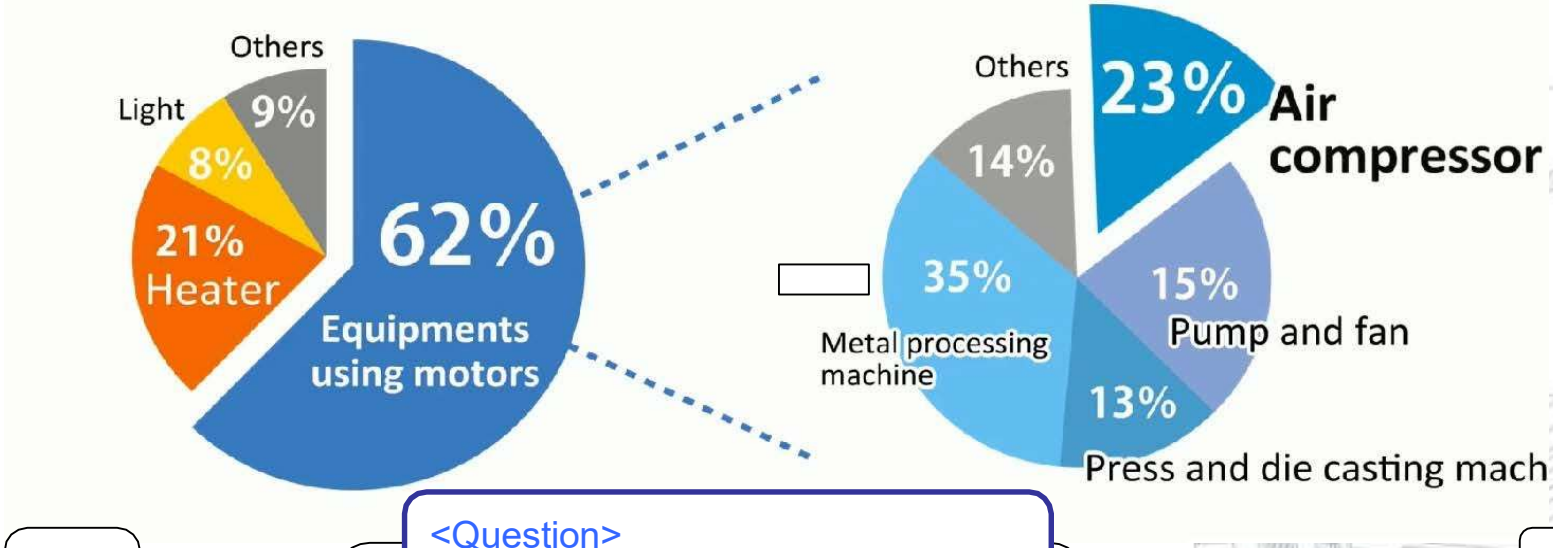
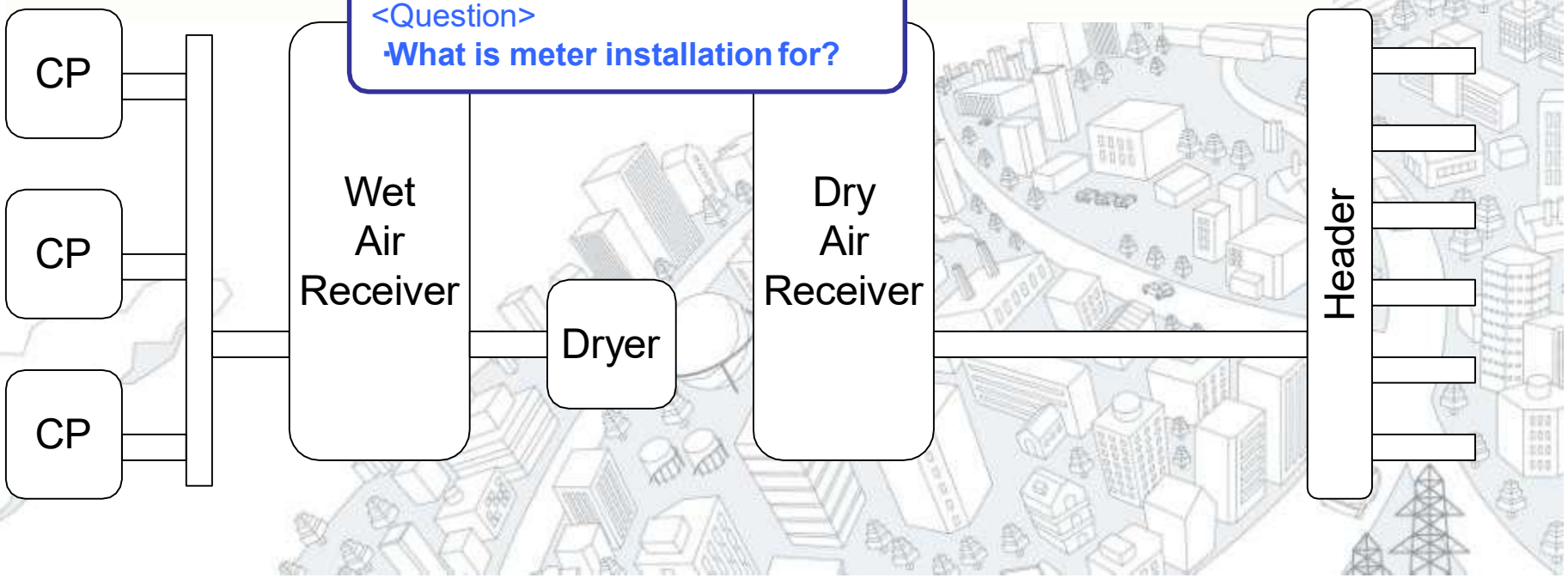
Where the energy comes from

