



iwis ketten

Joh. Winklhofer & Söhne GmbH & Co. KG

bewegen die welt



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P

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Power and free conveyor chains

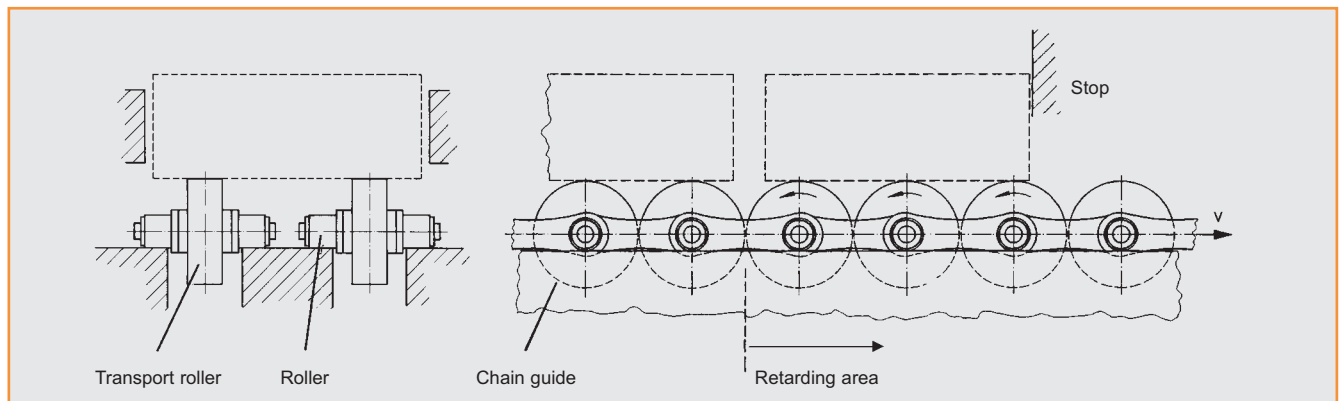
Problem/Initial situation → IWIS solution

- Simple and reliable transport of a very wide range of workpieces and workpiece carriers
 - Continuous conveying, accumulating, singling out and acceleration
- High performance power and free chains to the high IWIS standard in a very wide range of designs. The new generation of power and free conveyor chains (L 88 SF and M 120 SF) exclusive to IWIS.

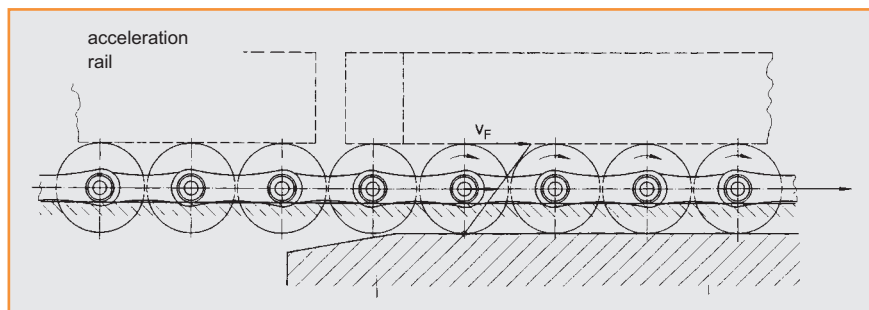
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Highlights

- Gentle transportation and optimum support for the material being conveyed
- In accumulating operation, roller friction only (see figure below)



