



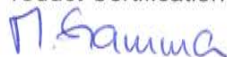
- (1) **EU-Type Examination Certificate**
- (2) Equipment or protective system intended for use in potentially explosive atmospheres - **Directive 2014/34/EU**
- (3) Certificate number: **SEV 20 ATEX 0387 X**
- (4) Product: Pressure transmitter Cerabar Differential pressure transmitter Deltabar, Type: PMP51B, PMP71B, PMD55B, PMD75B, PMD78B, PMC51B, PMC71B
- (5) Manufacturer: Endress+Hauser SE+Co. KG
- (6) Address: Hauptstrasse 1, 79689 Maulburg, Germany
- (7) The equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- (8) Eurofins, notified body No. 1258, in accordance with article 17 of Directive 2014/34/EU of the European parliament and of the council, dated 26 February 2014, certifies that this product has been found to comply with the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in confidential report no 22CH-00350.X03
- (9) Compliance with the essential health and safety requirements has been assured by compliance with:
- EN IEC 60079-0:2018**
EN 60079-11:2012
EN 60079-26:2015
- Except in respect of those requirements listed at item 18 of the schedule.
- (10) If the sign «X» is placed after the certificate number, it indicates that the product is subjected to special conditions for safe use specified in the schedule to this certificate. The sign "U" is placed after the certificate number. It indicates that this certificate must not be mistaken for a certificate intended for an equipment or protective system. This partial certification may be used as a basis for certification of an equipment or protective system.
- (11) This EU type examination certificate relates only to design and construction of the specified product. Further requirements of this directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
- (12) The marking of the product shall include the following:



Refer to marking at general product information.

Eurofins Electric & Electronic Product Testing AG
Notified Body ATEX

Munira Gamma
 Product Certification



(13)

Appendix

(14)

EU-Type Examination Certificate no. SEV 20 ATEX 0387 X

(15) **Description of product**

Rating:

Type of protection ia:

For MA10: 4..20 mA (HART):

$U_i \leq 30 \text{ V DC}$, $I_i \leq 300 \text{ mA}$, $P_i \leq 1 \text{ W}$, $C_i \leq 10 \text{ nF}$, $L_i = 0$

For MA11: Profibus PA, Foundation Fieldbus:

FISCO : $U_i \leq 17,5 \text{ V DC}$, $I_i \leq 380 \text{ mA}$, $P_i \leq 5,32 \text{ W}$, $C_i \leq 5 \text{ nF}$, $L_i = 0$

Entity : $U_i \leq 24 \text{ V DC}$, $I_i \leq 300 \text{ mA}$, $P_i \leq 1,2 \text{ W}$, $C_i \leq 5 \text{ nF}$, $L_i = 0$

For MA12: Ethernet APL:

2-WISE: $U_i \leq 17,5 \text{ V DC}$, $I_i \leq 380 \text{ mA}$, $P_i \leq 5,32 \text{ W}$, $C_i \leq 5 \text{ nF}$, $L_i = 0$

Entity : $U_i \leq 17,5 \text{ V DC}$, $I_i \leq 300 \text{ mA}$, $P_i \leq 1,2 \text{ W}$, $C_i \leq 5 \text{ nF}$, $L_i = 0$

For MA13: 4..20 mA HART + 4..20 mA:

Channel 1, 4..20 mA HART: $U_i \leq 30 \text{ V DC}$, $I_i \leq 300 \text{ mA}$, $P_i \leq 1 \text{ W}$, $C_i \leq 10 \text{ nF}$, $L_i = 0$

Channel 2, 4..20 mA: $U_i \leq 30 \text{ V DC}$, $I_i \leq 300 \text{ mA}$, $P_i \leq 1 \text{ W}$, $C_i \leq 10 \text{ nF}$, $L_i = 0$

For MA14: 4..20 mA HART + switch:

Channel 1, 4..20 mA HART: $U_i \leq 30 \text{ V DC}$, $I_i \leq 300 \text{ mA}$, $P_i \leq 1 \text{ W}$, $C_i \leq 10 \text{ nF}$, $L_i = 0$

Channel 2, switch output: $U_i \leq 30 \text{ V DC}$, $I_i \leq 300 \text{ mA}$, $P_i \leq 1 \text{ W}$, $C_i \leq 10 \text{ nF}$, $L_i = 0$

