



# ENGINEERING DATA SHEET

## IRN50H 60Hz Oil Free Air Cooled

CCN: 47560926001  
Rev.: B  
ECN: 1037560  
Sheet: 1 of 2  
Date: November-2016

Model Name **IRN50H-A125**

### GENERAL PERFORMANCE DATA

Rated Discharge Pressure barg (psig) 8.6 (125)  
Minimum Operating Pressure barg (psig) 4.5 (65)

Capacity FAD <sup>(1)</sup> [pressure(barg,psig) \ speed (ratio)]	Max RPM	Max	80%	60%	40%	20%	Min	Min RPM
@ 125 psig (8.6 barg) m³/min (CFM)	4030	5.1 (179)	4.7 (166)	4.3 (153)	3.9 (139)	3.6 (126)	3.2 (112)	2800
@ 120 psig (8.3 barg) m³/min (CFM)	4104	5.2 (183)	4.7 (166)	4.2 (148)	3.7 (130)	3.2 (112)	2.7 (94)	2467
@ 115 psig (7.9 barg) m³/min (CFM)	4178	5.3 (187)	4.8 (168)	4.2 (149)	3.7 (130)	3.1 (110)	2.6 (91)	2400
@ 105 psig (7.2 barg) m³/min (CFM)	4326	5.6 (196)	5.0 (175)	4.4 (154)	3.8 (133)	3.2 (112)	2.6 (91)	2400
@ 100 psig (6.9 barg) m³/min (CFM)	4400	5.7 (200)	5.0 (178)	4.4 (156)	3.8 (135)	3.2 (113)	2.6 (91)	2400
@ 95 psig (6.6 barg) m³/min (CFM)	4470	5.7 (202)	5.1 (181)	4.5 (159)	3.9 (136)	3.2 (114)	2.6 (91)	2400
@ 85 psig (5.9 barg) m³/min (CFM)	4610	5.9 (210)	5.3 (187)	4.6 (163)	4.0 (140)	3.3 (116)	2.6 (92)	2400
@ 75 psig (5.2 barg) m³/min (CFM)	4750	6.2 (220)	5.5 (193)	4.8 (168)	4.0 (143)	3.3 (117)	2.6 (92)	2400
@ 65 psig (4.5 barg) m³/min (CFM)	4890	6.5 (230)	5.6 (199)	4.9 (173)	4.1 (146)	3.4 (119)	2.6 (92)	2400

Maximum Operating Ambient Temperature °C (°F) 46 (115)  
Minimum Operating Ambient Temperature °C (°F) 2 (36)  
Nominal Power - Main Motor kW (HP) 37 (50)  
Main Motor Efficiency<sup>(2)</sup> % 94.7%  
Main Drive Efficiency % 97%

Package Input Power <sup>(3)</sup> [pressure(barg,psig) \ speed (ratio)]	Max RPM	Max	80%	60%	40%	20%	Min	Min RPM
@ 125 psig (8.6 barg) kW	4030	46.8	43.4	40.1	36.8	33.6	30.4	2800
@ 120 psig (8.3 barg) kW	4104	46.8	42.4	38.0	33.8	29.6	25.4	2467
@ 115 psig (7.9 barg) kW	4178	46.8	42.1	37.4	32.8	28.3	23.8	2400
@ 105 psig (7.2 barg) kW	4326	46.8	41.8	36.9	32.0	27.2	22.4	2400
@ 100 psig (6.9 barg) kW	4400	46.8	41.4	36.2	31.2	26.3	21.4	2400
@ 95 psig (6.6 barg) kW	4470	46.8	41.5	36.3	31.1	26.0	21.1	2400
@ 85 psig (5.9 barg) kW	4610	46.8	41.6	36.0	30.6	25.3	20.0	2400
@ 75 psig (5.2 barg) kW	4750	46.8	41.6	35.8	30.1	24.5	19.0	2400
@ 65 psig (4.5 barg) kW	4890	46.8	41.9	35.9	30.1	24.4	18.7	2400

