

## SELF-DRILLING SCREW FIXINGS

Denomination: **SELF-DRILLING SCREW FIXINGS**

Codes: ABE, ARE, ABR, ABRBLE, NBR, ABRC, ABRCA2, ABRA2, ABA, FS, ABP, NBP, ABPC, ABPCA2, TAEZ, TAEN, BCPZ, BZPZBL, BCPN, BCPB, BCPA2, BIE, AUTO, BAUTO, RS.

Reference: **FT BRO-es**

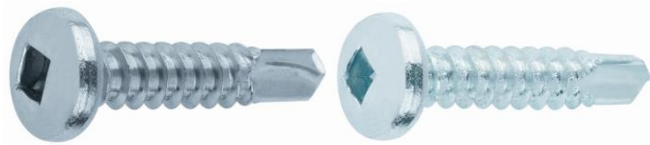
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### 6. ABRC, ABRCA2

#### Self-drilling screw – Dome head – square socket



##### Properties



Steel



Zinc-plated coating



Available in stainless

##### Base material



Plate assembly



Plate profile



Aluminium

##### Properties



Square socket



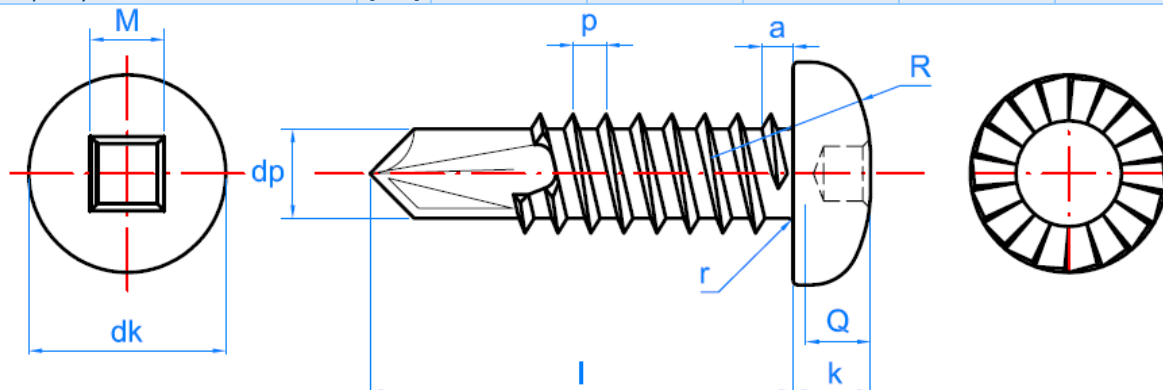
Dome head



Screw point

#### 5.1. Details

Code		ST 3.5	ST 3.9	ST 4.2	ST 4.8	ST 5.5
$d_k$ : 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
Squarebit		nº 1	nº 1	nº 2	nº 2	nº 3
$R$ : head radius	[mm]	5.4	5.8	6.2	7.2	8.2
$D$ : exterior thread diameter	[mm]	3.53	3.91	4.22	4.80	5.46
$d$ : interior thread diameter	[mm]	2.64	2.92	3.10	3.58	4.17
$p$ : thread	[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
Installation bit code (square bit)		PUCUC01 PUCUL01	PUCUC01 PUCUL01	PUCUC02 PUCUL02	PUCUC02 PUCUL02	PUCUC03 PUCUL03
Drill capacity	[mm]	0.70 - 2.25	0.70 - 2.40	1.75 - 3.00	1.75 - 4.40	1.75 - 5.25



- A2 stainless steel version (code ABRA2) for use exclusively with aluminium (does not produce corrosion by galvanic coupling). Do not use screw in stainless steel to drill steel, as point will burn out due to lack of hardness.
- Zinc-plated finish (code ABRC).
- Grooves in the lower part of head which guard against rotation.

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Reference: **FT BRO-en**

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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

### SCREW RESISTANCE CHARACTERISTICS\*

SIZE	TENSION [kN]	SHEAR [kN]
ST 2.9	2.62	1.31
ST 3.5	3.81	1.91
ST 3.9	4.64	2.32
ST 4.2	5.26	2.63
ST 4.8	7.11	3.56
ST 5.5	9.63	4.82
ST 6.3	13.36	6.68

1 kN ≈ 100 Kg

For tension loads, the inherent resistance of plates to be fixed must be taken into account, which is usually less than the resistance of the screw itself, as the screw will probably tear the plates.

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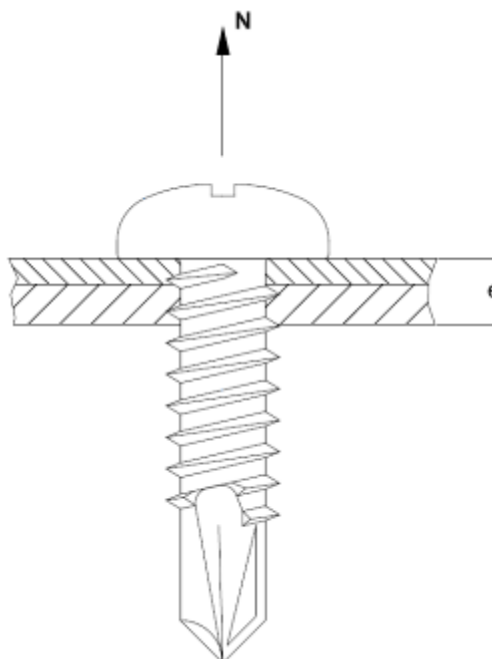
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### RECOMMENDED TENSION LOAD IN STEEL PLATE

