**VALIDATION OF OPERATIONS DESCRIBED IN THIS MANUAL**
**The maintenance operations described in this manual have been checked in manufacturer's workshops by an exact carrying out of dismantling, reassembly, test and repair instructions which are detailed in this document. These operations are those in use at the latest revision date of the document.**

# MAINTENANCE INSTRUCTIONS WITH ILLUSTRATED PARTS LIST

# HALON 1 / 1.2 / 2.5 AIR TOTAL

**List of Portable Fire Extinguishers**

| Part No. | Type: |
|---|---|
| 74-00 | HAL 1.0 |
| 74-20 | HAL 1.2 |
| 74-21 | HAL 1.2 (LH) |
| 74-22 | HAL 1.2 (AF) |
| 76-00 | HAL 2.5 |

# COMPONENT MAINTENANCE MANUAL

**Caution**

This manual provides the necessary information to perform the repair in an intermediate level maintenance shop (I-level).
The 3rd level of maintenance (D-level) is not applicable in this manual.

**Link to current revision: https://www.johnsoncontrols.com/de_de/-/media/jci/be/germany/p1-pages/files/cmm.pdf**

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**Cage Code: D0243**

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## Inspection Record Sheet

| Inspec. No. | Date issued | Performed date | Inspec.No. by | Date issued | Performed date by | Total weight |
|---|---|---|---|---|---|---|
| | | | | | | |

## Record of revisions

| Rev. No | Revision Airbus | Issue date | inserted | | Release Page |
|---|---|---|---|---|---|
| | | | Date | by | |
| - | | 01/1987 | 01/1987 | J. Schöbel | - |
| B | 1 | 02/1999 | 02/1999 | J. Schöbel | 1 – 14 |
| C | 2 | 08/2003 | 08/2003 | H. Bach | 1 – 10, 13 |
| D | 3 | 12/2003 | 12/2003 | H. Bach | 11 - 12 |
| E | 4 | 01/2005 | 01/2005 | H. Bach | 1, 3, 5, 11, 12 |
| F | 5 | 05/2008 | 05/2008 | H. Bach | 3, 8, 9 |
| G | 6 | 03/2011 | 03/2011 | H. Bach | 3, 6, 12 |
| H | 7 | 10/2012 | 10/2012 | H. Bach | 6 |
| I | 8 | 05/2014 | 05/2014 | H. Bach | 3, 9, 10, 12 |
| J | 9 | 07/2015 | 07/2015 | H. Bach | 1, 3, 5, 12 |
| K | 10 | 06/2016 | 06/2016 | H. Bach | 3, 4, 5 |
| L | 11 | 11/2016 | 11/2016 | H. Bach | 1, 3, 4, 7, 9 - 12 |
| M | 12 | 11/2017 | 11/2017 | H. Bach | 1 - 16 |
| N | 13 | 07/2018 | 07/2018 | H. Bach | 1, 6, 9 |
| O | 14 | 09/2018 | 10/2018 | H. Bach | 3, 5, 15 |
| P | 15 | 04/2019 | 04/2019 | H. Bach | 3, 15 |
| Q | 16 | 12/2019 | 12/2019 | H. Bach | 2, 3, 11, 15, 16 |
| R | 17 | 01/2021 | 01/2021 | H. Bach | 10 |
| S | 18 | 05/2022 | 05/2022 | H. Bach | 3, 6, 10 |
| T | 19 | 11/2022 | 11/2022 | H. Bach | 3, 13 |
| U | 20 | 01/2023 | 01/2023 | H. Bach | 3, 8, 11 |
| V | 21 | 08/2023 | 08/2023 | H. Bach | 3, 5, 9, 10, 11, 13 |
| W | 22 | 10/2025 | 10/2025 | H. Bach | 1, 3, 9, 10, 11, 13 |
| | | | | | |
| | | | | | |

