Declarația de performanță
DoP-13/0455-R-KEX-II

1. Cod unic de identificare al produsului-tip:

R-KEX-II

Fotografia reprezintă un exemplu de produs dintr-un anumit tip de marfă

2. Utilizare (utilizări) preconizată (preconizate):

Tip general	Ancore lipite
a se aplica la	Ancore legate cu tije filetate, tije cu filet interior și bare de armare pentru realizarea fixărilor în beton.
opțiune / categorie	
sarcina	statică sau quasi-static
materiale	R-KEX-II sunt ancore lipite (tip injecție) constând dintr-un cartuș de mortar injectabil, folosind un pistol aplicator echipat cu o duza specială de amestecare și un element din oțel. Elementul de oțel constă din: (a) tije de ancoră filetate M8 până la M30 din oțel carbon zincat, oțel carbon cu strat de zinc, oțel inoxidabil, oțel inoxidabil de înaltă rezistență la coroziune, cu piuliță și șaiba hexagonală; cu filet interior M6 / Ø10 până la M16 / Ø24 din oțel carbon zincat, oțel inoxidabil, oțel inoxidabil cu rezistență ridicată la coroziune, dimensiuni între 8 și 32 mm.

3. Fabricant:

Rawlplug S.A.
ul. Kwidzyńska 6, 51-416 Wrocław, PL
www.rawlplug.com

4. Sistemul (sistemele) de evaluare și de verificare a constanței performanței:

Sistemul 1

5. Documentul de evaluare european:

EAD 330499-00-0601 Articole de fixare îmbinate pentru utilizare în beton
Categorie utilitare reprezentative: 1, 2

6. Evaluarea tehnică europeană:

ETA-13/0455 ediția din data de 2018-08-30

7. Organismul de evaluare tehnică:

Instytut Techniki Budowlanej

8. Organism (organisme) notificat(e):

Instytut Techniki Budowlanej în temeiul:

- o evaluare a performanței produsului de construcții, efectuată pe baza testărilor (inclusiv a eșantionării), a calculelor, a valorilor tabulare sau a documentației descriptive a produsului
- inspectarea inițială a unității de producție și a controlului producției în fabrică
- supravegherea, evaluarea și examinarea continuă a controlului producției în fabrică

a fost eliberat certificatul **1488-CPR-0696/W**

9. Performanța (performanțe) declarată (declarate):

Caracteristica de bază:

Fişa tehnică	Cerinţe de bază conform Regulamentului referitor la Produsele pentru Constructii CPR		Observaţii:
ETA-13/0455	[1]	Rezistență mecanică și stabilitate	Proprietăți declarate pe site 2
	[4]	Siguranța în utilizare	Aceste criterii sunt importante pentru [1]

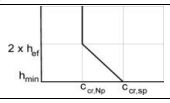
Table C1-1: Characteristic values for tension load for threaded rod in non-cracked concrete

Size			M8	M10	M12	M16	M20	M24	M30
Steel failure									
Steel, property class 5.8									
Characteristic resistance	$N_{Rk,s}$	[kN]	18	29	42	78	122	176	280
Partial safety factor[1)]	γ_{Ms}	[-]	1,50						
Steel, property class 8.8									
Characteristic resistance	$N_{Rk,s}$	[kN]	29	46	67	126	196	282	449
Partial safety factor[1)]	γ_{Ms}	[-]	1,50						
Steel, property class 10.9									
Characteristic resistance	$N_{Rk,s}$	[kN]	37	58	84	157	245	353	561
Partial safety factor[1)]	γ_{Ms}	[-]	1,40						
Steel, property class 12.9									
Characteristic resistance	$N_{Rk,s}$	[kN]	44	70	101	188	294	424	673
Partial safety factor[1)]	γ_{Ms}	[-]	1,40						
Stainless steel, property class A4-70									
Characteristic resistance	$N_{Rk,s}$	[kN]	26	41	59	110	171	247	393
Partial safety factor[1)]	γ_{Ms}	[-]	1,87						
Stainless steel, property class A4-80									
Characteristic resistance	$N_{Rk,s}$	[kN]	29	46	67	126	196	282	448
Partial safety factor[1)]	γ_{Ms}	[-]	1,60						
High corrosion resistant steel, property class 70									
Characteristic resistance	$N_{Rk,s}$	[kN]	25	40	59	110	171	247	393
Partial safety factor[1)]	γ_{Ms}	[-]	1,87						
Combined pull-out and concrete cone failure in non-cracked concrete C20/25 – hammer drilling									
Characteristic bond resistance temperature range -40°C / +40°C [2)]	$\tau_{Rk,ucr}$	[N/mm²]	17,0	16,0	17,0	15,0	15,0	13,0	12,0
Characteristic bond resistance temperature range -40°C / +80°C [2)]	$\tau_{Rk,ucr}$	[N/mm²]	15,0	14,0	15,0	13,0	13,0	12,0	10,0
Increasing factor for C30/37	γ_c	[-]	1,04						
Increasing factor for C40/50			1,07						
Increasing factor for C50/60			1,09						
Combined pull-out and concrete cone failure in non-cracked concrete C20/25 – diamond core drilling									
Characteristic bond resistance temperature range -40°C / +40°C [2)]	$\tau_{Rk,ucr}$	[N/mm²]	14,0	15,0	16,0	14,0	14,0	12,0	11,0
Characteristic bond resistance temperature range -40°C / +80°C [2)]	$\tau_{Rk,ucr}$	[N/mm²]	12,0	14,0	14,0	13,0	13,0	11,0	10,0
Increasing factor for C30/37	ψ_c	[-]	1,04						
Increasing factor for C40/50			1,07						
Increasing factor for C50/60			1,09						

Note: Design method according to TR 029 and FprEN 1992-4:2016.

[1)] In the absence of other national regulation. [2)] See: Annex B1.

