

ZAGRO



Shunting Technology

ZAGRO – Your strong partner for shunting technology

Since 1970 we have enjoyed our reputation as a specialist in the sector of shunting technology. We continuously develop this field of products to keep up-to-date and take account of the changing needs of our customers.

Today we offer versatile solutions for the safe and economical movement of railway wagons.

The German Railways have classified our railcar movers as shunting aids. They provide years of efficient use and low-cost moving service in your equipment maintenance facility or yard.

Our customer care specialists will meet your service demands including annual service tests, main service and full service contracts viewing to guarantee the durability and safe operation of the products and their continuous availability.

Modern production facilities as well as our experienced and competent staff ensure perfect all-round service from quotation to delivery and after sales service for the benefit of our customers.

To meet our high quality demands, we focus on training our staff. We are certified DIN EN ISO 9001:2000, and our specialised maintenance workshop for road/rail vehicles is approved by the Germany Railway Authorities.

Our long-standing commitment to Germany as industrial base reflects our on-going commitment to innovation and quality.



Air photo: ZAGRO production facilities and administration building

Mini Railcar Mover

Use

- **Thrust and brake capacity: up to 150 tons on level plane tracks**
- **Use on level plane and embedded track systems**
- Appropriate for track pits
- To fit any track gauge from 1000 mm to 1668 mm
- Safe starting and braking operation via the continuously controlled hydraulic drive (speed 3 – 5 km/h)
- Coupling in right-angled position to the wagon wheel (guide wheel diameter from 920 mm to 840 mm)
- Can be easily moved to the track location thanks to its rubber tired wheels
- Swivelling control handle for dual directional capability: move the wagons in either direction without removing the unit
- Gasoline, diesel or gas engine options available
- Radio remote control option available
- Licensed by the Deutsche Bundesbahn Researching Institute of Minden

Operation

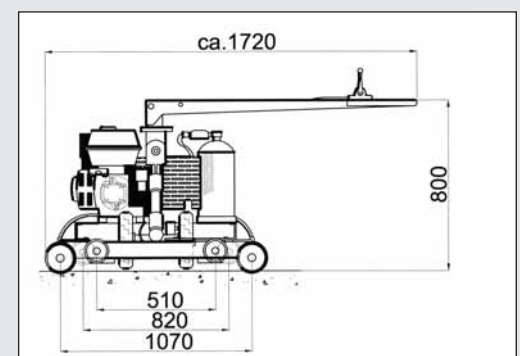
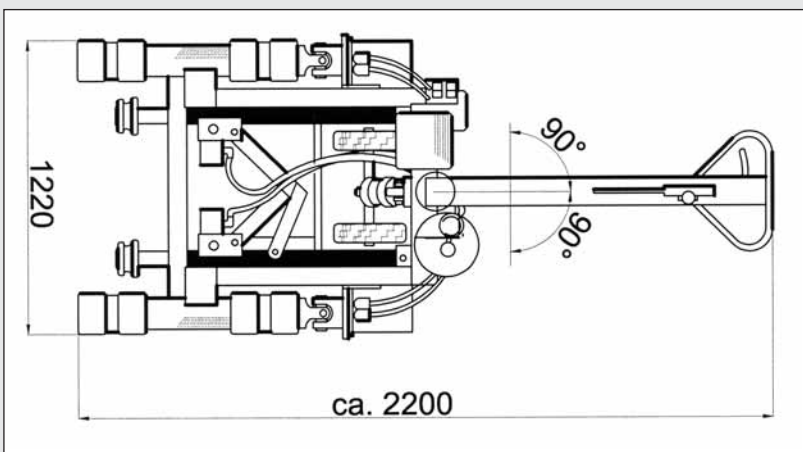
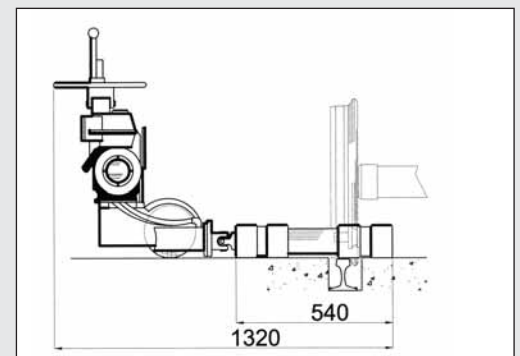
To initiate the shunting operation, put the Mini Railcar Mover in right-angled position to the wagon wheel and push it forward to the stop bar. Then lift the chassis so that the unit rests on its four rubber wheels. By actuating the control valve, two steel rollers connected by a clamping cylinder are pressed against the flanks and back of the wagon wheel flange. The required coefficient of friction between the four drive rollers and the ground is reached due to the contact pressure of the steel rollers. The unit is set into motion by actuating the control lever. Shunting direction is forward, in direction of view. To change the shunting direction, swivel the control handle by 180 degrees.



