INTERNATIONAL STANDARD

ISO 7241-2

Second edition
2000-03-15

Hydraulic fluid power — Quick-action couplings —

Part 2: Test methods

Transmissions hydrauliques — Raccords rapides —

Partie 2: Méthodes d'essai

Reference number
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 7241 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 7241-2 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 4, *Connectors and similar products and components*.

This second edition cancels and replaces the first edition (ISO 7241-2:1986), which has been technically revised.

ISO 7241 consists of the following parts, under the general title *Hydraulic fluid power — Quick-action couplings*:

— *Part 1: Dimensions and requirements*

— *Part 2: Test methods*

Annex A forms a normative part of this part of ISO 7241.

Introduction

In hydraulic fluid power systems, power is transmitted and controlled through a liquid under pressure within an enclosed circuit. Quick-action couplings are used to quickly join or separate fluid conductors, without the use of tools or special devices.

Hydraulic fluid power — Quick-action couplings —

Part 2: Test methods

1 Scope

This part of ISO 7241 specifies different test methods which could be applied to quick-action couplings.

NOTE Users of this part ISO 7241 may select only the tests applicable to their needs. It is not intended that all tests be carried out for every application.

This part of ISO 7241 is applicable to male and female coupling halves, complete couplings, couplings with and without sealing means when uncoupled, and couplings that are connected and disconnected by a linear and/or rotational motion.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 7241. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 7241 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 3448, *Industrial liquid lubricants — ISO viscosity classification.*

ISO 4397, *Fluid power systems and components — Connectors and associated components — Nominal outside diameters of tubes and nominal inside diameters of hoses.*

ISO 4411, *Hydraulic fluid power — Valves — Determination of pressure differential/flow characteristics.*

ISO 5598, *Fluid power systems and components — Vocabulary.*

ISO 6803, *Rubber or plastics hoses and hose assemblies — Hydraulic-pressure impulse test without flexing.*

ISO 7241-1, *Hydraulic fluid power — Quick-action couplings — Part 1: Dimensions and requirements.*

3 Terms and definitions

For the purposes of this part of ISO 7241, the terms and definitions given in ISO 5598 and the following apply.

3.1
coupling size designation
designation that refers to the nominal inside diameter of the hose, in accordance with ISO 4397, that is recommended for use with the coupling

4 Selection and examination of test samples

Coupling assemblies selected shall constitute a representative sample of a production lot in all respects: design, material, surface treatment, process, etc.

5 Test apparatus

5.1 The apparatus shown in Figures 1 to 7 shall be used.

5.2 Apparatus capable of providing test result data accuracy in accordance with clause 22 shall be used.

6 Test conditions

6.1 Tests shall be carried out at an ambient temperature of 20 °C to 35 °C, unless otherwise specified.

6.2 Tests shall be carried out using a fluid of ISO VG 32, in accordance with ISO 3448 (i.e. having a viscosity of 28,8 mm^2/s to 35,2 mm^2/s at 40 °C).

7 Connect force test

7.1 Lubricate the coupling interfaces with the test fluid. Insert the coupling in a test fixture. Maintain the internal test pressure, i.e. the maximum internal pressure as specified in ISO 7241-1.

7.2 Apply a linear force and/or torque to the coupling half until complete connection occurs.

NOTE During this operation, the locking mechanism may be operated manually, if necessary, to permit normal coupling of the halves.

7.3 Measure the connecting force and/or torque, as appropriate.

7.4 Repeat the test a total of five times on the same test coupling. Average the results of the five tests to determine the connect force or torque. Report the average connect force or torque in the test report.

7.5 Report any conditions of damage or malfunction in the test report.

8 Disconnect force test

8.1 Lubricate the coupling interfaces with the test fluid. Insert the coupling in a test fixture. Maintain the internal test pressure, i.e. the maximum operating pressure specified in ISO 7241-1, and/or the prevailing flow conditions.

8.2 Apply linear force and/or torque to the retaining mechanism of the coupling until disconnection occurs. Measure the disconnect force and/or torque.

8.3 Repeat the test for five disconnections on the same test coupling. Average the test results of the five tests to determine the disconnect force and/or torque. Report the average of the results in the test report.

