

CERTIFICATE OF CONFORMITY

For branchpipes for fire service according to DIN EN 15182-1 „Hand-held branchpipes for fire service use - Part 1: Common requirements” (04/2010) and combination branchpipes PN 16 according to DIN EN 15182-2 “Hand-held branchpipes for fire service use - Part 2: Combination branchpipes PN 16” (04/2010)

Manufacturer: Task Force Tips Inc.

Production place: Task Force Tips Inc.

Product type: Branchpipes

Product name: Ultimatic FO4

The branchpipe for fire service “Branchpipes PN 16” listed above was issued following TZW-No.:

LW 005/18

The requirements according to DIN EN 15182-1 „Hand-held branchpipes for fire service use - Part 1: Common requirements” (04/2010) and DIN EN 15182-2 “Hand-held branchpipes for fire service use - Part 2: Combination branchpipes PN 16” (04/2010) were fulfilled.

The results of the evaluation are summarized in a separate test report.

The certificate of conformity can be withdrawn, if the standard, on which the testing based, has changed or if later a non-usability is determined on the sample mentioned before, if unauthorized changes have been done compared to the sample of the type test or if terms were not fulfilled.

Karlsruhe, 24.04.2019



Dr. J. Klinger / i.V. Dr.-Ing. R. Turković
Head of the Test Centre

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TEST REPORT

For branchpipes PN 16 with adjustable jet form by selectable constant flow rate

Manufacturer: Task Force Tips Inc.
Production place: Task Force Tips Inc.
Product type: Branchpipes
Product name: Ultimatic FO4
Inlet connector: 1 ½" internal thread
TZW-reference-no.: LW 005/18
Test period: 12.07.2018 – 24.04.2019

were tested according to DIN EN 15182-1 „Hand-held branchpipes for fire service use - Part 1: Common requirements“ (04/2010) and DIN EN 15182-2 „Hand-held branchpipes for fire service use - Part 2: Combination branchpipes PN 16“ (04/2010).

The test report has 14 pages and the mentioned attachments.

Following results were obtained (Reference numbers are based on the relevant standard):

Requirements and testings according to DIN EN 15182-1

1 Scope

Hand-held branchpipes for fire service use

5 Classification

passed

Requirements: Branchpipes shall be classified in accordance with Annex A.

Test: Visual control.

Result: Branchpipes with adjustable jet form by selectable constant flow rate (functional category 4.1) according to DIN EN 15182-2.

6 Requirements

6.1 Mechanical characteristics

6.1.1 Fitting systems

passed

- Requirements:
- Branchpipes shall be equipped with 360 ° fulltime swivelling inlet elements
 - Fitting systems should not impair the performance of the branchpipes

Test: Visual control and functional test.

- Result:
- Branchpipe is equipped with a COUPLING 1.5" F Special
 - The fitting does not impair the performance of the branchpipe

6.1.2 Dimensions and mass

passed

Requirements: The dimensions and mass of the branchpipes (without inlet coupling) shall not exceed those given in parts 2, 3 and 4 of this standard.

Test: Dimensional check and weighing.

Result: Requirements are fulfilled (see also a test according to DIN 15182-2, chapter 4.2.1).

6.1.3 Operating and handling elements

6.1.3.1 Allgemeines

passed

Requirements: Branchpipes should be ergonomically designed so that they can be easily operated without risk of injury when wearing firefighter's gloves complying with EN 659.

Test: Visual control and functional test.

Result: The branchpipe should be ergonomically designed so that it can be easily operated without risk of injury when wearing firefighter's gloves.

6.1.3.2 Requirements: Operating and handling elements shall afford a firm hold and be able to resist the mechanical forces applied to them. passed

Test: Visual control and functional test.

Prüfergebnis: Operating and handling elements do afford a firm hold and are able to resist the mechanical forces applied to them.

6.1.3.3 Requirements: Handling elements shall be manufactured from a material which is insulated against cold or shall be provided with a protective cover. passed

Test: Visual control.

