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ABE



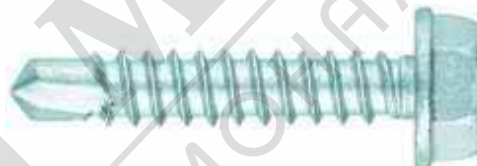
ARE



AUTO



BIE
(see FT BIE)



BAUTO
(see FT BIE)



ABR





NBR



ABRC



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ABRA2



ABRCA2



ABA



AF



ABP



NBP




ABPC



ABPCA2



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TAE



TAEN



BCPZ



BCPN



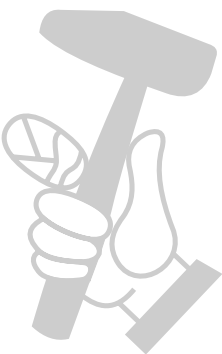
BCPB




BCPA2



RS



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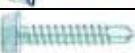
1. CHARACTERISTICS

- For fixing metal to wood, metallic to metallic elements; or plastic, wood and other materials to metallic elements.
- Selfdrilling point: it drills directly the material, without pilot hole
- Tapping screw thread
- Versions with EPDM - galvanized steel, and EPDM – stainless steel. In different diameters for facades and roofing water tight fixings.
- Great variety on head types, diameters and lengths for different applications: Assembling flexibility.
- Covering: zinc plated, black zinc plated and silver ruspert.
- Coloured versions on the usual commercialised lacquer sheet colours (RAL chart).
- Coloured caps for hexagonal head available.


2. MATERIAL













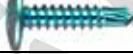






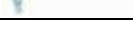
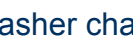
Characteristic	ABE, ARE, AUTO, ABR, NBR, ABRC, ABA, ABP, NBP, ABPC, TAEZ, TAEN, BCPZ, BCPN, BCPB, RS	ABRA2, ABRC2, ABPCA2	BIE, BAUTO (silver ruspert covering)
Material	Special steel for thermal treatment SAE J403 1022	Stainless steel A2	Head and thread A2 stainless steel. Bit heat treated carbon steel SAE J403 1022
Surface hardness	> 500 HV	---	Head and thread --- Bit > 500 HV
Core hardness	240 - 450 HV	---	Head and thread --- Bit 240 – 450 HV
Depth of hardness	ST 2.5 – 3.5: 0.05 – 0.18 mm. ST 3.9 – 5.5: 0.10 – 0.23 mm. ST 6.3: 0.15 – 0.28 mm.	---	Head and thread --- Bit : ST 4.8 – 5.5: 0.10 – 0.23 mm. ST 6.3: 0.15 – 0.28 mm.

3. SELECTION TABLE

Code	Standard	Head	Recess	∅ EPDM washer (1)	Covering (2)
ABE 	DIN 7504K	Hexagonal washer	---	14, 16, 18, 25	Zinc plated
BIE 	DIN 7504K	Hexagonal	---	16	A2 + Silver ruspert



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			washer			
ARE		---	Hexagonal washer	---	16, 18, 25	Zinc plated
AUTO		---	Hexagonal washer	---	16	Zinc plated
BAUTO		---	Hexagonal washer	---	16	A2 + Silver ruspert
ABR		DIN 7504N	Pan	Phillips	---	Zinc plated
NBR		DIN 7504N	Pan	Phillips	---	Black zinc plated
ABRA2		DIN 7504N	Pan	Phillips	---	Stainless steel
ABRC		DIN 7504N	Pan	Square	---	Zinc plated
ABRC2		DIN 7504N	Pan	Square	---	Stainless steel
ABA		---	Countersunk	Phillips	---	Zinc plated
AF		---	Hexagonal washer	---	14	Zinc plated
ABP		DIN 7504P	Countersunk	Phillips	---	Zinc plated
NBP		DIN 7504P	Countersunk	Phillips	---	Black zinc plated
ABPC		DIN 7504P	Countersunk	Square	---	Zinc plated
ABPCA2		DIN 7504P	Countersunk	Square	---	Stainless steel
TAEZ		---	Pan washer	Phillips	---	Zinc plated
TAEN		---	Pan washer	Phillips	---	Black zinc plated
BCPZ		---	Extra low	Phillips	---	Zinc plated
BCPN		---	Extra low	Phillips	---	Black zinc plated
BCPB		---	Extra low	Phillips	---	Zinc plated and white painted
BCPA2		---	Extra low	Phillips	---	A2 Stainless Steel
RSZ		---	low	Phillips	---	Zinc plated


(1) EPDM washer characteristics as per Technical Data Sheet ARVUL

(2) Coverings:

Zinc plated $\geq 3 \mu\text{m}$ per ISO 4042 A1J

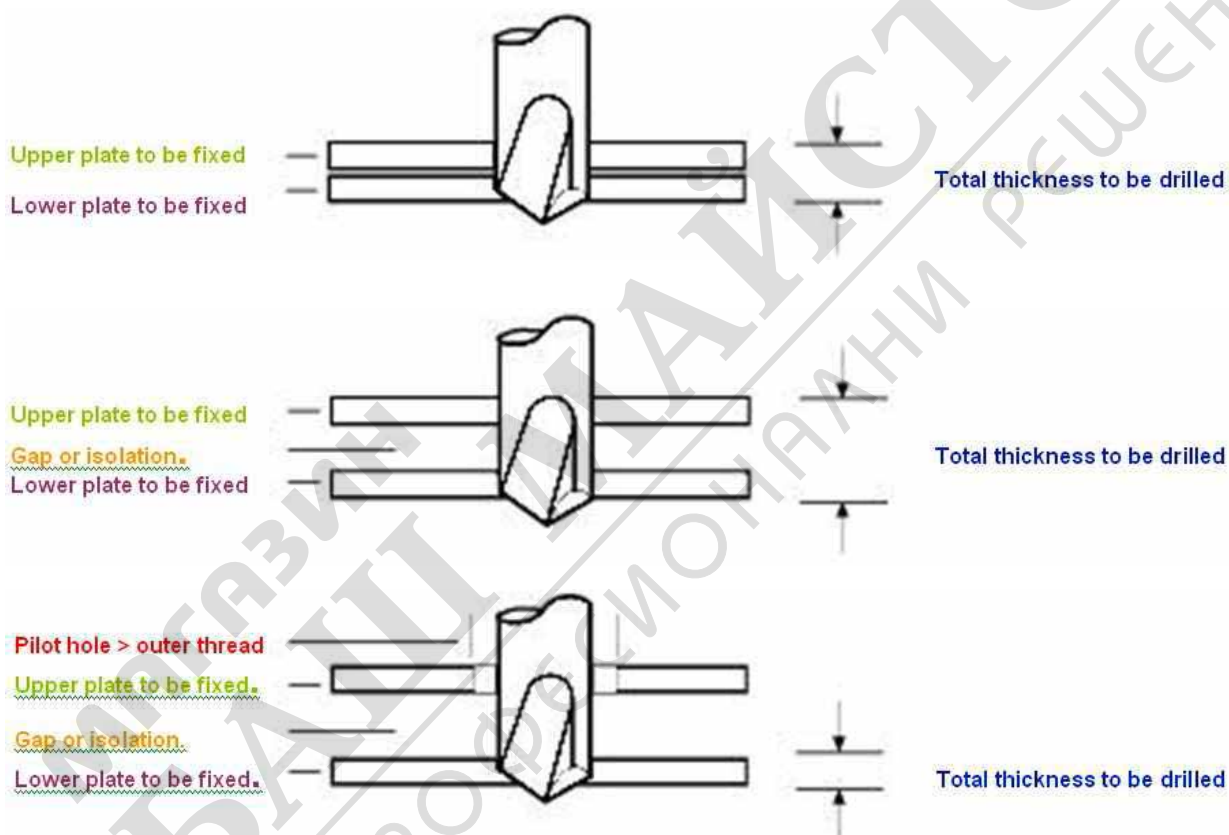
Black zinc plated $\geq 3 \mu\text{m}$ per ISO 4042 A1N

