In a highly competitive market, CompAir designers were briefed to provide a new range of large output portable compressors with a strong focus on fuel efficiency, whilst providing a lightweight, user-friendly operation and a high standard of environmental protection.

The latest CompAir Range of TurboScrew portable compressors incorporates technological advances to provide users with an economic and reliable supply of compressed air at outputs of 19 - 21 m³/min and operating pressures of 8.6 to 12 bar (g).

CompAir’s experience in the design and manufacture of high-quality portable compressors spans almost 200 years. Today’s models are the result of an intensive development program, and deliver the high performance and reliability demanded by users.

Continuing investment in the latest design and manufacturing tools, and rigorous implementation of ISO 9001 approved quality systems ensure you take delivery of a reliable high-quality product.

C190TS-12 – C210TS-9 Portable Air Compressors

A new, patented Energy Saving Compressor System

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Key Features

Cummins 6 B TT AA 5.9 intercooled turbocharged engine meets level 2 international emission requirements, due in 2003.

Second engine exhaust turbo pre-compressing inlet air to compressor unit achieves large fuel savings compared with conventional compressors. Together with sensitive control of engine power output over a wide range of delivery, fuel saving of up to 20% of total lifetime costs.

Intercooler between pre-compression and compressor unit further assists energy efficiency.

Proven by one year field trials in 5 continents in extremes of temperature and altitude.

Lightest working weight in class for towing flexibility and easy positioning.

6 auto shutdown systems protect engine and compressor.

Single side accessible maintenance points.

Oil temperature regulating valve for extremely cold conditions.

Aid to cold start down to -30°C.
The TurboScrew technology

A major advance in large portable compressor fuel saving

Fuel costs form the largest single item in the whole life cost of a large compressor for contractors involved in civil engineering, construction surface mining, and blasting.

In most of these applications a compressor does not run permanently at full air delivery.

CompAir’s research with users shows that there is typically a four part mix of operating modes, at rated pressure, with equal weight to each.

Consumption in each mode weighted by this formula will provide the best guide to average fuel consumption and also a guide to likely overall operating costs.

Conventional portable compressors are inefficiently controlled and waste fuel.

Many screw compressors have limited control range, so that when less than 60% of output is used energy starts to be wasted because compressor intake valve response to air demand and engine speed are not synchronised resulting in wasteful engine power usage.

Yet potentially a screw compressor can be more efficiently controlled.

The volume of air induction via suction of a screw compressor is a function of its rotor speed whereas achievement of rated working pressure is almost independent of this speed. These characteristics imply that the screw compressor has the potential for a relatively large control range, so that use of minimum operating speeds in conditions of less than full compressed air delivery is not limited by the compressor itself but by the torque characteristics of the diesel engine prime mover selected.
The TurboScrew solution to energy wastage

TurboScrew is a compression system with a radically new approach to energy conservation. It uses a Cummins turboassisted engine powering a new CompAir screw compressor unit with the addition of an engine exhaust gas driven turbine pre-compressing the suctioned inlet air before it enters the compression chamber.

The technical advantages are:

• Two stage compression with intermediate cooling
• Recovery of 5% of engine power expended in exhaust heat.
• Better synchronisation of engine speed and air intake valve response to air demand over a wide output range. At outputs below 60% of maximum, compressor torque requirement reduces at the lower rotor speeds while torque of the Cummins engine increases at reduced speeds so that fuel is saved.

Your benefit:

Significantly greater compressor speed range and air delivery in which the TurboScrew compressor operates efficiently.

Based on the ‘4-part mix’ of operating modes, fuel savings of up to 28% compared with conventional compressors of this size representing up to 20% of total lifetime costs.

Energy Efficiency
Tank capacity
370 Litres, sufficient for:
9.5 hours full load operation or
16 hours four-part mix operation.

Low Wet Weight
Wet weight below 3500 kg so that
machine can be towed by a car or
by 4X4 vehicle (subject to towing
regulations in individual countries).

Large wing doors
Four wide angle opening side and
front wing doors supported
by gas struts offer easy access to the
maintenance points, to the airend/
engine unit and to the coolers.

Options for Improved
quality of compressed air
Achieved by an ample integrated
aftercooler (air outlet approx. 9°C
above ambient temperature),
condensate separator and automatic
condensate drain, followed by air re-
heating if required. Additional micro
filters ensure compressed air to ISO
8573.1 standards including ZTV-SIB 90
with a residual oil content below
0.01 ppm.

