



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

Approvals

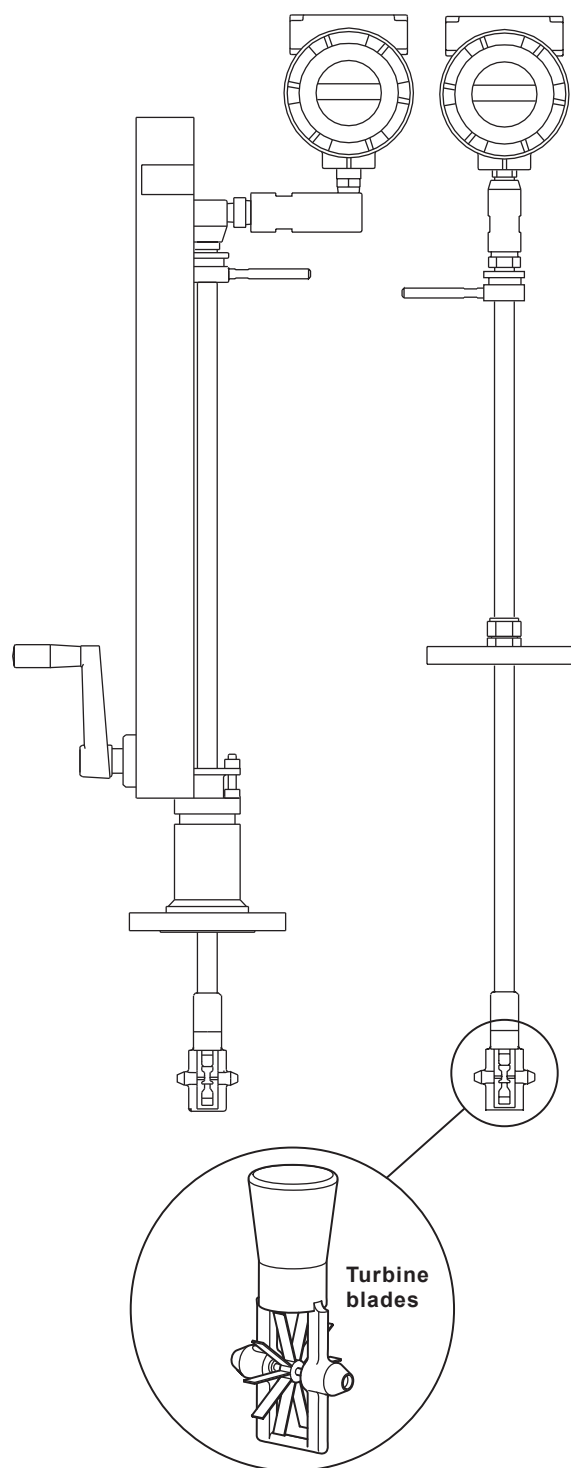
Class I, Division 1, Groups B, C and D

FM and FMC Class II/III, Division 1, Groups E, F and G

Type 4X and IP66, T6, 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)			
		H option - High -267 °C to +454 °C (-448 °F to +850 °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)		
			Electrical Safety EN61010-1:2010		
	LVD	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	1 000 psi a
		100 bar a	1 500 psi a	175 bar a	2 500 psi a

Technical data (continued)

	Style connection	Connection/Rating
Pressure ratings	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
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 frequency output
	Multivariable option 1	Up to three analogue signals, three alarms, one totalizer pulse, HART®, scaled frequency output
	Multivariable option 2	Modbus RTU or BACnet MS/TP compatible process monitoring

