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EU-Entwurfsprüfbescheinigung

EU Design-examination Certificate

Ausgestellt für: *Issued to:*	Sensus GmbH Ludwigshafen Industriestr. 16 67063 Ludwigshafen am Rhein
gemäß: *in accordance with:*	Anhang II Modul H1 der Richtlinie 2014/32/EU des Europäischen Parlaments und des Rates vom 26. Februar 2014 zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die Bereitstellung von Messgeräten auf dem Markt. *Annex II Module H1 of the Directive 2014/32/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of measuring instruments*
Geräteart: *Type of instrument:*	Wasserzähler *Water meter* Mehrstrahl-Nassläufer für Kalt- und Warmwasser *Multijet-wet runner for cold and hot water*
Typenbezeichnung: *Type designation:*	420, 420S, 420F, 420PC, 420PC-S, 420PC-F
Nr. der Bescheinigung: *Certificate no.:*	DE-18-MI001-PTB004
Gültig bis: *Valid until:*	24.10.2028
Anzahl der Seiten: *Number of pages:*	20
Geschäftszeichen: *Reference no.:*	PTB-1.5-4093189
Notifizierte Stelle: *Notified Body:*	0102

Zertifizierung: *Certification:*	Braunschweig, 25.10.2018	Bewertung: *Evaluation:*
Im Auftrag *On behalf of PTB*	Siegel Seal	im Auftrag von *on behalf of PTB*
[Illegible signature] Dr. Corinna Kroner	[official stamp PTB]	Dr. Michael Rinker [illegible signature]

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Cerificate History

Certificate edition	dated	Amendments
DE-18-MI001-PTB004	25.10.2018	initial certificate

Examination results:

The instruments mentioned in this certificate are subject to the following fundamental requirements of the Directive **2014/32/EU** of the European Parliament and the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of measuring instruments (official journal L 96 page 149), last amended by amendment of 20.01.2016 (official journal L 13 page 57):

- Annex I "Fundamental Requirements"
- Annex III (MI-001) "Water Meters",

in conjunction with §6 of the Metering and Calibration Act of 25.07.2013 (Federal Law Gazette I page 2722), last amended by article 1 of the Act of 11.04.2016 (Federal Law Gazette I page 718), and §8 of the Measuring and Calibration Ordinance of 11.12.2014 (Federal Law Gazette I page 2010), last amended by article 1 of the Ordinance of 10.08.2017 (Federal Law Gazette I page 3098).

The measuring instrument's technical design specified below complies with the above mentioned fundamental requirements. This certificate entitles the holder to mark the instruments manufactured in conformity with this certificate with the number of this certificate.

The instruments must comply with the following regulations:

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1 Type description

Multi-jet impeller water meter, wet dial or semi-dry dial, for cold water and warm water, executed as inline meter, riser pipe meter or downpipe meter.

1.1 Construction

The meters of types 420, 420S and 420F or 420PC, 420PC-S and 420PC-F comprise a body with two pipe-shaped threaded end connections, a metrological unit, consisting of a measuring element and a tightly connected mechanical dry-dial-pointer register, as well as the threaded ring body. The body can optionally be coated or unpainted. In case of need, suitable bodies of other manufacturers can be used, if required, by utilizing equalizing seat rings. The register sits in a cylindrical plastic cup and is fixed by rib/groove geometry. The combination of measuring element and cup forms the metrological unit, which is inserted in the body and positioned on the seat ring. The connection of measuring element and register to the body is made by a threaded head ring.

- drawing no. MID 0128 of 24.09.2018 (exploded view multi-jet impeller meter 420/420PC, Q_3 2,5 / 4 m^3/h in combination with wet-dial and/or semi-dry-dial pointer register)
- with corresponding bill of material no. MID 0051 p. 1 to 4 of 09.10.2018.
- drawing no. MID 0138 of 25.09.2018 (exploded view multi-jet impeller meter 420/420PC, Q_3 6,3 / 10 m^3/h in combination with wet-dial and/or semi-dry-dial pointer register)
- with corresponding bill of material no. MID 0052 p. 1 to 4 of 09.10.2018.
- drawing no. MID 0139 of 25.09.2018 (exploded view multi-jet impeller meter 420/420PC, Q_3 16 m^3/h in combination with wet-dial and/or semi-dry-dial pointer register)
- with corresponding bill of material no. MID 0053 p. 1 to 4 of 09.10.2018.

1.1.1 Standard version 420, 420PC

Impeller meter body made of brass with threaded end connections on both sides suitable to be fitted to horizontally installed pipelines.

- drawing no. MID 0114 of 24.09.2018 (sectional and perspective view, multi-jet impeller meter 420/420PC Q_3 2,5 /4 m^3/h).
- drawing no. MID 0115 of 25.09.2018 (sectional and perspective view, multi-jet impeller meter 420/420PC Q_3 6,3 /10 m^3/h).
- drawing no. MID 0116 of 25.09.2018 (sectional and perspective view, multi-jet impeller meter 420/420PC Q_3 16 m^3/h).
- photos no. MID 0579, MID 0580, MID 0581, MID 0582 and MID 0583 of 12.10.2018

1.1.2 Riser pipe version 420S, 420PC-S

The meter versions 420S and/or 420PC-S have an impeller meter body made of brass with threaded end connections on both sides suitable to be fitted to vertically installed pipelines (riser pipe meter fitting point).

- drawing no. MID 0117 of 24.09.2018 (sectional and perspective view, multi-jet impeller meter 420S/420PC-S Q_3 2,5 /4 m^3/h).
- drawing no. MID 0118 of 25.09.2018 (sectional and perspective view, multi-jet impeller meter 420/420PC Q_3 6,3 /10 m^3/h).

- drawing no. MID 0119 of 24.09.2018 (sectional and perspective view, multi-jet impeller meter 420/420PC Q_3 16 m^3/h).
- photos no. MID 0584, MID 0585 of 12.10.2018

1.1.3 Downpipe version 420F, 420PC-F

The meter versions 420F and/or 420PC-F have an impeller meter body made of brass with threaded end connections on both sides suitable to be fitted to vertically installed pipelines (downpipe meter fitting point).

