



## PLUMBING AND INSTALLATION TOOLS



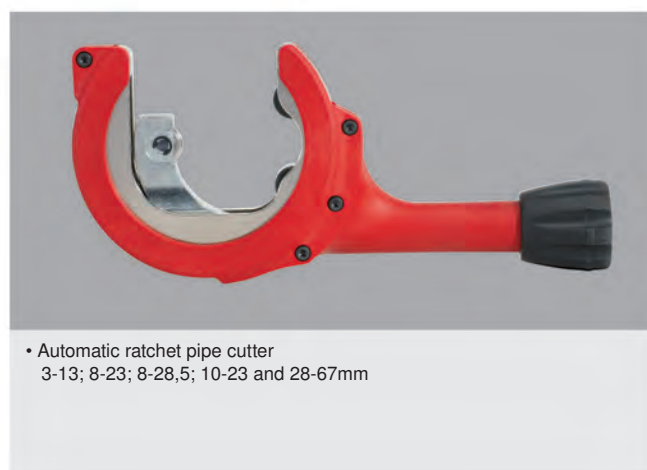
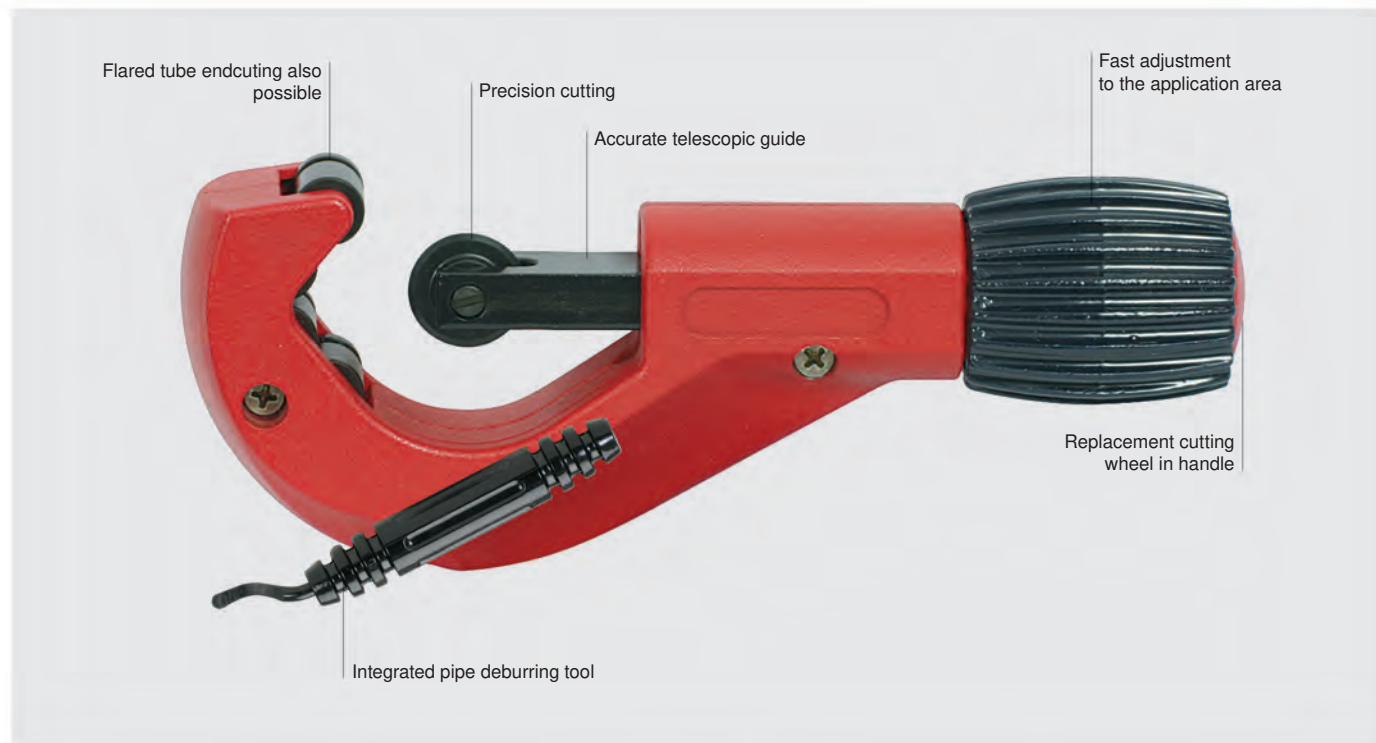
**KS TOOLS®**

Innovation is  
our mission!

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# TELESCOPIC PIPE CUTTING PROGRAM

## Technical data





# CUTTING AND CHAMFERING

## Technical data

- With extension set suitable to separate down pipes
- Cutting and chamfering of all usual market synthetic material tubes (PVC-, PE-, PP-, VPE-, PVDF-, PB and ABS) in one working process
- Milled nut for adjusting the tension force



- Plastic pipe shear  
0-63mm

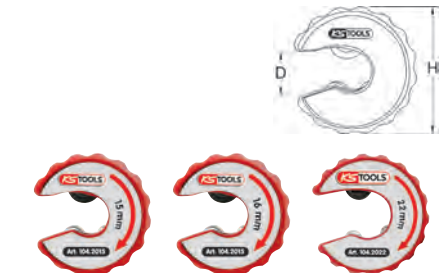


- Plastic pipe cutter  
6-64 mm

## PIPE CUTTERS

### Ratchet copper pipe cutter

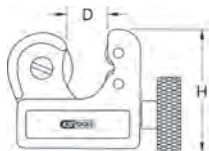
- Ideal for confined spaces
- Automatic cutting after each rotation
- Metal housing



	D mm	H mm	Metal	V/A	Plastic	Weight kg
104.2015	15,0	56,0	104.2001	-	-	180
104.2016	16,0	60,0	104.2001	-	-	180
104.2022	22,0	68,0	104.2001	-	-	240
104.2028	28,0	70,0	104.2001	-	-	240

### Mini pipe cutter

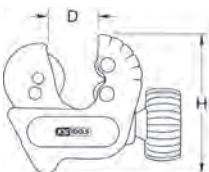
- For copper, brass and thin walled steel tubes
- With 2 support rollers
- V²A cutter can be retrofitted
- With hard chrome plated knurled knob
- Metal housing
- Special steel



	D mm	H mm	Metal	V/A	Plastic	Weight kg
101.1000	3,0 - 16,0	35,0	101.1001	101.1002	-	100
101.2000	3,0 - 22,0	40,0	101.1001	101.1002	-	120

### Mini pipe cutter

- Ergonomically designed
- For copper, brass and thin walled steel tubes
- With 2 support rollers
- With large impact head
- V²A cutter can be retrofitted
- Metal housing
- Special steel



	D mm	H mm	Metal	V/A	Plastic	Weight kg
101.5000	3,0 - 28,0	55,0	101.1001	101.1002	-	260
101.5016	3,0 - 16,0	41,0	101.1001	101.1002	-	120
101.5022	3,0 - 22,0	50,0	101.1001	101.1002	-	120

### Mini pipe cutter display

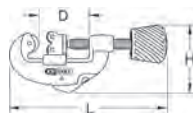
- Ergonomically designed
- For copper, brass and thin walled steel tubes
- With 2 support rollers
- V²A cutter can be retrofitted
- With large knurled knob
- Metal housing
- Special steel



	Weight kg
101.5000D 12 pcs 12 x 101.5000	3.13

### Pipe cutter

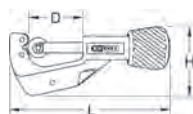
- With folding internal deburrer
- Includes spare wheel under the cover plate on the rotary handle
- With 2 support rollers
- V²A cutter can be retrofitted
- With large knurled knob
- Metal housing
- Special steel



	D mm	H mm	L mm	Metal	V/A	Plastic	Weight kg
102.1000	3,0 - 30,0	55,0	150,0	101.1001	101.1002	-	300

### Telescopic pipe cutter

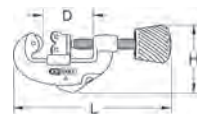
- With folding internal deburrer
- Includes spare wheel under the cover plate on the rotary handle for steel pipe
- With 2 support rollers
- V²A cutter can be retrofitted
- With large knurled knob
- Metal housing
- Special steel



	D mm	H mm	L mm	Metal	V/A	Plastic	Weight kg
103.1000	3,0 - 32,0	57,0	141,0	101.1001	101.1002	-	270

### Pipe cutter

- With folding internal deburrer
- Includes spare wheel under the cover plate on the rotary handle
- With 2 support rollers
- V²A cutter can be retrofitted
- With large impact head
- Metal housing
- Special steel



	D mm	H mm	L mm	Metal	V/A	Plastic	Copper	Weight kg
104.1000	7,0 - 39,0	78,0	210,0	101.1001	101.1002	-	104.1001	425

### Ratchet pipe cutter

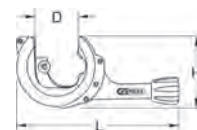
- With 2 support rollers
- With folding internal deburrer
- V²A cutter can be retrofitted
- With large knurled knob
- Metal housing
- Special steel



	D mm	H mm	L mm	Metal	V/A	Plastic	Weight kg
104.5000	3,0 - 13,0	60,0	120,0	104.5001	104.5005	-	180
104.5002	8,0 - 28,5	75,0	175,0	104.5003	104.5052	-	380
104.5022	6,0 - 23,0	65,0	160,0	222.0665	103.2002	-	360

### Ratchet pipe cutter

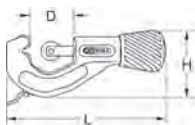
- With 2 support rollers
- Cutting depth max. 3 mm
- V²A cutter can be retrofitted
- Ideal for confined spaces
- Robust ratchet mechanism
- With large knurled knob
- Plastic housing
- Ratchet mechanism from special steel



	D mm	H mm	L mm	Metal	V/A	Plastic	Weight kg
104.5060	28,0 - 67,0	110,0	180,0	104.5052	104.5052	104.5051	520
104.5050	12,0 - 35,0	70,0	250,0	104.5052	104.5052	104.5051	1000

### Telescopic pipe cutter

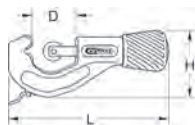
- With removeable internal deburrer
- Includes spare wheel under the cover cap on the rotary handle
- With 2 support rollers
- With large knurled knob
- Metal housing
- Special steel



	D mm	H mm	L mm	Metal	V/A	Plastic	kg
103.5000	6,0 - 38,0	60,0	156,0	103.5001	-	-	500

### STAINLESS STEEL Telescopic pipe cutter

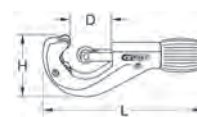
- With removeable internal deburrer
- Includes spare wheel under the cover cap on the rotary handle
- With 2 support rollers in stainless steel
- With large knurled knob
- Metal housing
- Special steel



	D mm	L mm	H mm	Metal	V/A	kg
103.5010I	3,0 - 38,0	165,0	68,0	-	103.5011I	480

### Telescopic pipe cutter

- With removeable internal deburrer
- Includes spare wheel under the cover cap on the rotary handle
- Accurate telescopic guide
- With 4 support rollers
- With large knurled knob
- Metal housing
- Special steel



	D mm	H mm	L mm	Metal	V/A	Plastic	kg
103.5050	3,0 - 42,0	50,0	180,0	103.5001	-	-	450

### Telescopic pipe cutter display

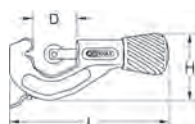
- With removeable internal deburrer
- Includes spare wheel under the cover cap on the rotary handle
- With 2 support rollers
- With large knurled knob
- Metal housing
- Special steel



	D mm	H mm	L mm	Metal	V/A	Plastic	kg
103.5000D	10 pcs	10 x 103.5000					4.80

### STAINLESS STEEL Telescopic pipe cutter

- With removeable internal deburrer
- Includes spare wheel under the cover cap on the rotary handle
- With 2 support rollers in stainless steel
- With large knurled knob
- Metal housing
- Special steel



	D mm	H mm	L mm	Metal	V/A	Plastic	kg
103.5000I	6,0 - 38,0	60,0	156,0	-	103.5002	-	500

### Telescopic pipe cutter display

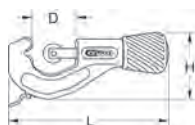
- With removeable internal deburrer
- Includes spare wheel under the cover cap on the rotary handle
- Accurate telescopic guide
- With 4 support rollers
- With large knurled knob
- Metal housing
- Special steel



	D mm	H mm	L mm	Metal	V/A	Plastic	kg
103.5050D	10 pcs	10 x 103.5050					5.60

### Telescopic pipe cutter

- With removeable internal deburrer
- Includes spare wheel under the cover cap on the rotary handle
- With 2 support rollers
- With large knurled knob
- Metal housing
- Special steel



	D mm	L mm	H mm	Metal	V/A	kg
103.5010	3,0 - 38,0	165,0	68,0	103.5011	-	500

### STAINLESS STEEL Telescopic pipe cutter display

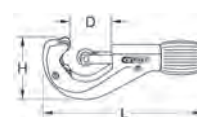
- With removeable internal deburrer
- Includes spare wheel under the cover cap on the rotary handle
- With 2 support rollers
- With large knurled knob
- Metal housing
- Special steel



	D mm	L mm	H mm	Metal	V/A	Plastic	kg
103.5000ID	10 pcs	10 x 103.5000I					5.00

### STAINLESS STEEL Telescopic pipe cutter

- With removeable internal deburrer
- Accurate telescopic guide
- Includes spare wheel under the cover cap on the rotary handle
- With 4 support rollers in stainless steel
- With large knurled knob
- Metal housing
- Special steel

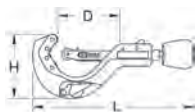


	D mm	H mm	L mm	Metal	V/A	Plastic	kg
103.5050I	3,0 - 42,0	50,0	180,0	-	103.5002	-	500



### Automatic ratchet pipe cutter for copper pipe

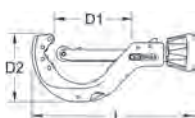
- With folding internal deburrer
- Includes spare wheel under the cover cap on the rotary handle
- Quick through ratchet telescopic guide with automatic spring return
- V<sup>2</sup>A cutter can be retrofitted
- With 4 support rollers
- With large knurled knob
- Metal housing
- Special steel



	D mm	H mm	L mm	Metal	V/A	Plastic	kg
222.0660-1	6,0 - 64,0	90,0	225,0	222.0665	103.2002	222.0666	500

### Automatic ratchet pipe cutter for copper pipe

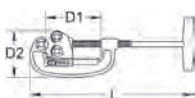
- With folding internal deburrer
- Includes spare wheel under the cover cap on the rotary handle
- Quick through ratchet telescopic guide with automatic spring return
- Plastic cutter can be retrofitted
- With 4 support rollers
- With large knurled knob
- Metal housing
- Special steel



	D mm	H mm	L mm	Metal	V/A	Plastic	kg
222.0750-1	15,0 - 80,0	100,0	250,0	222.0752	-	222.0751	0.80
222.1250-1	50,0 - 140,0	150,0	350,0	222.0752	-	222.1251	1.54

### Steel pipe cutter

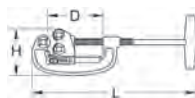
- T-handle for adjusting the working range
- Optimum power transfer
- With 2 support rollers
- Metal housing
- Special steel



	Imperial tube Ø inch	H mm	L mm	Metal	V/A	Plastic	kg
110.1000	1/8"-2	108,0	378,0	110.1001	-	-	2.50
110.1014	1/8"-1.1/4	82,0	265,0	110.1015	-	-	1.50

### STAINLESS STEEL Steel pipe cutter

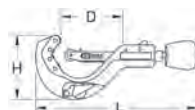
- T-handle for adjusting the working range
- Optimum power transfer
- With 2 support rollers in stainless steel
- Metal housing
- Special steel



	Imperial tube Ø inch	H mm	L mm	Metal	V/A	Plastic	kg
110.1000i	1/8"-2	108,0	378,0	-	110.1002	-	2.50
110.1014i	1/8"-1.1/4	82,0	265,0	-	110.1016	-	1.50

### Automatic ratchet pipe cutter for plastic pipe

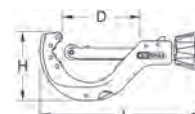
- With folding internal deburrer
- Includes spare wheel under the cover cap on the rotary handle
- Quick through ratchet telescopic guide with automatic spring return
- Cutting depth max. 5 mm
- With 4 support rollers
- With large knurled knob
- Metal housing
- Special steel



	D mm	H mm	L mm	Metal	V/A	Plastic	kg
222.0660	6,0 - 64,0	90,0	225,0	222.0665	-	222.0666	500

### Automatic ratchet pipe cutter for copper pipe

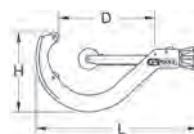
- With folding internal deburrer
- Includes spare wheel under the cover cap on the rotary handle
- Quick through ratchet telescopic guide with automatic spring return
- Plastic cutter can be retrofitted
- With 4 support rollers
- With large knurled knob
- Metal housing
- Special steel



	D mm	H mm	L mm	Metal	V/A	Plastic	kg
222.0750	15,0 - 80,0	100,0	250,0	222.0752	-	222.0751	0.80

### Automatic ratchet pipe cutter for plastic pipe

- Includes spare wheel on the rotary handle
- Quick through ratchet telescopic guide with automatic spring return
- Metal cutter can be retrofitted
- Cutting depth max. 19 mm
- With 2 support rollers
- With large knurled knob
- Metal housing
- Special steel

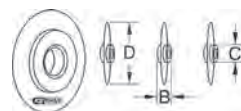


	D mm	H mm	L mm	Metal	V/A	Plastic	kg
222.1250	50,0 - 140,0	150,0	350,0	222.0752	-	222.1251	1.54
222.1680	100,0 - 168,0	190,0	385,0	-	-	222.1251	1.60



### Replacement cutting wheel for pipe cutters

- Special steel



	D mm	B mm	C mm	Metal	V/A	Plastic	kg
101.1001	18.2	3.0	4.8	x	-	-	40
101.1002	18.0	3.0	4.8	-	x	-	30
103.2002	18.2	6.2	4.8	-	x	-	10
103.5001	20.0	4.9	5.1	x	-	-	10
103.5002	20.0	4.9	5.1	-	x	-	10
104.5005	15.3	3.0	4.5	-	x	-	10
110.1002	31.4	18.9	8.3	-	x	-	30
110.1015	25.6	13.5	7.5	-	-	-	30
110.1016	25.6	13.5	7.5	-	x	-	30
222.0665	18.2	6.2	4.8	x	-	-	50
222.0666	26.0	8.8	8.5	-	-	x	10
222.0751	42.0	8.7	8.5	-	-	x	20
222.0752	32.0	10.9	8.6	x	-	-	20
222.1251	25.9	11.1	9.4	-	-	x	20
104.1001	18.0	6.0	11.0	x	-	-	10
103.5011	20.0	5.0	12.0	x	-	-	10
103.5011i	20.0	5.0	14.0	-	x	-	10



## CARTRIDGE GUNS

### Cartridge tip pliers

- PVC dipped handle
- Very versatile
- Safety locking device
- Clean V-cut in the cartridge tip
- Cut from solid steel
- Chrome vanadium



	A mm	L mm	S mm	
140.2220	33.0	210.0	20.0	420

### Hand gun for double cartridges

- For two component adhesives
- For gluing of windshields
- Also suitable for double cartridge systems with epoxy hardeners



	L mm	H mm	
980.1080	300.0	170.0	500

### Hand cartridge gun 310 ml

- For working with cartridges and softpacks
- Fast and simple cartridge change
- Metal housing



	L mm	H mm	Replacement nozzle	
980.1000	340.0	210.0	980.1001	750

### Hand cartridge gun 600 ml

- For working with cartridges and softpacks
- Fast and simple cartridge change
- Metal housing



	L mm	H mm	Replacement nozzle	
980.3000	480.0	210.0	980.1001	1.10


### Cordless cartridge gun 310 ml

- Handy and ergonomic dual component housing
- Ideal for glue, silicone or acrylic based cartridges
- Drop free mechanism
- Stepless controllable feed
- Carbon brushes interchangeable
- With lithium ion high performance rechargeable battery
- Processing quantity per rechargeable battery load at room temperature 20°C is up to 15 cartridges
- Longer running time through higher load capacity
- Fast charging function (1 hour)
- Automatic turn off charging station
- In durable plastic storage case



#### Technical data:

Capacity:	10,8 V
Capacity of the unit:	310 ml
Propulsion without load:	6,1 mm / sec
Output pressure:	392 kgf
Charging time:	1 hour
Rechargeable battery:	10,8 V - 1,5 Ah

	L mm	B mm	H mm	Spare carbon brushes set	Battery pack	Number of Charger batteries		
515.3569	410.0	138.0	245.0	515.3596	515.3592	0	0	3.60
515.3570	410.0	138.0	245.0	515.3596	515.3592	1	1	2.10
515.3571	410.0	138.0	245.0	515.3596	515.3592	2	1	4.70


### Cordless cartridge gun 400 ml

- Handy and ergonomic dual component housing
- Ideal for glue, silicone or acrylic based cartridges
- Drop free mechanism
- Stepless controllable feed
- Carbon brushes interchangeable
- Lithium ion high performance rechargeable battery
- Processing quantity per rechargeable battery load at room temperature 20°C is up to 15 cartridges
- Longer running time through higher load capacity
- Fast charging function (1 hour)
- Automatic turn off charging station
- In durable plastic storage case



#### Technical data:

Capacity:	10,8 V
Capacity of the unit:	400 ml
Propulsion without load:	6,1 mm / sec
Output pressure:	392 kgf
Charging time:	1 hour
Rechargeable battery:	10,8 V - 1,5 Ah

	L mm	B mm	H mm	Spare carbon brushes set	Battery pack	Number of Charger batteries		
515.3574	450.0	138.0	245.0	515.3596	515.3592	0	0	3.70
515.3575	450.0	138.0	245.0	515.3596	515.3592	1	1	4.60
515.3576	450.0	138.0	245.0	515.3596	515.3592	2	1	4.80