Silver ruspert >500 hours salt spray machine test according to ISO 9227

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4.- POINT SELECTION

The screw's point choice must be such, that the total thickness of the metallic materials to fix (including the possible internal gaps) is smaller than the drill point; otherwise the screws breakage would be possible during installation.




5. INSTALLATION PARAMETERS

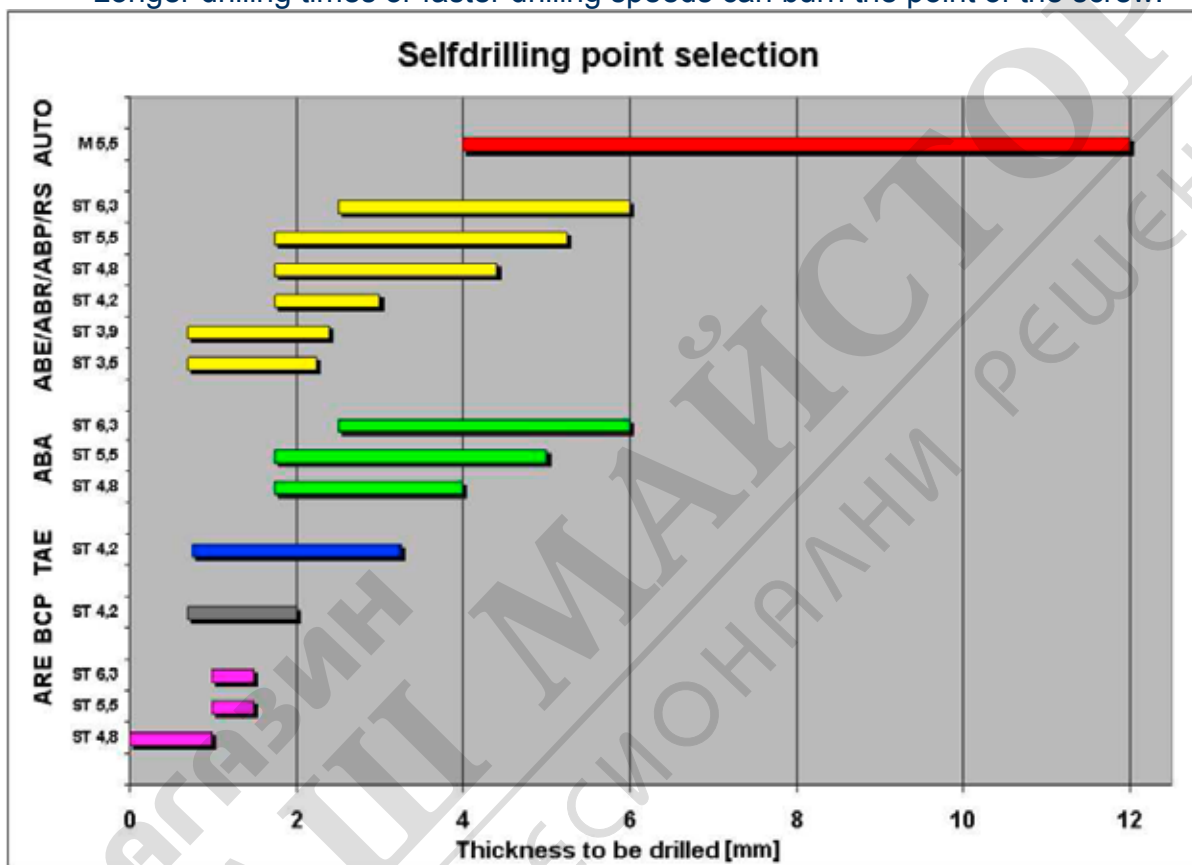
Parameter		ST 3.5	ST 3.9	ST 4.2	ST 4.8	ST 5.5 M 5.5	ST 6.3
Maximum load	[N]	150	200	250	250	350	350
Drilling speed	Steel [rpm]	1800 - 2500				1000 - 1800	
	Stainless steel [rpm]	1000 - 1500				600 - 1000	
Maximum drilling time	[sg]	4	4.5	5	7	11	13
Maximum torque	[Nm]	2.8	3.8	4.7	6.9	10.4	16.9

10 N ≈ 1 Kg



10 Nm ≈ 1Kg m

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Longer drilling times or faster drilling speeds can burn the point of the screw.



MAXIMUM THICKNESS TO BE FIXED						
Length	ST 3,5	ST 3,9	ST 4,2	ST 4,8	ST 5,5	ST 6,3
9,5	2,85					
11	4,2					
13	6,2	5,8	4,3	3,7		
16	9,2	8,8	7,3	5,5		
19	12,1	11,7	10,3	8,7	8,7	7
22	15,1	14,7	13,3	11,7	11,7	10
25	18,1	17,7	16,3	14,7	14,7	13
32	25,1	24,5	23	21,5	21,5	20
38		30,5	29	27,5	27,5	26
45			36	34,5	34,5	33
50			41	39,5	39,5	38
60				49,5	49,5	48
63				52,5	52,5	51
73				62,5	62,5	61
75				64,5	64,5	63
80				69,5		68
90				79,5		78
100				89,5		88
110						98
120						108
130						118
140						128

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SCREW CHARACTERISTIC RESISTANCE*

SIZE	TENSION [KN]	SHEAR [KN]
ST 2.9	2.54	1.52
ST 3.5	3.91	2.35
ST 3.9	4.29	2.57
ST 4.2	5.31	3.18
ST 4.8	6.66	3.99
ST 5.5	8.87	5.32
ST 6.3	10.69	6.41


1 KN ≈ 100 Kg

* The characteristic resistance of a screw is that with a 95% probability to be achieved in a tension test. It depends on the mean ultimate resistance, the number of tests and the scatter of the results.

For tension loads, the resistance of the plates themselves must be considered, as their resistance is usually lower than the screw's itself, since the screw will probably break the plates.

