



**SFT-S210R
SALT SPRAY TESTER
MANUAL**



□ Foreword

- ◆ The test chamber must be grounded effectively. After use, the power supply should be turned off to ensure the safety of use
- ◆ The test chamber should be placed in a ventilated room, and inflammable and explosive products should not be placed around it.
- ◆ Do not place the items in the test box too crowded, and must leave space for hot air circulation.
- ◆ The test chamber has no explosion-proof device, and shall not be put into inflammable and explosive materials to dry, to ensure the safety of use. The resulting damage to the instrument is not in the scope of repair.
- ◆ Not in high voltage, high current, strong magnetic field, so as to avoid interference damage and danger. The resulting damage to the instrument (including accessories) is not within the scope of repair.
- ◆ To do a good job in the daily maintenance of the test box, use, maintenance should be full time personnel into the line, maintenance must be cut off the power supply, to ensure safety
- ◆ Machine should be always kept clean inside and outside, good long-term need not cover the plastic dust cover.
- ◆ Equipment damage caused by human factors, natural disasters or force majeure is not within the scope of repair
- ◆

□ Equipment check

Item	Test	Result
1	Assembly Inspection	
2	The level of inspection tester	
3	Check tightness	
4	Welding Fast Check	
5	Check high and low water mark	
6	Over-temperature protection inspection	
7	Check sequence of movement	
8	Display instructions Check	

□ Test Record Form

Test Date: ____ Day ____ Month ____ Year		
Test Time: ____ Day ____ to ____ Day ____ , ____ Hours in all.		
If the test interrupted , the reason as follows:		
Item	specifications	Setting
Test chamber temperature		35℃±1℃
Saturated air barrel temperature		47℃±1℃
Over-temperature protection	Test Room	65℃±2℃
	Saturation barrel	75℃±2℃
Relative Humidity in Test Room		More than 85%
Compressed Air Press		1±0.1kg/CM ²
Spray volume		1~2ml/80CM ² /h
Heating time		Less than 40 minutes
Salt bucket capacity		9.5L
Consumption of saline solution		10L→more than 15~20 hours
Ambient Temperature		5-30℃

□ Accessories Check

Item	Accessories Name	quantity	Confirmation
1	Main Power Line	1	
2	1 / 4 pressure hose (including connector)	1	
3	FPC V-shape Shelf	6	
4	Glass Rod	8	
5	Brine mixing bucket	1	
6	Alarm Label (group)	1	
7	Operation Manual	1	
8	5/8" inlet and outlet Hose 5M	1	
9	Tube Bank	3	
10	Ø5 exhaust-pipe 3M	1	
11	NaCl2	2	

□ SPECIFICATION

Test condition	Suitable for neutral and acid salt spray test
Working chamber dimension(WxHxD)	900x500x600mm
Working chamber volume	270L
Saline tank volume	25L
Working chamber temperature	35±1°C
Saturated barrel temperature	47±1°C
Saline temperature	35±1°C
Heating mode	Heat radiation
Spray mode	Continuous, intermittent
Test fluid	Neutral: purified water+sodium chloride(PH6.5~7.2)
Compressed air pressure	2~3kgf/cm ²
Power supply	AC220V, 1Ø, 50HZ, 2kW
Dimension(WxHxD)	1560x1250x910mm
Weight	118kg

□ Manual of Salt Spray Tester

The tester introduction and instructions

1. Inside of the test room (First, balance the tester)

A. Spray tower: Built-in glass spray nozzle placed in the internal, Spray through the nozzle guide and then dispersed through the cone-shaped device (made of PVC) dispersed within the test room.

B. Isolation tank: Increased to filled with water, the internal temperature for the isolation and prevent the salt water leakage outside. (Also can be used to balance the level of the tester) .

