

NASAN DRYER CATALOGUE

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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, Japan, South Korea, Singapore, Malaysia, Thailand, Vietnam, India, Myanmar, Jordan, Israel, United Arab Emirates, Iran, 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



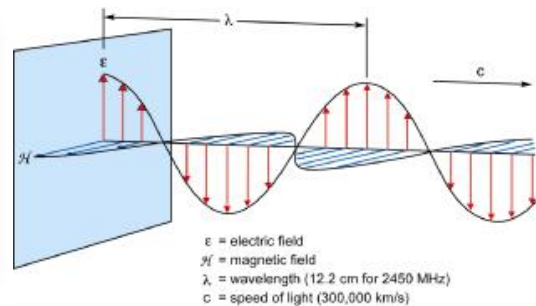
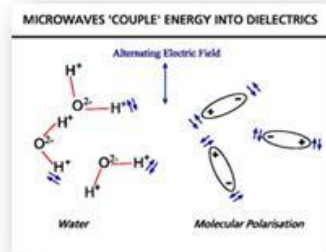
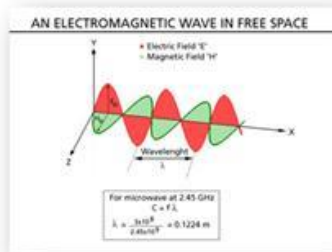
ISO-9001

ISO-24001

CE

EU

2. Drying Technology Brief



● Microwave

Microwave refers to the electromagnetic waves frequency between 300MHz-300GHz, wavelength is between 1mm to 1m. Microwave usually shows penetration, reflection and absorption characteristics. For glass, plastic and porcelain, microwave will penetrate it without being absorbed. For water and food, it will absorb microwave and heating itself. For metal material, it will reflect the microwave.

● Microwave Drying

Water molecule is polar molecule, it will change its polarity and friction motion cause by the effect of high speed change of high frequency electromagnetic field. Then the microwave electromagnetic field energy can be converted into heat energy, and achieve the purpose of drying. Microwave uniform heat up the material inside and outside because of the strong penetrability, will not appear outside dry but inside wet. Body heat source state formation shortens the time of heat conduction and save a lot of drying time.

● Vacuum Microwave Drying

Vacuum microwave drying is a low -temperature dehydration process. According to physics decreased pressure will decreased boiling point, the water in the material can be evaporate by very lower temperature. First use vacuum pump to make vacuum drying chamber to vacuum condition, then open the microwave to heat the material, finally use condenser to collect the removed steam until the material is dried. The whole process occurs under low temperature and low pressure, compare to vacuum freeze drying, the dried quality is almost the same but drying time is much shorter and use much less energy. .The principle of Nasan microwave dryer is the wave energy transfer to water molecules heat energy in the vacuum condition to get the fastest and the best dried production.

● Microwave Sterilization

Microwave sterilization temperature is from 65°C to 85°C, period is from 3 to 5 minutes. Microwave thermal effects change the bacterial protein, make it lose nutrition, reproduction and survival conditions and death. Microwave electromagnetic field can make normal growth and stability of the genetic breeding of bacteria nucleic acid [RNA] and deoxyribonucleic acid [DNA] number of hydrogen bonds slack, breakage and recombination, thereby inducing genetic mutations, chromosomal aberrations and even rupture.

● Microwave Dryer Advantages

1. Equipment effect at once, power adjustable, transmission speed adjustable, no thermal inertia residues, compare with the conventional process equipment to save energy by 50%.
2. Make the material itself become body heat source state, no need heat transfer process, can achieve the drying temperature within a very short time.
3. Microwave uniform heat up the material inside and outside because of the strong penetrability, will not appear outside dry but inside wet.
4. Microwave can fast sterilization under low temperature sterilization, material store for a long time will not mildew.
5. Due to the fast drying speed microwave drying maximum save the activity of the materials, nutrition ingredient and the original color.
6. Microwave leakage control in metal drying chamber and the waveguide, no radiation damage and harmful gas emissions, not produce waste heat and dust pollution, microwave drying is efficient, economic and environmental.

