

PFEIFER DRAKO



02/2016

Rope Solutions

- ▶ Industry
- ▶ Aerial Ropeway
- ▶ Mining

PFEIFER DRAKO
DRAHTSEILWERK GMBH & CO. KG

TUNNELSTRASSE 38
DE-45479 MÜLHEIM AN DER RUHR
TELEFON +49 (0) 208-429 01-0
TELEFAX +49 (0) 208-429 01-54
E-MAIL info@drako.de
INTERNET www.drako.de



PFEIFER DRAKO in good hands

We are a dynamic and open-minded company with more than 175 years experience in the manufacturing of wire ropes. In Mülheim an der Ruhr we produce and develop special wire ropes for elevators, mining, industrial applications and for aerial ropeways.

Our focus concentrates on the safety of our ropes and satisfaction of our customers. For us tradition and innovation go hand in hand.

Our products meets the highest demands for quality and safety, PFEIFER DRAKO is certified according to ISO 9001 and 14001.



Our location of production and logistics – Rheinstraße, Muelheim an der Ruhr



RopeSolutions

++++ Your benefit for application

+ Thinking in Systems

+ Best Service

+ Highest Quality

+ Worldwide Presence



Contents

Ropes for Industrial Applications

DRAKO 250.....	6
DRAKO 250 PC.....	7
DRAKO 300.....	9
DRAKO P 502.....	10
DRAKO TK-Flex.....	11
DRAKO 175 LC.....	12
DRAKO WR 100.....	13
DRAKO WR 130.....	14
DRAKO Flex.....	15

Ropes for Aerial Ropeways

DRAKO AR 40.....	18
DRAKO AR 40 X.....	19
DRAKO AR 120.....	20
DRAKO AR 120 X.....	21
DRAKO AR 150 X.....	22
DRAKO AR 220 X.....	23

Ropes for Mining Applications

Introduction.....	26
Ropes Classes.....	27

Hoisting Ropes

DRAKO HR 110.....	28
DRAKO HR 210.....	29
DRAKO HR 210 X.....	30
DRAKO HR 220.....	31
DRAKO HR 220 X.....	32
DRAKO HR 220 IWRC.....	33
DRAKO HR 130.....	34
DRAKO HR 130 WSC.....	35
DRAKO HR 240.....	36
DRAKO HR 240 WSC.....	37
DRAKO HR 240 C.....	38
DRAKO HR 290 PC.....	39
DRAKO HR 290 IWRC.....	40
DRAKO FHR.....	41

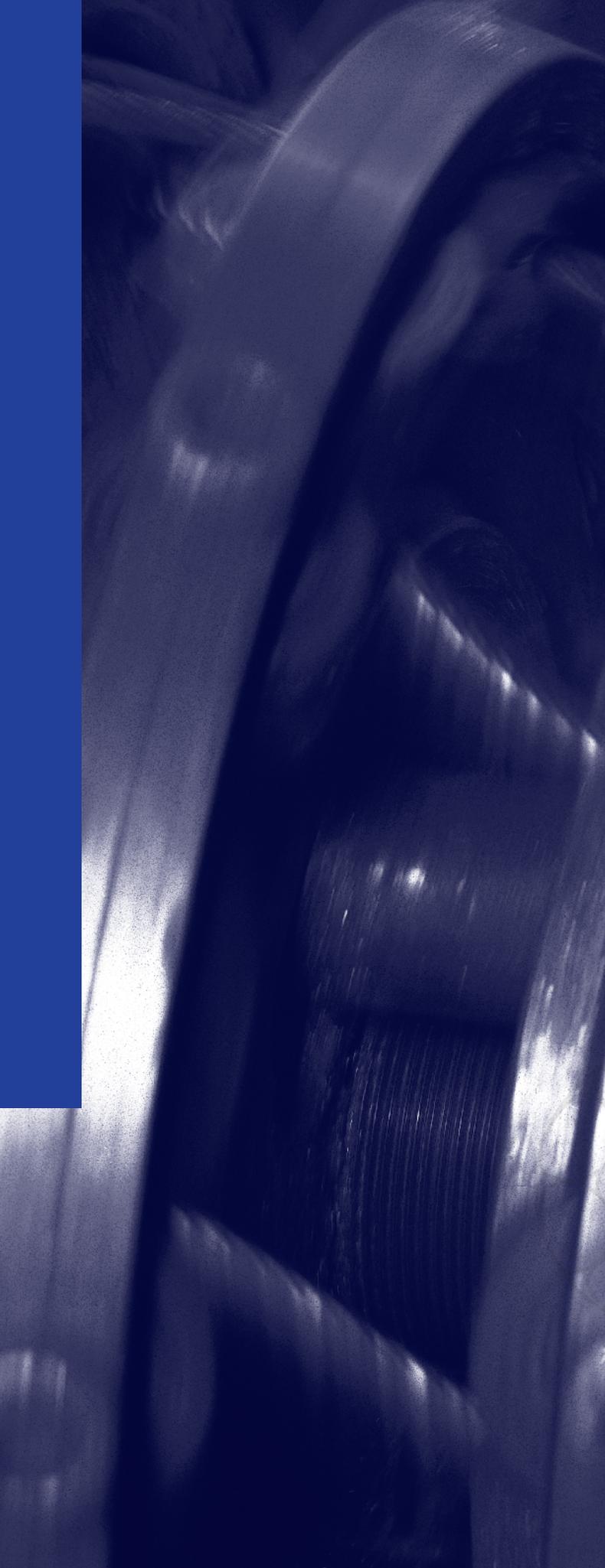
Balance Ropes

DRAKO RBR.....	43
DRAKO FBR.....	44

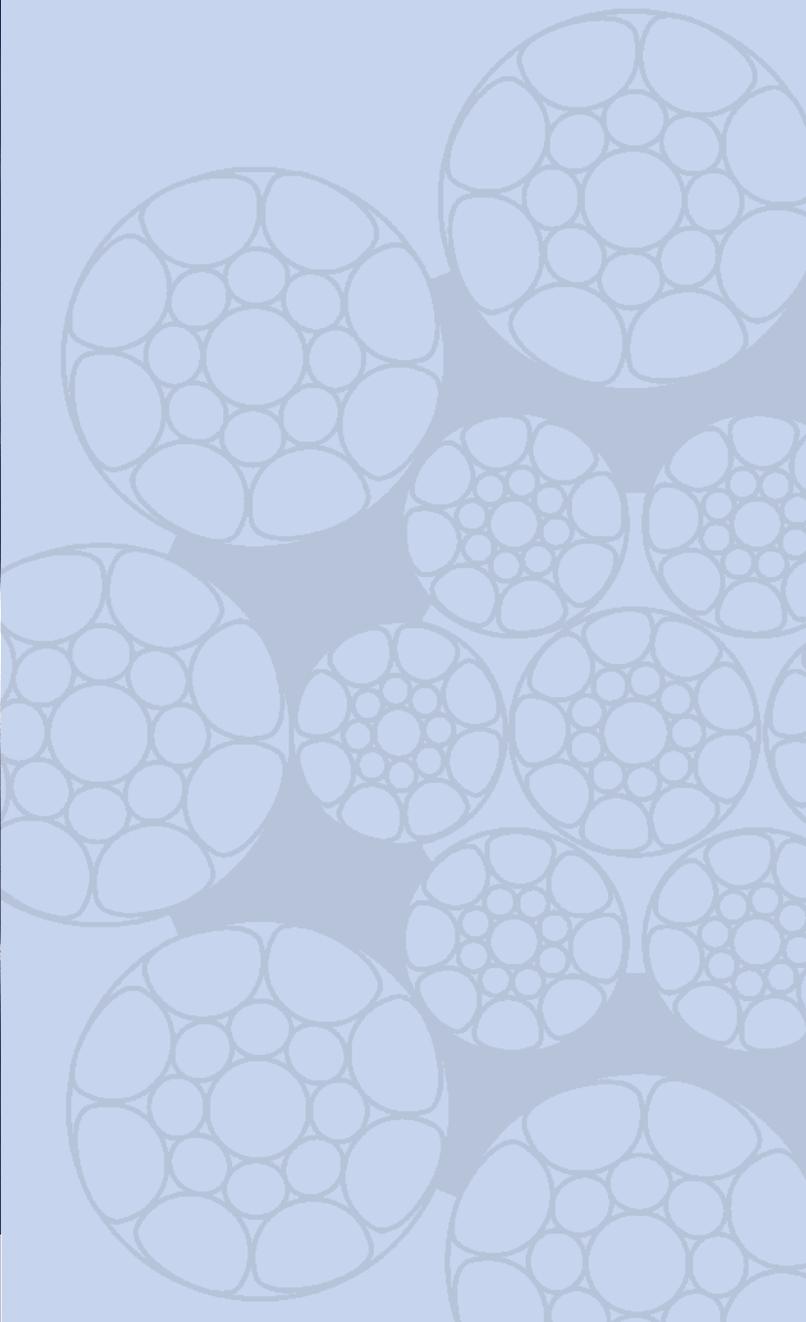
Dragline & Drilling Ropes

DRAKO DL 290.....	46
DRAKO RDR 150.....	47

Questionnaires.....	49
---------------------	----



Notes



Industrial Rope Solutions



Ropes for Industrial Applications

DRAKO 250.....	6
DRAKO 250 PC.....	7
DRAKO 300.....	9
DRAKO P 502.....	10
DRAKO TK-Flex.....	11
DRAKO 175 LC.....	12
DRAKO WR 100.....	13
DRAKO WR 130.....	14
DRAKO Flex.....	15

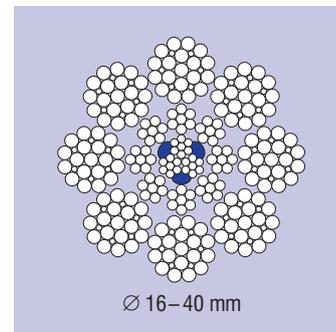
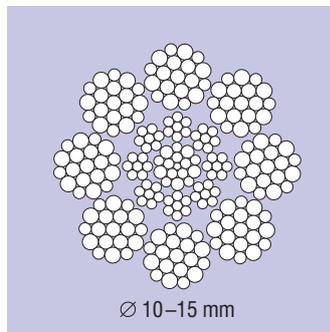


SALES AND TECHNICAL SUPPORT

TUNNELSTRASSE 38
DE-45479 MÜLHEIM AN DER RUHR
PHONE +49 (0) 208-4 29 01-0
FAX +49 (0) 208-4 29 01-54
E-MAIL industry-products@drako.de
INTERNET www.drako.de

Industrial Ropes

DRAKO 250



Rope diameter	10–40 mm
Type of lay	ordinary lay
Direction of lay	right, alternatively left
Core	steel core
Number of outer strands	8
Number of load bearing wires in the outer strands	152
Finish	U; B

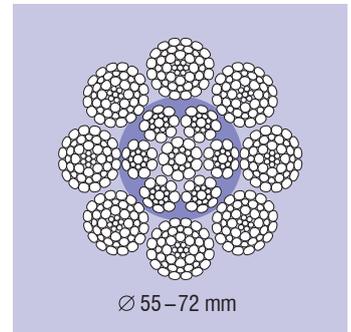
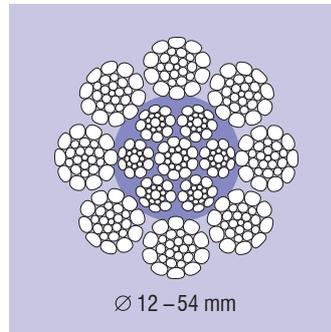
Characterisation	Full steel rope for heavy duty rope drives. Available on request in higher rope grade
Applications	cranes and excavators, cranes in steel mills, gravel excavators, floating dredgers, high storage rack loaders, winches
Comments	special attention should be paid to EN 12385-3 "Information for use and maintenance" discard criteria acc. to DIN 15020-2/ISO 4309 apply



WARNING! Never use a Swivel!
Failure may cause serious personal injuries or material damages

Rope Ø -0 + 5 % mm	unit mass	minimum breaking force [kN] rope tensile grade
	kg/100m	1960 N/mm ²
10	42	78
11	51	95
12	61	113
13	72	132
14	84	156
15	96	176
16	111	202
18	144	253
20	173	315
22	209	382
24	249	437
26	292	532
28	338	618
30	388	707
32	442	805
36	566	998
40	730	1230

DRAKO 250 PC



Rope diameter	12 – 72 mm
Type of lay	ordinary lay, optional lang's lay
Direction of lay	right, alternatively left
Core	EPIWRC
Number of outer strands	8
Number of load bearing wires in the outer strands	208–328
Finish	U; B

Characterisation compacted, plastic coated IWRC

Applications Bridge Cranes, Heavy Cargo Winches, High Storage Rack Loaders, Cranes in Steel Mills, Cranes for Waste Incinerators and Harbour Cranes.

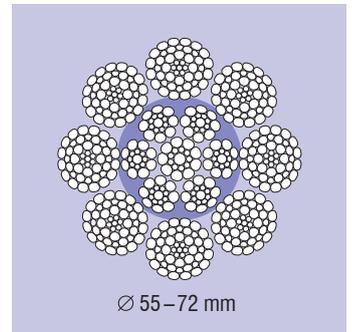
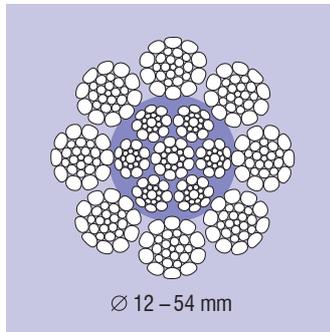
Comments special attention should be paid to EN 12385-3 "Information for use and maintenance" discard criteria acc. to DIN 15020-2/ISO 4309 apply



WARNING! Never use a Swivel!
Failure may cause serious personal injuries or material damages

Rope Ø +2 + 4 % mm	unit mass kg/100m	minimum breaking force [kN] rope tensile grade	
		1960 N/mm ²	2160 N/mm ²
12,0	67	128	141
14,0	90	172	192
16,0	116	229	249
17,0	136	259	281
18,0	152	290	315
19,0	169	323	351
20,0	187	358	389
22,0	226	434	471
24,0	269	516	560
26,0	315	606	657
28,0	365	701	761
30,0	412	805	874
32,0	472	917	995
34,0	532	1035	1124
36,0	597	1161	1260
38,0	665	1293	1403
40,0	737	1433	1555
42,0	813	1580	1715
44,0	892	1734	1882
46,0	975	1895	2057

DRAKO 250 PC



Rope diameter	12 – 72 mm
Type of lay	ordinary lay, optional lang's lay
Direction of lay	right, alternatively left
Core	EPIWRC
Number of outer strands	8
Number of load bearing wires in the outer strands	208 – 328
Finish	U; B

Characterisation compacted, plastic coated IWRC

Applications Bridge Cranes, Heavy Cargo Winches, High Storage Rack Loaders, Cranes in Steel Mills, Cranes for Waste Incinerators and Harbour Cranes.

