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COMPRESSED AIR AUDIT REPORT

Full installation audit (level 3) · 45 control points

CLIENT **Example Manufacturing Ltd**	REFERENCE **AUD-2026-EX-001**
AUDITED SITE **Machined parts plant** **Example Business Park, Exampletown**	CONTACT **Site maintenance manager**
MEASUREMENTS **Monday 5 to Sunday 11 October 2026 (7 days, weekend included)**	REPORT ISSUED ON **23 October 2026**
CARRIED OUT BY **AIRSTAHL technician trained in auditing**	VERSION **1.0, available in “My account”**

1. Summary
2. The audited installation
3. 7-day measurements
4. The 45 control points
5. Leak detection
6. Prioritised action plan
7. Recommended equipment
8. Method and calculation assumptions

1. SUMMARY

COMPRESSOR ROOM ELECTRICITY USE	ANNUAL COST OF COMPRESSED AIR	LEAKS FOUND AND TAGGED	SAVINGS IDENTIFIED
240,700 kWh/year, measured and annualised	**€43,330** €/year excl. VAT at €0.18/kWh	**27** 650 l/min in total, i.e. €7,170/year	**€18,120/yr** 42% of the compressor room electricity bill

Result of the 45 points



COMPLIANT 14 TO MONITOR 21 TO CORRECT 10

Key findings

- The compressor room runs **24/7** although production stops at night and at weekends: outside production it still uses 0.71 m³/min, almost entirely leaks.
- **27 leaks** were found and tagged (F-01 to F-27). They waste 650 l/min, i.e. **€7,170 a year**. Four priority 1 leaks alone account for 40% of the lost flow.
- The pressure setting is **8.5 bar** while the most demanding workstation needs **6.0 bar**. The network loses 1.4 bar on the way to building B, because of a 25 mm branch line that is too narrow.
- Compressor C1 (37 kW, fixed speed) runs **unloaded 31% of its running time**: about 77,000 kWh/year paid for without producing air.
- The dryer no longer dries enough: pressure dew point of **+11 °C** instead of +3 °C. Water can reach the machining stations.

> The actions proposed in section 6 can save about **100,700 kWh/year**, i.e. **€18,120 excl. VAT per year** (42% of the compressor room consumption). The first three need no investment in machines.

2. THE AUDITED INSTALLATION

Air production

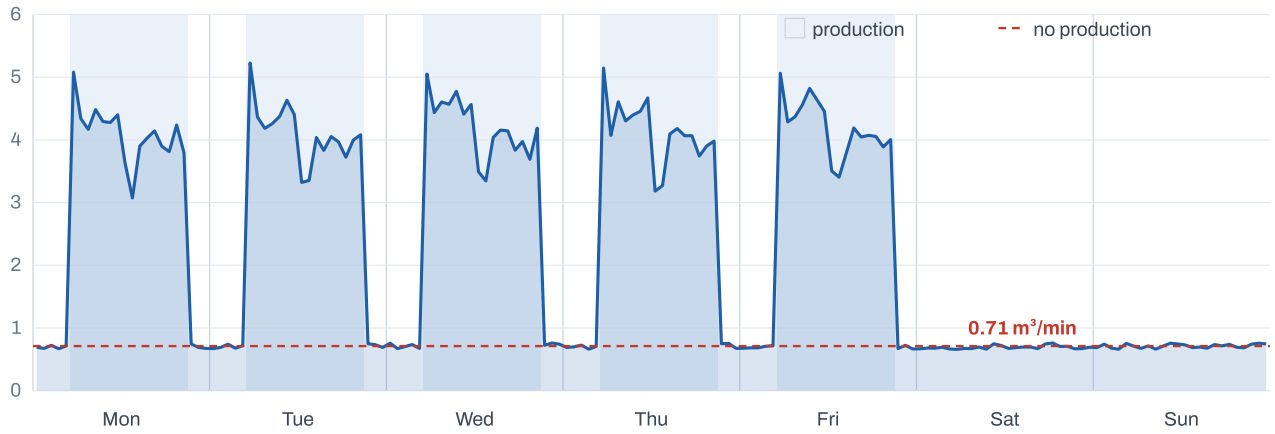
TAG	TYPE	POWER	INSTALLED	TOTAL / LOADED HOURS	CONTROL	SETTING
C1	Screw compressor	37 kW	2012	41,200 h / 29,800 h	Load/unload, fixed speed	7.8–8.5 bar
C2	Screw compressor	22 kW	2016	18,400 h / 9,100 h	Load/unload, fixed speed	7.5–8.2 bar
C3	Piston compressor	7.5 kW	2009	not read	Pressure switch, backup	off

