



Cembre

05 V 018 E



Certified Quality
Management System



RAILWAY PRODUCTS

PRESENTATION



This catalogue illustrates the range of our tooling for railway applications.

For each product we indicate the principal features, and sometimes the most frequent applications and the necessary guidelines for a correct application.

Our sales personnel are at your disposal to supply more detailed information and our design and development engineers are available to study new solutions to particular applications.

On 22nd December 1992 the Quality Management System of our company was upgraded by Lloyd's Register Quality Assurance (LRQA) to ISO 9001 with field of application enlarged to:

accessories, electrical connectors and associated tools".

In fact, our previous Quality Management System already assessed on 14th December 1990 according to ISO 9002, has been enlarged to the Design and Manufacture of all our products; Cembre's Quality is now guaranteed across our whole range of production.

The activity of the main premises in Brescia, the Italian regional offices and the subsidiaries compa-

nies in Great Britain, France, Spain, Norway, Germany and U.S.A. are ruled according to the prescriptions of a sole Quality System; such Quality System has been assessed by Lloyd's Register of Quality as conforming to the prescriptions of the ISO 9001:2000 norm for the design, manufacture and marketing of cable accessories, electrical connectors and related equipments. Repairing, refurbishment and associated equipment re-calibration.

This guarantees a homogeneous and high quality level of the products and services that Cembre provides to all its customers.



Cembre Ltd

*- Factory in Curdworth -
Birmingham
(GREAT BRITAIN)*



Cembre S.p.A. - Factory in Brescia (ITALY)

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RAIL DRILLING MACHINES

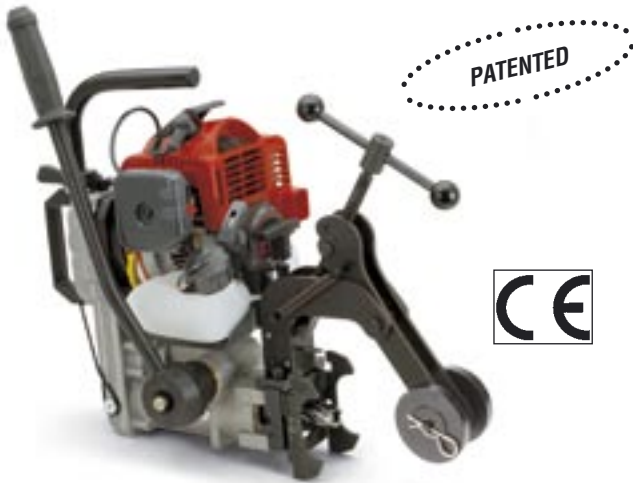
Cembre Rail Drilling Machines, LD-1P and LD-2E, have been specifically designed for use in Railway applications, to provide a consistent and accurate hole, in all types of weather conditions. Their compact size can save considerable time by allowing direct operation in situations which would normally require removal of armament. Special twist drill bits are used for hole diameters 7 to 22 mm on rail up to 45 mm thick, while broach cutters are used for hole diameters 13 to 32 mm on rails up to 50 mm thick.

Cembre drilling machines are provided with a coolant system, for use with suitable lubrocoolant, consisting of a reservoir and pump connected by a quick coupler. The units are lightweight and ideally suited for one man operation.

LD-1P

GENERAL FEATURES:

- **Drilling range:** Ø 7÷ 32 mm
- **with broach cutters:** Ø 13-32 mm on rail up to 50 mm thick.
- **with special spiral bits:** Ø 7-21 mm on rail up to 45 mm thick.
- **Engine:** 2 stroke
- **Displacement:** 33 cc
- **Fuel:** 2% oil-petrol mixture
- **Start:** by rope pull
- **Clutch:** Centrifugal with automatic intervention
- **Power:** 1 kW @ 7000 rpm
- **Weight:** with DBG-F clamping device 18,6 kg



LD-2E

GENERAL FEATURES:

- **Drilling range:** Ø 7÷ 32 mm
- **with broach cutters:** Ø 13-32 mm on rail up to 50 mm thick.
- **with special spiral bits:** Ø 7-21 mm on rail up to 45 mm thick.
- **Electric single phase engine:**
 - supply voltage 220/230 V - 50 Hz
 - power rating 1800 W
- **Weight:** with DBG-F clamping device 17 kg

Also available in 110 V - 50/60 Hz version



RAIL DRILLING MACHINES

for drilling up to Ø 38 mm

LD-3PG

GENERAL FEATURES:

- **Drilling range:** Ø 7-38 mm
- **with broach cutters:** Ø 13-38 mm on rail up to 50 mm thick.
- **with special spiral bits:** Ø 7-27,5 mm on rail up to 45 mm thick.
- **Engine:** 2 stroke
- **Displacement:** 48,6 cc
- **Power:** 1,4 kW
- **Fuel:** 2% oil-petrol mixture
- **Start:** by rope pull
- **Clutch:** centrifugal with automatic intervention
- **Weight:** with DBG clamping device 18,6 kg



PATENTED



LD-41P

GENERAL FEATURES:

- **Drilling range:** Ø 7-38 mm
- **with broach cutters:** Ø 13-38 mm on rail up to 50 mm thick.
- **with special spiral bits:** Ø 7-27,5 mm on rail up to 45 mm thick.
- **Engine:** 4 stroke
- **Displacement:** 33,5 cc
- **Fuel:** unleaded regular grade petrol
- **Start:** by rope pull
- **Clutch:** centrifugal with automatic intervention
- **Power:** 1.6 HP ; 1,18 kW
- **Weight:** with DBG-F2 clamping device 19,5 kg



PATENTED



LD-4EF

GENERAL FEATURES:

- **Drilling range:** Ø 7-38 mm
- **with broach cutters:** Ø 13-38 mm on rail up to 50 mm thick.
- **with special spiral bits:** Ø 7-27,5 mm on rail up to 45 mm thick.
- **Switchable motor speed** relative to hole diameter.
Normal speed 300 rpm recommended for holes below Ø 28 mm.
Low speed 240 rpm recommended for holes Ø 28 - 38 mm.
- **Single phase electric motor:**
supply voltage: 220/230 V - 50 Hz
power rating: 1800 W
- **Weight:** with DBG-F clamping device 17 kg



PATENTED



RAIL DRILLING MACHINES

LD-8H - Hydraulic

GENERAL FEATURES:

- Engine: hydraulic
- Oil input flow: 5 gpm
- Oil input pressure: 2.000 psi
- Power: 2 kW
- Weight: 17,5 kg

Drilling range: Ø 7 to 38 mm



LD-12B - Battery

GENERAL FEATURES:

- Direct current electric motor
- Supply voltage: 24 Vdc
- Power rating: 345 W
- Weight: 17,3 kg

Drilling range: Ø 7 to 19 mm

BATTERY PACK:

- BP 24-16 (24 Vdc 16 Ah): 17 kg
- BP 24-10 (24 Vdc 10 Ah): 11 kg
- Battery condition display
- Protection fuse
- Battery charger 24 V 2A max



BP24-10

BP 24-16

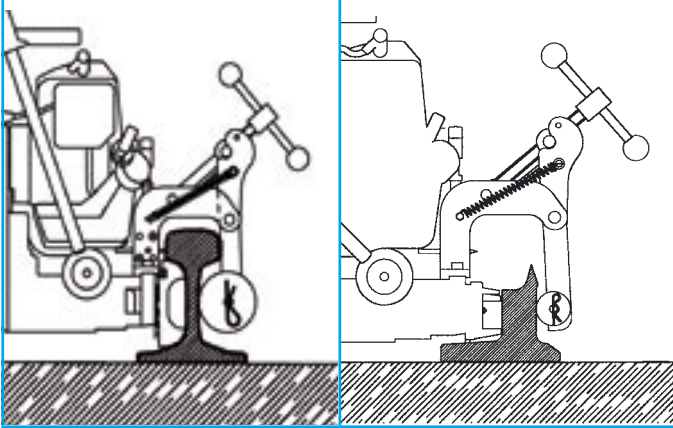


RAIL DRILLING MACHINES

Typical fixing situations:

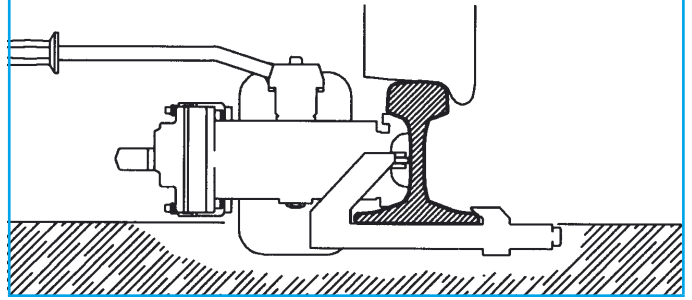
To the Rail Web

This system is ideally suited to working when the track is under possession or when adequate train sighting provision is in place, however removal from the rail can be quickly achieved if required. Using this arrangement, a hole can be drilled in close proximity to a sleeper.



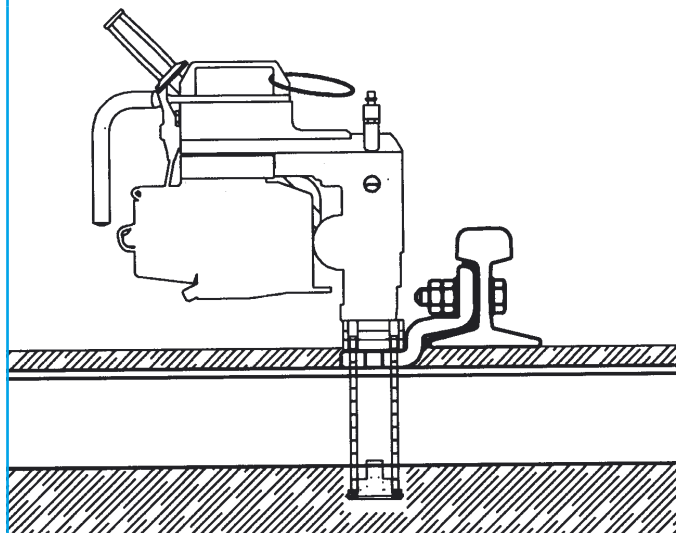
To the Rail Flange

In this situation the drill slides below rail level and can therefore be left in position during the passage of a train. Work can be carried out either side of the four foot zone.



Vertical drilling

This method of fixing enables vertical drilling for the assembly of attachments to spring tongues and branch plates to switchgear boxes.



STANDARD ACCESSORIES SUPPLIED WITH DRILLING MACHINES



DBG-F* OVER RAIL CLAMP (FOR USE WITH RAIL POSSESSION)

For clamping of drilling machine to rail web and track fittings.
Complete with four terminations:

- **TDB 1** for switch blades and confined spaces
- **TDB 2** for standard applications (bull head, flat bottom, check rails, etc)
- **TDB 3** for redrilling existing holes on rails for subsequent application of electrical connections and for additional special applications
- **TDB 6** for UIC60 rail

TDB 1

TDB 2

TDB 3

TDB 6

**DBG for LD-3PG and DBG-F2 for LD-41P*



SR 5000 COOLANT UNIT

Coolant unit consisting of reservoir and hose, fitted with a manual pump and maximum pressure valve. Connection to the drilling machine is by quick coupler.

MEASURE FOR MIXTURE PREPARATION (LD-1P, LD-3PG)

For accurate preparation of the oil-petrol mixture



GEAR BOX OIL



RANGE OF TOOLS

- 1 x spark plug key*
- 1 x 5 mm Allen key
- 1 x 6 mm Allen key
- 1 x 4 mm Allen key, with handle
- 1 x swarf brush

**Accessory supplied with petrol engine rail drilling machines*



SOCKET HEAD CAP SCREWS

4 pcs for clamping cutter or adaptor into spindle shaft
4 pcs for securing drilling template to the front plate
4 pcs for securing heavy duty drilling template to the front plate



ARE ADAPTOR

For the external application of the coolant. Fits directly to the SR 5000 coolant unit coupler.

