

# MATERIAL HANDLING COMPACT CATALOGUE



### "A matter of trust."

Paul, 46, construction foreman

### **POLYURETHANE TIMING BELTS**

Polyurethane timing belts are convincing due to their impressive product features.

They set standards regarding strength, elongation and wear.

The thermal and chemical capacity is exceptional.

It is good to know that these benefits are combined with competent technical service.

### FIRST CLASS PRODUCTS FOR FLEXIBLE DRIVE SOLUTIONS AND CONVEYANCE CHALLENGES

Optibelt is capable of implementing even the most challenging requirements cost-effectively.

Professionalism you can also benefit from.





### optibelt ALPHA - BELT PRODUCT RANGE

		PRODUCT GROUP	S	
	ALPHA TORQUE ALPHA POWER ALPHA SRP	ALPHA FLEX	ALPHA LINEAR	ALPHA V
	Cast, endless	Extruded, endless	Extruded, open-ended	Welded, endless
BASIC PROFILES		PR	OFILES	
Profile, imperial	MXL, XL, L (ALPHA TORQUE)	Н	XL, L, H, XH	XL, L, H, XH
Profile T	T2.5, T5, T10, T20, DT5, DT10	T5, T10, T20 DT5, DT10	T5, T10, T20,DT5, DT10	T5, T10, T20, TT5, DT5, DT10
Profile TK, wedge			Т5К6, Т10К6, Т10К13	т5к6, т10к6, т10к13
Profile AT	AT5, AT10	AT5, AT10, AT20, DAT5, DAT10	AT5, AT10, AT20, DAT5, DAT10	AT5, AT10, AT20, DAT5, DAT10
Profile ATK, wedge		AT5K6, AT10K13	AT5K6, AT10K6, AT10K13	AT5K6, AT10K6, AT10K13
Profile ATL			ATL5, ATL10, ATL20	
Profile ATC, cleat				ATC10, ATC20
Profile HTD		5M, 8M, 14M, D5M, D8M	5M, 8M, 14M, 8ML, 14ML, 14MLP	5M, 8M, 14M, D5M, D8M
Profil STD			S8M	
Profile F, flat belts			F2, F2.5, F3, F4.5, FL3	F2, F2.5, F3, F4.5
Standard tension cord <sup>1</sup>	Steel	Steel Steel, highly flexible excluding: T5, T20, AT20, 5M, 14M, H Stainless steel excluding: T5, AT5, 14M, H Reinforced tension cord: AT20 HP– Steel only AT5 HP– Steel only AT5 HP– Steel, steel highly flexible, stainless steel	Steel XL, L, 5M, 8ML, 14M, 14 ATL5, ATL10, ATL20, F2/ F3, FL3, F4.5 Steel, highly flexible exclu 14MLP, T5, AT20, ATL10, groove free, F2,5, F3, FL3 Stainless steel excluding: 14ML, 14MLP, T5, AT5, A F2/F2.5/F3 groove free, Reinforced tension cord: 1 AT10 HP – steel only	ML, 14MLP, AT5, AT20, F2,5/F3 groove free, F2.5, ding: XL, 8ML, 14M, 14ML, ATL20, F2/F2.5/F3 8, F4.5 XL, L, 5M, 8ML, 14M, AT20, ATL5, ATL10, ATL20, F2.5, F3, FL3, F4.5 T10 HP – aramid only
Special tension cords	Aramid Steel, highly flexible Stainless steel Polyester, Vectran	On request	On	request
Optionally without coiling sleeve	-	-	Profile T10,F2,F2.5,F3 available without sleeve r	nose + <sup>2</sup>

 $^1\hdots$  and without the corresponding profiles TK, ATK  $^2$  other profiles on request

# POWER TRANSMISSION DRIVES

Ideal dynamic power transmission is now possible with high tensile, low vibration, no-maintenance drive belts that are masters of the art of optimal performance. This is where PU timing belts **optibelt ALPHA TORQUE**, **optibelt ALPHA POWER** and **optibelt ALPHA FLEX** come into their own.

These high performance cast hard polyurethane belts stand out with their high tensile strength and abrasion resistance, their extreme ozone and UV resistance, and their exceptional resistance to oils and greases. This impressive reliability enables them to achieve slip-free synchronous power transmission of up to several hundred kilowatts.

# optibelt ALPHA TORQUE

### - FOR POWER TRANSMISSION DRIVES

### PROFILES



MXL, XL, L, T2.5, T5, T10, T20



DT2.5, DT5, DT10



AT3, AT5, AT10



### ENDLESS, CAST optibelt ALPHA TORQUE POLYURETHANE TIMING BELTS HAVE THE FOLLOWING FEATURES:

- Useful sleeve widths of up to 380 mm
- Belt lengths up to 2250 mm
- Unlimited choice of colours on request
- Position of tolerance field variable, e.g. for fixed drive centre distances
- Available single-toothed profiles: AT3, AT5, AT10, T2.5, T5, T10, T20, MXL, XL, L
- Double-toothed version available for profiles DT2.5, DT5, DT10
- Tension cords: steel, highly flexible steel, stainless steel, aramid, polyester, Vectran



