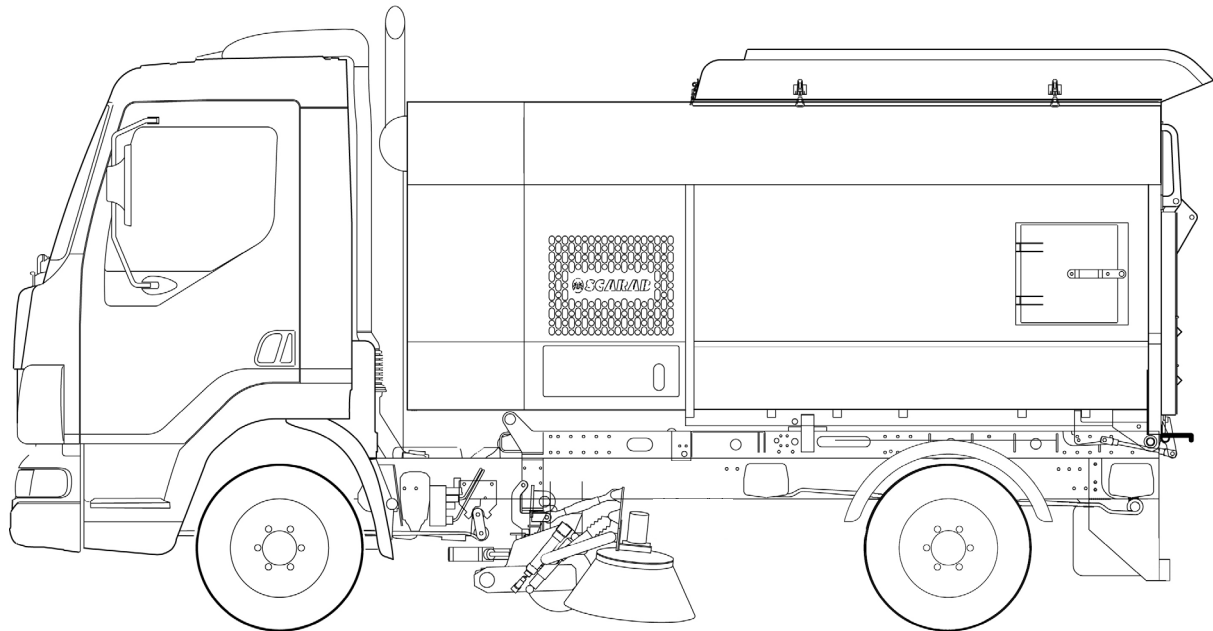




# SCARAB SWEEPERS

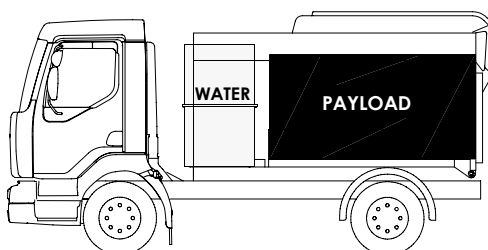
## Technical Specification

### Scarab Merlin Unidrive



### The Scarab Unidrive System

Maintaining Scarab's well-proven and successful Single-Engine philosophy, Scarab's Merlin Unidrive utilises PTO-driven pumps to operate all hydraulic sweeper functions, while retaining the conventional chassis transmission, to produce a heavy-duty truck-mounted road sweeper that embodies all the advantages that Scarab users have come to expect as standard issue. Designed to cope with the most arduous of operating conditions, the Scarab System provides the operator with a machine offering the **LARGEST PAYLOAD** and **LARGEST HOPPER VOLUME** commensurate with a given chassis size and type, together with a minimum of moving parts for reduced servicing. By utilising the chassis engine, which conforms to the latest stringent emission legislation, significant **REDUCTIONS** in **EXHAUST EMISSIONS** and **FUEL CONSUMPTION**, can be achieved, making the Scarab Merlin Unidrive one of the most environmentally friendly, high performance truck-mounted road sweepers.

