



Atlas Copco



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Customer Day 2024
18th January

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Business Development Manager
Blower and LP

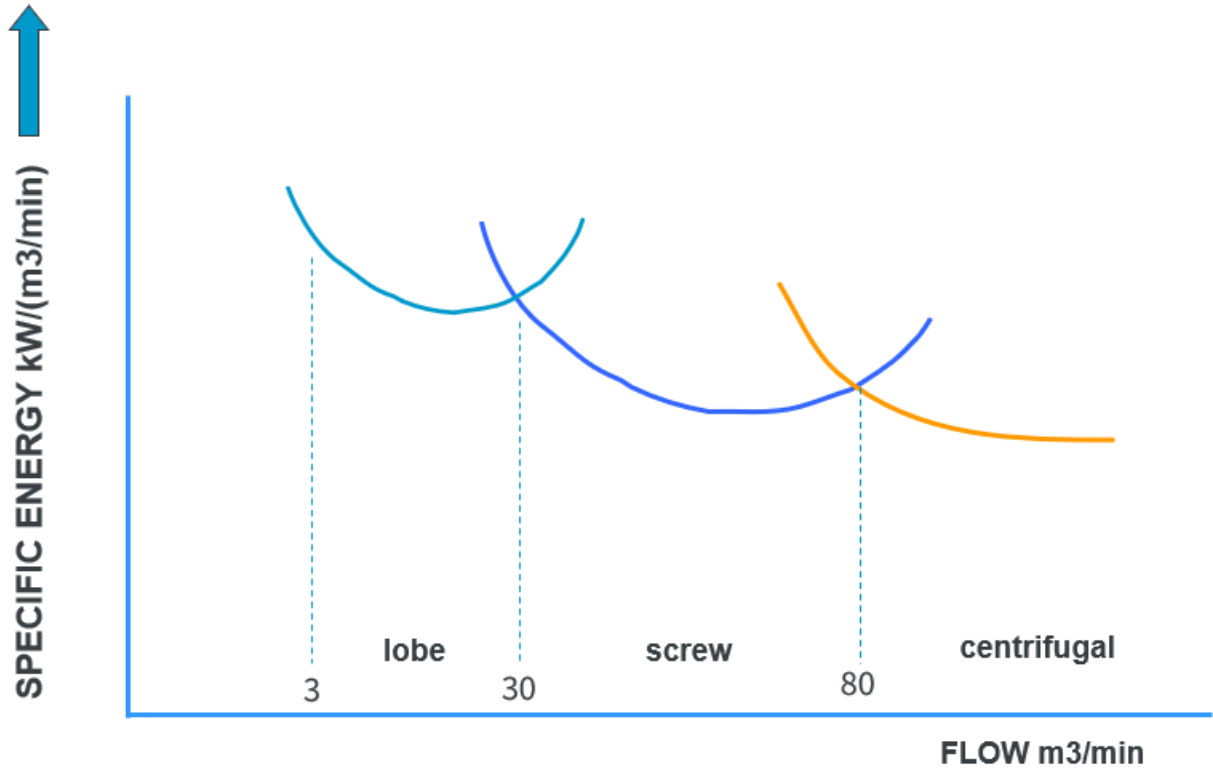
WELCOME TO LOPHE BOOTH
(Low Pressure & High Efficiency)

