Unbrako

SOCKET HEAD CAP SCREWS. . . Why Socket Screws? Why UNBRAKO?

The most important reasons for the increasing use of socket head cap screws in industry are safety, reliability and economy. All three reasons are directly traceable to the superior performance of socket screws vs. other fasteners, and that is due to their superior strength and advanced design.

- Reliability, higher pressures, stresses and speeds in todays machines and equipment demand stronger, more reliable joints and stronger, more reliable fasteners to hold them together.
- Rising costs make failure and downtime intolerable. Bigger, more complex units break down more frequently despite every effort to prevent it.
- This is why the reliability of every component has become critical. Components must stay together to function properly, and to keep them together joints must stay tight.
- Joint reliability and safety with maximum strength and fatigue resistance. UNBRAKO socket cap screws offer this to a greater degree than any other threaded fastener you can purchase "off-the-self."
- UNBRAKO socket cap screws offer resistance to a greater degree than any other threaded fasteners you can purchase "off-the-shelf."

TENSILE STRENGTH

- U.S. standard alloy steel socket head cap screws are made to strength levels of 180,000 and 170,000 psi to current industry standards. However, UNBRAKO socket cap screws are consistently maintained at 190,000 and 180,000 psi (depending on screw diameter).
- The higher tensile strength of UNBRAKO socket screws can be translated into savings. Using fewer socket screws of the same size can achieve the same clamping force in the joint. A joint requiring twelve 1-3/8" Grade 5 hex heads would need only 7 UNBRAKO socket head cap screws. Use them size for size and there are fewer holes to drill and tap and fewer screws to buy and handle. Smaller diameter socket head cap screws vs. larger hex screws cost less to drill and tap, take less energy to drive, and there is also weight saving.
- The size of the component parts can be reduced since the cylindrical heads of socket screws need less space than hex heads and require no additional wrench space.

FATIGUE STRENGTH

- Joints that are subject to external stress loading are susceptible to fatigue failure. UNBRAKO socket screws have distinct advantages that give you an extra bonus of protection against this hazard.
- Three major factors account for the greater fatigue resistance of UNBRAKO socket screws – design improvements, mechanical properties and closely controlled manufacturing processes.

AUSTENITIC STAINLESS STEEL STANDARD SERIES

UNBRAKO stainless socket screws are made from austenitic stainless steel. UNBRAKO stainless screws offer excellent resistance to rust and corrosion from acids, organic substances, salt solutions and atmospheres. Superior properties attained with stainless steel include retention of a high percentage of tensile strength and good creep resistance up to 800°F. without scaling or oxidation, and good shock and impact resistance to temperatures as low as –300°F.

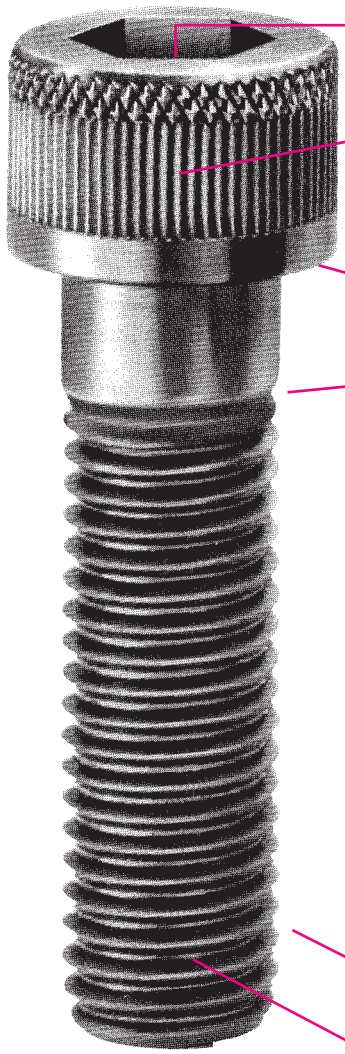
non-magnetic – Valuable in certain electrical applications. Maximum permeability is 1.2 Can be reduced to 1.02 by bright annealing.

cleanliness – Corrosion resistant characteristics of UNBRAKO screws are useful in chemical, food processing, appliance, paper, textile, packaging and pharmaceutical industries, as well as laboratories, hospitals, etc.

eye-appeal – Bright, non-tarnishing qualities add to appearance and salability of many products; are valuable assets to designers.

