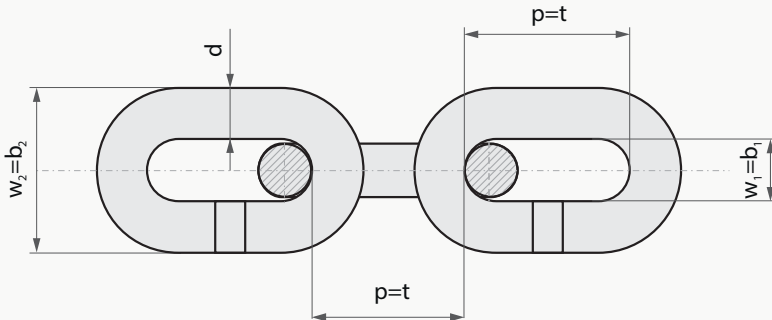


LIFTING CHAINS

GRADE 8 acc. to EN 818-2, ASTM A391/A391M-01, NACM

GRADE 10 FAS-MAX acc. to PAS 1061, ASTM A973/A973M-01, NACM

GRADE 11 FAS-MAX acc. to FASING Technical Requirements



Certificates:



EN ISO 14001:2015

Reg. No: AC090 104/1267/64/2015

EN ISO 9001:2015

Reg. No: AC090 100/1267/64/2015

DIMENSIONS AND MECHANICAL PROPERTIES OF GRADE 8 AND 10 SHORT LINK LIFTING CHAINS

Chain size d x p (t)	t = p [mm]	w ₁ = b ₁ [mm]	w ₂ = b ₂ [mm]	Grade 8 (800 MPa)			Grade 10 (1000 MPa) FAS MAX 10			≈Weight [kg/m]
				Capacity WLL/DOR [t]	Manufacturing Proof Force MPF [kN]	Breaking Force BF [kN]	Capacity WLL/DOR [t]	Manufacturing Proof Force MPF [kN]	Breaking Force BF [kN]	
13x39 *	39±1.2	16.9	48.1	5.3	133	212	6.5	166	265	4.1
16x48 *	48±1.4	20.8	59.2	8.0	201	322	10.3	251	402	6.2
18x54 *	54±1.6	23.4	66.6	10.0	254	407	12.5	318	509	8.0
19x57	57±1.7	24.7	70.3	11.2	284	454	14.0	354	567	9.0
20x60	60±1.8	26.0	74.0	12.5	314	503	16.0	393	628	9.9
22x66	66±2.0	28.6	81.4	15.0	380	608	19.4	475	760	12.0
26x78	78±2.3	33.8	96.2	21.2	531	850	26.5	664	1060	16.8
28x84	84±2.5	36.4	104.0	25.0	616	985	30.5	769	1230	19.5
30x90	90±2.7	37.5	105.0	28.0	706	1130	35.5	884	1415	22.1
32x96	96±2.9	41.6	118.0	31.5	804	1290	40.5	1006	1610	25.4
36x108 *	108±3.2	46.8	133.0	40.0	1020	1630	50.0	1272	2035	32.1
38x114 *	114±3.4	49.4	140.6	45.0	1130	1810	56.5	1420	2270	35.8
40x120 *	120±4.0	52.0	148.0	50.0	1260	2100	62.5	1571	2515	39.7
45x135 *	135±4.0	58.5	167.0	63.0	1590	2540	81.0	1988	3180	52.2
50x150 *	150±4.5	65.0	185.0	78.5	1963	3140	98.0	2453	3925	62.0

- **Order implementation:** depends on the order quantity – a minimal batch required
- **Relative elongation at breaking force:** min. 20% for grade 8, and 25% for grade 10
- **Material:** special grades of fully hardened and aging-resistant steel – acc. to ISO 643 and EN 818-2, made in the electrometallurgical or converting process
- **Heat treatment:** acc. to EN 818
- **Proof load MPF:** 100% of chain links undergo proof/production load test
- **Coating:** powder coating or dip painting
- **We issue test certificates:** 3.1. acc. to EN 10204 for each chain
- **Fatigue resistance:** min 20000 cycles, acc. to PAS 1061
- **Working load limit (WLL), working force (WF) using a safety factor of 4:1**

* batch minimum quantity: 500

ATTENTION: The drop of load caused by the damage of lifting chain effects in direct or indirect danger to the life or health of people in the lifting system zone. For this reason, all regulations regarding the use of chain slings and their components and the rules contained in the following standards: PN/DIN-EN 818-1, -2, -3, -4, -5, -6, PN/DIN-EN 1677-1, -2, -3, -4, -5, -6 shall be unconditionally complied with. We do not take any responsibility for damages beyond our control, i.e. occurring during the transportation, storage, assembly and operation and resulting from disregard of the abovementioned regulations and standards, in particular EN 818-6, including annex A.

