RIM20
Rotor Insertion Flowmeter

Description
The RIM20 multivariable insertion turbine flowmeter utilises **three primary sensing elements** to measure the mass flowrate of steam, liquids and gases:

- Turbine velocity sensor,
- RTD temperature sensor,
- Solid-state pressure transducer.

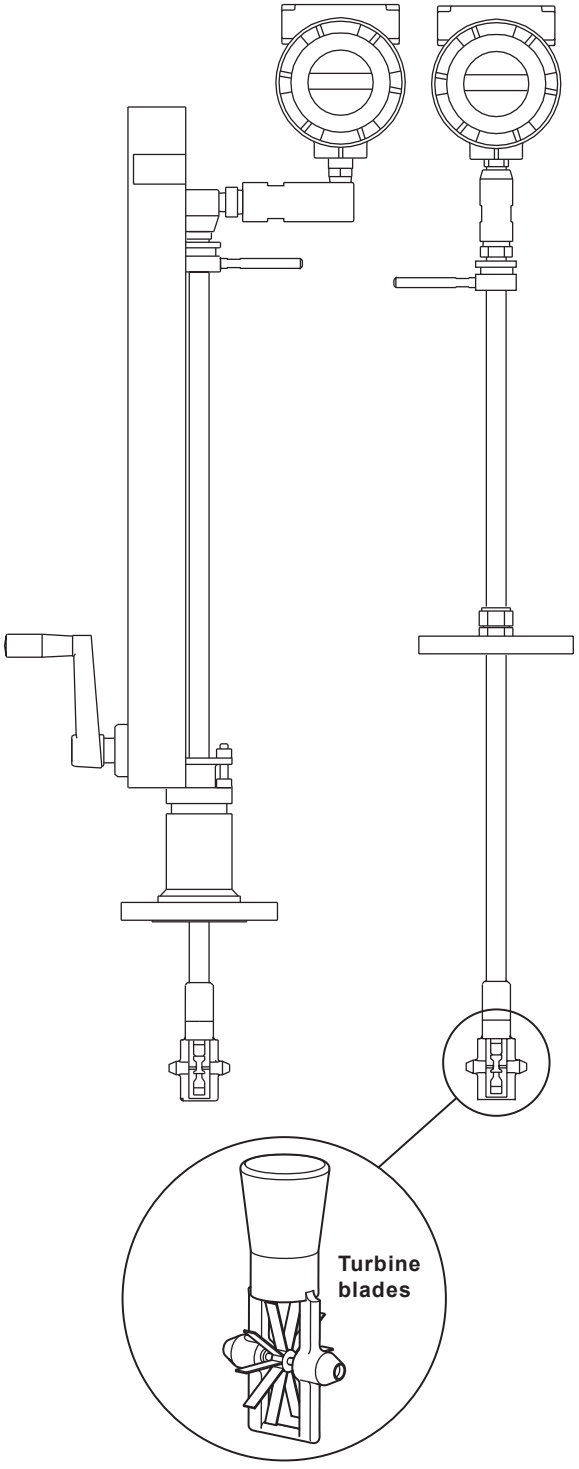
Principle of operation
Insertion turbine flowmeters measure flow of liquid, gas, and steam by detecting the frequency of rotation of the turbine blades. According to the proven laws of physics, the frequency at which the turbine rotates is directly proportional to the flow velocity.
Insertion turbine flowmeters measure flow by detecting the local velocity at a strategically located position within the pipe. The RIM20 detects the frequency within the sensor head. It uses the local velocity, along with other parameters such as fluid type, pipe size, and Reynolds Number to calculate the average pipe velocity, and consequently, the volumetric flowrate.

Compliance
- Electromagnetic Compatibility Directive
- Low Voltage Directive
- ATEX Directive

Approvals

FM and **FMC**	Class I, Division 1, Groups B, C and D	
	Class II/III, Division 1, Groups E, F and G	
	Type 4X and IP66, T6, Ta = -40 °C to +60 °C	
ATEX	**S** Temp.	II 2 G Ex db IIB + H2 T6…T2 Gb
		II 2 D Ex tb IIIB T85 °C Db
	H Temp.	II 2 G Ex db IIB + H2 85 °C…459 °C Gb
		II 2 D Ex tb IIIB T85 °C Db
IECEx	Ex d IIB +H2 T6 Gb	
	EX tb IIIB T85 °C Db, Ta= -40 °C to +60 °C	

Sizes
Insertion style mounting permits installation in any pipe DN80 (3") and greater.



RIM20 range and benefits

The **RIM20-V** delivers a direct reading of volumetric flowrate, generally the most cost-effective solution for liquid flow monitoring, in applications ranging from general water flows to hydrocarbon fuel flow measurement.

The **RIM20-VT** integrates a precision 1000 Ω platinum RTD temperature sensor that can be used to calculate and output a compensated mass reading. This device is typically used to measure flowrates of saturated steam.

The **RIM20-VTP** offers you flow computer functionality in a compact field device. This multivariable instrument incorporates temperature and pressure sensors to provide an instantaneous reading of the compensated mass flowrate of gases, liquids and steam. In addition to outputs for totalized mass and alarm settings, the field-configurable electronics deliver up to three analogue 4-20 mA outputs of five process measurements, including volumetric flowrate, mass flowrate, pressure, temperature and density.

The **RIM20-EM** Energy Monitoring option permits real-time calculation of energy consumption for a facility or process. The flowmeter can be programmed to measure steam, hot water or chilled water. The RIM20-VTP flowmeter monitors one side of the process, either sent or returned, and uses the input from a second separate temperature sensor on the opposite leg of the process to calculate the change in energy. Selectable energy units include BTUs, joules, calories, Watt-hours, Megawatt-hours and Horsepower-hours. The local or remote electronics indicate two temperatures, delta T, mass total and energy total.

