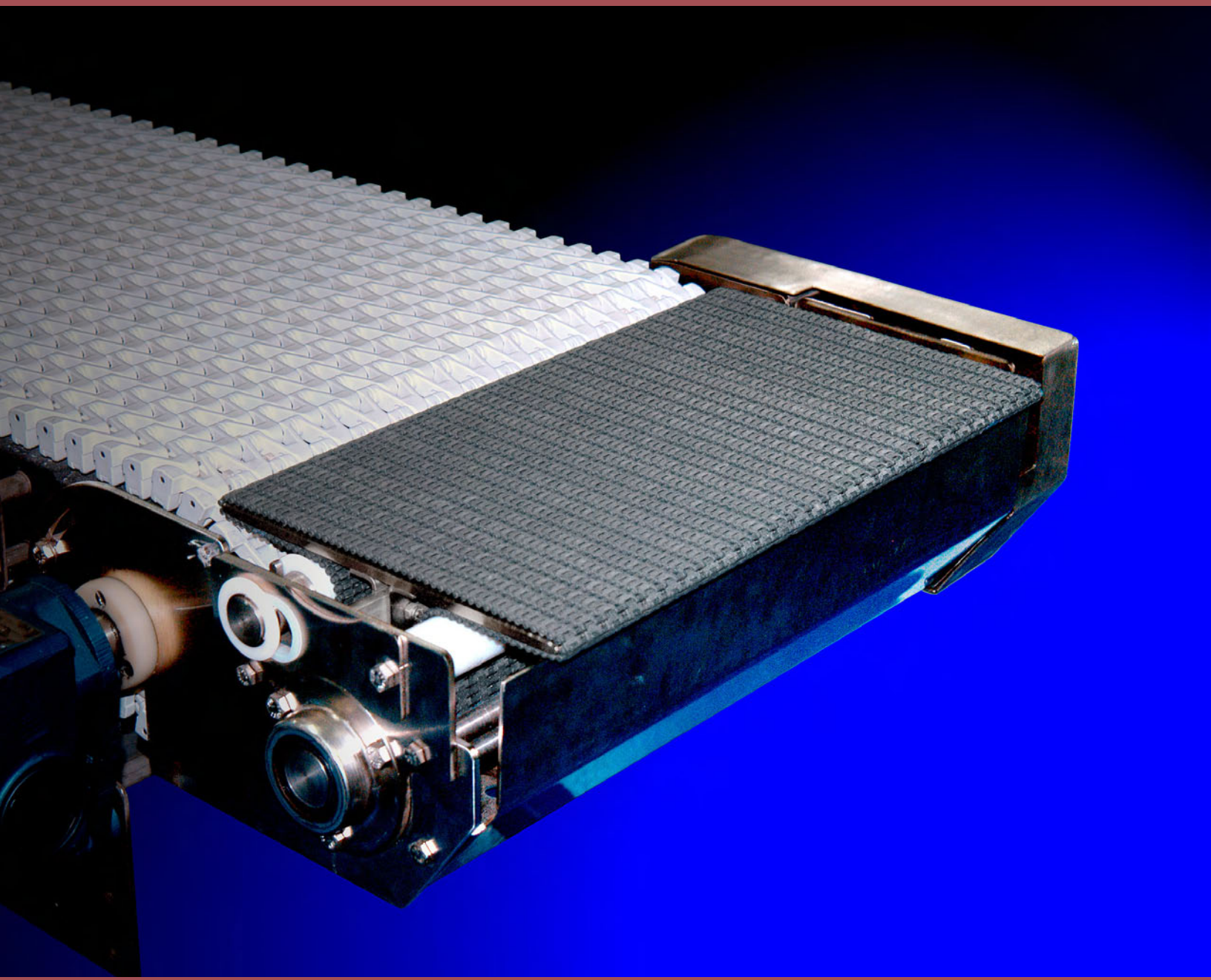
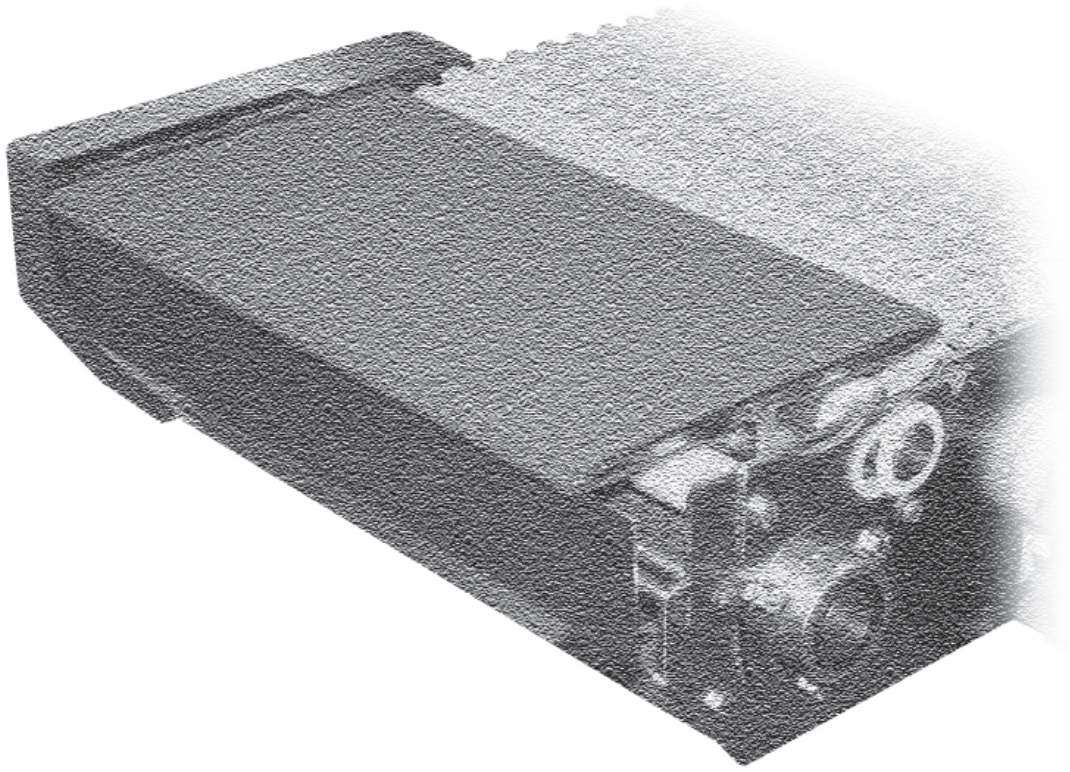
MicroSpan®
Transfers

MicroSpan Transfers



SpanTech®



Contents

revised 10-07

MicroSpan® Transfer

Overview

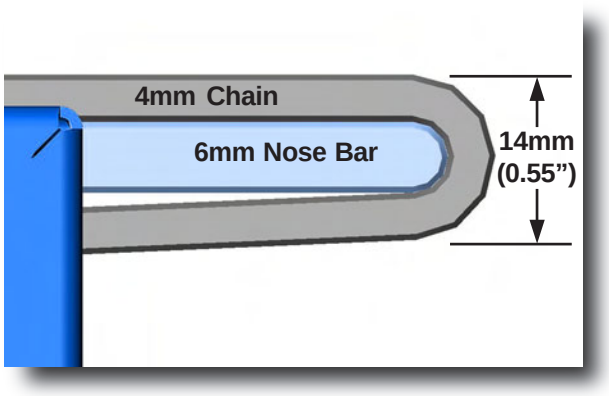
SpanTech's MicroSpan® Transfers are used for applications in which the product flows in a linear manner from one conveyor to the next. These units are washdown-capable and are available on all SpanTech conveyor product lines. They are also available separately for use on other conveyor systems. In either case, a MicroSpan® Transfer can be slave driven from the main conveyor shaft, or independently powered by its own gearmotor.

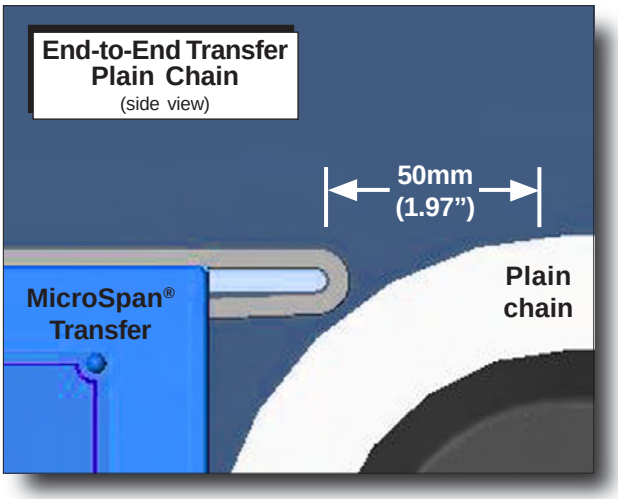
The MicroSpan® Transfer application shown in the photograph (*above*) illustrates a Raised Top conveyor chain on the incoming side, working in conjunction with feed-off fingers to transport the product onto the Transfer. The Transfer then discharges the product onto a plain, flat top conveyor. Note the small size of the product that the unit is transferring; the cookies in this example are only 38mm (1.5") in diameter.

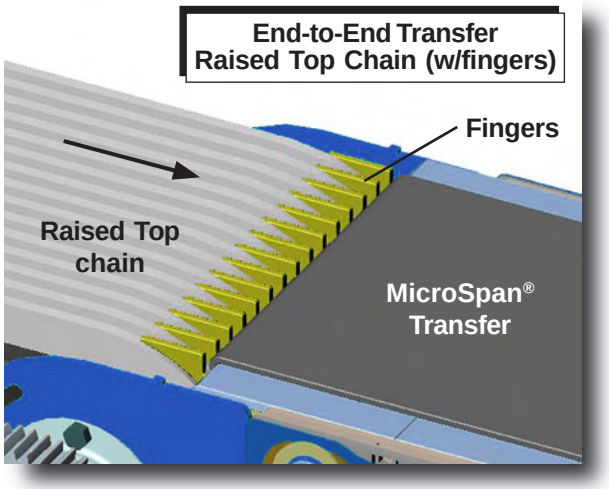
Nose Bar Dimensions

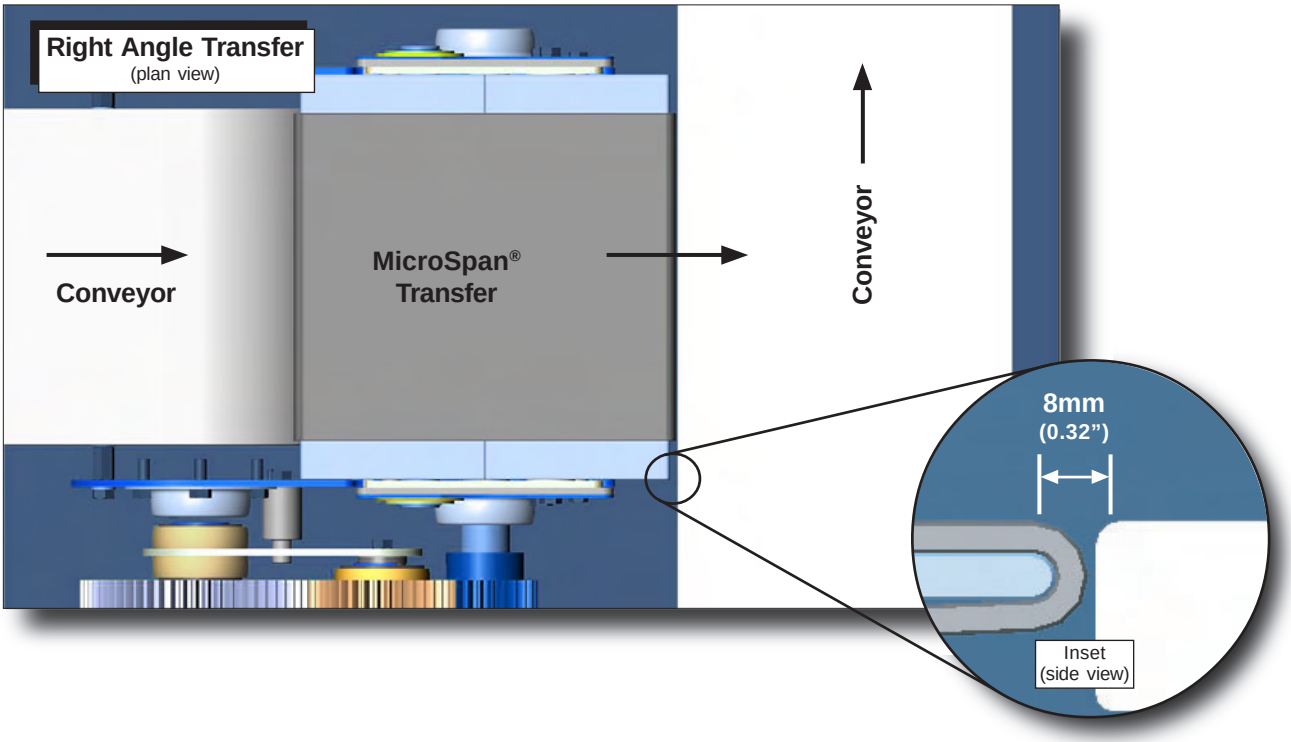
The small Nose Bar (*right*) permits small products to be transferred from one conveyor to the next.

