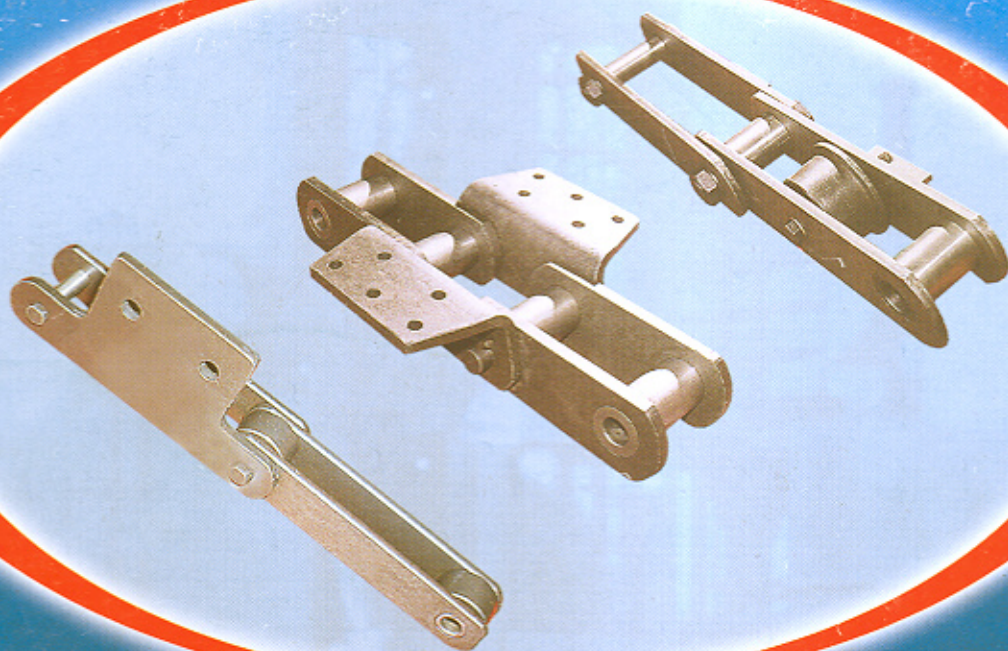


DIAMOND[®]
INDIA RELIABILITY

Chains for Cement Industry



Superior Wear Resistance
Superior Fatigue Strength
Superior Tensile Strength

FROM
TI DIAMOND CHAIN LTD.

**THE COMPLETE
CHAIN COMPANY**

About the Company

TI Diamond Chain Ltd. is a member of the Murugappa Group of Companies with a turnover of about Rs.4500 crores.

The Company was established in 1960 in collaboration with Diamond Chain Company USA. The ongoing collaboration has resulted in constant inflow of latest chain technology. The continuous pursuit of excellence in quality has resulted in market leadership in the chain industry.

TIDC has been practising TQM since inception and its multi locational units are certified for ISO 9001:2000/TS16949/API 7F. More than 40% of its turnover is exported to all continents. TIDC won the prestigious Golden Peacock Award in 1998, and CII Exim Commendation Award in 1999 for excellence in TQM practices.

The Tsubaki Edge

TIDC ventured into the Engineering Class Chain business in the 80's and have been setting standard in this business.

In pursuit of rapid growth TI Diamond has joined hands with Tsubakimoto Chain Co. - Japan, the world leaders in the chain business.

And now TIDC provide you with the state-of-the-art technology and world class quality in association with Tsubaki.

Success can be spelt with two letters. R&D

At TIDC, we owe our success to listening. Paying attention to our customers, and innovating with products that suit their needs better. Every choice with regard to size, material or method is in direct response to the needs of application engineers in the industries we serve.

TIDC engineers use Auto CAD, Solid works and Finite Element Analysis for cutting edge solutions in the design of the chains, and the manufacturing technology process is plotted out with equal care. The resulting products are comprehensively tested at our test labs, before they eventually find their way to a Diamond customer.

In collaboration with our clients

A unique and rewarding system we follow at TIDC is what we call Collaborative Processes. Whereby our clients are actively involved in the making of custom built products. Today, 35% of our product sales are from customisations for special applications, and collaborative processes are the basis for our proven track record and quick deliveries achieved in this area.

