

# Atlas Copco

## Industrial Aluminium Piston Compressors



### L Series

Oil-lubricated & oil-free (1.5-15 kW / 2-20 hp)



*Atlas Copco*



## Total capability, total responsibility

Right at the heart of your business, Atlas Copco delivers quality compressed air for superior operational capacity. From compressed air generation to point of use, you can choose from our wide range of products to create a complete compressed air system tailored to your specific needs. All Atlas Copco products are engineered to integrate seamlessly, ensuring the highest level of reliability and energy efficiency. As a result, Atlas Copco can take full responsibility for your compressed air infrastructure with a guarantee of best-in-class quality. With a global presence in over 150 countries, we can provide an unrivalled service to maintain and continually improve your compressed air system performance.

Backed by 100 years at the forefront of compressed air, Atlas Copco products offer the finest quality and efficiency. Our goal is to be First in Mind—First in Choice®. That is why Atlas Copco's pursuit of innovation never ceases, driven by the dedication to meet and exceed your demands. Always working with you, we are committed to providing the customized air solution that is the driving force behind your business.

***We are committed to your superior productivity through interaction and innovation.***

# Reliable, high quality performance

Looking for a durable, high performance compressed air solution for your specific industrial application? Designed with the highest attention to detail, Atlas Copco's L series air compressors stand for exceptional reliability and minimum maintenance. Incorporating state-of-the-art technology, the L series delivers the coolest operating temperatures in the industry while offering superb quality air.



## A VARIETY OF BENEFITS

- Automotive design and high quality materials for **unmatched performance** and **extra long life**.
- Exceptional reliability for **heavy duty industrial applications**.
- **Minimized downtime** thanks to quick and easy servicing.
- Widest product scope to **match your exact needs**.
- Dependable flow of compressed air **directly to the point of use**.
- **Compact installations** possible thanks to optimum cooling, aluminium design and direct drive.
- **Stand-alone use** or **easy integration** in your OEM (Original Equipment Manufacturer) product.



## THE OPTIMUM PISTON COMPRESSOR

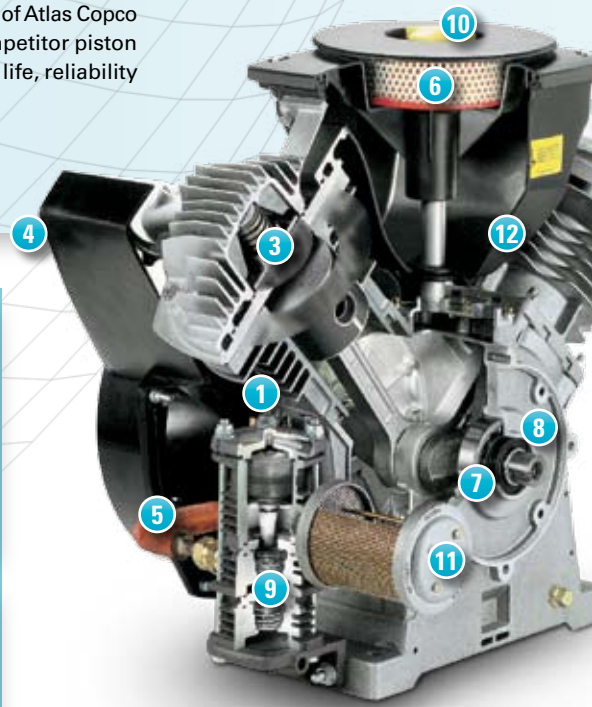
As one of the earliest compressor designs, piston compressors are among the most versatile and extremely efficient compressors. Their strengths:

- Because of their basic design, limited number of working parts and straightforward working principle, piston compressors are the best solution when compressed air is needed in harsh conditions.
- Simple maintenance thanks to easily accessible parts for servicing.
- No need for special treatment (oil separation) nor oil filtering as there is no direct contact with oil.
- High reliability and increased lifetime due to limited risk of condensation formation as a result of the piston compressor's low mass.
- Piston compressors can operate in a very wide range of working pressures. Maximum working pressure for the Atlas Copco L series is 30 bar.



# Standard scope of supply

Atlas Copco's L series is the top product in the wide range of Atlas Copco piston compressors. The L range outperforms any competitor piston compressor because of its unique combination of long life, reliability and performance in a compact light-weight package.



