



# ENGINEERING DATA SHEET

## R90i (IE3)

50Hz HIGH AMBIENT

CCN: 23561186  
 Rev.: M  
 ECN: 83745  
 Sheet: 1 of 2  
 Date: 17-Jun-2015

Model Name		R90I-X7.5	R90I-X8.5	R90I-X10	R90I-X14
<b>GENERAL PERFORMANCE DATA</b>					
Maximum Operating Pressure <sup>(2)</sup>	barg (psig)	7.5 (110)	8.5 (125)	10 (145)	14 (200)
Rated Discharge Pressure	barg (psig)	7 (100)	8 (115)	9.5 (135)	13.5 (190)
Minimum Operating Pressure	barg (psig)	4.5 (65)	4.5 (65)	4.5 (65)	4.5 (65)
Capacity FAD <sup>(1)</sup>	m <sup>3</sup> /min (cfm)	16.71 (590)	15.72 (555)	14.02 (495)	10.25 (362)
Maximum Operating Ambient Temperature	°C (°F)		55 (131)		
Minimum Operating Ambient Temperature	°C (°F)		2 (35)		
Maximum System Temperature Setting	°C (°F)		109 (228)		
Nominal Power - Main Motor	kW (HP)		90 (125)		
Main Motor Efficiency <sup>(3)</sup>	Percent		95.2%		
Package Input Power - Air Cooled <sup>(4)</sup>	kW	103.3	108.2	110.3	110.8
Package Input Power - Water Cooled <sup>(4)</sup>	kW	99.3	104.3	106.3	106.8
Specific Power - Air Cooled <sup>(4)(5)</sup>	kW/m <sup>3</sup> /min (kW/100cfm)	6.18 (17.50)	6.89 (19.50)	7.87 (22.28)	10.81 (30.61)
Specific Power - Water Cooled <sup>(4)(5)</sup>	kW/m <sup>3</sup> /min (kW/100cfm)	5.94 (16.83)	6.63 (18.79)	7.59 (21.48)	10.42 (29.51)
<b>SOUND LEVEL <sup>(6)</sup></b>					
Standard Package - Air Cooled	dB(A)		71		
Standard Package - Water Cooled	dB(A)		71		
<b>COOLING DATA (@ Maximum Ambient Temperature &amp; Maximum Discharge Pressure)</b>					
Heat Removal Oil Cooler	kW (1000 Btu/hr)	84 (286)	87 (297)	87 (295)	90 (308)
Heat Removal Oil and Aftercooler	kW (1000 Btu/hr)	113 (386)	117 (399)	114 (389)	112 (384)
Additional Static Pressure <sup>(16)</sup>	Pa (in H <sub>2</sub> O)		60 (0.25) - 250 (1.0)		
<b>Air-cooled</b>					
Fan Air Flow	m <sup>3</sup> /min (cfm)	248 (8758)		Maximum: 294 (10371)	
Fan Motor Nominal Power	kW			4.0	
Cooling Air Temperature Rise	°C (°F)	25 (45)	26 (47)	27 (48)	26 (47)
Aftercooler CTD, 50 Hz <sup>(7)</sup>	°C (°F)	4 (7)	4 (6)	3 (6)	3 (5)
<b>Water-cooled - Standard Duty</b>					
Fan Air Flow	m <sup>3</sup> /min (cfm)			115 (4,000)	
Fan Motor Nominal Power	kW			0.6	
Aftercooler CTD <sup>(7)(8)</sup>	°C (°F)	8 (15)	8 (15)	8 (15)	8 (15)
<b>Cooling Water Flow</b>					
@ 10°C (50°F)	l/min (gal/min)	125 (33)	132 (35)	136 (36)	138 (37)
@ 20°C (68°F)	l/min (gal/min)	129 (34)	136 (36)	139 (37)	141 (37)
@ 30°C (86°F)	l/min (gal/min)	132 (35)	139 (37)	142 (38)	143 (38)
@ 40°C (104°F)	l/min (gal/min)	136 (36)	143 (38)	146 (39)	146 (39)
@ 46°C (115°F)	l/min (gal/min)	140 (37)	147 (39)	150 (40)	150 (40)
@ 55°C (131°F)	l/min (gal/min)	151 (40)	158 (42)	160 (42)	157 (42)
Cooling Water Temperature Rise @ 30°C	°C (°F)	11 (19)	11 (19)	10 (19)	10 (19)
Cooling Water Pressure Drop	bar (psi)		Less Than 0.88 bar (13 psi)		
Cooling Air Temperature Rise @ 30°C	°C (°F)	5 (10)	6 (10)	6 (10)	6 (11)
<b>Water-cooled - Harsh Duty</b>					
Fan Air Flow	m <sup>3</sup> /min (cfm)			115 (4,000)	
Fan Motor Nominal Power	kW			0.6	
Aftercooler CTD <sup>(8)</sup>	°C (°F)	8 (15)	8 (15)	8 (15)	8 (15)
<b>Cooling Water Flow</b>					
@ 10°C (50°F)	l/min (gal/min)	103 (27)	103 (27)	103 (27)	103 (27)
@ 20°C (68°F)	l/min (gal/min)	106 (28)	106 (28)	106 (28)	106 (28)
@ 30°C (86°F)	l/min (gal/min)	110 (29)	110 (29)	110 (29)	110 (29)
@ 40°C (104°F)	l/min (gal/min)	113 (30)	113 (30)	113 (30)	113 (30)
@ 46°C (115°F)	l/min (gal/min)	119 (32)	119 (32)	119 (32)	119 (32)
Cooling Water Temperature Rise @ 30°C	°C (°F)	95 (25)	94 (25)	93 (25)	91 (24)
Cooling Water Pressure Drop	bar (psi)		Less Than 0.88 bar (13 psi)		
Cooling Air Temperature Rise	°C (°F)	8 (15)	8 (15)	8 (15)	8 (15)



