

Beneficiar: ORAS NEGRU VODA  
 Proiectant: S.C. CSP PROIECT LINE S.R.L.  
 Proiect: Piscina adulti  
 Data: Octombrie 2022

#### DATE DE PROIECTARE PISCINA 25m / 17.5m

Adâncime medie piscina	1.65	m
Suprafata bazin	312.50	m <sup>2</sup>
Suprafata hidromasaj	25.00	m <sup>2</sup>
Volum de apă piscina	515.63	m <sup>3</sup>
Volum hidromasaj	22.50	m <sup>3</sup>
Adâncime medie hidromasaj	0.90	m
Bazin compensare	54.00	m <sup>3</sup>
Durata de recirculare a apei	4.00	h
Debitul de apă filtrat	148.03	m <sup>3</sup> /h

#### I. ECHIPAMENTE FILTRARE

Nr.Crt.	Echipament/Material	Tip	U.M.	Cant	Preț unitar RON fără TVA	Valoare totală RON fără TVA
1	"Filtru bobinat pentru piscine fabricat din poliester intarit cu fibra de sticla. Diametrul Ø1200mm, Debit = 56 m <sup>3</sup> /h; Viteza de recirculare= 40 m <sup>3</sup> /h/m <sup>2</sup> ; Presiunea maximă: 2.5 kg/cm <sup>2</sup> , Presiunea de lucru: 0,5 – 2.0 kg/cm <sup>2</sup> . Conexiunea: 90mm .Cantitate necesara nisip: 1725 kg,	AAZ - FBSCN21209 0.B	Buc	3		
2	Baterie manual de filtru cu 5 robineti fluture, Conexiune: Ø90 mm.	BSL90-90.B	Buc	3		
3	Kit cleme de fixare baterie filtru, diametru: Ø90 mm, contine 4 buc.	OMG 90.B	Buc	3		
4	Tija de sustinere baterie filtru lungime: 2000 mm.	SOP.B	Buc	3		

2	Pompa de recirculare cu auto-amorsare pentru piscine. Carcasă fabricată din termoplastice rigid, cu rotor din fibră de sticlă, dotată cu prefiltru pentru particule. Debit Q <sub>max</sub> = 53 m <sup>3</sup> /h, la presiunea de 10 m.c.a. Puterea motorului P= 3 HP.	AAZ-FSMALLGIA NT-4	Buc.	3		
3	Nisip quartz pentru filtre cu granulatia 0.4-0.8 mm	N/A	kg	5175		
4	Tablou de control pompa	N/A	Buc	1		
8	Sifon de pardoseala pentru beton, Q <sub>max</sub> =40 m <sup>3</sup> /h,	SPP110.B	Buc	4		
9	Duza refulare pardoseala pentru beton Q <sub>max</sub> =12 mc/h .	BIFL	Buc	50		
10	Teava de trecere pentru beton, Conexiune 2"	PM51	Buc	10		
11	Duza aspiratie pentru beton cu capac cu filet, Conexiune 2".		Buc	5		
12	Duza refulare pentru beton cu capac filet PENTRU ASPIRATOR Conexiune 2".		Buc	5		
13	Sifon de pardoseala pentru beton (pentru bazin compensare)		Buc	2		
14	Instalatie canal colector (sifon, regulator nivel,kit instalatii)		Buc	1		
10	Manopera instalare, include si transportul					
<b>TOTAL ECHIPAMENTE FILTRARE</b>						

#### KIT CONDUCTE, FITINGURI, ROBINEȚI

Nr.Crt.	Echipament/Material	Tip	U.M.	Cant	Preț unitar RON fără TVA	Valoare totală RON fără TVA
1	Kit conducte, fittinguri robineti cu diametre cuprinse intre 50 mm si 315 de mm	PVC-U PN10	kit	1		
2	Manopera instalare, include si transportul					
<b>TOTAL KIT CONDUCTE, FITINGURI, ROBINEȚI</b>						

#### INSTALAȚIE DOZARE AUTOMATA

Nr.Crt.	Echipament/Material	Tip	U.M.	Cant	Preț unitar RON fără TVA	Valoare totală RON fără TVA
---------	---------------------	-----	------	------	--------------------------	-----------------------------

1	Sistem de masurare si control RX- Ph , compus din : 2 pompe dozatoare solenoidale , cu membrana din PTFE, cap pompare din PVDF, 20-54 l/h @ 5 - 0,1 bar - senzori pH si Redox - suport senzori modular din PSS-Plexi transparent, conectori furtun 8/12 mm, presiune max 5 bar, Tmax = 60 C* - solutii de calibrare - supape de aspiratie si de injectie pentru pompe - cate 2 m tub de aspiratie PE si tub refulare PVC pentru fiecare pompa	N/A	Buc	1		
3	Tank dozare	N/A	Buc	2		
4	Kit intsalare, solutii de calibrare.	N/A	Buc	1		
5	Manopera instalare, include si transportul					
<b>TOTAL INSTALAȚIE DOZARE AUTOMATA</b>						

#### SISTEM DE ÎNCĂLZIRE A APEI

Nr.Crt.	Echipament/Material	Tip	U.M.	Cant	Preț unitar RON fără TVA	Valoare totală RON fără TVA
1	Schimbator de caldura cupru-nichel, putere termica 556 kW la temp. de 82 °C . Include: releu + senzor de temperatura si fitting-uri de conexiune la tubulatura de piscina	GK190-5117- 3C	Buc	1		
2	Manopera instalare, include si transportul					
<b>TOTAL SISTEM DE ÎNCĂLZIRE</b>						

#### INSTALAȚIE ILUMINAT-AUTOMATIZARE

Nr.Crt.	Echipament/Material	Tip	U.M.	Cant	Preț unitar RON fără TVA	Valoare totală RON fără TVA
1	Proiector LED PAR56 RGB 12 V	N/A	Buc	12		
2	Cutie de jonctiune, copex, cablu, materiale de instalare.	N/A	Buc	12		
3	Modul periferic+telecomanda+amplificator	N/A	Buc	1		
4	Transformator	N/A	Buc	2		

5	Manopera instalare, include si transportul	
<b>TOTAL INSTALAȚIE DE ILUMINAT</b>		

#### **CANAL PERIMETRAL**

Nr.Crt.	ECHIPAMENT/MATERIAL	Tip	U.M.	Cant	Preț unitar RON fără TVA	Valoare totală RON fără TVA
1	Bordura deversare model finlandez antiderapanta, dimensiuni: 244X119x40 mm, culoare: bleu.	E-077	ml	90.0		
2	Gresie portelanata antiderapanta (2 randuri), dimensiuni: 244 x 119 mm, culoare: bleu.	E-007	m2	22.5		
3	Bordura deversare model finlandez antiderapanta, dimensiuni:244X119x40 mm, colt interior, contine doua piese, culoare: bleu.	E-088	Buc	6		
4	Gratar canal perimetral curbat, h= 34 mm, latime 245 mm.	NMC2534	ml	90.0		
5	Colt canal perimetral ABS 90°, h=34 mm, latime 250 mm.	RR251	Buc	6		
6	Profil gratar canal perimetral L=2m	MP200.C	ml	180		
7	Manopera gratar perimetral	MAN	ml	90		
8	Material hidroizolant	N/A	m2	108.0		
9	Manopera hidroizolant	MAN	m2	108.0		
10	Chit rosturi	N/A	m2	33.8		
11	Adeziv	N/A	m2	33.8		
12	Manopera placare bordura	MAN	ml	90.0		
<b>TOTAL CANAL PERIMETRAL</b>						

**PLACARE PISCINĂ**

Nr.Crt.	ECHIPAMENT/MATERIAL	Tip	U.M.	Cant	Preț unitar RON fără TVA	Valoare totală RON fără TVA
1	Gresie portelanata antiderapanta blue 244X119 mm bazin	E-007	m2	502		
2	Material hidroizolant (bazin inotsi bazin de compensare)	N/A	m2	572		
3	Manopera hidroizolant	MAN	m2	572		
4	Chit rosturi	N/A	m2	502		
5	Adeziv	N/A	m2	502		
6	Manopera placare gresie	MAN	m2	502		
<b>TOTAL PLACARE PISCINĂ</b>						

**ACCESORII PISCINA**

Nr.Crt.	ECHIPAMENT/MATERIAL	Tipul	U.M.	Cant	Preț unitar RON fără TVA	Valoare totală RON fără TVA
1	Bloc start, structura din otel inoxidabil AISI 316, si platforma antiderapanta, ajustabila 500x500 mm.	N/A	Buc.	5		
2	Despartitor flotant cu cablu din otel inoxidabil cu lungimea de 25 de m	N/A	Buc	5		
3	Intizator despartitor flotant	N/A	Buc	10		
4	Suport elemente de ancorare	N/A	Buc	10		
5	Element de ancorare	N/A	Buc	10		
7	Scara pentru piscine cu 4 trepte, fabricata din otel inoxidabil AISI 316 Ø43 mm	IEM3	Buc	4		
Manopera instalare echipamente, include si transportul						
<b>TOTAL ACCESORII PISCINĂ</b>						

**HIDROMASAJ**

Nr.Crt.	ECHIPAMENT/MATERIAL	Tip	U.M.	Cant	Preț unitar RON fără TVA	Valoare totală RON fără TVA
1	Kit jeturi ventury cu cap rotativ	N/A	Buc	12		
2	Teava de trecere corp duza hidromasaj	N/A	Buc	12		
3	<i>Pompa centrifugala pentru piscine. Debit Q= 55 m3/h, la presiunea de 10 m.c.a. Puterea motorului P= 4 HP.</i>	<i>AAZ-NEW CONTRA 4</i>	<i>Buc.</i>	2		
4	Duza aspiratie hidromasaj	BAH.B	Buc	2		
5	Buton de comanda piezoelectric	N/A	Buc	2		
6	Panou de control	N/A	Buc	1		
7	Kit tevi, fittinguri, robineti	PVC-U PN10	Kit	1		
8	Manopera instalare, include si transportul					
<b>TOTAL HIDROMASAJ</b>						

**TOTAL PISCINA RON EXCLUSIV TVA**

Către: ORAS NEGRU VODA  
 Proiectant: S.C. CSP PROIECT LINE S.R.L  
 Proiect: Bazin copii 2 - 6 ani  
 Data: Octombrie 2022

## BAZIN COPII 2 -6 ANI

### DATE DE PROIECTARE 8m x 4.9m

Adâncime medie	0.6	m
Perimetru	26	m
Suprafața de placat	50.00	m <sup>2</sup>
Volum de apă	21	m <sup>3</sup>
Durata de recirculare a apei	1	h
Debitul de apa filtrat	21.0	m <sup>3</sup> /h

### ECHIPAMENTE FILTRARE

Nr.Crt.	Echipament/Material	Tip	U.M.	Cantitate	Preț unitar RON fără TVA	Valoare totală RON fără TVA
1	Filtru laminat pentru piscine fabricat din poliester intarit cu fibra de sticla. Diametrul Ø760mm, Debit = 22.5 m3/h; Conexiunea: 2", . Cantitate necesara nisip: 325kg, Vana multinort cu 6-căi inclusă	AAZ-AK760	Buc	1		
2	Pompa de recirculare pentru piscine. Carcasă fabricată din termoplastice rigid, cu rotor din fibra de sticlă, dotată cu prefiltru pentru particule. Debit Qmax= 27.6 m3/h, la presiunea de 10 m.c.a. Puterea motorului P= 1.5 HP, Conexiune: 2".	AAZ-MAXI-20	Buc.	1		
3	Nisip quartz pentru filtre cu granulatia 0.4-0.8 mm	N/A	kg	325		
4	Tablou de control ELECTRIC	N/A	Buc	1		
5	Sifon de pardoseala circular Ø186.5 mm pentru beton, Qmax=13 m3/h, Conexiune 2".	SRP	Buc	2		
9	Duza refulare pardoseala pentru beton Q max=12 mc/h .	BIFL	Buc	2		
10	Teava de trecere pentru beton, Conexiune 2"	PM51	Buc	1		
11	Duza aspiratie pentru beton cu capac cu filet, Conexiune 2".		Buc	1		
13	Sifon de pardoseala pentru beton (pentru bazin compensare)		Buc	1		
14	Instalatie canal colector (sifon, regulator nivel,kit instalatii)		Buc	1		

10	Manopera instalare, include si transportul	
<b>TOTAL ECHIPAMENTE FILTRARE</b>		

#### KIT CONDUCTE, FITINGURI, ROBINETI

Nr.Crt.	Echipament/Material	Tip	U.M.	Cant	Preț unitar RON fără TVA	Valoare totală RON fără TVA
1	Kit conducte, fittinguri robineti cu diametre cuprinse intre 50 mm si 315 de mm	PVC-U PN10	kit	1		
2	Manopera instalare, include si transportul					
<b>TOTAL KIT CONDUCTE, FITINGURI, ROBINETI</b>						

#### INSTALAȚIE DOZARE

Nr.Crt.	Echipament/Material	Tip	U.M.	Cantitate	Preț unitar RON fără TVA	Valoare totală RON fără TVA
1	Panou compus din Pompa dozare Rx-Ph	N/A	Buc	1.00		
5	Manopera instalare, include si transportul					
<b>TOTAL INSTALAȚIE DOZARE</b>						

#### SISTEM DE ÎNCĂLZIRE A APEI

Nr.Crt.	Echipament/Material	Tip	U.M.	Cant	Preț unitar RON fără TVA	Valoare totală RON fără TVA
1	Schimbator de caldura titan, putere termica 50 kW la temp. de 82 °C . Include: releu + senzor de temperatura si fitting-uri de conexiune la tubulatura de piscina	EC100-5115-2T	Buc	1		
2	Manopera instalare, include si transportul					
<b>TOTAL SISTEM DE ÎNCĂLZIRE</b>						

#### INSTALAȚIE ILUMINAT-AUTOMATIZARE

Nr.Crt.	Echipament/Material	Tip	U.M.	Cant	Preț unitar RON fără TVA	Valoare totală RON fără TVA
1	Proiector LED PAR56 RGB 12 V	N/A	Buc	2		
2	Cutie de jonctiune, copex, cablu, materiale de instalare.	N/A	Buc	2		
3	Modul periferic+telecomanda	N/A	Buc	1		
4	Transformator	N/A	Buc	1		

5	Manopera instalare, include si transportul	
<b>TOTAL INSTALAȚIE DE ILUMINAT</b>		

#### **CANAL PERIMETRAL**

Nr.Crt.	ECHIPAMENT/MATERIAL	Tip	U.M.	Cant	Preț unitar RON fără TVA	Valoare totală RON fără TVA
1	Bordura deversare model finlandez antiderapanta, dimensiuni: 244X119x40 mm, culoare: bleu.	E-077	ml	26.0		
2	Gresie portelanata antiderapanta (2 randuri), dimensiuni: 244 x 119 mm, culoare: bleu.	E-007	m2	6.5		
4	Gratar canal perimetral curbat, h= 34 mm, latime 245 mm.	NMC2534	ml	26.0		
6	Profil gratar canal perimetral L=2m	MP200.C	ml	52		
7	Manopera gratar perimetral	MAN	ml	26		
8	Material hidroizolant	N/A	m2	31.2		
9	Manopera hidroizolant	MAN	m2	31.2		
10	Chit rosturi	N/A	m2	9.8		
11	Adeziv	N/A	m2	9.8		
12	Manopera placare bordura	MAN	ml	26.0		
<b>TOTAL CANAL PERIMETRAL</b>						

**PLACARE PISCINĂ**

<b>Nr.Crt.</b>	<b>ECHIPAMENT/MATERIAL</b>	<b>Tip</b>	<b>U.M.</b>	<b>Cant</b>	<b>Preț unitar RON fără TVA</b>	<b>Valoare totală RON fără TVA</b>
1	Gresie portelanata antiderapanta blue 244X119 mm bazin	E-007	m2	50		
2	Material hidroizolant (bazin inot, bazin de compensare )	N/A	m2	55		
3	Manopera hidroizolant	MAN	m2	55		
4	Chit rosturi	N/A	m2	50		
5	Adeziv	N/A	m2	50		
6	Manopera placare gresie	MAN	m2	50		
<b>TOTAL PLACARE PISCINĂ</b>						

**TOTAL PISCINA RON EXCLUSIV TVA**

**Către:** ORAS NEGRU VODA  
**Proiectant** S.C. CSP PROIECT LINE S.R.L.  
**Proiect:** Bazin copii 0 - 2 ani  
**Data:** Octombrie 2022

### OFERTA BAZIN COPII 0 - 2 ANI

#### DATE DE PROIECTARE

Adâncime medie	0.2	m
Perimetru	19	m
Suprafața de placat	27.50	m <sup>2</sup>
Volum de apă	5	m <sup>3</sup>
Durata de recirculare a apei	0.5	h
Debitul de apa filtrat	9.9	m <sup>3</sup> /h

#### ECHIPAMENTE FILTRARE

Nr.Crt.	Echipament/Material	Tip	U.M.	Cantitate	Preț unitar RON fără TVA	Valoare totală RON fără TVA
1	Filtru laminat pentru piscine fabricat din poliester intarit cu fibra de sticla. Diametrul Ø640mm, Debit = 16 m <sup>3</sup> /h; Conexiunea: 1/2 2", . Cantitate necesara nisip: 175kg, Vana multiport cu 6-căi inclusă	AAZ-AK640	Buc	1		
2	Pompa de recirculare pentru piscine. Carcasă fabricată din termoplastice rigid, cu rotor din fibra de sticlă, dotată cu prefiltru pentru particule. Debit Q <sub>max</sub> = 11.8 m <sup>3</sup> /h, la presiunea de 10 m.c.a. Puterea motorului P= 0.6 HP, Conexiune: 2".	AAZ -ND1-14	Buc.	1		
3	Nisip quartz pentru filtre cu granulatia 0.4- 0.8 mm	N/A	kg	175		
4	Tablou de control ELECTRIC	N/A	Buc	1		
5	Sifon de pardoseala circular Ø186.5 mm pentru beton, Q <sub>max</sub> =13 m <sup>3</sup> /h, Conexiune 2".	SRP	Buc	1		
9	Duza refulare pardoseala pentru beton Q max=12 mc/h .	BIFL	Buc	1		

10	Teava de trecere pentru beton, Conexiune 2"	PM51	Buc	1		
11	Duza aspiratie pentru beton cu capac cu filet, Conexiune 2".		Buc	1		
13	Sifon de pardoseala pentru beton (pentru bazin compensare)		Buc	1		
14	Instalatie canal colector (sifon, regulator nivel,kit instalatii)		Buc	1		
10	Manopera instalare, include si transportul					
<b>TOTAL ECHIPAMENTE FILTRARE</b>						

#### KIT CONDUCTE, FITINGURI, ROBINETI

Nr.Crt.	Echipament/Material	Tip	U.M.	Cant	Preț unitar RON fără TVA	Valoare totală RON fără TVA
1	Kit conducte, fittinguri robineti cu diametre cuprinse intre 50 mm si 315 de mm	PVC-U PN10	kit	1		
2	Manopera instalare, include si transportul					
<b>TOTAL KIT CONDUCTE, FITINGURI, ROBINETI</b>						

#### INSTALAȚIE DOZARE

Nr.Crt.	Echipament/Material	Tip	U.M.	Cantitate	Preț unitar RON fără TVA	Valoare totală RON fără TVA
1	Panou compus din Pompa dozare Rx-Ph	N/A	Buc	1.00		
5	Manopera instalare, include si transportul					
<b>TOTAL INSTALAȚIE DOZARE</b>						

#### SISTEM DE ÎNCĂLZIRE A APEI

Nr.Crt.	Echipament/Material	Tip	U.M.	Cant	Preț unitar RON fără TVA	Valoare totală RON fără TVA
1	Schimbator de caldura titan, putere termica 25 kW la temp. de 82 °C . Include: releu + senzor de temperatura si fitting-uri de conexiune la tubulatura de piscina	EC80-5115-1T	Buc	1		
2	Manopera instalare, include si transportul					
<b>TOTAL SISTEM DE ÎNCĂLZIRE</b>						

#### INSTALAȚIE ILUMINAT-AUTOMATIZARE

Nr.Crt.	Echipament/Material	Tip	U.M.	Cant	Preț unitar RON fără TVA	Valoare totală RON fără TVA
---------	---------------------	-----	------	------	--------------------------	-----------------------------

1	MINIPROIECTOR FORMINI LED PAR56 RGB	N/A	Buc	4		
2	Cutie de jonctiune, copex, cablu, materiale de instalare.	N/A	Buc	4		
3	Modul periferic+telecomanda	N/A	Buc	1		
4	Transformator	N/A	Buc	1		
5	Manopera instalare, include si transportul					
<b>TOTAL INSTALAȚIE DE ILUMINAT</b>						

#### **CANAL PERIMETRAL**

Nr.Crt.	ECHIPAMENT/MATERIAL	Tip	U.M.	Cant	Preț unitar RON fără TVA	Valoare totală RON fără TVA
1	Bordura deversare model finlandez antiderapanta, dimensiuni: 244X119x40 mm, culoare: bleu.	E-077	ml	19.0		
2	Gresie portelanata antiderapanta (2 randuri), dimensiuni: 244 x 119 mm, culoare: bleu.	E-007	m2	4.8		
4	Gratar canal perimetral curbat, h= 34 mm, latime 245 mm.	NMC2534	ml	19.0		
6	Profil gratar canal perimetral L=2m	MP200.C	ml	38		
7	Manopera gratar perimetral	MAN	ml	19		
8	Material hidroizolant	N/A	m2	22.8		
9	Manopera hidroizolant	MAN	m2	22.8		
10	Chit rosturi	N/A	m2	7.1		
11	Adeziv	N/A	m2	7.1		
12	Manopera placare bordura	MAN	ml	19.0		
<b>TOTAL CANAL PERIMETRAL</b>						

**PLACARE PISCINĂ**

Nr.Crt.	ECHIPAMENT/MATERIAL	Tip	U.M.	Cant	Preț unitar RON fără TVA	Valoare totală RON fără TVA
1	Gresie portelanata antiderapanta blue 244X119 mm bazin	E-007	m2	28		
2	Material hidroizolant (bazin inot, bazin de compensare )	N/A	m2	30		
3	Manopera hidroizolant	MAN	m2	30		
4	Chit rosturi	N/A	m2	28		
5	Adeziv	N/A	m2	28		
6	Manopera placare gresie	MAN	m2	28		
<b>TOTAL PLACARE PISCINĂ</b>						

S.C. CSP PROIECT LINE S.R.L.  
Ing. Pop Silviu Rares

## PRODUCT PROFILE

# EC100-5113-2

## Swimming Pool Heat Exchanger

### Introduction

The Bowman EC100-5113-2 is an extremely versatile heat exchanger which is suitable for use with both larger spas and hot tubs, or domestic swimming pools up to 90 m<sup>3</sup> via a boiler heat source. It features 'Universal Fit' composite end covers, for easy installation into pool or spa pipework and a choice of either a titanium, cupro-nickel, or stainless steel tube core.

