



防爆合格证

证 号: GYJ24.1286X

制 造 商 WIKA Alexander Wiegand SE & Co. KG

(地址: Alexander-Wiegand-Strasse 30, 63911 Klingenberg, Germany)

产 品 名 称 温度变送器

型 号 规 格 T15 系列、T16 系列

Ex ia IIC T4...T6 Ga Ex ia IIIC T₂₀₀135°C Da
防 爆 标 志 Ex ia [ia Ga] IIC T4...T6 Gb Ex ia [ia Da] IIIC T135°C Db
Ex ic IIC T4...T6 Gc Ex ec IIC T4...T6 Gc

产 品 标 准 /

图 样 编 号 14123022.03、14138044.02

经图样及技术文件的审查和样品检验, 确认上述产品符合下列标准:

GB/T 3836.1-2021, GB/T 3836.3-2021, GB/T 3836.4-2021

特颁发此证。

本证书有效期: 2024 年 10 月 30 日 至 2029 年 10 月 29 日

- 备 注
1. 安全使用注意事项见本证书附件。
 2. 证书编号后缀“X”表明产品具有安全使用特殊条件, 内容见本证书附件。
 3. 型号规格说明见本证书附件。
 4. 电气安全参数见本证书附件。
 5. 本安电气参数见本证书附件。

批 准

上海仪器仪表自控系统检验测试所有限公司
国家级仪器仪表防爆安全监督检验站

颁 发 日 期 二 〇 二 四 年 十 月 三 十 日

本证书仅对与认可文件和样品一致的产品有效。



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EXPLOSION PROTECTION

CERTIFICATE OF CONFORMITY

Cert No. GYJ24.1286X

Manufacturer	WIKA Alexander Wiegand SE & Co.KG (Address:Alexander-Wiegand-Strasse 30, 63911 Klingenberg, Germany)
Product	Temperature transmitter
Model	T15 Series, T16 Series
Ex marking	Ex ia IIC T4...T6 Ga Ex ia IIIC T₂₀₀135°C Da Ex ia [ia Ga] IIC T4...T6 Gb Ex ia [ia Da] IIIC T135°C Db Ex ic IIC T4...T6 Gc Ex ec IIC T4...T6 Gc
Product standard	/
Drawing number	14123022.03, 14138044.02

The product was found to comply with the following standard(s):

GB/T 3836.1-2021, GB/T 3836.3-2021, GB/T 3836.4-2021

Valid until: 2029.10.29

Remarks

- 1.Conditions for safe use are specified in the attachment(s) to this certificate.
- 2.Symbol "X" placed after the certification number denotes specific conditions of use , which are specified in the attachment(s) to this certificate.
- 3.Model designation is specified in the attachment(s) to this certificate.
- 4.Safe parameters specified in the attachment(s) to this certificate.
- 5.Intrinsically safe parameters are specified in the attachment(s) to this certificate.

Approval

**Shanghai Inspection and Testing Institute of
Instruments and Automation Systems Co., Ltd.**
**National Supervision and Inspection Center for
Explosion Protection and Safety of Instrumentation**
Date of issue 2024.10.30

This Certificate is valid for products compatible with the documents and samples approved by NEPSI.



(GYJ24.1286X)

(Attachment I)

GYJ24.1286X 防爆合格证附件 I

由WIKA Alexander Wiegand SE & Co.KG生产的T15系列、T16系列温度变送器，
经检验符合下列标准：

GB/T 3836.1-2021 爆炸性环境 第1部分：设备 通用要求

GB/T 3836.3-2021 爆炸性环境 第3部分：由增安型“e”保护的的设备

GB/T 3836.4-2021 爆炸性环境 第4部分：由本质安全型“i”保护的的设备

产品防爆标志为

Ex ia IIC T4...T6 Ga Ex ia IIIC T₂₀₀135℃ Da

Ex ia [ia Ga] IIC T4...T6 Gb Ex ia [ia Da] IIIC T135℃ Db

Ex ic IIC T4...T6 Gc Ex ec IIC T4...T6 Gc,

防爆合格证号GYJ24.1286X。

本证书认可的产品具体型号规格为：

a.b-A c ***-*...*

a 代表系列号，可为T15（热电阻用温度模块）或T16（热电偶用温度模块）；

b 代表外壳型式，可为H（接线盒式）或R（导轨式）；

c 代表保护型式，可为I（Ex ia），C（Ex ic）或E（Ex ec）。

* 表示的内容与防爆性能无关。

产品型号和防爆型式的关系如下：

型号	T15.H-AI***-*...*	T15.R-AI***-*...*
防爆型式	Ex ia IIC T4...T6 Ga Ex ia IIIC T ₂₀₀ 135℃ Da	Ex ia [ia Ga] IIC T4...T6 Gb Ex ia [ia Da] IIIC T135℃ Db

