

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 1 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

## 1. PURPOSE AND SCOPE

This Engineering Standard defines the production test parameters that are required to be set and verified during production test for standard rotary compressors (“R” and “RS” models). It also defines the production performance test requirements. It is not intended to be a complete work instruction for production test. The regional Operations Departments have the responsibility for creating the necessary work instructions to support this Standard.

## 2. SUPPORTING MACHINE DATA

Technical data such as cooling airflow requirements, package performance, compressor dimensions, etc. can be found in the engineering data sheets or general arrangement drawings. This data will be under ECN control.

### R-Series: First Generation (Velocity “R” Models)

R132-160			
Model (50hz)	Engineering Data Sheet CCN	Model (60hz)	Engineering Data Sheet CCN
R132I(IE3)	23663735	R160I (IE2)	23961170
R132N(IE3)	23663727	R160N (IE2)	23961238
R132IHA(IE3)	23663834	R160IE (IE2)	23961204
R132IEHA(IE3)	23663842	R160NE (IE2)	23961261
R132IE(IE3)	23663719	R160I (IE3)	23663693
R132NE(IE3)	23663701	R160N (IE3)	23663685
R160I(IE3)	23663651	R160IE (IE3)	23663677
R160N(IE3)	23663644	R160NE (IE3)	23663669
R160IE(IE3)	23663636		
R160NE(IE3)	23663628		
R132I (IE1)	23703952		
R132IHA (IE1)	23703960		
R132IE (IE1)	23703986		
R132IEHA (IE1)	23703978		
R160I (IE1)	23704000		
R160IE (IE1)	23704026		

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 2 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

<b>R90-110</b>			
<b>Model (50hz)</b>	<b>Engineering Data Sheet CCN</b>	<b>Model (60hz)</b>	<b>Engineering Data Sheet CCN</b>
R90IHA (IE3)	23561186	R90IHA (IE2)	23961279
R90I (IE3)	23555873	R90I (IE2)	23961147
R110I (IE3)	23555857	R110I (IE2)	23961162
R90IHA (IE2)	23667561	R90N (IE2)	23961212
R90I (IE2)	23667579	R110N (IE2)	23961220
R90IEHA(IE3)	23663859	R90IEHA (IE2)	23961154
R90IE(IE3)	23663776	R90IE (IE2)	23961188
R110IE(IE3)	23663768	R110IE (IE2)	23961196
R90NE(IE3)	23663750	R90NE (IE2)	23961246
R110NE(IE3)	23663743	R110NE (IE2)	23961253
R90IHA (IE1)	23668981	R90IHA (IE3)	23561228
R90I (IE1)	23667553	R90I (IE3)	23555865
R110I (IE1)	23667546	R110I (IE3)	23555840
R90N	23555832	R90N (IE3)	23555816
R110N	23555824	R110N (IE3)	23555808
R90IE (IE1)	23703929	R90IEHA (IE3)	23663867
R90IEHA (IE1)	23703937	R90IE (IE3)	23663826
R110IE (IE1)	23703945	R110IE (IE3)	23663800
		R90NE (IE3)	23663792
		R110NE (IE3)	23663784

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 3 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

<b>R55-75</b>			
<b>Model (50hz)</b>	<b>Engineering Data Sheet CCN</b>	<b>Model (60hz)</b>	<b>Engineering Data Sheet CCN</b>
R55N	23769490	R55IHA (IE3)	23769631
R75N	23769508	R55I (IE3)	23769649
R55NTAS	23769516	R75I (IE3)	23769656
R75NTAS	23769524	R55IHA (IE1)	23769664
R55IHA (IE3)	23769532	R55I (IE1)	23769672
R55I (IE3)	23769540	R75I (IE1)	23769680
R75I (IE3)	23769557	R55ITAS (IE3)	23769698
R55IHA (IE1)	23769565	R75ITAS (IE3)	23769706
R55I (IE1)	23769573	R55ITAS (IE1)	23769714
R75I (IE1)	23769581	R75ITAS (IE1)	23769722
R55ITAS (IE3)	23769599	R55N	23769730
R75ITAS (IE3)	23769607	R75N	23769748
R55ITAS (IE1)	23769615	R55NTAS	23769755
R75ITAS (IE1)	23769623	R75NTAS	23769763

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 4 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

<b>R37-45</b>			
<b>Model (50hz)</b>	<b>Engineering Data Sheet CCN</b>	<b>Model (60hz)</b>	<b>Engineering Data Sheet CCN</b>
R37IE (IE3)	24192247	R37IE (IE3)	24192452
R37IEHA (IE3)	24192254	R37IEHA (IE3)	24192460
R45I (IE3)	24192262	R45I (IE3)	24192478
R37IETAS (IE3)	24192346	R37IE (IE2)	24192486
R45ITAS(IE3)	24192353	R37IEHA (IE2)	24192494
R37NE	24192403	R45I (IE2)	24192502
R45N	24192411	R37IETAS (IE3)	24192510
R37NETAS	24192429	R45ITAS(IE3)	24192528
R45NTAS	24192437	R37IETAS (IE2)	24192536
R45IE	47549167001	R45ITAS(IE2)	24192544
R45IE-TAS	47549175001	R37NE	24192551
		R45N	24192569
		R37NETAS	24192577
		R45NTAS	24192585
		R45IE	47549165001
		R45IE-TAS	47549176001

<b>R30-37</b>			
<b>Model (50hz)</b>	<b>Engineering Data Sheet CCN</b>	<b>Model (60hz)</b>	<b>Engineering Data Sheet CCN</b>
R30I(IE2)	24682973	R30I (IE2)	24683054
R37I (IE2)	24682981	R37I (IE2)	24683062
R30ITAS (IE2)	24682999	R30ITAS (IE2)	24683070
R37ITAS(IE2)	24683005	R37ITAS(IE2)	24683088
R30N	24683013	R30N	24683096
R37N	24683021	R37N	24683104
R30NTAS	24683039	R30NTAS	24683112
R37NTAS	24683047	R37NTAS	24683120

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 5 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

<b>R4-11</b>			
<b>Model (50hz)</b>	<b>Engineering Data Sheet CCN</b>	<b>Model (60hz)</b>	<b>Engineering Data Sheet CCN</b>
R5.5IE (IE3)TAS 50HZ	47523354	R4I (IE3)TAS 60HZ 1 PH	47523357
R7.5I (IE3)TAS 50HZ	47523355	R5.5I (IE3)TAS 60HZ 1 PH	47523358
R11I (IE3)TAS 50HZ	47523356	R4I (IE3)TAS 60HZ	47523359
R5.5IE (IE3) 50HZ	47523363	R5.5I (IE3)TAS 60HZ	47523360
R7.5I (IE3) 50HZ	47523364	R7.5I (IE3)TAS 60HZ	47523361
R11I (IE3) 50HZ	47523365	R11I (IE3)TAS 60HZ	47523362
R5.5NTAS 50HZ	47523372	R4I (IE3) 60HZ 1 PH	47523366
R7.5NTAS 50HZ	47523373	R5.5I (IE3) 60HZ 1 PH	47523367
R11NTAS 50HZ	47523374	R4I (IE3) 60HZ	47523368
R5.5N 50HZ	47523378	R5.5I (IE3) 60HZ	47523369
R7.5N 50HZ	47523379	R7.5I (IE3) 60HZ	47523370
R11N 50HZ	47523380	R11I (IE3) 60HZ	47523371
R5.5IE (IE3) HA 50HZ	47533740	R5.5NTAS 60HZ	47523375
R7.5I (IE3) HA 50HZ	47533741	R7.5NTAS 60HZ	47523376
		R11NTAS 60HZ	47523377
		R5.5N 60HZ	47523381
		R7.5N 60HZ	47523382
		R11N 60HZ	47523383
		R4I (IE3) HA 60HZ	47533742
		R5.5I (IE3) HA 60HZ	47533743
		R7.5I (IE3) HA 60HZ	47533744

