

Earth rods usually consist of composable single rods with a length of 1.5 m. Earth rods of DEHN have a self-locking coupling with bore and pin.

Advantage of this construction is that the coupling locks automatically during the driving process, thus implementing a mechanically high-strength and electrically safe connection. Additional work steps such as screwing are not necessary.

Different types of impact tool are used to drive in the earth rods. Driving in should be carried out at 1200 blows/min. At a considerably higher blow rate the power usually is not sufficient to reach the required depth with the earth rod. At a too low blow frequency as typical for compressed-air driven hammer tool, the blow power often is too high and the blow rate too low.

The own weight of the driving hammer should be ≥ 20 kg.

The possible driving depth of earth electrodes depends on the geological conditions. In light soil areas, e.g. in coastal areas or in wetlands, depths

of 30 m to 40 m can be reached. In extremely heavy soils, e.g. sandy soils the driving depth often is max. 12 m.

The more the soil around the earth rod is compressed on driving in, the better the electrical contact. An earth rod of 20 mm outer diameter provides less compression than an earth rod of 25 mm outer diameter.

According to experience, 25 mm outer diameter earth rods provide the best result in heavy soils with regard to the maximum driving depth and soil compression.

Using a hammer frame, e.g. Part No. 600 003 of DEHN is recommended for deep driving of earth rods.

When using the hammer frame with attached impact tool, the blow power will be constantly applied on the earth rod via the hammer insert. This is not possible without hammer frame and a manual operating of the hammer.

Recommended vibration hammers are listed below.



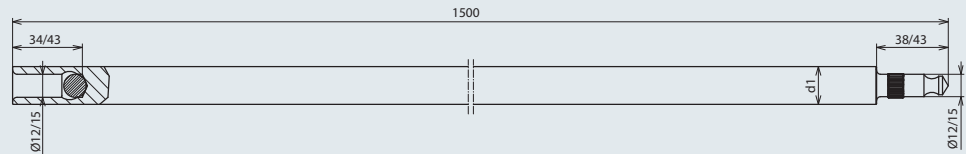
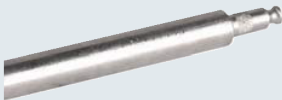


Earth rods for implementing earth-termination systems for down conductors or transformer stations

Features:

- No cross section thickening at the coupling point
- Self-locking coupling
- Corrosion resistance
- Easier storage and transport
- Universal application according to local soil conditions
- Constant resistance values
- Easy driving-in by vibration hammer

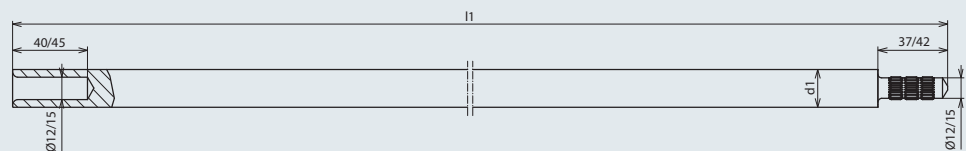
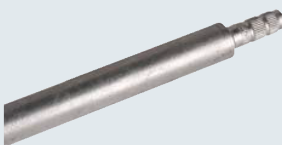
Type S



With lead ball in the coupling

Part No.	620 150	619 157	625 150
Material	St/tZn	St / Cu	St/tZn
Standard	EN 50164-2	—	EN 50164-2
Rod length (l1)	1500 mm	1500 mm	1500 mm
Diameter (d1)	20 mm	20 mm	25 mm
Pin diameter	12 mm	12 mm	15 mm
Cu layer	—	min. 0.3 mm	—
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	7.9 kA	7.9 kA	12.3 kA

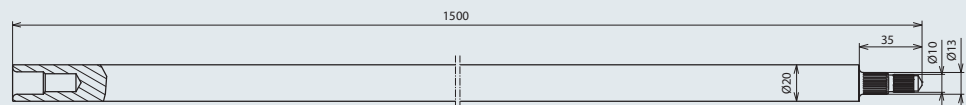
Type Z



With triple knurled pin (coupling with especially high tensile strength)

