



COMPRESSED AIR SAVINGS CALCULATOR USER GUIDE
SMART \$AVER CUSTOM INCENTIVES
CUSTOM-TO-GO

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1. GETTING STARTED

The current version of the Compressed Air Savings Calculator can be downloaded from <http://duke-energy.com/CustomToGo>. It is included in the Smart \$aver Custom-To-Go tool suite, which contains a number of useful tools that can help you calculate savings and incentives for various energy saving measures.

The ZIP output file from the calculator must be submitted with the Smart \$aver application (Step 1) in order to receive an incentive payment. For application submissions and questions about the application process, contact us at CustomIncentives@duke-energy.com.

2. MEASURE TOOL DESCRIPTION

Compressed air systems provide power for tools, presses, controls and a wide variety of industrial equipment and processes. As such, compressed air systems vary widely both in the equipment and controls that are employed. Compressed air systems afford significant opportunities for energy savings and the Duke program has provided incentives for equipment and control upgrades since the program's inception. The Compressed Air Savings Calculator draws extensively from information provided by the Department of Energy (DOE) Compressed Air Challenge program. Specifically, the AirMaster+ software package developed by DOE is used as a guide for generic equipment performance characteristics and operating ranges covered by the Compressed Air Savings Calculator.

The Compressed Air Savings Calculator provides for the following compressed air system measures:

- Direct replacement of one to five air compressors, including compressors equipped with variable speed drives,
- Installation or upgrade of system storage,
- Installation of intermediate pressure/flow control valves, and
- Reconfiguration of air inlet to outside air.

The Compressed Air Savings Calculator allows implementation of any of these measures as retrofit projects that do not involve any increase in load (deferred load). Note that in the case of new installations the lack of operating data restricts the complexity of the savings analysis and limits the types of energy efficient measures that can be accommodated. Therefore, for applications involving new installations the Compressed Air Savings Calculator will only accommodate measures involving efficient compressor installations (increased storage, intermediate pressure controls and reconfiguration of inlet air are not accommodated).

2.1. Appropriate Use of the Tool

The Compressed Air Savings Calculator can be used for compressed air systems and measures having the characteristics shown in Table 1.

2.2. Applicable Types of Equipment

The Compressed Air Savings Calculator covers the same compressor types and pressure ranges that are covered by the AirMaster+ software package as shown in Table 2.

2.3. Equipment Sizes or Capacities Covered by the Tool

The Compressed Air Savings Calculator covers the same compressor types and pressure ranges that are covered by the AirMaster+ software package (also shown in Table 2).

Table 1: Air Compressor Common Measure Features

Description	Measure Feature
# of Compressors	1 – 5
Compressor types and sizes	Single and dual stage reciprocating, oil-flooded and oil-free rotary screw and centrifugal type air compressors
Compressor drive	Conventional and Variable Speed Drive (VSD)
Storage	Existing or new storage will be accommodated but only storage located upstream of an installed intermediate flow/pressure control will be used to analyze compressor operation. This measure is not supported for deferred load or new installations.
Intermediate Flow / Pressure Controller	The addition of an intermediate flow/pressure controller is supported as an efficiency measure only (baseline system doesn't include this option). This measure is not supported for deferred load or new installations.
Reconfiguration of inlet air to Outside Air	The addition of plumbing and filtration (if needed) to bring inlet air from the outside instead of from the compressor room is an efficiency measure. This measure is not supported for deferred load or new installations.
Baseline air compressor efficiency	Generic compressor efficiencies used in AirMaster+ software package are used as minimum acceptable efficiency for the types and sizes of compressors identified by the project sponsor.
Compressor Load Profile	Hourly load profile inputs (acfm or kW) used for up to 4 “day types” to establish baseline usage of each compressor and for overall system load. Systems less than 100 HP can use “generic” load profiles.
Applicable operating pressure range	Pressure range varies with compressor type as per AirMaster+

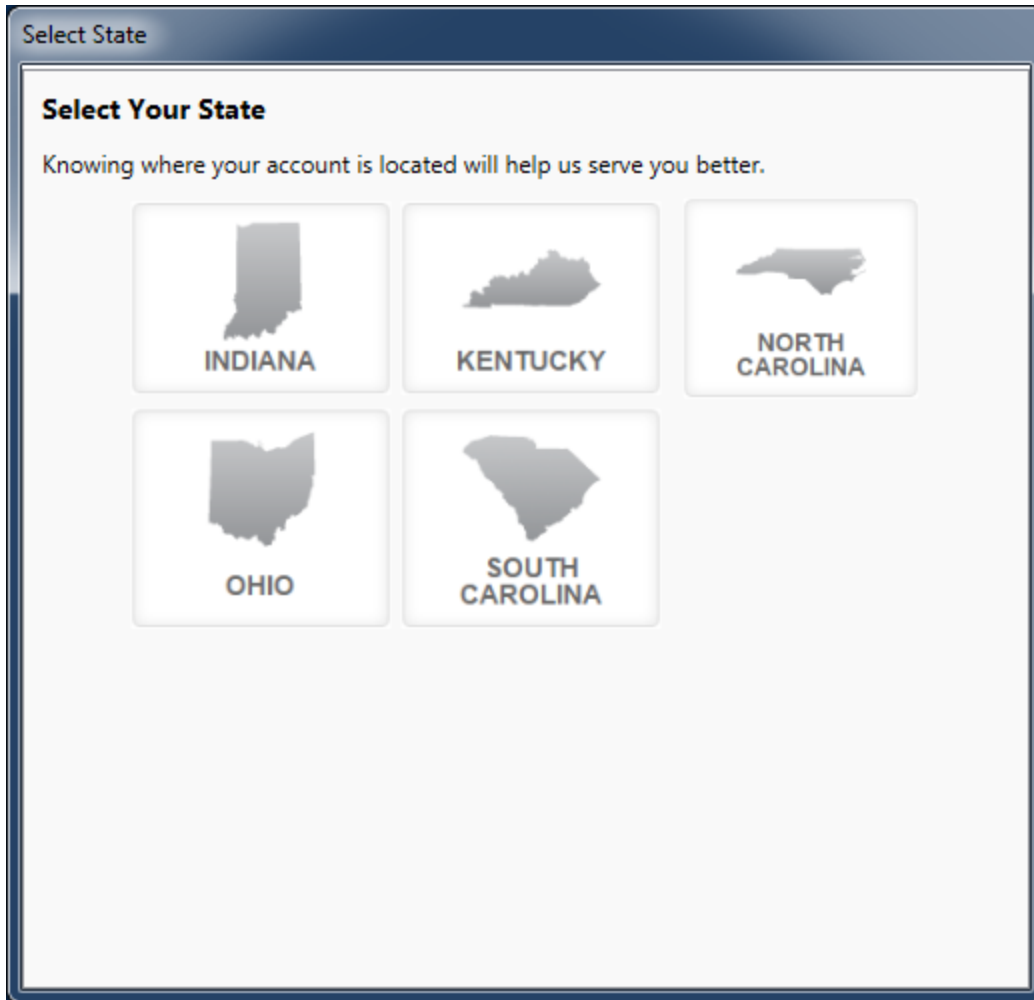
Table 2: Compressed Air System Upgrade Measure Equipment Coverage Matrix

Compressor Types	Control Types	Size Range (hp)	Pressure Range (psig)
Single Stage lubricant injected rotary screw	Inlet Modulation w/o unloading Inlet Modulation w/unloading Load/Unload Variable Displacement w/unloading Variable Speed Drive	5 - 500	100 - 200
Two Stage lubricant injected rotary screw	Inlet Modulation w/o unloading Inlet Modulation w/unloading Load/Unload Variable Displacement w/unloading Variable Speed Drive	100 – 600	100 – 200
Two Stage lubricant-free rotary screw	Load/Unload	50 - 500	75 - 150
Single Stage reciprocating	Load/Unload	5 - 350	30 – 125
Two Stage reciprocating	Load/Unload Multi-Step Unloading	5 - 400	80 – 150
Multi-Stage Centrifugal	Load/Unload Inlet Modulation w/ Blow-off Inlet Modulation w/ Unloading	600	100

3. MEASURE TOOL USE

3.1. Select Your Service Territory

In order to properly load the correct utility program the user must first select the service territory associated with their account. To begin, select your state from the list presented in the *Select State* dialog box.



If the State of Indiana, Kentucky, or Ohio is selected the application will open the appropriate service territory version of the software.

If one of the Carolinas is selected the application needs a little more information. In these cases, a *Select Service Territory* dialog box will appear. Please either enter the service address zip code or select the Utility associated with the service account.

To return to the state selection dialog box click on the “Choose State” link.

Select Service Territory

[Choose State](#) » More Info Needed

We're going to need a little more information to customize your experience.

Enter Service Address Zip Code

5-Digit Zip

-OR-

Select a Service Territory by clicking on the utility name on the left

● Duke Energy

● Duke Energy Progress

3.2. Tool Inputs

Once the Compressed Air Savings Calculator measure is selected, the user is then directed to enter the various inputs as described in the following tables and associated figures.

Table 3: Project Inputs (see Figure 1)

Name	Description / Purpose
Project Name	Identify name of project
Project Number	Identify specific project number if known
Site Street Address	Identify mailing address of site installation
State	Pull-down menu with Indiana, Kentucky, Ohio, North Carolina and South Carolina cities. Used to define the City pull-down menu and to verify prescriptive measure eligibility.
City	Pull-down menu containing pre-selected cities for the selected state. Used to lookup site elevation and average ambient temperature.
Federally Owned	Select if the facility is Federally Owned

New Construction	Determines the level of operating profile input required and calculation methodology
Facility Type	<p>Pull-down menu with several generic industry uses. Used to define generic load profiles for systems with less than 100 HP.</p> <ul style="list-style-type: none"> a. Industrial- One Shift b. Industrial- Two Shifts c. Industrial- Three Shifts d. Commercial- Normal Hours e. Commercial- Extended Hours f. K-12 School g. College/University h. Hospital
Average Billing Rate (\$/kWh)	If the actual billing rate is different from the one specified, select the override checkbox and enter the rate. Used to estimate annual energy cost savings.
Incremental Cost (\$)	Insert the incremental cost (\$) of the proposed energy efficiency project. Used to determine incentive value.

Figure 1: Project Inputs Screen

Smart Saver Custom Incentive Program

File Help

Duke Compressed Air Example

Project System Baseline Oper. Profile Energy Eff. Results

Project Inputs

Project Name: 123

Project Number: 456

Account Number: 789

Site Address: 123 abc drive

City: Asheville State: NC Zip: 28801

Federal Owned:

New Construction:

Facility Type: Industrial - Three Shift

Nearest Weather Station: Asheville Regional Arpt

Average Billing Rate (\$/kWh): \$0.065 Override

Incremental Cost: \$100,000.00

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Version 1.0.13

Table 4: Site/System Inputs (see Figure 2)

Name	Description / Purpose
Number of Existing Compressors	Used in inspection
Multi-compressor Control Sequencer?	Check-box to define if the system has “No Sequencer” or “Sequencer” selections. Used to determine if idle compressors can be turned off and compressor loading.
Nominal System Op. Press. (psig)	Pressure supplied to end uses (downstream of dryers and intermediate controls) – used to estimate changes in unregulated flow (if applicable)
Nominal Supply Pressure (psig)	Compressor output pressure – used to adjust compressor performance relative to manufacturer’s data
Total Receiver Volume (gallons)	Total volume of all installed receivers – use in inspection. Used to estimate to system volume and to estimate compressor cycle times (if applicable)

Figure 2: Compressor Inputs Screen

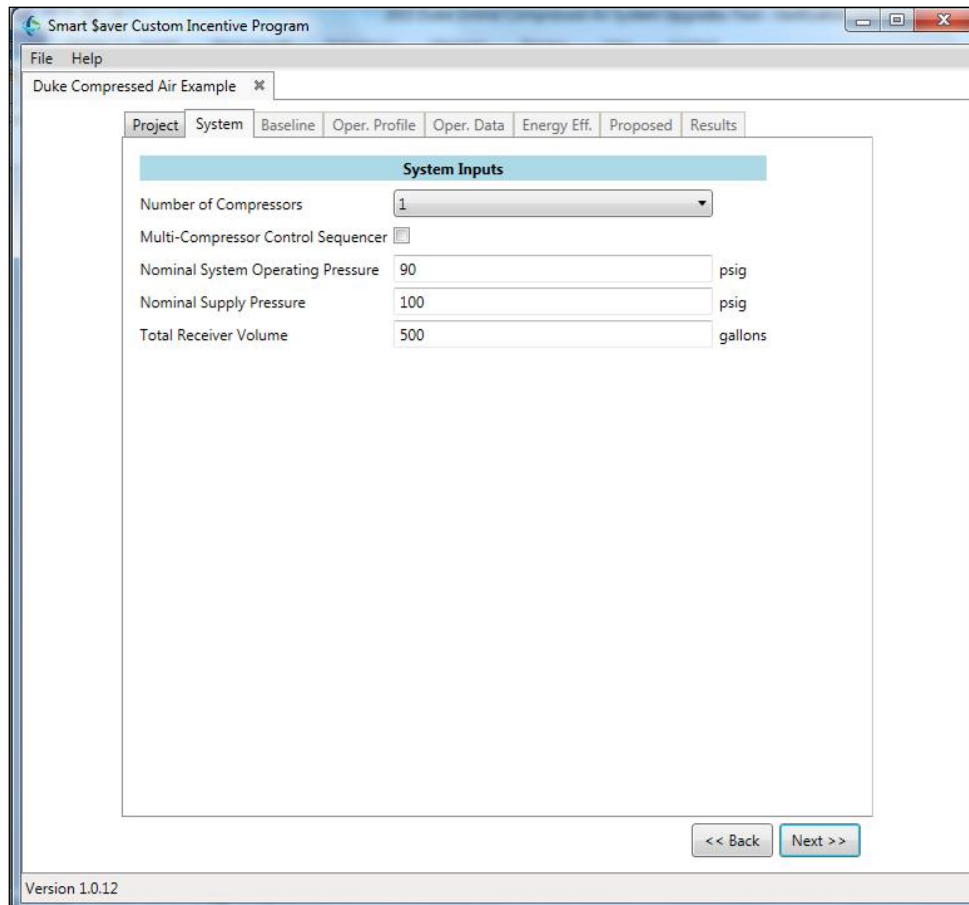


Table 5: Compressor Inputs (1 page for each compressor) (see Figure 3)

Name	Description / Purpose
Compressor ID	Site/local designation -- used for site inspection
Type	Pull-down menu with selections for <ul style="list-style-type: none"> a. Single Stage Reciprocating b. Single Stage Rotary Screw (lubricant injected) c. Two Stage Reciprocating d. Two Stage Rotary Screw (lubricant injected) e. Two Stage Rotary Screw (lubricant free) f. Centrifugal
Control Method	Pull-down menu containing control options specific to the compressor type (see Table 2): <ul style="list-style-type: none"> a. Load/Unload b. Centrifugal Modulation w/ blow-off c. Centrifugal Modulation w/ unloading d. Inlet Modulation w/o unloading e. Inlet Modulation w/unloading f. Variable Displacement w/unloading g. Variable Speed Drive Used to estimate part-load performance.
Operating Mode	Pull-down menu containing: <ul style="list-style-type: none"> a. Lead/Baseload b. Additional Baseload 1 c. Additional Baseload 2 d. Additional Baseload 3 e. Trim/Variable Used to determine loading sequence (multiple compressors)
Compressor Drive Motor (HP)	Rated HP of compressor electric drive motor- used to calculate if hourly input data is required and to confirm type of compressor is within the tool's range of compressor size and operating pressure
Full-load Package Power (kW)	Package power at full-load from CAGI data – used to estimate full- and part-load performance
Full-load Operating Pressure (psig)	Operating pressure corresponding to the full-load package power value (CAGI) – used to estimate full- and part-load performance
Rated Capacity @ Full-load Operating Press (acfm)	Airflow in acfm corresponding to the full-load package power value (CAGI) – used to estimate full- and part-load performance
Full-load Pressure (cut-in)	Compressor pressure control set point when declining pressure causes the compressor to load – used with storage amount, and cut-out pressure to estimate cycle time (if applicable)
Max Flow Pressure (cut-out)	Compressor pressure control set point when increasing pressure causes the compressor to

	unload -- used with storage amount, and cut-in pressure to estimate cycle time (if applicable)
Unloading Control Setpoint - % of Capacity	Default values shown are dependent on control type selected. Value is used to refine the part-load performance map.
Unloading Control Setpoint - % of Power	Default values shown are dependent on control type selected. Value is used to refine the part-load performance map.
No Load Control Setpoint - % of Power	Default values shown are dependent on control type selected. Value is used to refine the part-load performance map.
After-cooling Method	Pull-down menu with selections for: a. Air (Integral Fan) b. Air (Separate Fan) c. Water
Auto Shut-down Timer?	Checkbox – checked if there is a timer that will shut-down the compressor if fully unloaded? (Twenty minute default)
Air Compressor Inlet Air Intake Outside?	Checkbox – checked if there is plumbing to duct inlet air from outside to the air compressor intake.

Figure 3: Compressor Operating Info Screen

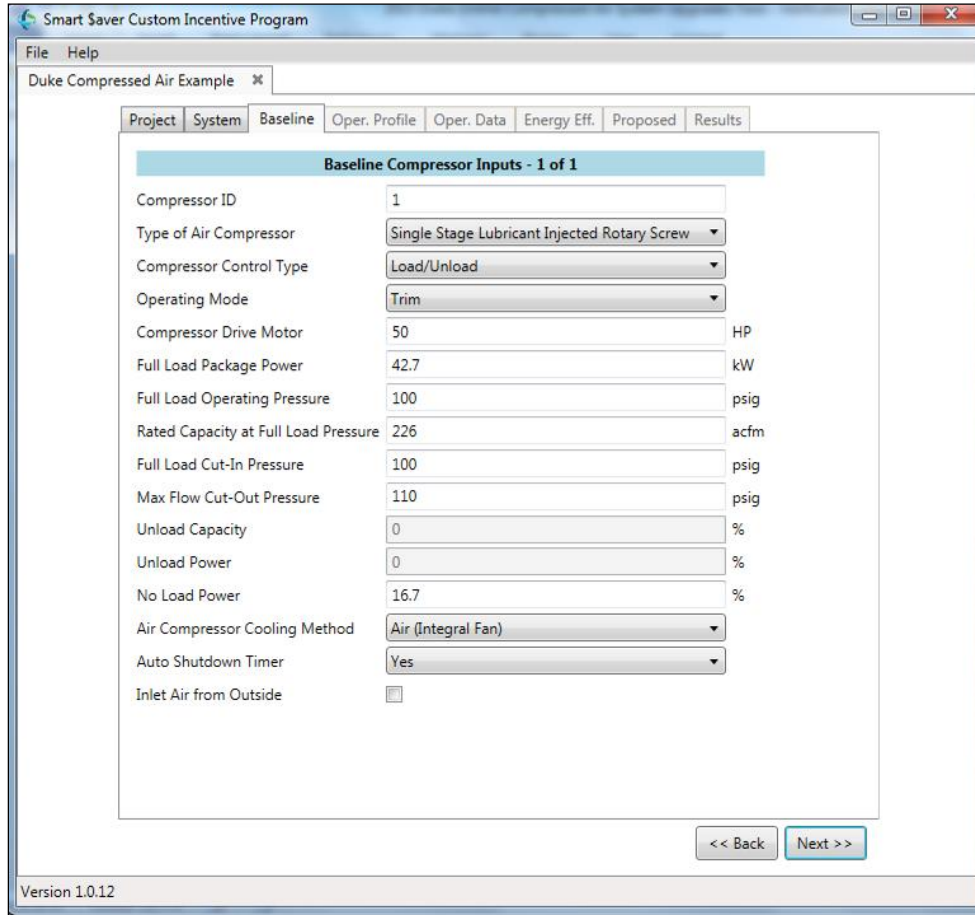


Table 6: System Operating Info Inputs (see Figures 4 and 5)

Name	Description / Purpose
Input Hourly Data	Checkbox available for 100 HP systems and less, otherwise the hourly load profiles are required to run the simulation.
Profile Units	Pull-down menu used to designate the type of profile information provided. Selections include: a. ACFM b. KW-package c. KW-compressor only
Number of Day Types	Pull-down menu used to designate the number of profiles that will be entered (1 – 4).
Day Type	The number of the day type (1 – 4 as selected above) associated with the remaining inputs (below)
Day type Name	Text box to provide a name for the profile (e.g., weekday, etc.) – used in reports and for inspection
Days/Week (1)	Number of days per week for this day-type.