- drawing no. MID 0120 of 24.09.2018 (sectional and perspective view, multi-jet impeller meter 420S/420S-PC Q_3 2,5 /4 m^3/h).
- drawing no. MID 0121 of 25.09.2018 (sectional and perspective view, multi-jet impeller meter 420/420PC Q_3 6,3 /10 m^3/h).
- drawing no. MID 0119 of 25.09.2018 (sectional and perspective view, multi-jet impeller meter 420/420PC Q_3 16 m^3/h).
- photos no. MID 0586 of 12.10.2018

1.2 Measurement sensor

The measuring element of the multi-jet impeller meter consists of the impeller chamber and the impeller. The water flows into the measuring element through a strainer. The diversion of the incident flow onto the impeller is made by rectangular inlet channels, which are circumferentially situated in the lower part of the impeller chamber. In this way the impeller is started rotating. The water flows out through several outlet channels, which are circumferentially situated at the upper part of the impeller chamber on the side towards the outlet end connection.

- drawing no. MID 0111 of 24.09.2018 (sectional and perspective view, measuring element 420, 420PC Q_3 2,5 /4 m^3/h).
- drawing no. MID 0112 of 25.09.2018 (sectional and perspective view, measuring element 420, 420PC Q_3 6,3 /10 m^3/h).
- drawing no. MID 0113 of 25.09.2018 (sectional and perspective view, measuring element 420, 420PC Q_3 16 m^3/h).

1.3 Measurement processing

The rotational movement of the impeller is transferred immediately to the register by means of a pinion on the impeller shaft. The rotational movement of the gear train is transferred by a worm wheel immediately to the fastest continuously moving roller.

1.4 Measurement indication

The multi-jet impeller meter is equipped with a mechanical wet-dial pointer register, which is optionally executed as pure wet-dial register in the meter versions 420, 420S, 420F or as wet-dial register with encapsulated sets of rollers (semi-dry-dial register) in the meter versions 420PC, 420PC-S, 420PC-F.

The register has 5 rollers before and 4 pointer scales after the decimal point and a reading star. The fastest roller operates in a jumping manner. The indication is in m^3.

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The smallest scale interval at the fastest rotating counting member is 0,05 ℓ.

The pointer of the circle value 1 ℓ is allowed to be equipped with a modulator plate.

The coat surface of the register is closed. The top plate and the bottom plate are connected by three pillars.

- drawing no. MID 0124E&S of 15.10.2016 (exploded view, wet-dial pointer register 420).
- drawing no. MID 0123 of 24.09.2018 (wet-dial pointer register 420 Q_3 2,5 - 16 m^3/h and
- drawing no. MID 0124 of 24.09.2018 (wet-dial pointer register 420PC Q_3 2,5 - 16 m^3/h with encapsulated set of rollers (semi-dry-dial register)
- photos no. MID 0587 of 08.08.2008 (top view wet-dial pointer register 420 and semi-dry-dial pointer register 420PC with modulator plate)

1.4.1 Wet-dial pointer register executed as pure wet-dial register

The register has 5 white rollers with black figures before the decimal point, 4 red pointers after the decimal point and a reading star. The pointer with the circle value of 1 litre (ℓ) is allowed to be equipped with a modulator plate (register prepared for HRI). The indication is in cubic meters (m^3). The fastest roller operates in a jumping manner. The smallest scale interval at the fastest rotating counting member is 0,05 ℓ.

- Drawing no. MID 0583 of 24.09.2018 (top and side view wet-dial pointer register 420 Q_3 2,5 - 16 m^3/h, with 5 rollers, 3 pointers and modulator plate [prepared for HRI] and reading star)

1.4.2 Semi-dry-dial pointer register executed as wet-dial register with encapsulated set of rollers.

The register resembles the register according to no. 1.4.1, however it has 5 black rollers with white figures before the decimal point. The register is encapsulated to be waterproof and filled with a mixture of glycerine/water or distilled water. The pressure balance between register and the water-side part of the meter is ensured by an elastic locking element.

- drawing no. MID 0124 of 24.09.2018 (top and side view semi-dry-dial pointer register 420PC Q_3 2,5 - 16 m^3/h, with 5 rollers, 3 pointers and modulator plate [prepared for HRI] and reading star)

1.5 Optional equipment and features, which are subject to the Measuring Instruments Directive

- none –

1.6 Technical documents

The technical documents, which are part of this certificate, are on file at the PTB according to the corresponding set of certification documents. The table of contents of the set of certification documents has been sent to the certificate holder.

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1.7 Integrated equipment and features, which are not subject to the Measuring Instruments Directive

- Pulse emitting equipment

  The meters are also allowed to be equipped with an inductive pulse emitter HRI. For this purpose a separate case, holding an electronic evaluator, is screwed onto the register bonnet. The electronic evaluator detects forward and backward movements of the scanned 1 ℓ-pointer with the modulator plate. The pulse rate is not less than 1 ℓ per pulse.

  - Drawing no. MID 125 of 24.09.2018 (top and perspective view multi-jet wet-dial meter 420 Q_3 2,5/4 m^3/h, with wet-dial pointer register and mounted HRI)
  - Drawing no. MID 126 of 25.09.2018 (top and perspective view multi-jet wet-dial meter 420 Q_3 6,3/10 m^3/h, with wet-dial pointer register and mounted HRI)
  - Drawing no. MID 127 of 25.09.2018 (top and perspective view multi-jet wet-dial meter 420 Q_3 6,3/10 m^3/h, with wet-dial pointer register and mounted HRI)

- Non-return valve

  The meter is allowed to be optionally equipped with a spring-loaded non-return valve.

