

Products & Applications

# *Cement manufacture*



[www.optibelt.com](http://www.optibelt.com)

# optibelt



Power Transmission

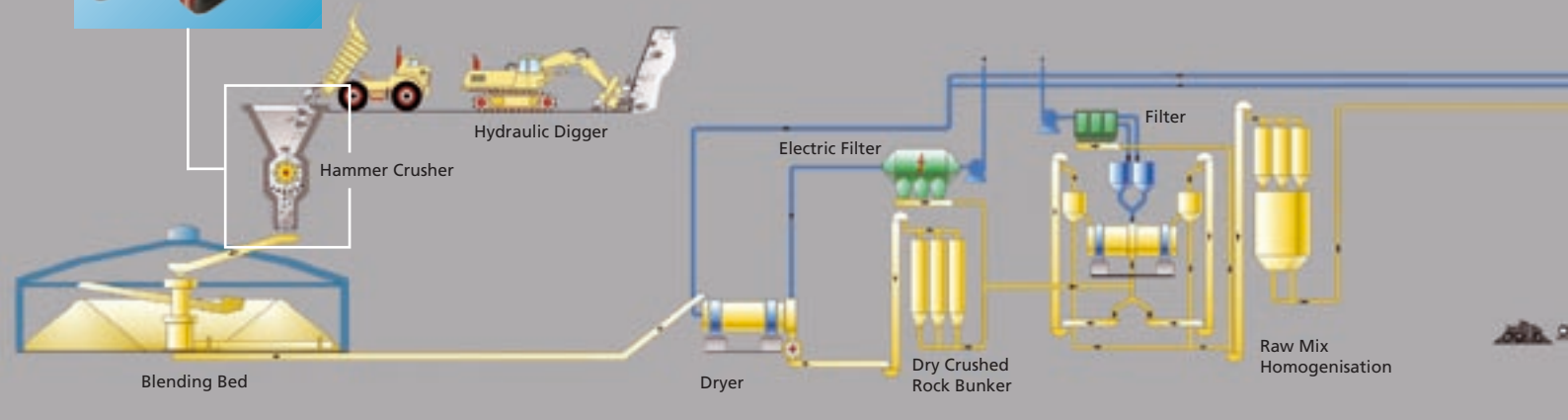
**Drive solutions with Optibelt**

# Cement manufacture



optibelt RED POWER II

optibelt Super X-POWER



*The production process cycle*

The raw material (limestone, clay, sand and iron ore) is primarily gained from the quarries via blasting.

The raw material is then broken down into crushed rock by **crushers** (lime/marl crushers) and transported to the cement factory.

All of the raw materials are then milled together and dried in the **ball mill**.

The raw mix which is produced from this process is then burned into so called clinkers in a **rotary kiln** (at approx. 1450 °C).

Finally the material will then be cooled down in a **cooler** to a temperature of under 200 °C.

Before being transported to the ball mill and before the milling stage, the large clinker parts will be broken down by a clinker crusher hammer.

The generated granules are then milled together with gypsum or anhydrite in the **ball mill** in order to produce the finished product – the cement.

The shipment of the cement takes place either loose or it will be filled into bags.