Control
Combined throttle/speed control with
large control range (below 60% of
maximum output) allows for a
stepless volume flow be-off
between 0% and 100%. The unit has
been equipped with a balanced start-
up system i.e. when starting, the
engine idles without air delivery. After
approx. 60 seconds, air delivery is started by pressing
a button on the control panel.

Easy Transportation
of compressor and manoeuvrability
on site loading by crane thanks to
lifting bale.

Features
### Model Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>C210TS-9</th>
<th>C200TS-10</th>
<th>C190TS-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free Air Delivery at Rated Pressure m³/min</td>
<td>21.0</td>
<td>20.0</td>
<td>19.0</td>
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<tr>
<td>Rated Operating Pressure bar(g)</td>
<td>8.6</td>
<td>10</td>
<td>12</td>
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<tr>
<td>Pressure Range bar(g)</td>
<td>5.0-9.0</td>
<td>5.0-11.0</td>
<td>5.0-13.0</td>
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<td>Oil Capacity Compressor System litres</td>
<td>65</td>
<td>65</td>
<td>65</td>
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<tr>
<td>Engine</td>
<td>Cummins 6BTAA5.9</td>
<td>Cummins 6BTAA5.9</td>
<td>Cummins 6BTAA5.9</td>
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<tr>
<td>Full Load Speed rpm</td>
<td>2400</td>
<td>2400</td>
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<tr>
<td>Idle Speed rpm</td>
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<tr>
<td>Output at Rated Speed kW</td>
<td>165</td>
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<tr>
<td>Fuel Tank Capacity litres</td>
<td>370</td>
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<tr>
<td>Working Weight (wet) kg</td>
<td>3280</td>
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</table>

### Overall Dimensions

<table>
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<tr>
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<th>C210TS-9</th>
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<tbody>
<tr>
<td>Overall Length mm</td>
<td>5500</td>
<td>5500</td>
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<tr>
<td>Overall Width mm</td>
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<td>Height mm</td>
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<tr>
<td>QI nopy Length mm</td>
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<tr>
<td>Wheel Takck mm</td>
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<tr>
<td>Ground Clearance mm</td>
<td>220</td>
<td>220</td>
<td>220</td>
</tr>
<tr>
<td>Tyre size</td>
<td>205 R 14C</td>
<td>205 R 14C</td>
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</tr>
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</table>

### Noise Levels

<table>
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<tr>
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<th>C210TS-9</th>
<th>C200TS-10</th>
<th>C190TS-12</th>
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</thead>
<tbody>
<tr>
<td>Sound Power dB(A) LWA*</td>
<td>102</td>
<td>102</td>
<td>102</td>
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<tr>
<td>Sound Pressure dB(A) LPA**</td>
<td>76</td>
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</tbody>
</table>

* Sound Power to 84/553/EC
** Sound Pressure to PNEUROP PN8NTC2.2 at 7m

### Options

**Built-in filtercooler**
With turbocharger the engine is designed to handle and store the moisture content in the compressed air. Additional protection is provided by a built-in filtercooler using the heat of the compressor oil.

**Built-in microfilter combination**
An additional filter to be used in combination with the filtercooler ensures the air is clean and dry. This combination meets ISO 8573.1 standards and reduces the moisture content in the compressed air to less than 0.01 ppm.

**Base Mount**
Allows for permanent installation on the loading deck of a commercial vehicle.

**Road lights system**
A complete system that conforms with EEC lighting regulations ready to plug into the towing vehicle.

**Engine overspeed shutdown**
An overspeed shutdown in the event of ingestion of inflammable gases to prevent damage from overspeeding engine.

**Exhaust spark arrestor**
Safe operation also in difficult areas like refineries etc.

**Cold start aid**
Enables reliable starting even at ambient temperatures of minus 30°C.

**Special paint colour with customer adhesive vinyl**
Provides distinctive site identity and assists in traceability in the event of loss or theft.

### Cummins Diesel Engine

Proven robust 6-cylinder turbocharged diesel engine of Cummins’ B-series with an additional second turbocharger for the pre-compression of the inlet air of the compressor (TurboScrew System). The second turbocharger increases the efficiency of the engine and reduces the stress on the unit. The engine complies with all emissions standards of the intertempor um est ustr emission regulations (to be introduced from 2003).

### Airend

CAD-systems with efficient design software, highly developed production processes in metal and plastic production (NC/CNC machines) and highly accurate 3-D test and inspection techniques ensure the highest quality standards in design and manufacturing. The CompAir profile embodies the latest state of the art in screw technology and represents optimal efficiency.