A manufacturer with rare strengths

Over the years we have developed and fine tuned immense competencies in cold working of metals, metal joining processes, metal treatment processes and development of tools, jigs and fixtures to support manufacturing technology.

Our chains get the best treatment

Our team has rich experience in heat treatment to maximise strength and life in every chain element: pins, bushing, rollers and link plates.

We deploy our specialist skills in continuous hardening operations for martensitic heat treatment. Under a completely automated atmosphere we work with high, medium and low carbon steels, alloy steels, austenitic and martensitic stainless steels etc. Some of the other treatments we offer based on customer specifications are:-

All components are shot peened after heat treatment thereby enhancing fatigue life. Based on application requirements we offer specialised heat treatment on wear members.



The best certifications are those that come from our Customers

We are one of the world's few companies to be certified for API-7F specifications by the American Petroleum Institute for oil field chains.

Our manufacturing processes right from product design to testing of finished chains conform to ISO:9000:2000 standards and are certified by

RWTUV of Germany. Our Motorcycle Engine Mechanism Chain and Fine Blanking Divisions are certified to TS 16949 standards by Underwriters Laboratories, USA.

But what gives us the most pride is, the approval and repeat orders that come to us from our clients all over India & across the world.



Product Range for Cement Industries

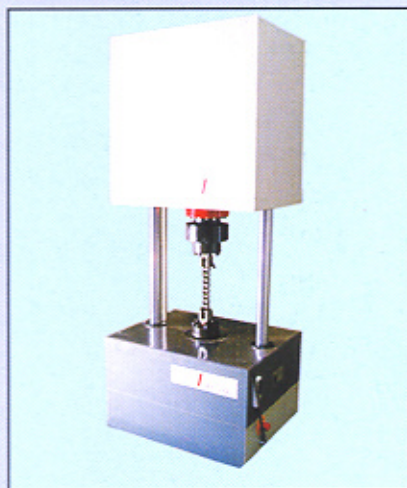
- Bucket Elevator Chains
- Reclaimer Chains
- Apron Feeder Chains
- Deep Pan / Bucket Chains
- Flow Conveyor Chains
- Retrofitting of Bucket Elevators for capacity enhancement
- All type of Sprockets & Traction Wheels

Quality, 'TIES' that bind everything

Total Quality Management is a governing principle at TI Diamond Chain and we have our own quality system in place called 'TIES' (T. I. Excellence System) encompassing all aspects of functioning. Beginning with the design phase, purchase and inspection of raw materials, vendor management, work instructions and going on to cover all processes in manufacturing, packing and inspections before delivery.

TIES also provides for stringent procedures when it comes to traceability of products and reviews of customer feedback.

The TIES system functions by nurturing quality as an integral part in the entire value chain, and is now completely internalised by the company.



Features

The 4000 series is the latest and the third generation of elevator chains from Tsubaki. They are designed with unique features to give the best performance with the least down time.

Superior Wear Resistance

After years of testing, an appropriate hardness specification was developed to resist cement abrasion. Extra deep induction hardening of pins and carburisation of bushes provide better wear resistance and toughness. This process ensure unsurpassed wear life of the chain.

Superior fatigue & Tensile Strength

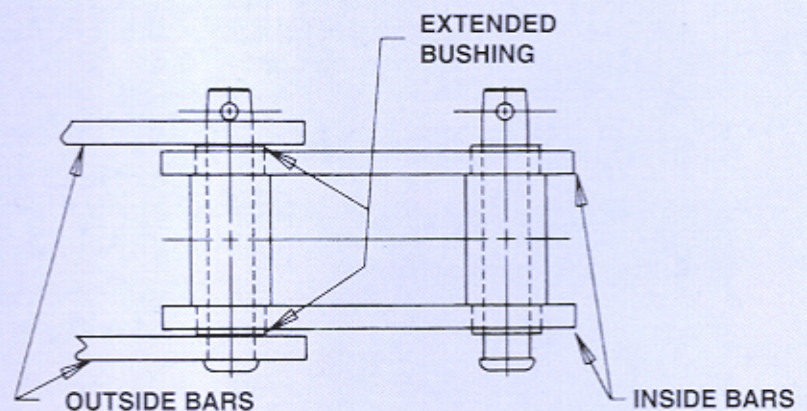
Exclusive selection of pure alloy steels are drawn to stringent tsubaki standards. Unique piercing technique of pitch holes provides smooth finish holes for optimum interference fits. This coupled with shot peening yields maximum fatigue and tensile strength challenged by the most severe applications.