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2 Technical data

2.1 Rated operating conditions

Nominal size		**2,5** m³/h	**4** m³/h	**6,3** m³/h	**10** m³/h	**16** m³/h
Flow range: [3] Q_1		0,016 m³/h	0,025 m³/h	0,039 m³/h	0,063 m³/h	0,100 m³/h
Q_2		0.025 m³/h	0,040 m³/h	0,063 m³/h	0,100 m³/h	0,160 m³/h
Q_3		2,5 m³/h	4 m³/h	6,3 m³/h	10 m³/h	16 m³/h
Q_4		3,125 m³/h	5 m³/h	7,875 m³/h	12,5 m³/h	20 m³/h
Q_2 / Q_1		1,6				
Q_3 / Q_1		160, 125, 100, 80, 63, 50, 40				
Accuracy class:		± 2 % ($Q_2 \leq Q \leq Q_4$) for water temperature ≤ 30°C				
		± 3 % ($Q_2 \leq Q \leq Q_4$) for water temperature > 30°C				
		± 5 % ($Q_1 \leq Q < Q_2$)				
Temperature range:		0,1 °C to 50 °C				
Pressure range		0,3 bar (0,03 MPa) to 16 bar (1,6 MPa)				
Pressure loss class ΔP:		0,63 bar (0,063 MPa)				
Fitting position:		Horizontal[1]				
Environment class:		B				
Mechanical environment conditions:		M2				
Climatic environment conditions:		5°C to 55°C				
Electromagnetic environment conditions:		E1[2]				
Connection size:		DN15 DN20	DN15 DN20 DN25	DN25 DN32	DN25 DN32	DN40
Connection thread:		≥ G¾B	≥ G¾B	≥ G1¼B	≥ G1¼B	≥ G2B
Body length:	horizontal	≥ 145mm	≥ 165 mm	≥ 260 mm	≥ 260 mm	≥ 300 mm
	riser pipe	≥ 105mm	≥ 105 mm	≥ 150 mm	≥ 150 mm	≥ 200 mm
	downpipe	≥ 105mm	≥ 105 mm	≥ 150 mm	≥ 150 mm	≥ 200 mm

1) no overhead mounting (i.e. register showing downwards
2) in connection with communication module HRI
3) each item showing the flow of the maximum measuring range with R 160

2.2 Further operating conditions

- none –

-

3 Interfaces and compatibility conditions

- none –

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4 Requirements for production, first operation and use

4.1 Requirements for production

The metrological verification test for meters of version T50 is carried out in accordance with OIML R 49-1, edition 2013, in context with the test instructions PA_2300_1-5 at the following three flow rates at a water temperature of 20 °C ± 10 °C:
$Q_1 \leq Q \leq 1{,}1\ Q_1$
$Q_2 \leq Q \leq 1{,}1\ Q_2$
$0{,}9\ Q_3 \leq Q \leq Q_3$

The measured errors of indication must not exceed the maximum permissible value for any of the a.m. flow rates.

4.2 Requirements for first operation

Installation of inlet and outlet pipe lengths is not required (U0 / D0).

It must be ensured that the adjusting screw in the by-pass regulation is secured by the locking screw in such a manner that it cannot readjust itself as soon as adjustment has been carried out.

Each meter is to be accompanied by descriptive mounting and operating instructions.

4.3 Requirements for use

In case of any retrofitting, the requirements under no. 4.2 are to be observed.

5 Verification of instruments in operation

5.1 Documents for the test

The design-examination certificate in hand and the technical documents listed under no. 1.6.

5.2 Specific test equipment or software

- The test can be carried out by volumetric or gravimetric methods or by using reference meters. The used test equipment must allow the adjustment of the flow rates specified under no. 4.1.
- Opto scanning head converting the volume-proportional light pulses of the LED into an electrical signal usable by the test rig.

5.3 Identification

The meter must correspond to the technical documents under no. 1.6, the inscriptions to the specification under no. 7.2.

5.4 Calibrating and adjusting methods

The metrological test must be carried out within the rated operating conditions. Adjustment is carried out by turning the adjusting screw in the by-pass flow regulating device at the outlet side of the meter, so that the partial flow port towards the outlet channel is more or less unblocked.

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6 Security measures

6.1 Mechanical sealing

The locking screw with the below regulating plug of the meters 420, 420S and 420F, and/or 420PC, 420PC-S and 420PC-F must be secured against the body in such a way that wilful opening is only possible by force leaving visible traces.

- photo no. MID 0578 of 08.08.2008 (user seal of the locking screw at the by-pass regulation)

The inscription placed on the register and type-plate/head ring (metrological identification, CE marking as well as meter data) must be permanent.

6.2 Electronic sealing

- not applicable -

7 Marking and inscriptions

7.1 Information to be added to the instrument

Operating / mounting instructions:

Each meter is to be accompanied by descriptive operating / mounting instructions. They have to include the following items for particular observation:

a) Check of the sealing surfaces and the seals before fitting. It must be ensured that, in case of need, particular measures prevent the seals at the meter from getting out of place, dropping out or being damaged during the transport from the manufacturer to the fitting site. If required, the seals are to be pasted in.
b) Check of the readability of the meter characteristics after fitting. The visual readability of the meter indication, all characteristics of the meter and the conformity and metrological marking must not be impaired.
c) It must be ensured by suitable measures that any possibility of soiling or damage is eliminated during the transport to the fitting site.
d) The HRI module is allowed to be mounted later on, at the meter's fitting location if required. Retrofitting with pulse emitting equipment is only allowed by fitters, who have been particularly trained for that purpose. The modules should be secured against removal by means of a user seal.
e) The HRI module is allowed to be mounted later on, at the meter's fitting location if required. Retrofitting with pulse emitting equipment is only allowed by fitters, who have been particularly trained for that purpose. The modules should be secured against removal by means of a user seal

The instructions of the mounting manual must imperatively be observed.

