



FUELLING SOLUTIONS

BY **LIQUIP**

# SPARE PARTS CATALOGUE

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**ACCESSORIES**

## FILTER STANDARD SENSING ASSEMBLIES

The 5000-03-00 standard Sensing Kit for Hydrant Dispenser Filter Vessels was introduced in early 2008 to standardise the components and layout for Liquip aviation refuelling equipment.

The 5000-03-04 assembly is the standard for most Refuellers.

The 5000-03-09 assembly is the standard only for Low Profile LEF HAND orientation Dispensers (typically for Asia and the Middle East).

The Main Components in the kit (see illustration on following page) comprise the Air Eliminator, Depressurisation & Pressure relief / Check valves, and two small isolation Ball Valves.

*\*In late 2010 the Show Flow was removed from the assembly and relocated near the Collector Tank or Control Panel for easier operator viewing during fuelling operations.*



Dispenser 5000-03-00 Sensing Assembly



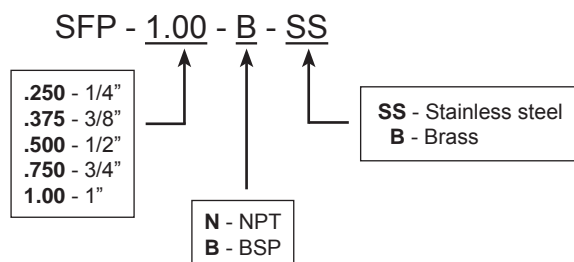
Refueller 5000-03-04 Sensing Assembly

### Show Flow

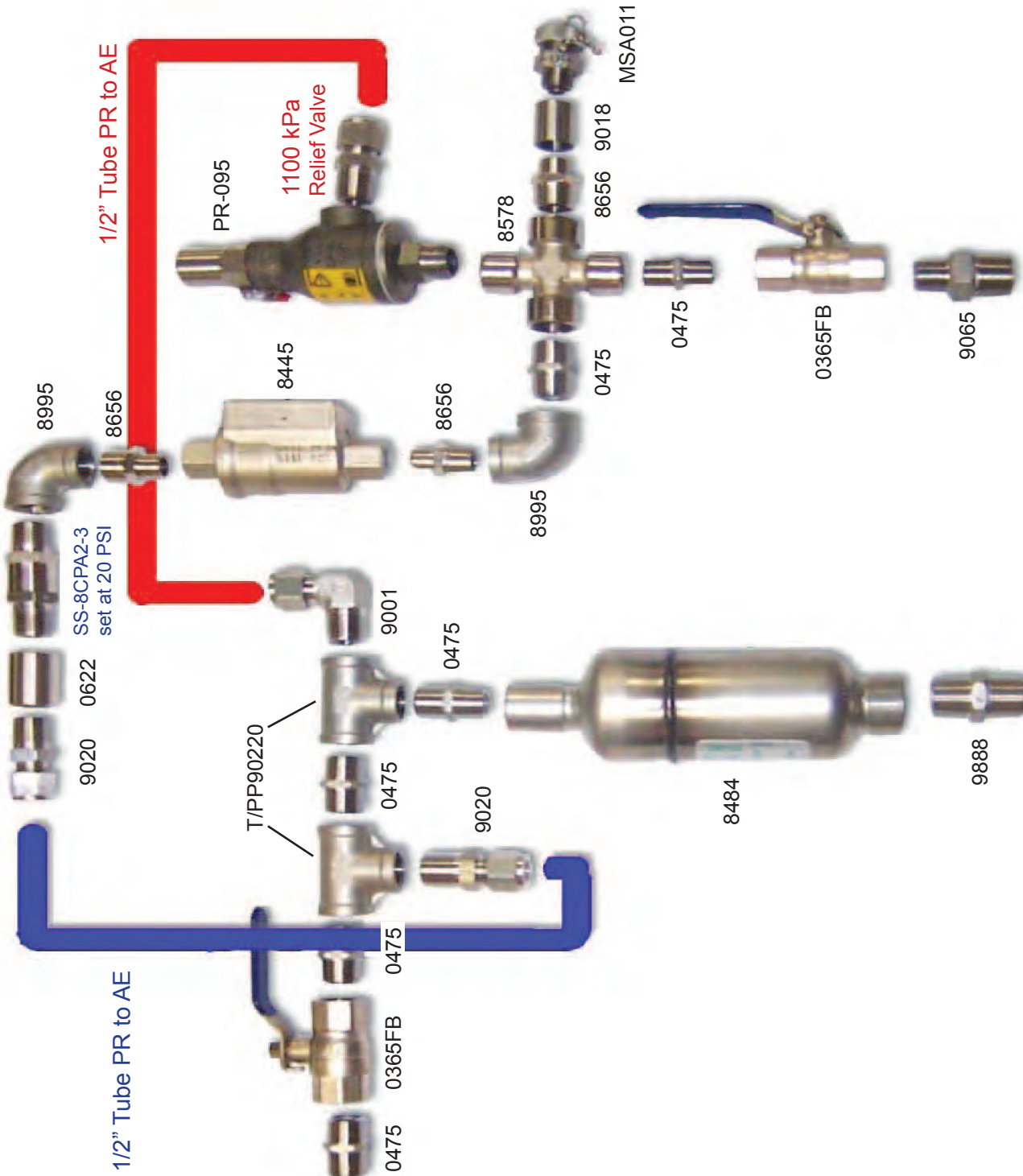
The "Show-Flow" is a visual indicator & shows flow in the fuel system by the yellow paddle-wheel spinning. The SFP style can be mounted both horizontal and vertical, offering bi-directional flow indication with low pressure losses

The SFP style operates over a wide flow range, no routine maintenance required, low pressure loss and 230 PSI/400 degrees F capability. Constructed from high quality materials, these in-line indicators are suitable for many applications including water, oil, chemicals, air and gases.

### Ordering Information:

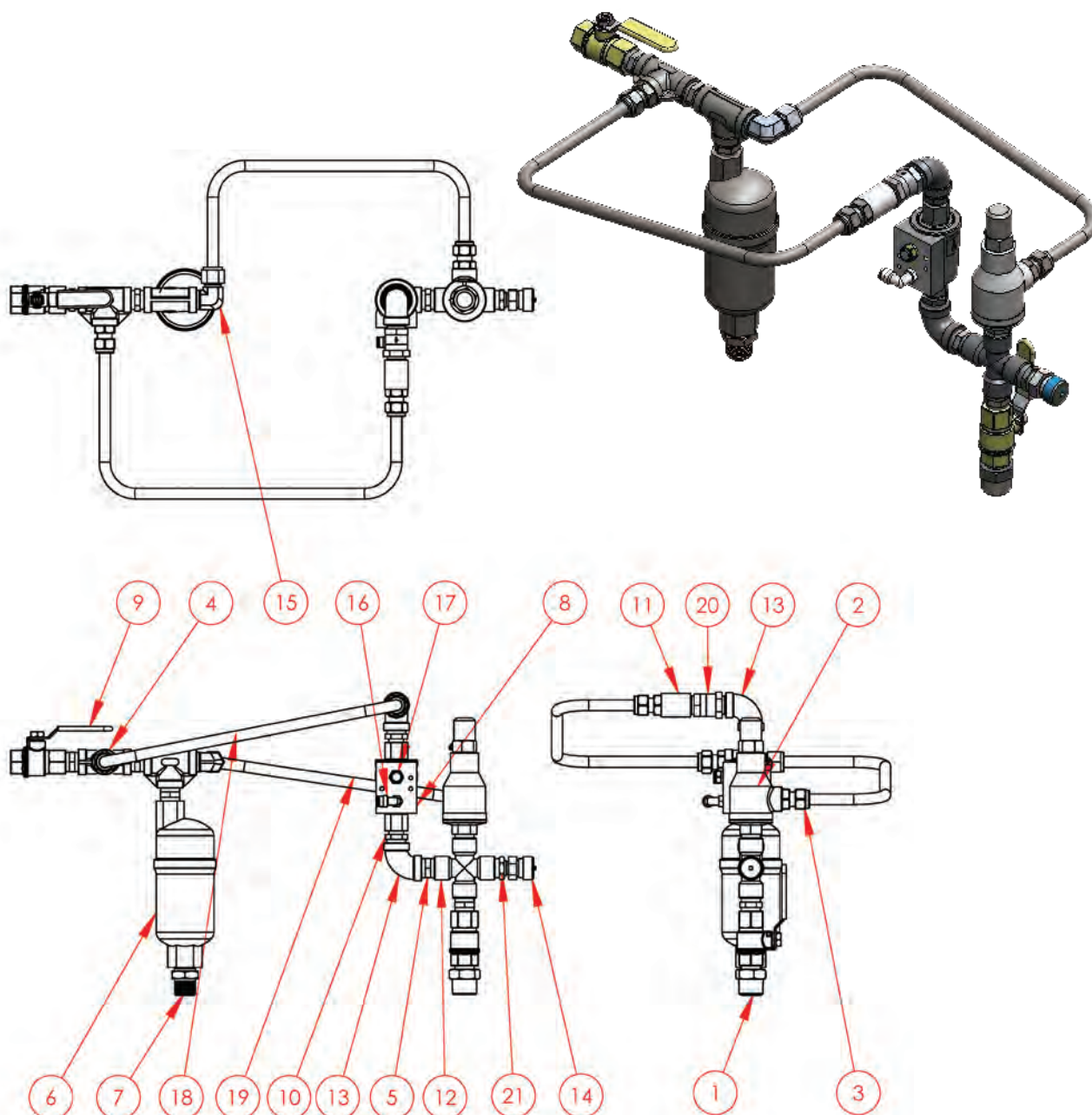


## Sensing Assembly Kit



## FILTER STANDARD SENSING ASSEMBLIES

### Ordering Information (Dispenser Assembly Kit - RH Operation):



#### NOTES:

1. Apply Loctite 243 Threadlocker to all threads on assembly.
2. Ensure that the Axial Valve (Item 10) is mounted in a vertical orientation as shown.
3. Set non return valve (Item 20) is set and engraved @ 20 P.S.I
4. Certificate Test completed.