Configured for end-to-end transfer, the gap can be as small as 50mm (1.97”) when used in conjunction with a conveyor having Plain chain (*below left*), or as small as 10mm (0.39”) when used with SpanTech’s Raised Top chain conveyor, in conjunction with feed-off fingers (*below right*). When configured for right-angle transfer (*bottom, inset*), the gap can be as small as 8mm (0.32”).



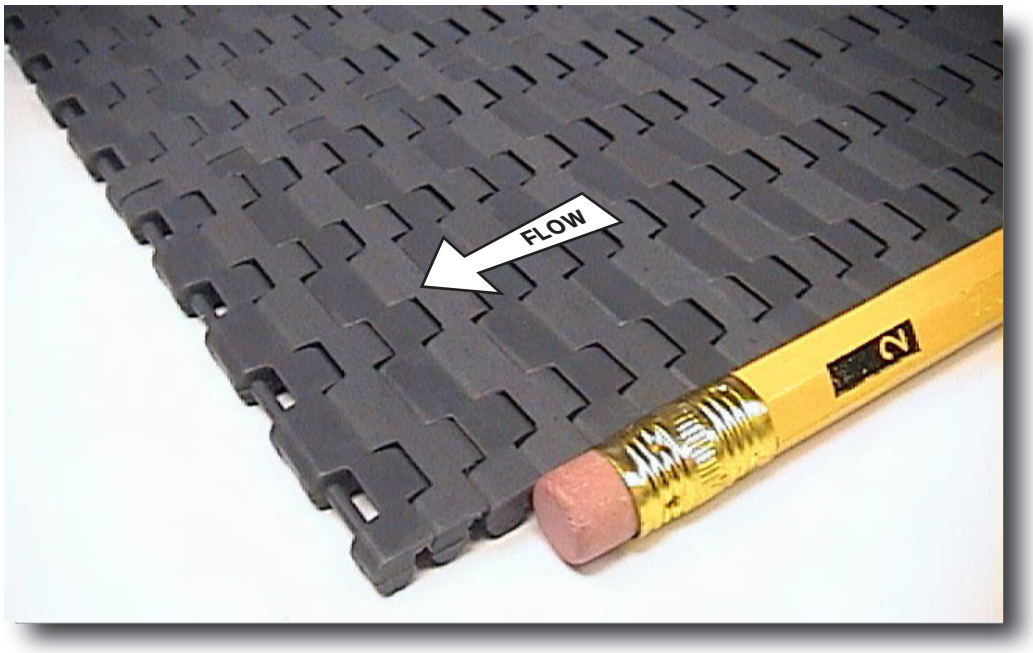




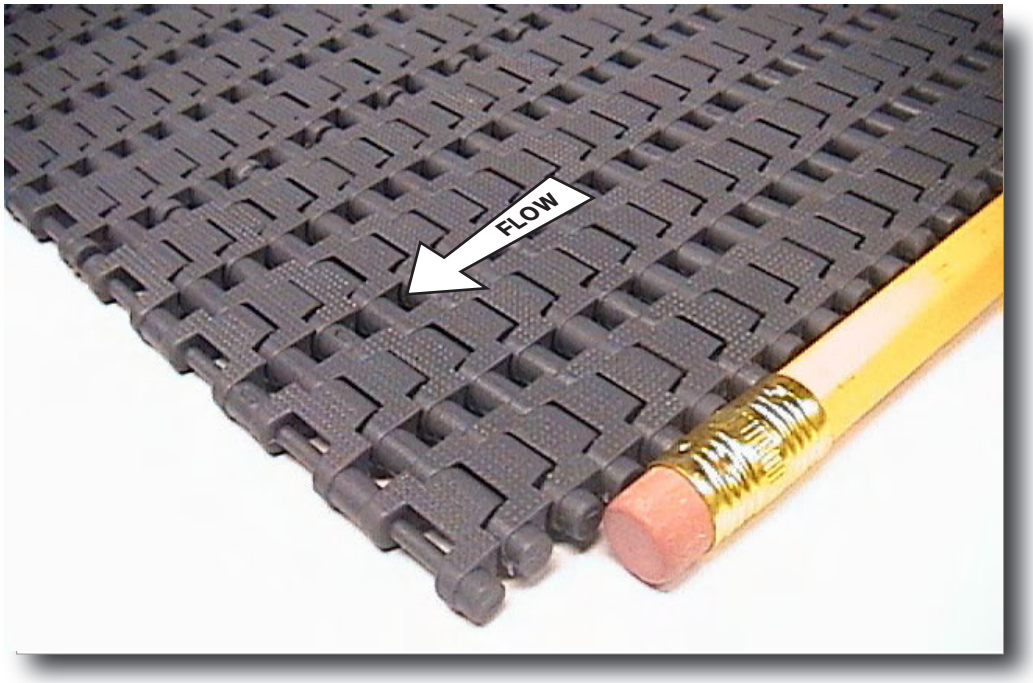


MicroSpan® Chain Types

- **MicroSpan® 4mm Flat Top**



- **MicroSpan® 4mm Raised Top**



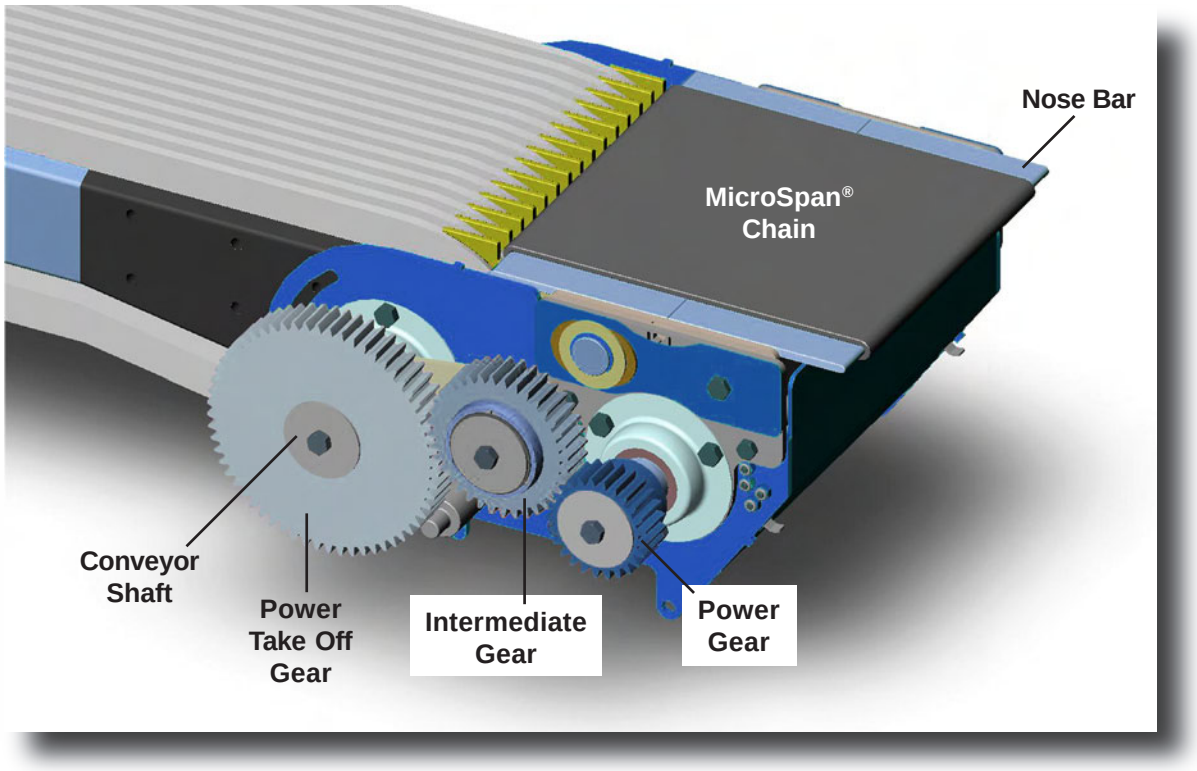
See page 11 for additional, optional chain types

MicroSpan® Features

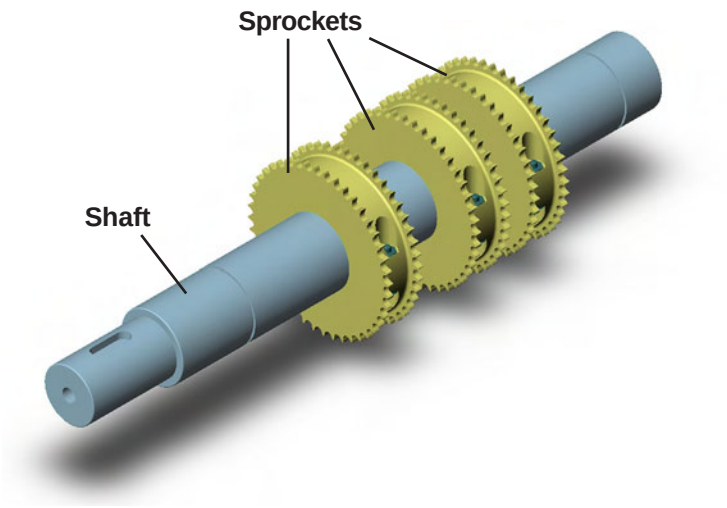
The following MicroSpan® Transfer features apply to Transfers adapted to SpanTech's Designer System® family of conveyors.

Power Transmission

- The MicroSpan® Transfer is typically slave-driven from the conveyor shaft (*below*).



- Power transmission is accomplished through an all-gear drive (*above*).

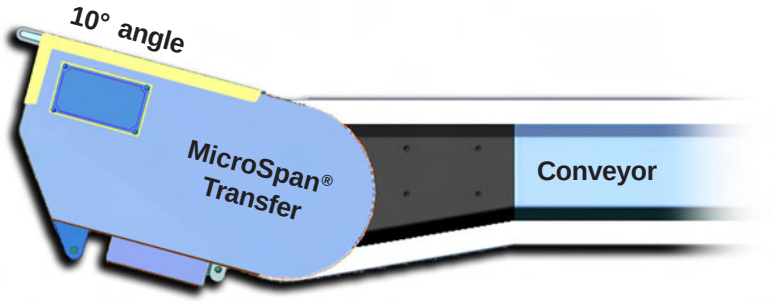


- Like roller chain, MicroSpan® chain is sprocket-driven and therefore no tracking mechanism is required.
- The chain needs only slight tension on the slack side of the drive.
- It is not necessary to tension the overall belt as with a belt conveyor.

