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) 208-4 29 01-0
TELEFAX +49 (0) 208-4 29 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


PFEIFER DRAKO

## RopeSolutions

++++ Your benefit for application

- Thinking in Systems
- Best Service
- Highest Quality
- Worldwide Presence

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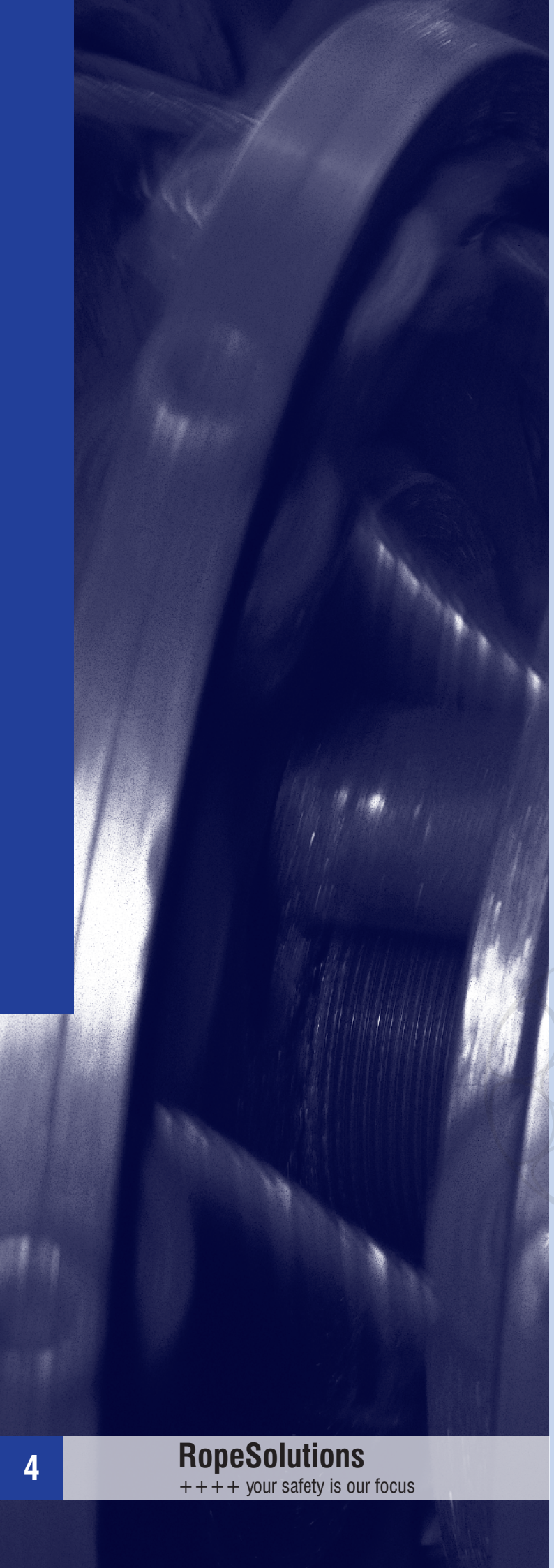

## Notes

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# Industrial Rope Solutions

## Ropes for Industrial Applications


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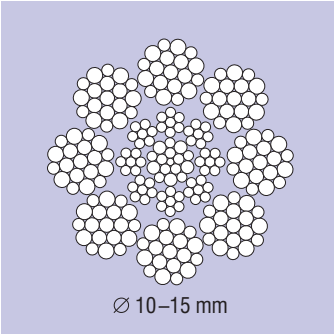
**SALES AND TECHNICAL SUPPORT**

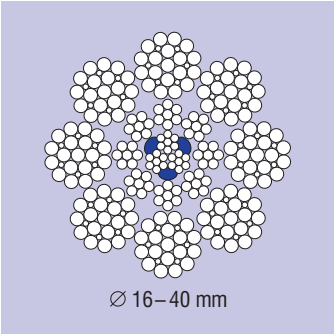
TUNNELSTRASSE 38
DE-45479 MÜLHEIM AN DER RUHR
PHONE +49 (0) 208-4 29 01-0
FAX +49 (0) 208-4 29 01-54
E-MAIL industry-products@drako.de
INTERNET www.drako.de

# Industrial Ropes

## DRAKO 250





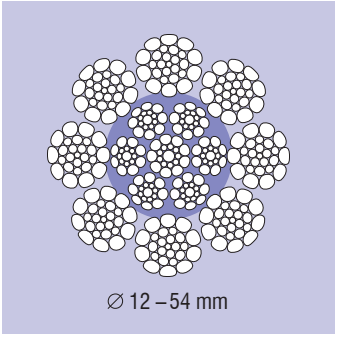

| | |
|---|---|
| **Rope diameter** | 10–40 mm |
| **Type of lay** | ordinary lay |
| **Direction of lay** | right, alternatively left |
| **Core** | steel core |
| **Number of outer strands** | 8 |
| **Number of load bearing wires in the outer strands** | 152 |
| **Finish** | U; B |

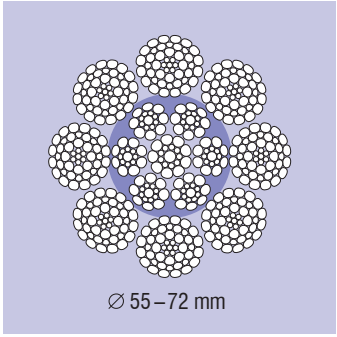
| | |
|---|---|
| **Characterisation** | Full steel rope for heavy duty rope drives. Available on request in higher rope grade |
| **Applications** | cranes and excavators, cranes in steel mills, gravel excavators, floating dredgers, high storage rack loaders, winches |
| **Comments** | special attention 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 kg/100m | minimum breaking force [kN] rope tensile grade 1960 N/mm² |
|---|---|---|
| 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


∅ 12 – 54 mm

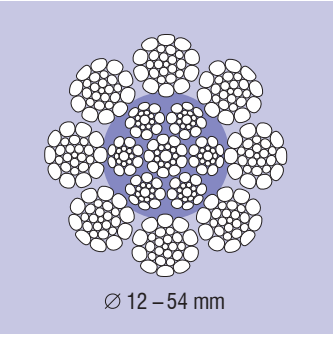

∅ 55 – 72 mm

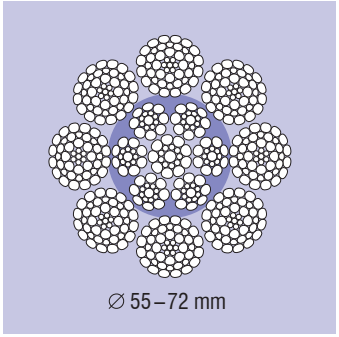
| | |
|---|---|
| **Rope diameter** | 12 – 72 mm |
| **Type of lay** | ordinary lay, optional langs lay |
| **Direction of lay** | right, alternativley left |
| **Core** | EPIWRC |
| **Number of outer strands** | 8 |
| **Number of load bearing wires in the outer strands** | 208 – 328 |
| **Finish** | 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/mm² | 2160 N/mm² |
|---|---|---|---|
| 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


∅ 12 – 54 mm

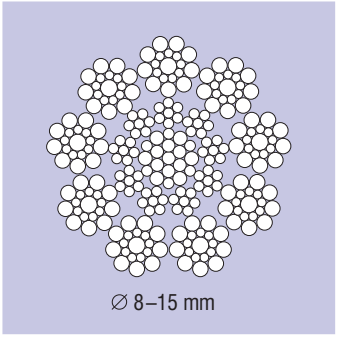

∅ 55 – 72 mm

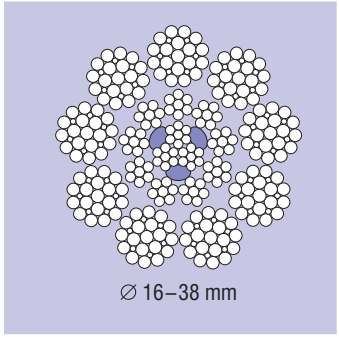
| | |
|---|---|
| **Rope diameter** | 12 – 72 mm |
| **Type of lay** | ordinary lay, optional langs lay |
| **Direction of lay** | right, alternativley left |
| **Core** | EPIWRC |
| **Number of outer strands** | 8 |
| **Number of load bearing wires in the outer strands** | 208 – 328 |
| **Finish** | 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/mm² | 2160 N/mm² |
|---|---|---|---|
| 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