FOR USE WITH BROACH CUTTERS

GUIDE BITS

Allow the automatic control (opening and closing) of the flow of coolant during the drilling operation. Must be inserted in the rear of the cutter before the cutter is located into the spindle.

- **PP1** (length 80 mm - Ø 7 mm)
For use with short broach cutters A Ø18 mm
- **PP2** (length 80 mm - Ø 8 mm)
For use with short broach cutters A Ø19 - 32 mm
- **PPL1** (length 100 mm - Ø 7 mm)
For use with long broach cutters A.L Ø17 mm
- **PPL2** (length 100 mm - Ø 8 mm)
For use with long broach cutters A.L Ø18 - 32 mm



FOR USE WITH SPIRAL BITS

DPE SPACER

For use with APE adaptor to activate the coolant when using spiral drill bits, diameter 7-14 mm



OPTIONAL ACCESSORIES FOR RAIL DRILLING MACHINES



VAL LD

- Steel carrying case for **rail drilling machines**
- Accommodates the complete unit together with the **clamping device**, **DBS** clamp and the **VAL-MPA** tool case
- 574 (L) x 345 (W) x 430 (D)



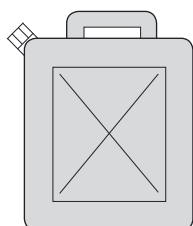
VAL LD-SR

- Steel carrying case for **rail drilling machines** and **SR 5000**



VAL MPA

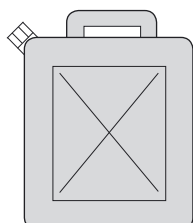
- Suitable for storage of drilling templates cutters and accessories
- 384 (L) x 353 (W) x 62 (D)



LUBROCOOLANT

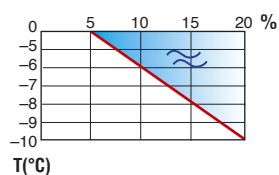
LR2 concentrate 1 litre

This product of vegetable origin, diluted 5:100 with water, will produce a white fluid that is extremely effective in allowing drilling operations with no heating of the rail or the drilling machine.



ANTIFREEZE

Concentrate of 3 litres **LR3** added to the lubrocoolant mixture in the correct ratio (see chart) to maintain its fluidity in negative temperature conditions.



OPTIONAL ACCESSORIES FOR RAIL DRILLING MACHINES



RUNNING RAIL TEMPLATES

MPAF UIC 54-65	for rail UIC 54 type (H= 65 mm), use over rail clamp DBG-F
MPAF UIC 60-79	for rail UIC 60 type (H= 79 mm), use over rail clamp DBG-F
MPAF UIC 60	for rail UIC 60 type (H= 76,25 mm), use over rail clamp DBG-F
MPAF BS75R	for rail BS75R type (H= 53,98 mm), use over rail clamp DBG-F
MPAF BS80A	for rail BS80A type (H= 53,98 mm), use over rail clamp DBG-F
MPAF BS90A	for rail BS90A type (H= 57,15 mm), use over rail clamp DBG-F
MPAF BS90A-60	for rail BS90A type (H= 60 mm), use over rail clamp DBG-F
MPAF BS90R-55	for rail BS90R type (H= 55 mm), use over rail clamp DBG-F
MPAF BS90R	for rail BS90R type (H= 59,93 mm), use over rail clamp DBG-F
MPAF BS95R BH	for rail BS95R BH type (H= 64,7 mm), use over rail clamp DBG-F
MPAF BS98	for rail BS98 type (H= 59,56 mm), use over rail clamp DBG-F
MPAF CIE 50KG/M-FB	for rail CIE 50kg/m FB type (H= 72,2 mm), use over rail clamp DBG-F
MPAF BS113A	for rail BS113A type (H= 65,09 mm), use over rail clamp DBG-F
MPAF BS113A-79	for rail BS113A type (H= 79 mm), use over rail clamp DBG-F



SWITCH RAIL TEMPLATES

MPAF UIC 54B-56	for rail UIC 54 type (H= 56 mm), use over rail clamp DBG-L
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CONDUCTOR RAIL TEMPLATES

MPAF 106LB	for 106lb conductor rail (H= 52,2 mm), use over rail clamp DBG-L
MPAF 150LB	for 150lb conductor rail (H= 64 mm), use over rail clamp DBG-L



CHECK RAIL TEMPLATES

MPAF UIC33	for rail UIC33 type (H= 35 mm), use over rail clamp DBG-UIC33 Drill template for holes at 35mm from top of rail. NOTE: to be used with SPACER UIC33
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TRAM RAIL TEMPLATES

MPAF Ri60-87	for rail Ri60 type (H= 87 mm), use over rail clamp DBG-L
MPAF Ri60N	for rail Ri59, Ri60N, Ri60 type (H= 73 mm), use over rail clamp DBG-L
MPAS Ri59	vertical drilling template, for rail Ri59 type, use over rail clamp DBG-L



UNIVERSAL TEMPLATES MPAU

Universal template for applications in which drilling height is determined by operator.



POSITIONING TEMPLATES FOR DRILLING Ø 7.2mm

MSPAF BS95RBH-57	for rail BS95R BH type (H=57mm) signalling lead location holes at pitch of 76mm (H=57mm), use over rail clamp DBG-F
MSPAF BS113A-57	for rail BS113A type (H=57mm) signalling lead location holes at pitch of 76mm (H=57mm), use over rail clamp DBG-F
MSPAF UIC60-70	for rail UIC60 type (H=70mm) signalling lead location holes at pitch of 76mm (H=70mm), use over rail clamp DBG-F
MSPAF UIC54B	for rail UIC54B type (H=54,8mm) signalling lead location holes at pitch of 76mm (H=54,8mm), use over rail clamp DBG-L
SPACER UIC33	for rail UIC33 type Spacer block to be used within assembly for drilling UIC33 rail.



SPA/2 UIC33

DBG UIC33

SPACER UIC33

For other templates, please contact Cembre.

OPTIONAL ACCESSORIES FOR RAIL DRILLING MACHINES

POSITIONING TEMPLATES FOR DRILLING Ø 9.5mm

- MSPAF/2 BS95RBH-57** for rail **BS95R BH** type (H=57mm) signalling lead location holes at pitch of 76mm (H=57mm), use over rail clamp **DBG-F**
- MSPAF/2 BS113A-57** for rail **BS113A** type (H=57mm) signalling lead location holes at pitch of 76mm (H=57mm), use over rail clamp **DBG-F**
- MSPAF/2 UIC60-70** for rail **UIC60** type (H=70mm) signalling lead location holes at pitch of 76mm (H=70mm), use over rail clamp **DBG-F**
- MSPAF/2 UIC54B** for rail **UIC54B** type (H=54,8mm) signalling lead location

POSITIONING TEMPLATES FOR AXLE COUNTER GAUGE LOCATION HOLES

- MSPAF ACG UIC60** for rail **UIC60** type (H=68mm) Ø 13mm @ 148mm centres, use over rail clamp **DBG-F**
- MSPAF ACG BS113A** for rail **BS113A** type (H=65mm) Ø 13mm@148mm centres, use over rail clamp **DBG-F**
- MSPAF ACG BS95R BH** for rail **BS95R BH** type (H=65mm) Ø 13mm @ 148mm centres, use over rail clamp **DBG-F**
- MSPAF ACG BS80A** for rail **BS80A** type (H=56mm) Ø13mm @ 148mm centres, use over rail clamp **DBG-F**
- MSPAF ACG 109LB** for 109lb FG rail (H=56mm) Ø13mm @ 148mm centres
- MSPAF ACG 98LB** for 98lb FG rail (H=60mm) Ø13mm @ 148mm centres

CONDUCTOR RAIL POSITIONING TEMPLATES

- MSPAF 106LB-41** for **106lb** conductor rail (H=52,2mm) Ø 22mm @ 41mm centres, use over rail clamp **DBG-L**
- MSPAF 150LB-41** for **150lb** conductor rail (H=64mm) Ø 22mm @ 41mm centres, use over rail clamp **DBG-L**

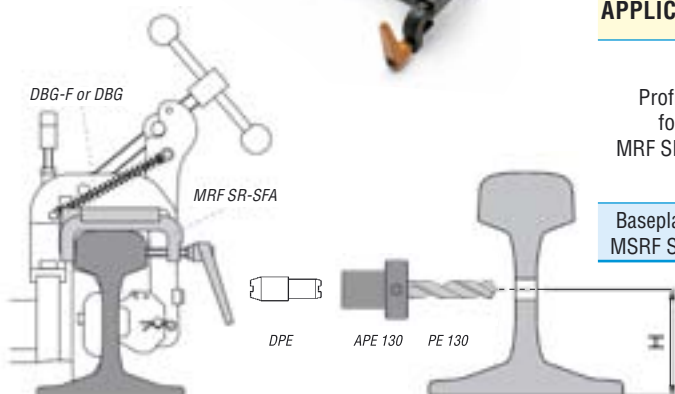
POSITIONING JIGS

- SPA/2 IBJ6H** for rail **BS113A / BS95R BH** type, use over rail clamp **DBG-F**
Positioning jig for drilling fishplate location holes
- SPA/2 IBJ6H UIC60** for rail **UIC60** type, use over rail clamp **DBG-F**
Positioning jig for drilling fishplate location holes
- SPA/2 BS75R/80A** for rail **BS75R / BS80A** type, use over rail clamp **DBG-F**
Positioning jig for drilling fishplate location holes
- SPA/2 DWS** for rail **BS113A** type, use over rail clamp **DBG-F**
Positioning jig for drilling location holes for Double Wheel Switch Sensor
- SPA/2 106/150LB** for **160LB / 150LB** conductor rail type, use over rail clamp **DBG-L**

MRF-SR SFA

For various rail types. Positioning jig for axle counter gauge fixing holes.

APPLICATION	PRODUCT CODE	RAIL TYPE	DRILLING HEIGHT (mm)	OVER RAIL CLAMP
Profiles for MRF SR-SFA	SR-BS95RBH-58.5	BS95RBH	58.5	DBG-F
	SR-BS113A-72.25	BS113A	72.25	DBG-F
	SR-UIC60-74	UIC60	74	DBG-F
	SR-UIC60-85	UIC60	85	DBG-F
	SR-UIC60-85.5	UIC60	85.5	DBG-F
Baseplate for MSRF SR-SFA	SR-SKI	Various	-	DBG-F



OPTIONAL ACCESSORIES FOR RAIL DRILLING MACHINES

BROACH CUTTERS

These cutters rapidly produce high quality, accurate holes in a single pass. The automatic lubrocool system reduces friction and eliminates heat build up during the drilling operation. As a guide, under normal conditions a broach cutter can drill 40-50 holes, depending on the hardness of the rail, before re-sharpening. Between 3 and 6 re-sharpening operations are possible.



Short range			Long range	
Ref.	Guide bits	Ø mm	Ref.	Guide bits
A 135	Ref. PP1	13,5		
A 140		14		
A 150		15		
A 160		16	A 160 L	Ref. PPL1
A 170		17	A 170 L	
A 180	Ref. PP2	18	A 180 L	Ref. PPL2
A 190		19	A 190 L	
A 200		20	A 200 L	
A 210		21	A 210 L	
A 220		22	A 220 L	
A 230		23	A 230 L	
A 240		24	A 240 L	
A 250		25	A 250 L	
A 260		26	A 260 L	
A 270		27	A 270 L	
A 280		28	A 280 L	
A 290		29	A 290 L	
A 300		30	A 300 L	
A 320		32	A 310 L	
A 330		33	A 320 L	
Max drilling thickness 25 mm			Max drilling thickness 50 mm	

For larger Ø, please contact Cembre.

OPTIONAL ACCESSORIES FOR RAIL DRILLING MACHINES

SPECIAL SPIRAL BITS

Using these bits guarantees optimum performance during the drilling operation. The semi-automatic lubrocooling system, reduces friction and eliminates heat build up during the drilling operation. As a guide, under standard conditions, a spiral bit can drill 70-100 holes, depending on the hardness of the rail, before re-sharpening. Between 5 and 10 re-sharpening operations are possible.

