1. Safety Instructions

1.1. General

This manual contains detailed information about the product, and instructions for its installation, operation and maintenance. Operators and other technical personnel responsible for the equipment must read this thoroughly before attempting to install or operate this equipment. A copy of this manual must always be kept accessible at the place of work for reference by concerned personnel.

Chapter 1 (sections 1.2 through 1.7) contains general as well as specific safety instructions. Chapters 2 through 10, covering topics ranging from intended purpose of the equipment to its final disposal, also include important points relating to safety. Overlooking or ignoring any of these safety points can endanger humans and animals, and possibly cause damage to other equipment.

1.2. Personnel Qualification

Personnel responsible for installation, operation, maintenance and inspection of this product must have the qualifications, training and experience necessary to carry out such work on this type of equipment.

1.3. Risks of Disregarding Safety Instructions

Disregarding safety instructions, use of this product for purposes for which it is not intended, and/or operation of this product outside the limits specified for any of its technical parameters, can result in harm to persons, the environment, or the plant on which it is installed. Fischer Mess- und Regeltechnik GmbH will not be responsible for consequences in such circumstances.

1.4. Safety Instructions for Operators

Safety instructions for the proper use of this product must be followed. This information must be available at all times by personnel responsible for installation, operation, maintenance and inspection of this product. Adequate steps must be taken to prevent the occurrence of hazardous conditions that can be caused by electric energy and the convertible energy of the process media. Such conditions can, for example, be the result of improper electrical or process connections. Detailed information is available in relevant published norms (DIN EN, UVW in Germany; and equivalents in other countries), industrial standards such as DVWG, Ex-, GL-, VDE guidelines, as well as regulations of the local authorities (e.g., EVUs in Germany).
1.5. Modifications Forbidden
Modification or other technical alteration of the product is not permissible. This also applies to the use of unauthorized spare parts for repair / maintenance of the product. Any modifications to this product, if and as necessary, should be done only by Fischer Mess- und Regeltechnik GmbH.

1.6. Operational Restrictions
The operational reliability of the product is guaranteed only when used for intended purposes. The product must be selected and configured for use specifically with defined process media. The limiting values of operating parameters, as given in the product specification sheet, must never be crossed.

1.7. Safety Considerations during Installation and Maintenance
The safety instructions given in this manual, existing national regulations relating to accident prevention, and the internal safety rules and procedures of the user organization regarding safety during installation, operation and servicing must all be followed meticulously.

It is the responsibility of the users to ensure that only suitably qualified and experienced technical personnel are used for installation, operation and servicing of this equipment.

2. Intended Applications
These type series instruments are used as flow-operation safety device in heat carrier oil plants acc. to DIN 32 727 and hot water plants acc. to VdTÜV data sheet flow 100. The flow-operation safety devices consist of a differential pressure device, e.g. an orifice plate, differential pressure switch and adequate shut-off valves. Follow mounting instructions in accordance to application. All instruments of this type series meet these demands. Successful structural testing of this type series is confirmed by the following marks of conformity:

- for flow-operated safety devices
  DIN 32 727 DIN record No. 1B012/07
- acc. to VdTÜV data sheet flow 100
  TÜV . SW/SB . 07 - 020

3. Product Description and Functions

3.1. Schematic Diagram

3.2. Principles of Operation
The monitoring and switching instrument is based on a rugged and uncomplicated diaphragm movement suitable for overpressure, partial vacuum, and differential pressure measurements. The operating principle of the system is identical in all three applications.

In a state of equilibrium, the forces of the springs on both sides of the diaphragm are balanced. The pressure or differential pressure to be measured creates an unbalanced force at the diaphragm. This force moves the diaphragm system against the force of the springs for the measuring range until a new equilibrium is reached. When subjected to excessive pressure, the diaphragm rests on metal supporting plates.

A centre-mounted tapped transfers the motion of the diaphragm system to the motion work and to the actuating elements of the microswitches.

4. Installation

4.1. General
The instrument is intended for wallmounting by default. The instrument can be attached directly to flat walls by three mounting feet cast to the casing. The instrument can be mounted into switchboard by panel mounting kit DZ11. It is factory-calibrated in vertical position and may not be mounted otherwise. To ensure proper operation during installation and maintenance, appropriate shut-off fittings have to be installed at the plant.

