

Compress Your Air Costs

Free Air Delivery Measurement



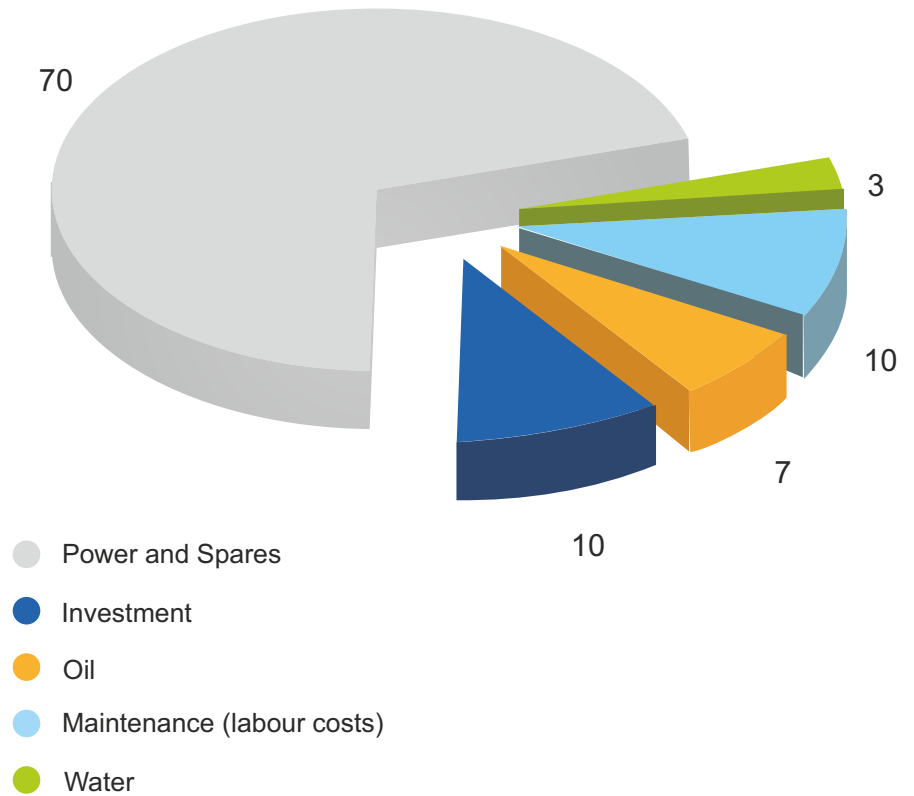
Free Air Delivery Measurement

Air is free, but compressed air is not. It is in fact one of the most expensive utilities in a plant. To keep costs in check, compressed air users need to understand how much air is being generated and if any is being lost through leaks in the pipeline.

For over 75 years Forbes Marshall has been providing innovative solutions to help businesses improve their process and energy efficiency and be more environmentally responsible.

The Forbes Marshall Flowirl 8400 FAD (Free Air Delivery) meter with inbuilt temperature and pressure compensation helps diagnose operating efficiency of compressors and pinpoint expensive leaks in the distribution network.

Typical Compressor Life Cycle Costs



Why Meter Compressed Air

- Know your plant losses/leakages
- Reconcile generation with consumption and losses
- Reduce downtime through preventive maintenance
- Avoid periodical overhauls when not necessary
- Product costing
- Claims during warranty period of compressor
- Better process control resulting in enhanced product quality

Compressed Air Measurement Points

- At the outlet of compressor – To know the efficiency of compressor
- At the outlet of receiver – To know the total compressed air supplied to the plant
- On the distribution pipelines – To know the section wise demand and supply
- At the inlet of each consumption point – To know the individual machine demand



The All-in-one Solution

The pressure of air at the inlet of the compressor remains atmospheric, but is much higher at the outlet. Hence, for free air delivery, the flow measurement device installed at the outlet of compressor should be capable of measuring flow rate by considering both inlet and outlet conditions.

The FLOWIRL 8400 vortex flow meter is equipped with with integrated pressure (optional) and temperature compensation in 2-wire technology. It provides accurate measurement of operating, standard volumetric and mass flow, even with fluctuating pressures and temperatures.

Highlights

The only FAD flow meter with integral temperature and pressure sensors

Pneumatic (air) calibration up to 70 m/s velocity

High accuracy: $\pm 1\%$ of measured value

2-wire technology

Wear resistant, fully welded stainless steel vortex shedding structure with high corrosion, pressure and temperature resistance for long-term stability

Better immunity against pipe vibrations and noise

Maintenance-free sensor design

Full body in SS 316L

Displays instantaneous flow rate, totalised flow, operating temperature, operating pressure and velocity

Option to configure actual site conditions like relative humidity, suction temperature, motor RPM etc. to calculate actual FAD of the compressor

No moving parts inside the flow tube – negligible pressure drop

User configurable flow rate units including SCFM and N m³/min

The Cost of Compressed Air Leakage

Hole Diameter		Air Leakage at 7 bar		Power required for compression	
mm	Inches	dm ³ /s	c.f.m	KW	HP
	1/64	0.19	0.41	0.08	0.08
	1/32	0.76	1.62	0.23	0.31
1		1.18	2.58	0.37	0.50
	1/16	3.07	6.50	0.97	1.30
2		4.91	10.4	1.50	2.00
3		10.95	23.2	3.36	4.50
	1/8	12.27	26.0	3.88	5.20
5		31.14	66.0	9.85	13.0
	1/4	49.10	104.0	15.0	20.0
	3/8	110.4	234.0	34.0	46.0
10		122.0	258.0	37.0	50.0
	1/2	196.0	416.0	60.0	81.0

Industries

Automotive



Chemical



Iron, steel and metal



Power plants



Oil and gas



Paper and pulp



Pharmaceuticals



Textile



Fertilizers



Beverages



Glass



Water



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Forbes Vyncke
Forbes Marshall Steam Systems

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