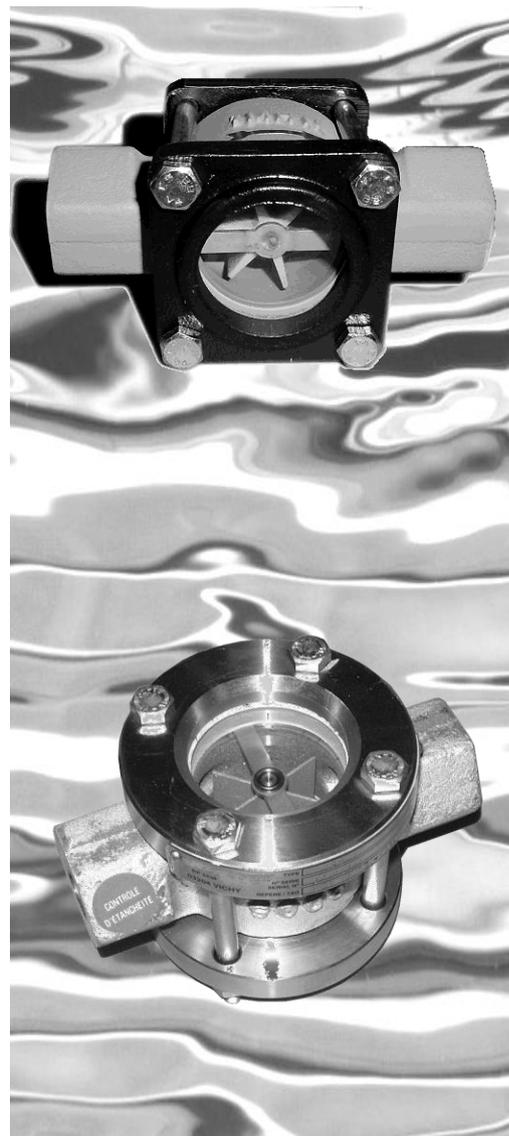


Flow indicator type 1198 Instructions manual

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Flow indicator

1. GENERAL

1.1. USE

The 1198 series flow indicators allow visual observation of the presence or lack of flow in a piping.

1.2. PRINCIPLE

1198M type: A paddle wheel directly submitted to the action of the flow starts rotating as soon as a minimal circulation develops in the piping. The appliance can be set at any angle and the fluid can flow in any direction.

1198C type: A flap submitted to the actuation of the fluid rises in relation to the flow rate. The direction of the flow must be either horizontal or upward.

1198S type: A port in the shape of a whistle allows visualisation of the flow. This device is particularly suitable in the case of a weak flow circulating from top to bottom in a vertical piping.

1.4. TECHNICAL SPECIFICATIONS

Maximum condition of service:

Standard specification: pressure 10 bars

Temperature: 70°C

On request: special design for higher pressure and temperature.

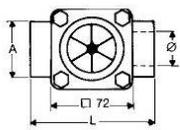
Type of flow indicator	Minimum flow speed (*)	Maximum flow speed
1198 C	0,1 m/s	unlimited
1198M Ø < 2"	0,1 m/s	1,5 m/s
1198M Ø > 2"	0,5 m/s	3 m/s

(*) minimum speed necessary for a correct observation of the flow

1.5. STANDARD DIMENSIONS

Indicators with paddle wheels

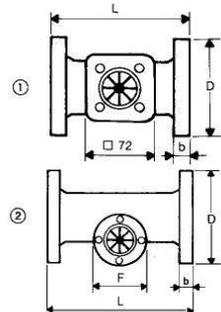
Threaded version 1198 MT



φ	Carbon steel or Stainless Steel	
	L	A flat
1/2"	140	43
3/4"	140	43
1"	140	43
1"1/4	140	70
1"1/2	140	70
2"	140	70

