

OPERATION MANUAL FOR SQUARE DRIVE & LOW PROFILE HYDRAULIC TORQUE WRENCHES

NOTICE

Hydraulic Torque Wrenches are designed for installing and removing large bolts having minimal wrench clearance at offshore platforms, power plants, steel erection sites & other locations requiring precise high torque during bolt makeup and maximum torque for bolt breakdown.

Camly Pte Ltd is not responsible for customer modification of tools for applications on which Camly was not consulted.

WARNING

**IMPORTANT SAFETY INFORMATION ENCLOSED.
READ THIS MANUAL BEFORE OPERATING TOOL.
IT IS THE RESPONSIBILITY OF THE EMPLOYER TO PLACE THE INFORMATION IN THIS
MANUAL INTO THE HANDS OF THE OPERATOR.
FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.**

PLACING TOOL IN SERVICE

- Always operate, inspect and maintain this tool in accordance with American National Standards Safety Code for Hydraulic Rams and Jacks (ANSI B30.1)
- This tool will function using an air or electric powered hydraulic pump. Adhere to the pump safety requirements and follow instructions when connecting the pump to the tool.
- Use only equipment rated for the same pressure and torque.
- Use only a hydraulic pump capable of generating 700 bar maximum pressure with this tool.
- Use only twin line hydraulic hose rated for 700 bar pressure with this tool.
- Do not interchange the male and female swivel inlets on the tool or the connections on one end of the hose. Reversing the inlets will reverse the power stroke cycle and may damage the tool.
- Do not use damaged, frayed or deteriorated hoses and fittings. Make certain there are no cracks, splits or leaks in the hoses.
- Use the quick connect system to attach the hoses to the tool and pump. Make certain the spring-loaded retaining rings are fully engaged to prevent the connectors from disengaging under pressure.
- When connecting hoses that have not been preloaded with hydraulic oil, make certain the pump reservoir is not drained of oil during start-up.
- Do not remove any labels. Replace any damaged labels.

USING THE TOOL

- Do not handle pressurized hoses. Escaping oil under pressure can penetrate the skin, causing serious injury. If oil is injected under the skin, see a doctor immediately.
- Never pressurize uncoupled couplers. Only use hydraulic equipment in a coupled system.
- Always wear eye protection when operating or performing maintenance on this tool.
- Always wear head and hand protection and protective clothing when operating this tool.

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY

USING THE TOOL

- Keep hands, loose clothing and long hair away from the reaction arm and working area during operation. Do not attempt to support the tool with your hands during operation.
- This tool will exert a strong reaction force. Use proper mechanical support and correct reaction arm positioning to control these forces. Do not position the reaction arm so that it tilts the tool off the axis of the bolt and never use the swivel inlets as a reaction stop.
- Avoid sharp bends and kinks that will cause severe back-up pressure in hoses and lead to premature hose failure.
- Use accessories recommended by manufacturer.
- Use only impact sockets and accessories. Do not use hand (chrome) sockets or accessories.
- Use only sockets and accessories that correctly fit the bolt or nut and function without tilting the tool off the axis of the bolt.
- This tool is not designed for working in explosive atmospheres
- This tool is not insulated against electric shock. When using this tool with a pump having an electrical power source or circuits, follow the pump instructions for proper grounding.
- Use only impact sockets and accessories that are appropriately rated for the output of the tool.
- Always use retaining pin and ring to engage the socket to the square drive.
- Inspect sockets for signs of over use before utilizing with tool.
- Do not use overly worn impact sockets and accessories.

OPERATION MANUAL TO BE RETURN TO CAMLY PTE LTD AFTER RENTAL



The Torque Reaction Arm must be positioned against a positive stop. Do not use the Arm as a dead handle. Take all precautions to make certain the operator's hand cannot be pinched between the Arm and a solid object.



Do not carry the tool by the hose.



Keep body stance balanced and firm. Do not overreach when operating this tool.



Operate at 700 bar maximum pressure.



Always turn off the pump and disconnect the power before installing, removing, or adjusting any accessory on this tool, or before performing any maintenance on this tool.