Part No.	620 101	620 151	625 101	625 151
Material	St/tZn	St/tZn	St/tZn	St/tZn
Standard	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2
Rod length (l1)	1000 mm	1500 mm	1000 mm	1500 mm
Diameter (d1)	20 mm	20 mm	25 mm	25 mm
Pin diameter	12 mm	12 mm	15 mm	15 mm
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	7.9 kA	7.9 kA	12.3 kA	12.3 kA

Type AZ



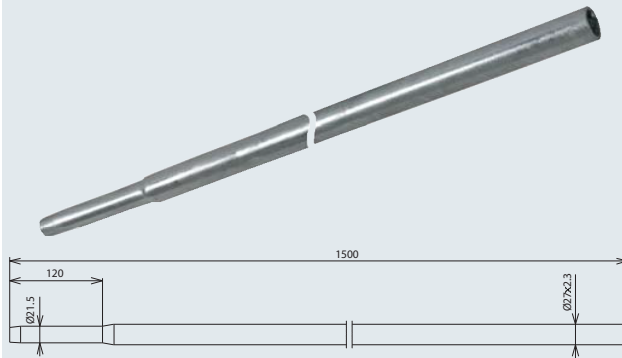
With offset knurled pin

Part No.	620 902
Material	StSt (V4A)
Material No.	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	316Ti / 316L / 316
Standard	EN 50164-2
Rod length (l1)	1500 mm
Diameter (d1)	20 mm
Pin diameter	10 / 13 mm
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	4.2 kA

More details in installation instructions No. 1014

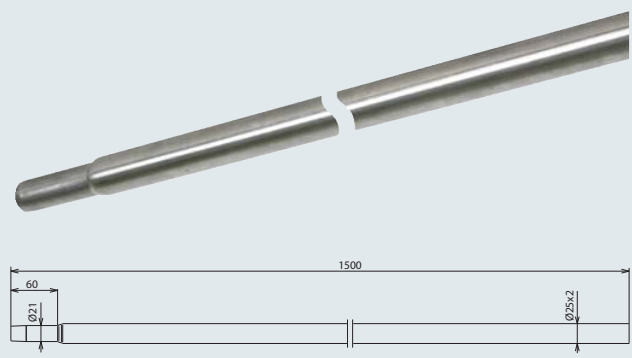
Tubular earth rods, light design, for the installation of earth-termination systems for down conductors

Steel



Part No.	640 150
Material	St/tZn
Standard	EN 50164-2
Rod length	1500 mm
Diameter	27 mm

StSt



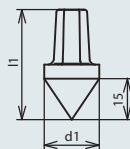
Part No.	649 150
Material	StSt (V4A)
Material No.	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	316Ti / 316L / 316
Standard	EN 50164-2
Rod length	1500 mm
Diameter	25 mm

More details in installation instructions No. 1515.

Impact Spikes

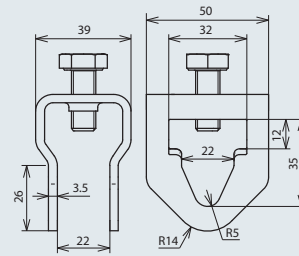
Impact spikes for driving-in the first earth rod

The impact spikes can be used for earth rods made of steel as well as StSt and they are also applicable for tubular earth rods.