DIMENSIONS AND MECHANICAL PROPERTIES OF GRADE 11 SHORT LINK LIFTING CHAINS (1100 MPa) FAS MAX 11

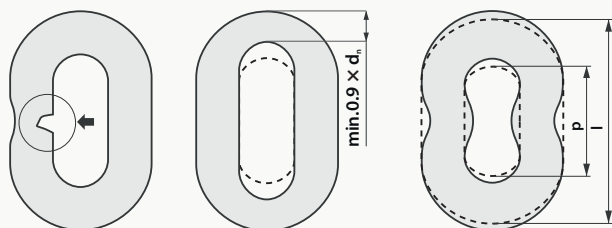
Chain size d x p (t)	t = p	w ₁ = b ₁	w ₂ = b ₂	Capacity WLL/DOR	Manufacturing Proof Force MPF [kN]	Breaking Force BF [kN]	≈Weight [kg/m]
	[mm]	[mm]	[mm]				
13x39	39±1.2	16.9	48.1	7.5	182	291	4.1
16x48	48±1.4	20.8	59.2	11.0	276	442	6.2
18x54	54±1.6	23.4	66.6	14.0	340	560	8.0
19x57	57±1.7	24.7	70.3	15.5	390	623	9.0
20x60	60±1.8	26.0	74.0	17.5	432	690	9.9
22x66	66±2.0	28.6	81.4	21.0	522	836	12.0
26x78	78±2.3	33.8	96.2	29.0	730	1168	16.8
28x84	84±2.5	36.4	104.0	34.0	846	1354	19.5
30x90	90±2.7	37.5	105.0	39.0	972	1554	22.1
32x96	96±2.9	41.6	118.0	44.0	1105	1768	25.4
36x108	108±3.2	46.8	133.0	56.0	1399	2238	32.1
38x114	114±3.4	49.4	140.6	62.5	1559	2494	35.8
40x120	120±4.0	52.0	148.0	69.0	1727	2763	39.7
45x135	135±4.0	58.5	167.0	87.5	2186	3498	52.2
50x150	150±4.5	65.0	185.0	108.0	2698	4318	62.0

- Relative elongation at breaking force for grade 11 chains: min. 20%.
- Grade 11 chains are manufactured according to FASING Technical Requirements.