Move to the track location



Coupled to the guide wheel



Maxi Railcar Mover

Use

- **Thrust and brake capacity: up to 200 tons on level plane tracks**
- **Use on open and level plane track systems**
- To fit any track gauge from 1000 mm to 1668 mm
- Safe starting and braking operation via the continuously controlled hydraulic drive (speed 3 – 5 km/h)
- Easy coupling to the end of the wagon to be moved
- Different coupling options available
- Can be easily moved to the track location thanks to its hydraulically powered drive wheels
- Ontracking on a short level track section
- Swivelling control handle to change the shunting direction and move the wagons in either direction without removing the unit
- Gasoline, diesel or gas engine options available
- Radio Remote control option available

Operation

The Maxi Railcar Mover is moved under its own power to a 2 – 3 m long level plane track section. Raise the chassis to position the four rubber wheels on the rails. Swivel the control handle by 90 degrees to drive the unit into position at the end of the wagon to be moved. The wagon is secured to the railcar mover by means of the towbar. With the Maxi Railcar Mover in place, the unit can be engaged to move the wagon in either direction. Coupling can be done at either side by turning the coupling head. The Maxi Railcar Mover is also available with radio remote control operation as an option.



Operation on underfloor lathe



Tramway coupling



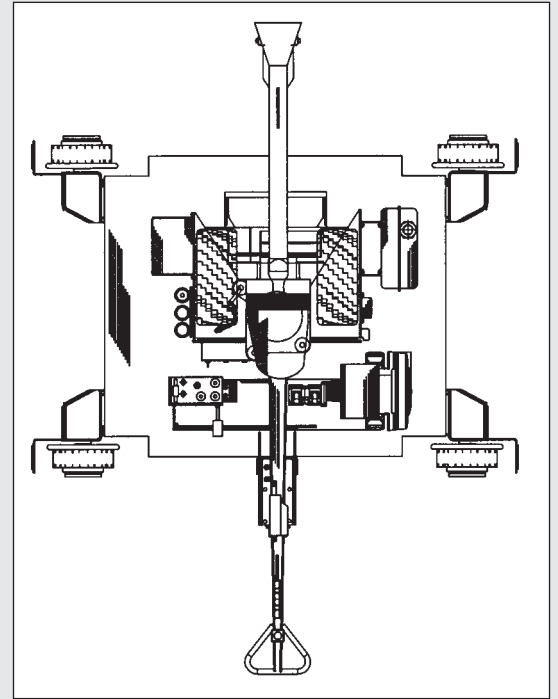
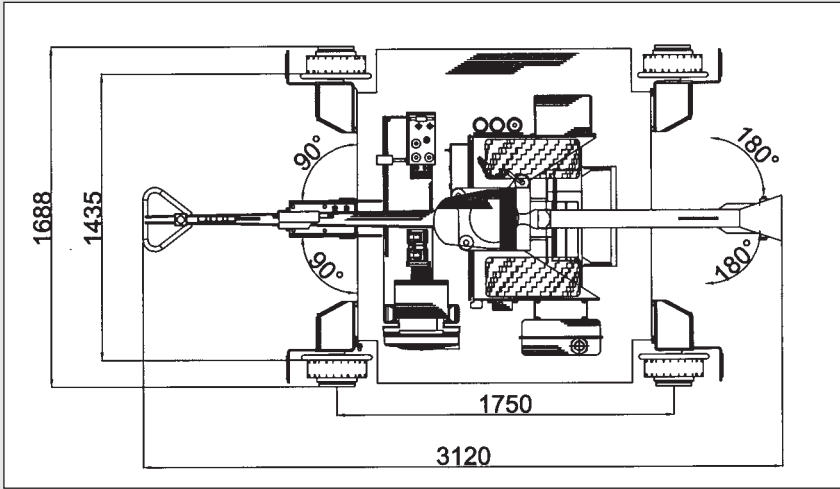
Shunting work in a German Railways workshop