Variable Angles

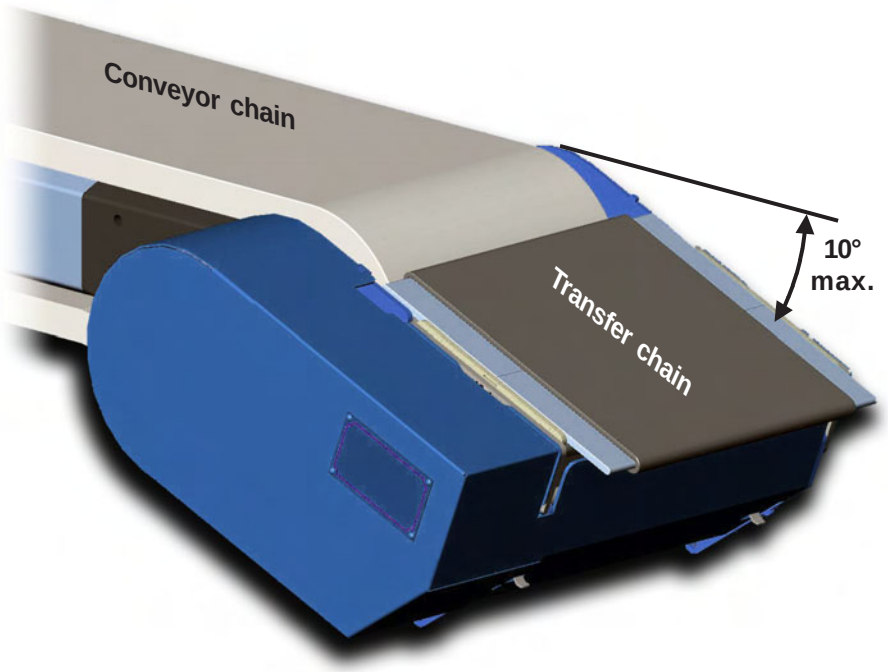
- The variable angle feature is common to all MicroSpan® Transfers, regardless of design.

- The Transfer's angle is for decline when used for "feed off" applications, and for incline when used with "feed on" applications.



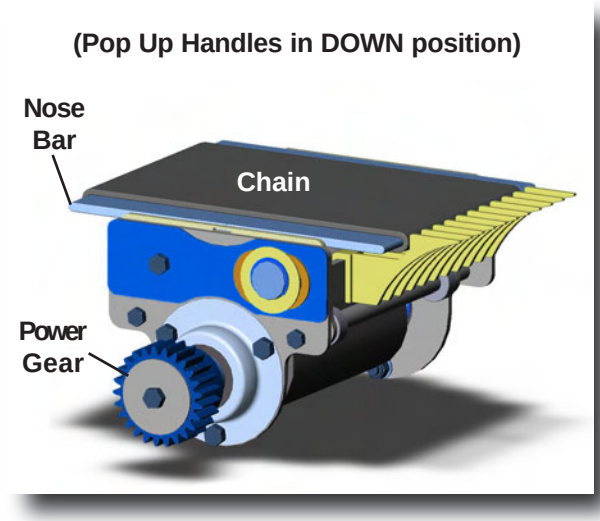
Transfers with Plain chain:

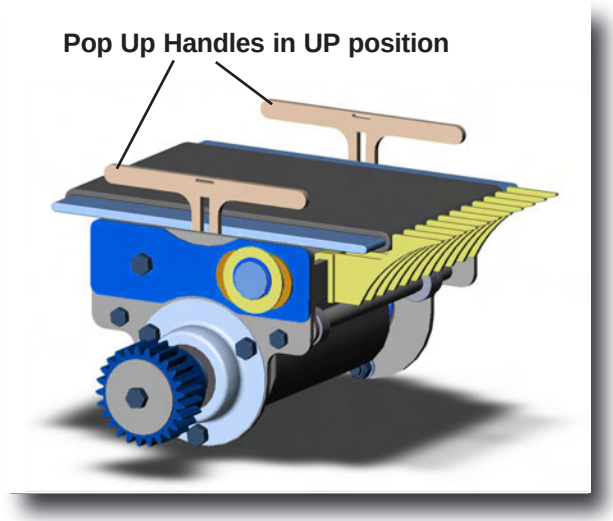
- max. UP angle = 10°
- max DOWN angle = 10°



Lift Out Capability of Gear-Driven Version
(MultiSpan® Conveyors Only)

- A key feature of the Transfer, when used with MultiSpan® conveyors, is its ability to be lifted out of place. There are two Lift Out Handles that can be raised from their recessed positions (*below left*) into their UP positions (*below right*), to serve as ready hand holds when removing the unit for cleaning or maintenance.



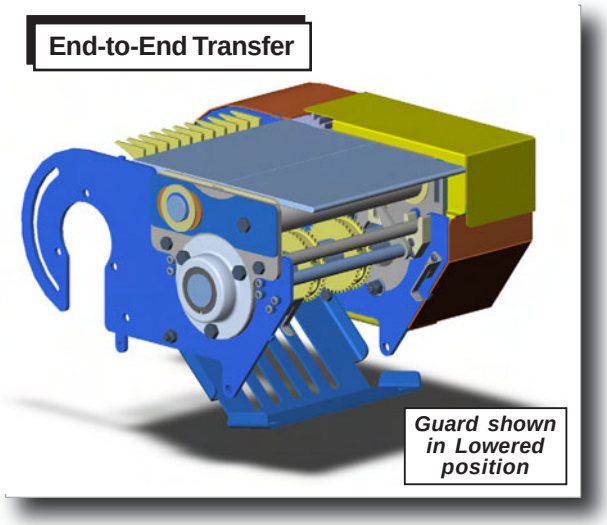


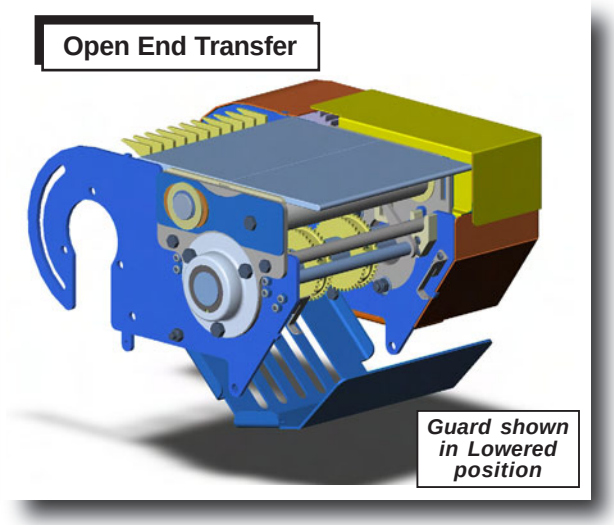
NOTE

The lift-out capability is also an important safety feature; if something becomes lodged on the infeed side, the unit will lift up.

Bottom Guarding

- There are two options for the return chain guard. One option is designed for Transfers used in "end-to-end" applications (*below left*). The other option is designed for applications where the end of the Transfer unit is accessible (*below right*).

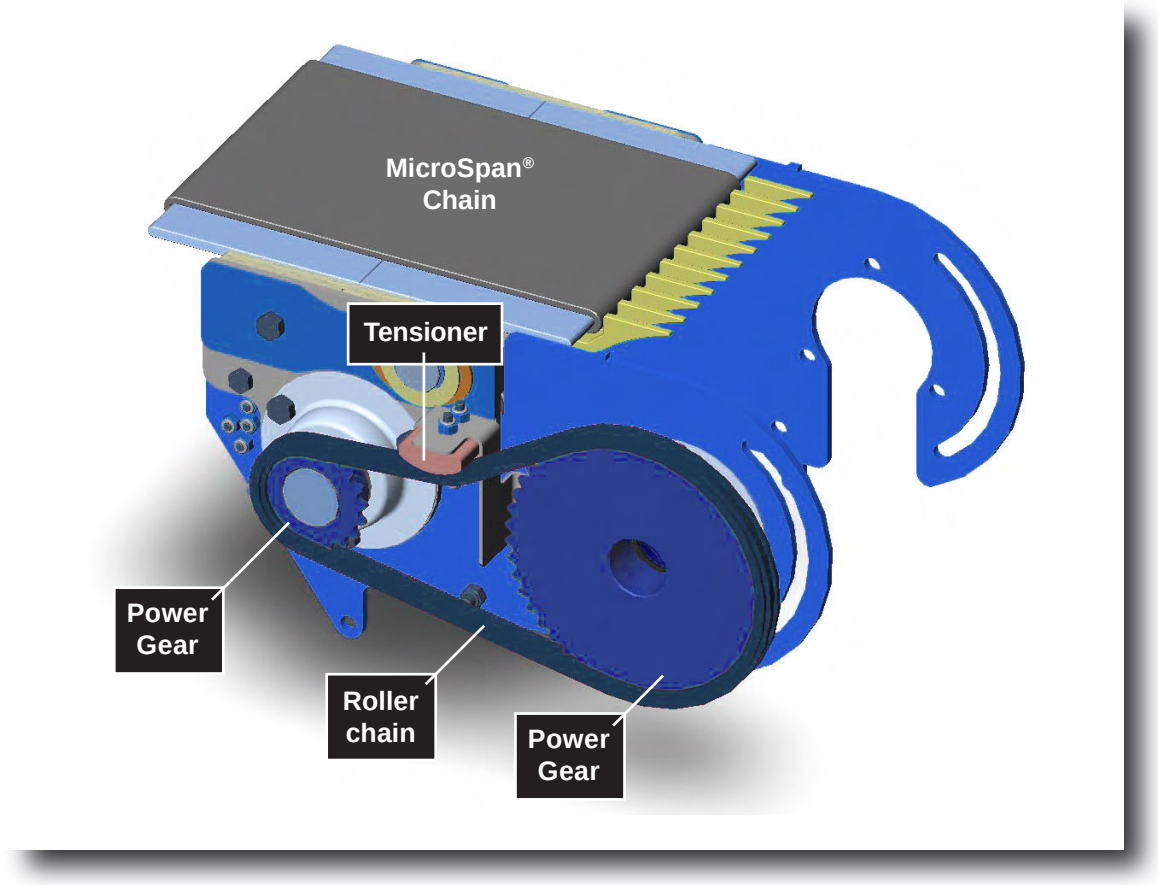




MicroSpan® Features – Independent Unit
(adapted by customer to other conveyors)

The following MicroSpan® Transfer features apply to Transfers supplied as separate, independent units (*below*), intended for use with equipment or conveyors not supplied by SpanTech. Only features that are different from the standard Transfer previously described are listed below.

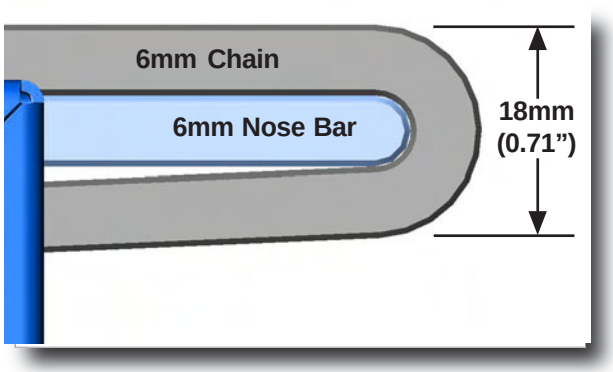
Roller Chain Drive

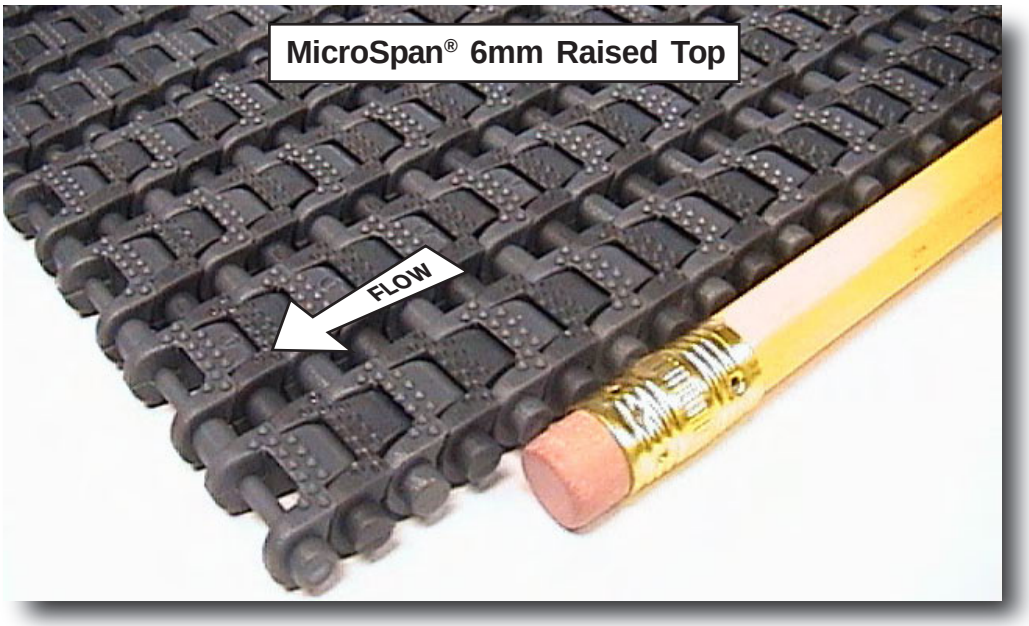


NOTE
Lift-Out capability not applicable to Independent Unit.

