

Operating Instructions

Original in compliance with 2006/42/EG



Lifting Points, weld-type

TWN 0119, TWN 0124, TWN 1882

Manufacturer:

THIELE GmbH & Co. KG

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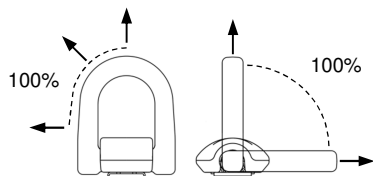
1 Description and Intended Use

THIELE Lifting Points weld-type are intended for attachment to steel structures and components.

Sling chains according to EN 818-4 or lashing chains according to EN 12195 may be used.

Weld-type Lifting Points mainly consist of a forged weld-on support and a welded or forged ring.

For Lifting Points of TWN 0124 and TWN 1882 springs are integrated to the weld-on support to provide position stabilization and noise reduction when not in use. (TWN = THIELE standard)



Lifting Points can be loaded to 100 % in all tensile directions.

THIELE Lifting Points meet EG Machinery Directive 2006/42/EG requirements and feature a safety factor of at least 4 based on Working Load Limit (WLL).

THIELE Lifting Points are signed with the CE symbol.

They are also signed with the Working Load Limit (WLL) in tons or the nominal chain size, manufacturers mark (stamp 'H4') and traceability code.

THIELE Lifting Points are designed to withstand 20,000 dynamic load changes under maximum load conditions. In the event of higher loads (e.g. multi-shift/automatic operation) the Working Load Limit must be reduced.

Lifting Points must exclusively be used

- within the limits of their permissible working load limit,
- for permissible attachment modes and inclination angles,
- within the temperature limits prescribed,
- with properly laid welding seams.

Working Load Limit of different modes of assembly can be seen in the load table.

Using the Lifting Points of TWN 0119 and TWN 0124 exclusively for lashing the maximum Lashing Capacity (LC) is calculated by doubling the Working Load Limit.

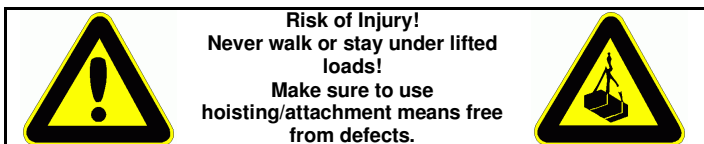
An alternating use for lifting and lashing is not allowed.

TWN 1882:

There are identically constructed Lashing Points by TWN 1880 available.

As a rule, Lifting Points are not permitted for the transportation of persons.

2 Safety Notes



- Operators, fitters, and maintenance personnel must in particular observe the Operating Instructions also from the used sling chain assemblies, documentations DGUV V 1, DGUV R 100-500 Chapter 2.8 and DGUV I 209-013 issued by the German Employers' Liability Insurance Association, as well as the Operating Instructions of the loads concerning advise for lifting.
- In the Federal Republic of Germany, the Operational Safety Ordinance (BetrSichV) has to be implemented and the Technical Rule for Industrial Safety TRBS 1201, in particular Annex 1, Chapter 2 "Special regulations for the use of working equipment for lifting loads" must be observed.
- Outside the Federal Republic of Germany the specific provisions issued locally in the country where the items are used must also be observed.
- The directions given in these Operating Instructions and specified documentations relating to safety, assembly, operation, inspection, and maintenance must be made available to the respective persons.
- Make sure these Operating Instructions are available in a place near the product during the time the equipment is used. Please contact the manufacturer if replacements are needed. See also chapter 9.
- When performing work make sure to wear your personal protective equipment!

- **Improper assembly and use may cause personal injury and/or damage to property.**
- Assembly and removal as well as inspection and maintenance must exclusively be carried out by skilled and authorized persons.
- Structural changes are impermissible (e.g. welding, bending).
- **Operators must carry out a visual inspection and, if necessary, a functional test of the safety equipment before each use.**
- Never put to use worn-out, bent or damaged Lifting Points.
- Only lift loads the mass of which is less than or equal to the Working Load Limit of the Lifting Points.
- Do not use force when mounting/positioning the Lifting Points.
- Only lift loads that are freely movable and not attached or fastened.
- Do not bend the ring.
- Do not start lifting before you have made sure the load has been correctly attached.
- Make sure no one including you (operator) is in the way of the moving load (hazard area).
- During lifting/hoisting make sure your hands or other body parts do not come into contact with hoisting means. Only remove hoisting means manually (use your hands).
- Avoid impacts, e.g. due to abruptly lifting loads with chain in slack condition.
- Never move a suspended load over persons.
- Never cause suspended loads to swing.
- Always monitor a suspended load.
- Put the load only down in flat places/sites where it can be safely deposited. #
- Take care for sufficient place for the personnel to move when choosing the route of transportation and storage location. Danger to life and risk of injury by crushing hazards! #
- In the event of doubts about the use, inspection, maintenance or similar things contact your safety officer or the manufacturer!