Total Package Input Power at Zero Flow kW 0

Specific Power <sup>(3)(4)</sup> [pressure(barg,psig) \ speed (ratio)]	Max RPM	Max	80%	60%	40%	20%	Min	Min RPM
@ 125 psig (8.6 barg) kW/m³/min (kW/100CFM)	4030	9.2 (26.2)	9.2 (26.1)	9.3 (26.2)	9.3 (26.4)	9.4 (26.7)	9.5 (27.0)	2800
@ 120 psig (8.3 barg) kW/m³/min (kW/100CFM)	4104	9.0 (25.6)	9.0 (25.5)	9.1 (25.7)	9.2 (25.9)	9.3 (26.3)	9.5 (26.9)	2467
@ 115 psig (7.9 barg) kW/m³/min (kW/100CFM)	4178	8.8 (25.0)	8.8 (25.0)	8.9 (25.1)	8.9 (25.3)	9.1 (25.7)	9.3 (26.2)	2400
@ 105 psig (7.2 barg) kW/m³/min (kW/100CFM)	4326	8.4 (23.9)	8.4 (23.9)	8.5 (23.9)	8.5 (24.0)	8.6 (24.2)	8.7 (24.6)	2400
@ 100 psig (6.9 barg) kW/m³/min (kW/100CFM)	4400	8.3 (23.4)	8.2 (23.2)	8.2 (23.2)	8.2 (23.2)	8.2 (23.2)	8.3 (23.4)	2400
@ 95 psig (6.6 barg) kW/m³/min (kW/100CFM)	4470	8.2 (23.2)	8.1 (22.9)	8.1 (22.8)	8.1 (22.8)	8.1 (22.9)	8.1 (23.0)	2400
@ 85 psig (5.9 barg) kW/m³/min (kW/100CFM)	4610	7.9 (22.3)	7.8 (22.2)	7.8 (22.1)	7.7 (21.9)	7.7 (21.9)	7.7 (21.8)	2400
@ 75 psig (5.2 barg) kW/m³/min (kW/100CFM)	4750	7.5 (21.3)	7.6 (21.5)	7.5 (21.3)	7.5 (21.1)	7.4 (20.9)	7.3 (20.6)	2400
@ 65 psig (4.5 barg) kW/m³/min (kW/100CFM)	4890	7.2 (20.4)	7.4 (21.0)	7.4 (20.8)	7.3 (20.6)	7.2 (20.5)	7.2 (20.3)	2400

**SOUND LEVEL<sup>(5)</sup>**  
Standard Package dB(A) 65-74

### COOLING DATA (@ 38°C, RH 40% Ambient Temperature & Rated Discharge Pressure)

Total Heat Rejection <sup>(7)</sup> [pressure(barg,psig) \ speed (ratio)]	Max	80%	60%	40%	20%	Min
@ 125 psig (8.6 barg) kW (1000 Btu/hr)	41 (140)	38 (130)	35 (119)	32 (109)	29 (100)	27 (93)

Additional Static Pressure<sup>(6)</sup> Pa (in H<sub>2</sub>O) 124 (0.5)

Maximum Blower/Fan Air Flow<sup>(8)</sup> m³/min (CFM) 184 (6500)

Minimum Blower/Fan Air Flow<sup>(8)</sup> m³/min (CFM) 43 (1530)

Blower/Fan Motor Nominal Power kW 4.0

Maximum Blower/Fan Motor Power kW 2.9

Minimum Blower/Fan Motor Power kW 0.7

Cooling Air Temperature Rise °C (°F) 13 (23)

Cooling Water Temperature Rise °C (°F) N/A (N/A)

Cooling Water Flow<sup>(15)</sup>

@ 10 °C ( 50°F) l/min (US gal/min) N/A (N/A)

@ 20 °C ( 68°F) l/min (US gal/min) N/A (N/A)

@ 30 °C ( 86°F) l/min (US gal/min) N/A (N/A)

@ 40 °C ( 104°F) l/min (US gal/min) N/A (N/A)

@ 46 °C ( 115°F) l/min (US gal/min) N/A (N/A)

Minimum Water Temperature<sup>(16)</sup> °C (°F) N/A (N/A)

Maximum Water Temperature °C (°F) N/A (N/A)

Cooling Water Max Pressure bar (psi) N/A (N/A)

Cooling Water Min Pressure bar (psi) N/A (N/A)

Cooling Water Pressure Drop bar (psi) N/A (N/A)

Aftercooler CTD<sup>(7)(9)</sup> °C (°F) 11 (20)

