



# iWT<sup>3</sup> Technical Capabilities

<b>Cut-off frequency for Q<sup>1</sup> measurement of vertical wheel/rail forces (Q)</b>	2 kHz.
<b>Measurement of lateral wheel rail forces (Y)</b>	150 Hz.
<b>Measurements of longitudinal creepage forces (X)</b>	Limited to measurement of steering forces from axle torsion.
<b>Cut-off frequency for X</b>	Typically 10 Hz, limited by the torsion eigenfrequency of the wheel axle.
<b>Measurement of contact point position</b>	No.
<b>Handling of two point contact</b>	Creates equivalent, global values for the contact forces. The individual contact forces for each of the individual points of contact are not measured.
<b>Temperature</b>	-25° C to +50° C ambient. May be increased after consideration of the specific application.
<b>Special wheel disc design required?</b>	Yes.
<b>Modification of the wheelset</b>	Can not be re-used in traffic, as drilling of the axle and wheel web has reduced the wheelsets fatigue life.
<b>Signal transmission</b>	Slip ring device, typically protruding no more than 50 mm from the outside face of the axle box. Requires drilling of axle and wheel web for cabling, and modification of the axle box.
<b>Signal transmission, Power Requirements</b>	None, slip ring device is a passive device.
<b>Requirements on wheel axle</b>	Need to be bored through the full length of the axle to allow for signal transmission cabling.
<b>Permitted test speed</b>	To date IWT3 has been used in applications up to 280km/h.
<b>Traction/braking forces</b>	Traction and braking forces may be applied with the exception of tread brakes and wheel mounted disc brakes. Care must be taken to avoid wheel flats.
<b>Permitted cant deficiency and axle load</b>	As the force/strain relation is linear, there is no reason to put an upper limit on the allowed cant deficiency or axle load.
<b>Delivery time</b>	20-50 weeks (depends on delivery of special wheels).

<sup>1</sup> Should not be confused with the sampling frequency, which is much higher. The cut-off frequency is described from what frequency a useful signal can be created.

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