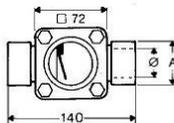
Flanged version 1198 MB

DIN 10	φ D	b	φ F	L	Sketch
15	95	14	-	150	①
20	105	16	-	150	
25	115	16	-	150	
32	140	16	-	150	
40	150	16	-	150	
50	165	18	-	150	
65	185	18	95	200	②
80	200	22	95	200	
100	220	22	95	250	
125	250	24	115	250	
150	285	24	115	300	
150	285	24	115	300	
200	340	26	115	300	



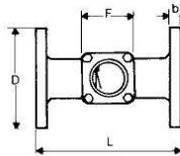
Indicators with flaps

Threaded version 1198 CT



A = 43 for φ 1/2" to 1"
A = 70 for φ 1"1/4 to 2"

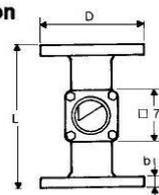
Flanged version 1198 CB



DIN 10	φ D	b	□ or φ of F	L
15	95	14	□ 72	150
20	105	16	□ 72	150
25	115	16	□ 72	150
32	140	16	□ 72	150
40	150	16	□ 72	150
50	165	18	□ 72	150
65	185	18	φ 95	200
80	200	22	φ 110	200
100	220	22	φ 150	250
125	250	24	φ 180	300
150	285	24	φ 180	300
200	340	26	φ 236	400

