Chains

Amenabar

Certifié ISO 9001 par

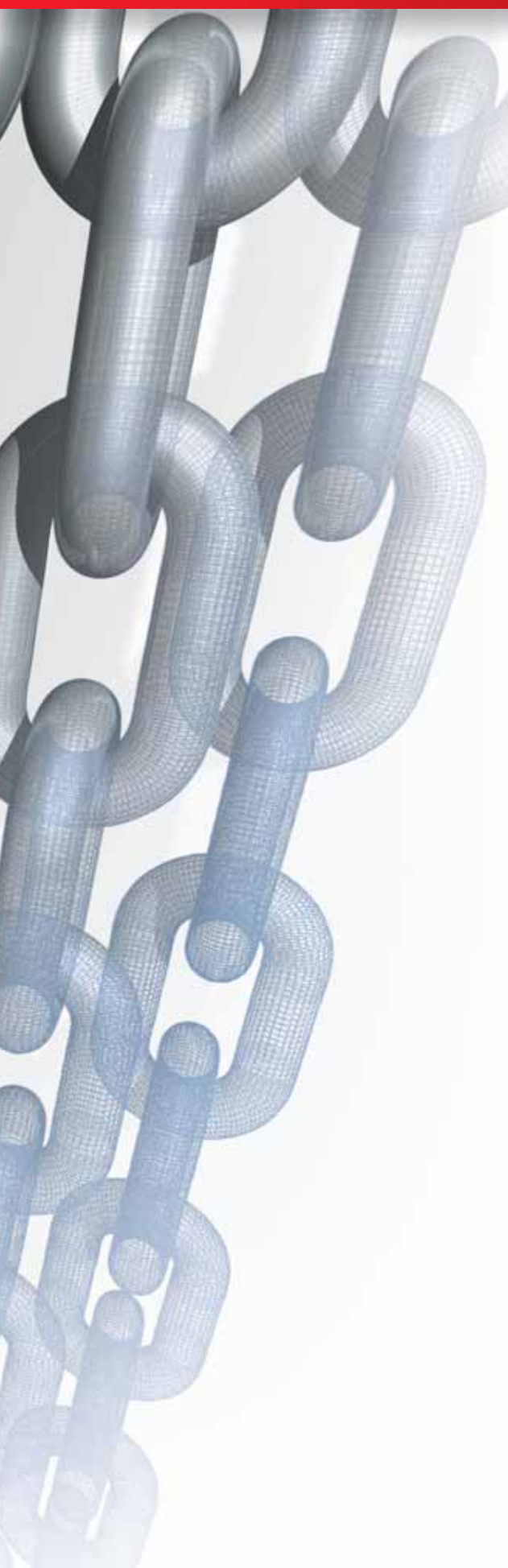
AEM Association Espagnole de Manutention CERTIFICAT

FEM FEDERATION OF EUROPEAN MATERIALS HANDLING

ESPMD0006302

Amenabar Chains

Table of Contents



The Chains

Types of Chains

The different types of chains are determined by the material, shape (straight, oval, twisted…) and by the relationship among the placement, width and starting wire diameter. The manufacturing process can also distinguish the chain, whether it includes thermal treatments or not in order to improve the mechanical features or the coating, which provides high-resistance to oxidation/ rusting by improving its appearance.

Materials

Chains may be manufactured with the following materials:

- carbon steel
- alloyed steel
- stainless steel

Shapes

- The most common chains are straight and they have universal applications.
- Oval chains have an oval link profile allowing that a hook gets into the link thus hooking the chain.
- Twisted chains are generally used in security systems as their twisting increases resistance to traction.

