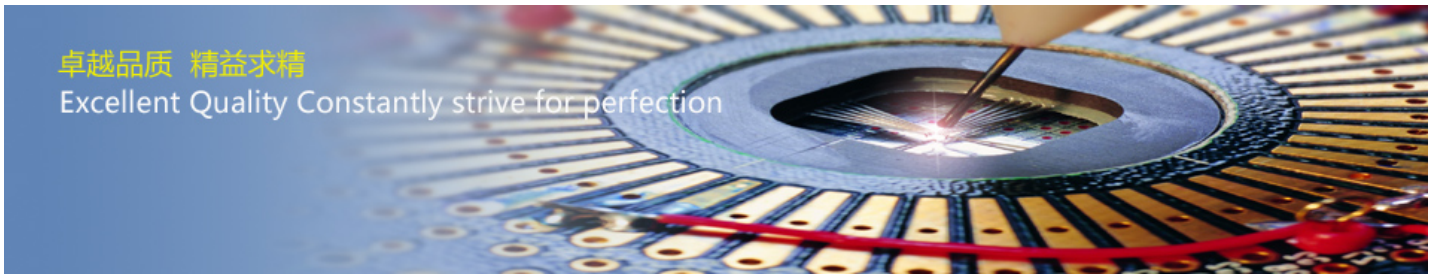

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Products >> PR5200 Motor Soft Starter

Name：PR5200 Motor Soft Starter

Power range：5.5KW~400KW
Voltage level： 3 phase 220V
3 phase 380V
3 phase 460V
3 phase 660V

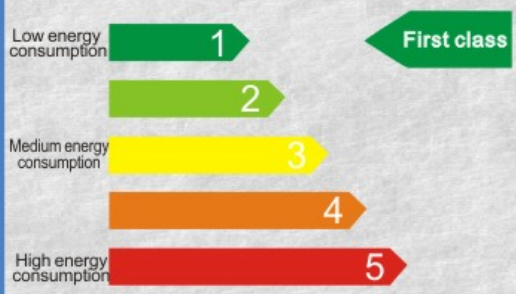
Description

Product Positioning:

PR5200 series motor soft starters, is to solve motor smooth start and stop. For motor contr without the requirement of speed regulation, it's a good cost-effective solution.

PR5200 series soft starter, with the newest motor control theory and proprietary motor protection technology, it's an alternative products of old star delta conversion, auto-induction voltage-reduced starting and Excitation step-down device.

Product performance show:



Reduce energy consumption

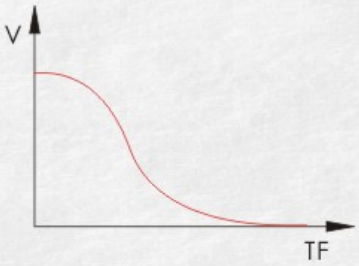
Efficiently reduce motor start current.

Distribution capacity can be reduced.

Save the cost of grid expansion.

Improve performance

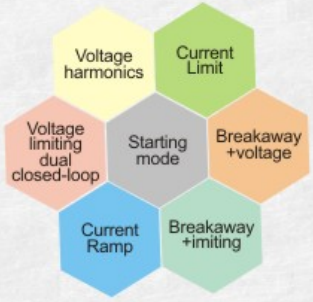
Reduce the stress of motor and load starting, prolonging life of motor and related device.



Soft stop function

Soft stop function efficiently solve the stop of inertial systems.

Surge problem: It can not be realized by traditional starting device.A



Multi-Mode Start

6 kinds of special start model: To suit complicated motor and load situation.

Reliable protection function

Voltage loss, overload, load short circuit protection;

Input phase loss, output phase loss, 3 phase unbalance protection;

Soft starter over heat, motor under load, too long starting time protection.

Humanization design

Beautiful appearance, reasonable structure.

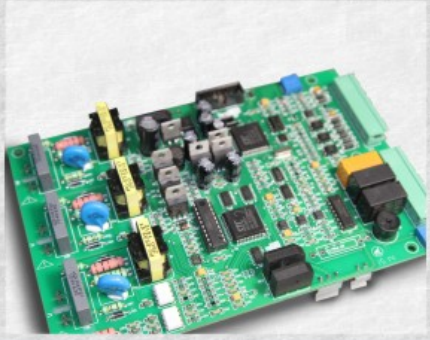
Fully functional, easy to operate.

