ECONOMICAL CENTRAL DUCTED SPLIT SYSTEM 24VAC CONTROL

24,000 BTU/H UNITARY HEAT PUMP SPLIT SYSTEM

SUBMITTAL DATA: TUD24AH2/D-D(U) TUD24W2/D-D(U)

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

SYSTEM TYPE:
HEAT PUMP



TUD24W2/D-D(U)



TUD24AH2/D-D(U)

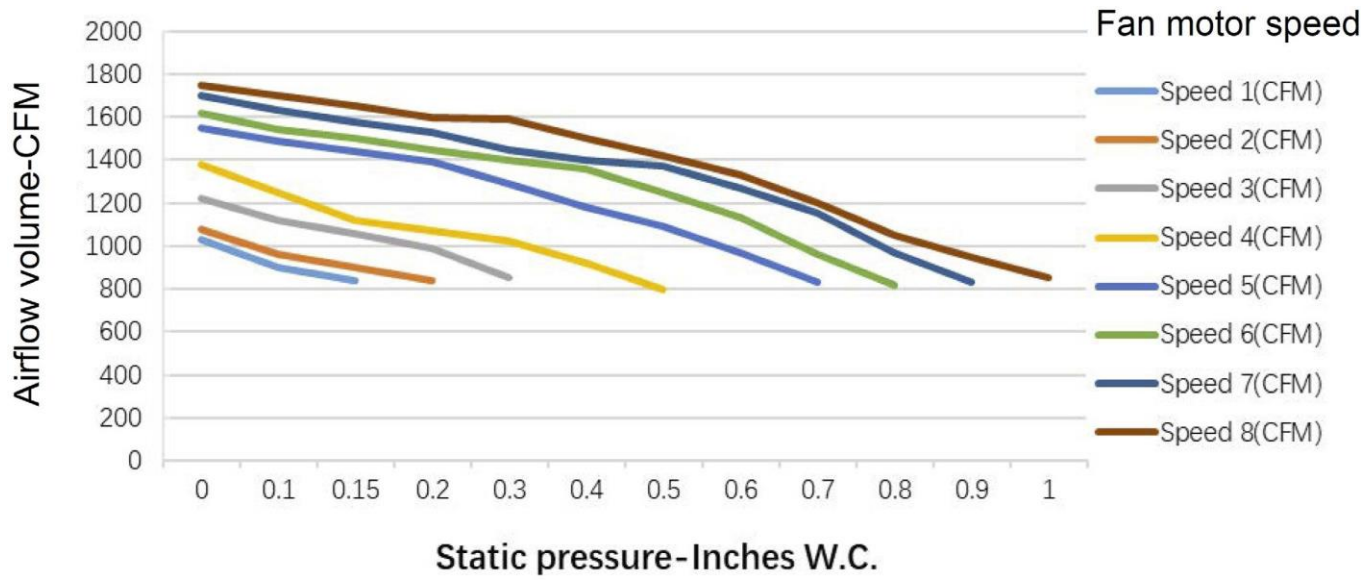
GENERAL FEATURES

- 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	23,000
	Min-Max Capacity	Btu/h	7,000-23,000
Heating	Rated Capacity @ 47°F	Btu/h	23,000
	Rated Capacity @ 17°F	Btu/h	14,600
	Min-Max Capacity	Btu/h	5,100-23,000
SEER2 / EER2			15.5 / 10.5
HSPF2 / COP			7.8 / 3.08
AHRI Number			211078853
Cooling Temperature Range		°F / °C	5 – 115 / -15 – 46
Heating Temperature Range		°F / °C	5 – 75 / -15 – 24
INDOOR UNIT			**TUD24AH2/D-D(U)**
Fan Motor Type			1/2
Fan Motor FLA		A	1.2
Air Flow(Rated)		CFM	800
Static Pressure (Rated / Maximum)		In w.c	0.1 / 1.0
Sound Pressure Level (Cooling / Heating)		dB(A)	51
Dehumidification		pt/hr	5.28
Condensate Drain Size (OD)		In	3 / 4
Unit Dimension (WxHxD)		In	18-1/8 × 43-1/2 ×21-1/4
Weight (Net / Gross)		lbs	125.7 / 134.5
Electric Heater (Optional)		kW	5, 8
Coil Type (Blue Fin)			Copper Tube / Aluminum Fin
OUTDOOR UNIT			**TUD24W2/D-D(U)**
Compressor Type			Inverter Rotary
Compressor RLA		A	10.0
Fan Motor Type			ECM
Fan Motor Output Power		HP	1/12
Fan Motor		A	1.0
Sound Pressure Level (Cooling / Heating)		dB(A)	47 (43 – 49)
Unit Dimension (WxHxD)		In	35 × 25-7/8 × 13-3/8
Weight (Net / Gross)		Lbs	99 / 108
Refrigerant Charge - R410A		oz	70.6
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 – 100
Max. Pipe Elevation		ft	50
ELECTRICAL			
Power Supply (Voltage Operating Range)			208/230V / 1Ph / 60 Hz
Outdoor Unit	Rated Current (Cooling / Heating)	A	15.5 / 15.5
	MCA / MOCP	A	19.5 / 30
Indoor Unit	Rated Current (Cooling / Heating)	A	1.2 / 1.2
	MCA / MOCP	A	1.8 / 15
Main Power Wire Size		AWG	Size Per Local Code