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The amount of energy usage at a factory



<Question>
- What is meter installation for?



Why Air Flowmeter is important for Energy Saving of your factory in operation of compressed air?

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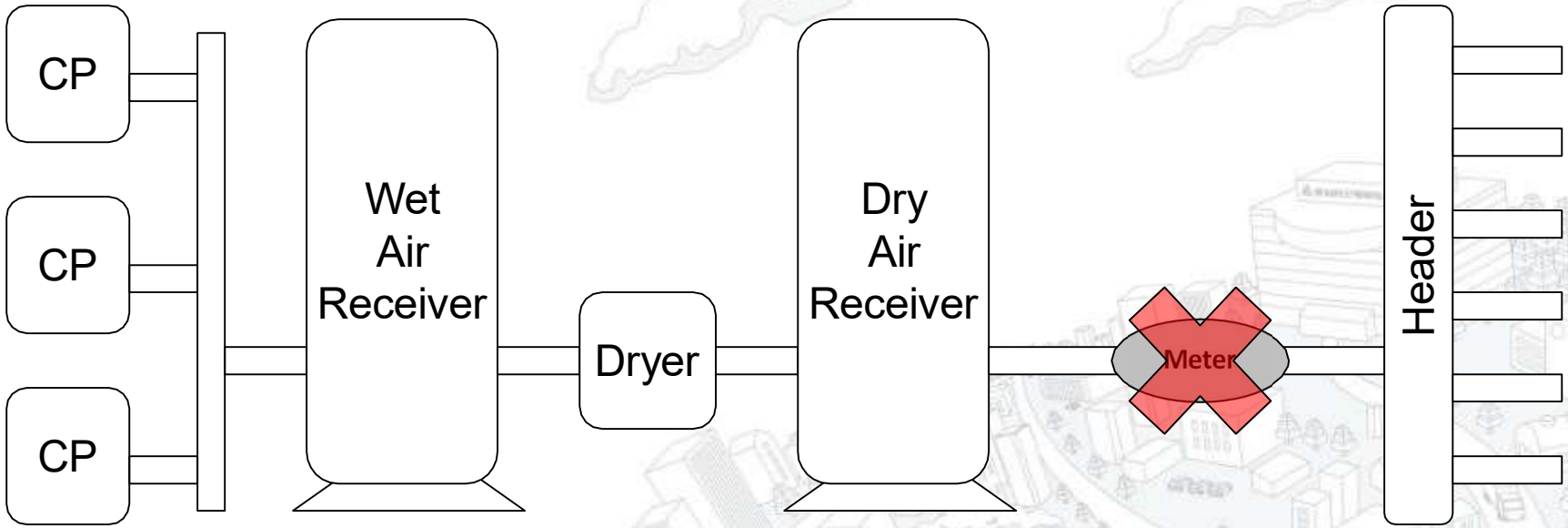
Answer

1. To grasp the Ability of the Compressor
2. To have better energy conservation in compressor operation
   a. Grasp really-needed maintenance timing
   b. Grasp appropriate timing to replace a compressor
   c. Plan changing operation number of compressors in peak/off-peak time, and use of energy-saving type compressors
3. To kill leakages

➡ You would have new abilities!

Efficiency monitoring of compressors “After compressor before receiver”

Usually, air which is after “Compressor → Wet receiver → Dryer → Dry receiver” is measured.



However, it is not good because, in this case,

★Conditions of each one of compressors cannot be seen.

★Many important information cannot be grasped.

<Question>

・What are the meters supposed to be installed?

Image of flowmeter products in the compressor air systems

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Efficiency monitoring of compressors

<After compressor before receiver>

- ◎: (DN25 - 80)



1st targeted usage
Only UAM can do this!