Optional 6mm MicroSpan® Chain

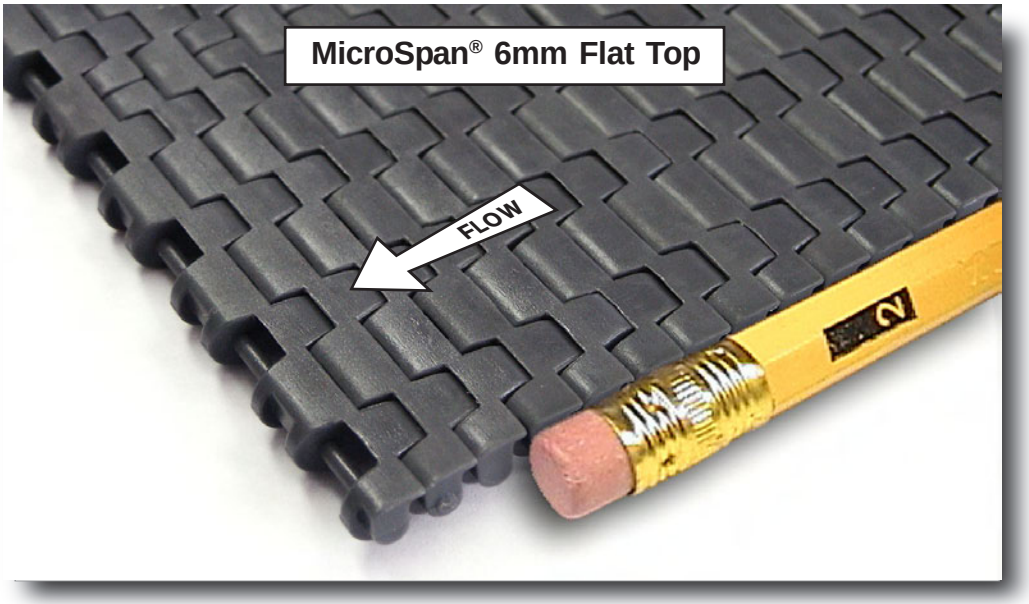
- An additional type of MicroSpan® chain is available for the independent units. 6mm Raised Top Chain (*right, and top of next page*) is more than twice as strong as the standard 4mm chains.





Also Available

- 6mm Flat Top MicroSpan® chain is now also available as an option.



Determining Transfer Shaft RPM

- The following simple formula can be used to calculate the Transfer shaft input RPM necessary in order to achieve a desired Transfer conveyance (chain) speed. This formula is applicable to both gear-driven and roller-chain-driven units.

FORMULA FOR U. S. STANDARD UNITS (FEET PER MINUTE)

Transfer Shaft Input RPM = Target Chain Speed (fpm) x 1.385

FORMULA FOR METRIC UNITS (METERS PER MINUTE)

Transfer Shaft Input RPM = Target Chain Speed (m/min) x 4.538

Example: Suppose that your target conveyance speed for the MicroSpan® Transfer is 60 feet per minute. Plugging this value into the above formula yields the equation:

Transfer Shaft Input RPM = *60 x 1.385*
Transfer Shaft Input RPM = ***83 RPM***

So, the MicroSpan® Transfer's drive shaft would need to turn at 83 RPM in order to drive the Transfer chain at 60 feet per minute.

Sprocket / Pitch Formula

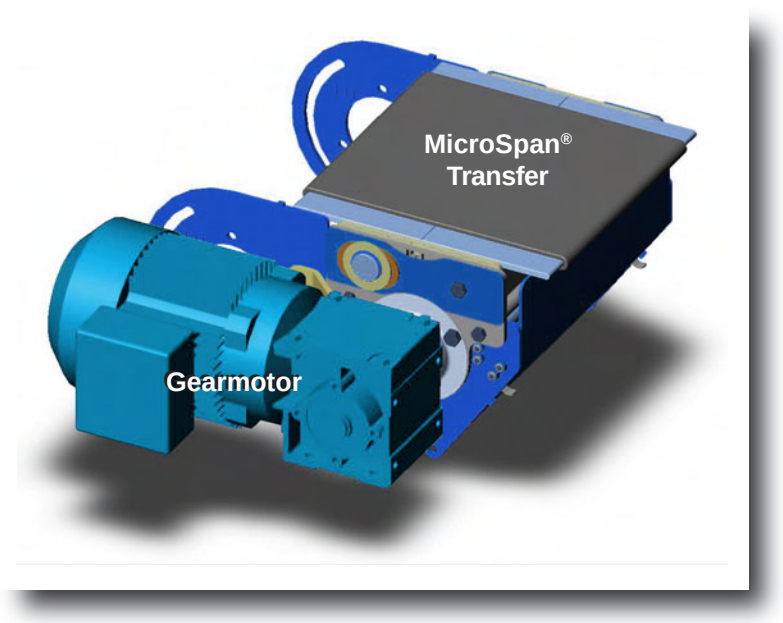
- In order to drive a MicroSpan® Transfer from a conveyor using roller chain, use the formula below:

$$\left[\frac{R_{S1}}{R_{S2}}\right] = (0.357) \times D_C$$

R_{S1} = Pitch Radius of Sprocket/Gear attached to conveyor
R_{S2} = Pitch Radius of Sprocket/Gear attached to Transfer Drive Shaft
D_C = Pitch Diameter of the Conveyor Drive

MicroSpan® Features – Gearmotor-Powered Unit

There are many possible applications for a MicroSpan® Transfer where a slave-driven unit is not an option. For these applications, SpanTech offers a completely independent gearmotor-powered Transfer (*right*). This approach allows the Transfer to be added to existing equipment, while using electrical power to drive the unit. This design is also useful where a variable speed feature is required. Gaps can be pulled, for example, in an incoming accumulated row.



Available Speeds

- The gearmotor-powered unit comes standard with an SEW Eurodrive "WS Series" gearmotor. These motors are available with a wide variety of gear ratios and output speeds to suit specific applications (*see table at right*). The use of a Variable Frequency Drive can provide a still greater level of speed control. The WS Series motors also feature hypoid gear technology that offers excellent stop/start cycle capability.

Transfer Speed @60Hz	Motor RPM	Gear Ratio	Motor Type (SEW)
10.8 fpm (3.3m/min)	15	75.00 : 1	DT71D6
13.0 fpm (3.9m/min)	18	60.00 : 1	DT71D6
16.6 fpm (5.0m/min)	23	75.00 : 1	DT71C4
20.2 fpm (6.1m/min)	28	39.00 : 1	DT71D6
20.9 fpm (6.4m/min)	29	60.00 : 1	DT71C4
24.5 fpm (7.5m/min)	34	32.50 : 1	DT71D6
26.0 fpm (7.9m/min)	36	48.00 : 1	DT71C4
28.9 fpm (8.8m/min)	40	27.50 : 1	DT71D6
31.8 fpm (9.7m/min)	44	39.00 : 1	DT71C4
32.5 fpm (9.9m/min)	45	24.50 : 1	DT71D6
38.3 fpm (11.7m/min)	53	32.50 : 1	DT71C4
40.4 fpm (12.3m/min)	56	19.50 : 1	DT71D6
45.5 fpm (13.9m/min)	63	27.50 : 1	DT71C4
48.4 fpm (14.7m/min)	67	16. 33 : 1	DT71D6
50.5 fpm (15.4m/min)	70	24.50 : 1	DT71C4
55.6 fpm (16.9m/min)	77	14.33 : 1	DT71D6
63.5 fpm (19.3m/min)	88	19.50 : 1	DT71C4
75.8 fpm (23.1m/min)	105	16.33 : 1	DT71C4
77.3 fpm (23.5m/min)	107	10.25 : 1	DT71D6
86.6 fpm (26.4m/min)	120	14.33 : 1	DT71C4
96.8 fpm (29.5m/min)	134	8.20 : 1	DT71D6
121.3 fpm (37.0m/min)	168	10.25 : 1	DT71C4
151.6 fpm (46.2m/min)	210	8.20 : 1	DT71C4

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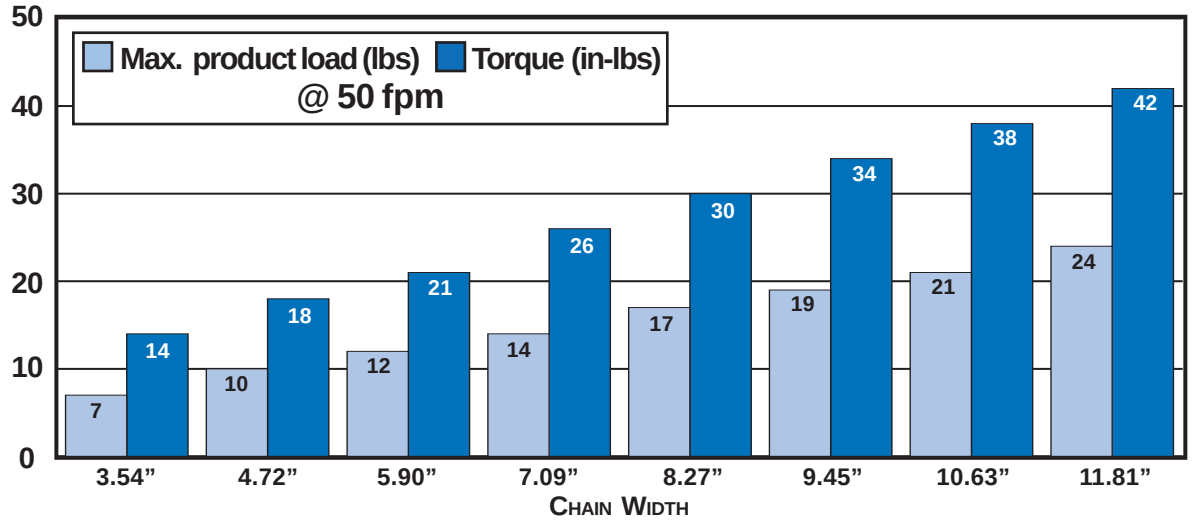
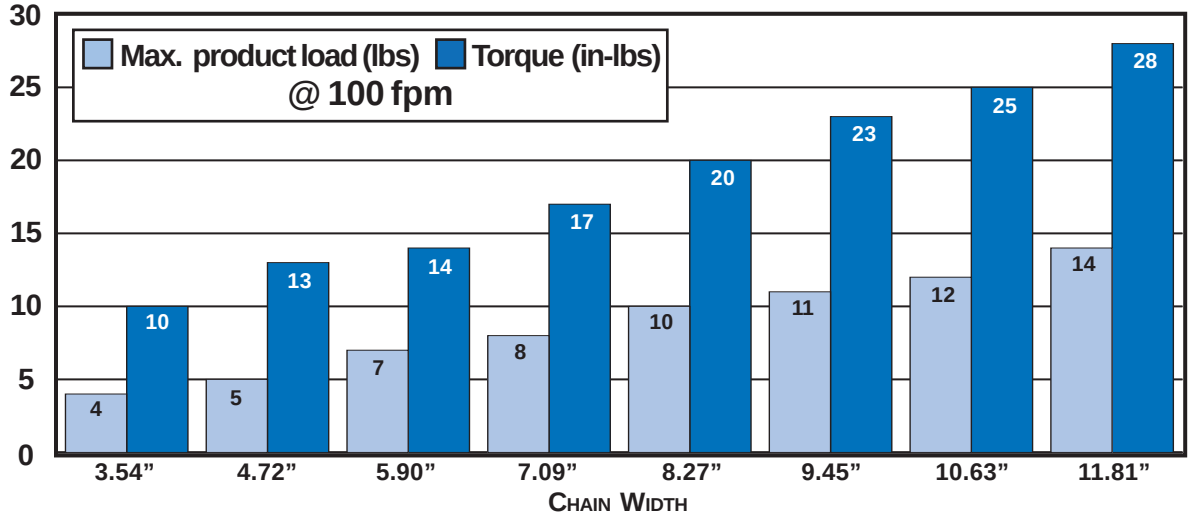
Product Specifications – all Transfer Models