### Cordless cartridge gun 600 ml

- Handy and ergonomic dual component housing
- Ideal for glue, silicone or acrylic based cartridges
- Drop free mechanism
- Stepless controllable feed
- Carbon brushes interchangeable
- Lithium ion high performance rechargeable battery
- Processing quantity per rechargeable battery load at room temperature 20°C is up to 15 cartridges
- Longer running time through higher load capacity
- Fast charging function (1 hour)
- Automatic turn off charging station
- In durable plastic storage case



#### Technical data:

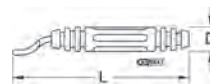
Capacity:	10,8 V
Capacity of the unit:	600 ml
Propulsion without load:	6,1 mm / sec
Output pressure:	392 kgf
Charging time:	1 hour
Rechargeable battery:	10,8 V - 1,5 Ah

	L mm	B mm	H mm	Spare carbon brushes set	Battery pack	Number of Charger batteries	 kg	
515.3579	560.0	138.0	245.0	515.3596	515.3592	0	0	4.10
515.3580	560.0	138.0	245.0	515.3596	515.3592	1	1	2.20
515.3581	560.0	138.0	245.0	515.3596	515.3592	2	1	5.20

## DEBURRING

### Quick deburrer

- For pipe cutter 103.5000 + 103.5050
- For tubes, sheets and profiles
- Blade is not replaceable
- Soft grip handle
- Special steel



	L mm	D mm	
103.5005	88.0	12.0	20

### Quick deburrer for stainless steel

- For pipe cutter 103.5000i + 103.5050i
- For tubes, sheets and profiles
- Blade is not replaceable
- Soft grip handle
- Special steel



	L mm	D mm	
103.5007	90.0	15.0	20

### Universal quick deburrer

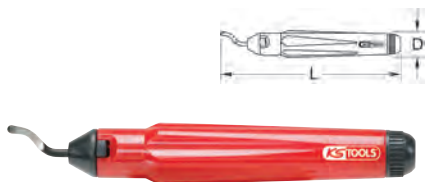
- For tubes, sheets and profiles
- Non interchangeable blade E100
- With anodized aluminum handle
- Special steel
- Comes with E-100 HSS



	L mm	D mm	g
205.2020	140.0	21.0	60

### Universal quick deburrer

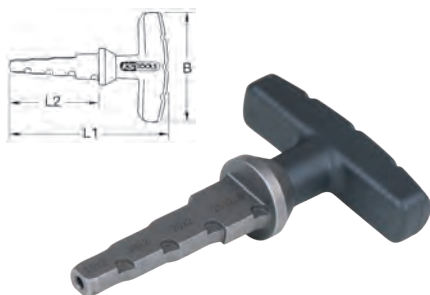
- For tubes, sheets and profiles
- With blade storage
- Interchangeable blades
- With soft grip handle
- Special steel



	L mm	D mm	g
205.2500	150.0	21.0	50

### Internal deburrer

- Step dimensions in mm: 16x2 - 18x2 - 20x2 - 25x2.5
- 4 cutting sizes for clean deburring
- For copper, aluminium and soft steel piping
- With T-handle made from plastic
- Special steel



	L1 mm	L2 mm	B mm	g
105.1001	125.0	72.0	82.0	170

### Internal and external deburrer

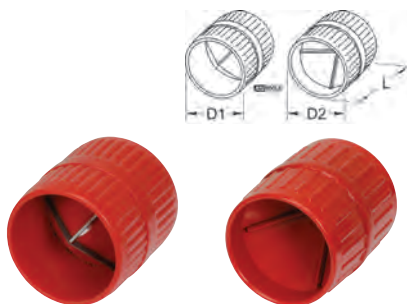
- 3 cutting edges for clean deburring
- Reversible
- For copper, aluminum and soft steel piping
- Plastic body
- Special steel



	Material	 mm	 mm	L mm	
105.3015	HSS	3-12	4-14	125.0	175

### Internal and external deburrer

- 3 cutting edges for clean deburring
- For copper, aluminum and soft steel piping
- Plastic or metal body
- Special steel



	Material	D1 mm	D2 mm	L mm	g
105.1000	metal	3,0 - 40,0	6,0 - 40,0	57,0	240
105.2000	plastic	3,0 - 42,0	6,0 - 42,0	50,0	240

### Universal INOX Internal and external deburrer

- 3 cutting edges for clean deburring
- For copper, aluminum, steel, stainless steel and plastic pipes
- Polished aluminium body
- Special steel

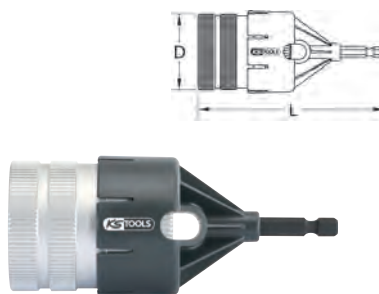


	D1 mm	D2 mm	L mm	g
105.3000	10,0 - 54,0	10,0 - 54,0	85,0	350
105.3001	10,0 - 35,0	10,0 - 35,0	61,0	190



### Adaptor for pipe deburrer

- For deburrer 105.3001
- 1/4" Hexagon drive
- Suitable for drills and cordless screwdrivers



	D mm	L mm	g
105.3005	50.0	90.0	30

### Replacement blade for deburring

- Special steel
- Can be used in deburring 205.2500



		Material	g
205.2011	A	HSS E 100	30
205.2012	B	HSS E 200	30
205.2013	C	HSS E 300	30

### COPPER PIPE BRUSH

#### Cleaning pad set

- Metal free
- For fast, groove cleaning of solder joints in copper pipes
- Reduction of corrosion damage
- Flexible
- Wet and dry usage
- 10 pcs pack



	B mm	L mm	g
201.3000	75.0	130.0	70

### Copper pipe external brush

- For copper and brass pipes
- Housing out of durable plastic



	D1 mm	D2 mm	H mm	g
201.2212	25.0	12.0	17.0	20
201.2215	30.0	15.0	23.0	30
201.2218	38.0	18.0	28.0	40
201.2222	45.0	22.0	33.0	50
201.2228	58.0	28.0	43.0	60

### Copper pipe internal brush

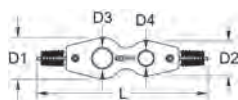
- With hanging hole
- With plastic handle
- For surface preparation
- Steel wire



	D mm	L1 mm	L2 mm	g
201.1208	8.0	160.0	75.0	40
201.1210	10.0	160.0	75.0	40
201.1212	12.0	160.0	75.0	40
201.1215	15.0	160.0	75.0	40
201.1216	16.0	160.0	75.0	50
201.1218	18.0	160.0	75.0	50
201.1222	22.0	160.0	75.0	50
201.1228	28.0	160.0	75.0	50
201.1235	35.0	160.0	75.0	50

### Copper pipe brush 2 in 1

- For inside and outside cleaning
- With plastic body
- For surface preparation
- Steel wire

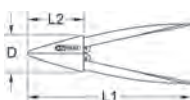


	D1 mm	D2 mm	D3 mm	D4 mm	L mm	g
201.2250	16.0	14.0	16.0	14.0	130.0	50

### PIPE EXPANDING

#### Lead pipe expanding pliers

- For the widening of lead pipes up to max. Ø 1 1/2"
- Powder coated
- Body made of sheet steel



	Ø mm	Ø	L1 mm	L2 mm	g
116.7000	38,1	1.1/2"	240.0	60.0	360

### Expander set 12.0 - 22.0 mm

- To produce standard precision sleeves
- Extra long and chamfered expander head segments
- Positive control ensures perfect centering
- Stainless steel
- In durable plastic storage case



			g
202.1100	5 pcs	Expander set 12.0 - 22.0 mm	2.89

consists of:

		g
202.1000R	Pipe expander, 380mm	1000
202.1212	Expander head, 12mm	100
202.1215	Expander head, 15mm	110
202.1218	Expander head, 18mm	120
202.1222	Expander head, 22mm	150

### Expander set 12.0 - 28.0 mm

- To produce standard precision sleeves
- Extra long and chamfered expander head segments
- Positive control ensures perfect centering
- Stainless steel
- In durable plastic storage case



			g
202.1101	6 pcs	Expander set 12.0 - 28.0 mm	3.34

consists of:

		g
202.1000R	Pipe expander, 380mm	1000
202.1212	Expander head, 12mm	100
202.1215	Expander head, 15mm	110
202.1218	Expander head, 18mm	120
202.1222	Expander head, 22mm	150
202.1228	Expander head, 28mm	180

### Expander set 12.0 - 22.0 mm

- To produce standard precision sleeves
- Extra long and chamfered expander head segments
- Positive control ensures perfect centering
- Stainless steel
- In durable plastic storage case



			g
202.1102	5 pcs	Expander set 12.0 - 22.0 mm	2.89

consists of:

		g
202.1000R	Pipe expander, 380mm	1000
202.1212	Expander head, 12mm	100
202.1215	Expander head, 15mm	110
202.1216	Expander head, 16mm	120
202.1222	Expander head, 22mm	150

### Expander set 12.0 - 22.0 mm

- To produce standard precision sleeves
- Extra long and chamfered expander head segments
- Positive control ensures perfect centering
- Stainless steel
- In durable plastic storage case



			g
202.1103	6 pcs	Expander set 12.0 - 22.0 mm	3.20

consists of:

		g
202.1000R	Pipe expander, 380mm	1000
202.1212	Expander head, 12mm	100
202.1214	Expander head, 14mm	110
202.1216	Expander head, 16mm	120
202.1218	Expander head, 18mm	120
202.1222	Expander head, 22mm	150

**Expander set 3/8" - 1.1/8"**

- To produce standard precision sleeves
- Extra long and chamfered expander head segments
- Positive control ensures perfect centering
- Stainless steel
- In durable plastic storage case



202.1104	6 pcs	Expander set 3/8" - 1.1/8"		4.20	

consists of:

202.1000R	Pipe expander, 380mm		1000		
202.1201	Expander head, 3/8"		110		
202.1204	Expander head, 3/4"		130		
202.1205	Expander head, 7/8"		140		
202.1206	Expander head, 1"		150		
202.1236	Expander head, 1 1/8"		160		

**Expander set 3/8" - 7/8"**

- To produce standard precision sleeves
- Extra long and chamfered expander head segments
- Positive control ensures perfect centering
- Stainless steel
- In durable plastic storage case



202.1105	6 pcs	Expander set 3/8" - 7/8"		2.74	

consists of:

202.1000R	Pipe expander, 380mm		1000		
202.1201	Expander head, 3/8"		110		
202.1202	Expander head, 1/2"		110		
202.1203	Expander head, 5/8"		120		
202.1204	Expander head, 3/4"		130		
202.1205	Expander head, 7/8"		140		

**Expander set 3/8" - 1.1/8"**

- To produce standard precision sleeves
- Extra long and chamfered expander head segments
- Positive control ensures perfect centering
- Stainless steel
- In durable plastic storage case



202.1107	7 pcs	Expander set 3/8" - 1.1/8"		2.90	

consists of:

202.1000R	Pipe expander, 380mm		1000		
202.1201	Expander head, 3/8"		110		
202.1202	Expander head, 1/2"		110		
202.1203	Expander head, 5/8"		120		
202.1204	Expander head, 3/4"		130		
202.1205	Expander head, 7/8"		140		
202.1236	Expander head, 1 1/8"		160		

**Expander set 12.0 - 28.0mm**

- To produce standard precision sleeves
- Extra long and chamfered expander head segments
- Positive control ensures perfect centering
- Stainless steel
- In durable plastic storage case



202.1108	7 pcs	Expander set 12.0 - 28.0mm		3.50	

consists of:

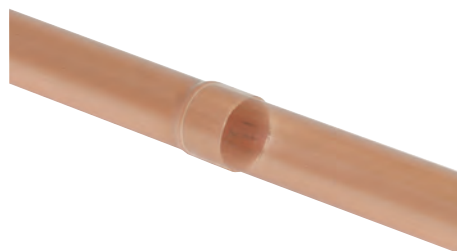
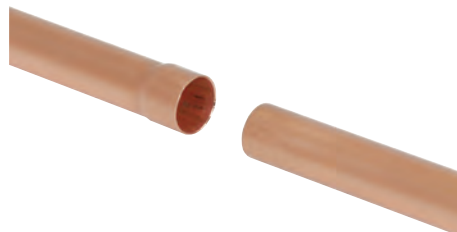
202.1000R	Pipe expander, 380mm		1000		
202.1212	Expander head, 12mm		100		
202.1214	Expander head, 14mm		110		
202.1216	Expander head, 16mm		120		
202.1218	Expander head, 18mm		120		
202.1222	Expander head, 22mm		150		
202.1228	Expander head, 28mm		180		

**Expander pliers with automatic mandrel withdrawal**

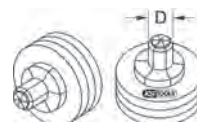
- Base unit for receiving the expander heads
- Special steel



	L mm	H mm		
202.1000R	380.0	120.0	1.00	


**Expander head, rivet free**

- To produce standard precision sleeves
- Extra long and chamfered expander head segments
- Positive control ensures perfect centering
- Stainless steel



	D mm	D		
202.1210	10.0	-	100	
202.1212	12.0	-	100	
202.1214	14.0	-	110	
202.1215	15.0	-	110	
202.1216	16.0	-	120	
202.1218	18.0	-	120	
202.1222	22.0	-	150	
202.1228	28.0	-	180	
202.1232	32.0	-	170	
202.1235	35.0	-	430	
202.1242	42.0	-	500	
202.1201		3/8"	110	
202.1202		1/2"	110	
202.1203		5/8"	120	
202.1204		3/4"	130	
202.1205		7/8"	140	
202.1206		1"	150	
202.1236		1.1/8"	160	
202.1207		1.1/4"	180	
202.1237		1.5/8"	480	



### Flanger set 12.0 - 22.0 mm

- For production of T-exits on pipes
- For fittings without solder pipe installation
- Dimensionally accurate drilling
- Suitable for pipes up to max. 2.5 mm wall thickness
- Special steel
- In durable plastic storage case



202.2100	7 pcs	Flanger set 12.0 - 22.0 mm	2.95

consists of:

202.2001	Ratcheting 265 mm for flanger	340	
202.2002	Automatic drills, 10 - 42 mm	450	
202.2003	Cam pliers	120	
202.2012	Flanger, 12mm	100	
202.2015	Flanger, 15mm	150	
202.2018	Flanger, 18mm	190	
202.2022	Flanger, 22mm	260	

### Flanger set 12.0 - 28.0 mm

- The production of T exits on pipes
- For fittings without solder pipe installation
- Dimensionally accurate drilling
- Suitable for pipes up to max. 2.5 mm wall thickness
- Special steel
- In durable plastic storage case



202.2101	8 pcs	Flanger set 12.0 - 28.0 mm	3.00

consists of:

202.2001	Ratcheting 265 mm for flanger	340	
202.2002	Automatic drills, 10 - 42 mm	450	
202.2003	Cam pliers	120	
202.2012	Flanger, 12mm	100	
202.2015	Flanger, 15mm	150	
202.2018	Flanger, 18mm	190	
202.2022	Flanger, 22mm	260	
202.2028	Flanger, 28mm	300	

### Flanger

- The production of T exits on pipes
- For fittings without solder pipe installation
- Dimensionally accurate drilling
- Suitable for pipes up to max. 2.5 mm wall thickness
- Special steel



	D mm	L mm	
202.2010	10.0	70.0	70
202.2012	12.0	75.0	100
202.2014	14.0	75.0	140
202.2015	15.0	80.0	150
202.2016	16.0	80.0	150
202.2018	18.0	90.0	190
202.2022	22.0	95.0	260
202.2028	28.0	100.0	300
202.2035	35.0	110.0	500
202.2042	42.0	120.0	660

### BENDING

#### Copper pipe external bending spring

- For hand bending of soft copper tubing
- Angled Cone
- Optimum spring form prevents buckling in the bending radius
- Special steel



	D mm	D	L mm	
203.0008	8.0	-	290.0	80
203.0010	10.0	-	290.0	80
203.0012	12.0	-	290.0	110
203.0014	14.0	-	290.0	170
203.0015	15.0	-	290.0	200
203.0016	16.0	-	290.0	220
203.0018	18.0	-	290.0	280
203.0022	22.0	-	290.0	440
203.0001		1/4"	290.0	60
203.0002		5/16"	290.0	80
203.0003		3/8"	290.0	100
203.0004		1/2"	290.0	160
203.0005		5/8"	290.0	220
203.0006		3/4"	290.0	280

#### Copper pipe internal bending spring for coated copper tubes

- For hand bending of soft copper tubing
- Optimum spring form prevents buckling in the bending radius
- Special steel



	D mm	L mm	
203.0310	10 x 12	910.0	260
203.0312	12 x 14	915.0	280
203.0320	20 x 22	910.0	700

### Copper pipe external bending spring

- For hand bending of soft copper tubing
- Optimum spring form prevents buckling in the bending radius
- Special steel



	D mm	L mm	
203.0110	10.0	245.0	140
203.0112	12.0	245.0	200
203.0114	14.0	260.0	300
203.0116	16.0	270.0	320
203.0118	18.0	285.0	450
203.0120	20.0	305.0	480
203.0122	22.0	320.0	550

#### Internal bending spring for PE plastic pipes

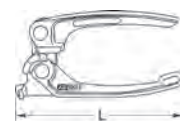
- For hand bending of PE plastic pipes
- Optimum spring form prevents buckling in the bending radius
- Special steel



	D mm	L mm	
203.0210	10.0	86.0	220
203.0213	13.0	88.0	400
203.0216	16.0	90.0	490
203.0220	20.0	95.0	680

#### 3 in 1 Mini bender

- For exact two handed bending up to 90°
- For copper, aluminum, brass and soft steel piping
- For 3 dimensions without exchange of bending segments
- Undersize and bend radius on the bending form
- Special steel



	Ø mm	Ø	L mm	
120.1050	3.0 + 4.75 + 6.0	1/8" + 3/16" + 1/4"	140.0	150



### 3 in 1 Mini Bender

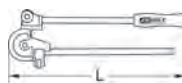
- For exact two handed bending up to 180°
- For copper, aluminum, brass and soft steel piping
- For 3 dimensions without exchange of bending segments
- Undersize and bend radius on the bending form
- Special steel



	Ø mm	Ø	L mm	g
120.1000	6,0 + 8,0 + 10,0	-	270.0	420
120.1001	-	1/4" + 5/16" + 3/8"	240.0	420

### Standard two handed bender

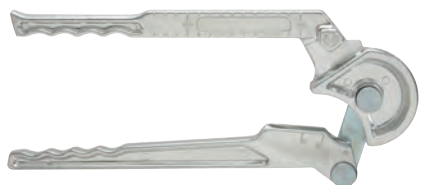
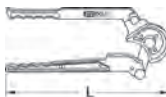
- For exact two handed bending up to 180°
- For soft copper, aluminum, brass and soft steel piping
- Clamping device for a better gripping of the tube
- Fatigue free operation due to lightweight construction
- Special steel



	Ø mm	Ø	L mm	g
122.1006	6,0	-	285.0	530
122.1008	8,0	-	330.0	650
122.1010	10,0	-	350.0	920
122.1012	12,0	-	310.0	920
122.1014	14,0	-	425.0	1330
122.1015	15,0	-	440.0	1330
122.1016	16,0	-	440.0	1330
122.1017	-	1/4"	285.0	500
122.1018	-	5/16"	330.0	650
122.1019	-	3/8"	350.0	950
122.1020	-	1/2"	310.0	1300
122.1021	-	5/8"	440.0	1300

### Copper pipe two handed bender

- For exact two handed bending up to 180°
- For soft, semi hard and coated copper tube
- Precise bending due to bending radius formers
- Fatigue free operation due to lightweight construction
- Aluminium



	Ø mm	L mm	g
122.0010	10,0	260.0	0.35
122.0012	12,0	310.0	0.65
122.0014	14,0	370.0	1.00
122.0015	15,0	420.0	1.45
122.0016	16,0	420.0	1.50

### Ratchet single handed bending set 10.0 - 22.0 mm

- Bend radius 90°
- Production of bends against, floors and connection arcs
- Easy change of bending angles
- Aluminium bending formers
- Special steel
- In durable plastic storage case



			g
203.1200	9 pcs	Ratchet single handed bending set 10.0 - 22.0 mm	2.76

consists of:

		g
203.1208	Basic unit for single handed ratcheting bender	2000
203.1210	Bending form f.203.1200/01/02, Ø 10mm	70
203.1212	Bending form f.203.1200/01/02, Ø 12mm	70
203.1214	Bending form f.203.1200/01/02, Ø 14mm	70
203.1215	Bending form f.203.1200/01/02, Ø 15mm	70
203.1216	Bending form f.203.1200/01/02, Ø 16mm	70
203.1218	Bending form f.203.1200/01/02, Ø 18mm	70
203.1220	Bending form f.203.1200/01/02, Ø 20mm	70
203.1222	Bending form f.203.1200/01/02, Ø 22mm	70

### Ratchet single handed bending set 10.0 - 22.0 mm

- Bend radius 90°
- Production of bends against, floors and connection arcs
- Easy change of bending angles
- Aluminium bending formers
- Special steel
- In durable plastic storage case



			g
203.1201	7 pcs	Ratchet single handed bending set 10.0 - 22.0 mm	2.62

consists of:

		g
203.1208	Basic unit for single handed ratcheting bender	2000
203.1210	Bending form f.203.1200/01/02, Ø 10mm	70
203.1212	Bending form f.203.1200/01/02, Ø 12mm	70
203.1214	Bending form f.203.1200/01/02, Ø 14mm	70
203.1216	Bending form f.203.1200/01/02, Ø 16mm	70
203.1218	Bending form f.203.1200/01/02, Ø 18mm	70
203.1222	Bending form f.203.1200/01/02, Ø 22mm	70

### Ratchet single handed bending set 3/8" - 7/8"

- Bend radius 90°
- Production of bends against, floors and connection arcs
- Easy change of bending angles
- Aluminium bending formers
- Special steel
- In durable plastic storage case



			g
203.1202	6 pcs	Ratchet single handed bending set 3/8" - 7/8"	2.69

consists of:

		g
203.1208	Basic unit for single handed ratcheting bender	2000
203.1230	Bending form f.203.1200/01/02, Ø 3/8"	80
203.1231	Bending form f.203.1200/01/02, Ø 1/2"	80
203.1232	Bending form f.203.1200/01/02, Ø 5/8"	80
203.1233	Bending form f.203.1200/01/02, Ø 3/4"	100
203.1234	Bending form f.203.1200/01/02, Ø 7/8"	150



