

5th BINP Workshop

Video-Conference 09. – 12.11.2020
Site Management

H Reich-Sprenger & H Hagelskamp

Agenda:

1. Assembly Places

- CR – Dipole Pre-Assembly and Testing
- CR – Quadrupole Pre-Assembly and Testing
- BINP inkind: HEBT Pre-Assembly : status / issues
- Pre Assembly Areas
- Pre Assembly Ressources

2. Installation

- CR Installation – Time Schedule
- CR Installation – Media Connection Packages
- Manpower Requirements
- Work Instructions and Testing Instructions and Protocols
- HEBT / SFRS / PANDA / pbar – BINP Installation Support and Supervision

Time Schedule for CR Magnet deliveries to GSI / FAIR Campus

- CR Power Converter : 12/2020
- CR Dipole :
 - FOS 2/2021
 - → One Dipole Magnet / month starting from Q3/2021
- CR 4-pole:
 - FOS Q3/2021
 - → One 4-Pole Magnet per month, starting from Q3/2021

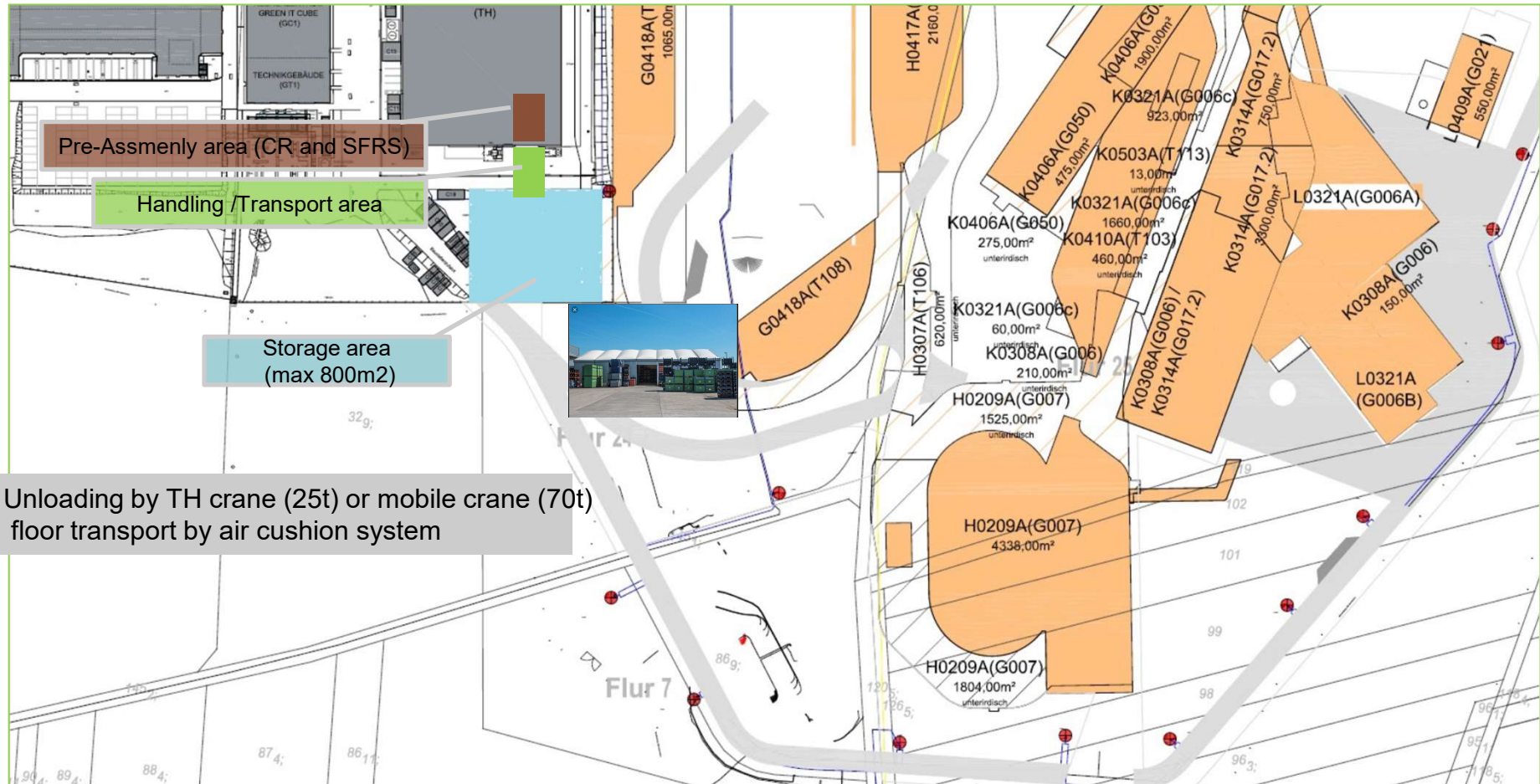
Pre Assembly Preparations: Present Status

