NASAN

DRYER

CATALOGUE

1. Nasan Factory Brief

Shanghai Nasan Industry Co., Ltd. is a professional drying equipment manufacturer located in China's biggest city Shanghai. Until now Nasan has more than 20 years manufacturing experience of different drying temperature dryer machines. Our factory has an excellent quality management team, professional research team and skilled production workers to ensure consistent product quality.

At present Nasan product have exported to more than 40 countries and regions except China, such as United States, Canada, Germany, France, Italy, Spain, Sweden, Hungary, Poland, Cyprus, Israel, United Arab Emirates, Iran, Malaysia, Thailand, Vietnam, India, Myanmar, Singapore, South Korea, Russia, Uzbekistan, Kazakhstan, South Africa, Peru, Uruguay, Mexico, Chile, Brazil, Vanuatu, New Zealand, Australia and so on, product quality and after-sales service was well accepted by these client.

Nasan will insist on our company spirit of "pioneering spirit, never satisfied," business philosophy of "socially responsible", company culture of "honesty, pragmatism, innovation, development ", provide better quality products and services for every client around the world.

Nasan Workshop



• Nasan Certificate



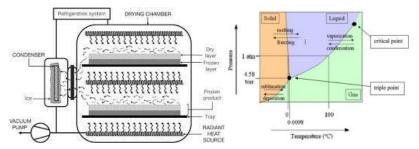
ISO-9001 ISO-24001 CE EU

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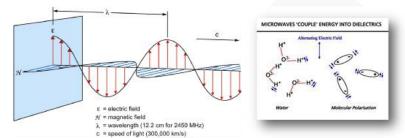
2. Drying Technology Comparison

• Freeze drying



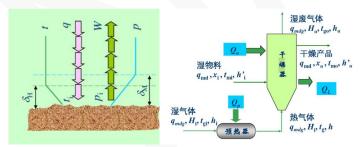
Freeze drying is a low -temperature dehydration process. The main process include: frozen material, reduce the atmospheric pressure and supply the heat, sublimated the frozen water into steam. According to physics decreased pressure will decreased boiling point, the water in the material can be sublimated directly from the water without the liquid phase. First freeze the material to make the moisture in the material into solid ice, second make high vacuum environment, the ice sublimate directly into the steam, third use the condenser to collect the removed steam until the material is dried. The whole process occurs under low temperature and low pressure. The principle of the Nasan freeze dryer machine is the drying heat transfer under low temperature and low pressure.

Microwave drying



Microwave drying principle of water molecules in material absorbing the microwave to heat material itself, make the inside water gasify to evaporate. Because water molecules are polar molecules, it rapid friction motion in microwave, the microwave electromagnetic field be converted into thermal energy to make heating and drying. The strong penetration of the microwave makes the inside and outside of the material uniformly heating at the same time without any heat conduction medium, so microwave drying is the highest -speed and efficient drying mode. Microwave also have have a good sterilization effect because it could destroy the RNA and DNA of bacteria. The principle of Nasan microwave dryer is the wave energy transfer to water molecules heat energy.

Hot air drying



Hot air drying use the hot air as the dry medium, and naturally or mandate the flow circulation method with the material to exchange damp heat. As a result, the water ladder is different from the internal and surface of the material, and the water inside the material spreads to the surface as a steam or liquid. During the entire drying process, the hot air is constantly circulating, not only to pass the hot material in the heat, but also take away the moisture evaporated in the warm material. In order to ensure the drying effect, the temperature and humidity of the hot air are usually required, as well as the ventilation speed of the drying equipment and the thickness of the material layer. The principle of the Nasan hot air dryer is to transmit air heat to the wet material by the air conduction medium.