8.4 Report any condition of damage or malfunction in the test report.

9 Leakage test

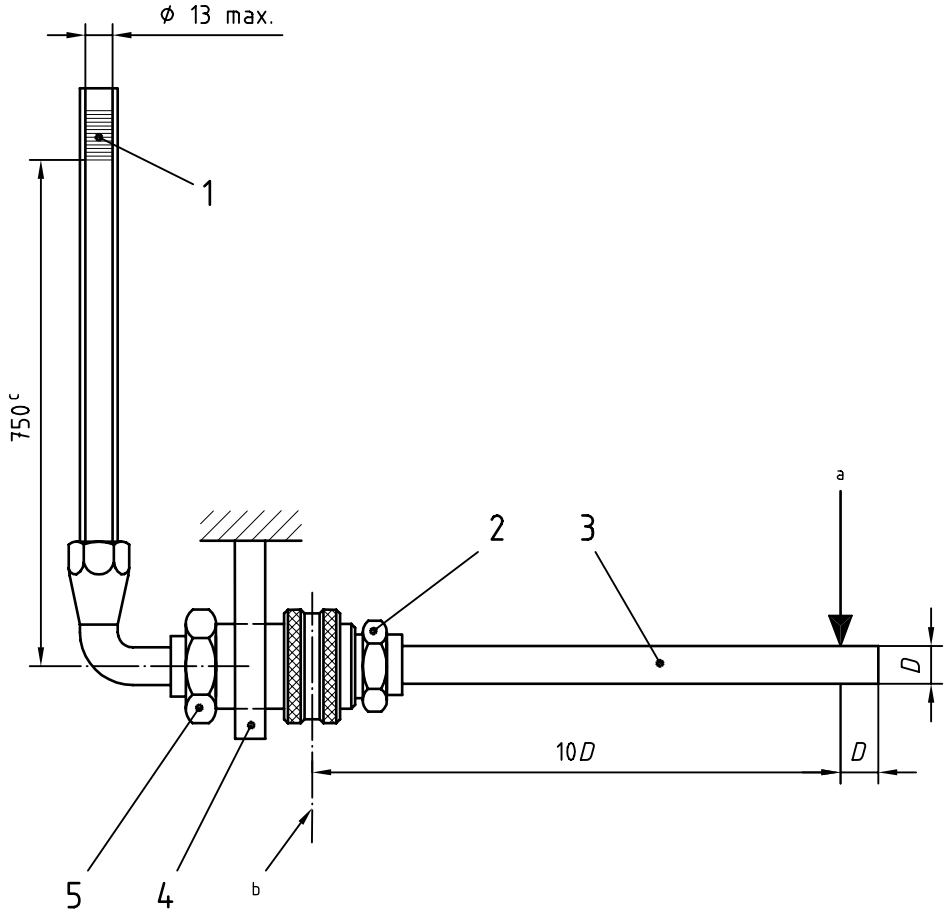
9.1 Low pressure, coupled

9.1.1 Insert the coupling assembly in a test apparatus. Fill the test apparatus with test fluid (see 6.2) to a fluid column height of 750 mm. Apply a 50 N load perpendicular to the coupling centreline at a distance of 10D from the axis of the gauge balls of the locking device (see Figure 1), where D equals the nominal inside diameter of the hose, in accordance with ISO 4397, that is recommended for use with the coupling.

9.1.2 Measure the drop in column height over a minimum test period of 30 min. Calculate the leakage rate in millilitres per hour.

9.1.3 Report the leakage rate in the test report.

Dimensions in millimetres



D = nominal size of the coupling, in millimetres

Key

1 Column with top portion graduated for measurement
2 Male coupling half
3 Steel rod connected to the male coupling half not held in the fixture
4 Fixture to hold the female coupling half
5 Female coupling half

a 50 N load perpendicular to coupling centreline
b Centreline of locking device
c Fluid column height

Figure 1 — Low-pressure leakage test apparatus (coupled)

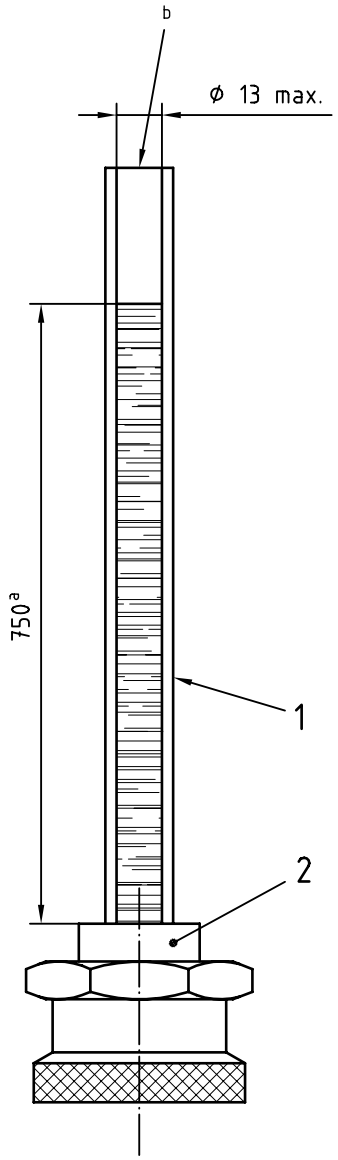
9.2 Low pressure, uncoupled (valved only)

9.2.1 Insert each coupling half in a test apparatus. Fill the test apparatus with test fluid (see 6.2) to a fluid column height of 750 mm (see Figure 2).

9.2.2 Measure the drop in column height over a test period of 30 min. Calculate the leakage rate in millilitres per hour.

9.2.3 Report the leakage rate in the test report.

Dimensions in millimetres



Key

1 Column with top portion graduated for measurement

2 Coupling half (male or female half) test component

a Fluid column height

b Open top

Figure 2 — Low-pressure leakage test apparatus (uncoupled half)

9.3 Maximum operating pressure, coupled

9.3.1 Purge internal air from the circuit. Pressurize the coupling assembly, with the test fluid, at maximum operating pressure as specified in ISO 7241-1.

9.3.2 Observe leakage over a test period of 30 min, while maintaining maximum operating pressure. Collect and measure the leakage in a graduated measuring flask. Calculate the leakage rate, in millilitres per hour.

9.3.3 Report the leakage rate in the test report.

9.4 Maximum operating pressure, uncoupled (valved only)

9.4.1 Purge internal air from the circuit. Pressurize each coupling half, with the test fluid, at maximum operating pressure as specified in ISO 7241-1.

9.4.2 Observe leakage over a test period of 30 min, while maintaining maximum operating pressure. Collect and measure the leakage for each coupling half in a graduated measuring flask. Calculate the leakage rate, in millilitres per hour.

9.4.3 Report the leakage rate in the test report.

10 Extreme temperature test

10.1 Maximum operating temperature exposure, coupled

10.1.1 Fill the coupling assembly with test fluid and subject the assembly to the maximum operating temperature for at least 6 h. The coupling shall be internally vented to atmosphere during temperature adjustment.

10.1.2 Allow the coupling to cool to ambient temperature. Disconnect and reconnect the coupling. Determine the leakage rate in accordance with 9.1 and 9.3.

10.1.3 Report the leakage rate in the test report.

10.2 Maximum operating temperature exposure, uncoupled (valved only)

10.2.1 Fill the coupling halves with test fluid and subject the halves to the maximum operating temperature for at least 6 h.

10.2.2 Allow the coupling half to cool to ambient temperature and actuate the valves five times manually to separate the valve seal from the sealing surface. Determine the leakage rate in accordance with 9.2 and 9.4.

