




Atlas Copco



Innovation Through Atlas Copco Blowers and Low Pressure

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NOKIA



**“We didn’t do
anything wrong,
but somehow, we
lost”.**

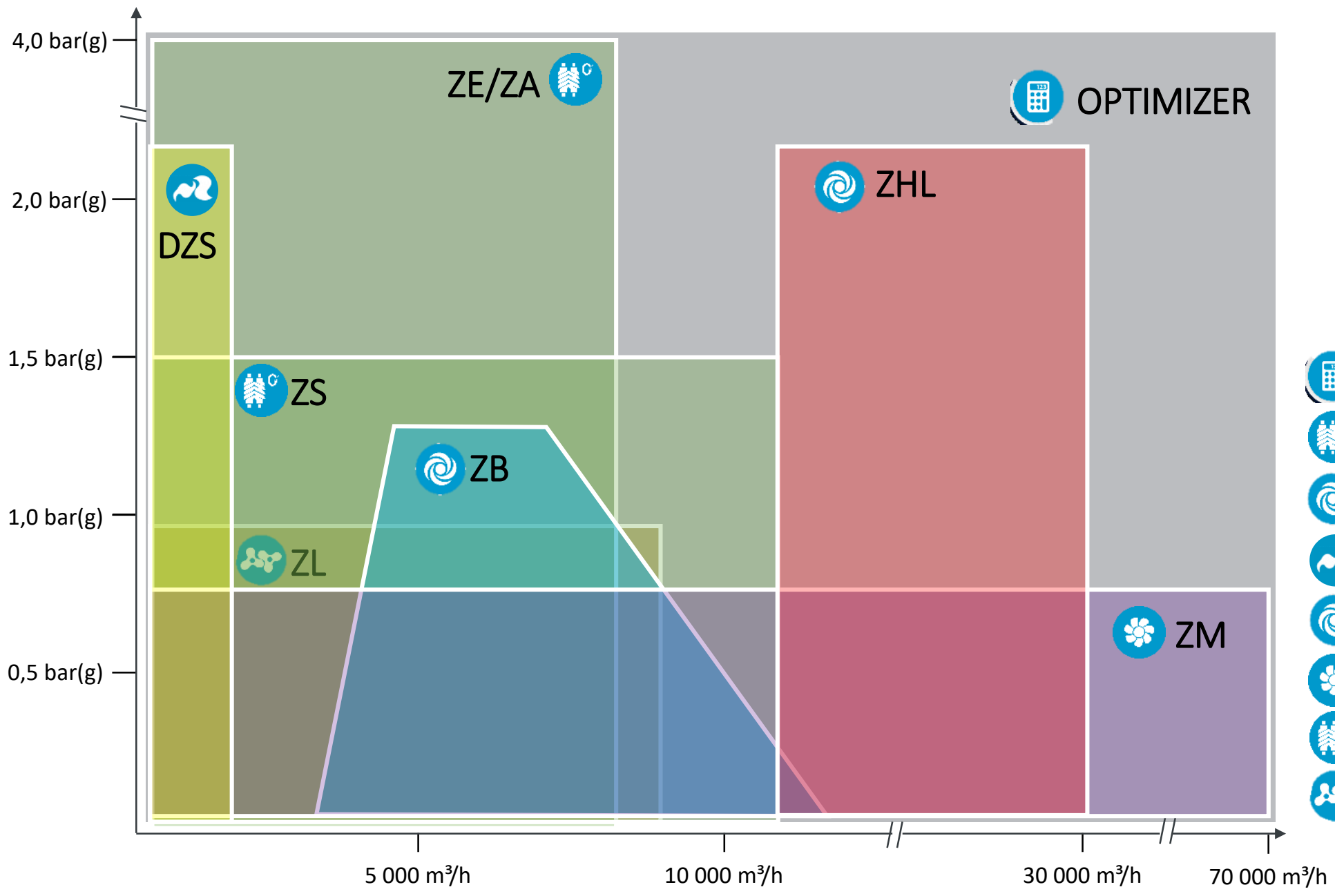
1 bar pressure reduction, save 7-8% energy cost











With Atlas Copco Blower, we save 20-30% energy cost

Agenda

1. What is Blower or LP Compressor?
2. Screw Blower
3. Application:
 - a. WWTP → 30% Energy Saving
 - b. Pneumatic Convey → 20-30% Energy Saving
 - c. Textile → >30% Energy Saving
4. QnA Session
5. Call for Action

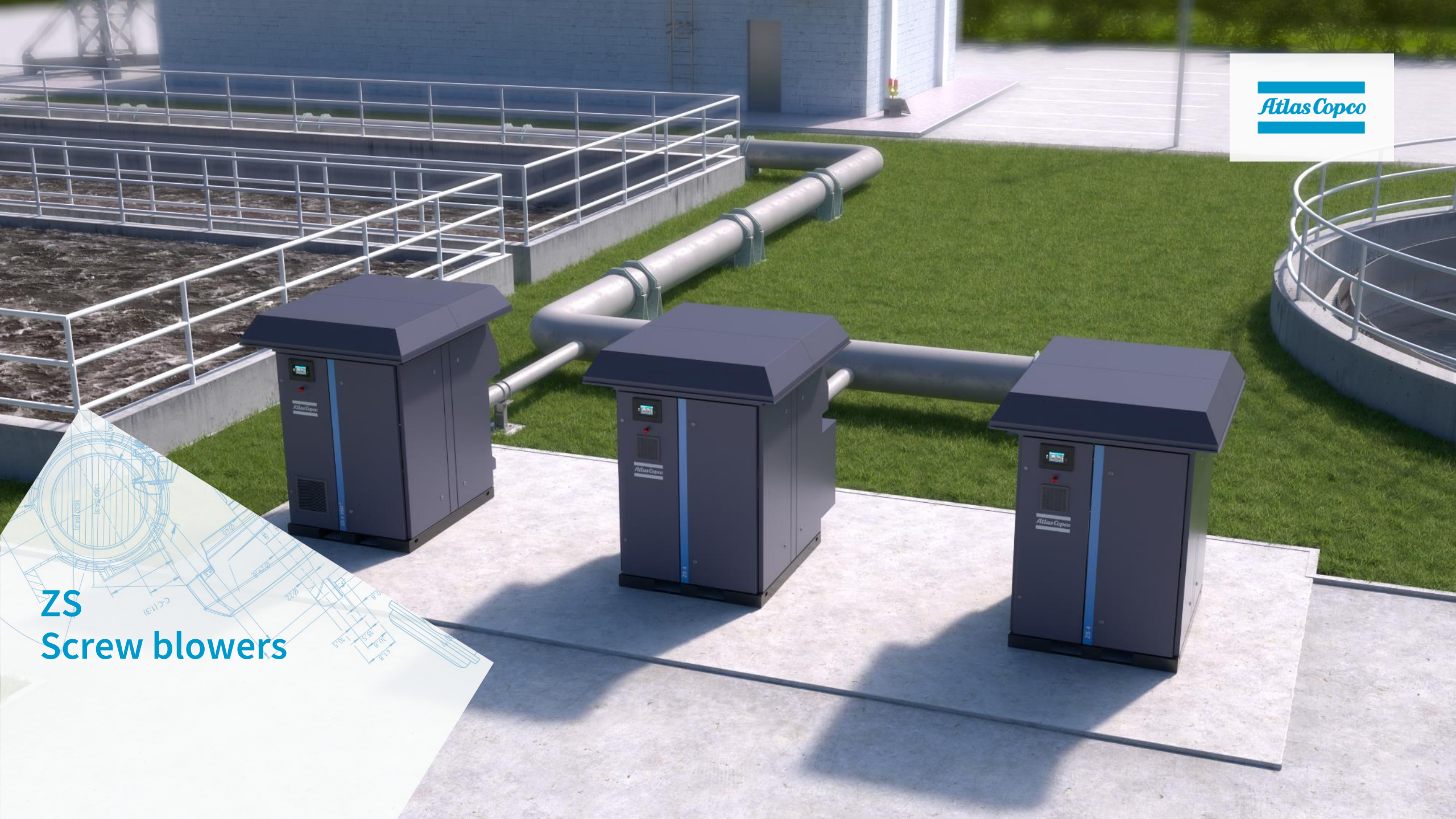


Select the most optimal blower technology!