型号	T16.H-AI***-*...*	T16.R-AI***-*...*
防爆型式	Ex ia IIC T4...T6 Ga Ex ia IIIC T ₂₀₀ 135℃ Da	Ex ia [ia Ga] IIC T4...T6 Gb Ex ia [ia Da] IIIC T135℃ Db

型号	T15.*-AE***-*...*	T15.*-AC***-*...*
防爆型式	Ex ec IIC T4...T6 Gc	Ex ic IIC T4...T6 Gc

型号	T16.*-AE***-*...*	T16.*-AC***-*...*
防爆型式	Ex ec IIC T4...T6 Gc	Ex ic IIC T4...T6 Gc

一、 产品安全使用特殊条件

证书编号后缀“X”表明产品具有安全使用特殊条件:

1. 该产品气体环境使用环境温度范围和温度组别的关系如下:

产品温度组别	使用环境温度范围
T4	-40℃~+85℃
T5	-40℃~+70℃
T6	-40℃~+55℃

2. 该产品粉尘环境使用环境温度范围和输入功率限制之间的关系如下:

输入功率限制	使用环境温度范围
750mW	-40℃~+85℃
650mW	-40℃~+70℃
550mW	-40℃~+55℃

3. 其他安装在该产品附近的设备的功率耗散导致的温度上升应被纳入产品使用环境温度范围考虑因素。
4. 对于T15.*-AI***-...*, T16.*-AI***-...*, T15.*-AC***-...*, T16.*-AC***-...*, 变送器应被安装在符合GB/T3836.4-2021标准要求的外壳中。对于要求EPL Ga, Gb或Gc的使用环境, 外壳防护等级应不低于符合GB/T4208-2017标准要求要求的IP20。对于要求EPL Da, Db或Dc的使用环境, 外壳防护等级应不低于符合GB/T3836.1-2021标准要求要求的IP54。安装后内部接线、电气间隙、爬电距离和其他间距均应符合GB/T3836.4-2021要求。
5. 对于T15.*-AE***-...*, T16.*-AE***-...*, 变送器应被安装在符合GB/T3836.1-2021和GB/T3836.3-2021标准要求的外壳中, 电气间隙和爬电距离应符合GB/T3836.3-2021要求, 且外壳防护等级应不低于符合GB/T3836.1-2021标准要求要求的IP54。根据GB/T16935.1-2023, 该设备只应在污染程度不低于2级的区域使用, 且瞬态保护应提供不超过设备的供电端子额定峰值电压值140%的保护。

二、 产品使用注意事项

1. 该产品的电气参数如下:

T15.*-AE***-...* (接线端子“+”/“-”, 供电和信号电路, 4~20mA电流回路)

额定输入电压 U DC35V 额定输入电流 I 21.5mA

T15.*-AE***-...* (接线端子“1”~“4”, 传感器电路)

额定输出电压 U DC3.34V 额定输出电流 I 0.1mA

额定输出功率 P 0.334W

T16.*-AE***-...* (接线端子“+”/“-”，供电和信号电路，4~20mA电流回路)

额定输入电压 U DC35V 额定输入电流 I 21.5mA

T16.*-AE***-...* (接线端子“1”~“2”，传感器电路)

额定输出电压 U DC2.575V 额定输出电流 I 0.1mA

额定输出功率 P 0.258W

2. 该产品的本安参数及内部最大等效参数如下：

T15.*-AI***-...*, T15.*-AC***-...*, 气体环境使用

(接线端子“+”/“-”，供电和信号电路，4~20mA电流回路)

最高输入电压 Ui (V)	最大输入电流 Ii (mA)	最大输入功率 Pi (mW)	最大内部等效参数	
			Ci(nF)	Li(μH)
30	130	800	18.4	20

T15.*-AI***-...*, 粉尘环境使用

(接线端子“+”/“-”，供电和信号电路，4~20mA电流回路)

最高输入电压 Ui (V)	最大输入电流 Ii (mA)	最大输入功率 Pi (mW)	最大内部等效参数	
			Ci(nF)	Li(μH)
30	130	750 / 650 / 550	18.4	20

