

ENGINEERING MANUAL



NIRVANA
TAS

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Point of Manufacture - Unicov, Czech Republic & Campbellsville, Kentucky USA				
ENGINEERING DATA				
Model Name International		IRN11K-TAS-7	IRN11K-TAS-9	IRN11K-TAS-12H
Model Name North America		IRN15H-TAS-100	IRN15H-TAS-130	IRN15H-TAS-175H
GENERAL COMPRESSOR DATA				
Capacity (Ref. Intake Cond.) FAD ⁽¹⁾	m³/min (cfm)	1.60 (57.5)	1.40 (49.6)	1.10 (38.1)
Capacity at Minimum Speed	m³/min (cfm)	0.39 (13.9)	0.54 (19)	0.54 (19)
Maximum Target Pressure ⁽¹²⁾	barg (psig)	7.0 (100)	9.0 (130)	12.1 (175)
Maximum Operating Pressure ⁽¹³⁾	barg (psig)	7.6 (110)	9.7 (140)	12.8 (185)
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⁾				
Base Mount Enclosed	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)
Heat Removal Dryer Condenser (Max)	kW (1000 Btu/hr)	1.4 (4.8)	1.4 (4.8)	1.4 (4.8)
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 (Dryer Included)	m³/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		
Package Automatic Condensate Drain	Inches NPT	0.25		
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)	350 (780)	472 (1040)	487 (1072)
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)	350 (780)	458 (1008)	513 (1129)
Air Discharge Connection	Inches	3/4" BSPT	3/4" BSPT	3/4" BSPT
GA Drawing Number		22537096	22537062	22537070

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ENGINEERING DATA

Model Name International		Model Name North America		IRN11K-TAS-7	IRN11K-TAS-9	IRN11K-TAS-12H			
				IRN15H-TAS-100	IRN15H-TAS-130	IRN15H-TAS-175H			
PERFORMANCE DATA									
Compressor Module									
Rotor Diameter (male)	mm			74.25	74.25	74.25			
Package Discharge Pressure	barg (psig)			7.0 (100)	9.0 (130)	12.1 (175)			
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)			11.4 (15.3)	10.7 (14.3)	10.3 (13.8)			
Rated Power - Fan	kW (HP)			0.37 (0.5)	0.37 (0.5)	0.37 (0.5)			
Applied Power - Full Package ⁽⁸⁾	kW (HP)			11.8 (15.8)	11.0 (14.8)	10.6 (14.2)			
IntelliDrive Efficiency ⁽⁵⁾	Percent			96%	96%	96%			
Main Motor Efficiency	Percent			93%	93%	93%			
Fan Motor Efficiency	Percent			74%	74%	74%			
Applied Power - Dryer Compressor	kW			0.5	0.5	0.5			
Input kW at Maximum Target Pressure	kW (Compressor)			13.4	12.7	11.6			
Input kW at Maximum Target Pressure	kW (TAS Package)			13.9	13.2	12.1			
Specific Power ⁽⁴⁾	kW/100cfm			24.1	26.9	31.7			
	kW/m³/min			8.7	9.4	11.0			
ELECTRICAL DATA		115-1-60	230-1-50	208V	220V	230V	380V	400V	460V
Motor / Drive Protection		Single Phase		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	Amps			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
Dryer Electrical Data									
Full Load Current	Amps	5	2.7						
Starting Current	Amps	30	12.6						
Electrical Installation									
Recommended Supply Cable Size ⁽¹⁰⁾	mm²/Cu			25.0	16.0	16.0	10.0	6.0	6.0
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
Recommended Wire Size - Dryer ⁽⁶⁾⁽¹⁰⁾	mm²/AWG	0.9/18	0.9/18						
Refrigerated Dryer Data		ISO Class 5							
Pressure Dew Point ISO Class ⁽¹¹⁾	°C (°F)	lower than 7°C (44°F)							
Refrigerant Weight of R-134a	Grams (Oz)	350 (12.7)							
		Particulate				Liquid			
Filter Data	CCN	ISO Class		Filtration	ISO Class		Filtration		
Primary Filter Detail - at 21°C (70°F)	85567162	3		1 micron	3		0.6 mg/m3 (0.5 ppm)		
Final Filter Detail - at 21°C (70°F)	85537170	2		0.01 micron	1		0.01 mg/m³ (0.01 ppm)		
		barG		psig	barG		psig	barG	psig
Pressure Drop Data	barG / (psig)	8.0		115	10.3		150	13.8	200
Dryer Pressure Drop	barG / (psig)	0.28		4	0.21		3	0.14	2
Primary Filter Wet Pressure Drop	barG / (psig)	0.14		2	0.10		1.5	0.07	1
Final Filter Wet Pressure Drop	barG / (psig)	0.21		3	0.14		2	0.10	1.5
Total Pressure Drop ⁽¹⁴⁾ ISO Class 2.5.1 Air	barG / (psig)	0.62		9	0.45		6.5	0.31	4.5

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