- CR Power Converter : Media connections in preparation by EPS Department (ready in 12/2020)
- CR FOS Dipole :
 - Pre Assembly area (Target Hall South) in preparation organized by SMG
 - Storage area for pre-assembled Magnets under construction (ready in 2/2021)
- CR 4-pole:
 - Pre Assembly area: Testing Hall (already available) or Target Hall South (ready in 2/2021)
 - Storage area for pre-assembled Magnets under construction (ready in 2/2021)

Ressources for Pre-Assembly

- planned: BINP team starting Pre-Assembly work on CR magnets in 1/2021
- present status:
 - Procedural method clarified, but still not performed:
 - guest contract for BINP leading scientist
 - time schedule for visits including BINP resources by name
 - Corona pandemic prevent business travels
- → Pre Assembly and testing of FOS CR magnets to be performed by whom ?
 - if by FAIR:
 - urgent need of full documentation:
 - technical drawings
 - work instructions for pre-assembly, transport, handling,.....
 - manual for Power Converter
 - safety declaration for Power Converter
 - Testing Instructions and Protocols
 - Document of needed resources :
 - qualification
 - time schedule (Pre-Assembly plan)
 - Official order (request) by BINP to FAIR

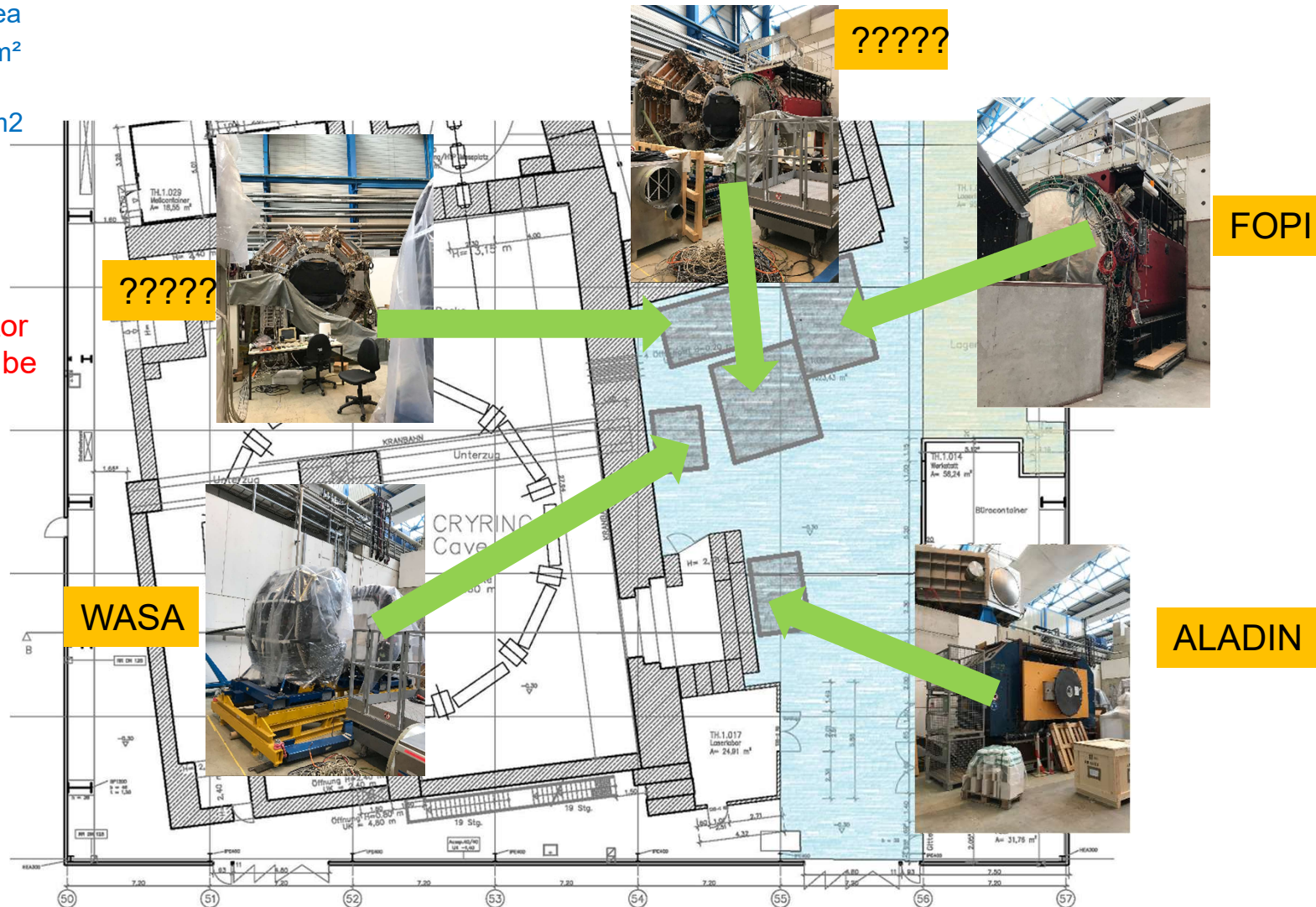
Pre-Assembly CR and SFRS Target Hall (proposal)



