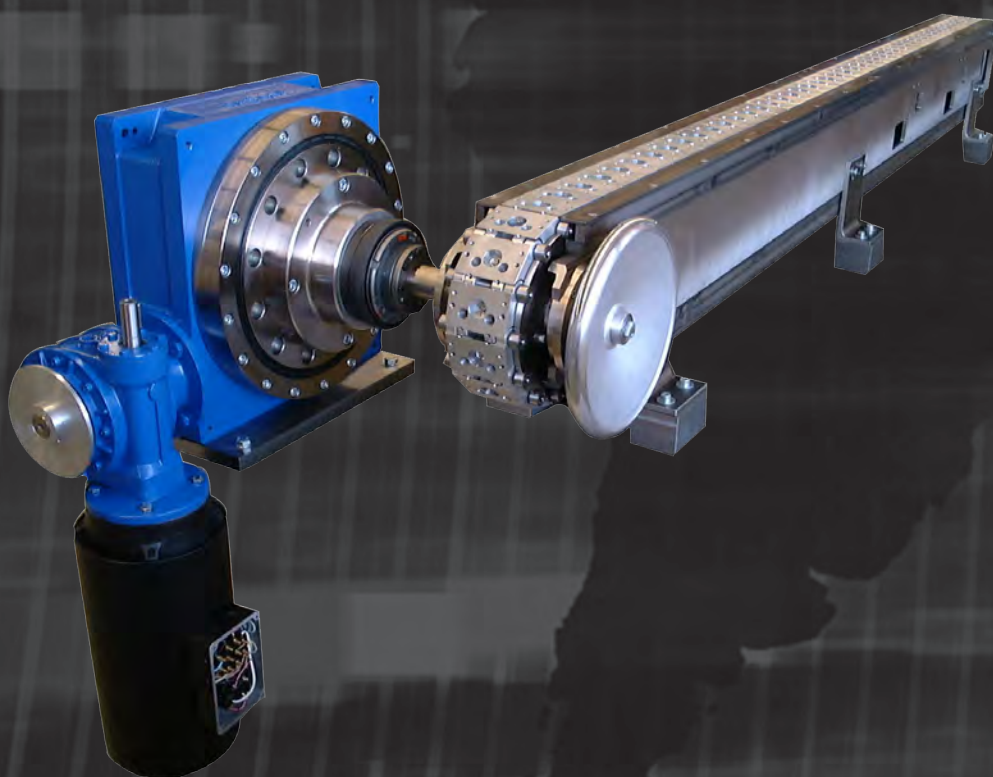




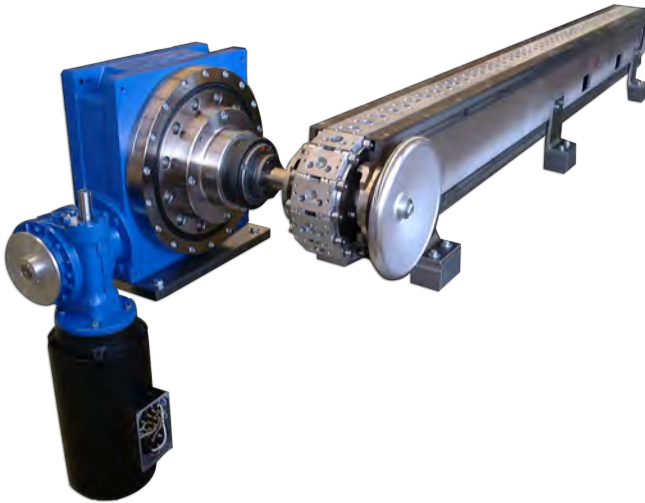
MOTION INDEX DRIVES

PRECISION LINK CONVEYOR LF & LFS Series





MOTION INDEX DRIVES



Precision Link Conveyor LF

The main component is a continuous chain manufactured from highly precise aluminum links. There are four cam followers per link for guidance and the guide rails are hardened and fine-milled. The links are connected utilizing shafts and bearings.

The main frame is made from extruded aluminum and steel plates. The conveyor can be mounted to the extruded aluminum or the steel plates. Additional external stations and /or accessories can also easily be mounted to this aluminum extrusion.

The chain is driven by a hardened cam wheel which is driven by a standard indexer or any other custom specified drive. At the other end, a hardened cam guides the chain. This cam is preloaded and has take up adjustment to ensure there is no backlash at the links. The linear stroke of the chain depends on the diameter of the cam wheel. One cycle of the indexer can equal many different combinations of stroke lengths.

Advantages for design engineers and special machine builder

- Proven reliability through many years of service.
- Vertical assembly minimizes footprint. The empty carriers travel through the bottom of the machine.
- Horizontal assembly - in an oval formation. Both sides of the machine can be used for assembly.
- The alternative drive shaft of the indexer can be used for a synchronously rotating parallel shaft to drive the other units.
- The aluminum profile system can be used to mount other external stations fast and easily.

Allowance for individual customer requirements

- Custom drives available.
- Optional overload protection.
- Dwell and index angle can be customized in a large range.
- Non-standard links and linear strokes are possible.
- Chain can be designed in metric or imperial units.
- Customized colors at no additional cost.
- Stainless steel, nickel plating or other special surfaces are available.

Main fields

Aerospace, Automotive, Consumer goods, Defense, Electronics, Solar and Wind Energy, Manufacturing, Medical, Packaging.

