Compressor Data Files

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The {kProduct} module accepts configuration data from a configuration file as well as from manual input.

JSON syntax

The format is based on the `JSON` standard (Java Script Object Notation). It is using curly braces, {}, to limit the scope of an object and commas to separate items. Arrays are given in brackets, []. Keywords must be strings, written inside double quotes. Data is written as pair of keyword and value: first keyword, followed by a colon, followed by a value. In this context a “value” is either an object, string, number or an array. Strings are wrapped in double quotes and cannot contain special characters like tab or quotes. Special characters must be entered using backslash escape:

Character	Escape character
quotation mark	\"
reverse solidus	\\
solidus	\/
backspace	\b
formfeed	\f
linefeed	\n
carriage return	\r
tab	\t
unicode character	\u (+ 4 hex digits)

Keywords

The keywords used in the file are case sensitive, i.e. they must use the correct combination of upper and lower case characters. The following keywords are used in the table:

Keyword	Type	Parent object	Restrictions	Description
brief	string	root	optional	Placeholder for information
description	string	root	optional	Placeholder for information

<table>
<tr><th>Keyword</th><th>Type</th><th>Parent object</th><th>Restrictions</th><th>Description</th></tr>
<tr><td>comment</td><td>string</td><td>root</td><td>optional</td><td>Placeholder for comment</td></tr>
<tr><td>flowOption</td><td>string</td><td>root</td><td>required, value must be one of the following options:<table><tr><th>Option</th><th>Unit type</th></tr><tr><td>suction volume flow</td><td>volflow</td></tr><tr><td>mass flow</td><td>massflow</td></tr><tr><td>standard volume flow</td><td>stdvolflow</td></tr></table></td><td>Type of flow information that is to be read from the performance curves</td></tr>
<tr><td>flowUnit</td><td>string</td><td>root</td><td>required, must be a valid unit for the type of flow quantity provided in the performance curves</td><td>The flow values given in the performance curves are given in this unit</td></tr>
<tr><td>headUnit</td><td>string</td><td>root</td><td>required, must be a valid unit for the type of head quantity provided in the performance curves</td><td>The head values given in the performance curves are given in this unit</td></tr>
<tr><td>efficiencyUnit</td><td>string</td><td>root</td><td>required, must be a valid unit for the type of efficiency quantity provided in the performance curves</td><td>The efficiency values given in the performance curves are given in this unit</td></tr>
<tr><td>inletConditions</td><td>object</td><td>root</td><td>required</td><td>The inlet conditions for which the performance curves are valid</td></tr>
</table>

Keyword	Type	Parent object	Restrictions	Description
temperature	object	inletConditions	required	Inlet temperature
number	number	inletConditions/ temperature	required	Numeric value of inlet temperature
unit	string	inletConditions/ temperature	required, must be a valid unit in the *temperature* category	The unit of measure for the inlet temperature
molarComposition	array of numbers	inletConditions	required, elements must be ≥ 0, number of elements must correspond to the applied thermo method	Molar composition of fluid. It is automatically normalized
comment	string	inletConditions	optional	Placeholder for information
standardConditions	object	root	optional, but should be present when flowOption is set to “standard volume flow”	The standard conditions for standard volume flow
pressure	object	standardConditions	required	Standard pressure
number	number	standardConditions/ pressure	required	Numeric value of standard pressure
unit	string	standardConditions/ pressure	required, must be a valid unit in the *pressure* category	The unit of measure for the standard pressure
temperature	object	standardConditions	required	Standard temperature

Keyword	Type	Parent object	Restrictions	Description
number	number	standardConditions/ temperature	required	Numeric value of standard temperature
unit	string	standardConditions/ temperature	required, must be a valid unit in the *temperature* category	The unit of measure for the standard temperature
comment	string	standardConditions	optional	Placeholder for information
nominalSpeed	object	root	required	Nominal speed
number	number	nominalSpeed	required	Numeric value of nominal speed
unit	string	nominalSpeed	required, must be a valid unit in the *rotation_speed* category	The unit of measure for the nominal speed
primaryInterpolation	object	root	required	Information about primary interpolation