BASIC THEORY BACKGROUND

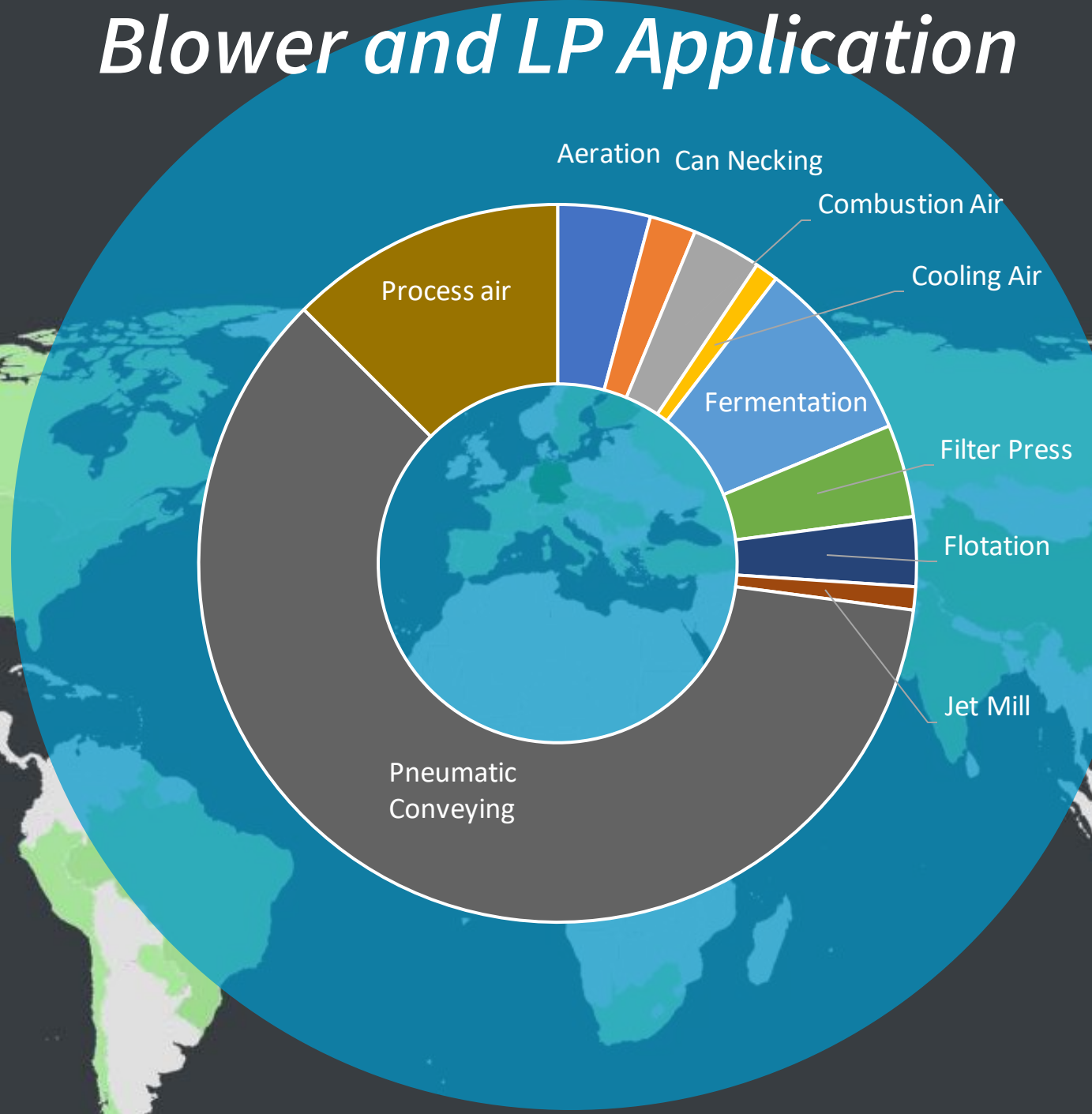
1 bar pressure reduction, reduce 7-8% energy cost



with Atlas Copco Blower, save 20-30% energy cost



Blower and LP Application



BLOWER & LP PRODUCT RANGE



0.1-4bar(g)
1 – 58 psig



0-70.000m³/h
0-41,000cfm



2-1.400kW
3-1850hp

All core technologies available in house!