4.2. Installation Regulations for Flow-operated Safety Devices in Heat Transfer Plants acc. to DIN 4754

- The set-up of measuring instruments has to be done acc. to VDE/VDI 3512, sheet 1 for differential pressure producers acc. to DIN 1952/ VDI 2041.
- Shut-off valves in differential pressure pipes may only be manipulated with tools. Screw joints in these pipes need to be conducted that way they are leak proof wit-
hout aid of sealants.

- The clear diameter of the differential pressure pipes’ length needs to be designed that way, that with cold pipework (approx. 20°C) the reaction time of the instrument is no more than 5 secs.
- Differential pressure pipes need to be of metal, their clear width may be no less than 4mm and their stretched length must be at least 500mm. When arranged acc. to VDE/VDI 3512, sheet 1 with valve block the stretched length of the differential pressure pipe between valve block and differential pressure transmitter must be at least 500mm.
- Locking und unlocking conditions must be made sure by subsequent electrical wiring during installation.

4.3. Installation Regulations for Flow Limiters in Steam Boiler and Hot Water Plants

- Apply measuring instruments acc. to DIN 1952 / VDI 3212, sheet 1, Itabar or Annubar sensors.
- The set-up of measuring instruments has to be done acc. to VDE/VDI 3512, sheet 1 for differential pressure producers acc. to DIN 1952 / VDI 2041.
- The differential pressure pipes must be suitable to be shut off and blown out with fivefold valve block.
- The differential pressure pipes need to be of metal and their clear width must be at least 8mm. The stretched length of the differential pressure pipes must be at least 500mm.
- Shut-off valves in differential pressure pipes may only be manipulated with tools. Screw joints in these pipes need to be conducted that way they are leak proof without aid of sealants or the conjunction needs to be welded or brazed.

4.4. Process Connections

- Only qualified technicians authorized for this type of work should undertake installation.
- Ensure that process equipment and pressure lines are at atmospheric pressure before making pressure connections.
- The instrument should be provided with suitable protection against pressure surges (e.g., snubber or pulsation damper).
- Ensure that the mechanical configuration and materials of construction of the instrument are compatible with the process media.
- Ensure that process pressure is always less than the specified safe pressure rating.

4.5. Electrical Connections

- Only qualified technicians authorized for this type of work should undertake installation.
- Electrical connections must comply with relevant international, national and local regulations and norms relating to electrical and instrumentation installations.
- Switch off electrical power to the plant before attempting electrical installation work of any kind.
- Make electrical connections to the instrument through a suitable fuse.

5. Commissioning

Power supply and signal cabling to the instrument must be correctly selected to meet operational requirements, and installed in a way that does not cause physical stress to the instrument.

Pressure lines must have a downward gradient throughout, from the pressure instrument to the process vessel / pipe. This is to prevent formation of air / gas pockets (for liquid applications) and liquid plugs (for air / gas applications). If this continuous downward gradient cannot be provided for any reason, then suitable water and / or air separation devices must be inserted in the pressure line.

The pressure lines must be kept as short as possible and must not have short bends to avoid measurement errors induced by pressure line delays.

When used with liquid media the lines must be vented to avoid measurement errors induced by different heights in liquid columns. The instrument and lines must be protected against frost when used with water.

Check all pressure connections for leaks before commissioning.

5.1. Pressure Connections

The instruments pressure ports are marked by “+” and “-” symbols. The pressure applications need to be installed according to the label.

Differential pressure measurement: + higher pressure
- lower pressure

Pressure measurement: + pressure port

Negative pressure measurement: – negative pressure port
5.2. Zero Point Adjustment and Setting of Switching Points

Zero point adjustment screw

5.2.1. Zero Point Adjustment
• Charge pressure chamber with existent static pressure.
• Remove cover.
• Set measuring indicator to zero by zero point adjustment screw.
• Mount cover.

5.2.2. Setting of Switching Points
• Unscrew plugs from cover.
• Set desired switching points according to marks on reference value scale by screwdriver. Achievable accuracy: 5% FS. More exact settings can be achieved by using accessories like testing manometer, ohmmeter on site or ex factory.
• Screw plugs in.

