

# CAGI Data Sheets...

## The only reliable performance comparison

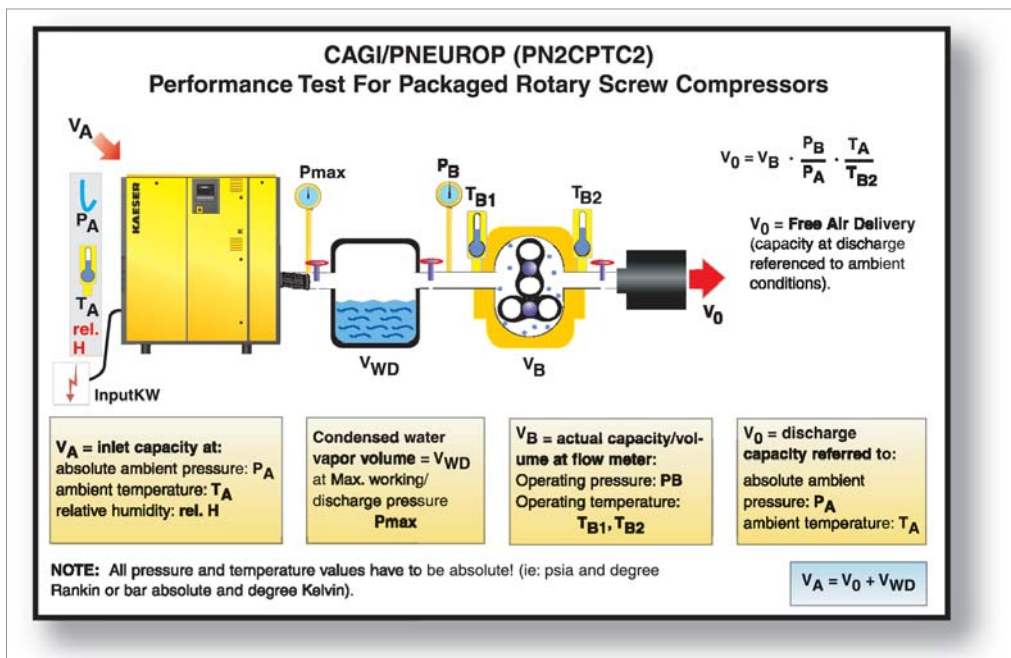
The Compressed Air and Gas Institute is an organization of competitive companies that manufacture air and gas compressors, pneumatic machinery, as well as air and gas drying and filtration equipment. As a non-profit organization, CAGI seeks to educate end-users and pro-

vide helpful, hands-on tools and techniques to improve compressed air system knowledge.

### Data Sheets

As a group, these manufacturers developed a standard form for reporting compressor performance.

These CAGI data sheets are available from any member. This issue of Compressed Air Solutions offers a line-by-line explanation of these data sheets so that end users can compare competitive units when making a buying decision.



## Line-by-line explanation

**Line 1:** Name of the manufacturer

**Line 2:** General description of compressor type

Air-cooled – Data should include power required by cooling fan

Water-cooled – No cooling fan power required, but may require cabinet fan

Oil-injected – Also referred to as fluid injected or fluid cooled.

Oil-free – Yes or no

Number of stages – Single or multistage

**Line 3:** Rated Capacity at Full Load Operating Pressure -The air volume, in CFM, measured at the terminal point of the package, at an agreed-upon set of standard inlet conditions with the compressor operating at the rated pressure (again, measured at the terminal point of the package) stated on Line 4. This takes into account all package air losses and pressure drops.

**Line 4:** Full Load Operating Pressure – The pressure at the terminal point of the package where the flow and power were measured.

**Line 5:** Maximum Full Flow Operating Pressure -The maximum pressure at which full flow can be maintained with a given package. It is usually the unload pressure set point for load/unload controls or the pressure at which modulation or other capacity control begins for other control schemes.

**Line 6:** Drive Motor Nameplate Rating – A nominal horsepower rating applied by the motor manufacturer. This number is not the maximum design capability for the motor. To determine the maximum power output that can be continuously sustained for a motor, multiply the nominal horsepower rating by the service factor. Sustained loads beyond this maximum will shorten the design life of the motor.

**Line 7:** Drive Motor Nameplate Efficiency – The efficiency of the motor at the nameplate rating.

**Line 8:** Fan Motor Nameplate Rating (if applicable) – A nominal horsepower rating applied by the motor manufacturer. This applies to all cooler and cabinet fans.