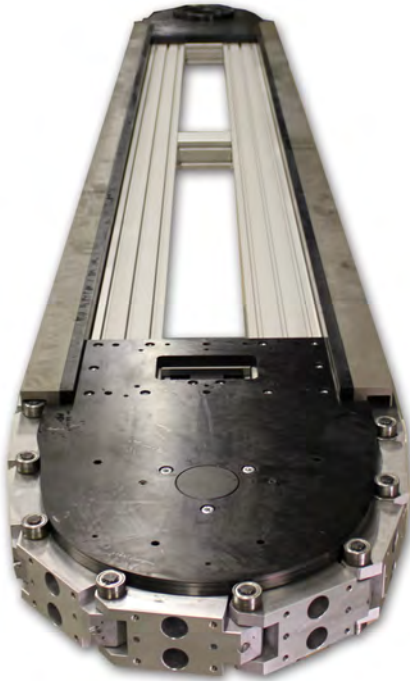
- Fast assembly of small parts up to 150 per minute.
- Transportation and manufacturing of wires or similar parts
- Mechanical and optical investigation.
- Welding, Tumbling, Riveting, Bending, Marking, Etc.

Technical benefits for users

- High reliability and long lifetime.
- Robust method of construction.
- Proven to last many years.
- Bearings rolling in oil bath or on clean, dry, hard surfaces.
- Low maintenance (only once a year check and adjust the preloading of the chain).



MOTION INDEX DRIVES



Precision Link Conveyor LFS

The main component is a continuous chain manufactured from highly precise aluminum links. There are four cam followers per link for guidance and the guide rails are hardened and fine-milled. The links are connected utilizing shafts and bearings.

The main frame is made from extruded aluminum and steel plates. The conveyor can be mounted to the extruded aluminum or the steel plates. Additional external stations and/or accessories can also easily be mounted to this aluminum extrusion.

The chain is driven by a hardened cam wheel which is driven by a standard indexer or any other custom specified drive. At the other end, a hardened cam guides the chain. This cam is preloaded and has take up adjustment to ensure there is no backlash at the links. The linear stroke of the chain depends on the diameter of the cam wheel. One cycle of the indexer can equal many different combinations of stroke lengths.

The LFS is a customized form of the proven and reliable LF conveyor that allows for 100% flexibility for positioning. The LFS conveyor uses a customized design drive and take up end, with a specialized cam to allow for infinite positioning utilizing the standard LF links, including all standard and custom sizes. This allows the stroke to be programmed by the customer to be as required for the process. If $\frac{1}{2}$ of a link stroke is required one day, and $\frac{3}{4}$ of a link stroke is required the next day, the LFS conveyor is the answer.

Advantages for design engineers and special machine builder

- Proven reliability through many years of service.
- Vertical assembly minimizes footprint. The empty carriers travel through the bottom of the machine.
- Horizontal assembly in an oval formation. Both sides of the machine can be used for assembly.
- The alternative drive shaft of the indexer can be used for a synchronously rotating parallel shaft to drive the other units.
- The aluminum profile system can be used to mount other external stations fast and easily.
- 100% programmable positioning based on customer programming and requirements.
- No restriction on stroke dimension or stopping location.

Allowance for individual customer requirements

- Custom drives available.
- Optional overload protection.
- Dwell and index angle can be customized in a large range.
- Non-standard links and linear strokes are possible.
- Chain can be designed in metric or imperial units.
- Customized colors at no additional cost.
- Stainless steel, nickel plating or other special surfaces are available.

Technical benefits for users

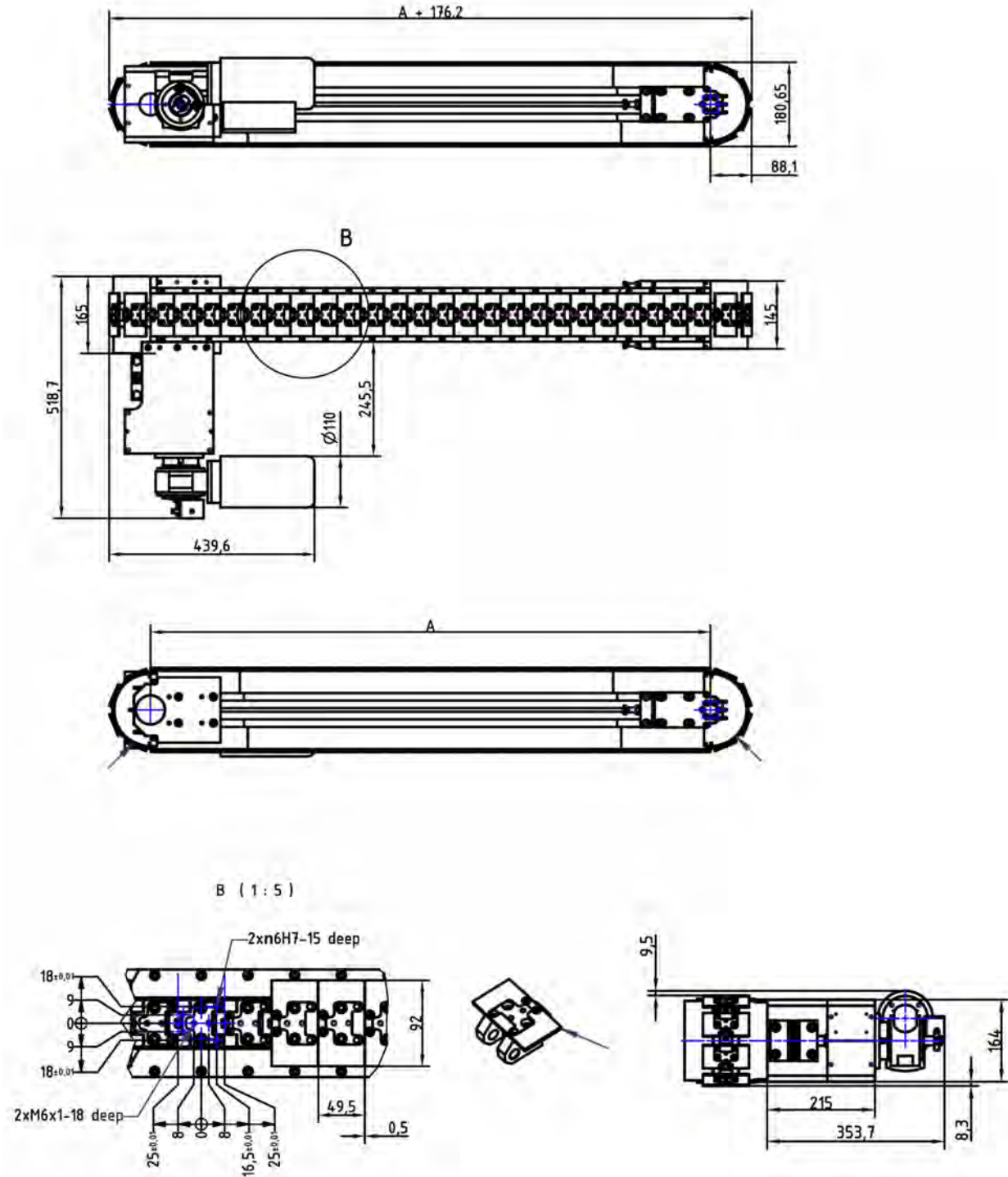
- High reliability and long lifetime.
- Robust method of construction.
- Proven to last many years.
- Needle or ball bearings rolling in oil bath or on clean, dry, hard surfaces.
- Low maintenance (only once a year check and adjust the preloading of the chain).
- Fully programmable unit can be utilized over and over again for many different applications, simply by retooling the links, and reprogramming the stroke to be what is required. The conveyor stays as an asset with no mechanical rework required.