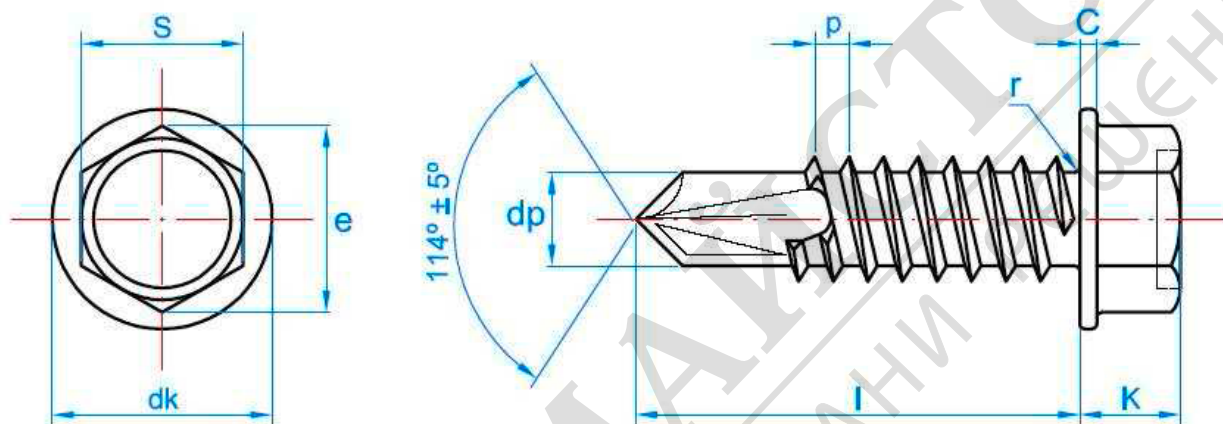




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6. GEOMETRICAL DIMENSIONS

6.1.- ABE SCREW (DIN 7504-K): SELFDRILLING SCREW WITH HEXAGONAL HEAD AND STAMPED WASHER




Thread	ST 3.5	ST 4.2	ST 4.8	ST 5.5	ST 6.3
dk: washer head diameter [mm]	8	8.5	10	10.5	12.6
k: head thickness [mm]	3.3	4.1	4.3	4.3	6.3
c: washer thickness [mm]	1.2	1.5	1.6	1.9	2
s: nut key [mm]	6	7	8	8	10
D: thread outer diameter [mm]	3.53	4.22	4.80	5.46	6.25
d: thread inner diameter [mm]	2.64	3.10	3.58	4.17	4.88
p: pitch [mm]	1.3	1.4	1.6	1.8	1.8
l: lengths [mm]	9.5 - 32	13 - 38	13 - 38	19 - 75	19 - 140
lg: maximum thread length [mm]	90	90	90	90	90
Magnetic power dopbits codes	BOCA006	BOCA007	BOCA008	BOCA008	BOCA010
Drilling range [mm]	0.70 - 2.25	1.75 - 3.00	1.75 - 4.40	1.75 - 5.25	2.50 - 6.00

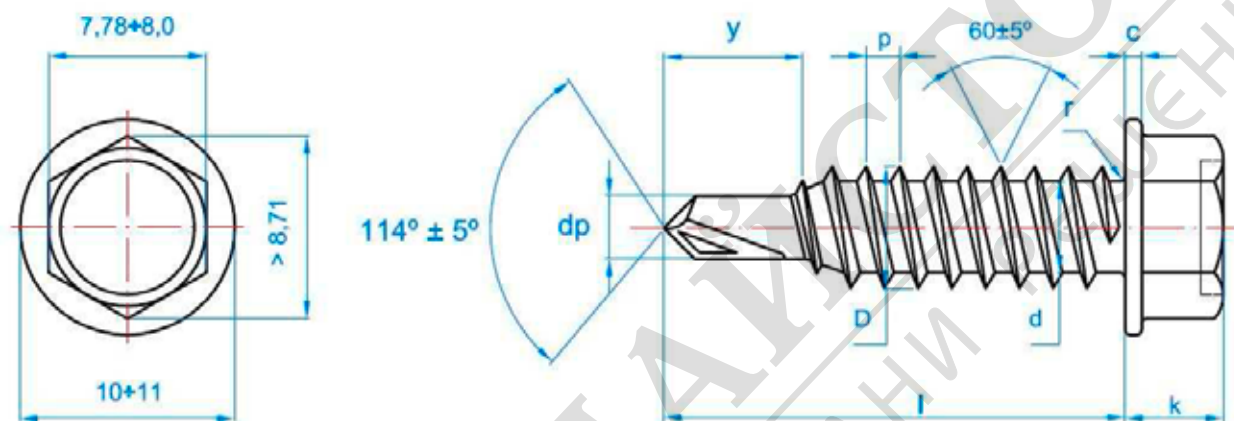
- Zinc plated covering (ABE code)
- General use for metal – metal fixing
- Versions with EPDM washer assembled for facades and roofing water tight fixing (see Technical Data Sheet ARVUL).





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6.2.- ARE SCREW: SELFDRILLING SCREW, HEXAGONAL HEAD 8 mm, REDUCED POINT



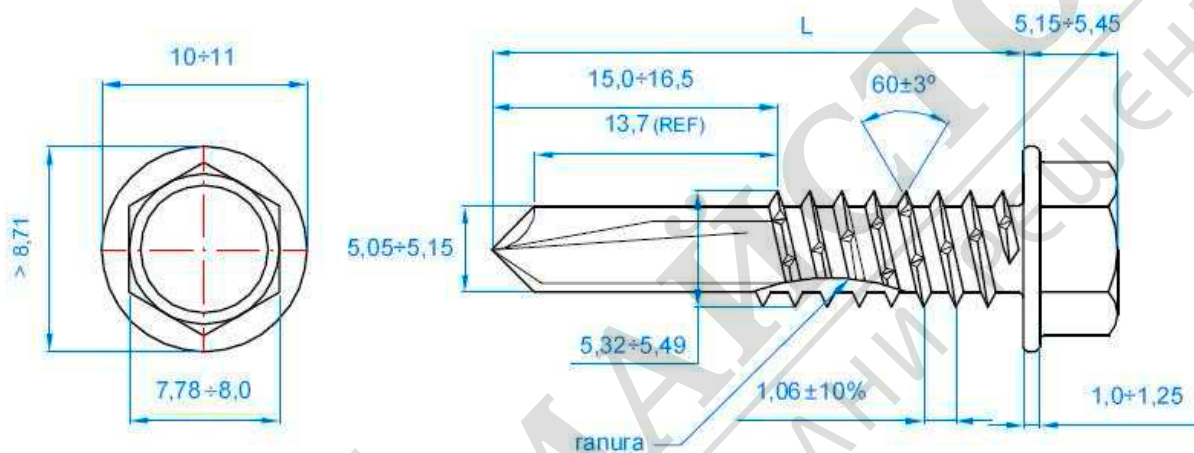
Thread		ST 4.8	ST 5.5	ST 6.3
dk: washer head diameter	[mm]	11	11	11
k: head thickness	[mm]	4.45	5.45	5.45
c: washer thickness	[mm]	1.15	1.25	1.25
s: nut key	[mm]	8	8	8
D: thread outer diameter	[mm]	4.80	5.46	6.25
d: thread inner diameter	[mm]	3.58	4.17	4.88
p: pitch	[mm]	1.6	1.8	1.8
l: lengths	[mm]	16 - 19	22	20 - 80
Magnetic power dopbits codes		BOCA008	BOCA008	BOCA008
Drilling range	[mm]	0.0 - 1.0	1.0 - 1.5	1.0 - 1.5

- Drill on the high range of revolutions of the chart in § 5.
- Zinc plated covering (codes ARE)
- Small thickness metal-metal fixings, up 1.5 mm. The drill makes an smaller diameter pilot hole. The thread, of bigger diameter, creates an extrusion in the sheet metal, in such a way that it reinforces and enlarges the threading area.
- Versions with assembled EPDM washer for facades and roofing water tight fixings (see Technical Data Sheet ARVUL).