C. Test chamber water level sensor: Used to measure the temperature with the test chamber.

D. Collector: Each one on right and left side, (except for the type of HL-90-BS) , The collector is gathers the atomization spray nozzle blowout to fall the fog quantity, and then flows into the measuring cylinder outside of the test room via guide pipe. (Remark: The International Standard with the 80MM2 collector to collect fog amount of 1-2ML each an hour, at least to collect more than 16 hours ,seeking mean value. (If each hour surpasses 1-2ML, adjusts the spray tower lowered to decrease the amount of fog. if each hour not to 1-2ML opposite.)

E. Nozzle: Uses in the saturated air barrels has heated up the gas and brine, use of Henry's Law into a mist spray, such as the spray getting smaller and smaller, may come to clean water and air. (Note the nozzle is installed, can not be oblique, cleaning pass with a hard object can not be washed)

F. Saline control switch : used to control the saline flow to maintain a high degree of saline water.

G. Brine filter: used to filter impurities in the saline water, if atomizes getting smaller must clean.

H. Brine outfall : Pull out the plug, saline water from the outfall discharged outside the tester.

I. Drain: unplug and drain water from laboratory and sink.

J. Tester fog outlet: salt fog outlet, not blocked.

K. Tester heater: the heater heats the tester.

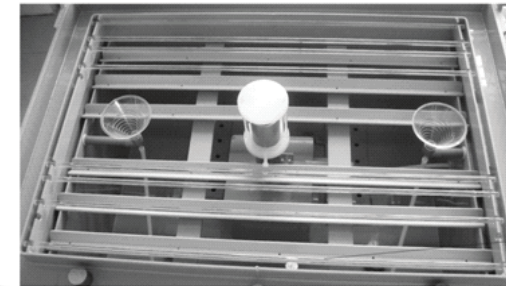
L. Tester water inlet: use the tester water inlet, do not plug it. I. Isolation tank outlet: Pull out the plug, the water discharged through the inner tube.

M. Water levels.

N. Cover support balance pad.

O. Test chamber support shelf: V-type shelf with PVC production load in less than 3kg. (AHL load of 10kg). Support rod for the glass products $\phi 10\text{MM}$, uses in inclining the product for 15°C and 30°C uses, detailed look at the national standard.

PS: Saline injection port : Will the preparation of the salt solution injected into this through the inner pipe flow into the brine heating tank. (NSS, ACSS salt concentration of 5%, the PH value of NSS between 6.5-7.2, the PH value of CASS, ACSS between 2.8-3.2, Experiments each liter saline to join the 0.26g cupric chloride, 10L saline can be used 4-7H)



2 . Introduction and use of the support shelf and external

S. Control panel.

P. Measuring cylinder: it is introduced through the pipe through the collector.

Q. Pressure gauge.

R. Pressure regulating valve.



3. The tester installs the water electricity introduction

R . Saturation barrel manual water device: tap water or purified water, require clean.

S . Tester cover supporting frames: : Support cover use, there is no above plus large-scale tester.

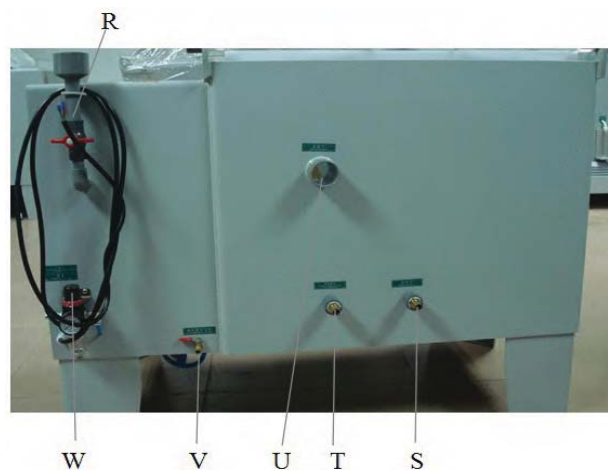
T . Tester inlet: saturated barrels, test chamber heating the water from this port auto supply, require clean water free of impurities, the pressure is more than 1.5KG.

