FSCURTIS HIGH EFFICIENCY REFRIGERATED COMPRESSED AIR DRYERS 1.7～212 CMM

FSCURTIS

FS CURTIS
AIR COMPRESSORS

SOME COMPANIES ARE FOUNDED ON HARD WORK. OTHERS ARE FOUNDED ON IDEALS.

FS-CURTIS WAS FOUNDED ON BOTH.

More than 160 years ago, the FS-Curtis way of doing business was established through two key commitments: a dedication to building quality products and a dedication to responsive customer service.

Over the decades, the company and its products have evolved through innovation and new technologies. But those commitments to quality and service remain unchanged. Today, just as in 1854, FS-Curtis customers can depend on our products for reliable, long-term service. Equally as important, they can depend on getting the same from our people.

A HISTORY OF EXCELLENCE

1854 Curtis & Co. – Empire Saw founded in St. Louis, MO, USA

1857 Earned Agricultural and Mechanical Fair award for excellence and quality

1876 Named Curtis and Co. Manufacturing

1897 Built first reciprocating air compressor that later evolved into the Master Line Series

1914 Supported U.S. Government efforts by producing more than 2 million Howitzer shell forgings

1940 Designed and developed mobile oxygen compressors to be used in Aerospace applications

1955 Merged with U.S. Air Compressor Company, Central Petroleum Company, Lewis Machine Company

1976 Merged with Toledo Tools as Curtis-Toledo Inc.

1979 Introduction of Challenge Air Series reciprocating air compressors

1995 Began manufacturing and assembling Rotary Screw Air compressors

2005 Expanded global market reach by joining forces with Fusheng Industrial

2006 U.S. Headquarters certified as ISO9001:2000 and ISO14001:2004

2010 Introduced next generation GSV Variable Speed Rotary Screw compressors

2015 Introduced Nx series Fixed and Variable Speed Rotary Screw compressors

2016 Nx Series named Plant Engineering's 2015 Product of the Year - Gold Award for Compressed Air

2017 Nx Series claims Plant Engineering's Product of the Year - Gold Award 2nd year in a row

SUPERIOR AIR QUALITY IS JUST THE BEGINNING

FSCURTIS HIGH EFFICIENCY REFRIGERATION DRYER

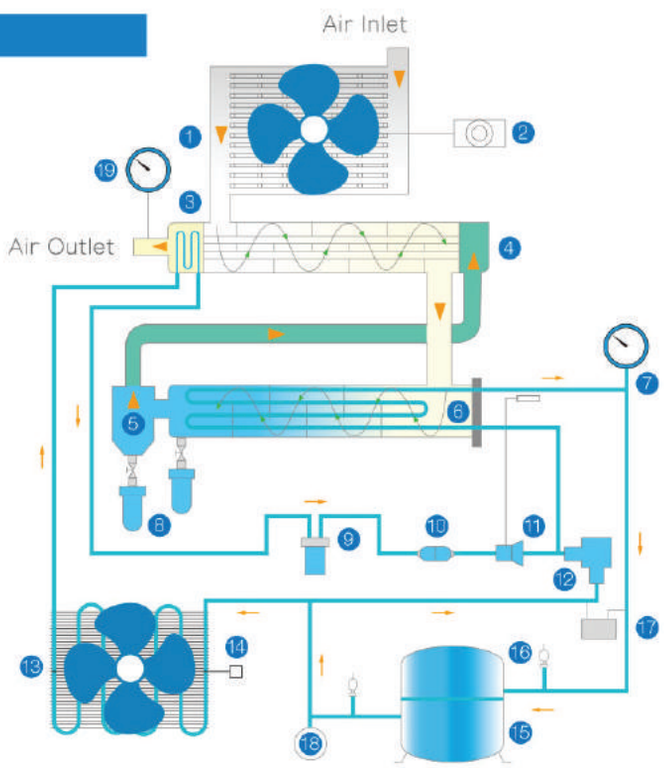
All FS-Curtis RDS Series dryers utilize industry-leading technologies to optimize performance.

STAINLESS-STEEL BRAZED PLATE HEAT EXCHANGER

To deliver unparalleled performance and superior reliability, FS-Curtis crafts its exchangers from premium grade 316SS and uses advanced metal forming and bonding techniques. Layers of sinusoidal flow paths form large, smooth channel flow cavities, helping to ensure low pressure drop.