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7.2 Marking and inscriptions

On the meter the following information must at least be available:

- manufacturer's name or company name or trademark and his postal delivery address,
- Q_3 and the ratio Q_3 / Q_1 (R),
- year of production and individual serial number of the meter,
- number of the design-examination certificate,
- the temperature class T50,
- the maximum operating pressure in „bar" or MPa, if > 1 MPa or 10 bar,
- flow direction (e.g. on the body),
- unit of measurement m^3,
- flow profile sensitivity class.

Conformity and metrological marking is applied in accordance with article 20 of the Directive 2014/32/EU.
Additional inscriptions are allowed, as long as they cannot be mixed up with the a.m. characteristics.

- Photos no. MID 0578 of 18.10.2018 (user seal of the locking screw at the by-pass regulation as well as type plate with metrological marking.

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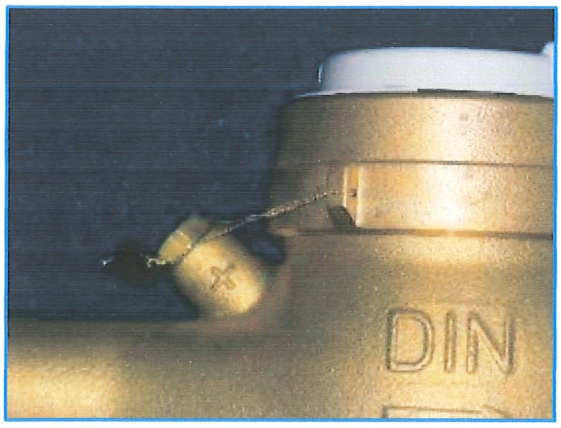
8 Illustration – photos (by way of example)

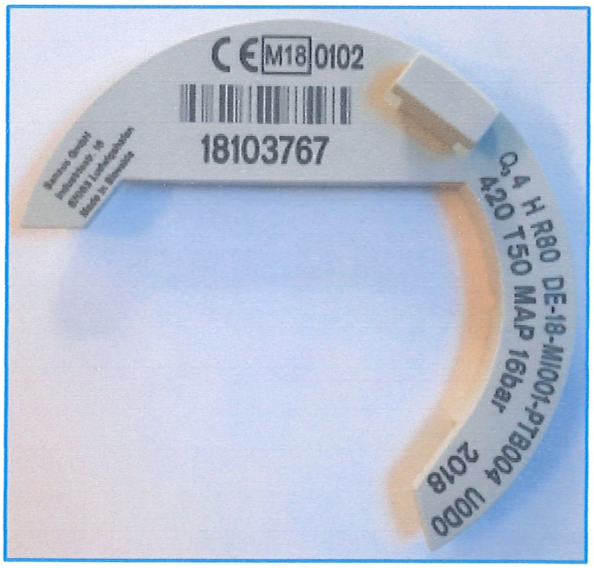
View with security stamp and/or user seal at the by-pass regulation for 420, 420S, 420F and/or 420PC, 420PC-S, 420PC-F



short sealing wire
at standard version

long sealing wire
at standard version

short sealing wire
for riser pipe or downpipe version



type plate with metrological marking

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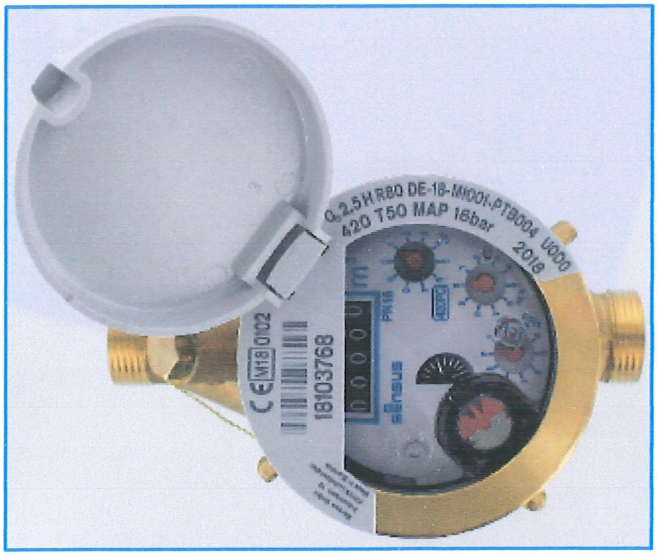
Multi-jet impeller meter 420PC Q_3 2,5 (standard version) with and without HRI

420PC Q_3 2,5 with semi-dry-dial register (perspective view)



420PC Q_3 2,5 with semi-dry-dial register (top and side view)

MID 0579

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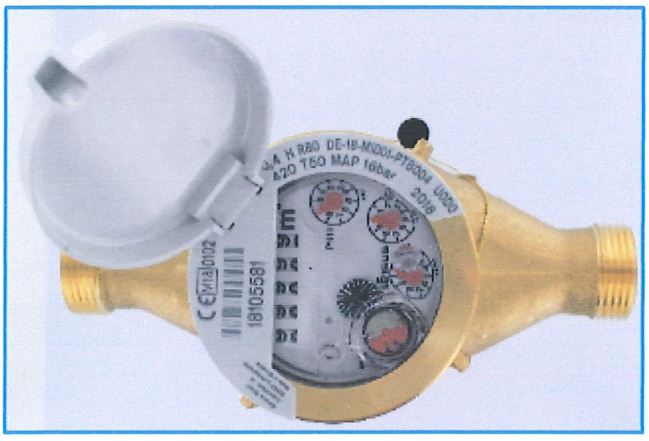
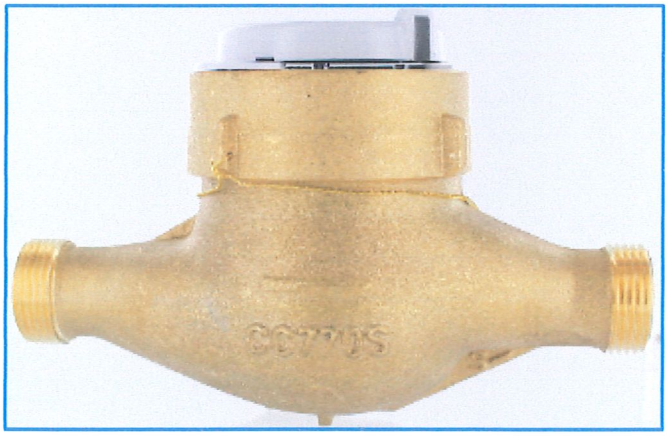
Multi-jet impeller meter 420 Q_3 4 (standard version) with and without HRI