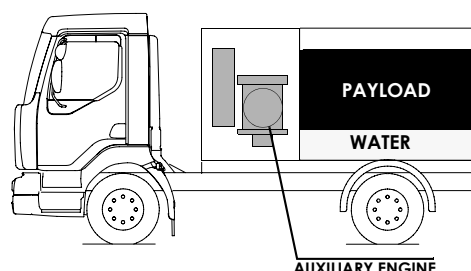


### Scarab Merlin Unidrive Sweeper

- **Increased** hopper
- **Increased** payload
- **Simplified** drive system
- **Reduced** servicing and operating costs
- **Reduced** fuel consumption
- **Reduced** environmental impact

### Typical Twin Engine Sweeper

- **Restricted** hopper
- **Restricted** payload
- **Complex** engine drive system
- **Higher** operating costs
- **Higher** fuel consumption
- **Reduced** road-speed control



**SCARAB UNIDRIVE:** Utilising the manual transmission of the chassis and the Scarab reduction gearbox in the drive-line, the Scarab Merlin Unidrive allows the driver to sweep at a wide range of sweeping speeds, dependent on sweeping conditions. Typical sweeping speeds range from 0.8 mph (1.1 kph) to maximum vehicle speed. A robust engine driven PTO supplies the power for the pump assembly driving the suction fan and brushes.

#### **Reduction Gearbox**

For some chassis types, the Scarab reduction gearbox is fitted to provide the required sweep speed range. This is operated by a pneumatic gear-change, controlled from the main CANbus panel via motion sensors to prevent engagement when the vehicle is moving.

**SUCTION FAN:** The suction fan is mounted on the hopper top, driven by a direct drive axial piston hydraulic motor with a normal operating speed of 2000 RPM. The dynamically balanced 900 mm diameter fan is a very efficient multi-blade centrifugal unit, giving a nominal airflow of 6000 ft<sup>3</sup>/min (170 m<sup>3</sup>/min). Mounting the fan on the hopper top creates a virtually straight and highly efficient airflow from suction nozzle to fan, significantly reducing power requirements. There are two operating modes, standard for normal sweeping and boost, to increase suction power for very arduous conditions. When the optional overhead boom is fitted an additional boost speed is provided for even greater suction performance.

**SUCTION NOZZLE:** Of all-steel construction, the 740 mm wide suction nozzle is mounted in a trailed frame running on 250 mm diameter rubber tyred wheels. A 250 mm diameter suction hose connects the nozzle to the hopper. Easily replaced adjustable rubber flaps and a skid plate are used to form the nozzle inlet and the high suction performance makes feasible a flap to ground clearance of 25–30 mm resulting in a long flap life and less need for adjustment. Four manually adjustable water spray jets are fitted to the nozzle at 90° intervals to provide an internal dust suppression spray. Additional water injection nozzles are available when required. An optional 4-jet water boost bar can also be fitted in front of suction nozzle for use in extreme conditions. A tilting mechanism enables the nozzle to accommodate large objects or autumn leaf build-ups with ease.

**SIDE BRUSH:** 500 mm diameter steel-tined quick-change brush with direct drive hydraulic motor, fitted with trailed linkage, kick back protection, pneumatic ram for in/out control, fully adjustable for brush angle, three speed control (nominally 100 / 125 / 150 RPM). Optional brush pressure control is also available. A work light is fitted to assist with low light operation.

**WIDE SWEEP:** 320 mm diameter quick-change polypropylene segments with direct drive hydraulic motor, fully floating with shock absorbers to prevent bounce, fitted with trailed linkage to ensure parallel, even brush wear. Three speed control (nominally 200 / 250 / 300 RPM). Optional brush pressure control is available if required.

**HOPPER:** 6.2 m<sup>3</sup> Gross Hopper Volume\* offering a 5.5 m<sup>3</sup> Hopper Payload Volume\*. Constructed entirely from corrosion and abrasion resistant stainless steel, the hopper is fitted with large access doors on either side and a reinforced rear door with heavy-duty seals. The rear door incorporates an automatic closure system which clamps the door at 3 points, for a watertight seal, and body-drain facility for removal of excess water.