THIELE will not be responsible for damage caused through non-observance of the instructions, rules, standards and notes indicated!

As regards quality grade 10/XL THIELE does not give its general approval to the assembly of components stemming from different manufacturers!

Working under the influence of drugs or alcohol is strictly forbidden!

3 Commissioning

Prior to using the components for the first time make sure that

- the Lifting Points comply with the order and have not been damaged,
- test certificate, statement of compliance and Operating Instructions are at hand,
- markings correspond with what is specified in the documentation,
- inspection deadlines and the qualified persons for examinations are determined,
- visibility and functional testing are carried out and documented,
- the documentation is safely kept in an orderly manner.

Dispose of the packing in an environmentally compatible way according to local rules.

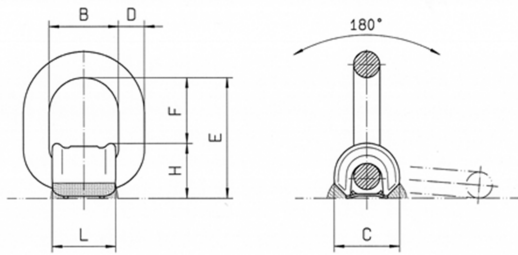
4 Technical Data

| Type | Size | Article No. ¹⁾ | Article No. ^{1,2)} | WLL [t] | Mass [kg] |
|----------|----------|---------------------------|-----------------------------|---------|-----------|
| TWN 0119 | 6-8 | F35103 | F35103A | 1,12 | 0,24 |
| | 8-8 | F35113 | F35113A | 2,0 | 0,46 |
| | 10-8 | F35123 | F35123A | 3,15 | 0,63 |
| | 13-8 | F35133 | F35133A | 5,3 | 1,9 |
| | 16-8 | F35143 | F35143A | 8,0 | 2,67 |
| | 22-8 | F35163 | - | 15 | 8,1 |
| | 32-8 | F35183 | - | 31,5 | 27,3 |
| | 40-8 | F35193 | - | 50 | 60 |
| TWN 0124 | 6-8 | F35107 | - | 1,12 | 0,25 |
| | 8-8 | F35110 | - | 2,0 | 0,43 |
| | 10-8 | F35124 | - | 3,15 | 0,72 |
| | 13-8 | F35139 | - | 5,3 | 1,9 |
| | 16-8 | F35144 | - | 8,0 | 2,8 |
| TWN 1882 | 6-10/XL | F352041 | F352041A | 1,4 | 0,41 |
| | 8-10/XL | F352051 | F352051A | 2,5 | 0,57 |
| | 10-10/XL | F352061 | F352061A | 4,0 | 0,84 |
| | 13-10/XL | F352071 | F352071A | 6,7 | 2,19 |
| | 16-10/XL | F352081 | F352081A | 10 | 3,35 |

1) Article Numbers of basic versions, no customized editions.

2) Edition for USA.

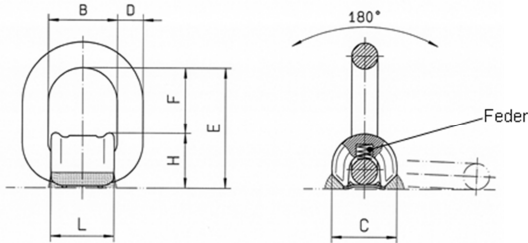
Dimensions TWN 0119:



| Size | Marking | Dimensions [mm] | | | | | | |
|------|---------|-----------------|-----------------|-----|-----|-----|----|-----|
| | | E ¹⁾ | F ¹⁾ | C | L | H | D | B |
| 6-8 | 1 | 59 | 31 | 32 | 32 | 28 | 12 | 36 |
| 8-8 | 2 | 69 | 37 | 38 | 38 | 33 | 14 | 42 |
| 10-8 | 3 | 84 | 46 | 45 | 44 | 38 | 18 | 48 |
| 13-8 | 5 | 120 | 69 | 60 | 60 | 51 | 24 | 66 |
| 16-8 | 8 | 127 | 66 | 68 | 65 | 61 | 28 | 72 |
| 22-8 | 15 | 178 | 98 | 96 | 109 | 80 | 39 | 120 |
| 32-8 | 32 | 292 | 174 | 145 | 165 | 118 | 56 | 180 |
| 40-8 | 50 | 371 | 228 | 186 | 210 | 145 | 72 | 230 |

1) For vertical orientation.

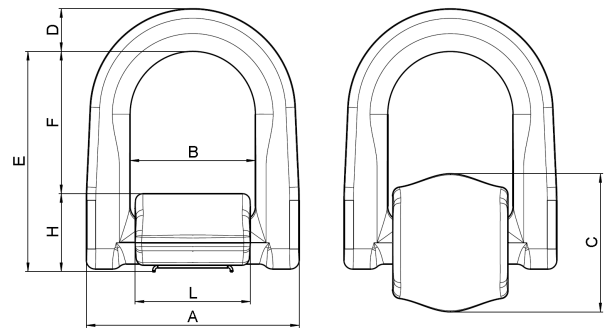
Dimensions TWN 0124:



| Size | Marking | Dimensions [mm] | | | | | | |
|------|---------|-----------------|-----------------|----|----|----|----|----|
| | | E ²⁾ | F ²⁾ | C | L | H | D | B |
| 6-8 | 1 | 56 | 30 | 32 | 32 | 28 | 12 | 36 |
| 8-8 | 2 | 67 | 37 | 38 | 38 | 33 | 14 | 42 |
| 10-8 | 3 | 81 | 45 | 45 | 44 | 38 | 18 | 48 |
| 13-8 | 5 | 117 | 69 | 60 | 60 | 54 | 24 | 66 |
| 16-8 | 8 | 122 | 67 | 68 | 65 | 61 | 28 | 72 |

2) For vertical orientation.

Dimensions TWN 1882:



| Size | Marking (WLL) | Dimensions [mm] | | | | | | | |
|----------|---------------|-----------------|----|----|----|-----------------|-----------------|----|----|
| | | A | B | C | D | E ³⁾ | F ³⁾ | H | L |
| 6-10/XL | 1,5 t | 65 | 38 | 50 | 13 | 68 | 42 | 26 | 35 |
| 8-10/XL | 2,5 t | 76 | 45 | 50 | 15 | 73 | 46 | 27 | 42 |
| 10-10/XL | 4,0 t | 85 | 50 | 56 | 17 | 87 | 56 | 31 | 46 |
| 13-10/XL | 6,7 t | 116 | 68 | 78 | 23 | 122 | 78 | 44 | 63 |
| 16-10/XL | 10 t | 130 | 69 | 92 | 27 | 126 | 72 | 54 | 63 |

3) For vertical orientation.