T16.*-AI***-...*, T16.*-AC***-...*, 气体环境使用

(接线端子“+”/“-”，供电和信号电路，4~20mA电流回路)

最高输入电压 Ui (V)	最大输入电流 Ii (mA)	最大输入功率 Pi (mW)	最大内部等效参数	
			Ci(nF)	Li(μH)
30	130	800	7.8	20

T16.*-AI***-...*, 粉尘环境使用

(接线端子“+”/“-”，供电和信号电路，4~20mA电流回路)

最高输入电压 Ui (V)	最大输入电流 Ii (mA)	最大输入功率 Pi (mW)	最大内部等效参数	
			Ci(nF)	Li(μH)
30	130	750 / 650 / 550	7.8	20

T15.*-AI***-...*, T15.*-AC***-...* (接线端子“1”~“4”，传感器电路)

最高输出电压 Uo (V)	最大输出电流 Io (mA)	最大输出功率 Po (mW)
30	8.2	62

T16.*-AI***-...*, T16.*-AC***-...* (接线端子“1”~“2”，传感器电路)

最高输出电压 Uo (V)	最大输出电流 Io (mA)	最大输出功率 Po (mW)
6.6	4	10

传感器电路线性输出参数

对于型号T15.*-AI***-...* (接线端子“1”~“4”)			
	IIC	IIB,IIIC	IIA
允许最大外部电容Co(nF)	30	520	1700
允许最大外部电感Lo(mH)	1	1	1

对于型号T15.*-AC***-...* (接线端子“1”~“4”)			
	IIC	IIB,IIIC	IIA
允许最大外部电容Co(nF)	180	1370	5400
允许最大外部电感Lo(mH)	2	2	2

对于型号T16.*-AI***-...* (接线端子“1”~“2”)			
	IIC	IIB,IIIC	IIA
允许最大外部电容Co(μF)	21	495	995
允许最大外部电感Lo(mH)	95	95	95

对于型号T16.*-AC***-...* (接线端子“1”~“2”)			
	IIC	IIB,IIIC	IIA
允许最大外部电容Co(μF)	280	995	995
允许最大外部电感Lo(mH)	95	95	95

备注：Uo为任意导线和另外一、二或三根导线之间存在的最大电压。

Io为内部限流电阻最恶劣连接情况下的最大输出电流。

Po为Uo×Io除以4（线性参数）。

本安供电和信号输入回路和传感器回路应同时考虑，因为他们之间是电连接的。确保电路功能分离。

3. 该产品必须与已通过防爆认证的关联装置配套共同组成本安系统方可使用于现场存在爆炸性气体混合物的场所，其系统接线必须同时遵守本产品 and 所配关联装置的使用说明书要求，接线端子不得接错。（作为Ex i型产品使用）

4. 该产品与关联装置的连接电缆应为带绝缘护套的屏蔽电缆，其屏蔽层应接地。
(作为Ex i型产品使用)
5. 用户不得自行随意更换该产品的电气零部件，应会同产品制造商共同解决运行中出现的故障，以免影响防爆性能和损坏现象的发生。
6. 用户在安装、使用和维护产品时，须同时严格遵守产品使用说明书和下列标准：
GB/T3836.13-2021 爆炸性环境 第 13 部分：设备的修理、检修、修复和改造
GB/T3836.15-2017 爆炸性环境 第 15 部分：电气装置的设计、选型和安装
GB/T3836.16-2022 爆炸性环境 第 16 部分：电气装置的检查与维护
GB/T3836.18-2024 爆炸性环境 第 18 部分：本质安全电气系统
GB50257-2014 电气装置安装工程爆炸和火灾危险环境电气装置施工及验收规范
GB 15577-2018 粉尘防爆安全规程

三、 制造厂责任

1. 产品制造厂必须将上述使用注意事项纳入该产品的使用说明书中。
2. 制造厂必须严格按照NEPSI认可的文件资料生产。

上海仪器仪表自控系统检验测试所有限公司

国家级仪器仪表防爆安全监督检验站

二〇二四年十月三十日



(GYJ24.1286X)

(Attachment I)

Attachment I to GYJ24.1286X

(translation)

Model T15 Series / T16 Series Temperature transmitter, manufactured by WIKA Alexander Wiegand SE & Co.KG have been certified and accords with following standards:

GB/T3836.1-2021 Explosive atmospheres-Part 1: Equipment-General requirements

GB/T3836.3-2021 Explosive atmospheres-Part 3: Equipment protection by increased safety “e”

GB/T3836.4-2021 Explosive atmospheres-Part 4: Equipment protection by intrinsic safety “i”

The Ex marking is

Ex ia IIC T4...T6 Ga Ex ia IIIC T₂₀₀135°C Da

Ex ia [ia Ga] IIC T4...T6 Gb Ex ia [ia Da] IIIC T135°C Db

Ex ic IIC T4...T6 Gc Ex ec IIC T4...T6 Gc

Its certificate number is GYJ24.1286X.

