ECONOMICAL CENTRAL DUCTED SPLIT SYSTEM 24VAC CONTROL

48,000 BTU/H UNITARY HEAT PUMP SPLIT SYSTEM

SUBMITTAL DATA: TUD48AH2/D-D(U) TUD48W2/D-D(U)

Job Name	Location			Date
Purchaser	Engineer			
Submitted To	For	☐ Reference	☐ Approval	☐ Construction
Unit Designation	Schedule No.			

SYSTEM TYPE:
HEAT PUMP



TUD48W2/D-D(U)



TUD48AH2/D-D(U)

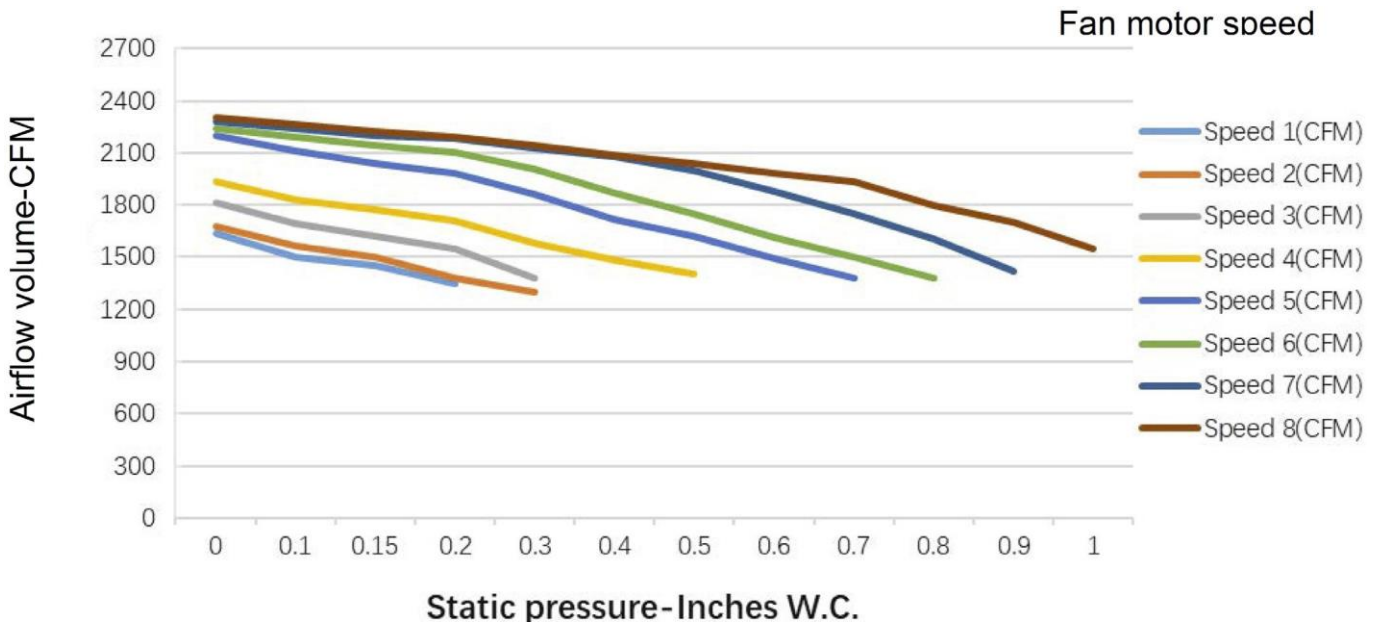
GENERAL FEATURES

- High Efficiency DC Inverter Technology
- Universal 24V communication
- Flexible installation and space saving
- Match with TOSOT or Competitive Indoor Unit
- Designed for New Construction or Replacement Market
- High efficiency airfoil blade, Low noise design
- 8 Speed Fan Motor
- Low Ambient Cooling down to 5°F(-15°C)
- Low Ambient Heating down to 5°F(-15°C)
- Indoor Coil has /Aluminum Fin with Acetal-Resin Coating (Blue Fin - 500Hr Salt Spray Rating)
- Designed for both commercial and residential use

