Merriott

Protecta

What does Merriott stand for?

Our bespoke heating and cooling solutions are the better choice for commercial applications across the UK and Ireland.

Merriott offers a diverse and versatile range of designer heating solutions.

Whether they are building consultants, architects or designers, our customers can tailor our bespoke range of products to satisfy their specification requirements.

We have invested in world-class production facilities and manufacture products of the very highest standard - backed by revolutionary technology, rigorous testing and stringent quality control.

As a company, we have an unwavering commitment to innovation and sustainability, pioneering products that lead the way in design, performance and energy efficiency.

Underpinning all of this is our relationship with our customers: ensuring they can rely on best-in-class service and support, from specification right through to delivery.

Content

Range Overview
Protecta LST

Merriott Protecta LST radiators are specifically designed for use in care homes, hospitals and buildings frequented by children, elderly people and vulnerable adults.

The Protecta range complies with NHS Estates Health Guidance notes for 'Safe Hot Water and Surface Temperature and and HSE health services information sheet - 'Managing the risks from hot water and surfaces in health and social care'. Offering a maximum surface temperature of below 43 ° C at a maximum flow temperature of 80 ° C and 60 ° C return or 75 ° C flow and 65 ° C return.

OUTPUTS
All Merriott Protecta radiators have been manufactured and tested in accordance with EN442.

FINISH
Every Merriott Protecta LST emitter and casing undergoes an intensive pre-treatment process to protect against rust. In pre-treatment, the radiators are de-greased, phosphated and primer coated. An Anti-Microbial semi-gloss RAL 9016 (white) in epoxy polyester powder is applied to all front and rear surfaces of the casing as standard, however the casing does not have a primer coat.

ANTI-MICROBIAL PAINT
We use Anti-Microbial paint as opposed to an Anti-Bacterial paint, as this acts as both an anti-bacterial and anti-parasitic surface to further help prevent the spread of bacteria, fungi, parasites and some viruses. Anti-Microbial products offer a wider defensive scope on suppressing bacterial growth.

DESIGN & PERFORMANCE
As products are subject to continuous development to improve design and performance, Merriott reserves the right to alter specifications without notice.

PACKAGING
The Protecta LST is supplied as a Single Package including the Emitter and Casing. The casing is packaged in heavy duty cardboard with internal polystyrene support for complete protection. The Emitter is fully packaged with cardboard, plastic corner protection, and fully shrink wrapped and placed inside the casings.

CONNECTIONS
4 x 1/2" BSP. Plug and Air Vents included. Vertical emitters are centre tapped.

TESTING
All Protecta radiators are individually pressure tested to 10.5 bar and are suitable for a working pressure of up to 8 bar.

MATERIALS
Protecta LST casings comprise of a strong single piece 1.2mm thick steel casing that is quick and easy to install. The casing can be easily lifted on and off for fitting and cleaning. The casing is secured to the brackets on each side via obscured screws. There is a simple locking device to prevent unauthorised access. All external surfaces are flat wipe clean surfaces and all external corners are rounded, eliminating sharp edges to prevent injury.

WARRANTY
Merriott radiators are guaranteed for a period of 10 years from date of purchase in respect of defective materials and workmanship. The system should be designed in accordance with British Standard Code of Practice for Water Based Heating Systems in Buildings **BS EN 12828:2012+A1:2014** and **BS EN 12831: 2003**. The installation and commissioning of the system should comply with **BS EN 14336:2004**. On completion of the installation, the system should be properly flushed and filled in accordance with the British Code of Practice for the Treatment of Water in Domestic Hot Water Central Heating Systems **BS 7593:2006**, Part L of Building Regulations and Good Practice Guidance for Scotland. Merriott strongly recommends the use of corrosion inhibitor for all applications. Failure to observe these standards may invalidate the manufacturer's warranty.

Product Specifications and Installation Details

EMITTER

The Protecta LST houses a seam top emitter, which is easy to clean with no sharp edges.

INSTALLATION

Designed for indirect or closed circuits only with a maximum working temperature of 80 ° C.

The system should be designed in accordance with the British Standard Code of Practice for Water Based Heating Systems in Buildings BS EN 128:2012+A1:2014 and BS EN 12831: 2003.

The installation of the system and commissioning of the system should comply with BS EN 14336:2004.

