

PFEIFER DRAKO



11/2010

Steel Wire Ropes for Mining and Industrial Applications

**PFEIFER DRAKO
DRAHTSEILWERK GMBH & CO**

TUNNELSTRASSE 38
D-45479 MÜLHEIM AN DER RUHR
TELEFON +49 (0) 208-4 29 01-0
TELEFAX +49 (0) 208-4 29 01-54
E-MAIL info@drako.de
INTERNET www.drako.de

Steel Wire Ropes for Mining and Industrial Applications

PFEIFER DRAKO, a German company belonging to PFEIFER GROUP, is a reliable partner worldwide where safety is required for human lives and process stability. With its long history of 200 years PFEIFER DRAKO is famous for mining and industrial ropes – and, of course, the comprehensive service by the brand name of DRAKO. Jointly with leading manufacturers and operators we look for and provide the best solutions to the benefit of our customers. The world-renowned expertise and legendary quality we offer are found in major projects all around the globe.

We have a sales network and numerous subsidiaries across various continents consisting of qualified and competent personnel, which supports us to build long-term and close relationships with rope customers. We continuously deepen our specialist knowledge in cooperation with universities and institutes. The rational and precise serial production and individual project manufacturing for each specific customer are in accordance with our quality management system (QMS) governed by DIN EN ISO 9001:2008.

Our mission statement is defined as our adherence to the most up-to-date technical know-how, high-quality materials, safety, user-comfort and economic efficiency which are turned into a set of values transferred to our customers and enables us to embrace every challenge in a multi-cultural world.



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

Cover page:
Bucket wheel excavator
Charge crane



Advantages of DRAKO steel wire ropes

- special wire ropes for your application
- tested and reliable strand constructions, high adaptation possibilities
- long service life
- DRAKO-made fibre core, constant quality
- low elastic and permanent elongation
- low maintenance costs
- 100 % rope quality control, high quality assurance
- fair price performance ratio
- high qualified and experienced personnel
- competent consultation
- reliable service
- worldwide sales network

Contents

Introduction	4
Rope classes	5

Industrial Ropes

DRAKO 250	6
DRAKO 300	7
DRAKO P502	8
DRAKO TK-Flex	9
DRAKO 175 LC	10
Drako Flex	11
Gondola Ropes with electrical Conductor	12
DRAKO 6x22W	13

Shaft Hoisting Ropes

DRAKO HR 210	14
DRAKO HR 210x	15
DRAKO HR 220	16
DRAKO HR 220x	17
DRAKO HR 130	18
DRAKO HR 130 WSC	19
DRAKO 240	20
DRAKO 240 WSC	21
DRAKO FHR	22/23
DRAKO HR 110	24

Shaft Balance Ropes

DRAKO RBR	25
DRAKO FBR	26/27

Open Cast Ropes

DRAKO HR 220 IWRC	28
DRAKO HR 290 IWRC	29
DRAKO DL 290	30

Drilling Ropes

DRAKO RDR 150	31
---------------	----



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)

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)

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.

Remark: EN12 385 Part 7 covers "Locked coil ropes for mine shafts".

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	
Flat hoist ropes	Width incl. stitching	-5 to +5	-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

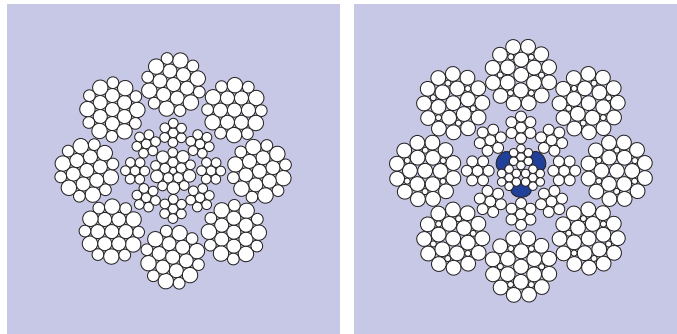
The standard shows in an informative (i. e. not normative) annex a list of information, which would help the manufacturer, to adapt the rope better to the application:

- 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.