5.3. Connection Scheme

Instrument pressureless and dead

6. Maintenance
The instrument is inherently maintenance-free.

However, to ensure reliable operation and maximize the operating life of the instrument, it is recommended that the instrument, its external electrical and process connections, and external connected devices be regularly inspected, e.g.:

• Check the display.
• Check the switching function in connection with external devices.
• Check all pressure connections for leak-tightness.
• Check the integrity of all electrical connections of the instruments.

Inspection and test schedules depend on operating and site conditions. The operating manuals of other equipment to which the instrument is connected must be read thoroughly to ensure that all of them work correctly when connected together.

7. Transport
The product must be protected against shock and vibration during transport. It must therefore be properly packed, preferably in the original factory packaging, whenever it is to be transported.

8. Service
Any defective devices or devices with missing parts should be returned to Fischer Mess- und Regeltechnik GmbH. For quick service contact our service department.

Remaining medium in and on dismantled measuring instruments may cause danger to persons, environment and equipment. Take reasonable precautions! Clean the instrument thoroughly if necessary.

9. Accessories
N.A.

10. Disposal

Protect your environment!
Use the product in accordance with relevant regulations. Please be aware of environmental consequences of disposal at the end of the product's life, and take care accordingly.
### 11. Specifications

<table>
<thead>
<tr>
<th>General</th>
<th>0... 400 mbar up to 0... 6 bar (see ordering code)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring range</td>
<td>25 bar</td>
</tr>
<tr>
<td>Nominal pressure</td>
<td>Acc. to measuring range (see ordering code)</td>
</tr>
<tr>
<td>Max. static operating pressure</td>
<td>One-sided overpressure protected up to nominal pressure on (+) - and (-) side of diaphragm, partial vacuum protected</td>
</tr>
<tr>
<td>Perm. ambient temperature</td>
<td>-10... +70°C</td>
</tr>
<tr>
<td>Perm. medium temperature</td>
<td>70°C</td>
</tr>
<tr>
<td>Protection class</td>
<td>IP 54 acc. to DIN EN 60529</td>
</tr>
<tr>
<td>Mounting position</td>
<td>Vertical</td>
</tr>
<tr>
<td>Measuring accuracy</td>
<td>± 2.5% FS</td>
</tr>
<tr>
<td>Zero adjustment</td>
<td>Located in the dial</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Switching Elements</th>
<th>1 or 2 microswitches, 1-channel change-over contacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact output</td>
<td>External adjustment by standard value scales</td>
</tr>
<tr>
<td>Adjustment of switching points</td>
<td>smallest adjustable value: approx. 5% FS</td>
</tr>
<tr>
<td>Switching hysteresis</td>
<td>Approx. 2.5% FS</td>
</tr>
<tr>
<td>Load data / contacts</td>
<td>U_{max} = 250 V AC, I_{max} = 5 A, P_{max} = 250 VA</td>
</tr>
<tr>
<td></td>
<td>U_{max} = 30 V DC, I_{max} = 0.4 A, P_{max} = 10 W</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electrical Connection</th>
<th>Numbered cable, prewired terminal box, 7-channel plug</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure Connection</td>
<td>Thread G1/4 female, cutting ring connection for 6, 8, 10,12 mm (\varnothing) tube of brass, zinced steel or chrome nickel steel connection shank G1/4 male DIN EN 837</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measuring System</th>
<th>Diaphragm measuring system, diaphragm of reinforced Viton®</th>
</tr>
</thead>
</table>

| Materials                        |  |
|----------------------------------|  |
| Pressure chamber                 | Aluminium GkAlSi10(Mg), varnished black |
|                                  | Aluminium GkAlSi10(Mg) HART-COAT® surface protection |
|                                  | Chrome nickel steel 1.4305 |
| Measuring diaphragm              | Diaphragm measuring system and gaskets of Viton® |
| Materials: medium               | Stainless steel 1.4310, 1.4305 |
| Materials: housing               | Macrolon |
| Weight                           | Pressure chamber of Aluminium = 1.2 kg, pressure chamber of 1.4305 = 3.5 kg |
| Mounting                         | Wallmounting - 3 fastening elements |
|                                  | Panel mounting - panel mounting kit DZ11 \(\varnothing\) 132 mm |
|                                  | Pipe mounting, pressure connections = (+), (-) symbols |
|                                  | - by screwed-in cutting ring or clamping ring connection |
|                                  | - by screwed-in connection shank acc. to DIN EN 837 for nipple fitting acc. to DIN 16284 |
12. **Dimensions** (all units in mm unless otherwise stated)