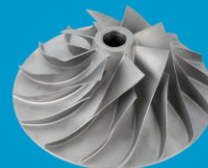
Lobe



Screw



Highspeed turbo



Multistage turbo



Geared turbo



Blower and LP Portfolio



POSITIVE DISPLACEMENT

DYNAMIC

BLOWERS
鼓风机



ZL & ZL VSD



ZS, ZS VSD & ZS VSD+



ZM & ZM VSD



ZB VSD+



ZHA



Optimizer 4.0
for blowers

COMPRESSORS
压缩机



ZA & ZA VSD
ZE & ZE VSD





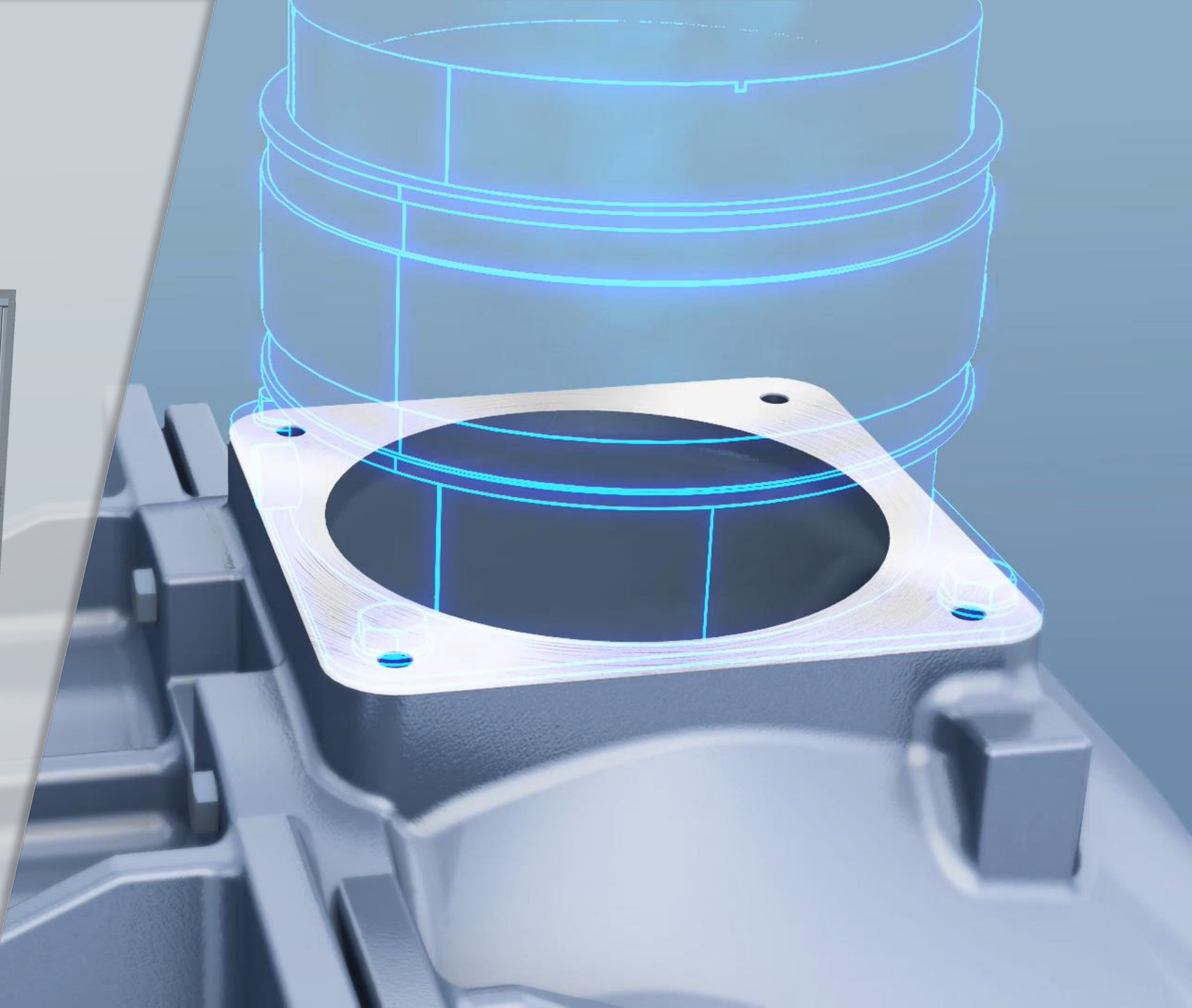
ZHL



Optimizer 4.0

BLOWER & LP PRODUCT RANGE

	Technology	Product	Pressure				Flow (FAD)				
			bar(g)		psig		m ³ /h		cfm		
			min.	max.	min.	max.	min.	max.	min.	max.	
	Lobe	blower	ZL	0.3	1.0	4.4	14.5	30	9,500	20	5,600
	Screw	blower	ZS	0.3	1.5	4.4	22	270	9,100	160	5,300
		compressor	ZE/ZA	1.0	4.0	14.5	58	240	8,900	140	5,200
	Turbo	high speed blower	ZB VSD ⁺	0.3	1.4	4.4	20	1,300	12,000	750	7,100
		geared blower	ZB ⁺	0.3	1.2	4.3	17	6,000	30,000	3,500	17,600
		geared compressor	ZHL/ZH	1.0	4.0	14.5	58	2,400	38,000	1,400	22,000