All inlet tubes are fitted with automatic blanking flaps and an easy-to-clean swing-down filter screen is mounted in the top of the hopper immediately below the suction fan. A storage compartment is provided, located on right hand side of the body.

The hopper is tipped by means of a two-stage tipping ram facilitating rapid load discharge.

\* Scarab hopper capacities are calculated in accordance with European Standard EN15429

**HYDRAULIC SYSTEM:** PTO driven pumps deliver the hydraulic power. An axial piston pump with automatic control of output and pressure, drives the suction fan. It is controlled by an electric valve, which adjusts the output to provide normal and boost suction fan speeds. A gear pump\*\*, provides power to brush motors and hydraulic rams. The system is piped, where practical, via zinc plated steel tubing and is protected by 10-micron filters to ensure long component-life. The system's oil is cooled in a heat exchanger with hydraulically driven high-performance fan, ensuring optimum cooling under the most arduous working conditions and/or high ambient temperatures. The hydraulic control valves are located for easy servicing in a protected compartment, all services being operated from the cab.

\*\* An additional gear pump is added when required to power optional equipment fits

**WATER PUMP:** A self-priming pump fitted with suction filter and driven by a direct-drive hydraulic motor. Solenoid valves operated from the CANbus control panel direct water supply to the brushes and suction nozzles. Output is rated at 36 litres/minute @ 50 psi (3.5 bar).

**WANDER HOSE:** A lightweight flexible suction hose (4 m long x 150 mm diameter), complete with aluminium extension tube and adjustable handle for cleaning awkward areas or gullies. Quick release wander hose points are located at either side of the rear door. The hose can be used while sweeping or on its own for more powerful suction. Optional overhead or rear-mounted booms with aluminium or steel gully entry tube can be fitted if required.

**HYDRAULIC TANK:** Located adjacent to the oil cooler, 15 litre capacity, with 10 micron return filter, air breather, suction strainer, and sight glass with automatic low-level shut off.

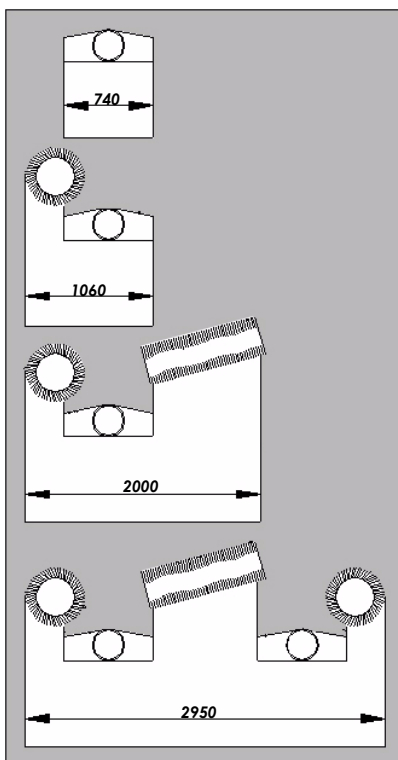
**PNEUMATIC SYSTEM:** The pneumatic system is connected to the vehicle auxiliary air supply, and is fitted with a pressure regulator, filter / water separator and pneumatic solenoid valves to control the side brush, wide sweep brush, suction nozzle, and gear change. The pneumatic valves are located for easy servicing in a protected compartment.

**CANbus2 CONTROL:** Scarab's tried and tested CANbus system, in service since 2003 has proved to be a successful and welcome innovation. **CANbus2** has been developed to take advantage of the latest chassis technology giving even greater control. A compact panel adjacent to the driver's seat contains all controls for operating the main sweeper functions. The panel also displays relevant operating data and provides system diagnostics and a fault-finding facility. An additional satellite control panel, for frequently used operations is mounted conveniently to hand.

**WATER TANK:** 900 litre gross capacity manufactured from corrosion resistant glass reinforced plastic and fitted with a large lid, to facilitate cleaning, a sight glass with level indicator and suction strainers. Filling is by means of a hydrant connector with regulation air break, or alternatively through an optional hose pipe attachment.

