

## RIM20 Rotor Insertion Flowmeter

### Description

The RIM20 multivariable insertion turbine flowmeter utilizes **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.

### 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  $\Omega$  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.

### Approvals

<b>FM and FMC</b>	Class I, Division 1, Groups B, C and D
	Class II/III, Division 1, Groups E, F and G
<b>ATEX</b>	Type 4X and IP66, T6, Ta = -40°C to +60°C
	II 2 G Ex d IIB + H2 T6
<b>IECEX</b>	II 2 D EX tD A21 IP66 T85°C, Ta = -40°C to +60°C
	Ex d IIB + H2 T6
	Ex tD A21 IP66 T85°C, Ta = -40°C to +60°C



## Technical data

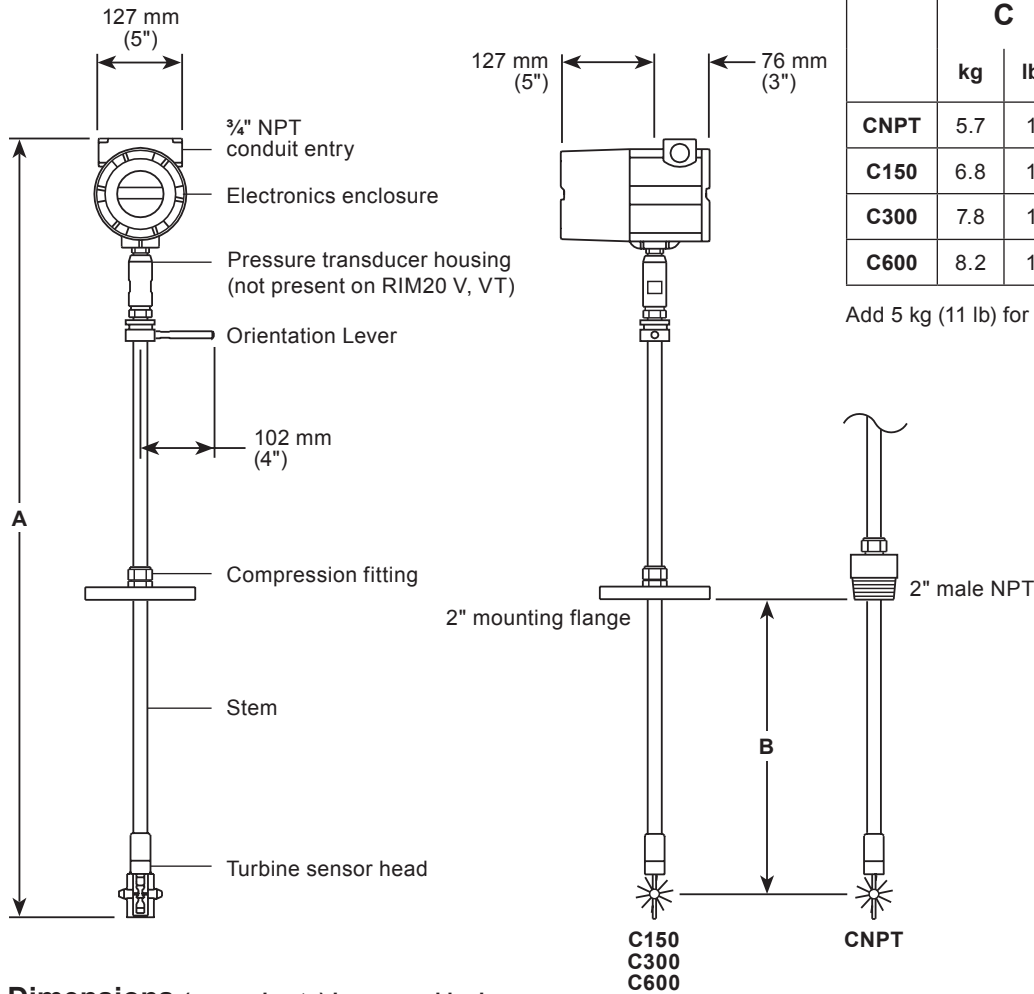
<b>Wetted materials</b>	316L, 302, and 17-4PH, and 18-8 stainless steel, tungsten carbide, sapphire, plus: <ul style="list-style-type: none"> <li>• DuPont Teflon® based thread sealant on models with pressure transducer</li> <li>• DuPont Teflon® packing on standard temperature models with packing gland</li> <li>• Graphite based packing on high temperature models with packing gland</li> </ul>			
<b>Application</b>	Any gas, liquid or steam compatible with 316L stainless steel and other listed wetted materials. Not recommended for multi-phase fluids			
<b>Temperature</b>	<b>Process</b>	<b>S option - Standard</b>	-55°C to +238°C	-67°F to +450°F
		<b>H option - High</b>	-267°C to +454°C	-488°F to +850°F
	<b>Ambient</b>	<b>Operating</b>	-40°C to +60°C	-40°F to +140°F
		<b>Storage</b>	-40°C to +85°C	-40°F to +185°F
<b>Pressure transducer ratings</b>	<b>Full-scale operating pressure</b>		<b>Maximum over-range pressure</b>	
	2 bar a	30 psi a	24 bar a	60 psi a
	7 bar a	100 psi a	14 bar a	200 psi a
