

# DISTRIBUTION LOADING ARMS



**EMCO WHEATON**

*A Gardner Denver Product*



RAIL

MARINE

**With more than 100 years' experience working in the fluid transfer industry, Emco Wheaton has the pedigree and knowledge, along with the innovative attitude and skills required to produce world leading equipment.**

From Marine Loading Arms used to safely and efficiently transfer hazardous liquids and gases from ship to shore, Distribution Loading Arms, Dry-Break® couplers and adaptors, petroleum road tanker equipment and a range of refuelling systems used to refuel fleets of buses, we are proud of our wide-ranging product offering and continue to meet and exceed the growing demands of the oil, gas, transportation and chemical industries we serve.

Our products, which are designed and manufactured at our four plants strategically placed around the globe, have been recognized as class leading for decades with clients returning time and time again safe in the knowledge that they are buying the best products from one of the world's most well respected and recognized brands.

Our manufacturing plants in Houston Texas, USA; Oakville Ontario, Canada; Kirchhain, Germany and Margate, UK are supported by sales offices in Paris, France; Kuala Lumpur, Malaysia; Manama, Bahrain; Vienna, Austria; Shanghai, China and Moscow, Russia; as well as a network of trusted distributors covering more than 100 countries globally.

## **Distribution Loading Arms**

As the leading Global provider of products for the safe transfer and storage of hazardous gases and liquids in bulk, this brochure features a wide variety of road and rail loading arm solutions including bottom loading, top loading and speciality systems.

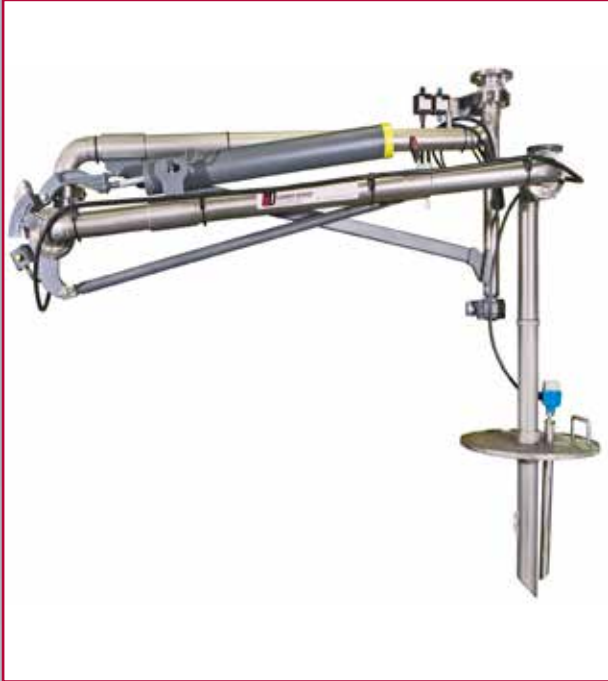
## **Top Loading Arms**

Suitable for applications in which road or rail tankers require loading or unloading from above, Emco Wheaton Top Loading Arms are suitable for application with a range of products, with a particular emphasis on the petroleum and chemical industries.

Containing easy to maintain Emco Wheaton components, all of our Top Loading Arms are efficient and cost effective with a long working life – particularly when supported by our After Market service.

## Standard Loading Arms – E2800-E2803

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Specially designed for the distribution of oil products but suitable for use with almost all types of fluids and powders, Emco Wheaton Standard Loading Arms are ideal for top loading road or rail tankers using a manhole opening.

The Supported Boom Arm range offers real diversity. They are particularly efficient in loading situations in which the manhole cannot be accurately positioned. All Emco Wheaton accessories are applicable making it adaptable to all types of loading situation.

Offering long-term cost savings with low maintenance and a long life expectancy, the range also offers excellent safety features. Both of these can be improved yet more with Emco Wheaton's After Market service.

Robust, high-quality swivel joints and precise loading arm balance make handling effortless and reduces the amount of strain on operators.

### Features:

- Spring cylinder balancing method
- Viton swivel joint seal
- Design temperature: -10°C to + 50°C
- Aluminum drop pipe
- Size DN: 50, 80, 100 and 150 – alternative dimensions available on request
- Petroleum application
- Safe
- Easy handling
- Long life
- Low maintenance
- Accessories: Holding device for filling position Parallel bar and many others

## Standard Loading Arms - E2804, E2805, E2812, E2813

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Top loading to rail and road tankers in petroleum and chemical applications where the manhole can be accurately positioned is made simple, safe and cost-effective with the Emco Wheaton Standard Loading Arm range.