10.2.3 Report the leakage rate in the test report.

10.3 Maximum operating temperature service, coupled

NOTE This procedure requires testing at the maximum operating temperature.

10.3.1 Fill the coupling assembly with test fluid and subject the assembly to the maximum operating temperature for at least 6 h. The coupling shall be internally vented to atmosphere during temperature adjustment.

10.3.2 Determine the leakage rate at maximum operating temperature in accordance with 9.1 and 9.3.

10.3.3 Report the leakage rate in the test report.

10.4 Maximum operating temperature service, uncoupled (valved only)

NOTE This procedure requires testing at the maximum operating temperature.

10.4.1 Fill the coupling halves with test fluid and subject the halves to the maximum operating temperature for at least 6 h.

10.4.2 Determine the leakage rate at maximum operating temperature in accordance with 9.2 and 9.4.

10.4.3 Report the leakage rate in the test report.

10.5 Minimum operating temperature, coupled

10.5.1 Fill the coupling assembly with test fluid and subject the assembly to the minimum operating temperature for at least 4 h.

10.5.2 Determine the leakage rate at minimum operating temperature in accordance with 9.1 and 9.3.

10.5.3 Report the leakage rate in the test report.

10.6 Minimum operating temperature, uncoupled (valved only)

10.6.1 Fill the coupling halves with the test fluid and subject the halves to the minimum operating temperature for at least 4 h.

10.6.2 Actuate the valves five times manually to separate the valve seal from the sealing surface. Determine the leakage rate at minimum operating temperature in accordance with 9.2 and 9.4.

10.6.3 Report the leakage rate in the test report.

11 Pressure impulse test

11.1 Test coupling

Because the pressure impulse test is a destructive test, a new coupling shall be used. The coupling tested shall not be used for any further testing.

11.2 Coupled test

11.2.1 Connect the coupling assembly to a test apparatus capable of producing pressure impulses, as shown in ISO 6803:1994, Figure 1, which diagrams the pressure pulse cycle. Adjust the test pressure to 133 % of the rated pressure.

11.2.2 Adjust the test apparatus so that a pressure-time cycle corresponding to the curve shown within the shaded area of ISO 6803:1994, Figure 1 is obtained.

11.2.3 Conduct the specified number of test cycles at a uniform cycle rate of 0,5 Hz to 1 Hz.

11.2.4 Uncouple and couple the test coupling assembly a minimum of one time at intervals of 10 000 cycles throughout the test.

11.2.5 Record any evidence of binding or malfunction.

11.2.6 Determine the leakage rate in accordance with 9.1 and 9.3.

11.2.7 Report the leakage rate and the number of test cycles in the test report.

11.3 Uncoupled test (valved only)

11.3.1 Connect each coupling half to a test apparatus capable of producing pressure impulses as shown in ISO 6803:1994, Figure 1.

11.3.2 Adjust the test apparatus so that a pressure-time cycle corresponding to the curve shown within the shaded area of ISO 6803:1994, Figure 1 is obtained.

11.3.3 Conduct the specified number of pressure impulse cycles.

11.3.4 Determine the leakage rate in accordance with 9.2 and 9.4.

11.3.5 Report the leakage rate and the number of test cycles in the test report.

12 Rotating impulse test

12.1 Because the rotating impulse test is a destructive test, a new coupling shall be used; the coupling tested shall not be used for any further testing.

NOTE This test is conducted in the coupled condition only.

12.2 Connect the coupling assembly to a test apparatus capable of producing pressure impulses as shown in ISO 6803:1994, Figure 1. Adjust the test apparatus so that a pressure-time cycle corresponding to the curve shown within the shaded area of this figure is obtained.

12.3 Install the coupling in a test fixture that will rotate the male half a minimum of 5° relative to the female half, between each pressure impulse cycle, while the pressure is below 1 000 kPa (10 bar) [1)].

12.4 Conduct the specified number of test cycles at a uniform cycle rate of 0,5 Hz to 1 Hz.

12.5 Uncouple and couple the test coupling a minimum of one time at specified intervals during the test.

12.6 Record any evidence of binding.

12.7 Determine the leakage rate in accordance with 9.1 and 9.3.

12.8 Report the leakage rate and the number of test cycles in the test report.

13 Endurance test

13.1 Because the endurance test is a destructive test, a new coupling shall be used; the coupling tested shall not be used for any further testing.

13.2 Connect the coupling assembly to a pressure source that is capable of providing 100 kPa (1 bar) internal pressure. Record the type of test medium used.

NOTE Lubricated compressed air may be used.

13.3 Couple and uncouple the assembly for the specified number of cycles. The coupling rate shall not exceed 1 800 connect/disconnect per hour on couplings for use with hoses of nominal inside diameter sizes up to and including 12,5 mm, and 600 connect/disconnect per hour on couplings for use with hoses of nominal inside diameter sizes larger than 12,5 mm.

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1) 1 bar = 100 kPa = 10^5 Pa = 0,1 MPa; 1 Pa = 1 N/m^2

