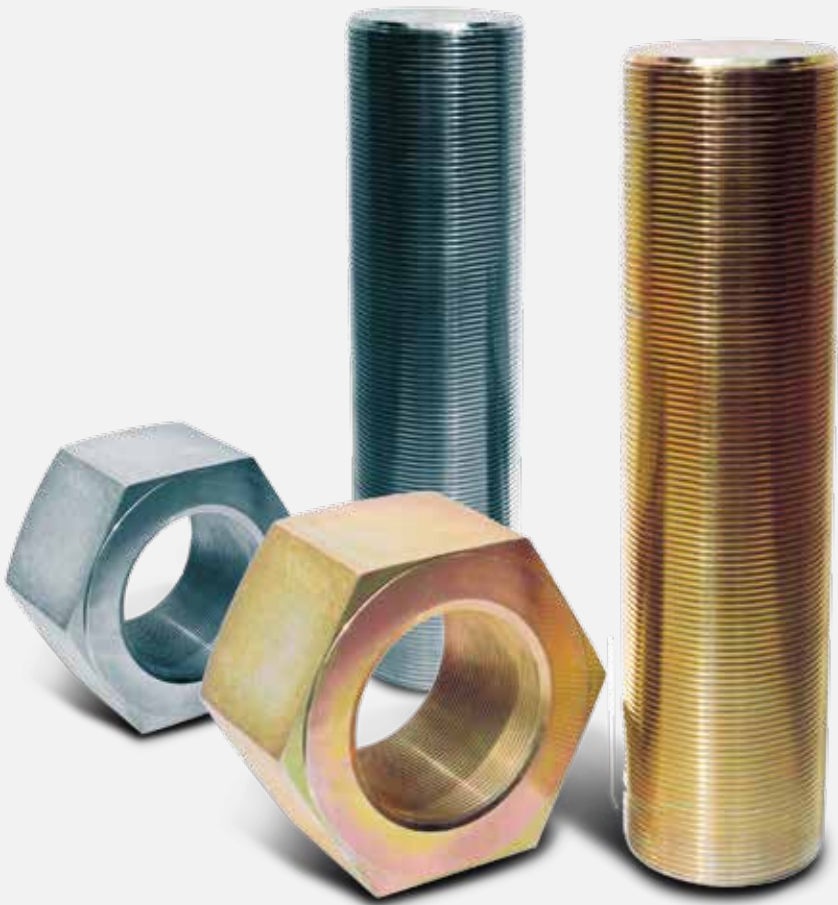
Dimensions:

mm.

On request we can supply these bars with length of 2-3 meters or

commercial length.