## Record of temporary revisions

| Temp. Rev. No. | Issue date | inserted | | removed | | Page No. |
|---|---|---|---|---|---|---|
| | | Date | by | Date | by | |
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| 2 | Sealing the valve | 12 |
| 3 | Fire extinguisher parts | 15 |
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## Service Bulletin / Service Information Letter List

| SB / SIL No. | Rev. No. | Type | Incorp. Date | Title |
|---|---|---|---|---|
| 1 (SB) | | 74-00<br>74-20<br>74-21<br>76-00 | 21.10.2003 | Change of Basic Overhaul for AIR TOTAL HAL 1 / 1.2 / 2.5 from 6 to 10 years |
| 2 (SB) | | 74-00<br>74-20<br>74-21<br>76-00 | 20.01.2005 | Change Part Number for AIR TOTAL HAL 1 / 1.2 / 2.5 |
| 3 (SB) | | 74-00<br>74-20<br>74-21<br>76-00 | 27.06.2011 | Missing point at weight specification on check note label for AIR TOTAL HAL 1 / 1.2 / 2.5 |
| 4 (SB) | | 74-00 | 17.10.2013 | Different part numbers for AIR TOTAL HAL 1 |
| 5 (SB) | 01 | 74-20 | 07.12.2016 | AIR TOTAL Service Bulletin 2016-01 |
| SBNO 01/2018 | 02 | 74-00<br>74-20<br>74-21<br>76-00 | 26.09.2018 | Change of PN for valve Air TOTAL HAL 1 / 1.2 / 2.5 |
| SBNO 01/2023 | 00 | 74-20<br>74-21 | 07.02.2023 | confirms that the fire extinguishers HAL 1.2 in the bundle PN 74-20 and PN-74-21 are identical. |
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**Description** (see illustration 1)

**(1)** Portable fire extinguishers type HAL 1, HAL 1.2 and HAL 2.5 are intended for use in aircraft pilot- and passenger cabins.
They are filled with HALON 1211. The fire extinguishers are approved for the attack on flammable solids, flammable liquids, flammable gases and for fires in the presents of electrical tensions up to 1000 Volt.
The extinguishers are designed for a one hand operation.

**(2)** Range of application

**(a)** Fire Class
ABC

**(b)** Extinguishing agent
HALON 1211

**(3)** The fire extinguisher consists of 3 main components

**(a)** The steel container, pressure tested to 36 bar (522 psi), painted red RAL 3000.

**(b)** The discharge valve with siphon tube and pressure gauge.
The valve is pressure lever operated and can be shut-off.
The carrying handle is movable.

**(c)** The extinguishing agent HALON 1211 is nitrogen super pressurized.
Filling pressure: 11 bar (156.5 psi) at 15°C (59°F).

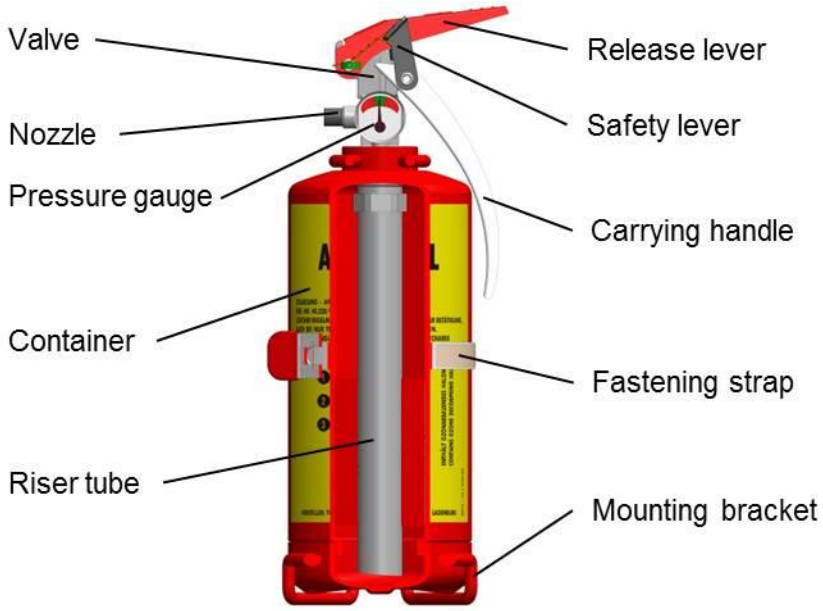



Illustration 1 (Sectional model)