### Aluminium bending formers

- Bend radius 90°
- Production of bends against, floors and connection arcs
- Aluminium



	Ø mm	Ø	Bend radius mm	g
203.1210	10,0	-	42.0	70
203.1212	12,0	-	43.0	70
203.1214	14,0	-	46.0	70
203.1215	15,0	-	50.0	70
203.1216	16,0	-	55.0	70
203.1218	18,0	-	66.0	70
203.1220	20,0	-	73.0	70
203.1222	22,0	-	78.0	70
203.1230	-	3/8"	35.0	80
203.1231	-	1/2"	48.0	80
203.1232	-	5/8"	58.0	80
203.1233	-	3/4"	69.0	100
203.1234	-	7/8"	88.0	150

**Ratchet single handed bending set 10.0 - 22.0 mm**

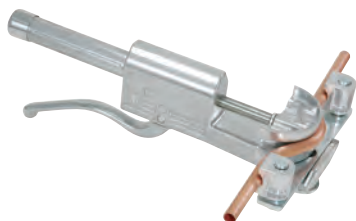
- Bend radius 90°
- For soft copper and composite pipes
- Production of bends against, floors and connection arcs
- Easy change of bending angles
- The basic unit, bending and formers in aluminium
- In durable plastic storage case



203.1101	9 pcs	Ratchet single handed bending set 10.0 - 22.0 mm	4.46
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consists of:

203.1000	Basic unit for 302.1100/1101	3200
203.1002	Opposite form holder, 10-16mm	350
203.1003	Opposite form holder, 18-22mm	420
203.1010	Bending form f.203.1101, Ø 10mm	60
203.1012	Bending form f.203.1101, Ø 12mm	60
203.1014	Bending form f.203.1101, Ø 14mm	70
203.1016	Bending form f.203.1101, Ø 16mm	80
203.1018	Bending form f.203.1101, Ø 18mm	90
203.1022	Bending form f.203.1101, Ø 22mm	110


**Aluminium bending formers**

- Bend radius 90°
- Production of bends against, floors and connection arcs
- Aluminium



	Ø mm	Bend radius mm	
203.1010	10,0	42,0	60
203.1012	12,0	43,0	60
203.1014	14,0	46,0	70
203.1015	15,0	50,0	80
203.1016	16,0	55,0	80
203.1018	18,0	66,0	90
203.1020	20,0	73,0	100
203.1022	22,0	78,0	110
203.1026	26,0	68,0	130
203.1032	32,0	96,0	290

**Ratchet single handed bending set 10.0 - 22.0 mm**

- Bend radius 90°
- Production of bends against, floors and connection arcs
- Easy change of bending angles
- Aluminium bending formers
- Special steel
- In durable plastic storage case



203.1400	13 pcs	Ratchet single handed bending set 10.0 - 22.0 mm	3.00
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consists of:

203.1401	Bending form, 10mm, aluminium	50
203.1402	Bending form, 12mm, aluminium	50
203.1403	Bending form, 14mm, aluminium	50
203.1404	Bending form, 15mm, aluminium	60
203.1405	Bending form, 16mm, aluminium	80
203.1406	Bending form, 18mm, aluminium	100
203.1407	Bending form, 20mm, aluminium	110
203.1408	Bending form, 22mm, aluminium	120
203.1409	Main body	1600
203.1410	Fixed plate 3 holes	300
203.1411	Fixed plate 5 holes	300
203.1412	Quick release adapter base	50
203.1413	Fixed plate adapter base	50


**Hydraulic pipe bending set 12 t, 3/8" - 2"**

- Bend radius 90°
- For continuous bending of tubes
- Hydraulic action by pressing hand pump
- Loosening by finely adjustable drain valve
- Special steel
- In durable transport storage case



902.1100	8 pcs	3/8" - 1/2" - 3/4" - 1" - 1.1/4" - 1.1/2" - 2"	77.00
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**Hydraulic pipe bending set 8 t, 3/8" - 1 1/4"**

- Bend radius 90°
- For continuous bending of tubes
- Hydraulic action by pressing hand pump
- Loosening by finely adjustable drain valve
- Special steel
- In durable transport storage case



902.1101	6 pcs	3/8" - 1/2" - 3/4" - 1" - 1.1/4"	47.00
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**Electric Hydraulic Pipe Bending Set 8 t, 3/8" - 1 1/4"**

- Bend radius 90°
- For continuous bending of tubes
- Hydraulic action by pressing hand pump
- Loosening by finely adjustable drain valve
- Special steel
- In durable transport storage case



902.1120	6 pcs	3/8" - 1/2" - 3/4" - 1" - 1.1/4"	67.00
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## FLANGING

### Air cooling flaring and sleeve set 1/8" - 3/4"

- To produce straight forward bending 45 ° and capillary sockets on copper, brass, aluminum and thin walled steel tube
- For crimping and expansion of refrigeration and air conditioning lines
- In durable plastic storage case



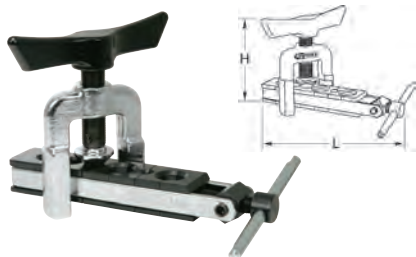
122.1100	10 pcs	Air cooling flaring and sleeve set 1/8" - 3/4"	2.30	

#### consists of:

122.1104	Adaptor for flaring tool set 1/8"-3/16"-1/4"	20	
122.1105	Adaptor for flaring tool set 5/16"	15	
122.1106	Adaptor for flaring tool set 3/8"-7/16"	25	
122.1107	Adaptor for flaring tool set 1/2"	35	
122.1108	Adaptor for flaring tool set 5/8"	60	
122.1109	Adaptor for flaring tool set 3/4"	65	
122.1110	Yoke for flaring tool	490	
122.1111	Bar for flaring tool		
122.1112	Bar for flaring tool	500	
103.1500	Telescopic pipe cutter, 4-28mm	250	

### Flange tool metric with quick clamping device

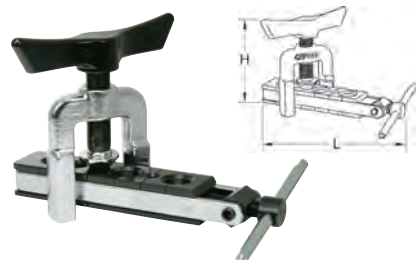
- Flange guides for 6, 8, 10, 12, 15 + 16 mm
- For the manufacture of conical flaring 45°
- Very precise crimp due to flange cone with special geometry
- For mobile use
- Special steel



	H mm	L mm	
122.0500	100.0	160.0	900

### Flanging tool imperial with quick clamping device

- Flange guides for 3/16", 1/4", 5/16", 3/8", 1/2" + 5/8"
- For the manufacture of conical flaring 45°
- Very precise crimp due to flange cone with special geometry
- For mobile use
- Special steel



	H mm	L mm	
122.0501	100.0	160.0	940

### Universal flanger imperial + metric with quick clamping device

- For pipe 4-16mm + 3/16"-5/8"
- For the manufacture of conical flaring 45°
- Very precise crimp due to flange cone with special geometry
- Self centering clamping
- For mobile use
- Special steel



	H mm	L mm	
122.0525	100.0	110.0	900

### Flanger set 1/8" - 3/4" and 6.0 - 19.0 mm

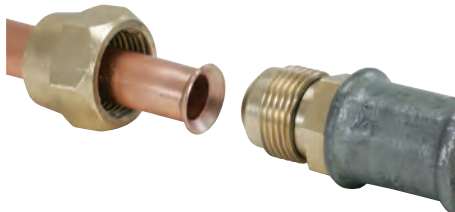
- To produce easy bending 45° on copper pipes
- Self centering punching tool
- 3/8" square drive in thumb screw for use with a ratchet
- In durable plastic storage case



122.0810	6 pcs	Flanger set 1/8" - 3/4" and 6.0 - 19.0 mm	3.21

#### consists of:

122.0811	Metric bar	630	
122.0812	Tube-Cutter for Set 122.0810	240	
122.0813	Inch Bar for Set 122.0810	630	
122.0815	Yoke for Set 122.0810	900	
122.0816	3/8" Bit for Set 122.0810	25	
105.2000	Internal+external deburrer, 3-42mm	240	



### Flanging tool, metric

- Flange guides for 6, 8, 10, 12, 14, 16 + 18 mm
- For the manufacture of easy flaring 45°
- Self centering plate
- Includes 3/8" adapter for Screwdrivers
- For mobile use
- Special steel



	H mm	L mm	
122.0808	135.0	210.0	1.60

### Flanging tool, imperial

- Flange guides for 1/8", 3/16", 1/4", 5/16", 3/8", 1/2", 5/8" + 3/4"
- For the manufacture of easy flaring 45°
- Self centering plate
- Includes 3/8" adapter for Screwdrivers
- For mobile use
- Special steel



	H mm	L mm	
122.0821	140.0	190.0	1.60

### Flanger set Ø 10.0 - 22.0 mm

- To produce easy bending 45° on copper pipes
- In durable plastic storage case



122.2201	6 pcs	Flanger set Ø 10.0 - 22.0 mm	3.00

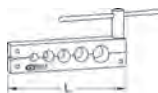
#### consists of:

122.2200	Flange guides, 10-22mm	1100	
122.1460	Flange cone, 6-14mm	270	



### Flange guides for 6.0 - 14.0 mm

- Flange guides for 6 - 8 - 10 - 12 + 14 mm
- For the manufacture of conical flaring 45°
- For mobile use
- Special steel



	L mm	
122.1400	130.0	470

### Flange guides for 10.0 - 22.0 mm

- Flange guides for 10 - 12 - 14 - 16 - 18 - 20 - 22 mm
- For the manufacture of conical flaring 45°
- For mobile use
- Special steel



	L mm	
122.2200	225.0	1.10

### Flange cones

- Flange guides for 6.0 - 22.0 mm
- For the manufacture of conical flaring
- For mobile use
- Special steel



	Ø mm		L mm	
122.1460	6,0 - 14,0	90°	108.0	270
122.2260	10,0 - 22,0	60°	131.0	285
122.2290	10,0 - 22,0	90°	150.0	325



### THREADING TOOLS

#### Manual pipe threading tool kit 3/8" - 1.1/4"

- With cutting edge for thread BSPT right hand according to DIN 2999
- Compact construction
- Light work in inaccessible places
- Handy to switch the direction of the ratchet
- Easy change of cutting heads
- Special steel



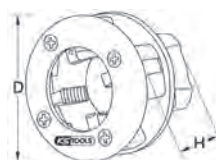
903.3300	8 pcs Manual pipe threading tool kit 3/8" - 1.1/4" 6.20

#### consists of:

903.3301	Die head, 3/8" 523
903.3302	Die head, 1/2" 651
903.3303	Die head, 3/4" 633
903.3304	Die head, Ø 1" 815
903.3305	Die head, Ø 1.1/4" 867
903.3307	Handle 500
903.3308	Extension 480
903.3309	Reversing ratchet 290

#### Die head

- With cutting edge for thread BSPT right hand according to DIN 2999
- Compact construction
- Light work in inaccessible places
- Special steel



	Ø	D mm	H mm	Replacement parts	
903.3301	3/8"	56.0	66.5	903.3311	523
903.3302	1/2"	61.0	67.0	903.3312	651
903.3303	3/4"	67.0	68.0	903.3313	633
903.3304	1"	80.0	73.0	903.3314	815
903.3305	1.1/4"	89.0	75.0	903.3315	867

### Plumbing tool set

- With cutting edge for thread BSPT right hand according to DIN 2999
- The complete steel processing
- Light work in inaccessible places
- Handy to switch the direction of the ratchet
- Easy change of cutting heads
- Special steel



987.0600	8 pcs Plumbing tool set 14.72

#### consists of:

110.1000	Steel pipe cutter, 1/8"-2" 2500
113.1500	Swed.pattern pipe wrench 45° angled, 1.1/2" 1400
115.2000	Water pump plier, 1.1/4" 310
903.3300	Threading tool kit, 8pcs, 3/8"-1.1/4" 6200
850.0505	Tool box, plastic, 475x245x240mm 1700



### Thread roughing pliers

- For roughening of the thread after thread cutting
- Uniform roughening over the entire circumference
- Special tool steel



	Ø mm	Ø	B mm	L mm	
995.6500	12,7 - 50,8	1/2" - 2"	100.0	335.0	1.77

## AIR CONDITIONING SPANNER

### 4in1 Air conditioning ratchet spanner, reversing

- For 3/16", 1/4", 5/16" + 3/8"
- Clockwise and anticlockwise switch
- Special steel



	H1 mm	H2 mm	L mm	Weight g
130.0122	22.0	22.0	140.0	120

### Air conditioning toolkit 10-100 N·m

- Set contents ideal for air conditioning and refrigeration engineers
- With snap lock rectangular tool holder for 14x18 range of end tools
- Supplied in a metal carrying case with the tools clearly organised



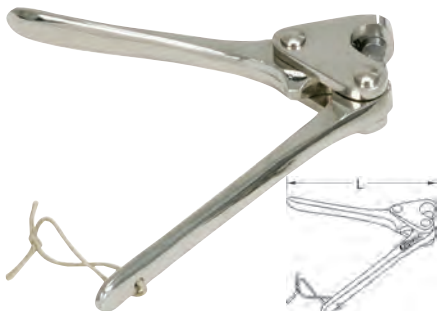
14x18 mm 1/2"

	Weight g	Air conditioning toolkit 10-100 N·m	Weight g
516.1225	8 pcs		3.40
1 x		10 - 100 N·m	
6 x		17 - 22 - 24 - 26 - 27 - 29 mm	
1 x		1/2"	

## SEALS

### Lead seal plier 8 mm

- For Lead seals 8 mm
- Special steel



	L mm	Replacement stamp A-Z 1-9	Replacement stamp Logo	Weight g
122.9990	130.0	122.9993	122.9994	230

### Lead seals 8 mm

- Pack of 250 g
- Special steel



	Ø mm	Weight g
122.9991	8.0	250

### Seal wire

- Gauge 0.5 mm
- Pack of 100 m
- Special steel



	L m	Weight g
122.9992	100.0	290



## STEP KEY

### Ratchet

- Ratchet with 1/2" square drive
- E.g. for tuning the engine crank alignment tool



1/2"

	L mm	Weight g
130.1000	270.0	500

### 1/2" Push through square

- Serviceable from both sides
- Special steel



	Total length mm	Weight g
130.1001	38.0	40

### Step key 4 stages

- 4 stages 10, 12, 13 + 17 mm
- Special steel



	L mm	Weight g
130.6005	100.0	120

### Universal step key

- 5 stages: 1/4"-5/16"-3/8"-1/2"-5/8"
- Special steel



	L1 mm	L2 mm	B mm	Weight g
130.2031	153.2	85.2	22.0	240

### Universal step key

- 5 stages: 8-10-12-14-16 mm
- Special steel



	L1 mm	L2 mm	B mm	Weight g
130.2032	142.0	84.5	20.2	220

### Universal step key

- 6 stages: 3/16"-1/4"-5/16"-3/8"-1/2"-5/8"
- Special steel

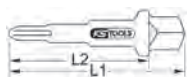


	L mm	B mm	Weight g
130.2033	133.5	19.5	140



### Universal step key

- 3-stage: 3/8"-1/2"-3/4"
- For use with reversing ratchet 3/4"
- For radiator screw connections
- Special steel



3/4"

	L1 mm	L2 mm	g
130.2034	125.9	104.0	160

### Universal step key

- 5-stage: 3/8"-1/2"-3/4"-1"-1 1/4"
- For use with reversing ratchet 3/4"
- For radiator screw connections
- Special steel

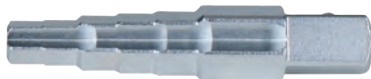


3/4"

	L1 mm	L2 mm	g
118.2038	195.0	170.0	340

### Universal step key

- 6-stage: 9.5-9.8-11.8-12.8-13.8-17 mm
- Inches: 3/8"-1/2"-3/4"
- For use with reversing ratchet 130.1000
- Special steel

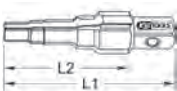


1/2"

	L1 mm	L2 mm	g
130.2036	87.3	67.0	100

### Universal step key

- 4 stages: 3/8"-1/2"-3/4"-1"
- For use with reversing ratchet 130.1000
- Special steel



1/2"

	L2 mm	L1 mm	g
130.2000	70.0	90.0	130

### Step key, 8 steps, with screwdriver blade

- 8 stages 7/8", 27/32", 3/4", 35/65", 1/2", 15/32", 7/16" + 3/8"
- With screwdriver blade
- For use with reversing ratchet 130.1000
- Special steel



1/2"

	L mm	g
130.2001	110.0	110

### Gas step key, 3 steps

- 3 stages 1/2", 3/4" + 1"
- For use with reversible ratchet 130.1000
- Special steel



1/2"

	L mm	g
130.2010	90.0	150

### Universal step key set 3/8" - 1"

- Step key 4 stages 3/8", 1/2", 3/4" + 1"
- Special steel



		g
130.3000	2 pcs Universal step key set 3/8" - 1"	610

consists of:

		g
130.1000	1/2" Ratchet	500
130.2000	Universal step key, 4 steps, 3/8" - 1/2" - 3/4" - 1"	130

### Universal step key set 7/8" - 3/8"

- Step key 8 stages 7/8", 27/32", 3/4", 35/65", 1/2", 15/32", 7/16" + 3/8"
- Step key with a screwdriver tip 9,0 x 1,5 mm
- Special steel



		g
130.3020	2 pcs Universal step key set 7/8" - 3/8"	630

consists of:

		g
130.1000	1/2" Ratchet	500
130.2001	1/2" Step key, screwdriver blade, 8 steps	110

### Gas step key set 3/8" - 1"

- Step key 4 stages 3/8", 1/2", 3/4" + 1"
- Gas step key 3 stages 3/8", 1/2", 3/4" + 1"
- Hanger bolt assembly 4 way key M6, M8, M10 + M12
- Special steel



			g
130.3500	3 pcs	Gas step key set 3/8" - 1"	760

consists of:

		g
130.1000	1/2" Ratchet	500
130.2000	Universal step key, 4 steps, 3/8" - 1/2" - 3/4" - 1"	130
130.2010	1/2" Gas step key, 3 steps, 1/2" - 1"	150

### CROSS WRENCH

#### Plumbing cross joint wrench

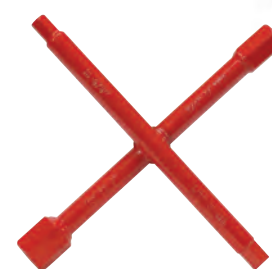
- 10 Function
- 4 x external hexagon 3/8", 1/2", 3/4" + 1" on and dismounting of radiator valves and lockshields
- 4 x internal thread for hanger bolts M6, M8, M10 + M12 for installation and removal of vanity fixtures
- 2 x inner square tube plugs for 3/8" + 1/2"
- Special steel



	L mm	H mm	g
116.6200	220.0	200.0	500

#### Plumbing cross joint wrench

- 7 Function
- 4 x external hexagon 3/8", 1/2", 3/4" + 1" on and dismounting of radiator valves and lockshields
- 3 x internal thread for hanger bolts, M8, M10 +, M12 for vanity fixtures
- Powder coating
- Special steel

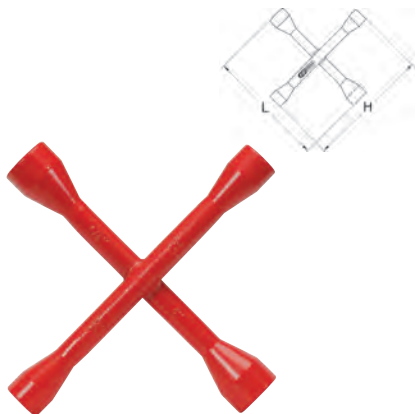


	L mm	H mm	g
116.6000	200.0	200.0	500



### Gas pipe step key

- 4 Function
- On and boring of tube plugs 3/8", 1/2", 3/4" + 1"
- Powder coating
- Special steel



	L mm	H mm	Weight g
116.6100	200.0	220.0	780



### GENERAL PLUMBING INSTALLATION

#### Standard tap nut wrench Ø 10 - 32 mm

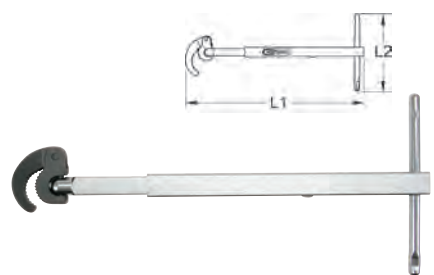
- Pivoting T-handle provides optimum power transfer
- Clockwise and anticlockwise action with swivel lever
- For use in plumbing installation
- Includes attachment on the floor by screwing bolts M10
- Special steel



	Ø mm	L1 mm	L2 mm	Weight g
125.1000	10.0 - 32.0	275.0	120.0	500

#### Telescopic standard tap wrench

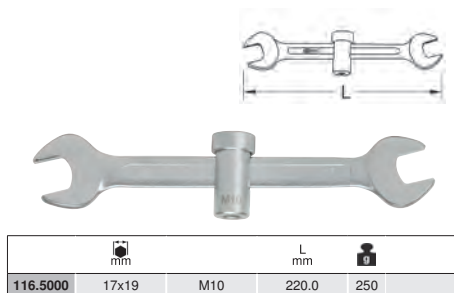
- Pivoting T-handle provides optimum power transfer
- Clockwise and anticlockwise action with swivel lever
- For use in plumbing installation
- Pull out 3 stage telescopic adjustment
- Chrome plated
- Special steel





	Ø mm	L1 mm	L2 mm	Weight g
126.1000	10.0 - 32.0	275.0 - 455.0	150.0	670
126.2000	32.0 - 63.0	275.0 - 455.0	155.0	830