On completion of the installation the system should be properly flushed and filled in accordance with the British Code of Practice for the Treatment of Water in Domestic Hot water Central Heating Systems BS 7593: 2006, Part L of the Building Regulations and Good Practice Guidance for Scotland. Merriott strongly recommend the use of corrosion inhibitor for all applications. Failure to observe these standards may invalidate the manufacturer'swarranty. Single feed indirect cylinders are not recommended as the possibility of aeration due to water interchange may lead to corrosion.

THERMOSTATIC RADIATOR VALVES

Direct Fit Kit (MERRDIRFIT):
15mm Angled TRV body, the TRV is fitted to the radiator through the 38mm casing knockout via the extension adaptor. Suitable for TBOE connection only. Not suitable for the Vertical LST, or 420mm wide LST.

Universal Close Coupled Kit (MERRCLOSECOUP):
15mm Straight TRV Body, the TRV head connects directly to the casing via the 23mm knockout and is connected to the TRV body by capillary tube. Not suitable for installation onto iron pipework.

Direct Fit Kit

Universal Close Coupled Kit

Heat Outputs

By emitter type

Cover Height (mm)	Cover Length (mm)	Single Emitter			Double Emitter (single fin)			Double Emitter (double fin)		
		'n'	Watts ΔT50	Watts ΔT30	'n'	Watts ΔT50	Watts ΔT30	'n'	Watts ΔT50	Watts ΔT30
572	800	1.30	277	142	-	-	-	1.31	545	279
	1000		370	190		-	-		727	372
	1200		462	237		-	-		909	465
	1400		554	284		-	-		1091	558
	1600		647	332		-	-		1273	651
	1800		739	379		-	-		1454	744
	2000		832	427		-	-		1636	837
672	420	1.30	182	94	1.28	-	-	1.32	351	179
	600		243	125		355	185		468	238
	800		365	188		532	277		702	357
	1000		486	250		710	369		936	476
	1200		608	313		887	461		1170	595
	1400		730	375		1064	553		1404	714
	1600		851	437		1242	646		1638	833
	1800		973	500		1419	738		1872	952
	2000		1094	562		1597	830		2106	1072
	2200		1216	625		1774	922		2340	1191
872	420	1.30	265	136	1.26	-	-	1.34	494	249
	600		353	181		483	253		659	332
	800		530	272		725	380		989	498
	1000		706	362		966	506		1318	663
	1200		883	452		1208	633		1648	829
	1400		1060	543		1450	760		1978	995
	1600		1236	633		1691	887		2307	1161
	1800		1413	724		1933	1013		2637	1327
	2000		1589	814		2174	1140		2966	1492
	2200		1766	905		2416	1267		3296	1659
972	420	1.31	304	155	-	-	-	1.35	560	281
	600		405	207		-	-		747	374
	800		608	310		-	-		1120	561
	1000		810	413		-	-		1494	749
	1200		1013	517		-	-		1867	936
	1400		1216	620		-	-		2240	1122
	1600		1418	723		-	-		2614	1310
	1800		1621	827		-	-		2987	1497
	2000		1823	930		-	-		3361	1684
1772	420	-	-	-	-	-	-	1.34	811	405
	570		-	-		-	-		1217	608
	720		-	-		-	-		1623	811
	870		-	-		-	-		2028	1013
2072	420	-	-	-	-	-	-	1.36	895	450
	570		-	-		-	-		1342	675
	720		-	-		-	-		1789	900
	870		-	-		-	-		2237	1125

NOTE:
All outputs are in accordance with BS EN442 certification.
'n' = average exponent value.