Indicators with whistles

Flanged version 1198 SB

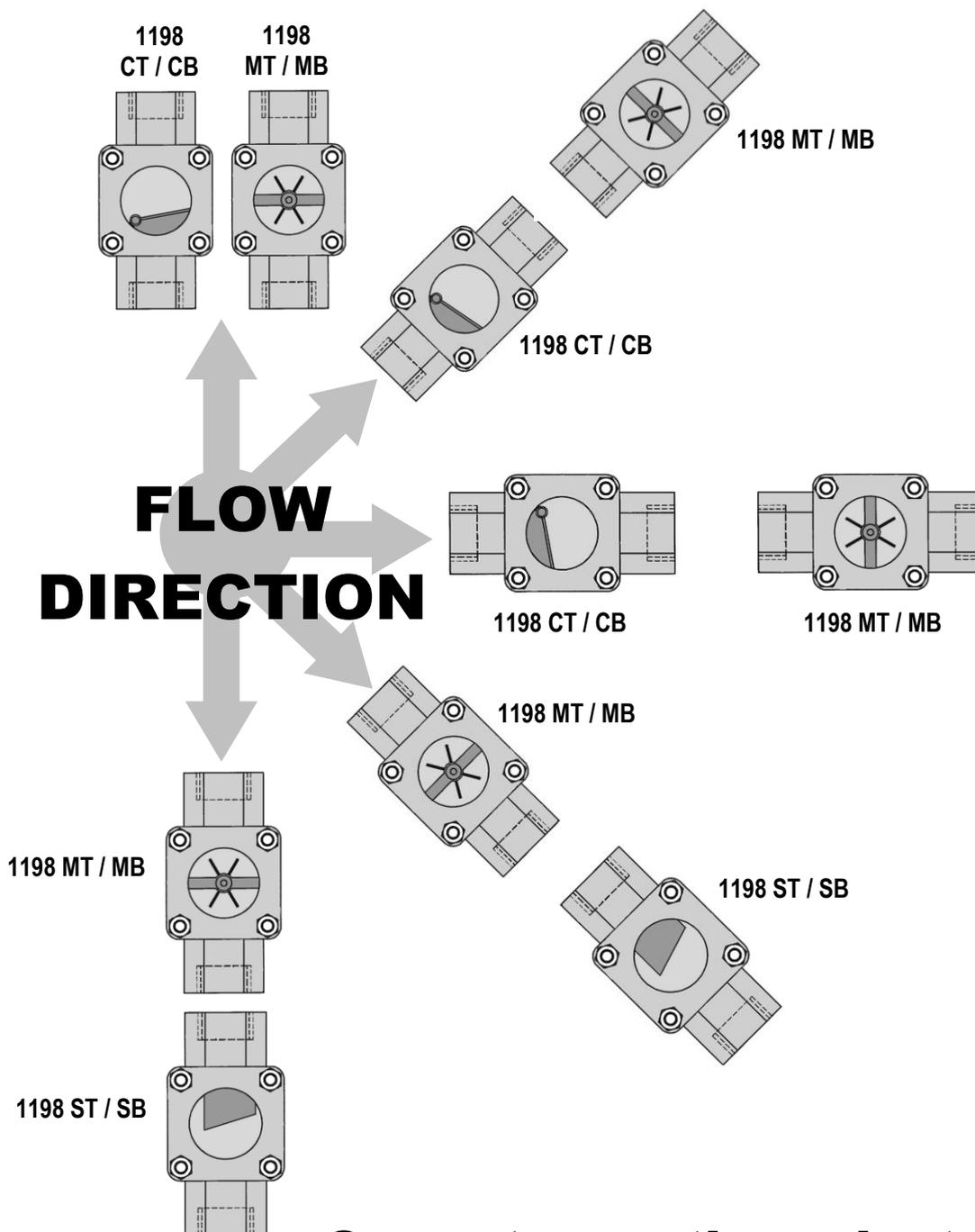


DIN 10	φ D	b	L
15	95	14	150
20	105	16	150
25	115	16	150
32	140	16	150
40	150	16	150
50	165	18	150

2. UNIT INSTALLATION

Instrument's installation doesn't require special precaution, nevertheless, it is necessary:

- to check the centre to centre connection pipe dimension is corresponding to the instrument's one.
- to check the working direction if required (arrow on the body – see below figure)
- to put the paddle wheel under the line when the meter is horizontal.



Correct mounting orientation

Flow indicator

3. COMMISSIONING

This equipment must only be handled empty, with all essential precautions taken to avoid impact or major stresses, which would be likely to alter its geometry and damage internal measuring devices, or the contact pattern of the connecting component seals. The various parts must be connected without engendering any mechanical or other stresses, other than those provided for when installing the equipment, and sealing the connection. Under no circumstances must the equipment be used as a support or for mounting any part or component not originally provided for. Welding is prohibited. If welded connections or fastenings are required by the equipment definition, these must be produced by qualified personnel, using recognised operating procedures and the required materials, meeting current standards.

Grinding, cutting or heating are prohibited on any parts of the equipment which are subject to pressure.

Make the connections using seals suitable for the fluid contained and the type of connection required. For flanges, make sure the seals used are new, compatible with the seal contact pattern and the service pressure and temperature. Use standard fastenings which match the flange rating and service conditions required by the type of seal and the process.

Before fitting the instrument into the pipe work the latter must be carefully cleaned in order to remove any debris which might be present and especially magnetic particles. Ensure that the rated dimensions of the coupling flanges match those of the instrument and that the pipes are sufficiently rigid and properly secured in order to prevent vibration being transmitted to the instrument.

Starting involves no more special precautions except the fact of building up the flow gradually without exceeding the max pressure value indicated.

This equipment was built in accordance with the essential safety regulations defined in the "Pressurised Equipment Directive" 97/23/EC", and taking into account the information provided with the order. It was designed, manufactured and carefully tested for the application as defined. It must be used in accordance with the information provided in the above-mentioned order.

The operator should periodically verify the equipment's ability to continue in service. Periodic monitoring and inspections must be made in accordance with current regulations in the country in which the equipment is used.

(See essential safety requirements page 5)

4. SERVICING

The unit doesn't require any special servicing under normal operating condition. It could only be necessary some times to clean the sight glass external part using soapy water or alcohol.

5. PARTS REPLACEMENT

The line must be isolated before any operations. It may need to remove the instrument from the line. See chapter 7 . for instrument parts details.

