

Model Selection Guide

Class	Solid particle			Moisture Pressure dew point (At air pressure) of 0.7 MPa °C	Oil concentration mg/m ³
	Max. number of particles/1 m ³				
	Particle size d μm				
	0.1 < d ≤ 0.5	0.5 < d ≤ 1.0	1.0 < d ≤ 5.0		
1	≤ 20,000	≤ 400	≤ 10	1	≤ 0.01
2	≤ 400,000	≤ 6,000	≤ 100	2	≤ 0.1
3	Not specified	≤ 90,000	≤ 1,000	3	≤ 1
4	Not specified	Not specified	≤ 10,000	4	≤ 5
5	Not specified	Not specified	≤ 100,000	5	≤ +3
				6	≤ +7
				6	≤ +10

Indication: The degree of quality is indicated with 1, 4 and 2 for systems with solid particle "class 1," moisture "class 4" and oil "class 2."

System no.	Application	Impurity in compressed air				
		Moisture		Filtration	Oil mist concentration (1)	Oil odor
		Dew point	Moisture contents			
						Quality grade as system (2)

A	Water drop removed air • Air blowing (Simple removal of particles) • General pneumatic tools	Atmospheric pressure dew point 6°C 0.7 MPa Pressure dew point 40°C	7 g/m ³ (ANR)	3 μm (Filtering efficiency 99%)	—	4: - : -
B	Dry air • Used for the same applications as A, when temperature drop in the middle of piping is large.					4: 4: - 4: 5: - 4: 6: -
C	Dry air • General pneumatic equipment • General painting	Atmospheric pressure dew point		0.3 μm (Filtering efficiency 99.9%)	Max. 1 mg/m ³ (ANR) 0.8 ppm	Yes 2: 4: 3 2: 5: 3 2: 6: 3
D	Dry clean air • High grade painting • Sequence control • Measurement device • Instrumentation • Drying and cleaning (Precision parts) • Machine tools (Pneumatic bearing)	-14 to -23°C 0.7 MPa Pressure dew point 15 to 3°C	1.7 g/m ³ (ANR) to 0.8 g/m ³ (ANR)		Max. 0.1 mg/m ³ (ANR) 0.08 ppm	1: 4: 2 1: 5: 2 1: 6: 2
E	Dry clean air • Without refrigerated air dryer on the sub line • Built-in with equipment (With machine tools, 3-D measurement device, etc.)			0.01 μm (Filtering efficiency 99.9%)	Max. 0.01 mg/m ³ (ANR) 0.008 ppm	1: 4: 1 1: 5: 1 1: 6: 1
F	Deodorant air • Stirring, transporting, drying and packaging • Food Industry (Except direct blowing to foods)				Max. 0.004 mg/m ³ (ANR) 0.0032 ppm	No 1: 4: 1 1: 5: 1 1: 6: 1
G	Low dew point clean air • Drying electric and electronic parts • Drying a filling tank • Transporting powders • Ozone generator • Low temperature actuated equipment	Atmospheric pressure dew point -30 to -60°C 0.7 MPa Pressure dew point -6 to -42°C	0.5 g/m ³ (ANR) to 0.02 g/m ³ (ANR)		Max. 0.01 mg/m ³ (ANR) 0.008 ppm	Yes 1: 1: 1 (3) 1: 2: 1 1: 3: 1
H	Low dew point clean air (For clean room) • Blowing semi-conductor parts in the clean room			0.01 μm (Filtering efficiency 99.99%)	Max. 0.004 mg/m ³ (ANR) 0.0032 ppm	No