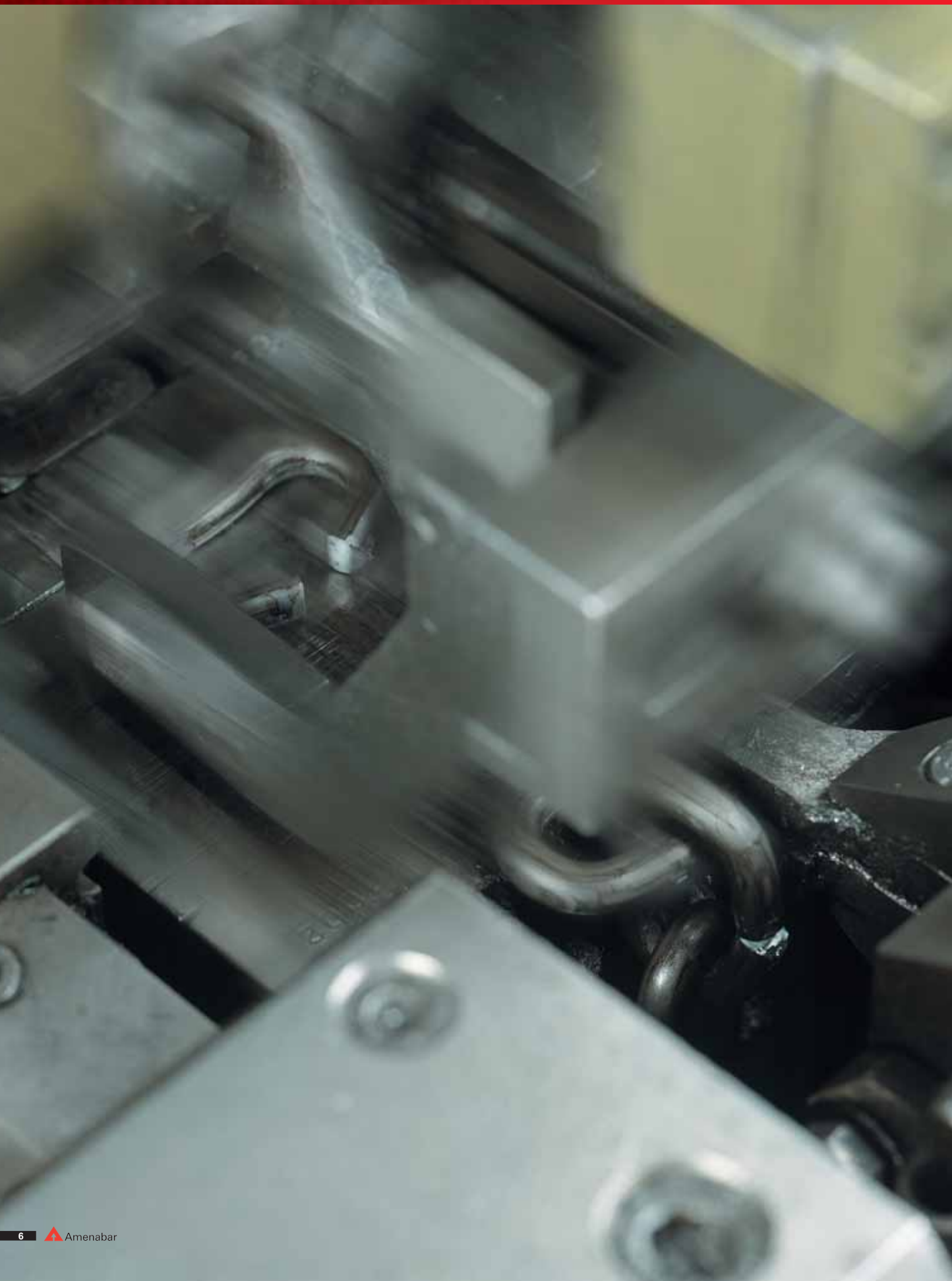
Geometry

La géométrie des chaînes est décrite dans des normes qui indiquent le rapport entre le diamètre du fil de départ, le pas du maillon et la largeur.

Amenabar manufactures commercial chains and those under regulations DIN 5687, DIN 5684, DIN 764, DIN 763, DIN 762, and DIN 766, also being able to manufacture chains under other regulations or clients' requirements.

Thermal Treatment

High-resistance chains must have thermal treatment in order to have the mechanical features that are going to be required at work.



Coatings

Chains may be sold with three different finishings:

- Black, the way they come out from the production line.
- Polished, subject to a mechanical polishing process that improves its appearance while getting rid of the wire superficial debris. Besides, it gets rid of all the remaining borders that could have remained during the manufacturing process, but it does not give it any resistance to oxidation/ rusting.
- Coated chemically treated through elements that protect the wire surface against oxidation/ rusting. The main coating of commercial chains is electrolytic galvanization, or zinc that gives brightness (very nice appearance) and a medium resistance to corrosion. Other possible finishings such as fire galvanization do not give such a nice appearance but their resistance to corrosion is much higher. There are other organic coatings that achieve wonderful resistance to corrosion. In some cases, painting coatings are required (such as in ornamental chains.)