Technical data

Wetted materials			316L, 302, and 17-4PH, and 18-8 stainless steel, tungsten carbide, sapphire, plus: • DuPont Teflon® based thread sealant on models with pressure transducer • DuPont Teflon® packing on standard temperature models with packing gland • Graphite based packing on high temperature models with packing gland		
Application			Any gas, liquid or steam compatible with 316L stainless steel and other listed wetted materials. Not recommended for multi-phase fluids		
Temperature	**Process**		**S** option - **Standard** -55 °C to +238 °C (-67 °F to +460 °F) *Where ATEX is required the lower temperature is further limited to -40 °C (-40 °F).		
			H option - **High** -267 °C to +454 °C (-448 °F to +850 °F) *Where ATEX is required the lower temperature is further limited to -40 °C (-40 °F).		
Environmental	**Temperature**	**Ambient**	**Operating** -40 °C to +60 °C (-40 °F to +140 °F)		
			Storage -40 °C to +85 °C (-40 °F to +185 °F)		
	LVD	Electrical Safety EN61010-1:2010			
		Overvoltage Category	II		
		Pollution Degree	2		
	EMC	Emissions	Group 1, Class A (Suitable for Industrial Environments only)		
		Immunity	Suitable for Industrial Environments		
	Enclosure	NEMA 4X, IP66			

Pressure transducer ratings	**Full-scale operating pressure**		**Maximum over-range pressure**	
	2 bar a	30 psi a	4 bar a	60 psi a
	7 bar a	100 psi a	14 bar a	200 psi a
	20 bar a	300 psi a	41 bar a	600 psi a
	34 bar a	500 psi a	69 bar a	1000 psi a
	100 bar a	1500 psi a	175 bar a	2500 psi a

Technical data (continued)

Pressure ratings	**Style connection**	**Connection/Rating**
	Compression fitting	2" Male NPT ASME Class 600
		2" ASME B16.5 Class 150 or DN50 EN1092-1 PN16
		2" ASME B16.5 Class 300 or DN50 EN1092-1 PN40
		2" ASME B16.5 Class 600 or DN50 EN1092-1 PN63
	Packing gland	2" Male NPT ASME Class 300
		2" ASME B16.5 Class 150 or DN50 EN1092-1 PN16
		2" ASME B16.5 Class 300 or DN50 EN1092-1 PN40
	Packing gland and Permanent retractor	2" Male NPT ASME Class 600
		2" ASME B16.5 Class 150 or DN50 EN1092-1 PN16
		2" ASME B16.5 Class 300 or DN50 EN1092-1 PN40
		2" ASME B16.5 Class 600 or DN50 EN1092-1 PN63
Power requirements	**DL** option - 12 to 36 Vdc, 25 mA, 1 W maximum, Loop powered (single output)	
	DH option - 12 to 36 Vdc, 300 mA, 9 W maximum, (multiple outputs)	
	AC option - 100 to 240 Vac, 50/60 Hz line power, 5 W maximum (multiple outputs)	
Display	Alphanumeric 2 line x 16 character LCD digital display	
	Six pushbuttons for full field configuration	
	Pushbuttons can be operated with magnetic wand without removal of the enclosure covers	
	Display can be mounted in 90° intervals for better viewing	
Output signals	**Analogue**	4 - 20 mA
	Alarm	Solid state relay, 40 Vdc
	Totalizer pulse	50 millisecond pulse, 40 Vdc
	Volumetric or Loop powered mass	One analogue, one totalizer pulse, HART®, scaled frequncy output
	Multivariable option 1	Up to three analogue signals, three alarms, one totalizer pulse, HART®, scaled frequency output
	Multivariable option 2	Modus RTU or BACnet MS/TP compatible process monitoring