Performance specifications

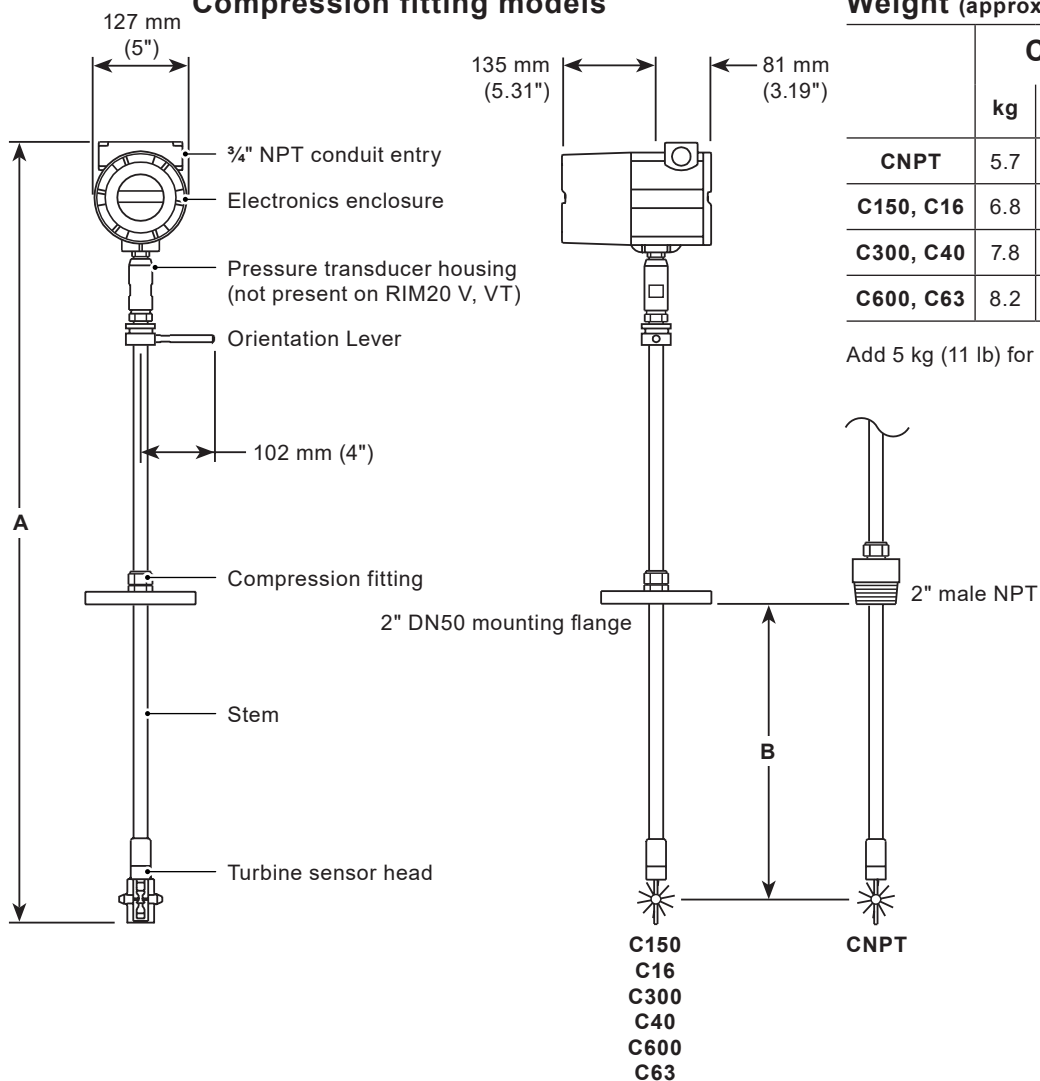
Accuracy		Mass flowrate accuracy for gas and steam based on 50 - 100% of pressure range				
Process variables	Liquids	Gas and steam	Repeatability	Stability over 12 months		
	Volumetric flowrate	± 1.2% of rate	± 1.5% of rate	± 0.1% of rate	± Negligible	
	Mass flowrate	± 1.5% of rate	± 2.0% of rate	± 0.2% 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	953	37.5	645	25.4	1257	49.5	950	37.4
Compression fitting, 150 lb, PN16			257	10.1			673	26.5			978	38.5
Compression fitting, 300 lb, PN40			254	10			671	26.4			975	38.4
Compression fitting, 600 lb, PN63			244	9.6			660	26.0			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	1029	40.5	645	25.4	1334	52.5	950	37.4
Compression fitting, 150 lb, PN16			257	10.1			673	26.5			978	38.5
Compression fitting, 300 lb, PN40			254	10			671	26.4			975	38.4
Compression fitting, 600 lb, PN63			244	9.6			660	26.0			965	38.0

