

1 - PURPOSE

1.1 - Type of parts

This specification governs the supply of hoses in reinforced elastomer for compressed air brake couplings between vehicles.

It applies to hoses with a nominal inside diameter of 28 mm, but it can be used for the supply of hoses in reinforced elastomer of other diameters. In this case, the Railway shall specify the test conditions for these hoses.

All necessary particulars for the carrying out of the contract, particularly those concerning the implementation of the following paragraphs :

2.1 - 2.1.1 - 2.1.2 - 2.2.2 - 2.2.3 - 2.3 and 4.3.2
must be indicated in the order and its appended documents.

1.2 - Classification

Only one category of hoses.

1.3 - Reference documents

This specification refers to the following documents :

- ISO/R 36 : Test method for the adhesion strength of vulcanised rubbers to textile fabrics.
- ISO/37 : Vulcanised rubbers - Determination of tensile stress - strain properties.
- ISO/188 : Vulcanised rubbers - Accelerated ageing resistance tests.
- ISO/1431 : Vulcanised elastomers - Determination of resistance to ozone cracking under static conditions.
- ISO/2285 : Vulcanised rubbers - Determination of tension set under constant elongation at normal and high temperatures.
- UIC-583 : Application of a special mark on interchangeable parts.

1-10-83

1-7-85

2 - CHARACTERISTICS

2.1 - Composition of the hoses

The hoses shall consist of an internal layer and an external layer of elastomer, with a wound textile reinforcement between the two, made in accordance with the indications shown on the drawing, in order to ensure a satisfactory performance in service.

2.1.1 - Internal and external layers of the hose

The type of elastomer shall be left to the choice of the supplier, who will supply relevant particulars to the purchasing Railway upon request.

2.1.2 - Reinforcement

The type of textile fabric used for the reinforcement (polyamide or polyester) shall be left to the choice of the supplier, who will supply relevant particulars to the purchasing Railway upon request. When placing the order, the purchasing Railway may request an adequate resistance to mineral oils.

2.2 - Physical characteristics

2.2.1 - Appearance

The hoses shall have clean-cut edges, with no burring ; the end sections shall be perpendicular to the longitudinal axis of the hose. The surfaces shall be smooth, with no cracking or other apparent defects likely to affect their use.

2.2.2 - Geometrical characteristics

The dimensions of the hoses, on delivery, shall be those stated on the order and its appended documents.

Unless otherwise indicated in the order, the lip of the internal layer of the hose must be reamed to an angle of 30° to 45° in relation to the longitudinal centre line, at each end, in order to facilitate joining up of the connections.

1-10-83

1-10-83

When so requested by the purchasing Railway a polymerisable coating may be applied on the end parts.

Unless otherwise stipulated, the following tolerances shall be complied with as regards :

- length ± 5 mm
- internal diameter ± 0.5 mm
- thickness of the hose material +1 mm
0

2.2.3 - Mechanical characteristics

2.2.3.1 - Bending

It must be possible to bend the hose to form approximately a torus of internal diameter equivalent to about 4 times the external nominal diameter of the hose, without using a force greater than 130 N for this operation, without folds appearing on the peripheral surface and without the maximum flattening recorded amounting to more than 16% of the nominal external diameter of the hose.

2.2.3.2 - Pressure test

After being subjected to an internal pressure of 13 bars for a period of five minutes, there shall be no apparent leak, swelling, or tear on the hose. The dimensional variations admitted under pressure conditions shall be as follows :

- variation in external diameter ± 10%
- variation in length ≤ 3.5%
- twist measured on the peripheral surface at the extremities of a length of about 500mm ≤ 30 mm

In addition, after discontinuation of the test pressure, no permanent deformation of the hose must be apparent, after a waiting period of 3 minutes.

2.2.3.3 - Bursting pressure

The bursting pressure, measured on the hose in delivery condition, must not be less than 70 bars.

2.2.3.4 - Adhesion of the reinforcement

The mean value of the forces needed to separate the reinforcement and each of the layers must not be less than :

- 70 N for hoses tested in delivery condition,
- 55 N for hoses tested after ageing for 7 days at 70° C.

2.2.3.5 - Resistance of the internal and external layers of the hose to repeated tensile loads

The internal and external layers of the hose, when subjected to successive repeated tensile loads must, in accordance with the conditions defined in paragraph 4.3.4.5, withstand :

- 400 tensile loadings for hoses tested in delivery condition,
- 350 tensile loadings for hoses tested after ageing for 7 days at 70° C.

2.2.3.6 - Residual deformation through static tensile loading of the internal layer of the hose :

After tensile loading, the test piece taken from the internal layer of the hose and tested after ageing for 7 days at 70° C, must not be more than $L_0 + 12\%$ in length.

2.2.3.7 - Impact test

After being subjected to the impact of a weight of 10 kg dropped from a height of 1 m, the bursting pressure of the hose must be at least 70 bars.

2.2.3.8 - Resistance to ozone cracking of the external layer of the hose under static conditions

The external layer of the hose, after exposure to an ozone-enriched atmosphere, must not show signs of cracking visible with a magnifying glass with a magnifying power of 7 X.

2.2.3.9 - Deflection at low temperature

Deflection of the hose as measured at the end of a length of 250 mm, 3 seconds after application of a load of 20 N at -30°C must not be less than 20 mm.

2.2.3.10 - Ease of assembly and resistance to uncoupling of connections on the hoses (when stipulated in the order)

It must be possible for the connections to be easily mounted on the hoses under the conditions stipulated in 4.3.4.10, so that the end of the hose makes clean contact with the shoulder of the connection. The centre-lines of the hose and connection must be in alignment after assembly.

Uncoupling of the hose connection, under the conditions defined in 4.3.4.11, must not occur when the pressure is less than 20 bars.

2.2.3.11 - Flare test (when stipulated in the order)

After the test provided for in 4.3.4.12, the linings and layers must neither tear nor become detached. The inspection shall cover the visible outer surfaces: it shall be performed with the naked eye, under normal viewing conditions and at a reference viewing distance.

1-10-83

Moreover, the residual widening shall not exceed 2% after a period of rest.