Main fields

Aerospace, Automotive, Consumer goods, Defense, Electronics, Solar and Wind Energy, Manufacturing, Medical, Packaging.

- Fast assembly of small parts up to 150 per minute.
- Transportation and manufacturing of wires or similar parts
- Mechanical and optical investigation.
- Welding, Tumbling, Riveting, Bending, Marking, Etc.

The shown drive is a RT160 with brake motor and gear reducer

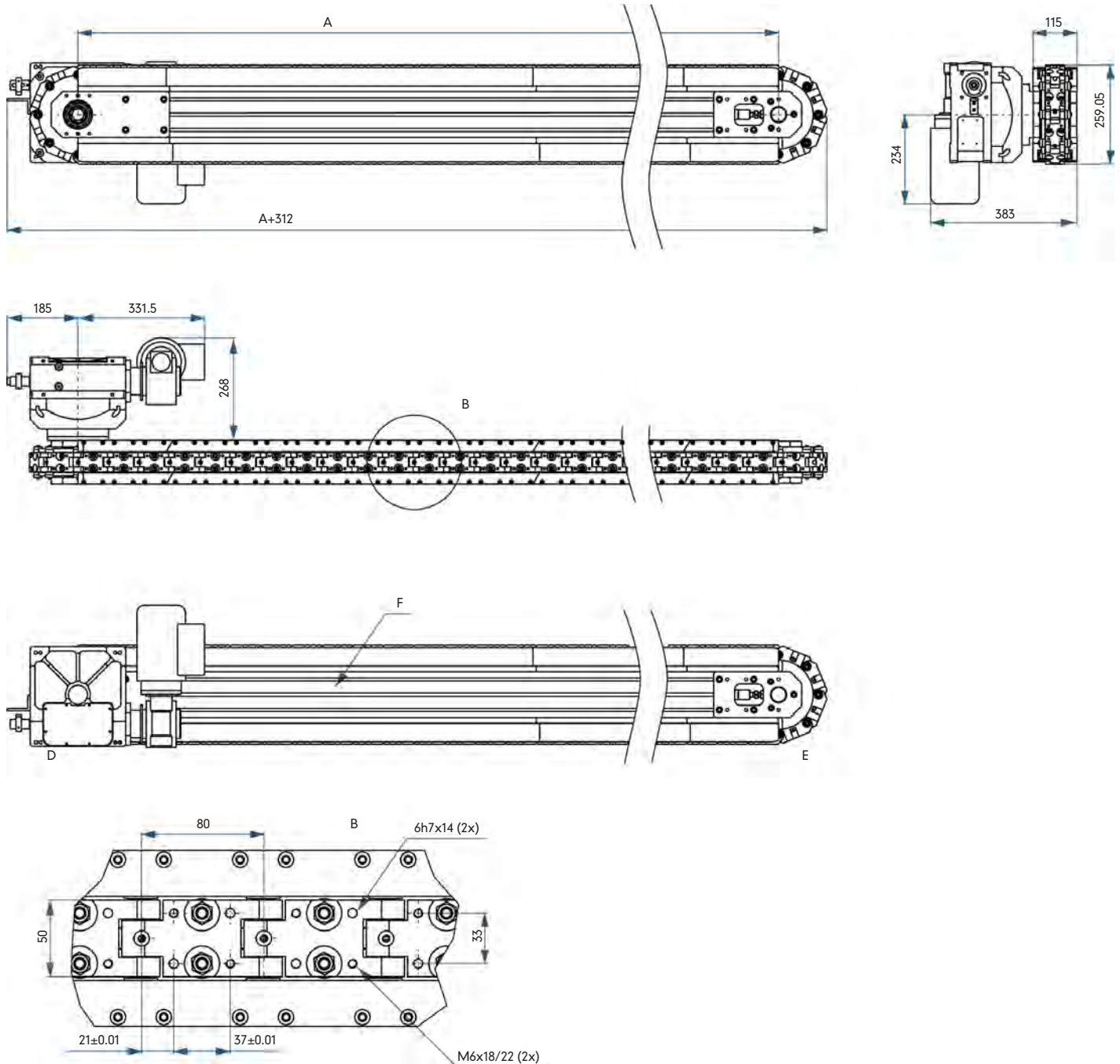



LF050 Dimensions

The dimensions pictured are standard for the LF050 Precision Link Conveyor. Customized applications centered around the LF050 standard size link can be manufactured upon request. Motion LF050 Conveyors can be mounted on the extruded aluminum. The links and the steel plates can be machined to your specifications. The conveyor can be delivered without drive or the drive can be servo. Special dust covers between the links are available.