System Flow Chart

1	Pre-cooler
2	"Economizer" switch
3	Secondary condenser
4	Air heat exchanger
5	Water separator
6	Evaporator
7	Pressure gauge (dew point)
8	Condensate drain valve
9	Refrigerant receiver
10	Line filter
11	Expansion valve
12	Hot gas bypass valve
13	Air-cooled condenser
14	Anti-freezing protection switch
15	Compressor
16	Service/Inflow valve
17	High-low pressure protection switch
18	Pressure gauge (refrigerant)
19	Pressure gauge (air)



TECHNICAL DATA

ISO 8573-1 : 2010 QUALITY CLASS

Class	Solid Particles - Maximum Numbers of Particles per m³			Humidity and Liquid Water		Oil
	Particle Size (micron)			Pressure Dew Point		Total concentration, Aerosol, Liquid, and Vapor
	0.10<d≤0.50	.5<d≤1.01	.0<d≤5.0	˚C	˚F	mg/m³
0	As Specified			As Specified		As Specified
1	≤20 000	≤400	≤10	≤ -70	≤ -94	≤ 0.01
2	≤400 000	≤6 000	≤100	≤ -40	≤ -40	≤ 0.1
3-		≤90 000	≤1 000	≤ -20	≤ -4	≤ 1
4-		-	≤10 000	≤ +3	≤ +38	≤ 5
5-		-	≤100 000	≤ +7	≤ +45	
6				≤ +10	≤ +50	

Technical Data

Type		RDS															
Model		015AP	020AP	030APX	040APX	050APX	060APX	075APX	100APX	125APX	150APX	175APX	200APX	250APX	300APX	350APX	400APX
max. capacity (m³/min)		1.7	2.7	3.9	5.4	7.2	8.5	11.1	15	18.6	22.3	26	29.7	35.6	44.4	54.1	61.9
Air inlet temp.		50˚C															
Ambient temp.		32˚C															
Dew point		2~10˚C at 7 kg/cm²															
Operating pressure		0.7 Mpa															
Refrigerant		R134a		R407C													
Power consumption (Kw)		0.7	0.8	1.5	1.7	1.8	1.6	2	2.5	3.2	4.2	5.2	5.7	7.1	8.1	10	11
Power supply		220V / 1Phase / 50Hz					380V / 3 Phase / 50Hz										
Air piping size		G1 1/4"	G1 1/4"	G1 1/2"	G1 1/2"	G2"	G2"	G2"	G2"	DN80	DN80	DN80	DN100	DN100	DN125	DN125	DN125
Dimensions (mm)	L	720	840	1070	1070	1070	1220	1500	1700	1700	1900	1900	2200	2200	2200	2200	2200
	W	490	490	600	600	600	600	940	940	940	1070	1070	1070	1070	1350	1350	1350
	H	730	750	900	900	900	900	1130	1130	1130	1290	1290	1290	1290	1760	1760	1830
Net weight (kg)		75	90	140	148	150	180	315	365	415	450	530	590	600	900	950	1000

* Maximum air inlet temperarure limit:80˚C
* Maximum operation pressure:0.98Mpa
* ambient temperature:2~40˚C

Air-cooled refrigeration dryer product selection

Correction factor(cf1)

Minimum inlet pressure (Mpa)	Maximum inlet temperature (˚C)					
	45	50	55	60	70	80
0.4	1.06	0.87	0.77	0.71	0.67	0.61
0.5	1.12	0.92	0.82	0.75	0.71	0.64
0.6	1.17	0.96	0.85	0.79	0.74	0.67
0.7	1.22	1	0.89	0.82	0.77	0.7
0.8	1.24	1.02	0.9	0.84	0.79	0.71
0.95	1.29	1.06	0.94	0.87	0.82	0.74

Ambient temperature correction factor(cf2)

Ambient temperatur (˚C)	30	32	35	40
Correction factor	1.03	1	0.96	0.9

Dryer capacity varies with operating pressure, inlet temperature and ambient temperature. Using drying capacity requirement, select dryer model from table, ensuring the dryer model selsected is equal to or greater than your dring capacity requirement.

