CompAir

CompAir UK Ltd
Camborne Cornwall England

HOLMAN 37
Deutz

TECHNICAL DATA

Issue date (supersedes previous issues)
14.01.01

Performance

Free Air delivered at 7 bar and max. rev/min ISO 1217: 1996 - Annexe D
(T_1 measured at compressor inlet filter for application consistency. . . . . 61.4 litres/sec (3.7 m^3/min, 130 ft^3/min)

	On Load	Off Load
Normal working pressure range (factory set)	6 bar (85 lbf/in²)	7 bar (100 lbf/in²)
Max. working pressure range	7 bar (100 lbf/in²)	8 bar (116 lbf/in²)
Engine speed range	2400 rev/min	1900 rev/min
Compressor power at 7 bar and max. rev/min	23.9 kW (32 hp)	
Fan and alternator power at max. rev/min	1.7 kW (2.3 hp)	
Max. compressor air/oil discharge temperature	120°C	
(Temperature at manifold is approx. 10° lower)		
Max. permissible ambient temperature at 7 bar continuous full load	50°C	
Max. sound power level to 84/533/EEC Directive	100 L_{WA}	
Max. sound pressure level at Operator Position to PNEUROP PN8NTC2.2	89 L_{PA}	
Recommended max. altitude above sea level at full load at 7 bar		
Ambient temperature 0° C	2600 m (8525 ft)*	
Ambient temperature 30° C	1550 m (5082 ft)*	
Fuel consumption (approximate) at full load at 7 bar	7.1 lt./hour (1.56 U.K. gal/hr)	

* **CAUTION**
Consult engine manufacturer's hand book for fuel system adjustments which may be necessary for high altitude operation.

Compressor Unit Details

Air inlet filter	2 dry paper element into common manifold feeding engine and compressor
Air delivery outlets	2 x ¾ in BSP cocks
Pressure vessel volume	19.1 lt . (0.67 ft^3)
Oil filter	single bowl, spin-on cartridge type
Oil cooler	air blast (aluminium)
Oil system capacity, maximum	13.6 lt. (24 pints)
Approved lubricating oils	see General Information
Rotors - centres x length/centres ratio	Cyclon 84 x 1.8
Drive	gear to male rotor
Gear ratio	58 : 35

Engine Details

Type	Deutz F3L1011F - 3 cyl, air-cooled diesel
Output, gross at sea level at max. rev/min	28 kW (37.5 bhp)
Electrical system (12 volt, negative earth)	Alternator (14 V, 60 Amp)
Battery cold start performance (to I.E.C. Specification)	370 amp, 12 volt
Starter type	2.2 kW, 12 volt
Lubricating oil capacity (with filter renewal)	6 lt. (10 pints)
Fuel tank capacity	66 lt. (14.5 U.K. gal)

Protection Equipment

An electrically-operated shut-down system will stop the plant automatically in the event of:-

1. Low engine oil pressure.
2. High engine oil temperature.
3. High air temperature (compressor unit)
4. High air temperature (pressure vessel)
5. Low fuel level

In addition, a pressure relief valve is fitted to the pressure vessel to release air if the pressure exceeds 9 bar.

Dimensions

Width	1390 mm (4 ft 6¾ in)
Length, including straight towbar to C/L of 2 in towing eye	2900 mm (9 ft 6 3/16 in)
Height	1300 mm (4 ft 3⅛ in)
Wheel track	1214 mm (3 ft 11¾ in)
Ground clearance, minimum	229 mm (9 in)
Hitch eye height with towbar horizontal	405 mm (1 ft 4 in)
Tyre size	165 R13 Rein
Tyre pressure	2.9 bar (42 lbf/in²)
Tilt from horizontal, maximum permissible any direction	10° continuous, 15° intermittent

(Continued)

Only the Product Reference and Issue Date need be quoted to identify sheet required

130 ft³/min at 100 lbf/in²
Rotary screw compressor
silenced enclosure, 2 wheels.

Weights (approximate)

Battery	20 kg (44lb)
Compressor unit only (including integral unloader and oil filter element)	96 kg (216 lb)
Compressor complete, dry	778 kg (1713 lb)
Compressor complete, wet (standard machine)	848 kg (1868 lb)
Max. permissible weight (UK straight towbar)	1060 kg (2337 lb)
Max. vertical load on towing coupling	75 kg (165 lb)
Max. permissible weight (Continental adjustable towbar)	1060 kg (2337 lb)

General Description

The compressor is an oil flooded, positive displacement, single stage, rotary screw compressor driven by a three cylinder, air cooled diesel engine. The separate inlet and rotor casing of the compressor unit houses a pair of intermeshing helical rotors supported on ball and roller bearings. The four lobes on the male rotor and the five matching female flutes have a high efficiency CompAir profile. The compressor unit is flange mounted to the engine flywheel housing and the male rotor is driven from the flywheel via a flexible coupling and step up gears.

Immediately on starting, oil is forced from the pressure vessel through the cooler and filter directly into the inlet/rotor casing to seal the working clearances, lubricate the working parts and cool the air being compressed. Cooling air is provided by a pusher fan mounted on the extended female rotor shaft at the free end of the compressor.

Delivery air passes to a separate vertical mounted pressure vessel which houses an air/oil separator element. Most of the oil drains down in the pressure vessel for recirculation but a small amount from the final separation inside the separator element is returned directly to the compressor rotor casing via a small restrictor in the separator scavenge dip tube. An automatic blow down valve releases air from the pressure vessel on shut down.

Air output is matched to demand by the action of the suction unloader and speed control. As air demand increases, the resulting drop in vessel pressure causes the suction unloader to open progressively and increase the engine speed. The reverse occurs on a reduction in air demand. Starting from cold is achieved by automatically off-loading the compressor at 2 - 2.8 bar
(30 - 40 lbf/in^2) on start-up. When the machine has reached operating temperature, a warm-up valve mounted on the control panel is manually depressed, so bringing the unloading system into normal operation.

Chassis and Enclosure

The engine/compressor unit is flexibly mounted on rigid cross members bolted to the axle longitudinal pads. The running gear is a torsion bar axle which incorporates two pneumatically tyred road wheels running on taper roller bearing hubs. The towbar has an adjustable prop-stand and is detachable. The wheels have internal, cable operated drum brakes. When a towed plant is slowed, the brakes are operated automatically by forces applied to the hydraulically damped towing eye. A handbrake on the towbar applies the wheel brakes for parking purposes.

The assembly is fully enclosed with sheet metal body work incorporating large side opening doors assisted by gas filled struts. The machine must be run with the doors closed; a separate lockable door is incorporated in the front panel for observation of the control panel. Tool storage space is provided.

This silenced machine is designed in accordance with our developed Total Tuning principle in which the combined effects of noise from various sources are considered together in order to achieve the maximum reduction of noise in the simplest way. Thus the careful selection of exhaust silencer and cooling fan in combination with a well sealed enclosure which incorporates cooling ducts of optimum form minimises noise emission. The resulting enclosure is neat and is highly effective in achieving the required acoustic performance.

Optional Features

Hose reel
Lubricator
Towing lights
Spark arrestor
Base mount
Extended towbar (straight)
Telescopic jockey wheel
Various generator options
Engine overspeed shutdown (Chalwyn Valve)