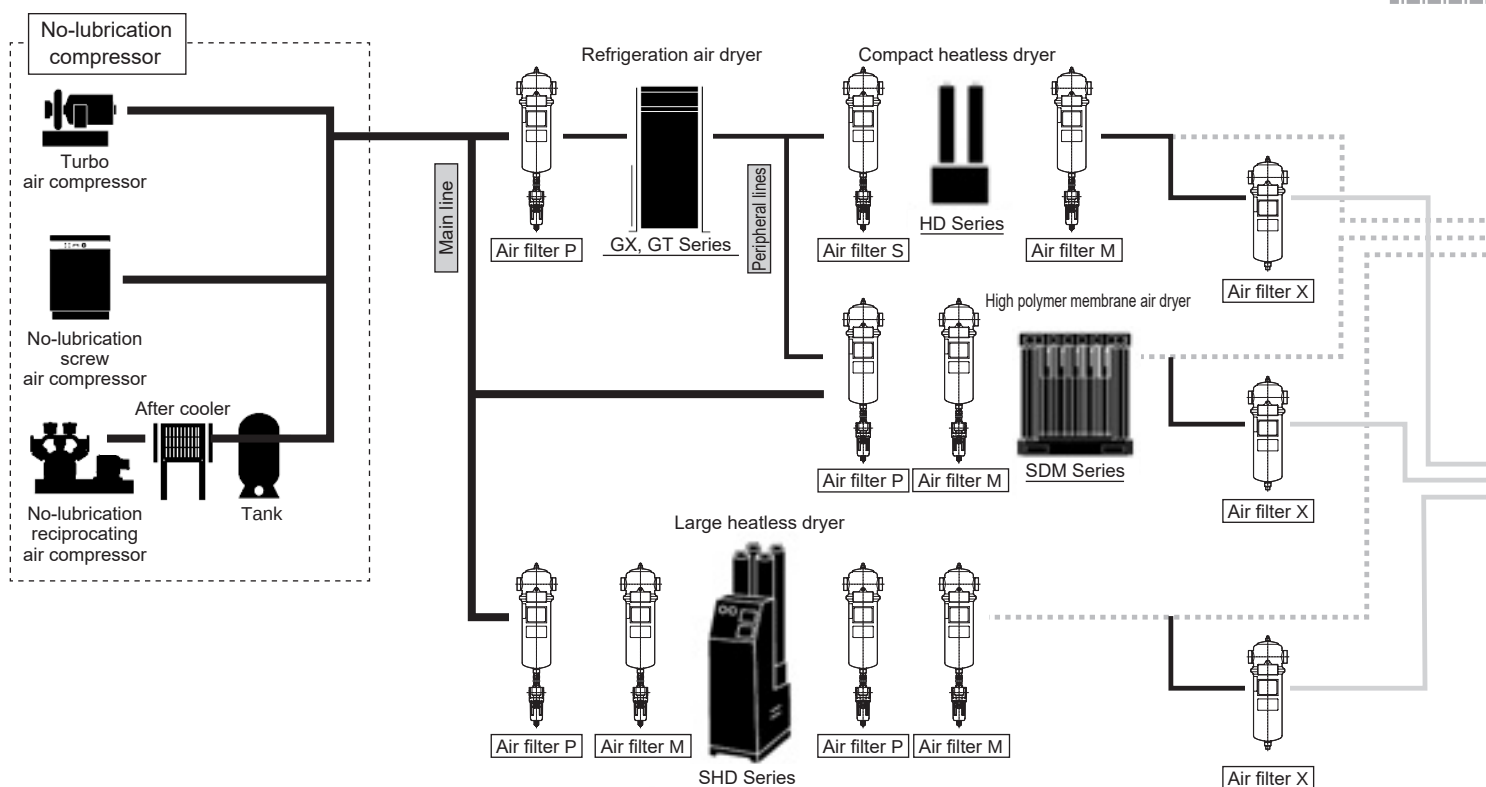
