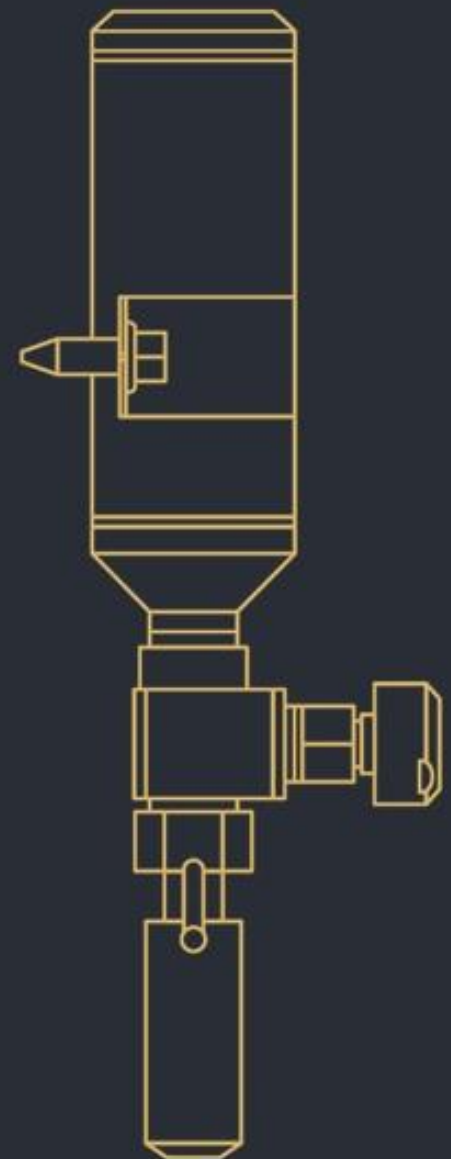




ULTRAZ

SELF-CONTAINED FIRE
EXTINGUISHING DEVICE WITH
CONTAINERS FROM 0,22 TO 0,45 L

CLEAN AGENT FIRE SUPPRESSION
SYSTEM UNITS 010 00 000 RE



Data sheet and operation
manual ver.002

Unit serial number

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1 PRODUCT OVERVIEW

1.1

Self-contained fire-extinguishing device "UltraZ" is intended for fire protection of industrial and consumer electronic equipment (cabinets for switching equipment, household electric appliances, TV-sets, etc.).

Self-contained fire-extinguishing device "UltraZ" ensures fire-fighting and fire containment of class A (A1, A2) and B according to GOST 27331 and electrical equipment under voltage of up to 10 000 V.

1.2

Self-contained fire-extinguishing device "UltraZ" corresponds to the climatic version UHL 3 according to GOST 15150 and can be operated within the temperature range from - 20°C to + 50,60,70°C (depending on design).

1.3

Designation structure at order:

XXXX - XX/XX-XX-XX-XX-XX-X_XXX,

1 2 3 4 5 6 7 8

1 - device designation adopted by the manufacturer;

2 - VA/VB - maximum allowable volumes (dm³), where standardized fire source extinguishing of class A (A1, A2) and (or) B is according to GOST 27331 is ensured;

3 - maximum operating temperature at object of defense (t_{maxp}), °C;

4 - device service life, years;

5 - cylinder volume, dm³;

6 - nominal threshold activation temperature (t_{nta}), °C;

7 - type of gas fire extinguishing agent (clean agent):

X - HFC 227ea;

F - FK-5-1-12;

8 - designation of technical documentation in accordance with which self-contained fire-extinguishing device is manufactured.

Designation example:

Self-contained fire-extinguishing device "UltraZ" - 525/380-50-10-220-68-F, TS 28.99.39-002-05292326 -2020 is a self-contained fire-extinguishing device "UltraZ", maximum allowable local volume, in which standardized fire source extinguishing of class A - 525 dm³, class B - 380 dm³ is ensured; maximum operating temperature at object of defense is 50°C; device service life is 10 years; container volume is 220 dm³; nominal threshold activation temperature is 68°C; technical specifications TS 28.99.39 - 002-05292326-2020.

2 TECHNICAL CHARACTERISTICS

2.1 Product composition

- Self-contained fire-extinguishing device "UltraZ" consists of container filled with gas fire extinguishing agent (clean agent), lock and release device, clamp for product installation at the facility and pressure indicator.
- Self-contained fire-extinguishing device "UltraZ" has additional option - forced launch by means of pyrotechnic fastener.

