

ENGINEERING MANUAL



NIRVANA
TAS

CCN: 23753916
Rev. / ECO F 81751
Ref.: 9903
Page: 612
Date: 30th April 2013
Cancels: 27th December 2012

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

Model Name International	IRN18K-TAS
Model Name North America	IRN25H-TAS

GENERAL COMPRESSOR DATA					
Package Discharge Pressure	barg (psig)	7 (100)	8 (115)	8.5 (125)	10 (150)
Capacity (Ref. Intake Cond.) FAD ⁽¹⁾	m³/min (cfm)	2.92 (103)	2.83 (100)	2.73 (96.6)	2.69 (95.2)
Capacity at minimum speed	m³/min (cfm)			1.16 (41)	
Maximum Target Pressure ⁽¹²⁾	barg (psig)			10.4 (150)	
Maximum Operating Pressure ⁽¹³⁾	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)			67 / 65	

COOLING DATA					
Air-cooled (Ambient Temperature 40°C/104°F)					
Coolant Discharge temperature	°C (°F)	93 (200)	94 (201)	94 (202)	91 (196)
A/E Injection Temperature	°C (°F)	78 (173)	80 (176)	81 (178)	79 (174)
Aftercooler - Inlet ⁽³⁾	°C (°F)	88 (190)	89 (192)	89 (193)	86 (186)
Aftercooler - Outlet	°C (°F)	49 (121)	49 (121)	49 (120)	50 (122)
Heat Removal Oil Cooler	kW (1000 Btu/hr)	19 (65)	20 (67)	20 (67)	23 (80)
Heat Removal Oil and Aftercooler	kW (1000 Btu/hr)	23 (78)	24 (80)	24 (80)	27 (92)
Heat Removal Dryer Condenser (Max)	kW (1000 Btu/hr)	3 (10)	3 (10)	3 (9)	3 (9)
Maximum Added Static Pressure	Pa (in H ₂ O)			62 (0.25)	
Coolant Flow	lpm (gpm)	39 (10)	41 (11)	44 (12)	46 (12)
Fan Air Flow	m³/min (cfm)	54 (1900)	54 (1900)	54 (1900)	54 (1900)
Cooling Air CTD	°C (°F)	27 (48)	28 (51)	28 (51)	28 (50)
Aftercooler CTD, 60 Hz ⁽³⁾	°C (°F)	9 (17)	9 (17)	9 (16)	10 (18)
Aftercooler CTD, 50 Hz ⁽³⁾	°C (°F)	11 (20)	11 (20)	11 (20)	11 (20)

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 / 766 / 1280	1930 / 822 / 1903
	length, width, height	Inches	64.2 / 30.2 / 50.5	76 / 32.4 / 74.9
	Net Weight	kg (lb.)	612 (1350)	780 (1720)
	Air Discharge Connection	Inches	1" NPT ⁽⁹⁾	1" NPT
	GA Drawing Number		22740336	22736110
	EN 87/404 Receiver	Base Mounted	500 L Rec	750 L Rec
	length, width, height	mm	1630 / 766 / 1280	2060 / 822 / 1918
	length, width, height	Inches	64.2 / 30.2 / 50.5	81.1 / 32.4 / 75.5
	Net Weight	kg (lb.)	612 (1350)	804 (1772)
	Air Discharge Connection	Inches	1" NPT ⁽⁹⁾	1" BSPT
	GA Drawing Number		22740336	22740302

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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	4020	3900	3800	3425
Tip Speed ⁽⁸⁾	m/sec	22.52	21.85	21.26	19.22
Tip Speed ⁽⁸⁾	ft/sec	73.9	71.7	69.9	63.0
IntelliDrive unit					
Nominal Power IntelliDrive Module	kW (HP)			18.5 (25)	
Applied power ⁽⁸⁾	kW (HP)			20.5 (27.5)	
Rated Power - Fan	kW (HP)			0.75 (1.0)	
Applied Power - Full Package ⁽⁸⁾	kW (HP)			21.3 (28.5)	
IntelliDrive Efficiency ⁽⁵⁾	Percent			96%	
Main Motor Efficiency	Percent			90%	
Fan motor efficiency	Percent			82%	
Applied Power - Dryer Compressor	kW			0.9	
Input kW at maximum target pressure	kW	24.9	25.2	25.4	27.7
Specific Power ⁽⁴⁾	kW/100cfm	24.1	25.2	26.2	29.0
	kW/m ³ /min	8.5	8.9	9.3	10.3

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	80.4	66.4	64.3	39.1	37.1
Current - Cooling fan	Amps	3.2	3.9	3.3	1.9	1.8
Package Current @ Max Target Press	Amps	83.6	79.0	75.6	45.7	43.4
Intellidrive inrush current	Amps	71.7	66.4	64.3	39.1	37.1
Package inrush current	Amps	123.7	119.5	111.4	66.8	63.4
Package Power Factor ⁽⁸⁾		0.90	0.90	0.90	0.90	0.90
Electrical Installation						
Recommended Supply Cable Size ⁽¹⁰⁾	mm ² /Cu	35	35	35	16	16
Minimum Supply Cable Size (NEC) ⁽¹⁰⁾ (6)	AWG	3	3	3	6	6
Maximum Fuse Rating ⁽⁷⁾ (10)	Amps	150	150	150	75	75

Refrigerated Dryer Data		ISO Class	
Pressure Dew Point ISO Class ⁽¹¹⁾	°C (°F)	5	lower than 7°C (44.6°F)
Refrigerant weight of R-134a	Grams (Oz)	560 (20)	
Filter Data		CCN	
Primary filter detail - at 21°C (70°F)	85567287	ISO Class	Filtration
Final filter detail - at 21°C (70°F)	85567295	3	1 micron
		2	0.01 micron
		ISO Class	Liquid Filtration
		3	0.5 mg/m ³ (0.5 ppm)
		1	0,01 mg/m ³ (0.01 ppm)

Pressure Drop Data		barG	psig	barG	psig	barG	psig
		8.0	115	8.6	125	10.3	150
Dryer Pressure Drop	barG / (psig)	0.21	3	0.20	2.9	0.17	2.5
Primary filter wet pressure drop	barG / (psig)	0.14	2	0.12	1.8	0.10	1.5
Final filter wet pressure drop	barG / (psig)	0.19	2.8	0.19	2.7	0.16	2.3
Total Pressure Drop ⁽¹⁴⁾ ISO Class 2.5.1 Air	barG / (psig)	0.54	7.8	0.51	7.4	0.43	6.3

- 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) Dew point measured in accordance with Iso 8573-1:2001 with inlet air to package of 25 °C (77°F) and RH of 60%
- (12) Target discharge pressure, sensed by pressure transducer located at package discharge
- (13) Maximum pressure at package discharge, value at which compressor will stop when unit operating at maximum target pressure
- (14) Total Air System package including compressor, integral dryer with pre and final compressed air filters