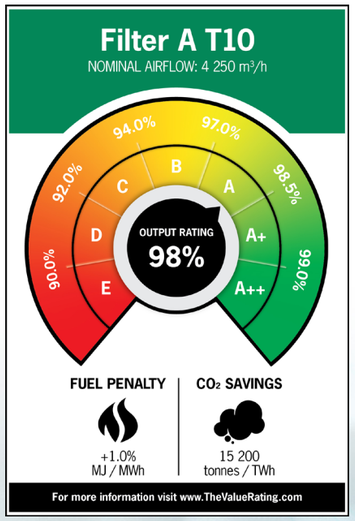
POWERED BY CAMFIL

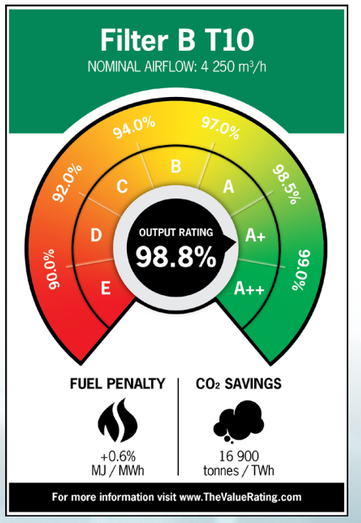
camfil

THE VALUE RATING
FOR GAS TURBINE FILTERS

All filters are not created equal!

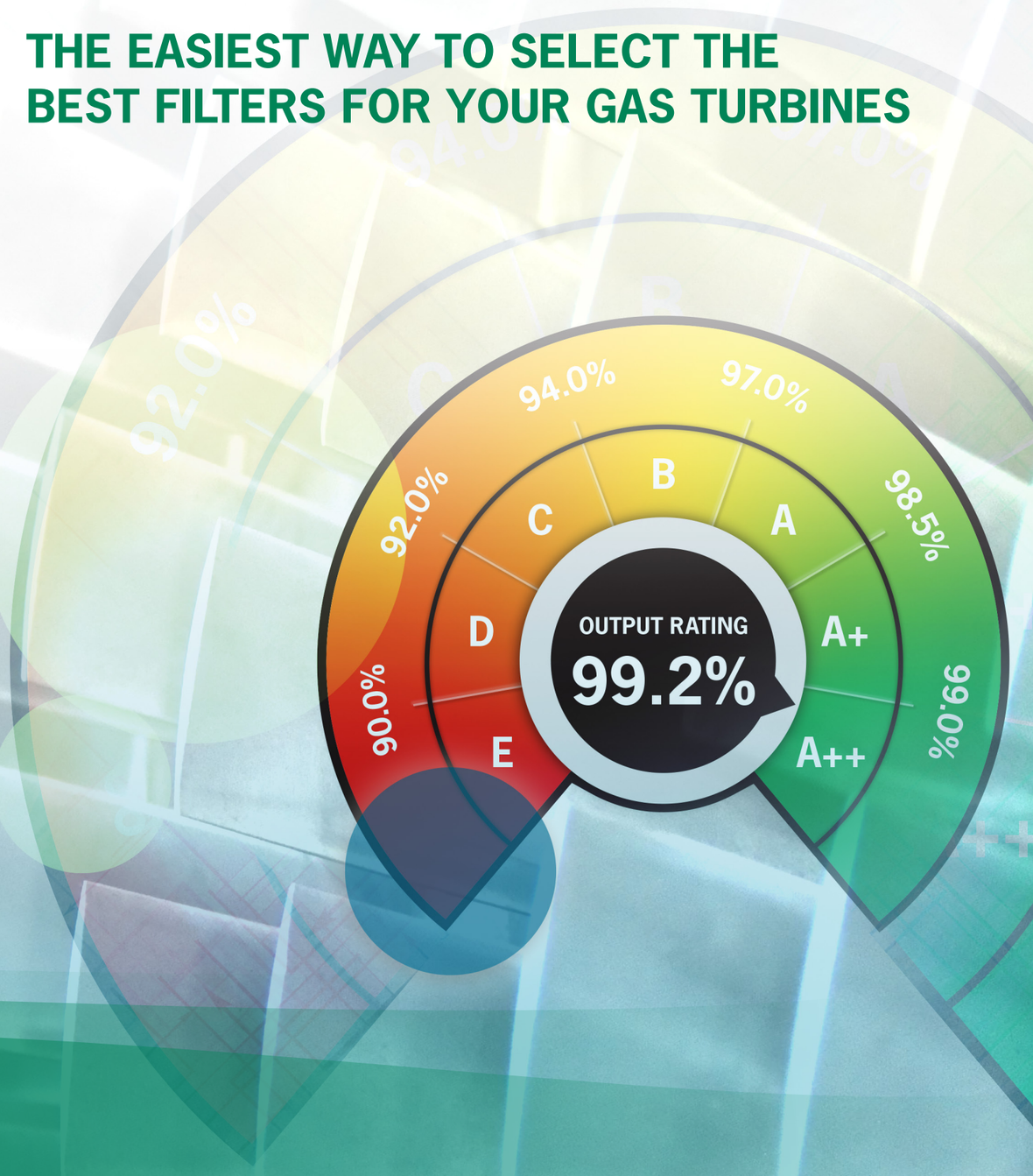
When determining the true performance of your filters, you need to look deeper than just the efficiency rating. The Value Rating was developed to help GT operators easily compare various filters and gain a quick understanding of the impact each filter will have on turbine performance. In this example below, both are T10 filters. However Filter B has a slight advantage in Output Rating, Fuel Impact and CO_2 Savings. But even a small advantage can lead to huge payoffs every year. The additional .8% Output Rating means that your turbine can produce an addtional 8 000 MWh per year*, or $280 000 in revenue. With the 0.4% savings on Fuel Penalty, you'll save $96 000 on fuel when producing 1 TWh. And with the increased CO_2 savings of 1 700 tonnes, you could save up to $34 000 on carbon taxes per year when producing 1 TWh.