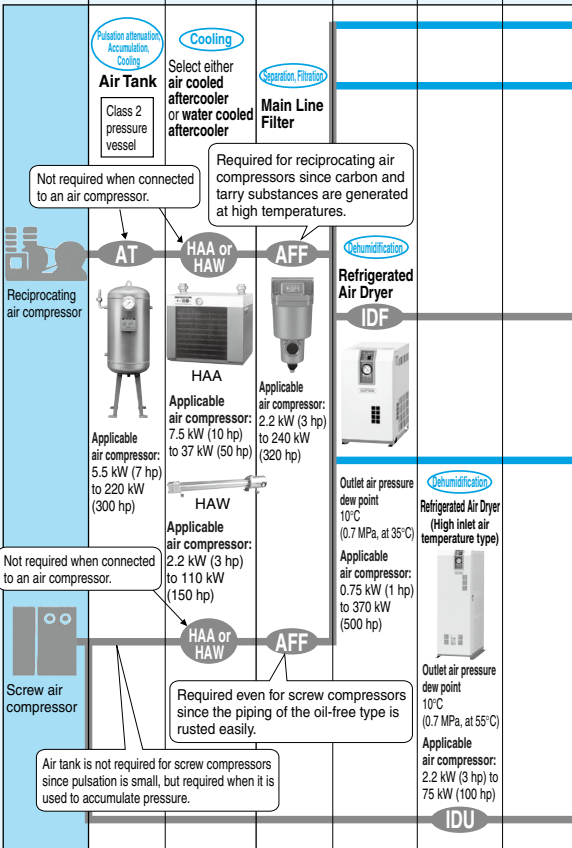
Note 1) When the inlet oil mist concentration (compressor discharge concentration) is approx. 30 mg/m³ (ANR) or less.

Note 2) This describes the grade of compressed air quality based on ISO8573-1: 2010 (JIS B8392-1: 2012), which is the maximum quality grade for the system. It varies, however, depending on the inlet air conditions.

Note 3) Please contact SMC since this can be manufactured as a special order (depending on the operating conditions).

Main Line	Sub Line
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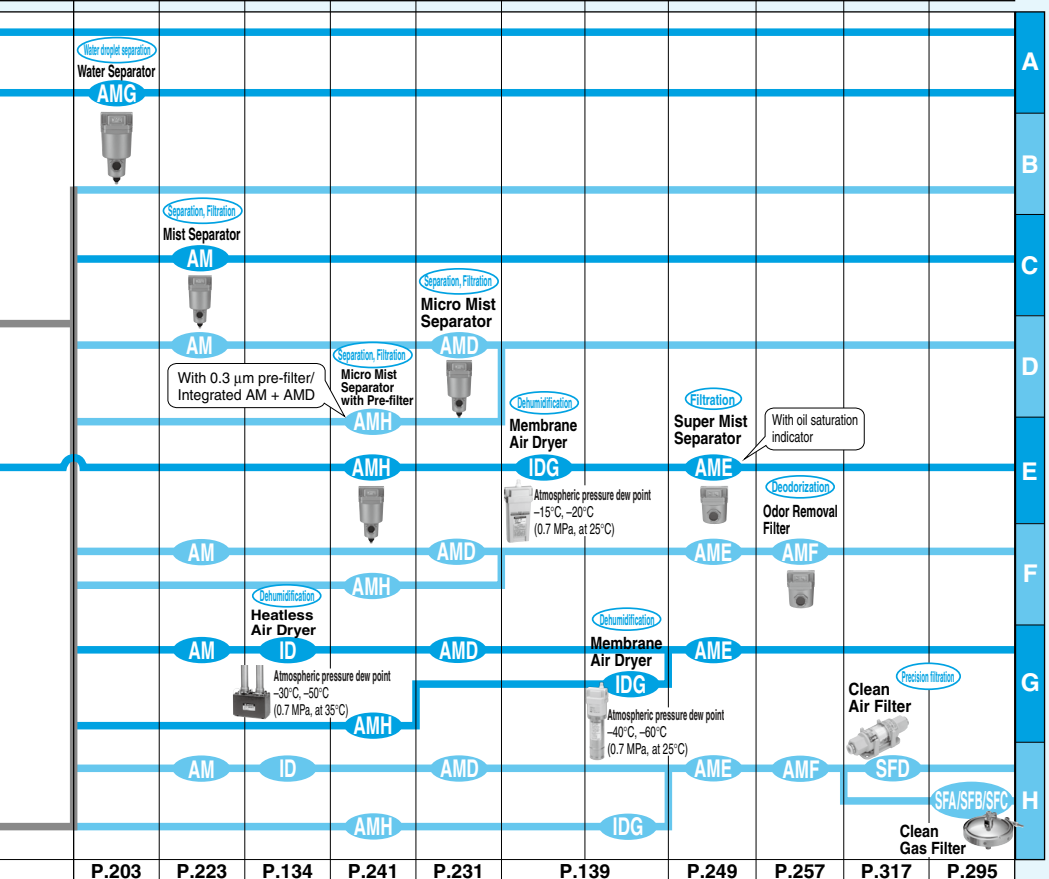
Description	Main Line		Sub Line	
	Air Tank	Air Cooled Aftercooler Water Cooled Aftercooler	Main Line Filter	Refrigerated Air Dryer
Model	AT	HAA, HAW	AFF	IDF IDU
Flow capacity (L/min (ANR))	Capacity 100 to 3,000 L	1,000 to 5,700 300 to 18,000	300 to 45,000	100 to 65,000 320 to 12,500
Max. inlet air temperature	100°C Capacity	70°C 70°C, 180°C (Varies by model)	60°C	50°C 80°C
Filtration (Filtering efficiency)			3 μm (99%)	
Outlet oil mist concentration (Max.) (1)				
Atmospheric pressure dew point (At inlet air pressure of 0.7 MPa)			-17°C At inlet temperature 35°C	-17°C At inlet temperature 55°C