	20 bar a	300 psi a	40 bar a	600 psi a
	35 bar a	500 psi a	70 bar a	1000 psi a
	100 bar a	1500 psi a	175 bar a	2500 psi a
<b>Pressure ratings</b>	<b>Style connection</b>	<b>Process</b>	<b>Rating code</b>	<b>Ordering</b>
	<b>Compression fitting</b>	2" Male NPT	ASME 600 lb	CNPT
		2" 150 lb flange	ASME 150 lb	C150
		2" 300 lb flange	ASME 300 lb	C300
		2" 600 lb flange	ASME 600 lb	C600
	<b>Packing gland</b>	2" Male NPT	3.5 bar g	PNPT
		2" 150 lb flange		P150
		2" 300 lb flange	50 psi g	P300
	<b>Packing gland and Removable retractor</b>	2" Male NPT	ASME 600 lb	PNPT and RR
		2" 150 lb flange	ASME 150 lb	P150 and RR
		2" 300 lb flange	ASME 300 lb	P300 and RR
	<b>Packing gland and Permanent retractor</b>	2" Male NPT	ASME 600 lb	PNPTR
2" 150 lb flange		ASME 150 lb	P150R	
2" 300 lb flange		ASME 300 lb	P300R	
2" 600 lb flange		ASME 600 lb	P600R	
<b>Power requirements</b>	<b>DL option</b> - 12 to 36 Vdc, 25 mA, 1 W maximum, Loop powered (single output)			
	<b>DH option</b> - 12 to 36 Vdc, 300 mA, 9 W maximum, Loop powered (multiple outputs)			
	<b>AC option</b> - 100 to 240 Vac, 50/60 Hz line power, 5 W maximum (multiple outputs)			
<b>Display</b>	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			
<b>Output signals</b>	<b>Analogue</b>	4-20 mA		
	<b>Alarm</b>	Solid state relay, 40 Vdc		
	<b>Totalizer pulse</b>	50 millisecond pulse, 40 Vdc		
	<b>Volumetric or Loop powered mass</b>	One analogue, one totalizer pulse, HART®, scaled frequency output		
	<b>Multivariable option 1</b>	Up to three analogue signals, three alarms, one totalizer pulse, HART®, scaled frequency output		
	<b>Multivariable option 2</b>	Modbus RTU or BACnet MS/TP compatible process monitoring		