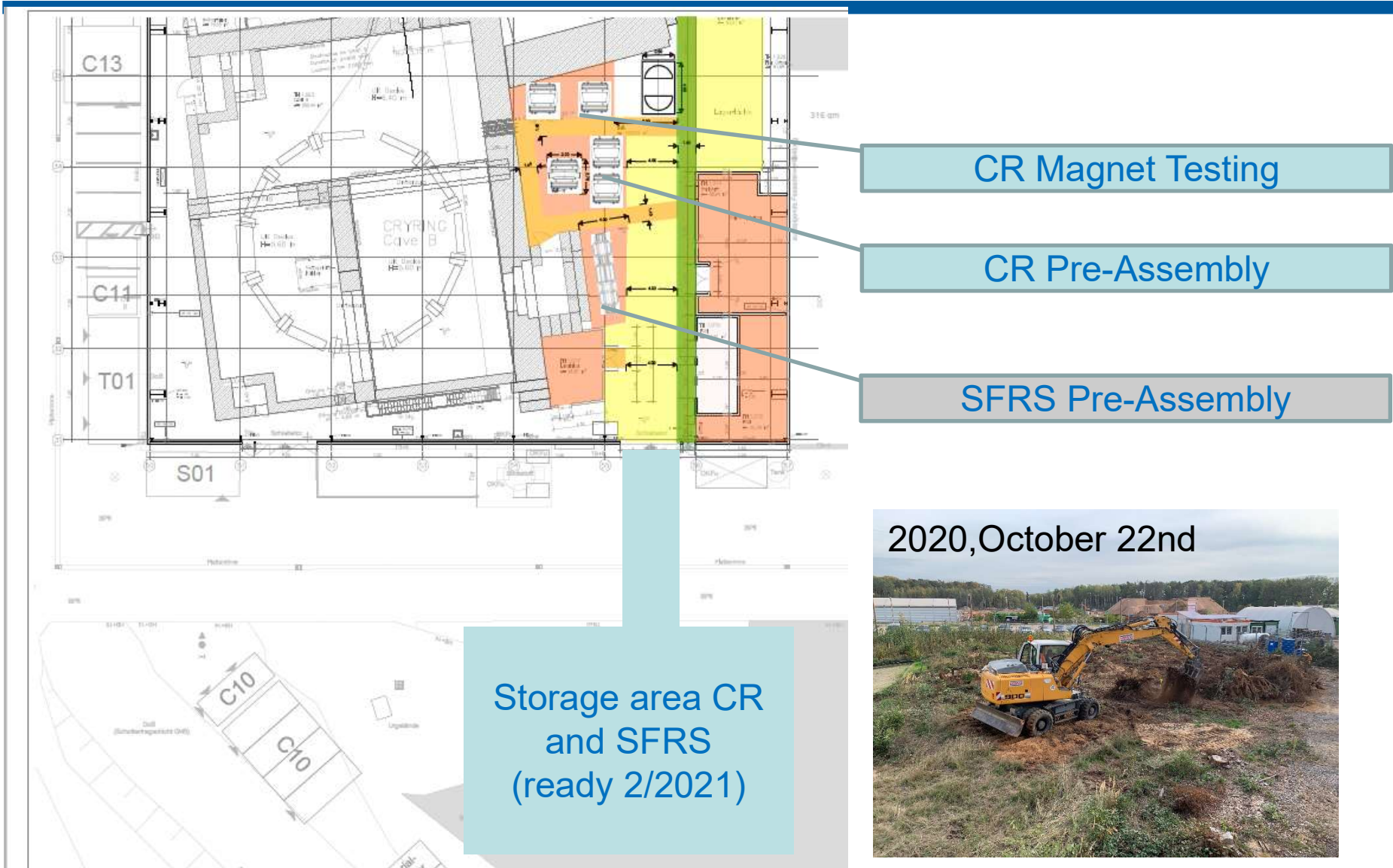
Pre-Assembly CR and SFRS Target Hall South (initial status in Q1/2020 and progress in Q4/2020)

