DECLARATION OF PERFORMANCE No 34/SZ/16

1. Unique identification code of the product-type: **KPR-FAST-10; KPS-FAST-10**

2. Intended use/es: **Plastic anchors for redundant non-structural systems in concrete and masonry.**

3. Manufacturer: **Klimas Sp. z o.o.**
ul. Wincentego Witosa 135/137
Kuźnica Kiedrzyńska 42-233 Mykanów

4. Authorised representative: **not applicable**

5. System/s of AVCP: **system 2+**

6. **European Assessment Document:** **EAD 330284-00-0604**
European Technical Assessment: **ETA-12/0272 19/09/2022**
Technical Assessment Body: **Instytut Techniki Budowlanej**
Notified body/ies: **1488**

7. Declared performance/s:

Reaction to fire - Anchorages satisfy requirements for Class A1

Resistance to fire

Table C3.2: Characteristic values F_{Rk} in any load direction under fire exposure in concrete C20/25 to C50/60, no permanent centric tension load and shear load with lever arm, for fixing of façade systems

Anchor type	Fire resistence class	F_{Rk}, kN
KPR/FAST 10, KPRS/FAST 10 KPR-STRONG 10, KPS-STRONG 10 KPR-FAST 10, KPS-FAST 10	R 90	0.8

Resistance to steel failure under tension and shear loading

Table C1.1: Characteristic bending resistance of the specific screw in concrete and masonry

Anchor diameter		ϕ8	ϕ10	ϕ12	ϕ14
Characteristic bending resistance	$M^0_{Rk,s}$ [Nm]	10.5 [1] (10.2) [2]	16.8 [1] (16.3) [2]	16.2 [1] (23.4) [2]	34.4 [1] (49.8) [2]
Partial safety factor	γ_{Ms} [3]	1.25 [1]/ 1.29 [2]	1.25 [1]/ 1.29 [2]	1.25 [1]/ 1.29 [2]	1.25 [1]/ 1.29 [2]

[1] galvanised steel
[2] stainless steel
[3] in the absence of other national regulations

Table C1.2: Characteristic resistance of the screw for use in concrete – failure of expansion element (specific screw)

Anchor diameter		ϕ8	ϕ10	ϕ12	ϕ14
Characteristic tension resistance	$N^0_{Rk,s}$ [kN]	13.2 [1] (12.8) [2]	18.1 [1] (17.5) [2]	15.4 [1] (22.3) [2]	25.4 [1] (36.9) [2]
Partial safety factor	γ_{Ms} [3]	1.50 [1]/ 1.55 [2]	1.50 [1]/ 1.55 [2]	1.50 [1]/ 1.55 [2]	1.50 [1]/ 1.55 [2]
Characteristic shear resistance	$V^0_{Rk,s}$ [kN]	6.6 [1] (6.4) [2]	9.1 [1] (8.8) [2]	7.70 [1] (11.2) [2]	12.7 [1] (18.4) [2]
Partial safety factor	γ_{Ms} [3]	1.25 [1]/ 1.29 [2]	1.25 [1]/ 1.29 [2]	1.25 [1]/ 1.29 [2]	1.25 [1]/ 1.29 [2]

[1] galvanised steel
[2] stainless steel
[3] in the absence of other national regulations

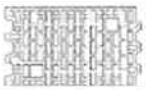
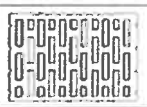
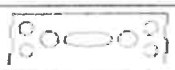
Resistance to pull-out or concrete failure under tension loading (base material group a)

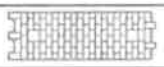
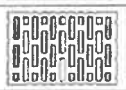
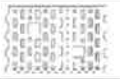
Table C2.1: Characteristic resistance for use in concrete, pull-out failure (plastic sleeve); hammer drilling