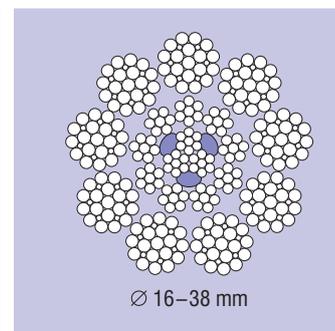
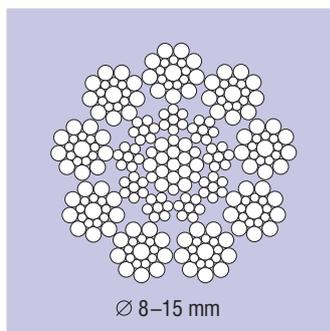
Comments special attention should be paid to EN 12385-3 "Information for use and maintenance" discard criteria acc. to DIN 15020-2/ISO 4309 apply



WARNING! Never use a Swivel!
Failure may cause serious personal injuries or material damages

Rope \varnothing +2 + 4% mm	unit mass kg/100m	minimum breaking force [kN] rope tensile grade	
		1960 N/mm ²	2160 N/mm ²
48,0	1061	2063	2240
50,0	1152	2239	2430
52,0	1246	2421	2628
54,0	1343	2611	2834
56,0	1445	2808	3048
58,0	1550	3012	3270
60,0	1658	3224	3499
62,0	1771	3442	3736
64,0	1887	3668	3981
66,0	2006	3901	4234
68,0	2130	4141	4495
70,0	2257	4388	4763
72,0	2388	4642	5039

DRAKO 300



Rope diameter	8–38 mm
Type of lay	ordinary lay
Direction of lay	right, alternatively left
Core	steel core
Number of outer strands	9
Number of load bearing wires in the outer strands	171
Finish	U; B

Characterisation Very flexible 9-strand full steel rope for high performance rope drives (e. g. with a large number of sheaves), available on request lang lay zZ + sS.

Applications Heavy duty cranes and excavators, e. g. for cranes in steel mills, gravel excavators, floating dredgers, high storage rack loaders, cranes for waste incinerators and harbour cranes

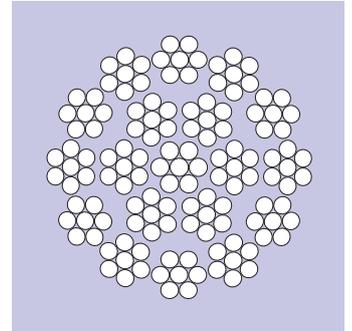
Comments special attention should be paid to EN 12385-3 "Information for use and maintenance" discard criteria acc. to DIN 15020-2/ISO 4309 apply



WARNING! Never use a Swivel!
Failure may cause serious personal injuries or material damages

Rope ø -0 + 5% mm	unit mass kg/100m	minimum breaking force [kN] rope tensile grade	
		1770 N/mm ²	1960 N/mm ²
8	27	45,0	
9	35	57,5	
10	45	71,0	
11	52	82,0	
12	63		113
13	71		128
14	83		147
15	95		174
16	108		197
18	137		253
19	152		271
20	169		306
22	204		374
24	243		445
26	285		524
28	331		604
30	380		697
32	432		797
34	488		885
36	547		1016
38	609		1111

DRAKO P 502



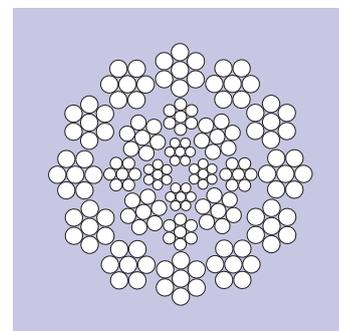
Type of lay	ordinary lay
Direction of lay	right, alternatively left
Core	steel core
Number of outer strands	12
Number of load bearing wires in the outer strands	84
Finish	U; B
Characterisation	rotation resistant
Applications	electric hoist, towercrane
Comments	special attention should be paid to EN 12385-3 "Information for use and maintenance" discard criteria acc. to DIN 15020-2/ISO 4309 apply



WARNING! Never use a Swivel!
Failure may cause serious personal injuries or material damages

Rope Ø -0 +5%	unit mass kg/100m	minimum breaking force [kN] rope tensile grade		
		1960 N/mm ²	2060 N/mm ²	2160 N/mm ²
6,0	15,0	26,0	28,7	29,1
7,0	20,0	36,7	38,5	40,4
8,0	28,0	45,8	50,4	54,8
9,0	31,9	58,5	64,5	64,9
10,0	40,7	71,7	79,0	82,0
11,0	51,0	88,2	97,1	101,0
12,0	58,0	107,4	118,3	114,8
13,0	69,0	122,2	134,7	142,0
14,0	88,0	141,1	155,5	165,0
16,0	111,0	190,7	210,1	223,0
18,0	130,0	234,5	258,4	264,0

DRAKO TK-Flex



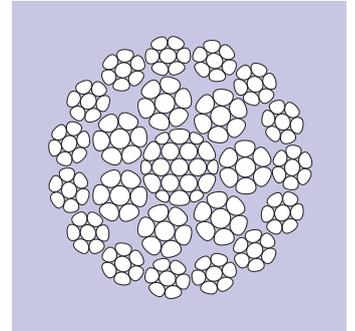
Type of lay	lang lay
Direction of lay	right, alternatively left
Core	steel core
Number of outer strands	12
Number of load bearing wires in the outer strands	84
Finish	U; B
Characterisation	rotation resistant
Applications	towercrane, electric hoist, deck crane
Comments	special attention should be paid to EN 12385-3 "Information for use and maintenance" discard criteria acc. to DIN 15020-2/ISO 4309 apply



WARNING! Never use a Swivel!
Failure may cause serious personal injuries or material damages

Rope \varnothing -1 + 4% mm	unit mass kg/100m	minimum breaking force [kN] rope tensile grade	
		1960 N/mm ²	2160 N/mm ²
7,2	21,1	40,8	42,0
8	27,0	48,7	56,0
9	33,5	63,4	68,5
10	42,0	76,9	86,0
11	51,0	91,6	104,0
12	61,0	113,4	124,5
13	71,0	131,0	145,0
14	86,0	153,1	175,0
15	95,4	172,4	190,0
16	108,1	196,7	220,0
18	136,1	243,9	275,0
20	167,0	310,4	335,0
22	203,0	378,2	410,0

DRAKO 175 LC

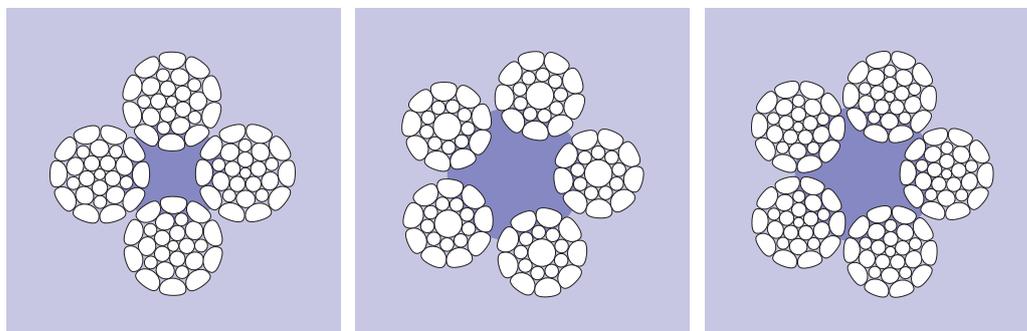


Type of lay	lang lay
Direction of lay	right, alternatively left
Core	steel core
Number of outer strands	15
Number of load bearing wires in the outer strands	105
Finish	U; B

Characterisation	extreme rotation resistant, compacted
Applications	rope excavator, towercrane, mobilcrane, electric hoist, deck crane, recommended for multi-layer spooling
Comments	special attention should be paid to EN 12385-3 "Information for use and maintenance" discard criteria acc. to DIN 15020-2/ISO 4309 apply

Rope \varnothing + 2 + 3,5% mm	unit mass	minimum breaking force [kN] rope tensile grade
	kg/100m	1960 N/mm ²
8	31,3	55,3
9	39,4	69,2
10	48,5	83,0
11	58,6	103,8
12	69,8	124,5
13	82,9	146,4
14	96,1	169,5
15	109,2	194,1
16	124,4	219,6
17	140,5	250,0
18	157,7	279,2
19	176,9	313,2
20	195,1	345,8
21	215,3	381,8
22	236,6	419,1

DRAKO WR 100



Type of lay	crosslay
Direction of lay	right
Core	fibre core
Number of outer strands	4–5
Number of load bearing wires in the outer strands	95–144
Finish	B

Characterisation compacted, blue marking line

Applications climbing winches

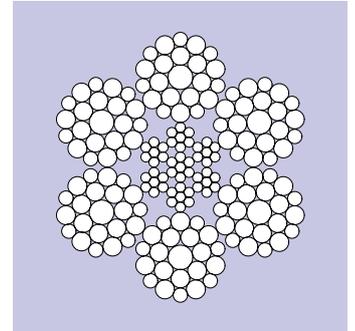
Comments special attention should be paid to EN 12385-3 "Information for use and maintenance" discard criteria acc. to DIN 15020-2/ISO 4309 apply



WARNING! Never use a Swivel!
Failure may cause serious personal injuries or material damages

Rope \varnothing –0,3 +0 mm mm	unit mass kg/100m	minimum breaking force [kN] rope tensile grade	
		1960 N/mm ²	2160 N/mm ²
6,5	15,5	28,4	
8,4	27,0	55,0	
9,0	35,0		65,7
9,5	35,0	64,0	
10,2	41,0		86,0
11,5	49,0	96,0	
16,3	101,0	180,0	

DRAKO WR 130



Type of lay	ordinary lay
Direction of lay	right
Core	steel core
Number of outer strands	6
Number of load bearing wires in the outer strands	132
Finish	B

Applications mobile-spillwinches, winches for construction

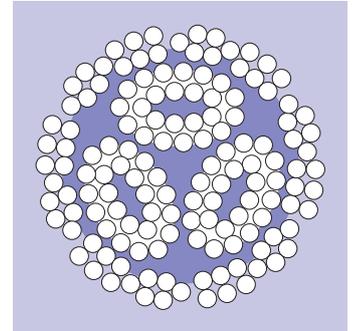
Comments special attention should be paid to EN 12385-3 "Information for use and maintenance" discard criteria acc. to DIN 15020-2/ISO 4309 apply



WARNING! Never use a Swivel!
Failure may cause serious personal injuries or material damages

Rope \varnothing -0 + 5 % mm	unit mass	minimum breaking force [kN] rope tensile grade
	kg/100 m	1960 N/mm ²
12	63,0	116
13	73,9	140
14	85,8	169
15	98,5	186
16	112,1	212
18	141,8	268
20	175,1	331

DRAKO Flex



Type of lay	lang lay
Direction of lay	right
Core	fibre core
Number of outer strands	12
Number of load bearing wires in the outer strands	72
Finish	A

Characterisation	ultraflexible, almost non-rotating rope for special use. Alternatively with reduced diameter tolerances
Applications	open line construction (move in rope), research ship (deep sea probe rope)
Comments	special attention should be paid to EN 12385-3 "Information for use and maintenance" discard criteria acc. to DIN 15020-2/ISO 4309 apply

Rope Ø -0 + 5% mm	unit mass kg/100 m	minimum breaking force [kN] rope tensile grade	
		1770 N/mm ²	1960 N/mm ²
8	26	42,7	47,4
10	37	61,5	68,1
11	44	72,5	80,0
12	58	96,4	107,0
13	63	102,0	114,0
14	75	124,0	137,0
15	85	139,0	153,0
16	94	154,0	171,0
18	126	207,0	229,0
20	150	247,0	272,0
22	176	289,0	320,0

Notes



Aerial Ropeway Solutions



Ropes for Aerial Ropeways

DRAKO AR 40	18
DRAKO AR 40 X.....	19
DRAKO AR 120	20
DRAKO AR 120 X.....	21
DRAKO AR 150 X.....	22
DRAKO AR 220 X.....	23

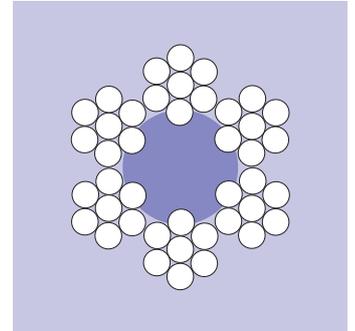
SALES AND TECHNICAL SUPPORT

TUNNELSTRASSE 38
DE-45479 MÜLHEIM AN DER RUHR
PHONE +49 (0) 208-4 29 01-0
FAX +49 (0) 208-4 29 01-54
E-MAIL ropeway-products@drako.de
INTERNET www.drako.de

Aerial Ropeway Ropes

DRAKO AR 40

Construction Class 6 x 7



Rope Diameter	14–24 mm
Total number of wires	42
Total number of strands	6
Number of outer strands	6
Number of load bearing wires in outer strands	42

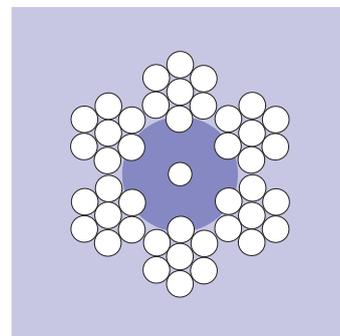
Characterisation	Robust rope with polypropylene fibre core
Applications	Hauling rope for drag lifts and material ropeways
Comments	Special attention should be paid to EN 12927-5, discard criteria acc. to EN 12927-6

Nominal rope- \varnothing -0 + 5% mm	Approx mass kg/m	Minimum breaking force [kn] for a rope grade of					
		1570 N/mm ²	1670 N/mm ²	1770 N/mm ²	1860 N/mm ²	1960 N/mm ²	2060 N/mm ²
14	0,67	107	114	121	127	134	139
14,5	0,71	114	121	129	135	142	148
15	0,76	122	129	137	144	152	158
16	0,85	137	146	154	162	171	178
17	0,96	153	163	173	182	192	199
18	1,07	172	183	194	204	215	223
19	1,19	191	203	215	226	238	247
20	1,31	210	223	237	249	262	272
21	1,43	230	245	259	273	287	299
22	1,57	251	267	283	298	314	326
23	1,70	273	291	308	324	341	355
24	1,92	308	328	348	365	385	400

Technical data for further rope- \varnothing are available on request

DRAKO AR 40 X

Construction Class 6 x 7



Rope Diameter	25–33 mm
Total number of wires	42
Total number of strands	6
Number of outer strands	6
Number of load bearing wires in outer strands	42

Characterisation Robust rope with special fibre core (reinforced and extruded fibre core) for low elongation