Table C1-2: Characteristic values for tension load for threaded rod in non-cracked concrete

Size			M8	M10	M12	M16	M20	M24	M30
Concrete cone failure in non-cracked concrete									
Factor for non-cracked concrete	k_{ucr} [1)]	[-]	10,1						
	$k_{ucr,N}$	[-]	11,0						
Edge distance	$c_{cr,N}$	[mm]	$1,5 \cdot h_{ef}$						
Spacing	$s_{cr,N}$	[mm]	$3,0 \cdot h_{ef}$						
Splitting failure									
Edge distance	$c_{cr,sp}$ for h_{min}	[mm]	$2,0 \cdot h_{ef}$					$1,5 \cdot h_{ef}$	
	$c_{cr,sp}$ for $h_{min} < h$ [2)] $< 2 \cdot h_{ef}$ ($c_{cr,sp}$ from linear interpolation)								
	$c_{cr,sp}$ for h [2)] $\geq 2 \cdot h_{ef}$		$c_{cr,N}$						
Spacing	$s_{cr,sp}$	[mm]	$2,0 \cdot c_{cr,sp}$						
Installation sensitivity factors for combined pull-out, concrete cone and splitting failure									
Installation sensitivity factor for in use category I1[3)]	γ_{inst}	[-]	1,0						
Installation sensitivity factor for in use category I2[3)]			1,2						

Note: Design method according to TR 029 and FprEN 1992-4:2016.

[1)] Parameter for design acc. to FprEN 1992-4:2016. [2)] h – concrete member thickness.

[3)] In the absence of other national regulation.

Table C2-1: Characteristic values for tension loads for threaded rod in cracked concrete

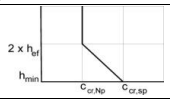
Size			M8	M10	M12	M16	M20	M24	M30
Steel failure									
Steel, property class 5.8									
Characteristic resistance	$N_{Rk,s}$	[kN]	18	29	42	78	122	176	280
Partial safety factor[1)]	γ_{Ms}	[-]	1,50						
Steel, property class 8.8									
Characteristic resistance	$N_{Rk,s}$	[kN]	29	46	67	125	196	282	448
Partial safety factor[1)]	γ_{Ms}	[-]	1,50						
Steel, property class 10.9									
Characteristic resistance	$N_{Rk,s}$	[kN]	36	58	84	157	245	353	561
Partial safety factor[1)]	γ_{Ms}	[-]	1,40						
Steel, property class 12.9									
Characteristic resistance	$N_{Rk,s}$	[kN]	43	69	101	188	294	423	673
Partial safety factor[1)]	γ_{Ms}	[-]	1,40						
Stainless steel, property class A4-70									
Characteristic resistance	$N_{Rk,s}$	[kN]	25	40	59	109	171	247	392
Partial safety factor[1)]	γ_{Ms}	[-]	1,87						
Stainless steel, property class A4-80									
Characteristic resistance	$N_{Rk,s}$	[kN]	29	46	67	125	196	282	448
Partial safety factor[1)]	γ_{Ms}	[-]	1,60						
High corrosion resistant steel, property class 70									
Characteristic resistance	$N_{Rk,s}$	[kN]	25	40	59	109	171	247	392
Partial safety factor[1)]	γ_{Ms}	[-]	1,87						
Combined pull-out and concrete cone failure in cracked concrete C20/25 – hammer drilling									
Characteristic bond resistance temperature range -40°C / +40°C [2)]	$\tau_{Rk,cr}$	[N/mm²]	8,0	8,0	7,0	7,0	7,0	6,0	5,0
Characteristic bond resistance temperature range -40°C / +80°C [2)]	$\tau_{Rk,cr}$	[N/mm²]	7,0	7,0	6,0	6,0	6,0	5,0	4,0
Increasing factor for C30/37	ψ_c	[-]	1,00						
Increasing factor for C40/50			1,00						
Increasing factor for C50/60			1,00						
Combined pull-out and concrete cone failure in cracked concrete C20/25 – diamond core drilling									
Characteristic bond resistance temperature range -40°C / +40°C [2)]	$\tau_{Rk,cr}$	[N/mm²]	5,5	7,0	8,0	7,0	8,0	7,0	4,0
Characteristic bond resistance temperature range -40°C / +80°C [2)]	$\tau_{Rk,cr}$	[N/mm²]	5,0	6,5	7,5	6,5	7,0	6,5	3,5
Increasing factor for C30/37	γ_c	[-]	1,00						
Increasing factor for C40/50			1,00						
Increasing factor for C50/60			1,00						

Note: Design method according to TR 029 and FprEN 1992-4:2016.

[1)] In the absence of other national regulation.

[2)] See: Annex B1.

Table C2-2: Characteristic values for tension load for threaded rod in cracked concrete

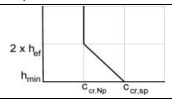
Size			M8	M10	M12	M16	M20	M24	M30
Concrete cone failure in cracked concrete									
Factor for cracked concrete	k_{cr} [1)]	[-]	7.2						
	$k_{cr,N}$	[-]	7,7						
Edge distance	$c_{cr,N}$	[mm]	$1,5 \cdot h_{ef}$						
Spacing	$s_{cr,N}$	[mm]	$3,0 \cdot h_{ef}$						
Splitting failure									
Edge distance	$c_{cr,sp}$ for h_{min}	[mm]	$2,0 \cdot h_{ef}$					$1,5 \cdot h_{ef}$	
	$c_{cr,sp}$ for $h_{min} < h$ [2)] $< 2 \cdot h_{ef}$ ($c_{cr,sp}$ from linear interpolation)								
	$c_{cr,sp}$ for h [2)] $\geq 2 \cdot h_{ef}$		$c_{cr,N}$						
Spacing	$s_{cr,sp}$	[mm]	$2,0 \cdot c_{cr,sp}$						
Installation sensitivity factors for combined pull-out, concrete cone and splitting failure									
Installation sensitivity factor for in use category I1[3)]	γ_{inst}	[-]	1,0						
Installation sensitivity factor for in use category I2[3)]			1,2						

Note: Design method according to TR 029 and FprEN 1992-4:2016.

[1)] Parameter for design acc. to FprEN 1992-4:2016. [2)] h – concrete member thickness.

[3)] In the absence of other national regulation .

