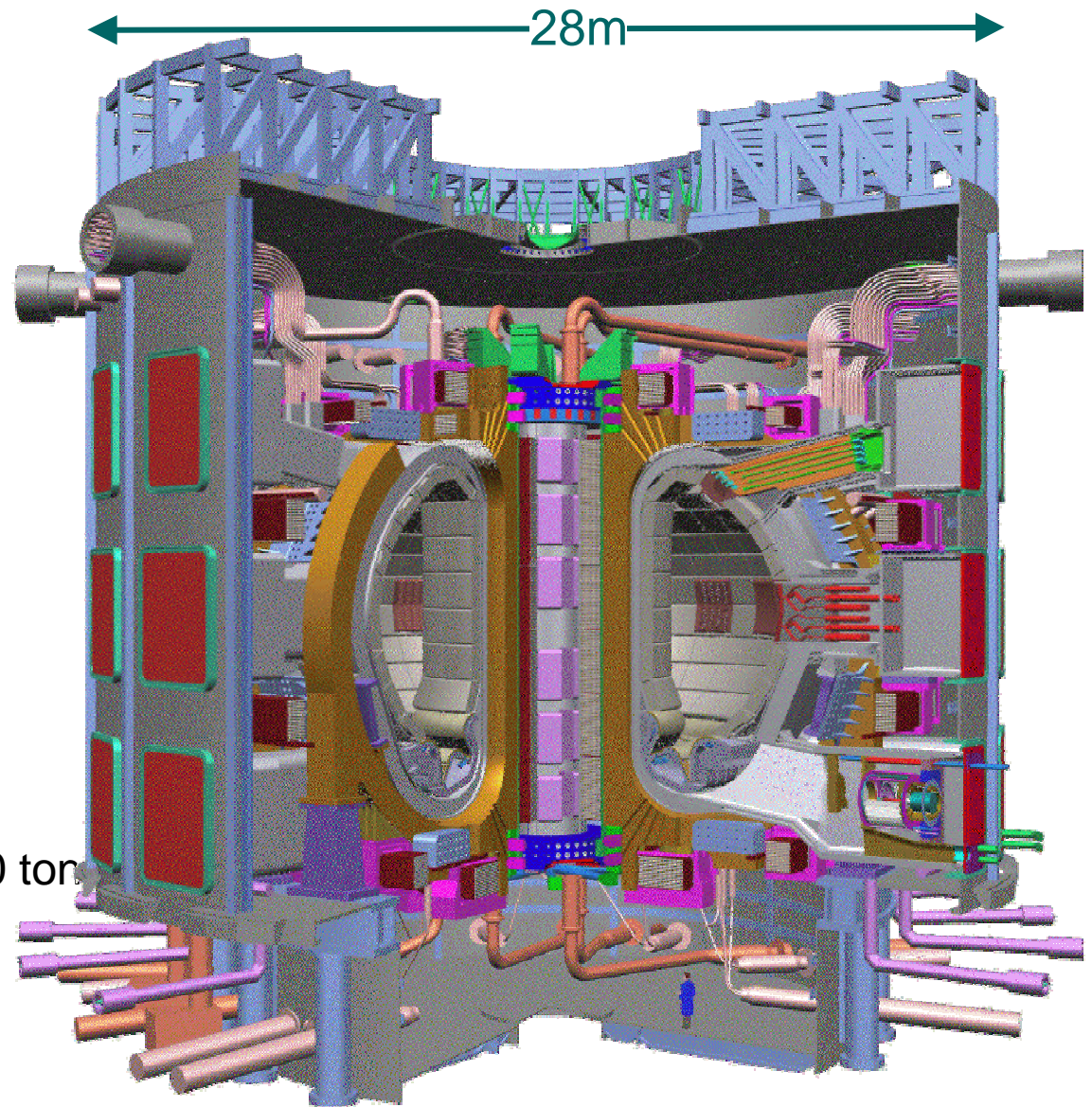
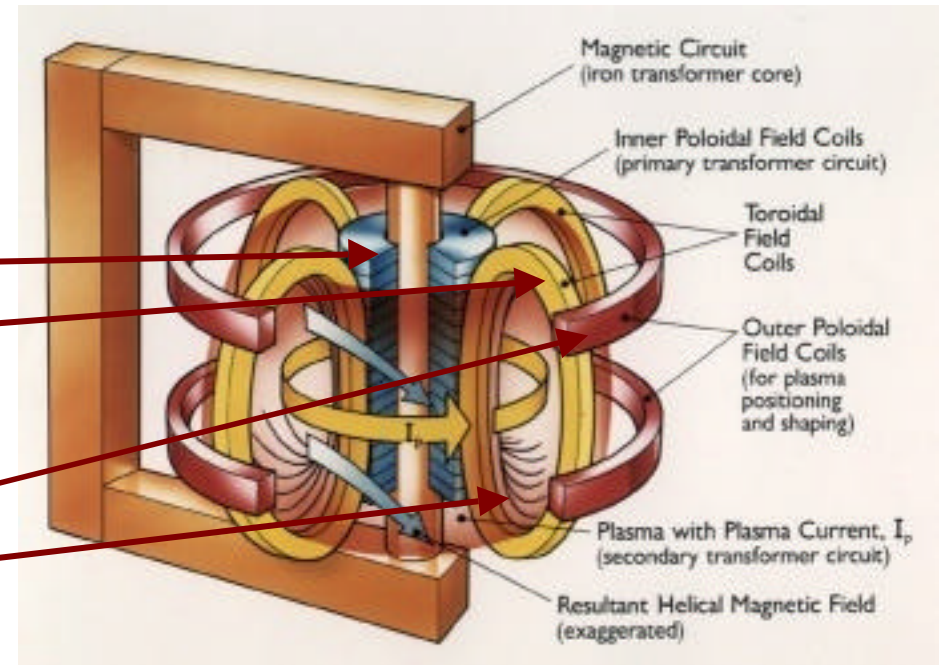