∅ 8–15 mm

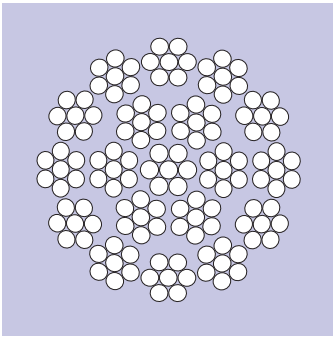

∅ 16–38 mm

| | |
|---|---|
| **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% | unit mass | minimum breaking force [kN] rope tensile grade | |
|---|---|---|---|
| mm | kg/100m | 1770 N/mm² | 1960 N/mm² |
| 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

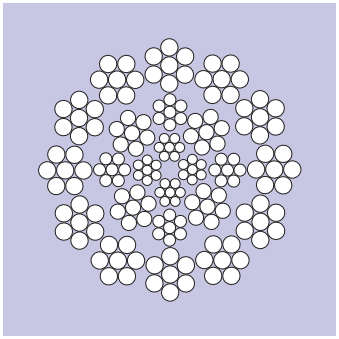


| | |
|---|---|
| **Type of lay** | ordinary lay |
| **Direction of lay** | right, alternatively left |
| **Core** | steel core |
| **Number of outer strands** | 12 |
| **Number of load bearing wires in the outer strands** | 84 |
| **Finish** | U; B |
| **Characterisation** | rotation resistant |
| **Applications** | 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 | minimum breaking force [kN] rope tensile grade | | |
|---|---|---|---|---|
| mm | kg/100m | 1960 N/mm² | 2060 N/mm² | 2160 N/mm² |
| 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



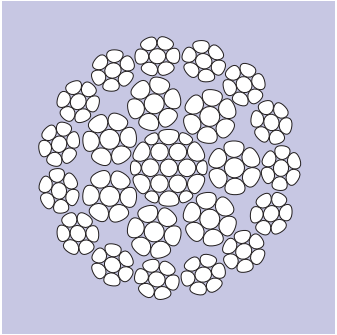


| | |
|---|---|
| **Type of lay** | lang lay |
| **Direction of lay** | right, alternatively left |
| **Core** | steel core |
| **Number of outer strands** | 12 |
| **Number of load bearing wires in the outer strands** | 84 |
| **Finish** | U; B |
| **Characterisation** | rotation resistant |
| **Applications** | 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 ø −1 + 4% | unit mass | minimum breaking force [kN] rope tensile grade | |
|---|---|---|---|
| mm | kg/100m | 1960 N/mm² | 2160 N/mm² |
| 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

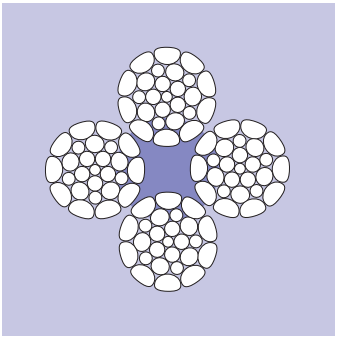
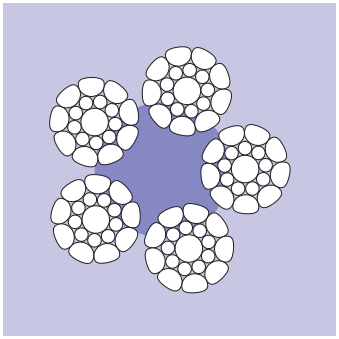
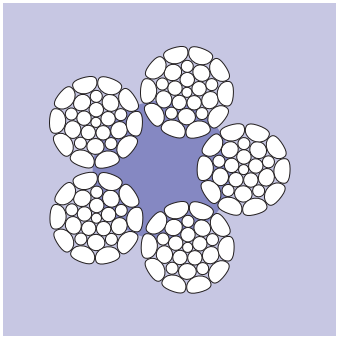


| | |
|---|---|
| **Type of lay** | lang lay |
| **Direction of lay** | right, alternatively left |
| **Core** | steel core |
| **Number of outer strands** | 15 |
| **Number of load bearing wires in the outer strands** | 105 |
| **Finish** | U; B |

| | |
|---|---|
| **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 ø +2 +3,5% mm | unit mass kg/100m | minimum breaking force [kN] rope tensile grade 1960 N/mm² |
|---|---|---|
| 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

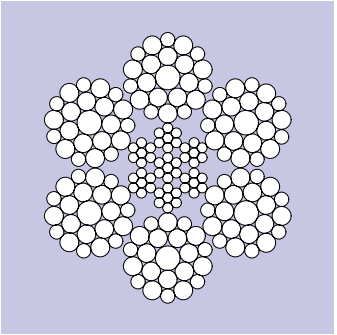




| | |
|---|---|
| **Type of lay** | crosslay |
| **Direction of lay** | right |
| **Core** | fibre core |
| **Number of outer strands** | 4–5 |
| **Number of load bearing wires in the outer strands** | 95–144 |
| **Finish** | B |
| **Characterisation** | compacted, blue marking line |
| **Applications** | 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 ø −0,3 +0 mm | unit mass | minimum breaking force [kN] rope tensile grade | |
|---|---|---|---|
| mm | kg/100m | 1960 N/mm² | 2160 N/mm² |
| 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

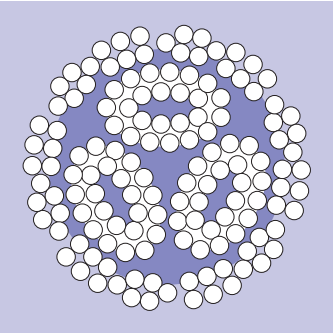


| | |
|---|---|
| **Type of lay** | ordinary lay |
| **Direction of lay** | right |
| **Core** | steel core |
| **Number of outer strands** | 6 |
| **Number of load bearing wires in the outer strands** | 132 |
| **Finish** | B |
| **Applications** | mobile-spillwinches, winches for construction |
| **Comments** | 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 ø −0 + 5% mm | unit mass kg/100 m | minimum breaking force [kN] rope tensile grade 1960 N/mm² |
|---|---|---|
| 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