420 Q_3 4 with wet-dial register (perspective view)





420 Q_3 4 with wet-dial register (top and side view)

MID 0580

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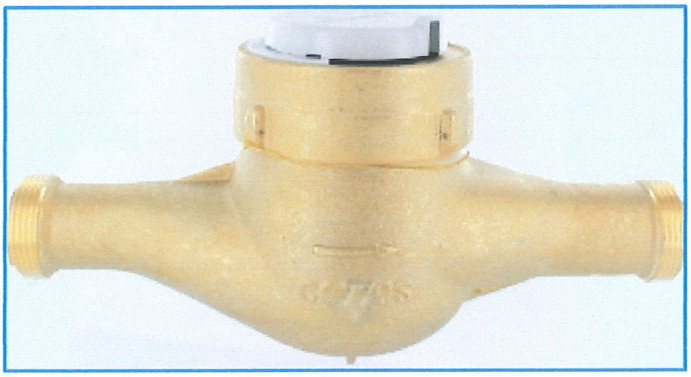
Multi-jet impeller meter 420 Q_3 6,3 (standard version) with and without HRI

420 Q_3 6,3 with wet-dial register (perspective view)



420 Q_3 6,3 with wet-dial register (top and side view)

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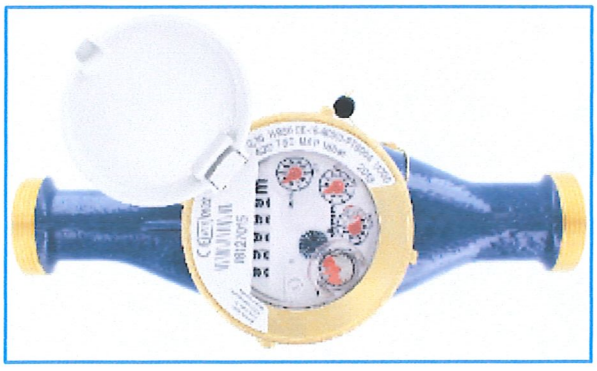
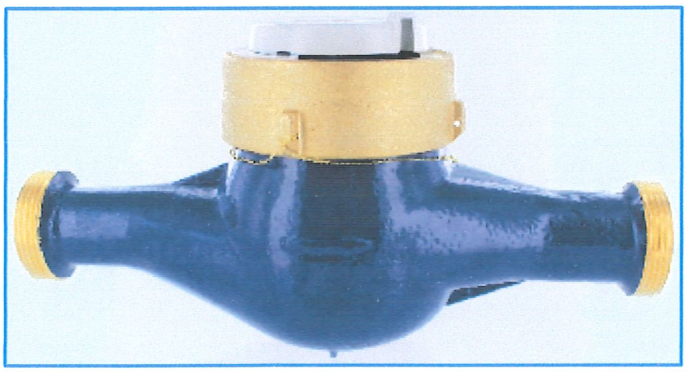
Multi-jet impeller meter 420 Q_3 10 (standard version – body coated) with and without HRI

420 Q_3 10 with wet-dial register (perspective view)





420 Q_3 10 with wet-dial register (top and side view)

MID 0582

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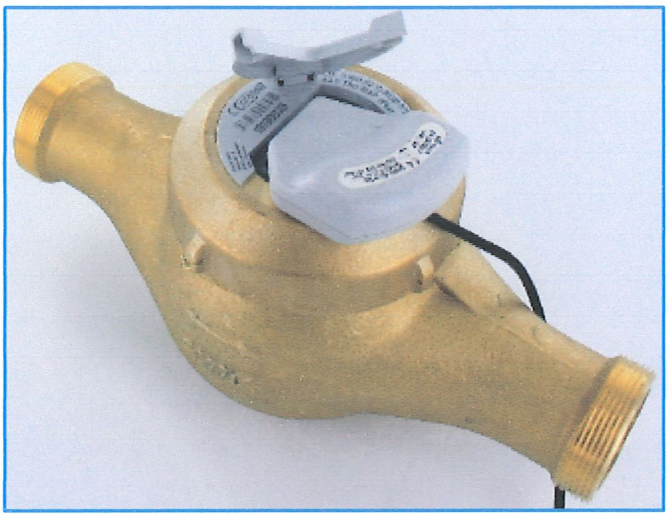
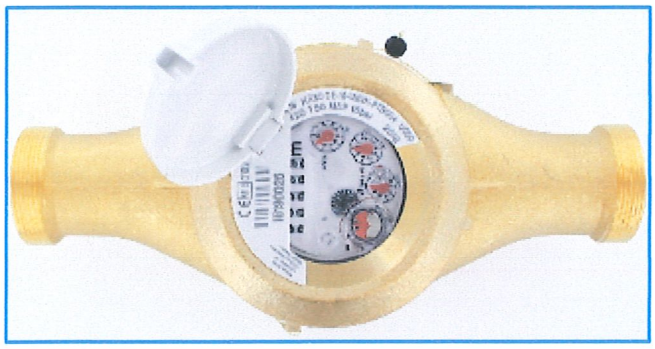
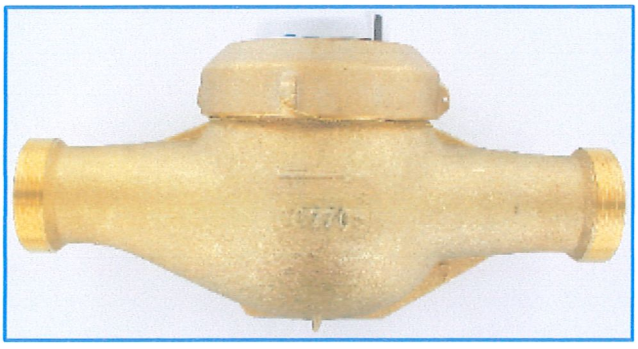
Multi-jet impeller meter 420 Q_3 16 (standard version) with and without HRI



