



Steel strap

Coil winding

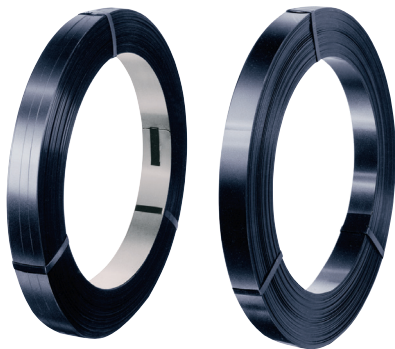
Signode strapping is produced in two basic coil windings:

Mill wound

The strapping is oscillated uniformly and tightly across the 2-1/2" (63.5mm) width of the coil.

Ribbon wound

Each layer is wound directly over the one below it so that the width of the strapping is the width of the coil.



Mill wound

Ribbon wound

Coil sizes

Inside diameter: 16" (406.4mm)

Outside diameter: Mill wound coils measure 23" (584.2mm). Ribbon wound coils vary from 23-1/2" to 27" (596.9mm to 685.8mm) depending on strap size.

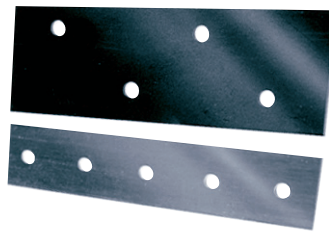
Standard multi-coil skids

Twelve mill wound coils make up a standard skid. The number of ribbon wound coils will vary with strapping width.



Ribbon wound skid

Mill wound skid



Anchor strapping

The standard or stocked version of punched strapping comes in two sizes: 3/4" x 0.017" (19.0 x 0.43mm) Apex Plus with in-line 0.145" (3.5mm) holes on 3/4" (19.0mm) centers and a strap strength of 1,255 lbs. (5 583 N). 1-1/4" x 0.029" (31.8 x 0.74mm) Magnus with staggered 0.240" (6.1mm) holes on 1-1/2" (38.1mm) centers and a strap strength of 4,020 lbs. (17 881 N).

Standard strap finishes

Signode produces three different steel strapping finishes. Each is tailored to the requirements of particular tensioning methods, sealing devices and packaging applications.

Painted

Painted strapping is coated to offer corrosion resistance. Available in a wide range of Magnus strapping sizes, it is used in crimp-type seal systems to produce high joint strength.

Painted and waxed

Painted and waxed strapping also provides corrosion resistance. Available in all Apex Plus and Magnus strap sizes, it can be used in notch or crimp-type seal systems. Its primary advantage is improved tension transmission around load corners.

Waxed strapping is required for feedwheel-type tensioners.

Zinc painted and waxed

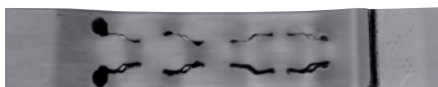
Zinc finish strapping is waxed and has a zinc-enriched coating to provide outstanding resistance to rust. Available in a variety of Apex Plus and Magnus sizes, it has the same improved tension transmission characteristics as the painted and waxed strapping. Zinc finish protects where it is needed most—at points of surface damage and scratches.

Sealless joint types

Sealless joints can be made with Signode manual or pneumatic combination tools. Using interlocking keys, the sealless joints provide static joint strength equal to that of notch-type joints. The reverse lock sealless joint features one reversed interlocking key for added security in impact conditions.



Three key sealless joint



Four key, reverse lock, sealless joint

Basic seal joint types

Notch joint

One way to lock strap ends is to cut, or "notch" the seal and the strapping it joins to form tabs at the edges. These tabs are bent down (down notch joint) or bent up (reverse notch joint). The strength of the notch joint comes from the mechanical interlock between the seal and strapping. Notch joints are typically used on waxed strapping in packaging and unitizing applications.



Down notch joint



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Reverse notch joint



Crimp joint

Another way to seal the ends of strapping is to press or "crimp" undulations into the seal and strapping ends. The strength of the crimp joint comes from the deformed seal creating high frictional forces. Crimp joints produce high static and dynamic joint strengths and are used on applications like carloading in which the strapped load is subject to severe impact.



Crimp joint



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Steel Strapping



For uncompromising quality and packaging effectiveness

Consistent high quality makes Signode steel strapping the first choice among packaging professionals worldwide. Purchasing professionals also prefer Signode strapping because it's made to the most exacting tolerances, so it goes further and stretches their strapping dollars.

Signode offers two basic types of steel strapping: Apex, Apex Plus and Magnus. Each is specially formulated to meet the demands of a particular range of applications.

Apex™ and Apex Plus™ strapping

A cold-rolled, low carbon steel strapping. Manufactured with superior edge conditioning and coating.

Magnus® strapping

A cold-rolled, medium carbon steel strapping. Heat-treated with a Signode process that combines fine surface and controlled physical properties with high strength and excellent shock resistance.

The particular type of strapping best suited to a specific application generally depends on three factors:

- 1) Strapping function or purpose
- 2) Package characteristics
- 3) Shipping or handling considerations

In a specific application, strapping may perform one or more of the following functions: package reinforcement, carton closure, securement, unitization, baling, bundling, bracing, palletization, compression retention and pilferage reduction.

Package characteristics that influence strap selection are: weight, stability, rigidity, integrity and sharpness of the edges (sharp edges may demand heavier strapping or corner protection).