Magnets and Detector Systems in TH area
 TH.1.001 A=1023m²
 Request for CR & SFRS: appr. 300m²
 Pre-Assembly

- clean up has started
- Large Detector Systems will be removed in 2/2021

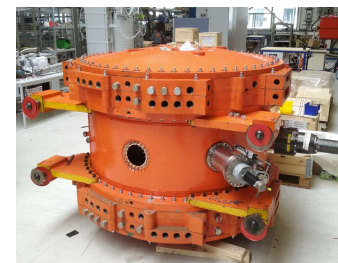


Site Management Pre-Assembly CR Pre-Assembly and temporary storage areas



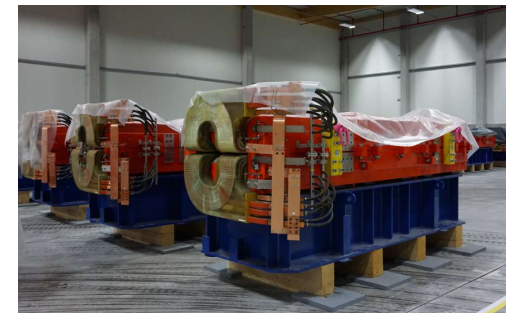
Current Activities in the Testing Hall (TES)

- HEBT magnets: continuous pre-assembly of various types, missing VAC chambers for 4-pole magnets → temporary storage
- SFRS (Big-) Dipol: Magnet Testing
- SIS100 Injection Septum Magnets: Pre-Assembly, vacuum & magnet testing
- SIS18 Spill-Cavity: Re-Assembly after maintenance
- SIS100 Anode Modules: module power tests
- Power Converters test stand: continuous testing after arrival of each batch delivery
- RRF test benches: Pre-Assembly of RF Power-Racks / LLRF Racks, and final testing of SIS 100 Cavities
- UHV test benches: Preparation for SIS 100 Dipole Integration, NEG Coating of HESR Magnet chambers



Main Components Currently Stored in Weiterstadt

- 465 Racks (FAIR Experiments and RRF: to be completed)
- 75 Power Converters (ready for installation)
- 40 HESR Dipole magnets (minor residual work needed)
- 40 HEBT Dipole magnets (work preparation Installation missing)
- 70 SIS100 Dipole magnets (temporary storage before Integration)
- 35 HEBT Quadrupole magnets (Incomplete, VAC chamber missing)
- 10 HEBT Steerer magnets (Incomplete, VAC chamber missing)



CR Installation Planning (time planning, resources, scope):

- MS Project Installation plan established (by A. Bätge / PMO), based on BINP Installation Concept
- Resources are included (based on estimation by V. Prosvetov)
- Links to FAIR civil construction compiled (by A. Bätge / PMO)
- Links to BINP delivery schedules: in work

CR Installation Planning next steps:

- **PLM:**
 - definition of assembly units: **not complete, in work**
 - creation of AID, CID of components and assembly groups
 - logistic data: **not complete, in work**
 - update of existing data needed
- **Installation Dashboard (availability of CR assembly groups):**
 - first version created, based on existing PLM data
 - monthly update of dashboard data (availability ratio) from 1/2021 requested
- **Installation Resources:**
 - BINP Installation team = BINP Pre- Assembly team ?
 - BINP Installation Team working at BINP / CERN / DESY / Brookhaven...:
 - number of BINP colleagues involved in different projects ?
 - support from external company planned ?
 - BINP contact person in 2021: still Vasiliy Prosvetov ?

