

## Hole saws

The ZONO bi-metal hole saws can be used in hand and pillar drills. When employing pillar drills, use manual advance only.

### Bi-metal compass saws HSS with varied tothing

On easily cut materials the varied tothing ensures that the cut is more even and requires less effort. The reduction in vibrations and heat development during cutting achieves up to three times the tool life. Suitable for unalloyed steel (up to 700 N/mm<sup>2</sup> strength), non-ferrous and light metals, plastics, plasterboard and light building boards, fiberboard, plywood and wood.

### Bi-metal hole saws HSSE-Co 8 with fine tothing

The fine tothing is particularly suitable for cutting metals. It ensures smoother running and reduces the necessary effort. The reduction in heat development during cutting increases tool life, especially in the case of metals.

Suitable for alloyed and non-alloyed steels (up to 1,000 N/mm<sup>2</sup> strength), high chromium alloyed steels such as stainless steel, steels resistant to rusts and acids, non-ferrous and light metals.

### Characteristics:

- High rotational precision
- Sturdy construction
- Hole saw and shank in two parts, so hole saws of different diameters can be exchanged and fitted more rapidly
- Positive chipping and cutting angles ensure more aggressive cutting
- The teeth are welded onto a jacket of special steel
- Good chip removal
- Slots in the jacket side assist removal of cut outs
- Exchangeable centering drill

### User instructions:

- Unsuitable for percussion-drill operation
- Only slight pressure required to start drilling
- Drill with light, steady pressure
- Avoid pendulum movements while drilling
- Observe table of drilling speeds
- Use prescribed cooling agents





## Bi-metal hole saws

HSS with varied toothing / HSSE-Co 8 with fine toothing



Jacket: special steel

Packing unit: individual carton

Ø mm	Ø inch	Through dimensions PG	Tube dimensions inch	For arbor holders	Article no. HSS	Article no. HSSE-Co 8
14,0	9/16"			A1 / A4 / A5	106 014	126 014
16,0	5/8"	~PG 9		A1 / A4 / A5	106 016	126 016
17,0				A1 / A4 / A5	106 017	126 017
19,0	3/4"	~PG 11	3/8"	A1 / A4 / A5	106 019	126 019
20,0				A1 / A4 / A5	106 020	126 020
21,0		~PG 13,5		A1 / A4 / A5	106 021	126 021
22,0	7/8"		1/2"	A1 / A4 / A5	106 022	126 022
24,0	15/16"	~PG 16		A1 / A4 / A5	106 024	126 024
25,0	1"			A1 / A4 / A5	106 025	126 025
27,0	1-1/16"			A1 / A4 / A5	106 027	126 027
28,0	1-3/32"			A1 / A4 / A5	106 028	126 028
29,0	1-1/8"	~PG 21	3/4"	A1 / A4 / A5	106 029	126 029
30,0	1-3/16"			A1 / A4 / A5	106 030	126 030
32,0	1-1/4"			A2 / A6 / A7	106 032	126 032
33,0				A2 / A6 / A7	106 033	126 033
35,0	1-3/8"		1"	A2 / A6 / A7	106 035	126 035
36,0				A2 / A6 / A7	106 036	126 036
37,0		PG 29		A2 / A6 / A7	106 037	126 037
38,0	1-1/2"			A2 / A6 / A7	106 038	126 038
40,0				A2 / A6 / A7	106 040	126 040
41,0	1-5/8"			A2 / A6 / A7	106 041	126 041
43,0	1-11/16"			A2 / A6 / A7	106 043	126 043
44,0	1-3/4"		1-1/4"	A2 / A6 / A7	106 044	126 044
46,0	1-13/16"			A2 / A6 / A7	106 046	126 046
48,0	1-7/8"	~PG 36		A2 / A6 / A7	106 048	126 048
50,0				A2 / A6 / A7	106 050	126 050
51,0	2"		1-1/2"	A2 / A6 / A7	106 051	126 051
52,0				A2 / A6 / A7	106 052	126 052
54,0	2-1/8"	PG 42		A2 / A6 / A7	106 054	126 054
55,0				A2 / A6 / A7	106 055	126 055
57,0	2-1/4"			A2 / A6 / A7	106 057	126 057
59,0				A2 / A6 / A7	106 059	126 059
60,0	2-3/8"	~PG 48		A2 / A6 / A7	106 060	126 060
63,0				A2 / A6 / A7	106 063	126 063
64,0	2-1/2"		2"	A2 / A6 / A7	106 064	126 064
65,0				A2 / A6 / A7	106 065	126 065
67,0	2-5/8"			A2 / A6 / A7	106 067	126 067
68,0				A2 / A6 / A7	106 068	126 068
70,0	2-3/4"			A2 / A6 / A7	106 070	126 070
73,0	2-7/8"			A2 / A6 / A7	106 073	126 073
76,0	3"		2-1/2"	A2 / A6 / A7	106 076	126 076
79,0	3-1/8"			A2 / A6 / A7	106 079	126 079
83,0	3-1/4"			A2 / A6 / A7	106 083	126 083
86,0	3-3/8"			A2 / A6 / A7	106 086	126 086
89,0	3-1/2"			A2 / A6 / A7	106 089	126 089
92,0	3-5/8"		3"	A2 / A6 / A7	106 092	126 092
95,0	3-3/4"			A2 / A6 / A7	106 095	126 095
98,0	3-7/8"			A2 / A6 / A7	106 098	126 098
102,0	4"			A2 / A6 / A7	106 102	126 102
105,0			3-1/2"	A2 / A6 / A7	106 105	126 105
108,0	4-1/4"			A2 / A6 / A7	106 108	126 108
111,0	4-3/8"			A2 / A6 / A7	106 111	126 111
114,0	4-1/2"		4"	A2 / A6 / A7	106 114	126 114
121,0	4-3/4"			A2 / A6 / A7	106 121	126 121
127,0	5"			A2 / A6 / A7	106 127	126 127
133,0				A2 / A6 / A7	106 133	126 133
140,0	5-1/2"			A2 / A6 / A7	106 140	126 140
152,0	6"			A2 / A6 / A7	106 152	126 152
160,0	6-5/16"			A2 / A6 / A7	106 160	126 160
168,0	6-5/8"			A2 / A6 / A7	106 168	126 168
177,0				A2 / A6 / A7	106 177	126 177
210,0	8-1/4"			A2 / A6 / A7	106 210	126 210