Studbolts



Recommended Materials Depending on Service Conditions

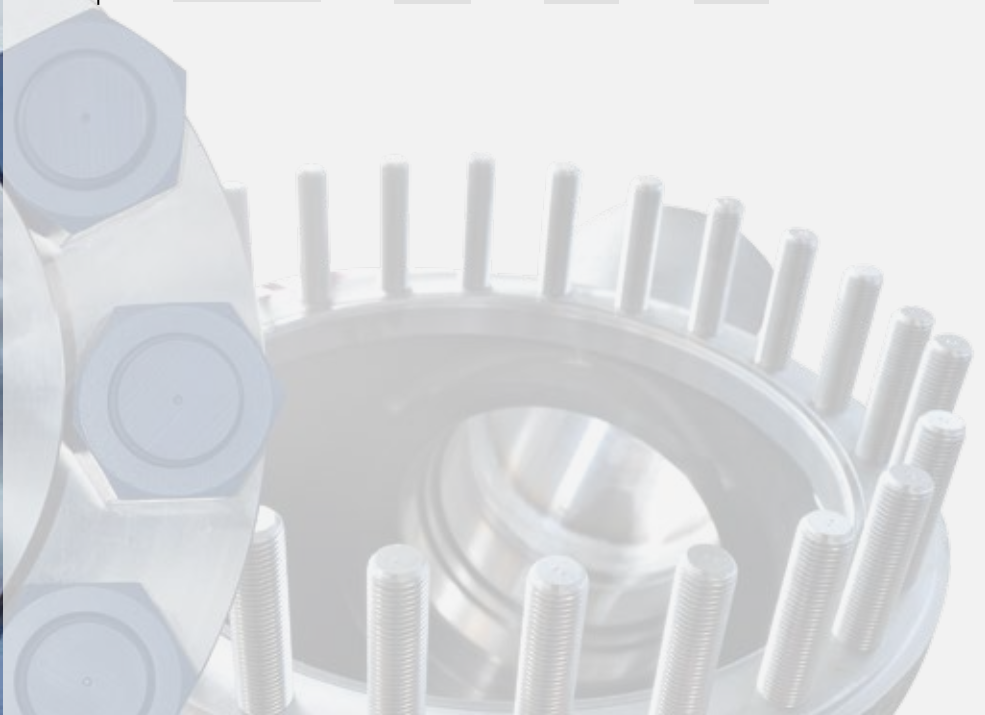
Service	Service Conditions		Recommended Material	
	°F(°C)	Stress and Impact Values	Stud Bolt	Nut
High Pressure and High Temperature	32 ~ 1148 (0 ~ 620)	See Next Sheets	ASTMA193B5	ASTMA19A Gr. 3
	32 ~ 896 (0 ~ 480)		A 193 B 6	A 194 Gr. 6
	-58 ~ 842 (-50 ~ 450)		A 193 B 7	A 194 Gr. 2H
	-58 ~ 1022 (-50 ~ 550)		A 193 B16	A 194 Gr. 4 or 7
	~ 1292 (~ 700)		A 453 660	A 194 Gr. 8 Tor 8C
High Corrosive and High Temperature	1104 ~ 1472 (540 ~ 800)	ditto	A 193 B 8	A 194 Gr. 8
	1104 ~ 1472 (540 ~ 800)		A 193 B 8M	A 194 Gr. 8 M
	1104 ~ 1472 (540 ~ 800)		A 193 B T	A 194 Gr. 8 T
High pressure and Low Temperature	-148 ~ -58 (-100 ~ -50)	ditto	A 320 L 7	A 194 Gr. 4 or 7
	-148 ~ -58 (-100 ~ -50)		A 320 L 43	A 194 Gr. 7
Low Temperature	-418 ~ -148 (-250 ~ -100)	ditto	A 320 B 8	A 194 Gr. 8
	-328 ~ -148 (-200 ~ -100)		A 320 B 8 M	A 194 Gr. 8M
	-328 ~ -148 (-200 ~ -100)		A 320 B 8 T	A 194 Gr. 8T



Studbolts

Alloy and Stainless Steel Bolting Materials for High Temperature Service ASME SA-193