## optibelt ALPHA POWER

### – FOR HIGH PERFORMANCE POWER TRANSMISSION DRIVES



### ENDLESS, CAST optibelt ALPHA POWER POLYURETHANE TIMING BELTS HAVE THE FOLLOWING FEATURES:

- Improved mechanical properties in optibelt ALPHA POWER
- Up to 30% higher power transfer
- Available with single-toothed profiles: AT3, AT5, AT10, T2.5, T5, T10, T20
- Double-toothed version available for profiles DT2.5, DT5, DT10
- Very accurate pitch and low tolerances
- Strong attachment of polyurethane to tension cord
- Position of tolerance field variable, e.g. for fixed drive centre distances
- Tension cords: steel, highly flexible steel, stainless steel





T2.5, T5, T10, T20



DT2.5, DT5, DT10



AT3, AT5, AT10



# optibelt ALPHA FLEX

### - FOR POWER TRANSMISSION DRIVES

### PROFILES



H, T5, T10, T20



DT5, DT10



AT5, AT10, AT20



#### DAT5, DAT10







D5M, D8M



AT5K6, AT10K13



### ENDLESS, EXTRUDED optibelt ALPHA FLEX POLYURETHANE TIMING BELTS HAVE THE FOLLOWING FEATURES:

- Length range from approx. 1100 mm to 22 000 mm
- Length range producible in separation stages
- Production widths 100 mm and 150 mm
- Optionally available with polyamide fabric on the teeth from a length of 1500 mm
- Direct welding on of cleats and V-guides possible
- With options of highly flexible and stainless steel tension cords
- Available with S+Z cord twist
- Available in profiles H, T5, T10, T20, AT5, AT10, AT20, 5M, 8M, 14M
- Double-toothed profiles for DT5, DT10, DAT5, DAT10, D5M, D8M available
- Profile AT5 available in HP design (reinforced tension cord) with steel, highly flexible steel and stainless steel
- Profile AT20 available in HP design with steel.



Concept of the **optibelt ALPHA FLEX** timing belt with dual (S+Z) spirally wound tension cords and extruded and moulded polyurethane

# LINEAR DRIVES

For exact positioning and repetition accuracy in linear drives, **optibelt ALPHA LINEAR** timing belts are a reliable choice.

They are extruded and moulded from thermoplastic polyurethane and therefore show exceptional dimensional stability. In addition, they feature low tooth deformation and high abrasion resistance due to high-strength steel and aramid tension cords. If required, the **optibelt ALPHA LINEAR** timing belt can also be given a thin polyamide fabric layer on the tooth side or on the top surface of the belt in order to reduce friction and noise.

# - FOR LINEAR DRIVES

### PROFILES



XL, L, H, XH, T5, T10, T20



AT5, AT10, AT20, ATL5, ATL10, ATL20



5M, 8M, 8ML, 14M, 14ML, 14MLP







F2, F2,5, F3, F4,5, FL3



T5K6, T10K6, T10K13



AT5K6, AT10K6, AT10K13



### OPEN-ENDED EXTRUDED optibelt ALPHA LINEAR POLYURETHANE TIMING BELTS HAVE THE FOLLOWING FEATURES:

- High tensile strength with low elongation
- High-precision positioning
- Tension cords: steel, highly flexible steel, stainless steel, aramid
- With options of reinforced belt top surface, T2, yellow PU foam and APL plus
- ATL version timing belts for linear drives
- Polyamide fabric layers on tooth side and/or belt top surface available
- PU also available with FDA approval for food contact
- Optional colours available
- Roll length 50 m or 100 m, > 100 m available on request
- Profile AT10 available in HP design with steel
- Profile T10 available in HP design with aramid
- Available in profiles XL, L, H, XH, T5, T10, T20, AT5, AT10, AT20, ATL5, ATL10, ATL20, 5M, 8M, 14M, 8ML, 14ML, 14MLP, S8M, F2, F2.5, F3, F4.5, FL3, T5K6, T10K6, T10K13, AT5K6, AT10K6, AT10K13
- Groove free version available in profiles T10, F2, F2,5, F3



Design of the **optibelt ALPHA LINEAR** timing belt with parallel tension cords and extruded polyurethane

# CONVEYOR DRIVES

Tailor-made and extremely cost-effective conveying concepts can be sustainably achieved with **optibelt ALPHA V** and **optibelt ALPHA SRP** timing belts. These are ideal for a wide range of conveying applications and can be endlessly welded from linear belts as required for the application. With their exceptional tensile strength and a precisely moulded cleat structure, these timing belts made of flowable cast polyurethane stand out due to their very precise and low-vibration performance. Their individual configurability is another convincing feature: Cleats and V-guides can be directly welded on, allowing them to be precisely matched to the goods to be conveyed.

# - FOR CONVEYOR DRIVES





**optibelt ALPHA SRP** timing belts with cleats

### MOULDING BY CENTRIFUGAL CASTING



optibelt ALPHA SRP timing belts with coating



### FEATURES OF THE CAST optibelt ALPHA SRP WITH CLEATS:

- Easy production of small belts with cleats through moulding process
- Large number of cleats within a small space
- Finely developed, precisely shaped cleat geometries due to flowable cast polyurethane
- Reproducible high precision
- High stability of the adhesion between the cleat and the base belt due to homogeneous compounding

### FEATURES OF THE CAST optibelt ALPHA SRP WITH A POLYURETHANE BACKING:

- Production of small coated timing belts or flat belts by moulding
- Coating without joints, no binding running direction
- Consistently high manufacturing precision
- High stability of the adhesion between the backing and the base belt due to homogeneous compounding

THE optibelt ALPHA SRP MOULDS ARE BASED ON THE MOULDS FOR THE optibelt ALPHA POWER AND optibelt ALPHA TORQUE TIMING BELTS.

