



ENGINEERING DATA SHEET

R90ie

60 Hz

CCN: 23663826
 Rev.: G
 ECN: 83773
 Sheet: 1 of 2
 Date: 25-Jun-2015

Model Name		R90IE-X110	R90IE-X125	R90IE-X145	R90IE-X200
GENERAL PERFORMANCE DATA					
Maximum Operating Pressure ⁽²⁾	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 ⁽¹⁾	m ³ /min (cfm)	18.80 (664)	17.41 (615)	16.06 (567)	13.00 (459)
Maximum Operating Ambient Temperature	°C (°F)		46 (115)		
Minimum Operating Ambient Temperature	°C (°F)		2 (35)		
Maximum System Temperature Setting	°C (°F)		109 (228)		
Nominal Power - Main Motor	HP		125		
Main Motor Efficiency ⁽³⁾	Percent		95.4%		
Pkg. Input Power with Fan Motor - Air Cooled ⁽⁴⁾	kW	104.0	107.0	108.0	110.0
Pkg. Input Power with Fan Motor - Water Cooled ⁽⁴⁾	kW	95.8	98.8	99.8	101.8
Specific Power - Air Cooled ⁽⁴⁾⁽⁵⁾	kW/m ³ /min (kW/100cfm)	5.53 (15.66)	6.14 (17.40)	6.73 (19.05)	8.46 (23.97)
Specific Power - Water Cooled ⁽⁴⁾⁽⁵⁾	kW/m ³ /min (kW/100cfm)	5.10 (14.43)	5.67 (16.07)	6.22 (17.60)	7.83 (22.18)
SOUND LEVEL ⁽⁶⁾					
Standard Package - Air Cooled	dB(A)			75	
Standard Package - Water Cooled	dB(A)			72	
COOLING DATA (@ Maximum Ambient Temperature & Maximum Discharge Pressure)					
Heat Removal Oil Cooler	kW (1000 Btu/hr)	100 (343)	104 (355)	108 (369)	107 (366)
Heat Removal Oil and Aftercooler	kW (1000 Btu/hr)	126 (432)	129 (440)	132 (451)	128 (438)
Additional Static Pressure ⁽¹⁶⁾	Pa (in H ₂ O)		60 (0.25) - 250 (1.0)		
Air-cooled					
Fan Air Flow	m ³ /min (cfm)		363 (12829)		
Fan Motor Nominal Power	kW		5.5		
Cooling Air Temperature Rise	°C (°F)	26 (46)	26 (47)	26 (47)	26 (47)
Aftercooler CTD, 60 Hz ⁽⁷⁾	°C (°F)	6 (12)	6.2 (11)	5.8 (11)	5.6 (10)
Water-cooled - Standard Duty					
Fan Air Flow	m ³ /min (cfm)		115 (4000)		
Fan Motor Nominal Power	kW		0.8		
Aftercooler CTD ⁽⁷⁾⁽⁸⁾	°C (°F)	8 (15)	8 (15)	8 (15)	8 (15)
Cooling Water Flow					
@ 10°C (50°F)	l/min (gal/min)	18 (34)	19 (35)	20 (36)	21 (37)
@ 20°C (68°F)	l/min (gal/min)	18 (34)	19 (35)	21 (37)	22 (38)
@ 30°C (86°F)	l/min (gal/min)	19 (35)	20 (36)	21 (37)	22 (38)
@ 40°C (104°F)	l/min (gal/min)	20 (36)	21 (37)	22 (38)	23 (39)
@ 46°C (115°F)	l/min (gal/min)	20 (36)	21 (37)	22 (38)	24 (40)
Cooling Water Temperature Rise @ 30°C	°C (°F)	11 (19)	11 (19)	11 (19)	11 (19)
Cooling Water Pressure Drop	bar (psi)		Less Than 0.88 bar (13 psi)		
Cooling Air Temperature Rise @ 30°C	°C (°F)	7 (12)	7 (12)	7 (12)	7 (12)
Water-cooled - Harsh Duty					
Fan Air Flow	m ³ /min (cfm)		115 (4,000)		
Fan Motor Nominal Power	kW		0.8		
Aftercooler CTD ⁽⁸⁾	°C (°F)	8 (15)	8 (15)	8 (15)	8 (15)
Cooling Water Flow					
@ 10°C (50°F)	l/min (gal/min)	173 (46)	173 (46)	177 (47)	177 (47)
@ 20°C (68°F)	l/min (gal/min)	177 (47)	177 (47)	180 (48)	180 (48)
@ 30°C (86°F)	l/min (gal/min)	180 (48)	180 (48)	180 (48)	184 (49)
@ 40°C (104°F)	l/min (gal/min)	180 (48)	180 (48)	180 (48)	184 (49)
@ 46°C (115°F)	l/min (gal/min)	188 (50)	192 (51)	192 (51)	192 (51)
Cooling Water Temperature Rise @ 30°C	°C (°F)	9 (17)	10 (18)	10 (18)	11 (19)
Cooling Water Pressure Drop	bar (psi)		Less Than 0.88 bar (13 psi)		
Cooling Air Temperature Rise	°C (°F)	7 (12)	7 (12)	7 (12)	7 (12)
AIR END DATA					
Male Rotor Speed Stage 1	RPM	1782	1713	1584	1352
Male Rotor Tip Speed Stage 1	m/sec	21.1	20.3	19.0	16.0
Male Rotor Speed Stage 2	RPM	1715	1650	1527	1307
Male Rotor Tip Speed Stage 2	m/sec	16.0	16.0	15.0	12.0
Full Load Shaft Power	kW	91	94	95	97