SYSTEM PERFORMANCE			
Cooling	Rated Capacity @ 95°F	Btu/h	46,000
	Min-Max Capacity	Btu/h	11,500-46,000
Heating	Rated Capacity @ 47°F	Btu/h	46,000
	Rated Capacity @ 17°F	Btu/h	26,000
	Min-Max Capacity	Btu/h	11,000-46,000
SEER2 / EER2			15.0 / 8.6
HSPF2 / COP			7.7 / 2.72
AHRI Number			211078857
Cooling Temperature Range		°F / °C	5 – 115 / -15 – 46
Heating Temperature Range		°F / °C	5 – 75 / -15 – 24
INDOOR UNIT			**TUD48AH2/D-D(U)**
Fan Motor Type			ECM
Fan Motor FLA		A	5.5
Air Flow(Rated)		CFM	1,400
Static Pressure (Rated / Maximum)		In w.c	0.1 / 1.0
Sound Pressure Level (Cooling / Heating)		dB(A)	53
Dehumidification		pt/hr	12.32
Condensate Drain Size (OD)		In	3 / 4
Unit Dimension (WxHxD)		In	24-13/16 x 52 x 21 1/4
Weight (Net / Gross)		lbs	189 / 203
Electric Heater (Optional)		kW	5, 8, 10, 15, 20
Coil Type (Blue Fin)			Copper Tube / Aluminum Fin
OUTDOOR UNIT			**TUD48W2/D-D(U)**
Compressor Type			Inverter Rotary
Compressor RLA		A	16
Fan Motor Type			ECM
Fan Motor Output Power		HP	1/6
Fan Motor		A	2.5
Sound Pressure Level (Cooling / Heating)		dB(A)	62 (58 – 64)
Unit Dimension (WxHxD)		In	37-1/8 x 39-1/2 x 14-9/16
Weight (Net / Gross)		Lbs	164 / 175
Refrigerant Charge - R410A		oz	158.7
Coil Type (Golden Fin)			Copper Tube / Aluminum Fin
REFRIGERANT PIPING			
Line Set Size (Liquid - Gas)		in	3/8 - 3/4
Pre-Charge Lengh		ft	25
Additional Charge		oz/ft	0.32
Pipe Length (Min - Max)		ft	10 – 164
Max. Pipe Elevation		ft	100
ELECTRICAL			
Power Supply (Voltage Operating Range)			208/230V / 1Ph / 60 Hz
Outdoor Unit	Rated Current (Cooling / Heating)	A	29.0 / 29.0
	MCA / MOCP	A	36.5 / 60
Indoor Unit	Rated Current (Cooling / Heating)	A	2.75 / 2.75
	MCA / MOCP	A	7.5 / 15.0
Main Power Wire Size		AWG	Size Per Local Code

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FAN PERFORMANCE: TUD48AH2/D-D(U)



Static Pressure Inches W.C.	0	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
Speed 1-CFM	1640	1500										
Speed 2-CFM	1680	1560	1500									
Speed 3-CFM	1810	1690	1620	1550								
Speed 4-CFM	1930	1830	1770	1710	1580	1480						
Speed 5-CFM	2200	2110	2040	1980	1860	1720	1620	1490				
Speed 6-CFM	2240	2190	2145	2100	2010	1870	1750	1615	1500			
Speed 7-CFM	2280	2240	2200	2180	2130	2080	2000	1880	1750	1600		
Speed 8-CFM	2300	2260	2220	2190	2140	2090	2040	1980	1930	1800	1700	1550

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FEATURES SUMMARY: TUD48AH2/D-D(U) TUD48W2/D-D(U)

SYSTEM FEATURES	
Compressor	Inverter
Ultra Low Frequency Torque Control	YES
Power Factor Correction	YES
Compressor Type	Rotary
Refrigerant Type	R410A
Outdooor Electronic Expansion Valve (EEV)	YES
Indoor TXV Control	YES
Basepan With Electric Heater	YES
Compressor With Electric Heater	YES
Fin Coating (Outdoor & Indoor)	Acrylic Resin
Intelligent Defrosting	YES
Intelligent Preheating	YES
Low Voltage Startup	YES
Memory/Power Failure Recovery	YES
Self Diagnosis	YES
Low Ambient Cooling	YES
24VAC Thermostat Compatible	YES
Indoor Fan Type	Centrifugal
Multi Fan Speeds	8 Speeds
Auxiliary Electrical Heater	Optional

TOSOT

EXTENDED RATINGS: TUD48AH2/D-D(U) TUD48W2/D-D(U)