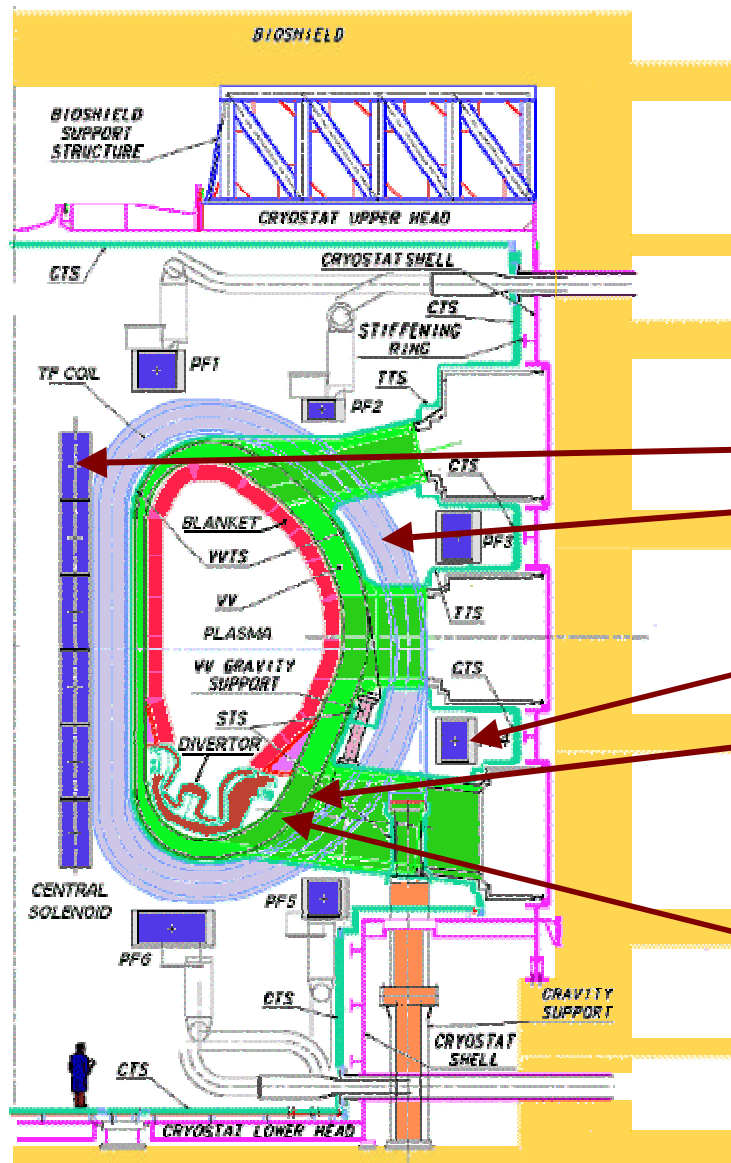