Ø mm	Reference	Adapter	Spacer	Model
7	PE 70	APED 70	without DPE	
8	PE 80	APE 80		
10	PE 100	APE 100		
12	PE 120	APE 120		
13	PE 130	APED 130		
13,5	PE 135	APED 135/165	without DPE	
14	PE 140			
16	PE 160			
17	PE 170	without adapter		
18	PE 180			
19	PE 190			
22	PE 220			

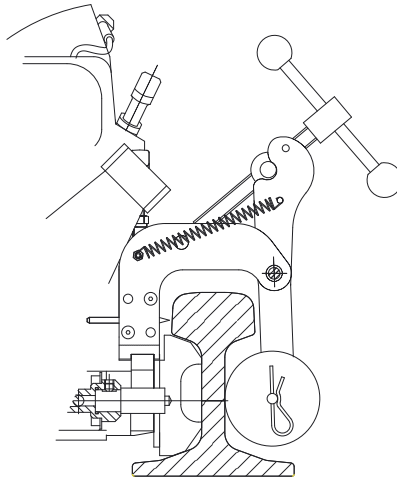
HIGH QUALITY SPIRAL BITS

Ø mm	Reference	Adapter	Spacer	Model
13	PE 130 AR	APED 130	without DPE	
13,5	PE 135 AR	APED 135/165		
17	PE 170 AR	without adapter		
19	PE 190 AR			
21	PE 210 AR			
24	PE 240 AR*			
27,5	PE 275 AR*			

* Only for LD-3PG, LD-41P, LD-4EF drilling machines

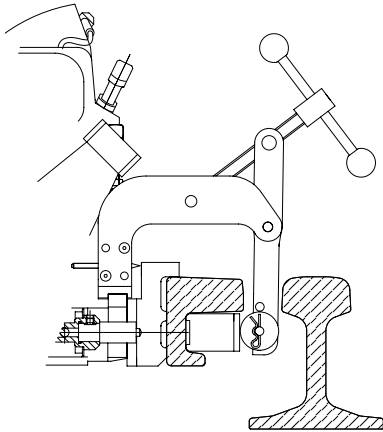
EXAMPLES OF RAIL DRILLING APPLICATIONS

USE ON STANDARD RAIL



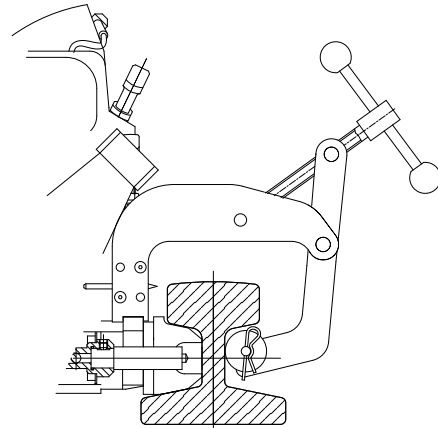
DBG-F over rail clamp equipped with **TDB-2** termination

USE ON CHECK RAIL



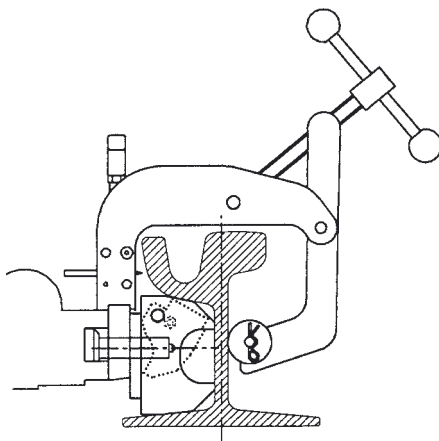
DBG-UIC33 over rail clamp
Specific positioning template **MPAF-UIC33**
SPACER UIC33 spacer block
Use of long broach cutters **RCVL...**

USE ON CONDUCTOR RAIL

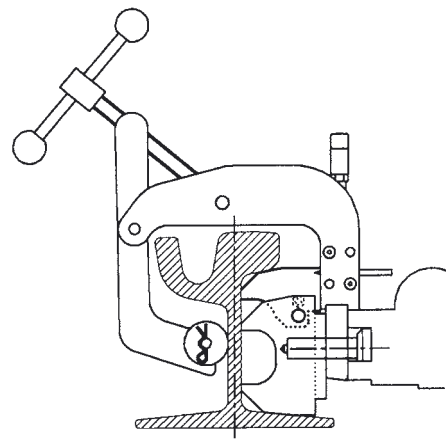


DBG-L over rail clamp equipped with
TDB-1 termination for 150LB conductor rail drilling

USE ON GIRDER RAIL (eg Ri 60Np4)



DBG-L over rail clamp
Specific positioning template **MPAF**
Use of long broach cutters **RCVL...**



The design of the template (combination)
allows positioning on both sides of the rails

MOBILE UNIT FOR DRILLING WOODEN SLEEPERS

SD-9PCS

PATENTED



MOBILE UNIT SD-9PCS COMPRISING:

• **Support trolley CS-SD**

The support mechanism, which secures the portable drilling machine, incorporates a gas pressure spring to give a constant, balanced control to the machine during operation.

Fitted with insulated wheels, the trolley does not interfere with the track electrical circuits. The trolley is easily closed and can comfortably be carried by a single operator.



• **Portable drilling machine SD-9P**

Two stroke petrol engine machine, purpose built for use with the support trolley CS-SD.



EASY TO ASSEMBLE AND COMFORTABLE TO TRANSPORT



The unit is easily assembled and can **comfortably be carried** by a single operator.

OPERATION

This patented unit has been designed and developed by Cembre to provide **optimum safety**, both when used independently and when fitted on to the support trolley.

Compact and lightweight, the unit can be positioned and operated by a single person.

The **SD-9PCS** unit enables vertical holes to be drilled **quickly and efficiently**.

If required, the angle of the Spindle Axis can be adjusted up to 5°.

The unit can quickly and easily be removed from the track.



Example of use on **double crossovers**.

SUPPORT TROLLEY CS-SD

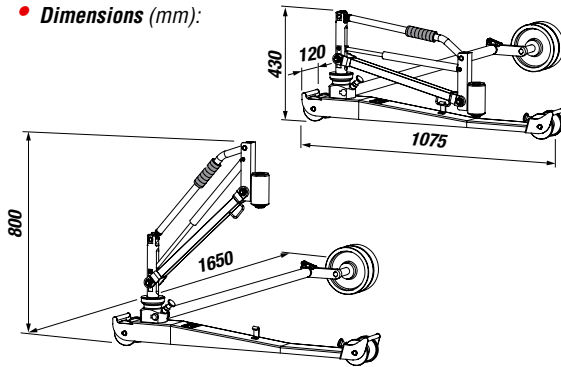
CS-SD

The support mechanism, which secures the portable drilling machines SD-9P, SD-10E and the portable impact wrench NR-11P, incorporates a gas pressure spring to give a constant, balanced control to the machine during operation. Fitted with insulated wheels, the trolley does not interfere with the track electrical circuits. The trolley is easily closed and can comfortably be carried by a single operator.



GENERAL FEATURES:

- **Weight:** drill support unit 17,5 kg
- **Bar with 3rd wheel:** 12 kg
- **Dimensions (mm):**



The trolley is easily assembled and can comfortably be carried by a single operator.



PORTABLE DRILLING MACHINES FOR WOODEN SLEEPERS SD-9P + SUPPORT TROLLEY CS-SD

(See Page 27)



PORTABLE PETROL ENGINE IMPACT WRENCH NR-11P + SUPPORT TROLLEY CS-SD

(See Page 24)



PORTABLE PETROL ENGINE IMPACT WRENCH NR-11P

NR-11P

Ideal for Railways, Construction sites,
Oil and Mining Industries,
Shipyards.



HIGH TORQUE
1800 Nm

OPERATING HANDLE

With integral safety mechanism

EASY TO FILL
LARGE FUEL TANK

EASY START
ENGINE BUTTON

2 STROKE
PETROL ENGINE

PROTECTIVE SHIELD

To protect tank and engine from
accidental shocks

TORQUE SELECTOR

With 5 positions

FORWARD/REVERSE SELECTOR

Smooth change

PRIMER

FLANGE FOR
OPTIONAL
SUPPORT TROLLEY
INTERFACE KIT

GEAR BOX

CENTRIFUGAL CLUTCH

VIBRATION
ABSORBING
DAMPERS

PROTECTIVE
SUPPORTING
STRUCTURE
ERGONOMICALLY
DESIGNED

IMPACT UNIT

Innovative patented system provides
greater torque

1" SQUARE SOCKET DRIVE

PORTABLE IMPACT WRENCH NR-11P

MAIN APPLICATIONS:

Assembly of steel structures such as bridges, building frames, rail tracks, ship building, heavy equipment maintenance, pipelines and industrial applications.



The protective handlebar structure facilitates a comfortable dorso-lumbar operating position without wrist injury.

A reduced mandrel axis to machine base dimension facilitates a more convenient horizontal position for working with track bolts, even when operating across sleepers.

Anti-vibration couplings reduce transmission of vibration to the operator.



POSSIBILITY OF EMPLOYMENT OF PORTABLE IMPACT WRENCH NR-11P WITH SUPPORT TROLLEY CS-SD

IN VERTICAL



KCS-NR interface kit for **vertical use** with support trolley **CS-SD**



IN HORIZONTAL

KHOR-NR interface kit for **horizontal use** with support trolley **CS-SD**



NR11-P can be used with the same **CS-SD** support trolley used with Cembre sleeper drilling machines.



PORTABLE IMPACT WRENCH NR-11P

GENERAL FEATURES

ENGINE	Type:	Two stroke, forced-air cooled, single cylinder
	Displacement:	55 cc
	Fuel tank capacity:	1,2 l
	Fuel mixture ratio:	{ Synthetic oil 1:50 2 stroke mineral oil 1:25
	Revolution (idle):	2800 rpm $\pm$ 200
	Revolution (loaded, impact):	7000 rpm
	Revolution (non loaded, max):	11500 rpm

IGNITION	Type:	Digital
	Spark plug type:	RAX 80 or equivalent

CARBURETTOR	Type:	Diaphragm
--------------------	--------------	-----------

IMPACT UNIT	Square driver size:	25,4 mm (1")
	Fastening torque range:	Full Throttle: 1800 Nm (1327 ft. lbs) Half Throttle: 800 Nm (590 ft. lbs)

CAPACITY	Free mandrel speed :	1300 rpm
	Bolt diameter:	up to 33 mm (1 1/4")

WEIGHT	Dry:	18,5 kg (40,7 lbs)
---------------	-------------	--------------------

DIMENSIONS mm



OPTIONAL ACCESSORIES:

Ref.	Description
XT 100	1" x 100 mm extension
SJ 1"	1" swivel joint
CLIP NR	Retaining circlip for fastening sockets to the mandrel.
KCS-NR	Kit for mounting NR11-P to CS-SD support trolley.
CS-SD	Support trolley common to NR11-P and sleeper drilling machines SD-9P and SD-10E.
VAL P20	Plastic box for storage of sockets and accessories.
VAL NR	Steel case for storage of NR11-P and VALP20 accessories box.



Standard and long impact sockets, extensions, swivelling shaft, adapters.

VAL NR



VAL P20



CLIP-NR



Retaining circlip for fastening sockets to the mandrel having an external diameter range: 47 ÷ 57 mm.
3 pieces supplied as standard.