## Arbor holders including pilot drill for bi-metal hole saws HSS and HSSE-Co 8

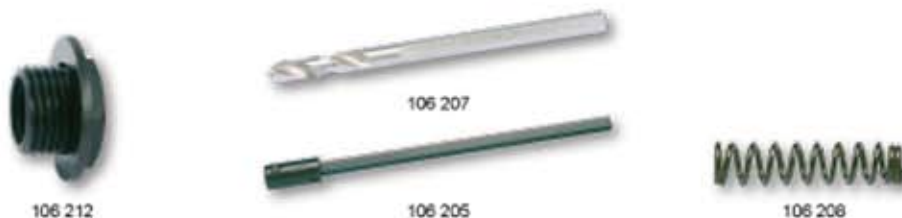
Packing unit: individual carton



Hole saws Ø mm	Arbor holders Type	Shank Ø mm	Shank shape	Thread	Article no.	
					HSS	HSSE-Co 8
14,0 - 30,0	A1	11,0	Hex	1/2" x 20	106 201	126 201
32,0 - 210,0	A2	11,0	Hex	5/8" x 18	106 202	126 202
14,0 - 30,0	A4	6,0	Round	1/2" x 20	106 204	126 204
14,0 - 30,0	A5	9,5	Hex	1/2" x 20	106 210	126 210
32,0 - 210,0	A6	9,5	Hex	5/8" x 18	106 209	126 209
32,0 - 210,0	A7	10,0	SDS-Plus	5/8" x 18	106 211	126 211

## Accessories for bi-metal hole saws HSS and HSSE-Co 8

Packing unit: individual plastic pack



Description	Arbor holders Type	Article no. HSS	Article no. HSSE-Co 8
Adapter to support HSS and HSSE-Co 8 bi-metal hole saws from Ø 32,0 to Ø 210,0 mm	A1 / A4 / A5	106 212	-----
Pilot drill HSS / HSSE-Co 5, ground, Ø 6,35 x 102,0 mm and split point in accordance with DIN 1412 C	A4	106 207	126 207
Pilot drill HSS / HSSE-Co 5, ground, Ø 6,35 x 82,0 mm and split point in accordance with DIN 1412 C	A1 / A2 / A5 / A6 / A7	106 206	126 206
Extension 300,0mm, shank shape: Hex 11,0 mm	A1 / A2	106 205	-----
Ejector spring	-----	106 208	-----