Part No.	620 001	625 001
Material	MCI/tZn	MCI/tZn
Type	for earth rods $\varnothing$ 20 mm or tubular earth rods St/tZn $\varnothing$ 27 mm	for earth rods $\varnothing$ 25 mm or tubular earth rods StSt (V4A) $\varnothing$ 25 mm
Dimension (d1 x l1)	20x40 mm	25x45 mm

Clamps for connecting round conductors, flat strips or cables to earth rods
Suitable for cross and parallel connection

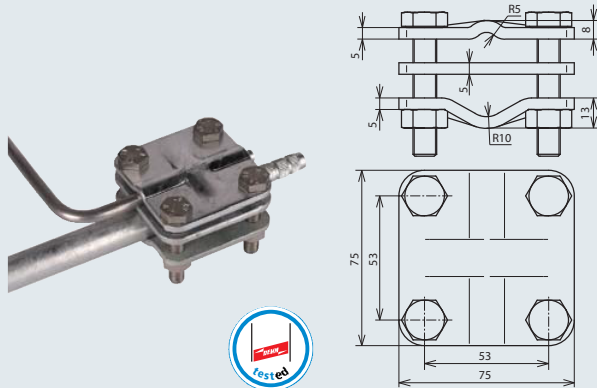


Part No.	630 120	630 129
Material	St/tZn	StSt (V4A)
Clamping range Rd / FI	10 / -30x4 mm	10 / -30x4 mm
Clamping range of cable	70 mm ²	70 mm ²
Type for earth rods	Ø20 mm	Ø20 mm
Screw	● M10x25 mm	● M10x25 mm
Material of screw	St/tZn	StSt (V4A)
Material No.	—	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	—	316Ti / 316L / 316
Standard	EN 50164-1	EN 50164-1

Terminal Clamps

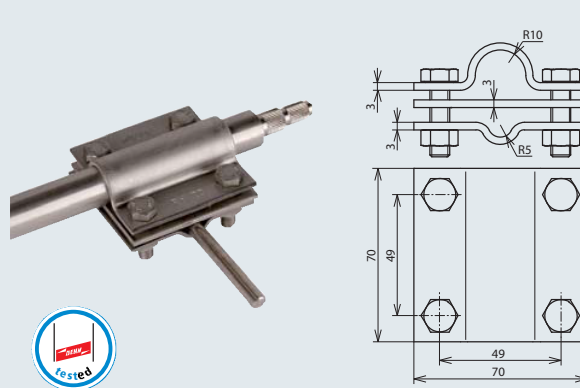
Clamps for cross and parallel connection of round conductors, flat strips or cables to earth rods

For earth rods Ø20-30 mm

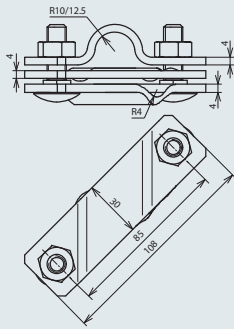


Part No.	610 010
Material	St/tZn
Clamping range Rd / FI	8-12.5 / -40 mm
Clamping range (stranded/cable)	50-95 mm ²
Screw	● M10x55 mm
Material of screw/nut	StSt
Standard	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	18 kA

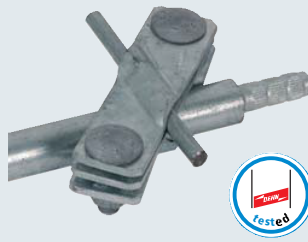
For earth rods Ø20 mm



Part No.	610 020
Material	StSt (V4A)
Clamping range Rd / FI	7-10 / -40 mm
Clamping range (stranded/cable)	35-70 mm ²
Screw	● M8x30 mm
Material of screw/nut	StSt (V4A)
Material No.	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	316Ti / 316L / 316
Standard	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	8 kA



Diagonal design

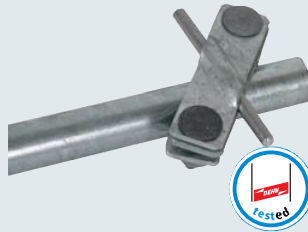
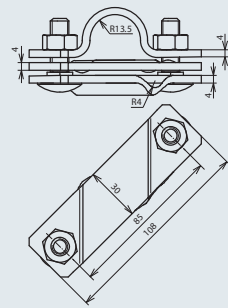


