

## Section 1. PRODUCT DESCRIPTION

### FRAME PLUG WITH HEX/COUNTERSUNK HEAD SCREW AND TX DRIVE – KPR-FAST 10 K/KPS-FAST 10 S

Sleeves of frame plugs are made of polyamide with a specially shaped steel screw type K (hex head) or S (countersunk head) for fixing of members to all substrate types. The screws are made of steel with applied electroplated zinc coating or with non-electrolytically applied zinc flake coating. The plastic sleeve is expanded by screwing in the specific screw which presses the sleeve against the wall of the drilled hole. Frame plugs are characterized by very high resistance and problem-free installation in various materials. Plugs with hex head (K) are mostly used for fixing of metal members, and plugs with countersunk head (S) mostly for fixing of wood members. The sleeve is pre-assembled with the screw.

Substrates on which frame plug KPR-FAST 10 K/KPS-FAST 10 S can be installed according to ETAG 020:

- Category A – concrete
- Category B – solid clay brick and sand-lime brick
- Category C – hollow clay and sand-lime brick, porous block
- Category D – lightweight concrete blocks, autoclaved aerated concrete



KPS-FAST 10 S

KPR-FAST 10 K



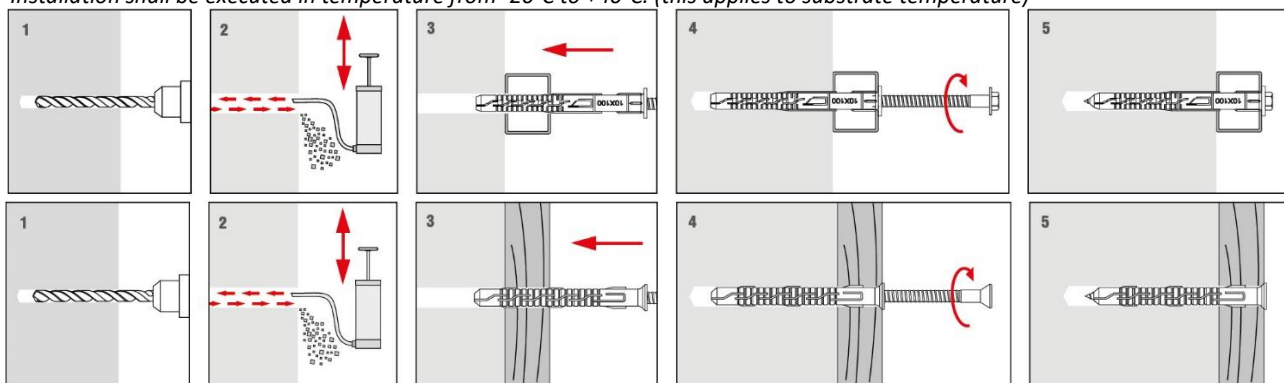
THE  
DIAMETER  
OF THE  
SCREW'S  
CORE IS  
REDUCED



Frame plugs hold European Technical Assessment: ETA-12/0272

## Section 2. METHOD OF INSTALLATION

1. Original frame plugs delivered by the manufacturer can be used only
2. Before installation identify a substrate into which the plug will be installed and compare loads which the plug will carry to resistance values given in Product Data Sheet or European Technical Assessment
3. Select an adequate length of the plug so that expansion zone is in the construction material of the wall (thickness of member being fixed matches max. usable length of the plug –  $t_{fix}$ )
4. Use proper method of drilling according to a substrate type (holes in brickwork substrate made of hollow or autoclaved aerated concrete blocks should be drilled using a drill without impact)
5. Diameter of drilled holes should match diameter of the plugs used
6. Drilled holes in substrates of solid materials should be deeper by min. 10mm compared to the plug anchorage depth
7. Clean the holes in solid materials from drilling dust and debris with a back and forth motion of the drill at a reduced speed
8. Then insert the plug into a drilled hole, and drive the screw until it completely penetrates the sleeve
9. Forceful tightening of the screw can result in its failure which is not covered by the manufacturer's warranty
10. Installation shall be executed in temperature from -20°C to +40°C. (this applies to substrate temperature)



