



- **Modular Indicator Design** allows upgrading to alarm or transmitter functions
- **Explosion Proof Design** of secondary for use in hazardous areas
- **Digital Display Option** for totalization and rate of flow
- **Digital Communication** via HART protocol
- **Straight through design** eliminates elbows and recessed or stagnant areas.
- **Short face-to-face dimension** saves space and makes retrofitting easier.
- **Non-protruding float rods** eliminate need for special piping at both ends.
- **Easy float replacement** without replacing the entire meter body.
- **All Teflon® float and Teflon® lining** option for corrosive fluids applications.



Series AM54
Armored VA Meter

Variable Area Flowmeters Series AM54

The **Series AM54** is an all metal flow-through variable area flowmeter designed to measure the flow rates of liquids, gases or steam in pipe sizes from 1/2" to 4". The AM54 is particularly suited for the process industries such as in the Chemical, Pharmaceutical and the Food industries when aggressive or opaque fluids are to be metered or in those applications where glass meter tube flowmeters cannot be installed because of safety considerations. They are indispensable where high pressure and/or high temperature operating conditions exist.

The float is magnetically coupled to either 1) an indicator alone; 2) to an indicator along with electronic (4 to 20 mA) output transmission; or 3) to an indicator with electronic alarm capabilities. The meter body is constructed of AISI Type 316-Ti stainless steel for superior corrosion resistance in a variety of harsh industrial fluids. For added corrosion resistance, the meter can be supplied with all wetted parts lined with Teflon®.

Engineering Specifications

Materials of Construction

Meter Tube: Stainless steel AISI Type 316-Ti (UNS31635). Teflon® lining optional.

Flanges: Stainless steel AISI Type 316-Ti (UNS31635). Teflon® lining optional.

Float: Stainless steel AISI Type 316-Ti (UNS31635), Hastelloy C float head optional, all Teflon® optional.

O-Ring: Viton® for 1/2" meter only; Viton® for gas damping options. Other materials optional.

Secondary Housing: Aluminum powder coated.

Secondary Gasket: Buna N

Secondary Window: Safety Glass

Performance

Accuracy:

- ± 1.6% of full scale for unlined meters.
- ± 2.5% of full scale for TEFLON lined meters.
- ±1% of full scale optional with calibration for all meters.

Range: 10:1

Repeatability: 0.25% of full scale

Scales: Percent or direct reading

Connections

Flanges:

- ANSI Class 150 raised face, standard
- ANSI Class 300 & 600 raised face, optional.
- Other flange variations upon request.

Environmental Rating:

Indicator Only: NEMA 4x / IP 67

Indicator w/Alarms: NEMA 4x / IP 67 for meter.
Relay amplifier must be remote mounted in suitable enclosure in nonhazardous area.

Indicator w/Transmitter: NEMA 4x / IP 67

Hazardous Area Approvals:

Factory Mutual (FM)

Explosion Proof: Class I, Div. 1, Groups A,B,C, & D
(Note: Groups A&B require conduit seal within 18" of Instrument)

Dust Ignition Proof: Class II, Div. 1,
Groups E, F & G

Intrinsically Safe: Class I, Div. 1,
Groups A, B, C & D

Non-Incendive: Class I, Div. 2, Groups A, B, C & D

Canadian Standards Association

Explosion Proof: Class I, Div. 1, Groups B, C & D
(Note: Group B requires conduit seal within 18" of instrument)

Dust Ignition Proof: Class II, Div. 1,
Groups E, F & G

Intrinsically Safe: Class I, Div. 1,
Groups A, B, C & D

Non-Incendive: Class I, Div.2, Groups A, B, C & D

* Maximum temperature for Teflon lined meters.

Teflon® is a registered trademark of E.I. DuPont Co.

Maximum Design Pressure:

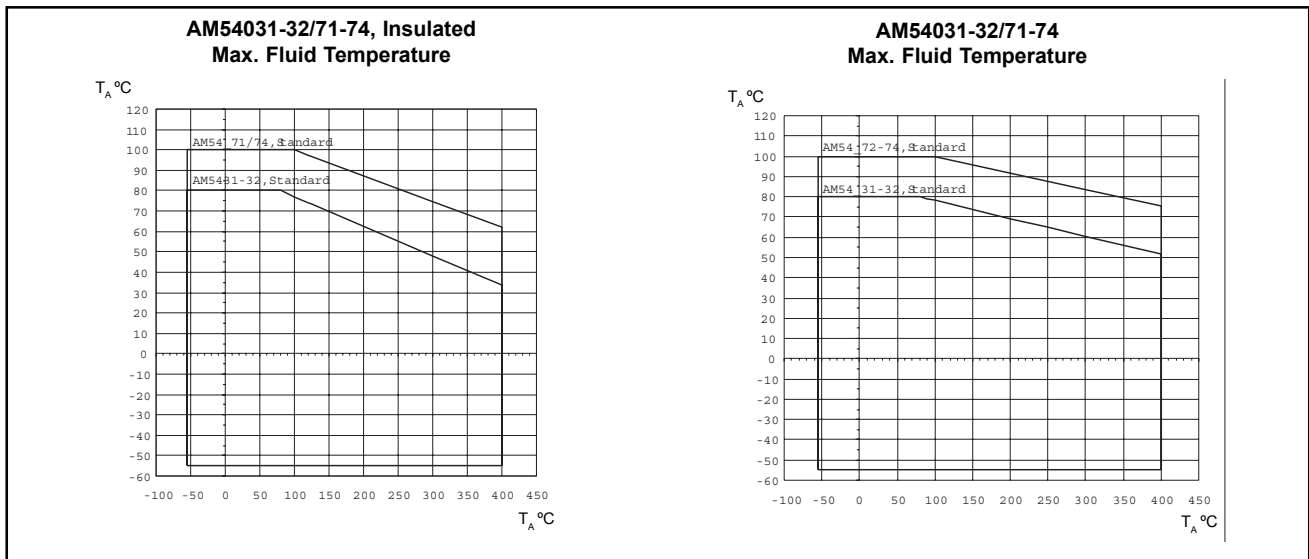
Temperature		Pressure Rating psig (kPa ga)			
°F	°C	150 lb.		300 lb.	
100	38	275	(1896)	720	(4964)
200	93	235	(1620)	610	(4206)
260	125*	220	(1516)	570	(3930)
300	149	210	(1448)	545	(3757)
400	204	190	(1310)	495	(3413)
500	260	170	(1172)	460	(3171)
600	316	140	(965)	435	(2999)