13.4 Record any evidence of binding or malfunction.

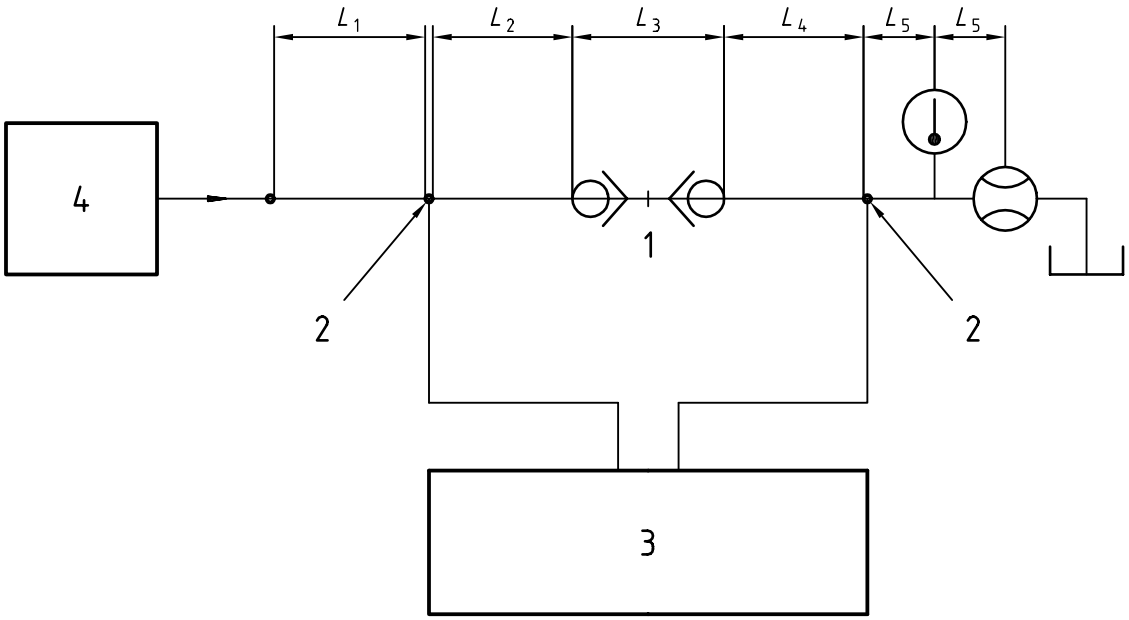
13.5 Determine the leakage rate in accordance with clause 9.

13.6 Report the leakage rate in the test report

14 Pressure drop test

14.1 Insert the coupling assembly in a test apparatus, as shown in Figure 3. Select at least six flow rates from 25 % to 150 % of the rated flow, including 100 % of the rated flow.

If the rated flow is not specified, use the values in Table 1.



L_1 = 10 times the diameter of the coupling tube or pipe

L_2 = five times the diameter of the coupling tube or pipe

L_3 = coupling plus end fittings

L_4 = 10 times the diameter of the coupling tube or pipe

L_5 = five times the diameter of the coupling tube or pipe

Dimensions L_1 through L_5 are minimum lengths.

Key

1 Test unit
2 Pressure tapping in accordance with ISO 4411, classes of measurement accuracy B and C
3 To differential pressure measuring device
4 Controlled fluid supply

Figure 3 — Circuit for pressure drop test

Table 1 — Typical rated flows

Coupling size (nominal inside diameter of hose) mm	**Rated flow** l/min
5	3
6,3	12
10	23
12,5	45
16	74
19	100
20	106
25	189
31,5	288
40	379
50	757

14.2 Determine and record the pressure drop of the coupling assembly in male-half-to-female-half and female-half-to-male-half directions, at the selected flow rates.

14.3 Remove the coupling assembly from the test apparatus and connect the tubes or pipes, using an appropriate fitting of the corresponding size. Determine and record the pressure drop at the same flow rates as chosen in 14.1.

14.4 Maintain a fluid viscosity of 28,8 mm^2/s to 35,2 mm^2/s throughout the pressure drop test. Record the fluid type and temperature.

14.5 Subtract the pressure drop values obtained in 14.3 from those obtained in 14.2. The difference is the net pressure drop of the coupling assembly. Plot the net pressure drop on graph paper for each flow direction.

NOTE Full logarithmic graph paper is recommended in order to obtain a straight line. The line may well not pass through the points, but it should represent a common value between the points.

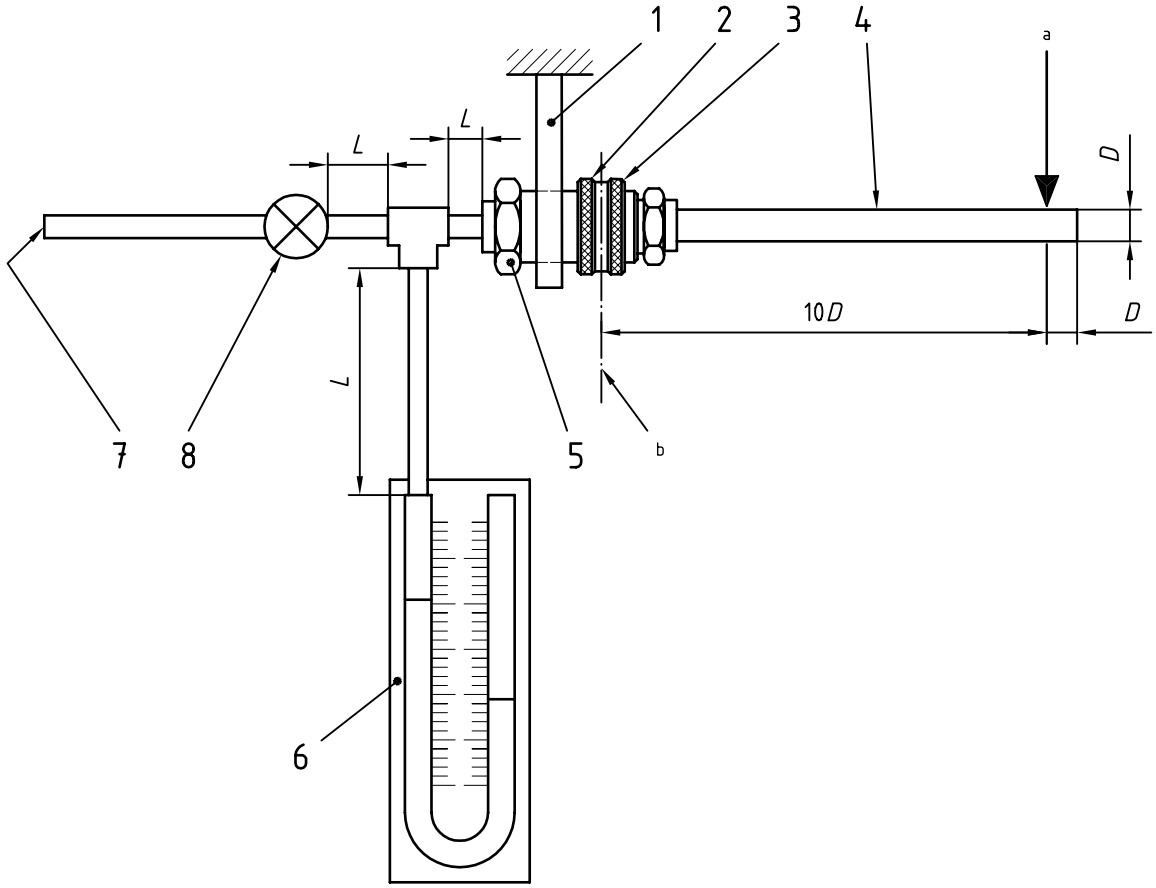
14.6 If the pressure drop values at any one flow rate in one direction of flow through the coupling differ by less than 10 % from the pressure drop in the other direction of flow through the coupling, the higher of the two values shall be used.

