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No.521 Semi Auto Melt Indexer
Model 2A・2A-C

Model 2A (Stand alone model)

Model 2A-C (PC model)

Note: Emergency stop switch shown is option

■APPLICATION

The **Semi Auto Melt Indexer** is designed for measuring of Melt Flow Rate (MFR) and Melt Volume Rate (MVR) conforms to ISO 1133 and ASTM D1238 with semi-automated functions such as assisted weight lifting, residue purging and assisted cleaning to ease the user's burden during operation.

■FEATURES

- Testing conditions setting and indication and data printer* are all gathered on one panel have become easy to see.
- In addition to JIS and ASTM values, interval can be set at 1mm for low MFR.
- Since temperature controller is high accuracy PID operation type, temperature quickly reaches test temperature and stabilizes.
- Method A/Method B selector switch is provided on the panel to let you select desired testing method.
- Switches are one push type and testing conditions and MFR value are printed out*.
- There is a spring inside the residual sample push out rod so that the piston gets locked and does not move at the time of piston cleaning.
- The barrel cleaning rod moves up/down while rotating, providing superb cleaning effect.
- By placing gauze on furnace body and pressing the cleaning switches (left, right) on the control panel with both hands, cleaning can be performed with ease and safety.

**2A only.*

OPERATION

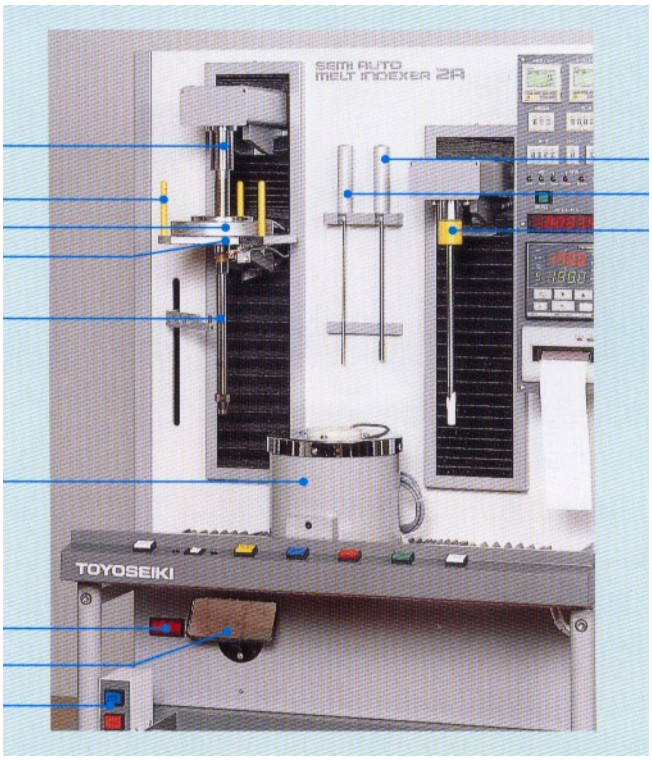
Method A (JIS)

- In manual cutting method, load is applied, strand coming out of the orifice in a fixed period of time is cut off and its mass is measured and MFR is calculated.
- Time is measured by the flow rate timer installed under the furnace.
- By pressing the [Test] switch after filling sample, the series of operations of piston, load weight (load), preheat push out and intermediate stops is automatically performed.
- When the piston moves up to the cut mark position, the buzzer sounds, allowing you to cut the strand.
- Day, time, number of tests and cutting time are printed out after the end of sample collection cut.
- Sample can be cut any number of times until the next buzzer sounds (within mark 30mm).
- Residual sample push out, load elimination and barrel cleaning are automatically performed after the end of test.
- Automatic cutting device (strand collection) can be installed as option.

Method B or MVR (JIS)

- The furnace moves by the air cylinder within each of the positions of measurement, sample filling and barrel cleaning and respective operations have been motorized (Pneumatic). The piston and load move together with the packet and operation of weight has become easy.
- By pressing [Test] on control panel after filling sample, the furnace moves to the measuring position, piston and load get set and measurement starts.
- The load hold position which is intermediate stop can be arbitrarily set within 0~30mm according to size of MFR.
- The series of operations of load setting, end of measurement and up to barrel cleaning has been automated.
- At the end of measurement, calculations are made and MFR is printed out together with other items.