Load Table

| Load Table | | | TWN 0119 / TWN 0124 | | | | | | | | TWN 1882 | | | | |
|-----------------|---------------------------|---|---|------|------|------|------|------|------|-----|----------|-------|-------|-------|------|
| | | | 1 | 2 | 3 | 5 | 8 | 15 | 32 | 50 | 1,5 t | 2,5 t | 4,0 t | 6,7 t | 10 t |
| Attachment mode | Inclination angle β | Marking \blacktriangleright No. of legs | Working Load Limit of attachment mode [t] | | | | | | | | | | | | |
| | 0° | 1 | 1,12 | 2 | 3,15 | 5,3 | 8 | 15 | 31,5 | 50 | 1,5 | 2,5 | 4 | 6,7 | 10 |
| | 0° | 2 | 2,24 | 4 | 6,3 | 10,6 | 16 | 30 | 63 | 100 | 3 | 5 | 8 | 13,4 | 20 |
| | 90° | 1 | 1,12 | 2 | 3,15 | 5,3 | 8 | 15 | 31,5 | 50 | 1,5 | 2,5 | 4 | 6,7 | 10 |
| | 90° | 2 | 2,24 | 4 | 6,3 | 10,6 | 16 | 30 | 63 | 100 | 3 | 5 | 8 | 13,4 | 20 |
| | 0°-45° | 2 | 1,6 | 2,8 | 4,25 | 7,5 | 11,2 | 21,2 | 45 | 71 | 2,1 | 3,5 | 5,6 | 9,4 | 14 |
| | 45°-60° | 2 | 1,12 | 2 | 3,15 | 5,3 | 8 | 15 | 31,5 | 50 | 1,5 | 2,5 | 4 | 6,7 | 10 |
| | asymmetrical | 2 | 1,12 | 2 | 3,15 | 5,3 | 8 | 15 | 31,5 | 50 | 1,5 | 2,5 | 4 | 6,7 | 10 |
| | 0°-45° | 3 / 4 | 2,36 | 4,25 | 6,7 | 11,2 | 17 | 31,5 | 67 | 106 | 3,15 | 5,25 | 8,4 | 14,1 | 21 |
| | 45°-60° | 3 / 4 | 1,7 | 3 | 4,75 | 8 | 11,8 | 22,4 | 47,5 | 75 | 2,25 | 3,75 | 6 | 10,1 | 15 |
| | asymmetrical | 3 / 4 | 1,12 | 2 | 3,15 | 5,3 | 8 | 15 | 31,5 | 50 | 1,5 | 2,5 | 4 | 6,7 | 10 |

5 Assembly and Removal

5.1 Preparations

The mounting location for each Lifting Point has to ensure that

- the load can take the forces including test loads safely to be applied without suffering deformation,
- no areas of danger are created (crushing point, shearing point),
- transportation is not restrained by overhang,
- lifting accessories will not be bypassed,
- incorrect use is avoided,
- the suspension gear cannot be damaged, for example by sharp edges,
- the Lifting Point can be used easily.

Make sure the welding surfaces are grinded down, flat, dry, free of impurity, flawless and weldable (material see ISO/TR 15608 table 1, group 1). Make sure the weld area at the component is able to absorb the input force without safety reducing deformation.

Make sure the weld seam area at the component is large enough for the Lifting Points to be safely attached by welding.

5.2 Welding Instructions

Welding Instructions relating to weld-on supports (S355NL or similar) to be attached to C22, S235, S355 or similar components.

The following general Welding Instructions shall be duly followed:

| | |
|--------------------|--|
| Personell, Quality | EN ISO 3834 EN ISO 14731 EN ISO 9606 |
| Welding process | EN 1011 EN 1090 EN 15085 |
| Further | EN 13001-3-1 [#] ISO/TR 15608 SEW 088 |

Do not weld on the movable rings!

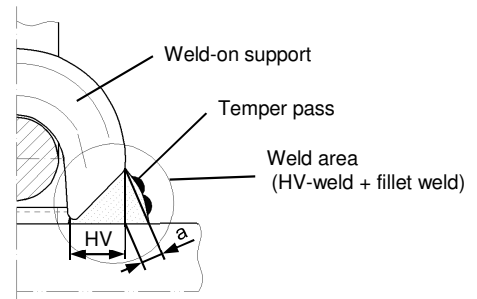
Take care not to widen the gap for the root run during tack-welding.

Take care for an accurate cleaning of the root run.

Take care to avoid end crater.

Continue the welding within one heat.

Sketch:



Miscellaneous:

1. Minimum notched-bar impact strength values of ISO-V specimens KV=27J at -40 °C (e.g. S355J4G3 or S355NL, EN10025)
2. When selecting material grades other than those listed above please contact the base material and filler metal manufacturers for information.
3. The responsible welding supervisor must make sure the welding current is correctly adjusted to suit the given welding position.