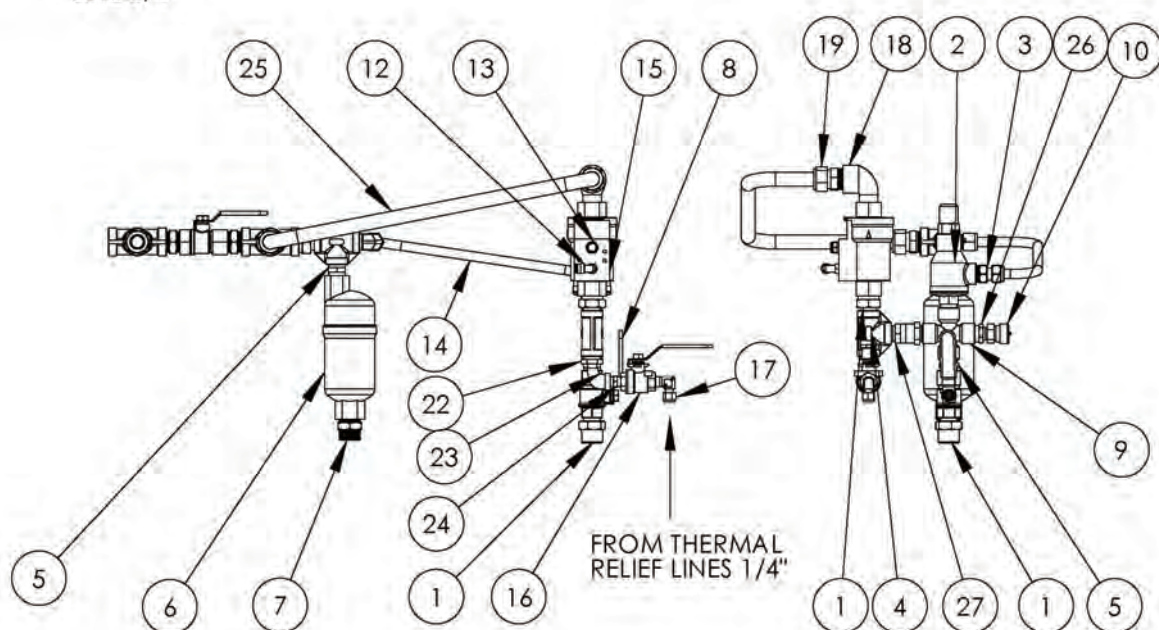
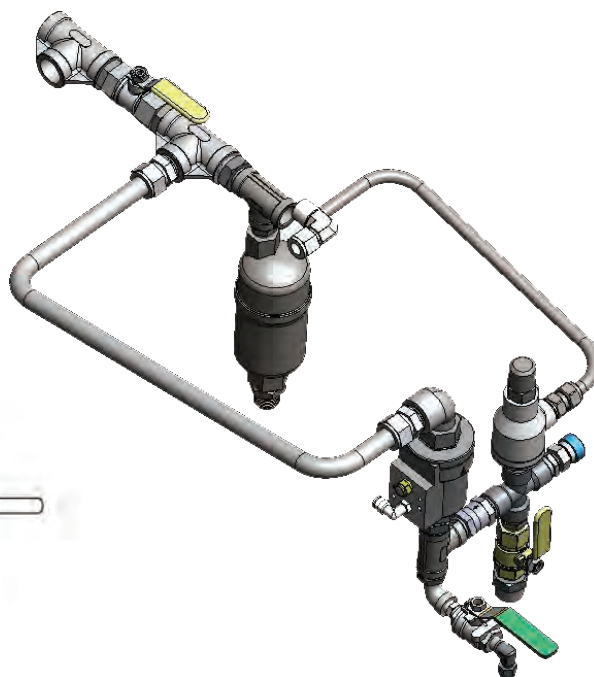
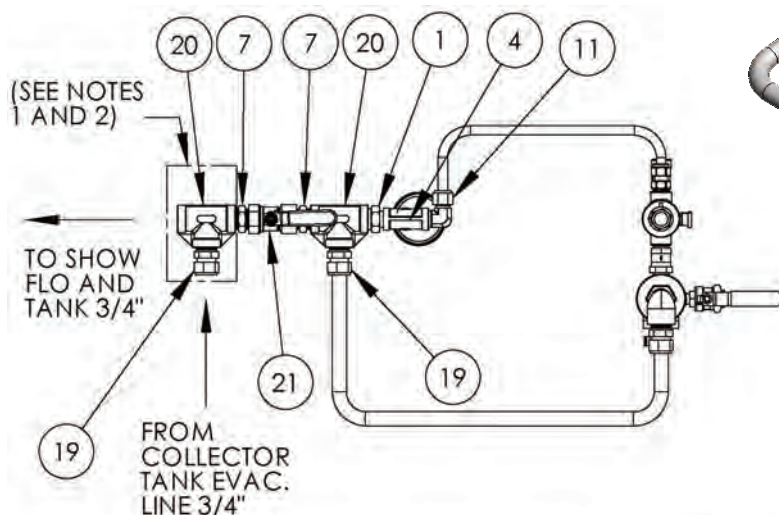
## FILTER STANDARD SENSING ASSEMBLIES

### Ordering Information (Dispenser Assembly Kit - RH Operation):

Dispenser Sensing RH 5000-03-00			
Item No	Part No	Description	Qty
1	9065	3/4"BSPx1/2" BSP RED. NIPPLE SS	1
2	PR-095	1/2" BSP CERTIFIED RELIEF VALVE SS	1
3	9020	MALE ADAPTOR 1/2"BSP x 1/2" TUBE	3
4	T/PP90220	TEE - 1/2"BSP SS	2
5	0475	1/2" S/S HEX NIPPLE	5
6	8484	AIR ELIMINATOR	1
7	9888	NIPPLE 3/4"BSP SS	1
8	8445	3/8" AXIAL VALVE	1
9	0365FB	1/2" SS BALL VALVE FULL BORE	2
10	8656	1/2" X 3/8" REDUCING NIPPLE	2
11	0622	1/2" BSP SOCKET 304 SS	1
12	8578	1/2"BSP CROSS	1
13	8995	ELBOW F&F 1/2"BSP SS	2
14	MAS011	SAMPLING VALVE	1
15	9001	1/2" BSP x 1/2" TUBE SS ELBOW	1
16	8521	ELBOW FITTING 1/8"-6MM PUSH IN TUBE	1
17	2278V	1/8" AIR SILENCER	1
18	5000-03-01	TUBING FOR AXIAL VALVE TO TEE	1
19	5000-03-02	TUBING FOR PUMP RELIEF TO AE	1
20	SS-8CPA2-3	1/2"BSP NON RETURN VALVE 25 PSI	1
21	9994	BUSH RED 1/2"BSP x 3/8" BSP St.	1

## FILTER STANDARD SENSING ASSEMBLIES

### Ordering Information (Refueller Assembly Kit):



#### NOTES:

1. Assembly depicts for Collector Tank Evacuation by Pneumatic Diaphragm Pump.
2. Items indicated are not used when Collector Tank is evacuated by education.
3. Apply Loctite 243 Threadlocker to all threads on assembly.
4. Ensure that the Axial Valve (Item 10) is mounted in a vertical orientation as shown.
5. Ensure correct setting of Check Valve 8852 or between 14-22 PSI.

## FILTER STANDARD SENSING ASSEMBLIES

### Ordering Information (Refueller Assembly Kit):

Refueller Sensing 5000-03-04			
Item No	Part No	Description	Qty
1	9065	3/4"BSPx1/2" BSP RED. NIPPLE SS	3
2	PR-095	1/2" BSP CERTIFIED RELIEF VALVE SS	1
3	9020	MALE ADAPTOR 1/2"BSP x 1/2" TUBE	1
4	T/PP90220	TEE - 1/2"BSP SS	2
5	0475	1/2" S/S HEX NIPPLE	2
6	8484	AIR ELIMINATOR	1
7	9888	NIPPLE 3/4"BSP SS	3
8	0365FB	1/2" SS BALL VALVE FULL BORE	1
9	8578	1/2"BSP CROSS	1
10	MAS011	SAMPLING VALVE	1
11	9001	1/2" BSP x 1/2" TUBE SS ELBOW	1
12	8521	ELBOW FITTING 1/8"-6MM PUSH IN TUBE	1
13	2278V	1/8" AIR SILENCER	1
14	5000-03-02	TUBING FOR PUMP RELIEF TO AE	1
15	8509	3/4" AXIAL VALVE N/O	1
16	8498	1/4" VALL VALVE SS	1
17	9025	1/4" BSPx 1/4" TUBE COMP ELBOW SS	1
18	8993	ELBOW S/S BSP M&F 3/4"	1
19	9024	3/4"BSP x 3/4" TUBE SS STRAIGHT TUBE FITTING	3
20	9823-20	TEE EQUAL 3/4" BSP SS	2
21	0367	3/4" BALL VALVE	1
22	9039	1/2"x1/4" Reducing Bush SS	1
23	9014	1/4" M-F BSP ELBOW	1
24	8866	1/4"BSP HEX NIPPLE SS	1
25	5000-03-05	TUBING FOR AXIAL VALVE TO TEE - REFUELLER	1
26	9994	BUSH RED 1/2"BSP x 3/8" BSP SS (9994)	1
27	SS-8CPA2-3	1/2"BSP NON RETURN VALVE 25 PSI	1

## VELCON SMALL FILTER HOUSINGS - VF-31E, VF-61, VF-609

### clean dry fuels and oils with high performance

These filter housings are versatile housings designed for use with several different high performance Aquacon® and other filter cartridges. Refer to the cartridge selection table on page 3 for application and other details.