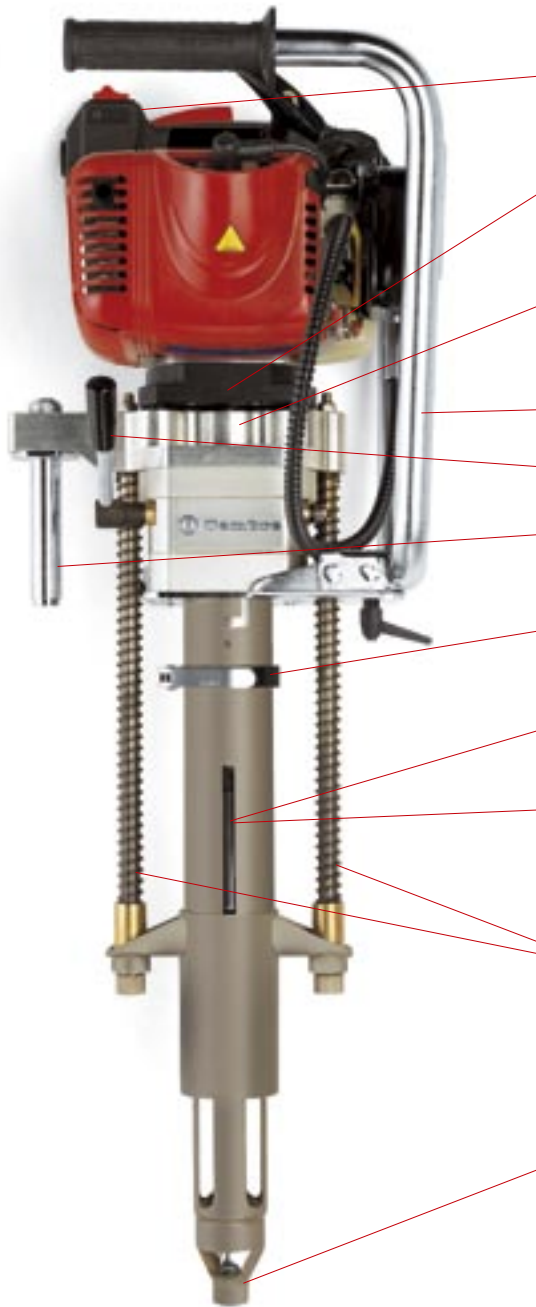
CLIP-NR 57



Retaining circlip for fastening sockets to the mandrel having an external diameter range: 57 ÷ 67 mm.
1 piece supplied as standard.

PORTABLE DRILLING MACHINES FOR WOODEN SLEEPERS

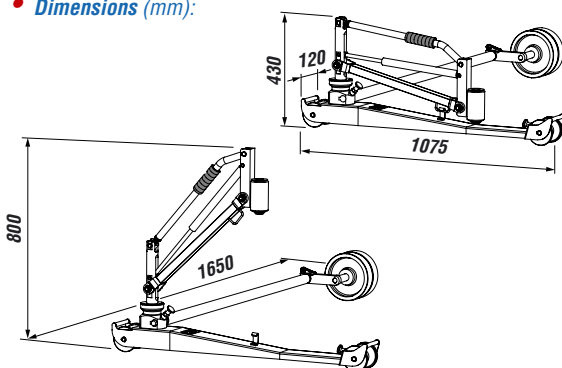
SD-9P



- Accelerator lever fitted with safety switch to prevent accidental operation.
- Centrifugal clutch: with the engine running at 'tick over' speed the drill bit is stationary. The accelerator controls the rotation of the drill bit.
- Shock absorbers fitted between the drive shaft and spindle reduce the transmission of machine vibrations to the operator.
- Handle will rotate through 90° for operator comfort.
- Emergency lever for the immediate release of the drill bit.
- Carrying handle. Also used for locating the drilling machine into the CS-SD trolley.
- Depth Gauge; easy to operate using the graduated scale, for adjusting the depth of drilled hole.
- MND spindle for automatically securing drill bits with a 14 mm diameter shank.
- MND1 interchangeable spindle: Available as an optional accessory. For automatically securing drill bits with a 16 mm diameter shank.
- Safety guard: provides effective, total protection of the drill bit (325 mm). Spring loaded to guarantee the retraction of the drill bit from the sleeper on completion of the drilling operation, thereby minimising operator effort.
- Interchangeable Guard Nozzle TPM200-26, for locating into chairs and base plates as commonly used on existing tracks.

SUPPORT TROLLEY TYPE CS-SD:

- **Weight** : drill support unit 17,5 kg
- **3rd wheel bar**: 12 kg
- **Dimensions (mm)**:



GENERAL FEATURES

- **Drilling range**: up to Ø 20 mm, with the Guard Nozzle supplied as standard. Drilling up to Ø 25 mm holes can be achieved by using the interchangeable Guard Nozzle TPM.... available as an optional accessory.
- **Max drilling thickness**: 200 mm
- **Weight**: 19 kg

Two stroke engine:

- **Displacement**: 48.6 cc
- **Power**: 1,4 kW
- **Fuel**: 2% mixture (1:50)
- **Starting**: rope pull with automatic rewind

PORTABLE DRILLING MACHINES FOR WOODEN SLEEPERS

SD-10E

Technical characteristics:

Engine: single phase electric motor

Supply voltage: 220/230 V / 50 Hz

Power rating: 1800 W

Bit diameter range: up to Ø 20 mm*

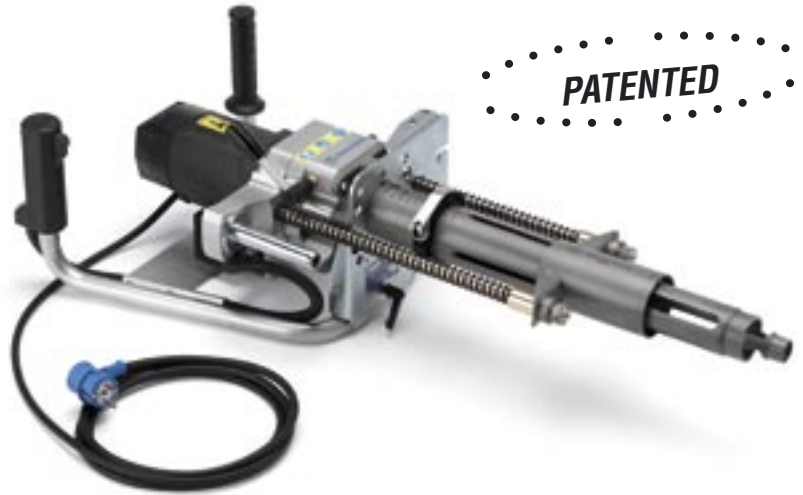
Drilling up to Ø 25 mm can be achieved by using the interchangeable Guard Nozzle TPM.... available as an optional accessory.

Max. drilling thickness: 200 mm

Weight: 18 kg

*Depending on the type of wood it is also possible to drill larger holes

The SD-10E drilling machine is suitable for use with the CS-SD support trolley.



OPTIONAL ACCESSORIES FOR SLEEPER DRILLS

TPM...

Guard Nozzle for the moveable guard. Interchangeable with the standard nozzle.

TPM 100-18: for centring on base plates with Ø 18 mm holes, (using a Ø 10 mm max drill bit)

TPM 170-24: for centring on base plates with Ø 24 mm holes, (using a Ø 17 mm max drill bit)

TPM 190-24: for centring on base plates with Ø 24 mm holes, (using a Ø 19 mm max drill bit)

TPM 190-26: for centring on base plates with Ø 26 mm holes, (using a Ø 19 mm max drill bit)

TPM 200-26: for centring on base plates with Ø 26 mm holes, (using a Ø 20 mm max drill bit)

TPM 220-26: for centring on base plates with Ø 26 mm holes, (using a Ø 22 mm max drill bit)

TPM 250-31: for centring on base plates with Ø 31 mm holes, (using a Ø 25 mm max drill bit)



VAL P 6

Plastic case for storing the drill bits and standard accessories supplied with the machine. This case can be stored inside the drilling machine case.



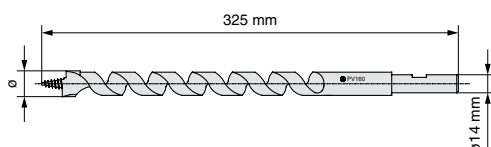
VAL SD

Robust steel case for storing the drilling machine and VAL P6 accessory case.



Drill bits having a Ø 14 mm shank suitable for MND standard spindle:

Ref:	Ø mm
PV 140	14
PV 160	16
PV 170	17
PV 180	18
PV 190 (3/4")	19,05
PV 200	20
PV 210	21
PV 220	22
PV 250	25



NOISE

Protection of workers against risks of exposure to noise during work.

The Cembre drills, models SD-9P and SD-10E, have been designed and constructed according to EEC directives 80/1107 and 86/188 relating to the protection of workers against risks arising from exposure to chemical, physical and biological agents during work, with particular regard to the risk of exposure to noise.

This has enabled the drilling machines to be manufactured for drilling wooden sleepers at reduced noise levels.

The exposure of workers to noise produced from this equipment depends on the duration of the loading times and the intervals between exposures, and on the number of holes made within one working day.

It is also indicated, by way of example, that for a worker who uses the SD-9P drill properly for making holes of Ø 18 mm with a drill bit on a 16 cm thick wooden sleeper producing up to 141 holes/day, the daily personal exposure to noise, due solely to the use of the drill is less than 80 dB (A). Under these conditions, producing 300 holes/day the daily exposure to noise is 83 dB (A) and producing 480 holes/day the daily exposure to noise is 85 dB (A).

Similarly, using the SD-10E drill, for a worker producing 450 holes/days on a 15 cm thick wooden sleeper, the daily personal exposure to noise, due solely to the use of the drill, is less than 77.1 dB (A). Under these conditions, producing 900 holes/day the daily exposure to noise is 79.7 dB (A).

RISK DUE TO VIBRATION (EEC directive 06/14/1989 no B9/392, Section 2.2).

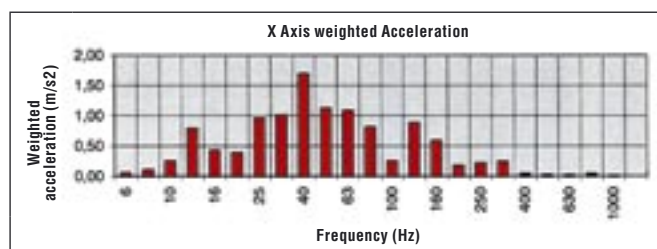
Tests carried out in compliance with UNI ENV 25349 and UNI EN 28662 Part 1 Standards and under operating conditions much more severe than those normally found, certify that the weighted root mean square in frequency of the acceleration to which the upper limbs are exposed for each biodynamic reference axis is respectively:

SD-9P

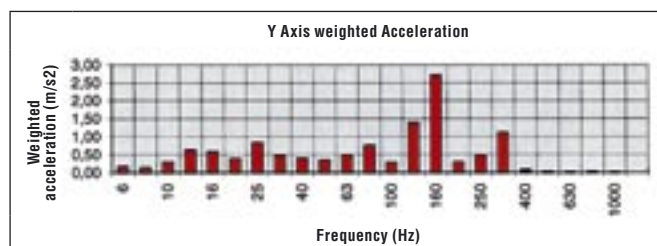
3,17 m/sec² on the X axis

3,70 m/sec² on the Y axis

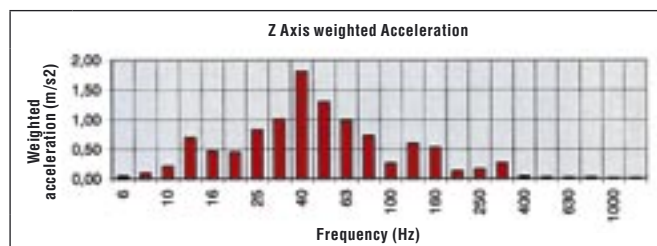
3,12 m/sec² on the Z axis



ACCELERATION (weighted root mean square value) X AXIS (m/s²) 3,17



ACCELERATION (weighted root mean square value) Y AXIS (m/s²) 3,70



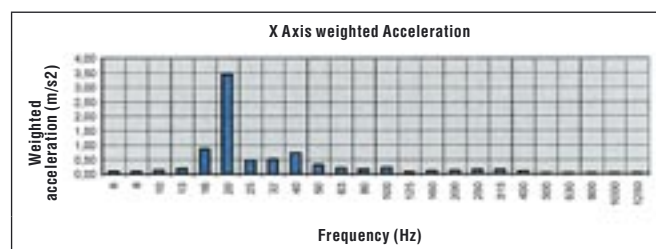
ACCELERATION (weighted root mean square value) Z AXIS (m/s²) 3,12