## TOP PERFORMANCE

- 1 Automotive style cylinders** made of high silicon aluminium alloy with low tolerance finishing resulting in exceptional lubrication, extremely low clearance and minimized oil carry-over.
- 2 Direct drive:** No transmission losses.

## EASY MAINTENANCE

- 3 Inlet/outlet disc valves:** Unique and simple to service, the valves are stainless steel flexible annular discs.

## OPTIMAL OPERATION

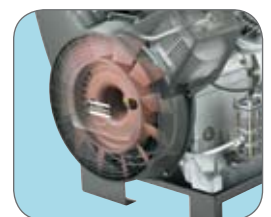
- 4 Cooling fan:** High capacity cooling fan contained in protective fan cowl, providing optimal direct cooling of the cylinders and aftercooler/intercooler.

## HIGH RELIABILITY

- 5 Aftercooler/intercooler:** Combined finned die-cast aluminum outlet cooler and finned copper aftercooler pipe for single-stage units and additional intercooler for two-stage units.

## LONG COMPRESSOR LIFE

- 6 Air intake filter:** Rapid replacement, large surface air intake filter, reducing contaminants and prolonging compressor life.
- 7 Heavy-duty ball bearings:** Selected for high duty and long lifetime.
- 8 Die-cast aluminum crankcase & finned cylinder heads:** Featuring high cooling characteristics, the crankcase and cylinder heads provide long lifetime and efficient operation.
- 9 Industrial check valve or unloader valve:** Designed to withstand extreme conditions and high working pressures. The unloader valve is used in combination with a Y/D starter and special motor to reduce starting torque. This results in longer compressor and motor lifetime as well as limited strain on your electricity supply net.



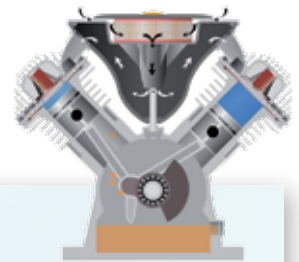
**QUIET OPERATION**

- 10 Venturi silencing intake:** Guaranteed low noise levels.
- 11 Sound muffler:** Used on units with an unloader valve. Low noise levels are maintained at all times.
- 12 V-design of compressor block:** The dynamically balanced crankshaft and heavy-weight cast iron cooling fan reduce vibration.



**CLEAN OPERATION**

- Crankcase breather on LE & LT**
- LF: the ultimate oil free piston solution**



**WORKING PRINCIPLE**

The piston compressor moves a piston forward in a cylinder via a connecting rod and crankshaft.

**1-stage compression (LE & LF):**

Filtered air is entered through the inlet valve into both cylinders. The piston is driven forward through the connection rod attached to the balanced crankshaft. The air is compressed in the cylinder that leaves through the outlet valve when the required pressure of 10 bar is reached.

**2-stage compression (LT):**

Filtered air is entered into one cylinder only. This low-pressure cylinder feeds the second (high-pressure) cylinder which increases the pressure to the required level of 15, 20 or 30 bar. In between the 2 stages, an intercooler brings down the compression temperature resulting in increased compression efficiency.

**Drive arrangement:**

The standard drive arrangement is direct drive with electrical motor. However, the compressor block can also be directly driven by a hydraulic motor, diesel or petrol motor and a kit is available for belt drive arrangement.

**Electrical regulation:**

The standard electrical regulation occurs by means of a pressure switch that starts/stops the compressor at pre-set pressures. All units are also supplied with an overload relay. In the standard models, the cylinder heads are always de-pressurized if the unit is stopped via the pressure switch. On units with Direct on Line (DOL) start this is done through the pneumatic unloader located inside the pressure switch box. Units with Y/D start are supplied with Industrial Unloader Valve and solenoid valve to de-pressurize the cylinder heads both at stopping and starting of the unit. Starting the compressor without back pressure in combination with the special Y/D motor dramatically reduces start-up currents. A cubicle is needed to manage the motor running between Y and D and to control the Industrial Unloader Valve. Please refer to the model overview for more details.