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 6 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

**R-Series: Next Generation** (Ares "RS" Models)

<b>RS30-37</b>				
<b>Data Sheet CCN</b>	<b>English</b>		<b>Chinese</b>	
<b>Model</b>	<b>50 hz</b>	<b>60 hz</b>	<b>50 hz</b>	<b>60 hz</b>
RS30I	49187057	49187073	47548303	47548305
RS30IE	47542832	47542834	47542840	47542842
RS37I	49187065	49187081	47548304	47548306
RS37IE	47542833	47542835	47542841	47542843
RS30I-TAS	49187099	49187115	47548307	47548309
RS30IE-TAS	47542836	47542838	47542844	47542846
RS37I-TAS	49187107	49187123	47548308	47548310
RS37IE-TAS	47542837	47542839	47542845	47542847
RS30N	47573539	47573541	47573547	47573549
RS37N	47573540	47573542	47573548	47573550
RS30N-TAS	47573543	47573545	47573551	47573553
RS37N-TAS	47573544	47573546	47573552	47573554

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 7 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

RS200-250 (50Hz)		
	Data Sheet CCN	
Model	English	Chinese
RS200I-A	47584708001	47584743001
RS200IE-A	47584710001	47584745001
RS250I-A	47584716001	47584751001
RS250IE-A	47584718001	47584753001
RS200I-W	47584709001	47584744001
RS200IE-W	47584711001	47584746001
RS250I-W	47584717001	47584752001
RS250IE-W	47584719001	47584754001
RS200N-A	47584724001	47584759001
RS200NE-A	47584726001	47584761001
RS250N-A	47584728001	47584763001
RS250NE-A	47584730001	47584765001
RS200N-W	47584725001	47584760001
RS200NE-W	47584727001	47584762001
RS250N-W	47584729001	47584764001
RS250NE-W	47584731001	47584766001

RS200-250 (60Hz)		
	Data Sheet CCN	
Model	English	Chinese
RS185I-A	47584704001	47584739001
RS185IE-A	47584706001	47584741001
RS220I-A	47584712001	47584747001
RS220IE-A	47584714001	47584749001
RS260I-A	47584720001	47584755001
RS260IE-A	47584722001	47584757001
RS185I-W	47584705001	47584740001
RS185IE-W	47584707001	47584742001
RS220I-W	47584713001	47584748001
RS220IE-W	47584715001	47584750001
RS260I-W	47584721001	47584756001
RS260IE-W	47584723001	47584758001
RS185N-A	47590673001	47590679001
RS185NE-A	47590674001	47590680001
RS220N-A	47590675001	47590681001
RS220NE-A	47590676001	47590682001
RS260N-A	47590677001	47590683001
RS260NE-A	47590678001	47590684001
RS185N-W	47590685001	47590691001
RS185NE-W	47590686001	47590692001
RS220N-W	47590687001	47590693001
RS220NE-W	47590688001	47590694001
RS260N-W	47590689001	47590695001
RS260NE-W	47590690001	47590696001

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 8 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

### 3. EQUIPMENT

All test equipment should be kept in proper working condition. Thermocouples and transducers should be checked regularly and renewed if required. Nozzles, pressure transducers and flow valves should be calibrated per their calibration schedule. Equipment downstream of the nozzle should not provide any backpressure

Instrumentation tolerances should be as shown in the following table:

Temperature	+/- 5°F	+/- 2.78°C
Barometric pressure	+/- 0.01" Hg	+/- 0.339 mbar
Nozzle pressure	+/- 0.8 PSIG	+/- 0.055 bar
Package Discharge Pressure	+/-0.5% full scale	
Relative humidity	+/- 1%	
Current (Amps)	+/- 1%	
Voltage (volts)	+/- 2%	
Power (HP)	+/- 1%	



CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 9 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

#### 4. PRODUCTION TEST PARAMETERS

All parameters to be checked, set, or verified are recorded in the table shown below. This is to be performed on every rotary product before it is shipped from the factory. Each time a new product is released or a parameter is changed; this document is to be updated with the new/revised parameters.

		Controller ⇒	Fixed Speed	VSD
Pre-Test Checks	Verify Features & Options are on machine according to build card		V	V
	Check for earth continuity (base and drive motor)		C	C
	Check motor insulation for all motors (See Note 3)		C	C
	Verify Phase Monitor installed and wired according to schematic (See Note 19)		V	
	Prime airend according to Engineering Specification 54380084		R	R
Compressor Set-up Actions Required	Set main drive motor thermal overload (See Note 1)		S	
	Set fan motor overload (See Note 2)		S	S
	Set transformer primary tapping to build card (If 380/415 - use 400)		S	
	Calibrate sensors under no pressure condition		R	R
	Set Language		S	S
	Set clock date and time		S	S
	Set units of measure (See Note 6)		S	S
	Set Compressor Type (See Note 10)			S
	Set Watercooled (On if W/C, Off if A/C)			S
	Enter rated pressure (See Note 5)		S	
	Set to Single Stage or Two Stage		S	S
	Select VSD Fan Option (See Note 12)		S	S
	Set Blower Control Type (See Note 17)		S	S
	Set Integrated dryer Option (See Note 15)		S	S
	Set starter type (See Note 4)		S	
	Set <b>main motor and blower</b> speed to specific speed for testing only (Note 13)			S
	Set RTD Monitoring (See Note 18)		S	S
	Check Modulation selection ('On' if fitted, 'Off' if not fitted)		C	
Set condensate drain time (seconds)		10	10	
Set condensate interval time (seconds)		180	180	
Set star delta timer main setting (seconds)		10		
Enable Auto-Restart: Set to "On" (default is "Off")		S		
Fill compressor with coolant (See Note 11)				
Compressor Function Tests	Check Lamps illuminate		C	C
	Check coolant level in separator tank		C	C
	Test Emergency Stop operation (See Note 7)		T	T
	Test Main Drive Motor Overload function (See Note 8)		T	
	Test Fan Motor Overload function (See Note 8)		T	T
	Test compressor over temperature shutdown function (See Note 9)		T	T
	Check Moisture Separator Drain Trap function (where fitted)		C	C
	Check condensate condition (moisture only, no oil)		C	C
	Check function of all fitted options		C	C
	Check correct rotation of main motor		C	C
	Check correct rotation of cooling fan		C	C
	Check direction on dryer cooling fan (Integrated dryer only)		C	C
	Check temperature on HPM motor (See Note 14)			C

C = Check, D = Enter data, R = Required, S = Set, T = Test, V = Verification

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 10 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

