

# Conversion Tables

Millimeter – Decimal – Fraction

mm	Dec.	in.	mm	Dec.	in.	mm	Dec.	in.	mm	Dec.	in.	mm	Dec.	in.
0.100	.0039		<b>5.159</b>	<b>.2031</b>	<b>13/64</b>	10.300	.4055		15.400	.6063		20.400	.8031	
0.200	.0079		5.200	.2047		<b>10.319</b>	<b>.4063</b>	<b>13/32</b>	<b>15.478</b>	<b>.6094</b>	<b>39/64</b>	20.500	.8071	
0.300	.0118		5.300	.2087		10.400	.4094		15.500	.6102		20.600	.8110	
<b>0.397</b>	<b>.0156</b>	<b>1/64</b>	5.400	.2126		10.500	.4134		15.600	.6142		<b>20.638</b>	<b>.8125</b>	<b>13/16</b>
0.400	.0157		5.500	.2165		10.600	.4173		15.700	.6181		20.700	.8150	
0.500	.0197		<b>5.556</b>	<b>.2188</b>	<b>7/32</b>	10.700	.4219		15.800	.6220		20.800	.8189	
0.600	.0236		5.600	.2205		<b>10.716</b>	<b>.4219</b>	<b>27/64</b>	<b>15.875</b>	<b>.6250</b>	<b>5/8</b>	20.900	.8228	
0.700	.0276		5.700	.2244		10.800	.4252		15.900	.6250		21.000	.8268	
<b>0.794</b>	<b>.0313</b>	<b>1/32</b>	5.800	.2283		10.900	.4291		16.000	.6299		<b>21.034</b>	<b>.8182</b>	<b>53/64</b>
0.800	.0315		5.900	.2323		11.000	.4331		16.100	.6339		21.100	.8307	
0.900	.0354		<b>5.953</b>	<b>.2344</b>	<b>15/64</b>	11.100	.4370		16.200	.6378		21.200	.8307	
1.000	.0394		6.000	.2362		<b>11.113</b>	<b>.4375</b>	<b>7/16</b>	<b>16.272</b>	<b>.6406</b>	<b>41/64</b>	21.200	.8346	
1.100	.0433		6.100	.2402		11.200	.4409		16.300	.6417		21.300	.8386	
<b>1.191</b>	<b>.0469</b>	<b>3/64</b>	6.200	.2441		11.300	.4449		16.400	.6457		21.400	.8425	
1.200	.0472		6.300	.2480		11.400	.4488		16.500	.6496		<b>21.431</b>	<b>.8438</b>	<b>27/32</b>
1.300	.0512		<b>6.350</b>	<b>.2500</b>	<b>1/4</b>	11.500	.4528		16.600	.6535		21.500	.8465	
1.400	.0551		6.400	.2520		<b>11.509</b>	<b>.4531</b>	<b>29/64</b>	<b>16.669</b>	<b>.6563</b>	<b>21/32</b>	21.600	.8504	
1.500	.0591		6.500	.2559		11.600	.4567		16.700	.6575		21.700	.8543	
<b>1.588</b>	<b>.0625</b>	<b>1/16</b>	6.600	.2598		11.700	.4606		16.800	.6614		21.800	.8583	
1.600	.0630		6.700	.2638		11.800	.4646		16.900	.6654		<b>21.828</b>	<b>.8594</b>	<b>55/94</b>
1.700	.0669		<b>6.747</b>	<b>.2656</b>	<b>17/64</b>	11.900	.4685		17.000	.6693		21.900	.8622	
1.800	.0709		6.800	.2677		<b>11.906</b>	<b>.4688</b>	<b>15/32</b>	<b>17.066</b>	<b>.6719</b>	<b>43/64</b>	22.000	.8661	
1.900	.0748		6.900	.2717		12.000	.4724		17.100	.6732		22.100	.8701	
<b>1.984</b>	<b>.0781</b>	<b>5/64</b>	7.000	.2756		12.100	.4764		17.200	.6772		22.200	.8740	
2.000	.0878		7.100	.2795		12.200	.4803		17.300	.6811		<b>22.225</b>	<b>.8750</b>	<b>7/8</b>
2.100	.0827		<b>7.144</b>	<b>.2813</b>	<b>9/32</b>	12.300	.4843		17.400	.6850		22.300	.8780	
2.200	.0866		7.200	.2835		<b>12.303</b>	<b>.4844</b>	<b>31/64</b>	<b>17.463</b>	<b>.6875</b>	<b>11/16</b>	22.400	.8819	
2.300	.0906		7.300	.2874		12.400	.4882		17.500	.6890		22.500	.8858	
<b>2.381</b>	<b>.0938</b>	<b>3/32</b>	7.400	.2913		12.500	.4921		17.600	.6929		22.600	.8898	
2.400	.0945		7.500	.2953		12.600	.4961		17.700	.6968		<b>22.622</b>	<b>.8906</b>	<b>57/64</b>
2.500	.0984		<b>7.541</b>	<b>.2969</b>	<b>19/64</b>	<b>12.700</b>	<b>.5000</b>	<b>1/2</b>	17.800	.7008		22.700	.8937	