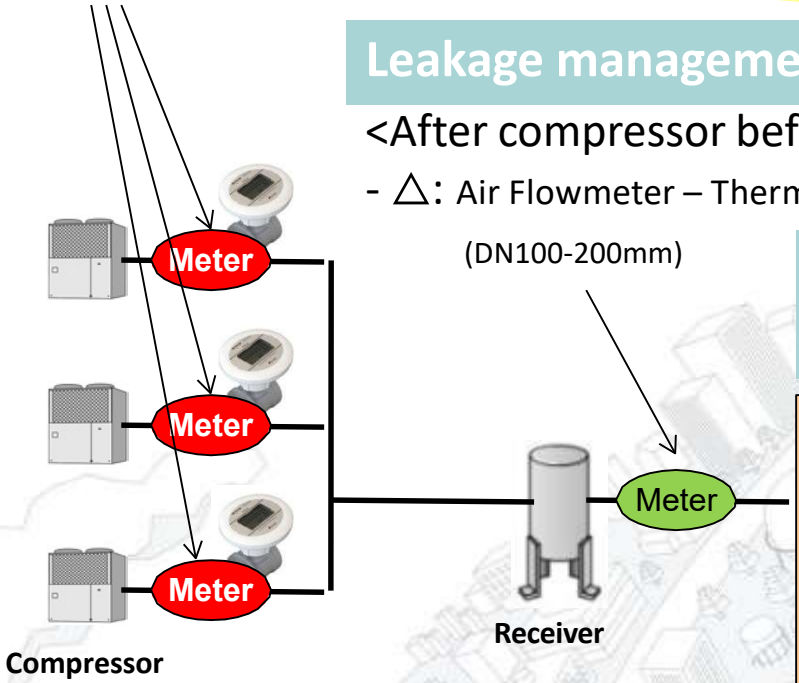
Leakage management: Grasp of leakage of whole factory

<After compressor before receiver>

- △: Air Flowmeter – Thermal Mass / Vortex

(DN100-200mm)

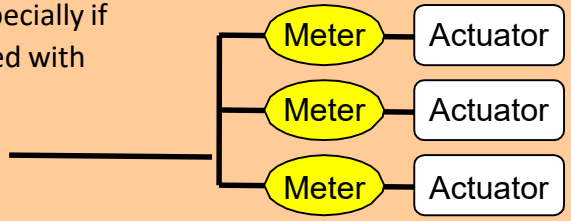
Large diameter



Leakage management: Grasp in detail and eliminate the leakage

<In factory production lies, actuators>

-◎: (DN25-80mm) (Especially if cleaning is often required with present meters)



Factory

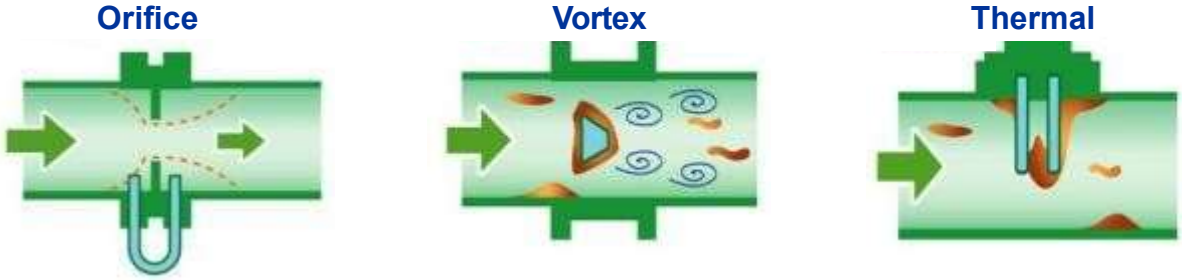
Why Ultrasonic Air Flowmeter?

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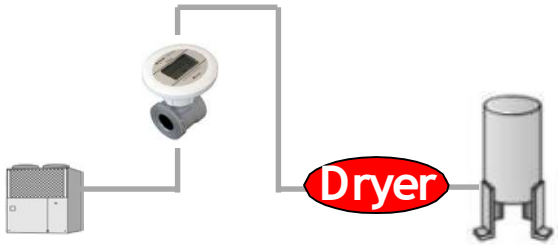
1. **Very Strong against Oil, Mist & Dust**

Because of ultrasonic flowmeter, no moving parts, and our special technology, it is outstandingly strong against oil, mist, and dust. (Vertical piping is recommended when the dirt of piping is heavy.)



Can be installed just after a compressor, before a dryer

Best to grasp performance of a compressor

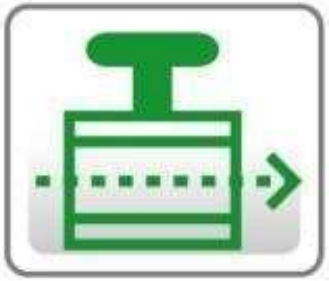


No need of extra costs

Because UAM do not require installation of a strainer nor periodic filer replacement.