Aquacon cartridges filter out water by chemically locking it into layers of super-absorbent media. Water capacity is as much as 11½ quarts, depending on the specific vessel and cartridge. These cartridges also effectively filter out dirt, rust and other particulates.

As an Aquacon cartridge reaches its water-holding limit, the media expands very rapidly and restricts the flow. The pressure drop will rapidly increase, signalling the need to change cartridges.

The VF-61, with ACO series cartridges installed, has become the standard for low flow rate full flow aviation fuel monitor application

### Features

- Wide variety of applications
- Free and emulsified water to less than 5 pp
- 1/2 micron particulate removal
- Provides protection against “slugs” of water
- Pressure increase signals cartridge change

### Applications

- |                  |  |
|------------------|--|
| • Jet Fuel       | • Biodiesel                                |
| • AVGAS          | • Selected Solvents                        |
| • Motor Gasoline | • Oils: Insulating, Hydraulic, Lubricating |
| • Diesel Fuel    | • Compressed Air and Other Gasses          |



**VF-61**

(Also available: VF-61UL Filter Housing, for diesel fuels. Recognized under the Component Recognition Program of Underwriters Laboratories Inc.)



**VF-31E**

## VELCON SMALL FILTER HOUSINGS - VF-31E, VF-61, VF-609

**FILTER CARTRIDGE SELECTION TABLE**

Housing P/N	Product being filtered	Application	Cartridge P/N	Data Sheet	Type	Micron	Flow Rate (GPM)
VF-31E	Jet Fuel & Avgas <sup>(1)</sup>	Dirt & Free water	ACO-21001L	1681	Absorbent	0.5	1-15
	Mo-gas		AC-21005	1582		5	
	Gasohol	Dirt	FOG-21005	N/A	Paper filter	5	1-15
	Diesel <sup>(1)</sup>	Dirt & Free water	AD-21025	1655	Absorbent	25	1-15
	Oils		AC-21005	1582		5	Varies with oil viscosity <sup>(2)</sup>
			AD-21025	1655		25	
	Air/Gas		ACA-210	1689		1	100 SCFM @ 100 psig
		Dirt	FOS-210PLP5	N/A	Synthetic Filter	0.5	
VF-61	Jet Fuel & Avgas <sup>(1)</sup>	Dirt & Free water	ACO-512P3L	1681	Absorbent	0.3	5-50
			ACO-51201L			0.5	5-50
			OS-51288	1858	Coalescer/ Separator	0.5	Jet: 5-35 Avgas: 5-45
	Mo-gas	AC-51205	1582	Absorbent	5	5-50	
	Diesel <sup>(1)</sup>	AD-51225	1655		25	15-50	
		OS-51286	1858	Coalescer/ Separator	5	5-18	
	Oils	AC-51205	1582	Absorbent	5	Varies with oil viscosity <sup>(2)</sup>	
		AD-51225	1655		25		
	Solvents	ASL-51201	1692		1	5-50	
	ALL	Dirt	FO-512PL1/2	1549	Paper Filter	0.5	Fuels: 5-50
			FO-512PL05			5	Oils: Varies with oil viscosity <sup>(3)</sup>
			FO-512PL25			25	
			FOS-512PL25	1734	Synthetic Filter	25	
VF-609	Jet Fuel & Avgas <sup>(1)</sup>	Dirt & Free water	ACO-609P3L	1681	Absorbent	0.3	15-36
			ACO-60901L			0.5	
			ACO-60905L			5	
			OS-60988	1858	Coalescer/ Separator	0.5	Jet: 5-35 Avgas: 5-45
	Diesel <sup>(1)</sup>	AD-60925	1655	Absorbent	25	15-30	
		OS-60986	1858	Coalescer/ Separator	5	5-18	

**NOTES:**

1. For aviation and diesel fuel applications, always install a differential pressure gauge or other means of determining differential pressure.
2. See Data Sheet #1709 for absorbent cartridge (AC, AD) flow rates
3. See Data Sheet # 1532 for paper filter (FO) flow rates, see Data Sheet # 1747 for synthetic filter (FOS) flow rates. Biodiesel applications, please contact Velcon.

Please consult installation instructions and operating procedures that accompany products for more detailed information.

## VELCON SMALL FILTER HOUSINGS - VF-31E, VF-61, VF-609

### Ordering Information:

(Please note: Cartridges are NOT supplied. They must be ordered separately)

HOUSING P/N:	VF-31E	VF-61	VF-609
<b>SUPPLIED WITH:</b>	<ul style="list-style-type: none"> <li>1 ea P/N G-0995 Buna-N O-ring</li> <li>Mounting holes in head - 4 ea 1/4-20 NC</li> <li>1 ea plug (for fuel &amp; oil applications)</li> <li>1 ea 1/8" petcock drain (for air, gas, &amp; aviation fuel applications)</li> </ul>	<ul style="list-style-type: none"> <li>1 ea P/N G-0986 Buna-N O-ring</li> <li>1/8" brass petcock vent valve, installed</li> <li>1/2" drain plug, installed</li> <li>1 ea 1/2" petcock drain, shipped loose</li> </ul>	<ul style="list-style-type: none"> <li>1 ea P/N G-0565 Buna-N O-ring</li> <li>1/4" brass petcock vent valve</li> <li>1/2" drain valve</li> </ul>
<b>RECOMMENDED SPARES</b>	<ul style="list-style-type: none"> <li>1 ea P/N G-0995 Buna-N O-ring</li> <li>4 ea replacement filter cartridges</li> </ul>	<ul style="list-style-type: none"> <li>1 ea P/N G-0986 Buna-N O-ring</li> <li>6 ea replacement filter cartridges</li> </ul>	<ul style="list-style-type: none"> <li>1 ea P/N G-0565 Buna-N O-ring</li> <li>6 ea replacement filter cartridges</li> </ul>
<b>If using with gasoline/solvent applications:</b>		2 ea P/N G-0986A Viton O-rings	2 ea P/N G-0565A Viton O-rings
<b>OPTIONS</b>	N/A	<ul style="list-style-type: none"> <li>P/N 554Y020 - (carbon steel 1/2" NPT ball valve, with mounting nipple)</li> <li>P/N 10678 - (differential pressure gauge assembly)</li> <li>P/N CK-1488 (quick release hand bolts)</li> </ul>	<ul style="list-style-type: none"> <li>P/N 554Y020 - (carbon steel 1/2" NPT ball valve, with mounting nipple)</li> <li>P/N 07-224 - (differential pressure gauge assembly)</li> <li>PN 07-224AMB (mounting block)</li> </ul>
<b>SPECIFICATIONS</b>			
<b>Weight</b>	3 lbs, 15 oz	8 lbs	8 lbs
<b>Shipping Weight</b>	4 lbs, 15 oz	10 lbs	10 lbs
<b>Inlet/Outlet Connection</b>	1" NPT	1 1/2" NPT	1 1/2" NPT
<b>Cover</b>	Bolted	Bolted, 4 bolts	Bolted, 4 bolts
<b>Maximum Operating Pressure: 150 psi</b>			
<b>Material: Cast aluminum head, carbon steel shell with epoxy powder coated exterior &amp; interior</b>			

#### OVER PRESSURE PROTECTION

When exposed to a high concentration of water, the differential pressure across an absorbent cartridge (AC, ACO, AD, or ASL Series cartridges) will immediately increase. Pressure bypasses or other means to limit the inlet pressure to 75 psi (5 bar) should be installed to prevent cartridge from collapsing.

#### CAUTION

To protect the fuel system, including the VF-609 and other components, be sure to install pressure relief valve(s).

#### CAUTION

Do not use absorbent cartridges (ACO-xxxxxL, AC-xxxxx, AD-xxxxx) with pre-mixed jet fuel or avgas containing anti-icing additives.

## ILS400 IN LINE SUCTION STRAINER

ILS400 is a lightweight, inexpensive aluminium suction line strainer for larger pumps such as those fitted to large vehicles and prime movers for bulk industrial deliveries. It suits 76mm and 102mm diameter flow.

ILS400 in line suction strainer protects downstream equipment such as meters and pumps from debris and foreign objects. Strainer basket can only be fitted for correct direction of flow. Drain bosses provided in body and lid to suit any mounting angle.

