

Control unit conversion TCF 20.

Our aftersales service supports you with modifications and conversions of your cryotechnical systems to ensure availability, productivity and operational reliability.

TCF20 systems were equipped with a Sattcon control units. The procurement of spare parts for the Sattcon control units of the types 05, 15 and 31 is now proving very difficult. Some spare parts are no longer available. If a control unit develops a fault this may lead to a long interruption in the operation of your system outside the planned service intervals. In response to the increasing fault reports from our customers Linde Kryotechnik AG has put together a control unit conversion package that gives you the possibility to take precautionary measures. Control unit modernisations of this nature have already been conducted successfully on customer systems and are proving to have distinct advantages.

Advantages of control unit conversion

- Risk minimisation of a long operational interruption due to a defective control unit
- Spare parts availability guaranteed again
- Prolongation of serviceable life
- Easier handling and monitoring of the system

Scope of delivery

- Delivery of new control unit (control cabinet) consisting of
 - Stored program controller SIMATIC S7-300
 - Operator panel with 6" display and sealed keyboard
 - Voltage supply
 - Transducers for temperatures, speed and cleaner level
- Replacement of the following instruments
 - 2 x temp. sensor brake cycle TE 109/110
 - Vacuum sensor PE109
- Supply and installation of additional instruments
 - Pressure sensor PT1 03
- Calibration and test of the control unit in the factory
- Documentation

- Signal check and function test
- Re-commissioning of the system incl. power measurement and acceptance

Costs:

From CHF 220,000.00 depending on options selected

Options

- Conversion from electrical to pneumatic valve actuators (incl. controller)
- New gas management panel (GMP)
- Visualisation and remote access to the control system
- Specific program adjustments to the customer's system
- Turbine check / turbine overhaul
- System service

Conversion of the valves (option)

In this option the existing electro-mechanical actuators of the Coldbox are replaced by e-p controllers, the function of the valves checked and the sealing elements replaced.

The result of the conversion is a more stable control system. The electro-pneumatic controllers offer fast and stable control because they practically have no control hysteresis.

Gas Management Panel (option)

New GMP as replacement for the mechanical pressure controller of the system. We recommend that the old mechanical GMP be replaced by a new pressure control system with 3 control valves (bypass, charge and discharge valve). The new GMP is controlled and monitored by the central control unit.



PC-visualisation (option)

The PC visualisation consists of

- Desktop PC with Windows® XP Professional
- 19" monitor
- Ink-jet printer
- Visualisation software WinCC
- Remote access software PCAnywhere

Key functions:

- Dynamic graphic display of the system
- Display of the process variables, manual valve adjustment or automatic mode
- Display of the status of the control cycles, process variables, setpoint values of the controllers etc.
- Recording of trend and archiving of measured data
- Display of alarms and messages
- Remote on/off of the condensation unit
- Printing of monitor contents and summarised process values

Turbine check / overhaul (option)

The conversion period provides the opportunity to check and possibly overhaul the turbines. The state of turbines will be checked on a test stand at the Linde Kryotechnik AG workshop and overhauled if necessary.

System service (option)

Further service work is recommended depending on the operating hours and last service activities.

We would be happy to provide you with an offer to meet your requirements.

Contact:

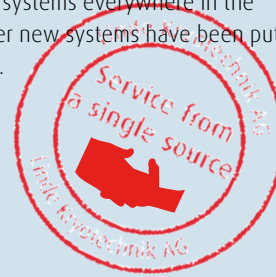
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Aftersales service.

The aftersales service provided by Linde Kryotechnik AG offers you comprehensive services for cryogenic helium and hydrogen systems everywhere in the world also after new systems have been put into operation.



**Control unit
modernisation**
from Sattcon to
Siemens for TCF20.



Before

Reference: TCF20 control unit
conversion in Japan



Before

Reference: TCF20 control unit
conversion in Bonn



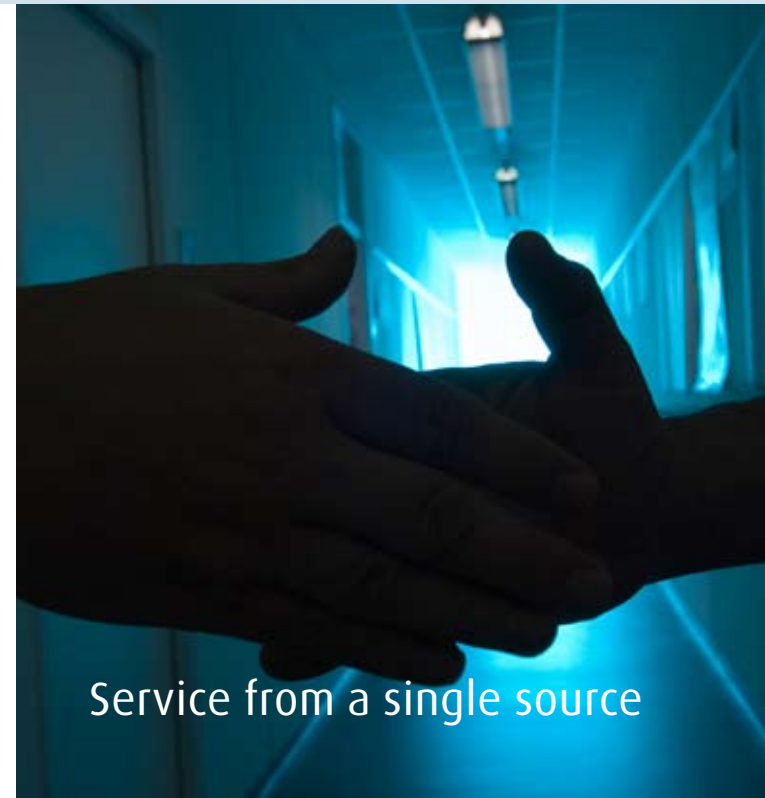
After



After

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Service from a single source