

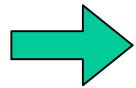
MAIN STEPS OF CERN WORKS

STEP	ACTIVITIES/CHECKS
CM Reception	Visual insp. & unloading, electrical + mechanical checks, geometrical meas* , magnetic axis meas*
WP02 Cryostat assembly	Cryostating + bottom tray assembly + IFS electrical checks
WP03 Preparation for cold tests	Fiducialization* , magn axis meas* , install anticryostats and MRB
WP04 Cryostat connection	Prepare CFB & cryodipole interfaces, electrical tests, leak test of cryostat
WP5 – Cold tests – WP06	Power tests – harmonics – magn axis *
WP07 Removal from bench	Electrical tests
WP08 Stripping	Fiducialization , magn axis measurement , inspection of extremities*
Storage	Nitrogen, transport restraints
WP09	Beam screen, preparation for installation



DIPOLE TYPES

- *Cold mass assembly types (2 variants)*
 - ▶ **MBA** : MB with sextupole, octupole and decapole
 - ▶ **MBB** : MB with sextupole
- *Diode installation types (2 variants)*
 - ▶ **AR** : "Anode on the Right"
 - ▶ **AL** : "Anode on the Left"



4 DIPOLE TYPES IN INDUSTRY:

AL, AR, BL, BR

DIPOLE TYPES

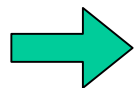
- *Dipole extremities for interconnect*

- ▶ **ARCS** : 4 interconnect variants **10 cryodipole types**

LBALA, LBALB, LBARA, LBARB, LBBLA, LBBLC, LBBLD, LBBRA, LBBRC, LBBRD

- ▶ **DS** : 10 interconnect variants **24 cryodipole types**

LBALA, LBALE, LBARA, LBARE, LBARJ, LBARL, LBBLA, LBBLB, LBBLC, LBBLD, LBBLF, LBBLG, LBBLH, LBBLI, LBBRA, LBBRB, LBBRC, LBBRF, LBBRG, LBBRH, LBBRI, LBBRK, LBBRM, LBBRN