Solid and reliable, compact structure.

Industrial products, art design.

Soft stop function

Main circuit adopt 3 wires input and six wires output, realize automatic monitoring, five kinds of simple PLC function: Delayed start, the chain of control, fault contact output, start time, stop time.



Reliable quality guarantee

Adopt computer simulation design

SMT chip production technology

Excellent electromagnetic compatibility

High-temperature aging, vibration test before delivery.

Quick and thoughtful service

Reliable performance and quality service as the foundation of good service

Provide excellent design for the scheme

Timely and thoughtful use consultants

Continuously improve product performance based on user comments

Silicon controlled rectifier - Cake model thyristor

Thyristor is PNPN four semiconductor structure,

three poles: Anode, cathode and gate; Thyristor, with the performance of silicon rectifier device, can work in high voltage and current, and the working process can be controlled. Widely used in controlled rectifier, AC voltage regulation, non-contact electronic switch, inversion and frequency conversion electronic circuit. (Optional)

Silicon controlled rectifier model

Small size, light weight, compact structure, high reliability, simple external line, interchangeability, ease of maintenance and installation: Structure repeatability, mechanical design of the apparatus can be simplified. (Optional)

Keyboard Instruction:

JPR3E5200 keyboard

Name	Instruction
Startup state	When the indication ready light display 5200 or READY, then soft starter can start. The displaying 5200 means POWTRAN 5200 series soft starter. And ready means ready to start.
Delay state	Ready or error state indication light flash means interval, display dE×××" and countdown means startup delay.
Start and stop key	In the process of soft startup, the screen display ×××× to indicate motor current, and only Stop key is valid, and cannot enter menu to set parameter, and ready, running, error lights black out. In the process of soft stop, the screen display×××× to indicates motor current, and only RUN key is valid, and cannot enter menu to set parameter, and ready, running, error lights black out, Meanwhile the stop key has reset function.
PRG Key	In the non-help mode, press the PRG Key to enter the setup menu, display PX: XXX, then press PRG key again, colon flashes, that means can modify the parameters after colon. Press the Set key when the colon flashes, if the data has been modified, it will display good and twice ring, indicating that new data has been saved, and then exit. If you do not want to save the new data, press the PRG key, colon will stop flashing and restoring the original data, then press Set key or Stop key to exit.
Set Key	In the non-setting state, press the Set key to enter the Help menu, display HX: XXX, press the Set key or Stop key to exit. In setting state, press the Set key to save the new setting of data and to exit the setting state.
Acceleration, deceleration key	In the setting menu, when the colon does not flash ,press the acceleration or deceleration key to change the function number; when colon flashes, press the acceleration or deceleration key to change the data, press on the acceleration or deceleration key for more than 1 second, the data will be increased or decreased continuously and quickly .In the help menu, press the acceleration or deceleration key to change the function number and the corresponding message. When the indicator light of bypass operation is on, and did not enter the setting and help menu, display AXXXX, that means the motor running current, then press the acceleration or deceleration key to select display PXXXX or HXXXX.PXXXX indicates motor apparent power; HXXXX indicates motor overloaded heat balance coefficient. When indication value of HXXXX is more than 100%,soft starter will be overload protection and display Err08.

★ Notes:

1.When the data is more than 999, the last decimal point is bright, indicates the mantissa * 0.

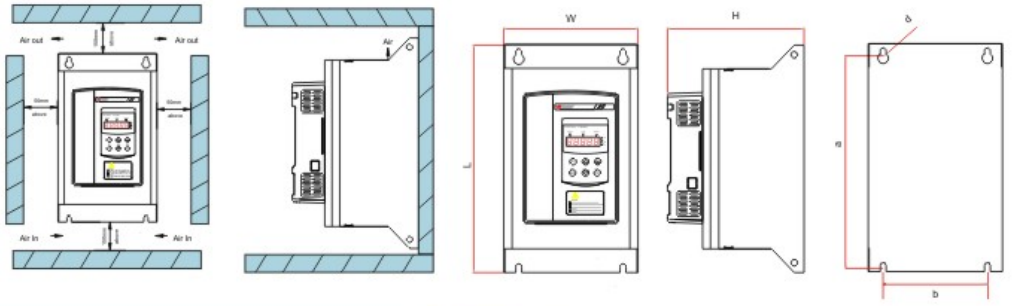
2.If the key operating is effective, there will be a voice tip, or this key does not work in this state.