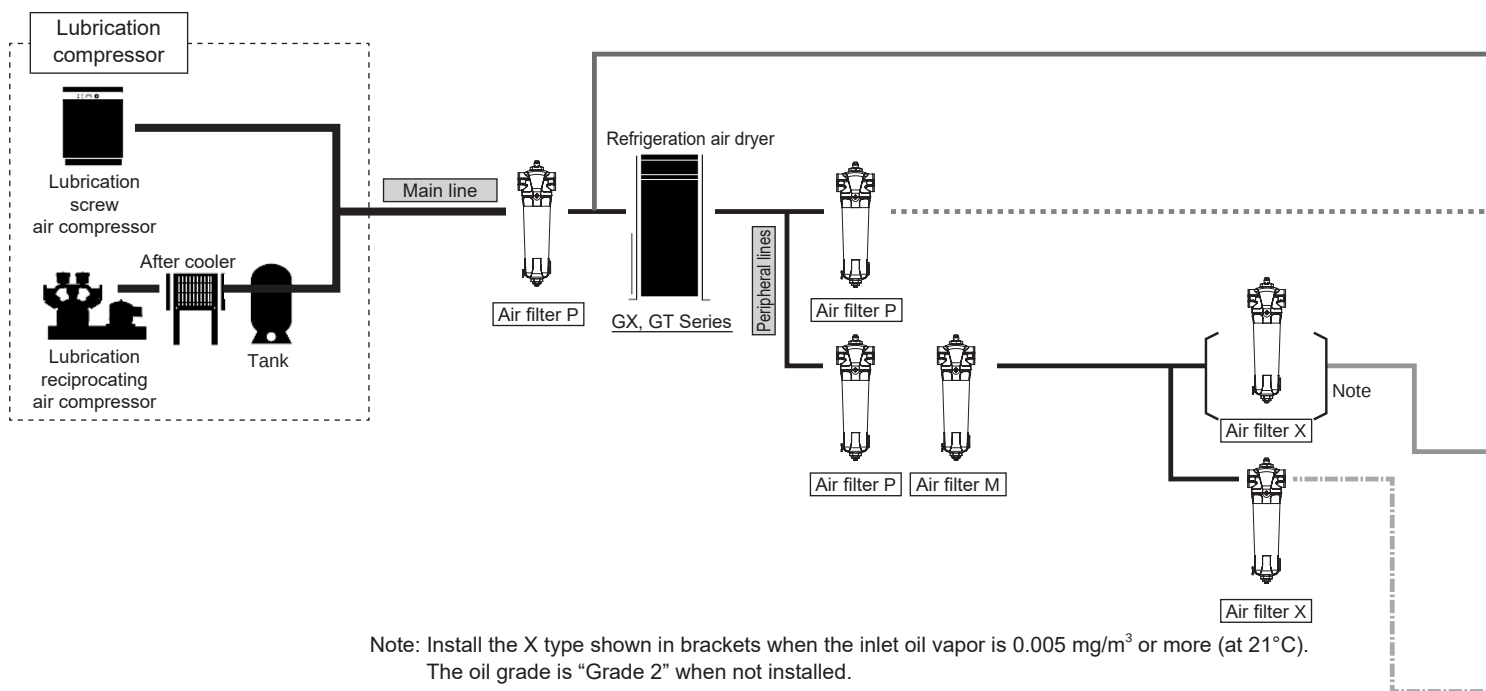


