



Energy Management Guideline for Compressed Air System (Energy Efficient Use, Operation, Measurement, maintenance guideline)

Use: The purpose of this Guideline is, with the aim to implement energy conservation measures on compressed air system, to realize energy saving with setting matters on operation, measurement/record, and maintenance/inspection of Air-cooled Screw Type Air Compressors and Compressed air system. This will be limited to Energy Performance only.

Topic	Contents	Frequency of Measurement and record	Management criteria and Frequency	Measurement device
Operational Management	1. Compressed air pressure setting of air compressor			
	On-load pressure and un-load pressure	Once/ day	On-load air pressure = required air pressure of machines + pressure loss of piping Un-load air pressure = on-load pressure + 0.5 to 1.0 bar. 0.5 bar for inverter-controlled air compressors	Display of pressure setting
	2. Load factor of air compressor			
	Record of voltage, current, power of motor and operation hours of air compressor <i>Load factor is to be controlled by multiple compressor operation</i>	Once / day	High load factor performs high efficiency. Average load factor is 90% at multiple compressor operation by on-off pressure setting and operation system	Display of power
	3. Pressure loss of air clean unit			
	Air clean unit consists of dryer, filter and mist separator.	Once / day	Cleaning of filter element of filter and mist separator at pressure loss in total = Initial pressure loss + 0.5 bar	Pressure gages of inlet and outlet of air clean unit
	4. Pressure loss of piping in compressor room and production yards			
	Air pressure difference of air receiver and piping of production yard	Once / week	Pressure drop of piping is 0.1 bar/100m of piping.	Pressure gages of outlet of air receiver and piping
	5. Blow-out of drain water of air receiver and piping			
	Open drain valves	Once / day	Once / day	
6. Air leakage in air compressor room and production yards				
Air leakage of valves and piping	Once / day	Close valves and repair air leakage Once / day	Sound of air leak	
7. Dust free air inlet				
a. Clean the air filter of inlet of air compressor	Once / week	Check and clean the air filter regularly as per manufacturer guidelines	Not applicable	
Maintenance and inspection	Inspection of air leakage of operation yards	Once/month	Pressure drop speed of air receiver at the condition of stop of production operation	Pressure transmitter and recorder or pressure gage reading
	Air temperature at inlet of air compressor	Hourly	Check ventilation of compressor room. Low temperature of suction air improves efficiency. Less than 30 deg.C is recommendate.	Temperature gage or sensor
	Flow diagram of air piping and compressed air system	Once/month	Revision of flow diagram by repair and modification of compressed system	Maintenance and repairing record
	Exchange of filter elements of filter and mist separator of air clean unit	6000 hours or one year	Check life of filter element specified by manufacturers	Operation hour record
	Maintenance of air compressor proper such as lubrication and v-belt		As per supplier specification/Maintenance standard	