Weights and Water Content

By emitter type

Cover Height (mm)	Cover Length (mm)	Dry Weight (kg)			Water Content (l)		
		Single Emitter	Double Emitter (single fin)	Double Emitter (double fin)	Single Emitter	Double Emitter (single fin)	Double Emitter (double fin)
572	800	12.10	-	17.92	1.02	-	2.04
	1000	15.22	-	22.70	1.36	-	2.72
	1200	18.45	-	27.50	1.70	-	3.40
	1400	21.63	-	32.31	2.04	-	4.08
	1600	24.80	-	37.12	2.38	-	4.76
	1800	27.94	-	41.80	2.72	-	5.44
	2000	31.07	-	46.74	3.06	-	6.12
672	420	7.43	-	10.61	0.63	-	1.29
	600	11.02	14.63	16.28	0.84	1.72	1.72
	800	14.90	19.96	22.36	1.26	2.58	2.58
	1000	18.80	25.30	28.44	1.68	3.44	3.44
	1200	22.69	30.84	34.52	2.10	4.30	4.30
	1400	26.62	36.27	40.61	2.52	5.16	5.16
	1600	30.56	41.74	46.74	2.94	6.02	6.02
	1800	34.53	47.03	52.88	3.36	6.88	6.88
	2000	38.40	53.19	58.94	3.78	7.74	7.74
	2200	42.27	58.38	65.00	4.20	8.60	8.60
872	420	10.15	-	14.78	0.90	-	1.86
	600	15.32	20.39	23.04	1.20	2.48	2.48
	800	20.90	28.51	31.88	1.80	3.72	3.72
	1000	26.50	35.96	40.72	2.40	4.96	4.96
	1200	32.09	43.88	49.59	3.00	6.20	6.20
	1400	37.73	51.46	58.44	3.60	7.44	7.44
	1600	43.37	60.07	67.33	4.20	8.68	8.68
	1800	49.04	67.42	76.24	4.80	9.92	9.92
	2000	54.62	75.03	85.06	5.40	11.16	11.16
	2200	60.20	83.21	93.88	6.00	12.40	12.40
972	420	11.36	-	16.62	1.05	-	2.10
	600	17.22	-	26.07	1.40	-	2.80
	800	23.53	-	36.18	2.10	-	4.20
	1000	29.88	-	46.32	2.80	-	5.60
	1200	36.21	-	56.45	3.50	-	7.00
	1400	42.57	-	66.57	4.20	-	8.40
	1600	48.94	-	76.73	4.90	-	9.80
	1800	55.34	-	86.91	5.60	-	11.20
	2000	61.74	-	97.09	6.30	-	12.60
1772	420	-	-	55.26	-	-	5.90
	570	-	-	69.89	-	-	8.85
	720	-	-	84.78	-	-	11.80
	870	-	-	99.25	-	-	14.75
2072	420	-	-	61.08	-	-	6.48
	570	-	-	77.14	-	-	9.72
	720	-	-	90.50	-	-	12.96
	870	-	-	105.87	-	-	16.20

Mounting Details

Horizontal models

WALL BRACKETS

All radiators in the range are supplied with two or more brackets depending on the length of the emitter. The LST casing is fitted onto the casing backets via two small slots then held by two locking screws.
Brackets supplied with the radiator provide a distance from the wall to the centre of the water connection of:

- 46mm for Single emitter
- 62mm for Double emitter single fin
- 68mm for Vertical double emitter double fin
- 78mm for Double emitter double fin

(stated from the centre of the valves).

TAPPING TO TAPPING DIMENSIONS

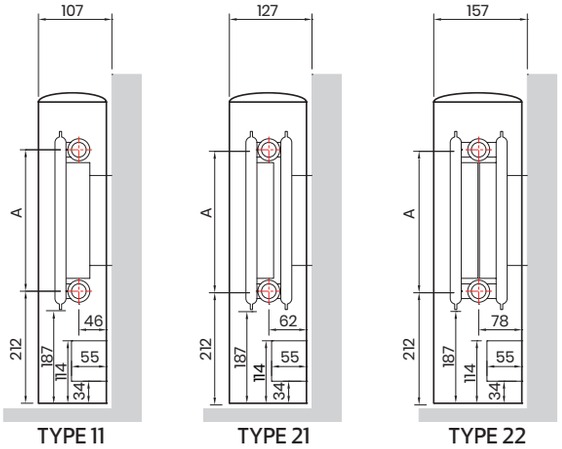
Tapping dimensions are the nominal length of the emitter.

CUTOUTS

Preformed Pipework & TRV Head cut-outs are included on all horizontal Protecta models.

Dimensions for pipework cut-outs can be seen in the diagrams below.

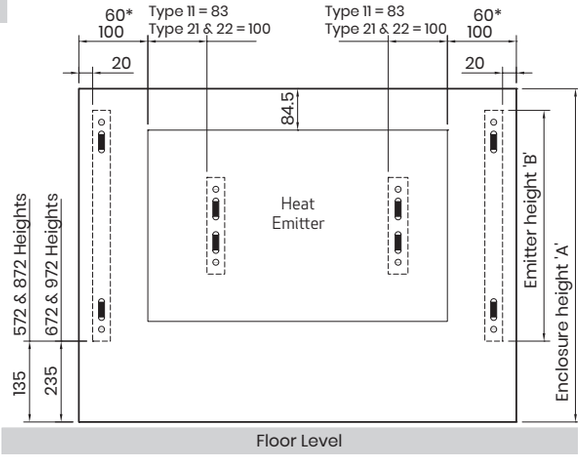
TRV cut-outs are available to suit both the Direct Fit TRV Head (38mm cut-out) & Close Coupled TRV Head (23mm cut-out).