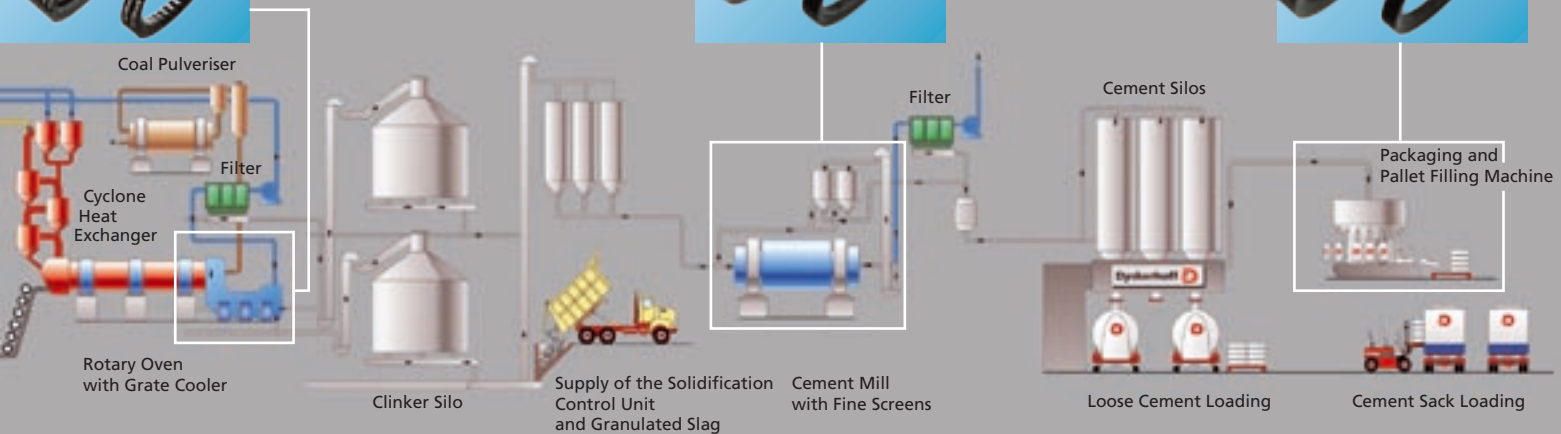
*Packaging of a bag of cement*



**optibelt VB 5-C PLUS**



**optibelt SK 5-C PLUS**



## Circular cycle with aramid V-belts

Immense drum mills are used in order to break down the raw materials. The drives move a volumetric capacity of between 40,000 and 160,000 litres. Optibelt V-belts with aramid tension cords were recommended, that are now used by SACMI in order to ideally meet the requirements, to increase the reliability and to minimise the stretching. On each side of the drive, 32 Optibelt KR V-belts in the 8V 4500/11430 mm size are used. As of that point, SACMI has also been using Optibelt CAP calculation program for the design and calculation of drives. In addition to this, the Italian Company has also been using the TT frequency tension tester in order to inspect the tension of V-belts and Kraftbands.



*Cement mill*

## The belts have been found ...

In their 50 production facilities worldwide, Metso Minerals manufactures systems and machines that are sold in over 100 countries via sales offices. Going into detail, Metso Minerals produces – amongst other products – mobile crushing plants for commission processing companies, stone crushing firms, mining company as well as for industry sectors.

According to Tero Majuri, development engineer at Metso Minerals: “The Optibelt RED POWER II products are the first choice when looking for appropriate belts.” Due to the fact that high power drives are used during the crushing and milling phases, this means that accordingly top-quality belts are also required.

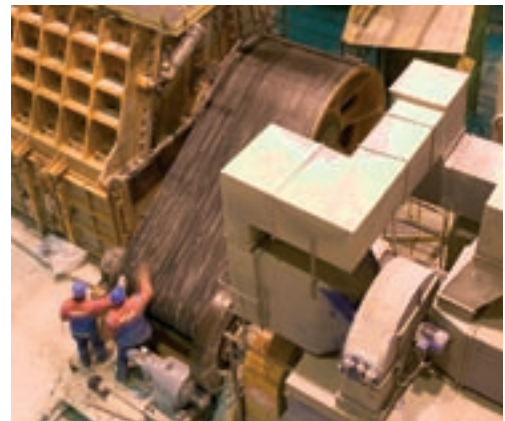
“In RED POWER II from Optibelt, we have found the best belts for our new generation of impact crusher and jaw crushing drives.”



## optibelt V-belts in use

One of the largest stone crushing systems in Europe can be found in the town of Slite, which is located on the Swedish island of Gotland, located in the Baltic Sea – 90 kilometres away from the mainland. It is on this island that the Swedish Company Firma Cementa, a Swedish subsidiary of Heidelberg Cement operates huge systems

for the production of cement. Today 64 Optibelt-developed S=C PLUS V-belts drive the Swedish stone crushing system. In particular, the 8V 5230/13280 mm size of Optibelt S=C PLUS is used on site here which ensures that Cementa can produce 2,000 tonnes of stone per hour.



Crusher

# Drive Optimisation



Power Transmission



RED POWER II in a quarry in Great Britain

## Deployment in the most difficult of conditions

**Engineers at a large Tarmac UK quarry site have specified Optibelt's RED POWER II maintenance-free V-belts across all V-belt drives after they had shown significant improvements over conventional belts on a crusher application.**

Engineers at Tarmac's Dene quarry initially involved Optibelt with the site's Mansfield No. 3 crusher. The four SPC 5000 belts on this machine required re-tensioning roughly every two weeks due to stretching and needed to be replaced frequently. Optibelt recommended RED POWER II maintenance-free belts which are designed to require no re-tensioning throughout their service life and can also transmit up to 40% more power than a conventional belt.

After over 18 months of operating around sixty hours per week these belts are still running without problem and have required no adjustment or attention in this time. As a result of this, RED POWER II belts have been specified across the site and the belts have now been proven on a range of plant including exhaust fans, conveyors, a rotary drum dryer and Bradley mills.