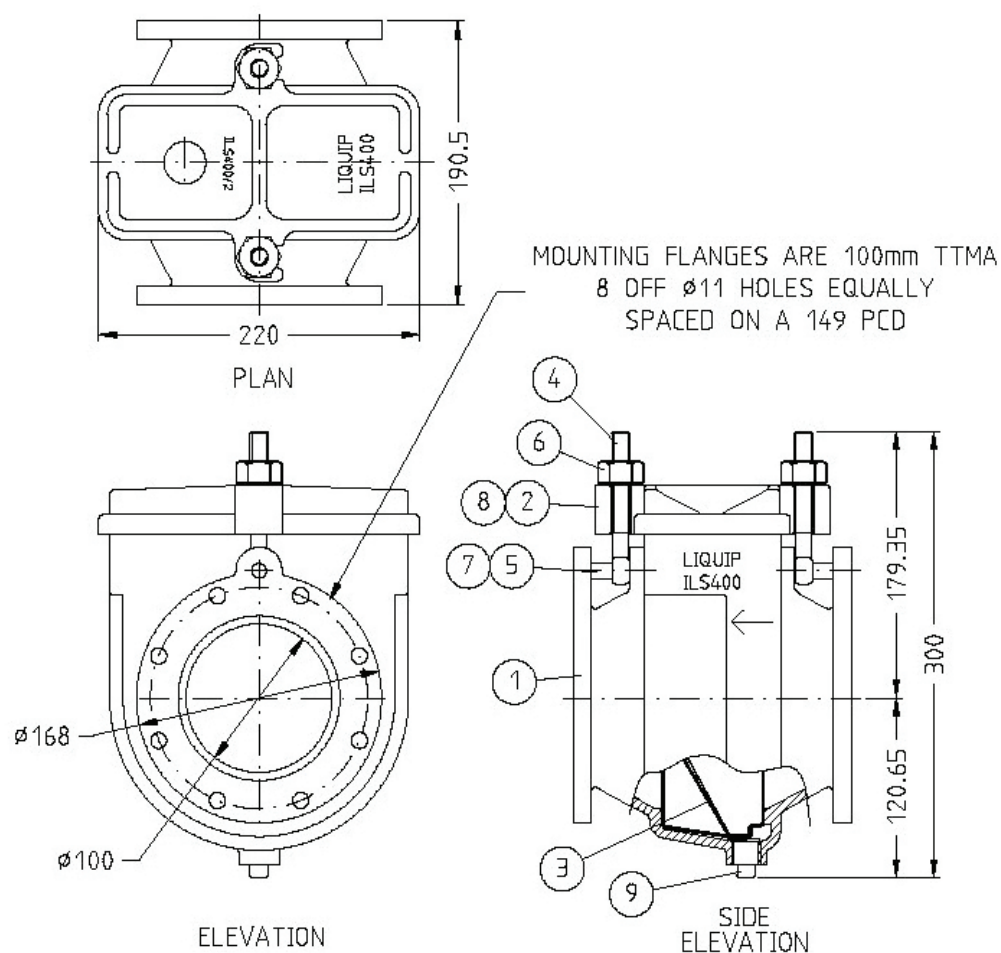
### Technical Specifications

<b>Materials of Construction:</b>	All metal construction. Cast aluminium body & lid. Steel mesh with aluminium surround. Nitrile seal. Available to aviation standard on special order.
<b>Technical Data:</b>	Maximum vacuum to 90kPa Maximum working pressure to 700kPa
<b>Weight:</b>	4.7 kg
<b>Mounting:</b>	4" TTMA flange Mount with arrow in correct flow direction
<b>Associated Equipment:</b>	LBV400 butterfly valve BF4-SG-40, BF4-SG-25, sight glasses
<b>Dismantle:</b>	Simply remove lid by unscrewing 2 off lid retaining nuts and remove basket



## ILS400 IN LINE SUCTION STRAINER

### Ordering Information:



Item	Part No	Description	Qty	Material
1	ILS400-1	Body - Strainer	1	Aluminium
2	ILS400-2	Lid - Strainer	1	Aluminium
3	ILS400-3	Strainer Basket	1	AL & Zinc Plated
	ILS400-3-200P	Strainer Basket - 200 Mesh Size	1	AL & S/S
	ILS400-3-350P	Strainer Basket - 350 Mesh Size	1	AL & S/S
	ILS400-3-80P	Strainer Basket - 80 Mesh Size	1	AL & S/S
	ILS400-3-AV	Strainer Basket - 250 x 50 Mesh Size	1	AL & S/S
	ILS400-3-40S	Strainer Basket - 40 Mesh Size	1	AL & S/S
4	ILS400-4	Eyebolt	2	Z/P M/S
5	ILS400-5	Hinge Pin	2	Z/P M/S
6	ILS400-6	Nut	2	Brass
7	0194	O-Ring	2	Nitrile
8	2344	Seal Lid	1	Nitrile
9	70390	Plug - Square Head	1	Galv Stl

## BASKET STRAINERS

It is generally accepted that the presence of foreign matter in fluid handling systems is highly undesirable and can lead to the premature failure of critical high value items of equipment, such as pumps and meters. The installation of Basket Strainers is therefore highly recommended and widely practised in these systems.

The Basket Strainers offer the end user a very low pressure loss under high flow conditions and an extended operational life. They are supplied with a quick release lid as standards, and this feature allows the basket to be removed quickly with no special tools, hence minimising the downtime during basket cleaning. Basket removal is possible without the unit being fully drained. The lid is sealed with an O-Ring which gives the lowest possible clamping force with no gaskets required, and there is a side drain point to allow rapid drainage of the contents.

## Features

- Cast Carbon Steel Body
- Rugged High Strength Design
- Stainless Steel High Capacity Low Pressure Loss Basket
- Choice of Basket Mesh Sizes
- PED Compliant
- Quick Release Lid, no special tools required for Basket removal
- Side Drain Point
- O-Ring Lid Seal, No Gaskets
- Optional Differential Pressure Tapping
- Optional Automatic Air Vent Valve

## Specifications

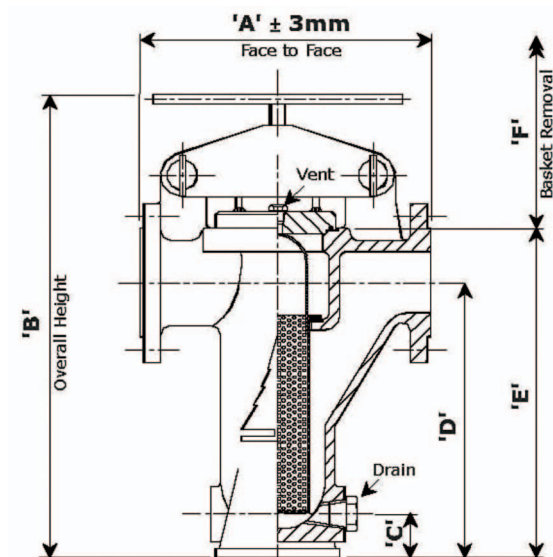
<b>Standard:</b>	PED/97/23/EC
<b>Design Pressure:</b>	20.0 BarG (290 psig)
<b>Test Pressure:</b>	29.5 BarG (428 psig) (refer to flange tables for temperature limitations)
<b>Flanges:</b>	ANSI B16.5 150lb raised face
<b>External Finish:</b>	Red oxide primer. Other paint finishes on request
<b>Internal Finish:</b>	Clean and oiled as standard Abrasive blasted and painted with Copon EA4/EA9 white epoxy lining on request



## BASKET STRAINERS

### Ordering Information:

Item	Material
Strainer Body	ASTM A216 WCB
Strainer Cover	ASTM A516 Gr60/A216 WCB
Strainer Basket	Stainless Steel A316 40 mesh to 120 mesh
Cover O-Ring	Viton A
Vent Plug	ASTM A105N
Drain Plug	ASTM A105N
Strongback	ASTM A216 WCB
Screw Handle	ASTM A193 B7M/St. Steel Handle
Quick Release Pin	BS 970 080/M40 Zinc Plated
Linch Pin	Carbon Steel Zinc Plated



Part No	Size	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	Basket Area (sq. cm)	Vent ("NPT)	Drain ("NPT)	Nett Weight (kg)
6003073001	3"	365	570	40	342	410	375	652	3/8"	3/4"	47
6003074001	4"	445	695	47	426	505	450	1088	3/8"	1"	70
6003075001	6"	600	990	95	619	734	630	2151	1/2"	1.1/2"	167
6003083001	8"	715	1190	112	787	927	800	3973	1/2"	1.1/2"	310

## ELAFLEX RUBBER EXPANSION JOINTS

### electrically conductive flexible connections for pressure or vacuum

In fluid handling systems it is often necessary to make allowance for pipework expansion, vibration and slight misalignment. A multi-purpose solution to many of these problems is the Elaflex rubber expansion joint

It compensates for stresses arising from these thermal variations or misalignment, substantially dampening vibration from associated plant such as pumps, compressors, etc. preventing the transmission of objectionable noises.

Rubber expansion joints have been proved in service for many years and are approved by a number of Authorities.

