

**JFM**  
JFM Engineering

RELIABILITY  
TEST SOLUTION  
PROVIDER

**JFM**  
JFM Engineering



JFM Engineering / CEO : SeHyun Kim / Permit number : 130-86-66286  
1st Floor, Jomaru-ro 411beon-gil, Wonmi-gu, Bucheon-si, Gyeonggi-do, Korea  
Tel : +82-32-677-6294 / fax: +82-32-677-6296 / E-mail: jfmeng@jfm.co.kr  
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# THE TEST SOLUTION PROVIDER

JFM Engineering

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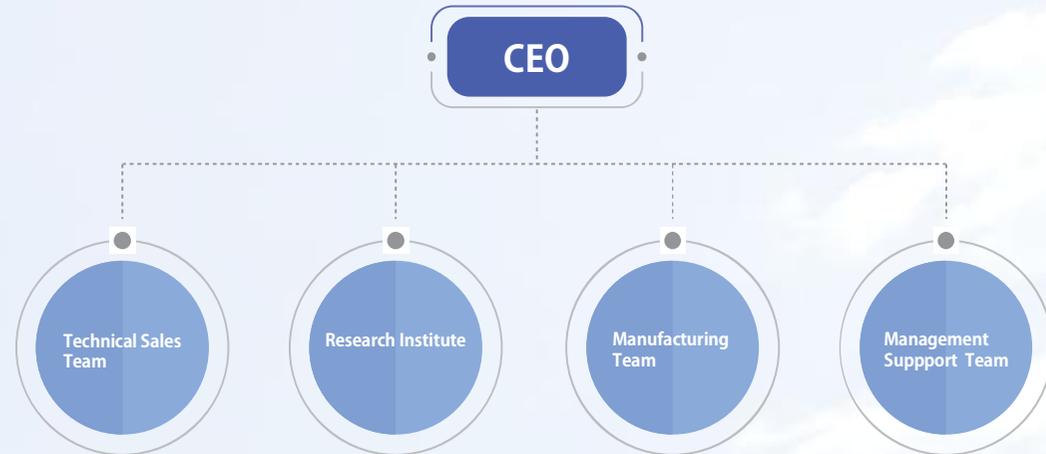
### **D. Additional Equipment**

- O1. Water Chiller

# JFM Engineering

We are a specialized manufacturer of various standard testing equipments and we produce and supply all testing equipments by KS, ISO, UL, ASTM, CSA, VDE, IEC etc  
 We are custom-made to customize for user's convenience.  
 We have produced and supplied high-quality products that meet the needs of various customers based on our abundant experience in quality control and design technology.  
 In the future, we value our customers' needs and evaluations the most, and we will do our best to be a company that can play a leading role in the 21st century reliability tester field and strive to meet customer's needs.

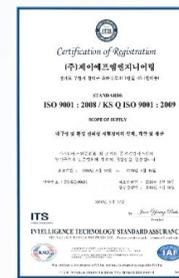
## Organization Chart



## Company History

- 2011 Establishment of JFM Engineering
- 2014 SHKim has been inaugurated to CEO
- 2015 Moved the Company from Samjeong-dong to Wonmi-dong
- Registered patent (Compression test device for electric car charging connector, Hydrate dewatering device)
- Acquisition of direct production confirmation certificate (Temp&Humidity System, UTM, etc..)
- Selected as a Venture company
- Obtained CE certification
- 2016 Acquisition of direct production confirmation certificate (Walk-in Chamber, Temp&Humidity Chamber, etc..)  
 Acquired ISO 9001 : 2008 / KS QISO 9001 : 2009  
 Recognition of affiliated research institute
- 2017 Inno-Biz acquisition

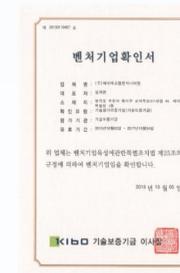
## Patent and Certification



ISO 9001 : 2008  
KS QISO 9001 : 2009



Company affiliated research institute certificate



Venture company certification



CE certificate



Certificate of direct production confirmation



Inno-Biz



Patent certificate 1.