Result: Handling elements are provided with a protective cover (see also chapter 7.2.2).

6.1.3.4 Requirements: It shall be possible for the operator to control the speed of opening and closing the branchpipe. passed

Test: Functional test.

Result: The opening- and closing speed is manipulable.

6.1.3.5 Requirements: For branchpipes of all types, rotating operating elements shall traverse from a wide spray jet to a narrow spray jet and to a straight jet, and from the greatest flow to the smallest flow, in a clockwise manner when viewed from the rear of the branchpipe. passed

Test: Functional test.

Result: Requirements are fulfilled.

6.1.3.6 Requirements: Except for type 1 branchpipes, when rotating operating elements are used, it shall be possible to feel where the maximum flow rate setting is located, even when the operator is wearing fire-fighter's gloves complying with EN 659. passed

Test: Functional test.

Result: Requirements are fulfilled.

6.2 Materials passed

Requirements: The materials used shall be selected so that all the requirements in clause 6 are met, subject to the tests defined in clause 7 .

Branchpipes shall resist the heat and frost tests defined in 7.2 and to the drop test defined in 7.3.

Test: Visual control and functional test defined in 7.2 and 7.3.

Result: Materials fulfill the requirements
Frost test defined in 7.2 and the drop test defined in 7.3.

6.3 Flushing

- 6.3.1 Requirements: When tested in accordance with 7.4, all branchpipes shall be able to clear or flush debris of the size specified in Table 1 without shutting off the branchpipe. passed

This can be accomplished either through the full open branchpipe position or through a flush feature of the branchpipe.

Test: Functional test in accordance with 7.4.

Result: Fulfilled, see chapter 7.4.

- 6.3.2 Requirements: Branchpipes equipped with a flush feature shall have a mechanical and/or visual device to indicate to the user when the flush feature is being engaged. passed

Test: Visual control and functional test.

Result: Fulfilled, flush feature is being indicated.

7 Testing and proofs

- 7.1 General passed

All the tests listed below are type tests. Unless otherwise specified, tests shall be carried out, at the reference pressure $p_R = 6$ bar, in the following order.

7.2 Heat and frost test

- 7.2.1 Sensitivity to heat passed

Requirements: It shall be possible to use the branchpipe without restricting its function after it has been stored for 24 h at $(55 \pm 2) ^\circ\text{C}$.

Test: The branchpipe has been stored in a heating cabinet for 24 h at $55 ^\circ\text{C}$. Afterwards functional test was performed.

Result: All operating elements (Sleuable operating elements as well as control-lever) were applicable without restraint.

7.2.2 Sensitivity to frost

passed

Requirements: The branchpipe shall be uncoupled following operation for 1 min at the greatest possible flow rate and at the reference pressure p_R . It shall then be drained for 30 s and stored in the closed position at a temperature of $(-15 \pm 2)^\circ\text{C}$ for 30 min. Following this, it shall still be possible to move the operating elements manually.

Test: The branchpipe was flushed, stored in the closed position, drained and afterwards submitted to a temperature of -15°C for 30 min.

Result: All operating elements (Sleuable operating elements as well as control-lever) were to be manually operated.

7.3 Drop tests

7.3.1 General

The drop test shall start at maximum, within 3 min of the branchpipe being removed from the cooling chamber.

7.3.2 Drop test 1

passed

Requirements: The branchpipe shall be fully operational after being subjected to the drop test.

Test: The branchpipe in the closed position was dropped from a height of 2 m onto a concrete surface so that it impacted directly or squarely on the nozzle (see Figure 2). It was set in the wide spray position.

Result: The branchpipe was fully functional after the drop test.

Remark: During the drop test damage originated at control-lever and spray nozzle but their function was ensured.

7.3.3 Drop test 2

passed

Requirements: The branchpipe shall be fully operational after being subjected to the drop test. The control-lever shall remain in closed position.

Test: The branchpipe was attached to a length of hose L, of 3 m (see Figure 3). It was set in the widespray position. The branchpipe was then dropped twice from a height H, of 2 m onto a concrete surface so that the impact points were on opposing sides of the branchpipe. For a branchpipe equipped with a valve handle or lever, one of the points of impact was directly on that valve handle or lever while in the closed position.