Type of protection ec:

For MA10: 4..20 mA (HART):

$U \leq 35 \text{ V DC}$, $P \leq 1 \text{ W}$

For MA11: Profibus PA, Foundation Fieldbus :

$U \leq 32 \text{ V DC}$ $P \leq 0.7 \text{ W}$

For MA12: Ethernet APL:

$U \leq 15 \text{ V DC}$ $P \leq 0.7 \text{ W}$

For MA13: 4..20 mA HART + 4..20 mA:

$U \leq 35 \text{ V DC}$ $P \leq 1 \text{ W}$

For MA14: 4..20 mA HART + switch output:

$U \leq 35 \text{ V DC}$ $P \leq 1 \text{ W}$

Classification of installation and use:

Fixed

Ingress protection:

IP 66 / IP67 / IP68

Rated ambient temperature range (°C):

Refer to Temperature classification below.



Temperature classification for intrinsic safety gas application:

Cerabar PMP51B, PMP71B (sensor SP11B)

Process connection type		Enclosure type and electronic insert		
Compact, flanges		a) Al and casted SS enclosure; MA10, MA11, MA12	b) 2-chamber Al and casted SS enclosure; MA13, MA14	c) plastic enclosure; MA10, MA11, MA12
Temperature class	Process temperature ¹⁾	MA10, MA11 ambient Ta min: -50°C ¹⁾ MA12 ambient Tamin : -40°C		Ambient Tamin: -20°C
	Tp max (°C)	Ambient temperature Ta max (°C)		
T6	80	45	40	Not suitable
	70	50	45	40
	60	50	45	45
T4	125	50	45	Not suitable
	100	55	50	45
	80	60	55	45
	70	65	55	50
Process connection type		Enclosure type and electronic insert		
High temperature		a) Al and casted SS enclosure; MA10, MA11, MA12	b) 2-chamber Al and casted SS enclosure; MA13, MA14	c) plastic enclosure; MA10, MA11, MA12
Temperature class	Process temperature ¹⁾	MA10, MA11 ambient Ta min: -50°C ¹⁾ MA12 ambient Tamin : -40°C		Ambient Tamin: -20°C
	Tp max (°C)	Ambient temperature Ta max (°C)		
T6	80	60	55	45
T4	130	70	60	55
T3	190	60	60	50
T2	290	60	55	45
T1	300	60	55	45
T1	400	55	50	Not suitable

Process connection type		Enclosure type and electronic insert		
Temperature decoupled, capillary remote		a) Al and casted SS enclosure; MA10, MA11, MA12	b) 2-chamber Al and casted SS enclosure; MA13, MA14	c) plastic enclosure; MA10, MA11, MA12
Temperature class	Process temperature ¹⁾	MA10, MA11 ambient Ta min: -50°C ²⁾ MA12 ambient Tamin : -40°C		Ambient Tamin: -20°C
	Tp max (°C)	Ambient temperature Ta max (°C)		
T6	80	60	55	60
T4	130	70	60	70
T3	190	70	60	70
T2	290	70	60	70
T1	400	70	60	70

¹⁾ T_{pmax}: process connection with temperature decoupling are suitable for higher process temperatures; Ta values must be fulfilled for device enclosure and sensor element

²⁾ Tamin : for metal housings: for versions with low temperature potting possible lower ambient temperature decreases to -52°C (order code option 580 = "JN"); functional limitations (e.g. by fill oil) are obvious and must be considered
T_{pmin} : Minimum process temperature same as Ta min; process connection with temperature decoupling are suitable for lower temperatures; Ta values must be fulfilled for device enclosure and sensor element



Cerabar PMC51B, PMC71B (sensor SP13B)

Process connection type		Enclosure type and electronic insert		
Compact, flanges		a) Al and casted SS enclosure; MA10, MA11, MA12	b) 2-chamber Al and casted SS enclosure; MA13, MA14	c) plastic enclosure; MA10, MA11, MA12
Temperature class	Process temperature ¹⁾	Ambient Ta min: -40°C		Ambient Tamin: -20°C
	Tp max (°C)	Ambient temperature Ta max (°C)		
T6	80	45	40	Not suitable
	40	50	45	40
T4	125	50	40	Not suitable
	100	55	50	Not suitable
	80	60	50	40
	60	60	55	45