Table C3: Characteristic values for tension load for rod with inner thread in non-cracked concrete

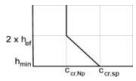
Size			M6 /Ø10	M8/ Ø12	M10/ Ø16	M12/ Ø16	M16/ Ø24
Steel failure							
Steel, property class 5.8							
Characteristic resistance	$N_{Rk,s}$	[kN]	10	18	29	42	78
Partial safety factor[1)]	γ_{Ms}	[-]	1,50				
Steel, property class 8.8							
Characteristic resistance	$N_{Rk,s}$	[kN]	16	29	46	67	125
Partial safety factor[1)]	γ_{Ms}	[-]	1,50				
Stainless steel, property class A4-70							
Characteristic resistance	$N_{Rk,s}$	[kN]	14	25	40	59	109
Partial safety factor[1)]	γ_{Ms}	[-]	1,87				
Stainless steel, property class A4-80							
Characteristic resistance	$N_{Rk,s}$	[kN]	16	29	46	67	125
Partial safety factor[1)]	γ_{Ms}	[-]	1,60				
High corrosion resistant steel, property class 70							
Characteristic resistance	$N_{Rk,s}$	[kN]	14	25	40	59	109
Partial safety factor[1)]	γ_{Ms}	[-]	1,87				
Combined pull-out and concrete cone failure in non-cracked concrete C20/25 – hammer drilling							
Characteristic bond resistance temperature range -40°C / +40°C [2)]	$\tau_{Rk,ucr}$	[N/mm²]	8,0	12,0	12,0	11,0	10,0
Characteristic bond resistance temperature range -40°C / +80°C [2)]	$\tau_{Rk,ucr}$	[N/mm²]	7,5	11,0	11,0	10,0	9,0
Increasing factor for C30/37	ψ_c	[-]	1,04				
Increasing factor for C40/50			1,07				
Increasing factor for C50/60			1,09				
Resistance to concrete cone failure in non-cracked concrete							
Factor for non-cracked concrete	k_{ucr} [3)]	[-]	10,1				
	$k_{ucr,N}$	[-]	11,0				
Edge distance	$c_{cr,N}$	[mm]	$1,5 \cdot h_{ef}$				
Spacing	$s_{cr,N}$	[mm]	$3,0 \cdot h_{ef}$				
Splitting failure							
Edge distance	$c_{cr,sp}$ for h_{min}	[mm]	$2,0 \cdot h_{ef}$				$1,5 \cdot h_{ef}$
	$c_{cr,sp}$ for $h_{min} < h$[4)] $< 2 \cdot h_{ef}$ ($c_{cr,sp}$ from linear interpolation)						
	$c_{cr,sp}$ for h[4)] $\geq 2 \cdot h_{ef}$		$c_{cr,N}$				
Spacing	$s_{cr,sp}$	[mm]	$2,0 \cdot c_{cr,sp}$				
Installation sensitivity factors for combined pull-out, concrete cone and splitting failure							
Installation safety factors for use category I1[1)]	γ_{inst}	[-]	1,2				
Installation safety factors for use category I2[1)]			1,2				

Note: Design method according to TR 029 and FprEN 1992-4:2016.

[1)] In the absence of other national regulation. [2)] See: Annex B1. [3)] Parameter for design acc. to FprEN 1992-4:2016.

[4)] h – concrete member thickness.

Table C4: Characteristic values for tension load for rebar in non-cracked concrete

Size			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32
Steel failure										
Characteristic resistance	$N_{Rk,s}$	[kN]	A_s [5] · f_{uk}							
Partial safety factor [1]	γ_{Ms}	[-]	1,40							
Combined pull-out and concrete cone failure in non-cracked concrete C20/25 – hammer drilling										
Characteristic bond resistance temperature range -40°C / +40°C [2]	$\tau_{Rk,ucr}$	[N/mm²]	11,0	12,0	12,0	10,0	12,0	12,0	9,5	8,5
Characteristic bond resistance temperature range -40°C / +80°C [2]	$\tau_{Rk,ucr}$	[N/mm²]	10,0	11,0	11,0	9,0	11,0	11,0	8,5	7,5
Increasing factor for C30/37	ψ_c	[-]	1,04							
Increasing factor for C40/50			1,07							
Increasing factor for C50/60			1,09							
Combined pull-out and concrete cone failure in non-cracked concrete C20/25 – diamond core drilling										
Characteristic bond resistance temperature range -40°C / +40°C [2]	$\tau_{Rk,ucr}$	[N/mm²]	9,5	11,0	10,0	10,0	10,5	11,0	9,0	8,0
Characteristic bond resistance temperature range -40°C / +80°C [2]	$\tau_{Rk,ucr}$	[N/mm²]	8,5	10,0	9,0	9,0	9,0	10,0	8,0	7,0
Increasing factor for C30/37	ψ_c	[-]	1,04							
Increasing factor for C40/50			1,07							
Increasing factor for C50/60			1,09							
Concrete cone failure in non-cracked concrete										
Factor for non-cracked concrete	k_{ucr} [3]	[-]	10,1							
	$k_{ucr,N}$	[-]	11,0							
Edge distance	$c_{cr,N}$	[mm]	1,5 · h_{ef}							
Spacing	$s_{cr,N}$	[mm]	3,0 · h_{ef}							
Splitting failure										
Edge distance	$c_{cr,sp}$ for h_{min}	[mm]	2,0 · h_{ef}						1,5 · h_{ef}	
	$c_{cr,sp}$ for $h_{min} < h$ [4] $< 2 \cdot h_{ef}$ ($c_{cr,sp}$ from linear interpolation)									
	$c_{cr,sp}$ for h [4] ≥ 2 · h_{ef}		$c_{cr,N}$							
Spacing	$s_{cr,sp}$	[mm]	2,0 · $c_{cr,sp}$							
Installation sensitivity factors for combined pull-out, concrete cone and splitting failure										
Installation sensitivity factor for use category I1 [1]	γ_{inst}	[-]	1,2							
Installation sensitivity factor for use category I2 [1]			1,2							

Note: Design method according to TR 029 and FprEN 1992-4:2016..

[1] In the absence of other national regulation.

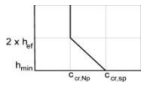
[2] See: Annex B1.