	HP	KW	NON-RETURN FUNCTION	UNLOADING FUNCTION	PRESSURE REGULATION	ON/OFF SWITCH	OVERLOAD PROTECTION	Y/D TIMER RELAY	TIMER INDICATOR
DOL	2-75	1.5-5.5	CV		Pressure switch			N/A	N/A
Y/D	5.5-20	4-15		UV	Pressure switch			Cubicle	

# Versatile air for a wealth of applications

Whether you choose a standard package or one designed specifically for your OEM needs, Atlas Copco's L series offers the most compact and reliable solution for a wealth of applications. From snow guns over marine starting air to railway applications, L compressors offer you exceptional flexibility, the widest product scope and extreme durability.



## COMPACT & SPACE-SAVING

The compressor block which is directly coupled to the motor is manufactured using light-weight automotive-type materials which provide excellent cooling characteristics: ideal for integration with limited space requirements. All L compressors boast a V-shaped 2-cylinder set-up providing low vibration levels on all sizes while the crank case breather on both the LE and LT ensures no oil containing air is generated from the crank case.



## RENOWNED EXPERIENCE

Building on decades of experience in a wide variety of specific sectors such as marine and railway, Atlas Copco is able to offer compressed air solutions such as the L series which come certified by leading official classification bodies.

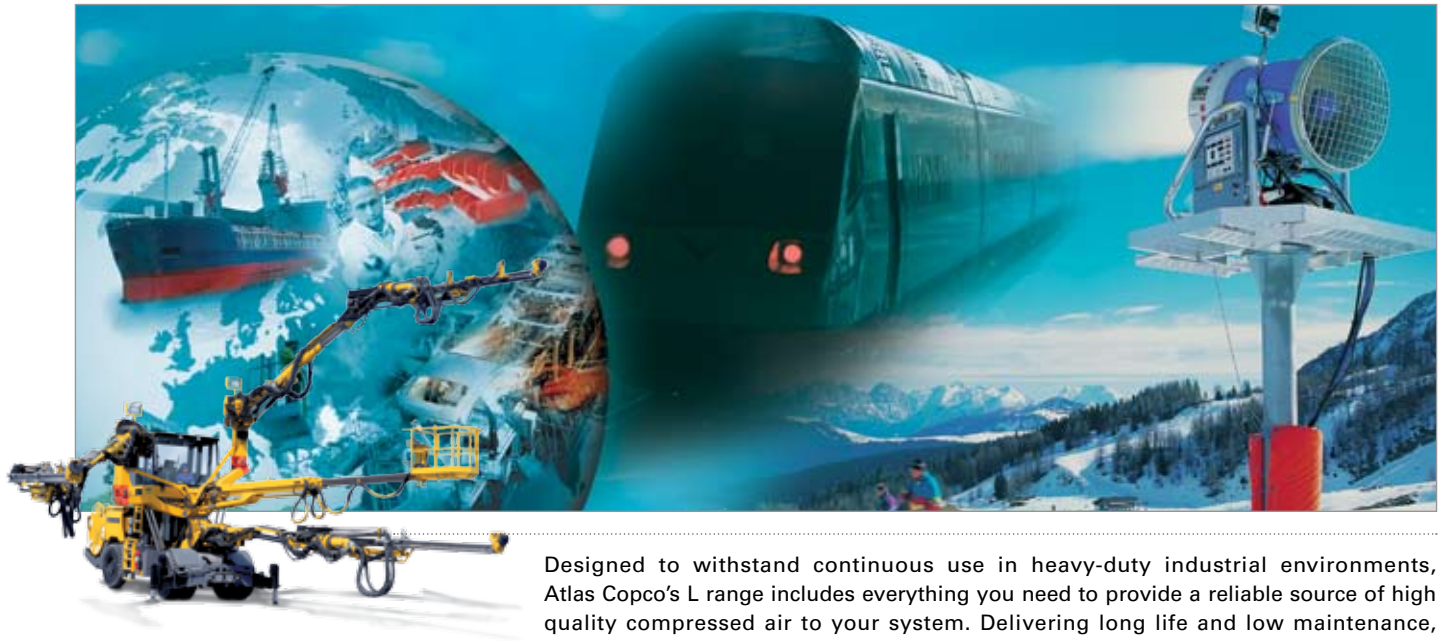


## THE OIL-FREE OPTION

In almost all applications, contamination of the air supply can cause serious performance decline and increase maintenance costs in terms of actual repairs and lost productivity. Atlas Copco's innovative oil-free LF compressor is engineered

to cost-effectively provide the best quality air and meet today's increasing quality demands for those applications where oil cannot be tolerated.