Performance specifications

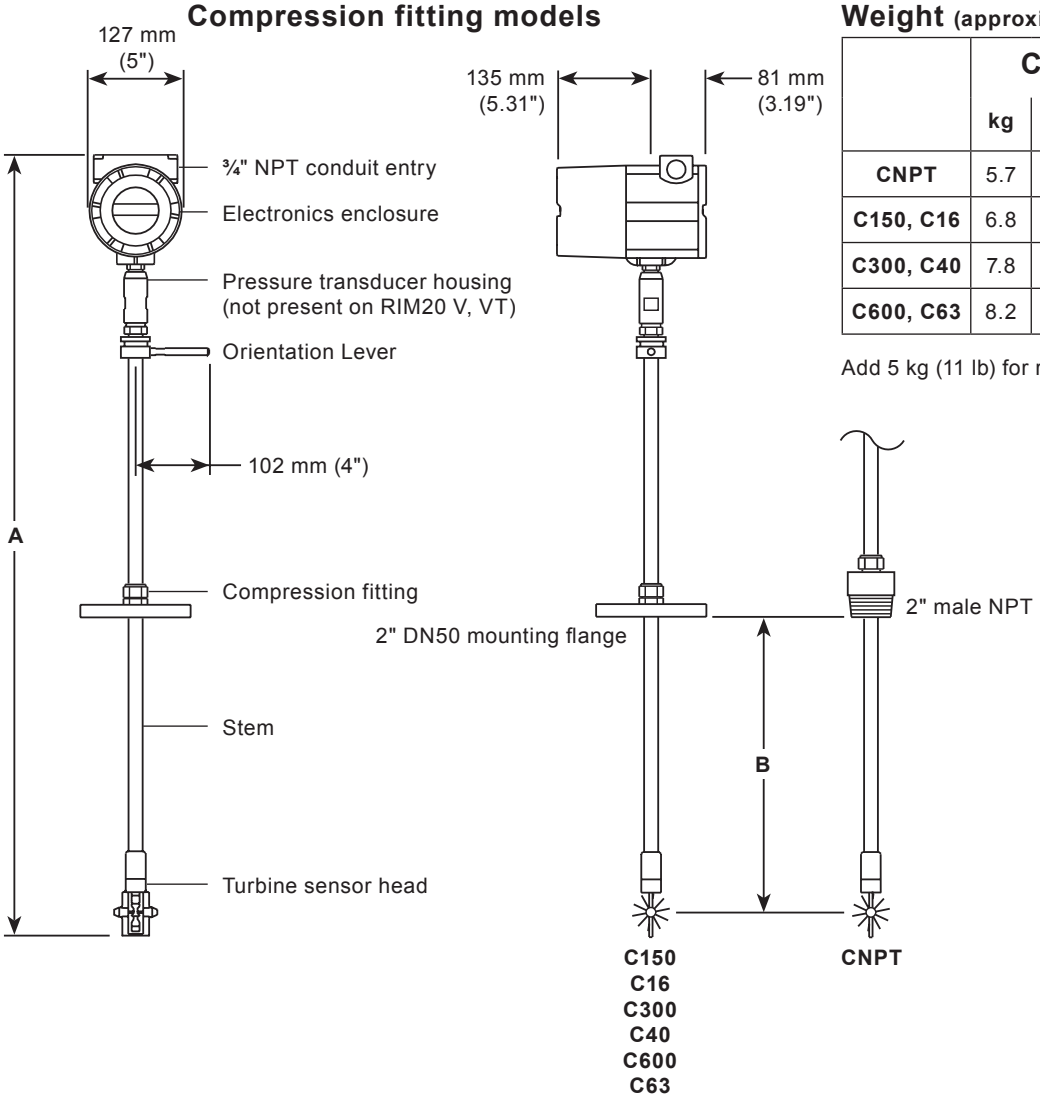
Accuracy		Mass flowrate accuracy for gas and steam based on 50 - 100% of pressure range			
Process variables		**Liquids**	**Gas and steam**	**Repeatability**	**Stability over 12 months**
	Volumetric flowrate	± 1.2% of rate	± 1.5% of rate	± 0.1% of rate	± Negligible
	Mass flowrate	± 1.5% of rate	± 2.0% of rate	± 0.2% of rate	± 0.2% of rate
	Temperature	± 1.0 °C (± 2.0 °F)	± 1.0 °C (± 2.0 °F)	± 1.0 °C (± 2.0 °F)	± 0.5 °C (± 0.9 °F)
	Pressure	± 0.3% of full-scale	± 0.3% of full-scale	± 0.05% of full-scale	± 0.1% of full-scale
	Density	± 0.3% of reading	± 0.5% of reading	± 0.1% of reading	± 0.1% of reading
Response time		Adjustable from 1 to 100 seconds			

Dimensions (approximate) in mm and inches

RIM20 V and VT	C Compact Length				S Standard Length				E Extended Length			
	A		B (max)		A		B (max)		A		B (max)	
	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches
Compression fitting, Male NPT	536	21.1	229	9.0	953	37.5	645	25.4	1257	49.5	950	37.4
Compression fitting, 150 lb, PN16	536	21.1	257	10.1	953	37.5	673	26.5	1257	49.5	978	38.5
Compression fitting, 300 lb, PN40	536	21.1	254	10.0	953	37.5	671	26.4	1257	49.5	975	38.4
Compression fitting, 600 lb, PN63	536	21.1	244	9.6	953	37.5	660	26.0	1257	49.5	965	38.0

RIM20 VTP	C Compact Length				S Standard Length				E Extended Length			
	A		B (max)		A		B (max)		A		B (max)	
	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches
Compression fitting, Male NPT	612	24.1	229	9.0	1029	40.5	645	25.4	1334	52.5	950	37.4
Compression fitting, 150 lb, PN16	612	24.1	257	10.1	1029	40.5	673	26.5	1334	52.5	978	38.5
Compression fitting, 300 lb, PN40	612	24.1	254	10.0	1029	40.5	671	26.4	1334	52.5	975	38.4
Compression fitting, 600 lb, PN63	612	24.1	244	9.6	1029	40.5	660	26.0	1334	52.5	965	38.0

