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Energy Savings & Payback

By improving the energy efficiency of operations business can reduce exposure both to carbon pricing and the larger energy price rises driven by other factors. A crucial part of the efficiency investment calculation for business is the payback period: any but the most minor of efficiency actions will carry some upfront costs which must be repaid by savings if the effort is to be viable.

The table below summarises energy savings due to the use of Removable Thermocovers for a range of valve sizes and operating temperatures. These values were calculated using a computer program that meets the requirements of ASTM C 680 - *Heat Loss and Surface Temperature Calculations*. The energy savings is defined as the difference in heat loss between the uninsulated valve and the insulated valve operating at same temperature.

Example

Using the table below, calculate the annual fuel and dollar savings from installing a 25mm thick Thermocover on an 150mm uninsulated gate valve in a 17 bar saturated steam line (205°C). Assumes continuous operation at 80% efficiency.

Energy Savings - Megajoules (Natural Gas) Cents per Megajoule = 0.6900

Operating Temp °C	75mm	100mm	150mm	200mm	250mm	300mm
95	0.84	1.15	1.65	2.32	3.06	3.48
150	1.80	2.43	3.48	5.06	6.54	7.60
205	3.06	3.58	6.12	8.75	11.40	13.19
260	4.75	6.54	9.50	13.71	17.83	20.78
315	7.07	9.60	14.03	20.26	26.58	30.91

* Energy savings based on installation of 25mm thick pad, ambient temperature of 18°C and zero wind speed.

Average Removable Gate Valve Thermocover Price Australian Dollars \$

Operating Temp °C	75mm	100mm	150mm	200mm	250mm	300mm
95 - 315°C	400.00	450.00	550.00	700.00	1000.00	P.O.A

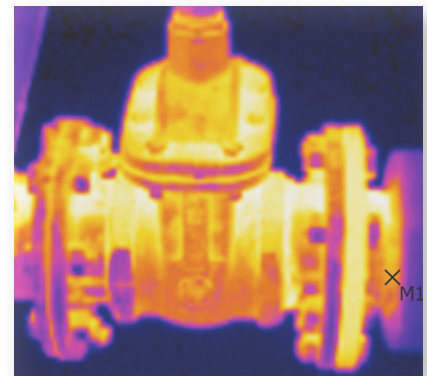
* Price is indicative only. Please consult factory for more accurate pricing to suit your needs.

Effect of Wind Speed

The table below gives the approximate effect of air movement on heat loss.

Wind Speed km/h	Additional Heat Loss	Wind Speed km/h	Additional Heat Loss
11	16%	33	156%
22	116%	55	218%

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Annual Natural Gas Savings

= 6.12MJ x 8760hrs x .80 efficiency
= 67,014 MJ/ year

Annual Dollar Savings

= 67,014 MJ x \$0.0069
= \$462.40 per 150mm gate valve.

Payback

= \$462.40/12 months
= \$38.53 per month
= \$550.00/ \$38.53

Payback 14 months

Annual Natural Gas Savings wind speed 22km/h

= 67,014 MJ x 2.16
= 144,759 MJ/ year

Annual Dollar Savings

= 144,759 MJ x \$0.0069
= \$998.84 per 150mm gate valve.

Payback

= \$998.84/12 months
= \$83.24 per month
= \$550.00/ \$83.24

Payback 7 months