Standard processing of UNBRAKO stainless steel socket screws includes a passivation surface treatment which removes any surface contaminations.

PROFILE OF EXTRA STRENGTH

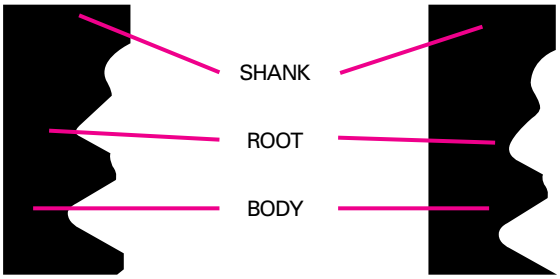


Deep, accurate socket for high torque wrenching. Knurls for easier handling. Marked for easier identification.

Head with increased bearing area for greater loading carrying capacity. Precision forged for symmetrical grain flow, maximum strength.

Elliptical fillet doubles fatigue life at critical head-shank juncture.

"3-R" (radiused-root runout) increases fatigue life in this critical head-shank juncture.

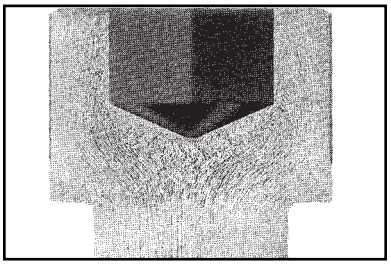


CONVENTIONAL THREAD RUNOUT – Note sharp angle at root where high stress concentration soon develops crack which penetrates into body of the screw.

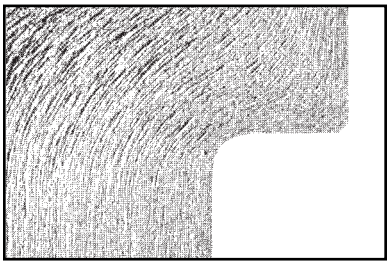
UNBRAKO "3-R" (RADIUSED ROOT RUNOUT) THREAD – Controlled radius of runout root provides a smooth form that distributes stress and increases fatigue life of thread run-out as a much as 300% in certain sizes.

Fully formed radiused thread increases fatigue life 100% over flat root thread forms.

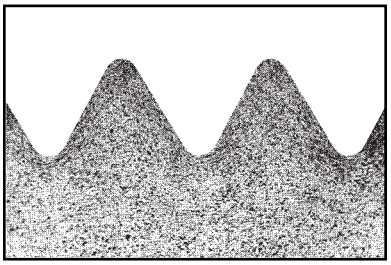
Controlled heat treatment produces maximum strength without brittleness.



Accurate control of socket depth gives more wrench engagement than other screws, permits full tightening without cracking or reaming the socket, yet provides ample metal in the crucial fillet area for maximum head strength.

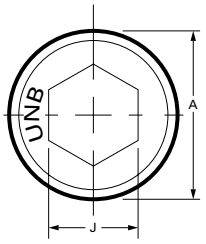


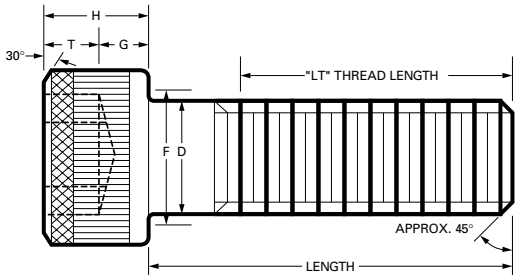
Controlled head forging, uniform grain flow, unbroken flow lines; makes heads stronger; minimizes failure in vital fillet area; adds to fatigue strength.



