

AIRLEADER measuring case with simulation software (MSS)

Determines energy saving potential

from airleader!



Manufacturer-independent efficiency study of compressed-air systems

How much can you save?

A meaningful assessment of a compressed-air station and a guaranteed annual energy saving require reliable operating data.

Analyse compressed-air generation and consumption accurately over a representative week. The following measurements are available:

Measure all compressors simultaneously with current clamps to determine:

- Air-consumption profiles for each station and for the complete system
- Leakage when all air consumers are shut down
- Energy use under load and unloaded
- Compressor running hours
- Loaded hours
- Unloaded hours
- Number of motor starts
- Number of switching cycles
- Compressed-air generation efficiency (specific power)
- Supply reliability (sufficient compressor capacity)
- Size and type of new compressors
- Appropriate division of the system
- Savings from using Airleader

Record pressure over time to determine:

- System pressure profile
- Pressure level
- Pressure spread
- Pressure drop across air treatment

Record temperatures to determine and check:

- Intake temperatures
- Air inlet temperature of separate dryers
- Dryer installation conditions
- Supply and exhaust ventilation

airleader measurement and simulation software

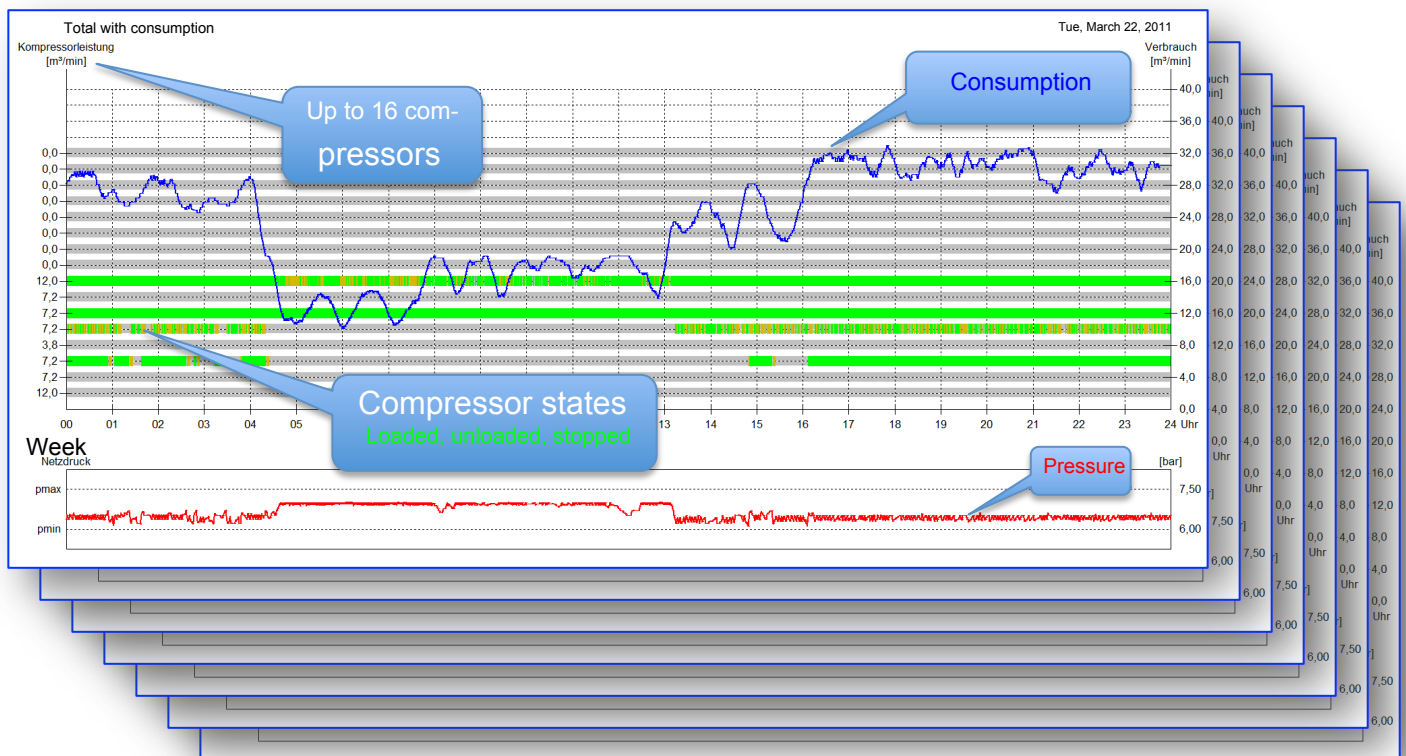
Record dew point over time to check:

- Dryer operation
- Compressed-air moisture content

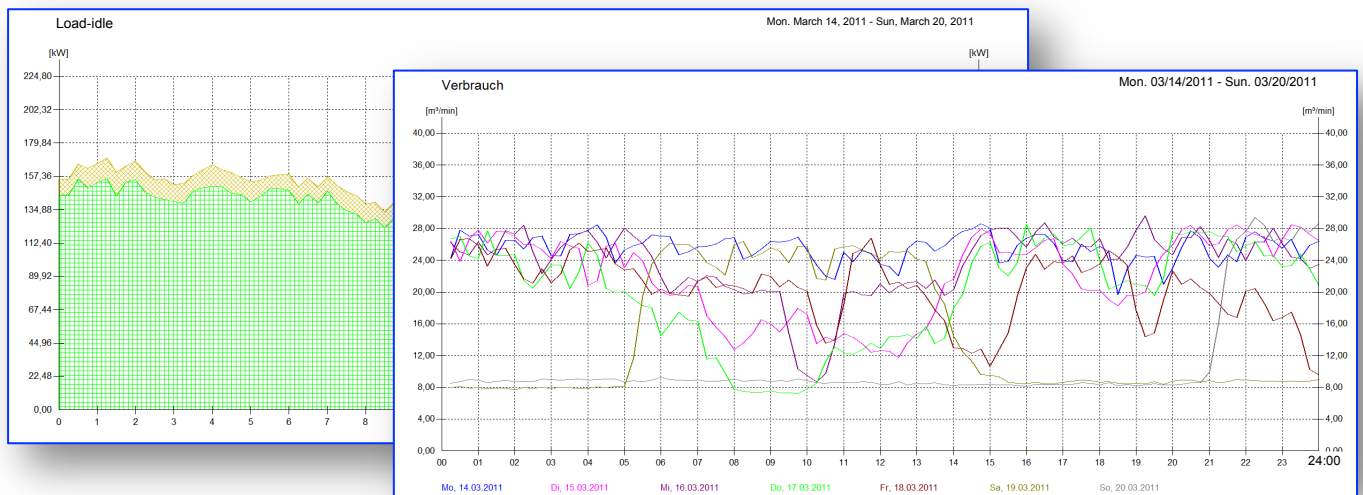
Continuous measurement for one week, at one-second resolution.

Measurement report, printed and as PDF:

- Seven daily evaluations



- Weekly charts
 - Energy split: loaded / unloaded
 - Air consumption



airleader measurement and simulation software

Individual compressor results:

Compressor data (measurement Mon. March 14, 2011 - Sun, March 20, 2011)												
channel	compressor	Leistung [m³/min]		Last [kW]		Leerlauf [kW]	Messdauer [hh:mm:ss]	Laufzeit [%]	Lastzeit [hh:mm:ss]		Leerlaufzeit [hh:mm:ss]	
		min	max	min	max							
1	Kaerer CSD 122-8		12,0		75,00	0,00	168:00:00	0,00	00:00:00	0,00	00:00:00	0,00
2	Kaerer CS 75-7.5		7,2		45,00	0,00	168:00:00	0,00	00:00:00	0,00	00:00:00	0,00
3	Kaerer CS 75-7.5		7,2		52,17	14,02	168:00:00	22,07	20:16:50	81,67	06:47:50	18,22
4	Kaerer SK 19-7.5											
5	Kaerer CS 76-7.5											
6	Kaerer CS 76-7.5											
7	Kaerer CS 76-7.5											
8	Kaerer CSD 122-8											

Motor	load	Total energy [kWh]			Compressed air m³	Cost calculation (€)		
		Starts	cycles	In total		load running	idle	In total
0	0			0,00	0,0	0,00	0,00	0,00
0	0			0,00	0,0	0,00	0,00	0,00
77	82			1.579,59	13.081,0	157,96	10,15	168,11
0	0			0,00	0,0	0,00	0,00	0,00
127	846			2.651,92	20.857,0	265,19	79,84	345,03
3	3			9.344,65	72.483,0	934,47	0,03	934,50
5	5			8,49	64,0	0,85	0,17	1,02
299	2.093			10.220,17	89.866,0	1.022,02	113,91	1.135,93

Current compressed-air generation system:

Location data (Mon, March 14, 2011 - Sun, March 20, 2011)			
company	Erlus		
Location	Neufahrn		
Compressor station	Plant 2 + 3		
Installed compressor delivery quantity	63.8 [m³/min]		
Installed compressor rating	386.0 [kW]		
Operating time per year	365 [days/a]		
Electricity price	0.1000 [€/kWh]		
Measurement data (measurement Mon, March 14, 2011 - Sun, March 20, 2011)			
Measurement duration	168:00:00 [hh:mm:ss]		
Compressed air consumption, summed up	196.351 [m³]		
	load running	idle	In total
Energy consumption	23.805	2.041	25,846 [kWh]
Load/idle share energy	92,1	7,9	100,0 [%]
Specific energy consumption	0,1212	-	0,1316 [kWh/m³]
	Average	Minimum	Maximum
Compressed air consumption	19,5	7,2	30,1 [m³/min]
Power consumption	117,9	43,6	182.1 [kW]
System pressure	6,6	6,1	7.1 [bar]
utilization	30,5	11,3	47,2 [%]
Compressed air energy costs and projections			
Compressed air consumption per year	10.238.302 [m³/a]		
	load running	idle	In total
Energy costs measurement period	2.380,-	204,-	2.584,- [€]
Energy costs per year	124.100,-	10.637,-	134.737,- [€]
Energy cost per m³	0,0132 [€/m³]		

Simulation: what if...?

Airleader MSS evaluates stations measured with the Airleader measuring case and simulates the savings achievable with an Airleader compressor management system.

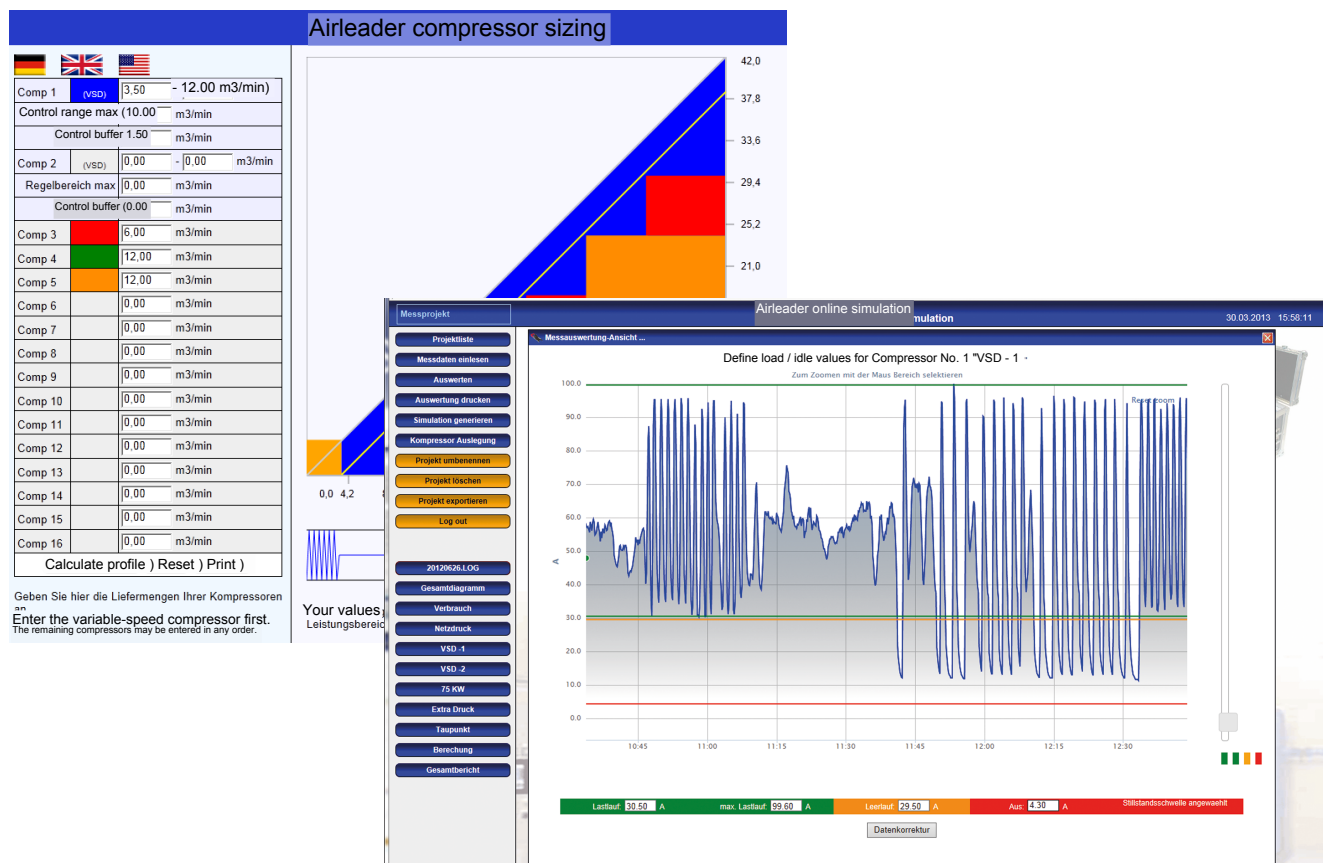
Explore further options:

Change parameters or replace or add more efficient compressors to see the effect on energy efficiency and assess planned investments.