* LFS Series of this conveyor has slightly different dimensions, please contact MID for more information.

The shown drive is a RT160 with brake motor and gear reducer



 Allow space on one side of the index wheel for adjustable preload.

A = Distance between U-turns

D = Index wheel

E = The 180° cam

F = Aluminum profile system 8*80x120

LF080 Dimensions

The dimensions shown here are the standard dimensions. Dimension "A" depends on the number of links. Motion LF080 Conveyors can be mounted on the extruded aluminum "F". The links and the steel plates can be machined to your specifications. The dimensions marked with * depend on the size of the drive used. The conveyor can be delivered without drive or the drive can be a servo. Special dust covers between the links are available.

* LFS Series of this conveyor has slightly different dimensions, please contact MID for more information.

LF080 Load Table

s [mm]	t [s]	$n_L = 12 ; n_T = 32$ A = 960mm				$n_L = 18 ; n_T = 44$ A = 1440mm				$n_L = 24 ; n_T = 56$ A = 1920mm				$n_L = 30 ; n_T = 68$ A = 2400mm				$n_L = 36 ; n_T = 80$ A = 2880mm			
		m [kg]				m [kg]				m [kg]				m [kg]				m [kg]			
		0.5	1	1.5	2	0.5	1	1.5	2	0.5	1	1.5	2	0.5	1	1.5	2	0.2	1	1.5	2
80 ¹	t=	0.16	0.19	0.22	0.25	0.18	0.22	0.26	0.29	0.21	0.25	0.3	0.23	0.23	0.28	0.33	0.37	0.25	0.3	0.35	0.4
160 ²	t=	0.24	0.29	0.34	0.38	0.28	0.34	0.4	0.45	0.31	0.39	0.45	0.35	0.35	0.43	0.5	0.56	0.38	0.46	0.54	0.61
240 ³	t=	0.32	0.4	0.46	0.52	0.38	0.47	0.54	0.61	0.43	0.53	0.61	0.47	0.47	0.58	0.68	0.76	0.51	0.63	0.74	0.83

s [mm]	t [s]	$n_L = 42 ; n_T = 92$ A = 3360mm				$n_L = 48 ; n_T = 104$ A = 3840mm				$n_L = 54 ; n_T = 116$ A = 4320mm				$n_L = 60 ; n_T = 128$ A = 4800mm				$n_L = 66 ; n_T = 140$ A = 5280mm			
		m [kg]				m [kg]				m [kg]				m [kg]				m [kg]			
		0.5	1	1.5	2	0.5	1	1.5	2	0.5	1	1.5	2	0.5	1	1.5	2	0.2	1	1.5	2
80 ¹	t=	0.27	0.33	0.38	0.43	0.28	0.35	0.41	0.46	0.6	0.37	0.43	0.49	0.31	0.39	0.45	0.51	0.33	0.41	0.48	0.54
160 ²	t=	0.4	0.5	0.58	0.66	0.43	0.53	0.62	0.7	0.45	0.56	0.66	0.74	0.48	0.59	0.69	0.78	0.5	0.62	0.73	0.82
240 ³	t=	0.55	0.68	0.79	0.9	0.59	0.73	0.85	0.96	0.62	0.77	0.9	1.01	0.65	0.81	0.95	1.07	0.68	0.85	0.99	1.12

s = Stroke [mm]
t = Stroke time [s]

n_L = Number of links in line
 n_T = Number of links total

m = Weight per link [kg]
A = Distance between U-Turns

¹ The chain moves one link with each index

² The chain moves two links with each index

³ The chain moves three links with each index

Main Dimensions

Distance A** [mm] in increments of 480
Weight at A=2000 [kg] 300
Stroke time** [s] see Load Table
Stroke** [mm] 80,160 or 240
Direction right, left

** Other distances "A", strokes or stroke times by request

Loadings

Per static link
Force vertical [N]
Force horizontal [N]
Tilting moment [Nm]
Pull force at the chain [N]