Do not use damaged, frayed or deteriorated hydraulic hoses and fittings.



Always wear eye protection when operating or performing maintenance on this tool.

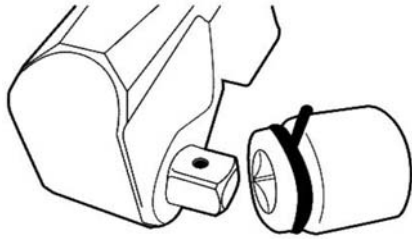


Always wear ear protection when operating this tool.

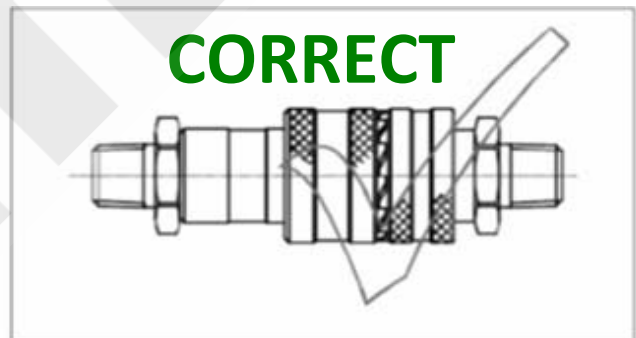
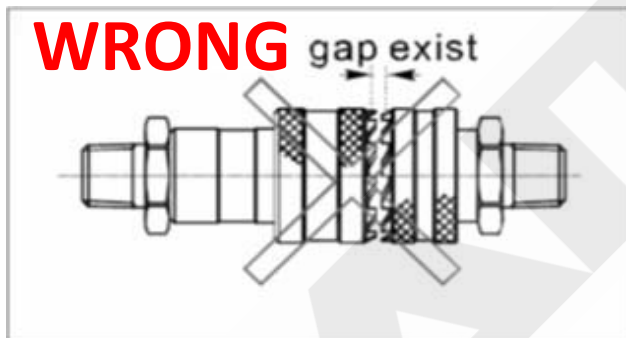
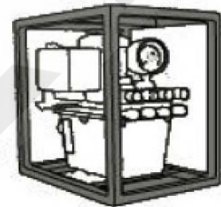
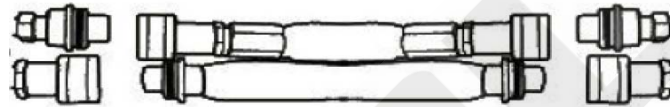
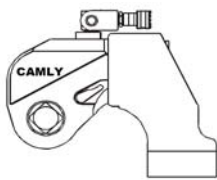


SQUARE DRIVE SERIES HYDRAULIC TORQUE WRENCH SETUP PROCEDURE

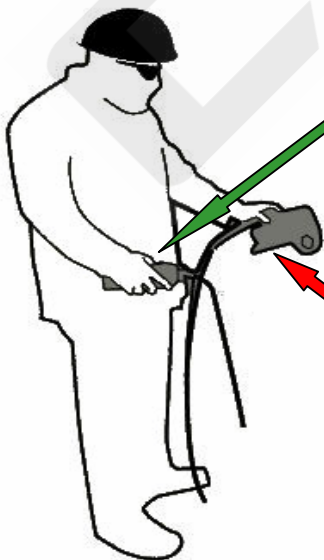
1) Connect your socket to your square drive. ALWAYS use the safety connector pin and the safety ring for added safety.



2) Connect hose to the corresponding couplers on the pump and tool. Make sure your hoses are free of any defects.

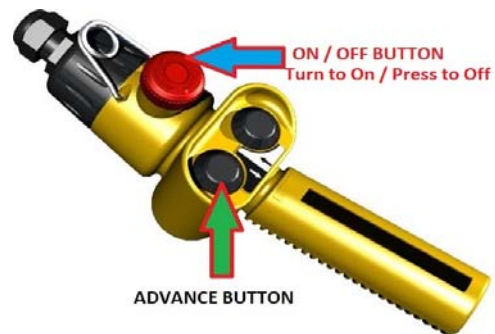


3) Cycle the tool.