Installation Ressources provided by BINP / Requests to FAIR support:

based on F-TG-T-03e_Installation and F-TG-T-01e_Transport (part of FAIR General Specs)

- **BINP planning:**
 - How many colleagues are planned to be send to FAIR for Pre-Assembly and Installion BINP components and assembly groups ?
 - Number, timeline, qualification for:
 - CR
 - HEBT
 - SFRS
 - PANDA
 - pbar
 - BINP working steps on FAIR Campus and GSI campus have to be described and released before work can start
 - What are the BINP requests for FAIR support ?
 - manpower, qualification, timeline
 - tools & material
 -
 - Under the directives of „TG Installation“ and „TG Transport“ all requests have to be put down on paper (official order)

FAIR / SMG strategy for machine media connections:

- **Water Cooling (responsible person : Christina Will) :**
 - overall concept for all FAIR subprojects
 - closing the gap between Technical Infrastructure (TGA) and machine:
 - valves
 - flowmeter /flowcontroller
 - local waterdistribution
 - hoses and installation material
 - based on FAIR Component Data Base (CDB)
 - **will BINP follow this standard ?**
- **Pressured Air System (responsible person : Roman Cannas) :**
 - overall concept for all FAIR subprojects
 - closing the gap between Technical Infrastructure (TGA) and machine:
 - valves
 - flowmeter /flowcontroller
 - local Air Distribution
 - hoses and installation material
 - based on FAIR Component Data Base (CDB)
 - **will BINP follow this standard ?**



Thank you very much !

Site Management (Appendix (a))

2. Installation / TG Transport



GSI FAIR	Technical Guideline	Number	01e
Transport & Installation	Transport	Status	11.5.15
This Technical Guideline is valid for all transports from the manufacturer to the construction site of the Company			
1.	All transports of components to be delivered by the Contractor to the Company have to be free of charge for the Company. All transport costs, including taxes, customs clearance, shipping (air,land,sea) have to be fully covered by the Contractor.		
2.	Transport, delivery and unloading has to be organized by the Contractor in close cooperation with the Company. The Contractor will be liable for additional costs (e.g. time delay, missing tools or missing infrastructure,...) resulting from transports not approved in advance by the Company.		
3.	The Contractor takes responsibility for any damage caused by inappropriate packaging and transportation. Damaged goods will be rejected by the Company. In the case that a damage of goods is observed, the Company will immediately inform the supplier of the observed damage. The Contractor will decide if a repair on site (Company) will be carried out if the damaged good will be shipped back to the Contractor or manufacturer. The Contractor has to cover the full costs of repair, shipping, second delivery.		
4.	All packaging (e.g. pallets, boxes, support structures etc.) shall be provided by the Contractor free of charge. After installation of the component delivered, the removal of the packaging material has to be organized by the Contractor. The Contractor has to cover the full costs of the removal.		
5.	Standard transports to the Company		
5.1	The dimensions of trucks and trailers used for the delivery of components to the Company have to be in accordance with EU and german standards: references: http://bundesrecht.juris.de/stz/032.html http://bundesrecht.juris.de/stz/034.html Maximum dimensions of trucks and trailers: overall length: 18,75m maximum width: 2,55m maximum height: 4,0m maximum overall weight: 40,0t		
5.2	Traffic ways, unloading bays, access to unloading areas / buildings at Company site are designed for Vehicles which are in accordance to 5.1		
5.3	Delivery of components by vehicles which are not in accordance to 5.1 has to be planned in close collaboration with the Company:		
5.3.1	The Contractor is responsible for the complete organization and logistics of non-standard transports		
Prepared by:	H. Reich-Sprenger M. Bevcic	Doc. Name	F-TG-T-01e_Transport_v1.3
Date:	11.5.15	Version:	1.3 Page 1 of 5

