



SFC Key Interlocks & Process Management Systems



Specials

■ Specials

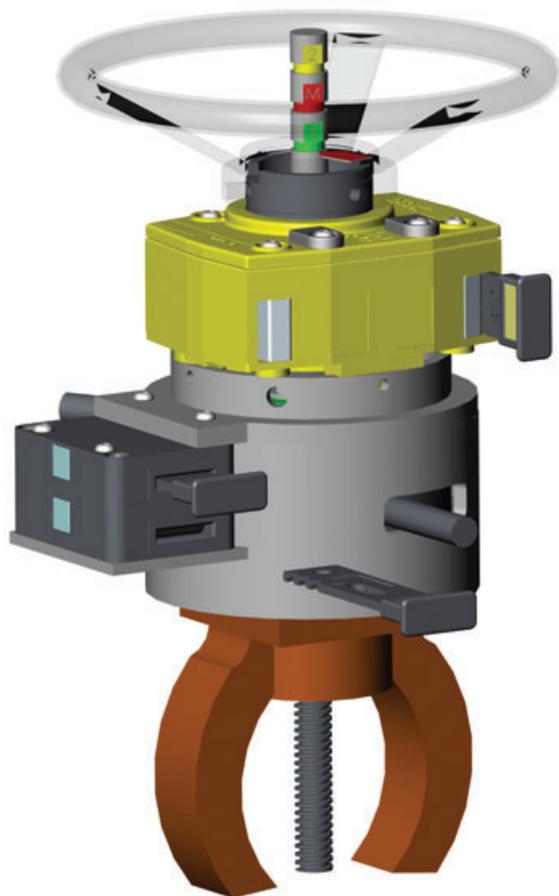
The range of process applications to which SFC interlocks can be applied is unlimited. As clients begin to understand the immense operational capabilities of SFC interlock systems, they often request unique solutions to specific problems.

In this section we present some examples of 'specials' we have developed to meet clients' specific operating safety requirements.

SFC are always pleased to receive a challenge to provide unique solutions to clients' individual or special problems.



■ Pressure Protection - using 3-way changeover valves.



■ Customer Problem:

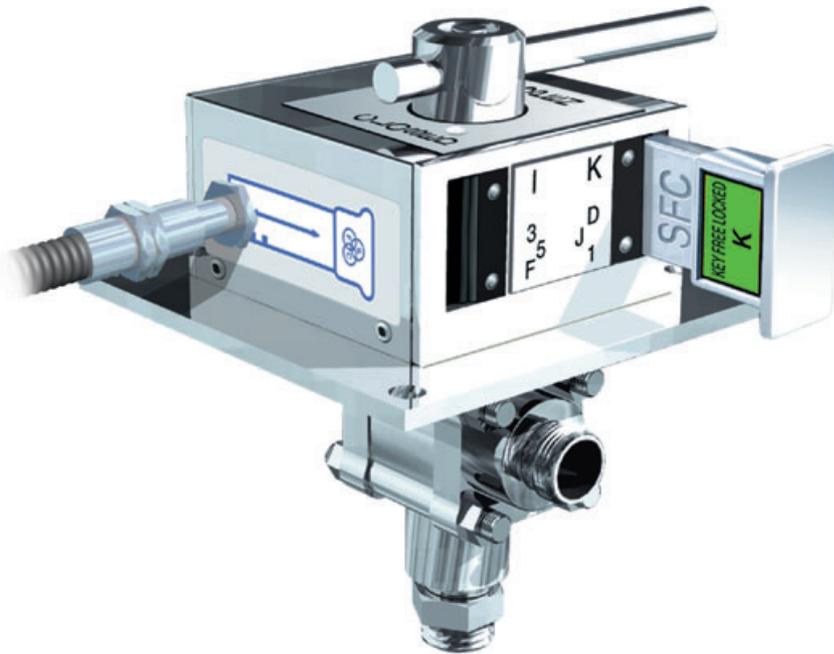
To remove dependence on chain-drive mechanisms on mechanically-linked 3-way changeover valves located upstream and downstream of dual safety relief valves.