| Type | Size | Minimum length ¹⁾ [mm] | HV-weld [mm] | Fillet weld a _{min} ²⁾ [mm] | Volume appr. [cm ³] |
|----------|----------|--------------------------------------|-----------------|---|---------------------------------------|
| TWN 0119 | 6-8 | 2 x 32 | 9 | 3 | 2,0 |
| | 8-8 | 2 x 38 | 9 | 3 | 2,3 |
| | 10-8 | 2 x 44 | 10,5 | 3 | 3,0 |
| | 13-8 | 2 x 60 | 15 | 4 | 7,3 |
| | 16-8 | 2 x 65 | 17 | 4 | 8,5 |
| | 22-8 | 2 x 109 | 24 | 6 | 25,8 |
| | 32-8 | 2 x 165 | 36 | 16 | 131 |
| TWN 0124 | 40-8 | 2 x 210 | 36 | 22 | 260 |
| | 6-8 | 2 x 32 | 9 | 3 | 2,0 |
| | 8-8 | 2 x 38 | 9 | 3 | 2,3 |
| | 10-8 | 2 x 44 | 10,5 | 3 | 3,0 |
| | 13-8 | 2 x 60 | 15 | 4 | 7,3 |
| TWN 1882 | 16-8 | 2 x 65 | 17 | 4 | 8,5 |
| | 6-10/XL | 2 x 35 | 7,5 | 3 | 2,5 |
| | 8-10/XL | 2 x 42 | 7,5 | 3 | 3,0 |
| | 10-10/XL | 2 x 46 | 9 | 3 | 3,8 |
| | 13-10/XL | 2 x 63 | 12 | 4 | 8,1 |
| 16-10/XL | 2 x 63 | 15 | 4 | 9,8 | |

| | | | | | | | | |
|-------------------------------|---|---------------|---------------|---------------|---|---------------|---------------|---------------|
| Welding process | Manual metal arc welding (MMA) EN ISO 9606-1; Nr. 111 | | | | Metal active gas welding(MAG) EN ISO 9606-1; Nr. 135 | | | |
| Welding groove | EN ISO 9692-1:2013-12, chapter 1.9.1 (siehe sketch) | | | | EN ISO 9692-1:2013-12, chapter 1.9.1 (see sketch) | | | |
| Quality grade | Root run: EN ISO 5817 - D Final run: EN ISO 5817 - C | | | | Root run: EN ISO 5817 - D Final run: EN ISO 5817 - C | | | |
| Wire electrode | For example. EN ISO 2560-A-E42-4-“-“-B (2011) AWS A5.1-04: E7018-1H4R AWS A5.1M-04: E4918-1H4R | | | | EN ISO 14341-A-G 42- 4- M21- 3Si1 EN ISO 14341-A-G 46- 4- M21- 3Si2 AWS A5.18-05: ER70S-6 AWS A5.18M-05: ER48S-6 | | | |
| Welding position | EN ISO 6947: PA, PB, PC, PE, PF | | | | EN ISO 6947: PA, PB, PC, PE, PF | | | |
| Preheating of parent metal | Thickness ≥ 20 mm: 150 - 200 °C Rebaking (filler metal): appr. 300 - 350 °C for 2 hours | | | | Thickness ≥ 20 mm: 150 - 200 °C | | | |
| Interpass temperature | ≤ 400 °C for all heat treatable materials e.g. according to EN 10083 or temperable fine grain materials according to EN 10025 [#] ≤ 250 °C for thermomechanical fine-grained steels, e.g. S700MC [#] | | | | | | | |
| Postweld heat treatment | Thickness ≥ 30 mm: ≤ 550 °C for all heat treatable materials e.g. according to EN 10083 or temperable fine grain materials according to EN 10025 [#] , ≤ 250 °C for thermomechanical fine-grained steels, e.g. S700MC [#] , Tempering for 1 minute per mm of wall thickness or using the 'temper pass' technique | | | | | | | |
| Pass | Root run | Final run | Final run | Final run | Temper pass | Root run | Final run | Temper pass |
| Wire or electrode diameter | 2,5 mm | 3,2 mm | 4,0 mm | 5,0 mm | 3,25 mm/ 4,0 mm/ 5,0 mm | 1 mm | 1,2 mm | 1 or 1,2 mm |
| Welding current (=) | 80-110 A | 100-140 A | 130-180 A | 180-230 A | as final run | 130 – 260 A | 190 – 325 A | 190 – 325 A |
| Electrode polarity | (= +) | (= +) | (= +) | (= +) | (= +) | (= +) | (= +) | (= +) |
| Voltage | - | - | - | - | - | 22 – 33 V | 19 – 31 V | 19 – 31 V |
| Shield gas ISO 14175; M2 1 | - | - | - | - | - | 10 - 12 l/min | 12 - 14 l/min | 12 - 14 l/min |
| Kind of passes | Stringer pass | Stringer pass | Stringer pass | Stringer pass | Weaving pass [#] | Stringer pass | Stringer pass | Stringer pass |

6 Conditions of Use

6.1 Normal Use

The ring of the Lifting Point must always be freely movable. It must not rest on or be supported by other structural parts.