Brackets for connecting round conductors, cables and flat strips to earth rods

Also for use with uncut earth conductors

Part No.	620 015	620 017	620 915	625 015	649 015
Material	St/tZn	Cu	StSt (V4A)	St/tZn	StSt (V4A)
Clamping range Rd / Fl	7-10 / -40 mm	7-10 / -40 mm	7-10 / -40 mm	7-10 / -40 mm	7-10 / -40 mm
Clamping range (stranded or cable)	—	35-95 mm ²	35-95 mm ²	—	35-95 mm ²
Type for earth rods	Ø20 mm	Ø20 mm	Ø20 mm	Ø25 mm	Ø25 mm
Screw	↑ M10x35 mm	↑ M10x35 mm	↑ M10x35 mm	↑ M10x35 mm	↑ M10x35 mm
Material of screw/nut	St/tZn	StSt	StSt (V4A)	St/tZn	StSt (V4A)
Material No.	—	—	1.4571 / 1.4404 / 1.4401	—	1.4571 / 1.4404 / 1.4401
ASTM / AISI:	—	—	316Ti / 316L / 316	—	316Ti / 316L / 316
Standard	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	21.0 kA	29.0 kA	7.3 kA	18 kA	8 kA

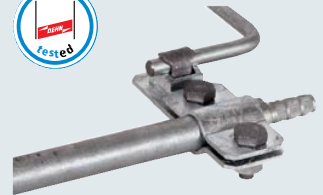
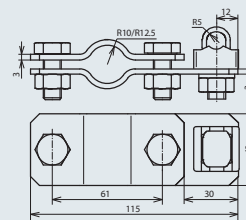
Diagonal design – especially for tubular earth rods St/tZn



Also for use with uncut earth electrodes

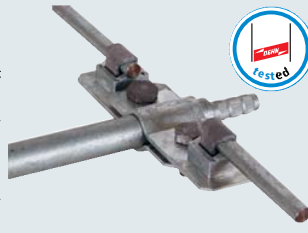
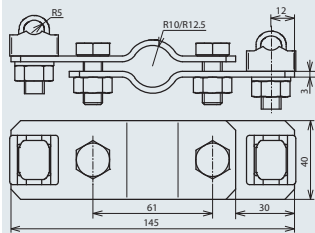
Part No.	640 015
Material	St/tZn
Clamping range Rd / Fl	7-10 / -40 mm
Type for earth rods	Ø27 mm
Screw	↑ M10x35 mm
Material of screw/nut	St/tZn
Standard	EN 50164-1

One-sided connection with KS connector



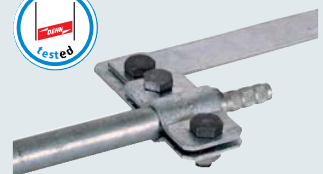
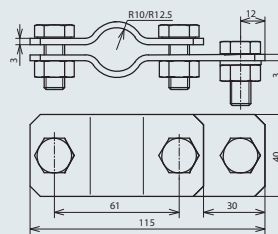
Part No.	620 011	625 011
Material	St/tZn	St/tZn
Clamping range Rd	7-10 mm	7-10 mm
Type for earth rods	Ø20 mm	Ø25 mm
Screw	↑ M10x25 mm	↑ M10x25 mm
Material of screw/nut	St/tZn	St/tZn
Standard	EN 50164-1	EN 50164-1

Both-sided connection with KS connectors (St/tZn)



Part No.	620 012	625 012
Material	St/tZn	St/tZn
Clamping range Rd	7-10 mm	7-10 mm
Type for earth rods	Ø20 mm	Ø25 mm
Screw	↑ M10x25 mm	↑ M10x25 mm
Material of screw/nut	St/tZn	St/tZn
Standard	EN 50164-1	EN 50164-1

One-sided connection with screw M10



Part No.	620 021	625 021
Material	St/tZn	St/tZn
Clamping range Fl	-40 mm	-40 mm
Type for earth rods	Ø20 mm	Ø25 mm
Screw	↑ M10x25 mm	↑ M10x25 mm
Material of screw/nut	St/tZn	St/tZn
Standard	EN 50164-1	EN 50164-1
Short-circuit current (50 Hz) (1 s; ≤ 300 °C)	8.4 kA	8.4 kA

Recheck the type of supporting device for the vibration hammer and order accordingly.

