

Specifications No.

C-2386-

18-Apr.-2014

CUSTOMER: _____

RoHS Compliant

COMPRESSOR SPECIFICATIONSCompressor type : Scroll Compressor

Refrigerant : R404A

Power source : DC INVERTER

Model Name	Nominal Capacity [W]	Motor Rated Output [W]	Remark
ZS7798D1	570	770	with CE
ZS1216D1	960	1250	
ZS1520D1	1260	1500	

Packing	Check
Gathered Packing	<input type="checkbox"/>
Separated Packing	<input type="checkbox"/>

We acknowledge the receipt of this copy.

Please return this compressor specifications after confirming the contents. If you do not return this copy by the above date, we will assume that you have checked the contents.

**Hitachi Appliances, Inc.
Compressor Desing Group**

APPD.	CHKD.	DWN.
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NOTE

The Specifications in this bulletin are subject to change without notice, in order that HITACHI may bring the latest innovations to our customers.





SAFETY PRECAUTION

Read and understand all of the safety precautions in this manual before operating the product. These precautions are intended to ensure safe and correct operation of the product and to prevent injury to the operator and other persons and damage to the product. Observe these precautions strictly.

The following symbols indicate the presence of potentially hazardous conditions.

 WARNING	This symbol indicates a potentially hazardous situation which, if not avoided, <u>could result in</u> death or serious injury.
 CAUTION	This symbol indicates a potentially hazardous situation which, if not avoided, <u>may result in</u> minor or moderate injury or property damage accidents to the product. It may also be used to alert against unsafe practices.

The meanings of the graphic symbols in text are shown below.

	<u>Be sure to perform</u> the operation.
	<u>Disconnect</u> the power cable from the electrical outlet.
	<u>Connect</u> the grounding wire.
	<u>Prohibit.</u>

WARNING



Connect a fuse or a leak circuit breaker to the main circuit to avoid electrical shock hazards or fire in the event of troubles and current leakage.



Measure the temperature of the hermetic terminals of the compressor and then connect the appropriate lead wires. Lead wire insulation deterioration (thermal deterioration) could result in electrical shock hazards, short-circuiting, or fire.



Keep the lead wires away from the surface of the compressor or the piping. Lead wire insulation deterioration (thermal deterioration) could result in electrical shock hazards, short-circuiting, or fire.



Keep the lead wires away from any rotational parts like fans or any vibrational parts like piping. Lead wire insulation deterioration due to vibration or friction could result in electrical shock hazards, short-circuiting, or fire.



Wear protective goggles during repairs to avoid serious injury owing to explosion of piping or blowout of the refrigerant.



Check to see that the main power is turned off, before repairing, to avoid electrical shock hazards in case of touching the terminals.



Provide the refrigerating cycle unit with adequate electrical grounding. Incomplete grounding could result in electrical shock hazards in the event of troubles and current leakage.



Do NOT make the compressor self-evacuated during operation, which avoids overheating the compressor that could cause burns or fire.



Do NOT touch the surface of the compressor with empty hands, which avoids burns. The surface is very hot during operation and immediately after it has stopped.



Do NOT use this compressor for air compression, which avoids overheating of the compressor that could cause burns or fire.



Do NOT view the inspection window of the compressor for internal observation directly. Use a video camera or other suitable equipment to avoid serious injury owing to explosion of the inspection window or blowout of the refrigerant.



Do NOT use the blowtorch with refrigerant gas entering.



CAUTION



Attach the specified cover to the hermetic terminals of the compressor by the specified method to prevent entry of dirt. Incomplete electrical conduction of the hermetic terminals may cause troubles or fire.



Store the compressor in clean and dry environment. Insulation failure of the hermetic terminals of the compressor may result in electrical shock hazards or current leakage. Corrosion of the compressor surface may result in explosion. Blowout of the refrigerant may result in burns.



Do NOT install the compressor in a humid place or locations exposed to water. Do NOT dip it into water or spray it with water. In case of using the sound insulation material to enclose the compressor, which is highly hygroscopic, that material must NOT absorb water. Insulation deterioration causes electrical shock hazards, current leakage, short-circuiting, or explosion owing to corrosion.



Do NOT apply electrical pulse to the compressor while its inside is maintained in a vacuum. It avoids insulation failure inside the compressor, which may result in electrical shock hazards, current leakage, or fire.



In case of attaching cluster terminals, the PTC starter, receptacle terminals, or other electrical parts to the hermetic terminals of the compressor, those parts must NOT be obliquely connected or twisted after connections, which avoids reducing fastening force of the terminals. Incomplete electrical conduction of the hermetic terminals may cause troubles or fire.

1. GENERAL SPECIFICATIONS

Model		ZS7798D1	ZS1216D1	ZS1520D1	
Nominal Output	HP	1.0	1.7	2.0	
	W	770	1,250	1,500	
Power Supply	-	DC INVERTER			
Refrigerant	-	R404A			
Allowable amount of Refrigerant Charge	g	1,500	2,200	2,200	
Refrigerant Oil	-	POE (VG68)			
Oil Charge	liter	0.55	0.65	0.65	
Displacement	cm ³ /rev	9.8	15.85	20.1	
Compresspr cooling		Forced air and Liquid injection			
Approved motor voltage	V	380 MAX			
Maximum instantaneous current restricion	A	47.8 MAX(Peak)			
Approved range of rotation speed	min ⁻¹	1500~6000		1500~5500	
Performance ⁽¹⁾					
Cooling Capacity	W	570	960	1,260	
Power Input	W	505	775	940	
COP	-	1.12	1.24	1.34	
Sound Level and Vibration Level ⁽²⁾					
Sound Level ⁽³⁾	dBA	MAX.68	MAX.68	MAX.70	
Vibration Level ⁽⁴⁾	µm	MAX.35	MAX.35	MAX.35	
Net Weight (Including Oil)	kg	12.5	12.5	12.5	
Piping ⁽⁵⁾ Connection	Suction	-	φ 13.0 I.D. (BR)		
	Discharge	-	φ 8.2 I.D. (BR)		
	Injection	-	φ 6.2 I.D. (BR)		
Motor	Type	-	DC brushless moter		
	Winding resistance (at20°C)	Ω	U-V:0.825Ω V-W:0783Ω W-V:0.798Ω		
	Insulation grade	-	E		

[notes]

(1)Above performance is based on the following conditions

Rotation speed	3450min ⁻¹
Evaporating Temperature	- 30.0 °C
Condensing Temperature	40.0 °C
Return gas Temperature	18.0 °C
Liquid Temperature before Expansion Valve	35.0 °C
Ambient Temperature	32.0 °C
Compressor Cooling	Forced Air and Liquid Injection

(2)Measurement condition for Sound and Vibration Level.

Rotation speed	3450min ⁻¹
Suction Pressure	0.202 Mpa
Discharge Pressure	1.811 Mpa
Noise of soundproof room	under 40 dBA
Vibration of soundproof room	under 5 µm
Return gas temp.	18.0 °C
Liquid refrigerant back	No liquid back
Draft	No draft

(3) Sound level is measured at the point 30cm away from the compressor surface in a soundmeasuring room.

(4) Vibration level is measured on the compressor surface.

(5) Connection Type

BR : Brazing, RL : Rotalock, FL : Flange, FR : Flare

(6) Scope of Supply

- 1) Compressor Assembly Charged with Refrigerant Oil and Nitrogen Gas.
- 2) The companion connections shall be provided by others.

The other specifications

1. Hermetic terminal : 1/4" quick connect type
2. Space volume of inner shell : 1600 mL

2. PARTS AND DRAWING LIST

Item		Q'ty/Compressor				Drawing No.	Remarks	SUPPLY	
		ZS798D1	ZS1216D1	ZS1520D1				Pat.5	Pat.6
Dimension sketch		X	X	X		BB0029652		-	-
Connecting sketch of accumulator		X	X	X		3CYCA1588		-	-
Circuit diagram		X	X	X		BB0027154		-	-
Compressor packing sketch	Gathered Packing	X	X	X		BB0001805		-	-
	Separated Packing	X	X	X		BB0044221		-	-
Mounting Parts	BRACKET	1	1	1		3CYCA1589	2CFD49318A	YES	YES
	HOLDER	1	1	1		4CYC11184	3TMG41740A	YES	YES
	RUBBER GROMMET	4	4	4		4CYC11232	3TMWA3762A	YES	YES
	PIPE	4	4	4		4CYC11191	3PFH28256C	YES	YES
	WASHER	4	4	4		4CYC11192	3SPA16746B	YES	YES
Terminal and cover	OLR-COVER	1	1	1		3CYCA1824	2TRR58845A	YES	YES
	GOMUITA	1	1	1		3CYCA1825	3TKEA1501A	YES	YES
	NUT	1	1	1		3CYC62897	3SMG62639A	YES	YES
Electrical Parts	OHR	1	1	1		3CYCA4112	RRKF1932(OHR-056A)	YES	YES
Refrigerating cycle parts	CAPILLARY FOR LEQUID INJECTION	1				Recommended Resistance value 79.8kPa BB0032682	Required for operation	YES	NO
			1	1		Recommended Resistance value 53.3kPa BB0032682			
	ACCUMULATOR	1				3CYCA1592	2PDP47489A valid volume 307mL	YES	NO
	ACCUMULATOR		1	1		3CYCA4166	2PDP56828C valid volume 650mL		

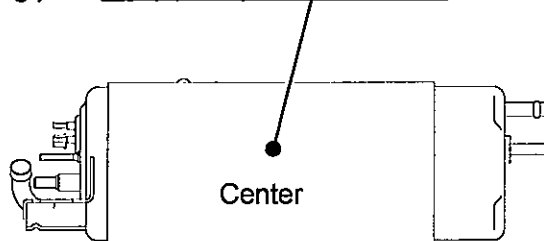
[note 7]

The recommended resistance value for the injection capillary is the result of the matching trial using our calorimeter. Since proper capillary specification will depend on refrigeration cycle, please conduct a matching test installed in your product subject to the following conditions.

- (1) To satisfy the over load coil temperature: 115°C or lower. (preferably about 100°C max)
- (2) To apply the Injection capillary resistance value considering the appropriate amount of injection resulting in the best performance in the cooling capacity and input value.

We recommend that liquid injection flow quantity is regulated by compressor temperature. On the condition that becomes less than winding temperature of Clause 3.5 even if there is not liquid injection cooling, the liquid injection cooling is unnecessary. Particularly, in the case of low speed, the performance of the compressor decreases when there is too much quantity of liquid injection.

(For reference, Temp(winding) ≒ Temp(compressor surface) + 10°C)



3. APPLICATION RAN

1. Scope

This specification is applied to HITACHI scroll compressor.

2. Common specification of compressor

2.1 Appearance

The surface of compressor shall be painted black and has no cracks, dents, peeling, or significant rust.

2.2 Marking

Model name and production date should be shown on the surface of compressor. The compressor containing refrigeration oil and dried N₂ gas has one white circle mark and one yellow circle mark.

2.3 Insulation distances

IEC60335-2-34 are applied.

2.4 Insulation resistance

Measurement should be above 10 MΩ between charged parts and non-charged parts by 500 V insulation resistance meter at normal temperature and normal humidity.

2.5 Dielectric Withstand Voltage Test

After 2.4 test, 1500 V A/C 50 Hz or 60 Hz is applied between live parts and dead metal parts continuously for one minute by gradual rise of voltage. In case of 1800 V, duration is one second instead of one minute.

2.6 Maximum allowable pressure and Test Pressure

TABLE 1. Test Pressure

Components	Maximum allowable pressure	Tightness test pressure	Strength test pressure(type-test)
Compressor	3.13MPa[abs]	3.24MPa[abs]	15.79MPa[abs]

2.7 Dryness

Residual water content is below 0.18mL by the cold trap method described below:

TABLE 2. Cold trap method

Item	condition
Furnace	146 ± 3 °C
Pre-heat hour	No pre-heat
Hour of taking water (Preheating time excluded)	6 hours
Degree of vacuum (Continuous vacuum)	Below 133 Pa
Solvent for cold bath	Methanol
Coolant for cold bath	Dry ice

2.8 Cleanliness

Drain the refrigerant oil. Pour washing liquid into the compressor. Lay down and roll the compressor and drain washing liquid. Filtrate by filter paper. The trapped particles should be under 70 mg.

3. System design limitations

3.1 Observance of the specification

The compressor should always be operated under the condition set forth in this specification and it should not be operated under any other specifications. Accessories should also be used as specified. In addition, the specified parts should be used during servicing.

Circuit breaker(or fuse) and earth leakage circuit breaker should be connected to main electric circuit.

3.2 Power source voltage

This compressor should be connected the exclusive inverter produced for this compressor.

Voltage applied to the hermetic terminal should be within the range mentioned in this specification.