# - FOR CONVEYING APPLICATIONS



### OPEN-ENDED WELDED optibelt ALPHA V POLYURETHANE TIMING BELTS HAVE THE FOLLOWING FEATURES:

- Minimum belt length ranges from 400 mm to 1200 mm, depending on width and pitch
- Lengths producible in separation stages
- Can be supplied cost-effectively and at short notice
- Ideal for conveyor drives
- Polyamide fabric available on tooth side and/or belt top surface
- PU also available with FDA approval for food contact
- The reinforced top surface version and the T2, yellow PU foam and APL plus versions can be welded on without a joint
- Direct welding on of cleats and V-guides possible
- Despite discontinuous tension cords, these belts offer approx. 50% of the performance of endless timing belts
- Available with profiles: XL, L, H, XH, T5, T10, T20, TT5, AT5, AT10, AT20, 5M, 8M, 14M, T5K6, T10K6, T10K13, AT5K6, AT10K6, AT10K13, F2, F2.5, F3, F4.5, ATC10, ATC20, DT5, DT10, DAT5, DAT10



### PROFILES



XL, L, H, XH, T5, T10, T20, TT5



### AT5, AT10, AT20



ATC10, ATC20



5M, 8M, 14M,



T5K6, T10K6, T10K13



AT5K6, AT10K6, AT10K13





DT5, DT10



## - WITH COATINGS

## - WITH MECHANICAL PROCESSING

SPECIAL

## - WITH CLEATS

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# optibelt ALPHA SPECIAI - WITH COATINGS



APL plus

### TIMING BELTS WITH COATINGS

**optibelt ALPHA SPECIAL** belts have a coating on the top surface and undergo additional mechanical processing. The wide range of coatings and finishing options combined with the features of the timing belt allow innovative solutions to be developed for conveyor applications.

## OVERVIEW OF COATINGS, MATERIAL QUALITIES AND SU

### FOAM



### **POLYURETHANE (PU)**

- Sylomer R (see Fig.)
- Sylomer L
- Celloflex
- Sylomer M
- PU-Smart
- PU 06



**RUBBER** – Porol (see Fig.) – EPDM

### **PROFILED OR STRUCTURED**



POLYURETHANE (PU)

- PU longitudinal groove (see Fig.)
- Pointed cone
- PU longitudinal groove, rough
- PU spike profile
- Pebbles, rounded cone



RUBBER – Supergrip black (see Fig.) – Supergrip blue





### **POLYVINYL CHLORIDE (PVC)**

- PVC shark tooth (see Fig. above)
- PVC longitudinal groove
- Supergrip petrol blue
- Supergrip green
- Supergrip white (see Fig. below)
- Minigrip petrol blue
- Minigrip green
- PVC cleats
- PVC fishbone pattern
- PVC sawtooth
- PVC triangular profile

## **RFACE FINISHES**

### **SMOOTH OR SLIGHTLY STRUCTURED**



### POLYURETHANE (PU)

- PU foil 65 Shore A
- Polythane D15
- Polythane D44
- PU foil blue
- PU foil 85 Shore A
- T2 (see Fig.)
- PU foil 92 Shore A
- Reinforced top surface



### RUBBER

- RP 400 (see Fig.)
- Correx beige
- Linatex
- Linaplus FGL
- NG red
- Linatrile
- Elastomer green



#### POLYVINYL CHLORIDE (PVC)

- PVC foil petrol blue (see Fig.)
- PVC foil green
- PVC foil blue
- PVC foil white
- APL plus



**PA FABRIC**– PA fabric (see Fig.)– PA fabric antistatic





### SPECIAL

- PTFE (see Fig. above)
- TT60
- Paraskin
- Chrome leather (see Fig. below)
- Viton

### **OPTIBELT – EXTRACT FROM STANDARD COATINGS**

Picture of the coating	Name, colour, material Standard thickness s [mm] Minimum pulley Ø [mm]	Hardness / density Degree of grip	Temperature resistance Abrasion resistance
	Sylomer L, green, PU foam           s         6.0         12.0         15.0         20.0         25.0           Ø         120         240         300         400         500	✓ ≈ 300 kg/m <sup>3</sup> ✓ Degree of grip	↓ -30°C+70°C ↑ ↓ Abrasion resistance ↑
	PU 06, yellow, fine pored PU         s       2.0       3.0       4.0       5.0       6.0       8.0         Ø       60       70       80       100       120       160	<ul> <li>↓ ≈ 55 Shore A</li> <li>↓ Degree of grip</li> </ul>	↓ -10°C+60°C ↑ ↓ Abrasion resistance ↑
	PU foil 85 Shore A, transparent, PU         s       2.0       3.0       4.0         Ø       60       80       100	<ul> <li>✓ ≈ 85 Shore A</li> <li>✓ Degree of grip</li> </ul>	↓ -10°C+70°C ↑ ↓ Abrasion resistance ↑
	Linatex, red, natural rubber         s       1.5       2.4       3.2       5.0       6.4       8.0         Ø       30       50       65       100       140       180	<ul> <li>✓ ≈ 38 Shore A</li> <li>✓ Degree of grip</li> </ul>	↓ -40°C+70°C ↑ ↓ Abrasion resistance ↑
	PU longitudinal groove, fine, transparent, PU, groove pitch 2 or 2.5 mm - depending on belt width           s         3.5           Ø         70	<ul> <li>✓ ≈ 85 Shore A</li> <li>✓ Degree of grip</li> </ul>	↓ -10°C+70°C ↑ ↓ Abrasion resistance ↑
Contraction of the second seco	Supergrip petrol blue, polyvinyl chloride       s     3.0       Ø     60	<ul> <li>✓ ≈ 40 Shore A</li> <li>✓ Degree of grip</li> </ul>	↓ -10°C+90°C ↑ ↓ Abrasion resistance ↑
	APL plus, red, elastic PVC           s         2.0         3.0           Ø         60         80	<ul> <li>↓ ≈ 65 Shore A</li> <li>↓ Degree of grip</li> </ul>	↓ -20°C+100°C ↑ ↓ Abrasion resistance ↑

