



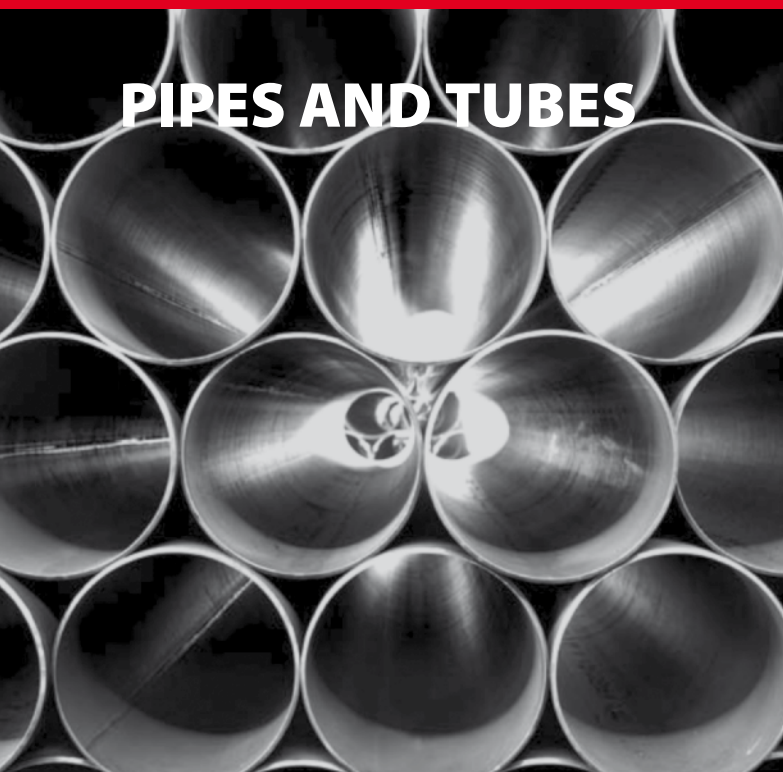
**STEEL WIRE ROPES**



**CHAINS**



**Cotrac**®



**PIPES AND TUBES**



**LIFTING PRODUCTS  
WELDING PRODUCTS**

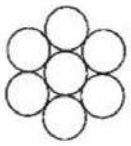
- ✓ Steel wire ropes, bright or galvanized for diverse industrial use, with diameters from 1mm to 80 mm;
- ✓ Galvanized steel wire ropes with standard or spiral construction (strands), flexible or semi flexible, with diameters starting from 1mm, delivered in coils of specific length or on wooden reels;
- ✓ Wire rope slings for traction or lifting, matissed or with sleeves at ends, simple or with high resistance accessories (hooks, shackles etc.) with 1, 2, 3 or 4 legs, wire rope diameters starting from 6m (300 kg lift) to 80mm (over 75000 kg lift);
- ✓ Grade 3 resistance chains according to DIN 766 (short link);
- ✓ High resistance chains, grade 8 according to EN 818, in specific lengths, or delivered as lifting or anchoring devices; mining chains according to DIN 22252;
- ✓ Chain lifting devices with 1, 2, 3, 4 or more legs, with or without tightener;
- ✓ Commercial galvanized chains, chains for animals;
- ✓ Chain anchoring devices for transport platforms;
- ✓ Lifting webbing slings, endless or flat, made of polyester, with a lift capacity starting from 1 ton; anchoring belts for goods during transport, with lengths of 5, 6, 8, 10 or 12m;
- ✓ Rutile or base welding electrodes, diameters 2.50, 3.25, 4.00 or 5.00mm; SG2 welding wire;
- ✓ 'Martin Miller' saw blades;
- ✓ Accessories for chains and wire ropes, for commercial and industrial use (clips, thimbles, hooks, shackles, snap hooks etc.);
- ✓ (\*) Assembly pieces, bright or galvanized, or stainless steel, for different industrial use; shaft and bore rings, clamps;
- ✓ (\*) Profiles, plates, pipes and other metallurgical products;
- ✓ (\*) Coke, carbide, PP and PES cords.

## Our clients recommend us

SATISFIED CLIENTS	FIELD OF ACTIVITY	DELIVERED PRODUCTS
FORAJ SONDE SA • DAFORA FORAJ SA	Gas and petrol drilling	Pipes, wire ropes, lifting and anchoring devices
ROMGAZ SA • TRANSGAZ SA • E.ON GAZ DISTRIBUȚIE SA	Natural gas	Coke, pipes, welding electrodes
DAMEN SHIPYARDS • ȘANTIERUL NAVAL CONSTANȚA • AKER SA	Shipyards and docks	High resistance chains, wire ropes for ships and anchoring
SCCF - COLAS SA • ACSA SA • 2 INVEST SA	Construction of bridges and rafts	High resistance wire ropes, assembly pieces
HIDROCONSTRUCȚIA SA • CONSTRUCȚII HIDROTEHNICE SA	Hydro technical constructions	Wire ropes, pipes, welding electrodes
BUILD CORP SRL • ROMBET SA • VICTOR CONSTRUCT • CONTRANSCOM BENȚA SA	Civil and industrial constructions	Materials for fixing, anchoring, traction and welding
COMPANIA NAȚIONALĂ A HUILEI • SOCIETATEA NAȚIONALĂ A LIGNITULUI OLTENIA	Mining	High resistance chains, carbide, wire ropes
COMPANIA NAȚIONALĂ A URANIULUI • SOCIETATEA NAȚIONALĂ A SĂRII	Extraction industry	Big wire ropes for draglines, excavators
COMPLEXUL ENERGETIC ROVINARI • COMPLEXUL ENERGETIC TURCENI SA	Energy complexes	Steel wire ropes, high resistance chains
MECANICA MARSA • MECANICA CEAHLĂU	Car manufacturing industry	Wire ropes for traction, electrodes and welding wire
HOLCIM SA • LAFARGE SA • CARPATCEMENT	Concrete industry	Special construction wire ropes, electrodes and welding wire
RNP ROMSILVA SA • HLV • FORESTAR	Forestry	Chains, wire ropes, drive belts, assembly pieces
ROMANEL SA • KRONOSPAN • MOBEXPERT	Timber industry	Saw blades, drive belts, welding electrodes, assembly pieces

# STEEL WIRE ROPES

## SIMPLE CONSTRUCTION – SPIRAL



Galvanized, spiral construction, steel wire ropes  
1x7 – according to EN 12385-10

Diameter	Linear weight	Minimum breaking load	
		1770 N/mm <sup>2</sup>	1960 N/mm <sup>2</sup>
[mm]	[kg/100m]	[kN]	[kN]
0.5	0.12	0.23	0.26
1	0.49	0.94	1.04
1.5	1.10	2.11	2.34
2	1.96	3.75	4.15
2.5	3.06	5.86	6.49
3	4.4	8.45	9.35
3.5	5.99	11.5	12.7
4	7.8	15.0	16.6
4.5	9.0	19.0	21.0
5	12.2	23.5	26.0
6	17.6	33.8	37.4
6.4	20.0	38.4	42.6
7	24.0	46.0	50.9
8	31.3	60.1	66.5
9	39.6	76.0	84.2

### Recommended field of use:

For anchoring, guiding, cableways and special high resistance uses.