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6.3.- AUTO SCREW (BEAM SCREW): SELFDRILLING SCREW POINT #5, HEXAGONAL WASHER HEAD



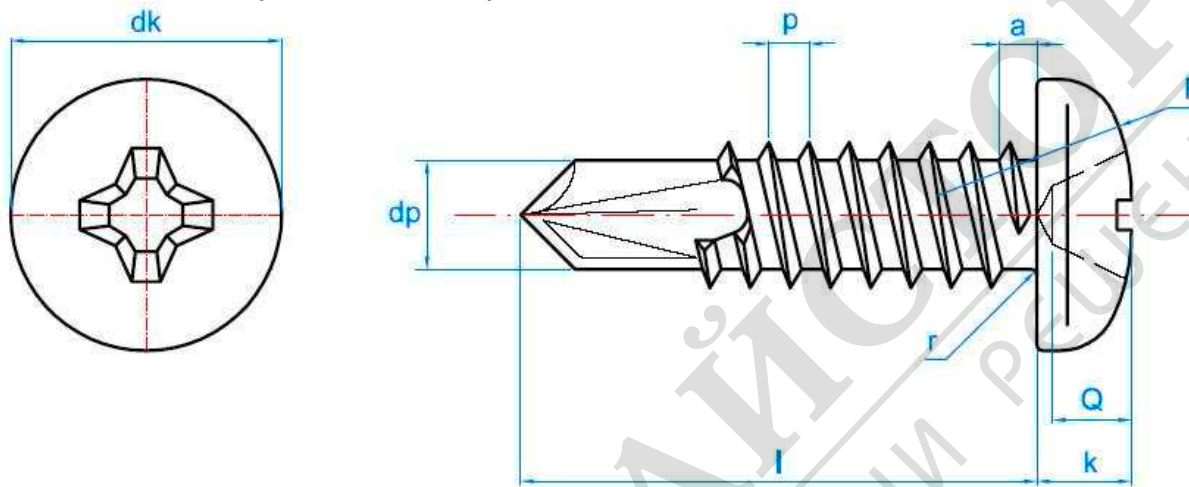
Thread	M 5.5
d_k : washer head diameter	[mm] 11
k: head thickness	[mm] 5.3
c: washer thickness	[mm] 1.15
s: nut key	[mm] 8
Point	#5
D: thread outer diameter	[mm] 5.5
d: thread inner diameter	[mm] 4.6
p: pitch	[mm] 1.06
l: lengths	[mm] 32 - 38
Magnetic power dopbits codes	BOCA008
Drilling range	[mm] 4.0 – 12.0

- Covering: zinc plated (code AUTO)
- Generally used for metal-metal fixing of up to 12 mm.
- Versions with assembled EPDM washer for facades and roofing water tight fixings (see Technical Data Sheet ARVUL)



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6.4.- ABR SCREW (DIN 7504-N HP): SELFDRILLING SCREW, PHILLIPS PAN HEAD



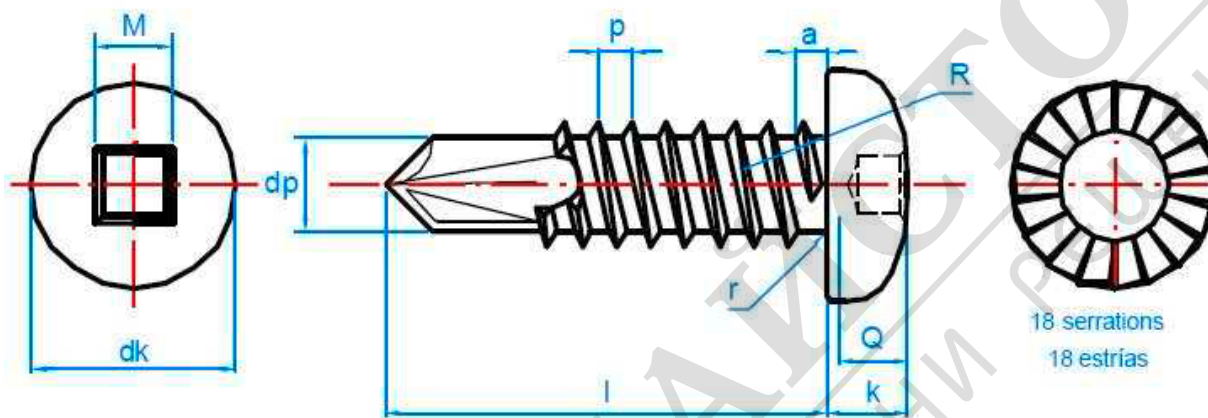
Thread		ST 3.5	ST 3.9	ST 4.2	ST 4.8	ST 5.5
d_k : washer head diameter	[mm]	6.9	7.5	8.2	9.5	10.8
k : head thickness	[mm]	2.60	2.80	3.05	3.55	3.95
Phillips recess		n° 2	n° 2	n° 2	n° 2	n° 3
R : head radius	[mm]	5.4	5.8	6.2	7.2	8.2
D : thread outer diameter	[mm]	3.53	3.91	4.22	4.80	5.46
d : thread inner diameter	[mm]	2.64	2.92	3.10	3.58	4.17
p : pitch	[mm]	1.3	1.3	1.4	1.6	1.8
l : lengths	[mm]	9.5 - 32	13 - 38	13 - 50	13 - 100	19- 73
Dop-bits codes		PUPHC02 PUPHL02	PUPHC02 PUPHL02	PUPHC02 PUPHL02	PUPHC02 PUPHL02	PUPHC03 PUPHL03
Drilling range	[mm]	0.70 - 2.25	0.70 - 2.40	1.75 - 3.00	1.75 - 4.40	1.75 - 5.25

- Covering: zinc plated (code ABR) and black zinc plated (code NBR)
- A2 stainless steel version (code ABRA2) for use exclusively in aluminium (it does not produce galvanic corrosion). Do not use this screw to drill stainless steel, as the point will be burned because its lack of hardness.