Treatment, storage and network

ITEM	DESCRIPTION	OBSERVATION
Dryer	Refrigerated, 6.5 m³/min	Dew point +11 °C (fouled condenser)
Filtration	1 µm pre-filter + 0.01 µm filter	Pre-filter clogged
Drains	3 timer drains	≈ 60 l/min wasted continuously
Receivers	1,000 L in the compressor room, 500 L in the workshop	Main receiver requalification due before 03/2027
Network	50 mm steel ring main, 25 to 40 mm branch lines	≈ 380 m of piping, no zone valves
Operation	2 shifts, 5 am – 9 pm, Monday to Friday	Network pressurised 8,760 h/year

3. 7-DAY MEASUREMENTS

Compressed air flow used, hour by hour (m³/min)

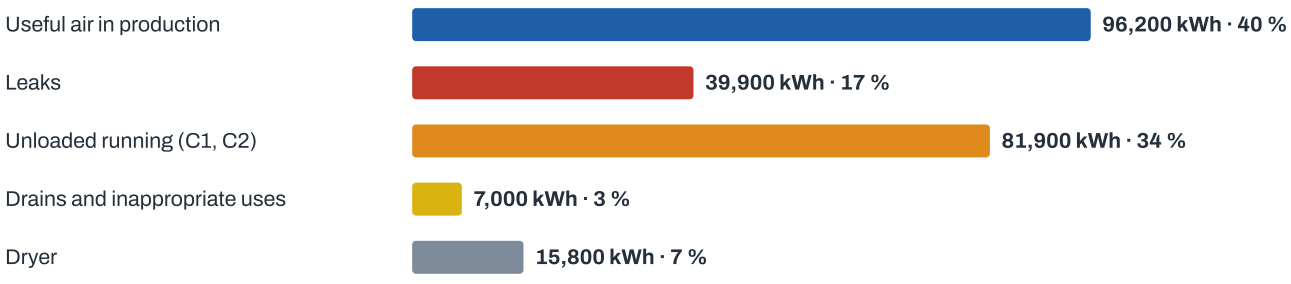


Flow loggers at the compressor room outlet and power clamps on C1, C2 and the dryer, 5 to 11 October 2026. Consumption never drops below 0.7 m³/min, even on Sunday: that is leaks and drains.

Main measured values

MEASUREMENT	VALUE	NOTE
Average flow in production	4.2 m³/min	peaks at 5.4 m³/min at 5 am
Average flow outside production	0.71 m³/min	leaks + drains
Pressure at compressor room outlet	8.3 bar	setting 8.5 bar
Pressure at the furthest station (washing)	6.9 bar	1.4 bar lost
Pressure needed at the most demanding station	6.0 bar	tightening, assembly
Pressure dew point	+11 °C	expected: +3 °C
C1 unloaded time	31%	of running time
Cost per m³ of air	€0.036/m³	energy only

Where the compressor room energy goes (kWh/year)



4. THE 45 CONTROL POINTS

Each point is rated compliant, to monitor or to correct. The numbers match the checklist published on our “Compressed air audit” page.

Production: the compressors (8)

NO.	POINT CHECKED	STATUS	FINDING AND COMMENT
1	Equipment inventory: make, model, power, age, maximum pressure.	COMPLIANT	Three compressors: C1 screw 37 kW (2012), C2 screw 22 kW (2016), C3 piston 7.5 kW backup, off during the measurement.
2	Total hours and loaded hours read on each machine.	TO MONITOR	C1: 41,200 h including 29,800 h loaded. C2: 18,400 h including 9,100 h loaded. C1 is approaching its airend overhaul.
3	Electrical power drawn, measured loaded and unloaded.	TO CORRECT	C1: 39.8 kW loaded, 13.5 kW unloaded. Unloaded 31% of its running time: energy paid for without producing air.
4	Control mode (load/unload, variable speed) and pressure setting.	TO CORRECT	Both screws on load/unload, settings 7.8–8.5 and 7.5–8.2 bar: pressure kept higher than needed.
5	Multi-compressor operation: start sequence, machines working against each other.	TO MONITOR	No sequencer: C2 starts on peaks, then runs unloaded for long periods.
6	Discharge temperature and cooling (clean coolers, ventilation).	COMPLIANT	Discharge at 82 °C (C1) and 79 °C (C2) loaded. Coolers clean.
7	Maintenance condition: filters, oil, separator, last services.	TO MONITOR	C1 air filter dirty (indicator in the red). Last C1 service 14 months ago.
8	Abnormal noise, vibration and alarms.	COMPLIANT	No active alarm, normal vibration.

