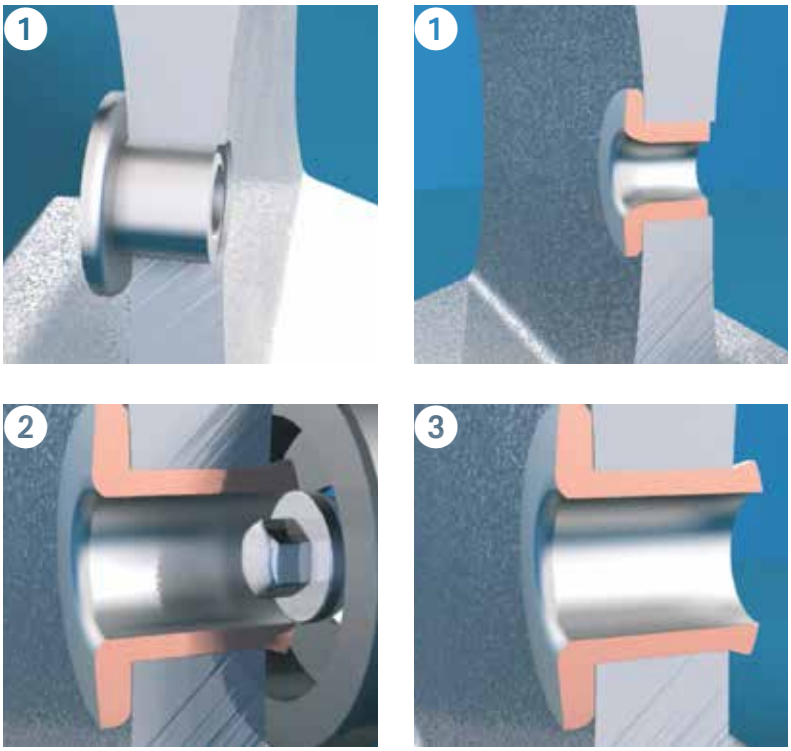
SIMPLE AND QUALITY INSTALLATION

The advantages of using the Cembre rail web contacts are that the bush can be installed in all weather and environmental conditions, with a simple, easy to operate portable tool, producing a consistent, quality installation, independent from the skill of the operator. The reduced installation time of this system results in overall cost savings.

During installation the bush is 'extruded' and the copper material flows into the wall of the hole, compensating for variation in hole size and filling any voids and uneven surfaces.



Schematic view of the extrusion process (section)

TESTED TO PROVE HIGH QUALITY

Extensive testing, performed in the test laboratory and in the field, have demonstrated a low and constant resistance, mechanical stability and protection from atmospheric corrosion.

Examples of the electrical tests

Heat Cycling Tests

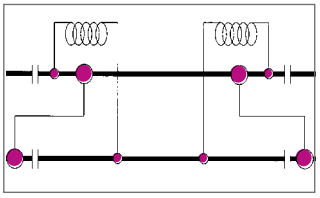
Short Circuit Testing

On site testing

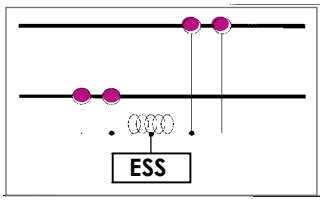
Examples of tests in salt water environments

Salt Mist Exposure Testing

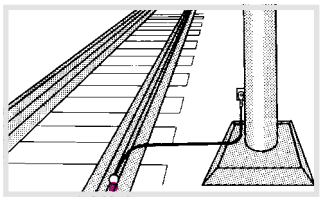
AR60D Installation



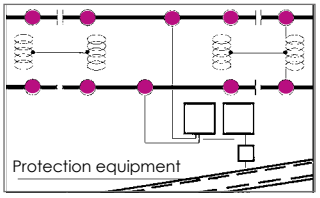
Various connections involved in the train location system



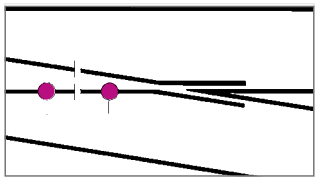
Return current connections to substations

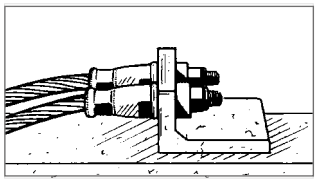


Connections of metallic structures to rails for grounding

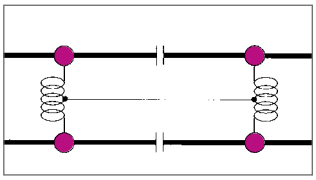


Electrical connection of underground metal structures to rails





Signalling and traction current connection to manganese steel cast exchange units