3.When the external control terminal connected to a 3-wire mode, the external control start button and stop button have the equivalentfunction

with start and stop keys on the control panel.

4.The control panel with super anti-jamming design, and the outside connection distance is allowable to be more than 3 m.

Installation Standard:

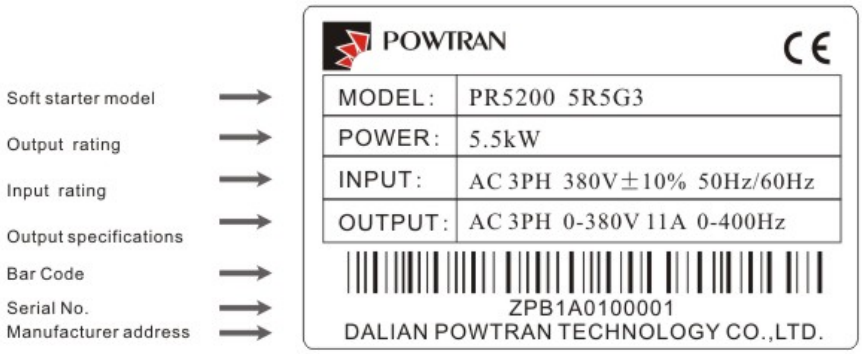


Installation Size:

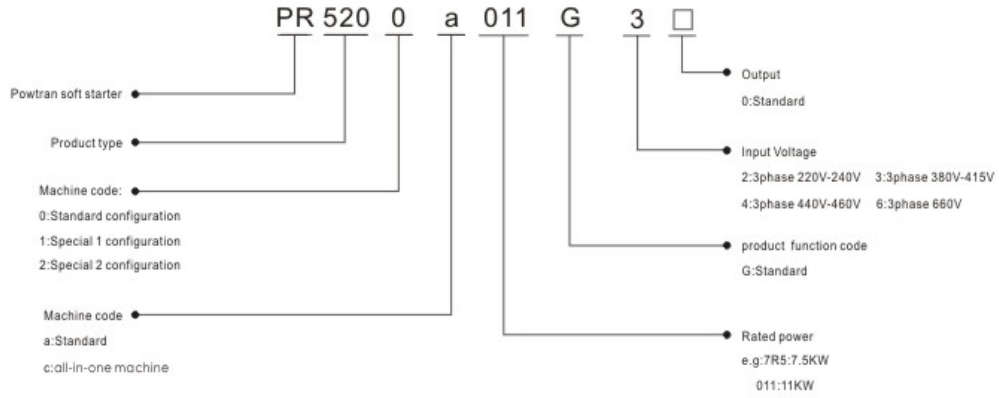
product Specification	Rated Power (KW)	Rated Current (A)	Dimension			Installation Dimension			N.W. (kg)	Base No
			L	W	H	a	b	d		
PR5200 5R5G3	5.5	11	288	146	159	270	115	Ø8	<3.5	5R1
PR5200 7R5G3	7.5	15								
PR5200 011G3	11	23								
PR5200 015G3	15	30								
PR5200 018G3	18.5	37								
PR5200 022G3	22	44								
PR5200 030G3	30	60								
PR5200 037G3	37	74								
PR5200 045G3	45	90								
PR5200 055G3	55	110								
PR5200 075G3	75	150	350	206	210	330	160	Ø9	<20	5R2
PR5200 090G3	90	180								
PR5200 115G3	115	230								
PR5200 132G3	132	264	420	256	250	400	210	Ø9	<23	5R3
PR5200 160G3	160	320								
PR5200 185G3	185	370								
PR5200 200G3	200	400								
PR5200 132G3	250	500	460	300	245	435	240	Ø9	<22	5R3T
PR5200 160G3	280	560								
PR5200 185G3	320	640								
PR5200 200G3	400	800								
PR5200 250G3	250	500	490	350	245	465	290	Ø9	<31	5R4
PR5200 280G3	280	560								
PR5200 320G3	320	640								
PR5200 400G3	400	800								