- **Cutting ring connection**
- **Prewired terminal box or 7-pin connector**
- **M16x1.5 plastic cable gland**
- **M20x1.5 cable gland**

**Variants of Electrical Connection**

- **DS21 Wallmounting (standard)**
- **Connections G¼ female**

**Variants of Process Connection**
### Ordering Code

#### Differential Pressure Switch  DS21

<table>
<thead>
<tr>
<th>Range</th>
<th>Max. static pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 . . . 250 mbar</td>
<td>6 bar .................. &gt; 8 2</td>
</tr>
<tr>
<td>0 . . . 400 mbar</td>
<td>6 bar .................. &gt; 8 3</td>
</tr>
<tr>
<td>0 . . . 0.6 bar</td>
<td>10 bar .................. &gt; 0 1</td>
</tr>
<tr>
<td>0 . . . 1 bar</td>
<td>16 bar .................. &gt; 0 2</td>
</tr>
<tr>
<td>0 . . . 1.6 bar</td>
<td>16 bar .................. &gt; 0 3</td>
</tr>
<tr>
<td>0 . . . 2.5 bar</td>
<td>16 bar .................. &gt; 0 4</td>
</tr>
<tr>
<td>0 . . . 4 bar</td>
<td>16 bar .................. &gt; 0 5</td>
</tr>
<tr>
<td>0 . . . 6 bar</td>
<td>16 bar .................. &gt; 0 6</td>
</tr>
</tbody>
</table>

**Application**  
Thermal oil DIN 32727 / Hot water / Flow 100  > 0

**Pressure Chamber**  
Aluminium ................................................. > A  
Aluminium HART COAT® .................................... > D  
Chrome-nickel-steel 1.4305 ................................ > W

**Pressure Connection**  
Female thread G1/4 ........................................ > 0 1  
Cutting ring fitting of steel for 6 mm tube .......... > 2 0  
Cutting ring fitting of steel for 8 mm tube .......... > 2 1  
Cutting ring fitting of steel for 10 mm tube ....... > 2 2  
Cutting ring fitting of steel for 12 mm tube ....... > 2 3  
Cutting ring fitting of 1.4571 for 6 mm tube ....... > 2 4  
Cutting ring fitting of 1.4571 for 8 mm tube ....... > 2 5  
Cutting ring fitting of 1.4571 for 10 mm tube ..... > 2 6  
Cutting ring fitting of 1.4571 for 12 mm tube ..... > 2 7

**Switching Elements**  
1 adjustable microswitch ................................ > A  
2 adjustable microswitches .............................. > B

**Electrical Connection**  
1 m numbered cable, prewired ................................ > 1  
2.5 m numbered cable, prewired .......................... > 2  
5 m numbered cable, prewired ............................ > 5  
Prewired terminal box ...................................... > K  
GL approved model, 3 m supply cable H07 RNF ....... > Z

*Shaded marks are not indicated in data sheet and only available on request!*
14. Declaration of Conformity

Konformitätserklärung
Wir erklären in alleiniger Verantwortung, dass nachstehend genannte Produkte gemäß gültigem Datenblatt

Declaration of Conformity
We declare under our sole responsibility that the products mentioned below, according to the current data sheet

Fischer-Typen / Fischer-models
Datenblätter - Bedienungsanleitung / data sheets - operating instructions

Differenzdruck- Mess- u. Schaltgerät / Differential Pressure Switch
(Strömungssicherung für / (Flow Switches for Wärmeübertragungsanlagen) / Heat Transfer Installations)

DS21

(21D ##...mit Wirkdruckgeber / with Differential Pressure Element)

DB_D_DS21 / DB_GB_DS21
BA_D_DS21 / BA_GB_DS21

mit folgender Richtlinie übereinstimmmt:
Druckgeräterichtlinie 97 / 23 / EG

Ausrüstungsteil mit Sicherheitsfunktion Kategorie IV
EG-Baumusterprüfung - Modul B
Zertifikat Nr. 07 202 5435 Z 0063/2/2
Zertifizierung der Produktion - Modul B

