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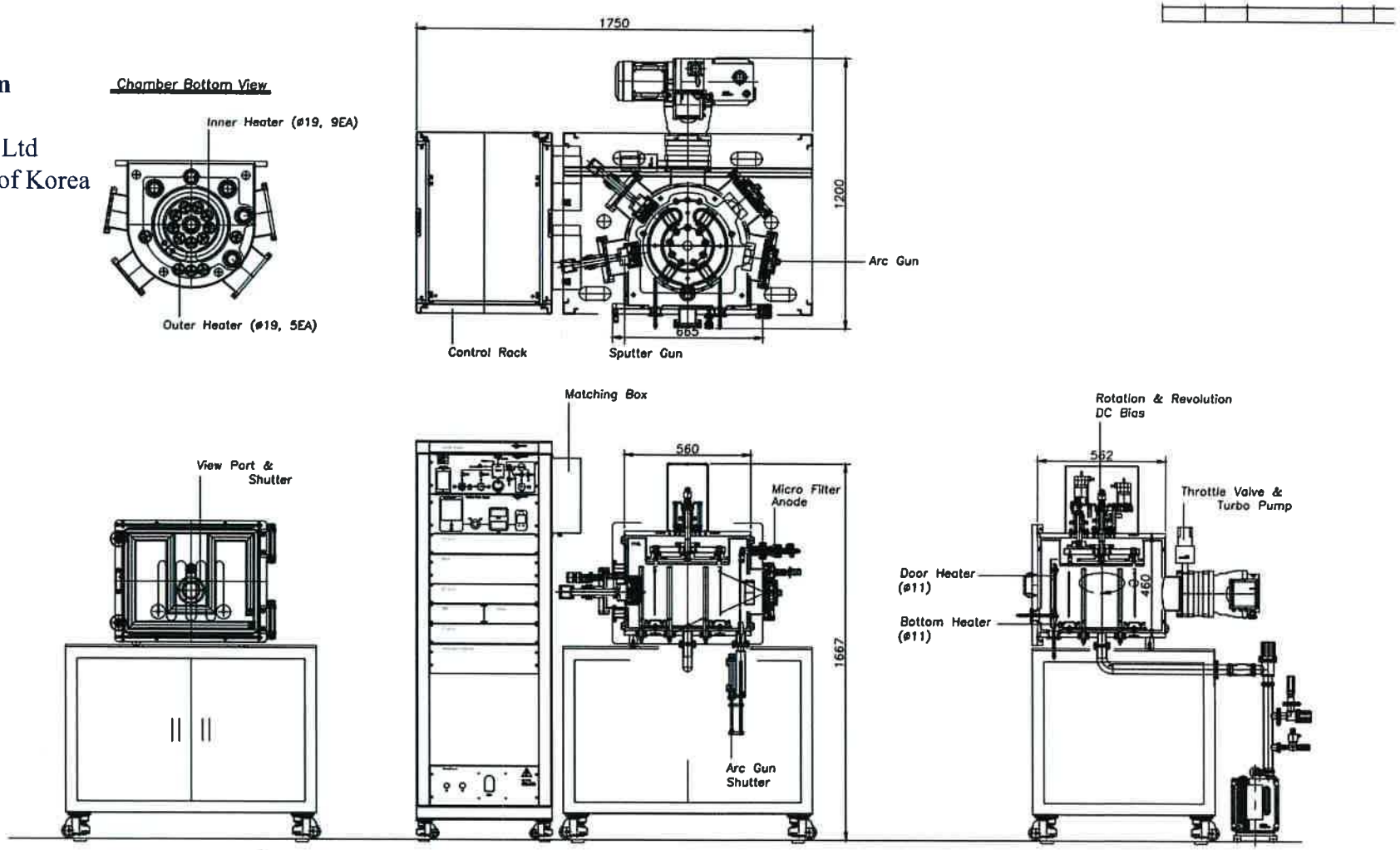
Thin film fabrication system
Model: DSA 7504
Made by: DADA Korea Co., Ltd
Country of Origin: Republic of Korea



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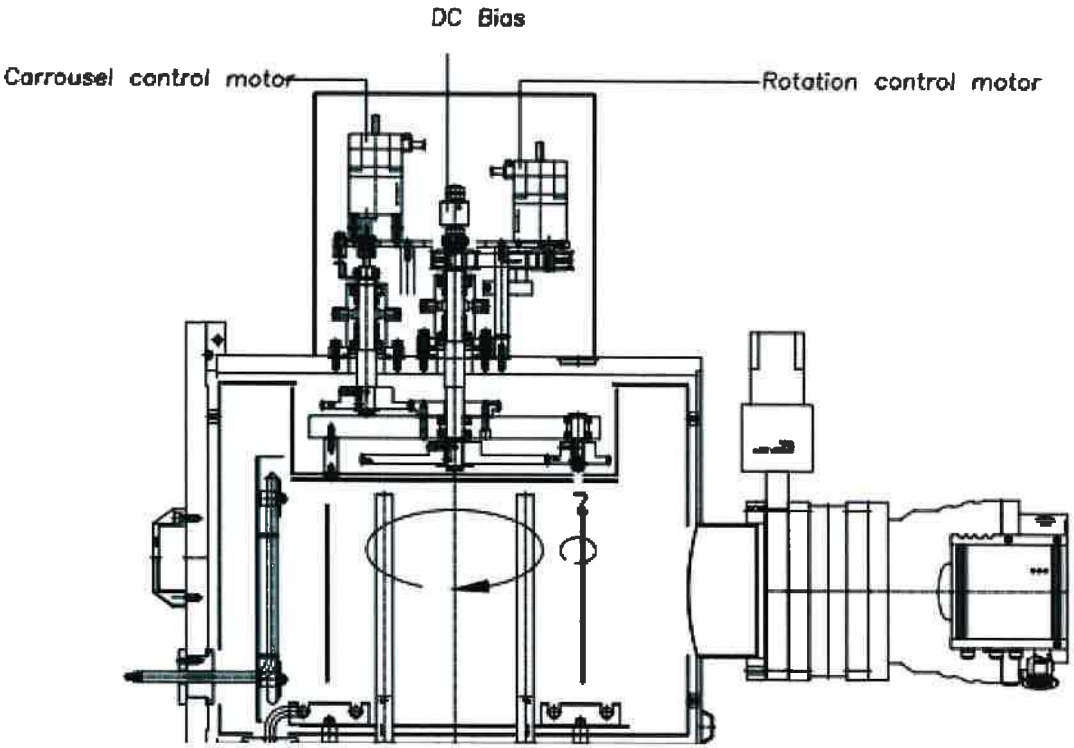