ITER - Physical parameters

Fusion Power	= 500MW
Fusion Power/Auxiliary Heating Power	= $Q > 10$
Neutron wall loading	= 0.57 MW/m ²
Plasma major radius	= 6.2 m
Plasma minor radius	= 2.0 m
Plasma Current	= 15 Megamp
Toroidal Field	= 5.3T
Plasma Volume	= 837 m ³
Heating power	= 73 MW
Pulse lengths	= 300 - 5000 sec
PF supra coils	= 925+6*130-390 tons
TF supra coils	= 18*312 tons
Vessel	= 9*575 tons
Total in hall	= 40,000 tons

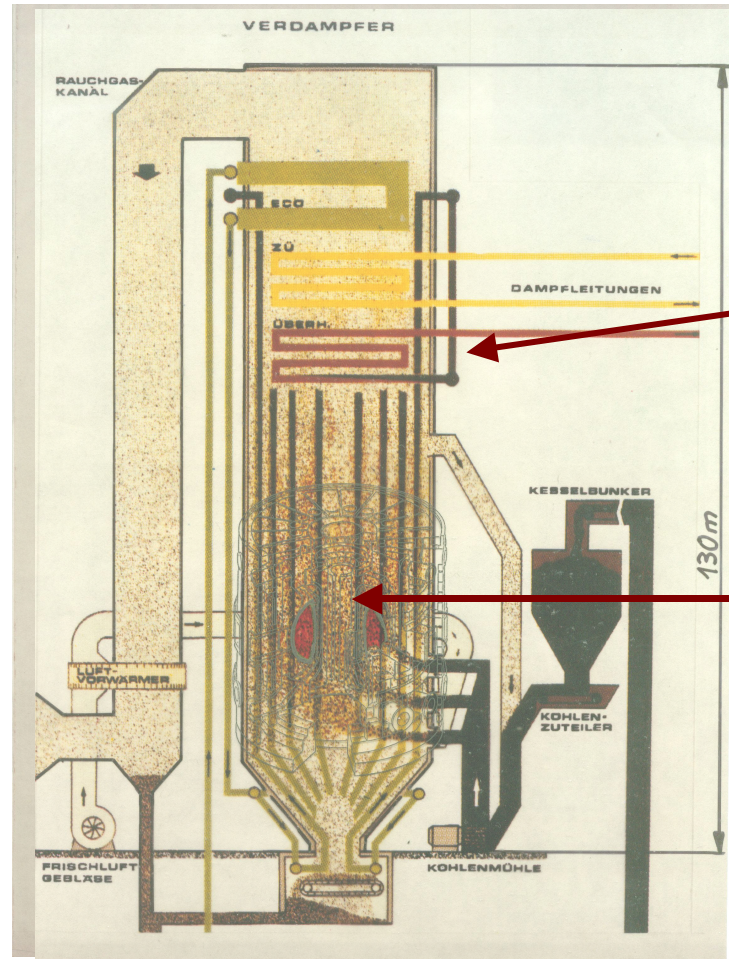


A more technical cross section of ITER



blanket

Big - but is ITER really gigantic ?



