

VersaFlow Mag 1000 Electromagnetic Flow Sensor Technical Datasheet

34-VF-03-16
November 19, 2007

Specification

Solution for the water and wastewater industry

The VERSAFLOW electromagnetic flow sensor is the optimum solution for water and wastewater applications. Its long-term reliability and durability make it the standard flow sensor for the water market.

Highlights

- Drinking water approvals including KTW, WRc, KIWA, ACS
- Time proven design
- Maintenance free
- In situ verification with HONEYWELL MagCheck
- Compliance with OIML R-49 and ISO 4064
- Permanently submersible, buried underground (option)

Industries

- Water
- Wastewater
- Pulp & paper
- Minerals & Mining
- Iron, Steel & Metals
- Power Plant

Applications

- Water distribution networks
- Irrigation
- Municipal watering
- Water purification
- Cooling stations
- District heating



Figure 1 – VersaFlow Electromagnetic Flow Sensor
Electromagnetic product range

VersaFlow converters: All converters fit to all sensors



1. TWM 9000 High-performance solution



1. VersaFlow Economical solution
2. VersaFlow Solution for the water and wastewater industry
3. VersaFlow Standard solution for the process industry

Technical Data

Nominal diameter	VN14										VN15								VN16							
ASME [inch]	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"	40"	48"	56"	64"	72"	80"
DN [mm]	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000	1200	1400	1600	1800	2000

Nominal flange pressure

EN 1092-1 - PN40																											
EN 1092-1 - PN25																											
EN 1092-1 - PN16																											
EN 1092-1 - PN10																											
EN 1092-1 - PN6																											
ISO insertion length																											
ASME B16.5 - 150lbs RF																											
ASME B16.5 - 300lbs RF																											
ASME B16.5 - 600 lbs RF																											
ASME B16.5 - 900lbs RF																											
ASME B16.5 - 1500 lbs RF																											
AWWA - class B or D FF																											
JIS10K																											
JIS20K																											
For vacuum load see separate table																											
Larger than DN 2000 / ASME 80" on request																											
AWWA flanges, DN 700 - 1000 / ASME 28" - 40" ≤ 10 bar																											
AWWA flanges, DN 1200 - 2000 / ASME 48" - 80" ≤ 6 bar																											

Liner

Polypropylene																											
Hard Rubber																											
See pressure and temperature limits for various liners																											

Electrodes

Hastelloy C4																											
Stainless steel 1,4571 (AISI 316 Ti)																											
Titanium																											

Grounding rings

Hastelloy C4																											
Stainless steel 1,4571 (AISI 316 Ti)																											
Titanium																											

Flanges

Steel 1.0460 (C 22,8)																											
Steel 1.0038 (RSt37-2)																											
Stainless steel 1.4404 (AISI 316 L)																											
Stainless steel 1.4571 (AISI 316 Ti)																											

Nominal diameter	VN14									VN15									VN16								
ASME [inch]	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"	40"	48"	56"	64"	72"	80"	
DN [mm]	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000	1200	1400	1600	1800	2000	

Materials

Measuring tube – austenitic stainless steel	[Standard]																										
Housing (polyurethane coated) sheet steel	[Standard]																										
Housing stainless steel	[Optional]																										
Die-cast aluminum connection box (polyurethane coated)	[Standard]																										
Stainless steel connection box	[Optional]																										
	Other materials on request																										

Protection category

IP 66/67 eq. NEMA 4/4X / 6	[Standard]																										
IP 68 field eq. NEMA 6P	[Optional]																										
IP 68 factory eq. NEMA6P	[Optional]																										

Approvals

Non-Ex	[Standard]																										
EEx zone 1 / 2	[Optional]																										
FM - class I div. 2	[Optional]																										
CSA - GP	[Optional]																										
CSA - class I div. 2	[Optional]																										
SAA - Aus Ex zone 2	[Optional]																										
TIIS - zone 2	[Optional]																										
	Please note the approvals are for flow sensors only.																										

Versions

Compact+ TWM 9000 C	[Standard]																										
Separate+ TWM 9000 F, R, W	[Standard]																										

Conductivity

Min. conductivity	min. 20 µS/cm																										
-------------------	---------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

standard
 optional
 on request

Temperature range

Temperature range	Process [°C]		Ambient [°C]	
	min.	max.	min.	max.