Reference page	P.18	P.11, 14	P.215	P.21
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Local line

Water Separator	Mist Separator	Heatless Air Dryer	Micro Mist Separator with Pre-filter	Micro Mist Separator	Membrane Air Dryer	Super Mist Separator	Odor Removal Filter	Clean Air Filter	Clean Gas Filter
AMG	AM	ID	AMH	AMD	IDG	AME	AMF	SFD	SFA, SFB, SFC
300 to 12,000		80 to 780	200 to 12,000	200 to 40,000	10 to 1,000	75 to 300 50 to 150	200 to 12,000	100 to 500	26 to 300
60°C		50°C	60°C		50°C, 55°C (Varies by model)	50°C	60°C	45°C	80°C, 120°C (Varies by models)
Water droplet removal ratio: 99%	0.3 μm (99.9%)		0.01 μm (With 0.3 μm pre-filter)	0.01 μm (99.9%)		0.01 μm (99.9%)	0.01 μm (99.9%)	0.01 μm (99.99%)	0.01 μm (99.99%)
	1 mg/m ³ (ANR) [≒ 0.8 ppm]		0.1 mg/m ³ (ANR) [≒ 0.08 ppm]			0.01 mg/m ³ (ANR) [≒ 0.008 ppm]	0.004 mg/m ³ (ANR) [≒ 0.0032 ppm]		
		-30°C -50°C At inlet temperature 35°C				-15°C -20°C -40°C -60°C At inlet temperature 25°C			



- HAA
- HAW
- AT
- IDF
- IDU
- IDF
- FS
- IDFA
- IDFB
- IDH
- ID
- IDG
- IDK
- AMG
- AFF
- AM
- AMD
- AMH
- AME
- AMF
- ZFC
- SF
- SFD
- LLB
- AD
- GD

Quick Reference Guide to Air Preparation Equipment

Quick Reference Guide to Air Preparation Equipment

- * Shows standard combinations. The suffix numbers of the model indicate port size, power supply, etc. Refer to pages described to each equipment for detail.
- * The symbol "—" in the table indicates that no such equipment exists.
- * The figures for air flow capacity corresponding to air compressor output are provided for reference only.
- * Combine equipment as necessary. (Refer to pages 2 and 3.)