Industrial Ropes

DRAKO 250



Rope diameter	10–15 mm	16–40 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	
Surface of wire	bright (U), alternatively galvanized (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

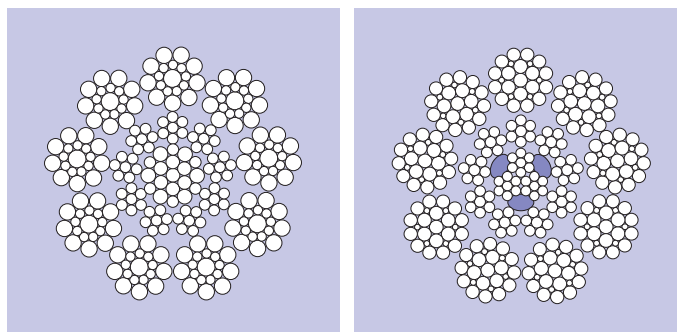
Discard criteria determined according to DIN 15020 part 2, ISO 4309



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

Nominal rope- \varnothing -0 + 5 % mm	Approx. mass	Minimum breaking force/rope grade
	kg/100m	kN/1960
10	42	78
11	51	95
12	61	113
13	72	132
14	83	154
15	96	176
16	111	202
18	140	253
20	173	315
22	209	382
24	249	437
26	292	532
28	338	618
30	388	707
32	442	805
36	559	998
40	690	1230

DRAKO 300



Rope diameter	8–15 mm	16–38 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	
Surface of wire	bright (U), alternatively galvanized (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

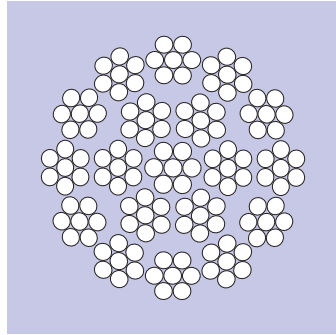
Discard criteria determined according to DIN 15020 part 2, ISO 4309



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

Nominal rope-Ø -0 + 5%	Approx. mass kg/100m	Minimum breaking force/rope grade	
		kN/1770	kN/1960
8	27	45,0	
9	35	57,5	
10	45	71,0	
11	52	82,0	
12	61		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
Surface of wire	galvanized (B), alternatively bright (U)

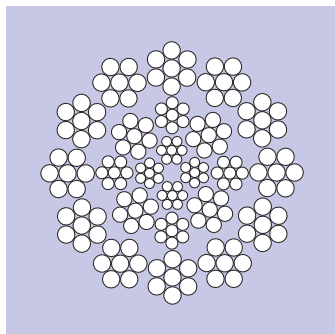
Characterisation	rotation resistant
Applications	electric hoist, towercrane
Discard criteria determined according to DIN 15020 part 2, ISO 4309	



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

Nominal rope- \varnothing -0 +5 % mm	Approx. mass kg/100m	Minimum breaking force/rope grade		
		kN/1960	kN/2060	kN/2160
6,0	15,0	26,0	28,7	29,1
6,7	18,4	33,6	35,3	37,0
7,0	20,8	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
10,5	44,0	79,0	87,1	88,4
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	83,0	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
Surface of wire	galvanized (B), alternatively bright (U)

Characterisation	rotation resistant
Applications	towercrane, electric hoist, deck crane

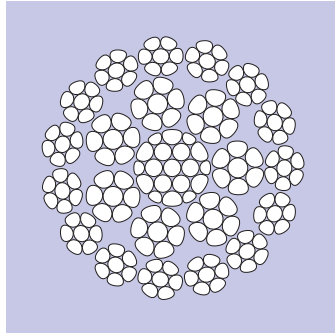
Discard criteria determined according to DIN 15020 part 2, ISO 4309



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

Nominal rope- \varnothing -0 + 4% mm	Approx. mass kg/100m	Minimum breaking force/rope grade	
		kN/1960	kN/2160
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

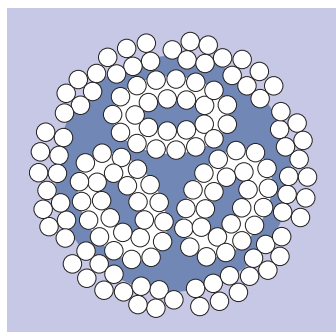
DRAKO 175 LC



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
Surface of wire	galvanized (B), alternatively bright (U)
Characterisation	extreme rotation resistant, compacted
Applications	rope excavator, towercrane, mobilcrane, electric hoist, deck crane
Comments	recommended for multi-layer spooling
Discard criteria determined according to DIN 15020 part 2, ISO 4309	

Nominal rope-Ø + 2 + 4% mm	Approx. mass kg/100m	Minimum breaking force/rope grade	
		kN/1960	kN/2160
8	31,3	55,3	58,0
9	39,4	69,2	72,6
10	48,5	86,1	90,3
11	58,6	103,8	108,9
12	69,8	124,5	130,5
13	82,9	146,4	153,5
14	96,1	169,5	177,7
15	109,2	194,1	203,5
16	124,4	219,6	230,2
17	140,5	250,0	262,1
18	157,7	279,2	292,8
19	176,9	313,2	328,4
20	195,1	345,8	362,6
21	215,3	381,8	400,3
22	236,6	419,1	439,5

DRAKO Flex



Type of lay	long lay
Direction of lay	right
Core	fibre core
Number of outer strands	12
Number of load bearing wires in the outer strands	72
Surface of wire	galvanized (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)