Hardrubber

Separate flow sensor (Versa Flow Mag Meter)	-5	80	-40	65
Compact with TWM 9000 (Versa Flow Mag Meter)	-5	80	-40	65

Polypropylene

Separate flow sensor (Versa Flow Mag Meter)	-5	90	-40	65
Compact with TWM 9000 (Versa Flow Mag Meter)	-5	90	-40	65
* Polypropylene available for DN 25 - 150				

Temperature range	Process [°F]		Ambient [°F]	
	min.	max.	min.	max.

Hardrubber

Separate flow sensor (Versa Flow Mag Meter)	23	176	-40	149
Compact with TWM 9000 (Versa Flow Mag Meter)	23	176	-40	149

Polypropylene

Separate flow sensor (Versa Flow Mag Meter)	23	194	-40	149
Compact with TWM 9000 (Versa Flow Mag Meter)	23	194	-40	149
* Polypropylene available for ASME 1" - 6"				

Vacuum load

Liner	Diameter [mm]	Minimum operating pressure absolute in mbar (abs) at process temperature			
		20°C	40°C	60°C	80°C
Polypropylene	DN 25 - 150	250	250	400	400
Hard rubber	DN 200 - 300	250	250	400	400
	DN 350 - 1000	500	500	600	600
	DN 1200 - 3000	600	600	750	750

Liner	Diameter [inch]	Minimum operating pressure absolute in psia at process temperature			
		68°F	104°F	140°F	176°F
Polypropylene	1" - 6"	3,6	3,6	5,8	5,8
Hard rubber	8" - 12"	3,6	3,6	5,8	5,8
	14" - 40"	7,3	7,3	8,7	8,7
	48" -120"	8,7	8,7	10,9	10,9

Dimensions and Weights

Nominal size		Dimensions [mm]							Approx. weight
DN	PN	L		H	W	T			[kg]
[mm]	[bar]	DIN	ISO			box	010	300	

DN25...150

25	40	150	200	140	115	218	245	297	5
32	40	150	200	157	140	235	262	314	6
40	40	150	200	166	150	244	271	323	7
50	40	200	200	186	165	264	291	343	11
65	16	200	200	200	185	278	305	357	9
80	40	200	200	209	200	287	314	366	14
100	16	250	250	237	220	315	342	394	15
125	16	250	250	266	250	344	371	423	19
150	16	300	300	300	285	378	405	457	27

DN200...600

200	10	350	350	361	340	439	466	518	34
250	10	400	450	408	395	486	513	565	48
300	10	500	500	458	445	536	563	615	58
350	10	500	550	510	505	588	615	667	78
400	10	600	600	568	565	646	673	725	101
450	10	600	-	618	615	696	723	775	111
500	10	600	-	671	670	749	776	828	130
600	10	600	-	781	780	859	886	938	165

DN700...2000

700	10	700	-	898	895	976	1003	1055	248
800	10	800	-	1012	1015	1090	1117	1169	331
900	10	900	-	1114	1115	1192	1219	1271	430
1000	10	1000	-	1225	1230	1303	1330	1382	507
1200	6	1200	-	1417	1405	1495	-	1574	555
1400	6	1400	-	1619	1630	1697	-	1776	765
1600	6	1600	-	1819	1830	1897	-	1976	1035
1800	6	1800	-	2027	2045	2105	-	2184	1470
2000	6	2000	-	2259	2265	2337	-	2416	1860

Nominal size		Dimensions 150 lbs [inch]						Approx. weight
DN	PN	L	H	W	T			[lbs]
[mm]	[bar]				box	010	300	

DN1"...6"

1"	284	5,91	5,39	4,25	8,46	9,53	11,57	18
1 1/2"	284	5,91	6,1	5	9,17	10,24	12,28	22
2"	284	7,87	7,05	5,98	10,12	11,18	13,23	29
3"	284	7,87	8,03	7,5	11,1	12,17	14,21	37
4"	284	9,84	9,49	9	12,56	13,62	15,67	51
5"	284	9,84	10,55	10	13,62	14,69	16,73	60
6"	284	11,81	11,69	11	14,76	15,83	17,87	75

DN8"...24"

8"	284	13,78	14,25	13,5	17,32	18,39	20,43	95
10"	284	15,75	16,3	16	19,37	20,43	22,48	143
12"	284	19,69	18,78	19	21,85	22,91	24,96	207
14"	284	27,56	20,67	21	23,74	24,8	26,85	284
16"	284	31,5	22,95	23,5	26,02	27,09	29,13	364
18"	284	31,5	24,72	25	27,8	28,86	30,91	410
20"	284	31,5	26,97	27,5	30,04	31,1	33,15	492
24"	284	31,5	31,38	32	34,45	35,51	37,56	675