		multistage blower	ZM	0.1	1.4	1.5	20	350	70,000	200	41,000
	Claw	blower	DZS	0.5	2.3	7.3	33	50	340	30	200

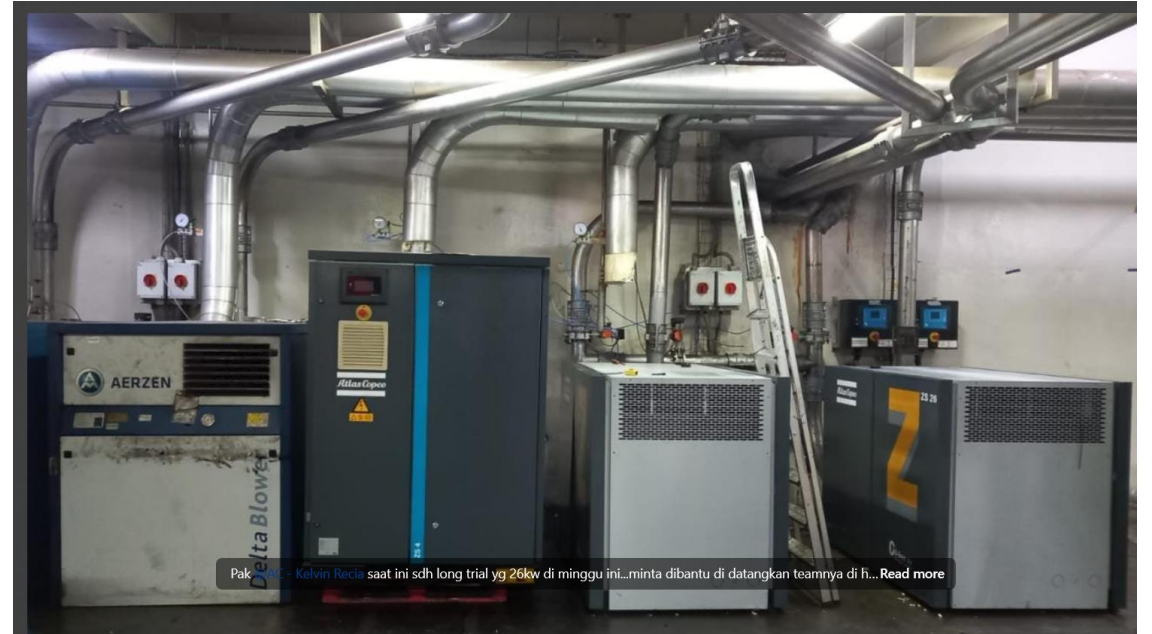


SUCCESS STORY 1

application: pneumatic convey (seasoning transfer) –F&B-



before



after

AERZEN GM150S vs ATLAS COPCO ZS5 inlet 118,5 m³/min at 1 bar

Project

25/10/2023

Aerzen pos. displacement blower		GM 150 S
Medium		Air
Volume handled at intake condition	m ³ /min	118,5
Volume handled at intake condition	m ³ /h	7111,2
Volume handled at normal condition	Nm ³ /h	6540,8
Intake pressure (abs.)	bar	1,00
Intake temperature	°C	20,0
Density at intake conditions	kg/m ³	1,189
Pressure difference	mbar	1000
Discharge pressure (abs.)	bar	2,00
Discharge temperature	°C	119
Blower speed	rpm	1540
Motor speed	rpm	1490
Required power at blower shaft	kW	248
Motor rating	kW	315
Sound pressure level of machine noise		
without hood	dB(A)	104
with hood	dB(A)	84



