

Data sheet:**HPER® High-Performance cable ties / internally toothed  
black and natural (white)**

Our premium polyamide 6.6 cable ties in the high performance version are specially designed for use under extreme conditions and give our most demanding customers the performance buffer they need. They are typically used in (special) vehicle construction, mechanical engineering, industrial assembly, shipbuilding and offshore applications. Our HPER® cable ties impress with their excellent workmanship, pleasant and safe handling and long service life.

**Technical data:**

|                                    |                                                                                                                                                                                                                                                                                             |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Material:</b>                   | Polyamide 6.6<br>(PA 6.6 / cadmium-free, lead-free, with < 1.5% recycled content)                                                                                                                                                                                                           |
| <b>Color:</b>                      | black, natural (white)                                                                                                                                                                                                                                                                      |
| <b>Operating temperature:</b>      | -40 °C to +85 °C (temporarily +110 °C)                                                                                                                                                                                                                                                      |
| <b>Installation temperature:</b>   | -10 °C to +60 °C                                                                                                                                                                                                                                                                            |
| <b>Fire protection properties:</b> | very good (self-extinguishing according to UL94 V-2)                                                                                                                                                                                                                                        |
| <b>UV-resistance:</b>              | Black version due to carbon black content with 150 hours QUV-B according to ISO (corresponds to approx. 3 years outdoor resistance in Central Europe)                                                                                                                                       |
| <b>Chemical resistance:</b>        | PA 6.6 has excellent resistance to conventional fluids, lubricants, oils, petrol, aliphatic hydrocarbons, alcohols, ketones, cyclic and aromatic hydrocarbons, halogenated solvents, trichloroethylene and perchloroethylene. Limited resistance to weak organic acids, ammonia and amines. |
| <b>Tensile force:</b>              | The minimum holding force* is specified in accordance with EN 62275. Our own and independent tests have shown an additional performance buffer of 50 - 70% (depending on the design).                                                                                                       |
| <b>Standards:</b>                  | REACH, RoHS, CE, UL, DNV, developed to comply with current military standards* (in terms of tensile force*)                                                                                                                                                                                 |



**For size chart see pages 2 and 3 (from 100x2.5 mm to 1000x2.5 mm)**

Size chart:

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| Article-no. | Description | Dimensions [mm] | Minimum tensile strength [N] * | Bundling max. Ø [mm] | Color  | PU [pcs.] |
|-------------|-------------|-----------------|--------------------------------|----------------------|--------|-----------|
| 22001-H     | K10025N-H   | 100 x 2,5       | 80                             | 24                   | nature | 100       |
| 22002-H     | K10025S-H   | 100 x 2,5       | 80                             | 24                   | black  | 100       |
| 22003-H     | K14025N-H   | 140 x 2,5       | 80                             | 33                   | nature | 100       |
| 22004-H     | K14025S-H   | 140 x 2,5       | 80                             | 33                   | black  | 100       |
| 22005-H     | K20025N-H   | 200 x 2,5       | 80                             | 52                   | nature | 100       |
| 22006-H     | K20025S-H   | 200 x 2,5       | 80                             | 52                   | black  | 100       |
| 22007-H     | K14036N-H   | 140 x 3,5       | 180                            | 34                   | nature | 100       |
| 22008-H     | K14036S-H   | 140 x 3,5       | 180                            | 36                   | black  | 100       |
| 22009-H     | K20036N-H   | 200 x 3,5       | 180                            | 52                   | nature | 100       |
| 22010-H     | K20036S-H   | 200 x 3,5       | 180                            | 85                   | black  | 100       |
| 22013-H     | K29036N-H   | 290 x 3,5       | 180                            | 82                   | nature | 100       |
| 22014-H     | K29036S-H   | 290 x 3,5       | 180                            | 82                   | black  | 100       |
| 22020-H     | K20048N-H   | 200 x 4,6       | 220                            | 54                   | nature | 100       |
| 22021-H     | K20048S-H   | 200 x 4,6       | 220                            | 54                   | black  | 100       |
| 22024-H     | K29048N-H   | 290 x 4,6       | 220                            | 82                   | nature | 100       |
| 22025-H     | K29048S-H   | 290 x 4,6       | 220                            | 82                   | black  | 100       |
| 22026-H     | K36048N-H   | 360 x 4,6       | 220                            | 106                  | nature | 100       |
| 22027-H     | K36048S-H   | 360 x 4,6       | 220                            | 106                  | black  | 100       |
| 22029-H     | K39048N-H   | 390 x 4,6       | 220                            | 110                  | nature | 100       |
| 22030-H     | K43048N-H   | 430 x 4,6       | 220                            | 125                  | nature | 100       |
| 22031-H     | K43048S-H   | 430 x 4,6       | 220                            | 125                  | black  | 100       |
| 22032-H     | K18078N-H   | 180 x 7,8       | 530                            | 54                   | nature | 100       |
| 22033-H     | K18078S-H   | 180 x 7,8       | 530                            | 54                   | black  | 100       |
| 22034-H     | K28078N-H   | 280 x 7,8       | 530                            | 77                   | nature | 100       |
| 22035-H     | K28078S-H   | 280 x 7,8       | 530                            | 77                   | black  | 100       |
| 22036-H     | K36078N-H   | 360 x 7,8       | 530                            | 101                  | nature | 100       |
| 22037-H     | K36078S-H   | 360 x 7,8       | 530                            | 101                  | black  | 100       |
| 22038-H     | K45078N-H   | 450 x 7,8       | 530                            | 130                  | nature | 100       |
| 22039-H     | K45078S-H   | 450 x 7,8       | 530                            | 130                  | black  | 100       |
| 22042-H     | K54078N-H   | 540 x 7,8       | 530                            | 160                  | nature | 100       |
| 22043-H     | K54078S-H   | 540 x 7,8       | 530                            | 160                  | black  | 100       |
| 22044-H     | K75078N-H   | 750 x 7,8       | 530                            | 222                  | nature | 100       |
| 22045-H     | K75078S-H   | 750 x 7,8       | 530                            | 222                  | black  | 100       |
| 22048-H     | K55090N-H   | 550 x 9         | 800                            | 160                  | nature | 100       |
| 22049-H     | K55090S-H   | 550 x 9         | 800                            | 160                  | black  | 100       |
| 22051-H     | K78090N-H   | 780 x 9         | 800                            | 226                  | nature | 100       |
| 22050-H     | K78090S-H   | 780 x 9         | 800                            | 226                  | black  | 100       |
| 22052-H     | K92090N-H   | 920 x 9         | 800                            | 280                  | nature | 100       |
| 22053-H     | K92090S-H   | 920 x 9         | 800                            | 280                  | black  | 100       |
| 22055-H     | K122090N-H  | 1220 x 9        | 800                            | 375                  | nature | 100       |
| 22054-H     | K122090S-H  | 1120 x 9        | 800                            | 375                  | black  | 100       |

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|         |            |             |      |     |        |     |
|---------|------------|-------------|------|-----|--------|-----|
| 22060-H | K500125N-H | 500 x 12,5  | 1150 | 150 | nature | 100 |
| 22061-H | K500125S-H | 500 x 12,5  | 1150 | 150 | black  | 100 |
| 22062-H | K720125N-H | 720 x 12,5  | 1150 | 216 | nature | 100 |
| 22063-H | K720125S-H | 720 x 12,5  | 1150 | 216 | black  | 100 |
| 22064-H | K100012N-H | 1000 x 12,5 | 1150 | 300 | nature | 100 |
| 22065-H | K100012S-H | 1000 x 12,5 | 1150 | 300 | black  | 100 |

(Subject to technical changes within the tolerances)

**\* Minimum holding force based on EN 62275 / Independent and own tests prove an additional power buffer of 50 - 70 % (depending on the design) compared to the specified minimum holding force.**