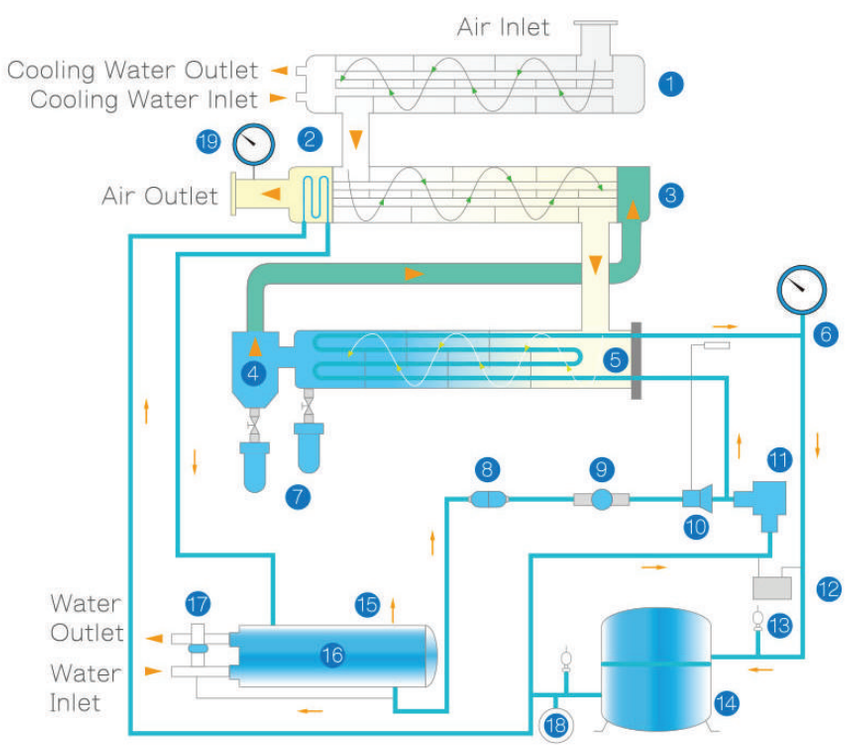
Calculate drying capacity required following the example below
Minimum drying capacity requirements =
Inlet flow requirement ÷ cf1 ÷ cf2

For example :
Inlet flow requirement is 50m³/min Operating pressure is 0.8Mpa, inlet temperature is 55˚C and ambient temperature is 32˚C
Minimum drying capacity requirements =
50m³/min÷0.9÷1=55.56m³/min
The correct dryer model is RDS400APX

Water-cooled refrigeration dryer

System Flow Chart

1	Pre-cooler
2	Secondary condenser
3	Air heat exchanger
4	Water separator
5	Evaporator
6	Pressure gauge (dew point)
7	Condensate drain valve
8	Line filter
9	Sight glass
10	Expansion valve
11	Hot gas bypass valve
12	Pressure head switch
13	Service/Inflow valve
14	Compressor
15	Relief valve
16	Water-cooled condenser
17	Water flow regulating valve
18	Pressure gauge (refrigerant)
19	Pressure gauge (air)



Unique air heat exchanger with brass pipe and fin design

Reduces air inlet temperature and increases outlet temperature, preventing piping condensation.

State of the art application of secondary condenser on the air outlet

Perfectly utilizing outlet cooled air to ensure normal operation even in harsh operational conditions.

Cyclone type water separator + moisture isolator

Absolutely free of water.

Stainless oil-filled type instrumentation

Eliminate shock errors caused by vibrations during long distance or rough transportation.

Computerized control panel

Pursuing optimal operation with intelligent functions including simple flow chart display and easiest operating.

Evaporator with flange connection

Easy and convenient maintenance.

Additional condenser bypass valve

Convenient on-site cleaning.

