

FEDERAL HEAVYWEIGHT CONVEYOR BELTING

Federal
Conveyor Components

RMA RUBBER COVER GRADES: Grade 1 and Grade 2 Rubber Specs.

Table 2-1. Properties of Covers Grade	Minimum Tensile Strength (p.s.i.)	Minimum Tensile Strength (MPa)	Minimum Elongation at Break (%)	Maximum Volume Loss (mm3) ISO 4649 Part B
1	2500 p.s.i.	17 MPa	400%	125 mm3
2	2000 p.s.i.	14 MPa	400%	175 mm3

EUROPEAN DIN STANDARD RUBBER COVER GRADES

Tensile strength, elongation at break and abrasion loss in different DIN standards:

Cover Grade	Country	Applicable Standards	Min. Tensile Strength (MPa)	Min. Elongation at Break (%)	Max. Abrasion Loss (mm3)
DIN-Z	Germany	DIN22102	15	350	250
DIN-Y	Germany	DIN22102	20	400	150
DIN-X	Germany	DIN22102	25	450	120
DIN-W	Germany	DIN22102	18	400	90



Federal provides high performance conveyor belting service

The Federal line of conveyor belting gives high performance, long-lasting service in bulk-haulage and bucket elevator applications under the severest operating conditions. This is a result of Federal's special combination of tough synthetic fabric plies, superior adhesions, and protective covers designed for specific belt applications.

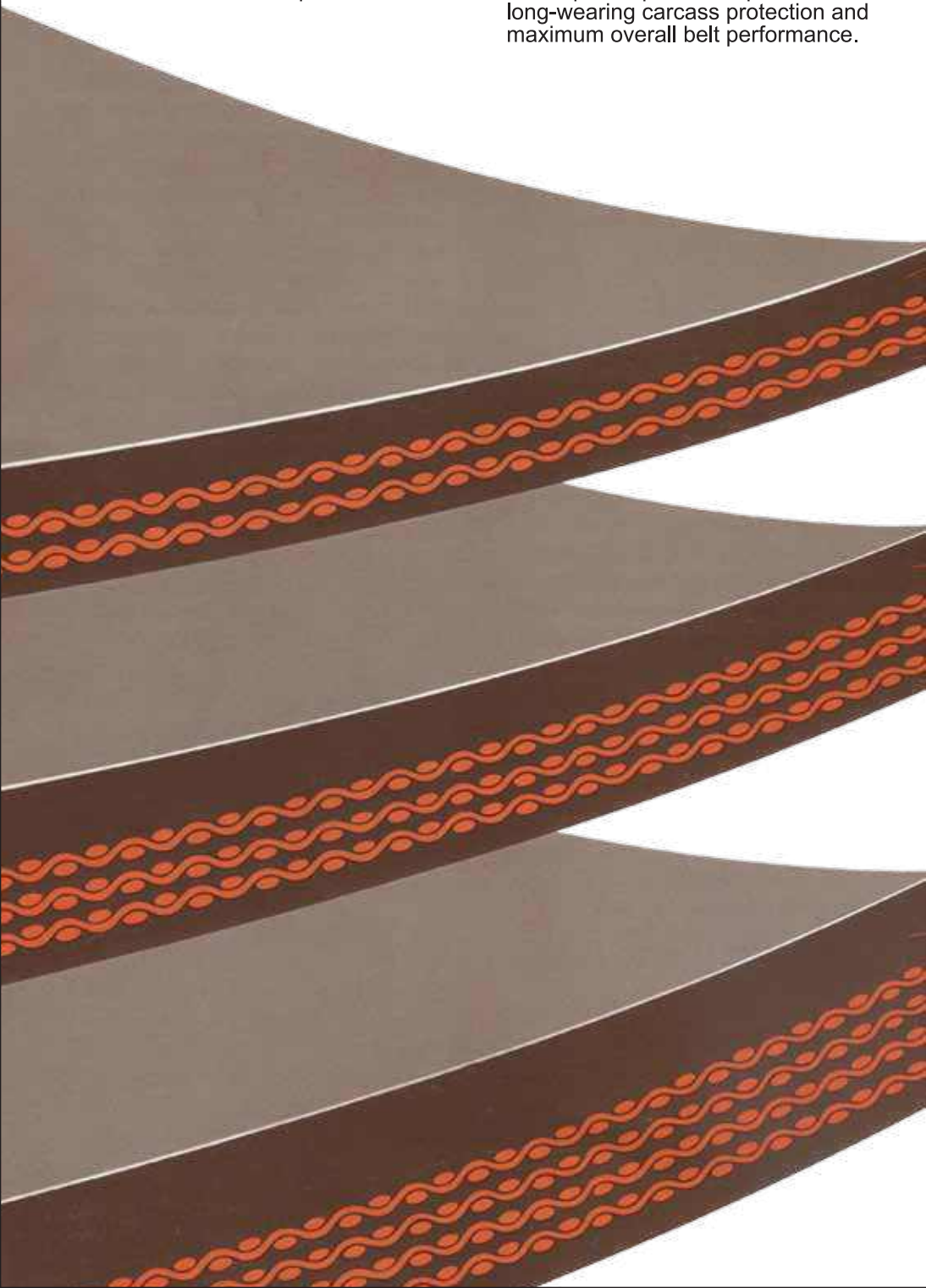
In conventional multiple-ply belting, the weight of the belt increases in direct proportion to the increase in the number of plies. The belt gets heavier and bulkier as plies are added. Federal's unique construc-

