

Rev	Date	Auth	Details of change (▲ indicate changes in this issue)	App
6	29/08/2017	JB-J	Addition of hydraulic fitting torques into Engineering Instruction.	RL

Description:

The purpose of this specification is to define the required tightening torque of fasteners and hydraulic fittings to ensure controlled continuity around manufacture, service and design.

Applies to:

All bolts, nuts, threaded fasteners and hydraulic fittings within the build, service and manufacture of Dennis Eagle products.

STANDARD BOLT TORQUE (Nm)										
LARGER SIZES AND OTHER METRIC PITCHES ARE COVERED ON SEPARATE INSTRUCTIONS										
	FINISH / COMBINATION	PLAIN / PLAIN	PLAIN / ZINC-Geomet 500	ZINC / ZINC			FINISH / COMBINATION	PLAIN / PLAIN	PLAIN / ZINC	ZINC / ZINC
DIA	GRADE					DIA	GRADE			
M4* 0.7 PITCH	BOLT 8.8	4.5	4	3.5		3/8" UNF	BOLT 2	54	47	39
	NUT 8						NUT 2			
	BOLT 10.9	7	6	5			BOLT 5	68	47	41
	NUT 10						NUT 5			
M5* 0.8 PITCH	BOLT 8.8	9	8	7		1/2" UNF	BOLT 2	122	108	95
	NUT 8						NUT 2			
	BOLT 10.9	12	11	10			BOLT 5	135	122	108
	NUT 10						NUT 5			
M6* 1.0 PITCH	BOLT 8.8	16	14	12	9/16" UNF	BOLT 2	176	156	135	
	NUT 8					NUT 2				
	BOLT 10.9	23	20	17		BOLT 5	196	176	149	
	NUT 10					NUT 5				
M8* 1.25 PITCH	BOLT 8.8	37	33	29	5/8" UNF	BOLT 2	251	224	196	
	NUT 8					NUT 2				
	BOLT 10.9	53	47	41		BOLT 5	278	244	217	
	NUT 10					NUT 5				
M10 1.5 PITCH	BOLT 8.8	64	56	49	3/4" UNF	BOLT 2	454	400	352	
	NUT 8					NUT 2				
	BOLT 10.9	91	80	70		BOLT 5	481	427	373	
	NUT 10					NUT 5				
M12 1.75 PITCH	BOLT 8.8	107	94	83	* Geomet 500 surface finish not available					
	NUT 8									
	BOLT 10.9	152	134	118	FOR INSPECTION PURPOSES, FIGURES ARE ADJUSTABLE WITHIN +/- 5 % ALL FIGURES QUOTED ABOVE ARE FOR DRY CONDITIONS. THE ABOVE BOLT TORQUES ARE TO BE USED WHEN THERE IS NO SPECIFIC INSTRUCTION LISTED ON THE ASSEMBLY DRAWING OR BILL OF MATERIALS.					
	NUT 10									
M14 2.0 PITCH	BOLT 8.8	175	154	135						
	NUT 8									
	BOLT 10.9	237	213	183						
	NUT 10									
M16 2.0 PITCH	BOLT 8.8	271	239	210						
	NUT 8									
	BOLT 10.9	375	330	290						
	NUT 10									
M20 2.5 PITCH	BOLT 8.8	530	466	410						
	NUT 8									
	BOLT 10.9	733	645	568						
	NUT 10									

Geomet 500 torque figures based on 0.15 Coefficient of friction. Refer to [Y-Drive/Company Info/Bolt Torque Calculator](#) for resultant torque calculation. The base calculation is used as a basis for multiplication factor of 0.88 to achieve Zinc/Zinc torque, and a divisional factor of 0.88 to achieve the Plain/Plain torques.

STANDARD HYDRAULIC FITTING TORQUE

NOTE: Colour bands where possible should be specified at each end of a hose of pipe. These colours are also found on corresponding production torque tooling in the manufacturing facility.	Colour Bands	Size	Torque Value (Nm)	A/F (mm)
Hose Coupling to EMB Tube Fittings & Cylinder Parts	BLK GRN	M18x1.5 (3/8")	40	22
	GRN YEL		65	27
	WHI GRN		90	32
	RED BLU	M30x2 (3/4")	110	36
	YEL PLE	M36x2 (1")	130	41
	ONG GRY	M45x2 (1 1/4")	215	50
	GRY PLE		200	60
EMB Stub Fitting to Port (Stud Type Form A, Bonded Seal)	BLU GRN	3/8"	70	22
	PLE ONG		180	HEX 12
	YEL GRY		125	27
	RED YEL	3/4"	180	32
	BLU PLE		250	36
	BLK BLU		35	22
EMB Tube Fittings to Steel Tube	RED GRN	12mm OD pipe	65	22
	WHI RED		180	32
	BLK YEL	22mm OD pipe	200	36
	WHI ONG	28mm OD pipe	210	41
	PLE GRN	35mm OD pipe	400	46
	BLU WHI		200	50
Banjo Fitting	GRY GRN		30	22

*** Torque Value Set By Engineering Department (Special).**

These "special" torque figures result from fitting suppliers not specifying or confirming a torque for a specific fitting. Therefore, the hydraulic leak project team deemed it appropriate to continue with said torques, currently used in production, in these instances as they do not pose a leak risk, nor are these specific fittings reported to have repeated leaking issues.