* Note: 5R3T, 5R4 base soft starter silicon controlled rectifier adopt cake model thyristor

Nameplate Description:



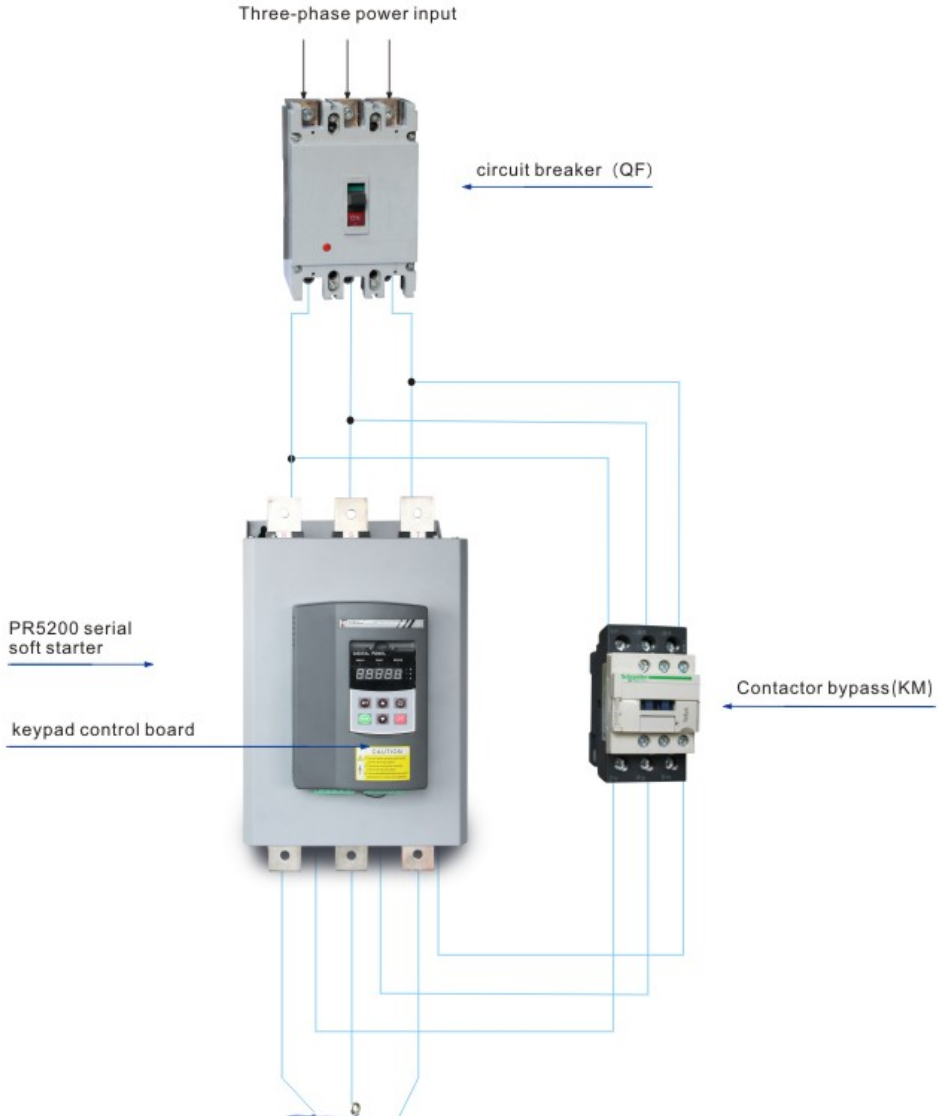
Model Code:



Service Conditions:

No.	item	specification
1	Power supply	Electricity, self-power station, diesel generating sets three-phase ac 380 V or 660 V ± 15%, frequency 50 Hz or 60 Hz, the power supply capacity must meet the soft starter to motor startup requirements
2	Applicable motor	Squirrel-cage three-phase asynchronous motor , motor rated power should match soft starter rated power
3	Start frequency	No demands, depending on the specific load
4	Cooling way	Natural cold wind
5	Protection grade	Ip20
6	Environmental conditions	Under Elevation 3000 meters, the environment temperature between -25 ℃-+ 40 ℃, relative humidity below 90% RH, no condensation, no inflammable, explosive, corrosive gas , no electrical conductivity dust, indoor ventilation is good, the vibration is less than 0.5 G place
★	Note: we can offer special conditions use of products, such as the explosion proof type, low temperature, high pressure type of soft starter, its use conditions will be further instructions	

Wiring:



three phase squirrel-cage asynchronous motor

★ Note: six output copper platoon, the front three connect with motor, and the last three connect with the bypass contactor.