# ENGINEERING DATA SHEET

## R90i (IE3)

50Hz HIGH AMBIENT

CCN: 23561186  
 Rev.: M  
 ECN: 83745  
 Sheet: 2 of 2  
 Date: 17-Jun-2015

### CONSTRUCTION, FOUNDATION, AND MOUNTING DATA

#### PIPING CONNECTIONS

Air Discharge	Inches BSPT/NPT <sup>(9)</sup>	2.50
Package Automatic Condensate Drain	Inches BSPT/NPT <sup>(9)</sup>	0.38
Coolant Drain Plug	Inches BSPT/NPT <sup>(9)</sup>	0.75
Diameter of Power Inlet	mm / inch	Up to 4.0" (removable plate)
Water Inlet and Outlet Connections	Inches BSPT/NPT <sup>(9)</sup>	1.50

#### COOLANT LUBRICATION DATA

Total Coolant Capacity - Air Cooled <sup>(13)</sup>	litres (US gal)	83 (22)
Total Coolant Capacity - Water Cooled - Std <sup>(13)</sup>	litres (US gal)	71 (19)
Total Coolant Capacity - Water Cooled - Harsh <sup>(13)</sup>	litres (US gal)	TBD

#### DIMENSIONS & WEIGHT

		Base Mounted
Length, Width, Height	mm (inches)	2703 / 1466 / 2032 (106.4 / 57.7 / 80)
Net Weight - Air Cooled	kg (lb.)	2550 (5620)
Net Weight - Water Cooled	kg (lb.)	2330 (5140)
GA Drawing Number - Air Cooled Std.		23539836
GA Drawing Number - Water Cooled Std.		23539844

#### ELECTRICAL DATA <sup>(14)</sup>

		380V, 3Φ	400V, 3Φ	415V, 3Φ
Motor Enclosure Protection		IP55 (TEFC)		
Full Load Package Current - Air Cooled <sup>(10)</sup>	Amps	212	201	194
Full Load Package Current - Water Cooled <sup>(10)</sup>	Amps	205	194	187
Package Locked Rotor Current	Amps	1541	1464	1411
Package Power Factor		0.88	0.88	0.88

#### Electrical Installation

Recommended Supply Cable Size <sup>(11)(15)</sup>	mm <sup>2</sup> /Cu (AWG or kcmil)	185(350)	185(350)	185(350)
Maximum Recommended Fuse Rating <sup>(11)(12)</sup>	Amps	300.0	300.0	300.0

#### Notes :

- ( 1 ) FAD (Free Air Delivery) is full package performance including all losses. Tested per ISO 1217 : 2009 Annex C
- ( 2 ) Maximum pressure at package discharge, value at which compressor will stop when unit operating at maximum target pressure
- ( 3 ) IE3 efficiency motor
- ( 4 ) Measured at rated capacity and rated pressure
- ( 5 ) Specific power guaranteed in accordance with ISO 1217 : 2009 Annex C
- ( 6 ) Measured in free field conditions per ISO 2151 using Hemispherical Method, ducted inlet and outlet, with + 3 dB(A) tolerance.
- ( 7 ) 40% Relative Humidity Inlet Air and maximum speed ( For alternate conditions contact IR )
- ( 8 ) Ambient temperature equivalent to cooling water inlet temperature
- ( 9 ) BSPT or NPT, depending on regional standard
- (10) Maximum current includes 10% additional current due to fouled filters and elements
- (11) Always apply local electrical codes for sizing cables and fusing.
- (12) Time delay fuse recommended. Apply local electrical codes for fuse sizing
- (13) Coolant volumes listed are approximate. See operator manual for coolant fill procedure.
- (14) Voltage Tolerance: ± 6%
- (15) Cable size based on 90°C copper cables
- (16) See detailed scope document 23883374

Product Improvement is a continuing goal at Ingersoll Rand. Design and specifications are subject to change without notice or obligation.