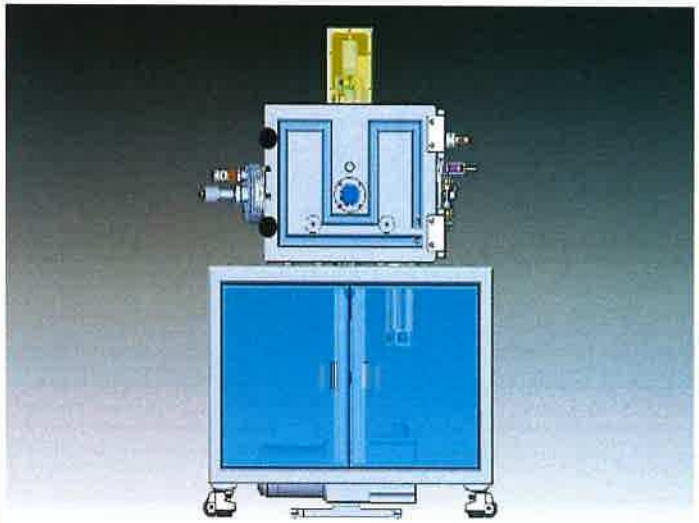

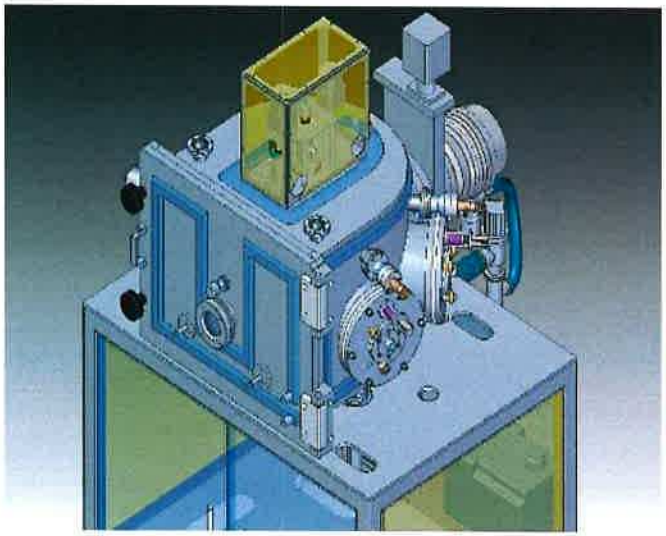

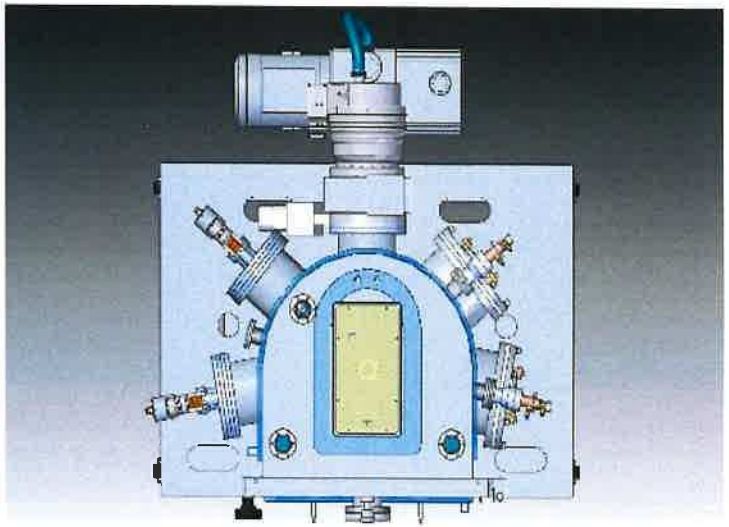

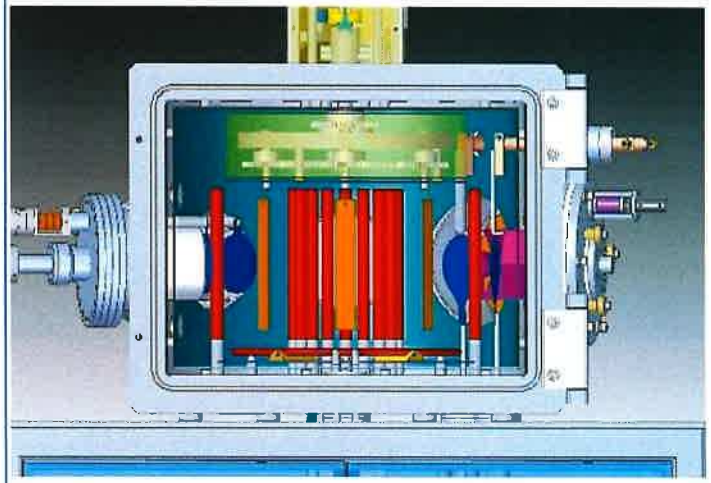

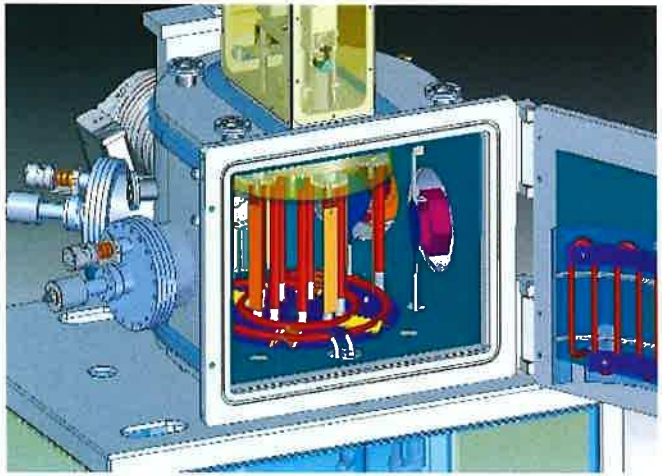

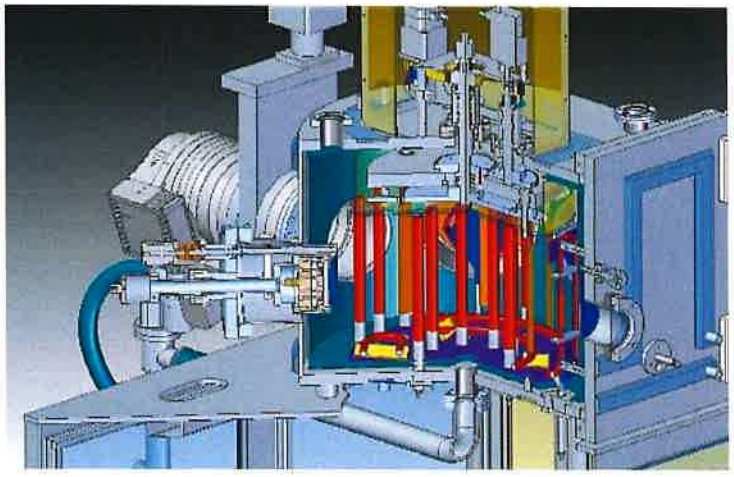

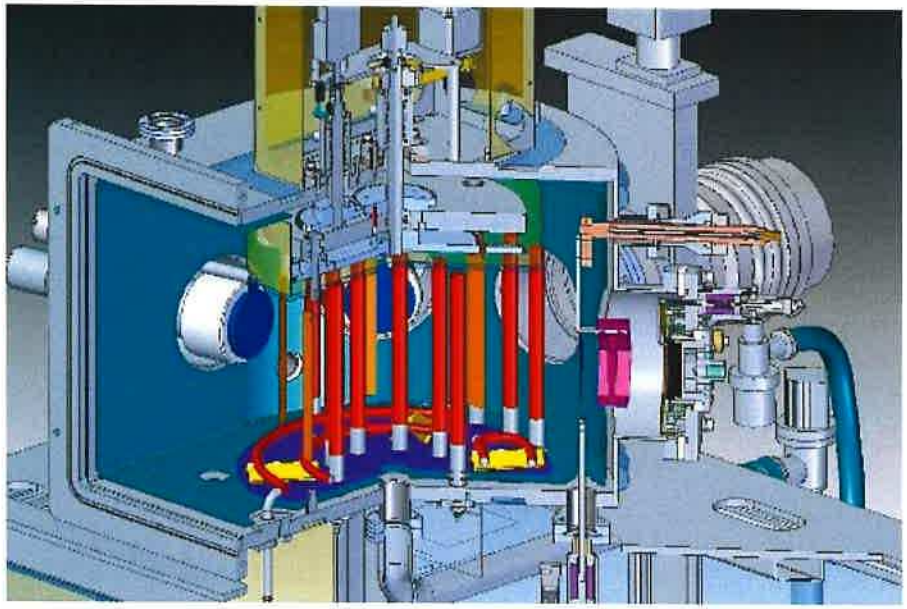

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Turbo pump(Hipace700)

