PRODUCT TECHNICAL BULLETIN

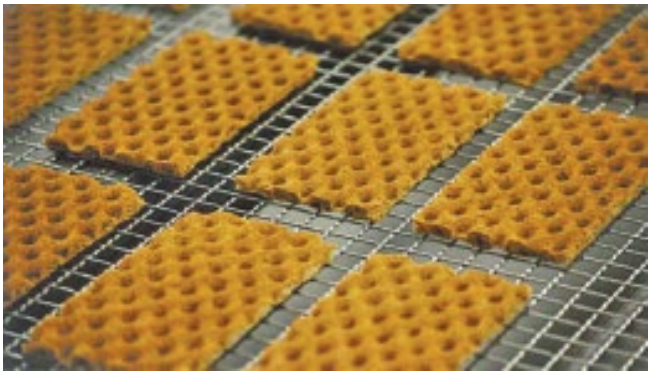
S-Belt - Woven Spring Steel Belts

S-Belts are typical tunnel oven belts for baking printed biscuits or Scandinavian bread crackers.

They consist of woven mesh – corrugated warp and weft wires – made on looms, with brazed or looped edges. The number of warp wires, diameter and material define the strength of the belt.

Belts are made endless by cutting overlapping W shapes over the width of both ends and braze welded for open meshes or a straight splice for tight meshes.

Braze consists of weld filler metals (copper based) to DIN 8513-1E: 1979

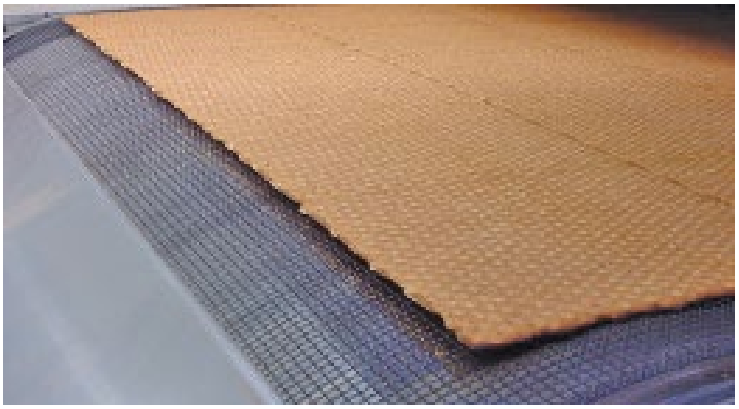


DEFINING CHARACTERISTICS for BISCUIT BELTS

Tight mesh (aperture):	3,60 mm x 3,60 mm [0.142 in. x 0.142 in.]
Wire diameter:	1.2 mm [0.047 inch] or 1.5 mm [0.059 inch]
Width Limits:	max. 2100 mm [82 inch]
Material:	High carbon (HC-HT) or stainless steel for warp and weft
Method of Drive:	Friction driven, drum must be at least dia. 800 mm [31.5 inch]
Conveying Surface:	Overall belt width
Edge treatment:	Brazed (welded) edges (HC-HT cannot be looped)

S3.6 x 3.6 x 1.5

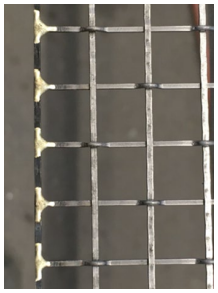
S3.6 x 3.6 x 1.2



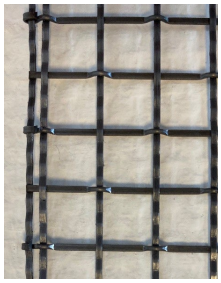
DEFINING CHARACTERISTICS for SCANDINAVIAN BREAD CRACKER BELTS

Open mesh (aperture): 8 mm x 8 mm [0.315 in. x 0.315 in.] or 10 mm x 10 mm [0.394 in. x 0.394 in.]
Wire diameter: Flattened and corrugated wire;
1.2 mm x 0.6 mm [0.047 in. x 0.0236 in.]
1.4 mm x 0.7 mm [0.055 in. x 0.0275 in.]
1.6 mm x 0.8 mm [0.063 in. x 0.0315 in.]
2.0 mm x 0.6 mm [0.079 in. x 0.0236 in.]
Width Limits: max. 3700 mm [145 inch]
Material: High carbon (HC) or stainless steel for warp and weft
Method of Drive: Friction driven, drum must be at least dia. 800 mm [31.5 inch]
Conveying Surface: Overall belt width
Edge treatment: Brazed (welded) or looped edges

S10/1.4 x 0.7 – 2.0 x 0.6



Brazed edge
Single wire



Looped edge
Double wire

BELT WEIGHT

Available Sizes	Belt Weight [lbs/ft^2]	Belt Weight [kg/m^2]
S 3.6 / 1.5	0.36	5.80
S 3.6 / 1.2	0.25	3.95
S 8 / 1.2	0.13	2.10
S 8 / 1.2 x 0.6	0.087	1.40
S 8 / 1.4 x 0.7	0.10	1.65
S 10 / 1.4 x 0.7 – 1.2 x 0.6	0.075	1.20

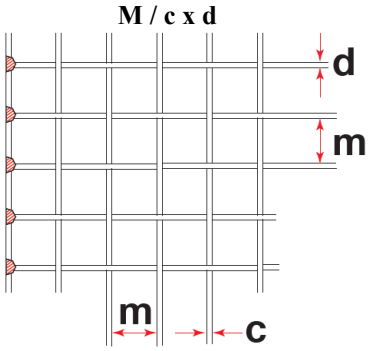
WORKING STRENGTH

Available Sizes	Working Strength [lb/ft] at 20°C	Working Strength [kg/m] at 20°C
S 3.6 / 1.5	500	744
S 3.6 / 1.2	423	630
S 8 / 1.2	240	356
S 8 / 1.2 x 0.6	218	324
S 8 / 1.4 x 0.7	218	324
S 10 / 1.4 x 0.7 – 1.2 x 0.6	180	267

MESH DESIGNATION

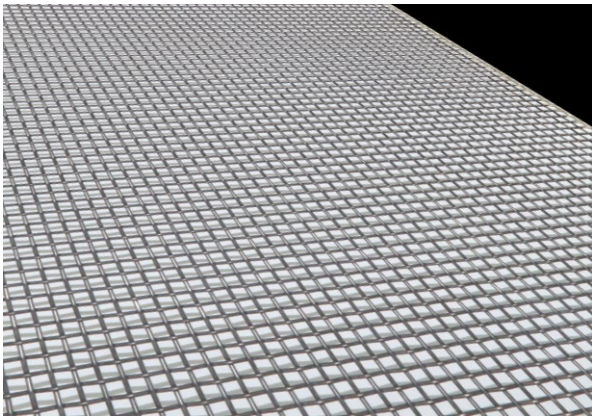
Relevant information for specifying the belt mesh:

- Belt length (max. 250 meter or 820 feet)
- Belt width: varies per belt mesh type, see defining characteristics.
- Material: varies per belt mesh type, see defining characteristics.
- Gap (***M***): varies per belt mesh type, see defining characteristics.
- Wire dimension: warp wire (***c***) & weft wire (***d***), varies per belt mesh type, see defining characteristics.
- Flattened wire: Yes / No
- Edge treatment: Brazed / Looped



SYSTEM REQUIREMENTS

DRUM/PULLEY DIAMETER:
Drums or pulleys where the belt is wrapping 180º or more should have a minimum diameter of 800 mm.
If a drum is used with a diameter less than the minimum, the welded/brazed edges will break. Fatigue will occur on the warp wires. This fatigue typically is not uniform across the belt's width and may cause tracking problems along with mesh distortion.



SUPPORT RAILS
As a rule, support rails are required on a maximum of 18 inches apart on load side and 24 inches maximum on return side. Rollers may also be used. For light loads, support rails may be placed farther apart – consult Ashworth Engineering for specific applications.

MAINTENANCE

Inspection

General inspection should include, but not limited to:

Band

- no product debris
- equal tension across full width
- equal edge sag, both sides
- no broken welds
- no curl along belt edges
- no broken wires
- out of crimp
- discolored
- evenly distributed load

Band Path

- no obstructions
- not contacting framework
- not overhanging any rollers
- not passing under any rollers
- waver through oven
- waver at terminal drums
- limit switches properly located
- cleaning brush (not binding)

Oven

- Equal heat distribution across the full belt width.
- Vents are operating properly to prevent “zonal” heat build-up
- All doors are shut. If doors must be opened, open an equal number of doors on both sides of oven.

Drum/Pulley

- smooth/round
- parallel to each other and perpendicular to the belt
- no build-up of product debris
- shafts not broken
- no objects between belt and drum

Reference: Product Technical Bulletin “Conveyor Design Guidelines”.

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