# HYDRAULIC CLIPPING MACHINE TO INSERT AND/OR EXTRACT ELASTIC FASTENINGS

## MODEL **AP21**

The ***Hydraulic Clipping Machine to Insert and/or Extract Elastic Fastenings model AP21*** is designed to work on maintenance railways sites. Due to its quick operation, AP21 enables to get ***high output***.

Ergonomic operating position, electric automatisms, working speeds, coaxial pushing force and reduced mass of the machine give a particularly high ***output while reducing the fatigue for the operator***.

## 1. DESCRIPTION AND OPERATION

Operations are controlled effortlessly by a manipulator at handle the right hand. A sophisticated hydraulic circuit enables automatic return of the tools when the clipping operation is completed, then simplifying the operator's task and therefore increasing hourly output with less effort.

AP21 enables to operate on one clip or on two clips located on each side of the rail.

AP21 is highly modular machine thanks to its easily interchangeable working heads (electric and hydraulic connections). Working head switch is carried out only in few minutes (see description of each heads (T1 to T7 in chapter 3 – Accessories and options at extra price).

## 1. DESCRIPTION AND OPERATION (Cont'd)

The machine also includes:

- Standard coupling with hydraulic pressure check;
- Possible adjustment of the main pressure to adapt the machine to each type of working head;
- Pressure switch enabling to continuously set required pressure to insert clips (maximum pressure is always available when clips are to be extracted);
- One four wheel traversing trolley with four rollers, to meet desired track gauge and enabling to only one operator to effortlessly switch the machine from one rail to the other.

## 2. TECHNICAL DATA

| | | | |
|---|---|---|---|
| – | Petrol engine ***Honda GX270*** with recoils starter, supersilencer and protective grid: | 8 | hp (6 kW) at 3,600 rpm |
| – | Nominal working pressure: | 250 | bar maximum |
| – | Feeding flow: | 14 | L/min |
| – | Dimensions: | | |
| | Length: | 2 250 | mm |
| | Width: | 600 | mm |
| | Height: | 1 100 | mm |
| – | Masses: | | |
| | Machine (without head): | 99 | kg |
| | Trolley: | 34,5 | kg |

## 3. ACCESSORIES AND OPTIONS (at extra price)

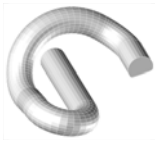
- **15 W LED floodlight to light working area**
- **Protective cover**
- **Anti-tilt crutch**
- **Lifting eye**
  *(Ref. 55105)*
- **T1 working head**
  *(for insertion and extraction of Pandrol clips)*
  T1 working head allows positioning and extraction of elastic Pandrol clips. With this head, only one clip is worked at once. This usually refers to maintenance track sites. Due to its quick operation, this machine enables high output.

## 3. ACCESSORIES AND OPTIONS (at extra price – Cont'd)

- **T1 working head (cont'd)**

Technical data:

| | | | |
|---|---|---|---|
| – | Maximum stroke of the tool: | 100 | mm |
| – | Type of clips: | | PR, e |
| – | Stroke duration of the tool: | < 1 | second |
| – | Hourly output: | ≈ 900 | clips |
| – | Maximum force at tools: | from 0 to 38,5 | kN |
| – | Mass: | 44 | kg |



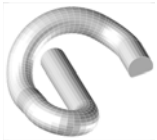
Accessories and options:

- **Working tools for concrete sleepers for the T1 head:**
  - 1 set of 2 tools for insertion of clips "e" and "PR"; *(Ref. 55069)*
  - 1 set of 2 tools for extraction of clips "e" and "PR". *(Ref. 55070)*

- **T2 working head**
  *(for insertion in normal or inverted mode)*
  To simultaneously set 2 Pandrol clips on each side of the rail. This corresponds more specifically to large installation sites with quick progression. As insertion time of 2 clips is very short, the performance of the machine guarantees a quick return on economic investment.