2.2.3.12 - Resistance of hoses to dynamic stresses (when stipulated in the order)

After the test stipulated in 4.3.4.13, the hose must not show any trace of visible damage such as cracks or residual deformation. The bursting pressure, as measured on a hose subjected to the test according to 4.3.4.13, must be at least 70 bars.

2.3 - Manufacturer's marks

Each hose shall be marked during the vulcanisation process, in the actual material of the hose, with the embossed markings shown on the order and its appended documents.

In the absence of any indications, the hoses shall be marked as follows:

- the manufacturer's mark,
- the last two figures of the year of manufacture,
- the batch number,
- the interchangeability mark as per UIC Leaflet 583.

1-7-85

1-10-83

3 - APPROVAL AND MANUFACTURE

3.1 - Approval of manufacturers

Hoses in reinforced elastomer for compressed air brake couplings may only be ordered from manufacturers approved by the purchasing Railway.

3.2 - Approval of the finished product

Any supply must, beforehand, be approved by the purchasing Railway in accordance with the conditions laid down in § 4.2.

The approval must be renewed each time a modification to the design of the hose, the type of its constituent parts or its manufacturing process is likely to change the characteristics of the hose.

3.3 - Mass production of hoses

For the mass production of hoses the manufacturer shall be compelled to make no alterations in the choice of constituent parts and manufacturing processes he had selected for the manufacture of the hoses which have undergone successfully the approval process.

4 - INSPECTION

4.1 - Inspection of the manufacturing process

As regards mass production, the purchasing Railway shall reserve its right to check, by any means which he deems necessary, that the manufacturer did not make any alteration to the manufacture and composition of the hoses, in relation to the approved sample.

4.2 - Approval inspection

4.2.1 - Formation of a batch to be subjected to the approval procedure

When the approval procedure is to be carried out, a batch comprising at least 10 hoses of the model to be approved, manufactured according to the normal mass production methods, shall be made available to the representative of the purchasing Railway.

4.2.2 - Condition of the hoses subjected to the approval procedure

The hoses shall be submitted in finished condition.

1-10-83

4.2.3 - Approval tests

The tests to which the hoses must be subjected are indicated in the table of § 4.3.2.

4.3 - Acceptance inspection

4.3.1 - Submission

4.3.1.1 - Condition of the hoses on submission

The hoses shall be submitted for acceptance in delivery condition.

4.3.1.2 - Batches

The hoses shall be submitted in batches of 1 000 or fraction of 1 000 comprising only hoses of the same type, manufactured at the same time.

Each batch shall be numbered consecutively without omissions or repetition, in a single continuous series, recommencing at 1 (one) at the beginning of each year.

The number of a rejected batch shall not be used again during the current year.

4.3.1.3 - Notification of readiness for inspection

The representative of the purchasing Railway shall be advised of the date of readiness for inspection by a written notification signed by the Works Manager or his authorised representative; this notification must state the number of hoses forming each batch, together with the references of the order by which they are covered.

4.3.2 - Nature and proportion of the tests and inspections

The hoses shall be subjected to the tests and inspections indicated in the table shown below and carried out either at the time of approval of the process, or on submission, or during manufacture. In both cases the cost of inspections and tests shall be borne by the supplier, and all tests and inspections shall be performed at the supplier's works.

Moreover, the representative of the purchasing Railway shall have the right, at any time, to take sample hoses from the works for testing either in the works laboratory or in that of the purchasing Railway, in order to verify all or any of their characteristics.

3.2 - Approval of manufacturing processes

The manufacturing processes for hoses must be approved by the purchasing Railway.

This approval shall be renewed each time any modification to the design of the hoses or to the manufacturing process is liable to change their characteristics.

3.3 - Manufacture of hoses

The manufacturer shall be free to choose the manufacturing processes, providing the hoses comply fully with the stipulations in §§ 2.2.1 to 2.2.3.9.

4 - INSPECTION

4.1 - Inspection of the manufacturing process

It must be possible for the representative of the purchasing Railway to ensure by any checks which he considers necessary that the approved manufacturing conditions are complied with.

In addition, he shall be informed of any alteration to the manufacturing process.



4.2 - Approval inspection

4.2.1 - Formation of a batch to be subjected to the approval procedure

When the approval procedure is to be carried out, a batch comprising at least 10 hoses of the model to be approved, manufactured according to the normal production methods, shall be made available to the representative of the purchasing Railway.

4.2.2 - Condition of the hoses subjected to the approval procedure

The hoses shall be submitted in finished condition.

<i>Nature of the tests and inspections</i>	<i>Type of inspection</i>	<i>Number of test pieces per batch</i>	<i>Shape and dimensions of the test pieces</i>
Dimensional check	All	At the discretion of the representative of the purchasing Railway	The hose itself
Connection assembly test (1)	All	3	The hose itself
Uncoupling test (1)	All	3	The 3 hoses used for the assembly test
Bend test	All	3	
Pressure test	All	2	
Bursting test in submission condition	All	2	The 2 hoses used for the pressure test
Reinforcement adhesion test			
- in submission condition	All	3	<i>Hoses with diameter > 16 mm: ring-shaped test pieces : hose section 35-40 mm in length.</i> <i>Hoses with diameter ≤ 16 mm: test pieces in strips : hose section 200 mm in length.</i>
- after ageing	All	3	
Test for dynamic fatigue through repeated tensile loadings			
- in submission condition	All	} 3 per external layer } 3 per internal layer	Dumb-bell shaped test pieces removed, in accordance with Appendix 1, from hoses used for the bursting test
- after ageing	All		
Test for residual deformation through static tensile loading after ageing	All	} 3 per external layer } 3 per internal layer	
Impact test	Approval exclusively		
Test for resistance to ozone cracking of the external layer under static conditions	All	3	Dumb-bell shaped test pieces removed in accordance with Appendix 1, from the hoses used for the bursting test.
Deformation test at low temperature	All	3	The hose itself
Flare test (1)	All	3	The hose itself
Dynamic stress test (1)	Approval to be renewed annually	3	The hose itself

(1) At the request of the purchasing Railway.