420 Q_3 16 with wet-dial register (perspective view)





420 Q_3 16 with wet-dial register (top and side view)

MID 0583

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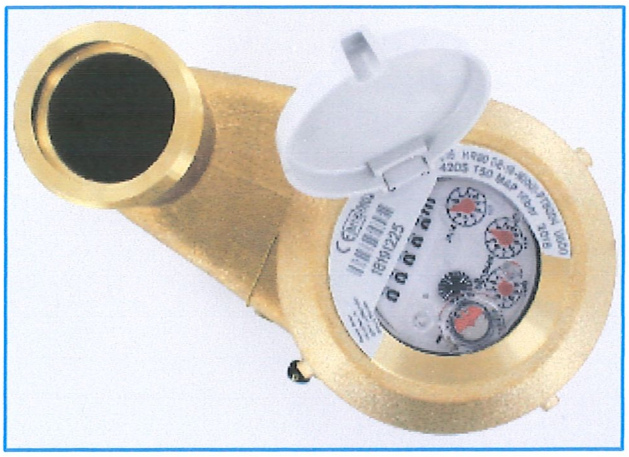
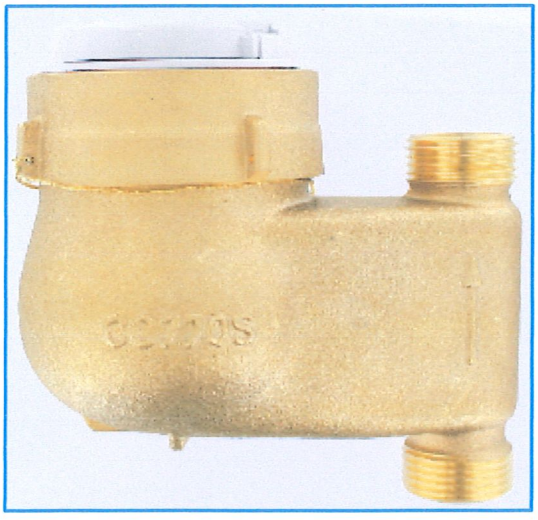
Multi-jet impeller meter 420S Q_3 4 (riser pipe version) with and without HRI

420S Q_3 4 with wet-dial register (perspective view)





420S Q_3 4 with wet-dial register (top and side view)

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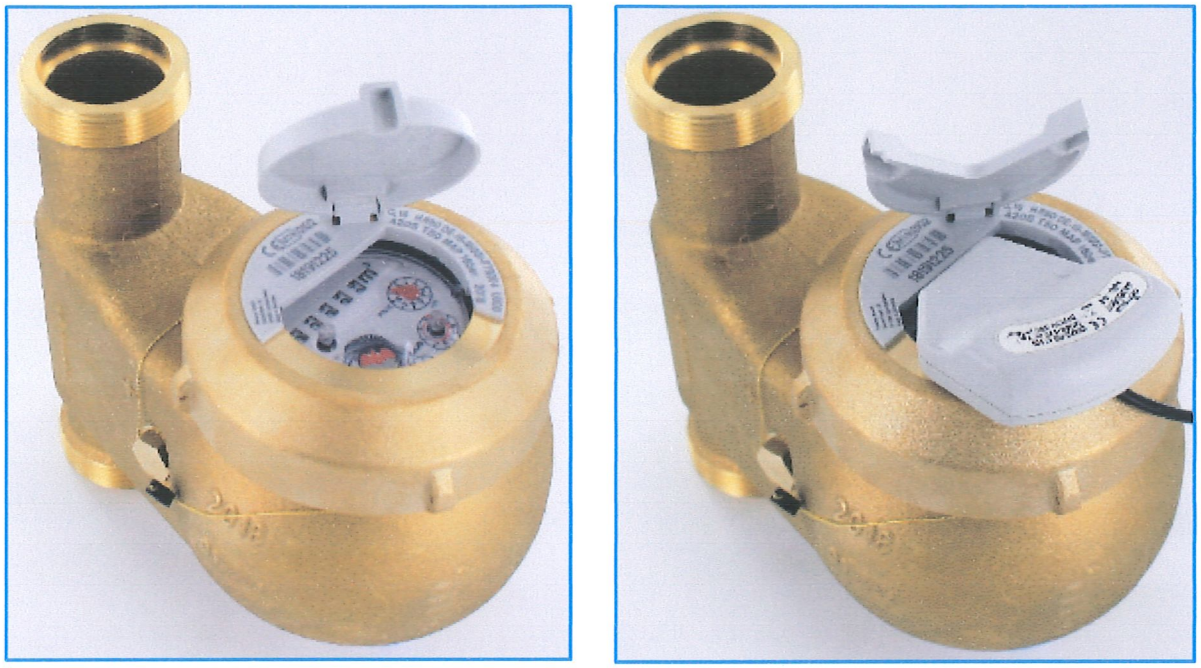
Multi-jet impeller meter 420S Q_3 16 (riser pipe version) with and without HRI



420S Q_3 16 with wet-dial register (perspective view)

420S Q_3 16 with wet-dial register (top and side view)