**Line 9:** Fan Motor Nameplate Efficiency (if applicable) – The efficiency of the motor at the nameplate rating.

**Line 10:** Total Package Power at Zero Flow – This is input power requirement, in kW, of the total compressor package when the unit is idling. This is the power that the customer will have to provide – and pay for – to operate the compressor even when there is no compressed air being produced.

**Line 11:** Total Package Power Input at Rated Capacity and Full Load Operating Pressure. This is the complete input power requirement, in kW, of the compressor package when the compressor is running at the rated capacity listed in Line 3 and the full load operating pressure listed in Line 4. This is the power that the customer will have to provide – and pay for – to operate the compressor package at the rated capacity and flow. It includes all efficiency, power factor and accessory losses. When comparing these numbers between manufacturers,

it is important to make certain that power consumption of the remote cooler packages is included. Some manufacturers may not count remote cooling packages in this number. This may include remote-mounted air-cooled coolers and closed-loop water-cooling systems. Also, power should be measured on the supply side of remote-mounted variable frequency drive controls.

**Line 12:** Specific Package Input Power at Rated Capacity and Full Load Operating Pressure Package Input Power is the measure of how efficiently a compressor package

produces compressed air. It is the power input divided by the flow in units of 100 CFM. A 563-cfm machine that requires 91.58 kW at the rated pressure would have a specific power of 16.3 ( $91.58 / 5.63 = 16.3$ ). Comparing specific power ratings allows users to determine which compressor delivers air at the lowest cost per CFM.

**KAESER COMPRESSORS**

**COMPRESSOR DATA SHEET**  
Rotary Screw Compressor

MODEL DATA - FOR COMPRESSED AIR			
1	Manufacturer: <b>Kaeser Compressors, Inc.</b>	Date: <b>6/7/2005</b>	
2	Model Number: <b>DSD 100 - 110 psig</b>	# of Stages: <b>1</b>	
	<input checked="" type="checkbox"/> Air-cooled <input type="checkbox"/> Water-cooled <input checked="" type="checkbox"/> Oil-injected <input type="checkbox"/> Oil-free	VALUE	UNIT
3	Rated Capacity at Full Load Operating Pressure <sup>a,f</sup>	<b>563</b>	acfm <sup>a,f</sup>
4	Full Load Operating Pressure <sup>b</sup>	<b>100</b>	psig <sup>b</sup>
5	Maximum Full Flow Operating Pressure <sup>c</sup>	<b>110</b>	psig <sup>c</sup>
6	Drive Motor Nameplate Rating	<b>100</b>	hp
7	Drive Motor Nameplate Efficiency	<b>95</b>	percent
8	Fan Motor Nameplate Rating (if applicable)	<b>2</b>	hp
9	Fan Motor Nameplate Efficiency	<b>75</b>	percent
10	Total Package Input Power at Zero Flow <sup>e</sup>	<b>22.2</b>	kW <sup>e</sup>
11	Total Package Power Input at Rated Capacity and Full Load Operating Pressure <sup>d</sup>	<b>91.58</b>	kW <sup>d</sup>
12	Specific Package Input Power at Rated Capacity and Full Load Operating Pressure <sup>e</sup>	<b>16.3</b>	kW/100 cfm <sup>e</sup>

NOTES:

- Measured at the discharge terminal point of the compressor package in accordance with the CAGI/PNEUROP PNZCPTC2 Test Code (Annex C to ISO 1217); acfm is actual cubic feet per minute at inlet conditions.
- The operating pressure at which the Capacity (item 3) and Electrical Consumption (item 10) were measured for this data sheet.
- Maximum pressure attainable at full flow, usually the unload pressure setting for load/no load control or the maximum pressure attainable before capacity control begins. May require additional power.
- Total package input power at other than reported operating points will vary with control strategy.
- Tolerance is specified in the CAGI/PNEUROP PNZCPTC2 Test Code (Annex C to ISO 1217)
- Tolerance is specified in the CAGI/PNEUROP PNZCPTC2 Test Code (Annex C to ISO 1217) as follows:

Member:		Volume Flow Rate at specified conditions	Volume Flow Rate <sup>f</sup>	Specific Energy Consumption <sup>g</sup>
		m <sup>3</sup> /min	ft <sup>3</sup> /min	%
	Below 0.5		Below 15	+/- 7
	0.5 to 1.5		15 to 50	+/- 6
	1.5 to 15		50 to 500	+/- 5
	Above 15		Above 500	+/- 4

This form was developed by the Compressed Air and Gas Institute for the use of its members. CAGI has not independently verified the reported data.

Form Number ROT 030 Rev 4 1-05