Patent certificate 2.

## 01. Water Spray Chamber

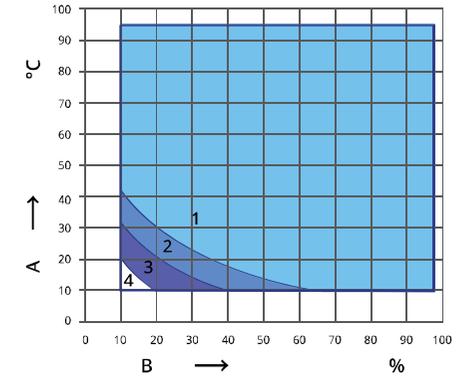


SPEC./MODEL	JFMA-008 Series
Inner Size(WxDxH)mm	1,000 x 1,000 x 1,000
Inner Material	SUS 304
Outer Material	SUS 304 or SS 41 Pika Painting
Turn Table	SUS 304 Lathe Processing
Nozzle	AC or SUS 304
Motor	AC Geared Motor
Pump	Stainless Pump Motor
Type	Room Type or Chamber Type
Applicable Standard	IEC 60529(IPX 1, 2, 3, 4, 4K, 5, 6, 6K, 7, 8, 9K) ISO20653 KS R 0015(R1, R2, S1, S2), Mil STD-810G

\* In addition to existing products, it can be manufactured according to product specifications and custom specifications.



## 02. Temp. & Humidity Chamber



SPEC./MODEL	JFMA-001-1	JFMA-001-2	JFMA-001-3
Capacity	125	300	1,000
Temp. Range	-70°C(-40°C) ~ +200°C(+150°C)		
Temp. Uniformity	±1.0°C		
Humidity Range	30 ~ 98%		
Humidity Uniformity	±3.0%		
Inner Material	SUS 304		
Outer Material	SS 41 Pike Painting or SUS 304		
Option	Low Temperature/Low Humidity(20°C/20%)		
Safety Device	Earth Leakage Breaker, Over Heater Protect Controller High & Low Pressure Switch Breaker, Blower Motor Over Load Breaker Alarm for the Trouble Buzzer, Protection Fuse		

\* In addition to existing products, it can be manufactured according to product specifications and custom specifications.



### 03. Walk-In Chamber



SPEC./MODEL	JFMA-015
Capacity	On request
Temp. Range	-40°C ~ +150°C
Temp. Uniformity	±2.0°C
Humidity Range	30 ~ 98%R.H
Humidity Uniformity	±3.0%
Inner Material	SUS304
Outer Material	SS41 Pika Painting
Insulation	Glass Wool and Poly-Urethane From
Refrigeration System	Mechanical Pressure Refrigerating System (Air Conditioning)
Safety Device	Earth Leakage Breaker, Over Heater Protect Controller, High & Low Pressure Switch Breaker, Blower Motor Over Load Breaker, Alarm for the Trouble Buzzer , Protection Fuse

\* In addition to existing products, it can be manufactured according to product specifications and custom specifications.



### 04. Thermal Shock Chamber



SPEC./MODEL	JFMA-007-1	JFMA-007-2	JFMA-007-3
Type	2 Zone Type, 3 Zone Type		
Basket Size(WxDxH)mm	300 x 300 x 300	400 x 400 x 400	500 x 500 x 500
Temp. Range	Hot Zone	RT ~ 200°C	
	Cold Zone	-70°C ~ 0°C	
Heating Rate / Cooling Rate	Within 5min (-60°C ~ 200°C , +200°C ~ 60°C)		
Material	Inner	SUS-304 1.2T Polishing Plate	
	Outer	SS-41 1.2T Pika Painting	
Safety Device	Earth Leakage Breaker, Over Heater Protect Controller, High & Low Pressure Switch Breaker, Blower Motor Over Load Breaker, Alarm for the Trouble Buzzer , Protection Fuse		
Applicable Standard	IEC 60068-2-14, IEC 60749-25, MIL-STD-883 Method 1010.8,		

\* In addition to existing products, it can be manufactured according to product specifications and custom specifications.



