

# **motech**<sup>®</sup>

refrigeration parts and equipment



## **Data Sheet**

## BASIC DATA

### 1.1 OPERATION

**Application:** LBP

**Refrigerant:** R134a

**Expansion device:** Capillary tube

**Cooling:** Static

**Evaporating Temperature Range:** -35 to -10°C ( -34 to +14 °F )

**Max Ambient Temperature:** 43°C ( 110°F )

**Max Operating Discharge Temperature(1):** 120°C ( 248°F )

**Max Peak Discharge Temperature (1, 2):** 135°C ( 275°F )

**Max Operating Condensing Temperature:** 60°C ( 140°F )

**Max Peak Condensing Temperature(2):** 70°C ( 158°F )

**Max Winding Temperature:** 130°C ( 266°F )

**Max Impurities:** 30 mg

**Max Water Content:** 100 mg

### 1.2 COMPRESSOR

**Displacement:** 8.6 cc

**Cylinder Bore:** 24.4 mm

**Stroke:** 18.4 mm

**Net Weight(3):** 8.87 Kg

**Shell size:** Middle

**Oil charge:** 200 cc

**Oil Type:** ICI RL 10H

**Oil viscosity(4):** 10 cSt

**Suction system:** Semi-direct

### 1.3 MOTOR

**Power supply:** 220-240 V

**Voltage limits:** 187 - 264 V

**Frequency:** 50 Hz

**Phase:** 1

**Motor Type:** RSIR / RSCR

**Electrical Insulation Class:** B

**Locked Rotor Current at 220 V- Max value with RC:** 13.5A

**Locked Rotor Current at 220 V- After 4 s with RC:** 7.3A

**Locked Rotor Current at 220 V- Max value without RC:** 13.4A

**Locked Rotor Current at 220 V- After 4 s without RC:** 7.3A

**Main Winding Resistance at 20°C ( 68°F ): 11.16 Ω**

**Start Winding Resistance at 20°C ( 68°F ): 13.64 Ω**

(1) Measured at 5 cm from the shell with insulated termocouples

(2) For transient conditions during "Pull Down"

(3) With oil and without external electricals

(4) Measured at 40°C ( 104°F )

## 1.4 ELECTRICALS

### Motor-protector

<b>Manufacturer:</b>	WANBAO	SENSATA
<b>Type:</b>	BT90-120A61D2g	4TM 276 NFBYY-53
<b>Open Temperature:</b>	115-125 °C	115-125 °C
<b>Close Temperature:</b>	70-52 °C	70-52 °C
<b>U.T.C. at 70°C:</b>	1.96 A	1.96 A (AT 71°C)
<b>Time Check Current 7-15 s:</b>	9.0 A (7.5-14 sec)	9.0 A (5-15 sec)
<b>Max Current: -</b>		
<b>Code: -</b>		

### PTC starting device

<b>Assembly type:</b>	WANBAO	TIANYIN
<b>PTC Pill:</b>	QP2-15	QP2-15E
<b>Resistance at 25°C, 100V:</b>	11-19Ω	11-19Ω
<b>V max:</b>	350 V	350 V
<b>I max:</b>	8A	8A
<b>Curie Temp:</b>	120°C	120°C
<b>Dimensions:</b>	20mm (diameter), 3.3mm (thickness)	16mm (diameter), 2.5mm (thickness)

### Run capacitor (optional)

**Type:** plastic case  
**Capacity:** 4μF  
**Vmax:** 450 V  
**Working hours:** 10.000 h at 450 V

### Connecting-board

**Type:** Without  
**Fast-on size**

## CALORIMETER DATA

2.1 CALORIMETER TEST	Evaporating temperature					
	-30°C	-23.3°C	-10°C	-30°C	-23.3°C	-10°C
	Without RC			With RC		
Cooling capacity (W)	160	250	468	163	250	474
Input power (W)	139	179	249	133	164	235
COP (W)/W	1.15	1.40	1.88	1.23	1.52	2.01
Current (A)	1.03	1.24	1.42	0.77	0.90	1.19

### Test conditions according to ASHRAE:

**Condensing temperature:** +55°C(+130°F)  
**Subcooling temperature:** +32°C(+90°F)  
**Superheating temperature:** +32°C(+90°F)  
**Suction temperature:** +32°C(+90°F)

**Room temperature:** +32°C(+90°F)

**Cooling:** Static cooling  
**Supply Voltage:** 220 V  
**Supply Frequency:** 50 Hz  
**Run capacitor:** 4μF

## OTHER PERFORMANCES

3.1 STARTING TEST	Motor Temp. / Equalized Press.		
	90°C / 5 Bar A	43°C / 6.5 Bar A	25°C / 5 Bar A
Min. Starting Voltage (V)	165		

According to ACC-CQ-PRO-99016.D

3.2 CALORIMETER TEST	-25/+55°C	-20/+50°C	-23.3/+40°C
	ISO3745	GB9098	USA STD
A-weighted SPL (dBA)	-	42	-
Vibration Level (dB)	-	-	-
Vibration Index TVI (mm/s)	-	0.6	-
Gas pulse level TPI (mBar)	-	-	-

3.3 LIFE TEST	Wear	High Temp.	On Off
	500 h	2000 h	200 K Cycles
Test Results	Passed	Passed	Passed

Wear Test according to CECOMAF GT4003

High Temperature Test according to CECOMAF GT4002

On Off Test according to CECOMAF GT4004

3.4 TRANSPORT TEST	2 h - 0.75 m/s <sup>2</sup>		
	x - 3.25 Hz	y - 7.5 Hz	z - 11.5 Hz
Test Results		Not required	

According to GB / T4857.10-92

3.5 OIL TRANSPORT TEST	Oil flow
	(g/h)
Test Results	Not required

According to ACC-CQ-ES-99002.D

3.6 IMPACT TEST	
Test Results	Not required

According to ECC-CQ-W-01042

## OTHER INFORMATION

### COMPARISON CHART

MOTECH	POWER	EMBRACO	TECUMSEH
GFF93AA	1/3+ HP	FFI 12 HBK	TPH1410Y
GFF86AA	1/3 HP	EGAS 100 HLR	TPH1410Y
		EGAS 90 HLR	-
GFF75AA	1/4+ HP	EGAS 80 HLR	TSB1390Y
GFF66AA	1/4 HP	EGAS 80 HLR	TSB1380Y
GFF57AA	1/5 HP	-	TSB1374Y
		EGAS 70 HLR	TSB1355Y
		EMI 70 HER	THG1358Y
		EMIS 70 HLR	TSB1360Y
GFF44AA	1/6 HP	EMI 60 HER	THG1346Y
			THG1352Y
GVM35AA	1/8 HP	EMI 80 HLR	THG1335Y
GVM30AA	1/10 HP	EM 30 HNR	THG1330Y

## OTHER INFORMATION

R134a	A ± 2.5	B ± 2.5	C ± 2.5	D ± 2.5
GFF57AA	98.5	100.5	113.5	174
GFF66AA				
GFF75AA				
GFF86AA				
GFF93AA	108.5	110.5	123.5	184
BFF12AA	108.5	110.5	123.5	184
BFM93AA	98.5	100.5	113.5	174