-  Blower room controller
-  Screw compressor
-  Turbo gear driven blower
-  Claw blower
-  Turbo direct drive blower
-  Multistage blower
-  Screw blower
-  Lobe blower

The Atlas Copco logo is located in the top right corner of the image. It consists of the company name "Atlas Copco" in a blue, italicized serif font, centered between two horizontal blue bars.A technical drawing of a screw blower is overlaid on the bottom left corner of the image. It shows a detailed cross-section of the blower's internal components, including the screws and housing, with various dimensions and labels in blue text.

ZS
Screw blowers



ZS 5 & ZS 5 VSD

Compact Design & Small Foot Print

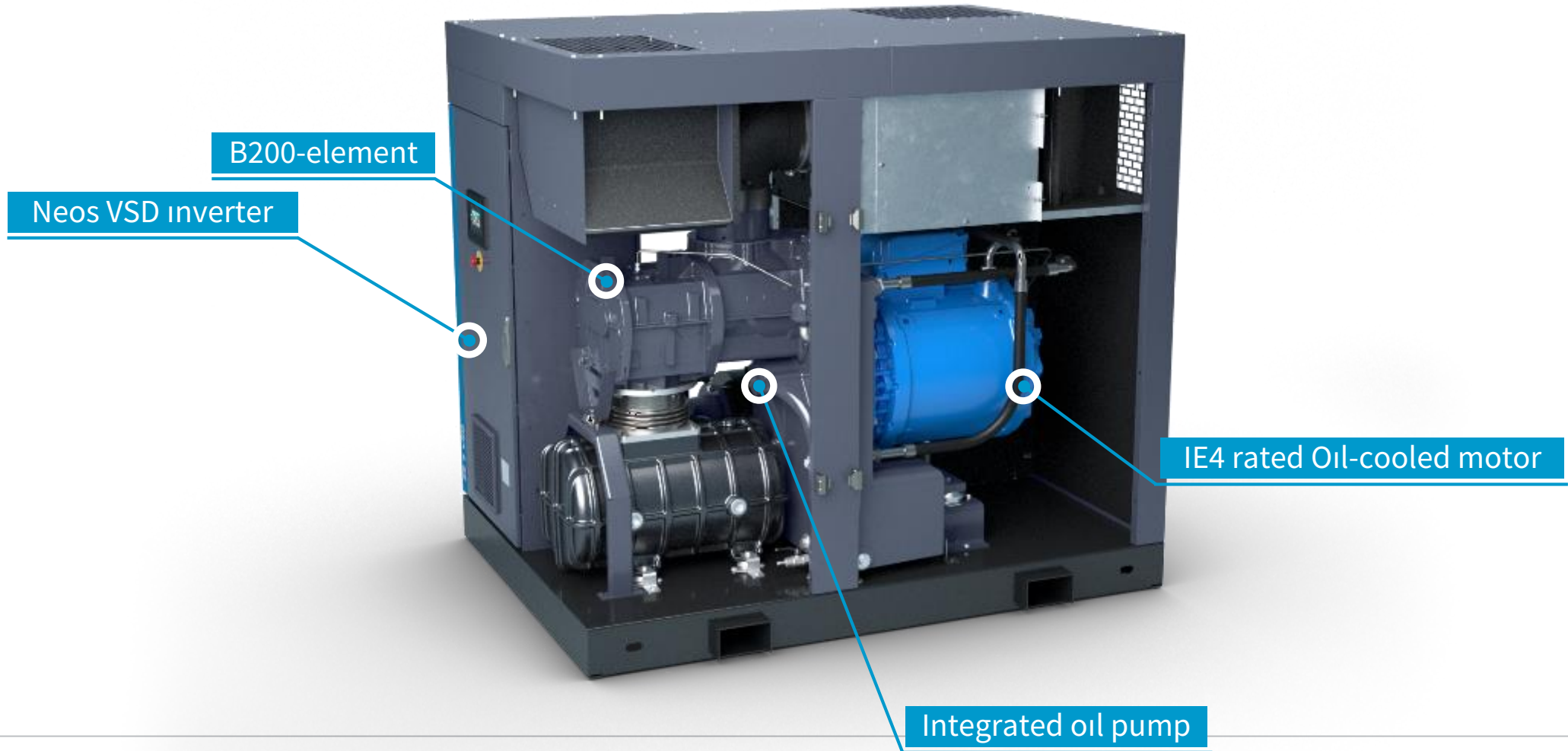
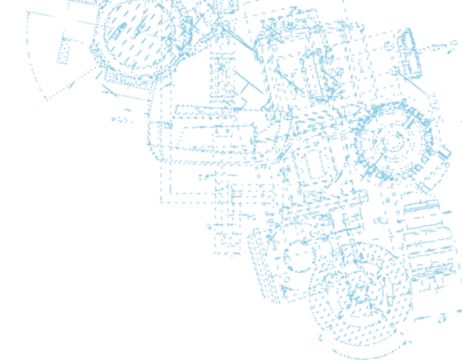