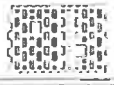
Anchor type	KPR-FAST 8/50 KPS-FAST 8/50	KPR-FAST 8/70 KPS-FAST 8/70	KPR/FAST 10 KPS/FAST 10	KPR-FAST 10/50 KPS-FAST 10/50	KPR-FAST 10/70 KPS-FAST 10/70	KPR-STRONG 10 KPS-STRONG 10	KPR-FAST 12 KPS-FAST 12	KPR-FAST 14 KPS-FAST 14
Temperature range [°C]	-20 to +80							
Concrete ≥ C16/20								
Characteristic resistance $N_{Rk,p}$ [kN]	3.5	4.5	4.0	4.0	8.5	6.0	5.0	7.5
Partial safety factor γ_{Mc} [1]	1.8							
Concrete C12/15								
Characteristic resistance $N_{Rk,p}$ [kN]	2.5	3.0	3.0	3.0	6.0	4.5	3.5	5.0
Partial safety factor γ_{Mc} [1]	1.8							
Thin-wall concrete elements C16/20, h ≥ 30 mm								
Characteristic resistance $N_{Rk,p}$ [kN]	-	-	-	4.0	4.0	-	-	-
Partial safety factor γ_{Mc} [1]	1.8							
[1] in the absence of other national regulations								

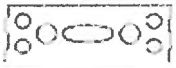
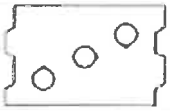
Resistance in any load direction without lever arm (base material group b, c and d)

Table C4.1: Characteristic resistance for use in masonry

Anchor type / Base material	Bulk density class [kg/dm³]	Mean compressive strength class [N/mm²]	Picture	Drill method	F_{Rk} [16] [kN]
KPR-FAST 8/50 and KPS-FAST 8/50					
Clay brick [1, 6]	≥ 2.00	≥ 10		hammer	3.0
Clay brick [1, 6]	≥ 2.00	≥ 20		hammer	3.0
Calcium silicate brick [2, 7]	≥ 2.00	≥ 20		hammer	3.0
KPR-FAST 8/70 and KPS-FAST 8/70					
Clay brick [1, 6]	≥ 2.00	≥ 10		hammer	2.5
Clay brick [1, 6]	≥ 2.00	≥ 20		hammer	3.0
Calcium silicate brick [2, 7]	≥ 2.00	≥ 20		hammer	3.0
Perforated ceramic brick [1, 9]	≥ 0.80	≥ 15		rotary drilling only	1.2
Perforated ceramic brick [1, 10]	≥ 0.80	≥ 15		rotary drilling only	1.2
Calcium silicate hollow block [2, 12]	≥ 1.60	≥ 12		rotary drilling only	2.5
Hollow lightweight aggregate concrete element [3, 13]	≥ 0.80	≥ 2		rotary drilling only	2.0
Autoclaved aerated concrete element AAC 2 [4]	≥ 0.35	≥ 2	–	rotary drilling only	0.6
Autoclaved aerated concrete element AAC 7 [4]	≥ 0.65	≥ 6.5	–	rotary drilling only	2.0

Anchor type / Base material	Bulk density class [kg/dm³]	Mean compressive strength class [N/mm²]	Picture	Drill method	F_{Rk} [16] [kN]
KPR-FAST 10/50 and KPS-FAST 10/50					
Clay brick [1, 5]	≥ 1.70	≥ 10		hammer	1.5
Clay brick [1, 5]	≥ 1.70	≥ 20		hammer	2.0
Clay brick [1, 6]	≥ 2.00	≥ 10		hammer	2.0
Clay brick [1, 6]	≥ 2.00	≥ 20		hammer	3.0
Calcium silicate brick [2, 7]	≥ 2.00	≥ 20		hammer	3.0
Perforated ceramic brick [1, 8]	≥ 0.80	≥ 15		rotary	1.2
Perforated ceramic brick [1, 9]	≥ 0.80	≥ 15		rotary	2.5
Perforated ceramic brick [1, 10]	≥ 0.80	≥ 15		rotary	2.5
Perforated ceramic brick [1, 11]	≥ 1.20	≥ 12		rotary	1.5
Calcium silicate hollow block [2, 12]	≥ 1.60	≥ 12		rotary	2.5
Lightweight concrete blocks [3]	≥ 0.80	≥ 2		rotary	1.5
Aggregate concrete masonry units [3, 14]	≥ 1.5	≥ 25		rotary	3.5
Aggregate concrete masonry units [3, 15]	≥ 1.0	≥ 20		rotary	4.0