3. Food-Type Freeze Dryer (-40°C to 30°C vacuum drying)



- Freeze-drying box and shelf made with GMP standards, chamber made of 304SS, the interior is mirror-polished
- Integrated design for chamber and cold trap, with observation window, structure easy to clean without dead angle
- Shelf can be customized built, 304SS plate is made of brushed square steel surface, flat and easy to clean
- Cold trap water capture coil made of stainless steel, integral structure or split structure can be optional
- Refrigeration system use famous brand components, better refrigeration capacity and faster cooling speed
- Vacuum system can provide a combination of multi-purpose vacuum pump sets according to customer requirements
- Using OMRON PLC control manual or automatic, diversified control modes and diversified process procedures
- Use soaking or steam defrosting, quick defrosting, high efficiency and clean process
- With pre-freezing function, no need pre-freezing warehouse to avoid liquefaction and pollution during movement
- With process adjustment and curve temperature control, can be adjusted to requirements of different materials

Model	Unit	NF-5	NF-10	NF-20	NF-30	NF-50	NF-70	NF-100	NF-200	NF-300
Lyophilize Area	m ²	5	10	20	30	50	70	100	200	300
Average Loading	kg	50	100	200	300	500	1000	1000	2000	3000
Electric Voltage	V	110-440	110-440	110-440	110-440	110-440	110-440	110-440	110-440	110-440
Electric Frequency	hz	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Total Power	kw	20	40	70	120	150	190	250	350	500
Ultimate Vacuum	Pa	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Shelf Size	cm	100-100	150-100	200-100	300-100	310-54	435-54	620-54	930-54	930-81
Shelf Quantity	pcs	5+1	7+1	10+1	10+1	(15+1)*2	(15+1)*2	(15+1)*2	(20+1)*2	(20+1)*2
Shelf Distance	mm	65	65	65	77	77	77	77	77	77
Tray Size	mm	50-50-3	50-50-3	50-50-3	50-50-3	62-54-4	62-54-4	62-54-4	62-54-4	62-54-4
Tray Quantity	pcs	20	40	80	120	150	210	300	600	600
Trolley Quantity	pcs	1	1	1	1	2	4	4	8	12
Catcher Capacity	kg	100	200	400	600	800	1100	1500	3000	4500
Shelf Temperature	°C	-45~80	-45~80	-45~80	-45~80	-45~80	-45~80	-45~80	-45~80	-45~80
Catcher Temperature	°C	-65	-65	-65	-65	-65	-65	-65	-65	-65
Dicing Water	kg	400	1000	2000	3000	4000	6000	8000	15000	20000
Cooling Water	m3/h	20.7	29.3	40.6	52.5	55.3	90.7	110.7	206.1	137.3*2
Electric heat	kw	9	16	24	12*3	16*4	20*4	24*4	32*6	48*6
Air Consumption	L/M	60	60	60	60	80	100	120	160	160
Machine Length	mm	2500	4500	7300	8600	9100	12000	16000	29000	44000
Machine Width	mm	2100	2100	2100	2100	2500	2500	2500	2500	2500
Machine Height	mm	2600	2600	2600	2600	3600	3600	3600	3600	3600
Machine Weight	kg	5000	6500	7500	10000	14000	18000	20000	36000	60000

4. Pharmacy-Type Freeze Dryer (-70°C to 30°C vacuum drying)







- Meet the GMP standard, the material of the chamber is AISI304 or AISI316L
- Inner chamber use round corner design, make the chamber easy to access and reduce dead corners
- Internal welding of the chamber is smooth treated, shelf material is heated evenly during the manufacture, avoiding welding stress and ensuring the flatness of the shelf
- Heat transfer medium uses low-viscosity silicone oil, temperature uniformity is good at the extreme low temperature
- Main unit parts use famous international brand spare to ensure the quality of the equipment
- Using OMRON PLC control system, the control mode and process program are diversified, included the functions of authority management and traceability
- Can provide 4Q certification documents, provide comprehensive training and services