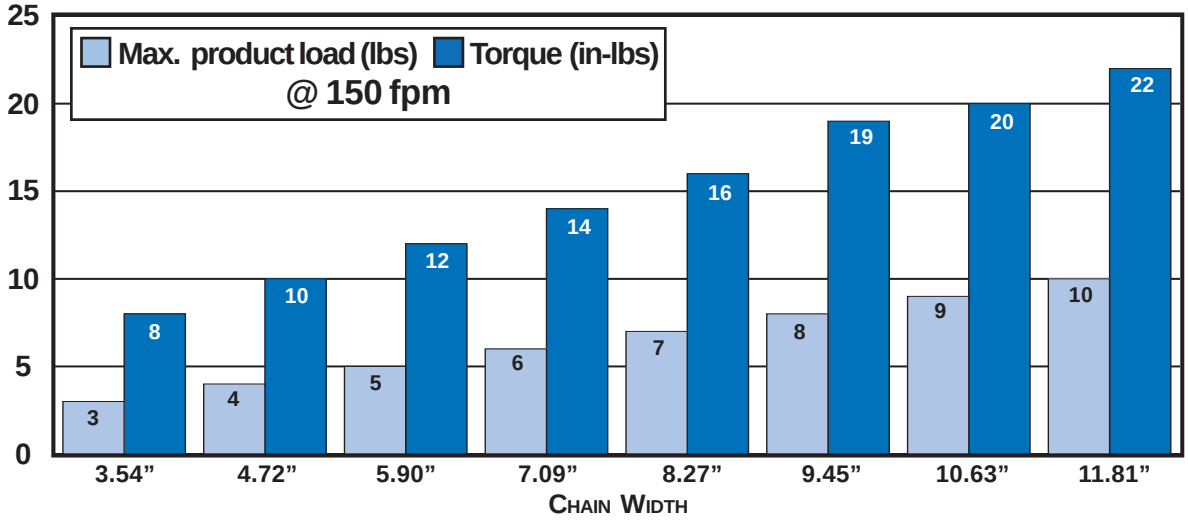
Maximum Load and Torque Ratings

U.S. STANDARD UNITS

4mm Flat Top Chain – 3.54" through 11.81" Widths



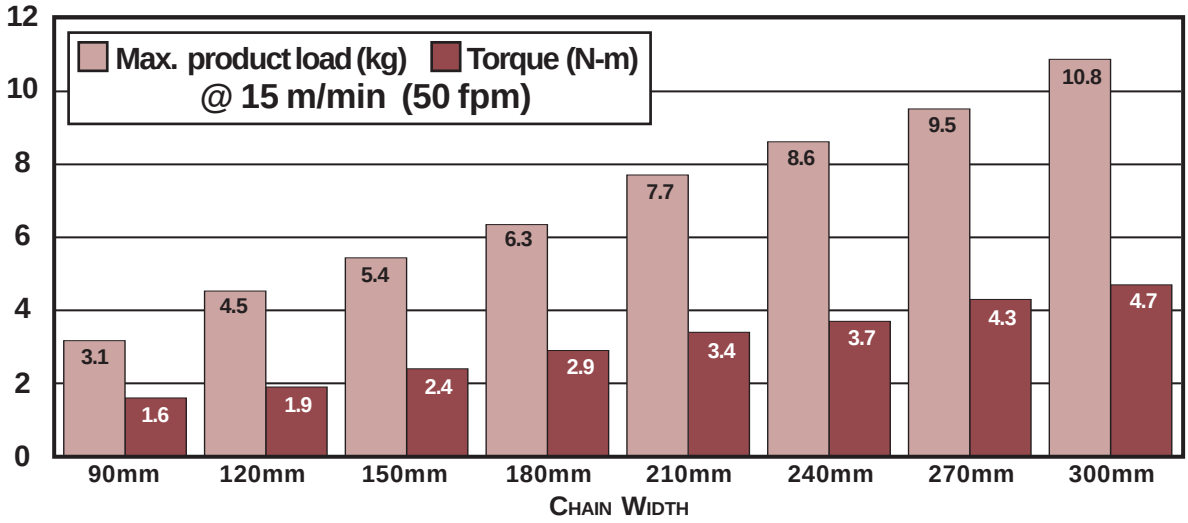


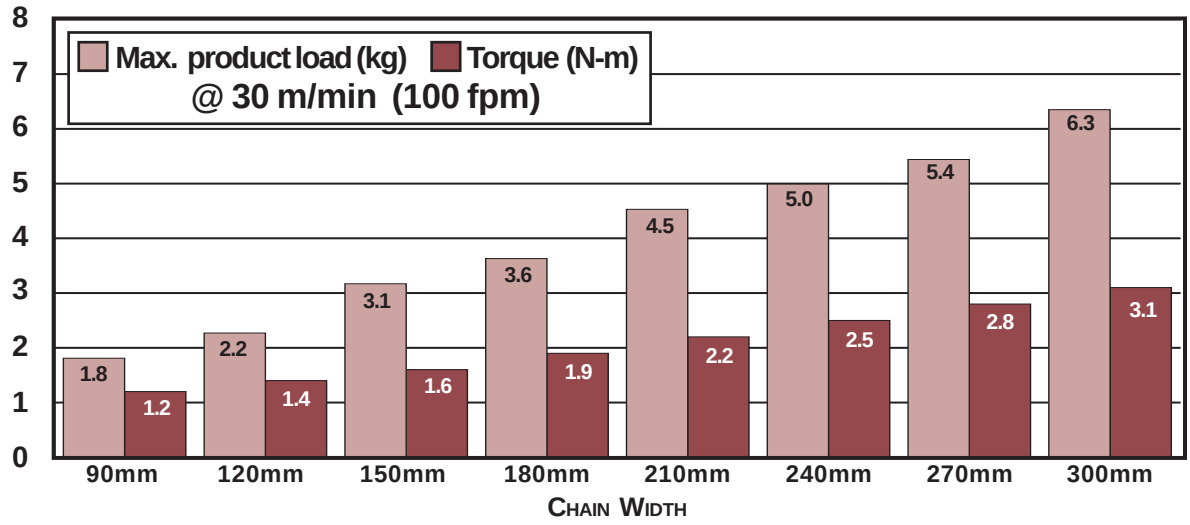


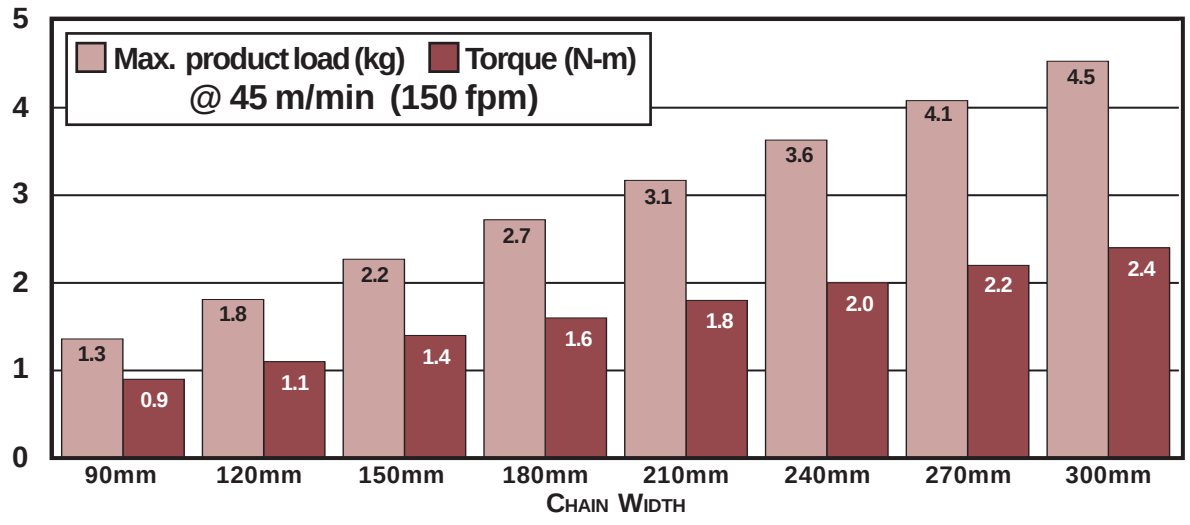
Maximum Load and Torque Ratings

METRIC UNITS

4mm Flat Top Chain – 90mm through 300mm Widths



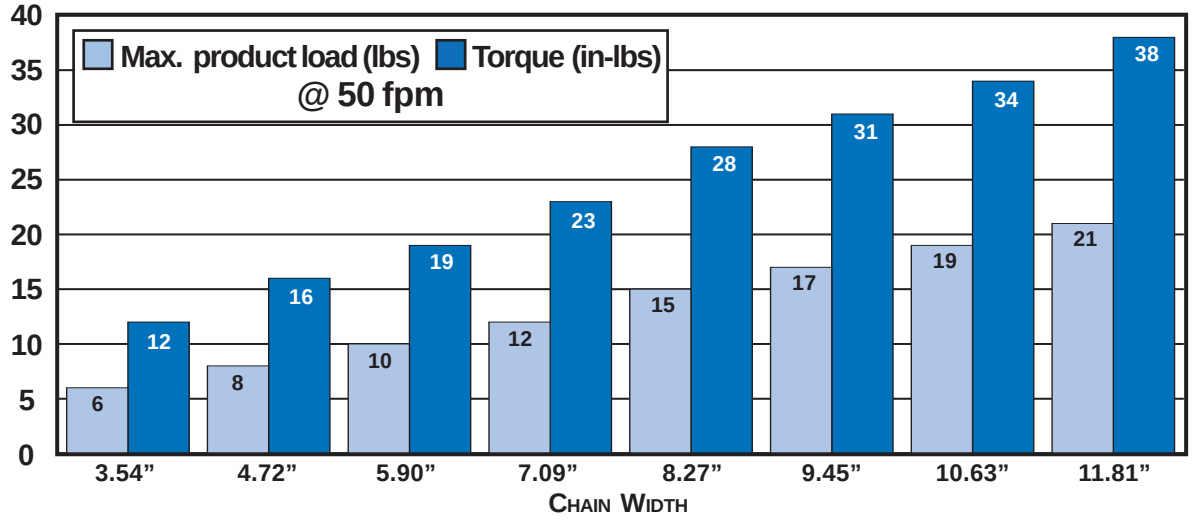


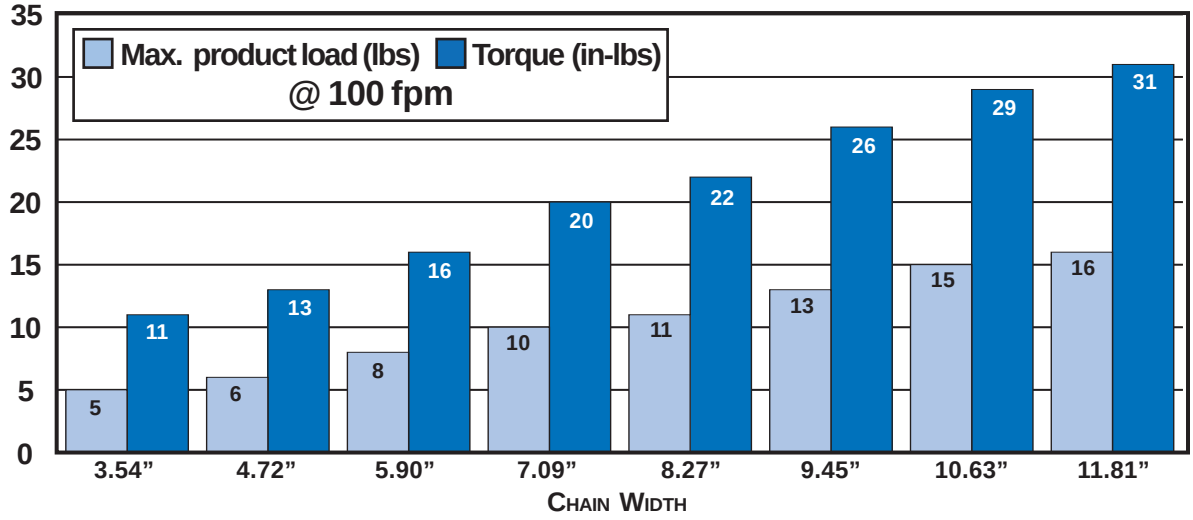


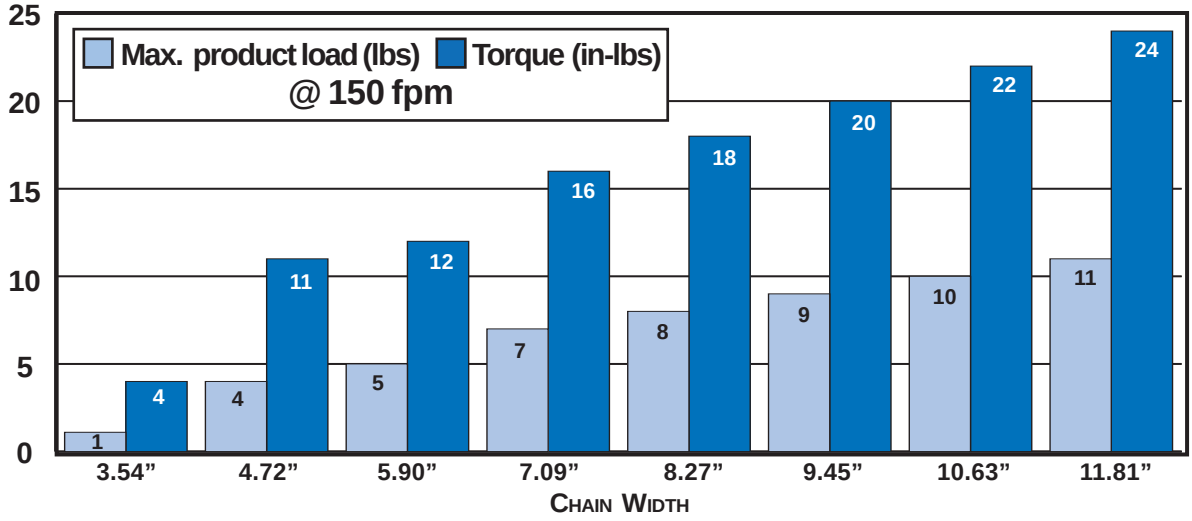
Maximum Load and Torque Ratings

U.S. STANDARD UNITS

4MM RAISED CHAIN – 3.54" THROUGH 11.81" WIDTHS