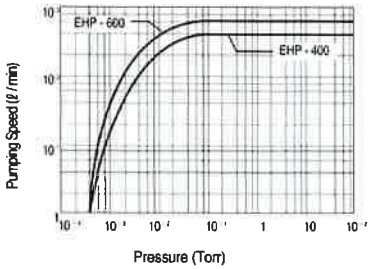
Technical Data	HiPace® 700 with TC 400, Profibus, DN 160 ISO-K
Cooling water temperature	15-35 °C | 59-95 °F | 288-308 K
Current, max.	8,75 A
Electronic drive unit	with TC 400
Final pressure	< 1 · 10^{-7} hPa | < 7.5 · 10^{-8} Torr | < 1 · 10^{-7} mbar
Fore-vacuum max. for N_2	11 hPa | 8.25 Torr | 11 mbar
Gas throughput at final rotation speed for Ar	3.6 hPa·l/s
Gas throughput at final rotation speed for H_2	> 14 hPa·l/s
Gas throughput at final rotation speed for He	10 hPa·l/s
Gas throughput at final rotation speed for N_2	6.5 hPa·l/s
I/O Interfaces	RS-485, Remote, Profibus
Interfaces, extended	Profibus
Mounting orientation	Arbitrary
Operating voltage: V DC	48 (± 5 %) V DC
Permissible radial magnetic field max.	6 mT
Power consumption max.	420 W
Pumping speed for Ar	665 l/s
Pumping speed for H_2	555 l/s
Pumping speed for He	655 l/s
Pumping speed for N_2	685 l/s
Rotation speed ± 2 %	49,200 rpm | 49,200 min^{-1}
Rotation speed variable	60 – 100 %
Run-up time	2 min
Sound pressure level	≤50 dB(A)
Venting connection	G 1/8"
Weight	11.5 kg | 25.35 lb

Rotary pump(EHP-600)

Technical Specification

Description		Unit	EHP-400	EHP-600
Actual Pumping Speed		ℓ/min	400	600
Ultimate Pressure	GB. Closed	Torr (Pa)	5×10^{-4}(6.7×10^{-2})	5×10^{-4}(6.7×10^{-2})
	GB. Open		5×10^{-4}(6.7)	5×10^{-3}(6.7)
Power Input			220V/380V 3ϕ	220V/380V 3ϕ
Full Load Power		kW	0.75	1.5
Motor Speed		r.p.m	1700	1700
Oil Capacity		cc	1500	2700
Weight		Kg	29	51.5
Intake Type		mm	NW25	NW40
Ambient Operation Temp. Range		℃	7~40	7~40
Overall Dimensions		mm	170(W)×464(L)×287(H)	205(W)×609(L)×318(H)

Pumping Speed Curve



FEATURES

- Extra small and light weight
  compact and easy carry.
- Extremely Quiet
  Precise machining eliminated noise and vibration levels well below those of competitors.
- Fast Pumping
  Distinguished suction force is unrivaled.
- Model choices
  Standard models are operated either 220V 1 ϕ or 220V / 380V 3 ϕ AC input

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Gauge Controller(B-RAX3200)

- **3 Channel Controller for one ionization and two convection gauges or one ionization, one convection and one alternate capacitance diaphragm gauge**
- **Various pressure measurement ranges from 2 x 10^{-11} to 1,000 Torr**
- **3 analog outputs, 6 setpoint relays, RS232/RS485 serial communications, remote Digital I/O**
- **Compact space saving half rack design, bench top or panel/rack mount instrument**
- **Outstanding product warranty of 5 years**

B-RAX 3200	One IGM400 Hot Cathode (1×10^{-9} to 5×10^{-2} Torr)	or	One CCM500 Cold Cathode (1×10^{-9} to 1×10^{-2} Torr)	Up to two CVG101 Convection Gauges (1×10^{-4} to 1,000 Torr)
				

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Gauge Controller(B-RAX3200)

Specifications

measurement range:		**B-RAX 3500:** 7.5 x 10^{-11} to 1,000 Torr when used with the CC606 UHV cold cathode IG and CVG101 CG **B-RAX 3500:** 1.5 x 10^{-9} to 1,000 Torr when used with the CC605 cold cathode IG and CVG101 CG **B-RAX 3400:** 2 x 10^{-11} to 1,000 Torr when used with the BA601 UHV hot cathode IG and CVG101 CG **B-RAX 3400:** 1 x 10^{-9} to 1,000 Torr when used with the BA600 hot cathode Mini IG and CVG101 CG **B-RAX 3300:** 4 x 10^{-10} to 1,000 Torr when used with the BA602/603 hot cathode IG and CVG101 CG **B-RAX 3200:** 1 x 10^{-9} to 1,000 Torr when used with the IGM400 hot cathode IG and CVG101 CG **B-RAX 3200:** 1 x 10^{-9} to 1,000 Torr when used with the CCM500 cold cathode IG and CVG101 CG
display	pressure indication	LED - 3 independent pressure display channels - 3 digit plus 2 digit exponent per channel
	programming & set-up screen	OLED - displays state of all setpoint relays, IG emission current, error messages for fault conditions
units of measure		Torr, mbar, Pa - user selectable
functionality	IG	powers & operates one of the InstruTech ionization vacuum gauges listed above **B-RAX 3400/3300** are also capable of operating other equivalent brands of nude/glass B-A hot cathode IG
	CG	powers & operates up to 2 InstruTech CVG101 convection or Granville-Phillips® (GP) Convectron® gauges
	alternate gauge	displays pressure from one alternate gauge such as a capacitance diaphragm gauge (CDG) or other InstruTech modules using the analog input (external power source for these alternate auxiliary devices will be required)
IG sensor control		IG sensor on/off, degas on/off and emission current (hot cathode IG) can all be controlled via front panel soft-keys, remote input signals (digital I/O) or serial communications. IG sensor can also be automatically turned on/off using the measurements from one of the user selectable convection or alternate gauges.
IG remote input signals (digital I/O)		IG sensor on/off, degas on/off and emission current (hot cathode IG) can also be set by applying momentary continuity to ground. Also the 9-pin D-sub remote input DIGITAL I/O connector provides pin-pin compatible signals with the GP 358 controller as well as compatible signals with the GP 307.
setpoint relays / relay contact rating		six single-pole, double-throw (SPDT) / 5 A at 30 Vdc, 5 A at 250 Vac, resistive load, user assignable to any of the gauges (**Note**- Contact rating applies to units shipped after Nov 1, 2015, See User Manual for older units)
analog output		three analog outputs, user assignable to any of the gauges:
	IG	log linear 0 to 10 Vdc, 1 V/decade, various scaling selections also provide analog output compatibility with Granville-Phillips® controller models 307, 350 and 358 controllers, or log Linear 1.7 V to 9.3 Vdc (nominal 1.8 to 8.7 Vdc) 0.8 V/decade, or linear 0 to 10 Vdc (useable over 3 decades, also compatible with GP 307 controller)

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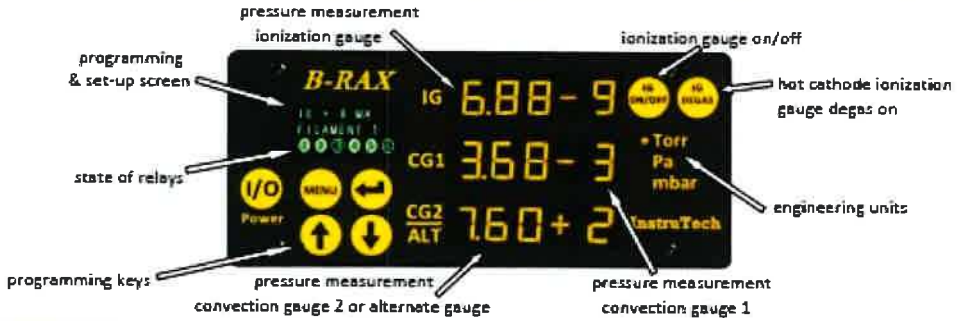
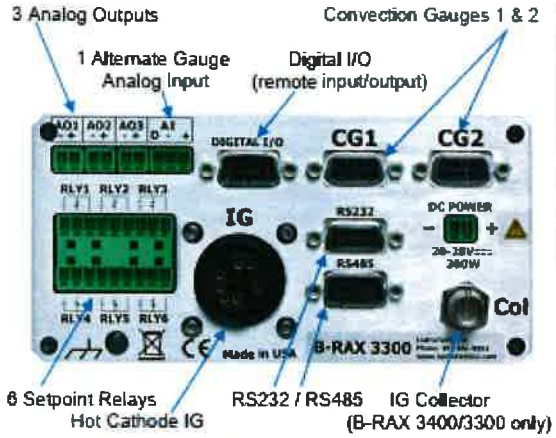
Gauge Controller(B-RAX3200)