Delivered bright or galvanized.



Galvanized, spiral construction, steel wire ropes  
1x19 – according to EN 12385-10

Diameter	Linear weight	Minimum breaking load	
		1770 N/mm <sup>2</sup>	1960 N/mm <sup>2</sup>
[mm]	[kg/100m]	[kN]	[kN]
1.5	1.09	2.10	2.32
2	1.94	3.73	4.13
2.5	3.03	5.83	6.45
3	4.36	8.39	9.29
3.5	5.93	11.42	12.64
4	7.74	14.91	16.51
4.5	9.80	18.87	20.90
5	12.1	23.3	25.8
6	17.5	33.5	37.1
6.4	19.9	38.1	42.2
7	23.8	45.6	50.5
8	31	59.6	66
9	39.3	75.4	83.5
9.5	43.8	84	93
10	48.5	93.1	103
11	58.7	113	125

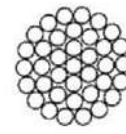
### Recommended field of use:

**Diam. 1-2:** aviation

**Diam. 2-7:** maneuvering works

**Diam. 8-14:** anchoring, suspension.

Delivered bright or galvanized.



Galvanized, spiral construction, steel wire ropes  
1x37 – according to EN 12385-10

Diameter	Linear weight	Minimum breaking load	
		1770 N/mm <sup>2</sup>	1960 N/mm <sup>2</sup>
[mm]	[kg/100m]	[kN]	[kN]
6	17.4	32.7	36.2
6.4	19.8	37.2	41.2
7	23.7	44.5	49.3
8	31	58.1	64.3
9	39.2	73.5	81.4
9.5	43.7	81.9	90.7
10	48.4	90.8	101
11	58.5	110	122
12	69.7	131	145
13	81.7	153	170
14	94.8	178	197
14.5	102	191	211
16	124	232	257
18	157	294	326
19	175	328	363
20	193	363	402

### Recommended field of use:

**Diam. 3-10:** maneuvering works

**Diam. 12-20:** anchoring and suspension.

Delivered bright or galvanized.



# STEEL WIRE ROPES

## NORMAL CONSTRUCTION



Normal steel wire ropes 6x7+FC  
According to EN 12385-4

Diameter	Linear weight	Minimum breaking load	
		1770 N/mm <sup>2</sup>	1960 N/mm <sup>2</sup>
[mm]	[kg/100m]	[kN]	[kN]
2	1.38	2.35	2.6
3	3.11	5.29	5.86
4	5.52	9.4	10.4
5	8.63	14.7	16.3
6	12.4	32.3	23.4
7	16.9	38.8	31.9
8	22.1	37.6	41.6
9	27.9	47.6	52.7
10	34.5	58.8	65.1
11	41.7	71.1	78.7
12	49.7	84.6	93.7
13	58.3	99.3	110
14	67.6	115	128
16	88.3	150	167
18	112	190	211
20	138	235	260
22	167	284	315
24	199	338	375
26	233	397	440



Normal steel wire ropes 6x19+FC  
According to EN 12385-4

Diameter	Linear weight	Minimum breaking load	
		1770 N/mm <sup>2</sup>	1960 N/mm <sup>2</sup>
[mm]	[kg/100m]	[kN]	[kN]
5	8.65	13.1	14.5
6	12.5	18.8	20.8
7	17.0	25.6	28.3
8	22.1	33.4	37.0
9	28.0	42.3	46.8
10	34.6	52.2	57.8
11	41.9	63.2	70.0
12	49.8	75.2	83.3
13	58.5	88.2	97.7
14	67.8	102.3	113.3
15	77.8	117.5	130.1
16	88.6	133.7	148.0
17	100	151	167
18	112	169	187
19	125	188	209
20	138	209	231
21	153	230	255
22	167	253	280
23	183	276	306
24	199	301	333
25	216	326	361
26	234	353	391
28	271	409	453
30	311	470	520



Normal steel wire ropes 6x37+FC  
According to EN 12385-4

Diameter	Linear weight	Minimum breaking load	
		1770 N/mm <sup>2</sup>	1960 N/mm <sup>2</sup>
[mm]	[kg/100m]	[kN]	[kN]
8	22.14	33.4	37.0
10	34.6	52.2	57.8
11	41.9	63.2	70.0
12	49.8	75.2	83.3
13	58.5	88.2	97.7
14	67.8	102.3	113.3
15	77.8	117.5	130.1
16	88.6	133.7	148.0
17	100	151	167
18	112	169	187
19	125	188	209
20	138	209	231
21	153	230	255
22	167	253	280
23	183	276	306
24	199	301	333
25	216	326	361
26	234	353	391
28	271	409	453
30	311	470	520
32	354	535	592
34	400	604	668
36	448	677	749
40	554	835	925
42	610	921	1020
47	764	1153	1277
51	900	1358	1504

### Recommended field of use:

**Diam. 2-4:** aviation

**Diam. 4-9:** for devices

**Diam. 10-24:** traction wire ropes for lifting devices, carrying, high resistance wire ropes for special use

**Diam. 21-26:** wire ropes for cableways.

Delivered bright or galvanized.

### Recommended field of use:

**Diam. 3-7:** aviation and devices

**Diam. 8-25:** mechanical transport, lifting installations, elevators, traction, forestry

**Diam. 21-46:** lifting installations and mining.

Delivered bright or galvanized.

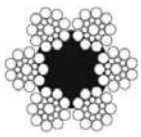
### Recommended field of use:

Lifting devices, forestry, traction elevators, monorails, confectioning wire rope lifting devices and slings.

Delivered bright or galvanized.

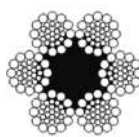
# STEEL WIRE ROPES

## COMBINED CONSTRUCTION



Steel wire ropes 6x19Seale+FC  
According to EN 12385-4

Diameter	Linear weight	Minimum breaking load	
		1770 N/mm <sup>2</sup>	1960 N/mm <sup>2</sup>
[mm]	[kg/100m]	[kN]	[kN]
8	23.0	37.4	41.4
10	35.9	58.4	64.7
12	51.7	84.1	93.1
14	70.4	114	127
16	91.9	150	166
18	116	189	210
20	144	234	259
24	207	336	373
26	243	395	437
28	281	458	507
32	368	598	662
36	465	757	838



Steel wire ropes 6x31Seale+FC  
According to EN 12385-4

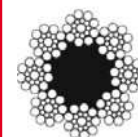
Diameter	Linear weight	Minimum breaking load	
		1770 N/mm <sup>2</sup>	1960 N/mm <sup>2</sup>
[mm]	[kg/100m]	[kN]	[kN]
16	94.0	150	166
18	119	189	210
19	132	211	233
20	147	234	259
22	178	283	313
25	229	365	404
26	248	395	437
28	288	458	507
31	353	561	622
32	376	598	662
34	424	675	748
37	502	800	885
38	530	843	934
40	587	935	1035

**Recommended field of use:**

**Diam. 6-8:** small winches, lifting installations

**Diam. 10-36:** In drilling and extraction works for gas and petrol, underground mechanical transporters, elevators etc.