Protection Function:

PR5200 series soft starter with complete protection to protect the safety of soft starter and motor. During the application, appropriate protection parameters and level should be setted based on different situation.

Number	Protection Function	Parameter Instruction
1	Soft starter over-temperature protection	The temperature rose to 80 ℃ ± 5 ℃ over-temperature protection, when the temperature dropped to 55 ℃ (the lowest), no over-temperature protection.
2	Input phase protection lag time	<3 seconds
3	Three-phase unbalance protection lag time	<3 seconds
4	Three-phase unbalance protection lag time	<3 seconds. It is based on the deviation of all phase current greater than 50% ± 10% . When the load current is lower than 30% of the nominal rating of soft starter, the benchmark deviation will increase.
5	Starting time of over current protection	Continuous 5 times greater than the maximum operating current of the protection time setted byP7 in Table below.
6	Time of running overload protection	It is based on the maximum operating current of P7 and doing the inverse thermal protection, trip protection time curve shows on Chart below.
7	The protection lag time of much too low supply voltage	When the power supply voltage is lower than the 40% of limit, the protection time <0.5 seconds, or the protection time <3 seconds if it is lower than the setting value.
8	The protection lag time of much too high supply voltage	When the power supply voltage is lower than the 140% of limit, the protection time <0.5 seconds, or the protection time <3 seconds if it is higher than the setting value.
9	The protection delay time of load short-circuit	<0.1 seconds, the current is 10 times more than soft starter nominal rated current. This protection cannot replace fuse short-circuit protection device.
10	Motor under load protection	The current range is 10% to 90% of motor rated current, the protection action delay from 5 to 90 seconds.

These time parameters are from tested effective signal to a tripping protection instructions, and the parameters just for reference. All the protection functions of PR5200 series soft starter can be verified through the actual or simulation method. If it can't meet the user's requirements, special protection device should be added to ensure safet.

Protection Level:

Protection level and thermal protection time according to PC setting is as the diagram below:

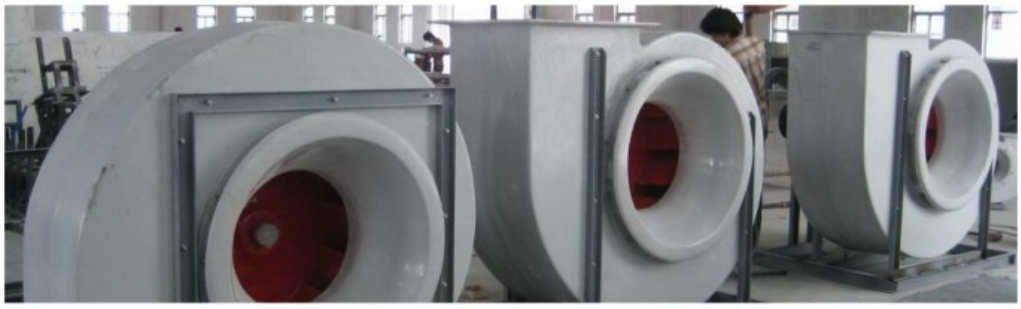
PC setting	0(Preliminary)	1(Flow Load)			2(Normal)			3(Heavy Load)			4(Advanced)			Description
Running overload Level of protection	No	2Level			10Level			20Level			10Level			According to IEC60947-4-2 Standard
Start over-current Protection time	No	3seconds			15seconds			30seconds			15seconds			Starting current for more than F7setting 5times calculation
Overload trip time running list	Current multiple (I/Ie)	3	4	5	3	4	5	3	4	5	3	5	5	Typical values for the table
	Trip time(seconds)	4.5	2.3	1.5	23	12	7.5	46	23	15	23	12	7.5	

Application Illustration:

Under different load conditions, parameter settings for example shown in Table . Data in the table is only for reference, should be adjusted according to actual situation