The TW YELLOW range is commonly used on aircraft refuelling units


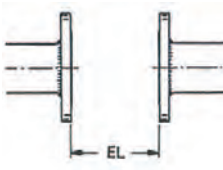
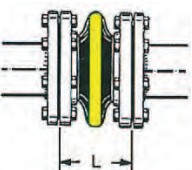
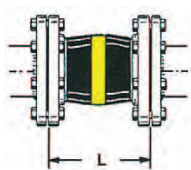
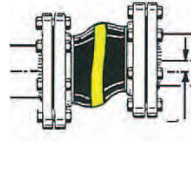
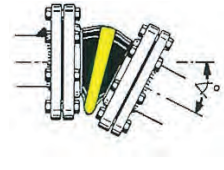
### Technical Specifications

<b>Recommended for:</b>	Hydro-carbon products with less than 50% aromatics.
<b>Tube:</b>	Seamless Nitrile NBR., oil resistant for temperatures up to + 100°C.
<b>Cover:</b>	Neoprene, electrical-conductive, oil resistant and weatherproof.
<b>Flanges:</b>	Forged aluminium.
<b>Electrical Resistance:</b>	Between 1k Ohms and 1Meg Ohms.
<b>Max. Working Pressure:</b>	10 Bar.
<b>Test Pressure:</b>	16 Bar

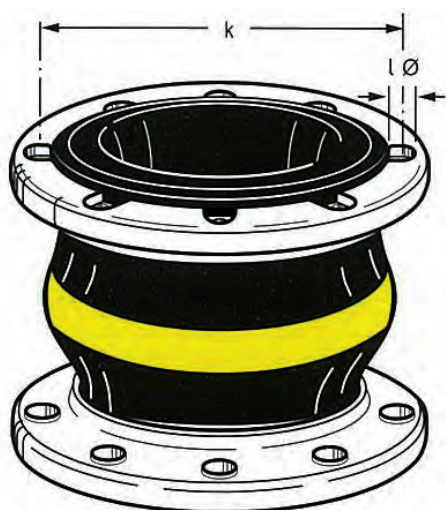


## ELAFLEX RUBBER EXPANSION JOINTS

### Ordering Information:

ERV-G Expansion Joints								
Length		Recommended Installation Length		Allowable Range of Movement in Service				
								
BL	Tolerance	EL minimum	EL maximum	L minimum	L maximum	max. lateral offset	DN mm	Angular rotation
130 mm	+5 mm -0 mm	120 mm	135 mm	100 mm	160 mm	±30 mm	25 - 50	±30°
150 mm		140 mm	155 mm	115 mm	180 mm	±30 mm	65 - 80	±25°
160 mm		145 mm	170 mm	125 mm	195 mm	±35 mm	100 - 150	±20°
175 mm		160 mm	185 mm	135 mm	210 mm	±35 mm	200 - 300	±10°
200 mm		180 mm	210 mm	160 mm	235 mm	±35 mm	350 - 600	±8°
250 mm	±6 mm	230 mm	260 mm	210 mm	285 mm	±35 mm	700 - 800	±6°
300 mm	±10 mm	280 mm	310 mm	260 mm	340 mm	±40 mm	900 - 1000	±5°

with 8-hole "TW" flanges DIN 28 461 of carbon steel, zinc plated



BL = 130 mm

Part No	DN mm	k mm	l Ø mm
ERV50	50	130	11,5
ERV65	65	130	11,5
ERV80	80	130	11,5
ERV100	100	150	14

PN 10

## SWIVELS

### SJF Flanged Swivels

The SJF Swivels are available in 4" size and provide rotational coupling of loading arm and hydrant cart components. SJF swivels are cast stainless steel. Sealing is enhanced by the purpose designed Viton primary face seal, and two Viton O-rings which isolate the bearing pack from product leaks.

In the unlikely event that the primary seal leaks, the product is contained by the O-ring before it can wash grease from the bearings causing them to fail in operation. Any leak is also immediately visible from a tell-tale weep hole. The greasing system incorporates the Liquip trade-mark pressure relief outlet to ensure correct lubrication, by ejecting old grease and particles that can cause wear. The 4" swivels have 4" TTMA flanges



### Ordering Information:

Part No	Description	Material
SJF101L	SJF 4" Flanged Swivel with 4" TTMA flange	Stainless Steel

### VNS Swivels

The VNS-A4 is a 100mm (4") straight single-plane cast aluminium swivel with 4" TTMA flanged ends allowing 360° rotation. It may be used on any application where another plane of rotation is required.

For example it may be used on loading arms instead of the coupler spool to enable rotation of the API coupler. Liquip's grease relief system (grease nipple one side with relief valve mounted opposite for efficient removal of old grease and debris) extends the life of the swivel by ejecting old grease and wear particles. Dual O-Rings are for product seal and dust seal respectively.



### Ordering Information:

Part No	Description	Material
VNS-A4	4" Straight Single-plane Swivel with 4" TTMA flanged end	Aluminium

## SWIVELS

### SJW Weld-On Swivels

SJW Swivels are available in 3" and 4" sizes and can be of Mild Steel or Stainless Steel. These swivels are used for fabrication of loading arms and pipework requiring up to 360° rotational joints. They are machined from Nitrided Steel with pre-prepared ends for welding directly to pipe or tube.

SJW Swivels are a most cost-effective way of achieving a rotating joint, for loading arms or other equipment requiring swivelling joints. Sealing is enhanced by the purpose designed Viton or Teflon primary seal, and two Viton o-rings which isolate the bearing pack from product leaks. In the unlikely event that the primary seal leaks, the product is contained by the O-Ring before it can wash grease from the bearings causing them to fail in operation. Any leak is also immediately visible from a tell-tale weep hole. The greasing system incorporates the Liquip trade-mark pressure relief outlet to ensure correct lubrication, by ejecting old grease and particles that can cause wear.



### Ordering Information:

Part No	Description	Material
SJW075MMVZ	SJW Weld-On 3" Swivel	Mild Steel
SJW100MMVZ	SJW Weld-On 4" Swivel	Mild Steel
SJW075SSVZ	SJW Weld-On 3" Swivel	Stainless Steel

## CAMLOCKS

The standard range of Camlocks are to NATO specification MIL-C-27487. Aluminium construction, all units confirm to Australian Code of Practice CP23.

### Aviation Selective Couplings

The aim of these units is to ensure that all dedicated aviation road tankers fitted with selective couplings are compatible and can be loaded ONLY with aviation fuels, and that all aviation receiving points can ONLY accept aviation fuels from the dedicated road tankers.

The Liquip range of dedicated couplings provide product selectivity between Avgas and Jet Fuel and are available in the following configurations

- Top and bottom loading
- Gantry loading valve
- Road tanker API valve
- Road tanker API to camlock adapter
- Female camlock hose end fitting
- Male camlock receipt point fitting

The standard range of Camlocks are to NATO specification MIL-C-27487. Aluminium construction, all units confirm to Australian Code of Practice CP23.

Notches and pins are used to dedicate these couplings for use with Aviation Gasoline or Aviation Turbine Fuel, thus preventing the wrong product being loaded into the wrong tank.

### Ordering Information:

Contact the Liquip Sales Department for assistance in determining which of the numerous models, sizes and options available will best suit your needs.



## STATIC REEL - SR Series

### SR100 Static Earthing Reel

Electrostatic charges can be generated by a variety of circumstances including product flow and vehicle or aircraft movement. Ignition of flammable vapours is possible by discharge of static at a gap, e.g. as a hose or nozzle is connected or parted.

The SR100 provides a ready means of bonding two components with a maximum assurance of continuity. Primary continuity is by a carbon brush bearing on the stainless steel shaft. Secondary paths are through the solid aluminium body to the shaft and also by spring-loaded stainless steel washers to the end face. Dust seals (O-rings) protect the assembly internals and graphite grease ensures easy rotation without electrical resistance and long component life.

Various wire colours and clamp configurations available

**NOTE: Check continuity regularly according to your company standards.**

### Technical Specifications

- Maximum end-to-end resistance: 2 ohms
- Carbon brush runs in sealed section, eliminating dirt and corrosion
- Shaft has grease reservoir for all-of-life lubrication
- Construction: Aluminium Body, stainless steel shaft
- Cable guide is PVC coated galvanised wire and brush is carbon
- Weight: 2.2kg



### SR200 Static Reel Large Diameter

The new SR200 manual rewind static reel has a large diameter drum and comes complete with cable guide. It is designed to electrically bond two pieces of equipment to ensure the safe dissipation of static electricity charges, typically when fuelling aircraft or pumping between a tanker and storage tank.

The large diameter drum means quicker rewinding and as the handle is free-spinning, it is comfortable to use. Manual Rewind is preferred as spring rewind types have caused accidents when inadvertently released. For reliable operation, a graphite brush bearing on a stainless steel shaft is used, eliminating reliance only on body contact, as corrosion can create an insulating barrier.

**NOTE: Check continuity regularly according to your company standards.**

### Technical Specifications

- Maximum end-to-end resistance: 2 ohms
- Carbon brush runs in sealed section, eliminating dirt and corrosion
- Shaft has grease reservoir for all-of-life lubrication
- Construction: Aluminium Body, stainless steel shaft
- Cable guide is zinc plated steel and brush is carbon
- Weight: 2.4kg



## STATIC REEL - SR Series

### Ordering Information:

Static Reel SR Series	
Part No	Description
SR100	Static Reel with 30 metres of standard blue cable and clamp (kk100)
SR200	Large diameter static reel body only (wire & clamp not included)
SR202	Large diameter static reel c/w 30m YELLOW cable & clamp
LR203	Large diameter Lanyard reel c/w 15m ORANGE cable & dog-clip

### Static Cable and Clamps

Liquip have a large range of static reel accessories available.