## Performance specifications

<b>Accuracy</b>	Mass flowrate accuracy for gas and steam based on 50-100% of pressure range			
<b>Process variables</b>	<b>Liquids</b>	<b>Gas and steam</b>	<b>Repeatability</b>	<b>Stability over 12 months</b>
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
<b>Response time</b>	Adjustable from 1 to 100 seconds			

**Dimensions and weights (approximate) in mm and inches**

**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	6.8	15	7.3	16	7.8	17
C300	7.8	17	8.3	18	8.8	19
C600	8.2	18	8.7	19	9.2	20

Add 5 kg (11 lb) for remote electronics

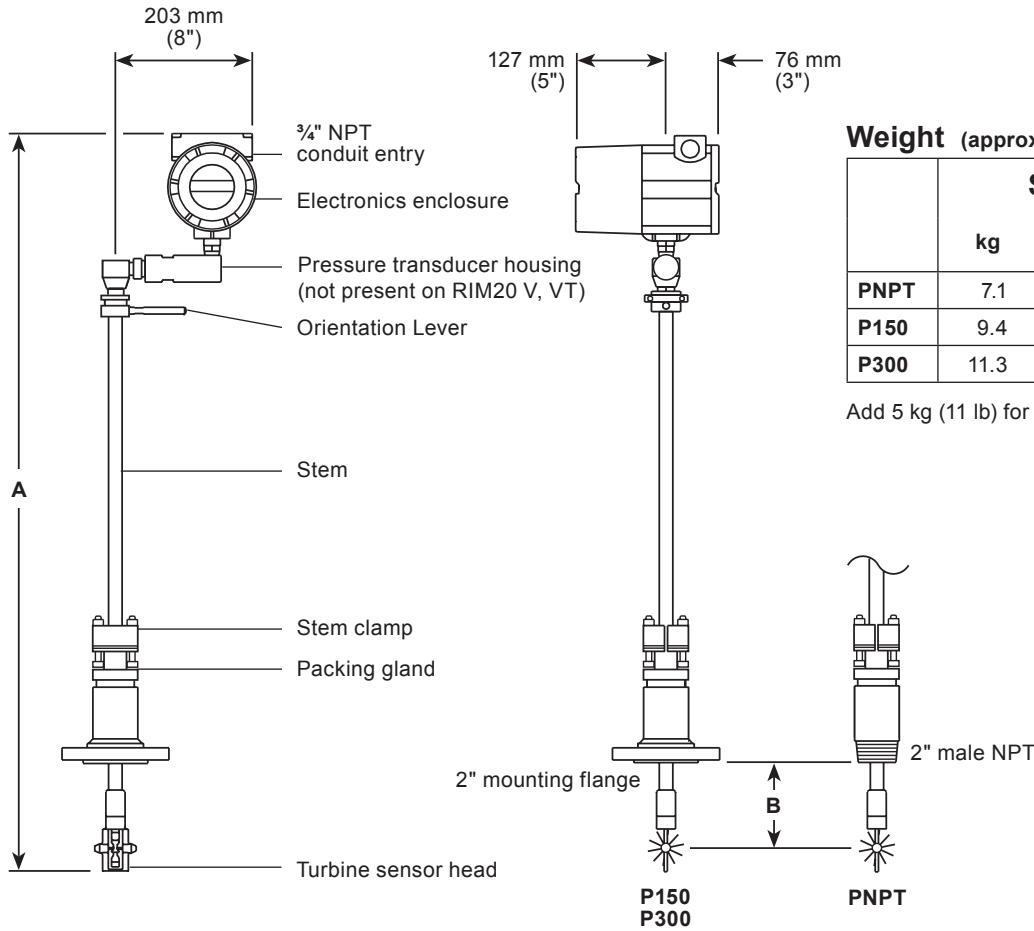
**Dimensions (approximate) in mm and inches**

RIM20 V and VT	C Compact Length				S Standard Length				E Extended Length			
	A		B		A		B		A		B	
	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 flange	536	21.1	257	10.1	953	37.5	673	26.5	1257	49.5	978	38.5
Compression fitting, 300 lb flange	536	21.1	254	10.0	953	37.5	671	26.4	1257	49.5	975	38.4
Compression fitting, 600 lb flange	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		A		B		A		B	
	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 flange	612	24.1	257	10.1	1029	40.5	673	26.5	1334	52.5	978	38.5
Compression fitting, 300 lb flange	612	24.1	254	10.0	1029	40.5	671	26.4	1334	52.5	975	38.4
Compression fitting, 600 lb flange	612	24.1	244	9.6	1029	40.5	660	26.0	1334	52.5	965	38.0