2.600	.1024		7.600	.2992		12.800	.5039		<b>17.859</b>	<b>.7031</b>	<b>45/64</b>	22.800	.8976	
2.700	.1063		7.700	.3031		12.900	.5079		17.900	.7047		22.900	.9016	
<b>2.778</b>	<b>.1094</b>	<b>7/64</b>	7.800	.3071		13.000	.5118		18.000	.7087		23.000	.9055	
2.800	.1102		7.900	.3110		<b>13.097</b>	<b>.5156</b>	<b>33/64</b>	18.100	.7126		<b>23.019</b>	<b>.9063</b>	<b>29/32</b>
2.900	.1142		<b>7.938</b>	<b>.3125</b>	<b>5/16</b>	13.100	.5157		18.200	.7165		23.100	.9094	
3.000	.1181		8.000	.3150		13.200	.5197		<b>18.256</b>	<b>.7188</b>	<b>23/32</b>	23.200	.9134	
3.100	.1220		8.100	.3189		13.300	.5236		18.300	.7205		23.300	.9173	
<b>3.175</b>	<b>.1250</b>	<b>1/8</b>	8.200	.3228		13.400	.5276		18.400	.7244		23.400	.9213	
3.200	.1260		8.300	.3268		<b>13.494</b>	<b>.5313</b>	<b>17/32</b>	18.500	.7283		<b>23.416</b>	<b>.9219</b>	<b>59/64</b>
3.300	.1299		<b>8.334</b>	<b>.3281</b>	<b>21/64</b>	13.500	.5315		18.600	.7323		23.500	.9252	
3.400	.1339		8.400	.3307		13.600	.5354		<b>18.653</b>	<b>.7344</b>	<b>47/64</b>	23.600	.9291	
3.500	.1378		8.500	.3346		13.700	.5394		18.700	.7362		23.700	.9331	
<b>3.572</b>	<b>.1406</b>	<b>9/64</b>	8.600	.3386		13.800	.5433		18.800	.7402		23.800	.9370	
3.600	.1417		8.700	.3425		<b>13.891</b>	<b>.5469</b>	<b>35/64</b>	18.900	.7441		23.900	.9409	
3.700	.1457		<b>8.731</b>	<b>.3438</b>	<b>11/32</b>	13.900	.5472		19.000	.7480		24.000	.9449	
3.800	.1496		8.800	.3465		14.000	.5512		<b>19.050</b>	<b>.7500</b>	<b>3/4</b>	24.100	.9488	
3.900	.1535		8.900	.3504		14.100	.5551		19.100	.7520		24.200	.9528	
<b>3.969</b>	<b>.1563</b>	<b>5/32</b>	9.000	.3543		14.200	.5591		19.200	.7559		<b>24.209</b>	<b>.9531</b>	<b>61/64</b>
4.000	.1575		9.100	.3583		<b>14.288</b>	<b>.5625</b>	<b>9/16</b>	19.300	.7598		24.300	.9567	
4.100	.1624		<b>9.128</b>	<b>.3594</b>	<b>23/64</b>	14.300	.5630		19.400	.7638		24.400	.9606	
4.200	.1654		9.200	.3622		14.400	.5669		<b>19.447</b>	<b>.7656</b>	<b>49/64</b>	24.500	.9646	
4.300	.1693		9.300	.3661		14.500	.5709		19.500	.7677		24.600	.9685	
<b>4.366</b>	<b>.1719</b>	<b>11/64</b>	9.400	.3701		14.600	.5748		19.600	.7717		<b>24.606</b>	<b>.9688</b>	<b>31/32</b>
4.400	.732		9.500	.3740		<b>14.684</b>	<b>.5781</b>	<b>37/64</b>	19.700	.7756		24.700	.9724	
4.500	.1772		<b>9.525</b>	<b>.3750</b>	<b>3/8</b>	14.700	.5787		19.800	.7795		24.800	.9764	
4.600	.1811		9.700	.3819		14.800	.5827		<b>19.844</b>	<b>.7813</b>	<b>25/32</b>	24.900	.9803	
4.700	.1850		9.800	.3858		14.900	.5866		19.900	.7835		25.000	.9843	
<b>4.763</b>	<b>.1875</b>	<b>3/16</b>	9.900	.3898		15.000	.5906		20.000	.7874		<b>25.003</b>	<b>.9844</b>	<b>63/64</b>
4.800	.1890		<b>9.922</b>	<b>.3902</b>	<b>25/64</b>	<b>15.081</b>	<b>.5938</b>	<b>19/32</b>	20.100	.7913		25.100	.9882	
4.900	.1929		10.000	.3937		15.100	.5945		20.200	.7953		25.200	.9921	
5.000	.1969		10.100	.3976		15.200	.5984		<b>20.241</b>	<b>.7969</b>	<b>51/64</b>	25.300	.9961	
5.100	.2008		10.200	.4016		15.300	.6024		20.300	.7992		<b>25.400</b>	<b>1.000</b>	<b>1</b>