SD-10E

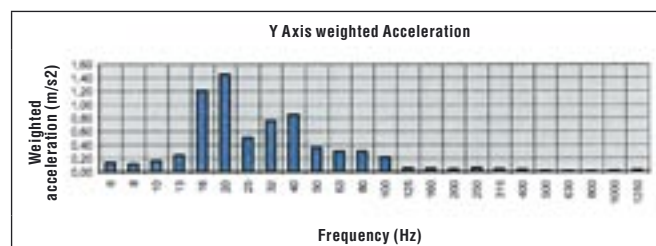
3,72 m/sec² on the X axis

2,35 m/sec² on the Y axis

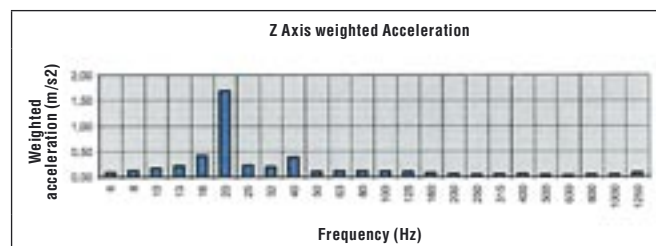
1,84 m/sec² on the Z axis



ACCELERATION (weighted root mean square value) X AXIS (m/s²) 3,72



ACCELERATION (weighted root mean square value) Y AXIS (m/s²) 2,35



ACCELERATION (weighted root mean square value) Z AXIS (m/s²) 1,84

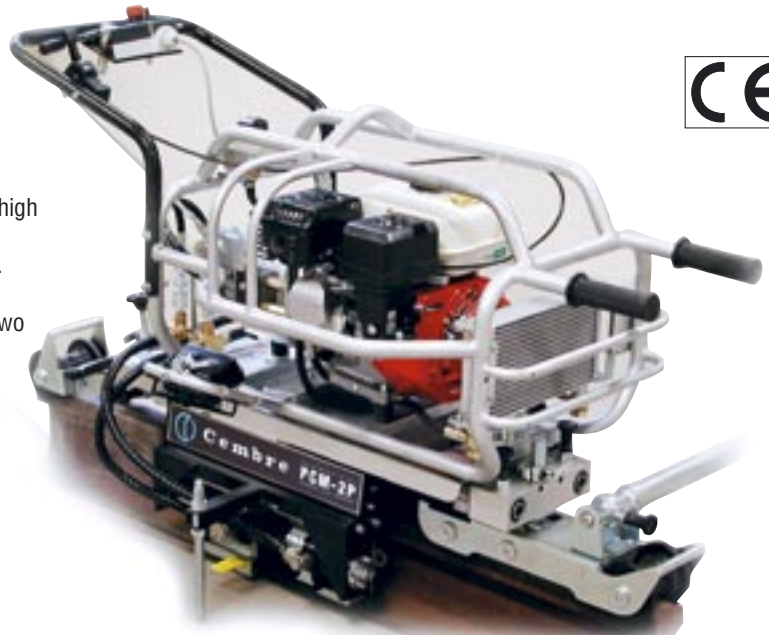
PCM-2P

For "e" type Pandrol clips

Particularly suited to rail adjustment work, for instance on in-progress rail sections or track renewal, the PCM-2P machine is also generally applicable in maintenance operations.



Rapid performance with a high degree of simplicity of use, requiring only one operator. Simultaneous insertion or extraction of two clips by two independent clamps.



A single operator can easily manage the machine.



Pandrol clips located on one side of the rail may be inserted or extracted when there are no clips on the opposite side. Possible to select to work with only one of the clamps, either for insertion or extraction, to operate if necessary on only one side of the rail.

Equipped with spot lights oriented to the working areas.

Undesirable movement of sleepers, where ballast is not yet in situ, is avoided due to the reciprocal independence of the clamps, enabling work to be carried out during rail setting.



At the end of each insertion operation clips are not overstressed due to an easily adjustable limit switch.

Removed clips are kept close by the machine, not dangerously thrown away, ensuring a high level of operator safety.

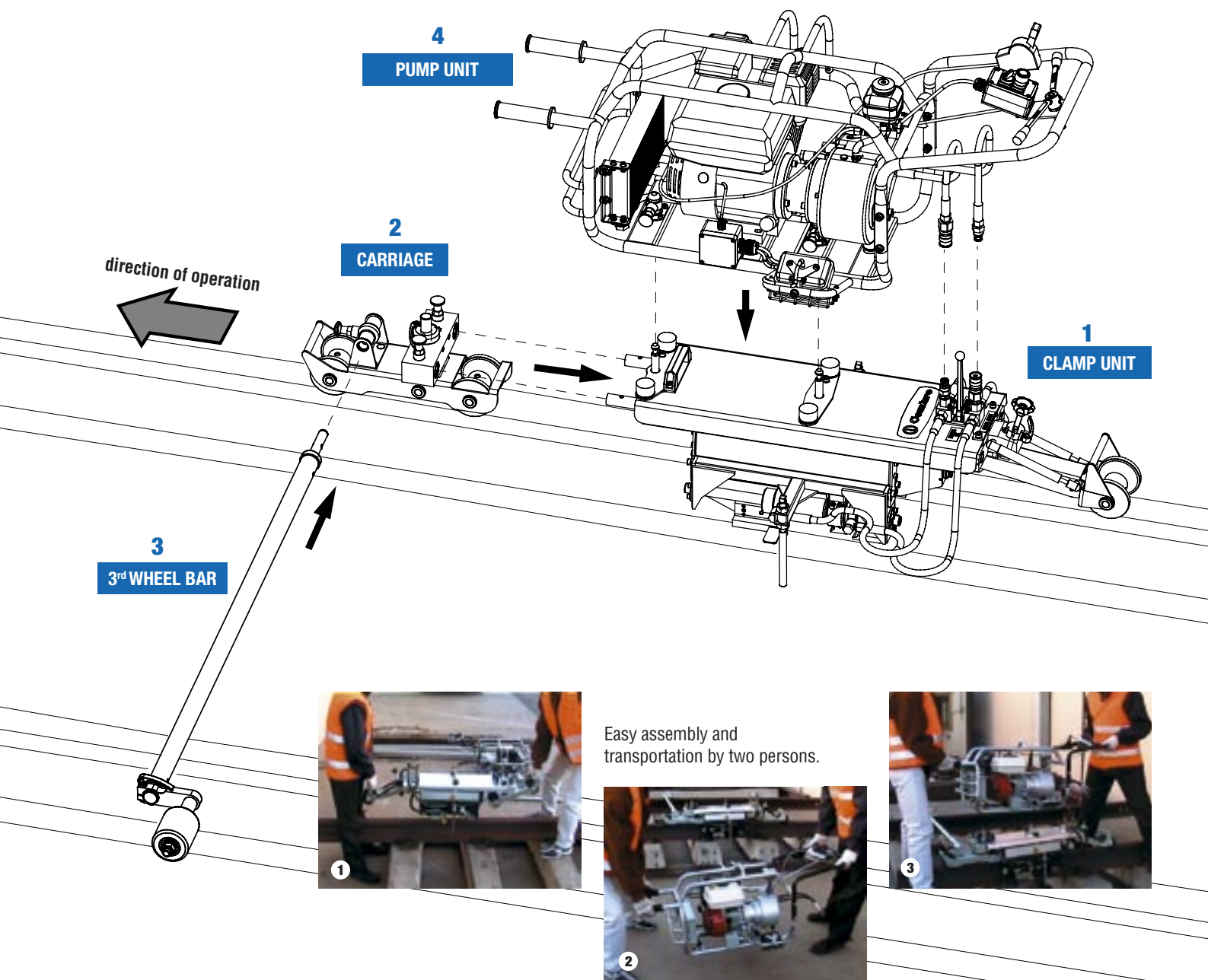


PANDROL “E CLIP” MACHINE

GENERAL FEATURES

- The PCM - 2P machine from Cembre is suitable for the insertion and extraction of “e” type Pandrol clips used with 75mm bases on standard European gauge sleepers (1435 mm).
- The unit is immediately ready to use requiring no assembly or disassembly of accessories.
- Particularly suited to rail adjustment work, for instance on in-progress rail sections or track renewal, the PCM - 2P machine is also generally applicable in maintenance operations.
- Ballast on sleepers does not unduly affect the machine, as the clamps do not rest on them.
- The pump unit is the same as that used on the “fast clip” type machine, incorporating a sturdy and powerful 4-stroke engine, Honda or equivalent, with noise levels according to CARB-EPA standards.
- Does not interfere with rail circuits due to the three insulated wheels and is also equipped with an appropriate mechanical joint to allow running without interference on the rail to reach the working area.
- Weight: Pump unit 49 kg, Clamp unit 48 kg, Carriage 9 kg, 3rd wheel bar 5 kg.

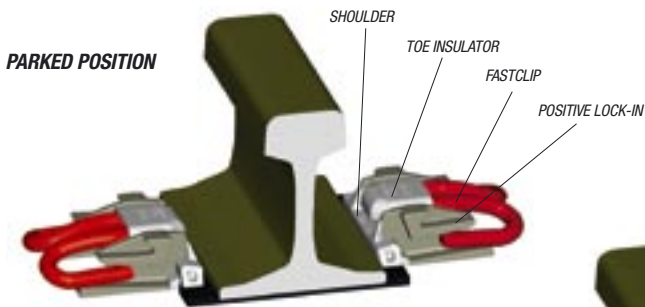
ASSEMBLY SEQUENCE PCM-2P



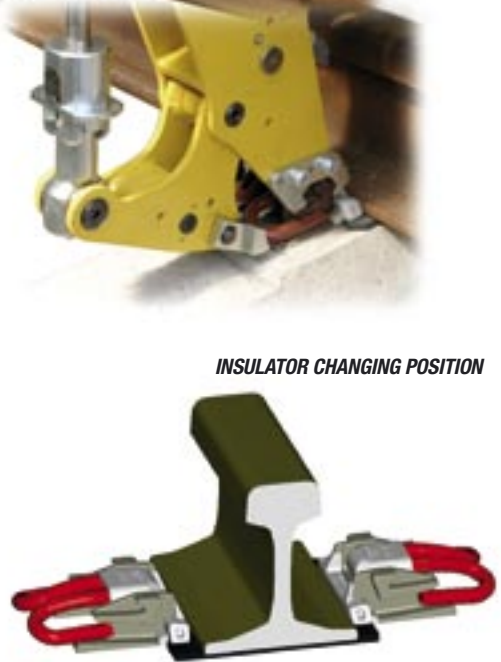
PCM-2P/FC

For PANDROL "FAST CLIPS"

The PCM - 2P/FC machine from Cembre is suitable for the insertion and extraction of Pandrol "fast clips" used with all 1435 mm gauge standard rails mounted on monoblock or biblock concrete sleepers.



This PCM-2P/FC version is also equipped with a rapid and easy to use fine adjustment system allowing the 'fast clip' to be positioned in either the pre-assembled parked position, the fully inserted/removed position or the insulator change position, as shown in the figs alongside.