Front Panel Operation



Electrical Connections

B-RAX 3400, B-RAX 3300, B-RAX 3200



B-RAX 3500

All connections are the same as the B-RAX 3400/3300/3200 except IG (Note IG Collector is removed below)

Outline Drawing

Pirani gauge(CVG101)

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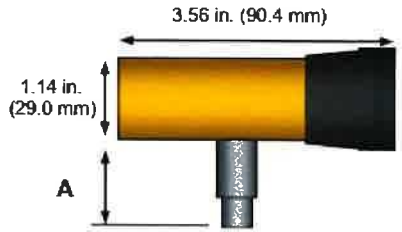
Specifications

measurement range	1×10^{-4} to 1,000 Torr 1.3×10^{-4} to 1,333 mbar 1.3×10^{-2} Pa to 133 kPa
accuracy - N_2 (typical)	1×10^{-4} to 1×10^{-3} Torr; 0.1 mTorr resolution 1×10^{-3} to 400 Torr; ± 10% of reading 400 to 1,000 Torr; ±2.5% of reading
repeatability - (typical)	± 2% of reading
operating temperature	0 to 50 °C
bakeout temperature	150 °C max, non-operating, with electronics cable detached
humidity	0 to 95% relative humidity, non-condensing
mounting orientation	horizontal recommended (orientation has no effect on measurements below 1 Torr)
materials exposed to vacuum	gold-plated tungsten, 304 & 316 stainless steel, glass, nickel, Teflon®
internal volume	1.589 in^3 (26 cm^3)
internal surface area	9.25 in^2 (59.7 cm^2)
leak integrity	$< 1 \times 10^{-9}$ atm cc/sec He
weight	3 oz. (85 g)
RF/EMI protection	CE compliant
environmental	RoHS compliant



fitting	dimension A
1/8 in. NPT male - 1/2 in. tube	1.00 in. (25.4 mm)
NW16KF	1.30 in. (33.0 mm)
NW25KF	1.30 in. (33.0 mm)
NW40KF	1.30 in. (33.0 mm)
1 1/3 in. Mini-Conflat®	1.08 in. (27.4 mm)
2 3/4 in. Conflat®	1.47 in. (37.3 mm)
1/4 in. Cajon® 4VCR®	1.86 in. (47.2 mm)
1/2 in. Cajon® 8VCR®	1.75 in. (44.5 mm)

Ordering Information

	InstruTech CVG101 P/N	Equivalent Convectron® P/N
Standard Gauges		
Combination 1/8 in. NPT male - 1/2 in. tube (use 1/8" NPT male or 1/2" O.D. O-ring compression)	CVG101GA	275071

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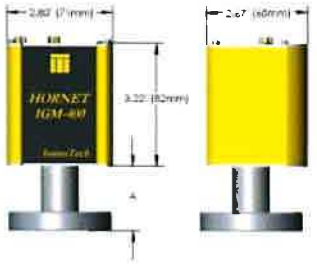
Hot cahode gauge(IGM400)

Specifications

measurement range	1×10^{-9} to 5×10^{-2} Torr / 1.3×10^{-9} to 6.7×10^{-2} mbar / 1.3×10^{-7} to 6.7 Pa
accuracy - N_2 (typical)	1×10^{-8} to 5×10^{-2} Torr; ± 15% of reading
repeatability - (typical)	± 5% of reading
materials exposed to gases	dual Filaments: yttria coated iridium or optional tungsten Ion collector: tungsten Grid: 304 Stainless Steel Others: 316/304 SS, glass, nickel
sensitivity	factory pre-set. Also user adjustable from 2 to 99 (set by the B-RAX or the FlexRax)
x-ray limit	$< 5 \times 10^{-10}$ Torr, $< 6.7 \times 10^{-10}$ mbar, $< 6.7 \times 10^{-8}$ Pa
emission current	100 µA, 4 mA, or automatic switching between 100 µA and 4 mA
degas	3 W, electron bombardment
overpressure protection	gauge is auto turned off at factory default setting of 5×10^{-2} Torr B-RAX or FlexRax can also be set up to auto filament turn on/off using a convection gauge
filament status	filament on/off status is determined by LED on the IGM400 and also display messages and available user interface options on the B-RAX and FlexRax controllers
internal gauge volume	1.0 in^3 (16.4 cm^3)
temperature	operating; 0 to + 40 °C storage; -40 to + 70 °C
bakeout temperature	200 °C (sensor only - electronics removed)
humidity	0 to 95% relative humidity, non-condensing
weight	0.6 lb. (0.27 kg) with NW25 KF flange
housing (electronics)	aluminum extrusion
mounting orientation	any
setpoint relay	relays available from the B-RAX or the FlexRax
input signal	all IGM400 operations controlled from the B-RAX or the FlexRax
filament selection	user selectable between filament 1 and 2 - command signal sent from the B-RAX or FlexRax
input power	powered by B-RAX or the FlexRax
connector/cabling	InstruTech cable/connector assembly for connection to B-RAX or the FlexRax
CE compliance	EMC Directive 2004/108/EC, EN61326-1, EN55011 Low Voltage Directive 2006/95/EC, EN61010-1
Environmental	RoHS compliant

Fitting	dimension A
NW16KF	1.45 in. (37mm)
NW25KF	1.45 in. (37mm)
NW40KF	1.45 in. (37mm)
1 1/3 in. Mini-CF	1.85 in. (47 mm)
2 3/4 in. Conflat®	1.70 in. (43 mm)
3/4 in. Tube	2.16 in. (55 mm)
1/2 in. VCR	2.58 in. (65 mm)



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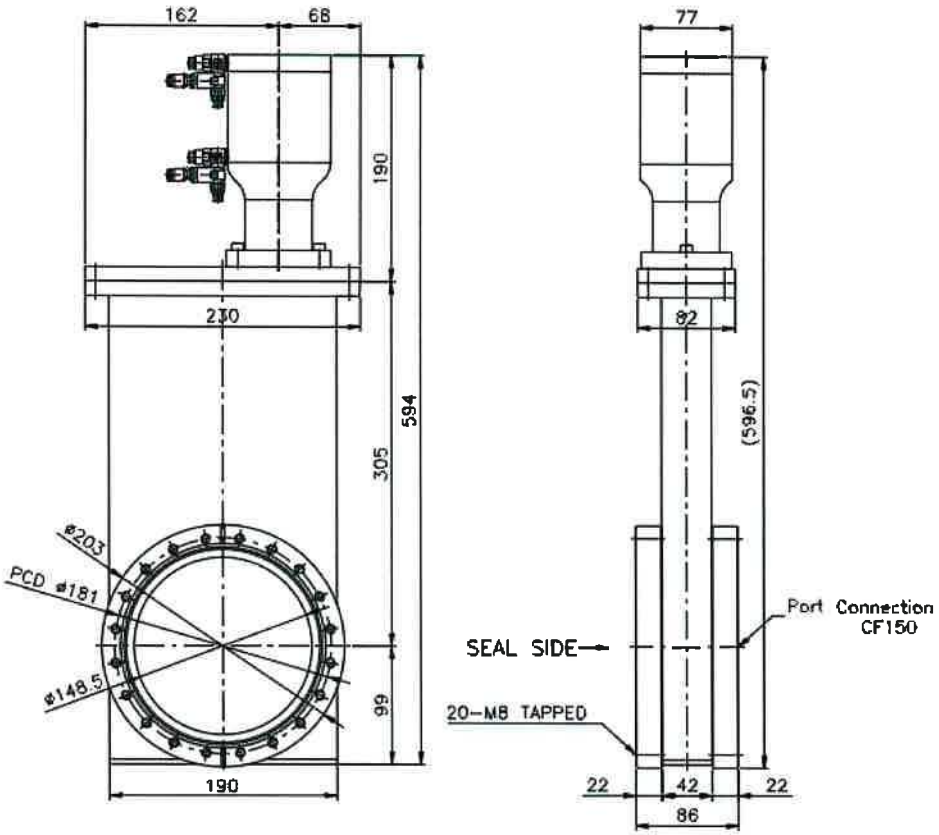
Gate valve/CF8”



SPECIFICATION(제원)