# Conversion Tables

Torque – Air Pressure – Miscellaneous

Torque Conversion Factors		
To Convert	Into	Multiply By
Inch Pounds	Foot Pounds	0.0835
Inch Pounds	Newton meters	0.1130
Inch Pounds	Kg-meters	0.0115
Inch Pounds	Kg-Cm	1.1519
Foot Pounds	Inch Pounds	12.000
Foot Pounds	Newton meters	1.3560
Foot Pounds	Kg-meters	0.1382
Foot Pounds	Kg-Cm	13.8240
Newton Meters	Inch Pounds	8.8440
Newton Meters	Foot Pounds	0.7370
Newton Meters	Kg-meters	0.1020
Newton Meters	Kg-Cm	10.2000
Kg meters	Inch Pounds	86.8100
Kg meters	Foot Pounds	7.2340
Kg meters	Newton-meters	9.8040
Kg Cm	Inch Pounds	0.8681
Kg Cm	Foot Pounds	0.0723
Kg Cm	Newton-meters	0.0980

Torque Conversion – In. Lbs. (Nm)					
In. Lbs.	Nm	In. Lbs.	Nm	In. Lbs.	Nm
5	0.6	50	5.7	140	15.8
10	1.1	60	6.8	150	17.0
15	1.7	70	7.9	160	18.1
20	2.3	80	9.0	170	19.2
25	2.8	90	10.2	180	20.3
30	3.4	100	11.3	190	21.5
35	4.0	110	12.4	200	22.6
40	4.5	120	13.6		
45	5.1	130	14.7		

