



# ENGINEERING DATA SHEET

## R55n Total Air System 60Hz

CCN: 23769755  
Rev.: G  
ECN: 83739  
Sheet: 1 of 2  
Date: 16-Jun-2015

**Model Name** **R55N-X-TAS**

### GENERAL PERFORMANCE DATA

Rated Discharge Pressure	barg (psig)	7 (100)	7.5 (110)	8 (115)	8.5 (125)	9.5 (135)
Minimum Operation Pressure	barg (psig)	4.5 (65)	4.5 (65)	4.5 (65)	4.5 (65)	4.5 (65)
Capacity FAD @ Max Speed (1)	m³/min (CFM)	10.11 (357)	9.88 (349)	9.29 (328)	8.83 (312)	8.49 (300)
Capacity FAD @ Min Speed (1)	m³/min (CFM)	3.23 (114)	3.23 (114)	3.23 (114)	3.23 (114)	3.23 (114)
Turndown Percentage	Percent	68%	67%	65%	63%	62%
Maximum Target Operating Pressure (2)	barg (psig)			9.5 (138)		
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	kW (HP)			55.00 (75)		
Main Drive Efficiency (3)	Percent			97.00%		
Main Motor Efficiency (3)	%			95.20%		
Pkg Input Power w/Fan and Dryer- Air Cooled (4)	kW	73.9	74.0	74.2	74.0	73.8
Pkg Input Power w/Fan and Dryer - Water Cooled (4)	kW	72.6	72.7	72.9	72.7	72.5
Specific Power - Air Cooled (4)(5)	kW/m³/min (kW/100cfm)	7.31 (20.7)	7.49 (21.2)	7.99 (22.62)	8.38 (23.72)	8.69 (24.6)
Specific Power - Water Cooled (4)(5)	kW/m³/min (kW/100cfm)	7.18 (20.34)	7.36 (20.83)	7.85 (22.23)	8.23 (23.3)	8.53 (24.17)

### SOUND LEVEL (6)

Standard Package - Air Cooled	dB(A)	69
Standard Package - Water Cooled	dB(A)	69

### COOLING DATA (@ Maximum Ambient Temperature & Maximum Discharge Pressure)

Heat Removal Oil Cooler	kW (1000 Btu/hr)	66 (223)	66 (223)	66 (224)	67 (228)	67 (229)
Heat Removal Oil and Aftercooler	kW (1000 Btu/hr)	50 (171)	49 (167)	50 (171)	51 (172)	51 (175)
Additional Static Pressure (13)	Pa (in H2O)	60 (0.25) - 250 (1.0)				

#### Air-cooled

Fan Air Flow	m³/min (cfm)	Nom: 105 (3720)		Max: 176 (6200)		
Fan Motor Nominal Power	kW	2.2				
Cooling Air Temperature Rise	°C (°F)	24 (43)	24 (43)	24 (43)	24 (44)	25 (44)
Aftercooler CTD(7)	°C (°F)	8 (15)	8 (15)	8 (15)	8 (15)	8 (15)

#### Water-cooled - Standard Duty

Fan Air Flow	m³/min (cfm)	76 (2700)				
Fan Motor Nominal Power	kW	0.3				
Aftercooler CTD (7)(8)	°C (°F)	8 (15)	8 (15)	8 (15)	8 (15)	8 (15)
Cooling Water Flow						
@ 10°C (50°F)	l/min (gal/min)	60 (16)	60 (16)	60 (16)	65 (17)	61 (16)
@ 20°C (68°F)	l/min (gal/min)	60 (16)	60 (16)	61 (16)	61 (16)	61 (16)
@ 30°C (86°F)	l/min (gal/min)	62 (16)	62 (16)	62 (16)	63 (17)	63 (17)
@ 40°C (104°F)	l/min (gal/min)	64 (17)	64 (17)	64 (17)	65 (17)	65 (17)
@ 46°C (115°F)	l/min (gal/min)	65 (17)	66 (17)	66 (17)	67 (18)	67 (18)
Cooling Water Temperature Rise @ 30°C	°C (°F)	11 (20)	11 (20)	11 (20)	11 (20)	11 (20)
Cooling Water Pressure Drop	bar (psi)	Less than .88 bar (13 psi)				
Cooling Air Temperature Rise @ 30°C	°C (°F)	4 (6)	4 (6)	4 (6)	4 (7)	4 (7)