GENERAL FEATURES

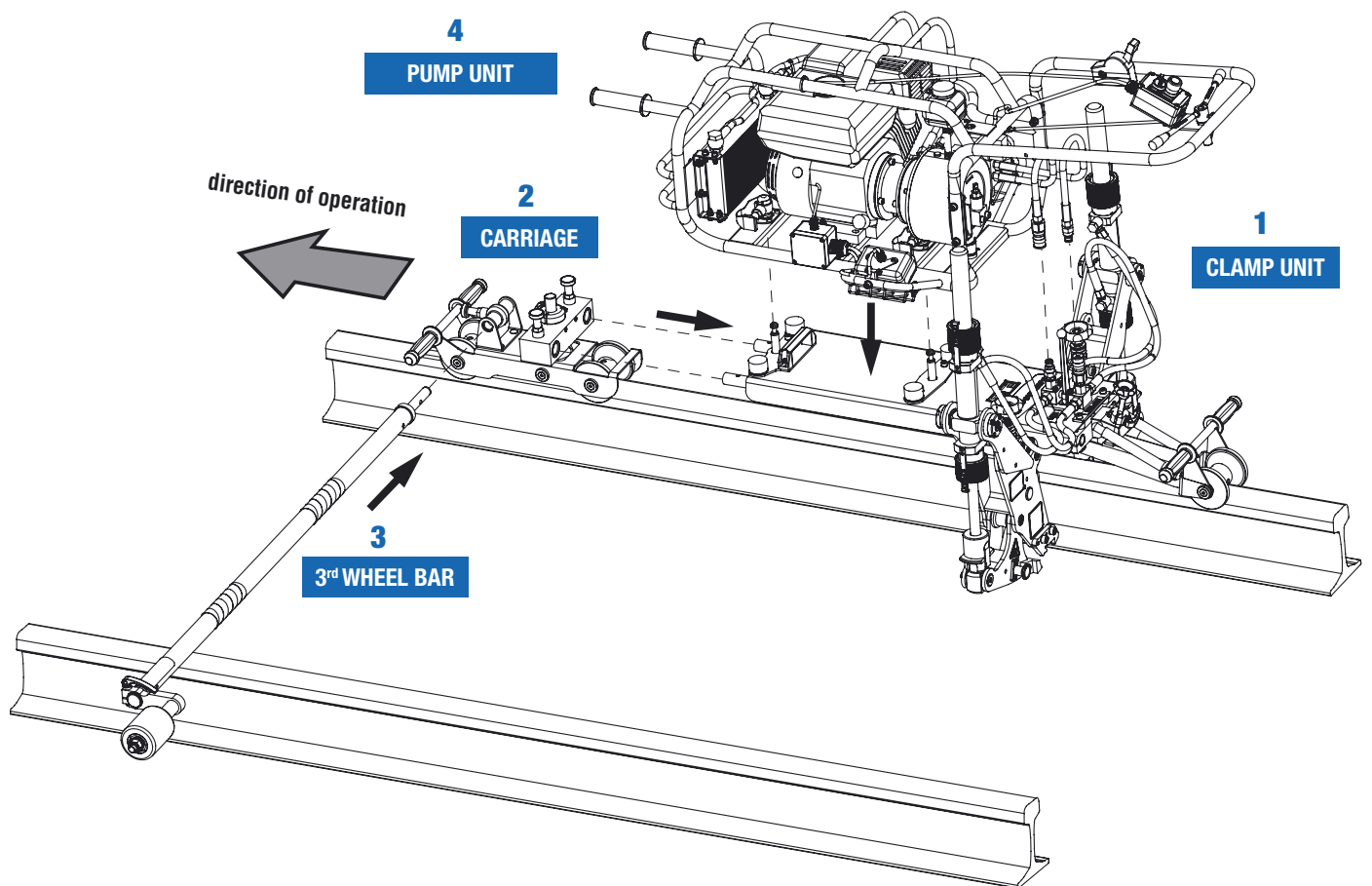
- The pump unit is the same as that used on the Pandrol "e clip" machine (see page 18) and consequently owners of the PCM-2P need purchase only the PCM-2P/FC clamp unit.
- Easy disassembly allowing operators to work safely on uneven ground.
- The unit is immediately ready to use requiring no assembly or disassembly of accessories.
- Rapid performance with a high degree of simplicity of use requiring only one operator.
- Simultaneous insertion or extraction of two clips by two independent clamps.
- "Fast clips" located on one side of the rail may be inserted or extracted when there are no clips on the opposite side.
- Possible to work with only one of the clamps, either for insertion or extraction, to operate if necessary on only one side of the rail.
- The pump unit is the same as that used on the "e" clip machine, incorporating a sturdy and powerful 4-stroke engine, Honda or equivalent, with noise levels according to CARB-EPA standards.
- Does not interfere with rail circuits due to the three insulated wheels and is also equipped with an appropriate mechanical joint to allow running without interference on the rail to reach the working area.
- Equipped with spot lights oriented to the working areas.
- Weight: Pump unit 48 kg, Clamp unit 66 kg, Carriage 9 kg, 3rd wheel bar 5 kg.



Extraction and insertion of Pandrol "fast clips".

PANDROL “FAST CLIP” MACHINE

ASSEMBLY SEQUENCE PCM-2P/FC



OPTIONAL ACCESSORIES FOR PANDROL CLIP MACHINES

Tarpcover 019-PCM

Robust UV resistant cover for PCM machines.
Temperature range: -40°C e +70°C.



MPC 6

Manometer for checking the operation of the maximum pressure value in the hydraulic circuit.



CONNECTING JOINTS FOR PROFILED CONTACT WIRES

The joint allows connection between new or new and worn contact wires without any tapering operation, assuring a uniform and continuous sliding area of the pantograph. The use of these joints also reduces intervention times to a minimum.

In addition to the laboratory tests, on line tests have shown that the joint operates satisfactorily on 180km/h lines and on lower speed lines but with strong current absorption (gradients).



CONNECTING JOINT TYPE	TORQUE RATIO Nm	GROOVED CONTACT WIRE		
		Section (mm²)	Ø (mm)	REFERENCE STANDARD
FTGW 100	65	100	12,0	EN 50149 (Type AC-120 or Cu and CuAg 0,1)
FTGW 120		120	12,9	
FTGW 150			13,2	
		150	14,5	

The jointing process can be improved and made quicker by the perpendicular cutting of the contact wire ends to be joined using the appropriate tool:

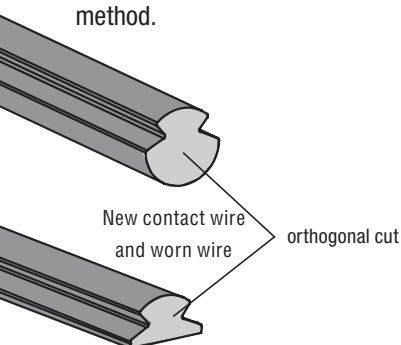
GROOVED CONTACT WIRE ALIGNMENT DEVICE DURING THE INSTALLATION OF CONNECTING JOINTS

AD-GW

This device is designed to facilitate accurate, repeatable and secure operations when aligning two grooved contact wires during the installation of connecting joints.

Included with AD-GW is the HC-GW device designed to simplify radial and lateral adjustment of the contact wire to ensure rapid processing.

AD-GW is equipped with hooks for easy attachment to self-gripping clamps and a Tirfor type mechanical ratchet block commonly used for tensioning contact wire in jointing operations. The hydraulic actuator being designed for use with the Cembre B70M-P24 electro-hydraulic pump, is intended to provide an alternative to the mechanical ratchet block method.



The speed and quality of the jointing process can be greatly improved by using the appropriate tool to ensure accurate, perpendicular cutting of the contact wire ends.

RH-TFC hydraulic cutting head with interchangeable dies is ideal for cutting grooved contact wires perfectly perpendicularly without any deformation of the wire profile (see pages 25-26 for tooling information).



HYDRAULIC CUTTING HEAD FOR PROFILED CONTACT WIRE

Hydraulic cutting head for cutting profiled contact wires and copper and aluminium ropes. Interchangeable dies cut perpendicularly and without deformation to optimise joint installation.

The use of this head simplifies the cutting operation and reduces the time needed to prepare the joint.

For use with any of the following hydraulic pumps:

HTP, manually operated

PO-7000, foot operated

B70M-P24 portable electro-hydraulic 24 Vdc motor driven, powered by internal battery or external supply.



Contact wire cut with a traditional cutter

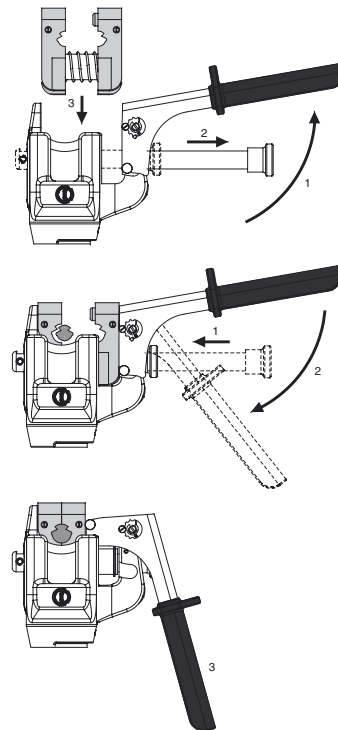
Contact wire cut with the RH-TFC hydraulic head

Simple 3 stage operation

Insert the die set into the head.

Position the conductor inside the die set so that the blade lines up with the desired cutting point; close the die set by moving the locking handle towards the tool body, until automatically “locked” in position and securely clamping the wire/conductor.

Operate the pump to advance the blade to the conductor; the blade progressively advances until the conductor is completely cut in a clean and precise manner without deforming the conductor itself.



DIE SETS

MFC-AC107

die set to use with RH-TFC head to cut contact wires in accordance with BS23:1970 standard (100sqmm size, Ø 11,8mm).

MFC-AC120

die set to use with RH-TFC head to cut contact wires in accordance with UNEL 70611-71 standard (120mm² size, Ø 12,9mm) and with EN50149 standard (120mm², Ø 13,2mm).



HYDRAULIC CUTTING TOOLS FOR PROFILED CONTACT WIRE



RH-TFC

- **Application:** Suitable for cutting profiled contact wires on electrified traction systems.
- **Max operating pressure:** 700 bar (10,000 psi)
- **Dimensions:**
 - length 196 mm
 - width (locking handle closed) 159 mm
 - width (locking handle open) 257 mm
- **Weight:** 3,1 kg
- **Storage:**
Supplied in a robust plastic case **VAL P15** suitable for storage of the head and 4 sets of dies.
- Dimensions 315 x 300 x 95 mm - weight 0,93 kg



HT-TFC

Hydraulic hand operated tool.

- **Application:** see RH-TFC
- **Max operating pressure:** 600 bar (8,600 psi)
- **Dimensions:**
 - length 373 mm
 - width (locking handle closed) 159 mm
 - width (locking handle open) 257 mm
- **Weight:** 3,6 kg
- **Storage:**
Supplied in a robust plastic case **VAL P17** suitable for storage of the tool and 4 sets of dies.
- Dimensions 470 x 384 x 110 mm - weight 2 kg



B-TFC

Hydraulic battery operated tool.

- **Application:** see RH-TFC
- **Max operating pressure:** 600 bar (8,600 psi)
- **Dimensions:**
 - length 293 mm
 - width (locking handle included) 99 mm
 - height (locking handle included) 352 mm
- **Weight (including battery):** 5,3 kg
- **Storage:**
Supplied in a robust plastic case **VAL P12** suitable for storage of the tool and 3 sets of dies.
- Dimensions 496 x 370 x 137 mm - weight 2,7 kg



MECHANICAL STRAIGHTENING DEVICE FOR GROOVED CONTACT WIRES

MSGW

The mechanical straightening device for profiled contact wires allows the easy and continuous straightening of the most common sizes of wires for example : 100-120-150sqmm.



Die sets to be used with ECW-H3D hydraulic head.



By a combination of the calibrated profile of these dies and the high compression force of the press head, good results in correcting localised mis-shaping of the wire may be obtained, with only one operation.