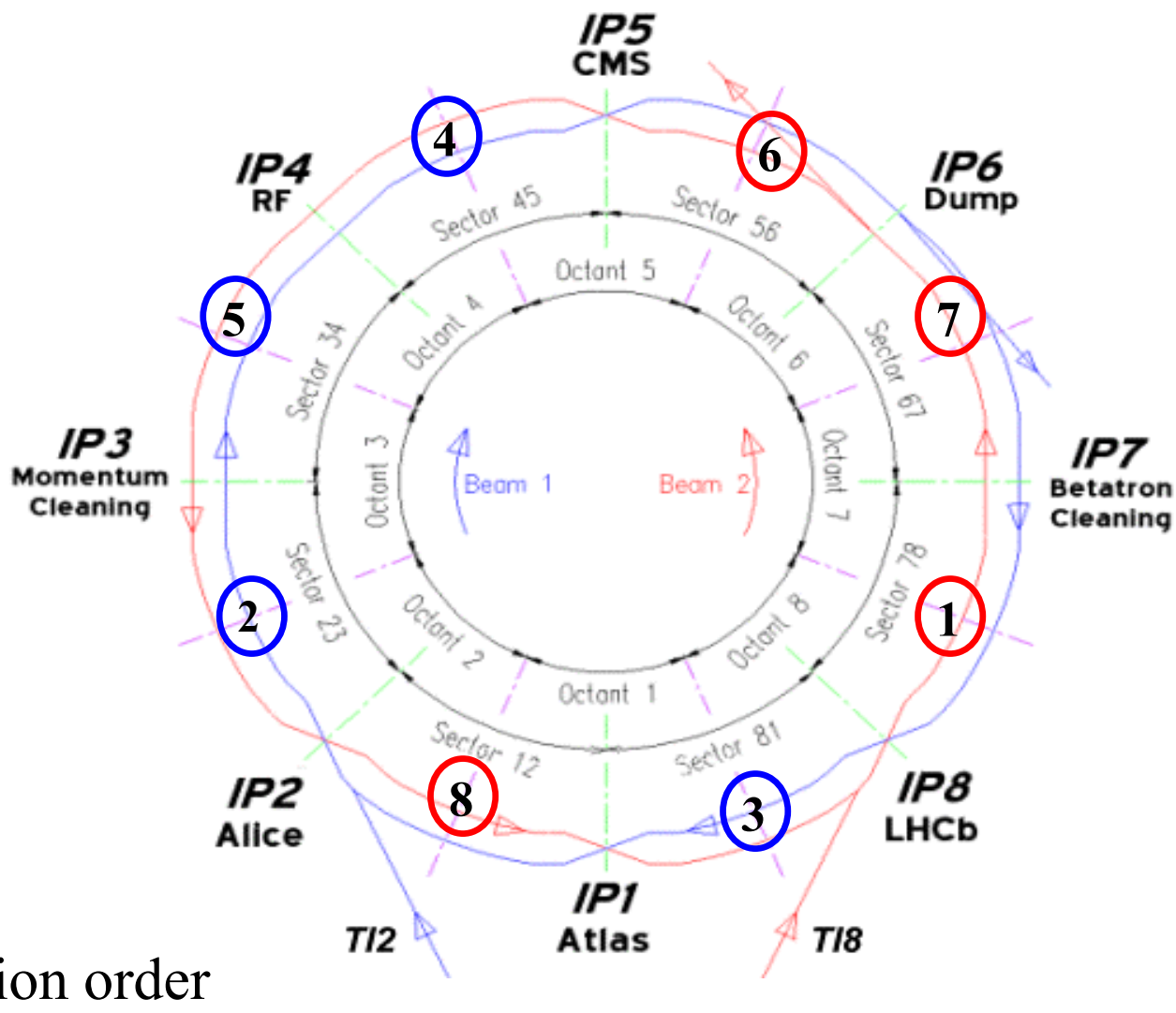
27 CRYODIPOLE TYPES FOR CERN

See LHC-LBA-ES-0011.00 rev. 2.1 by Jean-Philippe Tock under approval

INSTALLATION ORDER AND DIODE POLARITY

Installation order	Date of installation	Sector	Diode polarity
1	Dec 03-Apr 04	7-8	R
2	Apr 04-Jul 04	2-3	L
3	Aug 04-Nov 04	8-1	L
4	Nov 04-Avr 05	4-5	L
5	Mar 05-Jul 05	3-4	L
6	Aug.05-Jan 06	5-6	R
7	Jan 06-Jun 06	6-7	R
8	Jun 06-Aug 06	1-2	R