### HOT DISCHARGE - HOC READY OPTION

Discharge Air Temperature <sup>(7)</sup> [pressure(barg,psig) \ speed (ratio)]	Max RPM	Max	80%	60%	40%	20%	Min	Min RPM
@ 125 psig (8.6 barg) °C (°F)	4030	221 (429)	221 (430)	20 (67)	224 (434)	226 (438)	229 (444)	2800
@ 120 psig (8.3 barg) °C (°F)	4104	214 (417)	214 (418)	215 (420)	217 (423)	221 (429)	226 (438)	2467
@ 115 psig (7.9 barg) °C (°F)	4178	207 (405)	207 (405)	208 (407)	210 (410)	214 (416)	219 (426)	2400
@ 105 psig (7.2 barg) °C (°F)	4326	195 (382)	194 (381)	194 (382)	196 (384)	198 (389)	203 (398)	2400
@ 100 psig (6.9 barg) °C (°F)	4400	188 (371)	188 (370)	187 (369)	188 (370)	191 (375)	195 (384)	2400
@ 95 psig (6.6 barg) °C (°F)	4470	183 (361)	182 (360)	181 (357)	181 (358)	182 (360)	185 (365)	2400
@ 85 psig (5.9 barg) °C (°F)	4610	171 (340)	170 (337)	169 (335)	169 (336)	168 (334)	170 (337)	2400
@ 75 psig (5.2 barg) °C (°F)	4750	160 (320)	158 (316)	156 (313)	155 (312)	156 (313)	155 (310)	2400
@ 65 psig (4.5 barg) °C (°F)	4890	146 (295)	147 (297)	145 (292)	143 (289)	143 (289)	141 (285)	2400



## ENGINEERING DATA SHEET

# IRN50H

60Hz Oil Free  
Air Cooled

CCN: 47560926001  
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 Sheet: 2 of 2  
 Date: November-2016

Model Name IRN50H-A125

### CONSTRUCTION, FOUNDATION, AND MOUNTING DATA

#### PIPING CONNECTIONS

Air Discharge	Inches BSPT/NPT <sup>(10)</sup>	1.5 (FEMALE)
Air Discharge (HOC Ready Option)	Inches BSPT/NPT <sup>(10)</sup>	1.5 (FEMALE)
Package Automatic Condensate Drain	Inches BSPT/NPT <sup>(10)</sup>	0.375 (FEMALE)
Diameter of Power Inlet	mm / inch	63.5 / 2.5
Water Inlet and Outlet Connections	Inches BSPT/NPT <sup>(10)</sup>	N/A

#### COOLANT LUBRICATION DATA

Total Coolant Capacity <sup>(11)</sup>	litres (US gal)	53 (14)
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#### COMPRESSION MODULE

Primary Rotor Maximum Speed - 1st Stage	RPM	21306
Primary Rotor Minimum Speed - 1st Stage	RPM	10457
Primary rotor diameter - 1st Stage	mm / inch	82.24 / 3.24
Primary Rotor Maximum Speed - 2nd Stage	RPM	31399
Primary Rotor Minimum Speed - 2nd Stage	RPM	15410
Primary rotor diameter - 2nd Stage	mm / inch	55.54 / 2.19

#### DIMENSIONS & WEIGHT

Length, Width, Height	mm (inches)	2080 / 1115/ 2070 (81.9 / 43.9 / 81.5)
Net Weight	kg (lb.)	1579 (3482)
GA Drawing Number		22556062

#### ELECTRICAL DATA<sup>(12)(13)(14)</sup>

Motor Enclosure Protection		ODP, IP23
Motor Type		Hybrid Permanent Magnet® (HPM®)
Motor Insulation Class / Temperature Rise		Class F, 155°C
Full Load Package Current	Amps @ 200V	152
	Amps @ 220V	N/A
	Amps @ 230V	132
	Amps @ 380V	76
	Amps @ 400V	N/A
	Amps @ 415V	N/A
	Amps @ 460V	66
	Amps @ 575V	55
Package Power Factor		0.91

#### Notes :

- (1) FAD (Free Air Delivery) is full package performance including all losses. Tested per ISO 1217 : 2009 Annex C.
- (2) Motor rating is maintained up to an altitude of 1,000 metres/3280 feet above sea level. Applications greater than 1000 metres/3280 feet require engineering review.
- (3) Measured at rated capacity and rated discharge pressure.
- (4) Specific power guaranteed in accordance with ISO 1217 : 2009 Annex C.
- (5) Measured in free field conditions per ISO 2151 using Hemispherical Method, with + 3 dB(A) tolerance.
- (6) Maximum added static pressure when the unit is ducted.
- (7) Based on 38°C, 40 % relative humidity inlet air (For alternate conditions contact Ingersoll-Rand).
- (8) Blower/Fan airflow provided is a reference value to be used when sizing the airflow through the room. Actual cooling airflow from the compressor package may vary.
- (9) Ambient temperature equivalent to cooling water inlet temperature.
- (10) BSPT or NPT, depending on regional standard.
- (11) Coolant volumes listed are approximate. See operator manual for coolant fill procedure.
- (12) Voltage Tolerance: ± 6%
- (13) Fast-acting fuse recommended. Apply local electrical codes for sizing cables and fuses.
- (14) 10kAIC Short Circuit Current Rating (SCCR).
- (15) Cooling water to include no more than 10% ethylene glycol.
- (16) The cooler and water tubing should be wrapped with foam to avoid condensation on the outside of the coolers and piping when chilled water is used.

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