## Operating instructions

When held in place with a strap, open fastener and remove extinguisher from bracket. Bent down safety lever (black), remove seal wire and than squeeze release lever (red). Attack fire with the discharging extinguishing agent.

Attack the fire starting from front. Discharge agent in shots according to requirements.

## Technical data

| Part. No. | Dimensions | | Weight w/o bracket and fastening strap | | Weight bracket and fastening strap approx. | | Nominal pressure by 15°C/ 59°F | Container test press. | Filling | | Discharge time approx. | Heights |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Height | Dia. | Kg | Lbs | Kg | Lbs | | | Kg | Lbs | | |
| 74-00 | 265mm 10.4 in. | 82mm 3.2in. | 1.99 * | 4.39 | 0.21 | 0.46 | 11 bar 156.5 psi | 36 bar 522 psi ** | 1 | 2.2 | 7 sec | 20,000m 65.616 ft. |
| 74-20 | 265mm 10.4 in. | 82mm 3.2in. | 2.19 * | 4.83 | 0.21 | 0.46 | 11 bar 156.5 psi | 36 bar 522 psi ** | 1.2 | 2.65 | 9 sec | 20,000m 65.616 ft. |
| 74-21 | 265mm 10.4 in. | 82mm 3.2in. | 2.19 * | 4.83 | 0.5 | 1.10 | 11 bar 156.5 psi | 36 bar 522 psi ** | 1.2 | 2.65 | 9 sec | 20,000m 65.616 ft. |
| 74-22 | 265mm 10.4 in. | 82mm 3.2in. | 2.19 * | 4.83 | 0.21 | 0.46 | 11 bar 156.5 psi | 36 bar 522 psi ** | 1.2 | 2.65 | 9 sec | 20,000m 65.616 ft. |
| 76-00 | 380mm 15 in. | 100mm 4in. | 4.02 * | 8.86 | 0.41 | 0.90 | 11 bar 156.5 psi | 30 bar 435 psi | 2.5 | 5.51 | 10 sec | 20,000m 65.616 ft. |

* for exact weight see the check note label on the extinguishers backside.
** acc. CFR 173.309 (C).(4). Test pressure must be three times charged pressure (11.5 bar/166.8 psi) at 21ºC/70ºF and not less than 120 psi.

### (1) Operating temperature range

All fire extinguishers can be operated at temperatures of between -40°C and +70°C (-40°F and +158°F).

### (2) Throw distance

Throw distance for the extinguishers 74-00, 74-20, 74-21, 74-22 and 76-00 is 3.50 m (11.5 Ft) at +20°C (+68°F).

## Inspection regulations

***In case of security relevant damages, the fire extinguisher has to be scrapped immediately.***
***If the pressure is reduced the fire extinguisher has to be basically overhauled immediately.***

### (1) Pre-flight check

Check the pressure gauge. The indicator must be in the green section. The seal wire on the safeguard lever must not be damaged.

### (2) Periodical inspection

The inspection should be carried out every 2 years, or in shorter intervals, depending on internal regulations.

- Integrity of wire seal — visual inspection
- Condition of extinguisher, mounting bracket and fastening strap — visual inspection
- Legibility of label — visual inspection
- Container pressure / gauge — visual inspection
  At room temperature the pointer must be in the green section of the dial.
- Weight control / scale
  Permissible deviation: 2% of fill capacity / year, but not more than 10% of fill capacity
  (For exact weight see the check note label on the extinguishers backside).

