

# HYDRAULIC ALUMINIUM RERAILING SYSTEMS



AV50-30

AV50-500

RESCUE

EMERGENCY-RECOVERY HYDRAULIC RERAILING EQUIPMENT **300 BAR****AVSO-30**

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EMERGENCY-RECOVERY HYDRAULIC RERAILING EQUIPMENT **500 BAR****AVSO-50**

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RERAILING SYSTEMS FOR LIGHT RAIL VEHICLES **500 BAR****AVSO-50**

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EMERGENCY-RECOVERY EQUIPMENT **800 BAR****RESCUE**

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Armenia    Azerbaijan    Belarus    Kazakhstan    **Russia**    Ukraine

**ENERPRED** was established in 1991. The company designs, manufactures and repairs hydraulic tools and equipment.

**MISSION** is to produce high quality general-purpose hydraulic equipment meeting requirements of Russian and International standards.

### **Range of products**

ENERPRED offers a wide range of hydraulic tools and equipment for all industries:

- Cylinders and lifting equipment
- Extractor tools
- Presses
- Pipe benders
- Pumps and pump units
- Rescue tools
- Special equipment and tools
- Railway tools and equipment
- Cutting tools
- Bolting tools

Total more than 1500 units!

### **More than 30 patents for inventions**

ENERPRED outperforms the Russian analogs of hydraulic equipment in terms of its technical and operating specifications.

The key customers of ENERPRED industrial equipment are enterprise of railway, energy, petrochemistry, metallurgy, coal and gas industries, construction, bridge construction companies, enterprise of city municipal services, etc.



# HYDRAULIC ALUMINIUM RERAILING SYSTEMS



## Destination:

ENERPRED equipment is efficient for performance of emergency recovery works in hollow spaces, tunnels, at electrified sites and in subways as nearly all operations related to lifting and moving derailed rolling stock are accomplished in less time without the use of cranes.

## AV50-30

**Operating pressure:** 300 bar

**Maximum capacity:** 1200 kN

**Application:** Rolling stock

## AV50-50

**Operating pressure:** 500 bar

**Maximum capacity:** 1700 kN

**Application:** Rolling stock, Urban rail transport



### Advantages:

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- Full control over lifting, lowering and lateral movement operations with an accuracy of up to 1 millimeter
- Smooth movement of the cylinders even under full load
- Hard anodic finish and smooth contact surfaces on the casing and cylinder piston provide durability
- Fast and simple assembly through use of quick couplers installed on the power unit, the control unit, on the high pressure hoses and on each cylinder
- Information plates on all system elements and color marking on the high pressure hoses for correct use and connection
- Light weight of the equipment made of light and high-strength alloys ensures easy transportation and moving of the equipment to the accident site

### Safety:

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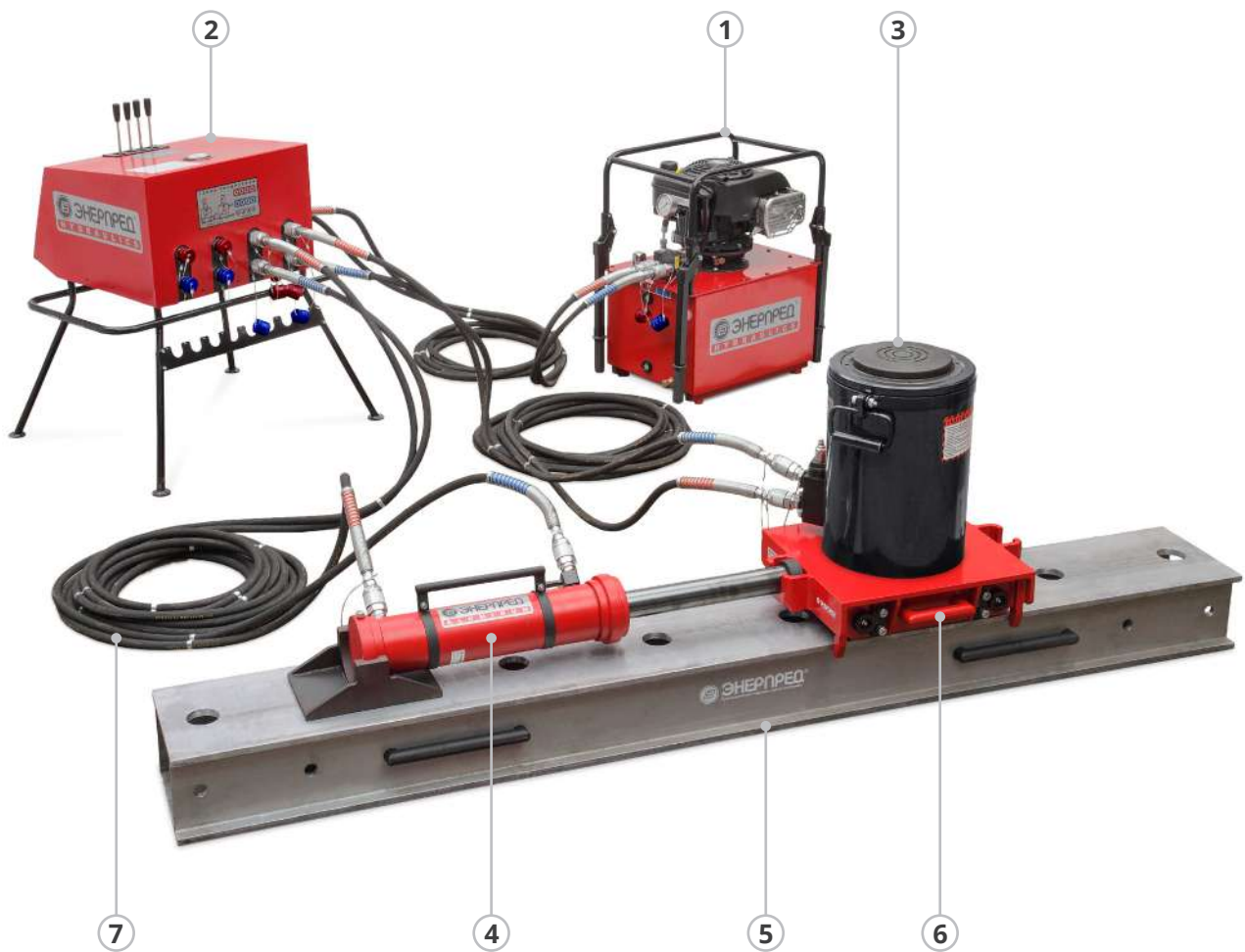
- Lifting cylinders are equipped with locking elements preventing from accidental lowering of the rolling stock in case of pressure drop in the hydraulic system, for example, due to hose rupture or shutdown of the pump unit
- Reliability and safety of equipment operation within a wide temperature range
- All hydraulic system elements are protected against overloads and errors of control of relief valves installed on the pump unit, control desk and each lifting cylinder
- Integrated "dead man control" system ensures each control valve immediately and automatically locks into neutral position when the operator releases the lever
- The system operation is controlled by one operator using the control desk, therefore during work performance all workers may leave the dangerous area near lifted rolling stock

# AVSO-30

## HYDRAULIC ALUMINIUM RERAILING SYSTEMS

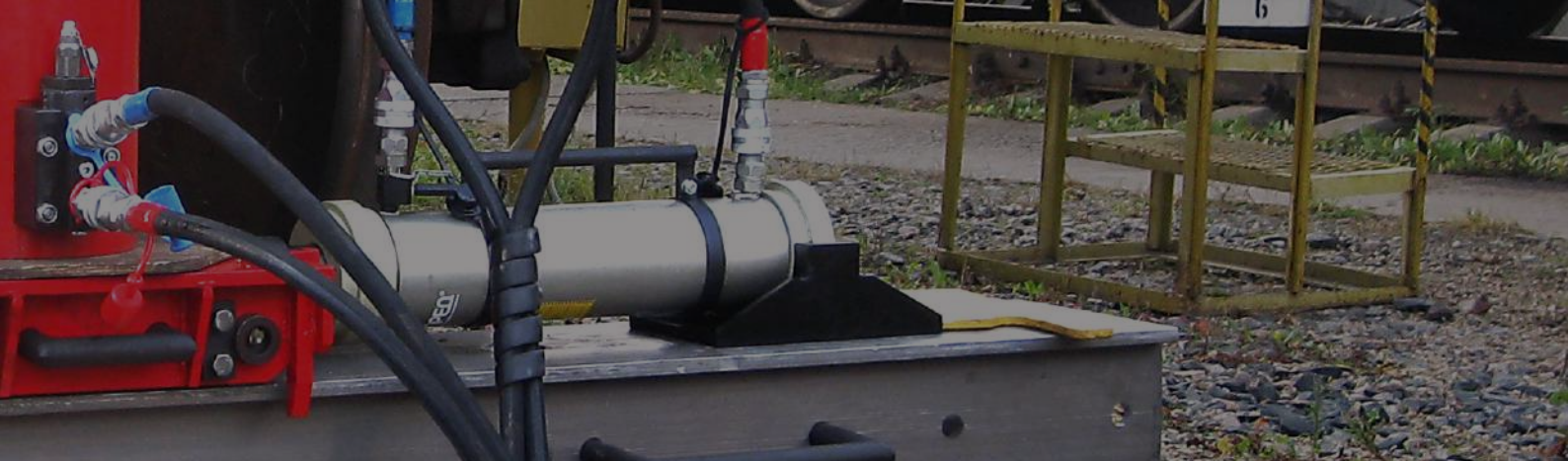
Operating pressure: 300 bar

Maximum capacity: 1200 kN



### Main components of the system:

- 1. Pump Unit** - for generate hydraulic pressure and supply fluid to cylinders
- 2. Control Unit** - for control of hydraulic system flow
- 3. Lifting Cylinder** - for lifting/lowering rolling stock
- 4. Displacing Cylinder** - for lateral displacement of roller carriage along the rerailing bridge
- 5. Rerailing Bridge** - is designed to support roller carriages and cylinders when raising and moving rolling stock
- 6. Roller Carriage** - for lateral displacement of rolling stock along the rerailing bridge
- 7. High Pressure Hose** - is used to connect all elements of the hydraulic system



**Application:** Rolling stock

## Powering & Controlling

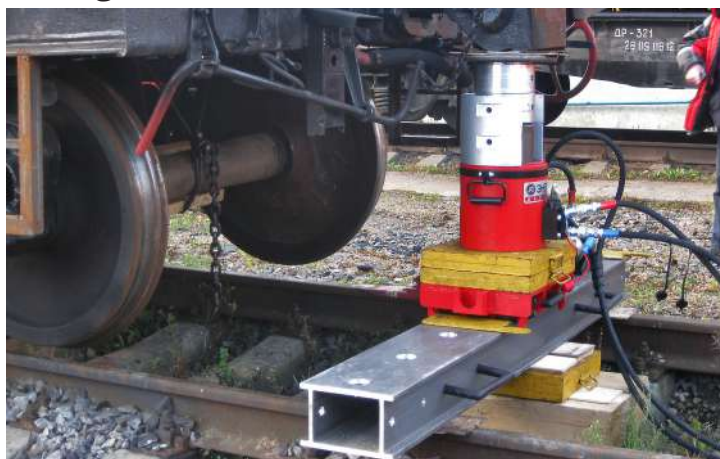
**PAGES 8 - 15**



- The equipment is intended to provide pressure and supply hydraulic fluid to the ENERPRED system elements in order to re-rail the rolling stock
- The equipment is intended to control (distribute the hydraulic flow) operation of the ENERPRED system elements in order to re-rail the rolling stock

## Lifting

**PAGES 16 - 19**



- The equipment is intended to lift, hold and lower the rolling stock to the rails

## Displacing

**PAGES 20 - 25**



- The equipment allows accurate alignment of the rolling stock (already lifted by the cylinders) as related to the rail track and its movement crosswise
- When the rolling stock is in correct position, it is lowered down to the rails

Pump units generate hydraulic pressure and supply fluid to the ENERPRED rerailing system elements. This pump unit type is used for operation with a control desk.



**NBR30-7A40-1**

## Features:

- One-stage delivery of hydraulic pump
- Controls: unloading valve
- Unloading valve functions: to start and to stop hydraulic flow
- Relief valve protects against operating overpressure in the hydraulic system
- Gauge for pressure control in the hydraulic system
- Quick couplings for quick connection to the hydraulic system
- Compact design and light weight, four folding handles on the safety cage for easy transportation



## Control Unit

Device for hydraulic system control

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## Gasoline-Powered Pump Units, series **NBR**

Four-stroke gasoline internal combustion engine

| Model                | <b>NBR30-7A40-1</b> | <b>NBR30-11A40-1</b> | <b>NBR30-11A63-1</b> |
|----------------------|---------------------|----------------------|----------------------|
| Operating pressure   | 300 bar             | 300 bar              | 300 bar              |
| Output flow rate     | 8,0 l/min           | 11,0 л/мин           | 11,0 л/мин           |
| Drive power          | 5,0 kW              | 9,5 kW               | 12,0 kW              |
| Usable oil capacity  | 40 l                | 40 l                 | 63 l                 |
| Length               | 620 mm              | 620 mm               | 630 mm               |
| Width                | 420 mm              | 420 mm               | 460 mm               |
| Height               | 685 mm              | 685 mm               | 950 mm               |
| Weight (without oil) | 57 kg               | 65 kg                | 95 kg                |

## Electric-Powered Pump Units, series **NER**

Electric engine 380 V, 50/60 Hz

| Model                | <b>NER30-5,7A40T1</b> | <b>NER30-7,4A40T1</b> | <b>NER30-10A63T1</b> |
|----------------------|-----------------------|-----------------------|----------------------|
| Operating pressure   | 300 bar               | 300 bar               | 300 bar              |
| Output flow rate     | 5,7 l/min             | 7,4 l/min             | 10,0 l/min           |
| Drive power          | 3,0 кВт               | 4,0 кВт               | 5,5 кВт              |
| Usable oil capacity  | 40 л                  | 40 л                  | 63 л                 |
| Length               | 620 mm                | 620 mm                | 630 mm               |
| Width                | 420 mm                | 420 mm                | 460 mm               |
| Height               | 685 mm                | 685 mm                | 950 mm               |
| Weight (without oil) | 57 kg                 | 63 kg                 | 83 kg                |

## Diesel-Powered Pump Units, series **NDR**

Four-stroke diesel internal combustion engine

| Model                | <b>NDR30-11A40-1</b> | <b>NDR30-11A63-1</b> |
|----------------------|----------------------|----------------------|
| Operating pressure   | 300 bar              | 300 bar              |
| Output flow rate     | 11,0 l/min           | 11,0 l/min           |
| Drive power          | 5,5 kW               | 5,5 kW               |
| Usable oil capacity  | 40 l                 | 63 l                 |
| Length               | 700 mm               | 700 mm               |
| Width                | 542 mm               | 542 mm               |
| Height               | 830 mm               | 970 mm               |
| Weight (without oil) | 94 kg                | 99 kg                |

Pump units generate hydraulic pressure and supply fluid to the ENERPRED rerailing system elements. This pump unit type is equipped with a **Directional control valves** to lift, lower, hold under load and to displacing the rolling stock.