Model	Unit	NP-05	NP-1	NP-3	NP-5	NP-10	NP-20	NP-30	NP-40	NP-50
Lyophilize Area	m ²	0.5	1	3	5	10	20	30	40	50
Electric Voltage	V	110-440	110-440	110-440	110-440	110-440	110-440	110-440	110-440	110-440
Electric Frequency	hz	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Total Power	kw	9	15	30	36	72	101	139	205	280
Liquid Volume	L	10	20	65	100	220	400	600	850	1050
Φ16mm Bottle Load	pcs	1900	3900	15000	21000	46400	83000	120000	168000	188000
Φ22mm Bottle Load	pcs	1000	2000	7500	10500	23700	42000	60000	8200	9600
Shelf Width	mm	300	450	600	900	915	1200	1495	1495	1495
Shelf Depth	mm	450	600	900	1200	1215	1495	1800	2000	2000
Shelf Quantity	pcs	4+1	4+1	6+1	5+1	9+1	11+1	11+1	14+1	14+1
Shelf Distance	pcs	100	100	100	100	100	100	100	100	100
Shelf Temperature	°C	-55~80	-55~80	-55~80	-55~80	-55~80	-55~80	-55~80	-55~80	-55~80
Catcher Temperature	°C	-75	-75	-75	-75	-75	-75	-75	-75	-75
Catcher Capacity	kg	10	20	65	100	220	400	600	850	950
Ultimate Vacuum	Pa	1	1	1	1	1	1	1	1	1
System Leakage	Pa/s	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Machine Length	mm	1650	2100	4500	5300	5800	7500	8000	9000	11000
Machine Width	mm	1200	1200	1800	2000	2500	2350	2720	3000	3000
Machine Height	mm	1900	2500	3300	3050	3400	4200	4300	4600	4600
Machine Weight	kg	1200	1200	5500	6000	10500	16000	22000	26000	30000

5. Laboratory-Type Freeze Dryer (-40°C to 30°C vacuum drying)







- Patented products with advanced technology.
- The products are beautiful and fashionable and the dimension is small.
- Operate on touch screen, one key start to automatic control freeze-drying process, easy and convenient operation.
- Set and real-timely adjust freeze-drying technology by requirement and show the freeze-drying data and curve.
- The imported key components are characterized by low noise, great power, high quality and high performance.
- Advanced system, small running current and low energy consumption.
- Dish and inner tank are made of SUS304 stainless steel, which guarantees the safety of product.
- Fast defrosting technique and automatic protection for overheat.
- The transparent organic glass door is helpful in observing the freeze-drying process of materials.

Model	Unit	NL-01	NL-04	NL-06	NL-08	NL-1	NL-2	NL-3	NL-B18	NL-B27
Lyophilize Area	m²	0.1	0.4	0.6	0.8	1	2	3	0.18	0.27
Average Loading	kg	1	4	6	8	10	20	30	8PCS	8PCS
Electric Voltage	V	110-440	110-440	110-440	110-440	110-440	110-440	110-440	110-440	110-440
Electric Frequency	hz	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Total Power	kw	1	1.5	2	2.5	8	40	290	1.5	2.5
Cold Trap Temperature	°C	-45	-45	-45	-45	-45	-45	-45	-80	-80
Ultimate Vacuum	Pa	10	10	10	10	10	10	10	5	5
Shelf Spacing	mm	45	45	45	45	70	70	70	1	1
Tray Dimension	mm	145*275	195*445	345*425	365*455	460*560	540*620	620*810	50-1000ml	50-1000ml
Tray Layer	layer	3	4	4	5	4	6	6	4	6
Shelf Quantity	pcs	3	4	4	5	4	6	6	4	6
Shelf Temperature	°C	-35~70	-35~70	-35~70	-35~70	-35~70	-35~70	-35~70	-35~70	-35~70
Temperature Setting	°C	±1	±1	±1	±1	±1	±1	±1	±1	±1
Machine Length	mm	550	600	770	820	1000	1500	1900	560	600
Machine Depth	mm	750	800	810	880	1750	2100	2300	710	1200
Machine Height	mm	830	870	1200	1280	1900	1900	2100	952	1390
Machine Weight	kg	50	80	120	150	200	250	280	120	180

6. Refrigeration House for Freeze Dryer





- Small and medium-sized cold storage below 3000 square meters and large cold storage above 3000 square meters are customized according to requirements
- PLC control, multi-point monitoring, real-time alarm, remote hosting to ensure safe operation
- Scientific cold storage design, reasonable selection of the foundation, standardized cold storage construction support, scientific detection and control system
- Library insulation material optional: polyurethane PU, polystyrene EPS, extruded board XPS
- According to the building envelope, it is divided into civil cold storage and prefabricated cold storage, and according to the temperature, it is divided into fresh storage, cold storage, quick-freezing storage, and air conditioning storage



