

THE COMPLETE GUIDE TO CHAIN

Comprehensive technical reference covering chain types, selection, maintenance, and troubleshooting for industrial chain applications.

1. Chain Types Overview

TYPE	STANDARD	APPLICATION
Roller Chain (ANSI)	ANSI B29.1	Power transmission, conveyor
Roller Chain (BS)	BS 228 / ISO 606	European standard, power transmission
Double Pitch	ANSI B29.4	Conveyor, low speed
Leaf Chain	ANSI B29.8	Lifting, forklift masts
Engineering Class	ANSI B29.6 / B29.12	Heavy-duty conveyor, elevator
Silent Chain	ANSI B29.2	High speed, low noise

2. ANSI vs BS Standard Comparison

PARAMETER	ANSI (AMERICAN)	BS (BRITISH/EUROPEAN)
Measurement	Imperial (inches)	Metric (mm)
Pitch standard	1/4" to 3" in 1/8" increments	6mm to 76mm
Common pitches	#35, #40, #50, #60, #80, #100, etc.	06B, 08B, 10B, 12B, 16B, etc.
Pin diameter	Standardized per pitch	Standardized per pitch (different from ANSI)
Interchangeability	ANSI chain needs ANSI sprockets	BS chain needs BS sprockets

3. Chain Selection

Step 1: Determine Application

Identify whether the chain is for power transmission, conveying, lifting, or a combination.

Step 2: Calculate Required Load

Required chain pull = (Total moving load × friction factor) + (Chain weight × conveyor length × chain friction)

Step 3: Apply Service Factors

LOAD TYPE	8-10 HR/DAY	24 HR/DAY	INTERMITTENT
Uniform	1.0	1.2	0.8
Moderate shock	1.2	1.4	1.0
Heavy shock	1.4	1.7	1.2



Step 4: Select Chain Pitch

Choose the smallest pitch that meets the load requirement with the applied service factor. Smaller pitch = quieter operation and smoother sprocket engagement.

4. Sprocket Selection

SPEED	MIN TEETH	PREFERRED TEETH
Low (under 100 ft/min)	9	12-17
Medium (100-500 ft/min)	12	17-25
High (500+ ft/min)	17	25+

5. Installation Best Practices

- Align sprockets — check with straightedge across faces
- Set proper tension — chain should have slight sag (1-2% of span)
- Lubricate before initial run — dry start causes premature wear
- Check for interference — chain should not contact guards or frame
- Use chain guard — safety requirement

6. Maintenance

FREQUENCY	TASK
Daily	Visual inspection, listen for unusual noise
Weekly	Check tension, lubricate (if manual lube)
Monthly	Measure elongation, inspect sprocket teeth
Quarterly	Clean chain, check oil flow (if auto-lube)
Annually	Complete chain assessment, plan replacement

7. Wear Measurement

Measure chain elongation: measure 10 pitches (pin center to pin center) and compare to new chain specification.

ELONGATION	ACTION
0% – 1.5%	Normal wear – continue service
1.5% – 3%	Monitor – plan replacement
3%+	Replace chain immediately – also check sprockets

CHAIN ENGINEERING SUPPORT

Uniking Canada provides chain selection, sprocket matching, and complete system design.

info@unikingcanada.com