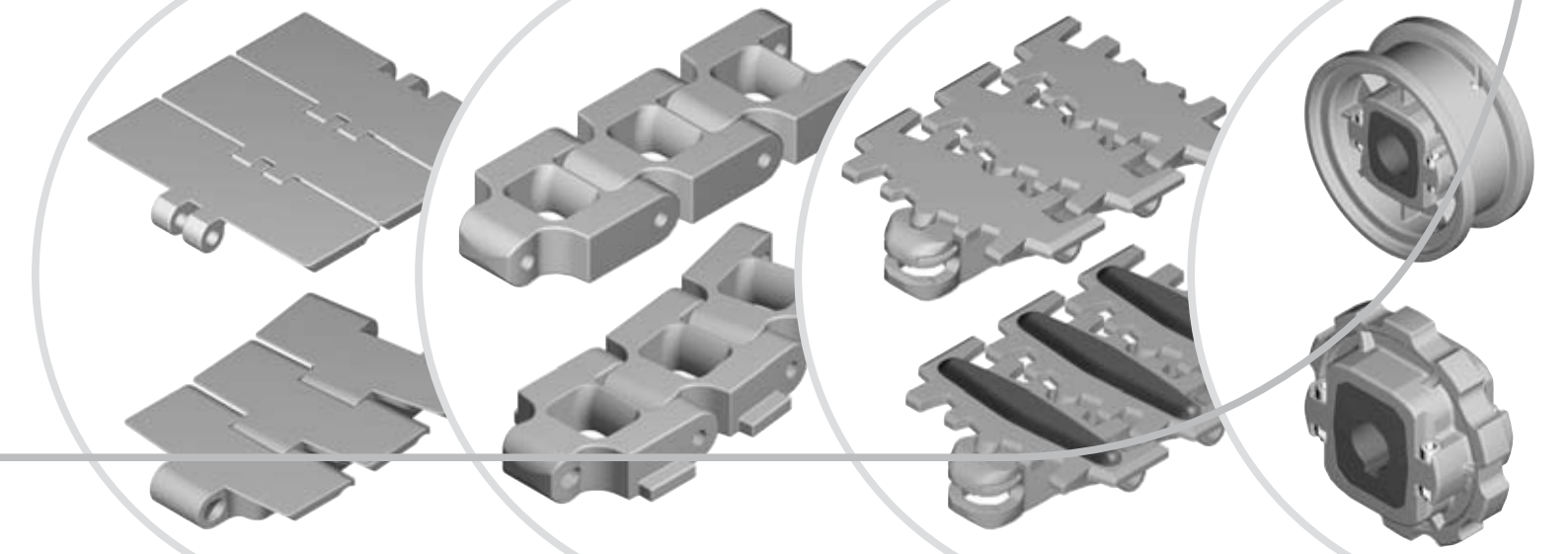
Services
Media No. 6017

habasit

Engineering Guidelines HabaCHAIN® – Slat and Flex Chains

Habasit – Solutions in motion



Contents

Value added

The introduction of HabaCHAIN® allows Habasit to provide an expanded range of application solutions to its customers. HabaCHAIN® is a top-quality range of new slat-chain products from Habasit available in straight-running and side-flexing versions.
Compatible with the industry standard, slat-chain product retrofits are possible and HabaCHAIN® runs on most systems and sprockets on the market today. It is sold in 10 feet/3.048 meter boxes.
Broad experience, extensive research and continuous innovation enable Habasit to offer the most advanced product and service solutions for conveying design in the market. The Habasit guarantee of quality ensure that HabaCHAIN® will meet your conveying requirements at a competitive price/value ratio.

An unparalleled range of solutions

Habasit, headquartered in Switzerland, is the worldwide leader in the belting business for the textile, wood, paper, postal, food, materials handling and automotive industries. The range of products includes fabric-based conveyor belts, plastic modular belts and chains, power transmission belts and timing belts, as well as gear motors.
Comprehensive services and a global network of affiliated companies, distributors and service partners are available to support our customers wherever they need us.

Industries
HabaCHAIN® products are suitable for a wide range of industries. Traditionally Slat Chain is used in beverage plants, bakeries, dairy plants, pharmaceuticals, automotive, materials handling, cardboard and packaging industries.

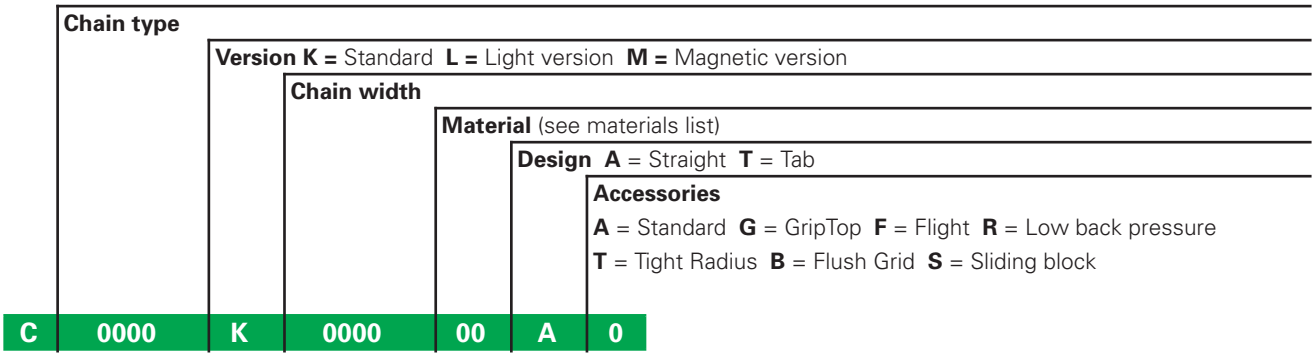
Applications
HabaCHAIN® is able to meet the requirements for a wide range of demanding applications. Typical applications are:

- Beverage filling lines
- Box handling
- Container handling
- Aerosol filling
- Toilet tissue handling
- Packaging lines
- Glass handling

Benefits
HabaCHAIN® offers a first class industry compatible product range at a very competitive price/value ratio. The wide choice of materials available is ideal to solve all mechanical or chemical resistance problems. As the global market leader, Habasit is your one-stop-shop partner for a full range of innovative, value added belting solutions.

Products
Since every industry is unique and has special requirements, Habasit is able to offer the HabaCHAIN® product range in a wide combination of materials to suit the ever increasing demands of challenging applications.These include extra low friction materials, anti-static, metal detectable, flame retardant, and other state of the art developments to suit individual process requirements.

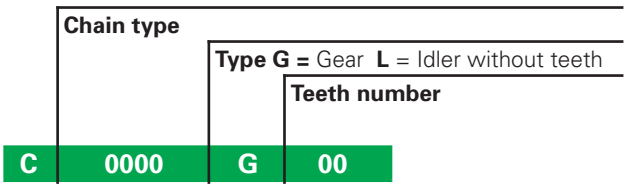
Chain code



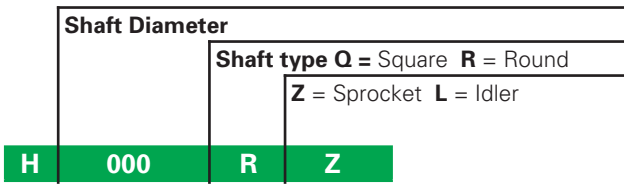
Example
C0820K0325LFAA
Chain 820 **Version** standard **Width** 3,25 inch **Material** LF **Design** straight **Accessories** standard
C0880K0450LFTG
Chain 880 **Version** standard **Width** 4,50 inch **Material** LF **Design** tab **Accessories** GripTop
C0882K0750PTTR
Chain 882 **Version** standard **Width** 7,50 inch **Material** PT **Design** tab **Accessories** low back pressure rollers

Multi-hub split sprocket and idler code

Gear



Hub



Example
C0820G25
Chain 820 or similar engagement type **Split gear** type **Teeth** 25
C0820L25
Chain 820 or similar engagement type **Split idler** type **Teeth** 25
H030RZ
Hub 30 mm diameter **Sprocket** type
H030RL
Hub 30 mm diameter **Idler** type

Plastic chains

HabaCHAIN® products are manufactured from plastic material obtained from the best raw material producers. Habasit's program of studying material applications ensures the most suitable plastic type material for the particular situations and conditions as listed below:

DP Standard POM for all standard low speed applications.
Temperature range:
dry conditions: -40°C to +82°C *(-40°F to +180°F)*
wet conditions: -40°C to +66°C *(-40°F to +151°F)*

LF Low-friction POM for bottling and all standard applications with a carrier lubrication.
Temperature range:
dry conditions: -40°C to +82°C *(-40°F to +180°F)*
wet conditions: -40°C to +66°C *(-40°F to +151°F)*

PT Extra low-friction POM with a special self-lubricating agent built into the molecular structure. Used for critical bottling applications involving low carrier lubrication and critical bottle shape.
Temperature range:
dry conditions: -40°C to +82°C *(-40°F to +180°F)*
wet conditions: -40°C to +66°C *(-40°F to +151°F)*

PK Extra wear-resistant material for wet and dry applications with abrasive transports. This special compound ensures a greater wear resistance and a low friction coefficient with all types of materials especially for dry applications.
Temperature range:
dry conditions: -18°C to +82°C *(0°F to +180°F)*
wet conditions: -18°C to +66°C *(0°F to +151°F)*

AS Special compound made for critical antistatic applications. This material is used for all situations where static current is dangerous (for example in applications with flammable propellants).
Temperature range:
dry conditions: -18°C to +82°C *(0°F to +180°F)*
wet conditions: -18°C to +66°C *(0°F to +151°F)*

HT High-temperature-resistant resin (max 200°C in dry conditions). This plastic material can be used as a replacement for metal chains.
Temperature range:
dry conditions: 0°C to +200°C *(32°F to +392°F)*
wet conditions: 0°C to +65°C *(32°F to +149°F)*

EC Special electroconductive material for applications where the buildup of static current is very dangerous for conveying materials. (For example electronic components and explosives.)
Temperature range:
dry conditions: -18°C to +82°C *(0°F to +180°F)*
wet conditions: -18°C to +66°C *(0°F to +151°F)*

NY Extra wear-resistant material for dry applications with abrasive transports. This special compound ensures greater wear resistance and a low friction coefficient. When using this material, it is necessary to use a synthetic lubricating agent (no water).
Temperature range:
dry conditions: -18°C to +110°C *(0°F to +230°F)*
wet conditions: -18°C to +65°C *(0°F to +149°F)*

PP Chemical resistant resin for all applications with chemical agents.
Temperature range:
dry conditions: +5°C to +115°C *(+40°F to +239°F)*
wet conditions: +5°C to +115°C *(+40°F to +239°F)*

MD Metal-detectable compound for food applications where any chain fragments are detected by a metal detector.
Temperature range:
dry conditions: -18°C to +82°C *(0°F to +180°F)*
wet conditions: -18°C to +66°C *(0°F to +151°F)*

FR Flame-retardant resin for all situations requiring special self-extinguishing properties.
Temperature range:
dry conditions: -18°C to +82°C *(0°F to +180°F)*
wet conditions: -18°C to +66°C *(0°F to +151°F)*

MW Material specifically designed for microwave applications.
Temperature range:
dry conditions: +5°C to +115°C *(+40°F to +239°F)*
wet conditions: +5°C to +115°C *(+40°F to +239°F)*

MG Material specifically designed for magnetic applications.
Temperature range:
dry conditions: -40°C to +82°C *(-40°F to +180°F)*
wet conditions: -40°C to +66°C *(-40°F to +151°F)*

Material characteristics

Characteristics	Materials								
	DP	LF	PT	PK	NY	AS	EC	FR	PP
Impact resistant					•				
Wear resistant		•	•	•	•				
Chemical resistant									•
Strenght	•	•	•	•	•				
Low friction caracteristics		•	•						
Capability to run dry on corner		•	•	•					
Suitability in wet enviroments	•	•	•	•					
Low temperature capability *1	•	•	•		•				
Hight temperature capability *2	•	•	•	•	•	•	•		
Ultra violet capability					•				
Suitability for nuistance static						•	•		
Suitability for explosive static									
Flame retardant								•	
FDA approval	•	•	•		•				

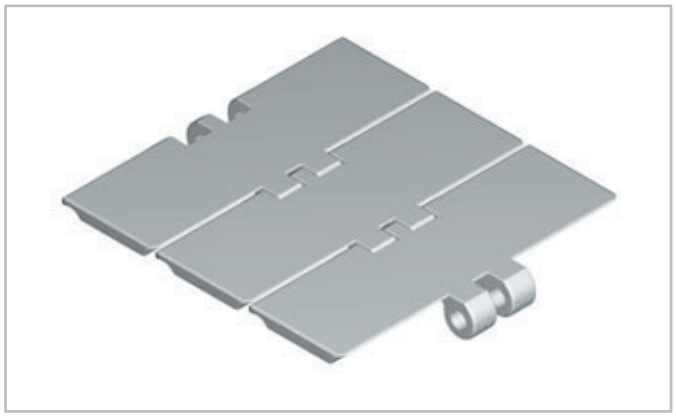
*1 Minimum temperature -40°C *(-40°F)* *2 Maximum temperature +82°C *(+180°F)*

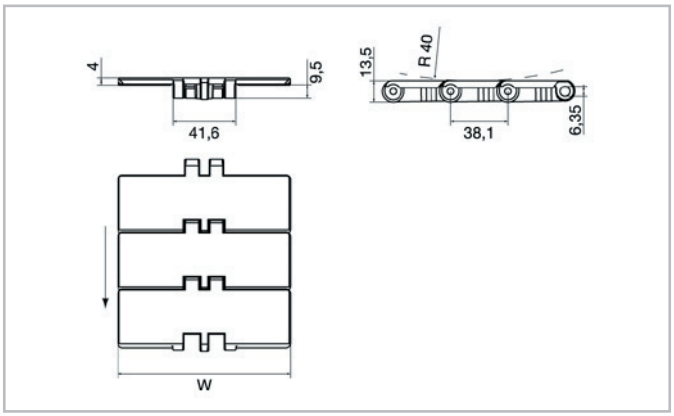
Work load

Chain type	Material	Work load
820	DP	1650 N
820	LF	1650 N
820	PT	1650 N
831	DP	1650 N
831	LF	1650 N
831	PT	1650 N
821	DP	2850 N
821	LF	2850 N
821	PT	2850 N
879	DP	1900 N
879	LF	1900 N
879	PT	1900 N
880	DP	1900 N
880	LF	1900 N
880	PT	1900 N
882	DP	2850 N
882	LF	2850 N
882	PT	2850 N

HabaCHAIN®
Slat Top 820 (straight)

Description
Suitable for transportation of various containers, or in general for light transports and bottling conveyor. Ideal for use with 880 series. HabaCHAIN® has the widest choice of materials, ideal to solve all mechanical or chemical resistance problems.





Chain Data

Habasit code	Width W		Weight		Material
	mm	inch	kg/m	lb/ft	
C0820K0325DPAA	82.5	3.25	0.83	0.56	DP
C0820K0325LFAA	82.5	3.25	0.83	0.56	LF
C0820K0325PTAA	82.5	3.25	0.83	0.56	PT
C0820K0325NYAA*	82.5	3.25	0.68	0.46	NY
C0820K0325PKAA*	82.5	3.25	0.83	0.56	PK
C0820K0450DPAA	114.3	4.50	1.03	0.69	DP
C0820K0450LFAA	114.3	4.50	1.03	0.69	LF
C0820K0450PTAA	114.3	4.50	1.03	0.69	PT
C0820K0450NYAA*	114.3	4.50	0.84	0.57	NY
C0820K0450PKAA*	114.3	4.50	1.03	0.69	PK
C0820K0750DPAA*	190.5	7.50	1.47	0.99	DP
C0820K0750LFAA*	190.5	7.50	1.47	0.99	LF
C0820K0750PTAA*	190.5	7.50	1.47	0.99	PT
C0820K0750NYAA*	190.5	7.50	1.20	0.81	NY
C0820K0750PKAA*	190.5	7.50	1.47	0.99	PK

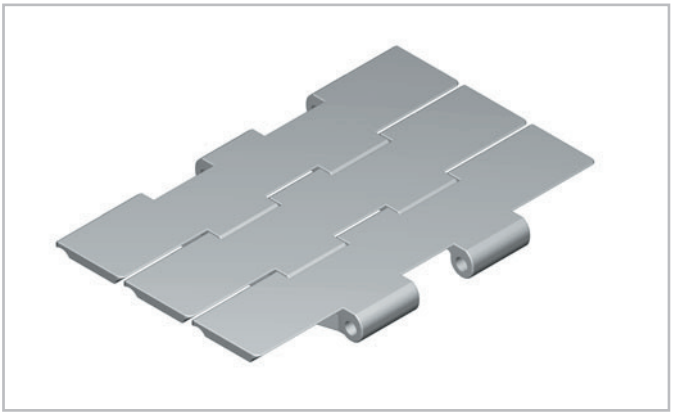
Pin material: special stainless steel

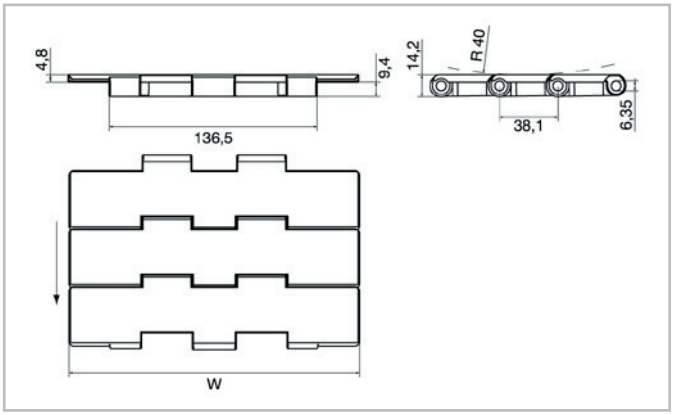
- Supply unit: 3.048 m = 10 ft
- Chain lubrications variable in function of use and materials
- Weights are only indicative
- * Available on request
- Other materials on request

Related products
- Split gears C820G
- Split idlers C820L
- Split hub sprockets and idlers

HabaCHAIN®
Slat Top 821 (straight)

Description
Suitable for straight transportation and accumulation of various products and containers, mainly bottling conveyor and palletization area. Ideal for use with 882 series. HabaCHAIN® have the widest choice of materials, ideal to solve all mechanical or chemical resistance problems.





Chain Data

Habasit code	Width W		Weight		Material
	mm	inch	kg/m	lb/ft	
C0821K0750DPAA	190.5	7.50	2.50	1.68	DP
C0821K0750LFAA	190.5	7.50	2.50	1.68	LF
C0821K0750PTAA	190.5	7.50	2.50	1.68	PT
C0821K0750NYAA*	190.5	7.50	2.04	1.37	NY
C0821K0750PKAA*	190.5	7.50	2.50	1.68	PK
C0821K1000DPAA	254.0	10.00	2.95	1.98	DP
C0821K1000LFAA	254.0	10.00	2.95	1.98	LF
C0821K1000PTAA	254.0	10.00	2.95	1.98	PT
C0821K1000NYAA*	254.0	10.00	2.41	1.63	NY
C0821K1000PKAA*	254.0	10.00	2.95	1.98	PK
C0821K1200DPAA	304.8	12.00	3.25	2.19	DP
C0821K1200LFAA	304.8	12.00	3.25	2.19	LF
C0821K1200PTAA	304.8	12.00	3.25	2.19	PT
C0821K1200NYAA*	304.8	12.00	2.65	1.78	NY
C0821K1200PKAA*	304.8	12.00	3.25	2.19	PK

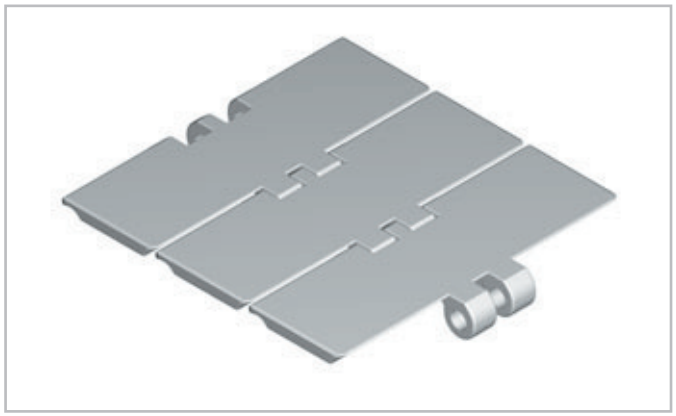
Pin material: special stainless steel

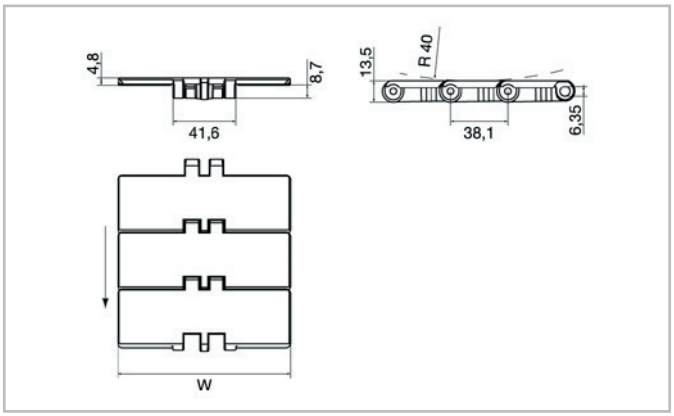
- Supply unit: 3.048 m = 10 ft
- Chain lubrications variable in function of use and materials
- Weights are only indicative
- * Available on request
- Other materials on request

Related products
- Split gears C821G
- Split hub sprockets and idlers

HabaCHAIN®
Slat Top 831 (straight)

Description
Suitable for transportation of various containers, or in general for light transports and bottling conveyor. Ideal for use with 879 series. HabaCHAIN® have the widest choice of materials, ideal to solve all mechanical or chemical resistance problems.