Überwachende Stelle:
TÜV-Nord Anlagentechnik, CE 0045
Rheinische Str. 15, D-49084 Osnabrück

Mitgeltende EG-Richtlinie:
Niederspannungsrichtlinie 72/23/EG

Angewandte Normen und Regelwerke:
EN 61010-1
Sicherheitsbestimmungen für elektrische Mess-, Steuer-, Regel- und Laborgeräte - Allgemeine Anforderungen
EN 837-1
Druckmeßgeräte - Druckmeßgeräte mit Rohrfedern; Maße, Meßtechnik, Anforderungen und Prüfung
DIN 32727
Strömungssicherungen für Wärmeübertragungsanlagen; Sicherheitstechnische Anforderungen und Prüfung
prEN 13445
Unbelastete Druckbehälter
Vd-TÜV Merkblatt Strömung 100

Bad Salzuflen, 27.04.2005
(Ort, Datum / place, date)

Fischer · Mess- und Regeltechnik GmbH · Bielfelder Str. 37a · D-32107 Bad Salzuflen · Tel. (0 52 22) 9 74-0 · Fax (0 52 22) 71 70
eMail: info@klaus-fischer.de · internet: www.fischer-ag
15. Annex
DIN CERTCO certificate DIN 32723

CERTIFICATE

The company

Fischer
Mess- und Regeltechnik GmbH
Bielefelder Straße 37a
32107 Bad Salzuflen

hereby receives the confirmation that the product/s
Flow switches for heat transfer installations
of the type
DS 21...

conforms to
DIN 32727:1981-02

and is granted the licence to use the mark

in conjunction with the Registration No. below.

Registration No.: 1B012/07

This Certificate is valid until 2012-02-28.

See annex for further information.
DIN CERTCO Gesellschaft für Konformitätsbewertung mbH
Alboinstraße 56, 12103 Berlin

2007-05-15
Dipl.-Ing. Dipl.-Wl.-Ing. Sören Scholz
- Acting Head of Certification Body -
Annex

to the Certificate with Registration No. 1B012/07, dated 2007-05-15

Technical data

Item Designation: DS 21... (previous designation 21 D./.)
Construction Type: Differential pressure gauge with differential pressure transducer
Differential pressure transducer: Orifice flowmeter .../MB, flowmeter .../SB, Annubar senor .../AS,
itabar senor .../IS

Design Types: DS 21.../IF
Device for explosion prone areas with a bayonet housing IP 65 made of chromium-nickel steel,
which contains the electrics.

Comments:
1. When using a differential pressure transducer according to DIN 1952/VDI 2041 the measuring
   arrangement shall be carried out according to VDE/VDI 3512, Sheet 1.

2. Shut-off valves in differential pressure pipes may only be activable using tools.
   Threaded connections in these pipes must be designed in such a manner that they seal tightly
   without sealing agents.

3. The inside diameter and length of differential pipes must be such that when the pipes are cold
   (ca. 20 °C) the response time of the device is no longer than 5 seconds.

4. The differential pressure pipes must be of metal construction with a clear width of no less
   than 4 mm and the length before bending must be at least 500 mm. With an arrangement
   according to VDE/VDI 3512, Sheet 1 with block valves, the length before bending of the
   differential pressure pipe between the block valve and the differential pressure transducer
   must be at least 500 mm.

5. The blocking and unblocking mechanisms must be secured by electrical switches to be
   fitted consecutively.

Testing laboratory / Inspection body

TÜV NORD
Systems GmbH & Co. KG
Prüflab. für Feuerungsanlagen
Am TÜV 1
30519 Hannover

Test report(s)

SSW 7002/07 dated 2007-03-14
TÜV Certificate

Bescheinigung
Certificate

über die Zuerkennung eines Bauteilkennzeichens für Strömungswächter/-begrenzer
Aufgrund einer Bauteilprüfung - Prüfbericht der der TÜV NORD CERT GmbH vom 12.04.2007
wird dem Antragsteller, der Firma Fischer Mess- und Regeltechnik GmbH
Bielefelder Straße 37a, 32107 Bad Salzuflen
zu erkannt das Bauteilkennzeichen-Nr. is granted the type-test approval mark No.
TÜV . SW/SB . 07 - 020
für Differenzdruckgerät
Typ DS 21...