The convenience and ease of handling provided by the robust, high-quality swivel joints and precise loading arm balancing help to improve turn-over time, helping to boost productivity

### Features:

- Applications: chemical, petroleum
- Seals for any specific products
- Maximum design pressure: 19 bar (mineral oil); 40 bar (chemical)
- Loading valve or other specific valves (optional)
- Ergonomic design
- Safe
- Low maintenance
- Accessories: Holding device for filling position; and many others

## Standard Loading Arms - E2806, E2807, E2814, E2815

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Top loading applications to rail and road tankers for the petroleum and chemical industries can be more dangerous and time consuming when the manhole cannot be accurately positioned.

The Emco Wheaton Standard Loading arm range with variable reach is suitable for more difficult applications. The simple, precise handling of the loading arms makes distribution quicker and safer for operators.

The robust, high quality design of the swivel joints also means accurate, ergonomic performance over a long period of time.

### Features:

- Applications: chemical, petroleum (where the manhole cannot be accurately positioned)
- Seals for any specific products
- Maximum design pressure: 19 bar (mineral oil); 40 bar (chemical)
- Loading valve or other specific valves (optional)
- Ergonomic design
- Safe
- Low maintenance
- Accessories: Holding device for filling position; and many others

## Standard loading arms E2808 - E2811, E2611 - E2614

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Designed to meet the specific needs of the chemical industry, the Standard Loading Arms range enables top loading to rail or road tankers, particularly in applications where the manhole cannot be accurately positioned. The simple to use arm balancing system increases accuracy and improves distribution time, resulting in a quicker turnover in safer conditions.

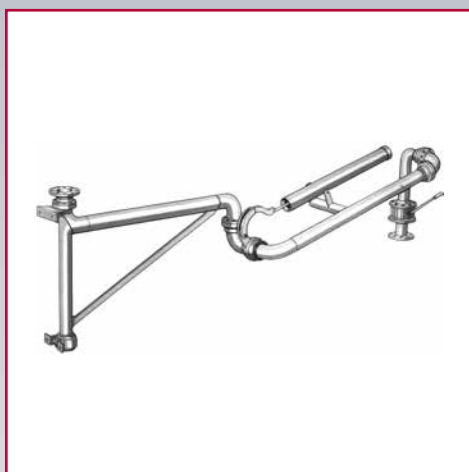
The loading arms function with products at low and high temperatures, making them suitable for the safe distribution for a wide range of chemicals.

### Features:

- Application: chemical
- Seals for any specific products
- Carbon steel or stainless steel loading arm
- Maximum design pressure: 40 bar
- Design temperature:  $-50^{\circ}\text{C}$  to  $+300^{\circ}\text{C}$
- Sizes: 50, 80, 100 and 150 NB
- Accessories: Holding device for filling position, parallel bar and many others

## E2816 - E2819, E2615 - E2618 | Standard loading arms

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Specifically designed to make the top loading of chemical product to road or rail tankers quicker and more convenient, this standard loading arms range is of particular use when the manhole cannot be accurately positioned.

With long reach, robust and high quality swivel joints and precise loading arm balance, Emco Wheaton Loading arms help to improve loading accuracy.

Suitable for distributing chemicals at varied temperatures ( $-50^{\circ}\text{C}$  to  $+300^{\circ}\text{C}$ ), the range also comes with a series of available accessories including an emergency release system and relief or purge line to further improve safety features.

### Features:

- Application: chemical
- Buna, Viton and PTFE seals
- Carbon steel or stainless steel loading arm
- Maximum design pressure: 40 bar
- Design temperature:  $-50^{\circ}\text{C}$  to  $+300^{\circ}\text{C}$
- Sizes: 50, 80 and 100 DN
- Accessories: Holding device for filling position, parallel bar and many others



## E2710 | Top unloading arm with heating lance for rail cars



Frozen products must be carefully thawed prior to distribution via a hose. When transporting petroleum in a frozen state, only a specially designed thawing can be trusted for safety purposes.

Emco Wheaton has the answer

Specifically designed to heat up and unload frozen products in petroleum applications, the top unloading arm with heating lance for rail cars is suitable for top loading of rail tankers safely and efficiently.