## 05. Dust Chamber



SPEC./MODEL	JFMR-008-1	JFMR-008-2	JFMR-008-3
Capacity	150	1,000	2,000
Type	Spray Type(Air Flow Type) / Floating Type		
Material	SS41		
Dust Collector Device	Air Filter, Filter Container		
Air Pump Flow Rate	0.06m <sup>3</sup> /h ~ 10.0m <sup>3</sup> /h		
Counter	Digital Counter(4digit)		
Applicable Standard	IEC 60529, DIN40050, ISO20653, SAE J 575, JIS Z 8901		

\* In addition to existing products, it can be manufactured according to product specifications and custom specifications.



## 06. Salt Spray Chamber



SPEC./MODEL	JFMA-006-1	JFMA-006-2	JFMA-006-3
Capacity	100	320	430
Spray Type	Center Spray Method		
Temp. Range	RT ~ 40°C, RT ~ 60°C		
Temp. Uniformity	±1.0°C		
Inner Material	SUS304		
Outer Material	P.V.C & Acryl		
Flow Rate	1.5 ±0.5mℓ(1 ~ 2mℓ/h)		
In the Room	Spray Nozzle, Temp. Sensor, Salt Water Sampling Vessel		
Salt Tank	50ℓ	100ℓ	100ℓ
Safety Device	Earth Leakage Breaker, Over Heater Protect Controller, High & Low Pressure Switch Breaker, Blower Motor Over Load Breaker, Alarm for the Trouble Buzzer, Protection Fuse		
Applicable Standard	IEC 60529, DIN40050, ISO20653, SAE J 575, JIS Z 8901		

\* In addition to existing products, it can be manufactured according to product specifications and custom specifications.



## 07. Salt Corrosion Chamber



SPEC./MODEL	JFMA-014-1	JFMA-014-2	JFMA-014-3
Capacity	150	500	1,000
Spray Type	Center Spray Method		
Temp. Range	-30 ~ 85°C		
Temp. Uniformity	±2.5°C		
Humidity Range	30 ~ 98%		
Humidity Uniformity	±3%		
Outer Material	SUS304		
Inner Material	PVC & Acrylic		
In the room	Spray Nozzle, Temp. Sensor, Salt Water Sampling Vessel		
Salt Tank	50	100	100
Safety Device	Earth Leakage Breaker, Over Heater Protect Controller, High & Low Pressure Switch Breaker, Blower Motor Over Load Breaker, Alarm for the Trouble Buzzer, Protection Fuse		
Applicable Standard	CCT-A, B, C, GMW14872, IEC 60068-2-52, VDA 233, SAE J2334, JIS H8502, ISO 14993, ASTM B117-79, VOLVO 1027-14		

\* In addition to existing products, it can be manufactured according to product specifications and custom specifications.



## 08. Vibration Chamber



SPEC./MODEL	JFMA-016
Capacity	On request
Temp. Range	-40°C(-70°C) ~ +150°C(+180°C)
Temp. Uniformity	±0.5°C
Humidity Range	30 ~ 98%
Humidity Uniformity	±3%
Inner Material	SUS304
Outer Material	SS41 Pika Painting
Insulation	Glass Wool and Poly-Urethane From
Refrigeration System	Mechanical Pressure Refrigerating System (Air Conditioning)
Safety Device	Earth Leakage Breaker, Over Heater Protect Controller, High & Low Pressure Switch Breaker, Blower Motor Over Load Breaker, Alarm for the Trouble Buzzer, Protection Fuse
Moving Type	Vertical Movement, Horizontal Movement

\* In addition to existing products, it can be manufactured according to product specifications and custom specifications.