15 Vacuum test

NOTE This procedure is recommended only for vacuum tests for which leakage rate measurement is not required.

15.1 Coupled test

15.1.1 Insert the coupling in a test apparatus as shown in Figure 4.



D = nominal size of the coupling, in millimetres.
L = 15D max.

Key

1 Fixture to hold female coupling half
2 Test coupling or coupling half
3 Male coupling half
4 Steel rod connected to male coupling half not held in the fixture
5 Female coupling half
6 Manometer
7 Vacuum pump
8 Valve

a 50 N load perpendicular to coupling centreline, applied only on coupled test.
b Centreline of locking device

Figure 4 — Circuit for vacuum test

15.1.2 Apply side load to the coupling assembly, as shown.

15.1.3 Start the vacuum pump and create a vacuum to specified value.

15.1.4 Close the valve and allow 10 min for stabilization.

15.1.5 Observe the vacuum gauge for any loss of vacuum.

15.1.6 Report the gauge reading in the test report.

15.2 Uncoupled test (valved only)

15.2.1 Insert each coupling half in a test apparatus as shown in Figure 4.

15.2.2 Start the vacuum pump and create a vacuum to a specified value.

15.2.3 Close the valve and allow 10 min for stabilization.

15.2.4 Observe the vacuum gauge for any loss of vacuum.

15.2.5 Report the gauge reading in the test report.

16 Air inclusion test

16.1 Insert the coupling assembly in a test apparatus, as shown in Figure 5. Record the fluid level of the closed graduated cylinder, with the coupling connected and the fluid levels coincident.

16.2 Uncouple and couple the coupling assembly (allow spillage to drain after uncoupling). After each uncouple/couple cycle, tap the coupling assembly to clear all air bubbles from the interior of the assembly.

16.3 Repeat the procedures given in 16.2 until the fluid displaced by air in the graduated cylinder exceeds 10 minor divisions on the graduated scale. With the coupling coupled, adjust the open top vessel vertically so the fluid levels are coincident. Record the fluid level of the graduated cylinder.

16.4 Subtract the fluid level value recorded in 16.3 from the value recorded in 16.1and divide the difference by the number of uncouple/couple cycles.

16.5 Report the air inclusion in standard millilitres per uncouple/couple cycle in the test report.

17 Spillage test

17.1 Insert coupling assembly in a test apparatus as shown in Figure 6. Maintain a fluid pressure of 100 kPa (1 bar). Record fluid level of the graduated cylinder.

17.2 Couple and uncouple the assembly. After each uncouple, allow the spillage to drain from the assembly. After each couple, tap the assembly to clear all air bubbles from the coupling interior.

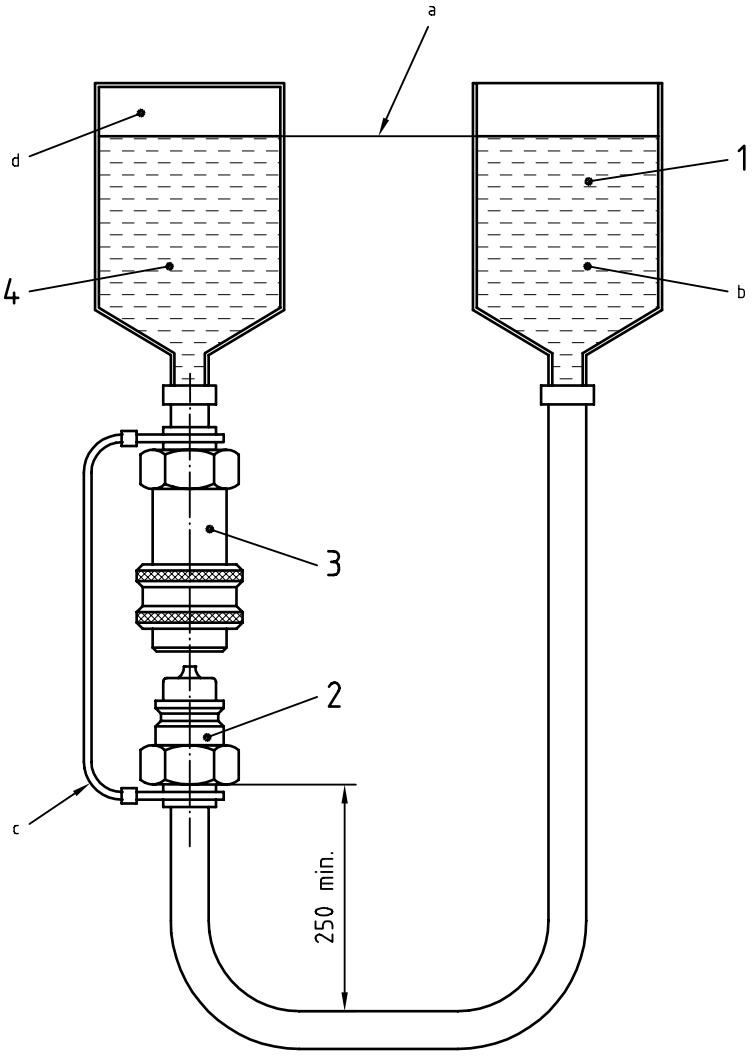
17.3 Repeat the procedures given in 17.2, until the fluid level of the graduated cylinder has dropped a minimum of 10 minor divisions on the scale. Record the fluid level of the graduated cylinder.