Applications Hauling rope for funicular
Carrying-hauling rope for ropeways

Comments Special attention should be paid to EN 12927-5, discard criteria acc. to EN 12927-6

Nominal rope- \varnothing -0 + 5 % mm	Approx mass kg/m	Minimum breaking force [kn] for a rope grade of					
		1570 N/mm ²	1670 N/mm ²	1770 N/mm ²	1860 N/mm ²	1960 N/mm ²	2060 N/mm ²
25	2,07	333	354	375	394	415	432
26	2,23	358	381	404	424	447	465
27	2,39	384	409	433	455	480	499
28	2,56	412	438	464	488	514	534
29	2,75	442	470	498	524	552	573
30	2,93	471	501	531	558	588	611
30,5	3,03	486	517	548	576	607	631
31	3,12	501	533	565	594	626	650
32	3,31	532	566	600	631	664	691
33	3,51	564	600	636	668	704	732

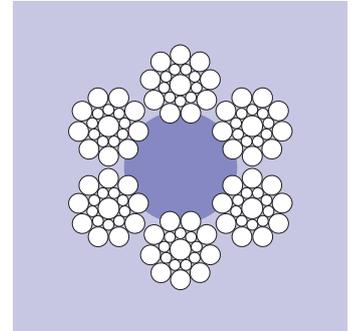
Technical data for further rope- \varnothing are available on request

DRAKO AR 120

Construction Class 6 x 19

6 x 17 S (1-8-8)

6 x 19 S (1-9-9)



Rope Diameter	14–24 mm
Total number of wires	114
Total number of strands	6
Number of outer strands	6
Number of load bearing wires in outer strands	114

Characterisation Flexible rope with polypropylene fibre core

Applications Hauling rope for drag lifts, aerial tramways, funiculars and material ropeways
Carrying-hauling rope for small ropeways

Comments Special attention should be paid to EN 12927-5, discard criteria acc. to EN 12927-6

Nominal rope-Ø -0 + 5%	Approx mass kg/m	Minimum breaking force [kn] for a rope grade of					
		1570 N/mm ²	1670 N/mm ²	1770 N/mm ²	1860 N/mm ²	1960 N/mm ²	2060 N/mm ²
14	0,66	105	111	118	124	131	136
15	0,82	130	138	147	154	162	169
16	0,89	141	150	159	168	177	183
17	1,00	159	169	179	188	198	206
18	1,15	182	194	206	216	228	237
19	1,23	195	208	220	231	244	253
20	1,40	223	237	251	264	278	289
21	1,53	243	258	273	287	303	315
22	1,68	267	284	301	316	333	347
23	1,87	297	316	335	352	371	386
24	2,04	324	345	366	384	405	421

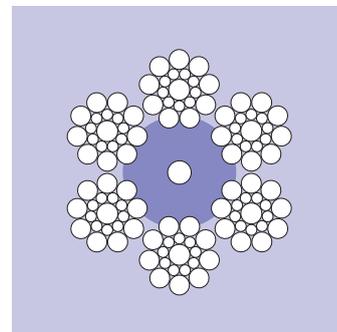
Technical data for further rope-Ø are available on request

DRAKO AR 120 X

Construction Class 6 x 19

6 x 17 S (1-8-8)

6 x 19 S (1-9-9)



Rope Diameter	25–38 mm
Total number of wires	114
Total number of strands	6
Number of outer strands	6
Number of load bearing wires in outer strands	114

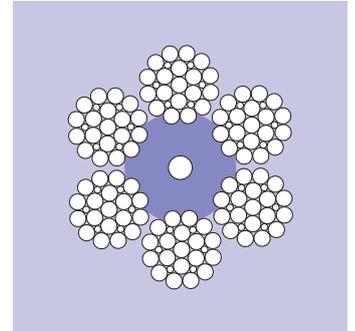
Characterisation	Resistant rope with special fibre core (reinforced and extruded fibre core) or low elongation
Applications	Hauling rope and carrying-hauling rope for chair lifts Hauling rope for cable cars
Comments	Special attention should be paid to EN 12927-5, discard criteria acc. to EN 12927-6

Nominal rope- \varnothing -0 + 5%	Approx mass kg/m	Minimum breaking force [kn] for a rope grade of					
		1570 N/mm ²	1670 N/mm ²	1770 N/mm ²	1860 N/mm ²	1960 N/mm ²	2060 N/mm ²
25	2,18	347	369	391	411	433	450
26	2,35	373	397	420	442	465	484
27	2,57	408	434	460	484	510	530
27,5	2,65	421	447	474	498	525	546
28	2,76	438	466	494	519	547	569
29	2,89	458	487	517	543	572	594
29,5	3,01	478	509	539	567	597	621
30	3,13	497	529	561	589	621	645
31	3,33	529	563	597	627	661	687
32	3,60	571	608	644	677	713	741
33	3,76	597	635	673	707	745	775
34	4,02	638	679	720	756	797	828
34,5	4,12	654	695	737	775	816	848
35	4,27	678	721	764	803	846	879
36	4,48	711	756	802	842	888	923
37	4,74	753	801	849	892	940	977
38	5,06	803	854	905	951	1002	1041

Technical data for further rope- \varnothing are available on request

DRAKO AR 150 X

Construction Class 6 x 25
6 x 25 F (1-6+6-12)



Rope Diameter	23–40 mm
Total number of wires	150
Total number of strands	6
Number of outer strands	6
Number of load bearing wires in outer strands	114

Characterisation

Flexible rope with special fibre core (reinforced and extruded fibre core) for low elongation

Applications

Hauling rope for aerial tramways and funiculars
Carrying-hauling rope for ropeways, fixed grip and detachable

Comments

Special attention should be paid to EN 12927-5, discard criteria acc. to EN 12927-6

Nominal rope- \varnothing -0 + 5% mm	Approx mass kg/m	Minimum breaking force [kn] for a rope grade of					
		1570 N/mm ²	1670 N/mm ²	1770 N/mm ²	1860 N/mm ²	1960 N/mm ²	2060 N/mm ²
23	1,86	288	306	325	341	360	374
24	2,11	327	348	369	388	408	424
25	2,24	348	370	392	412	434	451
26	2,38	369	393	416	438	461	479
27	2,67	414	441	467	491	517	537
28	2,83	439	467	495	520	548	569
29	2,98	463	492	522	548	578	600
30	3,22	500	531	563	592	624	648
31	3,41	530	563	597	627	661	687
32	3,67	570	607	643	676	712	740
33	3,85	598	636	674	708	746	775
34	4,12	639	680	720	757	798	829
35	4,40	684	727	771	810	854	887
36	4,60	714	759	805	845	891	926
37	4,89	759	807	855	899	947	984
38	5,15	800	851	902	947	998	1037
39	5,36	832	885	938	986	1039	1079
40	5,69	883	939	995	1046	1102	1145

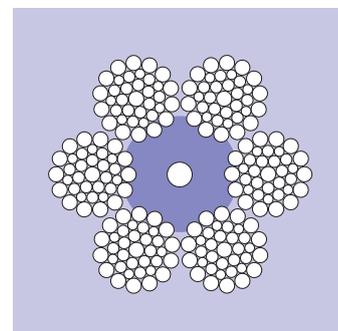
Technical data for further rope- \varnothing are available on request

DRAKO AR 220 X

Construction Class 6 x 36

6 x 31 WS (1-6-6+6-12)

6 x 36 WS (1-7-7+7-14)



Rope Diameter	33–50 mm
Total number of wires	216
Total number of strands	6
Number of outer strands	6
Number of load bearing wires in outer strands	216

Characterisation

Flexible rope with special fibre core (reinforced and extruded fibre core) for low elongation

Applications

Hauling rope for aerial tramways and funiculars

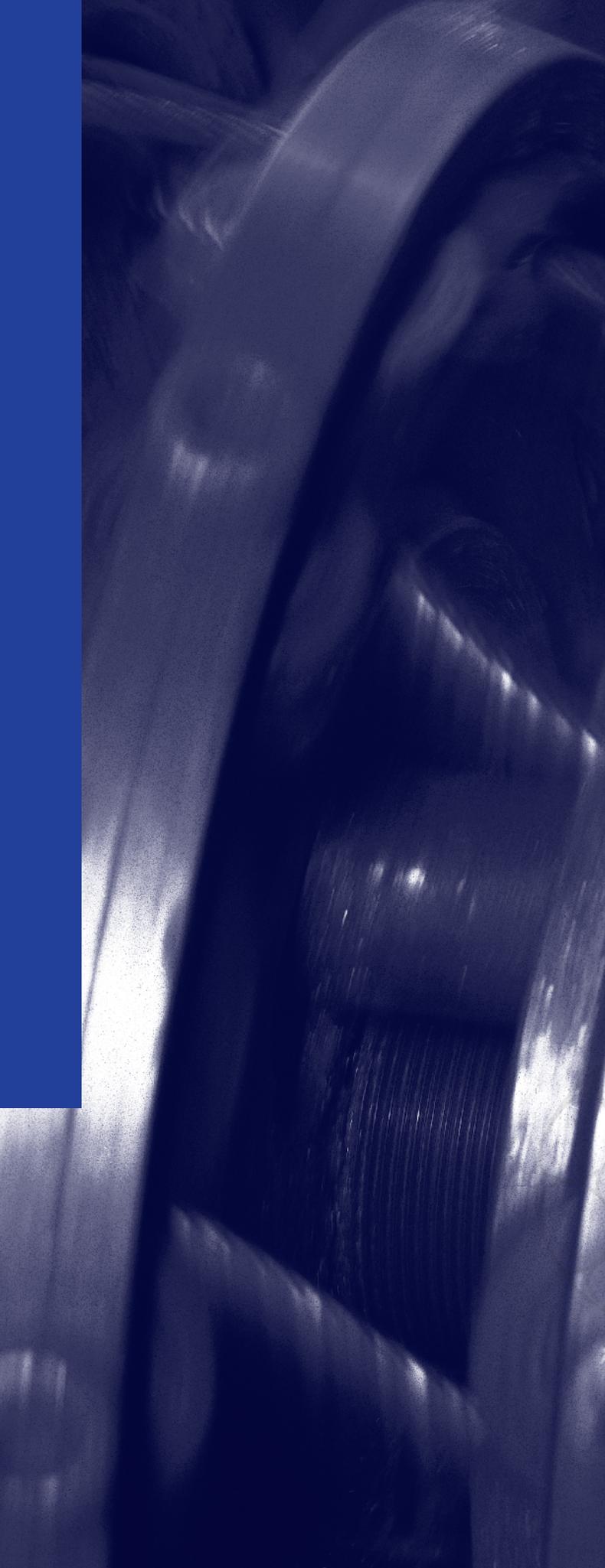
Carrying-hauling rope for ropeways, fixed grip and detachable

Comments

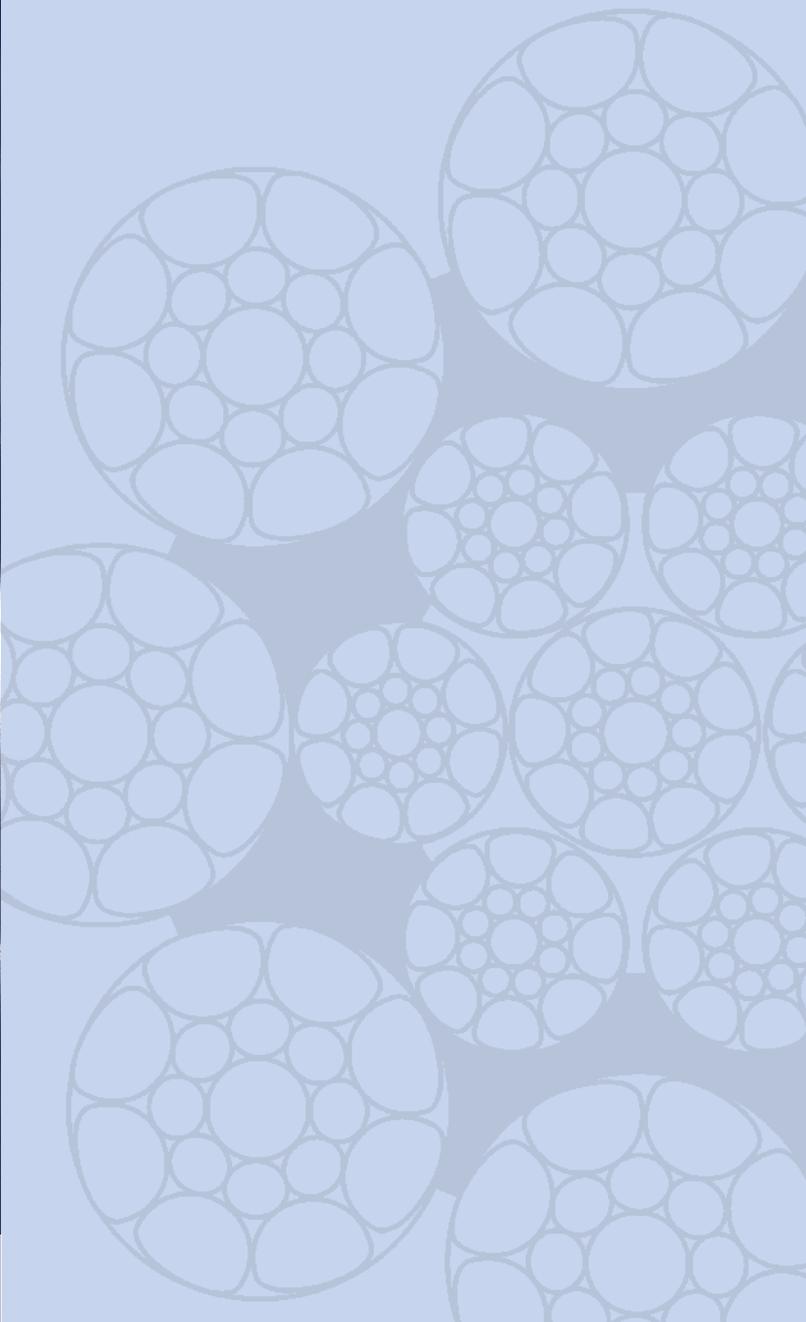
Special attention should be paid to EN 12927-5, discard criteria acc. to EN 12927-6

Nominal rope- \varnothing -0 + 5% mm	Approx mass kg/m	Minimum breaking force [kn] for a rope grade of					
		1570 N/mm ²	1670 N/mm ²	1770 N/mm ²	1860 N/mm ²	1960 N/mm ²	2060 N/mm ²
33	3,90	598	636	674	709	747	776
34	4,09	628	668	708	744	784	814
35	4,31	661	703	745	783	825	857
36	4,69	719	765	811	852	898	933
37	4,87	747	794	842	885	932	968
38	5,14	789	839	889	934	985	1023
39	5,45	837	890	943	991	1044	1085
40	5,74	881	937	994	1044	1100	1143
41	5,97	917	975	1033	1086	1144	1189
42	6,27	961	1023	1084	1139	1200	1247
43	6,61	1015	1079	1144	1202	1267	1316
44	6,94	1064	1132	1200	1261	1329	1380
45	7,32	1124	1195	1267	1331	1403	1458
46	7,61	1167	1242	1316	1383	1457	1514
47	7,82	1200	1276	1353	1421	1498	1556
48	8,22	1261	1341	1422	1494	1574	1635
49	8,53	1309	1393	1476	1551	1635	1698
50	8,80	1351	1437	1523	1600	1686	1752