<table>
<tr><th>Keyword</th><th>Type</th><th>Parent object</th><th>Restrictions</th><th>Description</th></tr>
<tr><td>type</td><td>string</td><td>primaryInterpolation</td><td>required, must be one of:<table><tr><th>Option</th><th>Parameter unit type</th></tr><tr><td>speed</td><td>rotation_speed</td></tr><tr><td>speed with PTC10 correction</td><td>rotation_speed</td></tr><tr><td>guide vane position</td><td>fraction</td></tr><tr><td>gas volume fraction</td><td>fraction</td></tr><tr><td>gas mass fraction</td><td>fraction</td></tr><tr><td>molar mass</td><td>moleweight</td></tr><tr><td>suction pressure</td><td>pressure</td></tr></table></td><td>This value specifies which variable to use for interpolation between performance curves in the primary direction</td></tr>
<tr><td>unit</td><td>string</td><td>primaryInterpolation</td><td>required, must be a valid unit for the quantity used for primary interpolation</td><td>The parameter values for primary interpolation are given in this unit</td></tr>
<tr><td>parameters</td><td>array of numbers</td><td>primaryInterpolation</td><td>required</td><td>Numeric values of interpolation parameters. One for each performance curve in the primary direction.</td></tr>
</table>

<table>
<tr><th>Keyword</th><th>Type</th><th>Parent object</th><th>Restrictions</th><th>Description</th></tr>
<tr><td>secondaryInterpolation</td><td>object</td><td>root</td><td>optional</td><td>Information about secondary interpolation</td></tr>
<tr><td>type</td><td>string</td><td>secondaryInterpolation</td><td>required, must be one of:<table><tr><th>Option</th><th>Parameter unit type</th></tr><tr><td>speed</td><td>rotation_speed</td></tr><tr><td>speed with PTC10 correction</td><td>rotation_speed</td></tr><tr><td>guide vane position</td><td>fraction</td></tr><tr><td>gas volume fraction</td><td>fraction</td></tr><tr><td>gas mass fraction</td><td>fraction</td></tr><tr><td>molar mass</td><td>moleweight</td></tr><tr><td>suction pressure</td><td>pressure</td></tr></table></td><td>This value specifies which variable to use for interpolation between performance curves in the secondary direction</td></tr>
<tr><td>unit</td><td>string</td><td>secondaryInterpolation</td><td>required, must be a valid unit for the quantity used for secondary interpolation</td><td>The parameter values for secondary interpolation are given in this unit</td></tr>
</table>

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<tr><th>Keyword</th><th>Type</th><th>Parent object</th><th>Restrictions</th><th>Description</th></tr>
<tr><td>parameters</td><td>array of numbers</td><td>secondaryInterpolation</td><td>required</td><td>Numeric values of interpolation parameters. One for each performance curve in the secondary direction.</td></tr>
<tr><td>tertiaryInterpolation</td><td>object</td><td>root</td><td>optional</td><td>Information about tertiary interpolation</td></tr>
<tr><td>type</td><td>string</td><td>tertiaryInterpolation</td><td>required, must be one of:<table><tr><th>Option</th><th>Parameter unit type</th></tr><tr><td>speed</td><td>rotation_speed</td></tr><tr><td>speed with PTC10 correction</td><td>rotation_speed</td></tr><tr><td>guide vane position</td><td>fraction</td></tr><tr><td>gas volume fraction</td><td>fraction</td></tr><tr><td>gas mass fraction</td><td>fraction</td></tr><tr><td>molar mass</td><td>moleweight</td></tr><tr><td>suction pressure</td><td>pressure</td></tr></table></td><td>This value specifies which variable to use for interpolation between performance curves in the tertiary direction</td></tr>
</table>

Keyword	Type	Parent object	Restrictions	Description
unit	string	tertiaryInterpolation	required, must be a valid unit for the quantity used for tertiary interpolation	The parameter values for tertiary interpolation are given in this unit
parameters	array of numbers	tertiaryInterpolation	required	Numeric values of interpolation parameters. One for each performance curve in the tertiary direction.
compositionOption	string	root	optional, must be one of: fixed variable	