Torque Conversion – Ft. Lbs. (Nm)							
Ft. Lbs.	Nm	Ft. Lbs.	Nm	Ft. Lbs.	Nm	Ft. Lbs.	Nm
1	1.36	33	44.8	65	88.1	97	131.5
2	2.7	34	46.1	66	90.0	98	133.0
3	4.1	35	47.5	67	90.9	99	134.2
4	5.4	36	48.8	68	92.2	100	135.6
5	6.8	37	50.2	69	93.6	110	149.2
6	8.1	38	52.0	70	94.9	115	156.0
7	9.5	39	52.9	71	96.3	120	163.0
8	10.9	40	54.2	72	97.6	125	170.0
9	12.2	41	55.6	73	99.0	130	176.3
10	13.6	42	57.0	74	100.3	135	183.1
11	14.9	43	58.3	75	102.0	140	190.0
12	16.3	44	60.0	76	103.1	145	197.0
13	17.6	45	61.0	77	104.4	150	203.4
14	19.0	46	62.4	78	105.8	155	210.2
15	20.3	47	63.7	79	107.1	160	217.0
16	21.7	48	65.1	80	108.5	165	224.0
17	23.1	49	66.4	81	110.0	170	231.0
18	24.4	50	67.8	82	111.2	175	237.3
19	25.8	51	69.2	83	112.6	180	244.1
20	27.1	52	70.5	84	114.0	185	251.0
21	28.5	53	71.9	85	115.3	190	258.0
22	29.8	54	73.2	86	117.0	195	264.4
23	31.2	55	74.6	87	118.0	200	271.2
24	32.5	56	75.9	88	119.3	225	305.1
25	33.9	57	77.3	89	121.0	250	339.0
26	35.3	58	78.7	90	122.0	275	373.0
27	36.6	59	80.0	91	123.4	300	407.0
28	38.0	60	81.4	92	125.0	350	475.0
29	39.3	61	82.7	93	126.1	400	542.4
30	40.7	62	84.1	94	127.5		
31	42.0	63	85.4	95	129.0		
32	43.4	64	86.8	96	130.2		

## Inch Bolt Torque Table

SAE J429 and ASME 574

Steel Grade	SAE 5		SAE 8		Socket Head Cap Screws	
	Torque in Pound Foot or (Pound Inch)					
Nom Dia - Pitch	Dry	Lubed	Dry	Lubed	Dry	Lubed
1/4-20	(101)	(76)	(143)	(107)	(168)	(120)
1/4-28	(116)	(87)	(147)	(123)	(192)	(144)
5/16-18	(209)	(157)	(295)	(221)	(348)	(264)
5/16-24	(231)	(174)	(327)	(245)	(384)	(288)
3/8-16	(372)	(276)	44	33	51	38
3/8-24	(420)	(312)	49	37	58	43
7/16-14	49	37	70	52	81	61
7/16-20	55	41	78	58	91	68
1/2-13	75	57	106	80	124	93
1/2-20	85	64	120	90	140	105
5/8-11	150	113	212	159	238	179
5/8-18	170	127	240	180	270	202
3/4-10	267	200	376	282	423	317
3/4-16	297	223	420	315	472	354
7/8-9	429	322	606	455	682	511
7/8-14	474	355	669	502	752	564
1-8	644	483	909	681	1022	767
1-12	722	542	1020	765	1147	860

## Metric Bolt Torque Table

ISO 898

Property Class	8.8		10.9		12.9 Socket Head Cap Screw	
	Torque in Newton Meter - Nm					
Nom Size x Pitch	Dry	Lubed	Dry	Lubed	Dry	Lubed
M5 x 0.80	6.1	4.6	8.8	6.7	10.3	7.7
M6 x 1.00	10.4	7.8	15	11.2	17.6	13.1
M7 x 1.00	17.6	13.1	25.1	18.9	29.4	22
M8 x 1.25	25.4	19.1	37.6	27.3	42.6	32.1
M10 x 1.50	50	38	72	54	84	64
M12 x 1.75	88	66	126	94	146	110
M14 x 2.00	141	106	201	150	235	176
M16 x 2.00	218	164	312	233	365	274
M18 x 2.50	301	226	431	323	504	378
M20 x 2.50	426	319	609	457	712	534
M22 x 2.50	580	435	831	624	971	728
M24 x 3.00	736	552	1052	789	1231	923
M27 x 3.00	1079	809	1544	1158	1805	1353
M30 x 3.50	1463	1097	2092	1570	2446	1834
M33 x 3.50	1990	1493	2849	2137	3328	2497
M36 x 4.00	2557	1918	3659	2744	4276	3208

Lubed means cleaned dry bolts lubricated with a standard medium viscosity machine oil. Lubricate all contact areas of the bolts and washers. Lubricating the bolts is the suggested method.