tion concentrates high strength in fewer plies so that the belt can be made with less weight and thickness than multiple-ply belts. This makes Federal Belting more flexible so that it can travel easily over smaller pulleys. The reduction in weight makes it easier to install and saves on the energy needed to drive the belt.

Federal Belting is available with a wide variety of specially-compounded rubber covers for a full range of general and special service requirements. These have been developed to provide superior long-wearing carcass protection and maximum overall belt performance.

Additional belt serviceability is afforded by the high-strength synthetic fabric used in the Federal carcass. It has optimum resistance to stretch, resists chemical attack, has only one-tenth the water absorption of nylon and does not become stretchy when wet. The synthetic carcass is also engineered for high impact, tear and rip resistance and the fabric is chemically bonded to the rubber for high resistance to delamination.

Federal's outstanding features provide long-service life in bulk-haulage conveyor and bucket elevator applications, assuring you of top value for your conveyor belting dollar.



Two-ply

- Top Cover
- Skim
- Synthetic Carcass Fabric
- Bottom Cover

Three-ply

- Top Cover
- Skim
- Synthetic Carcass Fabric
- Bottom Cover

Four-ply

- Top Cover
- Skim
- Synthetic Carcass Fabric
- Bottom Cover

Federal Conveyor Belting is available in covers for every rugged application

HIGH IMPACT SERVICE Grade 1

RMA Grade 1 Cover. Excellent abrasion resistance. Best resistance to combined cutting, gouging and heavy impact. Recommended for use with heavy logs from debarker, large-lump ores (iron, copper, molybdenum), rocky earths, traprock, quartz ores, granite, glass cullet and similar materials.

HEAVY DUTY ABRASIVE SERVICE Grade 2

RMA Grade 2 Cover. For long-wearing service where heavy continuous abrasion is the primary concern, and cutting and gouging from sharp lumps are intermittent conditions. Recommended for the majority of above-ground applications including: log handling from woodyard to debarkers, run-of-mine and sized coal, coal mine refuse, crushed ores, phosphate rock, potash, trona, salt, sand, crushed rock or limestone, aggregates, earth, slag, and other abrasive materials.

HIGH TEMPERATURE SERVICE Super-Hot Belts

Super-Hot
Highest Grade EPDM Cover. Premium belt for high-temperature service with maximum resistance to the effects of extremely hot abrasive loads. For “blanket” loads of hot fines to 400°F (204°C) or coarse lumps, 2-inch and over, to 450°F (232°C). Provides maximum service life on enclosed systems with high ambient temperature.

Super-Hot Ozone
EPDM Cover. Excellent resistance to the effects of high-temperature loads and abrasive materials in the temperature range of 350°F (177°C) for fines and 400°F (204°C) for coarse lumps. Excellent resistance to hardening and cracking within its recommended service temperature range, and is highly resistant to the effects of ozone.

Super-Hot Oil-Resistant
Butyl Cover. Recommended for a service temperature range of 350°F (177°C) for “blanket” loads of fines

and 400°F (204°C) for moderately abrasive friable lumps, 2-inch and over.

Super-Hot Type SOR
Excellent resistance to heat and abrasion in the service temperature range of 250°F (121°C) for fines, and 350°F (177°C) for lumps, 2-inch and over. Covers will not harden and crack as rapidly as ordinary abrasive-service covers in the recommended service temperature range. Designed primarily for abrasive lump service.

OIL-RESISTANT SERVICE

Type SOR
Special oil-resistant covers designed for a high degree of resistance to the effects of vegetable and petroleum oils at normal ambient temperatures, where abrasion is moderate. SOR is the most economical belt for general oil resistance, and for handling a variety of whole grains, soybeans, milo, and seeds in high-volume terminals, particularly when in contact with large amounts of crushed beans or kernels. Also recommended for specialized service in solid waste disposal handling sewage sludge and for oil-treated coal where fire resistance is not required.