Process connection type		Enclosure type and electronic insert		
High temperature		a) Al and casted SS enclosure; MA10, MA11, MA12	b) 2-chamber Al and casted SS enclosure; MA13, MA14	c) plastic enclosure; MA10, MA11, MA12
Temperature class	Process temperature ¹⁾	Ambient Ta min: -40°C		Ambient Tamin: -20°C
	Tp max (°C)	Ambient temperature Ta max		
T6	80	50	45	Not suitable
T6	60	50	45	40
T3... T1	150	50	40	Not suitable
T4	125	55	50	Not suitable
T4	100	60	50	40

¹⁾ Minimum process temperature T_{pmin} is limited to -40°C due to functional reasons

Deltabar PMD55B, PMD75B (sensor SP12B)

Process connection type		Enclosure type and electronic insert		
Compact		a) Al and casted SS enclosure; MA10, MA11, MA12	b) 2-chamber Al and casted SS enclosure; MA13, MA14	c) plastic enclosure; MA10, MA11, MA12
Temperature class	Process temperature ¹⁾	MA10, MA11 ambient Ta min: -50°C ²⁾		Ambient Tamin: -20°C
	Tp max (°C)	MA12 ambient Tamin : -40°C		
T6	80	45	40	Not suitable
	70	45	45	Not suitable
	60	45	45	40
T4	60	65	55	55
	85	60	50	45
	100	60	50	45

¹⁾ process temperature at membrane

²⁾ Tamin : for metal housings: for versions with low temperature potting possible lower ambient temperature decreases to -52°C (order code option 580 = "JN"); functional limitations (e.g. by fill oil) are obvious and must be considered



Deltabar PMD78B (sensor SP12B)

Process connection type		Enclosure type and electronic insert		
High temperature, temperature decoupled, capillary remote		a) Al and casted SS enclosure; MA10, MA11, MA12	b) 2-chamber Al and casted SS enclosure; MA13, MA14	c) plastic enclosure; MA10, MA11, MA12
Temperature class	Process temperature ¹⁾	MA10, MA11 ambient Ta min: -50°C ¹⁾ MA12 ambient Tamin : -40°C		Ambient Tamin: -20°C
	Tp max (°C)	Ambient temperature Ta max (°C)		
T6	80	50	55	40
T4	130	70	60	70
T3	190	70	60	70
T2	290	70	60	70
T1	400	70	60	70

¹⁾ Tpmx: process connection with temperature decoupling are suitable for higher process temperatures; Ta values must be fulfilled for device enclosure and sensor element

²⁾ Tamin : for metal housings: for versions with low temperature potting possible lower ambient temperature decreases to -52°C (order code option 580 = "JN"); functional limitations (e.g. by fill oil) are obvious and must be considered
 Tpmin : Minimum process temperature same as Ta min; process connection with temperature decoupling are suitable for lower temperatures; Ta values must be fulfilled for device enclosure and sensor element

Separated housing; valid for all sensor modules

Process connection type		Enclosure type and electronic insert	
All types		d) all enclosures; MA10, MA11, MA12	d) 2-chamber Al and casted SS enclosure; MA13, MA14
Temperature class	Process temperature ¹⁾	Ambient Tamin : -20°C	
	Tp max (°C)	Ambient temperature Ta max (°C)	
T6	80	60	55
T4	100	60	55

¹⁾ Tpmin : Minimum process temperature same as Ta min



Temperature classification for intrinsic safety dust application:

Cerabar PMP51B, PMP71B (sensor SP11B)

Process connection type		Enclosure type and electronic insert	
Compact, flanges		a) Al and casted SS enclosure; MA10, MA11, MA12	b) 2-chamber Al and casted SS enclosure; MA13, MA14
Max. surface temperature 1) EPL Da and EPL Db part	Process temperature 2) Tp max (°C)	MA10, MA11 ambient Ta min: -50°C ²⁾ MA12 ambient Tamin : -40°C	
		Ambient temperature Ta max (°C)	
T125°C	125	50	45
	100	55	50
	80	60	55
	70	65	55