HTEPE.DET12 HTEPE.DET16

System consisting of:		
	HTEPE.DET12	HTEPE.DET16
Hand pump unit and hose assembly	HTP-Z-IS	HTP-Z-IS
Hydraulic head	RHTEPE-12-S	RHTEPE-16-S
Coupler	Q14-MS	Q14-MS
Two piece plunger	OG13.2T	OG16.2T
Go/no go gauge	CAL22.23	CAL22.23
Plastic case	VAL P14	VAL P14

Dimensions

Pump body: Length 275 mm
Width 130 mm
Head: length 105 mm
Total weight: 3 kg



RHTEPE-12 RHTEPE-16

System consisting of:		
	RHTEPE.DET12	RHTEPE.DET16
Hydraulic head	RHTEPE-12-S	RHTEPE-16-S
Coupler	Q14-MS	Q14-MS
Two piece plunger	OG13.2T	OG16.2T
Go/no go gauge	CAL22.23	CAL22.23
Plastic case	VAL RHTEP	VAL RHTEP

Dimensions: Length 105 mm
Weight: 1,1 kg



BTEPE.DET12 BTEPE.DET16

System consisting of:		
	BTEPE.DET12	BTEPE.DET16
Battery pump unit and hose assembly	BTP-Z-IS	BTP-Z-IS
Hydraulic head	RHTEPE-12-S	RHTEPE-16-S
Coupler	Q14-MS	Q14-MS
Two piece plunger	OG13.2T	OG16.2T
Go/no go gauge	CAL22.23	CAL22.23
Canvas bag	009	009

Dimensions

Pump body: Length 94 mm
Width 302 mm
Head: Length 105 mm
Total weight: ? kg



HYDRAULIC SYSTEMS FOR INSTALLING RAIL WEB ELECTRICAL CONNECTIONS

KIT AR 67 INST

Including:

- **CAL 8.85** Gauge
- **M9 M5** Adapter
- **OG 6.5** Plunger

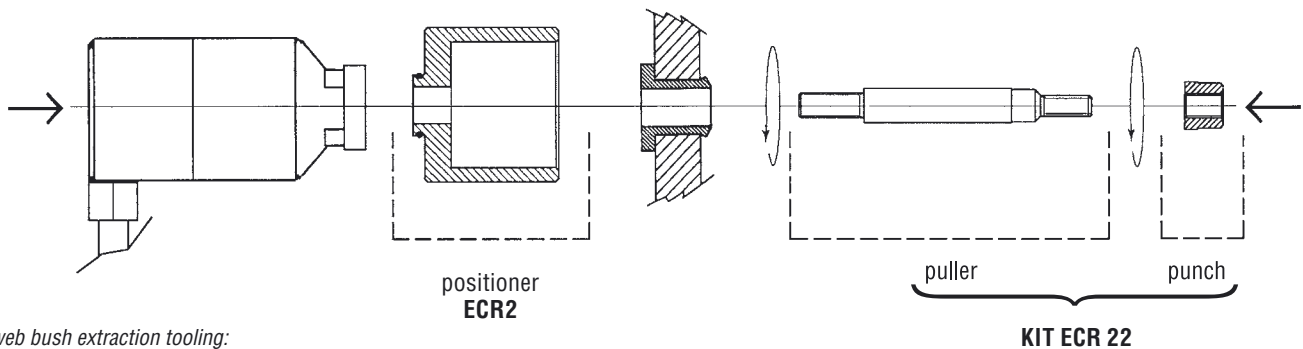
For the installation of electrical contact type **AR 67**



HYDRAULIC SYSTEM FOR EXTRACTING RAIL WEB CONNECTIONS

ECR22+ECR2

In order to remove AR61 & AR65 bushes, use optional accessories ECR 22 kit (punch + puller) with ECR-2 positioner as shown below.



Rail web bush extraction tooling:

Rail web bush	Hole diameter	Punch	Pull rod	Positioner
AR67-1	8	ECR 8		ECR 1
AR69-1	9,5	ECR 9,5		ECR 1
AR65-1	22	ECR 22		ECR 2
AR61-1	22	ECR 22		ECR 2

INSTALLATION KITS FOR RAIL WEB BONDING

KIT/TK20

For assembly of M6 rail web bonding kits

Comprising:	
1	4-20Nm 1/4" drive torque wrench
1	10mm metric 1/4" socket
1	16mm metric combination spanner
1	canvas bag

KIT/TK150

For assembly of M12/16 rail web bonding kits

Comprising:	
1	30-150Nm 1/2" drive torque wrench
1	19mm metric 1/2" extra deep socket
1	24mm metric 1/2" extra deep socket
1	11mm metric combination spanner
1	19mm metric combination spanner
1	30x32mm metric ring spanner
1	4mm socket screw wrench
1	canvas bag

KIT/TK AA1000

For assembly of M16 rail web bonding kits and AA1000S-2M16-41/50/325 power feed connectors

Comprising:	
1	30-150Nm 1/2" drive torque wrench
1	24mm metric 1/2" extra deep socket
1	1/2" drive breaker bar
1	32mm metric 1/2" socket
1	11mm metric combination spanner
1	4mm socket screw wrench
1	canvas bag

HYDRAULIC NUT SPLITTING HEADS

RHTD 1724

Application field: suitable for splitting nuts from 17 mm (M 12) to 24 mm (M 16) hexagon
Max operating pressure: 700bar
Weight: 1,76 kg



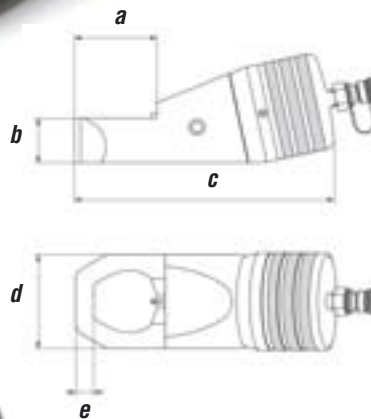
RHTD 3241

Application field: suitable for splitting nuts from 32 mm (M 22) to 41 mm (M 27) hexagon
Max operating pressure: 700bar
Weight: 4,6 kg



- Requires connection to a pump developing 700 bar pressure
- Lightweight and compact, designed for ease of operation in a variety of applications.
- The blade can easily be replaced

RHTD				
Dimensions mm:	1724	I	3241	
77	40,5		66	a
41	25		36	b
222	150,5		208	c
75,5	54		75,5	d
21,5	7,5		16	e



VAL P4
 Shock resistant case containing tool and accessories

RHTD 3241T



RHTD 3241T

Application field: suitable for splitting square and hexagonal nuts or fastening bushes as indicated in the table below
Max operating pressure: 700bar
Weight: 1,76 kg

- Requires connection to a pump developing 700 bar pressure.
- Lightweight and handy; its shape and dimensions have been designed to assist operator comfort in a variety of applications.
- The blade can be easily replaced in case of damage.
- Supplied in a shock resistant plastic case containing tool and accessories.

TOOL SETTING

DOUBLE BLADE (Moving blade and fixed blade marked "B")				(Moving blade and fixed blade marked "A")*		SINGLE BLADE (Moving blade marked "B" - Blind plate marked "C")			
HEXAGONAL NUTS		SQUARE NUTS		FASTENING BUSHES		HEXAGONAL NUTS		SQUARE NUTS	
27	M 18	27	M 18	1/2"	0.807"	32	M 22	32	M 22
30	M 20	30	M 20	5/8"	1.010"	34	M 22	36	M 24
32	M 22	32	M 22	3/4"	1.200"	36	M 24	41	M 27
34	M 22	36	M 24	7/8"	1.375"	41	M 27		
36	M 24	41	M 27	1"	1.575"				
41	M 27			1 1/8"	1.770"				

*Blades for cutting FASTENING BUSHES are specially shaped

HT 51

New design two speed hydraulic tool, lightweight and compact, this tool is ideal for working in confined spaces. Having the benefit of spring loaded handles, the dies can be advanced using only one hand, leaving the other hand free to position the connector. For ease of operation and comfort of the operator, the tool head can be rotated through 180 degrees.

The built-in safety valve will by-pass the oil supply when the maximum pressure is reached, and a pressure release system can easily be operated at any stage of the compression.

Crimping force: 50kN
Max operating pressure: 600bar
Dimensions: Length 373 mm
 Width 130 mm
Weight: 1,76 kg
Application range: 6-240 mm²



VAL P1

The tool is supplied in a sturdy plastic case type VAL P1. Also suitable for storing 20 die sets.

RH 50

Hydraulic presshead complete with quick automatic coupler for connection to a hydraulic pump with a max working pressure of 700 bar.

RH 50 is suitable for installing the same range of connectors as HT 51.

Crimping force: 50kN
Max operating pressure: 700bar
Dimensions: Length 196 mm
 Width 75 mm
Weight: 1,6 kg
Application range: 6-240 mm²



VAL P1

The tool is supplied in a sturdy plastic case type VALP1. Also suitable for storing 20 die sets.

These tools are supplied without dies.

B 50

14.4 V cordless hydraulic crimping tool, lightweight and balanced for single hand operation. The crimping head can rotate through 180° for ease of operation. The **B 50** will accept die sets common to the Cembre 50 kN tooling range. Fitted with a maximum hydraulic pressure valve. Complete with a battery condition display, which after every operation indicates the residual battery power.

Extremely quiet in operation, with very little vibration. Ergonomically designed with a sculptured body for operator comfort.

Crimping force: 50kN
Max operating pressure: 600bar
Dimensions: Length 94 mm
 Width 302 mm
Weight: 3,85 kg
Application range: 6-240 mm²



Also available, the B 50-KV insulated version, for power supply companies and B50-G version featuring protected push buttons modified to allow the operator to wear protection gloves.

VAL P5

B50 tools are supplied in a sturdy plastic case type **VAL P5**. Also suitable for storing 21 die sets. Battery charger and shoulder strap are also included.



HT 120

This lightweight and self contained tool will accept the semi-circular slotted dies, common to most 130 kN tools. It is particularly suitable for installing crimp type electrical connectors for overhead line applications. The tool features a double speed action: a fast advancing speed for rapid approach of the dies to the connector and a slower more powerful speed for crimping. For ease of operation and comfort of the operator the tool head can be fully rotated through 180 degrees.

The built-in safety valve will by-pass the oil supply when the maximum pressure is reached, and a pressure release system can easily be operated at any stage of the compression.

Crimping force: 120kN
Max operating pressure: 700bar
Dimensions: Length 488 mm
 Width 138 mm
Weight: 5,7 kg
Application range: 10-400 mm²



VAL P3

The tool is supplied in a sturdy plastic case, **VAL P3**. Also suitable for storing 14 die sets.

These tools are supplied without dies.

ECW-H3D

Hydraulic presshead complete with quick automatic coupler for connection to a hydraulic pump with a max operating pressure of 700 bar. Adaptor type AU230-130D is available as an optional accessory, enabling the head to utilise the semi-circular slotted dies which are common to most 130 kN tools.

Also available is a series of dies for the compression of DIN electrical connectors and a die for cutting copper, aluminium, aldreyl, aluminium-steel and steel conductors.

Crimping force: 230kN
Max operating pressure: 700bar
Dimensions: Length 290 mm
 Width 120 mm
Weight: 5,2 kg
Application range: 10-630 mm²



VAL ECW-H3D

The tool is supplied in a metallic transportation case type VAL ECW-H3D. Also suitable for storing die sets.

RHU 520

Hydraulic presshead complete with quick automatic coupler for connection to a hydraulic pump with a working pressure of 700 bar max. Adaptor type AU520-130C is available as an optional e x t r a enabling the head to utilise the semi-circular slotted dies which are common to most 130 kN tools.

Crimping force: 520kN
Max operating pressure: 700bar
Dimensions: Length 306 mm
 Width 200 mm
Weight: 18 kg
Application range: 1200 mm²



VAL 520

Metallic transportation case for RHU 520.

VAL MAT 520

Metallic transportation case for RHU 520 load and 10 die sets available as optional accessory.



These tools are supplied without dies.

HT-TC 026

Hand operated hydraulic tool specifically designed to cut copper, aldre, aluminum, aluminium-steel cables and steel ropes, aluminium and steel rods having a max overall diameter of 24 mm. The blades are manufactured from high strength special steel, heat treated to ensure a long service life. The head can rotate by 180 degrees to enable the operator to work in the most comfortable position and can easily be opened to allow the cutting of running cables. HT-TC026 features an automatic safety valve to bypass oil when reaching maximum pressure; a pressure release device can also be operated at any stage of operation.

Max cutting diameter:	24 mm
Max operating pressure:	600 bar
Dimensions: Length	382 mm
Width	129 mm
Weight:	3,2 kg



TC 025

Hydraulic cutting head complete with quick automatic coupler for connection to a hydraulic pump with a max operating pressure of 700 bar.