Recommended cutting speeds  
for bi-metal hole saws HSS and HSSE-Co 8

Material:		High carbon struc. Steel up to 700 N/mm <sup>2</sup>	Alloyed steel up to 1000 N/mm <sup>2</sup>	Cast iron over 250 N/mm <sup>2</sup>	CuZn alloy	Aluminium alloy up to 11% Si	Thermo-plastics	Duro-plastics	Wood
Vc = m/min		30	20	10	35	30	20	15	40
Coolant:		Cutting spray	Cutting spray	Compressed air	Compressed air	Cutting spray	Water	Compressed air	Compressed air
∅ mm	∅ inch	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.
14,0	9/16"	682	455	227	796	682	455	341	910
16,0	5/8"	597	398	199	697	597	398	299	796
17,0		562	375	187	656	562	375	281	749
19,0	3/4"	503	335	168	587	503	335	251	670
21,0		455	303	152	531	455	303	227	607
22,0	7/8"	434	290	145	507	434	290	217	579
24,0	15/16"	398	265	133	464	398	265	199	531
25,0	1"	382	255	127	446	382	255	191	510
27,0	1-1/16"	354	236	118	413	354	236	177	472
28,0	1-3/32"	341	227	114	398	341	227	171	455
29,0	1-1/8"	329	220	110	384	329	220	165	439
30,0	1-3/16"	318	212	106	372	318	212	159	425
32,0	1-1/4"	299	199	100	348	299	199	149	398
33,0		290	193	97	338	290	193	145	386
35,0	1-3/8"	273	182	91	318	273	182	136	364
36,0		265	177	88	310	265	177	133	354
37,0		258	172	86	301	258	172	129	344
38,0	1-1/2"	251	168	84	293	251	168	126	335
40,0		239	159	80	279	239	159	119	318
41,0	1-5/8"	233	155	78	272	233	155	117	311
43,0	1-11/16"	222	148	74	259	222	148	111	296
44,0	1-3/4"	217	145	72	253	217	145	109	290
46,0	1-3/4"	208	138	69	242	208	138	104	277
48,0	1-7/8"	199	133	66	232	199	133	100	265
50,0	1-31/32"	190	128	64	225	194	129	97	257
51,0	2"	187	125	62	219	187	125	94	250
52,0		184	122	61	214	184	122	92	245
54,0	2-1/8"	177	118	59	206	177	118	88	236
57,0	2-1/4"	168	112	56	196	168	112	84	223
59,0		162	108	54	189	162	108	81	216
60,0	2-3/8"	159	106	53	186	159	106	80	212
63,0		152	101	51	177	152	101	76	202
64,0	2-1/2"	149	100	50	174	149	100	75	199
65,0		147	98	49	171	147	98	73	196
67,0	2-5/8"	143	95	48	166	143	95	71	190
68,0		141	94	47	164	141	94	70	187
70,0	2-3/4"	136	91	45	159	136	91	68	182
73,0	2-7/8"	131	87	44	153	131	87	65	175
76,0	3"	126	84	42	147	126	84	63	168
79,0	3-1/8"	121	81	40	141	121	81	60	161
83,0	3-1/4"	115	77	38	134	115	77	58	153
86,0	3-3/8"	111	74	37	130	111	74	56	148
89,0	3-1/2"	107	72	36	125	107	72	54	143
92,0	3-5/8"	104	69	35	121	104	69	52	138
95,0	3-3/4"	101	67	34	117	101	67	50	134
98,0	3-7/8"	97	65	32	114	97	65	49	130
102,0	4"	94	62	31	109	94	62	47	125
105,0		91	61	30	106	91	61	45	121
108,0	4-1/4"	88	59	29	103	88	59	44	118
111,0	4-3/8"	86	57	29	100	86	57	43	115
114,0	4-1/2"	84	56	28	98	84	56	42	112
121,0	4-3/4"	79	53	26	92	79	53	39	105
127,0	5"	75	50	25	88	75	50	38	100
140,0	5-1/2"	68	45	23	80	68	45	34	91
152,0	6"	63	42	21	73	63	42	31	84
160,0	6-5/16"	60	40	20	70	60	40	30	80
168,0	6-5/8"	57	38	19	66	57	38	28	76
177,0		54	36	18	63	54	36	27	72
210,0	8-9/32"	45	30	15	53	45	30	23	61

## Hole saws

### **TCT (Tungsten Carbide Tipped) Multi-Purpose Hole Saws**

TCT Multi-Purpose Hole Saws can be used in pillar and standard drills. When employing pillar drills, use manual advance only. Suitable for all wood species, MDF, plastics, building bricks and ceramic tiles.