Why Ultrasonic Air Flowmeter?

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2. No change of accuracy & Zero pressure loss

No change of accuracy in long time use and free from maintenance.

Zero pressure loss and zero energy loss achieved by no obstacle inside the measurement tube.



3. Measuring reverse flow is possible

This allows for use in loop piping and for determining the consumption volume for air transferred between factories.



4. 1:60 Wide range ability

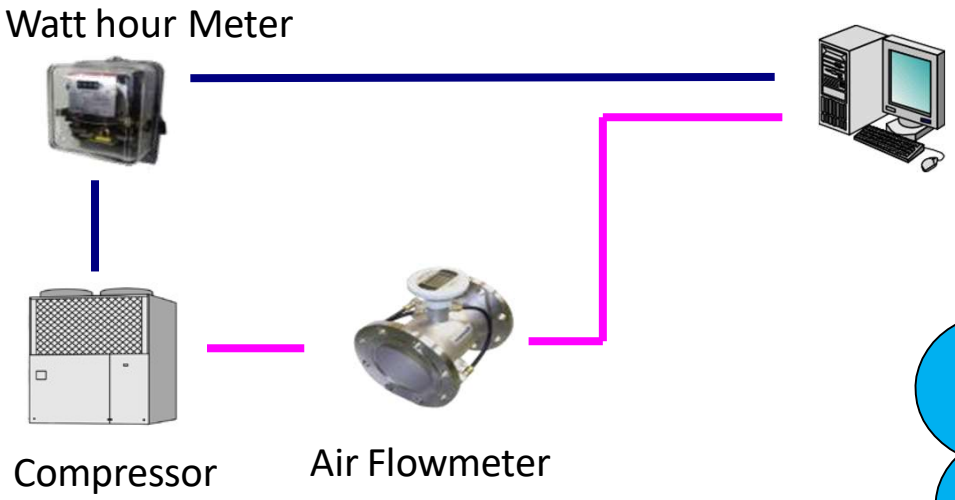
Could be measured from very low flow rate accurately. So, you may be able to easily find even the small volume leakage.



1. To grasp the Ability of the Compressor

With the meter together with a watt hour meter, **efficiency and ability** of your compressors **CAN be proved** so that you **CAN** be confident with your compressors because you understands;

- **ability is as desired**, and,
- **change of the performance is due to installation environment**



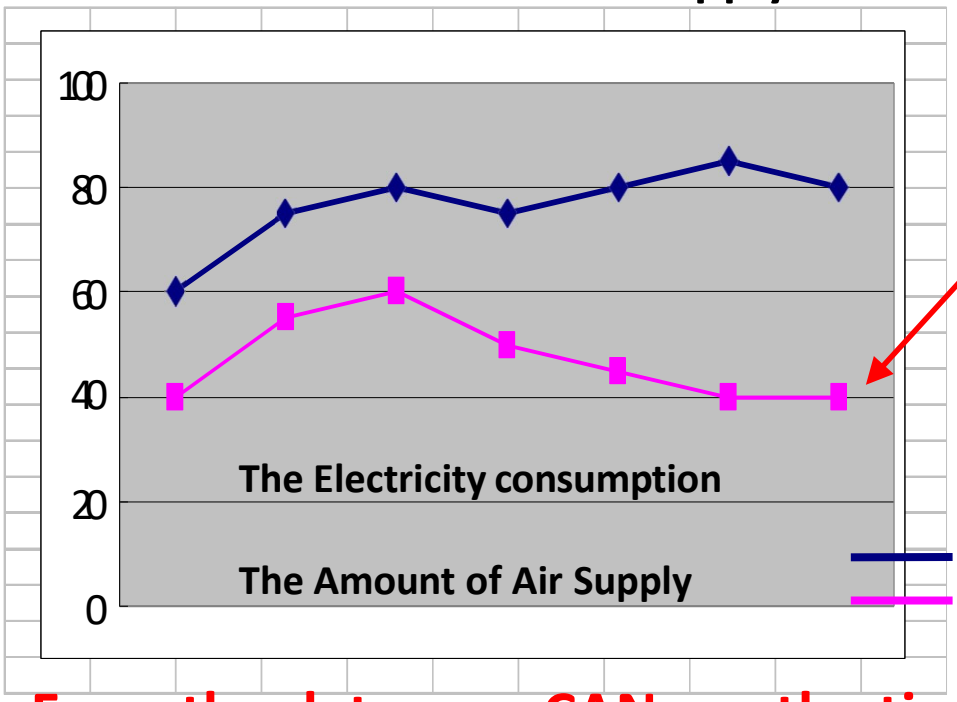
Grasping "Air/Power Ratio" on efficiency for each compressor.