Hermetic terminal should not be applied to alternating current voltage. (For example domestic alternating current voltage 1 ϕ 100V,200V,3 ϕ 200V.) Because, DC brushless motor is demagnetized.

3.3 Operating temperatures and pressures

Suction pressure and discharge pressure should be within the range of FIG.5. (page 13)

The pressure difference between discharge and suction is shown in table 3.

[Oil supply system in compressor doesn't work without this pressure difference.]

TABLE 3

Model	ZS7798D1,ZS1216D1,ZS1520D1
Discharge pressure – Suction pressure (MPa)	more than 0.46

The operating temperatures of a compressor should be within the range shown in the following section 3.4-3.7.

3.4 Compressor case bottom temp.

6 degrees higher then condensing temperature. (Refer to Fig attached with 3.13.)

3.5 Motor winding temp. (measured by the resistance method)

(1) Standard load condition

Rated voltage; 105°C_{MAX}

Rated voltage \pm 10%; 115°C_{MAX}

(2) Overload condition ^[9]

Rated voltage \pm 7.5%; 115°C_{MAX}

Winding temperature being lower than 115°C by liquid injection-cooling in any kind of environment.

3.6 Suction pipe temp.

Higher than outlet pipe of evaporator

[note 8]

Overload condition should not be continuous.

3.7 Temperature and pressures at blocked fan condition

To avoid problem of fire, discharge pressure should be under 4.22MPa[abs].

3.8 Compressor ambient temperature

The compressor should be operated within the ambient temperature range that satisfies the motor winding temperature requirements shown previously Section 3.3. This compressor should be used in the place that the ambient temperature is above -10 °C. Please confirm the starting of compressor, when the temperature of compressor surface is -10 °C.

Under -10°C ambient temperature, in the case that the temperature of compressor surface is above -10°C by the crankcase beating etc, you can use the compressor if the starting is possible.

3.9 Rotation speed of immediately after start

Within one minute after compressor started, compressor must be operated at or less 3000min-1.

3.10 Charge rate of revolution speed.

Charge rate of revolution speed (acceleration rate) should be 2.217Hz/s (133min-1/s).

3.11 Starting current and Starting torque of compressor

The inverter should be able to start the compressor in consideration of the difference of the starting current by the inverter and ambient temperature.

As the starting current is influenced by the inverter specification, system structure and use conditions, the starting current should be checked to ensure against starting failure.

Starting torque should be more than the torque of TABLE.4.

TABLE 4

Model	ZS7798D1	ZS1216D1, ZS1520D1
Starting torque (N/m)	0.55	0.74

3.12 Operating and Shut-off interval

The compressor should not be started/stopped more than 6 times per hour. The compressor should be operated continuously at least for 5 minutes after being turned on. Allow a minimum of 3 minutes shut-off time before restarting.

Compressor should be started on the condition that pressure status of high/low pressure sides is balanced.

3.13 Oil level of compressor

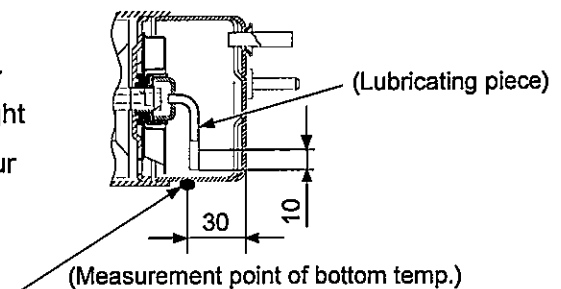
Oil level of compressor should be higher than 10 mm from the lubricating piece fixed on the end of the crankshaft.

We recommend to check oil level using compressor with sight glass. We can supply the compressor with sight glass by your order. (In case of foaming situation, the height of this foam does not mean the height of the oil level.)

If the oil level is not kept, the oil shortage will occur, and influence the reliability of compressor.

To keep oil level, following points are important.

- 1) Oil should be returned continuously to the compressor.
- 2) The compressor should be operated continuously at least for 5 minutes after being turned on. (see Clause 3.12)



- 3) Liquid refrigerant must not flood back to the compressor.
Oil may flow out of the compressor if liquid refrigerant back.

- 4) The pressure difference between discharge and suction is shown in table 3. (see Clause 3.3)

3.14 Liquid refrigerant back and Accumulator

There should be superheated gas returned to the compressor under all normal operating conditions.

Liquid refrigerant must not flood back to the compressor.

Liquid back damages the compressor.

We recommend to use the accumulator to prevent liquid back to the compressor.

When knocking noise, current increase and undesirable vibration are caused, another accumulator should be equipped to the compressor and/or refrigerant charge should be reduced to prevent liquid refrigerant flood back.

Liquid level in the accumulator should be maintained smaller than the valid volume of accumulator. (see fig 2)

We recommend to check liquid level in the accumulator using accumulator with sight glass.

We can supply the accumulator with sight glass by your order.

The accumulator must have a hole to return oil. If you use a non-specified accumulator, to prevent harm to oil return, please check size and location of oil return hole. Please refer to the drawing of ACCUMULATOR.

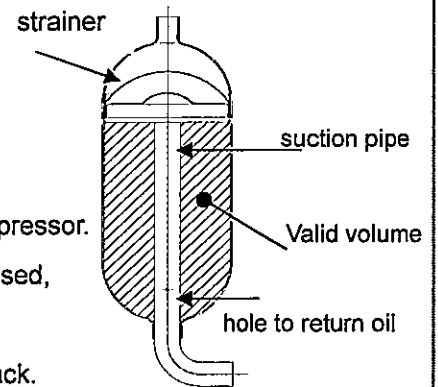


Fig 2

3.15 Strainer

Strainer should be equipped to avoid insert foreign bodies.

We can supply the accumulator with a strainer by your order.

In case of using an accumulator without a strainer, a strainer should be added to a tube on suction side.

3.16 Allowable incline

Compressor should be operating in the horizontal rotating shaft. But the inclination of shaft is within 3 deg in every direction. In case of the hermetic terminal side in the shaft direction is higher than horizontal, it should be kept up to 5 deg.

3.17 Pipe vibration

The displacement of the pipes, which connect from the compressor to other parts of the refrigeration systems, should be less than 0.8 mm (1/32") when the compressor is operating at rated frequency +10 / -10 and voltage range of rate $\pm 10\%$.

Displacement in excess of 0.8 mm (1/32") will require changing tube length and/or routing.

3.18 Connecting tube design

In designing and routing tubing that connects the compressor to the other parts of the air conditioner, the following should be considered.

Moving tubes to the moving parts;

minimum clearance 12.7 mm (1/2")

Moving tubes to non-moving parts ;

minimum clearance 9.5 mm (3/8")

Moving tubes never touch the electrical lead wires.

3.19 Dust of hermetic terminal

Hermetic terminal area should be covered with the electrical cover by the designated method to prevent the entering of dust.

3.20 Rotation direction of compressor

Connect compressor terminals as specified in circuit diagram. Reverse operation will result pump breakdown.

3.21 OHR (Thermostat)

Refrigerant leakage cause the accident, so thermistor or thermostat should be set at the compressor.

The limit of the operation life frequency of OHR is 600 times.

4. Process limitations

4.1 The degree of vacuum in the refrigerating system should be less than 133 Pa(abs) at room temperature just before charging refrigerant. The quantity of water should be less than 0.2 g.

The quantity of water the cycle in operation is to make to the 40 ppm following in the refrigerating cycle by using the suitable dryer that does not contain ACTIVATED ALUMINA.

4.2 The structure of cycle constitution or drier should be done so that the powder of the drying material does not come out throughout the cycle.

4.3 The weight of foreign particles on the inside surface of the heat exchange tubes should be less than 0.05 g/m². This value means the weight of foreign particles filtered after washing inside surface of the heat exchange tubes with alkali.

Metallic dust should not be permitted to enter the refrigerating system.

4.4 Eliminate all system contaminates such as trichloroethane, alkalis, soaps, acids, oil and washing fluid used in machining the heat exchanger.

4.5 Always purge the compressor with dry nitrogen during assembly of the system.

4.6 The quantity and kind of contamination (the process materials) in the cycle should be grasped and managed. Carry on reliability test that Input contamination a lot than anticipated contamination quantity.

4.7 The motor winding temperatures should be less than 149 °C in process of manufacturing the refrigerating system. The temperature of the hermetic terminal body should be less than 177 °C.

4.8 The compressor should be operated for more than 20 seconds within 15 minutes after refrigerant is put into the system so that proper lubrication of the pump can occur.

5. Miscellaneous

- 5.1 The pipe and hermetic pins, which are attached to the compressor, should not be bent.
- 5.2 The compressor should never be operated while under vacuum; otherwise, internal arcing can damage parts.
- 5.3 The compressor should not be operated in a method that forms a vacuum and absorbs air.
- 5.4 The compressor should not be left open to the atmosphere for more than 15 minutes.
- 5.5 The electric pulse should not be applied to the hermetic terminals when the compressor is under vacuum.
- 5.6 The compressor should be kept in a clean place with low-moisture.
- 5.7 The compressor must not be applied for transportation equipment such as automobiles, trains, ships, and the others.
- 5.8 The compressor should not be splashed intentionally with water.
- 5.9 Refrigerant should be charged from the condenser end of the refrigeration system. Never charge refrigerant to the compressor directly.
- 5.10 Temperatures within systems during stable compressor operation should not be less than $-45\text{ }^{\circ}\text{C}$ because oil is hard to return to the compressor.
- 5.11 The compressor, if dropped, should not be used.
- 5.12 Compressor mounting
- Rubber grommets are designed soft to provide noise isolation and to lessen vibration energy transmission. Stud bolt should be designed to provide sufficient clearance for noise and vibration isolation and to prevent compressor from coming off its mount.
- 5.13 The compressor should be kept out of a corrosive atmosphere, such as a chemicals storage area.
- 5.14 The lead wires should be connected to the hermetic terminals without touching the surface of the compressor.
- 5.15 The compressor should be used within one year of receipt.
- 5.16 The failure of refrigeration system components such as the reversing valve, solenoid valve, defrost mechanism, refrigerant control parts, fan motor, etc. may cause failure of the compressor. Reliability of those components should be checked.
- A design that insures no leakage during manufacturing and usage should be applied.
- 5.17 Refrigerant leakage cause the accident, so thermostat should be set at the compressor.
- 5.18 The refrigerating cycle should be grounded.
- 5.19 The failure of accessory parts (ex. Capacitor) utilized by the customer is not related to Hitachi Appliances, Inc.
- 5.20 The person who is directly in charge of setting up the product or repair of the product should be well instructed to prevent contamination of this product by water or other foreign matters.
- When recharging refrigerator, dryer must be changed. And water value should be less than 40 ppm.
- 5.21 When connecting terminals of the unit to the hermetically sealed terminals of the compressor, the parts must not be obliquely connected or twisted after connection, fastening force of the terminals would be reduced.