Delivered bright or galvanized.



Steel wire ropes 8x19Seale+FC  
According to EN 12385-4

Diameter	Linear weight	Minimum breaking load	
		1770 N/mm <sup>2</sup>	1960 N/mm <sup>2</sup>
[mm]	[kg/100m]	[kN]	[kN]
8	21.8	33.2	36.8
10	34.0	51.9	57.4
11	41.1	62.8	69.5
12	49.0	74.7	82.7
14	66.6	102	113
16	87.0	133	147
18	110	168	186
20	136	207	230
22	165	251	278
24	196	299	331
26	230	351	388

**Recommended field of use:**

Elevators.

Delivered bright or galvanized.



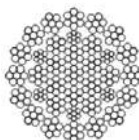
# STEEL WIRE ROPES

## SPECIAL CONSTRUCTION



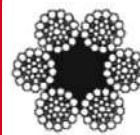
**Anti-rotation steel wire ropes 19x7**  
According to EN 12385-4

Diameter [mm]	Linear weight [kg/100m]	Minimum breaking load	
		1770 N/mm <sup>2</sup> [kN]	1960 N/mm <sup>2</sup> [kN]
8	25.7	37.2	41.1
9	32.5	47.0	52.1
10	40.1	58.1	64.3
11	48.5	70.2	77.8
12	57.7	83.6	92.6
13	67.8	98.1	108.6
14	78.6	114	126
16	103	149	165
18	130	188	208
20	160	232	257
24	231	334	370
26	271	392	435
28	314	455	504
32	411	594	658
36	520	752	833



**Concentric steel wire ropes 35Wx7**  
According to EN 12385-4

Diameter [mm]	Linear weight [kg/m]	Minimum breaking load	
		1770 N/mm <sup>2</sup> [kN]	1960 N/mm <sup>2</sup> [kN]
8	29.1	45.2	48.4
9	36.8	57.2	61.2
10	45.4	70.6	75.6
11	54.9	85.4	91.5
12	65.4	102	109
13	76.7	119	128
14	89.0	138	148
16	116	181	194
18	147	229	245
20	182	282	302
22	220	342	366
24	262	406	435
26	307	477	511
28	356	553	593
32	465	723	774
36	588	914	980
38	656	1019	1092
40	726	1129	1210
42	801	1245	1334
44	879	1366	1464
46	961	1493	1600



**Steel wire ropes 6x36Warrington-Seale+FC**  
According to EN 12385-4

Diameter [mm]	Linear weight [kg/100m]	Minimum breaking load	
		1770 N/mm <sup>2</sup> [kN]	1960 N/mm <sup>2</sup> [kN]
14	71.9	114.5	126.8
16	94.0	149.5	165.6
18	118.9	189.2	209.6
19	132.5	210.9	233.5
20	146.8	233.6	258.7
22	178	283	313
24	211	336	373
25	229	365	404
26	248	395	437
28	288	458	507
30	330	526	582
32	376	598	662
36	476	757	838
38	530	843	934
40	587	935	1035
42	647	1030	1141
44	711	1131	1252
46	777	1236	1369
48	846	1346	1490
50	918	1460	1617
52	992	1579	1749
54	1070	1703	1886
56	1151	1832	2028
58	1235	1965	2176
60	1321	2103	2328

### Recommended field of use:

Lifting machines (tower cranes, slide bridges), elevators, lifting machines for the extraction industry, mobile cranes with high lifting possibility, special installations, mine excavators.

Delivered bright or galvanized.

### Recommended field of use:

Lifting machines (tower cranes, slide bridges), elevators, lifting machines for the extraction industry, mobile cranes with high lifting possibility, special installations, mine excavators.

Delivered bright or galvanized.

### Recommended field of use:

Petrol extraction industry, slide bridges, cranes, special installations.

Delivered bright or galvanized.

# GALVANIZED, FLEXIBLE STEEL WIRE ROPES



	no.	Type	Construction	Diameter	Approximate linear weight	Minimum breaking load
				[mm]	[kg/m]	[kgf]
	1	<b>Commercial galvanized wire ropes</b> Flexible construction 6x12+7FC	6x12	3	0.023	327
			6x12	4	0.040	582
			6x12	5	0.058	909
			6x12	6	0.092	1417
			6x12	8	0.165	2039
			6x12	10	0.235	2753
			6x12	12	0.360	5036
	2	<b>Plasticized galvanized wire ropes</b> Galvanized wire ropes, construction 6x7+FC, covered with a transparent PVC layer.	6x7+PVC	2/3	0.020	275
			6x7+PVC	3/4	0.040	595
			6x7+PVC	4/5 (4/6)	0.068	944
	3	<b>Truck cargo wire ropes</b> With metallic core (metal wire winding) Or with polypropylene core (PP wire)	Metal c.	3/6-MC	0.055	-
			Metal c.	3/8-MC	0.119	-
			PP	3/6-PP	0.040	-

## Recommended field of use:

1. Galvanized commercial wire ropes and plasticized wire ropes: commercial use, various anchoring (tarpaulins, awnings, light objects), house use, decorative ensembles.

2. Truck cargo wire ropes: For anchoring truck tarpaulins, terrace tarpaulins, awnings etc.

The products are delivered in fixed length coils of 50 m or 100 m;

For exposing the products in shops, a display exhibitor is offered for custody;

The wire rope coils can be mounted on wire reels, mounted on 4 rows on the display exhibitor;



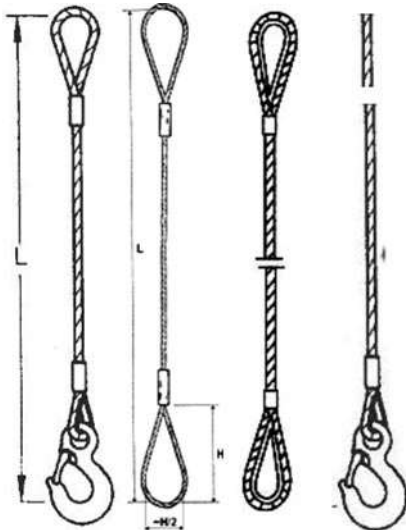


# SLINGS AND LIFTING DEVICES MADE OF STEEL WIRE ROPES

The Wire rope lifting slings are manufactured according to the EN 13414-1 standard or if specified, according to STAS 8057 / DIN 3088 standards. They are made of 6x19, 6x37 or 6x36 WS wire ropes with vegetal or metallic core, by forming eyes at the ends. The eyes can be made by pressing a duraluminium sleeve (muff), or by braiding (splicing).