3. Microwave Vacuum Dryer (fastest drying with 10 to 30°C temperature)



- 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-2	NV-9	NV-15	NV-20	NV-25	NV-40	NV-50	NV-156	NV-252
Microwave Nominal Power	kw	2.5	11.2	18.8	25.0	31.2	50.0	62.5	195.0	315.0
Max Water Evaporation	kg/h	2.2	9.9	16.5	22.0	27.5	44.0	55.0	171.6	277.2
Working Vacuum	mbar	10	10	10	10	10	10	10	10	10
Microwave Power Control	kw	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1
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 Installation Power	kw	5	18	28	38	52	62	78	186	282
Frequency Converter	%	10-100	10-100	10-100	10-100	10-100	10-100	10-100	10-100	10-100
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
Batch Drying Time	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	1100	1700	2200	3000	3000	4580	4580	9600	12500
Machine Depth	mm	1200	1860	2100	2100	2100	2100	2100	2250	2250
Machine Height	mm	1700	2100	2400	2400	2400	2400	2400	2440	2440
Machine Weight	kg	300	1500	2000	2800	3000	4800	5000	9600	11800

4. Microwave Batch Dryer (Combined Hot-air Option)



- Atmospheric pressure drying by temperature 65°C to 130°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 process
- Machine could do sterilize to kill the insert and bacteria, temperate use 65°C to 90°C, time 2 to 10 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	NB-3	NB-6	NB-18	NB-24	NB-36	NB-48	NB-60	NB-90	NB-120
Microwave Nominal Power	kw	3.75	7.5	22.5	30.0	45.0	60.0	75.0	112.5	150.0
Max Water 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
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 Installation Power	kw	8	11	30	42	58	75	95	122	165
Microwave Power Control	kw	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1
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
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

5. Microwave Continue Dryer (Combined Hot-air and Multi-layer Option)



- Atmospheric pressure drying by temperature 65°C to 130°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 65°C to 90°C, time 2 to 10 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 Nominal Power	kw	22.5	45.0	75.0	112.5	187.5	300.0	450.0	600.0	750.0
Max Water 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
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 Installation Power	kw	34	60	95	145	225	365	530	730	940
Microwave Power Control	kw	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1
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

6. Dried Product Photo Reference



Strawberry Drying



Banana Drying



Pineapple Drying



Broccoli Drying



Carrot Drying



Rose Drying



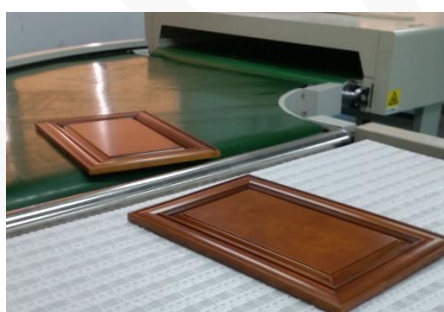
Cheese Drying



Chicken Drying



Seafood Drying



Wood Drying



Paper Tube Drying



Pharmacy Drying



Chemical Drying



Chemical Drying



Cosmetics Drying

7.Client Factory Reference



China Client Factory



China Client Factory



China Client Factory



Sweden Client Factory



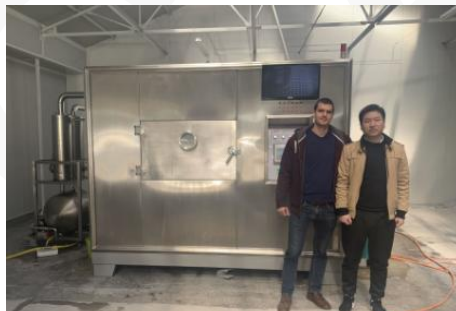
Spain Client Factory



France Client Factory



Kazakhstan Client Factory



Hungary Client Factory



Canada Client Factory



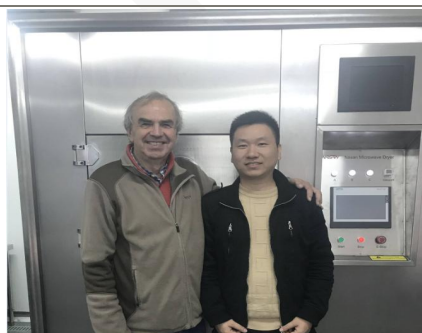
Malaysia Client Factory



Pakistan Client Factory



Thailand Client Factory



Chile Client Factory



Mexico Client Factory



Australia Client Factory

8. Contact Nasan to get an Offer

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