Die Zuerkennung erfolgt in Anwendung der VdTÜV-Merkblatt „Strömung 100“, Ausgabe 03.90
Sie ist bis zum 30.06.2012
befristet und kann widerrufen werden.
Die Bescheinigung vom 08.04.2002
wird hierdurch ersetzt.

Hinweis: Der Hersteller oder Importeur ist verpflichtet, den zuständigen Sachverständigen zu
beauftragen, Bauteile aus der laufenden Fertigung auf Übereinstimmung mit dem Baumuster
einmal jährlich stichprobenweise zu überprüfen.

Berlin, 29. Mai 2007
Bio/Wei

Verband der TÜV e. V.
Geschäftsbereich Anlagentechnik,
Arbeitswelt, System sicherheit, Regelwerke
– Zertifizierungen und Registrierungen –

Verband der TÜV e. V. · Friedrichstraße 136 · 10117 Berlin · Deutschland
Telefon +49 30 760095-400 · Telefax +49 30 760095-401 · Internet: www.vdtuev.de
CERTIFICATE

EC type-examination
down to directive 97/23/EC

Certificate No.: 07 202 5435 Z 0063/2/2

Name and address of bearer/
manufacturer: Klaus Fischer Mess- und Regeltechnik GmbH
Bielefelder Str. 37a
D-32107 Bad Salzuflen

We hereby certify that the type examination mentioned below fulfills the requirements of directive
97/23/EC.

Tested according to directive
97/23/EC: EC type-examination (module B)
Test report No.: 5435P0063/2/2
Description of type: Minimum flow control for thermal transfer plant
Type differential pressure gauge 21D.../...
with differential pressure sensor

Place of manufacture: D-32107 Bad Salzuflen

valid until: 08/2012

Osnabrück, 03.09.02

TÜV CERT-Zertifizierungsstelle
für Druckgeräte
der TÜV NORD Systems
GmbH & Co. KG

Fisse
Notified Body 0045
GL type approval certificate

Type Approval Certificate

This is to certify that the undersigned product(s) has/have been tested in accordance with the relevant requirements of the GL Type Approval System.

Certificate No. 93 623 - 88 HH
Company Fischer
Mess- und Regeltechnik GmbH
Bielefelder Straße 37a
32107 Bad Salzuflen, GERMANY
Product Description Pressure Indicator and Switching Device

Type
DS11
21D

Environmental Category C, H, EMC1

Technical Data / Range of Application
Pressure indicator: 270° scale, Indicator class: 2.5
Ranges Max. Static Pressure [bar]
0 - 400 mbar 6
0 - 0.8 bar 10
0 - 1 bar 16
0 - 1.6; 0 - 2.5; 0 - 4; 0 - 6; 0 - 10 bar 25
Max. medium temperature: 70° C
Wetted parts: 1.4310, 1.4305
Pressure gauge: GK - AISI 12 (Cu), with hart coat or 1.4305
Output: 2 clo - contacts separate adjustable
Rating: 3A, 250 V AC, 250 VA
Connection: fixed cable type A 07 RNF or equivalent
Degree of protection: IP 54
Type 21D: identical technical data, gaskets and membrane = viton

*H: Vibration test: 2 to 17 Hz amplitude = 1.6 mm, 17 to 100 Hz accelerometer = 2g

Test Standard Guidelines for the Performance of Type Approvals, Chapter 2, Edition 2003

Documents Technical data sheets: "Typ 21D-DS21" and "Typ DS11",
Drawings: No. 02.021.00.00067.2/06/023.2 and 02.011.00.04855.27/04/057.2,
Test report: "TÜV 57 011 7" dated 04.06.1982

Remarks None

Valid until 2014-06-28

Page 1 of 1 Type Approval Symbol
File No. LD.01
Hamburg, 2010-03-23

Germanischer Lloyd
Matthias Wiese
Klaus-Peter Schröder

* This certificate is issued on the basis of "Guidelines for the Performance of Type Approvals Part 1, Procedure".