[3] Parameter for design acc. to FprEN 1992-4:2016.

[4] h – concrete member thickness.

[5] Stressed cross section of the steel.

Table C5: Characteristic values for tension loads for rebar in cracked concrete

Size			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32
Steel failure										
Characteristic resistance	$N_{Rk,s}$	[kN]	A_s[5] · f_{uk}							
Partial safety factor[1]	γ_{Ms}	[-]	1,40							
Combined pull-out and concrete cone failure in cracked concrete C20/25 – hammer drilling										
Characteristic bond resistance temperature range -40°C / +40°C [2]	$\tau_{Rk,cr}$	[N/mm²]	5,5	5,0	5,5	5,5	5,0	5,0	5,4	4,0
Characteristic bond resistance temperature range -40°C / +80°C [2]	$\tau_{Rk,cr}$	[N/mm²]	5,0	4,5	5,0	5,0	4,5	4,5	5,0	3,0
Increasing factor for C30/37	ψ_c	[-]	1,04							
Increasing factor for C40/50			1,07							
Increasing factor for C50/60			1,09							
Combined pull-out and concrete cone failure in cracked concrete C20/25 – diamond core drilling										
Characteristic bond resistance temperature range -40°C / +40°C [2]	$\tau_{Rk,cr}$	[N/mm²]	5,5	5,5	6,0	6,0	5,0	5,5	4,5	4,0
Characteristic bond resistance temperature range -40°C / +80°C [2]	$\tau_{Rk,cr}$	[N/mm²]	5,0	5,0	5,5	5,5	4,5	5,0	4,0	4,0
Increasing factor for C30/37	ψ_c	[-]	1,04							
Increasing factor for C40/50			1,07							
Increasing factor for C50/60			1,09							
Concrete cone failure in cracked concrete										
Factor for racked concrete	k_{cr} [3]	[-]	7.2							
	$k_{cr,N}$	[-]	7,7							
Edge distance	$c_{cr,N}$	[mm]	1,5 · h_{ef}							
Spacing	$s_{cr,N}$	[mm]	3,0 · h_{ef}							
Splitting failure										
Edge distance	$c_{cr,sp}$ for h_{min}	[mm]	2,0 · h_{ef}						1,5 · h_{ef}	
	$c_{cr,sp}$ for $h_{min} < h$[4] $< 2 \cdot h_{ef}$ ($c_{cr,sp}$ from linear interpolation)									
	$c_{cr,sp}$ for h[4] $\geq 2 \cdot h_{ef}$		$c_{cr,N}$							
Spacing	$s_{cr,sp}$	[mm]	2,0 · $c_{cr,sp}$							
Partial safety factor for combined pull-out, concrete cone and splitting failure										
Installation sensitivity factor for in use category I1[3]	standard cleaning	γ_{inst} [-]	1,2							
	special cleaning									
Installation sensitivity factor for in use category I2[3]	standard cleaning		1,2							
	special cleaning									

Note: Design method according to TR 029 and FprEN 1992-4:2016.

[1] In the absence of other national regulation.

[2] See: Annex B1.

[3] Parameter for design acc. to and FprEN 1992-4:2016.

[4] h – concrete member thickness.

[5] Stressed cross section of the steel element.

Table C6: Characteristic values for shear loads for threaded rod – steel failure without lever arm

Size			M8	M10	M12	M16	M20	M24	M30
Steel, property class 5.8									
Characteristic resistance	$V_{Rk,s}$	[kN]	9	14	21	39	61	88	140
Factor considering ductility	k_7	[-]	0,8						
Partial safety factor [1)]	γ_{Ms}	[-]	1,25						
Steel, property class 8.8									
Characteristic resistance	$V_{Rk,s}$	[kN]	15	23	34	63	98	141	224
Factor considering ductility	k_7	[-]	0,8						
Partial safety factor [1)]	γ_{Ms}	[-]	1,25						
Steel, property class 10.9									
Characteristic resistance	$V_{Rk,s}$	[kN]	18	29	42	78	122	176	280
Factor considering ductility	k_7	[-]	0,8						
Partial safety factor [1)]	γ_{Ms}	[-]	1,50						
Steel, property class 12.9									
Characteristic resistance	$V_{Rk,s}$	[kN]	22	35	51	94	147	212	336
Factor considering ductility	k_7	[-]	0,8						
Partial safety factor [1)]	γ_{Ms}	[-]	1,50						
Stainless steel, property class A4-70									
Characteristic resistance	$V_{Rk,s}$	[kN]	13	20	29	55	86	124	196
Factor considering ductility	k_7	[-]	0,8						
Partial safety factor [1)]	γ_{Ms}	[-]	1,56						
Stainless steel, property class A4-80									
Characteristic resistance	$V_{Rk,s}$	[kN]	15	23	34	63	98	141	224
Factor considering ductility	k_7	[-]	0,8						
Partial safety factor [1)]	γ_{Ms}	[-]	1,33						
High corrosion resistant steel, property class 70									
Characteristic resistance	$V_{Rk,s}$	[kN]	13	20	29	55	86	124	196
Factor considering ductility	k_7	[-]	0,8						
Partial safety factor [1)]	γ_{Ms}	[-]	1,56						

[1)] In the absence of other national regulation.

Table C7: Characteristic values for shear loads for threaded rod – steel failure with lever arm

Size			M8	M10	M12	M16	M20	M24	M30
Steel, property class 5.8									
Characteristic resistance	$M^0_{Rk,s}$	[Nm]	19	37	65	166	324	561	1124
Partial safety factor [1)]	γ_{Ms}	[-]	1,25						
Steel, property class 8.8									
Characteristic resistance	$M^0_{Rk,s}$	[Nm]	30	60	105	266	519	898	1799
Partial safety factor [1)]	γ_{Ms}	[-]	1,25						
Steel, property class 10.9									
Characteristic resistance	$M^0_{Rk,s}$	[Nm]	37	75	131	333	649	1123	2249
Partial safety factor [1)]	γ_{Ms}	[-]	1,50						
Steel, property class 12.9									
Characteristic resistance	$M^0_{Rk,s}$	[Nm]	45	90	157	400	779	1347	2698
Partial safety factor [1)]	γ_{Ms}	[-]	1,50						
Stainless steel, property class A4-70									
Characteristic resistance	$M^0_{Rk,s}$	[Nm]	26	52	92	233	454	786	1574
Partial safety factor [1)]	γ_{Ms}	[-]	1,56						
Stainless steel, property class A4-80									
Characteristic resistance	$M^0_{Rk,s}$	[Nm]	30	60	105	266	519	898	1799
Partial safety factor [1)]	γ_{Ms}	[-]	1,33						
High corrosion resistant steel, property class 70									
Characteristic resistance	$M^0_{Rk,s}$	[Nm]	26	52	92	233	454	786	1574
Partial safety factor [1)]	γ_{Ms}	[-]	1,56						

[1)] In the absence of other national regulation.