EKG1200



KK100



9170

Static Clamps	
Part No	Description
EKG1200	Static cable & aircraft clamp/clip - Solid heavy duty brass clamp complete with 1.2m of cable
KK100	Static clamp - Heavy duty solid brass clamp
9170	Static clamp - Standard plated steel with teeth jaws
GTP-1101	Static clamp - Aluminium alloy clip to MIL-C-83413/7, jaw gap 2mm fully closed
GTP-1097S-1	Aircraft grounding pin - Stainless steel

Static Cables	
Part No	Description
SR100-9V	Static cable - Galvanised wire 6x7 strand, blue PVC coated (300m roll or cut lengths)
9457	Static cable - Stainless steel wire, reflective orange PVC coated (300m roll or cut lengths)

## STATIC REEL - SR Series

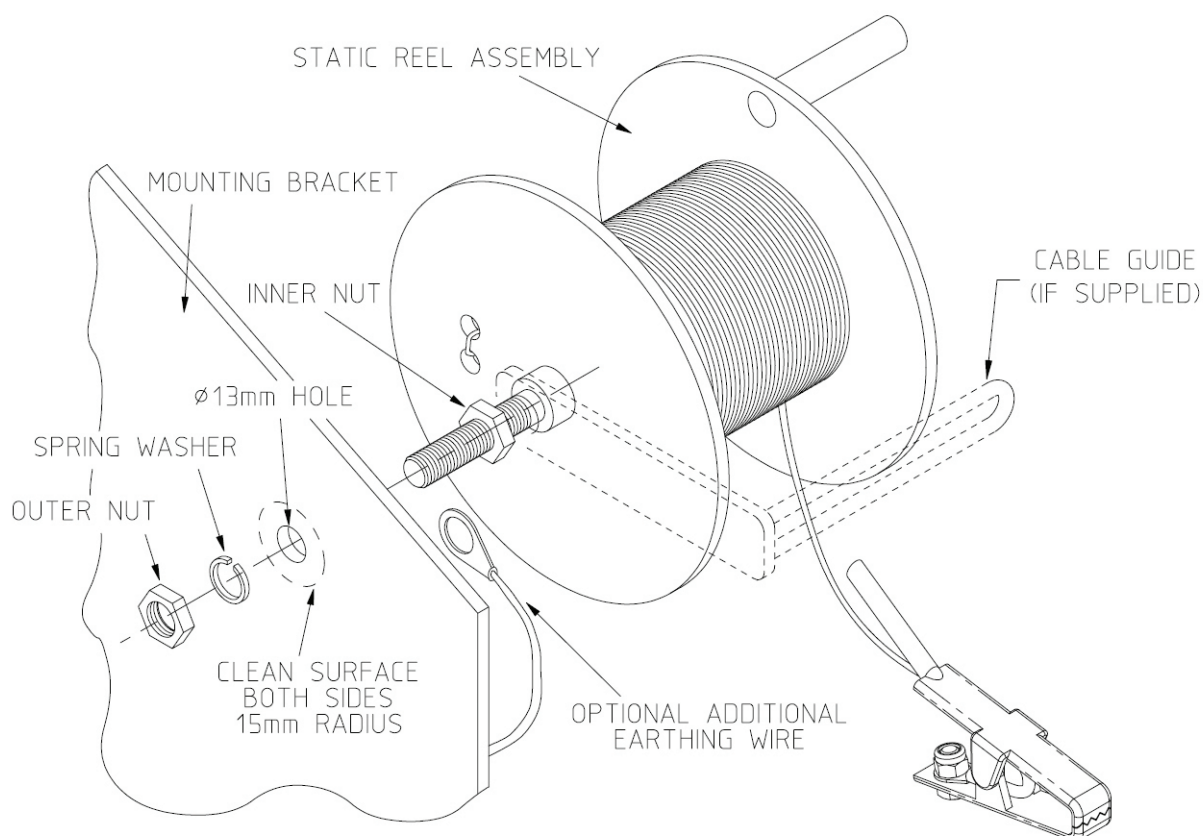
### SR Series Installation Instruction

Good electrical conductivity at the mounting bracket is essential to the performance of the static reel.

The mounting bracket itself must be chosen for its continuity with the vehicle chassis and both sides of the mounting bracket must provide a clean, smooth, bare metal surface of at least 15mm radius from the centre of the 13mm diameter hole. Ensure the inner nut is tightened securely on the shaft and fasten the assembly with the outer nut and spring washer on the other side of the mounting bracket.

For SR200 reels (or optional on SR100), the spacer and cable guide are fitted onto the shaft first and the inner nut is fitted and tightened to hold the guide in the required position. The entire reel is then secured to the mounting bracket by the spring washer & outer nut on the other side of the bracket.

Further earthing continuity may be obtained by fitting a ring terminal and wire between the fixed nut and the mounting bracket and running it to a second earthing location on the chassis. Using a multimeter, confirm resistance from clamp to chassis is less than 10Ω.



## ALJAC CONTINUITY TESTER

### safe, reliable and cost effective loading of fuel

The Aljac Continuity Tester (ACT) is a foolproof Go/No Go device which can be used by non-skilled personnel, and it is controlled by a microprocessor which offers significant operational advantages. It self checks calibration and available battery power and only then allows the test to proceed. The ACT uses a single dual colour light emitting diode (LED) to indicate the condition of the bonding system under test, which makes the results very simple to interpret. The default set point is 25 Ohms which is in accordance with the JIG Guidelines for aviation fuel systems, but alternative set points can be specified at the time of order placement. In addition, throughout the test, a two figure digital display tells the operator the actual system resistance (in Ohms).

The ACT housing is ergonomically designed to be comfortably held in the hand and is moulded from impact resistant Polyamide, so it is lightweight, robust, and is highly portable. The ACT incorporates a sealed, non rechargeable, high capacity battery which gives it an extended operational life, but the battery life is further enhanced by a number of power saving features. The ACT does not have a constant power usage, it checks the resistance 200 times per second. Also, the microprocessor automatically switches off the ACT after a time out period at any stage of the operation, even if the clips are left connected or touching at the end of the test.

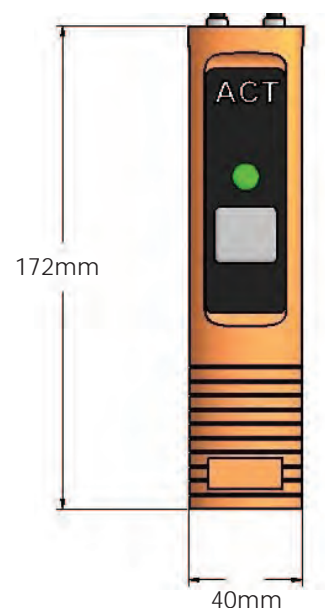
The ACT can be supplied with a calibration certificate if required, but in any event it self checks calibration before every test. The ACT incorporates a current limitation feature and is safe for use in hazardous areas, unlike many other devices which are currently in use. We can provide a Stowage Bracket which can be used to neatly stow the ACT when not in use, or can hold the ACT securely during testing.



## Technical Specifications

- Type: Go-No Go Continuity Tester
- Set Point: 25 Ohms (default). Option 1 to 40 Ohms
- Test Frequency: 200 tests per second
- Display Update: Every 100 tests (0.5 seconds)
- LED: Dual colour high intensity (Red/Green)
- Display: Two digit 7 segment LCD, 12mm character height. Selectable on or off
- Housing: High visibility orange impact resistant PA6 Polyamide
- Battery: Lithium Thionyl Chloride 3.6V
- Microprocessor: Atmel AVR EXMEGA 16A 4U
- Flying Leads: 2 x 0.5 metres long, with plugs/clips

Net Weight: 180 grams



## Ordering Information:

Part No	Description
0100400180	Continuity Tester
0100400181	Stowage Bracket

## SMARTWIRE PLC

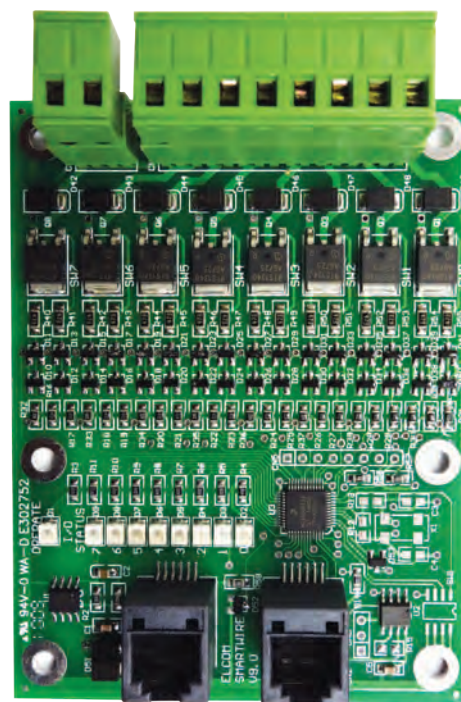
### With Liquip SMARTWIRE system the options are virtually unlimited.

The SMARTWIRE system is a 2-wire programmable control system designed to simplify implementation and installation. The system consists of input and output modules, a power filter and an interface board.

With the SMARTWIRE system a majority of the operational functions of fuelling aircraft are transformed to electronic form. The system is extremely flexible, offering easy adaptation in the field, if required, without costly modifications.

The SMARTWIRE PLC ensures that all fuelling operations cannot be over ridden by an operator and it features a time-out which ensures the "deadman" is present in the operators hand at all times. The same PLC also controls all interlock functions for nozzle stowage, deck lowering, P.T.O. and all bottom load gates.

Liquip individually program each PLC to suit customer requirements.