Result: The branchpipe was fully functional after the drop test. The control-lever remained in closed position.

Remark: During the drop test damage originated at control lever and spray nozzle but their function was ensured.

7.3.4 Drop test 3

passed

Requirements: The branchpipe shall be fully operational after being subjected to the drop test. The control-lever shall remain in closed position.

Test: The branchpipe was attached to a length of hose L, of 3 m, as shown on Figure 4. It was set in the wide spray position. With the branchpipe shut-off, the hose line was charged with water to a pressure of 6 bar. The branchpipe was dropped twice from a height H, of 2 m onto a concrete surface so that the points of impact were on opposing sides of the branchpipe. For a branchpipe equipped with a valve handle or lever, one of the points of impact was directly on that valve handle or lever while in the closed position.

Result: The branchpipe was fully functional after the drop test. The control-lever remained in closed position.

Remark: During the drop test damage originated at control lever and spray nozzle but their function was ensured.

7.4 Flushing

passed

Requirements: Branchpipes should be designed so that they are able to clear or flush debris of the size specified in Table 1 without shutting off the branchpipe.

This can be accomplished either through the full open branchpipe position or through a flush feature of the branchpipe.

Test: Branchpipes were held in the vertical position, discharge end down, with the branchpipe valve fully open and the nozzle, when existing, set in the flush position. The appropriate size steel ball with a dimension of 4,76 mm was let to fall through the branchpipe.

Result: Debris till the required size of 4,76 mm can be flushed out by fully open branchpipe (flushing position).

8 Information for use

8.1 Instruction and maintenance handbook

8.1.1 General

Each branchpipe shall be delivered with an instruction and maintenance handbook. passed

8.1.2 Instruction handbook

passed

Requirements: The instruction handbook shall contain at least the following information:

- name or logo and full manufacturer details;
- data sheet according to Annex C;
- product warnings;
- general information for use.

Test: Visual control.

Result: Requirements are fulfilled.

8.1.3 Maintenance handbook

passed

Requirements: The maintenance handbook shall contain:

- maintenance instructions;
- sectional or exploded diagram;
- spare parts list cross-referenced to the diagram.

Test: Visual control.

Result: Requirements are fulfilled.

8.2 Marking

passed

Requirements: Branchpipes shall be permanently marked with at least the following information:

- identification of the manufacturer;
- serial or batch number and year of manufacture;
- number of the relevant part (2, 3 or 4) of this standard;
- type of branchpipe;
- type of spray;
- p_R ;
- flow setting positions at p_R , if existing;
- p_N ;
- p_M (for type 4 branchpipes defined in EN 15182-2);
- open and close directions or positions;
- jet adjustment directions or positions, where applicable;
- flush position, where applicable.

Test: Visual control.

Result: Requirements are fulfilled.

Requirements and testings according to DIN EN 15182-2

1 Scope

In addition to the requirements given in EN 15182-1, this Part of this European Standard applies to hand-held combination branchpipes (nozzles) PN 16 with a maximum flow rate of 1 000 l/min at a reference pressure of 6 bar (0,6 MPa). It deals with:

- safety requirements;
- performance requirements;
- test methods;
- classification and designation;
- operating instructions;
- marking and maintenance.

This part of this European Standard applies to branchpipes as defined in Annex A of EN 15182-1:2007

4 Requirements

4.1 General

passed

Requirements: The branchpipes, covered by this standard shall comply with EN 15182-1.

Test: See tests according to DIN EN 15182-1.

Result: Requirements are fulfilled.

4.2 Mechanical characteristics

4.2.1 Dimensions and mass

passed

Requirements: The branchpipes (without inlet coupling) shall not exceed the dimensions and masses specified in Table 1.

Maximum flow rate l/min	Dimensions mm	Mass kg
≤ 500	450 x 300 x 150	3,5
> 500	600 x 350 x 200	5,5

NOTE: The maximum mass does not apply to sea-water-resistant branchpipes.

