

ADR COMPLIANCE SERVICES

CONSULTING ENGINEERS

A DIVISION OF CHAMONIX (AUST) PTY LIMITED * ABN 38 123 915 793

Report on Hoffman Group Helix Brand Aftermarket Steering Universal Joints

Purpose

The Hoffman Group manufacture a Helix brand Steering universals to fit a range of shaft sizes using two means of locking the universals to the shafts, pinch bolt and grub screw.

The Hoffman Group has asked ADR Compliance Services to test its universal joints and confirm compliance with the appropriate standards.

The appropriate standard is Vehicle Standards Bulletin 14 this sets the minimum requirements for modified and individually constructed vehicles. These components are designed to be used as part of the steering column and are therefore must be sufficiently robust to sustain a torque of 200Nm.

Background

The universal joints all use the same body and mechanism, only the shaft connections and locking system varies. The universals either engage on the shaft via a spline, Ford Triangle or double D arrangement.

Universals are manufactured in the following configurations

SIZE	Part No Grub Screw	Part No Pinch bolt
1" DD X 1" DD	HEXJJ1ZA2A2	HEXJJ1ZA1A1
1" 48 X 1" DD	HEXJJ1ZD2A2	HEXJJ1ZD1A1
1" 48 X 3/4" DD	HEXJJ1ZD2B2	HEXJJ1ZD1B1
1" DD X 3/4" 30	HEXJJ1ZA2H2	HEXJJ1ZA1H1
3/4" DD X 3/4" DD	HEXJJ1ZB2B2	HEXJJ1ZB1B1
3/4" DD X FORD TRIANGLE	HEXJJ1ZB2I2	HEXJJ1ZB1I1
3/4" DD X 3/4" 30	HEXJJ1ZB2H2	HEXJJ1ZB1H1
3/4" DD X 5/8" 36	HEXJJ1ZG2B2	HEXJJ1ZG1B1
3/4" 36 X 1" DD	HEXJJ1ZF2A2	HEXJJ1ZF1A1
3/4" 36 X 3/4" DD	HEXJJ1ZF2B2	HEXJJ1ZF1B1
9/16" 26 X 3/4" DD	HEXJJ1ZE2B2	HEXJJ1ZE1B1
3/4" DD X 1" DD	HEXJJ1ZB2A2	HEXJJ1ZB1A1
1DD X 3/4" 36	HEXJJ1ZFA2A	HEXJJ1ZF1A1
3/4" DD X 17MM DD	HEXJJ1ZB2C2	HEXJJ1ZB1C1

Test

A universal was installed in a test jig that allowed it to be torsionally loaded. A torque of 290Nm was applied to the joint via a lever arm of known length, using a load cell and block and tackle, no plastic deformation was observed.

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Universal Joint under test



Helix Steering Universal Joints

Conclusions

The Helix steering universal Joints exceed the requirements of VSB14 substantially and will provide safe and reliable service in appropriately engineered modified vehicles.

Peter Gillard
BE MTM MBA MIE(Aust) CPEng
ADR Compliance Services
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