4. RANGE OF USABLE PRESSURE

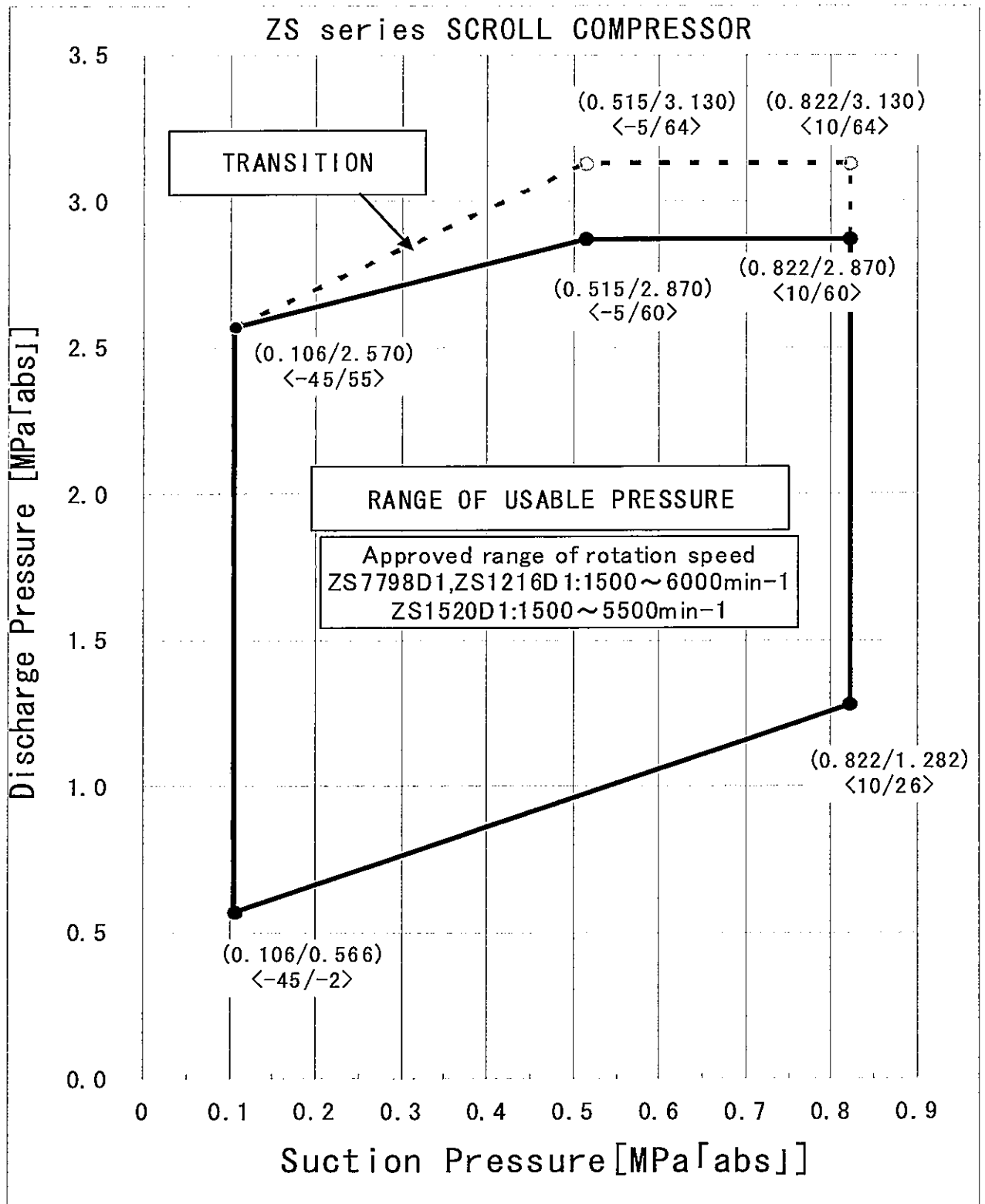


Fig. 5

5. PERFORMANCE DATA

Model : ZS7798D1

Rotational Speed: 1500 min⁻¹

Cooling capacity[W] * Refrigerant:R404A, Suction Temperature:18°C, Sub cool:5°C

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	104	146	194	248	309	377	452	532	620	714	815	922
45	97	136	179	226	277	331	390	452	518	588	662	740
55	84	111	144	181	223	270	322	378	440	506	577	653

Motor Input[w]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	196	199	202	205	209	213	217	222	227	233	238	245
45	245	245	246	251	257	266	277	291	307	325	346	369
55	298	296	299	306	317	333	353	377	405	438	475	517

Current[A]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	2.7	2.7	2.8	2.8	2.8	2.9	2.9	3.0	3.1	3.1	3.2	3.3
45	3.4	3.4	3.4	3.4	3.5	3.6	3.7	3.9	4.1	4.3	4.6	4.9
55	4.1	4.1	4.1	4.2	4.3	4.4	4.6	4.9	5.1	5.5	5.9	6.3

Rotational Speed: 2000 min⁻¹

Cooling capacity[W] * Refrigerant:R404A, Suction Temperature:18°C, Sub cool:5°C

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	143	201	269	349	440	542	655	780	916	1063	1221	1390
45	124	178	241	311	389	475	570	671	781	899	1025	1158
55	95	149	208	271	339	412	489	571	658	749	845	946

Motor Input[w]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	255	256	258	261	266	271	278	286	295	305	317	330
45	314	311	311	315	321	332	345	362	383	406	433	464
55	384	377	376	380	389	403	422	446	476	510	550	595

Current[A]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	2.8	2.8	2.8	2.8	2.9	2.9	3.0	3.1	3.2	3.3	3.4	3.6
45	3.4	3.4	3.4	3.4	3.5	3.6	3.7	3.8	4.0	4.2	4.5	4.8
55	4.1	4.0	4.0	4.0	4.1	4.3	4.4	4.6	4.9	5.2	5.5	5.9

Rotational Speed: 3000 min⁻¹

Cooling capacity[W] * Refrigerant:R404A, Suction Temperature:18°C, Sub cool:5°C

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	268	325	409	519	655	816	1004	1218	1458	1724	2015	2333
45	206	276	364	469	592	732	889	1064	1257	1466	1694	1938
55	195	247	316	400	500	616	748	895	1059	1239	1434	1646

Motor Input[w]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	360	367	376	385	395	405	416	427	439	451	463	476
45	450	450	450	453	461	475	493	517	545	578	616	659
55	531	531	531	536	549	567	592	621	657	698	745	797

Current[A]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	2.6	2.6	2.7	2.7	2.8	2.9	2.9	3.0	3.1	3.2	3.3	3.4
45	3.2	3.2	3.2	3.2	3.3	3.3	3.5	3.6	3.8	4.0	4.3	4.6
55	3.7	3.7	3.7	3.8	3.8	4.0	4.1	4.3	4.5	4.8	5.1	5.4

Model : ZS7798D1

Rotational Speed: 3900 min⁻¹

Cooling capacity[W] * Refrigerant:R404A, Suction Temperature:18°C, Sub cool:5°C

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	356	430	538	680	855	1065	1309	1587	1899	2245	2626	3040
45	301	374	475	603	758	941	1152	1390	1656	1949	2270	2618
55	255	316	401	509	641	797	976	1179	1405	1656	1929	2227

Motor Input[w]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	465	472	484	498	514	531	549	569	591	614	639	665
45	580	580	578	582	593	611	636	668	707	752	805	864
55	686	686	688	695	708	725	748	776	810	849	893	942

Current[A]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	2.7	2.7	2.8	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.6	3.7
45	3.3	3.3	3.3	3.3	3.3	3.4	3.6	3.7	3.9	4.2	4.4	4.7
55	3.9	3.9	3.9	3.9	4.0	4.0	4.2	4.3	4.5	4.6	4.9	5.1

Rotational Speed: 5000 min⁻¹

Cooling capacity[W] * Refrigerant:R404A, Suction Temperature:18°C, Sub cool:5°C

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	458	553	692	873	1097	1364	1674	2027	2423	2862	3344	3868
45	395	485	611	773	970	1203	1471	1775	2115	2490	2901	3347
55	336	412	519	655	821	1016	1242	1497	1781	2096	2440	2814

Motor Input[w]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	605	615	632	652	675	699	727	756	789	824	861	901
45	752	744	744	752	769	794	827	868	918	976	1042	1117
55	888	888	889	896	911	933	961	997	1040	1090	1147	1211

Current[A]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	2.7	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.6	3.7	3.9
45	3.3	3.3	3.3	3.3	3.4	3.5	3.6	3.8	4.0	4.2	4.5	4.7
55	3.9	3.9	3.9	3.9	4.0	4.1	4.2	4.3	4.5	4.7	4.9	5.1

Rotational Speed: 5500 min⁻¹

Cooling capacity[W] * Refrigerant:R404A, Suction Temperature:18°C, Sub cool:5°C

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	522	614	755	947	1190	1482	1825	2218	2661	3155	3698	4293
45	436	530	663	837	1051	1305	1599	1934	2309	2724	3179	3675
55	376	453	563	708	886	1097	1343	1622	1935	2281	2662	3076

Motor Input[w]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	669	683	701	723	749	778	812	849	890	934	983	1035
45	825	825	825	833	850	878	915	962	1019	1086	1162	1249
55	946	950	960	977	1000	1029	1064	1105	1153	1206	1266	1332

Current[A]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	2.8	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.7	3.9	4.0
45	3.3	3.3	3.3	3.4	3.4	3.5	3.6	3.8	4.0	4.2	4.5	4.8
55	3.8	3.8	3.9	3.9	4.0	4.1	4.2	4.3	4.5	4.7	4.9	5.2

Model : ZS1216D1

Rotational Speed: 1500 min⁻¹

Cooling capacity[W] * Refrigerant:R404A, Suction Temperature:18°C, Sub cool:5°C

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	171	251	341	444	558	683	820	969	1129	1300	1483	1678
45	138	211	292	383	483	593	711	839	975	1121	1276	1440
55	95	164	238	318	403	492	587	687	792	902	1017	1137

Motor Input[w]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	305	310	317	324	332	341	350	360	371	382	395	408
45	390	390	390	395	405	417	434	453	477	504	534	568
55	527	527	527	527	540	558	583	614	651	694	744	799

Current[A]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	4.2	4.2	4.2	4.3	4.4	4.5	4.6	4.7	4.9	5.0	5.2	5.4
45	5.2	5.2	5.2	5.2	5.3	5.4	5.6	5.8	6.1	6.4	6.8	7.2
55	6.9	6.9	6.9	7.0	7.1	7.2	7.4	7.7	8.0	8.4	8.8	9.2

Rotational Speed: 2000 min⁻¹

Cooling capacity[W] * Refrigerant:R404A, Suction Temperature:18°C, Sub cool:5°C

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	278	357	459	583	730	898	1089	1302	1537	1795	2075	2377
45	233	308	401	512	641	789	954	1137	1338	1557	1794	2050
55	190	252	329	423	532	657	797	954	1126	1314	1518	1738

Motor Input[w]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	392	398	406	414	424	435	448	461	476	492	510	528
45	493	493	494	501	512	528	548	573	602	636	673	716
55	624	624	624	628	642	660	685	716	752	794	842	896

Current[A]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	4.2	4.2	4.3	4.4	4.5	4.6	4.7	4.8	5.0	5.1	5.3	5.5
45	5.2	5.2	5.2	5.2	5.3	5.5	5.7	5.9	6.2	6.6	7.0	7.4
55	6.5	6.5	6.5	6.6	6.7	6.9	7.1	7.4	7.7	8.1	8.5	8.9

Rotational Speed: 3000 min⁻¹

Cooling capacity[W] * Refrigerant:R404A, Suction Temperature:18°C, Sub cool:5°C

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	439	554	705	893	1118	1380	1679	2015	2388	2797	3243	3727
45	395	485	609	769	965	1197	1464	1766	2105	2478	2888	3333
55	327	407	516	654	820	1015	1239	1491	1772	2082	2420	2787

Motor Input[w]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	540	553	568	585	604	625	648	672	699	727	757	789
45	690	690	690	697	712	732	759	793	832	878	930	988
55	854	854	854	857	872	894	923	958	1001	1050	1107	1170

Current[A]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	3.9	3.9	4.0	4.1	4.3	4.4	4.5	4.7	4.9	5.0	5.2	5.4
45	4.8	4.8	4.8	4.9	5.0	5.1	5.3	5.5	5.7	6.0	6.3	6.7
55	6.0	6.0	6.0	6.0	6.1	6.2	6.4	6.6	6.9	7.2	7.6	8.0

Model : ZS1216D1

Rotational Speed: 3900 min⁻¹

Cooling capacity[W] * Refrigerant:R404A, Suction Temperature:18°C, Sub cool:5°C

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	586	727	918	1159	1448	1788	2176	2614	3102	3639	4225	4861
45	525	642	805	1012	1264	1561	1902	2289	2720	3197	3718	4284
55	440	533	666	839	1052	1304	1595	1927	2297	2708	3158	3648

Motor Input[w]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	693	700	713	733	758	789	827	870	919	975	1036	1104
45	858	858	858	870	893	925	967	1018	1079	1148	1228	1316
55	1010	1010	1019	1037	1064	1100	1145	1200	1263	1335	1416	1507

Current[A]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	4.0	4.0	4.1	4.1	4.3	4.4	4.6	4.8	5.1	5.3	5.6	6.0
45	4.8	4.8	4.8	4.9	5.0	5.1	5.3	5.6	5.9	6.2	6.6	7.0
55	5.7	5.7	5.7	5.8	5.9	6.1	6.3	6.6	6.9	7.3	7.7	8.2

Rotational Speed: 5000 min⁻¹

Cooling capacity[W] * Refrigerant:R404A, Suction Temperature:18°C, Sub cool:5°C

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	736	923	1169	1475	1839	2264	2747	3290	3893	4554	5276	6056
45	683	821	1018	1274	1588	1962	2395	2886	3437	4046	4715	5442
55	564	687	857	1075	1340	1653	2014	2422	2877	3380	3931	4529

Motor Input[w]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	856	875	900	933	972	1018	1070	1130	1196	1270	1349	1436
45	1049	1053	1069	1095	1132	1181	1240	1311	1393	1486	1590	1705
55	1324	1324	1324	1339	1367	1406	1456	1517	1590	1674	1769	1875

Current[A]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	3.8	3.9	4.0	4.1	4.3	4.5	4.7	4.9	5.2	5.4	5.7	6.1
45	4.7	4.7	4.7	4.8	5.0	5.2	5.4	5.7	6.0	6.4	6.8	7.3
55	5.9	5.9	5.9	5.9	6.0	6.1	6.3	6.5	6.8	7.2	7.5	8.0