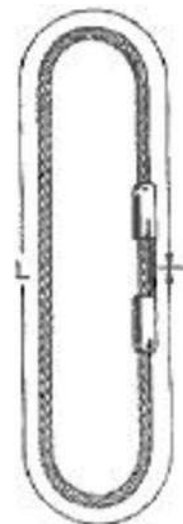
Next, the characteristics of the slings and devices made of vegetal core steel wire ropes, by muffing are presented.

Wire rope slings, with one leg, provided with eyes or various accessories at the ends



WLL [kgf]	H	Wire rope diameter [mm]
EN 13414	mm	
380	150	6
700	150	8
1050	150	10
1550	200	12
2120	250	14
2700	250	16
3400	300	18
4350	300	20
5200	350	22
6300	400	24
7200	400	26
8400	450	28
11000	500	32
14000	550	36
17000	600	40

Endless wire rope slings



WLL [kgf](*)	Wire rope diameter [mm]
EN 13414	
1100	8
1700	10
2500	12
3300	14
4350	16
5650	18
6900	20
8400	22
10000	25 (24)
11800	26
13500	28
18000	32
22500	36
28000	40

\* the WLL is calculated for ring shaped lifting

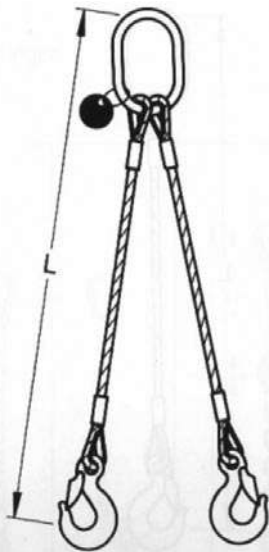
WLL = Working Load Limit



# SLINGS AND LIFTING DEVICES MADE OF STEEL WIRE ROPES



**2-leg wire rope suspensions, provided with hooks**



WLL [kg]		Wire rope diameter [mm]
EN 13414		
0° - 45°	45° - 60°	
950	700	8
1500	1050	10
2120	1550	12
3000	2120	14
3850	2700	16
4800	3400	18
6000	4350	20
7200	5200	22
8800	6300	24
10000	7200	26
11800	8400	28
15000	11000	32
19000	14000	36
23500	17000	40

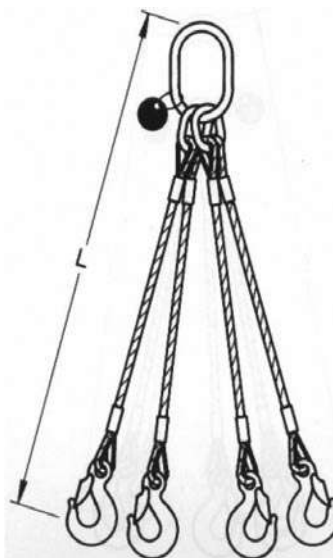
## Recommended field of use:

- With simple eyes, without thimble: lifting various materials, with well-defined shape and contour.
- With thimbles and hooks for tower cranes, slide bridges, for lifting panels and parts provided with eye fastenings.

In case if the slings or the lifting devices are used for lifting machines provided with oversized hooks, an eye-hook device may as well be used (shortening device) with a length of 700mm, with one leg, to allow the use of standard devices; here we mention that the standard devices are manufactured with grade 8 and 10 high resistance pieces.

WLL = Working Load Limit

**4-leg wire rope suspensions, provided with hooks**



WLL [kg]		Wire rope diameter [mm]
EN 13414		
0° - 45°	45° - 60°	
1500	1050	8
2250	1600	10
3300	2300	12
4350	3150	14
5650	4200	16
7200	5200	18
9000	6500	20
11000	7800	22
13500	9400	24
15000	11000	26
18000	12500	28
23500	16500	32
29000	21000	36
36000	26000	40



# WELDING ELECTRODES AND WELDING WIRE

Electrodes display



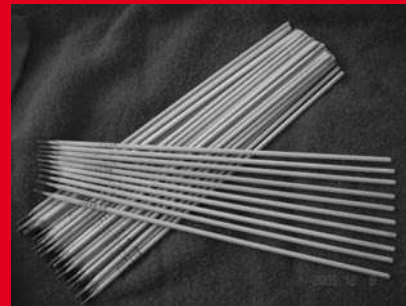
## WELDING ELECTRODES

Coated electrodes for welding carbon steel and low alloyed steel, packed in carton boxes of 5 – 6 kg.

- Rutile coating; welding metal constructions of carbon steel and low alloy steel. Used for welding in any position, excepting vertical descending position, using DC or AC - 50V.
- Base coating; welding of steel constructions powerfully solicited statically and dynamically, exploited down to -30 ° C, made of carbon steel with max. 0.35% C and low alloyed steel with Mn and Si. Used for welding in any position excepting vertical descending position, using DC.

### Product sizes:

- Ø 2,5 x 350 mm.
- Ø 3,25 x 350 mm.
- Ø 4,0 x 450 mm.
- Ø 5,0 x 450 mm.



## SG2 WELDING WIRE (IN PROTECTIVE GAS ENVIRONMENT) – ACCORDING TO DIN 8559

The SG2 welding wire is delivered on K300 type reels, with spire-spire winding or regular winding, with a weight of approx. 15 kg., packed in polyethylene bags with silica gel and carton boxes, on pallets of max. 64 boxes. It is used for welding in protective gas environment (CO2 and gas mixes) of carbon steel and low alloy steel for constructing ships, pressure vessels, tanks etc.

### Product sizes:

- Ø 0.8 mm.
- Ø 1.0 mm.
- Ø 1.2 mm.
- Ø 1.6 mm.



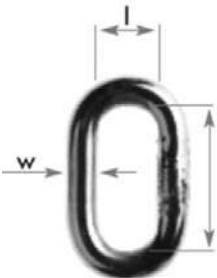
### Chemical composition of the welding wire:

C	Mn	Si	P	S	Ni	Mo	Al	Zr+Ti	Cr	Cu	V
0.06 - 0.13	1.30 - 1.60	0.70 - 1.00	max. 0.025	max. 0.025	max. 0.15	max. 0.15	max. 0.02	max. 0.15	max. 0.15	max. 0.30	max. 0.03

# GALVANIZED GENOVESE CHAINS



**Electrolytically galvanized chains,**  
delivered on metallic reels



Link size	Linear weight	h x l	Quantity / reel
[mm]	[kg/m]	[mm]	[m]
1.6	0.042	13 x 4	100
2.2	0.095	15.2 x 6.2	100
2.8	0.14	17 x 6.6	100
3.5	0.22	20 x 7.5	100
4.5	0.37	22 x 8.5	65
5.5	0.56	37 x 10	40
6.5	0.8	30.5 x 11.5	25
7.5	1.1	32 x 12.5	25

Chain display



The lengths of the chains on the reel can differ depending on the type of reel that is used.