**NBR30-7A40-1BU4**  
(front)



**NBR30-7A40-1BU4**  
(back)

## Features:

- One-stage delivery of hydraulic pump
- Relief valve protects against operating overpressure in the hydraulic system
- Gauge for pressure control in the hydraulic system
- Quick couplings for quick connection to the hydraulic system
- Compact design and light weight, four folding handles on the safety cage for easy transportation

## Hydraulic flow control, with directional control valves BU-2, BU-4:

- Valves type: three-position two/four-sectional manual directional control valve
- Valves functions: lifting, lowering, holding under load and displacing the rolling stock
- Filter of the return line ensures oil purification and sufficiently increases operational life of hydraulic system elements

## Gasoline-Powered Pump Units, series **NBR**

Four-stroke gasoline internal combustion engine

| Model                                    | <b>NBR0-3,6A20-1BU2</b>                         | <b>NBR30-7A40-1BU4</b>                           | <b>NBR30-11A40-1BU4</b>                          |
|--|---|--|--|
| <b>Operating pressure</b>                | 300 bar   | 300 bar  | 300 bar  |
| <b>Output flow rate</b>                  | 3,6 l/min                                       | 8,0 l/min  | 11,0 l/min                                       |
| <b>Drive power</b>                       | 2,2 kW  | 5,0 kW   | 9,5 kW   |
| <b>Usable oil capacity</b>               | 20 l  | 40 l   | 40 l   |
| <b>Controls</b>                          | Two-sectional manual directional control valves | Four-sectional manual directional control valves | Four-sectional manual directional control valves |
| <b>Number of connected devices</b>       | 2   | 4  | 4  |
| <b>Control of TWIN displacing system</b> | -   | -  | -  |
| <b>Length</b>                            | 610 mm  | 630 mm   | 630 mm   |
| <b>Width</b>                             | 400 mm  | 420 mm   | 420 mm   |
| <b>Height</b>                            | 675 mm  | 1100 mm  | 1100 mm  |
| <b>Weight</b> (without oil)              | 45 kg   | 70 kg  | 75 kg  |

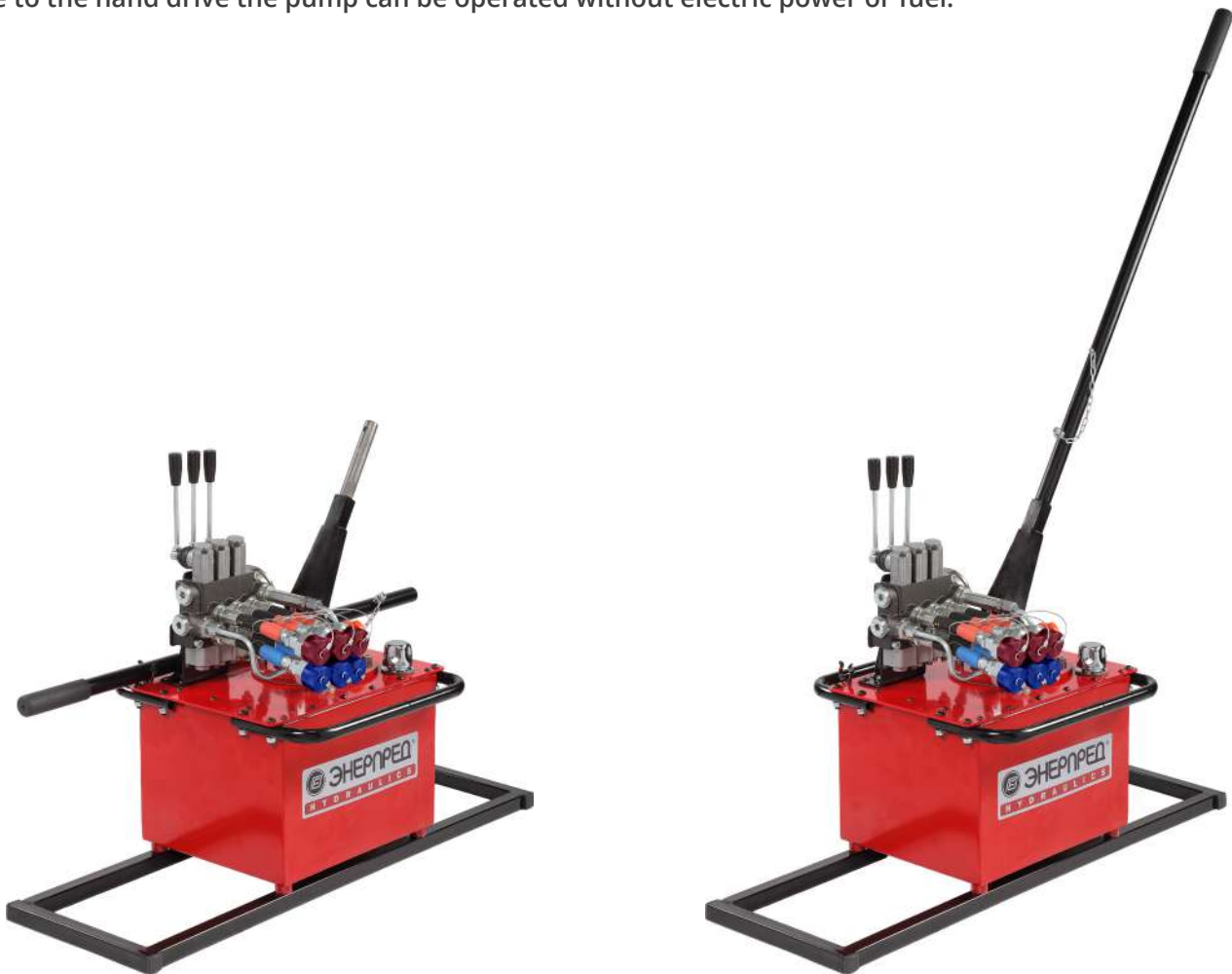
## Electric-Powered Pump Units, series **NER**

Electric engine 380 V, 50/60 Hz

| Model                                    | <b>NER30-3,6A20T1BU2</b>                        | <b>NER30-5,7A40T1BU4</b>                         | <b>NER30-7,4A40T1BU4</b>                         |
|--|---|--|--|
| <b>Operating pressure</b>                | 300 bar   | 300 bar  | 300 bar  |
| <b>Output flow rate</b>                  | 3,6 l/min                                       | 5,7 l/min  | 7,4 l/min  |
| <b>Drive power</b>                       | 2,2 kW  | 3,0 kW   | 4,0 kW   |
| <b>Usable oil capacity</b>               | 20 l  | 40 l   | 40 l   |
| <b>Controls</b>                          | Two-sectional manual directional control valves | Four-sectional manual directional control valves | Four-sectional manual directional control valves |
| <b>Number of connected devices</b>       | 2   | 4  | 4  |
| <b>Control of TWIN displacing system</b> | -   | -  | -  |
| <b>Length</b>                            | 520 mm  | 630 mm   | 630 mm   |
| <b>Width</b>                             | 300 mm  | 420 mm   | 420 mm   |
| <b>Height</b>                            | 820 mm  | 1100 mm  | 1100 mm  |
| <b>Weight</b> (without oil)              | 45 kg   | 72 kg  | 77 kg  |

These hand pumps provide pressure and supply hydraulic fluid to the ENERPRED system elements in order to rerail the rolling stock.

Due to the hand drive the pump can be operated without electric power or fuel.



**NRG30200R3**  
(in fold position)

**NRG30200R3**  
(in operating position)

### Features:

- Control: three-position one/two/three-sectional manual directional control valve
- Control valve functions: lifting, lowering, holding under load and moving the rolling stock
- Quick couplings for quick connection to the hydraulic system
- Compact design and light weight, two handles for easy transportation

| Model                       | NRG30200R                          | NRG30200R2                         | NRG30200R3                         |
|-----------------------------|------------------------------------|------------------------------------|------------------------------------|
| Operating pressure          | 300 bar                            | 300 bar                            | 300 bar                            |
| Output flow rate            | 25 cm <sup>3</sup> / double stroke | 25 cm <sup>3</sup> / double stroke | 25 cm <sup>3</sup> / double stroke |
| Usable oil capacity         | 20 l                               | 20 l                               | 20 l                               |
| Number of connected devices | 1                                  | 2                                  | 3                                  |
| Length                      | 930 mm                             | 930 mm                             | 930 mm                             |
| Width                       | 440 mm                             | 440 mm                             | 440 mm                             |
| Height                      | 550 mm                             | 550 mm                             | 550 mm                             |
| Weight (without oil)        | 28 kg                              | 32 kg                              | 37 kg                              |

The high pressure hoses are used to interconnect all elements of the ENERPRED hydraulic system for rerailing the rolling stock.



**2RVD30-5000**



**2RVD30-10000**

### Features:

- Each hose is equipped with two quick half couplings for quick assembly of the hydraulic system excluding any leaks
- There is color marking on the hose ends for correct connection to the hydraulic system elements
- Check valves in the quick couplings provide protection against air penetration into the hydraulic system
- Protective metal caps prevent from contamination of the interiors of disconnected couplings

| Model                            | <b>2RVD30-5000</b>                                  |  | <b>2RVD30-10000</b>                                 |  |
|----------------------------------|---|--|---|--|
| Length                           | 5 m   |  | 10 m  |  |
| Maximum operating pressure       | 300 bar   |  | 300 bar   |  |
| Rupture pressure                 | 1320 bar  |  | 1320 bar  |  |
| Minimum bend radius              | 125 mm  |  | 125 mm  |  |
| Kit                              | Dual  |  | Dual  |  |
| Designation and color of marking | <b>Red</b><br>(Pressure)<br><b>Blue</b><br>(Return) | To connect pump unit to the control desk | <b>Red</b><br>(Pressure)<br><b>Blue</b><br>(Return) | To connect lifting/ displacing cylinders to the control desk |
| Weight                           | 8 kg  |  | 14 kg   |  |

The control desk are intended for control (hydraulic flow distribution) of the ENERPRED system elements for rerailing the rolling stock



**PU-4**  
(front)



**PU-4**  
(back)

## Pump Unit + Control Desk



**PU-4**



**NBR30-7A40-1**

**2RVD30-5000**

### Recommendations:

We recommend using the remote hydraulic control desk, especially to operate the hydraulic unit equipped with a gasoline or diesel internal combustion engine. It allows controlling the hydraulic system at a distance from the engine noise and ensures easiness and safety of the emergency recovery works.

## Control Desk in Job



### Features:

- Entire system is controlled by one operator, thus keeping workers clear of the load area
- Integrated “dead man control” system ensures each control valve immediately and automatically locks into neutral position when the operator releases the lever
- Relief valve protects against operating overpressure in the hydraulic system, control errors and incorrect connection of the high pressure hoses
- Control: multi-sectional manual directional control valve
- Control valve functions: lifting, lowering, holding under load and moving the rolling stock
- Filter of the return line sufficiently increases operational life of hydraulic system elements
- Gauge for pressure control in the hydraulic system
- Quick couplings for quick connection to the hydraulic system
- Compact design and light weight, handles for easy transportation

| Model                             | PU-4    | PU-6    | PU-4FG     | PU-6FG      |
|-----------------------------------|---------|---------|------------|-------------|
| Operating pressure                | 300 bar | 300 bar | 300 bar    | 300 bar     |
| Number of connected devices       | 4       | 6       | 4          | 6           |
| Control of TWIN displacing system | -       | -       | 1 cylinder | 2 cylinders |
| Length                            | 700 mm  | 700 mm  | 700 mm     | 700 mm      |
| Width                             | 810 mm  | 810 mm  | 810 mm     | 810 mm      |
| Height                            | 930 mm  | 930 mm  | 930 mm     | 930 mm      |
| Weight                            | 45 kg   | 55 kg   | 47 kg      | 57 kg       |

The lifting cylinders are designed for lifting, holding and lowering loads while rerailing rolling stock. Design of the ENERPRED lifting cylinders allows using them with any type of railway equipment.

LIFTING



**DTA60/30G500-420**

**DTA120/60G500-420**

**DGA120G120-315**

**DGA120G50-160**

**DTA120/60/30G700-420**

## Features:

- Operating pressure: 30 MPa
- Two-way system with hydraulic rod return
- Bodies and rods are made of strong and light aluminum alloy
- The rods are protected against wear and corrosion by hard coating
- High-strength steel ribbed saddle is on the rod of each lifting cylinder
- Quick couplings for quick connection to the hydraulic system
- Compact design, two handles for easy transportation, light weight

## Safety:

According to requirements to the emergency recovery works on the railways, each hydraulic lifting cylinder is equipped with a hydraulic lock and relief valve.