Test: Dimensional check and weighting.

Result: Maximum flow rate ≤ 500 l/h;
Dimensions 320 x 260 x 90 mm;
Weight 1,8 kg.

4.2.2 Operating and handling elements

4.2.2.1 Requirements: The torques needed to move the operating elements shall not exceed the values given in Table 2 at pressures up to the nominal pressure. passed

Type of operating element	Torque Nm
Lever	15
Valve handle	15
Rotating operating elements	10
Rotating inlet elements for fixed couplings	5

Test: Torque testing at water pressure of 16 bar.

Result: Lever: 8 Nm
Rotating operating element: 1 Nm
Rotating inlet element for fixed couplings: 1 Nm.

4.2.2.2 Requirements: For branchpipes that are opened and closed with a valve handle, the "closed" position shall be located in the direction of the flow. If a different operating element is used, the "closed" position shall be clearly identified by visual and/or haptical means. passed

Test: Visual control.

Result: The closed position of the valve handle is located in the direction of the flow.

4.2.3 Flow adjustment positions passed

Requirements: If a branchpipe has a device to select flow rate, then the flow rate's settings shall be easily identifiable by both visual and mechanical means (haptical device with corresponding numerical values).

If using a rotating operating element for flow adjustment, the adjustment shall be achieved by a rotation movement of a maximum of 180°.

Test: Visual control.

Result: Requirements are fulfilled.

4.2.4 Jet adjustment positions passed

Requirements: The various jet positions shall be clearly marked.

Test: Visual control.

Result: The jet position is clearly marked (see chapter 4.3).

4.3 Hydraulic characteristics

4.3.1 Pressures passed

The following pressures shall be used for the determination of the hydraulic characteristics:

-reference pressure: $p_R = (6 \pm 0,1)$ bar;

-nominal pressure: $p_N = 16$ bar;

-test pressure: $p_t = 25,5$ bar;

-burst pressure: $p_B = 60$ bar.

4.3.2 Flow rates passed

Requirements: All flow rates indicated on the branchpipe shall be measured at straight jet and at the maximum spray angle position.

Table 3 shall apply to the deviation in flow rates which can be set at the reference pressure p_R .

Test: All indicated flow rates were measured at straight jet with the maximum spray angle position.

Result: Conform to table 3 (see table „4.3.2 Durchflussmenge“).

4.3.3 Effective throw

passed

Requirements: The combination branchpipes shall achieve, for each flow rate position above 50 l/min, an effective throw d_{eff} as shown in Figure 1 when set to a straight jet at the reference pressure.

Test: (According to chapter 5.3) The branch pipe was mounted in a holder in 1 m height with the inclination of $30 \pm 0,5^\circ$. The branch pipe was set to straight jet and the flow pressure (water pressure) was raised to 16 bar. The flow rate was recorded and the effective throw was determined by a formula (latest droplets - 10 % = $d_{\text{eff}} = 0,9 d_{\text{max}}$).

Result: At a reference pressure of 6 bar the values, specified in the diagram „4.3.3 Effektive Reichweite“, were achieved.

4.3.4 Wide spray jet

passed

Requirements: The wide spray jet shall have a spray angle of at least 100° .

Test: (According to chapter 5.2) The branch pipe was mounted in a holder and was set to spray jet. Afterwards spray angle was measured at a reference pressure of 6 bar.

Result: The wide spray angle is $>100^\circ$, see chapter 5.2.

4.3.5 Narrow spray jet

passed

Requirements: A narrow spray jet position between straight jet and wide spray jet positions shall be provided on the branchpipe.
The narrow spray jet shall have a spray angle of at least 30° .

Test: (According to chapter 5.2) The branch pipe was mounted in a holder and was set to spray jet. Afterwards spray angle was measured at a reference pressure of 6 bar.

Result: The narrow spray angle is $\geq 30^\circ$.