PRODUCT DATA SHEET – KPR-FAST 10 K/KPS-FAST 10 S

Section 3. TECHNICAL DATA

| TECHNICAL PARAMETERS          |                |   |
|-------------------------------|----------------|---|
| Parameter                     | Unit           | Value   |
| Plug diameter                 | $d_k$ [mm]     | 10  |
| Hole/drill diameter           | $d_o$ [mm]     | 10  |
| Effective anchorage depth     | $h_{eff}$ [mm] | 50/70   |
| Drilled hole depth            | $h_o$ [mm]     | 60/80   |
| Drive type                    | [-]            | (TX-40/SW-13)/(TX-40)*  |
| Use categories                | [-]            | A B C D   |
| Sleeve material               | [-]            | PA – polyamide  |
| Screw material                | [-]            | Steel with applied electroplated zinc coating or with non-electrolytically applied zinc flake coating |
| European Technical Assessment | [-]            | ETA-12/0272   |

\*for KPR-FAST 10 K/KPS-FAST 10 S

\*\*cracked concrete

<sup>1)</sup> According to EN 771-1

<sup>2)</sup> According to EN 771-2

<sup>3)</sup> According to EN 771-3

<sup>4)</sup> According to EN 771-4

<sup>5)</sup> Polish clay brick; (L x W x H) = 250 x 120 x 65 mm

<sup>6)</sup> German clay brick MZ Rd 2.0/20; (L x W x H) = 250 x 120 x 65 mm

<sup>7)</sup> For example Kalksandstein KS NF 20-2.0 Vollstein according to DIN 106; (L x W x H) = 250 x 115 x 71 mm

<sup>8)</sup> For example Porotherm 18.8; (L x W x H) = 468 x 188 x 238 mm

<sup>9)</sup> For example Porotherm 25 P+W; (L x W x H) = 250 x 373 x 238 mm

<sup>10)</sup> For example MAX 250; (L x W x H) = 250 x 373 x 238 mm

<sup>11)</sup> For example HLZ Rd1 1.2/12 according to DIN 105; (L x W x H) = 308 x 240 x 238 mm

<sup>12)</sup> For example KSL-R(P)8DF Lochstein according to DIN 106; (L x W x H) = 498 x 115 x 245 mm

<sup>13)</sup> For example Hbl 2/0.8 Leichtbetonhohlstein according to DIN 18 151-100; (L x W x H) = 365 x 247 x 238 mm

<sup>14)</sup> For example TeknoAmerBlok PK17,8; (L x W x H) = 178 x 390 x 190 mm

<sup>15)</sup> For example TeknoAmerBlok PK19; (L x W x H) = 190 x 390 x 190 mm

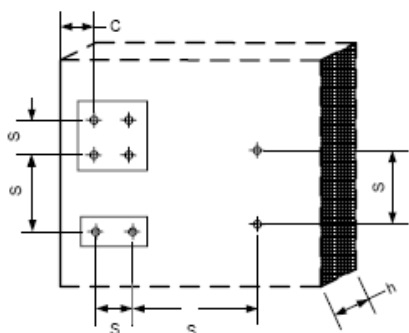
| RESISTANCE     |   |                       |                      |                                    |                 |
|----------------|---|-----------------------|----------------------|------------------------------------|-----------------|
| Use categories | Substrate type                                      | Density               | Compressive strength | Characteristic resistance [kN/pcs] |                 |
|                |   | [kg/dm <sup>3</sup> ] | [N/mm <sup>2</sup> ] | $h_{eff}=50$ mm                    | $h_{eff}=70$ mm |
| A              | Concrete C12/15                                     | $\geq 2,25$           | $f_{c,cyl} \geq 12$  | 3,0**                              | 6,0**           |
| A              | Concrete $\geq$ C16/20                              | $\geq 2,30$           | $f_{c,cyl} \geq 16$  | 4,0**                              | 8,5**           |
| A              | Thin-wall concrete elements C16/20, $h \geq 30$ mm  | $\geq 2,30$           | $f_{c,cyl} \geq 16$  | 4,0**                              | 4,0**           |
| B              | Clay brick <sup>1),5)</sup>                         | $\geq 1,70$           | $\geq 10$            | 1,5                                | 2,0             |
| B              | Clay brick <sup>1),5)</sup>                         | $\geq 1,70$           | $\geq 20$            | 2,0                                | 3,5             |
| B              | Clay brick <sup>1),6)</sup>                         | $\geq 2,00$           | $\geq 10$            | 2,0                                | 2,0             |
| B              | Clay brick <sup>1),6)</sup>                         | $\geq 2,00$           | $\geq 20$            | 3,0                                | 3,0             |
| B              | Calcium silicate brick <sup>2),7)</sup>             | $\geq 2,00$           | $\geq 20$            | 3,0                                | 3,0             |
| C              | Perforated ceramic brick <sup>1),8)</sup>           | $\geq 0,80$           | $\geq 15$            | 1,2                                | 1,0             |
| C              | Perforated ceramic brick <sup>1),9)</sup>           | $\geq 0,80$           | $\geq 15$            | 2,5                                | 1,0             |
| C              | Perforated ceramic brick <sup>1),10)</sup>          | $\geq 0,80$           | $\geq 15$            | 2,5                                | 1,0             |
| C              | Perforated ceramic brick <sup>1),11)</sup>          | $\geq 1,20$           | $\geq 12$            | 1,5                                | 1,5             |
| C              | Calcium silicate hollow block <sup>2),12)</sup>     | $\geq 1,60$           | $\geq 12$            | 2,5                                | 2,5             |
| C              | Aggregate concrete masonry units <sup>3), 14)</sup> | $\geq 0,80$           | $\geq 2$             | 1,5                                | 1,5             |
| C              | Aggregate concrete masonry units <sup>3), 15)</sup> | $\geq 1,5$            | $\geq 25$            | 3,5                                | 3,5             |
| D              | Lightweight concrete blocks (LAC) <sup>3)</sup>     | $\geq 1,0$            | $\geq 20$            | 4,0                                | 4,0             |
| D              | Autoclaved aerated concrete AAC 2 <sup>4)</sup>     | $\geq 0,35$           | $\geq 2$             | -                                  | 0,9             |
| D              | Autoclaved aerated concrete AAC 7 <sup>4)</sup>     | $\geq 0,65$           | $\geq 6,5$           | -                                  | 2,0             |