Pressures are applicable at 20 °C (68 °F)

For higher temperatures, the pressure and temperature ratings are as per ASME B16.5 (up to 24") or ASME B16.47 (>24")

Nominal size		Dimensions 150 lbs [mm]						Approx. weight
ASME	PN	L	H	W	T			[kg]
[inch]	[psi]				box	010	300	

DN1" ...6"

1"	284	150	137	108	215	242	294	8
1 1/2"	284	150	155	127	233	260	312	10
2"	284	200	179	152	257	284	336	13
3"	284	200	204	190,5	282	309	361	17
4"	284	250	241	228,6	319	346	398	23
5"	284	250	268	254	346	373	425	27
6"	284	300	297	279,4	375	402	454	34

DN8" ...24"

8"	284	350	362	342,9	440	467	519	43
10"	284	400	414	406,4	492	519	571	65
12"	284	500	477	482,6	555	582	634	94
14"	284	700	525	533,4	603	630	682	129
16"	284	800	583	596,9	661	688	740	165
18"	284	800	628	635	706	733	785	186
20"	284	800	685	698,5	763	790	842	223
24"	284	800	797	812,8	875	902	954	306

Pressures are applicable at 20 °C (68 °F)

For higher temperatures, the pressure and temperature ratings are as per ASME B16.5 (up to 24") or ASME B16.47 (>24")

Nominal size		Dimensions 300 lbs [inch]						Approx. weight
ASME	PN	L	H	W	T			[lbs]
[inch]	[psi]				box	010	300	

DN1"...6"

1"	741	5,91	5,71	4,87	8,78	9,84	11,89	18
1 1/2"	741	7,87	6,65	6,13	9,72	10,79	12,83	20
2"	741	9,84	7,32	6,5	10,39	11,46	13,5	29
3"	741	9,84	8,43	8,25	11,5	12,56	14,61	37
4"	741	11,81	10	10	13,07	14,13	16,18	51
6"	741	12,6	12,44	12,5	15,51	16,57	18,62	79

DN8"...24"

8"	741	15,75	15,04	15	18,11	19,17	21,22	157
10"	741	19,69	17,05	17,5	20,12	21,18	23,23	247
12"	741	23,62	20	20,5	23,07	24,13	26,18	375
14"	741	27,56	21,65	23	24,72	25,79	27,83	474
16"	741	31,5	23,98	25,5	27,05	28,11	30,16	639
20"	741	31,5	28,46	30,5	31,54	32,6	34,65	937
24"	741	31,5	33,39	36	36,46	37,52	39,57	1345

Pressures are applicable at 20 °C (68 °F)

For higher temperatures, the pressure and temperature ratings are as per ASME B16.5 (up to 24") or ASME B16.47 (>24")

Nominal size		Dimensions 300 lbs [mm]						Approx. weight
ASME	PN	L	H	W	T			[kg]
[inch]	[psi]				box	010	300	

DN1" ...6"

1"	741	150	145	123,8	223	250	302	8
1 1/2"	741	200	169	155,6	247	274	326	9
2"	741	250	186	165,1	264	291	343	13
3"	741	250	214	209,6	292	319	371	17
4"	741	300	254	254	332	359	411	23
6"	741	320	316	317,5	394	421	473	36

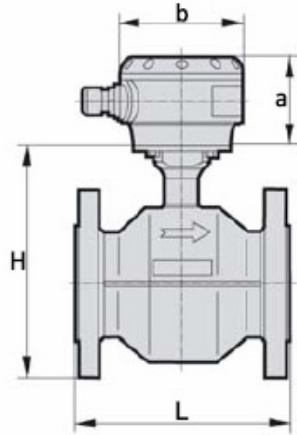
DN8" ...24"

8"	741	400	382	381	460	487	539	71
10"	741	500	433	444,5	511	538	590	112
12"	741	600	508	520,7	586	613	665	170
14"	741	700	550	584,2	628	655	707	215
16"	741	800	609	647,7	687	714	766	290
20"	741	800	723	774,7	801	828	880	425
24"	741	800	848	914,4	926	953	1005	610

Pressures are applicable at 20 °C (68 °F)