NAMES & DESCRIPTIONS OF PARTS

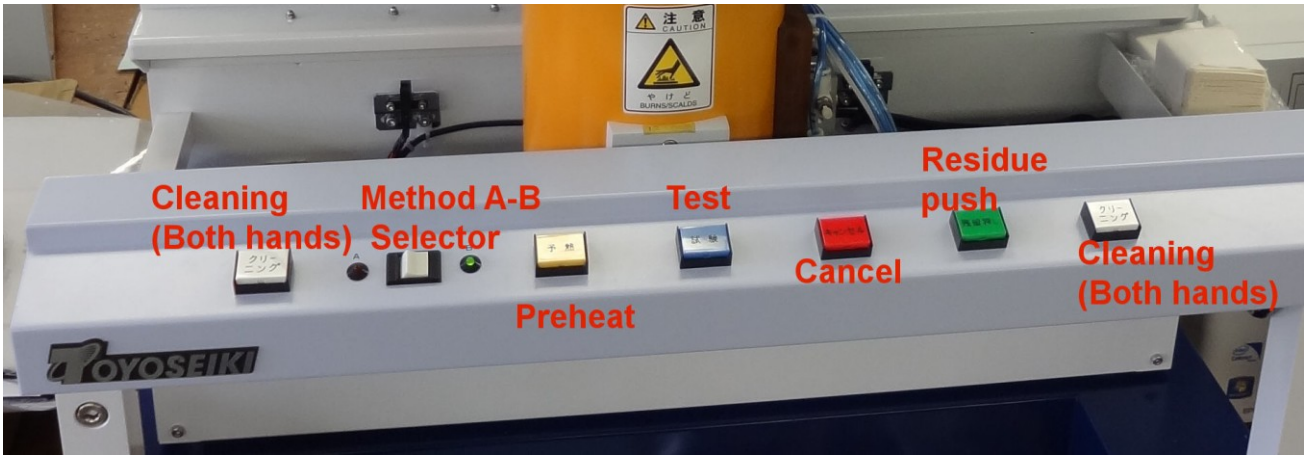


Preheat, Residual sample push rod
Load drop protection safety pin
Load weight
Weight basket
Piston
Furnace
Method A timer
Method A cut mirror
Method A time switch

Sample push rod
Orifice pushout rod
Furnace cleaning rod

Picture shown is model 2A

- Mirror under the furnace makes manual cutting in Method A easy.
- Mirror, flow rate timer and timer switch are gathered under the furnace for the ease of cutting.

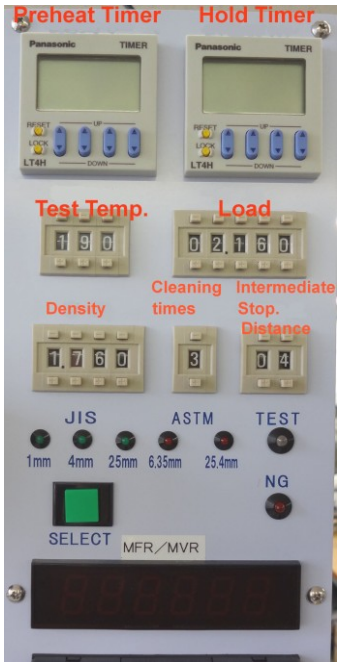


Operation panel

■SPECIFICATIONS

Model 2A (Stand alone model)

Test condition setting	Thumbwheel switches type test condition input panel
Data printout	Built-in mini thermal printer (60mm width chart paper)
Temperature range	Max. 300°C (400°C optional)
Test load (Standard)	■0.325kg ■2.16kg ■5.0kg ■10.0kg
Test method	■Method A: Manual operation ■Method B: Semi-automatic operation (Encoder is equipped as standard feature)
Sample feeding	Manual operation with pneumatic device
Weight loading & residue push	Manual operation with pneumatic device
Furnace cleaning	Manual operation with pneumatic (up/down) & motorized (rotation) device
Piston cleaning	Manual operation
Furnace horizontal movement	Pneumatic
Power requirement	Single-phase, AC100V, 50Hz or 60Hz, 1.5kVA
Compressed air requirement	0.5MPa or more
Dimensions	W700 x D700 x H1000mm
Weight	Approx. 155kg