**PRODUCT DATA SHEET – KPR-FAST 10 K/KPS-FAST 10 S**

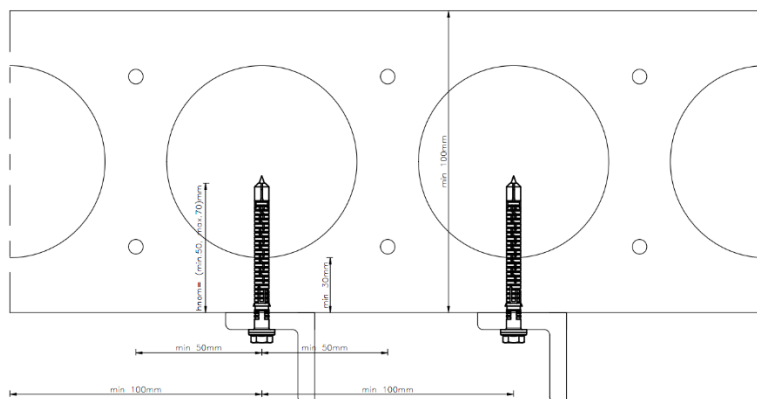
| MINIMUM THICKNESS OF MEMBER, EDGE DISTANCE AND SPACING IN CONCRETE |   |                             |                              |                        |                        |                        |
|--|---|-----------------------------|------------------------------|------------------------|------------------------|------------------------|
| ANCHOR TYPE  | Base material                             | Minimum thickness of member | Characteristic edge distance | Characteristic spacing | Minimum edge distance  | Minimum spacing        |
|  |   | $h_{min}$ [mm]              | $C_{cr,N}$ [mm]              | $S_{cr,N}$ [mm]        | $C_{min}$ [mm]         | $S_{min}$ [mm]         |
| KPR-FAST 10/50*<br>KPS-FAST 10/50*                                 | Concrete $\geq$ C16/20                    | 100                         | 100                          | 75                     | 50 for $s \geq 150$ mm | 50 for $c \geq 100$ mm |
|  | Concrete $\geq$ C12/15                    | 100                         | 140                          | 105                    | 70 for $s \geq 210$ mm | 70 for $c \geq 140$ mm |
|  | Thin wall concrete elements $\geq$ C16/20 | 30                          | 100                          | 100                    | 100                    | 100                    |
| KPR-FAST 10/70**<br>KPS-FAST 10/70**                               | Concrete $\geq$ C16/20                    | 100                         | 100                          | 110                    | 50 for $s \geq 150$ mm | 50 for $c \geq 100$ mm |
|  | Concrete $\geq$ C12/15                    | 100                         | 140                          | 150                    | 70 for $s \geq 210$ mm | 70 for $c \geq 150$ mm |
|  | Thin wall concrete elements $\geq$ C16/20 | 30                          | 100                          | 100                    | 100                    | 100                    |

