

ENGINEERING MANUAL



NIRVANA

CCN: 23753866
 Rev. / ECO D 81751
 Ref.: 9903
 Page: 210
 Date: 30th April 2013
 Cancels: 01st January 2011

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

Model Name International	IRN15K-CC
Model Name North America	IRN20H-CC

GENERAL COMPRESSOR DATA

Package Discharge Pressure	barg (psig)	7 (100)	8 (115)	8.5 (125)	10 (150)
Capacity (Ref. Intake Cond.) FAD ⁽¹⁾	m ³ /min (cfm)	2.6 (91.2)	2.4 (84.4)	2.3 (80.7)	2.2 (79)
Capacity at minimum speed	m ³ /min (cfm)	1.03 (36.7)	1.07 (37.9)	1.03 (36.7)	0.09 (32.6)
Maximum Target Pressure ⁽¹¹⁾	barg (psig)			10.4 (150)	
Maximum Operating Pressure ⁽¹²⁾	barg (psig)			11.0 (160)	
Minimum Target Pressure	barg (psig)			4.48 (65)	
Maximum Operating Temperature	°C (°F)			46 (115)	
Minimum Operating Temperature	°C (°F)			2 (36)	

SOUND LEVEL ⁽²⁾

Receiver Mount / Base Mount	dB(A)	67 / 65
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COOLING DATA

Air-cooled (Ambient Temperature 46°C/115°F)

Coolant Discharge temperature	°C (°F)	92 (198)	92 (198)	93 (199)	92 (198)
A/E Injection Temperature	°C (°F)	81 (177)	81 (177)	81 (178)	82 (179)
Aftercooler - Inlet ⁽³⁾	°C (°F)	87 (188)	87 (188)	87 (188)	86 (187)
Aftercooler - Outlet	°C (°F)	54 (129)	54 (129)	53 (128)	53 (127)
Heat Removal Oil Cooler	kW (1000 Btu/hr)	14 (48)	14 (49)	15 (51)	15 (51)
Heat Removal Oil and Aftercooler	kW (1000 Btu/hr)	18 (60)	18 (61)	18 (61)	18 (60)
Maximum Added Static Pressure	Pa (in H ₂ O)			62 (0.25)	
Coolant Flow	lpm (gpm)	39 (10)	40 (10.5)	42 (11.0)	44 (11.7)
Fan Air Flow	m ³ /min (cfm)	54 (1900)	54 (1900)	54 (1900)	54 (1900)
Cooling Air CTD	°C (°F)	21 (37)	21 (37)	21 (37)	20 (36)
Aftercooler CTD, 60 Hz ⁽³⁾	°C (°F)	7 (13)	7 (13)	7 (13)	7 (12)
Aftercooler CTD, 50 Hz ⁽³⁾	°C (°F)	10 (18)	10 (18)	9 (16)	9 (16)

CONSTRUCTION FOUNDATION AND MOUNTING DATA

PIPING CONNECTIONS

Air Discharge Base Mount	Inches NPT ⁽⁹⁾	1.00
Air Discharge from ASME Receiver	Inches NPT	1.00
Air Discharge from CE Receiver	Inches BSPT	1.00
Package Automatic Condensate Drain	Inches NPT	0.25
Coolant Drain	Drain Plug	SAE 0.56" - 18
Diameter of Power Inlet	mm / inch	44 mm / 1.75"

COOLANT LUBRICATION DATA

Coolant Sump Capacity	litres (US gal)	7 (1.8)
Total coolant fill capacity	litres (US gal)	13 (3.4)

DIMENSIONS & WEIGHT

	ASME Receiver	Base Mounted	120 Gal Rec	240 Gal Rec
length, width, height	mm	1630 / 724 / 1280	1857 / 724 / 1903	2339 / 762 / 2084
length, width, height	Inches	64.2 / 28.5 / 50.5	73.1 / 28.5 / 74.9	92.1 / 30 / 82.0
Net Weight	kg (lb.)	612 (1350)	780 (1720)	858 (1891)
Air Discharge Connection	Inches	1" NPT ⁽⁹⁾	1" NPT	1" NPT
GA Drawing Number		22740336	22736110	22740286
	EN 87/404 Receiver	Base Mounted	500 L Rec	750 L Rec
length, width, height	mm	1630 / 724 / 1280	2060 / 724 / 1918	2156 / 750 / 2060
length, width, height	Inches	64.2 / 28.5 / 50.5	81.1 / 28.5 / 75.5	84.9 / 29.5 / 81.1
Net Weight	kg (lb.)	612 (1350)	804 (1772)	858 (1891)
Air Discharge Connection	Inches	1" NPT ⁽⁹⁾	1" BSPT	1" BSPT
GA Drawing Number		22740336	22740302	22740310

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PERFORMANCE DATA

Compressor Module

Rotor Diameter (male)	mm	107.00			
Package Discharge Pressure	barg (psig)	7 (100)	8 (115)	8.5 (125)	10 (150)
Male Rotor Shaft Speed ⁽⁸⁾	rpm	3475	3275	3150	2800
Tip Speed ⁽⁸⁾	m/sec	19.47	18.30	17.60	15.70
Tip Speed ⁽⁸⁾	ft/sec	63.9	60.2	57.9	51.5

IntelliDrive unit

Nominal Power IntelliDrive Module	kW (HP)	15.0 (20)			
Applied power ⁽⁸⁾	kW (HP)	16.4 (22.0)			
Rated Power - Fan	kW (HP)	0.75 (1.0)			
Applied Power - Full Package ⁽⁸⁾	kW (HP)	17.2 (23.0)			
IntelliDrive Efficiency ⁽⁵⁾	Percent	96%			
Main Motor Efficiency	Percent	90%			
Fan motor efficiency	Percent	82%			
Input kW at maximum target pressure	kW	20.1	20.1	20.1	22.0
Specific Power ⁽⁴⁾	kW/100cfm	22.0	23.8	24.9	27.8
	kW/m ³ /min	7.8	8.4	8.8	9.8

ELECTRICAL DATA

		208V	220V	230V	380V	400V	460V
Motor / Drive Protection		IP55 / NEMA 12 / TEAO			IP55 / NEMA 12 / TEAO		
Drive Motor Frame		160MD			160MD		
Current - IntelliDrive ⁽⁸⁾	Amps	58.2	54.1	52.2	31.7	30.1	26.2
Current - Cooling fan	Amps	3.2	3.9	3.3	1.9	1.8	1.6
Package Current @ Max Target Press	Amps	61.4	58.0	55.5	33.7	32.0	27.8
IntelliDrive inrush current	Amps	58.2	54.1	52.2	31.7	30.1	26.2
Package inrush current	Amps	85.4	87.3	80.3	48.2	45.8	39.8
Package Power Factor ⁽⁸⁾		0.90	0.90	0.90	0.90	0.90	0.90

Electrical Installation

Recommended Supply Cable Size ⁽¹⁰⁾	mm ² /Cu	25	25	25	10	10	10
Minimum Supply Cable Size (NEC) ⁽¹⁰⁾⁽⁶⁾	AWG	4	4	4	8	8	8
Maximum Fuse Rating ⁽⁷⁾⁽¹⁰⁾	Amps	110	110	110	60	60	60

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