### **HSS-G Hole Saws**

The HSS-G hole saws can be used in hand and pillar drills. When employing pillar drills, use manual advance only. Suitable for steel (up to 800 N/mm<sup>2</sup> strength) and cast steel, non-ferrous and light metals, plastics, reinforced fabrics, plasterboard and light building boards.

### **Tungsten Carbide Hole Saws, Shallow Cut**



The tungsten-carbide-tipped hole saws can be used in hand and pillar drills. When employing pillar drills, use manual advance only. Suitable for high-alloyed steels such as stainless and acid-resistant steel (up to 2,0 mm), steel and cast steel, non-ferrous and light metals, plastics, reinforced fabrics, plasterboard and light building boards, wood.

### **Tungsten Carbide Core Cutters**

Tungsten Carbide Core Cutters are suitable for cutting bricks, limestone blocks and masonry walls. For ordinary drilling in masonry and stone. SDS-plus Arbor only recommended. With light hammers (max. 2 kg class).



## Overview of symbols

<div style="border: 1px solid black; padding: 2px; display: inline-block;">HSS</div>	High-speed steel		Shank: 3-way clamping surface		Cutting depth: up to max. 10,0 mm		bright surface
<div style="border: 1px solid black; padding: 2px; display: inline-block;">HSSE Co 8</div>	High-speed steel with 5 % Cobalt content, ground		HSS with varied tothing		Ø tolerance: work's specification		Material thickness: up to 2,5, mm
<div style="border: 1px solid black; padding: 2px; display: inline-block;">TC</div>	tungsten carbide		HSSE-Co 8 with fine tothing		Cutting edges hole saws		right hand cutting

### User instructions:

- Unsuitable for percussion-drill operation
- Only slight pressure required to start drilling
- Drill with light, steady pressure
- Avoid pendulum movements while drilling
- Observe table of drilling speeds
- Use prescribed cooling agents





## TCT (Tungsten Carbide Tipped) Multi-Purpose Hole Saws



Engineered with a unique tooth set for an ultraaggressive cutting action, the TCT Multipurpose hole saw brings productivity to a new level. This is the tool to choose for rapid stock removal, extended life and smooth, heat-free sawing of all wood species, MDF, plastics, building bricks and ceramic tiles.

With a 51mm ( 2" ) depth of cut, TCT hole saws can cut through strapping and joists with ease. They can be used on battery powered tools and fixed stationary machines and are fast becoming the tool of good choice for tradesmen, production engineers and the serious do-it-yourselfer.

- Tips cut up to 5X faster than ordinary hole saws
- Cutting depth 51mm ( 2" ) OR 152mm ( 6" )
- Sizes from Ø 14mm to Ø 210mm ( Ø 5/8" to Ø 8-9/32" ) diameter
- One holesaw for a lot of different materials:
  - Masonry, Gypsum, Fermacell, Eternit, Solid Bricks and Tiles
  - Solid Wood, plywood, chipboard
  - Plastics, Acrylic Glass
- No blocking due to optimal cutting geometry.
- In the event of a tooth breaking, it can easily be replaced and esharpenerd.
- Only use when rotating, switch off hammer action.
- Deal for electricians, plumbers and heating engineers, carpenters and cabinet makers, stair construction and kitchen furniture fitters.