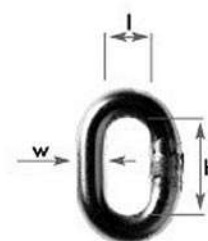
For exposal in deposits and store, we can provide exposing stands.





## DIN 766 CALIBRATED CHAIN (SHORT LINK)

**DIN 766 CALIBRATED CHAIN  
(SHORT LINK)**



Link diameter	Interior sizes		Approx. linear mass	Workload	Minimum breaking load
	Pitch h	Width l			
mm	mm	mm	kg/1000m	kg.	kg.
3	16	5	165	125	500
4	16	6	320	175	750
5	18.5	7	500	325	1300
6	18.5	8	750	450	1800
7	22	9	1100	563	2550
8	24	10	1400	825	3300
9	27	12	1800	1013	4050
10	28	14	2225	1250	5000
11	31	15	2700	1250	5000
12	36	16	3100	2125	8500
13	36	18	3800	2125	8600
14	41	19	4400	2375	9500
16	45	22	5700	3175	12700

**Equivalent standards:** STAS 7951

The product can be delivered in bulk to fixed lengths or coils;

**Delivery conditions:**

bright, electrolytically galvanized, galvanized, stainless steel.

**Field of use:**

in agriculture, household items, nautical ships (light vessels), joints and safety elements, tire chains.

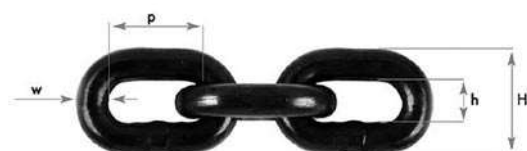
These chains are not to be used for traction or lifting weights;

They are not to be used for a load that is higher than the one specified in the standard.

# GRADE 80 HIGH RESISTANCE CHAINS ACCORDING TO EN 818-2



**GRADE 80 HIGH RESISTANCE CHAINS ACCORDING TO EN 818-2**



Link diameter	Interior sizes		Approx. linear mass	Workload	Minimum breaking load
	Pitch h	Width l			
mm	mm	mm	kg/1000m	kg.	mm.
6	18	7.5	790	1120	45
7	21	9	1007	1500	62
8	24	10	1380	2000	80
10	30	12.5	2200	3150	125
13	39	16.3	3800	5300	214
16	48	20	5630	8000	320
19	57	23.7	7700	11300	450

**Equivalent standards:** EN 818-2+A1:2008

The product can be delivered in bulk to fixed lengths;

**Delivery condition:** bright, painted black, galvanized.

**Field of use:**

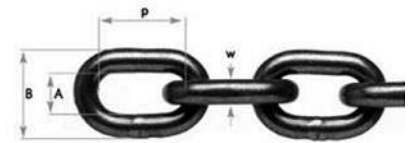
- In constructions: lifting devices, chain lifting equipments.
- In transports: chain anchoring systems.





# HIGH RESISTANCE CHAINS FOR MINING, ACCORDING TO DIN 22252

**HIGH RESISTANCE CHAINS FOR MINING,  
ACCORDING TO DIN 22252**



Link diameter mm	Interior sizes		Approx. linear mass kg/1000m	Workload kg.	Minimum breaking load mm.
	Pitch h mm	Width l mm			
14	50	17	4000	670	190
18	64	21	6600	670	320
18	80	21	6000	670	320
19	64.5	22	7600	670	360
19	75	22	7100	670	360
14	50	17	4000	800	250
18	64	21	6600	800	410
18	80	21	6000	800	410
19	64.5	22	7600	800	450
19	75	22	7100	800	450
20	64	23	8400	800	500
20	80	23	7700	800	500
22	86	26	9500	800	610
30	108	34	19200	800	1130

**Equivalent standards:** STAS 8777/80

The product's delivery condition and lengths are according to customer's order.

**Field of use:**

High resistance calibrated chains for mine carriers.

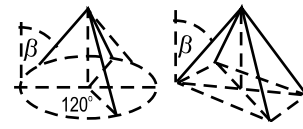
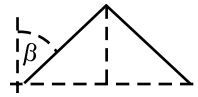
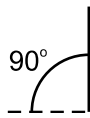


# LIFTING SLINGS WITH CHAINS



Made of grade 8 high resistance chains according to DIN EN 818-2.  
 The advantage of these slings compared to the ones made with steel wire ropes: resistance to temperatures, do not present elongation when applied to high weight lifting.  
 The chain lifting slings can be manufactured with a chain shorter, to adjust the length of the leg, or without shorter.

## Characteristics



Diameter mm	Lift [tons]		Lift [tons]		Lift [tons]	
	1 arm		2 arms		4 arms	
			0-45°	45-60°	0-45°	45-60°
6	1,12 t		1,60 t	1,12 t	2,36 t	1,70 t
8	2,00 t		2,80 t	2,00 t	4,25 t	3,00 t
10	3,15 t		4,25 t	3,15 t	6,70 t	4,75 t
13	5,30 t		7,50 t	5,30 t	11,20 t	8,00 t
16	8,00 t		11,20 t	8,00 t	17,00 t	11,80 t

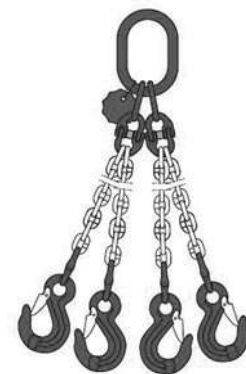
1-leg chain slings



2-leg chain slings



4-leg chain slings



The chain shorter devices are composed of one linking element fixed to the master ring, 4 to 5 chain links and an element named chain shorter which is used to adjust the length of the lifting sling.