**Notes:**

1. Set main drive motor thermal overload. For Xe-70 Controller with CT's this is a controller set point.
  - a. YD/Star-Delta = motor nameplate amps x 0.67
  - b. Full Voltage / Direct on Line = motor nameplate amps x 1.15
  - c. For machines using the Xe-70 and external thermal motor overload, the "Main Motor Protect" set-point on the controller must be set to "OFF" in order to disable the CT inputs.
2. Set fan motor overload to nameplate SF amps.
3. Check motor insulation for all fixed speed motors ONLY. This applies to both drive and fan motors and should be done prior to installation. Resistance should be 1 MΩ minimum.
4. Enter starter type from the following table (Fixed Speed Only):

Starter type
Star-Delta (Y-D)
Remote Start
Soft Starter

5. Enter package rated pressure from following table based on the build card:

Designation	Rated Test Pressure	Max Set Pressure	TAS Unit Max Set Pressure
R*I(E) – 110	100 psi	110 psi	103 psi
R*I(E) – 125	115 psi	125 psi	118 psi
R*I(E) – 145	135 psi	145 psi	138 psi
R*I(E) – 200	190 psi	200 psi	N/A
R*I(E) - 7.5	7 Bar	7.5 Bar	7.0 Bar
R*I(E) - 8.5	8 Bar	8.5 Bar	8.0 Bar
R*I(E) - 10	9.5 Bar	10 Bar	9.5 Bar
R*I(E) - 14	13.5 Bar	14 Bar	N/A

(E) Designates 2-stage units, except in case of: R5.5ie, R37ie and R45ie, which are premium flow 1-stage.

**Notes:**

- Nirvana units (37NE-250NE) shall be set to 100 psig for 60hz test (**TAS and non-TAS units**) or 7.0 barg for 50Hz (**TAS and non-TAS units**) test.
- For 30N/37N units, settings are 145 psig or 10 barg, and 200 psig or 14 barg, depending on the type of machine in the manufacturing region.



CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 12 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

11. When filling the compressor with coolant, please note the following:
  - a. The quantity of coolant specified on the BOM is only an estimate. The required fill quantity is verified when the oil level in the sight glass is ½ to ¾ full when operating at full load at the required test pressure.
  - b. Do not add the total coolant fill volume all at one time. Stop adding coolant once the oil level in the separator tank is at the top of the sight glass, run the compressor for 20-30 seconds to get oil up into the oil coolers and repeat as required. Filling the total oil fill at one time will over fill the separator tank and the overflow will spill into the airend, resulting in hydro-lock.
  
12. For 132-160kw Fixed Speed units, the set value must be “YES”. For all others it will be “NO”.
  
13. When validating Specific Package Input Power on variable speed units, the main motor and blower must be set to a fixed speed in accordance with the table detailed below.

These blower speeds are a proportion of the maximum speed for the blower motor. This accurately represents the testing carried out for CAGI verification purposes on each unit. (R4-11 kW and RS30-37n units do not use a VSD for the axial cooling fan, except on low ambient packages).

**R-Series: First Generation** (Velocity “R” Models)

Unit	Main Motor Power	Maximum Motor Speed (rpm)	Spec Power Test Blower Speed (%)
R37NE	37kW/50hp	4800	69%
R45N	45kW/60hp	5400	78%
R55N	55kW/75hp	2626	60%
R75N	75kW/100hp	3412	78%
R90N	90kW	1810	64%
R90N	125hp	1889	66%
R110N	110kW	2187	77%
R110N	150hp	2222	78%
R132N	132kW	2590	67%
R160N	160kW	2996	78%
R160N	200hp	2897	75%
R90NE	90kW	1739	45%
R90NE	125hp	1798	47%
R110NE	110kW	2091	54%
R110NE	150hp	2156	56%
R132NE	132kW	2459	64%
R160NE	160kW	3000	78%
R160NE	200hp	2830	74%

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 13 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

**R-Series: Next Generation** (Ares “RS” Models)

Unit	Main Motor Power	Maximum Motor Speed (rpm)	Spec Power Test Blower Speed (%)
RS200N	200kW	1722	70%
RS200NE	200kW	1685	65%
RS250N	250kW	1714	90%
RS250NE	250kW	1676	85%

14. For VSD units with HPM motor only, measure and record the motor stator temperature 10 cm back from the A/E at the 12 o’clock position.
15. For units with integrated dryer, set option to “ON”.
16. For R4-11 with Xe-70M only: Set fan minimum run time from 6 minutes (default) to 2 minutes. (Factory Settings Tab, 3<sup>rd</sup> page, for password, contact Engineering groups).
17. Blower Control set points – for Xe-90M / Xe-145M only:
  - a. R-Series: First Generation (Velocity “R” Models):
 

*NOTE: Velocity “R” Models did not have dual blower motor configurations.*

    - i. Blower Control Type setting for Fixed Speed machines:
      1. Enable VSD Blower and Enable Low Ambient:
        - a. Off (default): Air-Cooled (non-Low Ambient) and Water-Cooled machines.
        - b. On: Low Ambient Air-Cooled machines.
      - ii. Blower Control Type setting for Variable Speed machines is determined by the cooling set point:
        1. Water-Cooled set point:
          - a. Off (default): Air-Cooled machines.
          - b. On: Water-Cooled machines.
    - b. R-Series: Next Generation (Ares “RS” Models):
      - i. Blower Control Type setting for Fixed Speed machines:
        1. Single Motor (default): Select for Air-Cooled (non-Low Ambient) and Water-Cooled machines.
        2. Variable Speed: Select for Low Ambient Air-Cooled machines.
      - ii. Blower Control Type setting for Variable Speed machines:
        1. Single Motor: Select for Water-Cooled machines.
        2. Dual Motor: Not applicable.
        3. Dual Speed: Not applicable.
        4. Variable Speed (default): Select for Air-Cooled machines.
18. Motor RTD Monitoring set points – for Xe-90M / Xe-145M only:
  - a. R-Series: First Generation (Velocity “R” Models): Not applicable.
  - b. R-Series: Next Generation (Ares “RS” Models):
 

*NOTE: Main Motor RTD Monitors are standard for RS185-500kW models and optional for RS90-160kW models. Each individual RTD channel (total of 8) must be individually enabled.*

    - i. Enable Motor Winding Temperature 0-5 and Motor Bearing Temperature 6-7:
      1. Set to “ON” (default is “OFF”).