TC025 has the same cutting capability as HT-TC026.

Max cutting diameter:	24 mm
Max operating pressure:	700 bar
Dimensions: Length	227 mm
Width	87 mm
Weight:	2,0 kg



B-TC 025

The B-TC025 is a cordless tooling that can be operated with one hand. General features are:

- Balanced for greater control
- Head rotates for ease of operation in confined spaces
- Battery condition displayed after every crimping operation
- Fitted with a maximum pressure valve to indicate the full extent of blade travel
- Extremely quiet in operation with very little vibration
- Durable moulded body offering high resistance to wear and damage in all operating conditions
- Plastic carrying case can accommodate the tool and accessories

Max cutting diameter:	24 mm
Max operating pressure:	600 bar
Dimensions: Length	304 mm
Width	94 mm
Weight:	4,3 kg



VAL P5

The tool is supplied in a plastic case type VALP5. Battery charger and shoulder strap are also included.

HYDRAULIC CABLE CUTTERS

HT-TC 041

Hand operated hydraulic tool specifically designed to cut copper, aldreyl, aluminium, aluminium-steel cables and steel ropes, aluminium and steel rods having a max overall diameter of 40 mm. Self contained, robust and sturdy. The blades are manufactured from high strength special steel, heat treated to ensure a long service life. The head can rotate by 90 degrees, to enable the operator to work in the most comfortable position and can easily be opened to allow cutting of running cables. HT-TC041 features an automatic safety valve to bypass oil when reaching maximum pressure; a pressure release device can also be operated at any stage of operation.

Max cutting diameter:..... 40 mm
Max operating pressure: 700 bar
Dimensions: Length 550 mm
 Width 144 mm
Weight: 5,8 kg



B-TC04

- 14.4 V cordless hydraulic cutting tool specifically designed cut copper, aldreyl,aluminum, aluminum-steel cables and steel ropes, aluminum and steel rods having a max overall diameter of 40 mm.
- The B-TC04 is a two speed hydraulic tool and is powered by 14.4 V d.c. NiCd battery.
- Balanced for optimum control
- Quiet in operation with very little vibration
- Lightweight construction enables the operator to hold the tool in one hand and to position the conductor with the other hand
- Operating buttons, cut/release, are mechanically interlocked, to prevent accidental operation of the tool.
- A microprocessor controls the tool operation and automatically cuts out the motor, on completion of the cut operation, saving energy and extending battery life.
- Residual battery capacity level is automatically displayed after every cycle.
- Fitted with an integral socket, for connection to a 12 Vdc external power supply/vehicle battery.

Max cutting diameter:..... 40 mm
Max operating pressure: 700 bar
Dimensions: Length 497 mm
 Width 250 mm
Weight: 7,8 kg



TC 04

Hydraulic cutting head complete with quick automatic coupler for connection to a hydraulic pump with a max operating pressure of 700 bar. TC 04 has the same cutting capability as HT-TC041 and B-TC04.

Max cutting diameter:..... 40 mm
Max operating pressure: 700 bar
Dimensions: Length 330 mm
 Width 108 mm
Weight: 4,0 kg



CUTTING CAPACITY				
	MATERIAL	TENSILE STRENGTH (daN mm ²)	MAX CUTTING DIAMETER (mm)	
			HT-TC 026 ⁽¹⁾ TC 025 B-TC025	HT-TC 041 ⁽²⁾ TC 04 B-TC04
ROPE & CONDUCTORS	COPPER	≤ 41	24	40
	ALUMINIUM	≤ 20	24	40
	ALMELEC	≤ 34	24	40
	STEEL	≤ 180	FEW INDICATIVE EXAMPLES 7 x 3.0 : Ø = 9.0 19 x 2.1 : Ø = 10.5 19 x 2.3 : Ø = 11.5	
	MULTI STRAND STEEL (Strands Q TY ≥ 200)	≤ 180	18	18
	ACSR	≤ 180	24 ⁽¹⁾ 24 ⁽²⁾ FEW INDICATIVE EXAMPLES 26 x 2.50 + 7 x 1.85 : Ø = 15.85 ^{(1) (2)} 26 x 3.06 + 7 x 2.38 : Ø = 19.38 ^{(1) (2)} 26 x 3.60 + 7 x 2.80 : Ø = 22.80 ^{(1) (2)} 54 x 3.50 + 19 x 2.10 : Ø = 31.50 ^{(1) (2)} 54 x 4.36 + 19 x 2.62 : Ø = 39.20 ⁽²⁾	
RODS	STEEL	≤ 60	13	18
		≤ 42	16	20
	COPPER	≤ 30	20	30
		≤ 25	23	32
	ALUMINIUM	≤ 16	24	40

HT-TC 051

Hand operated hydraulic tool specifically designed to cut copper, aluminium and telecommunications cables having a max overall diameter of 50 mm. The blades are manufactured from high strength special steel, heat treated to ensure a long service life. The head can be easily opened to allow the cutting of running cables. The head can rotate by 90 degrees, to enable the operator to work in the most comfortable position. HT-TC051 features an automatic safety valve to bypass oil when reaching maximum pressure; a pressure release device can also be operated at any stage of operation.

Max cutting diameter:	50 mm
Max operating pressure:	600 bar
Dimensions: Length	497 mm
Width	129 mm
Weight:	4,38 kg



TC 050

Hydraulic cutting head complete with quick automatic coupler for connection to a hydraulic pump with a working pressure of 700 bar max. TC050 features the same cutting capability as HT-TC051.

Max cutting diameter:	50 mm
Max operating pressure:	700 bar
Dimensions: Length	330 mm
Width	126 mm
Weight:	3,4 kg



B-TC050

The B-TC050 is a cordless tool that can be operated with one hand.

General features:

- Balanced for greater control
- Head rotates for ease of operation in confined spaces
- Battery condition displayed after every crimping operation to show the residual battery power
- Fitted with a maximum pressure valve to indicate the full extent of the blade travel
- Extremely quiet in operation with very little vibration
- Durable moulded body offering high resistance to wear and damage in all operating conditions
- Plastic carrying case can accommodate the tool and the accessories



Max cutting diameter:	50 mm
Max operating pressure:	600 bar
Dimensions: Length	304 mm
Width	94 mm
Weight:	5,68 kg



VAL P9

The tool is supplied in a sturdy plastic case, **VAL P9**. Battery charger and shoulder strap are also included.

TC 085

Hydraulic cutting head complete with quick automatic coupler for connection to a hydraulic pump with a working pressure of 700 bar max. TC085 features the same cutting capability as HT-TC0851.



Max cutting diameter:	85 mm
Max operating pressure:	700 bar
Dimensions: Length	405 mm
Width	143 mm
Weight:	5,1 kg



PO 7000

Foot operated double speed pump, developing a maximum pressure of 700 bar. The pump is supplied with 3 m long high pressure flexible hose complete with female self-lock quick coupler. Pressure can be withdrawn at any time during operation by depressing the release lever. The solid shaped stand gives the pump stability during operation.

Max operating pressure:	700 bar
Dimensions:	
Length	680 mm
Width	200 mm
Height	163 mm
Weight:	9,2 kg



B70M-P24

Portable electro-hydraulic pump, operating at 24V dc by battery for independent use, developing 700 bar pressure. Other versions feature an integral socket for connection to an external 24 V dc supply or are insulated and operated by remote pneumatic pedal. **B70M-P24** is supplied with following accessories:

- Flexible hose complete with male + female 3/8" NPT self-lock quick couplers
- Remote control
- External battery charger
- Canvas holdall for carrying accessories

Optional accessories:

- Spare 24V dc battery
- 24 Vdc external supply connection cables:
 - **ESC 300 CEE** (3 m length, EEC plug)
 - **ESC 600** (6 m length, with crocodile clamps)
- **RCP-B70** Portable remote foot control
- **RCH-B70** Control handle for flexible hoses
- **TRS-B70** rucksack
- **SH-B70** ladder support hook

Max operating pressure:	700 bar
Dimensions:	
Length	390 mm
Width	163 mm
Height	323 mm
Weight:	without accessories 9,2 kg



ECW-H3D
RHU 520



RH 50
RH 61
RHC 131



TC 025
TC 04
TC 050

RHTEP



RH-TFC



RHTD 1724
RHTD 3241
RHTD 3241T



A P P L I C A T I O N

ACCESSORIES FOR B70M-P24

ESC 300CEE

CONNECTING CABLE WITH 24V
dc CEE TYPE PLUG
(for power from an external
source length 3 m)



ESC 600

CONNECTING CABLE WITH
CROCODILE CLIPS
(for power from an external
source, length 6 m)



TRS-B70

CANVAS RUCKSACK
(for carrying the pump)



RCH-B70

REMOTE HAND CONTROLLER
(for attachment to the
operating head)



VAL-P18

DURABLE CASE
FOR PUMP
AND ACCESSORIES



SH-B70

HOOK
(for hanging the pump
from a ladder)



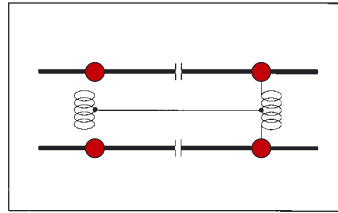
RCP-B70

REMOTE
FOOT
PEDAL
CONTROLLER



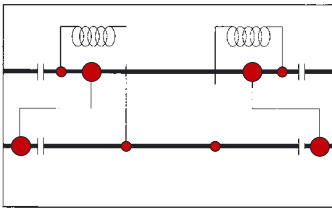
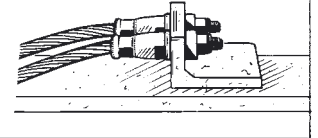
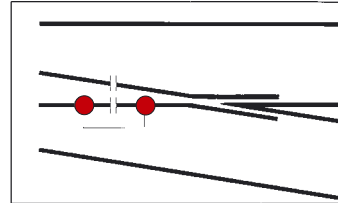
CEMBRE RAIL BONDS

● AR60D installation

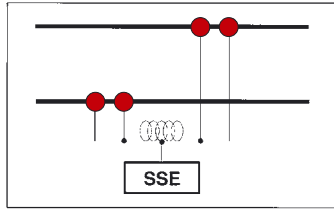


Transmission of coded and return current on lines fitted with automatic block

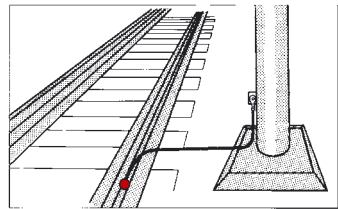
Signalling and traction current connection to manganese steel cast exchange units



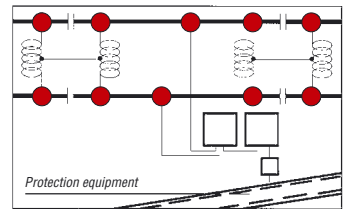
Various connections involved in train location systems



Return current connections to substations



Connection of metal structures to rails for earthing purpose



Electrical connection of underground metal structures to rails



Examples of lines equipped with automatic block.



Examples of AR60D system in electrical joint applications.



Features and benefits of the AR 60D system have appeared in various Railway Industry journals

Used by all major European Railway Companies, the AR60D system is proving to be reliable in all conditions.

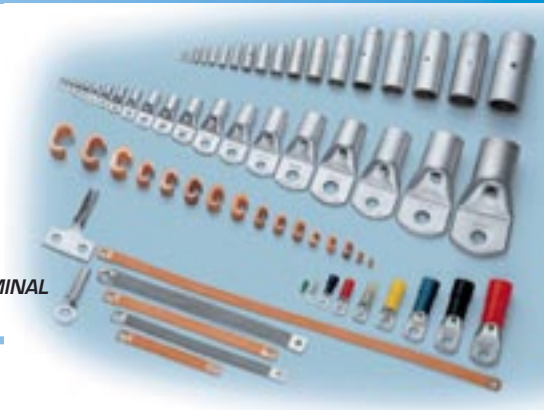
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