Rotational Speed: 5500 min⁻¹

Cooling capacity[W] * Refrigerant:R404A, Suction Temperature:18°C, Sub cool:5°C

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	806	1012	1282	1616	2014	2476	3002	3592	4246	4964	5745	6591
45	733	888	1105	1387	1732	2141	2613	3149	3749	4413	5140	5931
55	643	752	920	1148	1434	1779	2184	2647	3169	3750	4390	5089

Motor Input[w]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	935	961	994	1033	1079	1132	1191	1257	1330	1409	1496	1588
45	1146	1155	1175	1207	1251	1307	1374	1454	1545	1648	1763	1890
55	1458	1458	1458	1458	1489	1536	1599	1678	1773	1884	2011	2153

Current[A]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	3.8	3.9	4.0	4.2	4.3	4.5	4.7	5.0	5.3	5.6	5.9	6.3
45	4.7	4.7	4.7	4.9	5.0	5.2	5.5	5.8	6.1	6.5	7.0	7.5
55	6.0	6.0	6.0	6.0	6.0	6.2	6.4	6.7	7.0	7.4	7.9	8.4

Model : ZS1520D1

Rotational Speed: 1500 min⁻¹

Cooling capacity[W] * Refrigerant:R404A, Suction Temperature:18°C, Sub cool:5°C

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	324	370	451	561	700	868	1064	1290	1544	1828	2141	2483
45	261	311	386	484	607	753	923	1117	1335	1576	1842	2132
55	179	242	315	402	505	625	762	915	1084	1268	1468	1683

Motor Input[w]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	363	382	403	418	429	437	441	442	463	483	504	513
45	464	480	495	509	523	535	546	556	565	573	580	586
55	628	649	669	679	697	715	734	753	772	790	808	824

Current[A]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	4.4	4.6	4.9	5.0	5.2	5.3	5.3	5.3	5.6	5.9	6.2	6.3
45	5.6	5.8	6.0	6.1	6.3	6.4	6.6	6.7	6.9	7.0	7.1	7.2
55	7.6	7.8	8.1	8.2	8.4	8.6	8.9	9.1	9.4	9.6	9.9	10.1

Rotational Speed: 2000 min⁻¹

Cooling capacity[W] * Refrigerant:R404A, Suction Temperature:18°C, Sub cool:5°C

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	426	492	601	750	940	1171	1442	1753	2105	2498	2932	3406
45	356	424	525	659	827	1028	1262	1531	1832	2167	2536	2938
55	291	347	431	544	685	856	1056	1284	1542	1829	2145	2490

Motor Input[w]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	467	490	514	532	547	558	565	569	600	632	664	682
45	586	606	625	643	661	677	692	707	721	734	746	757
55	743	767	790	807	827	847	865	883	901	917	933	948

Current[A]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	4.5	4.7	4.9	5.1	5.2	5.3	5.4	5.5	5.8	6.1	6.4	6.6
45	5.7	5.8	6.0	6.2	6.3	6.5	6.6	6.8	6.9	7.1	7.2	7.4
55	7.2	7.4	7.6	7.7	7.9	8.1	8.3	8.5	8.7	8.8	9.0	9.2

Rotational Speed: 3000 min⁻¹

Cooling capacity[W] * Refrigerant:R404A, Suction Temperature:18°C, Sub cool:5°C

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	593	732	922	1162	1454	1797	2191	2636	3132	3679	4277	4926
45	534	641	796	1001	1255	1558	1910	2311	2761	3260	3809	4406
55	441	538	675	851	1067	1322	1617	1951	2325	2739	3192	3684

Motor Input[w]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	649	686	727	764	795	822	844	863	877	887	895	899
45	830	856	883	909	936	963	990	1017	1044	1071	1098	1126
55	1027	1060	1093	1118	1147	1175	1202	1229	1256	1282	1308	1334

Current[A]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	4.5	4.7	5.0	5.2	5.4	5.6	5.7	5.8	5.9	6.0	6.1	6.1
45	5.7	5.9	6.0	6.2	6.3	6.5	6.7	6.9	7.1	7.3	7.5	7.7
55	7.1	7.3	7.4	7.6	7.8	8.0	8.1	8.3	8.5	8.7	8.9	9.1

Model : ZS1520D1

Rotational Speed: 3900 min⁻¹

Cooling capacity[W] * Refrigerant:R404A, Suction Temperature:18°C, Sub cool:5°C

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	758	937	1181	1491	1865	2305	2810	3380	4016	4716	5482	6313
45	680	828	1035	1302	1628	2012	2456	2959	3522	4143	4823	5563
55	569	687	858	1080	1354	1681	2060	2491	2974	3510	4097	4737

Motor Input[w]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	846	880	925	966	1005	1043	1079	1114	1149	1182	1215	1248
45	1047	1079	1112	1147	1184	1222	1262	1304	1347	1393	1439	1488
55	1233	1270	1320	1367	1410	1453	1495	1536	1578	1619	1661	1703

Current[A]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	4.7	4.9	5.1	5.3	5.4	5.6	5.8	6.0	6.1	6.3	6.5	6.7
45	5.8	6.0	6.1	6.2	6.4	6.6	6.8	7.0	7.2	7.4	7.7	8.0
55	6.9	7.0	7.2	7.4	7.6	7.8	8.0	8.2	8.4	8.7	8.9	9.1

Rotational Speed: 5000 min⁻¹

Cooling capacity[W] * Refrigerant:R404A, Suction Temperature:18°C, Sub cool:5°C

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	1050	1312	1637	2026	2480	2998	3582	4232	4948	5730	6579	7495
45	974	1167	1425	1750	2141	2599	3122	3712	4369	5091	5880	6735
55	804	976	1200	1477	1807	2190	2626	3115	3657	4253	4902	5605

Motor Input[w]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	1069	1119	1170	1223	1276	1329	1382	1436	1490	1545	1601	1659
45	1311	1348	1389	1435	1486	1541	1601	1666	1735	1808	1886	1969
55	1654	1694	1721	1756	1794	1835	1879	1927	1980	2037	2099	2166

Current[A]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	4.8	5.0	5.2	5.4	5.5	5.7	5.9	6.1	6.3	6.5	6.8	7.0
45	5.9	6.0	6.1	6.3	6.5	6.6	6.9	7.1	7.4	7.7	8.0	8.3
55	7.5	7.6	7.6	7.7	7.8	7.9	8.1	8.2	8.4	8.6	8.9	9.1

Rotational Speed: 5500 min⁻¹

Cooling capacity[W] * Refrigerant:R404A, Suction Temperature:18°C, Sub cool:5°C

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	994	1302	1678	2120	2627	3200	3840	4546	5318	6158	7065	8040
45	905	1142	1447	1819	2259	2767	3342	3986	4696	5475	6321	7235
55	793	967	1205	1505	1871	2300	2793	3349	3969	4653	5399	6208

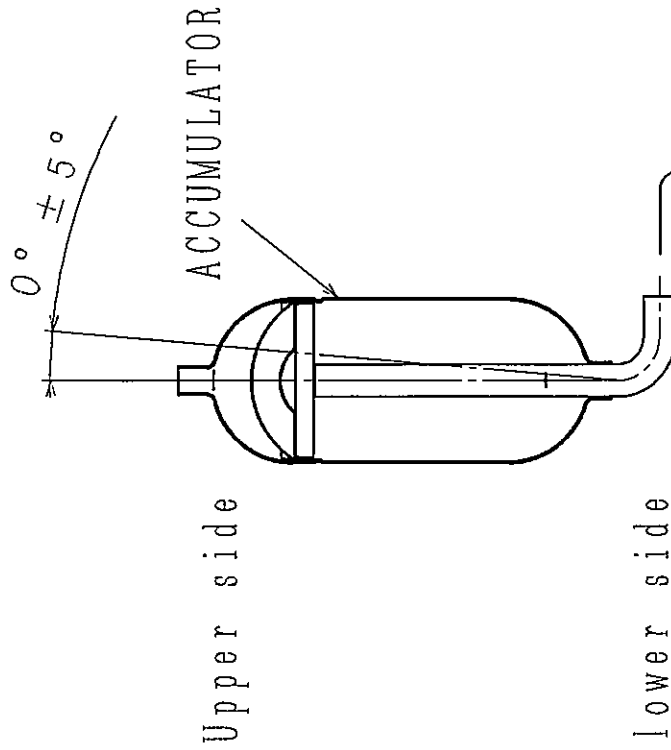
Motor Input[w]

Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	1166	1222	1280	1340	1400	1461	1523	1586	1650	1715	1782	1851
45	1430	1469	1514	1566	1624	1688	1758	1834	1917	2006	2101	2202
55	1818	1855	1879	1891	1932	1983	2045	2117	2200	2293	2396	2509

Current[A]

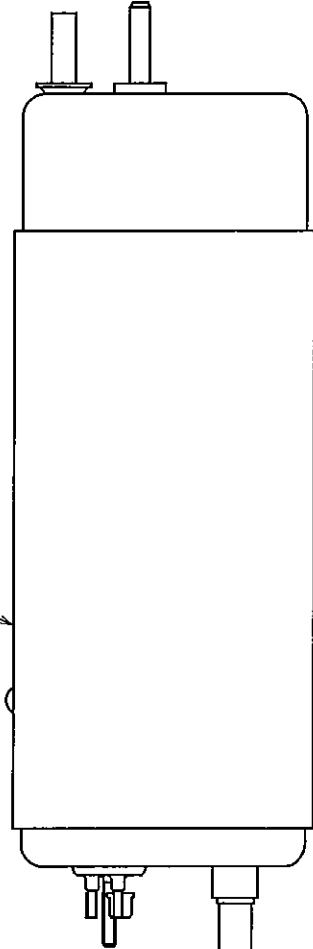
Condensing Temp. °C	Evaporating Temp. °C											
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10
35	4.9	5.0	5.2	5.4	5.6	5.8	6.0	6.2	6.4	6.6	6.9	7.1
45	6.0	6.1	6.2	6.3	6.5	6.7	6.9	7.2	7.4	7.8	8.1	8.5
55	7.6	7.7	7.7	7.6	7.7	7.8	8.0	8.3	8.5	8.9	9.2	9.7

3CYCA1588



The accumulator should be connected between discharge pipe of evaporator and suction pipe of compressor. The allowable incline should be less than 5°.

COMPRESSOR



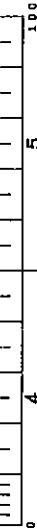
Suction pipe of compressor

SIGNATURE	DATE	PROJECTION	SCALE	TITLE
DWN. A. OURA	2001-08-29		1 : 2	CONNECTING SKETCH OF ACCUMULATOR
CHKD. A. Saito	2001-08-29			
APPR. Y. Saito	2001-08-29			

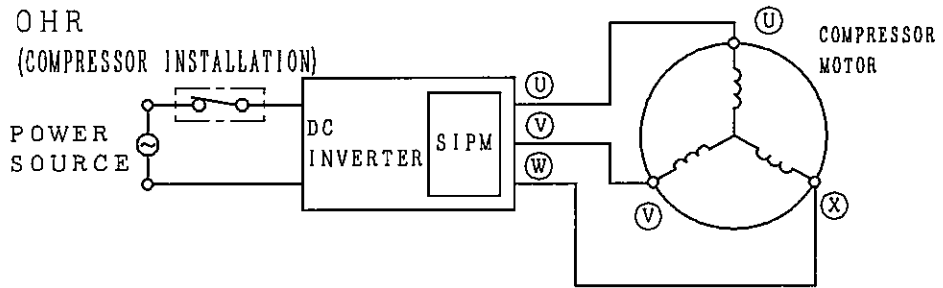
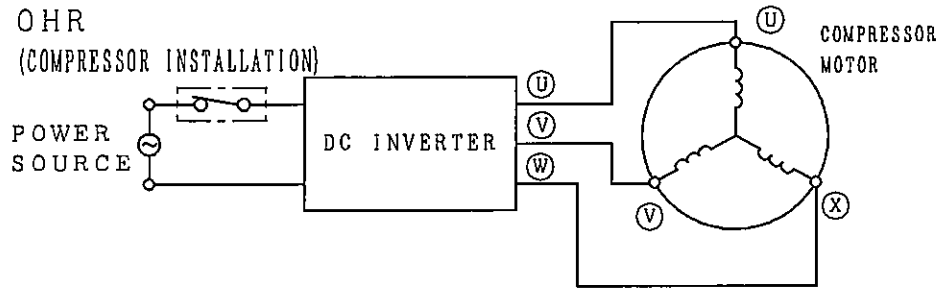
Hitachi Appliances, Inc.
Tokyo Japan