ZS 5 & ZS 5 VSD

Easy Maintenance Access



ZS 5 & ZS 5 VSD



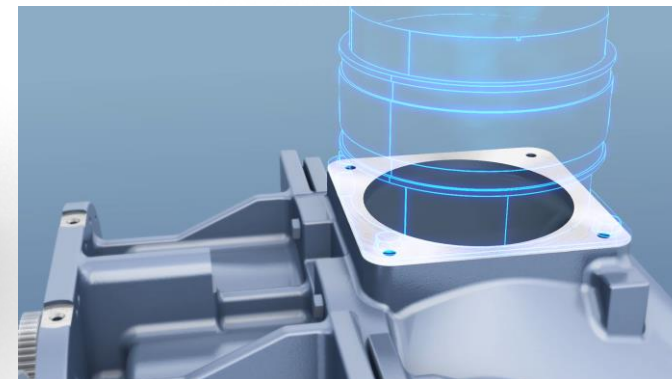
ZS 5 & ZS 5 VSD



High Precision Gearbox

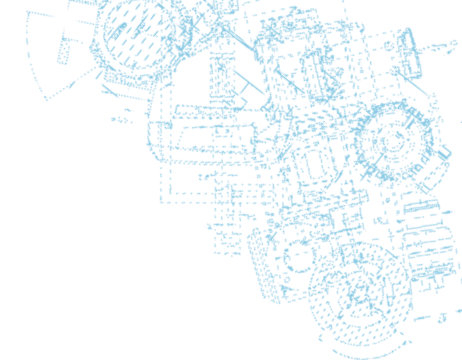


Oil Free Screw Element



ZS 5 & ZS 5 VSD

Smart Monitoring System



ZS 5 & ZS 5 VSD

Well Thought Cooling System and Design



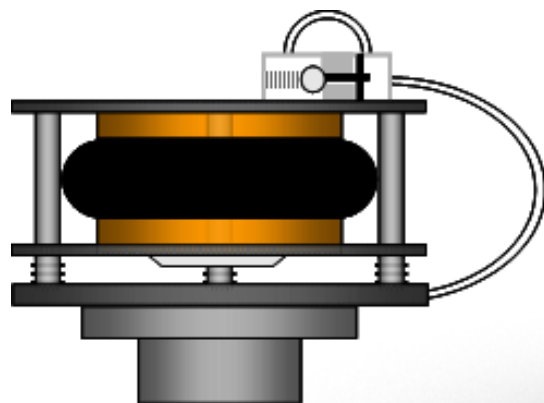
Integrated Inverter



ZS 5 & ZS 5 VSD



Startup & Safety Valve



Integrated Silencer



ZS 5 & ZS 5 VSD

Plug and Play



PREVENTIVE MAINTENANCE PLAN



Replace air filter

Grease motor bearings

Replace oil filter

Replace breather filter