Height	A (mm)
572	250
672	350
872	550
972	650

Enclosure Height A (mm)	Emitter Height B (mm)
572	300
672	400
872	600
972	700

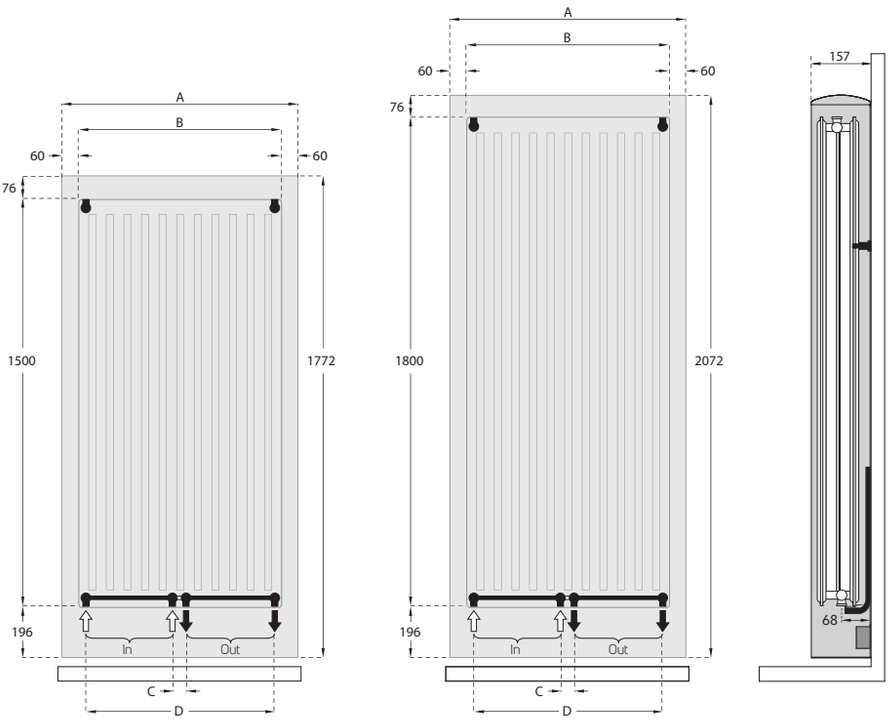
*60mm for the 420mm wide version



NOTE: It is advisable to leave a further 5mm clearance above any final floor covering to allow for easy fitting and removal.

Mounting Details

Vertical models



Casing Width A (mm)	Radiator Width B (mm)	Centre Connections C (mm)	Left-Right Connections D (mm)
420	300	50	244
570	450	50	394
720	600	50	544
870	750	50	694

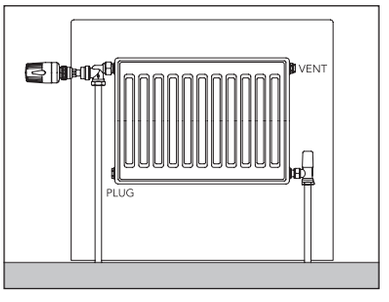
NOTE: It is advisable to leave a further 5mm clearance above any final floor covering to allow for easy fitting and removal.

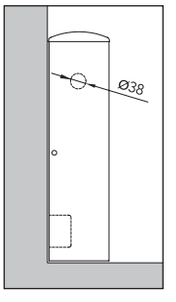
Valves

Merriott Protecta offers either a Direct Fit Kit, or Universal Close Coupled Kit.