# CHAIN ANCHORING DEVICES

## The components of a chain anchoring device:

1. Main element: tightening ratchet tensioner, available in two versions:

With hooks attached to both ends (chain shorters)



Chain size	code	Tensile load [kg]	Clamping length [mm]	Total length		Coupling length [mm]	Chain size	Lift [kg]
				minimum	maximum			
6	a-RLSP6-CC	4000	355	362	565	203	6	2000
8	a-RLSP8-CC	8500	355	362	565	203	8	4000
10	a-RLSP10-CC	14700	355	362	565	203	10	6400
13	a-RLSP13-CC	20500	355	362	565	203	13	10000

Without hooks attached to the ends



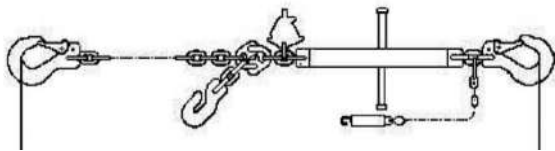
Chain size	code	Tensile load [kg]	Clamping length [mm]	Total length		Coupling length [mm]	Chain size	Lift [kg]
				minimum	maximum			
6	a-RLSP6-00	4000	355	362	565	203	6	2000
8	a-RLSP8-00	8500	355	362	565	203	8	4000
10	a-RLSP10-00	14700	355	362	565	203	10	6400
13	a-RLSP13-00	20500	355	362	565	203	13	10000

2. High resistance chain according to EN 818 (see chains catalogue)
3. Link and fixing elements – Clevis hook, chain shorter, connecting links (see high resistance accessories catalogue).

## Anchoring devices – complete system: construction characteristics

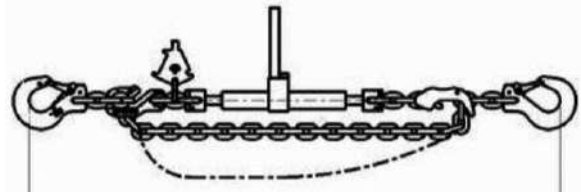
### Version with turnbuckle without shorters attached to ends:

The complete system contains: 1 turnbuckle without hooks at ends, connecting link, high resistance chain, 2 pcs Clevis hooks, 1 shorter.



### Version with turnbuckle with shorters attached to ends:

The complete system contains: 1 turnbuckle with hooks attached to ends, high resistance chain, 2 pcs Clevis hooks (without connecting links and shorters).



## Fields of use:

Railway and road transport of overall goods, anchoring equipments.

## Advantages of chain anchoring devices:

The characteristics are not influenced by temperature variations, they are resistant to elongation and shear, they have high stability.

The chain anchoring devices can be delivered in complete system version, with chain lengths depending of customer order, the usual length of work is of 3.5 meters.



# TYRE CHAIN



TYPE		total length L1	border chain type	width of tyre chain L2	interior chain size
		[mm]	w x p [mm]	[mm]	w x p [mm]
<b>TRUCK</b>	1100-20	2754	Ø 9x38	555	Ø 9x27
<b>TRUCK</b>	sektor	400	Ø 7x26	555	Ø 7x26
<b>TRUCK</b>	295/70x22.5	2754	Ø 9x38	555	Ø 9x27
<b>TRUCK</b>	295/80x22.5	2754	Ø 9x38	555	Ø 9x27
<b>TRUCK</b>	1200-20	2860	Ø 9x38	555	Ø 9x27
<b>TRUCK</b>	315/70x22.5	2860	Ø 9x38	555	Ø 9x27
<b>TRUCK</b>	315/80x22.5	2860	Ø 9x38	555	Ø 9x27
<b>TRUCK</b>	1400-20	2980	Ø 9x38	555	Ø 9x27
<b>TRUCK</b>	385/70x22.5	2980	f 9x38	555	Ø 9x27
<b>TRUCK</b>	385/80x22.5	2980	f 9x38	555	Ø 9x27
<b>TRAKTOR</b>	11X11	3800	Ø 11x40	686	Ø 11x31
<b>TRAKTOR</b>	11X14	3800	Ø 11x40	686	Ø 14x43
<b>TRAKTOR</b>	POTKOVA 11	3800	Ø 11x40	686	16 +/-0,5
<b>TRAKTOR</b>	POTKOVA 15	3800	Ø 11x40	686	Ø 11x31
<b>SKIDDER</b>	11X11	3045	Ø 11x40	820	Ø 11x31
<b>SKIDDER</b>	11X14	3045	Ø 11x40	820	16 +/-0,5
<b>SKIDDER</b>	POTKOVA 10	3045	Ø 11x40	820	16 +/-0,5
<b>SKIDDER</b>	POTKOVA 13	3045	Ø 11x40	820	16 +/-0,5
<b>SKIDDER</b>	POTKOVA 10	3045	Ø 14x50	820	20 +/-0,5
<b>SKIDDER</b>	KRAKER	3045	Ø 11x40	820	16 +/-0,5
<b>SKIDDER</b>	KRAKER HARD	3045	Ø 11x40	820	Ø 11x31

The tire chains are manufactured of DIN 766 calibrated chains, by welding the elements to sizes that correspond to the dimensions of the mentioned equipment's tires. They are delivered by piece and for equipping a machine there are at least two pieces of tire chains needed.

## Fields of use:

tractors, trucks, forestry machines, surface mining machines, generally on off-road surfaces with high danger of bogging.

For a better grip on forestry roads, we recommend using tire chains on the entire period of the year, to avoid bogging in wet soils. The forestry tire chains are not appropriate for driving on public roads; in contact with hard surfaces (concrete, asphalt) the tire chains will break / wear out faster.



# FLAT AND ENDLESS WEBBING SLINGS; CARGO LASHING STRAPS

The polyester webbing slings that our company sells are manufactured according to the EN 1492-1 and EN 1492-2 standards, with a safety coefficient of 1:7.

The polyester fibers that are used have a small weight, high resistance to UV radiation and correspond to environmental regulations. These characteristics ensure our slings a long service life.

The color and linear marking define exactly their workloads and help choosing them according to the weight that has to be lifted.

Endless slings			Flat slings				
EN 1492-2:2000			EN 1492-1:2000				
Safety coefficient 7:1							
Round slings	Endless and flat slings	Lifting method:	vertical	knotted	in U	in angle 0-45°	in angle 45° -
		Lifting factor:	x 1	x 0.8	x 2	x 1.4	x 1
Medium diameter (mm)	width [mm]	color	tons	tons	tons	tons	tons
18	30	PURPLE	1.0	800 kg.	2.0	1.4	1.0
20	60	GREEN	2.0	1.6	4.0	2.8	2.0
22	90	YELLOW	3.0	2.4	6.0	4.2	3.0
25	120	GREY	4.0	3.2	8.0	5.6	4.0
27	150	RED	5.0	4.0	10.0	7.0	5.0
32	180	BROWN	6.0	4.8	12.0	8.4	6.0
38	240	BLUE	8.0	6.4	16.0	11.2	8.0
46	300	ORANGE	10.0	8.0	20.0	14.0	10.0
58	350	ORANGE	12.0	9.6	24.0	16.8	12.0



## Cargo lashing straps

Dimension	Width	Length	Lift
	[mm]	[m]	[t]
0.25t x 5"	25	5	0,2
0.25t x 5"	25	5	1
2t x 6	30	0.5 + 5.5	2
4t x 8	50	0.5 + 7.5	4
4t x 10	50	0.5 + 9.5	4
4t x 12	50	0.5 + 11.5	4

## Construction

### (\*\*) With hooks at both ends and ratchet

Composed of a short section (0.5m, with ratchet at one end and hook at the other) and a long section (3 – 12 m with hook at one end).