### (3) Characteristics after 5 years

After expiration of 5 years, in case of filling / refilling, the container of the fire extinguisher has to be inspected inside. Should defects be detected, the extinguisher has to be hydrostatically pressure tested.

### (4) Basic overhaul

Container hydrostatic pressure test

All fire extinguishers, listed in that maintenance procedure instruction, must be hydrostatically pressure tested at regular 10 year intervals. *The 10 year period starts with the date of production of the extinguisher* (see label on back). Should defects be detected at a regular inspection, this pressure test must be performed earlier. These tests shall only be carried out by an authorized aviation equipment inspector, well adverted with the safety standards applicable to this test. Furthermore, also required is an adequate room and the necessary test equipment. After the hydrostatic pressure test the cylinder has to be desiccated inside.

*If the second hydrostatic pressure test is due, the manufacturer recommends, to replace the extinguisher!*

## Disassembly, cleaning and reassembly

The fire extinguisher shall only be disassembled, cleaned, reassembled and refilled by an aviation approved maintenance organization with Halon hand fire extinguisher maintenance equipment and certificate.

- Empty the extinguisher (observe environmental protection regulations concerning HALON 1211).
- Unscrew valve (60*, 60A*) with open-end wrench size 17.
- Visually inspect valve, container thread and O-ring seat for damage.
  *If discoloration or corrosion is found on the riser pipe, we recommend replacing the entire valve.*
- Press operation lever and check mobility of valve spindle.
- Visually inspect inside of container for corrosion and damage.
- Screw valve with new O-ring (20*) back on to the container. (Apply a light layer of acid free Vaseline to thread and O-ring). Torque: 30 Nm (22,127 ft-lbs)
- Clean container. Check label, mounting bracket and fastening strap for damage.

* see page 15 fire extinguisher parts list

## Filling instructions

When filling HALON extinguishers, the filling station must observe the following instructions:

**(1) Determining net weight:**

After assembly the empty extinguisher must be placed on a scale to determine the weight. This net weight must be entered in the check note.

**(2) Refilling:**

Place the extinguisher on a scale and connect it to the fill station. During the filling process the release lever of the extinguisher must be held down with a clamp. The weight of this clamp must be taken into consideration in the weighing process.

The extinguishing agent is filled according to weight. Care must be taken to observe the permissible fill tolerances.

Portable Fire Extinguishers:

| | |
|---|---|
| HAL 1 | 1 Kg HALON 1211 (+0 -0.02 kg) |
| HAL 1.2 | 1.2 Kg HALON 1211 (+0 -0.02 kg) |
| HAL 2.5 | 2.5 Kg HALON 1211 (+0 -0.02 kg) |

After the filling the extinguisher must be pressurized with gaseous nitrogen (99.0 to 99.8 degree of purity, dew point -40°C, (-40°F)). The pressurization for HAL 1, HAL 1.2 and HAL 2.5 should be according to temperature-pressure curves T565*.

The nominal fill pressure at 15°C (59°F) is 11 bar (156.5 psi) - mark in green section of gauge dial. Than move the closed extinguisher horizontally back and forth to mix HALON and nitrogen together. In this process the container pressure drops. Pressurize the fire extinguisher again, up to the specified pressure. Remove the clamp from container release lever. Secure release lever. The fill line can than be depressurized and also closed.

* see page 16

**(3) Determination of total weight:**

After the fill process is completed and the extinguisher disconnected from the fill line, the extinguisher must be placed back on the scale again to determine the total weight. This weight must be entered in the inspection record card and on the extinguisher check note (when weighing the extinguisher, the weight of seal, seal wire and the approval label must be included).

Seal the extinguisher (Seal wire tensile strength 40 N).