[1]**Assumptions:** Baseline = 125 MW; Baseload; Heat rate = 8000 kJ/kWh; 8000 hrs / yr; Fuel: $3 USD/GJ; $35 USD per MWh sold; $20 tax rate per tonne of CO_2

THE EASIEST WAY TO SELECT THE BEST FILTERS FOR YOUR GAS TURBINES



The Camfil Group is headquartered in Stockholm, Sweden, and has 33 manufacturing sites, six R&D centres, local sales offices in 30 countries, and about 4,800 employees and growing. We proudly serve and support customers in a wide variety of industries and in communities across the world. To discover how Camfil can help you to protect people, processes and the environment, visit us at www.camfil.com.

CAMFIL - Clean Air Made for Improving Life

Clean air solutions for turbomachinery

THE VALUE RATING

The filters you select to protect your gas turbines can have a huge impact on your operations. Low efficiency filters and higher pressure drop filters rob your turbines of energy output and cause an increase in fuel consumption and CO_2 emissions. Powered by Camfil, The Value Rating helps gas turbine users easily evaluate the efficiency and quality of gas turbine final filters. Armed with this data, you can quickly compare the impact different filters will have on the performance of your turbines.

1 Output Rating – *Full load case*

The OUTPUT RATING is a projection of the average yearly power output you can expect from your turbines as they will have degraded due to filter pressure drop, as well as fouling caused by particles getting past the filters. This value is based on the filter's efficiency and the estimated impact of pressure drop on turbine output. We use a standardized scenario with an average PM2.5 ambient dust of 30µg/m³ and carefully selected and analyzed OEM published degradation levels by filter class to create an accurate projection.

100MW[1] TURBINE RUNNING BASELOAD

A perfect filter with 0 Pa pressure drop and 100% efficiency would get a Value Rating of 100%. There would be no loss of power from the turbine due to pressure drop and fouling.

A filter with a 90% Output Rating would result in 90MWh. An average of 10MWh would be lost to pressure drop and fouling from contaminants penetrating the filters.

What's the financial impact?

Even a small change in Output Rating makes a big impact on your revenue. At $35/MWh on a 100MW turbine, 2% difference can add up to $560 000 (100MW x 2% x $35/MWhr x 8 000h)

2 Fuel Penalty

The FUEL PENALTY value indicates how much more fuel you must use to compensate for degradation due to fouling and pressure drop. A perfect filter with 0 Pa pressure drop and 100% efficiency would get a +0% rating. A final filter with a +3% rating indicates the turbine will use 3% more fuel than if it was perfectly clean.