Designed to withstand continuous use in heavy-duty industrial environments, Atlas Copco's L range includes everything you need to provide a reliable source of high quality compressed air to your system. Delivering long life and low maintenance, running costs are kept at an absolute minimum and downtime is history.



### EXCEPTIONAL RELIABILITY

Thanks to its unique, robust design and combination of automotive materials, the L compressor offers improved performance and extended product life. Maintenance is straightforward as well as all components and service points are easily accessible. Operational costs are limited and breakdowns are virtually eliminated, guaranteeing the continuity of your production. The L piston compressor range is tested using the most stringent methods in the industry. You can rest assured at all times: severe certification and testing procedures are conducted to ensure air is supplied to the highest standards of quality control. To further reduce any type of contamination within your process and protect your equipment, Atlas Copco presents a complete range of compressed air filters and dryers.



### BUILT FOR ENDURANCE

- Designed using state-of-the-art tools and facilities.
- Based on years of extensive research and development.
- Manufactured using the most advanced production line and methods in the industry.



### WORLDWIDE PRESENCE

As solution provider, Atlas Copco is fully committed to you as OEM customer and your end client. Anywhere in the world you can count on us to guarantee the quality of your compressed air solution through interaction and innovation. Our aftermarket presence and product portfolio is designed to add maximum value for our customers by ensuring the optimum availability and reliability of their compressed air equipment with the lowest possible operating costs. We deliver this complete service guarantee through our extensive Aftermarket organization, maintaining our position as the leader in compressed air.

# Meeting individual needs

At Atlas Copco we provide the industry's broadest portfolio of offerings to help you achieve the most efficient compressed air system. Whether you work in a larger industrial installation

or smaller environment, with a complete range of L compressors to choose from, you can meet your specific needs and optimize your production process at the same time.

## → LE OIL-LUBRICATED

Single-stage oil-lubricated reciprocating compressor designed for operation at maximum pressure of 10 bar and capacities from 3.4 up to 23.9 l/s at 50 Hz, 8.26 to 61.27 cfm at 60 Hz.

## → LT OIL-LUBRICATED

Two-stage oil-lubricated reciprocating compressor designed for operation at maximum pressure of 15, 20 or 30 bar and the following capacities:

**15 bar:** from 3.1 to 11.7 l/s at 50 Hz, 7.63 to 23.10 cfm at 60 Hz.

**20 bar:** from 2.1 to 17 l/s at 50 Hz, 5.93 to 44.30 cfm at 60 Hz.

**30 bar:** from 2.5 to 17 l/s at 50 Hz, 7.19 to 41.76 cfm at 60 Hz.

## → LF OIL-FREE

Unique single-stage oil-free reciprocating compressors designed for operating at maximum working pressure of 10 bar(e) and capacities from 3.1 to 14.4 l/s at 50 Hz, 7.63 to 36.23 cfm at 60 Hz.

## Optimum versatility

The L oil-free and oil-lubricated compressors are available in a number of product variants to match the exact needs of a wide range of end users. They are available as standard

"core" units, with the possibility to add a number of standard options, giving the flexibility to match the individual application requirements.

### ← L BLOCK



The heart of the L is a compact and light-weight automotive type aluminium compressor block designed for the best performance. Combined with the direct drive setup, this makes the L compressor block perfect for OEM applications. Following the recommended starter and start/stop regulation\*, the L block is available with simple connection, industrial check valve or industrial unloader valve connected to the aftercooler pipe of the block. All blocks are factory tested.

### ← L POWERPACK

In a Powerpack, the L compressor block is directly driven to an electrical IP55/insulation class F motor. Different motors are available both for Direct On Line (DOL) start and Y/D start. DOL start can be combined with a simple check valve (S) or with an industrial check valve (CV). Y/D start is common on units from 5.5 hp and is always combined with an industrial unloader valve (UV). On Powerpack versions the scope of supply for DOL started units contains a pressure switch (incl. on/off switch, overload protection and unloader), supplied separately. On Powerpack versions with Y/D start, only the solenoid valve is added, not the pressure switch and not the cubicle.