4.3.3 - Removal and preparation of the test pieces

4.3.3.1 - Removal

The representative of the purchasing Railway shall select at random from each batch the hoses in the batch which are intended for testing and checking, and shall mark them indelibly.

4.3.3.2 - Preparation of the test pieces

The test pieces required for the tests provided in paragraphs 4.3.4.5, 4.3.4.6 and 4.3.4.8 are of type 2 in ISO Standard 37 ; they are taken from the hose in the circumferential direction.

If the test-piece thickness exceeds 2.5 mm, it must be reduced to this dimension by grinding or by any suitable means, care being taken to avoid any temperature rise.

After cutting up, the test pieces for testing after accelerated ageing, shall be placed in an oven at 70° C for 7 days. These operations shall be carried out in accordance with ISO Standard 188. The other test pieces shall be tested in submission condition.

4.3.4 - Test procedure

4.3.4.1 - Bend test

The bend test shall be carried out by means of two handles and a wooden disc as shown in Appendix 2. The wooden disc shall contain a small A-shaped opening for insertion of the recording instrument in order to determine the flattening of the hose during bending. The bending force is measured at the ends of the hose.

4.3.4.2 - Pressure test

The hose shall be fitted at one of its ends with a cap and at the other with a connection suitably clamped in order to permit the application of an internal hydraulic or air pressure of 13 bars for a period of 5 minutes. The end fitted with the cap shall be left free to follow the deformation of the hose.

4.3.4.3 - Bursting test

The hose which has undergone the pressure test is then subjected to an internal hydraulic pressure increased gradually by approximately 10 bars per minute, until bursting occurs.

4.3.4.4 - Test for adhesion of the reinforcements

This test shall be carried out in accordance with the provisions of ISO Recommendation R 36.

a - Ring-shaped test pieces :

The test piece is slit along a generating line. In the centre part of the test piece, an area 25 mm \pm 0.5 mm wide is marked out at right angles to the generating lines. An incision is made in the test-piece surface without damaging the reinforcement at right angles to the two parallel lines marked out. Detachment of the central strip is begun leaving intact the two marginal areas about 5 mm wide, which are intended to maintain the reinforcement in the central area during the test.

The wrappers and reinforcement are separated by means of a dynamometer, in accordance with the provisions in ISO Recommendation R/36, and the tearing force necessary is recorded.

b - Test pieces in strips

The hose section is slit along a generating line. In the centre part of the test piece parallel to the generating lines, an area 25 mm \pm 0.5 mm wide is marked out. An incision is made in the test piece surface without damaging the reinforcement, level with the two parallel lines thus marked out.

Detachment of the centre strip is begun, leaving intact the two marginal areas on either side of this strip.

The wrappers and reinforcement are separated by means of a dynamometer, in accordance with ISO Recommendation R 36, and the required tearing force is recorded.

4.3.4.5 - Test of dynamic fatigue through repeated tensile loadings of the internal and external layers

The test piece shall be subjected to successive tensile loadings on a suitable machine under the following conditions :

- the length L_0 (20 mm) marked on the calibrated part of the test piece is increased to $3 L_0$ by an initial tensile load,
- the machine is then adjusted so that the length $3 L_0$ is increased to $4 L_0$, and then reduced to $3 L_0$. This operation is repeated at the rate of 30 loading cycles per minute.

4.3.4.6 - Test for residual deformation through static tensile loading of the internal layer

The test shall be carried out in accordance with the provisions of ISO Standard 2285.

The test piece used shall be of type H2 and $2 \text{ mm} \pm 0.2 \text{ mm}$ in thickness.

The length L_0 ($= 20 \text{ mm} \pm 0.2 \text{ mm}$) of the calibrated part of the test piece shall be marked by means of reference lines on the concave side. It shall be measured between the inner sides of the reference lines.

The test pieces used shall have previously been aged under conditions defined in § 4.3.3.2.

The test shall be carried out :

- at ambient temperature,

- at constant elongation so that the initial gauge length L_0 of the test piece (tested after ageing) is increased to $4 L_0$ and maintained at this value for 24 hours.

The residual elongation shall be measured 30 minutes $+ \frac{3}{0} \text{ mm}$ after completely releasing the test piece from any load.

The distance of the gauge length L shall be measured between the inner sides of the lines to the nearest 0.1 mm, by means of a magnifying micrometer with a magnifying power of 7 X.

The residual deformation through static tensile loading of the internal layer shall be calculated using the following formula : $\frac{L - L_0}{L_0} \times 100$

4.3.4.7 - Impact test

The test shall be carried out with the device shown in Appendix 3. A weight of 10 kg, retained in the inoperative position by a pin is released and falls freely from a height of 1 m in a guiding tube.

The tube, in which the end-piece shown in Appendix 4 has been inserted beforehand, is placed on a V-shaped block, so that the weight falls on the distended portion caused by the thickened ring on the end-piece.

The hose shall then be subjected to the bursting test specified in § 4.3.4.3.

4.3.4.8 - Test for resistance to ozone cracking of the external layer under static conditions.

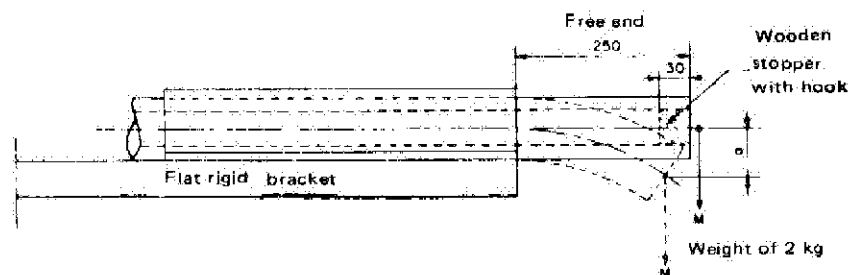
The test shall be carried out in accordance with the provisions of ISO Standard 1431.

The test pieces, taken from the external layer of the hose used for the bursting test, in accordance with Appendix 1 and subjected to an elongation of 20%, shall be placed for 24 hours, in a chamber where the ozone concentration is 200 ± 20 parts per 100 millions by volume, the temperature being maintained at $30^{\circ} \text{C} \pm 2^{\circ} \text{C}$ throughout the test.