Compression fitting models



Weight (approximate) in kg and lbs

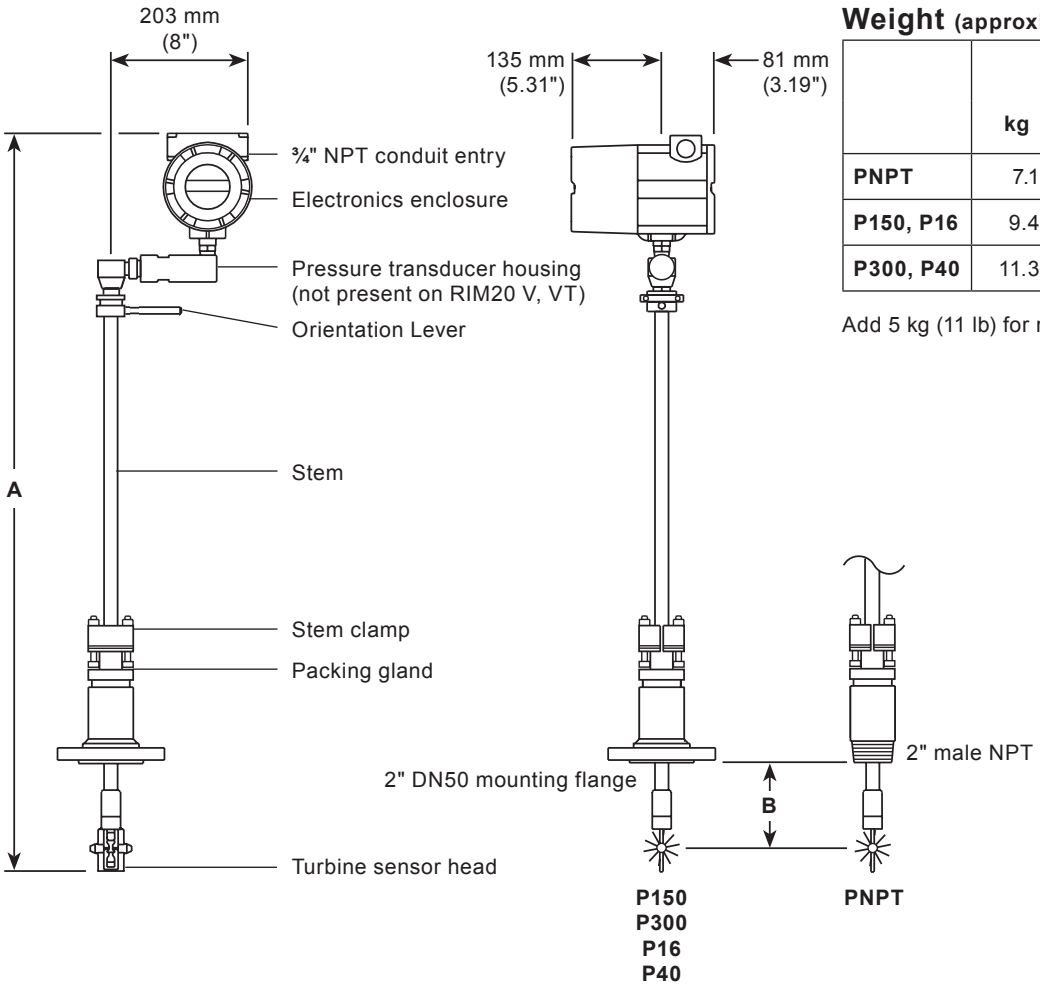
	C		S		E	
	kg	lbs	kg	lbs	kg	lbs
CNPT	5.7	13	6.2	14	6.7	15
C150, C16	6.8	15	7.3	16	7.8	17
C300, C40	7.8	17	8.3	18	8.8	19
C600, C63	8.2	18	8.7	19	9.2	20

Add 5 kg (11 lb) for remote electronics

Dimensions (approximate) in mm and inches

RIM20 V, VT and VTP	S Standard Length				E Extended Length			
	A		B (max)		A		B (max)	
	mm	inches	mm	inches	mm	inches	mm	inches
Packing gland, Male NPT	1 016	40.0	526	20.7	1321	52.0	831	32.7
Packing gland, 150 lb, PN16	1 016	40.0	516	20.3	1321	52.0	820	32.3
Packing gland, 300 lb PN40								

Packing gland models - Please note that a removable retractor can be used with these models

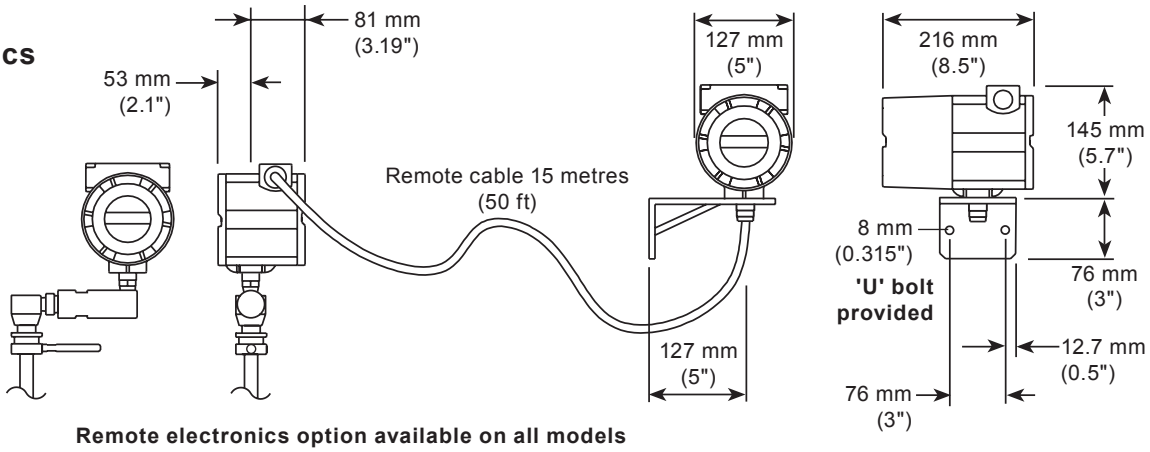


Weight (approximate) in kg and lbs

	S		E	
	kg	lbs	kg	lbs
PNPT	7.1	16	7.6	17
P150, P16	9.4	21	9.9	22
P300, P40	11.3	25	11 .8	26

