Inventco Sliding Door Closer – Technical Information

1. Description and Operation

1.1 The Inventco sliding door closer, commonly known as the Water Door Closer, is weight operated. It consists of a water-filled, square-section, flanged aluminium tube containing a weight assembly that is comprised of two linked plastic-coated steel weights with a valve attached to the lower weight. It is mounted vertically onto the door or the door frame.
Attached to the weight assembly is a nylon cord that passes over a pulley wheel at the top of
the tube and is attached to the door frame, or the door, as the case may be. As well as being used with a singlesliding door, the closer may be used with centre closing doors and stacker doors. See Figs. 1 – 5.

1.2 As the door is opened the weights are drawn up the tube. When the door is released the weights descend to close the door. The speed of descent is governed by the mass of the weight assembly, by the rolling resistance of the door and by the fluidic resistance of the water. Unlike rolling resistance, which is constant, fluidic resistance is velocity dependent and the weight assembly quickly reaches a terminal velocity, rather than continuing to accelerate.

1.3 The Inventco door closer is primarily designed for use with sliding security screen doors to Australian Standard AS 5039. However, within a limitation on rolling resistance, it may be used with heavier doors, such as sliding glass doors.

1.4 For light-weight insect screen doors with very low rolling resistance a weight may be removed during installation. For heavier doors, a further weight may be added. In the latter case the available weight travel, and therefore door travel, is reduced from approximately 1200mm to 900mm. Weights are available as spare parts.

1.5 The weight assembly's valve is fitted with an exchangeable square outer sleeve that provides a small clearance with the inside of the tube. Two additional sleeves are supplied with the closer, a slightly larger one providing less clearance, and a slightly smaller one providing more clearance. As the weight assembly descends, water pressure causes a ball contained within the valve to close off an inner bypass port, forcing water to move solely
around the outer sleeve and resulting in a high fluidic resistance that slows the descent.

1.6 Although major door closing speed adjustments will require the removal or addition of a weight, finer adjustments that may be desired can be made by fitting a smaller or larger sleeve. If, however, the rolling resistance is so large and dominant that it causes the door to close very slowly, changing sleeves will have no noticeable effect; an extra weight will be needed to increase the closing speed.

1.7 The closer tube is available in a wide range of powder coated and anodised colours. Being also square-sectioned it mounts unobtrusively onto the door or door frame. Additionally, the suspension cord for the weights is a transparent monofilament nylon line.

2. Component Details

2.1 Aluminium Tube
Material: Flanged square-section extruded aluminium tube, architectural grade 6060 T5
Finish: External powder coat of thickness not less than 70 micron or anodised finish of thickness not less than 10 micron.

Colours: Wide range of colours to match popular aluminium screen door colours.
Length: Tube Length – 1955mm. Overall length with pulley box fitted at top of tube and dress cap at bottom – 1980 mm.
Width: Square-section, 23 +/- 0.2mm inside, 26mm outside with a single 10mm wide pre-punched mounting flange.

2.2 Weight Assembly
Material: Steel weights fully sheathed in polypropylene with integral connectors.
Mass: 500g each weight; two weights are fitted as standard with one weight able to be removed or an additional weight able to be attached during installation.
Travel: With two weights, sufficient for full travel of a 1200mm wide door.
Valve: A one-way injection-moulded speed-control valve attached at the bottom of the weight assembly; it has an exchangeable outer clearance sleeve.
Two additional sleeves are supplied, one slightly larger, one slightly smaller.

2.3 Pulley Box
Material: Injection-moulded glass-filled nylon body and injection-moulded polypropylene pulley wheel.
Fitment: The pulley box can be faced in any direction to suit right or left opening doors.

2.4 Sealing Bung
Type: Moulded rubber; tapered square section; 50 Durometer hardness.

2.5 End Cap
Type: Injection-moulded polypropylene dress cap fitted to bottom of tube.

2.6 Other Components
Cord: Clear mono-filament nylon line; 1.3mm diameter; soft quality (for minimal internal friction).
Screws: Three mounting screws and one anchor screw; pan head; self tapping; Type 304 stainless.
Anchor Lug: Injection-moulded polypropylene, comprising a lug and a clip-on cover; is attached to the nylon line during installation; can be readily unhooked from the anchor screw to disable the door closer.

Illustrative Sketches
(not to scale)

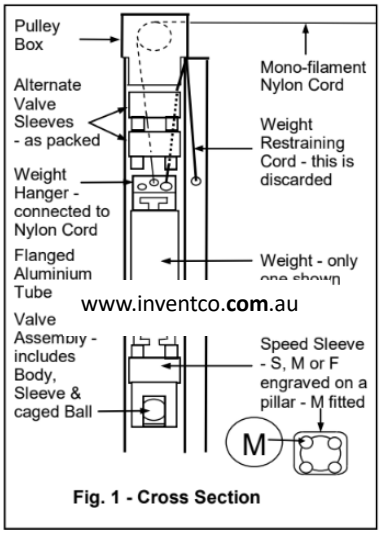

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Fig. 1 - Cross Section

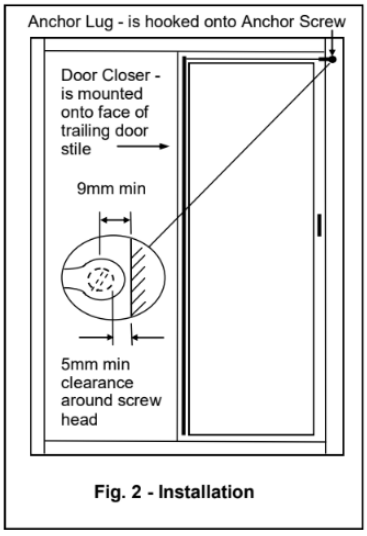

Fig. 2 - Installation

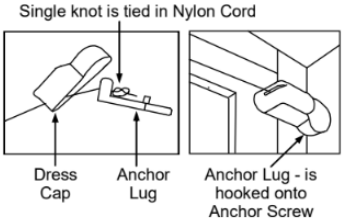

Fig. 3 - Anchor Lug

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