Temperature Ranges

Allowable fluid temperature: (T_F)

- 55°C to +420°C Standard (-67°F to 788°F)
-20 to +125°C for PTFE - Liner
(-4°F to 260°F)
- Allowable ambient temperature: (T_A)
-40 to +100°C (-40°F to 212°F)

For General Purpose Applications Only (for Hazardous Applications, See Page 8)



Gas Damping

Used for pulsating or unstable flows and to avoid compression oscillations (float bounce) when metering gases at low pressures.

Unit Weight (Approx.), pounds (kg)

Model	Flange	TUBE SIZE				
		1/2"	1"	2"	3"	4"
<i>Installation Lengths</i>		250 mm	250 mm	250 mm	250 mm	
AM5437	150 lb	8.6 (3.9)	12.8 (5.8)	23.6 (10.7)	35 (15.9)	75 (34)
AM5437	300 lb	10.6 (4.8)	14.8 (6.7)	27.6 (12.1)	45 (20.5)	90 (41)
AM5433	150 lb	10.4 (4.7)	13.2 (6)	24.0 (10.9)	35 (15.9)	75 (34)
AM5433	300 lb	12.4 (5.6)	15.2 (6.9)	28 (12.7)	45 (20.5)	90 (41)
<i>Installation Lengths</i>				375 mm	375 mm	
AM5437	150 lb			32.4 (14.7)	47 (21.4)	
AM5437	300 lb			35.4 (16.1)	57 (25.9)	
AM5433	150 lb.			32.9 (15)	47 (21.4)	
AM5433	300 lb			36.9 (16.8)	57 (25.9)	

Certifications

- Pressure test
- Welder, dye penetrant and process tests
- Material Certificates EN 10204-3.1B

AM5437_ Indicator with/without Alarm Signal



Fig. 1 - AM5437_

Description:

The secondary for the Variable Area Flowmeter A5437_ is available with a mechanical indicator with/without alarms. The following design options are offered:

- AM54371; Indicator without additional features
- AM54372; Indicator with min. alarm signal
- AM54373; Indicator with max. alarm signal
- AM54374; Indicator with min./max. alarm signal

Design Feature:

- Explosion-proof pressure tight housing designed for hazardous environments. FM & CSA approvals.
- Alarm signal as a compact subassembly for later upgrade
- Indication of the alarm settings visible from the outside.
- Alarm settings made at the scale.
- Ball bearing, decouple proof and hysteresis free magnet follower system.
- Difference between min. - and max. alarm signals < 5%
- Assembly and disassembly of the secondary and the primary is possible without opening the indicator housing.
- Reproducibility +/-0.25% of maximum flowrate capacity.
- Round Indicator housing.

Alarm Signal Output for AM54372/74

The alarm is actuated by the movement of a contact disc into the slit initiator (active surface is covered). The contact opens. The alarm setting can be adjusted without shifting or removing the scale. The switch settings are visible from outside the cover.

Operating mode	Bistable
Reproducibility	+/-0.5% of scale and value
Nominal Voltage	8 V DC (Ri approx. 1 k Ω)
Operating voltage	5 – 25 V
Switching frequency	3 kHz

A Transmitter Power Supply is required for the Alarm Signal Output - Examples

Amplifier	Supply Power	Channel
KFA5-SR2-Ex1.W P/N 163A012U01	115 V, AC	1 SPDT
KFA6-SR2-Ex1.W P/N 163A012U05	220 V, AC	1 SPDT
KFA5-SR2-Ex2.W.LB P/N 163A012U03	115V, AC	1 DPDT
KFA6-SR2-Ex2.W.LB P/N 163A012U04	220 V, AC	2 DPDT
KFA5-SR2-Ex2.W P/N 163A012U02	115 V, AC	2 SPDT
KFA6-SR2-Ex2.W P/N 163A012U06	220 V, AC	2 SPDT

Indicator with electrical transmitter without/with digital display AM54331/AM54332



Fig. 2 - AM54331/AM54332

Description:

The AM54331/332 flowmeter secondary is an indicator in the form of an intelligent 2-wire microprocessor transmitter. The following design versions are available:

- AM54331; indicator with 4-20 mA electrical transmitter, without digital display
- AM54332; indicator with 4-20 mA electrical transmitter, without digital display

Design Features:

- Flow indicator or flow total (AM54332 unit).
- Digital display optional & field upgradeable
- Electronic Min./Max. device alarm
- Menu-guided parameter setting (AM54332 unit)
- Parameter setting by means of HART communication via hand-held terminal.
- Electronics as compact module. Interchangeable.
- Electronic linearization of flow characteristics.
- Menu-guided parameter setting of the device by magnetic pen with housing closed (AM54332 unit).
- Freely configurable display (AM54332 unit).
- For connection to all primary device design models.
- Explosion-proof housing version for hazardous environments. FM & CSA Approvals

Communication by HART protocol

The HART protocol provides digital communication between a process control system/PC, a hand-held terminal and the AM54. It can be used to transfer all device and measuring point parameters from the transmitter to the process control system or PC. In the opposite direction, it can also be used to reconfigure the transmitter.