Add 5 kg (11 lb) for remote electronics

Remote electronics option

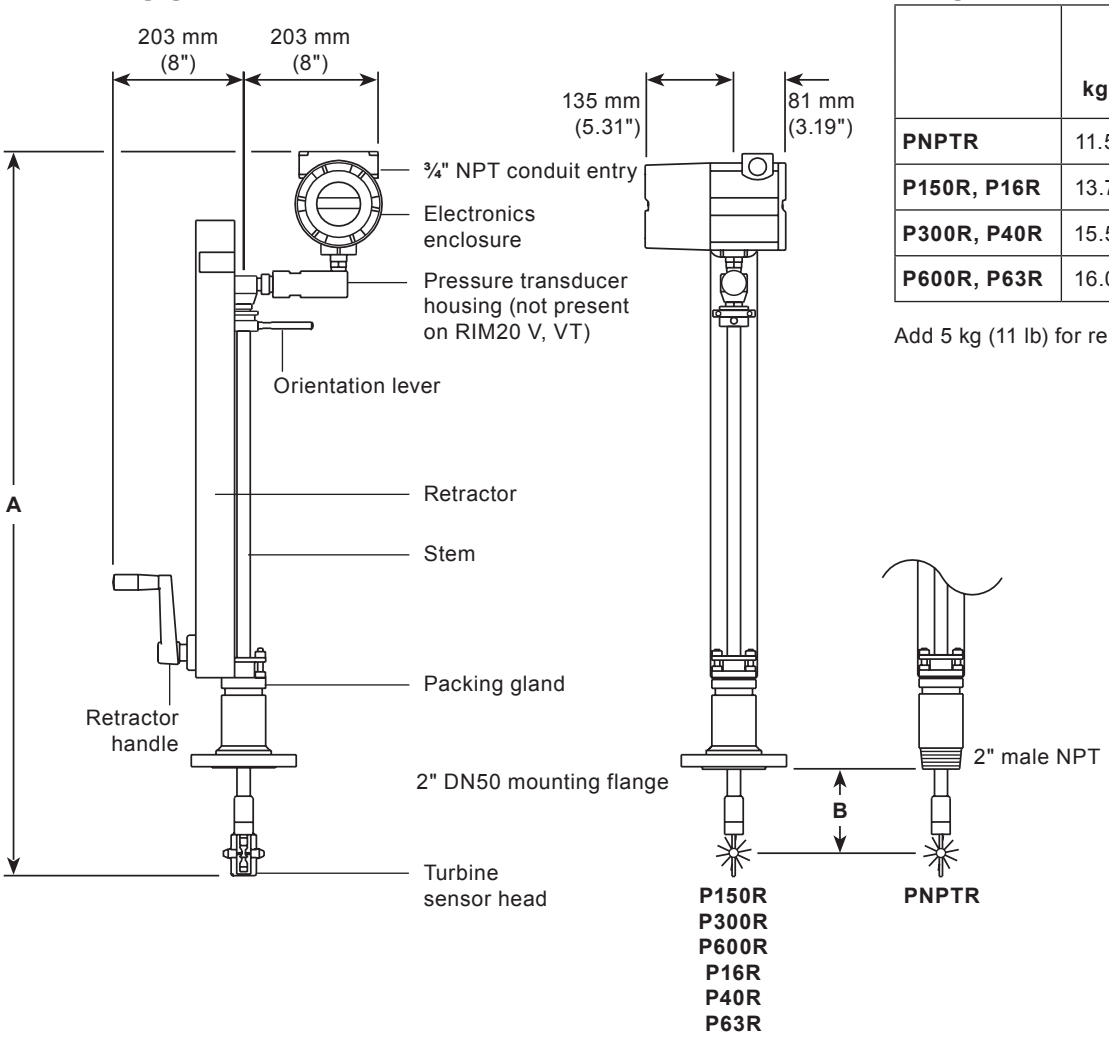


Remote electronics option available on all models

Dimensions (approximate) in mm and inches

RIM20 V, VT and VTP with permanent retractor	S Standard Length				E Extended Length			
	A		B (max)		A		B (max)	
	mm	inches	mm	inches	mm	inches	mm	inches
Packing gland, Male NPT	1 016	40.0	526	20.7	1321	52.0	831	32.7
Packing gland, 150 lb, PN16	1 016	40.0	516	20.3	1321	52.0	820	32.3
Packing gland, 300 lb, PN40								
Packing gland, 600 lb, PN63								

Packing gland models with permanent retractor



Weight (approximate) in kg and lbs

	S		E	
	kg	lbs	kg	lbs
PNPTR	11.5	25	14.5	32
P150R, P16R	13.7	30	16.7	37
P300R, P40R	15.5	34	18.5	41
P600R, P63R	16.0	35	19.0	42

Add 5 kg (11 lb) for remote electronics

Typical Metric flowrates

Saturated steam (kg/h)

Rotor	Pressure		Nominal pipe size					
			80 mm	150 mm	200 mm	300 mm	400 mm	600 mm
R40	1.4 bar g	Minimum	17	72	127	297	491	1 219
		Maximum	225	929	1 642	3 817	6 270	15 367
	5 bar g	Minimum	42	173	306	713	1 176	2 907
		Maximum	537	2 216	3 915	9 090	14 905	36 400
	10 bar g	Minimum	75	310	549	1 279	2 106	5 194
		Maximum	962	3 963	6 999	16 239	26 600	64 815
R30	1.4 bar g	Minimum	20	82	146	341	563	1 396
		Maximum	329	1 358	2 399	5 575	9 149	22 384
	5 bar g	Minimum	48	198	350	817	1 347	3 328
		Maximum	785	3 237	5 716	13 265	21 735	52 993
	10 bar g	Minimum	86	355	629	1 465	2 411	5 943
		Maximum	1 405	5 786	10 215	23 687	38 771	94 337
R20	1.4 bar g	Minimum	35	146	259	604	995	2 463
		Maximum	530	2 187	3 863	8 968	14 704	35 898
	5 bar g	Minimum	85	350	620	1 444	2 377	5 856
		Maximum	1 265	5 207	9 194	21 322	34 903	84 940
	10 bar g	Minimum	152	628	1 111	2 586	4 252	10 448
		Maximum	2 261	9 303	16 419	38 049	62 227	151 156
R10	1.4 bar g	Minimum	61	253	448	1 045	1 721	4 247
		Maximum	1 098	4 522	7 985	18 520	30 320	73 805
	5 bar g	Minimum	147	606	1 072	2 496	4 103	10 082
		Maximum	2 615	10 755	18 979	43 967	71 883	174 497
	10 bar g	Minimum	263	1 087	1 921	4 466	7 335	17 975
		Maximum	4 672	19 197	33 862	78 386	128 050	310 382