TOCHIGI DWG. No. **3CYCA1588**

REGD
2001
0830



BB0027154



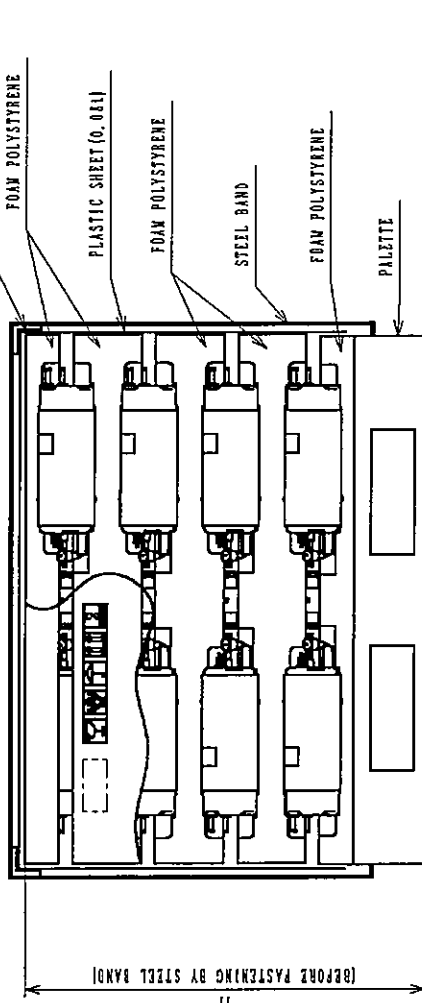
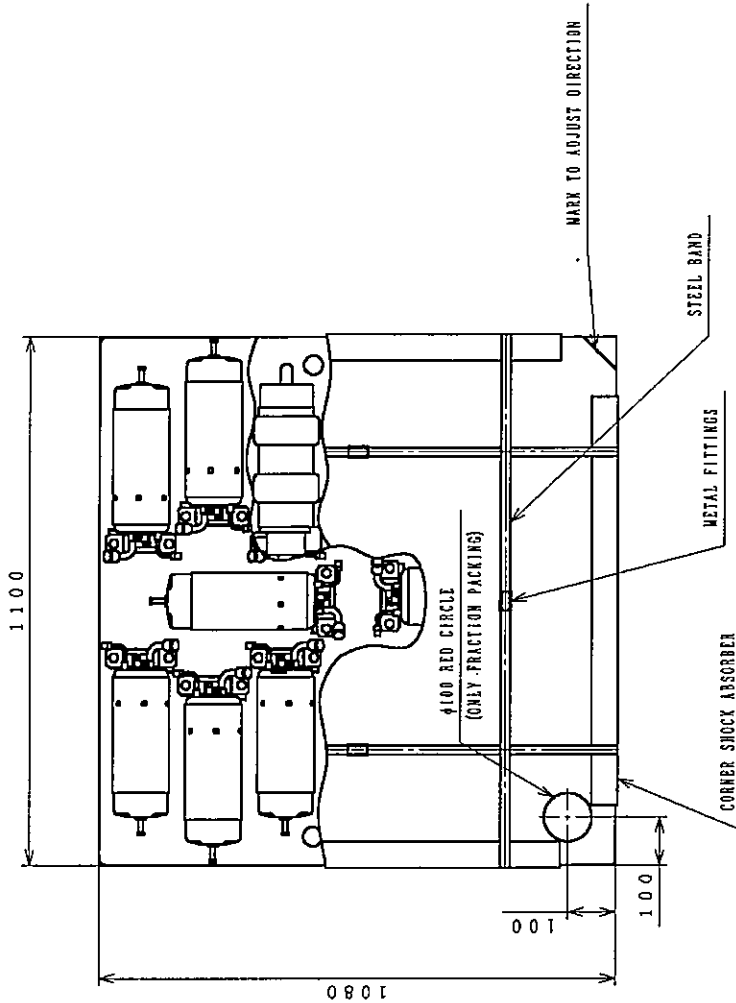
SIPM Feature

Speed direction by serial communication (UART) or pulse, Overcurrent protection, Module overheat protection.

CAD

SIGNATURE		DATE	PROJECTION	SCALE	TITLE
DWN.	K. Echigoya	2011-04-22		1 : 1	CIRCUIT DIAGRAM
CHKD.	M. Onoguchi	2011-04-22			
APPD.	A. Simada	2011-04-22			
			Hitachi Appliances, Inc. Tokyo Japan		TOCHIGI DWG. No.
					4CYC BB0027154
					REGD. REGD 2011 0422

BB0001805

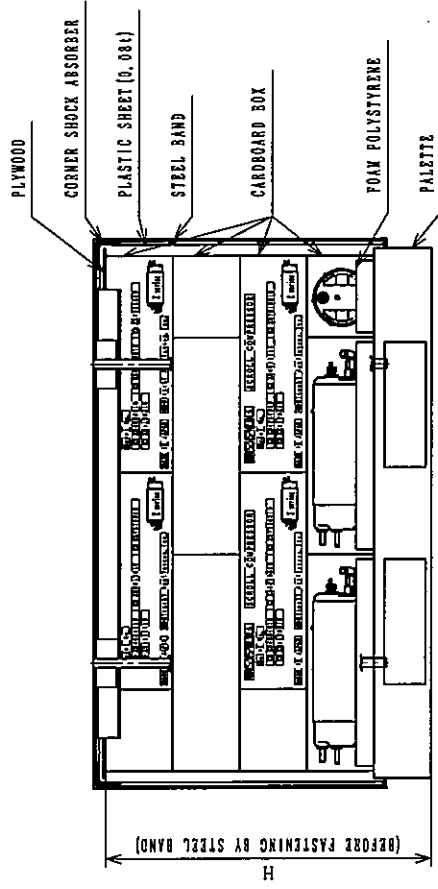
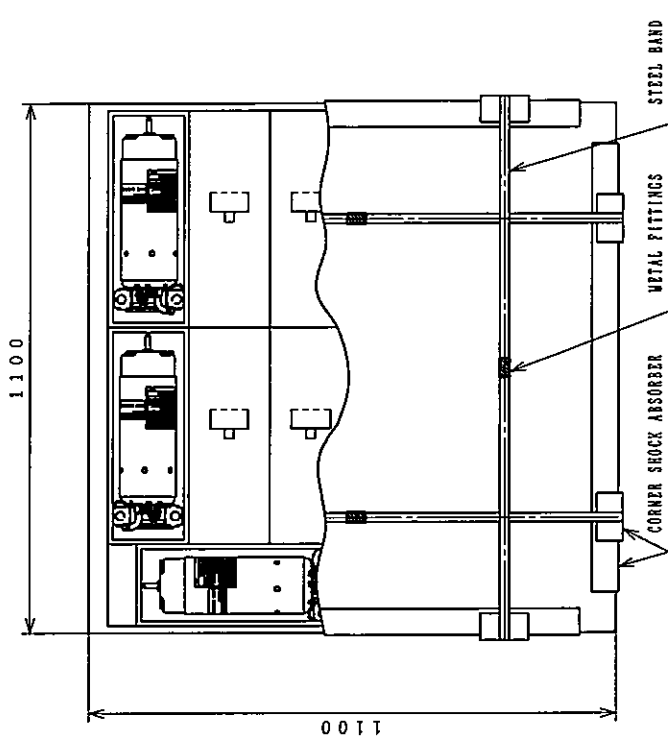


	INCLUDED NUMBER	H (STEP PILE)	GROSS WEIGHT (kg)
A	4 9 ~ 6 4	814 (4STEP)	8 5 7
B	3 3 ~ 4 8	641 (3STEP)	6 4 6
C	1 7 ~ 3 2	488 (2STEP)	4 3 6
D	6 ~ 1 6	296 (1STEP)	2 2 5

Do not pile them up more than two packages when keeping. The package should not be exposed to rain after delivery. Please dispose of the packing parts on your responsibility.

SIGNATURE	DATE	PROJECTION	SCALE	TITLE
DWR. A. Murakami	2005-11-11	①	NTS	COMPRESSOR PACKING SKETCH
CHKD. M. Onoguchi	2005-11-11			
APPD. A. Sameda	2005-11-11			
Hitachi Home & Life Solutions, Inc. Tochigi DWG. No.				TECH. REGD. 2005-11-14
3CYCBB0001805				

BB0044221

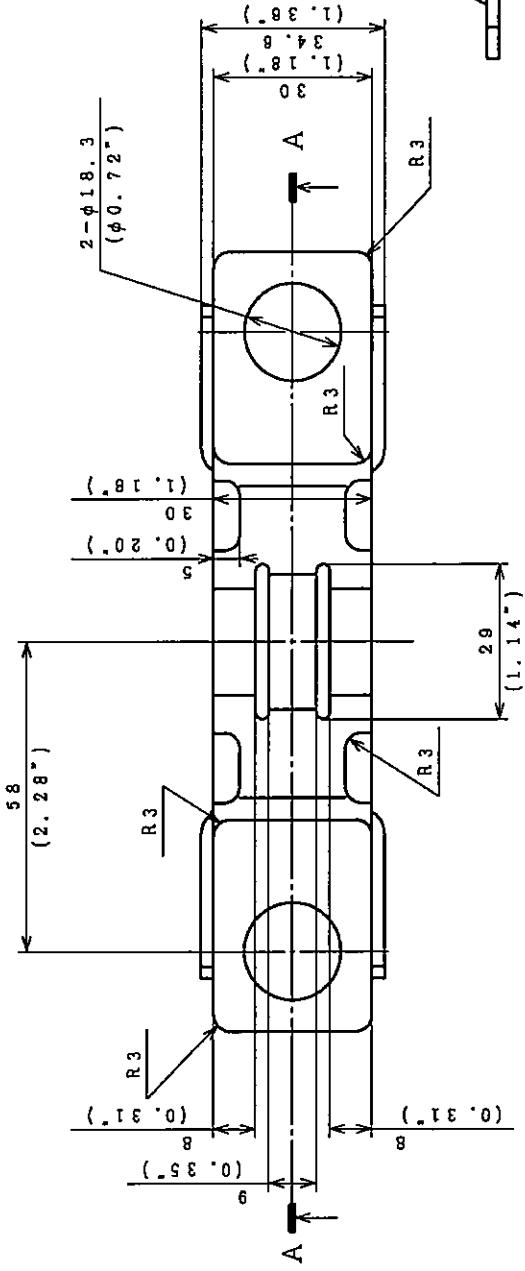


	INCLUDED NUMBER	H (STEP PILE)	GROSS WEIGHT (kg)
A	4 3 ~ 5 6	680 (4STEP)	7 6 0
B	2 9 ~ 4 2	540 (3STEP)	5 7 4
C	1 5 ~ 2 8	400 (2STEP)	3 8 8
D	1 ~ 1 4	260 (1STEP)	2 0 2

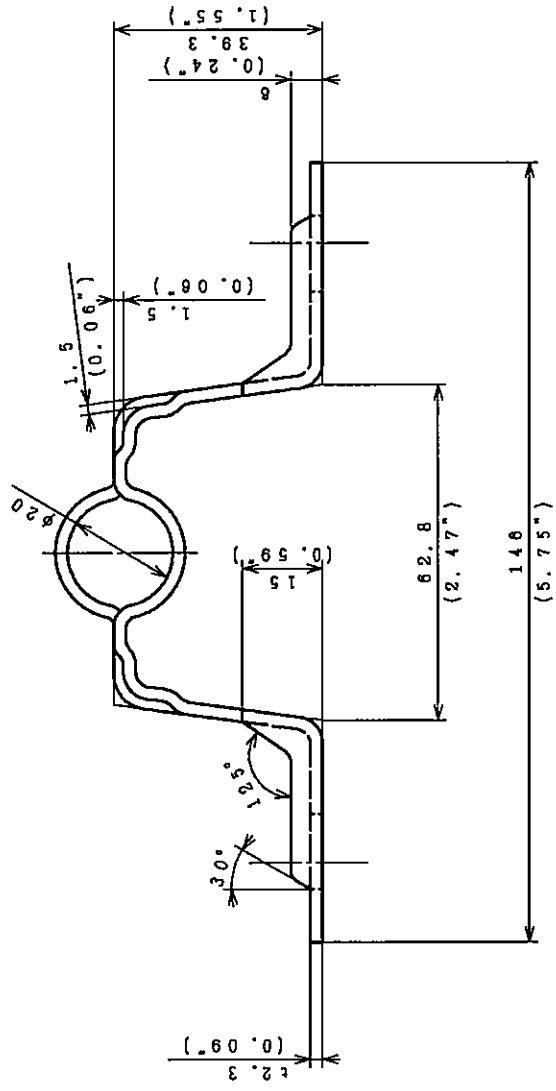
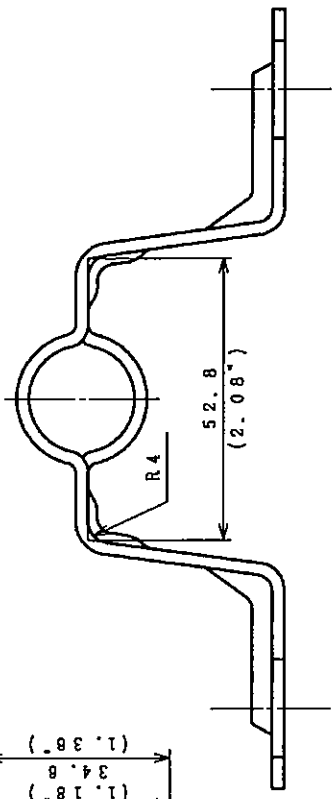
Do not pile them up more than two packages when keeping. The package should not be exposed to rain after delivery. Please dispose of the packing parts on your responsibility.