Grade		B6	B7	B16	B8 Class 1	B8 Class 2	B8T Class 1	B8M Class 1	B8M Class 2
Chemical Analysis	Carbon	≤ 0,15	0,37-0,49	0,36-0,47	≤ 0,08	≤ 0,08	≤ 0,08	≤ 0,08	≤ 0,08
	Manganese	≤ 1,00	0,65-1,10	0,45-0,70	≤ 2,00	≤ 2,00	≤ 2,00	≤ 2,00	≤ 2,00
	Phosphorus Max.	0,04	0,03	0,03	0,04	0,04	0,04	0,04	0,04
	Sulfur Max.	0,03	0,04	0,04	0,03	0,03	0,03	0,03	0,03
	Silicon	≤ 1,00	0,15-0,35	0,15-0,35	≤ 1,00	≤ 1,00	≤ 1,00	≤ 1,00	≤ 1,00
	Nickel	-	-	-	8-10,5	8-10,5	36090	41913	41913
	Chromium	11,5-13,5	0,75-1,20	0,80-1,15	18-20	18-20	17-19	16-18	16-18
	Molybdenum	-	0,15-0,25	0,50-0,65	-	-	-	2-3	2-3
	Colombium + Tantalum	-	-	-	-	-	-	-	-
	Titanium	-	-	-	-	-	Min. 5xC	-	-
Vanadium	-	-	0,25-0,35	-	-	-	-	-	
Mini Tensile Strength N/mmsq	Min. Tensile Strength N/mmsq	180 > D > 100	-	690	690	-	-	-	-
		100 > D	760	-	-	515	-	515	515
		100 > D > 65	-	790	790	-	-	-	-
		65 ≥ D	-	860	860	-	-	-	-
		40 ≥ D > 32	-	-	-	-	690	-	620
		31,6 ≥ D > 25,4	-	-	-	-	720	-	655
		25 ≥ D > 20	-	-	-	-	790	-	690
		20 ≥ D	-	-	-	-	860	-	760
	Min. Yield Strength N/mmsq	180 > D > 100	-	515	585	-	-	-	-
		100 ≥ D	585	-	-	515	-	205	205
		100 > D > 65	-	655	655	-	-	-	-
		65 ≥ D	-	720	720	-	-	-	-
		40 ≥ D > 32	-	-	-	-	345	-	345
		31,6 ≥ D > 25,4	-	-	-	-	450	-	450
		25 ≥ D > 20	-	-	-	-	550	-	550
		20 ≥ D	-	-	-	-	690	-	690
	Elongation in 2 Inches Min. %	180 > D > 100	-	18	16	-	-	-	-
		100 ≥ D	15	-	-	30	-	30	30
		100 > D > 65	-	16	17	-	-	-	-
		65 ≥ D	-	16	18	-	-	-	-
		40 ≥ D > 32	-	-	-	-	28	-	30
		31,6 ≥ D > 25,4	-	-	-	-	20	-	25
		25 ≥ D > 20	-	-	-	-	15	-	20
		20 ≥ D	-	-	-	-	12	-	15
	Reduction of Area Min. %	180 > D > 100	-	50	45	-	-	-	-
		100 ≥ D	50	-	-	50	-	50	50
		100 > D > 65	-	50	45	-	-	-	-
		65 ≥ D	-	50	50	-	-	-	-
40 ≥ D > 32		-	-	-	-	45	-	45	
31,6 ≥ D > 25,4		-	-	-	-	35	-	45	
25 ≥ D > 20		-	-	-	-	35	-	45	
20 ≥ D		-	-	-	-	35	-	45	



