

INSPECTION CERTIFICATE

In accordance with EN 10204: 3.1

Customer: **PRETEC AS**

Purchasing order No: **EX2019216/200634**

Order Quantity: **70000pcs**

Part Name: **M20 NC-Bolt L=3000**

Material: **Rebar Bolt:HRB500E acc. to GB 1499.2-2018**

Grouting head:20;Steel tube:Q235B

Nut: CK35

Finishing: **Pc-Coat**

Article No: **5060002**

Drawing No: **PTC-173 of Jan.23.2019;PTC-173-1 of Jun.18.2015**

PTC-173-3-1 of Nov.23.2016;PTC-173-4 of Jan.23.2019



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Certificate No:23966

Date:2020-01-14

Chemical composition analysis for material,ref certificate from mill:BW2019103100020

Batch No.	B519A0542	C	Si	Mn	P	S	CEV
Requirements (Before processing)	Max	0.25	0.80	1.60	0.045	0.045	0.55
	Min	/	/	/	/	/	/
Test Report	/	0.23	0.50	1.53	0.019	0.021	0.51

Mechanical tests for material,ref certificate from mill:BW2019103100020

Batch No.	B519A0542	Yield ReH(MPa)	Tensile Rm(MPa)	Agt %
Requirements (Before processing)	Min	500	600	8
	Max	650	/	/
Test Report	/	536	693	14.5
	/	536	692	13.5

Chemical composition analysis for grouting head material,ref certificate from mill:2017-2-12

Batch No.	/	C	Si	Mn	P	S
Requirements	Max	0.20	0.35	1.40	0.045	0.045
	Min	/	/	/	/	/
Test Report	/	0.15	0.30	0.55	0.045	0.045

Mechanical tests for grouting head material,ref certificate from mill:2017-2-12

Batch No.	/	Yield	Tensile	Elongation
		Rp0.2(MPa)	Rm(MPa)	(EL)%
Requirements	Min	235	375	9
	Max	/	/	/
Test Report	/	235	410	31

Chemical composition analysis for steel tube material,ref certificate from mill:TS2510G68-2020

Batch No.	/	C	Si	Mn	P	S
Requirements	Max	0.24	0.37	0.62	0.035	0.035
	Min	0.17	0.17	0.35	/	/
Test Report	/	0.20	0.23	0.47	0.018	0.006

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Mechanical tests for steel tube material,ref certificate from mill:TS2510G68-2020

Batch No.		Yield	Tensile	Elongation
		Rp0.2(MPa)	Rm(MPa)	(EL)%
Requirements	Min	245	410	25
	Max			
Test Report		316/335	472/500	26/28

Chemical composition analysis for nut material,ref certificate from supplier:

Batch No.	G832106863	C	Si	Mn	P	S
Requirements	Max	0.38	0.35	0.90	0.035	0.035
	Min	0.32	0.10	0.60		
Test Report		0.35	0.14	0.73	0.013	0.002

Mechanical property form the test report:B2019111306

Batch No.		Hardness HRC	Proof Load Test N
Requirements	Min	19	225400
	Max	36	
Test Report		26	ok

Mechanical property for plastic tube form the test :

Batch No.		Burst Pressure Bar
Requirements	Min	17
	Max	
Test Report		22

Inspection of execution:

DIM.	Rebar bolt				HDG	Epoxy Coating
	Middle Dia	L	Straightness	Thread L	Thickness	Thickness
Spec/mm	17.681-17.851	3000±6	8	150 +10/-0	≥85um	≥70um
1	17.80	2997	ok	156	97	93
2	17.78	3001	ok	157	95	105
3	17.81	3002	ok	156	89	101
4	17.79	2998	ok	155	93	95
5	17.82	3000	ok	156	108	82

Inspection of execution:

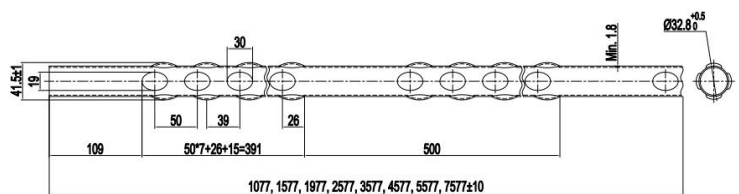
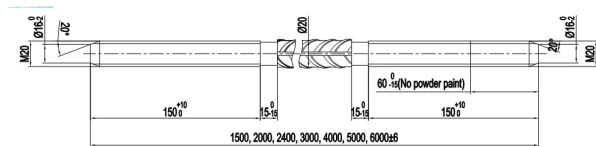
DIM.	grouting head					HDG	Epoxy Coating
	Dim	L	Hole 1	Hold 2	outer dim	Thickness	Thickness
Spec/mm	Ø38±0.2	152±5	Ø14.95+0.445	20.5+0.5/-0	65+1.5/-1	≥70um	≥70um
1	38.1	152.7	15.01	20.9	65.3	94	96
2	37.8	153.1	15.08	20.8	65.4	102	88
3	37.9	153.4	15.10	20.9	65.7	97	91
4	38.1	152.8	15.11	21.0	65.5	87	103
5	37.8	152.6	15.06	20.9	65.6	95	95

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DIM.	Nut				HDG	Epoxy Coating
	nut s	nut e	nut m	Thread	Thickness	Thickness
Spec/mm	29.16-30	min 32.95	20±1	M20+2/10	≥70um	≥70um
1	29.42	33.68	19.8	ok	94	93
2	29.45	33.71	20.1	ok	101	89
3	29.41	33.74	19.7	ok	91	96
4	29.53	33.70	20.0	ok	98	92
5	29.50	33.67	19.9	ok	88	100

DIM.	Plastic tube			
Spec/mm	109	2577±10	Min 1.8	φ 32.8+0.5
1	105	2579	2.0	33.2
2	106	2578	2.1	32.9
3	105	2577	2.0	33.1
4	106	2576	1.9	33.3
5	106	2576	2.0	33.0

☐ not approved☐ not approved☐ **No**

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