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CONSTRUCTION, FOUNDATION, AND MOUNTING DATA

PIPING CONNECTIONS

Air Discharge	Inches BSPT/NPT ⁽⁹⁾	3.00
Package Automatic Condensate Drain	Inches BSPT/NPT ⁽⁹⁾	0.38
Coolant Drain Plug	Inches BSPT/NPT ⁽⁹⁾	0.75
Diameter of Power Inlet	mm / inch	Up to 4.0" (removable plate)
Water Inlet and Outlet Connections	Inches BSPT/NPT ⁽⁹⁾	1.50

COOLANT LUBRICATION DATA

Total Coolant Capacity - Air Cooled	litres (US gal)	95 (25)
Total Coolant Capacity - Water Cooled - Std	litres (US gal)	90(24)
Total Coolant Capacity - Water Cooled - Harsh	litres (US gal)	95 (25)

DIMENSIONS & WEIGHT

		Base Mounted
Length, Width, Height	mm (inches)	2855 / 1836 / 2032 (112.4 / 72.3 / 80)
Net Weight - Air Cooled	kg (lb.)	3198(7050)
Net Weight - Water Cooled	kg (lb.)	3175 (7000)
GA Drawing Number - Air Cooled		23570609
GA Drawing Number - Water Cooled		23570617

ELECTRICAL DATA ⁽¹⁴⁾

		380V, 3Φ 440V, 3Φ 460V, 3Φ 575V, 3Φ			
Motor Enclosure Protection		IP55 (TEFC)			
Full Load Package Current - Air Cooled ⁽¹⁰⁾	Amps	190	181	174	169
Full Load Package Current - Water Cooled ⁽¹⁰⁾	Amps	183	174	167	162
Package Locked Rotor Current	Amps	1541	1464	1411	1404
Package Power Factor		0.88	0.88	0.88	0.88

Electrical Installation

Recommended Supply Cable Size ⁽¹¹⁾⁽¹⁵⁾	mm ² /Cu (AWG or kcmi)	120(4/0)	120(4/0)	120(4/0)	120(4/0)
Maximum Recommended Fuse Rating ⁽¹¹⁾⁽¹²⁾	Amps	250	250	250	250

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 Ingersoll Rand)
- (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: 357V - 440V
- (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.