ORIENTAL CHAIN MFG.CO.,LTD.

BAI-SPEED CHAIN

MADE IN JAPAN

JCA® Japan Chain Association

OCM ORIENTAL CHAIN MFG. CO., LTD.

FEATURES OF OCM BAI-SPEED CHAIN

OCM BAI-SPEED CHAIN can accumulate goods conveyed while the chain is running, which is difficult to do with standard Free Flow Chain.

That is best suited to assembly lines such as goods conveyed on the chain continues to rotate in the running direction are stopped and accumulated.

Engineering Plastic Roller

Unique combination of small and large diameter rollers are available in accordance to various applications.

Combination Code	VS-A	VS-B	VS-C	VS-D
TYPE	Standard	Standard High Friction / Noiseless	Electro Conductive	Electro Conductive High Friction / Noiseless
FEATURES	Large Allowable Tension	Quick Start-up	Large Allowable Tension	Quick Start-up

★ Special Specification - CARBON STEEL ROLLER TYPE is also available.

Types of Engineering Plastic Roller

VS-A

VS-B
-NOIESLESS-

VS-C

VS-D
-NOIESLESS-

Advantages of OCM BAI-SPEED CHAIN

1. Noiseless & High-Speed
OCM BAI-SPEED CHAIN conveys goods noiselessly and 2.5 times faster than the actual chain speed.

2. Quick Start
By special construction of small and large rollers, OCM BAI SPEED CHAIN is capable to quick conveying start after the removal of accumulating.

3. Safety and Stability
OCM BAI SPEED CHAIN can install Safety Finger (SF) Clip* for safety,
so that the goods keep in a stable condition and also it is capable to the weight reduction of device.

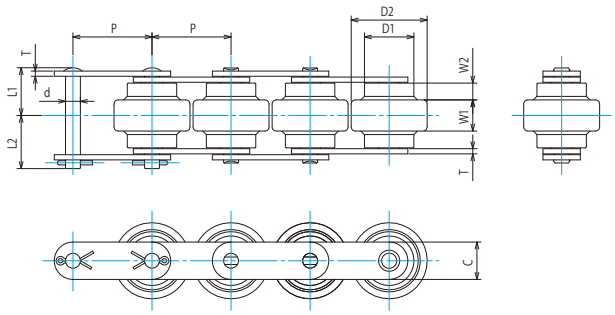
4. Determining Specifications from Operating Condition and Atmosphere
When using in clean room or corrosion-resistant condition, Nickel Plated or Stainless Steel is available.
When using in high-loaded condition, all components made by carbon steel is also available.

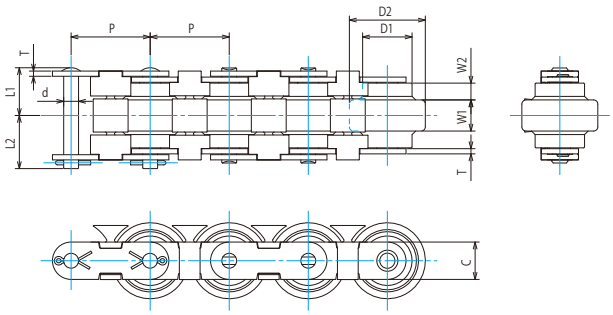
* Safety Finger (SF) Clip

Construction of OCM BAI-SPEED CHAIN

1. Conveying
OCM BAI-SPEED CHAIN conveys goods 2.5 times faster than its chain speed by means of two different diameter rollers.
Goods conveyed are carried on the large rollers and the small rollers are engaged on the sprockets.
Friction between the small roller and large roller makes the two rollers like one roller.

2. Accumulating
OCM BAI-SPEED CHAIN can accumulate goods conveyed while the chain is running.
When a stopping device is placed in front of the goods,the large rollers rotate in the opposite direction when the goods conveyed are stopped and accumulated while the small rollers continue to rotate in the running direction.





OCM BAI-SPEED CHAIN Model Number Indication

C2030-VS-A

CHAIN No. BAI-SPEED

Type of Engineering Plastic Roller

A:Standard
B:Standard/High Friction/Noiseless
C:Electro Conductive
D:Electro Conductive/High Friction/Noiseless

C2030-VS-A-SF

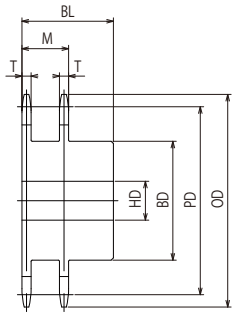
CHAIN No. BAI-SPEED Safety Finger(SF)Clip

Type of Engineering Plastic Roller

A:Standard
B:Standard/High Friction/Noiseless
C:Electro Conductive
D:Electro Conductive/High Friction/Noiseless

Upper: inch
Beneath: mm

OCM Chain No.	Pitch	Roller Diam.		Roller Width		Plate		Pin			Allowable Tension		Approx Weight
	P	D1	D2	W1	W2	H	T	d	L1	L2	Roller A. C kgf	Roller B. D kgf	Lb/ft kg/m
C2030-VS	0.750 19.05	0.469 11.91	0.720 18.3	0.295 7.5	0.159 4.05	0.354 9	0.049 1.25	0.141 3.58	0.453 11.5	0.504 12.8	56	—	0.370 0.55
C2040-VS	1.000 25.4	0.625 15.88	0.984 25	0.366 9.3	0.240 6.1	0.472 12	0.059 1.5	0.156 3.96	0.600 15.25	0.695 17.65	90	45	0.672 1.0
C2050-VS	1.250 31.75	0.750 19.05	1.205 30.6	0.433 11	0.299 7.6	0.591 15	0.079 2.0	0.200 5.08	0.756 19.2	0.843 21.4	140	70	0.874 1.3
C2060-VS	1.500 38.1	0.875 22.23	1.441 36.6	0.590 15	0.323 8.2	0.677 17.2	0.126 3.2	0.234 5.95	0.957 24.3	1.043 26.5	210	105	1.546 2.3



Upper: inch
Beneath: mm

OCM Chain No.	Type	Number of teeth	PD	OD	T	HD	BD	BL	M	Weight Lb/pc kg/pc
C2030-VS	B	10	2.427 61.65	2.480 63	0.118 3	0.591 15	1.457 37	0.984 25	0.602 15.3	0.661 0.3
C2040-VS	B	10	3.236 82.2	3.661 93	0.157 4	0.669 17	2.047 52	1.575 40	0.803 20.4	1.764 0.8
C2050-VS	B	10	4.045 102.75	4.606 117	0.197 5	0.787 20	2.598 66	1.772 45	1.004 25.5	3.307 1.5
C2060-VS	B	10	4.854 123.3	5.394 137	0.236 6	0.787 20	3.189 81	1.969 50	1.201 30.5	5.512 2.5

OCM BAI-SPEED CHAIN SELECTION

PROCEDURE FOR SELECTING OCM BAI-SPEED CHAIN

STEP 1

CONFIRM THE OPERATING CONDITIONS

① Material weight, dimension and quality of the conveyed goods incl. pallet

② Conveyor speed

③ Conveyor length for accumulating and transferring portion respectively

④ Environment

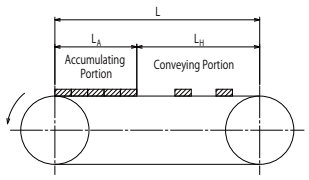
STEP 2

SPECIFICATIONS OF CHAIN AND CENTER ROLLER

Specifications of the chain size and engineering plastic center roller are determined from operating condition and atmosphere.

STEP 3

CALCULATION OF MAX. CHAIN TENSION (T)



$$T = (W_H + m)\,L_H \cdot f_1 + W_A \cdot L_A \cdot f_2 + (W_A + m)\,L_A \cdot f_3 + 1.1\,m \cdot L \cdot f_1$$

Calculation of Required Power $\quad kW = \dfrac{TS}{5565\eta}$

T : Maximum chain tension (kgf)
L : Center distance (m)
L_H : Conveying portion (m)
W_H : Weight of conveyed goods in conveying portion (kg/m)
L_A : Length of accumulating portion (m)
W_A : Weight of conveyed goods in accumulating portion (kg/m)
f_1 : Friction coefficient between chain and rail when conveying
f_2 : Friction coefficient between chain and conveyed goods when accumulating
f_3 : Friction coefficient between chain and rail when accumulating
m : Weight of chain (kg/m)
kW : Power requirements (kW)
S : Chain speed (m/min)
η : Transmission efficiency of drive unit

STEP 4

CHAIN SIZE DETERMINATION

$$\frac{T}{2} \leqq \text{Maximum allowable chain Tension}$$

Since the chain is used in matched pairs, the Maximum Tension (T) is divided in half.
In case the Maximum Tension exceeds the allowable load, select the chain of one size larger or divide the machine length and then make re-calculation.

Table 1 Friction Coefficient

Friction Coefficient	Types of Engineering Plastic Roller	
	VS-A・C	VS-B・D
f_1	0.08	0.08
f_2	0.1	0.15
f_3	0.2	0.25

Table 2 Maximum Allowable Roller Load for Conveyed Goods

Following table is the load at 2 strands for the chain. Unit: kg/m

Chain No.	Aluminum Guide Rail
C2030-VS	40
C2040-VS	60
C2050-VS	80
C2060-VS	100

Table 3 Maximum Allowable Chain Tension

Chain No.	Base Chain	Types of Engineering Plastic Roller			
		VS-A・C		VS-B・D	
		kN	kgf	kN	kgf
C2030-VS	Steel	0.55	56	–	–
	Stainless Steel	0.28	28	–	–
C2040-VS	Steel	0.88	90	0.44	45
	Stainless Steel	0.44	45	0.44	45
C2050-VS	Steel	1.37	140	0.69	70
	Stainless Steel	0.69	70	0.69	70
C2060-VS	Steel	2.06	210	1.03	105
	Stainless Steel	1.03	105	1.03	105

⚠ WARNING

1. OPERATING TEMPERATURE
Use Engineering Plastic Roller at temperatures of -10℃ to +80℃.
Use Steel Roller at temperatures of 10℃ to +150℃.

2. CHAIN SPEED
Use the chain in 5 m/min to 15 m/min.

3. OPERATING CONDITION
Do NOT use the chain in places where water or oil is splashed.

4. LUBRICATION
When the sprocket portion causes unusual noise during operation, drip lubricating oil between the outer link plates and inner link plates.

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