



- long life re-useable indicative mechanical seal
- event-unique random security number
- tamper evident design



Securesseal



assured security for the logistics industry

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Description

A re-usable indicative mechanical seal, with event-unique random security number generation, for cargo doors of goods vehicles.

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a s s u r e d s e c u r i t y f o r t h e l o g i s t i c s i n d u s t r y


Principle

- The seal mechanism secures a multi-strand steel cable threaded through the door catch mechanism, preventing door opening without opening the seal.
- Closing the seal generates a new random 5 digit security number displayed through a window in the seal casing.
- Opening the seal scrambles this number to an unreadable condition.
- The security number displayed after seal closure at despatch, is recorded on the load manifest and should still correspond at delivery. Any deviation from the recorded number indicates unauthorised opening of the seal.

Construction

- Case dimensions and Mounting
- The seal mechanism - cable plunger, opening slide and random number display - is housed in a stainless steel case measuring :-
135mm. high x 93mm. wide x 45mm. deep.
- The assembly is bolted, using a stainless steel 4-stud mounting kit, to the exterior of the cargo door.
- It may be mounted onto Roller Shutter, Thermal Insulated or Dry Goods doors.
- The seal mechanism is positioned on the door so that, with the cable threaded through the door catch mechanism and the seal closed, the door catch or handle cannot be moved sufficiently to permit door opening.

Structure and Approvals

- The seal casing is formed from AISI 316 grade stainless steel, resistant to salt mist.
- The casing encloses the seal mechanism to IPX 6 - resists water ingress under pressure - and conforms to BSEN 60529. 
- The casing meets Ministry of Defense standard 07-55DI for infiltration of sand and dust particles.
- The seal mechanism has an operating temperature range of -40° C to + 85° C and is approved to IEC 68 to withstand:-

Dry Heat	IEC 68-2-2	85° C for 16 hours
Cold	IEC 68-2-1	-40° C for 16 hours
Damp Heat Cycle	IEC 68-2-28	Condensation test
Bump	IEC 68-2-29	40g's for 6 m/secs.
Vibration	IEC 68-2-36	3Hz - 500Hz + 1mm/ 10g's

The wheels of the 5 digit security number display are moulded from Acetal Copolymer C9021L510 / 1569. They are resistant to UV radiation.

The numbers on the display wheels are 5mm. high. They are supplied Black figures on Yellow ground.

The security number is viewed through a window 8 mm. x 44 mm. formed from UV stable polycarbonate approximately 1.75 mm. thick, formed into a cylindrical convex lens. When viewed through this window, the numbers appear to be 5.5 mm. high.

The standard securing cable assembly is a 750mm. length of 7 x 19 strand stainless steel cable. (i.e. 7 bundles of 19 strands). The cable is 3 mm. in diameter, encased in a protective sleeve formed from Nylon 11, giving an overall diameter of 5 mm. The cable has a minimum breaking strain of 510 Kgs.

A cylindrical stop-end made from grade 316 stainless steel is swaged onto each end to engage the plunger keyway. These fittings give a minimum efficiency of 90% of the breaking strain of the cable - approximately 460 Kgs.

An alternative heavy duty cable consists of 6 mm. diameter galvanised steel of 6 x 19 construction, encased in Nylon 12 to give an overall diameter of 9.5 mm. The nylon sleeve is recessed into the stop-ends to further reduce the risk of corrosion.

In standard form, one end of the cable is held permanently in the plunger keyway by a roll pin. The roll pin may be driven out of the plunger, either to replace a damaged cable, to substitute an optional looped-end cable or to use more than one cable.

Up to 3 cables may be accommodated by the plunger after removal of the roll pin.

The complete seal mechanism weighs approximately 1.05 Kg.

Operation

Opening the seal

At the left side of the seal casing, a rectangular section release slide protrudes, terminating in a round knob. Using the knob to withdraw the slide to the left releases the cable plunger from the bottom of the seal housing. This allows the free cable stop-end to be pulled from the plunger keyway.

Withdrawal of the slide also spins the security number display wheels to scrambled positions.

Closing the seal

With the free end of the cable passed through or around the appropriate door catch mechanism, the stop-end is inserted into the plunger keyway.

The plunger is pushed firmly up into the seal casing, locking the cable end and allowing the release slide back to the closed position.

The closing action spins the security number display wheels to a new, random, 5 digit number and locks them in place.