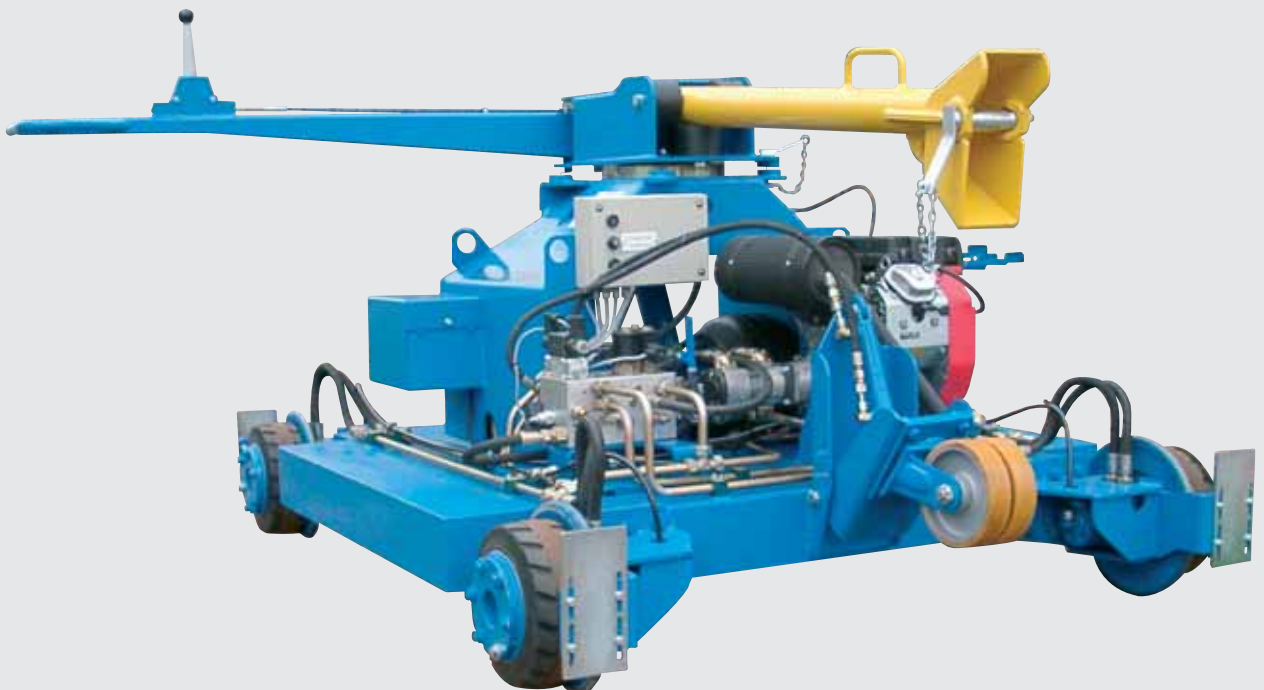
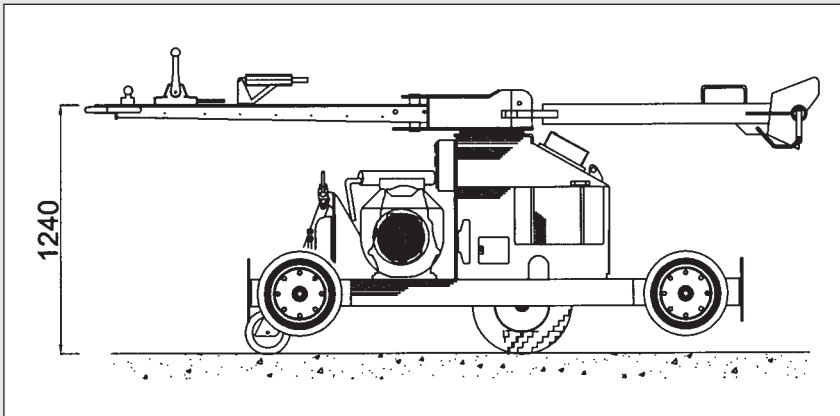
Radio remote control operation