SIZE	RECOMMENDED LOAD					
	e[mm]	N[kN]	e[mm]	N[kN]	e[mm]	N[kN]
ST 3.5	0.8	<b>0.55</b>	1.5	<b>0.89</b>	2.0	<b>1.13</b>
ST 3.9	0.8	<b>0.54</b>	1.5	<b>0.97</b>	2.0	<b>1.50</b>
ST 4.2	2.0	<b>1.63</b>	2.5	<b>1.51</b>	3.0	<b>2.62</b>
ST 4.8	2.0	<b>1.87</b>	3.0	<b>2.77</b>	4.0	<b>3.71</b>
ST 5.5	2.0	<b>1.77</b>	3.5	<b>2.86</b>	5.0	<b>3.43</b>
ST 6.3	2.5	<b>1.44</b>	4.0	<b>3.19</b>	5.0	<b>4.83</b>

### RECOMMENDED TENSION LOAD IN ALUMINIUM PLATE

SIZE	RECOMMENDED LOAD					
	e[mm]	N[kN]	e[mm]	N[kN]	e[mm]	N[kN]
ST 4.8	2.0	<b>0.95</b>	3.0	<b>1.52</b>	4.0	<b>2.10</b>



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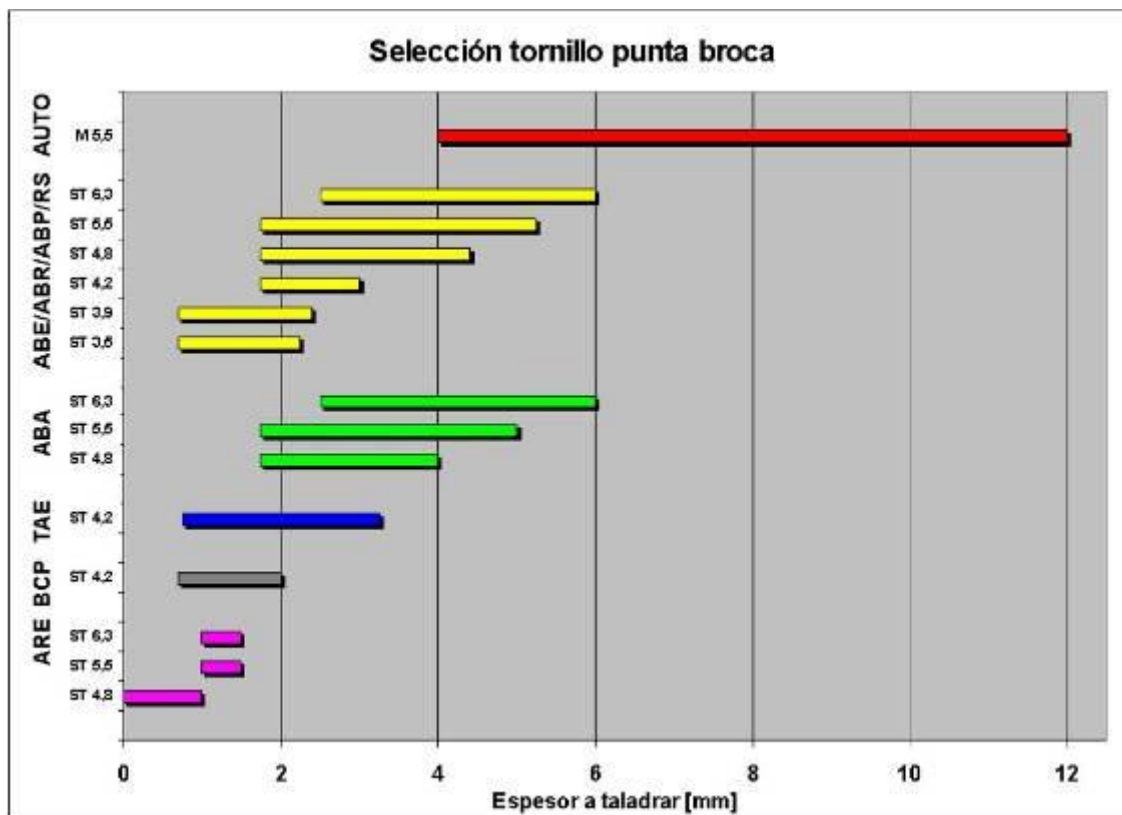
## INSTALLATION PARAMETERS

Parameter			ST 3.5	ST 3.9	ST 4.2	ST 4.8	ST 5.5 M 5.5	ST 6.3
Maximum installation strength	[N]		150	200	250	250	350	350
Drill Speed	Steel	[rpm]	1800 - 2500				1000 - 1800	
	Stainless Steel	[rpm]	1000 - 1500				600 - 1000	
Maximum 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

With high drilling times or excessive drilling speed there is a risk of burning the drill bit and therefore not drilling the material.



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### MATERIALS

Characteristic	ABE, ARE, AUTO, ABR, ABRBL, NBR, ABRC, ABA, FS, ABP, NBP, ABPC, TAEZ, TAEN, BCPZ, BCPN, BCPB, RS	ABRA2, ABRC A2, ABPCA2, BCPA2	BIE, BAUTO (silver ruspert coating)
Material	Special steel for SAE J403 1022 thermal treatment	A2 Stainless Steel	A2 Stainless Steel head and shaft. Special steel point for SAE J403 1022 thermal treatment
Surface hardness	> 500 HV	---	Head and shaft --- Point > 500 HV
Core hardness	240 - 450 HV	---	Head and shaft --- Point 240 - 450 HV
Depth 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 shaft --- Point: ST 4.8 – 5.5: 0.10 – 0.23 mm. ST 6.3: 0.15 – 0.28 mm.

### POINT SELECTION

The choice of screw point must be such that the total thickness of materials to be joined (including any intermediate spaces) is lower than the edge of the drill point; otherwise screw breakage may occur during installation.

