

PRODUCT DATA SHEET – GSP10x...

Section 1. PRODUCT DESCRIPTION

FRAME PLUG WITH HEX/COUNTERSUNK HEAD SCREW  
 AND TX DRIVE – GSP10x...

Sleeves of frame plugs are made of polyamide with a specially shaped steel screw type TH (hex head) or (countersunk head) for fixing of members to all substrate types. The standard screws are made of steel with non - electrolytically applied zinc flake coating, a coating SQ Ceramic. „SQ“ or the screws can be made of stainless steel „A4“. The plastic sleeve is expanded by screwing in the specific screw which presses the sleeve against the wal of the drilling 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 GSP10x... can be installed

according to ETA-12/0272:

- 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

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



THE DIAMETER OF THE SCREW'S CORE IS REDUCED



\*Standard



SQ



A4



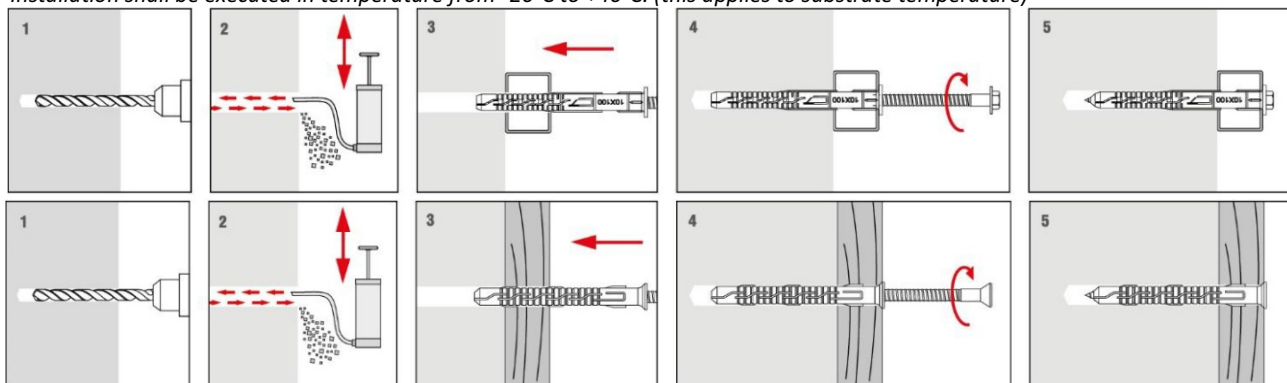
ETA 12/0272

GSP10x... GSP10x...-TH



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)



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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 non-electrolytically applied zinc flake standard coating, a coating SQ Ceramic or stainless steel
European Technical Assessment	[-]	ETA-12/0272

\*for GSP10x...

\*\*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 DINV 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

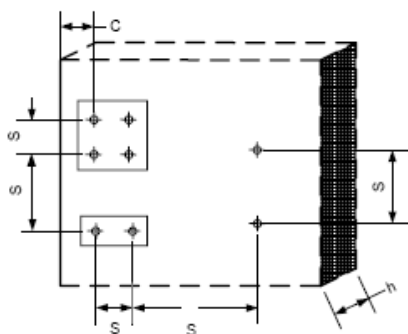
RESISTANCE					
Use categories	Substrate type	Density [kg/dm <sup>3</sup> ]	Compressive strength [N/mm <sup>2</sup> ]	Characteristic resistance [kN/pcs]	
				$h_{eff}=50$ mm	$h_{eff}=70$ mm
A	Concrete C12/15	≥ 2,25	$f_{c,cyl} \geq 12$	3,0**	6,0**
A	Concrete ≥ C16/20	≥ 2,30	$f_{c,cyl} \geq 16$	4,0**	8,5**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

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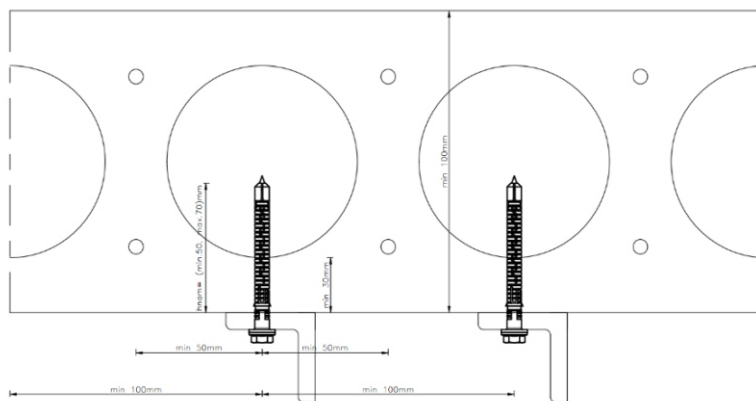
MINIMUM THICKNESS OF MEMBER, EDGE DISTANCE AND SPACING IN CONCRETE						
ANCHOR TYPE	Base material	Minimum thickness of member	Characteristic edge distance	Characteristic spacing	Minimum edge distance	Minimum spacing
		$h_{min}$ [mm]	$c_{Cr,N}$ [mm]	$s_{Cr,N}$ [mm]	$c_{min}$ [mm]	$s_{min}$ [mm]
GSP10/50* GSP10/50-TH*	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
GSP10/70** GSP10/70-TH**	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]
Ø10	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

