Aero-Sharp

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Background

Shanghai Aero-Sharp Electric Technologies Co., Ltd is the daughter company of Shanghai Aviation Electric Co., Ltd, which is a leading avionics group founded in 1954. It is affiliated to China Aviation Industry Corporation which specialized in R&D and production of aviation and electric products.

Aero-Sharp Today

In the beginning of 2009, Aero-Sharp has got theISO9001:2000 quality management systems approved by DNV.

Aero-Sharp offers series of inverters of solar and wind generating system for those who wish to reduce their “Environmental Footprint” and energy costs. Aero-Sharp focuses on energy efficiency conservation and renewable energy.

As a high technology company, about 45% of Aero-Sharp employees teamed up the R&D and Engineering group. Combining technical and human resource advantages we present PV inverters with high efficiency and reliability, by this way to make sure that the customer could recover investment cost and get benefit in a short period.

With increasing global awareness of energy and related environmental issues, the mission of Aero-Sharp is to promote renewable energy use across the world by providing our customers with the affordable and competitive Inverters!



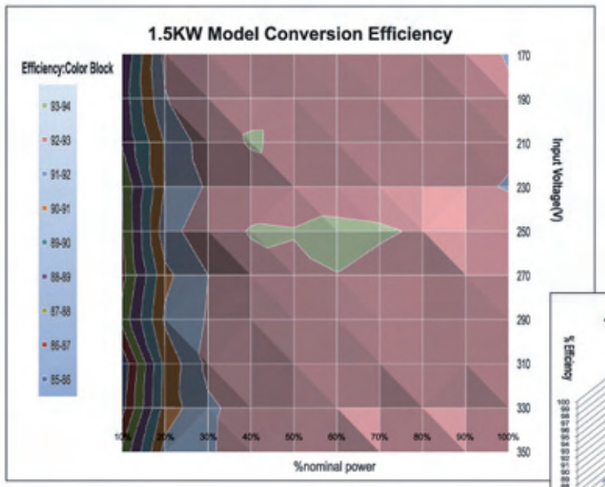


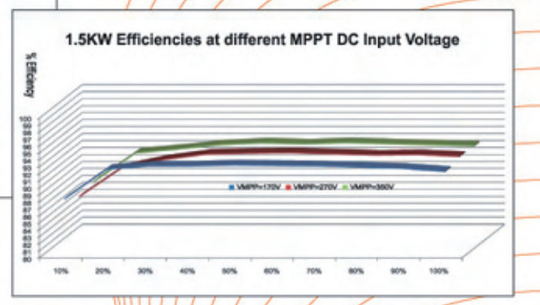
Certification

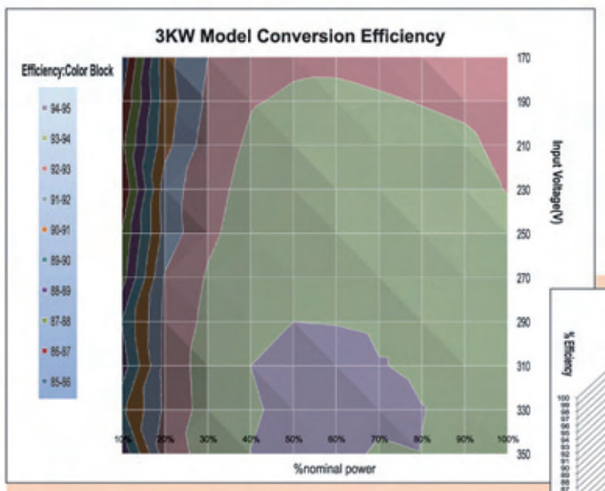
Safety：IEC 62103:2003 (1st Edition)
EN50178:1997

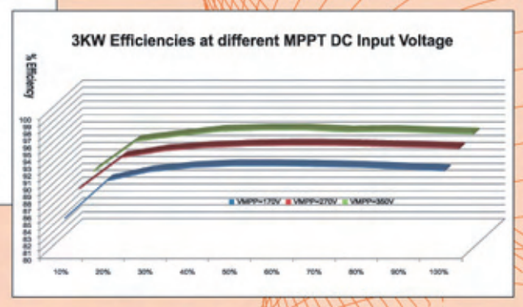
Grid Protection：
DIN VDE 0126-1-1:2006
DK5940　AS4777