Technical data:

| | | | |
|---|---|---|---|
| – | Maximum stroke of the tools: | 285 | mm |
| – | Step time: | ≈ 1,5 | second |
| – | Type of clips (T2 in normal mode): | | PR, PR Canada, e, e(USA), P+ ou DSA (Stedef®) |
| – | Type of clips (T2 in inverted mode): | | inverted PR, inverted e, inverted e (USA) |
| – | Hourly output: | 1 600 | clips |
| – | Maximum force at tools: | 31 | kN |
| – | Mass: | 50 | kg |

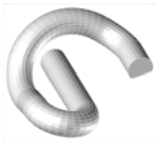


Accessories and options:

- **Set of 2 insertion tools for concrete and wooden sleepers for "e" clips** *(Ref. 55167)*
- **Set of 2 insertion tools for concrete and wooden sleepers for "e" clips, USA and Canada version** *(Réf. 55167A)*

## 3. ACCESSORIES AND OPTIONS (at extra price – Cont'd)

- **T3 working head**
  *(for extraction of clips)*
  For simultaneous extraction of 2 Pandrol clips on each side of the rail.

  Technical data:

  – Maximum stroke of the tools: 85 mm
  – Type of clips: PR, e
  – Stroke duration of the tool: ≈ 1,5 second
  – Hourly output: 1 600 clips
  – Maximum force at tools: 30 kN
  – Mass: 57 kg
  – Total length of the machine: 2 280 mm

- **T4 working head**
  *(for insertion of rail anchors)*
  For simultaneous insertion of 2 rail anchors on each side of the rail.

  Technical data:

  – Type of clips: rail anchor
  – Hourly output: 1 600 clips
  – Maximum force at tools: 46,7 kN
  – Mass: 54 kg
  – Total length of the machine: 2 280 mm

- **T5 working head**
  *(for extraction of clips)*
  To simultanesouly extract fastenings as "Safelock" and "Surelock" on both sides of the rail.

  T5 working head is designed to extract fastenings as "Safelock" and "Surelock" on concrete or wooden sleepers with appropriate tools (see accessories and options at extra price below).

  T5 working head is electrically and hydraulically fed by the AP21.

  T5 working head is composed of two assemblies working on each side of the rail, to work two clips simultaneously. Each assembly includes two hydraulic rams. One hydraulic ram drives jaws which clamps the clip, while the other drive an extraction lever in a perpendicular direction from the rail axis.

## 3. ACCESSORIES AND OPTIONS (at extra price – Cont'd)

- **T5 working head (cont'd)**
  One major advantage of this machine is that it is possible to easily choose, thanks to two valves, the desired extraction mode of clips:
  - Both valves are open: extraction is simultaneously carried out on fastening on each side of the rail.
  - One valve only is closed: one extraction lever does the stroke with open clamp and then only one fastening (on one side of the rail) is extracted.

  T5 working head is equipped with a retractable rail roller system to allow an easy displacement of the machine between two working phases.

  A push button RESET allows to free the machine while forcing opening of clamps when clamp opening has not been possible (e.g. jammed clip).

  In case of order sleeper types has to be specified (wood or concrete) and laying type (with or without base plate). A laying drawing has also to be supplied.

  Technical data:

  | | | | |
  |---|---|---|---|
  | – | Type of clips: | | Safelock (McKay and without insulated pad), Surelock (Deenik large and narrow) |
  | – | Hourly output: | 1 200 | clips |
  | – | Maximum force at tools: | 18 | kN |
  | – | Dimensions: | | |
  | | Length: | 580 | mm |
  | | Width: | 370 | mm |
  | | Height: | 650 | mm |
  | – | Mass: | 78 | kg |
  | – | Total length of the machine: | 2 280 | mm |

  Accessories an options:

  - **Tools for concrete sleepers:**
    - 1 set of 2 tools for extraction of clips "Safelock (Mc Kay)"
    - 1 set of 2 tools for extraction of clips "Safelock (sans coussinet isolant)"
  - **Tools for wooden sleepers:**
    - 1 set of 2 tools for extraction of clips "Surelock (DEENIK large)"
  - **Tools for coachscrewed plates:**
    - 1 set of 2 tools for extraction of clips "Surelock (DEENIK narrow)"

## 3. ACCESSORIES AND OPTIONS (at extra price – Cont'd)

- **Working head T6**
  *(for extraction and insertion of clips)*
  To insert and extract fastenings as "Fast-clips" and insert fastenings as "Safelock" and "Surelock", always simultaneously on both sides of the rail.

