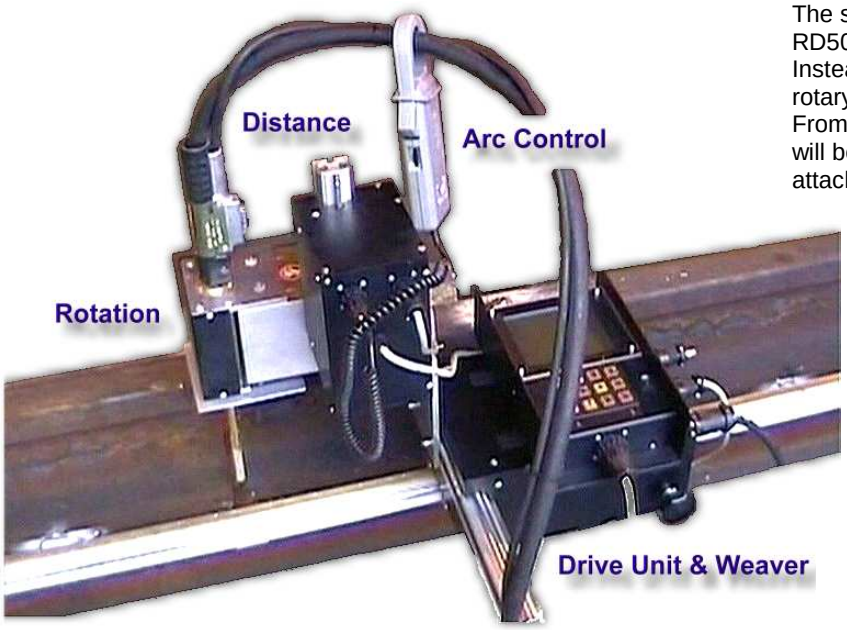
Work Sheet

RD 200J / RD 500J Joint Welder

Special automate for joint welding of all kind rails (railroad rails, tramway rails, crane rails).
30 types of rail can be selected, easy upgrade with other types is possible.
4-axis unit with rotary support and automatic stick out control.

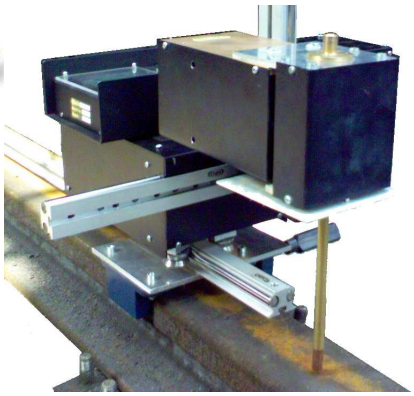
General Description

The standard - welding - machine RD200 / RD500, get to be modified for joint welding. Instead of the normal gun-holder the rotary-support will be mounted.
From the standard-torch, the welding nozzle will be removed and the gun handle will be attached at mounting cone of rotary-support.



This picture shows the units building with mounting at rails bottom and application of the normal drive rail for surface welds.
If mounting at rail head occurs, with shortened drive rail and special clamps, the distance support will be fixed more centrally.
Because of grooved linear rails, the assembly is very flexible.

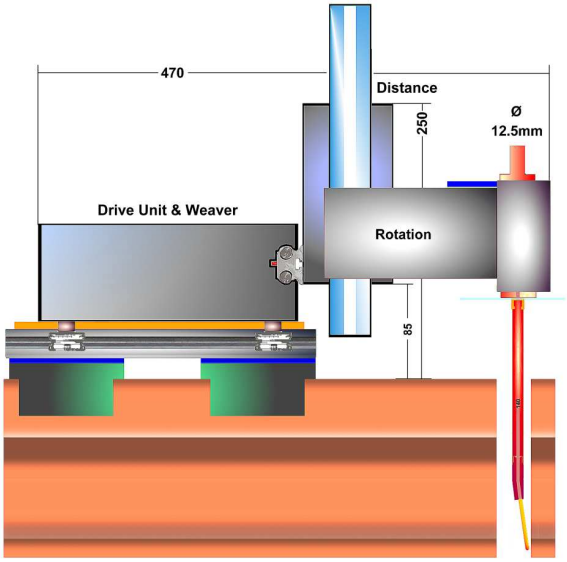
Mounting clamp at bottom



Mounting clamp at rail head.

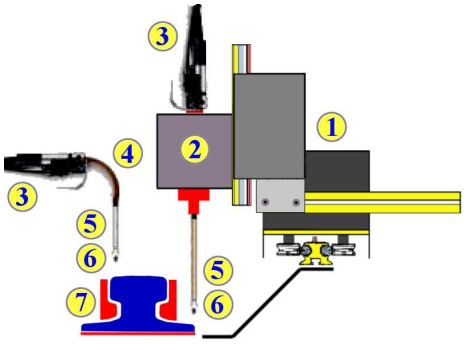
Because of rotation of the welding nozzle and a special welding tip, both sides will be reached reliable. At first layer, a save welding bridge is created, which spares the bottom backing (copper).