Miscellaneous Conversion Factors			Air Pressure Conversion		
To Convert	Into	Multiply By	PSI	kPa*	Bar**
Inches	Millimeters	25.4000	85	586	5.9
Millimeters	Inches	0.0394	90	620	6.2
Pounds	Kilograms	0.4536	95	655	6.6
Kilograms	Pounds	2.2050	100	690	6.9
psi	bar	0.069	125	860	8.6
bar	psi	14.5			

\*Preferred: Approximate to the nearest 5 kPa.  
\*\*Approximate to the nearest 0.5 Bar.

## Warranty

Apex Tool Group, LLC warrants products and parts sold by it, insofar as they are of its own manufacture, against defects of material and workmanship, under normal use and service in accordance with its written instructions, recommendations, and ratings for installation, operation, maintenance, and service of products, for a period of **ONE YEAR FROM THE DATE OF INITIAL USE, BUT IN NO EVENT SHALL THE WARRANTY EXCEED 24 MONTHS FROM DATE OF DELIVERY TO DISTRIBUTOR.** Proof of Purchase with shipment date must be furnished by the user to validate the warranty. This warranty applies only to products manufactured by Apex Tool Group and specifically excludes products manufactured by others. Products not manufactured by Apex Tool Group are warranted only to the extent and in the manner warranted to Apex Tool Group by the manufacturer

and then only to the extent Apex Tool Group is able to enforce such warranty. Apex Tool Group's warranty with respect to products manufactured by it is limited to the repair or replacement, as Apex Tool Group may elect, of any defective part regarding which the Distributor has given 5 days written notice from the discovery of such defect. Installation and transportation costs are not included. Apex Tool Group shall have the option of requiring the return to it of the defective material, transportation prepaid, for inspection. No allowance will be made for repairs without Apex Tool Group approval. **APEX TOOL GROUP MAKES NO OTHER WARRANTY OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, AND HEREBY DISCLAIMS ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

## Lubrication Products

Apex Tool Group products are classified as non-hazardous manufactured items, defined in the OSHA 1910.1200 Hazard Communication Standard as "Articles". These products, under conditions of normal use, do not release or cause exposure to a hazardous chemical.

Under normal conditions of use, lubrication products sold separately for or used within these tools should not cause an exposure hazard. Refer to the Material Safety Data Sheet (M.S.D.S.) for Safety and Disposal Information. M.S.D.S. sheets are available upon request from Apex Tool Group.

Apex Tool Group is also aware of, and complies with, the provisions of section 611 amendments

to the Clean Air Act of 1990. No ozone depleting chemicals have been used in the manufacture of our products.

If you resell or distribute these products, you have the responsibility for ensuring that the Material Safety Data Sheets are provided to the purchaser.

Proper lubrication is essential to the economical operation of pneumatic and electric tools. Apex Tool Group perform better and their life is extended by using the recommended lubricants. All lubricants that are listed in the accessory section of this catalog have undergone extensive testing and are recommended for use with Apex Tool Group products.

## Fastener Selection

The suggested fasteners listed in this catalog are determined by matching a tool's maximum rated load to Society of Automotive Engineers (SAE) Grade 5 and International Organization of Standardization (ISO) Grade 9.8 fasteners. The torque capabilities for SAE Grade 5 fasteners are from SAE Manual, SAE J429 (Mechanical and Material Requirement for Externally Threaded Fasteners). The torque capabilities for ISO Grade 9.8 fasteners are from ISO 898-1 (Mechanical Properties of Fasteners). All values selected are based on lubricated fasteners.

The suggested fasteners listed in this catalog are advisory only, and Apex Tool Group recommends that you further consult other technical references before final tool selection. Reliance on the accuracy of this catalog data for any purpose by anyone is at the sole risk of that person. Apex Tool Group is not responsible for any loss, claim, or damage arising from improper tool selection.