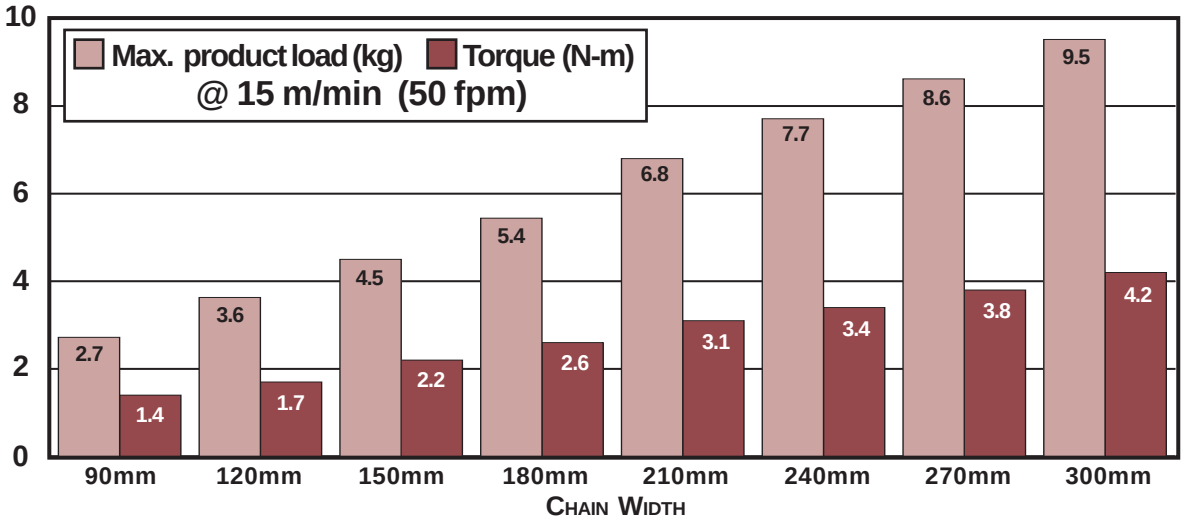


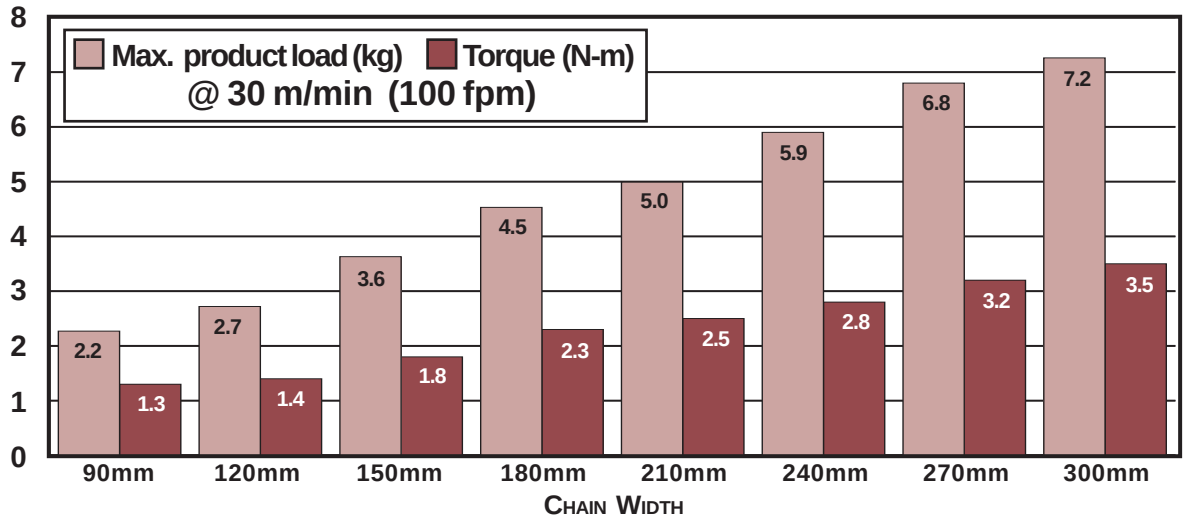


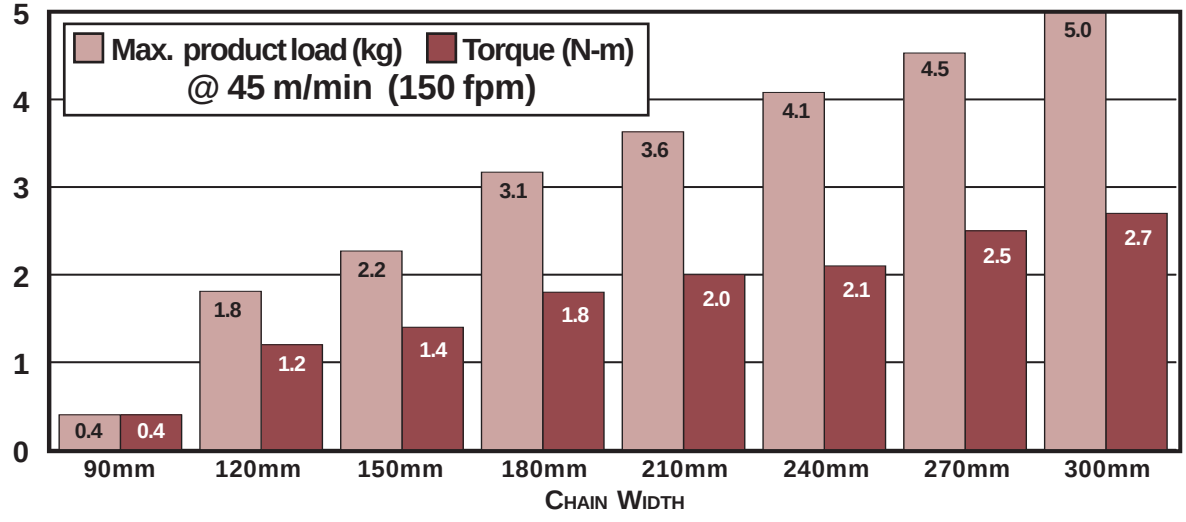
Maximum Load and Torque Ratings

METRIC UNITS

4mm Raised Chain – 90mm through 300mm Widths



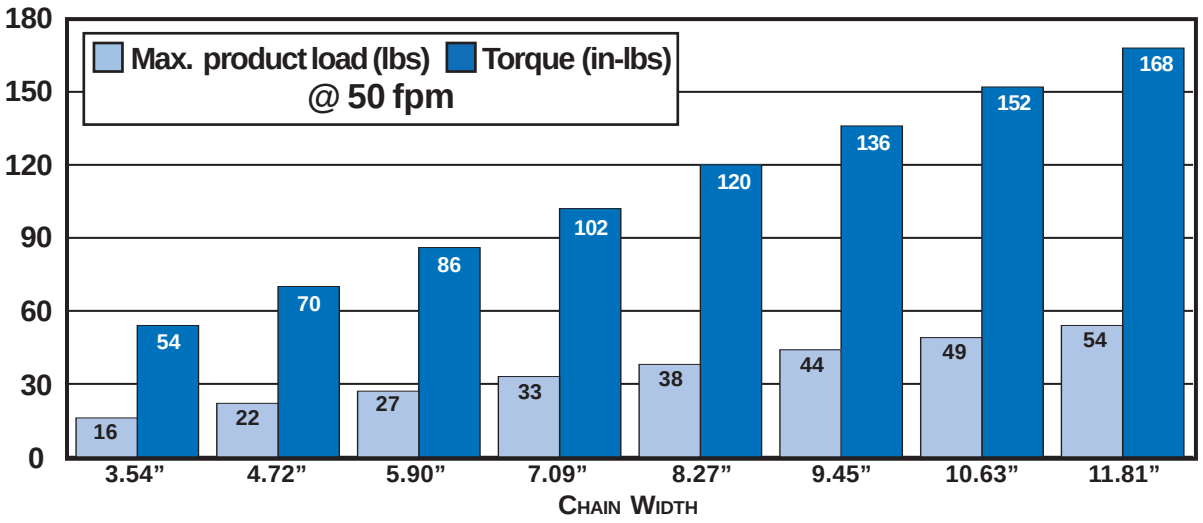


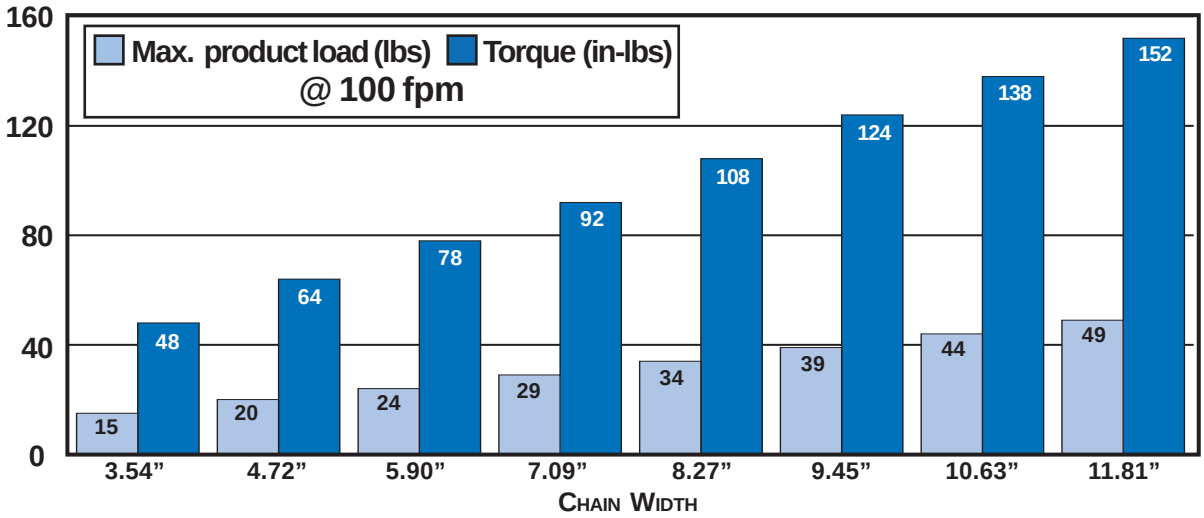


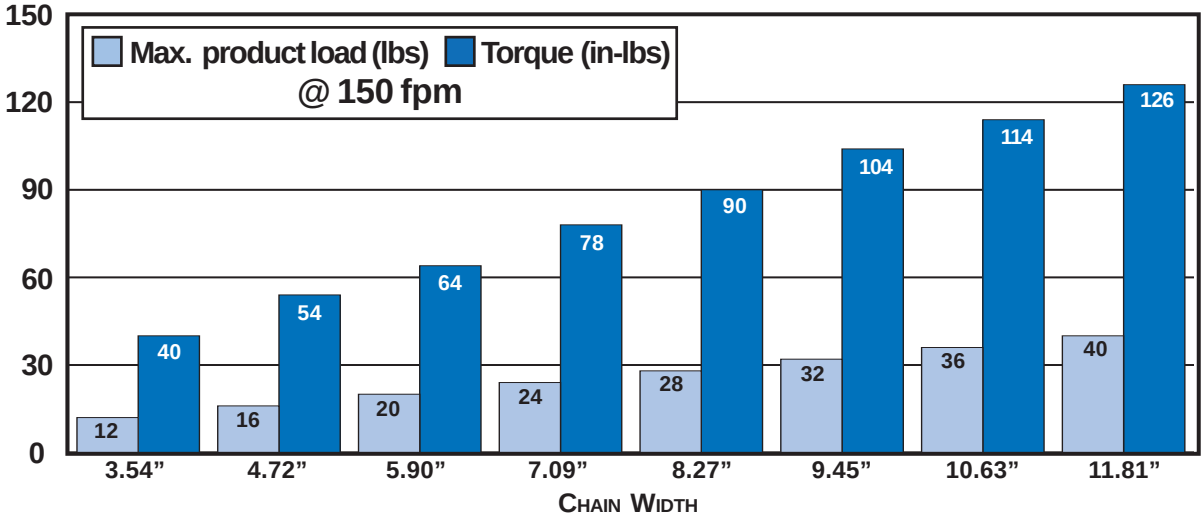
Maximum Load and Torque Ratings

U.S. STANDARD UNITS

6MM RAISED CHAIN – 3.54" THROUGH 11.81" WIDTHS



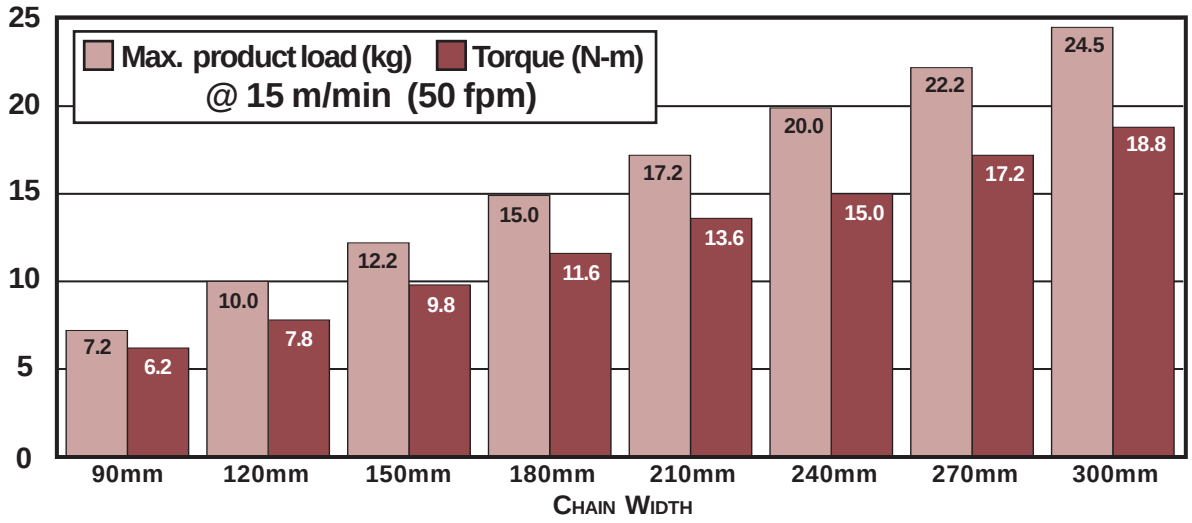


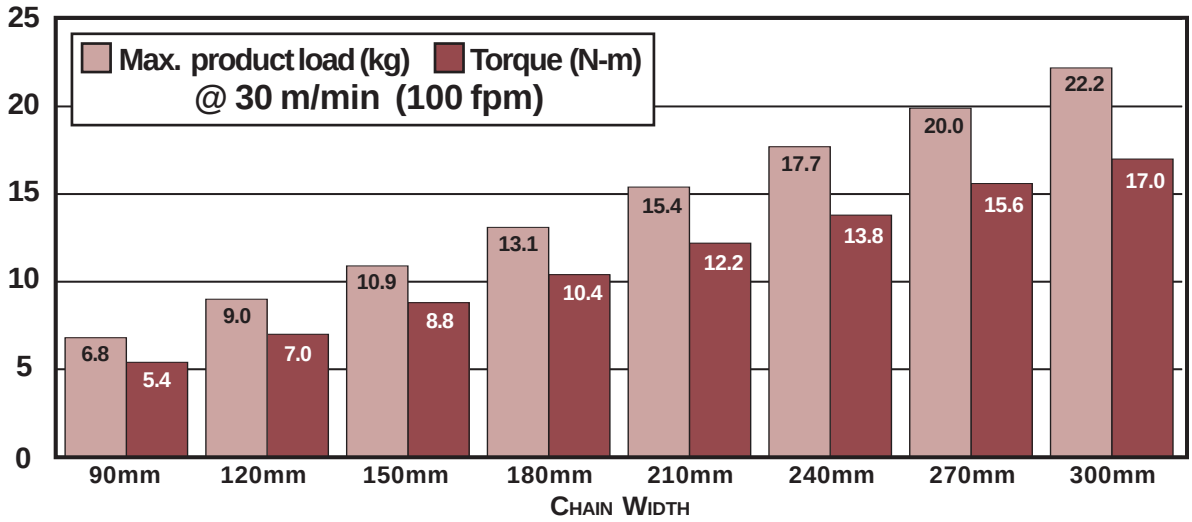


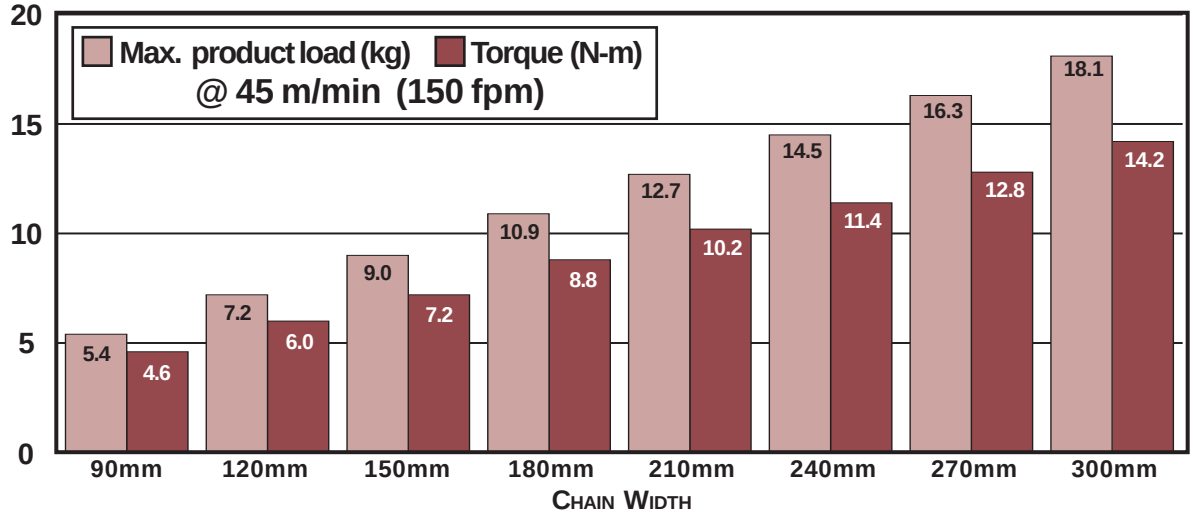