Typical Imperial flowrates are on pages 9 and 10

Typical Metric flowrates

Air (nm^3/h) at 20 °C

Rotor	Pressure		Nominal pipe size					
			80 mm	150 mm	200 mm	300 mm	400 mm	600 mm
R40	1.4 bar g	Minimum	12	49	87	204	337	838
		Maximum	154	639	1 130	2 628	4 320	10 607
	5 bar g	Minimum	74	305	540	1 259	2 072	5 107
		Maximum	946	3 898	6 884	15 969	26 152	63 694
	10 bar g	Minimum	137	567	1 002	2 332	3 835	9 423
		Maximum	1 751	7 205	12 718	29 476	48 216	117 169
R30	1.4 bar g	Minimum	14	56	100	234	386	960
		Maximum	226	934	1 651	3 839	6 306	15 455
	5 bar g	Minimum	84	350	619	1 441	2 373	5 844
		Maximum	1 382	5 690	10 046	23 290	38 115	92 698
	10 bar g	Minimum	157	649	1 148	2 671	4 390	10 779
		Maximum	2 556	10 511	18 548	42 965	70 237	170 473
R20	1.4 bar g	Minimum	24	100	178	415	684	1 696
		Maximum	365	1 505	2 660	6 179	10 139	24 794
	5 bar g	Minimum	150	618	1 094	2 544	4 182	10 271
		Maximum	2 224	9 149	16 145	37 407	61 166	148 520
	10 bar g	Minimum	278	1 146	2 026	4 709	7 731	18 929
		Maximum	4 110	16 888	29 789	68 956	112 643	273 032
R10	1.4 bar g	Minimum	42	174	308	718	1 184	2 927
		Maximum	756	3 115	5 502	12 768	20 919	50 995
	5 bar g	Minimum	259	1 069	1 890	4 393	7 214	17 668
		Maximum	4 595	18 874	33 290	77 048	125 842	304 938
	10 bar g	Minimum	480	1 980	3 499	8 125	13 323	32 541
		Maximum	8 481	34 799	61 349	141 871	231 535	560 318

Typical Imperial flowrates

Saturated steam (lb/h)

Rotor	Pressure		Nominal pipe size					
			3"	6"	8"	12"	16"	24"
R40	5 psi g	Minimum	22	91	162	378	625	1555
		Maximum	287	1187	2098	4883	8029	19727
	100 psi g	Minimum	119	496	878	2046	3371	8328
		Maximum	1540	6350	11216	26034	42668	104092
	200 psi g	Minimum	220	913	1615	3761	6191	15249
		Maximum	2827	11643	20558	47681	78064	190027
R30	5 psi g	Minimum	25	105	186	434	717	1782
		Maximum	420	1735	3068	7135	11721	28745
	100 psi g	Minimum	137	568	1006	2344	3861	9530
		Maximum	2251	9272	16373	37984	62207	151526
	200 psi g	Minimum	253	1046	1850	4308	7088	17446
		Maximum	4129	16994	29996	69532	113761	276542
R20	5 psi g	Minimum	45	186	330	770	1270	3150
		Maximum	677	2797	4943	11485	18849	46119
	100 psi g	Minimum	243	1005	1778	4140	6811	16762
		Maximum	3623	14915	26328	61035	99870	242834
	200 psi g	Minimum	447	1848	3268	7601	12492	30657
		Maximum	6643	27317	48203	111658	182535	443035
R10	5 psi g	Minimum	78	323	572	1334	2199	5440
		Maximum	1405	5790	10227	23736	38897	94870
	100 psi g	Minimum	421	1739	3075	7153	11755	28849
		Maximum	7490	30791	54325	125807	205605	498759
	200 psi g	Minimum	774	3195	5647	13123	21541	52728
		Maximum	13719	56341	99362	229926	375467	909528

Typical Imperial flowrates

Air (SCFM) at 70 °F

Rotor	Pressure		Nominal pipe size					
			3"	6"	8"	12"	16"	24"
R40	5 psi g	Minimum	7	31	55	129	213	529
		Maximum	98	404	714	1660	2729	6702
	100 psi g	Minimum	62	255	451	1051	1730	4257
		Maximum	790	3252	5741	13313	21791	53019
	200 psi g	Minimum	117	484	857	1992	3273	8031
		Maximum	1494	6146	10846	25128	41083	99739
R30	5 psi g	Minimum	9	36	63	148	244	606
		Maximum	143	590	1043	2426	3984	9765
	100 psi g	Minimum	71	292	517	1204	1980	4871
		Maximum	1153	4746	8376	19412	31753	77152
	200 psi g	Minimum	134	555	981	2281	3747	9186
		Maximum	2181	8964	15814	36617	59832	145094
R20	5 psi g	Minimum	15	63	112	262	432	1071
		Maximum	230	951	1680	3904	6406	15665
	100 psi g	Minimum	125	517	913	2124	3489	8557
		Maximum	1855	7628	13458	31168	50942	123591
	200 psi g	Minimum	237	979	1730	4020	6595	16126
		Maximum	3506	14397	25389	58747	95927	232348
R10	5 psi g	Minimum	26	110	195	454	748	1849
		Maximum	478	1968	3476	8067	13217	32219
	100 psi g	Minimum	216	893	1578	3666	6016	14715
		Maximum	3831	15728	27734	64166	104762	253698
	200 psi g	Minimum	410	1691	2987	6933	11362	27714
		Maximum	7230	29650	52259	120804	197092	476732