Technical Data

Type		RDS														
Model		075WPX	100WPX	125WPX	150WPX	175WPX	200WPX	250WPX	300WPX	400WPX	500WPX	600WPX	750WPX	1000WPX	1200WPX	1500WPX
max. capacity(m³/min)		10.7	14.4	18	21.4	25	28.5	34.2	42.7	59.5	70.8	79.3	106.2	141.4	169.7	212
Air inlet temp.		50℃														
Ambient temp.		30℃														
Dew point		2~10℃ at 7 kg/cm²														
Operating pressure		0.7 Mpa														
Refrigerant		R407C														
Power consumption (Kw)		1.3	1.7	2.3	2.7	3.7	4.2	5.4	6	8.2	8.8	10.2	15.2	17.6	20.3	26
Power supply		380V / 3Phase / 50Hz														
Air piping size		DN80	DN80	DN80	DN80	DN80	DN100	DN100	DN125	DN125	DN150	DN150	DN200	DN200	DN200	DN250
Condenser piping size		G 3/4"	G 3/4"	G 3/4"	G1"	G1"	G1"	G1"	G1 1/2"	G1 1/2"	G1 1/2"	G1 1/2"	DN50	DN65	DN65	DN80
Pre-cooler piping size		G1"	G1"	G1"	G1"	G1"	G1 1/2"	G1 1/2"	G2"	G2"	G2"	G2"	G2 1/2"	G2 1/2"	G2 1/2"	G3"
Cooling water flow rate (m³/hr)		6	6	6.8	7.6	8.3	9	11.3	13.5	18	21.5	27	36	45	54	72
Condenser (RT)		4	4	4.5	5	5.5	6	7.5	9	12	15	17	24	30	34	42
Cooling tower (RT)		8	8	10	10	15	15	15	20	25	30	40	50	60	80	100
Dimensions (mm)	L	1500	1500	1500	1700	1700	1900	1900	2000	2000	2200	2500	2500	2900	3200	3600
	W	940	940	940	940	940	1070	1070	1200	1200	1350	1350	1600	1600	1600	2100
	H	1130	1130	1130	1130	1130	1290	1290	1580	1580	1700	1700	1870	1870	1900	2150
Net weight (kg)		340	380	380	450	450	600	650	900	950	1200	1300	1700	1900	2200	2650

* Maximum air inlet temperarure limit:80℃
* Maximum operation pressure:0.98Mpa
* ambient temperature:2~40℃

Water-cooled refrigeration dryer product selection

Correction factor(cf1)

Minimum inlet pressure (Mpa)	Air inlet temperature (℃)					
	45	50	55	60	70	80
0.4	1.06	0.87	0.77	0.71	0.67	0.61
0.5	1.12	0.92	0.82	0.75	0.71	0.64
0.6	1.17	0.96	0.85	0.79	0.74	0.67
0.7	1.22	1	0.89	0.82	0.77	0.7
0.8	1.24	1.02	0.9	0.84	0.79	0.71

Cooling water temperature correction factor(cf2)

Cooling water temperature(℃)	30	32	40
Correction factor	1	0.97	0.9

Dryer capacity varies with operating pressure, inlet temperature and cooling water temperature. Using drying capacity requirement, select dryer model from table, ensuring the dryer model selsected is equal to or greater than your dring capacity requirement.

Calculate drying capacity required following the example below
Minimum drying capacity requirements =
Inlet flow requirement ÷ cf1 ÷ cf2

For example :
Inlet flow requirement is 28.5m³/min
Operating pressure is 0.8Mpa, inlet temperature is 55℃ and cooling water temperature is 32℃
Minimum drying capacity requirements =
28.5m³/min÷0.9÷0.97=32.6m³/min

The correct dryer model is RDS250WPX

CONTINUED COMMITMENT

A company history that dates back more than 160 years is a company history that, to us, is just the beginning. FS-Curtis is committed to offering a world-class portfolio of products. Through the dependability of our people and our quality-focused manufacturing, FS-Curtis will continue to be the most trusted and dependable name in compressed air serving even more markets through our ever-growing global presence.

You can count on **FS-Curtis** to approach the next 160 years by staying true to the values and strengths that are appreciated by our customers today.

A WORLD OF DIFFERENCE

The FS-Curtis headquarters in St. Louis, Missouri, U.S.A. is the anchor of a larger global network. FS-Curtis builds quality products — and a quality reputation — at locations around the world.

In addition to our manufacturing and packaging locations, a large global network of sales agents and distributors ensures that sales and service support is available around the world, day in and day out.

ST. LOUIS, MO USA (HEADQUARTERS)

BANGALORE, INDIA | JUNDIAI, BRAZIL | OBERHAUSEN, GERMANY | SHANGHAI, CHINA | TAIPEI, TAIWAN | PITTSBURGH, PA USA (FS-ELLIOTT) ZHONGSAN, CHINA | BEIJING, CHINA (FUSHENG) | ZHONGSAN, CHINA (FUSHENG) | HO CHI MINH CITY, VIETNAM (FUSHENG)

ISO 9001 ISO 14001

AUTHORIZED FS-CURTIS DEALER:

FSCURTIS®