The test pieces shall be examined, in the stretched condition, through a magnifying glass with a magnifying power of 7 X.

4.3.4.9 - Test for deflection at low temperature

The test is carried out by gripping the hose in a clamp so that one of its ends, into which a wooden stopper with a hook has been driven, projects 250 mm beyond the end of the clamp as shown in the following drawing :



The whole test assembly is placed in a chamber maintained at a temperature of $-30^{\circ} \pm 2^{\circ} \text{C}$. After 6 hours of exposure to this temperature, the complete assembly being left in the same chamber, a 2 kg weight is suspended from the hook of the wooden stopper; the resulting deflection (a) of the free end of the hose, after 3 seconds' application of the load, is measured and recorded.

4.3.4.10 - Test for fitting of connections on hoses

a - Principle of the test

The test involves fitting a connection on a hose under specific conditions and checking the quality of the resulting assembly.

b - Apparatus used

The test is carried out using the apparatus outlined in the general diagram in Appendix 5.

The end of the rod of the pneumatic jack must be designed to be fitted with a new connection with the shapes and dimensions defined in Appendix 6.

The position of the pneumatic jack on the frame of the apparatus is adjustable and must be set in such a way that the distance between the end of the fixed support and the shoulder of the connection fitted on the extremity of the jack rod, when the latter is extended to the full, is $21 \text{ mm} \pm 1 \text{ mm}$.

The bore of the jack cylinder has a diameter of 100 mm, and the jack rod must have a total stroke of 100 mm.

The compressed air supplied to the air circuit of the jack must be under a stabilised pressure of 5 bars. The full stroke of the jack rod is completed in one second using an air-flow reducer.

c - Test procedure

Before they are positioned on the apparatus, both the extremity of the connection and that of the hose must first be immersed in a 3% solution of a surface active agent in water.

The connection is placed at the end of the jack rod.

The hose is positioned on the support in such a way that the previously moistened free end overlaps that of the fixed support by 35 mm (distance L). The hose thus positioned is tightened slightly by means of the movable clamping device.

Compressed air is then supplied in the pneumatic system of the jack. Once the jack rod has completed its stroke, the hose tightening device is loosened and the jack rod restored to its initial position.

In cases where the connection has effectively been fitted on the hose, the hose fitted with its connection is removed from the end of the jack rod.

d - Results to be obtained

The purpose of the test is to check that the connection can easily be fitted onto the hose.

When the connection is effectively fitted on the hose, the quality of the fitting must be checked, with particular attention to the relative position of the end of the hose and the connection shoulder, and it is necessary to make sure that the two parts are not out of alignment.

The results must be consistent with the characteristics stipulated in § 2.2.3.10.

4.3.4.11 - Uncoupling test

The hose fitted with its connection, inserted under the conditions defined in § 4.3.4.10, shall be subjected to an uncoupling test.

The hose with its connection is left untouched for 48 hours at ambient temperature.

The connection is then sealed and, by means of the apparatus used for the pressure test and under the same conditions (§ 4.3.4.2), the hose is subjected to a hydraulic pressure progressively increased by 10 bars/minute.

The results must be consistent with those stipulated in § 2.2.3.10.

4.3.4.12 - Flare test

This test involves inserting a tapered instrument in one end of the hose test-piece for 2 minutes (see figure 1).

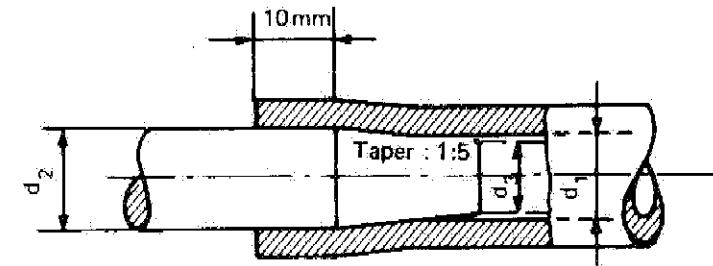


Fig. 1 - Tapered instrument for flare test

d_1 = inner nominal diameter of hose

$d_2 = d_1 \times 1.3$

$d_3 = d_1 - 2 \text{ mm.}$

The use of a lubricant is allowed.

The results must be consistent with those stipulated in § 2.2.3.11.

4.3.4.13 - Test for resistance of hoses to dynamic stresses

The test method shall be defined by the purchasing Railway.

4.4 - Conclusion of the inspections

Any defect in appearance or any difference in dimension which may make them unfit for use shall result in rejection of the hose or hoses in question.

Should the results of any one of the tests provided fail to meet the required standard, the whole corresponding batch shall be rejected.

Additional tests may not be carried out at the manufacturer's request, unless with the prior agreement of the purchasing Railway.

5 - DELIVERY

The hoses must be suitably protected from impact.

Hoses forming part of the same delivery batch must have been manufactured less than 3 months previously.

6 - GUARANTEE

The hoses for brake half-couplings shall be guaranteed by the manufacturer, for 3 years, following the year of delivery, against any defect arising from manufacture and not revealed during acceptance at the works.

If the hoses are to be fitted to new stock, the date of delivery of the vehicles to which they are fitted shall be regarded as the beginning of the guarantee.

Hoses which during the guarantee period reveal manufacturing defects rendering them unsuitable for service or likely to decrease their service life shall be rejected.

4.3.4.12. - Flare test

This test involves inserting a tapered instrument in one end of the hose test-piece for 2 minutes (see figure 1).

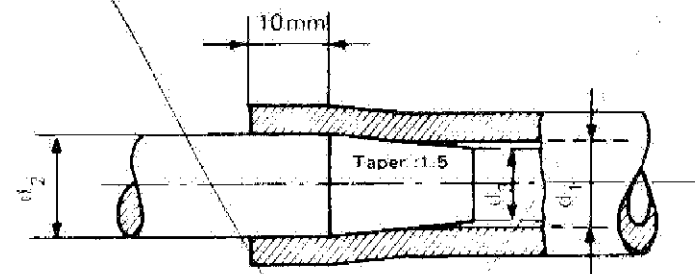


Fig. 1 - Tapered instrument for flare test

d_1 = inner nominal diameter of hose

$d_2 = d_1 \times 1.3$

$d_3 = d_1 - 2 \text{ mm.}$

§ 2.2.3.1.1. The results must be consistent with those stipulated in

4.3.4.13 - Test for resistance of hoses to dynamic stresses

The test method shall be defined by the purchasing Railway.

