

## **ADVANTAGES**

- It reduces 20-40% energy consumption
- Extended life of heaters because of less on and off cycles
- Increases protection by reduction of the surface temperature by 60-75%
- Non-inflammable
- Amortization time is less then 1 year
- It can be always re-fitted rapid assembly and disassembly
- Even temperature profile of the machine cylinder
- Improvement of room temperature, because heaters radiate much less heat (Very important in summer months)





SAFETY CONDITIONS



EXTENDED LIFE OF HEATERS







REDUCTION OF THE ROOM TEMPERATURE

BMS insulated jacket offers high classification temperature combined with excellent tensile strength, handle ability and low shot content, while retaining very good compressibility and flexibility and by that characteristics can be used in wide range of applications as thermal insulation and is especially suited to use as a high temperature wraps, heat shields and in sealing applications.

Insulating covers can be produced for each bend heater independent of type of machine and for most to each type of plastification process separately. Electrical connection and sensors can be individually adjusted. Because of special construction with several layers with high temperature stability, resulting in lower surface temperature the loss of energy being reduced. Mechanically reinforced fiber fleece is sewn in an abrasion proofed glass fabric. External surfaces of insulation consist of highly durable and abrasion proofed material, witch resist both dirt and plastic material leakage.

There is a large variation in the cost per unit of energy, types of fuel utilized and attitudes towards energy issues across Europe. However, the future of the European plastics industry may depend on how we manage the issue of energyconsumption and its increasing costs.

## **GENERAL CHARACTERISTICS**

- High temperature stability (up to 1200 °C)
- Excellent handling strength
- Soft feel
- Low shot content
- Very good flexibility
- Excellent acoustic absorption capabilities
- Colour : Red
- Fibre Diameter : 3.0 / 9,2 microns ( mean )
- Product Density (nominal): 64 / 96 / 128 / 160 and 180kg/m3
- Tensile Strength : 90 kPa
- Classification Temperature : 1200 °C

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## TYPICAL CHEMICAL ANALYSIS (FIBRE WT,%)

- SiO2 : 61.0 67.0
- Ca0 : 27.0 33.0
- MgO : 2.5 6.5
- Al203 : < 1.0
- Fe203 : < 0.6

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## Average savings (kW) per day regarding processed material and machine size

|                               | Size of the machine (kN) |      |      |      |      |      |      |      |      |      |
|-------------------------------|--------------------------|------|------|------|------|------|------|------|------|------|
| Average Savings kW<br>per day | 1000                     | 1500 | 2000 | 2500 | 3000 | 3500 | 4000 | 4500 | 5000 | 6000 |
| PP                            | 9                        | 15   | 21   | 26   | 29   | 32   | 35   | 42   | 48   | 65   |
| ABS                           | 12                       | 19   | 23   | 29   | 33   | 35   | 39   | 46   | 52   | 71   |
| PA 6(66)                      | 16                       | 22   | 25   | 31   | 35   | 39   | 43   | 49   | 56   | 76   |
| Detail weight                 | 12 g                     | 16 g | 24 g | 25 g | 27 g | 32 g | 35 g | 45 g | 47 g | 65 g |

Analises made on multiply machinery : Engel, Demag, Krauss Maffei, Ferromatic, Haitian, Atec. Process characteristics: multi cavities, cycle time - short (7 to 19 sec.) Temp. of work: PP 210 st. C ABS 240 st. C PA66 280 st. C Machinery age (2001 - 2008) Agregate rotation speed: PP 1m/s ABS 0,3 m/s PA66 0,40 m/s. Surranding temp (at work place) inroom temp arround 22 dgr. C. According to many different and vital process characteristics those are typical but only a descriptive samples. Can not be treated as final and binding.