← L BASE-MOUNTED



In a base-mounted variant, the L Powerpack is mounted on a frame with pre-wired regulation installed to run the unit in start/stop. Additionally, a flexible hose and pressure gauge is mounted to connect the base-mounted unit to the air consumer or air net. Base-mounted units are always supplied with industrial check valve or unloader valve, not with the simple check valve. Units with Y/D are supplied with the electrical cubicle. The electrical cubicle contains a transformer for the 230/1 control voltage if unit voltage <math>\lt; \gt; 230/1, 230/3</math> or 400/3/50. For 400/3/50 it is assumed that a neutral line is available from the electricity net.

← L COMPLETE UNIT

In the L complete unit model, a Powerpack is mounted on a receiver. Standard receiver sizes are:  
 2 - 3 hp: 90 liter  
 5.5 - 20 hp: 250 liter

Receivers are available in different approvals: CE, ASME, LL/MOM, AS1210. Please refer to the contact person for details on which approvals are available for which receivers.



← L FULL FEATURE



In a Full Feature version, an Atlas Copco refrigerant dryer is mounted on the receiver.

Receiver sizes are:  
 2 - 5.5 hp: 250 liter  
 5.5 - 10 hp: 475 liter

Full Feature versions are available from 2 to 10 hp.

← L TROLLEY

Trolleys are Powerpacks mounted on a special framework with 2 integrated 8-liter receivers, wheels and lifting bar. Because of the small receiver volume trolleys can be operated in unload mode using a special pilot valve.

L trolleys are available with electrical motor (2 - 20 hp) and petrol motor (2 - 10 hp).



\* Recommended starter and start/stop regulation:

DOL + simple check valve	2 - 3 hp	Maximum 15 bar
DOL + industrial check valve	5.5 - 7.5 hp	
Y/D + industrial unloader valve	5.5 - 20 hp	

# Options

		LF	LE	LT	Block	Powerpack	Base-mounted	Complete unit	Full Feature	Trolley
	Silencing hood (cannot be combined with HDF)	•	•	•			•	•		
	Low oil level switch make contact (NO) / break contact (NC)		•	•	•	•	•	•	•	•
	Heavy duty inlet filter	•	•	•		•	•	•	•	
	Atlas Copco CD desiccant dryer	•	•	•				•		
	Pneumatic drain	•	•	•				•	•	
	Electronic timer drain	•	•	•				•	•	
	Interstage drain			•	•	•	•	•	•	•
	Heating element + thermistors in motor windings	•	•	•		•	•	•	•	•
	Wheel set (on 90 and 250 liter receiver)	•	•	•				•		
	475 liter receiver	•	•	•				•	•	
	90, 250, or 475 liter galvanized receiver	•	•	•				•	•	
	250 liter vertical receiver (LE 2-5)	•	•	•				•	•	



□ Silencing hood



□ Heavy duty inlet filter



□ Electronic timer drain

Atlas Copco service kits and oil are available for specific maintenance on reciprocating compressors. Pre-defined service intervals should be respected for trouble-free continued operation and extended lifetime.