As well as belt cost and productivity improvements, an increase in the efficiency of the drive was predicted. Due to special manufacturing processes and precise tolerances, Optibelt V-belts can be expected to operate more

efficiently than alternative V-belts, particularly when used in sets. Typically drive efficiencies of 97% can be achieved, compared to around 94% or less which is normal for V-belts. Because RED POWER II maintenance-free belts keep their tension throughout their service life, this level of efficiency can then be maintained while alternative belts tend to loose tension and start to slip excessively.

Power measurements taken before and after fitting a set of RED POWER II belts to the Mansfield No. 4 crusher on site revealed a significant drop in the power consumption after the RED POWER II belts were fitted.

A measured, average power consumption of 129.78 kW fell to an average of 123.03 kW, recorded over a similar period, after the original belts had been replaced with Optibelt RED POWER II. This represents a saving of approx 6.75 kW equivalent to 5.2%. Further power savings were also measured on conveyor and mill applications.

RED POWER II belts are available in all of the common sizes including SPZ, SPA, SPB, SPC and in both single and kraftband form. They are a drop-in replacement for conventional V-belts and can be fitted without making any modification to the drive or pulleys, making them a quick, easy and low cost way of achieving multi-layer cost and productivity improvements across a wide variety of plant.



## optibelt **RED POWER II**

**High power wedge belts, maintenance-free**

In the 2<sup>nd</sup> generation, RED POWER II V-belts and kraftbands are producing results that you can take a look at: Up to a 42% increase in power in combination with cost savings of up to 20%.

Improved production technique and the consistent further development of the base product lead to this great result. The cost savings can be explained as follows:

**Less belts + narrower pulleys  
+ reduction of construction space**

**= lower costs**

## optibelt **SK S=C PLUS**

**High power wedge belts DIN/ISO**

The wrapped Optibelt SK was primarily developed for machine construction. This belt can transfer substantially high levels of power in comparison with classical V-belts with a comparable upper width – e.g. SPB Section and B/17 Section.

With a 97% efficiency, the wrapped V-belts have the well-known Optibelt S=C PLUS quality and are unmeasured and can be used in sets.

Sections: SPZ; SPA; SPB; SPC



## optibelt **VB S=C PLUS**

**Classical V-belts DIN 2215**

Based upon its huge range of application area, the Optibelt VB is the classic model amongst the drive belts. The qualities of this belt come into their own when used with heavy drives in agricultural machine construction just as well as when used with extraordinary drive solutions, for example with V-flat drive in machine construction.

Optibelt VB classical V-belts are S=C PLUS and are therefore unmeasured and can be used in sets.

Sections: 5; Y/6; Z/10; A/13; B/17; 20; C/22; 25; D/32; E/40

## optibelt **Super X-POWER**

**Raw edge, moulded cogged V-belts**

Consistent further development of the production technique, improved materials, low-stretch polyester cords and an optimal moulded cog form the basis of this new generation of belts.

Optibelt Super X-POWER M=S enables complex drive solutions in the whole machine construction sector in the most difficult of conditions and extreme operational demands.

Sections: XPZ; XPA; XPB; XPC; 3VX/9NX; 5VX/15NX





### optibelt TT 3

**Frequency tension tester for the universal measurement of the belt tension of V-belts, timing belts and ribbed belts**

The Optibelt TT 3 frequency tension tester provides safety for your drives. The consistent further development of frequency tension testing technology enables an individual data recording of all belt drives. The display is in Hertz [Hz] and is given in Newton [N] when the belt parameters have been inputted.

### optibelt TT mini S

**The new, compact frequency tension tester with a flexible swan neck for trouble-free measuring at spots**

The Optibelt TT mini S frequency tension tester is an appliance that is used to check the tension of drive belts by means of measuring frequency.

The Optibelt TT mini S can even be used in difficult-to-reach places. V-belts, ribbed belts and timing belts can be simply and quickly reached in order to check their tension values.

### optibelt Service-Box

**... for quick on-site help**

The service box from Optibelt is meant to support many application areas on site. Centre distances, belt lengths and pulley diameters can be established quickly and without problems by means of the flexible measuring tape.

V-belts and pulleys can be identified quickly and effortlessly with the V-belt and pulley groove gauges. In particular, the pulley groove flanks of V-grooved pulleys can be checked for angular deviation and wear.

Where necessary, marks may be made on the belts such as measurements, reference marks etc. which are clearly readable using the special ball point pen with silver refill.

The obligatory magic thumb method for setting belt tension is made redundant thanks to the Optikrik belt tension gauge.

The application and control of belt tension with the Optikrik facilitates the maintenance work of the fitter and increases the safety of drives.