Anchor type / Base material	Bulk density class [kg/dm³]	Mean compressive strength class [N/mm²]	Picture	Drill method	F_{Rk} [16] [kN]
KPR-FAST 10/70 and KPS-FAST 10/70					
Clay brick [1, 5]	≥ 1.70	≥ 10		hammer	2.0
Clay brick [1, 5]	≥ 1.70	≥ 20		hammer	3.5
Clay brick [1, 6]	≥ 2.00	≥ 10		hammer	2.0
Clay brick [1, 6]	≥ 2.00	≥ 20		hammer	3.0
Calcium silicate brick [2, 7]	≥ 2.00	≥ 20		hammer	3.0
Perforated ceramic brick [1, 8]	≥ 0.80	≥ 15		rotary	1.0
Perforated ceramic brick [1, 9]	≥ 0.80	≥ 15		rotary	1.0
Perforated ceramic brick [1, 10]	≥ 0.80	≥ 15		rotary	1.0
Perforated ceramic brick [1, 11]	≥ 1 20	≥ 12		rotary	1.5
Calcium silicate hollow block [2, 12]	≥ 1 60	≥ 12		rotary	2.5
Lightweight concrete blocks [3]	≥ 0.80	≥ 2		rotary	1.5
Aggregate concrete masonry units [3, 14]	≥ 1.5	≥ 25		rotary	3.5
Aggregate concrete masonry units [3, 15]	≥ 1.0	≥ 20		rotary	4.0
Autoclaved aerated concrete element AAC 2 [4]	≥ 0.35	≥ 2	–	rotary	0.9
Autoclaved aerated concrete element AAC 7 [4]	≥ 0.65	≥ 6.5	–	rotary	2.0

Anchor type / Base material	Bulk density class [kg/dm³]	Mean compressive strength class [N/mm²]	Picture	Drill method	F_{Rk} [16] [kN]
KPR-FAST 12 and KPS-FAST 12					
Clay brick [1], [5]	≥ 1.70	≥ 10		hammer	2.5
Clay brick [1], [5]	≥ 1.70	≥ 20		hammer	3.5
Clay brick [1], [6]	≥ 2.00	≥ 10		hammer	3.5
Clay brick [1], [6]	≥ 2.00	≥ 20		hammer	3.5
Calcium silicate brick [2], [7]	≥ 2.00	≥ 20		hammer	3.5
Perforated ceramic brick [1], [11]	≥ 1.20	≥ 12		rotary	2.0
Calcium silicate hollow block [2], [12]	≥ 1.60	≥ 12		rotary	3.0
Hollow lightweight aggregate concrete element [3], [13]	≥ 0.80	≥ 2		rotary	2.0
Autoclaved aerated concrete element AAC 2 [4]	≥ 0.35	≥ 2	–	rotary	0.75
Autoclaved aerated concrete element AAC 7 [4]	≥ 0.65	≥ 6.5	–	rotary	3.0

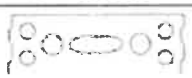
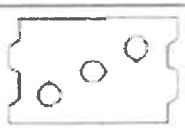
Anchor type / Base material	Bulk density class [kg/dm³]	Mean compressive strength class [N/mm²]	Picture	Drill method	F_{Rk} [16] [kN]
KPR-FAST 14 and KPS-FAST 14					
Clay brick [1], [5]	≥ 1.70	≥ 10		hammer	4.0
Clay brick [1], [5]	≥ 1.70	≥ 20		hammer	4.0
Clay brick [1], [6]	≥ 2.00	≥ 10		hammer	4.0
Clay brick [1], [6]	≥ 2.00	≥ 20		hammer	4.0
Calcium silicate brick [2], [7]	≥ 2.00	≥ 20		hammer	4.0
Perforated ceramic brick [1], [11]	≥ 1.20	≥ 12		rotary	2.0
Calcium silicate hollow block [2], [12]	≥ 1.60	≥ 12		rotary	3.5
Hollow lightweight aggregate concrete element [3], [13]	≥ 0.80	≥ 2		rotary	2.0
Autoclaved aerated concrete element AAC 2 [4]	≥ 0.35	≥ 2	–	rotary	0.9
Autoclaved aerated concrete element AAC 7 [4]	≥ 0.65	≥ 6.5	–	rotary	3.0
Partial safety factor γ_{Mm} [17]	2.5 / 2.0				