Hydraulic lock prevents uncontrolled lowering of the lifting cylinder rod under pressure in case of damages of the high pressure hose and compensates for fluctuations when lowering the rolling stock.

Relief valve is designed to protect the lifting cylinder from rupture and damage due to overpressurization.

EMERGENCY-RECOVERY HYDRAULIC RERAILING EQUIPMENT 300 BAR



## Series 400

| Model                             | DTA40/20G230-250 | DTA40/20G500-420 |
|-----------------------------------|------------------|------------------|
| Piston lifting force<br>1/2 stage | 392 / 196 kN     | 392 / 196 kN     |
| Piston stroke<br>1/2 stage        | 120 / 110 mm     | 250 / 250 mm     |
| Oil capacity                      | 2,5 l            | 6,7 l            |
| Cylinder height                   | 250 mm           | 420 mm           |
| Body diameter                     | 200 mm           | 200 mm           |
| Support set model                 | KN40-2           | -                |
| Weight                            | 25 kg            | 41 kg            |

## Series 600

| Model                             | DGA60G110-250 | DTA60/30G215-250 | DGA60G250-420 | DTA60/30G500-420 |
|-----------------------------------|---------------|------------------|---------------|------------------|
| Piston lifting force<br>1/2 stage | 681 kN        | 681 / 285 kN     | 681 kN        | 681 / 285 kN     |
| Piston stroke<br>1/2 stage        | 110 mm        | 110 / 105 mm     | 250 mm        | 240 / 260 mm     |
| Oil capacity                      | 3,2 l         | 3,2 l            | 7,2 l         | 7,2 l            |
| Cylinder height                   | 250 mm        | 250 mm           | 420 mm        | 420 mm           |
| Body diameter                     | 235 mm        | 235 mm           | 235 mm        | 235 mm           |
| Support set model                 | KN60-2        | KN60-2           | -             | -                |
| Weight                            | 35 kg         | 36 kg            | 51 kg         | 56 kg            |

## Series 1200

| Model                           | DGA120G50-160 | DGA120G90-250 | DGA120G120-315 | DGA120G250-420 |
|---------------------------------|---------------|---------------|----------------|----------------|
| Piston lifting force<br>1 stage | 1140 kN       | 1140 kN       | 1140 kN        | 1140 kN        |
| Piston stroke<br>1 stage        | 50 mm         | 90 mm         | 120 mm         | 250 mm         |
| Oil capacity                    | 1,9 l         | 3,8 l         | 4,6 l          | 9,5 l          |
| Cylinder height                 | 160 mm        | 250 mm        | 295 mm         | 420 mm         |
| Body diameter                   | 290 mm        | 290 mm        | 290 mm         | 290 mm         |
| Support set model               | KN120-1       | KN120-2       | KN120-3        | -              |
| Weight                          | 41 kg         | 46 kg         | 55 kg          | 64 kg          |

## Series 1200

| Model                               | DTA120/60G180-250 | DTA120/60G500-420 | DTA120/60/30G700-420 |
|-------------------------------------|-------------------|-------------------|----------------------|
| Piston lifting force<br>1/2/3 stage | 1140 / 566 kN     | 1140 / 566 kN     | 1140 / 566 / 235 kN  |
| Piston stroke<br>1/2/3 stage        | 90 / 90 mm        | 250 / 250 mm      | 245 / 245 / 210 mm   |
| Oil capacity                        | 5,8 l             | 14,2 l            | 16,1 l               |
| Cylinder height                     | 250 mm            | 420 mm            | 420 mm               |
| Body diameter                       | 290 mm            | 290 mm            | 290 mm               |
| Support set model                   | KN120-2           | -                 | -                    |
| Weight                              | 54 kg             | 75 kg             | 80 kg                |

The support extensions are intended to increase lifting height of the ENERPRED lifting cylinders.



**KN120-3 + DGA120G120-315**



**KN120-3 + DGA120G120-315**



**PKN-30**

(device for support set installation)



**KN120-3 + PPN120-3**

(device for support set handling)



**KN120-3**  
(full set)

## Features:

- Made of high-strength and light aluminum alloy
- For ease of transportation and increased portability, each support set is supplied with special piece-handling devices

| Model  | <b>KN40-2</b>    | <b>KN60-2</b>                     | <b>KN120-1</b> | <b>KN120-2</b>                     | <b>KN120-3</b> |
|--|------------------|-----------------------------------|----------------|------------------------------------|----------------|
| <b>Model of lifting cylinder</b>                     | DTA40/20G230-250 | DGA60G110-250<br>DTA60/30G215-250 | DGA120G50-160  | DTA120G90-250<br>DTA120/60G180-250 | DGA120G120-315 |
| <b>Cylinder stroke extension</b>                     | 360 mm           | 320 mm                            | 100 mm         | 260 mm                             | 380 mm         |
| <b>Total lifting height (cylinder+ support sets)</b> | 590 mm           | 440 mm<br>535 mm                  | 150 mm         | 350 mm<br>440 mm                   | 500 mm         |
| <b>Device for support set handling</b>               | PPN40-2          | PPN60-2                           | PPN120-1       | PPN120-2                           | PPN120-3       |
| <b>Weight</b>  | 29 kg            | 40 kg                             | 16 kg          | 30 kg                              | 40 kg          |

## Support sets in job



LIFTING

## BASE PLATES

**OPDA**

Base plates ensure stability of the ENERPRED lifting cylinders when lifting, holding and lowering the rolling stock.



**OPDA60**



**OPDA60 + DTA60/30G500-420**

| Model                     | <b>OPDA40</b>                        | <b>OPDA60</b>  |
|---------------------------|--------------------------------------|--|
| Model of lifting cylinder | DTA40/20G230-250<br>DTA40/20G500-420 | DGA60G110-250<br>DTA60/30G215-250<br>DGA60G250-420<br>DTA60/30G500-420 |
| Base diameter             | 300 mm                               | 300 mm   |
| Weight                    | 8 kg                                 | 10 kg  |

EMERGENCY-RECOVERY HYDRAULIC RERAILING EQUIPMENT 300 BAR

# EQUIPMENT FOR LATERAL DISPLACEMENT

The ENERPRED displacement equipment is used for careful alignment of derailed rolling stock (already lifted on cylinders) as related to the rail track and its lateral movement. When the rolling stock reaches correct position, it is lowered on the rails. One or two roller carriages are used depending on design of the rolling stock.

All components of the ENERPRED equipment are firmly connected to ensure safe installation and movement of the rolling stock on the rails.

## Manual Repositioning



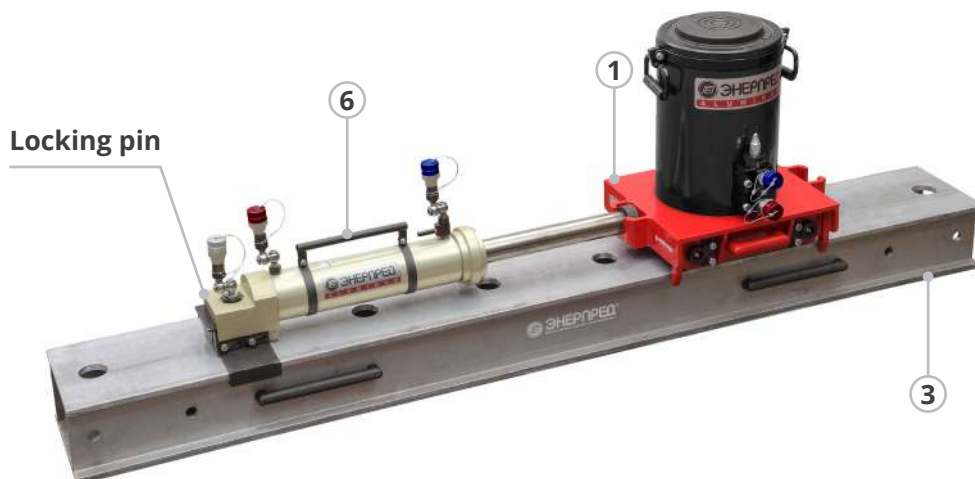
### Description:

Manual changing of the displacing cylinder position on the rerailing bridge when displacing the rolling stock transversally..

### Disadvantages:

- Work performance in dangerous area when changing position
- Low speed of displacement operation

## Hydraulic Repositioning TWIN-System



### Description:

Hydraulic changing of the displacing cylinder position on the rerailing bridge using a special hydraulic locking pin integrated in the cylinder base when displacing the rolling stock transversally.

### Advantages:

- Displacement is controlled using the control desk at a safe distance
- Higher speed of the displacement operation
- No additional counteract supports for the displacing cylinder are required

# ROLLER CARRIAGES ①

RT

The roller carriages are used for moving the rolling stock in the lateral direction along the rerailing bridge. They serve as a platform for installing the ENERPRED cylinders.



RT60/120



RT60/120P

## Features:

- Special housings are designed for joining the displacing cylinder and distance bars
- Grease-free bearings ensure easy lateral displacement of the rolling stock along the rerailing bridge with minimal efforts
- Limit stops ensure stable and linear movement along the rerailing bridge
- Made of high-strength steel alloy
- Swiveling base to compensate for radial loads (RT60/120P)

| Model  | RT60/120 | RT60/120P |
|--|----------|-----------|
| Maximum load capacity                              | 1200 kN  | 1200 kN   |
| Height (from rerailing bridge to lifting cylinder) | 110 mm   | 140 mm    |
| Weight   | 70 kg    | 103 kg    |

# DISTANCE BARS ②

RB

The distance bars are used to join two ENERPRED roller carriages for moving the rolling stock in the lateral direction.



RB-1

## Features:

- Special supports on both the sides for connection with the roller carriage housings.
- Stoppers to fix extension bars in several positions

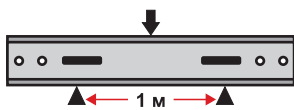
| Model                              | RB-1    | RB-2    |
|------------------------------------|---------|---------|
| Min. length in operating condition | 1020 mm | 1046 mm |
| Max. length in operating condition | 1905 mm | 2645 mm |
| Weight                             | 12 kg   | 18 kg   |

The rerailing bridges are used to support the roller carriages and as the main support when lifting, holding and lowering the rolling stock by the ENERPED lifting cylinders.



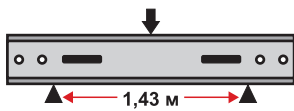
**M60/120-2250**

Rerailing bridge height: 95 mm    175 mm



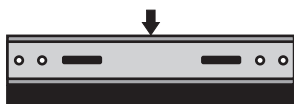
Rerailing bridge capacity with 1.0 m distance between the support points

319 kN    637 kN



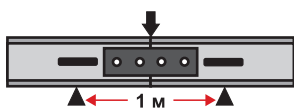
Rerailing bridge capacity with 1.43 m distance between the support points

441 kN    882 kN



Rerailing bridge capacity with full support

588 kN    1176 kN



Maximum load on the joint of rerailing bridges, when the distance between two support point exceeds 1 m

100 kN    200 kN

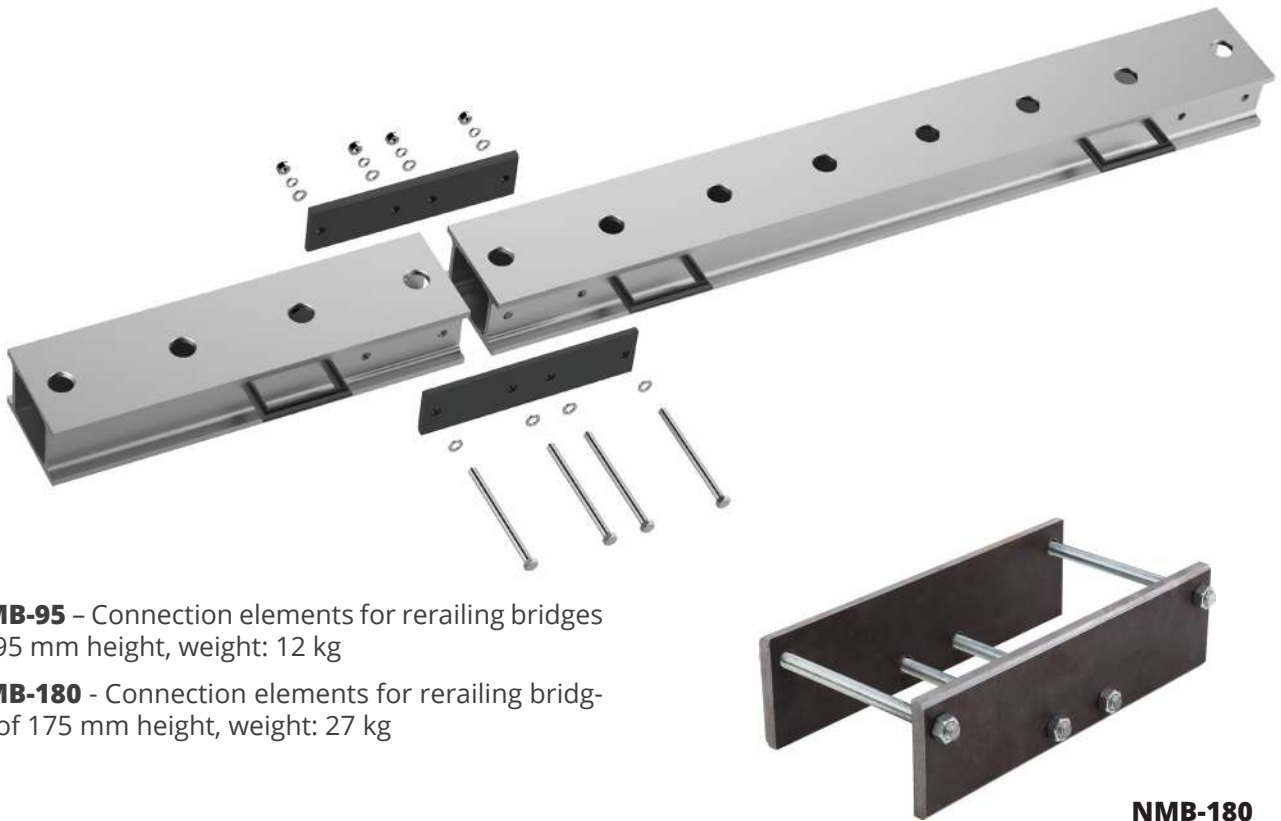
### Features:

- Seamless hollow beams made of light, high strength, corrosion resistant aluminum alloy
- Four telescopic handles for easy transportation
- Special openings on the beam surface for attaching counteract supports of the displacing cylinders

| Модель | M60-1200 | M60-2250 | M60-3300 | M60/120-1200 | M60/120-2250 | M60/120-3300 |
|--------|----------|----------|----------|--------------|--------------|--------------|
| Length | 1200 mm  | 2250 mm  | 3300 mm  | 1200 mm      | 2250 mm      | 3300 mm      |
| Width  | 275 mm   | 275 mm   | 275 mm   | 275 mm       | 275 mm       | 275 mm       |
| Height | 95 mm    | 95 mm    | 95 mm    | 175 mm       | 175 mm       | 175 mm       |
| Weight | 32 kg    | 65 kg    | 95 kg    | 41 kg        | 88 kg        | 128 kg       |

## Joint of two rerailing bridges

Used to extend support for lifting and displacing the rolling stock.



