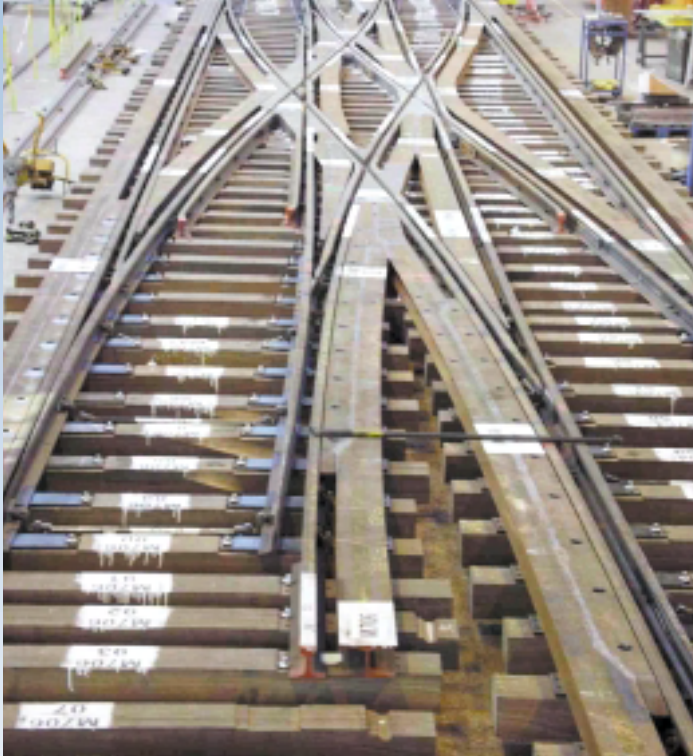


- ① F.S., Italy
- ② SNCF, France
- ③ STC Metro, Mexico
- ④ SNIM, Mauritania
- ⑤ RAILTRACK, UK



Meteor, France

The combined experience of over 80 different countries enables Manoir Industries to offer a solution adapted to meet the specific conditions of our clients' railway network. Crossings are manufactured according to the required technical specification.

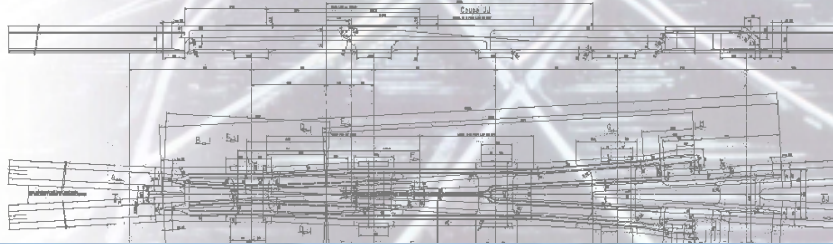


## MANOIR INDUSTRIES

Rue Pierre Curie - BP 119 - 62230 Outreau - France  
Tel 33 (0)3 21 99 53 06 - Fax 33 (0)3 21 99 53 03  
michel.rommelaere@g-mind.com



# Excellence in Track



MANOIR INDUSTRIES

# MANOIR INDUSTRIES and the Railway market

## The best technology dedicated to Safety and Comfort

### Aiming for the excellence of the track

With over 50 years of experience, our Foundry in OUTREAU, is one of the major European suppliers of cast austenitic manganese steel crossings to Railways.

The customer base includes high speed and conventional railroads, metros, tramways and special trackwork contractors.

Up-to-date equipment places OUTREAU at the leading edge of technology.



### MANOIR INDUSTRIES is a Foundry and Forging specialist

The Group's activity covers 10 different markets, with an international sales network including offices and representatives worldwide to meet customers' specific requests.

With 8 manufacturing plants, the group has been actively involved in developing new alloys and processes to improve the mechanical and metallurgical properties of track components.

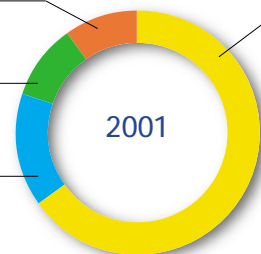
High quality standards, extensive history of know-how, a commitment to excellence combined with skilled and experienced teams, state-of-the-art technology and facilities, are focused to achieve customer satisfaction.