Product	Type	Connection	Weight (without tool)	Blow count (per min.)	Blow power	Hammer Insert Part No.
Wacker Neuson	BH 23 petrol engine	round Ø27x80 mm	24.0 kg	1300	55 J	620 009 625 009
	BH 24 petrol engine		25.0 kg	1250	65 J	620 009 625 009
	BH 24 Low Vib petrol engine		25.0 kg	1350	55 J	620 009 625 009
	BH 30 petrol engine (no longer available)		27.4 kg	1270	47 J	620 005 625 005
	EH 23 Low Vib universal engine 230 V		22.4 kg	1280	50 J	620 009 625 009
	EH 25 asynchronous engine 230 V		25.0 kg	1275	70 J	620 009 625 009
	EH 22/400 electric engine 400 V		22.0 kg	1250	40 J	620 009 625 009
Atlas Copco	Cobra Combi (former 149) petrol engine	hexagon SW22x108 mm	25.0 kg	2500-2600	24 J	620 007 625 007
	CP Red Hawk (former Cobra Standard) petrol engine		23.0 kg	2600	24 J	620 007 625 007
	Cobra TT * petrol engine	hexagon SW32x160 mm	25.2 kg	720-1600	40 J	625 007/S Id. No. 46399
	Cobra PRO * (former MK1) petrol engine		25.2 kg	720-1440	60 J	625 007/S Id. No. 46399
* Hexagon SW 32x160 Part No. 625 007/S Id. No. 46399 (special design on request)						
Note: The details of the DEHN + SÖHNE installation instructions Nr. 1014 for earth rods have to be considered!						

Hammer inserts to drive in earth rods by vibration hammer

For earth rods Types S + Z

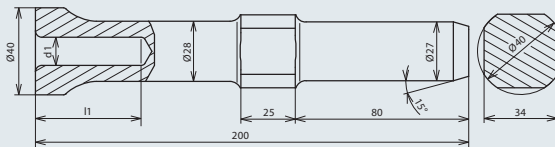
Ø20 mm (pin Ø12 mm Part No. 620...) or

Ø25 mm (pin Ø15 mm Part No. 625...)

For Atlas Copco equipment several types of supports can be used.
Please note when placing your order.



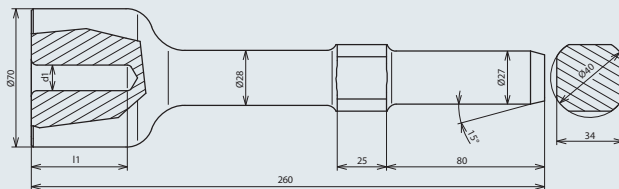
Design for Wacker Neuson



Part No.	620 005	625 005
Type	EH 23/230, EH 22/400 and BHF 30	EH 23/230, EH 22/400 and BHF 30
Adapter	round Ø27x80 mm	round Ø27x80 mm
Material	St/bare	St/bare
Bore (d1 x l1)	13x50 mm	16x55 mm
Length	200 mm	200 mm

Special hammer insert for earth rods d=20 mm, StSt for Wacker equipment Part No. 620 005/S Id. No. 046377 upon request.