### Typical Heat Transfer

Boiler heating – 40kW

### Product Benefits

**Proven** – heats spas and hot tubs extremely fast, reducing energy costs

**Easy to install** – solvent weld end covers with thermostat pocket

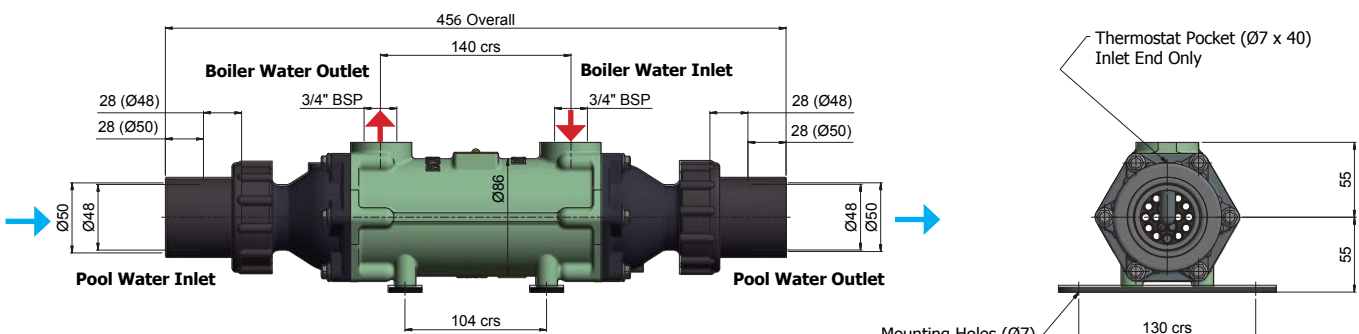
**Durability** – salt water and mineral rich fresh water compatible

**Simple to maintain** – easy disassembly for routine maintenance

**Titanium models** – full 10 year warranty on titanium materials



### Specification



All dimensions in mm (except threaded connectors)

Type	Tube Material	Typical Pool Capacity		Maximum Pool Water Flow		Maximum Hot Water Temp		Max. Operating Pressure Pool Water		Max. Operating Pressure Hot Water		Weight
		m <sup>3</sup>	gal	m <sup>3</sup> /h	l/min	°C	°F	bar	psi	bar	psi	
EC100-5113-2C	Cupro-nickel	80	18,000	10.2	170	110	230	6	87	6	87	4.5
EC100-5113-2S*	Stainless Steel	90	20,000	12.0	200	110	230	6	87	6	87	4.5
EC100-5113-2T	Titanium	90	20,000	12.0	200	110	230	6	87	6	87	4.0

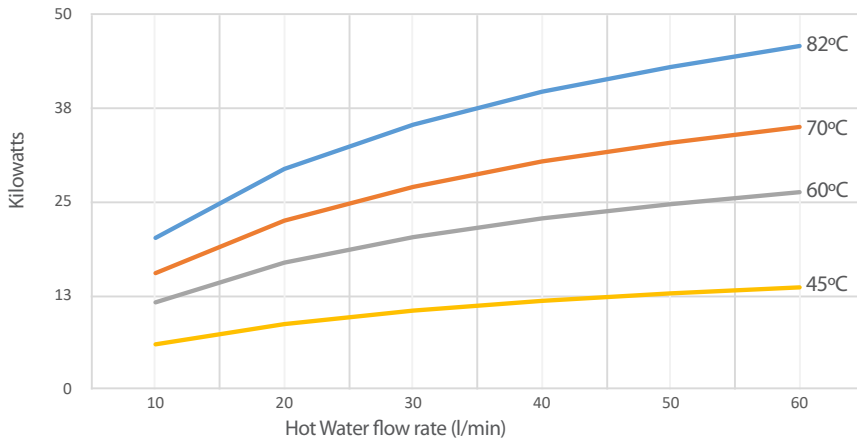
\*Not suitable for use on pools fitted with salt water chlorinators or salt water pools.

# Water Flow

As the graphs and table below illustrate, providing the right water flow volume is vital to the performance of the heat exchanger. If the flow rate of either the hot water supply, or the pool water circuit is too low, the heat exchanger will not perform at its designed efficiency and will be unable to transfer all the available heat energy in to the pool water.

For more information please visit; <https://ej-bowman.com/knowledge-centre/why-doesn't-my-pool-heat-up-faster/>

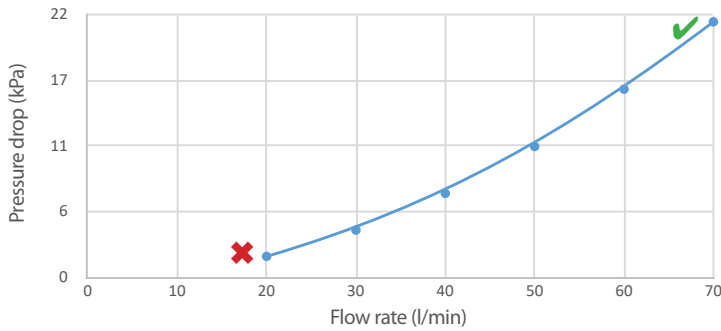
## Heat Transfer



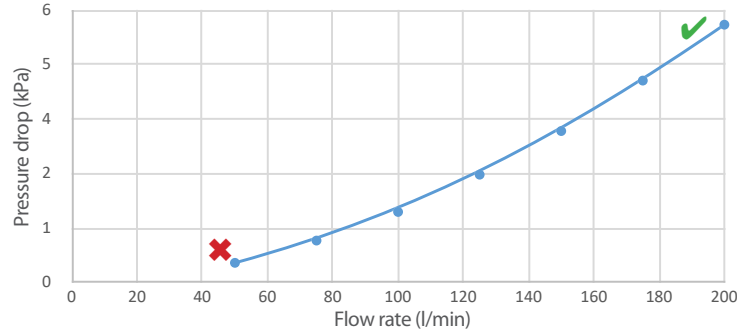
kW Heat Transfer - EC100-5113-2  
Pool water flow 250 l/min at 28°C

Hot Water Flow rate l/min	Temperature & Heat Transfer			
	82°C kW	70°C kW	60°C kW	45°C kW
10	20	16	12	6
20	29	23	17	9
30	35	27	20	11
40	40	30	23	12
50	43	33	25	13
60	46	35	26	14

## Pressure Drop Hot Water (Shell Side)

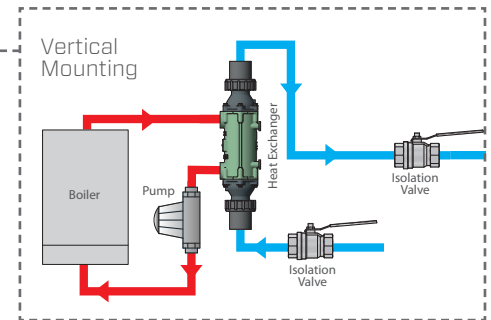
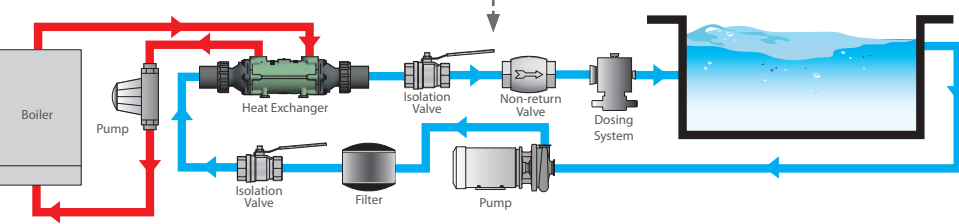


## Pressure Drop Pool Water (Tube Side)



✔ Optimum heat transfer performance    ✘ Reduced heat transfer performance

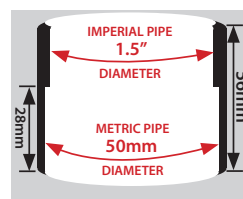
## Installation



If an automatic dosing system is added, it must be installed after the heat exchanger on the return to the pool.

## Universal Fit End Covers

The EC100-5113-2 is supplied with 'Universal Fit' composite end covers, designed for use with either 1.5" nominal pipe size (48mm O/D) or metric 50mm O/D pool pipework. The 'socket union' component enables either diameter to be accommodated, as shown on the adjacent cross section illustration.



## EJ Bowman (Birmingham) Ltd

Chester Street, Birmingham B6 4AP, UK  
Tel: +44 (0) 121 359 5401 Fax: +44 (0) 121 359 7495  
Email: [sales@ej-bowman.com](mailto:sales@ej-bowman.com) [www.ej-bowman.com](http://www.ej-bowman.com)



All material contained in this leaflet is the intellectual property of EJ Bowman (Birmingham) Ltd. It is protected under copyright and may not be reproduced without prior written consent from the company. EJ Bowman (Birmingham) Ltd reserve the right to change specifications at any time without prior notice.

# AQUA

## OTRAS PIEZAS / OTHER PIECES / AUTRES PIECES

Ref.	019	003	027	122N9-P9	C01...C08	122 PO...P8
Dimensiones Size Dimensionnes (mm)	244x102	244x119	119x119	119x244	244x244	119x244

Colores/Colours/Couleurs: Azul, Azul Anti-slip, Blanco, Blanco Anti-slip, Marino Anti-slip, Indubeige.

Grupo/Group\*: Alc (E ≤ 0.5%)

Uso/Use/Utilisation: Piscinas / Pools / Piscines

Normativa de ensayo Test standard Norme d'essai	Características dimensionales Dimensions Caractéristiques dimensionnelles	Valor declarado Declared value Valeur déclarée
ISO 10545-2	Desviación longitud y anchura Length and width deviation Écart longueur et largeur	≤ 1% (2 mm)
Normativa de ensayo Test standard Norme d'essai	Características Mecánicas Mechanical properties Caractéristiques mécaniques	Valor declarado Declared value Valeur déclarée
ISO 10545-12	Resistencia a la helada Frost resistance Résistance au gel	Cumple/Pass/Garantie
Normativa de ensayo Test standard Norme d'essai	Características Superficiales Surface properties Caractéristiques Superficielles	Valor declarado Declared value Valeur déclarée
ISO 10545-13	Resistencia química Chemical resistance Résistance chimique	GA/GLA/GHA
ISO 10545-14	Resistencia a las manchas Resistance to stains Résistance aux taches	4
UNE 41901	Resistencia al deslizamiento: Péndulo Slipping resistance: Pendulum	≥ 46 (Anti)
DIN 51097 XP P05-010	Resistencia al deslizamiento: Pie descalzo Slipping resistance: Barefoot Résistance à la glissance: Pieds nus	C / PN24 (Anti)

\*- Según/According to/ Selon ISO 13006:2012 / EN 14411:2012

Este documento es puramente comercial y no podrá ser utilizado en procedimientos judiciales o administrativos, ni como dictamen pericial ni como prueba documental, salvo autorización expresa de ROSAGRES S.L.U.

This document is purely commercial and cannot be used as an expert report or documentary evidence in administrative or judicial proceedings, unless ROSAGRES S.L.U.'s explicit authorization.

Ce document est strictement édité à des fins commerciales et ne peut être utilisé ni lors de procédures administratives ou judiciaires, ni comme avis d'experts ni comme preuve documentaire, sauf autorisation express de ROSAGRES S.L.U.

# AQUA

Color/Couleur: AZUL

Tamaño nominal/Nominal size/Taille nominal: 24x49 cm / 12x24 cm / 6x24 cm

Espesor/Thickness/Épaisseur: 8 mm

Código/Code: 244G1841N / 122G1841N / 052G1841N

Peso/Weight/Poids: 18 / 17.1 /15.5 (kg/m<sup>2</sup>)

Grupo/Group\*: Bla (E ≤ 0.5%)

Uso/Use/Utilisation: Paredes interiores y exteriores; Pavimentos interiores/ External and internal walls; Internal floorings/ Revêtements de mur intérieurs et extérieurs; Revêtements de sol intérieurs.

<i>Normativa de ensayo Test standard Norme d'essai</i>	<i>Características dimensionales Dimensions Caractéristiques dimensionnelles</i>	<i>Valor declarado Declared value Valeur déclarée</i>
ISO 10545-2	Dimensiones de fabricación Work size Dimensionnes de fabrication	244x494 mm 119x244 mm 56x244 mm
	Desviación longitud y anchura Length and width deviation Écart longueur et largeur	≤ 0.6 % (2 mm)
	Desviación rectitud de lados Straightness of sides deviation Écart rectitude des arêtes	≤ 0.5 % (1.5 mm)
	Desviación ortogonalidad Rectangularity deviation Écart angularité	≤ 0.5 % (2 mm)
	Desviación planimetría Surface flatness deviation Écart planéité de surface	≤ 0.5 % (2 mm)
<i>Normativa de ensayo Test standard Norme d'essai</i>	<i>Características Mecánicas Mechanical properties Caractéristiques mécaniques</i>	<i>Valor declarado Declared value Valeur déclarée</i>
ISO 10545-4	Fuerza de rotura (N) Breaking strength (N) Force de rupture (N)	> 1300
	Resistencia a la flexión (N/mm <sup>2</sup> ) Modulus of rupture (N/mm <sup>2</sup> ) Résistance à la flexion (N/mm <sup>2</sup> )	> 35
ISO 10545-6-7	Resistencia a la abrasión Abrasion resistance Résistance à l'abrasion	3 (1500)
ISO 10545-12	Resistencia a la helada Frost resistance Résistance au gel	Cumple/Pass/Garantie

<i>Normativa de ensayo</i> <i>Test standard</i> <i>Norme d'essai</i>	<i>Características Superficiales</i> <i>Surface properties</i> <i>Caractéristiques Superficielles</i>	<i>Valor declarado</i> <i>Declared value</i> <i>Valeur déclarée</i>
ISO 10545-13	Resistencia química Chemical resistance Résistance chimique	GA/GLA/GHA
ISO 10545-14	Resistencia a las manchas Resistance to stains Résistance aux taches	5
UNE 41901	Resistencia al deslizamiento: Péndulo Slipping resistance: Pendulum	15-35
DIN 51097 XP P05-010	Resistencia al deslizamiento: Pie descalzo Slipping resistance: Barefoot Résistance à la glissance: Pieds nus	-
DIN 51130 XP P05-010	Resistencia al deslizamiento: Pie calzado Slipping resistance: Shodfoot Résistance à la glissance: Pieds chaussés	-

\*- Según/According to/ Selon ISO 13006:2012 / EN 14411:2012

*Este documento es puramente comercial y no podrá ser utilizado en procedimientos judiciales o administrativos, ni como dictamen pericial ni como prueba documental, salvo autorización expresa de ROSAGRES S.L.U.*

*This document is purely commercial and cannot be used as an expert report or documental evidence in administrative or judicial proceedings, unless ROSAGRES S.L.U.'s explicit authorization.*

*Ce document est strictement édité à des fins commerciales et ne peut être utilisé ni lors de procédures administratives ou judiciaires, ni comme avis d'experts ni comme preuve documentaire, sauf autorisation express de ROSAGRES S.L.U.*

# AQUA

Color/Couleur: MARINO ANTI-SLIP

Tamaño nominal/Nominal size/Taille nominal: 24x49 cm / 12x24 cm / 6x24 cm

Espesor/Thickness/Épaisseur: 8 mm

Código/Code: 244G1843A / 122G1843A / 052G1843A

Grupo/Group\*: B1a (E ≤ 0.5%)

Uso/Use/Utilisation: Pavimentos exteriores/External floorings/ Revêtements de sol extérieurs

<i>Normativa de ensayo</i> <i>Test standard</i> <i>Norme d'essai</i>	<i>Características dimensionales</i> <i>Dimensions</i> <i>Caractéristiques dimensionnelles</i>	<i>Valor declarado</i> <i>Declared value</i> <i>Valeur déclarée</i>
ISO 10545-2	Dimensiones de fabricación Work size Dimensionnes de fabrication	244x494 mm 119x244 mm 56x244 mm
	Desviación longitud y anchura Length and width deviation Écart longueur et largeur	≤ 0.6 % (2 mm)
	Desviación rectitud de lados Straightness of sides deviation Écart rectitude des arêtes	≤ 0.5 % (1.5 mm)
	Desviación ortogonalidad Rectangularity deviation Écart angularité	≤ 0.5 % (2 mm)
	Desviación planimetría Surface flatness deviation Écart planéité de surface	≤ 0.5 % (2 mm)
<i>Normativa de ensayo</i> <i>Test standard</i> <i>Norme d'essai</i>	<i>Características Mecánicas</i> <i>Mechanical properties</i> <i>Caractéristiques mécaniques</i>	<i>Valor declarado</i> <i>Declared value</i> <i>Valeur déclarée</i>
ISO 10545-4	Fuerza de rotura (N) Breaking strength (N) Force de rupture (N)	> 1300
	Resistencia a la flexión (N/mm <sup>2</sup> ) Modulus of rupture (N/mm <sup>2</sup> ) Résistance à la flexion (N/mm <sup>2</sup> )	> 35
ISO 10545-6-7	Resistencia a la abrasión Abrasion resistance Résistance à l'abrasion	2 (600)
ISO 10545-12	Resistencia a la helada Frost resistance Résistance au gel	Cumple/Pass/Garantie

<i>Normativa de ensayo</i> <i>Test standard</i> <i>Norme d'essai</i>	<i>Características Superficiales</i> <i>Surface properties</i> <i>Caractéristiques Superficielles</i>	<i>Valor declarado</i> <i>Declared value</i> <i>Valeur déclarée</i>
ISO 10545-13	Resistencia química Chemical resistance Résistance chimique	GA/GLA/GHB
ISO 10545-14	Resistencia a las manchas Resistance to stains Résistance aux taches	4
UNE 41901	Resistencia al deslizamiento: Péndulo Slipping resistance: Pendulum	≥ 46
DIN 51097 XP P05-010	Resistencia al deslizamiento: Pie descalzo Slipping resistance: Barefoot Résistance a la glissance: Pieds nus	C / PN24
DIN 51130 XP P05-010	Resistencia al deslizamiento: Pie calzado Slipping resistance: Shodfoot Résistance a la glissance: Pieds chaussés	R11 / PC20

\*- Según/According to/ Selon ISO 13006:2012 / EN 14411:2012

*Este documento es puramente comercial y no podrá ser utilizado en procedimientos judiciales o administrativos, ni como dictamen pericial ni como prueba documental, salvo autorización expresa de ROSAGRES S.L.U.*

*This document is purely commercial and cannot be used in administrative or judicial proceedings, or as an expert report or documental evidence, unless ROSAGRES S.L.U.'s explicit authorization.*

*Ce document est strictement édité à des fins commerciales et ne peut être utilisé ni lors de procédures administratives ou judiciaires, ni comme avis d'experts ni comme preuve documentaire, sauf autorisation express de ROSAGRES S.L.U.*

# AQUA

Color/Couleur: MARINO

Tamaño nominal/Nominal size/Taille nominal: 24x49 cm / 12x24 cm / 6x24 cm

Espesor/Thickness/Épaisseur: 8 mm

Código/Code: 244G1843N / 122G1843N / 052G1843N

Grupo/Group\*: B1a (E ≤ 0.5%)

Uso/Use/Utilisation: Paredes interiores y exteriores; Pavimentos interiores/ External and internal walls; Internal floorings/ Revêtements de mur intérieurs et extérieurs; Revêtements de sol intérieurs.