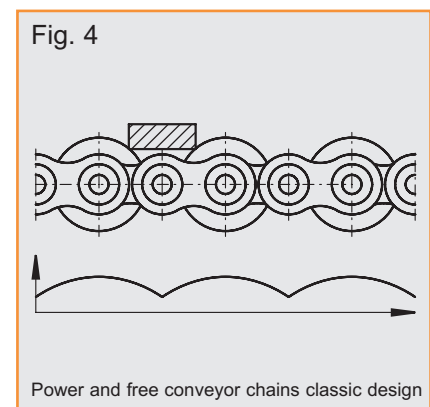
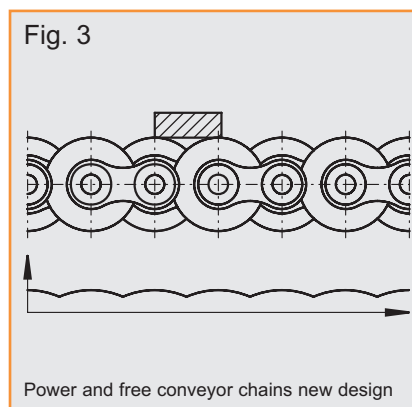
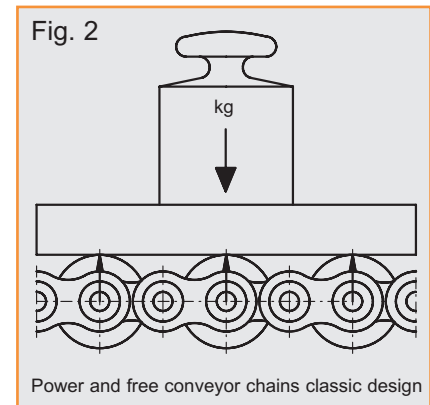
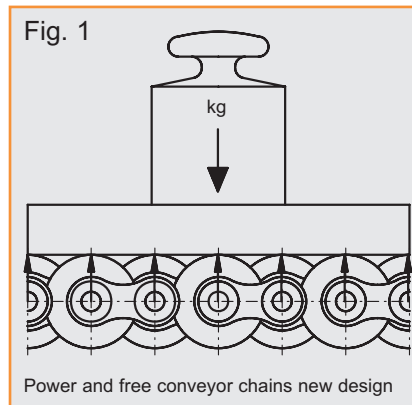
- Positioning the material transported with ease due to simple mounting points
- Chain no longer starts and stops jerkily
- Twice the transport speed is possible because of a simple acceleration rail (see figure below)
- Transport rollers made of either hardened steel or plastic (also anti-static)
- The outside of the chain is clean because only the articulated points are lubricated
- Low-maintenance due to special wax lubrication (standard)
- Other initial lubrication for special applications on request
- Fully compatible with existing guides, deflector units and chain wheels



Power and free conveyor chains

Additional advantages of the new power and free conveyor chains L 88 SF and M 120 SF

- Optimum load distribution because each pin bears load (figure 1 and 2)
- Better support and smoother running of the conveyed material due to the transport rollers having an offset arrangement (figures 3 and 4)
- Patent applied for



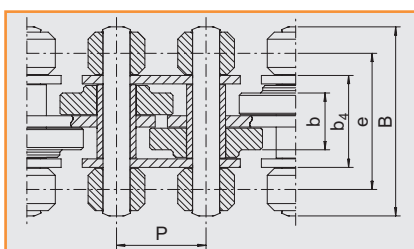
Dimensions - new power and free chains

JWTS Chain	Pitch p (mm)	B (mm)	Chaine width			Transport roller		
			b (mm)	b ₁ (mm)	e (mm)	Diameter (mm)	Loading capacity (kg)	Weight (kg/m)
L 88 SFK	12,70	27	9,2	14,50	18,70	16,00 ¹⁾	6	0,85
L 88 SFS	12,70	27	9,2	14,50	18,70	16,00	8	1,40
M 120 SFK	19,05	40	11,70	19,55	29,0	24,0 ¹⁾ / 26,0 / 27,0 ¹⁾ / 28,0	10	1,8
M 120 SFK	19,05	45	11,70	19,55	31,5	24,0 / 26,0 / 27,0 / 28,0	10	1,8
M 120 SFS	19,05	40	11,70	19,55	29,0	24,0 ¹⁾ / 26,0 / 27,0 ¹⁾ / 28,0	15	2,8
M 120 SFS	19,05	45	11,70	19,55	31,5	24,0 / 26,0 / 27,0 / 28,0	15	2,8