Type approved in this certificate is shown as follows:

a.b-A c ***-*...*, in which

a indicates Series, which could be T15(Model for RTD sensors)
or T16(Model for TC Sensors).

b indicates Type of enclosure, which could be H(Head mounting) or R(DIN rail mounting).

c indicates Equipment protection, which could be I(EPL Ga or Da, intrinsic safety Ex ia),

The code * represents information unrelated to explosion-proof performance.

Ex Marking depending on the type, see the table below

Type	T15.H-AI***-*...*	T15.R-AI***-*...*
Ex Marking	Ex ia IIC T4...T6 Ga Ex ia IIIC T ₂₀₀ 135°C Da	Ex ia [ia Ga] IIC T4...T6 Gb Ex ia [ia Da] IIIC T135°C Db

Type	T16.H-AI***-*...*	T16.R-AI***-*...*
Ex Marking	Ex ia IIC T4...T6 Ga Ex ia IIIC T ₂₀₀ 135°C Da	Ex ia [ia Ga] IIC T4...T6 Gb Ex ia [ia Da] IIIC T135°C Db

Type	T15.*-AE***-*...*	T15.*-AC***-*...*
Ex Marking	Ex ec IIC T4...T6 Gc	Ex ic IIC T4...T6 Gc

Type	T16.*-AE***-*...*	T16.*-AC***-*...*
Ex Marking	Ex ec IIC T4...T6 Gc	Ex ic IIC T4...T6 Gc

1. Special Conditions for Safe Use

The suffix “X” placed after the certificate indicates that the product is subject to special conditions for safe use specified as follows:

- 1.1 The relationship between the ambient temperature of the product and the temperature group for gas application is as follows:

Temperature class	Ambient temperature
T4	-40°C ~+85°C
T5	-40°C ~+70°C
T6	-40°C ~+55°C

- 1.2 The relationship between the ambient temperature of the product and input power P_i for dust application is as follows:

Input Power P_i	Ambient temperature
750mW	-40°C ~+85°C
650mW	-40°C ~+70°C
550mW	-40°C ~+55°C

- 1.3 The influence of power dissipation of other devices placed beside the transmitter has to been taken into account with regard to temperature rise of the transmitter's ambient temperature.

- 1.4 For Type T15.*-AI***-*...*, Type T16.*-AI***-*...*, Type T15.*-AC***-*...* and Type T16.*-AC***-*...*, the transmitter shall be mounted in an enclosure in accordance with GB/T3836.4-2021 suitable for the relevant installation area. The enclosure has to fulfil at least IP20 for areas requiring EPL Ga, Gb or Gc and IP54 in accordance with GB/T3836.1-2021 for areas requiring EPL Da, Db or Dc. During the installation internal wiring, clearances, creepage distances and separations have to be considered according to GB/T3836.4-2021.

- 1.5 For Type T15.*-AE***-*...* and Type T16.*-AE***-*...*, the transmitter shall be mounted in an enclosure fulfilling at least IP54 in accordance with GB/T3836.1-2021 and GB/T3836.3-2021. During the installation clearances, creepage distances and separations have to be considered according to GB/T3836.3-2021. The equipment shall only be used in an area of at least pollution degree 2, as defined in GB/T16935.1-2023. The transient protection shall limit transients up to a maximum of 140 % of the peak voltage values.