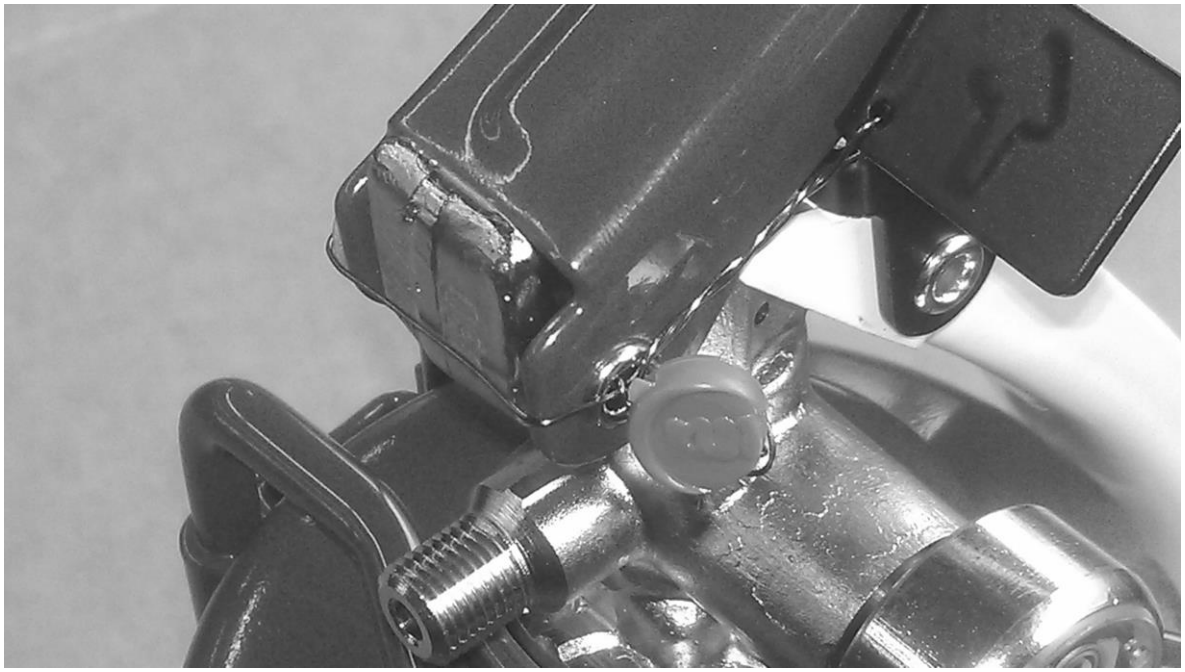


Illustration 2 (Sealing the valve)

**(4) Acceptance of filled extinguisher:**

Acceptance and clearance of the extinguisher must be made by authorized staff.
Acceptance test:

- General visual inspection of the extinguisher
- Checking operating pressure (see page 5 technical data)
- Tightness control. Checking the unit after 1 week in storage

## Storage

The storage temperature shall not exceed 70°C (158°F). Ambient air should be dry and free of corrosion causing components. The extinguisher must be checked every 2 years, or in shorter periods according to internal regulations, as described on page 9 Inspection Regulations.

## DOT requirements

For any transportation by road, air or sea to, from and within USA an approval from DOT is mandatory. The marking “MEETS DOT REQUIREMENTS” on the fire extinguisher confirms the approval.

| | | | |
|---|---|---|---|
| **(1)** | **AIR TOTAL** | **HAL 1** | **74-00** |
| | | **HAL 1.2** | **74-20** |
| | | **HAL 1.2 (LH)** | **74-21** |
| | | **HAL 1.2 (AF)** | **74-22** |

Above mentioned fire extinguishers, produced before May 2016 are not marked with “MEETS DOT REQUIREMENTS”. Before transportations the following actions on this fire extinguishers have to be performed:

- The fire extinguisher needs to be marked with label DOT-SP 20248 (PN 0074-20-1000 / ident. 256108).
  Labels can be ordered from:

  ***TOTAL Feuerschutz GmbH***
  ***Industriestraße 13***
  ***68526 Ladenburg***
  ***GERMANY***

- If the hydrostatic pressure test is requested, it has to be done with 36 bar (see technical data page 8). The label “DOT-SP 20248” needs to be replaced with the marking “MEETS DOT REQUIREMENTS”.