The compressor room (5)

NO.	POINT CHECKED	STATUS	FINDING AND COMMENT
9	Room temperature, summer and winter.	TO MONITOR	31 °C measured with machines loaded, 17 °C outside. Risk of exceeding 40 °C in summer.
10	Fresh, clean air supply at the intake.	TO MONITOR	Air inlet of 0.4 m², too small for two machines.
11	Extraction of the hot air from the machines.	TO CORRECT	Hot air released into the room with no duct: the machines draw it back in.
12	Dust, humidity and cleanliness.	COMPLIANT	Room clean and dry.
13	Access for maintenance and safety around the machines.	COMPLIANT	Clear access, machines can be locked out, extinguisher present.

Air treatment (7)

NO.	POINT CHECKED	STATUS	FINDING AND COMMENT
14	Dryer type and sizing compared with the flow.	COMPLIANT	Refrigerated dryer 6.5 m³/min, suited to the measured peak of 5.4 m³/min.
15	Dew point measured at the dryer outlet.	TO CORRECT	+11 °C measured instead of +3 °C: condenser fouled. Risk of water in the network.

NO.	POINT CHECKED	STATUS	FINDING AND COMMENT
16	Pressure drop across the dryer and filters.	TO MONITOR	0.45 bar between the compressor outlet and the filter outlet (target: under 0.3 bar).
17	Condition of the filters and their clogging indicators.	TO MONITOR	Pre-filter clogged, indicator in the red zone: to be replaced.
18	Condensate drains: type, setting, operation, air wasted.	TO CORRECT	3 timer drains (10 s every 2 min): about 60 l/min of air wasted continuously.
19	Treatment of oily condensate (oil-water separator).	COMPLIANT	Oil-water separator in place, cartridge changed in May 2026.
20	Air quality achieved under ISO 8573-1, compared with what your workstations need.	TO MONITOR	Machining stations need class [4:4:4]. Water is class 6 today; back to class 4 once the dryer is restored.

Storage: the air receivers (5)

NO.	POINT CHECKED	STATUS	FINDING AND COMMENT
21	Receiver volume compared with the flow and the demand peaks.	TO MONITOR	1,000 L in the compressor room + 500 L in the workshop: a little tight for the morning peaks.
22	Visual condition: corrosion, impacts, fittings.	COMPLIANT	No visible corrosion, fittings in good condition.
23	Safety valve and pressure gauge.	COMPLIANT	Safety valve set at 11 bar and sealed, gauges readable.
24	Receiver draining.	TO MONITOR	Workshop receiver drained by hand, irregularly: water present when opened.
25	Regulatory follow-up: inspection and requalification dates, receiver file.	TO MONITOR	Main receiver: requalification due before March 2027. Workshop receiver file incomplete.

Distribution network (7)

NO.	POINT CHECKED	STATUS	FINDING AND COMMENT
26	Pressure at the compressor room outlet and pressure actually available at the workstations.	TO CORRECT	8.3 bar at the compressor room outlet, 6.9 bar at the furthest station. Maximum need measured: 6.0 bar.
27	Pressure drops along the network.	TO MONITOR	1.4 bar lost on the way to building B, 0.6 bar of it in the 25 mm branch line.
28	Pipe diameters and materials.	TO MONITOR	50 mm ring main suitable; building B branch line in 25 mm, too narrow for 1.8 m^3/min.
29	Layout: ring main or branch lines, lengths.	COMPLIANT	Ring main around machining, branch lines to assembly and shipping.
30	Slopes and drained low points, take-offs from the top of the pipe.	TO MONITOR	Two take-offs from the bottom of the pipe in assembly: water reaches the tools.
31	Isolation valves by zone.	TO CORRECT	No zone isolation valves: assembly and shipping cannot be shut off outside production.
32	Hoses, quick couplers and regulators at the workstations.	TO MONITOR	Worn quick couplers in assembly: 9 of the 27 leaks are on couplers.

