IS : 9401 (Part 7) - 1984
(Reaffirmed 1995)

Indian Standard

METHOD OF MEASUREMENT OF WORKS IN RIVER VALLEY PROJECTS (DAMS AND APPURTENANT STRUCTURES)

PART 7 JOINTS

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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

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Indian Standard

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Measurement of Works of River Valley Projects Sectional Committee, BDC 69

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METHOD OF MEASUREMENT OF WORKS IN RIVER VALLEY PROJECTS (DAMS AND APPURTENANT STRUCTURES)

PART 7 JOINTS

0. FOREWORD

0.1 This Indian Standard (Part 7) was adopted by the Indian Standards Institution on 14 December 1984, after the draft finalized by the Measurement of Works of River Valley Projects Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 In the measurement of quantities in construction of river valley projects a large diversity of methods exists at present according to local practices. This lack of uniformity creates complication regarding measurements and payments. This standard is intended to provide a uniform basis for measurement of joints in the construction of river valley projects.

0.3 In reporting the result of measurements made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS : 2-1960*.

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1. SCOPE

1.1 This standard covers the method of measurement of joints and connected auxiliary works in river valley projects, such as dams, hydraulic structures, canals and power houses.

2. GENERAL

2.1 Clubbing of Items — Items may be clubbed together provided that break-up of clubbed items is on the basis of detailed descriptions of items as stated in this standard.

2.2 Booking of Dimensions — In booking dimensions, the order shall be consistent and generally in the sequence of length, breadth or width and height or depth or thickness.

*Rules for rounding off numerical values (*revised*).

2.3 Measurements — All work shall be measured net in the decimal system, as fixed in place, unless otherwise stated herein, as given below:

a) Dimensions shall be measured to the nearest 0·01 m; and

b) Weight shall be worked out to the nearest 0·01 kg.

2.4 Description of Items — Description of each item shall, unless otherwise stated, be held to include conveyance, delivery, handling, loading, unloading, storing, waste, returning of packings scaffolding, tools and tackle fixing complete as necessary.

3. MEASUREMENT OF JOINTS

3.1 Construction Joints — The entire work of construction joints shall be included in the schedule of item for concrete, masonry, etc. The items, such as preparation of surface by sand blasting or by air water jet or placing of mortar in between two successive lifts shall not be measured separately.

3.2 Contraction Joint, Expansion Joint, Longitudinal Joint and Transverse Joint — These joints shall be measured in the following categories.

3.2.1 *Shear Keys* — The entire work of constructing the shear keys shall be included in the schedule of items for the joint.

3.2.2 *Metal Seals* — Measurement for supplying and fixing metal sealing strips shall be in running metres along the central line of metal seals. The shape, width material and thickness shall be specified. No extra allowance shall be made for jointing and brazing of the metal strips.

3.2.3 *PVC Rubber Water Stops* — Measurement of supplying and fixing water stops shall be in running metre measured along the centre line of the water stop. The width, shape and thickness of water stop shall be specified. No extra allowance shall be made for splicing of water stops or for junctions.

3.2.4 *Anchor Rods* — Measurement of anchor rods or dowel bars used for fixing metal sealing strips, etc, shall be made on the basis of weight of anchor rods or dowel bars in kilograms actually embedded.

3.2.5 *Asphalt Seals* — Mearurement of asphalt seals shall be made on the basis of the weight of the asphalt in kilograms actually filled in the joint seals. No separate measurement shall be made for heating of asphalt for filling in the joint seals. Forming of asphalt seal slot shall not be made separately, and shall be included in this item.

3.2.6 *Fibre Type Joint Filler* — Measurement for supplying and fixing in position fibre type joint filler shall be made on the basis of the area of joint filler in square metre specifying the thickness.

3.2.7 *Steam Heating Pipes* — Steam heating pipes which are fixed inside the asphalt seal slots for heating the seals shall be measured in running metres along the central line of pipes actually embedded specifying the gauge, diameter and material. No extra allowance shall be made for supporting clips and jointing of pipes.

3.2.8 *Plugging of Asphalt Seal Slots* — Measurement for plugging of asphalt seals at top by cast iron plugs shall be made on the basis of the weight of cast iron plugs actually placed on the top of asphalt seal, stating size, shape, thickness and quality of cast iron.

3.2.9 *Grouting of Joints* — Measurement for grouting where required shall be made according to IS : 9401 (Part 3)-1980*.

3.2.10 *Hook-ups to Joint Grout System* — Measurement for hook-ups to joint grout system shall be made on the basis of the number of supply lines hooked into. Return lines, vent lines, vent return lines hooked onto to complete the grouting of any grouting system shall not be measured separately.

*Method of measurement of works in river valley projects (dams and appurtenant structures): Part 3 Grouting.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	Unit	Symbol
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	Unit	Symbol
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	Unit	Symbol	Definition
Force	newton	N	1 N = 1 $kg.m/s^2$
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress,	pascal	Pa	1 Pa = 1 N/m^2

AMENDMENT NO. 1 MARCH 1996
TO
IS 9401 (Part 7) : 1984 METHOD OF MEASUREMENT OF WORKS IN RIVER VALLEY PROJECTS (DAMS AND APPURTENANT STRUCTURES)

PART 7 JOINTS

(*Page* 5, *clause* **3.2.9**) — Substitute 'IS 9401(Part 3) : 1994' *for* 'IS : 9401 (Part 3) - 1980'.

(*Page* 5, *foot-note marked* '*') — Substitute 'Method of measurement of works in river valley projects (dams and appurtenant structures) : Part 3 Grouting (*first revision*)' for the existing title.

(RVD 23)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 2 FEBRUARY 1999
TO
IS 9401 (PART 7) : 1984 METHOD OF MEASUREMENT OF WORKS IN RIVER VALLEY PROJECTS (DAMS AND APPURTENANT STRUCTURES)

PART 7 JOINTS

(*Page* 4, *clause* **2.3**) — Insert the following:

'c) Areas shall be worked out to the nearest 0.01 m^2.'

(RVD 23)

Reprography Unit, BIS, New Delhi, India