\* $h_{eff}$ =50 mm / \*\* $h_{eff}$ =70 mm

**Scheme of edge distance and spacing in concrete**



**Scheme of edge distance and spacing in thin-wall concrete elements**



| MINIMUM THICKNESS OF MEMBER, EDGE DISTANCE AND SPACING IN MASONRY |   |                      |                             |                       |                 |                               |                               |
|---|---|----------------------|-----------------------------|-----------------------|-----------------|-------------------------------|-------------------------------|
| ANCHOR DIAMETER   | Podłoże   | Type of element      | Single anchor               |                       |                 | Anchor group <sup>1)</sup>    |                               |
|   |   |                      | Minimum thickness of member | Minimum edge distance | Minimum spacing | Minimum spacing               | Minimum spacing               |
|   |   |                      | $h_{min}$ [mm]              | $C_{min}$ [mm]        | $S_{min}$ [mm]  | $S_{min1}$ <sup>2)</sup> [mm] | $S_{min2}$ <sup>3)</sup> [mm] |
| Φ10   | masonry made of ceramic, calcium silicate and lightweight aggregate concrete elements | solid                | 120                         | 100                   | 100             | 100                           | 200                           |
|   |   | perforated or hollow | 180                         | 100                   | 100             | 100                           | 200                           |
|   | masonry made of autoclaved aerated concrete elements                                  | -                    | 100                         | 100                   | 100             | 100                           | 200                           |

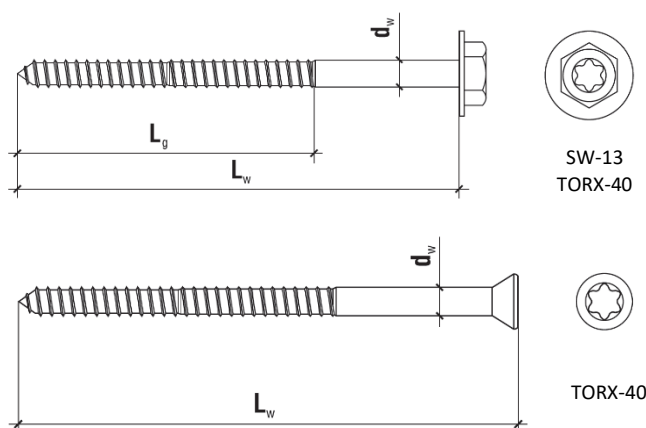
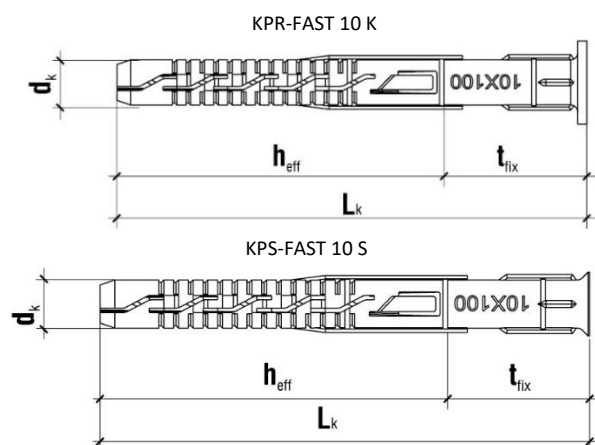
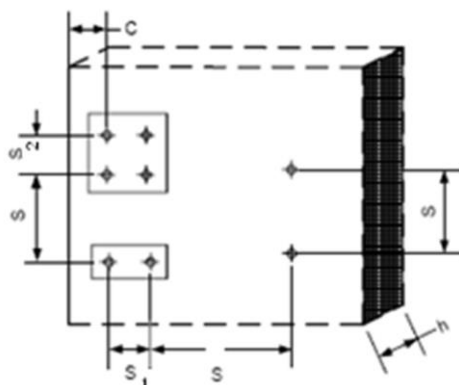
<sup>1)</sup> the design method valid for single anchor and anchor groups with two or four anchors