Replace grounding brush

Replace coupling elements

A-visit 4 000 hrs / 1yr

B-visit 16 000 hrs

C-visit 24 000 hrs

Replace gearcase strainer

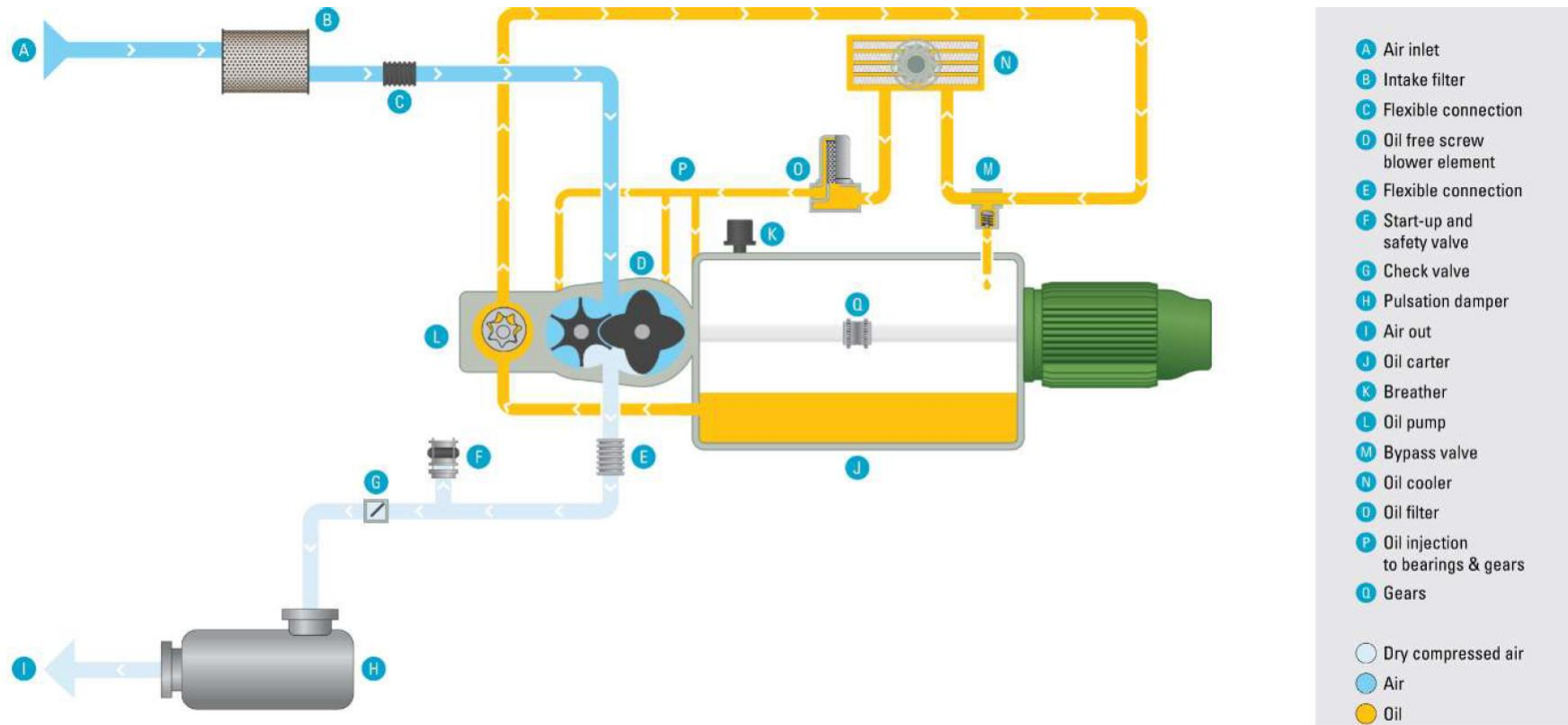
Replace oil

Replace check valve



Working Principle

Outside the blower cubicle





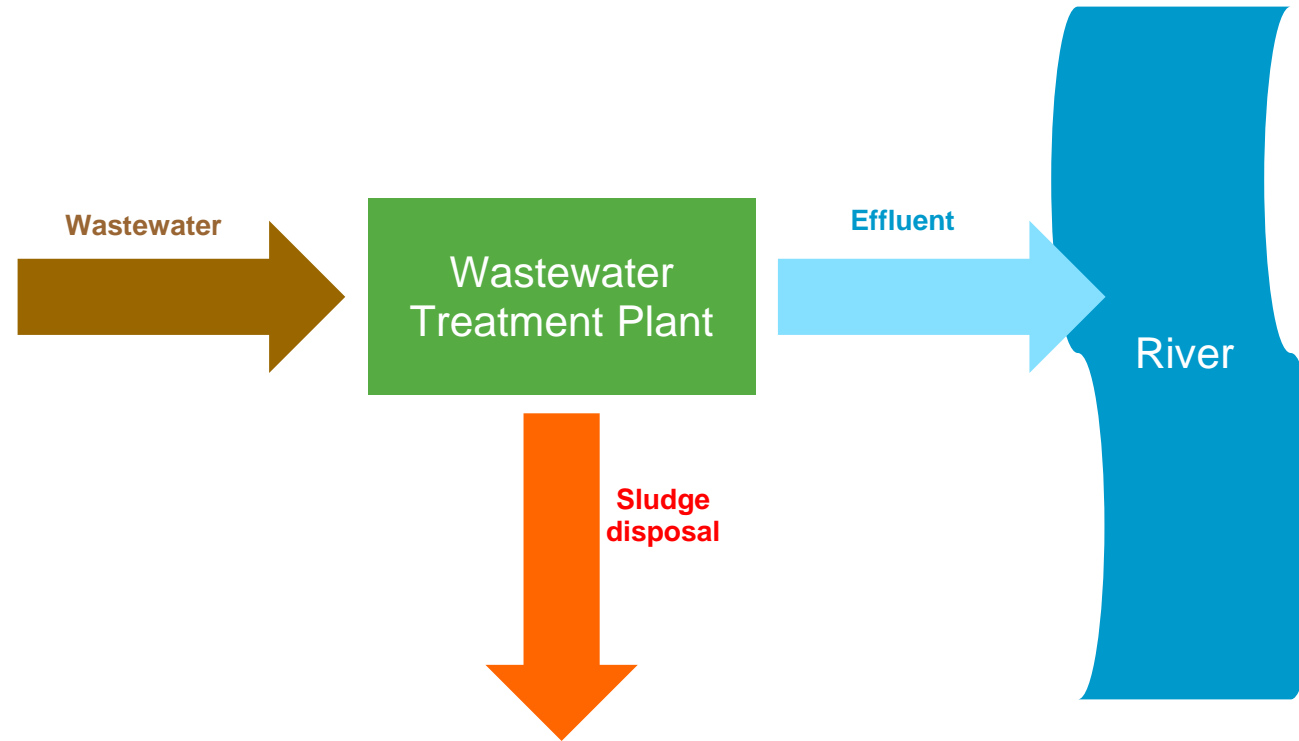
Atlas Copco



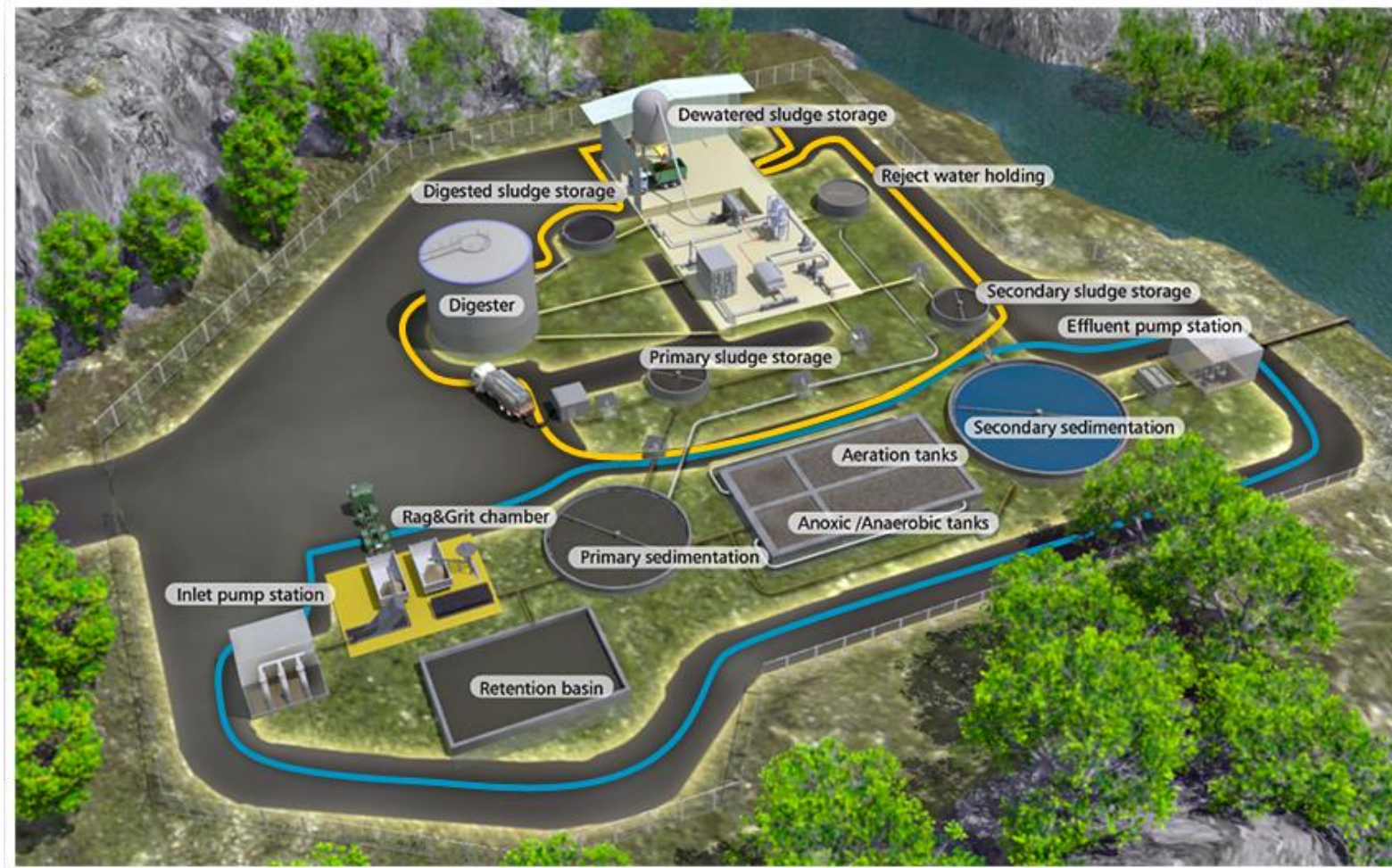
Waste Water Treatment Plant

Waste Water Treatment Process

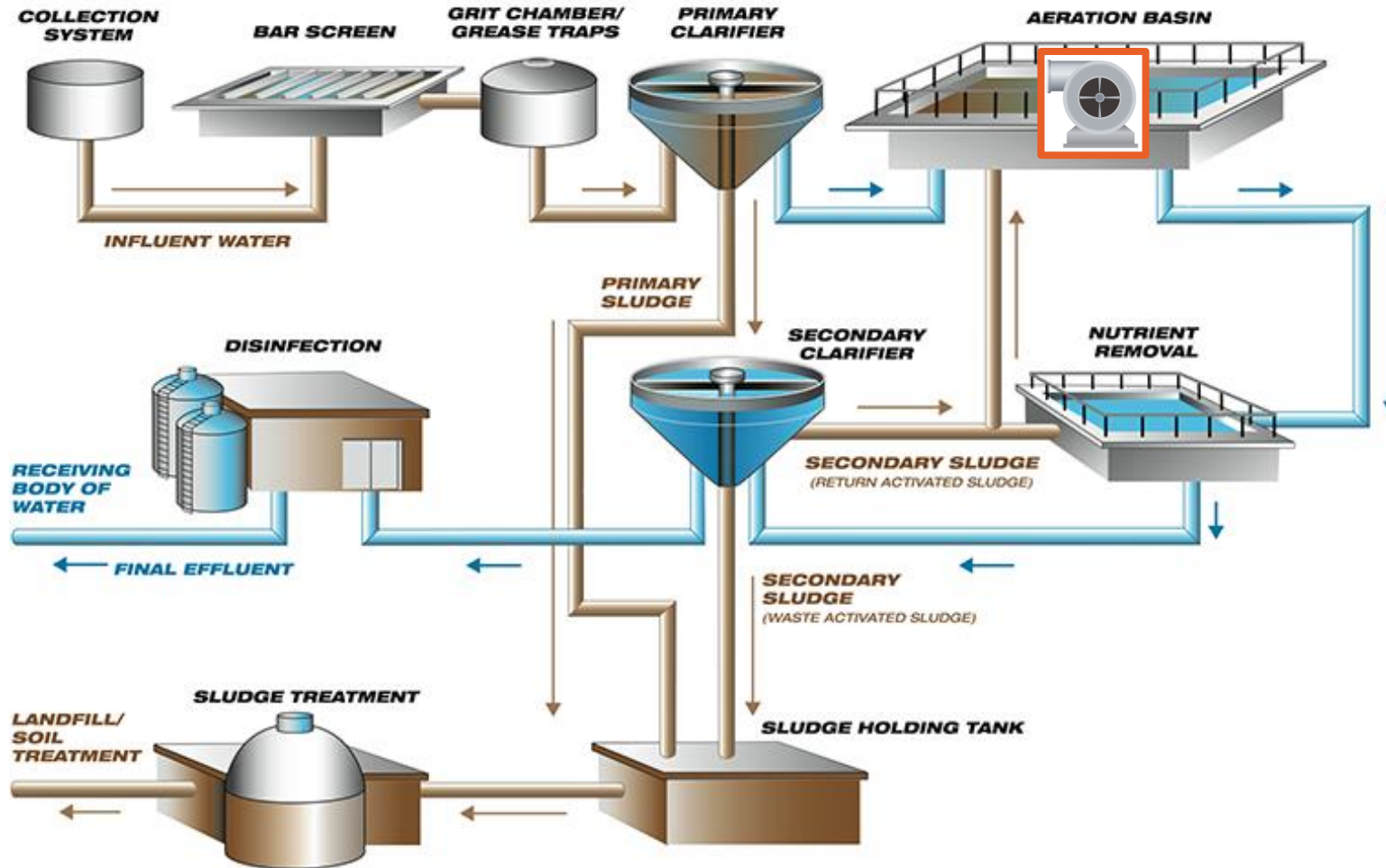
- What is wastewater treatment?
 - Process of removing pollutants from wastewater before re-use or return to eco-system