The internally heated turnable drop pipe sprays hot product into the vessel, sufficiently warming all of the frozen product so that it can be transported through the product pipe. Specially designed for petroleum applications, the loading arm is safe and reliable for use with the flammable product.

### Features:

- Application: petroleum
- Reliable
- Safe
- Ease of handling
- Long life with low maintenance
- High performance swivel joints
- FVMQ, PTFE and special material seals available
- Suction tube size: 100 DN
- Heating tube size: 50/80 DN
- Available accessories: cover plate, support bracket

## E2630 | Loading arm with vapor return hose



When loading hydrocarbon or toxic and aggressive chemicals, the production and loss of vapor can have a negative effect on profitability, create dangerous situations for operators and pollute the environment.

The E2630 consists of our reliable, long-reach loading arm equipped with a vapor return hose. This enables the system to recover vapor and return it to the vessel ready for redistribution. This means no waste at the terminal which significantly increases safety and reduces risks to the environment.

This system is the most economical solution for loading process with vapor return and offers reliable ease of handling even in the applications with the most limited space.

### Features:

- Applications: Petroleum, chemical
- Long life
- Low maintenance
- Easy Handling
- Materials:
  - carbon steel/aluminum
  - low temperature steel
  - stainless steel
- PTFE-lined
- Temperature range: -50°C to +300°C
- Accessories: Cover plate, cone, telescopic drop pipe and many others
- Product pipe sizes: 50 DN, 80 DN, 100 DN, 150 DN
- Vapor pipe sizes: 50 DN, 50 DN, 80 DN, 100 DN

**Emco Wheaton  
has been a  
supplier of fluid  
transfer systems  
and accessories  
for more than  
100 years.**

## E2632 | Loading arm with vapor return line Emco Parallel Arm

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Increasing profitability has always been a priority, but environmental restrictions and operator safety must also be given significant attention without affecting the bottom line.

For use in petroleum and chemical top-loading applications, the vapor return line retrieves vapor released by the product and returns it to the vessel. This can then be distributed to the terminal, improving profits, reducing potential exposure to dangerous chemicals and preventing release into the atmosphere.

The innovative design of the Emco Parallel Arm makes it highly maneuverable and easy to use. Two boom loaders are connected together to form a new loader type which can be used like a single arm, both lines moving in parallel.

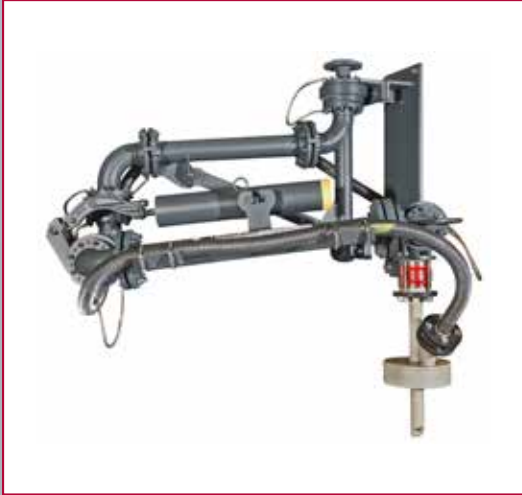
### Features:

- Applications: petroleum, chemical
- Long life with low maintenance
- Easy to handle
- Materials:
  - Carbon steel/aluminum
  - Low temperature steel
  - Stainless steel
  - PTFE-lined
- Temperature range: -50°C to +300°C
- High performance swivel joints
- Accessories: Cover plate, cone, telescopic drop pipe and many others
- Product pipe sizes: 50 DN, 80 DN, 100 DN, 150 DN
- Vapor pipe sizes: 50 DN, 50 DN, 80 DN, 100 DN



## Loading arm for chemicals / PTFE lined

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Specifically designed for the loading and unloading of acid and caustics such as hydrochloric acid and sulphuric acid, the Emco Wheaton loading arm for chemicals offers ease of use and safety features specifically tailored to applications with corrosive materials thanks to a protective PTFE lining.

Suitable for closed and open top loading/unloading of road and rail tankers with flange connection or cone, the loading arm features a closed system which prevents the escape of poisonous or aggressive vapor.

The system's long reach makes it ideal for applications in which the tanker connection flange cannot be accurately positioned. Loading arm handling is made easy and convenient with high quality swivel joints and precise loading arm balancing, helping to reduce loading time.