4.3.6 Type 4 branchpipes

erfüllt

Anforderung: For type 4 branchpipes, the manufacturer shall give the regulation range (pressure at the beginning of the range and pressure at the end of the range), from which the median pressure is calculated.

This pressure shall not deviate from the median pressure by more than 30 %. This information shall be provided in graphic format as shown in EN 15182-1:2007, Annex C.

Prüfung: With the valve fully open, the flow should be set at both the minimum and maximum flow and the pressure shall be read.

Prüfergebnis: See diagram for branchpipes type 2, 3 and 4.

4.4 Leak-tightness

passed

Requirements: The closed branchpipe shall show no leakage during 1 min at the test pressure $p_t = 25,5$ bar.

Test: The branch pipe was brought through the lever to closed position and then was charged with 25,5 bar water pressure for 1 min.

Result: No leakage occurred.

Requirements: The opened branchpipe shall show no leakage during 1 min at the nominal pressure $p_N = 16$ bar.

Test: The branchpipe was locked on the exit side in the opened position of lever and was charged with 16 bar water pressure for 1 min.

Result: No leakage occurred.

4.5 Hydrostatic requirements

passed

Requirements: The branchpipes shall fulfil the test defined in 5.5.

Test: See chapter 5.5.

Result: See chapter 5.5.

5 Testing and proofs

5.1 General

passed

Unless otherwise specified, tests shall be carried out at the reference pressure p_R , after the tests specified in part 1 of this European Standard, in the following order.

5.2 Jet spray angle

5.2.1 Spray angle measurement

passed

Requirements: Arrange the branchpipe on a fixed support in a horizontal position 1,5 m above the ground, in a zone where the wind speed is lower than 2 m/s (see Figure 2).

Arrange vertically a rule in the longitudinal axis of the extremity of the branchpipe at a distance of 1 m. This rule, of a height of 3 m, shall have three coloured zones symmetrically arranged on both sides of the longitudinal axis.

The outside diameters of the zones are defined in the Table 4.

Test: The behaviour of the jet was checked at the narrow spray jet position and at the maximum spray jet position.

Result: -narrow spray jet position: grey zone was reached by the jet and the white zone was not reached by the jet;
-maximum spray jet position: white zone was reached by the jet.

5.2.2 Shape of the narrow spray jet

Not applicable

No requirements are given concerning water distribution as it was not possible to obtain interpretable and conclusive data with the test equipment available at the time this standard was written.

5.3 Flow and throw test

passed

Requirements: The effective throw shall be measured under the following conditions (see the norm) in compliance with Figure 3.

The measurement shall be carried out when the system is stabilised.

The maximum throw shall be given in the instruction handbook.

Test: The measurement was carried out with required adjustments, after the system was stabilized.

Result: Requirements are fulfilled.

5.4 Tightness test

passed

The leak test shall be conducted in accordance with 4.4.

5.5 Hydrostatic test

passed

Requirements: The branchpipe shall be mounted in a closed position on a device capable of exerting a hydrostatic pressure of 60 bar (burst pressure p_B). All air shall be bled out of the system.
The pressure shall be increased by 3 bar increments and held for 30 s at each pressure up to p_B .
This maximum pressure shall be held for 1 min without rupturing the branchpipe.

Test: The branchpipe was mounted in a closed position on a device capable of exerting a hydrostatic pressure of 60 bar (burst pressure p_B). All air was bled out of the system.
The pressure was increased by 3 bar increments and was held for 30 s at each pressure up to p_B .
This maximum pressure was held for 1 min without rupturing the branchpipe.

Result: Requirements are fulfilled.

Attachment

- Technical drawing

Remark

Test results are referring to the test samples dispatched by the manufacturer 12.07.2018 for type testing.