Weeks/Year (1)	Number of weeks per year for this day-type.
Operates May – October?	Checkbox – checked if the day involves summer peak operation – used to determine if peak demand savings are involved.
Operates November – April?	Checkbox- checked if the day involves winter peak operation – used to determine if peak demand savings are involved.
Average Flow (2)	Average airflow (ACFM) for each day-type
Summer Peak Flow (2)	Maximum airflow during Summer (ACFM)
Winter Peak Flow (2)	Maximum airflow during Winter (ACFM)
Hours / Day (2)	Hours of operation per day
Day Type	A pull-down menu with descriptions corresponding to the information entered previously in Sheet 5. Identifies the day-type associated with the profile information to be entered.
Hourly Profile Value	24 hourly values of ACFM or KW; separate profiles are entered for each compressor (<i>required for retrofit applications only</i>)

Notes:

- (1) -- Total operating hours for all day-types cannot exceed 8760 hours or an error is flagged
- (2) – Average flow, peak flow & hours/day inputs are required for new installations only (in lieu of profile data)

Figure 4: System Operating Info Screen

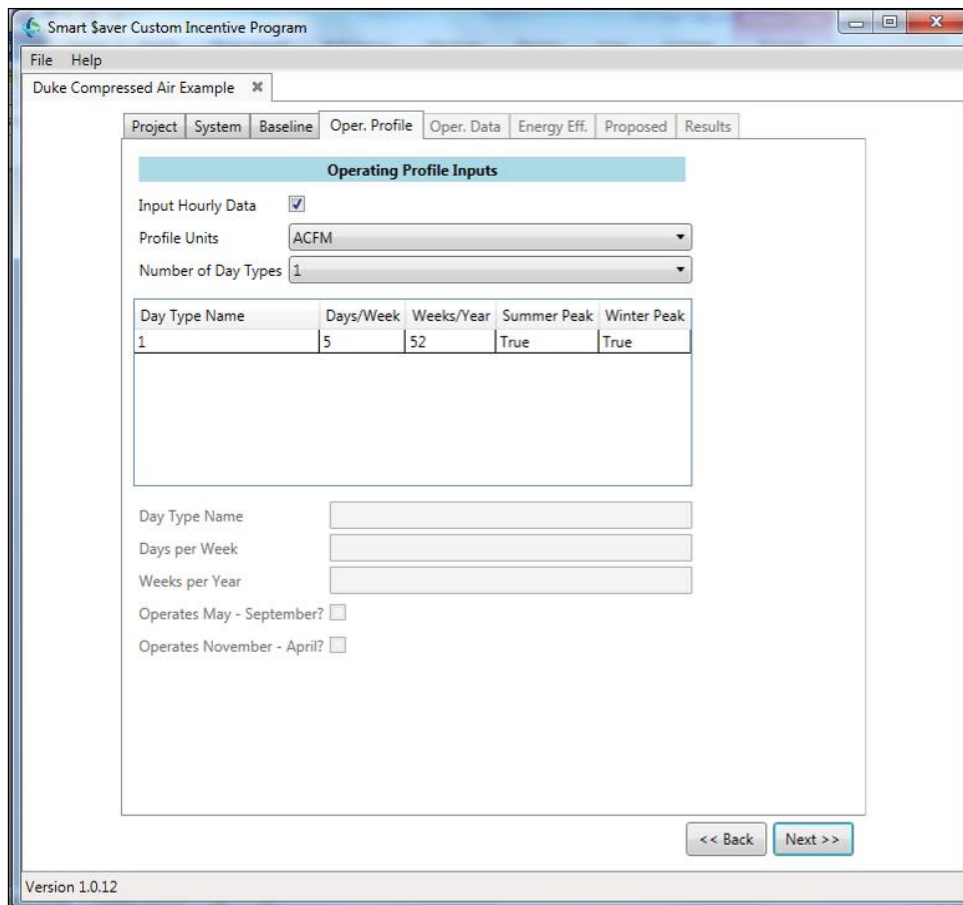


Figure 5: System Hourly Operating Info Screen

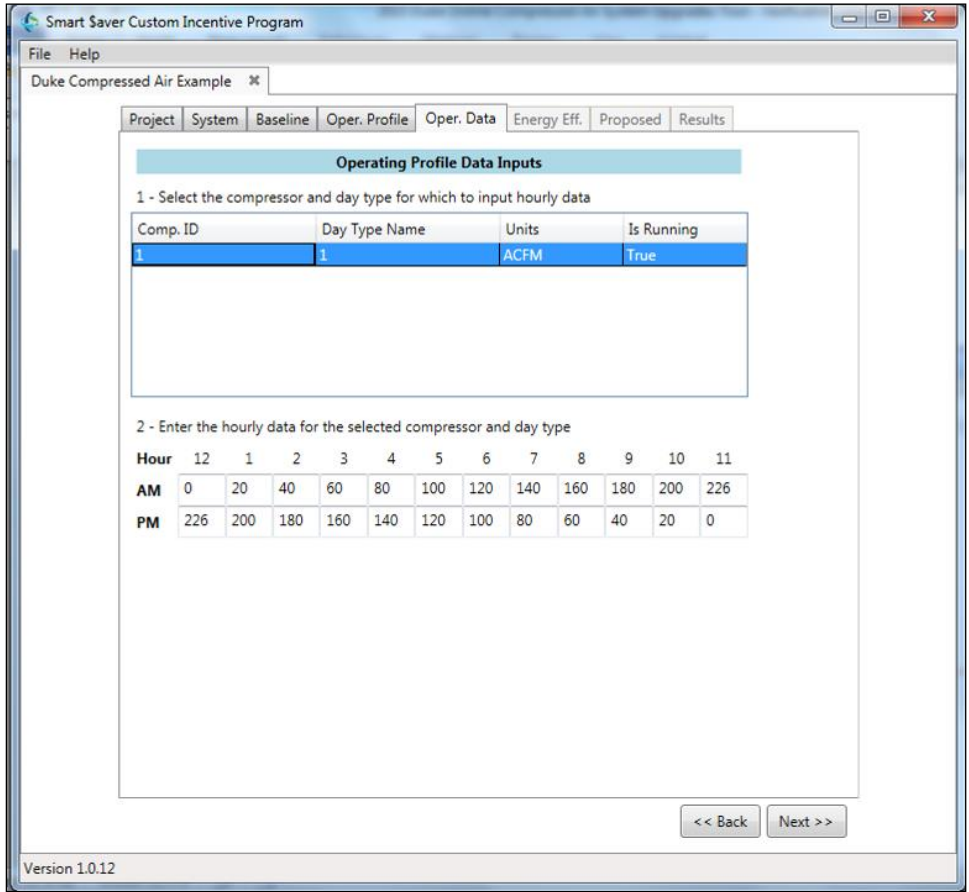


Table 7: Measure Specification Inputs (see Figure 6)

Name	Description / Purpose
Compressor Replacement / Modification?	Checkbox – checked if one of the measures involves compressor replacement or modification
Compressor Replacement / Modification Type	A pull-down menu that is activated if compressor replacement / modification is selected with choices for: a. No change b. Replace compressor c. Change operating mode d. Remove / standby
Operating Mode	A pull-down menu that is activated if the compressor modification selected is “Change op mode”. Selections include: a. Lead / Baseload b. Additional Baseload 1 c. Additional Baseload 2 d. Additional Baseload 3 e. Trim / Variable

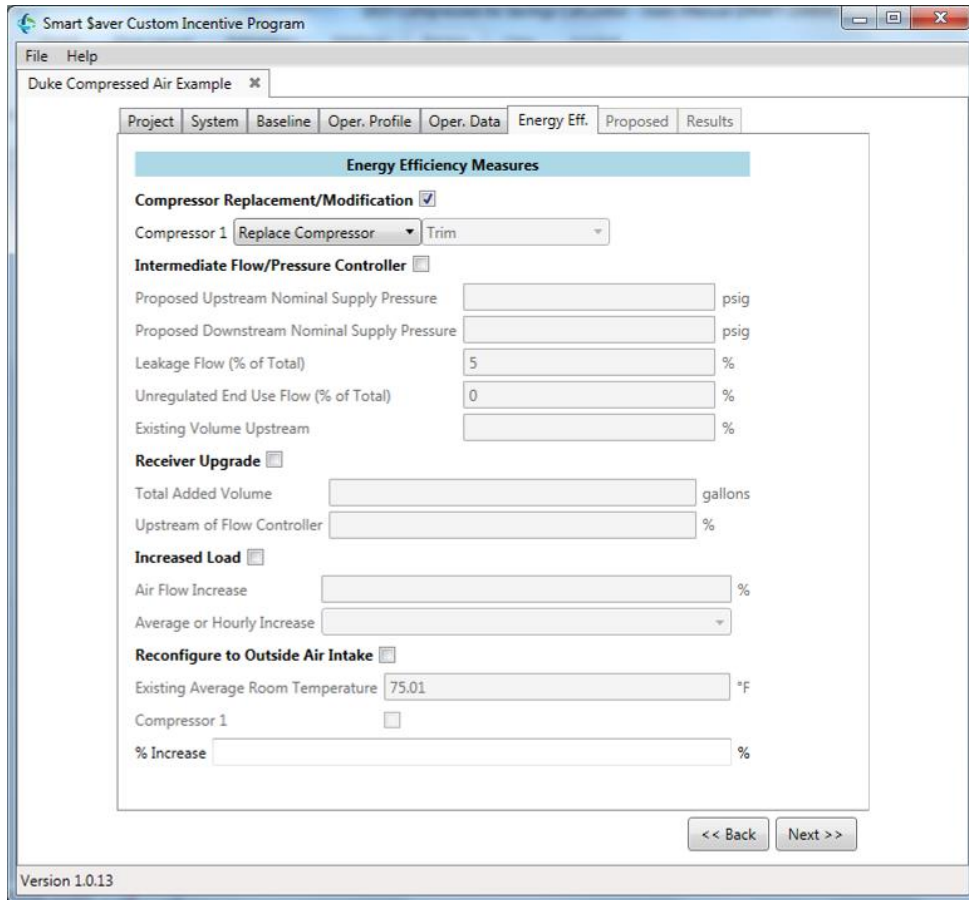
	Used to estimate loading order of proposed compressor.
Intermediate Flow/Pressure Controller? (1)	Checkbox – checked if one of the measures involves installation of an intermediate flow/pressure controller
Proposed Nominal Supply (Upstream) Pressure (psig) (1)	Input activated if intermediate flow controller is selected. Input is pressure upstream of new controller in psig. Used to estimate the impact on compressor energy use (if applicable)
Proposed Nominal Operating (Downstream) Pressure (psig) (1)	Input activated if intermediate flow controller is selected. Input is pressure downstream of new controller in psig. Used to estimate the impact on system airflow of reduced system operating pressure.
Leakage Flow (% of total) (1)	Input activated if intermediate flow controller is selected. Input is % of total system flow attributed to leakage (unregulated). Used to estimate the impact on system airflow of reduced system operating pressure.
Other Unregulated End Use (1) (% of total)	Input activated if intermediate flow controller is selected. % of total system flow attributed to other unregulated flow (other than leakage). Used to estimate the impact on system airflow of reduced system operating pressure.
Existing Volume Upstream (%) (1)	Input activated if intermediate flow controller is selected. Input is % of system volume that is upstream of the proposed intermediate controller. Used to estimate the impact on compressor operation.
Storage Upgrade? (1)	Checkbox – checked if one of the measures involves the addition of receiver volume.
Total Added Volume (cubic ft) (1)	Input activated if storage upgrade is selected. Input is total volume in cubic feet that will be added. Used to estimate the impact on compressor operation.
Upstream of Flow Controller (%) (1)	Input activated if storage upgrade and intermediate flow controller are both selected. Input is % of additional volume that will be located upstream of the new flow controller. Used to estimate the impact on compressor operation.
Reconfigure to Outside Air Intake?	Checkbox to select if any of the air compressors have been plumbed for outside air intake. If activated all additional checkboxes for any baseline compressors with intake in the compressor room are available for selection.
Existing Average Room Temperature (°F)?	Input activated if Reconfigure to Outside Air Intake is selected. The existing average room temperature is required to calculate the baseline energy usage of the compressor. Default value is 20°F greater than average ambient temperature.
Increased Load (2)	Checkbox – checked if one of the measures involves an increase in compressed air load
% Air Flow Increase (2)	The percentage increase in the airflow for each day-type
Average or Hourly Increase (2)	A pull-down menu that is activated if compressor increased load is selected with choices for:

	<p>a. Average; % Air Flow Increase greater than the average air flow for the system</p> <p>b. Hourly; % Air Flow Increase greater than the individually assigned hourly air flow</p>
--	--

Notes:

- (1) – Measure information not required for deferred load & new installations.
- (2) – Measure information required for deferred load applications only.

Figure 6: Measure Specification Screen



3.3. Additional Inputs

Additional input forms are provided to define the performance and operating characteristics of the proposed compressor. These forms and inputs are the same as those used to define the performance and operating characteristics of the existing equipment, and are identical to the forms and inputs previously described in Table 5.

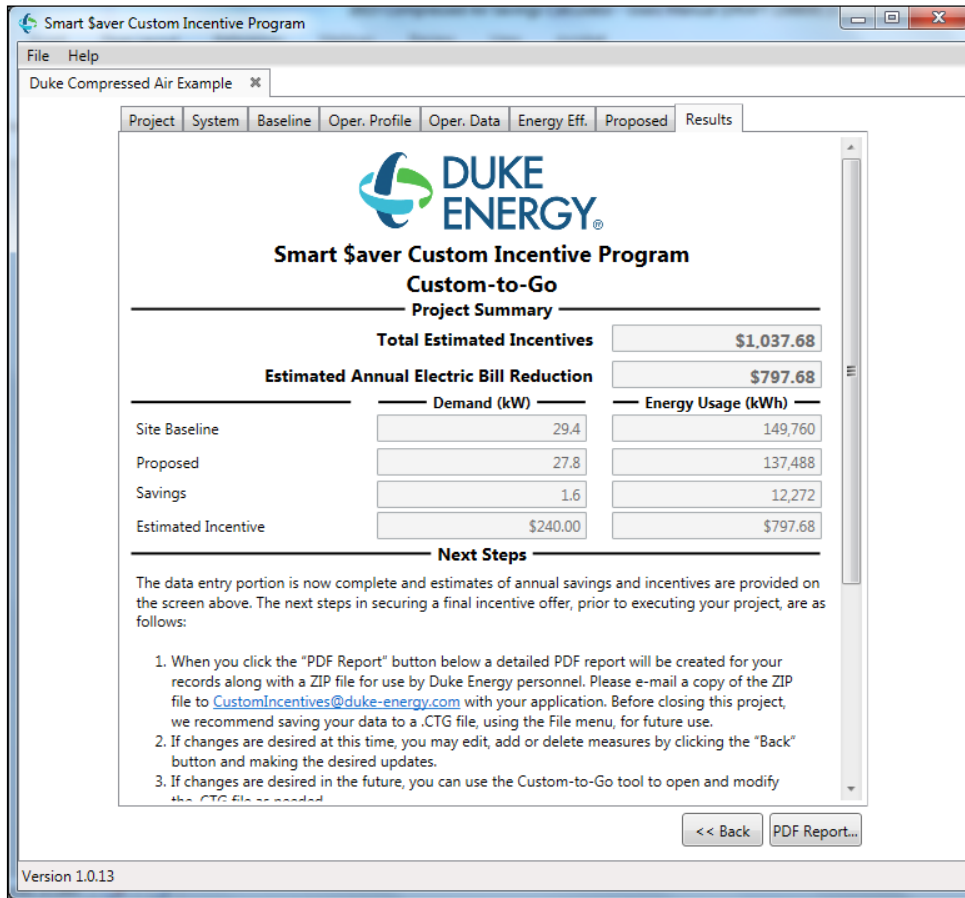
3.4. Tool Outputs

The following table and associated figure describes the Compressed Air Savings Calculator outputs.

Table 8: Measure Energy Usage, Savings and Incentive (see Figure 7)

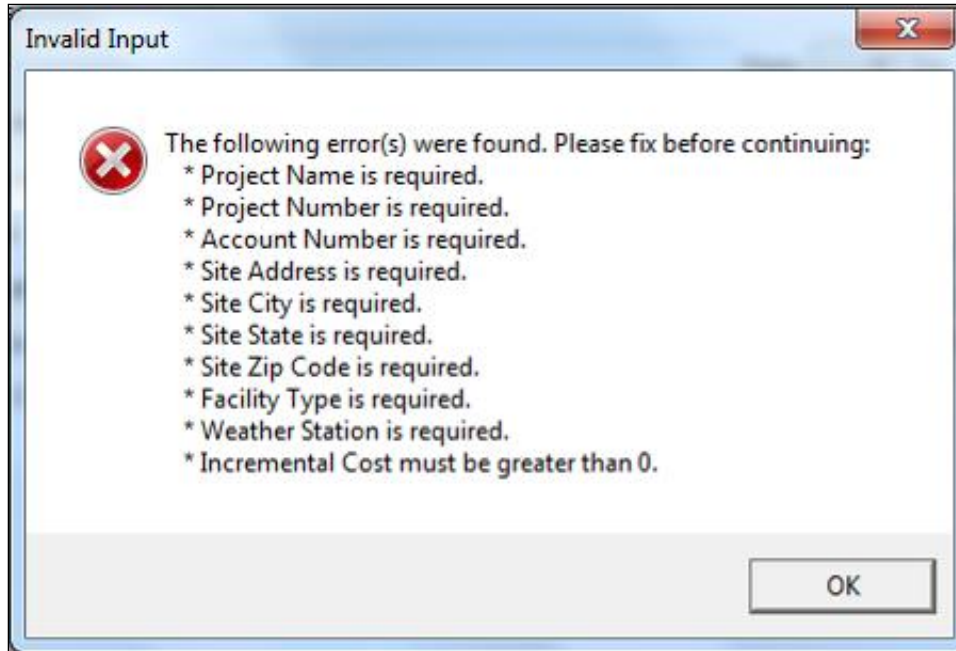
Name	Description / Purpose
Total Estimated Incentives	Total estimated Duke Smart \$aver incentive based on current incentive rates. Please refer to the Smart \$aver custom website to view the up-to-date payment rates – duke-energy.com/custom .
Estimated Annual Electric Bill Reduction	Total estimated annual electric bill cost reduction associated with the measure(s) based on user input average electricity cost rate.
Site Baseline, Demand, kW	Estimated average Summer on-peak demand of the existing air compressor(s)
Proposed, Demand, kW	Estimated average Summer on-peak demand of the proposed air compressor(s)
Savings, Demand, kW	Estimated average Summer on-peak demand savings for measure(s)
Estimated Incentive, Demand, kW	Estimated Duke Smart \$aver demand incentive based on current incentive rate. Please refer to the Smart \$aver custom website to view the up-to-date payment rates – duke-energy.com/custom .
Site Baseline, Energy Usage, kWh/yr	Estimated annual energy use of the existing air compressor(s)
Proposed, Energy Usage, kWh/yr	Estimated annual energy use of the proposed air compressor(s)
Savings, Energy Usage, kWh/yr	Estimated annual energy savings for measure(s)
Estimated Incentive, Energy Usage, kWh/yr	Estimated Duke Smart \$aver energy usage incentive based on current incentive rate. Please refer to the Smart \$aver custom website to view the up-to-date payment rates – duke-energy.com/custom .