Coal burner

ITER

Challenge to create and manage such a huge project - OK

ITER schedule

- International Legal Entity about 2 years before construction license
- Long lead item procurement start before license awarded
- ~7 year construction
- ~1 year integrated commissioning
- Plasma in or after ~2014!

Challenge to orchestrate the international procurement - see later

ITER Technology R&D already carried out

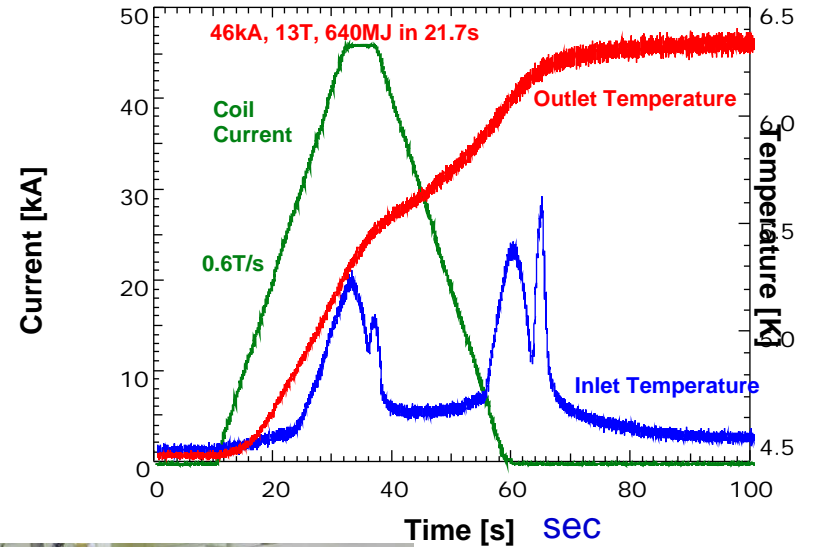
- ❑ Superconductor, size, heat-loads, remote maintenance - all challenges
- ❑ Demonstration of industrial fabrication of full scale or scalable models
- ❑ 7 large R&D projects, shared between the 4 original partners (660M\$ invested)
 - 1) Central Solenoid model coil - ✓
 - 2) Toroidal Field model coil - ✓
 - 3) Full size vacuum vessel sector ✓
 - 4) Full size shield blanket module
 - 5) Full size divertor module ✓
 - 6) Full size remote maintenance tools for blanket ✓
 - 7) Full size remote maintenance tools for divertor ✓