SIGNATURE	DATE	PROJECTION	SCALE	TITLE
DWN. <i>R. Kobayashi</i>	2014.04.16	1st	NTS	COMPRESSOR PACKING SKETCH
CHKD. <i>K. Yamamoto</i>	2014.04.18	2nd		TOCHIGI DWG. No.
APPD. <i>M. Onosuchi</i>	2014.04.18			Hitachi Appliances, Inc. Tokyo Japan
				3CYCBB0044221

3CYCA1589



A - A



MATERIAL: SPHC

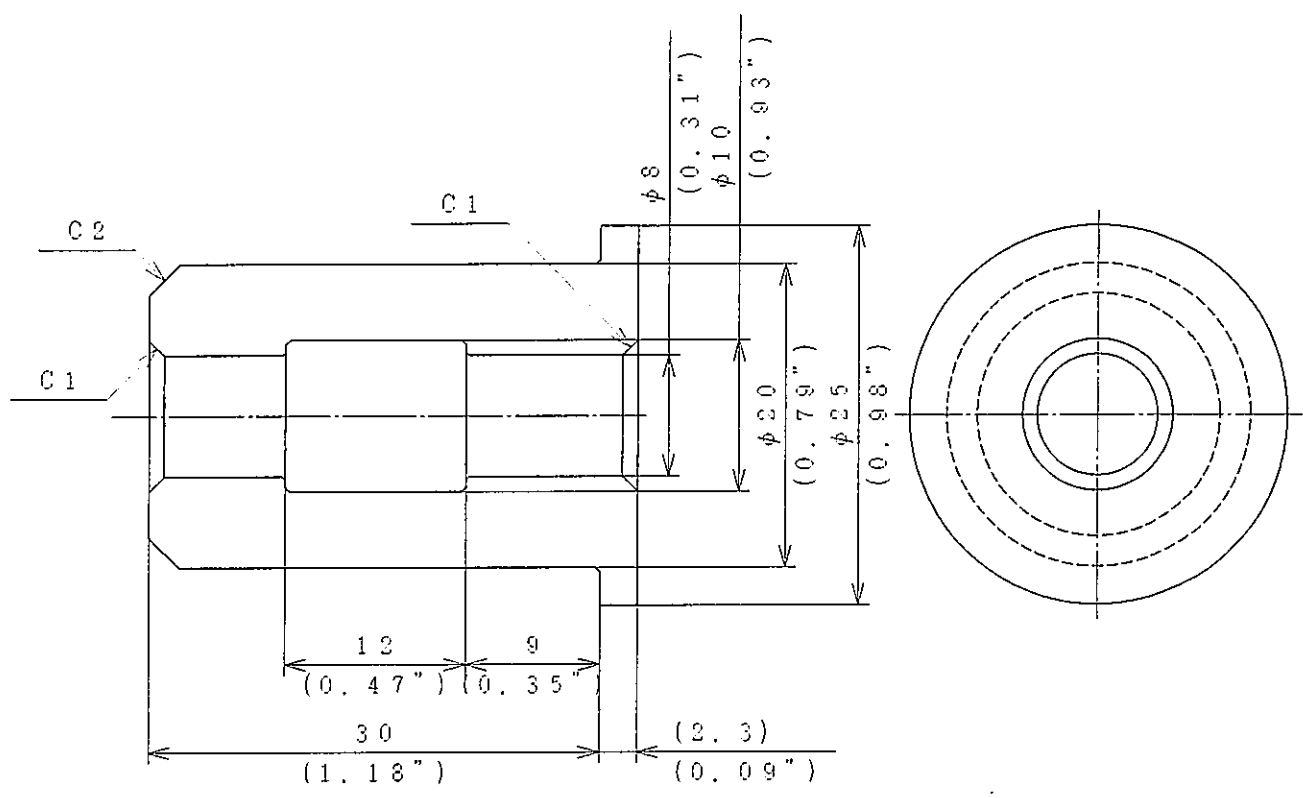
DIMENSION : mm (in)

SIGNATURE	DATE	PROJECTION	SCALE	TITLE
U. Otsuka	2001-08-29	Third Angle	1:1	BRACKET
A. Kuroda	2001-08-29			HITACHI HOME & LIFE SOLUTIONS, INC.
Y. Saito	2001-08-29			TOCHIGI DWG. No. 3001-08-30



6
7
002

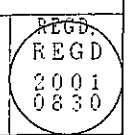
4CYC11184



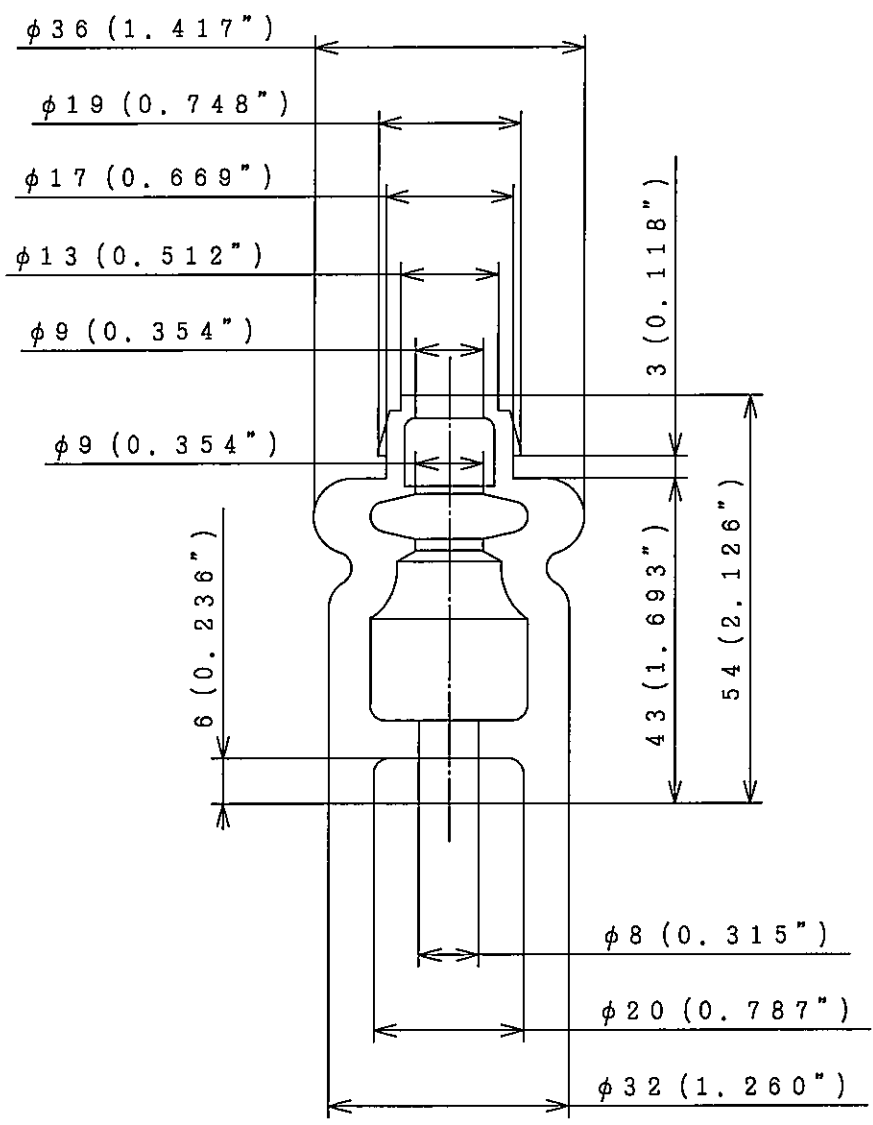
MATERIAL: EPDM
 DIMENSION : mm (in)



SIGNATURE		DATE	PROJECTION	SCALE	TITLE
DWN.	A. Onuma	2001-08-29		2 : 1	HOLDER
CHKD.	A. Simada	2001-08-29			
APPD.	Y. Sasaki	2001-08-29			
			Hitachi Appliances, Inc. Tokyo Japan		TOCHIGI DWG. No. 4CYC11184



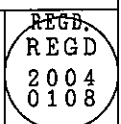
4CYC11232



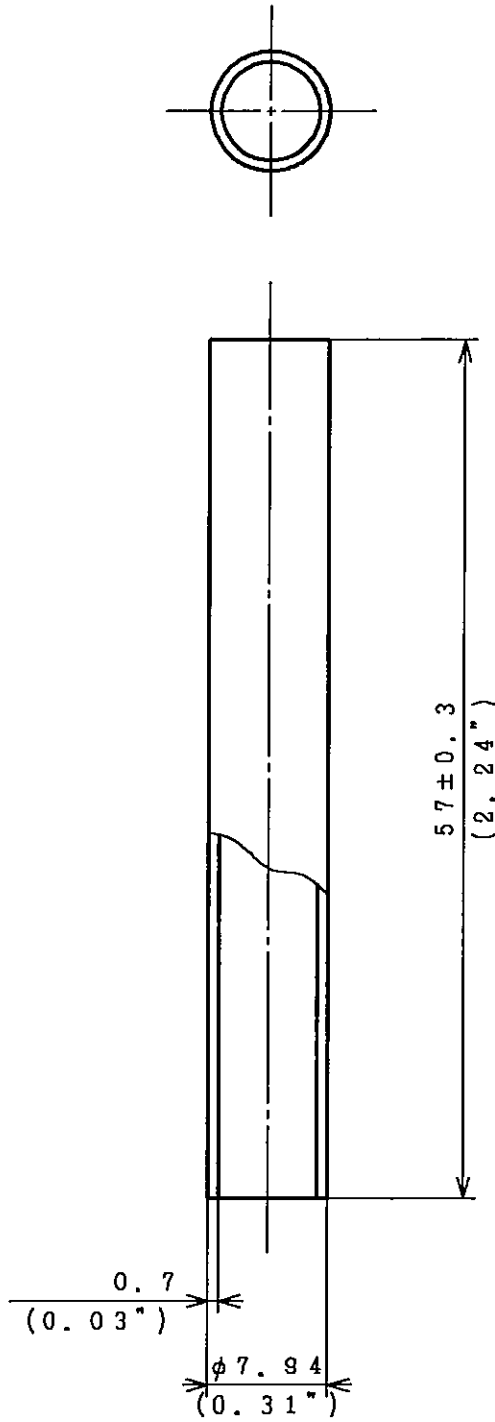
DIMENSION : mm (inch)
 MATERIAL : NATURAL RUBBER

(3TMWA3762-A)

SIGNATURE		DATE	PROJECTION	SCALE	TITLE
DWN.	K. Echigoya	2003-12-25		1 : 1	RUBBER GROMMET TOCHIGI DWG. No. 4CYC11232
CHKD.	T. Tadokoro	2003-12-26			
APPD.	A. Simada	2003-12-26			



4CYC11191

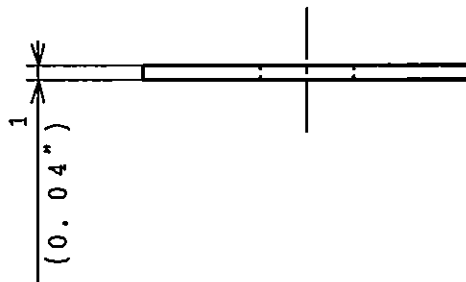
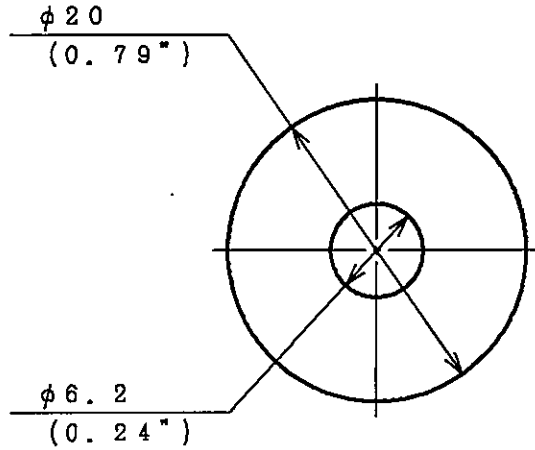


MATERIAL: STEEL PIPE
 DIMENSION: mm (in)