E M C：EN61000-6-1:2007
EN61000-6-3:2007
EN61000-6-2:2005
EN61000-6-4:2007
EN61000-3-2:2006
EN61000-3-3:1995/+A1:2001/+A2:2005

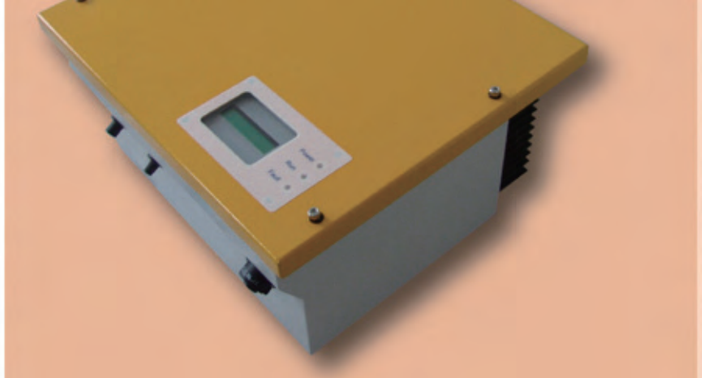






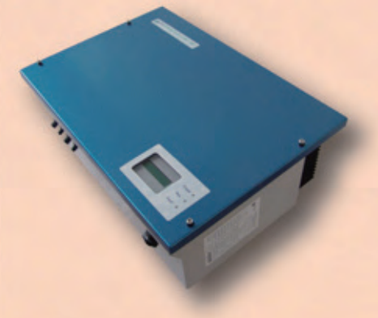


X01 Series Grid-Connected Inverters



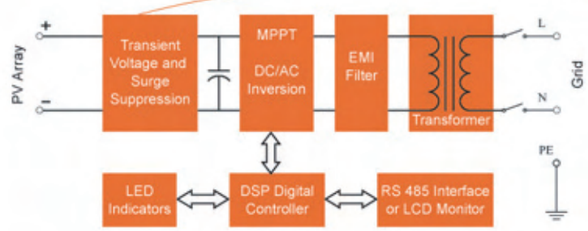
X01 Series – 0.6kw – 1.5kw Models

X01 Series – 2.0kw
– 3.0kw Models

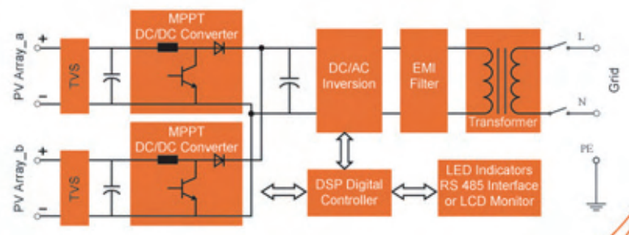


Features

- Max. Efficiency of 94.5%
- Sealed stainless steel enclosure for indoor and outdoor installation, with IP 65 protection
- Independent multi MPPT channels to ensure the maximum system yields
- Isolation transformer between inverter electronics and the grid for safety and reliability
- Plug-in connection for all DC input, AC output and communication cables, easy field wiring.
- Enhanced temperature range from -25℃ to 50℃