# ENGINEERING STANDARD

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 14 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

19. Phase Monitor is standard for RS185-500IE (Two Stage, Fixed Speed, Low Voltage [ $< 600V$ ]) only.

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 15 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

**5. MEASUREMENT OF FLOW AND VALIDATION OF PERFORMANCE**

When required, the performance of the package will be measured and compared to the specific performance for that model. This performance measurement is in addition to the acceptance criteria listed in Section 4.0. The specified performance is the performance recorded on the Engineering Pages for each package. The package performance will be deemed acceptable provided the test results do not differ from the specified performance by more than the allowances given below:

Volume Flow Rate		ACFM Allowance (%)	Specific Energy Allowance (%)	Power Requirement @ Zero Flow (%)
m3/min	ACFM			
Below 0.5	Below 15	+/- 7	+/- 8	+/- 10
0.5 to 1.5	15 to 50	+/- 6	+/- 7	+/- 10
1.5 to 15	50 to 500	+/- 5	+/- 6	+/- 10
Above 15	Above 500	+/- 4	+/- 5	+/- 10

Test cell temperature should be maintained such that the compressor inlet temperature is between the maximum and minimum limits set in Table A below. Ideal conditions, where possible, are also listed in Table B. Other conditions shall adhere to the following tolerances:

Speed	+/- 4%
Ambient pressure	+/- 10%
Discharge pressure	+/- 2%

Measurement of flow is per ISO9300 (measurements of gas flow by means of critical flow Venturi nozzles), validation rules are per ISO 1217 Annex C (Displacement compressors - Simplified acceptance test for electrically driven packaged displacement air compressors). The performance will be based on ambient air conditions at the inlet of the package, measured at a spot where the pressure and temperature are virtually unaffected by compressor operation.

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 16 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

All data to be measured, recorded, and validated are shown in the table below. Each time a new product is released, or a parameter is changed, this document is to be updated with the new / revised requirements.

		Controller ⇒	Fixed Speed	VSD
Performance Test	Measure, record and validate Flowrate		R	R
	Measure, record and validate Package Full Load Amps		R	R
	Measure, record and validate Package Volts		R	R
	Measure, record and validate Package Input Power		R	R
	Calculate, record and validate Specific Package Input Power (see note 16)		R	R
	Measure, record and validate Offload and Onload Vibration		R	R
	Record and validate Separator Differential Pressure		R	R
	Record and validate Oil Filter Differential Pressure		R	R
	Record and validate Airend Discharge Temperature		R	R
	Record, and validate Oil Injection Temperature		R	R
	Calculate and record Airend Delta T (discharge minus injection)		R	R
	Record and validate Package Discharge Temperature		R	R
	Record and validate Minimum Sump Pressure (loaded)		R	R
	Record and validate Offload Sump Pressure		R	R
	Record and validate Interstage Pressure (2 stage Only)		R	R
	Measure, record, and validate Package Inlet Temperature		R	R
	Measure, record, and validate Offload Package Input Power		R	N/A
	Measure and record Package Discharge Pressure		R	R
	Record Airend Discharge Pressure		R	R
	Measure and record Water In Temperature (W/C only)		R	R
	Measure and record Water Out Temperature (W/C only)		R	R
	Measure and record Water Flow Rate (W/C only)		R	R
	Measure and record Package Inlet Relative Humidity		R	R
	Measure and record Air Filter Temperature		R	R
	Measure and record Atmospheric Pressure		R	R
	Record Hours Run		R	R
Record software revision level		R	R	

R = Required      N/A=Not Applicable



CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 17 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

Table A

Minimum	Maximum	General Performance Parameters	
N/A	7.1 mm/s	Nominal package power ≤ 75kW	Offload and Onload vibration
	11.2 mm/s	Nominal package power > 75kW	
3.4 barG (50 psig)	5.2 barG (75 psig)	Loaded	Minimum Sump Pressure
1.2 barG (17 psig)	1.7 barG (25 psig)	R-Series Gen. 1 (Velocity)	Offload Sump Pressure
	1.98 barG (28.7 psig)	R-Series Gen 2 (Ares)	
0.07barG (1 psig)	0.7 barG (10 psig)	Separator	Filter Differential Pressure (Full Load)
0.07barG (1 psig)	0.7 barG (10 psig)	Oil Filter	
82°C (180°F)	96°C (205°F)	R-Series Gen. 1 (Velocity "R" Models)	Airend Discharge Temperature
76.7°C (170°F)	90.7°C (195°F)	R-Series Gen. 2 (Ares "RS" Models): 7 & 8 barG (110 & 115 psig) discharge pressures	
82.2°C (180°F)	93.5°C (200°F)	R-Series Gen. 2 (Ares "RS" Models): 10 barG (145 psig) discharge pressure	
85°C (185°F)	98°C (208°F)	R-Series Gen. 2 (Ares "RS" Models): 14 barG (200 psig) discharge pressure	
8°C (15°F) > Ambient		Air-Cooled	Package Discharge Temperature
14°C (25°F) > Water In		Water-Cooled	
N/A	80°C (175°F)		Oil Injection Temperature
24°C (75°F)	46°C (115°F)		Package Air Inlet Temperature (before prefilter)
	[40°C (104°F) Mocksville Only]		
2 barG (30psig)	5.2 barG (75psig)		Interstage Pressure
1 barG (15 psig)	Full load pressure minus 1.4 barG (20 psig)		Nozzle Pressure (PSIG)
	up to 6.5 barG (95 psig)		

Table B below lists desired test parameters. These are considered ideal ranges (used in CAGI verification testing) for testing to be performed if they can be reasonably met. It will allow for better data correlation:

Table B

General Performance Parameters	Ideal Range
Package Air Inlet Temperature (before prefilter)	27°C - 32°C (80°F - 90°F)
Package Discharge Pressure	+/- 0.03 barG (0.5 psig)

When the package specific input power has been verified the main motor and blower control should be returned to 'variable speed' control.

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 18 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

Dryer Testing (For TAS units) on machines with Xe-90M / Xe-145M controllers:

Allow dryer to run at least 15 minutes at rated pressure. Note down reading for 'evaporator' in the status screen of controller. This is visible once the password is entered in the factory settings.

Acceptance Criteria:

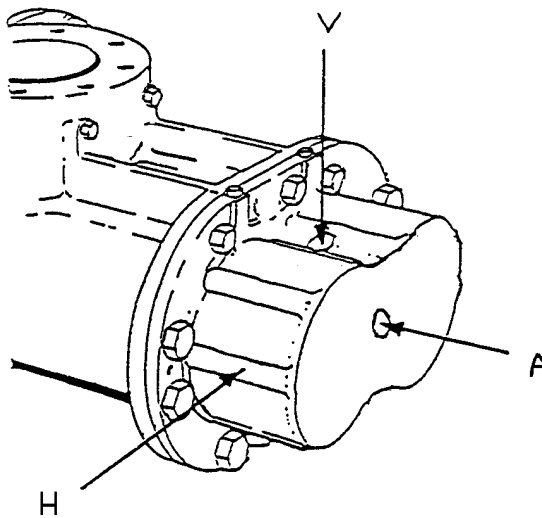
Ambient Temperature	Evaporator Measurement	Corresponding temp (for reference)
Below 38°C (100°F)	680 to 719	0°C (32°F) to 7°C (45°F)
Above 38°C (100°F)	680 to 733	0°C (32°F) to 10°C (50°F)

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 19 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

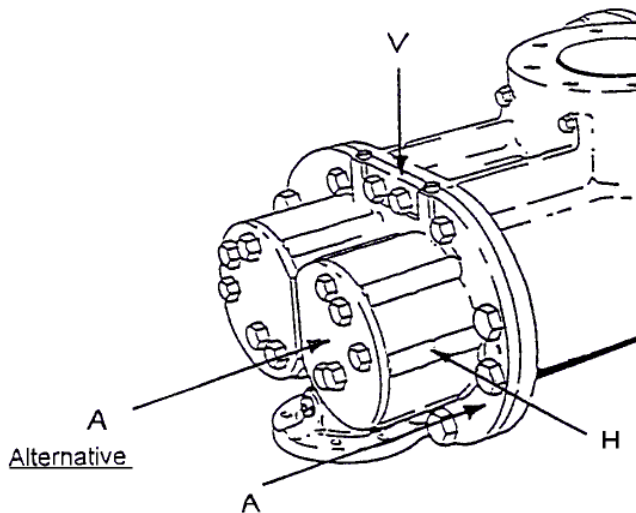
**APPENDIX 'A' – Typical Locations for Airend Vibration Measuring Positions**

The following diagrams represent the positions on the airends where vibration levels should be measured and recorded. Note that V = vertical, H = horizontal, A = axial. Shipping braces should be loose for vibration testing.