Maximum Load and Torque Ratings

METRIC UNITS

6mm Raised Chain – 90mm through 300mm Widths

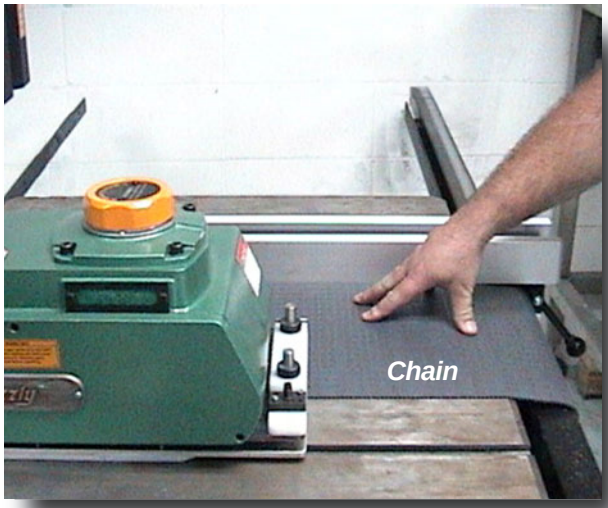


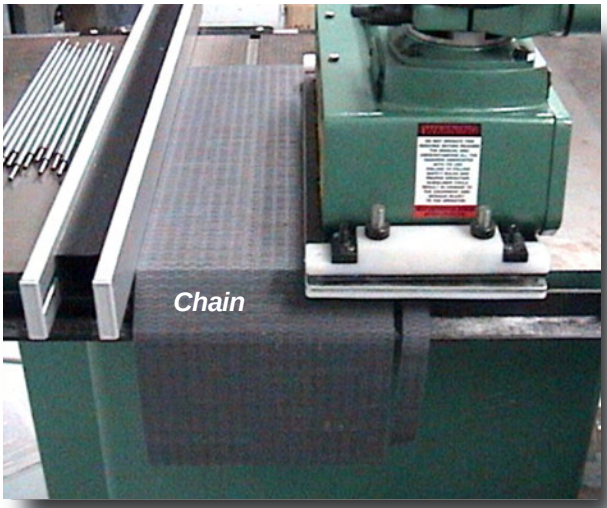




MicroSpan® Chain Widths

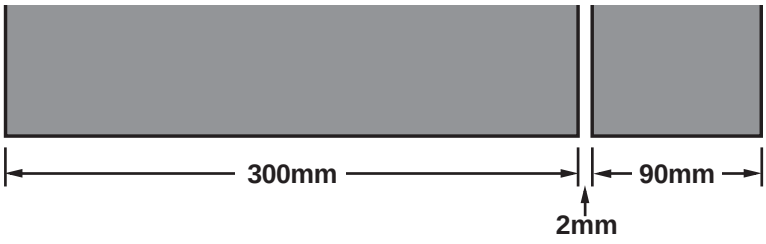
MicroSpan® chain stock is 300mm (11.81”) wide, and is cut to width on a conventional table saw. Span Tech uses a special blade, but conventional carbide-tipped wood blades can also be used. A top piece is used to hold down the chain and ensure a smooth cut. SpanTech uses a power feeder for additional safety and convenience.