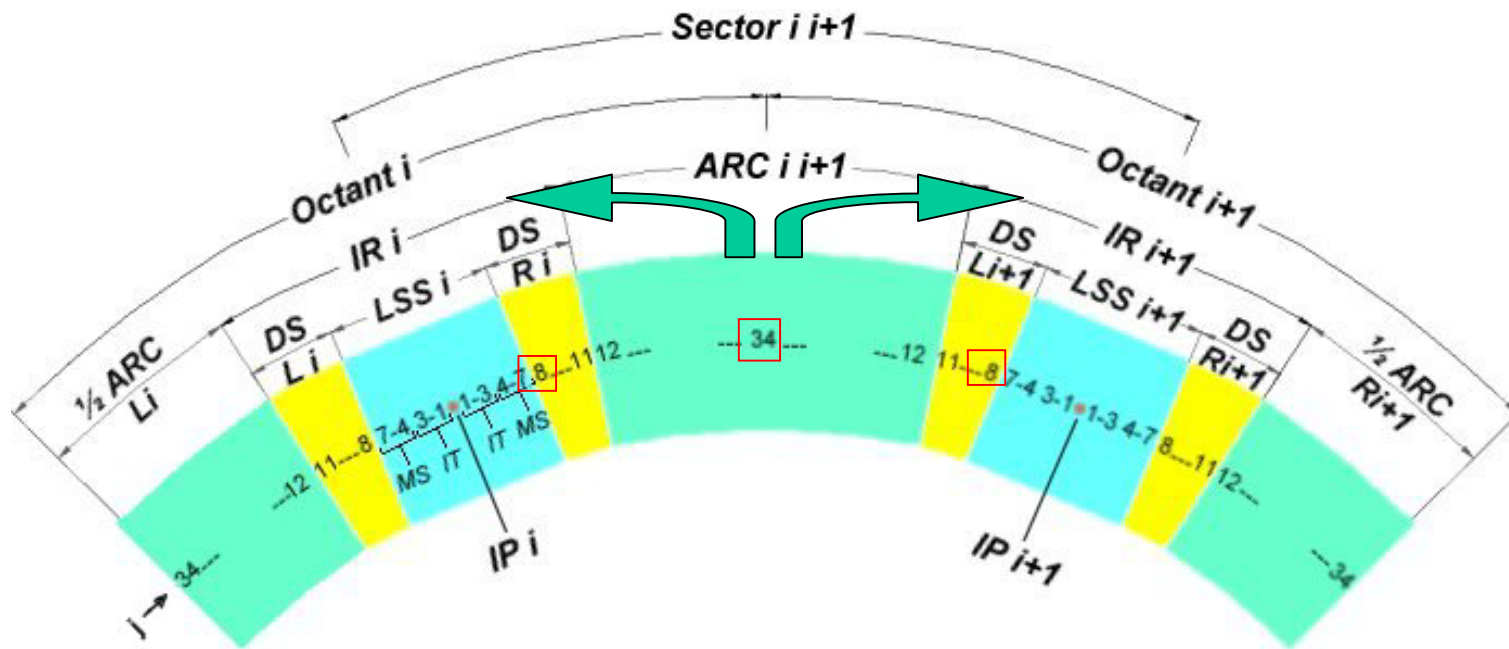
INSTALLATION ORDER



INSTALLATION

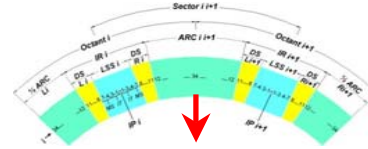
From the middle of the arc to dispersion suppressor :

Q34, Q33, Q32... →Q9, Q8



EXAMPLES

▶ *ARC*

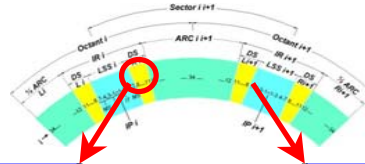


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MBB- C33R7	MBA- A34R7	MBB- B34R7	MBA- C34R7	MBB- C34L8	MBA- B34L8	MBB- A34L8	MBA- C33L8	...
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Half cell	Q33 R	Q34 R			Q34 L			Q33 L
Assembly	B	A	B	A	B	A	B	A
Diode	R	R	R	R	R	R	R	R

▶ *DS*



...

MBB- B8R3	MBA- A9R3	MBB- B9R3	MBA- B9L4	MBB- A9L4	MBA- B8L4	...
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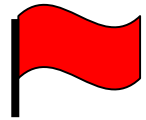
Half cell	Q8 R	Q9 R		Q9 L		Q8 L
Assembly	B	A	B	A	B	A
Diode	L	L	L	L	L	L

