

Installation report for fischer externally bonded CFRP laminate FRS-L-S / FRS-L-H

according to the European Technical Approval ETA-24/0281 and in accordance with the recommendations of the DAfStb Guideline "Strengthening of concrete members with bonded reinforcement, Part 3: Execution" (2012).

Execution planning			
Project			
Plan no., date		Position/Detail	
Site Manager		Phone (Site Mng.)	
Structural designer		Phone (Str. Design)	
Approval	<input type="checkbox"/> Yes <input type="checkbox"/> No		

Personal Protective Equipment	<input type="checkbox"/> Nitrile gloves	Material temp.	°C
	<input type="checkbox"/> Safety goggles	Ambient temp.	°C
	<input type="checkbox"/> Respiratory protection	Surface temp.	°C
	<input type="checkbox"/> Safety shoes	Relative humidity	%
	<input type="checkbox"/> Safety helmet	Weather conditions	

Materials used		
Epoxy mortar FRS-CS	Batch(es)	Expiry date
CFRP Laminate	Batch(es)	
<input type="checkbox"/> FRS-L-S <input type="checkbox"/> FRS-L-H Geometry: _____		
CFRP Laminate	Batch(es)	
<input type="checkbox"/> FRS-L-S <input type="checkbox"/> FRS-L-H Geometry: _____		
<input type="checkbox"/> Materials in original packaging and undamaged		

Condition and preparation of the concrete substrate				
Maximum crack width		mm	Treatment	<input type="checkbox"/> Yes <input type="checkbox"/> No
			Type of treatment	
Reinforcement corrosion detected	<input type="checkbox"/> Yes <input type="checkbox"/> No		Treatment	<input type="checkbox"/> Yes <input type="checkbox"/> No
			Type of treatment	
Spalling or other defects	<input type="checkbox"/> Yes <input type="checkbox"/> No		Depth/width/length	
			Type of treatment	
Concrete reprofiling carried out			<input type="checkbox"/> Yes <input type="checkbox"/> No	
Materials used (if concrete reprofiling is carried out)	<input type="checkbox"/> fischer FRS-BA Bonding Agent			
	Batch(es)			Expiry date

	<input type="checkbox"/> fischer FRS-PC 11 Epoxy Repair Mortar		
	Batch(es)		Expiry date
	<input type="checkbox"/> Third-party products, outside the scope of ETA 24/0281:		
Has an adhesion test been carried out on the reprofiled concrete surface?			<input type="checkbox"/> Yes <input type="checkbox"/> No
Surface preparation	<input type="checkbox"/> Grinding <input type="checkbox"/> Sandblasting <input type="checkbox"/> Shot blasting <input type="checkbox"/> Needle gun <input type="checkbox"/> Ultra-high pressure water blasting	Grain visible after surface treatment (≥ 4 mm)	<input type="checkbox"/> Yes <input type="checkbox"/> No
Has a concrete pull-off test according to EN 1542 / ASTM C1583 been carried out?			<input type="checkbox"/> Yes <input type="checkbox"/> No
Surface tensile strength (if concrete pull-off tests have been carried out)	Value 1	N/mm ²	Failure type
	Value 2	N/mm ²	Failure type
	Value 3	N/mm ²	Failure type
	Value 4	N/mm ²	Failure type
	Value 5	N/mm ²	Failure type
	Mean value	N/mm ²	Calculated value
Concrete compressive strength	N/mm ²	Method	
Concrete moisture	%	Method	
Concrete evenness (over 3 m)	mm	Other remarks	
Concrete cover	mm		
Surface cleaned and free of dust and other separating contaminants?			<input type="checkbox"/> Yes <input type="checkbox"/> No

Application			
Amount and lengths of the CFRP laminate pieces	Laminate type / geometry	Cut edges in order	Amount and length
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
Laminates cleaned	<input type="checkbox"/> Yes <input type="checkbox"/> No	Used cleaning agent	
Mixing time observed for all containers	<input type="checkbox"/> Yes <input type="checkbox"/> No	Repotted after mixing the components	<input type="checkbox"/> Yes <input type="checkbox"/> No
Date of installation		Time of installation	
Date of load-transfer		Time of load-transfer	
Adhesive consumption (Total)	kg	Adhesive layer thickness (Average)	mm
Scratch coating and roof-shaped adhesive application on the laminates			<input type="checkbox"/> Yes <input type="checkbox"/> No
Positioning and orientation according to the design	<input type="checkbox"/> Yes <input type="checkbox"/> No	Number of layers according to the design	<input type="checkbox"/> Yes <input type="checkbox"/> No
Edge distances according to the design	<input type="checkbox"/> Yes <input type="checkbox"/> No	Laminate crossings according to the design	<input type="checkbox"/> Yes <input type="checkbox"/> No
Imprint with laminate type, geometry and batch number visible			<input type="checkbox"/> Yes <input type="checkbox"/> No

Inspection after completion of installation			
Self-monitoring	Inspection	Criteria	Fulfilled
Visual Inspection	Conformity with design / plan	No deviations from the design	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not tested
Visual Inspection	Damaged laminates	No visible damage	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not tested
Test lath	Evenness of the bond	≤ 1 mm	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not tested
Tapping / Ultra-sound or similar	Defects (cavities) in the adhesive joint	Cavities ≤ 5 % of the adhesive surface	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not tested
Tensile adhesion test (CFRP-concrete)	Sufficient hardening after curing time	Cohesion failure in the concrete	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not tested
Tensile adhesion test (steel-steel)	Tensile strength of the adhesive	Characteristic tensile strength > 12 N/mm ²	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not tested

The expert designer is responsible for defining the scope of the inspection and can reduce or add inspections accordingly.

Have additional mechanical protective measures been taken, e.g. against vandalism, for fire protection, UV protection, etc.?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Materials used (if any)	

Additional comments, sketches, etc.

Place, Date

Name

Signature