The chain can be cut to widths starting at 90mm (3.54”) and increasing in 15mm (0.59”) increments.

Effective chain widths greater than 300mm can be achieved by combining the 300mm (11.81”) chain with an additional chain (90mm [3.54”] shown as example, *below*). A 2mm (.08”) gap is provided between the two chain widths. See also *pages 20 and 21*.



In this way, a given facility can have many different MicroSpan® conveyor widths, all made with the same convenient, single-width product.

Metric	English
90mm	3.54”
105mm	4.13”
120mm	4.72”
135mm	5.31”
150mm	5.90”
165mm	6.50”
180mm	7.09”
195mm	7.68”
210mm	8.27”
225mm	8.86”
240mm	9.45”
255mm	10.04”
270mm	10.63”
285mm	11.22”
300mm	11.81”

Transfer Width vs. Conveyor Width

Since MicroSpan® Chain is provided in a standard stock width of 300mm, Transfers in excess of 300mm wide utilize multiple sections of MicroSpan® chain. As shown on the previous page (see graphic), engineering rules provide a 2mm gap between adjacent sections of MicroSpan® chain. Therefore, an extra 2mm of total Transfer chain width must be considered for **each** 300mm increment exceeded. This factor is displayed in the chart shown below. The righthand column shows the total edge-to-edge width of the MicroSpan® Chain – including the 2mm gap(s) – that would correspond to the MultiSpan® conveyor standard widths (shown in the lefthand column). See also graphic on next page.

MultiSpan® Conveyor Chain Width (Standard Widths)	Extra Width	MicroSpan® Transfer Chain Width (Edge to Edge)
95.6 mm	0 mm	90.0 mm
125.6 mm	0 mm	120.0 mm
155.6 mm	0 mm	150.0 mm
185.6 mm	0 mm	180.0 mm
215.6 mm	0 mm	210.0 mm
245.6 mm	0 mm	240.0 mm
275.6 mm	0 mm	270.0 mm
305.6 mm	0 mm	300.0 mm
335.6 mm	2.0 mm	332.0 mm
365.6 mm	2.0 mm	362.0 mm
395.6 mm	2.0 mm	392.0 mm
425.6 mm	2.0 mm	422.0 mm
455.6 mm	2.0 mm	452.0 mm
485.6 mm	2.0 mm	482.0 mm
515.6 mm	2.0 mm	512.0 mm
545.6 mm	2.0 mm	542.0 mm
575.6 mm	2.0 mm	572.0 mm
605.6 mm	2.0 mm	602.0 mm
635.6 mm	4.0 mm	634.0 mm
665.6 mm	4.0 mm	664.0 mm
695.6 mm	4.0 mm	694.0 mm
725.6 mm	4.0 mm	724.0 mm
755.6 mm	4.0 mm	754.0 mm
785.6 mm	4.0 mm	784.0 mm
815.6 mm	4.0 mm	814.0 mm
845.6 mm	4.0 mm	844.0 mm
875.6 mm	4.0 mm	874.0 mm
905.6 mm	4.0 mm	904.0 mm
935.6 mm	6.0 mm	936.0 mm
965.6 mm	6.0 mm	966.0 mm
995.6 mm	6.0 mm	996.0 mm
1025.6 mm	6.0 mm	1026.0 mm
1055.6 mm	6.0 mm	1056.0 mm
1085.6 mm	6.0 mm	1086.0 mm
1115.6 mm	6.0 mm	1116.0 mm
1145.6 mm	6.0 mm	1146.0 mm
1175.6 mm	6.0 mm	1176.0 mm
1205.6 mm	6.0 mm	1206.0 mm
1235.6 mm	8.0 mm	1238.0 mm

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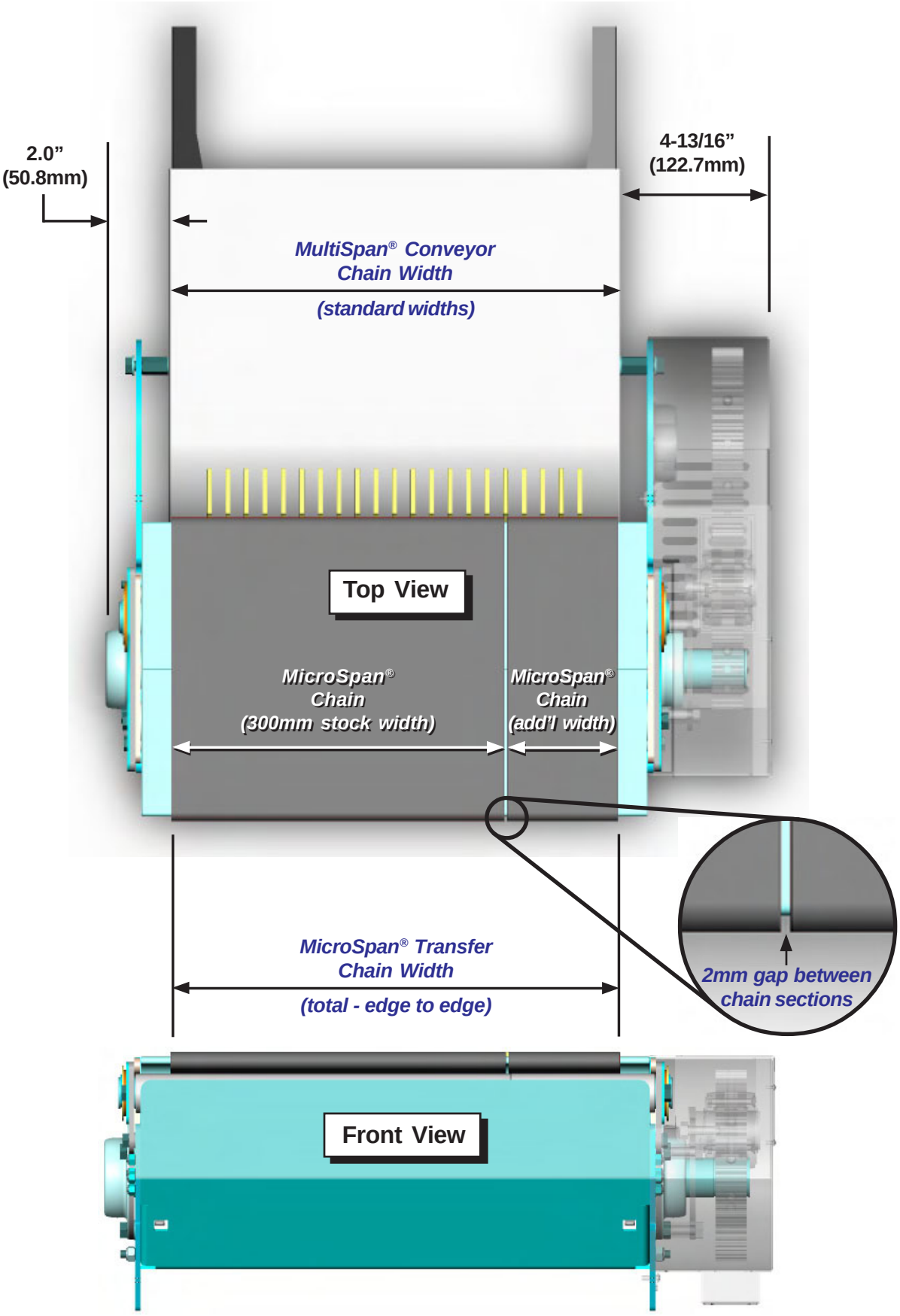
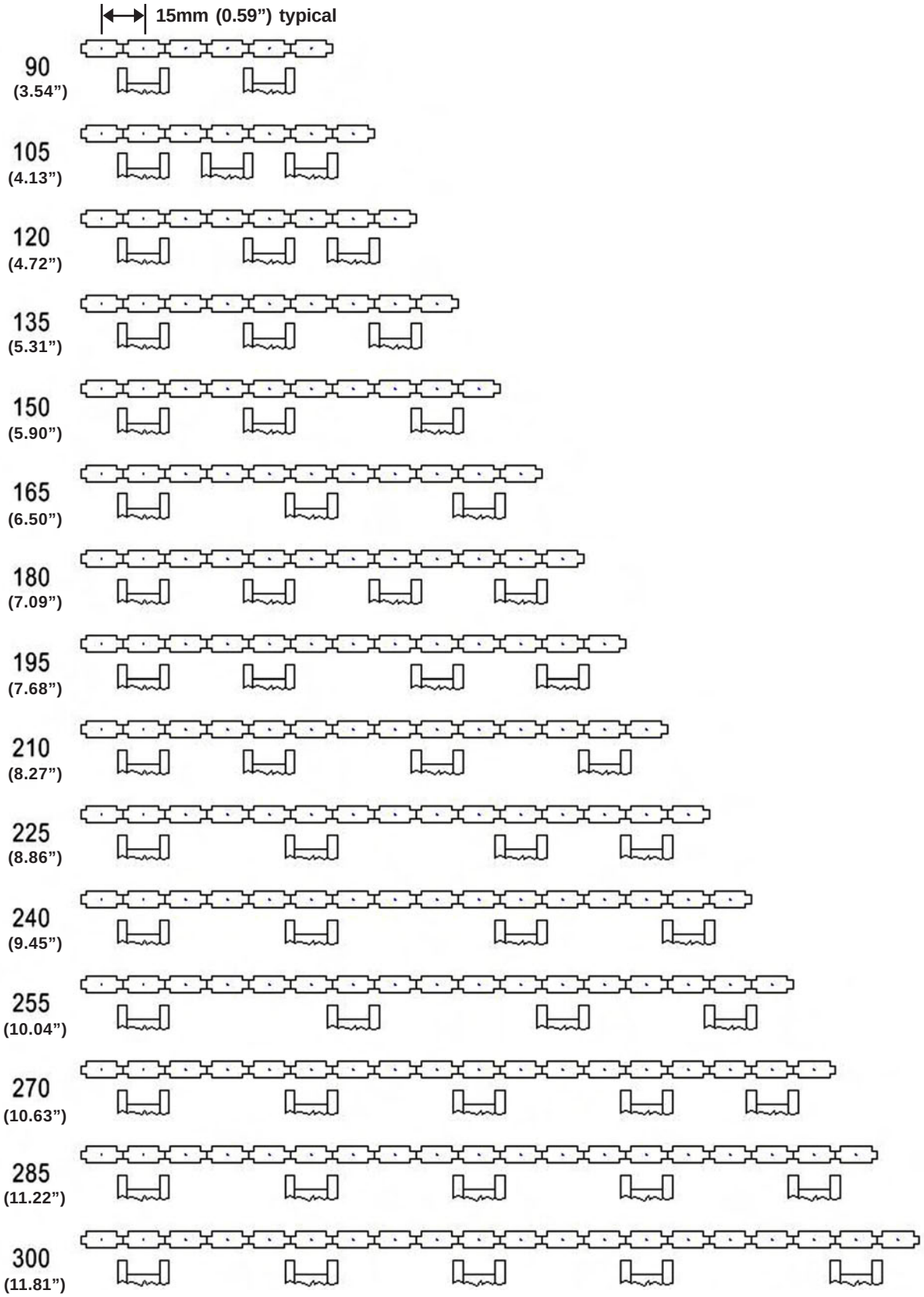
MicroSpan® Transfer Dimensions & Specifications



Standard Sprocket Layout
90mm (3.54”) through 300mm (11.81”) Chain Widths



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