Reference to the original German version is recommended.

i.A. B. Vogel

tested by: B. Vogel

Karlsruhe, 24.04.2019

i.A. B. Vogel

Dr. J. Klinger / i.V. Dr.-Ing. R. Turković
Head of the Test Centre

4.3.2 Flow rates and 4.3.3 effective throw

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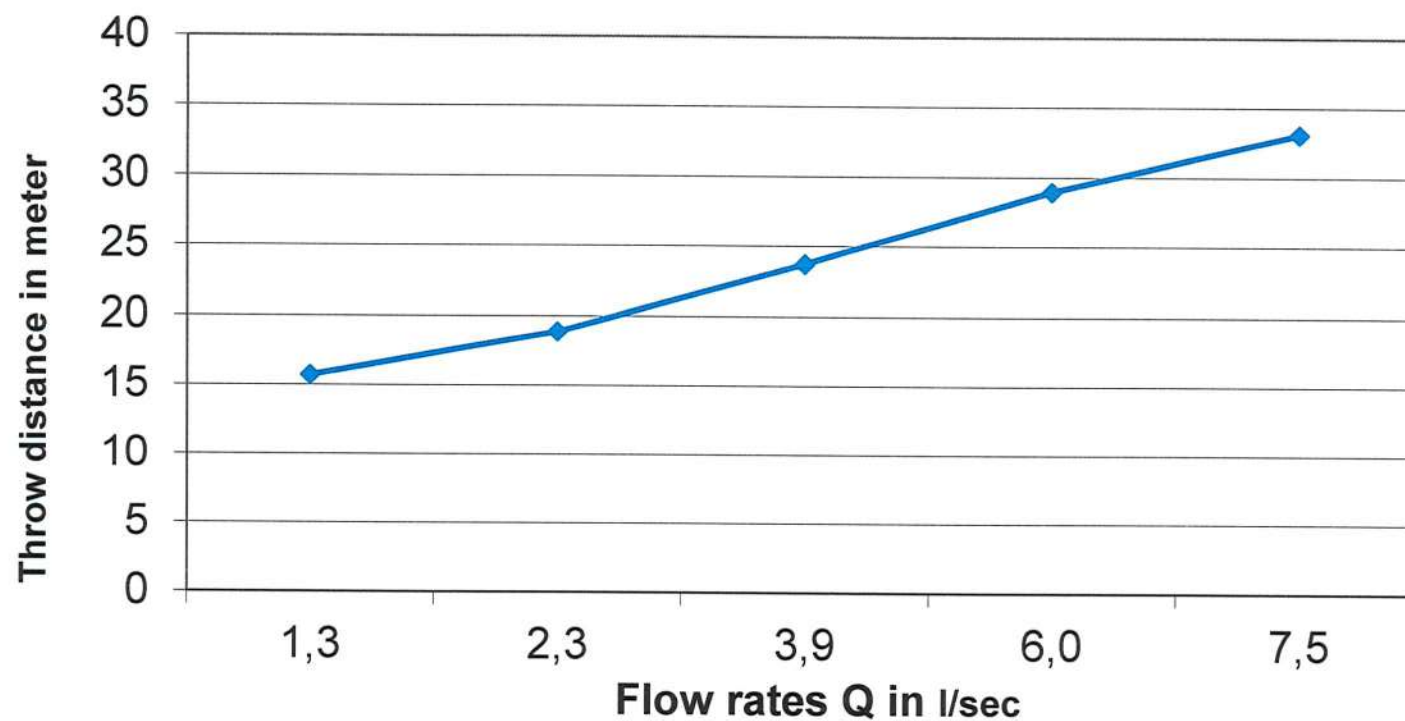
Step (6 bar pressure)	Flow rates Liter/sec	Throw distance in meter	eff. throw in meter
1	1,3	17,5	15,8
2	2,3	21,0	18,9
3	3,9	26,4	23,8
4	6,0	32,2	29,0
5	7,5	36,8	33,1