Figure 7: Smart Saver Custom To-Go Compressed Air Tool Output Screen

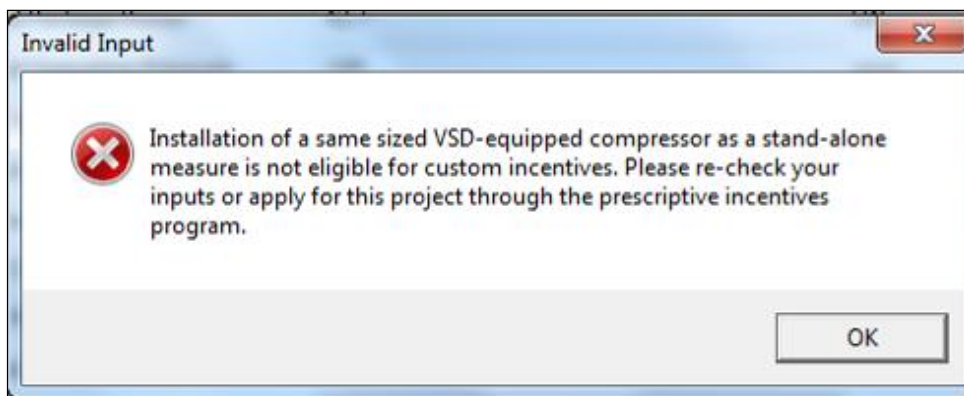


3.5. Error Messages and Notes

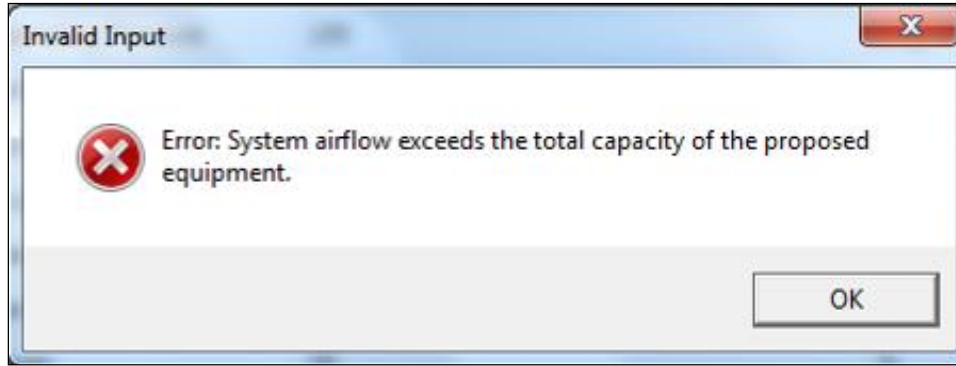
While using the Compressed Air Savings Calculator, you may see one of the following error messages:



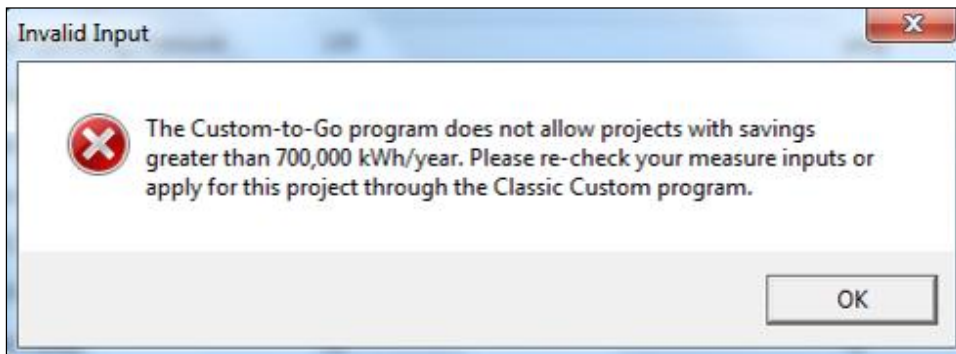
This message indicates that you have not made a selection or entered an appropriate value in one or more required fields. Please review your inputs and make sure that you have entered appropriate values in the indicated input fields.



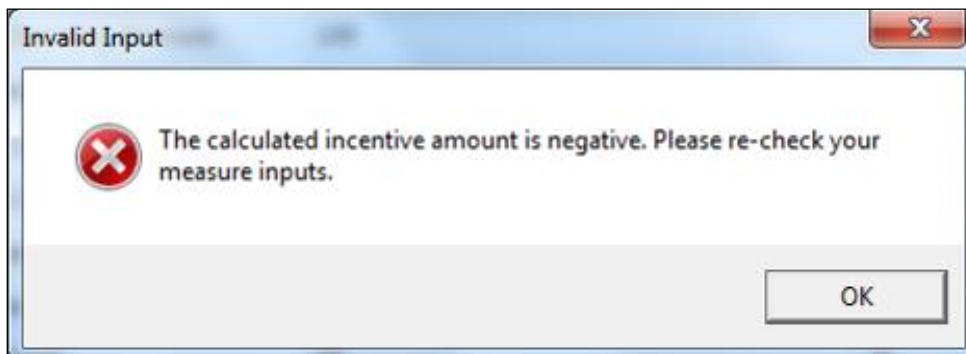
This message indicates that the proposed retrofit qualifies for incentives through the prescriptive incentives program. Measures that qualify for the prescriptive program cannot apply for incentive through the custom incentives program (Classic Custom or Custom-To-Go).



This message indicates that the proposed compressed air retrofit does not have enough capacity to meet the system demand as outlined in the operating profile. Measures that experience this error message will require adjustments to either the operating profile data or the proposed compressed air system capacity.



This message indicates that the proposed project exceeds the upper limit of the Custom-To-Go program and is only eligible for incentives through the Classic Custom program. Please submit an application to the Classic Custom program for this project.



This message indicates that your compressed air project will result in negative savings and incentives. Please review your measure inputs and ensure that all inputs are correct. You will not be able to generate a report for a project that has negative savings.

1. APPENDICES

1.1. Appendix A: Performance Information for Rotary Screw, Reciprocating and Centrifugal Air Compressors

Compressor Type	HP	Control Type	Rated Capacity (acfm)	Rated Pressure (psig)	Package Power (kW/100acfm)	Package Power (kW)
Single stage lubricant-injected rotary screw	5	Inlet modulation with unloading	19	100	25.9	4.9
Single stage lubricant-injected rotary screw	5	Inlet modulation with unloading	18	125	26.3	4.7
Single stage lubricant-injected rotary screw	5	Inlet modulation with unloading	13	175	37.1	4.8
Single stage lubricant-injected rotary screw	5	Inlet modulation without unloading	18	100	25.9	4.7
Single stage lubricant-injected rotary screw	5	Inlet modulation without unloading	18	125	26.3	4.7
Single stage lubricant-injected rotary screw	5	Inlet modulation without unloading	12	175	37.1	4.5
Single stage lubricant-injected rotary screw	5	Load/unload	18	100	25.9	4.7
Single stage lubricant-injected rotary screw	5	Load/unload	18	125	26.3	4.7
Single stage lubricant-injected rotary screw	5	Load/unload	12	175	37.1	4.5
Single stage lubricant-injected rotary screw	5	Variable displacement with unloading	19	100	25.9	4.9
Single stage lubricant-injected rotary screw	5	Variable displacement with unloading	18	125	26.3	4.7
Single stage lubricant-injected rotary screw	5	Variable displacement with unloading	13	175	37.1	4.8
Single stage lubricant-injected rotary screw	7.5	Inlet modulation with unloading	28	100	25.4	7.1
Single stage lubricant-injected rotary screw	7.5	Inlet modulation with unloading	26	125	27.7	7.2
Single stage lubricant-injected rotary screw	7.5	Inlet modulation with unloading	20	175	34.8	7.0
Single stage lubricant-injected rotary screw	7.5	Inlet modulation without unloading	27	100	25.4	6.9
Single stage lubricant-injected rotary screw	7.5	Inlet modulation without unloading	25	125	27.7	6.9
Single stage lubricant-injected rotary screw	7.5	Inlet modulation without unloading	20	175	34.8	7.0
Single stage lubricant-injected rotary screw	7.5	Load/unload	27	100	25.4	6.9
Single stage lubricant-injected rotary screw	7.5	Load/unload	25	125	27.7	6.9
Single stage lubricant-injected rotary screw	7.5	Load/unload	20	175	34.8	7.0
Single stage lubricant-injected rotary screw	7.5	Variable displacement with unloading	28	100	25.4	7.1
Single stage lubricant-injected rotary screw	7.5	Variable displacement with unloading	26	125	27.7	7.2
Single stage lubricant-injected rotary screw	7.5	Variable displacement with unloading	20	175	34.8	7.0
Single stage lubricant-injected rotary screw	10	Inlet modulation with unloading	41	100	22.9	9.4
Single stage lubricant-injected rotary screw	10	Inlet modulation with unloading	37	125	25.5	9.4
Single stage lubricant-injected rotary screw	10	Inlet modulation with unloading	27	150	34.7	9.4
Single stage lubricant-injected rotary screw	10	Inlet modulation with unloading	30	175	30.8	9.2
Single stage lubricant-injected rotary screw	10	Inlet modulation without unloading	39	100	22.9	8.9
Single stage lubricant-injected rotary screw	10	Inlet modulation without unloading	35	125	25.5	8.9
Single stage lubricant-injected rotary screw	10	Inlet modulation without unloading	26	150	34.7	9.0

Appendix A: Performance Information for Rotary Screw, Reciprocating and Centrifugal Air Compressors

Single stage lubricant-injected rotary screw	10	Inlet modulation without unloading	29	175	30.8	8.9
Single stage lubricant-injected rotary screw	10	Load/unload	39	100	22.9	8.9
Single stage lubricant-injected rotary screw	10	Load/unload	35	125	25.5	8.9
Single stage lubricant-injected rotary screw	10	Load/unload	26	150	34.7	9.0
Single stage lubricant-injected rotary screw	10	Load/unload	29	175	30.8	8.9
Single stage lubricant-injected rotary screw	10	Variable displacement with unloading	41	100	22.9	9.4
Single stage lubricant-injected rotary screw	10	Variable displacement with unloading	37	125	25.5	9.4
Single stage lubricant-injected rotary screw	10	Variable displacement with unloading	27	150	34.7	9.4
Single stage lubricant-injected rotary screw	10	Variable displacement with unloading	30	175	30.8	9.2
Single stage lubricant-injected rotary screw	15	Inlet modulation with unloading	65	100	21.8	14.2
Single stage lubricant-injected rotary screw	15	Inlet modulation with unloading	56	125	25.1	14.1
Single stage lubricant-injected rotary screw	15	Inlet modulation with unloading	50	150	28.3	14.2
Single stage lubricant-injected rotary screw	15	Inlet modulation with unloading	48	175	29.2	14.0
Single stage lubricant-injected rotary screw	15	Inlet modulation without unloading	62	100	21.8	13.5
Single stage lubricant-injected rotary screw	15	Inlet modulation without unloading	54	125	25.1	13.6
Single stage lubricant-injected rotary screw	15	Inlet modulation without unloading	47	150	28.3	13.3
Single stage lubricant-injected rotary screw	15	Inlet modulation without unloading	46	175	29.2	13.4
Single stage lubricant-injected rotary screw	15	Load/unload	62	100	21.8	13.5
Single stage lubricant-injected rotary screw	15	Load/unload	54	125	25.1	13.6
Single stage lubricant-injected rotary screw	15	Load/unload	47	150	28.3	13.3
Single stage lubricant-injected rotary screw	15	Load/unload	46	175	29.2	13.4
Single stage lubricant-injected rotary screw	15	Variable displacement with unloading	65	100	21.8	14.2
Single stage lubricant-injected rotary screw	15	Variable displacement with unloading	56	125	25.1	14.1
Single stage lubricant-injected rotary screw	15	Variable displacement with unloading	50	150	28.3	14.2
Single stage lubricant-injected rotary screw	15	Variable displacement with unloading	48	175	29.2	14.0
Single stage lubricant-injected rotary screw	20	Inlet modulation with unloading	86	100	21.3	18.3
Single stage lubricant-injected rotary screw	20	Inlet modulation with unloading	74	125	24.9	18.4
Single stage lubricant-injected rotary screw	20	Inlet modulation with unloading	63	150	29.1	18.3
Single stage lubricant-injected rotary screw	20	Inlet modulation with unloading	65	175	28.1	18.3
Single stage lubricant-injected rotary screw	20	Inlet modulation without unloading	82	100	21.3	17.5
Single stage lubricant-injected rotary screw	20	Inlet modulation without unloading	70	125	24.9	17.4
Single stage lubricant-injected rotary screw	20	Inlet modulation without unloading	60	150	29.1	17.5
Single stage lubricant-injected rotary screw	20	Inlet modulation without unloading	62	175	28.1	17.4
Single stage lubricant-injected rotary screw	20	Load/unload	82	100	21.3	17.5
Single stage lubricant-injected rotary screw	20	Load/unload	70	125	24.9	17.4
Single stage lubricant-injected rotary screw	20	Load/unload	60	150	29.1	17.5
Single stage lubricant-injected rotary screw	20	Load/unload	62	175	28.1	17.4
Single stage lubricant-injected rotary screw	20	Variable displacement with unloading	86	100	21.3	18.3

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Single stage lubricant-injected rotary screw	20	Variable displacement with unloading	74	125	24.9	18.4
Single stage lubricant-injected rotary screw	20	Variable displacement with unloading	63	150	29.1	18.3
Single stage lubricant-injected rotary screw	20	Variable displacement with unloading	65	175	28.1	18.3
Single stage lubricant-injected rotary screw	25	Inlet modulation with unloading	107	100	21.3	22.8
Single stage lubricant-injected rotary screw	25	Inlet modulation with unloading	105	115	21.7	22.8
Single stage lubricant-injected rotary screw	25	Inlet modulation with unloading	91	125	24.9	22.7
Single stage lubricant-injected rotary screw	25	Inlet modulation with unloading	86	140	26.4	22.7
Single stage lubricant-injected rotary screw	25	Inlet modulation with unloading	84	150	26.9	22.6
Single stage lubricant-injected rotary screw	25	Inlet modulation with unloading	82	175	27.8	22.8
Single stage lubricant-injected rotary screw	25	Inlet modulation with unloading	61	200	37.5	22.9
Single stage lubricant-injected rotary screw	25	Inlet modulation without unloading	102	100	21.3	21.7
Single stage lubricant-injected rotary screw	25	Inlet modulation without unloading	100	115	21.7	21.7
Single stage lubricant-injected rotary screw	25	Inlet modulation without unloading	87	125	24.9	21.7
Single stage lubricant-injected rotary screw	25	Inlet modulation without unloading	82	140	26.4	21.6
Single stage lubricant-injected rotary screw	25	Inlet modulation without unloading	81	150	26.9	21.8
Single stage lubricant-injected rotary screw	25	Inlet modulation without unloading	78	175	27.8	21.7
Single stage lubricant-injected rotary screw	25	Inlet modulation without unloading	58	200	37.5	21.8
Single stage lubricant-injected rotary screw	25	Load/unload	102	100	21.3	21.7
Single stage lubricant-injected rotary screw	25	Load/unload	100	115	21.7	21.7
Single stage lubricant-injected rotary screw	25	Load/unload	87	125	24.9	21.7
Single stage lubricant-injected rotary screw	25	Load/unload	82	140	26.4	21.6
Single stage lubricant-injected rotary screw	25	Load/unload	81	150	26.9	21.8
Single stage lubricant-injected rotary screw	25	Load/unload	78	175	27.8	21.7
Single stage lubricant-injected rotary screw	25	Load/unload	58	200	37.5	21.8
Single stage lubricant-injected rotary screw	25	Variable displacement with unloading	107	100	21.3	22.8
Single stage lubricant-injected rotary screw	25	Variable displacement with unloading	105	115	21.7	22.8
Single stage lubricant-injected rotary screw	25	Variable displacement with unloading	91	125	24.9	22.7
Single stage lubricant-injected rotary screw	25	Variable displacement with unloading	86	140	26.4	22.7
Single stage lubricant-injected rotary screw	25	Variable displacement with unloading	84	150	26.9	22.6
Single stage lubricant-injected rotary screw	25	Variable displacement with unloading	82	175	27.8	22.8
Single stage lubricant-injected rotary screw	25	Variable displacement with unloading	61	200	37.5	22.9
Single stage lubricant-injected rotary screw	30	Inlet modulation with unloading	139	100	19.4	27.0
Single stage lubricant-injected rotary screw	30	Inlet modulation with unloading	129	115	21	27.1
Single stage lubricant-injected rotary screw	30	Inlet modulation with unloading	118	125	22.8	26.9
Single stage lubricant-injected rotary screw	30	Inlet modulation with unloading	107	140	25.3	27.1
Single stage lubricant-injected rotary screw	30	Inlet modulation with unloading	110	150	24.6	27.1
Single stage lubricant-injected rotary screw	30	Inlet modulation with unloading	98	175	27.6	27.0
Single stage lubricant-injected rotary screw	30	Inlet modulation with unloading	77	200	35	27.0