5.1. REPLACEMENT OF SIGHT GLASS AND GASKETS

- . Unscrew the fixing bolts of the sight flange.
 - . Remove the sight flange, the sight glass and the external gasket
 - . Check that the gasket seat surface is good (remove all part of gasket residue stucked on seat)
 - . fit the new external gasket into the main body
 - . Clean and fit the sight glass
 - . Replace if necessary the external gasket
 - . Set the flange and bolts
 - . Tight crosswise the nuts with a dynamometric wrench (tightening first stage 10N.m, second stage 20N.m)
- If tightness is not correct or sufficient, make an added tightening of approximately 5 N.m.

5.2. REPLACEMENT OF THE PADDLE WHEEL SUB-ASSEMBLY

Regarding sight glasses and flange, removal : act as in 5.1.

- . Remove cross bars and paddle wheel sub-assembly.
- . Fit in its housing the first cross bar with the paddle wheel sub-assembly
- . Fit the second cross bar taking care to centre the paddle wheel assembly (check that the paddle wheel turn freely).
- . Re-assemble the gaskets, sight glasses.
- . Tight as in 5.1

6. ESSENTIAL SAFETY REQUIREMENTS

- Instruments must be mounted in accordance with its type in rigidly fixed pipelines
- Sudden changes of pipe section at inlet or fittings that cause violent flow disturbances must be avoided.
- Care must be taken to avoid inducing torsion stress on flow indicator when installing into the pipeline.
- Prior to installation ensure pipelines are flushed/drained to ensure they are free from any solid particles & pressure.
- Ensure pipelines are fully primed before commencing normal use.
- Valves must be opened or closed progressively to avoid shock/vibration.
- Do not exceed maximum working pressure as stated on the label.
- Solvents must not be used to clean the protective cover.
- Do not exceed min/max. working temperature as stated in manual.
- Do not subject meter to sudden/extreme changes of temperature.
- The meter is regularly inspected for corrosion & wear.

SAFETY WITH REGARD TO PRESSURE

This pressurized equipment is part of a unit, so the integrator must fit the installation with safety devices (valves, rupture disk, sensor,...) to protect the equipment against the risk of excess pressure.

The opening pressure of these devices must equal the maximum allowable pressure (PS) of the equipment. These mechanisms must also allow evacuation of full-flow steam under rated calculated conditions. The exhaust must be piped freely and without danger to personnel or the environment. The integrator must also provide a device for measuring residual pressure in the equipment (pressure gauge ...) and a bleeder (piped if the product so requires), to guarantee the safety of personnel working on the equipment.

Isolation valves are recommended to be installed between the equipment and the unit to which it is mounted, so that maintenance operations can be performed. Any other way (or design) may be achieved if they provide a acceptable safety level in accordance with the Directive 97/23/EC and/or present standards

SAFETY WITH REGARDS TO TEMPERATURE

As far as this pressurised equipment is a part of an unit, all required measures regarding risks induced by temperature (regarding working personnel and the type of the material around according to the device's specification) shall be taken by the integrator. For example, a kind of protection could be achieved, by the insulation of warm components, by using protection devices for access, or using any other devices suitable with the site of the unit and standards in force. Do not either subject the instrument to significant temperature variations or fire exposure.

OPENING AND CLOSING OF PRESSURIZED EQUIPMENT

Prior to any action on a pressurised equipment, the suitability of pressure and temperature conditions with thought operations must be checked by the permitted and qualified technician. Regarding equipment fitted with alarm switches, use shall be made with care : voltage, current, devices (or security devices) controlled by these switches... Appropriate tools must be used when stripping parts to get access to the pressurised equipment. Refer to drawings or appropriate instruction note. Gaskets could be replaced if needed, check for bolt tightening... Security rules must be checked (even for new devices) by the operator before pressurise.

Operating conditions must comply with the instructions given.

This equipment must not contain any fluid other than that (or those) for which it is designed. It is strictly prohibited to make any temporary or permanent modification, or to perform any operation likely to alter the physical, mechanical or metallurgical characteristics of any part, without the manufacturer's prior written agreement.