Table C8: Characteristic values for shear loads – pry out and concrete edge failure for threaded rod

Size			M8	M10	M12	M16	M20	M24	M30
Pry out failure									
Factor	k_8	[-]	2						
Concrete edge failure									
Outside diameter of anchor	d_{nom}	[mm]	8	10	12	16	20	24	30
Effective length of anchor under shear loading	l_f	[mm]	min (h_{ef}; $8d_{nom}$)						

Table C9: Characteristic values for shear loads for rod with inner thread – steel failure without lever arm

Size			M6/ Ø10	M8/ Ø12	M10/ Ø16	M12/ Ø16	M16/ Ø24
Steel, property class 5.8							
Characteristic resistance	$V_{Rk,s}$	[kN]	5,0	9,2	14,5	21,1	39,3
Factor considering ductility	k_7	[-]	0,8				
Partial safety factor [1]	γ_{Ms}	[-]	1,25				
Steel, property class 8.8							
Characteristic resistance	$V_{Rk,s}$	[kN]	8,0	14,6	23,2	33,7	62,8
Factor considering ductility	k_7	[-]	0,8				
Partial safety factor [1]	γ_{Ms}	[-]	1,25				
Stainless steel, property class A4-70							
Characteristic resistance	$V_{Rk,s}$	[kN]	7,0	12,8	20,3	29,5	55,0
Factor considering ductility	k_7	[-]	0,8				
Partial safety factor [1]	γ_{Ms}	[-]	1,56				
Stainless steel, property class A4-80							
Characteristic resistance	$V_{Rk,s}$	[kN]	8,0	14,6	23,2	33,7	62,8
Factor considering ductility	k_7	[-]	0,8				
Partial safety factor [1]	γ_{Ms}	[-]	1,33				
High corrosion resistant steel, property class 70							
Characteristic resistance	$V_{Rk,s}$	[kN]	7,0	12,8	20,3	29,5	55,0
Factor considering ductility	k_7	[-]	0,8				
Partial safety factor [1]	γ_{Ms}	[-]	1,56				

[1] In the absence of other national regulation.

Table C10: Characteristic values for shear loads for rod with inner thread - steel failure with lever arm

Size			M6/ Ø10	M8/ Ø12	M10/ Ø16	M12/ Ø16	M16/ Ø24
Steel, property class 5.8							
Characteristic resistance	$M^0_{Rk,s}$	[Nm]	7,6	18,7	37,4	65,5	166,5
Partial safety factor [1]	γ_{Ms}	[-]	1,25				
Steel, property class 8.8							
Characteristic resistance	$M^0_{Rk,s}$	[Nm]	12,2	30,0	59,8	104,8	266,4
Partial safety factor [1]	γ_{Ms}	[-]	1,25				
Stainless steel, property class A4-70							
Characteristic resistance	$M^0_{Rk,s}$	[Nm]	10,7	26,2	52,3	91,7	233,1
Partial safety factor [1]	γ_{Ms}	[-]	1,56				
Stainless steel, property class A4-80							
Characteristic resistance	$M^0_{Rk,s}$	[Nm]	12,2	30,0	59,8	104,8	266,4
Partial safety factor [1]	γ_{Ms}	[-]	1,33				
High corrosion resistant steel, property class 70							
Characteristic resistance	$M^0_{Rk,s}$	[Nm]	10,7	26,2	52,3	91,7	233,1
Partial safety factor [1]	γ_{Ms}	[-]	1,56				

1) In the absence of other national regulation.

Table C11: Characteristic values for shear loads – pry out and concrete edge failure for rod with inner thread

Size			M6 /Ø10	M8/ Ø12	M10/ Ø16	M12/ Ø16	M16/ Ø24
Pry out failure							
Factor	k_8	[-]	2				
Concrete edge failure							
Outside diameter of anchor	d_{nom}	[mm]	10	12	16	16	24
Effective length of anchor under shear loading	l_f	[mm]	min (h_{ef}; $8d_{nom}$)				

Table C12: Characteristic values for shear loads for rebar – steel failure without lever arm

Size			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32
Rebar										
Characteristic resistance	$V_{Rk,s}$	[kN]	$0,5 \cdot A_s$ [1] $\cdot f_{uk}$							
Factor considering ductility	k_7	[-]	0,8							
Partial safety factor [2]	γ_{Ms}	[-]	1,5							

[1] Stressed cross section of the steel element
[2] In the absence of other national regulation.

Table C13: Characteristic values for shear loads for rebar – steel failure with lever arm

Size			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32
Rebar										
Characteristic resistance	$M^0_{Rk,s}$	[Nm]	$1,2 \cdot W_{el}$ [2] $\cdot f_{uk}$							
Partial safety factor [1]	γ_{Ms}	[-]	1,5							

[1] In the absence of other national regulation.
[2] Elastic section modulus calculated from the stressed cross section of steel element.