X01 Series 0.6kw - 1.5kw Models



X01 Series 2.0kw - 3.0kw Models

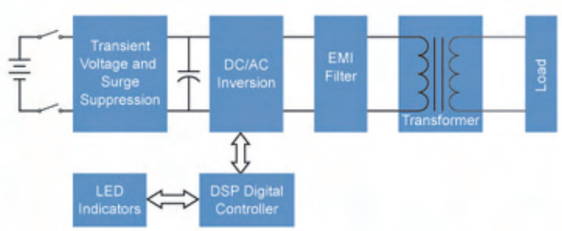
10 – year warranty

X01 Series Inverter Specifications

	HR-INV-X01-006	HR-INV-X01-010	HR-INV-X01-015	HR-INV-X01-020	HR-INV-X01-028	HR-INV-X01-030
Input						
Recommended Input PV Power（W）	750	1250	1875	2500	3500	3750
Max. DC Input Power(W)	700	1200	1755	2350	3270	3500
Nom. Input Voltage(Vdc)	280	280	280	280	280	280
MPPT Voltage Range(Vdc)	150-400	150-400	150-400	150-400	150-400	150-400
Max. Input DC Current(Adc)	4.5	6	10	6+6	10+10	10+10
Number of Input Connections(pair)	1	1	1	2	2	2
Number of MPPT Channel	1	1	1	2	2	2
Input Transient Voltage Suppression	Yes	Yes	Yes	Yes	Yes	Yes
Earth Fault Detection and Indication	Yes	Yes	Yes	Yes	Yes	Yes
Opposite Polarity Protection	Yes	Yes	Yes	Yes	Yes	Yes
Output						
Max. Output AC Power(VA)	660	1100	1650	2200	3080	3300
Nom. Output AC Power(VA)	600	1000	1500	2000	2800	3000
Power Factor	>0.99	>0.99	>0.99	>0.99	>0.99	>0.99
Output Current THD	<4%	<4%	<4%	<4%	<4%	<4%
Nom. Grid Voltage(Vrms)	220/230/240 50Hz 120/240 60Hz	220/230/240 50Hz 120/240 60Hz	220/230/240 50Hz 120/240 60Hz	220/230/240 50Hz 120/240 60Hz	220/230/240 50Hz 120/240 60Hz	220/230/240 50Hz 120/240 60Hz
Grid Voltage Range(Vrms)	88%-110% of norm grid voltage by default, adjusted to local regulation	88%-110% of norm grid voltage by default, adjusted to local regulation	88%-110% of norm grid voltage by default, adjusted to local regulation	88%-110% of norm grid voltage by default, adjusted to local regulation	88%-110% of norm grid voltage by default, adjusted to local regulation	88%-110% of norm grid voltage by default, adjusted to local regulation
Rated Output AC Current(Arms)	2.6	4.3	6.5	8.7	13.0	13.0
Max. Output AC Current(Arms)	3.0	5.0	7.0	10.0	15.0	15.0
Grid Frequency Range(Hz)	50/60±0.5Hz by default, adjusted to local regulation	50/60±0.5Hz by default, adjusted to local regulation	50/60±0.5Hz by default, adjusted to local regulation	50/60±0.5Hz by default, adjusted to local regulation	50/60±0.5Hz by default, adjusted to local regulation	50/60±0.5Hz by default, adjusted to local regulation
Transformer Isolation Between System and Grid	Yes	Yes	Yes	Yes	Yes	Yes
Output Transient Voltage Suppression	Yes	Yes	Yes	Yes	Yes	Yes
Non-islanding	Yes, comply with UL 1741/IEEE1547/VDE0126-1 -1/DK5940/AS4777	Yes, comply with UL 1741/IEEE1547/VDE0126-1 -1/DK5940/AS4777	Yes, comply with UL 1741/IEEE1547/VDE0126-1 -1/AS4777	Yes, comply with UL 1741/IEEE1547/VDE0126-1 -1/DK5940/AS4777	Yes, comply with UL 1741/IEEE1547/VDE0126-1 -1/DK5940	Yes, comply with UL 1741/IEEE1547/VDE0126-1 -1/DK5940/AS4777
Electromagnetic Compatibility	EN61000-6-1/6-2/ 6-3/6-4/3-2/3-3	EN61000-6-1/6-2/ 6-3/6-4/3-2/3-3	EN61000-6-1/6-2/ 6-3/6-4/3-2/3-3	EN61000-6-1/6-2/ 6-3/6-4/3-2/3-3	EN61000-6-1/6-2/ 6-3/6-4/3-2/3-3	EN61000-6-1/6-2/ 6-3/6-4/3-2/3-3
Power Efficiency(with isolation)						
Max Efficiency European Efficiency	>93.0 >91.0	>93.5 >91.5	>94% >92%	>94.0 >92.5	>94.5 >93.0	>94.5 >93.0
Packaging						
Enclosure	IP65, for indoor and outdoor installation	IP65, for indoor and outdoor installation	IP65, for indoor and outdoor installation	IP65, for indoor and outdoor installation	IP65, for indoor and outdoor installation	IP65, for indoor and outdoor installation
Weight(kg)	19.5	22.5	27	36.5	42.5	42.5
Dimension(H x W x D. mm)	326x375x205	326x375x205	344x415x205	370x525x225	370x525x225	370x525x225
Environment						
Operation Ambient Temperature(℃) Storage Ambient Temperature(℃) Elevated Above Sea Level(m)	-25~ +50 -40~ +70 4000(Max. Temp +30℃)	-25~ +50 -40~ +70 4000(Max. Temp +30℃)	-25~ +50 -40~ +70 4000(Max. Temp +30℃)	-25~ +50 -40~ +70 4000(Max. Temp +30℃)	-25~ +50 -40~ +70 4000(Max. Temp +30℃)	-25~ +50 -40~ +70 4000(Max. Temp +30℃)