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Single stage lubricant-injected rotary screw	30	Inlet modulation without unloading	133	100	19.4	25.8
Single stage lubricant-injected rotary screw	30	Inlet modulation without unloading	123	115	21	25.8
Single stage lubricant-injected rotary screw	30	Inlet modulation without unloading	113	125	22.8	25.8
Single stage lubricant-injected rotary screw	30	Inlet modulation without unloading	102	140	25.3	25.8
Single stage lubricant-injected rotary screw	30	Inlet modulation without unloading	105	150	24.6	25.8
Single stage lubricant-injected rotary screw	30	Inlet modulation without unloading	93	175	27.6	25.7
Single stage lubricant-injected rotary screw	30	Inlet modulation without unloading	74	200	35	25.9
Single stage lubricant-injected rotary screw	30	Load/unload	133	100	19.4	25.8
Single stage lubricant-injected rotary screw	30	Load/unload	123	115	21	25.8
Single stage lubricant-injected rotary screw	30	Load/unload	113	125	22.8	25.8
Single stage lubricant-injected rotary screw	30	Load/unload	102	140	25.3	25.8
Single stage lubricant-injected rotary screw	30	Load/unload	105	150	24.6	25.8
Single stage lubricant-injected rotary screw	30	Load/unload	93	175	27.6	25.7
Single stage lubricant-injected rotary screw	30	Load/unload	74	200	35	25.9
Single stage lubricant-injected rotary screw	30	Variable displacement with unloading	139	100	19.4	27.0
Single stage lubricant-injected rotary screw	30	Variable displacement with unloading	129	115	21	27.1
Single stage lubricant-injected rotary screw	30	Variable displacement with unloading	118	125	22.8	26.9
Single stage lubricant-injected rotary screw	30	Variable displacement with unloading	107	140	25.3	27.1
Single stage lubricant-injected rotary screw	30	Variable displacement with unloading	110	150	24.6	27.1
Single stage lubricant-injected rotary screw	30	Variable displacement with unloading	98	175	27.6	27.0
Single stage lubricant-injected rotary screw	30	Variable displacement with unloading	77	200	35	27.0
Single stage lubricant-injected rotary screw	40	Inlet modulation with unloading	187	100	19.5	36.5
Single stage lubricant-injected rotary screw	40	Inlet modulation with unloading	174	115	21	36.5
Single stage lubricant-injected rotary screw	40	Inlet modulation with unloading	158	125	23	36.3
Single stage lubricant-injected rotary screw	40	Inlet modulation with unloading	151	140	24.1	36.4
Single stage lubricant-injected rotary screw	40	Inlet modulation with unloading	142	150	25.6	36.4
Single stage lubricant-injected rotary screw	40	Inlet modulation with unloading	127	175	28.6	36.3
Single stage lubricant-injected rotary screw	40	Inlet modulation with unloading	116	200	31.4	36.4
Single stage lubricant-injected rotary screw	40	Inlet modulation without unloading	178	100	19.5	34.7
Single stage lubricant-injected rotary screw	40	Inlet modulation without unloading	166	115	21	34.9
Single stage lubricant-injected rotary screw	40	Inlet modulation without unloading	151	125	23	34.7
Single stage lubricant-injected rotary screw	40	Inlet modulation without unloading	144	140	24.1	34.7
Single stage lubricant-injected rotary screw	40	Inlet modulation without unloading	136	150	25.6	34.8
Single stage lubricant-injected rotary screw	40	Inlet modulation without unloading	122	175	28.6	34.9
Single stage lubricant-injected rotary screw	40	Inlet modulation without unloading	111	200	31.4	34.9
Single stage lubricant-injected rotary screw	40	Load/unload	178	100	19.5	34.7
Single stage lubricant-injected rotary screw	40	Load/unload	166	115	21	34.9
Single stage lubricant-injected rotary screw	40	Load/unload	151	125	23	34.7

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Single stage lubricant-injected rotary screw	40	Load/unload	144	140	24.1	34.7
Single stage lubricant-injected rotary screw	40	Load/unload	136	150	25.6	34.8
Single stage lubricant-injected rotary screw	40	Load/unload	122	175	28.6	34.9
Single stage lubricant-injected rotary screw	40	Load/unload	111	200	31.4	34.9
Single stage lubricant-injected rotary screw	40	Variable displacement with unloading	187	100	19.5	36.5
Single stage lubricant-injected rotary screw	40	Variable displacement with unloading	174	115	21	36.5
Single stage lubricant-injected rotary screw	40	Variable displacement with unloading	158	125	23	36.3
Single stage lubricant-injected rotary screw	40	Variable displacement with unloading	151	140	24.1	36.4
Single stage lubricant-injected rotary screw	40	Variable displacement with unloading	142	150	25.6	36.4
Single stage lubricant-injected rotary screw	40	Variable displacement with unloading	127	175	28.6	36.3
Single stage lubricant-injected rotary screw	40	Variable displacement with unloading	116	200	31.4	36.4
Single stage lubricant-injected rotary screw	50	Inlet modulation with unloading	237	100	18.9	44.8
Single stage lubricant-injected rotary screw	50	Inlet modulation with unloading	240	110	18.6	44.6
Single stage lubricant-injected rotary screw	50	Inlet modulation with unloading	215	115	20.8	44.7
Single stage lubricant-injected rotary screw	50	Inlet modulation with unloading	208	125	21.6	44.9
Single stage lubricant-injected rotary screw	50	Inlet modulation with unloading	190	140	23.5	44.7
Single stage lubricant-injected rotary screw	50	Inlet modulation with unloading	186	150	24.1	44.8
Single stage lubricant-injected rotary screw	50	Inlet modulation with unloading	166	175	27	44.8
Single stage lubricant-injected rotary screw	50	Inlet modulation with unloading	134	200	33.4	44.8
Single stage lubricant-injected rotary screw	50	Inlet modulation without unloading	226	100	18.9	42.7
Single stage lubricant-injected rotary screw	50	Inlet modulation without unloading	229	110	18.6	42.6
Single stage lubricant-injected rotary screw	50	Inlet modulation without unloading	205	115	20.8	42.6
Single stage lubricant-injected rotary screw	50	Inlet modulation without unloading	198	125	21.6	42.8
Single stage lubricant-injected rotary screw	50	Inlet modulation without unloading	182	140	23.5	42.8
Single stage lubricant-injected rotary screw	50	Inlet modulation without unloading	177	150	24.1	42.7
Single stage lubricant-injected rotary screw	50	Inlet modulation without unloading	158	175	27	42.7
Single stage lubricant-injected rotary screw	50	Inlet modulation without unloading	128	200	33.4	42.8
Single stage lubricant-injected rotary screw	50	Load/unload	226	100	18.9	42.7
Single stage lubricant-injected rotary screw	50	Load/unload	229	110	18.6	42.6
Single stage lubricant-injected rotary screw	50	Load/unload	205	115	20.8	42.6
Single stage lubricant-injected rotary screw	50	Load/unload	198	125	21.6	42.8
Single stage lubricant-injected rotary screw	50	Load/unload	182	140	23.5	42.8
Single stage lubricant-injected rotary screw	50	Load/unload	177	150	24.1	42.7
Single stage lubricant-injected rotary screw	50	Load/unload	158	175	27	42.7
Single stage lubricant-injected rotary screw	50	Load/unload	128	200	33.4	42.8
Single stage lubricant-injected rotary screw	50	Variable displacement with unloading	237	100	18.9	44.8
Single stage lubricant-injected rotary screw	50	Variable displacement with unloading	240	110	18.6	44.6
Single stage lubricant-injected rotary screw	50	Variable displacement with unloading	215	115	20.8	44.7

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Single stage lubricant-injected rotary screw	50	Variable displacement with unloading	208	125	21.6	44.9
Single stage lubricant-injected rotary screw	50	Variable displacement with unloading	190	140	23.5	44.7
Single stage lubricant-injected rotary screw	50	Variable displacement with unloading	186	150	24.1	44.8
Single stage lubricant-injected rotary screw	50	Variable displacement with unloading	166	175	27	44.8
Single stage lubricant-injected rotary screw	50	Variable displacement with unloading	134	200	33.4	44.8
Single stage lubricant-injected rotary screw	60	Inlet modulation with unloading	286	100	18.8	53.8
Single stage lubricant-injected rotary screw	60	Inlet modulation with unloading	276	115	19.4	53.5
Single stage lubricant-injected rotary screw	60	Inlet modulation with unloading	262	125	20.5	53.7
Single stage lubricant-injected rotary screw	60	Inlet modulation with unloading	243	140	22.1	53.7
Single stage lubricant-injected rotary screw	60	Inlet modulation with unloading	238	150	22.6	53.8
Single stage lubricant-injected rotary screw	60	Inlet modulation with unloading	201	175	26.7	53.7
Single stage lubricant-injected rotary screw	60	Inlet modulation without unloading	273	100	18.8	51.3
Single stage lubricant-injected rotary screw	60	Inlet modulation without unloading	264	115	19.4	51.2
Single stage lubricant-injected rotary screw	60	Inlet modulation without unloading	250	125	20.5	51.3
Single stage lubricant-injected rotary screw	60	Inlet modulation without unloading	232	140	22.1	51.3
Single stage lubricant-injected rotary screw	60	Inlet modulation without unloading	227	150	22.6	51.3
Single stage lubricant-injected rotary screw	60	Inlet modulation without unloading	192	175	26.7	51.3
Single stage lubricant-injected rotary screw	60	Load/unload	273	100	18.8	51.3
Single stage lubricant-injected rotary screw	60	Load/unload	264	115	19.4	51.2
Single stage lubricant-injected rotary screw	60	Load/unload	250	125	20.5	51.3
Single stage lubricant-injected rotary screw	60	Load/unload	232	140	22.1	51.3
Single stage lubricant-injected rotary screw	60	Load/unload	227	150	22.6	51.3
Single stage lubricant-injected rotary screw	60	Load/unload	192	175	26.7	51.3
Single stage lubricant-injected rotary screw	60	Variable displacement with unloading	286	100	18.8	53.8
Single stage lubricant-injected rotary screw	60	Variable displacement with unloading	276	115	19.4	53.5
Single stage lubricant-injected rotary screw	60	Variable displacement with unloading	262	125	20.5	53.7
Single stage lubricant-injected rotary screw	60	Variable displacement with unloading	243	140	22.1	53.7
Single stage lubricant-injected rotary screw	60	Variable displacement with unloading	238	150	22.6	53.8
Single stage lubricant-injected rotary screw	60	Variable displacement with unloading	201	175	26.7	53.7
Single stage lubricant-injected rotary screw	75	Inlet modulation with unloading	383	100	17.5	67.0
Single stage lubricant-injected rotary screw	75	Inlet modulation with unloading	372	110	18	67.0
Single stage lubricant-injected rotary screw	75	Inlet modulation with unloading	346	115	19.4	67.1
Single stage lubricant-injected rotary screw	75	Inlet modulation with unloading	326	125	20.6	67.2
Single stage lubricant-injected rotary screw	75	Inlet modulation with unloading	302	140	22.2	67.0
Single stage lubricant-injected rotary screw	75	Inlet modulation with unloading	287	150	23.4	67.2
Single stage lubricant-injected rotary screw	75	Inlet modulation with unloading	240	165	28	67.2
Single stage lubricant-injected rotary screw	75	Inlet modulation with unloading	265	175	25.4	67.3
Single stage lubricant-injected rotary screw	75	Inlet modulation without unloading	365	100	17.5	63.9

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Single stage lubricant-injected rotary screw	75	Inlet modulation without unloading	355	110	18	63.9
Single stage lubricant-injected rotary screw	75	Inlet modulation without unloading	331	115	19.4	64.2
Single stage lubricant-injected rotary screw	75	Inlet modulation without unloading	311	125	20.6	64.1
Single stage lubricant-injected rotary screw	75	Inlet modulation without unloading	288	140	22.2	63.9
Single stage lubricant-injected rotary screw	75	Inlet modulation without unloading	274	150	23.4	64.1
Single stage lubricant-injected rotary screw	75	Inlet modulation without unloading	229	165	28	64.1
Single stage lubricant-injected rotary screw	75	Inlet modulation without unloading	253	175	25.4	64.3
Single stage lubricant-injected rotary screw	75	Load/unload	365	100	17.5	63.9
Single stage lubricant-injected rotary screw	75	Load/unload	355	110	18	63.9
Single stage lubricant-injected rotary screw	75	Load/unload	331	115	19.4	64.2
Single stage lubricant-injected rotary screw	75	Load/unload	311	125	20.6	64.1
Single stage lubricant-injected rotary screw	75	Load/unload	288	140	22.2	63.9
Single stage lubricant-injected rotary screw	75	Load/unload	274	150	23.4	64.1
Single stage lubricant-injected rotary screw	75	Load/unload	229	165	28	64.1
Single stage lubricant-injected rotary screw	75	Load/unload	253	175	25.4	64.3
Single stage lubricant-injected rotary screw	75	Variable displacement with unloading	383	100	17.5	67.0
Single stage lubricant-injected rotary screw	75	Variable displacement with unloading	372	110	18	67.0
Single stage lubricant-injected rotary screw	75	Variable displacement with unloading	346	115	19.4	67.1
Single stage lubricant-injected rotary screw	75	Variable displacement with unloading	326	125	20.6	67.2
Single stage lubricant-injected rotary screw	75	Variable displacement with unloading	302	140	22.2	67.0
Single stage lubricant-injected rotary screw	75	Variable displacement with unloading	287	150	23.4	67.2
Single stage lubricant-injected rotary screw	75	Variable displacement with unloading	240	165	28	67.2
Single stage lubricant-injected rotary screw	75	Variable displacement with unloading	265	175	25.4	67.3
Single stage lubricant-injected rotary screw	100	Inlet modulation with unloading	495	100	18.1	89.6
Single stage lubricant-injected rotary screw	100	Inlet modulation with unloading	489	110	18.3	89.5
Single stage lubricant-injected rotary screw	100	Inlet modulation with unloading	457	115	19.6	89.6
Single stage lubricant-injected rotary screw	100	Inlet modulation with unloading	435	125	20.5	89.2
Single stage lubricant-injected rotary screw	100	Inlet modulation with unloading	424	140	21.1	89.5
Single stage lubricant-injected rotary screw	100	Inlet modulation with unloading	377	150	23.7	89.3
Single stage lubricant-injected rotary screw	100	Inlet modulation with unloading	358	165	25	89.5
Single stage lubricant-injected rotary screw	100	Inlet modulation with unloading	364	175	24.6	89.5
Single stage lubricant-injected rotary screw	100	Inlet modulation without unloading	473	100	18.1	85.6
Single stage lubricant-injected rotary screw	100	Inlet modulation without unloading	467	110	18.3	85.5
Single stage lubricant-injected rotary screw	100	Inlet modulation without unloading	436	115	19.6	85.5
Single stage lubricant-injected rotary screw	100	Inlet modulation without unloading	416	125	20.5	85.3
Single stage lubricant-injected rotary screw	100	Inlet modulation without unloading	405	140	21.1	85.5
Single stage lubricant-injected rotary screw	100	Inlet modulation without unloading	360	150	23.7	85.3
Single stage lubricant-injected rotary screw	100	Inlet modulation without unloading	342	165	25	85.5

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Single stage lubricant-injected rotary screw	100	Inlet modulation without unloading	348	175	24.6	85.6
Single stage lubricant-injected rotary screw	100	Load/unload	473	100	18.1	85.6
Single stage lubricant-injected rotary screw	100	Load/unload	467	110	18.3	85.5
Single stage lubricant-injected rotary screw	100	Load/unload	436	115	19.6	85.5
Single stage lubricant-injected rotary screw	100	Load/unload	416	125	20.5	85.3
Single stage lubricant-injected rotary screw	100	Load/unload	405	140	21.1	85.5
Single stage lubricant-injected rotary screw	100	Load/unload	360	150	23.7	85.3
Single stage lubricant-injected rotary screw	100	Load/unload	342	165	25	85.5
Single stage lubricant-injected rotary screw	100	Load/unload	348	175	24.6	85.6
Single stage lubricant-injected rotary screw	100	Variable displacement with unloading	495	100	18.1	89.6
Single stage lubricant-injected rotary screw	100	Variable displacement with unloading	489	110	18.3	89.5
Single stage lubricant-injected rotary screw	100	Variable displacement with unloading	457	115	19.6	89.6
Single stage lubricant-injected rotary screw	100	Variable displacement with unloading	435	125	20.5	89.2
Single stage lubricant-injected rotary screw	100	Variable displacement with unloading	424	140	21.1	89.5
Single stage lubricant-injected rotary screw	100	Variable displacement with unloading	377	150	23.7	89.3
Single stage lubricant-injected rotary screw	100	Variable displacement with unloading	358	165	25	89.5
Single stage lubricant-injected rotary screw	100	Variable displacement with unloading	364	175	24.6	89.5
Single stage lubricant-injected rotary screw	125	Inlet modulation with unloading	577	100	19.2	110.8
Single stage lubricant-injected rotary screw	125	Inlet modulation with unloading	611	110	18.2	111.2
Single stage lubricant-injected rotary screw	125	Inlet modulation with unloading	592	115	18.8	111.3
Single stage lubricant-injected rotary screw	125	Inlet modulation with unloading	573	125	19.4	111.2
Single stage lubricant-injected rotary screw	125	Inlet modulation with unloading	526	140	21.1	111.0
Single stage lubricant-injected rotary screw	125	Inlet modulation with unloading	494	150	22.5	111.2
Single stage lubricant-injected rotary screw	125	Inlet modulation with unloading	447	175	24.8	110.9
Single stage lubricant-injected rotary screw	125	Inlet modulation with unloading	372	200	29.9	111.2
Single stage lubricant-injected rotary screw	125	Inlet modulation without unloading	551	100	19.2	105.8
Single stage lubricant-injected rotary screw	125	Inlet modulation without unloading	584	110	18.2	106.3
Single stage lubricant-injected rotary screw	125	Inlet modulation without unloading	565	115	18.8	106.2
Single stage lubricant-injected rotary screw	125	Inlet modulation without unloading	547	125	19.4	106.1
Single stage lubricant-injected rotary screw	125	Inlet modulation without unloading	502	140	21.1	105.9
Single stage lubricant-injected rotary screw	125	Inlet modulation without unloading	472	150	22.5	106.2
Single stage lubricant-injected rotary screw	125	Inlet modulation without unloading	427	175	24.8	105.9
Single stage lubricant-injected rotary screw	125	Inlet modulation without unloading	355	200	29.9	106.1
Single stage lubricant-injected rotary screw	125	Load/unload	551	100	19.2	105.8
Single stage lubricant-injected rotary screw	125	Load/unload	584	110	18.2	106.3
Single stage lubricant-injected rotary screw	125	Load/unload	565	115	18.8	106.2
Single stage lubricant-injected rotary screw	125	Load/unload	547	125	19.4	106.1
Single stage lubricant-injected rotary screw	125	Load/unload	502	140	21.1	105.9