Calibration

When chains must have a secured placement in order to pass through alveoli wheels (such as in the case of an elevator or transport) or any other system that requires placement accuracy is when we must calibrate them. This process makes the chain placement uniform. Furthermore, in Amenabar, this procedure assures a chain-loading test.

Test

When the client so requires, chains are submitted to a traction test, with a load test that is determined by different rules. During these tests, the load is always lower than the elastic limit of the chain.

All chains destined to elevation must be submitted to this test.

Chain Identification

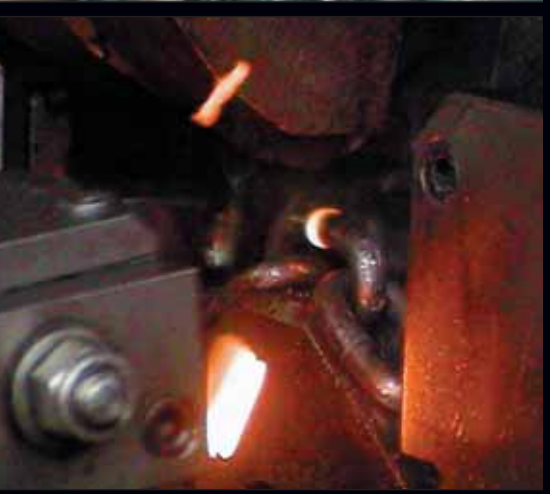
Chains are identified by the starting wire diameter; therefore a chain type 2 is that which is manufactured with a 2 mm-wire-diameter.

DIFFERENT RULES INDICATE THE RELATIONSHIP OF THE PLACEMENT OF EACH OF THE LINKS WITH THIS DIAMETER AND ALSO OF THE WIDTH OF THE LINK WITH THE DIAMETER.

We will later define the type of finishing we desire (black, polished, with zinc, fire galvanized, painted, etc.)

If we also want or need calibration we must specify that in the order.

Manufacturing Process



Material Reception

Amenabar's suppliers represent a fundamental part of our manufacturi ng process. That is why we select the best suppliers and we use the m ost proper materials for each kind of product.

Assembler

In order to obtain a right chain, it's necessary to properly configure the assembler. The development of each of the links is fundamental in order to avoid later alignment problems.

The proper mechanical resistance of each of the links together with the right alignment of machinery and equipment make the link geometry perfect.

Furthermore, it's absolutely necessary to have sufficient material for it to properly merge with the welding machines. **Amenabar** likes to do things well.

Welder

In order to obtain a good chain finishing, it's absolutely necessary to weld it well.

Time, intensity and proper pressure of two-piece devices make **Amenabar's** chains the best in the marketplace. Reducing these parameters implies reduction of costs, but what about quality?

In order to do things the way we like in **Amenabar**, the perfect command of all parameters is an absolute need.

Manipulation

People's intervention is very important in the production process. With sensitivity, training and experience, and supported by the best production means, we manufacture the chain in automatic machines.

However, chains destined to finishing must be treated by the expert hands of our personnel who prepare the ties of the chain in order to avoid knots in the packages that are going to be polished or coated with zinc.

In **Amenabar**, the perfect manipulation of the chain helps our clients not to waste time at the time of manipulation in bags or boxes.

This allows all our clients to save time and money. In conclusion they get MORE PROFITABILITY.

Polish

Polish provides a good appearance and allows the elimination of possible sharpening that remains after the trim is made in the welding machine.

In **Amenabar**, due to the fact that quality is our rule, we polish all chains, even those that are later coated.

Zinc Coating

It provides resistance to oxidation/ rusting and it improves the chain appearance.

Its quality depends on the thickness of the layer and on the covering of all the areas of the product to be coated.

In **Amenabar**, we coat our chains with double thickness in comparison with our competitors (more than twice the time in regards to resistance to oxidation/ rusting) and we obtain a better finishing.

Galvanization And Other Finishings

Depending on the needs of our clients, we can provide the chain with the proper coating for each different need.