Standard Drive

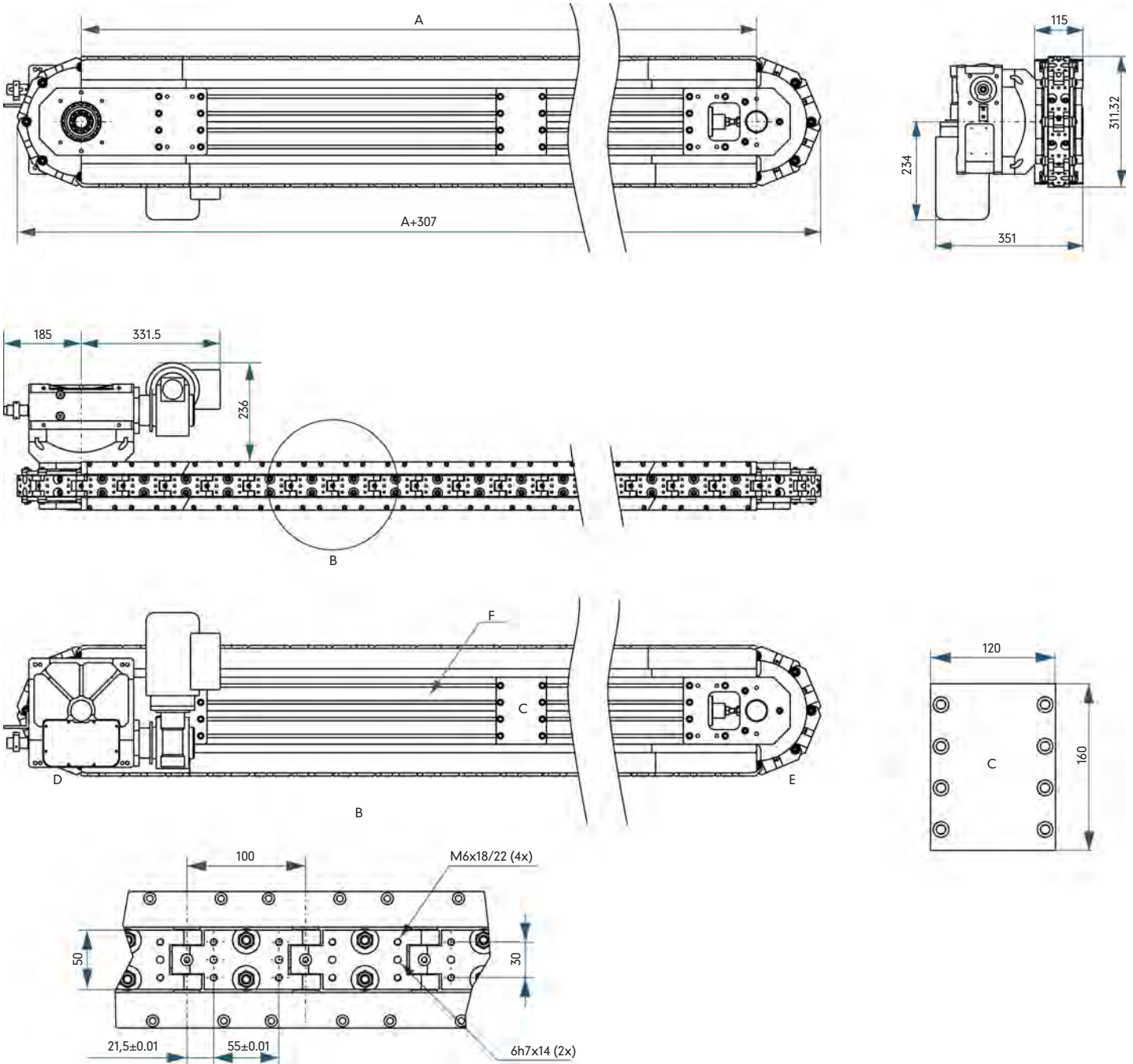
RT160 with 8¹, 4², or 8/3³ Indexes


Precision

In feed direction*
700 at the drive [mm] ±0.04
2600 opposite the drive [mm] ±0.07
80 Transverse to feed direction [mm] ±0.05
750 Vertical runout [mm] ±0.03

* For the first and last link in the line we can not guarantee this precision.

The shown drive is a RT160 with brake motor and gear reducer



 Allow space on one side of the index wheel for adjustable preload.

A = Distance between U-turns

D = Index wheel

E = The 180° cam

F = Aluminum profile system 8*80x120

LF100 Dimensions

The dimensions shown here are the standard dimensions. Dimension "A" depends on the number of links. Motion LF100 Conveyors can be mounted on the extruded aluminum "F". The links and the steel plates can be machined to your specifications. The dimensions marked with * depend on the size of the drive used. The conveyor can be delivered without drive or the drive can be a servo. Special dust covers between the links are available.

* LFS Series of this conveyor has slightly different dimensions, please contact MID for more information.

LF100 Load Table

s [mm]	t [s]	$n_L = 10 ; n_T = 28$ A = 1000mm				$n_L = 15 ; n_T = 38$ A = 1500mm				$n_L = 20 ; n_T = 48$ A = 2000mm				$n_L = 25 ; n_T = 58$ A = 2500mm				$n_L = 30 ; n_T = 68$ A = 3000mm			
		m [kg]				m [kg]				m [kg]				m [kg]				m [kg]			
		0.5	1	1.5	2	0.5	1	1.5	2	0.5	1	1.5	2	0.5	1	1.5	2	0.2	1	1.5	2
100 ¹	t=	0.16	0.19	0.22	0.24	0.18	0.22	0.26	0.29	0.21	0.25	0.29	0.32	0.23	0.28	0.32	0.36	0.25	0.3	0.34	0.39
200 ²	t=	0.24	0.29	0.33	0.37	0.28	0.34	0.39	0.44	0.31	0.38	0.44	0.49	0.35	0.42	0.48	0.54	0.38	0.46	0.52	0.59
300 ³	t=	0.33	0.4	0.46	0.51	0.38	0.46	0.53	0.6	0.43	0.52	0.6	0.67	0.47	0.57	0.66	0.74	0.51	0.62	0.72	0.8

s [mm]	t [s]	$n_L = 35 ; n_T = 78$ A = 3500mm				$n_L = 40 ; n_T = 88$ A = 4000mm				$n_L = 45 ; n_T = 98$ A = 4500mm				$n_L = 50 ; n_T = 108$ A = 5000mm				$n_L = 55 ; n_T = 118$ A = 5500mm			
		m [kg]				m [kg]				m [kg]				m [kg]				m [kg]			
		0.5	1	1.5	2	0.5	1	1.5	2	0.5	1	1.5	2	0.5	1	1.5	2	0.2	1	1.5	2
100 ¹	t=	0.26	0.32	0.37	0.41	0.28	0.34	0.39	0.44	0.3	0.36	0.42	0.47	0.31	0.38	0.44	0.49	0.33	0.4	0.46	0.52
200 ²	t=	0.4	0.49	0.56	0.63	0.43	0.52	0.6	0.67	0.45	0.55	0.63	0.71	0.47	0.58	0.67	0.75	0.5	0.6	0.7	0.79
300 ³	t=	0.55	0.67	0.77	0.86	0.58	0.71	0.82	0.92	0.62	0.75	0.87	0.97	0.65	0.79	0.91	1.02	0.68	0.83	0.96	1.07

s = Stroke [mm]
t = Stroke time [s]

n_L = Number of links in line
 n_T = Number of links total

m = Weight per link [kg]
A = Distance between U-Turns

¹ The chain moves one link with each index

² The chain moves two links with each index

³ The chain moves three links with each index

Main Dimensions

Distance A** [mm] in increments of 500
Weight at A=2000 [kg] 350
Stroke time** [s] see Load Table
Stroke** [mm] 100,200 or 300
Direction right, left