Metros & others track components

Cradles for movable point crossings

Fishplated cast manganese crossings

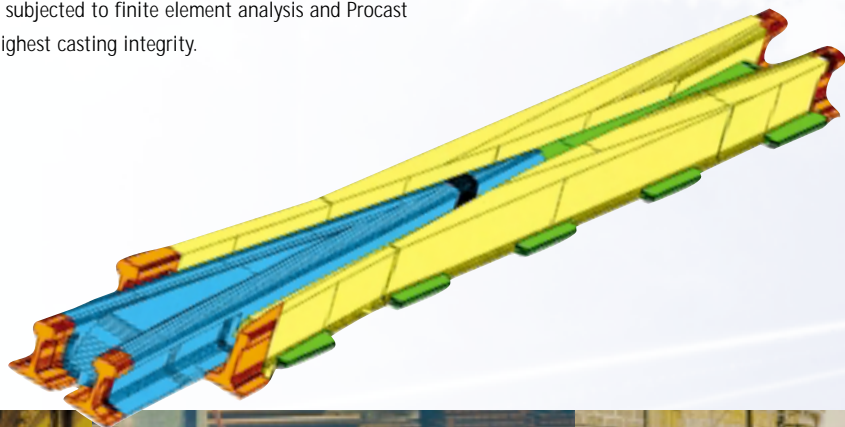
Weldable cast manganese crossings



# Innovative Design for cast products

An experienced design team targets customers' requirements to achieve comfort and safety specifications. New products are designed and machined using the most advanced 3 dimensional CAD-CAM software. Once approved by the customer, this program enables us to set machining parameters. The design team's extensive knowledge of in-track conditions promotes design enhancement.

Prior to manufacture, all designs are subjected to finite element analysis and Procast foundry software to guarantee the highest casting integrity.



Technical solutions for each type of crossing including rail and wheel profile, fastening and sleeper options,

axle loads, traffic speed and annual tonnage meet the customers' specifications.

Furthermore the Outreau plant has an in-house facility to confirm design simulations and check internal soundness of crossings through gammagraphic examination.





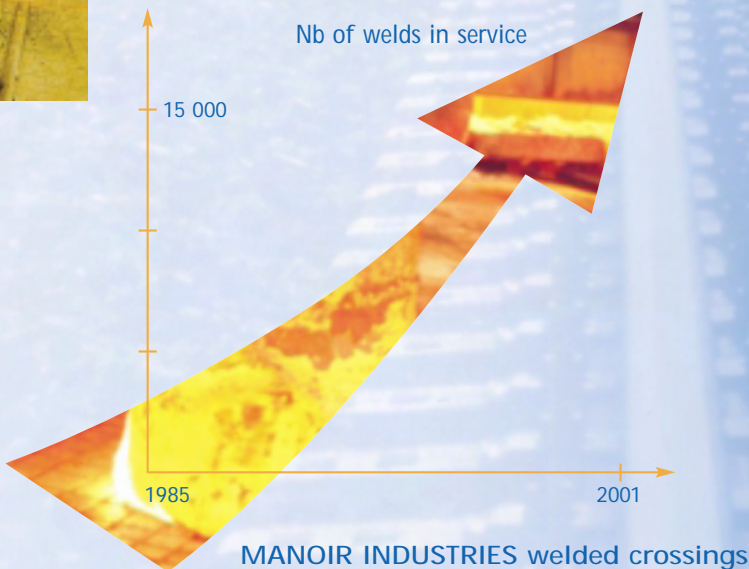
## Innovation and Production Capacity

Utilising a 16 meter long machine bed, all crossings undergo a single CNC machining operation to comply with the most demanding geometry, profile and tolerances.

Manoir Industries currently holds three insert patents for flash-butt welding of manganese steel crossings onto carbon steel rails. Hundred of welded joints have successfully been subjected to static bending (UIC, ASTM) and reverse bending (STAIRCASE, LOCATTI) tests.

Manoir Industries is the largest independent foundry offering production capacity of over 5 000 crossings a year.

In response to market demand, two welding machines incorporated in the production line represent a potential annual production rate of more than 10 000 joints.



## REFERENCES

SNCF, RATP, SNCB,

COGIFER

BALFOUR BEATTY,

RAILTRACK,

DEUTSCHE BAHN AG,

FERROVIE dello STATO,

CORUS COGIFER,

ISRAELIAN RAILWAYS,

KLOOS OVING,

SNIM MAURITANIA,

NEDERLANDSE SPOORWEGEN,

NSB,

ONCF MAROC,

PORTUGAL CP,

SBB CFF FFS,

AMTRAK,

BANVERKET BURLINGTON  
NORTHERN,

BANESTYRELSEN...