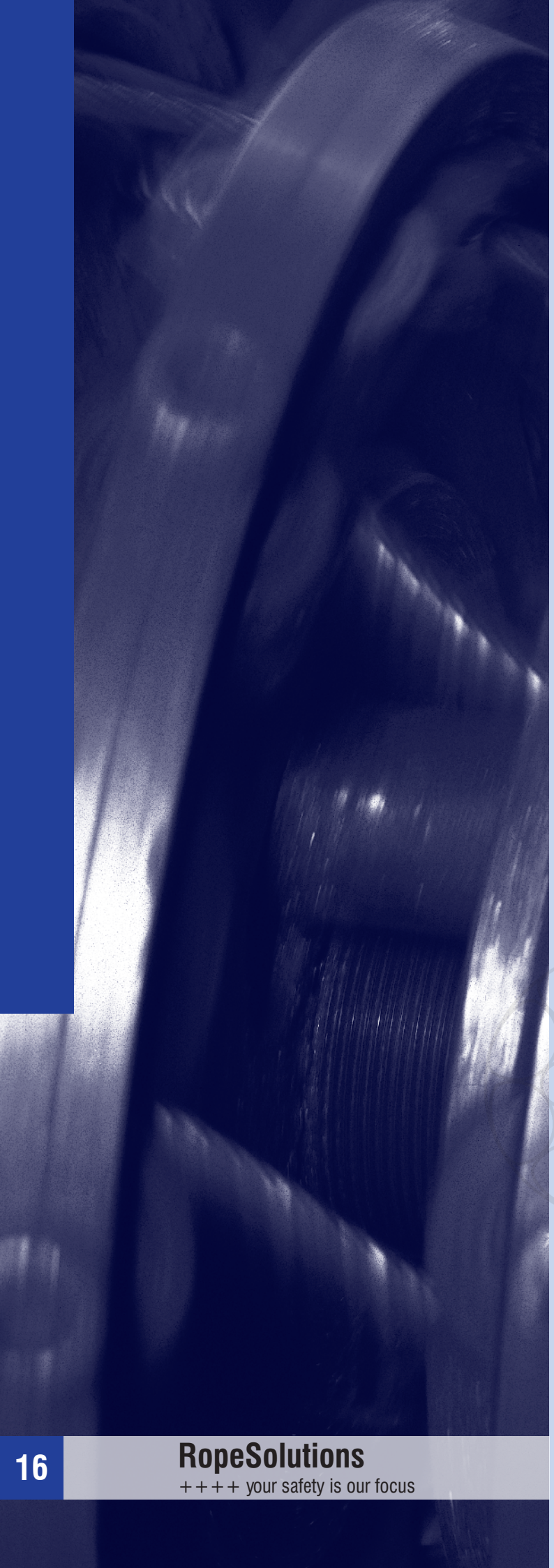




| | |
|---|---|
| **Type of lay** | lang lay |
| **Direction of lay** | right |
| **Core** | fibre core |
| **Number of outer strands** | 12 |
| **Number of load bearing wires in the outer strands** | 72 |
| **Finish** | A |

| | |
|---|---|
| **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% | unit mass | minimum breaking force [kN] rope tensile grade | |
|---|---|---|---|
| mm | kg/100 m | 1770 N/mm² | 1960 N/mm² |
| 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 |



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## Notes

# Aerial Ropeway Solutions

## Ropes for Aerial Ropeways


DRAKO AR 40 ..... 18
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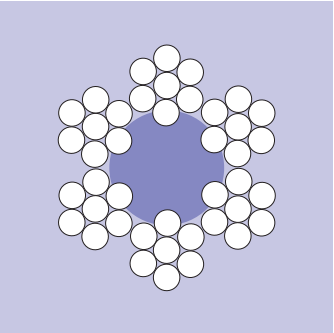
**SALES AND TECHNICAL SUPPORT**

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**



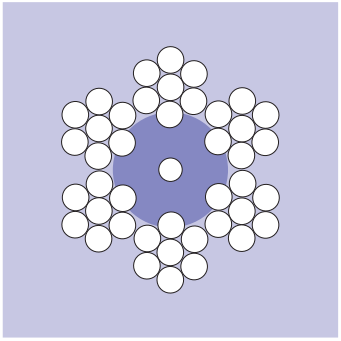
| | |
|---|---|
| **Rope Diameter** | 14 – 24 mm |
| **Total number of wires** | 42 |
| **Total number of strands** | 6 |
| **Number of outer strands** | 6 |
| **Number of load bearing wires in outer strands** | 42 |
| **Characterisation** | Robust rope with polypropylene fibre core |
| **Applications** | 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-ø −0 + 5% | Approx mass | Minimum breaking force [kn] for a rope grade of | | | | | |
|---|---|---|---|---|---|---|---|
| mm | kg/m | 1570 N/mm² | 1670 N/mm² | 1770 N/mm² | 1860 N/mm² | 1960 N/mm² | 2060 N/mm² |
| 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-Ø 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<br>Carrying-hauling rope for ropeways |
| **Comments** | Special attention should be paid to EN 12927-5, discard criteria acc. to EN 12927-6 |

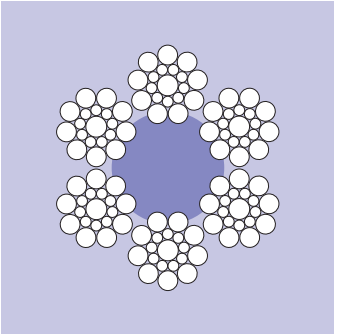
| Nominal rope-ø –0 + 5% | Approx mass | Minimum breaking force [kn] for a rope grade of | | | | | |
|---|---|---|---|---|---|---|---|
| mm | kg/m | 1570 N/mm² | 1670 N/mm² | 1770 N/mm² | 1860 N/mm² | 1960 N/mm² | 2060 N/mm² |
| 25 | 2,07 | 333 | 354 | 375 | 394 | 415 | 432 |
| 26 | 2,23 | 358 | 381 | 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-Ø 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<br>Carrying-hauling rope for small ropeways |
| **Comments** | Special attention should be paid to EN 12927-5, discard criteria acc. to EN 12927-6 |

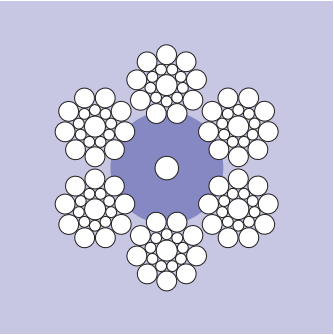
| Nominal rope-Ø –0 + 5% | Approx mass | Minimum breaking force [kn] for a rope grade of | | | | | |
|---|---|---|---|---|---|---|---|
| mm | kg/m | 1570 N/mm² | 1670 N/mm² | 1770 N/mm² | 1860 N/mm² | 1960 N/mm² | 2060 N/mm² |
| 14 | 0,66 | 105 | 111 | 118 | 124 | 131 | 136 |
| 15 | 0,82 | 130 | 138 | 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)





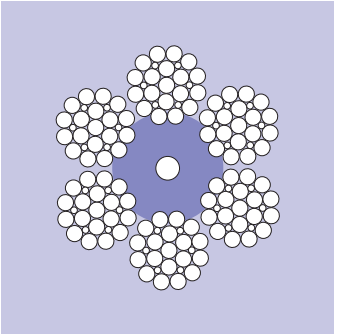
| | |
|---|---|
| **Rope Diameter** | 25–38 mm |
| **Total number of wires** | 114 |
| **Total number of strands** | 6 |
| **Number of outer strands** | 6 |
| **Number of load bearing wires in outer strands** | 114 |
| **Characterisation** | Resistant rope with special fibre core (reinforced and extruded fibre core) or low elongation |
| **Applications** | Hauling rope and carrying-hauling rope for chair lifts<br>Hauling rope for cable cars |
| **Comments** | Special attention should be paid to EN 12927-5, discard criteria acc. to EN 12927-6 |

| Nominal rope-ø −0 + 5% | Approx mass | Minimum breaking force [kn] for a rope grade of | | | | | |
|---|---|---|---|---|---|---|---|
| mm | kg/m | 1570 N/mm² | 1670 N/mm² | 1770 N/mm² | 1860 N/mm² | 1960 N/mm² | 2060 N/mm² |
| 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-Ø 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<br>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 |

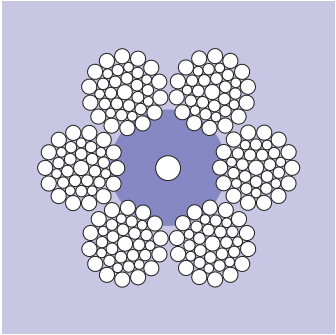
| Nominal rope-ø –0 + 5% | Approx mass | Minimum breaking force [kn] for a rope grade of | | | | | |
|---|---|---|---|---|---|---|---|
| mm | kg/m | 1570 N/mm² | 1670 N/mm² | 1770 N/mm² | 1860 N/mm² | 1960 N/mm² | 2060 N/mm² |
| 23 | 1,86 | 288 | 306 | 325 | 341 | 360 | 374 |
| 24 | 2,11 | 327 | 348 | 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-Ø are available on request

