

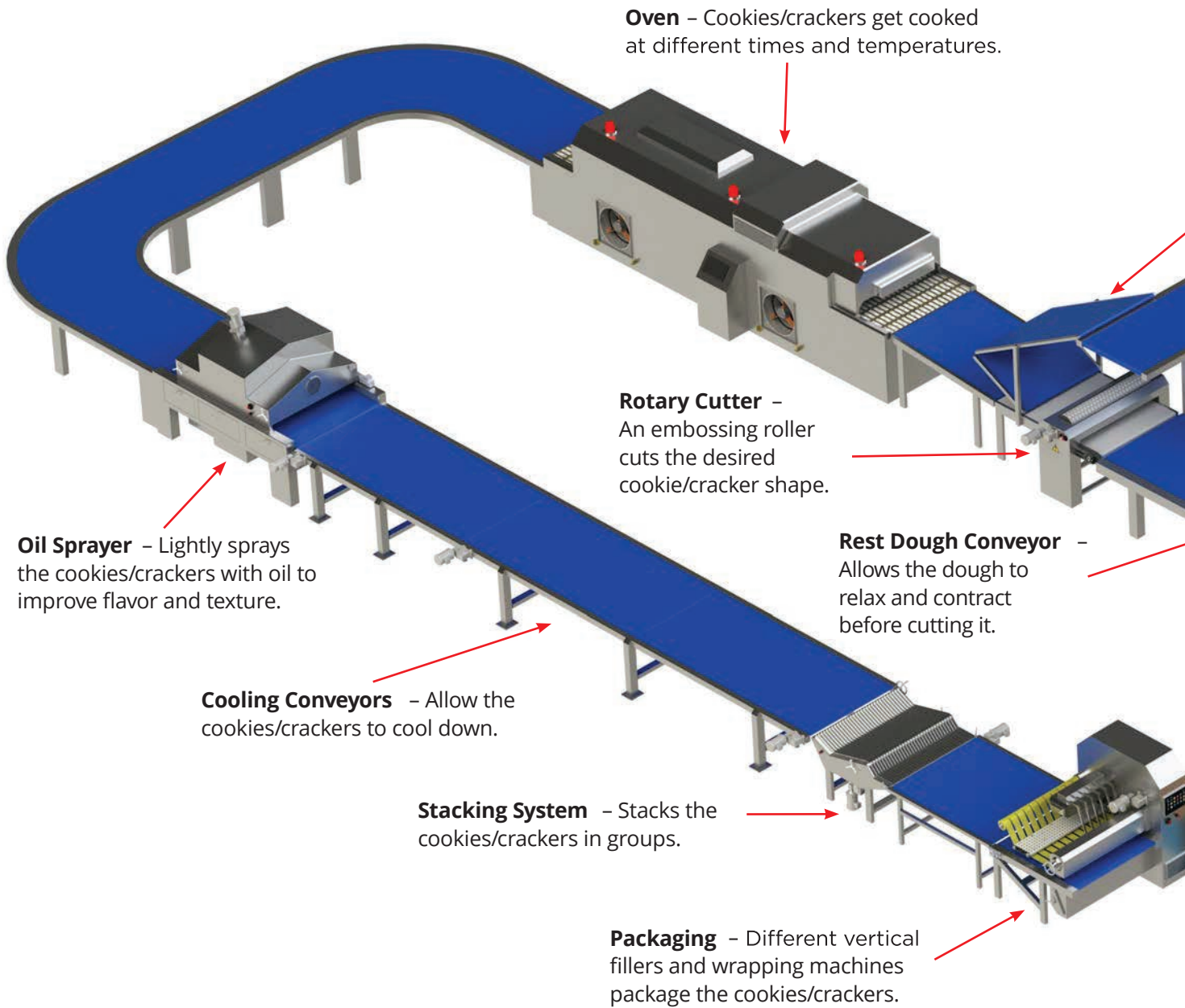


**BELTS FOR COOKIE  
AND CRACKER  
PRODUCTION**



# COOKIE & CRACKER PRODUCTION LINE

Standard layout of a bread or bun production line.



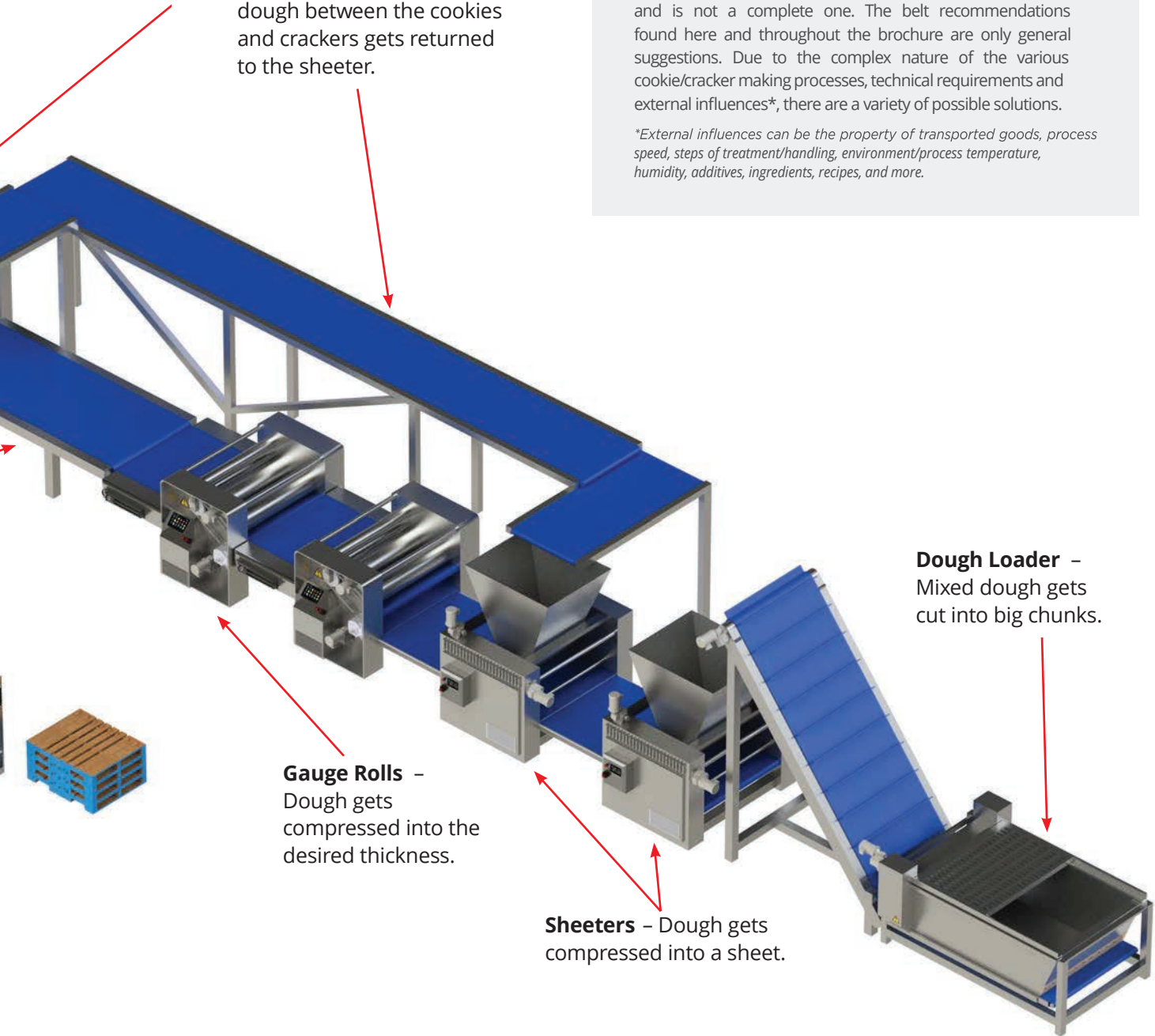
# COOKIE & CRACKER PRODUCTION LINE

Standard layout of a bread or bun production line.

**Scrap Return Conveyors** –  
The network of unwanted  
dough between the cookies  
and crackers gets returned  
to the sheeter.

The drawing below is an example of the cookie/cracker making process. The drawing is only a representation of the process and is not a complete one. The belt recommendations found here and throughout the brochure are only general suggestions. Due to the complex nature of the various cookie/cracker making processes, technical requirements and external influences\*, there are a variety of possible solutions.

*\*External influences can be the property of transported goods, process speed, steps of treatment/handling, environment/process temperature, humidity, additives, ingredients, recipes, and more.*



**Dough Loader** –  
Mixed dough gets  
cut into big chunks.

**Gauge Rolls** –  
Dough gets  
compressed into the  
desired thickness.

**Sheeters** – Dough gets  
compressed into a sheet.

# EQUIPMENT & CONVEYOR BELTS

Most common machines and conveyor belts



## DOUGH LOADER/FEEDER

The dough feeder is a metal hopper with a rotary blade system underneath that maintains a constant level of dough downstream. These dough feeders feed big pieces of dough to an incline conveyor belt with cleats. Due to the high presence of oil we recommend a polyurethane belt like **P8/A**, available in white and blue. If the belt runs on a knife edge conveyor then **P9/A** is recommended. When the incline is not very steep, instead of cleats, a belt with a profile can be used; for example: an inverted pyramid profile, **P9/Z**, or a semi rough top like **P19/B**.

**P** POLYURETHANE SERIES

## SHEETER

The function of the sheeter is to compact the dough into a sheet that is evenly thick and full width of the conveyor. There can be more than one sheeter putting layers of dough on top of each other. Often the sheeter incorporates scrap dough returned from the cutter. Good release and highly oil resistant belts are required in this application. MIPR recommends **P9/A PX**, **R13** (white or blue), **R14**, **R14 BF**, **Solid Woven Cotton** or **HY6/A**.

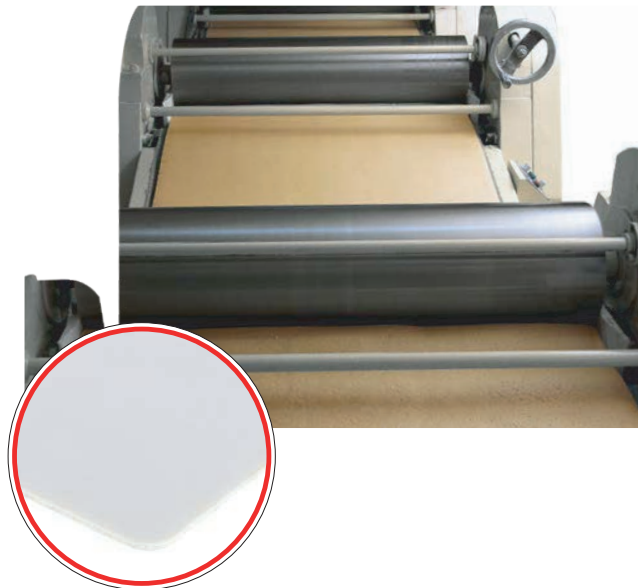
**P** POLYURETHANE SERIES   **R** RAW COVERS SERIES   **SWC** SOLID WOVEN COTTON

**HY** HYTREL SERIES



# EQUIPMENT & CONVEYOR BELTS

Most common machines and conveyor belts



P9/A PX

## GAUGE ROLL

The new sheet of dough then passes through one or more gauge roll machines to achieve the thickness required for cutting. Good release and highly oil resistant belts are required in this application. MIPR recommends **P9/A PX**, **R13** (white or blue), **R14**, **R14 BF** or **solid woven cotton**. Between the last gauge and the cutter there is normally a rest dough conveyor to allow relaxation of the dough before cutting. The same belts mentioned above are recommended there.



POLYURETHANE  
SERIES



RAW COVERS  
SERIES



SOLID WOVEN  
COTTON



HYTREL  
SERIES

## ROTARY CUTTER

A bronze or plastic embossing roller cuts the dough sheet to produce the outline shape and size, as well as the surface of the cookie/cracker. The conveyor belt needs to have enough grip to ensure that the cut piece stays on the belt during embossing but at the same time enough release to transfer the formed piece to the next conveyor. MIPR recommends our high release PU belt **P9/A PX**. Other belts like **P6**, **R14 BF** or **HY6/A** can be used as well.

MIPR also offers specialty true endless woven rotary moulder belts made of cotton, polyester and/or nylon.



POLYURETHANE  
SERIES



RAW COVERS  
SERIES



ROTARY  
MOULDER



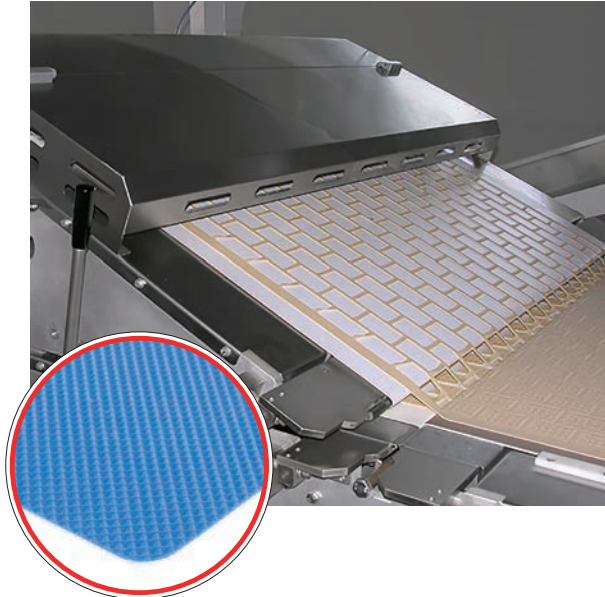
HYTREL  
SERIES



P9/A PX

# EQUIPMENT & CONVEYOR BELTS

Most common machines and conveyor belts



P9/Z BLUE

## SCRAP CONVEYOR

After the rotary cutter, between the formed pieces of cookie/cracker there is a network of unwanted dough known as cutter scrap. This scrap is lifted away and returned to the sheeter or pre-sheeter and sometimes to the dough loader. These scrap return conveyors are normally on an incline and require belts with enough grip to transport the dough up the incline. MIPR recommends **P9/Z** available in white and blue. Other belts like **P19/B**, **R13** (white or blue) or **R14** could also be used. On very steep inclines, belts with cleats are required.



## ROTARY MOULDER

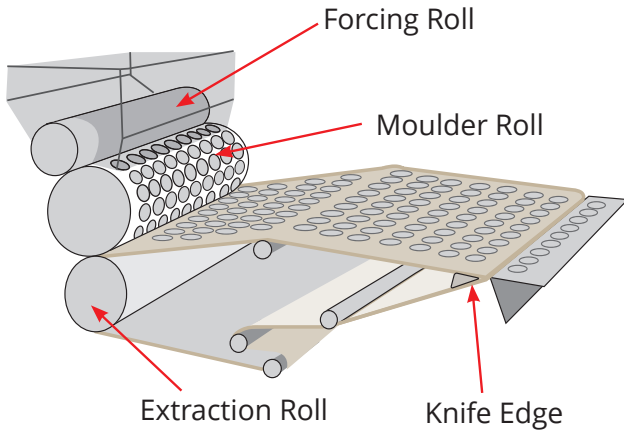
For most short dough cookie/cracker lines, instead of sheeting, gauging, and cutting, that process is substituted with a rotary moulder. The dough is forced into molds that have a negative form of the desired piece shape and the newly formed dough pieces are then extracted by a conveyor belt. This belt needs to have enough grip to extract the cookies from the moulder roller and enough release to deposit them onto the next conveyor. The moulder belt normally ends on a knife edge. MIPR offers its cotton, polyester, and/or nylon truly endless rotary moulder line: **RM** series.



RM4

# ROTARY MOULDER TECHNICAL INFORMATION

Different weaves and fibers for rotary moulder belts.



On a typical moulder, a forcing roll drives the dough from the hopper into the moulder roll. The dough is forced into the moulds. Between these two rolls there's a blade/scrapper that slices off the excess dough that adheres to the forcing roller going back to the hopper.

A belt around the extraction roll is pressed against the moulding roll, pulling the cut pieces of dough out of the moulds. This belt normally ends on a knife edge conveyor to carefully "peel off" and transfer the cut pieces onto another conveyor going to the oven.

A Rotary Moulder belt needs to have strong extraction to pull the pieces out of the moulds but yet enough release to peel them off onto the next conveyor. These two qualities are a trade off, the more extraction the less release and vice versa. It is important to find the perfect balance between the two. The weave pattern and the fibers used greatly affect these two qualities.

## EXTRACTION INFORMATION



100% Cotton



Cotton 65%  
Nylon 35%

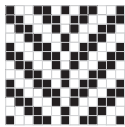


Polyester 65%  
Cotton 35%

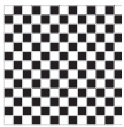
More Extraction

Less Extraction

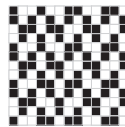
The absorption level of the fibers plays a key part on the extraction level of the belt. Cotton has great absorption levels with a moisture regain of 15%, making it suitable for very fatty and greasy doughs. Nylon, with a 5% moisture regain and Polyester with 3% are suitable for less fatty doughs. Nylon fibers also provide a better belt life than Polyester and Cotton.



Twill



Plain



Broken Twill

More Extraction

Less Extraction

The amount of contact surface area plays a key part in the extraction level of the belt. Twill increases the contact surface increasing extraction of very sticky doughs. Plain weave is a good, overall performance, making it suitable for most dough types. Broken Twill creates more air pockets, less extraction but great release.

## AVAILABLE ROTARY MOULDER BELTS

Belt Type	Fiber Type	Weave	Thickness	Edging
RM-B2	Cotton	Plain	2mm	Woven Selvage
RM-B4	Cotton	Plain	2mm	Woven Selvage (reinforced)
RM-B6	Cotton	Plain	2.3mm	Woven Selvage
RM-B12	Cotton/Polyester	Plain	2.1mm	Woven Selvage
RM-B14	Cotton/Polyester	Plain	2.1mm	Woven Selvage (reinforced)
RM-B18	Cotton/Polyester	Plain	2.5mm	Woven Selvage (reinforced)
RM-B18BN	Cotton/Nylon	Plain	2.5mm	Woven Selvage (reinforced)
RM-B22	Cotton	Twill	2.5mm	Woven Selvage
RM-B42	Cotton	Broken Twill	2.7mm	Woven Selvage
RM-B54BN	Cotton/Nylon	Broken Twill	2.7mm	Woven Selvage (reinforced)
RM-B55	Cotton	Plain	2.2mm	Woven Selvage (reinforced)

All of our rotary moulder belts are truly endless.

# EQUIPMENT & CONVEYOR BELTS

Most common machines and conveyor belts



P9/A PX

## OIL SPRAYER

An oil sprayer is a machine that lightly sprays the cookies/crackers with oil to improve flavor and texture. High temperature resistant belts are recommended like **P9/A PX** or **SWM/S**.



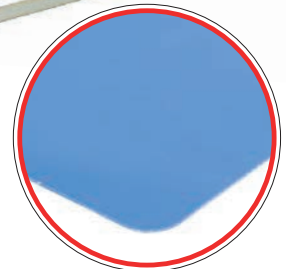
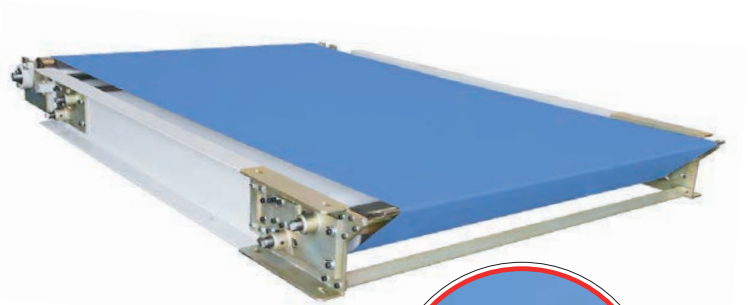
SOLID WOVEN  
MONOFILAMENT



POLYURETHANE  
SERIES

## COOLING CONVEYOR

After the cookies/crackers are sprayed with oil, they travel through a series of long conveyors to cool down. These conveyors are normally knife edge conveyors to carefully transfer the cookies/crackers from one conveyor to another. We use our **P9/A** (white or blue) for this application. Also our 1 ply PU **P6/A** (white or blue) can be used here as well.



P6/A BLUE



POLYURETHANE  
SERIES



SOLID WOVEN  
MONOFILAMENT



# EQUIPMENT & CONVEYOR BELTS

Most common machines and conveyor belts



P9/A BLUE

## STACKING SYSTEM

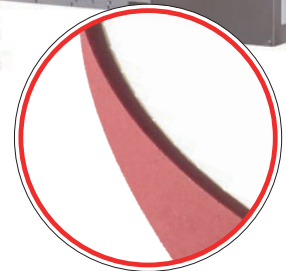
After the cookies/crackers are cooled down, an incline conveyor drops them in a machine that stacks them in groups and gets them ready for packaging.

MIPR recommends polyurethane belts like **P9/A** (white or blue) for the in-feed and out-feed belts of the stacker.



## PACKAGING MACHINE

There are a numerous types depending on the end user's packaging and process. MIPR offers **timing belts** with special covers for vertical fillers and wrapping machines. Any **P** or **F** series conveyor belt can be use for the in-feed and out-feed of the machine.



LINATEX COVERED  
TIMING BELT

# TECHNICAL INFORMATION

Product Code	Cover Material	Cover Finish	Plies	Interply Material	Fabric Material	Bottom Finish
P21/A TR	PU	Smooth Matte	2	PU	Polyester	PU Impregnation
P22/A TR	PU	Smooth Matte	2	PU	Polyester	PU Impregnation
P6/A	PU	Smooth Matte	1	PU	Polyester	PU Impregnation
P6	PU	Smooth Glossy	1	PU	Spun Polyester	PU Skim
P7/Z	PU	Inverted Pyramid	1	PU	Polyester	PU Impregnation
P8/A	PU	Smooth Matte	2	PU	Polyester	PU Impregnation
P8/Z	PU	Inverted Pyramid	2	PU	Polyester	PU Impregnation
P9/A	PU	Smooth Matte	2	PU	Polyester	PU Impregnation
P9/A PX	PU	Smooth Matte	2	PU	Polyester	PU Impregnation
P9/Z	PU	Inverted Pyramid	2	PU	Polyester	PU Impregnation
P20/A	PU	Smooth Matte	2	PU	Polyester	PU Impregnation
P19/B	PU	Mini Rough Top	2	PU	Polyester	PU Impregnation
HY6/A	Hytrell	Smooth Matte	1	Hytrell	Polyester	PU Impregnation
R13	Bare Fabric	PU Impregnated	2	PU	Polyester	PU Impregnation
R14	Bare Fabric	PU Impregnated	2	PU	Polyester	PU Skim
R14 BF	Bare Fabric	PU Impregnated	2	PU	Spun Polyester	PU Skim
R19	Bare Fabric	Cotton/Polyester	2	PVC	Cotton/Polyester	Bare
WOOL 1500	No Cover	Felt	1	N/A	Polyester	Bare
SWC 2PLY	No Cover	Cotton Fabric	2	N/A	Cotton	Cotton Fabric
SWC 4PLY	No Cover	Cotton Fabric	4	N/A	Cotton	Cotton Fabric
1014 DUCK	No Cover	Cotton Fabric	1	N/A	Cotton	Cotton Fabric
SWM	No Cover	Woven Polyester	1	N/A	Polyester	Monofilament Polyester
SWM-S	No Cover	Silicone Impregnated	1	N/A	Polyester	Monofilament Polyester



## ROLLER COVERS

Some equipment uses rollers to compress the dough. In order to avoid the dough sticking to the roller, a wool felt cover is used. MIPR offers wool felt roller covers in both **solid** and **shrinking jacket**. Different thicknesses and diameters can be made per your specifications.

# TECHNICAL INFORMATION

Overall Thickness		Top Cover Thickness		Max Temp		Minimum Pulley		Pull per 1%		Color	Loader	Sheeter	Gauge Roll	Rest Conveyor	Cutter	Scrap Return	Oil Sprayer	Cooling	Packaging	General
mm	in	mm	in	C°	F°	mm	in	N/mm	Lbf/in											
1.90	0.075	0.50	0.020	90	194	40	1.575	8	45	○	•			•					•	•
2.30	0.091	0.90	0.035	90	194	50	1.969	8	45	○	•			•					•	•
0.80	0.031	0.29	0.011	80	176	5	0.197	5	28	○●		•	•	•	•		•	•	•	•
1.30	0.051	0.59	0.023	80	176	10	0.394	6	34	○		•	•	•	•		•	•		•
1.30	0.051	0.50	0.020	80	176	10	0.394	8	45	○					•		•	•		
1.30	0.051	0.29	0.011	80	176	20	0.787	8	45	○●	•			•					•	•
1.50	0.059	0.29	0.011	80	176	20	0.787	8	45	○●	•				•				•	•
1.30	0.051	0.29	0.011	80	176	10	0.394	6	34	○●	•	•	•	•	•		•	•	•	•
1.30	0.051	0.29	0.011	110	230	10	0.394	6	34	○	•	•	•	•	•		•	•	•	•
1.50	0.059	0.29	0.011	80	176	10	0.394	6	34	○●	•				•				•	•
2.39	0.094	0.50	0.020	80	176	80	3.150	13	74	○●	•			•					•	•
2.30	0.091	0.90	0.035	90	194	30	1.181	6	34	○	•				•				•	•
1.00	0.039	0.29	0.011	120	248	10	0.394	5	28	○●	•	•	•	•		•	•		•	
1.00	0.039	N/A	N/A	90	194	30	1.181	6	34	○●	•	•	•					•	•	
1.39	0.055	N/A	N/A	80	176	30	1.181	8	45	○	•	•	•					•	•	
1.30	0.051	N/A	N/A	80	176	25	0.984	10	57	○	•	•	•	•					•	•
2.39	0.094	N/A	N/A	90	194	50	1.969	5	28	○	•	•	•						•	•
3.00	0.118	N/A	N/A	110	230	5	0.197	32	183	○	•	•	•						•	•
2.50	0.098	N/A	N/A	107	225	25	0.984	9	51	○	•	•	•						•	•
4.70	0.185	N/A	N/A	107	225	76	2.992	18	103	○	•	•	•						•	•
1.75	0.069	N/A	N/A	107	225	5	0.197	5	28	○	•	•	•	•					•	•
2.20	0.087	N/A	N/A	140*	284*	6	0.236	50	285	○	•	•	•	•		•	•		•	•
2.20	0.087	N/A	N/A	155**	311**	6	0.236	50	285	○	•	•	•	•		•	•		•	•

\*220 C°/428 F° Peak \*\* 230 C°/446 F° Peak



## FABRICATION

MIPR has full fabrication capabilities to make your belt the way you need it. **V-guides, sidewall** and **cleats** can be vulcanized directly onto the belt, creating a strong and sanitary (no use of glues) bond. **Perforations** and **special covers** are also available.

# MIPR

CORPORATION

## QUESTIONS + ORDERS



**800-540-1846**



**INFO@MIPRCORP.COM**

---

### **Maine Industrial Corp.**

Main Office: 21 Teague Street PO Box 381 Newcastle, ME 04553