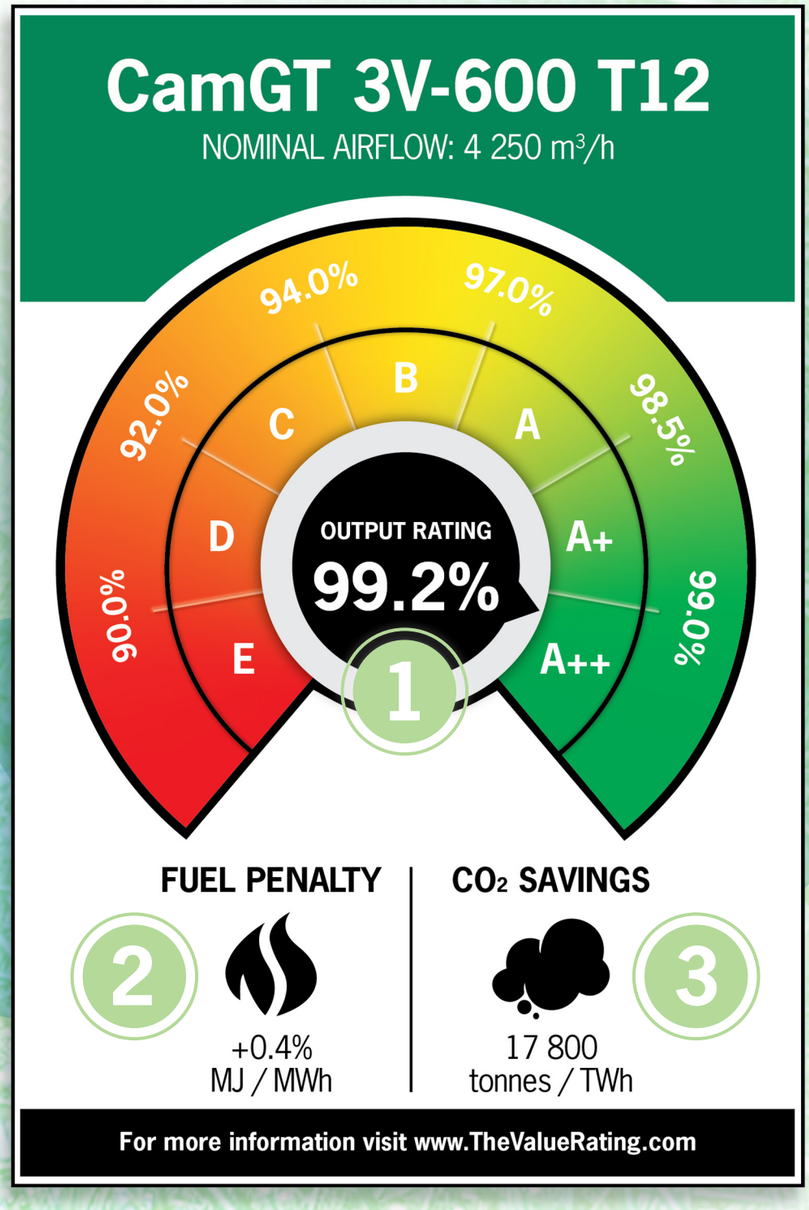
If you're running at part load, you won't see a direct impact of degradation on engine output, but you will see an impact on your fuel budget!

3 CO_2 Savings

When you use better filters, you can minimize performance degradation and reduce emissions. The CO_2 SAVINGS indice compares each filter to a M6 (ISO ePM10 60%) filter – a basic, industry-standard final filter. Based on the OUTPUT RATING and FUEL USAGE for the filter, the CO_2 SAVINGS value estimates how many tonnes of CO_2 you could save per TWh of produced power.

Use The Value Rating Calculator to evaluate your filters before you buy! Simply input the filter data to get a complete value rating.

Visit www.TheValueRating.com



camfil POWER SYSTEMS

[1]The standardized environment assumes PM 2.5 value of 30µg/m³, 8 000h per year with a heat rate of 8 000kj/kWh. In order to isolate the impact of the filters, the degradation number assumes the engine starts clean with no offline water washes performed during the year.