Discard criteria determined according to DIN 15020 part 2, ISO 4309

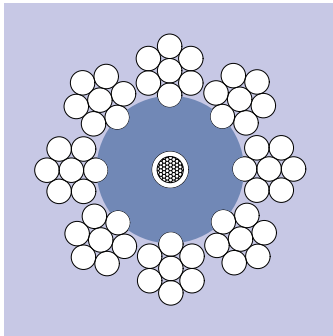


WARNING! Never use a Swivel!
Failure may cause serious personal injuries or material damages

Nominal rope- \varnothing -0 + 5% mm	Approx. mass kg/100 m	Minimum breaking force/rope grade	
		kN/1770	kN/1960
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

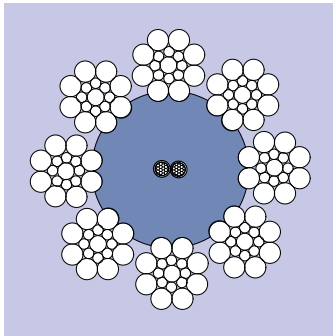
Gondola ropes with electric conductors*

Characteristics galvanized, ordinary lay, right hand, left hand on request
 Rope diameter tolerance -0 + 5%



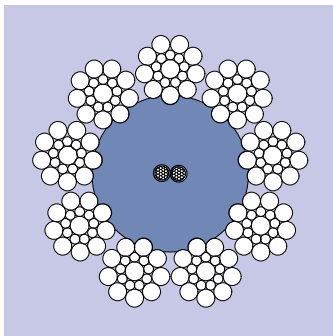
DRAKO 8 x 7

Rope construction	Nominal rope-Ø mm	Approx. mass kg/100 m	Minimum breaking force/rope grade kN/1770
Conductor: 1 x 1,00 mm ²	6,5	16	21,9



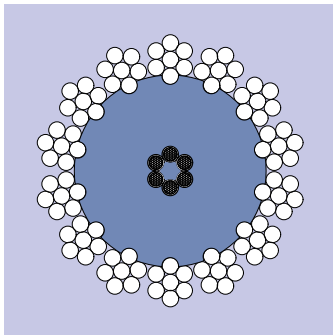
DRAKO 8 x 17 Seale

Conductor: 2 x 1,00 mm ²	6,5	16	20,6
-------------------------------------	-----	----	------



DRAKO 8 x 19 Seale

Conductor: 2 x 1,00 mm ²	8	25	33,7
-------------------------------------	---	----	------

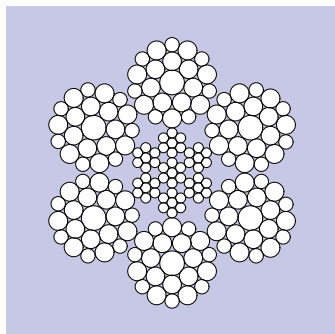


DRAKO 14 x 7

Conductor: 6 x 0,61 mm ²	10	32	33,0
-------------------------------------	----	----	------

* There may be national regulations about minimum conductor cross-sections.

Special Winch Ropes DRAKO 6 x 22 Warrington



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
Surface of wire	galvanized (B)

Applications mobile-spillwinches, winches for construction
Discard criteria determined according to DIN 15020 part 2, ISO 4309



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

Nominal rope- \varnothing -0 + 5 % mm	Approx. mass	Minimum breaking force/rope grade
	kg/100 m	kN/1960
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

Shaft Hoisting Ropes

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)

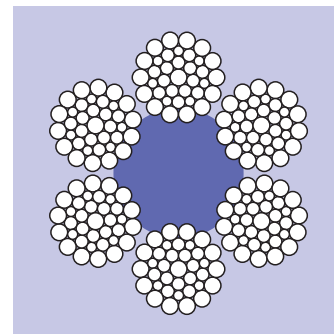
6 x 34 NW 6 x (1-6-6+6/15)

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 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 the chapter "Unreeling and Installing Ropes"
discard criteria acc. to DIN 15020-2 / ISO 4309 apply

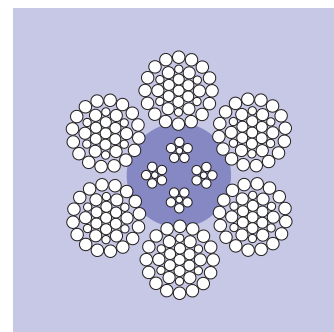
Rope Ø mm	unit mass FC kg/100m	min. aggregate breaking force [kN] tensile grade		
		1570 N/mm ²	1770 N/mm ²	1960 N/mm ² *
28,0	275	470	530	587
30,0	316	540	609	674
32,0	359	614	692	767
34,0	406	693	782	866
36,0	455	777	876	970
38,0	507	866	976	1081
40,0	562	960	1082	1198
42,0	619	1058	1193	1321
44,0	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 the chapter "Unreeling and Installing Ropes"
discard criteria acc. to DIN 15020-2 / ISO 4309 apply