Waste Water Treatment Plant



Waste Water Treatment Process



Location : Aeration Tank/
Bioreactor Tank/ Bak
aerasi/ Aeration Pond

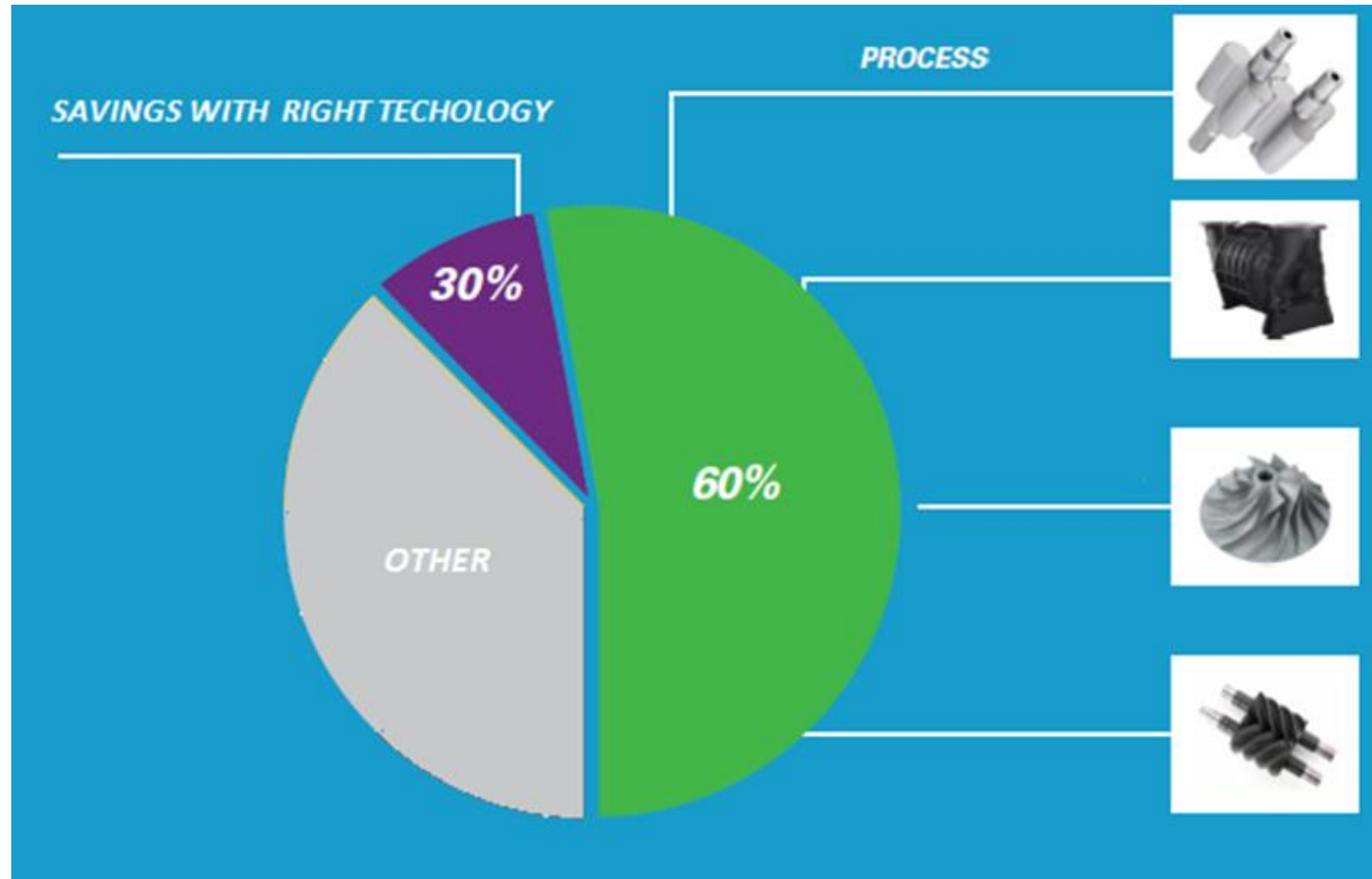
Function :

Create Dissolved oxygen/
Bubbling/ feed the
bacteria in Aeration Tank

Pressure : 300 – 1500
mbar (depend on height
of Tank)

How To Increase The WWTP Efficiency?

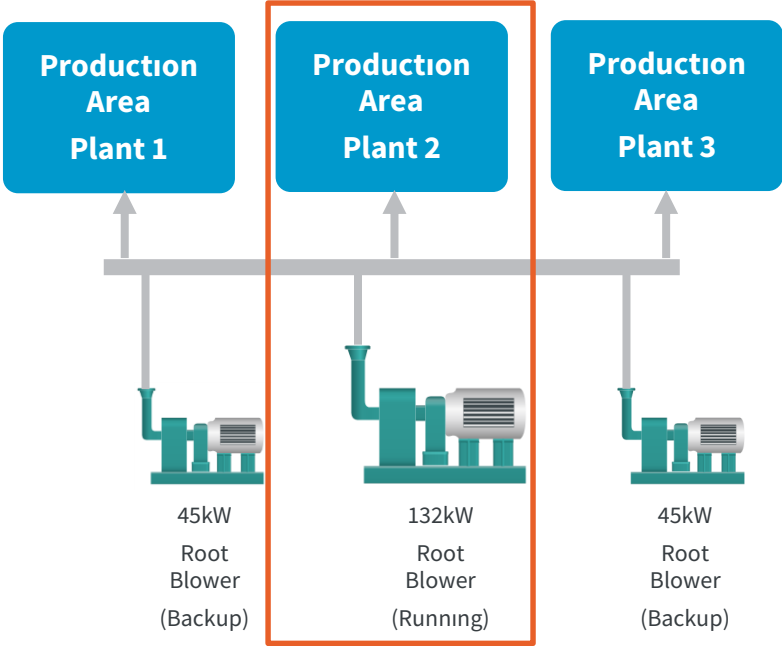
Choose the correct compression TECHNOLOGY!



WWTP Aeration – F&B

Success Story

Pressure Regulated : 1.2 bar
 Pressure Required : 1.1 bar



WWTP Aeration – F&B

Success Story



- We get this project with ZS75+VSD (1 Unit) for 1 Plant
- Previous use 132kW now change to be 75kW
- **Saving is 57kW x 1300 x 8000 IDR 592,800,000/years**
- Our key success of this story is relation and understanding customer
- Our Opportunities is package completed unit with internal VSD.
- Our opportunities is Plug and play unit.
- Customer benefit
 - Saving
 - Investment cost
 - Installation cost
 - Power consumption cost



So energy saving is a win-win business.

Energy Saving Calculation

Pulp and Paper WWTP

Aeration Equipments	Units	Systems Details	Mechanical Aerator (37 kW : 6 units, 55 kW : 4 units)	3 units of ZS110 CA
Total flow required/supplied	cfm	8000		8400
Pressure	mmAq	6000		6000
Package Power per unit	kW			93
Quantity	Unit(s)			3
Total Power	kW		442	279
Running hours/ day	Hours		24	24
Operating days/year	Days		350	350
Running hours/ year	Hours		8400	8400
Electrical cost/ kWh	IDR/kWh		1,400	1,400
Electrical cost/ year	IDR		5,197,920,000	3,281,040,000
Saving cost/ year				1,916,880,000

37% energy saving per year!!

Customer's voice : WWTP

Rouse Hill WWTP

Original :
Tuthill Lobes 5 units

Now :
2 x Tuthill Lobes
3 x New Atlas Copco ZS110-J-
700VSD Scada Controlled.



Customer's feedback :

- Energy Savings [25% at above 50% load and 35% under 50% load]
- Significantly reduce noise

J Gearing for maximum motor speed of 3000 rpm. VCA is C gearing for 4000 rpm motor [75% turndown]

The Atlas Copco logo is positioned in the top right corner of the image. It consists of the company name "Atlas Copco" in a blue, serif font, centered between two horizontal blue bars. The background of the entire image is a photograph of a white concrete mixer truck parked in an industrial yard with large blue storage tanks in the background. A semi-transparent technical drawing of a pneumatic conveying system is overlaid on the left side of the truck, showing various components and dimensions.