GSI FAIR	Technical Guideline	Number	01e
Transport & Installation	Transport	Status	11.5.15
5.3.2	The Contractor has to cover all costs of the non-standard transport		
5.3.3	The Contractor is responsible for the planning, construction, reconstruction of all modifications to traffic ways, accesses, and buildings at the Company site which are necessary due to the non-standard transport.		
5.3.4	The Contractor has to cover the complete costs of 5.3.3.		
5.3.5	If unloading of non standard transports at the Company site is not possible by the existing infrastructure of the Company, the Contractor is responsible for the complete organization, logistics and implementation (e.g. additional mobile crane, Forklift, special tools).		
5.3.6	The Contractor has to cover the complete costs of 5.3.5.		
5.3.7	The transport organization plan has to be prepared by the Contractor and to be approved by the Company.		
5.4	Deliveries of components or goods within the scope of 5.3 which are not officially approved by the Company in advance (before the start of the transport) will not be accepted by the Company and will be rejected at the full expenses of the Contractor.		
6.	NON Standard transports to the Company (Large / Heavy Items) For all components or items which have dimensions or weights exceeding dimensions and weights described in 5, the following regulations are valid:		
6.1	The Contractor has to ensure that the component delivered can be transported and installed at the Companies construction site. To ensure the compatibility of a large or heavy component with the Company infrastructure, buildings, ways of transport, a detailed planning in close collaboration with the Company is mandatory. Depending on the special design of the component, it might be necessary to start this planning already in the design and construction phase.		
6.2	For each component which cannot be handled on pallets, a detailed planning for the transport to the Company, unloading at the construction site, transport at the construction site and installation has to be performed. This includes a complete collision check (ways of transport, building constraints, conflicts with other installations) performed by the Company. The approval after this collision by the Company is one precondition for each delivery or transport to the construction site or at the construction site.		
6.3	Unloading and transport to a storage yard of the Company (unfavored strategy):		
6.3.1	The Contractor has to announce the delivery of a large and heavy component to the Company at latest 20 working days in advance. This application has to contain the full technical documentation, including:		
6.3.1.1	geometrical size / dimensions, weight		
6.3.1.2	handling instructions		
6.3.1.3	unloading instructions		
Prepared by:	H. Reich-Sprenger M. Bevcic	Doc. Name	F-TG-T-01e_Transport_v1.3
Date:	11.5.15	Version:	1.3 Page 2 of 5

GSI FAIR	Technical Guideline	Number	01e
Transport & Installation	Transport	Status	11.5.15
6.3.1.4	statement if support (infrastructure, manpower) by the Company is demanded		
6.3.1.5	in case of 6.3.1.4. "YES": list of tools, infrastructure, manpower request (costs have to be covered by Contractor).		
6.3.1.6	time schedule / project plan.		
6.3.1.7	tools which will be delivered for unloading and handing together with the component.		
6.3.2	The Company will confirm or refuse the application and provide the following informations:		
6.3.2.1	place for unloading (hall, construction side, ...)		
6.3.2.2	date of delivery		
6.3.2.3	place for storage (if needed or requested)		
6.3.2.4	Company infrastructure which can be provided (tools, manpower)		
6.3.2.5	special unloading and handling tools which have to remain at the Company together with the delivered component		
6.3.2.6	quotation for the costs to be covered by the Contractor: storage costs (warehouse charges), tools, manpower		
6.4	Transport to the final installation location at the Company (favored strategy):		
6.4.1	The Contractor has to announce the transport from the unloading area or storage yard to the installation location at latest 30 working days latest prior to transport, including:		
6.4.1.1	statement if support (infrastructure, manpower) by the Company is demanded		
6.4.1.2	in case of 6.4.1.1. "YES": list of tools, infrastructure, manpower request (costs have to be covered by Contractor)		
6.4.1.3	time schedule / project plan		
6.4.2	The Company will confirm or refuse the application and provide the following information:		
6.4.2.1	location of unloading or storage yard (building, construction side, ...)		
6.4.2.2	date of transport to final installation location		
6.4.2.3	way of transport to the installation location (building)		
6.4.2.4	The Company infrastructure which can be provided (tools, manpower)		
6.4.2.5	quotation for the costs to be covered by the Contractor: storage costs (warehouse charges), tools, manpower		
Prepared by:	H. Reich-Sprenger M. Bevcic	Doc. Name	F-TG-T-01e_Transport_v1.3
Date:	11.5.15	Version:	1.3 Page 3 of 5

Site Management (Appendix (b))