17.4 Subtract the fluid level value recorded in 17.3 from the value recorded in 17.1 and divide the difference by the number of couple/uncouple cycles.

17.5 Report the spillage in millilitres per couple/uncouple cycle in the test report.

NOTE Use a low viscosity fluid, if the viscosity of the standard test fluid prevents the prompt clearing of the bubbles. If a substitute fluid is used, record the fluid type.

Dimensions in millimetres



Key

1 Open top vessel with fluid
2 Male coupling half
3 Female coupling half
4 Closed graduated vessel with test fluid

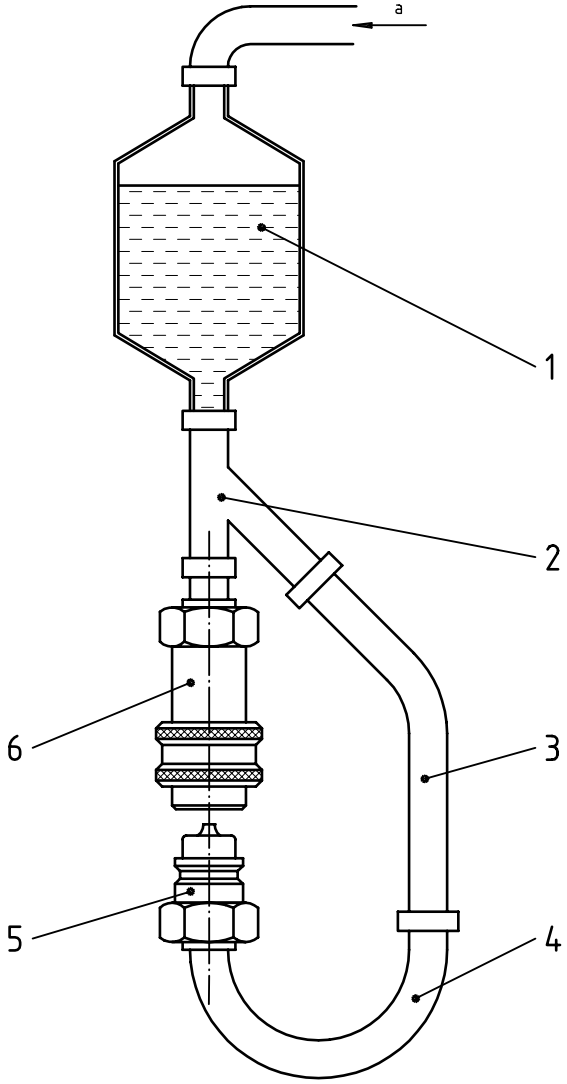
a Fluid levels shall be coincident when taking readings.

b If an air bubble appears in this vessel, the test shall be rerun, because the air will have come from air trapped in the coupling.

c A lanyard may be used to prevent accidental dropping of the male half below the 250 mm min. requirement.

d Difference in the amount of air entrapment represents the total of air inclusion.

Figure 5 — Air inclusion test apparatus



Key

1 Graduated vessel with test fluid
2 Y fitting
3 Rigid tubing
4 PTFE tubing, as short as possible
5 Male coupling half
6 Female coupling half

a Air pressure 100 kPa (1 bar)

Figure 6 — Spillage test apparatus

18 Static pressure test

18.1 Coupled

18.1.1 Pressurize the coupling to specified static pressure for 5 min minimum.

18.1.2 Determine the leakage rate in accordance with 9.1 and 9.3.

18.1.3 Connect and disconnect the coupling five times at zero pressure.

18.1.4 Record any evidence of binding or malfunction.

18.1.5 Report the leakage rate in the test report.

18.2 Uncoupled (valved type only)

18.2.1 Pressurize the uncoupled halves to specified static pressure for 5 min minimum.

18.2.2 Determine the leakage rate in accordance with 9.2 and 9.4.

18.2.3 Record any evidence of binding or malfunction.

18.2.4 Report the leakage rate in the test report.

19 Surge flow test — long duration

19.1 Test the coupling for leakage in accordance with clause 9.

19.2 Test the coupling for pressure drop in accordance with clause 14.

19.3 Subject the coupling to the specified surge flow rate for a duration of 5 s minimum in each direction. If the surge flow rate is not specified, use a flow rate value that is five times the coupling's rated flow. If rated flow is not specified, use the relevant rated flow value given in Table 1.

19.4 Repeat the cycle for a total of 100 cycles. This test may be conducted by running 100 cycles in one direction, followed by 100 cycles in the other direction.

19.5 Test the coupling for leakage in accordance with clause 9.

19.6 Test the coupling for pressure drop in accordance with clause 14.

19.7 Record the following results in the test report:

— leakage before and after the surge cycle test;

— pressure drop before and after the surge cycle test; and

— visual signs of damage caused by the surge cycle test.

20 Surge flow test – short duration

CAUTION — This procedure involves high fluid velocities. Precautions should be exercised in set-up methods, test procedures and equipment used, to avoid hazards to personnel and damage to equipment.