Table B2: Minimum thickness of member, edge distance and spacing in concrete

Anchor type	Base material	h_{min} [mm]	$c_{cr,N}$ [mm]	$s_{cr,N}$ [mm]	c_{min} [mm]	s_{min} [mm]
KPR-FAST 8/50 KPS-FAST 8/50	Concrete ≥ C16/20	100	70	70	50	50
	Concrete ≥ C12/15	100	100	95	70	70
KPR-FAST 8/70 KPS-FAST 8/70	Concrete ≥ C16/20	100	100	80	60	60
	Concrete ≥ C12/15	100	140	115	80	80
KPR/FAST 10 KPS/FAST 10	Concrete ≥ C16/20	100	100	75	60	60
	Concrete ≥ C12/15	100	140	105	80	80
KPR-FAST10/50 KPS-FAST10/50	Concrete ≥ C16/20	100	100	75	50 for s ≥ 150 mm	50 for c ≥ 100 mm
	Concrete ≥ C12/15	100	140	105	70 for s ≥ 210 mm	70 for c ≥ 140 mm
	Thin wall concrete elements ≥ C16/20	30	100	100	100	100
KPR-FAST10/70 KPS-FAST10/70	Concrete ≥ C16/20	100	100	110	50 for s ≥ 150 mm	50 for c ≥ 100 mm
	Concrete ≥ C12/15	100	140	150	70 for s ≥ 210 mm	70 for c ≥ 150 mm
	Thin wall concrete elements ≥ C16/20	30	100	100	100	100
KPR-FAST 12 KPS-FAST 12	Concrete ≥ C16/20	100	100	85	100	100
	Concrete ≥ C12/15	100	140	120	140	140
KPR-FAST 14 KPS-FAST 14	Concrete ≥ C16/20	100	100	115	100	100
	Concrete ≥ C12/15	100	140	160	140	140

Table B3: Minimum thickness of member, edge distance and spacing in masonry

Anchor diameter	Base material	Type of element	Single anchor			Anchor group [1]	
			h_{min} [mm]	c_{min} [mm]	s_{min} [mm]	s_{min1} [2] [mm]	s_{min2} [3] [mm]
ϕ8	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
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
ϕ12	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
ϕ14	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

[1] the design method valid for single anchor and anchor groups with two or four anchors
[2] in direction perpendicular to free edge
[3] in direction parallel to free edge

Table C5.1: Displacements under tension and shear loading in masonry

Anchor type	Base material	Tension load			Shear load		
		F [kN]	δ_{N0} [mm]	$\delta_{N\infty}$ [mm]	F [kN]	δ_{N0} [mm]	$\delta_{N\infty}$ [mm]
KPR-FAST 8/50	Clay brick [1), 6)]	0.86	1.71	3.42	0.86	1.71	3.42
KPS-FAST 8/50	Calcium silicate brick [3), 7)]	0.86	0.19	0.38	0.86	0.19	0.38
KPR-FAST 8/70 KPS-FAST 8/70	Clay brick [1), 6)]	0.86	0.35	0.70	0.86	0.35	0.70
	Calcium silicate brick [2), 7)]	0.86	0.20	0.40	0.86	0.20	0.40
	Perforated ceramic brick [1), 9)]	0.34	0.23	0.46	0.34	0.23	0.46
	Perforated ceramic brick [1), 10)]	0.34	0.23	0.46	0.34	0.23	0.46
	Calcium silicate hollow block [2), 12)]	0.71	0.31	0.62	0.71	0.31	0.62
	Hollow lightweight aggregate concrete element [3), 13)]	0.43	1.10	2.20	0.57	1.10	2.20
	Autoclaved aerated concrete element AAC 2 [4)]	0.21	0.42	0.84	0.21	0.42	0.84
	Autoclaved aerated concrete element AAC 7 [4)]	0.71	0.30	0.60	0.71	0.30	0.60