**Dimensions and weights (approximate) in mm and inches**

**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	9.4	21	9.9	22
P300	11.3	25	11.8	26

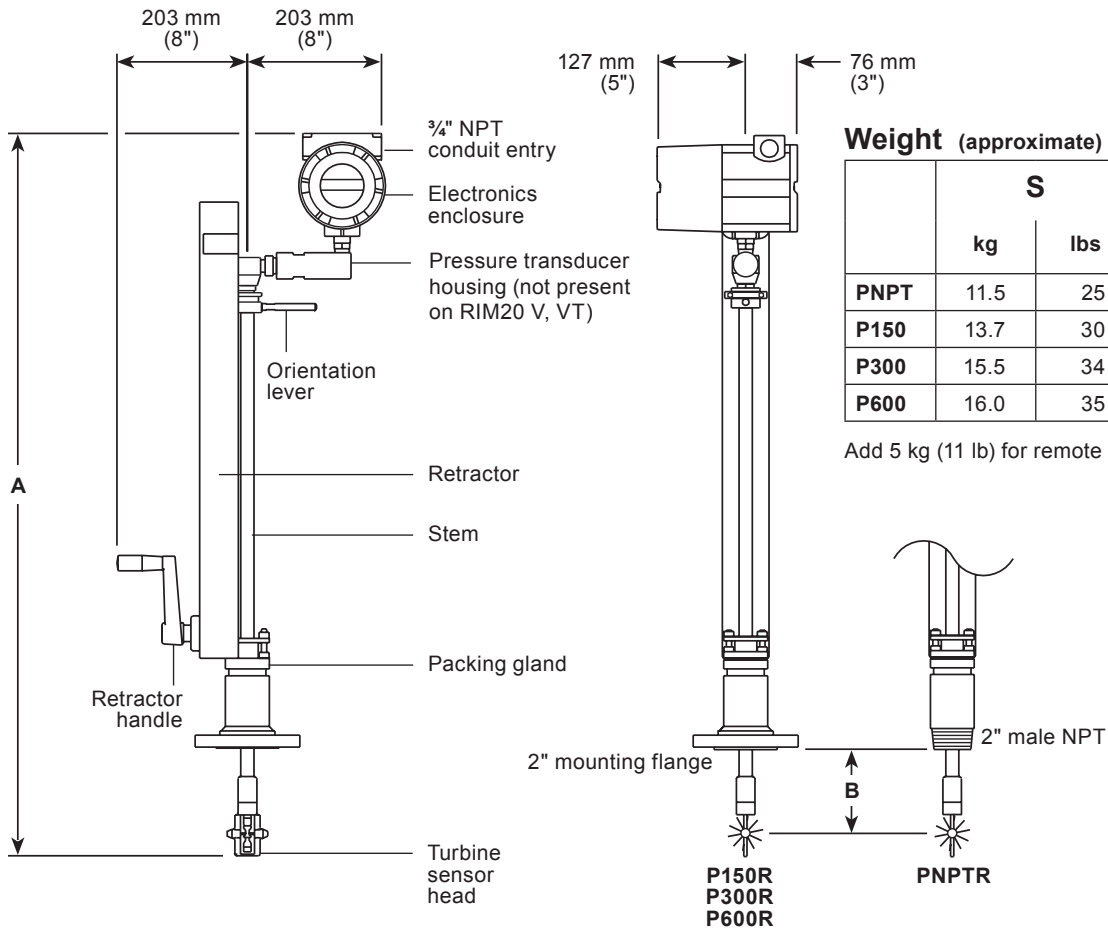
Add 5 kg (11 lb) for remote electronics

**Dimensions (approximate) in mm and inches**

RIM20 V, VT and VTP	S Standard Length				E Extended Length			
	A		B		A		B	
	mm	inches	mm	inches	mm	inches	mm	inches
PNPT, Packing gland, Male NPT	1 016	40.0	526	20.7	1321	52.0	831	32.7
P150, Packing gland, 150 lb flange	1 016	40.0	516	20.3	1321	52.0	820	32.3
P300, Packing gland, 300 lb flange	1 016	40.0	516	20.3	1321	52.0	820	32.3