Item	Temperature (°C)	Relative Humidity (%)	Applicable Food Range
Cool Room	0 ~ 4	-	meat, eggs
Freeze Room	-18 ~ -23 -23 ~ -30	-	meat, poultry, rabbit, frozen eggs, vegetables Fish, shrimp
Cool Material Storage Room	0 -2 ~ 0 -1 ~ 1 0 ~ 2 -1 ~ 1 2 ~ 4 7 ~ 13 11 ~ 16	85 ~ 90 80 ~ 85 90 ~ 95 85 ~ 90 90 ~ 95 85 ~ 90 85 ~ 95 85 ~ 90	meat, poultry eggs fish apples, pears cabbage, garlic, onion,coriander, carrot, kale, celery, lettuce potatoes, oranges, lychee persimmon, pepper, beans, cucumber, tomato, spinach, citrus banana
Freeze Material Storage Room	-15 ~ -20 -18 ~ -23	85 ~ 90 90 ~ 95	meat, poultry, rabbit, frozen eggs, frozen spinach, ice cream Fish, shrimp
Ice Room	-4 ~ -6	-	Ice

7. Vacuum Microwave Dryer (fastest vacuum drying use 10°C to 30°C)



- Vacuum drying pressure -100Kpa or 10mbar, drying temperature use 10°C to 30°C, every drying batch is 2 to 4 hours
- Vacuum drying system included vacuum chamber, water cooling tower, condenser, vacuum pump and water chiller
- Low temperature vacuum drying maximum save the activity of the materials, nutrition ingredient and original color
- Compare to freeze dryer, dried material quality is similar but energy and time is much less then freeze dryer
- Whole drying machine use famous international brand spare parts, suit to CE and UL quality standard
- Drying machine use rotate and moveable drying structure, make sure drying material is average drying
- Auto finish drying process by Siemens PLC and touch screen program, operate language can be local language
- Drying machine installed remote control system for after sales maintenance

Model	Unit	NV-3	NV-9	NV-15	NV-30	NV-48	NV-60	NV-120	NV-156	NV-252
Microwave Power	kw	3	9	15	30	48	60	90	156	252
Microwave Evaporation	kg/h	3.3	9.9	16.5	33.0	52.8	66.0	99.0	171.6	277.2
Installation Power	kw	6	22	28	48	72	88	138	186	282
Electric Voltage	V	110-440	110-440	110-440	110-440	110-440	110-440	110-440	110-440	110-440
Electric Frequency	hz	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Microwave Power Control	kw	±0.25	±0.25	±0.25	±0.25	±0.25	±0.25	±0.25	±0.25	±0.25
Frequency Converter	%	25-100	25-100	25-100	25-100	25-100	25-100	25-100	25-100	25-100
Temperature Control	°C	±1	±1	±1	±1	±1	±1	±1	±1	±1
Drying Temperature	°C	10-30	10-30	10-30	10-30	10-30	10-30	10-30	10-30	10-30
Drying Period	h	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4
Vacuum Degree	mbar	10	10	10	10	10	10	10	10	10
Microwave Leakage	mw/cm ²	≤1	≤1	≤1	≤1	≤1	≤1	≤1	≤1	≤1
Working Condition	°C	-5-45	-5-45	-5-45	-5-45	-5-45	-5-45	-5-45	-5-45	-5-45
Working Humidity	%	≤80	≤80	≤80	≤80	≤80	≤80	≤80	≤80	≤80
Machine Length	mm	1200	1700	2200	3000	4580	4580	8680	9600	12500
Machine Depth	mm	1100	1740	2120	2120	2120	2120	2120	2250	2250
Machine Height	mm	1600	2080	2460	2460	2520	2520	2520	2440	2440
Machine Weight	kg	500	1500	2000	3000	4500	5000	7800	9600	11800