#### Water-cooled - Harsh Duty

Fan Air Flow	m³/min (cfm)	76 (2700)				
Fan Motor Nominal Power	kW	0.3				
Aftercooler CTD (8)	°C (°F)	8 (15)	8 (15)	8 (15)	8 (15)	8 (15)
Cooling Water Flow						
@ 10°C (50°F)	l/min (gal/min)	103 (27)	103 (27)	104 (27)	105 (28)	105 (28)
@ 20°C (68°F)	l/min (gal/min)	105 (28)	105 (28)	105 (28)	107 (28)	107 (28)
@ 30°C (86°F)	l/min (gal/min)	107 (28)	107 (28)	108 (28)	109 (29)	109 (29)
@ 40°C (104°F)	l/min (gal/min)	111 (29)	112 (30)	112 (30)	113 (30)	114 (30)
@ 46°C (115°F)	l/min (gal/min)	115 (30)	115 (30)	116 (31)	117 (31)	117 (31)
Cooling Water Temperature Rise @ 30°C	°C (°F)	10 (18)	10 (19)	10 (19)	10 (19)	10 (19)
Cooling Water Pressure Drop	bar (psi)	Less than .88 bar (13 psi)				
Cooling Air Temperature Rise	°C (°F)	4 (7)	4 (7)	4 (7)	4 (7)	4 (7)

### Air End Data

Male Rotor Speed	rpm	2515	2462	2365	2280	2200
Tip Speed Rotor	m/sec	23.5	23.0	22.1	21.3	20.6
Full Load Shaft Power	kW	62.1	62.2	62.4	62.2	62.1



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### CONSTRUCTION, FOUNDATION, AND MOUNTING DATA

#### PIPING CONNECTIONS

Air Discharge	Inches BSPT/NPT (9)	2.00
Package Automatic Condensate Drain	Inches BSPT/NPT (9)	0.38
Coolant Drain Plug	Inches BSPT/NPT (9)	0.75
Diameter of Power Inlet	Inches	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)	49 (13)
Total Coolant Capacity - Water Cooled - Std	litres (US gal)	31 (8)
Total Coolant Capacity - Water Cooled - Harsh	litres (US gal)	TBD

#### DIMENSIONS & WEIGHT

		Base Mounted
Length, Width, Height	mm (inches)	2432(95.8)/1265(49.8)/2032(80)
Net Weight - Air Cooled	kg (lb.)	1570(3462)
Net Weight - Water Cooled	kg (lb.)	1517(3345)
GA Drawing Number - Air Cooled		23701352
GA Drawing Number - Water Cooled		23701345

#### ELECTRICAL DATA

		380V. 3Φ	460V. 3Φ	575V. 3Φ	440V. 3Φ
Motor Protection		IP23 (ODP)			
Full Load Package Current - Air Cooled (10)	Amps	136.5	112.9	90.4	117.9
Full Load Package Current - Water Cooled (10)	Amps	132.4	108.9	86.7	114.3
Package Power Factor		0.93	0.93	0.93	0.93

#### Electrical Installation

Recommended Supply Cable Size (11)	mm <sup>2</sup> /Cu (AWG or kcmil)	95(4/0)	95(4/0)	95(4/0)	95(4/0)
Maximum Recommended Fuse Rating (11)(12)	Amps	250	250	250	250

#### Refrigerated Dryer Data

		ISO Class
Pressure Dew Point ISO Class (14)	°C (°F)	4
Refrigerant Weight of R-404a	Grams(oz)	1800(63.5)

#### Filter Data

	ISO Class	Particulate Filtration	ISO Class	Liquid Filtration
Filter Detail - at 21°C (70°F)	2	0.01 micron	1	0.01 mg/m <sup>3</sup> (0.1 ppm)

#### 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) At maximum speed and flow for the given package discharge pressure
- (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, 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) 90°C copper cables. Always apply local electrical codes for sizing cables and fusing.
- (12) Fast Acting Class-J, T or Semiconductor type fuse required. Apply local electrical codes for fuse sizing
- (13) See detailed scope document 23883374
- (14) TAS units deliver ISO Class 1-4-2 quality air measured at steady state conditions in accordance with ISO 8573-1:2010, with inlet air to package of 25°C (77°F) and RH of 60%.

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