### Ordering Information:

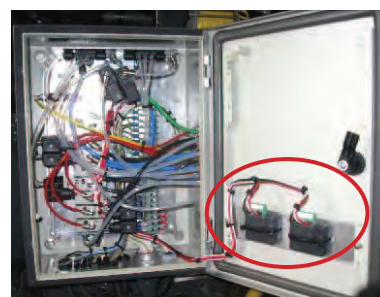
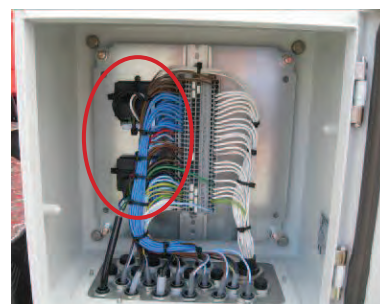
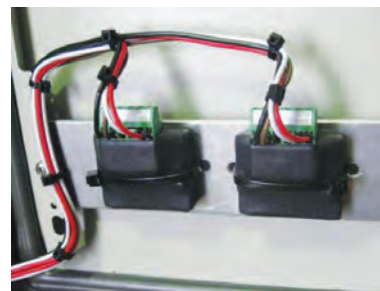
Part No	Description
LSW4A	Smartwire PLC

## POWER CONDITIONER

This LIQUIP DCC100 is an electronic Power Filter which conditions power to Electronic Meter Register systems (EMH\*), Overfill systems (such as Diptronic® DIP200) etc on Liquip aviation Refuellers and Hydrant Dispensers (where fitted) to protect connected equipment from surges and voltage spikes generated by vehicle operation. One DCC100 is required for each unit (piece of equipment / component) being protected.

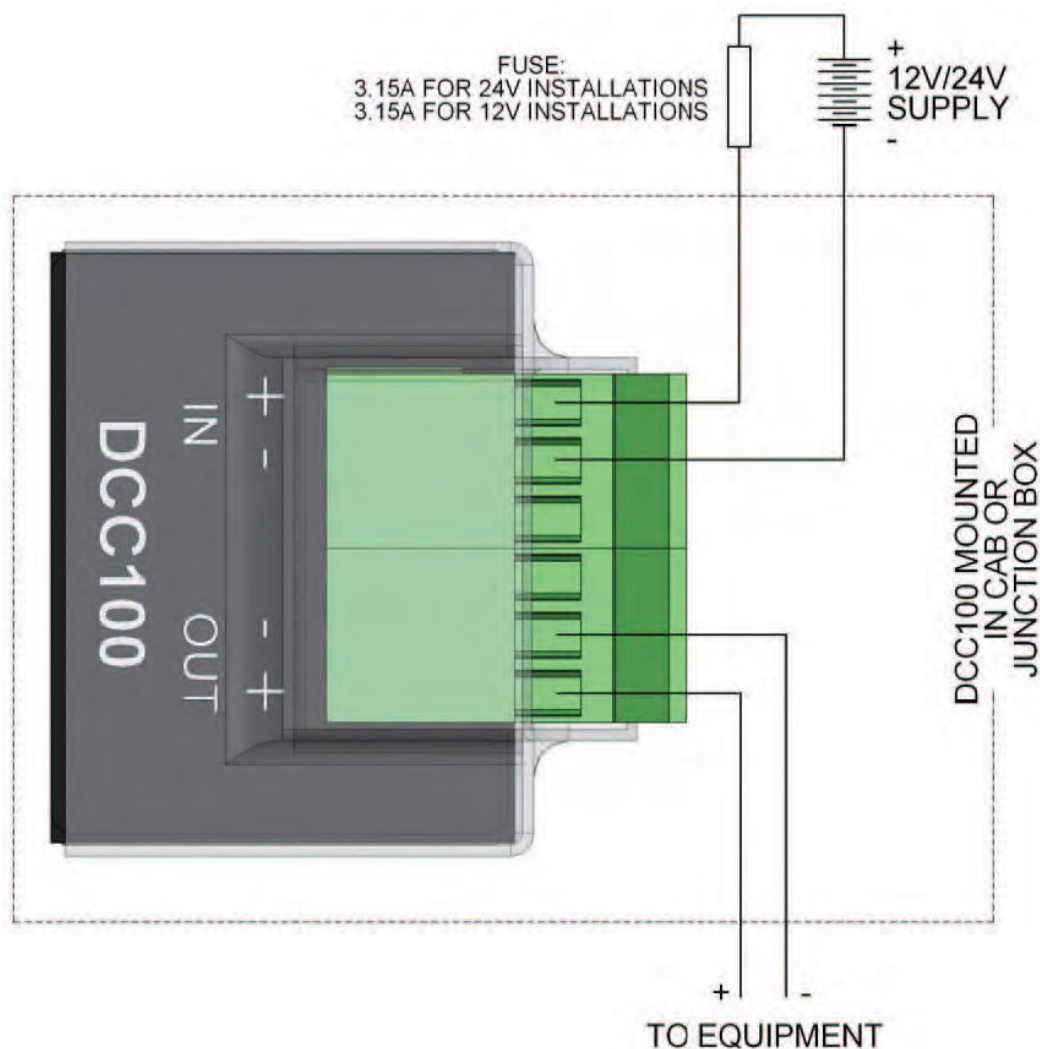
## Technical Specifications

<b>Materials of Construction:</b>	Heatshrink, plastic, metal.
<b>Mounting:</b>	<p>The DCC100 is not designed to be exposed to dirt or moisture. It must be either mounted in the cab area, typically in the fuse box, or inside a junction box of IP rating 66 minimum (Liquip JBL100 or similar)</p> <ul style="list-style-type: none"> <li>• Ensure cable glands are rated for a minimum IP66.</li> <li>• Wire as per wiring diagram attached.</li> <li>• Ensure IP66 rated blanking plugs are used in any unused holes in junction box.</li> </ul>
<b>Weight:</b>	0.1 kg (without junction box)
<b>Input Voltage:</b>	9V-36V DC
<b>Output Voltage:</b>	12V DC
<b>Maximum Load:</b>	Total 1.67A Continuous
<b>Voltage Spike Protection:</b>	Protect up to 50V/100ms spike
<b>Output Voltage Noise:</b>	Less than 0.1V
<b>Recommended Fuse Rating:</b>	3.15A slow blow
<b>Cable Size:</b>	0.2– 2.5mm <sup>2</sup> , strip length 6mm
<b>Ingress Protection:</b>	IP20
<b>Dimensions:</b>	55W x 65L x 25H (mm)
<b>Associated Equipment:</b>	<p>DIP200, DIP240, EMH5xx, EMH6xx, MPP102, PPM300 Series, COP Series</p> <p>JBL100 Junction box IP66 with 3 x M20 holes</p>



## POWER CONDITIONER

### DCC100 Wiring Diagram



**NOTE:**

This is a general wiring diagram ONLY.

Any wiring instructions for specific equipment supersede this diagram

### Ordering Information:

Part No	Description
DCC100	12 VDC Output Power Conditioner

DEADMAN ASSEMBLIES

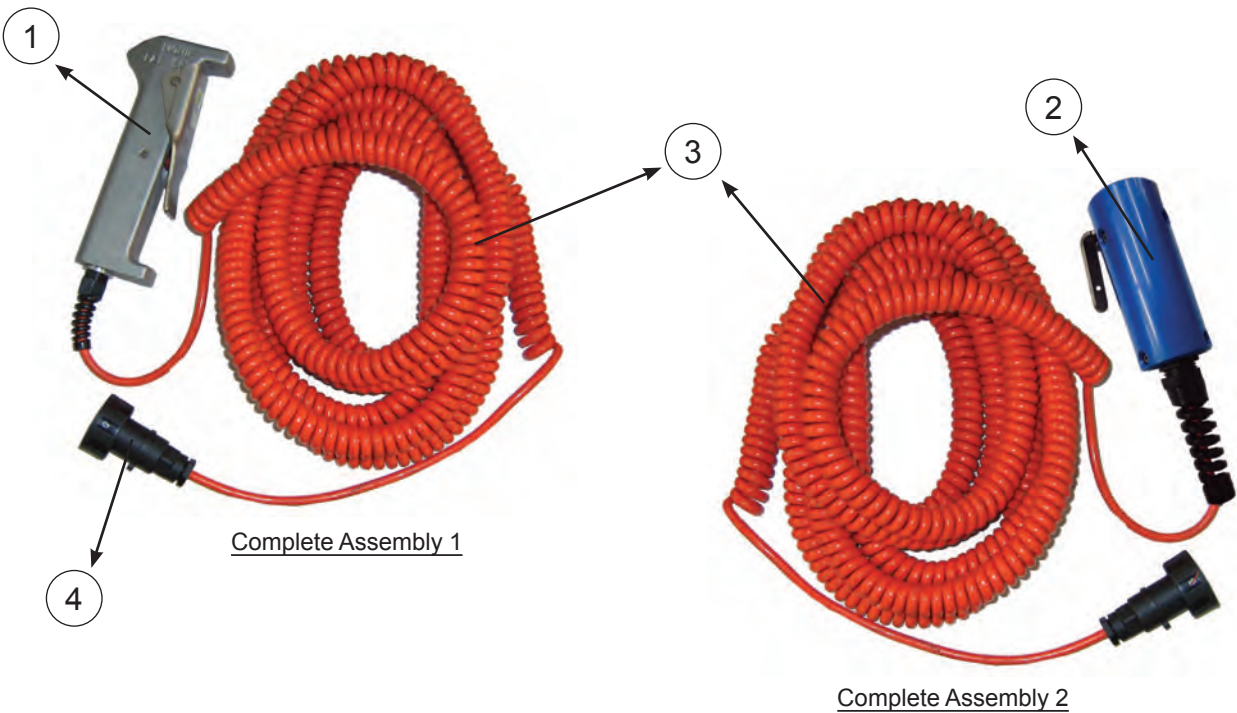
excellent operator comfort

Deadman system is a safety device with intrinsically safe wiring that confirms a critical operation is constantly supervised. Liquip deadman handles are compact, durable and designed for maximum operator comfort. They contain a sealed micro-switch (enclosed in the handle) with a cable connection. The handles require low operating force and are wear resistant. They are designed for the aviation environment and easy to assemble/disassemble. The bright orange “curly” lead is 3.4 metres (14’) long and will stretch to 18 metres. Longer cables are available on special order.