X02 Series Stand-alone Inverters



X02 Series 1.0kw - 5.0kw Models



Features

- 1.0kw, 2.0kw, 3.0kw, 5.0kw output power, single phase
- Controlled forced air cooling
- Battery protection and load protection
- Continuous operation under 110% load
- Full digital control, intelligent self protection
- IP 20 enclosure protection for indoor installation
- Enhanced temperature range from -25℃ to +50℃
- Highly reliable in a compact format
- Powerful, user-friendly
- LED indicator

X02 Series Inverter Specifications

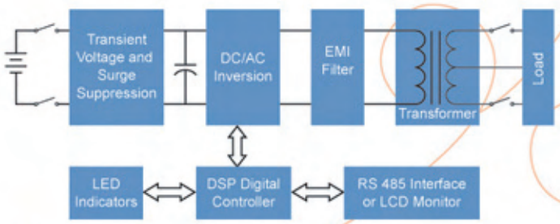
	HR-INV-X02-010	HR-INV-X02-020	HR-INV-X02-030	HR-INV-X02-050
Input				
Nom. DC Input Voltage (V)	108 or 216	108 or 216	108 or 216	108 or 216
Nom. DC Input Current (A)	10.2 or 5.1	20.4 or 10.2	30.1 or 15.0	50.0 or 25.0
DC Voltage Range (%)	90%~125% of the Nominal DC Input Voltage			
DC Turn-on / Cut-off Voltage (%)	98% / 90% of the Nominal DC Input Voltage			
Output				
Nom. Output AC Power(kVA)	1.0	2.0	3.0	5.0
Nominal Output AC Voltage (V)	115 or 230	115 or 230	115 or 230	115 or 230
Nominal Output AC Current (A)	8.7 or 4.35	17.4 or 8.7	26.1 or 13.0	43.5 or 21.7
Phase	Single Phase	Single Phase	Single Phase	Single Phase
Ouput Voltage THD (%)	< 3%	< 3%	< 3%	< 3%
Frequency(Hz)	50 ± 0.1 or 60 ± 0.1	50 ± 0.1 or 60 ± 0.1	50 ± 0.1 or 60 ± 0.1	50 ± 0.1 or 60 ± 0.1
Power Factor	± 0.8	± 0.8	± 0.8	± 0.8
Efficiency(%)	>91.0%	>91.0%	>92.0%	>93.0%
Overload Protection	150%, 10 seconds	150%, 10 seconds	150%, 10 seconds	150%, 10 seconds
Output Current Limit (%)	120% of the Nominal Output Current			
Other Protection	Over-Temperature, Over-Current, Short-Circuit Protections			
Packaging				
Enclosure	IP20	IP20	IP20	IP20
Weight(kg)	22.5	33	39	50
Dimension(H x W x D, mm)	133 (3U) x 482(19") x 380	175 (4U) x 482 (19") x 437	175 (4U) x 482 (19") x 437	223 (5U) x 482 (19") x 437
Cooling	Forced Air Cooling	Forced Air Cooling	Forced Air Cooling	Forced Air Cooling
Environment				
Operation Ambient Temperature(℃)	-25 ~ +40	-25 ~ +40	-25 ~ +40	-25 ~ +40
Storage Ambient Temperature(℃)	-25 ~ +70	-25 ~ +70	-25 ~ +70	-25 ~ +70
Elevated Above Sea Level(m)	4000 (Max. Temp +30℃)	4000 (Max. Temp +30℃)	4000 (Max. Temp +30℃)	4000 (Max. Temp +30℃)