On-tracking on level-plane tracks



Option: Position of the track guiding system turned by 90° to enable quick operation on parallel tracks.



Forklift Railcar Mover

Use

- **Push/pull capacity and braking effect: up to 300 tons on level plane tracks (model SL6 up to 600 tons)**
- **Use on level plane and open track systems**
- The railcar mover is driven by a forklift truck ranging from 1.5 to 9 tons
- To fit any track gauge from 1000 mm to 1668 mm
- Power transmission from the drive wheels of the forklift truck via propulsion rollers and chains to the rubber wheels
- High tractive force thanks to the high coefficient of friction between the rubber wheels and the steel rails and the gear ratio of 1:5
- Ramps are lowered to drive the forklift truck onto the railcar mover
- Unit is secured by using the fork brackets
- The railcar mover is coupled with the wagons to be moved
- Robust and maintenance free construction
- Licensed by the Deutsche Bundesbahn Researching Institute of Minden
- Authorized by the German Employer's Liability Insurance Association
- Option: mechanical coupling system

Operation

The forklift truck driver will operate the unit. The forklift truck is employed as the driving element. The power transmission results from the driving gears of the forklift truck on four propulsion rollers – similar to a brake test stand. Four rubber wheels are then driven by chains. Due to the gear ratio of 1:5 and the high coefficient of friction between rubber wheels and steel rails, high tractive force is reached. By the separate arrangement of the driving wheels and rollers for each side, the differential gear of the forklift truck will be used for driving in turns and over switches. Use the forklift truck to take the platform to the place of action and put it on the rails. Lower the ramps, drive the forklift truck onto the railcar mover, pull up the ramps and secure the forklift truck by using the fork brackets. Couple the unit with the wagons to be moved. Now the railcar mover is ready for action. You can safely move and brake complete sets of wagons.