Above mentioned fire extinguishers, produced after May 2016, are not concerned from this procedure. For this fire extinguishers the correct labelling occurred during production.

| | | | |
|---|---|---|---|
| **(2)** | **AIR TOTAL** | **HAL 2.5** | **76-00** |

Above mentioned fire extinguisher is not DOT approved. Nevertheless, transportation by road, air or sea to, from and within USA is allowed with DOT-SP 20439.

**Parts List** (see page 15)

This parts list contains all subassemblies and components of the above listed fire extinguishers.

Definition of parts list:

**(1) Item numbers**

The first number in the first line is the number of the depicted extinguisher.
The second number is the item number shown on illustration 3.
A stroke in front of the item number indicates that this part is not shown on the illustration.

**(2) Part number**

Manufacturers original part number.

**(3) Ident number**

Manufactures EDP-number

**(4) Airlines part number**

This section remains free for use of the airline

**(5) Description**

The section description contains the name of every subassembly or extinguisher component.

**(6) EFF-Code**

Section EFF-code refers to the association of similar subassemblies / components.
These parts are identified with the letters A, B, C.
Is a component used in all extinguishers this section remains empty.

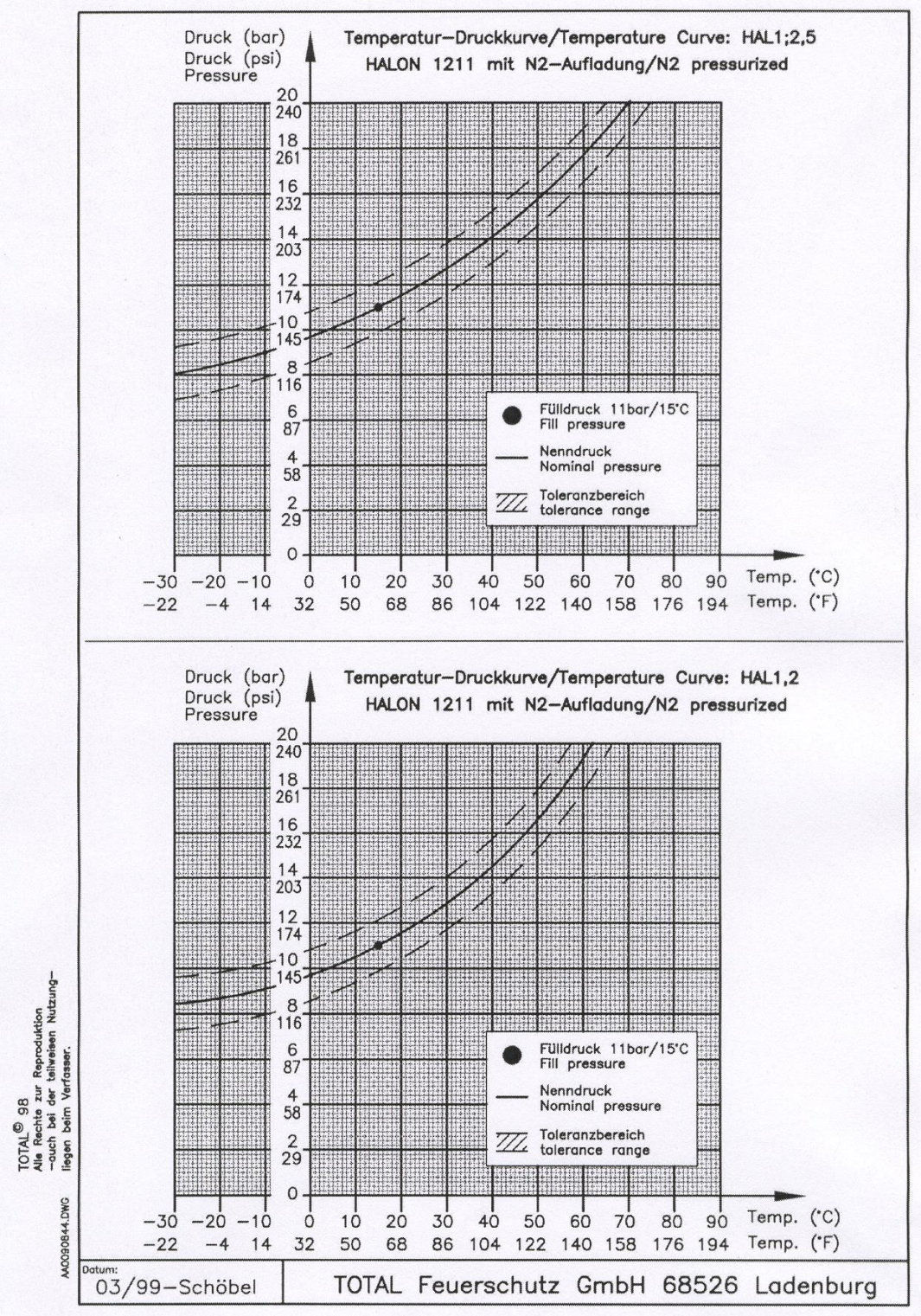
**(7) Number per unit**

Number of identical pieces per extinguisher.

## Parts List Illustration

| Item No. | Part No. | Ident No. | Airlines part No. | Description | EFF-Code | Number per unit |
|---|---|---|---|---|---|---|