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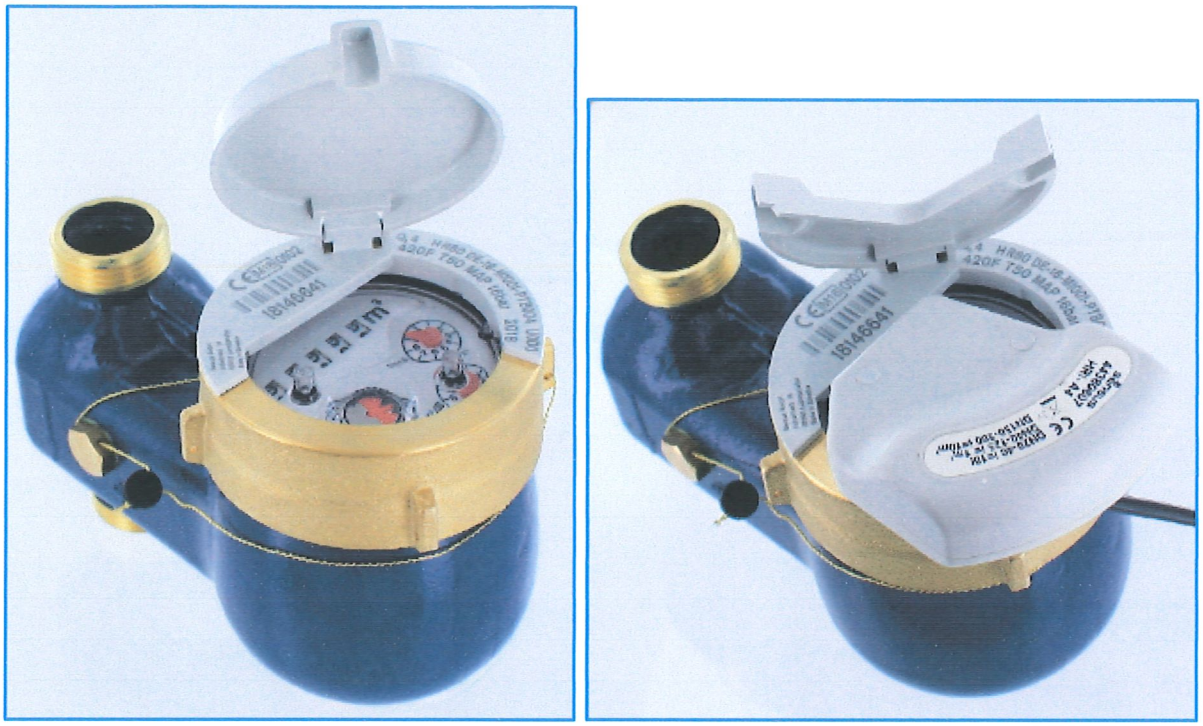
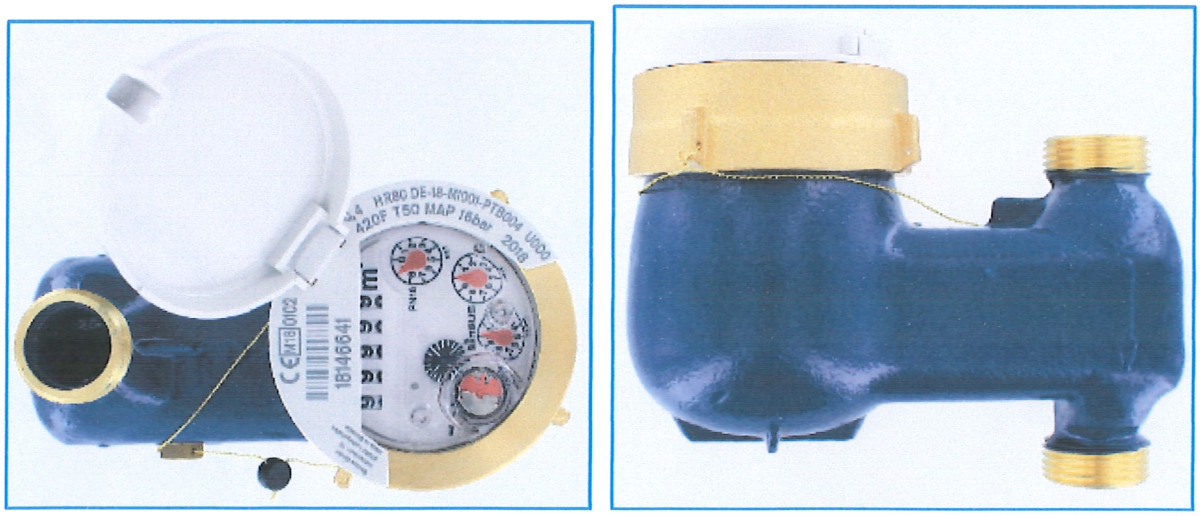
Multi-jet impeller meter 420F Q_3 4 (downpipe version, body coated) with and without HRI



420F Q_3 4 with wet-dial register (perspective view)



420F Q_3 4 with wet-dial register (top and side view)

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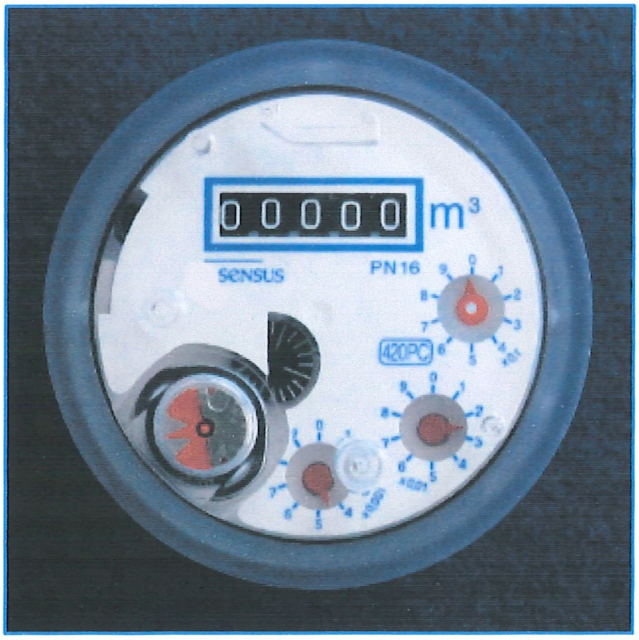
Multi-jet wet-dial register **420 Q_3 2,5 – 16** prepared for HRI