Tolerances on flow and power at blower shaft
± 5%

measured in free field at 1 m distance from the
outline of the unit (tol. ± 2dB(A) in accordance
with DIN 45 635

Technical data: ZS 5 No Starter 160kW N-1.0-50

Reference conditions	
Absolute inlet pressure	1 bar(a)
Relative humidity	0 %
Air inlet temperature	20 °C
Cooling air inlet temperature	20 °C

Performance data*1	
Effective working pressure	1000 mbar(g)
- Free air delivery	91.9 m ³ /min
- Inlet lobe	118.6 m ³ /min
- Shaft power	153.7 kW
- Total electrical power input	161.6 kW
- Total specific energy requirements (SER)	105.5 J/l
- Discharge temperature	101 °C

Unit data*3	
Mean sound pressure level*2	80 dB(A)
Cooling air flow	2.22 m ³ /s
Oil capacity	85 l
Length	2300 mm
Width	1756 mm
Height	2100 mm
Net weight	3670 kg

Limitations	
Maximum effective working pressure	1000 mbar(g)
Minimum effective working pressure	300 mbar(g)
Maximum ambient temperature	50 °C
Minimum ambient temperature	0 °C
Maximum cooling air temperature	50 °C
Minimum cooling air temperature	-20 °C
Maximum altitude (above sea level)	1000 m

Installation connections	
Compressed air outlet	DN250-PN10
Electrical cable entry size	360x180mm

Main drive motor	
Motor manufacturer	WEG
Motor nominal power	160 kW
Motor service factor	1.17
Motor efficiency class	IE4_IEC 60034_30
Motor full load efficiency	96.3 %
Motor voltage	400 V
Motor frequency	50 Hz
Motor synchronous speed	2984 rpm
Insulation class	H
Power factor	0.87

SAVING POWER = 62%

SAVING ELECTRICAL COST
= 95.3 KW x 8000 H x IDR 1200
= approx MIDR 914,8 / yr

SUCCESS STORY 2

application: aeration WWTP (TEXTILE INDUSTRY)



before



after

5 unit B-TOHIN BLOWER vs 3 unit ATLAS COPCO ZS5

Item	Operating pressure in mbarg	ATLAS COPCO ZS5				B-TOHIN Blower		
		Model	FAD m3/min	Intake flow equivalent with Lobe inlet m3/min	Package power (kW)	Model	Intake flow in m3/min	Corrected power as per intake flow (kW)
1	600	ZS 5 132kW O-0.8-50	98,85	108,55	123,33	BK 8024	50	78,39
2	600	ZS 5 VSD P&P 132kW J-1.0-50	64,36	70,73	75,49	BK 8024	50	78,39
3	600	ZS 5 VSD P&P 132kW J-1.0-50	64,36	70,73	75,49	BK 8024	50	78,39
4						BK 8024	50	78,39
5						BK 8024	50	78,39
		TOTAL INLET FLOW	250			250		
		TOTAL POWER CONSUMPTION (kW)	274,31			391,94		
		SER AVERAGE (kW/(m3/min))	1,20			1,57		
		TOTAL POWER SAVING (kW)	117,63					
		TOTAL POWER SAVING/YEAR (IDR)	1.223.323.816					

Old equipment (Brand, Technology)	5x B-TOHIN roots blower 75kW
Atlas Copco Solution (Equipment)	1x ZS5 FS 132 kW + 2x ZS5 VSD 132 kW
Yearly savings energy %	31%
Yearly savings energy (kWh)	117,63*8000 = 941.040
Yearly savings environment (ton carbon emissions)	941.040*0.997 = Approx 938 ton carbon emissions