The digital communications is effected by means of an alternating current superimposed on the analog output (4-20 mA) which does not affect the connected evaluation units.

The following communication options and channels can be realized:

HART communication

1. via FSK modem in point-to-point or multidrop mode.
2. via ABB Automation Products HART multiplexer.

Transmission mode

FSK modulation to 4 - 20 mA current output to Bell 202 Standard, max. signal amplitude 1.2 mA_{ss}.

Current output load

Min. >250 Ω, max. 750 Ω

Max. cable length 1500 m AWG 24 twisted and shielded.

Baud rate

1200 Baud

Display log. 1: 1200 Hz

Display log. 0: 2200 Hz

Current output in case of alarm

high = 21 -23 mA. Adjustable

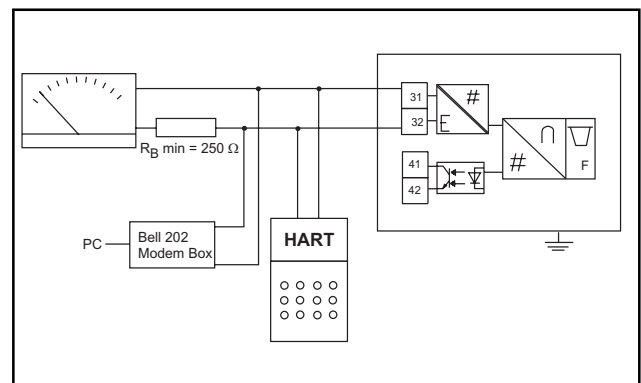


Fig. 3 - HART communication

Indicator with electrical transmitter without/with display AM54331/AM54332

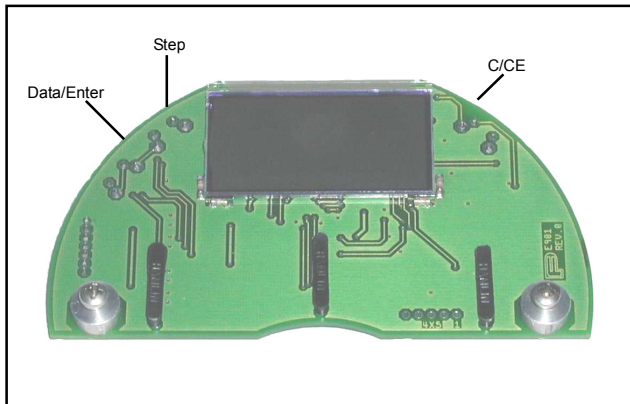


Fig. 4 - Keypad and display of transmitter (AM54332)

Important Note: When the transmitter housing is open EMC protection is limited.

Data Backup

Storage of counts and measuring point-specific parameters by EEPROM (over 10 years without auxiliary power), in case of shutdown or failure of power supply.

Function tests

Internal software function tests can be used to test individual internal modules. For commissioning and checking, the current output can be simulated according to self-selected flow rates (manual process control). The binary output can also be activated directly for function checking.

Damping

Adjustable from 1 to 100 s, acc. to 5τ

Creep feed shutoff

0 - 5% for current and pulse output

Auxiliary power

Explosion Proof:	10 to 46 Vdc
Dust Ignition Proof:	10 to 46 Vdc
Non Incendive	10 to 28 Vdc
Intrinsically Safe	10 to 28 Vdc
Residual ripple:	max. 5% or $\pm 1.5 V_{ss}$

Power consumption

< 1 W

Replacement of electronics

The electronics can be replaced in the event of a fault. Settings are immediately updated when the unit is switched on.

Output signals

Current output for flow signal
4-20 mA, load $\leq 750 \Omega$

Binary output

The function of the binary output is selectable by way of the software:

- Flow limit alarm: Min, Max or Min-Max
- System alarm
- Pulse output: fmax 50 Hz;
Pulse width: 5ms - 256 ms
- Standard: Optocoupler $U_H = 16-30 V$.
 $I_L = 2-15 mA$
- Hazardous environment "ib": Configured as NAMUR contact

Display (version AM54332)

High-contrast LC display. For display of instantaneous flow rate and total flow.

By way of the multiplex function it is possible to display 2 values (e.g. flow rate and total flow) in effect in parallel.

Data is entered by 3 keys or directly from the outside with the housing closed using a magnetic pen.

Data is entered in plain text dialog with the display or by digital communication via the HART protocol.

Technical Data

Transmitter - Electrical connection of standard design version

The transmitter is of 2-wire design, which means the power supply and measurement signal (4-20 mA) are sent over the same wires.

a) Auxiliary power from central power supply

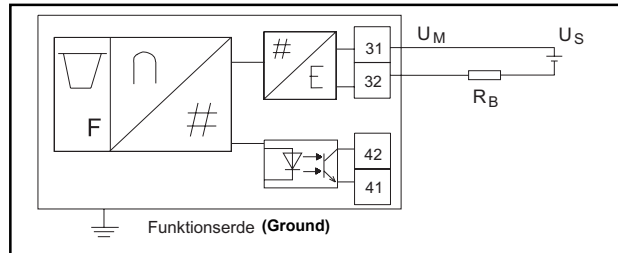


Fig. 5

b) Auxiliary power from supply unit

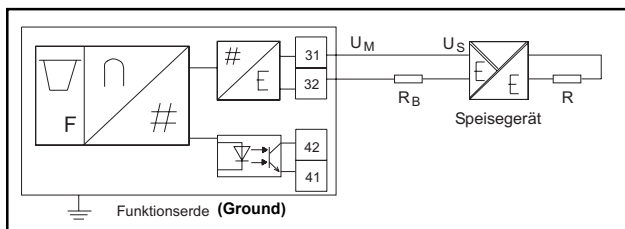


Fig. 6

- U_M = Supply voltage = min. 10 V DC
- U_S = Feed voltage = 10-28 V DC or 10-46 V DC
- R_B = Max. permissible load for supply unit (e.g. indicator, load)
- R = Max. permissible load for output circuit, determined by supply unit

