



MSU 200/400

Air Start Unit

Rheinmetall Landsysteme Air Start Units

The task to be performed is to start all main engine of today's and tomorrow's generation for aircraft up to the most demanding B777-400 and A380.

The Rheinmetall Landsysteme Air Start Units are powered by a simple cycle bleed type gas turbine of the latest state of the art design.

The units deliver compressed air for the main engine start and for the operation of the onboard environmental control system.

Main Features

The gas turbine driven MSU has proven its reliability since 1995.

The standard design features are

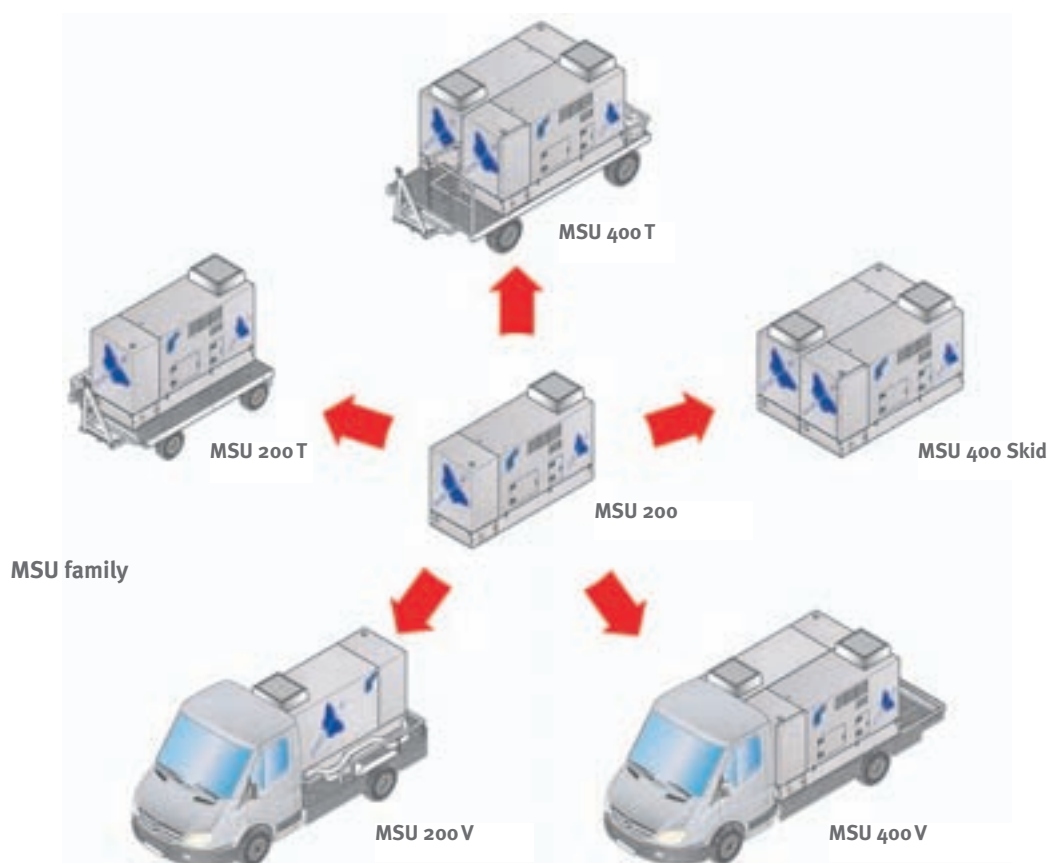
- modular design
- no scheduled maintenance
- low cost of ownership

Additionally the units incorporate safety features such as

- »FADEC« controlled with integrated »BITE«
- automatic shut down
- low fuel level protection
- overspeed protection

Configuration

Our basic air start unit MSU 200 Skid is available as a stand-alone version, mounted on a trailer or mounted on a small motorised chassis. Two modules form the MSU 400 V which is also available as a skid mounted version or mounted on a small vehicle chassis. The units can be operated individually.

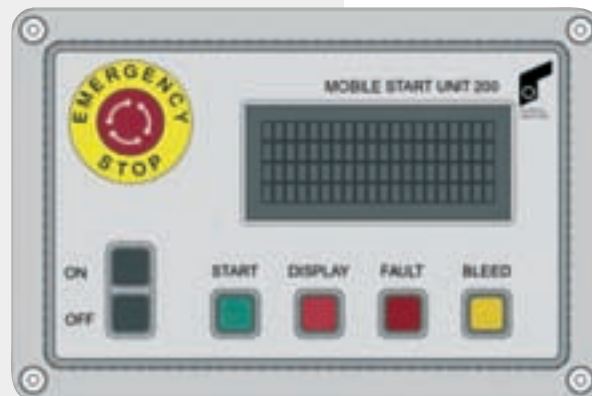


Advantages

The MSU 200/400 family offers a wide range of advantages compared to other available air start units.

The main advantages are

- smaller in size and lower in weight
- high enhance reliability
- multi fuel capability
- operational capability in all climate conditions and altitudes without special preparation
- approved for ECS operation



MSU 200 operator's panel

MSU 200 T

The MSU 200T is easy to operate and easy to manoeuvre by a single person. The air start unit is capable of starting the majority of common aircraft.



MSU 200 V

The MSU 200 V is mounted on a Mercedes Benz 311 CDI*.



MSU 400 T

Two modules form the MSU 400 which is available as a stand-alone version or mounted on a trailer. The units can be operated in parallel or separately. The MSU 400 supplies sufficient air to start all existing aircraft.



MSU 400 V

The MSU 400 V is mounted on a Mercedes Benz 509 CDI*.



*Installation on other comparable vehicle chassis are possible according to customer's requirements.

Service

Customer satisfaction is our goal and After Sales Service is our number one priority.