Chain Data

Habasit code	Width W		Weight		Material
	mm	inch	kg/m	lb/ft	
C0831K0325DPAA	82.5	3.25	1.00	0.67	DP
C0831K0325LFAA	82.5	3.25	1.00	0.67	LF
C0831K0325PTAA	82.5	3.25	1.00	0.67	PT
C0831K0325NYAA*	82.5	3.25	0.82	0.55	NY
C0831K0325PKAA*	82.5	3.25	1.00	0.67	PK
C0831K0450DPAA	114.3	4.50	1.24	0.83	DP
C0831K0450LFAA	114.3	4.50	1.24	0.83	LF
C0831K0450PTAA	114.3	4.50	1.24	0.83	PT
C0831K0450NYAA*	114.3	4.50	1.05	0.71	NY
C0831K0450PKAA*	114.3	4.50	1.24	0.83	PK
C0831K0750DPAA*	190.5	7.50	1.76	1.18	DP
C0831K0750LFAA*	190.5	7.50	1.76	1.18	LF
C0831K0750PTAA*	190.5	7.50	1.76	1.18	PT
C0831K0750NYAA*	190.5	7.50	1.44	0.97	NY
C0831K0750PKAA*	190.5	7.50	1.76	1.18	PK

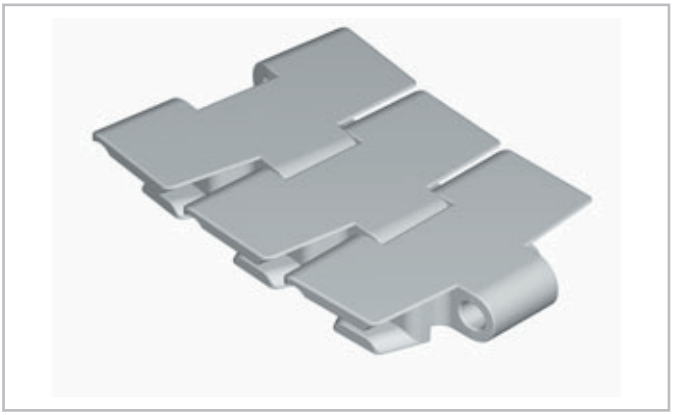
Pin material: special stainless steel

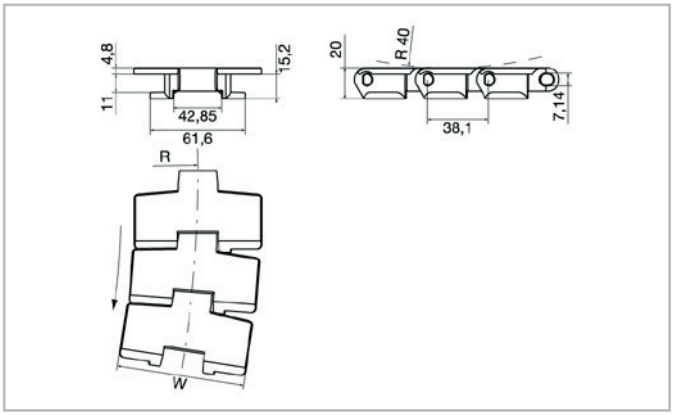
- Supply unit: 3.048 m = 10 ft
- Chain lubrications variable in function of use and materials
- Weights are only indicative
- * Available on request
- Other materials on request

Related products
- Split gears C820G
- Split idlers C820L
- Split hub sprockets and idlers

HabaCHAIN®
Slat Top 879 Tab (radius)

Description
Suitable for curve transportation of various products and containers, or in general for light-weight transports. Ideal for use with 831 series. HabaCHAIN® have the widest choice of materials, ideal to solve all mechanical or chemical resistance problems.





Chain Data

Habasit code	Width W		Weight		Material	R	
	mm	inch	kg/m	lb/ft		mm	inch
C0879K0325DPTA	82.5	3.25	0.98	0.66	DP	457.0	18.0
C0879K0325LFTA	82.5	3.25	0.98	0.66	LF	457.0	18.0
C0879K0325PTTA	82.5	3.25	0.98	0.66	PT	457.0	18.0
C0879K0325NYTA*	82.5	3.25	0.80	0.54	NY	457.0	18.0
C0879K0325PKTA*	82.5	3.25	0.98	0.66	PK	457.0	18.0
C0879K0450DPTA	114.3	4.50	1.14	0.77	DP	610.0	24.0
C0879K0450LFTA	114.3	4.50	1.14	0.77	LF	610.0	24.0
C0879K0450PTTA	114.3	4.50	1.14	0.77	PT	610.0	24.0
C0879K0450NYTA*	114.3	4.50	0.93	0.63	NY	610.0	24.0
C0879K0450PKTA*	114.3	4.50	1.14	0.77	PK	610.0	24.0

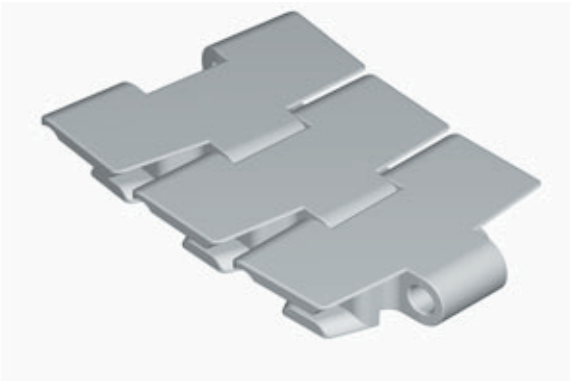
Pin material: special stainless steel

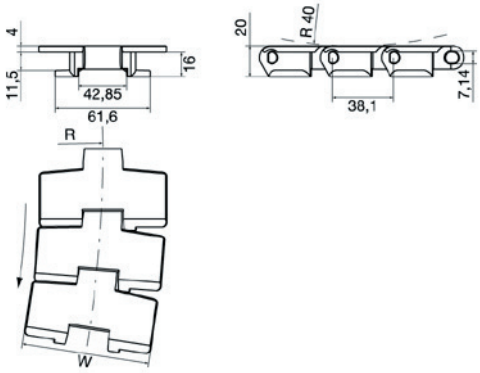
- Supply unit: 3.048 m = 10 ft
- Chain lubrications variable in function of use and materials
- Weights are only indicative
- * Available on request
- Other materials on request

Related products
- Split gears C880G
- Split hub sprockets and idlers

HabaCHAIN®
Slat Top 880 Tab (radius)

Description
Suitable for curve transportation of various products and containers, or in general for light-weight transports.Ideal for use with 820 series. HabaCHAIN® have the widest choice of materials, ideal to solve all mechanical or chemical resistance problems.





Chain Data

Habasit code	Width W		Weight		Material	R	
	mm	inch	kg/m	lb/ft		mm	inch
C0880K0325DPTA	82.5	3.25	0.94	0.63	DP	457.0	18.0
C0880K0325LFTA	82.5	3.25	0.94	0.63	LF	457.0	18.0
C0880K0325PTTA	82.5	3.25	0.94	0.63	PT	457.0	18.0
C0880K0325NYTA*	82.5	3.25	0.77	0.52	NY	457.0	18.0
C0880K0325PKTA*	82.5	3.25	0.94	0.63	PK	457.0	18.0
C0880K0450DPTA	114.3	4.50	1.08	0.73	DP	610.0	24.0
C0880K0450LFTA	114.3	4.50	1.08	0.73	LF	610.0	24.0
C0880K0450PTTA	114.3	4.50	1.08	0.73	PT	610.0	24.0
C0880K0450NYTA*	114.3	4.50	0.88	0.59	NY	610.0	24.0
C0880K0450PKTA*	114.3	4.50	1.08	0.73	PK	610.0	24.0

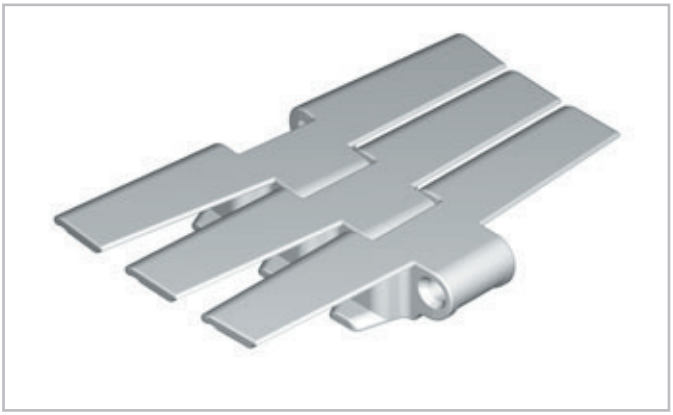
Pin material: special stainless steel

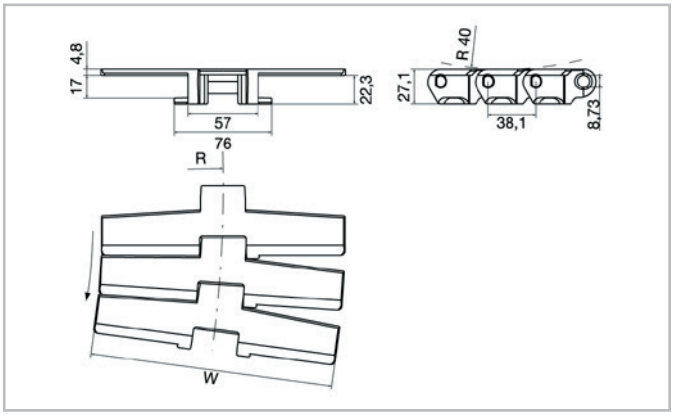
- Supply unit: 3.048 m = 10 ft
- Chain lubrications variable in function of use and materials
- Weights are only indicative
- * Available on request
- Other materials on request

Related products
- Split gears C880G
- Split hub sprockets and idlers

HabaCHAIN®
Slat Top 882 Tab (radius)

Description
Suitable for curve transportation of various products and containers or in general for medium-weight transports. Ideal for use with 821 series. HabaCHAIN® have the widest choice of materials, ideal to solve all mechanical or chemical resistance problems.





Chain Data

Habasit code	Width W		Weight		Material	R	
	mm	inch	kg/m	lb/ft		mm	inch
C0882K0450DPTA*	114.3	4.50	1.98	1.33	DP	610.0	24.0
C0882K0450LFTA*	114.3	4.50	1.98	1.33	LF	610.0	24.0
C0882K0450PTTA*	114.3	4.50	1.98	1.33	PT	610.0	24.0
C0882K0450NYTA*	114.3	4.50	1.61	1.08	NY	610.0	24.0
C0882K0450PKTA*	114.3	4.50	1.98	1.33	PK	610.0	24.0
C0882K0750DPTA	190.5	7.50	2.45	1.65	DP	610.0	24.0
C0882K0750LFTA	190.5	7.50	2.45	1.65	LF	610.0	24.0
C0882K0750PTTA	190.5	7.50	2.45	1.65	PT	610.0	24.0
C0882K0750NYTA*	190.5	7.50	2.04	1.37	NY	610.0	24.0
C0882K0750PKTA*	190.5	7.50	2.45	1.65	PK	610.0	24.0
C0882K1000DPTA	254.0	10.00	2.87	1.93	DP	610.0	24.0
C0882K1000LFTA	254.0	10.00	2.87	1.93	LF	610.0	24.0
C0882K1000PTTA	254.0	10.00	2.87	1.93	PT	610.0	24.0
C0882K1000NYTA*	254.0	10.00	2.34	1.57	NY	610.0	24.0
C0882K1000PKTA*	254.0	10.00	2.87	1.93	PK	610.0	24.0
C0882K1200DPTA	304.8	12.00	3.41	2.29	DP	610.0	24.0
C0882K1200LFTA	304.8	12.00	3.41	2.29	LF	610.0	24.0
C0882K1200PTTA	304.8	12.00	3.41	2.29	PT	610.0	24.0
C0882K1200NYTA*	304.8	12.00	2.78	1.87	NY	610.0	24.0
C0882K1200PKTA*	304.8	12.00	3.41	2.29	PK	610.0	24.0

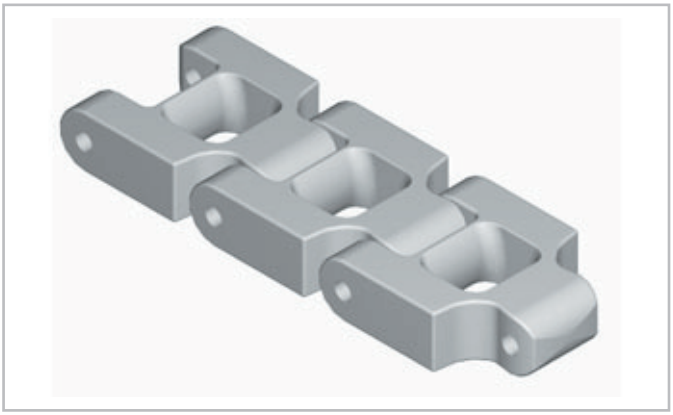
Pin material: special stainless steel

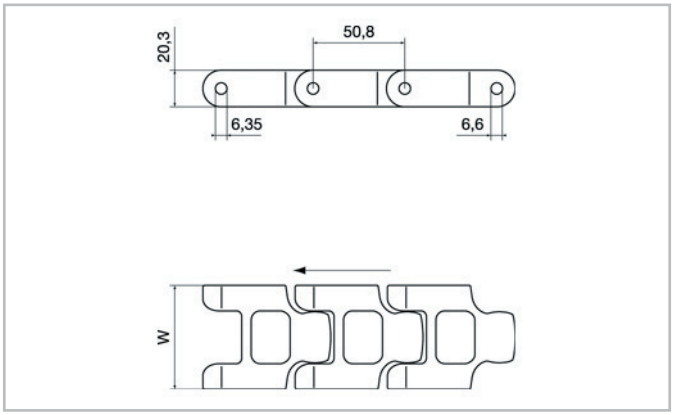
- Supply unit: 3.048 m = 10 ft
- Chain lubrications variable in function of use and materials
- Weights are only indicative
- * Available on request
- Other materials on request

Related products
- Split gears C882G
- Split hub sprockets and idlers

HabaCHAIN®
Knuckle Chains 3200 (straight)

Description
Suitable for rectilinear crate, trays and molds transports. Used in end-line applications, with heavy products. Habasit HabaCHAIN® have the widest choice of materials, ideal to solve all mechanical or chemical resistance problems.





Chain Data

Habasit code	Width W		Weight		Material
	mm	inch	kg/m	lb/ft	
C3200K0224DPAA+001*	57.2	2.24	1.30	0.87	DP
C3200K0224DPAA+002	57.2	2.24	1.30	0.87	DP
C3200K0224DPAA+008	57.2	2.24	1.30	0.87	DP
C3200K0224NYAA+008	57.2	2.24	1.06	0.71	NY

Pin material: special stainless steel

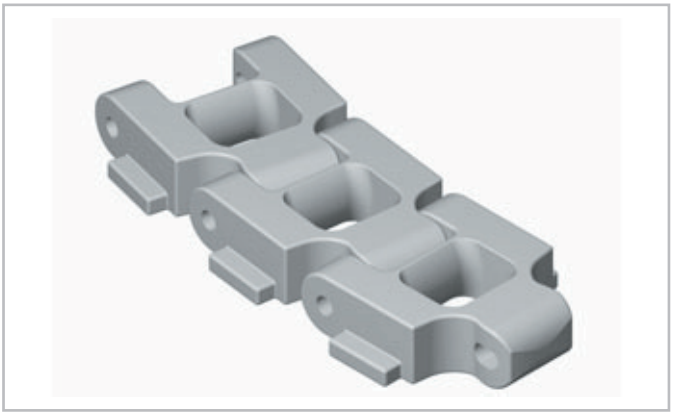
- Supply unit: 3.048 m = 10 ft
- Chain lubrications variable in function of use and materials
- Weights are only indicative
- * Available on request
- Other materials on request

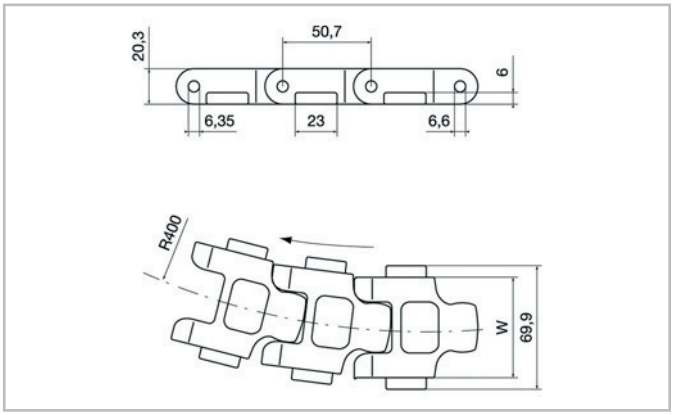
Suffix for colors:
- 001: White
- 002: Light grey
- 008: Dark grey

Related products
- Sprockets C3200

HabaCHAIN®
Knuckle Chains 3210 (radius)

Description
Suitable for rectilinear and curvilinear crate, trays and molds transports. Used in end-line applications, with heavy products. Habasit HabaCHAIN® have the widest choice of materials, ideal to solve all mechanical or chemical resistance problems.





Chain Data

Habasit code	Width W		Weight		Material	R	
	mm	inch	kg/m	lb/ft		mm	inch
C3210K0224DPTA+001*	57.2	2.24	1.35	0.91	DP	400.0	15.75
C3210K0224DPTA+002	57.2	2.24	1.35	0.91	DP	400.0	15.75
C3210K0224DPTA+008	57.2	2.24	1.35	0.91	DP	400.0	15.75
C3210K0224NYTA+008	57.2	2.24	1.11	0.75	NY	400.0	15.75

Pin material: special stainless steel

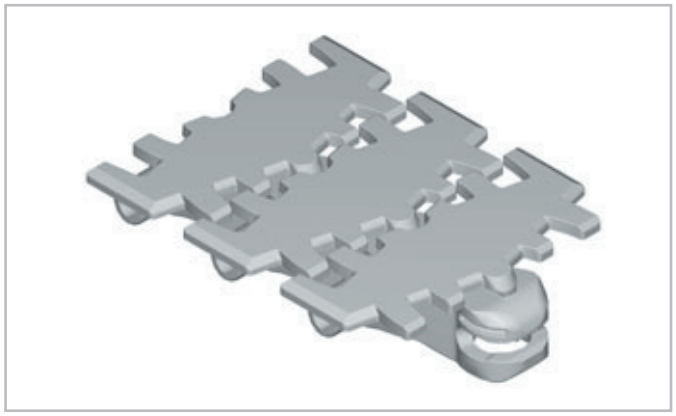
- Supply unit: 3.048 m = 10 ft
- Chain lubrications variable in function of use and materials
- Weights are only indicative
- * Available on request
- Other materials on request

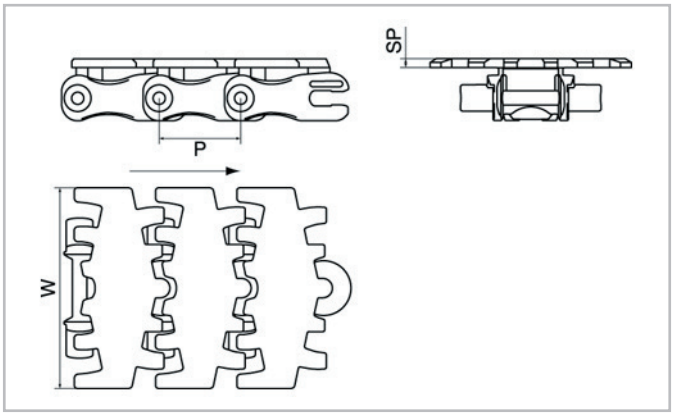
Suffix for colors:
- 001: White
- 002: Light grey
- 008: Dark grey

Related products
- Sprockets C3200

HabaCHAIN®
Conveyor 7100 (plastic pin)

Description
Suitable for rectilinear and curvilinear use, in end-line applications on aluminum modular structure. The patented retaining system makes it simple to join the chain with only a screwdriver. The surface has low friction which allows accumulation of products. Habasit HabaCHAIN® have the widest choice of materials, ideal to solve all mechanical or chemical resistance problems.





Chain Data

Habasit code	Width W		Weight		Material	P		SP	
	mm	inch	kg/m	lb/ft		mm	inch	mm	inch
C7100L0248PTAA	63.0	2.48	0.70	0.47	PT	25.4	1.00	3.5	0.14
C7100L0248ASAA*	63.0	2.48	0.70	0.47	AS	25.4	1.00	3.5	0.14
C7100L0325PTAA	83.0	3.25	0.95	0.64	PT	33.0	1.30	4.0	0.16
C7100L0325ASAA*	83.0	3.25	0.95	0.64	AS	33.0	1.30	4.0	0.16

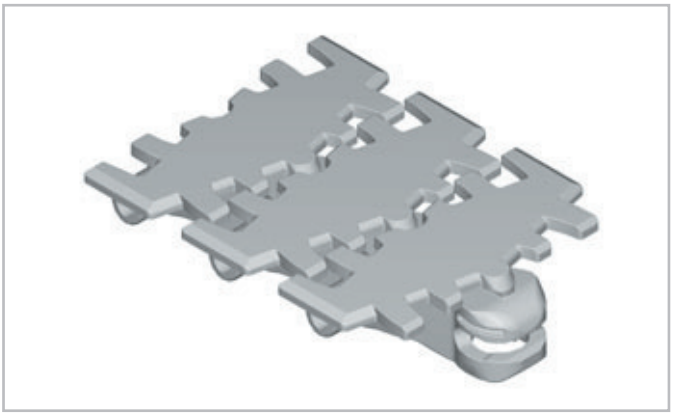
Pin material: plastic pin

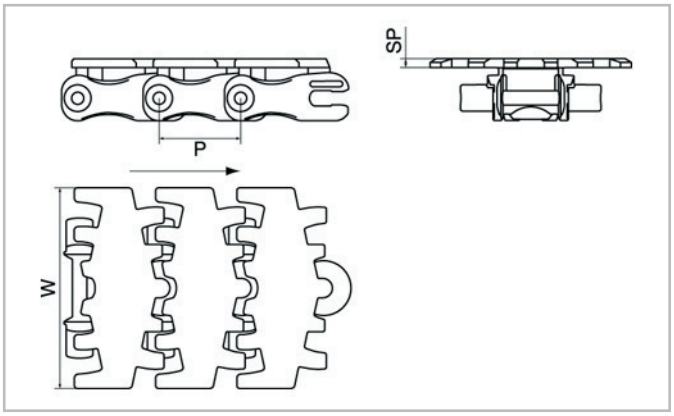
- Supply unit: 3.048 m = 10 ft
- Chain lubrications variable in function of use
- Weights are only indicative
- * Available on request
- Other materials on request

Only machined sprockets available

HabaCHAIN®
Conveyor 7100 (steel pin)

Description
Suitable for rectilinear and curvilinear use, in end-line applications on aluminum modular structure. The patented retaining system makes it simple to join the chain with only a screwdriver. The surface has low friction which allows accumulation of products. Habasit HabaCHAIN® have the widest choice of materials, ideal to solve all mechanical or chemical resistance problems.