※Air/Power Ratio: Guide line for making 1m³ compressed air, how much kW are required.

2. To have better Energy Saving in compressor operation

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Data of the Electricity Consumption and the Amount of Air Supply



- Although the electricity consumption and the amount of air supply were linked at the beginning, the amount of air supply has decreased compared to electricity consumption from a certain time

Operation Efficiency is Falling!

From the data, you CAN see the timing of;

- **filter replacement and maintenance of compressors timely**
- **replacement of compressors timely**

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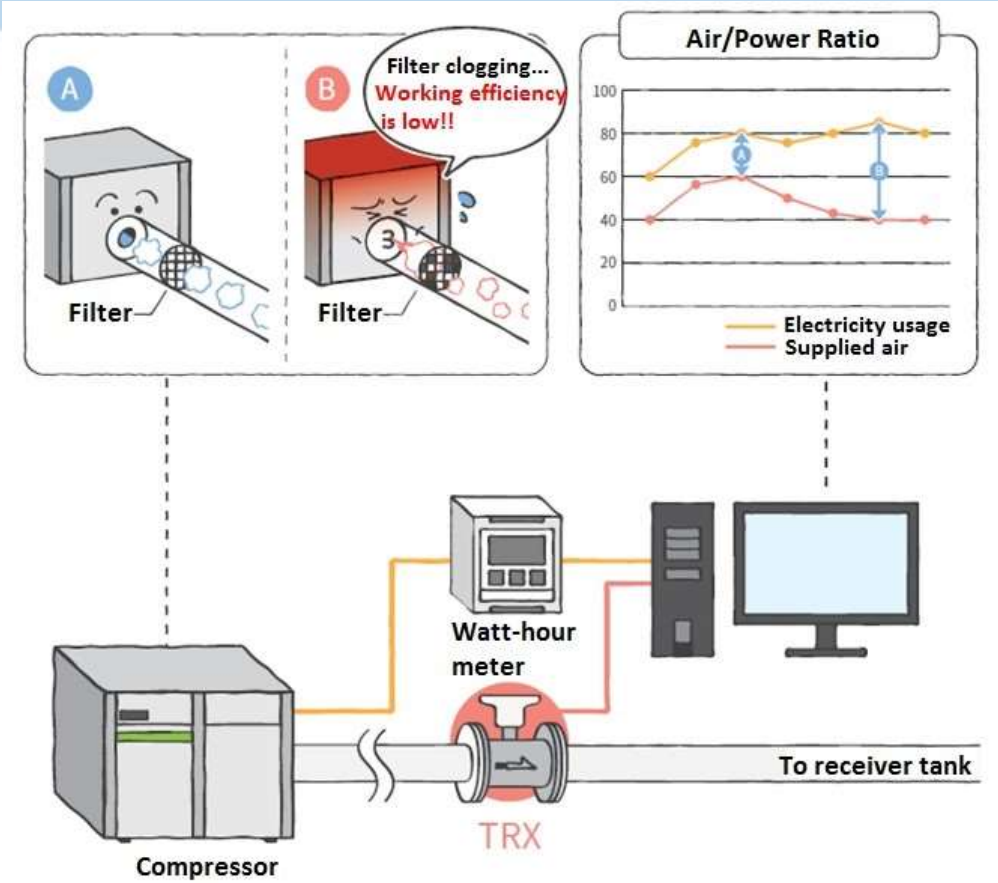
～can do monitoring of compressor conditions～

Prevention maintenance of compressors, grasp of filter cleaning, etc!

1. By monitoring if output of a compressor is getting low or not, such information can be the indicator for grasping of maintenance timing and replacement of the old compressor to new one, etc.

2. Can monitor lowering of working efficiency by filter clogging.

3.By collecting data of electricity usage together, grasping of electricity charge per 1m3 of air (air/power ratio (kW/m³)).