U . Exhaust outlet : For the exhaust port , 50MM in diameter with the introduction of the black hose outdoors, requests straight along not the water, under the outfall, request not water.

V . Saturation barrel outlet : Requested discharge at least once every month.

W. Air inlet: it is required that there are no impurities, and the pressure above 3KG/M2 should be clean, and the pressure above 5KG/M2 should be added to the large scale. The filter valve should be used to enter the saturated barrel of the machine, which should be discharged once every three days. Drainage valve in the filter valve below, can close the air source or upward press can be discharged.

X. Machine cover support frame: it is not used for support cover.



4. Tester operation and control

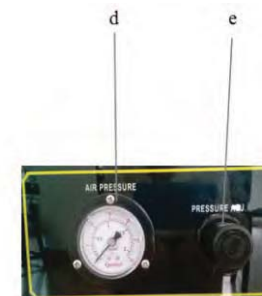
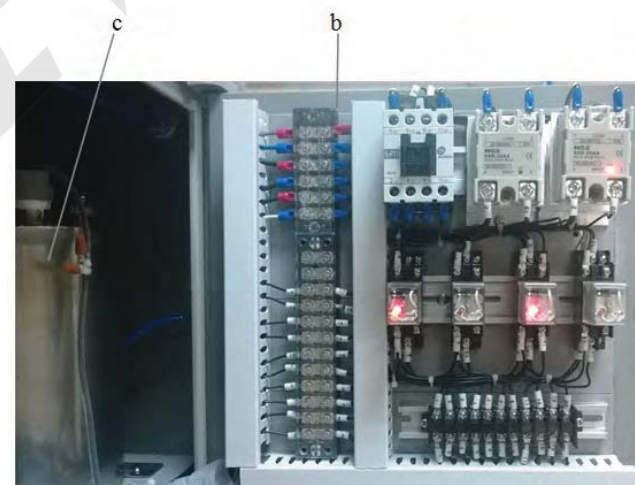
a. Power Line: For details sees the tester specification.

b. Control circuit: only for reference, any questions may consult the company's technician.

c. Control of internal structure: only for reference, detailed consultation with our technician.

d . Pressure Gauge: Showing spray pressure and equipped with pressure regulating valve used.

e . Pressure Regulating Valve : Control the spray pressure, the international standard for the $1 \pm 0.1 \text{ KG/CM}^2$. Each time the starting pressure will surpass 1kg, do not hurry to transfer, half an hour later will move again, pull up the pressure regulating valve. Clockwise to increase, counterclockwise to reduce, Should be adjusted gradually, There are flowing out faster.



F . Control Operation Panel

1. Controller: controls machine operation.
2. Turn on the power and light up.
3. Power switch: power on and off device.



Turn on the power, the meter display is the boot screen.

Main Screen



◆ General Icon description:



Icon on means power on, default is restoration, means running from beginning;



Icon shows status running or pause, flash means running status;



Icon displays means malfunction or alarm, also shows alarm dialog box



Icon shows short water in tank, refill water then to start running;



Icon on means lock the screen, to avoid mis-operation, click icon to unlock/lock;



Temperature Set Value, click can reset;



Saturation temperature set value, click can reset;



Icon show temperature standby;



Icon indicates temperature increasing, decreasing, dwell

Running Time Program total running time

Salt Spray Time(Test time) Already running time and total running time;

◆ Buttons Description:



Click this button to pop up the hardware input and output monitoring screen



This button is to open the process editing window button, edit process related operations



This button opens a file editing window to view alarm bog information, see part V;



This button opens the system settings, set the system basic information



This button opens the curve monitoring screen to export curve data related operations



Run, stop button, run program, a prompt box pops up for user to confirm, see the prompt screen



Defogging button, automatically defog or stops defog according to settings



Open Cover, this icon has 2 different statuses, running and stop; under stop status, keep press this icon, buzzer sounds and tells you to open cover, safety attention and avoid crash; under running status, click this icon displays dialog box Fig1, tells you defogging, fig2, after defogging turns to Fig3, finished defogging, keep press icon, buzzer sounds then open cover, salt spray stops as open cover during running, after close cover, manually click , to continue salt spray.