Chain Data

Habasit code	Width W		Weight		Material	P		SP	
	mm	inch	kg/m	lb/ft		mm	inch	mm	inch
C7100K0248PTAA	63.0	2.48	0.72	0.48	PT	25.4	1.00	3.5	0.14
C7100K0248ASAA*	63.0	2.48	0.72	0.48	AS	25.4	1.00	3.5	0.14
C7100K0248PKAA*	63.0	2.48	0.72	0.48	PK	25.4	1.00	3.5	0.14
C7100K0325PTAA	83.0	3.25	1.10	0.74	PT	33.0	1.30	4.0	0.16
C7100K0325ASAA*	83.0	3.25	1.10	0.74	AS	33.0	1.30	4.0	0.16
C7100K0325PKAA*	83.0	3.25	1.10	0.74	PK	33.0	1.30	4.0	0.16
C7100K0405PTAA	103.0	4.05	1.70	1.14	PT	35.5	1.40	4.5	0.18
C7100K0405ASAA*	103.0	4.05	1.70	1.14	AS	35.5	1.40	4.5	0.18
C7100K0405PKAA*	103.0	4.05	1.70	1.14	PK	35.5	1.40	4.5	0.18

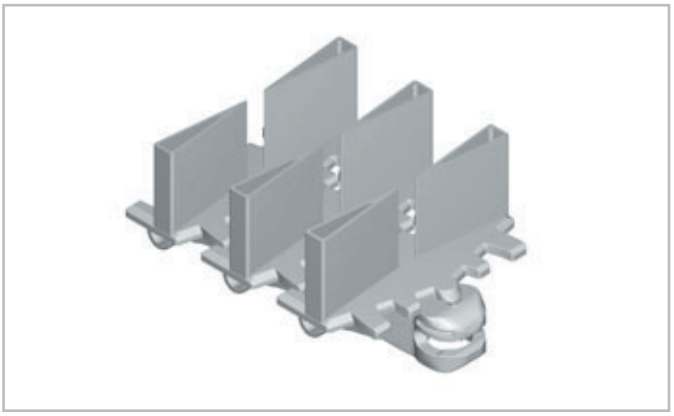
Pin material: special stainless steel

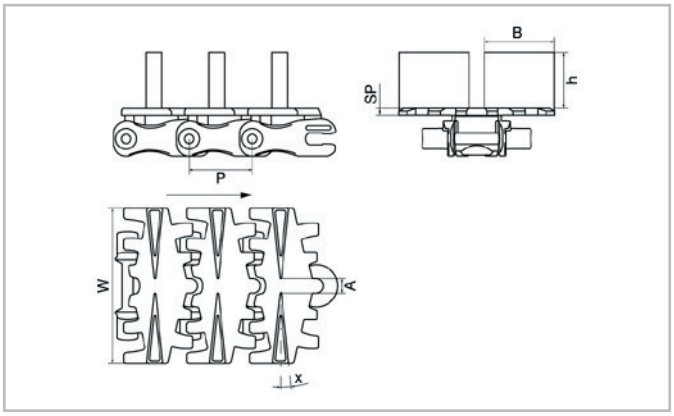
- Supply unit: 3.048 m = 10 ft
- Chain lubrications variable in function of use
- Weights are only indicative
- * Available on request
- Other materials on request

Only machined sprockets available

HabaCHAIN®
Conveyor 7100 Flight (steel pin)

Description
Suitable for rectilinear and curvilinear use, in end-line applications on aluminum modular structure. The patented retaining system makes it simple to join the chain with only a screwdriver. The surface has low friction which allows accumulation of products. Habasit HabaCHAIN® have the widest choice of materials, ideal to solve all mechanical or chemical resistance problems.





Chain Data

Habasit code	Width W		Weight		Material	P		SP		h		A		B		X
	mm	inch	kg/m	lb/ft		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	
C7100K0248PTAF	63.0	2.48	0.80	0.54	PT	25.4	1.00	3.5	0.14	15.0	0.59	8.0	0.31	26.0	1.02	7°
C7100K0248ASAF*	63.0	2.48	0.80	0.54	AS	25.4	1.00	3.5	0.14	15.0	0.59	8.0	0.31	26.0	1.02	7°
C7100K0248PTAF	63.0	2.48	1.00	0.67	PT	25.4	1.00	3.5	0.14	30.0	1.18	8.0	0.31	26.0	1.02	7°
C7100K0248ASAF*	63.0	2.48	1.00	0.67	AS	25.4	1.00	3.5	0.14	30.0	1.18	8.0	0.31	26.0	1.02	7°
C7100K0325PTAF*	83.0	3.25	1.32	0.89	PT	33.0	1.30	4.0	0.16	15.0	0.59	8.0	0.31	37.5	1.48	6°
C7100K0325ASAF*	83.0	3.25	1.32	0.89	AS	33.0	1.30	4.0	0.16	15.0	0.59	8.0	0.31	37.5	1.48	6°
C7100K0325PTAF	83.0	3.25	1.56	1.05	PT	33.0	1.30	4.0	0.16	30.0	1.18	8.0	0.31	37.5	1.48	6°
C7100K0325ASAF*	83.0	3.25	1.56	1.05	AS	33.0	1.30	4.0	0.16	30.0	1.18	8.0	0.31	37.5	1.48	6°
C7100K0405PTAF	103.0	4.05	2.40	1.61	PT	35.5	1.40	4.5	0.18	20.0	0.79	14.5	0.57	43.5	1.71	5°
C7100K0405ASAF*	103.0	4.05	2.40	1.61	AS	35.5	1.40	4.5	0.18	20.0	0.79	14.5	0.57	43.5	1.71	5°

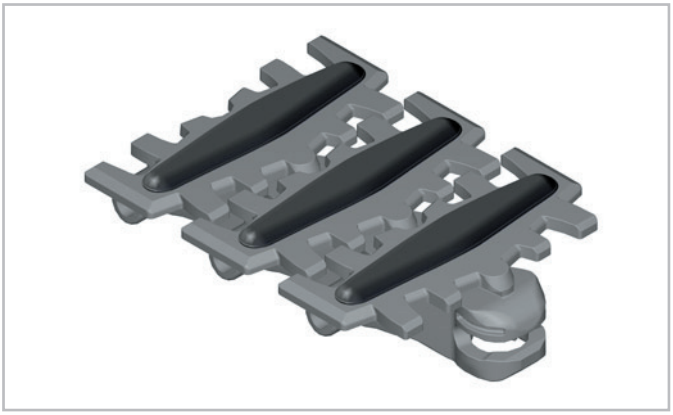
Pin material: special stainless steel

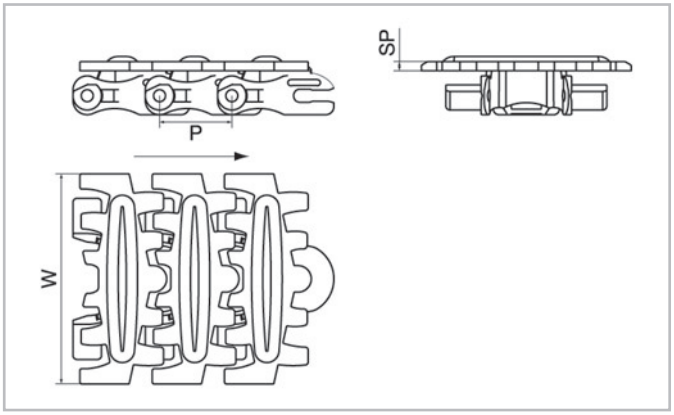
- Supply unit: 3.048 m = 10 ft
- Chain lubrications variable in function of use
- Weights are only indicative
- * Available on request
- Other materials on request

Only machined sprockets available

HabaCHAIN®
Conveyor 7100 GripTop (steel pin)

Description
Suitable for transport in inclined applications.The abrasion resistant surface offer a longer service life with a consistent coefficient of friction. Ideal for medium-weight transports. Different rubbers are available.





Chain Data

Habasit code	Width W		Weight		Material	P		SP	
	mm	inch	kg/m	lb/ft		mm	inch	mm	inch
C7100K0248PTAG	63.0	2.48	0.80	0.50	PT	25.4	1.00	3.5	0.14
C7100K0325PTAG	83.0	3.25	1.20	0.80	PT	33.0	1.30	4.0	0.16
C7100K0405PTAG	103.0	4.05	1.80	1.20	PT	35.5	1.40	4.5	0.18

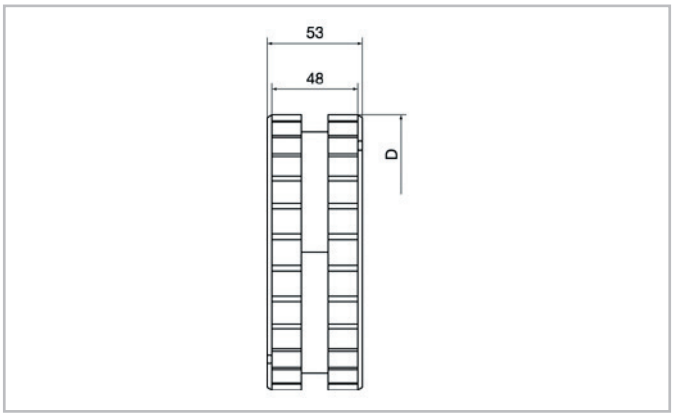
Pin material: special stainless steel

- Supply unit: 3.048 m = 10 ft
- Chain lubrications variable in function of use
- Weights are only indicative
- * Available on request
- Other materials on request

Only machined sprockets available

HabaCHAIN®
Split Gear C820G

Description
Suitable for 820 and 831 chain. The choice of materials and the accuracy of fabrication guarantee a higher wear resistance and a bigger power transmission. Combined with HabaCHAIN® Hub (drive or idler) it is possible to create the sprocket you need.



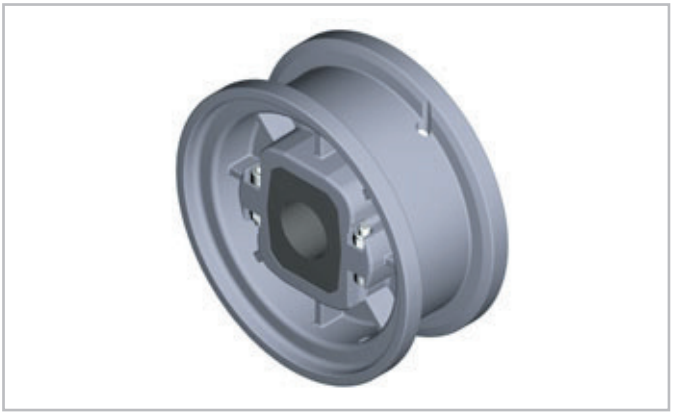
Sprocket Data

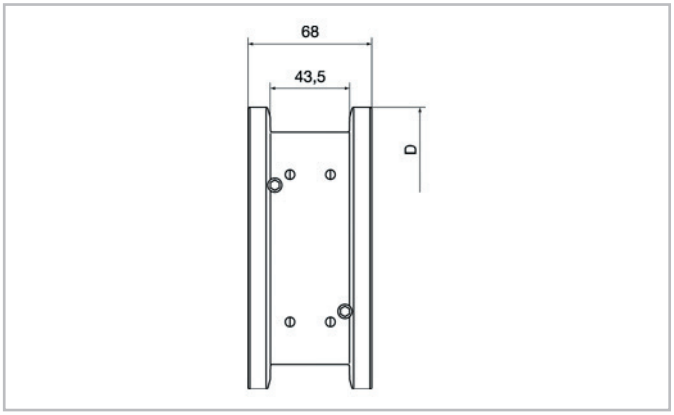
Habasit code	Number of teeth	Diameter of pitch Ø dp	
		mm	inch
C0820G21	21	129.2	5.09
C0820G23	23	141.2	5.56
C0820G25	25	153.2	6.03

- Supply unit: box of 25 couples
- * Available on request
- Nuts and bolts: stainless steel
- Standard color: black
- Other colors on demand

HabaCHAIN®
Split Idler C820L

Description
Suitable for 820 and 831 chain. The choice of materials and the accuracy of fabrication guarantee a higher wear resistance. Combined with HabaCHAIN® Hub (idler) it is possible to create the idler you need.





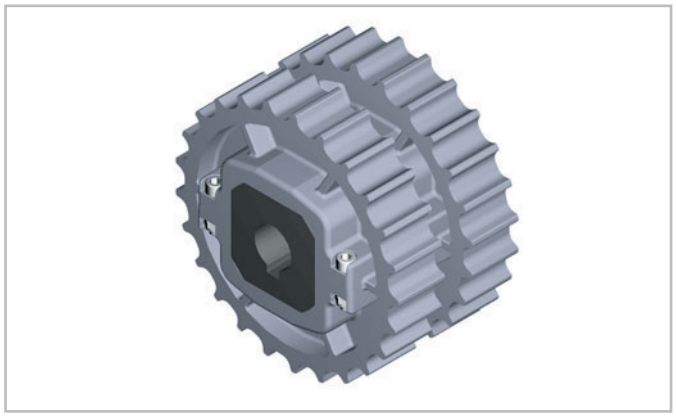
Sprocket Data

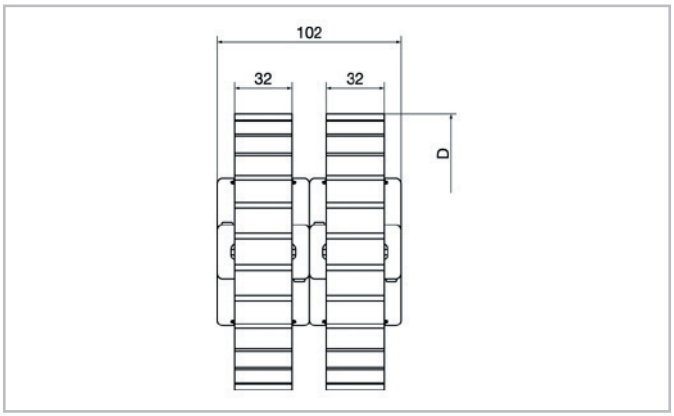
Habasit code	Number of teeth	Diameter of pitch Ø dp	
		mm	inch
C0820L21	21	129.2	5.09
C0820L23	23	141.2	5.56
C0820L25	25	153.2	6.03

- Supply unit: box of 25 couples
- * Available on request
- Nuts and bolts: stainless steel
- Standard color: black
- Other colors on demand

HabaCHAIN®
Split Gear C821G

Description
Suitable for 821 chain. The choice of materials and the accuracy of fabrication guarantee a higher wear resistance and a bigger power transmission. Combined with HabaCHAIN® Hub (drive or idler) it is possible to create the sprocket you need.





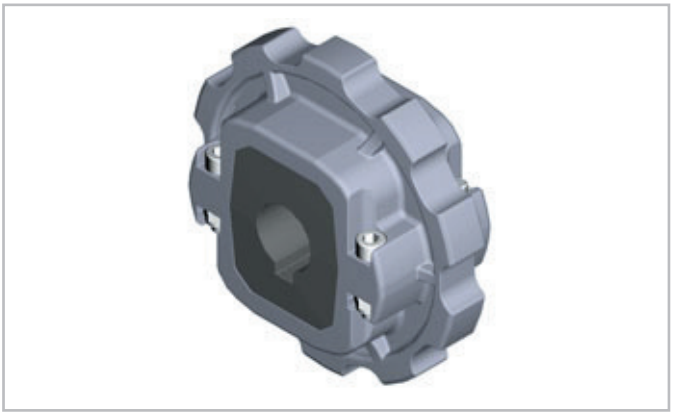
Sprocket Data

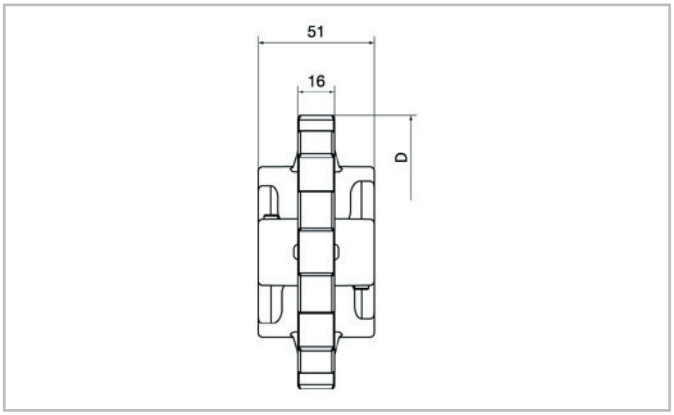
Habasit code	Number of teeth	Diameter of pitch Ø dp	
		mm	inch
C0821G25	25	153.2	6.03

- Supply unit: box of 25 couples
- * Available on request
- Nuts and bolts: stainless steel
- Standard color: black
- Other colors on demand

HabaCHAIN®
Split Gear C880G

Description
Suitable for 879 and 880 chain. The choice of materials and the accuracy of fabrication guarantee a higher wear resistance and a bigger power transmission. Combined with HabaCHAIN® Hub (drive or idler) it is possible to create the sprocket you need.





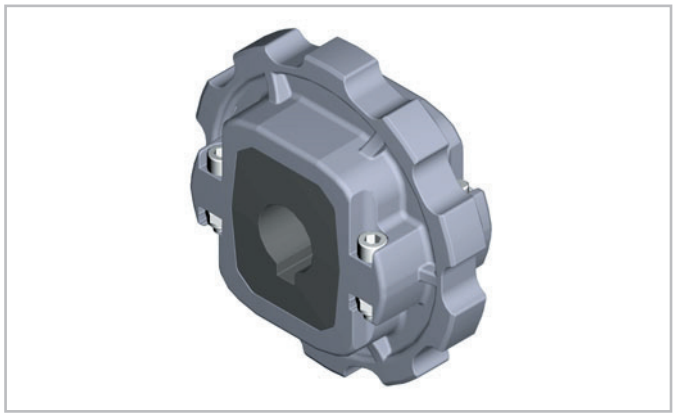
Sprocket Data

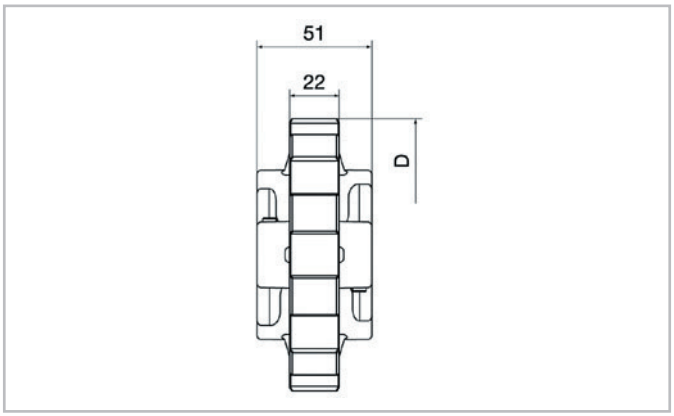
Habasit code	Number of teeth	Diameter of pitch Ø dp	
		mm	inch
C0880G10	10	123.3	4.85
C0880G12	12	147.2	5.80

- Supply unit: box of 25 couples
- * Available on request
- Nuts and bolts: stainless steel
- Standard color: black
- Other colors on demand

HabaCHAIN®
Split Gear C882G

Description
Suitable for 882 chain. The choice of materials and the accuracy of fabrication guarantee a higher wear resistance and a bigger power transmission. Combined with HabaCHAIN® Hub (drive or idler) it is possible to create the sprocket you need.





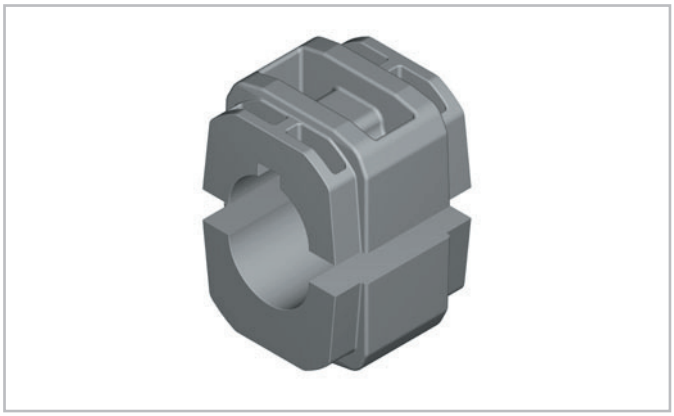
Sprocket Data

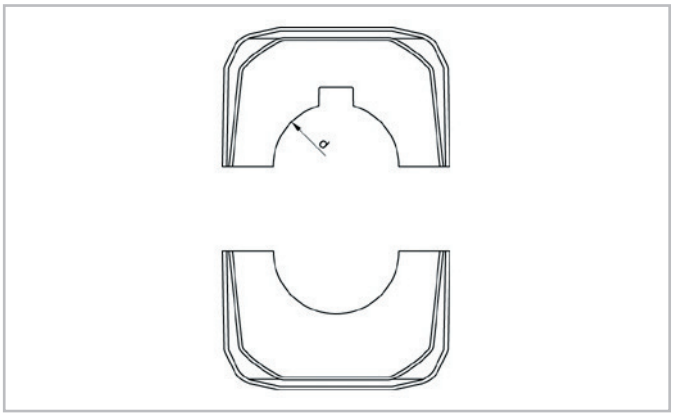
Habasit code	Number of teeth	Diameter of pitch Ø dp	
		mm	inch
C0882G12	12	147.2	5.80

- Supply unit: box of 25 couples
- * Available on request
- Nuts and bolts: stainless steel.
- Standard color: black
- Other colors on demand

HabaCHAIN®
Split hub sprockets

Description
Usable with all HabaCHAIN® gears, they have a great mechanical resistance and a better power transmission. Suitable for all drive sprockets uses. Not suitable for idle application.





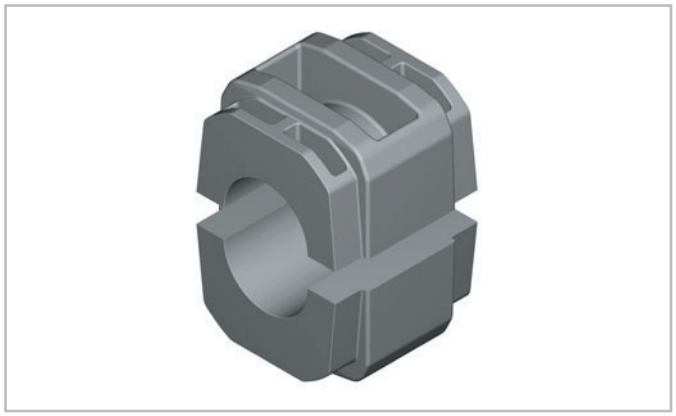
Sprocket Data

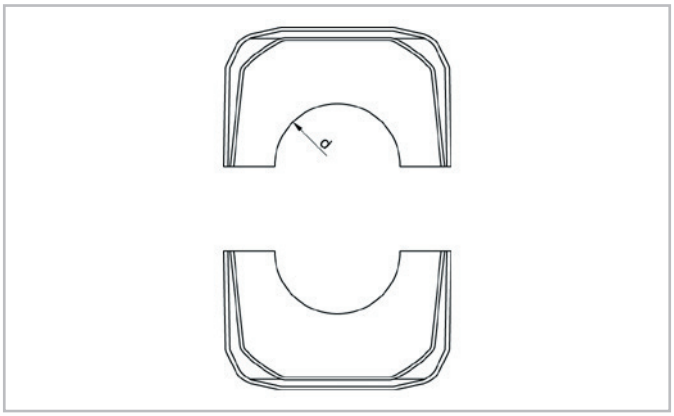
Habasit code	Bore size		Bore shape
	mm	inch	
H025RZ*	25		round with key
H030RZ	30		round with key
H040RZ	40		round with key
H100RZ		1.00	round with key
H118RZ		1.00	round with key
H125RZ		1.25	round with key
H150RZ		1.50	round with key
H175RZ*		1.75	round with key

- Supply unit: box of 150 couples
- * Available on request
- Standard color: black
- Other colors on demand

HabaCHAIN®
Split hub idler

Description
Usable with all HabaCHAIN® gears, it has a very low coefficent of friction and a good mechanical resistance, Hub L is made with a special self-lubricating material. Not suitable for power transmission use.