Nominal size of lifting sling [mm]	Working Load Limit (WLL) [t]																	
	90° Single-leg slings			Two-leg slings						Three- and four-leg slings						Endless chain sling in choke hitch		
	Factor 1.0			0° < β ≤ 45° Factor 1.4			45° < β ≤ 60° Factor 1.0			0° < β ≤ 45° Factor 2.1			45° < β ≤ 60° Factor 1.5			Factor 1.6		
	GRD 8	GRD 10	GRD 11	GRD 8	GRD 10	GRD 11	GRD 8	GRD 10	GRD 11	GRD 8	GRD 10	GRD 11	GRD 8	GRD 10	GRD 11	GRD 8	GRD 10	GRD 11
13	5.3	6.5	7.5	7.5	9.1	10.5	5.3	6.5	7.5	11.1	13.6	15.7	7.9	9.7	11.2	8.4	10.4	12.0
16	8.0	10.3	11.0	11.2	14.4	15.4	8.0	10.3	11.0	16.8	21.6	23.1	12.0	15.4	16.5	12.8	16.4	17.6
18	10.0	12.5	14.0	14.0	17.5	19.6	10.0	12.5	14.0	21.0	26.2	29.4	15.0	18.75	21.0	16.0	20.0	22.4
19	11.2	14.0	15.5	16.0	19.6	21.7	11.2	14.0	15.5	23.5	29.4	32.5	16.8	21.0	23.2	17.9	22.4	24.8
20	12.5	16.0	17.5	17.0	22.4	24.5	12.5	16.0	17.5	26.2	33.6	36.7	18.7	24.0	26.2	20.0	25.6	28.0
22	15.0	19.4	21.0	21.2	27.1	29.4	15.0	19.4	21.0	31.5	40.7	44.1	22.5	29.1	31.5	24.0	31.0	33.6
26	21.2	26.5	29.0	30.0	37.1	40.6	21.2	26.5	29.0	44.5	55.6	60.9	31.8	39.7	43.5	33.9	42.4	46.4
28	25.0	30.5	34.0	33.5	42.7	47.6	25.0	30.5	34.0	52.5	64.0	71.4	37.5	45.7	51.0	40.0	48.8	54.4
30	28.0	35.5	39.0	39.2	49.7	54.6	28.0	35.5	39.0	58.8	74.5	81.9	42.0	53.2	58.5	44.8	56.8	62.4
32	31.5	40.0	44.0	45.0	56.0	61.6	31.5	40.0	44.0	66.1	84.0	92.4	47.2	60.0	66.0	50.4	64.0	70.4
36	40.0	50.0	56.0	56.0	70.0	81.6	40.0	50.0	56.0	84.0	105.0	117.6	60.0	75.0	84.0	64.0	80.0	89.6
38	45.0	56.5	62.5	63.0	78.4	87.4	45.0	56.5	62.5	94.5	118.6	131.2	67.5	84.7	93.7	72.0	90.4	100.0
40	50.0	62.5	69.0	70.0	87.5	96.6	50.0	62.5	69.0	105.0	131.2	144.9	75.0	93.7	103.5	80.0	100.0	110.4
45	63.0	81.0	87.5	88.2	113.4	122.5	63.0	81.0	87.5	132.3	170.1	183.7	94.5	121.5	131.2	100.8	129.6	140.0
50	78.5	98.0	108.0	109.9	137.2	151.2	78.5	98.0	108.0	164.8	205.8	226.8	117.7	147.0	162.0	125.6	156.8	172.8

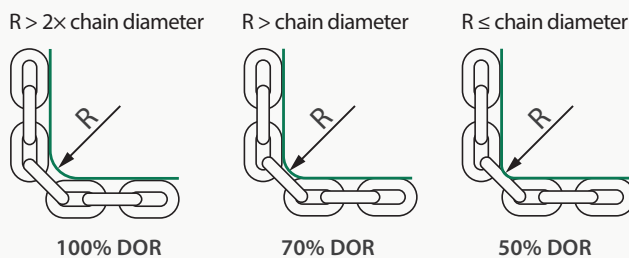
- Lifting chains operating in a highly chemically aggressive environment should be made only of stainless steel.
- The required strength of a chain operating at high temperatures **should be selected according to the table below.**
- The need for galvanizing or metal plating of the chains shall be discussed with the manufacturer.
- Before first use of the lifting chain, it is necessary to confirm that the chain complies with the order.
- Before each use of the lifting chain, it is recommended to check if there are any visible defects or any deterioration of quality. In case of any defects, it is recommended to follow the procedure included in provision A.2.1 of the EN/DIN 818-6 standard.
- Before using a chain sling, the user must know the weight of the load being lifted and control its position. Do not hold the sling or be close to the sling while the chain is being tensioned.
- Every person working with a lifting chain should read this information and technical data sheet.
- Chain slings should be regularly inspected by an authorized maintenance personnel or technical inspection employee, and observations should be recorded in the inspection register. Periodic inspection should be carried out at least once every 12 months. If the sling is subject to heavy use, it is recommended to inspect it every 6 or 3 months – the frequency of the inspection is decided by the user.

IT IS RECOMMENDED TO WITHDRAW THE CHAIN FROM OPERATION IN THE FOLLOWING CASES:



- bent links
- scratches or notches
- the cross-sectional wear of the sling elements of more than 10%
- p max. > 1.05 x p, l max. > 1.03 x l
- elongation of over 5% in any of the lifting sling elements

WLL REDUCTION DUE TO THE SHARP EDGES



CHANGES OF WORKING LOAD LIMIT IN RELATION TO TEMPERATURE			
Working Load Limit in % WLL			
Temperature t [°C]			
-40 < t < 200	200 < t < 300	300 < t < 400	t > 400
100%	90%	75%	not allowed