# Technical specifications

COMPRESSOR TYPE	Maximum working pressure		FAD at normal working pressure and 1,500 rpm (50 Hz)			FAD at normal working pressure and 1,800 rpm (60 Hz)			Installed recommended power		Noise level dB(a)	
	bar(e)	psig	l/s	m <sup>3</sup> /min	cfm	l/s	m <sup>3</sup> /min	cfm	kW	hp	Unsilenced	Base-mounted silenced
<b>10 BAR LF</b>												
LF 2-10	10	145	3.1	0.19	6.6	3.6	0.22	7.6	1.5	2	82	67
LF 3-10	10	145	4	0.24	8.5	4.6	0.28	9.8	2.2	3	83	68
LF 5-10	10	145	7.6	0.46	16.1	8.8	0.53	18.6	4	5.5	83	68
LF 7-10	10	145	11	0.56	19.5	12	0.64	22.7	5.5	7.5	84	72
LF 10-10	10	145	14.4	0.86	30.5	17.1	1.03	36.2	7.5	10	86	74
<b>10 BAR LE</b>												
LE 2-10	10	145	3.4	0.2	7.2	3.9	0.23	8.3	1.5	2	78	63
LE 3-10	10	145	4.4	0.26	9.3	5.1	0.31	10.8	2.2	3	79	64
LE 5-10	10	145	8.4	0.5	17.8	9.7	0.58	20.6	4	5.5	79	64
LE 7-10	10	145	11.7	0.7	24.8	13.6	0.82	28.2	5.5	7.5	80	68
LE 10-10	10	145	15.7	0.94	33.3	17.4	1.04	36.9	7.5	10	81	68
LE 15-10	10	145	18.6	1.2	39.1	21.9	1.31	46.4	11	15	84	70
LE 20-10	10	145	23.9	1.43	50.2	28.2	1.73	61.3	15	20	85	70
<b>15 BAR LT</b>												
LT 2-15	15	218	3.1	0.19	6.8	3.6	0.22	7.6	1.5	2	78	63
LT 3-15	15	218	4.0	0.25	8.7	4.7	0.29	10.2	2.2	3	79	64
LT 5-15	15	218	6.7	0.4	14.2	7.9	0.47	16.7	4	5.5	79	64
LT 7-15	15	218	9.2	0.56	19.5	10.9	0.65	23.1	5.5	7.5	80	68
LT 10-15	15	218	11.7	0.7	24.8	-	-	-	7.5	10	81	68
<b>20 BAR LT</b>												
LT 2-20	20	290	2.1	0.13	4.8	2.7	0.17	5.9	1.5	2	78	63
LT 3-20	20	290	2.9	0.18	6.4	3.6	0.22	7.8	2.2	3	79	64
LT 5-20	20	290	5	0.3	10.6	6.3	0.38	13.4	4	5.5	79	64
LT 7-20	20	290	6.7	0.4	14.2	8.4	0.5	17.8	5.5	7.5	80	68
LT 10-20	20	290	9.1	0.55	19.3	11.9	0.71	26.2	7.5	10	81	68
LT 15-20	20	290	14.1	0.91	32	17.0	1.06	37.5	11	15	86	75
LT 20-20	20	290	17	1.02	36	19.9	1.25	44.3	15	20	86	78
<b>30 BAR LT</b>												
LT 3-30	30	435	2.5	0.17	6.1	3.1	0.2	7.2	2.2	3	79	64
LT 5-30	30	435	4.4	0.29	10.4	5.5	0.34	11.9	4	5.5	79	64
LT 7-30	30	435	6.4	0.38	13.6	8	0.48	17	5.5	7.5	80	68
LT 10-30	30	435	8.5	0.51	18	-	-	-	7.5	10	81	68
LT 15-30	30	435	9.3	0.56	19.7	11.1	0.67	23.5	11	15	85	76
LT 20-30	30	435	17	1.02	36	19.7	1.18	41.8	15	20	86	80

\* Unit performance measured according to ISO 1217, Ed. 3, Annex C-1996.

\*\* Mean noise level measured at a distance of 1 m according to ISO 2151/  
Pneurop/Cagi PN8NTC2 test code; tolerance 3 dB(A).

#### Reference conditions:

- Absolute inlet pressure 1 bar (14.5 psi).
- Intake air and coolant temperature 20°C, 68°F

#### FAD is measured at the following working pressures:

- 10 bar versions at 7 bar(e).
- 15 bar versions at 12 bar(e).
- 20 bar versions at 20 bar(e).
- 30 bar versions at 30 bar(e).

#### Receiver size (10, 15 & 20 bar versions):

90, 250 & 475 l (24, 66 & 125 gal.)

#### Standard voltages available:

50 Hz: 1 ph 230 V, 3 ph 230, 400, 500 V

60 Hz: 1 ph 230 V, 3 ph 230, 460, 380, 575 V



In order to be First in Mind—First in Choice® for all your compressed air needs, Atlas Copco delivers the products and services that help increase your business' efficiency and profitability.

Atlas Copco's pursuit of innovation never ceases, driven by your need for reliability and efficiency. Always working with you, we are committed to providing you the customized quality air solution that is the driving force behind your business.



**Never use compressed air as breathing air without prior purification in accordance with local legislation and standards.**