X03 Series Stand-alone Inverters





X03 Series 6.0kw - 20.0kw Models

Features

- 6.0kw, 8.0kw, 10.0kw, 12.0kw 15.0kw 20.0kw output power, single phase
- Most Advanced DSP Controller
- Continuous operation under 110% load
- Input and Output Transient Voltage Suppressor
- Enhanced temperature range from -25℃ to +50℃
- IP 32 enclosure protection for indoor installation
- Highly reliable in a compact format
- LED indicator and LCD display
- Controlled forced air cooling
- Powerful, user-friendly

X03 Series Inverter Specifications

	HR-INV-X03-060	HR-INV-X03-080	HR-INV-X03-100	HR-INV-X03-120	HR-INV-X03-150	HR-INV-X03-200
Input						
Nom. DC Input Voltage(V)	240 or 360	240 or 360	240 or 360	240 or 360	240 or 360	240 or 360
DC Voltage Range(V)	194-300 for 240 Vdc Rated Models or 310-430 for 360Vdc Rated Models					
Output						
Nom. Output AC Power(kVA)	6.0	8.0	10.0	12.0	15.0	20.0
Output AC Voltage(V)	120 or 240	120 or 240	120 or 240	120 or 240	120 or 240	120 or 240
Phase	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase
THD	< 3%	< 3%	< 3%	< 3%	< 3%	< 3%
Frequency(Hz)	50 ± 0.1 or 60 ± 0.1	50 ± 0.1 or 60 ± 0.1	50 ± 0.1 or 60 ± 0.1	50 ± 0.1 or 60 ± 0.1	50 ± 0.1 or 60 ± 0.1	50 ± 0.1 or 60 ± 0.1
Power Factor	± 0.8	± 0.8	± 0.8	± 0.8	± 0.8	± 0.8
Efficiency(%)	>91.0%	>91.0%	>92.0%	>92.0%	>92.0%	>92.0%
Overload Protection	150%, 10 seconds	150%, 10 seconds	150%, 10 seconds	150%, 10 seconds	150%, 10 seconds	150%, 10 seconds
Other Protection	Over-Temperature, Over-Current, Short-Circuit Protections					
Packaging						
Enclosure	IP32	IP32	IP32	IP32	IP32	IP32
Weight(kg)	90	100	110	120	135	147
Dimension(H x W x D, mm)	800 x 560 x 300	800 x 600 x 300	800 x 600 x 300	1000 x 600 x 400	1200 x 650 x 450	1200 x 650 x 450
Cooling	Controlled Forced Air Cooling	Controlled Forced Air Cooling	Controlled Forced Air Cooling	Controlled Forced Air Cooling	Controlled Forced Air Cooling	Controlled Forced Air Cooling
Environment						
Operation Ambient Temperature(℃)	-25 ~ +50	-25 ~ +50	-25 ~ +50	-25 ~ +50	-25 ~ +50	-25 ~ +50
Storage Ambient Temperature(℃)	-25 ~ +70	-25 ~ +70	-25 ~ +70	-25 ~ +70	-25 ~ +70	-25 ~ +70
Elevated Above Sea Level(m)	4000 (Max. Temp +40℃)	4000 (Max. Temp +40℃)	4000 (Max. Temp +40℃)	4000 (Max. Temp +40℃)	4000 (Max. Temp +40℃)	4000 (Max. Temp +40℃)





Solar Photovoltaic (PV) System

- Using solar to provide power for homes and buildings connected to the grid is the largest growth area of renewable worldwide. Grid connect systems can be easily installed onto most buildings and enable you to make a direct contribution to the environment as well as reducing your energy costs.