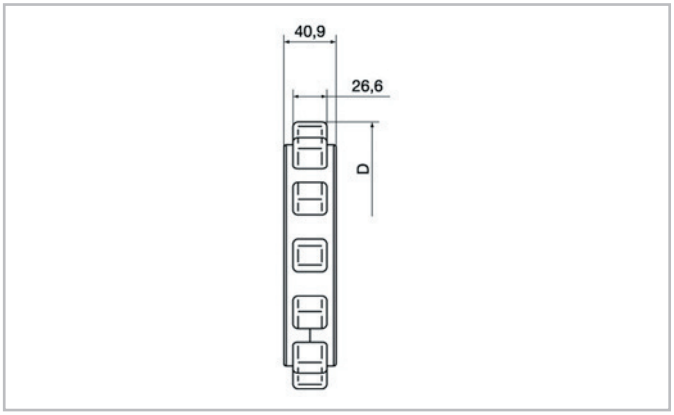
Sprocket Data

Habasit code	Bore size		Bore shape
	mm	inch	
H025RL*	25		round
H030RL	30		round
H040RL	40		round
H100RL		1.00	round
H125RL		1.25	round
H150RL		1.50	round
H175RL*		1.75	round

- Supply unit: box of 150 couples
- * Available on request
- Standard color: black
- Other colors on demand

HabaCHAIN®
Sprocket C3200

Description
Suitable for 3200 and 3210 knuckle chain types. The choice of materials and the accuracy of fabrication guarantee a higher wear resistance and a bigger power transmission.



Sprocket Data

Habasit code	Number of teeth	Diameter of pitch Ø dp	
		mm	inch
C3200Z12040Q6	12	207.8	8.18
C3200Z12150Q6	12	207.8	8.18

- Supply unit: box of 20 pieces
- * Available on request
- Nuts and bolts: stainless steel
- Standard color: black
- Other colors on demand

Description

It is possible to have the complete range of sprockets and idlers machined for all chain types on request.

Sprocket Data

Habasit code	Number of teeth	Diameter of pitch Ø dp	
		mm	inch
C0820S17*	17	105.5	4.15
C0820S19*	19	117.3	4.62
C0820S21*	21	129.3	5.09
C0820S23*	23	141.2	5.56
C0820S25*	25	153.2	6.03
C0820S27*	27	165.2	6.50
C0821S21*	21	129.3	5.09
C0821S23*	23	141.2	5.56
C0821S25*	25	153.2	6.03
C0880S09*	9	111.4	4.39
C0880S10*	10	123.3	4.85
C0880S11*	11	135.2	5.32
C0880S12*	12	147.2	5.80
C0882S10*	10	123.3	4.85
C0882S12*	12	147.2	5.80
C0820M17*	17	105.5	4.15
C0820M19*	19	117.3	4.62
C0820M21*	21	129.3	5.09
C0820M23*	23	141.2	5.56
C0820M25*	25	153.2	6.03
C0820M27*	27	165.2	6.50
C0821M21*	21	129.3	5.09
C0821M23*	23	141.2	5.56
C0821M25*	25	153.2	6.03
C0880M09*	9	111.4	4.39
C0880M10*	10	123.3	4.85
C0880M11*	11	135.2	5.32
C0880M12*	12	147.2	5.80
C0882M10*	10	123.3	4.85
C0882M12*	12	147.2	5.80
C3200S08*	8	132.8	5.23
C3200S10*	10	160.4	6.31
C3200S12*	12	196.3	7.73
C3200S15*	15	244.3	9.62
C3200S17*	17	276.5	10.89

- Supply unit: box of 10 pieces
- * Available on request
- Standard color: black
- Other colors on demand

In many applications a build-up may occur, such as grease, dirt, debris or even spilled products like syrup, beer or soda. This may cause problems as listed below.

- Damage to the conveyed product
- Increased horsepower requirements
- Chain pulsation
- Excessive chain wear on the flights and in the joint or hinge areas
- Rapid wear on the wear strips
- Accelerated sprocket tooth wear

Therefore, a thorough and regular cleaning procedure is very important to the successful operation of the conveyor line.
If conveyors are to sit idle for a long period of time before start-up, they should be covered with plastic or a drop cloth to minimize dirt and debris that can settle into the chain and tracks.

Recommended cleaning frequency

- Lubricated lines – lubrication generally provides a continual cleaning action, therefore, a weekly cleaning is recommended
- Dry running lines – without the constant cleaning action of a lubricant, dirt and debris may build-up; therefore it is recommended that these lines be cleaned daily to obtain maximum sanitation and performance

General guidelines for cleaning solutions

- Recommended pH of 4-10
- With plastic chains, avoid phosphoric acid (found in most stainless steel cleaners). Avoid chlorine (bleach), ammonia and iodine
- Most hydrocarbons (mineral spirits, etc.) will not attack acetal chains

Methods of cleaning

- Periodic high-pressure water rinse or steam cleaning should prove satisfactory. Spray the chain in place on the conveyor, both the carry and return sections. This is usually done with the conveyors running, however, the chain can remain stationary. For easy access to the underside of the carry and return chains, some manufacturers provide "clean-out" holes in the side frames.
  It is recommended that steam should NOT be held on chains for prolonged periods. Chains may deform or become permanently damaged.
  Keep water, steam and chemicals away from electrical disconnects, motors, photo eyes, or any other moisture-sensitive equipment.
- Warm water and soap are commonly used to clean the conveyor
  In some cases, such as PET bottle lines, cleaners or combination cleaner/lubricants are applied continuously or intermittently. Several types of automatic application systems are available.
  The main objective is to clean the chain-carrying surface and underside as well as the wearstrips and tracks.
- Strong caustic agents should not be used with plastic chains

ALWAYS thoroughly rinse all cleaning agents completely from the chain and conveyor frame. Make sure that the underside of the chain is rinsed thoroughly.

- In extreme situations, it may be necessary to periodically clean the chains with a soft bristle brush. In these situations, clean the chain in place while on the conveyor, both on the carry and return sections
- Inspect conveyors often. Remove broken or jammed containers or pieces of containers as soon as they are detected. Use cleaning solutions to wash away excessive spillage

HabaCHAIN® requires very little maintenance. The following table provides suggested maintenance checks and the interval at which they should be performed. The table is based on the conveyor running three shifts per day, seven days per week. This is only a guideline. Each application and its working environment may call for varying maintenance intervals.

Maintenance And Inspection Interval Guidelines

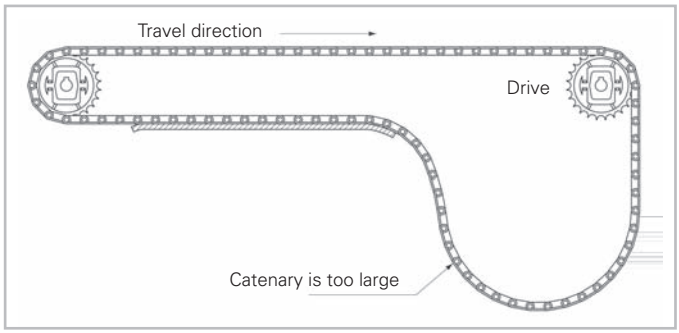
Maintenance needs	Interval between checks			
	Weeklly	Monthly	Semi annually	Annually
Clean conveyor of debris if necessary	•			
Check catenary sag, adjust as necessary		•		
Check chain for unusual grooves or wear		•		
Check to make sure return rollers are spinning			•	
Mesure chain elongation				•
Disconnect chain and check sprockets for wear				•

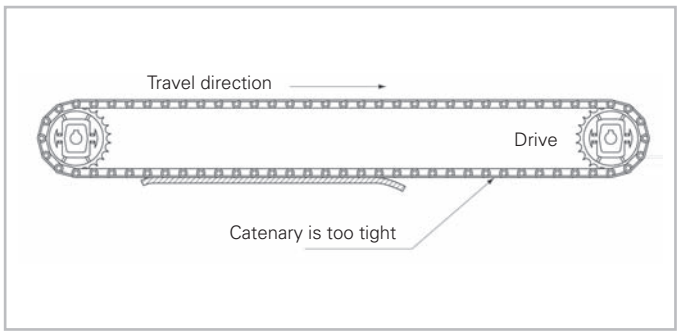
The chain should be tightened by hand when installed. Chain should never be over tensioned.
To install the last section of chain, separate the chain to required length using a chain breaker to push the appropriate connecting pins out of the roller base chain. Make final connection to complete the chain loop.

1. Start the conveyors and run without product for 30 minutes to 1 hour.Listen for unusual noises such as clicking or banging and also look for signs of unusual operation. Refer to the Trouble Shooting Guide for possible corrections if unusual noises occur or the system is not running smoothly.

2. Repeat step 1 with product.

3. Check the catenary sag.
   When running, the catenary sag is as shown below:
   • The function of the catenary is to allow a place for excess chain to accumulate
   • The catenary sag should be measured when running with product





For incline conveyors, between 0 to 15 degrees, the catenary should be allowed to form at the idle end of the conveyor. For larger angles, use a take-up to control the depth of the catenary. The depth should not exceed 5.00“ (125.0 mm).

4. Check transfers to ensure smooth product handling.

5. Frequent inspection and adjustment is recommended during the initial run-in period to avoid any future problems.

As chains operate, they will elongate due to normal wear. This elongation will beabsorbed in the catenary. The catenary must be checked and chain should be adjusted to insure the proper sag.

ALL Habasit chains operate under true chain principles irrespective of load, speed or conveyor length. A catenary is all that is required for proper chain-sprocket interaction.

Installing note
Pull a short section of chain through the entire conveyor to detect any obstructions or areas of tight clearance. Check the conveyor for loose nuts, bolts and any projections.
Ensure that the joints in the wear strips and the support elements are even, and that the clearance between chain and chain guides is correct.
Welding metal splashes, metal chips and paint must be removed from the sliding surfaces.
Check also the clearance between chain and guide rail. Ensure that sprockets and idler wheels are correctly aligned. Ensure that the entire length of the chain is properly lubricated.

Inspection
During day-to-day operation, the chain, sprockets and conveyor system must be regularly inspected. This prevents defects and allows repairs to be carried out before serious damage is caused. The cost of regular maintenance is more than compensated for by the longer service life and the absence of breakdowns in the functioning of the conveyor. During the initial phase of operation, all inspections and adjustments can be done at one time. When the preliminary phase is over, only routine inspections are necessary. A fixed inspection schedule should be drawn up and include the following:

1. Are there any unusual grooves on the chain?
2. Check if the surface of the chain is even.
3. Check the clearance between the individual links and ensure that this has not increased as a result of overloading or blocking.
4. Pulsating is a sign of insufficient lubrication or of snagging by the chain.
5. Check the clearance of dead plates and turntables.
6. Do the sprockets show signs of excessive wear?
7. Is dirt accumulating between sprocket teeth?
8. Check for sprocket guide ring wear and chain misalignment.
9. Check the ways and wear strips for excessive wear.
10. Is the lubrication system working correctly?
11. Check the insides of the corner wear strips and chain guides and note that excessive heat may indicate tight clearance or high friction.
12. Check return rollers for free rotation.

Repair and replacement
Operational problems such as jerky running of the chain, excessive wear on the chain, and projection of chain links should be repaired immediately.
Such faults are often due to one of the following causes:

1. Serious overloading, jam-ups or wedging caused by broken glass or bottle caps.
2. Excessive back flexing of the chain during return.
3. Inadequate or no lubrication.
4. Interference and obstruction.
5. Worn sprockets.
6. Poor conveyor design.
7. Seriously damaged or worn chain.
8. Inadequate clearance on dead plates and turntables.
9. Wear on sprocket guide rings or idler wheels.
10. Wear of wear strips on straight or curved sections.

The following guidelines should be observed in determining when to replace chains and sprockets:

1. Elongation of the chain by more than 30 mm per meter.
2. The chain jumps the sprocket.
3. The flights have worn to about one half of the original thickness.
4. Uneven conveying surface.
5. Serious wear on the guides of side-flexing chains which causes pins protrusion these may cause damage to the wear strips or other parts of the conveyor.

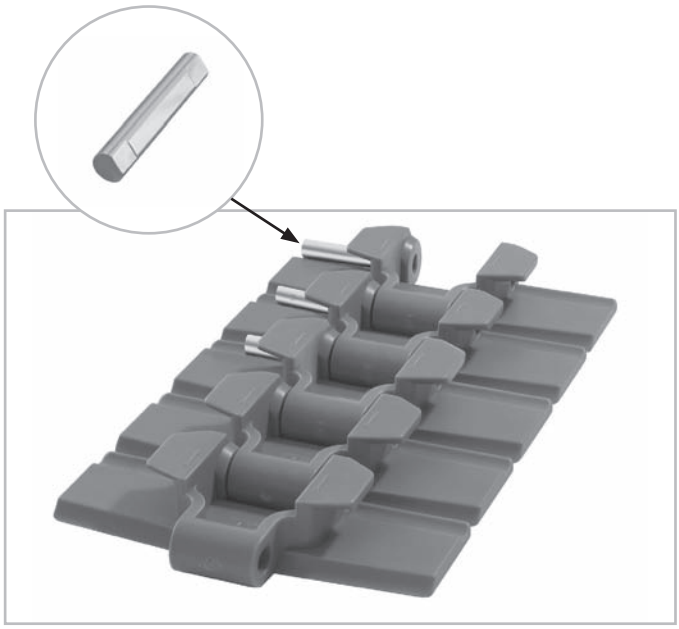
The sprocket is worn when indentations appear in the toothing on which the chain tends to catch. These recommendations for the care of the conveyor are intended to ensure its smooth and uninterrupted operation. Regular and punctual maintenance of the conveyor is an essential factor in its ultimate productivity.

Connect the chain
One piece chains with D style pins
(879, 880, 882, 1060, 1055)

Tools required: drift pin and hammer.

To connect each 10 ft (3.048 m) section, start by positioning the connecting pin into either one of the double eyes in the appropriate end link. Take care in positioning the flat of the pin to match up with the flat on the link hole. Position the single eye of the other end link between the double eyes. Then drive pin through the single eye and into the adjacent double eye, using a drift punch and hammer, until connecting pin is centered in the link.

The chain should be tightened by hand when installed. Chain should never be over- tensioned. When installing the last section, separate the chain to the required length. Using a drift punch and hammer, drive the appropriate connecting pin out of the chain. Make final connection to complete the chain loop

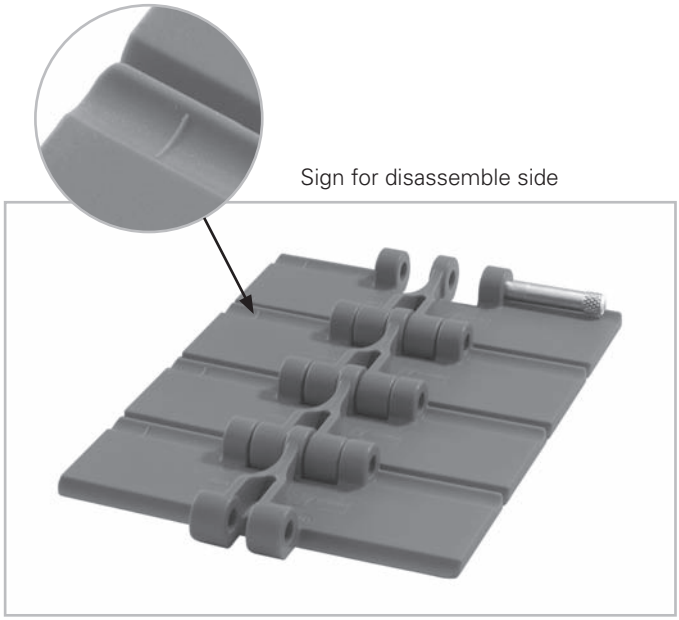


Connect the chain
One-piece chains with knurled-style pins
(820, 821, 831, 3200, 3210)

Tools required: drift pin and hammer.

To connect each 10 ft (3.048 m) section, start by positioning the connecting pin into the correct side of the chain (as shown below). Always insert smooth (unknurled) end of pin first. Position the links together, then drive pin into the hinge using a drift punch and hammer, until connecting pin is recessed into the link like adjacent pins.

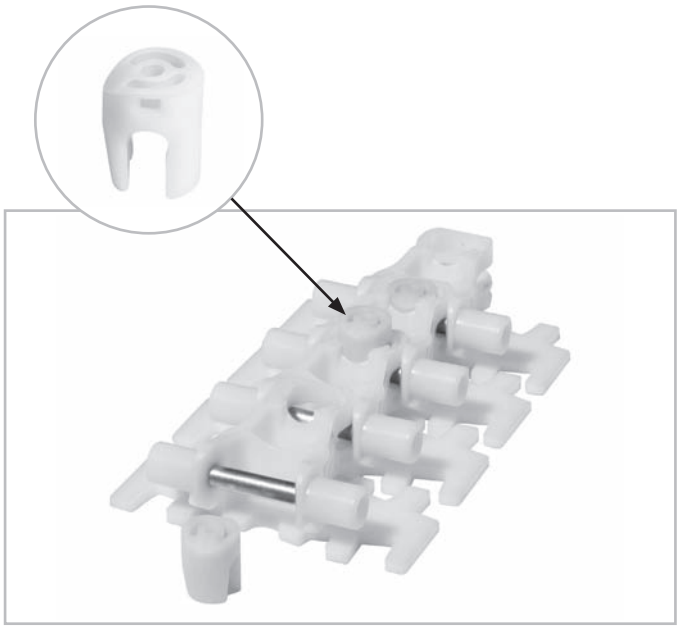
The chain should be hand tight when installed. Chain should never be overtensioned.
When installing the last section, separate the chain to required length from the right side (see picture) using a drift punch and hammer to drive appropriate connecting pin out of chain. Make final connection to complete the chain loop.



Connect the chain
One piece chains with conveyor bush
(C7100 series all types)

Tools required: plate screwdriver and hammer.

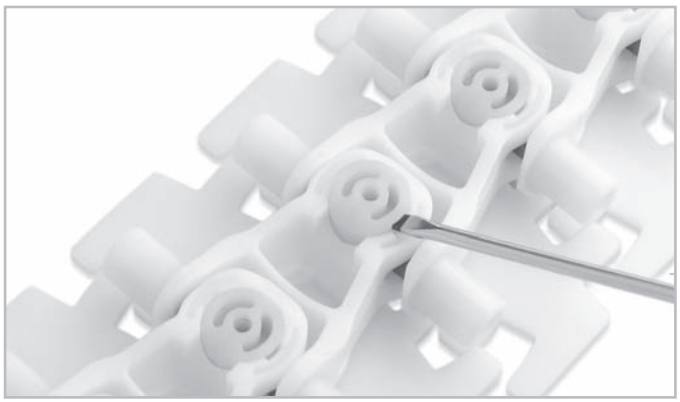
To connect each 10 ft (3.048 m) section, start by connecting two chain links then insert the bush in position by hand or with a hammer.
If the bush is rotated in the wrong direction it's not possible to insert bush on pin.
The rounded bush side is on the chain back.



Disconnect the chain
One piece chains with conveyor bush
(C7100 series all types)

Tools required: plate screwdriver or self-tapping screw.

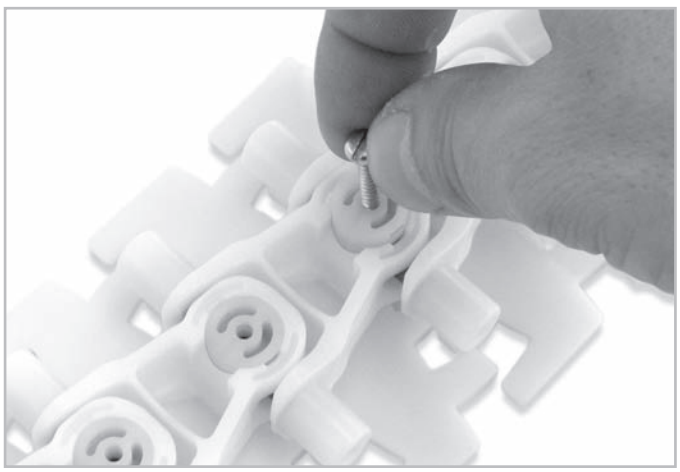
To disconnect each 10 ft (3.048 m) section or to remove chain links, begin by extracting the chain bush from the link with a small screwdriver or a self-tapping screw, then disconnect by hand the chain link.



Connect the chain with a competitor chain
(C7100 series all types)

If the HabaCHAIN® C7100 series is added to the rear of the competitor's product, no special additional operation is required.
If the HabaCHAIN® C7100 series is added to the front of the competitor's product, the hole in the competitor bush will need to be bored by 0.3 mm larger than the pin diameter. No further operations are required.

The chain should be tightened by hand when installed. Chain should never be over-tensioned. Make final connection to complete the chain loop.



Assembly and Maintenance
Chain replacement

Chains should be replaced in the following cases:

- 2% elongation of the pitch, which is comparable with an elongation of 20 links from 762 mm to 777 mm
- The thickness of the top plate of the chain is reduced to 2.0 mm
- The surface becomes unflat or very rough due to (uneven) wear, especially in applications where product handling is critical
- The side of the hinge of HabaCHAIN® wears away and exposes the pin
- The chain jumps on the sprocket
- It is also important to look at the position of the chain in the production line
- Chains that run on a pressureless inliner, have to be replaced together. If only one chain is replaced, there will be a chance of unacceptable height differences, which could result in products toppling over.

Assembly and Maintenance
Multi-Hub sprockets and idlers

Modular sprockets assembling

Habasit has created a new type of modular sprocket with an interchangeable hub in various diameters and offered in two versions; one for driving applications, and the second in a special self-lubricating resin for idle application with low noise and low shaft abrasion.

For sprocket assembly, the following requirements must be specified:

- The particular gear for the chain type
- The particular diameter for the universal hub
- Application condition (power or idle)

Insert hub in the gear seat and close the sprocket on the shaft with the enclosure screws.
The most common diameters are available (see hubs page in this catalogue).