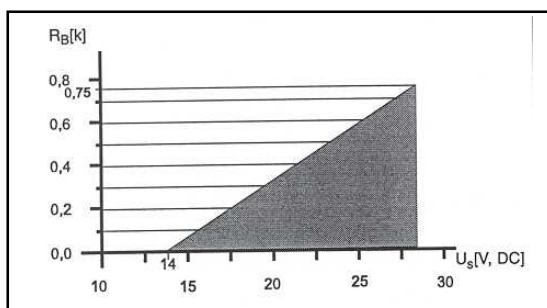


Fig. 7 - Loading diagram, current output Load over auxiliary power

Programmable output

Terminals 41/42 can be freely programmed. The following options can be programmed by way of the "Prog Output" software:

1. Pulse output

The standardized pulse output (passive) is executed as a Namur contact (to DIN 19234). The internal resistance with the contact open > 10 kOhm. The pulse width is adjustable in another menu from 5 to 256 ms. Maximum frequency, $f_{max} = 50$ Hz

2. Collective alarm

Error states of the device and Min-Max alarms are collected for output.

3. Min-Max alarm

The Min-Max alarm can be programmed as NC or NO.

4. No function

The output has no function. (standard factory adjusted).

The following limits apply:

Max. permissible switching current = 15 mA

Min. output voltage = $U_H - 2V$

U_H = Voltage of auxiliary power source

Current output terminals: Terminals 31/32

At these terminals a 4 - 20 mA output signal is delivered. The supply voltage (10-28 VDC) is also connected to them. Fig. 5

The digital communications (HART protocol) is via terminals 31/32, with an AC signal superimposed on the 4 - 20 mA output signal. For more details refer to the section titled "Communication: HART protocol. (Fig. 3)

Technical data, AM54371-74 hazardous environments version:

FM Approval Report; 3008432



CSA: File Number 176935-1146812



Ambient Temperature:

The correlation between the temperature class, permissible ambient temperature and maximum measurement material temperature is shown in diagrams on page 8.

Safety data

Limit value contacts terminals 41/42, 51/52
Terminals 41, 51 are positive (+)
The permissible maximums of protection type

Intrinsically Safe: Maximum Entity Parameters

U _i	= 16 V
I _i	= 25 mA
P _i	= 64 mW
C _i	= 50 nF
L _i	= 250 μH

Technical data

Hazardous environments version AM 54331/32
FM Approval Report: 3008432

CSA: File Number: 176935-1146812

Model AM5433__ can only be used in temperature classes T1 to T4.

Hazardous environments approval data

Terminals 31/41

Power Supply Terminals 31/32 U _m = 60 V	U _i = 28 V I _i = 110 mA P _i = 770 mW C _i = 4,2 nF C _i /P _A = 6 nF L _i = 270 μH
Switching output Terminals 41/42 U _m = 60 V	U _i - 15 V I _i = 30 mA P _i = 115 mW C _i = 3,6 nF C _i /P _A = 3,6 nF L _i = 133 μH