Multi-jet semi-dry-dial register **420PC Q_3 2,5 – 16** prepared for HRI



MID 0587

Beatrix Amon – governmentally certified translator of the English language
Friedhofstr. 34a, D-67105 Schifferstadt, Phone +49 (0)6235/98249, e-mail Beatrix.amon@web.de

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Zweibruecken for legal affairs in Rhineland-Palatinate

Beatrix Amon
Von dem Präsidenten des Pfälzischen Oberlandesgerichts Zweibrücken ermächtigte Übersetzerin der englischen Sprache für gerichtliche Angelegenheiten in Rheinland-Pfalz
staatl. gepr. Übersetzerin

Beatrix Amon – governmentally certified translator of the English language,
Friedhofstr.34a, D-67105 Schifferstadt – Germany, Phone +49 (0)6235/98249, e-mail beatrix.amon@web.de

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[Coat of Arms]

Zertifizierungsdokumentensatz

Set of Certification Documents (ZDS)

Nr.: *No.:*	ZDS-DE-18-MI001-PTB004
Ausgestellt für: *Issued to:*	Sensus GmbH Ludwigshafen Industriestr. 16 67063 Ludwigshafen am Rhein
Geräteart: *Type of instrument:*	Wasserzähler *Water meter* Mehrstrahl-Nassläufer für Kalt- und Warmwasser *Multijet-wet runner for cold and hot water*
Typenbezeichnung: *Type designation:*	420, 420S, 420F, 420PC, 420PC-S, 420PC-F
Anzahl der Seiten *Number of pages:*	3
Bewerter: *Evaluator:*	Braunschweig, 25.10.2018
Im Auftrag *On behalf of PTB*	Siegel *Seal* [official stamp PTB]

[illegible signature]
Dr. Michael Rinker

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Set of Certification Documents ZDS-DE-18-MI001-PTB004 dated 25.10.2018

Technical documentation relating to the Certificate:				
Certificate no. DE-18-MI001-PTB004		Reference no. PTB-1.5-4093189		
		Date of issue:	25.10.2018	
No.	Type, description and name of the document	Identification	Pages	Date
1	420/420PC Q_3 2,5/4 measuring element	MID 0111	1	24.09.2018
2	420/420PC Q_3 6,3/10 measuring element	MID 0112	1	25.09.2018
3	420/420PC Q_3 16 measuring element	MID 0113	1	25.09.2018
4	420/420PC Q_3 2,5/4 meter compl. horizontal	MID 0114	1	24.09.2018
5	420/420PC Q_3 6,3/10 meter compl. horizontal	MID 0115	1	25.09.2018
6	420/420PC Q_3 16 meter compl. horizontal	MID 0116	1	25.09.2018
7	420/420PC Q_3 2,5/4 meter compl. riser pipe	MID 0117	1	24.09.2018
8	420/420PC Q_3 6,3/10 meter compl. riser pipe	MID 0118	1	25.09.2018
9	420/420PC Q_3 16 meter compl. riser pipe	MID 0119	1	25.09.2018
10	420/420PC Q_3 2,5/4 meter compl. downpipe	MID 0120	1	24.09.2018
11	420/420PC Q_3 6,3/10 meter compl. downpipe	MID 0121	1	25.09.2018
12	420/420PC Q_3 16 meter compl. downpipe	MID 0122	1	25.09.2018
13	420 Q_3 2,5 -- 16 register	MID 0123	1	24.09.2018
14	420PC Q_3 2,5 -- 16 register	MID 0124	1	24.09.2018
15	420 register – exploded view	MID 0124E&S	1	15.01.2016
16	420/420PC Q_3 2,5/4 meter compl. with HRI	MID 0125	1	25.09.2018
17	420/420PC Q_3 6,3/10 meter compl. with HRI	MID 0126	1	25.09.2018
18	420/420PC Q_3 16 meter compl. with HRI	MID 0127	1	25.09.2018
19	420/420PC Q_3 2,5/4 meter compl. exploded	MID 0128	1	25.09.2018
20	420/420PC Q_3 6,3/10 meter compl. exploded	MID 0138	1	25.09.2018
21	Bill of material - 420/PC Q_3 2,5/4 multi-jet impeller meter	MID 0051	1	25.09.2018
22	Bill of material - 420/PC Q_3 6,3/10 multi-jet impeller meter	MID 0052	1	25.09.2018
23	Bill of material - 420/PC Q_3 16 multi-jet impeller meter	MID 0053	1	25.09.2018
24	Photos - 420/420PC user seal, metrological marking	MID 0578	1	18.10.2008
25	Photos - 420PC Q_3 2,5 – (perspective, top, side view)	MID 0579	1	12.10.2018
26	Photos - 420 Q_3 4 – (perspective, top, side view)	MID 0580	1	12.10.2018
27	Photos - 420 Q_3 6,3 – (perspective, top, side view)	MID 0581	1	12.10.2018
28	Photos - 420 Q_3 10 – (perspective, top, side view)	MID 0582	1	12.10.2018
29	Photos - 420 Q_3 16 – (perspective, top, side view)	MID 0583	1	12.10.2018
30	Photos - 420S Q_3 4 – (perspective, top, side view)	MID 0584	1	15.10.2018
31	Photos - 420S Q_3 16 – (perspective, top, side view)	MID 0585	1	15.10.2018
32	Photos – 420F Q_3 4 – (perspective, top, side view)	MID 0586	1	12.10.2018
33	Photos - 420/420PC register Q_3 2,5 – 16	MID 0147	1	08.08.2008

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34	Installation manual for impeller water meters	MD1770	2	16.10.2018
35	Test instructions PA 2003-1 to 5	PA_2003	5	24.09.2018

Any Changes made to these documents have to be reported.

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Nationales Metrologieinstitut / National Institute of Metrology
Bundesallee 100, D-38116 Braunschweig, Germany
Abbestrasse 2-12, D-10587 Berlin, Germany

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