### Plumbing special spanner, 17 x 19 mm

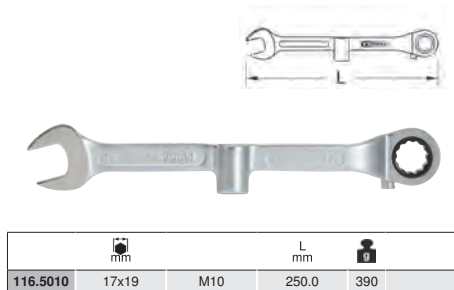
- Ideal for inaccessible areas
- For use in plumbing installation
- Quick mounting of fixtures and vanity angle valves
- Includes attachment for screwing bolts M10 on the floor in the middle section
- A longer lever arm by sliding the middle piece of the wrench
- Special steel





			L mm		
116.5000	17x19	M10	220.0	250	

### Plumbing special spanner, 17 x 19 mm

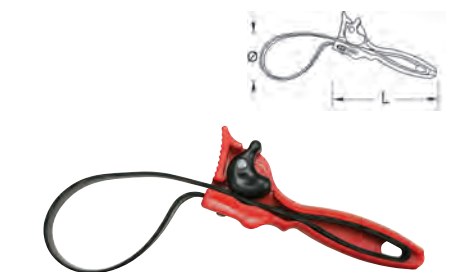
- Ideal for inaccessible areas
- For use in plumbing installation
- Jaw size 19 mm, straight
- Ring ratchet size 17 mm, slightly offset, and reversible
- Includes attachment for screwing bolts M10 on the floor of middle section with integrated ball seat for easy release of the hanger bolt
- Special steel



	 mm		L mm	 g
116.5010	17x19	M10	250.0	390

### Strap pipe pliers

- For hard to reach places
- Especially suited for plastic pipes
- Glass fibre reinforced handle
- Belt made of reinforced, non slip rubber

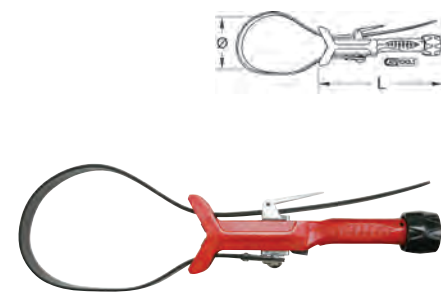


	Ø mm	L mm	Weight g
114.0150	110.0	190.0	180



### Strap pipe pliers

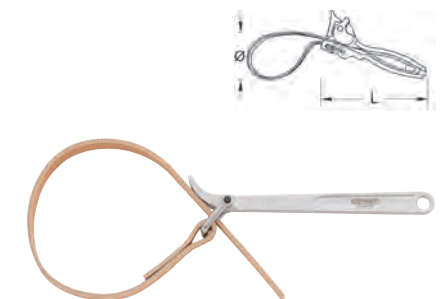
- With metal grip
- For hard to reach places
- Especially suited for plastic pipes
- Belt made of reinforced, non-slip rubber
- Chrome vanadium



	Ø mm	L mm	Weight g
114.0160	160.0	250.0	1.00

### Strap wrench

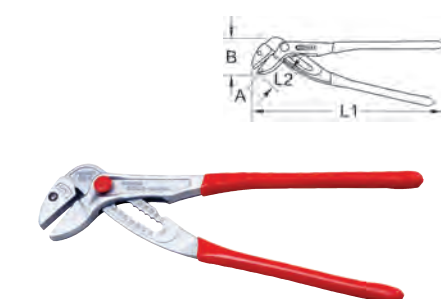
- With metal handle
- For hard to reach places
- Especially suited for plastic pipes
- Belt made of reinforced, non-slip webbing
- Chrome plated
- Chrome vanadium



	mm	Ø mm	Ø	L mm	Replacement band	Weight g
114.0170	20.0	140.0	9/64"	220.0	114.0170-1	278
114.0171	25.0	200.0	13/64"	280.0	114.0171-1	600

### Fitters pliers

- With accurate industrial adjustment
- With safety clamping protection
- With setting scale
- Smooth, polished head area
- Optimum power transfer
- Ground heads
- With PVC dipped handle
- Chrome vanadium

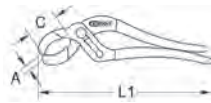


	A mm	B mm	L1 mm	L2 mm	Weight g
115.8510	53.0	50.0	250.0	60.0	350



### Siphon pliers

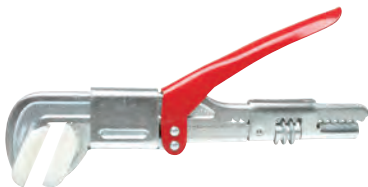
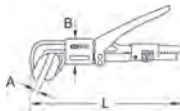
- With 4 adjustable steps
- Insulated foot for chrome fittings
- For screw fittings up to max. Ø 65 mm
- With PVC dipped handle
- For loosening pipe fittings
- Interchangeable jaw protector
- For hard to reach places
- Chrome plated and mirror polished
- Chrome vanadium



	A mm	C mm	L mm	Replacement jaws	Weight kg
116.1200	20,0 - 65,0	45,0	225,0	116.1201	320

### Fitters wrench

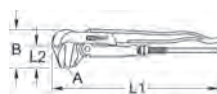
- Interchangeable jaw protector
- For screw fittings up to max. Ø 60 mm
- Smooth, parallel adjustment jaws
- For mild assembly
- Infinitely variable
- Matt chrome
- Chrome vanadium



	A mm	B mm	L mm	Replacement jaws	Weight kg
116.1002	60,0	47,0	265,0	116.1003	550

### Fitters pliers, angled

- 90° Jaw position
- Interchangeable jaw protector
- For pipe up to max. Ø 35 mm
- For mild assembly
- Infinitely variable
- Red powder coating
- Chrome vanadium



	A mm	A mm	B mm	L1 mm	L2 mm	Replacement jaws	Weight kg
116.1000	1"	25,4	81,0	315,0	54,0	116.1001	790



### WC plumbing combination kit

- Special configuration for the disassembly and assembly of toilet seats
- In durable plastic storage case



	Weight kg
116.2095 3 pcs WC plumbing combination kit	0.81

#### consists of:

	Weight kg
116.2096 Standard tap key, 155mm, 13mm	130
116.2097 Key for toilet set fitting, 10mm (hex)	60
911.2470 Ratchet bit driver, 1/4"	380



### WC plumbing combination kit

- Special configuration for the disassembly and assembly of toilet seats
- In durable plastic storage case



	Weight kg
116.2080 6 pcs WC plumbing combination kit	1.30

#### consists of:

	Weight kg
116.2096 Standard tap key, 155mm, 13mm	130
116.2097 Key for toilet set fitting, 10mm (hex)	60
116.2081 1/2" Handle, flex, 180° swivel uni joint	150
116.2086 Stud driver, special adaptor, M8, 1/2"	70
116.2087 Stud driver, special adaptor, M10, 1/2"	100
514.1135 Special adaptor, magnetic, 72mm	60

### Washbasin mouting set

- Optimum working for disassembly and assembly of washbasins and wall fixtures
- Ideal for confined spaces
- Handy, multifunctional power tool
- In durable plastic storage case



	Weight kg
116.2050 6 pcs Washbasin mouting set	1.40

#### consists of:

	Weight kg
116.2051 Stock screw key drive tool, M8/M10	320
116.2055 Assembly tool f. drain valves, 9mm, L=185mm	100
116.2056 Assembly tool f. drain valves, 10mm, L=185mm	110
116.2059 Assembly tool f. drain valves, 13mm, L=185mm	130
116.2060 Fitting tool for drain valves, 92mm	150
116.2065 Mounting attachment f. eccentric fittings, 40mm	300

### Plumbing cutting combination kit

- Easy entry and unscrewing from 1/2" Hahn extensions in plumbing assembly
- Wall-mounted models are milled valve extensions
- Connection valves also in inaccessible areas and with a thread
- In durable plastic storage case



116.2030	4 pcs	Plumbing cutting combination kit	0.88	

consists of:

116.2031	Valve extension mills	160		
116.2032	Angle valve screw in device	140		
116.2081	1/2" Handle, flex, 180° swivel uni joint	150		
918.1662	CHROME+ hex bit socket, long, 1/2", 12mm	150		

### Plumbing installation set

- Optimum working for disassembly and assembly of washbasins and wall fixtures
- Ideal for confined spaces
- Handy, multifunctional power tool
- In durable plastic storage case



116.2015	10 pcs	Plumbing installation set	2.76	

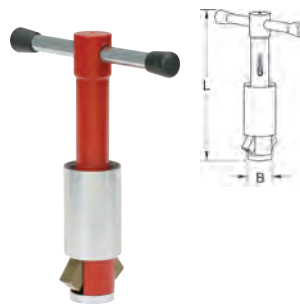
consists of:

116.2036	1/2" Valve extension mills, SDS	170		
116.2051	Stock screw key drive tool, M8/M10	320		
116.2054	Assembly tool f. drain valves, 11mm, L=185mm	120		
116.2055	Assembly tool f. drain valves, 9mm, L=185mm	100		
116.2056	Assembly tool f. drain valves, 10mm, L=185mm	110		
116.2057	Assembly tool f. drain valves, 12mm, L=185mm	130		
116.2059	Assembly tool f. drain valves, 13mm, L=185mm	130		
116.2060	Fitting tool for drain valves, 92mm	150		
116.2065	Mounting attachment f. eccentric fittings, 40mm	300		
503.4565	GEAR+ Double ring spanner 10x19-13x17mm, 4 in 1, rev.	196		



### Valve fix

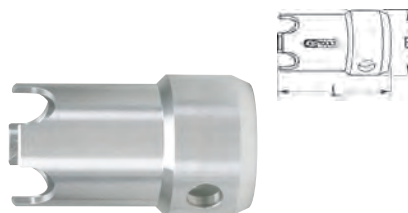
- Holder and boring tools for the eccentric and standard flush valves
- Can be used from above and below
- Quick and easy work for the assembly of bathtubs, sinks and washbasins
- Special steel



	B mm	L mm		
116.2000	35.0	161.0	300	

### Bath adapter for valve fix

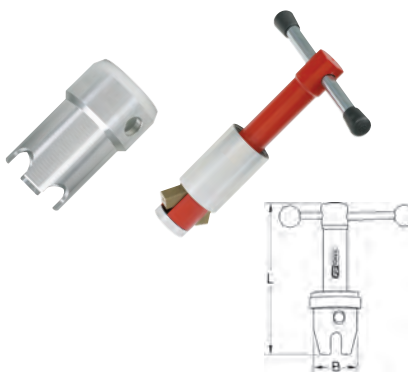
- For use on bath tub valves to valve fix 116.2000
- Special steel



	L mm	B mm		
116.2001	53.0	45.0	110	

### Valve fix and bath adaptors

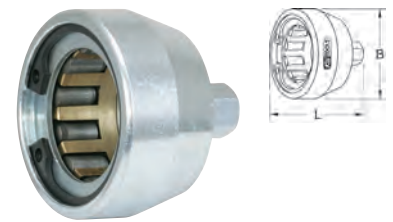
- Holder and boring tools for the eccentric and standard flush valves
- Quick and easy work for the assembly of bathtubs, sinks and washbasins
- Special steel



	B mm	L mm		
116.2002	50.0	120.0	410	

### Mounting attachment for eccentric wrench (S-connection)

- Shaped in the key core then wedged in and then releasing on the thread and push it in so doing
- Special steel



	mm	B mm	L mm		
116.2065	10.0	40.0	40.0	300	

### Mounting attachment for eccentric wrench (S-connection)

- Shaped in the key core then wedged in and then releasing on the thread and push it in so doing
- Special steel



	1/2"	dim mm	Imperial tube Ø inch	mm	mm	L mm		
116.2066	1/2"	36.0	3/4"	42.0	26.5	43.0	300	

### Assembly tool for drain valves

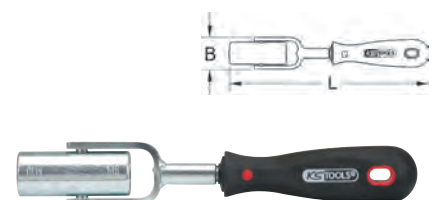
- Work on damage drain valves



	mm	B mm	L mm		
116.2060	10.0	35.0	92.0	150	

### Universal stock screw key drive tool

- M8 / M10
- Swivelling head double ended key for turning screw studs
- Special steel



	B mm	L mm		
116.2051	35.0	220.0	320	

## Handle, flexible

- With external square drive to DIN 3120 / ISO 1174
- 180° Swivel universal joint
- Special steel



1/2"

	L mm	W mm
116.2081	165.0	150

## Assembly tool for drain valves

- Work on damage drain valves



	Ø mm	mm	B mm	L mm	W mm
116.2054	11.0	10.0	10.5	185.0	120
116.2055	9.0	10.0	10.5	185.0	100
116.2056	10.0	10.0	14.0	185.0	110
116.2057	12.0	10.0	15.0	185.0	130
116.2059	13.0	10.0	15.0	185.0	130
116.2089	9.0	10.0	10.5	165.0	60
116.2090	10.0	10.0	10.5	165.0	70
116.2091	11.0	10.0	15.0	165.0	120
116.2092	12.0	10.0	15.0	165.0	120
116.2093	13.0	10.0	15.0	165.0	120
116.2096		10.0	1/4"	14.2	130

## Valve extension mills

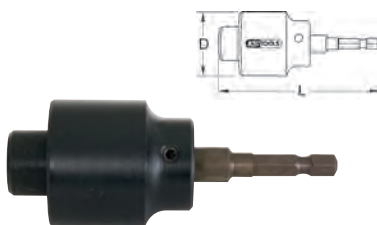
- With SDS adaptor
- With swarf catcher
- Wall mounted models for milling of valve extensions
- With special carbide tipped cutting edge
- Optimized centering of the cylindrical tower in front of the cutter
- Special steel



	D mm	L mm	W mm
116.2036	36.0	100.0	170

## Tap extension cutter

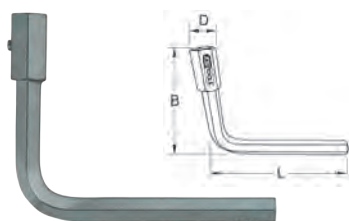
- With 1/4" 6 point adaptor
- With swarf catcher
- Wall mounted models for milling of valve extensions
- With special carbide tipped cutting edge
- Optimized centering of the cylindrical tower in front of the cutter
- Special steel



	D mm	L mm	W mm
116.2037	36.0	91.5	170

## Special tap extension bit

- Special steel



3/8"

	mm	L mm	B mm	D mm	W mm
116.2073	12.0	128.0	100.0	17.5	220

## Special tap extension bit

- Special steel



1/2"

	mm	L mm	W mm
116.2039	12.0	150.0	150



## Radiator nipple wrench

- Tools for mounting of radiators for nipples 1" and 1.1/4", with 18 mm square drive
- Special steel



	Ø	mm	L mm	W mm
131.0500	1"	18.0	500.0	0.75
131.0800	1"	18.0	800.0	1.10
131.1000	1"	18.0	1000.0	1.45
132.0500	1.1/4"	18.0	500.0	1.30
132.0800	1.1/4"	18.0	750.0	1.50

## Radiator tap wrench

- Tools for mounting of radiators for nipples 1" and 1.1/4", with 18 mm square drive
- Soft grip handle
- Special steel



	mm	L mm	W mm
131.0001	18.0	500.0	1.67

## Tap wrench

- Tools for mounting of radiators for nipples 1" and 1.1/4", with 18 mm square drive
- Soft grip handle
- Special steel



	mm	L mm	W mm
131.0002	18.0	500.0	1.67

## SUCTION PADS

### Mini vacuum suction cup

- For lifting, carrying and holding
- For flat and non porous surfaces
- Max. 15 kg carrying capacity - perpendicular to sucker
- Suitable for adjusting and insertion of shower trays
- Solid rubber



	Suction cup Ø mm	Load capacity kg	W mm
140.1004	80.0	15	100

### One handed mini suction cup

- Convenient one handed operation by lever
- Lifting, carrying and holding
- Special plastic

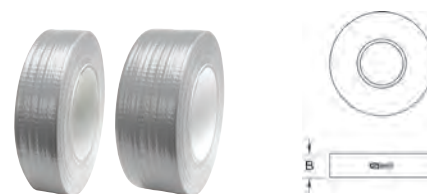


	Suction cup Ø mm	Load capacity kg	H mm	L mm	W mm
140.1015	70.0	8.0	92.0	115.0	30

## FABRIC ADHESIVE TAPE

### Fabric adhesive tape, silver

- Fabric adhesive tape
- Laminated polyester/cotton fabric
- Sturdy, heat resistant and water repellent
- Rubber based adhesive

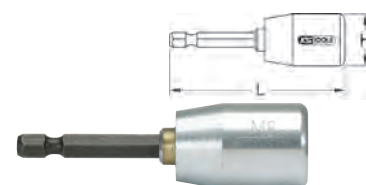


	B mm	L m	W mm
141.5001	40.0	50.0	320
141.5000	50.0	50.0	370

## SOCKET SCREWDRIVER

### Stud screwdriver, magnetic

- Magnetic stud screwdriver with 1/4" bit holder for screwdriver
- For a damage free entry and boring of the stud
- Special steel



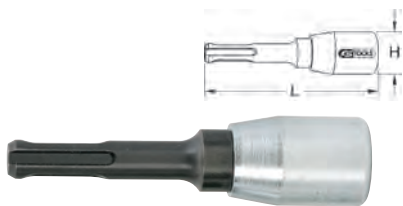
1/4"

		L mm	H mm	W mm
122.3006	M6	88.0	21.0	80
122.3008	M8	80.0	24.0	100
122.3010	M10	88.0	26.0	120
122.3012	M12	76.0	26.0	140



### Stud screw key with SDS adaptor

- Stud screw key for machinery with SDS adaptor
- For a damage free entry and boring of the stud
- Special steel



		L mm	H mm	Ø
122.3016	M6	76.0	21.0	90
122.3018	M8	81.0	23.0	120
122.3020	M10	99.0	26.0	150
122.3022	M12	101.0	29.0	180

### Stud screwdriver

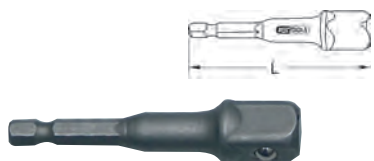
- Stud screwdriver with 1/2" square drive for special adaptor
- For a damage free entry and boring of the stud
- Special steel



			L mm	Ø
116.2086	1/2"	M8	35.0	70
116.2087	1/2"	M10	43.0	100
116.2088	1/2"	M12	48.0	130

### Special adaptor, magnetic

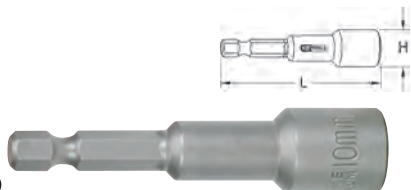
- Magnetic 1/2" special adaptor for stud screwdriver with 1/4" bit holder for screwdrivers
- Special steel



	L mm	Ø
514.1135	72.0	60

### CLASSIC drive socket, magnetic

- Magnetic
- External hexagon drive to DIN 3126 / ISO 1173 - C 6,3
- Can be used by hand or with and electric screwdriver
- For a damage free inserting boring and unscrewing bolts
- Ideally suited for fittings in trade and industry
- Sand blasted
- Special steel



	Ø mm	L mm	H mm	Ø
122.2101	7.0	60.0	11.0	30
122.2102	8.0	60.0	12.0	30
122.2103	10.0	60.0	15.0	40
122.2104	13.0	60.0	18.0	50

### CLASSIC stud screwdriver

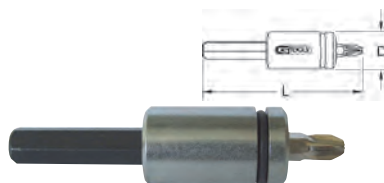
- External hexagon drive to DIN 3126 / ISO 1173 - C 6,3
- Can be used by hand or with and electric screwdriver
- For a damage free inserting and unscrewing bolts from floor
- Ideally suited for fittings in trade and industry
- Sand blasted
- Special steel



		L mm	H mm	Ø
122.2105	M6	50.0	12.0	20
122.2106	M8	50.0	12.0	20
122.2107	M10	50.0	12.0	20
122.2108	M12	50.0	14.0	20

### Pipe clamp fitting tool

- Holder for stud screws M8 and 1/4" bits
- Ideal for gas, water and electrical installation
- No screw bit changing
- 6 point 1/4" adaptor can be mounted in the chuck
- Special steel



	D mm	L mm	Ø
116.2012	20.0	70.0	100

### CLASSIC bit and drive socket set

- Ideal set of compilation for plumbing heating and air conditioning
- External hexagon drive to DIN 3126 / ISO 1173 - C 6,3
- Can be used by hand or with and electric screwdriver
- Ideally suited for fittings in trade and industry
- Includes magnetic drive sockets and stud screwdrivers for a damage free inserting boring and unscrewing bolts and stud bolts
- Orderly arrangement of the popular 1/4" bits and drive sockets
- Sand blasted
- Special steel
- In durable plastic storage case



			Ø
122.2100	31 pcs	CLASSIC bit and drive socket set	670
4 x		7 - 8 - 10 - 13 mm	
4 x		M6 - M8 - M10 - M12	
1 x		50 mm	
5 x		PH1 - 3 x PH2 - PH3	
5 x		PZ1 - 3 x PZ2 - PZ3	
2 x		5,5 - 6,5 mm	
3 x		4 - 5 - 6 mm	
7 x		T10 - T15 - T20 - T25 - T27 - T30 - T40	

### CLASSIC bit and drive socket display

- Ideal set of compilation for plumbing heating and air conditioning
- External hexagon drive to DIN 3126 / ISO 1173 - C 6,3
- Can be used by hand or with and electric screwdriver
- Ideally suited for fittings in trade and industry
- Includes magnetic drive sockets and stud screwdrivers for a damage free inserting boring and unscrewing bolts and stud bolts
- Orderly arrangement of the popular 1/4" bits and drive sockets
- Special steel
- Supplied in counter sales display



