

ULTIMATE LOAD RATINGS

CUSTOMER

CUSTOMER NAME

PROJECT

PROJECT NAME

LOAD CALCULATION INPUTS

Gear Material	steel	
Pinion Material	steel	
Gear Teeth Shear Strength	72,000	psi
Compressive Contact Strength	400,000	psi
Pinion Bending Strength	280,000	psi
Operational Input Speed	5,000	rpm
Max Operating Torque	62	in-lb
Max Operating Torque	7.0	n-m
Theoretical Efficiency @ Operational Input Speed*	80%	

*Efficiency of pinion/face gear mesh only; does not reflect seal drag, bearings, windage, churning, etc.

LOAD CALCULATIONS

in-lb	n-m	
2,798	316.2	Required output torque to produce max gear teeth shear stress
1,595	psi	Theoretical gear teeth shear stress @ max operating torque
2.2	%	Theoretical shear stress @ max operating torque as a % of max strength
in-lb	n-m	
1,620	183.1	Required output torque to produce max compressive contact stress
78,253	psi	Theoretical compressive contact stress @ max operating torque
19.6	%	Theoretical contact stress @ max operating torque as a % of max strength
in-lb	n-m	
1,113	125.8	Required output torque to product max pinion thread bending stress
15,597	psi	Theoretical pinion bending stress @ max operating torque
5.6	%	Theoretical bending stress @ max operating torque as a % of max strength

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GEAR O.D.	1.875	RH / LH	RH
RATIO (TO 1)	31	GEAR MATERIAL	STEEL
GEAR TYPE	HELICON	CUTTING TOOL	52-417

