

ENGINEERING MANUAL



NIRVANA

CCN: 23753825
 Rev. / ECO: D 81751
 Ref.: 9903
 Page: 214
 Date: 30th April 2013
 Cancels: 01st January 2011

Point of Manufacture - Unicov, Czech Republic & Campbellsville, Kentucky USA ENGINEERING DATA

Model Name International Model Name North America		IRN11K-CC-8 IRN15H-CC-115	IRN11K-CC-10 IRN15H-CC-150	IRN11K-CC-14H IRN15H-CC-200H
GENERAL COMPRESSOR DATA				
Capacity (Ref. Intake Cond.) FAD ⁽¹⁾	m ³ /min (cfm)	1.60 (57.5)	1.40 (49.1)	1.10 (38.1)
Capacity at Minimum Speed	m ³ /min (cfm)	0.39 (13.9)	0.54 (19)	0.54 (19)
Maximum Target Pressure ⁽¹¹⁾	barg (psig)	8.0 (115)	10.4 (150)	13.8 (200)
Maximum Operating Pressure ⁽¹²⁾	barg (psig)	8.6 (125)	11.0 (160)	14.5 (210)
Minimum Target Pressure	barg (psig)	5.86 (85)	7.58 (110)	10.69 (155)
Maximum Operating Temperature	°C (°F)	40 (104)	40 (104)	40 (104)
Minimum Operating Temperature	°C (°F)	2 (36)	2 (36)	2 (36)
SOUND LEVEL ⁽²⁾				
Receiver Mount / Base Mount	dB(A)	68	69	68
COOLING DATA				
Air-cooled (Ambient Temperature 40°C/104°F)				
Coolant Discharge Temperature	°C (°F)	94.4 (202)	92.2 (198)	94.4 (202)
A/E Injection Temperature	°C (°F)	78.3 (173)	77.8 (172)	78.3 (173)
Aftercooler - Inlet ⁽³⁾	°C (°F)	89.4 (193)	87.2 (189)	87.2 (189)
Aftercooler - Outlet	°C (°F)	48.3 (119)	47.2 (117)	46.7 (116)
Heat Removal Oil Cooler	kW (1000 Btu/hr)	10.4 (35.6)	10.1 (34.5)	10 (34.1)
Heat Removal Oil and Aftercooler	kW (1000 Btu/hr)	11.7 (40.1)	11.2 (38.2)	11.2 (38.2)
Maximum Added Static Pressure	Pa (in H ₂ O)	62 (0.25)	62 (0.25)	62 (0.25)
Coolant Flow	lpm (gpm)	17 (3.75)	20.8 (4.58)	32 (7.0)
Fan Air Flow	m ³ /min (cfm)	45.3 (1600)	45.3 (1600)	45.3 (1600)
Cooling Air CTD	°C (°F)	42.2 (76)	42.2 (76)	42.2 (76)
Aftercooler CTD ⁽³⁾	°C (°F)	8.3 (15)	7.2 (13)	6.7 (12)
CONSTRUCTION FOUNDATION AND MOUNTING DATA				
PIPING CONNECTIONS				
Air Discharge Base Mount	Inches NPT ⁽⁹⁾		0.75	
Air Discharge from ASME Receiver	Inches NPT		0.75	
Air Discharge from CE Receiver	Inches BSPT		0.75	
Coolant Drain	Drain Plug		9/16-SAE	
Diameter of Power Inlet	mm (inch)		25 mm (1 inch)	
COOLANT LUBRICATION DATA				
Coolant Sump Capacity	Litres (US gal)		3.0 (0.8)	
Total Coolant Fill Capacity	Litres (US gal)		4.5 (1.2)	
DIMENSIONS & WEIGHT				
	ASME Receiver	Base Mounted	80 Gal Rec	120 Gal Rec
Length, Width, Height	mm	1315 / 731 / 835	1349 / 731 / 1460	1897 / 731 / 1460
Length, Width, Height	Inches	51.8 / 28.8 / 32.9	53.1 / 28.8 / 57.5	74.7 / 28.8 / 57.5
Net Weight	kg (lbs)	307 (685)	429 (945)	444 (977)
Air Discharge Connection	Inches	3/4" NPT ⁽⁹⁾	3/4" NPT	3/4" NPT
GA Drawing Number		22537088	22537047	22537054
	EN 87/404 Receiver	Base Mounted	272 L Rec	500 L Rec
Length, Width, Height	mm	1315 / 731 / 835	1311 / 731 / 1460	2059 / 731 / 1460
Length, Width, Height	Inches	51.8 / 28.8 / 32.9	51.6 / 28.8 / 57.5	81.1 / 28.8 / 57.5
Net Weight	kg (lbs)	307 (685)	415 (913)	470 (1034)
Air Discharge Connection	Inches	3/4" BSPT	3/4" BSPT	3/4" BSPT
GA Drawing Number		22537096	22537062	22537070