COOLING PERFORMANCE

Outdoor Ambient Temperature (DB)		Return Air Temperature														
		70°F (DB) / 59°F (WB)					75°F (DB) / 63°F (WB)					80°F (DB) / 67°F (WB)				
		TC (Btu/h)	SC (Btu/h	SHR	EER	Power Input (W)	TC (Btu/h)	SC (Btu/h	SHR	EER (Btu/ (h·W))	Power Input (W)	TC (Btu/h)	SC (Btu/h	SHR	EER (Btu/ (h·W))	Power Input (W)
MAX OUTPUT*	5°F	34,760	24,332	70%	10.05	3,460	37,830	26,481	70%	10.82	3,495	40,900	28,630	70%	11.59	3,530
	10°F	34,760	24,332	70%	9.96	3,490	37,830	26,481	70%	9.04	4,185	40,900	28,630	70%	11.49	3,560
	15°F	34,760	24,332	70%	9.90	3,510	37,830	26,481	70%	9.02	4,195	40,900	28,630	70%	11.42	3,580
	20°F	34,760	24,332	70%	9.82	3,540	37,830	26,481	70%	9.00	4,205	40,900	28,630	70%	11.33	3,610
	25°F	34,760	24,332	70%	9.60	3,620	37,830	26,481	70%	8.98	4,215	40,900	28,630	70%	11.08	3,690
	30°F	34,760	24,332	70%	9.42	3,690	37,830	26,481	70%	8.95	4,225	40,900	28,630	70%	10.88	3,760
	35°F	34,760	24,332	70%	8.98	3,870	37,830	26,481	70%	8.91	4,245	40,900	28,630	70%	10.38	3,940
	40°F	34,760	24,332	70%	9.03	3,850	37,830	26,481	70%	8.87	4,265	40,900	28,630	70%	10.43	3,920
	45°F	34,760	24,332	70%	8.84	3,930	37,830	26,481	70%	8.83	4,285	40,900	28,630	70%	10.23	4,000
	50°F	34,760	24,332	70%	8.67	4,010	37,830	26,481	70%	8.77	4,315	40,900	28,630	70%	10.02	4,080
	55°F	34,760	24,332	70%	8.60	4,040	37,830	26,481	70%	8.71	4,345	40,900	28,630	70%	9.95	4,110
	60°F	34,760	24,332	70%	8.44	4,120	37,830	26,481	70%	8.65	4,375	40,900	28,630	70%	9.76	4,190
	65°F	37,320	26,500	71%	8.68	4,300	40,110	28,265	70%	9.11	4,405	42,900	30,030	70%	9.82	4,370
	70°F	40,050	28,475	71%	9.10	4,400	42,525	30,044	71%	9.59	4,435	45,000	31,617	70%	10.07	4,470
	75°F	42,720	30,440	71%	9.43	4,530	45,360	32,180	71%	9.94	4,565	48,000	33,933	71%	10.43	4,600
	80°F	44,500	31,681	71%	9.53	4,670	47,250	33,470	71%	10.04	4,705	50,000	25,260	71%	10.55	4,740
	85°F	41,400	29,551	71%	8.48	4,880	43,700	31,114	71%	8.89	4,918	46,000	32,680	71%	9.41	4,890
	90°F	41,400	29,589	71%	8.14	5,086	43,700	31,195	71%	8.54	5,120	46,000	32,800	71%	9.03	5,095
	95°F	41,400	29,628	72%	7.84	5,280	43,700	31,274	72%	8.22	5,315	46,000	32,920	72%	8.60	5,350
	100°F	39,750	29,822	75%	7.82	5,082	41,710	30,743	74%	8.15	5,115	43,665	32,165	74%	8.47	5,153
	105°F	38,111	29,016	76%	7.80	4,885	39,720	30,210	76%	8.07	4,920	41,330	31,410	76%	8.34	4,955
	110°F	36,565	28,710	79%	7.80	4,687	37,830	29,680	78%	8.01	4,723	39,095	30,655	78%	8.22	4,758
	115°F	34,922	28,405	81%	7.78	4,490	35,841	29,150	81%	7.92	4,525	36,760	29,900	81%	8.06	4,560

*Maximum Output values are not based on AHRI test conditions

LEGEND:	W - Watts
	DB - Dry Bulb
	TC - Total Capacity
	SC - Sensible Capacity
	SHR - Sensible Heat Ratio
	COP - Coeffecient of Performance