CIRCULAR TYPE			
Material		Actuator	
Body	300 Series ss	Pneumatic	Mannual
Gate	300 Series ss	Air Pressure/0 to 100psig (High size 80 to 100psig)	
Bonnet	300 Series ss	Air Controll Valve	Hand Wheel Type
Air Cylinder	Aluminum	Position Indicators 20mA, 110/220 V AC or 24V DC	
Bellows	AM-350		
Sealing		Temperature	
Bonnet Seal	Metal/Viton	Body	250℃
Gate Seal	Viton	Gate	150℃
Mounting Position : Any		Actuator	60℃
(High size : vertical & horizontal)		Leak Rate	
Cycles Until First Service		Body	1×10^{-9} mbar ℓs^{-1}
Cycles	100,000	Viton bonnet seal	
Service	1 Year	DISK SEAL	

Throttle valve/CF8”

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Combination Type (Patent)

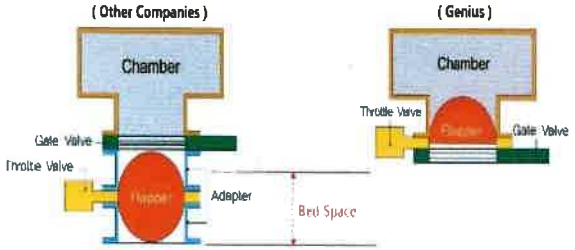
Feature & Benefits

• Flapper shape and action

- Flapper is divided by two parts of left and right sides such as a half moon.
- Flapper is opened up only to the upper-side even by 90 degrees' opening and doesn't touch the other parts of equipment which is set to the below-side of valve.

• Reduce the volume(Bed Space) and cost down.

- Flapper does not require the adapter to the below-side of valve. So valve can be able to reduce the volume and size of the whole equipments, and cost down



- Size(Valve Inner Diameter) : 100mm ~ 300mm
- Available with the other Pressure Controller(MKS, VAT) and compatibility
- PVD, CVD, LCD, OLED, SOLAR, ROLL COATER, ETHER, etc.

Specifications

* Flapper Shape: half circular
* Valve Size (Inner diameter): 100mm ~ 300mm
* Applications: PVD, CVD, OLED, SOLAR, 2'nd Battery, ALD, LCD, LED, Etc.
* Open to Close Time: Less than 1.5 sec
* Resolution: 1/28800
* Drive Method: Direct Gear Drive
* Valve Motor Ambient Operating Temperature: -200C ~ 400C
* External Leakage at Shaft Seal: 1x10-8cc/sec He
* Material Exposed to Process: AL or SUS
* Compatible Pressure Controller: GT-500, GT-600, MKS Controller
* Visual Position Indicator: Standard

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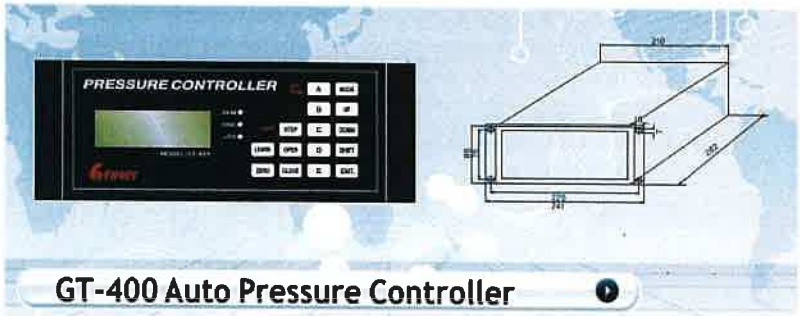
Throttle valve Controller



GT-400 Auto Pressure Controller

Feature

- GT-400 Pressure Controller controls by the Down Stream method in the vacuum system and PID Auto Pressure method.
- The controller controls speeded and steadily the throttle valve's operating.
- The Throttle Valve operates with comparing the setting value with the out-put values from Baratron Sensor in chamber.
- PID Auto Tuning method automatically looks for the correct point for the setting value to meet of process vacuum.

Specifications

- Valve Operated : All Throttle Valve
- Pressure Input Signal : 0 ~ 10V DC
- Input Power Required : 90 ~ 264 VAC, 50/60 Hz
- Set Point Programmable : 5 Point adjustable from Front Panel or RS232
  Selectable from Front Panel, TTL or RS232
- Controller Repeatability : ±0.05% of Full Scale
- Ambient Operating Temperature : 15℃ ~ 45℃
- Output Power : Standard ±15VDC@0.3A Max
- Size : Standard 1/2Rack packing, 88H x 241W x 282D
- Display : 20 Character by 4-Line LCD(with Backlight)
- Display Unit : Torr, mTorr, Pascal, etc
- Interface Unit : Front Panel, Analog, TTL, RS232
- Control Method : Pressure, Position
- Soft Start, PID, Remote Zero : Standard
- Battery Backup : N/A

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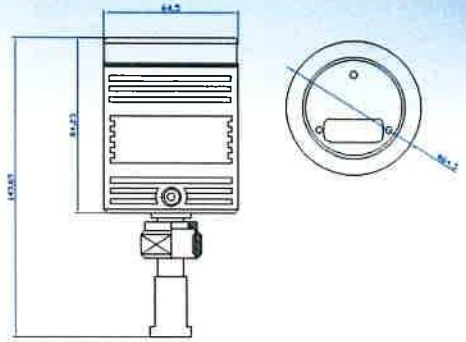
Baratron Gauge/ACM2000

Dimensions



Specifications

Pressure ranges (mmHg Full Scale)	1, 2, 10, 100, 1000
Useable measurement range	1 x 10 $^{-4}$ F.S
Accuracy (non-linearity, hysteresis, and non-repeatability)	0.25% of Reading Optional:0.15%
Temperature Coefficients Zero Span	 0.002% F.S/°C 0.02% Reading/°C
Ambient operating temperature range	0°C to 50°C
Materials exposed to gases	Inconel
Volume (Px side)	6.3 cc
Overpressure limit without damage	45 psia (310 kpa)
Input Required	±15VDC (±5%) @ 35 mA
Output	0 to +10VDC into ≥ 10K Ω load
Fittings	8 VCR female, NW16KF

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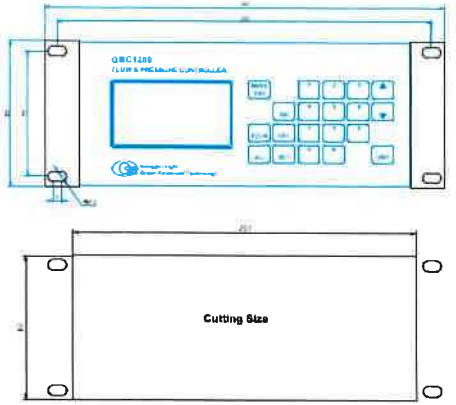
MFC Readout

Specifications

Physical	
Width	241 mm - Half Rack Mounting ears
Height	88 mm - 2 U Rack
Depth	200 mm
Weight	Approx. 1.5kg ~ 2kgs (Depends on options)
Electrical	
Input Power	195 ~ 265VAC @50/60 Hz 85VA (max) - default 98 ~ 135VAC @50/60 Hz 85VA - Optional
Fuse rating	250 VAC @3 A
Output Power	+/- 15VDC +5% @2.7A
Operating Temperature	0 ~ 50 ℃
Input Signal	0 ~ 5.000VDC for MFC 0 ~ 10.000VDC for Capacitance Manometer
Output Signal	0 ~ 5.000VDC for MFC Flow Command
Display Window	128*64 dot Graphic LCD 4 Digit for MFC, 5 Digit for Capacitance Manometer
Display Units	sccm, slm for MFC Torr, mTorr for Capacitance Manometer
Interface	RS-232C PC Interface, TTL flow On/Off Interface

Specifications

Controller Dimensions



MFC Ar,100sccm
MFC O2, 100sccm
MFC N2, 100sccm

Tylan FC-280SA/FM-380SA
Mass Flow Controllers and Flowmeters

Low-cost, premium quality elastomer-sealed mass flow controllers and meters

Process Values

Designed to meet the exacting requirements of semiconductor processes and equipment, the Tylan FC280SA and FM380SA models are premium quality elastomer-sealed mass flow controllers and meters. These MFCs combine proven components and techniques with innovative concepts in both mechanical and electrical design.