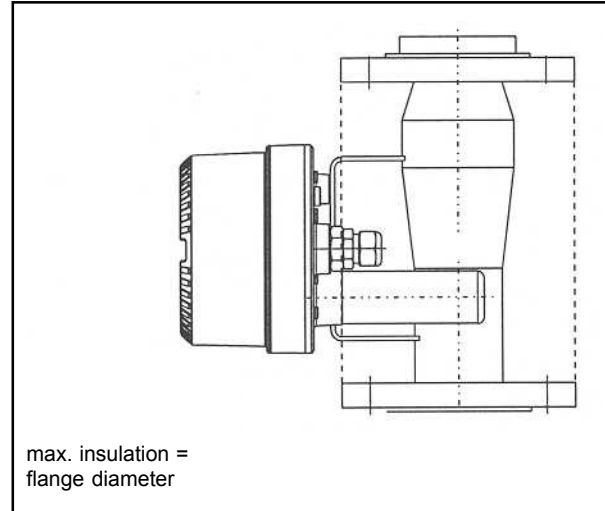


Fig. 9

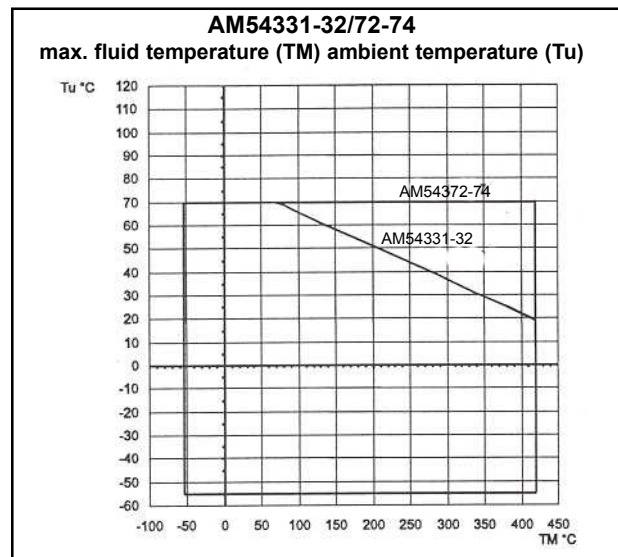


Fig. 8

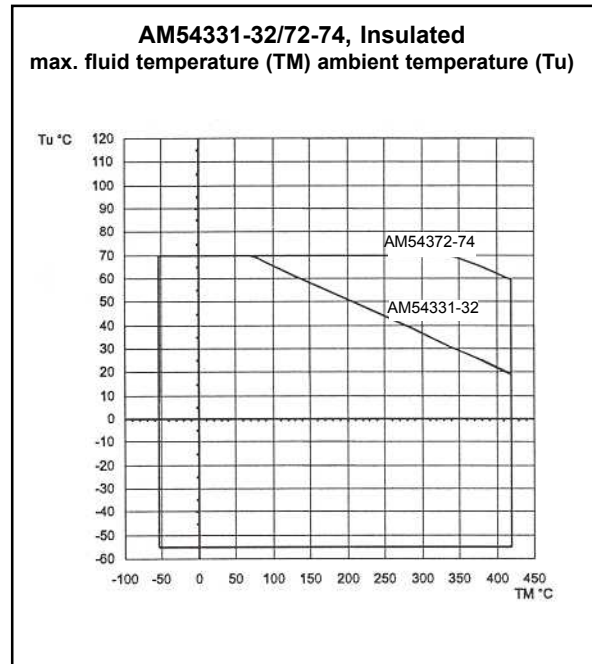


Fig.10

Fluid temperature

Temperature classes	AM5433	AM5437
T1	420 °C	420 °C
T2	290 °C	290 °C
T3	195 °C	195 °C
T4	130 °C	130 °C
T5	-	95 °C
T6	-	80 °C

SERIES AM54 - CAPACITY TABLE

TUBE SIZE & LENGTH	FLANGE SIZE	LIQUIDS GPM, LIQ., SP. GR. 1.0	VIC [1]	GASES SCFM, AIR @STP	MIN. PSIA			D P [5] Inches Water	METER		
					[2]	[3]	[4]		TUBE/FLOAT		
1/2" - 250mm (with Orifice)	1/2" & 1"	0.12 - 0.15	6	0.53 - 0.60	58	17	15	32	15-250-K	30	
	1/2" & 1"	0.17 - 0.19	6	0.70 - 0.81	58	17	15			40	
	1/2" & 1"	0.19 - 0.24	6	0.80 - 1.00	58	17	15			50	
	1/2" & 1"	0.24 - 0.29	6	1.05 - 1.20	58	17	15			60	
1/2" - 250mm (with Tapered cone)	1/2" & 1"	0.34 - 0.37	16	1.45 - 1.57	44	23	15	16	15-250-L	80	
	1/2" & 1"	0.42 - 0.46	16	1.81 - 1.96	46	23	15			18	100
	1/2" & 1"	0.51 - 0.55	16	2.17 - 2.36	51	23	15			20	120
	1/2" & 1"	0.63 - 0.69	16	2.71 - 2.94	55	23	15			24	150
	1/2" & 1"	0.83 - 0.93	16	3.54 - 3.99	58	23	15	24	15-250-S	200	
	1/2" & 1"	1.03 - 1.17	16	4.43 - 5.00	61	26	15			26	250
	1/2" & 1"	1.24 - 1.40	16	5.31 - 5.99	64	26	15			28	300
	1/2" & 1"	1.66 - 1.87	16	7.08 - 7.99	67	29	15			30	400
	1/2" & 1"	2.07 - 2.33	16	8.86 - 9.99	70	31	15			30	500
	1/2" & 1"	2.49 - 2.80	16	10.65 - 11.96	73	32	15			32	600
1/2" & 1"	3.30 - 3.74	16	14.13 - 16.02	78	35	15	34	800			
1" - 250mm	1"	1.2 - 2.9	13 - 21	5.3 - 12.4	42 - 45		35 - 44	8 - 31	250-1.050	-S	
	1"	1.7 - 3.8	7 - 10	7.4 - 16.4	44 - 49		33 - 36			11 - 33	-N
	1"	2.9 - 7.5	16 - 22	12.3 - 32.2	48 - 62		23 - 35	8 - 31	250-1.113	-S	
	1"	4.3 - 10.4	8 - 10	19.0 - 44.7	48 - 77		28 - 31	11 - 33		-N	
	1"	7.3 - 17.7	17 - 26	31.1 - 75.8	61 - 93		25 - 28	8 - 31	250-1.263	-S	
	1"	11.4 - 27.2	8 - 10	48.7 - 116.3	75 - 116		23 - 26	11 - 33		-N	
2" - 250mm	1-1/2" & 2"	18.6 - 53.4	21 - 38	79.5 - 228.6	45 - 65		23 - 25	4 - 25	250-1.330	-S	
	1-1/2" & 2"	35.0 - 81.3	13 - 17	149.6 - 347.8	55 - 90		26 - 32	10 - 30		-N	
	1-1/2" & 2"	51.8 - 106.6	3 - 4	221.6 - 456.5	64 - 109		29 - 38	11 - 29		-X	
3" - 250mm	3"	30.8 - 92.5	22 - 54	131.9 - 395.9	49 - 78		20 - 29	2 - 19	250-1.315	-S	
	3"	79.7 - 154.2	18 - 25	340.9 - 659.4	70 - 107		23 - 46	10 - 26		-N	
	3"	117.8 - 236.9	4 - 5	504.1 - 1014.5	87 - 113		35 - 58	10 - 27		-X	
4" - 250mm	4"	110.0 - 220.0	60 - 81	471.1 - 942.2	58 - 87			12 - 30	250-1.310	-S	
	4"	220.0 - 528.0	24	942.2 - 2261.0	102 - 130			17 - 38		-N	