**PAINTING:** Two pack system single colour, optional multi colour and sign-writing.

**SWEEPING WIDTHS:**



**SUCTION NOZZLE ONLY**

The suction nozzle, side brush and wide sweep brush can be raised or lowered independently of each other. This provides various sweeping patterns to suit differing road conditions.

**SUCTION NOZZLE & SIDE BRUSH**

**SUCTION NOZZLE, SIDE BRUSH & WIDESWEEP**

**BOTH NOZZLES, BOTH SIDE BRUSHES & WIDESWEEP**

On dual sweep machines the Scarab Merlin has the option of operating with both side brushes and nozzles simultaneously to give an unrivalled sweeping width.

**TYPICAL WEIGHT DATA:**

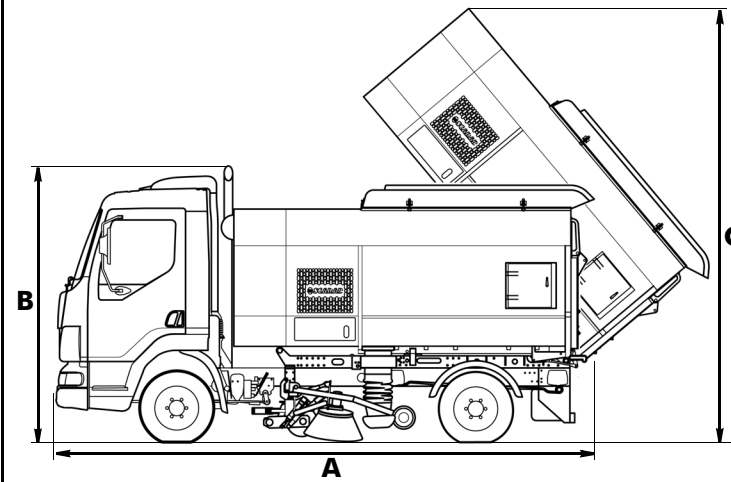
SINGLE SWEEP CONFIGURATION		DUAL SWEEP CONFIGURATION	
Scarab Equipment Weight	2295 kg	Scarab Equipment Weight	2475 kg
Typical DAF FA LF 45-180 10, 11 & 12 tonne chassis	3492 kg*	Typical DAF FA LF 45-180	3492 kg*
Typical Iveco Tector ML 100E 18K 10 tonne chassis	3360 kg*	Typical Iveco Tector ML 100E 18K 10 tonne chassis	3360 kg*
Single sweep configuration includes fixed widesweep. Dual Sweep configuration includes swivelling widesweep * Weights quoted were correct at time of publication and are subject to specification and manufacturers' tolerances			
TYPICAL PAYLOAD BASED ON A DAF FA LF45-180 12 TONNE CHASSIS			
EQUIPMENT SPECIFICATION			PAYLOAD*
Single Sweep (including Wander Hose and Fixed Widesweep Brush)			6213 kg
Dual Sweep (inc. Wander Hose, Swivelling Widesweep & H-P Water Pump)			5983 kg

**CHASSIS SUITABILITY:**

Where the selected chassis is limited to a five or six-speed transmission, a Scarab reduction gearbox is installed to provide suitable sweeping-speeds. For details of chassis specifications contact our Sales Dept.

**TYPICAL DIMENSIONAL DATA:**

The following dimensional information is indicative only. For specific chassis related information please make contact with our Sales Department.



Length Overall	<b>A</b>	5640 mm
Height Overall	<b>B</b>	2970 mm
Max Height (Hopper Up)	<b>C</b>	4580 mm

*Dimensions given are for general guidance only and are subject to chassis type used.*

**OPTIONS:.**

A comprehensive range of options is available for the Scarab Merlin, please contact the Scarab Sales Department for further information.

Scarab Sweepers are dedicated to continuous product development and as such we reserve the right to change this specification without prior notice.  
To ensure latest information contact Sales Department.



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