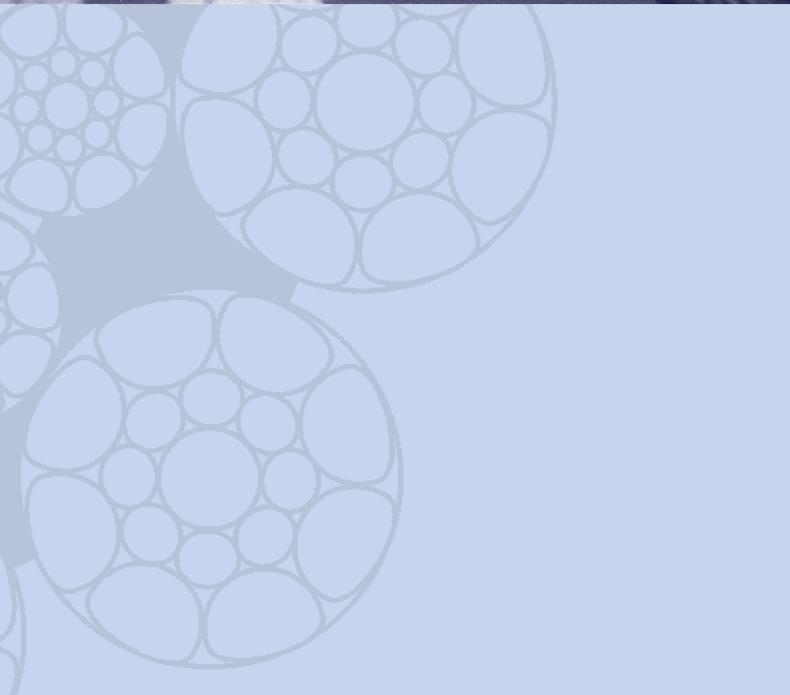
Technical data for further rope- \varnothing are available on request



Notes



Mining Rope Solutions



Ropes for Mining Applications

Introduction.....	26
Ropes Classes	27

Hoisting Ropes

DRAKO HR 110	28
DRAKO HR 210	29
DRAKO HR 210 X.....	30
DRAKO HR 220.....	31
DRAKO HR 220 X.....	32
DRAKO HR 220 IWRC.....	33
DRAKO HR 130	34
DRAKO HR 130 WSC	35
DRAKO HR 240.....	36
DRAKO HR 240 WSC	37
DRAKO HR 240 C.....	38
DRAKO HR 290 PC	39
DRAKO HR 290 IWRC.....	40
DRAKO FHR	41

Balance Ropes

DRAKO RBR.....	43
DRAKO FBR	44

Dragline & Drilling Ropes

DRAKO DL 290	46
DRAKO RDR 150.....	47

SALES AND TECHNICAL SUPPORT

TUNNELSTRASSE 38
DE-45479 MÜLHEIM AN DER RUHR
PHONE +49 (0) 208-4 29 01-0
FAX +49 (0) 208-4 29 01-54
E-MAIL mining-products@drako.de
INTERNET www.drako.de

Introduction

The series of new European steel wire rope standards is in 2004 completed by EN 12 385 Part 6: Stranded ropes for mine shafts. This standard covers hoist and balance ropes with round or shaped strands as well as flat ropes for both purposes. Stage ropes are defined as hoist ropes. Guide ropes are not included.

The standard indicates, that it can also be used in other mining applications, e.g. surface mining. As in other international wire rope standards, groups of more common rope constructions with similar mechanical and physical characteristics, the rope classes, have been established. For these rope classes, the standard provides tables with factors to calculate

- the minimum aggregate breaking force $F_{c,min}$
- the minimum breaking force F_{min}
- the nominal length mass m
- the approximate outer wire diameters δ_a

Tables for flat ropes, not calculable with factors and formulas, are included. It is important to know, that this standard is not limited to the given more common rope classes, providing all the other requirements are met. The special requirements like rope diameter tolerances and lubrication for different applications as in Koepe friction winding or drum hoists have been taken into account.



Definitions, designations and classification of the European steel wire rope standards (as given in EN 12 385 Part 2)

Most of the symbols are already international common practice.

Symbols for rope cores:

FC	=	fibre core
NFC	=	natural fibre core
SFC	=	synthetic fibre core
FC(R)	=	fibre core (reinforced), [this term is not defined within EN12385]
IWRC	=	steel core (from independent wire rope core)
EPIWRC	=	plastic coated IWRC

Symbols for strand constructions:

S	=	Seale (f. i. 1-9-9 wires), parallel lay
W	=	Warrington (f. i. 1-6-6+6 wires), parallel lay
WS	=	Warrington-Seale (f. i. 1-7-7+7-14 wires), combined parallel lay
N	=	compound lay, more detailed example see next line
NW	=	covered Warrington (f. i. 1-6-6+6/14 wires)
M	=	crosslay strand (f. i. 1-6/12/18 wires)

Symbols for wire finish:

U	=	bright (from uncoated)
A	=	galvanized acc. galvanization class A (heavy galvanized)
B	=	galvanized acc. galvanization class B (drawn galvanized)
Zn/Al	=	zinc aluminium coating

Symbols for type of lay and lay direction:

sZ	=	right hand ordinary (or regular) lay
zS	=	left hand ordinary (or regular) lay
zZ	=	right hand lang lay
sS	=	left hand lang lay

Rope classes

General: The system of rope classes allows, as mentioned above, to calculate in advance characteristic physical values of most of the ropes in usage today. But for a particular hoisting machinery it will then be necessary, to leave the envelope of the rope class and chose a definite strand construction, dependant on rope diameter, rope length, sheave diameters etc. In mining, the order should not be restricted to the rope class, f. i. 6x35N-FC, but should always give the detailed rope description, f. i. 6x33NW-NFC.

Some examples of rope classes

Rope class 6x36 means:

- it is a rope with one layer of strands
- it has 6 (outer) strands
- a strand can have 29 to 57 wires
- a strand can have 12 to 18 outer wires
- a strand can have 3 to 4 layers of wires
- the strand is parallel closed (one operation)
- to define the rope core, additional description is necessary (f. i. 6x36 – IWRC).

This class includes for instance:

6x31 WS with strands of (1-6-6+6-12) wires
 6x36 WS (1-7-7+7-14) wires
 6x41 WS (1-8-8+8-16) wires
 6x49 WS (1-8-8-8+8-16) wires

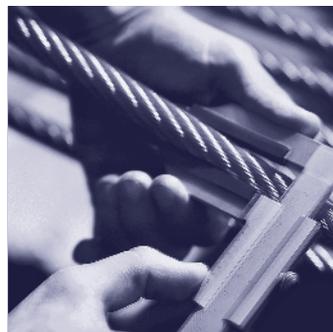
The **rope class 6x35N** (i.e. 6 strands in compound lay) includes for instance:

6x28NW with strands of (1-5-5+5/12) wires
 6x33NW (1-6-6+6/14) wires
 6x35NW (1-6-6+6/16) wires
 6x43NW (1-6/8-8+8/18) wires.

Mining ropes according to EN 12385-6

The standard EN 12385 Part 6 (Stranded ropes for mine shafts) lays down together with Part 1 (General requirements) the minimum safety requirements and their verification.

An important item with mining ropes is the nominal diameter. For ropes with steel core (IWRC) or for rotation-resistant ropes the nominal diameter is very dependant on the metallic cross section, i. e. for ropes with same nominal diameter of different origin, the nominal breaking forces will be very similar. In consequence, EN 12385-6 leaves it to the manufacturer, to define the nominal diameters of these types of its ropes. For ropes with fibre cores, especially for friction hoists, the above statement is not valid. Dependant on the experience of the manufacturer and amount and quality of the used fibres, there would be unbearable differences in nominal breaking force values possible. So for ropes with fibre core or reinforced fibre core, EN 12 385-6 provides another solution. For these ropes, the nominal diameter is that theoretical diameter, where all outer strands just touch each other. This leads for ropes with different core types (fibre cores and steel cores) to different tolerances on the nominal diameter.



Tolerances of nominal diameter and of length mass, depending on rope type:

rope type	rope dimension		nominal length mass tolerance [%]
	reference value	tolerance [%]	
6-strand round strand hoist ropes with FC acc. to 5.2.2a) or 5.2.2b)	d*	+2 to +5	-2 to +5
6 or 8-strand round strand hoist ropes with IWRC	d*	0 to +5	
6-strand triangular strand hoist ropes with FC	d*	+2 to +5	
Rotation resistant round strand ropes	d*	0 to +5	
Rotation resistant oval strand ropes	d*	0 to +7	
Round balance ropes	d*	0 to +5	-5 to +5
Flat hoist ropes	Width incl. stitching	-5 to +5	
	Thickness	-10 to +10	
Flat balance ropes	Width incl. stitching	-10 to +10	
	Thickness	-10 to +10	

* = nominal diameter

Information which should be provided with an enquiry or order

The standard shows in an informative (i. e. not normative) annex a list of information, which would help the manufacturer, to adapt the rope better to the application:

- Reference to Standard EN 12385-6
- Rope duty
- Drive Mode: Koepe or Drum
- Quantity and Length
- Dimensions and Tolerances
- Construction
- Wire Finish
- Lay Direction and Type
- Lubrication Requirements
- Minimum Breaking Force F_{min} or Minimum Aggregate Breaking Force $F_{e,min}$
- Nominal Rope Length Mass
- Limiting Reel Dimensions

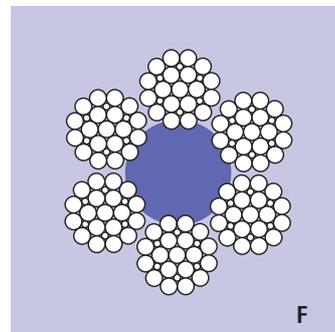
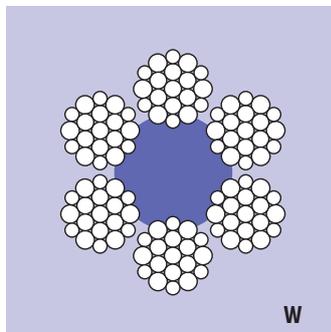
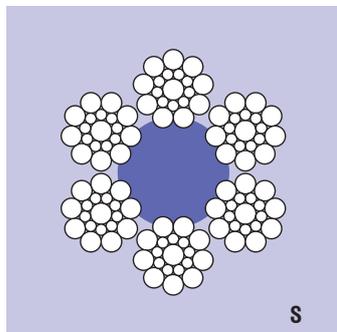
Note: In case a testing method has not been specified all hoist ropes will be certified on the basis of the Measured Aggregate Breaking Force $F_{e,m}$, balance ropes will be certified acc. to EN 10204 2.1.

Hoisting Ropes

DRAKO HR 110

Construction Class 6 x 19

6 x 15 S	6 x (1-7-7)
6 x 17 S	6 x (1-8-8)
6 x 19 S	6 x (1-9-9)
6 x 16 W	6 x (1-5-5+5)
6 x 19 W	6 x (1-6-6+6)
6 x 22 W	6 x (1-7-7+7)
6 x 26 WS	6 x (1-5-5+5-10)
6 x 21 F	6 x (1-5-5F-10)
6 x 25 F	6 x (1-6-6F-12)
6 x 29 F	6 x (1-7-7F-14)



Rope Diameter	20 – 50 mm
Number of strands	6
Core	NFC or SFC
Wires	acc. to EN 10264-3 Finish: U; B; A
Number of wires	15 – 29

Characterisation robust single layer Hoisting Rope with Fibre Core
Langs Lay or Ordinary Lay, right hand or left hand

Application Hoisting Rope for Koepe Drives and Drum Drives, Depths up to 2.000 m

Comments special attention should be paid to EN 12385-3; Appendix A and ISO 4309
discard criteria acc. to DIN 15020-2 / ISO 4309 apply

Rope Ø mm	unit mass kg/100m	min. aggregate breaking force [kN] tensile grade		
		1570 N/mm ²	1770 N/mm ²	1960 N/mm ² *
20,0	144	251	283	314
22,0	174	304	343	379
24,0	207	362	408	452
26,0	243	425	479	530
28,0	282	492	555	615
30,0	324	565	637	706
32,0	369	643	725	803
34,0	416	726	818	906
36,0	467	814	918	1016
38,0	520	907	1022	1132
40,0	576	1005	1133	1254
42,0	635	1108	1249	1383
44,0	697	1216	1371	1518
46,0	762	1329	1498	1659
48,0	829	1447	1631	1806
50,0	900	1570	1770	1960

* not in galvanisation class A

DRAKO HR 210

Construction Class 6 x 35 N

6 x 28 NW 6 x (1-5-5+5/12)

6 x 29 NW 6 x (1-5-5+5/13)

6 x 33 NW 6 x (1-6-6+6/14)

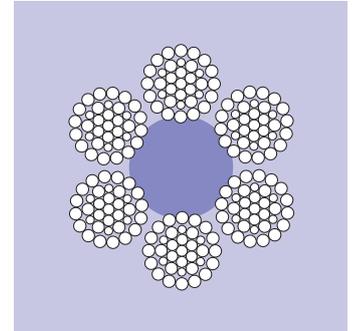
6 x 34 NW 6 x (1-6-6+6/15)

6 x 35 NW 6 x (1-6-6+6/16)

6 x 38 NW 6 x (1-7-7+7/16)

6 x 40 NW 6 x (1-7-7+7/18)

6 x 43 NW 6 x (1-8-8+8/18)



Rope Diameter	28 – 70 mm
Number of strands	6
Core	NFC or SFC
Wires	acc. to EN 10264-3 Finish: U; B; A
Number of wires	28 – 43

Characterisation robust single layer Hoisting Rope with reinforced Fibre Core

Langs Lay or Ordinary Lay, right hand or left hand

Application Hoisting Rope for Koepe Drives and Drum Drives, Depths up to 2.000 m

Comments special attention should be paid to EN 12385-3; Appendix A and ISO 4309
discard criteria acc. to DIN 15020-2 / ISO 4309 apply