# DRAKO AR 220 X

**Construction Class 6 x 36**

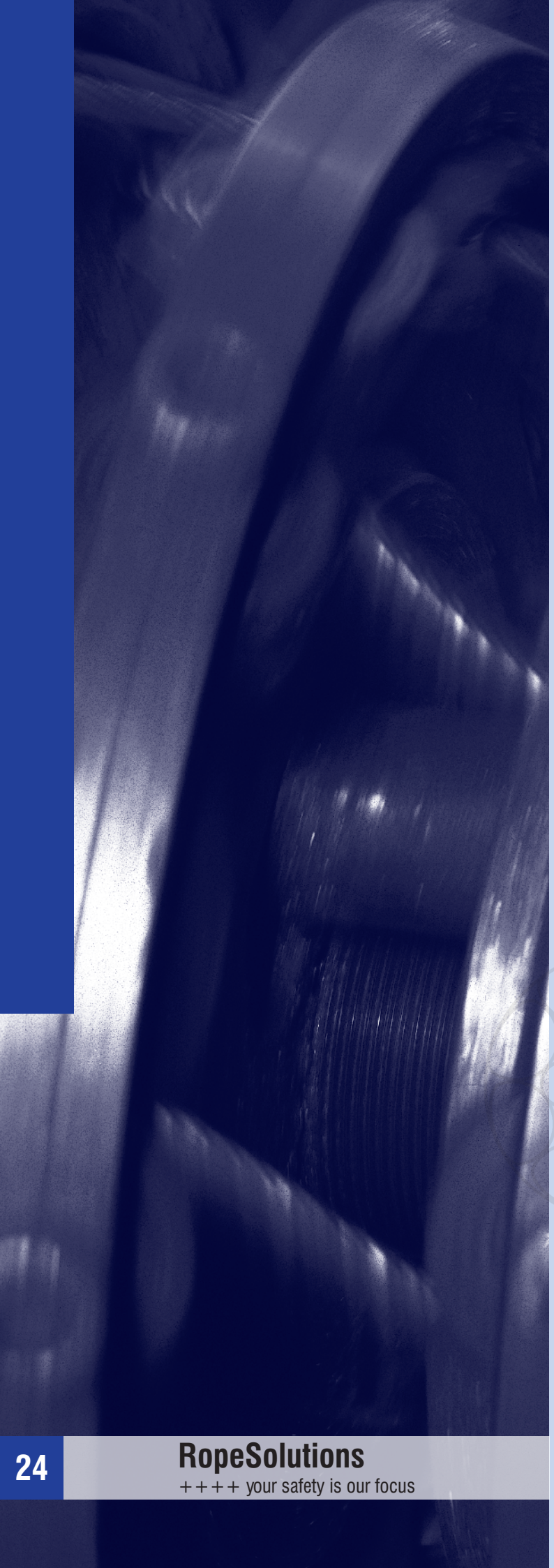
**6 x 31 WS** (1-6-6+6-12)
**6 x 36 WS** (1-7-7+7-14)



| | |
|---|---|
| **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<br>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-ø −0 + 5% | Approx mass | Minimum breaking force [kn] for a rope grade of | | | | | |
|---|---|---|---|---|---|---|---|
| mm | kg/m | 1570 N/mm² | 1670 N/mm² | 1770 N/mm² | 1860 N/mm² | 1960 N/mm² | 2060 N/mm² |
| 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-Ø are available on request



## Notes

# Mining Rope Solutions

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**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 $\delta_a$

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 | = | **f**ibre **c**ore |
| NFC | = | **n**atural **f**ibre **c**ore |
| SFC | = | **s**ynthetic **f**ibre **c**ore |
| FC(R) | = | **f**ibre **c**ore (**r**einforced), [this term is not defined within EN12385] |
| IWRC | = | steel core (from **i**ndependent **w**ire **r**ope **c**ore) |
| EPIWRC | = | plastic coated IWRC |

### Symbols for strand constructions:

| | | |
|---|---|---|
| S | = | **S**eale (f. i. 1-9-9 wires), parallel lay |
| W | = | **W**arrington (f. i. 1-6-6+6 wires), parallel lay |
| WS | = | **W**arrington-**S**eale (f. i. 1-7-7+7-14 wires), combined parallel lay |
| N | = | compound lay, more detailed example see next line |
| NW | = | covered **W**arrington (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 **u**ncoated) |
| 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 | |
| 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:

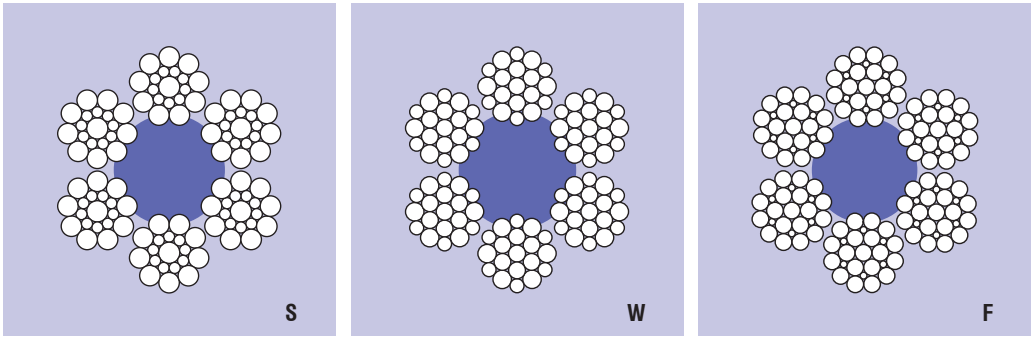
- Reference to Standard EN 12385-6
- Rope duty
- Drive Mode: Koepe or Drum
- Quantity and Length
- Dimensions and Tolerances
- Construction
- Wire Finish
- Lay Direction and Type
- Lubrication Requirements
- Minimum Breaking Force $F_{min}$ or Minimum Aggregate Breaking Force $F_{e,min}$
- Nominal Rope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

## 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) |



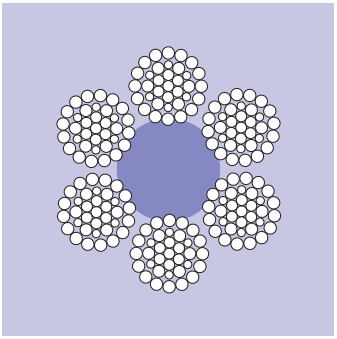

| | |
|---|---|
| **Rope Diameter** | 20 – 50 mm |
| **Number of strands** | 6 |
| **Core** | NFC or SFC |
| **Wires** | acc. to EN 10264-3 Finish: U; B; A |
| **Number of wires** | 15 – 29 |
| **Characterisation** | robust single layer Hoisting Rope with Fibre Core<br>Langs Lay or Ordinary Lay, right 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<br>discard criteria acc. to DIN 15020-2 / ISO 4309 apply |

| Rope Ø | unit mass | min. aggregate breaking force [kN] tensile grade | | |
|---|---|---|---|---|
| mm | kg/100m | 1570 N/mm² | 1770 N/mm² | 1960 N/mm² * |
| 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<br>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<br>discard criteria acc. to DIN 15020-2 / ISO 4309 apply |

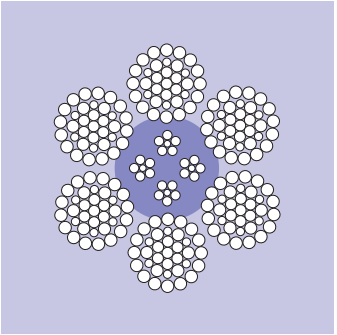
| Rope Ø | unit mass | min. aggregate breaking force [kN] tensile grade | | |
|---|---|---|---|---|
| mm | kg/100m | 1570 N/mm² | 1770 N/mm² | 1960 N/mm² * |
| 28,0 | 275 | 470 | 530 | 587 |
| 30,0 | 316 | 540 | 609 | 674 |
| 32,0 | 359 | 614 | 692 | 767 |
| 34,0 | 406 | 693 | 782 | 866 |
| 36,0 | 455 | 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)