			Ø
122.21000	10 pcs	10 x 122.2100	7.00

### ULTIMATEplus Double box head spanner set

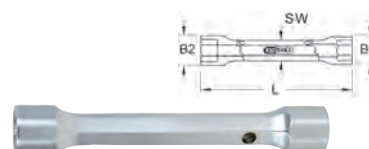
- FlankTraction profile (12 point)
- DIN 896 form A / ISO 2236
- Extremely versatile
- With centre hole
- Can use a ring spanner to drive
- Matt finish
- Chrome vanadium



			Ø
518.0405	10 pcs	ULTIMATEplus Double box head spanner set	1.16
8 x		6x7 - 8x9 - 10x11 - 12x13 - 14x15 - 16x17 - 18x19 - 20x22 mm	
2 x		#1 100 mm + #2 170 mm	

### ULTIMATEplus Double box spanner

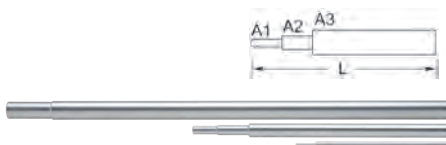
- FlankTraction profile (12 point)
- DIN 896 form A / ISO 2236
- Extremely versatile
- With centre hole
- Can use a combination spanner to drive
- Matt finish
- Chrome vanadium



	Ø mm	B1 mm	B2 mm	dim mm	L mm	Ø	Ø
518.0406	6x7	9.0	10.0	8.0	100.0	1	27
518.0408	8x9	11.5	12.5	9.0	110.0	1	43
518.0410	10x11	14.0	15.0	11.0	120.0	1	63
518.0412	12x13	16.5	17.5	13.0	130.0	2	96
518.0414	14x15	19.5	20.0	14.0	140.0	2	132
518.0416	16x17	21.0	22.0	16.0	150.0	2	155
518.0418	18x19	23.0	24.0	18.0	160.0	2	187
518.0420	20x22	26.0	28.0	20.0	170.0	2	275
518.0421	21x23	27.0	29.0	21.0	180.0	2	310
518.0424	24x26	30.0	32.0	24.0	190.0	3	365
518.0425	25x28	31.0	34.0	25.0	200.0	3	410
518.0427	27x29	34.0	36.0	27.0	210.0	3	540
518.0430	30x32	37.0	39.0	30.0	220.0	3	610

### Tommy bar for double box spanner

- Hardened
- Matt finish
- Chrome vanadium



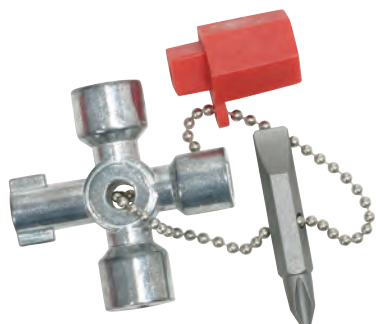
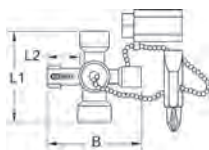
	mm	A1 mm	A2 mm	A3 mm	L mm	#	
518.0450	6x7-10x11	2.6	5.0	5.0	100.0	1	10
518.0455	12x13-21x23	5.9	7.0	9.3	170.0	2	80
518.0460	24x26-30x32	11.6	12.5	12.5	290.0	3	280

### UNIVERSAL ENCLOSURE KEYS

#### Mini universal enclosure key

- With chain
- Bit adaptor for bits to DIN 3126 / C 6,3
- Die cast zinc

■	6 mm
■	7 - 8 mm
▲	9 mm
●	3 - 5 mm
⊕	PH 2
⊖	7 mm

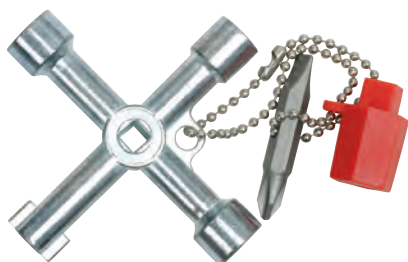
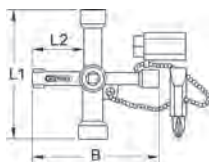


	B mm	L1 mm	L2 mm	#
130.1010	42.0	42.0	18.0	100

#### Universal enclosure key

- With chain
- Bit adaptor for bits to DIN 3126 / C 6,3
- Heating ventilation key
- Die cast zinc

■	6 mm
■	7 - 8 mm
▲	7 mm
▲	9 mm
●	3 - 5 mm
⊕	PH 2
⊖	7 mm

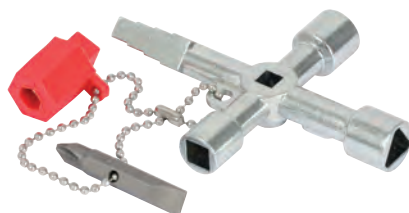
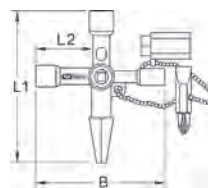


	B mm	L1 mm	L2 mm	#
130.1015	71.0	71.0	33.0	200

#### Universal enclosure key

- With chain
- Bit adaptor for bits to DIN 3126 / C 6,3
- Heating ventilation key
- Die cast zinc

■	5 mm
■	7 mm
■	8 mm
■	4 - 10 mm
▲	9 - 10 mm
⊕	PH 2
⊖	7 mm

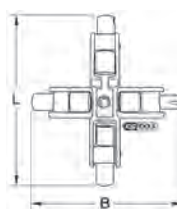


	B mm	L1 mm	L2 mm	#
130.1020	61.0	90.0	27.0	200

#### Universal enclosure key electrical

- For all common control cabinet-enclosures
- For bits to DIN 3126 / C 6,3
- Fourfold pivot mechanism
- Die cast zinc

■	6 mm
■	7 mm
■	8 mm
▲	7 mm
▲	8 - 9 mm
●	3 - 5 mm
⊕	
⊖	6 mm

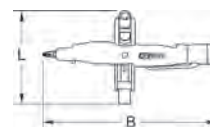


	B mm	L mm	#
130.1046	100.0	113.5	200

#### Universal enclosure key electrical

- For all common control cabinet-enclosures
- For bits to DIN 3126 / C 6,3
- Double pivot mechanism
- Die cast zinc

■	5 mm
■	6 mm
■	7 - 8 mm
▲	9 mm
●	3 - 5 mm
⊕	PH 2

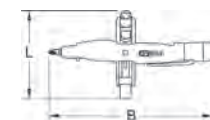


	B mm	L mm	#
130.1040	140.0	100.0	120

#### Universal enclosure key with voltage finder 50 - 600 V

- Contactless and optical recognition of alternating current
- On / off switch
- For all common control cabinet-enclosures
- For bits to DIN 3126 / C 6,3
- Includes two batteries 1.5 V LR44 button cell 11,6 x 5,4 mm
- Double pivot mechanism
- Die cast zinc

■	6 mm
■	7 - 8 mm
▲	9 mm
●	3 - 5 mm
⊕	PH 2



#### Technical data:

Readout:	1 LED
Voltage range:	50 - 600 V
Duty cycle:	permanent
Frequency range:	50 - 60 Hz
Protection class:	EN 61010

	B mm	L mm	#
130.1045	155.0	95.0	120



## TOOL ASSORTMENTS

### Air conditioning combination tool set

- For optimal use in refrigeration and air conditioning installation
- Supplied in durable ABS storage case



116.0175	129 pcs	Air conditioning combination tool set	14.41

consists of:

101.5016	Mini pipe cutter, 3-16mm	120	
103.5000	Telescopic pipe cutter, 6-38mm	500	
105.2000	Internal+external deburrer, 3-42mm	240	
117.0550	ERGO VDE screwdriver set, 8pcs, PH+slot	430	
117.1100	ERGO VDE plier set, 4pcs, 150-250mm	1440	
117.1114	ERGO VDE wire stripper, 150mm	210	
118.0065	Kevlar scissors, 140mm	130	
122.0500	Flaring tool clamping device, 6-16mm	900	
130.0122	4in1 air con ratchet, 3/16"-3/8"	120	
141.6010	PVC insulation tape set, 8 pcs	150	
142.1320	Fitter's hammer, ash handle, 200g	283	
151.2180	CLASSIC key wrench set hex, XL, 8pcs	2	440
156.0150	Punch set, 6pcs	520	
159.1001	ERGOTORQUE+ screwdriver slot, short, 6mm	40	
159.1026	ERGOTORQUE+ screwdriver short, PH2	40	
159.1046	ERGO+ stubby screwdriver, POZIDRIV®, PZ2	40	
203.0010	Pipe bending spring, external, 10mm	80	
203.0012	Pipe bending spring, external, 12mm	110	
203.0016	Pipe bending spring, external, 16mm	220	
300.0131	PRECISION+ steel tape measure, 3mx16mm	100	
518.0607	CHROME+ combination spanner, 7mm	25	
518.0608	CHROME+ combination spanner, 8mm	32	
518.0609	CHROME+ combination spanner, 9mm	46	
518.0610	CHROME+ combination spanner, 10mm	48	
518.0613	CHROME+ combination spanner, 13mm	71	
518.0617	CHROME+ combination spanner, 17mm	155	
518.0619	CHROME+ combination spanner, 19mm	176	
518.0701	CHROME+ open end spanner, 6x7mm	27	
518.0702	CHROME+ open end spanner, 8x9mm	32	
518.0704	CHROME+ open end spanner, 10x11mm	58	
518.0707	CHROME+ open end spanner, 12x13mm	93	
518.0709	CHROME+ open end spanner, 14x15mm	122	
518.0710	CHROME+ open end spanner, 16x17mm	170	
518.0712	CHROME+ open end spanner, 18x19mm	212	
518.0715	CHROME+ open end spanner, 21x23mm	277	
518.0716	CHROME+ open end spanner, 24x27mm	410	
518.0718	CHROME+ open end spanner, 30x32mm	693	
577.0200	CLASSIC adjustable wrench, 200mm	250	
577.0250	CLASSIC adjustable wrench, 250mm	450	
577.0300	CLASSIC adjustable wrench, 300mm	690	
907.2184	Cable knife, Ø 8-28mm	100	
911.0646	Socket set, 46pcs, 1/4"	1100	
997.1216	Saw blade, 12 pack	40	
997.1217	Small hacksaw frame, 150mm	100	
850.0560	ABS rigid tool case, 460x310x180mm	4500	

### Premium plumbing tool set

- For optimal use in plumbing installation
- Supplied in multi pocket tool case



116.0190	120 pcs	Premium plumbing tool set	15.88

consists of:

101.5022	Mini pipe cutter, 3-22mm	120	
103.5000	Telescopic pipe cutter, 6-38mm	500	
113.1000	Swed. pattern pipe wrench 45° angled, 1"	820	
115.1004	ERGO plier set, 4pcs, 160-240mm	1440	
116.1000	Fitters plier, 1"	790	
116.1200	Siphon plier, 4 position, 100mm	320	
116.5000	Special sanitary spanner, 17x19xM10	250	
118.0052	Tin snips, right, 240mm	400	
122.2100	CLASSIC Sanitary bit set, 31pcs, 1/4"	670	
125.1000	Tap nut wrench, 275mm	500	
130.3000	Step key set, 2pcs, 3/8"-1"	610	
141.5000	Fabric adhesive tape, silver, 50mm x 50m	370	
142.1330	Fitter's hammer, ash handle, 300g	350	
142.5151	Club hammer, fiberglass handle, 1500g	1650	
151.2180	CLASSIC key wrench set hex, XL, 8pcs	2	440
156.0175	Centre punch, 120mm	60	
156.0531	Flat chisel, 16x250mm	410	
204.5500	Spirit level, aluminium, 500mm	240	
300.0060	Folding wood rule, metric, yellow, 2m	100	
300.0133	PRECISION+ steel tape measure, 5mx25mm	150	
500.7165	Precision screwdriver set, 7pcs	100	
517.0123	CLASSIC double OE spanner set, 11pcs	1600	
577.0200	CLASSIC adjustable wrench, 200mm	250	
907.2100	Hacksaw frame, 300mm	270	
907.2165	Utility knife, snap off blade, 140mm	90	
911.1198	ERGO bit driver, 1/4" f.bits, 200mm	90	
911.2120	ERGO screwdriver set, 6pcs, slot+PZ	630	
911.2188	Electrical screwdriver, 150-250V	14	
997.1215	Small handsaw, 150mm	100	
999.2034	Gypsum cup, 0,75 litre	120	
850.0300	SMARTBAG tool case, 425x240x280mm	2370	

### Basic plumbing tool set

- For optimal use in the plumbing sector
- In durable leather tool case



116.0185	34 pcs	Basic plumbing tool set	11.21

consists of:

101.5016	Mini pipe cutter, 3-16mm	120	
103.5000	Telescopic pipe cutter, 6-38mm	500	
113.1000	Swed. pattern pipe wrench 45° angled, 1"	820	
113.1500	Swed. pattern pipe wrench 45° angled, 1.1/2"	1400	
115.1012	ERGO diagonal side cutter, 160mm	260	
115.2000	Water pump plier, 1.1/4"	310	
116.1200	Siphon plier, 4 position, 100mm	320	
116.5000	Special sanitary spanner, 17x19xM10	250	
125.1000	Tap nut wrench, 275mm	500	
130.3000	Step key set, 2pcs, 3/8"-1"	610	
142.1330	Fitter's hammer, ash handle, 300g	350	
151.2100	CLASSIC key wrench set hex, long, 8pcs	330	
156.0532	Flat chisel, 16x300mm	430	
158.3520	CHROME+ key wrench set hex, 8pcs, 2.5-10mm	440	
159.1002	ERGOTORQUE+ screwdriver slot, 3mm, L=155mm	40	
159.1004	ERGOTORQUE+ screwdriver slot, 4mm, L=180mm	50	
159.1006	ERGO+ screwdriver, slot, 5.5mm	50	
159.1009	ERGO+ screwdriver, slot, 6.5mm	90	
159.1020	ERGO+ screwdriver, PHILLIPS®, PH1	40	
159.1021	ERGO+ screwdriver, PHILLIPS®, PH2	70	
201.2305	Wire brush steel, 3 rows, 290mm	120	
300.0060	Folding wood rule, metric, yellow, 2m	100	
517.0148	CLASSIC double OE spanner set, 8pcs	810	
907.2187	Electricians pen knife, 1 straight blade	60	
907.2188	Pen knife, straight+arrow pointed blade	60	
997.1215	Small handsaw, 150mm	100	
850.0310	Tool case, leather, 420x150x250mm	2600	

### Basic plumbing tool set

- For optimal use in the plumbing sector
- In durable metal tool box



116.0186	34 pcs	Basic plumbing tool set	12.16

consists of:

101.5016	Mini pipe cutter, 3-16mm	120	
103.5000	Telescopic pipe cutter, 6-38mm	500	
113.1000	Swed. pattern pipe wrench 45° angled, 1"	820	
113.1500	Swed. pattern pipe wrench 45° angled, 1.1/2"	1400	
115.1012	ERGO diagonal side cutter, 160mm	260	
115.2001	Water pump plier, 36mm	330	
116.1200	Siphon plier, 4 position, 100mm	320	
116.1002	Fitting wrench, 60mm	550	
116.5000	Special sanitary spanner, 17x19xM10	250	
125.1000	Tap nut wrench, 275mm	500	
130.3000	Step key set, 2pcs, 3/8"-1"	610	
142.1330	Fitter's hammer, ash handle, 300g	350	
151.2100	CLASSIC key wrench set hex, long, 8pcs	330	
156.0532	Flat chisel, 16x300mm	430	
158.3520	Key wrench set hex, 8pcs, 2.5-10mm	440	
159.1002	ERGO+ screwdriver slot, 3mm, L=155mm	40	
159.1004	ERGO+ screwdriver slot, 4mm, L=180mm	50	
159.1006	ERGO+ screwdriver, slot, 5.5mm	50	
159.1009	ERGO+ screwdriver, slot, 6.5mm	90	
159.1020	ERGO+ screwdriver, PHILLIPS®, PH1	40	
159.1021	ERGO+ screwdriver, PHILLIPS®, PH2	70	
201.2305	Wire brush steel, 3 rows, 290mm	120	
300.0060	Folding wood rule, metric, yellow, 2m	100	
517.0123	CLASSIC double OE spanner set, 11pcs	1600	
907.2188	Pen knife, straight+arrow pointed blade	60	
997.1215	Small handsaw, 150mm	100	
999.0120	Tool box metal	3450	



### Premium plumbing tool set

- For optimal use in plumbing for sanitary assembly
- In durable leather tool case



116.0195	116 pcs	Premium plumbing tool set	16.40

#### consists of:

101.5016	Mini pipe cutter, 3-16mm	120
103.5000	Telescopic pipe cutter, 6-38mm	500
113.1000	Swed. pattern pipe wrench 45° angled, 1"	820
115.1021	ERGO combination plier, 180mm	300
115.1024	ERGO long nose plier serrated cutter	230
115.2000	Water pump plier, 1.1/4"	310
116.1000	Fitters plier, 1"	790
116.1002	Fitting wrench, 60mm	550
116.1200	Siphon plier, 4 position, 100mm	320
116.5000	Special sanitary spanner, 17x19xM10	250
118.0052	Tin snips, right, 240mm	400
122.2100	CLASSIC Sanitary bit set, 31pcs, 1/4"	670
125.1000	Tap nut wrench, 275mm	500
130.3000	Step key set, 2pcs, 3/8"-1"	610
142.1350	Fitter's hammer, ash handle, 500g	590
142.5125	Club hammer, ash handle, 1250g	1360
151.2100	CLASSIC key wrench set hex, long, 8pcs	330
156.0406	Centre punch, round, burnished, 6mm	60
156.0512	Pointed chisel, 16x300mm	400
156.0531	Flat chisel, 16x250mm	410
159.1004	ERGOTORQUE+ screwdriver slot, 4mm, L=180mm	50
159.1007	ERGO+ screwdriver, slot, 5.5mm	60
159.1009	ERGO+ screwdriver, slot, 6.5mm	90
159.1020	ERGO+ screwdriver, PHILLIPS®, PH1	40
159.1021	ERGO+ screwdriver, PHILLIPS®, PH2	70
159.1024	ERGO+ screwdriver, PHILLIPS®, PH3	130
159.1024	ERGOTORQUE+ screwdriver PH3, L=265mm	130
204.5400	Spirit level, aluminium, 400mm	200
300.0062	Folding wood rule, metric, white, 2m	110
300.0133	PRECISION+ steel tape measure, 5mx25mm	150
500.7160	Precision screwdriver set, TX, 7pcs, T6-T20	100
517.0123	CLASSIC double OE spanner set, 11pcs	1600
577.0250	CLASSIC adjustable wrench, 250mm	450
907.2100	Hacksaw frame, 300mm	270
907.2165	Utility knife, snap off blade, 140mm	90
907.2265	Decorator's scraper, stainless, 75x225mm	80
911.2060	CLASSIC bit box, belt clip, 32pcs, 1/4"	300
911.2188	Electrical screwdriver, 150-250V	14
997.1215	Small handsaw, 150mm	100
999.2034	Gypsum cup, 0.75 litre	120
850.0315	Tool case, leather, 405x185x280mm	3600

### Premium plumbing tool set

- For optimal use in plumbing for sanitary assembly
- In durable metal tool box



116.0196	116 pcs	Premium plumbing tool set	18.40

#### consists of:

101.5016	Mini pipe cutter, 3-16mm	120
103.5000	Telescopic pipe cutter, 6-38mm	500
113.1000	Swed. pattern pipe wrench 45° angled, 1"	820
115.1021	ERGO combination plier, 180mm	300
115.1024	ERGO long nose plier serrated cutter	230
115.2000	Water pump plier, 1.1/4"	310
116.1000	Fitters plier, 1"	790
116.1002	Fitting wrench, 60mm	550
116.1200	Siphon plier, 4 position, 100mm	320
116.5000	Special sanitary spanner, 17x19xM10	250
118.0052	Tin snips, right, 240mm	400
122.2100	CLASSIC Sanitary bit set, 31pcs, 1/4"	670
125.1000	Tap nut wrench, 275mm	500
130.3000	Step key set, 2pcs, 3/8"-1"	610
142.1350	Fitter's hammer, ash handle, 500g	590
142.5150	Club hammer, ash handle, 1500g	1600
151.2100	CLASSIC key wrench set hex, long, 8pcs	330
156.0511	Pointed chisel, 16x250mm	390
156.0531	Flat chisel, 16x250mm	410
159.1004	ERGO+ screwdriver slot, 4mm, L=180mm	50
159.1007	ERGO+ screwdriver, slot, 5.5mm	60
159.1009	ERGO+ screwdriver, slot, 6.5mm	90
159.1020	ERGO+ screwdriver, PHILLIPS®, PH1	40
159.1021	ERGO+ screwdriver, PHILLIPS®, PH2	70
159.1024	ERGO+ screwdriver PH3, L=265mm	130
159.1198	ERGO+ 1/4" bit driver, magnetic, 205mm	90
204.5400	Spirit level, aluminium, 400mm	200
300.0060	Folding wood rule, metric, yellow, 2m	100
300.0133	PRECISION+ steel tape measure, 5mx25mm	150
500.7160	Precision screwdriver set, TX, 7pcs, T6-T20	100
517.0123	CLASSIC double OE spanner set, 11pcs	1600
577.0300	CLASSIC adjustable wrench, 300mm	690
907.2100	Hacksaw frame, 300mm	270
907.2165	Utility knife, snap off blade, 140mm	90
907.2262	Decorator's scraper, stainless, 38x225mm	70
911.2060	CLASSIC bit box, belt clip, 32pcs, 1/4"	300
911.2188	Electrical screwdriver, 150-250V	14
997.1215	Small handsaw, 150mm	100
999.2034	Gypsum cup, 0.75 litre	120
999.0125	Tool box metal	5600

### PIPELINE VIDEOSCOPE

#### ULTIMATE<sup>vision</sup> MASTER videoscope set with sensor drum

- Probe with dimensionally stable pushrod
- Flexible probe head for optimum bend flexibility
- 8 dimmable white mini LED lamps
- Mobile and network independent system
- Abrasion resistant, spring sheathed probe head shaft
- Excellent picture quality and viewing through special camera in the probe head
- Very good picture and video quality
- 1.5 times digital zoom function
- Horizontal picture reflection function
- Picture reception in JPEG format
- Video records in MPEG4-format
- View on large monitor with AV cable
- Data transfer directly through USB cable possible
- SD port for SD card
- Multi lingual menu (14 languages)
- Wide range of applications in pipes and shafts
- 2 Component housing protects against light impacts
- In durable plastic storage case