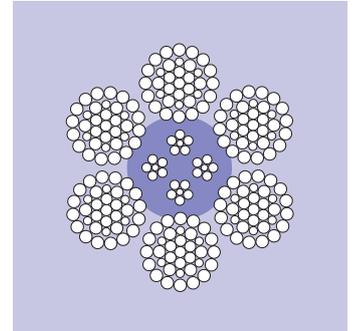
Rope Ø mm	unit mass kg/100m	min. aggregate breaking force [kN] tensile grade		
		1570 N/mm ²	1770 N/mm ²	1960 N/mm ² *
28,0	275	470	530	587
30,0	316	540	609	674
32,0	359	614	692	767
34,0	406	693	782	866
36,0	455	777	876	970
38,0	507	866	976	1081
40,0	562	960	1082	1198
42,0	619	1058	1193	1321
44,0	680	1161	1309	1450
46,0	743	1269	1431	1584
48,0	809	1382	1558	1725
50,0	878	1499	1690	1872
52,0	949	1622	1828	2025
54,0	1024	1749	1972	2183
56,0	1101	1881	2120	2348
58,0	1181	2018	2275	2519
60,0	1264	2159	2434	2695
62,0	1349	2305	2599	2878
64,0	1438	2457	2769	3067
66,0	1529	2612	2945	3261
68,0	1623	2773	3126	3462
70,0	1720	2939	3313	3669

* not in galvanisation class A

DRAKO HR 210 X

Construction Class 6 x 35 N

- 6 x 28 NW 6 x (1-5-5+5/12)
- 6 x 29 NW 6 x (1-5-5+5/13)
- 6 x 33 NW 6 x (1-6-6+6/14)
- 6 x 34 NW 6 x (1-6-6+6/15)
- 6 x 35 NW 6 x (1-6-6+6/16)
- 6 x 38 NW 6 x (1-7-7+7/16)
- 6 x 40 NW 6 x (1-7-7+7/18)
- 6 x 43 NW 6 x (1-8-8+8/18)



Rope Diameter	28 – 70 mm
Number of strands	6
Core	NFC or SFC (R) reinforced
Wires	acc. to EN 10264-3 Finish: U; B; A
Number of wires	28 – 43

Characterisation robust single layer Hoisting Rope with reinforced Fibre Core
 Langs Lay or Ordinary Lay, right hand or left hand

Application Hoisting Rope for Koepe Drives and Drum Drives, Depths up to 2.000 m

Comments special attention should be paid to EN 12385-3; Appendix A and ISO 4309
 discard criteria acc. to DIN 15020-2 / ISO 4309 apply

Rope Ø	unit mass	min. aggregate breaking force [kN] tensile grade		
		1570 N/mm ²	1770 N/mm ²	1960 N/mm ² *
mm	kg/100m			
28,0	289	470	530	587
30,0	331	540	609	674
32,0	377	614	692	767
34,0	425	693	782	866
36,0	477	777	876	970
38,0	531	866	976	1081
40,0	589	960	1082	1198
42,0	649	1058	1193	1321
44,0	712	1161	1309	1450
46,0	779	1269	1431	1584
48,0	848	1382	1558	1725
50,0	920	1499	1690	1872
52,0	995	1622	1828	2025
54,0	1073	1749	1972	2183
56,0	1154	1881	2120	2348
58,0	1238	2018	2275	2519
60,0	1325	2159	2434	2695
62,0	1415	2305	2599	2878
64,0	1507	2457	2769	3067
66,0	1603	2612	2945	3261
68,0	1702	2773	3126	3462
70,0	1803	2939	3313	3669

* not in galvanisation class A
PFEIFER DRAKO

DRAKO HR 220

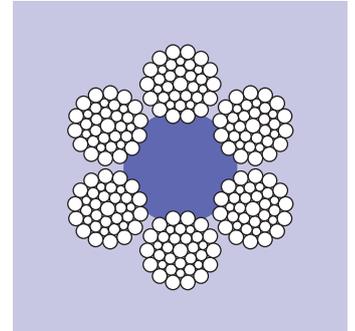
Construction Class 6 x 36 WS

6 x 31 WS 6 x (1-6-6+6-12)

6 x 36 WS 6 x (1-7-7+7-14)

6 x 41 WS 6 x (1-8-8+8-16)

6 x 46 WS 6 x (1-9-9+9-18)



Rope Diameter	28 – 70 mm
Number of strands	6
Core	NFC or SFC
Wires	acc. to EN 10264-3 Finish: U; B; A
Number of wires	31 – 46

Characterisation	robust single layer Hoisting Rope with Fibre Core Langs Lay or Ordinary Lay, right hand or left hand
Application	Hoisting Rope for Koepe Drives and Drum Drives, Depths up to 2.000 m
Comments	special attention should be paid to EN 12385-3; Appendix A and ISO 4309 discard criteria acc. to DIN 15020-2 / ISO 4309 apply

Rope Ø	unit mass	min. aggregate breaking force [kN] tensile grade		
		1570 N/mm ²	1770 N/mm ²	1960 N/mm ² *
mm	kg/100m			
28,0	290	498	562	622
30,0	333	572	645	714
32,0	379	651	734	812
34,0	428	734	828	917
36,0	480	823	928	1028
38,0	534	917	1034	1145
40,0	592	1017	1146	1269
42,0	653	1121	1264	1399
44,0	716	1230	1387	1536
46,0	783	1344	1516	1678
48,0	852	1464	1650	1828
50,0	925	1588	1791	1983
52,0	1000	1718	1937	2145
54,0	1080	1853	2089	2313
56,0	1160	1993	2246	2488
58,0	1240	2137	2410	2668
60,0	1330	2287	2579	2856
62,0	1420	2442	2754	3049
64,0	1520	2603	2934	3249
66,0	1610	2768	3120	3455
68,0	1710	2938	3312	3668
70,0	1810	3113	3510	3887

* not in galvanisation class A

DRAKO HR 220 X

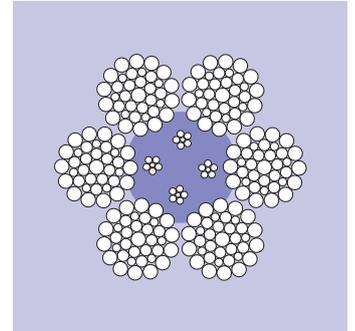
Construction Class 6 x 36 WS

6 x 31 WS 6 x (1-6-6+6-12)

6 x 36 WS 6 x (1-7-7+7-14)

6 x 41 WS 6 x (1-8-8+8-16)

6 x 46 WS 6 x (1-9-9+9-18)



Rope Diameter	28 – 70 mm
Number of strands	6
Core	NFC or SFC (R) reinforced
Wires	acc. to EN 10264-3 Finish: U; B; A
Number of wires	31 – 46

Characterisation robust single layer Hoisting Rope with reinforced Fibre Core

Langs Lay or Ordinary Lay, right hand or left hand

Application Hoisting Rope for Koepe Drives and Drum Drives, Depths up to 2.000 m

Comments special attention should be paid to EN 12385-3; Appendix A and ISO 4309
discard criteria acc. to DIN 15020-2 / ISO 4309 apply

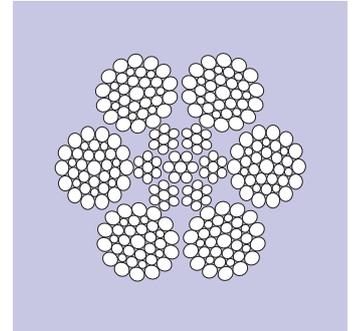
Rope Ø	unit mass	min. aggregate breaking force [kN] tensile grade		
		1570 N/mm ²	1770 N/mm ²	1960 N/mm ² *
mm	kg/100m			
28,0	301	498	562	622
30,0	346	572	645	714
32,0	393	651	734	812
34,0	444	734	828	917
36,0	498	823	928	1028
38,0	554	917	1034	1145
40,0	614	1017	1146	1269
42,0	677	1121	1264	1399
44,0	743	1230	1387	1536
46,0	813	1344	1516	1678
48,0	885	1464	1650	1828
50,0	960	1588	1791	1983
52,0	1040	1718	1937	2145
54,0	1120	1853	2089	2313
56,0	1200	1993	2246	2488
58,0	1290	2137	2410	2668
60,0	1380	2287	2579	2856
62,0	1480	2442	2754	3049
64,0	1570	2603	2934	3249
66,0	1670	2768	3120	3455
68,0	1780	2938	3312	3668
70,0	1880	3113	3510	3887

* not in galvanisation class A

PFEIFER DRAKO

DRAKO HR 220 IWRC

Construction Class 6 x 36



Rope Diameter	22–66 mm
Number of strands	6
Core	IWRC
Wires	acc. to EN 10264-3 Finish: U; B; A
Number of wires	31 – 41

Characterisation	robust single layer Rope with Steel Core Langs Lay or Ordinary Lay, right hand or left hand
Application	Hoisting Rope for Drum Drives, Winch Rope, Luffing Rope
Comments	special attention should be paid to the chapter "Unreeling and Installing Ropes" discard criteria acc. to DIN 15020-2 / ISO 4309 apply

Rope Ø mm	unit mass kg/100m	min. aggregate breaking force [kN] tensile grade		
		1570 N/mm ²	1770 N/mm ²	1960 N/mm ² *
22,0	203	358	404	447
24,0	242	426	480	532
26,0	284	500	564	624
28,0	329	580	654	724
30,0	378	666	751	831
32,0	430	758	854	946
34,0	486	855	964	1068
36,0	544	959	1081	1197
38,0	606	1068	1204	1334
40,0	672	1184	1335	1478
42,0	741	1305	1471	1629
44,0	813	1432	1615	1788
46,0	889	1566	1765	1954
48,0	968	1705	1922	2128
50,0	1050	1850	2085	2309
52,0	1136	2001	2255	2497
54,0	1225	2157	2432	2693
56,0	1317	2320	2616	2896
58,0	1413	2489	2806	3107
60,0	1512	2663	3003	3325
62,0	1614	2844	3206	3550
64,0	1720	3030	3416	3783
66,0	1830	3223	3633	4023

* not in galvanisation class A
Rope Solutions 02/2016

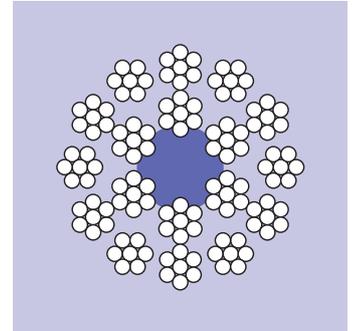
DRAKO HR 130

Construction Class 18 x 7

17 x 7 17 x (1-6)

18 x 6 18 x (1-5)

18 x 7 18 x (1-6)



Rope Diameter	18 – 48 mm
Number of strands	17 – 18
Core	NFC or SFC
Wires	acc. to EN 10264-3 Finish: U; B; A
Number of wires	6 – 7
Characterisation	Double Layer Rope, Rotation Resistant Langs Lay or Ordinary Lay, right hand or left hand
Application	Hoisting Rope for Drum Drives, Winch Rope, Guide Rope
Comments	special attention should be paid to EN 12385-3; Appendix A and ISO 4309 discard criteria acc. to DIN 15020-2 / ISO 4309 apply

Rope Ø	unit mass	min. aggregate breaking force [kN] tensile grade		
		1570 N/mm ²	1770 N/mm ²	1960 N/mm ² *
mm	kg/100m			
18,0	128	210	236	262
20,0	158	259	292	323
22,0	191	313	353	391
24,0	227	373	420	465
26,0	266	437	493	546
28,0	309	507	572	633
30,0	355	582	656	727
32,0	403	662	747	827
34,0	455	748	843	933
36,0	511	838	945	1047
38,0	569	934	1053	1166
40,0	630	1035	1167	1292
42,0	695	1141	1286	1424
44,0	763	1252	1412	1563
46,0	834	1369	1543	1709
48,0	908	1490	1680	1861

* not in galvanisation class A

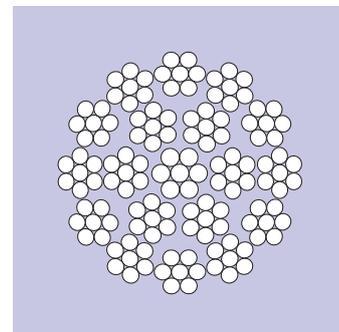
DRAKO HR 130 WSC

Construction Class 18x7

17x7 17x(1-6)

18x6 18x(1-5)

18x7 18x(1-6)



Rope Diameter	18 – 48 mm
Number of strands	17 – 18
Core	WSC
Wires	acc. to EN 10264-3 Finish: U; B: A
Number of wires	6 – 7

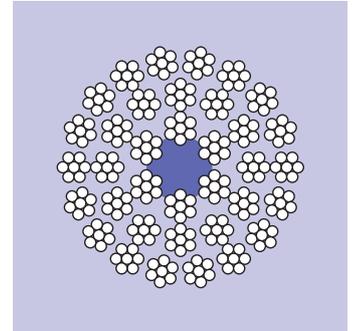
Characterisation	Double Layer Rope, Rotation Resistant Langs Lay or Ordinary Lay, right hand or left hand
Application	Hoisting Rope for Drum Drives, Winch Rope, Guide Rope
Comments	special attention should be paid to EN 12385-3; Appendix A and ISO 4309 discard criteria acc. to DIN 15020-2 / ISO 4309 apply

Rope Ø	unit mass	min. aggregate breaking force [kN] tensile grade		
		1570 N/mm ²	1770 N/mm ²	1960 N/mm ² *
mm	kg/100m			
18,0	130	217	244	271
20,0	161	268	302	334
22,0	195	324	365	404
24,0	232	385	434	481
26,0	272	452	510	564
28,0	315	524	591	655
30,0	362	602	679	751
32,0	412	685	772	855
34,0	465	773	872	965
36,0	521	867	977	1082
38,0	580	966	1089	1206
40,0	643	1070	1206	1336
42,0	709	1180	1330	1473
44,0	778	1295	1460	1616
46,0	851	1415	1596	1767
48,0	926	1541	1737	1924

* not in galvanisation class A

Drako HR 240

Construction Class 34(M)x7
 34(M)x6 34x(1-5)
 34(M)x7 34x(1-6)
 36(M)x6 36x(1-5)
 36(M)x7 36x(1-6)

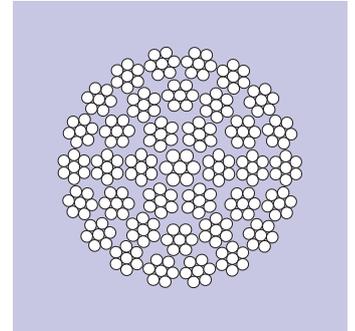


Rope Diameter	28 – 70 mm
Number of strands	34 – 36
Core	NFC or SFC
Wires	acc. to EN 10264-3 Finish: U; B; A
Number of wires	6 – 7
Characterisation	Triple Layer Rope, Rotation Resistant Langs Lay or Ordinary Lay, right hand or left hand
Application	Hoisting Rope for Drum Drives, Winch Rope, Balance Rope
Comments	special attention should be paid to EN 12385-3; Appendix A and ISO 4309 discard criteria acc. to DIN 15020-2 / ISO 4309 apply