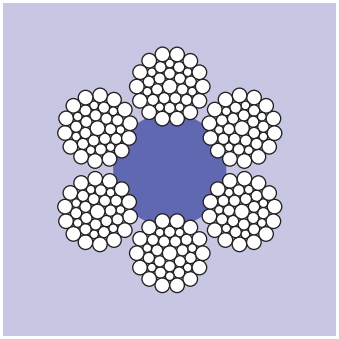
| | |
|---|---|
| **Rope Diameter** | 28 – 70 mm |
| **Number of strands** | 6 |
| **Core** | NFC or SFC (R) reinforced |
| **Wires** | acc. to EN 10264-3 Finish: U; B; A |
| **Number of wires** | 28 – 43 |
| **Characterisation** | robust single layer Hoisting Rope with reinforced Fibre Core<br>Langs 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<br>discard criteria acc. to DIN 15020-2 / ISO 4309 apply |

| Rope Ø | unit mass | min. aggregate breaking force [kN] tensile grade | | |
|---|---|---|---|---|
| mm | kg/100m | 1570 N/mm² | 1770 N/mm² | 1960 N/mm² * |
| 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

# 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 |

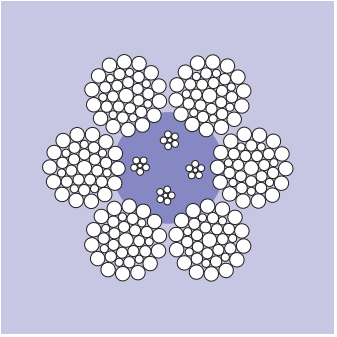
| | |
|---|---|
| **Characterisation** | robust single layer Hoisting Rope with Fibre Core Langs Lay or Ordinary Lay, right hand or left hand |
| **Application** | Hoisting Rope for Koepe Drives and Drum Drives, Depths up to 2.000 m |
| **Comments** | special attention should be paid to EN 12385-3; Appendix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

| Rope Ø | unit mass | min. aggregate breaking force [kN] tensile grade | | |
|---|---|---|---|---|
| mm | kg/100m | 1570 N/mm² | 1770 N/mm² | 1960 N/mm² * |
| 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)



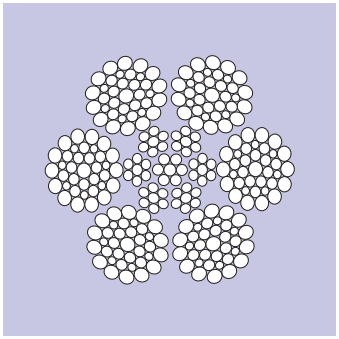
| | |
|---|---|
| **Rope Diameter** | 28 – 70 mm |
| **Number of strands** | 6 |
| **Core** | NFC or SFC (R) reinforced |
| **Wires** | acc. to EN 10264-3 Finish: U; B; A |
| **Number of wires** | 31 – 46 |
| **Characterisation** | robust single layer Hoisting Rope with reinforced Fibre Core<br>Langs 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<br>discard criteria acc. to DIN 15020-2 / ISO 4309 apply |

| Rope Ø | unit mass | min. aggregate breaking force [kN] tensile grade | | |
|---|---|---|---|---|
| mm | kg/100m | 1570 N/mm² | 1770 N/mm² | 1960 N/mm² * |
| 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 220 IWRC

**Construction Class 6 x 36**



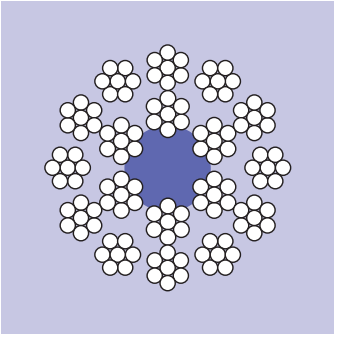
| | |
|---|---|
| **Rope Diameter** | 22–66 mm |
| **Number of strands** | 6 |
| **Core** | IWRC |
| **Wires** | acc. to EN 10264-3 Finish: U; B; A |
| **Number of wires** | 31 – 41 |
| **Characterisation** | robust single layer Rope with Steel Core Langs Lay or Ordinary Lay, right hand or left hand |
| **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 | unit mass | min. aggregate breaking force [kN] tensile grade | | |
|---|---|---|---|---|
| mm | kg/100m | 1570 N/mm² | 1770 N/mm² | 1960 N/mm² * |
| 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

# 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)



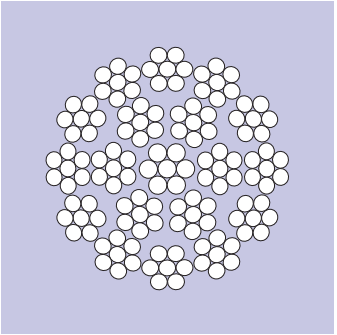
| | |
|---|---|
| **Rope Diameter** | 18 – 48 mm |
| **Number of strands** | 17 – 18 |
| **Core** | NFC or SFC |
| **Wires** | acc. to EN 10264-3 Finish: U; B: A |
| **Number of wires** | 6 – 7 |
| **Characterisation** | Double Layer Rope, Rotation Resistant<br>Langs Lay or Ordinary Lay, right hand or 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<br>discard criteria acc. to DIN 15020-2 / ISO 4309 apply |

| Rope Ø | unit mass | min. aggregate breaking force [kN] tensile grade | | |
|---|---|---|---|---|
| mm | kg/100m | 1570 N/mm² | 1770 N/mm² | 1960 N/mm² * |
| 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 | 395 | 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)**



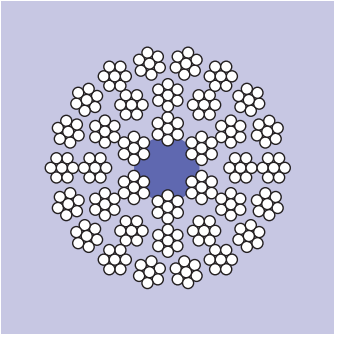
| | |
|---|---|
| **Rope Diameter** | 18 – 48 mm |
| **Number of strands** | 17 – 18 |
| **Core** | WSC |
| **Wires** | acc. to EN 10264-3 Finish: U; B: A |
| **Number of wires** | 6 – 7 |
| **Characterisation** | Double Layer Rope, Rotation Resistant<br>Langs Lay or Ordinary Lay, right hand or left 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<br>discard criteria acc. to DIN 15020-2 / ISO 4309 apply |

| Rope Ø | unit mass | min. aggregate breaking force [kN] tensile grade | | |
|---|---|---|---|---|
| mm | kg/100m | 1570 N/mm² | 1770 N/mm² | 1960 N/mm² * |
| 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)**



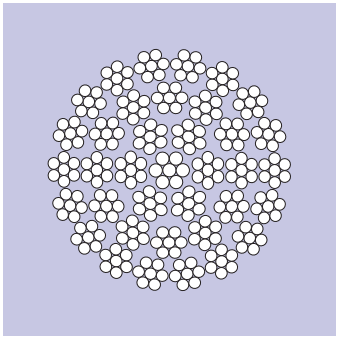
| | |
|---|---|
| **Rope Diameter** | 28 – 70 mm |
| **Number of strands** | 34 – 36 |
| **Core** | NFC or SFC |
| **Wires** | acc. to EN 10264-3 Finish: U; B; A |
| **Number of wires** | 6 – 7 |
| **Characterisation** | Triple Layer Rope, Rotation Resistant<br>Langs Lay or Ordinary Lay, right hand or 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<br>discard criteria acc. to DIN 15020-2 / ISO 4309 apply |

| Rope Ø | unit mass | min. aggregate breaking force [kN] tensile grade | | |
|---|---|---|---|---|
| mm | kg/100m | 1570 N/mm² | 1770 N/mm² | 1960 N/mm² * |
| 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)**