Low Temperature Service Bolting Alloy Steels ASTM Designation A320

Grade		L7	L43	B8 Class 1	B8 Class 2	B8T Class 1	B8M Class 1	B8M Class 2	B8C Class 1	
Chemical Analysis	Carbon	038-0,48	0,38-0,43	≤ 0,08	≤ 0,08	≤ 0,08	≤ 0,08	≤ 0,08	≤ 0,08	
	Manganese	0,75-1,00	0,60-0,85	≤ 2,00	≤ 2,00	≤ 2,00	≤ 2,00	≤ 2,00	≤ 2,00	
	Phosphorus Max.	0,03	0,03	0,04	0,04	0,04	0,04	0,04	0,04	
	Sulfur Max.	0,04	0,04	0,03	0,03	0,03	0,03	0,03	0,03	
	Silicon	0,15-0,35	0,15-0,35	≤ 1,00	≤ 1,00	≤ 1,00	≤ 1,00	≤ 1,00	≤ 1,00	
	Nickel	-	1,65-2,00	8-10,5	8-10,5	9-12	10-14	10-14	9-13	
	Chromium	0,80-1,10	0,70-0,90	18-20	18-20	17-19	16-18	16-18	17-19	
	Molybdenum	0,15-0,25	0,20-0,30	-	-	-	2-3	2-3	-	
	Titanium Mini	-	-	-	-	5xC	-	-	-	
	Colombium + Tantalum	-	-	-	-	-	-	-	Min.10 xC	
Mini Tensile Strength	Min. Tensile Strength N/mm²	All Diameters	-	-	515	690	515	515	-	515
		100 > D	860	860	-	-	-	-	-	-
		65 > D	-	-	-	-	-	-	-	-
		40 > D > 32	-	-	-	690	-	-	620	-
		32 > D > 25	-	-	-	725	-	-	655	-
		25 > D > 20	-	-	-	795	-	-	690	-
		20 > D	-	-	-	860	-	-	760	-
	Min. Yield Strength N/mm²	All diameters	-	725	205	-	205	205	-	205
		100 > D	725	-	-	-	-	-	-	-
		65 > D	-	-	-	-	-	-	-	-
		40 > D > 32	-	-	-	345	-	-	345	-
		32 > D > 25	-	-	-	450	-	-	450	-
		25 > D > 20	-	-	-	550	-	-	550	-
		20 > D	-	-	-	690	-	-	655	-
	Elongation in 2 Inches Min. %	All Diameters	-	16	35	-	35	35	-	35
		100 > D	16	-	-	-	-	-	-	-
		65 > D	-	-	-	-	-	-	-	-
		40 > D > 32	-	-	-	28	-	-	30	-
		32 > D > 25	-	-	-	20	-	-	25	-
		25 > D > 20	-	-	-	15	-	-	20	-
		20 > D	-	-	-	12	-	-	15	-
	Reduction of Area Min. %	All diameters	-	50	50	-	50	50	-	50
		100 > D	50	-	-	-	-	-	-	-
		65 > D	-	-	-	-	-	-	-	-
		40 > D > 32	-	-	-	45	-	-	45	-
		32 > D > 25	-	-	-	35	-	-	45	-
		25 > D > 20	-	-	-	30	-	-	45	-
		20 > D	-	-	-	35	-	-	45	-
Resilience	Test Temperature	101°C	101°C							
	KCV Joules	27	27	See Note 2	See Note 2	See Note 1	See Note 1	See Note 1	See Note 2	
Equivalents	AISI	4142	4340	304	304	321	316	316	347	
	AFNOR	42 CD 4	40 NCD 7,03	Z6 CN 18,09	Z6 CN 18,10	Z6 CNT 18,10	Z6 CND 17,11	Z6 CND 17,11	-	
	DIN	42 Cr Mo 4	-	X5 CrNi 18,09	X5 CrNi 18,09	X10 CrNiTi 18,09	X5 CrNiMo 18,10	X5 CrNiMo 18,10	X10 CrNiNb 18,09	
	BS	1506,62 Gr A	-	1506,80 GrB	1506,80 GrB	1506,82 GrTi	1506-845	1506-845	1506-821Nb	

Note1:
Impact value not required for use at temperatures above -200°C.

Note2:
Above -255°C.