# optibelt ALPHA SPECIAL

### - WITH MECHANICAL PROCESSING



### **MECHANICAL PROCESSING**

Additional geometrical and dimensional adaptations can be made to standard timing belts, coated belts, and timing belts with cleats in order to expand the range of possible applications.

The following mechanical processing methods are available:

- Grinding
- Milling
- Water jet cutting
- Punching
- Drilling
- Cutting, carving





Punched timing belt









# - WITH CLEATS

### TIMING BELT WITH CLEATS

Cleats can be applied to optibelt ALPHA LINEAR, optibelt ALPHA V and optibelt ALPHA FLEX timing belts using various methods. These include welding, chemical bonding and mechanical connections. The in-house injection moulding process incorporated in the production cycle ensures good product availability.

If the right cleat for the job is not available in the existing range, it can be custom made or adapted cost-effectively to your specification. We would be pleased to help you find the ideal solution for your conveying requirements.





Cleats with punched holes, with attachments for tool holders







# - WITH CLEATS



In contrast to coatings that rely on a frictional connection, cleats allow for positive-fit traction of goods on conveyors. They can also:

- Convey and, if necessary, align products longitudinally and/or laterally
- Position products on the conveyor belt
- Separate products
- Secure items for high acceleration and/or high speed transfer
- Synchronise the conveyed goods with the base belt

The Optibelt cleat range includes a large number of cast blanks and cleats that are ready for use for many purposes. If none of these cleats fits your requirements, a suitable cleat can be made

- By mechanically processing an existing cleat,
- With a custom-made injection mould.

The use of an injection mould is ideal for producing medium quantities or more of simple cleat shapes and small quantities of more complex cleat shapes. This can be done in the company's own tool shop.

### Available standard polyurethane cleat materials:

- PU 92 Shore A, white
- PU 65 and 85 Shore A, transparent
- PU 98 Shore A, greyish white
- PU FDA 85 Shore A, transparent/blue
- PU (with GFK)

### FURTHER MATERIALS AND COLOURS AVAILABLE ON REQUEST.



Cleats as workpiece holders



Parallel conveyors with supporting table

### Shape and function of the cleat

		simple						special		
rectangular	round	T-shaped, L-shaped	fan-shaped	trapezoidal shape	trapezoidal V-shape	triangular	concave, convex	groove	holes	inserts









# - CUSTOMISED SOLUTIONS

The finishing of PU timing belts is one of our specialities. Thanks to our many years of experience, we are able to develop optimal solutions for special types of applications for our customers in the transport, food, packaging, glass, wood, linear and medical sectors.

- All open-ended or joined belt product groups can be used for transporting purposes. Application examples include: Parallel or synchronous conveyor, inclined conveyor, accumulating conveyor, vacuum conveyor, withdrawal facility, separator or workpiece positioner.
- The base belts selected for the requirements can be adapted as necessary to the conveying task with coatings and/or cleats.
- The dimensions and geometry of the base belt, the coating and the cleat can be adapted by mechanical processing, including in combination with each other.

These subsequently machined special belts are labelled "SPECIAL" in addition to their product group name.

For example, the product group name of an endless welded **optibelt ALPHA V** polyurethane timing belt with subsequently applied coating is changed to **optibelt ALPHA V SPECIAL**.

#### **COATED TIMING BELTS HAVE THE FOLLOWING FEATURES:**

- Special chemical resistance, e.g. for applications in the food industry
- High abrasion resistance, e.g. for accumulating conveyors
- High temperature resistance, e.g. for conveying heat-treated parts
- Good cutting resistance, e.g. for conveying sharp-edged goods
- Non-stick, e.g. for contact with adhesives
- Antistatic, e.g. for transport with electronic components
- Good damping properties, e.g. for damping the impact when sensitive goods are placed on the belt

# - APPLICATION EXAMPLES



Fig. 1: Customised solution for conveying semi-finished goods

For a special machinery manufacturer, Optibelt has developed a solution (see Fig. 2), for conveying cut-on-demand material (pipe, square and rectangular profiles) – without changing the belt type.

Furthermore, the solution proposed should prevent slippage of the cut material due to the start-stop frequency. The belts should run synchronously parallel to each other, depending on the lengths of the cut profile and the number of belts (4-6 belts). The top surface of the belt is equipped with foam profiles (Sylomer R, blue, PU foam) and PU cleats to ensure that the different profiles are conveyed in a precise position.



The example given in Fig. 1 shows a customised solution developed for conveying semi-finished goods. In this particular case, an **optibelt ALPHA V** AT20 – ST was coated with Sylomer L green PU foam coating material. Afterwards, grooves and holes were cut out with a water jet, and vacuum pockets machined with NC mills, so that vacuum technology could be used to convey the semi-fin-

ished goods onwards for additional processing.