CODE	CONSTRUCTION		WARP TENSILE STRENGTH		ALLOWABLE WORKING TENSION		APPROX. GUAGE PER PLY (IN BELT)	
	Warp	Welt	lb/in-ply	kg/cm-ply	lb/in-ply	kg/cm-ply	inch	m/m
CC-55	Cotton	Cotton	310	55	31	5.5	0.050	1.25
CC-65	Cotton	Cotton	367	65	36	6.5	0.050	1.25
NN-100	Nylon	Nylon	560	100	56	10.0	0.048	1.10
NN-150	Nylon	Nylon	840	150	84	15.0	0.048	1.20
NN-200	Nylon	Nylon	1120	200	112	20.0	0.052	1.30
NN-250	Nylon	Nylon	1400	250	140	25.0	0.056	1.40
NN-300	Nylon	Nylon	1680	300	168	30.0	0.057	1.45
NN-400	Nylon	Nylon	2230	400	223	40.0	0.060	1.55
EP-100	Polyester	Nylon	560	100	56	10.0	0.048	1.10
EP-150	Polyester	Nylon	840	150	84	15.0	0.048	1.20
EP-200	Polyester	Nylon	1120	200	112	20.0	0.052	1.30
EP-250	Polyester	Nylon	1400	250	140	25.0	0.056	1.40
EP-300	Polyester	Nylon	1680	300	168	30.0	0.057	1.45
EP-400	Polyester	Nylon	2230	400	223	40.0	0.060	1.55

RATED OPERATING TENSION (Pounds/inch of width - piw)

Belt Style	FEDERAL						
	2150	2220	3330	4440	3600	4800	5100
Plies	2	2	3	4	3	4	5
Mechanical Fastener	150	220	330	440	600	720	720
Vulcanized Splice	150	220	330	440	600	800	1000

Federal Conveyor Belting

Federal manufactures a complete line of conveyor belting fabrics and cover compounds for all types of service conditions. This catalog does not include all conveyor belting ply structures by tension rating (PIW), and/or cover compounds, that are available. Consult your Federal representative for additional fabric constructions and cover compound styles that are available for your particular application.

BELT THICKNESS (In inches. Add thickness of covers to carcass thickness to obtain overall thickness.)

Belt Style	FEDERAL						
	2150	2220	3330	4440	3600	4800	5100
Carcass Thickness	.114	.164	.212	.258	.237	.326	.415

FEDERAL MINE (Fire-Resistant)						
2150	2220	3330	4440	3600	4800	5100
.114	.164	.212	.258	.237	.326	.415

BELT WEIGHT (piw per linear foot. Add carcass weight factor to top and bottom cover weight factors to obtain total belt weight.)**Carcass Weight Factors**

Belt Style	FEDERAL						
	2150	2220	3330	4440	3600	4800	5100
Oil-Resistant	.059	.066	.092	.129	.117	.162	.206
Heat-Resistant	.052	.060	.083	.117	.111	.153	.194
All Others	.053	.061	.084	.118	.111	.153	.194

FEDERAL MINE (Fire-Resistant)						
2150	2220	3330	4440	3600	4800	5100
.065	.087	.111	.135	.123	.170	.217

Cover Weight Factors

Cover Thickness	1/16"	3/32"	1/8"	5/32"	3/16"	7/32"	1/4"	9/32"	5/16"	11/32"	3/8"	13/32"	7/16"	15/32"	1/2"
Oil-Resistant	.036	.054	.072	.090	.108	.126	.144	.162	.180	.198	.216	.234	.252	.270	.288
Heat-Resistant	.028	.042	.056	.070	.084	.098	.112	.126	.140	.154	.168	.182	.196	.210	.224
All Others	.032	.048	.064	.080	.096	.112	.128	.144	.160	.176	.192	.208	.224	.240	.256
Federal Mine	.042	.063	.084	.105	.126	.147	.168	.189	.210	.231	.252	.273	.294	.315	.336

LOAD SUPPORT DATA (Maximum belt width in inches)

NR - Not Recommended

Material Conveyed	Light to 45 pcf			Medium 45-105 pcf			Heavy 105-165 pcf			Extra Heavy 165-200 pcf		
Idler Trough	20°	35°	45°	20°	35°	45°	20°	35°	45°	20°	35°	45°
2150	42	36	30	36	30	24	30	24	NR	NR	NR	NR
2220	48	42	36	42	36	30	36	30	24	30	24	NR
3330	60	54	48	54	48	42	48	42	36	42	36	30
4440	72	72	60	72	60	48	60	54	48	54	48	48
3600	72	72	60	72	60	48	60	54	48	54	48	42
4800	72	72	72	72	72	60	72	60	54	60	54	48
5100	72	72	72	72	72	72	72	72	60	72	60	54

TROUGHABILITY DATA (Minimum belt width in inches for empty belt troughing)

Belt Style	FEDERAL						
	2150	2220	3330	4440	3600	4800	5100
Idlers 20°	14	14	18	24	24	30	42
Idlers 35°	18	18	20	30	30	36	42
Idlers 45°	18	24	24	30	36	42	48

FEDERAL MINE (Fire-Resistant)						
2150	2220	3330	4440	3600	4800	5100
14	18	20	24	24	30	42
18	20	24	30	30	36	42
18	24	30	30	36	42	48

BELT MODULUS OF ELASTICITY (Bm) (Pounds/inch of width - piw)

Belt Style	2150	2220	3330	4440	3600	4800	5100
Temperature Condition A*	12500	18300	25000	31000	34000	42000	48000
Temperature Condition B**	--	14500	20500	25000	--	--	--

* A. Material loads through 250°F fines, 300°F lumps.