Type of load	Start time (seconds)	The initial voltage	Voltage starting (maximum current limit)	Limit start
Ball	30	60%	4	4.5
Fans	26	30%	4	3.5
Centrifugal pump	16	40%	4	2.5
Piston compressor	16	40%	4	3
Enhance the mechanical	16	60%	4	3.5
Mixer	16	50%	4	3
Crusher	16	50%	4	3.5

Screw compressor	16	40%	4	3
Screw conveyor	20	40%	4	2
Light load motor	16	30%	4	3
Belt conveyors	20	40%	4	2.5
Heat pump	16	40%	4	3



Fault causes and treatment:

Fault codes and treatment as below :

Display	Explanation	Problems and treatment methods
Err00	Failure has been solved	Just happened under voltage, overvoltage or overheating, instantaneous stop terminals are open, such failures, now has been normal, this time to prepare lights, reset to start the motor.
Err01	External terminal momentary open circuit	Short-circuit connection with the external Instantaneous stop terminal⑦and public terminal⑩ , or connecting to other protective devices normally closed contact.
Err02	Soft starter overheating	Start too often or motor power is unmatched with the soft starter.
Err03	Starting time more than 60s	Start parameters set inadequate , too heavy load or the power capacity is not enough etc.
Err04	Input phase lost	Check input or main circuit failure , whether bypass contactor is stuck in on position or whether SCR is in open circuit etc.
Err05	Output phase lost	Check output or main circuit failure , whether bypass contactor is stuck in on position or whether SCR is in open circuit etc.
Err06	3-phase unbalanced	Check whether input 3-phase power or load motor is normal.
Err07	Over currency start	Whether load is too heavy or motor power is unmatched with soft starter.
Err08	Running overload protection	Whether load is too heavy or setting item P7、PP parameters incorrectly.
Err09	Power supply voltage is too low	Check input power source voltage or setting item P9 parameters incorrectly.
Err10	Power supply is too high	Check input power source voltage or setting item PA parameters incorrectly.
Err11	Setting parameters error	Modify the settings or press the enter button to reset to factory values.
Err12	Load short-circuit	Check whether load or SCR short circuit or too high load.
Err13	Automatic restart wiring error	Check whether external control start or stop terminal not connect to 2-wire mode.
Err14	External stop terminal wiring error	When external control is allowed , external control stop terminal is open circuit , in this way motor can't start.
Err15	Motor under load	Check motor principal shafts and load faults.

★ Note : Some fault phenomena are interrelated, as the report Err02, may be related with soft starter overheating or load

short current, so when checking fails, consideration should be comprehensive, accurately determine the point of failure.

Product real shot photos:

Inspection and Safety Precautions

POWTRAN Technology soft starter have been tested and inspected before shipment. After purchase, please check the product packaging whether damage due to careless transportation; and if the product s pecifications, models are consistent with the order you purchased.
f you have questions, please contact POWTRAN local agents, or directly contact POWTRAN company.

Inspection after unpacking

※ Check the internal parts containing this soft start, and a user manual.
※ Check the soft starter side nameplate to make sure that the product you have is the one your ordered.

Using range

※ This converter is suitable for the three-phase ac asynchronous motor and permanent magnet synchronous motor.

※ Does this inverter can only be used in place of the company recognition unauthorized use of the environmentmay cause a fire,Get an electric shock, such as explosion event.

※ Does if used for the inverter failure and loss of life or personal injury may cause equipment(such as transport personnel Fall equipment,air systems, safety equipment, etc),must be handled carefully, in this case, please refer to the factory A consulting.

> Only trained personnel allowed to operate this device, please read this manual in detail before use For safety, installation,operation and maintenance. The equipment safe operation depends on the right Transportation, installation, operation and maintenance.

Product information feedback

Dear user:

Thank you for your interest in and purchasing Powtran products! In order to better serve you, we want to be able to timely get your personal information and the related information of the purchased Powtran products so as to understand your current and future further demand to Powtran products, we would appreciate your valuable feedback. For your convenience, please visit our website http://www.powtran.com and then click "Technologies and Services" and "Download" columns to submit your feedback information.

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3) Share application cases.
4) Technical advisory and online feedback
5) Feedback the product and demand information for via e-mail
6) Inquire the latest products and access to various types of warranty and extend additional services

Product Packing

Carton packing

Wooden box packing

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