Benefits owning a solar system

- Price protection: Fix the cost of your electricity regardless of future price changes.
- Power savings: once installed, a solar system costs virtually nothing to operate over the entire life of the system. Any power produced is money saved in electricity bills.
- Clean Energy: Solar is one of the 'greenest' sources of energy available. For every 1kW of solar installed, approximately 1 tonne of CO_2 plus other harmful gases are saved every year.
- You own it: Bills provide you with nothing, a solar system is a tangible asset and adds value to your home or building.



PV system designing is a really complicated work. Different brand of components have its own characteristics, which means not all the expensive components (panels, inverters, wires, etc.) will make good systems all the time. Reasonable configuration is quite a key point no matter for cost saving or system efficiency. In order to make every penny invested in the PV system deserves its worth, on the basis of our inverter design, here are our suggestions on panel configuration.

The white area of the matrix is the recommended number of modules that should be used to form a string for an input channel. If it happens that you find you are in the orange area, that means the system will work but slightly off the optimized area.For multi-channel units like HR-INV-X01-020, -028 and -030, their respective matrix is for composition of a single string for one of the input channels.

Wp	PV Module String Composition Matrix For HR-INV-X01-006 (0.6kW) Inverters																														
150																					5	5	5	5	5	5	5	5	5	5	5
140																					5	5	5	5	5	5	5	5	5	5	5
130																					5	5	5	5	5	5	5	5	5	5	5
120																	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
110																	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
100												7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6
90									8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	7	7	7	7	6	6	
80							9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	7	7	7	7	7		
70					10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	8	8	8	8	8							
60			12	12	12	12	12	12	12	12	11	11	10	10	10	9	9	9													
50	14	14	14	14	14	14	14	14	13	13	12	12	11	11	10	10	10														
Vm	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

Wp	PV Module String Composition Matrix For HR-INV-X01-010 & -020 (1.0kW & 2.0kW) Inverters																																		
190																	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
180																	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
170												7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6
160												7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6
150								8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	7	7	7	7	7	6	6	6	6	6	6
140								8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	7	7	7	7	7						
130						9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	7	7	7	7	7	7								
120				10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	8	8	8	8													
110			11	11	11	11	11	11	11	11	11	11	11	10	10	10	9	9	9	9																	
100	12	12	12	12	12	12	12	12	12	12	12	11	11	11	10	10	9	9	9	9																	
90	13	13	13	13	13	13	13	13	13	12	12	11	11	10	10	10																					
80	15	15	15	15	15	15	14	13	13	12	12	11	11																								
75	16	16	16	16	15	15	14	13	13	12	12																										
70	17	17	17	16	15	15	14	13	13																												
65	19	18	17	16	16	15	14																														
60	20	19	18	17	16	15																															
Vm	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50

Wp	PV Module String Composition Matrix For HR-INV-X01-015,-028 & -030 (1.5kW, 2.8kW & 3.0kW) Inverters																																		
250											7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6
240											7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6
230											7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6
220								8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	7	7	7	7									
210								8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	7	7	7	7									
200								8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	7	7	7	7									
190						9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8														
180						9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8														
170				10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	8	8	8	8														
160				10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9																		
150			11	11	11	11	11	11	11	11	11	11	10	10	10	9	9	9	9																		
140	12	12	12	12	12	12	12	12	12	12	11	11	10	10	10																						
130	13	13	13	13	13	13	13	13	13	12	12	11	11	10	10	10																					
120	14	14	14	14	14	14	14	13	13	12	12	11	11																								
110	15	15	15	15	15	15	14	13	13	12	12																										
100	16	16	16	16	15	15	14	13	13																												
Vm	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50