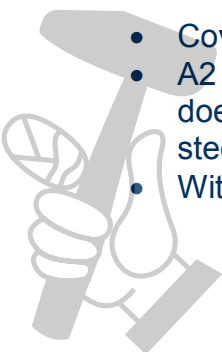
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6.5.- ABRC SCREW (DIN 7504-N HC): SELFDRILLING SCREW, PAN HEAD, SQUARE RECESS



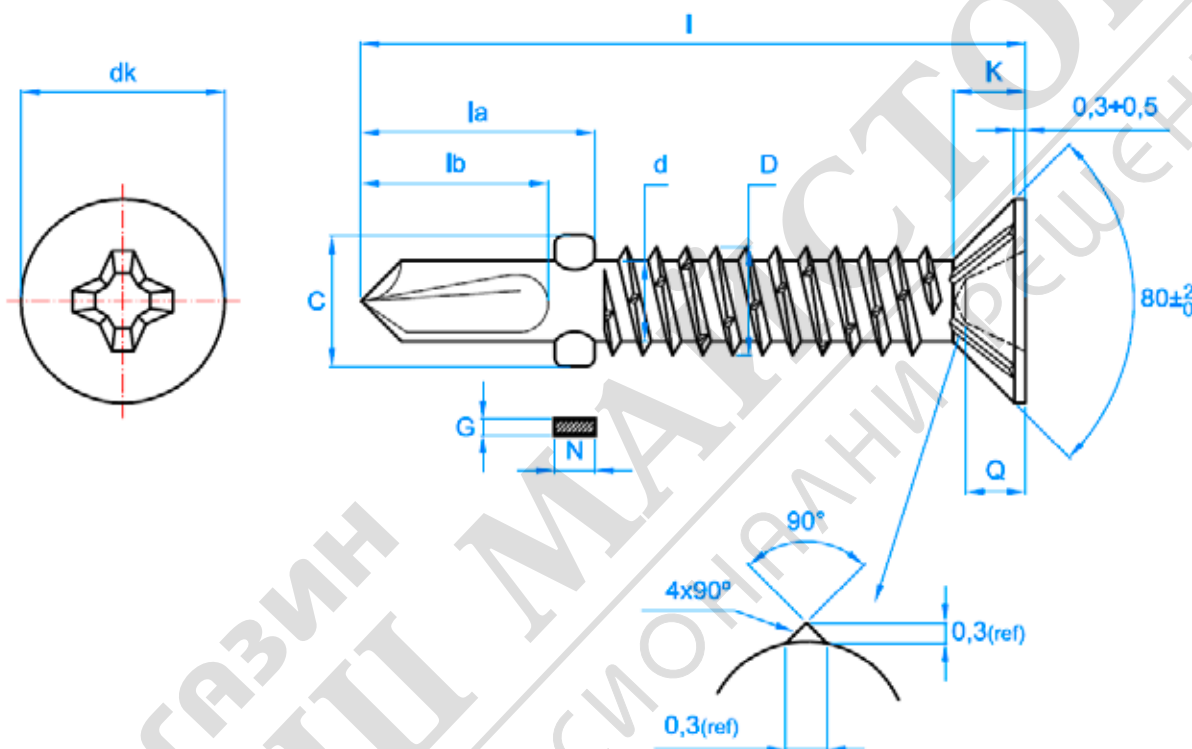
Thread	ST 3.5	ST 3.9	ST 4.2	ST 4.8	ST 5.5
d_k : washer head diameter [mm]	6.9	7.5	8.2	9.5	10.8
k : head thickness [mm]	2.60	2.80	3.05	3.55	3.95
Square recess	n° 1	n° 1	n° 2	n° 2	n° 3
R : head radius [mm]	5.4	5.8	6.2	7.2	8.2
D : thread outer diameter [mm]	3.53	3.91	4.22	4.80	5.46
d : thread inner diameter [mm]	2.64	2.92	3.10	3.58	4.17
p : pitch [mm]	1.3	1.3	1.4	1.6	1.8
l : lengths [mm]	9.5 - 32	13 - 38	13 - 50	13 - 100	19- 73
Dop-bits codes	PUCUC01 PUCUL01	PUCUC01 PUCUL01	PUCUC02 PUCUL02	PUCUC02 PUCUL02	PUCUC03 PUCUL03
Drilling range [mm]	0.70 - 2.25	0.70 - 2.40	1.75 - 3.00	1.75 - 4.40	1.75 - 5.25

- Covering: zinc plated (code ABRC)
- A2 stainless steel version (code ABRCA2) for use exclusively in aluminium (it does not produce galvanic corrosion). Do not use this screw to drill stainless steel, as the point will be burned because its lack of hardness.
- With 18 under head serrations with anti-spin effect.





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6.6.- ABA SCREW: SELFDRILLING SCREW, FLAT HEAD WITH TWO WINGS, COUNTERSUNK PHILLIPS HEAD



Thread	ST 4.8	ST 5.5	ST 6.3
dk: washer head diameter [mm]	9.50	10.80	12.40
k: head thickness [mm]	3.15	4.27	4.81
Phillips recess	n° 2	n° 3	n° 3
Countersunk head angle °	80	80	80
Drill length [mm]	10	12	13
D: thread outer diameter [mm]	4.80	5.46	6.25
d: thread inner diameter [mm]	3.58	4.17	4.88
p: pitch [mm]	1.6	1.8	1.8
l: lengths [mm]	32 - 50	38 - 65	60 - 85
Dop-bits codes	PUPHC02 PUPHL02	PUPHC03 PUPHL03	PUPHC03 PUPHL03
Drilling range [mm]	1.75 - 4.00	1.75 - 5.00	2.50 - 6.00

- Covering: zinc plated
- For joining wood > 12 mm and sheet metal > 1.75 mm
- The point's two wings make a pilot hole on the wood avoiding like this the thread obstruction and the wood cracking by the drilled hole.
- With under head nibs that directly countersunk the wood, melamine or other materials, making an anti-spin effect at the same time.

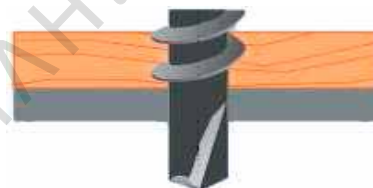
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For wood-metal joints of more than 12mm wood thickness, it is required a hole in the wood with a gap that avoids that the wood threading starts before the metal drilling is finished. Otherwise the drill point could be burned, break the wood or even make the wood-metal joint come unstuck.

For that we should chose in between one of the following options:

- Make in the wood a pilot hole, bigger than the thread's diameter.
- Use a self drilling screw with extra-long drilling point (it is not regularly commercialised).
- Use self-drilling screw with two wings: It reams the wood with a hole of bigger diameter than the thread, in such way that the thread does not touch the wood. The wings will break as soon as they touch the metal and the thread starts to work.

Fixing with wood thickness ≤ 12 mm.



Fixing with wood thickness >12 mm. with regular self-drilling screw.




Solution 1: Long drilling point.