<sup>2)</sup> in direction perpendicular to free edge

<sup>3)</sup> in direction parallel to free edge

**PRODUCT DATA SHEET – KPR-FAST 10 K/KPS-FAST 10 S**

Scheme of edge distance and spacing in masonry



| SELECTION TABLE – KPR-FAST 10 K   |                            |                           |                    |             |                           |
|---|----------------------------|---------------------------|--------------------|-------------|---------------------------|
| Product code  | Sleeve diameter and length | Screw diameter and length | Max. usable length | Drive type  | Number of pieces in a box |
| Steel with applied electroplated zinc coating or with non-electrolytically applied zinc flake coating | $d_k \times L_k$ [mm]      | $d_w \times L_w$ [mm]     | $t_{fix}$ [mm]     | [-]         | [szt.]                    |
| KPR-FAST-10060K   | 10x60                      | 7x65                      | 10                 | TX-40/SW-13 | 50                        |
| KPR-FAST-10080K   | 10x80                      | 7x85                      | 10/30*             | TX-40/SW-13 | 50                        |
| KPR-FAST-10100K   | 10x100                     | 7x105                     | 30/50*             | TX-40/SW-13 | 50                        |
| KPR-FAST-10120K   | 10x120                     | 7x125                     | 50/70*             | TX-40/SW-13 | 50                        |
| KPR-FAST-10140K   | 10x140                     | 7x145                     | 70/90*             | TX-40/SW-13 | 50                        |
| KPR-FAST-10160K   | 10x160                     | 7x165                     | 90/110*            | TX-40/SW-13 | 50                        |
| KPR-FAST-10180K   | 10x180                     | 7x185                     | 110/130*           | TX-40/SW-13 | 25                        |
| KPR-FAST-10200K   | 10x200                     | 7x205                     | 130/150*           | TX-40/SW-13 | 25                        |
| KPR-FAST-10230K   | 10x230                     | 7x235                     | 160/180*           | TX-40/SW-13 | 25                        |
| KPR-FAST-10260K   | 10x260                     | 7x265                     | 190/210*           | TX-40/SW-13 | 25                        |
| KPR-FAST-10300K   | 10x300                     | 7x305                     | 230/250*           | TX-40/SW-13 | 25                        |

\*for  $h_{eff}=70$  mm/ $h_{eff}=50$  mm

**PRODUCT DATA SHEET – KPR-FAST 10 K/KPS-FAST 10 S**

| SELECTION TABLE – KPS-FAST 10 S   |                            |                           |                    |            |                           |
|---|----------------------------|---------------------------|--------------------|------------|---------------------------|
| Product code  | Sleeve diameter and length | Screw diameter and length | Max. usable length | Drive type | Number of pieces in a box |
| Steel with applied electroplated zinc coating or with non-electrolytically applied zinc flake coating | $d_k \times L_k$ [mm]      | $d_w \times L_w$ [mm]     | $t_{fix}$ [mm]     | [-]        | [szt.]                    |
| KPS-FAST-10060S   | 10x60                      | 7x65                      | 10                 | TX-40      | 50                        |
| KPS-FAST-10080S   | 10x80                      | 7x85                      | 10/30*             | TX-40      | 50                        |
| KPS-FAST-10100S   | 10x100                     | 7x105                     | 30/50*             | TX-40      | 50                        |
| KPS-FAST-10120S   | 10x120                     | 7x125                     | 50/70*             | TX-40      | 50                        |
| KPS-FAST-10140S   | 10x140                     | 7x145                     | 70/90*             | TX-40      | 50                        |
| KPS-FAST-10160S   | 10x160                     | 7x165                     | 90/110*            | TX-40      | 50                        |
| KPS-FAST-10180S   | 10x180                     | 7x185                     | 110/130*           | TX-40      | 25                        |
| KPS-FAST-10200S   | 10x200                     | 7x205                     | 130/150*           | TX-40      | 25                        |
| KPS-FAST-10230S   | 10x230                     | 7x235                     | 160/180*           | TX-40      | 25                        |
| KPS-FAST-10260S   | 10x260                     | 7x265                     | 190/210*           | TX-40      | 25                        |
| KPS-FAST-10300S   | 10x300                     | 7x305                     | 230/250*           | TX-40      | 25                        |

\*for  $h_{eff}=50$  mm/ $h_{eff}=70$  mm



#### Section 4. REMARKS

1. All previous versions of this Product Data Sheet shall cease to be valid
2. Data given in this Product Data Sheet is in accordance with current knowledge and published in good faith. KLIMAS Sp. z o.o. is not responsible for correctness and quality of the fixing if recommendations regarding method of use and installation are not followed.