(\*) Without hooks the webbing sling with ratchet at one end (length 3-12m). The fastening system can be with ratchet or tensioner buckle; the tensioner buckle is generally used to anchor smaller weight goods.



The version with hooks is used to anchor the load by mooring or pressing, and the other version is used to tie the bulk made goods.

# WELDLESS PIPES AND TUBES



Types	Dimensions range		standards	Fields of use	Delivery condition	Delivery state
	Wall thickness mm	Exterior diameter mm				
Cold drawn pipes	2,0...12,5	20...108	DIN 2448 EN 10210-2	Machines construction industry, general mechanic use	Bare, transparent or black lacquered, with protective caps at ends if requested	Lengths between 4...12 m; bundles of 2-4 tons
Hot rolled pipes	2,3...11,0	21,3...114,3	DIN 2448 EN 10210-2			
	6,3...60,0	70,0...229,0				
Hot rolled pipes	2,41...57,2	21,3...228,6	ASTM 519			
Precision tubes	1,5...20,0	20,0...210,0	EN 10305-2	Machines construction industry	Bare, transparent or black lacquered, with protective caps at ends if requested, oiled	Lengths between 6...9 m or 8...11 m; bundles of 2 tons
Honing pipes	5,0...20,0	30,0...210,0	DIN 2391 STAS 531/1			
Cold drawn pipes for tanks	2,0...12,5	20...108	DIN 17175 EN10216-2, ASTM A106, NF A 49-211, ASTM A179/A179M	Confectioning tanks, pipelines, high pressure vessels, generally high temperature or pressure equipments	Bare, transparent or black lacquered, with protective caps at ends	Lengths between 5...12 m; bundles of 2-4 tons
Hot rolled pipes for tanks	2,3...11,0	21,3...114,3				
		6,3...60,0	70,0...229,0			
Pipelines	9,53...25,4	73,0...219,1	API Spec 5L, ASTM A53, EN 10208-2	Main pipelines for gas or liquid fuels, in petrol and gas industry	Bare, transparent or black lacquered, with protective caps at ends if requested	Lengths between 5...7 m or 10...12 m
	2,77...11,13	21,3...114,3				Lengths of 6, 9 or 12m
Gas and water pipelines	2,3...4,0	thin weight	EN 10255, UNI 8863, STAS 7656, EN 10208	Main pipelines for gas or liquid fuels, in petrol and gas industry	Bright or galvanized, with straight or threaded ends	Lengths between 5-7 sau 10-12 m; bundles of 4 tons
	2,6...4,5	medium weight				
	3,2...5,4	heavy weight				
Drawn pipes for low temperature sectors	6,3...40,0	70,0...219,1	EN 10216-4, ASTM A333, ASTM A334	Low temperature installations	Hot rolled, Bare, transparent or black lacquered, with protective caps at ends if requested	
	2,3...11,0	21,3...114,3				

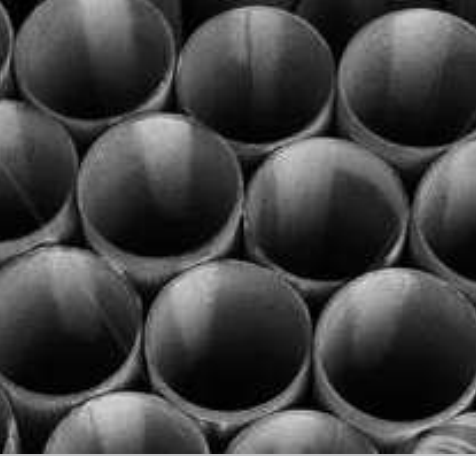
## Useful formulas:

Approximate linear weight

$$M = 0,02466 (D-wt) \times wt \text{ [kg/m]}$$

*D* - exterior diameter of the pipe [mm]

*wt* - wall thickness [mm]



# LONGITUDINALLY WELDED PIPES



Welding type	HFI	ERW
Manufacturing standards:	EN 10208-1, EN 10208-2, DIN 1626, EN 10219, API Spec 5L, ASTM A53, EN 10217-1,2, EN 10224	DIN EN 10219, DIN 17120, DIN 1626 EN 10217-1-5, EN 10224
Diameter range	114,3...406,4 mm	559...2020 mm
Wall thickness	3,2...16,0 mm	8,0...17,5 mm
Delivery lengths	6...17,5 m	5,2...8,2 m
Pipe ends	Soft/straight or beveled	
Material	solid steel, alloyed and low alloy steel, carbon steel and special steels	
Exterior surface	bare (uncovered), or covered with a corrosion protection layer of extruded polyethylene, or any other type of corrosion protection	
Interior surface	Bare or with cemented liner	

### Useful formulas:

Approximate linear weight

$$M = 0,02466 (D-wt) \times wt \text{ [kg/m]}$$

*D* - exterior diameter of the pipe [mm]

*wt* - wall thickness [mm]

# SPIRAL WELDED PIPES



## Manufacturing standards:

petrol and gas:	API 5 L, DIN 17172, GOST 20295, EN 10208-2, ISO 3183
water:	EN 10217-1, DIN 1626-2460, BS 534, UNI 6363, EN 10224
general use:	BS 3601, DIN 1626
pillars:	ASTM A 252, EN 10219-2

**Diameter range:** Exterior diameter between 219,1 mm ... 3048 mm

**Wall thickness:** 4,0 ... 26,0 mm

**Delivery lengths:** 4 m ... 18 m

**Pipe ends:** soft / straight or beveled

**Material:** solid steel, alloyed and low alloy steel, carbon steel and special steels

**Exterior surface:** bare (uncovered), or covered with a corrosion protection layer of extruded polyethylene, or any other type of corrosion protection

**Interior surface:** bare or with cemented liner

**Fields of use:** petrol, gas and water pipelines, pillars, metallic structures, compressed air pipes, liquid hydrocarbon transport in refineries.

## Useful formulas:

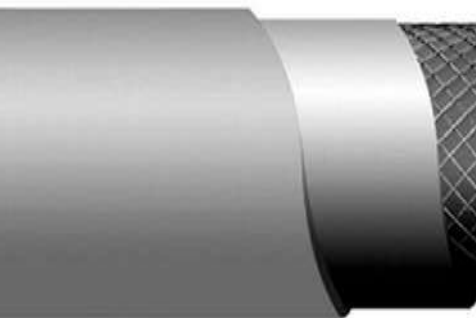
Approximate linear weight

$$M = 0,02466 (D-wt) \times wt \text{ [kg/m]}$$

*D* - exterior diameter of the pipe [mm]

*wt* - wall thickness [mm]





## POLYETHYLENE COATED PIPES

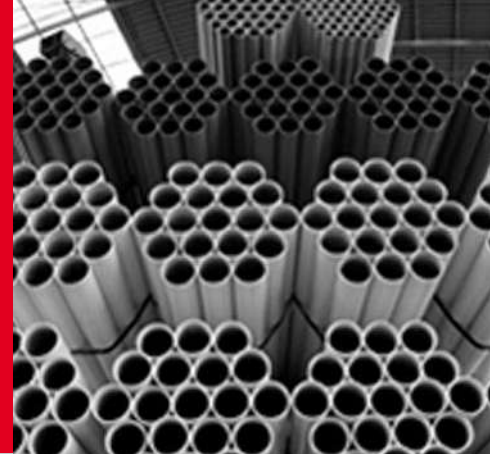
Covering the pipes with extruded polyethylene ensures better mechanical characteristics, a higher resistance to accidents and strikes occurred during manipulation. The protective layer ensures better mechanical characteristics, both for pipes used at high temperatures and pipes used at low temperatures.