Atlas Copco

Pneumatics Conveying

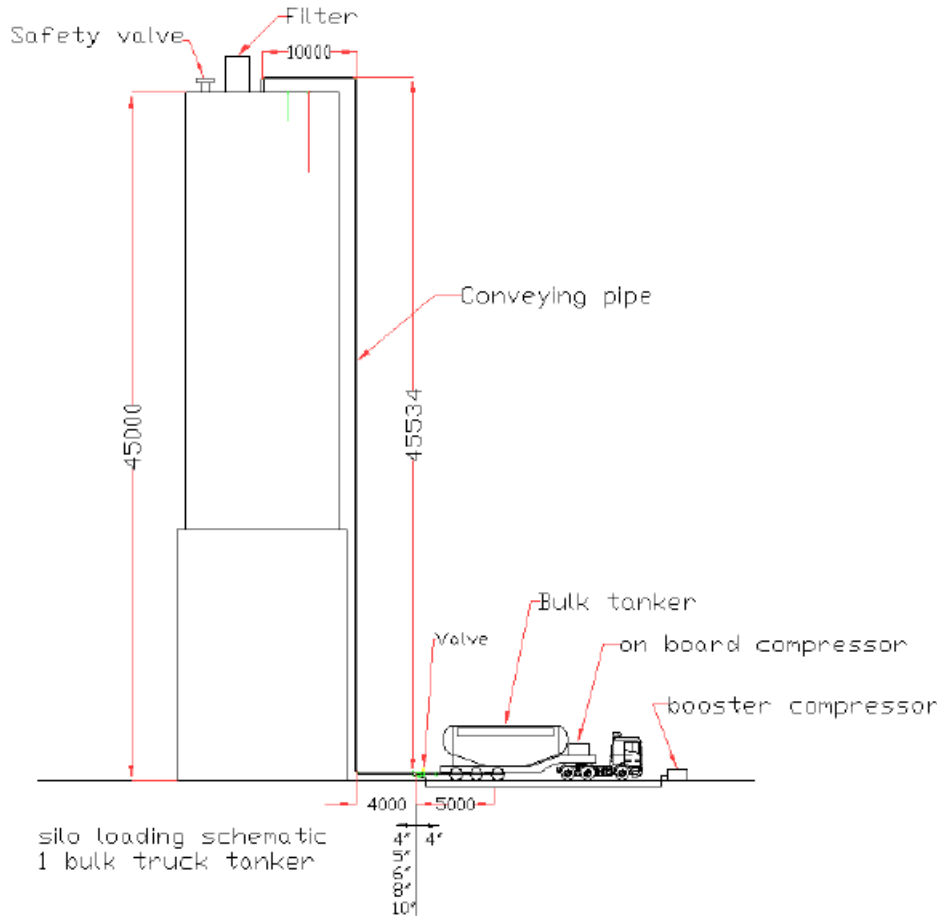
System Improvements

CEPAT

HEMAT

AMAN

Example:



Nr	Description of the test	Tons of cement in the tank	Pressure used in the tank bar	time to make the full load	Time take tons / minute
1	Piston compressor , pressure 1.5bar to 2.5 bar max only	32 tons	1.5 to 2.5 bar as the quality	50 to 80min	0.65 T/M to 0.53 T/M
2	Piston compressor , pressure 1.5bar to 2.5 bar with GA110 2.5 Bar assist at the end of tank	32 tons	1.5 to 2.5 bar as the quality + 2.5 bar assist at the end of tank	35 to 45 min	0.91 T/M to 0.71 T/M
3	ZE4 90 kW / 2.5 bar direct to tank	32 tons	2.5 bar all the time in the tank	32 min	1 T / 1 M
4	ZE / 2.5 bar direct to tank with assist 2.5 bar at the end of the tank	32.5 tons	2.5 bar all the time in the tank	28 min	1.16 T / M

Example



Calculation various pipe sizes (bulk tanker and silo)							
L-horizontal	19 m		L-vertical	45 m	bends	3	
size	compr		pressure	pipe cap.	syst. Cap.	time	filter
	m3/sec	m3/min	barg	tph	tph	min	m2
4"	0,18	10,8	1,8	32	29	62	25
5"	0,25	15	1,8	48	44	41	30
6"	0,35	21	1,8	69	63	26	42
8"	0,5	30	1,8	113	102	16	60

size	m3/hr	Type	bar€	Table		
				m3/hr	power kW	motor kW
4"	648	ZE 2 aircooled - G	2,25	675	42	55
5"	900	ZE 2 aircooled - I	2,25	902	64	75
6"	1260	ZE 3 aircooled - L	2,25	1293	73	90
8"	1800	ZE 4 aircooled - I	2,25	2000	115	132

Bigger pipe diameter

↓

higher system capacity

↓

shorter unloading time

Note: be aware that filters capacity will have to be increased

Pneumatic Convey - F&B

Snack company – Flavour Powder Transfer

	1 barg	Existing **25 (55 kW)	ZS 4 (37 kW)
Inlet flow	m3/min	21.7	21.78
Disc. Press.	bar(g)	1	1
Existing Power	kW	54.3	35.2
Running hrs/ year	hours	6912	6912
Electrical Cost/ kWh	IDR	1,450	1,450
Total Power per year	kWh	380160	255744
Electrical Cost/ year	IDR	551,232,000	370,828,800
Energy Saving	IDR		180,403,200

30% saving!!

	0.8 barg	Existing **25 (37 kW)	ZS26 CA
Inlet flow	m3/min	18.61	18
Disc. Press.	bar(g)	0.8	0.8
Existing Power	kW	36.5	25.3
Running hrs/ year	hours	6912	6912
Electrical Cost/ kWh	IDR	1,450	1,450
Total Power per year	kWh	255744	179712
Electrical Cost/ year	IDR	370,828,800	260,582,400
Energy Saving	IDR		110,246,400

29% saving!!