Ø diameter mm	t.p.i.	Article no.	unit
16,0	1	113 116	1
19,0	1	113 119	1
20,0	1	113 120	1
22,0	1	113 122	1
25,0	1	113 125	1
29,0	1	113 129	1
30,0	1	113 130	1
32,0	1	113 132	1
35,0	1	113 135	1
38,0	2	113 138	1
40,0	2	113 140	1
44,0	2	113 144	1
45,0	2	113 145	1
50,0	2	113 150	1
51,0	3	113 151	1
54,0	3	113 154	1
57,0	3	113 157	1
60,0	3	113 160	1
63,0	3	113 163	1
64,0	3	113 164	1
65,0	3	113 165	1
67,0	3	113 167	1
68,0	3	113 168	1
70,0	3	113 170	1
73,0	3	113 173	1

Ø diameter mm	t.p.i.	Article no.	unit
74,0	3	113 174	1
76,0	4	113 176	1
79,0	4	113 179	1
80,0	4	113 180	1
82,0	4	113 182	1
83,0	4	113 183	1
86,0	4	113 186	1
89,0	4	113 189	1
92,0	4	113 192	1
102,0	5	113 202	1
105,0	5	113 205	1
108,0	5	113 208	1
111,0	5	113 211	1
114,0	5	113 214	1
121,0	6	113 221	1
125,0	6	113 225	1
127,0	6	113 227	1
133,0	6	113 233	1
140,0	6	113 240	1
152,0	6	113 252	1
160,0	6	113 260	1
165,0	6	113 265	1
177,0	6	113 277	1
185,0	6	113 285	1
210,0	6	113 310	1



## HSS-G Hole Saws



- Pilot drill HSSE-Co 5
- High rotational precision
- Sturdy construction
- Triangular shank
- Exchangeable centring drill
- Re grindable
- Chip breaker
- The side cutting edge ensures a simple machining, high efficiency and precision when cutting holes
- Packing unit: individual plastic pack

Ø <sub>1</sub> mm	Ø inch	PG	Tube dimensions inch	Ø <sub>2</sub> mm	Article no. HSS	Cont. pcs.
12,0	15/32"			8,0	128 012	1
13,0				8,0	128 013	1
14,0	9/16"			8,0	128 014	1
15,0				10,0	128 015	1
16,0	5/8"	PG 9		10,0	128 016	1
17,0				10,0	128 017	1
18,0				10,0	128 018	1
19,0	3/4"		3/8"	10,0	128 019	1
20,0				10,0	128 020	1
21,0				10,0	128 021	1
22,0			1/2"	10,0	128 022	1
23,0				10,0	128 023	1
24,0	15/16"			10,0	128 024	1
25,0				10,0	128 025	1
26,0				10,0	128 026	1
27,0	1-1/16"			10,0	128 027	1
28,0	1-3/32"			10,0	128 028	1
29,0			3/4"	10,0	128 029	1
30,0	1-3/16"			10,0	128 030	1
31,0	1-7/32"			10,0	128 031	1
32,0	1-1/4"			10,0	128 032	1
33,0				10,0	128 033	1
34,0				10,0	128 034	1

Ø <sub>1</sub> mm	Ø inch	PG	Tube dimensions inch	Ø <sub>2</sub> mm	Article no. HSS	Cont. pcs.
35,0	1-3/8"		1"	10,0	128 035	1
36,0				10,0	128 036	1
37,0	1-7/16"	PG 29		10,0	128 037	1
38,0	1-1/2"			10,0	128 038	1
39,0				10,0	128 039	1
40,0	1-9/16"			10,0	128 040	1
41,0	1-5/8"			10,0	128 041	1
42,0				10,0	128 042	1
43,0	1-11/16"			10,0	128 043	1
44,0	1-3/4"		1-1/4"	10,0	128 044	1
45,0				10,0	128 045	1
46,0				10,0	128 046	1
47,0	1-7/8"	PG 36		10,0	128 047	1
48,0				10,0	128 048	1
49,0				10,0	128 049	1
50,0	1-31/32"			10,0	128 050	1
55,0				12,0	128 055	1
60,0	2-3/8"	PG 48		12,0	128 060	1
65,0				12,0	128 065	1
70,0	2-3/4"			12,0	128 070	1
75,0				12,0	128 075	1
80,0				12,0	128 080	1

## Accessories for HSS-G Hole Saws

Packing unit: individual plastic pack



Description	For hole saws Ø mm	Shank	Magnetic-stand drilling machine	Article no.
Arbor holder including pilot drill M 10 x 1,25 mm	12,0 - 14,0	Ø 8,0mm	RS 10	128 211
Arbor holder including pilot drill M 12 x 1,25 mm	15,0 - 34,0	Ø 10,0 mm	RS 10	128 212
Arbor holder including pilot drill M 14 x 1,50 mm	35,0 - 50,0	Ø 10,0 mm	RS 20 - RS 40e	128 213
Arbor holder including pilot drill M 16 x 1,50 mm	51,0 - 100,0	Ø 12,0 mm	RS 20- RS 40e	128 214
Pilot pin Ø 6,0 x 52,0 mm	12,0 - 100,0	-	-	128 215
Ejector spring	Ø > 20,0	-	-	128 216