Contour-following flow lines provide extra shear strength in threads, resist stripping and provide high fatigue resistance. The large root radius UNBRAKO socket screw development doubles fatigue life compared to flat root thread forms.

SOCKET HEAD CAP SCREWS ■ 1960 Series ■ Dimensions ■ Mechanical Properties





Head markings may vary slightly depending on manufacturing practice. Diamond knurls, UNBRAKO, and UNB are recognized identifications for 1/4" diameter and larger.

DIMENSIONS

nom. size	basic screw dia.	threads per inch		A		D		G	T	H		J	F		LT
				head diameter		body diameter				head height			fillet diameter		
		UNRC	UNRF	max.	min.	max.	min.	min.	min.	max.	min.	nom.	max.	min	basic
#0	.060	–	80	.096	.091	.060	.0568	.020	.025	.060	.057	.050	.074	.051	.500
#1	.073	64	72	.118	.112	.073	.0695	.025	.031	.073	.070	.062	.087	.061	.625
#2	.086	56	64	.140	.134	.086	.0822	.029	.038	.086	.083	.078	.102	.073	.625
#3	.099	48	56	.161	.154	.099	.0949	.034	.044	.099	.095	.078	.115	.084	.625
#4	.112	40	48	.183	.176	.112	.1075	.038	.051	.112	.108	.094	.130	.094	.750
#5	.125	40	44	.205	.198	.125	.1202	.043	.057	.125	.121	.094	.145	.107	.750
#6	.138	32	40	.226	.218	.138	.1329	.047	.064	.138	.134	.109	.158	.116	.750
#8	.164	32	36	.270	.262	.164	.1585	.056	.077	.164	.159	.141	.188	.142	.875
#10	.190	24	32	.312	.303	.190	.1840	.065	.090	.190	.185	.156	.218	.160	.875
1/4	.250	20	28	.375	.365	.250	.2435	.095	.120	.250	.244	.188	.278	.215	1.000
5/16	.312	18	24	.469	.457	.3125	.3053	.119	.151	.312	.306	.250	.347	.273	1.125
3/8	.375	16	24	.562	.550	.375	.3678	.143	.182	.375	.368	.312	.415	.331	1.250
7/16	.437	14	20	.656	.642	.4375	.4294	.166	.213	.437	.430	.375	.484	.388	1.375
1/2	.500	13	20	.750	.735	.500	.4919	.190	.245	.500	.492	.375	.552	.446	1.500
9/16	.562	12	18	.843	.827	.5625	.5538	.214	.265	.562	.554	.438	.6185	.525	1.625
5/8	.625	11	18	.938	.921	.625	.6163	.238	.307	.625	.616	.500	.689	.562	1.750
3/4	.750	10	16	1.125	1.107	.750	.7406	.285	.370	.750	.740	.625	.828	.681	2.000
7/8	.875	9	14	1.312	1.293	.875	.8647	.333	.432	.875	.864	.750	.963	.798	2.250
1	1.000	8	12	1.500	1.479	1.000	.9886	.380	.495	1.000	.988	.750	1.100	.914	2.500
1	1.000	–	14*	1.500	1.479	1.000	.9886	.380	.495	1.000	.988	.750	1.100	.914	2.500
1 1/8	1.125	7	12	1.688	1.665	1.125	1.1086	.428	.557	1.125	1.111	.875	1.235	1.023	2.812
1 1/4	1.250	7	12	1.875	1.852	1.250	1.2336	.475	.620	1.250	1.236	.875	1.370	1.148	3.125
1 3/8	1.375	6	12	2.062	2.038	1.375	1.3568	.523	.682	1.375	1.360	1.000	1.505	1.256	3.437
1 1/2	1.500	6	12	2.250	2.224	1.500	1.4818	.570	.745	1.500	1.485	1.000	1.640	1.381	3.750
1 3/4	1.750	5	12	2.625	2.597	1.750	1.7295	.665	.870	1.750	1.734	1.250	1.910	1.609	4.375
2	2.000	4 1/2	12	3.000	2.970	2.000	1.9780	.760	.995	2.000	1.983	1.500	2.180	1.843	5.000
2 1/4	2.250	4 1/2	12	3.375	3.344	2.250	2.2280	.855	1.120	2.250	2.232	1.750	2.450	2.093	5.625
2 1/2	2.500	4	12	3.750	3.717	2.500	2.4762	.950	1.245	2.500	2.481	1.750	2.720	2.324	6.250
2 3/4	2.750	4	12	4.125	4.090	2.750	2.7262	1.045	1.370	2.750	2.730	2.000	2.990	2.574	6.875
3	3.000	4	12	4.500	4.464	3.000	2.9762	1.140	1.495	3.000	2.979	2.250	3.260	2.824	7.500