Anchor type	Base material	Tension load			Shear load		
		F [kN]	δ_{N0} [mm]	$\delta_{N\infty}$ [mm]	F [kN]	δ_{N0} [mm]	$\delta_{N\infty}$ [mm]
KPR/FAST 10 KPS/FAST 10	Clay brick [1), 5)]	1.00	0.20	0.40	1.00	0.83	1.25
	Clay brick [1), 6)]	1.00	1.07	2.13	1.00	0.83	1.25
	Calcium silicate brick [3), 7)]	1.00	0.09	0.18	1.00	0.83	1.25
	Perforated ceramic brick [1), 9)]	0.30	0.73	1.46	0.26	0.51	0.77
	Perforated ceramic brick [1), 10)]	0.30	0.73	1.46	0.26	0.51	0.77
	Perforated ceramic brick [1), 11)]	0.60	1.38	2.75	0.57	1.14	1.71
	Calcium silicate hollow block [2), 12)]	0.70	0.55	1.09	0.71	1.43	2.14
	Hollow lightweight aggregate concrete element [3), 13)]	0.43	1.35	2.70	0.57	1.14	1.71
	Autoclaved aerated concrete element AAC 2 [4)]	0.20	0.15	0.29	0.21	0.43	0.64
	Autoclaved aerated concrete element AAC 7 [4)]	0.50	0.02	0.04	0.54	1.07	1.61
KPR-STRONG 10	Clay brick [1), 6)]	1.00	1.10	2.20	1.00	0.83	1.25
KPS- STRONG 10	Calcium silicate brick [2), 7)]	1.00	0.15	0.30	1.00	0.83	1.25

Anchor type	Base material	Tension load			Shear load		
		F [kN]	δ_{N0} [mm]	$\delta_{N\infty}$ [mm]	F [kN]	δ_{N0} [mm]	$\delta_{N\infty}$ [mm]
KPR-FAST 10/50 KPS-FAST 10/50	Clay brick [1), 5)]	0.6	0.1	0.2	0.6	0.9	0.6
	Clay brick [1), 6)]	0.9	0.5	1.0	0.7	1.1	0.7
	Calcium silicate brick [3), 7)]	0.9	0.3	0.6	0.7	1.1	0.7
	Perforated ceramic brick [1), 8)]	0.7	0.6	1.2	0.7	0.6	0.9
	Perforated ceramic brick [1), 9)]	0.7	1.0	2.0	0.7	0.5	0.8
	Perforated ceramic brick [1), 10)]	0.7	1.0	2.0	0.7	0.5	0.8
	Perforated ceramic brick [1), 11)]	0.4	0.5	1.0	0.4	0.4	0.6
	Calcium silicate hollow block [2), 12)]	0.7	0.6	1.2	0.7	0.5	0.8
	Lightweight concrete blocks [3)]	0.4	1.1	2.2	0.4	1.0	1.5
	Aggregate concrete masonry units [3), 14)]	1.0	0.4	0.8	1.0	0.5	0.75
	Aggregate concrete masonry units [3), 15)]	1.1	0.4	0.8	1.1	0.5	0.75

Anchor type	Base material	Tension load			Shear load		
		F [kN]	δ_{N0} [mm]	$\delta_{N\infty}$ [mm]	F [kN]	δ_{N0} [mm]	$\delta_{N\infty}$ [mm]
KPR-FAST 10/70 KPS-FAST 10/70	Clay brick [1), 5)]	1.0	0.3	0.6	1.0	0.8	1.2
	Clay brick [1), 6)]	0.9	0.8	1.6	0.9	0.7	1.1
	Calcium silicate brick [3), 7)]	0.9	0.2	0.4	0.9	0.7	1.1
	Perforated ceramic brick [1), 8)]	0.3	0.5	1.0	0.3	0.4	0.6
	Perforated ceramic brick [1), 9)]	0.3	0.6	1.2	0.3	0.4	0.6
	Perforated ceramic brick [1), 10)]	0.3	0.6	1.2	0.3	0.4	0.6
	Perforated ceramic brick [1), 11)]	0.4	0.6	1.2	0.4	0.4	0.6
	Calcium silicate hollow block [2), 12)]	0.7	0.7	1.4	0.7	1.4	2.1
	Lightweight concrete blocks [3)]	0.4	1.0	2.0	0.4	1.0	1.5
	Autoclaved aerated concrete element AAC 2 [4)]	0.3	0.2	0.4	0.3	0.5	0.8
	Autoclaved aerated concrete element AAC 7 [4)]	0.7	0.3	0.6	0.7	0.7	1.1
	Aggregate concrete masonry units [3), 14)]	1.0	0.4	0.8	1.0	0.5	0.75
	Aggregate concrete masonry units [3), 15)]	1.1	0.4	0.8	1.1	0.6	0.9