#### Contents:

Sensor drum with pushrod + camera head  
Basic unit ULTIMATE<sup>vision</sup> MASTER  
2 GB SD card



#### Technical data hand held unit:

Weight:	340g
Screen:	3,5" (TFT LCD QVGA)
Output format:	NTSC and PAL
Picture storage format:	JPEG (640 x 480)
Frames per second:	~ 30 bps
Compression format:	MPEG4
Storage medium:	SD card up to a max. 2 GB
Monitor:	16.7 Million colors
Rechargeable battery:	Li-Polymer 3,7 V (AC 100-240V / 50-60Hz)
Power requirement:	DC 5,5 - 1,8 A
Operating time:	ca. 4 h rechargeable battery
Protection class:	IP 68
Operating temperature:	-10 °C to +60 °C
Language manual:	DE, EN, FR, ES, IT, DA, ZH, RU, NL, AR, JA, PL, BG

#### Technical data probe head:

Length:	24,3 mm
Ø:	28,0 mm
Aperture angle:	diagonal 150.8°
Camera resolution:	320 (H) x 240 (V) = 76,800 Pixel
Focused depth of field:	10 ~ ∞ mm
AV Magnification:	is up to 15° over cinch
Light source:	8 dimmable white mini LED lamps
Brightness:	33 Lux
Operating temperature:	-10 °C to +60 °C
Camera protection:	designed out of sapphire glasse camera sheath made out of stainless steel
Bend radius:	max. 30 mm
Application:	40-100mm - 90° bend flexibility above Ø50mm

#### Technical data drum with pushrod:

Length:	22.0 m
Ø:	6 mm
Bend radius:	min. 150 mm
Operating temperature:	-10 °C up to +70 °C
Protection class:	IP 65
Drum Ø:	300 mm

550.7221	3 pcs	ULTIMATE <sup>vision</sup> MASTER videoscope set with sensor drum	10.60

### Brush for videoscope

- Suitable for use with videoscopes
- For centric use of the camera



	DN	L mm	
550.7228	100	150.0	64
550.7227	150	150.0	151

### Aluminium adaptor for videoscope

- Suitable for use with videoscopes



	Ø mm	L mm	
550.7229	50,0	36.0	61

### Alcohol cleaning set

- Suitable for all ULTIMATEvision Videoscopes



550.7998	Alcohol cleaning set 60

## GROUTING TOOLS

### Sealfix set

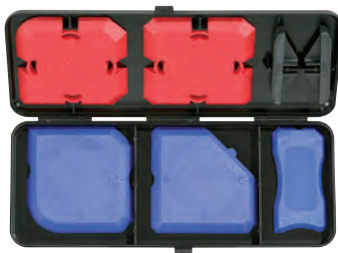
- For building sealants and expansion joints with silicone, acrylic, polyurethane, etc.
- Optimum working result without tedious masking
- Through working without a release agent optimum durability and adhesion of the joints
- Plastic
- In durable plastic storage case



116.1010	3 pcs Sealfix set 100

### Sealfix advanced set

- For building sealants and expansion joints with silicone, acrylic, polyurethane, etc.
- Optimum working result without tedious masking
- Through working without a release agent optimum durability and adhesion of the joints
- Tip slides allow easy traverse ready produced seams
- Plastic
- In durable plastic storage case



116.1020	6 pcs Sealfix advanced set 150

### FUGENFIX silicone scraper and wiper set

- For building sealants and expansion joints with silicone, acrylic, polyurethane, etc.
- Optimum working result without tedious masking
- With different radius adapters
- For dressing silicone
- Optimum adhesion and durability of the joints due to the absence of a parting agent
- Plastic



116.1050	7 pcs FUGENFIX silicone scraper and wiper set 115

### consists of:

116.1040	Silicone scraper f. replaceable attachments 300
116.1030	Silicone scraper 220
116.1040-03R	Attachment f. silicone scraper 03 R, pack of 1 14
116.1040-06R	Attachment f. silicone scraper 06 R, pack of 1 14
116.1040-10R	Attachment f. silicone scraper 10 R, pack of 1 15
116.1040-13R	Attachment f. silicone scraper 13 R, pack of 1 16
116.1040-17R	Attachment f. silicone scraper 17 R, pack of 1 16



## MILLING CUTTERS AND PUNCHES

### Tap seating milling set 3/8" - 1"

- For accurate milling when the valve seats cause leaking taps
- Adjustable via spring milling head and regulation screw
- Fits all standard threaded fittings by graded cylindrical which is included
- Interchangeable cutter
- In durable metal storage case



136.1100	5 pcs Tap seating milling set 3/8" - 1" 870

### consists of:

136.1000	TAP RES. HANDLE ONLY (in bulk)w/o milling-cutter 190
136.1003	Mill, 3/8" x 14 mm OD 20
136.1004	Mill, 1/2" x 17 mm OD 20
136.1005	Mill, 3/4" x 24 mm OD 20
136.1006	Mill, 1" x 28 mm OD 20

### Tap seating milling set 1/4" - 1"

- For accurate milling when the valve seats cause leaking taps
- Adjustable via spring milling head and regulation screw
- Fits all standard threaded fittings by graded cylindrical which is included
- Interchangeable cutter
- In durable plastic storage case



136.1105	6 pcs Tap seating milling set 1/4" - 1" 870

### consists of:

136.1000	TAP RES. HANDLE ONLY (in bulk)w/o milling-cutter 190
136.1002	Mill, 1/4" x 12 mm 20
136.1003	Mill, 3/8" x 14 mm OD 20
136.1004	Mill, 1/2" x 17 mm OD 20
136.1005	Mill, 3/4" x 24 mm OD 20
136.1006	Mill, 1" x 28 mm OD 20

## Screw hole punch

- 3 point gate
- High strength bolt
- Positive cutting edge geometry
- To that separating from thin sheet metals
- For difficult to access areas
- Burnished surface
- Special tool steel

Ideally usable in V2A sheet to 1.5 mm, aluminum, copper, steel as well as stainless steel and plastics. The sheet metal thicknesses can be exceeded at the expense of screw. Especially suited for burr free, clean, effortless and fast punching.



	D mm	Standard	Replacement tension screw	Tension screw	Tapping holeContent	Weight
129.0012	12.5	ISO 12	129.0001	MF 8 x 1 x 55,0	9 1	72
129.0013	12.7	PG 7	129.0001	MF 8 x 1 x 55,0	9 1	73
129.0015	15.2	PG 9	129.0001	MF 8 x 1 x 55,0	9 1	94
129.0016	16.5	ISO 16	129.0001	MF 8 x 1 x 55,0	9 1	96
129.0018	18.6	PG 11	129.0001	MF 8 x 1 x 55,0	9 1	112
129.0020	20.4	PG 13	129.0002	MF 12 X 1,5 X 55	13 1	160
129.0021	20.5	ISO 20	129.0002	MF 12 X 1,5 X 55	13 1	161
129.0022	22.5	PG 16	129.0002	MF 12 X 1,5 X 65	13 1	164
129.0025	25.4	ISO 12	129.0002	MF 12 X 1,5 X 65	13 1	185
129.0026	25.5	ISO 25	129.0002	MF 12 X 1,5 X 65	13 1	186
129.0028	28.3	PG 21	129.0002	MF 12 X 1,5 X 65	13 1	212
129.0030	30.5	ISO 12	129.0002	MF 12 X 1,5 X 65	13 1	250
129.0032	32.5	ISO 32	129.0002	MF 12 X 1,5 X 65	13 1	252
129.0035	35.0	ISO 12	129.0002	MF 12 X 1,5 X 65	13 1	378
129.0037	37.0	PG 29	129.0002	MF 12 X 1,5 X 65	13 1	380
129.0038	38.0	ISO 12	129.0002	MF 12 X 1,5 X 65	13 1	394
129.0040	40.5	ISO 40	129.0002	MF 12 X 1,5 X 65	13 1	398
129.0047	47.0	PG 36	129.0003	MF 16 x 1,5 x 75,0	18 1	834
129.0050	50.5	ISO 50	129.0003	MF 16 x 1,5 x 75,0	18 1	768
129.0054	54.0	PG 42	129.0003	MF 16 x 1,5 x 75,0	18 1	964

## Screw hole punch with chip break

- With 3 point gate
- High strength bolt
- Positive cutting edge geometry
- To that separating from thin sheet metals
- For difficult to access areas
- Burnished surface
- Special tool steel

Ideally usable in V2A sheet up to 1.5 mm aluminium, copper sheet metal and iron sheet metal to 2.0 mm as well as stainless steel and plastics. The sheet metal thicknesses can be exceeded at the expense of screw. Especially suited for burr free clean, effortless and fast punching.



	D mm	Standard	Replacement tension screw	Tapping hole	Weight
129.0204	16.5	ISO 16	129.0001	9	125
129.0205	18.6	PG 11	129.0001	9	145
129.0206	20.4	PG 13	129.0002	13	170
129.0207	20.5	ISO 20	129.0002	13	170
129.0208	22.5	PG 16	129.0002	13	190
129.0209	25.4	ISO 12	129.0002	13	200
129.0210	25.5	ISO 25	129.0002	13	200
129.0211	28.3	PG 21	129.0002	13	310
129.0212	30.5	ISO 12	129.0002	13	340
129.0213	32.5	ISO 32	129.0002	13	345
129.0214	35.0	ISO 35	129.0002	13	480

## TEST PUMPS

### Pressure test pump

- Operating pressure max. 20 bar
- Tank capacity 12 litre's
- 2 lock valves
- Low lying pressure gauge with protective cover
- Pump lever with a locking chain
- Inclusive 1.5 m high pressure hose with steel mesh reinforcement and 1/2" connector
- Red powder coating
- Monobloc version
- Piston made of plastic



	B mm	H mm	L mm	Weight
902.1004	195.0	222.0	505.0	7.00

### Stainless steel pressure test pump

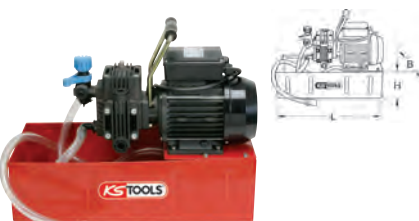
- Operating pressure max. 20 bar
- Tank capacity 12 litre's
- 2 lock valves
- Low lying pressure gauge with protective cover
- Pump lever with a locking chain
- Inclusive 1.5 m high pressure hose with steel mesh reinforcement and 1/2" connector
- Monobloc version
- Piston made of plastic



	B mm	H mm	L mm	Weight
902.2004	195.0	222.0	505.0	6.70

### Electric pressure test pump

- Operating pressure max. 20 bar
- Tank capacity 12 litre's
- Flow rate: 13.5 l/min
- Power 600W
- Rotational speed 1,400 rpm
- 220V power supply
- For using to test closed fluid systems
- Inclusive 1,5 m high pressure hose with 1/2" connector
- Red powder coating
- Brass piston pumps
- Tank made of galvanized steel



	B mm	H mm	L mm	Weight
902.3004	195.0	222.0	505.0	16.90

## Auxiliary gauge

- Max. 12 bar
- By using the auxiliary gauge can be used to pressure test pump for further tests
- 1/2" Internal and external threaded connector
- Special steel



	B mm	L mm	Weight
902.1005	63.0	226.0	600

## RADIATOR TRANSPORT TROLLEY

### Radiator transport trolley

- Practical transport trolley to transport radiators
- With automatic brake
- Max. payload: 150 kg
- Max. height 370 mm
- Special steel

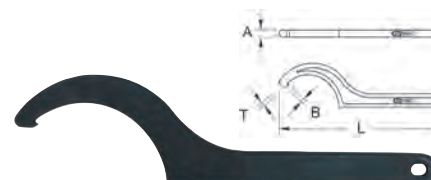


	B mm	H mm	SL mm	SB mm	Weight
160.0230	610.0	980.0	420.0	195.0	30.00

## HOOK WRENCH

### Fixed hook wrench with nose

- In accordance to DIN 1810 Form A
- With hanging hole
- For slotted nuts
- Burnished
- Chrome vanadium

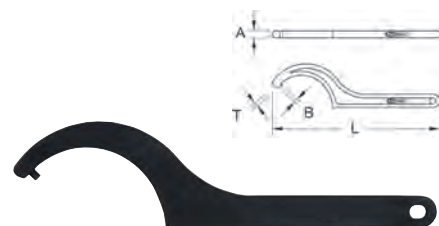


	mm	A mm	B mm	L mm	T mm	Weight
517.1370	12 - 14	2.5	2.0	109.5	1.5	22
517.1371	16 - 20	2.5	2.0	109.5	1.5	22
517.1372	25 - 28	4.0	2.5	135.9	2.0	36
517.1373	30 - 32	4.0	2.5	135.9	2.0	38
517.1374	34 - 36	5.0	3.0	170.2	2.0	82
517.1375	40 - 42	5.0	3.0	170.3	2.0	76
517.1376	45 - 50	6.0	3.5	195.0	2.0	132
517.1377	52 - 55	7.0	3.5	220.0	2.5	178
517.1378	58 - 62	7.0	4.0	240.0	2.5	224
517.1379	68 - 75	7.6	4.0	260.0	3.0	282
517.1380	80 - 90	8.0	5.0	280.0	3.5	368
517.1381	92 - 100	8.0	5.0	280.0	3.5	394
517.1382	110 - 115	9.5	5.0	334.9	4.0	588
517.1383	120 - 130	9.5	5.0	334.9	4.0	540



### Fixed hook wrench with pin

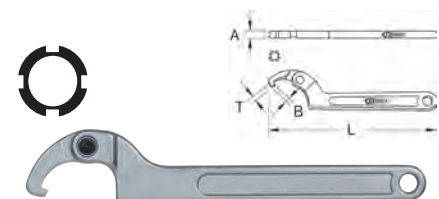
- In accordance to DIN 1810 Form B
- With hanging hole
- For pin type round nuts
- Burnished
- Chrome vanadium



	mm	A mm	B mm	L mm	T mm	kg
517.1471	12 - 14	3.8	2.0	110.0	1.5	0.03
517.1472	16 - 18	4.5	2.5	135.0	2.0	0.04
517.1473	20 - 22	4.5	2.5	135.0	2.0	0.04
517.1474	25 - 28	5.5	3.0	170.0	2.5	0.07
517.1488	30 - 32	5.5	3.0	170.0	2.5	0.08
517.1476	12 - 14	6.5	3.5	205.0	3.0	0.13
517.1477	12 - 14	3.8	3.5	205.0	3.0	0.13
517.1478	45 - 50	7.5	4.0	240.0	3.5	0.20
517.1479	52 - 62	7.5	4.0	240.0	3.5	0.21
517.1480	58 - 62	8.5	5.0	280.0	4.0	0.28
517.1481	68 - 75	8.5	5.0	280.0	4.0	0.28
517.1482	80 - 90	10.3	5.0	335.0	4.0	0.49
517.1483	95 - 100	10.3	5.0	335.0	4.0	0.49
517.1484	110 - 115	12.3	6.0	385.0	5.0	0.84
517.1485	120 - 130	12.3	6.0	385.0	5.0	0.82
517.1486	135 - 145	14.3	6.0	465.0	5.0	1.45
517.1487	155 - 165	14.3	6.0	465.0	5.0	1.45

### Hook wrench with nose

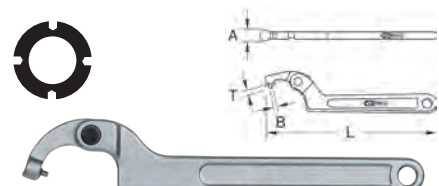
- In accordance to DIN 1810 Form A
- With flexible head
- With hanging hole
- For slotted nuts
- Matt finish
- Chrome vanadium



	mm	A mm	B mm	L mm	T mm	kg
517.1316	13 - 35	5.2	3.2	175.0	3.2	80
517.1317	35 - 50	5.9	4.0	202.0	4.2	186
517.1318	50 - 80	7.5	4.9	280.0	5.2	382
517.1319	80 - 120	8.2	5.3	345.0	5.8	642
517.1320	120 - 180	10.8	8.9	465.0	7.8	1286

### Flexible hook wrench with pin

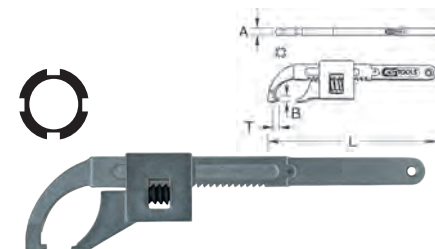
- In accordance to DIN 1810 Form B
- With flexible head
- With hanging hole
- For pin type round nuts
- Matt finish
- Chrome vanadium



	mm	A mm	B mm	L mm	T mm	kg
517.1323	15 - 35	9.8	2.8	177.0	2.8	100
517.1324	35 - 50	10.7	3.8	202.0	3.6	186
517.1325	50 - 80	14.0	4.8	280.0	5.0	382
517.1326	80 - 120	17.2	5.8	345.0	7.0	642
517.1327	120 - 180	19.2	7.8	465.0	9.0	1286

### Hook wrench with nose

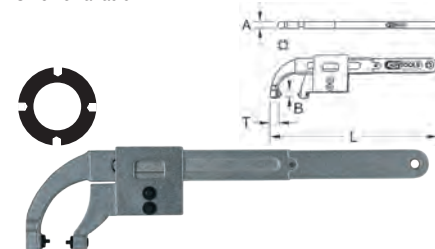
- In accordance to DIN 1810 Form A
- With flexible head
- With hanging hole
- For slotted nuts
- Matt finish
- Chrome vanadium



	mm	A mm	B mm	L mm	T mm	kg
517.1397	10 - 50	7.6	4.2	210.0	4.5	380
517.1398	20 - 100	8.2	6.8	360.0	5.5	840
517.1399	30 - 200	10.6	9.4	570.0	7.0	2250

### Flexible hook wrench with pin

- In accordance to DIN 1810 Form B
- With flexible head
- With hanging hole
- For pin type round nuts
- Matt finish
- Chrome vanadium



	mm	A mm	B mm	L mm	T mm	kg
517.1328	10-50	8.3	2.6	210.0	2.5	380
517.1329	20-100	12.3	4.0	360.0	4.5	840
517.1330	30-200	17.3	5.8	570.0	4.8	2250

### VICES

#### Pipe vice

- Hinged
- Special steel



	Clamping range mm	Clamping range	kg
914.0010	10,0 - 60,0	1/8" - 2"	6.88
914.0011	10,0 - 89,0	1/8" - 3"	6.88

#### Chain pipe vice

- Hinged
- V shaped pipe rest with teeth
- Interchangeable jaws
- Special steel



	Clamping range mm	Clamping range	kg
914.0012	10,0 - 76,0	1/8" - 2 1/2"	1.90
914.0014	10,0 - 114,0	1/8" - 4"	4.50
914.0016	10,0 - 165,0	1/8" - 6"	8.50

### Bench vice

- Swivel base
- Interchangeable jaws
- Includes pipe vice attachment
- Absolutely parallel with adjustable centric drive
- Extra high possible clamping jaws shaped by large embossed casting
- Large anvil for straightening and compression work
- Induction hardened jaws and anvil
- Vice forward opening
- Ground jaws, anvil plate and slide corners
- Special steel

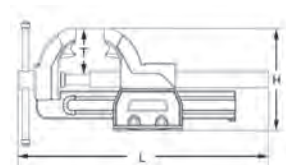


	Jaw length	Jaw length mm	Clamping range mm	kg
914.0003	3"	75.0	100,0	7.50
914.0004	4"	100.0	120,0	8.70
914.0005	5"	130.0	140,0	11.00
914.0006	6"	150.0	170,0	14.50
914.0008	8"	200.0	200,0	20.50



### Bench vice

- With adjusting screw and pipe clamps
- Forged front and rear jaws
- Extra high possible clamping jaws shaped by large embossed casting
- Durable prismatic guide
- With mounting screws for turntable
- Induction hardened jaws and anvil
- Double start trapezoidal thread for quick opening and closing
- Vice forward opening
- Ground jaws, anvil plate and slide corners
- Special steel



	Jaw length mm	Clamping range mm	T mm	H mm	L mm	Cutout e mm	kg
914.0026	100.0	125.0	70.0	140.0	320.0	12.0	5.00
914.0031	125.0	155.0	80.0	180.0	395.0	14.0	11.00
914.0036	150.0	180.0	98.0	220.0	485.0	16.0	20.00
914.0041	175.0	205.0	110.0	240.0	550.0	18.0	29.00

### Turntable for bench vice

- Ideal supplement for KS-vices 914.0027 - 914.0041
- Enables accurate positioning of the workpiece
- 360° freely rotatable
- Safe and quick locking via handle
- Flat and stable construction
- Inclusive fastening screws for vice




		Ø mm	
914.0027	914.0026	100,0	1.40

### Bench vice with turntable

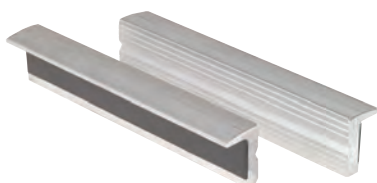
- With adjusting screw and pipe clamps
- Forged front and rear jaws
- Extra high possible clamping jaws shaped by large embossed casting
- Durable prismatic guide
- With mounting screws for turntable
- Induction hardened jaws and anvil
- Double start trapezoidal thread for quick opening and closing
- Vise forward opening
- Ground jaws, anvil plate and slide corners
- Special steel




		Jaw length mm	
914.0030	2 pcs	125.0	13.80
914.0035	2 pcs	150.0	23.75
914.0040	2 pcs	175.0	33.85

### Aluminium bench vice protective jaws with textured surface

- Suitable for all bench vices
- The profile is right angled and level parallel
- Integrated special magnet hold the protective jaws safely on the vice
- For material protection and non slip grip on sensitive materials
- For coarse to medium fine work pieces
- Fine textured
- Aluminium




	Protective jaws mm	
914.0080	100.0	170
914.0081	120.0	210
914.0082	140.0	240
914.0083	160.0	270
914.0084	175.0	290

### Aluminium bench vice protective jaws with trapezoid notches

- Suitable for all bench vices
- The profile is right angled and level parallel
- Integrated special magnet hold the protective jaws safely on the vice
- For material protection and non slip grip on sensitive materials
- For different shaped materials
- For trapezoid use
- Aluminium




	Protective jaws mm	
914.0085	100.0	140
914.0086	120.0	190
914.0087	140.0	210
914.0088	160.0	240
914.0089	175.0	260

### Aluminium bench vice protective jaws with rubber insert

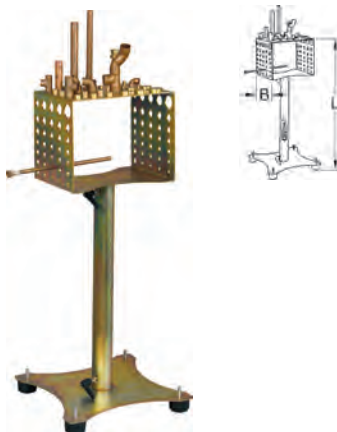
- Suitable for all bench vices
- The profile is right angled and level parallel
- Integrated special magnet hold the protective jaws safely on the vice
- For material protection and non slip grip on sensitive materials
- For thin walled wood and plastic parts
- Smooth
- Aluminium / rubber



	Protective jaws mm	
914.0090	100.0	160
914.0091	120.0	200
914.0092	140.0	240
914.0093	140.0	260
914.0094	175.0	290

### Soldering vice

- Special steel



	B mm	L mm	
914.0020	255.0	990.0	13.20

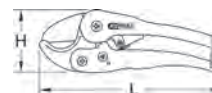



Spirit levels can be found in the Measuring and testing tools section.