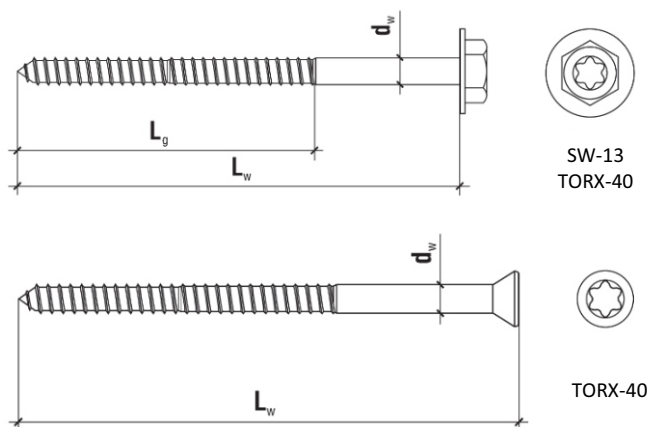
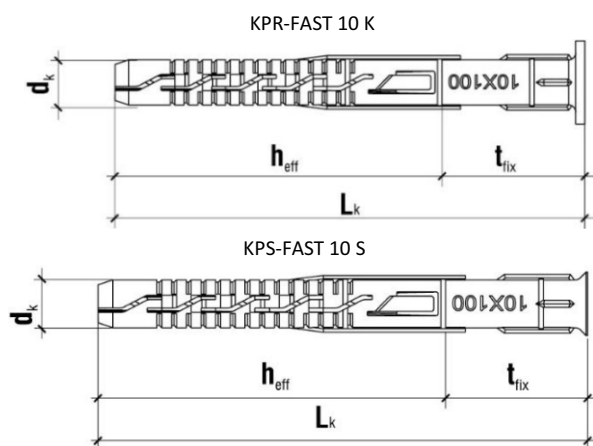
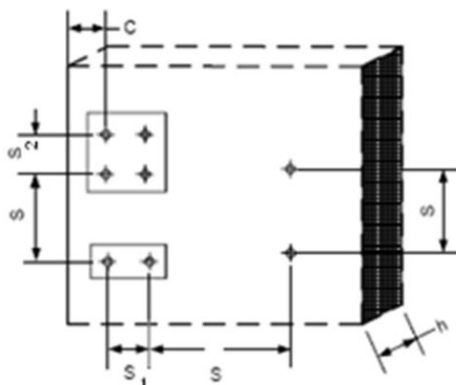
<sup>1)</sup> the design method valid for single anchor and anchor groups with two or four anchors

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

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

**PRODUCT DATA SHEET – GSP10x...**

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



SELECTION TABLE – GSP10x...-TH					
Product code	Sleeve diameter and length	Screw diameter and length	Max. usable length	Drive type	Number of pieces in a box
Steel with non-electrolytically applied zinc flake standard coating or a coating SQ ceramic	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	$t_{fix}$ [mm]	[-]	[szt.]
GSP10x60-TH*	10x60	7x65	10	TX-40/SW-13	100
GSP10x80-TH	10x80	7x85	10/30*	TX-40/SW-13	100
GSP10x100-TH	10x100	7x105	30/50*	TX-40/SW-13	50
GSP10x120-TH	10x120	7x125	50/70*	TX-40/SW-13	50
GSP10x140-TH	10x140	7x145	70/90*	TX-40/SW-13	50
GSP10x160-TH	10x160	7x165	90/110*	TX-40/SW-13	50
GSP10180-TH	10x180	7x185	110/130*	TX-40/SW-13	50
GSP10x200-TH	10x200	7x205	130/150*	TX-40/SW-13	50
GSP10x230-TH	10x230	7x235	160/180*	TX-40/SW-13	50
GSP10x260-TH	10x260	7x265	190/210*	TX-40/SW-13	50
GSP10x300-TH	10x300	7x305	230/250*	TX-40/SW-13	50

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

\* GSP10x60-TH: not available in A4

\*\*Ceramic SQ & Stainless steel A4 product available on request

**PRODUCT DATA SHEET – GSP10x...**

<b>SELECTION TABLE – GSP10x...</b>					
Product code	Sleeve diameter and length	Screw diameter and length	Max. usable length	Drive type	Number of pieces in a box
<i>Steel with with non electrolytically applied zinc flake standard coating or a coating SQ ceramic</i>	$d_k \times L_k$ [mm]	$d_w \times L_w$ [mm]	$t_{fix}$ [mm]	[-]	[szt.]
GSP10x60	10x60	7x65	10	TX-40	100
GSP10x80	10x80	7x85	10/30*	TX-40	100
GSP10x100	10x100	7x105	30/50*	TX-40	50
GSP10x120	10x120	7x125	50/70*	TX-40	50
GSP10x140	10x140	7x145	70/90*	TX-40	50
GSP10x160	10x160	7x165	90/110*	TX-40	50
GSP10x180	10x180	7x185	110/130*	TX-40	50
GSP10x200	10x200	7x205	130/150*	TX-40	50
GSP10x230	10x230	7x235	160/180*	TX-40	50
GSP10x260	10x260	7x265	190/210*	TX-40	50
GSP10x300	10x300	7x305	230/250*	TX-40	50

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

\* GSP10x60: not available in A4

\*\*Ceramic SQ & Stainless steel A4 product available on request

**Section 4. PRODUCT OVERVIEW**

<b>GSP</b>			
Coating	Standard	Ceramic SQ	Stainless steel A4
Compliant with:	ETA-12/0272		
Corrosion class:	C3	C4	C5*
Resistance to fire:	R90		
Screw Material:	Carbon Steel	Carbon Steel	Stainless Steel A4
Plug Material:	100% Nylon		

\* According to TR020

\* In some extreme conditions C5 will not be adequate.

**Section 5. 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. GECKO BV is not responsible for correctness and quality of the fixing if recommendations regarding method of use and installation are not followed.