Studbolts

Dimensions for ASA-RF Flanges

Nominal Diameter of Flange	125-150 LBS			250-300 LBS			600 LBS			900 LBS			1500 LBS		
	Quantity	Ø of Rod	Length	Quantity	Ø of Rod	Length	Quantity	Ø of Rod	Length	Quantity	Ø of Rod	Length	Quantity	Ø of Rod	Length
	Pieces	Inches mm	Inches mm	Pieces	Inches mm	Inches mm	Pieces	Inches mm	Inches mm	Pieces	Inches mm	Inches mm	Pieces	Inches mm	Inches mm
1/2"	4	1/2"	2 1/2"	4	1/2"	2 3/4"	4	1 1/2"	3 1/4"	4	3/4"	4 1/2"	4	3/4"	4 1/2"
		14	65			14		70			-	85			20
3/4"	4	1/2"	2 3/4"	4	5/8"	3 1/4"	4	5/8"	3 3/4"	4	3/4"	4 3/4"	4	3/4"	4 3/4"
		14	70			16		85			16	95			20
1"	4	1/2"	2 3/4"	4	5/8"	3 1/4"	4	5/8"	3 3/4"	4	7/8"	5 1/4"	4	7/8"	5 1/4"
		14	70			16		85			16	95			22
1 1/4"	4	1/2"	3	4	5/8"	3 1/2"	4	5/8"	4	4	7/8"	5 1/4"	4	7/8"	5 1/4"
		14	75			16		90			16	100			22
1 1/2"	4	1/2"	3	4	3/4"	3 3/4"	4	3/4"	4 1/2"	4	1	6	4	1	6
		14	75			20		95			20	145			27
2"	8	5/8"	3 1/2"	8	5/8"	3 3/4"	8	5/8"	4 1/2"	8	7/8"	6	8	7/8"	6
		16	90			16		95			16	115			22
2 1/2"	8	5/8"	3 3/4"	8	3/4"	4 1/4"	8	3/4"	5	8	1	6 3/4"	8	1	6 3/4"
		16	95			20		110			20	125			27
3"	8	5/8"	3 3/4"	8	3/4"	4 1/2"	8	3/4"	5 1/4"	8	7/8"	6	8	1 1/8"	7 1/2"
		16	95			20		115			20	135			22
3 1/2"	8	5/8"	3 3/4"	8	3/4"	4 1/2"	8	7/8"	5 3/4"	8	-	-	8	-	-
		16	95			20		115			22	145			-
4"	8	5/8"	3 3/4"	8	3/4"	4 3/4"	8	7/8"	6	8	1 1/8"	7 1/4"	8	1 1/4"	8 1/4"
		16	95			20		120			22	150			30
5"	8	3/4"	4	8	3/4"	5	8	1	7	8	1 1/4"	8	8	1 1/2"	10 1/4"
		20	100			20		125			27	180			33
6"	12	3/4"	4 1/4"	12	3/4"	5	12	1	7 1/4"	12	1 1/8"	8	12	1 3/8"	10 3/4"
		20	110			20		125			27	185			30
8"	12	3/4"	4 1/2"	12	7/8"	5 3/4"	12	1 1/8"	8	12	1 3/8"	9 1/4"	12	1 5/8"	12
		20	115			22		145			30	205			36
10"	16	7/8"	5	16	1	6 3/4"	16	1 1/4"	9	16	1 3/8"	9 3/4"	16	1 7/8"	14
		22	125			27		170			33	230			36
12"	12	7/8"	5	16	1 1/8"	7 1/4"	20	1 1/4"	9 1/4"	20	1 3/8"	10 1/2"	16	2	15 1/2"
		22	125			30		185			33	235			36
14"	16	1	5 3/4"	20	1 1/8"	7 1/2"	20	1 3/8"	9 3/4"	20	1 1/2"	11 1/4"	16	2 1/4"	16 3/4"
		27	145			30		190			36	250			39
16"	16	1	5 3/4"	20	1 1/4"	8	20	1 1/2"	10 1/2"	20	1 5/8"	11 3/4"	16	2 1/2"	18 1/2"
		27	145			33		205			39	265			42
18"	20	1 1/8"	6 1/4"	24	1 1/4"	8 1/4"	24	1 5/8"	11 1/4"	20	1 7/8"	13 1/2"	16	2 3/4"	20 1/4"
		30	160			33		210			42	285			48
20"	20	1 1/8"	6 3/4"	24	1 1/4"	8 3/4"	24	1 5/8"	12	24	2	14 1/2"	16	3	22 1/4"
		30	170			33		220			42	305			52
22"	20	1 1/4"	7 1/4"	24	1 1/2"	9 1/2"	24	1 3/4"	12 3/4"	24	-	-	16	-	-
		33	185			39		240			45	325			-
24"	24	1 1/4"	7 1/2"	24	1 1/2"	9 3/4"	28	1 7/8"	13 1/2"	28	2 1/2"	18	24	3 1/2"	25 1/4"
		33	190			39		250			48	345			64
26"	28	1 1/4"	7 3/4"	28	1 5/8"	10 3/4"	28	1 7/8"	14	28	-	-	28	-	-
		33	195			42		275			48	355			-
30"	32	1 1/4"	8	32	1 3/4"	12	32	2	15	32	-	-	32	-	-
		33	205			45		305			52	380			-
34"	32	1 1/2"	8 3/4"	32	1 7/8"	13	32	2 1/4"	16	32	-	-	32	-	-
		39	220			48		330			56	405			-
36"	36	1 1/2"	9	36	2	13 3/4"	36	2 1/2"	16 3/4"	36	-	-	36	-	-
		39	230			52		350			64	425			-
42"	36	1 1/2"	9 1/2"	36	2	14 3/4"	36	2 3/4"	18 1/2"	36	-	-	36	-	-
		39	240			52		375			68	470			-

NB:
The above lengths are total lengths, including bevels.