DIRECT FIT TRV KIT
Part Number: MERRDIRFIT

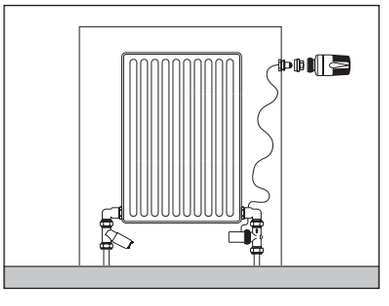
Kit comprises of:
- 1x Horizontal angle TRV body
- 1x TRV head
- 1x Extension adaptor
- 1x Plastic bush
- 1x Lockshield valve

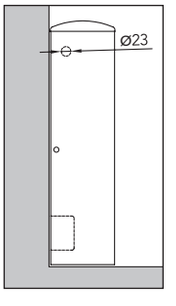




UNIVERSAL CLOSE COUPLED KIT
Part Number: MERRCLOSECOUP

Kit comprises of:
- 1x TRV head
- 1x TRV straight body
- 1x LST capillary unit/actuator/sensor head adaptor
- 2x Integration elbows
- 2x Locking pins





NOTE:
Not suitable for installation onto iron pipework.

Resistance Diagram

HOW TO CALCULATE THE RESISTANCE OF A PROTECTA RADIATOR AT ΔT 50 ° C

Radiator type:
Type 22 (Protecta)
Length - 1200mm
Height - 872mm
Output @ ΔT50 ° C = 1648W (flow/return – 75/65 ° C)

If the output is not at ΔT50 ° C, please use the correction factor table on the previous page to get the correct output.

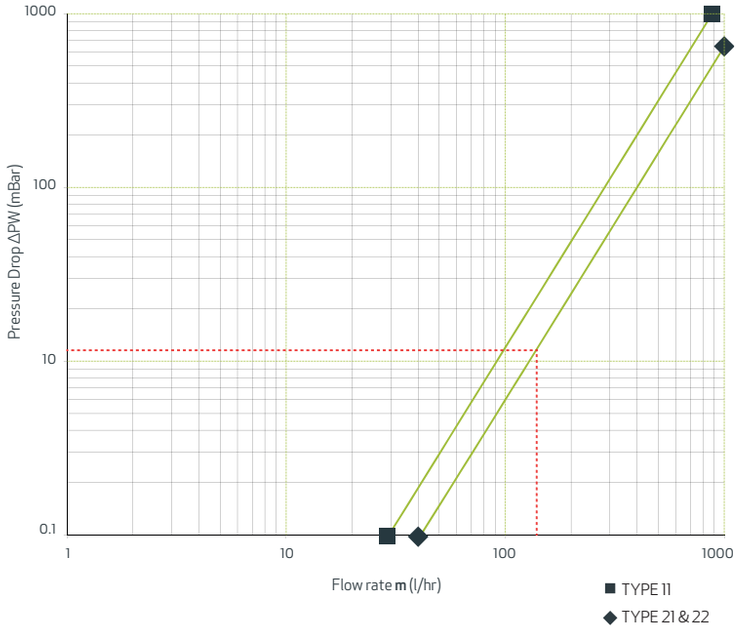
CALCULATE THE FLOW RATE AS FOLLOWS:

m = Flow Rate
Q = Heat Output
c = Specific heat capacity of water (4187 J / KgK)
ΔT = Temp. drop across radiator (10K)
Flow rate (m) = Q / (c x ΔT) in l/sec

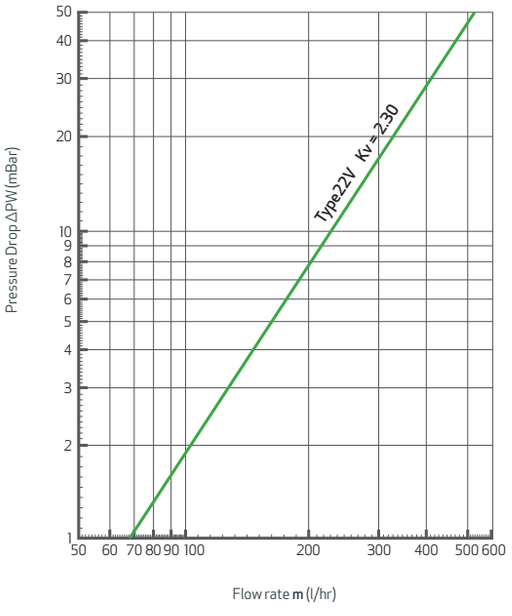
Therefore
m = 1648 / (4187 x 10)
m = 0.03936(l/s)
x3600 (to convert from l/sec to l/h)
m = **141.7 l/h**

Please refer to the resistance diagram which gives a value of approx 11m Bar for Horizontal Type 22.