20.1 Test the coupling for leakage in accordance with clause 9.

20.2 Test the coupling for pressure drop in accordance with clause 14.

20.3 Establish the surge test pressure by multiplying by 25 the gross pressure drop at rated flow, as determined in accordance with 14.1.

NOTE If rated flow is not specified, use the rated flow for the coupling size shown in Table 1.

20.4 Install the coupling in a test circuit as shown in Figure 3. The flow-meter may be removed from the circuit.

20.5 Adjust the fluid supply discharge characteristics to meet the pressure-time curve shown in Figure 7. The differential pressure between the upstream and downstream pressure tap points shall equal the test pressure obtained in 20.3. One fluid discharge equals one cycle. Include a copy of the actual pressure-time curve in the test report.

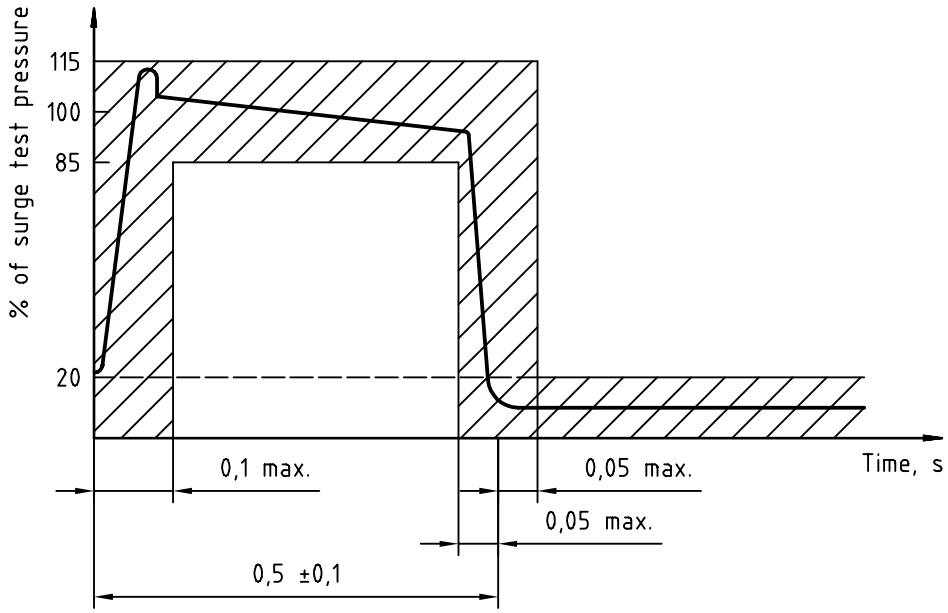


Figure 7 — Pressure/time curve for surge flow test

20.6 Conduct 100 cycles.

20.7 Reverse the coupling in the circuit. Adjust the fluid discharge characteristics, if necessary, to meet the requirements of 20.3 and 20.5. Adjustment is necessary only if the coupling pressure drop measured after the coupling has been reversed differs by more than 10 % from the coupling pressure drop measured when the coupling was in its original position.

20.8 Conduct 100 cycles in this direction of flow.

20.9 Test the coupling for leakage in accordance with clause 9.

20.10 Test the coupling for pressure drop in accordance with clause 14.

20.11 Record the following results in the test report:

— leakage before and after the surge cycle test;

— pressure drop before and after the surge cycle test; and

— visual signs of damage caused by the surge cycle test.

21 Burst test

21.1 Safety precautions

Staff shall be provided with suitable protection when conducting burst tests. All air shall be purged from the circuit before proceeding with burst test.

21.2 Burst pressure, uncoupled (valved type only)

21.2.1 Pressurize the coupling halves at a rate not exceeding 100 MPa/min (1 000 bar/min).

21.2.2 Report the burst pressure in the test report.

21.3 Burst pressure, coupled

21.3.1 Pressurize the coupling assembly at a rate not exceeding 100 MPa/min (1 000 bar/min).

21.3.2 Report the burst pressure in the test report.

22 Data accuracy

The accuracy of test result data shall be in accordance with Table 2.

Table 2 — Data accuracy

Quantity	Unit	Data accuracy
Flow rate	l/min	± 3 % [a]
Force	N	± 3 % [a]
Pressure	MPa (bar)	± 3 % [a]
Pressure drop	kPa (bar)	± 3 % [a]
Temperature	°C	± 3 °C
Torque	N·m	± 3 % [a]
Volume (leakage)	ml	± 1 % [a]

[a] Percentage of maximum measured value.

23 Test report and data presentation

Test results and test conditions shall be reported on the test data form given in annex A.

24 Summary of information to be supplied

When applying this part of ISO 7241 to a particular use, the following information shall be supplied:

a) rated flow;

b) rated pressure;

c) maximum operating pressure;

d) maximum operating temperature;

e) minimum operating temperature;

f) vacuum test;

g) rated static pressure.

25 Test/production similarity

All managerial controls necessary to maintain substantial similarity between test and production components or elements shall be used.

26 Identification statement (Reference to this part of ISO 7241)

Use the following statement in test reports, catalogues and sales literature when electing to comply with this part of ISO 7241:

"Method of obtaining and presenting test data in accordance with ISO 7241-2:2000, *Hydraulic fluid power — Quick-action couplings — Part 2: Test methods*."