| Average savings by processed material type |            |             |             |                        |  |  |
|--|------------|-------------|-------------|------------------------|--|--|
| Material Type                              | Work Temp. | Savings min | Savings max | Savings on entire Unit |  |  |
|  | °C         | %           | %           | %                      |  |  |
| PP   | 200-290    | 20          | 30          | 5 to 8                 |  |  |
| LDPE                                       | 190-280    | 20          | 30          | 5 to 8                 |  |  |
| HDPE                                       | 210-300    | 20          | 34          | 6 to 9                 |  |  |
| PS   | 170-280    | 18          | 30          | 5 to 8                 |  |  |
| SB   | 180-280    | 18          | 30          | 5 to 8                 |  |  |
| SAN  | 200-260    | 22          | 28          | 5 to 9                 |  |  |
| ABS  | 200-270    | 22          | 28          | 5 to 9                 |  |  |
| PCW-U                                      | 170-210    | 18          | 24          | 4 to 7                 |  |  |
| PCW-P                                      | 140-200    | 16          | 23          | 4 to 7                 |  |  |
| CA   | 180-220    | 18          | 24          | 4 to 7                 |  |  |
| CAB  | 180-220    | 18          | 24          | 4 to 7                 |  |  |
| CP   | 180-220    | 18          | 24          | 4 to 7                 |  |  |
| PMMA                                       | 180-260    | 18          | 24          | 5 to 8                 |  |  |
| PC   | 280-320    | 30          | 37          | 6 to 9                 |  |  |
| PC+ABS                                     | 240-280    | 25          | 30          | 6 to 9                 |  |  |
| PA amorf.                                  | 260-300    | 28          | 35          | 6 to 9                 |  |  |
| PA 6                                       | 230-280    | 25          | 30          | 6 to 9                 |  |  |
| PA 66                                      | 270-320    | 28          | 37          | 6 to 9                 |  |  |
| PA 6 10                                    | 230-280    | 24          | 30          | 6 to 9                 |  |  |
| PA 11                                      | 200-250    | 22          | 28          | 5 to 9                 |  |  |
| PA 12                                      | 200-250    | 22          | 28          | 5 to 9                 |  |  |
| POM  | 190-220    | 20          | 24          | 5 to 8                 |  |  |
| PET  | 260-280    | 28          | 30          | 6 to 9                 |  |  |
| PBT  | 240-280    | 25          | 30          | 6 to 9                 |  |  |

| Average savings by clamping force of press |                          |                         |                          |  |  |  |
|--|--------------------------|-------------------------|--------------------------|--|--|--|
| Clamping force kN                          | Heaters out. Dia<br>(mm) | Cylinder lenght<br>(mm) | Average savings<br>(day) |  |  |  |
| 500  | 100                      | 700                     | 2,5 kW                   |  |  |  |
| 600  | 110                      | 700                     | 3,9 kW                   |  |  |  |
| 800  | 110                      | 800                     | 5 kW                     |  |  |  |
| 900  | 120                      | 900                     | 7 kW                     |  |  |  |
| 1200                                       | 120                      | 1000                    | 9 kW                     |  |  |  |
| 1400                                       | 130                      | 1000                    | 11 kW                    |  |  |  |
| 1600                                       | 140                      | 1000                    | 14 kW                    |  |  |  |
| 1800                                       | 140                      | 1100                    | 16 kW                    |  |  |  |
| 2000                                       | 150                      | 1100                    | 19 kW                    |  |  |  |
| 2200                                       | 150                      | 1100                    | 21 kW                    |  |  |  |
| 2400                                       | 160                      | 1100                    | 22 kW                    |  |  |  |
| 2600                                       | 170                      | 1200                    | 24 kW                    |  |  |  |
| 2800                                       | 180                      | 1300                    | 26 kW                    |  |  |  |
| 3000                                       | 200                      | 1400                    | 27 kW                    |  |  |  |
| 3500                                       | 200                      | 1500                    | 32 kW                    |  |  |  |
| 4000                                       | 220                      | 1600                    | 36 kW                    |  |  |  |
| 4500                                       | 220                      | 1700                    | 41 kW                    |  |  |  |
| 5000                                       | 240                      | 1700                    | 47kW                     |  |  |  |
| 6000                                       | 250                      | 1800                    | 54 kW                    |  |  |  |
| 8000                                       | 260                      | 1900                    | 65 kW                    |  |  |  |
| 10000                                      | 270                      | 1900                    | 72 kW                    |  |  |  |
| 12000                                      | 280                      | 2000                    | 80 kW                    |  |  |  |
| 14000                                      | 300                      | 2100                    | 89 kW                    |  |  |  |
| 16000                                      | 320                      | 2200                    | 94 kW                    |  |  |  |
| 18000                                      | 340                      | 2300                    | 102 kW                   |  |  |  |

Average savings by type of plastic material taken on probe of about 500 processes. Min. and Max savings contents shows only heated elements analyses.

Probe made on the basis of comparison processes.

According to many difficult and vital process characteristics those are typical but only a descriptive samples. Can not be treated as final and binding.

Average energy savings results based on 10 major injection molding machines brands: Netstal, Husky, Engel, Demag, Krauss Maffei, Battenfeld, BMB, Negri Bossi, Sandretto, Italtech. Measured on close or similar types of process.

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