Pneumatic Convey - PET

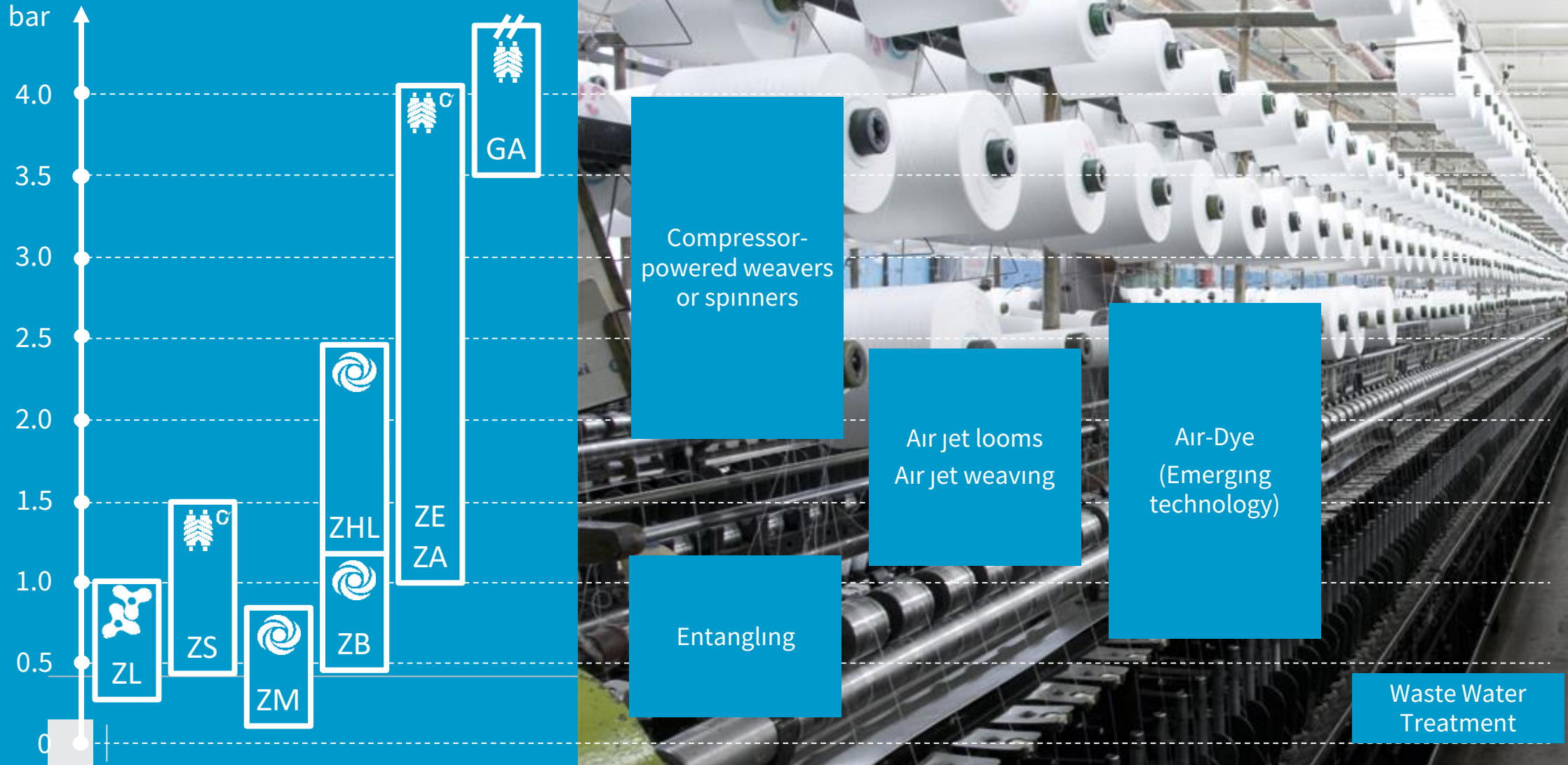
Textile company – West Java

Gas N2 for PET convey	2 barg	Existing 160 kW	ZE4 110 kW
Inlet flow	m3/min	21.7	27
Disc. Press.	bar(g)	2	2
Existing Power	kW	155.8	94
Running hrs/ year	hours	4000	4000
Electrical Cost/ kWh	IDR	1200	1200
Total Power per year	kWh	620000	376000
Electrical Cost/ year	IDR	744,000,000	451,200,000
Energy Saving	IDR		292,800,000

39% saving!!

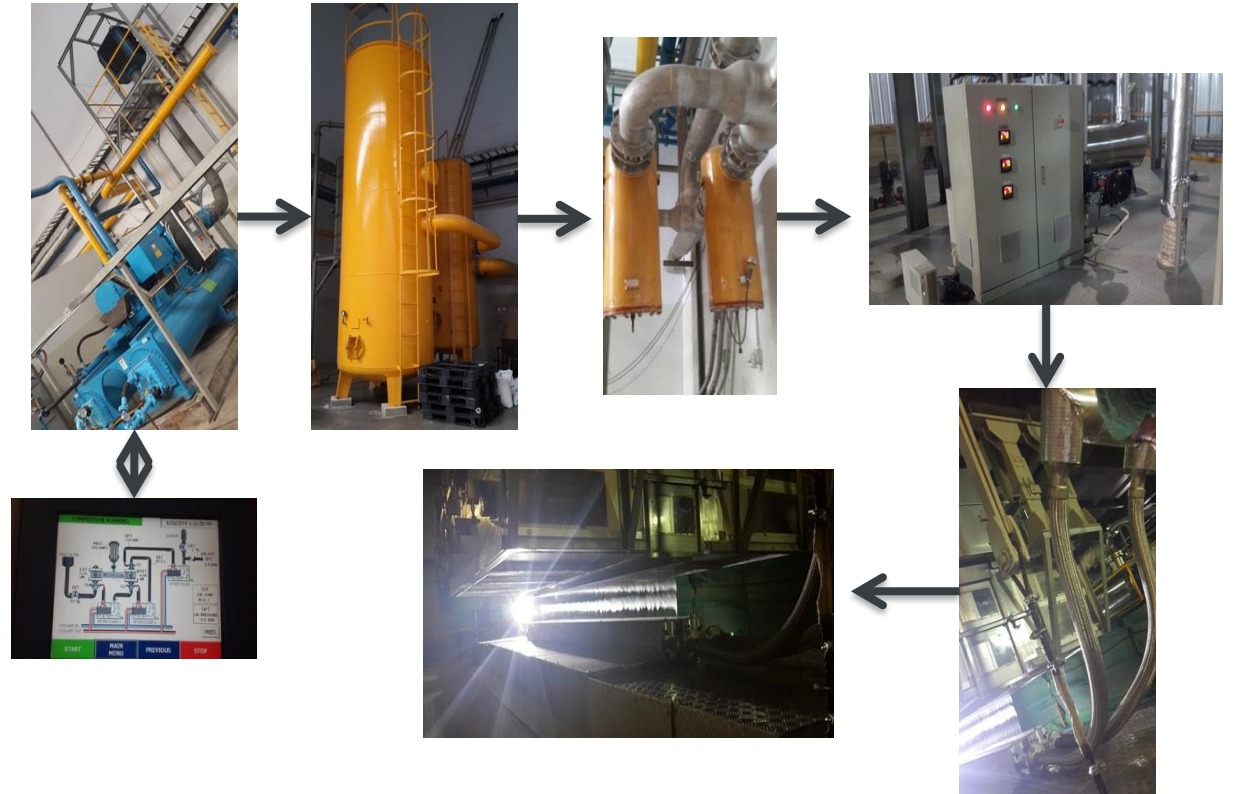
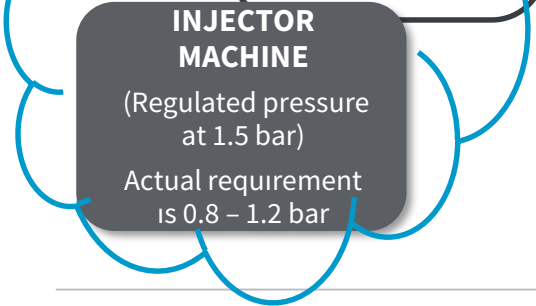
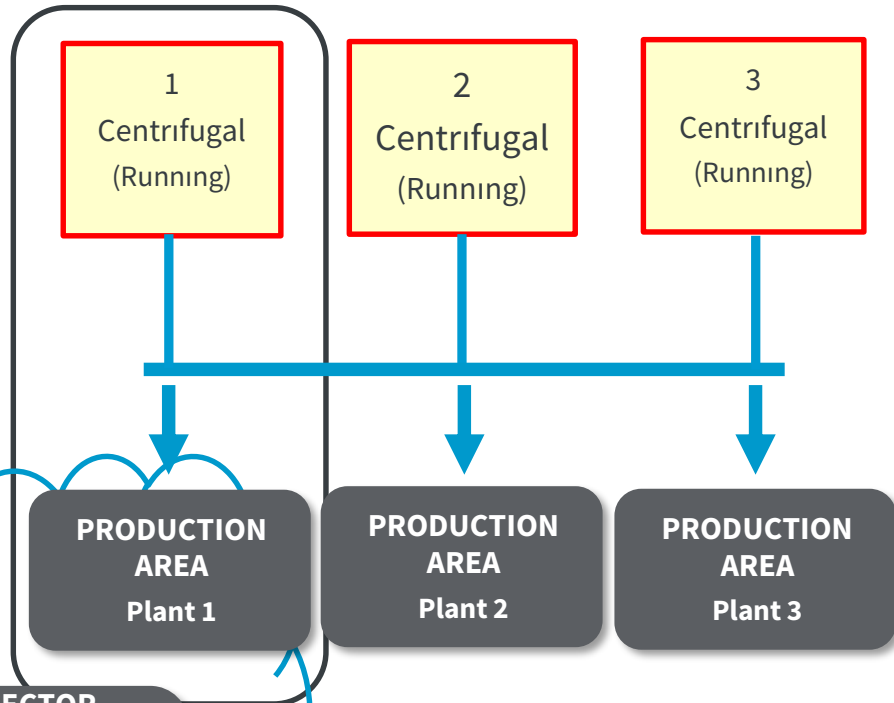


Textile



Customer's Voice

Non-Wover Textile



Customer's Voice

Non-Woven Textile

- We get this project with ZS160+VSD (1 Unit) for 1 Ejector Machine
- Previous use power 235kW now change to be 129kW
- **Saving is 106kW x 1300 x 8000 IDR 1,102,400,000/years**
- Our Opportunities is package completed unit with internal VSD.
- Our opportunities is Plug and play unit.
- Customer benefit
 - Saving
 - Investment cost
 - Installation cost
 - Power consumption cost
 - No Cooling water is needed



So energy saving is a win-win business.