Main line component system configuration

Medium main line filter device recommended system configuration



JIS B 8392-1:2012 Compressed air purity grade

Grade	Solid particles			Humidity and moisture		Oil	
	Max. number of particles per 1 m ³ for particle diameter d (µm)			Mass conc. Cp	Pressure dew point	Water conc. Cw	Total oil conc.
	0.1 < d ≤ 0.5	0.5 < d ≤ 1.0	1.0 < d ≤ 5.0	mg/m ³	°C	g/m ³	mg/m ³
0	Conditions stricter than Grade 1 to be specified by user or supplier.						
1	≤ 20,000	≤ 400	≤ 10	-	≤ -70	-	≤ 0.01
2	≤ 400,000	≤ 6,000	≤ 100	-	≤ -40	-	≤ 0.1
3	-	≤ 90,000	≤ 1,000	-	≤ -20	-	≤ 1
4	-	-	≤ 10,000	-	≤ +3	-	≤ 5
5	-	-	≤ 100,000	-	≤ +7	-	-
6	-	-	-	0 < Cp ≤ 5	≤ +10	-	-
7	-	-	-	5 < Cp ≤ 10	-	Cw ≤ 0.5	-
8	-	-	-	-	-	0.5 < Cw ≤ 5	-
9	-	-	-	-	-	5 < Cw ≤ 10	-
X	-	-	-	Cp > 10	-	Cw > 10	> 5