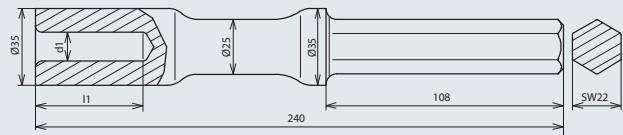
Heavy design for Wacker Neuson



Part No.	620 009	625 009
Type	EH 23 Low Vib, BH 24 Low Vib, BH 23 and EH 25	EH 23 Low Vib, BH 24 Low Vib, BH 23 and EH 25
Adapter	round Ø27x80 mm	round Ø27x80 mm
Material	St/bare	St/bare
Bore (d1 x l1)	13x50 mm	16x55 mm
Length	260 mm	260 mm

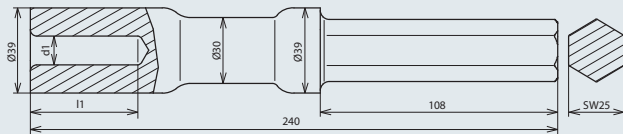
Design for other types of hammer available upon request.

Design for Atlas Copco SW 22



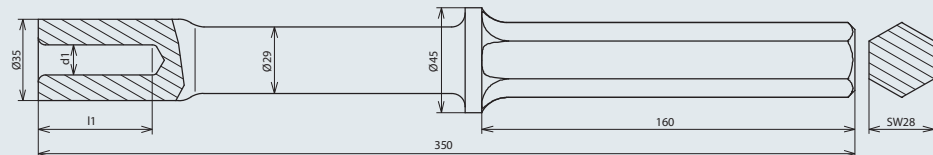
Part No.	620 007	625 007
Type	Cobra Combi, CP Red Hawk (Cobra Standard)	Cobra Combi, CP Red Hawk (Cobra Standard)
Adapter	hexagon SW22x108 mm	hexagon SW22x108 mm
Material	St/bare	St/bare
Bore (d1 x l1)	13x50 mm	16x55 mm
Length	240 mm	240 mm

Design for Atlas Copco SW 25



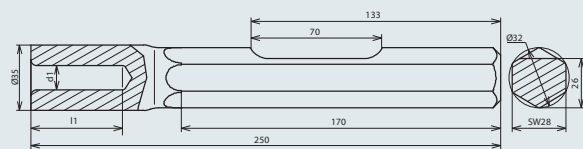
Part No.	620 008	625 008
Type	TEX 15 PE, 19 PE, 23 PE	TEX 15 PE, 19 PE, 23 PE
Adapter	hexagon SW25x108 mm	hexagon SW25x108 mm
Material	St/bare	St/bare
Bore (d1 x l1)	13x50 mm	16x55 mm
Length	240 mm	240 mm

Design for Atlas Copco SW 28



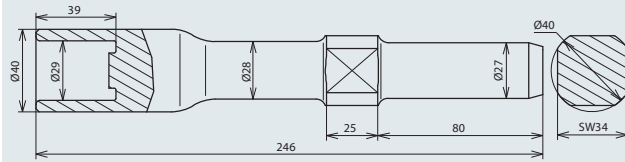
Part No.	620 019	625 019
Type	TEX 28 HE, 27 H, 15 PE, 19 PE, 23 PE, 22 PS	TEX 28 HE, 27 H, 15 PE, 19 PE, 23 PE, 22 PS
Adapter	hexagon SW28x160 mm	hexagon SW28x160 mm
Material	St/bare	St/bare
Bore (d1 x l1)	13x50 mm	16x55 mm
Length	350 mm	350 mm

Design for Bosch

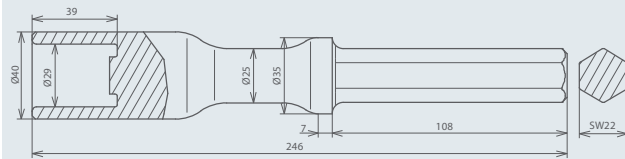


Part No.	620 029	625 029
Type	GSH 27	GSH 27
Adapter	hexagon SW28 (1 1/8")	hexagon SW28 (1 1/8")
Material	St/bare	St/bare
Bore (d1 x l1)	13x50 mm	16x55 mm
Length	250 mm	250 mm