Fig. 2: Customised solution for conveying cut material



Fig. 3: Customised solution for conveying pet/animal food packaging

The customised solution shown in Fig. 3 was commissioned by a customer from the pet/animal food industry in order to convey empty pet/animal food packaging to filling stations. The top surface of the belt was coated with a natural rubber (RP 400, yellow) and equipped with cleats. The welded cleats have an additional glass fibre reinforced protective layer in order to counter the high shear forces of the sharp-edged empty pet/animal food packaging. Furthermore, the cleats ensure exact positioning of the goods to be conveyed.

## **optibelt ALPHA ATC** POLYURETHANE TIMING BELTS WITH FLEXIBLE CLEAT SYSTEM

optibelt ALPHA ATC makes complex drive solutions possible in all areas of mechanical engineering under the most difficult conditions and extreme operational demands.

- **PATENTED DRIVE SYSTEM SOLUTION**
- SIMPLE AND QUICK ASSEMBLY

FLEXIBLE PROFILE ASSEMBLY ON SITE

# - FOR FLEXIBLE TRANSPORT APPLICATIONS







ATC section with recesses for ATC-IN inserts in each tooth



Punching of a through-hole with **ATC-PT** punching tool



**ATC** section with punched holes for **ATC-IN** inserts and installation of a screw-on cleat

The user of the **ATC-System** can fasten screw-on cleats quickly and easily to a freely selectable tooth on the spot. The fastening and detaching of the connection can be performed directly by the user. As a result, varying forms of transported goods can be adjusted on the same drive and base belt using different screw-on cleats. The costs for stock-keeping of wear and spare parts can be reduced by detachable cleat fastenings.

ATC inserts additionally make it possible to screw parts on directly, such as highly precise metal workpiece carriers without welded-on, separately manufactured cleats with inserts. Furthermore, screw-on cleats can transmit higher forces in comparison to permanently connected cleats. In addition, a smaller minimum pulley diameter can be chosen comparatively for the same fastening strength. Screw-on cleats for the ATC-System are available on request.

With the ATC-System, an ATC-IN insert for screwing on the cleat is laid into the prepared recess in the tooth. These recesses in the **optibelt ALPHA V** timing belt are consistently available in all teeth in sections ATC10 and ATC20.





Connecting dimensions of a screw-on cleat with a centre distance "a" depending on **ATC** insert

Cleats for the belt widths 50 mm and 100 mm, which were designed for a fastening system available on the market using individual inserts, are compatible with the **ATC-System** for profile **ATC10**. Existing cleats can be used without the need for any additional measures.

### ACCESSORIES



## optibelt ATC-SYSTEM ASSIGNMENT AND PROPERTIES

ATC belt section	ATC standard belt width [mm]	ATC insert	Number of ATC inserts/ blind holes or threads	Centre distances of holes or threads [mm]	Thread	Minimum length ALPHA V [mm]
ATC10	25 32 75	ATC-IN M4-14RF	1/2 1/2 2/4	14	M4	850 850 1050
ATC10	50 100 150	ATC-IN M4-25RF	1/2 2/4 3/6	25	M4	850 1050 1150
ATC20	50 100 150	ATC-IN M5-25RF	1/2 2/4 3/6	25	M5	1060 1160 1160

The belt top surface is smooth and does not initially contain any holes. Before inserting the **ATC** insert, the two pre-moulded blind holes in the recess of the selected tooth must be punched out with the **optibelt ATC-PT** punching tool to produce throughholes. To facilitate punching or perforating, **optibelt ALPHA V** timing belt in the profile **ATC10** and **ATC20** does not have any tension cord in the area of the blind holes.

The **optibelt ALPHA ATC** in profile **ATC10** in the standard design is available as an option with polyamide fabric on the tooth side (PAZ). The **ATC10** profile is also available with stainless-steel tension cords for applications in the food and pharmaceutical industry.

The **ATC** stainless steel (RF) insert consists of two sleeves which are interconnected through a stable web. On the tooth side, the **ATC** insert is designed in such a way that it lies completely in the tooth contour and does not touch the tooth system of the timing belt pulley.



Positions and recesses of profiles 50, 100 and 150 **ATC10** and **ATC20** for the corresponding inserts.



Positions and recesses of profiles 25, 32 and 75	
ATC10 for the corresponding inserts.	

Profile	D*
ATC10	6
ATC20	7.5

## **optibelt ATC-IN INSERTS** ASSIGNMENT TO BELT PROFILES AND PROPERTIES

Belt width [mm]	Belt profile	ATC insert	Number of inserts	Centre distance [mm]	Thread	Minimum length for smallest belt width [mm] <sup>1</sup>	Note
25-150	AT10	ATC-IN M4-14	freely selectable depending on belt width	14 or free between inserts	M4	700	ALPHA SPECIAL
40-150	AT10	ATC-IN M4-25	freely selectable depending on belt width	25 or free between inserts	M4	700	ALPHA SPECIAL
45-150	AT20	ATC-IN M5-25	freely selectable depending on belt width	25 or free between inserts	M5	900	ALPHA SPECIAL

<sup>1</sup> Minimum length of larger widths on request, observe minimum lengths of base belts

For even smaller widths of **optibelt ALPHA SPECIAL** of 25 mm, we recommend using the second standard insert **optibelt ATC-IN** M4–14. This insert corresponds to the connecting dimensions of an optibelt ATC-IN M4–25 insert, but with a centre distance reduced from 25 mm to 14 mm.