Anchor type	Base material	Tension load			Shear load		
		F [kN]	δ_{N0} [mm]	$\delta_{N\infty}$ [mm]	F [kN]	δ_{N0} [mm]	$\delta_{N\infty}$ [mm]
KPR-FAST 12 KPS-FAST 12	Clay brick [1), 6)]	1.00	0.36	0.72	1.00	0.83	1.25
	Clay brick [1), 6)]	1.00	0.27	0.54	1.00	0.83	1.25
	Calcium silicate brick [2), 7)]	1.00	0.28	0.56	1.00	0.83	1.25
	Perforated ceramic brick [1), 11)]	0.57	0.72	1.44	0.57	1.14	1.71
	Calcium silicate hollow block [2), 12)]	0.86	0.43	0.86	0.86	1.71	2.57
	Hollow lightweight aggregate concrete element [3), 13)]	0.43	0.06	0.12	0.57	1.14	1.71
	Autoclaved aerated concrete element AAC 2 [4)]	0.27	0.39	0.78	0.27	0.54	0.80
	Autoclaved aerated concrete element AAC 7 [4)]	1.07	0.36	0.72	1.07	2.14	3.21
KPR-FAST 14 KPS-FAST 14	Clay brick [1), 6)]	1.14	0.28	0.56	1.14	0.95	1.43
	Clay brick [1), 6)]	1.14	0.27	0.54	1.14	0.95	1.43
	Calcium silicate brick [2), 7)]	1.14	0.09	0.18	1.14	0.95	1.43
	Perforated ceramic brick [1), 11)]	0.57	0.13	0.26	0.57	1.14	1.71
	Calcium silicate hollow block [2), 12)]	1.00	0.16	0.32	1.00	2.00	3.00
	Hollow lightweight aggregate concrete element [3), 13)]	0.57	0.09	0.18	0.57	1.14	1.71
	Autoclaved aerated concrete element AAC 2 [4)]	0.32	0.39	0.78	0.32	0.64	0.96
	Autoclaved aerated concrete element AAC 7 [4)]	1.07	0.17	0.34	1.07	2.14	3.21

Durability – corrosion of metal parts

Use conditions (environmental conditions):

- Structures subject to dry internal conditions (zinc coated steel, stainless steel).
- Structures subject to external atmospheric exposure, if anchor is not directly subjected to this exposure, i.e. external cladding elements screen the anchor, and the head of screw is additionally protected by permanently elastic coating which precludes corrosion from occurring and prevents moisture from entering into plastic sleeve (zinc coated steel).
- Structures subject to external atmospheric exposure including industrial and marine environment (stainless steel).
- Structures subject to permanently damp internal condition, if no particular aggressive conditions exist (stainless steel).

  Note: Particular aggressive conditions are e.g. permanent, alternating immersion in seawater or the splash zone of seawater, chloride atmosphere of indoor swimming pools or atmosphere with extreme chemical pollution (e.g. in desulphurization plants or road tunnels where de-icing materials are used).

Durability – high alkalinity of plastic sleeve

No influence of high alkalinity

8. Appropriate Technical Documentation and/or Specific Technical Documentation: not applicable

The performance of the product identified above is in conformity with the set of declared performance/s. This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of the manufacturer by:

Kuźnica Kiedrzyńska
31-10-2024

[place]
[date of issue]

Kierownik działu technicznego
Adam Szczepanowski
-415 -

[name]
[signature]