JIS B 8392-1:2003 has been revised to JIS B 8392-1:2012.

For example,

What is Grade 1:2:1?

- Solid particles 0.1 to 0.5 μm are 20,000 particles or less, 0.5 to 1.0 μm are 400 particles or less, and 1.0 to 5.0 μm are 10 particles or less
- Pressure dew point -40°C or less
- Oil concentration 0.01 mg/m³ or less.

Air quality	Applications	Impurities in air			Grade	F.R.L.
		Solid particles	Moisture	Oil content		F.R.
Water drip removal air/ coarse dust removal air	For construction/civil engineering machinery Air for cleaning (dry air not required)	1 µm	-	-	2:-:-	F (Filtr)
General dry air	Standard pneumatic components Standard pneumatic tools Labor saving components Jigs and tools for air Air chucks Air vices Air for cleaning precision components	1 µm	Pressure dew point 10°C	0.6 mg/m ³	2.6.3	R (Reg)
			Pressure dew point 7°C		2.5.3	L (Lub)
Dry air (oil-free)	For instrumentation For measurement Sequence control High-grade paint	0.01 µm	Pressure dew point 10°C	0.01 mg/m ³ [0.003 mg/m ³]	1.6.1	Drain Separ
			Pressure dew point 7°C		1.5.1	Mech Press SW
Dry air (odorless)	Food product industry (where air is not directly blown onto food) Pharmaceutical industry For stirring/transporting/drying/packaging/ brewing	0.01 µm	Pressure dew point 10°C	0.003 mg/m ³	1.6.1	Res press exh valve
			Pressure dew point 7°C		1.5.1	SlowStart
Ultra dry air (oil-free)	Ozone generator Powder transfer Drying of atmospheric gas for furnaces Drying of high-voltage generator insulation gas Drying of computer rooms For centralized control instruments	0.01 µm	Pressure dew point -20°C	0.01 mg/m ³	1.3.1	Anti-bac/Bac- remove Filtr
			Pressure dew point -40°C		1.2.1	Film Resist FR
			Pressure dew point -60°C		1.2.1	Oil-ProhR
Ultra dry air (odorless)	Food product industry (where air is not directly blown onto food) Pharmaceutical industry For stirring/transporting/drying/packaging/ brewing	0.01 µm	Pressure dew point -20°C	0.003 mg/m ³	1.3.1	Med Press FR
			Pressure dew point -40°C		1.2.1	No Cu/ PTFE FRL
			Pressure dew point -60°C		1.2.1	Outdrs FRL

*1: The system No. is based on the P2 class.

X in the table indicates odor removing. "-" indicates no specification.

⚠ Precautions for system selection

*1: If your conditions are different, refer to the specifications in the catalog to select a model.

*2: This example of system selection is based on an air-cooling refrigeration air dryer. When selecting based on an air-cooling refrigeration air dryer, since standard processing air flow rate may differ, model No. of filter may vary. Contact CKD for details.

*3: Air filter and oil mist filter are to be used where the inlet air temperature is 60°C or less, and X type where the inlet air temperature is 30°C or less. If air temperature from the secondary side of the refrigeration air dryer is high, keep enough distance from the refrigeration air dryer to maintain a temperature no greater than the inlet air temperature.

*4: This system cannot be used for high pressure specifications (1 to 1.6 MPa). Consult with CKD for details.

*5: Use anti-rust processed materials for piping (zinc plated pipe, lining pipe or stainless steel pipe).