**optibelt ATC-IN** inserts are available in batch sizes of 10/25/100 piece



**optibelt ALPHA SPECIAL** with AT section with subsequently produced recesses including through-holes

# TIMING BELT PACKAGING

### TIMING BELTS FOR FORM, FILL & SEAL MACHINES

All rubber and polyurethane timing belts of the Optibelt product portfolio can be provided with various coatings for form, fill & seal machines. With the aid of these timing belts, the foil that was previously sealed in a longitudinal direction to form a tube is withdrawn from a filling tube. Due to additional sealing in the transverse direction, a bag is produced that can then be filled. This bag is sealed completely by another transverse seal. This system is used globally in the food and non-food sector. From potting soil to frozen products to salad, consumer products are packed in this way every day.

In this area, **optibelt ALPHA SPECIAL** discharge belts with and without vacuum support have proven successful, with common profiles such as T10, L and H being available in various length ranges.





# S FOR THE INDUSTRY

Of particular note are rubber timing belts with special coatings. These are produced in a vulcanisation process from a base belt with a coating that is neither bonded nor exhibits a joint. Silicone rubber is used as a material for this. However, Linatex<sup>®</sup> and other types of rubber can also be applied to the belt subsequently with a joint in the rubber. In addition, polyurethane coatings – e.g. with PU 06 foam, yellow – are possible. The material requested is also applied subsequently or in an endless spraying process (only in the case of polyurethane timing belts).

However, if higher cycle times are used for the packaging machines, timing belts with vacuum support are a good choice. Optibelt offers various variants and designs of the tooth-side grooves and vacuum pockets.









# TIMING BELT

### BESIDES THE ZS/ZSI TIMING BELT JOINT, CONNECTIONS HAS BEEN EXTENDED BY

### TIMING BELT JOINT ZS AND ZSi

#### THE TIMING BELT JOINT ZS / ZSI IS DESIGNED TO ALLOW REPEATED DETACHING AND JOINING OF TIMING BELTS IN THE APPLICATION ITSELF.

Both designs are offered in stainless steel as standard for the AT10 and H profiles. This connection can therefore be used in the food and pharmaceutical industry in combination with suitable timing belts. For the T10 profile, the tooth inserts are made of stainless steel or brass. Brass is not suitable for application in the food and pharmaceutical industry.

The back plates are connected with the inserts on the toothed side using bolts that are screwed on through the belt. The top surface of the belt is 1 mm higher in the ZSi so that the back plates are embedded inside the timing belt and finish flush with the height of the top surface of the belt.

The standard widths for lock connections are as follows: for profile AT10: 25, 32, 50, 75 and 100 mm, for the T10 profile: 25, 32, 50, 75 and 100 mm, and for profile H: 25.4, 38.1 and 50.8 mm.

Further intermediate widths, and widths exceeding 50 mm, are available on request.



# JOINTS

### THE RANGE OF MECHANICAL THE PINJOIN TIMING BELT JOINT.

### THE PINJOIN TIMING BELT JOINT

#### THE PINJOIN TIMING BELT JOINT IS DESIGNED FOR JOINING BELTS WITH A ONE-OFF, PERMANENT JOINT IN THE APPLICATION ITSELF.

The connection is made with stainless steel threaded pins that fit into laterally drilled holes running longitudinally through the tooth. This connection can therefore be used in the food and pharmaceutical industry in combination with suitable timing belts.

The PinJoin connection is also suitable for connecting coated belts. In the area of the joint, however, the coating is positioned flush face to face.

The standard widths for lock connections for the AT10 profile are: 25, 32, 50, 75 and 100 mm, for the T10 profile: 25, 32, 50, 75 and 100 mm

Additional profiles, intermediate widths and widths exceeding 50 mm are available on request.



## ROUND BELT V-BELT

#### STRUCTURE

Optibelt round belts consist of high grade materials which are produced as open-ended rolls in different diameters from 2 mm to 20 mm in special production processes. The **optibelt RR/KK Plus** version of the round belt additionally incorporates a polyester tension cord

#### PROPERTIES

- Favourable coefficient of friction
- Good slip resistance for conveying goods
- Good abrasion and wear resistance
- High elasticity, good damping
- High tensile strength
- Colour-fast
- Resistant to greases, oils and numerous chemicals
- UV and ozone resistant
- optibelt RR/KK Plus version particularly low stretch

#### **ADVANTAGES**

- Welding on the spot, including for the **optibelt RR/KK Plus** version
- No disassembly of the drive/shafts
- Quick rectification of breakdowns
- Short downtimes
- Easy to store (supplied in rolls)
- Immediate availability
- Wide variety of design options, since any length can be produced

#### **AREAS OF APPLICATION**

**optibelt RR** round belts and **optibelt KK** V-belts are mainly used in conveyor systems, e.g. for conveying of

- Tiles, plates, flat glass
- Veneers in wood processing
- Roof tiles, marble, concrete slabs
- Cardboard conveyance in the packaging sector
- Also as guiding belts for the conveyance of bottles and cans
- optibelt RR/KK Plus is especially suitable for use in long conveyors.

In addition, **optibelt RR** round belts can be used for certain power ranges as dual and multi-pulley drives.

Optibelt manufactures round and Vbelts in various designs.

These can be easily differentiated according to their colours.

For round belts, the colours are yellow, green, blue, white, grey and black. For V-belts transparent, white, and cream.