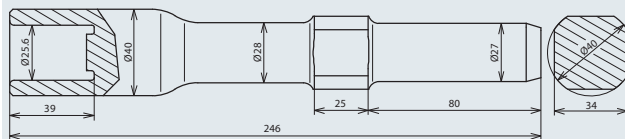
Hammer inserts to drive in tubular earth rods by vibration hammer

Design for tubular earth rods $\varnothing 27$ mm (St/tZn) Wacker Neuson

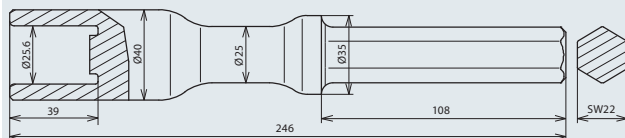
Part No.	649 005
Type	EH 22/400, EH 23/230, EH 24/042/200, BH 23 and BHF 30
Support	round $\varnothing 27 \times 80$ mm
Material	St/bare
Length	246 mm

Design for tubualr earth rods $\varnothing 27$ mm (St/tZn) Atlas Copco

Part No.	649 007
Type	Cobra 149+248 and Cobra 120+130
Support	hexagon SW22x108 mm
Material	St/bare
Length	246 mm

Design for tubualr earth rods $\varnothing 25$ mm StSt (V4A) Wacker Neuson

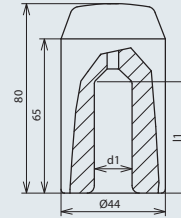
Part No.	648 005
Type	EH 22/400, EH 23/230, EH 24/042/200, BH 23 and BHF 30
Support	round $\varnothing 27 \times 80$ mm
Material	St/bare
Length	246 mm

Design for tubular earth rods $\varnothing 25$ mm StSt (V4A) Atlas Copco

Part No.	648 007
Type	Cobra 149+248 and Cobra 120+130
Support	hexagon SW22x108 mm
Material	St/bare
Length	246 mm

Design for other types of hammer upon request

Impact heads to drive in earth rods by manual beetle



Part No.	620 002	625 002
Type of earth rod	types S + Z + AZ (Ø20 mm)	types S + Z (Ø25 mm)
Dimension (d1 x l1)	13x42 mm	16x47 mm
Material	St/bare	St/bare

Hammer Frame

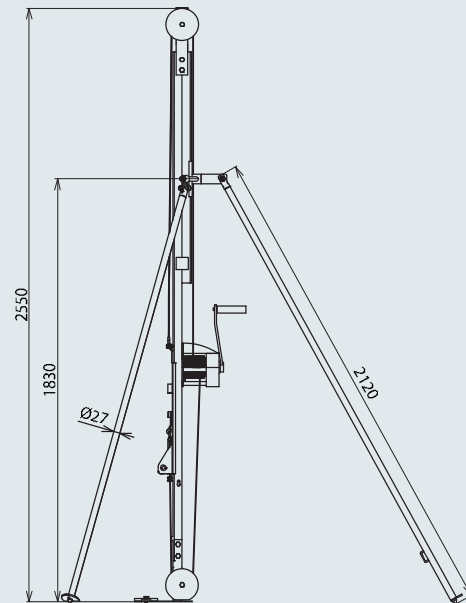


Hammer frame to drive in earth rods of 1000 mm or 1500 mm in length by vibration hammer

The hammer frame will be delivered with hammer guiding rider.

The device features a stable and practical design and is easy to transport.

The attached cable winch allows for safe hammer guiding.