Compression fitting models



Weight (approximate) in kg and lbs

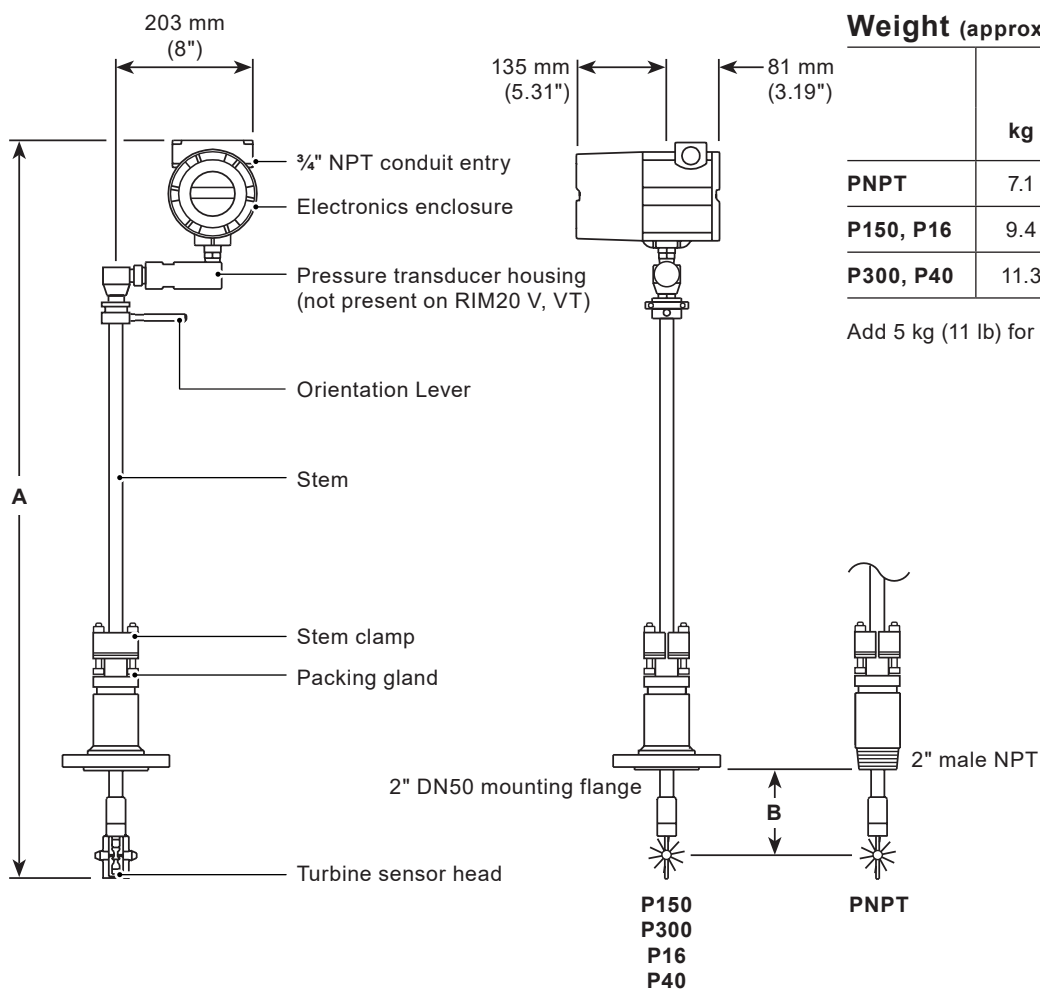
	C		S		E	
	kg	lbs	kg	lbs	kg	lbs
CNPT	5.7	13	6.2	14	6.7	15
C150, C16	6.8	15	7.3	16	7.8	17
C300, C40	7.8	17	8.3	18	8.8	19
C600, C63	8.2	18	8.7	19	9.2	20

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	526	20.7	1321	52	831	32.7
Packing gland, 150 lb, PN16			516	20.3			820	32.3
Packing gland, 300 lb PN40								