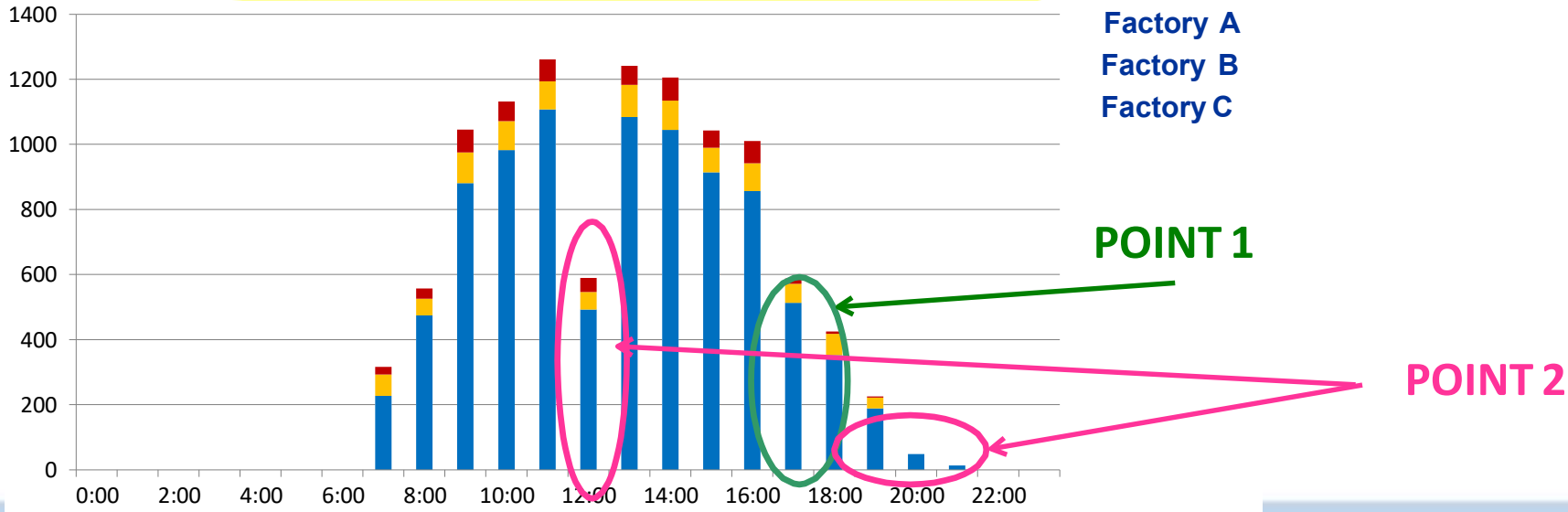


Efficiency monitoring of compressors "After compressor before receiver" can…

2. To have better Energy Saving in compressor operation

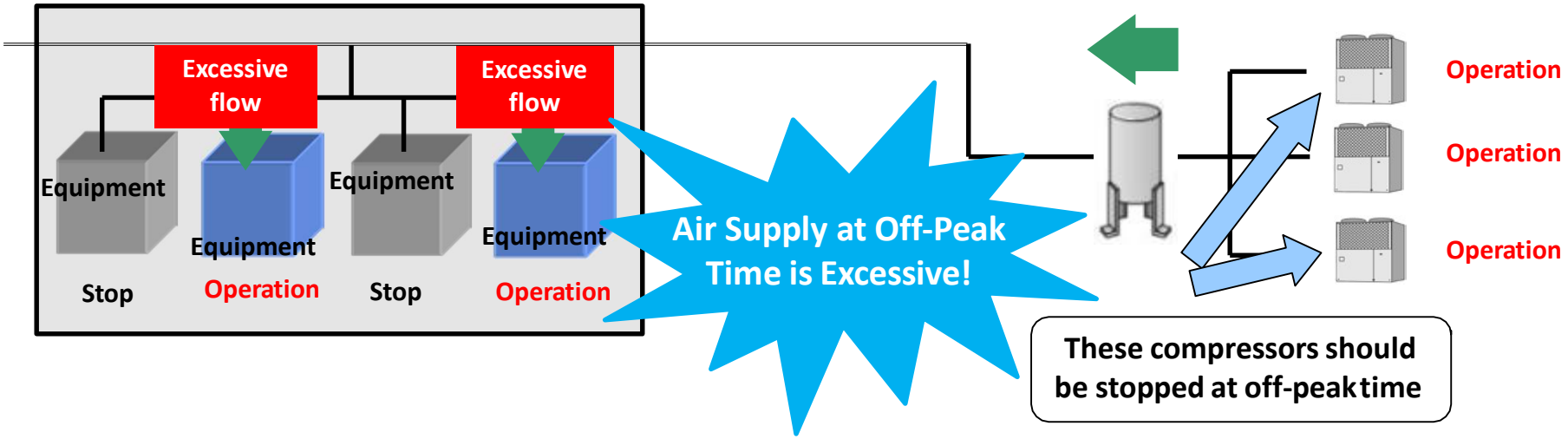
Reduction of electricity consumption is **must-to-do subject** for a factory. **By adding the air flowmeters after receiver tanks** to the air flowmeter to each one of a compressor, amount of supplied air and of consumed air can be grasped, so the meters **CAN be the tool** to **provide the "Solution" of Electricity Cost Reduction** and to **plan using energy-saving type compressors**.