Transmission of coded and return current on lines fitted with automatic block

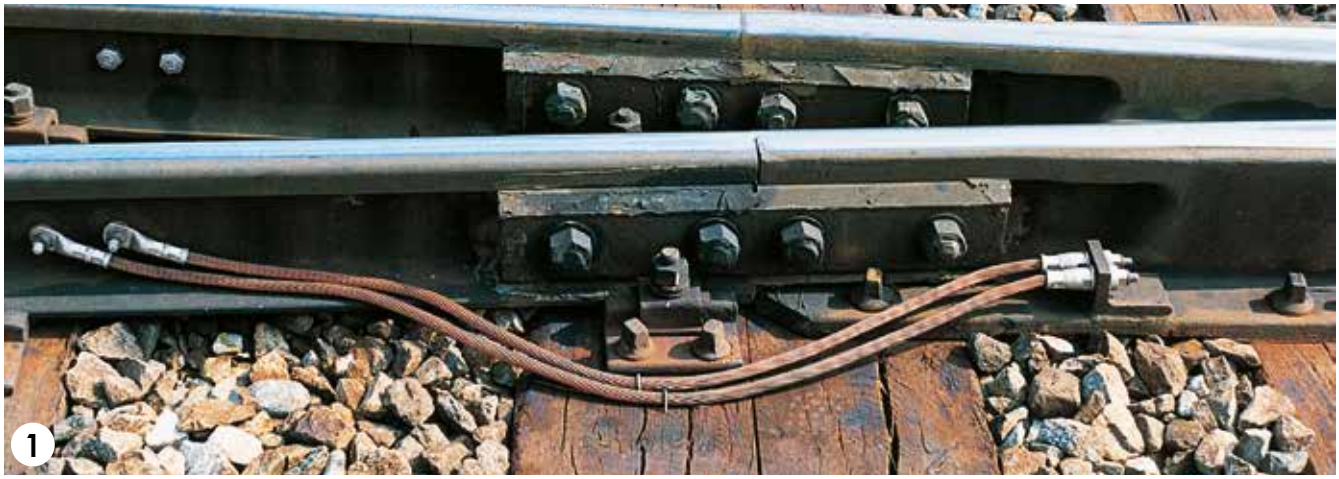
Examples of lines equipped with automatic block

Example of AR60D in electric joint applications

THE AR60D SYSTEM IS USED WORLD WIDE PROVING TO BE FULLY RELIABLE IN ALL THE WORKING CONDITIONS

QUOTED BY THE PRESS

Features and benefits of the **AR60D** system have appeared in various Railway Industry journals.



1) Example of electrical connections using a low stranded conductor to provide electrical continuity on cast manganese steel crossovers.

1A) **AR60D** rail web connection, rail side

2) Example of electrical connections using a flexible cable to provide electrical continuity on cast manganese steel crossovers.

2A) **AR60D** rail web connection, rail side

3) **AR260D** double contact rail web connection

4) Example of electrical connection where cable layout is perpendicular to the rail.

5-6) **AR60D** rail web connection, rail side.

7) **AR67** rail web connection, rail side.

8-9) Example of perpendicular electrical connection, on cast Manganese Steel crossovers.

Electrical permanent contact AR60D for hole Ø 19-20

This system has been studied, designed and realized by Cembre in 1988 after a deep analysis of existing electrical connection systems and their performances. The aim of the Cembre system is to provide a general and substantial improvement on the most important characteristics of a contact between the rail and the electric cables like:
– extremely low resistance (in terms of micro-ohms);
– easy installation procedures and not depending on operator skilness;
– short installation time (less than one minute for each operation);
– possibility of disconnection / connection of attached cables.
– cold extruded (requires no heating to the rail).
After extensive tests, either in laboratory or in the field, the system has been recognized as totally reliable and perfectly matching the above listed requirements.

System components

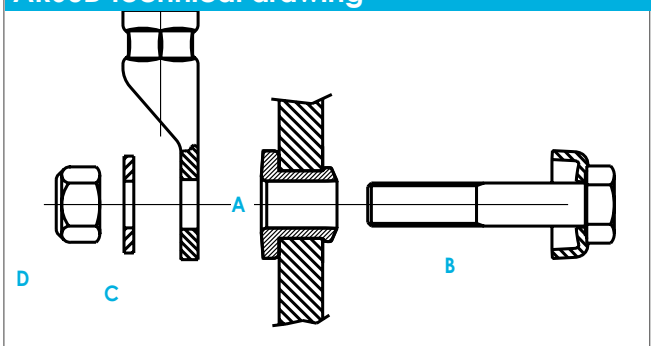
A – Electrolytically tin-plated copper bush type **AR 60-1**
B – Steel M12 screw with hollow hex head (1 piece)
C – Flat steel washer
D – Self-locking nut

Railweb thickness between 14 to 16,5 mm.