**NMB-95** – Connection elements for rerailing bridges of 95 mm height, weight: 12 kg

**NMB-180** - Connection elements for rerailing bridges of 175 mm height, weight: 27 kg

**NMB-180**

## Rerailing bridge in job



# DISPLACING CYLINDER ④

The displacing cylinder is used to move the roller carriage along the ENERPRED rerailing bridge. Manual repositioning is changing of the displacing cylinder position on the rerailing bridge.



CP15G350-575

## Features:

- The body is made of light and high-strength corrosion resistant aluminum alloy
- Quick couplings for quick connection to the hydraulic system
- Compact design, easy transportation, light weight

|                    |              |
|--------------------|--------------|
| Model              | CP15G350-575 |
| Operating pressure | 300 bar      |
| Pushing force      | 132 kN       |
| Pulling force      | 85 kN        |
| Piston stroke      | 350 mm       |
| Oil capacity       | 1,6 l        |
| Cylinder length    | 575 mm       |
| Weight             | 22 kg        |

# ACCESSORIES FOR DISPLACING CYLINDERS ⑤

Counteract supports are used to join one or two ENERPRED displacing cylinders with the rerailing bridge or roller carriage.



KCP



TCS



DCS

## Single Counteract Support **KCP**

This fixture is inserted into the openings of the rerailing bridge and is used to attach a displacing cylinder. Weight: 7 kg

## Twin Counteract Support **DKCP**

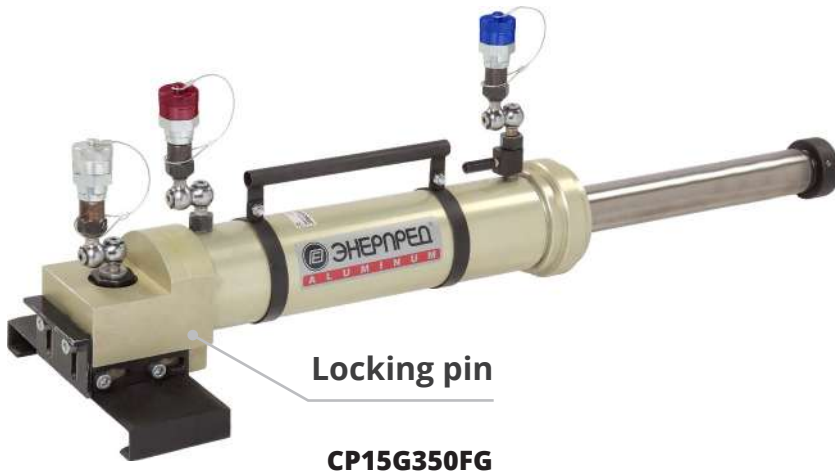
This fixture is inserted into the openings of the rerailing bridge and used to attach two parallel displacing cylinders to one roller carriage and is used only with a double coupling. Weight: 13 kg

## Double Coupling **DSSHC**

This fixture allows simultaneous installation of two parallel displacing cylinders to one housing on the rerailing bridge and is used only together with twin counteract support. Weight: 11 kg.



The cylinder I used for lateral displacement of the roller carriage along the ENERPRED rerailing bridge. Hydraulic repositioning is changing of the displacing cylinder position on the rerailing bridge.



## TWIN system

The rolling stock displacement system allows to perform operations at a safe distance without manual changing of the displacing cylinder position on the rerailing bridge.

### Features:

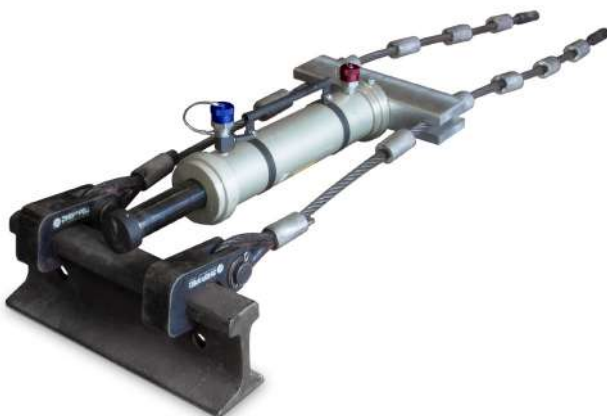
- The body is made of light and high-strength corrosion resistant aluminum alloy
- Hydraulic locking pin for changing the displacing cylinder position on the rerailing bridge
- Quick couplings for quick connection to the hydraulic system
- Compact design, easy transportation, light weight

| Model              | CP15G350FG | CP30G350FG |
|--------------------|------------|------------|
| Operating pressure | 300 bar    | 300 bar    |
| Pushing force      | 150 kN     | 300 kN     |
| Pulling force      | 120 kN     | 200 kN     |
| Piston stroke      | 350 mm     | 350 mm     |
| Oil capacity       | 1,9 l      | 3,0 l      |
| Cylinder length    | 687 mm     | 687 mm     |
| Weight             | 26 kg      | 39 kg      |

## AXLE PUSHER

TKP

The axle pusher is intended to put the rolling stock to the track, if it has been put on wheel flange when lowering on the rails.



TKP-1500 + CP15G350-575

| Model              | TKP-1500 |
|--------------------|----------|
| Operating pressure | 300 bar  |
| Pushing force      | 132 kN   |
| Piston stroke      | 380 mm   |
| Weight             | 11 kg    |

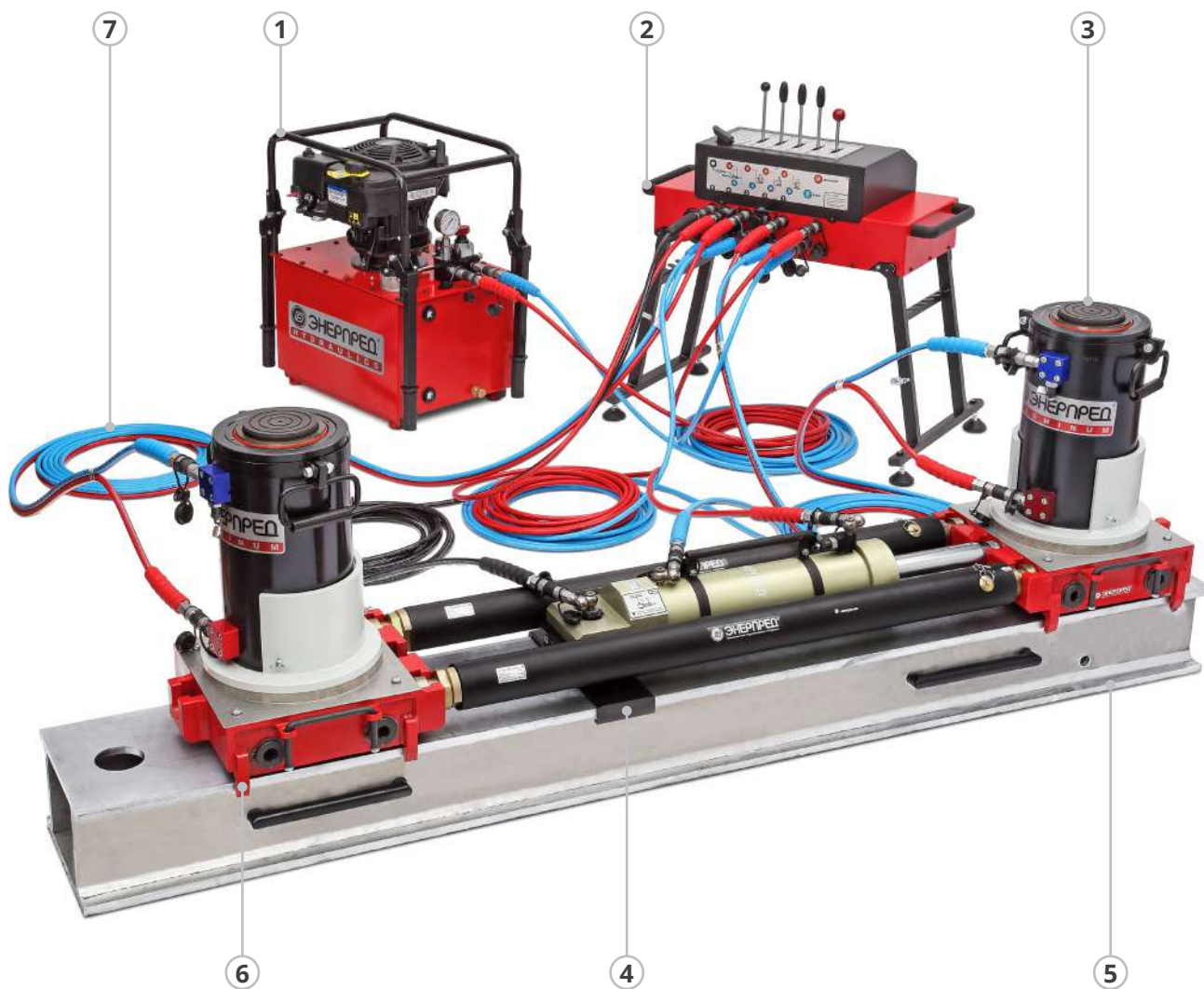
\*The displacing cylinder **CP15G350-575** is not included in the set

# AV50-50

## HYDRAULIC ALUMINIUM RERAILING SYSTEMS

Operating pressure: 500 bar

Maximum capacity: 1700 kN



### Main components of the system:

- 1. Pump Unit** - for generate hydraulic pressure and supply fluid to cylinders
- 2. Control Unit** - for control of hydraulic system flow
- 3. Lifting Cylinder** - for lifting/lowering rolling stock
- 4. Displacing Cylinder** - for lateral displacement of roller carriage along the rerailing bridge
- 5. Rerailing Bridge** - is designed to support roller carriages and cylinders when raising and moving rolling stock
- 6. Roller Carriage** - for lateral displacement of rolling stock along the rerailing bridge
- 7. High Pressure Hose** - is used to connect all elements of the hydraulic system



**Application:** Rolling stock, Light rail transport

## Powering & Controlling

**PAGES 28 - 33**



- The equipment is intended to provide pressure and supply hydraulic fluid to the ENERPRED system elements in order to re-rail the rolling stock
- The equipment is intended to control (distribute the hydraulic flow) operation of the ENERPRED system elements in order to re-rail the rolling stock

## Lifting

**PAGES 34 - 37**



- The equipment is intended to lift, hold and lower the rolling stock to the rails

## Displacing

**PAGES 38 - 43**



- The equipment allows accurate alignment of the rolling stock (already lifted by the cylinders) as related to the rail track and its movement in the lateral direction
- When the rolling stock is in correct position, it is lowered down to the rails

Pump units provide pressure and supply hydraulic fluid to the ENERPRED system elements in order to rerail the rolling stock.

This pump unit type is used for operation with a control desk.



**NBR50-6A40-2**  
(front view)



**NBR50-6A40-2**  
(back view)

## Features:

- Two-stage hydraulic pump reduce operating time (extension and return) of the lifting and displacing cylinders at idle speed
- Controls: unloading valve
- Unloading valve functions: to start and to stop hydraulic flow
- Relief valve protects against operating overpressure in the hydraulic system
- Gauge for pressure control in the hydraulic system
- Quick couplings for quick connection to the hydraulic system
- Compact design and light weight, four folding handles on the safety cage for easy transportation

### Control Unit

Device for hydraulic system control

PAGE 32



## Gasoline-Powered Pump Units, series **NBR**

Four-stroke gasoline internal combustion engine

|   |                     |
|---|---------------------|
| <b>Model</b>                                  | <b>NBR50-6A40-2</b> |
| <b>Operating pressure</b>                     | 510 bar             |
| <b>Output flow rate</b> (low / high pressure) | 5,9 / 3,0 l/min     |
| <b>Drive power</b>                            | 3,8 kW              |
| <b>Usable oil capacity</b>                    | 40 l                |
| <b>Length</b>                                 | 620 mm              |
| <b>Width</b>                                  | 380 mm              |
| <b>Height</b>                                 | 710 mm              |
| <b>Weight</b> (without oil)                   | 58 kg               |

## Electric-Powered Pump Units, series **NER**

Electric engine 380 V, 50/60 Hz

|   |                     |
|---|---------------------|
| <b>Model</b>                                  | <b>NER50-6A40T2</b> |
| <b>Operating pressure</b>                     | 510 bar             |
| <b>Output flow rate</b> (low / high pressure) | 5,3 / 3,3 l/min     |
| <b>Drive power</b>                            | 2,2 kW              |
| <b>Usable oil capacity</b>                    | 40 l                |
| <b>Length</b>                                 | 620 mm              |
| <b>Width</b>                                  | 380 mm              |
| <b>Height</b>                                 | 710 mm              |
| <b>Weight</b> (without oil)                   | 58 kg               |

## Diesel-Powered Pump Units, series **NDR**

Four-stroke diesel internal combustion engine

|   |                     |
|---|---------------------|
| <b>Model</b>                                  | <b>NDR50-6A40-2</b> |
| <b>Operating pressure</b>                     | 510 bar             |
| <b>Output flow rate</b> (low / high pressure) | 5,9 / 3,2 l/min     |
| <b>Drive power</b>                            | 5,5 kW              |
| <b>Usable oil capacity</b>                    | 40 l                |
| <b>Length</b>                                 | 700 mm              |
| <b>Width</b>                                  | 542 mm              |
| <b>Height</b>                                 | 830 mm              |
| <b>Weight</b> (without oil)                   | 95 kg               |

These hand pumps provide pressure and supply hydraulic fluid to the ENERPRED system elements in order to rerail the rolling stock.