2.2 Types of launch

- Automatic - at activation of thermal lock;
- Self-contained fire-extinguishing device "UltraZ" has additional option - forced launch by means of pyrotechnic fastener.

2.3 Applied clean agents

Name, chemical formula of clean agents, permitted for use in self-contained fire-extinguishing device "UltraZ" are presented in Table 1.

Table 1 - Types of clean agents

Product name of clean agent	Chemical name (formula)	Symbolic designation
HFC 227ea	Heptafluoropropane (C ₇ H)	HFC-227 ea
FK-5-1-12	Dodecafluoro-2-methylpentanone-3 CF ₃ CF ₂ C(O)CF(CF ₃) ₂	FK-5-1-12

Note - Nitrogen gas is used as propellant gas according to GOST 9293.

2.4 Technical characteristics

Table 2 - Technical characteristics

Characteristic name	Value
1 Operating pressure of clean agent in container (at ambient temperature from + 18°C to + 22°C), MPa (kgf/cm ²)	2,5 (25)
2 Test pressure of container (at ambient temperature from +18°C to + 22°C), MPa (kgf/cm ²)	10,0 (1 00)
3 Minimum operating pressure, MPa (kgf/cm ²)	2,0 (20)
4 Diameter of lock and release device nominal width, mm	7
5 Nominal threshold activation temperature of thermo bulb / maximum operating temperature at object of defense, °C (marking color of liquid in thermo bulb)	68 ±3/50 (red) 79±3/60 (yellow) 93±3/70 (green)
6 Response time of activation at forced launch (time from the moment of starting impulse input to the beginning of clean agent outlet, (with	maximum 2
7 Duration of clean agent release (at ambient temperature from +18°C to +22°C), with maximum	10
8 Bursting pressure of safety diaphragm, MPa (kgf/cm ²): - filling FK-5-1-12 (F) for all thermo bulbs designs; - filling HFC 227 ea (X): 1) for design with thermo bulb 68 ±3°C; 2) for design with thermo bulb 79 ±3°C; 3) for design with thermo bulb 93 ±3°C.	5,0±0,5 (50±5) 5,0±0,5 (50±5) 6,0±0,6 (60±6) 9,0±0,9 (90±9)
9 Maximum leakage value during one year and specified service life, maximum, for: - clean agent - propellant gas	1% 2%
10 Clean agent remainder after release, in % of source quantity	without remainder
11 Possibility of uninterrupted work, minimum	0.95

2.5 Overall dimensions, weight of self-contained fire-extinguishing device "UltraZ", maximum protected volume depending on fire class and types of clean agents

Table 3

Self-contained fire-extinguishing device designation	«UltraZ» -V _A /V _B - 68 (79,93)-10-			
Parameter name	-220	-300	-350	-450
Container capacity, l	0.22	0.3	0.35	0.45
Overall dimensions, mm, maximum:				
- diameter	61	61	61	61
- height	273	313	343	393
Weight (without clean agent) kg, maximum	0.87	0.97	1.10	1.23
Clean agent capacity, ml	198	270	315	405
Weight of refilled clean agent, g				
- HFC 227ea	230	310	360	470
- FK-5-1-12	260	350	410	530
Protected volume, dm:				
HFC 227ea (X), for fire of class:				
A (VA)	580	780	910	1170
B (VB)	470	630	735	950
electrical equipment under voltage of up to 10 000 V	520	700	820	1050
FK-5-1-12 (F), for fire of class:				
A (VA)	525	715	830	1070
B (VB)	380	510	600	770
electrical equipment under voltage of up to 10 000 V	460	630	730	940

3 SCOPE OF SUPPLY

3.1 The scope of supply includes:

- Self-contained fire-extinguishing device "UltraZ" assembled according to the specification (type of self-contained fire-extinguishing device is specified at order);
- pyrotechnic fastener in individual package with distance ring (if available in the order);
- data sheet for self-contained fire-extinguishing device, combined with operation manual;
- packing.

4 DESIGN. PRINCIPLE OF OPERATION

4.1

Design of self-contained fire-extinguishing device "UltraZ" in accordance with drawings 1,2. Self-contained fire-extinguishing device "UltraZ" consists of a container 1 filled with gas fire extinguishing agent (clean agent), a lock and release device 2, a bracket 3 for product installation at the facility and a pressure indicator 4.