Single Stage Airends / Individual stages of Two Stage Airends

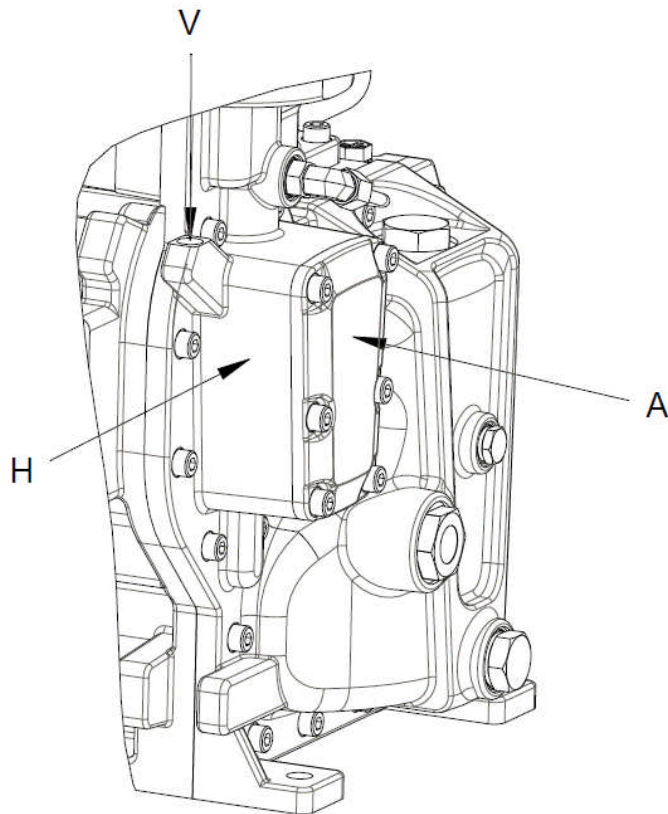


Alternative for Single Stage Airends / Individual stages of Two Stage Airends



CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 20 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

Alternative for CE55NX Airends



CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 21 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

**APPENDIX 'B' – Nominal Offload Package Input Power (Product Acceptance Criteria)**

**R-Series: First Generation** (Velocity "R" Models)

Model (barg)	Unloaded kW		
	Nominal	+10%	-10%
R5.5IE-7.5	2.61	2.88	2.35
R5.5IE-8.5	2.97	3.26	2.67
R5.5IE-10	2.42	2.67	2.18
R5.5IE-14	1.82	2	1.64
R5.5N-9.5	4.2	4.62	3.78
R5.5N-10	4.52	4.97	4.07
R7.5I-7.5	3.69	4.05	3.32
R7.5I-8.5	3.24	3.57	2.92
R7.5I-10	3.01	3.31	2.71
R7.5I-14	2.45	2.7	2.21
R7.5N-9.5	5.04	5.55	4.54
R7.5N-10	5.47	6.02	4.93
R11I-7.5	5.1	5.61	4.59
R11I-8.5	4.62	5.08	4.16
R11I-10	4.32	4.75	3.89
R11I-14	3.65	4.02	3.29
R11N-9.5	6.37	7	5.73
R11N-10	6.56	7.21	5.9
R30I-7.5	12.6	13.9	11.3
R30I-8.5	12.4	13.6	11.2
R30I-10	11.4	12.5	10.2
R30I-14	10	11	9
R30N	N/A	N/A	N/A
R37I-7.5	15.4	16.9	13.8
R37I-8.5	14.5	15.9	13
R37I-10	13.4	14.7	12.1
R37I-14	12.5	13.8	11.2
R37N	N/A	N/A	N/A
R37IE-7.5	16.6	18.3	14.9
R37IE-8.5	16	17.6	14.4

Model (barg)	Unloaded kW		
	Nominal	+10%	-10%
R37IE-10	14	15.4	12.6
R37IE-14	12.9	14.2	11.6
R37IEHA-7.5	16.6	18.3	14.9
R37IEHA-8.5	16	17.6	14.4
R37IEHA-10	14	15.4	12.6
R37IEHA-14	12.9	14.2	11.6
R37NE	N/A	N/A	N/A
R45I-7.5	19	20.9	17.1
R45I-8.5	18	19.8	16.2
R45I-10	17	18.7	15.3
R45I-14	N/A	N/A	N/A
R45N	N/A	N/A	N/A
R45IE-7.5	18.3	20.1	16.5
R45IE-8.5	17.9	19.7	16.1
R45IE-10	17.6	19.4	15.8
R55I-7.5	21.6	23.8	19.4
R55I-8.5	20.8	22.9	18.7
R55I-10	19.5	21.5	17.6
R55I-14	19	20.9	17.1
R55IHA-7.5	21.6	23.8	19.4
R55IHA-8.5	20.8	22.9	18.7
R55IHA-10	19.5	21.5	17.6
R55IHA-14	19	20.9	17.1
R55N	N/A	N/A	N/A
R75I-7.5	28.8	31.7	25.9
R75I-8.5	27.5	30.3	24.8
R75I-10	25.2	27.7	22.7
R75I-14	24	26.4	21.6
R75N	N/A	N/A	N/A

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 22 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

Model (barg)	Unloaded kW		
	Nominal	+10%	-10%
R90I-7.5	31.2	34.4	28.1
R90I-8.5	30.4	33.5	27.4
R90I-10	28.1	30.9	25.3
R90I-14	24.2	26.6	21.8
R90IHA-7.5	35.9	39.5	32.4
R90IHA-8.5	33.9	37.3	30.6
R90IHA-10	32.1	35.3	28.9
R90IHA-14	28.1	30.9	25.3
R90N	N/A	N/A	N/A
R90IE-7.5	31.2	34.4	28.1
R90IE-8.5	30.4	33.5	27.4
R90IE-10	28.1	30.9	25.3
R90IE-14	24.2	26.6	21.8
R90IEHA-7.5	37	40.7	33.3
R90IEHA-8.5	36	39.6	32.4
R90IEHA-10	35	38.5	31.5
R90IEHA-14	35	38.5	31.5
R90NE	N/A	N/A	N/A
R110I-7.5	35.9	39.5	32.4
R110I-8.5	33.9	37.3	30.6
R110I-10	32.1	35.3	28.9
R110I-14	28.1	30.9	25.3
R110N	N/A	N/A	N/A
R110IE-7.5	37	40.7	33.3
R110IE-8.5	36	39.6	32.4
R110IE-10	35	38.5	31.5
R110IE-14	35	38.5	31.5
R110NE	N/A	N/A	N/A