Feature

Accuracy
Fast setpoint response
10 sccm to 30 slpm N2
0 – 5 VDC signals
Resistant to contamination clogging
Adjustable, normally – closed solenoid valve
Corrosion resistant materials

Tylan FC280SA/FM-380SA MFCs and Flowmeters - Ordering Information

Performance

Full Scale (N2 equivalent)	10 sccm – 30 slpm
Shutdown	2% full scale
Step Response Time	1 sec (dependent on step request and conditions)
Accuracy	± 1.0% full scale
Linearity	± 0.5% full scale
Repeatability	± 0.2% full scale
Pressure Coefficient	0.00001% per torr, 0.007% per psi (typical)
Temperature Coefficient	0.1% per °C full scale (zero and span)
Attitude Sensitivity	< 0.2% @ 90° C

Mechanical

Valve	normally-closed solenoid
Materials	316L stainless steel, 446 stainless steel, PFA Teflon
Elastomers Available	Viton, Kalrez, Neoprene
Leak Integrity	1 x 10-9 atm-cc per sec (He) inboard -2% full scale with Teflon poppet (normally-closed) -5% full scale with Teflon poppet (normally-open)
Weight	0.98 Kg (2 lb)

Electrical

Supply Voltage	± 12 VDC to ± 15 VDC
Supply Current	150 mA nominal
Power Consumption	3.5 watts @ ± 15 volts
Input/Output Signal	0-5 VDC

Environmental

Operating Temperature	5 – 50° C (ambient and gas)
Humidity	0 – 95% RH, non-condensing
Maximum Inlet Pressure	11.5 bar (150 psig)
Differential Pressure	Minimal, 0.7 – 2.8 bar (10-40 psid)

Note: In accordance with SEMI Standard E13-95, Standard Temperature is 0° C and Standard Pressure is 760 mm Hg (14.7 psia).

Electrical Connection

	Card Edge	15-Pin "D"	9-Pin "D"		Card Edge	15-Pin "D"	9-Pin "D"
+15 VDC	A			As INHIBIT	J		
COMMON	C			VALVE TEST (= 15 VDC)	D		
-15 VDC	F			VALVE OFF	L		
0-5 V Out	S			OVERRIDE			
COMMON	T			4-20 mA IN			
0-5 V IN	A			4-20mA OUT			
COMMON	B			CASE GND	1		
V REF	6			VALVE VOLTAGE (0-7 VDC)			
PRESS. IN	5						
As STORE	E						

Consult our application specialists with any questions. * Optional
Kalrez and Viton are trademarks of DuPont dow Elastomers, L.L.C.
Swagelok is a trademark of Crawford Fitting Company.
Teflon is a trademark of E. I. du Pont de Nemours and Company
VCO and VCR are trademarks of Cajon Company

FC-280SA/FM-380SA Ordering Information

P □ 5 0 5 A □ □ □

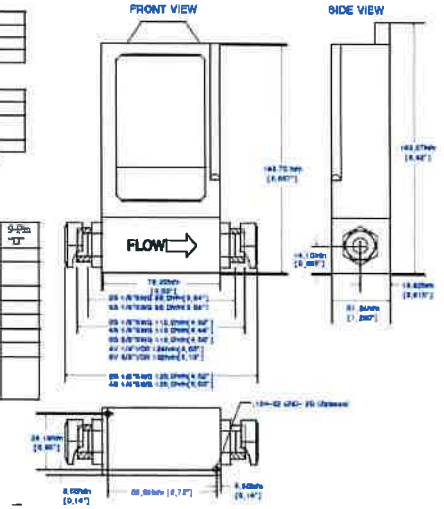
Type
C2=Controller
M3=Meter

Seal
V=Viton
K=Kalrez
N=Neoprene

Fitting
2S=1/8" Swagelok
4S=1/4" Swagelok
4V=1/4" VCR
6S=3/8" Swagelok
6V=3/8 VCR

Control range
(10 sccm – 30 slpm)

Dimensions



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RF power 600W/YSR-06AF

SPEC / MODEL	YSR-01HD	YSR-03HDP	YSR-06AH/AF	YSR-10AH/AF	YSR-15MC	YSR-17MC	YSR-RF03K	YSR-RF05K
INPUT POWER	220V						3Φ 220V	
OUTPUT POWER	100W	300W	600W	1000W	1500W	1700W	3000W	5000W
REFLECTED POWER LIMIT	±10% of Full-Rated Power							
OUTPUT IMPEDANCE	50Ω							
FREQUENCY	2MHz, 4MHz, 13.56MHz, 27.12MHz and 40.68MHz							
COMMUNICATIONS PROTOCOLS	Analog Subminiature 15pin D-Sub & RS232 Subminiature 9pin D-Sub							
REGULATION	±1% of Full-Rated Power							
DISTORTION HARMONIC	<-55dB							
RF POWER EFFICIENCY	70% Nominal							
OUTPUT CONNECTOR	M TYPE		N TYPE				7/16 DIN TYPE	
POWER SUPPLY MODE	SMPS							
COOLING TYPE	AIR				WATER			

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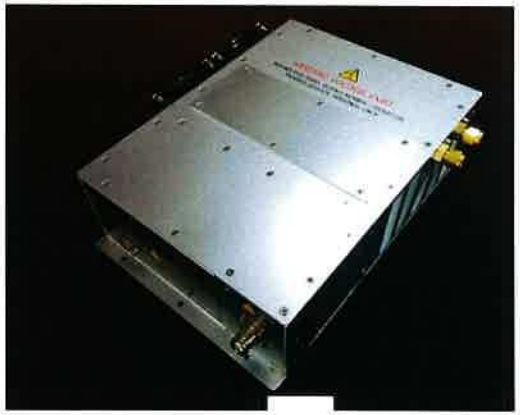
RF Auto Matcher/AMN-100



SPEC / MODEL	AMN-100	AMN-120	AMN-130	AMN-150
RF POWER RANGE	0 ~ 600W	0 ~ 1500W	0 ~ 3000W	0 ~ 5000W
MATCHING METHOD	2AVC	1AVC & 1VVC	2VVC	
FREQUENCY	±2MHz, 4MHz, 13.56MHz, 27.12MHz and 40.68MHz			
INTPUT IMPEDANCE	50Ω			
TUNING RANGE	10 ~ 1000Ω			
RF INPUT CONNECTOR	NR			Din(7/17 Inch) Type
RF OUTPUT CONNECTOR	CONNECTOR, CERAMIC, 동관, 부스 바 TYPE			
OPERATION MODE	Manual & Digital Auto Tuning			
TUNING TIME	2Sec preset 설정 시			
INDICATOR	Capacitor Position (Load/Tune Position)			
COOLING TYPE	AIR	AIR or WATER	WATER	

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DC Power Supply 1kw/SPT-1

SPT Series

Specifications

• Input Conditions

Items	SPT-1	SPT-2	SPT-3	SPT-4	SPT-5	SPT-6	SPT-10
Frequency		47 - 63Hz					
Voltage		220Vac ±15% Single Phase				220Vac ±15% Three Phase	
Current (220Vac Full Load)	5.5A	11A	16A	21A	26A	18A	30A
Efficiency		93 % Above at 220VAC					

• Output Conditions

Voltage	0 – 1000V	0 – 1000V	0 – 1000V	0 – 1000V	0 – 1000V	0 – 1000V	0 – 1000V
Current	0 –1.0A	0 –2.0A	0 –3.0A	0 –4.0A	0 –5.0A	0 –6.0A	0 –10.0A
O.C.P	Max. Current 110% C.C Mode 5 % Otll						
Cooling	Air Cooling at Fan						

•Function

Mode Type	C.V, C.C
Communication	RS-232(Option)
Remote Control	C.V, C.C (0.0 – 5.0Vdc)

• Use

Load type	Magnetic Sputter Gun
Use	Bias, Sputter

• Interfaces

User Interface	Com Port (D- sub 9pin), Remote (D- sub 15pin), Interlock (D- sub 9pin)

