PurgeAir

THE SINGLE SOLUTION FOR FUEL TANK ENTRY
• The Didsbury Purge-Air System offers a complete resource to allow personnel to drain, ventilate, enter and work safely in an aircraft fuel tank.

• When positioned alongside the aircraft the container forms the control centre for the operation with each required item of work and safety equipment readily to hand.

• Specifically configured to provide all the necessary equipment for:
  • Safe grounding of all equipment.
  • Residual fuel draining.
  • Fuel Tank Venting.
  • Monitoring of initial and on going gas safety levels.
  • Providing breathing air supply to two operators and two back up safety personnel.
  • Rescue and recovery.
Purge-Air Variants

**PRG224 – Modular System**
- Easily manoeuvrable using removable trolley.
- Core module plus options.
- Lowest cost option.

**PRG002AKH – Flight Container**
- Certified for air freight in wide body aircraft.
- Folding castors allow use on hanger floor or ball deck.

**PRG002B – Flight Cases**
- Certified for deployment in narrow body aircraft
- Kit spread across 3 containers.
1. Static Discharge

Using the retractable static discharge reels, the aircraft and all auxiliary components can be safely earthed through the Purge-air System.

2. Fuel Draining

Fuel is pumped from the fuel tanks through the water drain valves. This is done at a rate of up to 110 ltr/min using the pneumatic pump through the reel mounted fuel hose and an aircraft specific tool.

3. Fuel Tank Venting

Purging and ventilation is carried out using venturi air movers. Anti-static ducting allows the system to be set up quickly for any tank configuration. Large wing tanks can be purged in approximately 45 minutes and continuous ventilation applied during tank operations.
Purge-Air Entry Process

4. Breathing Apparatus

Breathing apparatus for 4 people (2 operatives, 2 back up safety personnel) with filtration and air quality testing allow safe access into the tank.

5. De-puddle

Jet-Vac system allows rapid de-puddling of residual fuel from the tank.

6. Key Operations

Auxiliary equipment such as Lighting kit, communications kit, safety mats and gas detectors allow the tank entrant to work safely and efficiently within the confined space environment and a tank rescue to be mounted should the need arise.
Purge-Air Component Overview – Left Hand Compartment

- 100mm x 5m long ducting
- 200mm-100mm Duct Y-Piece
- 200mm Duct Couplers
- Fuel Drain Connections
- Inflatable Rescue Mat Kit
- Wing adaptors
- Versamatic residual fuel pump
- Jet-Vac Puddle Sucker
- 20m reel mounted fuel hose
- 15m Static Discharge Reels
- First Aid Kit
- 200mm x 10m long Anti-Static Ducting
Purge-Air Component Overview – Right Hand Compartment

- ATEX Zone 0 LED Lighting Kit
- Gas Detection Kit
- ATEX Zone 0 Communications Kit
- Auxiliary 15m Air supply hose
- Warning Signage
- Large Anti-Static Venturi Air Mover
- Breathing Air Compressor
- Hanger Trolley with suspension axle and parking brake
- 23m Long Compressed Air Supply Hose
- Medium Anti-Static Venturi Air Mover
- Air Supply Control Panel
- Domnick Hunter Breathing Air Filter
Purge-Air Components – Breathing Air System

- Breathing air supplied by hanger air supply
- Back up air supply in case of hanger failure.
- Two separate breathing air supply reels. One for ‘In use’ and one for ‘Emergency Rescue Use’.
- Audible and Visual warnings to indicate air supply issues.
- 2 Operators can work simultaneously from one reel.
The Domnick Hunter Air Filter system allows a good quality hanger air supply to be used for breathing apparatus.

The Domnick Hunter will remove:

- Solid Particles
- Oil Mist
- Oil Vapours
- Odours & Fumes
- Water Mists
- Water Vapour
- Carbon Monoxide
- Carbon Dioxide
• The drain connector kits allow fuel to be pumped from a wide range of aircraft using the Didsbury Purge-Air System.
• The aircraft’s water drain valves are utilised to provide the lowest tank drain points, enabling the maximum amount of fuel to be drained before they are opened.
• No loss couplings are used to allow the adaptor to be attached to the aircraft and Purge-Air System with no excess fuel leaks.

Current applications:
• Boeing B737, B747, B757, B767, B777 & B787.

Additional Drain connections can be included on request.
• Versamatic Pump is used in conjunction with Fuel Drain Connections to drain residual fuel via water drain points.
• 20m fuel hose stored on a recoiling reel.
• 2m fuel outlet hose attached to pump outlet to dispose of excess fuel into a bowser.
• Significantly faster than gravity draining.
• Up to 110 Litres per minute.
The Purge-Air Jet Vac system can be used for removing puddles of fuel from inside fuel tanks.