Rope Ø mm	unit mass FC(R) kg/100m	min. aggregate breaking force [kN] tensile grade		
		1570 N/mm ²	1770 N/mm ²	1960 N/mm ² *
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

DRAKO HR 220

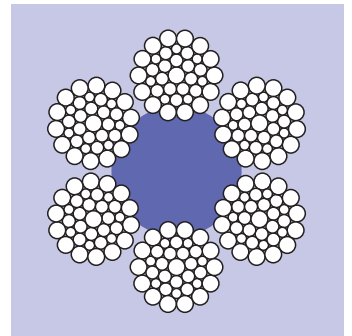
Construction Class 6x36 WS

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 the chapter "Unreeling and Installing Ropes" discard criteria acc. to DIN 15020-2 / ISO 4309 apply

Rope Ø mm	unit mass FC kg/100m	min. aggregate breaking force [kN] tensile grade		
		1570 N/mm ²	1770 N/mm ²	1960 N/mm ² *
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

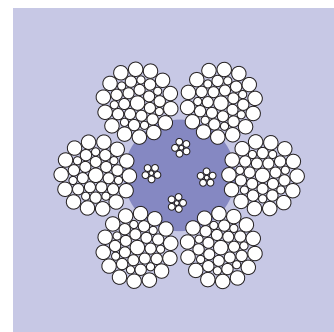
Construction Class 6 x 36 WS

6x31 WS 6 x (1-6-6+6-12)

6x36 WS 6 x (1-7-7+7-14)

6x41 WS 6 x (1-8-8+8-16)

6x46 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 the chapter "Unreeling and Installing Ropes"
discard criteria acc. to DIN 15020-2 / ISO 4309 apply

Rope Ø mm	unit mass FC(R) kg/100m	min. aggregate breaking force [kN] tensile grade		
		1570 N/mm ²	1770 N/mm ²	1960 N/mm ² *
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

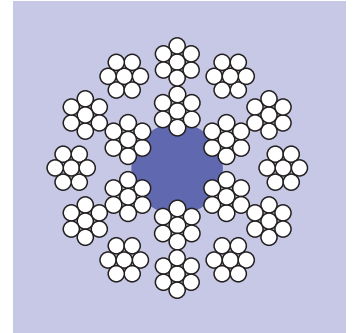
DRAKO HR 130

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 the chapter "Unreeling and Installing Ropes" discard criteria acc. to DIN 15020-2 / ISO 4309 apply

Rope Ø mm	unit mass FC kg/100m	min. aggregate breaking force [kN] rope tensile grade		
		1570 N/mm ²	1770 N/mm ²	1960 N/mm ² *
18,0	128	209	236	261
20,0	169	258	349	323
22,0	196	313	404	390
24,0	231	372	476	465
26,0	271	437	560	545
28,0	309	507	571	632
30,0	355	581	656	726
32,0	403	662	746	826
34,0	455	747	842	932
36,0	511	837	944	1045
38,0	569	933	1052	1165
40,0	630	1034	1165	1290
42,0	695	1140	1285	1423
44,0	763	1251	1410	1561
46,0	834	1367	1541	1707
48,0	908	1489	1678	1858

* not in galvanisation class A

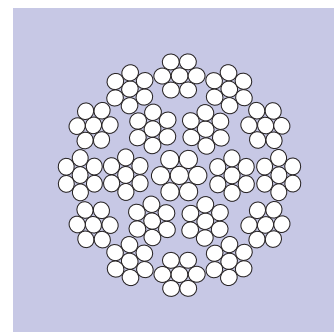
DRAKO HR 130 WSC

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

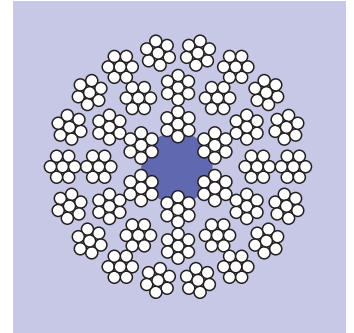
Comments special attention should be paid to the chapter "Unreeling and Installing Ropes"
discard criteria acc. to DIN 15020-2 / ISO 4309 apply

Rope Ø mm	unit mass FC kg/100m	min. aggregate breaking force [kN] tensile grade		
		1570 N/mm ²	1770 N/mm ²	1960 N/mm ² *
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