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Magnetron Sputter Gun 3”

Maker : DADA KOREA
Magnet : ND Magnet
Target : 3”,6.4t
Cooling : Water, Ø6 Hose
Source : DC or RF
Seal Pipe : Ø19mm
Power in : N-type connector

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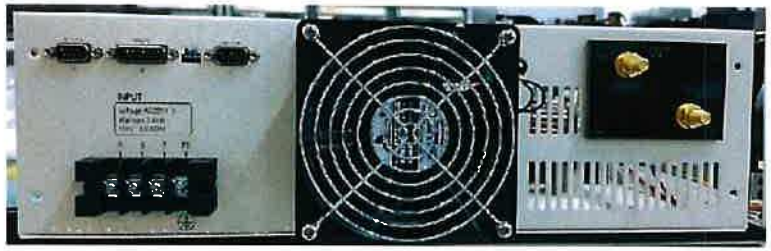
ARC Power



Maker : SJPower
Model : SJA-3
Input power : 380Vac,Three Phase
Output power : 0~20Vdc,Max150A
Funtion
1. Soft start : 3~5sec
2. 2. EXT ON/Off : 2Contact(Relay)
3. Remote(Isolation Type)
   - Voltage Adj : 0.0 ~ 5.0Vdc
   - Current Adj : 0.0 ~ 5.0Vdc
4. Ignition dect Relay
5. Dimension 483(W) x 540(D) x 132(H)

ARC Sputter Gun3”

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Maker : DADA KOREA
Magnet : ND Magnet
Target : 3”,20Th
Cooling : Water, Ø6 Hose
Source : ARC DC Power
Ignition: Tungsten ¢ 2rod

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Cooling Chiller(DSD-010)

- Coling Capacity : 2.400 ~ 3.000 kcal/ h
- Operating temp : 5℃~40℃
- Power consumption: 2.200 W
- Output compressor: 750 W
- Fan output: 100 W
- Circulation pump output: 550 W
- Circulation pump flowrate: 35 l/min @30 m
- Water tank capacity: 25 l
- Dimension : 540 x 420 x 868 mm (W x L x H)
- Weight : 80 kg

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Air Compressor

- Power: 680 W
- Air pressure : 8 bar
- Flow rate: 115 l/ min
- Noise level: 50 dB
- Air tank: 25 l
- Power : 220 V

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DSA 7504 Details Technical Specifications

No.	Name, product type and detailed technical specification	Unit	Quantity
1	**Thin film fabrication system**	**System**	**1**
	Model: DSA 7504		
	Made by: DADA Korea Co., Ltd		
	Country of Origin: Korea		
	Scope of supply:		
1.1	**Main Chamber Module**		
	Chamber Φ560 x 460H, STS304	each	1
	Water Cooling	each	1
	ISO100 Substrate Port	each	1
	CF8" Pumping Port	each	1
	Cathode port	each	4
	CF2.75" Gauge,Extra Port	each	5
	Vertical Cylinder & Front Door Type	each	1
	Swing Door Open & Close	each	1
	Contamination protect shield plate	each	1
	View window 6"	each	1
	View window 6" Shutter	each	1
	Chamber Illumination	each	1
1.2	**Substrate Module**		
	70mm ~ 180mm Sample holder & Carrousel 6 chanel	each	1
	Sheath Heater type (Max300°C)	Set	1
	Sample Rotation/ 0~30 rpm	each	1
	Sample Bais Feedthrough		
	Sample Shutter/Pneumatic		
1.3	**Cathode Module**		
	ARC Power 3kw	**Set**	**2**
	- Input power: 380 Vac, three phase		
	- Output power: 0 ~ 20 Vdc, max 150 A		
	RF 600W & Matcher	**Set**	**1**
	- Power source: 220V		
	- RF power source: 600W		
	- Output impedance: 50Ω		
	- RF power efficiency: 70%		

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	- Output connector: N type		
	- Power supply mode: SMPS		
	- Cooling type: air		
	RF Auto Matcher 600W	**Set**	**1**
	- RF power range: 0-600W		
	- Matching method: 2AVC		
	- Frequency: ±2MHz, 4MHz, 13.56MHz, 27.12MHz and 40.68MHz		
	- Input impedance: 50Ω		
	- Tuning range: 10 - 1.000 Ω		
	- Operation mode: Manual & Digital Auto tuning		
	- Cooling type: Air cooling at Fan		
	DC Pulse Power 1kw	**Set**	**1**
	Input conditions		
	- Frequency: 47-63Hz		
	- Voltage: 220 VAC, single phase		
	- Current: 5.5A		
	- Efficiency: 93% at 220 VAC		
	Output conditions		
	- Voltage: 0-1000V		
	- Current: 0-1A		
	Cooling type: Air		
	3" Magnetron Sputter gun & shutter	**Set**	**2**
	- Magnet : ND Magnet		
	- Target : 3 inches, 6.4t		
	- Cooling : Water Ø 6 Hose		
	- Source : DC or RF		
	- Power in : N-type connector		
	3" ARC gun & Shutter	**Set**	**2**
	- Target : 3",20Th		
	- Cooling : Water Ø 6 Hose		
	- Source : ARC DC Power		
	- Ignition: Tungsten ¢ 2rod		
1.4	**Pumping Module**		
	Turbo Pump	**each**	**1**
	- Pumping speed for N_2: 685 l/s		
	- Rotation speed: 49.200 rpm ± 2 %		

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	- Compression ratio for N_2 > 1 x 10^{11}		
	- Final pressure: < 7.5 x 10^{-8} Torr		
	- Fore-vacuum max. for N_2: 8,25 Torr		
	- Gas throughput at final rotation speed for N_2: 6,5 hPa x l/s		
	Rotary pump	**each**	**1**
	- Actual Pumping speed: 600 l/min		
	- Ultimate pressure GB. closed: 5 x 10^{-4} Torr		
	- Ultimate pressure GB. open: 5 x 10^{-2} Torr		
	- Power: 1.500 W		
	- Power supply: 3Ø, 220/ 380 VAC		
	- Oil capacity: 2.700 cc		
	Gauge Controller(B-RAX3200) & Cable	**each**	**1**
	- 3 Channel Controller for one ionization and two convection gauges or one ionization, one convection and one alternate capacitance diaphragm gauge		
	- Various pressure measurement ranges from 2 x 10^{-11} to 1,000 Torr		
	- 3 Analog outputs , 6 setpoint relays		
	- Remote Digital I/O, RS232 and RS485 serial comm.		
	- Measurement Range: 1 x 10^{-9} to 1,000 Torr when used with the IGM400 hot cathode IG and CVG101 CG		
	- Display pressure indication: LED - 3 independent pressure display channels - 3 digit plus 2 digit exponent per channel		
	- Programming & set-up screen: OLED - displays state of all setpoint relays, IG emission current, error messages for fault conditions		
	- Units of measure: Torr, mbar, Pa - user selectable		
	- Functionality		
	+ IG: Powers & operates one of the InstruTechOne ionization vacuum gauges IGM400 Hot Cathode (1 x 10^{-9} to 5 x 10^{-2} Torr) or One CCM500 Cold Cathode (1 x 10^{-9} to 1 x 10^{-2} Torr)		
	+ CG: Powers & operates up to 2 InstruTech CVG101 convection or Granville-Phillips® (GP) Convectron® gauges		