Close Cover, keep press this icon, buzzer sounds, tells you close the cover, safety attention and avoid crash;



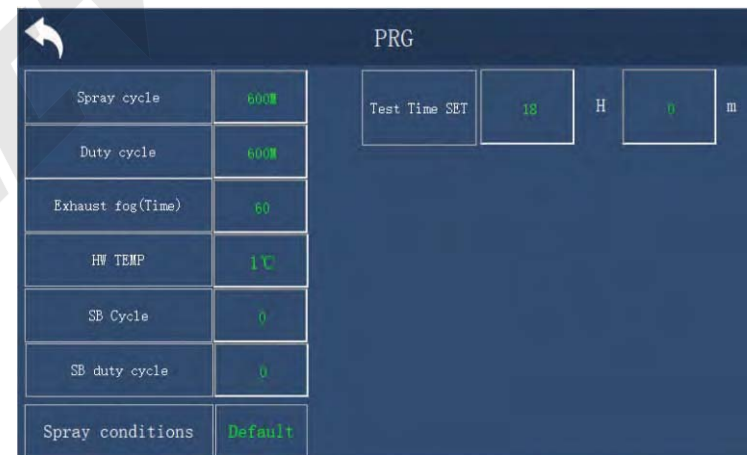
◆ Monitoring:

0	0	X0	X1	X2	X3	X4	X5	X6	X7
QUIT	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	

This interface is used to monitor the performance of the input and output points of the PLC, the corresponding redness indicates that the point has an input or output signal.

Green and red display numbers are internal calculation parameters of the system, this parameter is only for factory use, the user does not need to pay attention to it.

◆ Technology:



Technology Setting Description:

This is to set salt spray period;

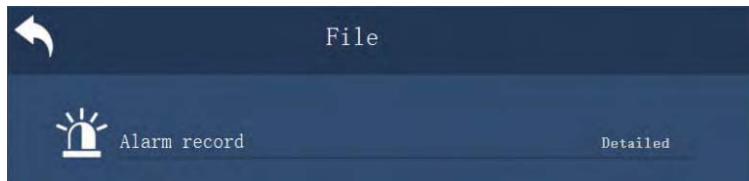
This is to set pause time in a period; for example set period 10M, pause time set 5M, so the spray time is 5M and pause 5M;

This is to set defogging time, means after finished salt spray test, auto defogging time; also support manually click defog button to defog or stop defog;

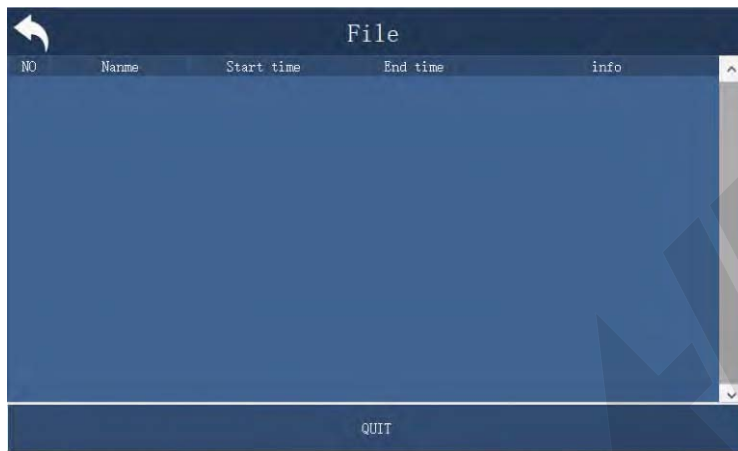
This is to set whole salt spray running time, auto power off once reached the set time;

Standby Temperature Setting, for example, if set this temperature at 1°C, and SV at 50°C, once PV reaches 49°C, salt spray time counts down; if do not need this standby function, can set standby temperature with higher value;

◆ File:



This is only an alarm record in the file management menu, click details to enter sub-menu;



This interface mainly displays the alarm information list, including alarm name, alarm start time, ending time, alarm description, this information mainly records the alarm information that occurs during the operation of the machine, for technician to diagnostic machine.