<i>Normativa de ensayo</i> <i>Test standard</i> <i>Norme d'essai</i>	<i>Características dimensionales</i> <i>Dimensions</i> <i>Caractéristiques dimensionnelles</i>	<i>Valor declarado</i> <i>Declared value</i> <i>Valeur déclarée</i>
ISO 10545-2	Dimensiones de fabricación Work size Dimensionnes de fabrication	244x494 mm 119x244 mm 56x244 mm
	Desviación longitud y anchura Length and width deviation Écart longueur et largeur	≤ 0.6 % (2 mm)
	Desviación rectitud de lados Straightness of sides deviation Écart rectitude des arêtes	≤ 0.5 % (1.5 mm)
	Desviación ortogonalidad Rectangularity deviation Écart angularité	≤ 0.5 % (2 mm)
	Desviación planimetría Surface flatness deviation Écart planéité de surface	≤ 0.5 % (2 mm)
<i>Normativa de ensayo</i> <i>Test standard</i> <i>Norme d'essai</i>	<i>Características Mecánicas</i> <i>Mechanical properties</i> <i>Caractéristiques mécaniques</i>	<i>Valor declarado</i> <i>Declared value</i> <i>Valeur déclarée</i>
ISO 10545-4	Fuerza de rotura (N) Breaking strength (N) Force de rupture (N)	> 1300
	Resistencia a la flexión (N/mm <sup>2</sup> ) Modulus of rupture (N/mm <sup>2</sup> ) Résistance à la flexion (N/mm <sup>2</sup> )	> 35
ISO 10545-6-7	Resistencia a la abrasión Abrasion resistance Résistance à l'abrasion	2 (600)
ISO 10545-12	Resistencia a la helada Frost resistance Résistance au gel	Cumple/Pass/Garantie

<i>Normativa de ensayo</i> <i>Test standard</i> <i>Norme d'essai</i>	<i>Características Superficiales</i> <i>Surface properties</i> <i>Caractéristiques Superficielles</i>	<i>Valor declarado</i> <i>Declared value</i> <i>Valeur déclarée</i>
ISO 10545-13	Resistencia química Chemical resistance Résistance chimique	GA/GLA/GHA
ISO 10545-14	Resistencia a las manchas Resistance to stains Résistance aux taches	5
UNE 41901	Resistencia al deslizamiento: Péndulo Slipping resistance: Pendulum	35 > R > 15
DIN 51097 XP P05-010	Resistencia al deslizamiento: Pie descalzo Slipping resistance: Barefoot Résistance à la glissance: Pieds nus	-
DIN 51130 XP P05-010	Resistencia al deslizamiento: Pie calzado Slipping resistance: Shodfoot Résistance à la glissance: Pieds chaussés	-

\*- Según/According to/ Selon ISO 13006:2012 / EN 14411:2012

*Este documento es puramente comercial y no podrá ser utilizado en procedimientos judiciales o administrativos, ni como dictamen pericial ni como prueba documental, salvo autorización expresa de ROSAGRES S.L.U.*

*This document is purely commercial and cannot be used in administrative or judicial proceedings, or as an expert report or documental evidence, unless ROSAGRES S.L.U.'s explicit authorization.*

*Ce document est strictement édité à des fins commerciales et ne peut être utilisé ni lors de procédures administratives ou judiciaires, ni comme avis d'experts ni comme preuve documentaire, sauf autorisation express de ROSAGRES S.L.U.*



# Pro-Series™ HB Side / Pro-Series™ HB Top

## Performance and reliability

- Blown polyethylene filter for **excellent resistance to high pressures (3.5 bar)**
- Tank manufactured according to the NSF standard
- High resistance to treatment products
- Weather resistant, can be installed outdoors
- Easy maintenance of the filtering medium without removing the valve
- Swivel-mounted laterals for ease of maintenance
- 40 to 50 micron filtration



Pro-Series™ HB Side

Pro-Series™ HB Top



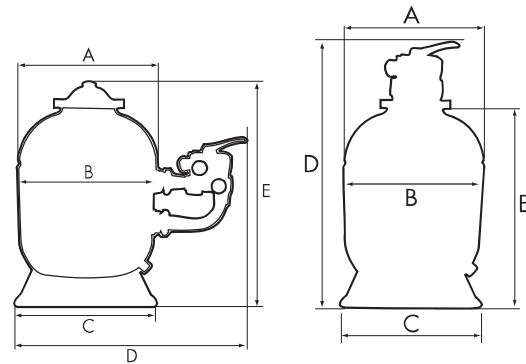
Vari-Flo™ 6-position valve



Sand easily accessible by removing the collar



Drain with plug that also serves as a dismantling tool



FILTERS

	Flow rate*	Effective filtration area	In/Out	Weight when empty	Sand in kg	Dimensions in mm					Item
						A	B	C	D	E	
PRO-SERIES™ HB SIDE	10 m³/h	0,20 m²	1.5"	17 kg	100	510	498	521	825	810	S210SXE
	14 m³/h	0,28 m²	1.5"	24 kg	150	612	594	521	875	920	S244SXE
	22 m³/h	0,45 m²	2"	35 kg	250	762	725	585	1070	1008	S0310SXE
	30 m³/h	0,64 m²	2"	61 kg	350	895	880	585	1230	1147	S0360SXE
PRO-SERIES™ HB TOP	6 m³/h	0,12 m²	1.5"	12 kg	50	401	391	371	858	598	S166TXE
	10 m³/h	0,20 m²	1.5"	17 kg	100	511	500	521	989	729	S210TXE
	14 m³/h	0,28 m²	1.5"	24 kg	150	612	594	521	1097	837	S244TXE
	22 m³/h	0,45 m²	2"	31 kg	250	762	725	585	1240	934	S0310TXE
	30 m³/h	0,64 m²	2"	61 kg	350	895	880	585	1374	1068	S0360TXE

\* Provide sufficient height to open the filter (minimum clearance height: 650 mm above the filter).

# HCF STANDARD SERIES

## Bobbin wound filter equipment

**5**

YEARS OF WARRANTY

FILTERS



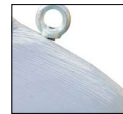
Filter 2.5 bar  
Filtration bed height: 1 m

### Bobbin Filters Range

- All our commercial filters are supplied with basic options and additional options may be ordered
- For each type of technology, a wide choice of sizes, filtration speeds and pressure resistances are available

#### STANDARD FEATURES

- Lifting lugs (Lifting process only available with empty filter)
- Top manhole
- Pressure gauge with maximum pressure indicator and operating pressure monitoring
- Arm collectors



Lifting lugs



New top manhole Noryl®



Pressure gauge



Arm collectors

#### OPTIONS ON REQUEST:



Sight glass

New reinforced Lid on Noryl®



Air Relief: 1" Tri-functional-system



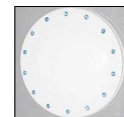
Vertical Manometer panel



Horizontal Manometer with taps to collect samples



Oval manhole 400 x 295mm



Round manhole 400 mm



Round manhole 500 mm

Oval or round manhole

Range / Pressures / 4,6 and 9 bar  
Check our industrial filters range

Filtration bed height: 1.2 m or 1.5 m  
Optionals page 37



Nozzle plate



#### Options under request

#### Diameters bobbin wound filters

	1 050	1 200	1 400	1 600	1800	2 000	2 200	2 350	2 500	3 000
	Oval manhole 400 x 295 mm			Manhole 400 mm Connections: 225-250- Manhole: 500 mm						
	Sight glass 90 mm			Sight glass 125 mm						
	Nozzle plate*									
	1.2 m bed height									
	1.5 m bed height									

#### Optional accessories under request

213010000300	1"- Tri-functional air relief
210350025000	Horizontal manometer panel 0-6 bar MP 25 (included with the Hayward batteries)
210350024000	Vertical manometer panel 0-6 bar MP 24
210350060000	Vertical manometer panel 0-10 bar MP 26

# HCF STANDARD SERIES

## Bobbin-wound filters

**5**

YEARS OF WARRANTY



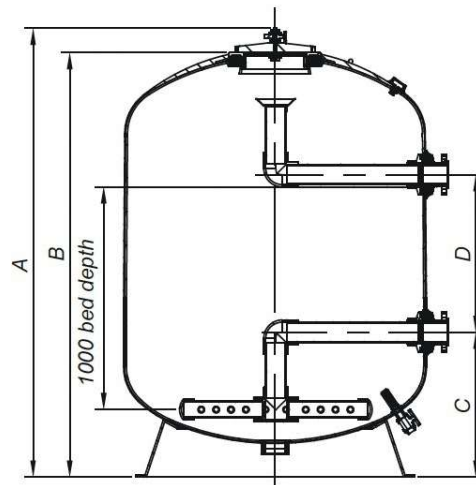
### Bobbin-wound Filters

- Sand filters made from bobbin-wound glass-fibre yarn impregnated with polyester resin (GFRP technology)
- Wide range: diameter from 1 050 mm to 3 000 mm
- Operating pressure: 0.5 to 2.0 bar
- Maximum Pressure: 2.5 bar
- Filtration bed depth: 1 m
- Testing pressure: 3.75 kg/cm<sup>2</sup>
- Large opening on top for easy maintenance 400 x 300 mm
- Arm collector as standard
- Sand outlet 63 or 90 mm in diameter, water drain 1"
- Ball valve for air relief
- Uses: very large pools, water parks, industrial water treatment

- ▶ **Wide range of diameters: 1 050 mm to 3 000 mm**
- ▶ **Filtration bed depth: 1.2 and 1.5 meters on request.**
- ▶ **Nozzle plate on request.**

Dimensions 1 meter bed depth - arm collector

D Ø (mm)	1 050	1 200	1 400	1 600	1 800	2 000	2 200	2 350	2 500	3 000
Flanges Ø (mm)	63/75/90	75/90	75/90/110	90/110/125	90/110/125/140	110/125/140/160	125/140/160/200	125/140/160/200	140/160/200/225	160/200/225/250
Filtration height (m)	1	1	1	1	1	1	1	1	1	1
A (mm)	1 816	1 816	1 816	1 916	1 956	2 060	2 135	2 376	2 700	2 870
B (mm)	1 680	1 680	1 680	1 780	1 820	1 920	2 005	2 240	2 560	2 735
C (mm)	625	630	630	720	750	770	850	940	1 080	1 175
D (mm)	550	550	550	490	440	490	420	500	550	550
Filtration area (m <sup>2</sup> )	0.86	1.13	1.54	2.01	2.54	3.14	3.80	4.33	4.90	7.07
Volume (L)	1 145	1 462	1 912	2 609	3 527	4 295	5 280	7 006	8 752	13 960
Gravel 1-2 (kg) / Sand 0.4 - 0.8 (kg)	150 / 1 150	200 / 1 525	325 / 2 075	450 / 2 725	575 / 3 450	1 000 / 4 250	1 000 / 4 925	1 600 / 5 850	1 700 / 6 625	2 800 / 9 500
Glass (kg)	1 180	1 560	2 160	2 860	3 640	4 740	5 280	6 700	7 500	11 080



# HCF STANDARD SERIES

## Bobbin-wound filters

5

YEARS OF WARRANTY

FILTERS

Reference	Diameter (mm)	Connection (mm)	Flow rate (m <sup>3</sup> /h)	Filtration area (m <sup>2</sup> )	Unassembled manual Batteries Reference	Speed (m <sup>3</sup> /h/m <sup>2</sup> )
HCF40632WVA	1 050	63	17	0.86	HCB634UN	20
HCF47752WVA	1 200	75	22	1.13	HCB754UN	
HCF55752WVA	1 400	75	30	1.54	HCB754UN	
HCF63902WVA	1 600	90	40	2.01	HCB904UN	
HCF70902WVA	1 800	90	50	2.54	HCB904UN	
HCF791102WVA	2 000	110	62	3.14	HCB1104UN	
HCF861252WVA	2 200	125	76	3.8	HCB1254UN	
HCF921252WVA	2 350	125	87	4.33	HCB1254UN	
HCF981402WVA	2 500	140	100	4.9	HCB1404UN	
HCF1181602WVA	3 000	160	140	7.07	HCB1604UN	
HCF40752WVA	1 050	75	25	0.86	HCB754UN	30
HCF47752WVA	1 200	75	33	1.13	HCB754UN	
HCF55902WVA	1 400	90	46	1.54	HCB904UN	
HCF631102WVA	1 600	110	60	2.01	HCB1104UN	
HCF701102WVA	1 800	110	76	2.54	HCB1104UN	
HCF791252WVA	2 000	125	94	3.14	HCB1254UN	
HCF861402WVA	2 200	140	114	3.8	HCB1404UN	
HCF921402WVA	2 350	140	130	4.33	HCB1404UN	
HCF981602WVA	2 500	160	150	4.9	HCB1604UN	
HCF1182002WVA	3 000	200	212	7.07	HCB2004UN	
HCF40752WVA	1 050	75	34	0.86	HCB754UN	40
HCF47902WVA	1 200	90	45	1.13	HCB904UN	
HCF551102WVA	1 400	110	61	1.54	HCB1104UN	
HCF631102WVA	1 600	110	80	2.01	HCB1104UN	
HCF701252WVA	1 800	125	101	2.54	HCB1254UN	
HCF791402WVA	2 000	140	125	3.14	HCB1404UN	
HCF861602WVA	2 200	160	152	3.8	HCB1604UN	
HCF921602WVA	2 350	160	175	4.33	HCB1604UN	
HCF982002WVA	2 500	200	200	4.9	HCB2004UN	
HCF1182252WVAM*	3 000	225	282	7.07	HCB2254UN	
HCF40902WVA	1 050	90	43	0.86	HCB904UN	50
HCF47902WVA	1 200	90	56	1.13	HCB904UN	
HCF551102WVA	1 400	110	77	1.54	HCB1104UN	
HCF631252WVA	1 600	125	100	2.01	HCB1254UN	
HCF701402WVA	1 800	140	125	2.54	HCB1404UN	
HCF791602WVA	2 000	160	157	3.14	HCB1604UN	
HCF862002WVA	2 200	200	190	3.8	HCB2004UN	
HCF922002WVA	2 350	200	217	4.33	HCB2004UN	
HCF982252WVAM*	2 500	225	250	4.9	HCB2254UN	
HCF1182502WVAM*	3 000	250	353	7.07	HCB2504UN	

Automatic batteries under request: Pneumatic or Electric actuators available - Unassembled or assembled on demand  
 \* Only possible to provide with lateral manhole D 500 mm

# HCP3800 SERIES

## 3 000 rpm pumps

**2**

YEARS OF WARRANTY

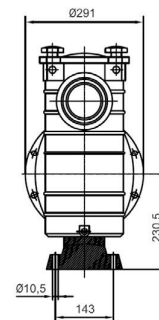
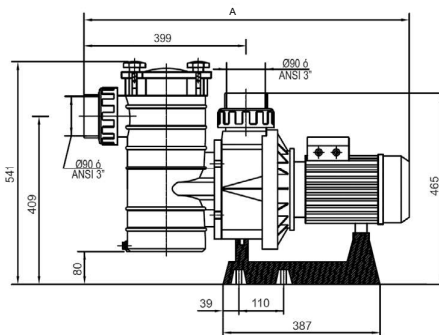


**IE3** ✓

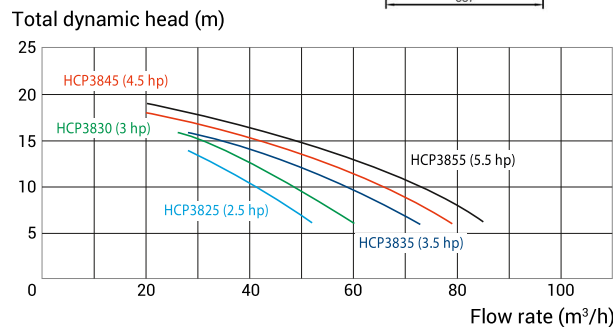
- ▶ 2.5 hp to 5.5 hp
- ▶ 3 000 rpm
- ▶ Pump material: thermoplastic pumps

### Light weight and easy to install

- Pump made of glass-fibre reinforced thermoplastics
- The three-phase motors are compliant with the IE3 standard
- Turbine made of reinforced Noryl
- This pump is suitable for salt water and sea water
- Strainer with transparent cover for easy maintenance
- Elevated base to ensure proper motor ventilation
- Operates at 50 Hz / 3 000 rpm, IP55, class F insulation
- For 60 Hz, please contact us. ANSI connectors can be provided under request.
- Uses: large pools, spas, water features



#### ➔ HCP3800 SERIES Curves



HCP 3800  
SERIES

Reference	P2 (HP)	P1 (kW)	Flow rate* (m³/h)	Inlet / Outlet (mm)	Weight (kg)	Motor	Amperage (A)	Dim A (mm)	Packaging dimensions (mm)	Qty. per pallet (uds)	Efficiency (1)
HCP38251E	2.5	2.3	35	90	25.5	Single-phase 230 V	12.4	760	830 x 330 x 570	12	
HCP38301E	3	2.8	42	90	26.2	Single-phase 230 V	14.5	760	830 x 330 x 570	12	
HCP38253E1	2.5	2.3	35	90	25.5	Three-phase 230 / 400 V	8.3 / 4.8	760	830 x 330 x 570	12	IE1
HCP38303E1	3	2.8	42	90	26.2	Three-phase 230 / 400 V	8.8 / 5.1	760	830 x 330 x 570	12	IE1
HCP38353E1	3.5	3.7	50	90	30.5	Three-phase 230 / 400 V	10.4 / 6.0	801	830 x 330 x 570	12	IE1
HCP38453E1	4.5	4.3	57	90	30.5	Three-phase 230 / 400 V	11.7 / 6.75	801	830 x 330 x 570	12	IE1
HCP38553E1	5.5	4.7	67	90	35.5	Three-phase 230 / 400 V	14.6 / 8.5	815	830 x 330 x 570	12	IE1
HCP38553E17	5.5	4.7	67	90	35.5	Three-phase 400/700 V	8.5/4.8	815	830 x 330 x 570	12	IE1
HCP38253E	2.5	2.3	35	90	-	Three-phase 230 / 400 V	8.3 / 4.8	760	830 x 330 x 570	12	IE3 ✓
HCP38303E	3	2.8	42	90	-	Three-phase 230 / 400 V	8.8 / 5.1	760	830 x 330 x 570	12	IE3 ✓
HCP38353E	3.5	3.7	50	90	-	Three-phase 230 / 400 V	10.4 / 6.0	801	830 x 330 x 570	12	IE3 ✓
HCP38453E	4.5	4.3	57	90	-	Three-phase 230 / 400 V	11.7 / 6.75	801	830 x 330 x 570	12	IE3 ✓
HCP38553E24	5.5	4.7	67	90	35.5	Three-phase 230/400 V	14.6 / 8.5	815	830 x 330 x 570	12	IE3 ✓
HCP38553E7	5.5	4.7	67	90	35.5	Three-phase 400/700 V	8.5/4.8	815	830 x 330 x 570	12	IE3 ✓

\* under 12 m water column pressure / P1: Power input / P2: Nominal Power

# K-Flo VSTD

EXPERT LINE



YEARS OF WARRANTY  
**3** STANDARD **4** TH  
 Totally Hayward

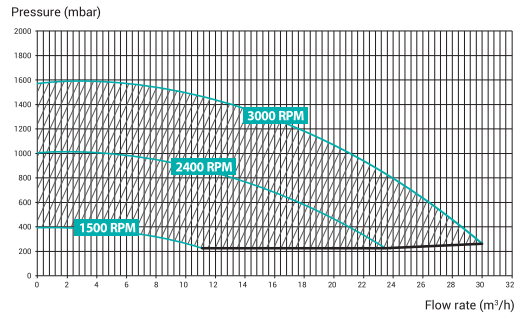
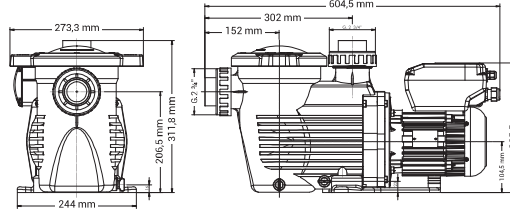
## THE RIGHT FLOW FOR EACH APPLICATION

- Smart Inverter + Permanent Magnet Motor + synchronized motor : electricity saving up to 85%\*
- **Extremely quiet**
- **Remote control**, even through the smartphone, by connecting it to AquaRite® +
- **180° rotary box for convenient access** to the user interface
- **Twist-Lock opening cover** for easy maintenance
- **Union fittings provided, 50 and 63 mm diameter, to fit in any existing installation**
- Recommended for pools up to 80 m<sup>3</sup>\*\*