You can see how air consumption amount changes by time



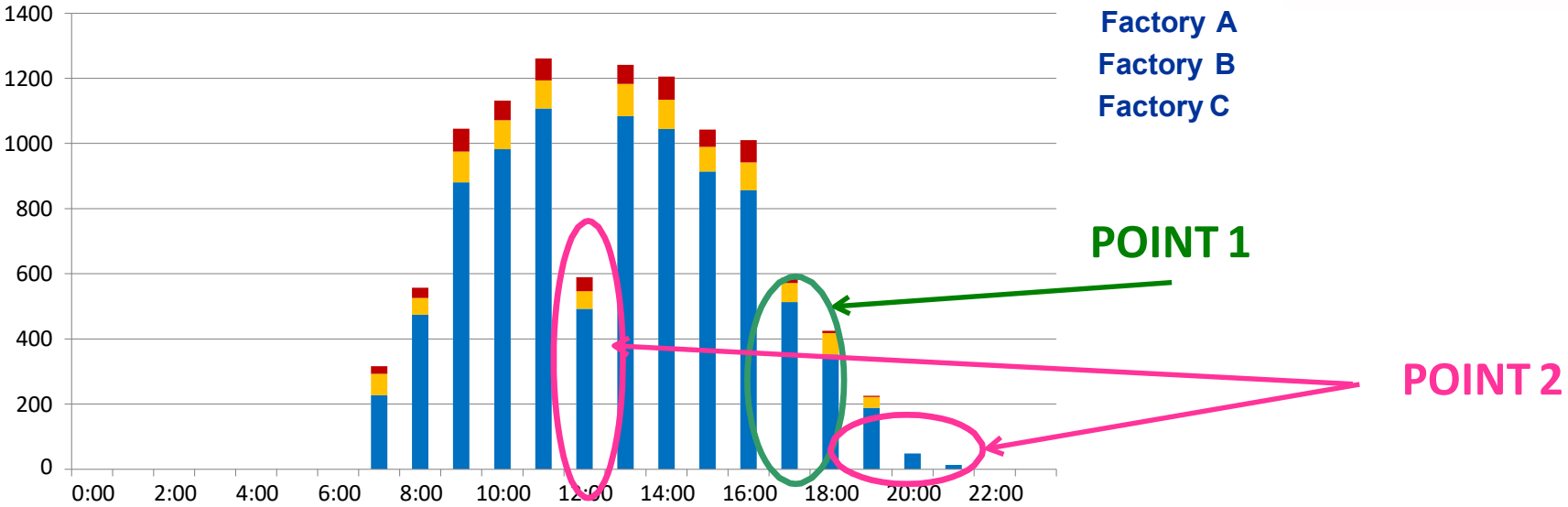
2. To have better Energy Saving in compressor operation

With the data (**POINT 1**), **change of operation number of compressors** in a peak time and off-peak time **CAN be planned**, in accordance with the actual situation.



Then, whereas air cost reduction consciousness has been improved, **as the tool to provide further "Solution" of Electricity Cost Reduction**, if necessary, you **CAN study about using energy-saving type compressors**, especially **Inverter Type Compressors**, which can adjust output precisely and is more suitable for stop-go control.

3. To kill leakages



With the data (**POINT 2**), **you can grasp total amount of leakage** as it is flow of air when factory is not operated.