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EXTENDED RATINGS: TUD48AH2/D-D(U) TUD48W2/D-D(U)

HEATING PERFORMANCE

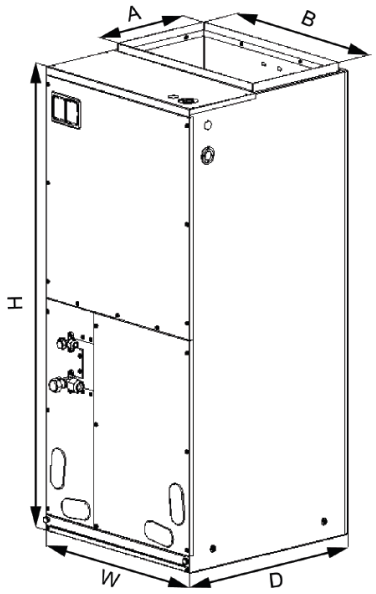
Outdoor Ambient Temperature (DB)		Return Air Temperature								
		70°F (DB) / 59°F (WB)			75°F (DB) / 63°F (WB)			80°F (DB) / 67°F (WB)		
		TC (Btu/h)	COP (W/W)	Power Input (W)	TC (Btu/h)	COP (W/W)	Power Input (W)	TC (Btu/h)	COP (W/W)	Power Input (W)
MAX OUTPUT*	5°F	26,200	1.61	4,760	24,235	1.49	4,775	22,270	1.36	4,790
	10°F	26,000	1.74	4,390	24,290	1.61	4,414	22,550	1.49	4,430
	15°F	25,970	1.90	4,016	24,445	1.77	4,041	22,920	1.65	4,070
	17°F	26,000	2.10	3,630	24,700	1.98	3,660	23,400	1.86	3,690
	20°F	30,500	2.28	3,920	28,975	2.15	3,950	27,450	2.02	3,980
	25°F	32,000	2.36	3,967	30,720	2.25	4,000	29,410	2.14	4,030
	30°F	33,670	2.47	4,000	32,570	2.36	4,040	31,470	2.26	4,080
	35°F	35,400	2.57	4,030	34,515	2.48	4,075	33,630	2.39	4,120
	40°F	38,900	2.62	4,350	38,122	2.54	4,395	37,344	2.47	4,440
	45°F	42,470	2.67	4,660	41,620	2.59	4,705	40,770	2.52	4,750
	47°F	46,000	2.72	4,960	45,540	2.67	5,005	45,080	2.62	5,050
	50°F	47,300	2.78	4,980	46,910	2.74	5,025	46,520	2.69	5,070
	55°F	48,600	2.85	5,000	48,280	2.80	5,045	47,960	2.76	5,090
	60°F	50,000	2.90	5,050	49,750	2.87	5,080	49,500	2.84	5,110
	65°F	50,000	3.05	4,798	49,750	3.02	4,826	49,500	2.99	4,854
	70°F	50,000	3.19	4,600	49,750	3.18	4,584	49,500	3.15	4,610
	75°F	50,000	3.35	4,370	49,750	3.35	4,350	49,500	3.31	4,380

*Maximum Output values are not based on AHRI test conditions

LEGEND:	W - Watts
	DB - Dry Bulb
	TC - Total Capacity
	SC - Sensible Capacity
	SHR - Sensible Heat Ratio
	COP - Coeffecient of Performance

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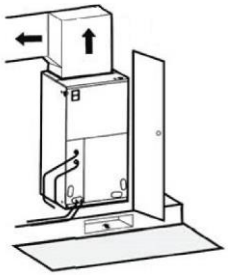
DIMENSIONS & CLEARANCES: TUD48AH2/D-D(U)

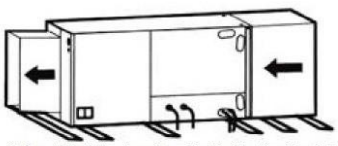


Dimensions	
A	11 5/8
B	20
H	52
W	24-13/16
D	21 1/4

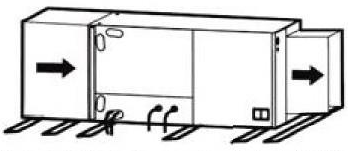
Filter Size	
Supplied	24 x 20 x 1/2
Filter Type	Metal mesh