A) On the Pump then Press Advance Button
Hear click sound , release Advance Button and press again to hear 2nd click sound

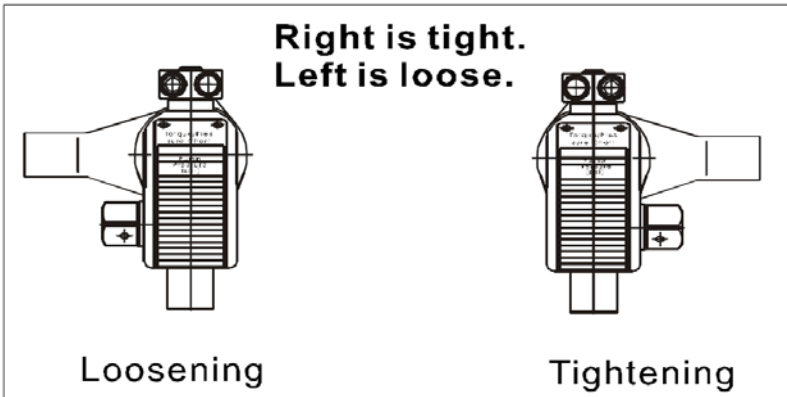
B) Vision check on the Square Drive and ensure it turns.



SQUARE DRIVE SERIES HYDRAULIC TORQUE WRENCH SETUP PROCEDURE

4) Remember tool position for tightening and loosening

**** NEVER PLACE HANDS NEAR ACTION OR REACTION POINTS**



Button



Drive Retainer



Square Drive

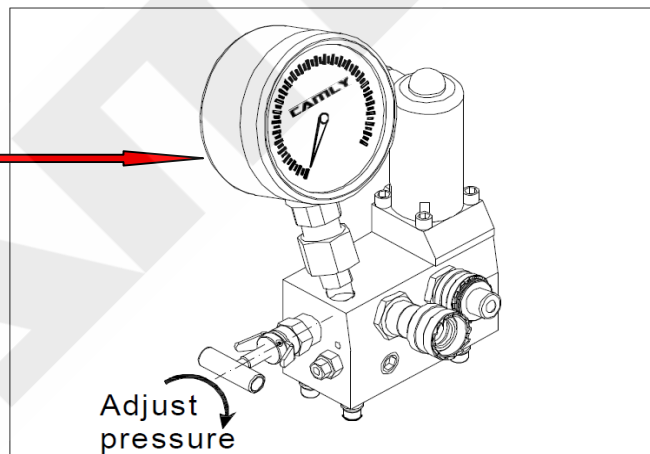
Direction Change

- 1) Depress the center round button
- 2) Gently pull out the square drive
- 3) Insert the drive to the desired direction
- 4) Engage drive retainer back to Sq Drive

5) Use the pressure/torque conversion chart to set the pump pressure for the torque value you need.

NOTE: Only use the chart that corresponds to the tool you are using.

6) Turn the T-handle to set the pump pressure



7) **LOCKED-ON** after final cycle. (This allow the hydraulic torque wrench to be removed easily)

- Step 1 ON the pump then Press and hold advance button on remote control (Do not release)
- Step 2 Pull down and hold on the anti locking lever (Do not release)
- Step 3 Release advance button on remote control 1st , then follow by releasing the anti locking lever