Overview



RD500J mounted at Rail-Head

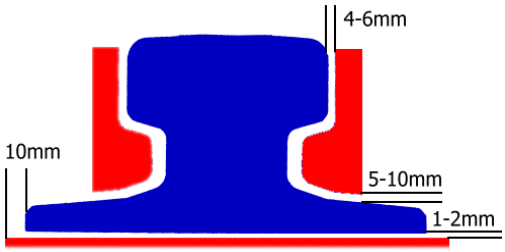
1 Welding System RD200 / RD500
2 Rotary Support
3 Standard Gun
4 Welding Nozzle for manual work
5 Straight Welding Nozzle
6 Special Welding Tip



7 Backings (Copper)

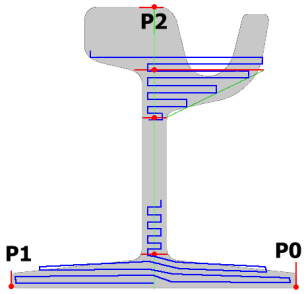
Rail Distance to Weld Protection

The minimum ranges between rail and welding protection should not to be reduced.
To optimise the connection for all edges, the accruing welding dross must be able to flow off to outer.
While working and at cooling off, the dross educated an isolation and decreases temperature differences.
Only at large outstanding material, the distance can be decreased.

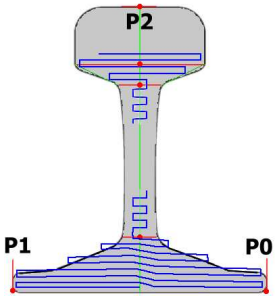


Automatic Welding Sequences

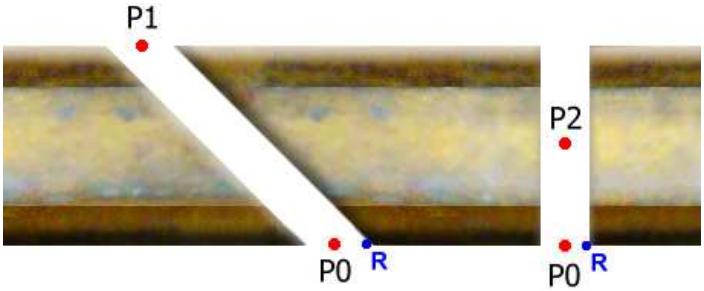
Grooved Rail



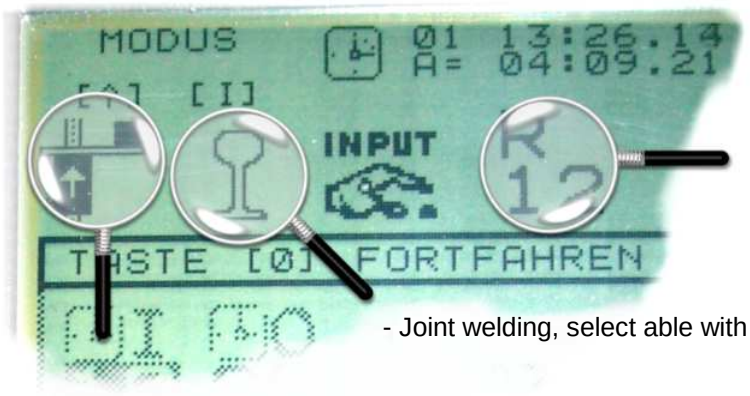
Flat Bottom Rail



After mounting of the unit and adjustment of rail type, the Zero-Point P0 can be set.
All movements will be done automatically and no further input is needed.
In special case, points P1 and/or P2 can be set additionally. P1 at different angle of cutting and P2, very rare, at twisted mounting.



For setting of point P0, the gun will be positioned above P0 with estimated wire stick-out of about 35 mm.
The Rotary-Support **R** should be moved to the right side.
P1 can be set at mid of joint, P2 at mid of rail head.



Remote Pendant Control RD 100

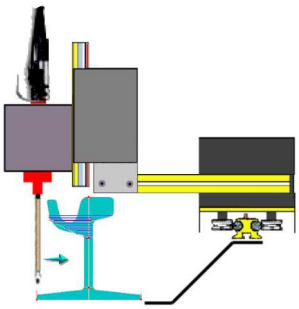
After Switch-On, the **Set-up Screen** will be displayed.

- The earlier used rail number.

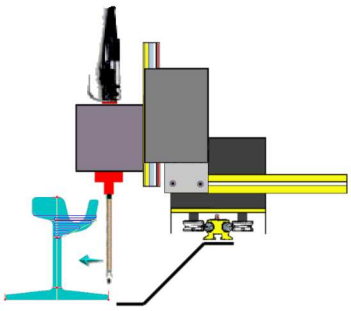
- Joint welding, select able with key .

- Working mode can be set with key . The normal mode is *working behind the unit*. At not symmetrically rail heads and mounting possibilities at only one special side, working mode can be changed to *working in front of the unit*.