CAD

SIGNATURE		DATE	PROJECTION	SCALE	TITLE	
DWN.	<i>M. Sato</i>	2002-01-11		2:1	PIPE	
CHKD.	<i>K. Sakigami</i>	2002-01-11	Hitachi Home & Life Solutions, Inc. Tokyo Japan		TOCHIGI DWG. No. 4CYC11191	
APPD.	<i>Y. Sasaki</i>	2002-01-11				
					RE-REGD.	REGD. 2002-01 16

4CYC11192

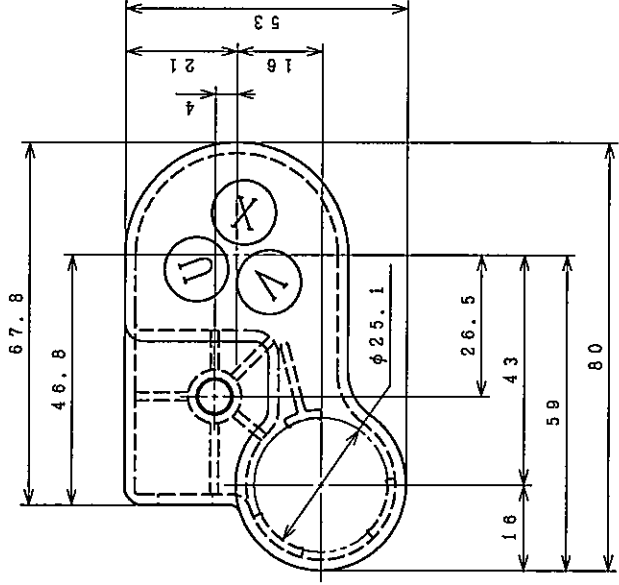
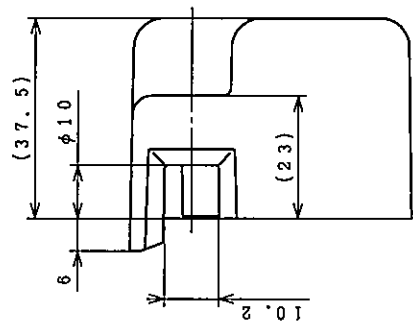
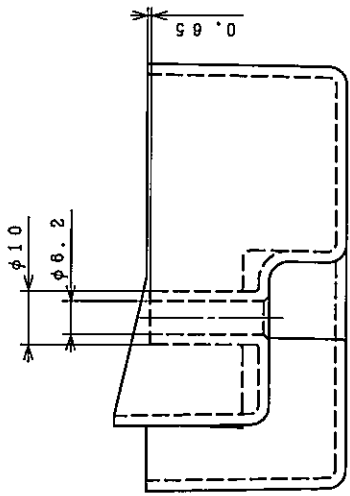


NOTES
 MATERIAL: COLD ROLLED CARBON STEEL SHEETS
 AND STRIP
 SURFACE : ZINC-COATED
 DIMENSION: mm (in)

CAD

SIGNATURE		DATE	PROJECTION	SCALE	TITLE
DWN.	<i>M. Ito</i>	2002-01-17		2:1	WASHER
CHKD.	<i>K. Sakagami</i>	2002-01-17	Hitachi Home & Life Solutions, Inc. Tokyo Japan		TOCHIGI DWG. No. 4CYC11192
APPD.	<i>Y. Sasaki</i>	2002-01-17			
			RE-REGD.	REGD.	REGD.
					2002-01-18

3CYCA1824



UL Flame Class of Material:94-V0
 Material:PA-66 or MPPE

(This molding part was tested to
 comply with the UL flame class of
 94-5V by us.)

SIGNATURE	DATE	PROJECTION	SCALE	TITLE
DWN. M. Goto	2001-10-23		1 : 1	OLR-COVER
CHKD. K. Ishigami	2001-10-24			TOCHIGI DWG. No.
APPD. M. Onoguchi	2001-10-24			Hitachi Appliances, Inc. Tokyo Japan
APPD. Y. Sasaki	2001-10-24			3CYCA1824

REGD
 2001
 1024

14/04/17 15#10

2 3

6

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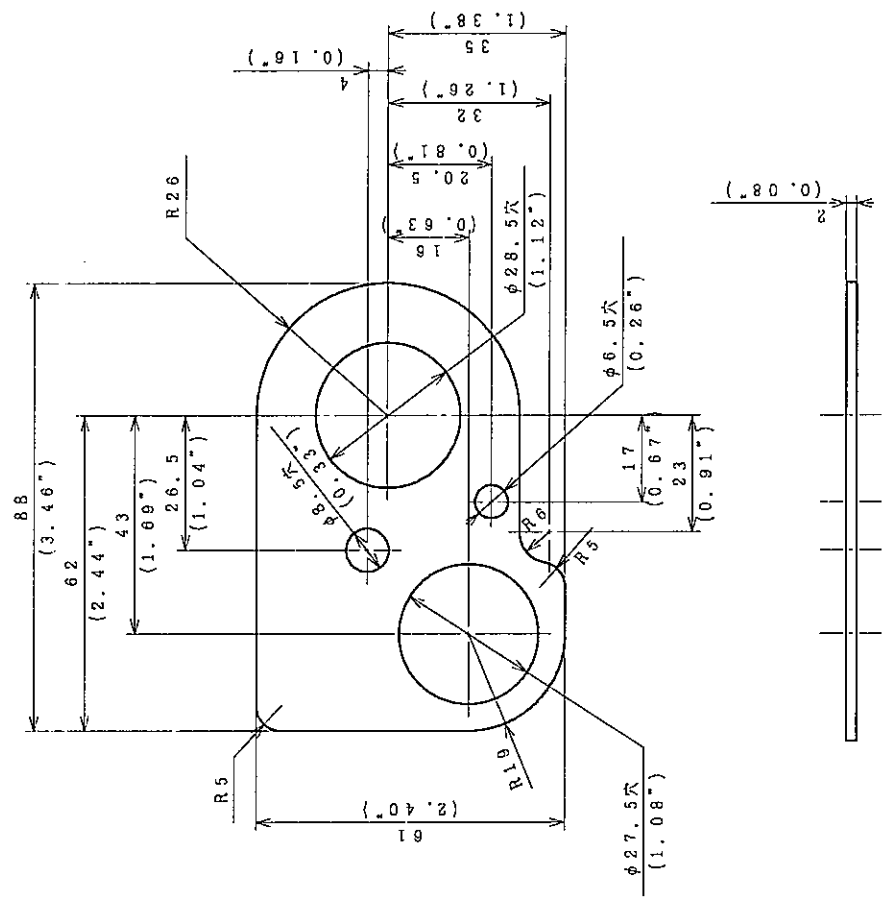
005

1 2 3 4 5 6 7 8

A B C D E F

3CYCA1825

MATERIAL: SR
 DIMENSION: mm (in)



SIGNATURE	DATE	PROJECTION	SCALE	TITLE
DRW. M. Goto	2001-10-23		1 : 1	GOMUITA
CHKD. K. Ishigami	2001-10-24			
APPR. M. Odokechi	2001-10-24			
APPR. Y. Sasaki	2001-10-24			Hitachi Appliances, Inc. Tokyo Japan
				TOCHIGI DWG. No.
				3CYCA1825



(6) 88:37EX:50(-A)

100

7

6

2001-10-24

2001-10-24

2001-10-23

1 : 1

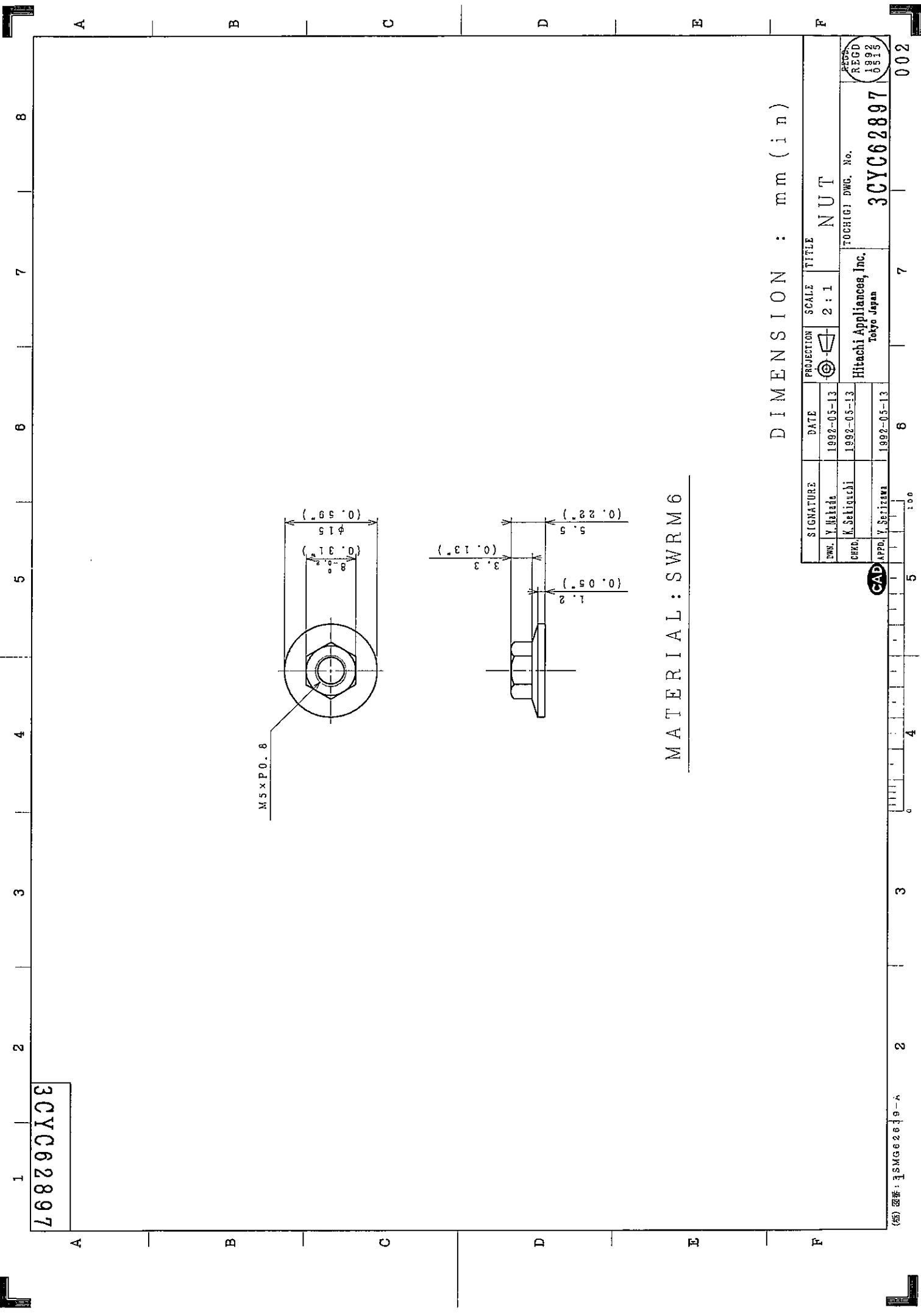
Hitachi Appliances, Inc.

Tokyo Japan

3CYCA1825

TOCHIGI DWG. No.