2. Conditions for Safe Use

2.1 Electrical ratings:

T15.*-AE***-...* (Terminals +/-, Supply and signal circuit, 4-20mA current loop)

Nominal input voltage U DC 35V Nominal input current I 21.5mA

T15.*-AE***-...* (Terminals 1-4, Sensor circuit)

Nominal output voltage U DC 3.34V Nominal output current I 0.1mA

Nominal output power P 0.334mW

T16.*-AE***-...* (Terminals +/-, Supply and signal circuit, 4-20mA current loop)

Nominal input voltage U DC 35V Nominal input current I 21.5mA

T16.*-AE***-...* (Terminals 1-2, Sensor circuit)

Nominal output voltage U DC 2.575V Nominal output current I 0.1mA

Nominal output power P 0.258mW

2.2 Intrinsic safety parameters are as following:

T15.*-AI***-...*, T15.*-AC***-...*, for gas application

(Terminals +/-, Supply and signal circuit, 4-20mA current loop)

Maximum input voltage Ui(V)	Maximum input current Ii(mA)	Maximum input power Pi(mW)	Maximum internal capacitance Ci	Maximum internal inductance Li
30	130	800	18.4nF	20μH

T15.*-AI***-...*, for dust application

(Terminals +/-, Supply and signal circuit, 4-20mA current loop)

Maximum input voltage Ui(V)	Maximum input current Ii(mA)	Maximum input power Pi(mW)	Maximum internal capacitance Ci	Maximum internal inductance Li
30	130	750 / 650 / 550	18.4nF	20μH

T16.*-AI***-...*, T16.*-AC***-...*, for gas application

(Terminals +/-, Supply and signal circuit, 4-20mA current loop)

Maximum input voltage Ui(V)	Maximum input current Ii(mA)	Maximum input power Pi(mW)	Maximum internal capacitance Ci	Maximum internal inductance Li
30	130	800	7.8nF	20μH

T16.*-AI***-...*, for dust application

(Terminals +/-, Supply and signal circuit, 4-20mA current loop)

Maximum input voltage U_i (V)	Maximum input current I_i (mA)	Maximum input power P_i (mW)	Maximum internal capacitance C_i	Maximum internal inductance L_i
30	130	750 / 650 / 550	7.8nF	20 μ H

T15.*-AI***-...*, T15.*-AC***-...* (Terminals 1-4, Sensor circuit)

Maximum output voltage U_o (V)	Maximum output current I_o (mA)	Maximum output power P_o (mW)
30	8.2	62

T16.*-AI***-...*, T16.*-AC***-...* (Terminals 1-2, Sensor circuit)

Maximum output voltage U_o (V)	Maximum output current I_o (mA)	Maximum output power P_o (mW)
6.6	4	10

Linear characteristic output parameter

Type T15.*-AI***-...* (Terminals 1-4)			
	IIC	IIB,IIIC	IIA
Maximum external capacitance C_o (nF)	30	520	1700
Maximum external inductance L_o (mH)	1	1	1

Type T15.*-AC***-...* (Terminals 1-4)			
	IIC	IIB,IIIC	IIA
Maximum external capacitance C_o (nF)	180	1370	5400
Maximum external inductance L_o (mH)	2	2	2

Type T16.*-AI***-...* (Terminals 1-2)			
	IIC	IIB,IIIC	IIA
Maximum external capacitance C_o (μ F)	21	495	995
Maximum external inductance L_o (mH)	95	95	95

Type T16.*-AC***-...* (Terminals 1-2)			
	IIC	IIB,IIIC	IIA
Maximum external capacitance C_o (μ F)	280	995	995
Maximum external inductance L_o (mH)	95	95	95

Remarks:

U_o : maximum voltage of any wire versus the other one / two / three wires

I_o : maximum output current for worst case connection of the internal current limiting resistors.

P_o : $U_o \times I_o$ divided by 4 (linear characteristic).

The intrinsically safe supply- and signal-circuit and the intrinsically safe sensor circuit shall be considered as being galvanically connected to each other. The functional separation is ensured.

2.3 This product should be used in explosive gas and dust atmospheres together with associated apparatus, follow the instruction manual of this product and the associated apparatus when connecting the wiring. Connect the wiring terminals correctly. (For Ex i)

2.4 Connecting cable between this product and associated apparatus should be insulated screen cable; connect the cable screen functionally to earth ground. (For Ex i)

2.5 The user shall not change the configuration in order to maintain/ensure the explosion protection performance of this product. Any change may impair safety.

2.6 For installation, use and maintenance of the product, the end user shall observe the instruction manual and the following standards:

GB/T3836.13-2021 Explosive atmospheres- Part 13: Equipment repair, overhaul and reclamation .

GB/T3836.15-2017 Explosive atmospheres- Part 15: Electrical installations design, selection and erection.

GB/T3836.16-2022 Explosive atmospheres- Part 16: Electrical installations inspection and maintenance.