Precision Manufacturing

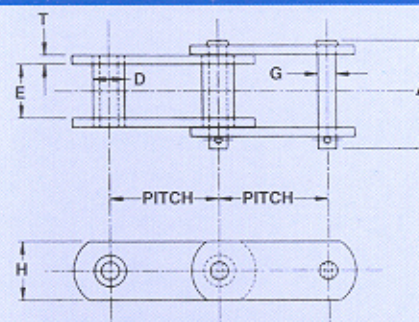
4000 Series Chains are manufactured to close tolerances using state-of-the-art production equipment and methods. This enables us to produce high performance cement elevator chains without staggered pins, allowing chains to hang straight and true without compromising strength or wear resistance.

Extended Bushing Design

TI Diamond bucket elevator chain bushing extend beyond the inside sidebar to establish a suitable clearance between the inner link and outer link. This virtually prevents abrasive material from entering the pin-bush joint area and hence the heavy duty hardened bush will not wear out prematurely and it will not separate from the chain and contaminate cement. Further this extended bushing prevent build-up material due to "flooding" of the elevator boot section, which can result in dry cavitation of pins.

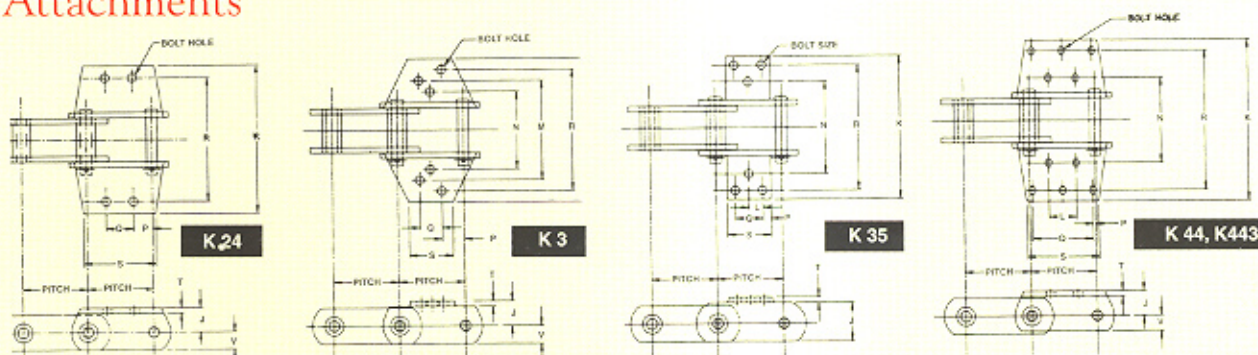


Bucket Elevator



Diamond Chain No.	Eqvt. Tsubaki Chain No.	Pitch	Width		Bushing Dia D	Pin Dia G	Link Plate		Avg. Tensile Strength Kg.
			A	E			Height H	Thick T	
SP 6111	*	120.90	125.50	66.70	36.50	19.05	50.80	9.50	22,680
SP 6844	*	152.40	132.55	63.50	28.60	19.05	50.80	12.90	31,750
SP 4856	*	152.40	155.57	76.20	44.45	25.40	63.50	12.70	65,800
SP 4857	BF 4857	152.40	155.57	76.20	44.45	25.40	82.55	12.70	78,800
SP 0958	*	152.40	155.60	76.20	50.80	28.60	83.50	14.00	86,000
SP4859	*	152.40	187.32	95.25	60.32	31.75	101.60	16.00	1,19,600
SP 4864	BF 4864	177.80	187.32	95.25	60.32	31.75	101.60	16.00	1,24,500
SP 0984	*	177.80	188.00	95.25	63.50	34.90	101.60	16.00	1,24,500