Studbolts

Inch	mm	Inch	mm	Inch	mm	Inch	mm
2	50	9 1/4"	235	16 1/4"	415	23 1/2"	595
2 1/4"	55	9 1/2"	240	16 1/2"	420	23 5/8"	600
2 3/8"	60	9 5/8"	245	16 3/4"	415	23 3/4"	605
2 1/2"	65	9 3/4"	250	17	430	24	610
2 3/4"	70	10	255	17 1/8"	435	24 1/4"	615
3	75	10 1/4"	260	17 1/4"	440	24 1/2"	620
3 1/8"	80	10 1/2"	265	17 1/2"	445	24 5/8"	625
3 1/4"	85	10 5/8"	270	17 3/4"	450	24 3/4"	630
3 1/2"	90	10 3/4"	275	17 7/8"	455	25	635
3 3/4"	95	11	280	18	455	25 1/4"	640
4	100	11 1/4"	285	18 1/8"	460	25 3/8"	645
4 1/8"	105	11 1/2"	290	18 1/4"	465	25 1/2"	650
4 1/4"	110	11 5/8"	295	18 1/2"	470	25 3/4"	655
4 1/2"	115	11 3/4"	300	18 3/4"	475	26	660
4 3/2"	120	12	305	18 7/8"	480	26 1/4"	665
5	125	12 1/4"	310	19	485	26 3/8"	670
5 1/8"	130	12 3/8"	315	19 1/4"	490	26 1/2"	675
5 1/4"	135	12 1/2"	320	19 1/2"	495	26 3/4"	680
5 1/2"	140	12 3/4"	325	19 3/4"	500	-	-
5 3/4"	145	12 7/8"	325	19 7/8"	505	-	-
6	150	13	330	20	510	-	-
6 1/8"	155	13 1/4"	335	20 1/4"	515	-	-
6 1/4"	160	13 5/8"	340	20 1/2"	520	-	-
6 1/2"	165	13 1/2"	345	20 3/4"	525	-	-
6 3/4"	170	13 3/4"	350	20 7/8"	530	-	-
6 7/8"	175	14	355	21	535	-	-
7	180	14 1/4"	360	21 1/4"	540	-	-
7 1/4"	185	14 3/8"	365	21 1/2"	545	-	-
7 1/2"	190	14 1/2"	370	21 3/4"	550	-	-
7 3/4"	195	14 3/4"	375	21 7/8"	555	-	-
7 7/8"	200	15	380	22	560	-	-
8	205	15 1/4"	385	22 1/4"	565	-	-
8 1/4"	210	15 3/8"	390	22 1/2"	570	-	-
8 1/2"	215	15 1/2"	395	22 5/8"	575	-	-
8 3/4"	220	15 3/4"	400	22 3/4"	580	-	-
8 7/8"	225	16	405	23	585	-	-
9	230	16 1/8"	410	23 1/4"	590	-	-