Performance data listed are for standard production items only. Non-stock items may vary due to variables in methods of manufacture. It is suggested that the user verify performance on any non-standard parts for critical applications.
* 1-14 is UNRS (special) standard thread form.

NOTES

Material: ASTM A574 – alloy steel
ASTM F837 – stainless steel

Dimensions: ANSI/ASME B18.3

Hardness: Alloy Steel – Rc 38-43
Stainless Steel – Rb 80 – Rc 33

Concentricity: Body to head O.D. – within 2% of body diameter T.I.R. or .006 T.I.R. whichever is greater. Body to hex socket – (sizes through 1/2") – within 3% of body diameter T.I.R. or .005 T.I.R. whichever is greater; (sizes over 1/2" – within 6% of body diameter).

The plane of the bearing surface shall be perpendicular to the axis of the screw within a maximum deviation of 1°.

For body and grip lengths see pages 8 and 9.

Thread Class: #0 through 1" dia. – 3A; over 1" dia. – 2A.

Typical values for test specimens:

	Alloy Steel	Stainless Steel
Elongation in 2 inches:	10% min.	10% min.
Reduction of area:	35% min.	30% min.

MECHANICAL PROPERTIES

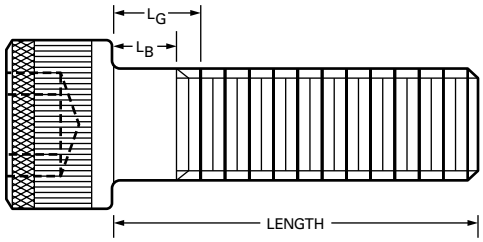
	ALLOY STEEL							STAINLESS STEEL						
	tensile strength pounds		minimum tensile strength psi	minimum yield strength psi	single shear strength of body	recommended seating torque* in-lbs		tensile strength pounds		minimum tensile strength	minimum yield strength	single shear strength	recommended seating torque* in-lbs	
nom. size	UNRC	UNRF	min.	min.	lbs. min.	UNRC plain	UNRF plain	UNRC	UNRF				UNRC plain	UNRF plain
#0	–	342	190,000	170,000	320	–	3	–	171	95,000	30,000	130	–	1.3
#1	499	528	190,000	170,000	475	5	5	250	264	95,000	30,000	190	2.0	2.3
#2	702	749	190,000	170,000	660	7	8	352	374	95,000	30,000	260	3.8	4
#3	925	994	190,000	170,000	875	12	13	463	497	95,000	30,000	350	5.7	6
#4	1,150	1,260	190,000	170,000	1,120	18	19	574	628	95,000	30,000	440	8.0	9
#5	1,510	1,580	190,000	170,000	1,400	24	25	756	789	95,000	30,000	550	12	14
#6	1,730	1,930	190,000	170,000	1,700	34	36	864	964	95,000	30,000	670	15	17
#8	2,660	2,800	190,000	170,000	2,400	59	60	1,330	1,400	95,000	30,000	850	28	29
#10	3,330	3,800	190,000	170,000	3,225	77	91	1,660	1,900	95,000	30,000	1,280	40	45
1/4	6,050	6,910	190,000	170,000	5,600	200	240	3,020	3,460	95,000	30,000	2,200	95	110
5/16	9,960	11,000	190,000	170,000	8,750	425	475	4,980	5,510	95,000	30,000	3,450	170	190
