



1. Thompson Constant Velocity Joint (TCVJ)

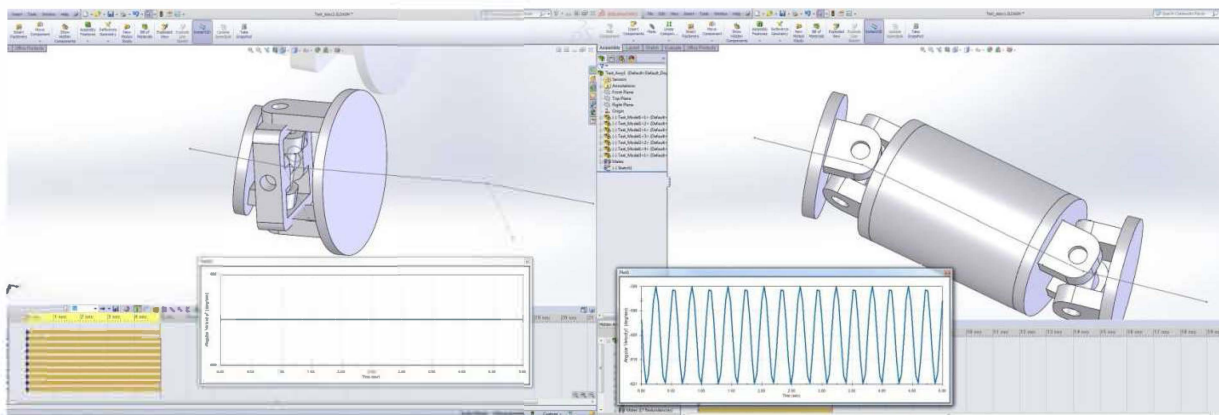
The Thompson Constant Velocity Joint (TCVJ) is a means of transmitting drive across an angled joint between driving and driven shafts with a true one-to-one ratio between the shafts.

The TCVJ is the first of its type in the world and is registered with the relevant patent authorities worldwide.

The traditional problems associated with driving power around a corner of heat, vibration, loss of rotation and oscillating shaft speeds that have been inherent in universal joint technologies have all been addressed and overcome by the TCVJ.

Running at near to ambient temperatures, with no inherent vibration in its design, the TCVJ and its associated sliding shaft actually deals with vibrational inputs from gearboxes, reduction units and motors in a way that protects and prolongs the life of the system.

Having no weight bearing sliding elements, the TCVJ has been born out of a re-understanding of the vectoring forces in play in rotating shafts and directional changes. The TCVJ does not need phased or parallel connecting flanges as has been required for traditional universal joints.



Made from forged and cast elements, the TCVJ design is scalable to meet the differing needs of industry sectors.

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Targeted Markets and Installations

Marine -

The TCVJ2C is specified as the drive coupling in current production vehicular ferries. In this situation the couplings protect and prolongs the life span of both single engine diesel motor power sources and dual system diesel and electric power sources.

Other couplings have been installed into luxury yachts, sports fishing and high speed transport vessels.

Industry -

From electrical power generation to crushing mills and fabricators, opportunities exist where the transmission of drive power is required through either set angles, or, in circumstances where protection is necessary against changing situations. The ease of servicing, cool running and complete lack of vibration in the TCVJ product makes it the solution of first choice in every case.

Transport -

Already running in monorail infrastructure in the public domain, the TCVJ's have proved to be easy to manage and reliable in their work. The initial theoretical requirement of shifting the weight of the motor and gearbox combination has been achieved with ideal outcomes in smoothness of transmission and weight distribution.

Agriculture -

Many RFQ's and design proposals have been made for this sector in, predominately, the area of PTO's in heavy, mobile machinery. Harvesters, scarifiers, graders and irrigation and reticulation machinery have all proven to be rich in opportunities where power across changing angles and low maintenance requirements go hand in hand.



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TCJV2C15 - version 6

Model shown has a customized 10 stud flange as required by the customer.