4.4 - Conclusion of the inspections

Any defect in appearance or any difference in dimension which may make them unfit for use shall result in rejection of the hose or hoses in question.

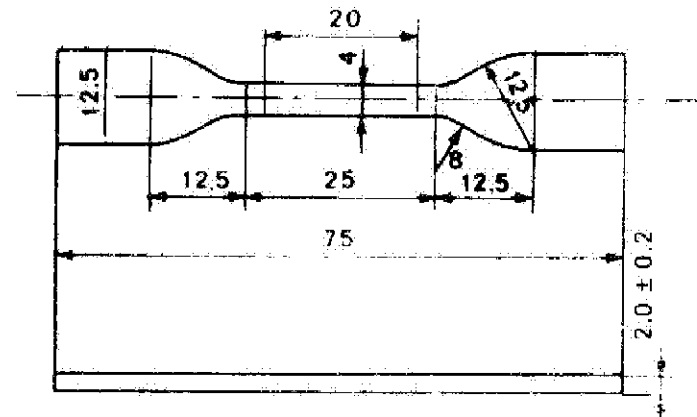
Before being finally rejected, the defective hoses may, however, be subjected to a check inspection by the purchasing Railway and the manufacturer, if the latter so requests.

If the check inspection confirms that the defects are definitely imputable either to the manufacture, or to inadequate protection against impact, the defective hoses shall be finally rejected.

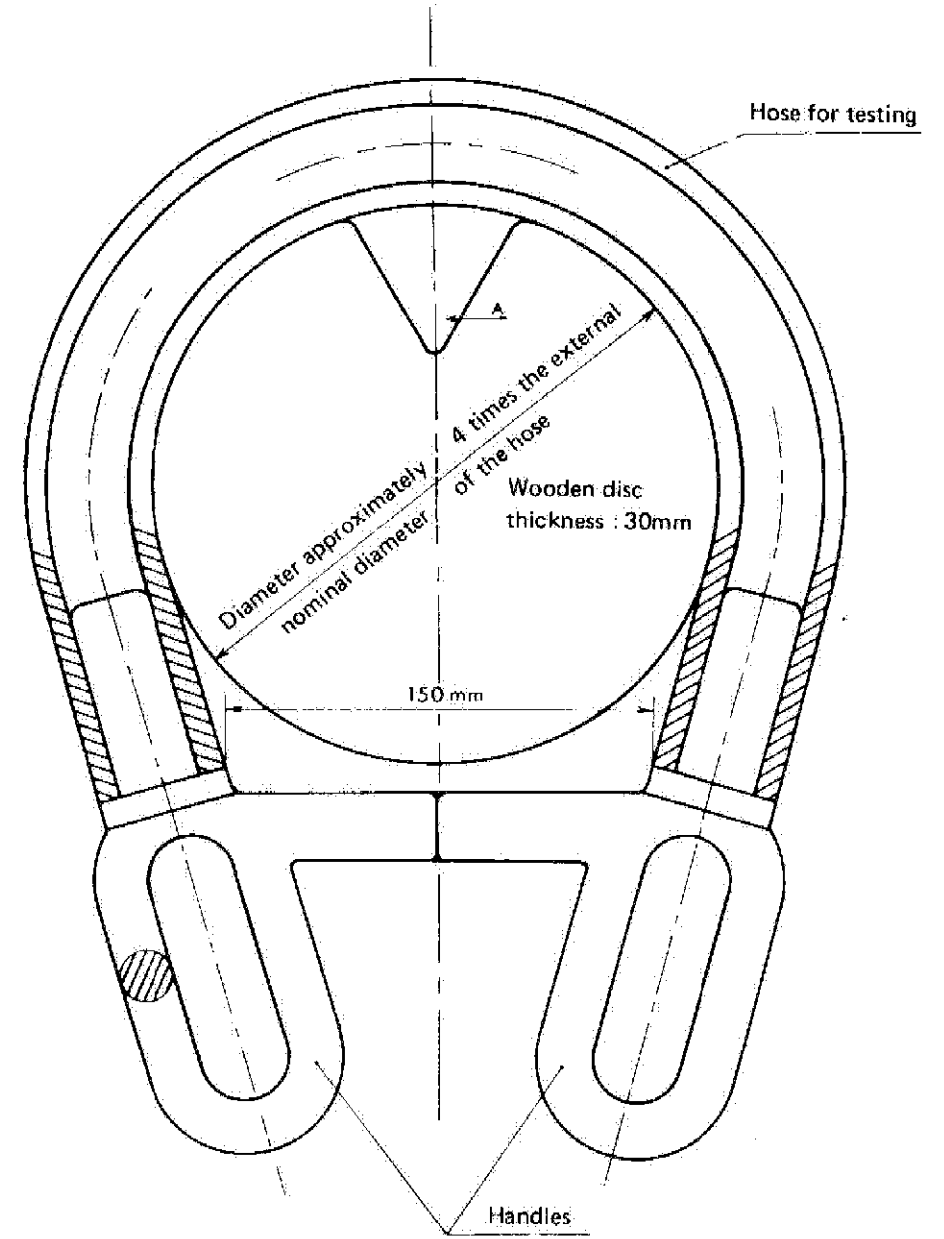
Should the results of the check inspection not enable an agreement to be reached between the purchasing Railway and the manufacturer, experts approved by both parties shall be appointed to settle the dispute. The costs of arbitration shall be borne by the party held responsible for the defects.

The rejected hoses shall be placed at the disposal of the supplier, for replacement or reimbursement at their value in new condition at the time of rejection.