The torque values listed under the headings "TORQUE" are tested on an ISO 5393 soft joint rate test fixture unless otherwise stated by a special note.

## General Safety Instructions

These Safety Instructions must be accessible to the operator at all times. They must be shown and made available to all people involved in the use of the tool.



The operator must understand the Safety Instructions and the Installation, Operation, and Adjustment Procedures provided in the Technical Manual (included with the tool). These Safety Instructions are not intended to be all inclusive. Study and comply with all applicable Federal, State, and Local Regulations. Contact your local distributor for assistance.



This symbol identifies the potential for a hazardous situation. If this warning is not followed, a serious injury could occur.



Always disconnect the tool from the air hose before adjusting or repairing.



Immediately shut off the tool in the case of unusual sound or vibration. Disconnect the tool from the air hose. Have a qualified person check the tool and repair before using.

When unpacking the tool, closely check for shipping damages and accuracy of the shipping documentation.



Do not wear loose clothing, jewelry, or rings. Injury may result from being caught in tools. Avoid direct contact with lubricants, grease or adhesives.

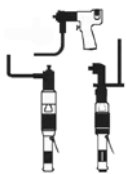


Safety glasses or face shield must be worn.



Wear gloves, ear protection and other protective equipment when required.

Do not modify the tool, any guard or accessory unless approved in writing by Apex Tool Group.



We recommend the use of a reaction bar to prevent an uncontrollable reaction of the tool. This use is dependant on the following factors: torque, joint, air pressure, form of the tool and the individual user. Consider the use of reaction bars to prevent possible injury.

Implement and follow a Safety Maintenance Program to provide inspection and maintenance of all phases of tool operation and air supply equipment.



Sockets and bits used with nutrunners and screwdrivers should be of the power tool or industrial type. Do not use hand tool sockets on a power tool. Hand tool sockets can break, resulting in a hazard of flying pieces. Worn sockets or bits reduce the power delivered to the fastener, cause drive wear and increase the chance for breakage. Inspect sockets, bits and drives for wear or damage and replace as necessary.

## Noise & Vibration

Refer to test data page included with tool.

## Intended Use

Air assembly tools are intended for tightening of threaded joints only. Tools must be used for their designated purpose. Do not use as a hammer, lever or other improper usage that can cause tool damage and lead to operator injury.

## Installation & Operation

Only qualified and trained operators should install, adjust or use air assembly tools.

Connect the tool to an air line with a maximum pressure of 6.2 bar (90 psig). Adjust the air line lubrication to a minimum to reduce possible contamination of the environment by the exhaust air. The work area must be well ventilated.



Inspect the air hose and fittings. Do not use damaged, frayed or deteriorated hoses. A hose rupture can cause injury.



When using right angle nutrunners, be sure the throttle is positioned relative to the angle head so the throttle will not become wedged against an adjacent object in the ON position due to torque reaction.

The angle head may be repositioned with respect to the lever to accommodate proper location for the task. If the tool is to be reversed, locate throttle lever in a neutral position that will prevent entrapment.

Keep the tool clean and dry to provide the best possible grip. The tool should be held in such a way to be safe and comfortable. Firmly grasp the handle of the tool and apply the socket to the joint before starting the tool.

## Adjusting Torque For Shut-Off Tools



Screwdrivers and nutrunners with clutches can stall rather than shut off if the clutch is adjusted over the maximum power output of the tool, or if there is a drop in the air pressure. Low or fluctuating air pressure can cause tool to fail to shut off! The user must be prepared to resist the torque until the throttle is released.

Expose clutch through movement of the clutch shield. Using the hex wrench supplied, turn clockwise for maximum torque or turn counterclockwise for minimum torque.

NOTE: For best results, start from "MIN" torque and adjust in "MAX" direction.

## Maintenance, Assembly & Disassembly

Inspect air assembly tools every 500 operating hours or every six months, whichever comes first. Replace worn parts using only genuine Apex Tool Group replacement parts.

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