● For Screw Compressors (When an aftercooler is installed, Refrigerated air dryer inlet temperature: 35°C or 40°C, Membrane air dryer inlet temperature: 25°C)

Output (kW)	Air compressor		Main line		Sub line		Local line					
	Air flow capacity (m³/min) Note 1	Suction condition (32°C, 75%)	Aftercooler (Note 2)		Refrigerated air dryer (Note 3)		Mist separator	Micro mist separator with pre-filter	Micro mist separator	Membrane (Note 5) air dryer	Super mist separator	Odor removal filter
			Air-cooled	Water-cooled	50 Hz	60 Hz						
1.5	0.16	0.15	HAA7-06	HAW2-04	—	IDF2E	AM150C-02	AMH150C-02	AMD150C-02	IDG20-02	AME150C-02	AMF150C-02
2.2	0.245	0.23	HAA7-06	HAW2-04	IDF3E	IDF2E	AM150C-02	AMH250C-02	AMD250C-02	IDG20-02	AME250C-02	AMF250C-02
3.7	0.44	0.41	HAA7-06	HAW7-06	—	IDF4E	AM250C-03	AMH250C-03	AMD250C-03	IDG50A-03	AME250C-03	AMF250C-03
5.5	0.72	0.68	HAA7-06	HAW7-06	—	IDF6E	AM250C-03	AMH350C-03	AMD350C-03	IDG60-03	AME350C-03	AMF350C-03
7.5	1.2	1.1	HAA15-10	HAW22-14	—	IDF8E	AM350C-04	AMH350C-04	AMD350C-04	IDG100-04	AME350C-04	AMF350C-04
11	1.8	1.7	HAA15-10	HAW22-14	IDF15E1	IDF11E	AM450C-06	AMH450C-06	AMD450C-06	—	AME450C-06	AMF450C-06
15	2.6	2.4	HAA22-14	HAW22-14	—	IDF15E1	AM550C-10	AMH550C-10	AMD550C-10	—	AME550C-10	AMF550C-10
22	4	3.8	HAA37-14	HAW37-14	—	IDF22E	AM650-14	AMH650-14	AMD650-14	—	AME650-14	AMF650-14
37	6.6	6.2	—	HAW55-20	IDF55E	IDF37E	AM650-14	AMH650-14	AMD650-14	—	AME650-14	AMF650-14
55	9.5	8.9	—	HAW75-20	IDF75E	IDF55E	AM850-20	AMH850-20	AMD850-20	—	AME850-20	AMF850-20
75	13	12.2	—	HAW110-30	IDF100F	IDF75E	AM850-20	AMH850-20	AMD850-20	—	AME850-20	AMF850-20
110	19	17.9	—	HAW110-30	IDF125F	IDF100F	—	—	AMD900-30	—	—	—
150	28.5	26.8	—	—	IDF190D	IDF150F	—	—	AMD900-30	—	—	—
220	45	42.3	—	—	—	IDF240D	—	—	AMD1000-40	—	—	—

● For Screw Compressors (When an aftercooler is not installed, Refrigerated air dryer inlet temperature: ambient temperature +15°C, Membrane air dryer inlet temperature: 25°C)

