9 TRIMMER/CHOPPER DRIVE FOR LARGE ALUMINIUM COIL PROCESSING LINE

Application
Drive coupling with high angle requirement within a process line.

Conditions
300kW, 350rpm

Problem
Existing cv joints installed unable to handle the continual articulating angle & speed without being destroyed prematurely.

Solution
TCAE-V-9 couplings was installed operating at 6 degree misalignment while only running at 350rpm. **Savings in maintenance paid for the couplings within 6 months**

10 HOT OIL PROCESS PUMP IN A LARGE OIL REFINERY

Application
Hot oil process pump in part of the refinery operation.

Conditions 45kW, 1460 rpm requiring ATEX approval

Problem
Centrifugal pump for hot oil at 280C requiring monthly laser alignment due to thermal expansion of the pump.

Solution
TCAE-R-2 ATEX certification installed. Has sufficient axial expansion and angular articulation to cope with the pump temperature. **Savings as TCAE couplings don't require laser aligning. Coupling cost recouped in 3 months.**

11 LARGE AXIAL FAN DRIVESHAFT FOR TEMPERING FURNACE

Application
Hot air blower driveshaft.

Conditions
400kW, 990 rpm length 3m operating at 100degs C.

Problem
Gear flex couplings fails due to angular misalignment when exposed to hot air of the fan. Required changing and laser aligning quarterly.

Solution
TCAE-L-5 driveshaft installed to cope with the thermal expansion of the hot air without affecting performance. **Savings gained in production and labour. Coupling cost recouped in 90 days**

12 COAL STACKER RECLAIMER CONVEYOR DRIVESHAFT LARGE STEELWORKS

Application
Belt conveyor head drive roller connected to gearbox.

Conditions
110kW, 94 rpm

Problem
Existing gear couplings unable to handle continual misalignment due to flexing in the stacker structure & are regularly failing.

Solution
Customised TCAE-L-10 driveshaft with 2 piece shaft passing through conveyor boom. Each shaft requires angular misalignment capability due to flex in structure. **Saving by increase in production and decreased maintenance costs. Coupling cost paid in 40 days.**

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Mr David Farrell, Chief Engineer

WHAT DOES THE COUPLING REALLY COST THE BUSINESS?

Production savings explained with TCAE ™ shaft couplings.

To demonstrate the effectiveness of the TCAE coupling in operation, a number of case studies are presented from the company's wide customer base.

They show just some of the many individual applications that the TCAE coupling has helped to solve compared to other traditional couplings. This is relevant when TCAE Couplings last on average 4 plus years before overhaul.

1 GOLD MINING DUMP TRUCK PTO DRIVE

Application
Coupling required at diesel engine Power take off to drive hydraulic pump.

Conditions
100kW, 2300rpm max diesel drive

Problem
Restricted engine compartment room meant direct coupling of the pump within standard coupling angular tolerances was not possible.

Solution
TCAE-R-2 installed with a shaft angle of 5 degrees allowing pump to be situated unobstructed. The constant velocity nature of the coupling meant the pump operation remained smooth with no induced vibration from the coupling. **Saving in not replacing couplings 2 monthly. TCAE Coupling cost recouped in 4 months.**

2 WATER PUMPS FOR A LARGE PULP AND PAPER MAKING PLANT

Application
Couplings required to operate in various sized water and slurry pumps.

Conditions Various sized from 11 kW, 1440rpm to 110kW, 1440rpm

Problem
Corrosive nature of the plant room has caused the concrete plinths used to mount the motor-pump bases to crumble. Significant downtime results from the requirement to constantly laser align the existing couplings under these "soft-foot" conditions.

Solution
Various sized TCAE-R series couplings replaced the many existing pump couplings operating for many years without any alignment. Furthermore, the life of the pump seals has increased due to elimination of damaging side loads on the shafts from misalignment. **Saving with TCAE, no laser aligning required and decreased maintenance cost with production increased. TCAE Cost recouped in 4 Mths**

3 PAPER ROLL WINDER DRIVES FOR A LARGE PAPER MAKING PLANT

Application
Coupling connects DC motor to roll winder.

Conditions
180kW, 920 rpm

Problem
The existing gear coupling of the paper winder shaft required continual re-alignment due to the shock loads imposed under controlled deceleration and stopping.

Solution
TCAE-R-7 was installed with an integral disc brake to control the deceleration and emergency stopping of the paper roll. **Savings, TCAE coupling has led to a large increase in production and saved cost on need to laser align. Coupling cost recouped in 3 months.**

4 SUCTION PRESS PUMP DRIVESHAFTS FOR A LARGE PAPER MAKING PLANT

Application
Long driveshaft (3 mtrs) connects motor to pump.

Conditions
185kW, 2100 rpm

Problem
Existing gear coupling regularly fails due to misalignment conditions and required laser aligning 3 monthly. coupling installed 4 metres above floor and regularly replaced.

Solution
TCAE-L-7 installed to connect the motor gearbox to the suction pump. **Savings by having safety issue overcome with the TCAE coupling requiring no Laser Aligning. Coupling cost recouped in 4 months.**

5 ROUGHING MILL RUNOUT TABLE DRIVESHAFTS - LARGE STEEL PLANT – UK

Application
Long bank of conveyor drive rolls feed hot steel slab through roughing mill.

Conditions
85kW, 579 rpm

Problem
Current cardan universal driveshafts produce continual torsional vibration affecting slab quality. Also couplings fail prematurely due to reversing nature of drive.

Solution
A customised TCAE-V-7 was installed with standard DIN flanges to mount to the existing shaft flanges. The constant velocity nature produces relative vibration free motion to the conveyor. **Saving with no failure of the TCAE coupling, production increased and maintenance cost decreased. TCAE cost recouped in 4 Mths**

6 LARGE, VERTICAL DRIVESHAFT FOR A HIGH TORQUE AVIATION TEST RIG

Application
Brand new test equipment being constructed by OEM.

Conditions 5,000 kW, 230rpm to 500 rpm

Problem
Requirement for a true constant velocity driveshaft able to handle high torque load, axially compress/expand and articulate angularly while under load. No other coupling can handle the required misalignment angle.

Solution
A 3m long customised TCAE-V-14 driveshaft designed and installed to connect a gearbox to provide true constant velocity to a rotor mast with a varying shaft angle up to 3,1 degrees. Vertical operation of shaft required a customised thrust bearing arrangement. **Saving in no laser aligning, can take misalignment and will last 3 plus years without maintenance.**

7 LARGE AIR COMPRESSOR DRIVE COUPLING FOR AN ALUMINIUM PLANT

Application
Direct coupled motor to compressor drive.

Conditions
2,250HP, 225 rpm

Problem
Existing gear couplings are unable to handle the alignment conditions required in this specific installation., requiring constant laser alignment and replacement.

Solution
TCAE-S-11 couplings installed at close DBSE (220mm).
Savings, the TCAE coupling handled the alignment issue did not require regular changing or maintenance. Coupling cost recouped in 4 months.

8 DOSING PUMP DRIVE COUPLING - LARGE SOFT DRINK MANUFACTURER

Application
Coupling connection to an axial pump.

Conditions 37kW, 1440rpm and 5,5kW 1440rpm

Problem
Acidic environment causes the existing Elastomeric couplings to fail regularly and requiring laser aligning frequently. It is in a 40 degree environment and is a safety risk.

Solution
TCAE-V-0 and TCAE-V-1 couplings installed. Quick and easy installation, no maintenance and long life, allows fitters to leave the area quickly. **Saving on health and maintenance and no laser aligning. Coupling cost recouped in 4 months**