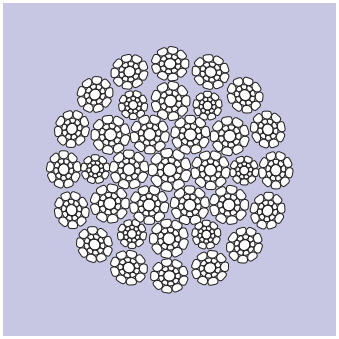
| | |
|---|---|
| **Rope Diameter** | 28 – 70 mm |
| **Number of strands** | 34 – 36 |
| **Core** | WSC |
| **Wires** | acc. to EN 10264-3 Finish: U; B; A |
| **Number of wires** | 6 – 7 |
| **Characterisation** | Triple Layer Rope, Rotation Resistant<br>Langs Lay or Ordinary Lay, right hand or left 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<br>discard criteria acc. to DIN 15020-2 / ISO 4309 apply |

| Rope Ø | unit mass | min. aggregate breaking force [kN] tensile grade | | |
|---|---|---|---|---|
| mm | kg/100m | 1570 N/mm² | 1770 N/mm² | 1960 N/mm² * |
| 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 HR 240 C

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



| | |
|---|---|
| **Rope Diameter** | 34 – 66 mm |
| **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 resistand, hoisting rope with good fatigue properties |
| **Application** | Shaft hoisting rope specialised for multy 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 |

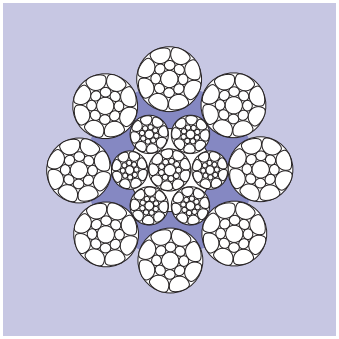
| Rope Ø mm | unit mass kg/100m | min. aggregate breaking force [kN] tensile grade | | | |
|---|---|---|---|---|---|
| | | 1570 N/mm² | 1770 N/mm² | 1860 N/mm² | 1960 N/mm² * |
| 22,0 | 238 | 433 | 488 | 513 | 543 |
| 24,0 | 284 | 516 | 582 | 612 | 646 |
| 26,0 | 334 | 608 | 685 | 720 | 759 |
| 28,0 | 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

# 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)



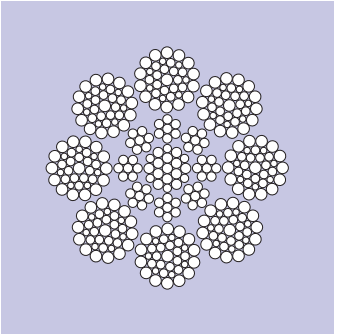
| | |
|---|---|
| **Rope Diameter** | 30 – 60 mm |
| **Number of strands** | 8 |
| **Core** | EPIWRC |
| **Wires** | acc. to EN 10264-3 Finish: U; B; |
| **Number of wires** | 17 – 31 |
| **Characterisation** | Robust compacted single Layer rope with an plactic coated independent wire rope core<br>Langs 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<br>dircard criteria acc. to DIN 15020-2/ISO 4309 apply |

| Rope Ø | unit mass | min. aggregate breaking force [kN] tensile grade | | | |
|---|---|---|---|---|---|
| mm | kg/100m | 1570 N/mm² | 1770 N/mm² | 1960 N/mm² * | 2160 N/mm² * |
| 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**

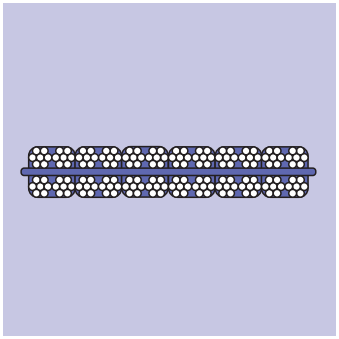


| | |
|---|---|
| **Rope Diameter** | 30 – 74 mm |
| **Number of strands** | 8 |
| **Core** | IWRC Construction depends on Rope Diameter |
| **Wires** | acc. to EN 10264-3 Finish: U; B; A |
| **Number of wires** | 25 – 36 construction depends on rope diameter |
| **Characterisation** | Robust Single Layer Rope with Steel Core<br>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<br>discard criteria acc. to DIN 15020-2 / ISO 4309 apply |

| Rope Ø | unit mass | min. aggregate breaking force [kN] tensile grade | | |
|---|---|---|---|---|
| mm | kg/100m | 1570 N/mm² | 1770 N/mm² | 1960 N/mm² * |
| 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 |

* 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

| Rope Ø | wire Ø | unit mass | min. aggregate breaking force [kN] tensile grade | | |
|---|---|---|---|---|---|
| mm | mm | kg/100m | 1770 N/mm² | 1860 N/mm² | 1960 N/mm² * |
| **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

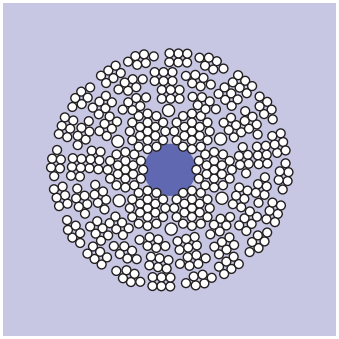
| Rope Ø | wire Ø | unit mass | min. aggregate breaking force [kN] tensile grade | | |
|---|---|---|---|---|---|
| mm | mm | kg/100m | 1770 N/mm² | 1860 N/mm² | 1960 N/mm² * |
| **construction 8 x 4 x 14** | | | | | |
| 162 x 24 | 1,9 | 1230 | 2248 | 2363 | 2490 |
| 168 x 25 | 2,0 | 1370 | 2491 | 2618 | 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

PFEIFER DRAKO

## DRAKO RBR

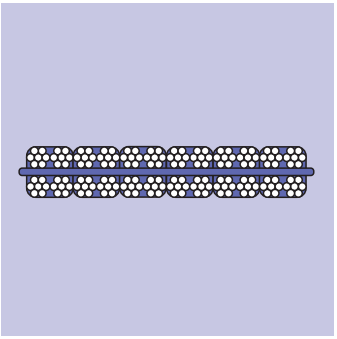
**Construction**
**30 x 6 - 6 x 19**
**50 x 6 - 6 x 19**



| | |
|---|---|
| **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<br>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<br>discard criteria acc. to DIN 15020-2 / ISO 4309 apply |

| Rope Ø | unit mass | min. aggregate breaking force [kN] tensile grade | |
|---|---|---|---|
| mm | kg/100m | 1080 N/mm² | 1370 N/mm² |
| 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

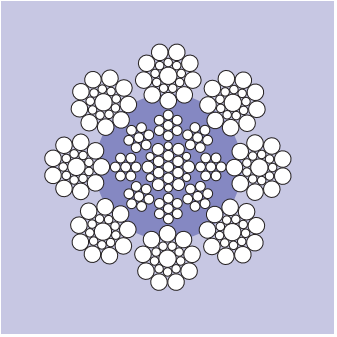
**Characterisation** Flat Rope
Single Stitch or Double Stich or riveted
**Application** Balance Rope
**Comments** discard criteria acc. to DIN 15020-2 / ISO 4309 apply

| 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/mm² | 1570 N/mm² |
| **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 |

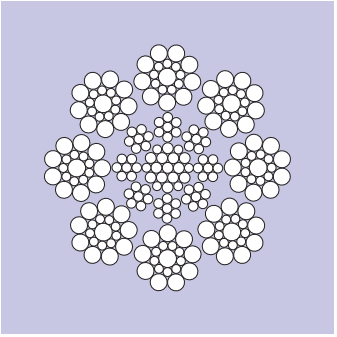
## DRAKO DL 290



| | |
|---|---|
| **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-resitant rope with exellent shock absorbing cabability<br>avilable 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<br>discard criteria acc. to DIN 15020-2 / ISO 4309 apply |