Clearances	
Front	> 24 inch
	Allow a minimum of 24” in front of the unit for service clearance. When installing in an area directly over a finished ceiling (such as an attic), an emergency drain pan is required directly under the unit. See local and state codes for requirements. When installing this unit in an area that may become wet, elevate the unit with a sturdy, non-porous material. In installations that may lead to physical damage (i.e. a garage) it is advised to install a protective barrier to prevent such damage.This air handler is designed for a complete supply and return ductwork system.
Multi-Position Capabilities	





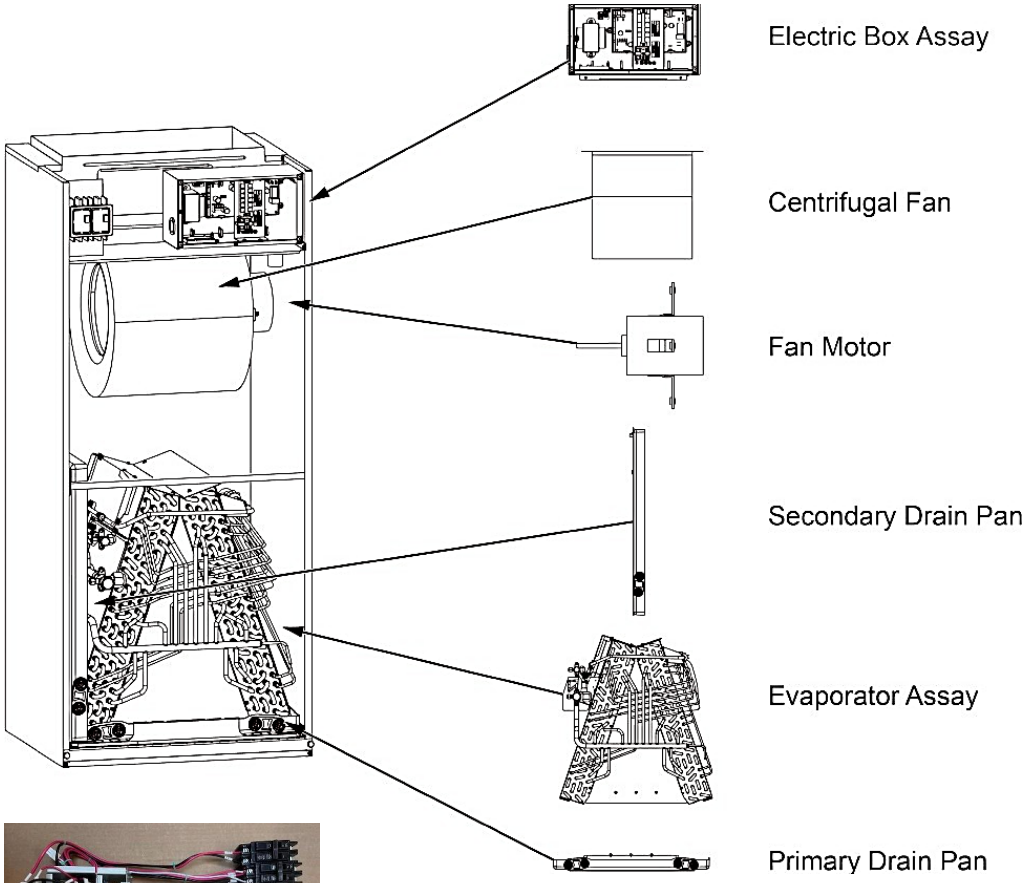
Horizontal Left Configuration - No Modification Needed

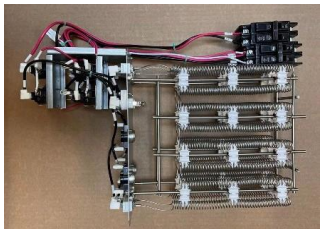


Horizontal Right Configuration - Must Relocate Drain Pan

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ACCESSORY HEATER AND GENERAL INFORMATION: TUD48AH2/D-D(U)