Annex A
(normative)

Test data form

Coupling manufacturer:		
Coupling product number:		**Serial number or identification:**
Test fluid:		**Ambient temperature:**
Date tested:		**Tested by:**
Type of test	**Test results**	**Remarks**
Connect force		
Force	N	Test pressure:
Torque	N·m	
Disconnect force		
Force	N	Test pressure:
Torque	N·m	Test flow:
Leakage rate at		
low pressure, coupled	ml/h	
low pressure, uncoupled, male half	ml/h	
low pressure, uncoupled, female half	ml/h	
maximum operating pressure, coupled	ml/h	Test pressure:
maximum operating pressure, uncoupled male half	ml/h	Test pressure:
maximum operating pressure, uncoupled female half	ml/h	Test pressure:

Type of test	Test results	Remarks
Extreme temperature		
Maximum operating temperature, exposure, coupled	°C	Test pressure:
Leakage, low pressure	ml/h	
Leakage, operating pressure	ml/h	
Maximum operating temperature exposure, uncoupled male half	°C	Test pressure:
Leakage, low pressure	ml/h	
Leakage, operating pressure	ml/h	
Maximum operating temperature exposure, uncoupled female half	°C	Test pressure:
Leakage, low pressure	ml/h	
Leakage, operating pressure	ml/h	
Maximum operating temperature, service, coupled	°C	Test pressure:
Leakage, low pressure	ml/h	
Leakage, operating pressure	ml/h	
Maximum operating temperature, service, uncoupled male half	°C	Test pressure:
Leakage, low pressure	ml/h	
Leakage, operating pressure	ml/h	
Maximum operating temperature, service, uncoupled female half	°C	Test pressure:
Leakage, low pressure	ml/h	
Leakage, operating pressure	ml/h	
Minimum operating temperature, coupled	°C	Test pressure:
Leakage, low pressure	ml/h	
Leakage, operating pressure	ml/h	
Minimum operating temperature, uncoupled male half	°C	Test pressure:
Leakage, low pressure	ml/h	
Leakage, operating pressure	ml/h	
Minimum operating temperature, uncoupled female half	°C	Test pressure:
Leakage, low pressure	ml/h	
Leakage, operating pressure	ml/h	

Type of test	Test results	Remarks
Pressure impulse		
Coupled		Impulse
Leakage, low pressure	ml/h	Test pressure:
Leakage, operating pressure	ml/h	Number of cycles:
Uncoupled, male half		Impulse
Leakage, low pressure	ml/h	Test pressure:
Leakage, operating pressure	ml/h	Number of cycles:
Uncoupled female half		Impulse
Leakage, low pressure	ml/h	Test pressure:
Leakage, operating pressure	ml/h	Number of cycles:
Rotational pressure impulse		
Coupled		Impulse
Leakage, low pressure	ml/h	Test pressure:
Leakage, operating pressure	ml/h	Number of cycles:
		Connect/disconnect function
Endurance		
Coupled		Number of cycles:
Leakage, low pressure	ml/h	
Leakage, operating pressure	ml/h	Cycle rate:
Uncoupled, male half		
Leakage, low pressure	ml/h	Test fluid:
Leakage, operating pressure	ml/h	
Uncoupled, female half		
Leakage, low pressure	ml/h	
Leakage, operating pressure	ml/h	
Pressure drop	Attach graph	
Vacuum	Leakage ?	Gauge reading:
Coupled	Yes _____ No _____	before _____ after _____
Uncoupled, male half	Yes _____ No _____	before _____ after _____
Uncoupled, female half	Yes _____ No _____	before _____ after _____
Air inclusion	ml per couple/uncouple cycle	Test fluid:
Spillage	ml per couple/uncouple cycle	Test fluid:

Type of test	Test results	Remarks
Static pressure		
Coupled		
Leakage, low pressure	ml/h	Rated static pressure: MPa (bar)
Leakage, operating pressure	ml/h	
Uncoupled, male half		
Leakage, low pressure	ml/h	Rated static pressure: MPa (bar)
Leakage, operating pressure	ml/h	
Uncoupled, female half		
Leakage, low pressure	ml/h	Rated static pressure: MPa (bar)
Leakage, operating pressure	ml/h	
Surge test – long duration		
Rated flow	l/min	
Surge test flow	l/min	
Fluid		
Viscosity	mm^2/s	
Fluid temperature	°C	
Leakage before cycle test:		
Low pressure, coupled	Yes _____ No _____	Test pressure: MPa (bar)
Low pressure, uncoupled	Yes _____ No _____	Test pressure: MPa (bar)
Maximum operating pressure, coupled	ml/h	Test pressure: MPa (bar)
Maximum operating pressure, uncoupled	ml/h	Test pressure: MPa (bar)
Pressure drop before cycle test		Attach graph or chart
Leakage after cycle test:		
Low pressure, coupled	Yes _____ No _____	Test pressure: MPa (bar)
Low pressure, uncoupled	Yes _____ No _____	Test pressure: MPa (bar)
Maximum operating pressure, coupled	ml/h	Test pressure: MPa (bar)
Maximum operating pressure, uncoupled	ml/h	Test pressure: MPa (bar)
Pressure drop after cycle test		Attach graph or chart
Damage after cycle test		

Type of test	Test results	Remarks
Surge test – short duration		
Rated flow	l/min	
Surge test pressure	MPa (bar)	
Maximum operating pressure	MPa (bar)	
Fluid		
Viscosity	mm^2/s	
Fluid temperature	°C	
Leakage before cycle test:		
Low pressure, coupled	Yes _____ No _____	Test pressure: MPa (bar)
Low pressure, uncoupled	Yes _____ No _____	Test pressure: MPa (bar)
Maximum operating pressure, coupled	ml/h	Test pressure: MPa (bar)
Maximum operating pressure, uncoupled	ml/h	Test pressure: MPa (bar)
Pressure drop before cycle test		Attach graph or chart
Leakage after cycle test:		
Low pressure, coupled	Yes _____ No _____	Test pressure: MPa (bar)
Low pressure, uncoupled	Yes _____ No _____	Test pressure: MPa (bar)
Maximum operating pressure, coupled	ml/h	Test pressure: MPa (bar)
Maximum operating pressure, uncoupled	ml/h	Test pressure: MPa (bar)
Pressure drop after cycle test		Attach graph or chart
Damage after cycle test		
Burst		
Uncoupled	MPa (bar)	
Coupled	MPa (bar)	

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