002



MATERIAL : SWRM6

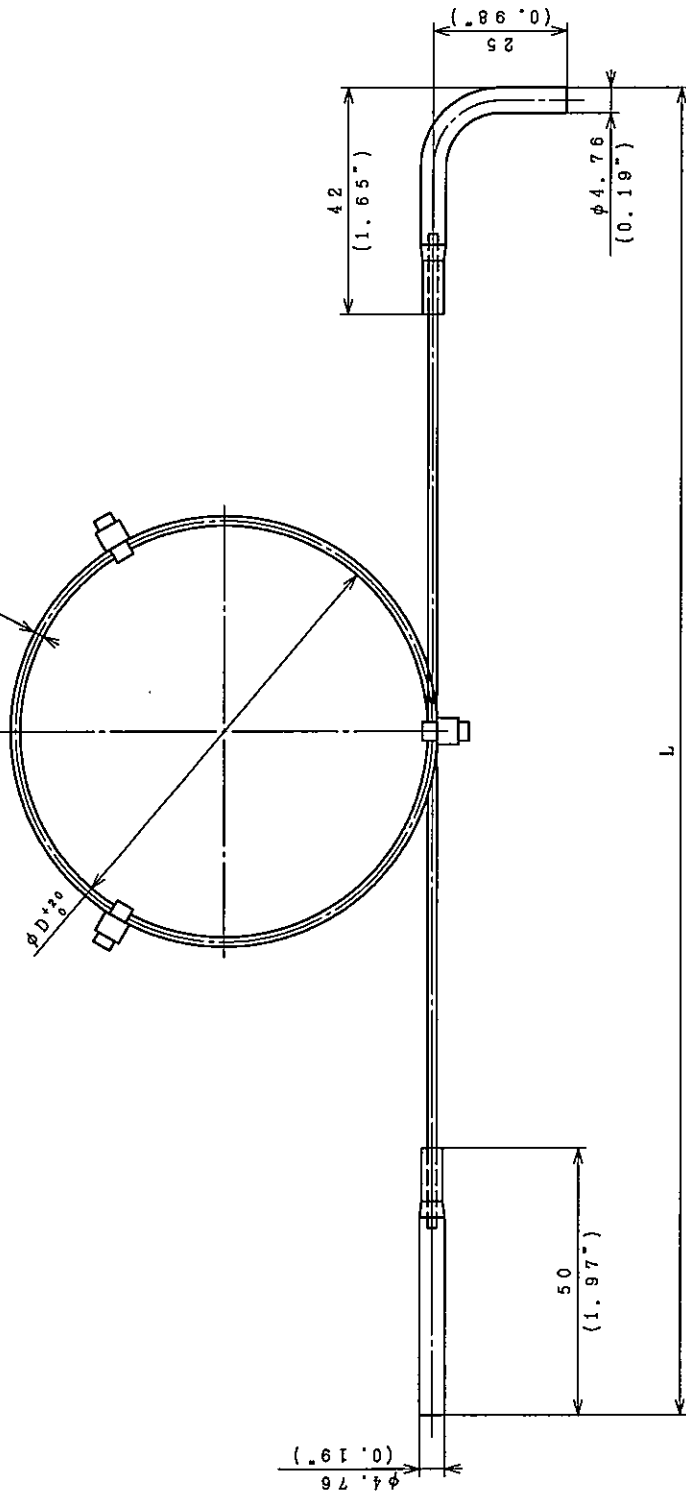
DIMENSION : mm (in)

SIGNATURE	DATE	PROJECTION	SCALE	TITLE
DWN. Y. Nakada	1992-05-13		2 : 1	NUT
CHFD. K. Sekiguchi	1992-05-13			
APPR. Y. Sekiguchi	1992-05-13	Hitachi Appliances, Inc. Tokyo Japan		
				TOCHIGI DWG. No. 3CYC62897

3CYC62897

BB0032682

$\phi 0.68 \text{ ID} \times \phi 1.80 \text{ D}$
($0.03^\circ \text{ ID} \times 0.070 \text{ D}$)



RESISTANCE VALUE	L	ϕD	NUMBER OF TURNS
79.8 kPa	250 (9.84")	45 (1.77")	19
53.3 kPa	246 (9.69")	77 (3.03")	6
39.9 kPa	206 (8.11")	77 (3.03")	4
26.6 kPa	206 (8.11")	71 (2.80")	2
13.3 kPa	155 (6.10")	45 (1.77")	1

DIMENSION : mm (in)

SIGNATURE	DATE	PROJECTION	SCALE	TITLE
DWR. K. Echigo	2012-05-10		NTS	
CHKD. M. Onozuchi	2012-05-10			
APPD. A. Shimada	2012-05-12			

TOCHIGI DWG. No.

Hitachi Appliances, Inc.
Tokyo Japan

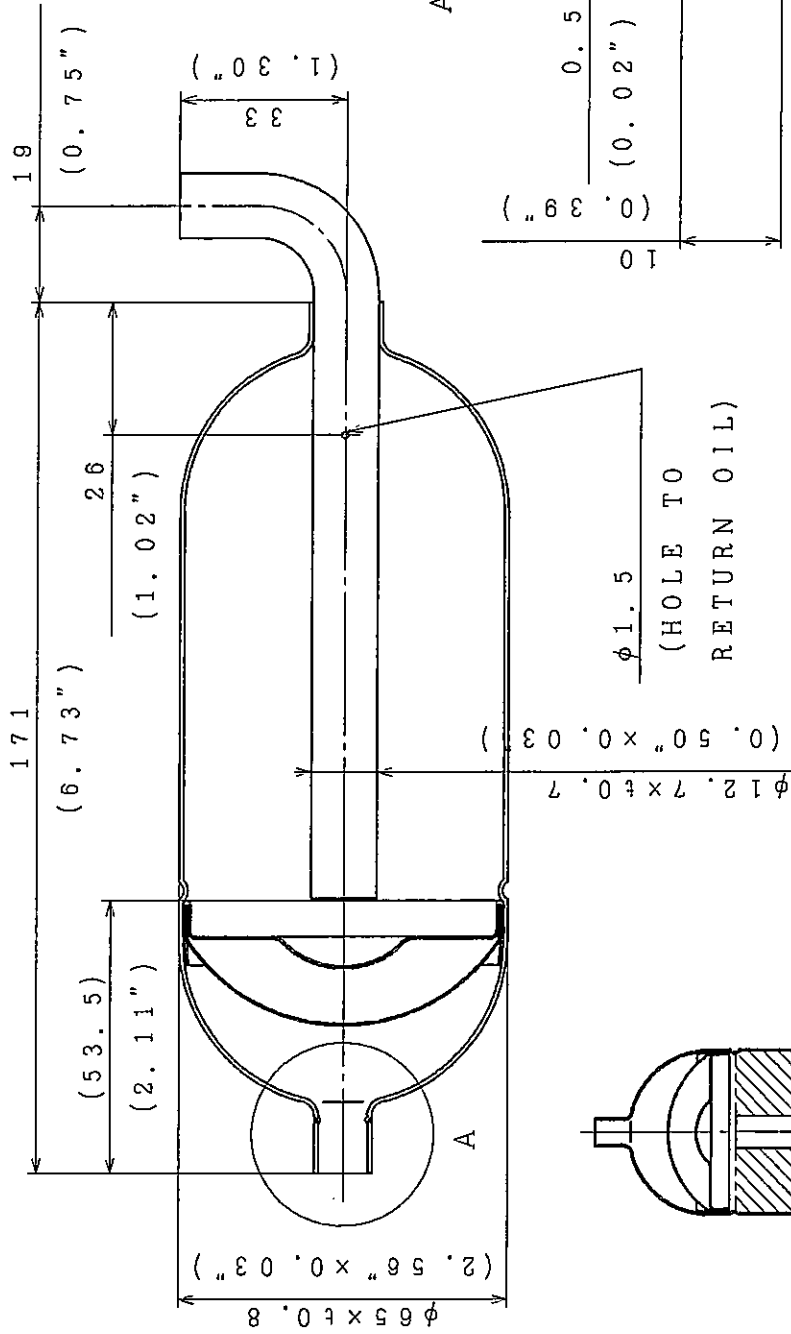
3CYCBB0032682

CAD
REGD
2012
0512

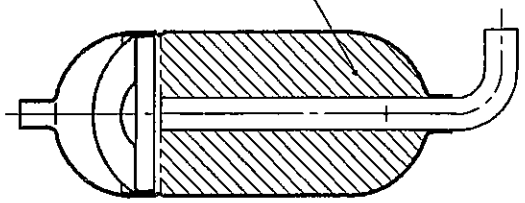
3CYCA1592

UPPER SIDE

LOWER SIDE



Valid volume: 307 mL (10.3800Z)



(NTS)

SIGNATURE	DATE	PROJECTION	SCALE	TITLE
DWG. A. Onda	2001-08-29	①-L	1:1	ACCUMULATOR
CHKD. A. Saida	2001-08-29			TOCHIGI DWG. No.
APPD. Y. Saito	2001-08-29			3CYCA1592

REC'D
2001
0830

003

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7

3

2

1

0

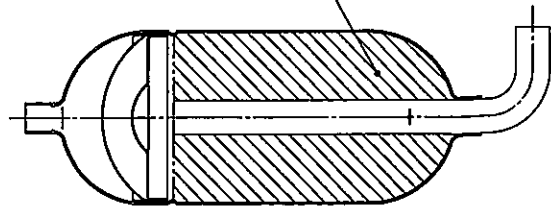
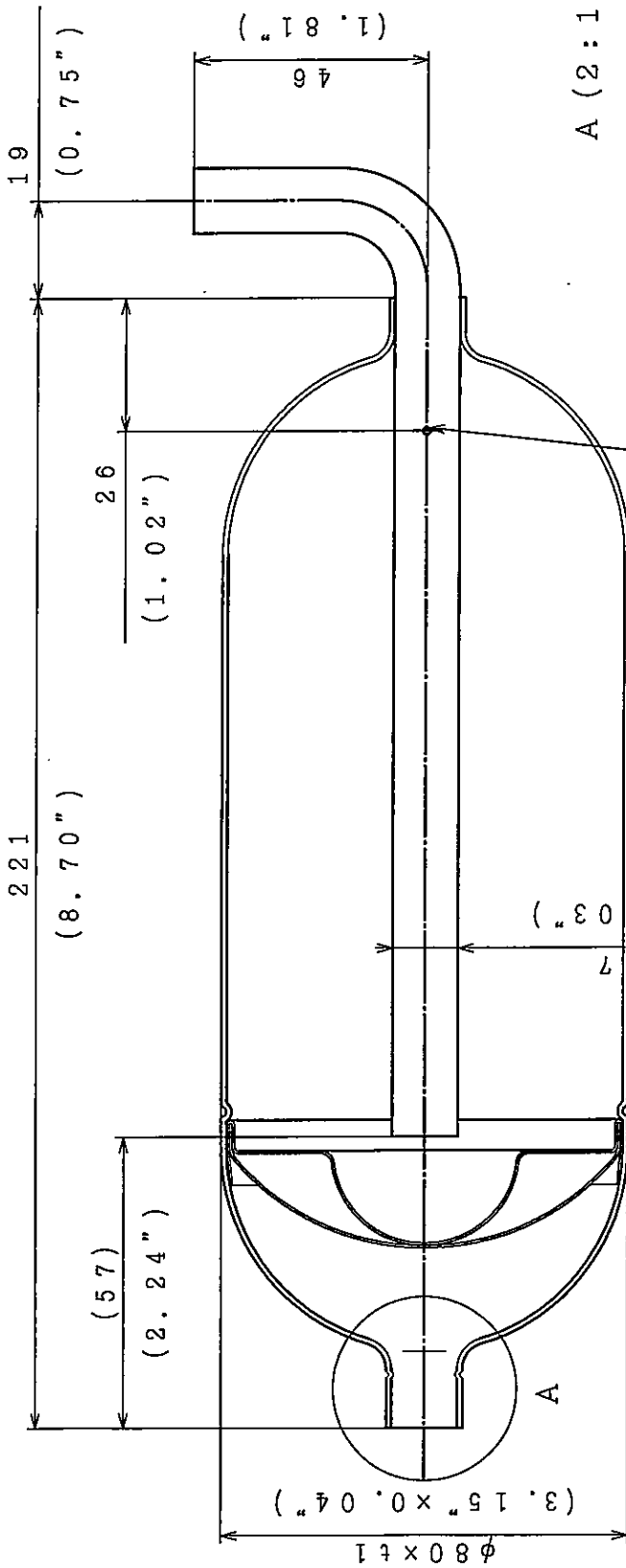
100

DIMENSION: mm (in)

3CYCA4166

UPPER SIDE

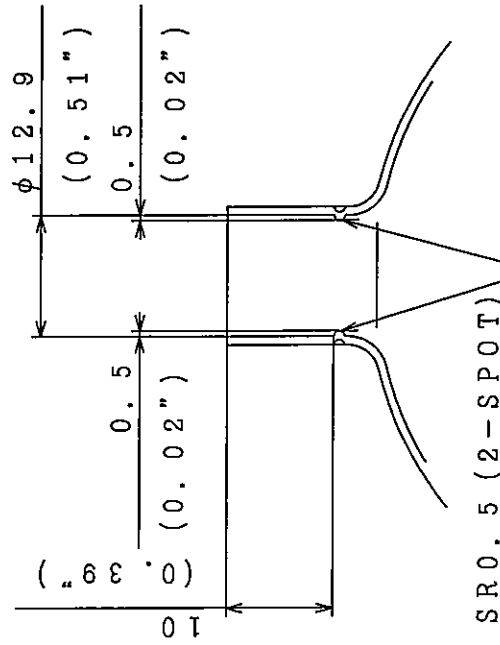
LOWER SIDE



Valid volume: 650mL (21.9790Z)

φ1.5
(HOLE TO
RETURN OIL)

A (2:1)



SR0.5 (2-SPOT)

SIGNATURE	DATE	PROJECTION	SCALE	TITLE
DWR. J. WAKIYAMA	2003-02-22		1:1	ACCUMULATOR
CHD. M. KOTANI	2003-02-22			
APP. Y. MATSUDA	2003-04-11	Hitachi Appliances, Inc. Tokyo Japan		

DIMENSION: mm (in)

(NTS)

TOCHIGI DWG. No.

3CYCA4166

REGD
2003
0413