### Features:

- Applications: chemical
- PTFE-line inside
- Sizes: 50 DN, 80 DN, 100 DN, 150 DN
- Temperature range: -50°C to +200°C
- Loading arm materials: carbon steel, stainless steel
- Drop pipe materials: plastic
- Swivel joint seals: PTFE
- Lining: PTFE, PTFE electrically conductive
- Inlet flange also available in downstream design
- Alternative variations of loading arm available
- Lining available for other types of loading arm

## E2611 | Top Loading Arm



The Emco Wheaton E2611 Top Loading Arm offers a successful and economic solution to the loading and unloading of hydrocarbon gases. In contrast to hoses, the E2611 provides safety from explosion, driveway obstructions and condensate losses at site – all of which improve operator safety and profit margins.

Specifically designed for the loading and unloading of Russian railcars, quick and safe connection to the vessel by couplers and comfortable smooth handling improve loading time.

The E2611 is combined with a second recommended reach loading arm, designed with two end pipes for unloading and the gas return arm with one end pipe allows another method of unloading under pressure.

### Features:

- Application: liquid gas
- Designed for loading and unloading of Russian Railcars
- Economic solution
- Easy handling
- Low maintenance
- Long life
- Environmentally friendly
- High performance swivel joints
- Sizes: 100 DN, 80 DN, 50 DN, 40 DN
- Materials: carbon steel, stainless steel
- PTFE and special material seals
- Temperature range: -57°C to +110°C

## Jumper arm | Loading arm



The Emco Wheaton Jumper Arm bridges variable distances between fixed connections. The two pipes are connected by a central axis which can twist to adapt to different distances between connections.

Designed for petroleum and chemical applications, the Emco Wheaton loading arm provides a long life, meets the highest safety standards and is easy to operate. Flanges and swivel joints are selected to suit each customer's specific needs and electrical heating is available on request.

### Features:

- Petroleum and chemical applications
- Easy operation
- Pressure rates: PN 10 to PN 40
- Long life
- Carbon steel swivel joint with flame hardened ball race way
- Connection flange dependent on customer request
- Materials:
- Aluminum
- Carbon steel
- Stainless steel
- Low temperature steel
- Buna, Viton, PTFE or Fluoroloy seals available
- Sizes: 50 DN to 500 DN

## Bottom Loading Arms

Suitable for applications requiring loading or unloading from below, Emco Wheaton Bottom Loading Arms are suitable for application with a range of products including petroleum and hazardous chemicals.

Containing reliable, easy to maintain Emco Wheaton components, all of our Bottom Loading Arms have a long working life – particularly when supported by our After Market service.



## E2386 | Bottom loading station

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Suitable for chemical and petroleum applications, the Emco Wheaton Bottom Loading Station improves safety and profit margins by permitting vapor return when bottom loading. The system retrieves vapor given off by the product and returns it to the vessel, preventing dangerous and environmentally damaging leakage as well as increasing the levels of delivered product. The Emco Wheaton Bottom Loading Station is designed for the safe bottom loading or unloading of Road or Rail tankers with flange connection or coupling. The long reach of the arm makes it operational in applications where the tanker connection flange cannot be accurately positioned and the precise loading arm balancing system makes handling simple.

### Features:

- Applications: chemical, petroleum
- Safe loading from ground level
- Long reach with flexible handling
- Gas line size: 50 DN, 80 DN
- Product line size: 50DN, 80 DN, 100 DN
- Materials of product carrying parts: carbon steel, stainless steel, low temperature steel
- Buna, Viton, PTFE seals
- Design pressure: max 40 bar up to shut off valve
- Design temperature: -170°C to +300°C
- Typical Accessories:
  - Sixth swivel joints
  - Parallel bar
  - Gas spring balancing for B-length
  - Emergency release system

## E2824 - E2839 | Standard bottom loading arms

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The Emco Wheaton Standard Bottom Loading Arm range provides economic, safety and environmental benefits to applications loading/unloading mineral oil or chemicals to or from road and rail tankers.