2. Installation / TG Transport



GS FAIR	Technical Guideline	Number	01e
Transport & Installation	Transport	Status	11.5.15
7.	Standard delivery of components by the supplier to FAIR shall be done on pallets (lift slabs)		
7.1	Size according to German and EU standards:		
7.1.1	EUR-Pallet:	size: 800 x 1200mm Load bearing capacity: 1500kg Technical standards: UIC-data sheet 435-2	
	Industrial Pallet: (EUR2 / EUR3)	size: 1000 x 1200mm Load bearing capacity: 1500kg Technical standards: UIC-data sheet 435-5	
7.1.2	wooden packaging/pallets have to be according to ISPM15 (International Standards for Phytosanitary measures)		
7.2	Boxes, containers (wooden, cardboard, ...)		
7.2.1	Boxes have to be fixed to Pallets according to 7.1		
7.2.2	size:	maximum base size according pallet size 7.1 maximum height (including pallet): 2000mm maximum weight (including pallet): 1500kg	
7.2.3	wooden boxes have to be closed by cross-head screws (Philips screws) or Torx screws to allow repeatedly access to the packed items		
7.2.4	wooden packaging has to be according to ISPM15 (International Standards for Phytosanitary measures)		
7.3	The delivery of components exceeding dimensions and weights according to 7.1 or 7.3 has to be approved in advance by the Company and a detailed transport planning has to be performed.		
7.4	Weather protection: All components packed on pallets or in boxes have to be protected against rain and humidity. Components transported overseas (e.g. inside oversea container) have to be protected against any damage by seawater.		
7.5	Damage protection: all components packed on pallets or in boxes have to be protected against mechanical damage. Especially delicate instruments, components, or parts of components (e.g. accelerator insertions, UHV parts: CF knife edges, ceramic parts, fragile feedthroughs,...) have to be additionally protected by appropriate shock absorbing materials.		
7.6	Waste disposal of package material: The Contractor is responsible for the waste disposal of the packaging material of the items delivered (after the installation of the component or item). The Contractor has to remove the package material after component / item installation and is obligated to dispose the waste according to German and EU law. If the Company takes over the waste disposal for package material, the Contractor has to cover the cost proportional to the amount of package material waste resulting from the delivered items.		
Prepared by:	H. Reich-Sprenger M. Bevoic	Doc. Name	F-TG-T-01e_Transport_v1.3
Date:	11.5.15	Version:	1.3 Page 4 of 5

GS FAIR	Technical Guideline	Number	01e
Transport & Installation	Transport	Status	11.5.15
8	Documentation and Labelling		
8.1	Documentation: Each item, set of items or single component (on pallet, in box, loose) has to be delivered together with:		
8.1.1	complete delivery notes,		
8.1.2	bill of material / parts list (if a number of items / components are packed together in one box or on one pallet),		
8.1.3	Any component with documents missing will be rejected to the Contractors expense.		
8.2	Labelling: Each item, set of items or single component (on Pallet, in box, loose) has to be labeled as follows:		
8.2.1	name of each single item according to the Companies nomenclature,		
8.2.2	Name and address of the Contractor including named person to be contacted by the Company in case of observed damage of packed items / components,		
8.2.3	weight and size of each single item		
8.2.4	weight and size of package, box, pallet,		
8.2.5	if special handling is required: safety note, hazard warning, handling note, marking with tilt-watch, shock-watch, "this-side-up", etc,		
8.2.6	labelling with barcode system defined by the Company: code information should contain at least: 8.2.1, 8.2.2, 8.2.3		
8.2.7	labelling has to withstand humidity, moderate rain and direct sunlight		
8.3	Location of labelling: Each item, set of items or single component (on pallet, in box, loose) has to be labeled according 8.2 and GS7.5.		
9	Questionnaire		
9.1	Background The attached questionnaire: Q-F0-T-0001 Checkliste Anlieferung v1_0 collects all necessary information in respect to transport (articles 1.8) to be filled out by the Contractor and informations concerning possible additional testing and handling (to be filled out by the responsible work package leader (WPL))		
Prepared by:	H. Reich-Sprenger M. Bevoic	Doc. Name	F-TG-T-01e_Transport_v1.3
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Site Management (Appendix (c))

