

**ENERPAC** 

**RAIL STRESSORS**  
**ESSENTIAL GUIDE**

**Key features, considerations,  
and recommendations**



**THE RIGHT TOOL MAKES ALL THE DIFFERENCE**

# MEETING THE CHALLENGES OF RAIL STRESSING



Rail stressors are vital tools used to pull and tension railway tracks during maintenance, repair, and construction. Common applications include closing gaps in preparation for thermite welding and adjusting the tension in Continuous Welded Rail (CWR) to prevent deformations caused by changing environmental conditions.

By addressing issues like misalignment, gaps, and thermal stresses, rail pulling enhances the overall safety of the railway infrastructure, reducing the risk of accidents and ensuring a safer travel experience for passengers and freight.

## SAFETY CONSIDERATIONS



### CONSTRUCTION AND DURABILITY

For obvious reasons, all rail stressors have to be robustly constructed. This means a fully assembled rail stressor can weigh more than 500 kg. In some parts of the world the standard practice is to use pre assembled heavy duty units, however this involves the use of Plant Equipment to lift it into place, a potentially dangerous operation. This is another area where the RP70A has a major advantage as it is a fully portable unit and can be put in place without the need of any mechanical intervention.



### EUROPEAN MANUAL HANDLING REGULATIONS

Europe has stringent manual handling regulations typically falling within the range of 15-25 kg for men and 7-16 kg for women, (depending on the task and conditions). This is why Enerpac created a modular puller the RP70A, which comprises of components that can be easily carried to the track by 1 or 2 persons, and easily assembled.



### TRAINING

Workers using rail stressing equipment should be provided with adequate training and information on safe operation, manual handling techniques and the risks involved.



# RAIL STRESSING CHALLENGES

## HOW MUCH FORCE IS NEEDED?

A rail stressor should be constructed to exert powerful force and withstand the rigors of a tough lifespan in challenging conditions. Hydraulic types have the capacity to exert over 100 tons of force, making them ideal for the most demanding tasks. Simpler mechanical designs which can exert up to 30 tons of force, are sufficient for less demanding jobs, and can be operated by a single person using a standard railroad lining bar

## HOW TO ENSURE RAIL STRESSING PRODUCTIVITY

The success of any maintenance crew depends upon how productive they are. The design of rail stressor can make a huge difference to set up and disassembly times as well as ease of use and time taken to stress the rail.

Key areas to consider include;

 **EASE OF TRANSPORT**

Components ergonomically designed that can be easily transported and assembled, reduce setup time and physical strain on workers.

 **VERSATILITY**

A modular rail stressor can allow for flexibility in usage, for example stretching rail in addition to pulling to bring gaps closer.

 **DURABILITY AND RELIABILITY**

A rail stressor made from robust materials ensures long-term use with minimal maintenance, reducing downtime.

 **COMPATIBILITY**

Check the rail stressor can be integrated with your hydraulic pumps which may be cordless, petrol, or electric driven.



## HYDRAULIC RAIL STRESSORS: OPERATING PRINCIPLE

The key components of a rail stressor are the two hydraulic cylinders, swing arms, rail grips, clamps, extension strips and connections to a hydraulic power source. The stressor is positioned or assembled with clamps on each side of the gap and connected by the extension strips/rods.

Hydraulic flow is sent from the power unit to the cylinders, and as the plunger on the cylinders retract, the extending rods pull on firmly on the rail clamps and the two rail sections are brought closer together.



## RECOMMENDED EQUIPMENT

### RP70A HYDRAULIC RAIL STRESSOR

The Enerpac RP70A Rail Stressor enables accelerated assembly and deployment directly on-site, thanks to its modular design and easy-to-lift components. The lightweight yet robust design is three times lighter than comparable models and comprises portable, durable components safely carried by one or two people.

The RP70A is compatible with the cordless Enerpac ZC-Series hydraulic pump, providing a zero-emissions rail stressing solution ideal for tunnels and residential areas. With over 200 units in successful operation, the RP70A offers proven reliability and effectiveness.



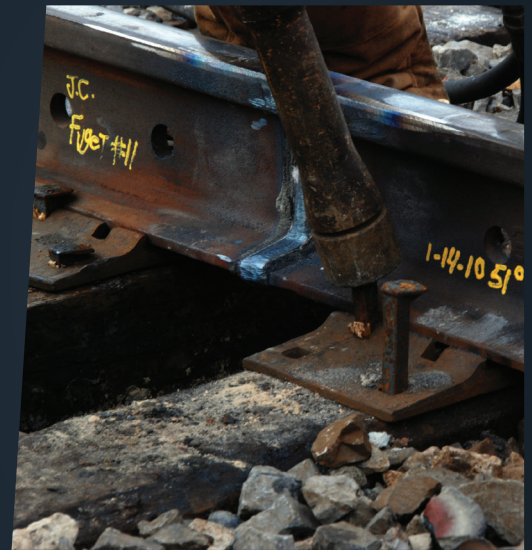
### MECHANICAL RAIL PULLER

Enerpac Mechanical Rail Pullers, ideal for rail stressing up to 30 tons, require only 3.4 kg (7.5 lbs) of handle effort, allowing single-person operation. Unlike hydraulic pullers, they use studs inserted through holes in the rail. A standard lining bar activates a ratchet mechanism, pulling the rail sections together. An alloy steel, heat-treated U-bar fits into the rail web provided it has an 82.5 mm (3.25") or larger flat area. Separate stud kits adapt to various rail drillings



### ZC-SERIES CORDLESS PUMP

The cordless Enerpac ZC pump, when paired with the RP70A, combines high performance with clean energy technology, making it perfect for more sustainable railway maintenance. This battery-powered pump features an 82V 4Ah Lithium-ion battery and a brushless motor, providing a zero-emissions power solution with reduced noise levels - ideal for residential areas and tunnels.



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