Use the forklift truck to put it on the rails



Lower the ramps to drive on the platform



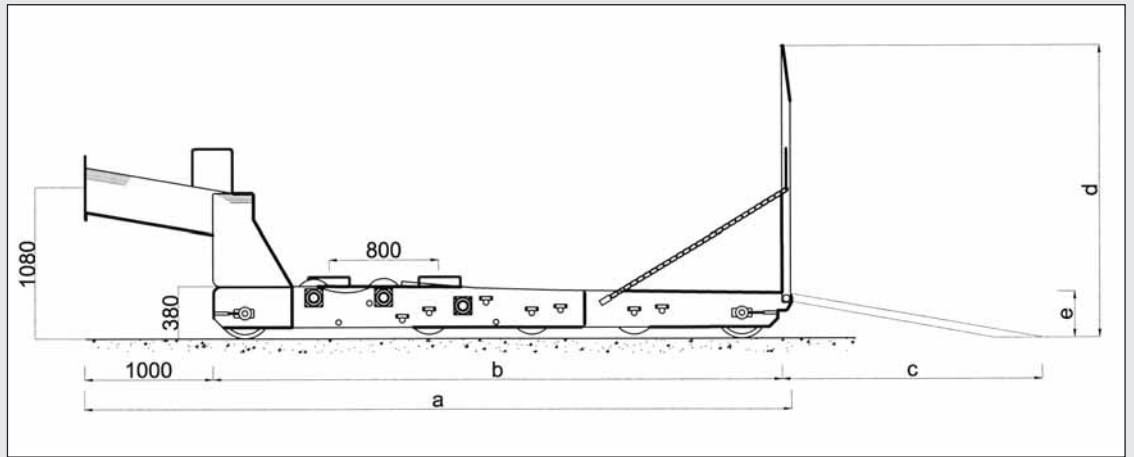
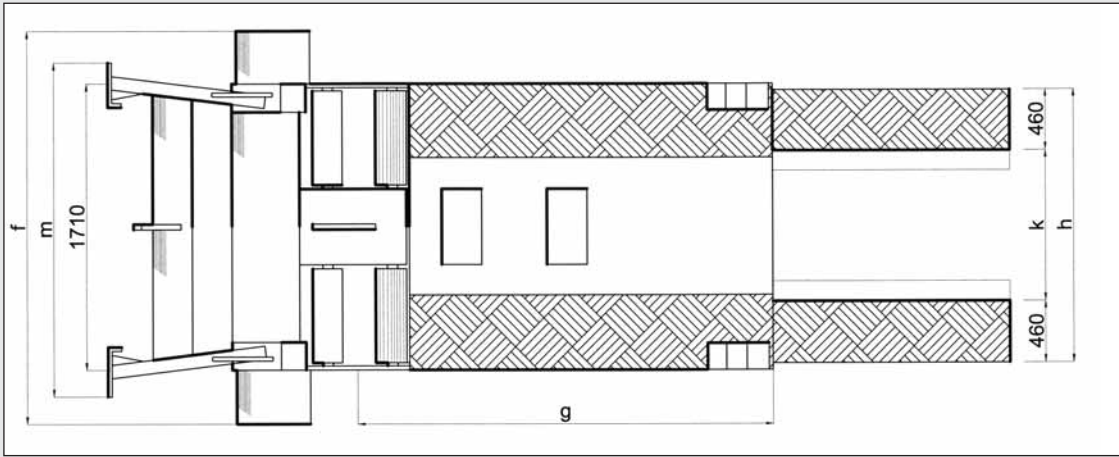
Shunting operation on open tracks