TEFLON Lined Meters

TUBE SIZE & LENGTH	FLANGE SIZE	LIQUIDS GPM, LIQ., SP. GR. 1.0	VIC [1]	GASES SCFM, AIR @STP	MIN. PSIA			D P [5] Inches Water	METER TUBE/FLOAT		
					[2]	[3]	[4]		Identification Code		
1" - 260mm	1"	1.19 - 1.63	18	5.09 - 6.97	44			12 - 22	25-250-ST-300		
	1"	1.63 - 2.33	18	6.97 - 9.99	47					500	
	1"	2.33 - 3.30	18	10.0 - 14.1	47					600	
	1"	3.30 - 4.62	18	14.1 - 19.8	50					900	
	1"	4.62 - 6.61	18	19.8 - 28.3	52					1300	
	1"	6.61 - 9.25	18	28.3 - 39.6	59					1800	
	1"	9.25 - 13.21	18	39.6 - 56.5	74					2500	
2" - 375mm	2"	12.5 - 15.6	26	53.7 - 66.9	59			16 - 32	50-375-ST-3200		
	2"	15.6 - 19.6	26	66.9 - 83.8	62					4000	
	2"	19.6 - 24.0	26	83.8 - 102.7	66					5000	
	2"	24.0 - 29.7	26	102.7 - 127.2	71					6000	
	2"	29.7 - 36.6	26	127.2 - 155.5	76					7500	
	2"	36.3 - 44.0	16	155.5 - 188.4	94					36 - 52	50-375-NT-9100
3" - 375mm	3"	44.0 - 61.6	36	186.5 - 263.8	59			16 - 28	8-375-NT-12000		
	3"	61.6 - 83.7	36	263.8 - 358.0	74					24 - 36	16500
	3"	83.7 - 118.9	20	358.0 - 508.8	88					32 - 44	23000

Notes:

- The maximum flowrate can be adjusted between the values shown under either liquids or gases.
- Flange sizes are for non-jacketed meters. Sizes greater than shown are possible upon request.
- [1] Viscosity Immunity Ceiling (V.I.C.) must be greater than fluid viscosity (cps) times square root of the specific gravity. (V.I.C. = CPS x $\sqrt{S.G.}$) V.I.C. is proportional to the maximum flow rate.
- [2] Minimum static pressure to avoid float bounce. Proportional to maximum flow rate.
- [3] Minimum required pressure when using twisted guide rod. Size 1/2" only. Not available with Teflon lined meters.
- [4] Minimum required pressure when using gas damping. Sizes 1/2" to 3" only. Proportional to maximum flowrate. Not available with Teflon lined meters.
- [5] Pressure drop is proportional to maximum flow rate.

ORDERING INFORMATION

Armored VA Meter	AM54		F	A	1				
Equipment Approvals									
Without	0								
II 2G EEx ib IIC, II 3G EEx n[L]IIC...	1								
II 2G EEx ib IIC, II 2G EEx ib IIC, II 3G EEx n[L] IIC	2								
FM Approval Class I, Div 1	3								
Secondary Instrument (Indicator)									
Indicator with electronic converter, without display	31								
Indicator with electronic converter, with display	32								
Indicator only	71								
Indicator with min. alarm signal	72								
Indicator with max. alarm signal	73								
Indicator with min. and max. alarm signal	74								
Connector for Secondary Instrument									
Without	0								
M20 x 1.5 + Cable Gland	1								
1/2 inch NPT Adapter	2								
1/2 inch NPT Adapter + Cable Gland	3								
Design Level (Primary)			F						
Design Level (Secondary)				A					
Material, Indicator housing / meter tube									
Aluminum/Stainless Steel 316-Ti	1								
Meter Tube Design									
Standard, Installation length 250mm, 1/2" to 4"					A				
Teflon (PTFE) liner, installation length 250mm, 1"					T				
Teflon (PTFE) liner, installation length 375mm, 2" & 3"					S				
Flange Connection Size (Flange & Tube)									
Standard									
1/2" Flange - 1/2" dia. tube (Cone) (See Note 3)					A				
1/2" Flange - 1/2" dia. tube (Orifice) (See Note 3)					Q				
1" Flange - 1/2" dia. tube (Cone) (See Note 3)					P				
1" Flange - 1/2" dia. tube (Orifice) (See Note 3)					R				
1" Flange - 1" dia. tube					B				
2" Flange - 2" dia. tube					C				
1 1/2" Flange - 2" dia. tube					N				
3" Flange - 3" dia. tube					D				
4" Flange - 4" dia. tube					E				

Armored VA Meter

AM54 _ 2 F A 1 _ _

Meter Connection Type

Flange ANSI, RF 150 lb. E
 300 lb F
 Other Z

Certification, Flowmeter Primary

Without 0
 Pressure Test Only 1
 Others 9

Material Certification

Without A
 Material Certificate EN 10204-3.IB B
 Other Z

Float Design

Cylindrical Guide Rod w/o gas damping 1
 Twisted Guide Road for gas damping (only 1/2" tube) 2
 Cylindrical guide rod with piston gas damping 3

Float Material

Standard Meter, 316-Ti Stainless Steel A
 316-Ti Stainless Steel w/Hastelloy-C head B
 Teflon (PTFE) design w/Hastelloy-C head C
 Teflon (PTFE) D

Temperature Range

Standard Temperature 1

Power Supply Requirements (for AM54331/32)