Process connection type		Enclosure type and electronic insert	
Temperature decoupled		a) Al and casted SS enclosure; MA10, MA11, MA12	b) 2-chamber Al and casted SS enclosure; MA13, MA14
Max. surface temperature 1) EPL Da and EPL Db part	Process temperature 2) Tp max (°C)	MA10, MA11 ambient Ta min: -50°C ²⁾ MA12 ambient Tamin : -40°C	
		Ambient temperature Ta max (°C)	
T125°C	130	70	60
	190	60	60
	290	60	55
	300	60	55
	400	55	50

Process connection type		Enclosure type and electronic insert	
Capillary remote		a) Al and casted SS enclosure; MA10, MA11, MA12	b) 2-chamber Al and casted SS enclosure; MA13, MA14
Max. surface temperature 1) EPL Da and EPL Db part	Process temperature 2) Tp max (°C)	MA10, MA11 ambient Ta min: -50°C ²⁾ MA12 ambient Tamin : -40°C	
		Ambient temperature Ta max (°C)	
T125°C	130	70	70
	190	70	70
	290	70	70
	300	70	70
	400	70	70



Cerabar PMC51B, PMC71B:

Process connection type		Enclosure type and electronic insert	
Compact, flanges		a) Al and casted SS enclosure; MA10, MA11, MA12	b) 2-chamber Al and casted SS enclosure; MA13, MA14
Max. surface temperature 1) EPL Da and EPL Db part	Process temperature 2) Tp max (°C)	MA10, MA11, MA12 ambient Ta min: -40°C	
		Ambient temperature Ta max (°C)	
T135°C	125	50	45
	100	55	50
	80	60	55
	60	60	55

Process connection type		Enclosure type and electronic insert	
Temperature decoupled		a) Al and casted SS enclosure; MA10, MA11, MA12	b) 2-chamber Al and casted SS enclosure; MA13, MA14
Max. surface temperature 1) EPL Da and EPL Db part	Process temperature Tp max (°C)	MA10, MA11, MA12 ambient Ta min: -40°C	
		Ambient temperature Ta max (°C)	
T150°C	150	50	45
	125	55	50
	100	60	50

1) the surface temperature only depends on the applied process temperature. The influence of self-heating to the process side is < 2K and negligible. Functional limitations depend on the process connection and are provided by the manufacturer documentation.

2) Minimum process temperature T_{pmin} is limited to -40°C due to functional reasons

Deltabar PMD55B, PMD75B (sensor SP12B)

Process connection type		Enclosure type and electronic insert	
Compact		a) Al and casted SS enclosure; MA10, MA11, MA12	b) 2-chamber Al and casted SS enclosure; MA13, MA14
Max. surface temperature 1) EPL Da and EPL Db part	Process temperature 2) Tp max (°C)	MA10, MA11, MA12 ambient Ta min: -40°C	
		Ambient temperature Ta max (°C)	
T100°C	60	65	60
	85	60	55
	100	60	55



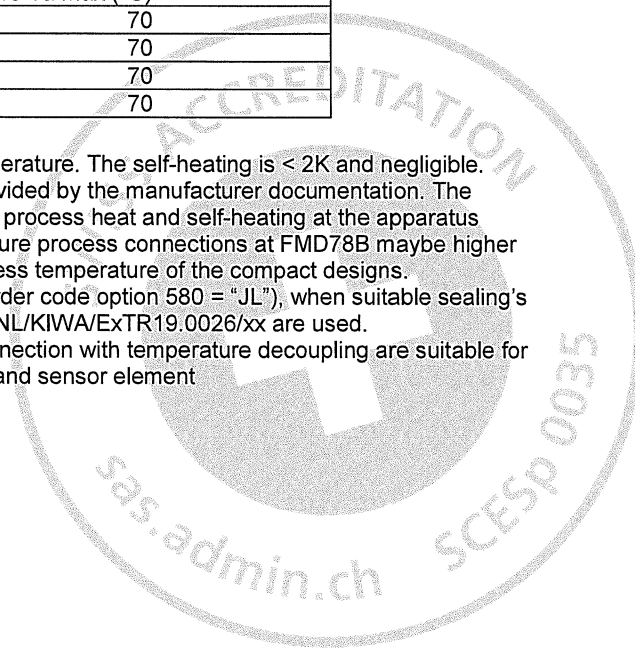
Deltabar PMD78B (sensor SP12B)