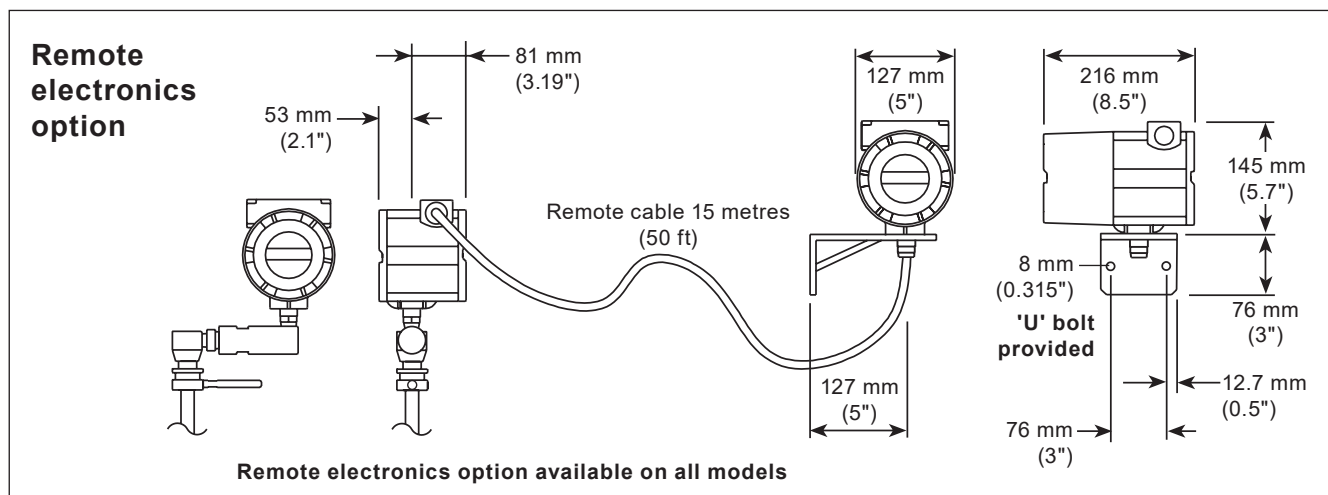
Packing gland models - Please note that a removable retractor can be used with these models