SUCCESS STORY 3

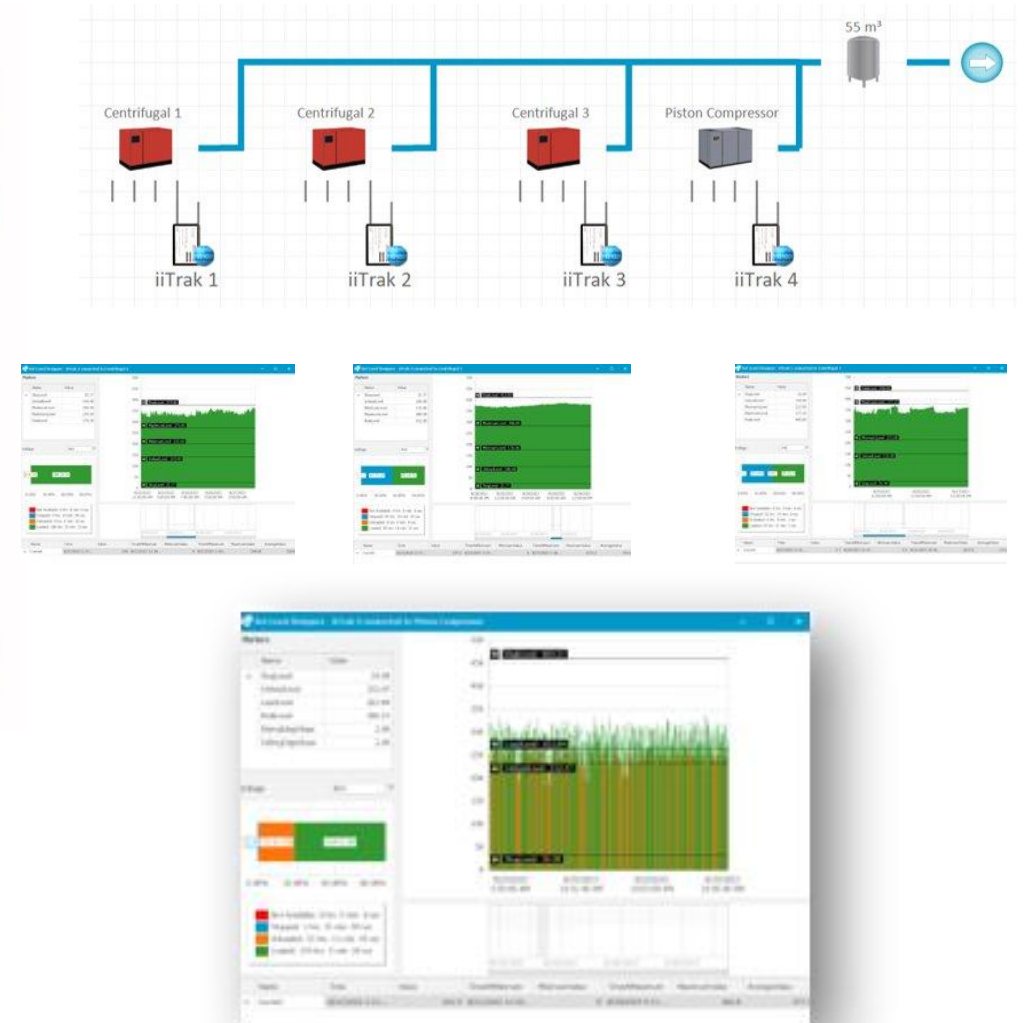
application: Process air (paint industry)