Due to the hand drive the pump can be operated without electric power or fuel.



**NRG50100R3**  
(in fold position)



**NRG50100R3**  
(in operating position)

### Features:

- Control: three-position one/two/three/four-sectional manual directional control valve
- Control valve functions: lifting, lowering, holding under load and moving the rolling stock
- Quick couplings for quick connection to the hydraulic system
- Compact design and light weight, two handles for easy transportation

| Model                       | NRG50100R1                                 | NRG50100R2                                 | NRG50100R3                                 | NRG50100R4                                 |
|-----------------------------|--|--|--|--|
| Operating pressure          | 510 bar                                    | 510 bar                                    | 510 bar                                    | 510 bar                                    |
| Output flow rate            | 14,3 / 4,2 cm <sup>3</sup> / double stroke | 14,3 / 4,2 cm <sup>3</sup> / double stroke | 14,3 / 4,2 cm <sup>3</sup> / double stroke | 14,3 / 4,2 cm <sup>3</sup> / double stroke |
| Usable oil capacity         | 10,5 l                                     | 10,5 l                                     | 10,5 l                                     | 20 l                                       |
| Number of connected devices | 1  | 2  | 3  | 4  |
| Length                      | 910 mm                                     | 909 mm                                     | 909 mm                                     | 909 mm                                     |
| Width                       | 380 mm                                     | 437 mm                                     | 437 mm                                     | 437 mm                                     |
| Height                      | 430 mm                                     | 480 mm                                     | 530 mm                                     | 580 mm                                     |
| Weight (without oil)        | 24 kg                                      | 25 kg                                      | 26 kg                                      | 31 kg                                      |

# HIGH PRESSURE HOSES

**RVD**

The high pressure hoses are used to interconnect all elements of the ENERPRED hydraulic system for rerailing the rolling stock.



**RVD50-10000PN (RED)**



**RVD50-10000PN (BLUE)**



**2RVD50-10000PC**



**RVD50-10000PF**

## Features:

- Each hose is equipped with two quick half couplings for quick assembly of the hydraulic system excluding any leaks
- There is color marking on the hose ends for correct connection to the hydraulic system elements
- Check valves in the quick couplings provide protection against air penetration into the hydraulic system
- Protective metal caps prevent from contamination of the interiors of disconnected couplings

| Model                                   | <b>RVD50-10000PN</b>     |  | <b>RVD50-10000PF</b>                |  | <b>2RVD50-10000PC</b>    |   |
|---|--------------------------|--|-------------------------------------|--|--------------------------|---|
| <b>Length</b>                           | 10 m                     |  | 10 m                                |  | 10 m                     |   |
| <b>Maximum operating pressure</b>       | 720 bar                  |  | 720 bar                             |  | 720 bar                  |   |
| <b>Rupture pressure</b>                 | 2880 bar                 |  | 2880 bar                            |  | 2880 bar                 |   |
| <b>Minimum bend radius</b>              | 70 mm                    |  | 70 mm                               |  | 70 mm                    |   |
| <b>Kit</b>                              | Single                   |  | Single                              |  | Double                   |   |
| <b>Designation and color of marking</b> | <b>Red</b><br>(Pressure) | To connect pump unit to the control desk | <b>Black</b><br>(Pressure / Return) | To connect the displacing cylinder locking pin to the control desk | <b>Red</b><br>(Pressure) | To connect lifting/displacing cylinders to the control desk |
|   | <b>Blue</b><br>(Return)  |  |                                     |  | <b>Blue</b><br>(Return)  |   |
| <b>Weight</b>                           | 4 kg                     |  | 4 kg                                |  | 7 kg                     |   |

The control desks are intended for control (hydraulic flow distribution) of the ENERPRED system elements for rerailing the rolling stock.



**PU50-4**  
(front view)



**PU50-4**  
(back view)

## Control Desk in transport position

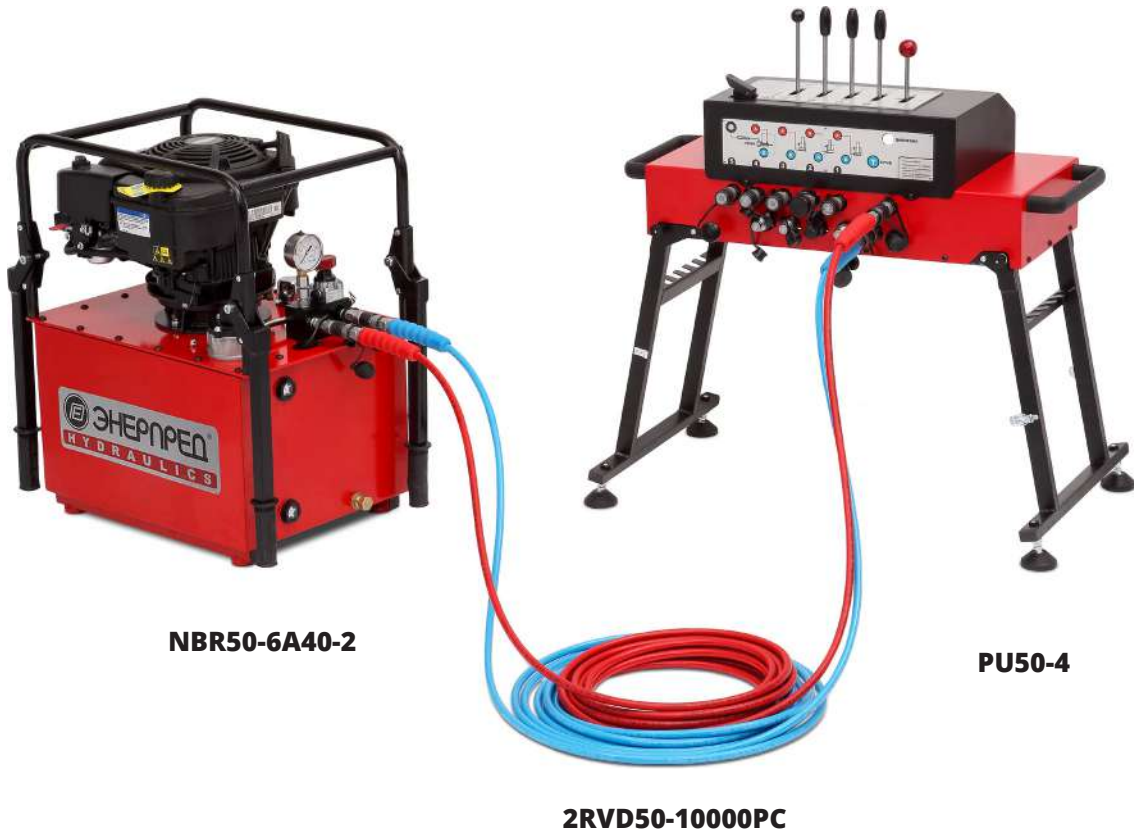


**PU50-4**  
(front view)



**PU50-4**  
(back view)





**NBR50-6A40-2**

**PU50-4**

**2RVD50-10000PC**

**Recommendations:**

We recommend using the remote hydraulic control desk, especially to operate the hydraulic unit equipped with a gasoline or diesel internal combustion engine. It allows controlling the hydraulic system at a distance from the engine noise and ensures easiness and safety of the emergency recovery works.

**Features:**

- Entire system is controlled by one operator, thus keeping workers clear of the load area
- Integrated “dead man control” system ensures each control valve immediately and automatically locks into neutral position when the operator releases the lever
- Relief valve protects against operating overpressure in the hydraulic system, control errors and incorrect connection of the high pressure hoses
- Control: multi-sectional manual directional control valve
- Control valve functions: lifting, lowering, holding under load and moving the rolling stock
- Filter of the return line sufficiently increases operational life of hydraulic system elements
- Gauge for pressure control in the hydraulic system
- Quick couplings for quick connection to the hydraulic system
- Compact design and light weight, handles for easy transportation

| Model                             | <b>PU50-4</b>         | <b>PU50-6</b>          |
|-----------------------------------|-----------------------|------------------------|
| Operating pressure                | 500 bar               | 500 bar                |
| Number of connected devices       | 4                     | 6                      |
| Control of TWIN displacing system | 1 displacing cylinder | 2 displacing cylinders |
| Length                            | 896 mm                | 896 mm                 |
| Width                             | 494 mm                | 494 mm                 |
| Height                            | 910 mm                | 910 mm                 |
| Weight                            | 41 kg                 | 51 kg                  |

The lifting cylinders are designed for lifting, holding and lowering the rolling stock on the rails. Design of the ENERPRED lifting cylinders allows using them with any type of railway equipment.



**DTA65G450**



**DTA110G400**



**DTA130G115**

## Features:

- Operating pressure: 500 bar
- Two-way system with hydraulic rod return
- Bodies and rods are made of strong and light aluminum alloy
- The rods are protected against wear and corrosion by hard coating
- High-strength steel ribbed saddle is on the rod of each lifting cylinder
- Quick couplings for quick connection to the hydraulic system
- Compact design, two handles for easy transportation, light weight

## Safety:

According to requirements to the emergency recovery works on the railways, each hydraulic lifting cylinder is equipped with a check valve and relief valve.

Check valve prevents uncontrolled lowering of the lifting cylinder rod under pressure in case of damages of the high pressure hose.

Relief valve is designed to protect the lifting cylinder from rupture and damage due to overpressurization.

## Series 650

| Model                               | DTA65G185    | DTA65G280          | DTA65G450    |
|-------------------------------------|--------------|--------------------|--------------|
| Piston lifting force<br>1/2/3 stage | 662 / 284 kN | 662 / 284 / 104 kN | 662 / 284 kN |
| Piston stroke<br>1/2/3 stage        | 95 / 90 mm   | 90 / 95 / 95 mm    | 223 / 227 mm |
| Oil capacity                        | 1,4 l        | 1,4 l              | 2,3 l        |
| Cylinder height                     | 215 mm       | 215 mm             | 383 mm       |
| Body diameter                       | 170 mm       | 170 mm             | 170 mm       |
| Support set model                   | SC65         | SC65               | SC65         |
| Weight                              | 14 kg        | 15 kg              | 24 kg        |

## Series 1100

| Model                             | DTA110G185    | DTA110G400    |
|-----------------------------------|---------------|---------------|
| Piston lifting force<br>1/2 stage | 1079 / 491 kN | 1079 / 491 kN |
| Piston stroke<br>1/2 stage        | 89 / 96 mm    | 195 / 204 mm  |
| Oil capacity                      | 2,0 l         | 4,7 l         |
| Cylinder height                   | 234 mm        | 398 mm        |
| Body diameter                     | 220 mm        | 220 mm        |
| Support set model                 | SC110-1       | SC110-2       |
| Weight                            | 27 kg         | 41 kg         |

## Series 1300 / 1700

| Model                             | DGA130G115 | DTA170G500    |
|-----------------------------------|------------|---------------|
| Piston lifting force<br>1/2 stage | 1271 kN    | 1649 / 715 kN |
| Piston stroke<br>1/2 stage        | 115 mm     | 250 / 251 mm  |
| Oil capacity                      | 1,9 l      | 9,0 l         |
| Cylinder height                   | 272 mm     | 450 mm        |
| Body diameter                     | 238 mm     | 270 mm        |
| Support set model                 | SC130      | SC170         |
| Weight                            | 36 kg      | 68 kg         |

The support extensions are intended to increase lifting height of the ENERPRED lifting cylinders.



**KN110-2 + DTA110G400**



**KN110-2 + DTA110G400**



**KN110-2 + PPN110-2**  
(device for support set handling)



**KN110-2**



**PKN-50**  
(device for support set installation)

## Features:

- The set consists of 4 support rings and 4 support pieces for successive stage lifting
- Made of high-strength and light aluminum alloy
- For ease of transportation and increased portability, each support set is supplied with special piece-handling devices.

| Model   | KN65                                | KN110-1    | KN110-2    | KN130      | KN170      |
|---|-------------------------------------|------------|------------|------------|------------|
| Model of lifting cylinder                     | DTA65G185<br>DTA65G280<br>DTA65G450 | DTA110G185 | DTA110G400 | DTA130G115 | DTA170G500 |
| Cylinder stroke extension                     | 260 mm                              | 260 mm     | 360 mm     | 495 mm     | 400 mm     |
| Total lifting height (cylinder+ support sets) | 445 mm<br>540 mm<br>710 mm          | 445 mm     | 760 mm     | 610 mm     | 800 mm     |
| Device for support set handling               | PPN65                               | PPN110-1   | PPN110-2   | PPN130     | PPN170     |
| Weight  | 16 kg                               | 27 kg      | 41 kg      | 47 kg      | 49 kg      |

Base plates ensure stability of the ENERPRED lifting cylinders when lifting, holding and lowering the rolling stock.