- Jet Vac is driven using compressed air and generates a vacuum which is used to suck fuel into its tank.
- 25 Litre capacity.
- Connects to auxiliary air line of Purge-Air System using a claw coupling.
- Self Weight 15kg.
- Supplied with Fuel hose with Nylon end fitting to safely remove fuel from tight corners.
The ventilation system can be easily configured to vent a variety of fuel tanks.

In trails, the Large Air Mover can purge a large tank in approximately 45 minutes.

The Medium Air Mover can be used to extract air from the tank or if turned around, blow fresh air into the tank to improve the work environment.

Large Air Mover free flow rate of up to 5659 m$^3$/hour.

Medium Air Mover free flow rate of up to 2006 m$^3$/hour.

Anti-Static ducting used to vent fumes away from the work area.
Example Configuration

Purge-Air Components – Ventilation System

Compressed Air Supply from PurgeAir

Air Hose Assembly PRG272

Exhaust Air from tank

Air Mover Assembly PRG317

Wing Adapter Assembly PRG265

200mm x 10m Anti-static Ducting SAFD20/10-EX

200mm Coupling SAFD20/CU

200mm Coupling SAFD20/CU

200mm Coupling SAFD20/CU
• The gas detection kit comprises of two GasAlertQuattro gas monitors and one GasAlertMicro5 monitor, with PiD sensor.

• Equipment is configured for the Purge-Air System to optimise its performance within an aviation fuel tank monitoring VOCs, LEL of AVGAS and O₂ levels.

• The complete kit, including gas detectors, chargers and accessories is provided in a hard carry case for protection.
Purge-Air Components – Communications Kit

The Communications Kit allows up to 5 operators to communicate within a hazardous confined space

Features:
• Up to 5 operators
• Intrinsically Safe
• Water and Dust Proof
• 30m operating cable.
• Rugged
• Reliable
• Easy to operate
• Private network
• Individual volume controls
• Hands free two way voice communication via throat mic and ear piece
• Emits no RF signals
The kit comprises of one wired Slam Zero LED lighting kit and two LED task lights. The whole kit is provided in a rugged container.

**Slam Zero LED**

- ATEX Approved for Zones 0, 1 & 2
- 3 x high intensity 3W LED
- Light unit dimensions 262mm x 50mm
- Light unit weight 0.65kg
- Overall cable length 30m
- Ingress protection to IP67
- LED life of approximately 50,000 hours

**LED tasklights**

- ATEX Approved for Zones 0, 1 & 2
- High Power LED Light output
- Up to 6 hours duration per charge
- Rechargeable – no trailing cables
- Low charge warning
- Fast charge time – 1-3 hours
- Retractable Hook
The Kit comprises of 3 rescue mats, anti-static hose and regulator.

The mats can be inflated to provide a comfortable working mat or inflated to a higher pressure to aid rescue situations. 

Regulator allows bags to be inflated from the high pressure gas cylinder.

Connection hose is connected to the BA harness so bag can be inflated by operator inside the tank.

Air Bag has both fill and vent connections at both ends. 3 bags of different sizes are included in the kit.

Simple controls allow easy inflation and deflation of bag.
Purge-Air Components

- All equipment is included in the PRG224 and AKH002B Systems

- Flexibility of the Purge-Air System allows customers that already own some of the auxiliary equipment such as ATEX Lighting or Gas Detection kits, to tailor to their requirements.

- The Purge-Air System can be bought as a core module in a container. The core module includes Breathing Air System, Ventilation Systems, Fuel Pumping and Static Discharge lines.

- Auxiliary equipment can then be added as required.
Purge-Air Key Benefits

• Residual fuel is pumped at a rate of up to 110ltr/min rather than gravity drained.

• Trials have proven that ventilation of a large wing tank can bring the atmosphere to a safe working level within 45 minutes.

• The puddle sucker Jet-Vac System quickly removes any residual fuel from between ribs.

• Complete system can be run from a single hanger air supply.

• Possible to gain entry to an aircraft fuel tank in around one hour.

• Contains all the equipment needed to quickly and safely enter an aircraft fuel tank.
Purge-Air Training

- Each Purge-Air System includes a 3 day training course for up to 8 operators.
- Ensures users of the Didsbury Purge-Air System are fully competent and confident to test, operate and safely use all the equipment contained in a Purge-Air System.
- One day dedicated to ongoing and future maintenance of the equipment
- Course for additional operators or trainer trainers courses available on request.
Summary

• Provides a one stop shop solution for fuel tank entry.

• Ensures that staff have all the specialist equipment required to enter an aircraft fuel tank quickly and safely.

• Reduces aircraft down time.