Typical Imperial flowrates are on pages 7 and 8

Water flowrates

Size		m³/hr		GPM	
		Minimum	Maximum	Minimum	Maximum
Nominal pipe size	80 mm 3"	2.62	157	12	691
	150 mm 6"	12.30	614	54	2701
	200 mm 8"	24.80	1062	109	4678
	300 mm 12"	56.00	2402	247	10575
	400 mm 16"	87.60	3753	386	16524
	600 mm 24"	199.00	8538	877	37590

Sizing considerations

D = Internal diameter of the pipe -
If there is not a sufficient straight run of pipe, a flow rectifier may be used to reduce the above diameter measurements. Consult your local Spirax Sarco representative or the factory for your specific application.

		Straight run piping requirements	Upstream	Downstream
Piping conditions		One 90° elbow before the flowmeter	10 D	5 D
		Two 90° elbows before the flowmeter	15 D	5 D
		Two 90° elbows out of plane before the flowmeter	30 D	5 D
		Reduction before the flowmeter	10 D	5 D
		Expansion before the flowmeter	20 D	5 D
		Partially open valve	30 D	5 D
Velocity range	Liquid	Maximum 9 metres/second (30 feet/second)		
		Minimum 0.15 metres/second (0.5 feet/second)		
	Gas or steam	Maximum 13 to 62 metres/second (43 to 205 feet/second) depending on rotor pitch		
		Minimum 1 to 3.7 metres/second (3.5 to 12 feet/second) depending on rotor pitch		

Other installation considerations

Mounting position: The RIM20 may be installed in vertical, horizontal, or angled pipe sections. The flowmeter is attached perpendicular to the axis of the pipe and should not be mounted 'upside-down' (with its top section hanging below the pipe mount). For liquid service, the fluid must completely fill the pipe.

Site selection: The flow measurement location should be selected to minimize turbulence and swirl. The extent of these flow disturbances depends upon the piping configuration. Valves, elbows, pumps, and other piping components may add disturbances to the flow.

Hot-tap compatibility: With the removable or permanent retractor assembly the RIM20 is 'hot-tappable' and can be installed and removed without shutting down the process. An isolation valve with a pipe mounting kit is used to isolate the flowmeter from the process.

Accessories

Removable retractor

For models without a permanent retractor, one removable retractor must be used if the process pressure is >3.4 bar g (50 psi g).

Removable retractor options	Removable retractor		
	Extended length removable retractor – For use with extended length probes		
How to order example: 1 off Spirax Sarco RIM20 - Removable retractor.			
Replacement rotors	Rotor spares	Rotor assembly, liquid, 40° pitch	L40
		Rotor assembly, steam/gas, 10° pitch	R10
		Rotor assembly, steam/gas, 15° pitch	R15
		Rotor assembly, steam/gas, 20° pitch	R20
		Rotor assembly, steam/gas, 25° pitch	R25
		Rotor assembly, steam/gas, 30° pitch	R30
		Rotor assembly, steam/gas, 40° pitch	R40
How to order example: 1 off Spirax Sarco RIM20 - L40 – Rotor Assembly.			

How to order

Selection:

Category	Description	Suffix code	Grey = Standard
Flowmeter	Insertion multivariable mass turbine flowmeter	**RIM20**	**RIM20**
Electronics	Volumetric flowmeter for liquid	**V**	**V**
	Velocity and temperature sensors	**VT**	
	Velocity, temperature and pressure sensors	**VTP**	
	Velocity, temperature and external 4 - 20 mA pressure input	**VTEP**	
	Velocity, external RTD temperature input, external 4 - 20 mA pressure input	**VETEP**	
	Energy output options	**VTEM**	
	Energy options with pressure sensor	**VTPEM**	
	Energy options, velocity, temperature and external 4 - 20 mA pressure input	**VTEPEM**	
	Energy options, velocity, external RTD temperature input, external 4 - 20 mA pressure input	**VETEPEM**	
Probe length	Standard length	**S**	**S**
	Compact length - Only available for compression fitting connections CNPT, C150, C300, C600, C16, C40 and C63	**C**	
	Extended length	**E**	
Electronics enclosure mounting	Local mount NEMA 4X, IP66 Enclosure	**L**	**L**
	Remote electronics NEMA 4X, IP66 25' cable with display - (not suitable for ATEX/IECEx)	**R25**	
	25' (7.6 m) armored cable with glands 'V' flowmeter only	**A25**	
	25' (7.6 m) armored cable with glands 'VT', 'VTP' flowmeter only	**A25P**	
	Remote electronics NEMA 4X, IP66 50' cable with display - (not suitable for ATEX/IECEx)	**R50**	
	50' (15.2 m) armored cable with glands 'V' flowmeter only	**A50**	
	50' (15.2 m) armored cable with glands 'VT', 'VTP' flowmeter only	**A50P**	
Display	Digital display and programming buttons	**D**	**D**
Power supply	12 - 36 Vdc, 25 mA, 1 W maximum required on loop powered flowmeters, 1HL only	**DL**	**DL**
	12 - 36 Vdc, 300 mA, 9 W maximum - use with 1H, 1M, 1B, 3H, 3M, 3B	**DH**	
	100 - 240 Vac, 50/60 Hz line power, 5 W maximum - use with 1H, 1M, 1B, 3H, 3M, 3B	**AC**	
Output signal Inclusive of the scaled frequency output	Loop powered option - one analogue output (4 - 20 mA), one alarm, one pulse, HART®, DL input power only	**1HL**	**1HL**
	One analogue output (4 - 20 mA), one alarm, one pulse, HART® communication protocol, DH or AC option only	**1H**	
	One analogue output (4 - 20 mA), one alarm, one pulse, MODBUS communication protocol, DH or AC option only	**1M**	
	One analogue output (4 - 20 mA), one alarm, one pulse, BACnet communication protocol, DH or AC option only	**1B**	
	Three analogue outputs (4 - 20 mA), three alarms, one pulse, HART® ('VT', 'VTP' only), DH or AC option only	**3H**	
	Three analogue outputs (4 - 20 mA), three alarms, one pulse, MODBUS ('VT', 'VTP' only), DH or AC option only	**3M**	
	Three analogue outputs (4 - 20 mA), three alarms, one pulse, BACnet ('VT', 'VTP' only), DH or AC option only	**3B**	
Process temperature	Standard temperature Process temperature -55 °C to 238 °C -67 °F to 460 °F	**S**	**S**
	High temperature Process temperature -267 °C to 454 °C -448 °F to 850 °F	**H**	

