The Sports Pages

Cart racing Custom chain pins withstand extreme strain

Chain pins take the lead in cart racing

Chain specialist Iwis reports that it is supplying chain pins with a special coating for racing cart drive chains. The special-purpose chain pins improve the chains' ultimate strength to withstand the extreme strain exerted on them in cart racing. The cooperation between Iwis and cart chain manufacturer Heller Antriebs Technik with its Panther Kart Chain brand was revealed at this year's Motek in Stuttgart.

Carts are small vehicles powered by a small internal combustion engine. They are raced on specially built cart race tracks. Thanks to their modest size and light weight they are fast and very agile. Through their low centre of gravity – only a few centimetres above the road surface – the carts achieve a high road speed around curves, placing high physical strain on the driver.

The cart's engine is positioned in front of the rear axle and behind the driver, usually slightly offset to one side. Originally carts used mostly one-cylinder two-stroke motorcycle engines, which is also the requirement for most race series. Especially in amateur racing four-stroke and Wankel engines as well as electric motors are increasingly common. The engine's power is transmitted to the rear wheels through a chain. The transmission ratio can be adapted to racing conditions and track by exchanging the chain sprockets on wheel axle and engine. High-performance carts have three- to six-speed sequential gearboxes.

The high forces that occur in cart racing call for special drive chains. Heller Antriebs Technik (HAT) in the German city of Eisenach has responded to this call with its specialised performance cart chains. In the course of a cart race, with speeds of up to 120mph and tight curves taken at high speed the drive chains are subjected to extreme stresses, presenting a constant risk of chain failure. To improve the chains' resilience HAT uses only chain pins from Iwis in its high-performance chain series Panther Kart Chain Classic.

Strong and durable

Made from high-quality materials in combination with special heat-treatment, coating and finishing processes, these pins are exceptionally strong and durable. With their high surface hardness, low roughness and tight tolerances they are low-wear and have excellent friction characteristics. The chains' geometric design further reduces friction losses. The bushings, for example, protrude beyond the outer faces of the inner elements to prevent friction contact between the inner and outer plates.

"The Panther Kart Chain Classic performance chain is unique in its class and sets new standards in wear resistance and fatigue strength even under extreme loads," explains Ludwig Heller, engineer and founder of HAT. "In motorsport circles the Panther Kart Chain is regarded best-in-class and valued for its reliability and long service life."

www.iwis.com

Equestrian Riding simulator design

Pressure switches are first past the post with simulator

Tapeswitch has provided pressure sensors for horse riding simulators manufactured by Racewood Equestrian Simulators. Racewood is one of the principal manufacturers of equestrian simulators, designing and manufacturing a unique, patented product to simulate a wide range of horse riding activities, including racing, polo, jumping and riding for equestrians of all abilities. Racewood machines have sensors at the neck, saddle and knee to identify the riding position and help identify and correct any flaws in the riders position.

Historically Racewood had used foil sensors, but these sensors were proving unreliable and didn't measure up to the company's exacting standards. Keen to find a better solution for its customers Racewood contacted Tapeswitch. Working closely with Racewood, Tapeswitch was able to identify a switch that would deliver just the right sensitivity that the customer needed and which allowed Racewood to fit the switches inside foam and leather.

Karen Keighley of Tapeswitch comments: "We were able to deliver a much improved solution at a good cost effective rate. This allows Racewood to improve their customers' experience without increasing the cost."

www.tapeswitch.co.uk

Formula One

Wave spring meets F1 challenge

When award winning manufacturer Yasa Motors, a company that specialises in very high power and torque density axial flux motors, needed a spring solution to help out one of its leading Formula One customers, it called upon TFC for help.

Having established that a standard product was not available for the specific bearing pre-load problem but, with a maximum deadline requirement of two weeks from concept to final product, the challenge was on. TFC was able to design and then submit specifications and final approval drawings before delivering the finished product within the time frame.

Herminder Mathary, Yasa Motors' technical product manager worked closely with TFC's product manager Simon Ward to create an 80mm stainless steel, nested Smalley wave spring. He comments: "Having dealt with TFC on previous occasions, we were confident a solution could be

achieved but we were particularly delighted the time restraints set us were achievable and our customer's demands were fully satisfied."

With decades of experience, TFC is the leading European supplier of Smalley Spirolox retaining rings, snap rings and wave springs. Smalley Steel Ring Company is the world leader in the manufacture and development of these products with a standard range consisting of 10,000 parts stocked in carbon and stainless steel. If a bespoke product is needed, Smalley's 'no-tooling-cost' manufacturing process allows for fast prototyping and economical production.

TFC's team of engineers is available for design consultations, providing a full range of resources to ensure the application contains the most effective solution.

www.tfc.eu.com