Energy Comparison

Textile-Entangling Process

Comparison

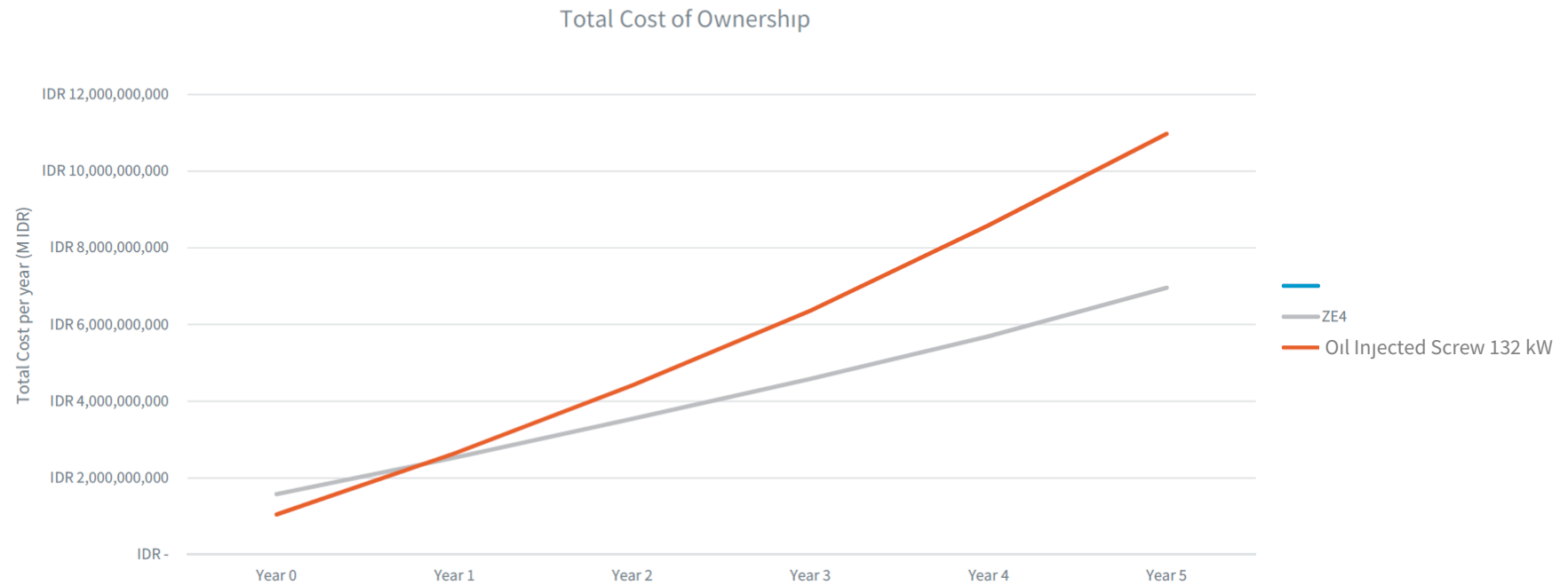
Power at 1.6 bar

Parameters	Units	ZE4 2.25 bar 90 kW	Oil Injected Screw 132 kW
Flow		1560	1640
Pressure (Max)	bar	2.25	5.5
Pressure (Min)	bar	1	3.5
Pressure (Design)	bar	2	3.5
Motor Power	kW	90	132
Package Power (2 bar)	kW	75	140.9
Dryer Power	kW	9.3	5.4
Total Power	kW	84.3	146.3
Running Hours/year	hours	8400	8400
Electricity Cost per kWh	IDR	1160	1160
Total Energy Cost per year	IDR	821,419,200	1,425,547,200

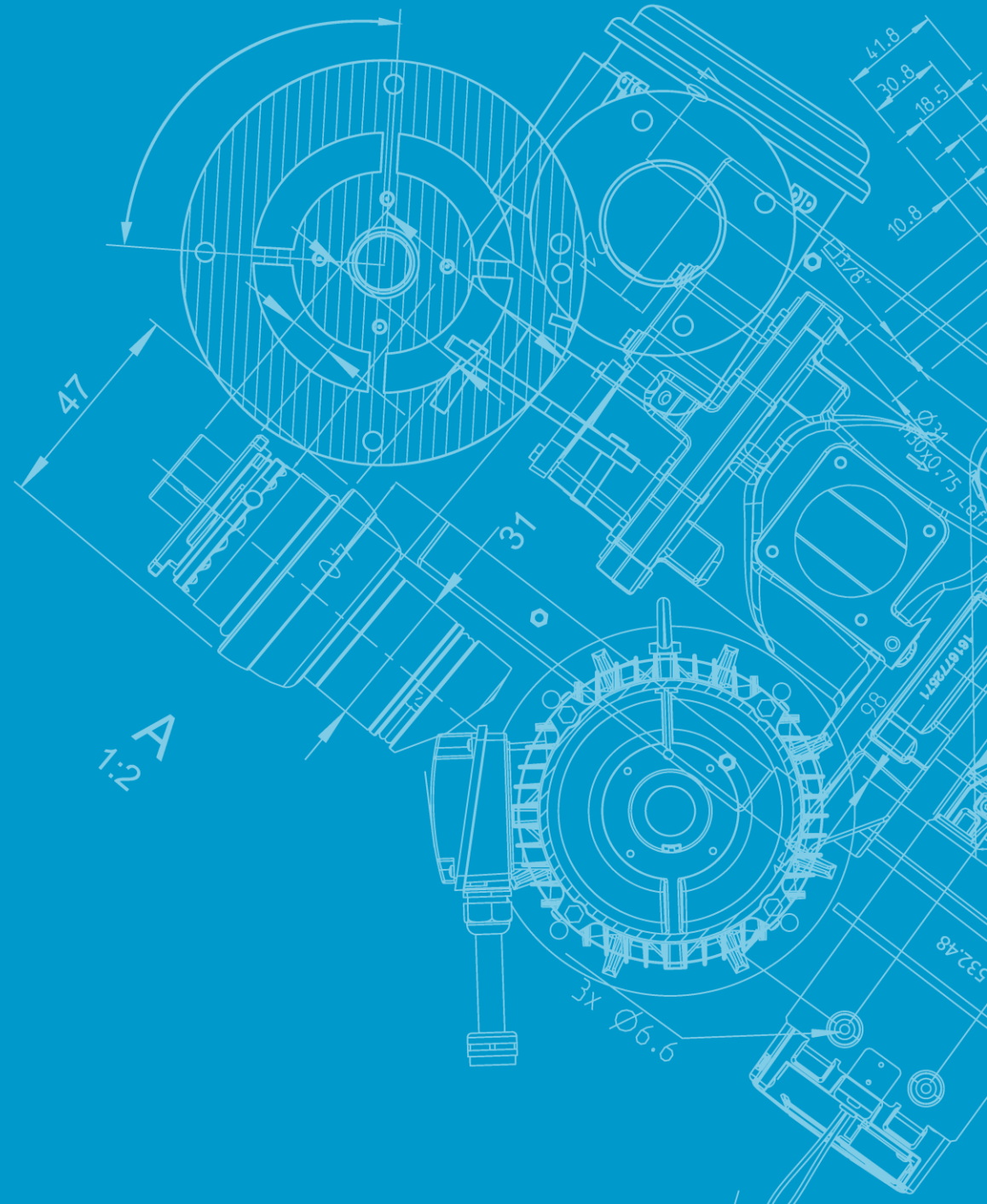
Energy Comparison

Textile – Entangling process

Comparison



Q & A Session





Atlas Copco

All ideas and good thoughts are nothing without action.

Mahatma Gandhi



Actions

FREE CONSULTATION!



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