Further temperature limitations are applicable where ATEX is required.

How to order

Selection:

Pressure sensor	No pressure sensor			**P0**	**P0**
	Maximum 2 bar a 30 psi a Proof 4 bar a 60 psi a			**P1**	
	Maximum 7 bar a 100 psi a Proof 14 bar a 200 psi a			**P2**	
	Maximum 20 bar a 300 psi a Proof 41 bar a 600 psi a			**P3**	
	Maximum 34 bar a 500 psi a Proof 69 bar a 1 000 psi a			**P4**	
	Maximum 100 bar a 1 500 psi a Proof 175 bar a 2 500 psi a			**P5**	
Process connections	Compression, 2" NPT	**CNPT**	Packing gland, 2" NPT, retractor (use with E probe)	**PNPTR-E**	**PNPTR**
	Compression, 2" ASME 150 flange	**C150**	Packing gland, 2" ASME 150 flange, retractor	**P150R**	
	Compression, DN50 PN16 flange	**C16**	Packing gland, 2" ASME 150 flange, retractor (E probe)	**P150R-E**	
	Compression, 2" ASME 300 flange	**C300**	Packing gland, DN50 PN16 flange, retractor	**P16R**	
	Compression, DN50 PN40 flange	**C40**	Packing gland, DN50 PN16 flange, retractor (E probe)	**P16R-E**	
	Compression, 2" ASME 600 flange	**C600**	Packing gland, 2" ASME 300 flange, retractor	**P300R**	
	Compression, DN50 PN63 flange	**C63**	Packing gland, 2" ASME 300 flange, retractor (E probe)	**P300R-E**	
	Packing gland*, 2" NPT	**PNPT**	Packing gland, DN50 PN40 flange, retractor	**P40R**	
	Packing gland*, 2" ASME 150 flange	**P150**	Packing gland, DN50 PN40 flange, retractor (E probe)	**P40R-E**	
	Packing gland*, DN50 PN16 flange	**P16**	Packing gland, 2" ASME 600 flange, retractor	**P600R**	
	Packing gland*, 2" ASME 300 flange	**P300**	Packing gland, 2" ASME 600 flange, retractor (E probe)	**P600R-E**	
	Packing gland*, DN50 PN40 flange	**P40**	Packing gland, DN50 PN63 flange, retractor	**P63R**	
	Packing gland, 2" NPT, retractor	**PNPTR**	Packing gland, DN50 PN63 flange, retractor (E probe)	**P63R-E**	
	* One removable retractor must be ordered if the process pressure is >3.4 bar g (50 psi g).				
Approvals	FM/FMC and CE marked			**S**	**S**
	ATEX/IECEx/FM/FMC and CE marked			**A**	
Rotor options	Gas or Steam Vmin = 1.07 m/s (3.5 ft/sec) Vmax = 13.1 m/s (43 ft/sec) 40° pitch			**R40**	**R40**
	Gas or Steam Vmin = 1.2 m/s (4.0 ft/sec) Vmax = 19.0 m/s (62.5 ft/sec) 30° pitch			**R30**	
	Gas or Steam Vmin = 1.5 m/s (5.0 ft/sec) Vmax = 24.4 m/s (80 ft/sec) 25° pitch			**R25**	
	Gas or Steam Vmin = 2.1 m/s (7.0 ft/sec) Vmax = 30.5 m/s (100 ft/sec) 20° pitch			**R20**	
	Gas or Steam Vmin = 2.6 m/s (8.5 ft/sec) Vmax = 41.0 m/s (134.6 ft/sec) 15° pitch			**R15**	
	Gas or Steam Vmin = 3.7 m/s (12.0 ft/sec) Vmax = 62.5 m/s (205 ft/sec) 10° pitch			**R10**	
	Liquid Vmin = 0.3 m/s (1.0 ft/sec) Vmax = 9.1 m/s (30 ft/sec) 40° pitch			**L40**	

Selection example: **RIM20** - **V** - **S** - **L** - **D** - **DL** - **1HL** - **S** - **P0** - **PNPTR** - **S** - **R40**

How to order example: 1 off Spirax Sarco RIM20 - V - S - L - D - DL -1HL - S - P0 - PNPTR - S -R40 rotor insertion flowmeter.