Shipping considerations that affect the choice of strapping include: how far the package is shipped; how it's handled by both the shipper and receiver; and where and how it's stored.

Together, these various factors tend to narrow the choice to a particular set of strap characteristics. Your sales representative can help you determine your strapping requirements, such as width, thickness, finish, type of steel and tensile strength.

Strap Size				Part	Average Strength*		Yield		Coil Winding	Coil Weight lbs	Strap Finish
Width		Thickness			lbs	N	ft/lb	m/kg			
inch	mm	inch	mm								
Apex (regular duty) strapping											
3/8	9.5	0.015	0.38	085012	730	3 250	54.2	35.2	Mill	105	Curved Edge Painted & Waxed
3/8	9.5	0.020	0.51	085003	900	4 000	39.3	26.4	Mill	105	Painted & Waxed
3/8	9.5	0.020	0.51	085013	900	4 000	39.3	26.4	Mill	105	Curved Edge Painted & Waxed
1/2	12.7	0.020**	0.51	085009	1,170	5 200	29.4	19.8	Mill	105	Painted & Waxed
1/2	12.7	0.023	0.58	085200	1,300	5 780	25.6	17.2	Mill	105	Painted & Waxed
5/8	15.9	0.020	0.51	085203	1,460	6 490	23.6	15.9	Mill	105	Painted & Waxed
5/8	15.9	0.023	0.58	085204	1,670	7 430	20.5	13.8	Mill	105	Painted & Waxed
3/4	19.0	0.020	0.51	085206	1,750	7 780	19.6	13.2	Mill	105	Painted & Waxed
3/4	19.0	0.023	0.58	085207	1,950	8 670	17.1	11.5	Mill	105	Painted & Waxed
Apex Plus (regular duty high strength) strapping											
3/8	9.5	0.017	0.43	2X1503	975	4 340	46.1	31.0	Mill	105	Curved Edge Painted & Waxed
1/2	12.7	0.017**	0.43	2X1504	1,275	5 670	34.6	23.3	Mill	105	Painted & Waxed
1/2	12.7	0.020	0.51	2X1270	1,475	6 560	29.4	19.7	Mill	105	Painted & Waxed
1/2	12.7	0.020	0.51	2X1174	1,475	6 560	29.4	19.7	Mill	105	Zinc
5/8	15.9	0.017**	0.43	2X1505	1,550	6 895	27.7	18.6	Mill	105	Painted & Waxed
5/8	15.9	0.020**	0.5	2X1253	1,825	8 120	23.6	15.8	Mill	105	Painted & Waxed
3/4	19.0	0.017**	0.43	2X1506	1,900	8 450	23.1	15.5	Mill	105	Painted & Waxed
3/4	19.0	0.020**	0.51	2X1509	2,150	9 560	19.6	13.1	Mill	105	Painted & Waxed
3/4	19.0	0.023	0.58	2X1551	2,500	11 120	17.1	11.5	Mill	105	Painted & Waxed
Magnus (high tensile) strapping											
1/2	12.7	0.020	0.51	085604	1,540	6 850	29.4	19.7	Mill	105	Painted & Waxed
5/8	15.9	0.020**	0.51	085644	1,920	8 540	23.6	15.8	Mill	105	Painted & Waxed
5/8	15.9	0.023	0.58	088432	2,200	9 790	20.5	13.7	Mill	105	Painted & Waxed
3/4	19.0	0.020	0.51	089397	2,250	10 230	19.6	13.1	Mill	105	Painted & Waxed
3/4	19.0	0.023	0.58	089370	2,600	11 740	17.1	11.5	Mill	105	Painted & Waxed
3/4	19.0	0.025**	0.64	085684	2,800	12 450	15.7	10.5	Mill	105	Painted & Waxed
3/4	19.0	0.025**	0.64	085680	2,800	12 450	15.7	10.5	Ribbon	75	Painted & Waxed
3/4	19.0	0.025	0.64	076310	2,800	12 450	15.7	10.5	Mill	105	Zinc
3/4	19.0	0.029	0.74	2X1424	3,350	14 900	13.5	9.1	Mill	105	Painted & Waxed
3/4	19.0	0.029**	0.74	2X1295	3,400	15 125	13.5	9.1	Ribbon	75	Painted & Waxed
1-1/4	31.8	0.025	0.64	089367	4,800	21 350	9.4	6.3	Ribbon	110	Painted & Waxed
1-1/4	31.8	0.029	0.74	2X1268	5,600	24 910	8.1	5.5	Ribbon	110	Painted & Waxed
1-1/4	31.8	0.029	0.74	2X1296	5,600	25 000	8.1	5.5	Ribbon	110	Zinc
1-1/4	31.8	0.031	0.79	085730	5,650	25 132	6.5	4.3	Ribbon	110	Painted & Waxed
1-1/4	31.8	0.035	0.89	0X4985	6,660	29 630	6.7	4.5	Ribbon	110	Painted & Waxed
1-1/4	31.8	0.044	1.12	2X1438	8,450	37 590	5.3	3.5	Ribbon	110	Painted & Waxed
2	50.8	0.044	1.12	2X1439	13,200	58 720	3.3	2.2	Ribbon	120	Painted & Waxed

* Strap break strengths are listed as averages. Always use American Society for Testing Materials (ASTM D-3953) minimum break strengths for package design/safety factor purposes. For proper strap selection, contact your Signode sales representative.

** 300 ft. demonstration coils are available for these sizes.