H2 ISO/37 TEST PIECE



APPARATUS FOR THE BEND TEST

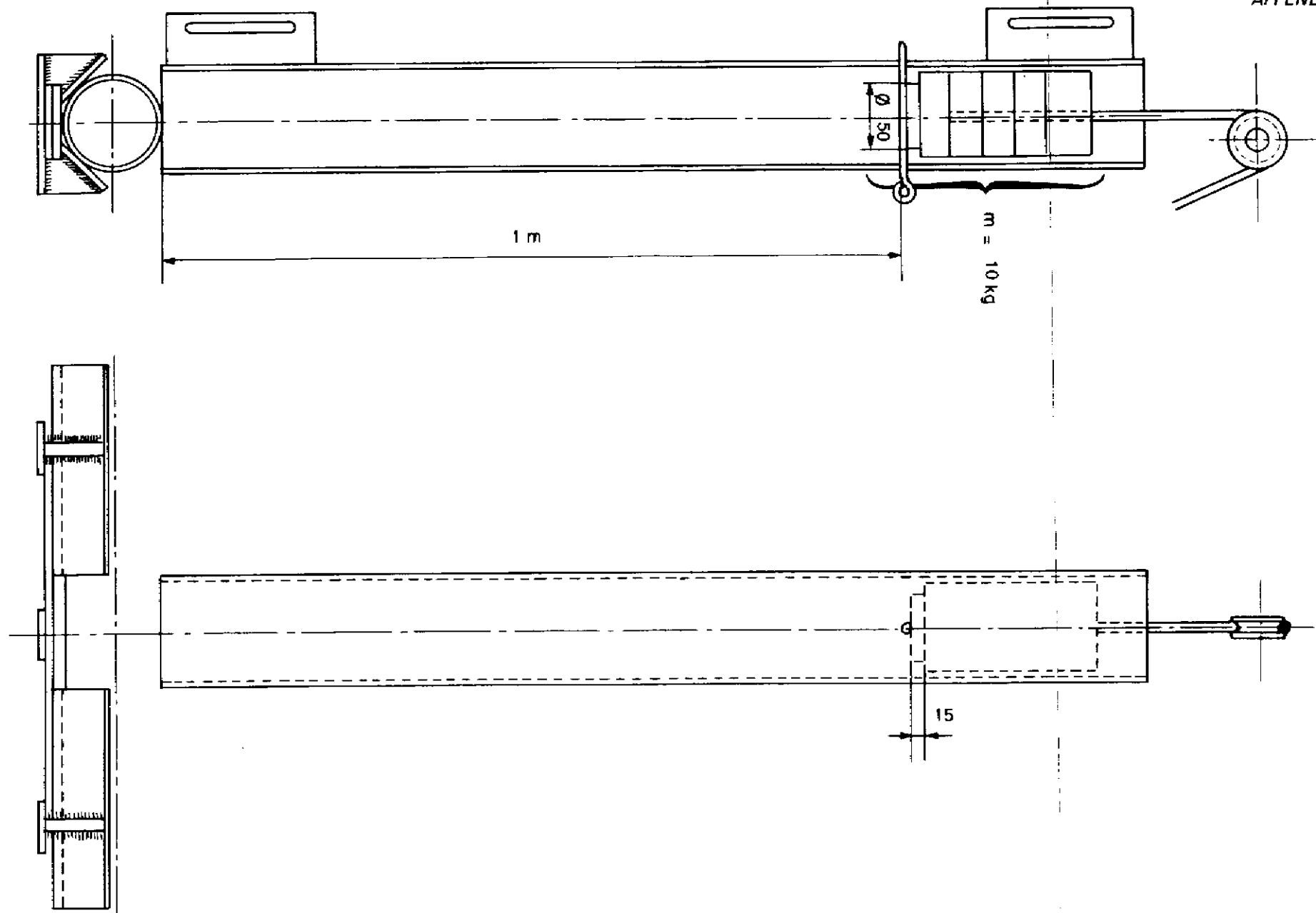


TEST FOR RESISTANCE TO IMPACT

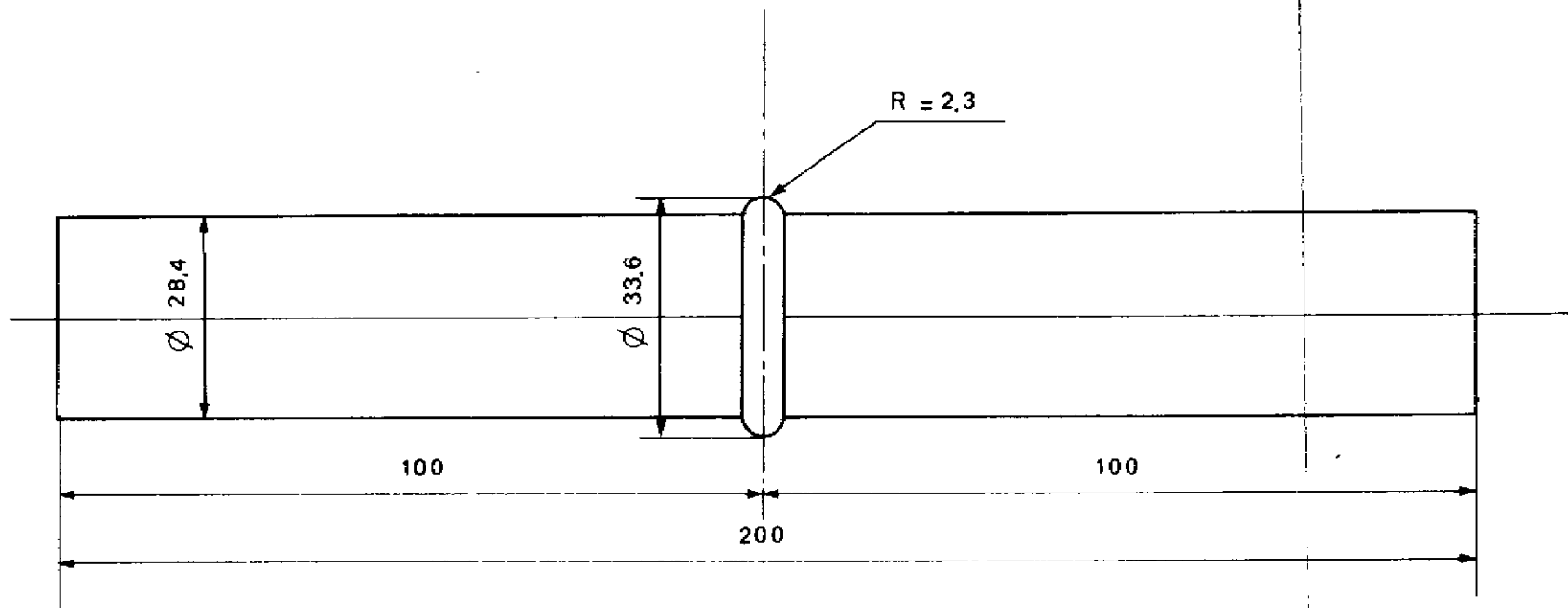
830-1

0

APPENDIX 3



END-PIECE FOR TEST FOR RESISTANCE TO IMPACT

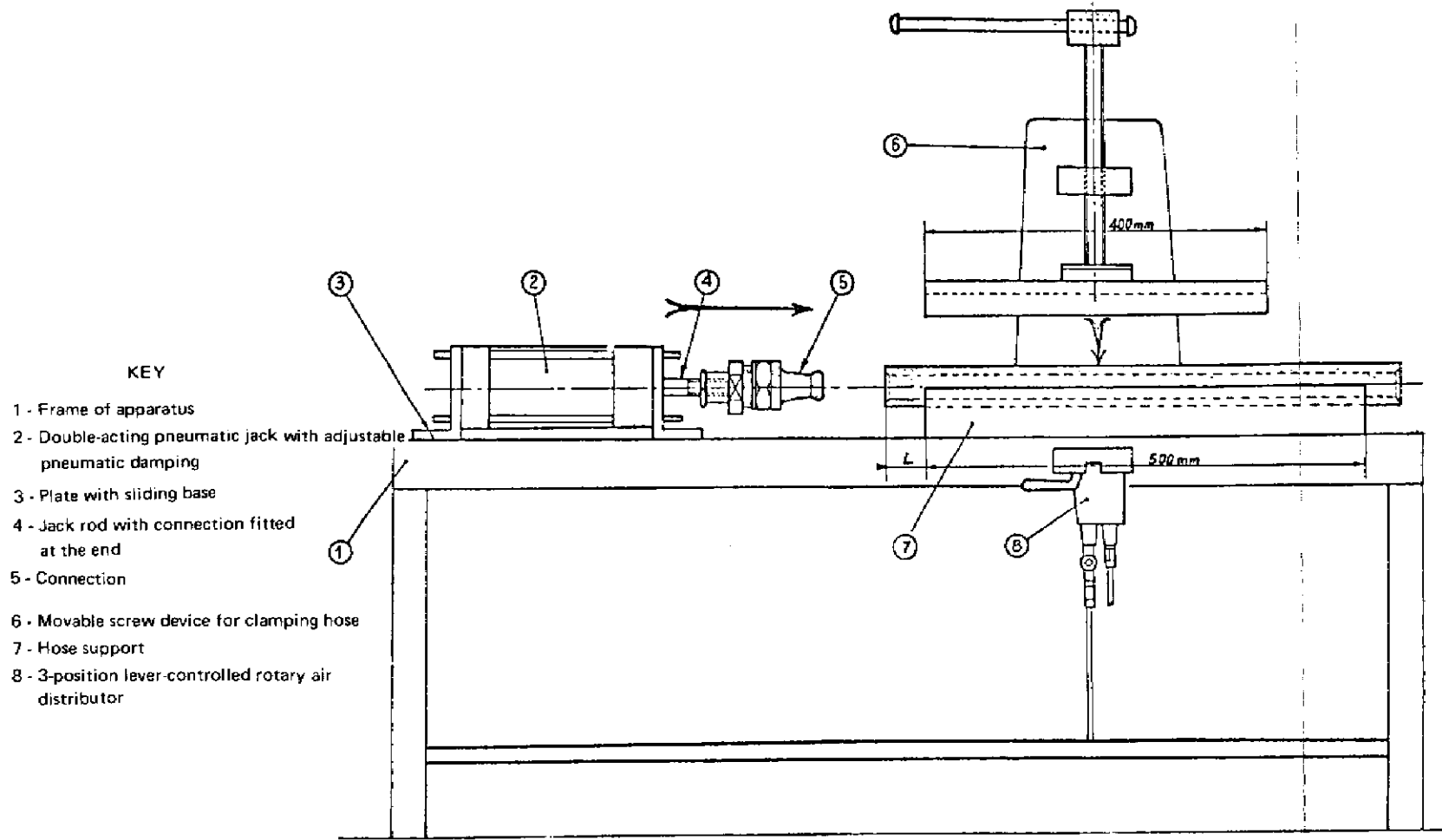


Machining : ▼▼ all over

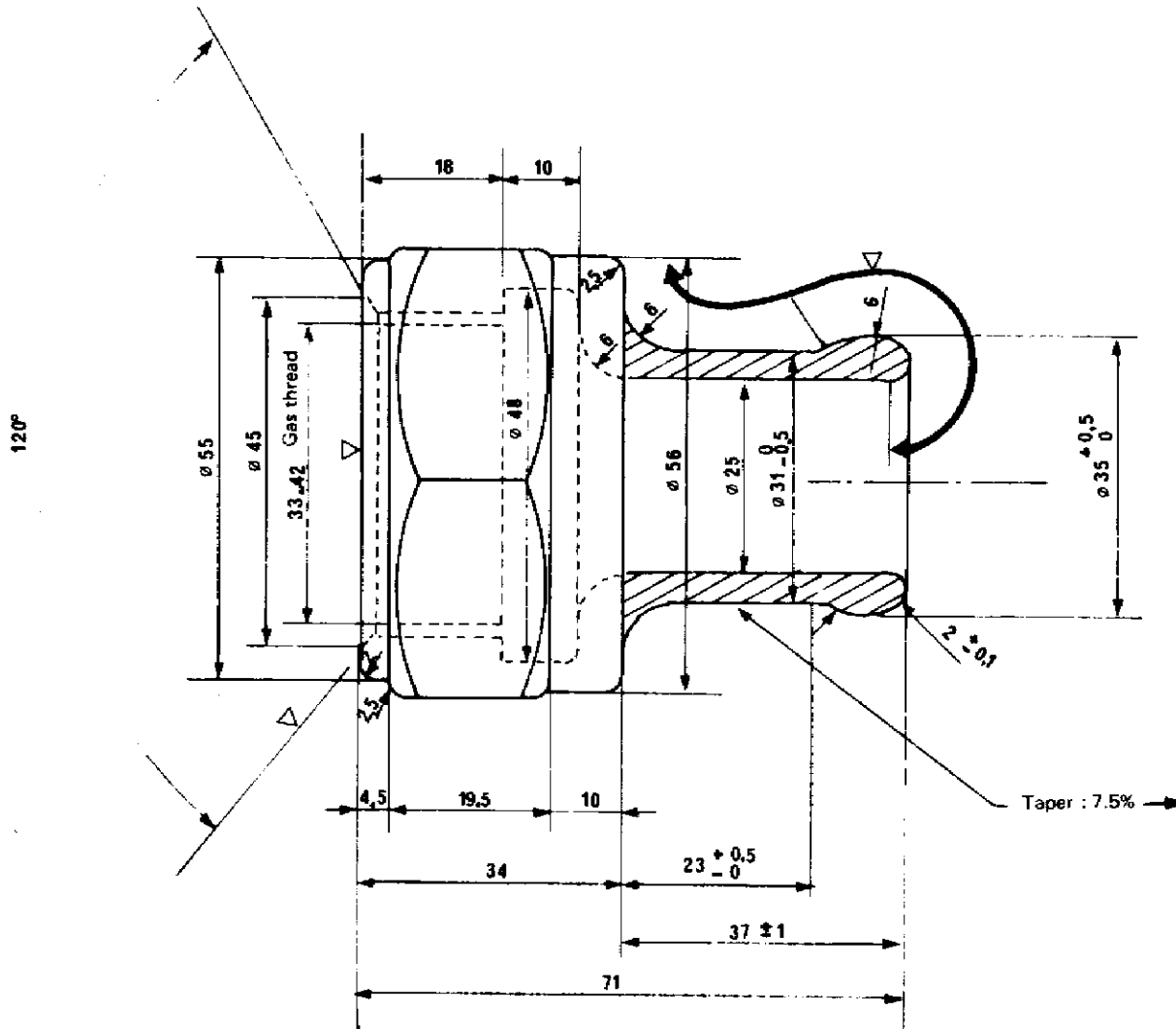
Material : Type II ISO/R 683 XI case - hardened steel

Scale : 1

APPARATUS FOR TESTING THE ASSEMBLY OF BRAKE HOSES



CONNECTION



APPLICATION

With effect from 1 July 1981, except :

- Point 1.1
 - Points 2.1, 2.1.1, 2.2.2, 2.2.3.2 (3rd dash)
 - Point 2.2.3.11 (2nd paragraph)
 - Points 3.2, 3.3
 - Points 4.1, 4.3.4.12 (penultimate sentence)
- } 1-10-83

All Railways in the Union

RECORD REFERENCES

Headings under which the question has been dealt with :

- Preparation of standard technical specifications
(5th Committee - R.S. - : Amsterdam, June 1955. - Board of Management : December 1956).
- Amendment of existing specifications to include new data, especially :
 - b) Revision of Leaflet No. 830-1
.....
(Sub-Committee for Specifications : Paris, January 1971).
- Revision of existing specifications relating to :
