

TABLE TOP QUICK ENGINEERING REFERENCE SHEET

Engineering reference for table top, flat top and mat top conveyor chain systems - design, selection, and application.

1. System Components

A complete table top chain conveyor consists of four matched elements: the chain, the sprockets, the wear strips, and the conveyor frame. Each must be selected together for correct operation.

2. Chain Categories

CATEGORY	PITCH RANGE	TYPICAL APPLICATION
Flat Top (narrow)	3/8" - 3/4"	Bottles, small containers, single-lane
Flat Top (wide)	3/4" - 2"	Large containers, multi-lane, bulk
Mat Top	1" - 2"	Heavy product, accumulation, large items

3. Chain Selection Factors

Product type	Size, shape, weight, surface characteristics
Conveyor layout	Straight, curve, incline, decline, spiral
Speed	Linear belt speed in ft/min or m/min
Temperature	Operating temperature range
Load	Weight per unit area on the belt surface
Environment	Chemical exposure, washdown, humidity
Sanitation	Food-grade requirements, cleanability

4. Load Capacity

CHAIN PITCH	MATERIAL	MAX LOAD (KG/M)	MAX SPEED (M/MIN)
3/8"	POM	50	60
1/2"	POM	80	80
3/4"	POM	120	100
1"	POM / Nylon	200	80
1-1/2"	Nylon	300	60
2"	Nylon / Steel	500	50

3/8" (9.525mm)	8	12+	UHMW or stainless
1/2" (12.7mm)	8	12+	UHMW or stainless
3/4" (19.05mm)	9	12+	UHMW or stainless
1" (25.4mm)	9	12+	Stainless or hardened steel
1-1/2" (38.1mm)	8	10+	Stainless or steel
2" (50.8mm)	8	10+	Steel

- Belts up to 150mm: 8 teeth acceptable at low speed only.
- Belts 150-400mm: 12 teeth is the standard recommendation.
- Belts over 400mm: use 15+ teeth; wider belts require more teeth for smooth engagement.
- For belts over 300mm, use at least 2 sprockets per shaft; over 600mm, distribute load across the belt width.

6. Wear Strip Selection

MATERIAL	MAX TEMP	FRICTION COEFF.	BEST FOR
UHMW PE	80°C / 176°F	0.10 - 0.15	General purpose, standard speed
Nolu-S (lubricated UHMW)	80°C / 176°F	0.08 - 0.12	Low friction, high speed
Stainless steel	400°C / 752°F	0.25 - 0.35	High temp, sanitary
HDPE	70°C / 158°F	0.15 - 0.20	Economical, light duty
PTFE	200°C / 392°F	0.04 - 0.08	High temp, very low friction

7. Conveyor Design Parameters

Chain tension (required chain pull) = (chain weight × length × friction) + (product weight per ft × length × friction) + incline load.

Belt width: minimum belt width = product width + 50mm clearance per side. For multi-lane, add lane width + 25mm between lanes.

BELT WIDTH	MAX SUPPORT SPACING
Up to 150mm	1000mm (39")
150 - 300mm	800mm (31")
300 - 600mm	600mm (24")
600 - 1200mm	500mm (20")
1200mm+	400mm (16")

8. Accumulation Zone Design

Table top / flat top chains are suitable for accumulation (product backup) when:

- A low-friction chain material is used (e.g. POM on Nolu-S).
- Belt speed is moderate (under 30 m/min).
- Product back-pressure is low.
- Wear strips are in good condition.

IMPORTANT

For accumulation applications, chain pull increases with backup length. Always calculate chain pull with the full accumulation load, not just the single-product load.

- Install lane dividers - minimum 25mm above the belt surface.
- Verify sprocket engagement across the full belt width.
- Use at least 2 sprockets per shaft for belts over 300mm wide.
- Ensure even tension distribution - check all sprocket positions.

10. Curve Considerations

- Minimum inner radius depends on chain type - typically 1.5× belt width.
- Friction increases in curves - add 20-30% to the chain pull calculation.
- Use special curve chain (reduced-friction hinge) for tight radii.
- Wear strips in a curve must match the radius precisely.
- Sprockets in curve sections may need to be split for belt retention.

Uniking Canada provides complete table top, flat top and mat top conveyor system design. Contact info@unikingcanada.com for engineering support.