Model (barg)	Unloaded kW		
	Nominal	+10%	-10%
R132I-7.5	54	59.4	48.6
R132I-8.5	49	53.9	44.1
R132I-10	47	51.7	42.3
R132I-14	47	51.7	42.3
R132IHA-7.5	57	62.7	51.3
R132IHA-8.5	52	57.2	46.8
R132IHA-10	50	55	45
R132IHA-14	50	55	45
R132N	N/A	N/A	N/A
R132IE-7.5	54	59.4	48.6
R132IE-8.5	49	53.9	44.1
R132IE-10	47	51.7	42.3
R132IE-14	47	51.7	42.3
R132IEHA-7.5	57	62.7	51.3
R132IEHA-8.5	52	57.2	46.8
R132IEHA-10	50	55	45
R132IEHA-14	49	53.9	44.1
R132NE	N/A	N/A	N/A
R160I-7.5	57	62.7	51.3
R160I-8.5	52	57.2	46.8
R160I-10	50	55	45
R160I-14	50	55	45
R160N	N/A	N/A	N/A
R160IE-7.5	57	62.7	51.3
R160IE-8.5	52	57.2	46.8
R160IE-10	50	55	45
R160IE-14	49	53.9	44.1
R160NE	N/A	N/A	N/A

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 23 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

Model (psig)	Unloaded kW		
	Nominal	+10%	-10%
R4I-110	2.27	2.49	2.04
R4I-125	2.11	2.32	1.90
R4I-145	1.91	2.10	1.72
R4I-110 1PH	2.00	2.20	1.80
R4I-125 1PH	2.28	2.50	2.05
R4I-145 1PH	2.33	2.56	2.09
R5.5I-110	3.90	4.29	3.51
R5.5I-125	2.91	3.20	2.62
R5.5I-145	2.65	2.91	2.38
R5.5I-200	2.30	2.53	2.07
R5.5I-110 1PH	3.60	3.96	3.24
R5.5I-125 1PH	3.04	3.34	2.73
R5.5I-145 1PH	2.93	3.22	2.64
R5.5I-200 1PH	2.00	2.20	1.80
R5.5N-135	4.40	4.84	3.96
R5.5N-145	4.00	4.40	3.60
R7.5I-110	3.90	4.29	3.51
R7.5I-125	3.78	4.16	3.41
R7.5I-145	3.46	3.80	3.11
R7.5I-200	3.13	3.45	2.82
R7.5N-135	4.76	5.24	4.29
R7.5N-145	5.03	5.53	4.52
R11I-110	5.45	6.00	4.91
R11I-125	5.33	5.86	4.79
R11I-145	5.04	5.54	4.54
R11I-200	4.36	4.79	3.92
R11N-135	5.71	6.29	5.14
R11N-145	5.99	6.59	5.39

Model (psig)	Unloaded kW		
	Nominal	+10%	-10%
R30I-110	12.4	13.6	11.1
R30I-125	12.2	13.4	11.0
R30I-145	11.3	12.4	10.2
R30I-200	N/A	N/A	N/A
R30N	N/A	N/A	N/A
R37I-110	14.5	16.0	13.0
R37I-125	14.2	15.6	12.8
R37I-145	13.7	15.1	12.3
R37I-200	12.3	13.5	11.1
R37N	N/A	N/A	N/A
R37IE-110	17.0	18.7	15.3
R37IE-125	16.0	17.6	14.4
R37IE-145	14.0	15.4	12.6
R37IE-200	11.9	13.1	10.7
R37IEHA-110	17.0	18.7	15.3
R37IEIHA-125	16.0	17.6	14.4
R37IEHA-145	14.0	15.4	12.6
R37IEHA-200	11.9	13.1	10.7
R37NE	N/A	N/A	N/A
R45I-110	20.0	22.0	18.0
R45I-125	19.2	21.1	17.3
R45I-145	17.0	18.7	15.3
R45I-200	15.2	16.7	13.7
R45N	N/A	N/A	N/A
R45IE-110	18.3	20.1	16.5
R45IE-125	17.9	19.7	16.1
R45IE-145	17.6	19.4	15.8

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 24 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

Model (psig)	Unloaded kW		
	Nominal	+10%	-10%
R55I-110	20	22	18
R55I-125	19.6	21.6	17.6
R55I-145	19	20.9	17.1
R55I-200	17.5	19.3	15.8
R55IHA-110	20	22	18
R55IHA-125	19.6	21.6	17.6
R55IHA-145	19	20.9	17.1
R55IHA-200	17.5	19.3	15.8
R55N	N/A	N/A	N/A
R75I-110	25.6	28.2	23
R75I-125	24.6	27.1	22.1
R75I-145	23.3	25.6	21
R75I-200	19.6	21.6	17.6
R75N	N/A	N/A	N/A
R90I-110	32	35.2	28.2
R90I-125	30.4	33.4	27.3
R90I-145	28.8	31.7	25.9
R90I-200	24.1	26.5	21.6
R90IHA-110	36.8	40.5	33.2
R90IHA-125	34.8	38.3	31.3
R90IHA-145	32.9	36.2	29.6
R90IHA-200	28	30.8	25.2
R90N	N/A	N/A	N/A

Model (psig)	Unloaded kW		
	Nominal	+10%	-10%
R90IE-110	32	35.2	28.2
R90IE-125	30.4	33.4	27.3
R90IE-145	28.8	31.7	25.9
R90IE-200	24.1	26.5	21.6
R90IEHA-110	37	40.7	33.3
R90IEHA-125	36	39.6	32.4
R90IEHA-145	35	38.5	31.5
R90IEHA-200	35	38.5	31.5
R90NE	N/A	N/A	N/A
R110I-110	36.8	40.5	33.2
R110I-125	34.8	38.3	31.3
R110I-145	32.9	36.2	29.6
R110I-200	28	30.8	25.2
R110N	N/A	N/A	N/A
R110IE-110	37	40.7	33.3
R110IE-125	36	39.6	32.4
R110IE-145	35	38.5	31.5
R110IE-200	35	38.5	31.5
R110NE	N/A	N/A	N/A
R160I-110	57	62.7	51.3
R160I-125	52	57.2	46.8
R160I-145	50	55	45
R160I-200	50	55	45
R160N	N/A	N/A	N/A
R160IE-110	57	62.7	51.3
R160IE-125	52	57.2	46.8
R160IE-145	50	55	45
R160IE-200	49	53.9	44.1
R160NE	N/A	N/A	N/A



CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 25 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

**R-Series: Next Generation** (Ares "RS" Models)

Model (barg)	Unloaded kW		
	Nominal	+10%	-10%
RS30I-7.5	11.8	13.0	10.6
RS30I-8.5	11.2	12.3	10.1
RS30I-10	10.6	11.7	9.5
RS30I-14	10.0	11.0	9.0
RS30IE-7.5	12.5	13.8	11.3
RS30IE-8.5	11.6	12.8	10.4
RS30IE-10	9.8	10.8	8.8
RS30IE-14	8.6	9.5	7.7
RS37I-7.5	13.2	14.5	11.9
RS37I-8.5	12.3	13.5	11.1
RS37I-10	11.3	12.4	10.2
RS37I-14	10.3	11.3	9.3
RS37IE-7.5	15.3	16.8	13.8
RS37IE-8.5	14.1	15.5	12.7
RS37IE-10	12.1	13.3	10.9
RS37IE-14	10.8	11.9	9.7