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PERFORMANCE DATA				
Compressor Module				
Rotor Diameter (male)	mm	74.25	74.25	74.25
Package Discharge Pressure	barg (psig)	8.0 (115)	10.4 (150)	13.8 (200)
Male Rotor Shaft Speed ⁽⁸⁾	rpm	6755	5800	4750
Tip Speed ⁽⁸⁾	m/sec	26.26	22.55	18.47
Tip Speed ⁽⁸⁾	ft/sec	86.15	73.97	60.59
IntelliDrive Unit				
Nominal Power Intellidrive Module	kW (HP)	11 (15)	11 (15)	11 (15)
Applied Power ⁽⁸⁾	kW (HP)	11.74 (15.75)	11.2 (15.0)	11.2 (15.0)
Rated Power - Fan	kW (HP)	0.37 (0.5)	0.37 (0.5)	0.37 (0.5)
Applied Power - Full Package ⁽⁸⁾	kW (HP)	12.1 (16.25)	11.6 (15.5)	11.6 (15.5)
IntelliDrive Efficiency ⁽⁵⁾	Percent	96%	96%	96%
Main Motor Efficiency	Percent	93%	93%	93%
Fan Motor Efficiency	Percent	74%	74%	74%
Input kW @ Maximum Target Pressure	kW	14.2	13.7	13.3
Specific Power ⁽⁴⁾	kW/100cfm	24.7	27.9	34.9
	kW/m ³ /min	8.7	9.8	12.3

ELECTRICAL DATA		LOW VOLTAGE			HIGH VOLTAGE		
		208V	220V	230V	380V	400V	460V
Intellidrive Enclosure / Protection		IP55 / NEMA 12 / TEAO			IP55 / NEMA 12 / TEAO		
Drive Motor Frame		132S	132S	132S	132S	132S	132S
Current - Intellidrive ⁽⁸⁾	Amps	38.9	36.8	35.2	20.3	19.3	17.0
Current - Cooling Fan	Amps	2.4	2.3	2.2	1.5	1.4	1.2
Package Current @ Max Target Press	Amps	41.3	39.1	37.4	21.8	20.7	18.2
Intellidrive Inrush Current		38.9	36.8	35.2	20.3	19.3	17.0
Package Inrush Current	Amps	50.8	48.7	46.9	27.8	26.3	23.0
Package Power Factor ⁽⁸⁾		0.92	0.92	0.92	0.94	0.94	0.90
Electrical Installation							
Recommended Supply Cable Size ⁽¹⁰⁾	mm²/Cu	25	16	16	10	6	6
Minimum Supply Cable Size (NEC) ⁽¹⁰⁾ ⁽⁶⁾	AWG	3	6	6	8	10	10
Maximum Fuse Rating ⁽⁷⁾ ⁽¹⁰⁾	Amps	90	90	90	45	45	45

Notes :

- (1) FAD (Free Air Delivery at actual inlet conditions) is full package performance including all losses. Tested in accordance with ' ISO 1217 : 1996 Annex C.
- (2) Measured in free field conditions per ISO 2151 using Hemispherical Method, with + 3 dB(A) tolerance.
- (3) 40% Relative Humidity Inlet Air and maximum speed (For alternate conditions refer to SSR toolbox or contact IR)
- (4) Specific power guaranteed in accordance with ISO 1217 : 1996 Annex C
- (5) "Intellidrive" includes variable frequency drive electronics
- (6) This is a minimum requirement based on 90°C wire - It may be necessary to use larger cables to comply with local regulations or if the voltage drop exceeds 5% of the nominal voltage.
- (7) Must be Fast acting Class-J, T or semiconductor type, Current limiting, Interrupt rating-200,000 Amps RMS SYM
- (8) Measured at rated capacity and maximum target pressure
- (9) Regional Installation kit will provide flexible connection to NPT or BSPT
- (10) Always apply local electrical codes for sizing cables and fusing.
- (11) Target discharge pressure, sensed by pressure transducer located at package discharge
- (12) Maximum pressure at package discharge, value at which compressor will stop when unit operating at maximum target pressure