  Working head T6 is designed to insert and extract fastenings as "Fast-clips" and insert fastenings as "Safelock" and "Surelock", on wooden or concrete sleepers with appropriate tools (see accessories and options at extra price below). One major advantage of this machine is that it is possible to simultaneously insert or extract fastenings simultaneously on both sides of the rail.

  T6 working head is electrically and hydraulically fed by the AP21.

  Working head of the machine is composed of two assemblies working on either side of the rail, to operate on two clips at once.

  Each assembly is fitted with a hydraulic ram driving a lever which is perpendicular to track axis. This lever is equipped with:
  - Either an insertion tool acting on rear loops of the clip
  - Either an extraction hook acting on front loops of the clip

  In addition this lever is limited into its displacement by adjustable thrusts.

  In case of order clips types has to be specified and a laying drawing has to be provided.

  Technical data:

| | | |
|---|---|---|
| – Type of clips (insertion): | | Safelock (McKay), Surelock (Deenik large), Fast-Clip |
| – Type of clips (extraction): | | Fast-Clip |
| – Hourly output (insertion): | 1 210 | clips |
| – Hourly output (extraction): | 1 110 | clips |
| – Maximum force at tools (insertion): | 33,9 | kN |
| – Maximum force at tools (extraction): | 20,7 | kN |
| – Dimensions: | | |
| Length: | 860 | mm |
| Width: | 140 | mm |
| Height: | 520 | mm |
| – Mass: | 66 | kg |
| – Dimensions of the machine: | | |
| Length: | 2 340 | mm |
| Width: | 860 | mm |
| Height: | 980 | mm |

## 3. ACCESSORIES AND OPTIONS (at extra price – Cont'd)

- **T6 working head (cont'd)**
  Accessories and options:
  - **Tools for concrete sleepers:**
    - 1 set of 2 combined tools for insertion and extraction of clips "Fast-clips"
    - 1 set of 2 tools for insertion of clips "Safelock (Mc Kay)"
  - **Tools for wooden sleepers:**
    - 1 set of 2 tools for insertion of clips "Surelock (DEENIK large)"
      *(before insertion clip has to be pinched thanks to a manual tool and pre-positioned in the base plate)*

- **T7 working head**
  *(for extraction and insertion of clips)*
  To simultaneously insert and extract fastenings as "e" and "PR" on each side of the rail.

  T7 working head is designed to insert and extract fastenings as « e » and « PR » on wooden and on concrete sleepers with appropriate tools (see accessories and options at extra price below). One major advantage of this machine is that it is possible to extract and insert fastenings simultaneously on each side of the rail.

  T7 working head is electrically and hydraulically fed by the AP21.

  The T7 head is composed of a welded steel frame consisting in a shoe vice system (driven by an hydraulic ram) on which the tools are fitted.

  A manometer allows to check the working pressure.

  The T7 head is delivered with fast couplings, flexible hoses, spindles and fixation pins for interchangeable tools.

  In case of order sleepers type has to be specified (wood or concrete) and laying type (with or without plate). In the case of a laying with baseplate, width of the plate has also to be specified.

  Technical data:

| | | | |
|---|---|---|---|
| – | Type of clips: | | PR, e |
| – | Hourly output (insertion): | 1 600 | clips |
| – | Hourly output (extraction): | 950 | clips |
| – | Maximum force at tools (insertion): | 12,6 | kN |
| – | Maximum force at tools (extraction): | 25,6 | kN |

## 3. ACCESSORIES AND OPTIONS (at extra price – Cont'd)

- **T7 working head (cont'd)**
  Technical data (cont'd):

  – Dimensions:

| | | |
|---|---|---|
| Length: | 705 | mm |
| Width: | 430 | mm |
| Height: | 520 | mm |

  – Mass: 66 kg

  – Total length of the machine: 2 280 mm

  Accessories and options:

  - **Tools for concrete sleepers:**
    - 1 set of 2 combined tools for insertion and extraction of clips "e";
    - 1 set of 2 tools for extraction of clips "PR";
    - 1 set of 2 tools for insertion of clips "PR".
  - **Tools for wooden sleepers:**
    - 1 set of 2 combined tools for insertion and extraction of clips "e";
    - 1 set of 2 tools for extraction of clips "PR";
    - 1 set of 2 tools for insertion of clips "PR".