## Tungsten carbide hole saws, shallow cut



- Pilot drill HSSE-Co 5
- High rotational precision
- Sturdy construction
- Hole saw and shank in one piece
- Triangular shank
- With cutting-depth limiter
- Positive chipping angle with specially ground cutting edge
- Good chip removal
- Exchangeable centring drill
- Regrindable tungsten-carbide blades
- Packing unit: individual carton

$\varnothing_1$ mm	$\varnothing$ inch	Through dimensions M + PG	Tube dimensions inch	$\varnothing_2$ mm	Article no.
16,0	5/8"	~ PG 9		10,0	105 016
16,5		M 16		10,0	105 165
17,0				10,0	105 017
18,0				10,0	105 018
18,6		PG 11		10,0	105 186
19,0	3/4"		3/8"	10,0	105 019
20,0				10,0	105 020
20,4	13/16"	M 20/PG 13,5		10,0	105 204
21,0				10,0	105 021
22,0			1/2"	10,0	105 022
22,5	7/8"	PG 16		10,0	105 225
23,0				10,0	105 023
24,0	15/16"			10,0	105 024
25,0				10,0	105 025
25,5	1"	M25		10,0	105 255
26,0				10,0	105 026
27,0	1-1/16"			10,0	105 027
28,0	1-3/32"			10,0	105 028
28,3	1-1/8"	PG 21		10,0	105 283
29,0			3/4"	10,0	105 029
30,0	1-3/16"			10,0	105 030
32,0	1-1/4"			10,0	105 032
32,5		M 32		10,0	105 325
34,0				10,0	105 034
35,0	1-3/8"			10,0	105 035
36,0			1"	10,0	105 036
37,0	1-7/16"	PG 29		10,0	105 037
38,0	1-1/2"			10,0	105 038

$\varnothing_1$ mm	$\varnothing$ inch	Through dimensions M + PG	Tube dimensions inch	$\varnothing_2$ mm	Article no.
40,0	1-9/16"			10,0	105 040
40,5		M 40		10,0	105 405
41,0	1-5/8"			10,0	105 041
42,0				10,0	105 042
43,0	1-11/16"			10,0	105 043
44,0	1-3/4"		1-1/4"	10,0	105 044
45,0				10,0	105 045
48,0				10,0	105 048
50,0	1-31/32"			10,0	105 050
50,5		M 50		10,0	105 505
51,0	2"		1-1/2"	13,0	105 051
52,0				13,0	105 052
54,0	2-1/8"	PG 42		13,0	105 054
55,0				13,0	105 055
57,0	2-1/4"			13,0	105 057
60,0	2-3/8"	~ PG 48		13,0	105 060
63,5	2-1/2"	M 63	2"	13,0	105 635
65,0				13,0	105 065
68,0				13,0	105 068
70,0	2-3/4"			13,0	105 070
75,0				13,0	105 075
80,0				13,0	105 080
85,0				13,0	105 085
90,0				13,0	105 090
95,0	3-3/4"			13,0	105 095
100,0				13,0	105 100
110,0				13,0	105 110
120,0				13,0	105 120



### Tungsten Carbide Core Cutters



- For ordinary drilling in masonry and stone.
- With internal thread M 16, alternatively for use with hexagon or SDS-plus Arbor.
- SDS-plus Arbor only recommended. With light hammers (max. 2 kg class).
- Suitable for cutting bricks, limestone blocks and masonry walls.

Ø diameter mm	Examples for Application	Article no.	unit
30,0	Sanitary and heating pipes	114 030	1
35,0	Sanitary and heating pipes	114 035	1
40,0	Sanitary drain pipes, Water and heating pipes with insulation lagging	114 040	1
50,0	Sanitary drain pipes, Water and heating pipes with insulation lagging	114 050	1
68,0	Switch and Distribution boxes	114 068	1
82,0	Junction and Distribution boxes	114 082	1
90,0	Junction and Distribution boxes	114 090	1
100,0	Air pipes	114 100	1