Table C14: Characteristic values for shear loads – pry out and concrete edge failure for rebar

Size			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32
Pry out failure										
Factor	k_8	[-]	2							
Concrete edge failure										
Outside diameter of anchor	d_{nom}	[mm]	8	10	12	14	16	20	25	32
Effective length of anchor under shear loading	l_f	[mm]	min (h_{ef}; $8d_{nom}$)							

Table C15: Displacement under tension loads – threaded rod

Size			M8	M10	M12	M16	M20	M24	M30
Characteristic displacement in non-cracked concrete C20/25 to C50/60 under tension loads									
Admissible service load[1]	N	[kN]	10,5	14,3	21,4	31,0	46,4	48,3	63,9
Displacement	δ_{N0}	[mm]	0,33	0,40	0,41	0,47	0,52	0,56	0,70
	$\delta_{N\infty}$	[mm]	0,75	0,75	0,75	0,75	0,75	0,75	0,75
Characteristic displacement in cracked concrete C20/25 to C50/60 under tension loads									
Admissible service load[1]	N	[kN]	5,7	7,6	7,9	13,9	15,9	23,8	28,6
Displacement	δ_{N0}	[mm]	0,20	0,20	0,24	0,28	0,39	0,44	0,46
	$\delta_{N\infty}$	[mm]	3,0	3,0	2,5	2,6	2,5	2,4	3,0

[1] These values are suitable for each temperature range and categories specified in Annex B1

Table C16: Displacement under shear loads – threaded rod

Size			M8	M10	M12	M16	M20	M24	M30
Characteristic displacement in cracked and non-cracked concrete C20/25 to C50/60 under shear loads									
Admissible service load[1]	V	[kN]	3,7	5,8	8,4	15,7	24,5	35,3	55,6
Displacement	δ_{V0}	[mm]	2,5	2,5	2,5	2,5	2,5	2,5	2,5
	$\delta_{V\infty}$	[mm]	3,7	3,7	3,7	3,7	3,7	3,7	3,7

[1] These values are suitable for each temperature range and categories specified in Annex B1.

Table C17: Displacement under tension loads – rod with inner thread

Size			M6/Ø10	M8/Ø12	M10/Ø16	M12/Ø16	M16/Ø24
Characteristic displacement in non-cracked concrete C20/25 to C50/60 under tension loads							
Admissible service load[1)]	N	[kN]	8,0	14,0	18,4	22,4	33,9
Displacement	δ_{N0}	[mm]	0,25	0,25	0,26	0,32	0,37
	$\delta_{N\infty}$	[mm]	0,75	0,75	0,75	0,75	0,75

[1)] These values are suitable for each temperature range and categories specified in Annex B1.

Table C18: Displacement under shear loads – rod with inner thread

Size			M6/Ø10	M8/Ø12	M10/Ø16	M12/ Ø16	M16/Ø24
Characteristic displacement in non-cracked concrete C20/25 to C50/60 under shear loads							
Admissible service load[1)]	V	[kN]	2,0	3,7	5,8	8,4	15,7
Displacement	δ_{V0}	[mm]	2,5	2,5	2,5	2,5	2,5
	$\delta_{V\infty}$	[mm]	3,7	3,7	3,7	3,7	3,7

[1)] These values are suitable for each temperature range and categories specified in Annex B1.

Table C19: Displacements in the event of pulling out from the concrete - reinforcing bars

Size			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32
Characteristic displacements in non-cracked concrete C20 / 25 to C50 / 60 in case of pulling out from the substrate										
Admissible service load[1)]	N	[kN]	7,1	28,3	38,1	37,8	62,7	94,6	109,9	149,8
Displacement	δ_{N0}	[mm]	0,25	0,25	0,32	0,37	0,43	0,45	0,48	0,53
	$\delta_{N\infty}$	[mm]	0,75	0,75	0,75	0,75	0,75	0,75	0,75	0,75
Characteristic displacements in C20 / 25 to C50 / 60 cracked concrete in case of pulling out from the substrate										
Admissible service load[1)]	N	[kN]	3,5	5,2	7,9	9,2	11,9	17,9	28,8	31,6
Displacement	δ_{N0}	[mm]	0,2	0,2	0,24	0,30	0,31	0,34	0,38	0,40
	$\delta_{N\infty}$	[mm]	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0

[1)] These values are suitable for each temperature range and categories specified in Annex B1.

Table C20: Displacement in the case of shear - reinforcing bars

Size			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32
Characteristic displacements in cracked and uncracked concrete C20 / 25 to C50 / 60 in case of pulling out from the substrate										
Admissible service load[1)]	V	[kN]	5,5	8,6	12,3	16,8	21,9	34,3	53,6	87,8
Displacement	δ_{V0}	[mm]	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
	$\delta_{V\infty}$	[mm]	3,7	3,7	3,7	3,7	3,7	3,7	3,7	3,7

[1)] These values are suitable for each temperature range and categories specified in Annex B1.

Table C21: Characteristic values for tension load for threaded rod for seismic performance category C1

Size			M8	M10	M12	M16	M20	M24	M30
Steel failure									
Steel, property class 5.8									
Characteristic resistance	$N_{Rk,s,seis}$	[kN]	18	29	42	78	122	176	280
Partial safety factor[1)]	$\gamma_{Ms,\ seis}$	[-]	1,50						
Steel, property class 8.8									
Characteristic resistance	$N_{Rk,s,seis}$	[kN]	29	46	67	125	196	282	448
Partial safety factor[1)]	$\gamma_{Ms,\ seis}$	[-]	1,50						
Stainless steel, property class A4-70									
Characteristic resistance	$N_{Rk,s,\ seis}$	[kN]	25	40	59	109	171	247	392
Partial safety factor[1)]	$\gamma_{Ms,\ seis}$	[-]	1,87						
Stainless steel, property class A4-80									
Characteristic resistance	$N_{Rk,s,\ seis}$	[kN]	29	46	67	125	196	282	448
Partial safety factor[1)]	$\gamma_{Ms,\ seis}$	[-]	1,60						
High corrosion resistant steel, property class 70									
Characteristic resistance	$N_{Rk,s,\ seis}$	[kN]	25	40	59	109	171	247	392
Partial safety factor[1)]	$\gamma_{Ms,\ seis}$	[-]	1,87						
Combined pull-out and concrete cone failure									
Characteristic bond resistance temperature range -40°C / +40°C [2)]	$\tau_{Rk,seis}$	[N/mm^2]	6,0	7,0	6,5	7,0	6,0	5,5	4,0
Characteristic bond resistance temperature range -40°C / +80°C [2)]	$\tau_{Rk,seis}$	[N/mm^2]	5,0	6,5	5,5	6,0	5,5	5,0	3,5

Note: Design method according to TR 045.
[1)] In the absence of other national regulation.
[2)] See: Annex B1.

