Content

Title：	Directions Governing Type Approval of Diaphragm Gases Measuring Instrument Ch
Date：	2017.07.26
Legislative：	1.10 clauses enacted and promulgated by the Bureau of Standards, Metrology and Inspection, Ministry of Economic Affairs on April 23, 2004 and effected on May 1, 2004. 2.Clauses 3, 4, 5, 7 and 9 amended and promulgated by the Bureau of Standards, Metrology and Inspection, Ministry of Economic Affairs on September 13, and effected on amended date. 3.Clauses 2, 4 and 6 amended and promulgated by the Bureau of Standards, Metrology and Inspection, Ministry of Economic Affairs on July 26, 2017 and effected on amended date.
Content：	1.These Directions are enacted for conducting type approval and series type approval of diaphragm gas meters and other relevant activities. 2.To apply for type approval, series type approval or approbation, the applicant shall submit the following technical documents: (1) Two diagrams of seal location and two lists of patterns of seals and stamps(exempted for applicants for series approval or approbation); (2) Original Certificate of type approval (exempted for applicants for type approval); (3) Documents or test reports showing the difference due to alteration (exempted for applicants for type approval). 3. To apply for type approval, series type approval or approbation, the applicant shall submit the following photographs (printed or attached on A4 papers and bound into two volumes; the photographs shall not be smaller than 12.7 x8.8 cm2, or they could also be provided in electronic files): (1) Total of six photographs of the upper, lower, left, right, front, and back of the instrument. (2) The image of the instrument shall occupy at least 4/5 of the photograph area and the wording and marking on the sample shall be clearly shown. 4. An applicant for type approval shall submit the following technical documents and diaphragm gas meters to the designated laboratory recognized by the metrology authority to apply for test: (1) A list of the documents submitted. (2) A description of the diaphragm gas meter giving the technical characteristics and its operating principle. (3) A perspective drawing or photograph of the diaphragm gas meter. (4) A list of parts and the corresponding constituent materials. (5) A dimensioned drawing of the diaphragm gas meter and its 3D breakdown drawing (commonly called "exploded view"). (6) A drawing showing the location of verification marks and seals, as well as the seal patterns. (7) A drawing of the indicating device with adjustment mechanisms. (8) A drawing of the data plate or face plate and other marking. (9) A drawing of additional devices (exempted for those without additional device).

(10) A list of the characteristics for the driving shaft (exempted for those without drive shaft).
(11) A list of electronic components and the corresponding characteristics (exempted for those without electronic components).
(12) A description for the electronic devices with drawings, diagrams and general software explaining their construction and operation (exempted for those without electronic component)
(13) Submit special tools are required for those with safety monitoring and controlling unit.
(14) Test report for safety requirements (exempted for those with safety monitoring and controlling unit)
a. Applicants shall provide material analysis reports or test reports complying with section 8.29.1(3) of CNS 14741 as the casing or the internal materials, which are exposed directly to combustible gas, for the diaphragm gas meter are made of metal. As for the non-metal materials, applicants shall provide test reports complying with section 8.29.2 of CNS 14741.
b. Applicants shall provide a test report concerning impact resistance for the input and output connections of the diaphragm gas meter, which shall comply with section 8.13 of CNS 14741.
The test reports shall be delivered by the metrology authority or the laboratories accredited by the accreditation body which is a member of the Mutual Recognition Arrangement (MRA)of the International Laboratory Accreditation Cooperation (ILAC); the test reports shall bear accreditation mark of the accreditation body.
(15) Number of diaphragm gas meters for test:
a. Metering performance test: applicants shall submit one diaphragm gas meter for type approval. As for series approval or approbation, applicants shall submit one meter for master type and one meter for other series type.
b. For diaphragm gas meters with safety monitoring and controlling unit, applicants shall submit three meters.
c. Performance test of pressure effect: for diaphragm gas meters with maximum working pressure more than 10 kPa, applicants shall submit one meter additionally.

5. A type-approved diaphragm gas meter do not have to be applied for series type approval or approbation as one of the following changes has been made.
(1) Changes of casing color.
(2) Changes of coating material and method of coating on the casing.
(3) Changes of counter sets color.
(4) Changes of counter sets material.
(5) Other changes approved by the metrology authority.

6. As one of the following changes has been made, the type-approved diaphragm gas meter do not have to be tested on metering performance but shall be applied for series type approval or approbation.
(1) Changes of data plate, face plate, and seal method or dimension.
(2) Changes of counter sets' marking.
(3) Changes of valve material or dimension, which has been judged that the changes do not affect the characteristics of metering by the designated laboratory of the metrology authority.
7. If one of the following changes has been made, the type-approved diaphragm gas meter shall be applied for series approval or approbation only after related metering performance test has been done.

(1) For those with casing material changed:
a. Material analysis report shall comply with table 1 of CNS 14741 or comply with section 8.29.1(3), or section 8.29.2 of CNS 14741.
b. Test report concerning impact resistance for the input and output connections of the meter shall comply with section 8.13 of CNS 14741.
(2) For those with valve material or dimension changed but not the max flow, which was judged to affect the characteristics of metering by the designated laboratory of the metrology authority, the meters shall be tested for the items of initial verification, repeatability, pressure loss and etc.
(3) For those with diaphragm dimension or material changes but not the maximum flow, the meters shall be tested according to section 8.29.2 of CNS 14741.
(4) For those with connecting rods' dimension changes but not the maximum flow, the meters shall be tested for the items of initial verification, repeatability, pressure loss and etc..
(5) For those with isolating valve changes, the meters shall be tested according to section 8.9.2, 8.11.2, 8.12, 8.13, 8.14, 8.15, 8.16, 8.17, 8.19, 8.20, 8.21, 8.22, 8.23, 8.24, 8.25, 8.26 and 8.27 of CNS 14741.
(6) For those with pressure switch changes, the meters shall be tested according to section 8.22.2 and 8.23 of CNS 14741.
(7) For those with shock sensor changes, the meters shall be tested according to in section 8.22.1, CNS 14741.
(8) For those with inlet and/or outlet diameter changes, the meters shall be tested the following items:
a. Pressure loss at maximum flowrate (Qmax) for six times.
b. Error at 0.1 Qmax and Qmax for six times.
(9) In case of application of mechanical gas meter for series type approval with micro computer gas meter as main type, the meters shall be tested for items of initial error (including pressure loss) and repeatability etc., if both of them have identical mechanical structure (including diaphragm, valve, connecting rods, etc., but excluding the difference caused by sensor or magnet), maximum flowrate and cyclic volume. In case of application of micro computer gas meter for series type approval with mechanical gas meter as main type, the meters shall comply with the related requirements of CNS 14741.
(10) For micro computer gas meters with circuit board changes, the meters shall be tested according to section 8.11.2, 8.15, 8.16, 8.17, 8.24, 8.25, 8.26 and 8.28 of CNS 14741.
(11) For those with maximum working pressure changing to more than 10 kPa, the meters shall be conducted performance test of pressure effect.

8. A type-approved diaphragm gas meter shall be reapplied for type approval whenever its maximum flow has been changed.

9. Changes in addition to above mentioned item 6 to item 8 for a diaphragm gas meter with certificate of type approval shall be reviewed for the documents by the metrology authority or its designated laboratory to determine the items for testing.
10. To apply for an extension of the validity period of a type-approval certificate, the original applicant or his successor shall submit the following documents:
(1) Photographs as listed in item 3;
(2) Related technical document and testing samples as in item 4;
(3) Declaration.