3/8	14,700	16,700	190,000	170,000	12,600	750	850	7,360	8,350	95,000	30,000	4,470	300	345
7/16	20,200	22,600	190,000	170,000	17,100	1,200	1,350	10,100	11,300	95,000	30,000	6,760	485	545
1/2	27,000	30,400	190,000	170,000	22,350	1,850	2,150	13,500	15,200	95,000	30,000	8,840	750	850
9/16	32,800	36,500	180,000	155,000	28,300	2,500	2,700	17,300	19,300	95,000	30,000	11,200	920	1,050
5/8	40,700	46,100	180,000	155,000	34,950	3,400	3,820	21,500	24,300	95,000	30,000	13,800	1,270	1,450
3/4	60,200	67,100	180,000	155,000	47,700	6,000	6,800	31,700	35,400	95,000	30,000	19,850	2,260	2,520
7/8	83,100	91,700	180,000	155,000	64,000	8,400	9,120	44,000	48,400	95,000	30,000	27,100	3,790	4,180
1	109,000	119,000	180,000	155,000	84,800	12,500	13,200	57,600	63,000	95,000	30,000	35,300	5,690	6,230
1	–	122,000	180,000	155,000	107,000	–	13,900							
1-1/8	137,000	154,000	180,000	155,000	107,000	14,900	16,600							
1-1/4	175,000	193,000	180,000	155,000	132,500	25,000	27,000							
1-3/8	208,000	237,000	180,000	155,000	160,000	33,000	35,000							
1-1/2	253,000	285,000	180,000	155,000	190,500	43,500	47,000							
1-3/4	342,000	394,000	180,000	155,000	259,500	71,500	82,500							
2	450,000	521,000	180,000	155,000	339,000	108,000	125,000							
2-1/4	585,000	664,000	180,000	155,000	429,000	155,000	186,000							
2-1/2	720,000	828,000	180,000	155,000	530,000	215,000	248,000							
2-3/4	888,000	1,006,000	180,000	155,000	641,000	290,000	330,000							
3	1,074,000	1,204,000	180,000	155,000	763,000	375,000	430,000							

*Seating torques for alloy steel calculated in accordance with VDI 2230, "Systematic Calculation of High Duty Bolted Joints," to induce approximately 120,000 PSI in the screw threads through 0.500-inch diameter, and 115,000 PSI over 0.500-inch diameter. Seating torques for stainless steel are calculated to induce approximately 40,000 PSI stress. Values are for plain screws. For cadmium plated screws, multiply recommended seating torque by .75; for zinc plated screws multiply by 1.40. See note, page 1.

See Technical Guidelines section for additional information on torques, installation, and hole preparation.

Unbrako

SOCKET HEAD CAP SCREWS ■ 1960 Series ■ Body and Grip Lengths



LENGTH TOLERANCES

diameter	up to 1" incl.	over 1" to 2 1/2" incl.	over 2 1/2" to 6" incl.	over 6"
#0 thru 3/8 incl.	–.03	–.04	–.06	–.12
7/16 to 3/4 incl.	–.03	–.06	–.08	–.12
7/8 to 1-1/2 incl.	–.05	–.10	–.14	–.20
over 1 1/2		–.18	–.20	–.24