\* Running at low speed. Electricity savings of 65% are generally achieved.  
 \*\* Running at low speed 24 hours



See-through Twist-Lock strainer cover Double drain with easy opening (no tools required) Unions kit included (50/63 mm)



### Technical Specifications

Max. water temp.	35°C
Mechanical seal	AISI 316, suitable for salt water
Motor-drive specifications	Class F, IP55, 50 Hz, Brushless VFD
Housing/impeller/strainer/lid	PP+GF/Noryl® +GF/PP/SAN®

Type	Flow rate*	Weight	I/O	Input Power P1	Output Power P2	Amperage	Item.
K-FLO VSTD	1.5 HP @10 m: 21 m³/h @8 m: 23.8 m³/h	15 kg	63 mm	1240 W	1100 W	5.9 A	SPK12615VSTD

\* at 3000 Rpm

**LPRK Smart retrofit kit: use it with the K-Flo VSTD to replace easily old pumps on existing installations**

Item	Pumps to replace	Kit content	Kit per box
LPRK	Astral Victoria Plus, Astral Victoria Plus Silent, Saci Winner	Smart Base 45 (1), Fixing screw (3), RC50 (2), O-ring Seal (2)	10

LPRK is valid to retrofit installations Ø 50 mm, commonly used for pumps up to 1 HP



# K-Flo

EXPERT LINE



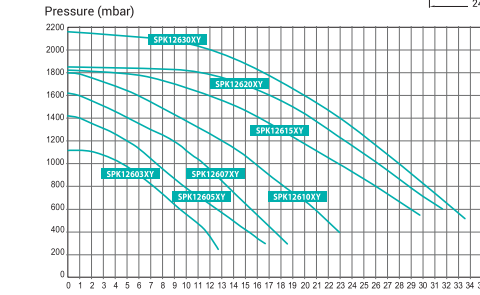
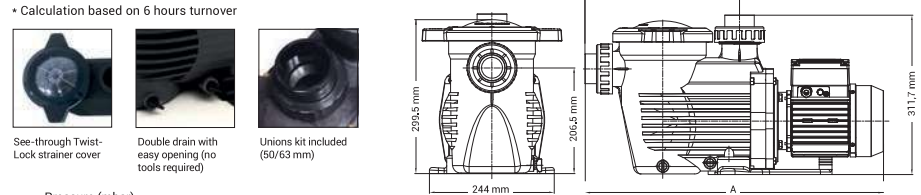
YEARS OF WARRANTY  
**3** STANDARD **4** TH  
 Totally Hayward

## HIGH PERFORMANCE WITH QUIET OPERATION

- **Twist-Lock cover**, rapid access (no tools required)
- **Impeller and diffuser made of Noryl®**, very hard-wearing and corrosion-free
- **Suitable for use in salt water**, corrosion proof seal assembly
- **Direct replacement** for KS pumps
- **Unions fittings provided**
- Recommended for pools up to 195 m<sup>3</sup>



See-through Twist-Lock strainer cover Double drain with easy opening (no tools required) Unions kit included (50/63 mm)



### Technical Specifications

Max. water temp.	35°C
Mechanical seal	AISI 316, suitable for salt water
Motor specifications	Class F, IP55, 50 Hz, 2 Poles
Housing/impeller/strainer/lid	PP+GF/Noryl®+GF/PP/SAN®

Type	Side A	Weight	I/O	Flow rate*	Input Power P1	Output Power P2	Amperage	Item
SINGLE PHASE K-FLO	1/3 HP	543 mm	11.2 kg	50 mm	4.8 m³/h	485 W	2.45 A	SPK12603XY1
	1/2 HP	590 mm	12.5 kg	50 mm	7.5 m³/h	610 W	3.2 A	SPK12605XY1
	3/4 HP	590 mm	13.5 kg	50 mm	11.5 m³/h	820 W	3.8 A	SPK12607XY1
	1 HP	590 mm	14 kg	50 mm	15.4 m³/h	1090 W	5 A	SPK12610XY1
	1.5 HP	620 mm	16.5 kg	63 mm	21.9 m³/h	1610 W	7.5 A	SPK12615XY1
	2 HP	620 mm	22.5 kg	63 mm	25.7 m³/h	1880 W	9 A	SPK12620XY1
	3 HP	620 mm	25 kg	63 mm	33 m³/h	2750 W	12.5 A	SPK12630XY1
THREE PHASE K-FLO	1/2 HP	590 mm	12.5 kg	50 mm	7.5 m³/h	610 W	2.45/1.4 A	SPK12605XY3
	3/4 HP	590 mm	13.5 kg	50 mm	11.5 m³/h	820 W	3/1.7 A	SPK12607XY3
	1 HP	620 mm	16.5 kg	50 mm	15.4 m³/h	1090 W	3.4/2 A	SPK12610XY3
	1.5 HP	620 mm	19 kg	63 mm	21.9 m³/h	1610 W	5/2.9 A	SPK12615XY3
	2 HP	620 mm	25 kg	63 mm	25.7 m³/h	1880 W	6.1/3.5 A	SPK12620XY3
	3 HP	620 mm	27 kg	63 mm	33 m³/h	2750 W	8.3/5.0 A	SPK12630XY3

\* under 10 m water column pressure

**LPRK Smart retrofit kit: use it with the K-Flo to replace easily old pumps on existing installations**

Item	Pumps to replace	Kit content	Kit per box
LPRK	Astral Victoria Plus, Astral Victoria Plus Silent, Saci Winner	Smart Base 45 (1), Fixing screw (3), RC50 (2), O-ring Seal (2)	10

LPRK is valid to retrofit installations Ø 50 mm, commonly used for pumps up to 1 HP

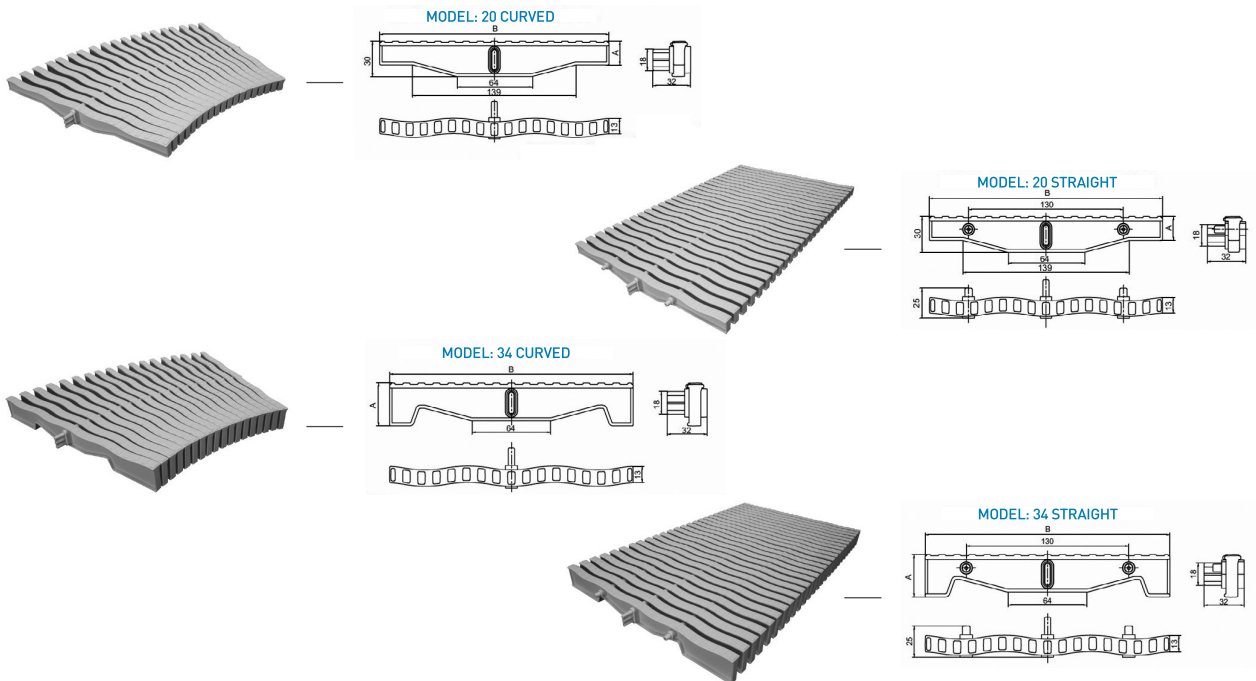


### Modular grating

- Made of polypropylene with UV-resistant treatment
- Designed to EN 13451-1
- 55 elements = 1 meter
- The modular elements, connect under applied pressure without adhesive

Ref.	Height A (mm)	Width B (mm)	Elements/box	Meters/box	Weight (kg)	Vol. (m³)	C.S.U.
<b>OVERFLOW GRATINGS - STRAIGHT ELEMENTS (20 mm)</b>							
061010202000	20	195	378	6.87	8.2	0.053	1
061010252000	20	245	324	5.89	8.5	0.053	1
061010302000	20	295	297	5.40	8.8	0.053	1
<b>OVERFLOW GRATINGS - CURVED ELEMENTS (20 mm)</b>							
061011202000	20	195	378	6.87	7.7	0.053	1
061011252000	20	245	324	5.89	8	0.053	1
061011302000	20	295	297	5.40	8.5	0.053	1
<b>OVERFLOW GRATINGS - STRAIGHT ELEMENTS (34 mm)</b>							
061010203400	34	195	351	6.38	8.3	0.053	1
061010253400	34	245	297	5.40	8.7	0.053	1
061010303400	34	295	270	4.90	9.4	0.053	1
<b>OVERFLOW GRATINGS - CURVED ELEMENTS (34 mm)</b>							
061011203400	34	195	351	6.38	7.8	0.053	1
061011253400	34	245	297	5.40	8.2	0.053	1
061011303400	34	295	270	4.90	9	0.053	1

Modular grating will be provided in complete boxes. Orders can't be done in lineal meters.



### Corner piece for infinity pools

Polyester reinforced with fibreglass, white, nonslip finish

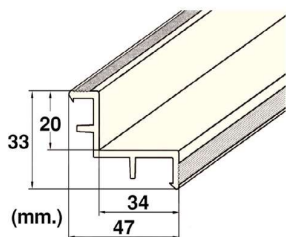
WHITE GOODS



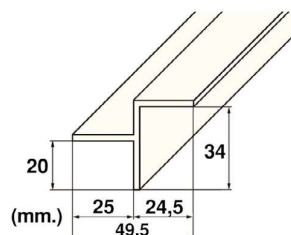
Ref.	Height (mm)	Width (mm)	Angle	Weight (kg)	Vol. (m <sup>3</sup> )	C.S.U.
<b>CORNER 90°</b>						
060990202000	20	195	90°	2.7	0.006	1
060990252000	20	245	90°	3.4	0.009	1
060990302000	20	295	90°	4.6	0.012	1
060990203400	34	200	90°	3.1	0.009	1
060990253400	34	250	90°	4.1	0.013	1
060990303400	34	300	90°	5.1	0.018	1
<b>CORNER 45°</b>						
060945202000	20	200	45°	1.8	0.006	1
060945252000	20	250	45°	2.3	0.009	1
060945302000	20	300	45°	2.8	0.012	1
060945203400	34	200	45°	1.9	0.009	1
060945253400	34	250	45°	2.5	0.013	1
060945303400	34	300	45°	3.1	0.018	1

### Grating support profile

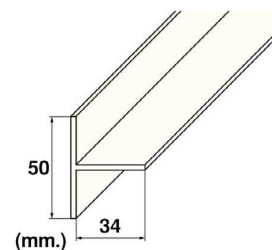
Ref.	Length /unit (mm)	Weight (kg)	Vol. (m <sup>3</sup> )	qty./box	C.S.U.
061220000000	2 000	18	0.096	35	1
061220100000	2 000	18	0.096	35	1
061250000000	5 000	23.5	0.096	35	1
061250100000	20 00	30	0.096	30	1



061220000000



061220100000



061250000000



# Pro-Series™ HL Side

## Attractive, sturdy design

- **New range of polyester filters:** fibreglass-reinforced polyester filter body for enhanced pressure resistance. Its structure gives it great strength
- **A complete range:** four products to suit all your customers' pool configurations
- **Bolted opaque cover**
- **Wide top opening** to facilitate easier sand loading
- **Supplied with 6-way valve.** All models are fitted with a pressure gauge



Pro-Series™ HL

FILTERS



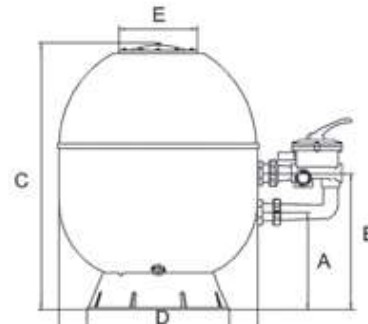
6-position valve with integrated pressure gauge



Drain plug for easy maintenance



Wide top opening for easier sand loading



PRO-SERIES™  
HL SIDE

Flow rate	Filtration area	Ø mm	In/Out	Empty weight	Sand in kg	Dimensions in mm					Item
						A	B	C	D	E	
10 m³/h	0.21 m²	520	1.5"	11 kg	100	305	430	775	458	300	S210SLE
14 m³/h	0.32 m²	640	1.5"	21 kg	150	315	440	860	458	300	S240SLE
22.5 m³/h	0.45 m²	760	2"	31 kg	225	365	505	900	605	300	S310SLE
31.5 m³/h	0.63 m²	900	2"	40 kg	325	365	505	900	605	300	S360SLE

# RGB and White PAR56 LED lights

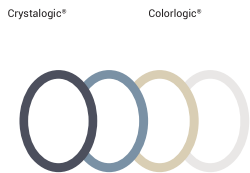
YEARS OF WARRANTY

2 STANDARD 3 TH 2 POWERLINE

CrystalLogic® Totally Hayward ColorLogic® PowerLine

## COLORLOGIC® / CRYSTALOGIC® AN INFINITE ARRAY OF LED LIGHTING EFFECTS WITH LOW ENVIRONMENTAL IMPACT

- Long-lasting, reliable lights:** these lights have a lifetime of more than 30,000 hours, thanks to their anodised aluminium casing and plastic lens, which provide exceptional protection against aggressive climate conditions and water treatment chemicals.
- Safety:** the range is compliant with all European lighting regulations.
- The radiofrequency communication between the lighting and remote control** is also certified.
- Energy savings.** The maximum electricity consumption is 16 W for the Colorlogic® LED light and 13.5 W for the CrystaLogic® model, **so around 6 times lower than conventional lights.**
- Aesthetic aspects:** the Colorlogic® and CrystaLogic® LED lights can be personalised to match the colour of the pool, with a choice of 4 ring colours (dark grey, light grey, sand and white).
- An infinite number of mood options.** The Colorlogic® model offers a choice of 16 lighting programmes, allowing you to adjust the atmosphere to suit the mood of the moment using the optional remote control. The lighting programs can be synchronised immediately with no need to turn the system off.

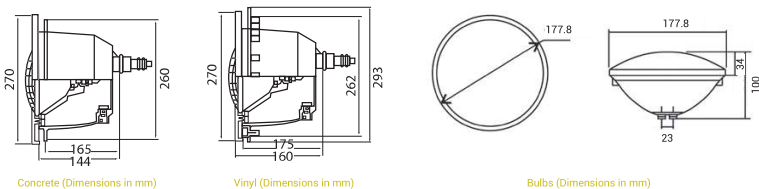


Complete coloured parts LED lights ColorLogic® / CrystaLogic® available in 4 colours: Dark grey, Grey, Sand and White

Description	3478PDLDBL3	3481PDLDBL3	3481PDLDBL3DGR	3481PDLDBL3LG	3481PDLDBL3SA	3478LDRGB3	3481LDRGB3	3481LDRGB3DGR	3481LDRGB3LG	3481LDRGB3SA
Consumption in W	13.5 W					16 W				
Power supply	12VAC / 20 VDC									
Number LEDs	60					90				
Lumens	1650					510				
White / RGB	White					RGB				
LED technology	CrystaLogic					ColorLogic (16 programs, synchronisation, memory)				
Application	Concrete	Vinyl				Concrete	Vinyl			
White goods coloured elements										
Plastic body	COFIES / HAYWARD®									
Radiofrequency	No					Yes (Included)				
Remote Control	No					Yes (Included)				
Remote control Light LED (PowerLine)	-					81478RC				

RGB AND WHITE PAR56 LED LIGHT

OPTIONS AVAILABLE



# RGB and White mini LED lights

YEARS OF WARRANTY

2 STANDARD 3 TH 2 POWERLINE

CrystalLogic® Totally Hayward ColorLogic®

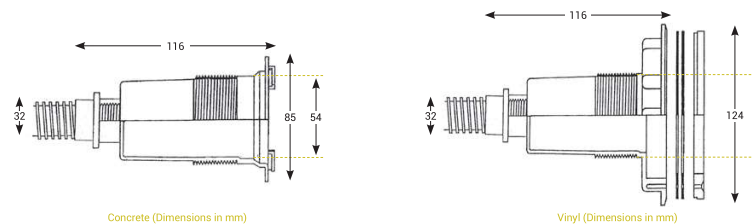
## MINI LED SPOTS FOR MAXIMUM LIGHT!

- Our LED lights come in **mini LED version**, in white and in colour.
- Our range of mini LED lights integrates into all pool types (liner, concrete or fibreglass) and all pool shapes to light up specific points **such as stairs, steps, fountains and pool water features.**
- Perfectly synchronisable with all Hayward LED lights**, these mini LEDs harmonise lighting at all corners of the pool.



RGB AND WHITE MINI LED LIGHT

Description	3424LEDBL	3429LEDBL	3424LEDRGB	3429LEDRGB
Consumption in W	18 W		15 W	
Power supply	12VAC			
Number LEDs	630		320	
White / RGB	White		RGB	
LED technology	CrystaLogic		ColorLogic	
Application	Concrete	Vinyl	Concrete	Vinyl
White goods coloured elements				
Plastic body	COFIES / HAYWARD®			
Radiofrequency	No			
Remote Control	No			



# LADDERS

**Hard-Wearing, with an exceptional finish**

## Standard Ladders

Made of AISI 316 or AISI 304 stainless steel, D43 mm handrail, shiny polished finishing, includes non-slip pad in all the steps for a safe and comfortable use. Designed according EN 16582-1. Supplied with anchors -one of them with earth connection-, stoppers, screws and trims.

Item	Ref.	Stainless steel	No. steps	Weight	Vol.	qty/pallet	M.O.Q**	DIMENSIONS		
								Depth	Width	Height
070101320000F	PI2HF	AISI 304L	2	10 kg	0.06 m <sup>3</sup>	20	1	657 mm	500 mm	1326 mm
070101330000F	PI3HF	AISI 304L	3	11.8 kg	0.07 m <sup>3</sup>	20	1	657 mm	500 mm	1576 mm
070101340000F	PI4HF	AISI 304L	4	13.2 kg	0.08 m <sup>3</sup>	20	1	657 mm	500 mm	1826 mm
070101350000F	PI5HF	AISI 304L	5	14 kg	0.09 m <sup>3</sup>	20	1	657 mm	500 mm	2076 mm
070110320000F	IP2HF	AISI 316L	2	10 kg	0.06 m <sup>3</sup>	20	1	657 mm	500 mm	1326 mm
070110330000F	IP3HF	AISI 316L	3	11.8 kg	0.07 m <sup>3</sup>	20	1	657 mm	500 mm	1576 mm
070110340000F	IP4HF	AISI 316L	4	13.2 kg	0.08 m <sup>3</sup>	20	1	657 mm	500 mm	1826 mm
070110350000F	IP5HF	AISI 316L	5	14 kg	0.09 m <sup>3</sup>	20	1	657 mm	500 mm	2076 mm

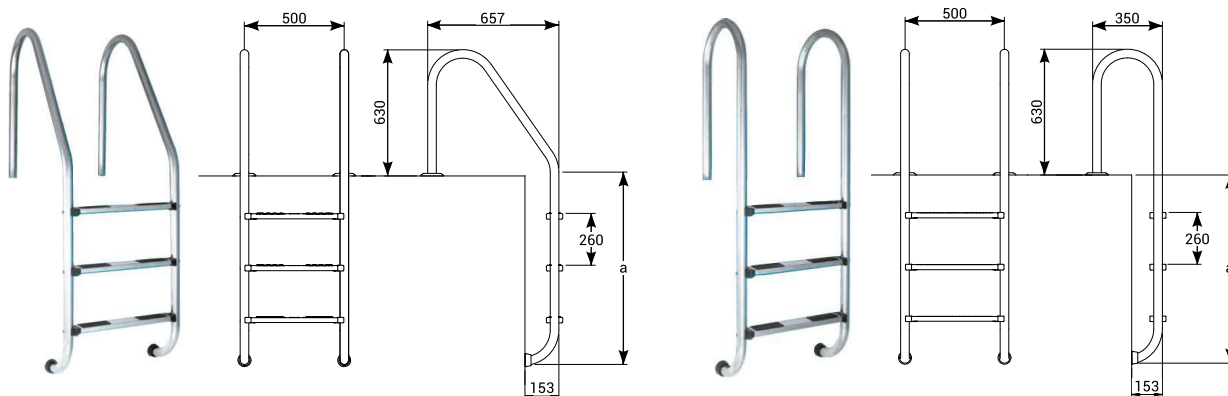
\*\* Minimum order quantity

## Straight Ladders

Made of AISI 316 or AISI 304 stainless steel, D43 mm handrail, shiny polished finishing, includes non-slip pad in all the steps for a safe and comfortable use. Designed according EN 16582-1. Supplied with anchors -one of them with earth connection-, stoppers, screws and trims.