**Dimensions and weights (approximate) in mm and inches**

**Packing gland models with permanent retractor**



**Weight (approximate) in kg and lbs**

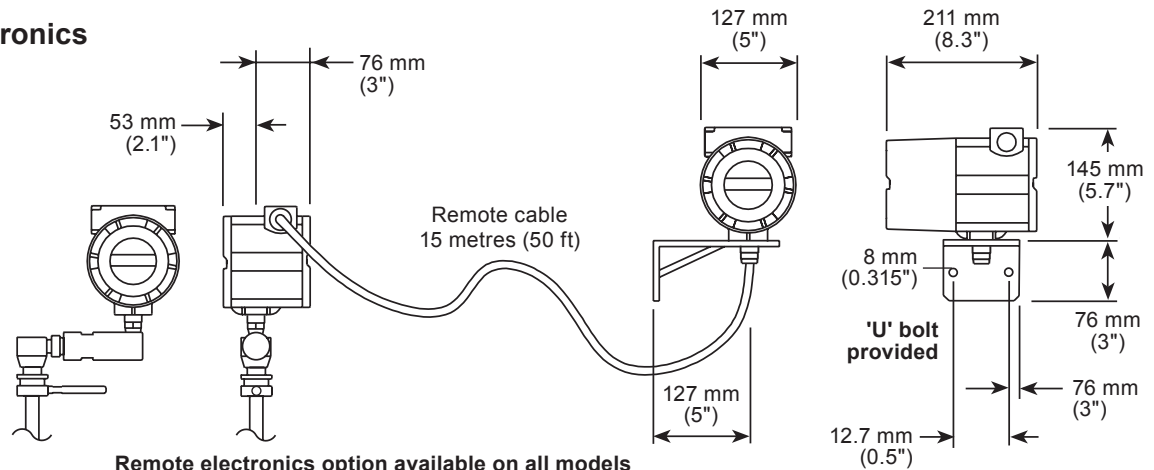
	S		E	
	kg	lbs	kg	lbs
<b>PNPT</b>	11.5	25	14.5	32
<b>P150</b>	13.7	30	16.7	37
<b>P300</b>	15.5	34	18.5	41
<b>P600</b>	16.0	35	19.0	42

Add 5 kg (11 lb) for remote electronics

**Dimensions (approximate) in mm and inches**

RIM20 V, VT and VTP with permanent retractor	S Standard Length				E Extended Length			
	A		B		A		B	
	mm	inches	mm	inches	mm	inches	mm	inches
<b>PNPT, Packing gland, Male NPT</b>	1 016	40.0	526	20.7	1321	52.0	831	32.7
<b>P150, Packing gland, 150 lb flange</b>	1 016	40.0	516	20.3	1321	52.0	820	32.3
<b>P300, Packing gland, 300 lb flange</b>	1 016	40.0	516	20.3	1321	52.0	820	32.3

**Remote electronics option**



Remote electronics option available on all models

# 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	1219
		Maximum	225	929	1642	3817	6270	15367
	5 bar g	Minimum	42	173	306	713	1176	2907
		Maximum	537	2216	3915	9090	14905	36400
	10 bar g	Minimum	75	310	549	1279	2106	5194
		Maximum	962	3963	6999	16239	26600	64815
R30	1.4 bar g	Minimum	20	82	146	341	563	1396
		Maximum	329	1358	2399	5575	9149	22384
	5 bar g	Minimum	48	198	350	817	1347	3328
		Maximum	785	3237	5716	13265	21735	52993
	10 bar g	Minimum	86	355	629	1465	2411	5943
		Maximum	1405	5786	10215	23687	38771	94337
R20	1.4 bar g	Minimum	35	146	259	604	995	2463
		Maximum	530	2187	3863	8968	14704	35898
	5 bar g	Minimum	85	350	620	1444	2377	5856
		Maximum	1265	5207	9194	21322	34903	84940
	10 bar g	Minimum	152	628	1111	2586	4252	10448
		Maximum	2261	9303	16419	38049	62227	151156
R10	1.4 bar g	Minimum	61	253	448	1045	1721	4247
		Maximum	1098	4522	7985	18520	30320	73805
	5 bar g	Minimum	147	606	1072	2496	4103	10082
		Maximum	2615	10755	18979	43967	71883	174497
	10 bar g	Minimum	263	1087	1921	4466	7335	17975
		Maximum	4672	19197	33862	78386	128050	310382

## Air (nm<sup>3</sup>/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	1130	2628	4320	10607
	5 bar g	Minimum	74	305	540	1259	2072	5107
		Maximum	946	3898	6884	15969	26152	63694
	10 bar g	Minimum	137	567	1002	2332	3835	9423
		Maximum	1751	7205	12718	29476	48216	117169
R30	1.4 bar g	Minimum	14	56	100	234	386	960
		Maximum	226	934	1651	3839	6306	15455
	5 bar g	Minimum	84	350	619	1441	2373	5844
		Maximum	1382	5690	10046	23290	38115	92698
	10 bar g	Minimum	157	649	1148	2671	4390	10779
		Maximum	2556	10511	18548	42965	70237	170473
R20	1.4 bar g	Minimum	24	100	178	415	684	1696
		Maximum	365	1505	2660	6179	10139	24794
	5 bar g	Minimum	150	618	1094	2544	4182	10271
		Maximum	2224	9149	16145	37407	61166	148520
	10 bar g	Minimum	278	1146	2026	4709	7731	18929
		Maximum	4110	16888	29789	68956	112643	273032
R10	1.4 bar g	Minimum	42	174	308	718	1184	2927
		Maximum	756	3115	5502	12768	20919	50995
	5 bar g	Minimum	259	1069	1890	4393	7214	17668
		Maximum	4595	18874	33290	77048	125842	304938
	10 bar g	Minimum	480	1980	3499	8125	13323	32541
		Maximum	8481	34799	61349	141871	231535	560318