** B. Material loads above 250°F fines, 300°F lumps.

CARCASS IMPACT INDEX (6-PLY, 42-OZ = 1.0)

Belt Style	2150	2220	3330	4440	3600	4800	5100
Index No.	1.3	1.6	2.0	2.4	2.5	3.0	3.5

RECOMMENDED MINIMUM PULLEY DIAMETERS FOR VULCANIZED SPLICES (Inches)

Minimum Pulley Diameter (inches)															
% of Rated Belt Tension	FEDERAL								FEDERAL MINE (Fire-Resistant)						
	2150	2220	3330	4440	3600	4800	5100		2150	2220	3330	4440	3600	4800	5100
81-100%	16	16	18	24	24	30	36		16	18	20	24	24	30	36
61-80%	14	14	16	20	20	24	30		14	16	18	20	20	24	30
41-60%	12	12	14	18	18	20	24		12	14	16	18	18	20	24
up to 40%	10	10	12	16	16	18	20		10	12	14	16	16	18	20

RECOMMENDED MINIMUM PULLEY DIAMETERS FOR MECHANICAL SPLICES

Determined by type and size of fasteners used.

RECOMMENDED MINIMUM TAKE-UP TRAVEL ALLOWANCE

(Percent of center-to-center distance.)

Operating tension (% of Rated Tension)	Automatic Take-Up		Screw Take-Up	
	Vulcanized Splice	Mechanical Fastener	Vulcanized Splice	Mechanical Fastener
75-100%	2 1/2% + 2 ft	2%	4%	1 1/2%
Up to 75%	2 1/2% + 2 ft	1 1/2%	3%	1%

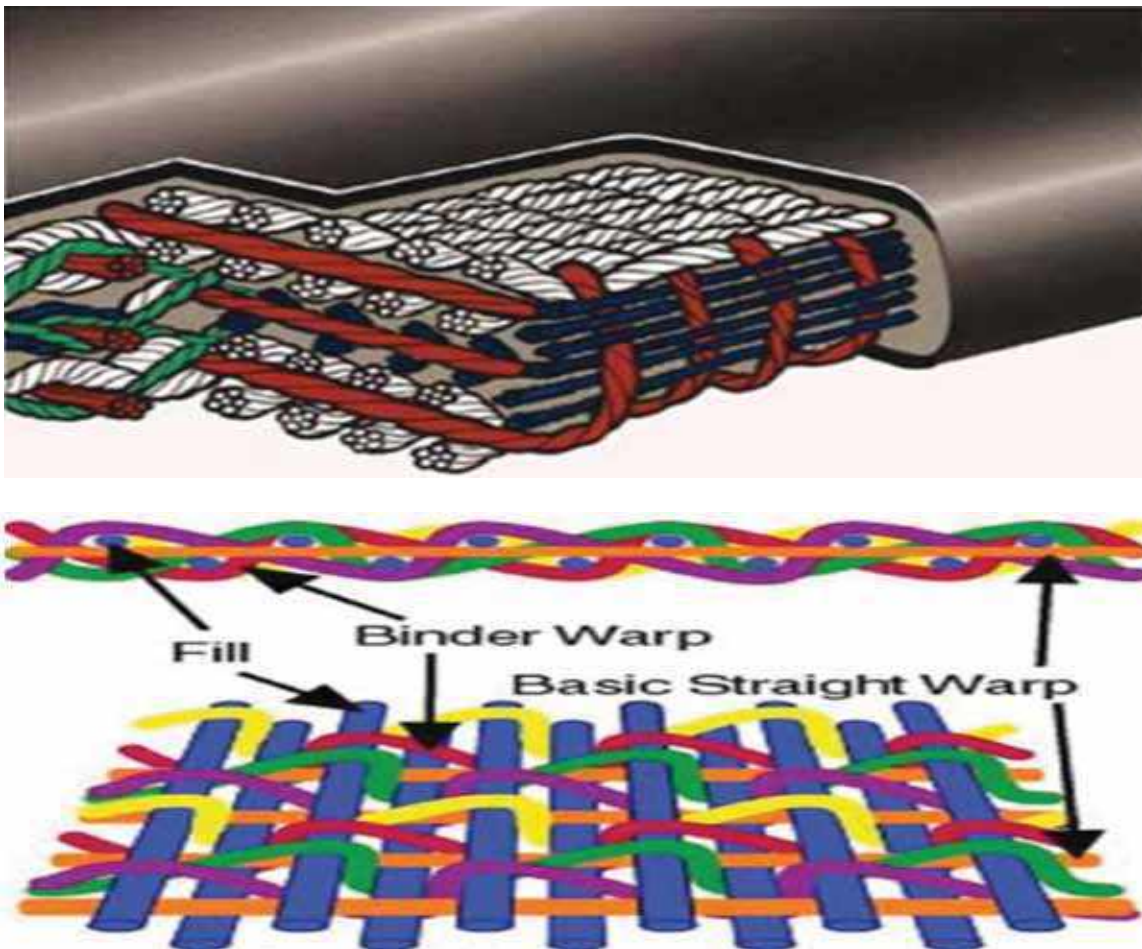
RATED OPERATING TENSION (Pounds/inch width - piw)