HORIZONTAL MODELS - TYPE 11, 21 & 22



VERTICAL MODELS - TYPE 22



Correction Factors

How to calculate a corrected output

1. Calculate the Delta T including air temperature - example:
   Mean Water Temperature (MWT) = (° C Flow + ° C Return) / 2 = (65 + 55) / 2 = 60 ° C
   Required Air Temperature = 21 ° C
   Delta T (ΔT) = Mean Water Temperature - Required Air Temperature = 60 - 21 = 39 ° C
2. Note the Delta T 50 output shown for the specific size you require.
3. Locate the Exponent ('n') for the product you have selected within the Correction Factor table and your calculated Delta T (ΔT).
4. Multiply the Delta T 50 output noted, by the correction factor shown.

Outputs stated within this catalogue are shown at ΔT50 ° C and also calculated at ΔT30 ° C.

Multiplying factors required to calculate outputs at different Delta Ts (ΔTs) between 15 ° C and 60 ° C are shown in the Correction Factor tables on the following page.

EXAMPLE:

Radiator selected =
Double emitter (single fin), 672mm (Height) x 1000mm (Length)

Delta T of System (ΔT) =
39 ° C

Exponent ('n') =
1.28

Output @ Delta T50 =
710(w)

Corrected Output =
710 (w) x 0.7274 (Correction Factor) = 516 (w) at ΔT39

Cover Height (mm)	Cover Length (mm)	Double Emitter (single fin)		
		'n'	Watts ΔT50	Watts ΔT30
672	420	1.28	-	-
	600		355	185
	800		532	277
	1000		710	369
	1200		887	461
	1400		1064	553
	1600		1242	646
	1800		1419	738
	2000		1597	830
	2200		1774	922

Product example: Double emitter (single fin), 672mm (Height) x 1000mm (Length) extracted from page 06.