BODY and GRIP LENGTHS

	#0		#1		#2		#3		#4		#5		#6		#8		#10		1/4	
length	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B
3/4	.250	.187																		
7/8	.250	.187	.250	.172	.250	.161	.250	.146												
1	.500	.437	.250	.172	.250	.161	.250	.146	.250	.125	.250	.125								
1 1/4	.750	.687	.625	.547	.625	.536	.625	.521	.250	.125	.250	.125	.500	.344	.375	.219	.375	.167		
1 1/2			.875	.797	.875	.786	.875	.771	.750	.625	.750	.625	.500	.344	.375	.219	.375	.167	.500	.250
1 3/4					1.125	1.036	1.125	1.021	.750	.625	.750	.625	1.000	.844	.875	.719	.875	.667	.500	.250
2							1.375	1.271	1.250	1.125	1.250	1.125	1.000	.844	.875	.719	.875	.667	1.000	.750
2 1/4											1.250	1.125	1.500	1.344	1.375	1.219	1.375	1.167	1.000	.750
2 1/2											1.750	1.625	1.500	1.344	1.375	1.219	1.375	1.167	1.500	1.250
2 3/4													2.000	1.844	1.875	1.719	1.875	1.667	1.500	1.250
3															1.875	1.719	1.875	1.667	2.000	1.750
3 1/4															2.375	2.219	2.375	2.167	2.000	1.750
3 1/2																	2.375	2.167	2.500	2.250
3 3/4																	2.875	2.667	2.500	2.250
4																			3.000	2.750
4 1/4																			3.000	2.750
4 1/2																			3.500	3.250
4 3/4																			3.500	3.250
5																			4.000	3.750
5 1/4																			4.000	3.750
5 1/2																				
5 3/4																				
6																				
6 1/4																				
6 1/2																				
6 3/4																				
7																				
7 1/4																				
7 1/2																				
7 3/4																				
8																				
8 1/2																				
9																				
9 1/2																				
10																				
11																				
12																				
13																				
14																				
15																				
16																				
17																				
18																				
19																				
20																				

SOCKET HEAD CAP SCREWS

1960 Series ■ Body and Grip Lengths

L_G is the maximum grip length and is the distance from the bearing surface to the first complete thread.

L_B is the minimum body length and is the length of the unthreaded cylindrical portion of the shank.

Thread length for the sizes up to and including 1″ diameter shall be controlled by the grip length and body length as shown in the table.

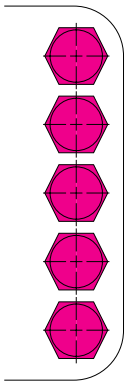
For sizes larger than 1″ the minimum complete thread length shall be equal to the basic thread length, and the total thread length including imperfect threads shall be basic thread length plus five pitches. Lengths too short to apply formula shall be threaded to head. Complete threads shall extend within two pitches of the head for lengths above the heavy line on sizes up to and including 5/8″ diameter. Larger diameters shall be threaded as close to the head as practicable.

Screws of longer lengths than those tabulated shall have a thread length conforming to the formula for sizes larger than 1″.