Create any number of simulations from one measurement:

- Existing system with Airleader
- Existing system with new compressors and Airleader
- Entirely new station with Airleader

The simulation shows the future control behaviour and the savings achievable through the planned measures. We guarantee these savings; otherwise, we take the Airleader back free of charge.



Compressed air energy audit (optional)

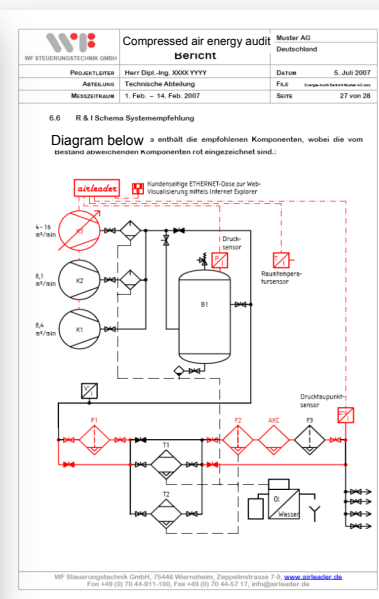
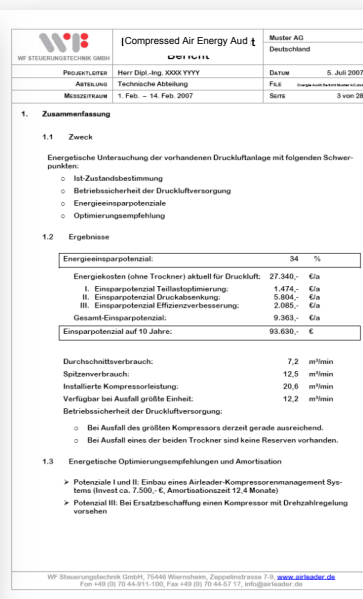
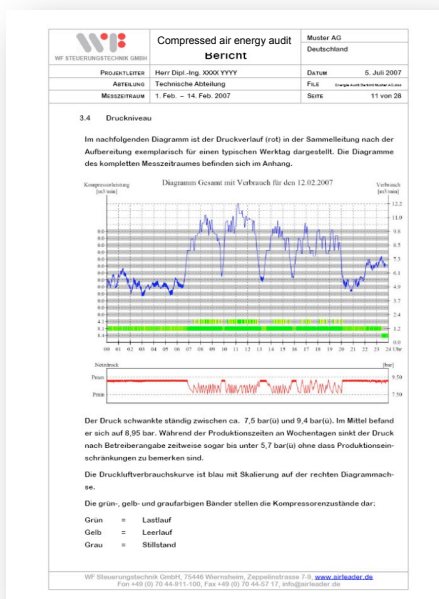
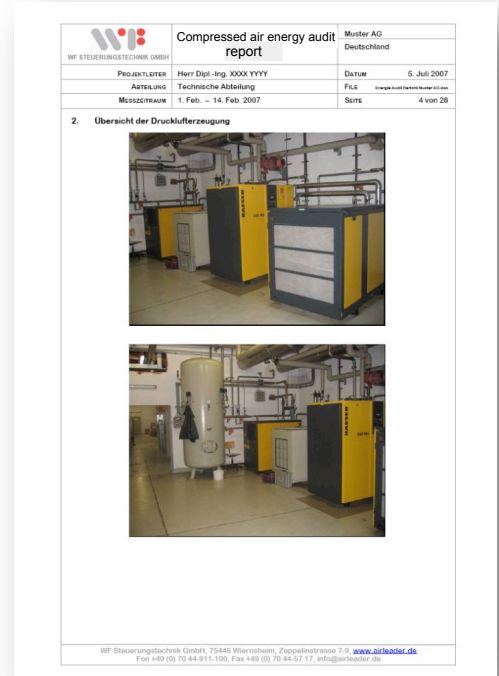
Determines energy saving potential and creates the optimization schedule

Additional evaluations and results of the audit:

- o Determination of all existing energy saving potential
- o Description of abnormalities during the analysis
- Guaranteed savings in kWh/year, simulated with a real Airleader controller
- P&ID of the existing compressed-air generation system up to the network inlet
- o Optimization schedule (manufacturer independent!)
- Recalculation of air-receiver size
- P&ID of the proposed system up to the network inlet
- o Very detailed compressed air energy audit report with meaningful curves in high resolution (10 seconds), derivations and calculation methods in printed and bound form as well as in PDF format.

The result:

- [x] Savings potential identified
- [x] Savings potential quantified
- [x] Necessary measures documented - manufacturer-neutral
- [x] Return on investment is easy to determine
- [x] Action plan – roadmap for efficient compressed air production



Excerpts from the detailed AUDIT report.