DESIGN FOCUS: MINIMIZE SPACE CLAIM

Due to the trade-offs associated with key performance characteristics, gear types do not lend themselves to universal statements comparing one to another. If a comparison between two gear technologies is required, it must be made within the context of a specific application and focused on a specific performance characteristic.

In this case study, Helicon and Worm gear types are compared within the context of an application in which the primary objective is to **minimize space claim**. The application's requirements are shown to the right.

APPLICATION REQUIREMENTS:

Maximum Available Space Minimum Torque Minimum Efficiency Operating Speed Reduction Ratio Expected Life

le Space	3.7 in. x 3.7 in. x 1.0 in.	94 mm. x 94 mm. x 25.4 mm.	
Torque	370 in-lb	41.8 Nm	
ficiency	70%		
g Speed	2,500 RPM		
on Ratio	30:1		
ted Life	1,000 hours		

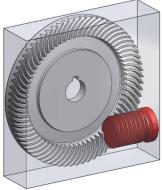
RESULTS:

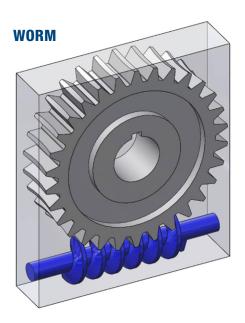
IMPERIAL	Minimum Space Claim (in.)	Minimum Space Claim (in.3)	Resultant Torque (inlb)	Resultant Efficiency (%)
Helicon	2.50 x 2.50 x 0.85	5.3	378	70.1
Worm*	3.67 x 2.90 x 0.97	10.3	374	78.0
Advantage	Helicon 48.3%		Helicon 1.1%	Worm 10.1%

METRIC	Minimum Space Claim (mm.)	Minimum Space Claim (mm.3)	Resultant Torque (Nm)	Resultant Efficiency (%)
Helicon	63.5 x 63.5 x 21.6	87.0	42.7	70.1
Worm*	93.2 x 73.7 x 24.6	168.5	42.3	78.0
Advantage	Helicon 48.3%		Helicon 1.1%	Worm 10.1%

*Worm gearset design per ANSI/AGMA specification # 6034-B92

HELICON







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