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	- IG sensor control: IG sensor on/off, degas on/off and emission current (hot cathode IG) can all be controlled via front panel softkeys, remote input signals (digital I/O) or serial communications. IG sensor can also be automatically turned on/off using the measurements from one of the user selectable convection or alternate gauges		
	- IG remote input signals (digital I/O): IG sensor on/off, degas on/off and emission current (hot cathode IG) can also be set by applying momentary continuity to ground. Also the 9-pin D-sub remote input DIGITAL I/O connector provides pin - pin compatible signals with the GP 358 controller as well as compatible signals with the GP 307		
	Hot Cathode Gauge	**each**	**1**
	- Measurement range:		
	+ 1 x 10^{-9} to 5 x 10^{-2} Torr		
	+ 1.3 x 10^{-9} to 6.7 x 10^{-2} mbar		
	+ 1.3 x 10^{-7} to 6.7 Pa		
	- Accuracy - N_2(typical): 1 x 10^{-8} to 5 x 10^{-2} Torr; ± 15% of reading		
	- Repeatability - (typical): ±5% of reading		
	- Materials exposed to gases: dual Filaments: yttria coated iridium or optional tungsten; lon collector: tungsten; Grid: 304 Stainless Steel; Others: 316/304 SS, glass, nickel		
	- Sensitivity: factory pre-set. Also user adjustable from 2 to 99 (set by the B-RAX or the FlexRax)		
	- X-ray limit: <5 x 10^{-10} Torr, <6.7 x 10^{-10} mbar, <6.7 x 10^{-8} Pa		
	- Emission current: 100 UA, 4 mA, or automatic switching between 100 uA and 4 mA		
	- Degas: 3 W, electron bombardment		
	- Overpressure protection: gauge is auto turned off at factory default setting of 5 x 10^{-2} Torr; B-RAX or FlexRax can also be set up to auto filament turn on/off using a convection gauge		
	- Filament status: filament on/off status is determined by LED on the IGM400 and also display messages and available user interface options on the B-RAX and FlexRax controllers		

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	- Internal gauge volume: 1.0 in^3 (16.4 cm^3)		
	- Temperature: operating; 0 to +40°C / storage: -40°C to +70 °C		
	- Bakeout temperature: 200°C (sensor only - electronics removed)		
	- Humidity: 0 to 95% relative humidity, non-condensing		
	- Weight: 0.6 lb. (0.27 kg) with NW25 KF flange		
	- Housing (electronics): aluminum extrusion		
	- Mounting orientation: any		
	- Setpoint relay: relays available from the B-RAX or the FlexRax		
	- Input signal: all IGM400 operations controlled from the B-RAX or the FlexRax		
	- Filament selection: user selectable between filament 1 and 2 - command signal sent from the B-RAX or FlexRax		
	- Input power: powered by B-RAX or the FlexRax		
	- Connector/cabling: InstruTech cable/connector assembly for connection to B-RAX or the FlexRax		
	Convection Gauge	**each**	**1**
	- Measurement range:		
	+ 1 x 10^{-4} to 1.000 Torr		
	+ 1.3 x 10^{-4} to 1,333 mbar		
	+ 1.3 x 10^{-2} Pa to 133 kPa		
	- Accuracy - N_2(typical):		
	+ 1 x 10^{-4} to 1 x 10^{-3} Torr; 0.1 m Torr resolution		
	+ 1 x 10^{-3} to 400 Torr; ± 10% of reading		
	+ 400 to 1,000 Torr; ± 2.5% of reading		
	- Repeatability - (typical): ±2% of reading		
	- Operating temperature: 0 to 50 °C		
	- Bakeout temperature: 150 °C max, non-operating, with electronics cable detached		
	- Humidity: 0 to 95% relative humidity, non-condensing		
	- Mounting orientation: horizontal recommended (orientation has no effect on measurements below 1 Torr)		
	- Materials exposed to vacuum: gold-plated tungsten, 304 & 316 stainless steel, glass, nickel, Teflon®		

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	- Internal volume: 1.589 in^3 (26 cm^3)		
	- Internal surface area: 9.25 in^2 (59.7 cm^2)		
	- Leak integrity: <1 x 10^{-9} atm cc/sec He		
	- Weight: 3 oz. (85 g)		
	- RF/EMI protection: CE compliant		
	- Environmental: RoHS compliant		
	Gate Valve CF8",Pneumatic	**each**	**1**
	- Material (body, gate, bonnet): 300 series ss		
	+ Air cylinder : Aluminum		
	+ Bellows: AM - 350		
	- Sealing:		
	+ Bonnet seal: Metal/Viton		
	+ Gate seal: Viton		
	- Actuator: Pneumatic by air presure 70 - 100 psi		
	- Air controll valve: Hand wheel type		
	- Leak Rate (body, Viton bonnet sal, disk seal): 1 x 10^{-9} mbar. l/s		
	Throttle Valve CF8" & controller	**each**	**1**
	- Flapper Shape: half circular		
	- Valve Size (Inner diameter): 100mm ~ 300mm		
	- Open to Close Time: Less than 1.5 sec		
	- Resolution: 1/28800		
	- Drive Method: Direct Gear Drive		
	Baratron Gauge 1torr	**each**	**1**
	- Pressure ranges (mmHg Full Scale): 1, 2, 10, 100, 1000		
	- Useable measurement range: 1x10^{-4} of F.S		
	- Accuracy (non-linearity, hysteresis, and non-repeatability): 0.25% of Reading		
	- Temperature Coefficients		
	o Zero: 0,002% F.S / °C		
	o Span: 0,02% Reading / °C		
	- Ambient operating temperature range: 0 - 50 °C		
	- Materials exposed to gases: Inconel		
	- Volume (Px side): 6.3 cc		
	- Overpressure limit without damage: 45 psia (310 kPa)		
	- Input Required: ± 15 VDC (± 5%) @ 35 mA		

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	- Output: 0 to +10 VDC @ ≥ 10K Ω		
	Angle Valve NW25	each	2
	Vacuum Hose & Clamp set	Set	1
	Chamber Vent Valve	each	1
	Rotary Vent Valve	each	1
1.5	**Gas Delivery Module**		
	MFC 100sccm/tylan	**each**	**3**
	- Accuracy		
	- Fast setpoint response		
	- 10 sccm to 30 slpm N_2		
	- 0 - 5 VDC signals		
	- Corrosion resistant materials		
	Performance		
	- Full scale: 10 sccm to 30 slpm N_2		
	- Accuracy: ±1.0% full scale		
	- Linerity: ±0.5% full scale		
	- Repeatability: ±0.2% full scale		
	Mechenical		
	- Valve: normally-closed solenoid		
	- Materials: 316L stainless steel, 446 stainless steel, PFA Teflon		
	Electrical		
	- Supply voltage: ±12 VDC to ± 18 VDC		
	- Supply current: 150mA		
	- Power consumption: 3.3W @ ± 15 V		
	- Input/Output signal: 0-5 VDC		
	MFC Read Out 4chanel	**Set**	**1**
	- Dimention: 241 x 88 x 200mm (W x D x H)		
	- Weight: Approx 1.5 to 2.0 kg (Depends on options)		
	- Input power: 195 to 265 VAC at 50/60Hz		
	- Puse: 250VAC, 3A		
	- Output power: ± 15 VDC ± 5% at 2.7 A		
	- Operating temperature: 0 – 50°C		
	- Input signal: 0-5000 VDC for MFC		
	- Display windown: 128x64 dot Graphic LCD		
	- 4 digit for MFC		
	Gas Valve 1/4" Lok	each	4

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	Gas Line & Fitting	Set	1
	Cable	each	3
1.6	**System Control Module**	**Set**	**1**
	PLC Control		
	Vacuum Control		
	Safety interlock		
1.7	**System Frame & Control Rack**	**Set**	**1**
	19" Rack H1800		
	SS41 ivory paint(W850 x D1200 x H1900)		
1.8	**Utility**	**Set**	**1**
	Air, Water Sensor, Sol/V, Manifolder		
1.9	**Cooling Chiller**	**each**	**1**
	- Coling Capacity : 2.400 ~ 3.000 kcal/ h		
	- Operating temp : 5°C ~ 40°C		
	- Power consumption: 2.200 W		
	- Output compressor: 750 W		
	- Fan output: 100 W		
	- Circulation pump output: 550 W		
	- Circulation pump flowrate: 35 l/min @30 m		
	- Water tank capacity: 25 l		
	- Dimension : 540 x 420 x 868 mm (W x L x H)		
	- Weight : 80 kg		
1.10	**Air Compressor**	**each**	**1**
	- Power: 680 W		
	- Air pressure : 8 bar		
	- Flow rate: 115 l/ min		
	- Noise level: 50 dB		
	- Air tank: 25 l		
	- Power : 220 V		

ON BEHALF OF DADA KOREA CO., LTD

PRESIDENT
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