Correction Factors

	Exponent "n"											
	1.30	1.31	1.30	1.28	1.32	1.30	1.26	1.34	1.31	1.35	1.35	1.34
Height	572		672			872			972		1772	2072
ΔT	Single Emitter	Double Emitter (Double Fin)	Single Emitter	Double Emitter (Single Fin)	Double Emitter (Double Fin)	Single Emitter	Double Emitter (Single Fin)	Double Emitter (Double Fin)	Single Emitter	Double Emitter (Double Fin)	Double Emitter (Double Fin)	Double Emitter (Double Fin)
60	1.2686	1.2703	1.2681	1.2630	1.2728	1.2696	1.2592	1.2778	1.2716	1.2797	1.2810	1.2780
59	1.2410	1.2426	1.2406	1.2361	1.2448	1.2420	1.2327	1.2492	1.2437	1.2510	1.2521	1.2494
58	1.2137	1.2150	1.2133	1.2094	1.2169	1.2145	1.2064	1.2208	1.2160	1.2224	1.2233	1.2210
57	1.1864	1.1876	1.1861	1.1827	1.1893	1.1871	1.1801	1.1926	1.1885	1.1939	1.1948	1.1927
56	1.1594	1.1603	1.1591	1.1562	1.1617	1.1600	1.1540	1.1646	1.1611	1.1657	1.1664	1.1647
55	1.1324	1.1332	1.1322	1.1298	1.1344	1.1329	1.1280	1.1367	1.1338	1.1376	1.1382	1.1368
54	1.1056	1.1063	1.1055	1.1036	1.1072	1.1060	1.1022	1.1090	1.1067	1.1097	1.1102	1.1091
53	1.0790	1.0795	1.0789	1.0775	1.0801	1.0793	1.0764	1.0815	1.0798	1.0820	1.0824	1.0815
52	1.0525	1.0528	1.0524	1.0515	1.0533	1.0527	1.0508	1.0541	1.0530	1.0545	1.0547	1.0542
51	1.0262	1.0263	1.0261	1.0257	1.0265	1.0263	1.0253	1.0270	1.0264	1.0272	1.0273	1.0270
50	1	1	1	1	1	1	1	1	1	1	1	1
49	0.9740	0.9738	0.9740	0.9745	0.9736	0.9739	0.9748	0.9732	0.9737	0.9730	0.9729	0.9732
48	0.9481	0.9478	0.9482	0.9491	0.9474	0.9480	0.9497	0.9466	0.9476	0.9463	0.9461	0.9466
47	0.9224	0.9220	0.9226	0.9238	0.9214	0.9222	0.9248	0.9202	0.9217	0.9197	0.9194	0.9201
46	0.8969	0.8964	0.8971	0.8987	0.8956	0.8966	0.9000	0.8940	0.8959	0.8933	0.8929	0.8939
45	0.8716	0.8709	0.8717	0.8738	0.8699	0.8711	0.8753	0.8679	0.8704	0.8672	0.8667	0.8679
44	0.8464	0.8456	0.8466	0.8490	0.8444	0.8459	0.8508	0.8421	0.8450	0.8412	0.8406	0.8420
43	0.8214	0.8205	0.8216	0.8243	0.8191	0.8208	0.8264	0.8165	0.8198	0.8154	0.8148	0.8164
42	0.7965	0.7955	0.7968	0.7999	0.7940	0.7959	0.8022	0.7910	0.7947	0.7899	0.7892	0.7909
41	0.7719	0.7708	0.7722	0.7756	0.7691	0.7712	0.7781	0.7658	0.7699	0.7646	0.7637	0.7657
40	0.7474	0.7462	0.7477	0.7514	0.7444	0.7466	0.7542	0.7408	0.7452	0.7394	0.7386	0.7407
39	0.7231	0.7218	0.7235	0.7274	0.7199	0.7223	0.7305	0.7160	0.7208	0.7145	0.7136	0.7159
38	0.6990	0.6976	0.6994	0.7036	0.6955	0.6982	0.7069	0.6915	0.6965	0.6899	0.6889	0.6913
37	0.6751	0.6736	0.6755	0.6800	0.6714	0.6742	0.6835	0.6671	0.6725	0.6654	0.6644	0.6669
36	0.6514	0.6498	0.6518	0.6566	0.6475	0.6504	0.6602	0.6430	0.6486	0.6412	0.6401	0.6428
35	0.6279	0.6263	0.6284	0.6333	0.6239	0.6269	0.6371	0.6191	0.6250	0.6172	0.6161	0.6189
34	0.6046	0.6029	0.6051	0.6102	0.6004	0.6035	0.6142	0.5954	0.6016	0.5935	0.5923	0.5952
33	0.5815	0.5797	0.5820	0.5873	0.5771	0.5804	0.5914	0.5720	0.5784	0.5700	0.5688	0.5718
32	0.5586	0.5568	0.5591	0.5646	0.5541	0.5575	0.5689	0.5488	0.5554	0.5468	0.5455	0.5486
31	0.5360	0.5341	0.5365	0.5421	0.5313	0.5348	0.5465	0.5259	0.5326	0.5238	0.5225	0.5257
30	0.5135	0.5116	0.5140	0.5198	0.5088	0.5123	0.5243	0.5032	0.5101	0.5011	0.4997	0.5030
29	0.4913	0.4893	0.4918	0.4977	0.4865	0.4901	0.5023	0.4808	0.4878	0.4786	0.4772	0.4806
28	0.4693	0.4673	0.4699	0.4759	0.4644	0.4681	0.4805	0.4586	0.4658	0.4564	0.4550	0.4584
27	0.4476	0.4455	0.4481	0.4542	0.4426	0.4463	0.4589	0.4367	0.4440	0.4345	0.4331	0.4365
26	0.4261	0.4240	0.4266	0.4328	0.4210	0.4248	0.4376	0.4151	0.4224	0.4129	0.4114	0.4149
25	0.4048	0.4027	0.4054	0.4116	0.3997	0.4035	0.4164	0.3938	0.4011	0.3915	0.3901	0.3936
24	0.3838	0.3817	0.3844	0.3906	0.3787	0.3825	0.3954	0.3728	0.3801	0.3705	0.3691	0.3726
23	0.3631	0.3610	0.3636	0.3699	0.3580	0.3618	0.3747	0.3521	0.3594	0.3498	0.3483	0.3518
22	0.3426	0.3405	0.3432	0.3494	0.3375	0.3413	0.3543	0.3316	0.3390	0.3294	0.3279	0.3314
21	0.3224	0.3204	0.3230	0.3292	0.3174	0.3212	0.3340	0.3115	0.3188	0.3093	0.3078	0.3113
20	0.3026	0.3005	0.3031	0.3093	0.2976	0.3013	0.3141	0.2917	0.2989	0.2895	0.2881	0.2915

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