

**STANDFAST**  
The Safety Corporation



# Crane Access & Maintenance



**TRAM**

**FALL PROTECTION**

**SYSTEMS**

# Introduction to TRAM

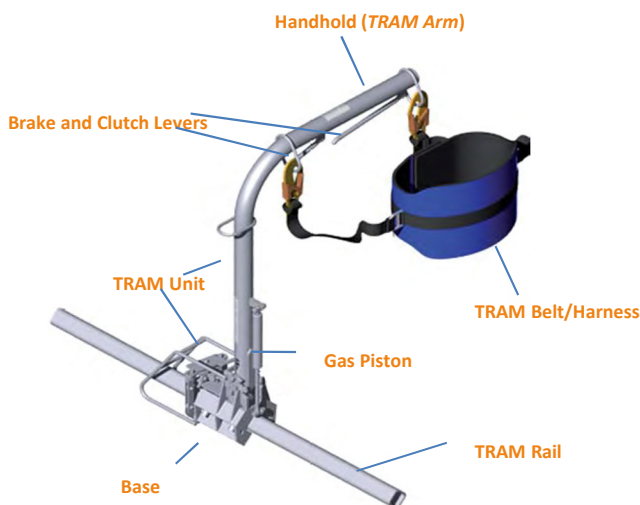
## TOTAL RESTRAINT ACCESS MODULE (TRAM)

An innovative personal fall protection system

An ideal system of mobility and restraint is achieved through the movement of the **TRAM**, which provides a handhold that moves with the operator and is also a moveable anchor point for the restraint harness.

The design incorporated industry input that included management, operational staff and significant input/feedback from drivers.

Tested in accordance with EN795



**TRAM** technology utilizes a handhold that moves with the operator (vertically and horizontally) and acts as a moveable anchor point for the restraint harness.

The operator is secured to the moveable anchor point via 2 lanyards and a restraint harness. The system is classified as a fall restraint system.

The system provides the user with mobility, restraint & protects operator during dangerous transition from the ladder to catwalk.

The user is securely attached to the unit at all times



## Crane Access and Maintenance

Working on cranes, whether they are mobile cranes or site installed is inherently dangerous.

With fall risks on all sides, machinery and traffic as additional hazards the **TRAM** system offers 100% protection using restraint principles whilst giving full access to the work area.

Specially designed anchorage solutions are provided by the team at Standfast to suit your specific requirements.



Access to maintenance areas provides specific access needs. Standard fall protection often won't work due to the low clearance allowances.

The **TRAM** system overcomes these issues using restraint principles and assisted access to remove the risk of a fall during access and maintenance.



# TRAM Fixing Details



**Mobile Cranes** offer unique problems when it comes to essential and emergency repairs. If a crane is out of service on a site more often than not there is no means of safe access to the arm.

This issue is removed by the installation of a **TRAM** system.

Access along the boom in complete safety and with a stable hand hold ensures that the worker is able to carry out the task at hand without the risk of falling.

Suitable for standard mobile cranes, rough terrain cranes and static base cranes the TRAM is the ideal solution to working at height.

With our specifically developed methods of fixing we can ensure a safe anchorage without any risk to the crane structure.



**Site Installed** cranes often have height restrictions for access areas on the top side of the boom, where motors and cable drums are housed. This removes the possibility of hand rails and other such passive safety systems.

The **TRAM** system can be installed within these height restrictions whilst still ensuring 100% safety for the worker.





# TRAM Fixing Details

The **TRAM** system can be fixed using a variety of methods, purely determined by the requirements of your site and situation. Welding, Bolting, Mechanical Fix to Concrete and Structural Adhesives are all used by the **TRAM** installation teams.

A range of brackets are available for use with the **TRAM** system, each designed specifically for the application, and special brackets can be designed for individual requirements where needed.

## Structural Adhesives

Using Terostat MS 9399 the mounting brackets can be mounted to structures where no other fixing method is possible or allowed.

Terostat MS 9399 is a highly viscous, sag-resistant, two-component adhesive based on silane-modified polymers, which cures independently of the atmospheric moisture to an elastic product



## Bolting

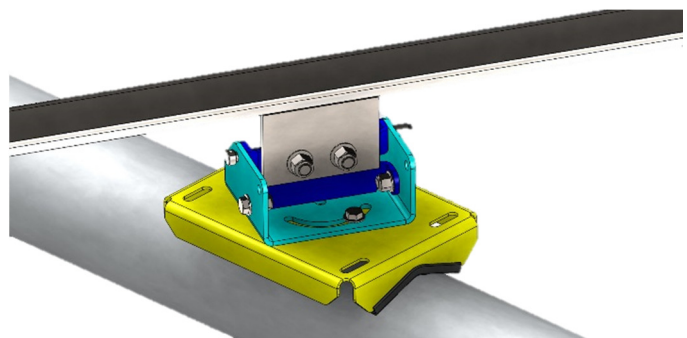
Using existing structural elements and drilling and bolting to suit is the quickest and least specialist installation type.

Examination of the structure by an engineer is required, and if the structure is not suitable then additional brackets will be required as strengthening elements or new welded anchorages.

## Welding

For welding to standard structures the specifications are given specific to the install, dependent on materials and system design.

For welding to tank containers a specialist welder and suitable permits are required.



# TRAM Specifications

## Standard TRAM

Standard TRAM - right hand version, shown mounted on rail and with belt



Standard TRAM - left hand version

The **Standard TRAM** unit comes in left and right hand variants. Standard TRAM is suitable where access to the work platform or walkway is at one end of and in line with, the TRAM rail.

### EXTENDED OR REDUCED ARM FOR TRAM

The length of the TRAM arm can be shortened or lengthened if desired. Please advise us of your requirements when you place an order.