FLAGS

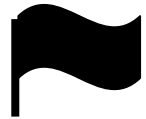
Three different flags (to be discussed in MEB)



can be installed anywhere

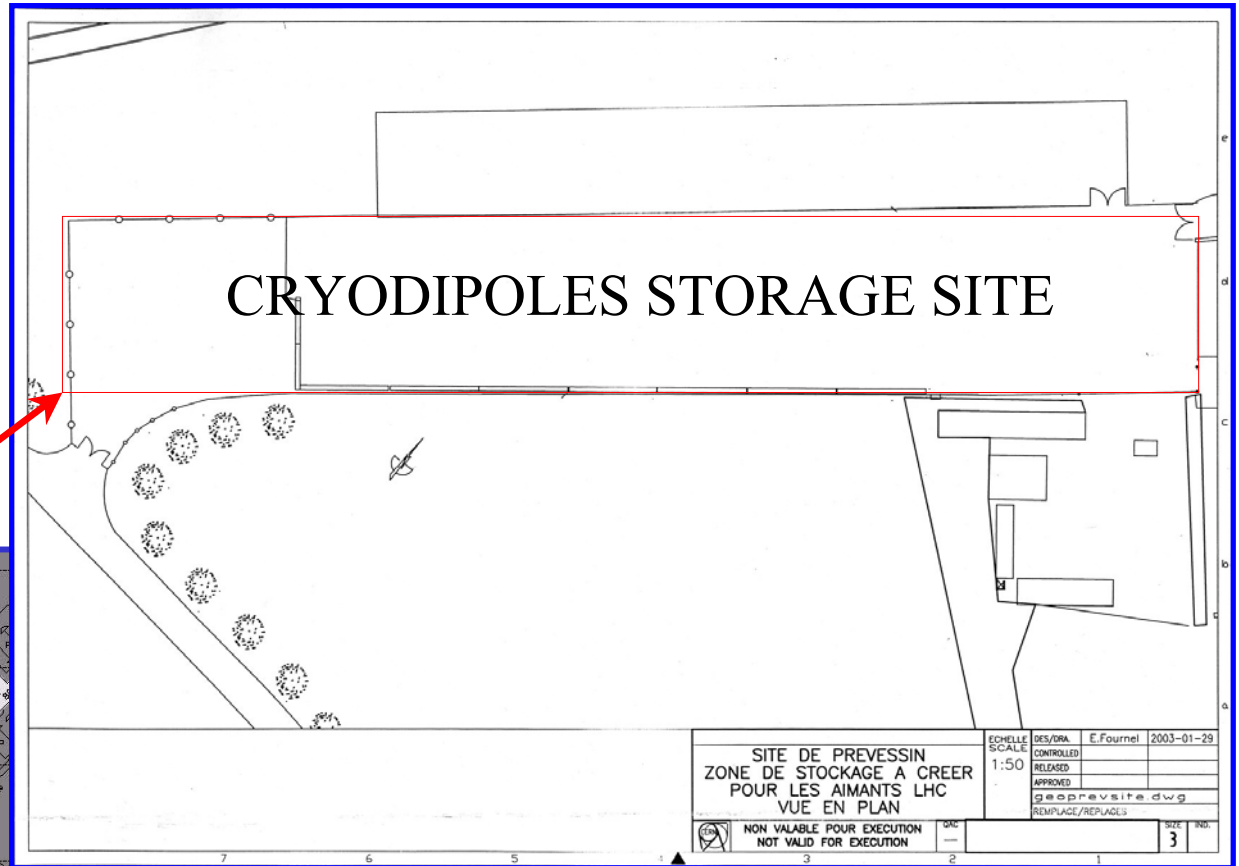


not close to a red flag – or specified period



must have a specific and appropriate location

CRYODIPOLES STORAGE



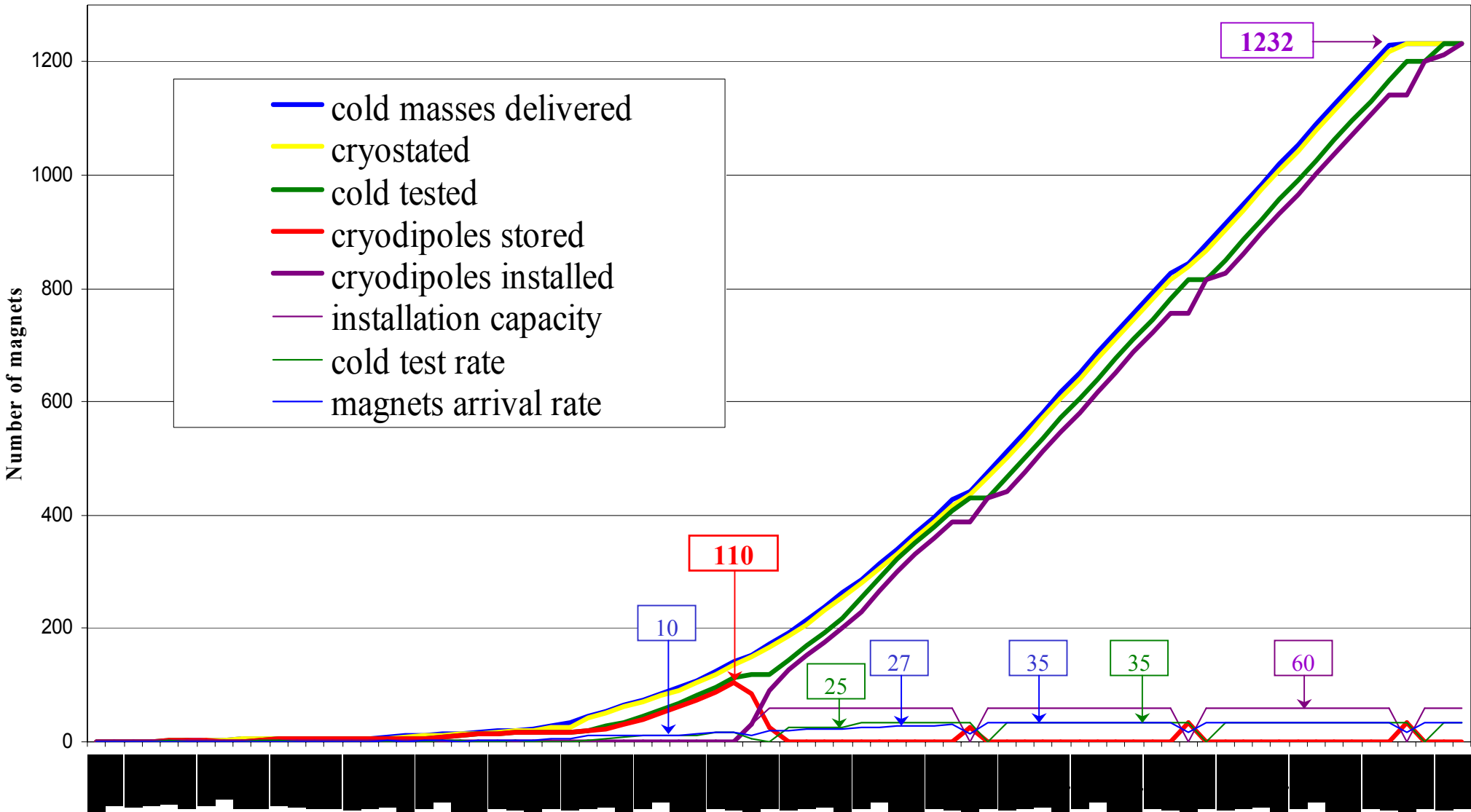