Competition analysis for Blowers scope -

Item	Duty	Drive	Qty	Atlas Copco ZS4				Aerzen D**** H*****				Kaeser Blowers				
				Model	FAD Discharge flow in M3/hr	Package Power in Kw	Model	Intake Flow in M3/hr	Corrected Power As per intake flow	Power Savings	Model	Flow in M3/hr	Package Power in Kw	Power Savings		
1 Pneumatic Conveying Blower																
1.1	2295 m3/Hr FAD at intake conditions Pressure 0.8 Barg continuous Pressure 1.0	Fixed speed	1	ZS4LW1-K-1BAR-50, 75KW Plug n Play	2336	57.9	D52S	2295	62.30	4.40	EBS410 M STC, 75KW	2400	61.50	3.60		
1.2	2000 M3/hr FAD at intake conditions Pressure 0.8 Barg continuous Pressure 1.0	Fixed speed	1	ZS4LW1-I-1BAR-50, 75KW Plug n Play	2039	49.9	D36S	2000	53.04	3.14	EBS410 M STC, 75KW	2400	52.90	3.00		
1.3	2000-2295 m3/Hr FAD at intake conditions Pressure 0.8 Barg continuous	Variable speed	1	ZS4LVSD 75KW J-1.0 No Starter	2336	57.9	D36S	2336	61.65	3.75	EBS410 M SFC, 75KW	2400	61.20	3.30		
1.4	1458-1075 m3/Hr FAD at intake conditions Pressure 0.8 Barg continuous	Variable speed	2	ZS4L VSD-C-1BAR-50-37KW No Starter	1458	36	D24S	1458	39.37	6.74	DBS221 M STC, 37Kw	1450	37.93	1.93		
1.5	1458 m3/Hr FAD at intake conditions Pressure 0.8 Barg continuous	Fixed speed	1	ZS4L-E-1BAR-50-45KW No Starter	1447	35.1	D24S	1458	39.37	4.27	DBS221 M SFC, 37Kw	1450	37.93	2.83		
1.6	1458-1075 m3/Hr FAD at intake conditions Pressure 0.8 Barg continuous	Variable speed	1	ZS4L VSD-C-1BAR-50-37KW No Starter	1458	36	D24S	1458	39.37	3.37	DBS221 M SFC, 37Kw	1450	37.93	1.93		
1.7	2295m3/Hr FAD at intake conditions Pressure 0.8 Barg continuous	Fixed speed	3	ZS4LW1-K-1BAR-50, 75KW Plug n Play	2336	57.9	D52S	2295	59.29	4.17	EBS410 M STC, 75KW	2400	61.50	10.80		
1.8	980m3/Hr FAD at intake conditions Pressure 0.8 Barg continuous	Fixed speed	1	ZS4LW1-C-1BAR-50 Plug n Play	1126	27.7	D19S	980	31.35	3.65	DBS221 M STC, 37Kw	1320	29.78	2.08		
1.9	1075m3/Hr FAD at intake conditions Pressure 0.8 Barg continuous	Fixed speed	1	ZS4LW1-C-1BAR-50 Plug n Play	1126	27.7	D19S	1075	33.24	5.54	DBS221 M STC, 37Kw	1320	29.78	2.08		
1.10	1075/900m3/Hr FAD at intake conditions Pressure 0.8 Barg continuous	Variable speed	1	ZS4L VSD-C-1BAR-50-37KW	1075	27.7	D19S	1075	33.24	5.54	DBS221 M SFC, 37Kw	1320	29.78	2.08		
1.11	1000m3/Hr FAD at intake conditions Pressure 0.8 Barg continuous	Fixed speed	1	ZS4LW1-C-1BAR-50 Plug n Play	1126	27.7	D19S	1000	32.77	5.07	DBS221 M STC, 37Kw	1320	29.78	2.08		
									Power Savings in KW 49.66				Power Savings in KW 35.72			

- Savings against Aerzen D Series – Upto 50KW

SAVING ELECTRICAL COST
 = 49.66 KW x 8000 H x IDR 1200
 = approx MIDR 476 / yr



REMEMBER THE 3 LP SAVING INGREDIENTS :

- > FLOW > PRESSURE = +++ SAVINGS
- X REGULATING VALVE = V DEDICATED LP UNITS
- < 1.5 BARG USE BLOWER, < 4 BARG USE LP COMPRESSOR

I  LoPHE “delivering your flow with love”





WANT TO KNOW MORE?
SCAN HERE!



CONTACT PERSON



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BUSSINESS DEVELOPMENT MANAGER BLOWER & LP COMPRESSOR



Atlas Copco

A detailed technical drawing of a mechanical assembly, likely a compressor or engine component, rendered in white lines on a blue background. The drawing includes various parts such as gears, shafts, and housing components, with some parts labeled with alphanumeric codes like 'C-C-103', 'C-C-104', 'C-C-105', and 'C-C-106'. The drawing is oriented diagonally, with the top right corner of the image showing the most detail.