thompson
COUPLINGS Limited

TWO HOURS INSTEAD OF TWO DAYS

TCAE-ST-6 Eliminates Laser Alignment at Major Singapore Chemical Plant

A major chemical plant in Singapore has successfully installed a **Thompson TCAE-ST-6 Constant Velocity Coupling** on a 148 kW vacuum blower drive, substantially reducing maintenance downtime and eliminating the need for precision laser alignment.

THE PROBLEM

The vacuum blower requires periodic replacement. With the previous disc coupling, every blower change required the drive system to be accurately laser aligned before returning the equipment to service.

The complete removal, installation and alignment process typically resulted in **more than two days of downtime**.

Dynamic movement during operation could also cause the shafts to move beyond the allowable misalignment capability of the existing coupling, sometimes requiring the equipment to be stopped and realigned.

THE THOMPSON SOLUTION

Following engineering analysis of the application, a **TCAE-ST-6** was selected for the:

- **148 kW electric motor**
- **1,370 rpm operating speed**
- 70 mm motor shaft
- Tapered blower shaft
- Short nominal distance between shaft ends

The TCAE-ST-6 can accommodate significant angular misalignment — **up to 5° at each end** — while transmitting torque at constant velocity.

This capability allows the coupling to accommodate shaft positional changes without requiring the precision alignment demanded by conventional rigid or limited-flexibility coupling systems.

THE RESULT

Following the next scheduled blower replacement:

- **TCAE-ST-6 installed and ready for operation in approximately two hours**
- **No laser alignment required**
- **Downtime reduced from more than two days to approximately two hours**
- **Vibration measurements showed a slight improvement following installation**
- **Estimated three-year cost benefit of approximately SGD 110,000**
- **Estimated energy savings of approximately SGD 2,300 per year**

The results demonstrate that coupling selection can influence considerably more than simply torque transmission. Correctly applied, the TCAE can reduce installation time, maintenance requirements and production downtime while accommodating the shaft movement that occurs under real operating conditions.

CUSTOMER RESPONSE

Following the successful operation of the first installation, the chemical plant is planning to replace **four additional vacuum blower drives with TCAE-ST-6 couplings**.

ALIGNMENT DOES NOT HAVE TO BE A MAINTENANCE PROBLEM

For applications where equipment movement, thermal growth, soft foot or repeated machinery replacement makes precision shaft alignment difficult and expensive, the Thompson TCAE range provides a different engineering approach:

Accommodate the misalignment rather than continually correcting it.

Thompson Couplings Limited
Constant Velocity • Misalignment Capability • Reduced Maintenance • Reduced Downtime

Initial installation of TCAE-ST-6

After an hour of installation and no alignment completed.