*6: If a processing air rate larger than the refrigeration air dryer supplies may be used instantaneously, install a tank to the secondary side of the refrigeration air dryer. Installing a tank supplies stable moisture removed air.

*7: The air filter at the secondary side of the refrigeration air dryer can be used as a pre-filter before an oil mist filter.

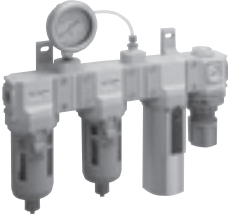
*8: Depending on working conditions, condensation may form on the inside of the refrigeration air dryer and drip to the floor. To prevent water drops from flowing out, install a drain-pan, etc., before installing the dryer.

*9: Consult with CKD for energy-saving systems.

*10: Install a filter immediately before the equipment to be used to remove contaminants caused in piping.

F.R.L.
F.R.
F (Filtr)
R (Reg)
L (Lub)
Drain Separ
Mech Press SW
Res press exh valve
SlowStart
Anti-bac/Bac- remove Filtr
Film Resist FR
Oil-ProhR
Med Press FR
No Cu/ PTFE FRL
Outdrs FRL
Adapter Joiner
Press Gauge
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneuR
AirBoost
Speed Ctrl
Silncr
CheckV/ other
Fit/Tube
Nozzle
Air Unit
PresCompn
Electro Press SW
ContactSW
AirSens
PresSW Cool
Air Flo Sens/Ctrl
WaterRISens
TotAirSys (Total Air)
TotAirSys (Gamma)
Gas generator
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending

Roles and functions of main line components

	Appearance
F.R.L.	Main line filter  ·AF2 Series  ·AF4000 Series  ·AF3000 Series  ·AF5000 Series
F.R.	
F (Filtr)	
R (Reg)	
L (Lub)	
Drain Separ	
Mech Press SW	
Res press exh valve	
SlowStart	
Anti-bac/Bac-remove Filt	
Film Resist FR	
Oil-ProhR	
Med Press FR	
No Cu/ PTFE FRL	
Outdrs FRL	
Adapter Joiner Press Gauge	
CompFRL	
LgFRL	
PrecsR	
VacF/R	
Clean FR	
ElecPneuR	
AirBoost	
Speed Ctrl	Air dryer  ·GX Series  ·SU Series  ·SDM Series  ·GT Series  ·HD Series  ·SHD Series
Silncr	
CheckV/ other	
Fit/Tube	
Nozzle	
Air Unit	
PrecsCompn	
Electro Press SW	
ContactSW	
AirSens	
PresSW Cool	
Air Flo Sens/Ctrl	
WaterRtSens	
TotAirSys (Total Air)	
TotAirSys (Gamma)	
Gas generator	
RefrDry	
DesicDry	
HiPolymDry	
MainFiltr	
Dischrg etc	
Ending	

Main line unit

Role and function

Removal components	Removal performance	Page	F.R.L.
Particle diameter	10 1 0.1 0.01 0.001 μm		F.R.
Particles			F (Filtr)
Solid foreign matter	5 $\mu\text{(AF4000)}$		R (Reg)
Dirt	P type filter 3 $\mu\text{(AF3000, AF5000)}$		L (Lub)
Dust	1 $\mu\text{(AF2)}$	1835	Drain Separ
	1 $\mu\text{(AF4000)}$		Mech Press SW
	S type filter 0.3 $\mu\text{(AF3000, AF5000)}$		Res press exh valve
	M type filter 0.01 μ		SlowStart
Oil concentration	10 1 0.1 0.01 0.001 mg/m^3		Anti-bac/Bac- remove Filtr
Oil content	P type filter 0.6 $\text{mg}/\text{m}^3\text{(AF2)}$		Film Resist FR
	S type filter 0.5 $\text{mg}/\text{m}^3\text{(AF5000)}$	1835	Oil-ProhR
	M type filter 0.01 mg/m^3		Med Press FR
	X type filter 0.003 mg/m^3		No Cu/ PTFE FRL
Odor	X type filter	1835	Outdris FRL
			Adapter Joiner
			Press Gauge
			CompFRL
			LgFRL
			PrecsR
			VacF/R
			Clean FR
			ElecPneuR
			AirBoost
			Speed Ctrl
			Silncr
			CheckV/ other
			Fit/Tube
			Nozzle
			Air Unit
			PrecsCompn
			Electro Press SW
			ContactSW
			AirSens
			PresSW Cool
			Air Flo Sens/Ctrl
			WaterRISens
			TotAirSys (Total Air)
			TotAirSys (Gamma)
			Gas generator
			RefrDry
			DesicDry
			HiPolymDry
			MainFiltr
			Dischrg etc
			Ending
Atmospheric dew point	0 -10 -20 -30 -40 -50 -60 -70 $^{\circ}\text{C}$		
Moisture			
	Refrigeration air dryer GX Series GT Series -17		
	High polymer separation membrane dryer SD SU SDM Series -60		
	Desiccant air dryer HD Series SHD Series -72		
		Refrigerating 1721	
		High polymer membrane 1809	
		Desiccant 1785	