82 SHORE A YELLOW

For use with small idler pulleys; flexible at low temperatures; very elastic; low power transmission capacity



**85 SHORE A LIGHT BLUE FDA** 

For use in the food processing industry, in direct contact with goods



### 88 SHORE A GREEN (SMOOTH/ ROUGH)

For use in all areas with medium loading; the rough version offers advantages when transporting damp or greasy products and improves the entrainment effect.



#### **92 SHORE A WHITE**

For applications in the medium to heavy duty range, the white version still offers sufficient flexibility.

Suitable for continuous use at high temperatures.



### **98 SHORE A BLUE**

Especially suitable for high loads and high temperatures; extra hard grade; minimum pulley diameters must be observed.



### **65 SHORE A BLACK**

For special applications; belt diameters available from 5 mm to 12 mm; very flexible at low temperatures; extremely soft material



#### **87 SHORE A TRANSPARENT**

For use in all areas with light to medium loads



#### 92 SHORE A WHITE

Applications: for medium to heavy loads; the design still offers sufficient flexibility.



#### **98 SHORE A CRAM**

Applications: especially for extreme loads and high temperatures; very hard quality



## **optibelt HRR** - POLYURETHANE HOLLOW ROUND BELTS

Optibelt hollow round belts are particularly suitable for use in light drive systems and conveyor systems, especially for small pulley diameters. Available as endless metre ware in 75 Shore A in the diameters 4.8 / 6.3 / 8 / 9.5 mm red/smooth and in 85 Shore A 4.8 / 6.3 mm green/rough, these belts are similar to a strong, thick-walled tube and can be used flexibly due to this special property. Hollow round belts should be welded in principle, but they can also alternatively be joined securely and tightly with special metal sleeves made of brass. This variant is fast and uncomplicated to perform on the job and obtains ideal results for quickly remedying downtime due to belt fracture or as a long-term solution for drives and conveyors with light loads and low speeds.

#### PROPERTIES

- Favourable coefficient of friction
- Good slip resistance for conveying goods
- Good abrasion and wear resistance
- High elasticity, good damping
- Colour-fast
- Resistant to greases, oils and numerous chemicals
- UV and ozone resistant

#### **ADVANTAGES**

- For extremely small pulley diameters
- No disassembly of the drive/shafts
- Quick rectification of breakdowns
- Short downtimes
- Easy to store (supplied in rolls)
- Immediate availability
- Allows a wide variety of design options since any length can be manufactured

### Optibelt HRR BELTS SOLD BY THE METRE ARE MAINLY USED IN CONVEYOR SYSTEMS, E.G. FOR CONVEYING:

- Tiles, plates, flat glass
- Veneers in wood processing
- Roof tiles, marble, concrete slabs
- Cardboard conveyance in the packaging sector
- Also as guiding belts for the conveyance of bottles and cans



#### 75 SHORE A RED/SMOOTH

For use with small pulley diameters, for quick repairs



**85 SHORE A GREEN/ROUGH** For use with medium drives, for quick repairs

# JOINING TOOL

### FRICTION WELDING TOOL RS02 FOR ROUND BELT, V-BELT AND SPECIAL PROFILES

### **ADVANTAGES OF THE RS02:**

- Precision clamping jaws and automatic 0 setting prevent offset welded seams
- Speed-controlled frictional heat guarantees a 100% weld
- No poor welding seams caused by temperature fluctuations or draughts

### ACCESSORIES FOR THE FRICTION WELDING TOOL RS02:

- Friction welding device
- 1 set of standard clamping jaws of choice
- 1 Allen key
- 1 shears ASO2
- 1 side cutter SE02
- 1 carrying case with rigid foam lining

#### **STANDARD CLAMPING JAWS:**

- For round belts, Ø 6 mm to 20 mm
- For V-belts, 6 x 4 mm to 22 x 14 mm
- For various special profiles





FOR ROUND BELTS







FOR SPECIAL PROFILES

Further standard clamping jaws for round belts and V-belts are available at additional cost. We can also produce clamping jaws for special PU profiles on request.

# JOINING TOOLS

### **SERVICE CASE BASIC**

This five-piece service case basic provides the user with a complete set of standard equipment for occasional use.

The SG02 welding tool has a longer warm-up phase than the premium model and is suitable only for urethane belts that can be welded using the two corresponding guiding clamps as required.

The FZ01 guiding clamps are used for round belts with a diameter of up to 10 mm and for V-belts with profiles of up to 10, whereas the FZ02/3 model is used for round belts from 8 mm upwards in diameter and V-belts up to profile 32.

To ensure the perfect cut for optimum welding results, the set also includes a pair of shears as well as a side cutter for removing the weld seam.





**GUIDING CLAMPS FZ02/3** for round belts with diameters from 8 mm and V-belt profiles up to 32 (D)



**SIDE CUTTER SE02** for removing the weld seam



**SHEARS AS02** for cutting round belts and V-belts



**GUIDING CLAMPS FZ01** for round belts with diameters of up to 10 mm and V-belt profiles up to 10 (Z)



**WELDING TOOL SG02** for PU 290-300°C; power supply: 230 V

### **SERVICE CASE PREMIUM**

This five-piece service case premium is suitable for daily use. With its ergonomic and temperature regulated EErgo welding tool, TPE and urethane belts can be welded quite easily at the press of a button. Due to the short warm-up phase, of less than two minutes, the tool is optimised for instant use.