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Single stage lubricant-injected rotary screw	125	Load/unload	472	150	22.5	106.2
Single stage lubricant-injected rotary screw	125	Load/unload	427	175	24.8	105.9
Single stage lubricant-injected rotary screw	125	Load/unload	355	200	29.9	106.1
Single stage lubricant-injected rotary screw	125	Variable displacement with unloading	577	100	19.2	110.8
Single stage lubricant-injected rotary screw	125	Variable displacement with unloading	611	110	18.2	111.2
Single stage lubricant-injected rotary screw	125	Variable displacement with unloading	592	115	18.8	111.3
Single stage lubricant-injected rotary screw	125	Variable displacement with unloading	573	125	19.4	111.2
Single stage lubricant-injected rotary screw	125	Variable displacement with unloading	526	140	21.1	111.0
Single stage lubricant-injected rotary screw	125	Variable displacement with unloading	494	150	22.5	111.2
Single stage lubricant-injected rotary screw	125	Variable displacement with unloading	447	175	24.8	110.9
Single stage lubricant-injected rotary screw	125	Variable displacement with unloading	372	200	29.9	111.2
Single stage lubricant-injected rotary screw	150	Inlet modulation with unloading	764	100	17.3	132.2
Single stage lubricant-injected rotary screw	150	Inlet modulation with unloading	739	110	17.9	132.3
Single stage lubricant-injected rotary screw	150	Inlet modulation with unloading	703	115	18.8	132.2
Single stage lubricant-injected rotary screw	150	Inlet modulation with unloading	673	125	19.7	132.6
Single stage lubricant-injected rotary screw	150	Inlet modulation with unloading	615	140	21.5	132.2
Single stage lubricant-injected rotary screw	150	Inlet modulation with unloading	608	150	21.8	132.5
Single stage lubricant-injected rotary screw	150	Inlet modulation with unloading	558	165	23.7	132.2
Single stage lubricant-injected rotary screw	150	Inlet modulation with unloading	530	175	25	132.5
Single stage lubricant-injected rotary screw	150	Inlet modulation with unloading	461	200	28.7	132.3
Single stage lubricant-injected rotary screw	150	Inlet modulation without unloading	729	100	17.3	126.1
Single stage lubricant-injected rotary screw	150	Inlet modulation without unloading	706	110	17.9	126.4
Single stage lubricant-injected rotary screw	150	Inlet modulation without unloading	671	115	18.8	126.1
Single stage lubricant-injected rotary screw	150	Inlet modulation without unloading	642	125	19.7	126.5
Single stage lubricant-injected rotary screw	150	Inlet modulation without unloading	587	140	21.5	126.2
Single stage lubricant-injected rotary screw	150	Inlet modulation without unloading	581	150	21.8	126.7
Single stage lubricant-injected rotary screw	150	Inlet modulation without unloading	533	165	23.7	126.3
Single stage lubricant-injected rotary screw	150	Inlet modulation without unloading	506	175	25	126.5
Single stage lubricant-injected rotary screw	150	Inlet modulation without unloading	440	200	28.7	126.3
Single stage lubricant-injected rotary screw	150	Load/unload	729	100	17.3	126.1
Single stage lubricant-injected rotary screw	150	Load/unload	706	110	17.9	126.4
Single stage lubricant-injected rotary screw	150	Load/unload	671	115	18.8	126.1
Single stage lubricant-injected rotary screw	150	Load/unload	642	125	19.7	126.5
Single stage lubricant-injected rotary screw	150	Load/unload	587	140	21.5	126.2
Single stage lubricant-injected rotary screw	150	Load/unload	581	150	21.8	126.7
Single stage lubricant-injected rotary screw	150	Load/unload	533	165	23.7	126.3
Single stage lubricant-injected rotary screw	150	Load/unload	506	175	25	126.5
Single stage lubricant-injected rotary screw	150	Load/unload	440	200	28.7	126.3

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Single stage lubricant-injected rotary screw	150	Variable displacement with unloading	764	100	17.3	132.2
Single stage lubricant-injected rotary screw	150	Variable displacement with unloading	739	110	17.9	132.3
Single stage lubricant-injected rotary screw	150	Variable displacement with unloading	703	115	18.8	132.2
Single stage lubricant-injected rotary screw	150	Variable displacement with unloading	673	125	19.7	132.6
Single stage lubricant-injected rotary screw	150	Variable displacement with unloading	615	140	21.5	132.2
Single stage lubricant-injected rotary screw	150	Variable displacement with unloading	608	150	21.8	132.5
Single stage lubricant-injected rotary screw	150	Variable displacement with unloading	558	165	23.7	132.2
Single stage lubricant-injected rotary screw	150	Variable displacement with unloading	530	175	25	132.5
Single stage lubricant-injected rotary screw	150	Variable displacement with unloading	461	200	28.7	132.3
Single stage lubricant-injected rotary screw	200	Inlet modulation with unloading	1009	100	17.3	174.6
Single stage lubricant-injected rotary screw	200	Inlet modulation with unloading	983	110	17.7	174.0
Single stage lubricant-injected rotary screw	200	Inlet modulation with unloading	933	115	18.7	174.5
Single stage lubricant-injected rotary screw	200	Inlet modulation with unloading	895	125	19.5	174.5
Single stage lubricant-injected rotary screw	200	Inlet modulation with unloading	812	140	21.5	174.6
Single stage lubricant-injected rotary screw	200	Inlet modulation with unloading	799	150	21.8	174.2
Single stage lubricant-injected rotary screw	200	Inlet modulation with unloading	739	165	23.6	174.4
Single stage lubricant-injected rotary screw	200	Inlet modulation with unloading	637	200	27.4	174.5
Single stage lubricant-injected rotary screw	200	Inlet modulation without unloading	963	100	17.3	166.6
Single stage lubricant-injected rotary screw	200	Inlet modulation without unloading	939	110	17.7	166.2
Single stage lubricant-injected rotary screw	200	Inlet modulation without unloading	891	115	18.7	166.6
Single stage lubricant-injected rotary screw	200	Inlet modulation without unloading	855	125	19.5	166.7
Single stage lubricant-injected rotary screw	200	Inlet modulation without unloading	775	140	21.5	166.6
Single stage lubricant-injected rotary screw	200	Inlet modulation without unloading	763	150	21.8	166.3
Single stage lubricant-injected rotary screw	200	Inlet modulation without unloading	705	165	23.6	166.4
Single stage lubricant-injected rotary screw	200	Inlet modulation without unloading	608	200	27.4	166.6
Single stage lubricant-injected rotary screw	200	Load/unload	963	100	17.3	166.6
Single stage lubricant-injected rotary screw	200	Load/unload	939	110	17.7	166.2
Single stage lubricant-injected rotary screw	200	Load/unload	891	115	18.7	166.6
Single stage lubricant-injected rotary screw	200	Load/unload	855	125	19.5	166.7
Single stage lubricant-injected rotary screw	200	Load/unload	775	140	21.5	166.6
Single stage lubricant-injected rotary screw	200	Load/unload	763	150	21.8	166.3
Single stage lubricant-injected rotary screw	200	Load/unload	705	165	23.6	166.4
Single stage lubricant-injected rotary screw	200	Load/unload	608	200	27.4	166.6
Single stage lubricant-injected rotary screw	200	Variable displacement with unloading	1009	100	17.3	174.6
Single stage lubricant-injected rotary screw	200	Variable displacement with unloading	983	110	17.7	174.0
Single stage lubricant-injected rotary screw	200	Variable displacement with unloading	933	115	18.7	174.5
Single stage lubricant-injected rotary screw	200	Variable displacement with unloading	895	125	19.5	174.5
Single stage lubricant-injected rotary screw	200	Variable displacement with unloading	812	140	21.5	174.6

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Single stage lubricant-injected rotary screw	200	Variable displacement with unloading	799	150	21.8	174.2
Single stage lubricant-injected rotary screw	200	Variable displacement with unloading	739	165	23.6	174.4
Single stage lubricant-injected rotary screw	200	Variable displacement with unloading	637	200	27.4	174.5
Single stage lubricant-injected rotary screw	250	Inlet modulation with unloading	1261	100	17.4	219.4
Single stage lubricant-injected rotary screw	250	Inlet modulation with unloading	1241	110	17.7	219.7
Single stage lubricant-injected rotary screw	250	Inlet modulation with unloading	1141	115	19.2	219.1
Single stage lubricant-injected rotary screw	250	Inlet modulation with unloading	1127	125	19.5	219.8
Single stage lubricant-injected rotary screw	250	Inlet modulation with unloading	979	140	22.4	219.3
Single stage lubricant-injected rotary screw	250	Inlet modulation with unloading	1007	150	21.8	219.5
Single stage lubricant-injected rotary screw	250	Inlet modulation with unloading	864	165	25.4	219.5
Single stage lubricant-injected rotary screw	250	Inlet modulation without unloading	1204	100	17.4	209.5
Single stage lubricant-injected rotary screw	250	Inlet modulation without unloading	1185	110	17.7	209.7
Single stage lubricant-injected rotary screw	250	Inlet modulation without unloading	1089	115	19.2	209.1
Single stage lubricant-injected rotary screw	250	Inlet modulation without unloading	1076	125	19.5	209.8
Single stage lubricant-injected rotary screw	250	Inlet modulation without unloading	935	140	22.4	209.4
Single stage lubricant-injected rotary screw	250	Inlet modulation without unloading	961	150	21.8	209.5
Single stage lubricant-injected rotary screw	250	Inlet modulation without unloading	825	165	25.4	209.6
Single stage lubricant-injected rotary screw	250	Load/unload	1204	100	17.4	209.5
Single stage lubricant-injected rotary screw	250	Load/unload	1185	110	17.7	209.7
Single stage lubricant-injected rotary screw	250	Load/unload	1089	115	19.2	209.1
Single stage lubricant-injected rotary screw	250	Load/unload	1076	125	19.5	209.8
Single stage lubricant-injected rotary screw	250	Load/unload	935	140	22.4	209.4
Single stage lubricant-injected rotary screw	250	Load/unload	961	150	21.8	209.5
Single stage lubricant-injected rotary screw	250	Load/unload	825	165	25.4	209.6
Single stage lubricant-injected rotary screw	250	Variable displacement with unloading	1261	100	17.4	219.4
Single stage lubricant-injected rotary screw	250	Variable displacement with unloading	1241	110	17.7	219.7
Single stage lubricant-injected rotary screw	250	Variable displacement with unloading	1141	115	19.2	219.1
Single stage lubricant-injected rotary screw	250	Variable displacement with unloading	1127	125	19.5	219.8
Single stage lubricant-injected rotary screw	250	Variable displacement with unloading	979	140	22.4	219.3
Single stage lubricant-injected rotary screw	250	Variable displacement with unloading	1007	150	21.8	219.5
Single stage lubricant-injected rotary screw	250	Variable displacement with unloading	864	165	25.4	219.5
Single stage lubricant-injected rotary screw	300	Inlet modulation with unloading	1485	100	17.6	261.4
Single stage lubricant-injected rotary screw	300	Inlet modulation with unloading	1475	110	17.7	261.1
Single stage lubricant-injected rotary screw	300	Inlet modulation with unloading	1367	115	19.1	261.1
Single stage lubricant-injected rotary screw	300	Inlet modulation with unloading	1319	125	19.8	261.2
Single stage lubricant-injected rotary screw	300	Inlet modulation with unloading	1150	140	22.7	261.1
Single stage lubricant-injected rotary screw	300	Inlet modulation with unloading	1192	150	22	262.2
Single stage lubricant-injected rotary screw	300	Inlet modulation with unloading	974	200	26.9	262.0

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Single stage lubricant-injected rotary screw	300	Inlet modulation without unloading	1417	100	17.6	249.4
Single stage lubricant-injected rotary screw	300	Inlet modulation without unloading	1408	110	17.7	249.2
Single stage lubricant-injected rotary screw	300	Inlet modulation without unloading	1304	115	19.1	249.1
Single stage lubricant-injected rotary screw	300	Inlet modulation without unloading	1259	125	19.8	249.3
Single stage lubricant-injected rotary screw	300	Inlet modulation without unloading	1098	140	22.7	249.2
Single stage lubricant-injected rotary screw	300	Inlet modulation without unloading	1137	150	22	250.1
Single stage lubricant-injected rotary screw	300	Inlet modulation without unloading	930	200	26.9	250.2
Single stage lubricant-injected rotary screw	300	Load/unload	1417	100	17.6	249.4
Single stage lubricant-injected rotary screw	300	Load/unload	1408	110	17.7	249.2
Single stage lubricant-injected rotary screw	300	Load/unload	1304	115	19.1	249.1
Single stage lubricant-injected rotary screw	300	Load/unload	1259	125	19.8	249.3
Single stage lubricant-injected rotary screw	300	Load/unload	1098	140	22.7	249.2
Single stage lubricant-injected rotary screw	300	Load/unload	1137	150	22	250.1
Single stage lubricant-injected rotary screw	300	Load/unload	930	200	26.9	250.2
Single stage lubricant-injected rotary screw	300	Variable displacement with unloading	1485	100	17.6	261.4
Single stage lubricant-injected rotary screw	300	Variable displacement with unloading	1475	110	17.7	261.1
Single stage lubricant-injected rotary screw	300	Variable displacement with unloading	1367	115	19.1	261.1
Single stage lubricant-injected rotary screw	300	Variable displacement with unloading	1319	125	19.8	261.2
Single stage lubricant-injected rotary screw	300	Variable displacement with unloading	1150	140	22.7	261.1
Single stage lubricant-injected rotary screw	300	Variable displacement with unloading	1192	150	22	262.2
Single stage lubricant-injected rotary screw	300	Variable displacement with unloading	974	200	26.9	262.0
Single stage lubricant-injected rotary screw	350	Inlet modulation with unloading	1768	100	17.2	304.1
Single stage lubricant-injected rotary screw	350	Inlet modulation with unloading	1631	115	18.6	303.4
Single stage lubricant-injected rotary screw	350	Inlet modulation with unloading	1571	125	19.3	303.2
Single stage lubricant-injected rotary screw	350	Inlet modulation with unloading	1458	140	20.9	304.7
Single stage lubricant-injected rotary screw	350	Inlet modulation with unloading	1306	150	23.3	304.3
Single stage lubricant-injected rotary screw	350	Inlet modulation with unloading	1093	200	27.8	303.9
Single stage lubricant-injected rotary screw	350	Inlet modulation without unloading	1687	100	17.2	290.2
Single stage lubricant-injected rotary screw	350	Inlet modulation without unloading	1557	115	18.6	289.6
Single stage lubricant-injected rotary screw	350	Inlet modulation without unloading	1500	125	19.3	289.5
Single stage lubricant-injected rotary screw	350	Inlet modulation without unloading	1391	140	20.9	290.7
Single stage lubricant-injected rotary screw	350	Inlet modulation without unloading	1247	150	23.3	290.6
Single stage lubricant-injected rotary screw	350	Inlet modulation without unloading	1043	200	27.8	290.0
Single stage lubricant-injected rotary screw	350	Load/unload	1687	100	17.2	290.2
Single stage lubricant-injected rotary screw	350	Load/unload	1557	115	18.6	289.6
Single stage lubricant-injected rotary screw	350	Load/unload	1500	125	19.3	289.5
Single stage lubricant-injected rotary screw	350	Load/unload	1391	140	20.9	290.7
Single stage lubricant-injected rotary screw	350	Load/unload	1247	150	23.3	290.6

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Single stage lubricant-injected rotary screw	350	Load/unload	1043	200	27.8	290.0
Single stage lubricant-injected rotary screw	350	Variable displacement with unloading	1768	100	17.2	304.1
Single stage lubricant-injected rotary screw	350	Variable displacement with unloading	1631	115	18.6	303.4
Single stage lubricant-injected rotary screw	350	Variable displacement with unloading	1571	125	19.3	303.2
Single stage lubricant-injected rotary screw	350	Variable displacement with unloading	1458	140	20.9	304.7
Single stage lubricant-injected rotary screw	350	Variable displacement with unloading	1306	150	23.3	304.3
Single stage lubricant-injected rotary screw	350	Variable displacement with unloading	1093	200	27.8	303.9
Single stage lubricant-injected rotary screw	400	Inlet modulation with unloading	1987	100	17.5	347.7
Single stage lubricant-injected rotary screw	400	Inlet modulation with unloading	1749	125	19.9	348.1
Single stage lubricant-injected rotary screw	400	Inlet modulation with unloading	1629	140	21.3	347.0
Single stage lubricant-injected rotary screw	400	Inlet modulation with unloading	1500	150	23.2	348.0
Single stage lubricant-injected rotary screw	400	Inlet modulation without unloading	1897	100	17.5	332.0
Single stage lubricant-injected rotary screw	400	Inlet modulation without unloading	1669	125	19.9	332.1
Single stage lubricant-injected rotary screw	400	Inlet modulation without unloading	1555	140	21.3	331.2
Single stage lubricant-injected rotary screw	400	Inlet modulation without unloading	1432	150	23.2	332.2
Single stage lubricant-injected rotary screw	400	Load/unload	1897	100	17.5	332.0
Single stage lubricant-injected rotary screw	400	Load/unload	1669	125	19.9	332.1
Single stage lubricant-injected rotary screw	400	Load/unload	1555	140	21.3	331.2
Single stage lubricant-injected rotary screw	400	Load/unload	1432	150	23.2	332.2
Single stage lubricant-injected rotary screw	400	Variable displacement with unloading	1987	100	17.5	347.7
Single stage lubricant-injected rotary screw	400	Variable displacement with unloading	1749	125	19.9	348.1
Single stage lubricant-injected rotary screw	400	Variable displacement with unloading	1629	140	21.3	347.0
Single stage lubricant-injected rotary screw	400	Variable displacement with unloading	1500	150	23.2	348.0
Single stage lubricant-injected rotary screw	450	Inlet modulation with unloading	2050	100	19	389.5
Single stage lubricant-injected rotary screw	450	Inlet modulation with unloading	2134	115	18.2	388.4
Single stage lubricant-injected rotary screw	450	Inlet modulation with unloading	1886	125	20.6	388.5
Single stage lubricant-injected rotary screw	450	Inlet modulation with unloading	1833	140	21.2	388.6
Single stage lubricant-injected rotary screw	450	Inlet modulation without unloading	1957	100	19	371.8
Single stage lubricant-injected rotary screw	450	Inlet modulation without unloading	2037	115	18.2	370.7
Single stage lubricant-injected rotary screw	450	Inlet modulation without unloading	1800	125	20.6	370.8
Single stage lubricant-injected rotary screw	450	Inlet modulation without unloading	1750	140	21.2	371.0
Single stage lubricant-injected rotary screw	450	Load/unload	1957	100	19	371.8
Single stage lubricant-injected rotary screw	450	Load/unload	2037	115	18.2	370.7
Single stage lubricant-injected rotary screw	450	Load/unload	1800	125	20.6	370.8
Single stage lubricant-injected rotary screw	450	Load/unload	1750	140	21.2	371.0
Single stage lubricant-injected rotary screw	450	Variable displacement with unloading	2050	100	19	389.5
Single stage lubricant-injected rotary screw	450	Variable displacement with unloading	2134	115	18.2	388.4
Single stage lubricant-injected rotary screw	450	Variable displacement with unloading	1886	125	20.6	388.5