Conversion Table Inches/mm for Studbolts



Nuts

Carbon and Alloy Steels for Nuts ASTM Designation A194

Grade		2H	2HM	3	4	6	6F	7	8		8M	8F	8C
Chemical Analysis	Carbon	>0,40	>0,40	>0,10	0,40-0,50	≤ 0,15	≤ 0,15	0,37-0,49	≤ 0,08	≤ 0,08	≤ 0,08	≤ 0,15	≤ 0,08
	Manganese	≤ 0,40	≤ 0,40	≤ 1,40	0,70-0,90	≤ 1,00	≤ 1,25	0,65-1,10	≤ 2,00	≤ 2,00	≤ 2,00	≤ 2,00	≤ 2,00
	Phosphorus Maxi	0,04	0,04	0,04	0,035	0,04	0,06	0,04	0,045	0,045	0,045	0,2	0,045
	Sulfur	≤ 0,05	≤ 0,05	≤ 0,03	≤ 0,04	≤ 0,03	≤ 0,15	≤ 0,04	≤ 0,03	≤ 0,03	≤ 0,03	0,15-0,35	≤ 0,03
	Silicon	≤ 0,40	≤ 0,40	< 1,00	0,15-0,35	< 1,00	< 1,00	0,15-0,35	< 1,00	< 1,00	< 1,00	< 1,00	< 1,00
	Nickel	-	-	-	-	-	-	-	8-10,5	39060	41913	38998	41518
	Chromium	-	-	38872	-	11,5-13,5	12-14,00	0,75-1,20	18-20	17-19	16-18	17-19	17-19
	Molybdenum	-	-	0,40-0,65	0,20-0,30	-	-	0,15-0,25	-	-	2-3	-	-
	Titanium Mini	-	-	-	-	-	-	-	-	5xC	-	-	-
	Selenium	-	-	-	-	-	≤ 0,15	-	-	-	-	-	-
	Tantalum	-	-	-	-	-	-	-	-	-	-	-	Min.10xC
Mechanical Properties	Brinell	248	159	248	248	228	228	248	126	126	126	126	126
	Hardness	352	237	352	352	271	271	352	300	300	300	300	300
Equivalents	AISI	-	-	501	-	410	416	4142	304	321	316	303	347
	Afnor	CC45	CC45	Z12CD5	45D2	Z10Cr13	Z12CF13	42CD4	Z6CN 18,09	Z6CNT 18,10	Z6CND 17,11	Z10CNF 18,09	-
	DIN	C45	C45	12CrMo 19,5	-	X10Cr13	-	42CrMo4	X5CrNi 18,09	X10CrNi 18,09	X5CrNiMo 18,10	X12CrNiS 18,08	X10CrNiMb 18,09
	BS	1506-162	1506-162	1506-625	1506-625	-	1506-713	1506-621 GrA	1506-801 GrB	1506-821 GrTi	1506-845	1506-841 GrAM	1506-821 Nb

Note:

The above equivalents are to be heat-threaded in line with mechanical characteristics shown.





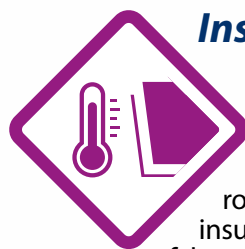
Euroguarco Divisions



Piping

Conforming to ANSI, BWG, AWG, BS and other international standards:

line pipe, boiler pipe, heat-exchanger tube, tube expanders, torque wrenches, condenser tube, boiler and heater tubes, U-tubes, assembly bundle tubes, finned tube for air-cooling systems; Carbon steel, stainless steel, Cu-Ni, admiralty brass, cast iron, special alloys.



Insulation

High temperature textiles (fabrics, tapes, ropes, sleeves), insulating blankets, felts, millboards, papers and mouldables, pre-formed insulating jackets, welding blankets, polymeric foam insulating boards, acoustic boards and sound barriers, fire-resistant textiles, compensation joints.

Speciality items for marine, oil & gas, steel, glass industries.



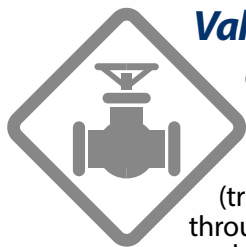
Engineering

Often in cooperation with partners, Euroguarco has performed several turn-key and sub-contract works

for the engineering, supply and construction of industrial and civil projects. Based on the project, Euroguarco can offer his customers with advantageous solution by reducing the cost impact of many services that normally EPCs give in outsource. Some cases:

- Piping system engineering, fabrication and testing
- Pig Launcher & Receiver (Iraq, Libya)
- Gas/Oil Tanker Jetty (Iran)
- Gas, oil or finished products Pipeline project (Turkey, Iran, Iraq)
- Slug Catcher (Iran)
- Steel & alloy piping structure (Mexico)
- Air and water cooling systems (Iraq)
- Insulation cut-on-design and supply for piping and pressure vessels (Kazakhstan, Italy)
- Flares and burners (Iraq)
- LPG storage and distribution system (Ghana, Tanzania)
- LPG filling station (Tanzania)
- Railway project (Ghana)
- Pumping station (Russia)
- Stations on skid (Iraq)

Euroguarco is also active in environment friendly projects, in cooperation or in consortium with specialized partner companies.