1) Supplied ex stock

SFK - with plastic transport rollers

SFS - with hardened steel transport rollers



Power and free conveyor chains

Side bow power and free conveyor chains

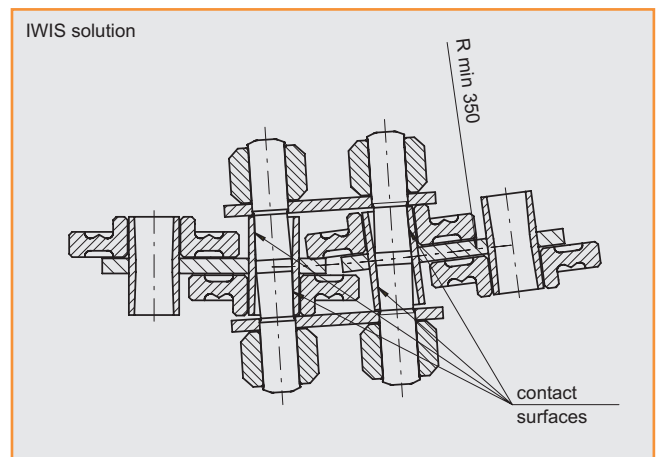
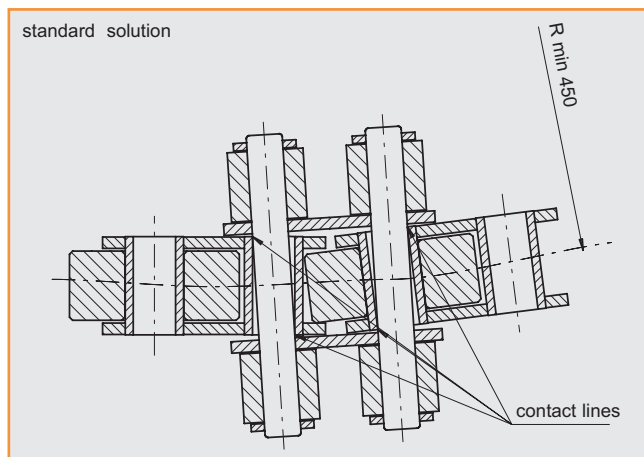
L 88 SF SB and M 120 SF-SB design - the solution for modular changes of direction in conveyor systems

Highlights

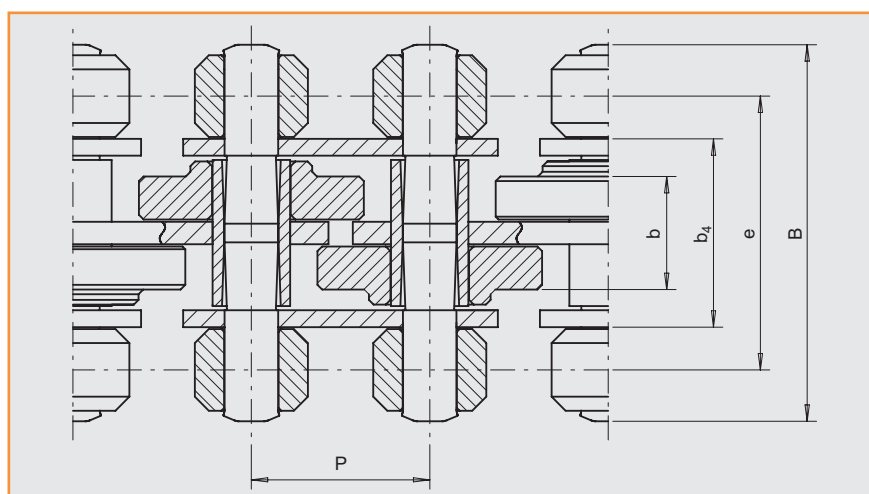
- Extremely small minimum radius for curves
300 mm L 88 SF-SB
350 mm M 120 SF-SB
- Optimum contact between bush and pin (bearing surface) in curve area

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POWER AND FREE CONVEYOR CHAINS



IWIS Chain	Pitch p (mm)	B (mm)	Chain width			e (mm)	Transport roller		
			b (mm)	b ₄ (mm)	e (mm)		Diameter D (mm)	Loading capacity (kg)	Weight (kg)
L 88 SFS-SB	12,70	27	9,2	15,0	18,70	16,00	8	1,40	
M 120 SFK-SB	19,05	40	11,70	20,10	29,0	24,0 / 26,0 / 27,0 / 28,0	10	1,8	
M 120 SFS-SB	19,05	40	11,70	20,10	29,0	24,0 / 26,0 / 27,0 / 28,0	15	2,8	