Find technical solutions ready for procurement

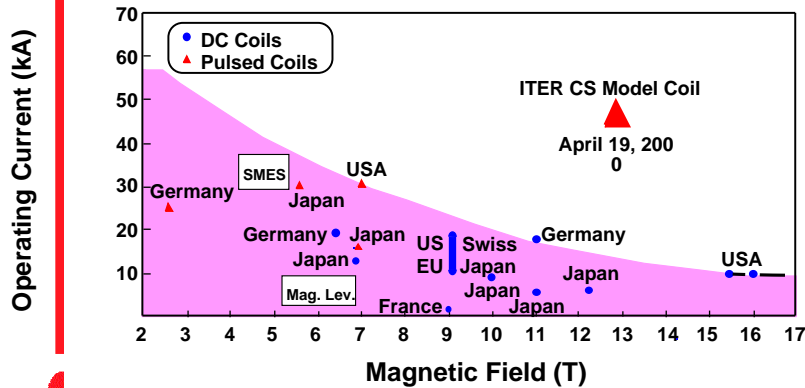
ITER R&D - CS Model Coil



0.6T/s Fast Charging of the CS Model Coil up to 13T



M000724a/H.T

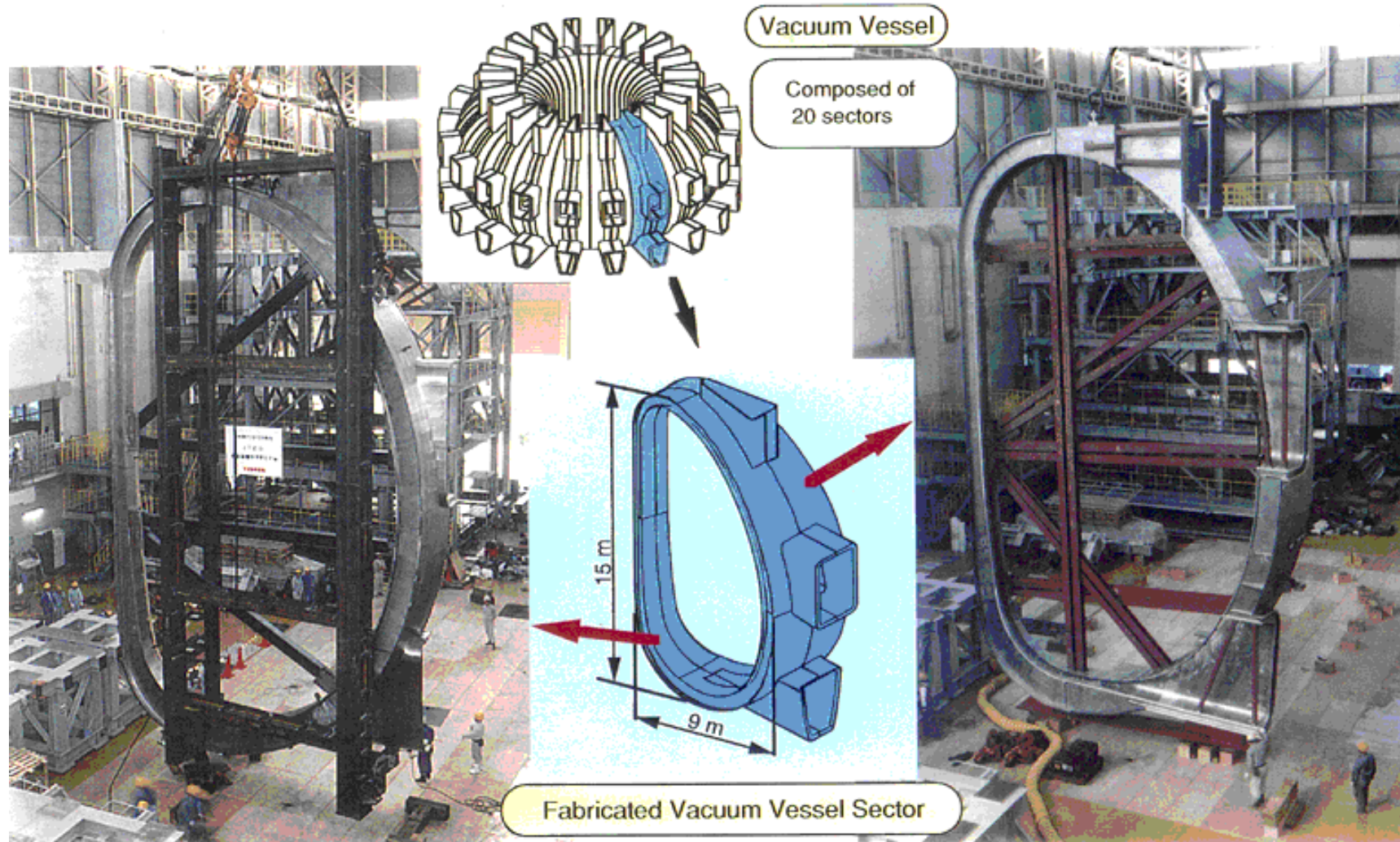


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Be sure to make good high performance magnets