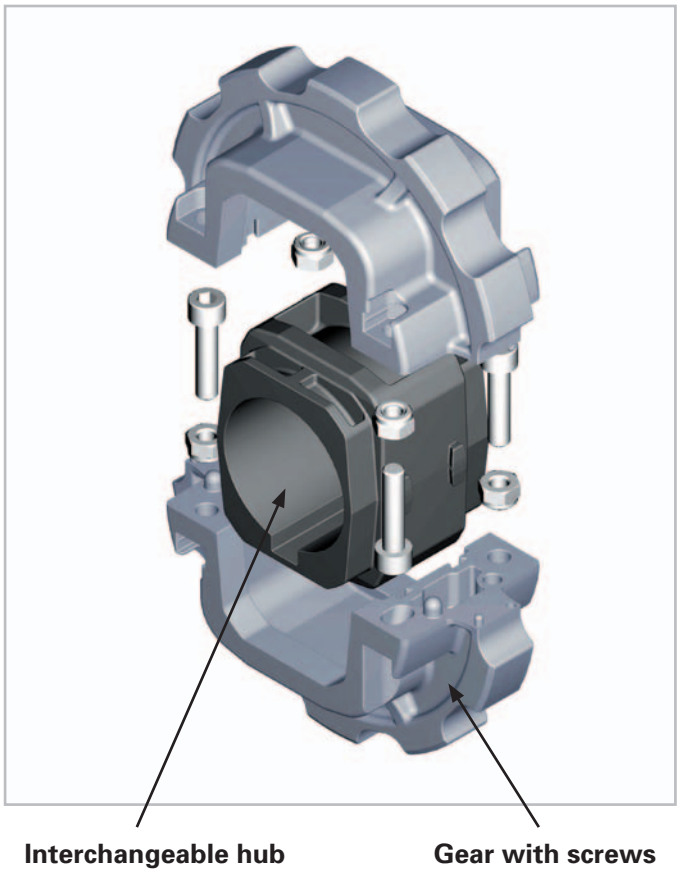
Sprocket and idler replacement

Replacement criteria for sprockets and idlers:

- The teeth show a hook-formed shape, which inhibits the chain from releasing correctly from the sprockets
- Damaged teeth
- Chain jumps on the sprocket
- The idler is oscillating on the shaft, because of a worn bore
- Damaged hub or keyways

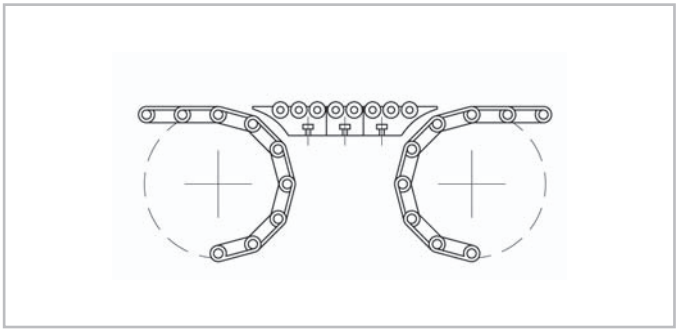
When replacing sprockets on multiple-track conveyors, make sure all sprockets are mounted in the same position on the shaft. The chains/belts have to be in the same position on the sprockets.

Patented

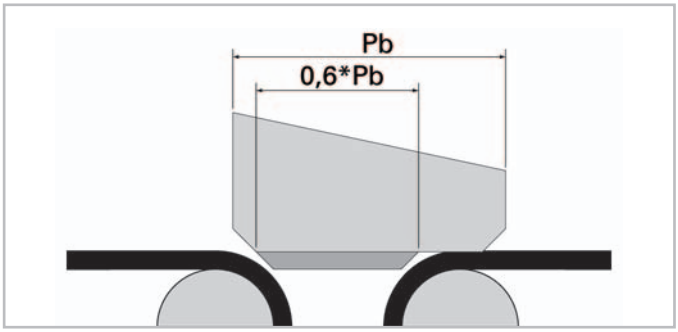


Technical Notes
Sprocket and idler positioning

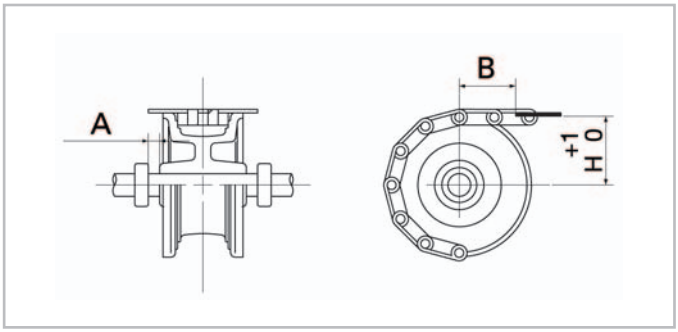
Head-to-tail transfer
Modular transfer roller plates are recommended for big and stable products, and also in particular for low back pressure applications. For other products flat dead plates are suggested.



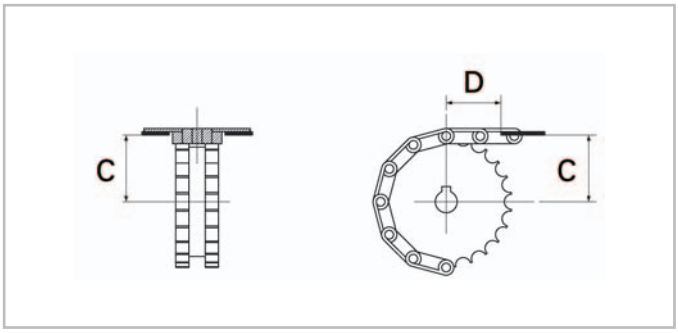
Self-clearing transfer
From experience, it is noted that a dead plate transfer with a length of **0.6 * product base diameter (Pb)** will result in a continuous flow of products. See figure to the right.



Sprockets and idler positioning
Idler wheels can be used in all straight-running conveyors. Installation of most idler wheels in existing conveyors can be accomplished without difficulty. Place the idler wheel on a steel shaft and attach one set collar to the right and left of the wheel. Smoothest running is achieved when the idler wheel is installed slightly lower than the top of the wear strip. In new conveyors, the idler wheels should be used throughout the system. Ensure that the correct clearances are observed as shown in the figure.

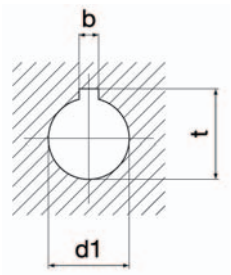


Chains type	H mm	P mm	H inch	P inch
820 - 821 - 821R	(Dp/2) + 3,2	40	(Dp/2) + 0,12	1.5
831	(Dp/2) + 2,4	40	(Dp/2) + 0,09	1.5
880T - 880M	(Dp/2) + 3,6	40	(Dp/2) + 0,14	1.5
879T	(Dp/2) + 2,8	40	(Dp/2) + 0,11	1.5
882T -882M - 882R	(Dp/2) + 4,8	40	(Dp/2) + 0,19	1.5



Allowance	mm	inch
A	1,2 - 1,6	0,05 - 0,06
B	0 + 6	0 + 0,24
C	0 + 1	0 + 0,04
D	0 + 6	0 + 0,24

d1	b mm		t mm	
mm	allowance		allowance	
25	8	+0,036	28.3	
30	8	0	33.3	
35	10		38.3	+0,2
40	12		43.3	0
45	14	+0,043	48.8	
50	14	0	53.8	
60	18		64.4	



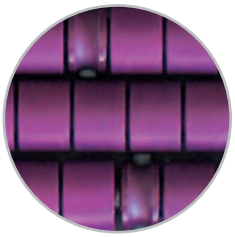
Keyway dimensions for metric shaft diameters
(UNI 6604 69 / ISO 773)

d1	b inch		t inch	
inch	min	max	min	max
1“	0.250	0.252	1.114	1,124
1,25“	0.250	0.252	1.367	1,377
1,50“	0.375	0,377	1.669	1,679
1,75“	0.375	0,377	1.922	1,932
2“	0.500	0,502	2.223	2,233

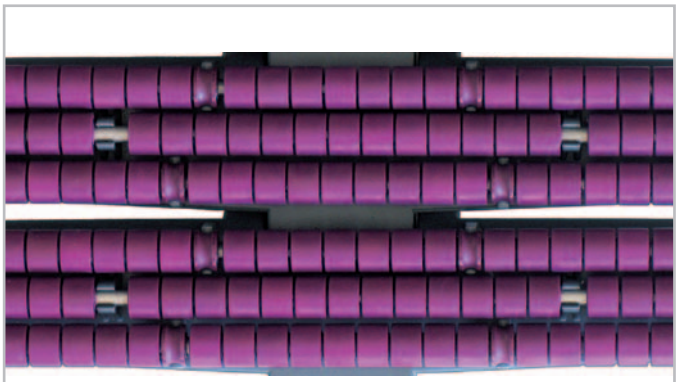
Keyway dimensions for imperial shaft diameters

Low backline pressure chains
Habasit has created a new generation of LBP chains with a proper patented design. This design minimizes the surface without rollers in order to avoid open space on the chain top surface.

Different rollers supporting the shafts in the middle give more continuity to the support, allowing a better load stability.



Displaced supports and asymmetrical roller alignment prevent vibration and noise.



Patented

Sliding block
Another solution that is included in our patent is the ability to insert a special sliding block in the place of the intermediate shaft
This will be used in the transfer of large boxes, where a continuous surface of rollers is not needed.

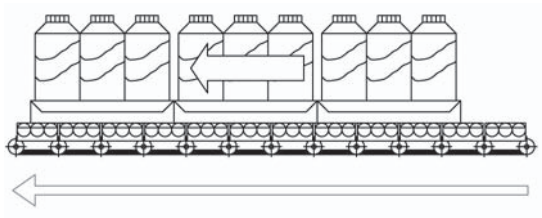
This solution gives the same results in back pressure, thus reducing the final cost of the chain

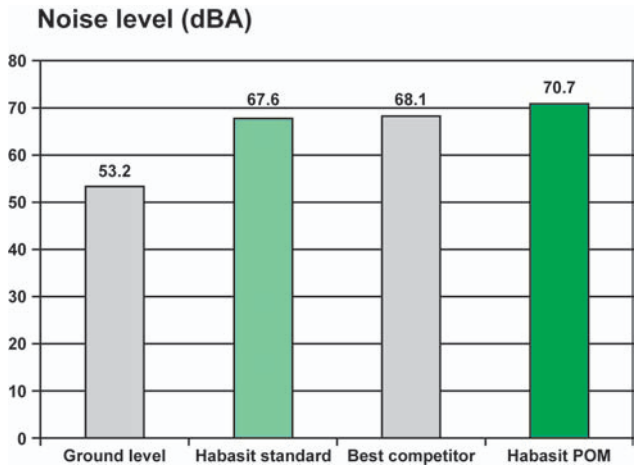
Residual pressure on first product
Habasit produces the LBP roller in a special self-lubricant resin with a very low friction coefficient and a low functional noise level compared to other chains on the market.

(N. of products –1) * product weight * friction coeff.

The roller friction coefficient in clean conditions is from 0.11 to 0.20.

Thorough cleaning of LBP -chains is very important. Product spillage (e.g. soft drinks and sugar compound) negatively influence the friction coefficient.





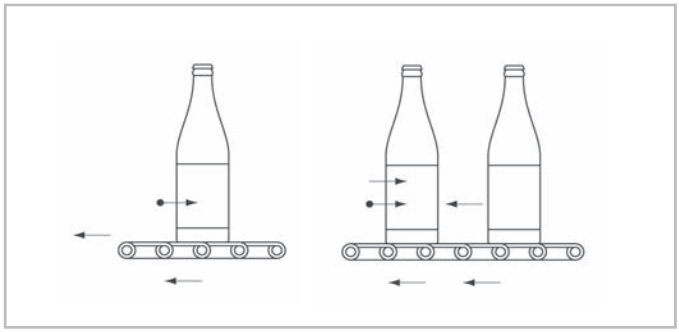
Technical Notes
Force in action on a conveyor

Functional force:
product weight, chain weight and structure

A. Products in accumulation pressure
B. Snap start or stop
C. Friction from chain and curve
D. Product centrifugal force
E. Lateral transfer action

The first two forces are known and are expressed in kg/m (of the conveyor length) or N/m (of the conveyor length). The other forces require explanation.

A. Products in accumulation pressure
Every product in an accumulation mode acts as an obstacle and also as a force against the other products. This force is derived from its weight multiplied by the friction coefficient and taking into account the accumulation of the product.
The total accumulation force it is the sum of the singular forces.

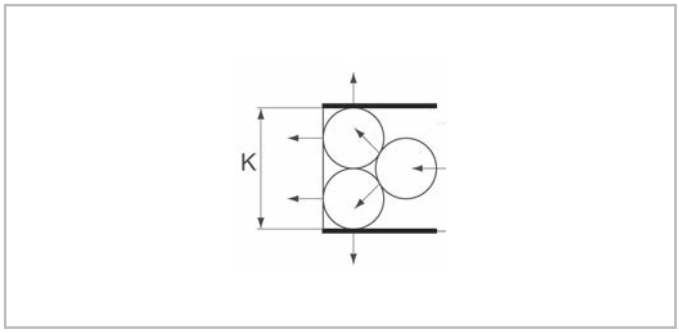


Fa = Wa · La · fm

Wa is the total product weight (kg/m)
La is the accumulation length (m)
fm is the friction coefficient (chain and product).

Fa is the resulting force (kg) (or Newton by multiplying by 9.81).

The force of accumulation acts on the lateral reduction guide as expressed by the below formula. This force is proportional to the products in contact with the lateral guides.



P = Fa / K

B. Snap start or stop
When a product accelerates, a force is transferred from the chain to the product and is proportional to the product mass as shown below:

F = M • a

a is acceleration (ms2)
mass **M** (kg)
resultant force **F** (Newton)

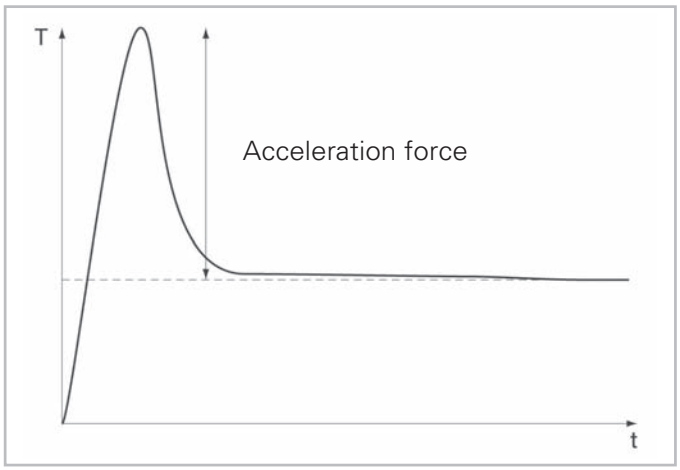
This is an additional force on the chain, bearings and drive. This force must be accounted for in the total force calculated for constant belt speed.

The applied acceleration is limited by the friction coefficient and shown by the following formula:

amax = Fmax / M = W • fm / M = M • g • fm / M = g • fm

W is the product weight in Newton.

For this reason, a chain with rubber inserts is used when a higher coefficient of friction between the chain and the product is required.



Chain load with constant speed

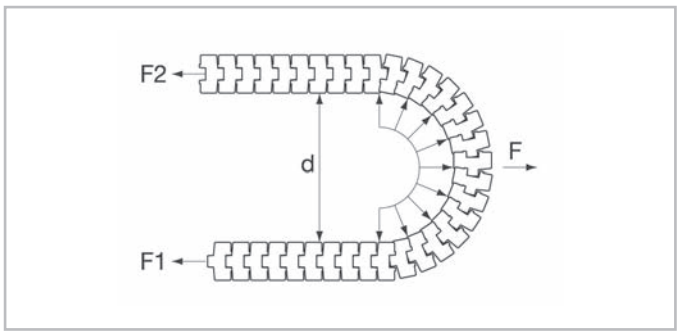
C. Friction from chain and curve
Chains have higher tensions on the inside turn radius as a change in direction is made.

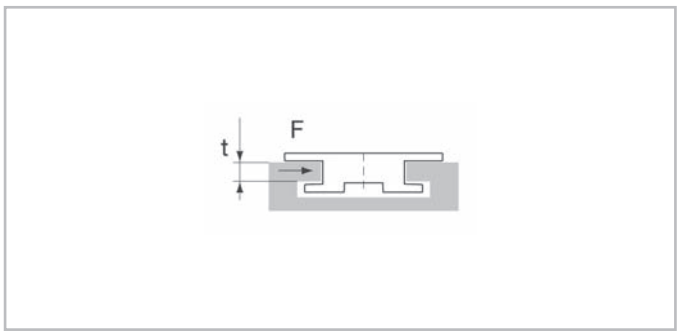
F = F2 + F1

P = F / (d • t)

This radial pressure produces friction and heat. Plastic materials used to make turns are not good conductors of heat. Turn conditions can cause an increase in temperature for a belt system. High speed conveying increases material fusion.

In performing the calculation, the PV factor for the chain must not be exceeded.
The FC force must also be taken into the calculation.

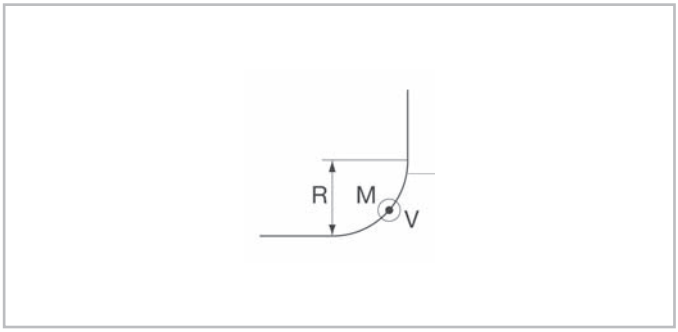




D. Product centrifugal force

High speed conveying, in radius turns, produces centrifugal forces requiring lateral guides to hold products in place. For these applications, two different situations exist: case 1- sufficient friction, or case 2- insufficient friction.

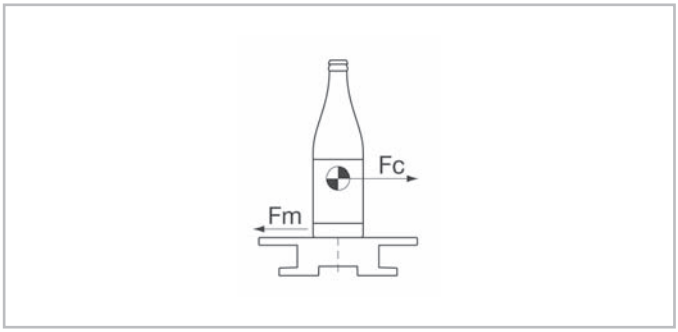
These two cases are defined below.



Case 1

$$Fc = M \cdot v2/ r < Fm = M \cdot g \cdot fm$$

Product comes in contact with the lateral rail and enough friction exists between product and belt so that the product continues to be conveyed around the turn.



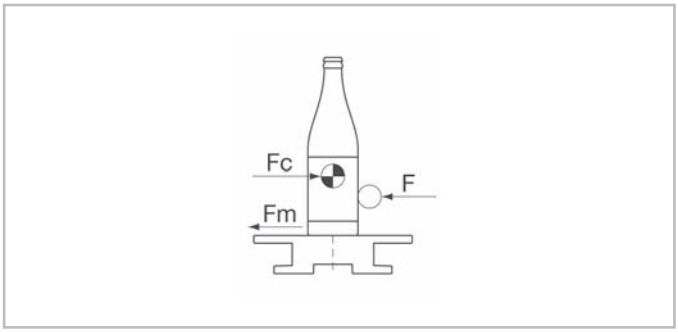
Case 2

$$Fc = M \cdot v2/ r > Fm = M \cdot g \cdot fm$$

Friction between chain and product is not sufficient to counter the centrifugal forces. The product then uses the lateral rail to oppose the residual centrifugal force.

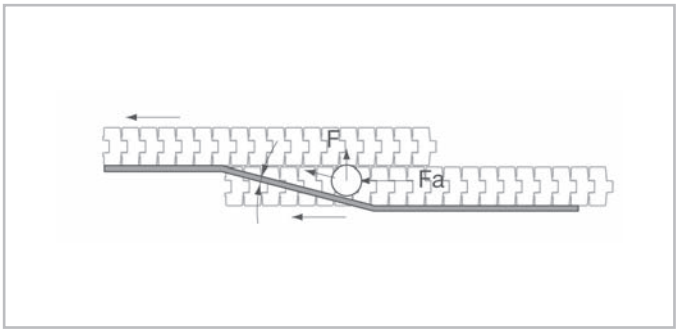
$$Fc = M \cdot v2/ r = M \cdot g \cdot fm + F$$

$$F = M \cdot v2/ r - M \cdot g \cdot fm = M \cdot (v2/ r - g \cdot fm)$$



E. Lateral transfer action

To accomplish a lateral transfer, the rails exert a push force on the products and on each other so that the products are transferred to the adjacent chain.



$$F = Fa \cdot \sin \alpha$$

Fa is accumulation force.

$$Fa = Wa \cdot La \cdot fm$$

then

$$F = Wa \cdot La \cdot fm \cdot \sin \alpha$$

If no accumulation is present, La becomes the transfer length, since the products then smoothly transition on the parallel way.

For plastic chains, no cleaning agents with a pH value of less than 4 (acidic) or over 10 (alkali), or chemicals containing free chlorine or ammonia should be used. Due to evaporation, these substances may corrode the material or have a negative effect on various processes. In the case of polycarbonate, hydrocarbons and solvents should also be avoided.

Static electricity reduction

In dry applications where products are being conveyed on plastic chains, especially when accumulation occurs, an electrostatic charge can build up. This charge can be inconvenient, and it can cause attraction of dust or cause an electrical shock when the conveyor or a product is touched. It could also damage electronic devices. In some cases, the electrostatic charge can be dangerous. To reduce the risk of build up of electrostatic charges, two types of precautions can be taken as follows: passive neutralization and active neutralization. Passive neutralization means that the electrical charge is dissipated by grounding the complete conveyor (chains, wear strips, frame and components).

Active neutralization means that a positive electrostatic charge is neutralized by negative ions. An easy method is blowing ionized air over the chain and product. Habasit has created two special antistatic resins to use in these cases.