CRYODIPOLES STORAGE



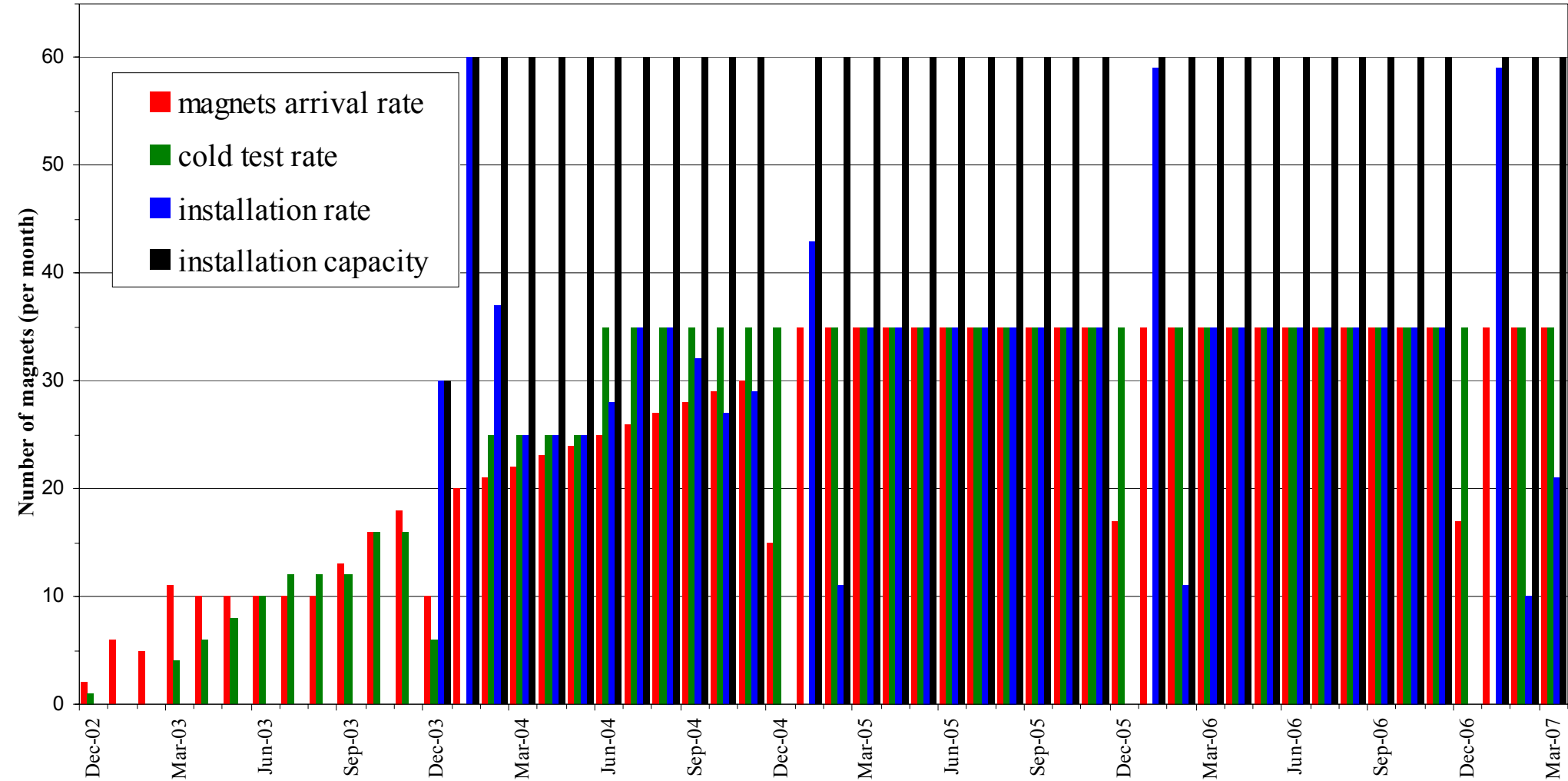
Prévessin dipoles storage site

- ▶ Maximum capacity : ≈ 120 cryodipoles
- ▶ Dimensions : $\approx 185 \text{ m} \times 30 \text{ m}$

CRYODIPOLES WORKS



RATES



CONCLUSION

- installation will start beginning 2004
- sorting limited to special cases only (more freedom for first octant)
- a 30 magnets buffer in zone 18 for special cases is probably necessary
- MEB decisions shall be taken ~ one week days after fiducialization
- depending on **flag** a magnet will be assigned to a specific location
- most of magnets shall be **green**