Standard 10-46 V DC A

AM54331/32 Design Level, Software

A

Accuracy

± 2.5% max. flow - Teflon lined meters 1
 ± 1.6% max. flow - Unlined meters 2
 ± 4% of max. range (viscosity effect calculation) (See Note 1) 3
 Calibration, ± 1% max. flow, unlined meters 2

Instrument Tag

Adhesive B
 Stainless Steel E

ORDERING INFORMATION CONTINUED

Alarm Relays

AM54372 or AM54373 - SPDT - 110Vac, KFA5 - SR2 - Ex.1.W (163A012U01)

AM54372 or AM54373 - SPDT - 220Vac, KFA6 - SR2 - Ex.1.W (163A012U05)

AM54372 or AM54373 - DPDT - 110Vac, KFA5 - SR2 - Ex.1.W. LB (163A012U03)

AM54372 or AM54373 - DPDT - 220Vac, KFA6 - SR2 - Ex.1.W. LB (163A012U04)

AM54374 - SPDT - 110Vac, KFA5 - SR2 - Ex.2.W (163A012U02)

AM54374 - SPDT - 220Vac, KFA6-SR2-Ex.2.W (163A012U06)

AM54374 - DPDT - 110Vac (2 required), KFA5 - SR2 - Exl. W. LB (163A012U03) (2 Req'd)

AM54374 - DPDT - 220Vac (2 required), KFA6 - SR2 - Exl. W. LB (163A012U04) (2 Req'd)

NOTES:

1. *Viscosity calculations can be made for fluids up to 150 cps in unlined meters only*
2. *Use Capacity Table or Flow Calc Sizing Program (Ver.3 T43).
Select "orifice" if tube / float designation contains "K".*

Instruction Manual: D184B114U02

Dimensions and Connections, Installation Length 250 mm Standard Design

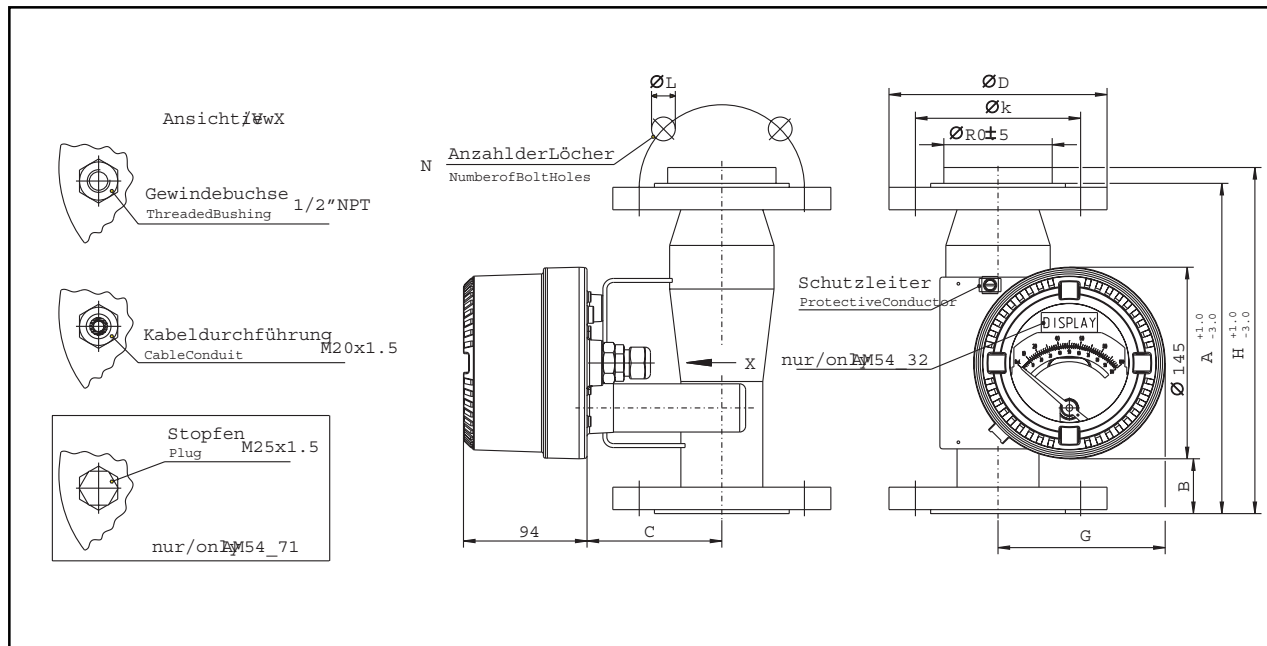


Fig. 11 - Dimensions and Connections for Installation Length 250 mm (Standard Design)