◆ System Setting



Setting interface Instructions:

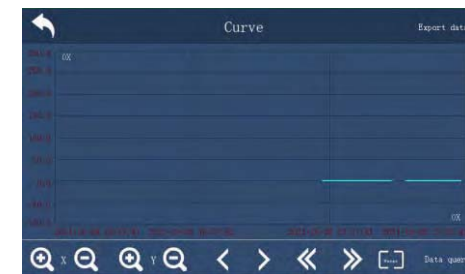
This interface mainly includes settings of power off mode, backlight time, light off time.

Recover, Cold Boot Power failure mode, once power off during operation, and once power supply, if choose recover then the machine will not auto running; while if choose cold boot, then machine will auto running; while at present, only support recover.

Backlight time The screen turns off backlight after waiting for a set time without operation.

Time and Date Set time and date

◆ Curve



Curve interface Description



X-axis coordinate zoom in, click this button, X axis coordinates magnified twice, X-fold in lower right corner;
X-axis coordinate zoom out, click this button, x axis coordinate is zoom out half, X-fold in lower right corner.



Y axis zoom in, click this button, Y axis coordinates magnified twice, Y fold in upper left corner;
Y axis zoom out, click this button, Y axis zoom out half, Y-fold in upper left corner;



Move to the left, click this button, move the curve forward by one unit;



Move to the right, click this button, move the curve backward by on unit;



page up to left, click this button to turn the curve forward;
Page up to right, click this button to trun the curve backward;



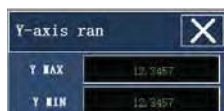
Area line Y-axis display range setting button



Curve data query, positioning button



Export curve data to the U disc button



Y axis coordinate range setting window



Query and pivot.



Export history data to U disc, insert U disc before exporting;

Installation instruction

- 1.Power supply: Refer to the items in page 4.
- 2.The tester should be placed about 40cm away from the wall on the back, and there should remain spaces for maintenance at both left side and right side.
- 3.The gray wire outside the tester is the main power line. A non-fuse switch or knife switch should be installed additionally in front of the power line. The 6m quickly compressed air pipe is combined with air connector (U).
- 4.The inflow port can use PVC 1/2"hard pipe or hose to connect with tap water. The discharge port can use PVC 1/2"hard pipe or hose to discharge wastewater. The water pipe should be downward and lower than the exhaust pipe.
The exhaust port should use PVC 1 1/2"hose and extend to the outdoors to exhaust The installation of exhaust pipe can parallel upward or downward with the tester. (It should not affect the opening of the transparent test cover when installed upward) (When installing PVC hard pipes, the cutting places should not leave plastic debris, otherwise the electromagnetic valve is easy to be blocked and the inflow water will not flow smoothly).
- 5.The installation place of the tester should avoid direct sunshine, which may affect the test conditions.
- 6.The installation place of the tester should be away from other electrical facilities or inflammable matters to avoid hazard.
- 7.The tester is made of PVC plastics, it should not be hit heavily to avoid crack. The applying temperature should not exceed the range of test standards, to avoid distortion or malfunction caused by overheating.
- 8.Setting the test time to be 0~999.9 hours.
- 9.Press down the spray key
 - A.Open the air inlet valve in front of the air compressor.
 - B.Adjust the reducing valve of the air compressor to that the press is 2~3kg/cm2 (the pressure is increasing when turning clockwise while decreasing when turning anticlockwise).
 - C.Adjust the adjusting valve to that the pressure is 1kg/cm2, the pressure can be known by the pressure meter. (The pressure is increasing when turning clockwise while decreasing when turning anticlockwise).
- 10.Press down the timer key, the time will be timed based on the settings, and it will shut down automatically when the timing is completed.
- 11.Close the switches in sequence after the test.
- 12.When there are abnormal conditions appeared during the tests, please treat them referring to the judgment sheet for abnormal functions.