Table C22: Characteristic values for tension load for rebar for seismic performance category C1

Size			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32
Steel failure										
Characteristic resistance	$N_{Rk,s,seis}$	[kN]	A_s[3)] · f_{uk}							
Partial safety factor[1)]	$\gamma_{Ms,\ seis}$	[-]	1,40							
Combined pull-out and concrete cone failure										
Characteristic bond resistance temperature range -40°C / +40°C [2)]	$\tau_{Rk,seis}$	[N/mm^2]	4,0	4,5	5,0	5,0	5,0	5,0	5,0	3,0
Characteristic bond resistance temperature range -40°C / +80°C [2)]	$\tau_{Rk,seis}$	[N/mm^2]	3,5	4,0	4,5	4,5	4,5	4,5	4,5	2,5

Note: Design method according to TR 045.
[1)] In the absence of other national regulation.
[2)] See: Annex B1.
[3)] Stressed cross section of the steel element.

Table C23: Characteristic values for shear loads for threaded rod for seismic performance category C1 - steel failure without lever arm

Size			M8	M10	M12	M16	M20	M24	M30
Steel failure with threaded rod grade 5.8									
Characteristic resistance	$V_{Rk,s,seis}$	[kN]	6,3	10,1	14,7	27,3	42,7	61,6	98,0
Partial safety factor [1)]	$\gamma_{Ms,\ seis}$	[-]	1,25						
Steel failure with threaded rod grade 8.8									
Characteristic resistance	$V_{Rk,s,\ seis}$	[kN]	10,2	16,1	23,5	44,1	68,6	98,7	156,8
Partial safety factor [1)]	$\gamma_{Ms,\ seis}$	[-]	1,25						
Steel failure with stainless steel threaded rod A4-70									
Characteristic resistance	$V_{Rk,seis}$	[kN]	9,1	14,4	20,7	38,5	59,9	86,5	137,4
Partial safety factor [1)]	$\gamma_{Ms,\ seis}$	[-]	1,56						
Steel failure with stainless steel threaded rod A4-80									
Characteristic resistance	$V_{Rk,seis}$	[kN]	10,2	16,1	23,5	44,1	68,6	98,7	157,2
Partial safety factor [1)]	$\gamma_{Ms,\ seis}$	[-]	1,33						
Steel failure with high corrosion stainless steel grade 70									
Characteristic resistance	$V_{Rk,seis}$	[kN]	9,1	14,4	20,7	38,5	59,9	86,5	137,4
Partial safety factor [1)]	$\gamma_{Ms,\ seis}$	[-]	1,56						

[1)] In the absence of other national regulation.

Table C24: Characteristic values for shear loads for rebar for seismic performance category C1 - steel failure without lever arm

Size			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32
Steel failure with rebar										
Characteristic resistance	$V_{Rk,s,seis}$	[kN]	$0,35 \cdot A_s$ [2] $\cdot f_{uk}$							
Partial safety factor [1]	$\gamma_{Ms,seis}$	[-]	1,5							

[1] In the absence of other national regulation.

[2] Stressed cross section of the steel element

Table C25: Displacement under tension loads – threaded rod for seismic performance category C1

Size			M8	M10	M12	M16	M20	M24	M30
Displacement	$\delta_{N,seis}$	[mm]	2,8	3,0	3,0	3,2	3,3	4,0	5,5

Table C26: Displacement under shear loads – threaded rod for seismic performance category C1

Size			M8	M10	M12	M16	M20	M24	M30
Displacement	$\delta_{V,seis}$	[mm]	3,4	4,0	5,0	5,3	5,9	6,0	6,5

Table C27: Displacement under tension loads – rebar for seismic performance category C1

Size			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32
Displacement	$\delta_{N,seis}$	[mm]	3,0	3,3	3,5	3,9	4,1	4,5	5,6	6,0

Table C28: Displacement under shear loads – rebar for seismic performance category C1

Size			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø32
Displacement	$\delta_{V,seis}$	[mm]	3,6	3,7	4,0	4,6	4,8	5,5	6,6	7,0

Performanța produsului identificat mai sus este în conformitate cu setul de performanțe declarate. Această declarație de performanță este eliberată în conformitate cu Regulamentul (UE) nr. 305/2011, pe răspunderea exclusivă a fabricantului identificat mai sus.

Semnată pentru și în numele fabricantului de către

Sławomir Jagła
Împuternicitul al Sistemului de Management al Calităţii
Wrocław, 25.10.2018.

PEŁNOMOCNIK SYSTEMU
ZARZĄDZANIA JAKOŚCIĄ
mgr Sławomir Jagła

Declarația de performanță
DoP-13/0585-R-KEX-II

1. Cod unic de identificare al produsului-tip:

R-KEX-II

Fotografia reprezintă un exemplu de produs dintr-un anumit tip de marfă

2. Utilizare (utilizări) preconizată (preconizate):

Tip general	Ancore lipite
a se aplica la	Bare de ancorare prin lipire, cu diametre între 8 şi 40 de mm, cu utilizarea mortarului de injecţie
opţiune / categorie	
sarcina	statică
materiale	Fixarea barelor de armătură cu ajutorul ancorelor (ancore sau conectoare , sunt efectuate prin folosirea barelor de oțel de armătură utilizate în construcția de beton obișnuit prin utilizarea mortarului de injecție R-KEX II, ETA include bări de armătură cu nervuri cu diametru de la 8 până la 40 mm și mortar de injecție.