Deliveries

We deliver goods to our clients every day.

We are always working to improve our delivery terms by making them immediately in most orders.

That is why we have automated our warehouses.

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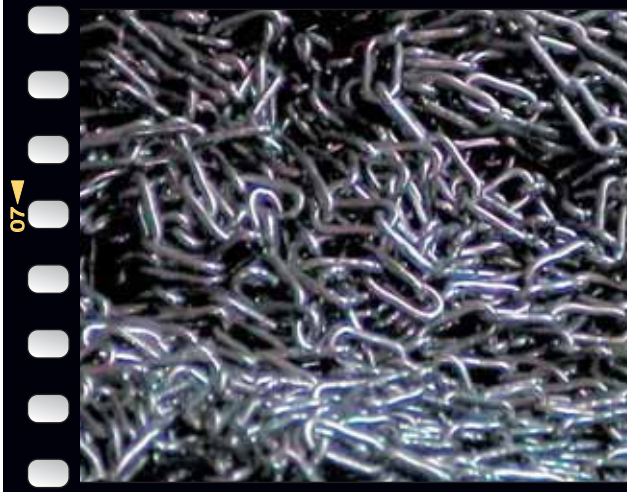

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Degree-30-Chains

Amenabar's experience and know-how in the development and manufacturing of chains and elevation devices make our chains a synonym of security and quality, being the object of specification in several industries such as engineering, shipyards, siderurgy, fishing, etc.

Amenabar's Degree-30-Chains are manufactured with high technology machinery and with materials under Rules DIN-17115.

Degree-30-Chains are manufactured under Rules DIN and each manufacturing lot is accepted after the satisfactory result of samples' inspection.

The specified loads in the tables are only theoretical values and the chains have not been tested in regards to resistance.

They will be tested completely at request and **Amenabar** will issue the corresponding test certificate.

Precautions

- Do not overload.
- The chain-working load may be reduced due to abuse or misuse (twisting, distortion, deformation, use or corrosion, excess of maximum working load, etc.)
- This chain **is not suitable** for elevation.

Some Aspects Related To Chain Length

- **Finishing:**

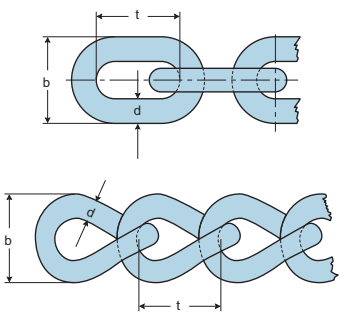
  Polished, galvanized, electrolytic (zinc-coated), fire galvanized, cemented, painted, etc.

- **Packaging:**

  50-Kg-bags up to 10 mm Ø From 12 mm Ø, bunches of 100 Kg. Optionally, metallic huge bottles of 50 kg. and 500 kg and for cardboard boxes of 10, 20 or 25 Kg. Please consult.

- **Order Unit:**

  Chain DIN-766 in fractions of 50 meters. Remaining chains in fractions of 50 Kgs.



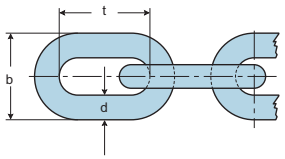
Commercial chain (straight and twisted)

Diameter d		Placement t		External width b		Weight	Max. coeff. of safe working load		Test load	Break. load
mm	inches	mm	inches	mm	inches	Kg/m	4:1 Kg	5:1 Kg	Kg.	Kg.
2	5/64	1	0,551	9	0,354	0,09	–	–	–	–
2,5	7/64	1	0,630	1	0,394	0,1	–	–	–	–
3	1/8	1	0,74	1	0,462	0,1	70	56	14	280
4	5/32	22	0,866	1	0,590	0,30	15	12	31	628
5	3/1	25	0,984	1	0,790	0,46	245	19	490	982
6	7/32	27	1,063	21	0,827	0,70	400	320	800	1.60
7	1/4	28	1,10	25	0,984	0,97	575	460	1.15	2.300
8	5/1	32	1,260	28	1,10	1,26	750	600	1.50	3.000
9	11/3	36	1,41	31	1,220	1,65	950	76	1.90	3.800
10	3/8	40	1,575	34	1,338	1,97	1.175	940	2.350	4.700

Main use: industrial, agricultural, cattle, and general uses.