## 09. Salt Seal Test Chamber



SPEC./MODEL	JFMA-007 Series
Capacity	On request
Temp. for hot zone	50 ~ 150°C
Temp. for immersion zone	0 ~ 4°C
Humidity Range	30 ~98%(Accuracy ±1.0% / Uniformity±3.0%)
Inner Material	SUS 306L
Outer Material	SUS 304
Insulation Material	Aero Flex
Refrigeration System	Air Cooling System
Safety Device	Earth Leakage Breaker, Over Heater Protect Controller, High & Low Pressure Switch Breaker, Blower Motor Over Load Breaker, Alarm for the Trouble Buzzer , Protection Fuse
Application Standard	GMW 3172

\* In addition to existing products, it can be manufactured according to product specifications and custom specifications.



## 10. Ozone Chamber



SPEC./MODEL	JFMA-010
Capacity	On request
Temp. Range	RT ~ +60°C
Temp. Uniformity	±1.0°C
Emission Quantity	40 ~ 110ℓ/min
Ozone Generator	O3Lamp
Ozone Range	50 ~ 250PPHM
Test Type	Static Test, Dynamic Test
Safety Device	Earth Leakage Breaker, Over Heater Protect Controller, High & Low Pressure Switch Breaker, Blower Motor Over Load Breaker, Alarm for the Trouble Buzzer , Protection Fuse
Application Standard	ASTM-1149, KSM-6518

\* In addition to existing products, it can be manufactured according to product specifications and custom specifications.



## 01. Universal Testing Machine



### Motor Type

SPEC./MODEL	JFMB-001-500	JFMB-001-1000	JFMB-001-5000
Size(WxDxH)mm	800 × 450 × 1900	900 × 500 × 1900	1100 × 600 × 1900
Max. Load	500kg.f (5KN)	1000kg.f (10KN)	5,000kg.f (50KN)
Min. Load	0.05kg.f	0.1kg.f	0.5kg.f
Resolution	1/10,000	1/10,000	1/10,000
Tensile Distance	600		
Cross Head Speed	0 ~ 500mm/min		
Speed Control	AC Servo Motor		
Indicator	Load & Elongation Indicator		
Accuracy	±0.5%		

### Hydrodynamic Type

SPEC./MODEL	JFMB-002-1	JFMB-002-2	JFMB-002-5	JFMB-002-10
Load Capacity(ton.f)	10	20	50	100
Tensile Stroke Distance(mm)	400	400	500	500
Grip for Plate Bar (mm, thickness)	0~8	0~10	0~15	5~45
	(50mm Wide)	(50mm Wide)	(60mm Wide)	(70mm Wide)
Compression Stroke Distance(mm)	400	400	500	500
Extrusion Plate(mm)	100	100	160	160
Distance between supporters(mm)	450	450	450	450
Hydraulic Cylinder(mm)	100	150	220	320
Test Space(mm)	600x400	600x400	600x400	600x400
Hydraulic Pump(mm)	Piston Pump, Moog Servo Valve, AC220V OR 380V			

\* In addition to existing products, it can be manufactured according to product specifications and custom specifications.

## 02. Performance Environment Durability Chamber



SPEC./MODEL	JFMR-014 Series
Capacity(L)	On request
Temp. Range	-50 ~ 150°C
Temp. Uniformity	±1.5°C
Humidity Range	30 ~ 98 %
Humidity Uniformity	+3.0%
Heating/Cooling Rate	3°C/min
Inner Material	SUS 304 1.2T Polishing Plate
Outer Material	SS 41 1.2T Pika Painting
Target Rotation Speed	2 ~ 5,000rpm/min
Axis for moving	X Axis, Y Axis, Z Axis
Oscilloscope	Measure a jitter volume
Safety Device	Earth Leakage Breaker, Over Heater Protect Controller, High & Low Pressure Switch Breaker, Blower Motor Over Load Breaker, Alarm for the Trouble Buzzer , Protection Fuse

\* In addition to existing products, it can be manufactured according to product specifications and custom specifications.