**OPDA65** + DTA65G450



**OPDA110** + DTA110G400



**OPDA130** + DGA130G115

LIFTING

EMERGENCY-RECOVERY HYDRAULIC RERAILING EQUIPMENT 500 BAR

### Features:

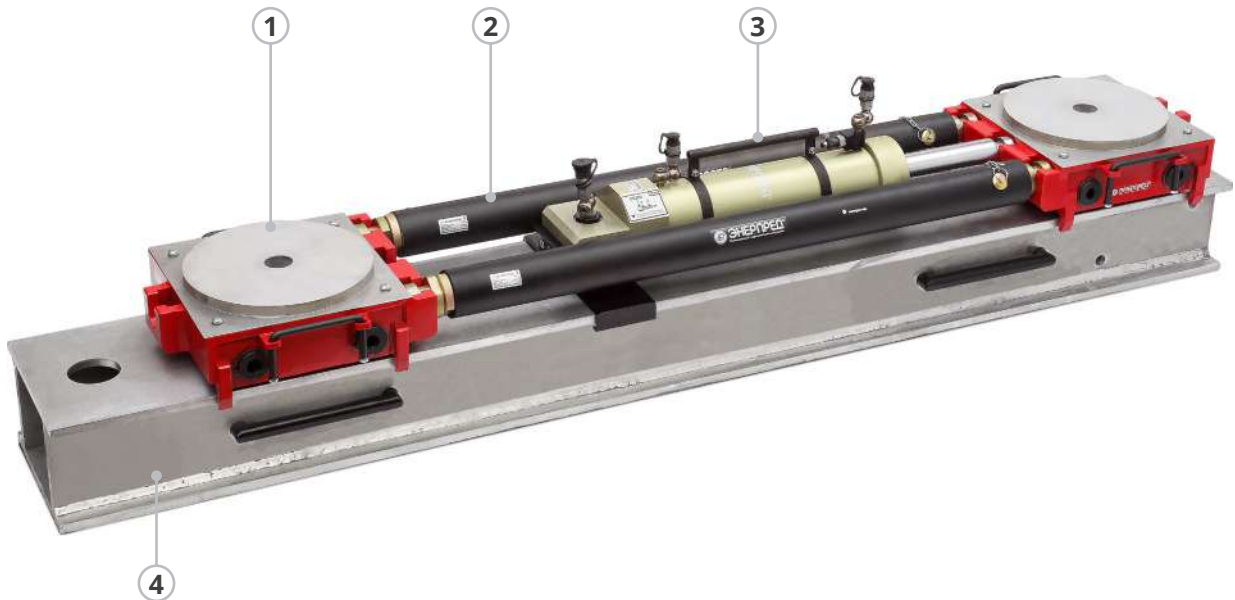
- Made of high-strength and light aluminum alloy
- Special devices fixing the base plate on the lifting cylinder

| Model                     | OPDA65                              | OPDA110                  | OPDA130    | OPDA170    |
|---------------------------|-------------------------------------|--------------------------|------------|------------|
| Model of lifting cylinder | DTA65G185<br>DTA65G280<br>DTA65G450 | DTA110G185<br>DTA110G400 | DGA130G115 | DTA170G500 |
| Load capacity             | 662 kN                              | 1079 kN                  | 1271 kN    | 1649 kN    |
| Internal diameter         | 170 mm                              | 220 mm                   | 242 mm     | 270 mm     |
| Base diameter             | 300 mm                              | 300 mm                   | 300 mm     | 400 mm     |
| Height                    | 159 mm                              | 270 mm                   | 30 mm      | 270 mm     |
| Weight                    | 13 kg                               | 9 kg                     | 5 kg       | 23 kg      |

# EQUIPMENT FOR LATERAL DISPLACEMENT

The ENERPRED displacement equipment is used for careful alignment of derailed rolling stock (already lifted on cylinders) as related to the rail track and its lateral movement. When the rolling stock reaches correct position, it is lowered on the rails. One or two roller carriages are used depending on design of the rolling stock.

All components of the ENERPRED equipment are firmly connected to ensure safe installation and movement of the rolling stock on the rails.



## TWIN system

This rolling stock displacement system allows performing works at a safe distance without manual changing of the displacing cylinder position on the rerailing bridge.

### Advantages:

- Displacement is controlled using the control desk at a safe distance
- Hydraulic repositioning is changing of the displacing cylinder position on the rerailing bridge
- Moving in two directions throughout the length of the rerailing bridge
- Higher speed of the displacement operation
- No additional counteract supports for the displacing cylinder are required

# ROLLER CARRIAGES ①

RT

The roller carriages are used for moving the rolling stock in the lateral direction along the rerailing bridge. They serve as a platform for installing the ENERPRED cylinders.



RT75



RT120

## Features:

- Special housings are designed for joining the displacing cylinder and distance bars
- Grease-free bearings ensure easy lateral displacement of the rolling stock along the rerailing bridge with minimal efforts
- Limit stops ensure stable and linear movement along the rerailing bridge
- Made of high-strength steel alloy
- Swiveling base to compensate for radial loads

| Model  | RT75   | RT120   |
|--|--------|---------|
| Maximum load capacity                              | 750 kN | 1200 kN |
| Height (from rerailing bridge to lifting cylinder) | 117 mm | 140 mm  |
| Weight   | 44 kg  | 64 kg   |

# DISTANCE BARS ②

RB

The distance bars are used to join two ENERPRED roller carriages for moving the rolling stock in the lateral direction.



RB-3  
(in operating position)



RB-3  
(in fold position)

## Features:

- Special supports on both the sides for connection with the roller carriage housings
- Stoppers to fix extension bars in several positions

| Model                              | RB-3    | RB-4    |
|------------------------------------|---------|---------|
| Min. length in operating condition | 1190 mm | 1500 mm |
| Max. length in operating condition | 1830 mm | 2800 mm |
| Weight                             | 23 kg   | 27 kg   |

DISPLACING

EMERGENCY-RECOVERY HYDRAULIC RERAILING EQUIPMENT 500 BAR

# RERAILING BRIDGES ③



The rerailing bridges are used to support the roller carriages and as the main support when lifting, holding and lowering the rolling stock by the ENERPED lifting cylinders.



**M184-2200**

**M184-1100**

|                                 |               |               |
|---------------------------------|---------------|---------------|
| <b>Rerailing bridge height:</b> | <b>140 mm</b> | <b>184 mm</b> |
|---------------------------------|---------------|---------------|

|  |   |         |         |
|--|---|---------|---------|
|  | Rerailing bridge capacity with 1,0 m distance between the support points                                | 500 kN  | 900 kN  |
|  | Rerailing bridge capacity with 1,43 m distance between the support points                               | 400 kN  | 650 kN  |
|  | Rerailing bridge capacity with full support   | 1000 kN | 1200 kN |
|  | Maximum load on the joint of rerailing bridges, when the distance between two support point exceeds 1 m | 200 kN  | 300 kN  |

### Features:

- Hollow beams made of light, high strength, corrosion resistant aluminum alloy
- Four telescopic handles for easy transportation
- Special openings on the beam surface for attaching counteract supports of the displacing cylinders

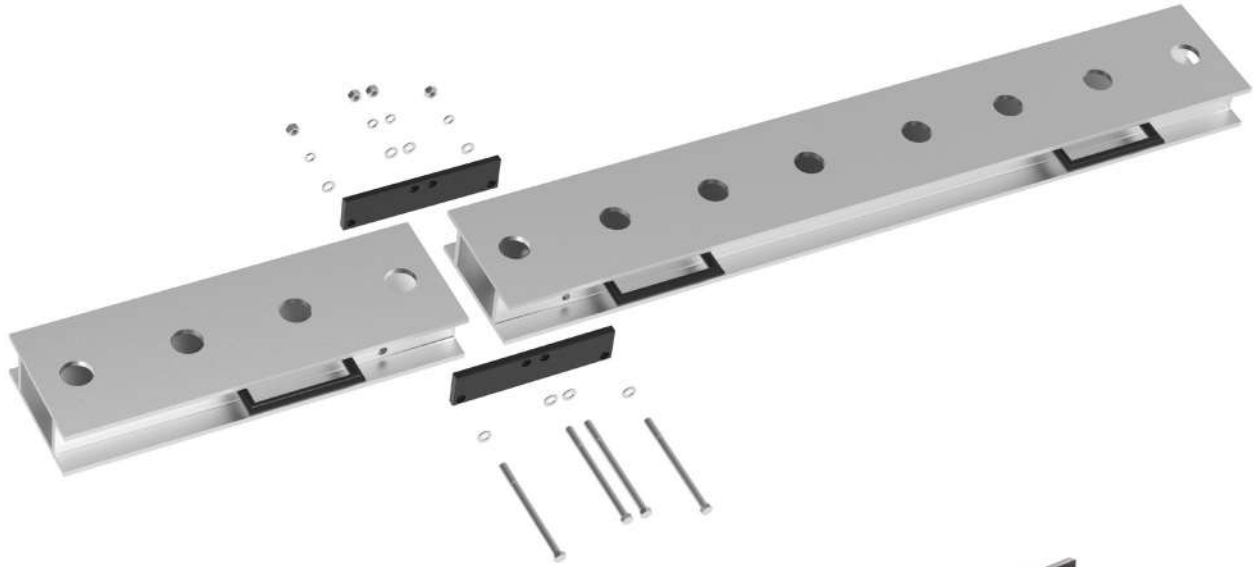
| Model         | M140-1100 | M140-2200 | M140-3300 | M184-1100 | M184-2200 | M184-3300 |
|---------------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>Length</b> | 1100 mm   | 2200 mm   | 3300 mm   | 1100 mm   | 2200 mm   | 3300 mm   |
| <b>Width</b>  | 350 mm    | 350 mm    | 350 mm    | 350 mm    | 350 mm    | 350 mm    |
| <b>Height</b> | 140 mm    | 140 mm    | 140 mm    | 184 mm    | 184 mm    | 184 mm    |
| <b>Weight</b> | 45 kg     | 89 kg     | 93 kg     | 45 kg     | 97 kg     | 145 kg    |

EMERGENCY-RECOVERY HYDRAULIC RERAILING EQUIPMENT 500 BAR



## Joint of two rerailing bridges

Used to extend support for lifting and displacing the rolling stock.



**NMB-140** - Connection elements for rerailing bridges of 140 mm height, weight: 18 kg

**NMB-184** - Connection elements for rerailing bridges of 184 mm height, weight: 21 kg



**NMB-184**

## Rerailing bridge in operation



The displacing cylinder is used to move the roller carriage along the ENERPRED rerailing bridge. Hydraulic repositioning is changing of the displacing cylinder position on the rerailing bridge.

## TWIN system

This rolling stock displacement system allows performing works at a safe distance without manual changing of the displacing cylinder position on the rerailing bridge.

### Hydraulic locking pin



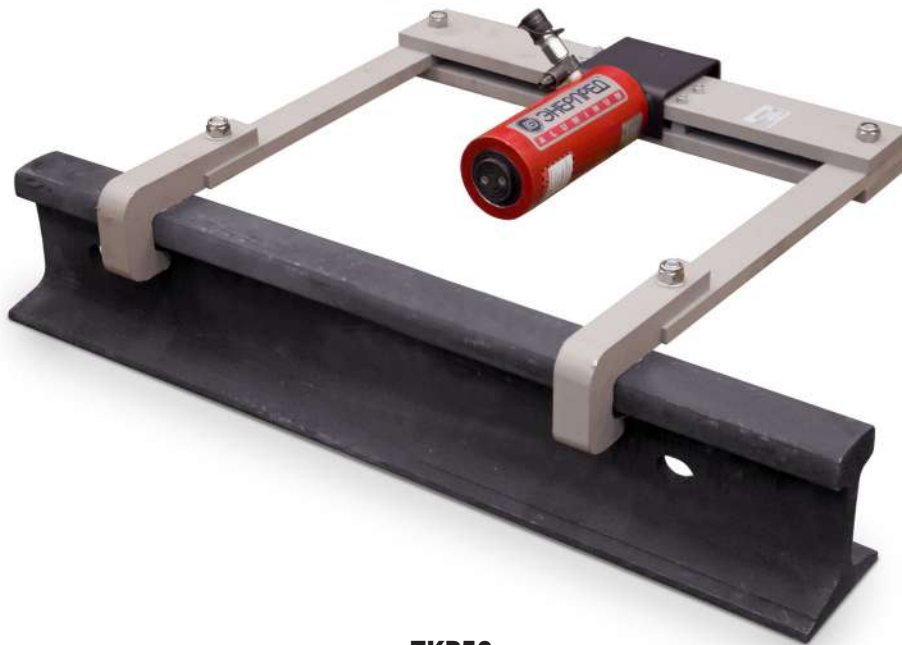
CP30G320FG

### Features:

- The body is made of light and high-strength corrosion resistant aluminum alloy
- Hydraulic locking pin for changing the displacing cylinder position on the rerailing bridge
- Quick couplings for quick connection to the hydraulic system
- Ball and socket joint for quick coupling allow to rotate high pressure hoses connected to the displacing cylinder to the convenient position
- Compact design, easy transportation, light weight

| Model              | CP15G320FG | CP30G320FG |
|--------------------|------------|------------|
| Operating pressure | 500 bar    | 500 bar    |
| Pushing force      | 157 kN     | 353 kN     |
| Pulling force      | 91 kN      | 196 kN     |
| Piston stroke      | 320 mm     | 320 mm     |
| Oil capacity       | 1,1 l      | 2,3 l      |
| Cylinder length    | 673 mm     | 728 mm     |
| Weight             | 24 kg      | 33 kg      |

The axle pusher is intended to put the rolling stock to the track, if it has been put on wheel flange when lowering on the rails.