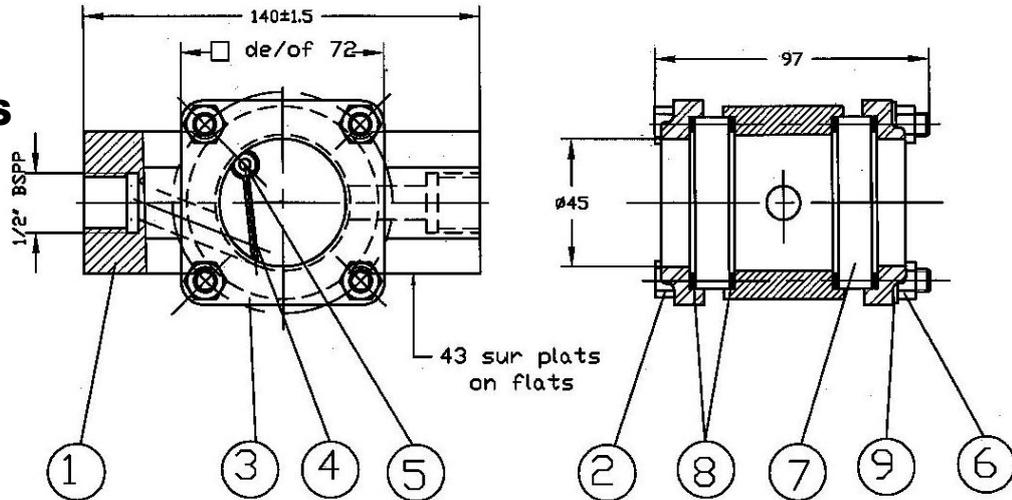
A danger analysis has been performed, in accordance with appendix I of Directive 97/23/EC, based on the information provided. Any change with respect to this information, likely to call into question the safety of using the equipment, can only be made outside the manufacturer's responsibility.

Before commissioning, the operator must make sure that the safety regulations applicable to pressurised equipment are respected and that the connected components work properly.

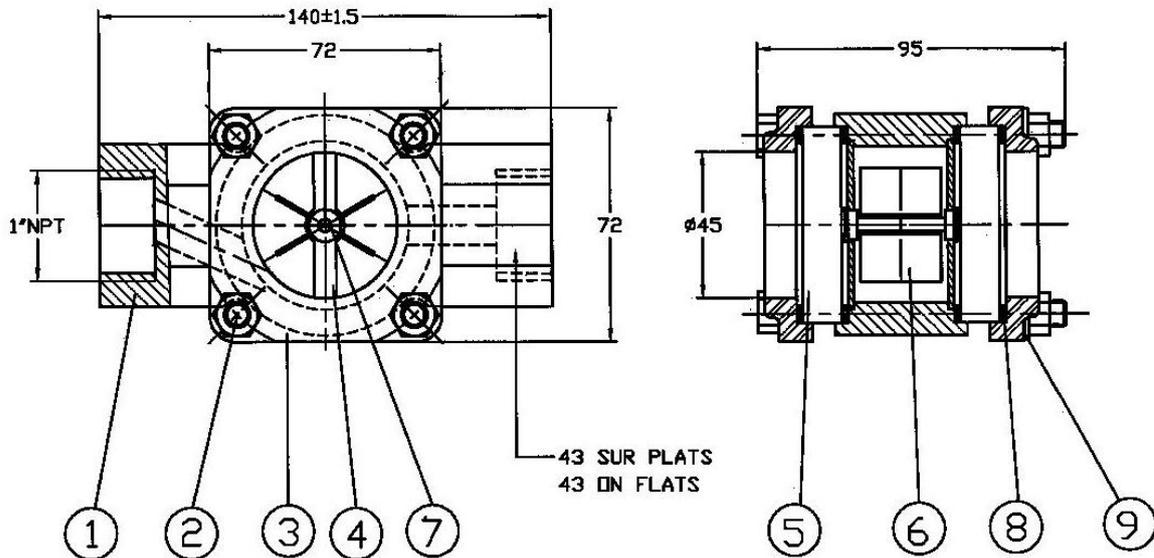
This equipment is designed for static loads appropriate for the device's own weight and the specific stresses due to pressure and temperature as defined in the specifications. No additional load or stresses due to vibrations are accounted for, unless this is specifically agreed during the preliminary studies.