The client's anxiety arose through concern for the possible consequences of an overpressure situation arising in the event of a failure in the chain drive mechanism during a relief valve changeover procedure.

■ SFC Solution:

SFC's solution enabled removal of the chain drive mechanism and relied on a locking arrangement that first established an intermediate (mid point) safe position on the downstream 3-way valve assembly. This permitted the release of a transfer key that then enabled a full changeover on the upstream 3-way valve assembly before releasing a final key to complete the downstream procedure.

■ 3-Way Isolating Valve C/W Proximity Sensor



■ Customer Problem:

To interlock a single acting, pneumatic actuator on a ball valve.

■ SFC Solution:

Where single-acting, spring-return pneumatically actuated valves have to be incorporated into an interlock sequence, an interlocked 3-way isolating valve is a simple and effective solution.

The isolating valve is located upstream of the actuator control panel. When operating the isolating valve, air pressure to the actuator is vented to atmosphere, thus completely disabling the valve which will then operate automatically to its designed fail-safe position.

Single or double key arrangements can be used to isolate the valve in any position.

In the illustration the interlock incorporates a chassis plate for local wall mounting, and a proximity sensor for status indication back to a control room.

This arrangement is a cost effective add-on control feature to all types of pneumatic, hydraulic or gas actuators.

■ Modular Double Block & Bleed Valve



■ Customer Problem:

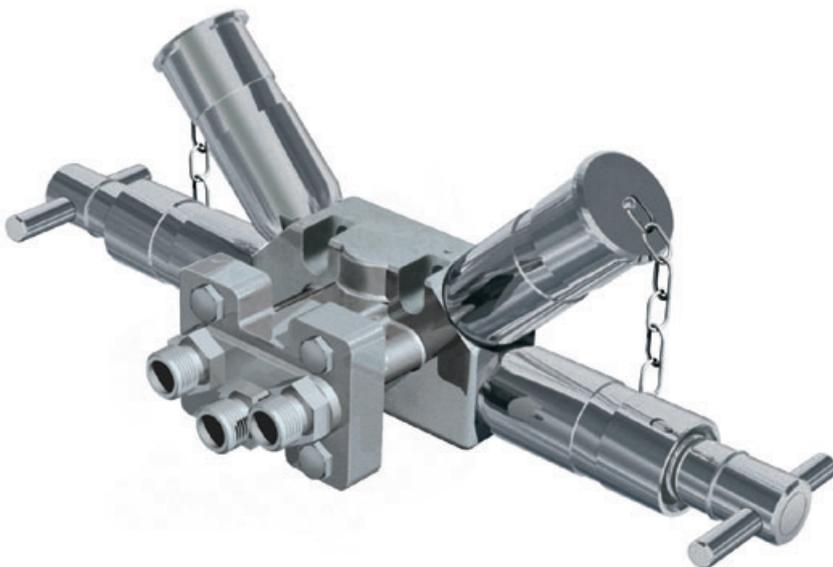
Restrictions of space require that a modular style double block and bleed valve is used in place of a conventional 3 valve piped arrangement. It is required that the modular valve is interlocked with other valves in the system.

■ SFC Solution:

Modular valves of this type pose greater problems for interlocking by virtue of their size and space limitations. SFC designed a bespoke cam type interlock especially for this host valve.

Specials

Needle Valve Locks



Customer Problem:

To ensure two ports on an instrument manifold can never be simultaneously opened.

SFC Solution:

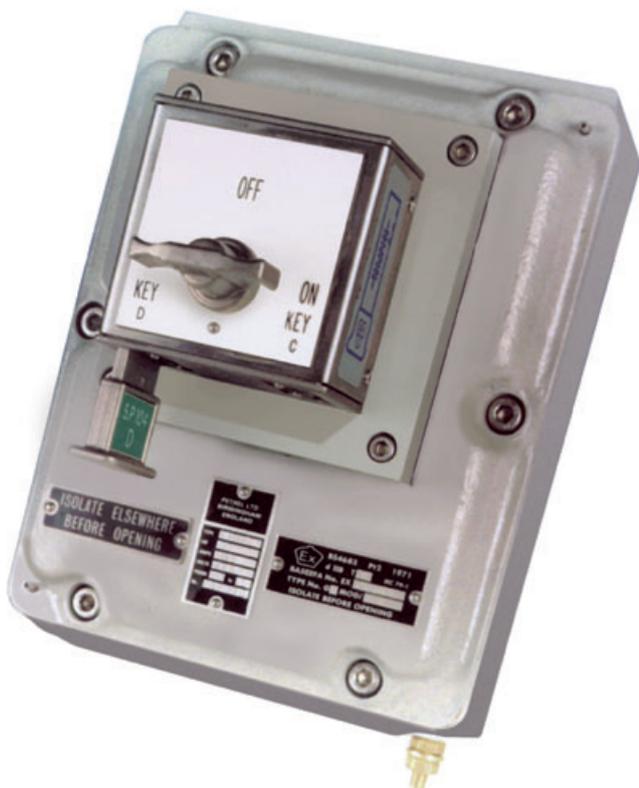
Needle valves of all types can be fitted with SFC's interlocks. Regardless of body design, number of operating handles or method of operation, SFC can supply a solution to your problem.

In this illustration a 4-port instrument manifold is equipped with SFC's NVL interlock. The locking device ensures that pairs of operating handles can only be operated one at a time.

Upon opening the first port, the key becomes trapped. The second port cannot be opened until such time that the first port has been closed, thus releasing the operating key.

The opposite pair of ports are controlled in the same way with a differently coded key.

Explosion Proof Interlocked Switch



Customer Problem:

To mechanically interlock an electrically operated device, within a hazardous environment - ATEX certified.

SFC Solution:

Where mechanical (interlocked) control of powered equipment is required in a hazardous area, the SFC switch lock provides the perfect solution.

In this illustration our 'QL' quarter turn interlock is fitted to the switch mechanism of an II 2 G D hazardous area control switch.

A single or dual key configuration can be supplied to lock in the 'ON', 'OFF' or both positions.

Switches for hazardous zone protection specifications can be provided including solenoid controlled key release units.

■ Sequence Control Unit



■ Customer Problem:

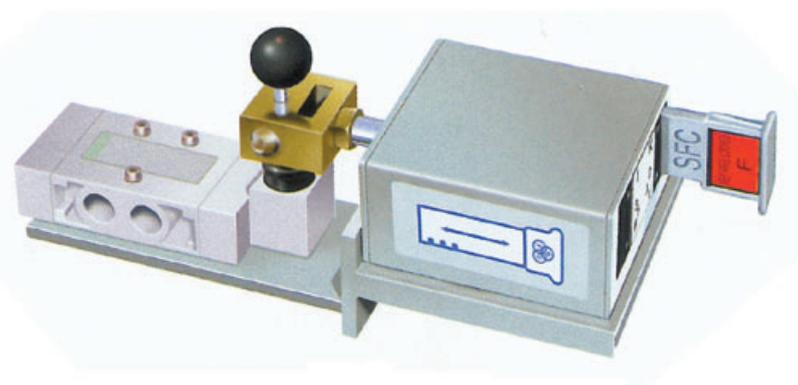
To permit complex variations in operating sequences on launcher/receiver systems.

■ SFC Solution:

The simplest interlock systems will normally feature a 'linear sequence'. This is where the outward 'journey' (operating steps) are mirrored by the return journey. However, from time to time non-linear sequences are necessary. A typical example of a non-linear sequence is a pig trap procedure where double block and bleed valves control complex nitrogen purging, pressure equalisation, venting and draining.

The sequence control unit is a mechanical key issuing/control device. It is normally placed locally to the valve system. It differs from a key exchange unit in that, upon inserting a permit key, a selector knob is rotated to a fixed position before the next key is issued.

■ Pneumatic Control Valves



■ Customer Problem:

To interlock a double acting, pneumatic actuator on a ball valve.

■ SFC Solution:

For this requirement SFC adapted their QLA interlock to incorporate a sliding control lever with forward and backwards motion.

This linear motion interfaced with the pneumatic valve operating lever to provide double acting operation.



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