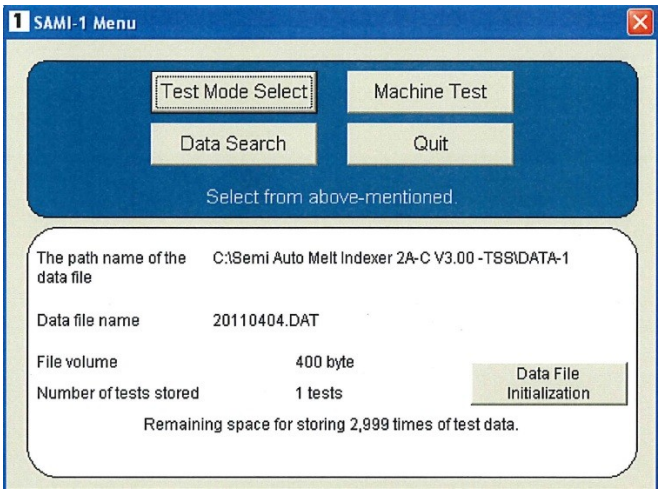
Thumbwheel switches type test condition input panel

Model 2A-C (PC model)

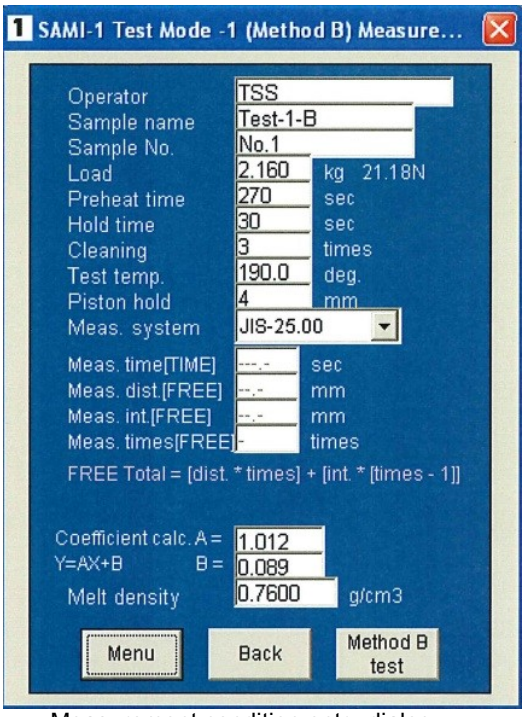
Test condition setting	Data processing unit (Personal computer)
Data acquisition	Same as above
Temperature range	Max. 300°C (400°C optional)
Test load (Standard)	■0.325kg ■2.16kg ■5.0kg ■10.0kg
Test method	■Method A: Manual operation ■Method B: Semi-automatic operation (Encoder is equipped as standard feature)
Sample feeding	Manual operation with pneumatic device
Weight loading & residue push	Manual operation with pneumatic device
Furnace cleaning	Manual operation with pneumatic (up/down) & motorized (rotation) device
Piston cleaning	Manual operation
Furnace horizontal movement	Pneumatic
Power requirement	Single-phase, AC100V, 50Hz or 60Hz, 1.5kVA
Compressed air requirement	0.5MPa or more
Dimensions	W700 x D700 x H1000mm (Main unit)
Weight	Approx. 155kg (Main unit)

Note: Emergency stop switch shown is option

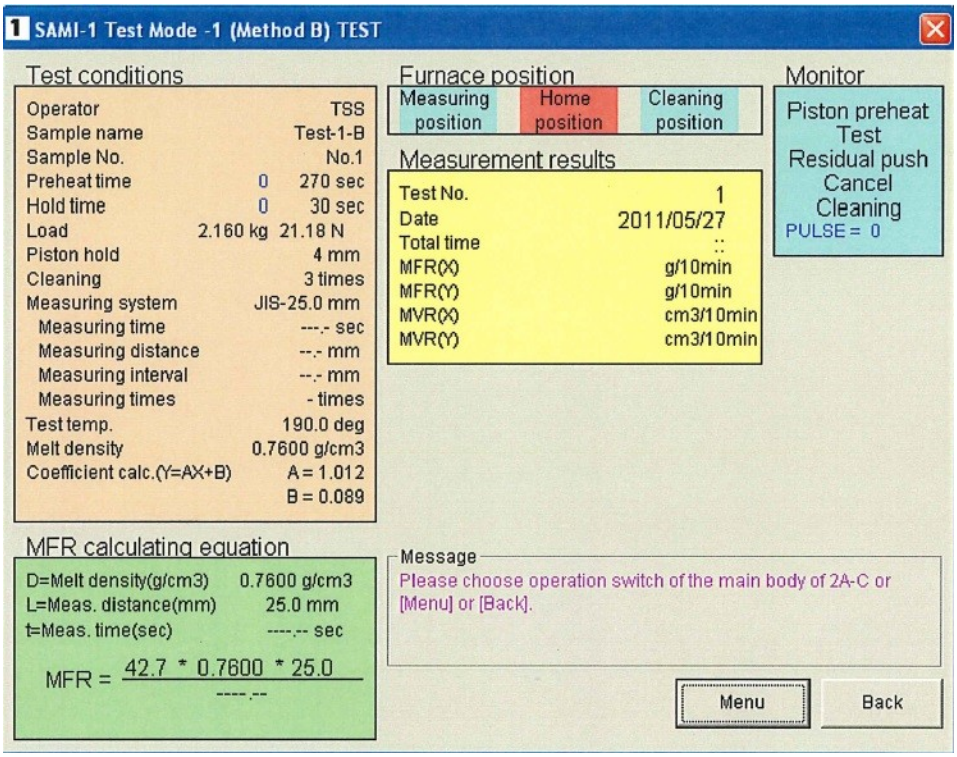
■SOFTWARE (Model 2A-C)