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

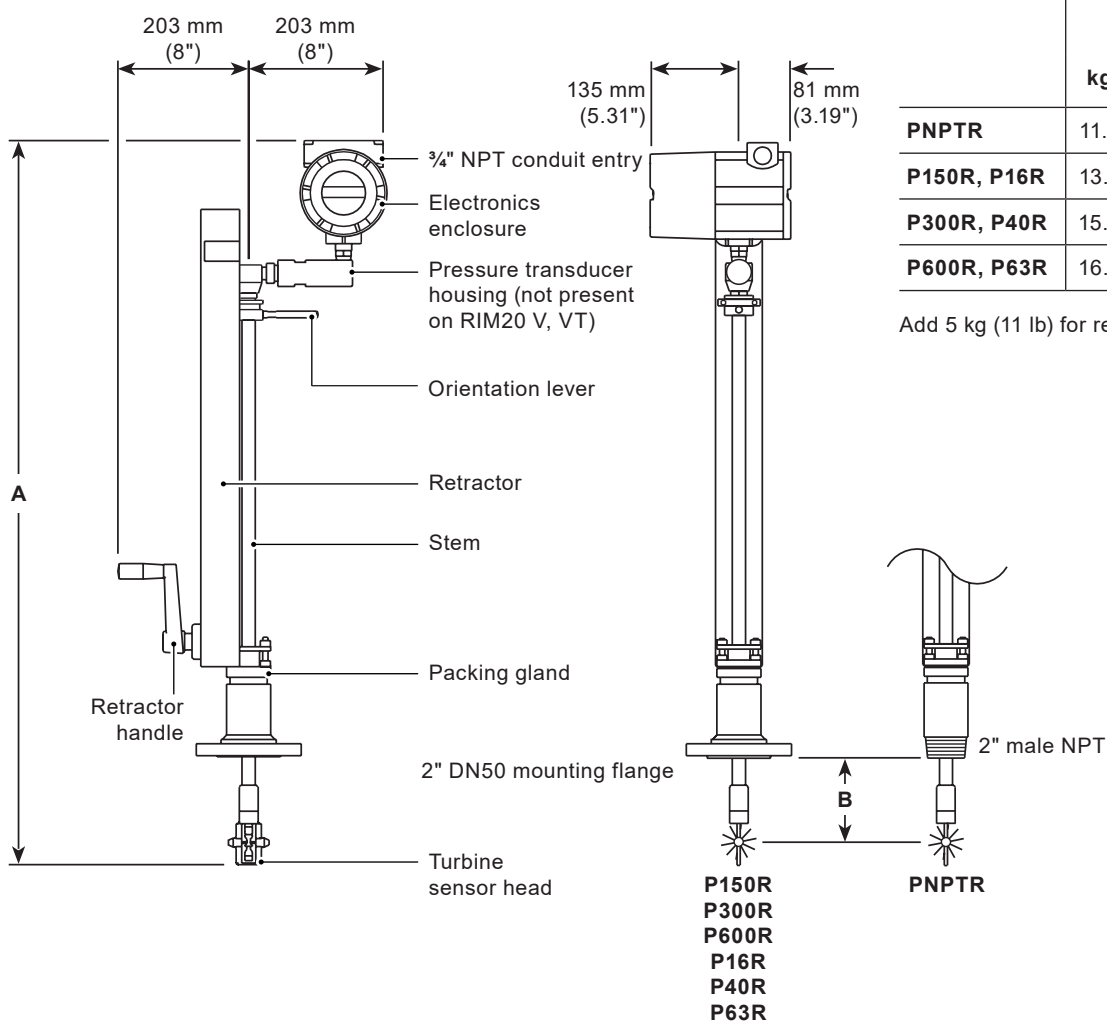
Add 5 kg (11 lb) for remote electronics



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	831	32.7
Packing gland, 150 lb, PN16			516	20.3			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 (nm³/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
		Maximum	154	639	1 130	2 628	4 320
	5 bar g	Minimum	74	305	540	1 259	2 072
		Maximum	946	3 898	6 884	15 969	26 152
	10 bar g	Minimum	137	567	1 002	2 332	3 835
		Maximum	1 751	7 205	12 718	29 476	48 216
R30	1.4 bar g	Minimum	14	56	100	234	386
		Maximum	226	934	1 651	3 839	6 306
	5 bar g	Minimum	84	350	619	1 441	2 373
		Maximum	1 382	5 690	10 046	23 290	38 115
	10 bar g	Minimum	157	649	1 148	2 671	4 390
		Maximum	2 556	10 511	18 548	42 965	70 237
R20	1.4 bar g	Minimum	24	100	178	415	684
		Maximum	365	1 505	2 660	6 179	10 139
	5 bar g	Minimum	150	618	1 094	2 544	4 182
		Maximum	2 224	9 149	16 145	37 407	61 166
	10 bar g	Minimum	278	1 146	2 026	4 709	7 731
		Maximum	4 110	16 888	29 789	68 956	112 643
R10	1.4 bar g	Minimum	42	174	308	718	1 184
		Maximum	756	3 115	5 502	12 768	20 919
	5 bar g	Minimum	259	1 069	1 890	4 393	7 214
		Maximum	4 595	18 874	33 290	77 048	125 842
	10 bar g	Minimum	480	1 980	3 499	8 125	13 323
		Maximum	8 481	34 799	61 349	141 871	231 535