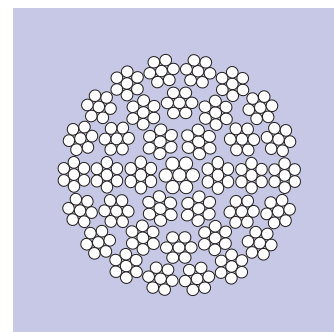
Application Hoisting Rope for Drum Drives, Winch Rope, Balance Rope
Comments special attention should be paid to the chapter "Unreeling and Installing Ropes"
 discard criteria acc. to DIN 15020-2 / ISO 4309 apply

Rope Ø mm	unit mass F kg/100m	min. aggregate breaking force [kN] tensile grade		
		1570 N/mm ²	1770 N/mm ²	1960 N/mm ² *
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

* not in galvanisation class A

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)



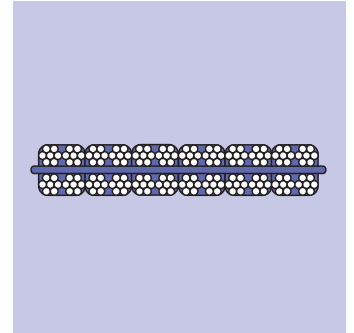
Rope Diameter	28 – 70 mm
Number of strands	34 – 36
Core	WSC
Wires	acc. to EN 10264-3 Finish: U; B; A
Number of wires	6 – 7

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 the chapter "Unreeling and Installing Ropes" discard criteria acc. to DIN 15020-2 / ISO 4309 apply

Rope Ø mm	unit mass F kg/100m	min. aggregate breaking force [kN] tensile grade		
		1570 N/mm ²	1770 N/mm ²	1960 N/mm ² *
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

* not in galvanisation class A

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	

width x thickness mm	wire diameter mm	nominal rope length mass kg/100m	min. aggregate breaking force [kN]		
			1770	1860	1960*
construction 6 x 4 x 7					
52 x 11	1,2	184	336	353	372
56 x 12	1,3	217	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	628	662
74 x 16	1,7	370	675	709	747
78 x 17	1,8	415	757	795	838
construction 8 x 4 x 7					
92 x 15	1,6	437	797	838	883
98 x 16	1,7	494	900	946	997
104 x 17	1,8	553	1009	1060	1117
110 x 18	1,9	617	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	827	1507	1584	1669
construction 8 x 4 x 12					
130 x 21	1,7	846	1543	1621	1708
139 x 22	1,8	949	1730	1818	1915
146 x 23	1,9	1057	1927	2025	2134
154 x 24	2,0	1171	2135	2244	2364
160 x 25	2,1	1291	2354	2474	2607
168 x 26	2,2	1417	2584	2715	2861

DRAKO FHR

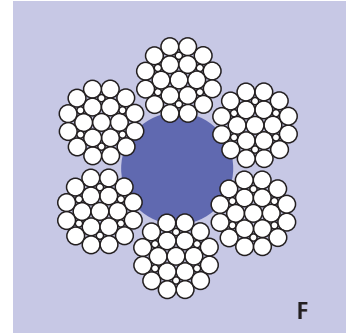
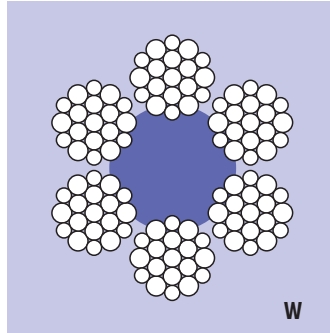
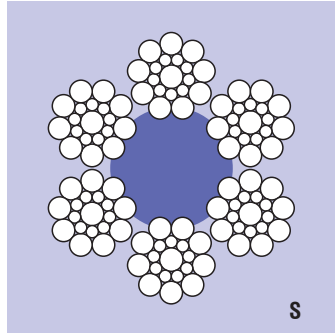
width x thickness mm	wire diameter mm	nominal rope length mass kg/100m	min. aggregate breaking force [kN]		
			1770	1860	1960*
construction 8 x 4 x 14					
162 x 24	1,9	1233	2248	2363	2490
168 x 25	2,0	1367	2491	2618	2759
176 x 26	2,1	1507	2747	2886	3041
184 x 27	2,2	1654	3014	3168	3338
construction 8 x 4 x 19					
176 x 26	1,8	1502	2738	2878	3032
186 x 28	1,9	1674	3051	3206	3379
194 x 30	2,0	1855	3381	3553	3744

* not in galvanisation class A

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 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 the chapter "Unreeling and Installing Ropes" discard criteria acc. to DIN 15020-2 / ISO 4309 apply