Menu



Measurement condition entry dialog



Test screen

SAMI-1 Measurement Result

Page = 1
Date = 2011/05/27
Time = 11:15:03

No.	Sample name	Sample No.	Operator	Temp. (deg.)	Load (kg)	Density (g/cm3)	Testing method	Measuring system
1	Test-1-B	No.1	TSS	190.0	2.160	0.7600	Method B	JIS-25.0 mm

Preheat time (s)	Hold time (s)	Piston hold (mm)	Measuring distance (mm)	Measuring time (s)	Weight (g)	MFR(X) (g/10min)	MFR(Y)	MVR(X) (cm3/10min)	MVR(Y)
270	30	4	25.00	13.34	--.----	60.8170	61.6358		

No.	Sample name	Sample No.	Operator	Temp. (deg.)	Load (kg)	Density (g/cm3)	Testing method	Measuring system
2	Test-2-B	No.2	TSS	190.0	5.000	0.9800	Method B	ASTM-6.35 mm

Preheat time (s)	Hold time (s)	Piston hold (mm)	Measuring distance (mm)	Measuring time (s)	Weight (g)	MFR(X) (g/10min)	MFR(Y)	MVR(X) (cm3/10min)	MVR(Y)
270	30	4	6.35	14.34	--.----	18.5301			

No.	Sample name	Sample No.	Operator	Temp. (deg.)	Load (kg)	Density (g/cm3)	Testing method	Measuring system
3	Test-3-B	No.3	TSS	190.0	10.000	0.9810	Method B	FREE-4.0 mm

	Preheat time (s)	Hold time (s)	Piston hold (mm)	Measuring distance (mm)	Measuring time (s)	Weight (g)	MFR(X) (g/10min)	MFR(Y)	MVR(X) (cm3/10min)	MVR(Y)
1	270	30	4	4.00	16.34	--.----	10.2542	10.3782	10.4528	10.5768
2				4.00	17.34	--.----	9.66291	9.78691	9.85006	9.97406
3				4.00	18.34	--.----	9.13603	9.26003	9.31298	9.43698
4				4.00	19.34	--.----	8.66364	8.78764	8.83144	8.95544
5				4.00	20.34	--.----	8.23770	8.36170	8.39725	8.52125
						Average	9.19090	9.31490	9.36891	9.49291

No.	Sample name	Sample No.	Operator	Temp. (deg.)	Load (kg)	Density (g/cm3)	Testing method	Measuring system
4	Test-4-B	No.4	TSS	190.0	5.000	0.7600	Method B	TIME-60.0 sec

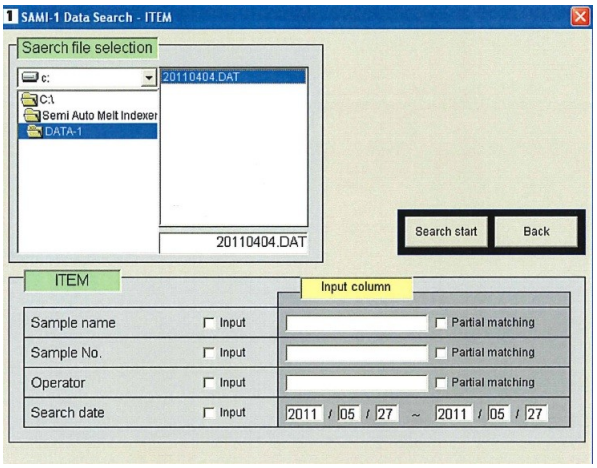
Preheat time (s)	Hold time (s)	Piston hold (mm)	Measuring distance (mm)	Measuring time (s)	Weight (g)	MFR(X) (g/10min)	MFR(Y)	MVR(X) (cm3/10min)	MVR(Y)
270	30	10	25.00	16.34	--.----	49.6511		65.3304	