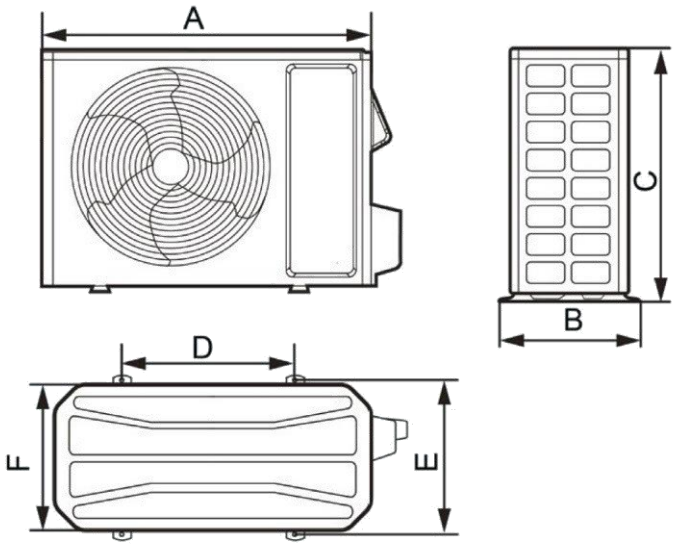




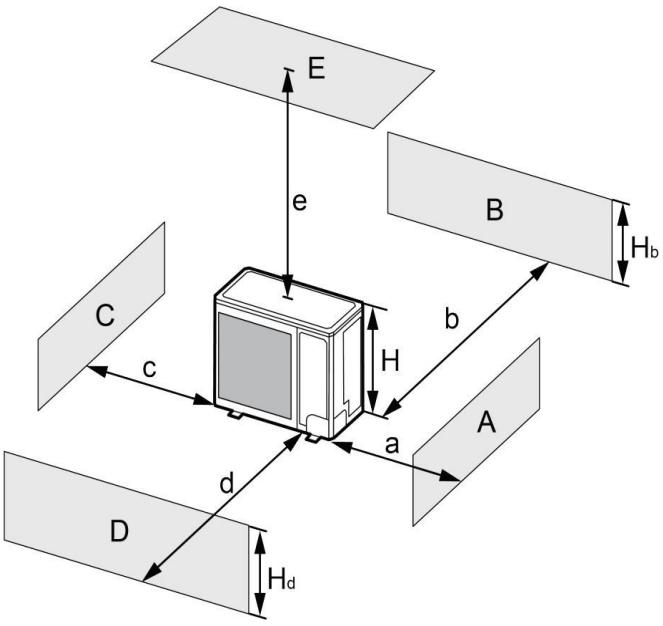
Model	Heat Kit Model	Electric Heat (kW)		Min. Circuit		Max.Fuse or Breaker	
		240V	208V	240V	208V	240V	208V
TUD48-24AH2ADU	TUD-HEAT KIT-5KW	5	3.76	26	22.6	30	25
	TUD-HEAT KIT-8KW	8	6.00	41.7	36	45	40
	TUD-HEAT KIT-10KW	10	7.51	52	45	60	45
	TUD-HEAT KIT-15KW	15	11.25	52 & 26	45 & 22.6	60 & 30	45 & 25
	TUD-HEAT KIT-20KW	20	15.02	52 & 52	45 & 45	60 & 60	45 & 45

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DIMENSIONS & CLEARANCES: TUD48W2/D-D(U)



Dimensions	
A	39
B	16-13/16
C	37-13/16
D	29-3/4
E	15-9/16
F	14-9/16



Obstacle/Wall A~E	Obstacle/Wall Hb Hd H		Clearance (in)				
			A	b	c	d	e
B	—		-	⩾4	-	-	-
A,B,C,	—		⩾12	⩾4	⩾4	-	-
B,E	—		-	⩾4	-	-	⩾10
A,B,C,E	—		⩾12	⩾6	⩾6	-	⩾40
A,C,E	—		⩾8	-	⩾20	-	⩾10
D	—		-	-	-	⩾40	-
D,E	—		-	-	-	⩾40	⩾40
B,D	Hb < Hd	Hd > H	-	⩾4	-	⩾40	-
	Hb > Hd	Hd < H	-	⩾4	-	⩾40	-
B,D,E	Hb < Hd	Hb⩽1/2H	-	⩾10	-	⩾80	⩾40
		1/2H < Hb⩽H	-	⩾10	-	⩾80	⩾40
		Hb > H	Prohibited				
	Hb > Hd	Hd⩽1/2H	-	⩾4	-	⩾80	⩾40
		1/2H < Hd⩽H	-	⩾8	-	⩾80	⩾40
		Hd > H	Prohibited				

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