Operation Instruction

1.Preparing test solutions

Preparing method: Add 500g sodium chlorides into 9.5L pure distilled water, and then agitate them to be fully dissolved (The saline water concentration is 5% at that time)

2.Pour the solution into the filling opening of saline water, the solution will flow into the saline water preheating tank.

3.Add water into the wet bulb cup, the wet-bulb thermometer is covered with gauze, and the end of gauze is placed in the wet bulb cup.

4.Place test pieces or samples onto the shelf.

*The putting angles should according to the needed standard specifications.

5.Set the test temperature

*Set the temperatures according to the needed test standards.

A.Saline water test method: the test room temperature 35°C.

the temperature in the saturated air tank is 47°C.

B.Corrosion test method: the test room temperature 50°C.

the temperature in the saturated air tank is 63°C.

6.Press down the power switch, operate the press keys, and preheat at first to reach the setting temperature.

*Note: the test cover should be covered. (If the alarming light showing the water level is not enough is lighting, the water will be supplied automatically until the alarming light showing the normal condition is lighting, then the operation can be continued).

7.Set the test time.

8.Press down the timer key and two keys for the air compressor to start the test.

*If there is no gas appeared when pressing down the spray key, the switch on the air compressor, air inlet valve and adjusting valve should be inspected whether they are open or not.

*To see the finished products in the test room, press down the defog switch, and the fog will be rapidly exhausted to outdoors.

9.Close the switches in sequence after the test.

*If the interval to the next test is very long, the inside of the test room should be washed to keep the tester clean after the finishing of the test.

Judging and Treating on Abnormal Functions

Conditions	Reasons	Treatment
The temperature in the test room can't come up to the setting temperature	Temperature setting for the temperature controller in the test room is too low.The temperature setting for the test room security protection switch is too low.Malfunction of heating system.Malfunction of electromagnetic contactor. Malfunction of controller	Temperature setting for the temperature controller is set at the needed temperature.The temperature setting for the test room security protection switch is set at the needed temperature. Ask the maintain staff to repair according to the layout chart, or contact with the manufacture.
The temperature in the saturated tank can't come up to the setting temperature	Temperature setting for the temperature controller in the saturated tank is too low.The temperature setting for the saturated tank security protection switch is too low.Malfunction of heating system.Malfunction of electromagnetic contactor.Malfunction of controller	Temperature setting for the temperature controller is set at the needed temperature. The temperature setting for the security protection switch is set at the needed temperature. Ask the maintain staff to repair according to the layout chart, or contact with the manufacture.
Spray amount is not enough	The spray adjustor is placed too low. The glass filter in the preheating tank is blocked. The pressure setting is too low.	The spray adjustor should be adjusted to higher place. Clean the glass filter. Adjust the adjusting valve to 1kg/cm ² pressure, or adjust the reducing valve to 2~3kg/cm ² pressure.

Conditions	Reasons	Treatment
There is no spray	The air compressor is not running, the pressure is not enough. Malfunction of electromagnetic valve. Malfunction of pressure meter. Malfunction of electromagnetic contactor. The nozzles are blocked.	Switch on the air compressor. Adjust the adjusting valve to 'kg/cm ² pressure. Notify the manufacturer to treat. Notify the manufacturer to treat. Notify the manufacturer to treat. Detach the nozzles and clean them.
Automatically shut down during the test	The main power supply is shut off. The setting time of timer is reached.	Inspect the main power supply. Stop the timer and then restart.
Water level alarming light	The water level is too low	The water will inflow automatically to the place of
The spray is normal while the air compressor	The air compressor has the function of self-protecting.	Use it normally.