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	1 555
		Maximum	287	1 187	2 098	4 883	8 029	19 727
	100 psi g	Minimum	119	496	878	2 046	3 371	8 328
		Maximum	1 540	6 350	11 216	26 034	42 668	104 092
	200 psi g	Minimum	220	913	1 615	3 761	6 191	15 249
		Maximum	2 827	11 643	20 558	47 681	78 064	190 027
R30	5 psi g	Minimum	25	105	186	434	717	1 782
		Maximum	420	1 735	3 068	7 135	11 721	28 745
	100 psi g	Minimum	137	568	1 006	2 344	3 861	9 530
		Maximum	2 251	9 272	16 373	37 984	62 207	151 526
	200 psi g	Minimum	253	1 046	1 850	4 308	7 088	17 446
		Maximum	4 129	16 994	29 996	69 532	113 761	276 542
R20	5 psi g	Minimum	45	186	330	770	1 270	3 150
		Maximum	677	2 797	4 943	11 485	18 849	46 119
	100 psi g	Minimum	243	1 005	1 778	4 140	6 811	16 762
		Maximum	3 623	14 915	26 328	61 035	99 870	242 834
	200 psi g	Minimum	447	1 848	3 268	7 601	12 492	30 657
		Maximum	6 643	27 317	48 203	111 658	182 535	443 035
R10	5 psi g	Minimum	78	323	572	1 334	2 199	5 440
		Maximum	1 405	5 790	10 227	23 736	38 897	94 870
	100 psi g	Minimum	421	1 739	3 075	7 153	11 755	28 849
		Maximum	7 490	30 791	54 325	125 807	205 605	498 759
	200 psi g	Minimum	774	3 195	5 647	13 123	21 541	52 728
		Maximum	13 719	56 341	99 362	229 926	375 467	909 528

Typical Metric flowrates are on pages 7 and 8

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

Water flowrates

Size		m ³ /hr		GPM	
		Minimum	Maximum	Minimum	Maximum
Nominal pipe size	80 mm 3"	2.62	157	12	691
	150 mm 6"	12.30	614	54	2 701
	200 mm 8"	24.80	1 062	109	4 678
	300 mm 12"	56.00	2 402	247	10 575
	400 mm 16"	87.60	3 753	386	16 524
	600 mm 24"	199.00	8 538	877	37 590

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 m/s (30 ft/s)		
		Minimum 0.15 m/s (0.5 ft/s)		
	Gas or steam	Maximum m/s (43 to 205 ft/s) depending on rotor pitch		
		Minimum 1 to 3.7 m/s (3.5 to 12 ft/s) 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	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	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	
	12-28 VDC or Power over Ethernet, 5 Watts max, required on 1MI, 1BIP, 3MIP, 3BIP	DHPOE	

How to order continued on next page

How to order (continued)

Selection:

Category	Description	Suffix code	Grey = Standard
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 analog output (4-20 mA), one alarm, one pulse, MODBUS TCP/IP Communication Protocol. DHPOE ONLY	1MIP	
	One analog output (4-20 mA), one alarm, one pulse, BACnet/IP Communication Protocol, DHPOE ONLY	1BIP	
	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 analog outputs (4-20 mA), three alarms, one pulse, MODBUS TCP/IP (VT, VTP only). DHPOE ONLY	3MIP	
	Three analog outputs (4-20 mA), three alarms. one pulse, BACnet/IP (VT, VTP only). DHPOE ONLY	3BIP	
	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	
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 1000 psi a	P4	
	Maximum 100 bar a 1500 psi a Proof 175 bar a 2500 psi a	P5	

How to order continued on next page

How to order (continued)

Selection:

Category	Description			Suffix code	Grey = Standard
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
Rotor options	Gas or Steam Vmin = 1.07 m/s (3.5 ft/s) Vmax = 13.1 m/s (43 ft/s) 40° pitch			R40	R40
	Gas or Steam Vmin = 1.2 m/s (4.0 ft/s) Vmax = 19.0 m/s (62.5 ft/s) 30° pitch			R30	
	Gas or Steam Vmin = 1.5 m/s (5.0 ft/s) Vmax = 24.4 m/s (80 ft/s) 25° pitch			R25	
	Gas or Steam Vmin = 2.1 m/s (7.0 ft/s) Vmax = 30.5 m/s (100 ft/s) 20° pitch			R20	
	Gas or Steam Vmin = 2.6 m/s (8.5 ft/s) Vmax = 41.0 m/s (134.6 ft/s) 15° pitch			R15	
	Gas or Steam Vmin = 3.7 m/s (12.0 ft/s) Vmax = 62.5 m/s (205 ft/s) 10° pitch			R10	
	Liquid Vmin = 0.3 m/s (1.0 ft/s) Vmax = 9.1 m/s (30 ft/s) 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.