Lock and release device of self-contained fire-extinguishing device "UltraZ" includes:

- a shell with pressure indicator 4 and a safety diaphragm 6 shutting off discharge opening;
- a guide and a cap, with thermal lock. A heat-sensitive element (thermo bulb) 5 holds down spring-actuated needle;
- a "safety screw" 8, preventing self-contained fire-extinguishing device "UltraZ" from activation during transportation and installation.

4.2

Self-contained fire-extinguishing device "UltraZ" is activated automatically. Upon reaching of nominal threshold activation temperature (68.79, 93 ° C) in protected volume, the heat-sensitive element 5 is damaged, the spring is released, the needle ruptures the safety diaphragm 6, and clean agent is released into the protected volume.

The safety diaphragm 6 also provides clean agent release at overpressure in the device container of maximum permissible value. Clean agent release from self-contained fire-extinguishing device "UltraZ" is carried out through openings in lock and release device guide.

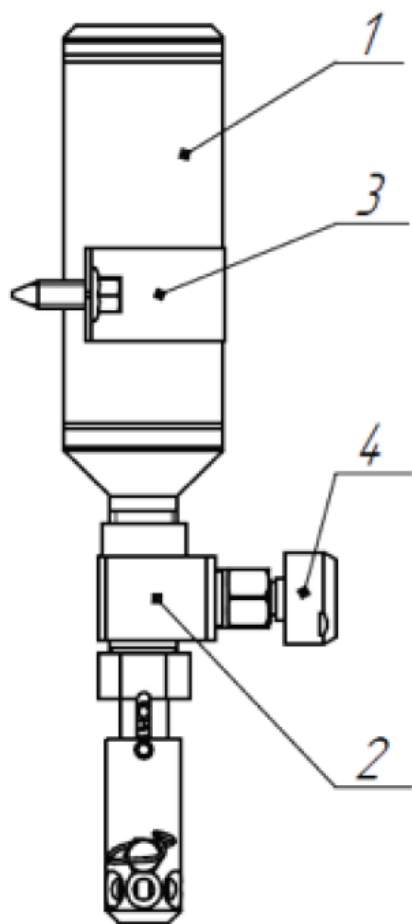
4.3

Operating position of self-contained fire-extinguishing device "UltraZ" is vertical, lock and release device downward

4.4

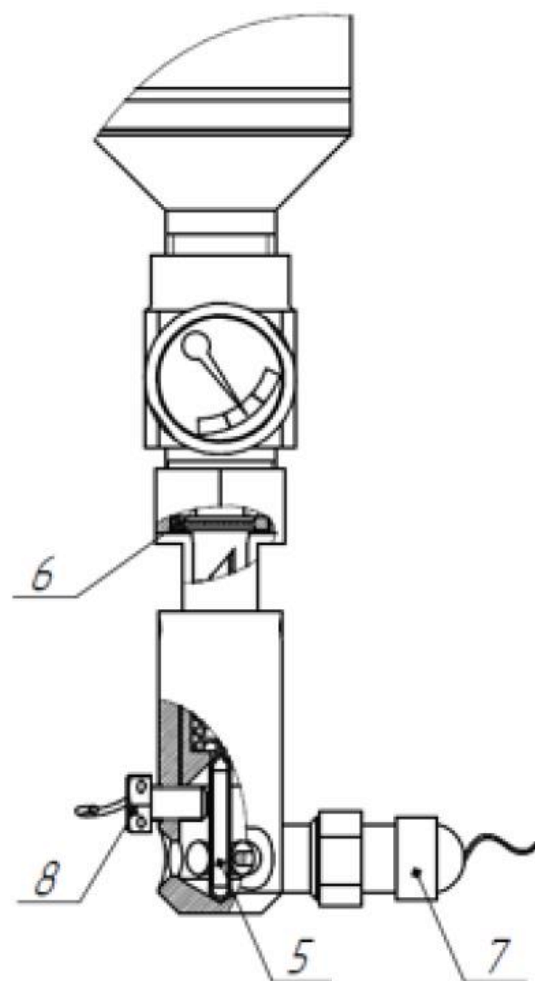
An activation element 7 (pusher) with a distance ring can be installed in lock and release device cap for forced launch of self-contained fire-extinguishing device "UltraZ". Forced (electrical) launch parameters are in accordance with Table 4.