Meter Size	Pressure Rating PN	Standard Design (Millimeters)									
		Size	Ø D	Ø k	Ø L	N	A	C	G	H	Ø R
½"	40	DN 15	95.0	65.0	14.0	4	250.0	87	118	262.0	35
	63	DN 15	195.0	75.0	14.0	4	258.0	87	118	270.0	35
	CL 150	½"	89.0	60.3	15.9	4	250.0	87	118	262.0	35
	CL 300	½"	95.2	66.7	15.9	4	250.0	87	118	262.0	35
	BS 10 Tbl. D	½"	95.2	66.7	14.3	4	250.0	87	118	262.0	35
	CL 150	1"	108.0	79.4	15.9	4	250.0	87	118	262.0	35
1"	40	DN 25	115.0	85.0	14.0	4	250.0	87	118		
	63	DN 25	140.0	100.0	18.0	4	262.0	87	118		
	CL 150	1"	107.9	79.4	15.9	4	250.0	87	118		
	CL 300	1"	123.81	88.9	19.0	4	250.0	87	118		
	BS 10 Tbl. D	1"	14.3	82.6	14.3	4	250.0	87	118		
	CL 150	1"	123.8	88.9	19.0	4	250.0	87	118	262.0	35
2"	40	DN 50	165.0	125.0	18.0	4	250.0	102	130		
	63	DN 50	180.0	135.0	22.0	4	262.0	102	130		
	CL 150	2"	152.4	120.6	19.0	4	250.0	102	130		
	CL 300	2"	165.1	127.0	19.0	8	250.0	102	130		
	BS 10 Tbl. D	2"	152.4	114.3	17.5	4	250.0	102	130		
	CL 150	1-1/2"	127.0	98.4	15.9	4	250.0	102	130		
3"	40	DN 80	200.0	160.0	18.0	8	250.0	132	144		
	63	DN 80	215.0	170.0	22.0	8	250.0	132	144		
	CL 150	3"	190.5	152.4	19.0	4	250.0	132	144		
	CL 300	3"	209.5	168.3	22.2	8	250.0	132	144		
	BS 10 Tbl. D	3"	184.2	146.0	17.5	4	250.0	132	144		
	CL 150	1-1/2"	155.3	114.3	22.2	4	250.0	102	130		
4"	16	DN 100	220.0	180.0	18.0	8	250.0	147	158		
	40	DN 100	235.0	190.0	22.0	8	250.0	147	158		
	63	DN 100	250.0	200.0	26.0	8	266.0	147	158		
	CL 150	4"	228.6	190.5	19.0	8	250.0	147	158		
	CL 300	4"	254.0	200.0	22.2	8	266.0	147	158		

H = Installation length with gas damping

Comments: Installation length for PTFE lined flowmeters
1" / DN 25 PN 40 = 260 mm; 2" & 3" /
DN 50 + 80 PN 40 = 375 mm. Other upon request.

Dimensions in inches divide mm-dimensions by 25.4

Dimensions and Connections, Installation Length 375 mm for Teflon Meters

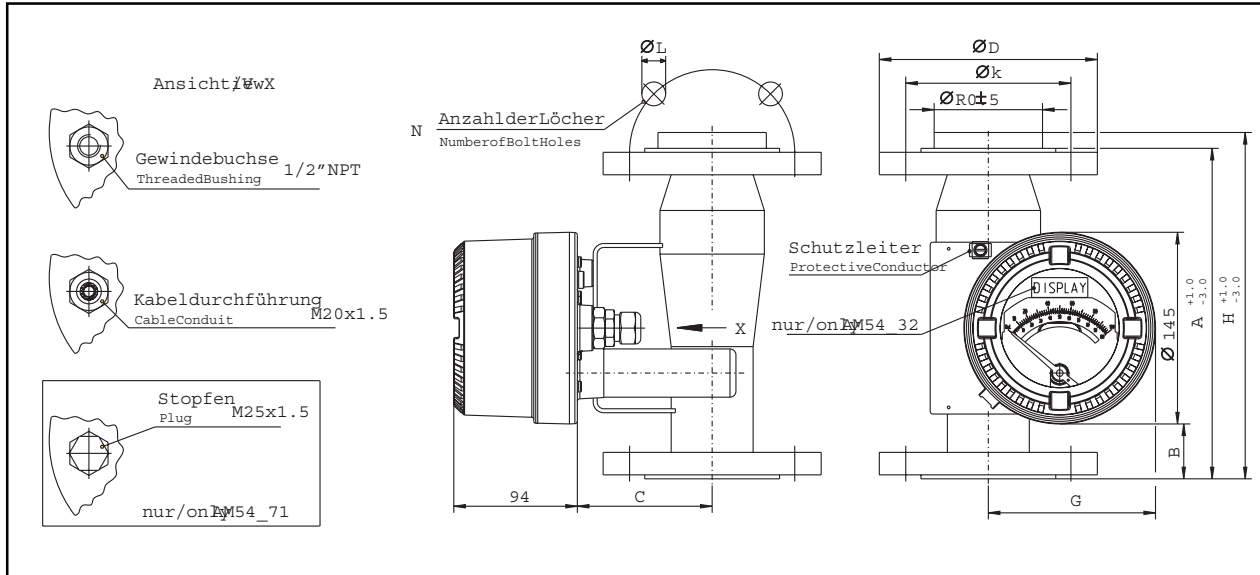


Fig. 13

Meter Size	Pressure Rating		DN	Ø D	Ø k	Ø L	N	A	B	C	G	Ø R
	PN											
2"	CL 150	1-1/2"	127.0	98.4	15.9	4	375.0	41.5	102	130	92.0	
	CL 300	1-1/2"	155.3	114.3	22.2	4	375.0	41.5	102	130	92.0	
	40	50	165.0	125.0	18.0	4	375.0	41.5	102	130	92.0	
	64	50	180.0	135.0	22.0	4	387.0	47.5	102	130	92.0	
	CL 150	2"	152.4	120.6	19.0	4	375.0	41.5	102	130	92.0	
	CL 300	2"	165.1	127.0	19.0	8	375.0	41.5	102	130	92.0	
3"	BS 10 Tbl. D	2"	152.4	114.3	17.5	4	375.0	41.5	102	130	92.0	
	40	80	200.0	160.0	18.0	8	375.0	41.5	132	144	127.0	
	63	80	215.0	170.0	22.0	8	383.0	49.5	132	144	127.0	
	CL 150	3"	190.5	152.4	19.0	4	375.0	41.5	132	144	127.0	
	CL 300	3"	209.5	168.3	22.2	8	375.0	41.5	132	144	127.0	
	BS 10 Tbl. D	3"	184.0	146.0	17.5	4	375.0	41.5	132	144	127.0	

Dimensions in inches divide mm-dimensions by 25,4

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