Power and free conveyor chains

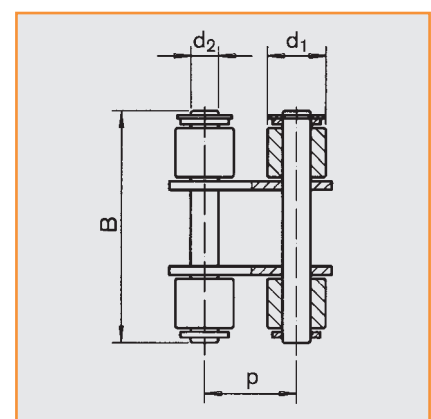
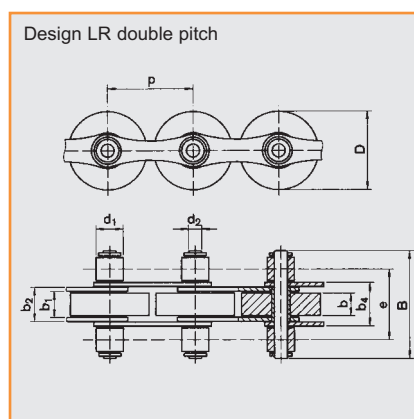
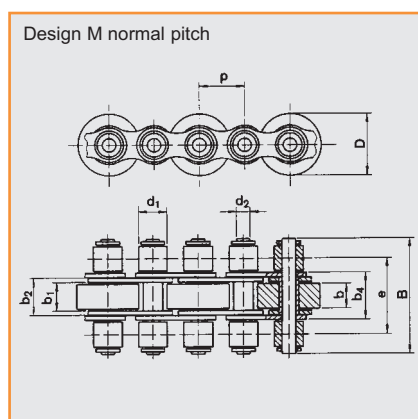
Dimensions - classic power and free conveyor chains

Design	JWTS Chain no.	Pitch p (mm)	Chain width B (mm)	e (mm)	b ₁ (mm)	b ₂ (mm) max.	b ₃ (mm) max.	Width b (mm)	Diameter	Transport roller			Diameter			
										Diameter	Loading capacity (kg)	Roller d _r (mm)	Pin d _p (mm)	Weight (kg/m)		
M	M 127 SFK	19,05	40	27,5	11,75	15,62	19,55	11,0	24,0	26,0	28,0	10	-	12,07	5,72	2,3
	M 127 SFK	19,05	43	29,0	11,75	15,62	19,55	11,0	24,0	26,0 ¹⁾	28,0	10	-	12,07	5,72	2,3
	M 127 SFK	19,05	48	31,5	11,75	15,62	19,55	11,0	24,0	26,0	28,0	10	-	12,07	5,72	2,3
	M 127 SFS	19,05	40	27,5	11,75	15,62	19,55	11,0	24,0	26,0	28,0	-	15	12,07	5,72	3,1
	M 127 SFS	19,05	43	29,0	11,75	15,62	19,55	11,0	24,0	26,0	28,0	-	15	12,07	5,72	3,1
	M 127 SFS	19,05	48	31,5	11,75	15,62	19,55	11,0	24,0 ¹⁾	26,0	28,0	-	15	12,07	5,72	3,1
	M 1611 SFK	25,4	67,9	44,9	17,02	25,45	32,0	16,5	38,5	-	-	25	-	15,88	8,28	4,9
	M 1611 SFS	25,4	67,9	44,9	17,02	25,45	32,0	16,5	38,5	-	-	-	30	15,88	8,28	7,2
LR	LR 165 SFK	25,4	30,7	20,0	7,75	11,30	14,65	7,5	24,0	-	-	6	-	8,52	4,45	1,3
	LR 247 SFK	38,1	48	31,5	11,75	15,62	19,55	11,0	24,0	35	-	10	-	12,07	5,72	2,6
	LR 247 SFS	38,1	48	31,5	11,75	15,62	19,55	11,0	24,0	35	-	-	10	12,07	5,72	2,6
	LR 3211 SFK	50,8	67,9	44,9	17,02	25,45	32,0	16,5	50,0	38,5	-	25	-	15,88	8,28	3,6
	LR 3211 SFS	50,8	67,9	44,9	17,02	25,45	32,0	16,5	50,0	38,5	-	-	30	15,88	8,28	7,6