Ordering Information:

Deadman Assemblies	
Order No	Description
8422	COMPLETE Assembly 1 (ALUMINIUM Deadman complete with cable / curly cord)
GTP-8392-Z-50	COMPLETE Assembly 2 (PLASTIC Deadman complete with cable / curly cord)

Deadman Spare Parts		
Item No	Part No	Description
1	DMH100	Aluminium Deadman - Handle ONLY
2	GTP-8392B	Plastic Deadman - Handle ONLY
3	8693	Cable / Lead (curly cord), orange, 3.4m.
4	9097	Cable plug Male sealed 2W



## PLATFORM WAND ASSEMBLY

Liquip Platform Wand assembly is designed to prevent a hydrant dispenser's scissor-lift platform from colliding with an aircraft wing. The wand is mounted on top of the platform frame / handrail and if the wand is pushed down by contact with an aircraft wing, an activation plate trips a proximity switch which in turn halts any platform movement by shutting down the hydraulic system that elevates the platform. This simple concept also allows the wand to be operated by hand as an emergency stop for personnel on the platform.

The wand stem is made from galvanised mild steel and the ball on the end of the wand is plastic to prevent wing damage on contact.

### Ordering Information:

Platform Wand Assembly		
Part No	Description	Qty
1500-02-01	Platform Wand	1
8850	Magnetic Proximity Switch	1



## DECALS & SIGNAGE

Liquip carry an extensive range of fuel handling decals and labels. All decals are printed on top quality decal stock for long life in all conditions. Engraved operational signage is laser cut.

### AVGAS & JET A-1

Pipeline markers are available in 57mm & 100mm. Other variations are also available to suit Oil Company requirements.

### CLASS SIGNS

Type 1 to 9. Available in metal or adhesive vinyl.

### Ordering Information:

Part No	Description
2270	Class 3 sign
2272	Holders for class signs in pressed steel (zinc plated)
9906	No Smoking Sticker (220 x 220mm)



## SPILL MANAGEMENT PRODUCTS

Contain any spill by having everything you need for fast, efficient response on-hand. In areas where spills are likely to occur, the Liquip range of Spill Kits takes the guesswork out of clean-up. **Refills are available for all kits.**

### Custom Kits

Liquip have spill kits for a wide variety of applications. If you have a special requirement, Liquip can design a kit to fit your needs and budget. "SELECT" absorbs oil / petroleum products while repelling water.

**Also Available:** Large Drum kits, Booms (various sizes), Folded Rolls, Absorbent Mats

### Zippered Truck Kit (15" X 18" X 6")

CONTENTS	SELECT
Socks	(3) 3" x 48"
Sheets	(30) 17" x 19"
Absorbs	28.4 litres

### Duffel Bag Kit (29" X 13" X 12")

CONTENTS	SELECT
Socks	(3) 3" x 96"
Large Sheets	(25) 17" x 19"
Pillows	(2) 15" x 25"
Disposable gloves	1 pair
Disposable bags	2
Absorbs	64.35 litres



### Spill Containers

These fully sealed Spill Containers are lightweight, strong and resistant to most chemicals. Spill Containers feature: Quick release lid, Meshed floor, Drain point ball valve, PVC construction

## Ordering Information:

Part No	Description
JBFA65	Spill Kit Container
8790	Zippered Truck Kit
8834	Duffel Bag Kit
CEP-P100	17" x 19" x 3/8" Sheets
8835	Sock 3" x 48"
9107	Disposal Bag

## PLATFORM LADDERS

The Hills / Bailey range of aluminium platform ladders conform to Australian and New Zealand Standard 1892 and have an industrial load rate of 140kg.

Available with "Treadsafe" platform and optional safety-advice decal.

### Features

- Industrial Duty Rated. Designed for use on industrial work sites where greater strength and safety is required
- Heavy Duty, 150kg Load Rating
- Strong, aluminium construction
- Fully welded front and rear frames for strength and durability
- Wide, aluminium anti-slip platform (490x400mm) for a secure work area
- 900mm handrail height from platform
- Anti-slip rubber feet for added safety and stability
- Made to Australian and New Zealand Standards AS/NZS 1892.1
- Available - optional retractable Castors/Wheels Kits
- Australian Made & Owned



### Ordering Information:

Part No	Description
FS13315	0.6 (2") HD Platform Step 2
T/PP93611	0.9m (3") HD Platform Step 3
FS13311	1.1m (4") HD Platform Step 4
FS13314	1.4m (5") HD Platform Step 5
FS13316	1.7m (6") HD Platform Step 6
FS10718	2.0m (7") HD Platform Step 7
FS10719	2.3m (8") HD Platform Step 8
FS22971	Castor/Wheel Kit (Fits 2-6" Plat)
FS22972	Castor/Wheel Kit (Fits 7-8" Plat)

*All product dimensions indicated are nominal.*

## WING MATS

These wing mats are designed to protect the aircraft wing from damage by the hose and nozzle during overwing refuelling. They are manufactured from thick durable Urethane, which is fuel and ultraviolet light resistant, weatherproof, non-marking and non-abrasive. The mats are also heavy enough so that they will not become displaced in windy conditions. They are available in a range of colours but our normal stock colour is high visibility Orange. However, in order to reduce risk of supplying the incorrect fuel grade (mis-fuelling), we also stock Red (for AVGAS) and Black (for Jet A1). Using the appropriate colour for the fuel being dispensed causes the refuelling operator to think about the fuel grade required, and any third parties (including the pilot) could also be more aware of the grade of fuel being delivered.

### Ordering Information:



Size: 460 x 610mm, opening diameter 127mm

Part No	Colour
56AFP-1824	Hi-Vis Orange
56AFP-1824B	Black
56AFP-1824R	Red

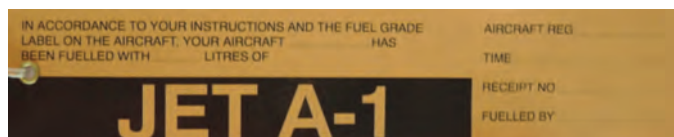


Size: 460 x 920mm, opening diameter 127mm

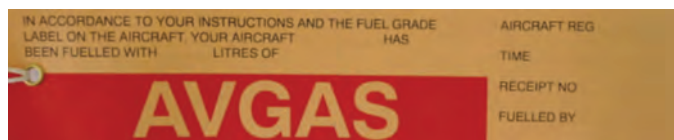
Part No	Colour
56AFP-1836	Hi-Vis Orange
56AFP-1836B	Black
56AFP-1836R	Red

### Overwing Refuelling Tags - Mis-Fuelling Prevention

When refuelling light aircraft, the pilot is often not present which increases the risk of supplying the incorrect grade of fuel (mis-fuelling). In order to reduce this risk, and at the request of one of the major fuel suppliers, we have developed a Refuelling Tag. After completion of each refuelling, the appropriate tag is filled in by the refuelling operator and tied to the controls of the aircraft. When the pilot returns to the aircraft, it is then clear to him which grade of fuel has been delivered before he attempts to move the aircraft.



Part No	Description
0906000133	Jet A1 Refuelling Tag (Pack of 50)



Part No	Description
0906000134	AVGAS Refuelling Tag (Pack of 50)

## STAINLESS STEEL BUCKETS

Stainless steel buckets complete with carry handle, pourer, static lead and clamp.

### Ordering Information:

Part No	Description
T/PP95483	Stainless steel bucket



## FIRE EXTINGUISHER HOLDER

These new lightweight fire extinguisher holders are a strong, durable design. The flat back ensures easy installation and they can be mounted on either truck or trailer. An internal tension strap helps secure the extinguisher and minimise any movement inside the holder. Will accept extinguishers 600mm in height.

### Ordering Information:

Part No	Description
JBFR75	Fire Extinguisher Holder



mm	mm	mm	mm
750	300	300	600+

## STAINLESS STEEL SAFETY LOCK WIRE

Safety wire or lockwire is a type of lock mechanism that prevents fasteners from loosening due to vibration and other forces. The presence of safety wiring also indicates that the fasteners have been properly tightened.

### Ordering Information:

Part No	Description
GTP-1924	.032" Stainless Steel Safety Lock Wire



## WATER FINDING PASTE

Water Finding Paste is a water detection system used to aid in the detection of water within fuel supplies. Water Finding Paste is normally used in the petroleum industry to monitor and detect moisture levels in various fuel types.

### Ordering Information:

Part No	Description
8058	70g jar Water Finder Paste



## FUEL FINDING (ULLAGE) PASTE

Kolor Kut Fuel Finding (Ullage) paste is light pink in colour and turns deep red upon contact with most hydrocarbon fuels. It gives a clear level reading on the dip rod or tape, even when evaporation at the interface would normally cause distortion of the reading.

### Ordering Information:

Part No	Description
M056	Kolor Kut 62g Tub Fuel (Ullage) Paste



## DENSITY CALCULATOR

The Density Calculator converts density reading taken with a hydrometer to corrected density at 15°C. It separates scales for 3 different types of fuel.

### Ordering Information:

Part No	Description
GTP-2727EF	Density Calculator



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Leader in refuelling technology and solutions

# LIQUIP