Rope Ø	unit mass	min. aggregate breaking force [kN] tensile grade		
		1570 N/mm ²	1770 N/mm ²	1960 N/mm ² *
mm	kg/100m			
28	309	517	582	645
30	355	593	669	741
32	403	675	761	843
34	455	762	859	952
36	511	855	963	1067
38	569	952	1073	1189
40	630	1055	1189	1317
42	695	1163	1311	1452
44	763	1277	1439	1594
46	834	1395	1573	1742
48	908	1519	1713	1897
50	985	1649	1859	2058
52	1065	1783	2010	2226
54	1149	1923	2168	2400
56	1236	2068	2331	2582
58	1325	2218	2501	2769
60	1418	2374	2676	2964
62	1515	2535	2858	3164
64	1614	2701	3045	3372
66	1716	2872	3238	3586
68	1822	3049	3437	3806
70	1930	3231	3643	4033

Drako HR 240 WSC

Construction Class 34(M)x7
 34(M)x6 34x(1-5)
 34(M)x7 34x(1-6)
 36(M)x6 36x(1-5)
 36(M)x7 36x(1-6)



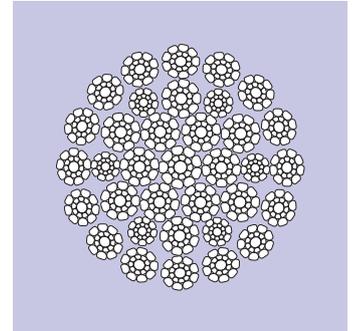
Rope Diameter	28 – 70 mm
Number of strands	34 – 36
Core	WSC
Wires	acc. to EN 10264-3 Finish: U; B; A
Number of wires	6 – 7

Characterisation	Triple Layer Rope, Rotation Resistant Langs Lay or Ordinary Lay, right hand or left hand
Application	Hoisting Rope for Drum Drives, Winch Rope, Balance Rope
Comments	special attention should be paid to EN 12385-3; Appendix A and ISO 4309 discard criteria acc. to DIN 15020-2 / ISO 4309 apply

Rope Ø	unit mass	min. aggregate breaking force [kN] tensile grade		
		1570 N/mm ²	1770 N/mm ²	1960 N/mm ² *
mm	kg/100m			
28	316	533	601	665
30	363	612	690	764
32	413	696	785	869
34	466	786	886	981
36	522	881	993	1100
38	582	982	1107	1225
40	645	1088	1226	1358
42	711	1199	1352	1497
44	780	1316	1484	1643
46	853	1438	1622	1796
48	929	1566	1766	1955
50	1008	1700	1916	2122
52	1090	1838	2072	2295
54	1175	1982	2235	2475
56	1264	2132	2403	2661
58	1356	2287	2578	2855
60	1451	2447	2759	3055
62	1549	2613	2946	3262
64	1651	2785	3139	3476
66	1755	2961	3338	3697
68	1863	3143	3544	3924
70	1974	3331	3755	4159

DRAKO HR 240 C

Construction Class 34 (W) x K7 WSC
Construction Class 34 (W) x K19 WSC



Rope Diameter	34 – 66mm
Number of strands	35
Core	WSC
Wires	acc. to EN 10264-3 Finish: U; B; A
Number of wires	7–19

Characterisation	compacted, flexible, wear resistant, hoisting rope with good fatigue properties
Application	Shaft hoisting rope specialised for multi layer drum applications
Comments	Special attention should be paid to EN 12385-3; Appendix A and ISO 4309 dircard criteria acc. to DIN 15020-2/ISO 4309 apply

Rope Ø mm	unit mass kg/100m	min. aggregate breaking force [kN] tensile grade			
		1570 N/mm ²	1770 N/mm ²	1860 N/mm ²	1960 N/mm ² *
22,0	238	433	488	513	543
24,0	284	516	582	612	646
26,0	334	608	685	720	759
28,0	387	704	793	833	880
30,0	445	809	912	958	1010
32,0	505	919	1036	1089	1149
34,0	600	1077	1214	1275	1343
36,0	673	1207	1361	1430	1505
38,0	749	1345	1516	1593	1677
40,0	830	1490	1680	1765	1858
42,0	916	1643	1852	1946	2049
44,0	1005	1803	2033	2136	2249
46,0	1098	1971	2222	2335	2458
48,0	1196	2146	2419	2542	2676
50,0	1298	2328	2625	2758	2904
52,0	1403	2518	2839	2983	3141
54,0	1514	2716	3061	3217	3387
56,0	1628	2920	3292	3460	3642
58,0	1746	3133	3532	3711	3907
60,0	1869	3353	3780	3972	4181
62,0	1995	3580	4036	4241	4465
64,0	2126	3814	4300	4519	4757
66,0	2261	4057	4573	4806	5059

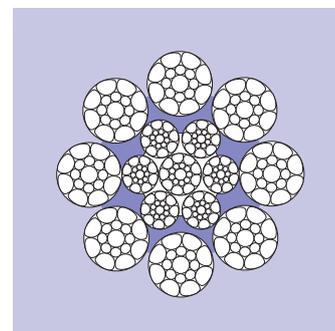
* not in galvanisation class A

PFEIFER DRAKO

DRAKO HR 290 PC

Construction Class 8 x K19S

8 x K 17	8 x (1-8-8)
8 x K19S	8 x (1-9-9)
8 x K31S	8 x (1-6-6+6-12)
8 x K31WS	8 x (1-6-6+6-12)



Rope Diameter	30 – 60 mm
Number of strands	8
Core	EPIWRC
Wires	acc. to EN 10264-3 Finish: U; B;
Number of wires	17 – 31

Characterisation Robust compacted single Layer rope with an plastic coated independent wire rope core
Langs Lay or Ordinary Lay, right hand or left hand

Application Hoisting rope for multy layer drum drive

Comments Special attention should be paid to EN 12385-3; Appendix A and ISO 4309
dircard criteria acc. to DIN 15020-2/ISO 4309 apply

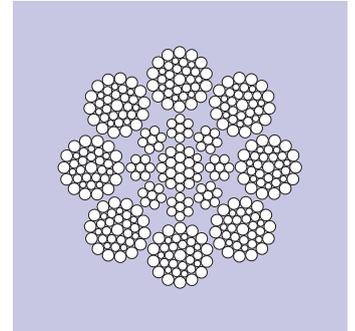
Rope Ø	unit mass	min. aggregate breaking force [kN] tensile grade			
		1570 N/mm ²	1770 N/mm ²	1960 N/mm ² *	2160 N/mm ² *
mm	kg/100m				
30,0	423	756	852	943	1039
32,0	482	860	969	1073	1183
34,0	542	968	1091	1208	1332
36,0	608	1085	1223	1355	1493
38,0	677	1209	1363	1509	1663
40,0	750	1340	1510	1672	1843
42,0	827	1477	1665	1844	2032
43,0	867	1548	1745	1933	2130
44,0	908	1621	1827	2024	2230
46,0	992	1772	1997	2212	2438
48,0	1080	1929	2175	2408	2654
50,0	1183	2117	2387	2643	2913
51,0	1231	2203	2484	2750	3031
52,0	1280	2290	2582	2859	3151
54,0	1380	2470	2784	3083	3398
56,0	1484	2656	2995	3316	3654
58,0	1592	2849	3212	3557	3920
60,0	1704	3049	3438	3807	4195

* not in galvanisation class A

DRAKO HR 290 IWRC

Construction Class 8 x 19

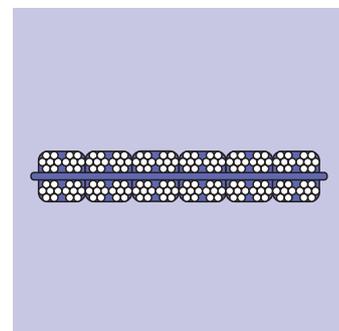
Construction Class 8 x 36



Rope Diameter	30 – 74 mm
Number of strands	8
Core	IWRC Construction depends on Rope Diameter
Wires	acc. to EN 10264-3 Finish: U; B; A
Number of wires	25 – 36 construction depends on rope diameter
Characterisation	Robust Single Layer Rope with Steel Core Langs Lay or Ordinary Lay, right hand or left hand
Application	Hoisting Rope for Drum Drives, Winch Rope, Luffing Rope
Comments	special attention should be paid to EN 12385-3; Appendix A and ISO 4309 discard criteria acc. to DIN 15020-2 / ISO 4309 apply

Rope Ø mm	unit mass kg/100m	min. aggregate breaking force [kN] tensile grade		
		1570 N/mm ²	1770 N/mm ²	1960 N/mm ² *
30,0	382	677	763	845
32,0	434	770	868	962
34,0	490	870	980	1086
36,0	550	975	1099	1217
38,0	612	1086	1225	1356
40,0	678	1203	1357	1502
42,0	748	1327	1496	1656
44,0	821	1456	1642	1818
46,0	897	1592	1794	1987
48,0	977	1733	1954	2164
50,0	1060	1880	2120	2348
52,0	1146	2034	2293	2539
54,0	1236	2193	2473	2738
56,0	1330	2359	2659	2945
58,0	1426	2530	2853	3159
60,0	1526	2708	3053	3380
62,0	1630	2891	3260	3610
64,0	1737	3081	3473	3846
66,0	1847	3276	3694	4090
68,0	1961	3478	3921	4342
70,0	2078	3686	4155	4601
72,0	2198	3899	4396	4868
74,0	2322	4119	4644	5142

DRAKO FHR



Rope Diameter	52 x 11 – 194 x 30	
Wires	acc. to EN 10264-3	Finish: U; B; A
Number of wires	168 – 608	
Characterisation	Flat Rope, Single Stitch	
Application	Hoisting Rope for Bobbins	
Comments	discard criteria acc. to DIN 15020-2 / ISO 4309 apply	

Rope Ø mm	wire Ø mm	unit mass kg/100m	min. aggregate breaking force [kN] tensile grade		
			1770 N/mm ²	1860 N/mm ²	1960 N/mm ² *
construction 6 x 4 x 7					
52 x 11	1,2	184	336	353	372
56 x 12	1,3	216	395	415	437
60 x 13	1,4	251	458	481	507
65 x 14	1,5	288	525	552	582
70 x 15	1,6	328	598	629	662
74 x 16	1,7	370	674	709	747
78 x 17	1,8	416	758	796	839
construction 8 x 4 x 7					
92 x 15	1,6	437	797	838	883
98 x 16	1,7	493	900	946	997
104 x 17	1,8	553	1009	1060	1117
110 x 18	1,9	616	1124	1181	1245
116 x 19	2,0	683	1246	1309	1379
122 x 20	2,1	753	1373	1443	1521
128 x 21	2,2	825	1507	1584	1669
construction 8 x 4 x 12					
130 x 21	1,7	850	1543	1621	1708
139 x 22	1,8	950	1730	1818	1915
146 x 23	1,9	1060	1927	2025	2134
154 x 24	2,0	1170	2135	2244	2364
160 x 25	2,1	1290	2354	2474	2607
168 x 26	2,2	1420	2584	2715	2861

DRAKO FHR

Rope Ø	wire Ø	unit mass	min. aggregate breaking force [kN] tensile grade		
			1770 N/mm ²	1860 N/mm ²	1960 N/mm ² *
mm	mm	kg/100m			
construction 8 x 4 x 14					
162 x 24	1,9	1230	2248	2363	2490
168 x 25	2,0	1370	2491	2618	2759
176 x 26	2,1	1510	2747	2886	3041
184 x 27	2,2	1650	3014	3168	3338
construction 8 x 4 x 19					
176 x 26	1,8	1500	2738	2878	3032
186 x 28	1,9	1670	3051	3206	3379
194 x 30	2,0	1850	3381	3553	3744

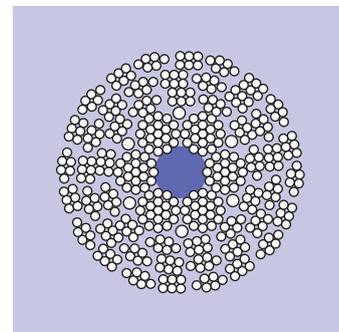
* not in galvanisation class A

DRAKO RBR

Construction

30 x 6 - 6 x 19

50 x 6 - 6 x 19



Rope Diameter	30 – 64 mm
Number of strands	30 – 50
Core	SFC
Wires	acc. to EN 10264-3 Finish: U; B; A
Number of wires	6 per strand

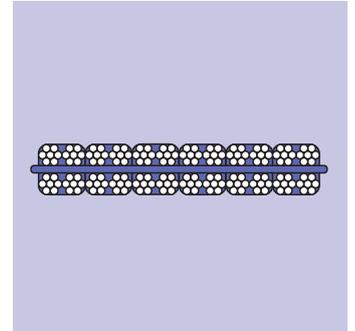
Characterisation Round Balance Rope with 2 or 3 Layers of Flattened Strands
Excellent Rotation Resistance, Langs Lay, right hand or left hand

Application Balance Rope for Use with Swivels

Comments special attention should be paid to EN 12385-3; Appendix A and ISO 4309
discard criteria acc. to DIN 15020-2 / ISO 4309 apply

Rope Ø mm	unit mass kg/100m	min. aggregate breaking force [kN] tensile grade	
		1080 N/mm ²	1370 N/mm ²
30,0	348	406	515
32,0	396	462	586
34,0	447	521	661
36,0	502	585	742
38,0	558	651	826
40,0	619	722	916
42,0	683	796	1010
44,0	749	873	1107
46,0	819	955	1211
48,0	892	1040	1319
50,0	986	1149	1458
52,0	1070	1243	1577
54,0	1150	1341	1701
56,0	1240	1442	1829
58,0	1330	1547	1962
60,0	1420	1656	2101
62,0	1520	1768	2243
64,0	1670	1884	2390

DRAKO FBR



Rope Dimensions	70 x 15 – 216 x 37
Wires	acc. to EN 10264-2 Finish: B; A
Number of wires	168 – 608
Characterisation	Flat Rope Single Stitch or Double Stich or riveted
Application	Balance Rope
Comments	discard criteria acc. to DIN 15020-2 / ISO 4309 apply

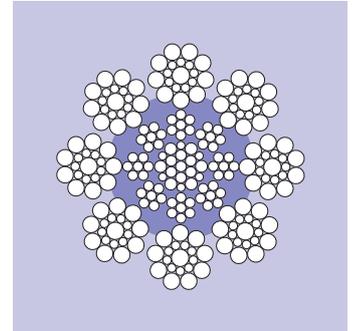
Rope Ø mm		wire Ø mm	unit mass kg/100m			min. aggregate breaking force [kN] tensile grade	
double stitched	single stitched or reveted		double stitched	single stitched	riveted	1370 N/mm ²	1570 N/mm ²
construction 6 x 4 x 7							
70 x 17	70 x 15	1,6	342	328	322	463	530
74 x 18	74 x 16	1,7	385	370	362	522	599
78 x 19	78 x 17	1,8	433	416	407	586	671
82 x 20	82 x 18	1,9	481	462	453	653	748
87 x 21	87 x 18	2,0	534	513	502	723	829
91 x 22	91 x 20	2,1	588	565	553	797	914
95 x 23	95 x 21	2,2	646	620	607	875	1003
construction 8 x 4 x 7							
110 x 20	110 x 18	1,9	642	616	604	870	997
116 x 21	116 x 19	2,0	711	683	669	964	1105
122 x 22	122 x 20	2,1	784	753	738	1063	1218
128 x 23	128 x 21	2,2	860	826	809	1167	1337
construction 6 x 4 x 12							
112 x 26	112 x 23	1,9	826	793	786	1119	1282
118 x 27	118 x 24	2,0	914	878	851	1240	1421
124 x 28	124 x 25	2,1	1010	968	939	1367	1566
130 x 29	130 x 26	2,2	1110	1070	1030	1500	1719