Series
variation

Main line unit

F.R.L.								
F.R.								
F (Filtr)								
R (Reg)	Air compressor		Refrigeration air dryer			Main line filter	Micro alescerc	
L (Lub)	kW (horsepower) (*5)	Standard processing air flow rate m³ /min(ANR)			Water cooling	P type (Water and solid removing)	S type (Oil removing)	
Drain Separ			GX	GT				
Mech Press SW	to 0.75 (to 1)	0.10/0.11	GX3203D GX5203D	-	-	F2000-10-W-F1 (5 μ)	M2000-10-W-F1S (0.3μ)	
Res press exh valve	1.5(2)	0.20/0.22	GX3203D GX5203D	-	-	F2000-10-W-F1 (5 μ)	M2000-10-W-F1S (0.3μ)	
SlowStart	2.2(3)	0.30/0.35	GX3203D GX5203D	-	-	F3000-10-W-F (5 μ)	M3000-10-W-F1S (0.3μ)	
Anti-bac/Bac- remove Filt Film	3.7(5)	0.40/0.52	GX3206D GX5204D	-	-	F3000-10-W-F (5 μ)	M4000-10-W-F1S (0.3μ)	
Resist FR	5.5 (7.5)	0.64/0.72	GX3206D GX5206D	-	-	F4000-15-W-F (5 μ)	M4000-15-W-F1S (0.3μ)	
Oil-ProhR	7.5(10)	1.22/1.32	GX3208D GX5208D	-	-	F6000-20-W-F (5 μ)	M6000-20-W-F1S (0.3μ)	
Med Press FR	11(15)	1.65/1.82	GX3211D GX5211D	-	-	F8000-25-W-F (5 μ)	M8000-25-W-F1S (0.3μ)	
No Cu/ PTFE FRL	15(20)	2.40/2.80	GX3215D GX5215D	-	-	AF2-05P25A (1μ)		
Outdris FRL						AF4004P-25 (5 μ)	AF4004S-25 (1μ)	
Adapter Joiner	22(30)	3.70/4.20	GX3222D GX5222D	-	-	AF2-08P32A (1μ)		
Press Gauge						AF4007P-40 (5 μ)	AF4007S-40 (1μ)	
CompFRL	37(50)	5.70/6.10	GX3237D GX5237D	-	-	AF2-08P32A (1μ)		
LgFRL						AF4010P-40 (5 μ)	AF4010S-40 (1μ)	
PrecsR	55(75)	8.40/9.80	GX3255D GX5255D	-	-	AF2-13P50A (1μ)		
VacF/R						AF4013P-50 (5 μ)	AF4013S-40 (1μ)	
Clean FR	75(100)	11.4/12.6	GX5275D	GT9075D	GT9075WD	AF2-20P50A (1μ)		
ElecPneur						AF3016P-50 (3 μ)	AF3016S-50 (0.3 μ)	
AirBoost						AF5016P-50 (3μ)		AF4020S-50 (1μ) AF5016S-50 (0.3 μ)
Speed Ctrl	90(120)	16.3/18.9	-	GT9090D	GT9090WD	AF2-20P50A (1μ)		
Silncr						AF3032P-80 (3 μ)	AF3032S-80 (0.3 μ)	
CheckV/ other						AF5032P-80 (3 μ)		AF4020S-50 (1μ) AF5032S-50 (0.3 μ)
Fit/Tube	120(160)	20.8/23.8	-	GT9120D	GT9120WD	AF2-24P65A (1μ)		
Nozzle						AF3032P-80 (3 μ)	AF3032S-80 (0.3 μ)	
Air Unit						AF5032P-80 (3 μ)		AF4020S-50 (1μ) AF5032S-50 (0.3 μ)
PrecsCompn	150(200)	25.9/30.1	-	GT9150D	GT9150WD	AF2-24P65A (1μ)		
Electro Press SW						AF3032P-80 (3 μ)	AF3032S-80 (0.3 μ)	
ContactSW	190(250)	32.1/38.1	-	GT9190D	GT9190WD	AF5032P-80 (3 μ)		AF5032S-50 (0.3 μ)
AirSens						AF3032P-80 (3 μ)	AF3032S-80 (0.3 μ)	
PresSW Cool	240(320)	36.5/43.0	-	GT9240	GT9240W	AF3048P-100 (3 μ)		AF3048S-100 (0.3 μ)
Air Flo Sens/Ctrl						AF5048P-100 (3 μ)	AF5048S-100 (0.3 μ)	
WaterRtSens	300(400)	44.2/52.0	-	GT9300	GT9300W	AF3048P-100 (3 μ)		AF3048S-100 (0.3 μ)
TotAirSys (Total Air)						AF5048P-100 (3 μ)	AF5048S-100 (0.3 μ)	
TotAirSys (Gamma)	380(505)	55.2/65.0	-	GT9380	GT9380W	AF3064P-100 (3 μ)		AF3064S-100 (0.3 μ)
Gas generator						AF5064P-100 (3 μ)	AF5064S-100 (0.3 μ)	
RefrDry	450(600)	70.3/82.8	-	GT9450	GT9450W	AF3080P-100 (3 μ)		AF3080S-100 (0.3 μ)
DesicDry						AF5080P-100 (3 μ)	AF5080S-100 (0.3 μ)	
HiPolymDry						AF3096P-150 (3 μ)		AF3096S-150 (0.3 μ)
MainFiltr	710(950)	139.1	-	-	GT9710WV2	AF5096P-150 (3 μ)		AF5096S-150 (0.3 μ)
Dischrg etc						AF3160P-200 (3 μ)	AF3160S-200 (0.3 μ)	
Ending	960(1280)	184.2	-	-	GT9960WV2	AF5160P-200 (3 μ)		AF5160S-200 (0.3 μ)
						AF3192P-200 (3 μ)	AF3192S-200 (0.3 μ)	
						AF5192P-200 (3 μ)		AF5192S-200 (0.3 μ)