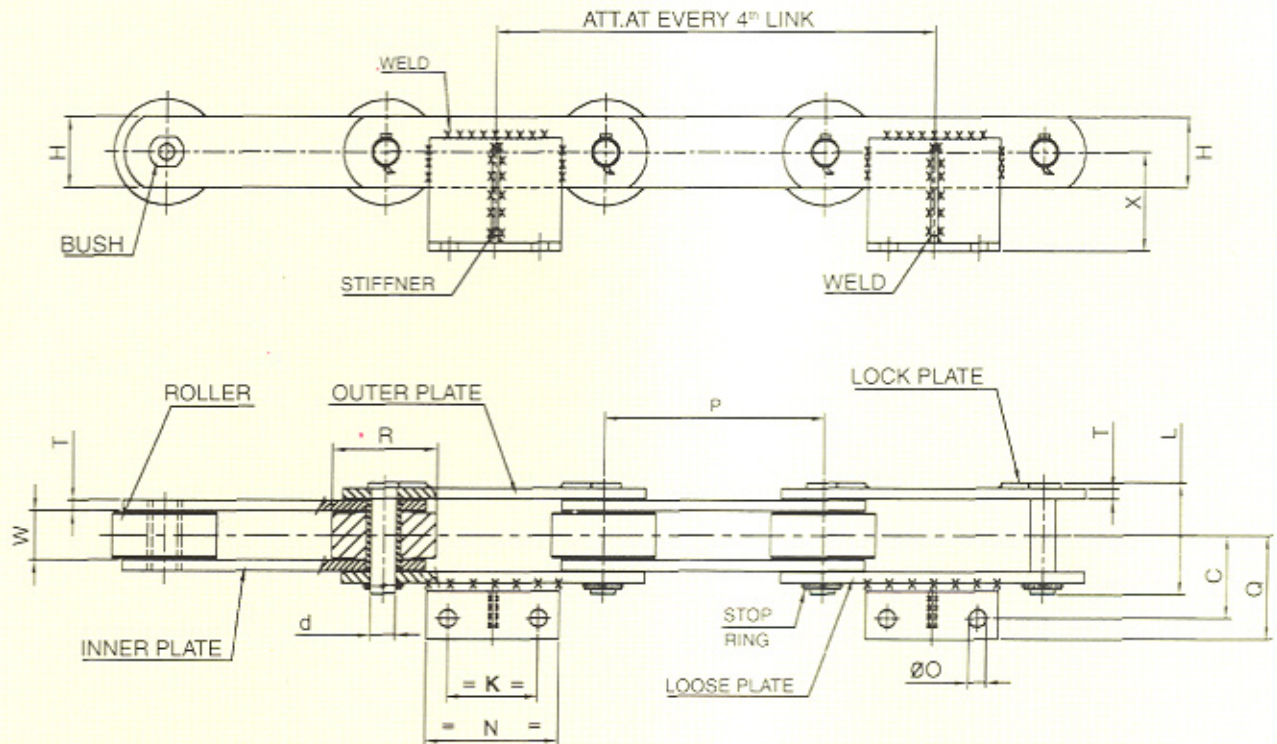
Attachments



Attach No.	Diamond Chain No.	N	M	R	K	L	Q	S	P	Bolt hole Dia	J	T	V
K 21	SP 6111	-	-	158.75	196.85	-	-	-	58.74	12.70	38.10	9.50	25.40
K 24	SP 6111	-	-	184.15	241.30	-	-	-	63.50	16.00	47.60	12.70	25.40
K 2	SP 6844	-	-	166.70	207.95	-	-	-	69.85	12.70	31.75	12.70	25.40
K 3	SP 4856	166.70	277.80	304.80	342.90	-	69.85	177.80	41.28	15.00	47.60	12.70	31.75
K 35	SP 4856	184.15	-	298.45	342.90	-	63.50	177.80	44.45	18.00	47.60	12.70	31.75
K 24	SP 4856	-	-	184.15	263.50	-	63.50	184.15	44.45	18.00	47.60	12.70	31.75
K 44 Complete with 8 AH holes	SP 4857	177.80	-	304.80	368.30	88.90	88.90	163.50	31.75	15.00	63.50	12.70	31.75
	SP 4859	228.60	-	330.20	383.40	69.85	114.30	165.10	19.05	18.00	76.20	16.00	38.10
K 443	SP 4864	228.60	-	330.20	383.40	95.25	139.70	217.50	19.05	18.00	76.20	16.00	44.45
K 443	SP 0984	228.60	-	330.20	370.00	95.25	139.70	183.00	23.15	17.50	76.20	16.00	45.00