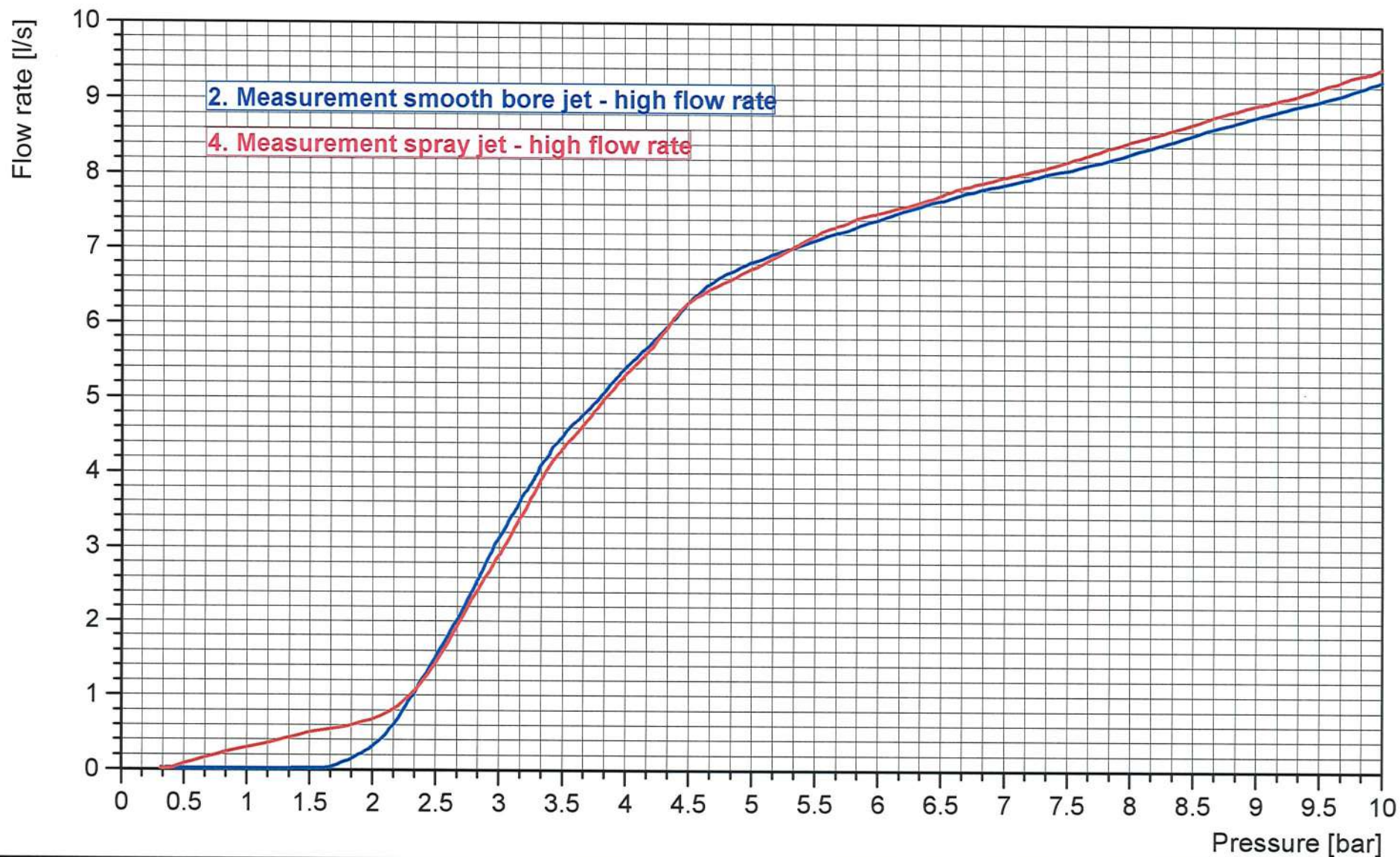
4.3.3 Effective throw

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Karlsruhe

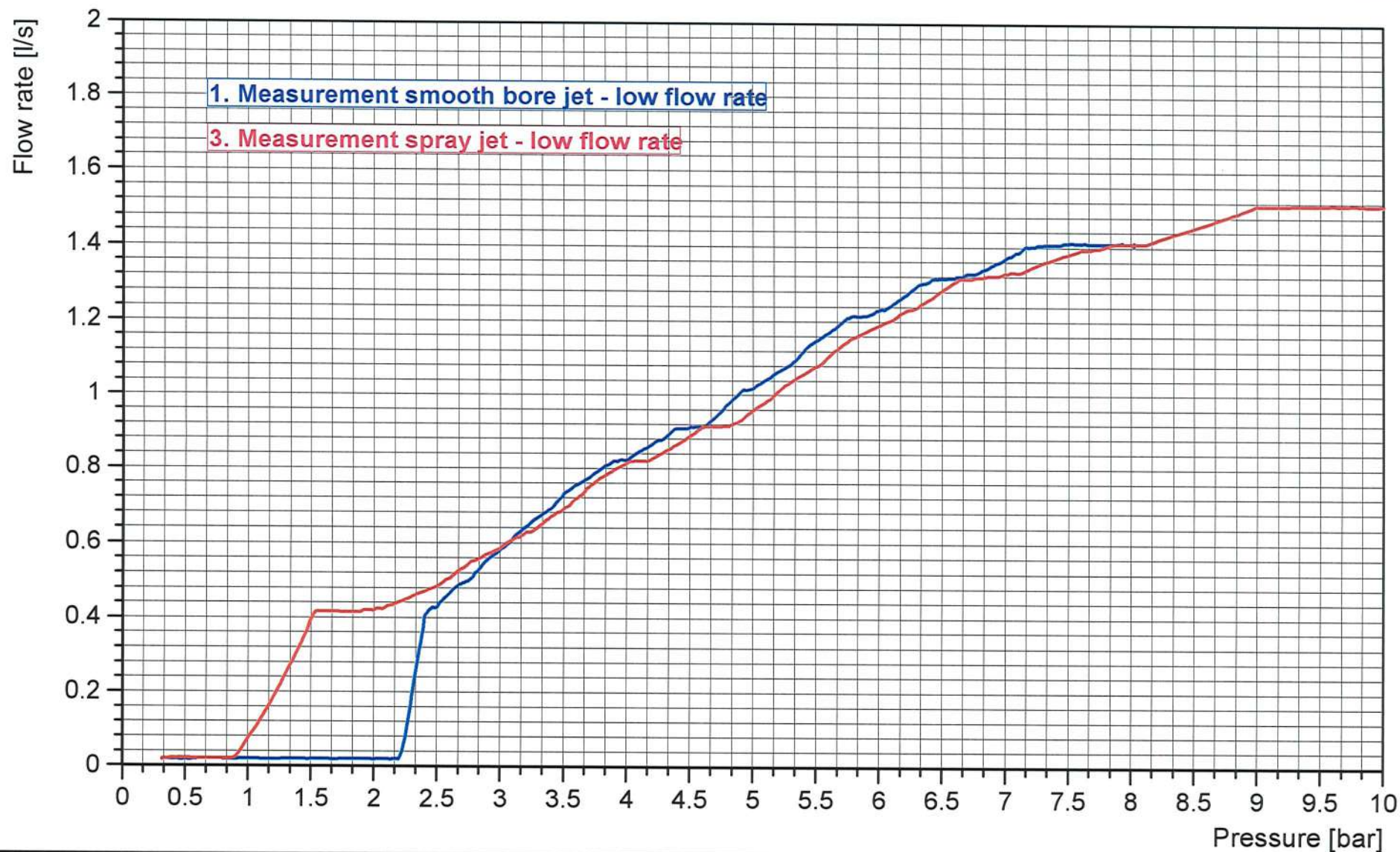
Pressure diagram for branchpipes type 2, 3 and 4

AZ: LW 005/18
DN50

Pein = 0 - 10 bar

Type: Branchpipe Ultimatic FO4 of Task Force Tips Inc.

26.09.2018
Dauth



TZW
Karlsruhe

Pressure diagram for branchpipes type 2, 3 and 4

AZ: LW 005/18
DN50

$P_{\text{ein}} = 0 - 10 \text{ bar}$

Type: Branchpipe Ultimatic F04 of Task Force Tips Inc.

26.09.2018
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