Process connection type		Enclosure type and electronic insert	
Temperature decoupled, capillary remote		a) Al and casted SS enclosure; MA10, MA11, MA12	b) 2-chamber Al and casted SS enclosure; MA13, MA14
Max. surface temperature 1) EPL Da and EPL Db part	Process temperature 2) Tp max (°C)	MA10, MA11, MA12 ambient Ta min: -40°C	
		Ambient temperature Ta max (°C)	
T100°C	130	70	70
	190	70	70
	290	70	70
	400	70	70

1) the surface temperature only depends on the applied process temperature. The self-heating is < 2K and negligible. Functional limitations depend on the process connection and are provided by the manufacturer documentation. The marked surface temperature considers all direct heat influences from process heat and self-heating at the apparatus housing. Surface temperatures at process side, e.g. at high temperature process connections at FMD78B maybe higher and must be considered by the user. T marking is based on the process temperature of the compact designs.

2) the lower ambient and process temperature decreases to -50°C (order code option 580 = "JL"), when suitable sealing's relevant for the dust tightness of the enclosure as listed in IECExTR NL/KIWA/ExTR19.0026/xx are used.

Tpmin : Minimum process temperature same as Ta min; process connection with temperature decoupling are suitable for lower temperatures; Ta values must be fulfilled for device enclosure and sensor element



Temperature classification for increased safety

Cerabar PMP51B, PMP71B (sensor SP11B)

Process connection type		Enclosure type and electronic insert	
Compact, flanges		a) Al and casted SS enclosure; MA10, MA11, MA12	b) 2-chamber Al and casted SS enclosure; MA13, MA14
Temperature class	Process temperature ¹⁾	MA10, MA11 ambient Ta min: -40°C	
	Tp max (°C)	Ambient temperature Ta max (°C)	
T6	80	55	50
	60	65	50
T4	125	50	45
	100	55	50
	80	65	55

Process connection type		Enclosure type and electronic insert	
High temperature		a) Al and casted SS enclosure; MA10, MA11, MA12	b) 2-chamber Al and casted SS enclosure; MA13, MA14
Temperature class	Process temperature ¹⁾	MA10, MA11 ambient Ta min: -40°C	
	Tp max (°C)	Ambient temperature Ta max (°C)	
T6	80	65	60
T4	130	70	55
T3	190	60	55
T2	290	60	50
T1	300	60	50
T1	400	55	45

Process connection type		Enclosure type and electronic insert	
Temperature decoupled, capillary remote		a) Al and casted SS enclosure; MA10, MA11, MA12	b) 2-chamber Al and casted SS enclosure; MA13, MA14
Temperature class	Process temperature ¹⁾	MA10, MA11 ambient Ta min: -40°C	
	Tp max (°C)	Ambient temperature Ta max (°C)	
T6	80	70	65
T4	130	70	65
T3	190	70	65
T2	290	70	65
T1	400	70	65

¹⁾ T_{pmax}: process connection with temperature decoupling are suitable for higher process temperatures; T_a values must be fulfilled for device enclosure and sensor element.

T_{pmin} : Minimum process temperature same as T_a min; process connection with temperature decoupling are suitable for lower temperatures; T_a values must be fulfilled for device enclosure and sensor element



Cerabar PMC51B, PMC71B (sensor SP13B)

Process connection type		Enclosure type and electronic insert	
Compact, flanges		a) Al and casted SS enclosure; MA10, MA11, MA12	b) 2-chamber Al and casted SS enclosure; MA13, MA14
Temperature class	Process temperature ¹⁾ Tp max (°C)	MA10, MA11 ambient Ta min: -40°C	
		Ambient temperature Ta max (°C)	
T6	80	55	45
T4	125	50	40
	100	55	50
	80	60	50

Process connection type		Enclosure type and electronic insert	
High temperature		a) Al and casted SS enclosure; MA10, MA11, MA12	b) 2-chamber Al and casted SS enclosure; MA13, MA14
Temperature class	Process temperature ¹⁾ Tp max (°C)	MA10, MA11 ambient Ta min: -40°C	
		Ambient temperature Ta max (°C)	
T6	80	60	45
T4	125	55	50
T3	150	50	40