TCVJ's can be supplied with either flange or shaft outputs.

Ready for dispatch; TCJV2C15 joints with cardan shaft style spline shafts completing the coupling.



This TCJV8C10 was used to power a luxury yacht, allowing the marine architect a choice of engine positions. With the engine horizontal, this single joint afforded control over the angle required for the propeller shaft, vibration free.



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Naming modalities and Specifications

Designation explanation:

example for model

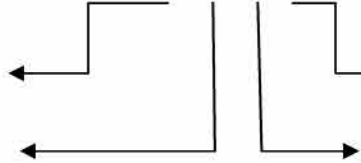
TCVJ 2 C 15

Name



Maximum Angle of deflection.

Torque (Nm)



Torque multiplier A = Nm x 1

B = Nm x 100

C = Nm x 1,000

D = Nm x 10,000



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<p>TCVJ® Thompson Constant Velocity Joint</p>	
<p>Features and benefits for monorail.</p> <p>TCVJ2C15 model.</p>	<ul style="list-style-type: none"> • Decrease un-sprung mass by allowing positioning of engine and gearbox away from the bogie thereby decreasing load and damage sustained on the underlying track. • Virtually vibration free through constant velocity thereby providing smoother operation and passenger comfort. • High angle articulation allows creative engine and . • Zero backlash operation • No load bearing sliding surfaces. • Increase energy efficiency. • Cool and quiet operation. • Reduce collateral damage to connected components • Dynamically balanced • Corrosion resistance protected
<p>Drive shaft Assembly</p>	<p>Consisting of two TCVJ coupling heads connected by splined shaft.</p>
<p>Full Articulation Angle</p>	<p>± 15 degrees °</p>
<p>Speed Capability</p>	<p>Up to 2,500 RPM</p>
<p>Torque range</p>	<p>500 – 8000 Nm. Dependent on operating speeds and power</p>
<p>Continued..</p>	
<p>Design Torque Conditions</p>	<p>Fully reversing cyclic fatigue torque: +2,900Nm / -2,900Nm</p>
<p>Yield Torque Condition</p>	<p>7,700 Nm</p>
<p>Swing Diameter</p>	<p>Minimum 268mm</p>
<p>Bearing Life</p>	<p>Based upon customer's angle, torque and speed operation & operating duty cycle</p>
<p>Splined shaft length</p>	<p>As per customer requirements</p>
<p>Mating Flange Connections</p>	<p>As per customer requirements to ISO specifications</p>
<p>TCVJ patented markets</p>	<p>USA, China, Europe, Japan, India, Russia, Canada, Brazil, Australia, Israel, South Korea, Singapore, Mexico, South Africa, Indonesia, Philippines, Vietnam.</p>



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TCVJ5B-15 Specification

Nominal design torque	500 Nm (based on speed of 3,000 rpm and at 15 degree angle, L10 bearing life 2,000 hrs)
Max. Torque	1200 Nm
Design speed max	3000 rpm
Full articulation angle	15 degrees
L10 bearing life Max service temperature	Contact us for your specific applications Up to 120 degrees Celsius.
Coupling efficiency	> 99.95% (determined from independent testing authority based on a range of angles, speeds and torque loading scenarios.)
Overall dimensions	Max swing diameter - 193mm Overall length - 169mm Weight – 11,0 kgs Rotational moment of inertia – 0,0358 kgm²



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TCVJ2C-15 Specification

Nominal design torque	2,000 Nm (based on speed of 3,000 rpm, 15 degree angle, L10 bearing life 2,000 hrs)
Max. Torque	5,000 Nm
Design speed max	2500 rpm
Full articulation angle	15 degrees
L10 bearing life Max service temperature	Contact us for your specific applications Up to 120 degrees Celsius.
Coupling efficiency	> 99.95% (determined from independent testing authority based on a range of angles, speeds and torque loading scenarios.)
Overall dimensions	Max swing diameter - 269mm Overall length - 169mm Weight -30kgs

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