Other options to reduce the electrostatic charges are listed as follows:

- Use conductive lubrication (if possible)
- Use antistatic or metal wear strips, guide rails, etc. wherever possible making sure all metal parts are grounded
- Avoid slip contacts (ensuring that idlers and return rollers are rotating)

Property	AS Polyacetal	Standard antistatic material by DIN 53482
Surface resistance	≤ 5 • 103 Ω/cm	≤ 109 Ω/cm
Volume resistance	≤ 103 Ω.cm	≤ 108 Ω.cm

The main goal of lubrication is to obtain a lower coefficient of friction between chain and product. This results in the best possible product handling and a better wear life of chains and components. Additionally, lubricants provide continuous cleaning of chains and conveyor parts.
The most commonly used method for lubrication is a central pumping station which applies lubrication under pressure to locations through a piping arrangement. The concentration of lubrication depends on the position in the production line. Be sure the lubricant coats both the chain and wear strip surfaces.

Synthetic lubricants
- Concentration is not dependent on water hardness
- Less foam on the conveyor, which makes inspection much easier
- No slippery factory floors
- Less bacteria growth

Soap-based lubricants
- Best possible lubricate because it adheres to the chains
- Feels more greasy
- High concentration is less critical

Consideration should be given when using synthetic lubrication in areas where spillage of product (such as soft drink or beer) may cause the pH level and concentration of the lubrication to become diluted.
For specific advice about lubrication agents, please contact the supplier of the lubricant.

Lubrication with water only
Lubricating lines with only water may seem, at first, a good idea, since it saves lubricant cost, and at least flushes dirt particles and spoiled products away. However, the reduction in friction is often very limited. Also, water does not reduce bacteria growth at all. Water contains calcium (the harder the water, the more calcium it contains) which forms an abrasive deposit on the chain and in the hinge eyes, thus reducing the wear life of the chain. Therefore, Habasit recommends the use of lubricants as opposed to water only.

Dry-running conveyors
In some sections in a bottling or canning line, running without lubrication is possible. Habasit has experience with plastic chains in applications with no lubrication. Several important aspects of dry-running conveyors are listed below:

Positive elements:
+ Savings realized on investments in lubrication system such as dosing equipment
+ Elimination of the costs of lubricants, clean water and water treatment
+ Improvement of plant safety due to the elimination of slippery factory floors
+ No packaging damage caused by wet containers

Negative elements:
- Coefficient of friction increases. Lubrication provides the best product handling
- Extra cleaning may be necessary
- Extra wear on components
- Chance of slip stick effect under certain conditions
- Chance of building up of static electricity
- Higher noise level (such as a creaking sounds when running plastic chains in curves)
- Not possible on high-speed running conveyors

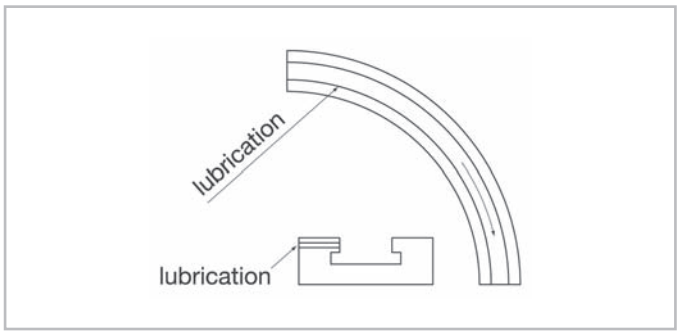
It is strongly recommended to clean dry-running conveyors regularly. Dirt and debris must be removed by cleaning, in order to keep the friction coefficients between chains/belts optimal.

It is important to check the published temperature rating for materials so that they are used in accordance with proper conditions. In the HabaCHAIN® catalogue, product specifications are based on a temperature of 21°C. When the environmental temperature differs significantly, it will influence the mechanical properties and thermal expansion of chains. This is especially important on plastic products.

Material	Thermal expansion coefficent
LF - PT	0,12 mm/m°C
AS	0,13 mm/m°C
PP	0,15 mm/m°C

Technical Notes
Reducing noise

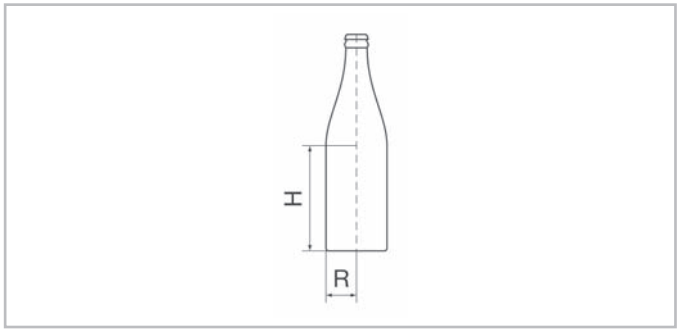
In many countries regulations dictate a certain absolute sound level at a workplace. In industrial buildings like breweries where glass is involved, the noise level can be very high. There are three areas, in general, where progress can be made to reduce the noise level: machines, conveyors and the building itself. This section deals with belt and conveyor noise.
The highest noise levels on conveyors are the result of unfavorable product handling. Collision of bottles against each other and against guide rails produces noise. Increasingly high speeds of bottling lines produce an increase in the noise level.
Several measures can be taken to reduce the noise level of products.



1. Use curves instead of dead plate transfer, a curve being the optimum solution.
2. Bottles should be handled with care. On zero-pressure combiners, bottles will smoothly move into one row, producing a low noise level. Careful handling also produces less scuffing and less bottle breakage.
3. Good flow control possibilities are obtained by building conveyors with a specified maximum length. The chain speed is controlled by using PLCs and frequency controlled drives. When, for example, one conveyor fills, the chain speed on the preceding conveyor will be decreased.
4. Cover guide rails and other components with plastic profiles. In general, plastic materials, when in contact with glass, will exhibit a decrease in the noise level when compared to metal.
5. Use plastic sprockets and idlers.
6. Use plastic wear strips in combination with stainless steel chains.
7. When the return part is executed with return rollers, it is recommended to use rollers with a large diameter of +/– 60 mm. The use of small rollers could result in a rattling sound. Rollers with a rubber surface contribute to a lower noise level.
8. Plastic chains running dry in curves can produce noise. In this respect magnetic system is better than tab curves. If the cause of the noise cannot be located, consider lubrication.

Technical Notes
Product stability calculation

Each product has a maximum value for acceleration. Start-stop or stop-start conditions are related to the product stability. There are formulas to calculate the stability of a product. From the calculation outcome, it is possible to determine if a 90° dead plate transfer or a dynamic system can be used or whether a magnetic system is the only suitable solution. With every product a so-called critical friction coefficient can be calculated. This critical friction coefficient is the quotient of the radius of the base and the height of the center of gravity.



In formula: f crit = R/H

The critical friction coefficient thus calculated must be compared with the real friction coefficient which is valid in practice (f real). The real friction coefficient strongly depends on product and conditions. It is best to measure the real friction coefficient for the application in question.
This has been done numerous times at the Habasit test center. Experience has shown that, for the same product and in the same conditions, the friction coefficient can still vary within a differential of 30%. Now, f crit and f real must be compared with each other. The criteria is that if f crit > f real, the stability of the product is sufficient. This means that the product will remain standing stable, even when it is subject to large variations in speed. It is obvious that obstacles in the conveyor, such as a raised edge, still have to be avoided. Take into account that dirt affects the friction coefficient in real-world applications. Besides, the lubrication may not always be optimum.
If f crit < f real, this does not immediately imply that transport is not possible. In order to guarantee the stability, however, a maximum variation in speed to which the product can be subjected without tipping must be calculated. In a formula:

V lim = √ 2.g. (√ H2 + R2 – H)

V lim = Maximum variation in speed [m/s]
R = Radius of the base [m]
H = Height of the center of gravity [m]
g = Gravitational acceleration [m/s2]

With a dead plate, it may be assumed that the speed of the product will be reduced to almost near zero, after which it will be transferred continuously at the full speed of the „outgoing" chain. The speed of the outgoing chain must therefore be lower than V lim to allow for a dead plate transfer.

Technical Notes
Conveyor length and speed

Maximum length of transport and remarks
The length limits of the conveyor depend on various factors:

- Chain type
- Lubrication
- Kind of product
- Load carried

Currently, in normal practice, track lengths are not to exceed 12 meters, but the above-mentioned factors will effect the actual transport length.
It is important to consider that wear is proportional to the load, the time and the speed applied to the transport. In general a high value of this factor shortens the chain life.
When slip stick effects are prevalent, long transport should be avoided. The chance of pulsation increases with long conveyor lengths.
Our technical service is ready to analyze your specific request.

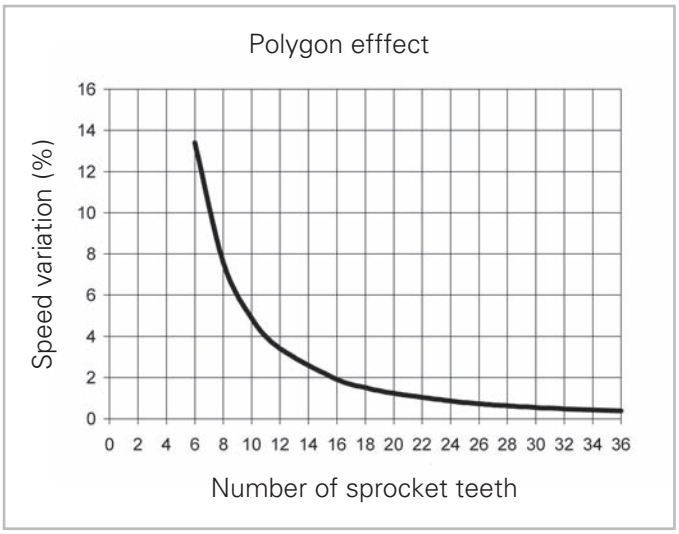
Chain speed

Chain material and type	Dry	Water	water and Soap
Plastic chains (straight)	80	100	180
Plastic chains (radius)	*	60	120
Plastic chains, magnetic system	*	90	180

Habasit recommends not exceeding these chain speeds. mt/min.

This speed is suitable for normal conditions, however for very abrasive materials the speed will decrease.

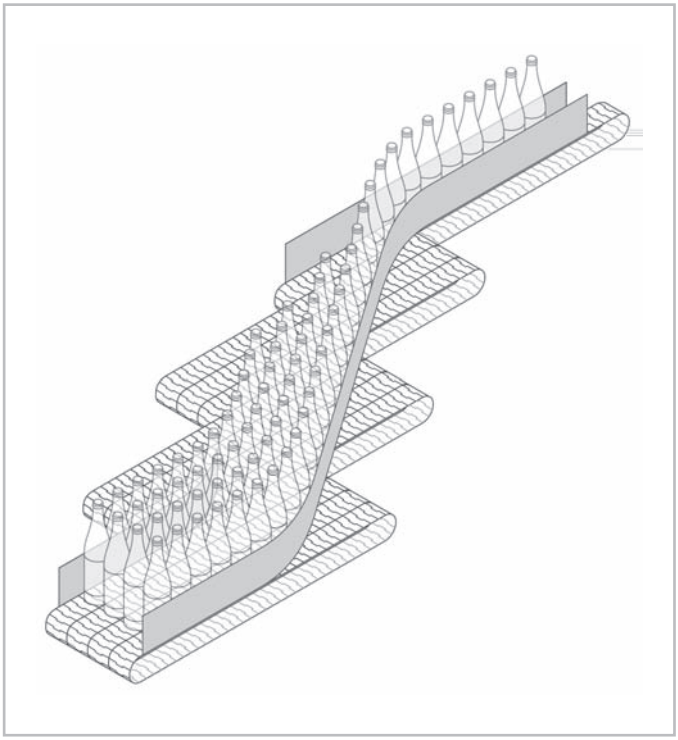
Polygon effect (chordal action)
Module and chain links moving around the radius of the sprocket cause the linear belt speed to vary. The pin travels on the pitch diameter of the sprocket while the link moves through the smallerchordal radius causing a horizontal rise and fall of the link. This polygon effect is typical to all chains systems.
The magnitude of speed variation is dependent on the number of sprocket teeth.



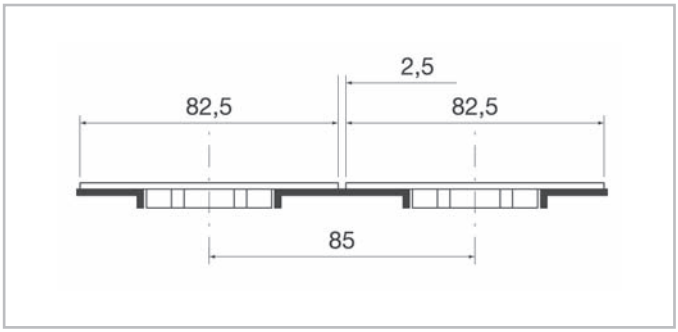
Technical Notes
Pressureless in-lining

Rearranging multiproduction lines into a single line in order to feed the product singly into a machine such as a filler is called in-lining.
Following this step, the product is rearranged from a single track back to a multitrack conveyor. This procedure is called outlining or deceleration.

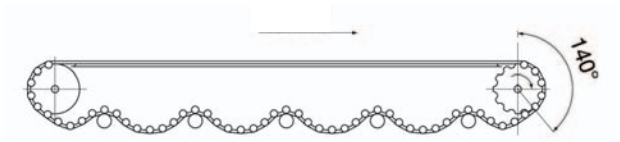
A pressureless combiner is a good method to line-up products.
Designing and adjusting an in-liner requires extensive conveyor experience. The in-liner is equipped with multitrack slatband chains/belts. The speeds of these tracks are automatically adjusted, depending on the demand of the machine after the in-liner. The products are separated by speed differences between the different tracks.



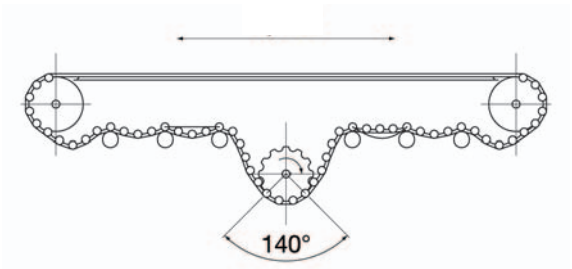
Pressureless combiners have a common pitch of 85 mm.
For the best performance (in glass applications, for example) it is important to use chains having a very low roughness similar to Habasit's PT material.



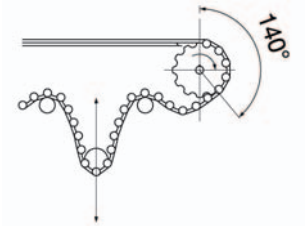
End-drive conveyor
One end-drive conveyor



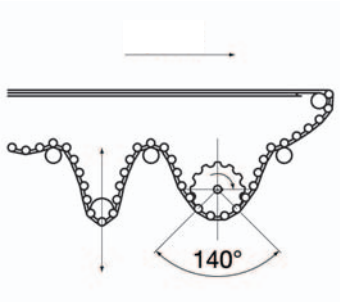
Center-driven conveyor
Bidirectional conveyors and fixed wheelbase



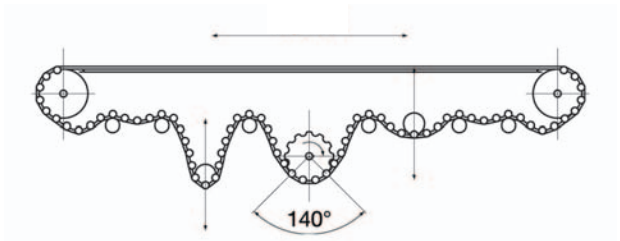
End drive with tensioner



Center drive with tensioner



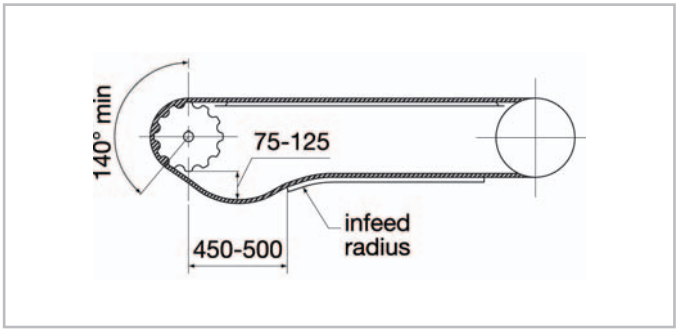
Bidirectional center drive with tensioner



Recommended wrap angle on sprockets is: 140°/150°. When the wrap angle is too small, the sprocket will not be able to transfer the load to the chain satisfactorily, thus causing chain/belt jumping on the sprockets. When the wrap angle is too large, the chain/belt can stick to the sprocket.

Catenary sag

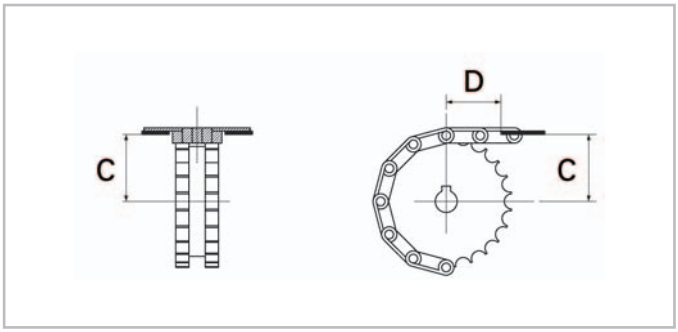
Habasit recommends positioning the drive wheel at the transport end. It is also important that the carry and return strands are aligned with a suitable guide system. The specified catenary sag is very important for correct chain operation.
The proper catenary sag causes the working load of the chain to engage the sprockets correctly.
Normally the catenary sag is from 75 to 125 mm. Should it exceed this value, one or more links need to be removed. It is important that the chain is pulled and not pushed. Insufficient catenary sag results in greater wear on the link hinges, causing increased link hinge loading. Excessive sag reduces the angle of wrap and a reduction in transfer force. This also causes chain pulsations. The correct angle of wrap should be no less than 140°.



A less adequate method of return can be over rollers or guides covered with wearstrips. In order to ensure the required catenary sag, it is important that the first roller be set a sufficient distance from the drive sprocket.

Sprockets installation

When the chain enters the sprocket, it tends to raise and fall slightly. For this reason, the sprocket should be mounted in such a way that its highest point is no higher than the top of the wearstrips. The front edges of the wear strips should be bevelled to allow smooth and free running of the chain.
The following schedule, formula and dimensions are intended as a recommendation for aligning the sprocket with the top of the wearstrip.



Chains type	H mm	P mm	H inch	P inch
820 - 821 - 821R	(Dp/2) + 3,2	40	(Dp/2) + 0,12	1.5
831	(Dp/2) + 2,4	40	(Dp/2) + 0,09	1.5
880T - 880M	(Dp/2) + 3,6	40	(Dp/2) + 0,14	1.5
879T	(Dp/2) + 2,8	40	(Dp/2) + 0,11	1.5
882T -882M - 882R	(Dp/2) + 4,8	40	(Dp/2) + 0,19	1.5

Allowance	mm	inch
A	1,2 - 1,6	0,05 - 0,06
B	0 + 6	0 + 0,24
C	0 + 1	0 + 0,04
D	0 + 6	0 + 0,24

Straight-running configuration
A long conveyor with a single drive is the simplest and most ideal design. Sometimes several short conveyors are required due to application constraints.

Side-flexing configuration
However, straight conveyors are not always possible. Because of flow processes and obstructions in the plant, the designer can incorporate a side-flexing conveyor, which traverses one or more curves. When planning a side-flexing conveyor layout, the designer must consider the following factors that affect chain life:

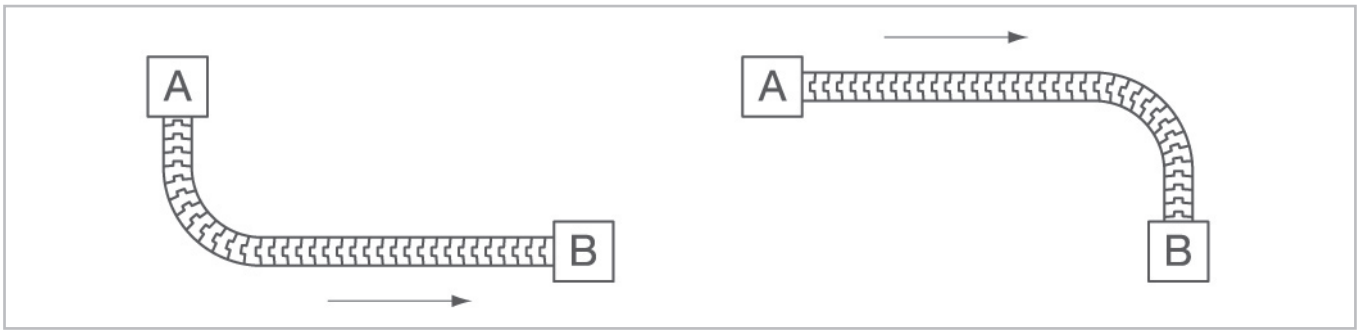
- Minimize the number of corners and the angle of each corner whenever possible
- Proper lubrication in the corners must be used with certain thermoplastic chains, which will prevent excessive noise and premature wear to the chain or corner
- When conveying from Point A to Point B, design the conveyor so that the drive is positioned furthest from the last corner (see drawing), resulting in lower chain tension and maximizing chain life

In general, the straight section between the corner and the drive shaft must be at least 18“ (457 mm) to allow adequate room for the catenary. The tail shaft section should be at least 12“ (305 mm).

When conveying products at angles of 90°, a single chain conveyor offers the following advantages over two separate straight conveyors that have transfer plates between them:

- Eliminates dead plate transfers (or turntables), preventing the product from slipping or stalling
- Minimizes tipping and jamming
- Decreases noise
- Reduces the cost of controls and maintenance by only requiring one drive motor.

Ensure that the entire chain path (carry, return, sprocket and catenary sag areas) has plenty of clearance for free chain travel. Ensure all frame and support members, piping, conduits and mounting hardware are well clear of chain path.



Right **Wrong**

Conveyor sections

Conveyors are long/short structures with wear strips placed as needed to support the chains and return system (roller or serpentine).
General designs follow the below scheme:

$$N = Q / (v \cdot W)$$

Where:
N = ways number
Q = production flow (kg/min)
v = speed (m/min)
W = product weigh on a chain meter (kg/m)

or

$$Q = f \cdot w$$

Production flow Q is equal to production frequency f (product number by minute) multiplied by product weigh w to obtain:

$$N = f \cdot w / (v \cdot W)$$

Speed is inversely proportional to the ways number.

Chains and return rail systems

Chain and return rail systems must support chain and product weigh.
An important fact to consider is that varying the distance between rail supports produces a cubic relationship with chain flexion.