** Other distances "A", strokes or stroke times by request

Loadings

Per static link
Force vertical [N]
Force horizontal [N]
Tilting moment [Nm]
Pull force at the chain [N]

Standard Drive

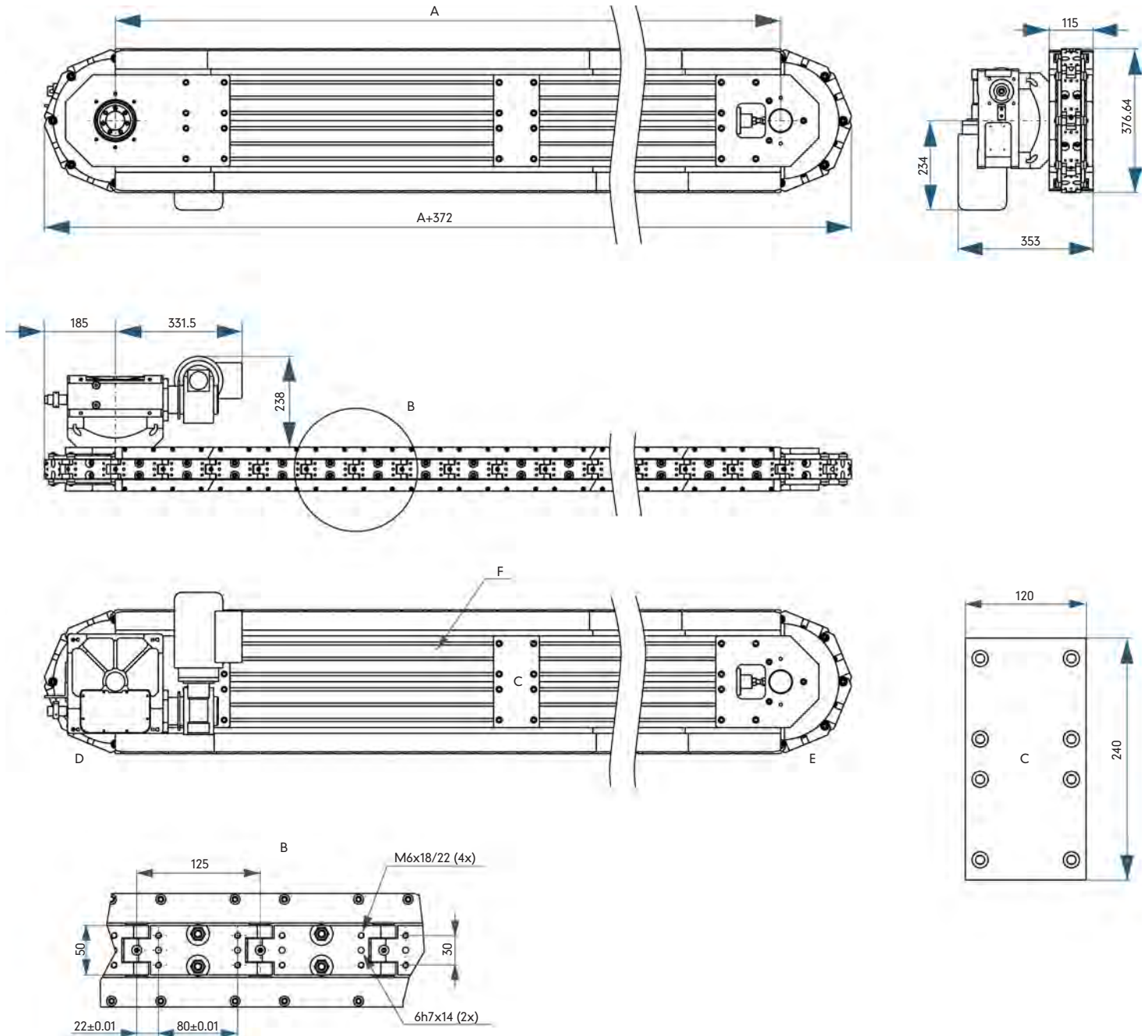
RT160 with 8¹, 4², or 8/3³ Indexes


Precision

In feed direction*
700 at the drive [mm] ±0.04
2600 opposite the drive [mm] ±0.07
80 Transverse to feed direction [mm] ±0.05
750 Vertical runout [mm] ±0.03

* For the first and last link in the line we can not guarantee this precision.

The shown drive is a RT160 with brake motor and gear reducer



 Allow space on one side of the index wheel for adjustable preload.

A = Distance between U-turns

D = Index wheel

E = The 180° cam

F = Aluminum profile system 8*80x120

LF125 Dimensions

The dimensions shown here are the standard dimensions. Dimension "A" depends on the number of links. Motion LF125 Conveyors can be mounted on the extruded aluminum "F". The links and the steel plates can be machined to your specifications. The dimensions marked with * depend on the size of the drive used. The conveyor can be delivered without drive or the drive can be a servo. Special dust covers between the links are available.

* LFS Series of this conveyor has slightly different dimensions, please contact MID for more information.