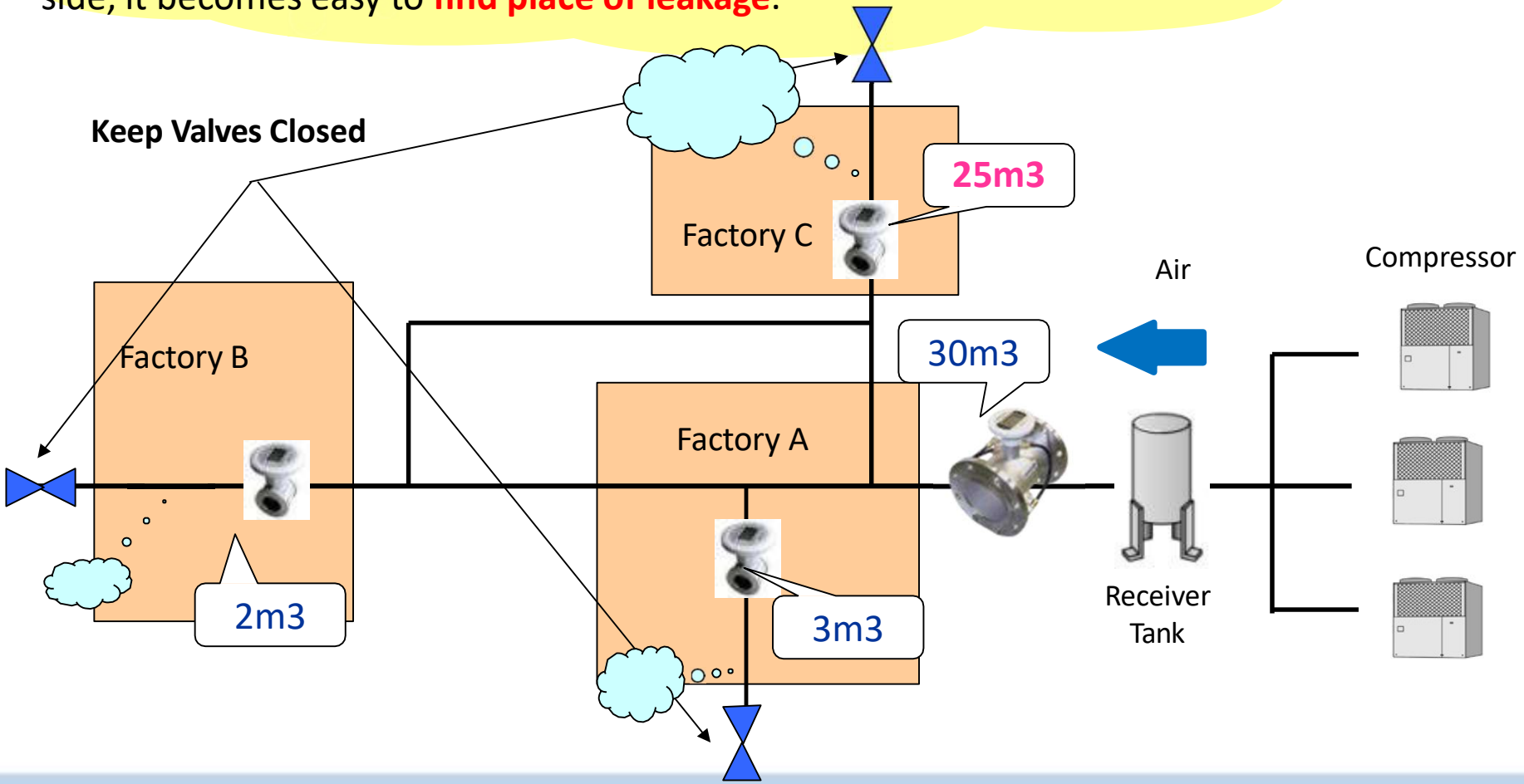
In case there is 1 leakage hole of 3mm at a pipe, leakage of 0.65m3/min. Even with this small leakage, loss of electric charge: Approximately INR 2.7 Lac/year!

Calculation with preconditions of pressure 0.69MPa, 6,000 working hours, and air unit price INR 1.4/m^3

Find leakage positions and repair them in their early stage

3. To kill leakages

By installing the air flowmeter to each factory, when the volume of air is not “0“, it means **air leakage amount**. And, this activity expand to install more meter to actuator side, it becomes easy to **find place of leakage**.



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<Examples of compressor air usage>

Industry area	Usage
Iron	Rolling、Iron making、Coke oven, Air pressure tools, Air hoist, Clutch
Forging	Air hummer, Air hoist, Air grinder, Sandblast
Casting	Shell molding burner, Fin remover, Air grinder
Die casting	Mold repairing grinder, Impact wrench for assembly, Air clamp, Clutch
Ceramics	Air motor, Sandblast for unglazed pottery
Pulp	Air cylinder for packing, Roll paper transportation, Pulp container draying & disinfections
Automobile	Automatic assembly machine, Air hoist, Impact wrench, Buffing (Polishing)、Air pressure drill, Nut setter, Air pressure grinder, Air Chuck
Machine manufacturing	Air hoist、Veneer plant dry air, Air Chuck, Spray painting
Printing	News paper printing facility, Cleaning, transportation
Semiconductor manufacturing	Slicing machine, Wafer proving machine dicing, Wire bonding machine, Ejector
Electrical parts	Parts drying, Parts feeder, Automatic assembly machine
Dry cleaning	Cloth pressing, Solvent spray gun, Far cleaning air gun

IOTAFLOW
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Ultrasonic flowmeter for compressor air
Model TRX/TRZ

☆For visualization of compressor air! For building & line control!



【Model TRX】



【Model TRZ】

Features

(1) "Zero(0)" pressure drop!

(2) Strong against oil mist ·dust!

(3) Cheaper than vortex type and clamp-on type ultrasonic flowmeters.

(4) Battery-operated type and power supply types are in our product line.

Line-Up

- Model TRX: DN25, 32mm (Screw connection)
  DN40, 50, 65, 80mm (Wafer connection)
- Model TRZ: DN100, 150, 200mm (Flange connection)

Functions

- Display: Accumulated volume & Instantaneous flow-rate (With simplified normal display function), temperature, and pressure
- Pressure: Max. working pressure 1 Mpa
- Range Ability: 1:60 (1:400 from measurement starting flow-rate to maximum flow-rate)
- Output: Unit pulse, 4-20mA, upper & lower limit alarm
- With pressure / temperature compensation function
- With forward / reverse flow measurement function
- Able to adjust the display direction per each 90°

Manufactured by Aichi Tokei Denki, Japan

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Thank you !!