No.	Sample name	Sample No.	Operator	Temp. (deg.)	Load (kg)	Density (g/cm3)	Testing method	Measuring system
5	Test-A-11	No.11	TSS	190.0	2.160	-.----	Method A	JIS

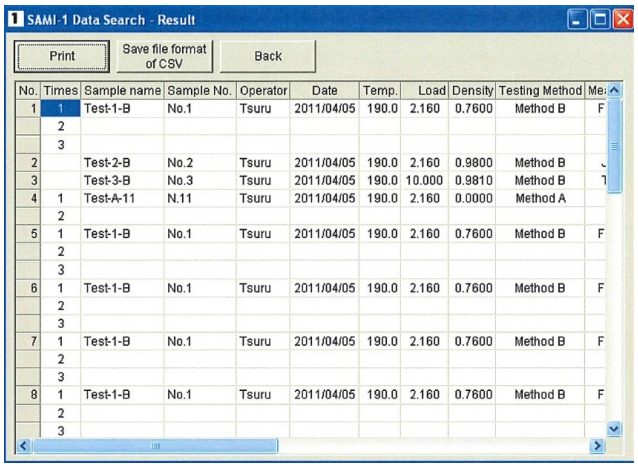
	Preheat time (s)	Hold time (s)	Piston hold (mm)	Measuring distance (mm)	Measuring time (s)	Weight (g)	MFR(X) (g/10min)	MFR(Y)	MVR(X) (cm3/10min)	MVR(Y)
1	270	30	4	--.--	10.01	1.0000	0.00000			
2				--.--	10.02	1.0000	0.00000			
3				--.--	10.03	1.0000	0.00000			
						Average	MFR NG			

No.	Sample name	Sample No.	Operator	Temp. (deg.)	Load (kg)	Density (g/cm3)	Testing method	Measuring system
6	Test-A-11	No.11	TSS	190.0	2.160	-.----	Method A	JIS

	Preheat time (s)	Hold time (s)	Piston hold (mm)	Measuring distance (mm)	Measuring time (s)	Weight (g)	MFR(X) (g/10min)	MFR(Y)	MVR(X) (cm3/10min)	MVR(Y)
1	270	30	4	--.--	10.01	0.1234	7.39660			
2				--.--	10.02	0.2345	14.0419			
3				--.--	10.03	0.3456	20.6739			
						Average	14.0374			



Data search – Item

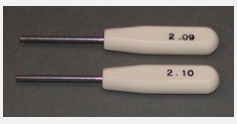


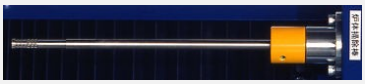
Data search - Results

- All operations of registration of sample name and conditions, their indication, MFR calculation and indication, data save and search, output to printer and machine test of the machine, etc. can be processed by computer.
- As regards strand cut of Method A, it can be automatically cut at set time by registering (cut time).
- Moreover, it can be automatically cut any number of times within measurement range (30mm) by arbitrarily operating the switch by hand.
- By adding the collection device, cut samples can be automatically collected, allowing further labor saving in Method A.

■STANDARD ACCESSORIES & OPTIONS

●Standard ○Option ---Not available

	Name	Model (Part No.)	Photo	2A	2A-C
1	Thumbwheel switches type test condition input panel	-----		●	---
2	Mini thermal printer (Built-in)	-----		●	---
3	Data processing unit	-----		---	●
4	Flow-rate device (Piston travel transducer)	-----		●	●
5	Piston	S50C		●	●
6	Orifice (Carbide) Ø2.095mm, L:8mm (Standard die)	(2100320)		●	●
7	Orifice gauge (Go/no go gauge) For Ø2.095mm	(2100330)		●	●
8	Orifice cleaning rod	(2100344)		●	●

9	Orifice pushout rod	-----		●	●
10	Sample push rod	-----		●	●
11	Furnace cleaning rod	-----		●	●
12	Weight pan, for 0.325kg	W		●	●
13	Weight, for 2.16kg	B		●	●
14	Weight, for 5.0kg	C		●	●
15	Weight, for 10.0kg	D		●	●
16	Funnel	-----		●	●
17	Balance weight, 30g	-----		●	●
18	Automatic cutting device (For method A)	CUT		○	○
19	Die plug	A-STOP		○	○

20	Safety cover	2A-SC		○	○
21	High temperature option (400ºC)	2A-HT		○	○
22	Emergency stop switch	2A-EMG		○	○

Note:

Specifications are subject to change without notice.

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