Using 4-leg chain link assemblies may cause higher risk because only 2 opposite legs carrying the load. Check the Working Load Limit of Lifting Points and chain link assembly carefully and chose if necessary bigger sizes.

6.2 Influence of Temperature

The permissible Working Load Limit of the Lifting Points reduces at elevated temperatures.

The reduced Working Load Limit shown in the following tables shall only apply for short-term use at the temperatures indicated.

If the Lifting Points have been exposed to temperatures exceeding the maximum values specified they must no longer be used.

| Type | Temperature range | Remaining Working Load Limit |
|----------------------|---|------------------------------|
| TWN 0119 TWN 0124 | $-40\text{ °C} \leq t \leq 200\text{ °C}$ | 100 % |
| | $200\text{ °C} < t \leq 300\text{ °C}$ | 90 % |
| | $300\text{ °C} < t \leq 400\text{ °C}$ | 75 % |
| TWN 1882 | $-30\text{ °C} \leq t \leq 200\text{ °C}$ | 100 % |
| | $200\text{ °C} < t \leq 300\text{ °C}$ | 90 % |
| | $300\text{ °C} < t \leq 380\text{ °C}$ | 60 % |

6.3 Environmental Influence

Lifting points must not be used in environments where acids, aggressive or corrosive chemicals or their fumes are present.

Hot-dip galvanizing or a galvanic treatment is prohibited as well.

7 Inspections, Maintenance, Disposal

Inspections and maintenance must be arranged for by the Owner!

Inspection deadlines shall be determined by the Owner!

Inspections must be carried out and documented by competent persons regularly but at least once a year, or more frequently if the Lifting Points are in heavy-duty service. After three years at the latest they must additionally be examined for cracks. A load test shall never be considered a substitute for this examination.

The results of the inspection shall be entered into a register (DGUV I 209-062 or DGUV I 209-063) to be prepared at first use. The register will show characteristic data as well as identity details.

Immediately stop using Lifting Points that show the following defects:

- missing or illegible identification/markings,
- deformation, elongation or fractures,
- cuts, notches, cracks, incipient cracks, pinching,
- heating beyond permissible limits,
- restricted hingeability of the ring,
- severe corrosion,
- wear exceeding 10 %, for example in the ring diameter area,
- weld failures.

Inspection Service

THIELE offers inspection, maintenance and repair services by trained and competent personnel.

Maintenance

Maintenance and repair work must only be performed by competent persons.

Minor notches and cracks at the rings may be eliminated by careful grinding observing the maximum cross section reduction requirement of 10 % and avoid making more severe cuts or scores.

All maintenance and repair activities are to be documented.

Disposal

All components and accessories of steel taken out of service are to be scrapped in line with local regulations and provisions.

8 Storage

Lifting Points are stored in dry locations at temperatures ranging between 0 °C and +40 °C.

9 THIELE Operating and Mounting Instructions

Current operating and installation instructions are available as a PDF download on the homepage.



10 Publishing Information

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'#' Changes to previous edition

EC Declaration of Conformity

acc. to Machinery Directive 2006/42/EG, Annex II A for a machine

THIELE GmbH & Co. KG herewith declares as manufacturer that

Lifting Points, weld-type

**TWN 0119 and TWN 0124,
TWN 1882**

are placed on the market in the form of a complete machine by THIELE together with the relevant test certificate, and are in compliance with the applicable provisions of the EU Machinery Directive 2006/42/EG.

The following harmonized standards have been observed:

- DIN EN ISO 12100
- DIN EN 1677-1
- DIN EN 1677-4

The following testing principles of the Employer's Liability Insurance Association were applied:

- GS-OA 15-04 Principles for testing and certification of anchor points

This declaration/statement is not meant to warrant any product properties. Safety notes and instructions pertinent to the products must be observed.

Responsible for the documentation:
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(Head of QA and EP)
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Iserlohn, 25 February 2015
Dr. Günther Philipp
(Managing Director)