- Note: 1. Dimensions are in mm, and are indicative, for details please ask for a detailed drawing.
 2. Attachment hole can be modified to suit bolt size.
 3. SP 4857 & SP 4864 only are under Tsubaki Technical Collaboration.
 4. TIDC is entitled to introduce design change without prior notice

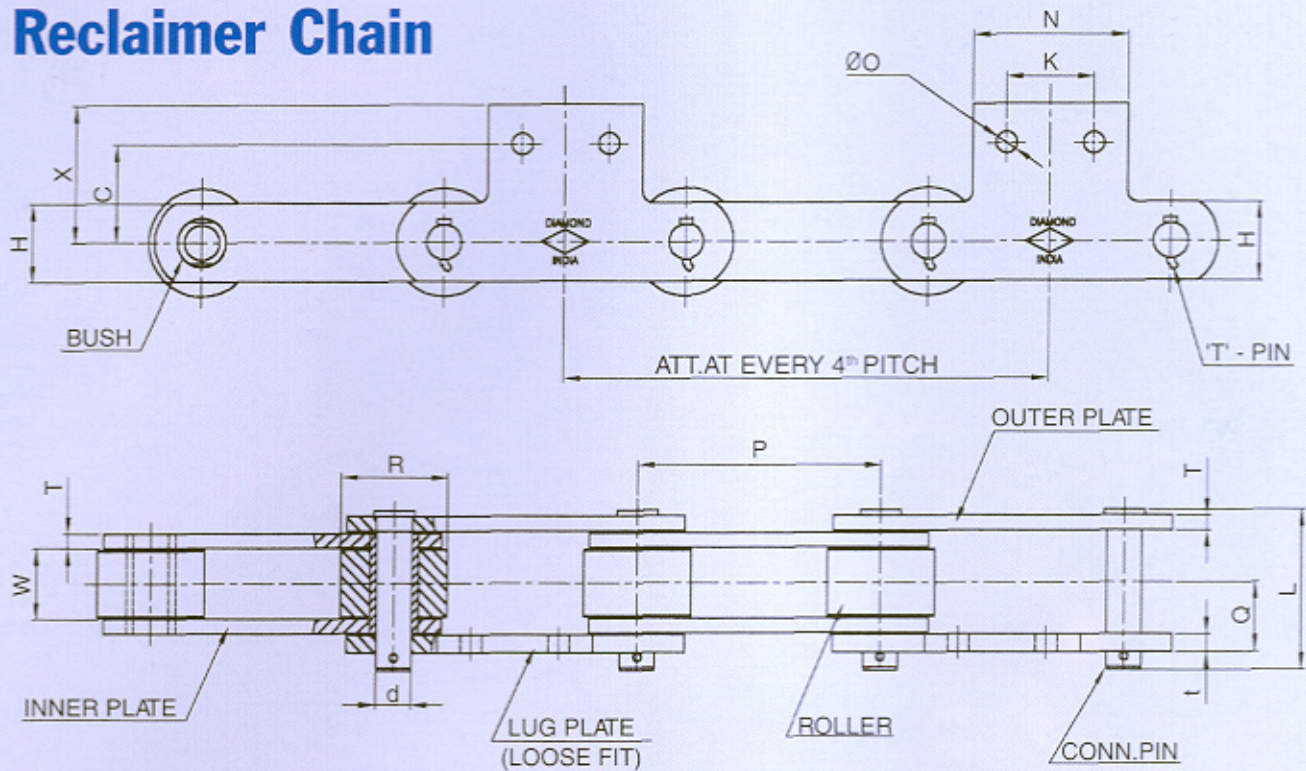
Reclaimer Chain



Diamond Chain No.	Pitch P	Width between Inner plate W	Roller Dia R	Inner Link Plate Size		Outer Link Plate Size		Pin Dia d	Pin Length L	Dist Q	Length N	Pitch K	Hole Dia O	Dist C	Dist X	Min. Tensile Strength Kg.	Weight Per Mtr Kg.
				H	T	H	T										
SP1772	315	70	150	100	15	100	15	36	160	147	190	130	25	117	140	90,000	69
SP1820	250	54	95	75	14	75	14	33	136	60	150	100	25	110	157	60,000	41
SP1980	315	70	130	100	15	100	15	36	162	147	190	130	25	118	140	1,00,000	59
SP1937	315	50	120	80	12	80	12	36	132	125	190	130	21	90	140	50,000	44
SP1926	250	30	64	45	8	45	8	18	80	133	160	100	21	80	130	20,000	18
SP1970	315	70	130	100	15	100	15	36	162	147	190	130	25	117	140	1,00,000	59
SP2027	250	48	100	70	10	70	10	25	114	126	140	90	22	90	110	40,000	44

- Chains developed by TIDC for Reclaimer, are specifically meant for punishing application. The wear members are manufactured using specially drawn alloy steel material and are specially heat treated to resist abrasive wear.
- TIDC offers superior tensile and fatigue strength compared to other chain manufacturers.
- No doubt more and more Cement Companies turn to TIDC for their Reclaimer Application.
- TIDC offers customized solution for your Reclaimer Chain Problem.