Service	FEDERAL						
	2150	2220	3330	4440	3600	4800	5100
Industrial & Mining	100	170	250	330	465	620	775
Grain, Woodchip, etc. (less than 50 pcf)	120	190	280	370	520	690	870

SW is a polyester straight warp belt composed of one or two plies protected on both top and bottom sides by weft lines in polyamide.

Due to the thin carcass, SW can be used with smaller pulley diameters than textile plied or steel cord belts. Straight warp conveyor belts are used on heavy duty conveyors where resistance to the effects of heavy impacts and resistance to tearing are important characteristics, typically seen in quarrying, open cast mining and steel industries or in applications where heavy-duty and yet narrow belts are required, such as tunneling.

The carcass frame thus constructed is adhered RFL and may be coated of different types of rubber cover, anti-abrasive (M, W, etc.), oil-resistant, heat-resistant (T150°, T200°), etc.



SW Rubber Conveyor Belt Carcass and Cover Feature:

- ◆ Superior cut, impact and wear-resistant covers
- ◆ Reinforced fabric plies to resist puncturing
- ◆ Performs well on small to medium sized pulleys
- ◆ Excellent troughability
- ◆ Longer lifespan outlasts multi-ply belts
- ◆ Perfect allaround solution for extreme conveying

Federal Straight Warp Belt Specifications

Single Ply

Federal Straight Warp Specifications	Belt Style	I-245	I-330	I-440	I-550
Number of Plies		1	1	1	1
Working Strength PIW	Mechanical	220	330	440	500
Rating Pounds PIW	Vulcanized	245	330	440	550
Approx. Carcass Gauge		.102	.144	.155	.188
Approx. Carcass Wt. PIW/ft		.046	.063	.071	.075
Average Cover Wt. per 1/16"	Gauge PIW/ft.	.033	.033	.033	.033
Impact Rating* (Foot-Pounds)		576	845	1035	1322

CONVEYOR BELT CRITERIA

Minimum Pulley Diameter	I-245	I-330	I-440	I-550
81% - 100% Tension	16"	20"	24"	24"
61% - 80% Tension	14"	18"	20"	20"
Up To 60% Tension	12"	16"	18"	18"

Minimum Belt Width For Empty Belt Troughing	I-245	I-330	I-440	I-550
20 Degree Idlers	14"	18"	18"	24"
35 Degree Idlers	20"	24"	24"	30"
45 Degree Idlers	24"	24"	24"	36"

Maximum Belt Width For Load Support	I-245	I-330	I-440	I-550
20 Degree Idlers 0-40#/CU.FT.	60"	72"	72"	72"
20 Degree Idlers 41-80#/CU.FT.	48"	66"	72"	72"
20 Degree Idlers 81-120#/CU.FT.	42"	60"	66"	72"
20 Degree Idlers Over 120#/CU.FT.	36"	48"	54"	60"
35 Degree Idlers 0-40#/CU.FT.	48"	66"	72"	72"
35 Degree Idlers 41-80#/CU.FT.	36"	54"	60"	66"
35 Degree Idlers 81-120#/CU.FT.	36"	48"	54"	60"
35 Degree Idlers Over 120#/CU.FT.	30"	42"	48"	54"
45 Degree Idlers 0-40#/CU.FT.	42"	54"	60"	66"
45 Degree Idlers 41-80#/CU.FT.	30"	42"	48"	54"
45 Degree Idlers 81-120#/CU.FT.	30"	42"	48"	54"
45 Degree Idlers Over 120#/CU.FT.	24"	36"	42"	48"

Please Note:
Fastener selection is based on belt thickness, pulley diameters and working tension of the belt. Please refer to fastener manufacturer's specifications for proper fastener selection. / Additional "special" belt specifications are available as required. Please contact our sales or engineering departments for assistance. / Minimum pulley diameters are dependant on the type of splice-fastener used and belt tension required. / Troughability and load support can be dependent on cover gauges and compounds used. / Impact rating is based on the use of proper rubber impact idlers or bed plus proper loading and transfer conditions. Ratings are based on 10% lumps and 90% fines or sized material up to 4" lumps. If proper impact idlers or beds are not used, impact rating is downgraded by half or less depending upon the conditions.