8. Microwave and Hot-air Mixed Kiln Dryer (60°C to 200°C atmospheric drying)







- Atmospheric pressure drying by temperature 70°C to 120°C, drying time depend on machine drying power
- Could be small scale model for laboratory to do microwave research
- Could be higher microwave power design for high temperature 1500°C sintering
- Machine could do sterilize to kill the insert and bacteria, temperate use 60°C to 90°C, time 3 to 8 minutes
- Whole drying machine use famous international brand spare parts, suit to CE and UL quality standard
- Auto finish drying process by Siemens PLC and touch screen program, operate language can be local language
- Drying machine installed remote control system for after sales maintenance
- Could add on hot air drying chamber, infrared drying chamber and dehumidifier chamber to get bigger quantity drying

Model	Unit	NK-3	NK-6	NK-18	NK-24	NK-36	NK-48	NK-60	NK-90	NK-120
Microwave Power	kw	3	6	18	24	36	48	60	90	120
Microwave Evaporation	kg/h	3.3	6.6	19.8	26.4	39.6	52.8	66.0	99.0	132.0
Hot Air Power Option Mixed	kw	3	3	6	9	12	16	20	30	40
Total Installation Power	kw	8	11	30	42	58	75	95	122	165
Electric Voltage	V	110-440	110-440	110-440	110-440	110-440	110-440	110-440	110-440	110-440
Electric Frequency	hz	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Magnetron Control	kw	≤±1	≤±1	≤±1	≤±1	≤±1	≤±1	≤±1	≤±1	≤±1
Frequency Converter	%	25-100	25-100	25-100	25-100	25-100	25-100	25-100	25-100	25-100
Temperature Control	°C	≤±1	≤±1	≤±1	≤±1	≤±1	≤±1	≤±1	≤±1	≤±1
Drying Temperature	°C	70-200	70-200	70-200	70-200	70-200	70-200	70-200	70-200	70-200
Drying Period	h	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4
Microwave Leakage	mw/cm ²	≤1	≤1	≤1	≤1	≤1	≤1	≤1	≤1	≤1
Working Condition	°C	-5-45	-5-45	-5-45	-5-45	-5-45	-5-45	-5-45	-5-45	-5-45
Working Humidity	%	≤80	≤80	≤80	≤80	≤80	≤80	≤80	≤80	≤80
Machine Length	mm	1150	1350	2150	2150	4200	4200	4200	5600	6300
Machine Depth	mm	1000	1500	2100	2100	2100	2100	2800	5800	2800
Machine Height	mm	1500	1860	2300	2300	2300	2300	2600	2600	2600
Machine Weight	kg	300	500	900	1000	1600	1800	2400	2800	3200

9. Microwave and Hot-air Mixed Tunnel Dryer (60°C to 200°C atmospheric drying)



- Atmospheric pressure drying by temperature 70°C to 120°C, drying time depend on machine drying power
- Continue drying model for high efficiency operate, could connect to feed and discharge system
- Conveyor belt and be included holes or no holes, conveyor speed could be adjust too
- Tunnel dryer system included dry chamber parts and water cooling tower
- Machine could do sterilize to kill the insert and bacteria, temperate use 60°C to 90°C, time 3 to 8 minutes
- Whole drying machine use famous international brand spare parts, suit to CE and UL quality standard
- Auto finish drying process by Siemens PLC and touch screen program, operate language can be local language
- Drying machine installed remote control system for after sales maintenance
- Could add on hot air drying chamber, infrared drying chamber and dehumidifier chamber to get bigger quantity drying