ITER R&D - Full scale vacuum vessel sector

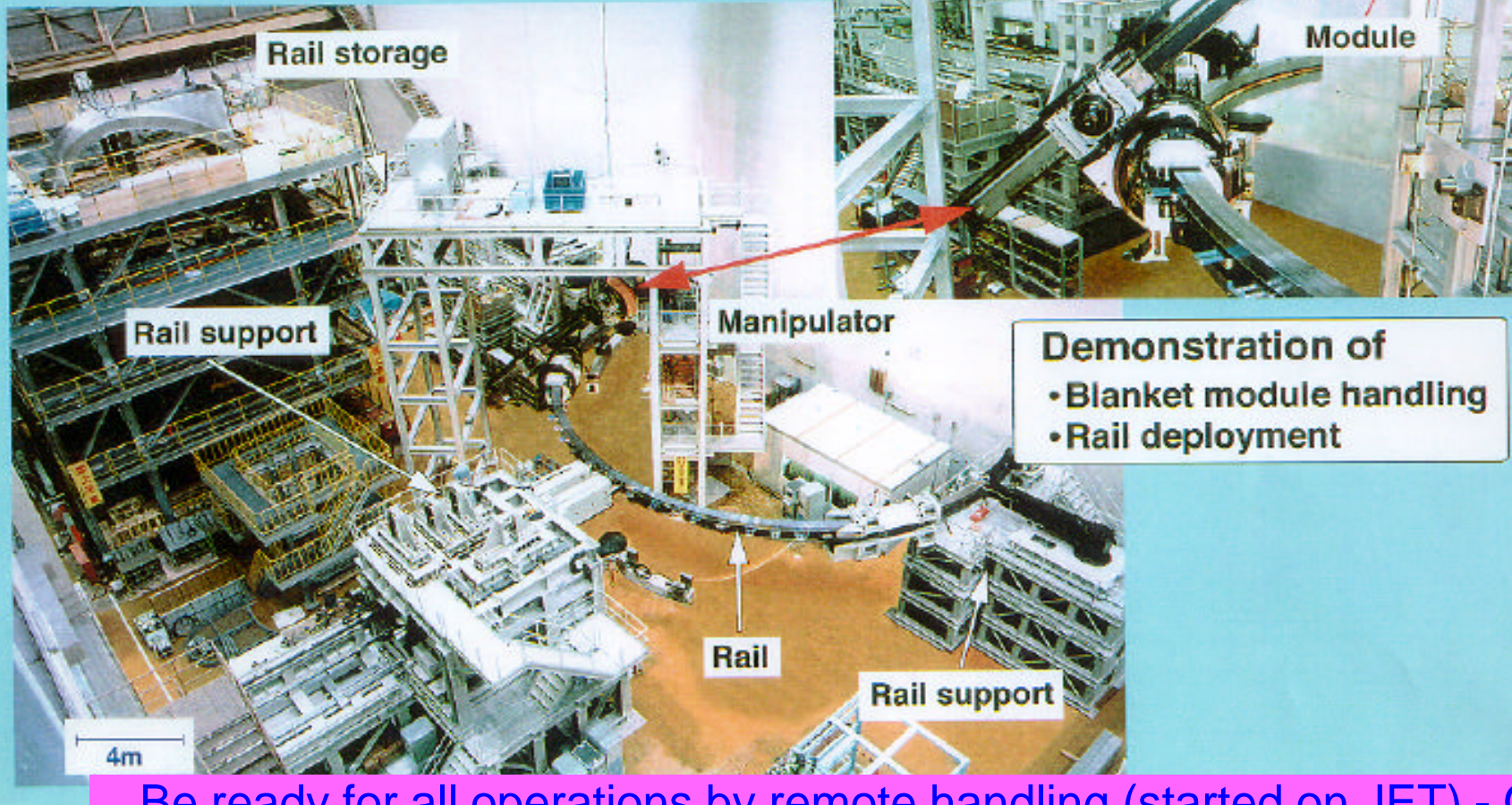


Guarantee the precision and welding - OK

ITER R&D - Remote handling

Vehicle Manipulator System for
Blanket Maintenance

4 tons on a 6m arm, \pm mm



Be ready for all operations by remote handling (started on JET) - OK

ITER R&D - Divertor cassette modules



Surface (W, C) must take up to 20 MW/m^2
Must be replaceable for maintenance
Must be changeable for design enhancements

Divertor must resist intense heat pulses - ?????