| 10 | 74-00 | 821166 | | Extinguisher HAL 1 | A | |
| 10A | 74-20 | 821164 | | Extinguisher HAL 1.2 | B | |
| 10A | 74-21 | 821226 | | Extinguisher HAL 1.2 (LH) | B | |
| 10A | 74-22 | 821495 | | Extinguisher HAL 1.2 (AF) | B | |
| 10B | 76-00 | 821165 | | Extinguisher HAL 2.5 | C | |
| 20 | E000-02785 | 120101 | | O-ring | | 1 |
| 30 | 0074-45 | 240166 | | Instruction label | | 1 |
| 40 | 0074-46 | 240169 | | Check note label | | 1 |
| 40A | 0074-47 | 255479 | | Protective foil | | 1 |
| 50 | 0074-48-1000 | 256109 | | Hazard note | | 1 |
| 60 | 0074-U12 | 621091 | | Valve assembly HAL 1 / 1.2 | A, B | 1 |
| *alternative* | *0074-U13* | *621091* | | *Valve assembly HAL 1 / 1.2* | *A, B* | *1* |
| 60A | 0076-U04 | 621303 | | Valve assembly HAL 2.5 | C | 1 |
| *alternative* | *0076-U13* | *621304* | | *Valve assembly HAL 2.5* | *C* | *1* |
| 70 | E000-11936 | 220295 | | Copper seal wire | | 1 |
| 70A | E000-00101 | 120006 | | Plastic seal green | | 1 |
| 80 | 0140-00 | 621139 | | Bracket HAL 1 / 1.2 * | A, B | 1 |
| 80 | 0140-01 | 256055 | | Bracket HAL 1 / 1.2 * (AF) | A, B | 1 |
| 80A | 0119-2 | 621101 | | Bracket HAL 2.5 * | C | 1 |
| 80B | 0140-02-1000 | 254303 | | Bracket HAL 1.2 (LH) * | B | 1 |
| 80C | 0140-03-1000 | 255295 | | Bracket HAL 1.2 CFK (LH) * | B | 1 |
| 90 | 0140-U51 | 254076 | | Fastening strap HAL 1 / 1.2 | A, B | 1 |
| 90A | 0119-2-U51 | 254077 | | Fastening strap HAL 2.5 | C | 1 |
| 90B | 0140-02-1010 | 254304 | | Fastening strap HAL1.2 (LH) | B | 1 |

* installation with fastening strap

Illustration 3 (Fire extinguisher parts)

## Temperature Curves