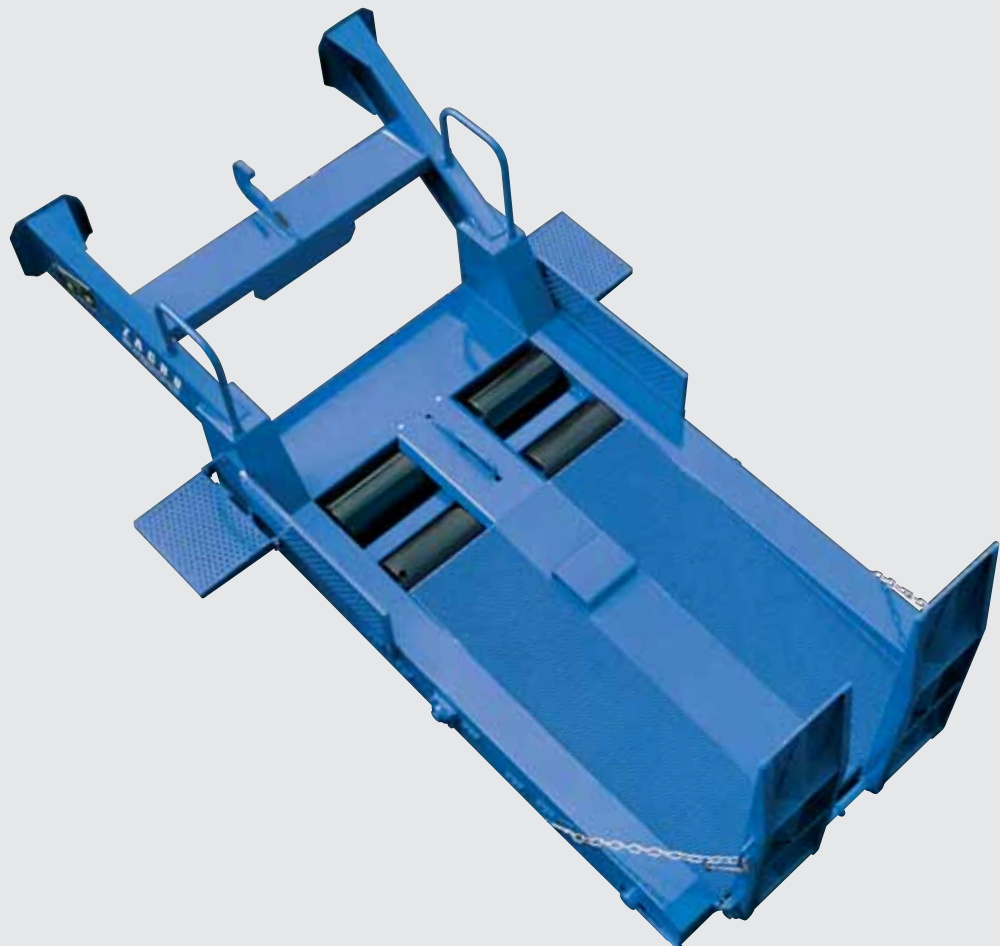
Automatic coupling



Propulsion rollers for power transmission



	WRG-N	WRG-S	WRG-SL
a	4015	4500	5200
b	3000	3485	4000
c	1400	1800	1850
d	1495	1945	2050
e	210	230	390
f	2635	2660	3100
g	2160	2530	3060
h	1345	1750	2120
k	100-335	560-805	1200(-720)
m	2120	2120	2120



ZAGRO Road/rail vehicles



Road/rail pick-up truck



Road/rail Unimog



Road/rail lorry



TECHNICAL DATA

Mini Railcar Mover		Gasoline / gas engine	Diesel engine
Push/pull capacity on level plane	t	150	150
Width	mm	1260	1260
Height	mm	1000	1000
Weight	kg	275	275
Diameter of steel wheels	mm	100	100
Diameter of drive wheels	mm	140	140
Max. speed	km/h	5	5
Engine type		One-cylinder 4-stroke	One-cylinder 4-stroke diesel
Cubic capacity	cm ³	340	410
Engine output	HP	8.1 kW / 11 HP	6.6 kW / 9 HP
No. of revolutions	rpm	3600	3600

Maxi Railcar Mover		Gasoline / gas engine	Diesel engine
Push/pull capacity on level plane	t	200	200
Length	mm	2890	2890
Width	mm	1720	1720
Weight	kg	2000	2000
Diameter of running wheels	mm	300	300
Diameter of drive wheels	mm	510	510
Max. speed	km/h	5	5
Engine type		Two-cylinder 4-stroke	Two-cylinder 4-stroke diesel
Cubic capacity	cm ³	620	700
Engine output	HP	14.7 kW / 20 HP	11 kW / 14.9 HP
No. of revolutions	rpm	3600	3000

Forklift Railcar Mover		WRG-N	WRG-S	WRG-SL
Forklift truck capacity	t	1.5 - 4	2 - 7	3 - 9
Dimensions of forklift truck:				
Max. width over drive wheels	mm	1300	1710	2000
Max. length from centre of front wheel to rear end	mm	2160	2630	3045
Max diameter of drive wheels	mm	500 - 750	500 - 1000	500 - 1000
Forklift Railcar Mover:				
Push/pull capacity and braking effect	t	up to 300	up to 300	up to 300
Starting force (depending on forklift truck)	kg	1500	5000	6000
Speed (depending on forklift truck)	km/h	2.5 - 5	2.5 - 5	2.5 - 5
Brake distance with 300 tons load	m	1	1	1
Ramp gradient	%	9,5	9	9
Total width of ramps, adjustable	mm	1325 - 1000	1730 - 1485	2100 - 1400
Total width of rollers	mm	1315	1620	2020
Width per roller	mm	435	600	700
Number of rubber wheels	pc.	8	10	10
Diameter of drive wheels	mm	300 x 120	300 x 120	300 x 120
Max. width of buffers	mm	2150	2150	2120
Total weight	kg	1500	1800	2750

The German Railways have classified our railcar movers as shunting aids. The safety instructions and prescriptions given by the local railway companies and authorities must be observed.

ZAGRO

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