Rail web cable connection applications

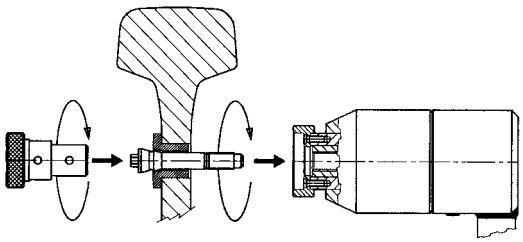
- Traction return bonding
- Continuity bonding
- Ground bonding
- Substation connection
- Electrical Drainage
- Signal track circuit continuity
- Signal track circuit connection

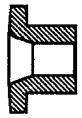
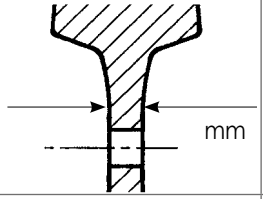
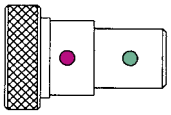
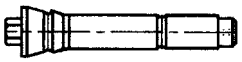
AR60D technical drawing



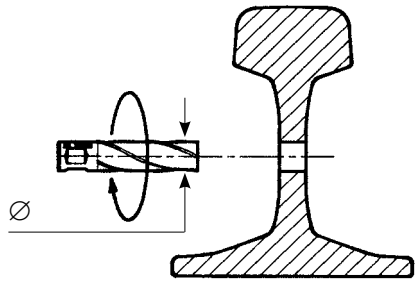
To be installed by

Hydraulic tool type **HTEPE-DETY** or tool type **RHTEP**

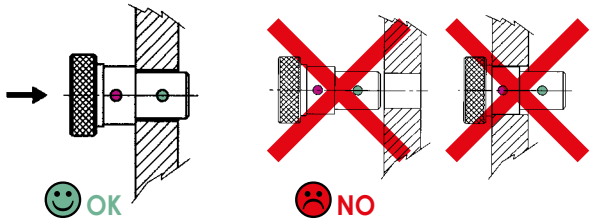


		Ø mm		
AR60D	14 ÷ 16,5	19	CAL 19.20	OG 13.2

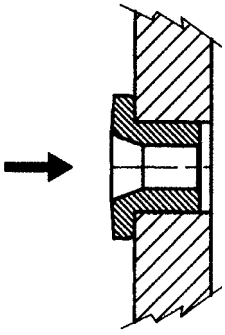
1



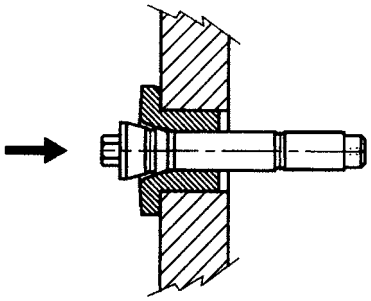
2



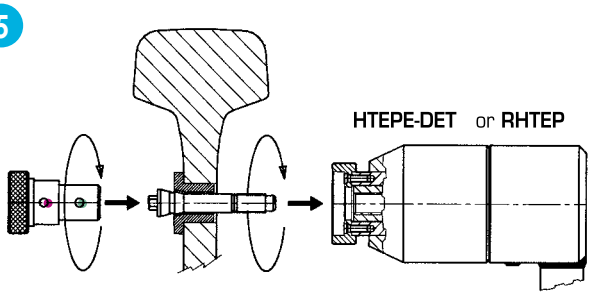
3



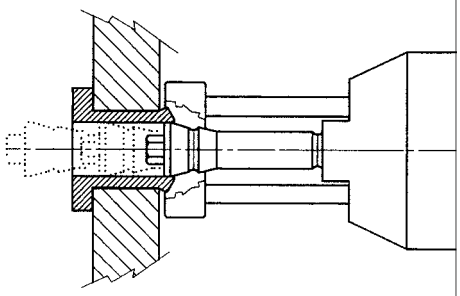
4



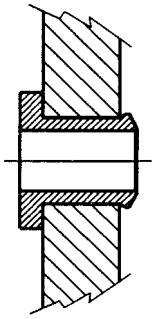
5



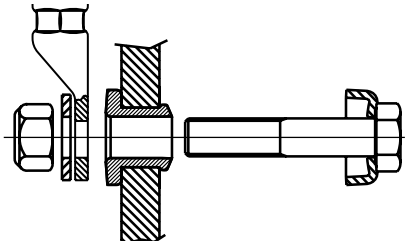
6



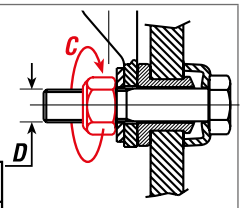
7



8



9



D		Torque	
		lb ft	Nm
M12	Cu	59	80
	Al	37	50