Item	Ref.	Stainless steel	No. steps	Weight	Vol.	qty/pallet	M.O.Q**	DIMENSIONS		
								Depth	Width	Height
070210320000F	IM2HF	AISI 316L	2	11 kg	0.06 m <sup>3</sup>	20	1	350 mm	500 mm	1326 mm
070210330000F	IM3HF	AISI 316L	3	11.8 kg	0.07 m <sup>3</sup>	20	1	350 mm	500 mm	1526 mm
070210340000F	IM4HF	AISI 316L	4	13.2 kg	0.08 m <sup>3</sup>	20	1	350 mm	500 mm	1826 mm
070210350000F	IM5HF	AISI 316L	5	14 kg	0.09 m <sup>3</sup>	20	1	350 mm	500 mm	2076 mm

\*\* Minimum order quantity



**Standard Ladders** - Designed according EN 16582-1

**Straight Ladders** - Designed according EN 16582-1

## PRODUCT PROFILE

# GK190-5117-3

## Swimming Pool Heat Exchanger

### Introduction

The Bowman GK190-5117-3 is an efficient shell and tube heat exchanger which is suitable for heating larger sized swimming pools up to 750 m<sup>3</sup> via a boiler heat source. The cast end covers are finished in 'C' coat, an advanced technology coating, which is highly corrosion resistant for durability and the unit is available with either a titanium or cupro-nickel tube core.

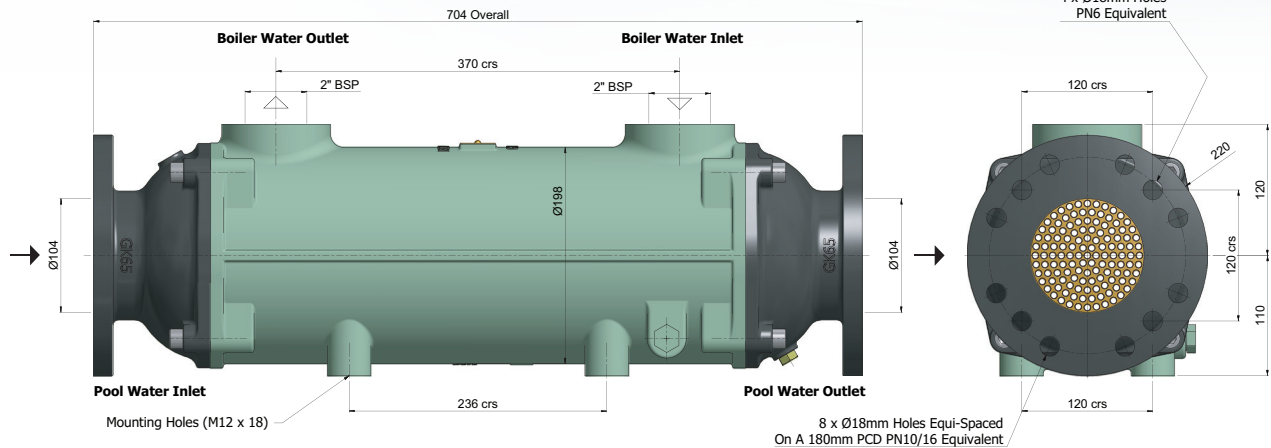
### Typical Heat Transfer

Boiler heating – 630kW

### Product Benefits

- Proven** – heats pools fast, reducing energy costs
- Performance** – designed for larger commercial and sports pools
- Durability** – salt water and mineral rich fresh water compatible
- Simple to maintain** – easy disassembly for routine maintenance
- Titanium models** – full 10 year warranty on titanium materials

### Specification



All dimensions in mm (except threaded connectors). Flanges to BS EN 1092/1.

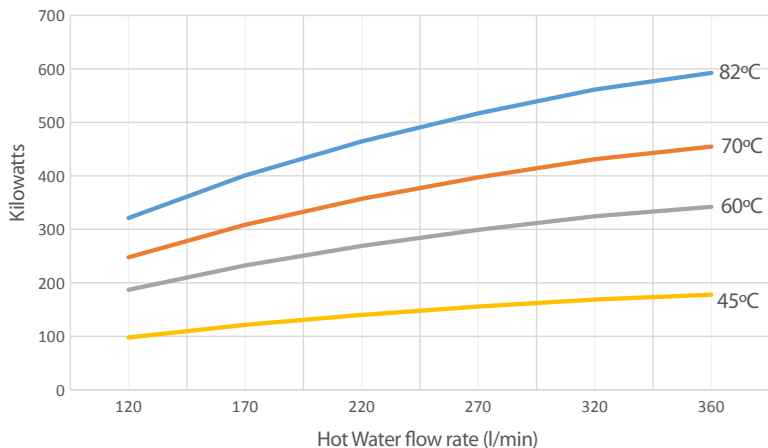
Type	Tube Material	Typical Pool Capacity		Maximum Pool Water Flow		Maximum Hot Water Temp		Max. Operating Pressure Pool Water		Max. Operating Pressure Hot Water		Weight
		m <sup>3</sup>	gal	m <sup>3</sup> /h	l/min	°C	°F	bar	psi	bar	psi	
GK190-5117-3C	Cupronickel	660	145,000	75.0	1,250	110	230	6	87	6	87	57
GK190-5117-3T	Titanium	750	165,000	96.0	1,600	110	230	6	87	6	87	51

# Water Flow

As the graphs and table below illustrate, providing the right water flow volume is vital to the performance of the heat exchanger. If the flow rate of either the hot water supply, or the pool water circuit is too low, the heat exchanger will not perform at its designed efficiency and will be unable to transfer all the available heat energy in to the pool water.

For more information please visit; <https://ej-bowman.com/knowledge-centre/why-doesn't-my-pool-heat-up-faster/>

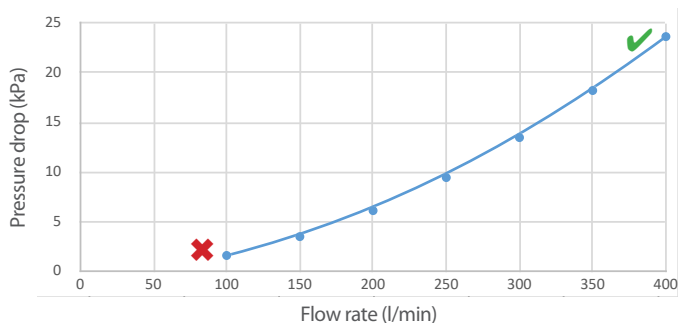
## Heat Transfer



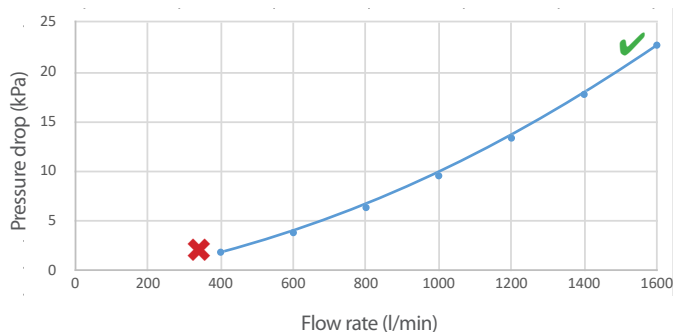
kW Heat Transfer - GK190-5117-3  
Pool water flow 1250 l/min at 28°C

Hot Water Flow rate l/min	Temperature & Heat Transfer			
	82°C kW	70°C kW	60°C kW	45°C kW
120	321	248	187	98
170	401	309	233	121
220	464	357	269	140
270	517	397	299	156
320	561	431	324	169
360	592	455	342	178

## Pressure Drop Hot Water (Shell Side)



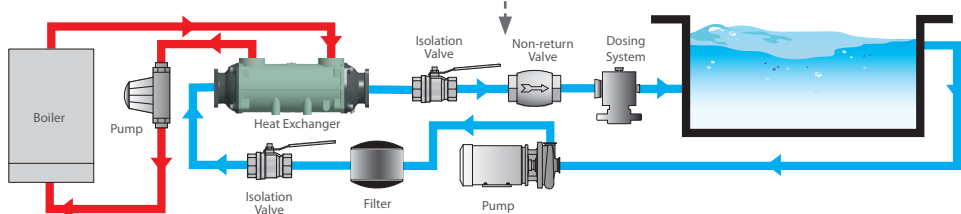
## Pressure Drop Pool Water (Tube Side)



✓ Optimum heat transfer performance ✗ Reduced heat transfer performance

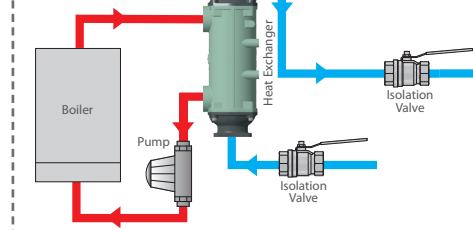
## Installation

### Horizontal Mounting



If an automatic dosing system is added, it must be installed after the heat exchanger on the return to the pool.

### Vertical Mounting

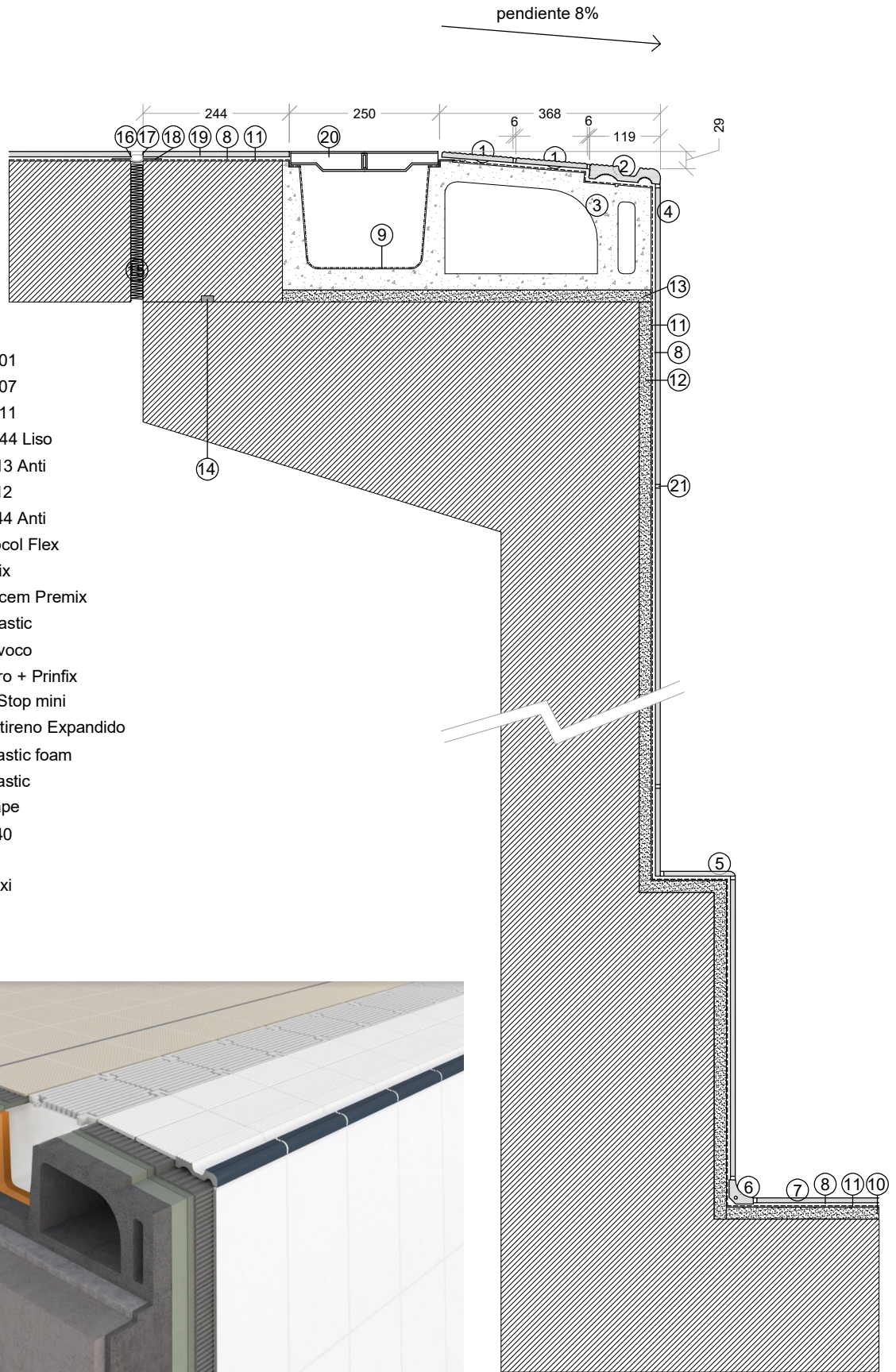


### EJ Bowman (Birmingham) Ltd

Chester Street, Birmingham B6 4AP, UK  
Tel: +44 (0) 121 359 5401 Fax: +44 (0) 121 359 7495  
Email: [sales@ej-bowman.com](mailto:sales@ej-bowman.com) [www.ej-bowman.com](http://www.ej-bowman.com)



All material contained in this leaflet is the intellectual property of EJ Bowman (Birmingham) Ltd. It is protected under copyright and may not be reproduced without prior written consent from the company. EJ Bowman (Birmingham) Ltd reserve the right to change specifications at any time without prior notice.



- ① Ref. 001
- ② Ref. 007
- ③ Ref. 911
- ④ Ref. 244 Liso
- ⑤ Ref. 013 Anti
- ⑥ Ref. 112
- ⑦ Ref. 244 Anti
- ⑧ Tecnocol Flex
- ⑨ Hidrofix
- ⑩ Recreem Premix
- ⑪ Hidrolastic
- ⑫ Fix-revoco
- ⑬ Mortero + Prifix
- ⑭ Fuga Stop mini
- ⑮ Poliestireno Expandido
- ⑯ Sellalastic foam
- ⑰ Sellalastic
- ⑱ Fix-Tape
- ⑲ Ref. 240
- ⑳ Rejilla
- ㉑ Cerpoxi



Referencia: Sistema Finlandes  
 Reference: Finlandes System

Plano: Sección Constructiva  
 Layout: Construction Section

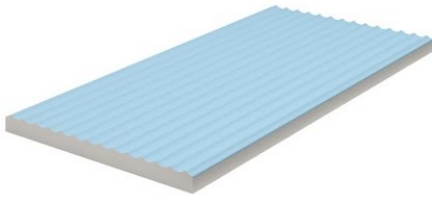
Archivo / File:  
**Sistema Finlandes**

Formato - Escala  
 Size - Scale :  
**A4 - 1/10**

Fecha / Date:  
**26/11/2020**

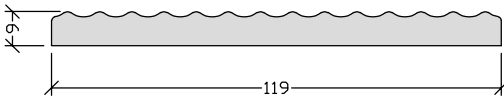
ROSA GRES S.L.U Otra: Sant Cugat, Km.3 08290 Cerdanyola Barcelona (SPAIN) www.rosagres.com Tel. + 34 93 586 30 60  
 Este Plano y su diseño son propiedad de ROSA GRES S.L.U., su uso o reproducción total o parcial están prohibidos sin el consentimiento previo de ROSA GRES S.L.U.  
 This Plan and its design are the property of ROSA GRES S.L.U., its use or total or partial reproduction are prohibited without the prior consent of ROSA GRES S.L.U.

VISTA 3D / 3D VIEW

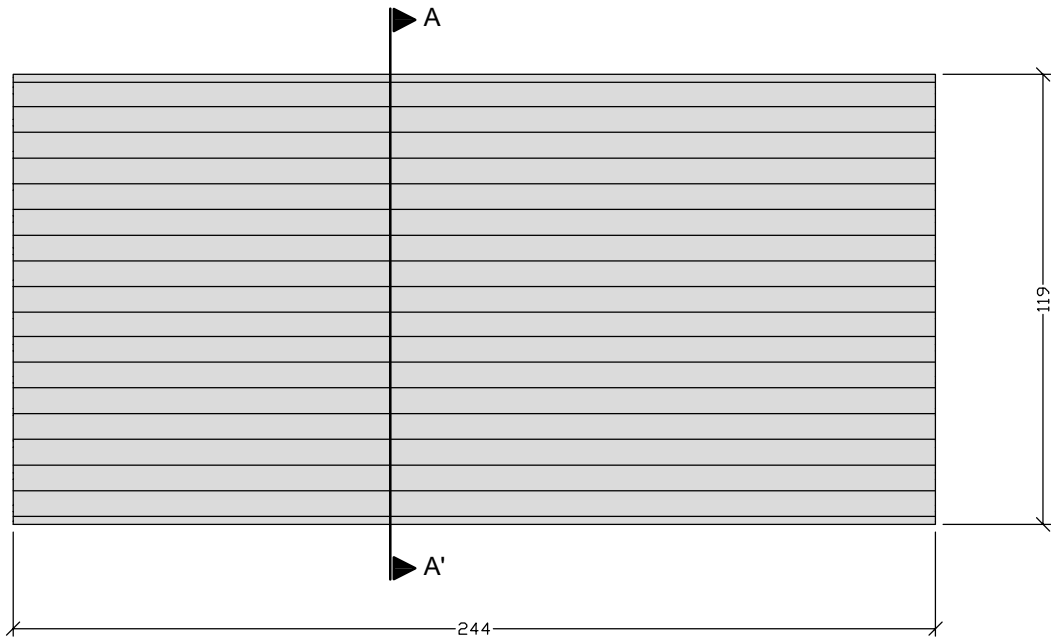


Colores Disponibles / Available Colours:  
Comprobar Tarifa / Check Price List

SECCIÓN / SECTION A-A'



VISTA DE PLANTA / PLANT VIEW



Grupo/Group\*: A1a (E ≤ 0.5%)

Uso/Use/Utilisation: Piscinas / Pools / Piscines

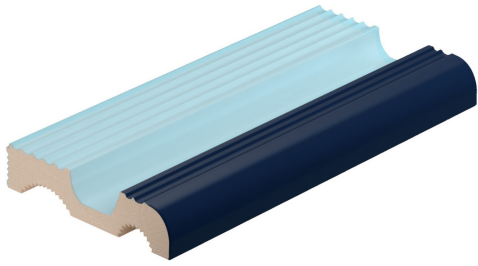
Normativa de ensayo Test standard Norme d'essai	Características dimensionales Dimensions Caractéristiques dimensionnelles	Valor declarado Declared value Valeur déclarée
ISO 10545-2	Desviación longitud y anchura Length and width deviation Ecart longueur et largeur	≤ 1% (2 mm)
Normativa de ensayo Test standard Norme d'essai	Características Mecánicas Mechanical properties Caractéristiques mécaniques	Valor declarado Declared value Valeur déclarée
ISO 10545-12	Resistencia a la helada Frost resistance Résistance au gel	Cumple/Pass/Garantie
Normativa de ensayo Test standard Norme d'essai	Características Superficiales Surface properties Caractéristiques Superficielles	Valor declarado Declared value Valeur déclarée
ISO 10545-13	Resistencia química Chemical resistance Résistance chimique	GA/GLA/GHA
ISO 10545-14	Resistencia a las manchas Resistance to stains Résistance aux taches	4
UNE 41901	Resistencia al deslizamiento: Péndulo Slipping resistance: Pendulum	≥ 46
DIN 51097 XP P05-010	Resistencia al deslizamiento: Pie descalzo Slipping resistance: Barefoot Résistance à la glissance: Pieds nus	C / PN24

\*: Según/According to/ Selon ISO 13006:2012 / EN 14411:2012  
@: Piezas ensayables por el péndulo/Pieces testable by pendulum



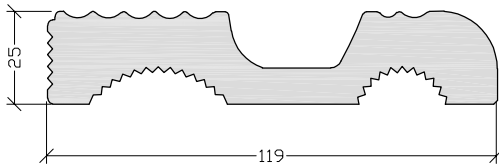
Referencia: Reference:	001	Archivo / File:	Formato - Escala Size - Scale :	Fecha / Date:
Plano: Layout:	Ficha Técnica Producto Technical Data Sheet	Ref001 (27_01_21).dwg	A4 - 1/2	27/01/2021