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Single stage lubricant-injected rotary screw	450	Variable displacement with unloading	1833	140	21.2	388.6
Single stage lubricant-injected rotary screw	500	Inlet modulation with unloading	2580	100	16.8	433.4
Single stage lubricant-injected rotary screw	500	Inlet modulation with unloading	2200	125	19.7	433.4
Single stage lubricant-injected rotary screw	500	Inlet modulation with unloading	1830	150	23.7	433.7
Single stage lubricant-injected rotary screw	500	Inlet modulation without unloading	2463	100	16.8	413.8
Single stage lubricant-injected rotary screw	500	Inlet modulation without unloading	2100	125	19.7	413.7
Single stage lubricant-injected rotary screw	500	Inlet modulation without unloading	1747	150	23.7	414.0
Single stage lubricant-injected rotary screw	500	Load/unload	2463	100	16.8	413.8
Single stage lubricant-injected rotary screw	500	Load/unload	2100	125	19.7	413.7
Single stage lubricant-injected rotary screw	500	Load/unload	1747	150	23.7	414.0
Single stage lubricant-injected rotary screw	500	Variable displacement with unloading	2580	100	16.8	433.4
Single stage lubricant-injected rotary screw	500	Variable displacement with unloading	2200	125	19.7	433.4
Single stage lubricant-injected rotary screw	500	Variable displacement with unloading	1830	150	23.7	433.7
Single stage reciprocating	5	Load/unload	36	30	10.9	3.9
Single stage reciprocating	5	Load/unload	32	40	12.9	4.1
Single stage reciprocating	5	Load/unload	30	50	14.6	4.4
Single stage reciprocating	5	Load/unload	27	60	16.1	4.3
Single stage reciprocating	5	Load/unload	25	70	17.7	4.4
Single stage reciprocating	5	Load/unload	23	80	19.3	4.4
Single stage reciprocating	5	Load/unload	22	90	21	4.6
Single stage reciprocating	5	Load/unload	20	100	22.6	4.5
Single stage reciprocating	5	Load/unload	19	110	24.1	4.6
Single stage reciprocating	5	Load/unload	18	120	25.7	4.6
Single stage reciprocating	5	Load/unload	17	125	26.4	4.5
Single stage reciprocating	7.5	Load/unload	54	30	10.7	5.8
Single stage reciprocating	7.5	Load/unload	48	40	12.7	6.1
Single stage reciprocating	7.5	Load/unload	44	50	14.3	6.3
Single stage reciprocating	7.5	Load/unload	41	60	15.8	6.5
Single stage reciprocating	7.5	Load/unload	38	70	17.4	6.6
Single stage reciprocating	7.5	Load/unload	35	80	18.9	6.6
Single stage reciprocating	7.5	Load/unload	33	90	20.6	6.8
Single stage reciprocating	7.5	Load/unload	31	100	22.2	6.9
Single stage reciprocating	7.5	Load/unload	29	110	23.7	6.9
Single stage reciprocating	7.5	Load/unload	27	120	25.2	6.8
Single stage reciprocating	7.5	Load/unload	26	125	25.9	6.7
Single stage reciprocating	10	Load/unload	72	30	10.6	7.6
Single stage reciprocating	10	Load/unload	65	40	12.6	8.2
Single stage reciprocating	10	Load/unload	59	50	14.1	8.3

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Single stage reciprocating	10	Load/unload	55	60	15.6	8.6
Single stage reciprocating	10	Load/unload	50	70	17.2	8.6
Single stage reciprocating	10	Load/unload	47	80	18.7	8.8
Single stage reciprocating	10	Load/unload	43	90	20.4	8.8
Single stage reciprocating	10	Load/unload	41	100	22	9.0
Single stage reciprocating	10	Load/unload	38	110	23.4	8.9
Single stage reciprocating	10	Load/unload	36	120	24.9	9.0
Single stage reciprocating	10	Load/unload	35	125	25.6	9.0
Single stage reciprocating	15	Load/unload	109	30	10.6	11.6
Single stage reciprocating	15	Load/unload	97	40	12.6	12.2
Single stage reciprocating	15	Load/unload	89	50	14.1	12.5
Single stage reciprocating	15	Load/unload	82	60	15.6	12.8
Single stage reciprocating	15	Load/unload	76	70	17.2	13.1
Single stage reciprocating	15	Load/unload	70	80	18.7	13.1
Single stage reciprocating	15	Load/unload	65	90	20.4	13.3
Single stage reciprocating	15	Load/unload	61	100	22	13.4
Single stage reciprocating	15	Load/unload	57	110	23.4	13.3
Single stage reciprocating	15	Load/unload	54	120	24.9	13.4
Single stage reciprocating	15	Load/unload	52	125	25.6	13.3
Single stage reciprocating	20	Load/unload	149	30	10.1	15.0
Single stage reciprocating	20	Load/unload	133	40	11.9	15.8
Single stage reciprocating	20	Load/unload	122	50	13.4	16.3
Single stage reciprocating	20	Load/unload	113	60	14.8	16.7
Single stage reciprocating	20	Load/unload	104	70	16.3	17.0
Single stage reciprocating	20	Load/unload	96	80	17.8	17.1
Single stage reciprocating	20	Load/unload	89	90	19.3	17.2
Single stage reciprocating	20	Load/unload	84	100	20.8	17.5
Single stage reciprocating	20	Load/unload	79	110	22.3	17.6
Single stage reciprocating	20	Load/unload	74	120	23.7	17.5
Single stage reciprocating	20	Load/unload	72	125	24.3	17.5
Single stage reciprocating	25	Load/unload	187	30	10	18.7
Single stage reciprocating	25	Load/unload	166	40	11.8	19.6
Single stage reciprocating	25	Load/unload	152	50	13.3	20.2
Single stage reciprocating	25	Load/unload	141	60	14.7	20.7
Single stage reciprocating	25	Load/unload	130	70	16.2	21.1
Single stage reciprocating	25	Load/unload	121	80	17.6	21.3
Single stage reciprocating	25	Load/unload	112	90	19.2	21.5
Single stage reciprocating	25	Load/unload	105	100	20.7	21.7

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Single stage reciprocating	25	Load/unload	98	110	22.1	21.7
Single stage reciprocating	25	Load/unload	92	120	23.5	21.6
Single stage reciprocating	25	Load/unload	90	125	24.1	21.7
Single stage reciprocating	30	Load/unload	224	30	9.9	22.2
Single stage reciprocating	30	Load/unload	199	40	11.7	23.3
Single stage reciprocating	30	Load/unload	183	50	13.2	24.2
Single stage reciprocating	30	Load/unload	169	60	14.6	24.7
Single stage reciprocating	30	Load/unload	156	70	16.1	25.1
Single stage reciprocating	30	Load/unload	145	80	17.5	25.4
Single stage reciprocating	30	Load/unload	134	90	19	25.5
Single stage reciprocating	30	Load/unload	126	100	20.5	25.8
Single stage reciprocating	30	Load/unload	118	110	21.9	25.8
Single stage reciprocating	30	Load/unload	111	120	23.3	25.9
Single stage reciprocating	30	Load/unload	108	125	23.9	25.8
Single stage reciprocating	40	Load/unload	309	30	9.7	30.0
Single stage reciprocating	40	Load/unload	276	40	11.4	31.5
Single stage reciprocating	40	Load/unload	253	50	12.8	32.4
Single stage reciprocating	40	Load/unload	233	60	14.2	33.1
Single stage reciprocating	40	Load/unload	216	70	15.5	33.5
Single stage reciprocating	40	Load/unload	201	80	16.9	34.0
Single stage reciprocating	40	Load/unload	189	90	18.1	34.2
Single stage reciprocating	40	Load/unload	179	100	19.4	34.7
Single stage reciprocating	40	Load/unload	169	110	20.6	34.8
Single stage reciprocating	40	Load/unload	159	120	21.8	34.7
Single stage reciprocating	40	Load/unload	156	125	22.3	34.8
Single stage reciprocating	50	Load/unload	386	30	9.5	36.7
Single stage reciprocating	50	Load/unload	344	40	11.2	38.5
Single stage reciprocating	50	Load/unload	316	50	12.6	39.8
Single stage reciprocating	50	Load/unload	291	60	14	40.7
Single stage reciprocating	50	Load/unload	270	70	15.3	41.3
Single stage reciprocating	50	Load/unload	252	80	16.6	41.8
Single stage reciprocating	50	Load/unload	237	90	17.8	42.2
Single stage reciprocating	50	Load/unload	224	100	19	42.6
Single stage reciprocating	50	Load/unload	211	110	20.3	42.8
Single stage reciprocating	50	Load/unload	199	120	21.5	42.8
Single stage reciprocating	50	Load/unload	194	125	22	42.7
Single stage reciprocating	60	Load/unload	516	30	8.5	43.9
Single stage reciprocating	60	Load/unload	453	40	10.3	46.7

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Single stage reciprocating	60	Load/unload	409	50	11.7	47.9
Single stage reciprocating	60	Load/unload	366	60	13.3	48.7
Single stage reciprocating	60	Load/unload	335	70	14.8	49.6
Single stage reciprocating	60	Load/unload	310	80	16.2	50.2
Single stage reciprocating	60	Load/unload	288	90	17.6	50.7
Single stage reciprocating	60	Load/unload	272	100	18.9	51.4
Single stage reciprocating	60	Load/unload	254	110	20.2	51.3
Single stage reciprocating	60	Load/unload	239	120	21.5	51.4
Single stage reciprocating	60	Load/unload	232	125	22	51.0
Single stage reciprocating	75	Load/unload	645	30	8.5	54.8
Single stage reciprocating	75	Load/unload	566	40	10.3	58.3
Single stage reciprocating	75	Load/unload	511	50	11.7	59.8
Single stage reciprocating	75	Load/unload	458	60	13.3	60.9
Single stage reciprocating	75	Load/unload	419	70	14.8	62.0
Single stage reciprocating	75	Load/unload	387	80	16.2	62.7
Single stage reciprocating	75	Load/unload	360	90	17.6	63.4
Single stage reciprocating	75	Load/unload	339	100	18.9	64.1
Single stage reciprocating	75	Load/unload	318	110	20.2	64.2
Single stage reciprocating	75	Load/unload	298	120	21.5	64.1
Single stage reciprocating	75	Load/unload	291	125	22	64.0
Single stage reciprocating	100	Load/unload	910	30	8.1	73.7
Single stage reciprocating	100	Load/unload	801	40	9.7	77.7
Single stage reciprocating	100	Load/unload	722	50	11	79.4
Single stage reciprocating	100	Load/unload	662	60	12.3	81.4
Single stage reciprocating	125	Load/unload	1144	30	8	91.5
Single stage reciprocating	125	Load/unload	1007	40	9.5	95.7
Single stage reciprocating	125	Load/unload	908	50	10.9	99.0
Single stage reciprocating	150	Load/unload	1344	30	8.1	108.9
Single stage reciprocating	150	Load/unload	1183	40	9.7	114.8
Single stage reciprocating	150	Load/unload	1066	50	11.1	118.3
Single stage reciprocating	200	Load/unload	1727	30	8.3	143.3
Single stage reciprocating	200	Load/unload	1531	40	9.8	150.0
Single stage reciprocating	200	Load/unload	1387	50	11.2	155.3
Single stage reciprocating	200	Load/unload	1277	60	12.4	158.3
Single stage reciprocating	250	Load/unload	2158	30	8.3	179.1
Single stage reciprocating	250	Load/unload	1914	40	9.9	189.5
Single stage reciprocating	250	Load/unload	1734	50	11.3	195.9
Single stage reciprocating	250	Load/unload	1597	60	12.5	199.6

Appendix A: Performance Information for Rotary Screw, Reciprocating and Centrifugal Air Compressors

Single stage reciprocating	300	Load/unload	2583	30	8.3	214.4
Single stage reciprocating	300	Load/unload	2287	40	9.9	226.4
Single stage reciprocating	300	Load/unload	2072	50	11.3	234.1
Single stage reciprocating	300	Load/unload	1905	60	12.5	238.1
Single stage reciprocating	350	Load/unload	3013	30	8.3	250.1
Single stage reciprocating	350	Load/unload	2668	40	9.8	261.5
Single stage reciprocating	350	Load/unload	2418	50	11.2	270.8
Single stage reciprocating	350	Load/unload	2223	60	12.4	275.7
Two stage lubricant-free rotary screw	50	Load/unload	221	75	18.7	41.3
Two stage lubricant-free rotary screw	50	Load/unload	195	100	21.8	42.5
Two stage lubricant-free rotary screw	50	Load/unload	186	110	22.9	42.6
Two stage lubricant-free rotary screw	50	Load/unload	182	115	23.5	42.8
Two stage lubricant-free rotary screw	50	Load/unload	174	125	24.6	42.8
Two stage lubricant-free rotary screw	50	Load/unload	163	135	26.2	42.7
Two stage lubricant-free rotary screw	50	Load/unload	153	150	27.9	42.7
Two stage lubricant-free rotary screw	60	Load/unload	274	75	18.2	49.9
Two stage lubricant-free rotary screw	60	Load/unload	249	100	20.6	51.3
Two stage lubricant-free rotary screw	60	Load/unload	239	110	21.4	51.1
Two stage lubricant-free rotary screw	60	Load/unload	231	115	22.2	51.3
Two stage lubricant-free rotary screw	60	Load/unload	220	125	23.3	51.3
Two stage lubricant-free rotary screw	60	Load/unload	208	135	24.7	51.4
Two stage lubricant-free rotary screw	60	Load/unload	194	150	26.4	51.2
Two stage lubricant-free rotary screw	75	Load/unload	368	75	16.9	62.2
Two stage lubricant-free rotary screw	75	Load/unload	331	100	19.4	64.2
Two stage lubricant-free rotary screw	75	Load/unload	316	110	20.3	64.1
Two stage lubricant-free rotary screw	75	Load/unload	308	115	20.8	64.1
Two stage lubricant-free rotary screw	75	Load/unload	291	125	22	64.0
Two stage lubricant-free rotary screw	75	Load/unload	276	135	23.2	64.0
Two stage lubricant-free rotary screw	75	Load/unload	259	150	24.8	64.2
Two stage lubricant-free rotary screw	100	Load/unload	523	75	15.9	83.2
Two stage lubricant-free rotary screw	100	Load/unload	464	100	18.4	85.4
Two stage lubricant-free rotary screw	100	Load/unload	443	110	19.3	85.5
Two stage lubricant-free rotary screw	100	Load/unload	431	115	19.8	85.3
Two stage lubricant-free rotary screw	100	Load/unload	417	125	20.5	85.5
Two stage lubricant-free rotary screw	100	Load/unload	390	135	21.9	85.4
Two stage lubricant-free rotary screw	100	Load/unload	384	150	22.2	85.2
Two stage lubricant-free rotary screw	125	Load/unload	709	75	14.5	102.8
Two stage lubricant-free rotary screw	125	Load/unload	622	100	17	105.7

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Two stage lubricant-free rotary screw	125	Load/unload	589	110	18	106.0
Two stage lubricant-free rotary screw	125	Load/unload	573	115	18.5	106.0
Two stage lubricant-free rotary screw	125	Load/unload	548	125	19.3	105.8
Two stage lubricant-free rotary screw	125	Load/unload	522	135	20.3	106.0
Two stage lubricant-free rotary screw	125	Load/unload	482	150	22	106.0
Two stage lubricant-free rotary screw	150	Load/unload	841	75	14.6	122.8
Two stage lubricant-free rotary screw	150	Load/unload	749	100	16.9	126.6
Two stage lubricant-free rotary screw	150	Load/unload	710	110	17.8	126.4
Two stage lubricant-free rotary screw	150	Load/unload	689	115	18.3	126.1
Two stage lubricant-free rotary screw	150	Load/unload	657	125	19.2	126.1
Two stage lubricant-free rotary screw	150	Load/unload	627	135	20.1	126.0
Two stage lubricant-free rotary screw	150	Load/unload	586	150	21.6	126.6
Two stage lubricant-free rotary screw	200	Load/unload	1115	75	14.5	161.7
Two stage lubricant-free rotary screw	200	Load/unload	996	100	16.7	166.3
Two stage lubricant-free rotary screw	200	Load/unload	949	110	17.5	166.1
Two stage lubricant-free rotary screw	200	Load/unload	924	115	18	166.3
Two stage lubricant-free rotary screw	200	Load/unload	882	125	18.9	166.7
Two stage lubricant-free rotary screw	200	Load/unload	844	135	19.7	166.3
Two stage lubricant-free rotary screw	200	Load/unload	803	150	20.7	166.2
Two stage lubricant-free rotary screw	250	Load/unload	1434	75	14.2	203.6
Two stage lubricant-free rotary screw	250	Load/unload	1303	100	16.1	209.8
Two stage lubricant-free rotary screw	250	Load/unload	1234	110	17	209.8
Two stage lubricant-free rotary screw	250	Load/unload	1206	115	17.3	208.6
Two stage lubricant-free rotary screw	250	Load/unload	1151	125	18.2	209.5
Two stage lubricant-free rotary screw	250	Load/unload	1099	135	19	208.8
Two stage lubricant-free rotary screw	250	Load/unload	1037	150	20.2	209.5
Two stage lubricant-free rotary screw	300	Load/unload	1693	75	14.3	242.1
Two stage lubricant-free rotary screw	300	Load/unload	1541	100	16.2	249.6
Two stage lubricant-free rotary screw	300	Load/unload	1473	110	17	250.4
Two stage lubricant-free rotary screw	300	Load/unload	1440	115	17.3	249.1
Two stage lubricant-free rotary screw	300	Load/unload	1380	125	18.1	249.8
Two stage lubricant-free rotary screw	300	Load/unload	1328	135	18.8	249.7
Two stage lubricant-free rotary screw	300	Load/unload	1256	150	19.9	249.9
Two stage lubricant-free rotary screw	350	Load/unload	1907	75	14.8	282.2
Two stage lubricant-free rotary screw	350	Load/unload	1752	100	16.6	290.8
Two stage lubricant-free rotary screw	350	Load/unload	2363	110	12.3	290.6
Two stage lubricant-free rotary screw	350	Load/unload	1633	115	17.8	290.7
Two stage lubricant-free rotary screw	350	Load/unload	1567	125	18.5	289.9

Appendix A: Performance Information for Rotary Screw, Reciprocating and Centrifugal Air Compressors

Two stage lubricant-free rotary screw	350	Load/unload	1503	135	19.3	290.1
Two stage lubricant-free rotary screw	400	Load/unload	2350	75	13.7	322.0
Two stage lubricant-free rotary screw	400	Load/unload	2126	100	15.6	331.7
Two stage lubricant-free rotary screw	400	Load/unload	2027	110	16.4	332.4
Two stage lubricant-free rotary screw	400	Load/unload	1975	115	16.8	331.8
Two stage lubricant-free rotary screw	400	Load/unload	1877	125	17.7	332.2
Two stage lubricant-free rotary screw	400	Load/unload	1793	135	18.5	331.7
Two stage lubricant-free rotary screw	400	Load/unload	1683	150	19.7	331.6
Two stage lubricant-free rotary screw	450	Load/unload	2640	75	13.7	361.7
Two stage lubricant-free rotary screw	450	Load/unload	2382	100	15.6	371.6
Two stage lubricant-free rotary screw	450	Load/unload	2264	110	16.4	371.3
Two stage lubricant-free rotary screw	450	Load/unload	2211	115	16.8	371.4
Two stage lubricant-free rotary screw	450	Load/unload	2108	125	17.6	371.0
Two stage lubricant-free rotary screw	450	Load/unload	2013	135	18.4	370.4
Two stage lubricant-free rotary screw	450	Load/unload	1882	150	19.7	370.8
Two stage lubricant-free rotary screw	500	Load/unload	2847	75	14.1	401.4
Two stage lubricant-free rotary screw	500	Load/unload	2578	100	16.1	415.1
Two stage lubricant-free rotary screw	500	Load/unload	2460	110	16.8	413.3
Two stage lubricant-free rotary screw	500	Load/unload	2400	115	17.3	415.2
Two stage lubricant-free rotary screw	500	Load/unload	2318	125	17.9	414.9
Two stage lubricant-free rotary screw	500	Load/unload	2221	135	18.7	415.3
Two stage lubricant-free rotary screw	500	Load/unload	2080	150	19.9	413.9
Two stage lubricant-injected rotary screw	100	Inlet modulation with unloading	560	100	16	89.6
Two stage lubricant-injected rotary screw	100	Inlet modulation with unloading	515	115	17.4	89.6
Two stage lubricant-injected rotary screw	100	Inlet modulation with unloading	504	125	17.8	89.7
Two stage lubricant-injected rotary screw	100	Inlet modulation with unloading	470	140	19	89.3
Two stage lubricant-injected rotary screw	100	Inlet modulation with unloading	336	200	26.6	89.4
Two stage lubricant-injected rotary screw	100	Inlet modulation without unloading	535	100	16	85.6
Two stage lubricant-injected rotary screw	100	Inlet modulation without unloading	492	115	17.4	85.6
Two stage lubricant-injected rotary screw	100	Inlet modulation without unloading	481	125	17.8	85.6
Two stage lubricant-injected rotary screw	100	Inlet modulation without unloading	449	140	19	85.3
Two stage lubricant-injected rotary screw	100	Inlet modulation without unloading	321	200	26.6	85.4
Two stage lubricant-injected rotary screw	100	Load/unload	535	100	16	85.6
Two stage lubricant-injected rotary screw	100	Load/unload	492	115	17.4	85.6
Two stage lubricant-injected rotary screw	100	Load/unload	481	125	17.8	85.6
Two stage lubricant-injected rotary screw	100	Load/unload	449	140	19	85.3
Two stage lubricant-injected rotary screw	100	Load/unload	321	200	26.6	85.4
Two stage lubricant-injected rotary screw	100	Variable displacement with unloading	560	100	16	89.6