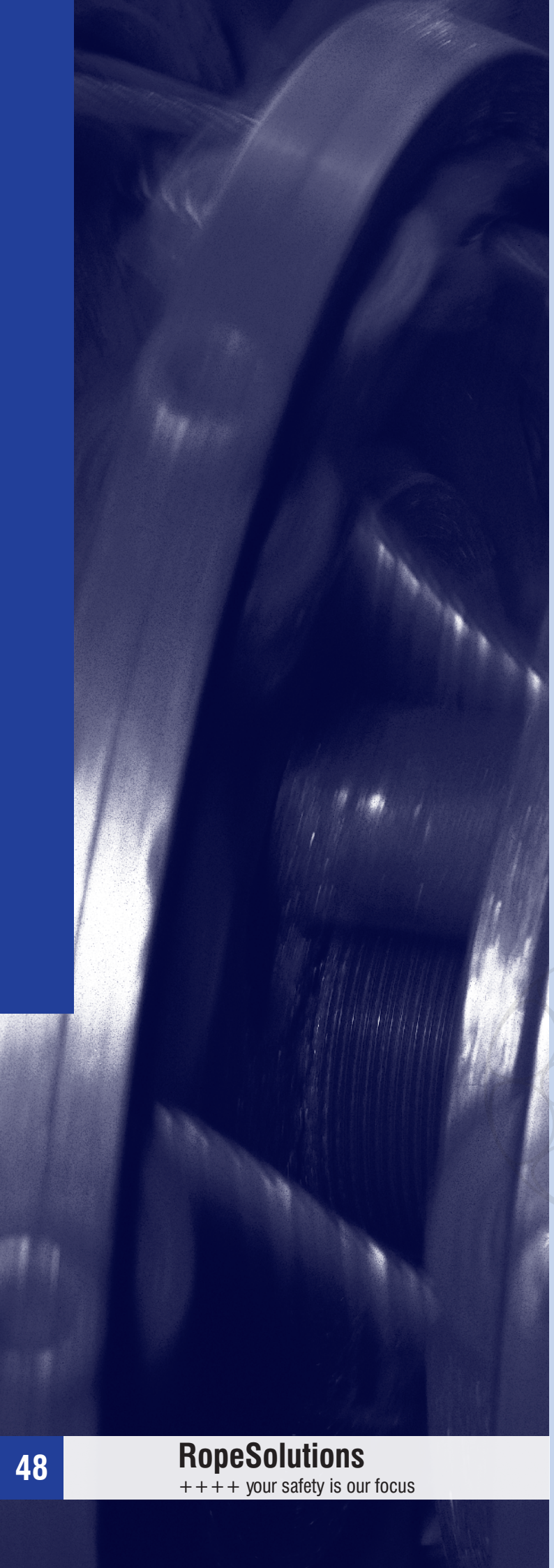
| Rope Ø | unit mass | met. cross section | min. breaking force [kN] tensile grade | | |
|---|---|---|---|---|---|
| mm | kg/100m | kg/100m | 1770 N/mm² | 1960 N/mm² | 2160 N/mm² |
| 38,0 | 612 | 694 | 959 | 1062 | 1170 |
| 40,0 | 667 | 767 | 1058 | 1172 | 1291 |
| 42,0 | 735 | 845 | 1167 | 1292 | 1424 |
| 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<br>Right Hand Ordinary Lay<br>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<br>discard criteria acc. to DIN 15020-2 / ISO 4309 apply |

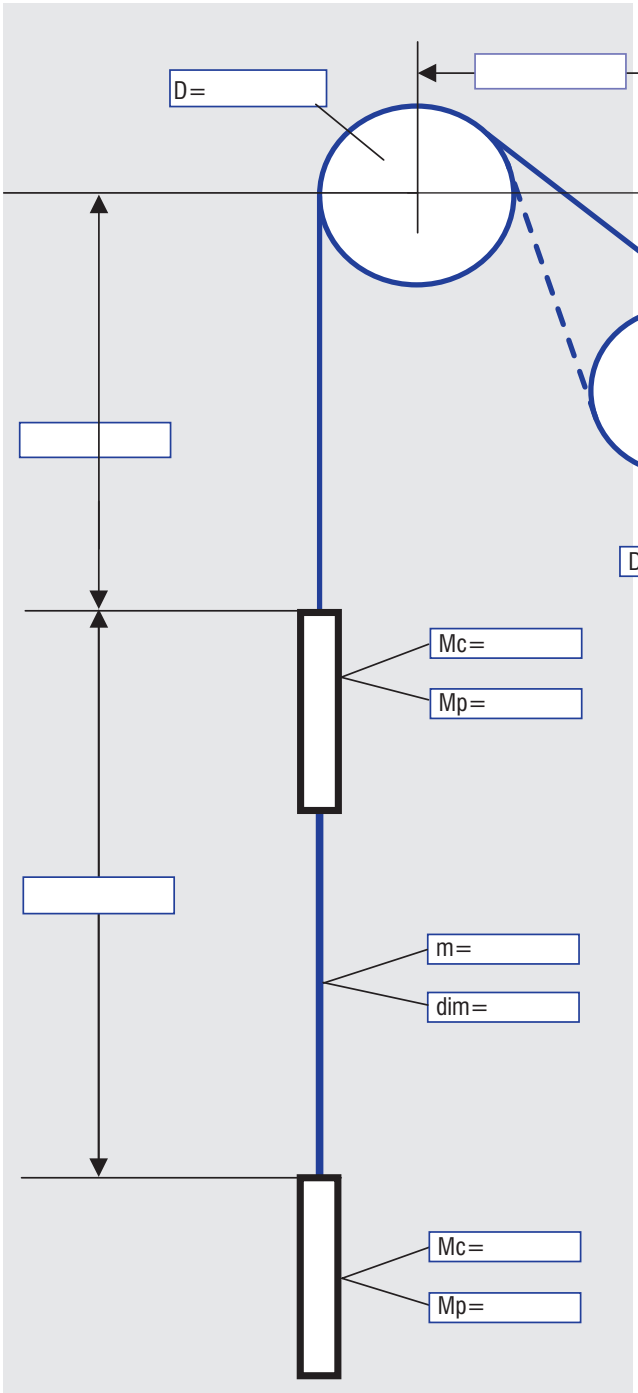
| Rope Ø mm | " | construction | unit mass kg/100m | min. breaking force [kN] tensile grade | |
|---|---|---|---|---|---|
| | | | | IPS (1770 N/mm²) | EIPS (1960 N/mm²) |
| 22,0 | 7/8 | 8 x 17S | 212 | 300 | 332 |
| 26,0 | 1 | 8 x 17S | 275 | 426 | 472 |
| 26,0 | 1 | 6 x 19S | 270 | 432 | 479 |
| 29,0 | 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 |