ELEVATOR BELT CRITERIA

Minimum Pulley Diameter	I-245	I-330	I-440	I-550
81% - 100% Tension	16"	20"	24"	24"
61% - 80% Tension	14"	18"	20"	20"
Up To 60% Tension	12"	16"	18"	18"

Maximum Bucket Projection 100#/CU.FT.1" Or Less	I-245	I-330	I-440	I-550
Spaced Industrial	8"	10"	10"	10"
Continuous Industrial	7"	9"	10"	12"

Federal Straight Warp Belt Specifications

Two Ply

Federal Straight Warp Specifications	Belt Style	II-440	II-550	II-660	II-800	II-1000
Number of Plies		2	2	2	2	2
Working Strength PIW	Mechanical	400	500	600	720	900
Rating Pounds PIW	Vulcanized	440	550	660	800	1000
Approx. Carcass Gauge		.219	.257	.281	.302	.333
Approx. Carcass Wt. PIW/ft		.100	.112	.119	.134	.147
Average Cover Wt. per 1/16"	Gauge PIW/ft.	.033	.033	.033	.033	.033
Impact Rating* (Foot-Pounds)		1307	1415	1807	2002	2450

CONVEYOR BELT CRITERIA

Minimum Pulley Diameter	II-440	II-550	II-660	II-800	II-1000
81% - 100% Tension	30"	30"	30"	36"	42"
61% - 80% Tension	24"	24"	24"	30"	36"
Up To 60% Tension	20"	20"	20"	24"	30"

Minimum Belt Width For Empty Belt Troughing	II-440	II-550	II-660	II-800	II-1000
20 Degree Idlers	24"	24"	24"	30"	30"
35 Degree Idlers	30"	30"	30"	36"	36"
45 Degree Idlers	36"	36"	36"	42"	42"

Maximum Belt Width For Load Support	II-440	II-550	II-660	II-800	II-1000
20 Degree Idlers 0-40#/CU.FT.	72"	72"	72"	72"	72"
20 Degree Idlers 41-80#/CU.FT.	72"	72"	72"	72"	72"
20 Degree Idlers 81-120#/CU.FT.	72"	72"	72"	72"	72"
20 Degree Idlers Over 120#/CU.FT.	60"	66"	72"	72"	72"
35 Degree Idlers 0-40#/CU.FT.	72"	72"	72"	72"	72"
35 Degree Idlers 41-80#/CU.FT.	72"	72"	72"	72"	72"
35 Degree Idlers 81-120#/CU.FT.	60"	66"	72"	72"	72"
35 Degree Idlers Over 120#/CU.FT.	54"	60"	66"	72"	72"
45 Degree Idlers 0-40#/CU.FT.	72"	72"	72"	72"	72"
45 Degree Idlers 41-80#/CU.FT.	72"	72"	72"	72"	72"
45 Degree Idlers 81-120#/CU.FT.	54"	60"	72"	72"	72"
45 Degree Idlers Over 120#/CU.FT.	48"	54"	60"	66"	72"

ELEVATOR BELT CRITERIA

Minimum Pulley Diameter	II-440	II-550	II-660	II-800	II-1000
81% - 100% Tension	30"	30"	30"	36"	42"
61% - 80% Tension	24"	24"	24"	30"	36"
Up To 60% Tension	20"	20"	20"	24"	30"

Maximum Bucket Projection 100#/CU.FT.1" Or Less	II-440	II-550	II-660	II-800	II-1000
Spaced Industrial	12"	12"	14"	15"	16"
Continuous Industrial	12"	13"	15"	16"	18"

Federal ST (Steel Cord Conveyor Belting)