¹⁾ Supplied ex stock

SFK - with plastic conveyor rollers

SFS - with hardened steel conveyor rollers



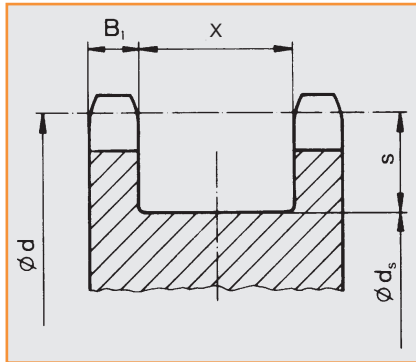
Power and free conveyor chains

Attachments

Guide plates and filler pieces on request

Accessories

Chain wheels



IWIS Chain	Pitch p (mm)	B ₁ (mm)	x (mm)	s (mm)
L 88 SF	12,7	4	15,5	10
M 120 SF-B40	19,05	8,3	20,7	15,0
M 127 SF-B40/B43	19,05	8,3	20,7	15,0
M 120 SF-B45	19,05	10,8	20,7	15,0
M 127 SF-B48	19,05	10,8	20,7	15,0
M 1611 SF	25,4	11,6	33,3	20,5

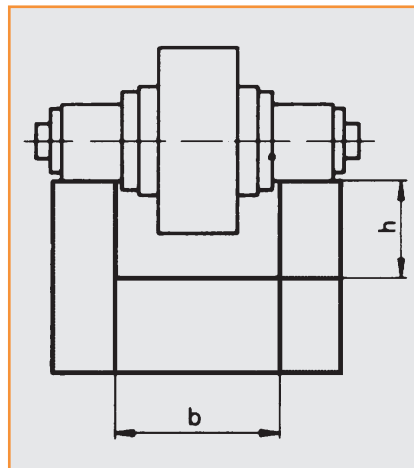
$$d_s = d - 2s$$

$$d = p : (\sin 180^\circ : z)$$

Recommended number of teeth minimum $z = 15$

Chain guide/Example

IWIS Chain	b (mm)	h (mm)
L 88 SF	15	10
L 88 SF SB	15,5	10
M 120 SF	20	15
M 120 SF SB	21	15
M 127 SF	20	15
M 1611 SF	33	20