Maintenance

1. When the test time exceeds one month, please replace the water in the heating tank.
2. The saline water solution used for test should not be used when it has not been used for more than one week to avoid affecting the test quality.
3. When the test time exceeds 120 hours, discharge the cumulated water from air compressor.
*Loosen the knob under the air compressor.
4. When the test time exceeds 2000 hours, please replace the tester oils in the air compressor.
*When replacing the tester oils, the air compressor should not be started.
5. If the interval to the next test is very long, the inside of the test room should be washed and the water in the heating tank should be discharged after the finishing of the test.
*Discharge the water in the heating tank—pull up the rubber stopper at the bottom.
Discharge the water in the isolation tank—pull up the rubber stopper at the middle.
Discharge the water in the preheating tank—pull up the inner rubber stopper.

Temperature Chart

Dry Bulb	Temperature Difference Between The Dry Bulb and The Wet Bulb °C																																					
	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	24	26	28	30	32	34	36	38	40			
°C	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%		
2	92	83	75	67	59	52	43	36	23	20																												
4	93	85	77	70	63	56	48	41	34	29	15																											
6	94	87	80	73	66	60	54	47	41	35	23	11																										
8	94	87	81	73	68	62	56	50	45	39	23	17																										
10	94	88	82	75		65	60	54	49	44	24	23	14																									
12	94	89	84	78	73	68	63	58	52	48	33	30	21	14																								
14	95	90	84	79	74	69	65	60	55	51	41	33	24	16	10																							
16	95	90	85	81	76	71	67	62	58	54	45	37	25	21	14	7																						
18	95	90	86	82	78	73	69	66	61	57	49	42	26	27	20	13	8																					
20	96	91	87	82	78	74	70	66	62	58	51	44	26	30	23	17	11																					
22	96	92	87	82	79	75	72	68	64	60	53	46	40	34	27	21	16	11																				
24	96	92	88	85	81	77	74	70	66	63	56	49	43	37	31	25	21	14	10																			
26	96	92	89	85	81	77	74	71	67	64	57	51	45	39	34	28	23	19	13																			
28	96	92	89	85	82	78	75	72	68	65	59	53	47	42	37	31	26	21	17	13																		
30	96	93	89	86	82	79	76	73	70	67	61	55	50	44	39	35	30	24	20	16	12																	
32	96	93	90	86	83	80	77	74	71	68	62	56	51	46	41	36	32	27	23	19	15																	
34	97	93	90	88	84	81	77	74	71	68	62	58	53	48	43	38	34	30	25	22	18	10																
36	97	93	90	87	84	81	78	75	72	70	64	59	54	50	45	41	35	32	29	24	21	13																
38	97	94	90	87	84	81	79	75	73	70	65	60	56	51	46	42	35	34	30	25	23	16	10															
40	97	94	91	88	85	82	79	76	74	71	66	61	57	52	48	44	40	36	32	29	25	19	13															
42	97	94	91	88	85	82	80	77	74	72	67	62	58	53	49	45	41	38	34	31	27	21	15															