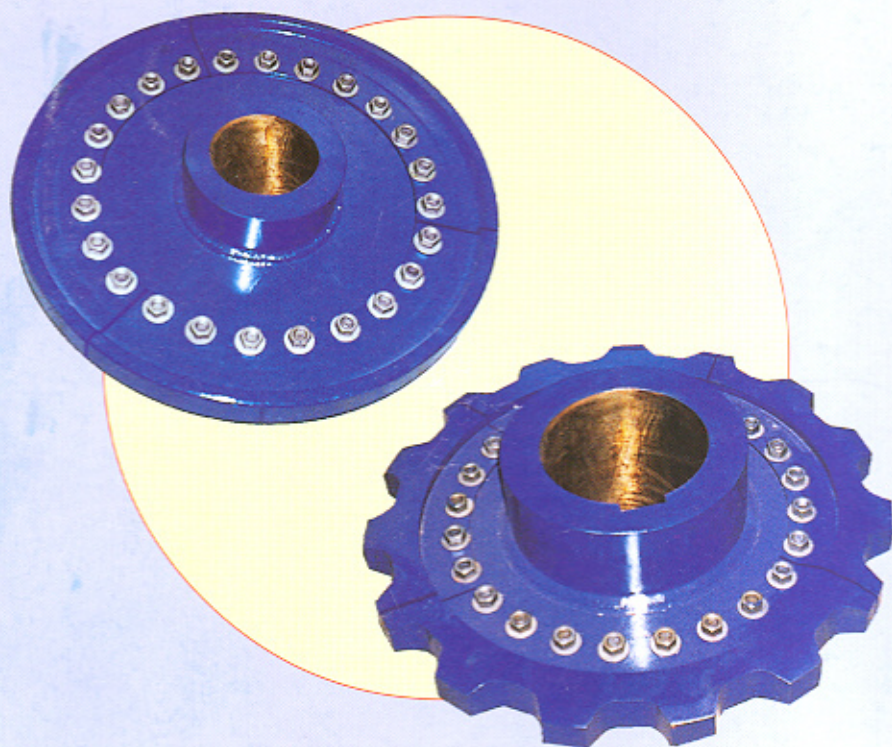
Reclaimer Chain



Diamond Chain No.	Pitch P	Width between Inner Plate W	Roller Dia R	Inner Link Plate Size		Outer Link Plate Size		Lug Plate Size t	Pin Dia d	Pin Length L	Dist Q	Length N	Pitch K	Hole Dia O	Dist C	Dist X	Min. Tensile Strength Kg.	Weight Per Mtr Kg.
				H	T	H	T											
CE296	250	54	85	70	10	70	10	12	26	115	60.5	190	90	22	80	110	40,000	18
CE449	250	35	85	60	8	60	8	12	28	88	42	200	130	21	95	120	20,000	15
CE450	315	37	120	90	12	90	12	14	36	128	52	200	130	25	120	150	50,000	18
CE500	250	37	64	57	10	57	10	12	21	95	40	160	90	21	90	130	40,000	15
CE506	250	56	115	100	20	100	20	22	30	163	72	220	160	25	120	150	70,000	52
CE614	250	95	115	100	20	100	20	22	40	174	70	280	210	25	88	120	1,00,000	40
SP1675	250	54	85	70	10	70	10	10	26	112	50	190	140	21	85	110	40,000	28
SP1676	315	60	115	100	12	100	12	12	36	130	65	250	200	21	105	130	75,000	47
SP1688	250	37	64	57	10	57	10	12	21	93	60	160	90	21	80	120	40,000	18
SP1701	250	57	105	90	18	90	18	20	36	168	67	160	90	26	80	120	1,10,000	56
SP1709	250	54	85	75	10	75	10	12	28	115	52	160	90	21	95	135	60,000	23
SP1744	250	41	75	65	12	65	12	12	28	113	65	160	100	21	65	100	40,000	29
SP1748	250	56	95	77	14	77	14	14	30	138	77	180	100	23	77	117	75,000	45
SP1816	250	37	64	57	10	50	10	12	21	95	40	160	90	21	130	90	40,000	32
SP1817	250	54	95	80	14	80	14	16	30	139	59	160	90	21	100	140	80,000	30
SP1852	250	50	90	70	12	70	12	25	30	136	65	200	120	35	120	160	45,000	35
SP1871	315	50	80	70	16	70	16	18	32	140	62	160	90	23	118	80	50,000	30
SP1879	315	60	120	80	16	80	16	18	36	160	65	200	130	25	120	155	63,000	52