IMPORTANT! A pusher is one-shot device and at activation is subject to replacement.



Drawing 1 - Appearance

- 1 - container;
- 2 - lock and release device;
- 3 - bracket;
- 4 - pressure indicator



Drawing 2 - Lock and release device

- 5 - heat-sensitive element;
- 6 - safety diaphragm;
- 7 - pusher with distance ring;
- 8 - "safety screw"

Table 4 - Forced (electrical) launch parameters

Parameter name	Value
Direct current voltage at pusher contact elements, V	from 3,6 to 24
Actuating current, A	0,7 ^{+0,1}
Pusher internal resistance. 0 m	from 2 to 4,5
Duration of voltage application, with	minimum 0,05
Safe current of check during (5±0,3) minutes, A	maximum 0,05

5 SAFETY PRECAUTIONS

5.1

Works on installation and maintenance of self-contained fire-extinguishing device "UltraZ" should be carried out by persons having studied its design and principle of operation, who have undergone industrial training and are qualified to operate containers working under pressure, who have familiarized themselves with the rules for clean agents handling (HFC).

5.2

Nominal threshold activation temperature of thermo bulb must not be less than 20°C higher than maximum working temperature in protected volume.

5.3

Self-contained fire-extinguishing device "UltraZ" location near heating units is not allowed.

5.4

Self-contained fire-extinguishing device "UltraZ" falling or impacts on it are not allowed.

5.5

During installation and operation of devices, which are applied for electrical equipment protection working under voltage, it is necessary to follow the requirements of Electrical Installation Regulations.

5.6

Operation of self-contained fire-extinguishing device "UltraZ" is not allowed if the device's service life has expired, or if defects excluding guarantee of its safe operation have been revealed.

5.7

IMPORTANT! The manufacturer shall not be liable for damage which may result from improper use of the device or its misuse.

IMPORTANT! When identifying **COUNTERFEIT** products, contact the manufacturer without delay by the 24-hour hotline 8 (800) 500-30-26

6 PREPARATION FOR INSTALLATION AND OPERATION

6.1

Keep the device at a constant temperature (within the range of operating temperatures) during not less than 10 hours.

6.2

At preparation of self-contained fire-extinguishing device "UltraZ" for installation it is necessary to:

- unpack;
- check completeness;
- check pressure in the device container;
- check weight of self-contained fire-extinguishing device "UltraZ" according to data sheet specifications;

IMPORTANT! When identifying any nonconformity in technical characteristics, data sheet specifications completeness, appearance, it is necessary to contact the manufacturer without delay for corrective actions. Claims in relation to completeness, presence of mechanical damages, appearance of the unit are not admitted upon the expiration of 14 days from the date of acceptance.

6.3

Install pusher (if available in the order) through distance ring into a threaded opening of lock and release device cap against the stop (drawing 2).

6.4

Before the device installation into the volume of protected electrical equipment it is necessary to disconnect the object of defense.

6.5

Fix self-contained fire-extinguishing device "UltraZ" at the top of protected volume vertically, with lock and release device downward with the help of a bracket and self-driving screws from the kit. Clamp should compress cylindrical part of the device container.

IMPORTANT! Fixture with clamp by lock and release device or conical part of the container is not allowed! Do not close openings in lock and release device cap, provide free air circulation!

6.6

In case of volume protection by several self-contained fire-extinguishing devices "UltraZ" it is recommended to use devices with equal volume and with equal nominal threshold activation temperature of heat-sensitive element, having placed them as close as possible relative to each other. When applying additional option - forced launch, their location over the entire volume is allowed.

6.7

After installation of self-contained fire-extinguishing device "UltraZ", the electric circuit of the pusher (if available in the order) should be connected to the fire alarm control panel or actuator in accordance with the technical documentation for the device or the actuator. It is not allowed to carry out brazing and other works on correction and installation of electrical circuits with the pusher installed.

6.8

During installation, in order to avoid damage to tightness of self-contained fire-extinguishing device "UltraZ", it is prohibited to set hands to lock and release device and pressure indicator.