DIN-764 Chain

Diameter d		Placement t		External width b		Weight	Max. coeff. of safe working load		Test load	Break. load
mm	inches	mm	inches	mm	inches	Kg/m	4:1 Kg	5:1 Kg	Kg.	Kg.
8	5/1	28	1,10	27	1,063	1,32	750	600	1.50	3.000
1	3/8	35	1,378	34	1,338	2,07	1.17	940	2.350	4.700
1	15/3	42	1,654	41	1,61	2,98	1.67	1.34	3.350	6.700
1	1/2	45	1,772	44	1,732	3,50	1.97	1.58	3.950	7.90
1	9/1	49	1,929	48	1,890	4,06	2.300	1.84	4.600	9.200
1	5/8	56	2,205	54	2,12	5,28	3.000	2.400	6.000	12.000
1	11/1	63	2,480	60	2,362	6,56	3.800	3.050	7.60	15.200
20	3/4	70	2,756	67	2,638	8,60	4.700	3.76	9.400	18.800
22	7/8	77	3,032	77	3,032	10,-	5.700	4.560	11.400	22.800



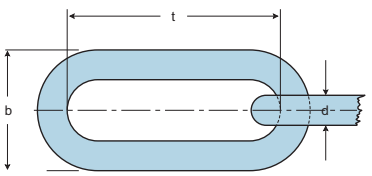
Main use: continuous transportation, ceramic sewer devices and mining, plain roller and general uses.

Class A: calibrated and tested (to be expressly specified in the order.)
Class B: without calibration or testing (provided as standard.)

In Class A chains, at request, and after placing our alveoli wheel or nut, **Amenabar** assures the perfect adjustment between the chain and the wheel thus issuing the corresponding test certificate.

Long link Chain

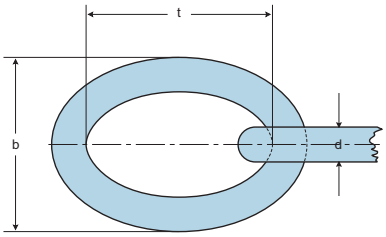
Diameter d		Placement t		External width b		Weight	Max. coeff. of safe working load		Test load	Break. load
mm	inches	mm	inches	mm	inches	Kg/m	4:1 Kg	5:1 Kg	Kg.	Kg.
4	5/32	32	1,260	15	0,590	0,27	175	125	314	628
5	3/16	36	1,417	19	0,748	0,48	245	196	490	982
7	1/4	36	1,417	25	0,984	0,90	575	460	1.150	2.300
8	5/16	40	1,575	28	1,102	1,16	750	600	1.500	3.000
10	3/8	50	1,969	34	1,338	1,85	1.175	940	2.350	4.700
12	15/32	60	2,362	41	1,614	2,62	1.675	1.340	3.350	6.700
14	9/16	70	2,756	48	1,890	3,60	2.300	1.840	4.600	9.200



Main use: industrial, agricultural, cattle, and general uses.

Oval Chain

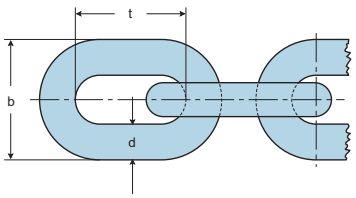
Diameter d		Placement t		External width b		Weight	Max. coeff. of safe working load		Test load	Break. load
mm	inches	mm	inches	mm	inches	Kg/m	4:1 Kg	5:1 Kg	Kg.	Kg.
5	3/16	33	1,299	29	1,142	0,45	245	196	490	982
6	7/32	33	1,299	31	1,220	0,68	400	320	800	1.600
7	1/4	36	1,417	34	1,338	0,94	575	460	1.150	2.300
8	5/16	36	1,417	36	1,417	1,25	750	600	1.500	3.000
9	11/32	45	1,772	43	1,693	1,60	950	760	1.900	3.800
10	3/8	45	1,772	43	1,693	1,90	1.175	940	2.350	4.700



Applications principales : carrosserie, accouplement de remorques de camions.