Model (psig)	Unloaded kW		
	Nominal	+10%	-10%
RS30I-110	11.6	12.8	10.4
RS30I-125	11.0	12.1	9.9
RS30I-145	9.8	10.8	8.8
RS30I-200	9.5	10.5	8.6
RS30IE-110	12.5	13.8	11.3
RS30IE-125	11.6	12.8	10.4
RS30IE-145	10.8	11.9	9.7
RS30IE-200	8.9	9.8	8.0
RS37I-110	13.0	14.3	11.7
RS37I-125	12.6	13.9	11.3
RS37I-145	11.5	12.7	10.4
RS37I-200	10.9	12.0	9.8
RS37IE-110	15.2	16.7	13.7
RS37IE-125	14.6	16.1	13.1
RS37IE-145	13.5	14.9	12.2
RS37IE-200	11.2	12.3	10.1

Model	Unloaded kW		
	Nominal	+10%	-10%
RS30n	0	0	0
RS37n	0	0	0

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 26 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

Model (barg)	Unloaded kW		
	Nominal	+10%	-10%
RS200I-A7.5	72.3	79.5	65
RS200I-A8.5	70.6	77.7	63.6
RS200I-A10	65.3	71.8	58.8
RS200IE-A7.5	81.3	89.4	73.2
RS200IE-A8.5	76.7	84.4	69.1
RS200IE-A10	72.6	79.8	65.3
RS200IE-A14	62.0	68.2	55.8
RS250I-A7.5	82.5	90.7	74.2
RS250I-A8.5	80.5	88.6	72.5
RS250I-A10	74.3	81.7	66.9
RS250IE-A7.5	99.1	109.0	89.2
RS250IE-A8.5	93.9	103.3	84.5
RS250IE-A10	86.0	94.6	77.4
RS250IE-A14	72.4	79.6	65.1
Model (psig)	Unloaded kW		
	Nominal	+10%	-10%
RS185I-A110	68.9	75.8	62.0
RS185I-A125	66.8	73.5	60.1
RS185I-A145	63.6	70.0	57.3
RS185IE-A110	76.2	83.8	68.5
RS185IE-A125	74.0	81.4	66.6
RS185IE-A145	68.0	74.8	61.2
RS185IE-A200	59.6	65.5	53.6
RS220I-A110	78.5	86.3	70.6
RS220I-A125	76.3	84.0	68.7
RS220I-A145	70.6	77.7	63.6
RS220IE-A110	88.6	97.4	79.7
RS220IE-A125	83.3	91.7	75.0
RS220IE-A145	78.4	86.2	70.6
RS220IE-A200	68.4	75.2	61.6
RS260I-A110	79.9	87.8	71.8
RS260I-A125	78.1	85.9	70.3
RS260I-A145	74.5	81.9	67.0
RS260IE-A110	96.7	106.4	87.1
RS260IE-A125	93.9	103.3	84.5
RS260IE-A145	85.9	94.5	77.3
RS260IE-A200	74.0	81.4	66.6

Model (barg)	Unloaded kW		
	Nominal	+10%	-10%
RS200I-W7.5	64.1	70.5	57.7
RS200I-W8.5	62.4	68.7	56.2
RS200I-W10	57.1	62.8	51.4
RS200IE-W7.5	73.1	80.5	65.8
RS200IE-W8.5	68.6	75.4	61.7
RS200IE-W10	64.4	70.8	58.0
RS200IE-W14	53.8	59.2	48.5
RS250I-W7.5	74.3	81.7	66.9
RS250I-W8.5	72.3	79.6	65.1
RS250I-W10	66.1	72.7	59.5
RS250IE-W7.5	90.9	100.0	81.8
RS250IE-W8.5	85.7	94.3	77.2
RS250IE-W10	77.8	85.6	70.0
RS250IE-W14	64.2	70.6	57.8
Model (psig)	Unloaded kW		
	Nominal	+10%	-10%
RS185I-W110	60.7	66.8	54.6
RS185I-W125	58.7	64.5	52.8
RS185I-W145	55.5	61.0	49.9
RS185IE-W110	68.0	74.8	61.2
RS185IE-W125	65.9	72.4	59.3
RS185IE-W145	59.8	65.8	53.9
RS185IE-W200	51.4	56.6	46.3
RS220I-W110	70.3	77.3	63.3
RS220I-W125	68.2	75.0	61.4
RS220I-W145	62.4	68.7	56.2
RS220IE-W110	80.4	88.5	72.4
RS220IE-W125	75.2	82.7	67.7
RS220IE-W145	70.2	77.3	63.2
RS220IE-W200	60.2	66.3	54.2
RS260I-W110	71.7	78.8	64.5
RS260I-W125	69.9	76.9	62.9
RS260I-W145	66.3	73	59.7
RS260IE-W110	88.6	97.4	79.7
RS260IE-W125	85.7	94.3	77.2
RS260IE-W145	77.7	85.5	69.9
RS260IE-W200	65.9	72.4	59.3

Notes:

1. Nominal Offload package input power shall fall within +/- 10% tolerance band.
2. Nominal Offload Package Input Power (Unloaded Power) not applicable for VSD machines.

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 27 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

Revision	ECN	Description	Date	Originated	Approved
A	78253	Initial Release	11/20/09	B. Wise	B. Wise
B	78495	Change separator differential pressure from 0.3 barg (4 psig) to 0.4 barg (6 psig)	3/3/10	J. Lindsey	J. Lindsey
C	78513	Page 5, Note 5, changed test point for Nirvana compressors from 135 PSIG / 9.5 Barg to 145 PSIG / 10 Barg. Table in Appendix B, deleted the Nirvana model numbers and the Speed Column from the table. Page 5, Performance Test Table, changed the Measure, record, and validate Offload Package Input Power for the SGnev to "N/A"	3/12/10	P. Schmitz	J. Lindsey
D	78548	Revised table in Appendix B to include Airend dT specifications. Revised bottom table on Page 5 to reference Appendix B for Airend dT pass/fail criteria.	3/19/10	P. Schmitz	J. Lindsey
E	78739	Section 4 (Production Test Parameters) – Added Coolant fill to table and added Note 11 indicating special coolant fill requirements in	6/21/10	P. Schmitz	J. Lindsey
F	78852	Addition for 2 stage 90-110kW and single stage 132-160kW units, added interstage pressure check and values for interstage pressure that apply to two stage units only.	7/10/10	J. Bailey	J. Lindsey
G	79014	Addition for IE1 data pages and unloaded power/ delta T parameters for remainder of units.	8/30/10	J. Bailey	J. Lindsey
H	79119	Page 1, Para. 2, added missing eng data sheet 23672686. Page 6, Para. 5, deleted verification reqm't for AE dT. Appendix B – Deleted Airend dT values.	10/9/10	P. Schmitz	B. Wise
J	79342	Additional machine data added for 55/75KW product. HPM testing added; integrated dryer testing added.	12/22/10	J. Bailey	S. Kumar