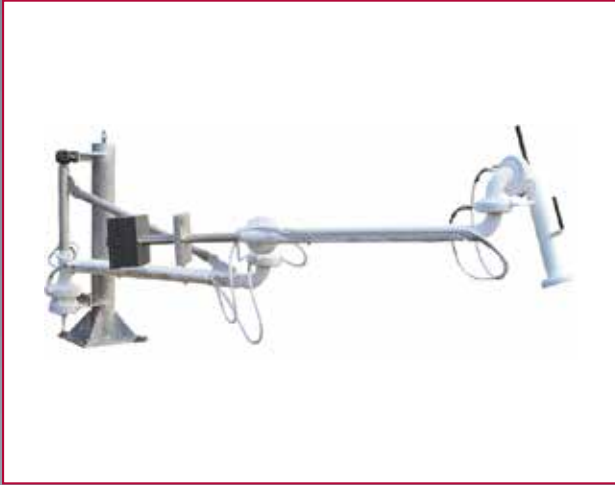
The loading arm's long reach makes it suitable for applications in which the tanker connection flange cannot be accurately positioned and the precise loading arm balance system provides convenient handling.

### Features:

- Applications: chemical, petroleum
- Safe bottom loading
- Reliable
- Easy handling
- Low maintenance
- Economic
- Environmentally friendly
- Safest balancing system
- High performance swivel joints
- Sizes: 50 DN, 80 DN, 100 DN
- Buna, Viton, PTFE seals
- Materials of product carrying parts: carbon steel or stainless steel. Lining available.
- Maximum pressure: 40 bar up to shut off valve
- Design temperature: -170°C to +300°C

## LNG Loading arm

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Specifically designed for the bottom loading and unloading of LNG products to or from rail tankers, the Emco Wheaton LNG Loading Arm has environmental, economic and safety benefits for applications where manholes cannot be accurately positioned.

The arm contains stainless steel swivel joints based on the reliable Emco Wheaton D2000 and are equipped with an interchangeable bearing module and are designed to meet the requirements of the OCIMF. Operators can monitor leakage during operation via the product and secondary product seal.

### Features:

- Application: LNG
- Safe bottom loading and unloading
- Reliable
- Easy handling
- Low maintenance
- Economic
- Environmentally friendly
- High performance LNG swivel joints

- Sizes: 80 DN, 100 DN
- Materials of product carrying parts: stainless steel
- Fluoroloy-G seals
- Maximum pressure: 20 bar
- Design temperature: -170°C to +80°C

### Accessories:

- o LNG shut off valve
- o Leakage control line of swivel joints
- o Emergency release system

## E2852 | Bottom hose loading station

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The Emco Wheaton Bottom Hose Loading Station enables the simultaneous bottom loading of five different products to tank trucks with unrestricted crossover, resulting in significant time savings. Reduced spillage results in higher levels of product delivered and safer working conditions. Designed specifically for petroleum applications, each Emco Wheaton Bottom Hose Loading Station is designed for the individual customer. Each system contains reliable Emco Wheaton components and is easy to operate and maintain.

### Features:

- Application: petroleum
- Simultaneous loading of up to five different products
- Total flexibility
- Unrestricted crossover
- Time saving
- Safe
- Easy operation

- Easy to maintain
- Reliable components:
  - Emco carbon steel swivel joint
  - Emco spring cylinder
  - Robust rubber hose
  - Emco API DRYBREAK coupler
- Long working life



## E2701 | Bottom hose loading arm

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Designed for use in petroleum applications where up to five products are required to be distributed to tank trucks simultaneously, the Emco Wheaton E2701 Bottom Hose Loading Arm allows unrestricted crossover, resulting in time savings. Safety and environmental benefits are also provided as a result of minimal spillage.

Reliable Emco Wheaton components ensure a long working life, ease use and easy maintenance. Each Bottom Hose Loading Arm system is supplied designed specifically for the customer.

### Features:

- Application: petroleum
- Simultaneous loading of five different products
- Total flexibility
- Unrestricted crossover
- Time saving
- Safe
- Easy operation
- Easy to maintain
- Reliable components:
  - Emco carbon steel swivel joint
  - Emco spring cylinder
  - Robust rubber hose
  - Emco API DRYBREAK coupler
- Long working life

## E2704 | Bottom loading arm

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Designed for the bottom loading of light oil products or chemicals, the Emco Wheaton Bottom Loading Arm's long reach enables connection to rail cars when adapters are not easily positioned accurately.

The arm is equipped with a special coupler for unloading of Russian rail cars from underneath which enables quick and safe connection. A minimum vertical height is guaranteed with the low offset of the swivel joints, saving space.