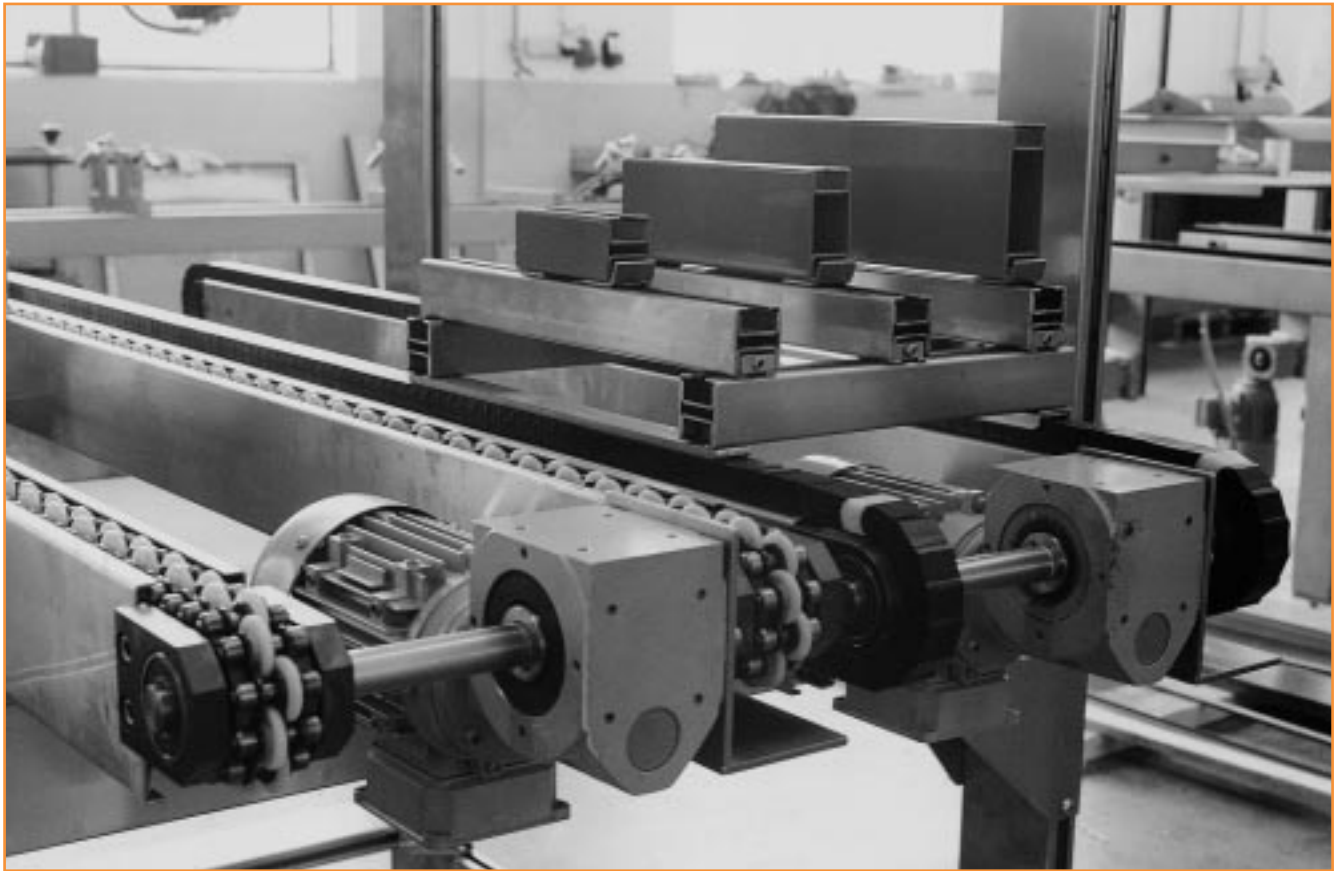


Tool

Tool for dismantling power and free conveyor chain M 120 SF and M 127 SF with 3/4 inch pitch



Examples of power and free conveyor chain application



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POWER AND FREE CONVEYOR CHAINS



Power and free conveyor chains

Maintenance guide for power and free conveyor chains

As for every roller chain, the „bearing points“ of the power and free chain are also subject to natural wear. The correct tension, good guidance and effective relubrication are needed to reduce this and therefore increase the length of life of the chain.

A power and free conveyor chain works perfectly at up to 2% extension caused by wear with the proviso that it is constantly retensioned. Approximately 5% of the actual chain tensioning force occurring can be used as a guide value for pretensioning.

Power and free conveyor chains are given extremely effective initial

lubrication in the works. The lubricant is used up in the course of time and effective and regular relubrication is necessary. During this process, care must be taken that the lubrication is undertaken at the correct points (= bearing points) and that the lubricant is able to creep.

Information on the design of power and free conveyor chains

Important criteria when selecting a power and free chain are:

- Loading on the transport rollers from the weight of the material being conveyed on them. The load-bearing strength per roller is stated in the tables. If the contact surface for the material being conveyed is uneven, it is necessary to estimate how many free rollers are actually load-bearing.
- Loading on the chain from tensile forces occurring in operation. The most important influencing dimensions are the weight of the material conveyed and the friction factors.

The following tensile forces occur in power and free chains:

- from friction resistance between roller and chain pin
- from friction resistance between transport rollers and chain bush when in accumulating operation
- from roller resistance when rolling the runners on to the chain guides and when rolling the conveyed materials on to the transport rollers.

Rough determination of the chain tensioning force F per chain strand:

$$F = \frac{\mu \cdot 9,81 \cdot Q \cdot 1,4}{n} \quad [\text{N}]$$

- μ = friction value 0.08-0.15 depending on:
- material pairing
Steel/steel or plastic/steel
 - Condition of the friction surfaces:
dry or lubricated
 - Degree of contamination of the friction surfaces

Q = Total weight conveyed [kg]
n = Number of chain strands

The formula is valid for even distribution of the weight loading over the chain strands. If the conveyed material is not in full contact because of unevenness, an estimate has to be made as to what percentage of the length in contact is actually effective. The tensile strength per chain strand is correspondingly higher.

■ Recommended maximum conveyor length:

Depending on loading 25-30 m, parallel and exact guidance must be ensured

Area of use of power and free conveyor chains

- In many areas of conveyor engineering
- Where there are links in processing and assembly lines
- In warehouse engineering
- In a wide range of material flow systems

and everywhere where workpieces, components for storage, pallets, containers, crates etc have to be conveyed, accumulated, accelerated and singled out in a simple way.