

ENGINEERING MANUAL



NIRVANA

CCN: 23753890
 Rev. / ECO E 81751
 Ref.: 9903
 Page: 216
 Date: 30th April 2013
 Cancels: 07th September 2012

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

Model Name International	IRN30K-CC
Model Name North America	IRN40H-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)	4.6 (162.8)	4.6 (161.1)	4.4 (156.5)	4.0 (141.6)
Capacity at minimum speed	m ³ /min (cfm)	1.05 (37.2)	1.04 (36.6)	1.04 (36.6)	0.97 (34.3)
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)			40 (104)	
Minimum Operating Temperature	°C (°F)			2 (36)	

SOUND LEVEL ⁽²⁾

Receiver Mount / Base Mount	dB(A)	73 / 70
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COOLING DATA

Air-cooled (Ambient Temperature 40°C/104°F)

Coolant Discharge temperature	°C (°F)	93 (205)	93 (205)	92 (205)	96 (204)
A/E Injection Temperature	°C (°F)	78 (170)	78 (170)	78 (171)	79 (174)
Aftercooler - Inlet ⁽³⁾	°C (°F)	88 (195)	88 (195)	86 (195)	89 (193)
Aftercooler - Outlet	°C (°F)	49 (122)	49 (122)	49 (122)	50 (122)
Heat Removal Oil Cooler	kW (1000 Btu/hr)	26 (89)	27 (91)	27 (93)	28 (95)
Heat Removal Oil and Aftercooler	kW (1000 Btu/hr)	35 (119)	36 (122)	36 (123)	36 (123)
Maximum Added Static Pressure	Pa (in H ₂ O)			62 (0.25)	
Coolant Flow	lpm (gpm)	49 (13)	53 (14)	57 (15)	65 (17)
Fan Air Flow	m ³ /min (cfm)	76 (2700)	76 (2700)	76 (2700)	76 (2700)
Cooling Air CTD	°C (°F)	22 (40)	22 (40)	22 (40)	22 (40)
Aftercooler CTD, 60 Hz ⁽³⁾	°C (°F)	8 (14)	8 (14)	8 (14)	8 (14)
Aftercooler CTD, 50 Hz ⁽³⁾	°C (°F)	9 (16)	9 (16)	9 (16)	9 (16)

CONSTRUCTION FOUNDATION AND MOUNTING DATA

PIPING CONNECTIONS

Air Discharge Base Mount	Inches NPT ⁽⁹⁾	1.50
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 .56"-18
Diameter of Power Inlet	mm / inch	44 mm / 1.75"

COOLANT LUBRICATION DATA

Coolant Sump Capacity	litres (US gal)	10.7 (2.8)
Total coolant fill capacity	litres (US gal)	21 (5.5)

DIMENSIONS & WEIGHT

	ASME Receiver	Base Mounted	120 Gal Rec	240 Gal Rec
length, width, height	mm	1630 / 724 / 1418	1857 / 724 / 2043	2339 / 762 / 2219
length, width, height	Inches	64.2 / 28.5 / 55.8	73.1 / 28.5 / 80	92.1 / 30 / 87.3
Net Weight	kg (lb.)	612 (1350)	780 (1720)	858 (1891)
Air Discharge Connection	Inches	1.5" 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 / 1418	2060 / 724 / 2053	2156 / 750 / 2195
length, width, height	Inches	64.2 / 28.5 / 55.8	81.1 / 28.5 / 81	84.9 / 29.5 / 86
Net Weight	kg (lb.)	612 (1350)	804 (1772)	858 (1891)
Air Discharge Connection	Inches	1.5" 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	6000	6000	5800	5375
Tip Speed ⁽⁸⁾	m/sec	33.61	33.61	32.49	30.11
Tip Speed ⁽⁸⁾	ft/sec	110.25	110.25	106.58	98.77

IntelliDrive unit

Nominal Power Intellidrive Module	kW (HP)	30 (40)			
Applied power ⁽⁸⁾	kW (HP)	33 (44)			
Rated Power - Fan	kW (HP)	1.3 (1.75)			
Applied Power - Full Package ⁽⁸⁾	kW (HP)	34.1 (45.5)			
IntelliDrive Efficiency ⁽⁵⁾	Percent	97%			
Main Motor Efficiency	Percent	94%			
Fan motor efficiency	Percent	85%			
Input kW at maximum target pressure	kW	35.9	37.7	37.2	36.8
Specific Power ⁽⁴⁾	kW/100cfm	22.1	23.4	23.8	26.0
	kW/m ³ /min	7.8	8.3	8.4	9.2

ELECTRICAL DATA

		208V	220V	230V	380V	400V	460V
Motor / Drive Protection		IP55 / NEMA 12 / TEAO			IP55 / NEMA 12 / TEAO		
Drive Motor Frame		160L			160L		
Current - Intellidrive ⁽⁸⁾	Amps	111.6	104.6	100.2	61.1	57.9	50.3
Current - Cooling fan	Amps	5.2	5.2	4.9	2.8	2.7	2.4
Package Current @ Maximum target pres:	Amps	116.8	109.8	105.1	63.9	60.6	52.7
Intellidrive inrush current	Amps	111.6	104.6	100.2	61.1	57.9	50.3
Package inrush current	Amps	155.8	148.8	141.9	84.5	80.9	70.3
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	70	70	70	25	25	25
Minimum Supply Cable Size (NEC) ⁽¹⁰⁾⁽⁶⁾	AWG	2/0	2/0	2/0	4	4	4
Maximum Fuse Rating ⁽⁷⁾⁽¹⁰⁾	Amps	200	200	200	125	125	125

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