### 03. Hardness Durability Chamber



SPEC./MODEL	JFMR-015 Series
Capacity(L)	On request
Temp. Range	-40 ~ 150°C
Temp. Uniformity	±1.0°C
Inner Material	SUS 304 1.2T Polishing Plate
Outer Material	SS 41 1.2T Pika Painting
Target Rotation Angle	120°
Up/Down Movement Speed	150rpm/min
Moving Axis(mm)	±220
Safety Device	Earth Leakage Breaker, Over Heater Protect Controller, High & Low Pressure Switch Breaker, Blower Motor Over Load Breaker, Alarm for the Trouble Buzzer , Protection Fuse

\* In addition to existing products, it can be manufactured according to product specifications and custom specifications.



### 04. Idler Combining Durability Chamber



SPEC./MODEL	JFMR - 016 Series	
Capacity(L)	On request	
Temp. Range	-40 ~150°C	
Temp. Accuracy	±0.5°C	
Test Speed	3,000 ~ 10,000rpm	
Test Condition	Mud Spray Type	Jet Spray
	Salt Spray Type	Spray Method
	Mist Spray Type	Jet Spray
Idler Test Quantity	Total : 16ea	
	Room A : 8ea(Simultaneous Operation)	
	Room B : 8ea(Simultaneous Operation)	
Dust Spray Type	Spray Type(Air Flow Type)	
Rated Rotation Speed	3,600rpm/min	
Load	Moment Load : 16Kg/m	
	Dynamic Load : 1,863Kg	
Inner Material	SUS 316	
Outer Material	SS41 Pika Painting	
Insulation	Glass Wool and Poly Urethane Form	
Safety Device	Earth Leakage Breaker, Over Heater Protect Controller, High & Low Pressure Switch Breaker, Blower Motor Over Load Breaker, Alarm for the Trouble Buzzer , Protection Fuse	

\* In addition to existing products, it can be manufactured according to product specifications and custom specifications.



## 05. Belt Durability Chamber



SPEC./MODEL	JFMR - 017 Series
Capacity(L)	On request
Temp. Range	RT ~ 200°C
Temp. Accuracy	±0.5°C
Temp. Uniformity	±2.0°C
Main Drive Axis Speed	3,600RPM
Longitudinal Axis Speed	3,600RPM
Forward Load	Moment Load : 16Kg.f/m / Dynamic Load : 1,863Kgf
Longitudinal Load	Moment Load : 16Kg.f/m / Dynamic Load : 1,863Kgf
Inner Material	SUS 304
Outer Material	SS41
Control	PC Control
Safety Device	Earth Leakage Breaker, Over Heater Protect Controller, High & Low Pressure Switch Breaker, Blower Motor Over Load Breaker, Alarm for the Trouble Buzzer , Protection Fuse

\* In addition to existing products, it can be manufactured according to product specifications and custom specifications.



## 06. Non-Vibration Chamber



SPEC./MODEL	JFMA-017 Series
Capacity(L)	On request
Temp. Range	-40 ~ 150°C
Temp. Uniformity	±3.0°C
Humidity Range	30 ~ 98 %
Humidity Uniformity	±3.0%
Temp. Heating/Cooling Speed	1°C/min
Main Chamber	Testing Room
Sub Chamber	Temp. & Humidity Room
Inner Material	SUS 304 1.2T Polishing Plate
Outer Material	SS 41 1.2T Pika Painting
Safety Device	Earth Leakage Breaker, Over Heater Protect Controller, High & Low Pressure Switch Breaker, Blower Motor Over Load Breaker, Alarm for the Trouble Buzzer , Protection Fuse

\* In addition to existing products, it can be manufactured according to product specifications and custom specifications.