**PULL DOWN
Anti locking lever**

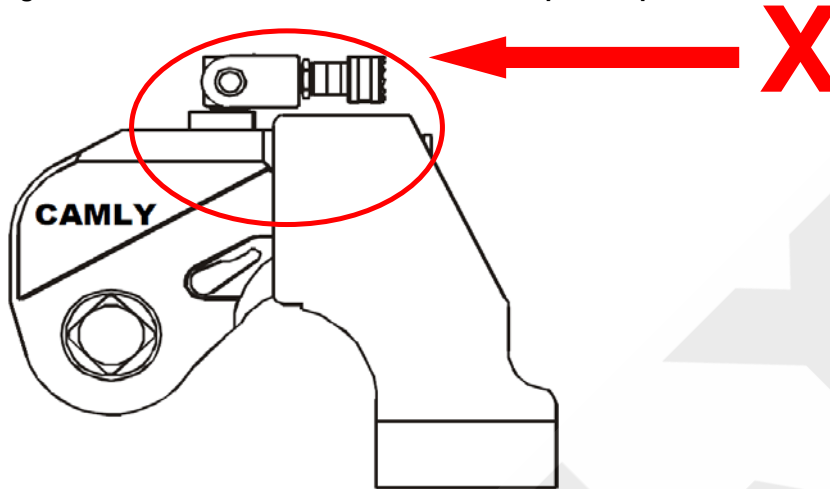


ADVANCE BUTTON

SQUARE DRIVE SERIES HYDRAULIC TORQUE WRENCH SETUP PROCEDURE

8a) Handling / Carrying - DO NOT carry the wrench on the swivel manifold. The swivel manifold will BREAK.

8b) Handling / Carrying - DO NOT turn swivel manifold. When Pump is in operation or switch ON.



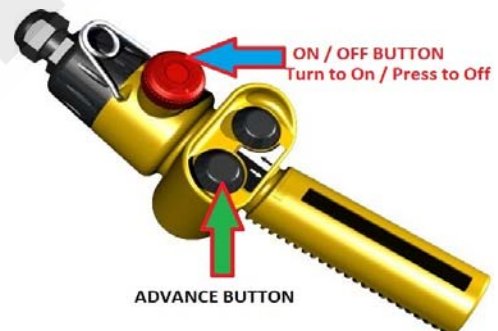
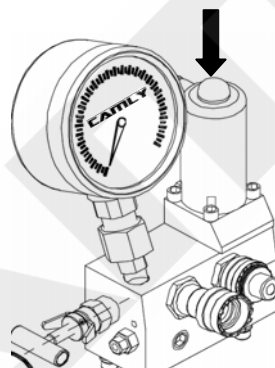
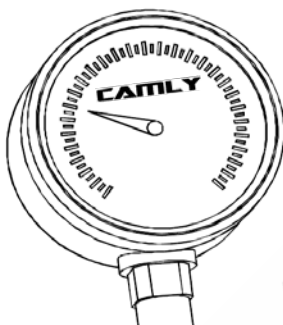
9) De-pressurise system before removing of Hydraulic Torque Wrench and Hoses from Pump

When pump is OFF, remaining pressure have to be depressurise.

From PUMP
Press down solenoid valve

OR

From Remote
Press OFF Button then Advance Button



**** Ensure ZERO Pressure before you dismantle the system.**

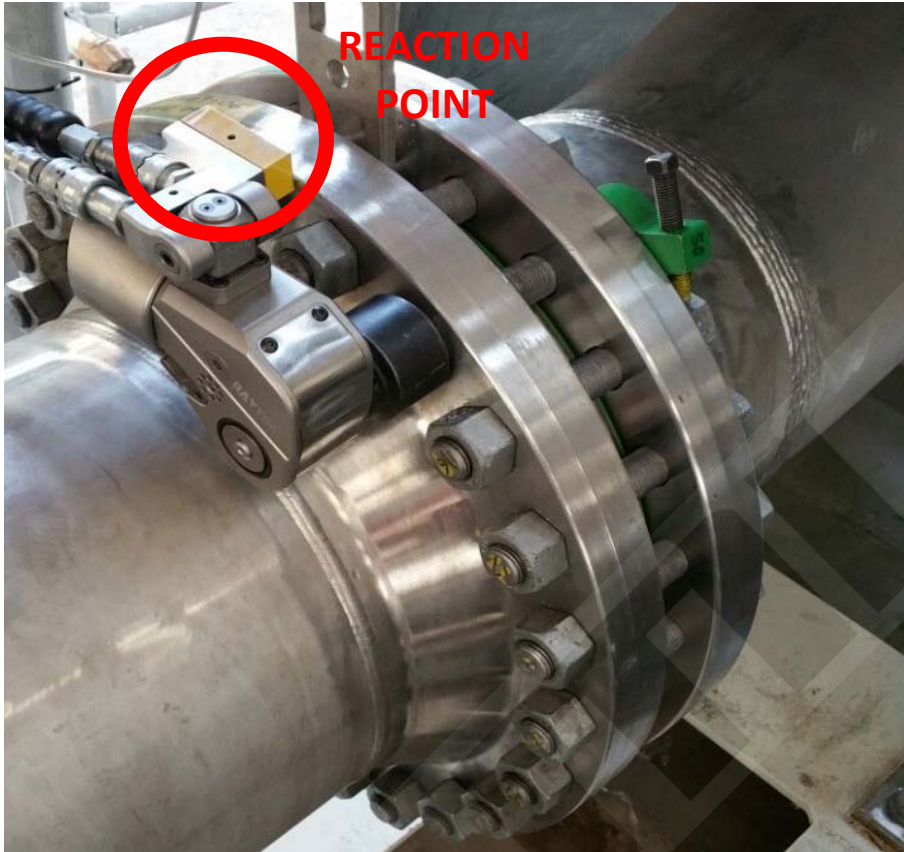
WARNING:

NEVER PLACE HANDS NEAR ACTION OR REACTION POINTS.
ALWAYS WEAR HARD HAT, SAFETY GLOVES, GOGGLES, STEELTOE BOOTS AND EARPLUGS

SQUARE DRIVE SERIES HYDRAULIC TORQUE WRENCH SETUP PROCEDURE

10) Correct Position for reaction point

**** NEVER PLACE HANDS NEAR ACTION OR REACTION POINTS**



11) Incorrect / Wrong Position for reaction point



SQUARE DRIVE SERIES HYDRAULIC TORQUE WRENCH

PRESSURE (BAR) / TORQUE (NM) CONVERSION CHART

Model	1 IBT	3 IBT	5 IBT	8 IBT	10 IBT	20 IBT	25 IBT	50 IBT
	1 MXTA	3 MXTA	5 MXTA	8 MXTA	10 MXTA	20 MXTA	25 MXTA	50 MXTA
Sq Dr	3/4"	1"	1.1/2"	1.1/2"	1.1/2"	2.1/2"	2.1/2"	2.1/2"
bar	N.m	N.m	N.m	N.m	N.m	N.m	N.m	N.m
70	183	451	752	1,078	1,551	2,666	3,472	7,200
80	209	515	860	1,232	1,773	3,047	3,968	8,229
90	236	580	967	1,386	1,994	3,428	4,464	9,257
100	262	644	1,075	1,540	2,216	3,809	4,960	10,286
110	288	709	1,182	1,694	2,438	4,190	5,456	11,314
120	314	773	1,290	1,848	2,659	4,571	5,952	12,343
130	341	838	1,397	2,002	2,881	4,952	6,448	13,371
140	367	902	1,505	2,156	3,103	5,332	6,945	14,400
150	393	967	1,612	2,310	3,324	5,713	7,441	15,429
160	419	1,031	1,720	2,464	3,546	6,094	7,937	16,457
170	446	1,096	1,828	2,618	3,768	6,475	8,433	17,486
180	472	1,160	1,935	2,772	3,989	6,856	8,929	18,514
190	498	1,225	2,043	2,926	4,211	7,237	9,425	19,543
200	524	1,289	2,150	3,080	4,433	7,618	9,921	20,571
210	551	1,353	2,258	3,234	4,654	7,999	10,417	21,600
220	577	1,418	2,365	3,388	4,876	8,380	10,913	22,629
230	603	1,482	2,473	3,542	5,098	8,761	11,409	23,657
240	629	1,547	2,580	3,696	5,319	9,142	11,905	24,686
250	656	1,611	2,688	3,850	5,541	9,523	12,401	25,714
260	682	1,676	2,796	4,004	5,763	9,903	12,898	26,743
270	708	1,740	2,903	4,158	5,984	10,284	13,394	27,771
280	734	1,805	3,011	4,312	6,206	10,665	13,890	28,800
290	761	1,869	3,118	4,466	6,428	11,046	14,386	29,829
300	787	1,934	3,226	4,620	6,649	11,427	14,882	30,857
310	813	1,998	3,333	4,774	6,871	11,808	15,378	31,886
320	839	2,063	3,441	4,928	7,093	12,189	15,874	32,914
330	866	2,127	3,548	5,082	7,314	12,570	16,370	33,943