Manufacturing process for steel pipes covered with extruded polyethylene according to UNI EN 9099 and DIN 30670:

1. The exterior surface is cleaned by sandblasting;
2. The exterior surface is heated to 180 °C;
3. It is covered with a primer - support for adhesives;
4. The surface is covered with adhesives by extruding;
5. It is immediately covered with a layer of polyethylene, also by extruding;
6. The surface of the pipe is cooled in a water tunnel;
7. The continuity of the surface is tested by passing the pipe through a current of 25.000 V;
8. The obtained surface is smooth, solid and adheres to the surface of the pipe.

Types	Dimensions range		Standards	Fields of use	Delivery condition	Delivery lengths
	Wall thickness mm	Exterior diameter mm				
Poliethylene covered pipes for gas, water and petrol transport	1,8	26,7 ... 114,3	UNI EN 10208-1, UNI EN 10208-2	Weldless pipes, welded pipes : transport and distribution of natural gas, petrol and water	Straight or threaded ends	lengths 4-7 m (weldless); 6 m (welded)
Poliethylene (or FBE epoxy resin) covered pipes for methane gas transport	1,8 ... 3 mm	60,3 ... 1016,0	UNI EN 10208-1, UNI EN 10208-2, API 5L	Transport and distribution of natural gas; petrochemical industry	Straight or threaded ends, with caps	lengths 10-12 m
Poliethylene covered pipes for water transport	1,8 ... 3 mm	60,3 ... 1016,0	UNI EN 10224; UNI 6363/84	Transport of water	Straight or threaded ends, with caps	lengths 10-12 m
Poliethylene covered pipes for gas and petrol transport	1,8 ... 3 mm	60,3 ... 1016,0	API 5L	Transport of natural gas and petrol	Straight or threaded ends, with caps	lengths 10-12 m

# GALVANIZED PIPES, PAINTED PIPES



Types	Dimensions range		Standards	Fields of use	Delivery condition	Delivery lengths
	Wall thickness mm	Exterior diameter mm				
Galvanized welded or weldless pipes for natural gas and water transport	2,0-4,0	17,4...114,9	EN 10240-A1; EN 10255 (ISO 65)	Transport of natural gas and water	Straight ends, or according to ISO 7/1, DIN 2999; with caps according to ISO 50, DIN 2986	
Galvanized welded pipes for natural gas and water transport	2,3...5,0	17,5...166,5	EN 10240-A1; EN 10255 (DIN 2440)	Transport of natural gas and water	Straight ends, or according to ISO 7/1, DIN 2999; with caps according to ISO 50, DIN 2986	
Galvanized round or rectangular pipes	1,5...6 mm (round); 1,5...4 mm (square)	18...168,3 mm (round); 30x20...100x60 (square)	DIN 2394 (round); EN 10219 (square)	General industrial use	With threaded or straight ends	3,8...7,5 m; cut to lengths according to orders

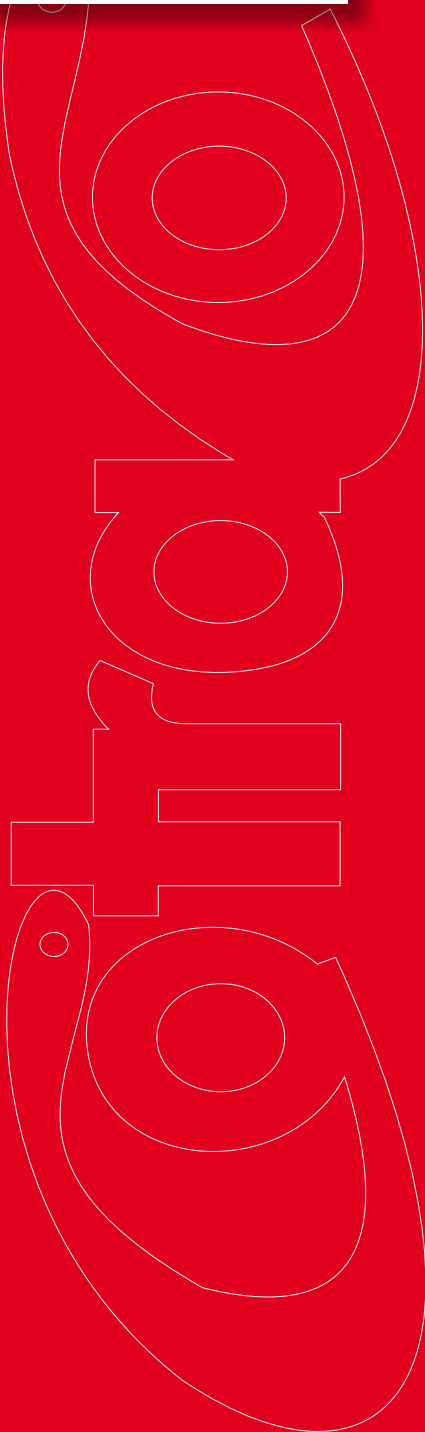
The painting of the pipes is made on the interior/exterior by applying an epoxy powder on the surface of the pipes which is heated to minimum 200 °C.

The minimum thickness of the paint layer is of 50 microns.

Purpose: protective treatment.

It is applied both on weldless and longitudinally welded pipes.

Types	Dimensions range		Standards	Fields of use	Delivery lengths
	Wall thickness mm	Exterior diameter mm			
Red painted pipes	2,6...7,1	21,8...323,9	UNI 5634/97; UNI EN 10208-1; UNI EN 10224- UNI 6363/84; UNI 8863 - DIN 2440 - EN 10255; UNI EN 10216-1	Civil or industrial use, for fireproof systems (sprinklers)	6 m pipes DIN 2440 EN 10255);  6-12 m pipes DIN 1629/2448 EN 10216-1
Green or blue painted pipes				For various civil or industrial lines and pipelines: machine construction industry, chemical industry, installations, air conditioning, naval industry, irrigations etc.	
Yellow painted pipes				For distribution of methane gas	



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