Leaks (4)

NO.	POINT CHECKED	STATUS	FINDING AND COMMENT
33	Leak detection with an ultrasonic detector, zone by zone.	COMPLIANT	Whole network inspected with an ultrasonic detector, zone by zone, in production.
34	Numbered tag placed on every leak found.	COMPLIANT	27 numbered tags fitted on site, F-01 to F-27 (details in section 5).
35	Estimated flow and annual cost of each leak.	TO CORRECT	650 l/min lost in total, about €7,170 a year.
36	Plant consumption with production stopped (nights, weekends).	TO CORRECT	0.71 m³/min used on Sunday with production stopped: leaks and drains.

Air use (5)

NO.	POINT CHECKED	STATUS	FINDING AND COMMENT
37	Pressure actually needed at each workstation.	TO MONITOR	Maximum need of 6.0 bar (tightening in assembly). The setting can come down to 7.0 bar.
38	Blow guns and nozzles: number, use, flow.	TO MONITOR	14 blow guns with open nozzles: switch to air-saving nozzles.
39	Inappropriate uses: cooling, cleaning, agitation with compressed air.	TO CORRECT	Parts cooled in washing with a drilled pipe: about 120 l/min while washing runs.
40	Demand peaks and the machines that cause them.	COMPLIANT	Peaks of 5.4 m³/min at 5 am, when the machining centres start together: identified.
41	Workstations and zones that could be shut off outside production.	TO MONITOR	Assembly and shipping (about 40% of leak flow) can be shut off outside production.

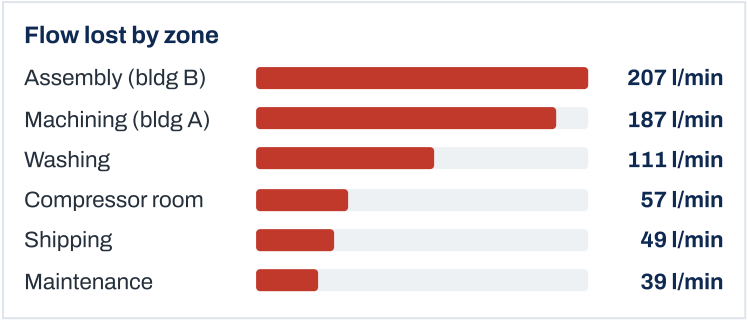
Energy and costs (4)

NO.	POINT CHECKED	STATUS	FINDING AND COMMENT
42	Annual electricity consumption of the compressor room.	COMPLIANT	240,700 kWh/year for the compressor room (compressors and dryer), measured over 7 days and annualised.
43	Cost per m³ of compressed air on your site.	TO MONITOR	About €0.036 per m³ of air produced (energy only), increased by leaks and unloaded running.
44	Variable speed potential, simulated on your real profile.	TO MONITOR	Highly variable profile between day and night: strong potential for variable speed (see section 7).
45	Heat recovery potential (space heating, hot water).	TO MONITOR	C1 releases about 30 kW of heat in production: enough to heat part of building B in winter.

5. LEAK DETECTION

Ultrasonic detection, zone by zone, with the network in production. Each leak is tagged on site with a numbered label; the flow is estimated from the ultrasonic level, the pressure and the type of leak. Annual cost calculated for a network pressurised 8,760 h/year.

TAG	ZONE	COMPONENT	L/MIN	€/YEAR	PRIO.
F-01	Compressor room	Threaded fitting at dryer outlet	35	390	2
F-02	Compressor room	Flange of C2 isolation valve	22	240	2
F-03	Machining (bldg A)	Quick coupler, station 3	18	200	2
F-04	Machining (bldg A)	Cracked hose, HSM centre 2	70	770	1
F-05	Machining (bldg A)	FRL regulator, station 6	12	130	3
F-06	Machining (bldg A)	Clamping solenoid valve, MC 4	28	310	2
F-07	Machining (bldg A)	Quick coupler, station 9	15	170	2
F-08	Machining (bldg A)	Take-off fitting on the ring main	8	90	3
F-09	Machining (bldg A)	Rod seal, door cylinder MC 1	20	220	2
F-10	Assembly (bldg B)	Quick coupler, station 1	24	260	2
F-11	Assembly (bldg B)	Quick coupler, station 2	16	180	2
F-12	Assembly (bldg B)	Hose reel, punctured hose	78	860	1
F-13	Assembly (bldg B)	Quick coupler, station 5	14	150	3
F-14	Assembly (bldg B)	Screwdriver inlet fitting	10	110	3
F-15	Assembly (bldg B)	Sleeve on the 25 mm branch line	54	600	1
F-16	Assembly (bldg B)	Quick coupler, station 7	11	120	3
F-17	Washing	Manual valve gland	30	330	2
F-18	Washing	Blow-off fitting, tunnel washer	26	290	2
F-19	Washing	Filter drain stuck open	55	610	1
F-20	Shipping	Quick coupler, stretch wrapper	13	140	3
F-21	Shipping	Stretch wrapper hose	21	230	2
F-22	Shipping	Quick coupler, dock 2	9	100	3
F-23	Shipping	Pressure gauge fitting	6	70	3
F-24	Maintenance	Quick coupler, workbench	12	130	3
F-25	Maintenance	Tyre inflator valve	17	190	2
F-26	Maintenance	Swivel fitting, parts washer	10	110	3
F-27	Machining (bldg A)	Aluminium pipe seal	16	180	2
Total			**650**	**7,170**	