Valve

Gate, Swing-Check, Globe valves. Ball valves (trunnion, floating, through conduit), wrench and gear

operator. Forged and cast steel types. Butterfly, Wafer-type, Diaphragm and Knife-Gate valves.

Valves in bronze and brass: gate, globe, swing check and ball type.

Conforming to dimensional standards ASME, ANSI, API, BS.

Materials: carbon steel, stainless steel, cast iron, ductile iron and alloys. Sizes from 1/4" to 60", depending on the type of valve.

Rating from 150 to 2500 Lbs.



Gasket

Conforming to ASME, DIN, EN and BS standards: compressed jointing sheets FASIT®, flexible graphite

GRAFLEX®, PTFE based sheets GUAFILON®, mica compound sheets GUARMICA®, gland packings, o-rings, die-cut gaskets, Weaveline gaskets, spiral-wound gaskets, metal-jacketed gaskets, ring-joint gaskets, flat metal gaskets, laminated gaskets, rubber gaskets, cam-profile gaskets, textile gaskets, manhole gaskets, etc.



Selected References

- ABB (Italy)
- ADOC Japan (EAU)
- Agip (Italy)
- Agip KCO (Kazakhstan)
- AGOCO (Libya)
- Alenia Aeronavale (Italy)
- Ameira Petroleum (Egypt)
- Ansaldo Energia (Italy)
- ASRY Shipyards (Bahrain)
- Attok Refinery (Pakistan)
- Bangladesh Gas Field Co. (Bangladesh)
- Banias Power Co. (Syria)
- Banias Refinery (Syria)
- Bateman-Litwin (France)
- Belleli (Italy)
- BP (Iraq)
- Brega (Libya)
- Brembana (Italy)
- Cairo Refining (Egypt)
- CERN (Switzerland)
- Daura Refinery (Iraq)
- Dongang Boiler Group (China)
- Eastern Refinery (Bangladesh)
- Eco Petrol (Colombia)
- Edipower (Italy)
- ENEL (Italy)
- ENI (Italy)
- Enppi (Egypt)
- Fincantieri (Italy)
- Finmeccanica (Italy)
- Fondital (Italy)
- Foster Wheeler (Italy)
- Gas Transmission Co. Ltd (Bangladesh)
- GAZPROM (Russia)
- GE Nuovo Pignone (USA, Italy)
- Homs Refinery (Syria)
- Jordan Petroleum Refinery (Jordan)
- LukOil (Russia)
- MAERSKOIL (Kazakhstan)
- Magotteaux (Belgium)
- Mangiarotti (Italy)
- Mari Gas Co. (Pakistan)
- McDermott (USA)
- Mellitah (Libya)
- Midland Refinery (Iraq)
- Ministry of Defense (Italy)
- National Refinery (Pakistan)
- NIGC (Iran)
- North Oil Company (Iraq)
- NPCC (EAU)
- Nuovo Pignone - GE (Italy)
- Officine Resta (Italy)
- Olmi - Alfa Laval (Italy)
- OPET Petrol (Turkey)
- ORYXGAS (Switzerland)
- Oto Melara (Italy)
- PDI-Pemex (Mexico)
- Petrojet (Egypt)
- Qatar Gas (Qatar)
- Ras Gas (Qatar)
- Saipem (Italy)
- Saras (Italy)
- SCOP (Iraq)
- Sirte Oil Co. (Libya)
- Snam (Italy)
- Solvay (Italy)
- South Oil Company (Iraq)
- SGS Oil & Gas (Czech Republic)
- SSGC (Pakistan)
- Kala Naft (Iran)
- Kordestan Petrochemical (Iran)
- MAPNA (Iran)
- Metec (Ethiopia)
- Nargan (Iran)
- NIOC (Iran)
- PDO (Oman)
- Pentair (USA)
- POGC (Iran)
- Yara (Italy)
- Sung Kyong (South Korea)
- Tecnimont (Italy)
- Tehran Refinery (Iran)
- Termomeccanica Italiana
- Trenitalia (Italy)
- Waha Oil Company (Libya)
- Warri Refinery (Nigeria)



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