Technical Bulletin DTB04
COLD RESISTANCE

A GUIDE TO COLD RESISTANT CONVEYOR BELTS

When the ambient temperature falls below -0°C rubber begins to lose its elasticity. As the temperature falls, the rubber continues to lose flexibility and its ability to resist abrasion, impact and cutting. Eventually the belt is unable to trough and pass around pulleys and the belt covers and the rubber in the carcass begins to crack. Ultimately, the belt will break because frozen rubber becomes as brittle as glass.

Where there is a risk of extremely low temperatures operators of conveyors should always ask the belt supplier for confirmation of the minimum operating temperature. Abrasion resistant belts can usually withstand -30 to -40°C. Other cover qualities (such as oil or fire) are usually only able to withstand a minimum temperature of -20°C. For temperatures lower than this, conveyors should be fitted with belts especially designed to withstand extreme cold.

Dunlop Coldstar has been specifically engineered to operate in extremely cold conditions as well as providing outstanding resistance to other demands.

COLDSTAR RAS: cold and wear resistant
COLDSTAR ROS: resistant to mineral, animal and vegetable oils
COLDSTAR ROM: resistant to vegetable and animal oils
COLDSTAR BV K: fire retardant according to EN 12882 Class 2A
COLDSTAR BV S: fire retardant according to EN 12882 Class 2B
COLDSTAR VT: fire retardant according to EN 12882 Class 5A)

Cover characteristics Coldstar		C RAS	C ROM	C ROS	C BV K/S	C VT
Tensile strength	Mpa (≥)	15	14	18	15	15
Elongation at break	% (≥)	400	400	400	500	400
Tear strength	Mpa (≥)	10	6	5.5	6	4
Hardness	°Shore A	60±5	60±5	61±5	57±5	60±5
Abrasion	mm^3 (aver.)	35	140	85	110	125
Min. ambient temperature	°C	**-60**	**-40**	**-30**	**-40**	**-30**

The given temperatures indicate the limit until which the belt is still flexible enough to function normally.

Longer operational lifetime. One of the major additional advantages of Coldstar is that it has exceptionally good resistance to wear. For example, the abrasion resistance of Dunlop RAS is more than **70% better** than the international DIN Y standard. Dunlop Coldstar belts also retain their resistance to impact and cutting. This means that they provide a much longer operational lifetime compared to belts made by other manufacturers.

Splicing. Splicing methods used for cold resistant belting are the same as for other rubber multi-ply and steelcord belts. Splicing materials should always be supplied by the manufacturer of the belt.

Seek advice. As often as not, the quality of a belt (including its ability to resist extreme cold) is reflected in its price. It is always worth the effort to check the original manufacturers specifications very carefully and ask for documented evidence of actual tested performance before placing your order.

For more information on this subject please contact your local Dunlop Sales representative or Dunlop's Application Engineering team on +31 (0) 512 585 555

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