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Two stage lubricant-injected rotary screw	100	Variable displacement with unloading	515	115	17.4	89.6
Two stage lubricant-injected rotary screw	100	Variable displacement with unloading	504	125	17.8	89.7
Two stage lubricant-injected rotary screw	100	Variable displacement with unloading	470	140	19	89.3
Two stage lubricant-injected rotary screw	100	Variable displacement with unloading	336	200	26.6	89.4
Two stage lubricant-injected rotary screw	125	Inlet modulation with unloading	691	100	16.1	111.3
Two stage lubricant-injected rotary screw	125	Inlet modulation with unloading	637	115	17.4	110.8
Two stage lubricant-injected rotary screw	125	Inlet modulation with unloading	621	125	17.9	111.2
Two stage lubricant-injected rotary screw	125	Inlet modulation with unloading	580	140	19.1	110.8
Two stage lubricant-injected rotary screw	125	Inlet modulation with unloading	414	200	26.8	111.0
Two stage lubricant-injected rotary screw	125	Inlet modulation without unloading	659	100	16.1	106.1
Two stage lubricant-injected rotary screw	125	Inlet modulation without unloading	608	115	17.4	105.8
Two stage lubricant-injected rotary screw	125	Inlet modulation without unloading	593	125	17.9	106.1
Two stage lubricant-injected rotary screw	125	Inlet modulation without unloading	554	140	19.1	105.8
Two stage lubricant-injected rotary screw	125	Inlet modulation without unloading	395	200	26.8	105.9
Two stage lubricant-injected rotary screw	125	Load/unload	659	100	16.1	106.1
Two stage lubricant-injected rotary screw	125	Load/unload	608	115	17.4	105.8
Two stage lubricant-injected rotary screw	125	Load/unload	593	125	17.9	106.1
Two stage lubricant-injected rotary screw	125	Load/unload	554	140	19.1	105.8
Two stage lubricant-injected rotary screw	125	Load/unload	395	200	26.8	105.9
Two stage lubricant-injected rotary screw	125	Variable displacement with unloading	691	100	16.1	111.3
Two stage lubricant-injected rotary screw	125	Variable displacement with unloading	637	115	17.4	110.8
Two stage lubricant-injected rotary screw	125	Variable displacement with unloading	621	125	17.9	111.2
Two stage lubricant-injected rotary screw	125	Variable displacement with unloading	580	140	19.1	110.8
Two stage lubricant-injected rotary screw	125	Variable displacement with unloading	414	200	26.8	111.0
Two stage lubricant-injected rotary screw	150	Inlet modulation with unloading	826	100	16	132.2
Two stage lubricant-injected rotary screw	150	Inlet modulation with unloading	755	115	17.5	132.1
Two stage lubricant-injected rotary screw	150	Inlet modulation with unloading	743	125	17.8	132.3
Two stage lubricant-injected rotary screw	150	Inlet modulation with unloading	693	140	19.1	132.4
Two stage lubricant-injected rotary screw	150	Inlet modulation with unloading	495	200	26.7	132.2
Two stage lubricant-injected rotary screw	150	Inlet modulation without unloading	788	100	16	126.1
Two stage lubricant-injected rotary screw	150	Inlet modulation without unloading	721	115	17.5	126.2
Two stage lubricant-injected rotary screw	150	Inlet modulation without unloading	709	125	17.8	126.2
Two stage lubricant-injected rotary screw	150	Inlet modulation without unloading	662	140	19.1	126.4
Two stage lubricant-injected rotary screw	150	Inlet modulation without unloading	473	200	26.7	126.3
Two stage lubricant-injected rotary screw	150	Load/unload	788	100	16	126.1
Two stage lubricant-injected rotary screw	150	Load/unload	721	115	17.5	126.2
Two stage lubricant-injected rotary screw	150	Load/unload	709	125	17.8	126.2
Two stage lubricant-injected rotary screw	150	Load/unload	662	140	19.1	126.4

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Two stage lubricant-injected rotary screw	150	Load/unload	473	200	26.7	126.3
Two stage lubricant-injected rotary screw	150	Variable displacement with unloading	826	100	16	132.2
Two stage lubricant-injected rotary screw	150	Variable displacement with unloading	755	115	17.5	132.1
Two stage lubricant-injected rotary screw	150	Variable displacement with unloading	743	125	17.8	132.3
Two stage lubricant-injected rotary screw	150	Variable displacement with unloading	693	140	19.1	132.4
Two stage lubricant-injected rotary screw	150	Variable displacement with unloading	495	200	26.7	132.2
Two stage lubricant-injected rotary screw	200	Inlet modulation with unloading	1098	100	15.9	174.6
Two stage lubricant-injected rotary screw	200	Inlet modulation with unloading	992	115	17.6	174.6
Two stage lubricant-injected rotary screw	200	Inlet modulation with unloading	990	125	17.6	174.2
Two stage lubricant-injected rotary screw	200	Inlet modulation with unloading	924	140	18.9	174.6
Two stage lubricant-injected rotary screw	200	Inlet modulation with unloading	660	200	26.4	174.2
Two stage lubricant-injected rotary screw	200	Inlet modulation without unloading	1048	100	15.9	166.6
Two stage lubricant-injected rotary screw	200	Inlet modulation without unloading	947	115	17.6	166.7
Two stage lubricant-injected rotary screw	200	Inlet modulation without unloading	945	125	17.6	166.3
Two stage lubricant-injected rotary screw	200	Inlet modulation without unloading	882	140	18.9	166.7
Two stage lubricant-injected rotary screw	200	Inlet modulation without unloading	630	200	26.4	166.3
Two stage lubricant-injected rotary screw	200	Load/unload	1048	100	15.9	166.6
Two stage lubricant-injected rotary screw	200	Load/unload	947	115	17.6	166.7
Two stage lubricant-injected rotary screw	200	Load/unload	945	125	17.6	166.3
Two stage lubricant-injected rotary screw	200	Load/unload	882	140	18.9	166.7
Two stage lubricant-injected rotary screw	200	Load/unload	630	200	26.4	166.3
Two stage lubricant-injected rotary screw	200	Variable displacement with unloading	1098	100	15.9	174.6
Two stage lubricant-injected rotary screw	200	Variable displacement with unloading	992	115	17.6	174.6
Two stage lubricant-injected rotary screw	200	Variable displacement with unloading	990	125	17.6	174.2
Two stage lubricant-injected rotary screw	200	Variable displacement with unloading	924	140	18.9	174.6
Two stage lubricant-injected rotary screw	200	Variable displacement with unloading	660	200	26.4	174.2
Two stage lubricant-injected rotary screw	250	Inlet modulation with unloading	1390	100	15.8	219.6
Two stage lubricant-injected rotary screw	250	Inlet modulation with unloading	1249	125	17.5	218.6
Two stage lubricant-injected rotary screw	250	Inlet modulation with unloading	1167	140	18.8	219.4
Two stage lubricant-injected rotary screw	250	Inlet modulation with unloading	950	200	23.1	219.5
Two stage lubricant-injected rotary screw	250	Inlet modulation without unloading	1327	100	15.8	209.7
Two stage lubricant-injected rotary screw	250	Inlet modulation without unloading	1192	125	17.5	208.6
Two stage lubricant-injected rotary screw	250	Inlet modulation without unloading	1114	140	18.8	209.4
Two stage lubricant-injected rotary screw	250	Inlet modulation without unloading	907	200	23.1	209.5
Two stage lubricant-injected rotary screw	250	Load/unload	1327	100	15.8	209.7
Two stage lubricant-injected rotary screw	250	Load/unload	1192	125	17.5	208.6
Two stage lubricant-injected rotary screw	250	Load/unload	1114	140	18.8	209.4
Two stage lubricant-injected rotary screw	250	Load/unload	907	200	23.1	209.5

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Two stage lubricant-injected rotary screw	250	Variable displacement with unloading	1390	100	15.8	219.6
Two stage lubricant-injected rotary screw	250	Variable displacement with unloading	1249	125	17.5	218.6
Two stage lubricant-injected rotary screw	250	Variable displacement with unloading	1167	140	18.8	219.4
Two stage lubricant-injected rotary screw	250	Variable displacement with unloading	950	200	23.1	219.5
Two stage lubricant-injected rotary screw	300	Inlet modulation with unloading	1707	100	15.3	261.2
Two stage lubricant-injected rotary screw	300	Inlet modulation with unloading	1476	125	17.7	261.3
Two stage lubricant-injected rotary screw	300	Inlet modulation with unloading	1428	140	18.3	261.3
Two stage lubricant-injected rotary screw	300	Inlet modulation with unloading	1143	200	22.9	261.7
Two stage lubricant-injected rotary screw	300	Inlet modulation without unloading	1629	100	15.3	249.2
Two stage lubricant-injected rotary screw	300	Inlet modulation without unloading	1409	125	17.7	249.4
Two stage lubricant-injected rotary screw	300	Inlet modulation without unloading	1363	140	18.3	249.4
Two stage lubricant-injected rotary screw	300	Inlet modulation without unloading	1091	200	22.9	249.8
Two stage lubricant-injected rotary screw	300	Load/unload	1629	100	15.3	249.2
Two stage lubricant-injected rotary screw	300	Load/unload	1409	125	17.7	249.4
Two stage lubricant-injected rotary screw	300	Load/unload	1363	140	18.3	249.4
Two stage lubricant-injected rotary screw	300	Load/unload	1091	200	22.9	249.8
Two stage lubricant-injected rotary screw	300	Variable displacement with unloading	1707	100	15.3	261.2
Two stage lubricant-injected rotary screw	300	Variable displacement with unloading	1476	125	17.7	261.3
Two stage lubricant-injected rotary screw	300	Variable displacement with unloading	1428	140	18.3	261.3
Two stage lubricant-injected rotary screw	300	Variable displacement with unloading	1143	200	22.9	261.7
Two stage lubricant-injected rotary screw	350	Inlet modulation with unloading	1945	100	15.6	303.4
Two stage lubricant-injected rotary screw	350	Inlet modulation with unloading	1760	125	17.3	304.5
Two stage lubricant-injected rotary screw	350	Inlet modulation with unloading	1669	140	18.2	303.8
Two stage lubricant-injected rotary screw	350	Inlet modulation with unloading	1366	200	22.2	303.3
Two stage lubricant-injected rotary screw	350	Inlet modulation without unloading	1857	100	15.6	289.7
Two stage lubricant-injected rotary screw	350	Inlet modulation without unloading	1680	125	17.3	290.6
Two stage lubricant-injected rotary screw	350	Inlet modulation without unloading	1593	140	18.2	289.9
Two stage lubricant-injected rotary screw	350	Inlet modulation without unloading	1304	200	22.2	289.5
Two stage lubricant-injected rotary screw	350	Load/unload	1857	100	15.6	289.7
Two stage lubricant-injected rotary screw	350	Load/unload	1680	125	17.3	290.6
Two stage lubricant-injected rotary screw	350	Load/unload	1593	140	18.2	289.9
Two stage lubricant-injected rotary screw	350	Load/unload	1304	200	22.2	289.5
Two stage lubricant-injected rotary screw	350	Variable displacement with unloading	1945	100	15.6	303.4
Two stage lubricant-injected rotary screw	350	Variable displacement with unloading	1760	125	17.3	304.5
Two stage lubricant-injected rotary screw	350	Variable displacement with unloading	1669	140	18.2	303.8
Two stage lubricant-injected rotary screw	350	Variable displacement with unloading	1366	200	22.2	303.3
Two stage lubricant-injected rotary screw	400	Inlet modulation with unloading	2236	100	15.5	346.6
Two stage lubricant-injected rotary screw	400	Inlet modulation with unloading	2057	125	16.9	347.6

Appendix A: Performance Information for Rotary Screw, Reciprocating and Centrifugal Air Compressors

Two stage lubricant-injected rotary screw	400	Inlet modulation with unloading	1924	140	18.1	348.2
Two stage lubricant-injected rotary screw	400	Inlet modulation with unloading	1543	200	22.5	347.2
Two stage lubricant-injected rotary screw	400	Inlet modulation without unloading	2134	100	15.5	330.8
Two stage lubricant-injected rotary screw	400	Inlet modulation without unloading	1964	125	16.9	331.9
Two stage lubricant-injected rotary screw	400	Inlet modulation without unloading	1837	140	18.1	332.5
Two stage lubricant-injected rotary screw	400	Inlet modulation without unloading	1473	200	22.5	331.4
Two stage lubricant-injected rotary screw	400	Load/unload	2134	100	15.5	330.8
Two stage lubricant-injected rotary screw	400	Load/unload	1964	125	16.9	331.9
Two stage lubricant-injected rotary screw	400	Load/unload	1837	140	18.1	332.5
Two stage lubricant-injected rotary screw	400	Load/unload	1473	200	22.5	331.4
Two stage lubricant-injected rotary screw	400	Variable displacement with unloading	2236	100	15.5	346.6
Two stage lubricant-injected rotary screw	400	Variable displacement with unloading	2057	125	16.9	347.6
Two stage lubricant-injected rotary screw	400	Variable displacement with unloading	1924	140	18.1	348.2
Two stage lubricant-injected rotary screw	400	Variable displacement with unloading	1543	200	22.5	347.2
Two stage lubricant-injected rotary screw	450	Inlet modulation with unloading	2405	100	16.2	389.6
Two stage lubricant-injected rotary screw	450	Inlet modulation with unloading	2245	125	17.3	388.4
Two stage lubricant-injected rotary screw	450	Inlet modulation with unloading	2099	140	18.5	388.3
Two stage lubricant-injected rotary screw	450	Inlet modulation with unloading	1739	200	22.4	389.5
Two stage lubricant-injected rotary screw	450	Inlet modulation without unloading	2296	100	16.2	372.0
Two stage lubricant-injected rotary screw	450	Inlet modulation without unloading	2143	125	17.3	370.7
Two stage lubricant-injected rotary screw	450	Inlet modulation without unloading	2004	140	18.5	370.7
Two stage lubricant-injected rotary screw	450	Inlet modulation without unloading	1660	200	22.4	371.8
Two stage lubricant-injected rotary screw	450	Load/unload	2296	100	16.2	372.0
Two stage lubricant-injected rotary screw	450	Load/unload	2143	125	17.3	370.7
Two stage lubricant-injected rotary screw	450	Load/unload	2004	140	18.5	370.7
Two stage lubricant-injected rotary screw	450	Load/unload	1660	200	22.4	371.8
Two stage lubricant-injected rotary screw	450	Variable displacement with unloading	2405	100	16.2	389.6
Two stage lubricant-injected rotary screw	450	Variable displacement with unloading	2245	125	17.3	388.4
Two stage lubricant-injected rotary screw	450	Variable displacement with unloading	2099	140	18.5	388.3
Two stage lubricant-injected rotary screw	450	Variable displacement with unloading	1739	200	22.4	389.5
Two stage lubricant-injected rotary screw	500	Inlet modulation with unloading	2675	100	16.2	433.4
Two stage lubricant-injected rotary screw	500	Inlet modulation with unloading	2425	125	17.9	434.1
Two stage lubricant-injected rotary screw	500	Inlet modulation with unloading	2265	140	19.2	434.9
Two stage lubricant-injected rotary screw	500	Inlet modulation with unloading	1873	200	23.2	434.5
Two stage lubricant-injected rotary screw	500	Inlet modulation without unloading	2554	100	16.2	413.7
Two stage lubricant-injected rotary screw	500	Inlet modulation without unloading	2315	125	17.9	414.4
Two stage lubricant-injected rotary screw	500	Inlet modulation without unloading	2162	140	19.2	415.1
Two stage lubricant-injected rotary screw	500	Inlet modulation without unloading	1788	200	23.2	414.8

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Two stage lubricant-injected rotary screw	500	Load/unload	2554	100	16.2	413.7
Two stage lubricant-injected rotary screw	500	Load/unload	2315	125	17.9	414.4
Two stage lubricant-injected rotary screw	500	Load/unload	2162	140	19.2	415.1
Two stage lubricant-injected rotary screw	500	Load/unload	1788	200	23.2	414.8
Two stage lubricant-injected rotary screw	500	Variable displacement with unloading	2675	100	16.2	433.4
Two stage lubricant-injected rotary screw	500	Variable displacement with unloading	2425	125	17.9	434.1
Two stage lubricant-injected rotary screw	500	Variable displacement with unloading	2265	140	19.2	434.9
Two stage lubricant-injected rotary screw	500	Variable displacement with unloading	1873	200	23.2	434.5
Two stage lubricant-injected rotary screw	600	Inlet modulation with unloading	3242	100	16.1	522.0
Two stage lubricant-injected rotary screw	600	Inlet modulation without unloading	3095	100	16.1	498.3
Two stage lubricant-injected rotary screw	600	Load/unload	3095	100	16.1	498.3
Two stage lubricant-injected rotary screw	600	Variable displacement with unloading	3242	100	16.1	522.0
Two stage reciprocating	5	Load/unload	27	80	17.1	4.6
Two stage reciprocating	5	Load/unload	25	100	18.6	4.7
Two stage reciprocating	5	Load/unload	24	110	19.5	4.7
Two stage reciprocating	5	Load/unload	23	125	20.2	4.6
Two stage reciprocating	5	Load/unload	22	135	20.8	4.6
Two stage reciprocating	5	Load/unload	21	150	21.6	4.5
Two stage reciprocating	7.5	Load/unload	40	80	16.8	6.7
Two stage reciprocating	7.5	Load/unload	37	100	18.3	6.8
Two stage reciprocating	7.5	Load/unload	35	110	19.2	6.7
Two stage reciprocating	7.5	Load/unload	34	125	19.9	6.8
Two stage reciprocating	7.5	Load/unload	33	135	20.4	6.7
Two stage reciprocating	7.5	Load/unload	32	150	21.2	6.8
Two stage reciprocating	10	Load/unload	54	80	16.6	9.0
Two stage reciprocating	10	Load/unload	49	100	18.1	8.9
Two stage reciprocating	10	Load/unload	47	110	19	8.9
Two stage reciprocating	10	Load/unload	46	125	19.7	9.1
Two stage reciprocating	10	Load/unload	44	135	20.2	8.9
Two stage reciprocating	10	Load/unload	43	150	21	9.0
Two stage reciprocating	15	Load/unload	81	80	16.6	13.4
Two stage reciprocating	15	Load/unload	74	100	18.1	13.4
Two stage reciprocating	15	Load/unload	71	110	19	13.5
Two stage reciprocating	15	Load/unload	68	125	19.7	13.4
Two stage reciprocating	15	Load/unload	66	135	20.2	13.3
Two stage reciprocating	15	Load/unload	64	150	21	13.4
Two stage reciprocating	20	Load/unload	111	80	15.8	17.5
Two stage reciprocating	20	Load/unload	102	100	17.2	17.5