DRAKO FBR

Rope Ø mm		wire Ø mm	unit mass kg/100m			min. aggregate breaking force [kN] tensile grade	
double stitched	single stitched or reveted		double stitched	single stitched	riveted	1370	1570
construction 8 x 4 x 12							
146 x 25	146 x 23	1,9	1100	1060	1030	1492	1709
154 x 27	154 x 24	2,0	1220	1170	1140	1653	1894
160 x 28	160 x 25	2,1	1350	1290	1250	1822	2088
168 x 29	168 x 26	2,2	1480	1420	1380	2000	2292
construction 8 x 4 x 14							
168 x 28	168 x 25	2,0	1430	1370	1330	1928	2210
176 x 29	176 x 26	2,1	1570	1510	1460	2126	2436
184 x 30	184 x 27	2,2	1720	1660	1600	2333	2674
construction 8 x 4 x 19							
186 x 31	186 x 28	1,9	1750	1680	1620	2362	2706
194 x 33	194 x 30	2,0	1930	1860	1800	2617	2999
204 x 34	204 x 31	2,1	2130	2040	1980	2885	3306
216 x 37	216 x 33	2,2	2330	2240	2180	3166	3629

Dragline & Drilling Ropes

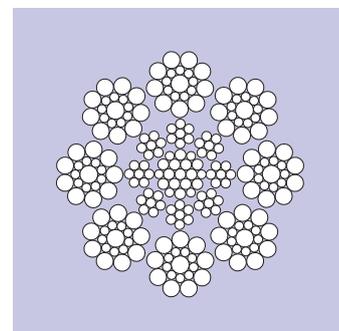
DRAKO DL 290



Rope Diameter	38 – 64 mm
Number of strands	8
Core	EPIWRC (plastic coated independent wire rope core)
Wires	acc. to EN 10264-3 Finish: U; B
Number of wires	depending on rope diameter
Characterisation	flexible wear-resistant rope with excellent shock absorbing capability available in right hand and left hand regular lay
Application	drum rope for surface mining machines
Comments	special attention should be paid to EN 12385-3; Appendix A and ISO 4309 discard criteria acc. to DIN 15020-2 / ISO 4309 apply

Rope Ø	unit mass	met. cross section	min. breaking force [kN] tensile grade		
			1770 N/mm ²	1960 N/mm ²	2160 N/mm ²
mm	kg/100m	kg/100m			
38,0	612	694	959	1062	1170
40,0	667	767	1058	1172	1291
42,0	735	845	1167	1292	1424
44,0	807	928	1281	1418	1563
46,0	882	1014	1400	1550	1708
48,0	960	1104	1524	1688	1860
50,0	1042	1198	1654	1831	2018
52,0	1127	1295	1789	1981	2183
54,0	1215	1397	1929	2136	2354
57,0	1354	1557	2149	2380	2623
60,0	1501	1725	2381	2637	2906
64,0	1707	1962	2709	3000	3306

DRAKO RDR 150



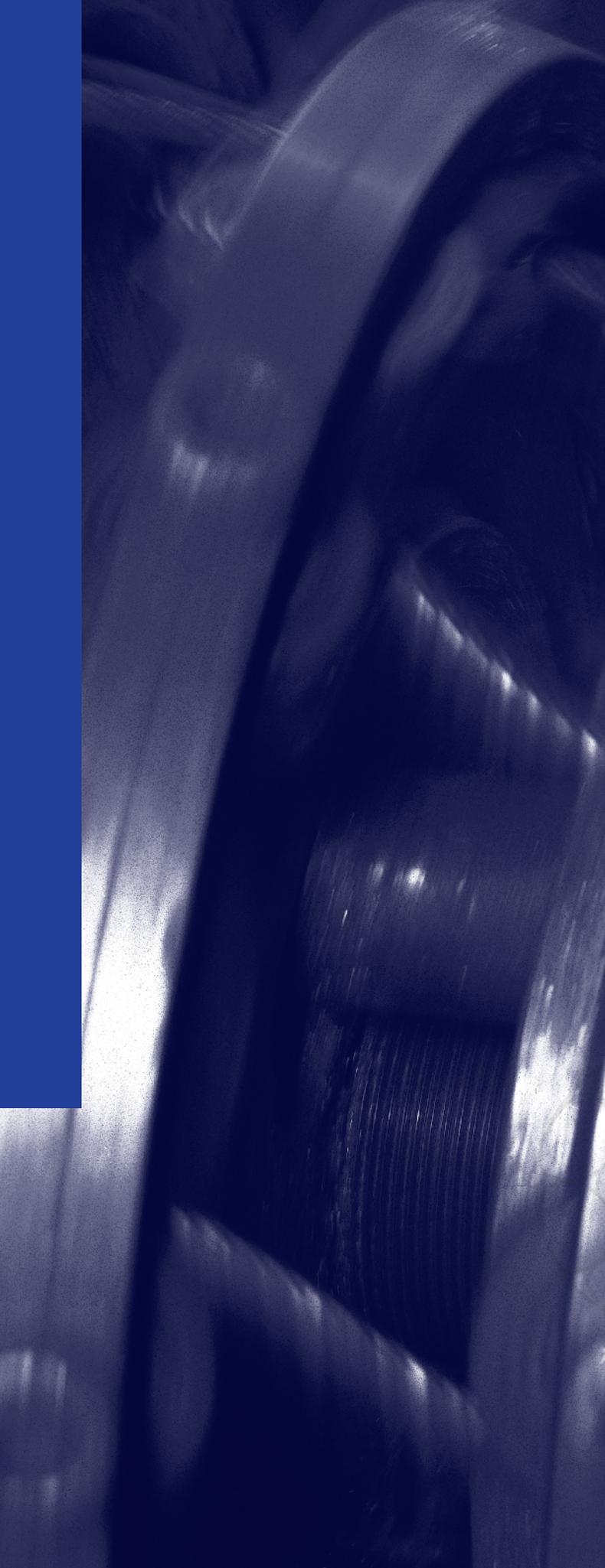
Rope Diameter	22 – 45 mm (7/8" – 1 3/4")
Number of strands	6 – 8
Core	IWRC
Wires	acc. to API Finish: U
Number of wires	17 – 21

Characterisation High-Performance Rotary Drilling Line
 Right Hand Ordinary Lay
 DIN 5881; acc. to API 9a

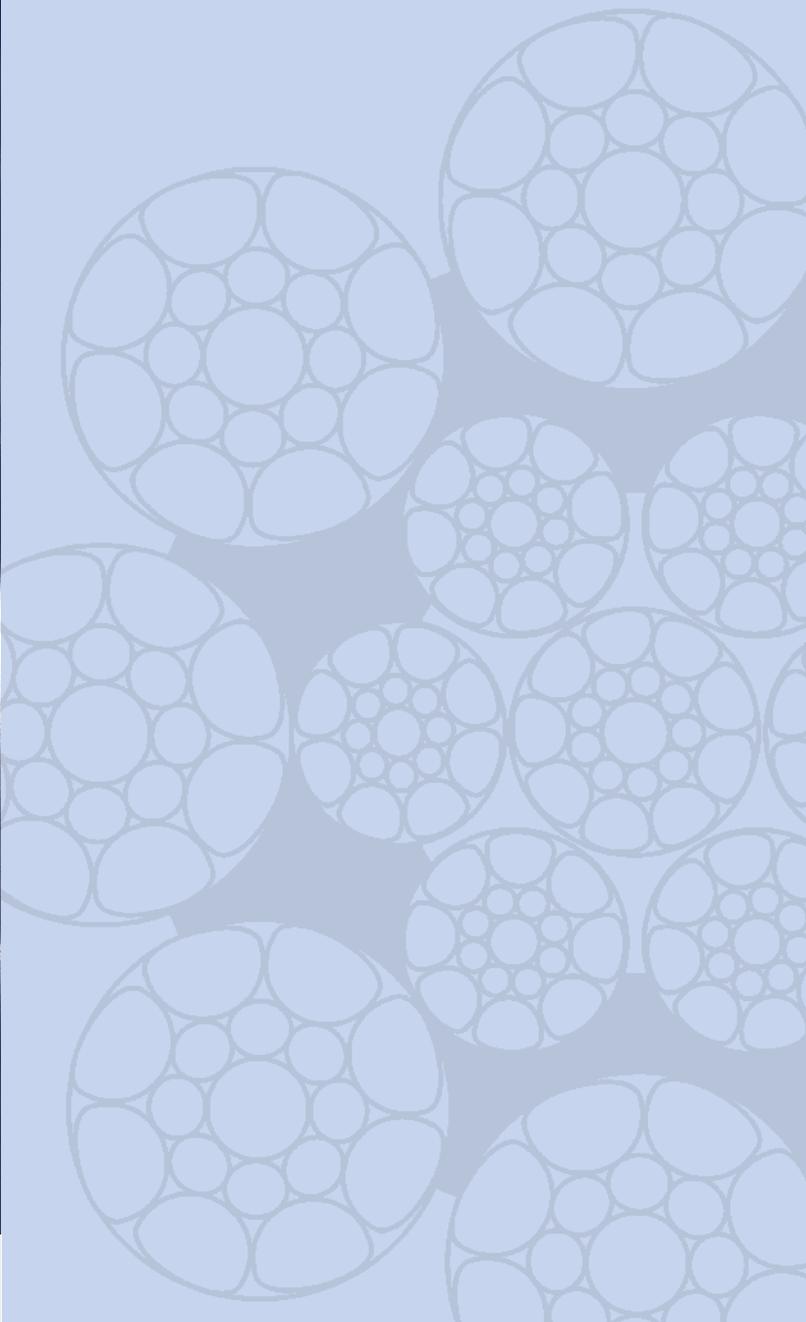
Application Drilling Rope for Multi-Layer Spooling

Comments special attention should be paid to EN 12385-3; Appendix A and ISO 4309
 discard criteria acc. to DIN 15020-2 / ISO 4309 apply

Rope Ø	"	construction	unit mass	min. breaking force [kN] tensile grade	
				IPS (1770 N/mm ²)	EIPS (1960 N/mm ²)
mm			kg/100m		
22,0	7/8	8 x 17S	212	300	332
26,0	1	8 x 17S	275	426	472
26,0	1	6 x 19S	270	432	479
29,0	1 1/8	8 x 17S	345	523	578
32,0	1 1/4	8 x 19S	445	673	745
35,0	1 3/8	8 x 19S	526	795	880
38,0	1 1/2	8 x 19S	631	953	1055
42,0	1 5/8	8 x 19S	734	1109	1229
45,0	1 3/4	8 x 21F	870	1303	1442