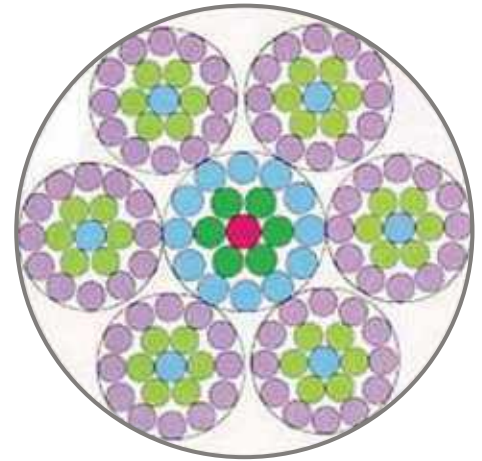
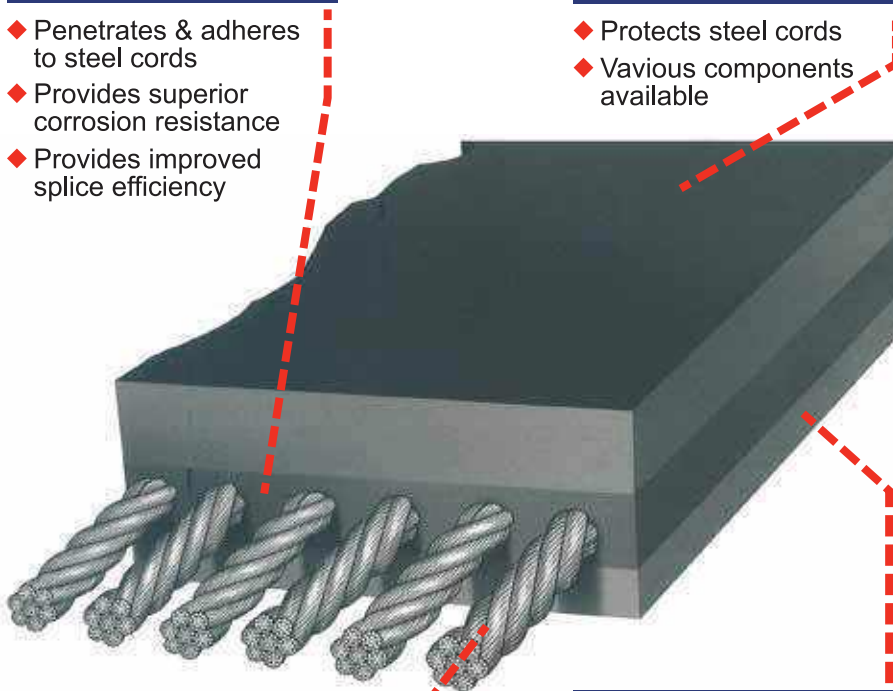
NORTH AMERICA'S HIGHEST TENSION ST BELT IS A FEDERAL BELT

Insulation Gum

- ◆ Penetrates & adheres to steel cords
- ◆ Provides superior corrosion resistance
- ◆ Provides improved splice efficiency

Top Cover

- ◆ Protects steel cords
- ◆ Various components available



Steel Cord

- ◆ Provides superior bonding to covers and insulation gum
- ◆ Allows high flexibility and low elongation
- ◆ Galvanized to provide barrier against corrosion

Bottom Cover

- ◆ Protects steel cords
- ◆ Various components available
- ◆ Helps determine power consumption

◆ Steel Cord ◆ Steel Reinforcements

Steel cord is used in belting where the properties of steel cord reinforcement are better able to satisfy the requirements of the service conditions. Steel cord is used to obtain high strength, excellent length stability, low bending stresses and, in some cases, to provide superior troughing characteristics. The wires, or filaments, used in conveyor belt steel cords are usually made of high carbon steel and have a surface finish to facilitate adhesion to the surrounding rubber, and provide protection against corrosion.

Belt Construction Nomenclature Example

Federal Din X ST3500/48 3/4" x 1/4"

Rubber Compound
Belt Width Inches
Bottom or Pulley Cover Gauge

Belt Construction
Belt breaking strength in kilonewtons per meter width
Top Cover Gauge

FEDERAL STANDARD SPECIFICATIONS - Imperial

Belt Tension Rating	Minimum Ultimate Tension	Operating Tension	Cable Diameter (nominal)	Cable Pitch (approximate)	Belt Modulus
	PIW	PIW	inches	inches	PIW
ST800	4568	685	0.142	0.688	329000
ST1000	5710	856	0.142	0.547	411000
ST1250	7138	1070	0.205	0.855	514000
ST1600	9137	1370	0.205	0.667	658000
ST2000	11421	1712	0.205	0.533	822000
ST2500	14276	2140	0.205	0.428	1027000
ST3150	17988	2697	0.315	0.729	1294000
ST3500	19987	2997	0.315	0.655	1438000
ST4000	22842	3425	0.362	0.753	1644000
ST4500	25697	3853	0.394	0.806	1849000
ST5000	28552	4281	0.433	0.820	2055000
ST5400	30836	4623	0.433	0.764	2219000
ST6000	34263	5137	0.488	0.850	2466000
ST6500	37118	5565	0.488	0.790	2671000
ST7000	39973	5993	0.488	0.738	2877000
ST7500	42828	6421			3082000
ST8000	45683	6849			3288000
ST8500	48539	7277			3493000
ST9000	51394	7705			3699000
ST9500	54249	8133			3904000
ST10000	57104	8561			4109000

Tension ratings are available in addition to those shown above. Other cable diameters may be substituted according to individual requirements. Operation tensions based on a 6.67:1 safety factor. Cable pitch based on 48" wide belts.