340	892	2,191	3,656	5,236	7,536	12,951	16,866	34,971
350	918	2,256	3,764	5,390	7,758	13,332	17,362	36,000
360	944	2,320	3,871	5,544	7,979	13,713	17,858	37,029
370	971	2,385	3,979	5,698	8,201	14,094	18,354	38,057
380	997	2,449	4,086	5,852	8,423	14,475	18,850	39,086
390	1,023	2,514	4,194	6,006	8,644	14,855	19,347	40,114
400	1,049	2,578	4,301	6,160	8,866	15,236	19,843	41,143
410	1,076	2,643	4,409	6,314	9,088	15,617	20,339	42,171
420	1,102	2,707	4,516	6,468	9,309	15,998	20,835	43,200
430	1,128	2,772	4,624	6,622	9,531	16,379	21,331	44,229
440	1,154	2,836	4,732	6,776	9,753	16,760	21,827	45,257
450	1,181	2,900	4,839	6,930	9,974	17,141	22,323	46,286
460	1,207	2,965	4,947	7,084	10,196	17,522	22,819	47,314
470	1,233	3,029	5,054	7,238	10,418	17,903	23,315	48,343
480	1,259	3,094	5,162	7,392	10,639	18,284	23,811	49,371
490	1,286	3,158	5,269	7,546	10,861	18,665	24,307	50,400
500	1,312	3,223	5,377	7,700	11,083	19,046	24,803	51,429
510	1,338	3,287	5,484	7,854	11,304	19,427	25,299	52,457
520	1,364	3,352	5,592	8,008	11,526	19,807	25,796	53,486
530	1,391	3,416	5,700	8,162	11,748	20,188	26,292	54,514
540	1,417	3,481	5,807	8,316	11,969	20,569	26,788	55,543
550	1,443	3,545	5,915	8,470	12,191	20,950	27,284	56,571
560	1,469	3,610	6,022	8,624	12,413	21,331	27,780	57,600
570	1,496	3,674	6,130	8,778	12,634	21,712	28,276	58,629
580	1,522	3,738	6,237	8,932	12,856	22,093	28,772	59,657
590	1,548	3,803	6,345	9,086	13,078	22,474	29,268	60,686
600	1,574	3,867	6,452	9,240	13,299	22,855	29,764	61,714
610	1,601	3,932	6,560	9,394	13,521	23,236	30,260	62,743
620	1,627	3,996	6,668	9,548	13,743	23,617	30,756	63,771
630	1,653	4,061	6,775	9,702	13,964	23,998	31,252	64,800
640	1,679	4,125	6,883	9,856	14,186	24,378	31,749	65,829
650	1,706	4,190	6,990	10,010	14,408	24,759	32,245	66,857
660	1,732	4,254	7,098	10,164	14,629	25,140	32,741	67,886
670	1,758	4,319	7,205	10,318	14,851	25,521	33,237	68,914
680	1,784	4,383	7,313	10,472	15,073	25,902	33,733	69,943
690	1,811	4,448	7,420	10,626	15,294	26,283	34,229	70,971
700	1,837	4,512	7,528	10,780	15,516	26,664	34,725	72,000