### PLASTIC PIPE PROCESSING

#### Plastic pipe cutter

- For PE, PP and PVDF pipes
- Stainless steel blade
- Die cast body




	Ø mm	H mm	L mm	
222.0001	0 - 32,0	70,0	200,0	222.0011 290
222.0002	0 - 42,0	95,0	220,0	222.0012 430
222.0003	0 - 63,0	135,0	430,0	222.0013 1200
222.0004	0 - 75,0	175,0	480,0	222.0014 1600

#### Automatic plastic pipe cutter 0 - 42 mm

- For PE, PP and PVDF pipes
- Stainless steel blade
- Die cast body




	Ø mm	H mm	L mm	
222.0005	0 - 42,0	105,0	230,0	222.0015 600

#### Hose cutter

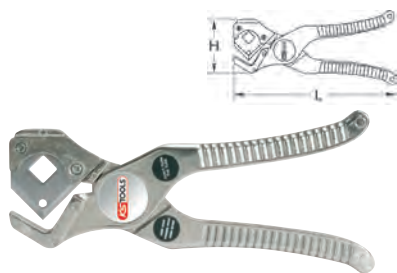
- Teflon coated blade
- Aluminium die cast body



	Ø mm	H mm	L mm	
222.2051	0 - 37,0	95,0	210,0	222.2052 80

### Hose cutter

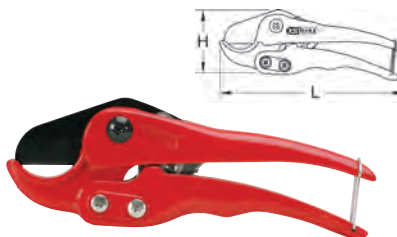
- Aluminium die cast body



	Ø mm	H mm	L mm		kg
222.2060	6,0 - 25,0	50,0	185,0	222.2061	300
222.2062	6,0 - 35,0	52,0	250,0	222.2061	420

### Plastic pipe cutter Ø 0 - 32 mm

- Teflon coated cutting blades
- Aluminium die cast body



	Ø mm	H mm	L mm		kg
222.1001M	0 - 32,0	71,0	205,0	222.1011M	320

### Plastic pipe cutting pistol Ø 6 - 35 mm

- Adjustable cutting feed through pushing the hand grips
- With knife locking knob for easy adjustment of the knife
- For thin walled plastic pipes up to max. Ø 5 mm
- Die cast body



	Ø mm	H mm	L mm		kg
222.1100	6,0 - 35,0	160,0	190,0	222.1101	630

### Plastic pipe cutting pistol Ø 6 - 42 mm

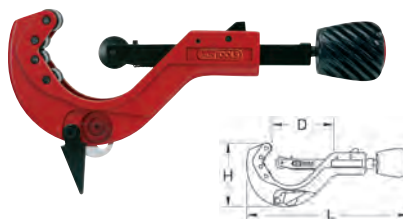
- Two stage cutting range 6 to 26 mm + 6 - 42 mm
- Adjustable cutting feed through pushing the hand grips
- With knife locking knob for easy adjustment of the knife
- For thin walled plastic pipes up to max. Ø 5 mm
- Die cast body



	Ø mm	H mm	L mm		kg
222.3100	6,0 - 42,0	220,0	210,0	222.3101	750

### Automatic ratchet pipe cutter for plastic pipe

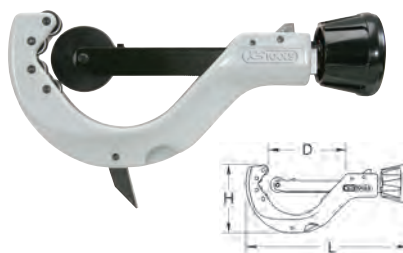
- With folding internal deburrer
- Includes spare wheel under the cover cap on the rotary handle
- Quick through ratchet telescopic guide with automatic spring return
- Cutting depth max. 5 mm
- With 4 support rollers
- With large knurled knob
- Metal housing
- Special steel



	L mm	D mm	H mm	Metal	V/A	Plastic	kg
222.0660	225,0	6,0 - 64,0	90,0	222.0665	-	222.0666	500

### Automatic ratchet pipe cutter for copper pipe

- With folding internal deburrer
- Includes spare wheel under the cover cap on the rotary handle
- Quick through ratchet telescopic guide with automatic spring return
- Plastic cutter can be retrofitted
- With 4 support rollers
- With large knurled knob
- Metal housing
- Special steel



	D mm	H mm	L mm	Metal	V/A	Plastic	kg
222.0750	15,0 - 80,0	100,0	250,0	222.0752	-	222.0751	800

### Automatic ratchet pipe cutter for plastic pipe

- Includes spare wheel on the rotary handle
- Quick through ratchet telescopic guide with automatic spring return
- Metal cutter can be retrofitted
- Cutting depth max. 19 mm
- With 2 support rollers
- With large knurled knob
- Metal housing
- Special steel



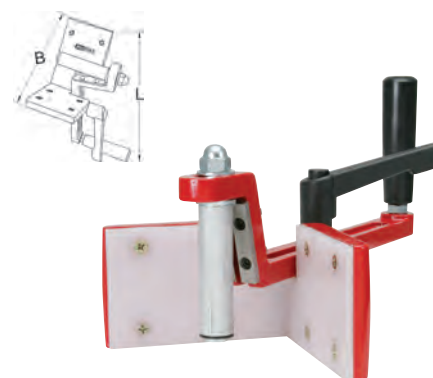
	D mm	H mm	L mm	Metal	kg
222.1250	50,0 - 140,0	150,0	350,0	222.0752	1.54
222.1680	100,0 - 168,0	190,0	385,0	-	1.60

### replacement blade

			kg
222.0011	222.0001	60	
222.0012	222.0002	70	
222.0013	222.0003	150	
222.0014	222.0004	200	
222.0015	222.0005	50	
222.1011M	222.1001M	30	
222.1101	222.1100	60	
222.2052	222.2051	40	
222.2061	222.2060	60	
222.3101	222.3100	50	

### Plastic pipe chamfering device Ø 25 - 168 mm

- 15° Chamfering angle
- Flexible application
- Pipe wall thickness continuously adjustable during cutting application
- Special steel



	Ø mm	B mm	L mm	Replacement blades	kg
222.5050	25,0 - 120,0	140,0	176,0	222.5051	850

### Cutting and chamfering basic units CK 110

- For cutting thin and thick walled plastic pipes
- Uniform chamfering of the entire pipe circumference
- Continuously adjustable tube clamping force
- Includes cutter plate 900.5029



		kg
222.5000	Cutting and chamfering basic units CK 110	3.25





### Cutting and chamfering kit CK110

- For cutting thin and thick walled plastic pipes
- Uniform chamfering of the entire pipe circumference
- Continuously adjustable tube clamping force
- In durable plastic storage case



222.5100	7 pcs	Cutting and chamfering kit CK110	4.60

consists of:

205.2020	Deburring tool, 140x21mm	60	
222.5000	Separation and chamfer tool CK110, without accessories	3250	
222.5003	Reducing jaws f.222.5100, 2pcs, Ø 50mm	240	
222.5007	Reducing jaws f.222.5100, 2pcs, Ø 75mm	240	
850.0505	Tool box, plastic, 475x245x240mm	1700	

### Cutting and chamfering kit

- For cutting downpipes
- Uniform chamfering of the entire pipe circumference
- Continuously adjustable tube clamping force
- In durable plastic storage case



222.5110	6 pcs	Cutting and chamfering kit	4.91

consists of:

222.5000	Separation and chamfer tool CK110, without accessories	3250	
222.5009	Reducing jaws f.222.5100, 2pcs, Ø 80mm	240	
222.5011	Reducing jaws f.222.5100, 2pcs, Ø 100mm	240	
222.5106	Cutting tool shank, 80mm	100	
850.0505	Tool box, plastic, 475x245x240mm	1700	

### Cutting and chamfering kit CK160

- For cutting thick walled plastic pipes
- Uniform chamfering of the entire pipe circumference
- Continuously adjustable tube clamping force
- In durable plastic storage case



222.5200	7 pcs	Cutting and chamfering kit CK160	5.80

consists of:

205.2020	Deburring tool, 140x21mm	60	
222.5220	Separation and chamfer tools, 160 mm	3600	
222.5210	Reducing jaws f.CK-160, 2pcs, Ø 110mm	200	
222.5211	Reducing jaws f.CK-160, 2pcs, Ø 125mm	200	
850.0505	Tool box, plastic, 475x245x240mm	1700	

### Bench clamp for chamfering kit CK110

- Special steel



	H mm		
222.5102	200.0	380	

### Bench clamp for chamfering kit CK160

- With 2 clamping arms
- Special steel



	B mm	H mm	
222.5202	210.0	170.0	1.10

### Reducing jaw set for chamfering kit CK110

- Plastic jaws



	Ø mm	B mm	L mm	
222.5001	32,0	56,0	108,0	240
222.5002	40,0	56,0	108,0	240
222.5003	50,0	56,0	108,0	240
222.5004	56,0	57,0	110,0	240
222.5005	58,0	57,0	110,0	240
222.5006	63,0	57,0	110,0	240
222.5007	75,0	73,0	110,0	240
222.5008	78,0	56,0	110,0	240
222.5009	80,0	56,0	110,0	240
222.5010	90,0	56,0	110,0	240
222.5011	100,0	56,0	110,0	240
222.5012	52,0	56,0	110,0	240
222.5014	87,0	56,0	110,0	240

### Reducing jaw set for chamfering kit CK160

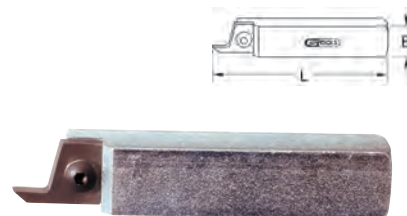
- Plastic jaws



	Ø mm	B mm	L mm	
222.5210	110,0	56,0	160,0	200
222.5211	125,0	56,0	160,0	200
222.5212	135,0	56,0	160,0	200
222.5213	140,0	56,0	160,0	200

### Cutting tool shaft includes cutting tool for CK110

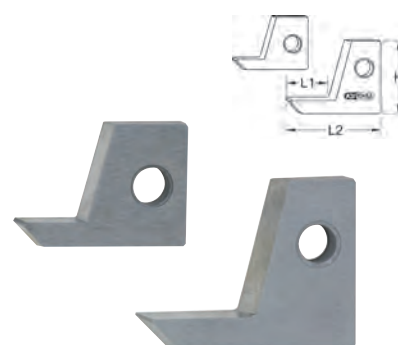
- For thin walled plastic pipe
- Special steel



	B mm	L mm	
222.5105	19.0	89.0	120

### Replacement carbide cutting blade for CK110 + CK160

- For thin and thick walled plastic pipe
- Cutting depth max. 10mm + 15.5mm
- Special steel



	Cutting depth mm	H mm	L mm	
900.5019	15.5	20.3	25.5	20
900.5029	10.0	14.7	20.2	10

### Cutting tool shaft includes replacement cutter for CK110 + CK160

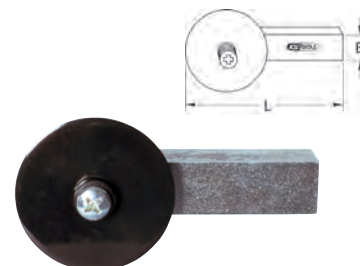
- For thin walled plastic pipes
- Special steel



	B mm	L mm	Metal	V/A	Plastic	
222.5106	16.0	80.0	-	-	101.1010	100

### Cutting tool shaft includes replacement cutter for CK110 + CK160

- For thick walled plastic pipes
- Special steel



	B mm	L mm	Metal	V/A	Plastic	
222.5104	16.0	90.0	-	-	222.0751	120

## WELDING

### Sleeve welding tool set 650 W

- Thermostatic control from 180 °C - 280 °C
- Increased thermal efficiency
- Optimized welding with new heat sword device
- Teflon coated welding extensions
- Supplied in durable metal storage case



207.6500	6 pcs	Sleeve welding tool set 650 W	8.60	

consists of:

207.6501	Sleeve welding tool, 650 W	2000		
206.6511	Bench clamp for sleeve welding tool	495		
207.1020	Attachment f.207.6500, 20mm	110		
207.1025	Attachment f.207.6500, 25mm	140		
207.1032	Attachment f.207.6500, 32mm	190		

### Sleeve welding tool

- Thermostatic control from 180 °C - 280 °C
- Increased thermal efficiency
- Optimized welding with new heat sword device
- Includes floor stand



	B mm	L mm		
207.6501	85.0	370.0	2.00	

### Welding attachment for sleeve welding tool

- Teflon coated



	Ø mm	B mm	L mm		
207.1016	16.0	38.0	61.0	80	
207.1020	20.0	43.0	52.0	110	
207.1025	25.0	46.0	52.0	140	
207.1032	32.0	48.0	59.0	190	
207.1040	40.0	57.0	61.0	290	
207.1050	50.0	61.0	61.0	410	
207.1063	63.0	130.0	78.0	720	

### Heater element 800 W

- Temperature adjustable from 50 °C - 260 °C
- For pipe up to max. Ø 180 mm
- For efficient butt welding of plastic pipes and fittings
- Optimal temperature distribution
- Includes stand and holding device for machine tools
- 220 V power supply



	D mm	L mm		
222.0800	180.0	340.0	4.10	

## BURNING & SOLDERING

### Universal cartridge soldering torch with piezo ignition

- Flame temperature 1700 °C
- Operating temperature around 650 °C
- Pipe diameter max. Ø 22 mm
- Supplied without gas cartridge
- Use only with standard high performance burner
- Plastic body



	H mm	L mm		
903.5902	165.0	270.0	890	

### Universal cartridge soldering torch with piezo ignition

- Flame temperature 1700 °C
- Operating temperature around 650 °C
- Pipe diameter max. Ø 22 mm
- Supplied without gas cartridge
- Use only with standard high performance burner
- Metal body



	H mm	L mm		
903.5905	165.0	270.0	640	

### Universal cartridge soldering torch

- Flame temperature 1700 °C
- Operating temperature around 650 °C
- Pipe diameter max. Ø 22 mm
- Supplied without gas cartridge
- Plastic body



	H mm	L mm		
903.5901	168.0	255.0	890	

### Universal cartridge soldering torch

- Flame temperature 1700 °C
- Operating temperature around 650 °C
- Pipe diameter max. Ø 22 mm
- Supplied without gas cartridge
- Metal body



	H mm	L mm		
903.5904	158.0	250.0	780	

### Burner accessories kit

- Burner accessories suitable for 903.5901 + 903.5904
- Special steel



903.5910	3 pcs	Burner accessories kit	300	

consists of:

903.5911	Soldering iron tip attachment	100		
903.5912	Pipe soldering attachment up to 22 mm	100		
903.5913	Flat nozzle 40 mm	100		

### Magnetic welding mirrors

- Mirror chrome
- Flexible arm
- Special steel



	B mm	L1 mm	L2 mm	kg
903.6000	70.0	500.0	80.0	470

### Flame proof mats

- Asbestos free
- Reduced fire risk
- Very flexible
- Good formability



	B mm	L mm	max. °C	kg
610.3350	330.0	500.0	700	330
610.3351	460.0	800.0	700	650
610.3399	1500.0	2000.0	600	2110

### PIPE CLEANING

#### Toilet unblocker

- Flexible use, even in hard to reach places
- No damage to ceramic surfaces due to the plastic coating on the elbow
- With bulbous head
- Crank drive



	D mm	L1 mm	L2 mm	kg
900.1996	30.0	1090.0	900.0	200

#### Pipe and drain cleaner

- Pipe cleaning device with funnel spiral and bulbous end for use in very narrow pieces of pipe elbows up to Ø 50 mm without removing the sink sleeves or siphons
- With a hexagonal chuck for clamping manual drive
- Impact resistant, closed plastic container



	Ø mm	Spiral length m	B mm	L mm	Replacement spiral	kg
900.1990	6.0	4.5	140.0	290.0	900.2522	1.60

#### Pipe and drain cleaner

- Pipe cleaning device with funnel spiral and bulbous end for use in very narrow pieces of pipe elbows up to Ø 75 mm without removing the sink sleeves or siphons
- With a hexagonal chuck for clamping
- Can be drive either by hand or drilling machine
- Impact resistant, closed plastic container



	Ø mm	Spiral length m	B mm	L mm	Replacement spiral	kg
900.1995	7,6	7,5	208,0	319,0	900.2416	3,40
900.2000	9,6	9,5	208,0	319,0	900.2422	5,10



#### Channel and pipe cleaning machine KS 600

- Universal applications for both indoors and outdoors
- One man pipe cleaning system
- Practical service unit for mobile use
- Splash proofed
- Spiral electromechanical actuator
- Two sided level of control allows for operation even on inclined surfaces
- Included guide hose so kink free work is guaranteed
- Can work with 16 mm + 22 mm coils without changing the clamping jaws
- For coils with direct fitting of 16 mm + 22 mm
- Optionally, for 8 mm + 10 mm spirals with adapter magazine
- Including 4 m guide tube for 16 mm + 22 mm spirals
- Motor: 230 V, 0.4 KW - right - left drive
- Speed: 620 rpm
- Operating range: for pipes Ø 20.0 - 150.0 mm
- Working length:
  - 10 m - 8 mm-Spiral
  - 10 m - 10 mm-Spiral
  - 50 m - 16 mm-Spiral
  - 60 m - 22 mm-Spiral



	H mm	L mm	kg
900.2780	380.0	420.0	20.90

#### Channel and pipe cleaning tool kit Ø 16 mm

- Pipe cleaning tool kit with spiral with a diameter of 16 mm
- Includes Spiral basket for safe keeping of the spiral



	kg
900.1916 13 pcs Channel and pipe cleaning tool kit Ø 16 mm	9.10

#### consists of:

	kg
900.2100 Springs separation key, f.16mm	20
900.2110 Spiral basket, Ø 450mm, spirale 16mm	1250
900.2121 Guiding glove, left	210
900.2161 Straight head, Ø 16mm, spirale 16mm	60
900.2162 Spring recovery head, Ø35mm, spirale 16mm	40
900.2163 Bulbous head, Ø 28mm, spirale 16mm	70
900.2169 Arrow shaped head, Ø 25mm, spirale 16mm	40
900.2175 Crossed leaf shaped head, Ø 25mm	40
900.2431 Standard drain cleaning springs, Ø 16mm	1050

#### Channel and pipe cleaning tool kit Ø 16 mm

- Pipe cleaning tool kit with spiral with an internal diameter of 16 mm
- Includes Spiral basket for safe keeping of the spiral



	kg
900.1917 13 pcs Channel and pipe cleaning tool kit Ø 16 mm	9.10

#### consists of:

	kg
900.2100 Springs separation key, f.16mm	20
900.2110 Spiral basket, Ø 450mm, spirale 16mm	1250
900.2121 Guiding glove, left	210
900.2161 Straight head, Ø 16mm, spirale 16mm	60
900.2162 Spring recovery head, Ø35mm, spirale 16mm	40
900.2163 Bulbous head, Ø 28mm, spirale 16mm	70
900.2169 Arrow shaped head, Ø 25mm, spirale 16mm	40
900.2175 Crossed leaf shaped head, Ø 25mm	40
900.2433 SMK drain cleaning springs, Ø 16mm	1240

#### Channel and pipe cleaning tool kit Ø 22 mm

- Pipe cleaning tool kit with spiral with a diameter of 22 mm
- Includes spiral basket for safe keeping of the spiral



	kg
900.1922 14 pcs Channel and pipe cleaning tool kit Ø 22 mm	22.83

#### consists of:

	kg
900.2101 Springs separation key, f.22 and 32mm	30
900.2112 Spiral basket, Ø 470mm, spirale 22mm	1600
900.2121 Guiding glove, left	210
900.2221 Straight head, Ø 22mm	170
900.2222 Funnel shaped head, Ø 55mm	280
900.2234 Arrow shaped head, Ø 45mm	110
900.2255 Crossed leaf shaped head, Ø 55mm	140
900.2223 Spring recovery head, Ø 45mm	110
900.2263 Bulbous head, Ø 40mm	220
900.2441 Standard drain cleaning springs, Ø 22mm	4000



### Channel and pipe cleaning tool kit Ø 22 mm

- Pipe cleaning tool kit with spiral with an internal diameter of 22 mm
- Includes spiral basket for safe keeping of the spiral