Output (kW)	Air compressor		Sub line		Local line					
	Air flow capacity (m³/min) Note 1	Suction condition (32°C, 75%)	Air-cooled aftercooler integrated type refrigerated air dryer (Note 4)		Mist separator	Micro mist separator with pre-filter	Micro mist separator	Membrane (Note 5) air dryer	Super mist separator	Odor removal filter
			50 Hz	60 Hz						
1.5	0.16	0.15	—	IDU3E	AM150C-02	AMH150C-02	AMD150C-02	IDG20-02	AME150C-02	AMF150C-02
2.2	0.245	0.23	—	IDU3E	AM150C-02	AMH250C-02	AMD250C-02	IDG20-02	AME250C-02	AMF250C-02
3.7	0.44	0.41	—	IDU4E	AM250C-03	AMH250C-03	AMD250C-03	IDG50A-03	AME250C-03	AMF250C-03
5.5	0.72	0.68	—	IDU6E	AM250C-03	AMH350C-03	AMD350C-03	IDG60-03	AME350C-03	AMF350C-03
7.5	1.2	1.1	—	IDU8E	AM350C-04	AMH350C-04	AMD350C-04	IDG100-04	AME350C-04	AMF350C-04
11	1.8	1.7	IDU15E1	—	AM450C-06	AMH450C-06	AMD450C-06	—	AME450C-06	AMF450C-06
15	2.6	2.4	—	IDU15E1	AM550C-10	AMH550C-10	AMD550C-10	—	AME550C-10	AMF550C-10
22	4	3.8	—	IDU22E	AM650-14	AMH650-14	AMD650-14	—	AME650-14	AMF650-14
37	6.6	6.2	IDU55E	—	AM650-14	AMH650-14	AMD650-14	—	AME650-14	AMF650-14
55	9.5	8.9	IDU75E	—	AM850-20	AMH850-20	AMD850-20	—	AME850-20	AMF850-20
75	13	12.2	—	—	AM850-20	AMH850-20	AMD850-20	—	AME850-20	AMF850-20
110	19	17.9	—	—	—	—	AMD900-30	—	—	—
150	28.5	26.8	—	—	—	—	AMD900-30	—	—	—
220	45	42.3	—	—	—	—	AMD1000-40	—	—	—

● For Reciprocating Compressors (Aftercooler inlet: 180°C or 70°C, Refrigerated air dryer inlet temperature: 35°C or 40°C, Membrane air dryer inlet temperature: 25°C)

Output (kW)	Air compressor		Main line		Sub line		Local line							
	Air flow capacity (m³/min) Note 1	Suction condition (32°C, 75%)	Air tank	Aftercooler (Note 2)		Main line filter	Refrigerated air dryer (Note 3)		Mist separator	Micro mist separator with pre-filter	Micro mist separator	Membrane (Note 5) air dryer	Super mist separator	Odor removal filter
				Air-cooled	Water-cooled		50 Hz	60 Hz						
0.75	0.1	0.09	AT8C-04	HAA7-06	HAW2-04	AFF2C-02	IDF1E	AM150C-02	AMH150C-02	AMD150C-02	IDG10-02	AME150C-02	AMF150C-02	
1.5	0.2	0.19	AT8C-04	HAA7-06	HAW2-04	AFF2C-02	IDF2E	AM150C-02	AMH150C-02	AMD150C-02	IDG20-02	AME150C-02	AMF150C-02	
2.2	0.3	0.28	AT8C-04	HAA7-06	HAW2-04	AFF2C-02	IDF3E	AM150C-02	AMH250C-02	AMD250C-02	IDG30A-02	AME250C-02	AMF250C-02	
3.7	0.5	0.47	AT8C-04	HAA7-06	HAW7-06	AFF4C-03	IDF4E	AM250C-03	AMH250C-03	AMD250C-03	IDG50A-03	AME250C-03	AMF250C-03	
5.5	0.7	0.66	AT8C-04	HAA7-06	HAW7-06	AFF4C-03	IDF6E	AM250C-03	AMH350C-03	AMD350C-03	IDG60-03	AME350C-03	AMF350C-03	
7.5	1.0	0.9	AT11C-06	HAA7-06	HAW7-06	AFF8C-04	IDF8E	AM350C-04	AMH350C-04	AMD350C-04	IDG75-04	AME350C-04	AMF350C-04	
11	1.5	1.4	AT11C-06	HAA15-10	HAW22-14	AFF8C-04	IDF11E	AM350C-04	AMH450C-04	AMD450C-04	—	AME450C-04	AMF450C-04	
15	2.0	1.9	AT22C-14	HAA15-10	HAW22-14	AFF11C-06	IDF15E	AM450C-06	AMH450C-06	AMD450C-06	—	AME450C-06	AMF450C-06	
22	3.0	2.8	AT22C-14	HAA22-14	HAW37-14	AFF22C-10	IDF15E	AM550C-10	AMH550C-10	AMD550C-10	—	AME550C-10	AMF550C-10	
27	3.5	3.3	AT37C-14	HAA22-14	HAW37-14	AFF22C-10	IDF22E	AM550C-10	AMH550C-10	AMD550C-10	—	AME550C-10	AMF550C-10	
37	5.0	4.7	AT37C-14	HAA37-14	HAW55-20	AFF37B-14	IDF37E	AM650-14	AMH650-14	AMD650-14	—	AME650-14	AMF650-14	
55	7.5	7.1	AT55C-20	—	HAW75-20	AFF75B-20	IDF55E	AM850-20	AMH850-20	AMD850-20	—	AME850-20	AMF850-20	
75	10.0	9.4	AT75C-20	—	HAW110-30	AFF75B-20	IDF75E	AM850-20	AMH850-20	AMD850-20	—	AME850-20	AMF850-20	
110	15.0	14.1	AT125C-30	—	—	AFF125A-30	IDF100F	—	—	AMD900-30	—	—	—	
150	20.0	18.8	AT150C-40	—	—	AFF125A-30	IDF125F	IDF100F	—	AMD900-30	—	—	—	
220	30.0	28.2	AT220C-40	—	—	AFF220A-40	IDF190D	IDF150F	—	AMD1000-40	—	—	—	