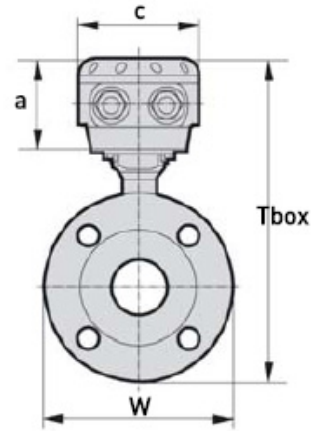
For higher temperatures, the pressure and temperature ratings are as per ASME B16.5 (up to 24") or ASME B16.47 (>24")

Frontview VersaFlow



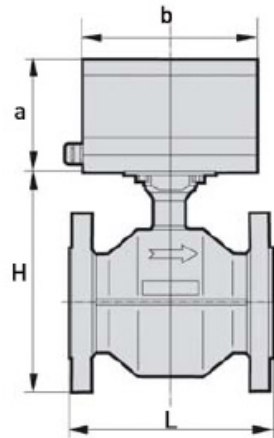
a = 77 mm / 3,1"
b = 111 mm / 4,4"

Sideview VersaFlow



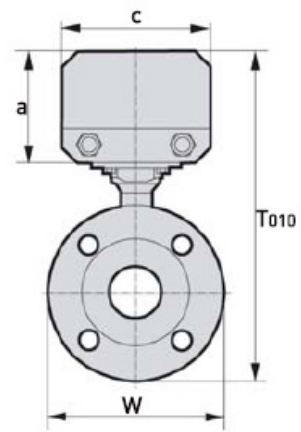
a = 77 mm / 3,1"
c = 106 mm / 4,2"

Frontview VersaFlow



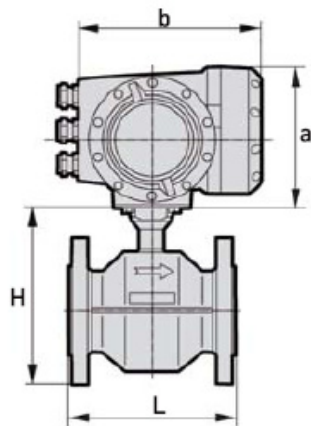
a = 105 mm / 4,2"
b = 160 mm / 6,3"

Sideview VersaFlow



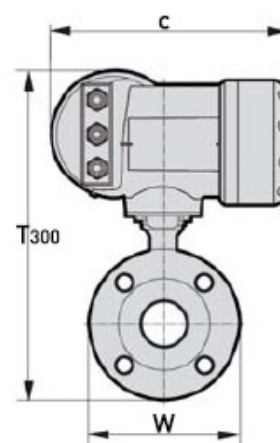
a = 105 mm / 4,2"
c = 140mm / 5,5"

Frontview VersaFlow



a = 155 mm / 6,1"
b = 202 mm / 7,8"

Sideview VersaFlow



c = 260 mm / 10,2"

Ordering Information

Contact your nearest Honeywell sales office, or

In the U.S.:

Honeywell Process Solutions
Honeywell International Inc
2500 West Union Hills Drive
Phoenix, AZ 85027 1-800-343-0228

In Europe and Africa:

Honeywell S. A.
Avenue du Bourget 1
1140 Brussels, Belgium

In Asia:

Honeywell Asia Pacific Inc.
Honeywell Building,
17 Changi Business Park Central 1
Singapore 486073
Republic of Singapore

In Canada:

The Honeywell Centre
155 Gordon Baker Rd.
North York, Ontario M2H 3N7
1-800-461-0013

In Eastern Europe:

Honeywell Praha,
s.r.o. Budejovicka 1
140 21 Prague 4,
Czech Republic

In the Pacific:

Honeywell Pty Ltd.
5 Thomas Holt Drive
North Ryde NSW Australia 2113
(61 2) 9353 7000

In Latin America:

Honeywell Inc.
480 Sawgrass Corporate Parkway,
Suite 200 Sunrise, FL 33325
(954) 845-2600

In the Middle East:

Honeywell Middle East Ltd.
Khalifa Street,
Sheikh Faisal Building
Abu Dhabi, U. A. E.

In Japan:

Honeywell K.K.
14-6 Shibaura 1-chrome
Minato-ku, Tokyo, Japan 105-0023

Or, visit Honeywell on the World Wide Web at: <http://www.honeywell.com/ps>
Specifications are subject to change without notice.