### VISTA 3D / 3D VIEW

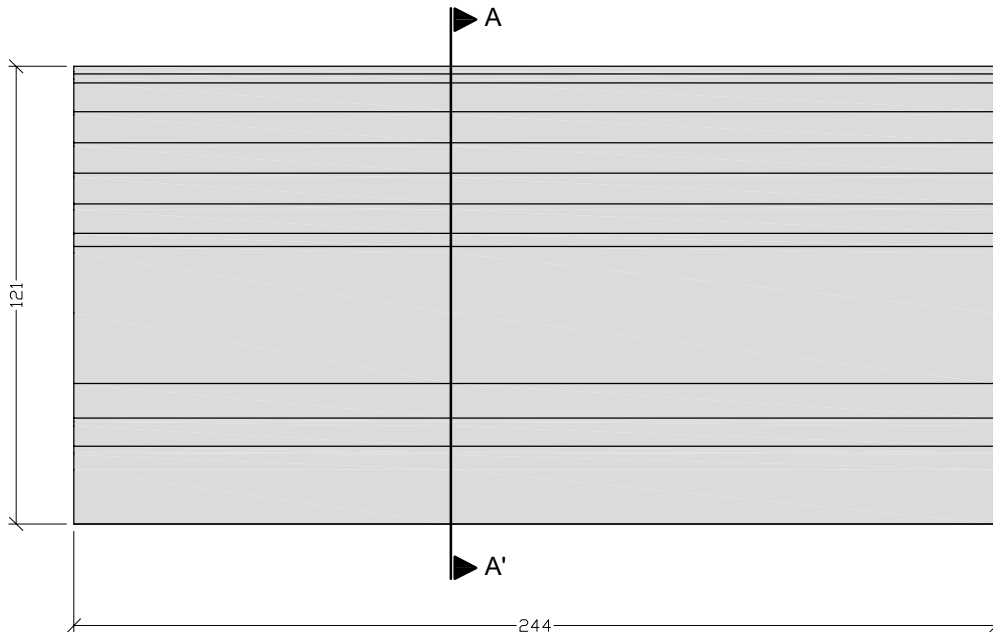


Colores Disponibles / Available Colours:  
Comprobar Tarifa / Check Price List

### SECCIÓN / SECTION A-A'



### VISTA DE PLANTA / PLANT VIEW



Grupo/Group\*: A10 (E ≤ 0.5%)

Uso/Use/Utilisation: Piscinas / Pools / Piscines

Normativa de ensayo Test standard Norme d'essai	Características dimensionales Dimensions Caractéristiques dimensionnelles	Valor declarado Declared value Valeur déclarée
ISO 10545-2	Desviación longitud y anchura Length and width deviation Ecart longueur et largeur	≤ 1% (2 mm)
Normativa de ensayo Test standard Norme d'essai	Características Mecánicas Mechanical properties Caractéristiques mécaniques	Valor declarado Declared value Valeur déclarée
ISO 10545-12	Resistencia a la helada Frost resistance Résistance au gel	Cumple/Pass/Garantie
Normativa de ensayo Test standard Norme d'essai	Características Superficiales Surface properties Caractéristiques Superficielles	Valor declarado Declared value Valeur déclarée
ISO 10545-13	Resistencia química Chemical resistance Résistance chimique	GA/GLA/GHA
ISO 10545-14	Resistencia a las manchas Resistance to stains Résistance aux taches	4
UNE 41901	Resistencia al deslizamiento: Péndulo Slipping resistance: Pendulum	≥ 46
DIN 51097 XP P05-010	Resistencia al deslizamiento: Pie descalzo Slipping resistance: Barefoot Résistance à la glissance: Pieds nus	C / PN24

\*: Según/According to/ Selon ISO 13006:2012 / EN 14411:2012  
@: Piezas ensayables por el péndulo/Pieces testable by pendulum



Referencia: 007

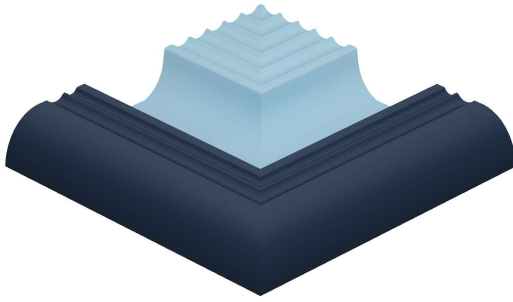
Plano: Ficha Técnica Producto  
Layout: Technical Data Sheet

Archivo / File:  
Ref007 (31\_7\_20).dwg

Formato - Escala  
Size - Scale :  
A4 - 1/2

Fecha / Date:  
30/11/2017

### VISTA 3D / 3D VIEW



Colores Disponibles / Available Colours:  
Comprobar Tarifa / Check Price List

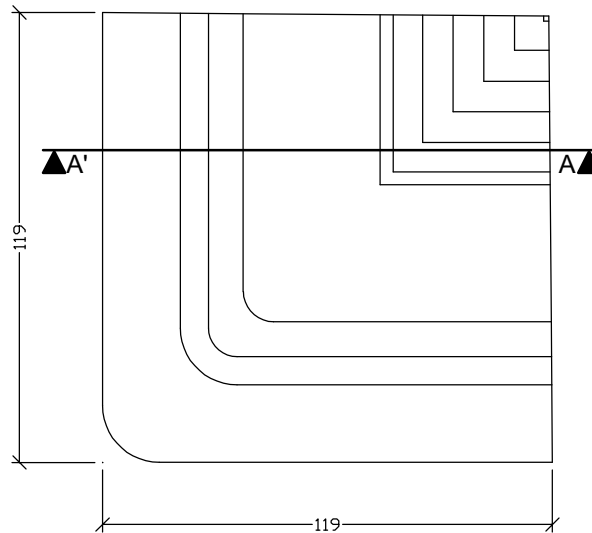
Grupo/Group\*: A10 (E ≤ 0.5%)

Uso/Use/Utilisation: Piscinas / Pools / Piscines

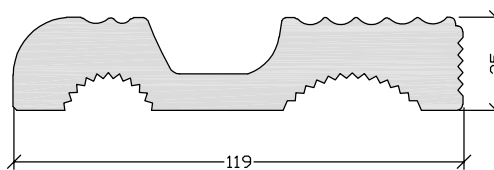
Normativa de ensayo Test standard Norme d'essai	Características dimensionales Dimensions Caractéristiques dimensionnelles	Valor declarado Declared value Valeur déclarée
ISO 10545-2	Desviación longitud y anchura Length and width deviation Ecart longueur et largeur	≤ 1% (2 mm)
Normativa de ensayo Test standard Norme d'essai	Características Mecánicas Mechanical properties Caractéristiques mécaniques	Valor declarado Declared value Valeur déclarée
ISO 10545-12	Resistencia a la helada Frost resistance Résistance au gel	Cumple/Pass/Garantie
Normativa de ensayo Test standard Norme d'essai	Características Superficiales Surface properties Caractéristiques Superficielles	Valor declarado Declared value Valeur déclarée
ISO 10545-13	Resistencia química Chemical resistance Résistance chimique	GA/GLA/GHA
ISO 10545-14	Resistencia a las manchas Resistance to stains Résistance aux taches	4
UNE 41901	Resistencia al deslizamiento: Péndulo Slipping resistance: Pendulum	≥ 46
DIN 51097 XP P05-010	Resistencia al deslizamiento: Pie descalzo Slipping resistance: Barefoot Résistance à la glissance: Pieds nus	C / PN24

\*: Según/According to/ Selon ISO 13006:2012 / EN 14411:2012  
@-Piezas ensayables por el péndulo/Pieces testable by pendulum

### VISTA DE PLANTA / PLANT VIEW



### SECCIÓN / SECTION A-A'



Referencia:  
Reference: 043

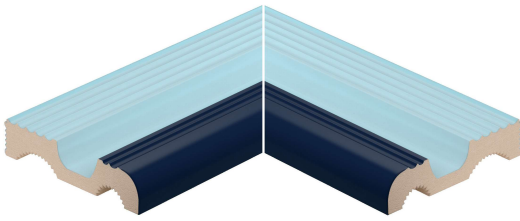
Plano:  
Layout: Ficha Técnica Producto  
Technical Data Sheet

Archivo / File:  
Ref043 (05\_08\_20).dwg

Formato - Escala  
Size - Scale :  
A4 - 1/2

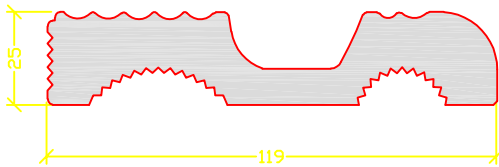
Fecha / Date:  
05/08/2020

### VISTA 3D / 3D VIEW



Colores Disponibles / Available Colours:  
Comprobar Tarifa / Check Price List

### SECCIÓN / SECTION A-A'

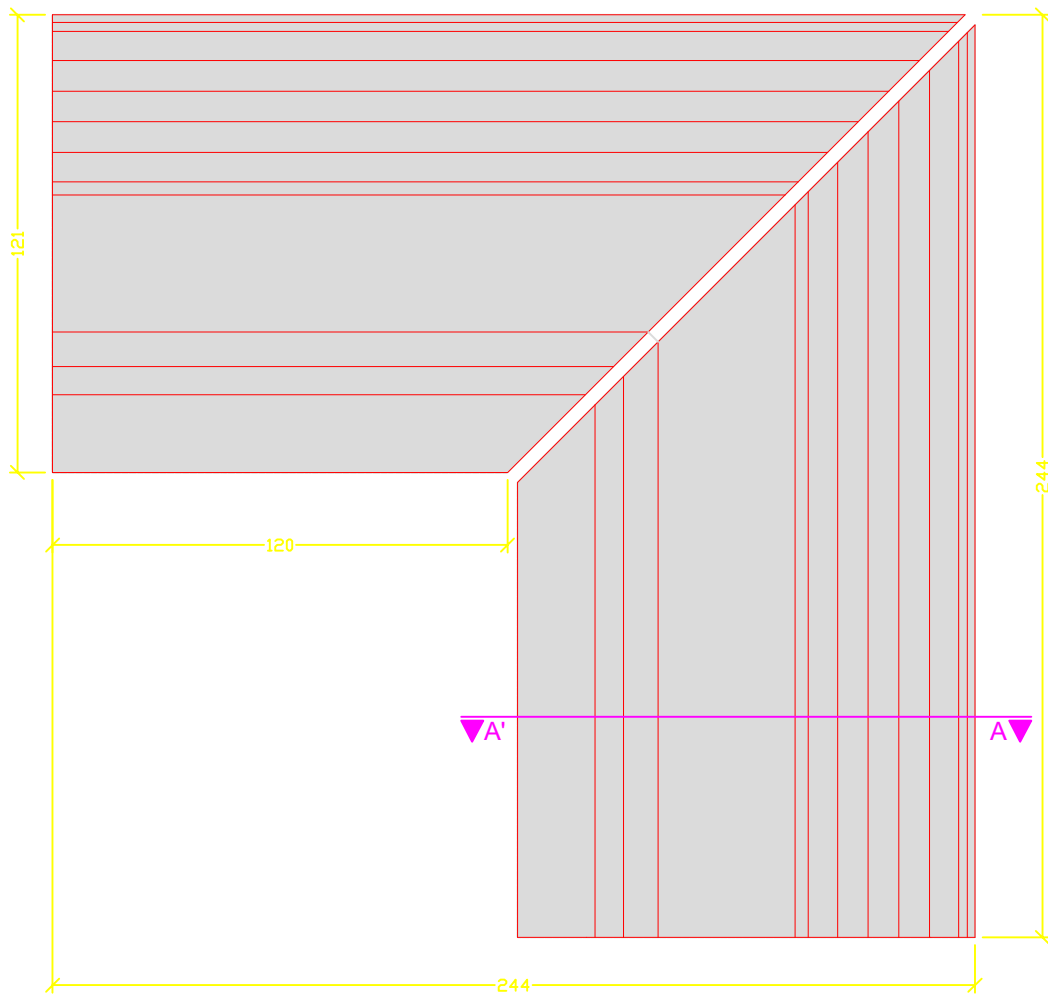


Grupo/Group\*: A10 (E ≤ 0.5%)

Uso/Use/Utilisation: Piscinas / Pools / Piscines

Normativa de ensayo Test standard Norme d'essai	Características dimensionales Dimensions Caractéristiques dimensionnelles	Valor declarado Declared value Valeur déclarée
ISO 10545-2	Desviación longitud y anchura Length and width deviation Ecart longueur et largeur	≤ 1% (2 mm)
Normativa de ensayo Test standard Norme d'essai	Características Mecánicas Mechanical properties Caractéristiques mécaniques	Valor declarado Declared value Valeur déclarée
ISO 10545-12	Resistencia a la helada Frost resistance Résistance au gel	Cumple/Pass/Garantie
Normativa de ensayo Test standard Norme d'essai	Características Superficiales Surface properties Caractéristiques Superficielles	Valor declarado Declared value Valeur déclarée
ISO 10545-13	Resistencia química Chemical resistance Résistance chimique	GA/GLA/GHA
ISO 10545-14	Resistencia a las manchas Resistance to stains Résistance aux taches	4
UNE 41901	Resistencia al deslizamiento: Péndulo Slipping resistance: Pendulum	≥ 46
DIN 51097 XP P05-010	Resistencia al deslizamiento: Pie descalzo Slipping resistance: Barefoot Résistance à la glissance: Pieds nus	C / PN24

\*: Según/According to/ Selon ISO 13006:2012 / EN 14411:2012  
@-Piezas ensayables por el péndulo/Pieces testable by pendulum



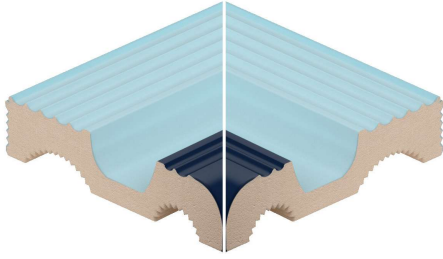
Referencia: **087**  
Plano: Ficha Técnica Producto  
Layout: Technical Data Sheet

Archivo / File:  
**087r.dwg**

Formato - Escala  
Size - Scale :  
**A4 - 1/2**

Fecha / Date:  
**05/08/2020**

### VISTA 3D / 3D VIEW



Colores Disponibles / Available Colours:  
Comprobar Tarifa / Check Price List

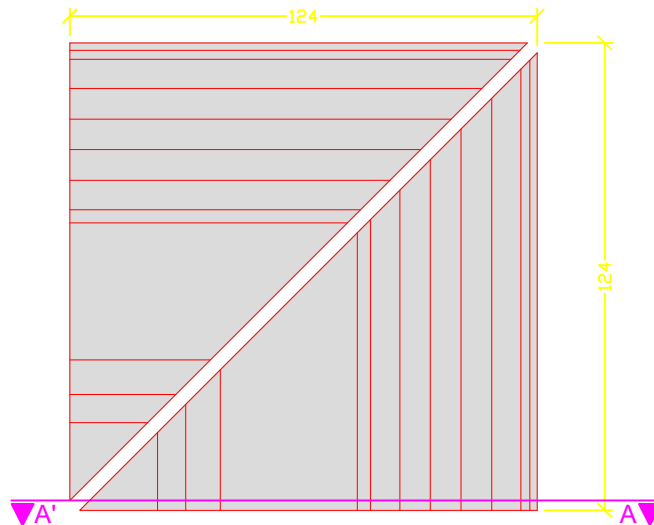
Grupo/Group\*: A10 (E ≤ 0.5%)

Uso/Use/Utilisation: Piscinas / Pools / Piscines

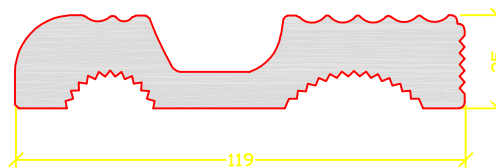
Normativa de ensayo Test standard Norme d'essai	Características dimensionales Dimensions Caractéristiques dimensionnelles	Valor declarado Declared value Valeur déclarée
ISO 10545-2	Desviación longitud y anchura Length and width deviation Ecart longueur et largeur	≤ 1% (2 mm)
Normativa de ensayo Test standard Norme d'essai	Características Mecánicas Mechanical properties Caractéristiques mécaniques	Valor declarado Declared value Valeur déclarée
ISO 10545-12	Resistencia a la helada Frost resistance Résistance au gel	Cumple/Pass/Garantie
Normativa de ensayo Test standard Norme d'essai	Características Superficiales Surface properties Caractéristiques Superficielles	Valor declarado Declared value Valeur déclarée
ISO 10545-13	Resistencia química Chemical resistance Résistance chimique	GA/GLA/GHA
ISO 10545-14	Resistencia a las manchas Resistance to stains Résistance aux taches	4
UNE 41901	Resistencia al deslizamiento: Péndulo Slipping resistance: Pendulum	≥ 46
DIN 51097 XP P05-010	Resistencia al deslizamiento: Pie descalzo Slipping resistance: Barefoot Résistance à la glissance: Pieds nus	C / PN24

\*: Según/According to/ Selon ISO 13006:2012 / EN 14411:2012  
@-Piezas ensayables por el péndulo/Pieces testable by pendulum

### VISTA DE PLANTA / PLANT VIEW



### SECCIÓN / SECTION A-A'



Referencia:  
Reference: 088

Plano:  
Layout: Ficha Técnica Producto  
Technical Data Sheet

Archivo / File:

088r.dwg

Formato - Escala  
Size - Scale :

A4 - 1/2

Fecha / Date:

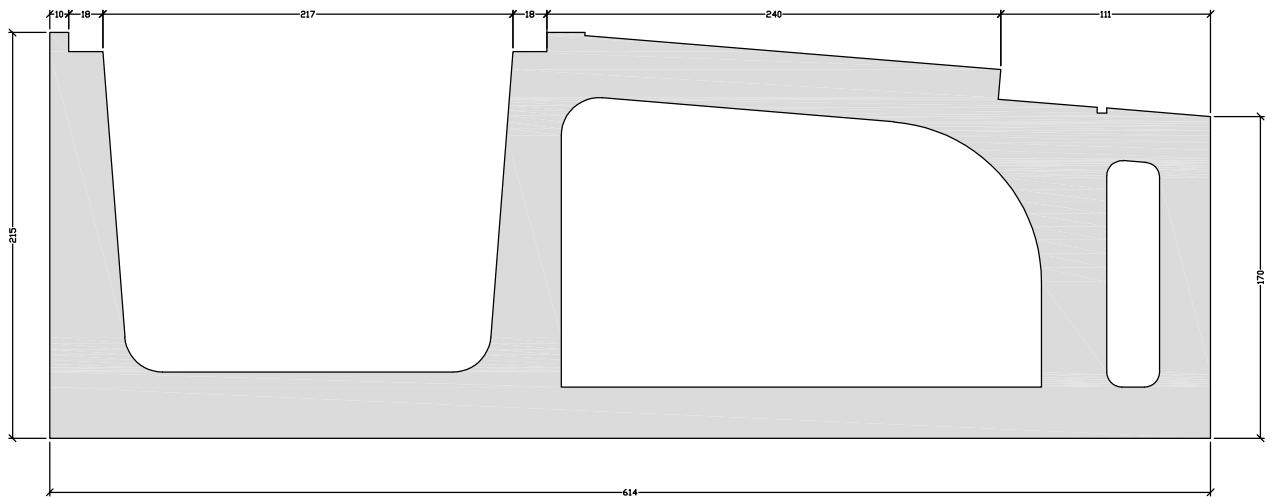
05/08/2020

### VISTA 3D / 3D VIEW

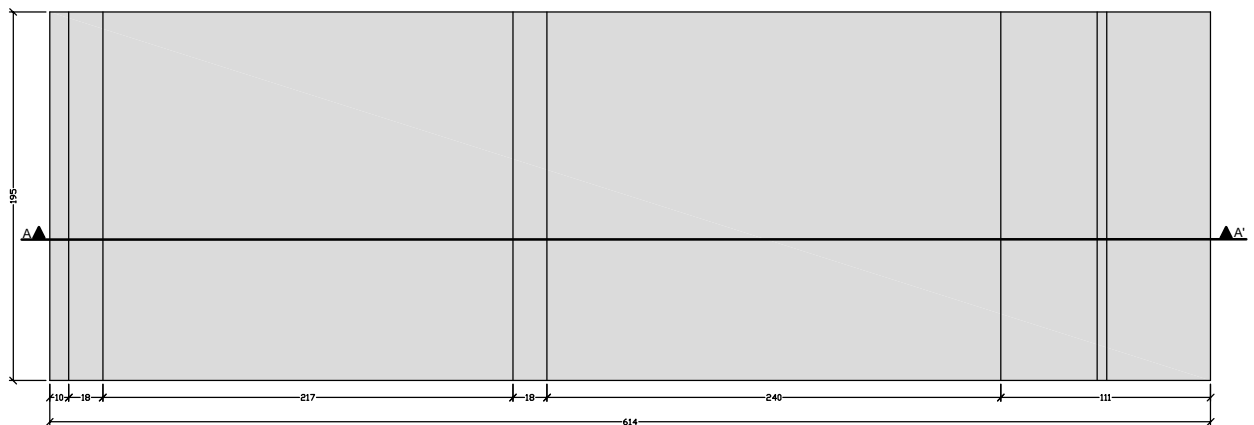


Test standard	Dimensions (mm)	Declared value
EN 771-3	Length	496 (+3, -5)
	Width	195 (+3, -5)
	Height	187 (+3, -5)
	Minimum wall thickness	25
Test standard	Mechanical and physical properties	Declared value
EN 771-3	Compressive stress (N/mm <sup>2</sup> ) perpendicular to surface	5
	Water absorption by capillarity (g/m <sup>2</sup> s)	2
	Reaction to fire (Euro class)	A1
	Bulk density/Absolute density (Kg/m <sup>3</sup> )	800 / 2070
	Thermal conductivity (W/mK)	1.30
	Shear stress (N/mm <sup>2</sup> ) lightweight mortars	0.15
	Shear stress (N/mm <sup>2</sup> ) joint and thin layer mortars	0.30
Packaging		
Weight per unit (Kg)	15	Weight per pallet (Kg) 920
Units per pallet	60	Units per linear meter 5
Package	Pallet (1115x1065 mm) with 3 straps.	