Deltabar PMD55B, PMD75B (sensor SP12B)

Process connection type		Enclosure type and electronic insert	
Compact, flanges		a) Al and casted SS enclosure; MA10, MA11, MA12	b) 2-chamber Al and casted SS enclosure; MA13, MA14
Temperature class	Process temperature ¹⁾ Tp max (°C)	MA10, MA11 ambient Ta min: -40°C	
		Ambient temperature Ta max (°C)	
T6	80	55	50
T4	100	60	50
	85	60	55

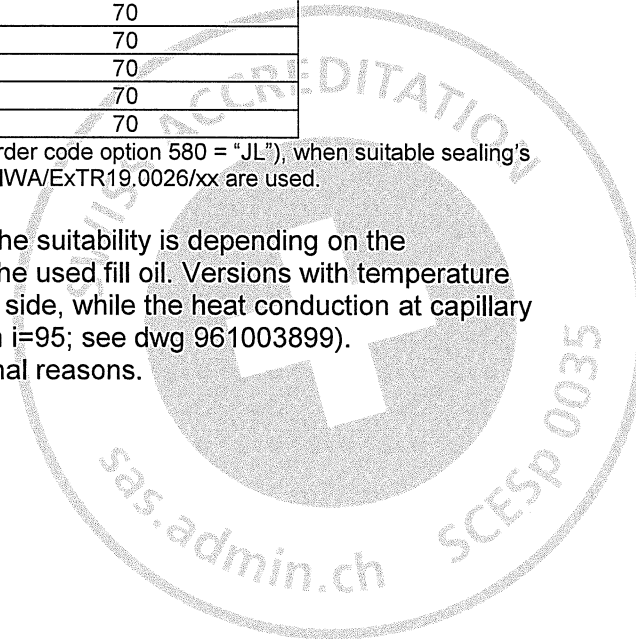


Deltabar PMD78B (sensor SP12B)

Process connection type		Enclosure type and electronic insert	
High temperature, capillary remote		a) Al and casted SS enclosure; MA10, MA11, MA12	b) 2-chamber Al and casted SS enclosure; MA13, MA14
Temperature class	Process temperature ¹⁾ Tp max (°C)	MA10, MA11 ambient Ta min: -40°C	
		Ambient temperature Ta max (°C)	
T6	80	70	65
T4	130	70	70
T3	190	70	70
T2	290	70	70
T1	300	70	70
T1	400	70	70

¹⁾ the lower ambient and process temperature decreases to -50°C (order code option 580 = "JL"), when suitable sealing's relevant for the tightness of the enclosure as listed in IECExTR NL/KIWA/ExTR19.0026/xx are used.

For PMD78B high process temperatures are possible. The suitability is depending on the temperature decoupling of the process connection and the used fill oil. Versions with temperature isolator reduces the temperature influence from process side, while the heat conduction at capillary connections is negligible (selection at model code option i=95; see dwg 961003899). The lower temperature is limited to -40°C due to functional reasons.



Marking:


The following marking strings are possible for all types and in combination with each other.

 II 1G Ex ia IIC T6...T1 Ga


 II 2G Ex ia IIC T6...T1 Gb

 II 1/2G Ex ia IIC T6...T1 Ga/Gb

Type: PMC51B, PMP51B, PMD55B, PMD75B, PMD78B, PMC71B, PMP71B

 II 1/2 D Ex ia IIIC T₂₀₀ xxx °C Da/Db (for temperature see table below)

Type: PMC51B, PMP51B, PMD55B, PMD75B, PMD78B, PMC71B, PMP71B

 II 2D Ex ia IIIC T_L xxx °C Db (for temperature see table below)

PMP51B, PMP71B	125 °C
PMC51B, PMC71B compact	135 °C
PMC51B, PMC71B high temp.	150 °C
PMD55B, PMD75B, PMD78B	100 °C

(16) Specific conditions of use

For EPL Ga enclosures made of aluminium must be installed protected from impact and friction.
To avoid electrostatic charging: Do not rub surfaces with a dry cloth.

(17) Essential health and safety requirements

In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject
None	

(18) Drawings and Documents

See test report "Manufacturer's Documents"