6.9

Before the beginning of self-contained fire-extinguishing device "UltraZ" operation, unscrew the "safety screw" from lock and release device cap (Drawing 2).

6.10

Installation and maintenance of self-contained fire-extinguishing device "UltraZ" should be carried out by persons having studied its design and principle of operation, who have undergone industrial training and are qualified to operate containers working under pressure, who have familiarized themselves with the rules for clean agents handling (HFC).

6.11

It is forbidden to install self-contained fire-extinguishing device "UltraZ" in places where it can have mechanical impact (vibration, impulses, impacts), near heating units, in places where direct exposure to sunlight is possible.

7 MAINTENANCE

In the process of self-contained fire-extinguishing device "UltraZ" operation it is necessary to carry out scheduled maintenance according to the Regulations 1 and 2 carried out by trained personnel.

Regulation No. 1. Once every quarter:

- a) Pressure control in self-contained fire-extinguishing device "UltraZ" cylinder according to pressure indicator on lock and release device. At pressure drop below 2.0 MPa, notify the manufacturer without delay with the aim of the defect correction;
- b) Cleaning from dust, industrial pollution.

Regulation No. 2. Once a year:

- a) Carry out operations according to regulation No. 1;
- b) Make visual inspection of self-contained fire-extinguishing device "UltraZ", check integrity of parts and units;
- b) Carry out examination of fire extinguishing agent integrity by means of self-contained fire-extinguishing device "UltraZ" weighing. In case of weight reduction of fire extinguishing agent in the device container by more than it was indicated in clause 9 of the Table 2 from filled one (according to data sheet), self-contained fire-extinguishing device "UltraZ" is subject to refuelling or refilling or replacement (at the user's discretion).

Enter information on refuelling or refilling into the Table A. 1 (Attachment A).

Note - In case of self-contained fire-extinguishing device "UltraZ" use with additional option of forced launch, it is necessary to replace the pusher with a new one PT-5, TS 7287-269-07513406-2008 two years after the beginning of operation and then every two years. Enter information on pusher replacement into the Table A. 1 (Attachment A)

All works on maintenance (or repair) of self-contained fire-extinguishing device "UltraZ", which require interference into design integrity, should be carried out at the manufacturing enterprise.

8 TRANSPORTATION AND STORAGE

8.1

Transport self-contained fire-extinguishing device "UltraZ" by all types of transport, in covered vehicles, containers, heated pressurized compartments of aircraft in accordance with the rules for carriage of dangerous goods of subclass 2.1 according to GOST 19433.

Proper shipping name of self-contained fire-extinguishing devices in accordance with European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR):

UH 1044, FIRE EXTINGUISHERS, 2.2 (E).

8.2

Conditions of self-contained fire-extinguishing device "UltraZ" transportation and storage in package should correspond to:

- relating to climatic factors impact - storage conditions 5 (OZh4) according to GOST 15150 with permissible air temperature from - 20 ° C to + 50 ° C;

-relating to mechanical factors impact - transportation conditions C according to GOST 23170.

8.3

Transportation of self-contained fire-extinguishing device "UltraZ" must be carried out only with "safety screw" installed into lock and release device.

8.4

Method of fixture of packed self-contained fire-extinguishing devices "UltraZ" during transportation must prevent their movement.

8.5

During transportation of packed self-contained fire-extinguishing devices "UltraZ" the requirements of warning plates on transport packaging must be met.

8.6

Self-contained fire-extinguishing devices "UltraZ" unpacking after their transportation at negative temperatures should be carried out under normal conditions, after previously keeping them in the packing under these conditions during not less than 10 hours.

8.8

Store self-contained fire-extinguishing device "UltraZ" at a distance of minimum one meter from heaters and at least five meters from heat sources with direct flame, exclude direct exposure to sunlight, corrosion-active substances.

8.9

It is prohibited to store self-contained fire-extinguishing device "UltraZ" in basements, corridors, passages.

9 DISPOSAL

9.1

Self-contained fire-extinguishing device "UltraZ" having reached its service life must be withdrawn from service and sent for disposal according to order of facility supervisor.

IT IS PROHIBITED: TO DISASSEMBLE OR DUMP DAMAGED SELF-CONTAINED FIRE-EXTINGUISHING DEVICE "ULTRAZ"!