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 28 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

K	79568 DWG	Revised Appendix B to fix a typographical error, the R90IE-145 nominal unloaded power was 38.8.	3/8/11	P. Schmitz	S. Kumar
L	79568 DWG1	Revised Appendix B to fix a typographical error, the R90I-145 nominal unloaded power was 38.8.	3/11/11	P. Schmitz	S. Kumar
M	79720	Table A: Offload and Onload Vibration, Separator Differential Pressure, and Oil Filter Differential Pressure, change minimum from 0 to 1mm/s and from 0 to .07 barG (1.0 psiG).	4/26/11	T, Vincent	S. Eaton
N	80294	Section 2: Added (IE3) to R90-160 60Hz models. Add new table (sh. 2) and engineering data sheets for 60Hz (IE2) Brazil units. Section 5: Added Dryer Testing.	11/21/11	T. Vincent / S. Kumar	S. Eaton
P	80737	Section 5: Added notes on specific power verification with regard to setting a fixed speed for blower motors on Variable Speed Products.	5/18/12	G. Fee	T. Vincent
R	80933	Added 37/45 kW Engineering Data Sheet CCNs and Unloaded kW's. Changed fan motor setting to SF amps.	7/09/12	Z. Whitley	S. Kumar
T	81621	Section 2: Page 2, RH model table (R37/45KW) - Corrected header label from 50Hz to 60Hz. Section 4: Table - "Set main motor and blower speed to specific speed for testing only (Note 13)" was "Set fan speed to specific speed for testing only (Note 13)". Note 5 - 100 psig was 145 psig; (TAS and non-TAS units) was (138 psig for TAS unit) and (9.5 barg for TAS unit). Note 13 was "For VSD units, input power must measure fan at 78% speed for 75kW and 60% speed for 55kW."	3/18/13	M. Borkowski / T. Vincent	T. Vincent

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 29 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

		Deleted Note 16/table for setting blower speeds for VSD units. Added ECN/ECN #'s to header and revision table. <b><i>(Additions/changes denoted in bold italics)</i></b>			
U	82093	Updated spec for R30/37.  Section 2: Removed the following 50 Hz machines from the table: R37IE (IE2) 24192239, R37IEHA (IE2) 24192270, R45I (IE2) 24192288, R37IE (IE1) 24192296, R37IEHA (IE1) 24192312, R45I (IE1) 24192338, R37IETAS (IE2) 24192361, R45ITAS (IE2) 24192379, R37IETAS (IE1) 24192387, R45ITAS (IE1) 24192395	10/30/2013	A. Zhang / S. Marcus	S. Kumar / T. Vincent
V	994112	Updated spec for R4-11: Section 2: Added R4-11 engineering data sheets and organized data sheets by power ranges. Section 4, Note 5: Added exception to "e" designation under table. Section 4, Note 10: Added R4-11 powers to table. Section 4, Note 13: Added R4-11 data to specific power table. Section 4, Note 16: Added this note. Appendix A: Added CE55NX vibration measurement location images. Appendix B: Added R4-11 unloaded kW and tolerance.	07/01/2015	M. Klech / Z. Whitley	S. Krizek
W	1008066	Section 1: Added ("R" and "RS" models)" Section 2: Added RS30-37 and R45ie engineering data sheets. Added headings for R-Series First Generation (Velocity "R" Models) and Next Generation (Ares "RS" Models). Section 4.13: Added "except on low ambient packages" (relating	11/11/2015	Z. Whitley	P. Polasek

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 30 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

		to R4-11 and the cooling fan VSD). Section 4, Note 1: Added details "a" and "b" regarding Xe-70. Section 4, Note 2: Corrected wording. Section 4, Note 5: Added "R45ie". Section 4, Note 8: Added clarification comment of "using CT overload protection." Section 4, Note 16: Replaced password with, "for password, contact engineering groups". Section 5, Table A: Updated format. Added Ares discharge temperatures, offload sump pressure, and vibration maximums. Appendix B: Added RS30-37 unloaded power data. Added headings for R-Series First Generation (Velocity "R" Models) and Next Generation (Ares "RS" Models). Added R45ie data. Reorganized data tables.			
Y	1009175	Added R45IE-125 category. CCN 47549167001 was 23769623. Added new Nominal Offload Package Input Power.	01/20/2016	C. Sayani	C. Taylor
Z	1032631	Reinstated sections deleted in error in prior release	03/07/2016	C. Taylor	S. Eaton
AA	1116267	Revised Note 1 on Section 4, Page 8. The note was: <i>Set main drive motor thermal overload. Data to be entered = motor nameplate amps x 0.67.</i> a) <i>For machines using Xe-70 and CT's (R30-I, R37i, RS30i, RS37i, machines in the Asia Pacific markets), the motor name plate amps x 1.15 must be entered in the Xe-70M controller Factory Settings screen.</i> b) <i>For machines using the Xe-70 and external thermal overload, the "Main Motor Protect" set-point on the</i>	09/14/2016	A. Shanov	S. Eaton

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 31 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

		<p><i>controller must be set to "OFF" and the CT inputs must be disabled.</i></p> <p>Revised Note 13 on Section 4, Page8 to include "RS30-37n" models</p> <p>Added RS30, RS37 model Eng Data Sheet CCNs and unloaded power data</p> <p>Added RS200-250kW 50Hz and 60Hz Models</p> <p>Misc. formatting changes</p>			
AB	1116267	ECN number in the header was 11116267.	11/4/2016	A.Shanov	S. Eaton
AC	1267546	<p>Updated 200-250kW unloaded power</p> <p>Section 4, Note 5: 250NE was 160N</p> <p>Section 4, Note 11b: removed text "Since there is no airend discharge check valve, "</p> <p>Section 5, Table A: removed Oil Injection minimum temperature. N/A was 62°C (143°F).</p>	10/02/2017	M.Wagenhauser	S.Kumar
AD	1278851	<p>Added "Set Blower Control Type" and "Set RTD Monitors" to Section 4 Parameters table.</p> <p>Added Note 17 (Blower Control Type settings) to Section 4.</p> <p>Added Note 18 (Motor RTD Monitoring settings) to Section 4.</p> <p>Replaced "Prime airend (0.5L) on assy" with "Prime airend according to Engineering Specification 54380084" in Section 4 Parameters table.</p>	11/27/2017	M.Wagenhauser	S.Kumar

CCN <b>23555584</b>	Revision AE	Issued 12/07/2017	Page 32 of 32
Title <b>R-SERIES CONTACT COOLED - ROTARY PRODUCT ACCEPTANCE SPECIFICATION</b>			ECN 1279685

AE	1279685	<p>Removed "Set auto re-start (run on) timer (minutes 50Hz / 60Hz)" from Section 4 Parameters table. Set point to be default value.</p> <p>Added "Enable Auto-Restart: Set to "On" (default is "Off")" for Fixed Speed machines to Section 4 Parameters table.</p> <p>Added "Verify Phase Monitor installed and wired according to schematic (See Note 19)" for Fixed Speed machines to Section 4 Parameters table.</p> <p>Added Note 19 (Phase Monitor) to Section 4</p>	12/07/2017	M.Wagenhauser	S.Kumar
----	---------	---	------------	---------------	---------