DIN-766 Chain

Diameter d		Placement t		External width b		Weight	Max. coeff. of safe working load		Test load	Break. load
mm	inches	mm	inches	mm	inches	Kg/m	4:1 Kg	5:1 Kg	Kg.	Kg.
4	5/32	16	0,630	14	0,551	0,32	185	150	370	750
5	3/16	18,5	0,728	17	0,689	0,52	275	220	550	1.100
6	7/32	18,5	0,728	20	0,787	0,78	400	320	800	1.600
7	1/4	22	0,866	23	0,906	1,-	575	460	1.150	2.300
8	5/16	24	0,945	26	1,024	1,40	750	600	1.500	3.000
9	11/32	27	1,063	30	1,181	1,75	950	760	1.900	3.800
10	3/8	28	1,102	34	1,339	2,25	1.175	940	2.350	4.700
12	15/32	34	1,339	40	1,575	3,25	1.675	1.340	3.350	6.700
13	1/2	36	1,417	44	1,732	3,84	1.975	1.580	3.950	7.900
14	9/16	41	1,614	47	1,850	4,45	2.300	1.840	4.600	9.200
16	5/8	45	1,772	54	2,126	5,80	3.000	2.400	6.000	12.000



Main use: Navy, continuous transportation, ceramic sewer devices and mining, elevators, fishing rods and general uses.
Class A: calibrated and tested (to be expressly specified in the order.)
Class B: without calibration or testing (provided as standard.)

Order Unit: fractions of 50 meters and multiples.

In Class A chains, at request, and after placing our alveoli wheel or nut, **Amenabar** assures the perfect adjustment between the chain and the wheel thus issuing the corresponding test certificate.

Straight Link Chains
Electrically welded

Straight link chain for dogs

Chain diameter in mm				Length in cm.						
2	2,5	3	4	5	6	130	135	150	200	250

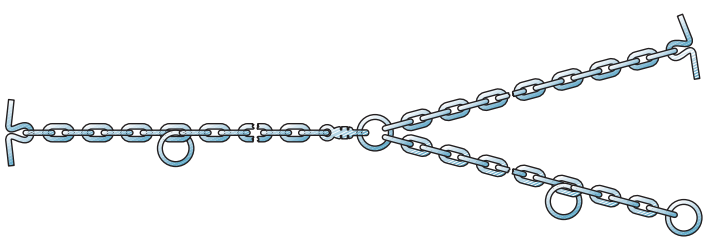
Straight link chain for goats

Chain diameter in mm			Length in cm.			
3	4	5	300	400	500	600

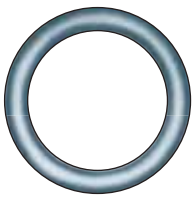
Straight link chain for oxen

Chain diameter in mm					Length in cm.				
4	5	6	7	8	80 x 46	80 x 55	80 x 60	80 x 65	80 x 70

Other chains: splinter shaping, Dutch chains.

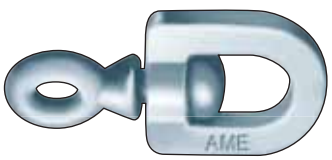


Chain Accessories



Round ring

Number	d - chain
1	3 –4
2	5 - 6
3	7 - 8



Revolving, forged with or without ring

t	d			
25	4	5	–	–
30	4	5	6	–
35	–	5	6	7
40	–	5	6	7
45	–	5	6	7
50	–	5	6	7
60	–	–	6	7

AISI-316 Stainless Steel Chains

The AISI-316 stainless steel **Amenabar** chain Degree-43 and Degree-50 is manufactured with stainless austenitic material made of nickel-chrome-molybdenum and it is specially recommended for applications where hygiene is required as well as a high resistance to corrosion and high temperatures or use in high aggressive environments.

The AISI-316 stainless steel **Amenabar** chain is obtained as a result of the combination of high technology machinery, the use of high quality materials and a strict quality assurance system in all production stages. This assures optimum results in several applications.

Final Control

Each of the links of the AISI-316 stainless steel chain manufactured by **Amenabar** is tested with a 50% power of the breakage load and individually inspected thus assuring stable quality.

Breakage

Each manufacturing lot is accepted after the satisfactory result arising from the test of a sample up to destruction. Sealed: the stainless steel chain is sealed with our AME seal every 11 links also specifying the lot number.