## Fixed Base TRAM

Horizontal position



45 degree position

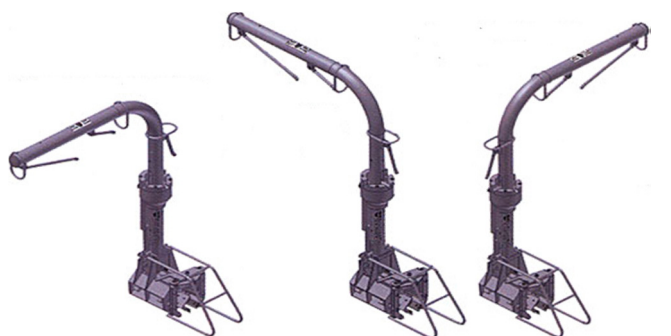


Vertical position



The **Fixed Base TRAM** consists of a pivoting TRAM Arm without a TRAM Rail. This gives the operator access and egress from a ladder to a platform where movement by the operator long a fixed rail is not required. A 270 degree rotating arm may be fitted to provide access to a greater work area.

## Rotating Arm TRAM



Normal Position

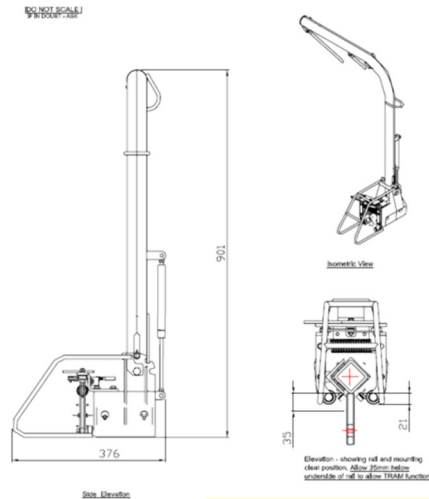
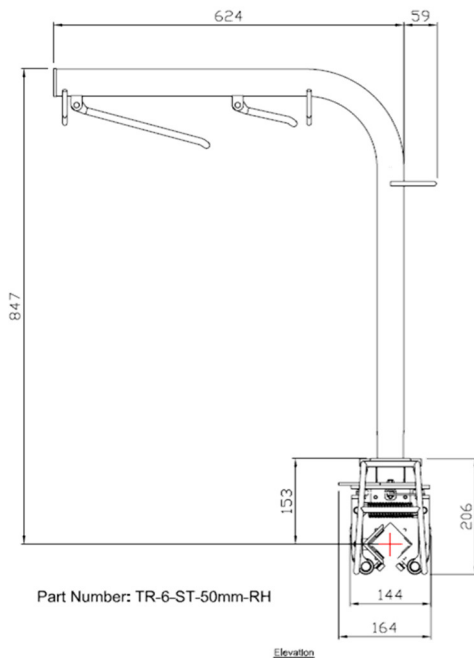
Vertical position and turned through 90 degrees

Vertical position and turned through 180 degrees

The **Rotating Arm TRAM** consists of a Standard TRAM with a rotary joint mounted on the TRAM allowing the arm to pivot perpendicular to the rail. This allows TRAM to be used where the access point is to the side of the walkway. The Rotating Arm TRAM is available in Left and Right hand variants.

**Provides 270 degree rotation. Also available in Extended arm and Reduced arm variants**

## TRAM Dimensions



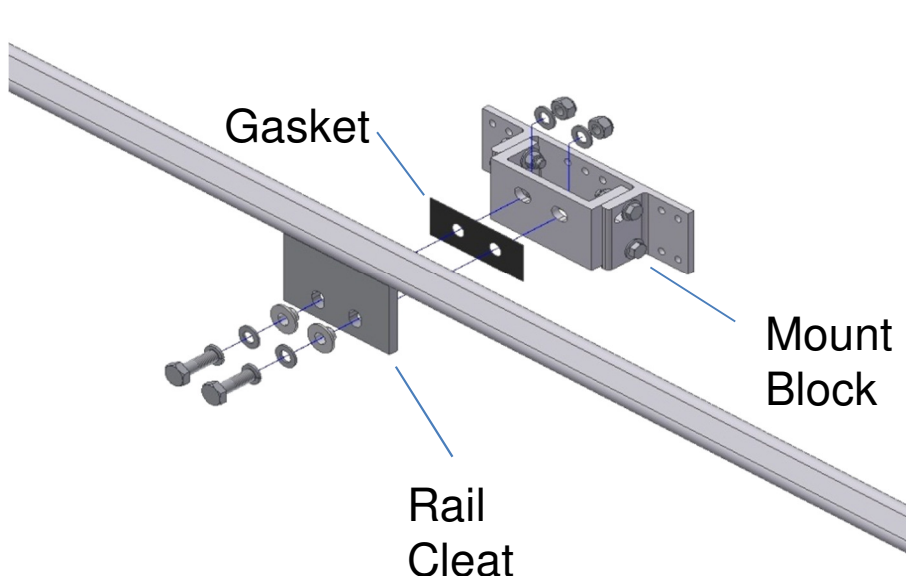
## TRAM Material Specifications

Weight per TRAM unit	:18 kg
Weight of TRAM rail	:4.5 kg/m
TRAM Base	:2205 Duplex Stainless Steel
TRAM Arm	:Grade 316 Stainless Steel
TRAM Rail	:50 x 50 x 3mm welded square box tubing Grade 304 Stainless Steel

## Attaching the Rail.

Cleats are welded to the rail in specified positions to marry up with the positions of the mounting blocks.

Once the mounting blocks are in place the rail cleat is simply bolted to the mounting block, with a gasket in between to prevent cross metallic corrosion where this is a possibility..



# TRAM

FALL PROTECTION

SYSTEMS

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