Note 1) Air flow capacity conditions
 Suction condition 32°C, Atmospheric pressure, relative humidity 65%
 ANR conversion 20°C, Atmospheric pressure, relative humidity 65%

Note 2) Air-cooled aftercooler
 Ambient temperature 32°C
 Inlet air temperature 70°C (Screw compressors), 180°C (Reciprocating compressors, 70°C for HAW2.7)
 Water-cooled aftercooler
 Cooling water inlet temperature 30°C
 Inlet air temperature 35°C saturation (IDF1E to 37E), 40°C saturation (IDF55E to 75E, IDF120D to 240D)

Note 3) IDF Series
 Ambient temperature 32°C

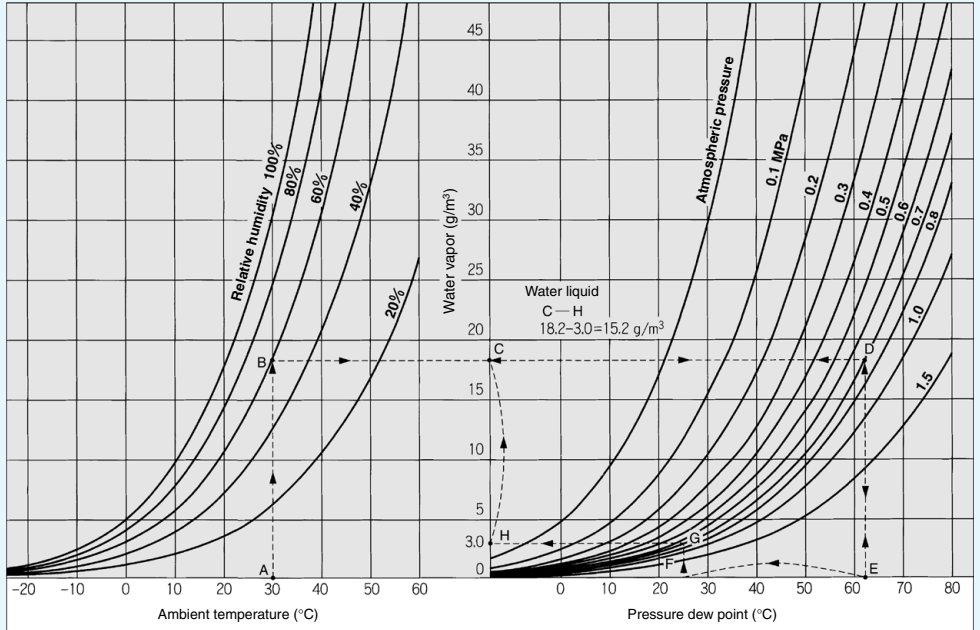
Note 4) IDU Series
 Inlet air temperature 55°C saturation (IDU3E to 75E)