Appendix A: Performance Information for Rotary Screw, Reciprocating and Centrifugal Air Compressors

Two stage reciprocating	20	Load/unload	97	110	18	17.5
Two stage reciprocating	20	Load/unload	94	125	18.7	17.6
Two stage reciprocating	20	Load/unload	91	135	19.2	17.5
Two stage reciprocating	20	Load/unload	88	150	19.9	17.5
Two stage reciprocating	25	Load/unload	139	80	15.6	21.7
Two stage reciprocating	25	Load/unload	127	100	17	21.6
Two stage reciprocating	25	Load/unload	122	110	17.9	21.8
Two stage reciprocating	25	Load/unload	117	125	18.5	21.6
Two stage reciprocating	25	Load/unload	114	135	19	21.7
Two stage reciprocating	25	Load/unload	110	150	19.8	21.8
Two stage reciprocating	30	Load/unload	168	80	15.3	25.7
Two stage reciprocating	30	Load/unload	154	100	16.8	25.9
Two stage reciprocating	30	Load/unload	148	110	17.5	25.9
Two stage reciprocating	30	Load/unload	141	125	18.4	25.9
Two stage reciprocating	30	Load/unload	136	135	18.9	25.7
Two stage reciprocating	30	Load/unload	132	150	19.6	25.9
Two stage reciprocating	40	Load/unload	225	80	15.5	34.9
Two stage reciprocating	40	Load/unload	205	100	17	34.9
Two stage reciprocating	40	Load/unload	197	110	17.6	34.7
Two stage reciprocating	40	Load/unload	188	125	18.5	34.8
Two stage reciprocating	40	Load/unload	182	135	19.1	34.8
Two stage reciprocating	40	Load/unload	176	150	19.8	34.8
Two stage reciprocating	50	Load/unload	281	80	15.2	42.7
Two stage reciprocating	50	Load/unload	256	100	16.7	42.8
Two stage reciprocating	50	Load/unload	246	110	17.3	42.6
Two stage reciprocating	50	Load/unload	234	125	18.2	42.6
Two stage reciprocating	50	Load/unload	227	135	18.8	42.7
Two stage reciprocating	50	Load/unload	220	150	19.4	42.7
Two stage reciprocating	60	Load/unload	337	80	15.2	51.2
Two stage reciprocating	60	Load/unload	307	100	16.7	51.3
Two stage reciprocating	60	Load/unload	296	110	17.3	51.2
Two stage reciprocating	60	Load/unload	281	125	18.2	51.1
Two stage reciprocating	60	Load/unload	273	135	18.8	51.3
Two stage reciprocating	60	Load/unload	264	150	19.4	51.2
Two stage reciprocating	75	Load/unload	463	80	13.8	63.9
Two stage reciprocating	75	Load/unload	417	100	15.4	64.2
Two stage reciprocating	75	Load/unload	398	110	16.1	64.1
Two stage reciprocating	75	Load/unload	390	115	16.4	64.0

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Two stage reciprocating	75	Load/unload	375	125	17.1	64.1
Two stage reciprocating	75	Load/unload	366	130	17.5	64.1
Two stage reciprocating	75	Load/unload	355	140	18.1	64.3
Two stage reciprocating	75	Load/unload	348	150	18.4	64.0
Two stage reciprocating	75	Multi-step unloading	463	80	13.8	63.9
Two stage reciprocating	75	Multi-step unloading	417	100	15.4	64.2
Two stage reciprocating	75	Multi-step unloading	398	110	16.1	64.1
Two stage reciprocating	75	Multi-step unloading	390	115	16.4	64.0
Two stage reciprocating	75	Multi-step unloading	375	125	17.1	64.1
Two stage reciprocating	75	Multi-step unloading	366	130	17.5	64.1
Two stage reciprocating	75	Multi-step unloading	355	140	18.1	64.3
Two stage reciprocating	75	Multi-step unloading	348	150	18.4	64.0
Two stage reciprocating	100	Load/unload	597	80	14.3	85.4
Two stage reciprocating	100	Load/unload	544	100	15.7	85.4
Two stage reciprocating	100	Load/unload	522	110	16.4	85.6
Two stage reciprocating	100	Load/unload	515	115	16.6	85.5
Two stage reciprocating	100	Load/unload	498	125	17.2	85.7
Two stage reciprocating	100	Load/unload	488	130	17.5	85.4
Two stage reciprocating	100	Load/unload	475	140	18	85.5
Two stage reciprocating	100	Load/unload	463	150	18.5	85.7
Two stage reciprocating	100	Multi-step unloading	597	80	14.3	85.4
Two stage reciprocating	100	Multi-step unloading	544	100	15.7	85.4
Two stage reciprocating	100	Multi-step unloading	522	110	16.4	85.6
Two stage reciprocating	100	Multi-step unloading	515	115	16.6	85.5
Two stage reciprocating	100	Multi-step unloading	498	125	17.2	85.7
Two stage reciprocating	100	Multi-step unloading	488	130	17.5	85.4
Two stage reciprocating	100	Multi-step unloading	475	140	18	85.5
Two stage reciprocating	100	Multi-step unloading	463	150	18.5	85.7
Two stage reciprocating	125	Load/unload	786	80	13.5	106.1
Two stage reciprocating	125	Load/unload	706	100	15	105.9
Two stage reciprocating	125	Load/unload	673	110	15.7	105.7
Two stage reciprocating	125	Load/unload	660	115	16.1	106.3
Two stage reciprocating	125	Load/unload	634	125	16.7	105.9
Two stage reciprocating	125	Load/unload	619	130	17.1	105.8
Two stage reciprocating	125	Load/unload	599	140	17.7	106.0
Two stage reciprocating	125	Load/unload	581	150	18.2	105.7
Two stage reciprocating	125	Multi-step unloading	786	80	13.5	106.1
Two stage reciprocating	125	Multi-step unloading	706	100	15	105.9

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Two stage reciprocating	125	Multi-step unloading	673	110	15.7	105.7
Two stage reciprocating	125	Multi-step unloading	660	115	16.1	106.3
Two stage reciprocating	125	Multi-step unloading	634	125	16.7	105.9
Two stage reciprocating	125	Multi-step unloading	619	130	17.1	105.8
Two stage reciprocating	125	Multi-step unloading	599	140	17.7	106.0
Two stage reciprocating	125	Multi-step unloading	581	150	18.2	105.7
Two stage reciprocating	150	Load/unload	949	80	13.3	126.2
Two stage reciprocating	150	Load/unload	847	100	14.9	126.2
Two stage reciprocating	150	Load/unload	808	110	15.6	126.0
Two stage reciprocating	150	Load/unload	791	115	16	126.6
Two stage reciprocating	150	Load/unload	761	125	16.6	126.3
Two stage reciprocating	150	Load/unload	739	130	17.1	126.4
Two stage reciprocating	150	Load/unload	716	140	17.6	126.0
Two stage reciprocating	150	Load/unload	694	150	18.2	126.3
Two stage reciprocating	150	Multi-step unloading	949	80	13.3	126.2
Two stage reciprocating	150	Multi-step unloading	847	100	14.9	126.2
Two stage reciprocating	150	Multi-step unloading	808	110	15.6	126.0
Two stage reciprocating	150	Multi-step unloading	791	115	16	126.6
Two stage reciprocating	150	Multi-step unloading	761	125	16.6	126.3
Two stage reciprocating	150	Multi-step unloading	739	130	17.1	126.4
Two stage reciprocating	150	Multi-step unloading	716	140	17.6	126.0
Two stage reciprocating	150	Multi-step unloading	694	150	18.2	126.3
Two stage reciprocating	200	Load/unload	1180	80	14.1	166.4
Two stage reciprocating	200	Load/unload	1071	100	15.5	166.0
Two stage reciprocating	200	Load/unload	1029	110	16.2	166.7
Two stage reciprocating	200	Load/unload	1010	115	16.5	166.7
Two stage reciprocating	200	Load/unload	972	125	17.1	166.2
Two stage reciprocating	200	Load/unload	955	130	17.4	166.2
Two stage reciprocating	200	Load/unload	925	140	18	166.5
Two stage reciprocating	200	Load/unload	897	150	18.6	166.8
Two stage reciprocating	200	Multi-step unloading	1180	80	14.1	166.4
Two stage reciprocating	200	Multi-step unloading	1071	100	15.5	166.0
Two stage reciprocating	200	Multi-step unloading	1029	110	16.2	166.7
Two stage reciprocating	200	Multi-step unloading	1010	115	16.5	166.7
Two stage reciprocating	200	Multi-step unloading	972	125	17.1	166.2
Two stage reciprocating	200	Multi-step unloading	955	130	17.4	166.2
Two stage reciprocating	200	Multi-step unloading	925	140	18	166.5
Two stage reciprocating	200	Multi-step unloading	897	150	18.6	166.8

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Two stage reciprocating	250	Load/unload	1584	80	13.2	209.1
Two stage reciprocating	250	Load/unload	1440	100	14.5	208.8
Two stage reciprocating	250	Load/unload	1383	110	15.1	208.8
Two stage reciprocating	250	Load/unload	1357	115	15.4	209.0
Two stage reciprocating	250	Load/unload	1309	125	16	209.4
Two stage reciprocating	250	Multi-step unloading	1584	80	13.2	209.1
Two stage reciprocating	250	Multi-step unloading	1440	100	14.5	208.8
Two stage reciprocating	250	Multi-step unloading	1383	110	15.1	208.8
Two stage reciprocating	250	Multi-step unloading	1357	115	15.4	209.0
Two stage reciprocating	250	Multi-step unloading	1309	125	16	209.4
Two stage reciprocating	300	Load/unload	1965	80	12.7	249.6
Two stage reciprocating	300	Load/unload	1786	100	14	250.0
Two stage reciprocating	300	Load/unload	1716	110	14.6	250.5
Two stage reciprocating	300	Load/unload	1675	115	14.9	249.6
Two stage reciprocating	300	Load/unload	264	125	94.7	250.0
Two stage reciprocating	300	Multi-step unloading	1965	80	12.7	249.6
Two stage reciprocating	300	Multi-step unloading	1786	100	14	250.0
Two stage reciprocating	300	Multi-step unloading	1716	110	14.6	250.5
Two stage reciprocating	300	Multi-step unloading	1675	115	14.9	249.6
Two stage reciprocating	300	Multi-step unloading	264	125	94.7	250.0
Two stage reciprocating	350	Load/unload	2235	80	13	290.6
Two stage reciprocating	350	Load/unload	2034	100	14.3	290.9
Two stage reciprocating	350	Load/unload	1955	110	14.8	289.3
Two stage reciprocating	350	Load/unload	1906	115	15.2	289.7
Two stage reciprocating	350	Load/unload	1841	125	15.8	290.9
Two stage reciprocating	350	Multi-step unloading	2235	80	13	290.6
Two stage reciprocating	350	Multi-step unloading	2034	100	14.3	290.9
Two stage reciprocating	350	Multi-step unloading	1955	110	14.8	289.3
Two stage reciprocating	350	Multi-step unloading	1906	115	15.2	289.7
Two stage reciprocating	350	Multi-step unloading	1841	125	15.8	290.9
Two stage reciprocating	400	Load/unload	2510	80	13.2	331.3
Two stage reciprocating	400	Load/unload	2293	100	14.5	332.5
Two stage reciprocating	400	Load/unload	2207	110	15	331.1
Two stage reciprocating	400	Load/unload	2167	115	15.3	331.6
Two stage reciprocating	400	Load/unload	2097	125	15.8	331.3
Two stage reciprocating	400	Multi-step unloading	2510	80	13.2	331.3
Two stage reciprocating	400	Multi-step unloading	2293	100	14.5	332.5
Two stage reciprocating	400	Multi-step unloading	2207	110	15	331.1

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Two stage reciprocating	400	Multi-step unloading	2167	115	15.3	331.6
Two stage reciprocating	400	Multi-step unloading	2097	125	15.8	331.3
Multiple Stage Centrifugal	600	Inlet modulation with blow-off	3138	100	14.4	451.9
Multiple Stage Centrifugal	600	Inlet modulation with unloading	3138	100	14.4	451.9
Multiple Stage Centrifugal	600	Load/unload	3138	100	14.4	451.9

4.2. Appendix B: Generic Load Profiles for Various Facility Types

Table 9: Generic Load Profiles for Various Facility Types

Facility Type	Season	Weeks/Season	On-Peak					Hours of Operation	Days of Operation
			IN	KY	OH	NC	SC		
Industrial - One Shift	Summer	26	Y	Y	Y	Y	Y	7am-4pm	M - F
Industrial - One Shift	Winter	26	Y	N	N	Y	Y	7am-4pm	M - F
Industrial - Two Shift	Summer	26	Y	Y	Y	Y	Y	7am-10pm	M - F
Industrial - Two Shift	Winter	26	Y	Y	Y	Y	Y	7am-10pm	M - F
Industrial - Three Shift	Summer	26	Y	Y	Y	Y	Y	24 Hours	7 days
Industrial - Three Shift	Winter	26	Y	Y	Y	Y	Y	24 Hours	7 days
Commercial - Normal Hours	Summer	26	Y	Y	Y	Y	Y	8am-5pm	M - F
Commercial - Normal Hours	Winter	26	Y	N	N	Y	Y	8am-5pm	M - F
Commercial - Extended Hours	Summer	26	Y	Y	Y	Y	Y	6am-6pm	M - F
Commercial - Extended Hours	Winter	26	Y	N	N	Y	Y	6am-6pm	M - F
K-12 School	Summer	13	N	N	N	N	N	7am-4pm	M - F
K-12 School	Winter	22	Y	N	N	Y	Y	7am-4pm	M - F
College/University	Summer	13	N	N	N	N	N	6am-6pm	M - F
College/University	Winter	22	Y	N	N	Y	Y	6am-6pm	M - F
Hospital	Summer	26	Y	Y	Y	Y	Y	24 Hours	7 days
Hospital	Winter	26	Y	Y	Y	Y	Y	24 Hours	7 days

4.3. Appendix C: Indiana Cities – Elevation and Average Annual Ambient Temperature

State	Station Name	Elevation	Average Temp
IN	Evansville Regional AP	381	56.6
IN	Huntingburg	528	57.4
IN	Terre Haute Hulman Regional A	574	54.3
IN	Monroe Co	866	53.1
IN	Indianapolis Intl AP	791	51.9
IN	Lafayette Purdue University AP	600	51.5
IN	Fort Wayne Intl AP	791	49.5
IN	Grissom Arb	830	50.8
IN	Delaware Co Johnson	961	52.5
IN	South Bend Michiana Regional AP	774	51.3

4.4. Appendix D: Kentucky Cities – Elevation and Average Annual Ambient Temperature

State	Station Name	Elevation	Average Temp
KY	Cincinnati Northern Kentucky AP	869	53.3
KY	Lexington Bluegrass AP	965	54.8
KY	Louisville Standiford Field	482	56.5
KY	Louisville Bowman Field	541	57.8
KY	Jackson Julian Carroll AP	1,365	57.0
KY	Henderson City	384	54.1
KY	Fort Knox Godman AAF	784	55.3
KY	London-Corbin AP	1,188	55.2
KY	Paducah Barkley Regional AP	407	58.4
KY	Somerset (AWOS)	929	57.9
KY	Fort Campbell AAF	568	57.4
KY	Bowling Green Warren Co AP	528	57.1

4.5. Appendix E: Ohio Cities – Elevation and Average Annual Ambient Temperature

State	Station Name	Elevation	Average Temp
OH	Columbus Port Columbus Intl A	810	51.9
OH	Zanesville Municipal AP	879	53.5
OH	Ohio State University	929	53.7
OH	Dayton International Airport	1,001	51.3
OH	Cincinnati Municipal AP Lunki	489	54.2
OH	Akron Akron-Canton Regional AP	1,207	49.6
OH	Cleveland Hopkins Intl AP	771	50.6
OH	Burke Lakefront	597	50.5
OH	Mansfield Lahm Municipal Airport	1,296	48.7
OH	Youngstown Regional Airport	1,181	48.5
OH	Toledo Express Airport	669	49.1
OH	Findlay Airport	801	51.3
OH	Dayton Wright Patterson AFB	820	51.6

4.6. Appendix F: North Carolina Cities – Elevation and Average Annual Ambient Temperature

State	Station Name	Elevation	Average Temp
NC	Wilmington International Airport	30	63.4
NC	Fayetteville Pope AFB	217	60.5
NC	Fayetteville Regional G	194	59.4
NC	Cape Hatteras News Building	10	62.9
NC	Dare Co Regional	13	61.0
NC	Raleigh Durham International	417	59.5
NC	Pitt Greenville Arp	26	60.8
NC	Goldsboro Seymour Johnson AFB	108	59.8
NC	Kinston Stallings AFB	95	60.5
NC	Rocky Mount Wilson	164	60.6
NC	Jacksonville (AWOS)	95	58.7
NC	Cherry Point MCAS	36	60.3
NC	New Bern Craven Co Regional AP	16	63.4
NC	New River MCAF	16	62.1
NC	Charlotte Douglas Intl Airport	728	60.8
NC	Southern Pines AWOS	463	59.2
NC	Hickory Regional AP	1,142	59.3
NC	Asheville Regional Airport	2,139	55.0
NC	Greensboro Piedmont Triad Int	896	58.0
NC	Winston-Salem Reynolds AP	971	59.6
NC	Fort Bragg Simmons AAF	305	61.2
NC	Elizabeth City Coast Guard Ai [NREL]	13	62.4

4.7. Appendix G: South Carolina Cities – Elevation and Average Annual Ambient Temperature

State	Station Name	Elevation	Average Temp
SC	Charleston Intl Airport	39	65.3
SC	Beaufort MCAS	33	64.7
SC	Columbia Metro Airport	213	63.1
SC	Florence Regional AP	144	64.2
SC	Greenville Downtown AP	1,047	58.6
SC	Greer Greenv'l-Spartanbrg AP	958	60.1
SC	Anderson County AP	761	59.6
SC	Sumter Shaw AFB	243	60.9
SC	Myrtle Beach AFB	26	63.6
SC	North Myrtle Beach Grand Stra	33	63.1