GB/T3836.18-2024 Explosive atmospheres- Part 18: Intrinsically safe electrical systems

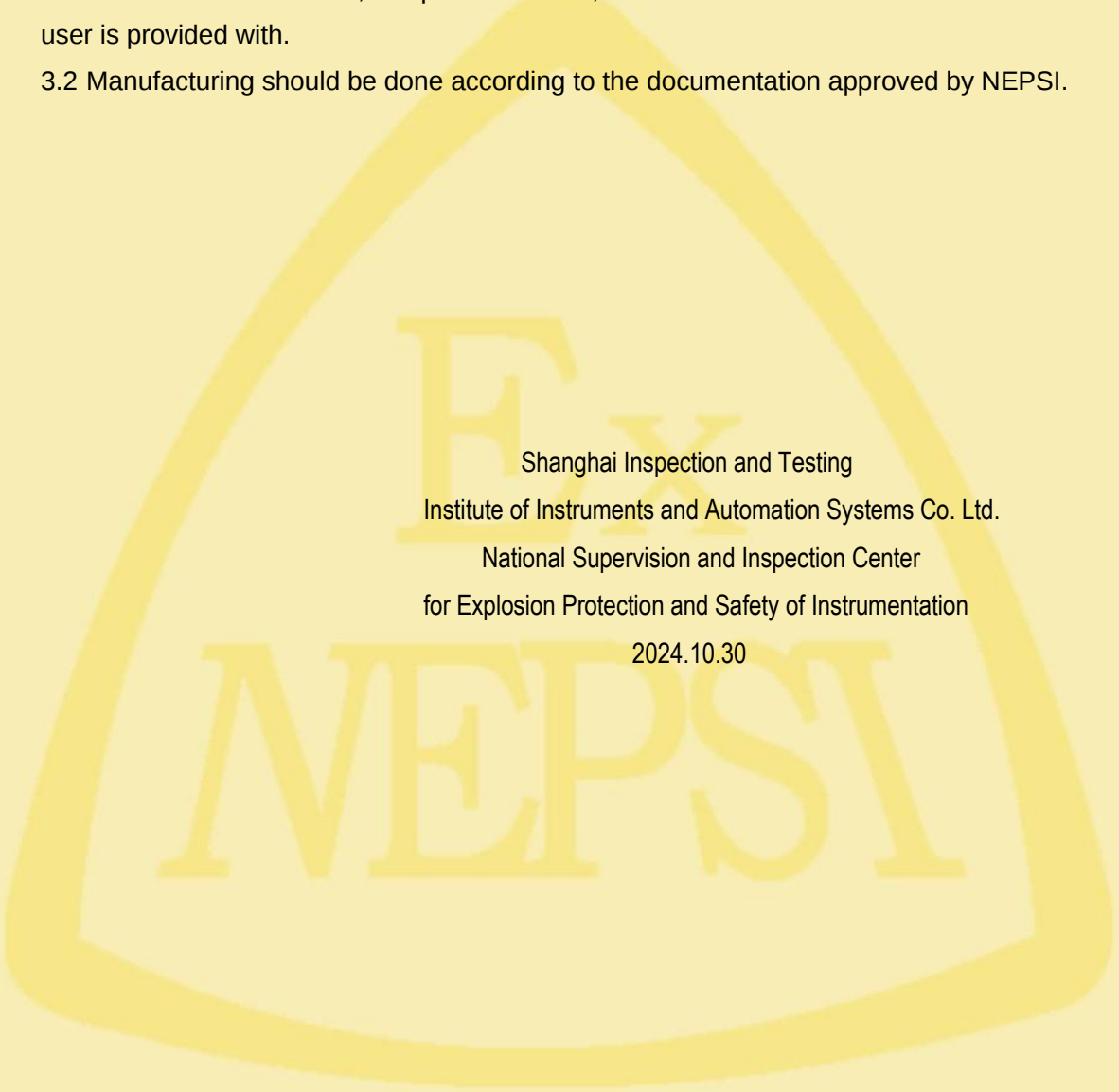
GB50257-2014 Code for construction and acceptance of electric equipment on fire and explosion hazard electrical equipment installation engineering.

GB15577-2018 Safety regulations for dust explosion prevention and protection.

3. Manufacturer's Responsibility

3.1 Conditions for safe use, as specified above, should be included in the documentation the user is provided with.

3.2 Manufacturing should be done according to the documentation approved by NEPSI.



Shanghai Inspection and Testing
Institute of Instruments and Automation Systems Co. Ltd.
National Supervision and Inspection Center
for Explosion Protection and Safety of Instrumentation
2024.10.30