FEDERAL BELT THICKNESS - Imperial *Approximate belt thickness = cable diameter + cover gauges.*

Belt Tension Rating	PIW	600-1000	1001-2250	2251-3200	3201-3500	3501-4200	4201-4650	4651-6420
Cable Diameter	Inches	0.15	0.21	0.32	0.37	0.40	0.44	0.49

FEDERAL WEIGHT - Imperial

Belt Tension Rating	PIW	685	856	1070	1370	1712	2140	2697	2996
Carcass Weight	lb/ft ²	1.4	1.5	2.1	2.3	2.6	2.9	4.2	4.4
Belt Tension Rating	PIW	3424	3852	4280	4623	5137	5565	5993	
Carcass Weight	lb/ft ²	5.0	5.5	6.3	6.7	7.5	7.8	8.2	
Cover Compound	Stacker		Style BII		ARMA SBR		Compound P		
Cover Weight per 1/32" (lb/ft2)	0.18		0.19		0.20		0.19		

Approximate belt weight = carcass weight + cover weight. Minimum pulley cover requirements for belts with with Sensor Guard 3/16". Contact rep for minimum pulley cover that applies to your application. Minimum cover gauge is dependent on the belt rating.

RECOMMENDED PULLEY DIAMETERS - Imperial

Belt Tension Rating	Minimum Recommended Pulley Diameters (Percent of Rated Tension)				
PIW	>100% - 125%	75% - 100%	50% - 75%	<50%	Snubs
600 - 1000	36	30	24	16	16
1001 - 2250	48	42	30	24	16
2251 - 3200	60	54	42	36	30
3201 - 3500	72	60	54	42	36
3501 - 4200	78	72	54	42	36
4201 - 4650	84	72	54	48	36
4651 - 6420	90	78	66	54	42
6421 - 6800	96	84	66	54	42
6801 - 8561	120	102	78	60	54

Snubs are defined as having 6" or less belt contact and tension less than 50% of belt rating. Pulley sizes for Federal belts are determined by face pressure on the pulley and/or the pulley-to-cable diameter ratio. All pulleys must be flat, as crowned pulleys will cause excessive center tension in the high modulus steel cable product.

RECOMMENDED MINIMUM TRANSITION DISTANCE AT HALF TROUGH DEPTH

	Minimum transition distance (W=Belt Width) by Idler Angle		
Percent of Rated Tension	20 deg	35 deg	45 deg
More than 90%	2.0W	3.4W	4.0W
60% to 90%	1.6W	2.6W	3.2W
Less than 60%	1.0W	1.8W	2.2W

Federal Conveyor Belting For Every Application

In addition to the streamlined belting covered in this catalog, Federal manufactures a complete modernized line of conventional multiple-ply belting. And of course, there is Federal's premium performance Straight-Warp belting which is also offered in a fire-resistant version, Mine-Straight-Warp belting. For higher tension service, there is Mine II belting, plus Federal's line of Steel Cord belting. A complete line of Light Weight Food and Package Handling belting provides total coverage of the low tension portion of conveyor belting requirements.

MULTIPLE-PLY BELTING

The Federal line also includes conventional multiple-ply belting for various applications. Multiple-ply belting is available from Federal in the full range of tension ratings, MP-35 to MP-240. Multiple-ply

belting is also available in a fire-resistant style to meet MSHA fire resistant requirements.

STRAIGHT-WARP BELTING

Straight-Warp belting for conveyors and bucket elevators uses Federal's exclusive carcass construction. A strong, tough, rip-resistant belting designed for conveyors and bucket elevators demanding the highest performance standards. Available with tension ratings to 550 piw for Style C cut-edge belting and to 1500 piw for Style M molded-edge belting.

MINE-STRAIGHT-WARP FOR FIRE-RESISTANT APPLICATIONS

The exclusive Federal carcass construction is available in Mine-Straight-Warp belting. It is especially

designed for fire-resistant applications in both above and underground service. MineFlex meets MSHA requirements for fire resistance. It is available in Style C cut-edge belting for tension ratings to 500 piw, and Style M molded-edge belting for ratings to 1500 piw.

STEEL CORD BELTING

For high tension service to above 5000 piw, Federal offers Steel Cord conveyor belting. Available with RMA Grade 1 or 2; MSHA Fire-Resistant; and Oil-Resistant covers.

LIGHT WEIGHT BELTING

Federal manufactures Light Weight belting for all types of applications such as package handling belting, Steep Grade belting for inclines to 45°, and food handling belting that meets FDA and USDA Federal Meat and Poultry requirements.

A large-scale industrial construction scene featuring a long, elevated conveyor belt system. A yellow JLG crane is positioned on the ground, lifting a large, rectangular component onto the conveyor structure. Several workers in safety gear are visible around the site. The background shows a dirt area and some trees under a clear sky.

Federal

Conveyor Components

1-800-545-9991

Fully Staffed Branch Offices In:

**Portland Oregon ■ Salt Lake City Utah ■ Phoenix Arizona
Tacoma Washington ■ Fontana California ■ Carson City Nevada**