LF125 Load Table

s [mm]	t [s]	$n_L = 8 ; n_T = 24$ A = 1000mm				$n_L = 12 ; n_T = 32$ A = 1500mm				$n_L = 16 ; n_T = 40$ A = 2000mm				$n_L = 20 ; n_T = 48$ A = 2500mm				$n_L = 24 ; n_T = 56$ A = 3000mm			
		m [kg]				m [kg]				m [kg]				m [kg]				m [kg]			
		0.5	1	1.5	2	0.5	1	1.5	2	0.5	1	1.5	2	0.5	1	1.5	2	0.2	1	1.5	2
125 ¹	t=	0.17	0.2	0.23	0.25	0.19	0.23	0.26	0.29	0.22	0.26	0.29	0.32	0.24	0.28	0.32	0.36	0.26	0.3	0.35	0.39
250 ²	t=	0.25	0.3	0.34	0.38	0.29	0.35	0.4	0.44	0.33	0.39	0.45	0.49	0.36	0.43	0.49	0.54	0.39	0.46	0.53	0.59
375 ³	t=	0.35	0.41	0.47	0.52	0.40	0.48	0.54	0.6	0.45	0.53	0.61	0.68	0.49	0.59	0.67	0.74	0.53	0.63	0.72	0.8

s [mm]	t [s]	$n_L = 28 ; n_T = 64$ A = 3500mm				$n_L = 32 ; n_T = 72$ A = 4000mm				$n_L = 36 ; n_T = 80$ A = 4500mm				$n_L = 40 ; n_T = 88$ A = 5000mm				$n_L = 44 ; n_T = 96$ A = 5500mm			
		m [kg]				m [kg]				m [kg]				m [kg]				m [kg]			
		0.5	1	1.5	2	0.5	1	1.5	2	0.5	1	1.5	2	0.5	1	1.5	2	0.2	1	1.5	2
125 ¹	t=	0.27	0.33	0.37	0.41	0.29	0.35	0.4	0.44	0.31	0.37	0.42	0.46	0.32	0.38	0.44	0.49	0.34	0.4	0.46	0.51
250 ²	t=	0.42	0.5	0.57	0.63	0.44	0.53	0.6	0.67	0.47	0.56	0.64	0.71	0.49	0.58	0.67	0.74	0.51	0.61	0.7	0.78
375 ³	t=	0.57	0.68	0.77	0.86	0.6	0.72	0.82	0.92	0.64	0.76	0.87	0.97	0.67	0.8	0.91	1.02	0.7	0.83	0.95	1.06

s = Stroke [mm]
t = Stroke time [s]

n_L = Number of links in line
 n_T = Number of links total

m = Weight per link [kg]
A = Distance between U-Turns

¹ The chain moves one link with each index

² The chain moves two links with each index

³ The chain moves three links with each index

Main Dimensions

Distance A** [mm] in increments of 500
Weight at A=2000 [kg] 400
Stroke time** [s] see Load Table
Stroke** [mm] 125, 250 or 375
Direction right, left

** Other distances "A", strokes or stroke times by request

Loadings

Per static link
Force vertical [N]
Force horizontal [N]
Tilting moment [Nm]
Pull force at the chain [N]

Standard Drive

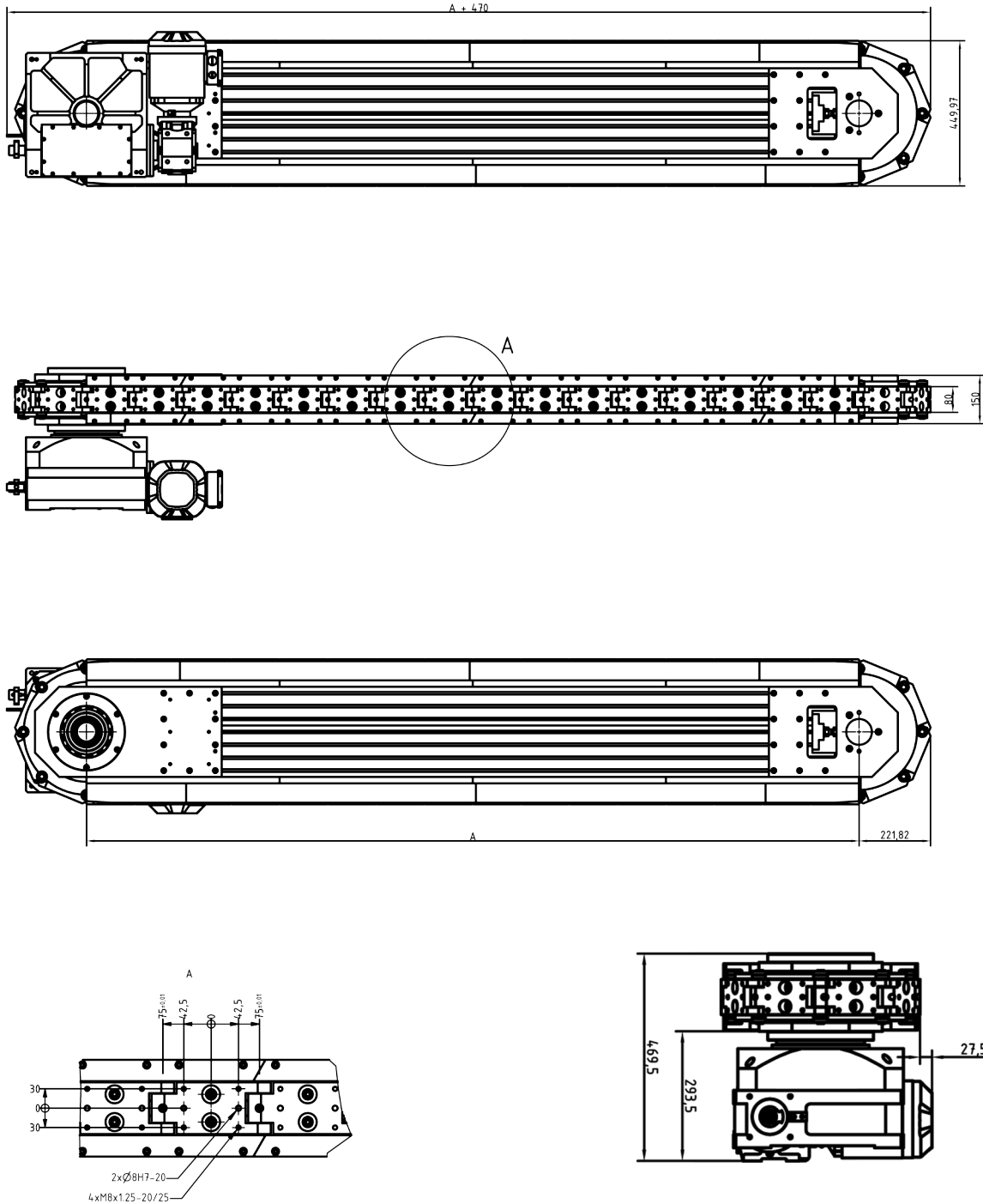
RT160 with 8¹, 4², or 8/3³ Indexes

Precision

In feed direction*
700 at the drive [mm] ±0.04
2600 opposite the drive [mm] ±0.07
80 Transverse to feed direction [mm] ±0.05
750 Vertical runout [mm] ±0.03


* For the first and last link in the line we can not guarantee this precision.