Note 5) IDG Series
 Inlet air temperature 25°C
 Ambient temperature 25°C

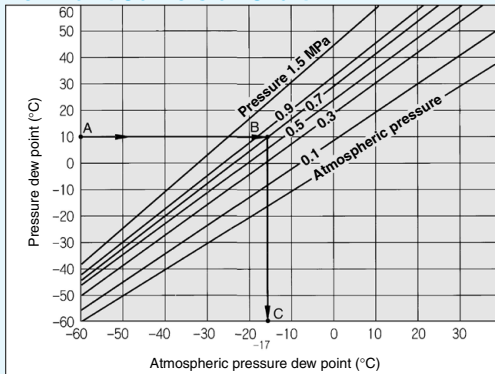


Data: Calculation of Condensed Water Amount & Dew Point Conversion Chart

Calculation of Condensed Water Amount



Dew Point Conversion Chart B



<How to read the dew point conversion chart>

(Example)

In the case of seeking the atmospheric pressure dew point at the pressure dew point 10°C and the pressure of 0.7 MPa.

- Trace the arrow mark →, starting with the point A at the pressure dew point 10°C to find the intersection B on the pressure characteristic line for 0.7 MPa.
- Trace the arrow mark →, starting with the point B to find the intersection C at the atmospheric pressure dew point.
- The intersection C is the conversion value -17°C under atmospheric pressure dew point.

<How to Calculate Amount of Condensed Water>

(Example)

In the case of calculating the amount of condensed water by applying the pressure up to 0.7 MPa with an air compressor installed under the ambient temperature 30°C and the relative humidity 60% and then having that compressed air cooled down to 25°C.

- Trace the arrow mark, starting with the point A of ambient temperature 30°C to obtain the intersection B on the curved line for the relative humidity of 60%.
- Trace the arrow mark, starting with the intersection B to obtain the intersection D on the curved line for the 0.7 MPa pressure characteristics.
- Trace the intersection D to obtain the intersection E.
- The intersection E is the dew point under pressure 0.7 MPa with the ambient temperature of 30°C and the relative humidity of 60%. Value for E is at 62°C.
- Trace the intersection E upward, and C leftward to obtain the intersection D.
- The intersection C is the amount of water included in the compressed air 1 m³ at 0.7 MPa with the pressure dew point of 62°C. The amount of water is 18.2 g/m³.
- Trace the arrow mark, starting with F for cooling temperature 25°C (pressure dew point 25°C) to find the intersection G on the pressure characteristic line for 0.7 MPa.
- From the intersection G, trace the arrow mark to obtain the intersection H on the vertical axis.
- The intersection H is the amount of water included in the compressed air 1 m³ at 0.7 MPa, pressure dew point of 25°C. The amount of water is 3.0 g/m³.
- Therefore, the amount of condensed water is as following. (Per 1 m³)
The amount of water at the intersection C – The amount of water at the intersection H = The amount of condensed water 18.2 – 3.0 = 15.2 g/m³

- HAA
- HAW
- AT
- IDF
- IDU
- IDF
- IFS
- IDFA
- IDFB
- IDH
- ID
- IDG
- IDK
- AMG
- AFF
- AM
- AMD
- AMH
- AME
- AMF
- ZFC
- SF
- SFD
- LLB
- AD
- GD