# 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

## 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



**Water flowrates**

Size		m <sup>3</sup> /hr		GPM	
		Minimum	Maximum	Minimum	Maximum
Nominal pipe size	50 mm 2"	1.19	71.3	5	314
	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**

		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
	<b>D = Internal diameter of the pipe</b> - 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.				
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.



## How to order

## Selection:

Category	Description	Suffix code	Grey = Standard
<b>Flowmeter</b>	Insertion multivariable mass turbine flowmeter	<b>RIM20</b>	<b>RIM20</b>
	Volumetric flowmeter for liquid, gas and steam	<b>V</b>	
	Velocity and temperature sensors	<b>VT</b>	
	Velocity, temperature and pressure sensors	<b>VTP</b>	
	Velocity, temperature and external 4 - 20 mA pressure input	<b>VTEP</b>	
<b>Electronics</b>	Velocity, external RTD temperature input, external 4 - 20 mA pressure input	<b>VETEP</b>	<b>V -</b>
	Energy output options	<b>VTEM</b>	
	Energy options with pressure sensor	<b>VTEPEM</b>	
	Energy options, velocity, temperature and external 4 - 20 mA pressure input	<b>VTEPEM</b>	
	Energy options, velocity, external RTD temperature input, external 4 - 20 mA pressure input	<b>VETEP</b>	
<b>Probe length</b>	Standard length	<b>S</b>	<b>S</b>
	Compact length - Only available for compression fitting connections CNPT, C150, C300 and C600	<b>C</b>	
	Extended length	<b>E</b>	
	Local mount NEMA 4X, IP66 Enclosure	<b>L</b>	
	Remote electronics NEMA 4X, IP66 25' cable with display	<b>R25</b>	
<b>Electronics enclosure mounting</b>	25' armored cable with glands (ATEX, IECEx) 'V' flowmeter only	<b>A25</b>	<b>L</b>
	25' armored cable with glands (ATEX, IECEx) 'VT', 'VTP' flowmeter only	<b>A25P</b>	
	Remote electronics NEMA 4X, IP66 50' cable with display	<b>R50</b>	
	50' armored cable with glands (ATEX, IECEx) 'V' flowmeter only	<b>A50</b>	
	50' armored cable with glands (ATEX, IECEx) 'VT', 'VTP' flowmeter only	<b>A50P</b>	
<b>Display</b>	Digital display and programming buttons	<b>D</b>	<b>D</b>
	12 - 36 Vdc, 25 mA, 1 W maximum required on loop powered flowmeters, 1HL only	<b>DL</b>	
<b>Power supply</b>	12 - 36 Vdc, 300 mA, 9 W maximum - use with 1H, 1M, 1B, 3H, 3M, 3B	<b>DH</b>	<b>DL</b>
	100 - 240 Vac, 50/60 Hz line power, 5 W maximum - use with 1H, 1M, 1B, 3H, 3M, 3B	<b>AC</b>	
	Loop powered option - one analogue output (4 - 20 mA), one alarm, one pulse, HART®, DL input power only	<b>1HL</b>	
<b>Output signal</b>	One analogue output (4 - 20 mA), one alarm, one pulse, HART® communication protocol, DH or AC option only	<b>1H</b>	<b>1H</b>
Inclusive of the scaled frequency output	One analogue output (4 - 20 mA), one alarm, one pulse, MODBUS communication protocol, DH or AC option only	<b>1M</b>	
	One analogue output (4 - 20 mA), one alarm, one pulse, BACnet communication protocol, DH or AC option only	<b>1B</b>	
	Three analogue outputs (4 - 20 mA), three alarms, one pulse, HART® ('VT', 'VTP' only), DH or AC option only	<b>3H</b>	