SP1927	250	56	112	100	20	100	20	22	40	167	72	225	158	26	120	150	1,00,000	40
SP2029	250	70	110	85	15	85	15	18	36	163	60	160	90	22	100	140	1,00,000	47

Sprockets & Traction Wheels

TI Diamond Chain Ltd. manufactures Sprockets & Traction wheels using Latest Technology. Tooth profiles of Sprockets are designed using Advances Software. Heat Treatment is done to exacting depths using Modern H/F Induction Hardening Equipment's for unsurpassed wear.



**Installation
Support
from TIDC**

TIDC offers, for its valued customers, installation support for chains supplied. Specially Trained Engineers from TIDC monitor the performance of the chains periodically, and help in achieving maximum life.

TI DIAMOND CHAIN LTD.

Head Office:

P.B.No.11, Ambattur, Chennai - 600 053. Phone : 044-26256181 Fax : 044-26257349
E-mail: industrialchains@tidc.murugappa.com Visit us at: www.tidiamond.com

Regional Offices:

North: Jeevan Deep Building, 1st Floor, 10, Sansad Marg (Parliament Street), New Delhi -110 001
Phone: (011) 23367581 Bd: 0546/0515/0230/0159 Fax : 23360291
E-mail: icnorth@tii.murugappa.com

East: Pradip Estates, 2nd Floor, No. 6-A, Middleton Street, Kolkata - 700 001
Phone: (033) 22810281 Fax: (033) 22810281 E-mail: iceast@tii.murugappa.com

West: Post Box No. 1308, "United Bank of India Building" II Floor Sir P. M. Road, Mumbai - 400 001
Phone: (022) 22875540, 22876631 Bd: 22870903 Fax: (022) 22871092
E-mail: syed@tii.murugappa.com sm@tii.murugappa.com

South: P.B.No.11, Ambattur, Chennai - 600 053.
Phone: (044) 26254374 Fax : 044-26257349 E-mail: ICSOUTH@tidc.murugappa.com