Flow indicator

7. GENERAL DRAWINGS



9	4	RONDELLE PLATE Z8N	WASHER	ACIER TRAITÉ	TREATED C.ST	
8	4	JOINT PLAT	FLAT GASKET	KLINGERSIL	KLINGERSIL	
7	2	HUBLOT CIRCULAIRE	PLATE WITH WINDOW	VERRE TREM. SOUF.	TEMPERED GLASS	
6	4	ECROU H M8	HMB NUT	ACIER TRAITÉ	TREATED C.ST	
5	1	AXE	AXIS	ACIER INOX	S.STEEL 316L	
4	1	CLAPET	FLAP	ACIER INOX	S.STEEL 316L	
3	2	CONTRE PLAQUE	SIGHT GLASS FLANGE	ALUMINIUM	ALUMINIUM	PEINT /PAINT
2	4	VIS TH M8x90	HMBx90 SCREW	ACIER TRAITÉ	TREATED C.ST	
1	1	CORPS MOULE	CASTING BODY	ACIER A48M	CARBON STEEL	APP./PRIM. EPOXY
Tag Rep	Qty Qté	DESIGNATION	DESCRIPTION	MATIERE	MATERIAL	TREATMENT TRAITEMENT



9	4	RONDELLE PLATE Z8N	WASHER	ACIER TRAITÉ	TREATED C.ST	
8	4	JOINT PLAT	FLAT GASKET	KLINGERSIL	KLINGERSIL	
7	2	ROULEMENT A BILLES	BALL BEARING	ACIER INOX	ST.STEEL	
6	1	ENSEMBLE MOULINET	PADDLE WHEEL ASSEMBLY	ACIER INOX	ST.STEEL316L	
5	2	HUBLOT	SIGHT GLASS	VERRE VTS	TEMPER.GLASS	
4	2	BARRETTE DE GUIDAGE	GUIDE BAR	ACIER INOX	ST.STEEL316L	
3	2	CONTRE-PLAQUE	SIGHT GLASS FLANGE	ALUMINIUM	ALUMINIUM	
2	4	BOULONS HMB-90	HMB BOLT	ACIER TRAITÉ	TREATED C.ST	
1	1	CORPS MOULE 1" NPT	CASTING BODY 1" NPT	ACIER INOX	ST.STEEL316L	
Tag Rep	Qty Qté	DESIGNATION	DESCRIPTION	MATIERE	MATERIAL	

8. SPARE PART LIST

- Glasses
- Connections
- Paddle wheel is necessary
- Gaskets

It is essential to quote the serial number of the instrument (a 6-digit number engraved on a sticker or stamped on the flange, when ordering spare parts.

9. WARRANTY

This equipment includes a number of parts which can be replaced in the event of operational failure.. To be sure of identifying the exact references for these parts according to the type of construction, it is essential to transmit the serial n° given on the label or marking plate found on the instrument.

Telephone n° of the After-Sales Service to contact:

France: +33 (0)4 70 59 81 81

Other countries: contact the local representative

This equipment is supplied under guarantee (see the contractual terms of the order for its duration). We would call your attention to the fact that using parts which do not comply with original parts or required standards (materials certified according to harmonized standards, classes of standard parts, fastenings, flanges, connections....), is liable to jeopardize this guarantee and call into question the associated responsibility.

Flow indicator

Instructions manual

50466-091

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