Model	Unit	NT-18	NT-36	NT-60	NT-90	NT-150	NT-240	NT-360	NT-480	NT-600
Microwave Power	kw	18	36	60	90	150	240	360	480	600
Microwave Evaporation	kg/h	19.8	39.6	66.0	99.0	165.0	264.0	396.0	528.0	660.0
Hot Air Power Option Mixed	kw	6	12	20	30	50	80	120	160	200
Total Installation Power	kw	34	60	95	145	225	365	530	730	940
Electric Voltage	V	110-440	110-440	110-440	110-440	110-440	110-440	110-440	110-440	110-440
Electric Frequency	hz	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Microwave Control	kw	±1	±1	±1	±1	±1	±1	±1	±1	±1
Hot Air Control	kw	±3	±3	±3	±3	±3	±3	±3	±3	±3
Temperature Control	°C	±1	≤±1	≤±1	≤±1	≤±1	≤±1	≤±1	≤±1	≤±1
Drying Temperature	°C	65-130	65-130	65-130	65-130	65-130	65-130	65-130	65-130	65-130
Microwave Leakage	mw/cm ²	≤1	≤1	≤1	≤1	≤1	≤1	≤1	≤1	≤1
Feeding Height	mm	30-990	30-990	30-990	30-990	30-990	30-990	30-990	30-990	30-990
Transport Speed	m/min	0.1-30	0.1-30	0.1-30	0.1-30	0.1-30	0.1-30	0.1-30	0.1-30	0.1-30
Working Condition	°C	-5-45	-5-45	-5-45	-5-45	-5-45	-5-45	-5-45	-5-45	-5-45
Working Humidity	%	≤80	≤80	≤80	≤80	≤80	≤80	≤80	≤80	≤80
Drying Chamber	pcs	2	4	6	8	9	12	14	18	24
Conveyor Belt Width	mm	900	900	900	900	2000	2000	2000	2000	2000
Machine Width	mm	1460	1680	1680	1680	3980	3980	3980	3980	3980
Machine Height	mm	1820	1820	1820	1820	2200	2200	2200	2200	2200
Machine Length	mm	5800	8600	10600	12900	13600	16000	20400	24800	31800
Machine Weight	kg	900	2000	3000	4200	6500	9800	15000	18600	25800

10. Recycle hot-air Dryer (60°C to 200°C atmospheric drying)



- The temperature is fast, the hot air is turned on, and the heat inertia is small. PID/SSR control, LED digital display temperature, room temperature to 350°C can be adjusted and controllable
- Using high -purity 2080 pure cotton nickel chromium electric heating wire, aluminum oxide heat -resistant material skeleton, stainless steel outlet, high -quality crystal insulation fiber cotton
- The air volume is large, the pressure loss is small, the heat exchange rate is high, and Equipped with a low noise fans, the fan pressure is available
- A variety of safety protection devices, a solid shell, the use of the body's shell has no heat, and does not have a heat effect on the use environment
- Local and long -range dual modes are free to switch, regular start, time stop, wind turbine stop, RS458 communication, fault alarm function.
- The design of this product is scientific, advanced in craftsmanship, can be used continuously, can be used for transportation, easy to disassemble

Model	Unit	NA-3	NA-5	NA-10	NA-20	NA-30	NA-60	NA-80	NA-120	NA-300
Heat power	kw	3	5	10	20	30	60	80	120	300
Air max temperature	°C	350	350	350	350	350	350	350	350	450
Air outlet size	mm	63	63	76	133	133	159	219	219	300
Electric Voltage	V	110-440	110-440	110-440	110-440	110-440	110-440	110-440	110-440	110-440
Electric Frequency	hz	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Fan Power	kw	0.25	0.37	0.55	1.5	2.2	4	5.5	11	15
Air Flow	m³/h	504	660	840	2600	3500	2062	2504	3488	4900
Air Pressure	ра	850	850	1020	1400	1560	4603	4297	5323	7100
Air inlet size	mm	63	63	76	133	133	159	219	219	219
Fan noise	db	70	70	70	70	70	70	70	70	70
Machine Length	mm	655	780	960	1260	1260	1430	1560	1600	2000
Machine Depth	mm	380	430	500	600	600	600	710	790	1350
Machine Height	mm	445	490	605	780	780	945	1050	1060	1300
Machine Weight	kg	22	35	55	90	120	180	250	300	500

11. Dried Product Photo Reference



12. Nasan Client Factory Reference



China Client Factory



China Client Factory



China Client Factory



Germany Client Factory



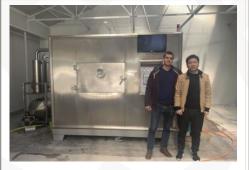
Spain Client Factory



France Client Factory



Canada Client Factory



Hungary Client Factory



Poland Client Factory



Malaysia Client Factory



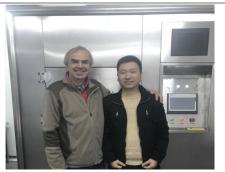
Pakistan Client Factory



Thailand Client Factory



Korea Client Factory



Chile Client Factory



Australia Client Factory

13. Contact Nasan to get an Offer

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