### SECCIÓN / SECTION A-A'



### VISTA DE PLANTA / PLANT VIEW



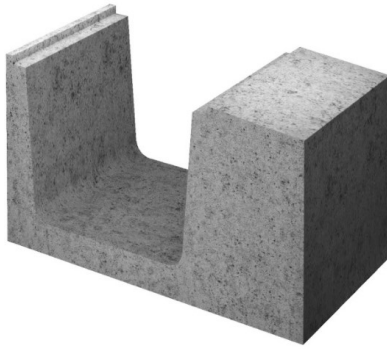
Referencia: **RS911**  
 Referencia:  
 Plano: Ficha Técnica Producto  
 Layout: Technical Data Sheet

Archivo / File:  
 RefRS911 (15\_02\_21).dwg

Formato - Escala  
 Size - Scale :  
**A4 - 1/4**

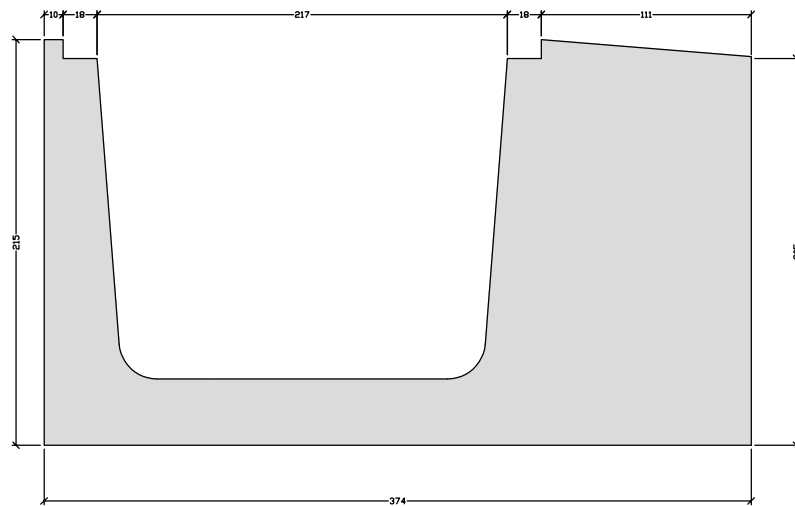
Fecha / Date:  
**15/02/2021**

### VISTA 3D / 3D VIEW

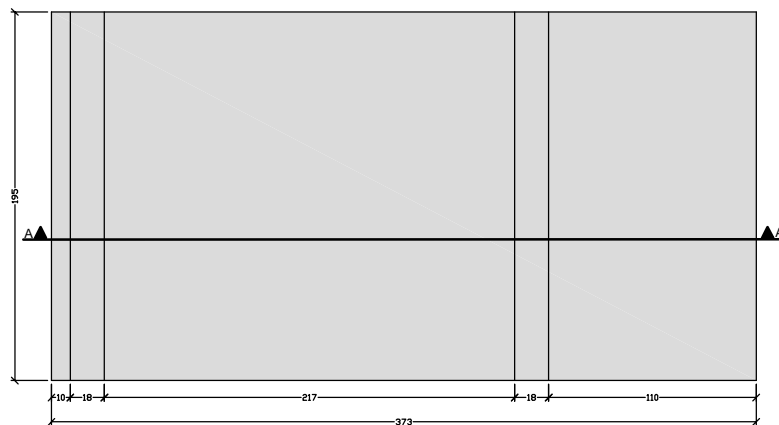


Test standard	Dimensions (mm)	Declared value	
EN 771-3	Length	496 (+3, -5)	
	Width	195 (+3, -5)	
	Height	187 (+3, -5)	
	Minimum wall thickness	25	
Test standard	Mechanical and physical properties	Declared value	
EN 771-3	Compressive stress (N/mm <sup>2</sup> ) perpendicular to surface	5	
	Water absorption by capillarity (g/m <sup>2</sup> s)	2	
	Reaction to fire (Euro class)	A1	
	Bulk density/Absolute density (Kg/m <sup>3</sup> )	800 / 2070	
	Thermal conductivity (W/mK)	1.30	
	Shear stress (N/mm <sup>2</sup> ) lightweight mortars	0.15	
	Shear stress (N/mm <sup>2</sup> ) joint and thin layer mortars	0.30	
Packaging			
Weight per unit (Kg)	15	Weight per pallet (Kg)	920
Units per pallet	60	Units per linear meter	5
Package	Pallet (1115x1065 mm) with 3 straps.		

### SECCIÓN / SECTION A-A'



### VISTA DE PLANTA / PLANT VIEW

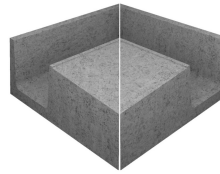


Referencia:	RS912
Plano:	Ficha Técnica Producto
Layout:	Technical Data Sheet

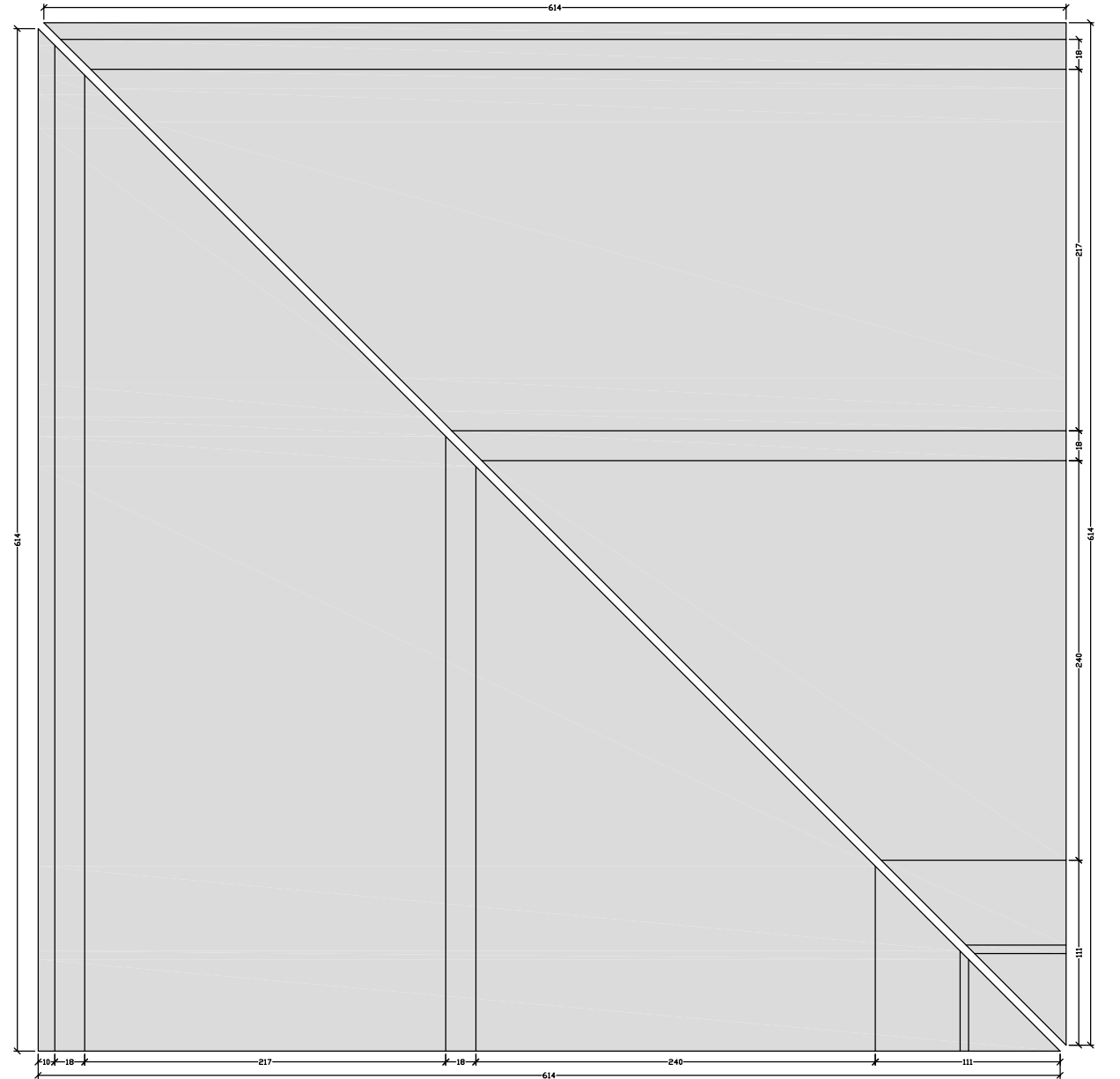
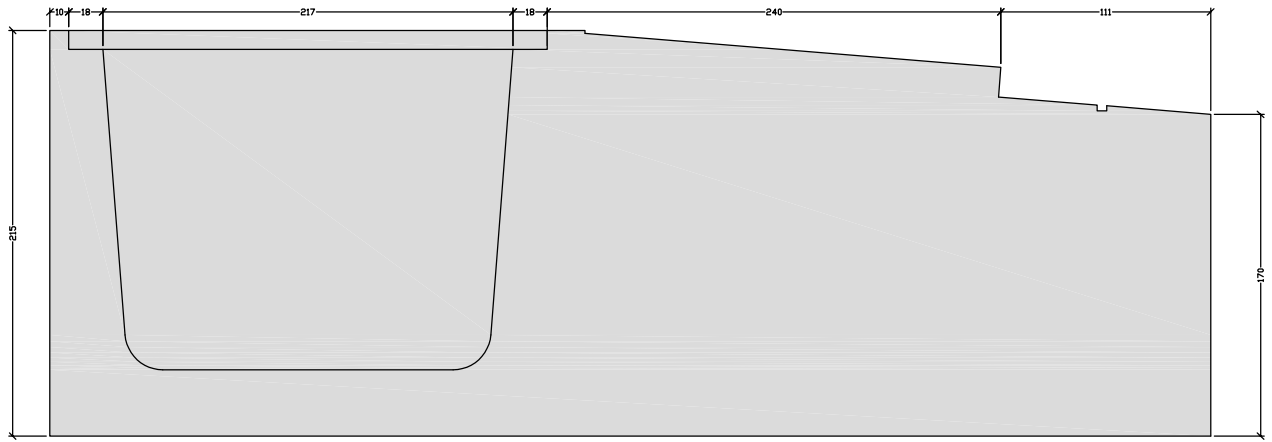
Archivo / File:	RefRS912 (15_02_21).dwg
Formato - Escala Size - Scale :	A4 - 1/4

Fecha / Date:	15/02/2021
---------------	------------

# VISTA 3D / 3D VIEW



Test standard	Dimensions (mm)	Declared value	
EN 771-1	Length	400 (± 0, 5)	
	Width	400 (± 0, 5)	
	Height	10 (± 0, 5)	
	Minimum wall thickness	25	
Test standard	Mechanical and physical properties	Declared value	
EN 771-2	Compressive strength (perpendicular to surface)	5	
	Water absorption by capillarity (g/m <sup>2</sup> )	2	
	Reaction to fire (Euroclass)	A1	
	Bulk density (Absolute density (g/cm <sup>3</sup> ))	800 / 2030	
	Thermal conductivity (W/mK)	1,28	
	Flexural strength (lightweight masonry)	0,15	
	Flexural strength (normal masonry)	0,30	
Packaging			
Weight per unit (kg)	15	Weight per packet (kg)	100
Units per packet	60	Units per square meter	5
Package		Pallet (111x240) with 3 steps	



VISTA DE PLANTA / PLANT VIEW



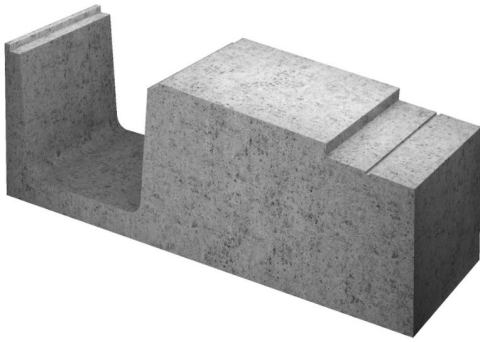
Referencia: RS913  
 Referencia:  
 Plano: Ficha Técnica Producto  
 Layout: Technical Data Sheet

Archivo / File:  
 RefRS913 (15\_02\_21).dwg

Formato - Escala  
 Size - Scale :  
 A4 - 1/4

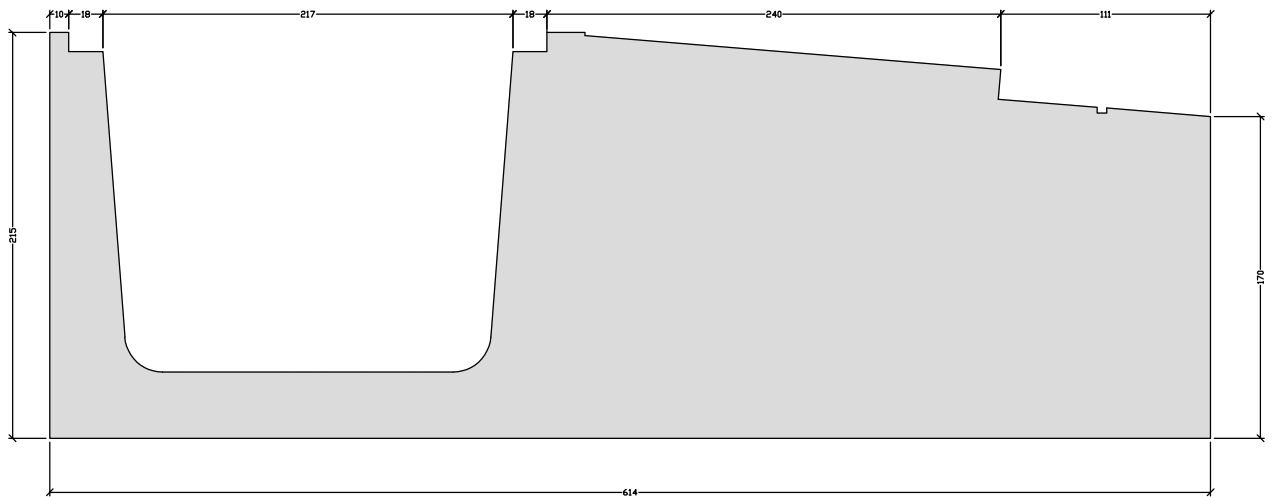
Fecha / Date:  
 15/02/2021

### VISTA 3D / 3D VIEW

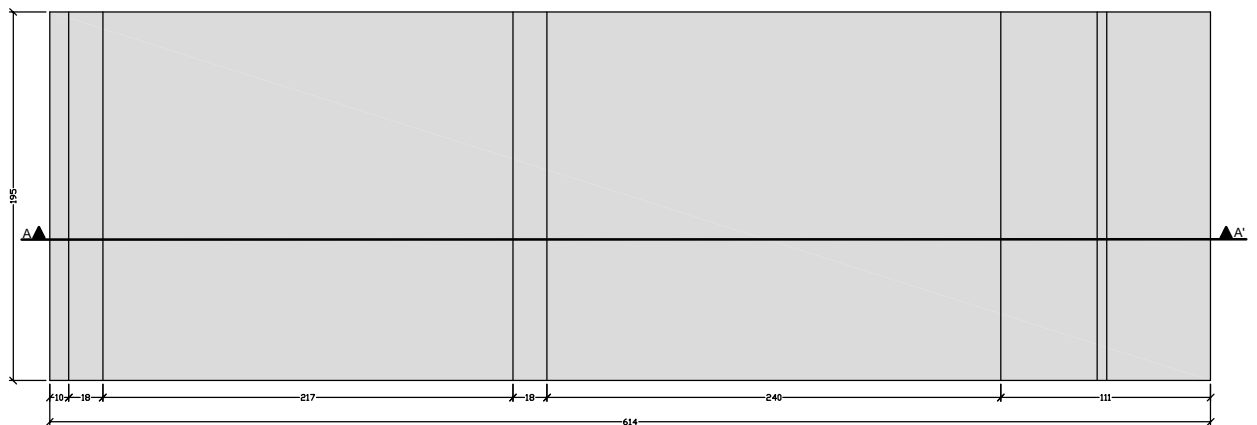


Test standard	Dimensions (mm)	Declared value
EN 771-3	Length	496 (+3, -5)
	Width	195 (+3, -5)
	Height	187 (+3, -5)
	Minimum wall thickness	25
Test standard	Mechanical and physical properties	Declared value
EN 771-3	Compressive stress (N/mm <sup>2</sup> ) perpendicular to surface	5
	Water absorption by capillarity (g/m <sup>2</sup> s)	2
	Reaction to fire (Euro class)	A1
	Bulk density/Absolute density (Kg/m <sup>3</sup> )	800 / 2070
	Thermal conductivity (W/mK)	1.30
	Shear stress (N/mm <sup>2</sup> ) lightweight mortars	0.15
	Shear stress (N/mm <sup>2</sup> ) joint and thin layer mortars	0.30
Packaging		
Weight per unit (Kg)	15	Weight per pallet (Kg) 920
Units per pallet	60	Units per linear meter 5
Package	Pallet (1115x1065 mm) with 3 straps.	