Rope Ø mm	unit mass FC 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

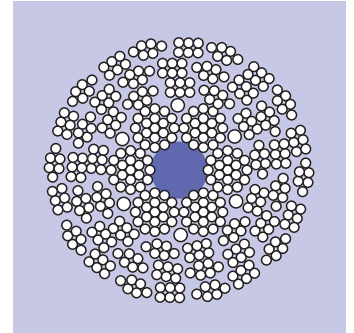
* not in galvanisation class A

DRAKO 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	IWRC
Wires	acc. to EN 10264-3 Finish: U; B; A
Number of wires	6 per strand

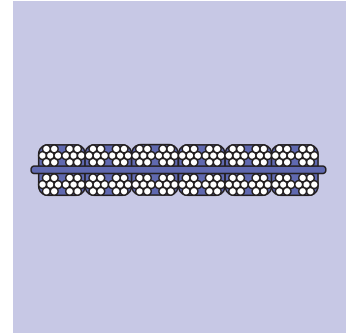
Characterisation Round Balance Rope with 2 or 3 Layers of Flattened Strands
 Excellent Rotation Resistance, Langs Lay, right hand or left hand

Application Balance Rope for Use with Swivels

Comments special attention should be paid to the chapter "Unreeling and Installing Ropes"
 discard criteria acc. to DIN 15020-2 / ISO 4309 apply RBR

Rope Ø mm	unit mass FC kg/100m	min. aggregate breaking force	
		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

width x thickness mm		wire diameter mm	nominal rope length mass kg/100m			min. aggregate breaking force [kN]	
double stitched	single stitched or riveted		double stitched	single stitched	riveted	1370	1570
construction 6 x 4 x 7							
70 x 17	70 x 15	1,6	341	328	321	463	530
74 x 18	74 x 16	1,7	385	370	362	522	599
78 x 19	78 x 17	1,8	432	415	406	586	671
82 x 20	82 x 18	1,9	481	462	452	653	748
87 x 21	87 x 18	2,0	533	512	501	723	829
91 x 22	91 x 20	2,1	587	565	552	797	914
95 x 23	95 x 21	2,2	645	620	606	875	1003
construction 8 x 4 x 7							
110 x 20	110 x 18	1,9	641	616	603	870	997
116 x 21	116 x 19	2,0	710	683	668	964	1105
122 x 22	122 x 20	2,1	783	753	737	1063	1218
128 x 23	128 x 21	2,2	860	826	808	1167	1337
construction 6 x 4 x 12							
112 x 26	112 x 23	1,9	824	792	775	1119	1282
118 x 27	118 x 24	2,0	913	878	859	1240	1421
124 x 28	124 x 25	2,1	1010	968	947	1367	1566
130 x 29	130 x 26	2,2	1110	1060	1040	1500	1719

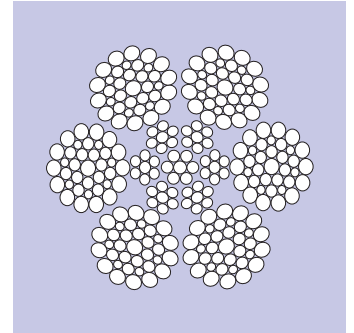
DRAKO FBR

width x thickness mm		wire diameter mm	nominal rope length mass kg/100m			min. aggregate breaking force [kN]	
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	1150	1653	1894
160 x 28	160 x 25	2,1	1340	1290	1260	1822	2088
168 x 29	168 x 26	2,2	1470	1420	1390	2000	2292
construction 8 x 4 x 14							
168 x 28	168 x 25	2,0	1420	1370	1340	1928	2210
176 x 29	176 x 26	2,1	1570	1510	1470	2126	2436
184 x 30	184 x 27	2,2	1720	1650	1620	2333	2674
construction 8 x 4 x 19							
186 x 31	186 x 28	1,9	1740	1670	1640	2362	2706
194 x 33	194 x 30	2,0	1930	1850	1810	2617	2999
204 x 34	204 x 31	2,1	2130	2040	2000	2885	3306
216 x 37	216 x 33	2,2	2330	2240	2190	3166	3629

Open Cast Ropes

DRAKO HR 220 IWRC

Construction Class 6x36



Open Cast Ropes

Rope Diameter	30 – 64 mm
Number of strands	6
Core	IWRC
Wires	acc. to EN 10264-3 Finish: U; B
Number of wires	31 – 41

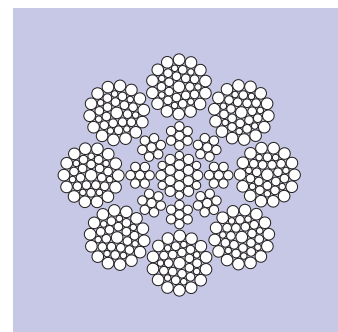
Characterisation	robust single layer Rope with Steel Core Langs Lay or Ordinary Lay, right hand or left hand
Application	Hoisting Rope for Drum Drives, Winch Rope, Luffing Rope
Comments	special attention should be paid to the chapter "Unreeling and Installing Ropes" discard criteria acc. to DIN 15020-2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