### Features:

- Applications: petroleum, chemical
- Reliable
- Long life
- Low maintenance
- Easy handling
- Environmentally friendly
- Size: 150 DN
- Materials: Carbon steel/aluminum
- NBR, FPM, PTFE, special material seals available
- Temperature range: -50°C to +50°C (higher or lower available on request)



## Speciality Loading Arms

Specifically designed for the loading and unloading of small compartments such as drums or IBC containers, the Emco Wheaton Drum Filling Loading Arm avoids the disadvantages presented by traditional hose filling.



## Drum filling loading arm



Specifically designed for the loading and unloading of small compartments such as drums or IBC containers, the Emco Wheaton Drum Filling Loading Arm avoids the disadvantages presented by traditional hose filling. The arm can be arrested in the working position to prevent slipping off the manhole and avoids the resulting waste of products and dangers associated with this. The long reach of the loading arm makes it suitable for applications when the manhole or connection flange cannot be accurately positioned.

### Features:

- **Materials of product carrying components:**
  - Carbon steel
  - Stainless steel
  - Aluminum
- Buna, Viton and Teflon swivel joint seals
- Special materials available on request
- Design pressure: 16 bar
- Temperature range: -10°C to +50°C

### • Accessories:

- Optional ball valve
- Arresting device for working position
- Parallel device to keep filling tube horizontal
- Pneumatic device to move primary arm and hold cone to seal manhole for vapor recovery
- Earthing device

## Loading arm for chemicals | PTFE-lined



Specifically designed for the loading and unloading of acid and caustics such as 33% hydrochloric acid and 30% sulphuric acid, the Emco Wheaton loading arm for chemicals offers ease of use and safety features specifically tailored to applications with corrosive materials thanks to a protective PTFE lining. Suitable for closed and open top loading/unloading of road and rail tankers with flange connection or cone, the loading arm features a closed system which prevents the escape of poisonous or aggressive vapor. The system's long reach makes it ideal for applications in which the tanker connection flange cannot be accurately positioned. Loading arm handling is made easy and convenient with high quality swivel joints and precise loading arm balancing, helping to reduce loading time.

### Features:

- **Applications:** chemical
- PTFE-line inside
- **Sizes:** 50 DN, 80 DN, 100 DN, 150 DN
- **Temperature range:** -50°C to +200°C
- **Loading arm materials:** carbon steel, stainless steel
- **Drop pipe materials:** plastic
- **Swivel joint seals:** PTFE
- **Lining:** PTFE, PTFE electrically conductive
- **Inlet flange also available in downstream design**
- **Alternative variations of loading arm available**

## Spot loading system | Automatic loading system with manhole detection (manless operation)

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Built for chemical applications, the Emco Wheaton automatically operated Spot Loading System improves efficiency and accuracy without compromising on the highest hygiene and safety requirements. The unmanned operation results in low costs and reduction in human error.

The drop tube automatically connects to the manhole without operator assistance. Instead, the position of the manhole is detected by a CCD camera, and ultra-sonar sensor, storing co-ordinates in the Central Processing Unit. A connection detection system, with proximity switch, supervises the correct connection and closes the electrical circuit when positioned correctly or breaks the circuit when removed from position.

Running hydraulically or electrically, each Spot Loading System is designed for each specific customer.

### Features:

- **Applications: chemical**
- **Highly efficient**
- **Customer specific design**
- **Meets highest hygiene and safety requirements**
- **Low cost operation**
- **Carbon steel swivel joint provides long life**
- **Unmanned operation**

## E2704 Bottom loading arm with internal heating lance

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The Emco Wheaton E2704 with internal heating lance bottom loading arm is designed for petroleum applications with dense products that have been frozen or solidified. Hot product is pumped through the internal heating line and sprayed over frozen product, thawing it to be distributed via the product line of the loading arm.

A special coupler enables quick and safe connection to Russian rail cars even when the adaptor cannot be easily positioned. The same safety, environmental and economic benefits as the E2704 apply, with comfortable, easy handling.

### Features:

- **Applications: petroleum**
- **Reliable**
- **Long life**
- **Low maintenance**
- **Easy handling**
- **Environmentally friendly**
- **Low cost**
- **Product arm sizes: 200 DN, 175 DN**
- **Heating arm sizes: 50 DN, 40 DN**
- **Material: carbon steel**
- **NBR, FPM, PTFE, special material seals available**
- **Temperature range: -50°C to +50°C (higher or lower available on request)**

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