Main Use

Feeding, meat and preservation industries, chemical, textile, paper, enological industries and the navy, etc. Aspects related to the supply of the chain finishing: Polished – Packaged in bags or cardboard boxes. Optionally, in metallic spools of 10 or 20 kg Order unit: Chains with diameters of 2 to 4 mm in fractions of 50 m. Chains of 5 to 10 mm in fractions of 25 m.

Aspects Related To The Chain Supply

- **Finishing:**

  Polished.
- **Packaging:**

  In bags or cardboard boxes

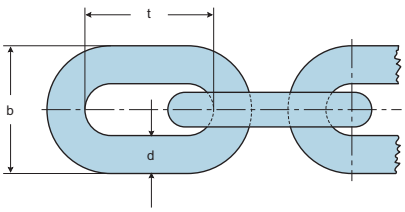
  Optionally, in metallic spools of 10 or 20 kg.
- **Order Unit:**

  Chains with diameters of 2 to 4 mm in fractions of 50 m.

  Chains of 5 to 10 mm in fractions of 25.

Semi long link chain Degree-43

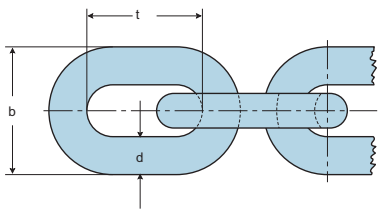
Diameter d		Placement t		External width b		Weigh	Max. coeff. of safe working load		Test load	Break. load
mm	inches	mm	inches	mm	inches	Kg/m	4:1 Kg	5:1 Kg	Kg	Kg
2	5/64	12	0,472	7	0,275	0,09	68	54	135	270
3	1/8	16	0,630	11	0,433	0,17	150	120	300	600
4	5/32	19	0,748	15	0,590	0,30	250	200	500	1.000
5	3/16	21	0,827	19	0,748	0,46	400	320	800	1.600
6	7/32	27	1,063	22	0,866	0,70	600	480	1.200	2.400
8	5/16	28	1,102	27	1,053	1,32	1.075	860	2.150	4.300
10	3/8	35	1,378	34	1,338	2,07	1.675	1.340	3.350	6.700



It has less working load and less resistance to twisting and knots than the DIN-5684 chain. But thanks to a lower number of links per meter, it presents a substantial reduction of weight per meter and a lower price.

DIN-5684 Chain Degree-50

Diameter d		Placement t		External width b		Weigh	Max. coeff. of safe working load		Test load	Break. load
mm	inches	mm	inches	mm	inches	Kg/m	4:1 Kg	5:1 Kg	Kg	Kg
5	3/16	15	0,591	17	0,669	0,54	475	380	950	1.900
6	7/32	18	0,709	20	0,787	0,78	700	560	1.400	2.800
7	1/4	21	0,827	23	0,905	1,08	950	760	1.900	3.800
8	5/16	24	0,945	26	1,024	1,40	1.250	1.000	2.500	5.000
10	3/8	28	1,102	34	1,338	2,25	1.950	1.560	3.900	7.800



Therefore, it is suitable when it's necessary to have a high level or working load and great resistance to twisting and knots. This kind of chain is used when a greater accuracy is necessary for dented wheel adjustment (elevation devices, etc.)

Commercial Zinc-Coated Chain In Spools

Commercial Zinc-Coated Chain In Spools

Diameter d		Placement t	Width b	Weight	coefficient of maximum safe working load		Spool/ approximate contents	
mm	inches	mm	mm	Kg/m	4:1 Kg	5:1 Kg	Kg	m
2	5/64	14	9	0,09	-	-	20	223
2,5	7/64	16	10	0,12	-	-	20	182
3	1/8	19	12	0,17	-	-	20	125
4	5/32	22	15	0,30	185	150	25	84
5	3/16	25	18	0,46	275	220	25	56
6	7/32	27	21	0,70	400	320	25	36
7	1/4	28	25	0,97	575	460	25	26
8	5/16	32	28	1,26	750	600	25	20
9	11/32	36	31	1,65	950	760	25	15
10	3/8	40	34	2,07	1175	940	25	12

The Most Comfortable Way Of Exposing Chains

CNE Member from the EUROPEAN
MAINTENANCE FEDERATION (FEM).

Member of the Technical Committee
of Resolution-58-Machinery from
Elevation and Transport AENOR.

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