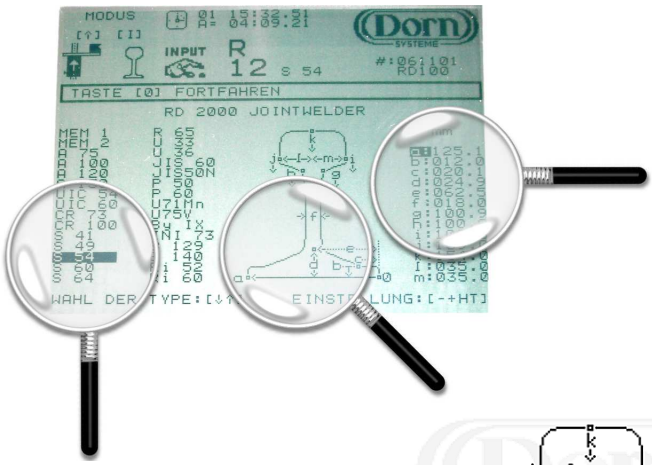
In front of the Unit



Behind the Unit



- With key , the unit leaves Set-up-Mode and displays the **Selection Screen** for rail type.



mm

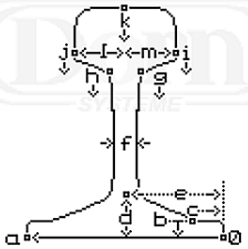
a: 124.9
b: 010.6
c: 020.1
d: 026.1
e: 062.5
f: 014.0
g: 091.0
h: 091.0
i: 100.1
j: 100.1
k: 148.1
l: 035.0
m: 035.0

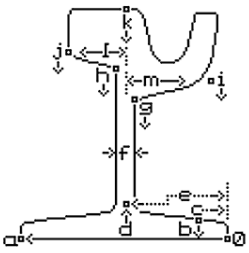
These are the rail parameters.
To select special values, keys , are used.
For adjustment of amounts, keys , are used.

All data of every rail type are memorised permanently.

Type	
MEM 1	R 65
MEM 2	U 33
A 75	U 36
A 100	JIS 60
A 120	JIS50N
A 150	P 50
UIC 54	P 60
UIC 60	U71Mn
CR 73	U75V
CR 100	By IX
S 41	INI 73
S 49	B 129
S 54	B 140
S 60	Ri 52
S 64	Ri 60

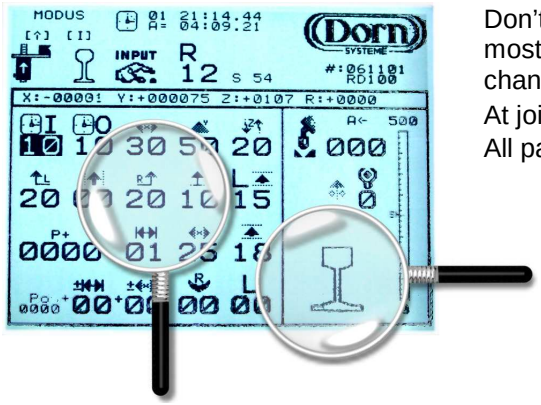
The selection of rail type can be done with keys , .





This technical drawing shows all needed parameters for working at all the worlds rails.

- With key , the unit leaves Selection Screen and shows the **Working Screen**.



Don't worry about this many different parameters, most of them are only for your information and will be changed and adjusted very rare.
At joint welding the unit always works with pattern 4.
All parameters are memorised in program 20.

This is a small drawing of the selected rail.
At working time, filling of rail will be indicated.
At top, name and number of rail are displayed.

This shows all standard welding parameters. All adjustments can be done by easy positioning of the cursor and using keys , .
To set the Zero-Point P0, the unit should be positioned above the point and the rotary-support should be moved to the right side. With keys and the point will be fixed.
If P1 or P2 is needed in addition, drive the unit to this point and memorise it the same way.

Additional Symbols and Functions:

R — Speed of rotary-support
L — Distance of layers at missing arc-control
L — Counter for layers

You will find all other symbols and functions in the User's-Manual for surfacing.

Start of Work

Position the torch above start position and start welding with key .
At first layer, the unit will create a solid welding bridge to spare the bottom backing.
If more dwell times are needed, drive can be prevented by pressing and hold-on key .
When you got an equal welding surface the arc-control can be activated. Use buttons , to assimilate the supposed welding power with the measured indicated power. Activate the automatically distance control by increasing the sensitivity of arc-control with keys , .
The unit will adjust wire stick-out and welding power till end of work.

Observe welding of the bottom part.

Previously before the unit reaches height to mount the main copper backings, the status-line shows the message *PREPARE BACKINGS !!!INPUT!!!.*
If you have backings with fast fixable mounting clamps you can confirm this message with key .
At right height, the complete display starts blinking and the backings can be mounted.
In this case the welding will be done without interruption.
If you didn't confirm the backings message, the unit will stop welding automatically at this position.
After cleaning and mounting of the side backings you can continue work by pressing button .

Observe the following work.
The status-line shows positioning co-ordinates XYZR again.

After reaching of head height k, the unit stops welding.
For hard facing of last layers, welding can be stopped anytime by button .
At termination with key , no dwell time and no lift-off will be done.