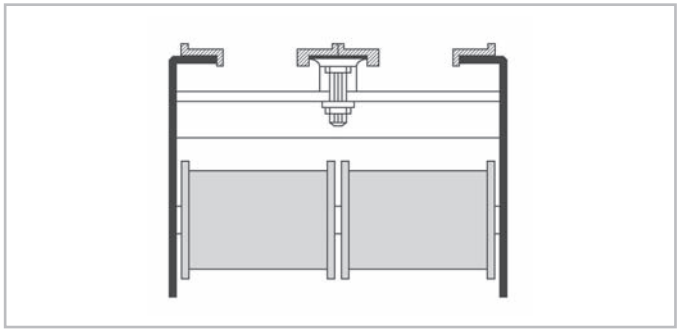
$$\text{Flexion} = \text{constant} \cdot P \cdot s^3$$

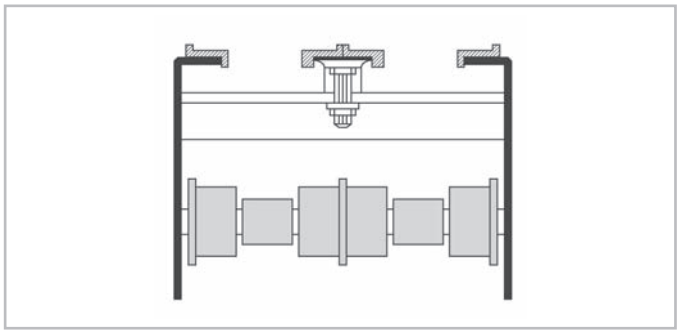
For example, doubling the distance between supports and maintaining a constant weight on the chain yields an eightfold increase in flexion.

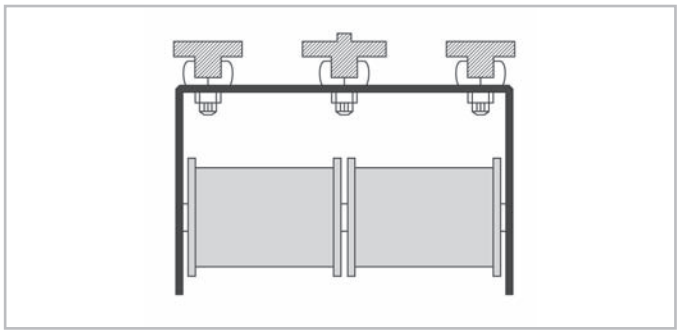
In general, an acceptable flexion is 2 mm for 500 mm of length, flexion numbers higher than this will cause stability problems for the conveyed product.
For example, a man on a conveyor weighs 100 kg (P) and the maximum flexion allowed is 3 mm on 500 mm of length.

The return way supports the chain weight only. The clearance required between supports is 500 to 700 mm. Attention must be highly exercised in big-width conveyors to avoid roller blocking.

Construction schemes





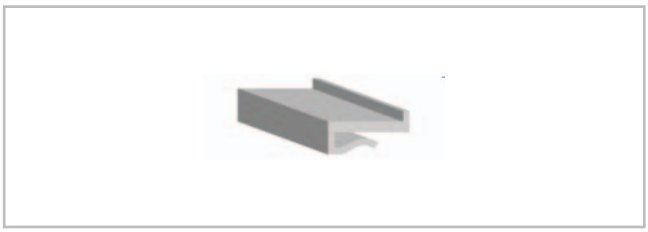


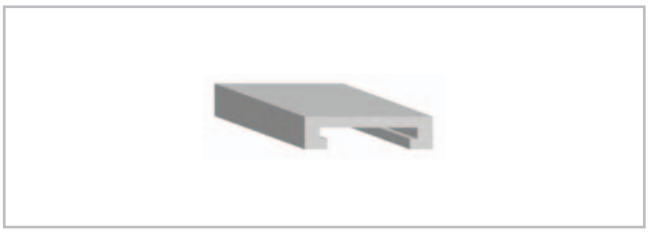
Plastic
Plastic wearstrips have a lower coefficient of friction than metal wearstrips. As a rule, they are easy to install and the noise level is lower. The following materials can be used:

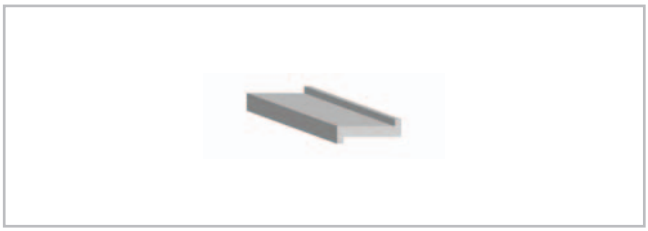
Acetal
Contact between two acetal materials should be avoided, and therefore is not recommended.

Habilon GSM
Habilon GSM (polyamide with a high molybdenum disulphide charge) is the best material for dry applications where a low friction coefficient is required. Habilon absorbs moisture and expands. Because of this expansion characteristic, space allowances must be accounted for when using fasteners and tab series.

Habiplast UHR (UHMWPE)
This ultra high molecular weight polyethylene is recommended for normal dry and lubricated operating conditions. UHMWPE has a wear rate under dry conditions which is similar to that of Habilon GSM. It is chemically stable and unaffected by moisture. It is not recommended for dry operation on corners where the chain load or speed are high. Compared to standard extruded HMWPE, the tendency to embed abrasive particles is lower, leading to decreased wear on the chain.







Thermal expansion calculation

$$Lt = L0 \cdot [\, 1 + a \cdot (T - 20°C) \,]$$

Lt = final length (mm)
L0 = initial length (mm)
a = coefficient of linear expansion
T = operating temperature (°C)
20 °C = ambient temperature

Example:
A guide having initial length L0 = 1,000 mm, coefficient of linear expansion 2X10-4, and an operating temperature of 70°C expands by:
Lt = 1,000 mm • [1 + 0,0002 • (70 °C - 20 °C)]
= 1,010 mm

Metal
Metal wearstrips have a greater coefficient of friction and greater hardness than those of plastic material. The greater hardness quality make metal wearstrips better suited for abrasive applications. Abrasive particles are less likely to imbed.

Steel
Cold-rolled carbon steel is recommended with a surface roughness between 1.6 µm and 3.2 µm. Use hardened or cold-formed steel with 25-30 HRc. Lubricants should contain an antirust agent.

Stainless steel
Cold-rolled steel with a roughness of 3.2 µm is recommended. Austenitic steels have the best resistance to corrosion.
When plastic chains are used, the wearstrips should have at least 25 HRc. With softer wear strips, the two different materials (steel and plastic) may rub one another and cause the formation of black wear debris (similar to graphite). This wear should be accounted for in the transporting of products requiring highly clean conditions.
Martensitic steel has the same hardness and virtually the same resistance to wear as austenitic steel, however, its resistance to corrosion is lower.

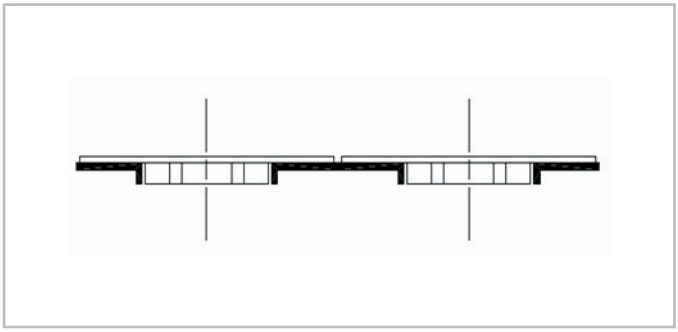
Aluminium
Due to its low resistance to wear, aluminum should not be used.

Operating conditions
Abrasive materials including broken glass, metal chips, sand, etc. can cause excessive wear to chains and wearstrips.
Metal wear strips should be used instead of plastic when involving conditions of heavy abrasive substances.

Wear strip replacement
Replacement criteria of wearstrips:
- The thickness is decreased by more than 50% of the original thickness.
- Dirt or debris is embedded in the wear strip material in unacceptable amounts.
- Fixing bolts or blind rivets which protrude due to wear strip wear.
- Replacing curves before chain edges reach the inside of the curve.

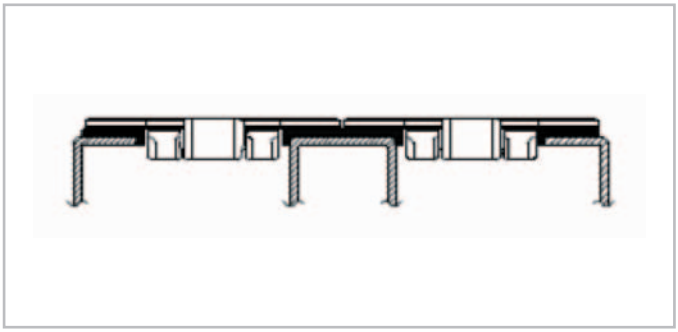
Wear strip construction

For wider chain types (7.5“ and wider) the chains should be guided at the hinge and supported at the flights. A full support of the flights is recommended.

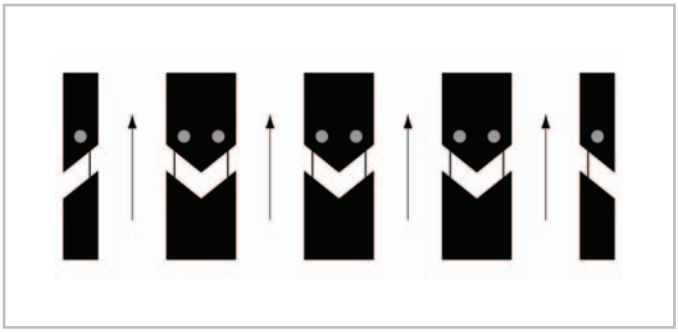


For Habiplast UHR material the expansion coefficient is 0.2 mm/m/oC. A temperature increase of 20 degrees C would cause an elongation of 8 mm for a 2 m wearstrip. In this case, the gap between the wear strips should be a tolerance larger than 8 mm.

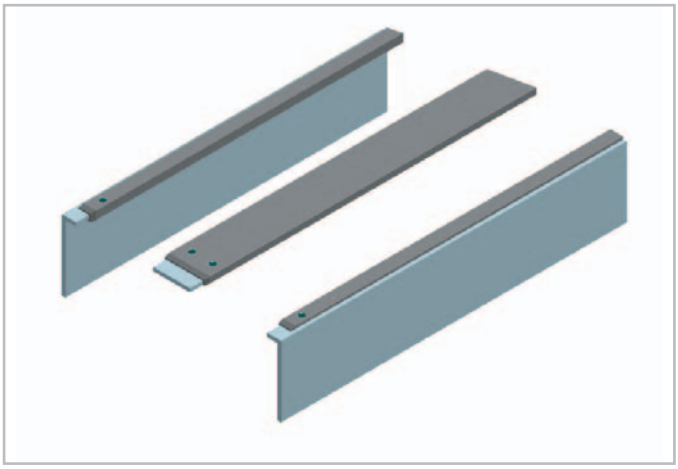
On straight sections greater than 3 m and high temperature (40-70 degree C) it is recommended that the wearstrip be sectioned due to the thermal expansion of the strips. The clearance dimensions depend on the calculated elongation of thermal expansion.



It is recommended to cut the wearstrips at double 45o angles for smooth chain/belt transfers making sure only the infeed side of the wear strip is fixed to the conveyor.



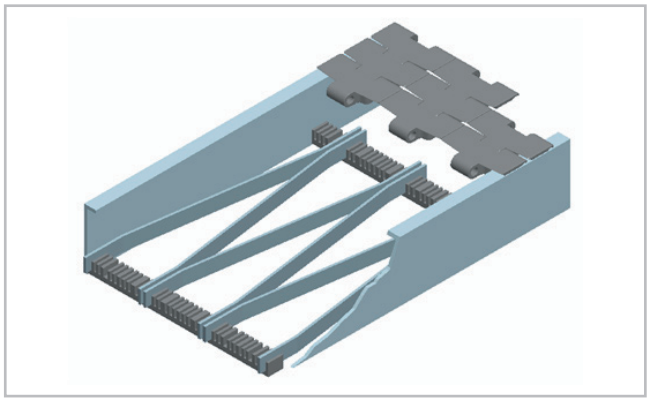
Wearstrips should always be chamfered at the beginning of the strip where they are fixed. Chamfering reduces the risks of speed jumping and chain-obstruction problems.



Technical Notes
Return way

On the market there are many systems for the operation of chain return for conveyors. The following describe various conveyor chain return types.

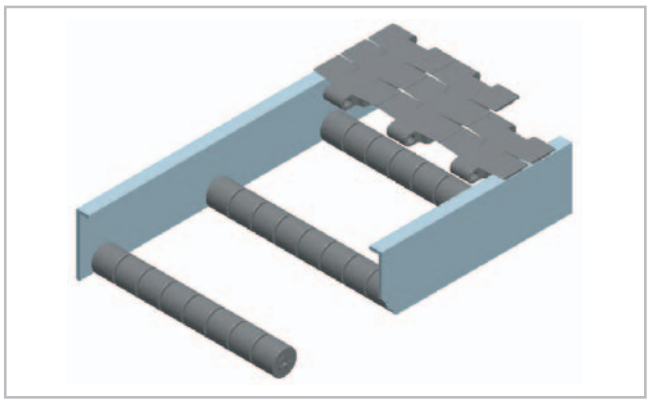
Serpentine



Benefits
- The most relevant feature of this chain return is the lower noise level, in comparison with other systems
- Wear is linear on the chain

Disadvantages
- More complex construction and less accessibility for maintenance
- Higher friction compared to other systems
- Material for wear strips should be Habiplast®

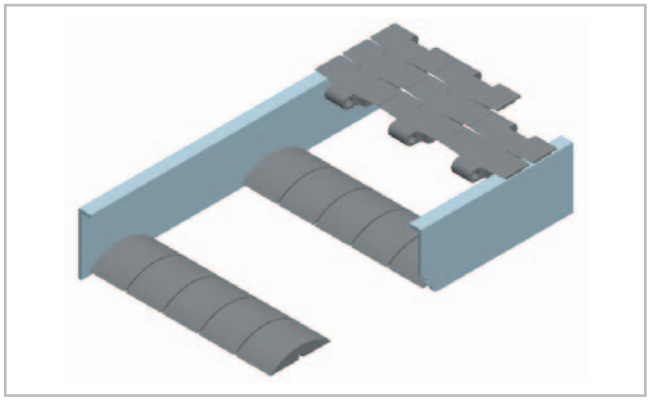
Roller



Benefits
- Simple construction and good accessibility of return components
- Debris is ejected by the movement of the chain

Disadvantages
- Only point contact between chain and roller
- Rollers must be able to rotate freely at all times Small rollers may cause a rattling sound (min 60 mm diameter)

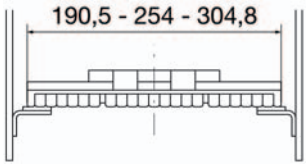
Sliding block

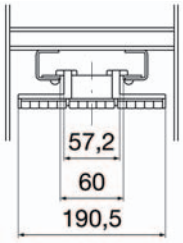


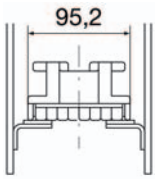
Benefits
- Good accessibility of the conveyor return part.
- Simple construction
- Debris that falls on the chain in the return part of the conveyor is ejected by the movement of the chain
- Suitable for LBP chains

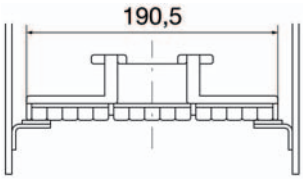
Disadvantages
- Risk of uneven wear on the chain surface when abrasive particles are embedded in the plastic sliding block
- High friction when compared to other systems
- Sliding block return way minimum guide shoe radius is 200 mm

Low back pressure return constructions
The best choice for curvilinear chains return is to use the straight and corner C guide in Habiplast®.









Grooved wear pattern

Rapid or unusual wear pattern

Cause	Correction
Sprocket misalignment	Correct the shaft mounting position and sprocket alignment
Obstruction cutting or scraping the chain	Locate the origin of the cutting and remove the obstruction. Replace any wearstrips that have foreign particles embedded in them
Improper wearstrip material selection for the application	Check the wear strip material
Build-up or embedding of abrasive materials on the surface of the wearstrips	Remove abrasive build-up or replace wearstrips with a harder material (if necessary)
Inadequate guide clearance in which guide tracks may be interfering with the chain	Make sure that there are no tight spots. Check to assure that proper guide clearances are provided. Pull a short piece of chain through the tight section before reinstallation. Check that there is a smooth transition between straight and curved sections. Also insure that there is clearance for the Tabs throughout the entire conveyor

Gouges on chain

Uneven wear pattern on the bottom of the chain flights or top plates

Cause	Correction
Chain is riding uneven in the track	Check to insure the wearstrips are even and level Modify the wearstrips as required by adding or deleting shims
Grooved wear strips	Remove abrasive build-up or replace wearstrips with a harder material (if necessary)
Obstruction in carry way	Remove obstructions

Scallop due to stalled return roller

Rapid or unusual wear pattern on top of chain flights or top plates

Cause	Correction
Improper return roller diameter	Refer to page EM-TT-24 for the minimum back-flex radius
Roller has stopped spinning freely	Insure that all return rollers are spinning freely

Notes:

- Unusual wear patterns on the top of the chain usually indicate return way problems
- Unusual wear patterns on the bottom of the chain usually indicate carry way problems
- Excessive wear on the thrust surface of the chain usually indicates corner track or disc problems
- Excessive wear on the edges of the chain usually indicate tracking problems or inadequate clearance

Shavings due to abrasive wear
Shavings of plastic debris is observed on chain or conveyor

Cause	Correction
Sharp edge or obstruction on wearstrip of the frame may be scratching the chainlinks	Locate the origin of the cutting and remove the obstruction
Abrasive materials are embedded in the surface of the wear strips or corner tracks	Remove abrasive build-up or replace wear strips with a harder material if necessary
High speed and/or poor lubrication	Reduce speed or reduce friction with improved lubrication. If neither of these options is practical, select a chain/wear strip combination with lower friction values
Rough surface finish on the wear strip or corner track	Grind, polish or replace wearstrips as required to ensure a smooth finish
Tight spots or chain binding within the path of chain travel	Make sure that there are no tight spots. Check to assure that proper guide clearances are provided
Normal break-in wear	Periodic cleaning during the break-in phase is recommended to minimize the accumulation of dust debris

Chemical attack
Plastic chains appear cracked or discolored (white residue is found on the chain)

Cause	Correction
Chemical attack due to product spillage	Refer to corrosion resistance guide
Use of strong chemical cleaners or lubricants	Review methods of cleaning

Abrasive sprocket pocket wear
Wear debris accumulation or “dusting”

Cause	Correction
High speed and/or poor lubrication	Reduce speed or reduce friction with improved lubrication. If neither of these options is practical, select a chain/wear strip combination with lower friction values
Rough surface finish on the wear strip or corner track	Grind, polish or replace wearstrips as required to ensure a smooth finish
Abrasive materials are embedded in the surface of the wear strips or corner tracks	Remove abrasive build-up or replace wearstrips with a harder material, if necessary
Abrasive environment or application	If abrasive particles are present due to the application, it is re-commended to utilize a harder wearstrip to reduce or eliminate embedding of abrasive particles
Sharp edge or obstruction on wear strip of the frame may be scratching the chain links	Locate the origin of the cutting and remove the obstruction
Normal break-in wear	Periodic cleaning during the break-in phase is recommended to minimize the accumulation of dust debris

Abrasive sprocket tooth wear
Rapid sprocket wear

Cause	Correction
Abrasive environment	Clean conveyors frequently to reduce the amount of abrasives present. Contact Engineering to review sprocket material options
Incorrect shaft location	Correct the shaft mounting position and sprocket alignment
Incorrect sprocket selection	Use hardened sprocket teeth where required

Chain jumping
Chain jumping on sprocket teeth

Cause	Correction
Excessive chain elongation	Replace the chain and sprockets as required
Improper shaft positioning or sprocket misalignment	Correct the shaft mounting position and sprocket alignment
Foreign material lodged in the sprocket tooth pockets or worn sprockets	Clean or replace the sprockets as required
Sprockets have developed a hooked tooth profile	Replace the chain and sprockets as required. Use hardened sprocket teeth where required

Joint wear
Premature chain elongation

Cause	Correction
No catenary or an improper catenary sag may cause additional tension on the chain	Allow for proper catenary within the conveyor
Abrasives getting into the chain joints	Clean or replace the chain as required
High load	Remove the source of the high loads. Replace the damaged links. Check chain loading

Bent tabs
Broken top plates or tabs

Cause	Correction
Obstructions in conveyor frame, product jam or improper guide clearance	Locate and remove obstruction. Check guide clearance. Replace broken links as required
Tight corner radius	Make sure corner tracks (or discs) comply with the minimum side-flex radius
Chemical attack	Refer to corrosion resistance guide
Impact loading	Remove the source of impact loading. Consult Application Engineering for proper chain selection for applications involving impact loading
Improper wearstrip support	

Chain squealing
Chain is squealing or chattering

Cause	Correction
Chain is trying to pass through a tight section of the conveyor	Make sure that there are no tight spots. Check to assure that proper guide clearances are provided. Pull a short piece of chain through the tight section before reinstallation. Make sure that there is a smooth transition between straight and curved sections. Also ensure that there is clearance for the tabs throughout the entire conveyor
Improper corner radius	Make sure corner tracks (or discs) comply with the minimum side-flex radius
Rough surface finish on the inside corner track	Check to ensure that there is a smooth finish on the wearstrips where they contact the chain (i.e. no rough saw cuts or machining marks). Replace corner tracks as necessary
Improper corner track material selection	Check to ensure that there are no foreign particles embedded in the corner tracks. Habilon or metal may provide a harder surface
Improper corner track selection	Selective lubrication or corner discs may be required
Vibration within conveyor frame	Make sure structure is solid and secure

PV failure
Chain is melting on the thrust surface and/or the underside of the top plate

Cause	Correction
Chain is experiencing a PV failure – plastic material melts due to excessive load and/or high speed	Selective lubrication, different wear strip material, different top plate material, etc. may be required. Contact Engineering to run chain tension calculations
Improper guide clearance	Make sure that there are no tight spots. Check to assure that proper guide clearances are provided

Chain does not articulate freely

Chain does not articulate freely

Cause	Correction
Pins are bent due to high load	Remove the source of the high loads. Replace the damaged links. Check chain loading
Tight joints due to foreign material in hinge	Clean conveyors frequently to reduce the amount of contaminants present

Chain hinges are damaged – Pulsation

Chain pulse

Cause	Correction
Build-up of foreign material on the wearstrips	Remove the source of the high loads. Replace the damaged links. Check chain loading
Idler sprockets do not turn freely due to bad bearing or improper fit on bushed sprockets	Clean conveyors frequently to reduce the amount of contaminants present
Improper catenary	
Inadequate guide clearance	
Non uniform coefficient of friction	
Debris causes “sticking” locally	
Return rollers may be too small or spacing may be incorrect	
Water accumulation in the return pan	