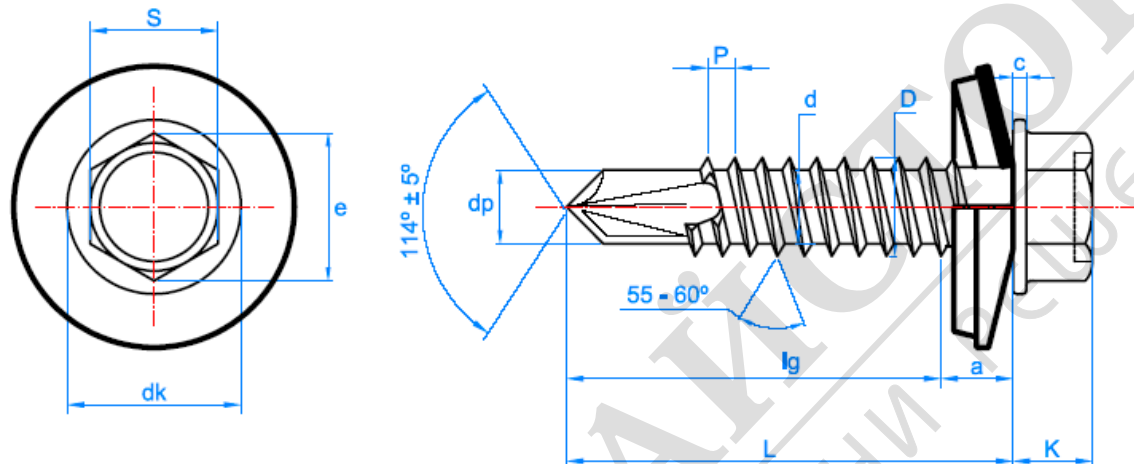
Solution 2: Self-drilling screw with two wings.

- Wood drilling.
- Wood reaming + metal drilling.
- Metal threading.



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6.7.- AF SCREW (Farmer Screw): SELFDRILLING SCREW WITH HEXAGONAL HEAD AND STAMPED WASHER FOR METAL TO WOOD FIXING



Thread	ST 4.8
d_k : washer head diameter	[mm] 10
k : head thickness	[mm] 4.9
c : washer thickness	[mm] 1.1
s : nut key	[mm] 8
D : thread outer diameter	[mm] 4.80
d : thread inner diameter	[mm] 3.30
p : pitch	[mm] 2.1
l : lengths	[mm] 19 – 35
l_G : maximum thread length	[mm] full
Magnetic power dopbits codes	BOCA008
Drilling range	[mm] 1.50 max

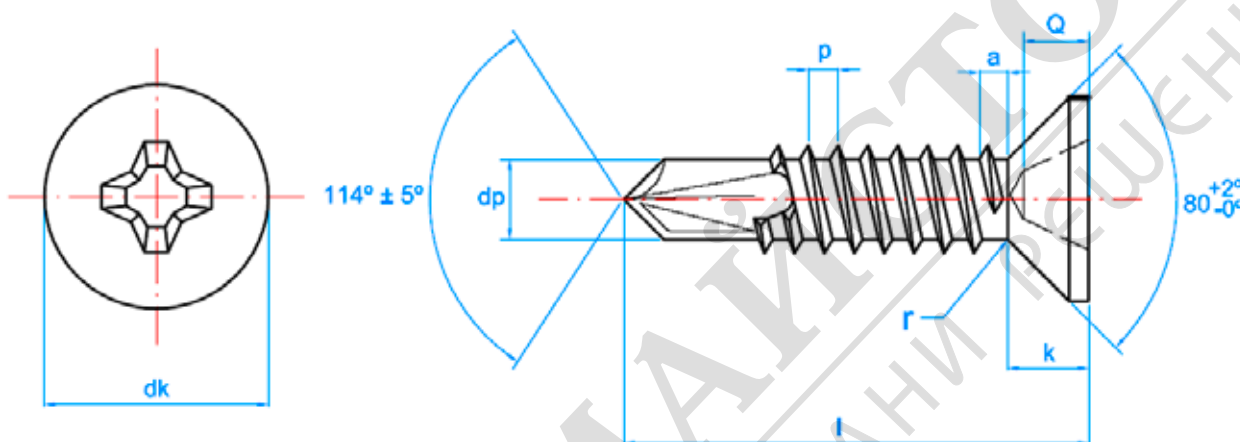
- Zinc plated covering. Lacquered head and washer available.
- Metal to wood fixing





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6.8.- ABP SCREW (DIN 7504-P HP): SELFD RILLING SCREW, COUNTERSUNK PHILLIPS HEAD



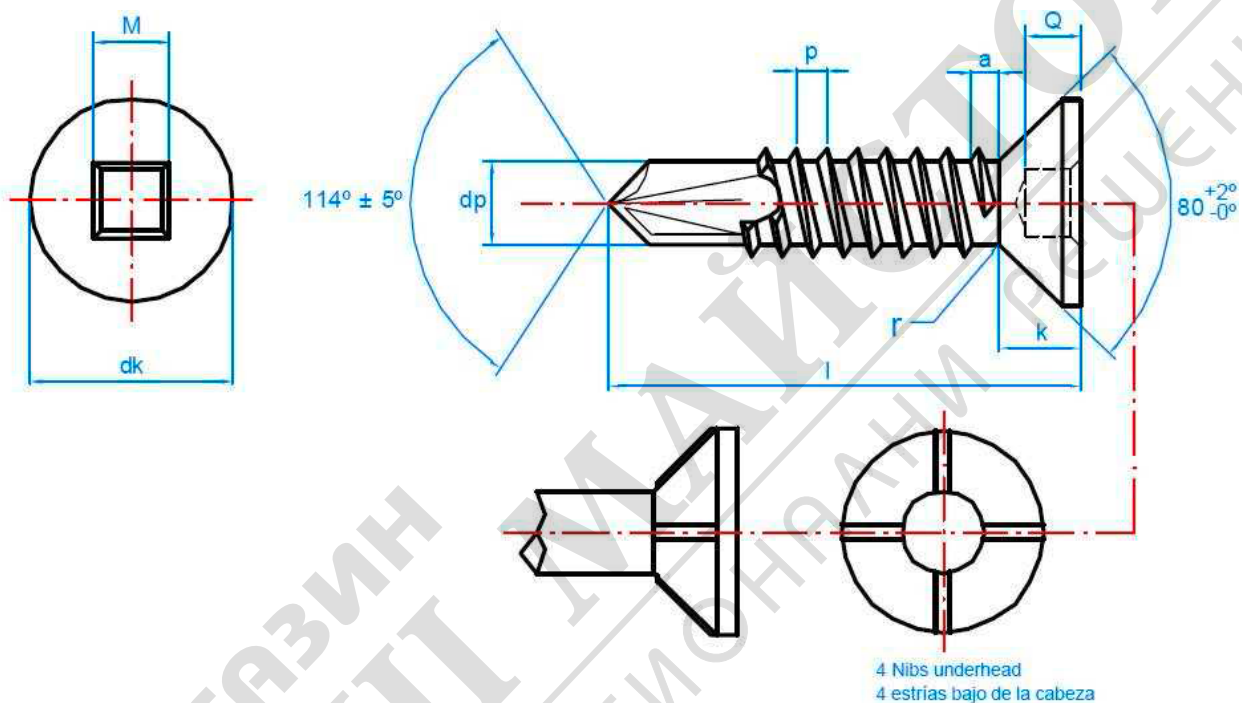
Thread	ST 3.5	ST 3.9	ST 4.2	ST 4.8	ST 5.5
dk: washer head diameter [mm]	6.8	7.5	8.1	9.5	10.8
k: head thickness [mm]	2.1	2.3	2.5	3.0	3.4
Phillips recess	n° 2	n° 2	n° 2	n° 2	n° 3
Countersunk head angle °	80	80	80	80	80
D: thread outer diameter [mm]	3.53	3.91	4.22	4.80	5.46
d: thread inner diameter [mm]	2.64	2.92	3.10	3.58	4.17
p: pitch [mm]	1.3	1.3	1.4	1.6	1.8
l: lengths [mm]	9.5 - 25	13 - 38	13 - 38	13 - 50	19 - 50
Dop-bits codes	PUPHC02 PUPHL02	PUPHC02 PUPHL02	PUPHC02 PUPHL02	PUPHC02 PUPHL02	PUPHC03 PUPHL03
Drilling range [mm]	0.70 - 2.25	0.70 - 2.40	1.75 - 3.00	1.75 - 4.40	1.75 - 5.25