### SECCIÓN / SECTION A-A'



### VISTA DE PLANTA / PLANT VIEW



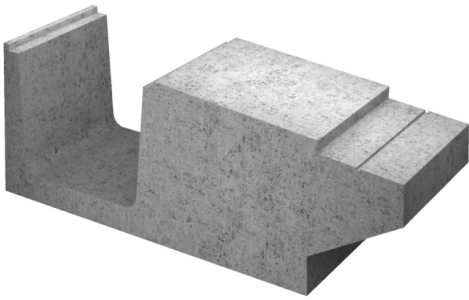
Referencia: **RS914**  
 Referencia:  
 Plano: Ficha Técnica Producto  
 Layout: Technical Data Sheet

Archivo / File:  
 RefRS914 (15\_02\_21).dwg

Formato - Escala  
 Size - Scale :  
**A4 - 1/4**

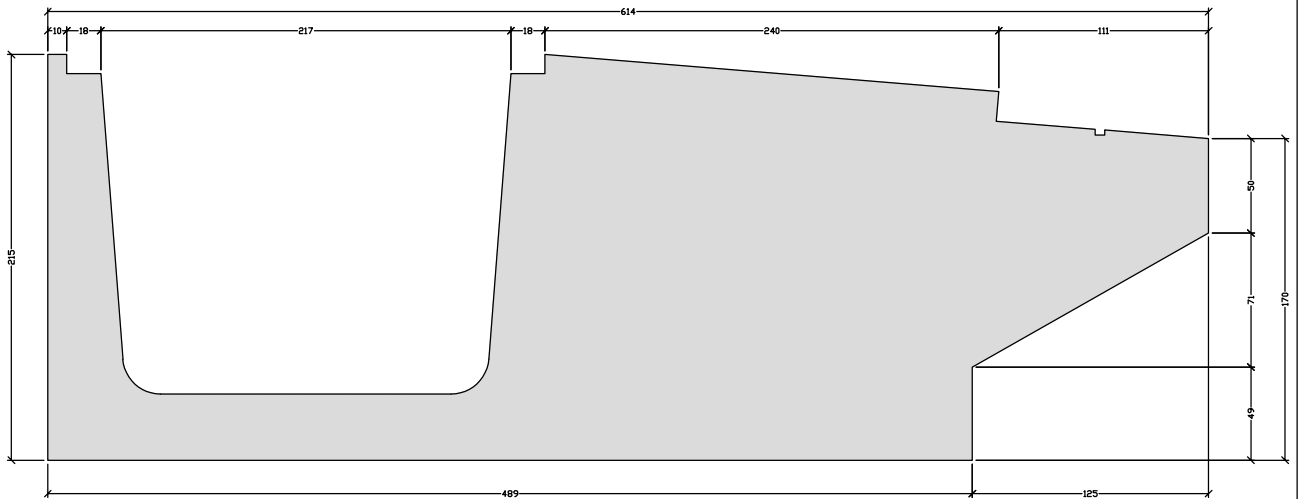
Fecha / Date:  
**15/02/2021**

### VISTA 3D / 3D VIEW

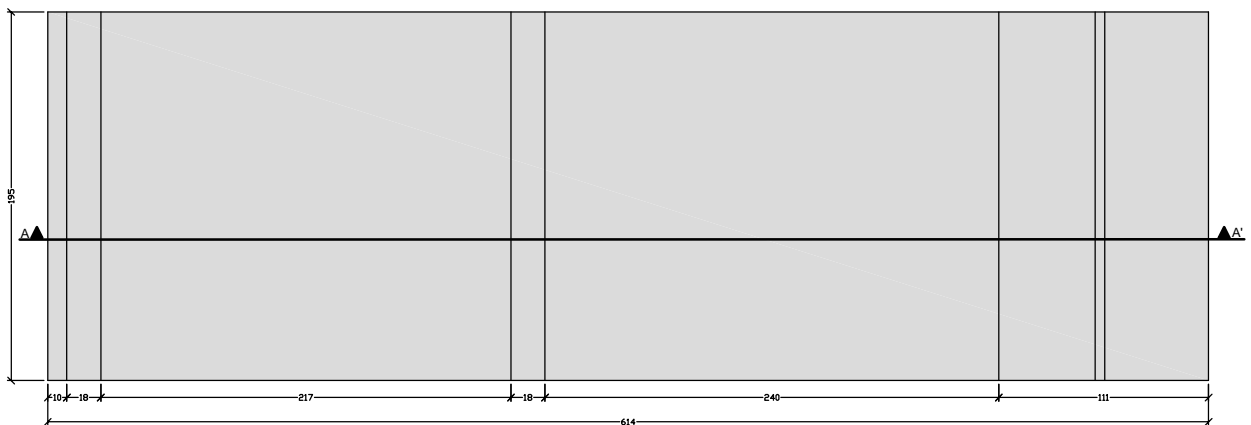


Test standard	Dimensions (mm)	Declared value
EN 771-3	Length	496 (+3, -5)
	Width	195 (+3, -5)
	Height	187 (+3, -5)
	Minimum wall thickness	25
Test standard	Mechanical and physical properties	Declared value
EN 771-3	Compressive stress (N/mm <sup>2</sup> ) perpendicular to surface	5
	Water absorption by capillarity (g/m <sup>2</sup> s)	2
	Reaction to fire (Euro class)	A1
	Bulk density/Absolute density (Kg/m <sup>3</sup> )	800 / 2070
	Thermal conductivity (W/mK)	1.30
	Shear stress (N/mm <sup>2</sup> ) lightweight mortars	0.15
	Shear stress (N/mm <sup>2</sup> ) joint and thin layer mortars	0.30
Packaging		
Weight per unit (Kg)	15	Weight per pallet (Kg) 920
Units per pallet	60	Units per linear meter 5
Package	Pallet (1115x1065 mm) with 3 straps.	

### SECCIÓN / SECTION A-A'



### VISTA DE PLANTA / PLANT VIEW



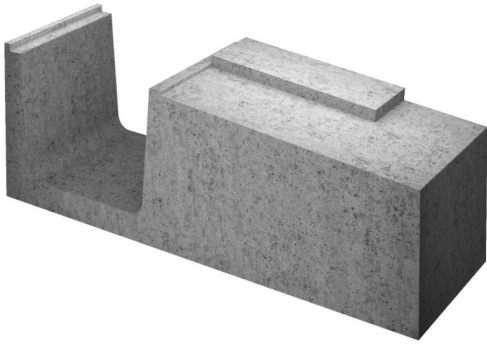
Referencia: **RS915**  
 Referencia:  
 Plano: Ficha Técnica Producto  
 Layout: Technical Data Sheet

Archivo / File:  
 RefRS915 (15\_02\_21).dwg

Formato - Escala  
 Size - Scale :  
**A4 - 1/4**

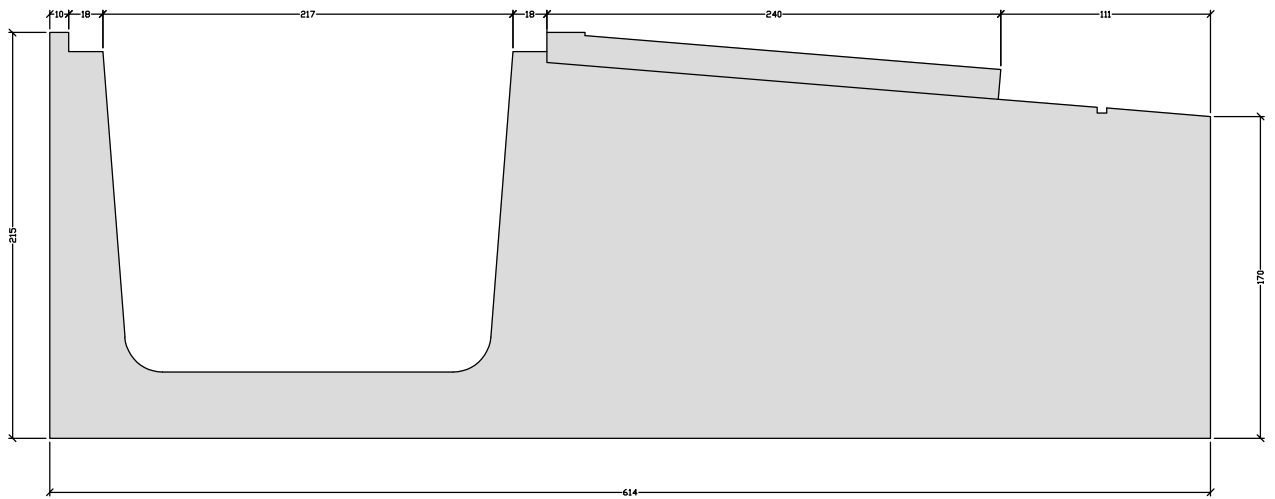
Fecha / Date:  
**15/02/2021**

### VISTA 3D / 3D VIEW

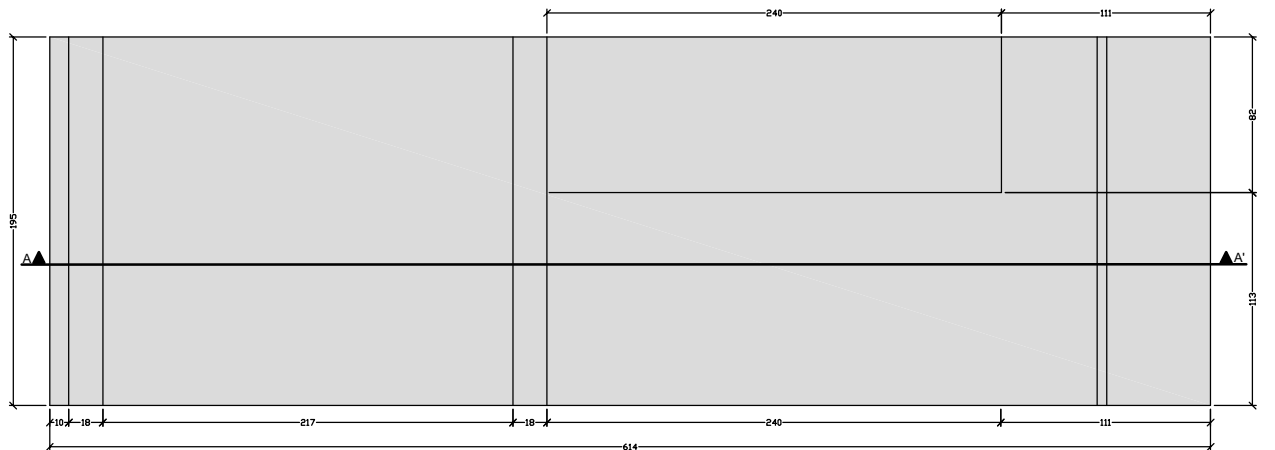


Test standard	Dimensions (mm)	Declared value
EN 771-3	Length	496 (+3, -5)
	Width	195 (+3, -5)
	Height	187 (+3, -5)
	Minimum wall thickness	25
Test standard	Mechanical and physical properties	Declared value
EN 771-3	Compressive stress (N/mm <sup>2</sup> ) perpendicular to surface	5
	Water absorption by capillarity (g/m <sup>2</sup> s)	2
	Reaction to fire (Euro class)	A1
	Bulk density/Absolute density (Kg/m <sup>3</sup> )	800 / 2070
	Thermal conductivity (W/mK)	1.30
	Shear stress (N/mm <sup>2</sup> ) lightweight mortars	0.15
	Shear stress (N/mm <sup>2</sup> ) joint and thin layer mortars	0.30
Packaging		
Weight per unit (Kg)	15	Weight per pallet (Kg) 920
Units per pallet	60	Units per linear meter 5
Package	Pallet (1115x1065 mm) with 3 straps.	

### SECCIÓN / SECTION A-A'



### VISTA DE PLANTA / PLANT VIEW



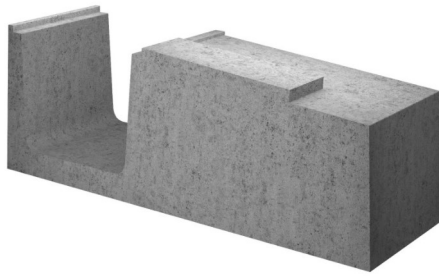
Referencia: **RS916**  
 Plano: Ficha Técnica Producto  
 Layout: Technical Data Sheet

Archivo / File:  
 RefRS916 (15\_02\_21).dwg

Formato - Escala  
 Size - Scale :  
**A4 - 1/4**

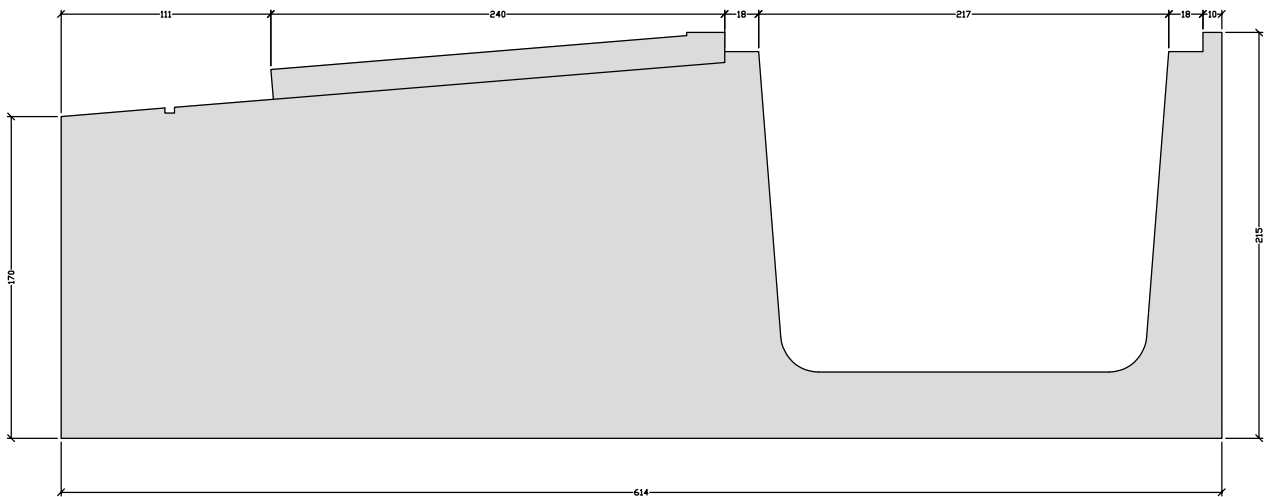
Fecha / Date:  
**15/02/2021**

### VISTA 3D / 3D VIEW

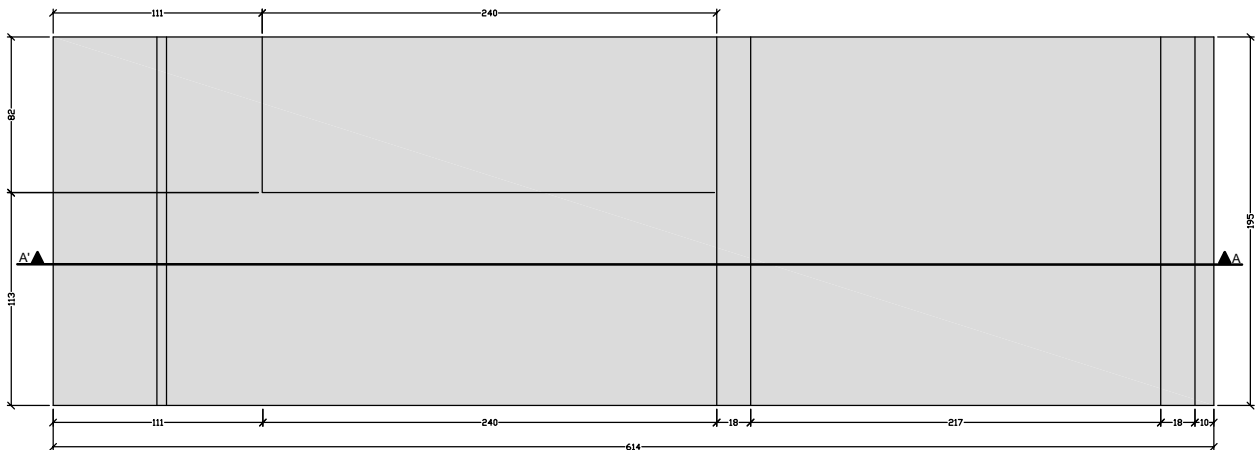


Test standard	Dimensions (mm)	Declared value
EN 771-3	Length	496 (+3, -5)
	Width	195 (+3, -5)
	Height	187 (+3, -5)
	Minimum wall thickness	25
Test standard	Mechanical and physical properties	Declared value
EN 771-3	Compressive stress (N/mm <sup>2</sup> ) perpendicular to surface	5
	Water absorption by capillarity (g/m <sup>2</sup> s)	2
	Reaction to fire (Euro class)	A1
	Bulk density/Absolute density (Kg/m <sup>3</sup> )	800 / 2070
	Thermal conductivity (W/mK)	1.30
	Shear stress (N/mm <sup>2</sup> ) lightweight mortars	0.15
	Shear stress (N/mm <sup>2</sup> ) joint and thin layer mortars	0.30
Packaging		
Weight per unit (Kg)	15	Weight per pallet (Kg) 920
Units per pallet	60	Units per linear meter 5
Package	Pallet (1115x1065 mm) with 3 straps.	

### SECCIÓN / SECTION A-A'



### VISTA DE PLANTA / PLANT VIEW



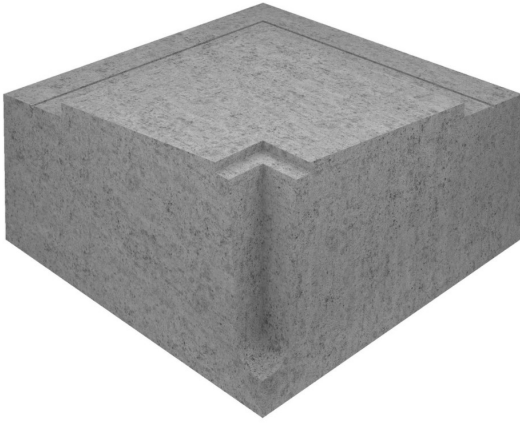
Referencia: **RS917**  
 Plano: Ficha Técnica Producto  
 Layout: Technical Data Sheet

Archivo / File:  
 RefRS917 (15\_02\_21).dwg

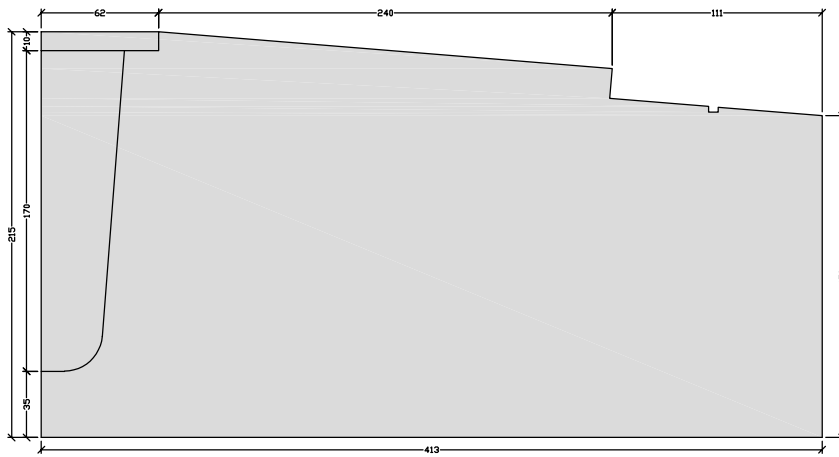
Formato - Escala  
 Size - Scale :  
**A4 - 1/4**

Fecha / Date:  
**15/02/2021**

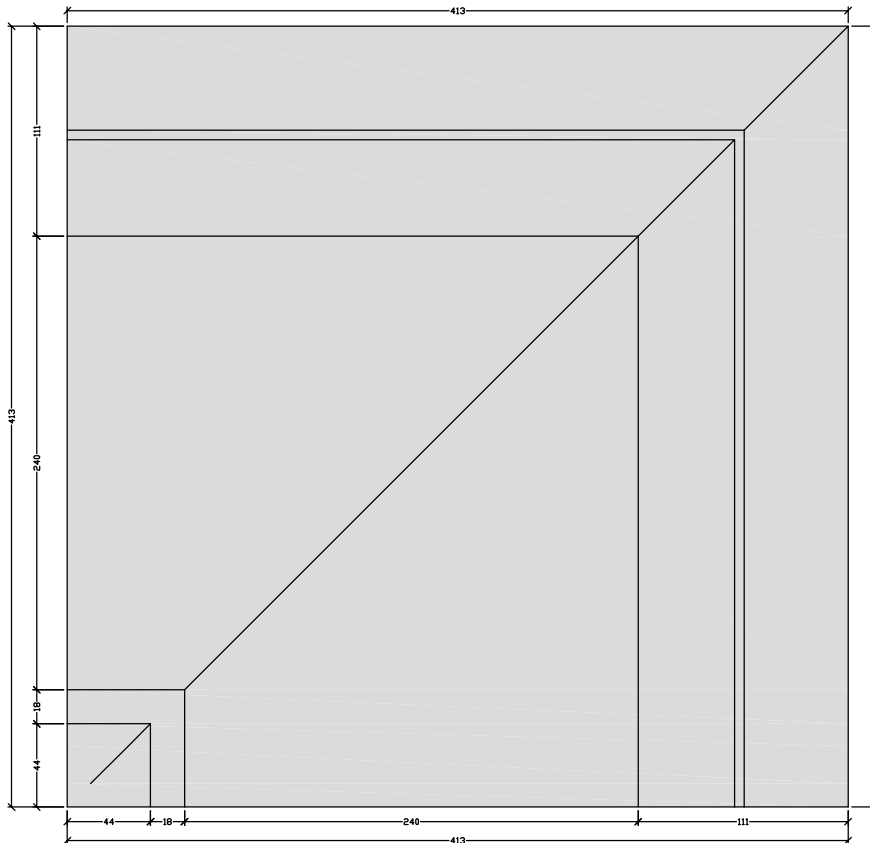
VISTA 3D / 3D VIEW



Test standard	Dimensions (mm)	Declared value
EN 771-3	Length	496 (+3, -5)
	Width	195 (+3, -5)
	Height	187 (+3, -5)
	Minimum wall thickness	25
Test standard	Mechanical and physical properties	Declared value
EN 771-3	Compressive stress (N/mm <sup>2</sup> ) perpendicular to surface	5
	Water absorption by capillarity (g/m <sup>2</sup> s)	2
	Reaction to fire (Euro class)	A1
	Bulk density/Absolute density (Kg/m <sup>3</sup> )	800 / 2070
	Thermal conductivity (W/mK)	1.30
	Shear stress (N/mm <sup>2</sup> ) lightweight mortars	0.15
	Shear stress (N/mm <sup>2</sup> ) joint and thin layer mortars	0.30
Packaging		
Weight per unit (Kg)	15	Weight per pallet (Kg) 920
Units per pallet	60	Units per linear meter 5
Package	Pallet (1115x1065 mm) with 3 straps.	



VISTA DE PLANTA / PLANT VIEW



Referencia:	RS918
Plano:	Ficha Técnica Producto
Layout:	Technical Data Sheet

Archivo / File:	RefRS918 (15_02_21).dwg
-----------------	-------------------------

Formato - Escala	A4 - 1/4
Size - Scale :	

Fecha / Date:	15/02/2021
---------------	------------