 - a) Running gear, suspension components, joints for brake-pipe coupling heads and the couplings themselves.
 - b) Harmonisation of guarantee clauses.
(Sub-Committee for Specifications : Paris, January 1975. - Traction and Rolling Stock Committee : Edinburgh, June 1975).

1-10-83

- Question 5/Sa/FIC : Revision of UIC Leaflet 830-1 : «Flexible hoses in reinforced elastomer for compressed air brake couplings».
(Sub-Committee for Specifications : Paris, January 1979).

- Question 5/Sa/FIC : Exchange of views on the application of UIC Leaflet 830-1 «Flexible hoses in reinforced elastomer for compressed air brake couplings».
(Sub-Committee for Specifications : Paris, January 1981).

- Question 5/Sa/FIC : Finalisation of revised UIC Leaflet 830-1 «Flexible hoses in reinforced elastomer for compressed air brake couplings».
(Sub-Committee for Specifications : Paris, January 1983).

- Introduction of provisions regarding the interchangeability mark in UIC Leaflet 830-1 "Technical specification for the supply of elastomer hoses for compressed air brake couplings".
(Sub-Committee for Specifications : Paris, January 1985).

1-10-83

1-7-85

APPLICATION

With effect from 1 July 1981.

All Railways in the Union.

RECORD REFERENCES

Headings under which the question has been dealt with :

- Preparation of standard technical specifications
(5th Committee - R.S. : Amsterdam, June 1955. - Board of Management : December 1956).

- Amendment of existing specifications to include new data, especially :

b) Revision of Leaflet No. 830-1.

(Sub-Committee for Specifications : Paris, January 1971).

- Revision of existing specifications relating to :

a) Running gear, suspension components, joints for brake-pipe coupling heads and the couplings themselves.

b) Harmonisation of guarantee clauses.

(Sub-Committee for Specifications : Paris, January 1975. - Traction and Rolling Stock Committee : Edinburgh, June 1975).

- *Question 5/Sa/FIC* : Revision of UIC Leaflet 830-1 : «Flexible hoses in reinforced elastomer for compressed air brake couplings».

(Sub-Committee for Specifications : Paris, January 1979).

- *Question 5/Sa/FIC* : Exchange of views on the application of UIC Leaflet 830-1 : «Flexible hoses in reinforced elastomer for compressed air brake couplings».

(Sub-Committee for Specifications : Paris, January 1981).