- Zinc plated (code ABP) and black zinc plated (code NBP)
- For metal-metal joining where it is required that the screw remains flat in the material to be fixed.
- It requires previous countersunk




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6.9.- ABP SCREW (DIN 7504-P HC): SELFDRILLING SCREW, COUNTERSUNK HEAD, SQUARE RECESS

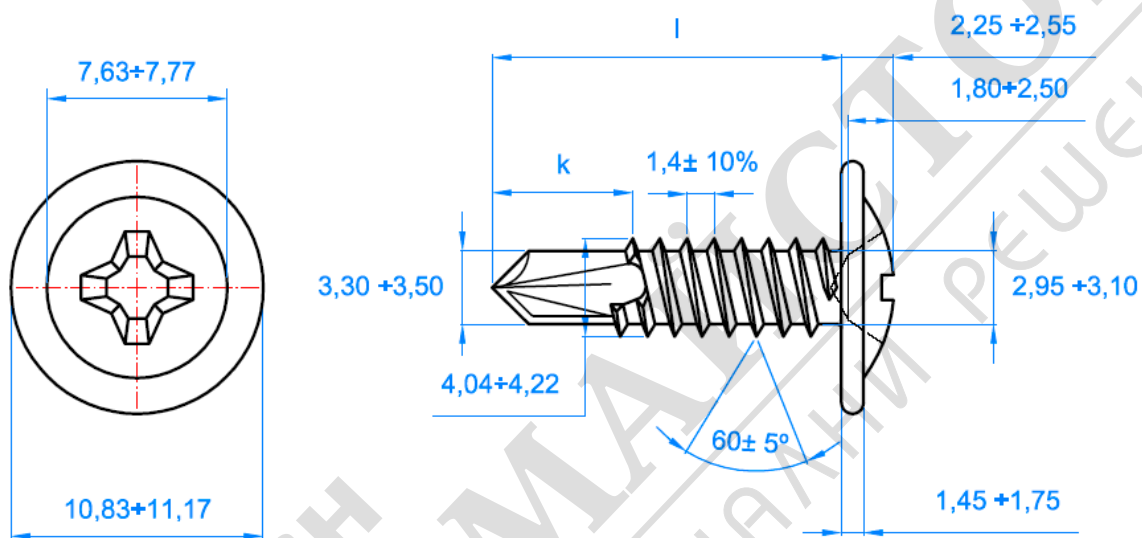


Thread		ST 3.5	ST 3.9	ST 4.2	ST 4.8	ST 5.5
dk: washer head diameter	[mm]	6.8	7.5	8.1	9.5	10.8
k: head thickness	[mm]	2.1	2.3	2.5	3.0	3.4
Square recess		n° 1	n° 1	n° 2	n° 2	n° 3
Countersunk head angle	°	80	80	80	80	80
D: thread outer diameter	[mm]	3.53	3.91	4.22	4.80	5.46
d: thread inner diameter	[mm]	2.64	2.92	3.10	3.58	4.17
p: pitch	[mm]	1.3	1.3	1.4	1.6	1.8
l: lengths	[mm]	9.5 - 25	13 - 38	13 - 38	13 - 50	19 - 50
Dop-bits codes		PUCUC01 PUCUL01	PUCUC01 PUCUL01	PUCUC02 PUCUL02	PUCUC02 PUCUL02	PUCUC03 PUCUL03
Drilling range	[mm]	0.70 - 2.25	0.70 - 2.40	1.75 - 3.00	1.75 - 4.40	1.75 - 5.25

- Zinc plated (code ABPC)
- For metal-metal joining where it is required that the screw remains flat in the material to be fixed.
- It requires previous countersunk.
- With under head nibs that directly countersunk the wood, melamine or other materials, making an anti-spin effect at the same time.
- A2 stainless steel version (code ABPCA2) for use exclusively in aluminium (it does not produce galvanic corrosion). Do not use this screw to drill stainless steel, as the point will be burned because its lack of hardness

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6.10.- TAE SCREW: SELFDRILLING SCREW, PHILLIPS PAN HEAD WASHER



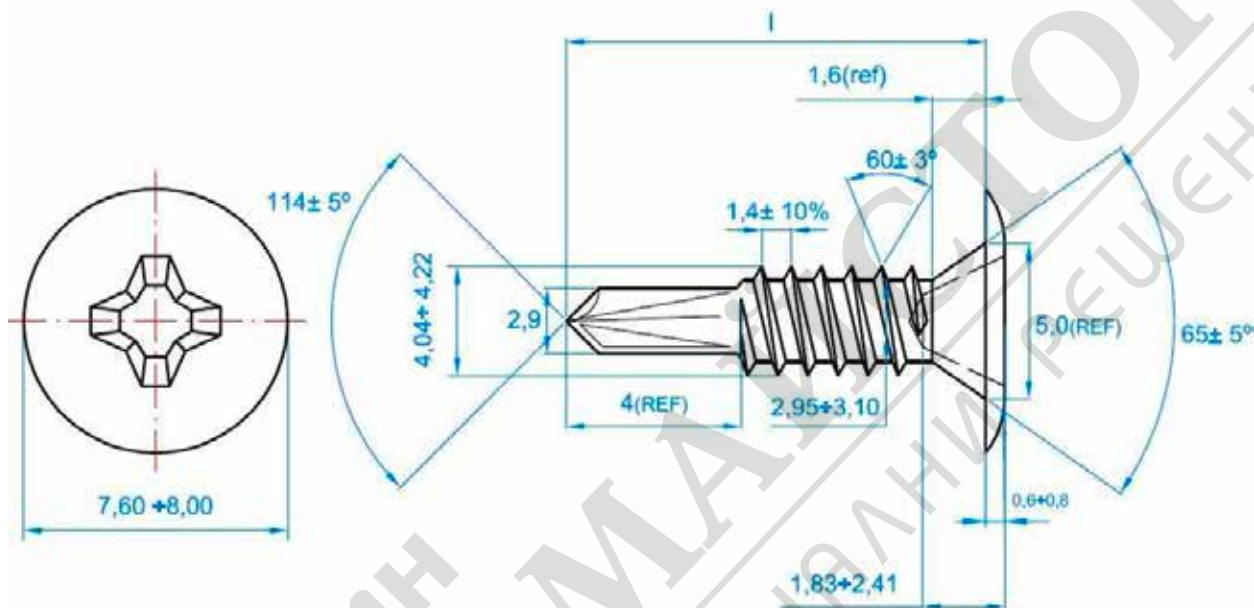
Thread		ST 4.2
d_k : washer head diameter	[mm]	11.17
H: head thickness	[mm]	2.55
Phillips recess		n° 2
k: drill length	[mm]	4.4 – 5.2
D: thread outer diameter	[mm]	4.22
d: thread inner diameter	[mm]	3.10
p: pitch	[mm]	1.4
l: lengths	[mm]	13, 32
Dop-bits codes		PUPHC02 PUPHL02
Drilling range	[mm]	0.75 - 2.50