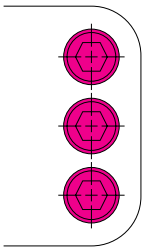
5/16		3/8		7/16		1/2		9/16		5/8		3/4		7/8		1	
L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B	L_G	L_B
.625	.347	.500	.187														
.625	.347	.500	.187	.625	.268												
1.125	.847	1.000	.687	.625	.268	.750	.365										
1.125	.847	1.000	.687	1.125	.768	.750	.365	.875	.458	.750	.295						
1.625	1.187	1.500	1.187	1.125	.768	.750	.365	.875	.458	.750	.295						
1.625	1.347	1.500	1.187	1.625	1.268	1.500	1.115	.875	.458	.750	.295	1.000	.500				
2.125	1.847	2.000	1.687	1.625	1.268	1.500	1.115	1.625	1.208	1.500	1.045	1.000	.500	1.000	.444		
2.125	1.847	2.000	1.687	2.125	1.768	1.500	1.115	1.625	1.208	1.500	1.045	1.000	.500	1.000	.444	1.000	.375
2.625	2.347	2.500	2.187	2.125	1.768	2.250	1.865	1.625	1.208	1.500	1.045	1.000	.500	1.000	.444	1.000	.375
2.625	2.347	2.500	2.187	2.625	2.268	2.250	1.865	2.375	1.958	2.250	1.795	2.000	1.500	1.000	.444	1.000	.375
3.125	2.847	3.000	2.687	2.625	2.268	2.250	1.865	2.375	1.958	2.250	1.795	2.000	1.500	2.000	1.444	1.000	.375
3.125	2.847	3.000	2.687	3.125	2.768	3.000	2.615	2.375	1.958	2.250	1.795	2.000	1.500	2.000	1.444	2.000	1.375
3.625	3.347	3.500	3.187	3.125	2.768	3.000	2.615	3.125	2.708	3.000	2.545	2.000	1.500	2.000	1.444	2.000	1.375
3.625	3.347	3.500	3.187	3.625	3.268	3.000	2.615	3.125	2.708	3.000	2.545	3.000	2.500	2.000	1.444	2.000	1.375
4.125	3.847	4.000	3.687	3.625	3.268	3.750	3.365	3.125	2.708	3.000	2.545	3.000	2.500	3.000	2.444	2.000	1.375
4.125	3.847	4.000	3.687	4.125	3.768	3.750	3.365	3.875	3.458	3.750	3.295	3.000	2.500	3.000	2.444	3.000	2.375
4.625	4.347	4.500	4.187	4.125	3.768	3.750	3.365	3.875	3.458	3.750	3.295	3.000	2.500	3.000	2.444	3.000	2.375
4.625	4.347	4.500	4.187	4.625	4.268	4.500	4.115	3.875	3.458	3.750	3.295	4.000	3.500	3.000	2.444	3.000	2.375
5.125	4.847	5.000	4.687	4.625	4.268	4.500	4.115	4.625	4.208	4.500	4.045	4.000	3.500	4.000	3.444	3.000	2.375
		5.000	4.687	5.125	4.768	4.500	4.115	4.625	4.208	4.500	4.045	4.000	3.500	4.000	3.444	4.000	3.375
		5.500	5.187	5.125	4.768	5.250	4.865	4.625	4.208	4.500	4.045	4.000	3.500	4.000	3.444	4.000	3.375
		5.500	5.187	5.625	5.268	5.250	4.865	5.375	4.958	5.250	4.795	5.000	4.500	4.000	3.444	4.000	3.375
		6.000	5.687	5.625	5.268	5.250	4.865	5.375	4.958	5.250	4.795	5.000	4.500	5.000	4.444	4.000	4.375
				6.125	5.768	6.000	5.615	5.375	4.958	5.250	4.795	5.000	4.500	5.000	4.444	5.000	4.375
				6.125	5.768	6.000	5.615	6.125	5.708	6.000	5.545	5.000	4.500	5.000	4.444	5.000	4.375
				6.625	6.268	6.000	5.615	6.125	5.708	6.000	5.545	6.000	5.500	5.000	4.444	5.000	4.375
				7.125	6.768	7.000	6.615	6.875	6.458	6.750	6.295	6.000	5.500	6.000	5.444	5.000	5.375
				7.625	7.268	7.000	6.615	6.875	6.458	6.750	6.295	7.000	6.500	6.000	5.444	5.000	5.375
						8.000	7.615	7.625	7.208	7.750	7.295	7.000	6.500	7.000	6.444	7.000	6.375
						8.000	7.615	7.625	7.208	7.750	7.295	8.000	7.500	7.000	6.444	7.000	6.375
								9.125	8.708	9.250	8.795	9.000	8.500	8.000	7.444	8.000	7.375
								10.125	9.708	10.250	9.795	10.000	9.000	9.000	8.444	9.000	8.375
												11.000	10.500	10.000	9.444	10.000	9.375
												12.000	11.500	11.000	10.444	11.000	10.375
												13.000	12.500	12.000	11.444	12.000	11.375
														13.000	12.444	13.000	12.375
														14.000	13.444	14.000	13.375
														15.000	14.444	15.000	14.375
																16.000	15.375
																17.000	16.375