This includes

- qualified training courses
- 24 hours / 7 days a week service hotline
- shipment of parts guaranteed within 48 hours of notification

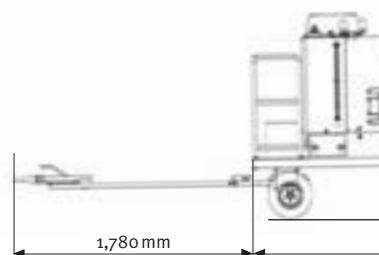
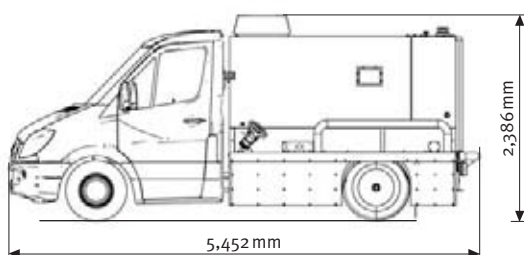
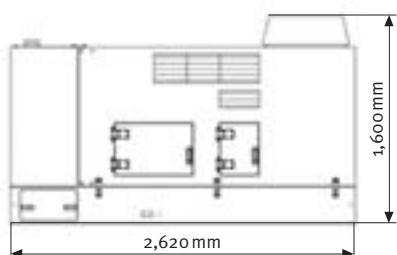
User States

Our MSUs are successfully used worldwide.



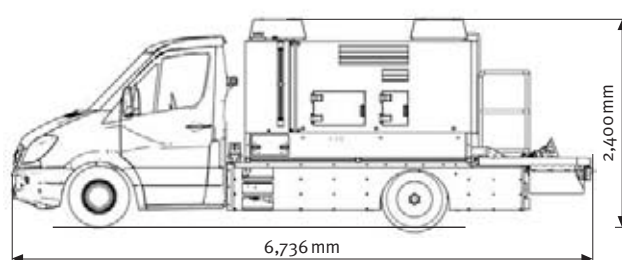
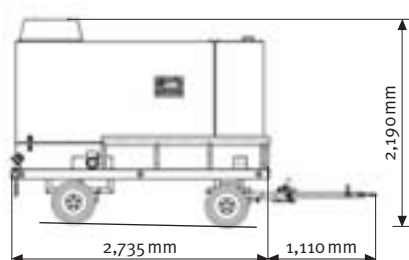
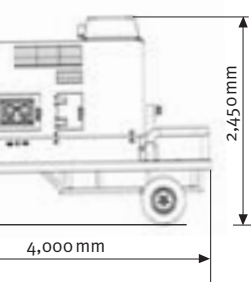
	MSU Skid	MSU 200 T	MSU 200 V	MSU 400 T	MSU 400 V
Nominal rating					
Bleed air output*	204 ppm (1.54 kg/s)			408 ppm (3.08 kg/s)	
Delivery pressure	56 psia (3.86 bar abs)				
Bleed air temperature	215°C (420°F)				
Weight and Dimensions			MB 311 CDI		MB 509 CDI
Weight incl. 400l fuel	1,400 kg (3,086 lb)	1,800 kg (3,970 lb)	3,650 kg (8,050 lb)		
Weight incl. 800l fuel				4,000 kg (8,820 lb)	5,500 kg (12,130 lb)
Length	2,620 mm (103.2 inch)	3,845 mm (151.4 inch)	5,450 mm (214.6 inch)	5,780 mm (227.6 inch)	6,740 mm (265.4 inch)
Width	900 mm (35.4 inch)	1,750 mm (69.0 inch)	2,500 mm (98.4 inch)	2,180 mm (85.8 inch)	2,600 mm (102.4 inch)
Height	1,600 mm (63.0 inch)	2,190 mm (86.22 inch)	2,390 mm (94.1 inch)	2,450 mm (96.5 inch)	2,400 mm (94.5 inch)
Environmental conditions					
Temperature	−32°C * (−25.6°F) to +52°C (126°F)				
Fuels	diesel, jet fuel				
Noise level	85±2 dB (A) at 7 m (23 ft) with full load			90±2 dB (A) at 7 m (23 ft) with full load	

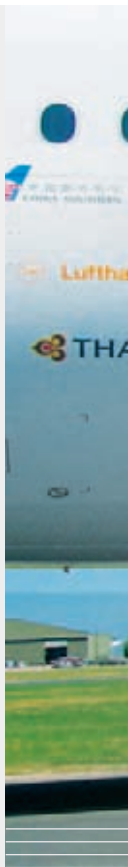
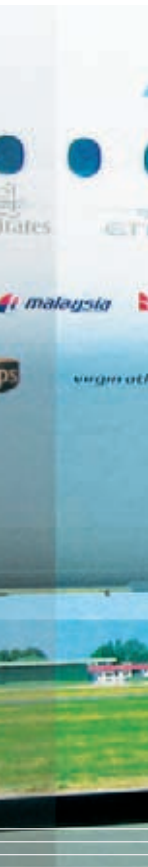
*at 15°C ambient temp., sea level All data subject to change without notice



	MSU Skid	MSU 200 T	MSU 200 V	MSU 400 T	MSU 400 V
Air inlet	particle separator with scavenge system				
Control system	Full Authority Digital Engine Control (FADEC) Built In Test Equipment (BITE)				
Operating modes and functions	Main Engine Start (MES) Mode Environmental Control System (ECS) Mode Automatic mode selection (MES/ECS) No load restrictions in ECS mode				
Safety	Overspeed shut down Exhaust gas overtemperature control High oil temperature shut down (override during MES) Low oil pressure shut down (override during MES)				
Panel functions	3 button panel multi function display				
International standards	I.A.T.A. Regulations CE Regulations SAE Regulations				

All data subject to change without notice





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