- Covering: zinc plated (code TAEZ) and black zinc plated (code TAEN)
- Use in joining where a distribution of pressures is required, without mounting additional flat washers, and the head does not stand out too much.
 - Fixings of soft materials over metals (metacrilate, plastics, chipboard, thin sheet metals, etc.)
 - Big or oversized holes




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6.11.- BCP SCREW: SELFDRILLING SCREW, EXTRA LOW HEAD, PHILLIPS



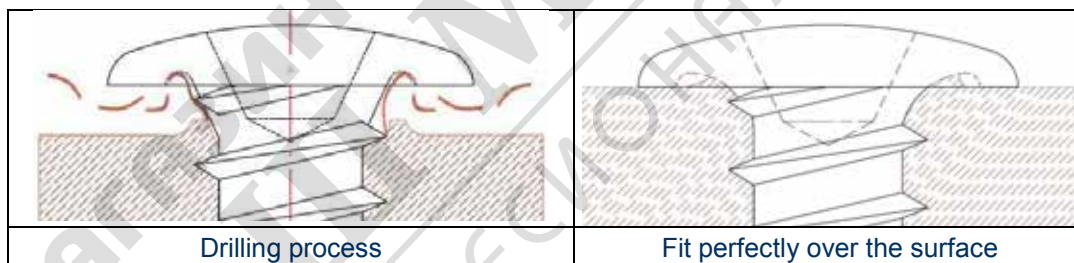
Thread		ST 4.2
d_k : washer head diameter	[mm]	8.0
H: head thickness	[mm]	0.7
Phillips recess		n° 2
k: drill length	[mm]	4
D: thread outer diameter	[mm]	4.22
d: thread inner diameter	[mm]	3.10
p: pitch	[mm]	1.4
l: lengths	[mm]	14, 23
Countersunk head angle	°	65
Dop-bits codes		PUPHC02 PUPHL02
Drilling range	[mm]	0.7 - 2.0

- Covering: zinc plated (code BCPZ), black zinc plated (code BCPN) and fully white painted RAL 9010 (code BCPB)
- Bevelled head to avoid catching with slippery areas.
- For metal fixings where a very low head height is required.(sliding doors/windows, etc).
- It can replace the blind rivets in many applications, with the advantage that it can be removed after installation.
- Reduced under head cone to improve the settling in flat surfaces.
- A2 stainless steel version (code BCPA2) for use exclusively in aluminium (it does not produce galvanic corrosion). Do not use this screw to drill stainless steel, as the point will be burned because its lack of hardness.

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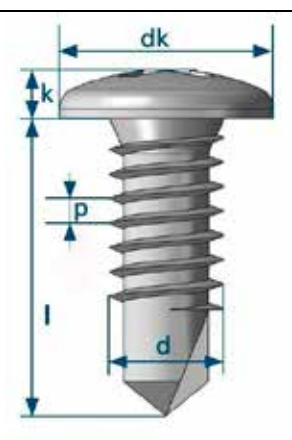
6.12.- RS SCREW: SELFDRILLING SCREW, RIVET HEAD, PHILLIPS.

- Self-drilling rivet-head screw.
- The thin head has the following properties:
 - It is not an obstacle to any mobile elements.
 - Once installed, it has a proper finish, almost unnoticeable, due to its spherical geometry.
 - It can be used as a replacement for rivets.
- Wide range of drilling depths available: from 1.75 mm to 4.40 mm.
- Wide range of sizes available.
- The cone between the head and the thread has been optimized, in order to guarantee a perfect setting on the material installed.
- Full thread.
- Ring cavity underneath the head, which takes the drilling leftovers in, thus improving the setting of the screw.





- Technical data is detailed as follows:

CODE		ST 4.2	ST 4.8
d_k : head diameter	[mm]	8	9.3
k : head thickness	[mm]	1.3	1.5
d : outer thread diameter	[mm]	4.2	4.8
p : thread pitch	[mm]	1.4	1.6
l : length	[mm]	13 - 32	13 - 38
Phillips bit		n° 2	n° 2
Installation bit code (Phillips version)		PUPHC02 PUPHL02	PUPHC02 PUPHL02
Drilling range	[mm]	1.75 - 3.00	1.75 - 4.40



- Diferent views:



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7.- COLOURS

All selfdrilling screws can be delivered painted in the following options

7.1.- Head or head plus EPDM washer

- RAL 1000
- RAL 1001
- RAL 1007
- RAL 1015
- RAL 3003
- RAL 3005
- RAL 3011
- RAL 5009
- RAL 5019
- RAL 6005
- RAL 6021
- RAL 6028
- RAL 7035
- RAL 9002
- RAL 9005
- RAL 9006
- RAL 9010
- RAL 9018



Sizes: from 3.9x13 to 6.3x140.

Ask sales department minimum quantity, price and delivery date.

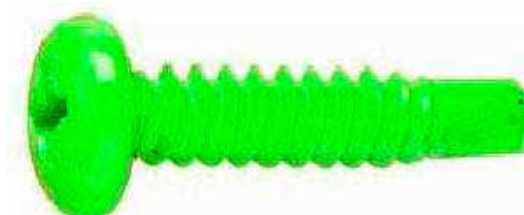
Farmer screw colours (AF): only head and EPDM washer

- RAL 3009
- RAL 5010
- RAL 6005
- RAL 8004
- RAL 8017
- RAL 9006
- RAL 9010
- RAL 9011



7.2.- Full painted


- RAL 3005
- RAL 5009
- RAL 6005
- RAL 9005
- RAL 9010



Sizes: from 2.9x6.5 to 5.5x 32. Minimum quantity: 15 kg



Ask sales department price and delivery date.

7.3.- ATAP code: decorative plastic caps for hexagonal head 8 mm (ABE 4.8, ABE 5.5 y ARE) and 10 mm (ABE 6.3)

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- RAL 1000
- RAL 1001
- RAL 3003
- RAL 3011
- RAL 5019
- RAL 6028
- RAL 6021
- RAL 9002
- RAL 9018



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8.- APPLICATION EXAMPLES