	Three analogue outputs (4 - 20 mA), three alarms, one pulse, MODBUS ('VT', 'VTP' only), DH or AC option only	<b>3M</b>	
	Three analogue outputs (4 - 20 mA), three alarms, one pulse, BACnet ('VT', 'VTP' only), DH or AC option only	<b>3B</b>	
<b>Process temperature</b>	Standard temperature Process temperature -55°C to 232°C -67°F to 450°F	<b>S</b>	<b>S</b>
	High temperature Process temperature -267°C to 454°C -448°F to 850°F	<b>H</b>	
	No pressure sensor	<b>P0</b>	
<b>Pressure sensor</b>	Maximum 2 bar a 30 psi a Proof 4 bar a 60 psi a	<b>P1</b>	<b>P0</b>
	Maximum 7 bar a 100 psi a Proof 14 bar a 200 psi a	<b>P2</b>	
	Maximum 20 bar a 300 psi a Proof 41 bar a 600 psi a	<b>P3</b>	
	Maximum 34 bar a 500 psi a Proof 64 bar a 1000 psi a	<b>P4</b>	
	Maximum 100 bar a 1500 psi a Proof 175 bar a 2500 psi a	<b>P5</b>	
	Compression, 2" NPT <b>CNPT</b> Packing gland, 2" NPT, retractor (use with E probe) <b>PNPTR-E</b>		
	Compression, 2" ASME 150 flange <b>C150</b> Packing gland, 2" ASME 150 flange, retractor <b>P150R</b>		
	Compression, DN50 PN16 flange <b>C16</b> Packing gland, 2" ASME 150 flange, retractor (E probe) <b>P150R-E</b>		
	Compression, 2" ASME 300 flange <b>C300</b> Packing gland, DN50 PN16 flange, retractor <b>P16R</b>		
	Compression, DN50 PN40 flange <b>C40</b> Packing gland, DN50 PN16 flange, retractor (E probe) <b>P16R-E</b>		
	Compression, 2" ASME 600 flange <b>C600</b> Packing gland, 2" ASME 300 flange, retractor <b>P300R</b>		
	Compression, DN50 PN64 flange <b>C64</b> Packing gland, 2" ASME 300 flange, retractor (E probe) <b>P300R-E</b>		
<b>Process connections</b>	Packing gland*, 2" NPT <b>PNPT</b> Packing gland, DN50 PN40 flange, retractor <b>P40R</b>		<b>PNPTR-E</b>
	Packing gland*, 2" ASME 150 flange <b>P150</b> Packing gland, DN50 PN40 flange, retractor (E probe) <b>P40R-E</b>		
	Packing gland*, DN50 PN16 flange <b>P16</b> Packing gland, 2" ASME 600 flange, retractor <b>P600R</b>		
	Packing gland*, 2" ASME 300 flange <b>P300</b> Packing gland, 2" ASME 600 flange, retractor (E probe) <b>P600R-E</b>		
	Packing gland*, DN50 PN40 flange <b>P40</b> Packing gland, DN50 PN64 flange, retractor <b>P64R</b>		
	Packing gland, 2" NPT, retractor <b>PNPTR</b> Packing gland, DN50 PN64 flange, retractor (E probe) <b>P64R-E</b>		
	* One removable retractor must be ordered if the process pressure is >3.4 bar g (50 psi g).		
	Gas or Steam Vmin = 1.07 m/s (3.5 ft/sec) Vmax = 13.1 m/s (43 ft/sec) 40° pitch	<b>R40</b>	
	Gas or Steam Vmin = 1.2 m/s (4.0 ft/sec) Vmax = 19.0 m/s (62.5 ft/sec) 30° pitch	<b>R30</b>	
	Gas or Steam Vmin = 1.5 m/s (5.0 ft/sec) Vmax = 24.4 m/s (80 ft/sec) 25° pitch	<b>R25</b>	
<b>Rotor options</b>	Gas or Steam Vmin = 2.1 m/s (7.0 ft/sec) Vmax = 30.5 m/s (100 ft/sec) 20° pitch	<b>R20</b>	<b>R40</b>
	Gas or Steam Vmin = 2.6 m/s (8.5 ft/sec) Vmax = 41.0 m/s (134.6 ft/sec) 15° pitch	<b>R15</b>	
	Gas or Steam Vmin = 3.7 m/s (12.0 ft/sec) Vmax = 62.5 m/s (205 ft/sec) 10° pitch	<b>R10</b>	
	Liquid Vmin = 0.3 m/s (1.0 ft/sec) Vmax = 9.1 m/s (30 ft/sec) 40° pitch	<b>L40</b>	

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

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