Main line unit

Series variation

Micro alescer		Micro alescer	Drain discharger		Flow rate sensor
	M type (High-performance oil removing)	X type (Odor removing)	DT, 5100 type	DB type	
	M2000-10-W-F1 (0.01 μ)	M2000-10-W-X	DT3010-W DT4010-W	DB3003D	PF500F
	M2000-10-W-F1 (0.01 μ)	M2000-10-W-X	DT3000-W DT4000-W DT3010-W DT4010-W	DB3003D	PF500F
	M4000-10-W-F1 (0.01 μ)	M4000-10-W-X	DT3000-W DT4000-W DT3010-W DT4010-W	DB3003D	PF500F
	M6000-20-W-F1 (0.01 μ)	M6000-20-W-X	DT3000-W DT4000-W DT3010-W DT4010-W	DB3003D	PF500F PF1000F
	M6000-20-W-F1 (0.01 μ)	M6000-20-W-X	DT3000-W DT4000-W DT3010-W DT4010-W	DB3003D	PF1000F
	M8000-20-W-F1 (0.01 μ)	M8000-20-W-X	DT3000-W DT4000-W DT3010-W DT4010-W	DB3003D	PF2000F
	M8000-25-W-F1 (0.01 μ)	M8000-25-W-X1	DT3000-W DT4000-W DT3010-W DT4010-W	DB3003D	PF2000F
	AF2-05M25A (0.01 μ)	AF2-05X25A	DT3000-W DT4000-W DT3010-W DT4010-W	DB3003D	PF4000F
	AF4004M-25 (0.01 μ)	AF4004X-25			
	AF2-08M32A (0.01 μ)	AF2-08X32A	DT4000-W DT4010-W	DB1006E DB3006E	PF8000F
	AF4007M-40 (0.01 μ)	AF4007X-40			
	AF2-08M32A (0.01 μ)	AF2-08X32A	DT4000-W DT4010-W	DB1006E DB3006E	PF8000F
	AF4010M-40 (0.01 μ)	AF4010X-40			
	AF2-13M50A (0.01 μ)	AF2-13X50A	DT4000-W DT4010-W 5100-4C	DB1006E DB3006E	PF16000F
	AF4013M-50 (0.01 μ)	AF4013X-50			
	AF2-20M50A AF3016S-50 (0.01 μ)	AF2-20X50A AF3016S-50	5100-4C	DB1024 DB3024	PF16000F
	AF4020M-50 AF5016M-50 (0.01 μ)	AF4020X-50 AF5016X-50			
	AF2-20M50A AF4020M-50 (0.01 μ)	AF2-20X50A AF4020X-50	5100-4C	DB1024 DB3024	-
	AF4020M-50 AF5032M-80 (0.01 μ)	AF4020X-50 AF5032X-80			
	AF2-24M65A AF3032M-80 (0.01 μ)	AF2-24X65A AF3032X-80	5100-4C	DB1024 DB3024	-
	AF5032M-80 (0.01 μ)	AF5032X-80			
	AF3032M-80 (0.01 μ)	AF3032X-80	5100-4C	DB1024 DB3024	-
	AF5032M-80 (0.01 μ)	AF5032X-80			
	AF3048M-100 (0.01 μ)	AF3048X-100	5100-4C	DB1024 DB3024	-
	AF5048M-100 (0.01 μ)	AF5048X-100			
	AF3048M-100 (0.01 μ)	AF3048X-100	5100-4C	DB1024 DB3024	-
	AF5048M-100 (0.01 μ)	AF5048X-100			
	AF3064M-100 (0.01 μ)	AF3064X-100	5100-4C	DB1024 DB3024	-
	AF5064M-100 (0.01 μ)	AF5064X-100			
	AF3080M-100 (0.01 μ)	AF3080X-100	5100-4C	DB1024 DB3024	-
	AF5080M-100 (0.01 μ)	AF5080X-100			
	AF3096M-150 (0.01 μ)	AF3096X-150	5100-4C	DB1024 DB3024	-
	AF5096M-150 (0.01 μ)	AF5096X-150			
	AF3160M-200 (0.01 μ)	AF3160X-200	5100-4C	DB1024 DB3024	-
	AF5160M-200 (0.01 μ)	AF5160X-200			
	AF3192M-200 (0.01 μ)	AF3192X-200	5100-4C	DB1090D DB3090D	-
	AF5192M-200 (0.01 μ)	AF5192X-200			

*1: This list is for selection guide. Refer to the appropriate catalog for selection, and select a model after checking installation and operating conditions.

*2: Drain discharger DB Series cannot be used with the refrigeration air dryer.

*3: Use AF2 and AF3000 Series in oil type compressor systems, and AF4000 and AF5000 Series in oil free type compressor systems.

*4: 1 PS (horsepower) is equivalent to 0.7355kW, but conventionally expressed as 1PS=0.75kW.

F.R.L.
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CheckV/ other
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Electro Press SW
ContactSW
AirSens
PresSW Cool
Air Flo Sens/Ctrl
WaterRISens
TotAirSys (Total Air)
TotAirSys (Gamma)
Gas generator
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending