X-Ring Chain (LX)/O-Ring Chain (LD)

Highest wear resistance available by sealing grease between pins and bushings

The durability of chain is dramatically improved since grease is sealed between the pins and bushings by X-ring/O-ring. The X-ring/O-ring chain is the most dependable model of the Ultimate Life Chain Series with its excellent wear resistance even in the conditions or environments where chain maintenance is difficult.

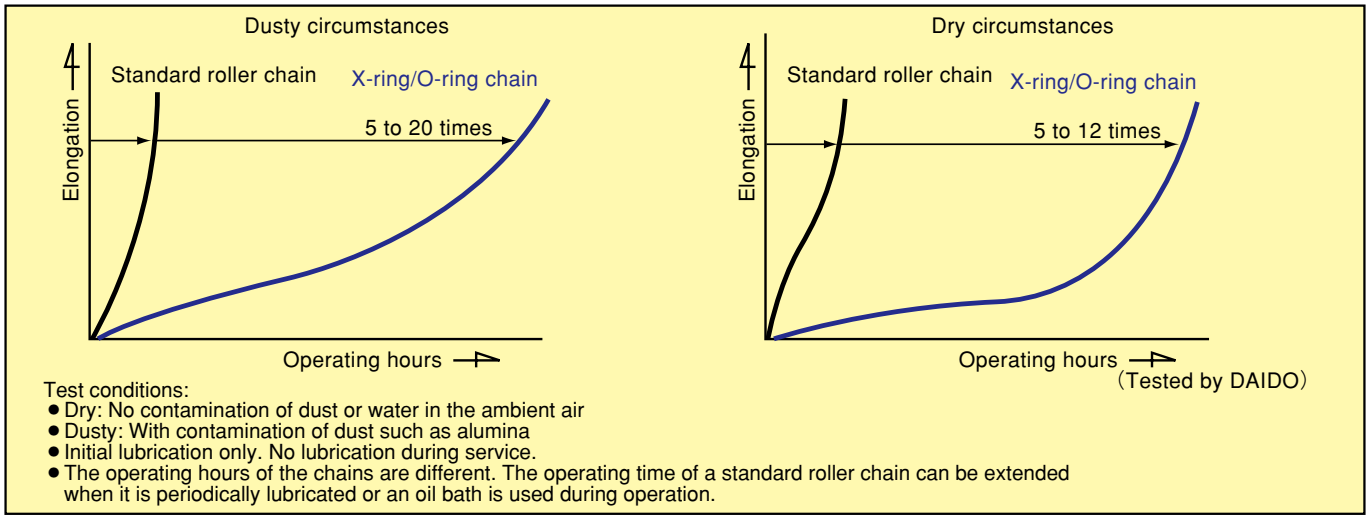
Recommended uses.

- Circumstances where frequent chain replacement is required due to wear stretch.
- Circumstances where lubrication during the service is impossible.
- In an environment with much soil, sand, dust, etc.
- Applications that require strength higher than that of a sintered bushing roller chain.

Other features

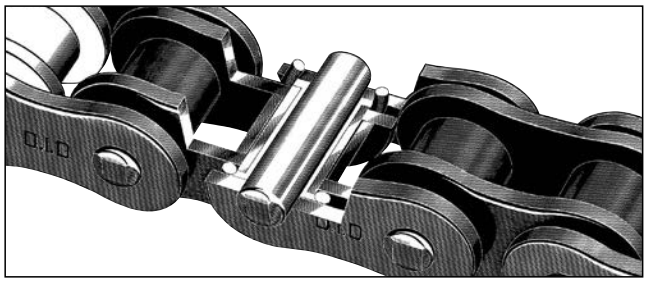
- Reducing noise. (The noise level is 3 dB lower compared to standard roller chains.)
- Reducing vibration with the friction created by O-Ring. (The power loss due to the friction is almost negligible, since the frictional force between the pins and bushings is for usually in the applications.)

Wear resistance performance



Test conditions:
- Dry: No contamination of dust or water in the ambient air
- Dusty: With contamination of dust such as alumina
- Initial lubrication only. No lubrication during service.
- The operating hours of the chains are different. The operating time of a standard roller chain can be extended when it is periodically lubricated or an oil bath is used during operation.

※ LX: Temp. -10°C~120°C, LD: Temp. -10°C~80°C



Selection of chains

The strength of an X-ring/O-ring is almost the same as that of a standard roller chain. (Since the pins are longer than those of standard roller chain, the average rupture strength is slightly lower.)
For selecting a suitable chain, refer to "Selection of Chains" (P122~125).
When the service ambient temperature is higher than 80 °C, special heat resistant seal rings must be used. In this case, contact us for more information.

Connecting links and offset links

Two types of connecting links are available: clearance fit and interference fit. When high strength or durability is required, use interference-fit connecting link. Only 2POJ is available as the offset link for all sizes.

Chain No.	Connecting link		Offset link
	Clearance fit	Interference fit	
DID 35LD	RJ (D clip type)	FJ (D clip type)	2POJ (2 pitch offset link)
DID 40LX DID 50LX DID 60LX	RJ (M clip type)	FJ (M clip type)	
DID 80LD DID 100LD	CJ (Cotter pin type)	HJ (Cotter pin type)	
DID 120LD	———		
DID 140LD DID 160LD DID 200LD DID 240LD	———	NJ (Cotter pin type with nut)	

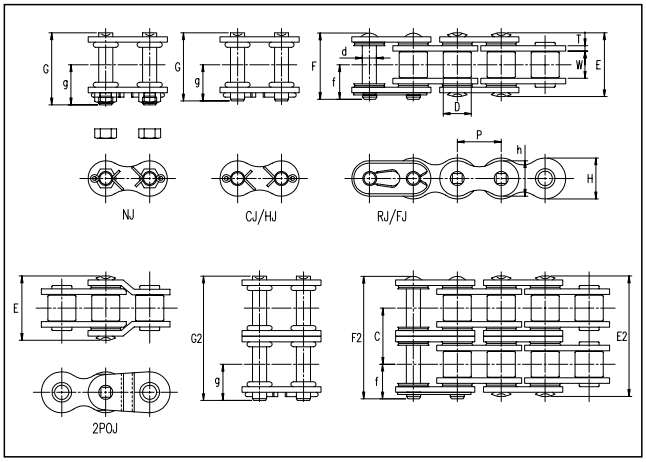
Sprockets

X-ring/O-ring chain uses longer pins than a standard roller chain. When using multiplex X-ring/O-ring chain, the standard sprocket for multiplex chains cannot be used.

Caution

X-ring/O-ring chain is not recommended in applications where solvents or other substances may attack “Nitric Rubber”.
Special material of seal rings are also available for these conditions: Please consult us for details. In general, “Nitric Rubber” is damaged by contact with the following chemical materials.

Gasoline, Light oil, Benzene, Toluene, Trichloroethylene, Ether, Ketone (MEK), Ethyl acetate, Phosphoric acid, Ester hydraulic oil, Organic acid, High-concentration inorganic acid



Dimensions

Unit (mm)

Chain No.	Pitch	Roller link width	Roller (Bush) dia.	Pin									Transverse Pitch	Plate			Avg. tensile strength		Max. allowable load		Approx. weight
	P	W	D	d	E	F	G	f	g	E2	F2	G2	C2	T	H	h	kN	kgf	kN	kgf	(kg/m)
* DID 35 LD	9.525	4.60	(5.08)	3.59	13.0	14.45	—	7.8	—	—	—	—	—	1.25	9.0	7.75	9.8	990	1.47	150	0.35
DID 40 LX	12.70	7.95	7.92	3.97	20	20	—	10.7	—	36.7	36.8	—	16.7	1.5	12.0	10.4	18.1	1,840	3.72	380	0.67
DID 50 LX	15.875	9.53	10.16	5.09	23.4	23.9	—	12.8	—	43.7	44.2	—	20.3	2.0	15.0	13.0	30.1	3,060	6.86	700	1.08
DID 60 LX	19.05	12.70	11.91	5.96	29.2	30.0	—	16.0	—	54.9	55.7	—	25.7	2.4	18.1	15.6	42.8	4,350	9.31	950	1.62
DID 80 LD	25.40	15.88	15.88	7.94	36.5	—	38.5	—	20.9	69.4	—	71.3	32.8	3.2	24.0	20.6	72.5	7,360	14.7	1,490	2.83
DID 100 LD	31.75	19.05	19.05	9.54	44.0	—	46.2	—	24.7	83.6	—	85.7	39.5	4.0	29.9	26.0	107	10,860	21.1	2,140	4.07
DID 120 LD	38.10	25.40	22.23	11.11	54.0	—	56.8	—	30.2	—	—	—	—	4.8	35.9	31.2	157	15,940	28.4	2,880	5.90
DID 140 LD	44.45	25.40	25.40	12.71	58.6	—	69.2	—	40.2	—	—	—	—	5.6	41.9	36.3	196	19,900	40.2	4,080	7.87
DID 160 LD	50.80	31.75	28.58	14.29	69.0	—	80.3	—	46.2	—	—	—	—	6.4	47.8	41.4	245	24,870	52.9	5,370	10.31
DID 200 LD	63.50	38.10	39.68	19.85	83.8	—	96.5	—	55.0	—	—	—	—	8.0	60.0	52.0	428	43,450	73.5	7,460	16.89
DID 240 LD	76.20	47.63	47.63	23.81	101.2	—	116.4	—	66.2	—	—	—	—	9.5	71.5	62.0	624	63,350	99	10,050	24.80

Note: 1. Those marked with * indicate bushing chain.
2. The values of average tensile strength and maximum allowable load are for chains.
3. When grooving using sprockets with smaller number of teeth, the grooves may interfere with the chain outer plate. Consult us for advise.
4. LX-type has a less-friction by using specially formed X-rings.