SQUARE DRIVE SERIES HYDRAULIC TORQUE WRENCH

PRESSURE (PSI) / TORQUE (FT.LBS) CONVERSION CHART

Model	1 IBT	3 IBT	5 IBT	8 IBT	10 IBT	20 IBT	25 IBT	50 IBT
	1 MXTA	3 MXTA	5 MXTA	8 MXTA	10 MXTA	20 MXTA	25 MXTA	50 MXTA
Sq Dr	3/4"	1"	1.1/2"	1.1/2"	1.1/2"	2.1/2"	2.1/2"	2.1/2"
psi	ft.lbs	ft.lbs	ft.lbs	ft.lbs	ft.lbs	ft.lbs	ft.lbs	ft.lbs
1,000	134	328	547	783	1,127	1,937	2,523	5,230
1,200	161	394	656	940	1,352	2,324	3,028	6,276
1,400	188	459	766	1,096	1,578	2,712	3,532	7,322
1,600	215	525	875	1,253	1,803	3,099	4,037	8,368
1,800	242	590	985	1,409	2,029	3,487	4,541	9,414
2,000	268	656	1,094	1,566	2,254	3,874	5,046	10,460
2,200	295	721	1,203	1,723	2,480	4,261	5,550	11,506
2,400	322	787	1,313	1,879	2,705	4,649	6,055	12,552
2,600	349	852	1,422	2,036	2,931	5,036	6,559	13,598
2,800	376	918	1,532	2,193	3,156	5,424	7,064	14,644
3,000	403	984	1,641	2,349	3,381	5,811	7,568	15,690
3,200	430	1,049	1,750	2,506	3,607	6,198	8,073	16,736
3,400	457	1,115	1,860	2,662	3,832	6,586	8,577	17,782
3,600	483	1,180	1,969	2,819	4,058	6,973	9,082	18,828
3,800	510	1,246	2,079	2,976	4,283	7,361	9,586	19,874
4,000	537	1,311	2,188	3,132	4,509	7,748	10,091	20,920
4,200	564	1,377	2,297	3,289	4,734	8,135	10,595	21,966
4,400	591	1,443	2,407	3,446	4,959	8,523	11,100	23,012
4,600	618	1,508	2,516	3,602	5,185	8,910	11,604	24,058
4,800	645	1,574	2,626	3,759	5,410	9,298	12,109	25,104
5,000	672	1,639	2,735	3,915	5,636	9,685	12,613	26,150
5,200	698	1,705	2,844	4,072	5,861	10,072	13,118	27,196
5,400	725	1,770	2,954	4,229	6,087	10,460	13,622	28,242
5,600	752	1,836	3,063	4,385	6,312	10,847	14,127	29,288
5,800	779	1,901	3,173	4,542	6,538	11,235	14,631	30,334
6,000	806	1,967	3,282	4,699	6,763	11,622	15,136	31,380
6,200	833	2,033	3,391	4,855	6,988	12,009	15,641	32,426
6,400	860	2,098	3,501	5,012	7,214	12,397	16,145	33,472
6,600	887	2,164	3,610	5,168	7,439	12,784	16,650	34,518
6,800	914	2,229	3,720	5,325	7,665	13,172	17,154	35,564
7,000	940	2,295	3,829	5,482	7,890	13,559	17,659	36,610
7,200	967	2,360	3,938	5,638	8,116	13,946	18,163	37,656
7,400	994	2,426	4,048	5,795	8,341	14,334	18,668	38,702
7,600	1,021	2,491	4,157	5,951	8,567	14,721	19,172	39,748
7,800	1,048	2,557	4,267	6,108	8,792	15,109	19,677	40,794
8,000	1,075	2,623	4,376	6,265	9,017	15,496	20,181	41,840
8,200	1,102	2,688	4,485	6,421	9,243	15,883	20,686	42,886
8,400	1,129	2,754	4,595	6,578	9,468	16,271	21,190	43,932
8,600	1,155	2,819	4,704	6,735	9,694	16,658	21,695	44,978
8,800	1,182	2,885	4,814	6,891	9,919	17,046	22,199	46,024
9,000	1,209	2,950	4,923	7,048	10,145	17,433	22,704	47,070
9,200	1,236	3,016	5,032	7,204	10,370	17,820	23,208	48,116
9,400	1,263	3,082	5,142	7,361	10,595	18,208	23,713	49,162
9,600	1,290	3,147	5,251	7,518	10,821	18,595	24,217	50,208
9,800	1,317	3,213	5,361	7,674	11,046	18,983	24,722	51,254
10,000	1,344	3,278	5,470	7,831	11,272	19,370	25,226	52,300

Conversion Factors

Torque

Units	Nm	ft.lbs
1 ft.lbs	1.356	1.000
1 Nm	1.000	0.738

Pressure

Units	Nm	ft.lbs
1 bar	14.500	1.000
1psi	1.000	0.069