Priority 1: 40 l/min and above, repair within 15 days. Priority 2: 15 to 39 l/min, within 2 months. Priority 3: under 15 l/min, at the next service visit.

6. PRIORITISED ACTION PLAN

PRIO.	ACTION	POINTS	SAVINGS KWH/YR	SAVINGS €/YR	TIMING
1	Repair the 27 tagged leaks, priority 1 first (target: −80% of leak flow)	33 to 36	31,900	**5,740**	within 2 months
1	Replace the 3 timer drains with level-sensing drains (no air loss)	18	3,700	**660**	within 1 month
1	Lower the setting from 8.5 to 7.0 bar, once the building B branch line is enlarged (25 → 40 mm)	26 to 28, 37	20,500	**3,690**	within 3 months
2	Scheduled shutdown of the compressor room at night and at weekends, shut-off solenoid valves on assembly and shipping	31, 41	21,000	**3,780**	within 3 months
2	Install a variable speed compressor as base load (S 220 PM), C2 as top-up, C1 as backup	3 to 5, 44	18,000	**3,240**	within 6 months
2	Stop cooling with a drilled pipe in washing, fit the 14 blow guns with air-saving nozzles	38, 39	5,600	**1,010**	within 2 months
1	Restore the dryer (condenser cleaning) and replace the pre-filter	15 to 17, 20	—	**quality**	within 15 days
2	Duct the compressors' hot air outside, enlarge the air inlet	9 to 11	—	**reliability**	before summer
3	Study heat recovery from C1 to heat building B	45	—	**to be costed**	to be studied
	Total savings identified		**100,700**	**18,120**	**42 %**

Savings are calculated in the order of the table: each action is costed on the consumption left after the previous ones, so the same saving is never counted twice.

7. RECOMMENDED EQUIPMENT



S 220 PM: variable speed screw compressor, permanent magnet motor, 22 kW

Once the leaks are repaired, demand in production drops to about 3.5 m³/min on average, with peaks around 4.9 m³/min. The 37 kW fixed speed C1 becomes too big: it spends much of its time unloaded.

We recommend an **S 220 PM** variable speed compressor as base load: it follows demand without running unloaded. C2 (22 kW) stays as top-up for the morning peaks, C1 as backup. The three machines are sequenced.

To plan with this installation: an extra 1,000 L receiver in the compressor room to smooth the peaks. The detailed quotation is provided separately, with no obligation to buy.

8. METHOD AND CALCULATION ASSUMPTIONS

1. Measurements: flow, pressure and electrical power logged over 7 consecutive days, weekend included, extrapolated to 52 weeks of operation.
2. Electricity price: €0.18 excl. VAT per kWh (site bill). Specific power of the compressor room: 7.0 kW per m^3/min, measured.
3. Cost of a leak: 1 l/min on a network pressurised 8,760 h/year = 61.3 kWh/year, i.e. about €11.04 a year.
4. Pressure reduction: about 7% less energy per bar of setting removed, applied to the remaining consumption.
5. Savings are estimates: they depend on future production and on the work being carried out. A follow-up audit after the work measures the real gain.
6. This report does not replace a regulatory energy audit, carried out with our partner engineering firm if your company is subject to one.

Your report online
This report and your previous audits can be viewed and downloaded at any time in your “My account” area on www.airstahl.com. A follow-up audit is recommended 3 to 6 months after the work.

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For the client, received on
Site maintenance manager

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