9.2

For self-contained fire-extinguishing device "UltraZ" disposal it is necessary to carry out the following operations:

- a) Remove device from maintenance object;
- b) Check clean agent absence in self-contained fire-extinguishing device "UltraZ" - by pressure indicator and weighing. Weight of empty unit mustn't exceed the value of its structural mass, specified in the nameplate (data sheet);
- c) Take empty unit to pieces;
- d) Send parts depending on material grade to suitable recyclable materials receiving centers.

9.3

At clean agent availability in self-contained fire-extinguishing device "UltraZ" send the device to the specialized organization, carrying-out acceptance, regeneration and disposal of clean agents, or to the manufacturer -for discharge (removal) of clean agent from the device into a special container and further clean agent transfer to the specialized organization.

9.4

Disposal of fire extinguishing agents is carried out in compliance with the safety and environment protection requirements specified in the standards for this agent.

NOTES

- a) Inert gases and their mixtures (nitrogen), which are safe for the environment, after their service life or storage finishing are disposed by means of gas discharge into the atmosphere;
- b) Ozone-safe fire-extinguishing gases (HFC 227ea, FK-5-1-12) are high-value products and are not subject to disposal. Indicated clean agents after their service life or storage finishing are sent to the gas manufacturer for regeneration. Regenerated gas is reused in gas fire-fighting units. Container with remainder of the product is sent to clean agent supplier.

9.4

Information on precious metal content is in accordance with Table 5.

Table 5

Name of part (coating), component part	Designation	Quantity pc	Weight in one piece, g	Weight in product, g
Silver: Block of pyrotechnic fastener PT-5	MKTA.773 581.206 AS	1	1.99	1.99

10 TEST CERTIFICATE

Self-contained fire-extinguishing device "UltraZ" ___/___ - 50 60 70 -10___-68 79 93 - F X
(delete as appropriate) (delete as appropriate)

TS 28.99.39 - 002-05292326-2020

Serial number

Device weight (without clean agent, without pusher, with safety screw), kg

Designation of gas fire extinguishing agent (clean agent) - _____

Clean agent weight, g _____

Device weight filled (without pusher, with safety screw), kg _____

Date of filling _____

Pressure in container of self-contained fire-extinguishing device "UltraZ" at ambient temperatures from + 18 to + 22°C _____

Self-contained fire-extinguishing device corresponds to TR EEU 043/2017, technical specifications TS 28.99.39 - 002-05292326-2020 and is classified as fit for service.

Production date ___20___g

LS

Signature of QCD representative

11 TRANSPORTATION AND STORAGE

11.1

The Manufacturer guarantees the device uninterrupted work if the user meets the rules for operation, transportation and storage specified in the present data sheet.

11.2

The guarantee service life of self-contained fire-extinguishing device "UltraZ" is 24 months from the date of delivery.

11.3

The Manufacturer is obliged to repair or replace self-contained fire-extinguishing device "UltraZ" units free of charge during the warranty period, subject to the compliance with the requirements of sub-clause 1.2, of clause 5 of the Table 2, Table 3, sections 5,6,7, 8.

11.4

The Manufacturer doesn't accept claims in case of:

- visible mechanical damages;
- defective control labels;
- if the guarantee service life has expired;
- data sheet absence;
- not meeting the requirements of sub-clause 1.2, of clause 5 of the Table 2, Table 3, sections 5,6,7, 8.

11.5

The Manufacturer can make alterations in the design of self-contained fire-extinguishing device "UltraZ" saving its basic operational parameters.

12 INFORMATION ABOUT THE SUPPLIER

If you have any questions concerning units delivery and quality of manufacture, you should contact the firm-manufacturer:

"ISP", LLC

Togliatti, Samara Oblast 445043,

Yuzhnoe Shosse 161, block 2.1,

building A, office A 317

8 (800) 500-30-26

Attachment A (obligatory)

Table 1 - Complex of taken measures

Types of work			
Filling with fire extinguishing agent			
Clean agent type			
Clean agent weight, g			
Device weight with clean agent (without pusher, with "safety screw"), kg			
Date of refilling			
Pressure in container of self-contained fire-extinguishing device "UltraZ" at ambient temperatures from + 18 to + 22°C, MPa			
Date of pusher PT-5 replacement			
Notes (recommendations)			
Executing organization			
Representative of executing organization (Full name, signature)	LS	LS	LS
Device response			

NOTES

NOTES



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