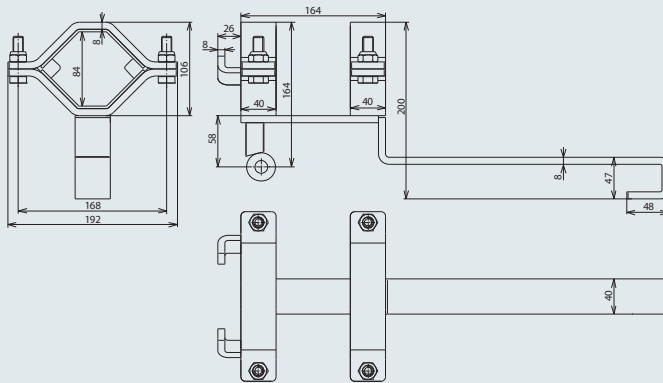


Part No.	600 003
Material	St/tZn
Height	2550 mm

More information about working with the hammer frame (with list of spare parts) in the instructions for use No. 1171

For use with hammer guiding riders for vibration hammers of the following manufacturers

Design for Wacker Neuson

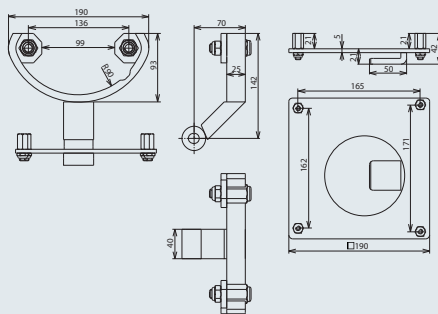

Part No.
600 035
Types

EH 23 Low Vib, EH 22/400, EH 25, BH 24 Low Vib, BH 23 und BHF 30

Material

St/tZn

Design for Atlas Copco

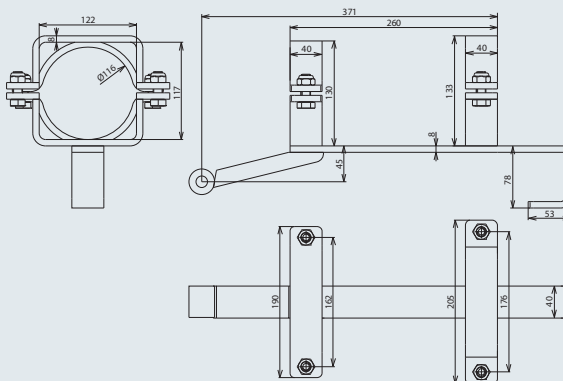

Part No.
600 029
Types

Cobra Combi, CP Red Hawk (Cobra Standard)

Material

St/tZn

Design for Bosch


Part No.
600 050
Types

GSH 27

Material

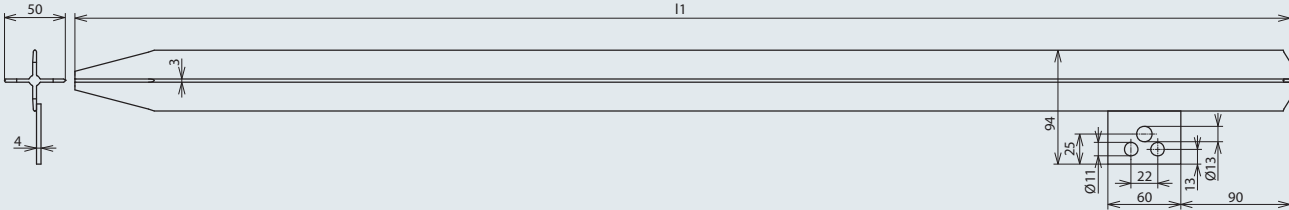
St/tZn



Profiled earth rods for the installation of earth-termination systems e.g. for antennas or construction site distribution boards



Profile (50x50x3 mm), with connection lug and bores e.g. for KS connector



Part No.	635 100	635 150	635 200	635 250
Material	St/tZn	St/tZn	St/tZn	St/tZn
Standard	EN 50164-2	EN 50164-2	EN 50164-2	EN 50164-2
Length (l1)	1000 mm	1500 mm	2000 mm	2500 mm
Bores Ø	[2x] 11 / [1x] 13 mm	[2x] 11 / [1x] 13 mm	[2x] 11 / [1x] 13 mm	[2x] 11 / [1x] 13 mm