TKP50

## Features:

- One-way lifting cylinder, with spring return
- Bodies and rods are made of strong and light aluminum alloy
- The rods are protected against wear and corrosion by hard coating
- High-strength steel ribbed saddle is on the rod of each lifting cylinder
- Quick couplings for quick connection to the hydraulic system

|                           |              |
|---------------------------|--------------|
| <b>Model</b>              | <b>TKP50</b> |
| <b>Operating pressure</b> | 500 bar      |
| <b>Pushing force</b>      | 106 kN       |
| <b>Piston stroke</b>      | 150 mm       |
| <b>Oil capacity</b>       | 0,4 l        |
| <b>Length</b>             | 685 mm       |
| <b>Width</b>              | 650 mm       |
| <b>Height</b>             | 110 mm       |
| <b>Weight</b>             | 11 kg        |



# SET FOR LIGHT RAIL TRANSPORT

Pump unit **NBR**, PAGE 46

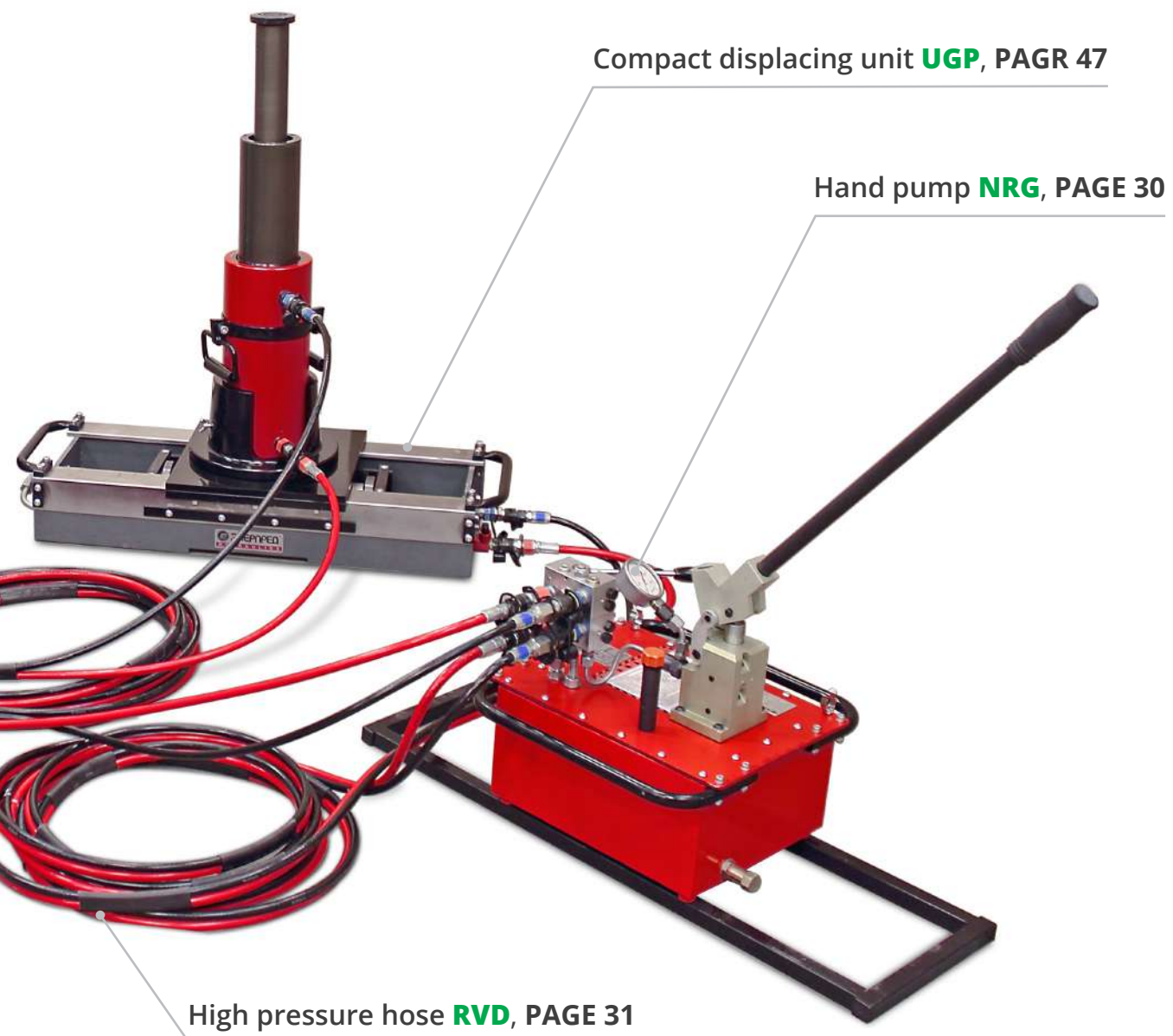
Lifting cylinder **DTA**, PAGE 34



This equipment is used to rerail any type of light rail transport. Depending on the weight of derailed rail transport, one or two units may be used for horizontal moving. The equipment has a light and compact design for easy transportation.

## Set in job





### Set in job



Pump units provide pressure and supply hydraulic fluid to the ENERPRED system elements in order to rerail the rolling stock.

This pump unit type is equipped with a control unit to lift light rail transport.



**NBR50-4,7A20-2-BU2**

## Features:

- Two-stage hydraulic pump reducing operating time (extension and return) of lifting and displacing cylinders at idle speed
- Relief valve protects against operating overpressure in the hydraulic system
- Gauge for pressure control in the hydraulic system
- Quick couplings for quick connection to the hydraulic system
- Compact design and light weight, four folding handles on the safety cage for easy transportation

|  |  |
|--|--|
| <b>Model</b>                               | <b>NBR50-4,7A20-2-BU2</b>  |
| <b>Operating pressure</b>                  | 500 bar  |
| <b>Output flow rate</b>                    | 4,7 / 1,5 l/min  |
| <b>Drive power</b>                         | 3,8 kW   |
| <b>Usable oil capacity</b>                 | 20 l   |
| <b>Controls</b>                            | 3-sectional hydraulic control valve BU2 with a discharge section |
| <b>Number of connected lifting devices</b> | 2 cylinders  |
| <b>Dimensions (LxWxH)</b>                  | 570 x 440 x 730 mm   |
| <b>Weight (without oil)</b>                | 53 kg  |

This unit is used for easy alignment of derailed rolling stock (already lifted on cylinders) as related to the rail track and its lateral movement. When the rolling stock reaches correct position, it is lowered on the rails.



**UGP50-300**

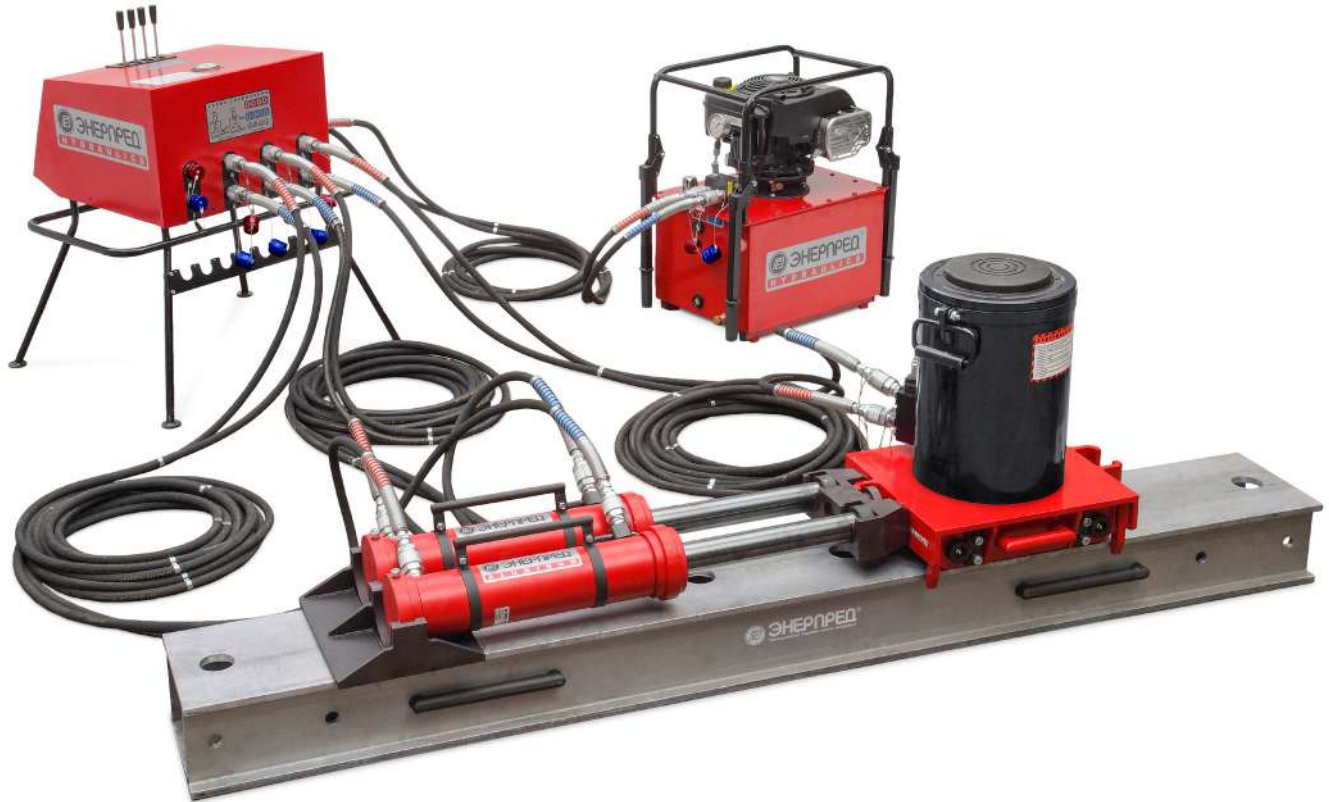
## Features:

- Made of high-strength and light aluminum alloy
- Horizontal moving in two directions
- Quick couplings for easy connection to the hydraulic system
- Compact design and light weight, handles for easy transportation

|                                |                  |
|--------------------------------|------------------|
| <b>Model</b>                   | <b>UGP50-300</b> |
| <b>Operating pressure</b>      | 500 bar          |
| <b>Horizontal moving force</b> | 88 kN            |
| <b>Lateral displacement</b>    | 300 mm           |
| <b>Oil capacity</b>            | 0,5 l            |
| <b>Length</b>                  | 980 mm           |
| <b>Width</b>                   | 373 mm           |
| <b>Height</b>                  | 153 mm           |
| <b>Weight</b>                  | 70 kg            |

# STANDARD SETS

## AVSO-30



### Set AVSO-30:

|   |        |
|---|--------|
| <b>NBR30-7A40-1</b> - Pump unit             | 1 pcs. |
| <b>PU-4</b> - Control desk                  | 1 pcs. |
| <b>NRG30200R2</b> - Hand pump               | 1 pcs. |
| <b>2RVD30-5000</b> - High pressure hose     | 1 pcs. |
| <b>2RVD30-10000</b> - High pressure hose    | 4 pcs. |
| <b>DTA60/30G500-420</b> - Lifting cylinder  | 2 pcs. |
| <b>DGA120G120-315</b> - Lifting cylinder    | 1 pcs. |
| <b>DTA120/60G500-420</b> - Lifting cylinder | 2 pcs. |
| <b>KN120-3</b> - Support set                | 1 pcs. |
| <b>RT60/120</b> - Roller carriage           | 2 pcs. |
| <b>RB-1</b> - Distance bar                  | 1 pcs. |
| <b>M60/120-1200</b> - Rerailing bridge      | 1 pcs. |
| <b>M60/120-2250</b> - Rerailing bridge      | 1 pcs. |
| <b>NMB-180</b> - Connection elements        | 1 pcs. |
| <b>KCP</b> - Single counteract support      | 2 pcs. |
| <b>DKCP</b> - Twin counteract support       | 1 pcs. |
| <b>DSSHC</b> - Double coupling support      | 1 pcs. |
| <b>CP15G350-575</b> - Displacing cylinder   | 2 pcs. |
| <b>TKP-1500</b> - Axle pusher               | 1 pcs. |

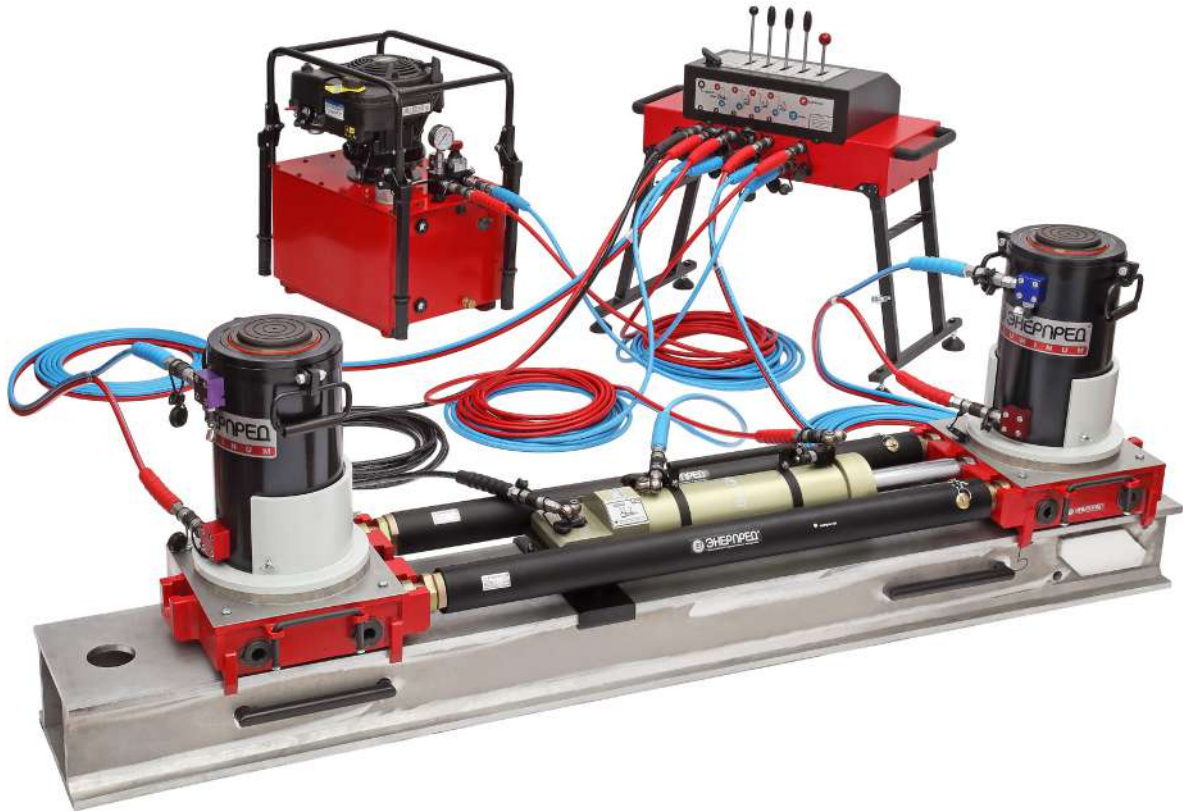
### Set AVSO-30:

**TWINsystem**

|   |        |
|---|--------|
| <b>NBR30-7A40-1</b> - Pump unit             | 1 pcs. |
| <b>PU-6FG</b> - Control desk                | 1 pcs. |
| <b>NRG30200R2</b> - Hand pump               | 1 pcs. |
| <b>RVD30-10000</b> - High pressure hose     | 1 pcs. |
| <b>2RVD30-5000</b> - High pressure hose     | 1 pcs. |
| <b>2RVD30-10000</b> - High pressure hose    | 4 pcs. |
| <b>DTA60/30G500-420</b> - Lifting cylinder  | 2 pcs. |
| <b>DTA120G120-315</b> - Lifting cylinder    | 1 pcs. |
| <b>DTA120/60G500-420</b> - Lifting cylinder | 2 pcs. |
| <b>KN120-3</b> - Support set                | 1 pcs. |
| <b>RT60/120</b> - Roller carriage           | 2 pcs. |
| <b>RB-1</b> - Distance bar                  | 1 pcs. |
| <b>M60/120-1200</b> - Rerailing bridge      | 1 pcs. |
| <b>M60/120-2250</b> - Rerailing bridge      | 1 pcs. |
| <b>NMB-180</b> - Connection elements        | 1 pcs. |
| <b>CP30G350-575FG</b> - Displacing cylinder | 1 pcs. |
| <b>TKP-1500</b> - Axle pusher               | 1 pcs. |



# AVSO-50



## Set AVSO-50:

**TWIN**system

|  |        |
|--|--------|
| <b>NBR50-6A40-2</b> - Pump unit            | 1 psc. |
| <b>PU50-6</b> - Control desk               | 1 psc. |
| <b>NRG50100R2</b> - Hand pump              | 1 psc. |
| <b>RVD50-10000PN</b> - High pressure hose  | 2 psc. |
| <b>RVD50-10000PF</b> - High pressure hose  | 1 psc. |
| <b>2RVD50-10000PC</b> - High pressure hose | 6 psc. |
| <b>DTA65G450</b> - Lifting cylinder        | 2 psc. |
| <b>DTA110G185</b> - Lifting cylinder       | 1 psc. |
| <b>DTA110G400</b> - Lifting cylinder       | 2 psc. |
| <b>KN65</b> - Support set                  | 2 psc. |
| <b>KN110-1</b> - Support set               | 1 psc. |
| <b>KN110-2</b> - Support set               | 2 psc. |
| <b>OPDA65</b> - Base plate                 | 2 psc. |
| <b>OPDA110</b> - Base plate                | 3 psc. |
| <b>RT100</b> - Roller carriage             | 2 psc. |
| <b>RB-3</b> - Distance bar                 | 2 psc. |
| <b>M140-2200</b> - Rerailing bridge        | 2 psc. |
| <b>NMB-184</b> - Connection elements       | 1 psc. |
| <b>CP34-320FG</b> - Displacing cylinder    | 1 psc. |
| <b>TKP50</b> - Axle pusher                 | 1 psc. |

## Set for Light Rail Transport:

|  |        |
|--|--------|
| <b>NBR50-4,7A20-1-BU2</b> - Pump unit      | 1 psc. |
| <b>NRG50100R2</b> - Hand pump              | 1 psc. |
| <b>2RVD50-10000</b> - High pressure hose   | 4 psc. |
| <b>DTA65G450</b> - Lifting cylinder        | 2 psc. |
| <b>OPDA65</b> - Base plate                 | 2 psc. |
| <b>UGP50-300</b> - Compact displacing unit | 2 psc. |

We recommend sets of this equipment to perform emergency recovery works on the railways and urban rail transport. Equipment design meets all requirements to rerailing of the rolling stock and light transport.

# RESCUE

## HYDRAULIC LIGHT-METAL TOOLS



Operating pressure: 800 bar

## HYDRAULIC EMERGENCY-RECOVERY TOOLS

These tools are used to eliminate accidents on the rail transport.

This equipment is safe and easy to use, therefore, you can easily delivery it to the accident place and work with it in hard-to-reach places.

### Main elements of the system:

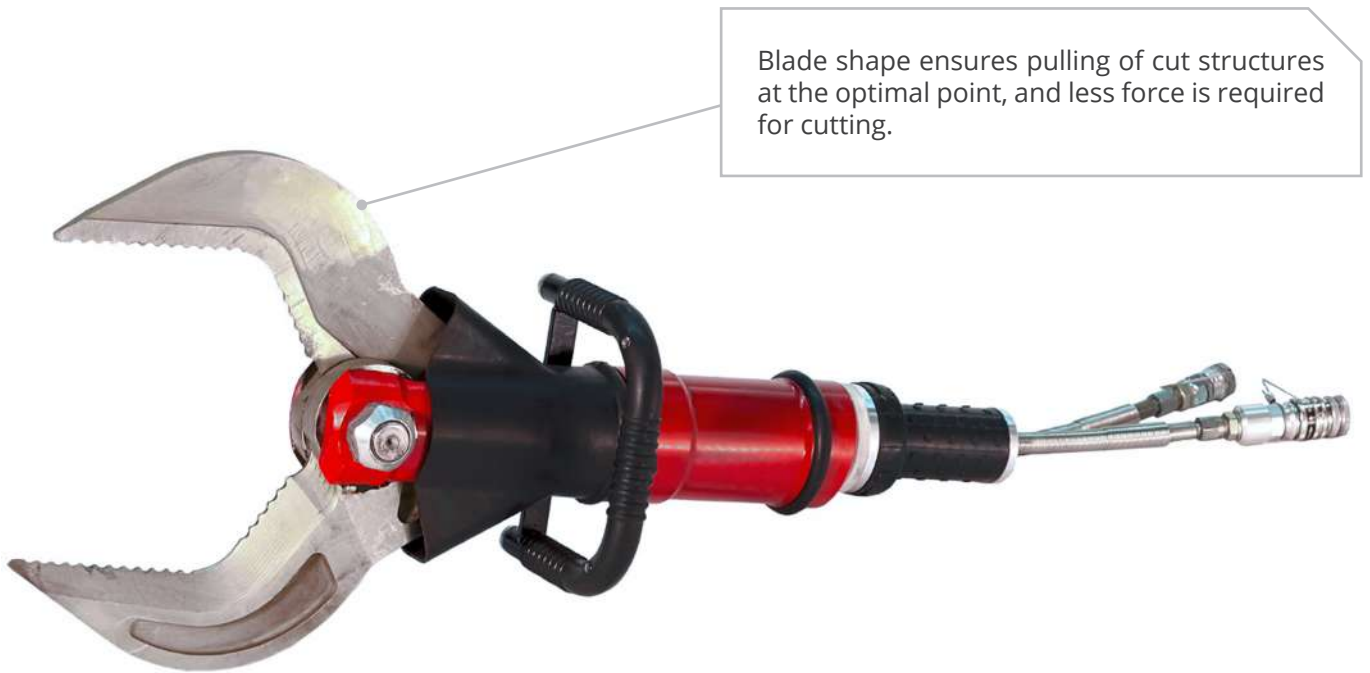


TOOL



PUMP + HOSE

The cutters are used to cut sheet metal and thin-wall pipes when clearing the debris in destroyed buildings, to cut steel bars.



**NG4**

### Features:

- The body is made of high-strength light aluminum alloy
- Diameter of cut steel bar is 32 mm, with tensile strength 475 MPa
- Control unit is an integrated device controlling the tool
- Quick couplings on the ends of the high pressure hoses for quick connection to the hydraulic system
- Compact design and light weight, handles for easy transportation

| Model                            | NG3 / NG4* |
|----------------------------------|------------|
| Operating pressure               | 800 bar    |
| Cutting force                    | 300 kN     |
| Cutting force in the middle part | 94 kN      |
| Cutting force on the ends        | 36 kN      |
| Opening of the blade ends        | 208 mm     |
| Length                           | 780 mm     |
| Width                            | 200 mm     |
| Height                           | 160 mm     |
| Weight                           | 14 kg      |

\* Cutters CT8032 differ from CT8031 by teeth at the cutting edges very useful for cutting viscous and fragile materials.

The spreader is used to move different items, to make tunnels in the debris, to expand openings in conjunction of hardly separated items, to hold loads in fixed position, to deform and to tighten.



**RGS-80**

## Features:

- The body is made of high-strength light aluminum alloy
- Quick couplings on the ends of the high pressure hoses for quick connection to the hydraulic system
- Control unit is an integrated device controlling the tool
- Compact design and light weight, handles for easy transportation

|                           |               |
|---------------------------|---------------|
| <b>Model</b>              | <b>RGS-80</b> |
| <b>Operating pressure</b> | 800 bar       |
| <b>Spreading force</b>    | 62 kN         |
| <b>Squeezing force</b>    | 54 kN         |
| <b>Maximum opening</b>    | 788 mm        |
| <b>Length</b>             | 860 mm        |
| <b>Width</b>              | 262 mm        |
| <b>Height</b>             | 200 mm        |
| <b>Weight</b>             | 19 kg         |

These cylinders are used to perform the following operations: expanding, tightening, moving, lifting and holding loads in fixed position, underpinning tunnels in the debris.



**CGD2x250**

### Features:

- The body is made of high-strength light aluminum alloy
- Tooth support on the rod body of the cylinder
- Control unit is an integrated device controlling the tool
- Quick couplings on the ends of the high pressure hoses for quick connection to the hydraulic system
- Compact design and light weight

| Model              | CGO1x320 | CGD2x250   |
|--------------------|----------|------------|
| Operating pressure | 800 bar  | 800 bar    |
| Spreading force    | 145 kN   | 145 kN     |
| Squeezing force    | 60 kN    | 60 kN      |
| Piston stroke      | 320 mm   | 2 x 250 mm |
| Length             | 608 mm   | 830 mm     |
| Width              | 108 mm   | 108 mm     |
| Height             | 275 mm   | 275 mm     |
| Maximum length     | 928 mm   | 1330 mm    |
| Weight             | 12 kg    | 16 kg      |

These pump units provide pressure and supply hydraulic fluid to tools.

This pump unit model is equipped with a coil, with double high pressure hose 5 m long.



**SN64-1**



**NUM-100X**

## Features:

- Two-stage delivery of hydraulic pump, increases tool operation velocity at idle speed
- Used to work with one or two tool simultaneously
- Relief valve protects against operating overpressure in the hydraulic system
- Quick couplings on the ends of the integrated high pressure hoses for quick connection to the hydraulic system
- Compact design and light weight, four folding handles on the safety cage for easy transportation

| Model                                   | SN64-1          | NUM-100X        |
|---|-----------------|-----------------|
| Operating pressure                      | 150 / 800 bar   | 150 / 800 bar   |
| Output flow rate<br>Low / high pressure | 2,2 / 0,8 l/min | 2,2 / 0,8 l/min |
| Drive power                             | 1,8 kW          | 2,2 kW          |
| Usable oil capacity                     | 2 l             | 3 l             |
| Number of connected devices             | 1               | 2               |
| Length                                  | 375 mm          | 560 mm          |
| Width                                   | 340 mm          | 440 mm          |
| Height                                  | 420 mm          | 460 mm          |
| Weight (without oil)                    | 12 kg           | 22 kg           |

The high pressure hoses are used to interconnect all elements of the hydraulic system.

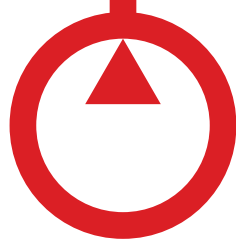


**2RVD80-5000**

## Features:

- Each hose is equipped with two quick half couplings for quick assembly of the hydraulic system excluding any leaks
- There is color marking on the hose ends for correct connection to the hydraulic system elements
- Check valves in the quick couplings provide protection against air penetration into the hydraulic system
- Protective metal caps prevent from contamination of the interiors of disconnected couplings

| Model                             | <b>2RVD80-3000</b> | <b>2RVD80-5000</b> |
|-----------------------------------|--------------------|--------------------|
| <b>Length</b>                     | 3 m                | 5 m                |
| <b>Maximum operating pressure</b> | 800 bar            | 800 bar            |
| <b>Rupture pressure</b>           | 2400 bar           | 2400 bar           |
| <b>Minimum bend radius</b>        | 25 mm              | 25 mm              |
| <b>Kit</b>                        | Double             | Double             |
| <b>Weight</b>                     | 1 kg               | 2 kg               |



# RERAILING EQUIPMENT

**CJSC TD ENERPRED**

Rosa Luxemburg street, 184, post office box 129

Irkutsk, 664040, Russia

e-mail: [sales@enerpred.com](mailto:sales@enerpred.com)

+7 (3952) 211-140

[www.enerpred.com](http://www.enerpred.com)

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