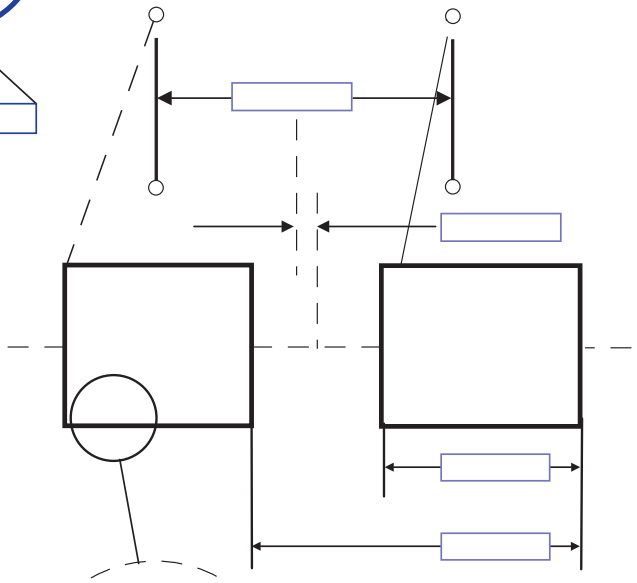


## Notes

## Drum System

Project Name

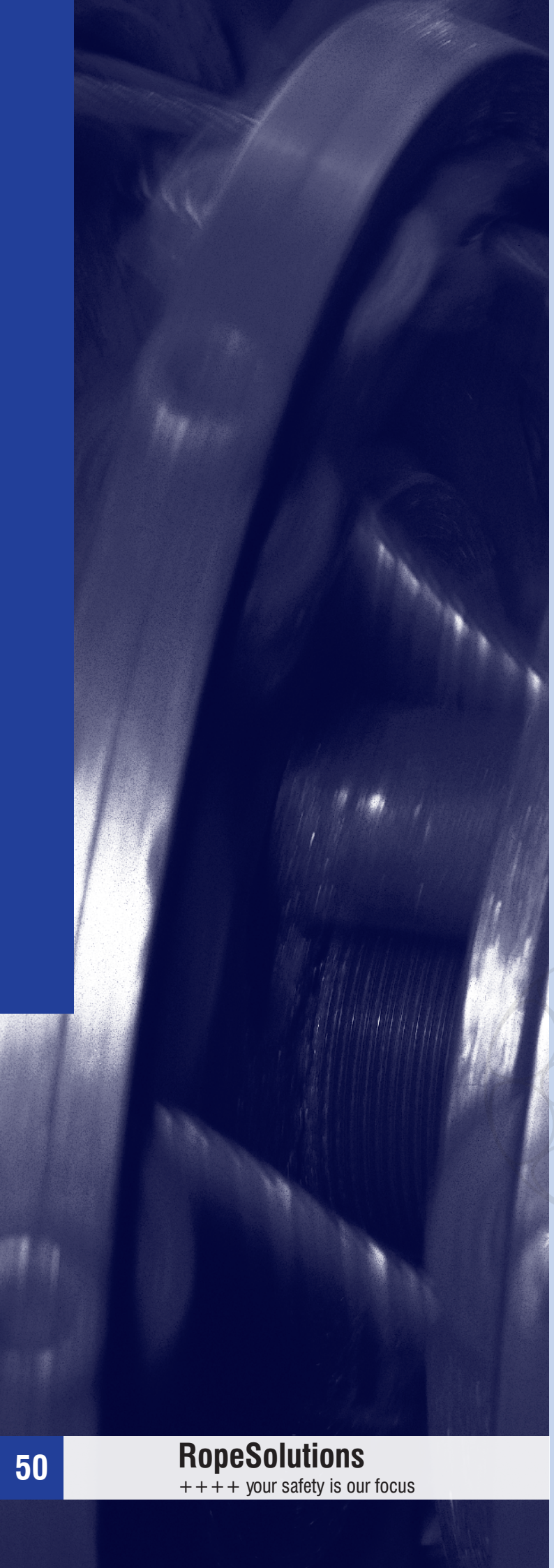


Type of grooves=
Type of lining=
Pitch=
Groove Radius=
No. of grooves=
No. of Layers=
No. of dead windings=

Mineral=
V=
a+=
a-=
min. safety factor=

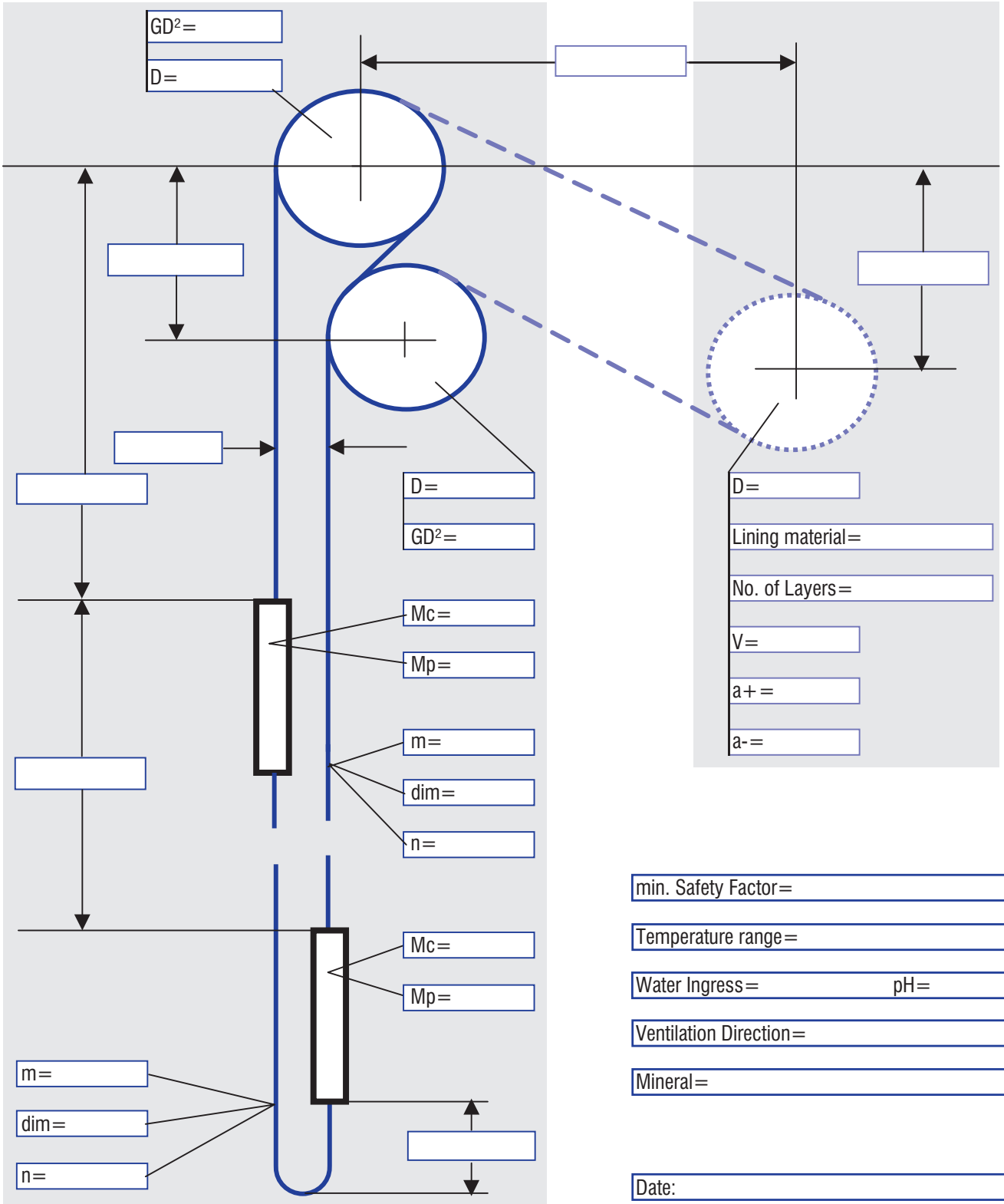
Temparature range=
Water Ingress pH=
Ventilation direction=
Date:



## Notes

## Koepe System

Project Name




min. Safety Factor=

Temperature range=

Water Ingress= pH=

Ventilation Direction=

Mineral=

Date:

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@pfeiferdrako.co.uk

**in Luxembourg/France**
PFEIFER SOGEQUIP S.À R.L.
Zone Industrielle Schifflange-Foetz
LU-3844 SCHIFFLANGE
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 & PODJÖMNIE 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 Nabereschnaja
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 ELEVACIÓN, S.L.
Avda. de los Pirineros, 25 – Nave 20
San Sebastian de los Reyes
ES-28703 MADRID
Tel. +34-91-659-3185
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