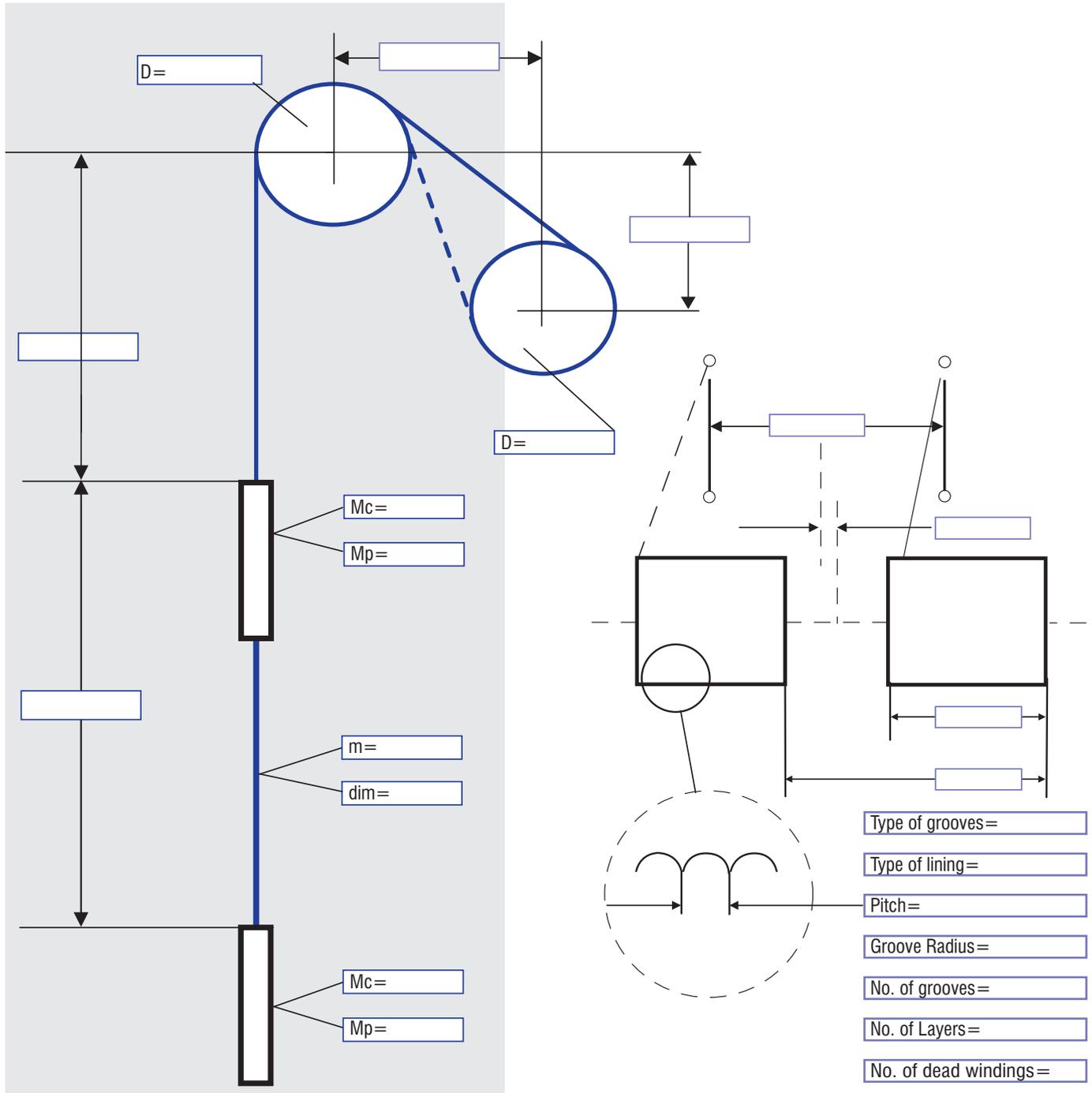


Notes



Drum System

Project Name



Mineral =

V =

a+ =

a- =

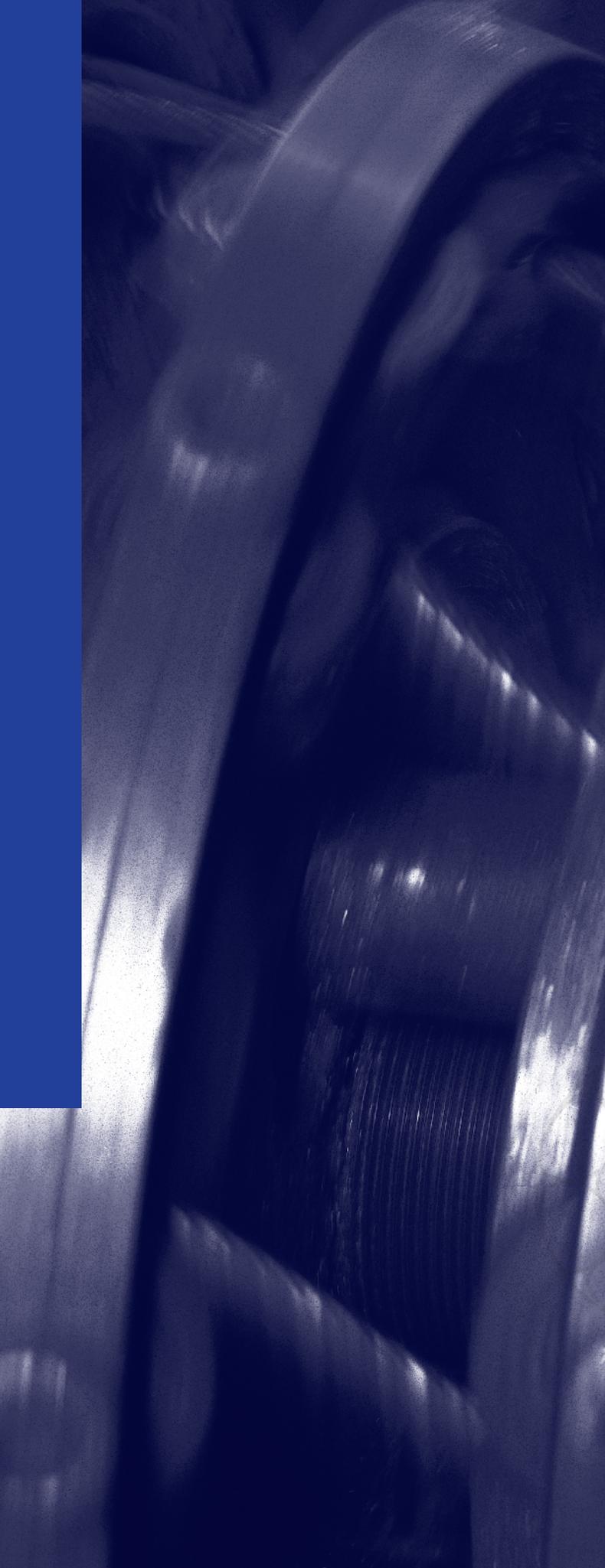
min. safety factor =

Temperature range =

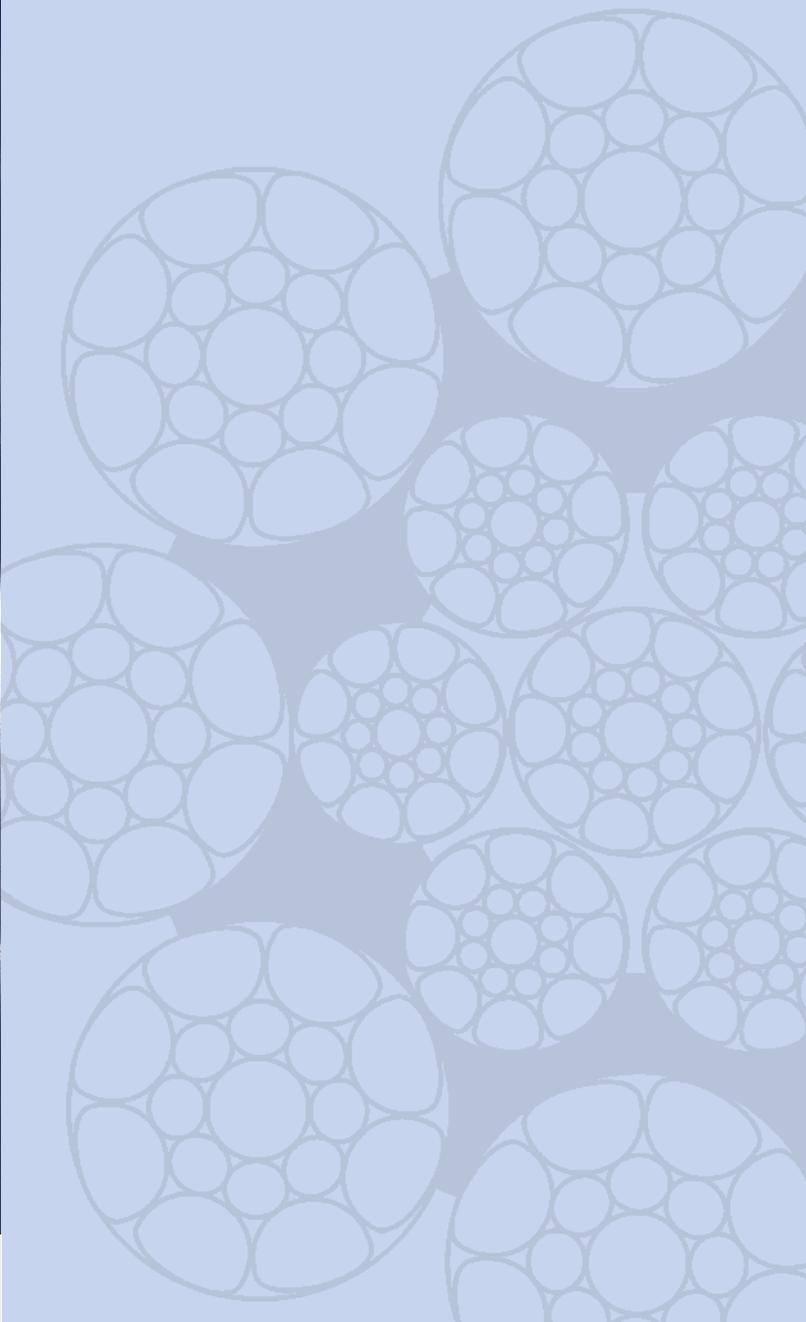
Water Ingress pH =

Ventilation direction =

Date:

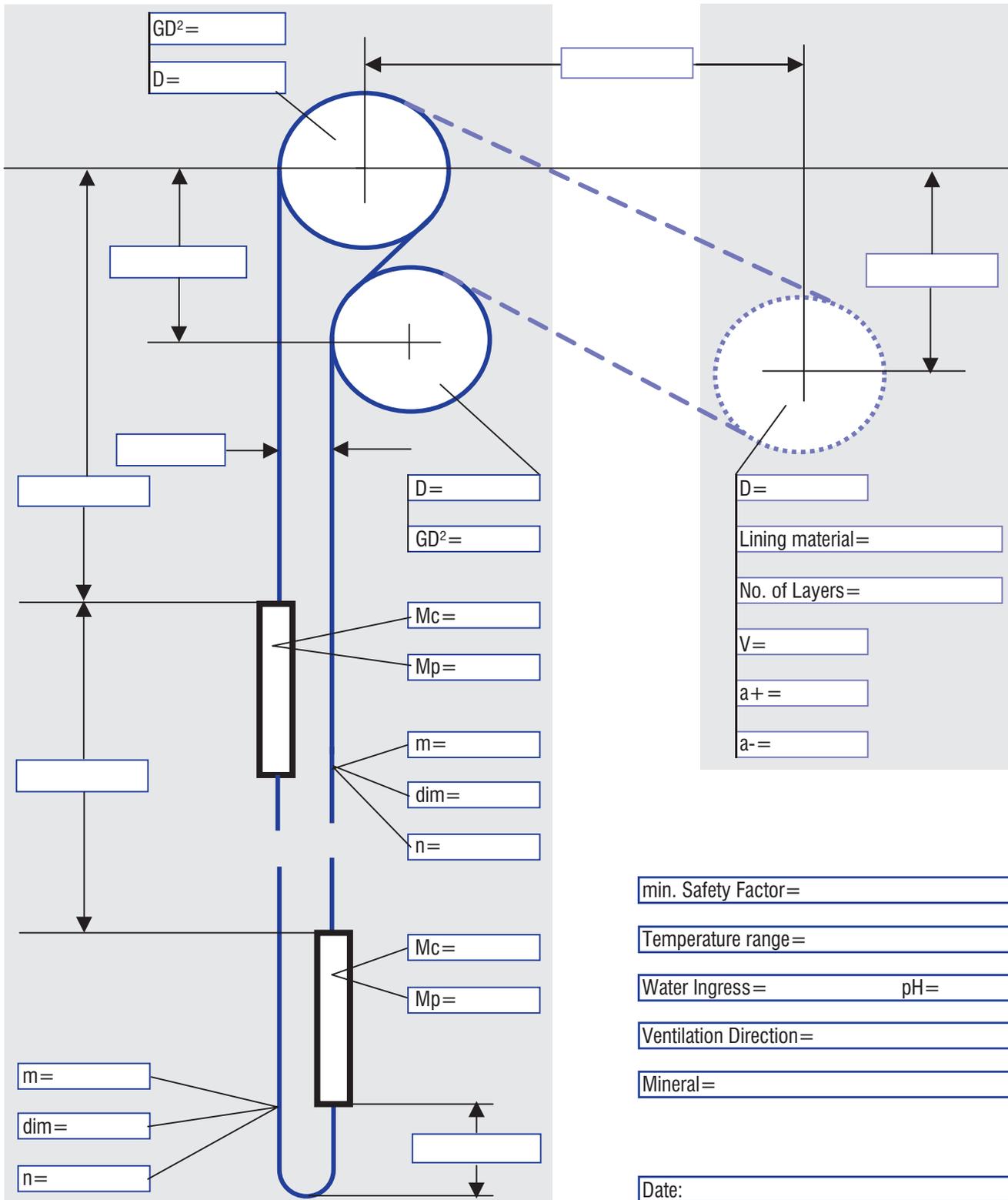


Notes



Koepe System

Project Name



PFEIFER DRAKO

PFEIFER DRAKO DRAHTSEILWERK GMBH & CO. KG

DIVISION MINING AND INDUSTRY ROPES

Tunnelstraße 38
DE-45479 MÜLHEIM AN DER RUHR
Tel. +49-208-42901-0
Fax +49-208-42901-54
E-Mail info@drako.de
Internet www.drako.de

PFEIFER DRAKO DRAHTSEILWERK GMBH & CO. KG

HEADQUARTERS

Rheinstraße 19-23
DE-45478 MÜLHEIM AN DER RUHR
Tel. +49-208-42901-0
Fax +49-208-42901-66
E-Mail info@drako.de
Internet www.drako.de

PFEIFER-Headquarters

PFEIFER SEIL- UND HEBETECHNIK GMBH

Dr.-Karl-Lenz-Str. 66
DE-87700 MEMMINGEN
Tel. +49-8331-937-0
Fax +49-8331-937-294
E-Mail info@pfeifer.de
Internet www.pfeifer.info

Distributors in Europe

■ in Austria

PFEIFER SEIL- UND
HEBETECHNIK GMBH
Harterfeldweg 2
AT-4481 ASTEN
Tel. +43-7224-66224-0
Fax +43-7224-66224-13
E-Mail info@pfeifer-austria.at

■ in the United Kingdom/Ireland

PFEIFER DRAKO LTD.
Marshfield Bank, Wollstanwood
GB-CREWE CW2 8UY
Tel. +44-1270-587728
Fax +44-1270-587913
E-Mail sales@pfeifdrako.co.uk

■ in Luxembourg/France

PFEIFER SOGEQUIP S.À.R.L.
Zone Industrielle Schiffflange-Foetz
LU-3844 SCHIFFFLANGE
Tel. +352-574242
Fax +352-574262
E-Mail info@pfeifer-sogequip.lu

■ in Switzerland

PFEIFER ISOFER AG
Hasentalstrasse 8
CH-8934 KNONAU
Tel. +41(0)44 768 55 55
Fax +41(0)44 768 55 30
E-Mail info@pfeifer-isofer.ch

■ in Russia

OOO PFEIFER
KANATI & PODJÖMNIJE TEHNOLOGII
RU-119017 MOSKAU
Pyzhevskiy pereulok,
h. 5, bld.1, office 108
Tel. +7-495-363-01-27
Fax +7-495-363-01-28
RU-193079 ST. PETERSBURG
Oktjaborskaja Nabereshnaja
Nº 104, Korpus 23.
Tel. +7-812-740-12-24
Fax +7-812-493-48-21
E-Mail info@pfeiferrussia.ru

■ in Spain

PFEIFER CABLES Y EQUIPOS
DE ELEVACION, S.L.
Avda. de los Pirineros, 25 – Nave 20
San Sebastian de los Reyes
ES-28703 MADRID
Tel. +34-91-659-3185
Fax +34-91-659-3139
E-Mail p-es@pfeifer.de

■ in Greece

Helcoma
Th. Rotas & Co O.E.
65 Davaki str,
GR-17672 KALLITHEA, ATHENS
Tel. +30-210-951 3705
Fax +30-210-951 3490
E-Mail contact@helcoma.gr

■ in Poland

PFEIFER TECHNIKA LINOWA
I DZWIGOWA SP. Z O.O.
ul. Wroclawska 68
PL-55330 KREPICE k/Wroclawia
Tel. +48-71-398 07 60
Fax +48-71-398 07 69
E-Mail info@pfeifer.pl

Distributors worldwide

■ in UAE/Dubai

PFEIFER MIDDLE EAST WIRE ROPE
& LIFTING TECHNOLOGY FZE
Jebel Ali Free Zone 1, RA08UA07,
PO Box 263081
AE-DUBAI
Tel. +971-4-883-8445
Fax +971-4-883-8446
E-Mail sales@pfeifer.ae

■ in China

PFEIFER STEEL WIRE ROPE
(SHANGHAI) CO., LTD.
No. 159 Yong He Road,
Zha Bei District
CN-SHANGHAI 200072
Tel. +86-21-5677 80 06
Fax +86-21-5677 92 29
E-Mail info@pfeifer.com.cn

Further information:
www.drako.de/en