### Flammability Tester

Model : JFMC-011  
 Size : On Request  
 Bunner : Buzen Bunner  
 Lighter : Spark Type  
 Material : SUS 304



### Pressure Tester

Model : JFMR-013  
 Size : On Request  
 Pressure : 1.0bar(On Request)  
 Test Range : 0.35bar  
 Fluid : RT



### Abrasion Tester

Type : Motor Type  
 Stroke Distance : 20 ~ 100mm  
 Setting Type : Counter Type  
 Weight : 100g(1pc), 200g(2pc), 500g(1pc)



### Leak Tester

Air Pressure : 6kgf/cm<sup>2</sup>  
 Test Pressure : 0.8 ~ 1.2kgf/cm<sup>2</sup>  
 Pressure Gage : Max 10kgf/cm<sup>2</sup>  
 Water Tank : 40L(On Request)



### Hot Press

Model : JFMB-015  
 Size : On Request  
 Type : Hydraulic Pressing  
 Pressure : 300kgf / cm<sup>2</sup>(On Request)  
 Heating Temp. : Max. 300 °C



### Drop Tester

Model : JFMG-008 Series  
 Type : Electromagnet, Free Drop  
 Max Height : Max 1,600mm(On Request)  
 Capacity : 2000m/s  
 Impact Zone : Steel(On Request)



### Door Checker Tester

Size : 1,500 x 600 x 600(WxDxH)mm  
 Door Checker Open Angle : 0 ~ 100°  
 Door Checker Open direction : FL, FR, RL, RR  
 Guide Shaft : 4 Axis

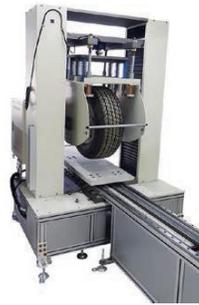


### Ice Water Shock Tester

Temp. Range :  
 Water Temp. : 0 ~ +4.0 °C  
 Tank Volumn : 150L  
 Spray Distance : 325 ±25mm  
 Water Flow : 2.1 ~ 27L



Combined Durability Tester



Electric Vehicle Connector  
-Compression Durability Tester

## 01. Water Chiller



All-In-One Controller



DV Practical Durability Tester



Furniture Performance Tester

Product Standard Specification								
SPEC./MODEL	JFM-WC-5A	JFM-WC-7.5A	JFM-WC-10A	JFM-WC-15A	JFM-WC-20A	JFM-WC-30A	JFM-WC-40A	
Compressor	kw	3.75	5.5	7.5	11	15	22	30
Tank Volume	ℓ	80	120	140	200	220	300	300
Pump Volume	kw	0.75	1.5	1.5	2.2	2.2	3.75	5.5
Cooling Capacity kcal/hr	10°C	13,400	20,500	27,500	35,700	58,000	83,000	105,000
	15°C	14,600	22,500	30,500	42,500	66,800	91,000	115,000
Flow Rate	kg / cm <sup>3</sup>	2.2	4	4.5	3.5	3.5	4	6
	ℓ / min	81	125	170	240	350	400	450
Pipe Con Size(mm)	Supply	20	25	25	32	40	50	50
	Return							
	Make Up Drain	15	15	15	15	20	20	20
Dimension(mm)	D	1,340	1,540	1,540	1,770	2,070	2,930	3,230
	W	650	750	800	900	1000	1000	1100
	H	1,400	1,450	1,450	1,720	1,775	1,815	2,055
Weight	kg	430	680	860	1,000	1,400	1,550	1,700
Total Power	kw	4.9	7.5	9.75	14.2	18.5	27.95	38.5
Cooling Medium	Water, Antifreeze, D.I Water, Distilled Water							
Display	Digital Automatic Temperature Control							
Power	220/380/440V 50/60Hz							

\* In addition to existing products, it can be manufactured according to product specifications and custom specifications.



4- Room Hot Oven



Constant- Temp. Water Tank