2. Installation / TG Installation



GSI FAIR	Technical Guideline	Number	03e
Transport & Installation	Installation	Status	10.8.13
<p>This Technical Guideline is valid for all components or items which will be installed at the FAIR facility.</p> <p>Even if the complete logistic chain from design, construction, manufacturing and transport to installation at the FAIR facility is covered by the supplier of a component, the following constraints have to be taken into account:</p> <ol style="list-style-type: none"> The supplier is in charge of the functionality and compatibility of the component delivered until the completion of installation and commissioning. Any additional costs created by necessary technical changes to the component to attain functionality and compatibility have to be covered by the supplier. The observance of German and EU occupation safety laws (safety at work) has to be strictly ensured. The supplier is liable to provide evidence of the safety instructions and the training of the personal engaged by him to realize the installation. The following Technical guideline has to be observed: F-TG-T-01e_Transport_v1.1 There are three installation scenarios conceivable: 3.1: Complete installation of a component by the supplier 3.2: Installation by the supplier with installation support by FAIR 3.3: Complete installation of a delivered component by FAIR <p>3.1 Complete installation by supplier The supplier has to announce the installation at latest 40 working days prior to the date of installation, including:</p> <ol style="list-style-type: none"> Official statement that no support (infrastructure, manpower) by FAIR is demanded, Time schedule / project plan (to be coordinated with FAIR) Report on quality control procedures and planning (including all forms according FAIR General Specifications) <p>FAIR will provide the following informations :</p> <ol style="list-style-type: none"> Place / location of installation (building, construction site, ...) Time slot for installation at the facility, Way of transport to the place of installation (building, construction site,.....), 			
Prepared by:	H.Reich-Sprenger	Doc. Name	F-TG-T-03e Installation v1.1
Date:	10.8.13	Version:	1.1 Page 1 of 3

GSI FAIR	Technical Guideline	Number	03e
Transport & Installation	Installation	Status	10.8.13
<p>3.2 Installation by the supplier with installation support by FAIR</p> <ol style="list-style-type: none"> The supplier has to announce the installation at latest 60 working days prior to the date of installation, including: <ol style="list-style-type: none"> Statement if support (infrastructure, manpower) by FAIR is demanded, In case of a "YES": list of tools, infrastructure, manpower request (costs have to be covered by supplier) Time schedule / project plan (to be coordinated with FAIR) Report on quality control procedures and planning (including all forms according to FAIR General Specifications) FAIR will confirm or refuse the application and provide the following informations : <ol style="list-style-type: none"> Place / location of installation (building, construction site, ...) Time slot for installation at the facility, Way of transport to the place of installation (building, construction site,.....), FAIR infrastructure which can be provided (tools, manpower), Quotation for the costs to be covered by the supplier. <p>3.3 Complete installation of a delivered component by FAIR:</p> <ol style="list-style-type: none"> The following documents have to be delivered to FAIR at latest 30 working days prior to the scheduled date of delivery: <ol style="list-style-type: none"> Official enquiry by the supplier about the installation of a component by FAIR, Technical description of the component, including complete set of technical drawings according to FAIR technical drawing standards (technical drawings shall show a valid FAIR release note), Installation concept (how the component can be transported, installed, adjusted), Handling and installation instructions, including safety instructions, Time schedule / project plan (transport, installation, commissioning). 			
Prepared by:	H.Reich-Sprenger	Doc. Name	F-TG-T-03e Installation v1.1
Date:	10.8.13	Version:	1.1 Page 2 of 3

GSI FAIR	Technical Guideline	Number	03e
Transport & Installation	Installation	Status	10.8.13
<ol style="list-style-type: none"> Confirmed (officially signed by FAIR) certificate that the component has undergone the FAIR collision check procedure (ability of installation, ways of transport, infrastructure, buildings), If special installation tools, handling tools, or other equipment are needed: <ol style="list-style-type: none"> The tool / equipment has to be handed over to FAIR together with the component to be installed, Each tool or equipment handed over to FAIR has to be certified and labeled with reference to the special application and working safety according to German and EU law (e.g. TÜV certificate), including instructions for use and safety, Accessories to be delivered by the supplier to FAIR together with the component: <ol style="list-style-type: none"> Assembly parts: complete set of screws, washers, screw-nuts, gaskets, Mechanical interfaces, electric interfaces, FAIR will confirm or refuse the application and provide the following informations : <ol style="list-style-type: none"> Place of installation (hall, construction site, etc.), Time slot for installation at the facility, Way of transport to the place of installation (building, construction site), FAIR infrastructure which can be provided (tools, manpower), Additional tools or equipment to be provided by the supplier, Quotation for the costs to be covered by the supplier, In case of refusal by FAIR: list of missing information, documents,... 			
Prepared by:	H.Reich-Sprenger	Doc. Name	F-TG-T-03e Installation v1.1
Date:	10.8.13	Version:	1.1 Page 3 of 3