Unbrako

FEWER HOLES TO DRILL AND TAP



three screws do the work of five



old method

5–3/8-16 screws @ 120,000 psi tensile

85,000 psi yield =

5 x 85,000 x .0775 = 33,000 lbs. max. load

UNBRAKO method

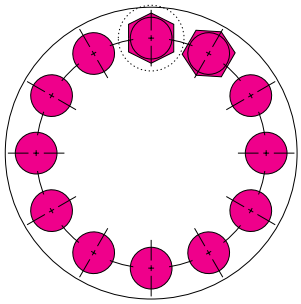
3–3/8-16 screws @ 190,000 psi tensile

170,000 psi yield =

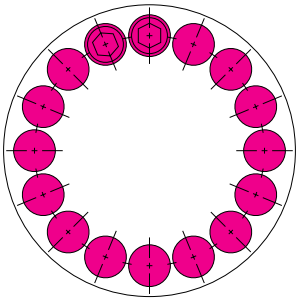
3 x 170,000 x .0775 = 39,000 lbs. max. load

COMPACT SPACING

clearance for socket wrench



no wrench clearance necessary



old method

12–3/4-16 hexagon head screws @ 120,000 psi tensile strength

Total strength = 537,000 lbs.

UNBRAKO method

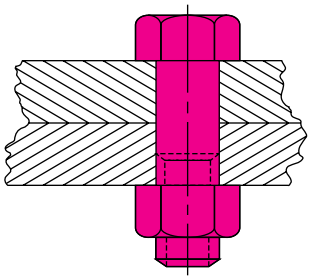
16–3/4-16 socket head cap

screws @ 180,000 psi tensile strength

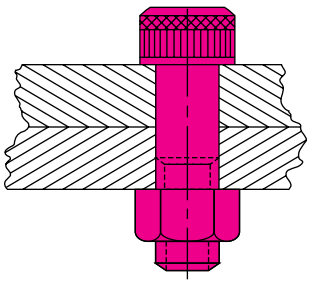
Total strength = 1,074,200 lbs.

HIGH TENSILE AND YIELD STRENGTH

ordinary bolts



socket head cap screws



old method

120,000 psi. 1/2-20 bolt

tensile = 19,200 lbs.

yield = 13,600 lbs.

UNBRAKO method

190,000 psi 1/2-20 UNBRAKO

tensile = 30,400 lbs.

yield = 27,200 lbs.

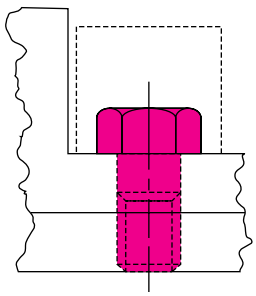
Extra UNBRAKO joint strength:

tensile – 58% increase

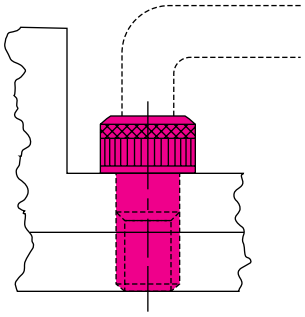
yield – 100% increase

HIGH SHEAR STRENGTH

ordinary bolts



socket head cap screws



old method

120,000 psi. 1/2-20 bolt

Shear strength = 14,100 lbs.

UNBRAKO method

190,000 psi. 1/2-20 UNBRAKO

Shear strength = 22,400 lbs.

Extra UNBRAKO shear strength = 8,300 lbs. less wrenching space needed