44	97	94	91	88	86	83	80	77	75	73	68	63	59	54	50	47	42	39	36	32	29	23	17	12														
46	97	94	91	89	86	83	81	78	75	73	68	64	60	55	52	48	44	41	37	34	31	25	19	14														
48	97	94	92	89	86	84	81	78	76	74	69	65	61	56	53	49	45	42	39	35	33	27	21	16	12													
50	97	94	92	89	87	84	82	79	77	75	70	65	62	57	54	50	47	43	40	37	34	28	23	18	14													
52	97	94	92	89	87	84	82	79	77	75	70	66	62	58	55	51	48	44	41	38	35	30	25	20	16	11												
54	97	95	92	90	87	85	82	80	78	76	71	67	63	59	56	52	49	45	42	39	36	31	26	21	17	13												
56	97	95	92	90	87	85	83	80	78	76	72	68	64	60	57	53	50	46	43	40	38	32	27	23	19	15	11											
58	97	95	93	90	88	85	83	80	79	77	72	68	64	61	57	54	51	47	44	42	39	33	29	24	20	16	12											
60	98	95	93	90	88	86	83	81	79	77	73	69	65	62	58	55	52	48	45	43	40	35	30	25	21	18	14	11										
62	98	95	93	91	88	86	84	81	79	78	73	69	66	62	59	56	53	49	46	43	41	35	31	27	23	19	15	12										
64	98	95	93	91	88	86	84	82	80	78	74	70	66	63	59	56	53	50	47	44	42	37	32	28	24	20	17	13										
66	98	95	93	91	89	86	84	82	80	78	74	70	67	64	60	57	54	51	48	45	43	38	33	29	25	21	18	15	12									
68	98	95	93	91	89	87	85	82	81	79	75	71	67	64	61	58	55	52	49	46	44	39	34	30	26	22	19	16	13									
70	98	96	93	91	89	87	85	83	81	79	75	71	68	65	61	58	55	52	50	47	44	40	35	31	27	23	20	17	14	11								
72	98	96	94	92	89	87	85	83	81	80	76	72	69	65	62	59	56	53	50	48	45	40	36	32	28	24	21	18	15	12								
74	98	96	94	92	90	87	85	83	82	80	76	72	69	66	63	60	57	54	51	48	46	41	37	33	29	25	22	19	16	13	11							
76	98	96	94	92	90	88	86	84	82	80	76	73	70	66	63	60	57	54	52	49	47	42	38	34	30	26	23	20	17	14	12							
78	98	96	94	92	90	88	86	84	82	81	77	73	70	67	64	61	58	55	52	50	47	43	38	34	30	27	24	21	18	15	13	10						
80	98	96	94	92	90	88	86	84	83	81	77	74	71	67	64	61	58	56	53	50	48	43	39	35	31	28	24	22	19	16	14	11						
82	98	96	94	92	90	88	86	84	83	81	77	74	71	68	65	62	59	56	54	51	49	44	40	36	32	29	25	22	20	17	15	12	10					
84	98	96	94	92	90	88	86	84	83	81	78	74	71	68	65	62	59	57	54	52	49	45	40	37	33	29	26	23	20	18	16	13	11					
86	98	96	94	92	91	89	87	85	83	82	78	75	72	69	66	63	60	57	55	52	50	45	41	37	34	31	28	25	22	21	19	16	14	12				
88	98	96	95	93	91	89	87	85	83	82	78	75	72	69	66	63	60	58	55	53	51	46	42	38	34	31	28	25	22	21	19	17	15	13				
90	98	97	95	93	91	89	87	85	84	82	79	76	73	69	67	64	61	58	56	53	51	47	42	39	35	32	28	25	23	20	18	16	14					
92	98	97	95	93	91	89	87	86	84	82	79	76	73	70	67	64	61	59	56	54	52	47	43	39	36	32	29	25	24	21	19	16	14					
94	99	97	95	93	91	89	88	86	84	83	79	76	73	70	67	65	62	59	57	54	52	48	44	40	36	33	30	27	24	22	19	17	15					
96	99	97	95	93	91	90	88	86	84	83	80	76	74	70	68	65	62	60	57	55	53	48	44	41	37	34	31	28	25	22	20	18	16					
98	99	97	95	93	92	90	88	86	85	83	80	77	74	71	68	65	63	60	58	55	53	49	45	41	38	34	31	28	26	23	21	19	17					
100	99	97	95	93	92	90	88	86	85	83	80	77	7																									