Excessive chain wear

Possible causes	Possible remedy
Pollution	Clean conveyor thoroughly and improve cleaning procedure
Failing lubrication	Contact supplier of lubricant to improve lubrication
Obstruction in conveyor	Find obstruction and remove it
Debris in return part	Cleaning and/or use rollers with a larger diameter

Appendix
Chemical resistance - Plastics

Code: ■ = good resistance ▼ = limited use ❑ = not recommended

Materials	PP		LN-UHR-UHV-UHV+Mos2		DP-LF-PT-PK-AS-EP-MD-UV-DL		GY-NY		HT			TPU		TPE		SE	
Designation of chemical	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	65 °C (149 °F)	93 °C (200 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)
Acetic Acid > 5 %	■	■	■	▼	▼	❑	❑	❑	■	■	■	❑		❑		▼	❑
Acetic Acid – 5 %	■	■	■	■	■		▼	❑	■	■	■	❑		❑		■	▼
Acetone	■	■	■	■	▼	▼	■	■	■	■	■			❑		▼	❑
Alcohol – all types	■	■	■	■	■	▼	■	■	■	■	■	❑		▼		■	▼
Aluminum Comp.	■	■	■	■			■	■	■	■	■						
Ammonia	■	■	■	■	■	■	■	■	■	▼	❑	■				▼	❑
Ammonium Comp.	■	■	■	■			■	■	■	■	■					▼	❑
Aniline	■	■	■	❑		▼			■	▼	❑	❑				▼	
Aqua Regia	❑	❑	▼	❑			❑	❑	❑								
Arsenic Acid	■	■	■	■													
Barium Comp.	■	■	■	■			■	■	■	■	■						
Beer	■	■	■	■	■							■					
Benzene	▼	❑	▼	❑	▼	▼	■	■	■	▼	❑	❑				▼	❑
Benzenesulfonic Acid – 10 %	■	■	■	■					■	▼	❑						
Benzoic Acid	■	■	■	■			▼	▼	■	▼	❑	■					
Beverages (soft drinks)	■	■	■	■	■	■	■	■									
Borax	■	■	■	■					■	■	■						
Boric Acid	■	■	■	■			■	■				■					
Brine – 10 %	■	■	■	■	■	■											
Butyl Acrylate	❑	❑	■	▼					■	■	■					■	▼
Butyric Acid	■		■	▼			■	■				■					
Butter	■		■		■		■										
Carbon Dioxide	■	■	■	■			■	■	■	■	■					■	■
Carbon Disulfide	▼	❑	▼	❑			■	■	■	■	■						
Carbon Tetrachloride	▼	❑	▼	❑	■	▼	■	■	■	▼	❑	❑					
Cheese	■		■		■		❑										
Chloracetic Acid	■	■					❑	❑									
Chlorine – Gas	❑	❑	▼	❑	❑	❑	❑	❑				❑					
Chlorine – Liquid	❑	❑	❑	❑	❑	❑	❑	❑				❑					
Chlorine Water (0.4% Cl)	▼	▼	▼	▼	❑	❑	❑	❑	❑								
Chlorobenzene	❑	❑	▼	❑	▼	▼	■	■	■	▼	❑	❑				❑	
Chloroform	❑	❑	❑	❑	❑	❑	▼		■	▼	❑					❑	
Chocolate			■		■		❑										
Chromic Acid – 50 %	■	■	■	▼	❑	❑	▼		❑			▼					
Chromic Acid – 3 %	■	■	■	■	▼	▼			❑							■	■
Citric Acid – 40 %	■	■	■	■	■	❑	■	■				■					
Citric Acid – 10 %	■	■	■	■	■		■	■				■				■	▼
Citrus Juices	■	■	■	■	■		■	■								■	

Code: ■ = good resistance ▼ = limited use ❑ = not recommended

Materials	PP		LN-UHR-UHV-UHV+Mos2		DP-LF-PT-PK-AS-EP-MD-UV-DL		GY-NY		HT			TPU		TPE		SE	
Designation of chemical	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	65 °C (149 °F)	93 °C (200 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)
Coconut Oil	■	■	■	■	■	■	■					■				■	■
Copper Comp.	■	■	■	■			▼										
Corn Oil	■	■	■	■	■	■	■									■	■
Cottonseed Oil	■	■	■	■	■	■	■					■				■	■
Cresol	■	■	■	▼			❑	❑	■	▼	❑	❑					
Cyclohexane	■	▼	❑	❑			■		■	■	■	▼					
Cyclohexanol	■	▼	▼	❑			■		■	■	■	❑					
Detergents	■	■	■	■	■	■	■		■	■	■	■		■		■	■
Dextrin	■	■	■	■													
Dibutyl Phthalate	■	▼					■	■									
Diethyl Ether	❑	❑	❑	❑	▼	▼	■	■	■	■	■					■	▼
Diethylamine	■	■		❑													
Diglycolic Acid – 30 %	■	■	■	■													
Diisooctyl Phthalate	■	■															
Dimethyl Phthalate	■	■							■	▼	❑						
Dimethylamine	■						■	■									
Dioctyl Phthalate	■	▼					■	■	■	▼	❑						
Ethyl Acetate	■	■	▼	▼	▼	❑	■	■	■	■	■	❑		❑		▼	❑
Ethyl Ether	▼	▼							■	■	■	❑					
Ethylamine	■	■															
Ethylene Glycol – 50 %	■	■	■	■	■	▼	■	▼	■	■	■					■	▼
Ferric/Ferrous Comp.	■	■	■	■	▼	❑			■	■	■						
Formaldehyde – 37%	■	■	■	▼	■	■			■	■	■	❑		▼			
Formic Acid – 85 %	■	▼	■	■			▼	❑	■	■	■	❑		❑		▼	❑
Freon			■	■	▼	▼			■	▼	❑						
Fuel Oil # 2	■	▼	■	❑	▼	▼	■	■	■	■	■	■		❑		■	■
Fruit Juices	■	■	■	■	■		■					■				■	
Furfural	▼	▼	▼	❑			■		■	■	■						
Gasoline	▼	❑	■	❑	■	■	■	■	■	■	■						
Glucose	■	■	■	■	■	■						■					
Glycerol	■	■					■	■				▼		▼		■	■
Heptane	❑	❑	▼	❑	■	■	■	■	■	■	■	■				■	■
Hexane	■	▼	❑	❑	■		■	■	■	■	■	■				■	■
Hydrobromic Acid – 50 %	■	■	■	■			❑	❑	❑								
Hydrochloric Acid – 35 %	■	■	■	■	❑	❑	❑	❑	❑			▼					
Hydrochloric Acid – 10 %	■	■	■	■	❑	❑	❑	❑	❑			▼		▼		■	❑
Hydrofluoric Acid – 35 %	■	■	■	■	❑	❑	❑	❑	❑			❑				❑	
Hydrogen Peroxide – 3 %	■	■	■	■	■	■	▼	▼	❑			▼		■		■	▼

Code: ■ = good resistance ▼ = limited use ❑ = not recommended

Materials	PP		LN-UHR-UHV-UHV+Mos2		DP-LF-PT-PK-AS-EP-MD-UV-DL		GY-NY		HT			TPU		TPE		SE	
Designation of chemical	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	65 °C (149 °F)	93 °C (200 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)
Hydrogen Peroxide – 90 %	▼	▼	■	▼	▼	❑	❑	❑	❑			❑				■	❑
Hydrogen Sulfide	■	■	■	■			■	■	■	■	■						
Igepal – 50%	■	■			■	▼											
Iodine – Crystals	■	■	▼	▼	❑	❑	❑	❑	❑			❑					
Isooctane	❑	❑	■				■	■	■	■	■	■				■	■
Isopropyl Alcohol	■	■	■	■	■	■	■	■	■	■	■	❑		▼		■	▼
Jet Fuel	▼	❑	▼	▼	■	■	■	■	■	■	■			❑		■	■
Kerosene	▼	❑	▼	▼	■	■			■	■	■	■		❑			
Lactic Acid	■	■	■	■			▼	❑	■	■	■						
Lanolin	■	▼	■	■													
Malic Acid – 50 %	■	■	■	■			■		■	■	■						
Manganese Sulfate	■	■	■	■			■	■									
Margarine	■		■	■			▼	▼									
Mercury	■	■	■	■													
Methyl Chloride	■	■	■	■			■									■	
Methyl Ethyl Ketone	▼	▼					■	■								❑	
Methyl Isobut. Ketone	■	▼	❑	❑	▼	▼	■		■	■	■	❑		❑		❑	❑
Methylsulfuric Acid	■	▼							■	■	■						
Methylene Chloride	■	■	■	■													
Milk	▼	❑	❑	❑			▼	▼	■	▼	❑	❑		❑			
Mineral Oil	■	■	■	■	■	■	■	■				■					
Mineral Spirits	▼	❑	■	▼	■	■	■		■	■	■	■		❑		■	■
Molasses	▼	❑							■	■	■			❑		■	■
Motor Oil	■	■	■	■			■	■									
Naphtha	■	▼			■	■	■	■	■	■	■	■		❑		■	■
Nitric Acid – 30 %	■	▼	▼	❑			■	■	■	■	■						
Nitric Acid – 50 %	■	▼	■	■	❑	❑	❑	❑	❑			▼				❑	
Nitrobenzene	▼	❑	■	▼	❑	❑	❑	❑	❑			▼				❑	
Nitrous Acid	■	▼	❑	❑			▼		■	▼	❑						
Nitrous Oxide	■								❑								
Oleic Acid	■																
Olive Oil	■	❑			■	■	■	■	❑								
Oxalic Acid	■	■	■	■								■		❑		■	■
Ozone	■	■	■	■					❑			■					
Palmitic Acid – 70 %	▼	▼	▼	❑	❑	❑	▼	▼	❑			■					
Paraffin	■	■	■	■			■		❑								
Peanut Oil	■	■	■	■	■	■	■	■	■	■	■	■		▼			
Perchloric Acid – 20 %	■	■					■		■	■	■	■		❑			

Code: ■ = good resistance ▼ = limited use ❑ = not recommended

Materials	PP		LN-UHR-UHV-UHV+Mos2		DP-LF-PT-PK-AS-EP-MD-UV-DL		GY-NY		HT			TPU		TPE		SE	
Designation of chemical	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	65 °C (149 °F)	93 °C (200 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)
Perchlorothylene	■	■	■	■					❑								
Pathalic Acid – 50 %	❑	❑	❑	❑			▼	❑	■	▼	❑					■	❑
Phenol	■	■	■	■					❑								
Phenol – 5 %	■	■	■	■	❑	❑	❑	❑	■	▼	❑	❑					
Phosphoric Acid – 30 %	■	■	■	■	❑	❑	❑	❑								▼	❑
Phosphoric Acid – 85 %	■	■	■	■	▼	❑	❑	❑	❑							■	❑
Photographic Solutions	■	■	■	■	▼	❑	❑	❑	❑							■	❑
Plating Solutions	■	■	■	■			■										
Potassium Comp.	■	■	■	■													
Potassium Hydroxide	■	■	■	■	■	■	▼					■				■	■
Potassium Iodide (3 % Iodine)	■	■	■	■	■	■	▼		■	■	■					❑	
Potassium Permanganate	■	■	■	■													
Sea woter	■		■		▼		▼										
Silver Cyanide	■	▼	■	■			❑	❑	❑								
Siver Nitrate	■	■															
Sodium Comp.	■	■	■	■													
Sodium Chlorite	■	■	■	■													
Sodium Hydroxide	■	▼	■	■			❑	❑									
Sodium Hydroxide – 60 %	■	■	■	■	■	■	❑	❑				▼		▼		❑	
Sodium Hypo-chlorite (5 % Cl)	■	■	■	■	■	■	❑	❑				▼		▼		❑	
Stearic Acid	■	▼	■	▼	❑	❑	▼									■	▼
Sulfamic Acid – 20 %	■	▼	■	■	▼		■	■									
Sulfate Liquors	■	■			❑	❑											
Sulfur	■	■															
Sulfur Chloride	■	■	■	■			■	■									
Sulfur Dioxide	■																
Sulfuric Acid – 10 %	■	■	■	■	❑	❑	▼	▼									
Sulfuric Acid – 50 %	■	■	■	■	■	❑	❑	❑				▼		■		■	■
Sulfuric Acid – 70 %	■	■	■	■	❑	❑	❑	❑				▼		■		▼	
Sulfurous Acid	■	▼	■	▼	❑	❑	❑	❑				▼				❑	
Tannic Acid – 10 %	■		■	■			▼	▼									
Tartaric Acid	■	■	■	■													
Tetrahydrofuran	■	■	■	■			■	▼				■					
Toluene	▼	❑			▼	▼	■										
Transformer Oil	❑	❑	❑	❑	▼	❑	■	■				▼				■	❑
Tributyl Phosphate	■	▼	■	▼			■	■				■		❑			
Trichloroacetic Acid	■	▼															
Trichloroethylene	■	■	▼				❑	❑									

Code: ■ = good resistance ▼ = limited use ❑ = not recommended

Materials	PP		LN-UHR-UHV-UHV+Mos2		DP-LF-PT-PK-AS-EP-MD-UV-DL		GY-NY		HT			TPU		TPE		SE	
Designation of chemical	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	65 °C (149 °F)	93 °C (200 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)	20 °C (70 °F)	60 °C (140 °F)
Tricresyl Phosphate	❑	❑	❑	❑	▼	▼	▼	❑				❑				▼	❑
Trisodium Phosphate	■	▼															
Turpentine	■	■	■	■													
Urea	▼	❑	■	❑	■		■	■				▼				■	■
Vinegar	■	■	■	■			■	■				■				■	
Wine	■	■	■	■	■	■	■	■				▼					
wisky	■		■		■		■										
Xylene	■	■	■	■	■	■	■	■				■					

The data shown in this table is taken from laboratory tests, performed on unstrained test samples. It should be considered as purely indicative since material behavior under real working conditions depends on different factors: temperature, concentration of the chemical agent, and quick or long-lasting effect of the chemical agent. With termoplastic products, do not use cleaning or lubricating agents with pH values below 4 or above 10.

When connecting or disconnecting chain, always turn off and lock out the power switch before starting. Always use goggles to protect the eyes. Wear protective clothing, gloves and safety shoes. Support the chain to prevent uncontrolled movements. Use of appropriate tools is recommended. Tools should be in good working condition and used in a proper manner. Do not attempt to connect or disconnect the chain without proper knowledge of the chain construction, including the correct procedure for pin removal or insertion.

All pinch and shear points along with all other exposed moving parts that pose a potential hazard to people at their workstations or conveyor passageways must be safeguarded.
Overhead conveyors must have guards to prevent objects from falling. Cleated conveyor chains are more hazardous in creating pinch and shear points.

Safeguarding can be achieved by:

Location
Locate all hazardous areas that pose a danger to personnel.

Guards
Place constructed guard barriers which prevent entry into the hazardous area, and apply guards to high conveyors to prevent objects from falling on personnel below.

Control devices
Machine controls which prevent hazardous operations/conditions.

Warnings
Instructions, warning labels, or sound/light signals to alert that a hazardous condition exist.
Safeguarding should be designed to minimize any discomfort or difficulties to the operator. Bypassing and/or overriding safeguarding mechanisms during operation should not be allowed.
Safeguarding concerns of the conveyor should be identified during the design process.

Product safety
Products designed and manufactured by Habasit can be used in a safe manner; but Habasit cannot warrant their safety under all circumstances. PURCHASER MUST INSTALL AND USE THE PRODUCTS IN SAFE AND LAWFUL MANNER IN COMPLIANCE WITH APPLICABLE HEALTH AND SAFETY REGULATIONS AND LAWS AND GENERAL STANDARDS OF REASONABLE CARE; AND IF PURCHASER FAILS TO DO SO, PURCHASER SHALL INDEMNIFY HABASIT FROM ANY LOSS, COST OR EXPENSE RESULTING DIRECTLY OR INDIRECTLY FROM SUCH FAILURE.
SAFETY DEVICES: Products are provided with only safety devices identified herein.
IT IS THE RESPONSIBILITY OF PURCHASER TO FURNISH APPROPRIATE GUARDS FOR MACHINERY PARTS IN COMPLIANCE WITH MSHA OR OSHA STANDARDS, AS WELL AS ANY OTHER SAFETY DEVICES DESIRED BY PURCHASER AND/OR REQUIRED BY LAW; AND IF PURCHASER FAILS TO DO SO, PURCHASER SHALL INDEMNIFY HABASIT FROM ANY LOSS, COST OR EXPENSE RESULTING DIRECTLY OR INDIRECTLY FROM SUCH FAILURE.

General safety precautions
- To avoid personal injury, all machinery must be turned off and locked out, prior to chain installation, inspection, maintenance and removal
- Always use safety glasses to protect eyes. Wear protective clothing, gloves and safety shoes
- Support the chain to prevent uncontrolled movement of the chain and parts
- Maintain tools in proper condition and assure their proper use. Use of chain assembly tools is recommended when applicable
- Do not attempt to connect or disconnect chain unless chain construction is clearly known and understood
- Do not use any sections of damaged chains because they may have been overloaded and yielded

If any flame cutting, welding, etc. is to occur in the conveyor vicinity, take adequate precautions to insure that no burning of any chain or other components occurs. If adequate protection can not be provided, remove the chain and other plastic components from the conveyor and store in a safe location. Thermoplastic and similar materials can burn and give off toxic fumes. DO NOT INSTALL, OPERATE OR PERFORM MAINTENANCE ON THIS PRODUCT UNTIL YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS CONTAINED IN THIS MANUAL.

Austria
Habasit GmbH, Wien
Phone: +43 1 690 66
www.habasit.at

Belgium
Habasit Belgium N.V., Zaventem
Phone: +32 2 725 04 30
www.habasit.be

Canada
Habasit Canada Ltd., Oakville
Phone: +1 905 827 4131
www.habasit.ca

China
Habasit East Asia Ltd., Hong Kong
Phone: +852 2145 01 50
www.habasit.com.hk

Habasit (Shanghai) Co., Ltd.
Shanghai
Phone: +8621 3417 1228
Phone: +8621 3417 1218
www.habasit.com.hk

Czech Republic
Habasit Bohemia spol. s.r.o., Brno
Phone: +4205 41 421 651
www.habasit.cz

France
Habasit France S.A.S., Mulhouse
Phone: +33 389 33 89 03
www.habasit.fr

Germany
Habasit Rossi GmbH,
Eppertshausen
Phone: +49 6071 969 0
www.habasitrossi.de

Hungary
Habasit Hungária Kft., Esztergom
Phone: +36 33 510 610
www.habasit.hu

India
Habasit-lakoka Pvt. Ltd., Coimbatore
Phone: +91 422 262 78 79
www.habasitiakoka.com

Italy
Habasit Italiana SpA
Customer Care:
Phone: 199 199 333
For int. calls: +39 0438 911444
www.habasit.it

Japan
Habasit Nippon Co. Ltd., Yokohama
Phone: +81 45 476 03 71
www.habasit.co.jp

Latvia
Habasit Baltic SIA, Daugavpils
Phone: +371 54 074 88
www.habasit.lv

Netherlands
Habasit Netherlands BV, Nijkerk
Phone: +31 33 24 72 030
www.habasit.nl

New Zealand
Habasit Australasia Ltd., Hornby
Phone: +64 3348 5600
www.habasit.com

Norway
Habasit Norge A/S, Oslo
Phone: +47 81 55 84 58
www.habasit.no

Poland
Habasit Polska Sp. zo.o.,
Dąbrowa Górnicza,
Phone: +48 32 639 02 40
www.habasit.pl

Romania
Habasit Import/Export Romania SRL,
Bucuresti, Phone: +40 21 323 95 65
www.habasit.ro

Russia
Habasit Moscow
Phone: +7 49 59 561 508
www.habasit.ru

Singapore
Habasit Far East Pte. Ltd.,Singapore
Phone: +65 6862 55 66
www.habasit.com.sg

Spain
Habasit Hispanica S.A.,
Barberà del Vallès
Phone: +34 93 719 19 12
www.habasit.com

Sweden
Habasit AB, Hindas
Phone: +46 301 226 00
www.habasit.se

Switzerland
Habasit Schweiz, Reinach
Phone: +41 61 715 15 75
www.habasit.ch

Taiwan
Habasit Rossi (Taiwan) Ltd.
Taipei Hsien
Phone: +886 2 2267 0538
www.habasit.com.tw

Ukraine
Habasit Ukraina, Vinnica
Phone: +38 0432 58 47 35
www.habasit.ua

United Kingdom and Ireland
Habasit Rossi (UK) Ltd., Silsden
Phone: + 44 870 835 9555
www.habasitrossi.co.uk

USA
Habasit Belting LLC, Suwanee,
Georgia, Phone: +1 800 458 6431
www.habasitusa.com

Habasit ABT LLC, Middletown,
Connecticut, Phone: +1 860 632 2211
www.habasitabt.com

Rossi Motoriduttori is one of Europe's largest industry groups for the production and sales of gear reducers, gearmotors, inverters, standard and brake motors.

ROSSI MOTORIDUTTORI S.p.A. MODENA - I

Via Emilia Ovest 915/A
41100 Modena – Italy
Phone: +39 59 33 02 88
Fax: +39 59 82 77 74
www.rossi-group.com
info@rossi-group.com

Product liability, application considerations
If the proper selection and application of Habasit products are not recommended by an authorized Habasit sales specialist, the selection and application of Habasit products, including the related area of product safety, are the responsibility of the customer.
All indications/information are recommendations and believed to be reliable, but no representations, guarantees, or warranties of any kind are made as to their accuracy or suitability for particular applications. The data provided herein are based on laboratory work with small-scale test equipment, running at standard conditions, and do not necessarily match product performance in industrial use. New knowledge and experiences can lead to modifications and changes within a short time without prior notice.
BECAUSE CONDITIONS OF USE ARE OUTSIDE OF HABASIT'S AND ITS AFFILIATED COMPANIES CONTROL, WE CANNOT ASSUME ANY LIABILITY CONCERNING THE SUITABILITY AND PROCESS ABILITY OF THE PRODUCTS MENTIONED HEREIN. THIS ALSO APPLIES TO PROCESS RESULTS / OUTPUT / MANUFACTURING GOODS AS WELL AS TO POSSIBLE DEFECTS, DAMAGES, CONSEQUENTIAL DAMAGES, AND FURTHER-REACHING CONSEQUENCES.

Headquarters
Habasit AG
Römerstrasse 1
CH-4153 Reinach, Switzerland
Phone +41 61 715 15 15
Fax +41 61 715 15 55
E-mail info@habasit.com
www.habasit.com

Printed in Switzerland
Publication data:
6017BRO.CHA-en0906HQR