Rope Ø mm	unit mass FC kg/100m	min. aggregate breaking force [kN] tensile grade		
		1570 N/mm ²	1770 N/mm ²	1960 N/mm ²
30,0	375	688	776	859
32,0	427	783	883	977
34,0	482	884	996	1103
36,0	541	991	1117	1237
38,0	602	1104	1245	1378
40,0	667	1223	1379	1527
42,0	736	1349	1520	1684
44,0	808	1480	1669	1848
46,0	883	1618	1824	2020
48,0	961	1761	1986	2199
50,0	1043	1911	2155	2386
52,0	1128	2067	2331	2581
54,0	1216	2229	2513	2783
56,0	1308	2397	2703	2993
58,0	1403	2572	2899	3211
60,0	1502	2752	3103	3436
62,0	1604	2939	3313	3669
64,0	1709	3131	3530	3909

DRAKO HR 290 IWRC

Construction Class 8 x 19

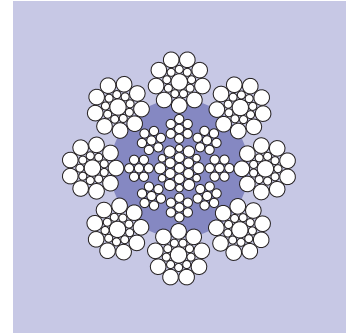
Construction Class 8 x 36



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
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 the chapter "Unreeling and Installing Ropes" discard criteria acc. to DIN 15020-2 / ISO 4309 apply

Rope Ø mm	unit mass FC kg/100m	min. breaking force [kN] (at spin loss factor 0,80) rope tensile grade		
		1570 N/mm ²	1770 N/mm ²	1960 N/mm ²
30,0	382	521	588	651
32,0	434	593	669	741
34,0	490	670	755	836
36,0	550	751	846	937
38,0	612	837	943	1044
40,0	678	927	1045	1157
42,0	748	1022	1152	1276
44,0	821	1122	1264	1400
46,0	897	1226	1382	1530
48,0	977	1335	1505	1666
50,0	1060	1448	1633	1808
52,0	1146	1567	1766	1956
54,0	1236	1689	1905	2109
56,0	1330	1817	2048	2268
58,0	1426	1949	2197	2433
60,0	1526	2086	2351	2604
62,0	1630	2227	2511	2780
64,0	1737	2373	2675	2962
66,0	1847	2524	2845	3150
68,0	1961	2679	3020	3344
70,0	2078	2839	3200	3544
72,0	2198	3003	3386	3749
74,0	2322	3172	3577	3960

DRAKO DL 290

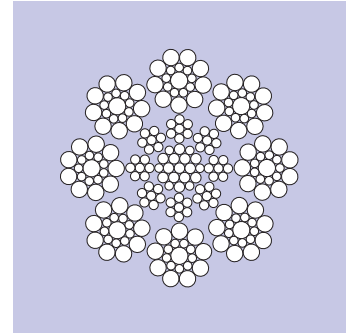


Open Cast Ropes

Rope Diameter	28 – 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 the chapter "Unreeling and Installing Ropes" discard criteria acc. to DIN 15020-2 / ISO 4309 apply

Rope Ø mm	unit mass FC kg/100m	met. cross section kg/100m	minimum breaking force [kN] rope tensile grade		
			1770 N/mm ²	1960 N/mm ²	2160 N/mm ²
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 the chapter "Unreeling and Installing Ropes"
 discard criteria acc. to DIN 15020-2 / ISO 4309 apply

Rope Ø mm	"	construction	unit mass km/100m	min. breaking force [kN] rope tensile grade	
				IPS (1770 N/mm ²)	EIPS (1960 N/mm ²)
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

PFEIFER DRAKO

PFEIFER DRAKO DRAHTSEILWERK GMBH & CO. KG

Rheinstraße 19-23
D-45478 MÜLHEIM AN DER RUHR
Tel. +49-208-42901-0
Fax +49-208-42901-21
E-Mail info@drako.de
Internet www.drako.de

Distributors in Europe

■ in Belgium/Netherlands

Handels- en Ingenieursbureau
Bakker & Co. B.V.
Postbus 1235
NL-3330 CE ZWIJNDRECHT
Tel. +31-78-6101666
Fax +31-78-6100462
E-Mail staal@bakker-co.com

■ in Austria

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

■ in Hungary

Liftimpex Kft.
Liget u. 1
HN-5000 SZOLNOK
Tel. +36-56-372524
Fax +36-56-410586
E-Mail lift21@axelero.hu