3. Fabricant:

Rawlplug S.A.
ul. Kwidzyńska 6, 51-416 Wrocław, PL
www.rawlplug.com

4. Sistemul (sistemele) de evaluare şi de verificare a constanţei performanţei:

Sistemul 1

5. Documentul de evaluare european:

EAD-330087-00-0601 Sisteme pentru racorduri post-instalate cu mortar
Categorie utilitare reprezentative:

6. Evaluarea tehnică europeană:

ETA-13/0585 ediţia din data de 2019-02-27

7. Organismul de evaluare tehnică:

Instytut Techniki Budowlanej

8. Organism (organisme) notificat(e):

1488 în temeiul:

- o evaluare a performanței produsului de construcții, efectuată pe baza testărilor (inclusiv a eșantionării), a calculelor, a valorilor tabulare sau a documentației descriptive a produsului
- inspectarea inițială a unității de producție și a controlului producției în fabrică
- supravegherea, evaluarea și examinarea continuă a controlului producției în fabrică

a fost eliberat certificatul **1488-CPR-0737/W**

9. Performanța (performanțe) declarată (declarate):

Caracteristica de bază:

Fişa tehnică	**Cerinţe de bază conform Regulamentului referitor la Produsele pentru Constructii CPR**		**Observaţii:**
ETA-13/0585	[1]	Rezistență mecanică și stabilitate	Proprietăți declarate pe site 2
	[4]	Siguranța în utilizare	Aceste criterii sunt importante pentru [1]

Amplification factor α_{lb}									
The minimum anchorage lenght $l_{b,min}$ and the minimum lap lenght $l_{o,min}$ according to EN 1992-1-1 shall be multiplied by the relevant amplification α_{lb}									
Rebar diameter [mm]	Concrete strenght class								
	C12/15	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
Ø8	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Ø10	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Ø12	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Ø14	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Ø16	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Ø18	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Ø20	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Ø22	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Ø25	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Ø28	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Ø30	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Ø32	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Ø34	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Ø36	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Ø40	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00

Bond efficiency value k_b for hammer drilling									
Rebar diameter [mm]	Concrete strenght class								
	C12/15	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
Ø8	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Ø10	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Ø12	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Ø14	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Ø16	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	0,93
Ø18	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	0,93
Ø20	1,00	1,00	1,00	1,00	1,00	1,00	1,00	0,92	0,86
Ø22	1,00	1,00	1,00	1,00	1,00	1,00	1,00	0,92	0,86
Ø25	1,00	1,00	1,00	1,00	1,00	1,00	0,91	0,84	0,79
Ø28	1,00	1,00	1,00	1,00	1,00	1,00	0,91	0,84	0,79
Ø30	1,00	1,00	1,00	1,00	1,00	0,9	0,82	0,76	0,71
Ø32	1,00	1,00	1,00	1,00	1,00	0,9	0,82	0,76	0,71
Ø34	1,00	1,00	1,00	1,00	0,89	0,8	0,73	0,67	0,63
Ø36	1,00	1,00	1,00	0,86	0,76	0,69	0,63	0,58	0,54
Ø40	1,00	1,00	1,00	0,86	0,76	0,69	0,63	0,58	0,54

Bond efficiency value k_b for diamond drilling									
Rebar diameter [mm]	Concrete strenght class								
	C12/15	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
Ø8	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Ø10	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Ø12	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Ø14	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Ø16	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	0,93
Ø18	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	0,93
Ø20	1,00	1,00	1,00	1,00	1,00	1,00	1,00	0,92	0,86
Ø22	1,00	1,00	1,00	1,00	1,00	1,00	1,00	0,92	0,86
Ø25	1,00	1,00	1,00	1,00	1,00	1,00	0,91	0,84	0,79
Ø28	1,00	1,00	1,00	1,00	1,00	0,90	0,82	0,76	0,71
Ø30	1,00	1,00	1,00	1,00	0,89	0,80	0,73	0,67	0,63
Ø32	1,00	1,00	1,00	1,00	0,89	0,80	0,73	0,67	0,63
Ø34	1,00	1,00	1,00	1,00	0,89	0,80	0,73	0,67	0,63
Ø36	1,00	1,00	1,00	0,86	0,76	0,69	0,63	0,58	0,54
Ø40	1,00	1,00	0,86	74,00	0,66	0,59	0,54	0,50	0,47

Design values of the ultimate bond resistance f_{bd} in N/mm^2									
Rebar diameter [mm]	Concrete strenght class								
	C12/15	C16/20	C20/25	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
Ø8	1,60	2,00	2,30	2,70	3,00	3,40	3,70	4,00	4,30
Ø10	1,60	2,00	2,30	2,70	3,00	3,40	3,70	4,00	4,30
Ø12	1,60	2,00	2,30	2,70	3,00	3,40	3,70	4,00	4,30
Ø14	1,60	2,00	2,30	2,70	3,00	3,40	3,70	4,00	4,30
Ø16	1,60	2,00	2,30	2,70	3,00	3,40	3,70	4,00	4,00
Ø18	1,60	2,00	2,30	2,70	3,00	3,40	3,70	4,00	4,00
Ø20	1,60	2,00	2,30	2,70	3,00	3,40	3,70	3,70	3,70
Ø22	1,60	2,00	2,30	2,70	3,00	3,40	3,70	3,70	3,70
Ø25	1,60	2,00	2,30	2,30	3,00	3,40	3,40	3,40	3,40
Ø28	1,60	2,00	2,30	2,30	3,00	3,40	3,40	3,40	3,40
Ø30	1,60	2,00	2,30	2,30	3,00	3,00	3,00	3,00	3,00
Ø32	1,60	2,00	2,30	2,30	3,00	3,00	3,00	3,00	3,00
Ø34	1,60	2,00	2,30	2,30	2,70	2,70	2,70	2,70	2,70
Ø36	1,60	2,00	2,30	2,30	2,30	2,30	2,30	2,30	2,30
Ø40	1,60	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00

Performanța produsului identificat mai sus este în conformitate cu setul de performanțe declarate. Această declarație de performanță este eliberată în conformitate cu Regulamentul (UE) nr. 305/2011, pe răspunderea exclusivă a fabricantului identificat mai sus.

Semnată pentru și în numele fabricantului de către

Sławomir Jagła
Împuternicitul al Sistemului de Management al Calităţii
Wrocław, 17.04.2019.

PEŁNOMOCNIK SYSTEMU
ZARZĄDZANIA JAKOŚCIĄ
mgr Sławomir Jagła