The versatile FZ01 Vario clamps are a perfect complement to the other tools in the welding set. The quick clamping function allows round belts with diameters up to 10 mm and V-belts up to profile 10 to be clamped and welded within a short space of time. The exchangeable profile jaws also make it possible to process special profiles. The service case premium also includes a second set of guiding clamps, which are used for round belts with diameters from 8 mm upwards and V-belts with profiles of up to 32.

The set is completed by a pair of shears with an adjustable angled stop that allows both straight and angled cuts, and a side cutter for removing welded seams.





**SHEARS AS04** with adjustable angled stop



**GUIDING CLAMPS FZ01 VARIO** 

with exchangeable profile jaws, for round belts with diameters of up to 10 mm and V-belt profiles up to 10 (Z)



WELDING TOOL EERGO

for TPE and PU; under 2 minutes warmup time; temperature regulated welding tool, ergonomic and quick

# TIMING BELT PULLEYS

## optibelt ZRS

### STANDARD TIMING BELT PULLEYS WITH CYLINDRICAL DRILLED HOLE

Profile	Width code	Number of teeth
XL	037	10 – 72
L	050	10- 84
	075	10 - 84
	100	10 - 84
Н	075	14 - 48
	100	14 – 120
	150	14 – 120
	200	14 – 120
	300	16 – 120
ХН	200	18 – 96
	300	18 – 96
	400	18 – 96



50

18 – 60

Standard timing belt pulleys with cylindrical drilled hole

Profile	Belt width [mm]	Number of teeth	Profile	Belt width [mm]	Number of teeth
5M	9	12 – 72	T5	10	10 – 60
	15	12 - 72		16	10 – 60
	25	12 – 72		25	10 – 60
8M	20	22 – 192	T10	16	10 – 60
	30	22 – 192		25	10 – 60
	50	22 – 192		32	18 – 60
	85	22 – 192		50	18 – 60
14M	40	28 – 216	AT5	10	12 – 60
	55	28 – 216		16	12 – 60
	85	28 – 216		25	12 – 60
	115	28 – 216	AT10	16	15 – 60
	170	28 – 216		25	15 – 60
				32	18 – 60

## optibelt ZRS STANDARD TIMING BELT PULLEYS FOR TAPER BUSHES

Profile	Belt width [mm]	Number of teeth
5M	15	34 – 150
8M	20	22 - 90
	30	22 – 144
	50	28 – 192
	85	34 – 192
14M	40	28 – 216
	55	28 – 216
	85	28 – 216
	115	28 – 216
	170	38 – 216



Taper bushes

Profile	Width code	Number of teeth
L	050	18 – 120
	075	18 – 120
	100	18 – 120
Н	100	16 – 120
	150	18 – 120
	200	18 – 120
	300	20 – 120
XH	200	18 - 48
	300	18 - 48
	400	20 - 48

## TIMING BELT PULLEY ACCORDING TO DRAWING CUSTOMISED SOLUTION



## optibelt ONLINE

### - CLEAT SELECTOR

### **FINDING THE RIGHT CLEAT**

With an online tool, Optibelt now enables quick and clear access to its comprehensive cleat range. Using this cleat selector, customers can select their individual transport solution from a standard spectrum of more than 400 different cleat shapes, specifically for their application, or have them adapted subsequently to their requirements. The selection mask of this online tool can be used to access the most important basic data regarding the shape, material and dimensions of the cleats. Each hit with the associated information can then be downloaded free of charge as a PDF or CAD file.

### - DATA SHEET SELECTOR

### **CURRENT DATA SHEETS ON DEMAND**

The data sheet selector allows quick and clear online access to data sheets for the Optibelt product groups **optibelt ALPHA TORQUE**, **optibelt ALPHA POWER**, **optibelt ALPHA FLEX**, **optibelt ALPHA LINEAR** and **optibelt ALPHA V**. By selecting the base belts, profiles and tension cords, the corresponding data sheet for the timing belt can be found. The data sheet does not only include the most important basic data about the belts, but also relevant design data, such as minimum diameters for pulleys and idlers. Each data sheet can then be downloaded free of charge as a PDF file.

### - PRICE CALCULATOR

### QUICK COST SUMMARY

With the aid of the price calculator, the prices for the standard products optibelt ALPHA FLEX, optibelt ALPHA LINEAR and optibelt ALPHA V of the Optibelt Material Handling segment can be requested quickly and easily online. Depending on the base belt selected with the requested profile, the tension cords available and the possible fabric combinations are displayed. Based on this, the prices for suitable drive solutions can be calculated specifically. Following this, an official quotation indicating the price and the delivery time can be requested.

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### **GUIDELINES** FOR MORE QUALITY AND SUSTAINABILITY

The resolute implementation of stringent guidelines in quality, environmental and energy management in accordance with internationally applicable standards is an integral part of our corporate philosophy within the Arntz Optibelt Group.

The Environmental Management System in accordance with DIN EN ISO 14001 effectively helps Optibelt to continuously improve the company's environmental performance and permanently prevent adverse environmental impacts. All of the environmental effects of work processes and products are continuously determined and evaluated. The Energy Management System, in accordance with DIN EN ISO 50001, has enabled Optibelt to put important conditions and measures into place for the sustainable management of energy and raw material sources within the company. Their use and consumption can thus be purposely optimised – for sustainable energy efficiency.

The same high standards apply in the area of Quality Management, in accordance with DIN EN ISO 9001. Here, all of the Optibelt employees are highly committed, every day, to pursuing the objectives of meeting the most exacting demands in the areas of products, customer consultation, service and customer satisfaction and to continuously improving internal processes with the aim of improving efficiency.







### **NOTES**

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