900.1923	14 pcs	Channel and pipe cleaning tool kit Ø 22 mm	25.13

#### consists of:

900.2101	Springs separation key, f.22 and 32mm	30
900.2112	Spiral basket, Ø 470mm, spirale 22mm	1600
900.2121	Guiding glove, left	210
900.2221	Straight head, Ø 22mm	170
900.2222	Funnel shaped head, Ø 55mm	280
900.2234	Arrow shaped head, Ø 45mm	110
900.2255	Crossed leaf shaped head, Ø 55mm	140
900.2203	Spring recovery head, Ø 45mm	110
900.2263	Bulbous head, Ø 40mm	220
900.2442	SMK drain cleaning springs, Ø 22mm	4650

### Channel and pipe cleaning tool kit ø 16 mm + 22 mm

- Pipe cleaning tool kit with spiral with a diameter of 16 + 22 mm
- Includes spiral basket for safe keeping of the spiral
- Includes pipe cleaning machine
- Motor: 230 V, 0,4 KW - right left drive
- Speed: 620 rpm
- Operating range: for pipes Ø 20 - 150 mm
- Working length:
  - 10 m - 8 mm-Spiral
  - 10 m - 10 mm-Spiral
  - 50 m - 16 mm-Spiral
  - 60 m - 22 mm-Spiral



900.2790	29 pcs	Channel and pipe cleaning tool kit ø 16 mm + 22 mm	29.00

#### consists of:

900.2100	Springs separation key, f.16mm	0.02
900.2101	Springs separation key, f.22 and 32mm	0.03
900.2110	Spiral basket, Ø 450mm, spirale 16mm	1.25
900.2112	Spiral basket, Ø 470mm, spirale 22mm	1.60
900.2121	Guiding glove, left	0.21
900.2161	Straight head, Ø 16mm, spirale 16mm	0.06
900.2162	Spring recovery head, Ø35mm, spirale 16mm	0.04
900.2163	Bulbous head, Ø 28mm, spirale 16mm	0.07
900.2169	Arrow shaped head, Ø 25mm, spirale 16mm	0.04
900.2175	Crossed leaf shaped head, Ø 25mm	0.04
900.2221	Straight head, Ø 22mm	0.17
900.2222	Funnel shaped head, Ø 55mm	0.28
900.2234	Arrow shaped head, Ø 45mm	0.11
900.2255	Crossed leaf shaped head, Ø 55mm	0.14
900.2263	Bulbous head, Ø 40mm	0.22
900.2431	Standard drain cleaning springs, Ø 16mm	1.05
900.2441	Standard drain cleaning springs, Ø 22mm	4.00
900.2780	Pipe cleaning machine	20.90
900.2788	Adaptor magazine, f.900.2780	1.80

### Channel and pipe cleaning tool kit ø 16 mm + 22 mm

- Pipe cleaning tool kit with spiral with an internal diameter of 16 + 22 mm
- Includes spiral basket for safe keeping of the spiral
- Includes pipe cleaning machine
- Motor: 230 V, 0,4 KW - right left drive
- Speed: 620 rpm
- Operating range: for pipes Ø 20.0 - 150.0 mm
- Working length:
  - 10 m - 8 mm-Spiral
  - 10 m - 10 mm-Spiral
  - 50 m - 16 mm-Spiral
  - 60 m - 22 mm-Spiral



900.2791	29 pcs	Channel and pipe cleaning tool kit ø 16 mm + 22 mm	29.65

#### consists of:

900.2100	Springs separation key, f.16mm	0.02
900.2101	Springs separation key, f.22 and 32mm	0.03
900.2110	Spiral basket, Ø 450mm, spirale 16mm	1.25
900.2112	Spiral basket, Ø 470mm, spirale 22mm	1.60
900.2121	Guiding glove, left	0.21
900.2161	Straight head, Ø 16mm, spirale 16mm	0.06
900.2162	Spring recovery head, Ø35mm, spirale 16mm	0.04
900.2163	Bulbous head, Ø 28mm, spirale 16mm	0.07
900.2169	Arrow shaped head, Ø 25mm, spirale 16mm	0.04
900.2175	Crossed leaf shaped head, Ø 25mm	0.04
900.2221	Straight head, Ø 22mm	0.17
900.2222	Funnel shaped head, Ø 55mm	0.28
900.2234	Arrow shaped head, Ø 45mm	0.11
900.2255	Crossed leaf shaped head, Ø 55mm	0.14
900.2263	Bulbous head, Ø 40mm	0.22
900.2433	SMK drain cleaning springs, Ø 16mm	1.24
900.2442	SMK drain cleaning springs, Ø 22mm	4.65
900.2780	Pipe cleaning machine	20.90
900.2788	Adaptor magazine, f.900.2780	1.80

### Magazine adapter for pipe cleaning machine KS 600

- For use with pipe cleaner 900.2780
- Adapter magazine included spiral with leg drills
- Spiral length 10 m
- Through the use of the adapter magazine for even very small tube diameters available



	Ø mm	B mm	L mm	
900.2788	8,0	200.0	470.0	1.80
900.2799	10,0	200.0	470.0	1.80



### Guide hose for pipe cleaning machine KS 600

- For use with pipe cleaner 900.2780
- Through the use of the guide tube that is provided this guarantees kink free working of the spiral
- Helps prevent pollution and damage
- 4 m long



	Ø mm	L m	
900.2787	16,0 - 22,0	4.0	0.50

### Drain cleaning spiral

- Very flexible spiral
- For universal pipe cleaning applications
- Perfectly suited for tight bends
- With attachment for special tools
- Special steel



	Ø mm	L m	
900.2431	16,0	2.3	1.05
900.2441	22,0	4.5	4.00
900.2451	32,0	4.5	6.50



### Pipe cleaning spiral with plastic inner tube

- For working with large spiral lengths
- For removing stubborn pipe deposits
- High stability due to plastic inner tube
- Perfectly suited for tight bends
- Plastic inner core is temperature and weather resistant
- With attachment for special tools
- Special steel



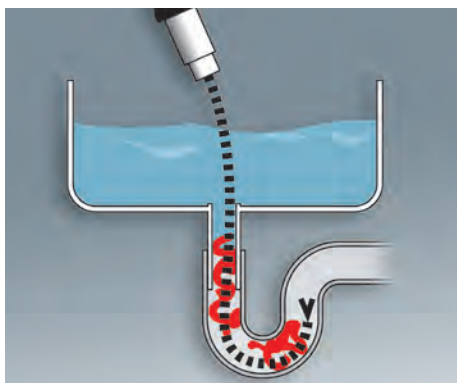
	Ø mm	L m	
900.2433	16,0	2.3	1.24
900.2442	22,0	4.5	4.65
900.2452	32,0	4.5	7.65

### Arrow drill

- For cleaning greasy or very muddy pipes
- With riveting to the adaptor
- Hardened and high strength spring steel



	Ø mm	For spiral mm	Operation range mm	
900.2169	25,0	16,0	38,0 - 50,0	40
900.2170	35,0	16,0	50,0 - 75,0	50
900.2171	45,0	16,0	60,0 - 100,0	70
900.2172	55,0	16,0	75,0 - 125,0	80
900.2233	35,0	22,0	50,0 - 100,0	100
900.2234	45,0	22,0	60,0 - 125,0	110
900.2254	65,0	22,0	75,0 - 125,0	300
900.2256	80,0	22,0	100,0 - 150,0	340
900.2257	90,0	22,0	100,0 - 150,0	350
900.2260	55,0	22,0	60,0 - 125,0	130
900.2335	35,0	32,0	50,0 - 100,0	140
900.2336	45,0	32,0	75,0 - 100,0	170
900.2337	55,0	32,0	75,0 - 100,0	180
900.2338	65,0	32,0	100,0 - 150,0	300
900.2361	90,0	32,0	125,0 - 200,0	360
900.2390	80,0	32,0	100,0 - 150,0	340



### Cross leaf drill

- Can be used in textiles blockages, clogging, sludge deposits, pipe incrustations etc.
- With riveting to the adaptor
- High stability and long life
- Hardened and high strength spring steel



	Ø mm	For spiral mm	Operation range mm	
900.2175	25,0	16,0	38,0 - 50,0	40
900.2176	35,0	16,0	50,0 - 75,0	60
900.2177	45,0	16,0	60,0 - 100,0	80
900.2178	55,0	16,0	75,0 - 125,0	90
900.2235	35,0	22,0	50,0 - 100,0	110
900.2255	55,0	22,0	60,0 - 125,0	140
900.2275	45,0	22,0	75,0 - 100,0	120
900.2276	65,0	22,0	100,0 - 150,0	330
900.2277	80,0	22,0	100,0 - 200,0	370
900.2279	90,0	22,0	100,0 - 200,0	500
900.2280	115,0	22,0	100,0 - 250,0	560
900.2345	35,0	32,0	50,0 - 100,0	140
900.2346	55,0	32,0	60,0 - 125,0	210
900.2349	80,0	32,0	100,0 - 150,0	410
900.2371	65,0	32,0	100,0 - 125,0	350
900.2372	45,0	32,0	60,0 - 125,0	170
900.2379	90,0	32,0	125,0 - 200,0	510
900.2380	115,0	32,0	150,0 - 250,0	580

### Forked cutting head

- Can be used in light to heavy contamination of the drainage pipe
- High stability and long life
- Hardened and high strength spring steel



	Ø mm	For spiral mm	Operation range mm	
900.2164	40,0	16,0	40,0 - 75,0	20
900.2154	30,0	16,0	50,0 - 75,0	30

### Notched forked cutting head

- Can be used with silting and deeply rooted pipes
- Cutting head front and rear dovetailed
- High stability and long life
- Hardened and high strength spring steel



	Ø mm	For spiral mm	Operation range mm	
900.2250	65,0	22,0	75,0 - 100,0	220
900.2251	90,0	22,0	100,0 - 150,0	260
900.2252	125,0	22,0	125,0 - 200,0	290
900.2253	150,0	22,0	200,0 - 300,0	300
900.2350	65,0	32,0	75,0 - 100,0	260
900.2351	90,0	32,0	100,0 - 150,0	290
900.2352	125,0	32,0	125,0 - 200,0	330
900.2353	150,0	32,0	200,0 - 300,0	340

### Root cutter

- Can be used with pipes that are rooted
- High stability and long life
- Hardened and high strength spring steel



	Ø mm	For spiral mm	Operation range mm	
900.2265	65,0	22,0	75,0 - 100,0	350
900.2266	90,0	22,0	125,0 - 200,0	490
900.2267	125,0	22,0	200,0 - 300,0	770
900.2365	65,0	32,0	75,0 - 100,0	390
900.2366	125,0	32,0	200,0 - 300,0	590
900.2367	90,0	32,0	125,0 - 200,0	810

### Chain spinning head with a smooth chain

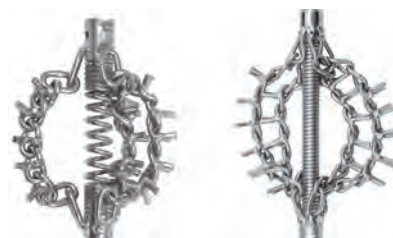
- Can be used in blocked and encrusted pipes
- Flexible design suitable for tight bends
- Optimum setting to pipe diameter due to centrifugal force
- Pipe protecting removal of impurities
- For cleaning of stoneware and plastic pipes
- Special steel



	Ø mm		For spiral mm	Operation range mm	L mm	
900.2183	30,0	3 chains	16,0	50,0 - 125,0	160,0	210
900.2185	30,0	2 chains	16,0	50,0 - 125,0	160,0	170
900.2187	30,0	4 chains	16,0	50,0 - 125,0	160,0	240
900.2283	45,0	2 chains	22,0	60,0 - 125,0	160,0	440
900.2284	45,0	3 chains	22,0	60,0 - 125,0	160,0	530
900.2289	45,0	4 chains	22,0	60,0 - 125,0	160,0	630
900.2382	50,0	2 chains	32,0	70,0 - 130,0	210,0	970
900.2383	50,0	4 chains	32,0	70,0 - 130,0	210,0	1200

### Chain spinning head with a spiked chain

- Can be used in blocked and encrusted pipes
- For intensive cleaning of concrete pipe and cast iron pipes
- Flexible design suitable for tight bends
- Optimum setting to pipe diameter due to centrifugal force
- Pipe protecting removal of impurities
- Thorough cleaning reduces the possibility of new blockages
- Special steel



	Ø mm		For spiral mm	Operation range mm	L mm	
900.2184	30,0	3 chains	16,0	50,0 - 125,0	160,0	230
900.2186	30,0	2 chains	16,0	50,0 - 125,0	160,0	210
900.2188	30,0	4 chains	16,0	50,0 - 125,0	160,0	270
900.2278	45,0	2 chains	22,0	60,0 - 125,0	160,0	490
900.2288	45,0	3 chains	22,0	60,0 - 125,0	160,0	630
900.2299	45,0	4 chains	22,0	60,0 - 125,0	160,0	670
900.2347	50,0	2 chains	32,0	70,0 - 130,0	210,0	1070
900.2348	50,0	4 chains	32,0	70,0 - 130,0	210,0	1440

### Straight head

- Standard tool for exploring the type of blockage
- For use in textiles or cellulose blockages
- To take samples to determine appropriate follow up tool
- Special steel



	Ø mm	For spiral mm	Operation range mm	L mm	
900.2161	16,0	16,0	25,0 - 75,0	110,0	60
900.2221	22,0	22,0	50,0 - 100,0	180,0	170
900.2321	32,0	32,0	75,0 - 250,0	190,0	350

### Funnel shaped head

- For specific use in textiles or cellulose blockages
- Wide coverage by funnel shaped
- Can also be used to retrieve from spirals remaining in the pipe
- Special steel



	Ø mm	For spiral mm	Operation range mm	L mm	kg
900.2165	32,0	16,0	65,0 - 100,0	110,0	80
900.2222	55,0	22,0	75,0 - 150,0	180,0	280
900.2322	60,0	32,0	125,0 - 250,0	190,0	500

### Leg drills

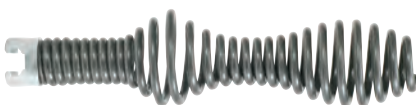
- For specific use on light textile or cellulose blockages
- Ideal for close and several consecutive elbows
- Special steel



	Ø mm	For spiral mm	Operation range mm	L mm	kg
900.2163	28,0	16,0	38,0 - 75,0	110,0	70
900.2263	40,0	22,0	75,0 - 100,0	180,0	220
900.2363	50,0	32,0	75,0 - 250,0	190,0	490

### Double leg drills

- Suitable for difficult to access trunking systems
- Double leg facilitate the penetration into narrow pipe bend
- Special steel



	Ø mm	For spiral mm	Operation range mm	L mm	kg
900.2158	35,0	16,0	38,0 - 75,0	130,0	90

### Jointed bolbous head

- Ideal for narrow pipe with a small pipe diameters
- Flexible due to joint
- Special steel



	Ø mm	For spiral mm	Operation range mm	L mm	kg
900.2159	24,0	16,0	38,0 - 75,0	83,0	60

### Spring recovery head

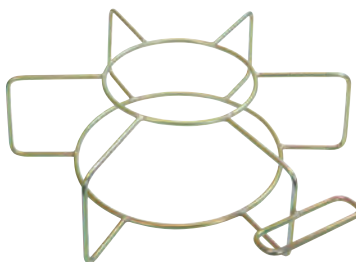
- Not suitable for drilling
- To retrieve from spirals remaining in the pipe
- With flared tentacle to grasp spiral
- Special steel



	Ø mm	For spiral mm	Operation range mm	L mm	kg
900.2162	35,0	16,0	25,0 - 75,0	50,0	40
900.2203	45,0	22,0	50,0 - 100,0	90,0	110
900.2325	65,0	32,0	75,0 - 250,0	100,0	240

### Spiral basket

- For the safe storage and easy transport
- Ideal for cleaning and maintenance of the spirals
- Special steel



	Ø mm	For spiral mm	H mm	No. spirals	Max spiral length m	kg
900.2110	450,0	16,0	140,0	15	34,5	1.25
900.2112	470,0	22,0	170,0	5	22,5	1.60
900.2113	520,0	22,0 / 32,0	190,0	5 / 4	22,5 / 18,0	2.30

### Guiding glove

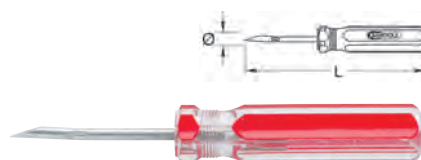
- Strong robustness
- Optimum protection during use of the spiral
- With inner glove and a long cuff
- Riveting stocking on the palm side and partly on the back
- Made from high quality leather



	Form	kg
900.2121	left	210
900.2120	right	210

### Spiral safety separation key

- For safety whilst uncoupling the spiral
- Injuries are avoided with this safety key rather than using pins



	For spiral mm	Ø mm	L mm	kg
900.2100	16,0	12,0	125,0	20
900.2101	22,0 / 32,0	20,0	125,0	30

### Replacement spirals for pipe cleaning device

- For pipe cleaning device 6, 8 + 10
- Especially suitable for light blockage by textiles and cellulose materials
- With integrated bolbous head
- Special steel



	Ø mm	L m	kg
900.2415	8,0	4.5	1.05
900.2416	8,0	7.5	1.80
900.2417	8,0	9.5	1.60
900.2422	10,0	9.5	3.50
900.2522	6,0	4.5	0.90
900.2523	6,0	6.0	1.20

### Replacement spiral with steel inner core for pipe cleaners

- For pipe cleaning device 8 + 10
- Very stable for the most severe pollution
- With integrated steel inner tube
- Particularly suitable for devices with automatic feed
- Special steel



	Ø mm	L m	kg
900.9975	8,0	7.5	2.25
900.9978	8,0	10.0	2.90

### CHIMNEY SWEEP TOOLS

#### Boiler cleaning tool kit

- Ideal for regular cleaning of small to medium fireplaces
- Optional extensions
- Includes 5 durable extension rods
- Polypropylene rods
- Hard plastic brush



		kg
900.6000	8 pcs Boiler cleaning tool kit	2.95

#### consists of:

		kg
900.6016	Screw extensions, Ø20mm, L=1,5m	458
900.6231	Brush, round, Ø 200mm	210
900.6030	Pulling spring	100



### Hand crank for screw extensions

- With a patented screw cap
- Special steel



	Ø mm	L mm	Colour code	g
900.6025	12,0	175,0	●	275

### Screw extensions for boiler cleaning tool

- Adaptor M12 threaded
- Polypropylene



	Ø mm	L m	Colour code	g
900.6010	18,0	1,0	●	247
900.6011	18,0	1,5	●	337
900.6012	18,0	2,0	●	386
900.6015	20,0	1,0	●	334
900.6016	20,0	1,5	●	458
900.6017	20,0	2,0	●	578

### Screw extensions for chimney sweep tools

- Adaptor M12 threaded
- With a patented screw cap
- Polypropylene



	Ø mm	L m	Colour code	g
900.6020	18,0	1,0	●	225
900.6021	18,0	1,5	●	345
900.6022	18,0	2,0	●	395

### Fork screw

- With internal thread M12
- Special steel



	Ø mm	L mm	g
900.6035	40,0	130,0	97

### Worm screw

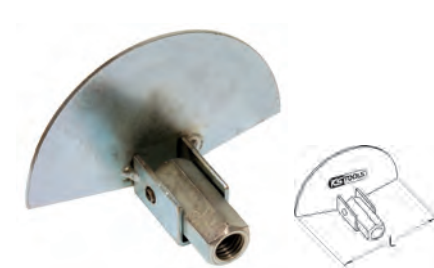
- With internal thread M12
- Special steel



	Ø mm	L mm	g
900.6036	100,0	240,0	430

### Crescent scraper

- With internal thread M12
- Special steel



	Ø mm	L mm	g
900.6040	100,0	100,0	130

### Cast iron ball

- With cast steel hooks
- 3 kg
- Special steel



	Ø mm	L mm	g
900.6050	80,0	140,0	3,00

### Bottle cleaning brush

- With internal thread M12
- Special steel



	Ø mm	L mm	g
900.6055	50,0	50,0	154

### Boiler brush

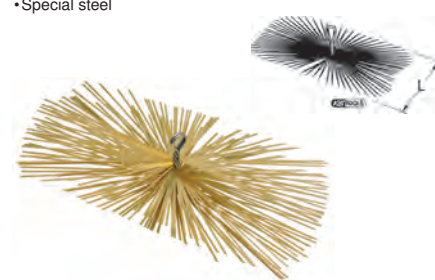
- With internal thread M12
- Special steel



	Ø mm	L1 mm	L2 mm	g
900.6060	50,0	200,0	120,0	141
900.6061	60,0	200,0	120,0	152
900.6062	70,0	200,0	120,0	165
900.6063	80,0	200,0	120,0	173

### Steel cleaning brush

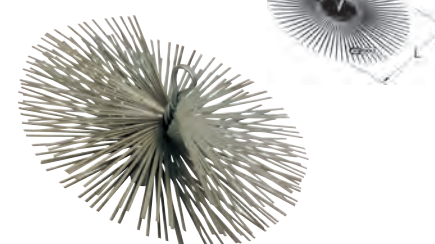
- Rectangular
- With internal thread M12
- Special steel



	Ø mm	L mm	g
900.6222	200,0 x 400,0	130,0	498

### Steel cleaning brush

- Round
- With internal thread M12
- Special steel



	Ø mm	L mm	g
900.6205	200,0	130,0	257
900.6206	250,0	130,0	290

### Steel cleaning brush

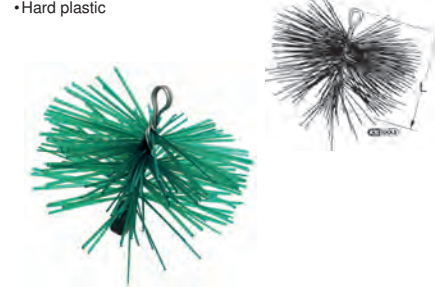
- Square
- With internal thread M12
- Special steel



	Ø mm	L mm	g
900.6210	200,0 x 200,0	130,0	279
900.6211	250,0 x 250,0	130,0	412
900.6212	300,0 x 300,0	130,0	475

### Synthetic cleaning brush

- Round
- With internal thread M12
- Hard plastic



	Ø mm	L mm	g
900.6230	150,0	130,0	192
900.6231	200,0	130,0	210
900.6232	250,0	130,0	240
900.6233	300,0	130,0	252