The shown drive is a RT250 with brake motor and gear reducer



LF150 Dimensions

The dimensions shown here are the standard dimensions. Dimension "A" depends on the number of links. Motion LF150 Conveyors can be mounted on the extruded aluminum. The links and the steel plates can be machined to your specifications. The dimensions marked with * depend on the size of the drive used. The conveyor can be delivered without drive or the drive can be a servo. Special dust covers between the links are available.

 Allow space on one side of the index wheel for adjustable preload.

A = Distance between U-turns

D = Index wheel

E = The 180° cam

F = Aluminum profile system 8*80x120

* LFS Series of this conveyor has slightly different dimensions, please contact MID for more information.

LF150 Load Table

s [mm]	t [s]	$n_L = 8 ; n_T = 28$ A = 1200mm				$n_L = 12 ; n_T = 36$ A = 1800mm				$n_L = 16 ; n_T = 44$ A = 2400mm				$n_L = 20 ; n_T = 52$ A = 3000mm				$n_L = 24 ; n_T = 60$ A = 3600mm			
		m [kg]				m [kg]				m [kg]				m [kg]				m [kg]			
		0.5	1	1.5	2	0.5	1	1.5	2	0.5	1	1.5	2	0.5	1	1.5	2	0.2	1	1.5	2
150 ¹	t=	0.28	0.3	0.32	0.34	0.3	0.33	0.35	0.38	0.32	0.35	0.38	0.41	0.34	0.37	0.4	0.44	0.35	0.39	0.43	0.46
300 ²	t=	0.39	0.42	0.46	0.48	0.42	0.46	0.5	0.53	0.45	0.49	0.54	0.57	0.48	0.53	0.57	0.62	0.5	0.56	0.61	0.65
450 ³	t=	0.52	0.56	0.6	0.64	0.56	0.61	0.66	0.7	0.59	0.65	0.71	0.76	0.63	0.69	0.75	0.81	0.66	0.73	0.8	0.86

s [mm]	t [s]	$n_L = 28 ; n_T = 68$ A = 4200mm				$n_L = 32 ; n_T = 76$ A = 4800mm				$n_L = 36 ; n_T = 84$ A = 5400mm				$n_L = 40 ; n_T = 92$ A = 6000mm				$n_L = 44 ; n_T = 100$ A = 6600mm			
		m [kg]				m [kg]				m [kg]				m [kg]				m [kg]			
		0.5	1	1.5	2	0.5	1	1.5	2	0.5	1	1.5	2	0.5	1	1.5	2	0.2	1	1.5	2
150 ¹	t=	0.37	0.41	0.45	0.49	0.39	0.43	0.47	0.51	0.4	0.45	0.5	0.54	0.42	0.47	0.52	0.56	0.43	0.49	0.54	0.58
300 ²	t=	0.52	0.58	0.64	0.69	0.55	0.61	0.67	0.73	0.57	0.64	0.7	0.76	0.59	0.66	0.73	0.79	0.61	0.69	0.76	0.82
450 ³	t=	0.69	0.77	0.84	0.91	0.72	0.81	0.88	0.96	0.75	0.84	0.92	1	0.78	0.87	0.96	1.04	0.81	0.91	1	1.09

s = Stroke [mm]
t = Stroke time [s]

n_L = Number of links in line
 n_T = Number of links total

m = Weight per link [kg]
A = Distance between U-Turns

¹ The chain moves one link with each index

² The chain moves two links with each index

³ The chain moves three links with each index

Main Dimensions

Distance A** [mm] in increments of 600
Weight at A=2000 [kg] 800
Stroke time** [s] see Load Table
Stroke** [mm] 150, 300 or 450
Direction right, left

** Other distances "A", strokes or stroke times by request

Loadings

Per static link
Force vertical [N]
Force horizontal [N]
Tilting moment [Nm]
Pull force at the chain [N]

Standard Drive
RT250 with 8¹, 4², or 8/3³ Indexes

Precision

In feed direction*
1250 at the drive [mm] ±0.04
2600 opposite the drive [mm] ±0.07
120 Transverse to feed direction [mm] ±0.05
900 Vertical runout [mm] ±0.03

* For the first and last link in the line we can not guarantee this precision.



MOTION INDEX DRIVES

Timing Belt Conveyor

Motion Index Drives' LZ Series Conveyors are an alternative for those seeking a more cost-effective conveyor system with the same quality Motion Index Drives brings to all of its products. The LZ Series features a high quality guide rail system, as well as a timing belt driven by one of Motion Index Drives' high quality indexers. LZ Series conveyors are custom made utilizing our high precision XP, TP, or RT Series indexers. By using our high precision cam indexing devices for transfer and positioning, you are guaranteed 100% repeatability on each index.

The chain is driven by a hardened cam wheel which is driven by a standard indexer or any other custom specified drive. At the other end, a hardened cam guides the chain. This cam is preloaded and has take up adjustment to ensure there is no backlash at the links. The linear stroke of the chain depends on the diameter of the cam wheel. One cycle of the indexer can equal many different combinations of stroke lengths.

Key Features and Benefits

- Customized to your needs.
- Utilizes high precision cam indexers for positioning.
- Steel frame to mount fixtures and other automated devices.
- Available in freely programmable option.

For technical information, please contact Motion Index Drives and provide some basic application information.