■ 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@pfeiferdrako.co.uk

■ in Luxembourg

PFEIFER SOGEQUIP S.à.r.l.
Zone Industrielle Schifflange-Foetz
L-3844 SCHIFFLANGE
Tel. +352-574242
Fax +352-574262
E-Mail sogequip@pt.lu

■ in Poland

PFEIFER TECHNIKA LINOWA I
DZWIHOWA Sp. z o.o.
ul. Wroclawska 68
PL-55330 Krepice Krepice/Wroclaw
Tel. +48-71-3980760
Fax +48-71-3980769
E-Mail info@pfeifer.pl

■ in Russia

OOO PFEIFER KANATI & PODJÖMNIJE
TEHNOLOGII
3rd proezd Perova Polya, 8
RU-111141 MOSCOW
Tel. +7-495-5057494
Fax +7-495-3630073
E-Mail kanaty@pfeifer-rossia.ru

■ in Spain

PFEIFER CABLES Y EQUIPOS
DE ELEVACIÓN, S.L.
Avda. de los Pirineos, 25 - Nave 20
San Sebastian de los Reyes
ES-28700 MADRID
Tel. +34-91-659-3185
Fax +34-91-659-3139
E-Mail p-es@pfeifer.de

■ in Italy

PFEIFER DRAKO
DRAHTSEILWERK GMBH & CO. KG.
Sales office Italy
Via Raineri, 71
IT-15030-CONZANO (AL)
Tel. +39-0142-925612
Fax +39-0142-925612
Mobil +39-333-5913326
E-Mail sales_italy@drako.de

PFEIFER-Headquarters

PFEIFER SEIL- UND HEBETECHNIK GMBH

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

Distributors worldwide

■ in USA/Canada

AFD Industries, Inc.
555 Market Avenue North
CANTON, OH 44702
Tel. +1-330-4523300
Fax +1-330-4522331
E-Mail info@afdindustries.com

■ in UAE/Dubai

PFEIFER Middle East Wire Rope
& Lifting Technology FZE
Jebel Ali Free Zone 1, RA08UA07,
PO Box 263081, DUBAI, UAE
Tel. +971-4-883-8445
Fax +971-4-883-8446

■ in Far East

PFEIFER DRAKO
DRAHTSEILWERK GMBH & CO. KG.
Sales office Southeast Asia
302C Anchorvale Link #08-30
SINGAPUR 543302
Tel. +65-97-671520
E-Mail sales_southeastasia@drako.de

ROPES TECHNOLOGY CORP.

FAR EAST PTE LTD.
27, Tuas Ave 8, Jurong
SINGAPORE 639242
Tel. +65-6-861-6066
Fax +65-6-861-3088
E-Mail ropetech@pacific.net.sg

■ in India

Heritage Infra Solutions Pvt. Ltd.
1 A, Shangri La Apartments
119 A, Ripon Street
Kolkata - 700 016
WB, INDIA
Tel. +91-33-4006-0677
Fax +91-33-2227-7677
E-Mail mp@heritageinfra.com

■ in Iran

Tamkin Foulad Co.
No. 11, 21 st. Ave. Argentine Square
TEHERAN 15139-14114, IRAN
Tel. +98-21-8871-3452-3
Fax +98-21-8872-7029
E-Mail info@tamkinfoulad.com

■ in Australia

Bullivants Lifting & Safety
Specialists
10-14 Kellogg Road
GLENDENNING, NSW 2761
Tel. +61-2-97713000
Fax +61-2-96253355
E-Mail sales@bullivants.com

■ in Hongkong/China

Cobelco Industrial Supplies Ltd.
Room 01, 26/F, Tung Wai Commercial
Building
109-111 Gloucester Road,
WAN CHAI, HONG KONG
Tel. +852-2889-0080
Fax +852-2898-7077
E-Mail sales@cobelco.com.hk

■ in Middle East

KCPC The Kuwait Company for Process
Plant Construction & Contracting K.S.C.
P.O. Box 3404
13035 SAFAT/KUWAIT
Tel. +965-2-466-650
Fax +965-2-451-411
E-Mail kcpc@afdindustries.com

■ in China

PFEIFER STEEL WIRE ROPE
(Shanghai) Co., Ltd.
Hall 64-2, # 709, Ling Shi Lu,
Zha Bei District
SHANGHAI, P.R.C.
Tel. +86-21-56778006
Fax +86-21-56779229
E-Mail info@pfeifer.com.cn

■ in South America

PFEIFER DRAKO
DRAHTSEILWERK GMBH & CO. KG.
Sales office South America
Rua Gustavo Sampaio, 598/SL 902
22010-010 RIO DE JANEIRO, BRASIL
Tel. +55-21-3010-4152
Fax +55-21-9421-2292
E-Mail sales_southamerica@drako.de