### optibelt laser pointer II

**An indispensable aid for belt drives**

The simple to use Optibelt laser pointer II is a device which particularly proves its value in daily usage. The Optibelt laser pointer II facilitates the alignment of belt drives.

It helps in recognising the three most common causes of drive problems:

- the axial offset of the pulleys
- the horizontal angle deviation
- the vertical angle deviation

### optibelt CAP 6.0

**Drive calculation program in new form**

The Optibelt CAP drive calculation program has been used for many years on a worldwide basis for the calculation and design of belt drives. Now Optibelt would like to present the next generation: CAP 6.0.

The new visual appearance displays the drive design in a clear illustration and facilitates a quick and well laid out drive design/drive calculation.



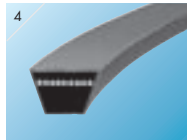
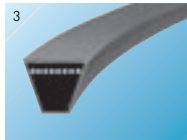
# optibelt



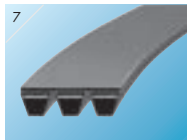
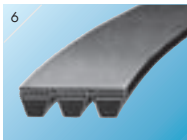
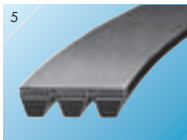
## Lieferprogramm Product Range



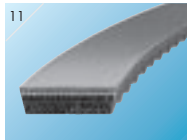
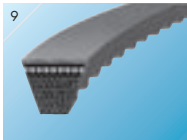
1 **optibelt RED POWER II**  
5 **optibelt KB RED POWER II**  
Hochleistungs-Schmalkeilriemen,  
wartungsfrei  
*High performance wedge belts,  
maintenance-free*



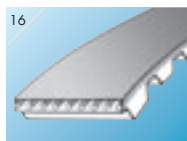
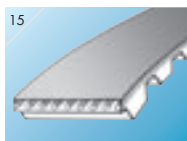
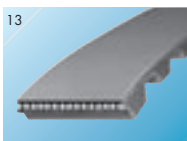
2 **optibelt BLUE POWER**  
6 **optibelt KB BLUE POWER**  
Hochleistungs-Schmalkeilriemen  
*High performance wedge belts*



3 **optibelt SK**  
7 **optibelt KB SK**  
Schmalkeilriemen  
*Wedge belts*



4 **optibelt VB**  
8 **optibelt KB VB**  
Klassische Keilriemen  
*Classical V-belts*

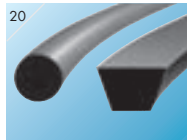
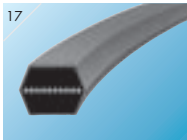


9 **optibelt Super X-POWER M-S**  
Keilriemen, flankenoffen,  
formgezahnt  
*V-belts, raw edge,  
moulded cogged*

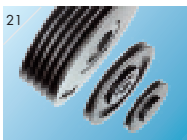
10 **optibelt Super KBX-POWER**  
Kraftbänder, flankenoffen  
*Kraftbands, raw edge*

11 **optibelt SUPER VX**  
Breitkeilriemen, flankenoffen,  
formgezahnt  
*Variable speed belts,  
raw edge, moulded cogged*

12 **optibelt SUPER DVX**  
Doppel-Breitkeilriemen,  
flankenoffen, formgezahnt  
*Double section variable speed belts,  
raw edge, moulded cogged*



13 **optibelt ZR**  
**optibelt ZR linear**  
Zahnriemen aus Chloropren  
*Chloroprene timing belts*



14 **optibelt OMEGA HL**  
**optibelt OMEGA HP**  
**optibelt OMEGA FanPower**  
**optibelt OMEGA linear**  
Zahnriemen aus Chloropren  
*Chloroprene timing belts*

15 **optibelt ALPHA Power**  
16 **optibelt ALPHA**  
**optibelt ALPHA linear / V**  
**optibelt ALPHAflex**  
Zahnriemen aus Polyurethan  
*Polyurethane timing belts*

17 **optibelt DK**  
Doppelkeilriemen  
*Double section V-belts*

18 **optimat OE**  
Endliche Keilriemen  
DIN 2216, gelocht  
*Open-ended V-belt,  
punched*

19 **optibelt RB**  
Rippenbänder  
*Ribbed belts*

20 **optibelt RR / RR PLUS**  
Kunststoffrundriemen  
*Plastic round section belting*

20 **optibelt KK**  
Kunststoffkeilriemen  
*Plastic V-belt*

21 **optibelt KS**  
Keillinscheiben  
*V-grooved pulleys*

22 **optibelt ZRS**  
Zahnriemenscheiben  
*Timing belt pulleys*

23 **optibelt RBS**  
Rippenbandscheiben  
*Ribbed belt pulleys*

24 **optibelt SERVICE KIT**