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FAN PERFORMANCE: TUD24AH2/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	1030	900										
Speed 2-CFM	1080	960	900									
Speed 3-CFM	1220	1120	1060	990								
Speed 4-CFM	1380	1250	1120	1070	1020	920						
Speed 5-CFM	1550	1490	1440	1390	1290	1180	1090	970				
Speed 6-CFM	1620	1540	1500	1450	1400	1360	1250	1130	960			
Speed 7-CFM	1700	1630	1580	1530	1450	1400	1370	1270	1150	970		
Speed 8-CFM	1750	1700	1650	1600	1590	1500	1420	1330	1200	1050	950	

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FEATURES SUMMARY: TUD24AH2/D-D(U) TUD24W2/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

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EXTENDED RATINGS: TUD24AH2/D-D(U) TUD24W2/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	21,000	14,700	70%	13.38	1,570	22,500	15,750	70%	13.47	1,670	24,000	16,800	70%	13.56	1,770
	10°F	21,000	14,700	70%	13.29	1,580	22,500	15,750	70%	13.39	1,680	24,000	16,800	70%	13.48	1,780
	15°F	21,000	14,700	70%	13.21	1,590	22,500	15,750	70%	13.31	1,690	24,000	16,800	70%	13.41	1,790
	20°F	21,000	14,700	70%	13.13	1,600	22,500	15,750	70%	13.24	1,700	24,000	16,800	70%	13.33	1,800
	25°F	21,000	14,700	70%	13.04	1,610	22,500	15,750	70%	13.16	1,710	24,000	16,800	70%	13.26	1,810
	30°F	21,000	14,700	70%	12.96	1,620	22,500	15,750	70%	13.08	1,720	24,000	16,800	70%	13.19	1,820
	35°F	21,000	14,700	70%	12.80	1,640	22,500	15,750	70%	12.93	1,740	24,000	16,800	70%	13.04	1,840
	40°F	21,000	14,700	70%	12.65	1,660	22,500	15,750	70%	12.78	1,760	24,000	16,800	70%	12.90	1,860
	45°F	21,000	14,700	70%	12.50	1,680	22,500	15,750	70%	12.64	1,780	24,000	16,800	70%	12.77	1,880
	50°F	21,000	14,700	70%	12.28	1,710	22,500	15,750	70%	12.43	1,810	24,000	16,800	70%	12.57	1,910
	55°F	21,000	14,700	70%	12.07	1,740	22,500	15,750	70%	12.23	1,840	24,000	16,800	70%	12.37	1,940
	60°F	21,000	14,700	70%	11.86	1,770	22,500	15,750	70%	12.03	1,870	24,000	16,800	70%	12.18	1,970
	65°F	21,300	15,600	73%	11.83	1,800	22,900	16,500	72%	12.05	1,900	24,500	17,400	71%	12.25	2,000
	70°F	21,500	15,800	73%	11.75	1,830	23,250	16,800	72%	12.05	1,930	25,000	17,900	72%	12.32	2,030
	75°F	21,500	16,000	74%	11.56	1,860	23,250	17,000	73%	11.86	1,960	25,000	18,100	72%	12.14	2,060
	80°F	21,000	15,600	74%	11.73	1,790	22,500	16,300	72%	11.90	1,890	24,000	17,300	72%	12.06	1,990
	85°F	20,600	15,100	73%	11.08	1,860	21,800	16,000	73%	11.12	1,960	23,000	16,900	73%	11.17	2,060
	90°F	20,600	15,200	74%	10.67	1,930	21,800	16,150	74%	10.74	2,030	23,000	17,050	74%	10.80	2,130
	95°F	20,600	15,300	74%	10.35	1,990	21,800	16,250	75%	10.43	2,090	23,000	17,200	75%	10.50	2,190
	100°F	19,450	14,675	75%	9.40	2,070	20,725	15,700	76%	9.55	2,170	22,000	16,850	77%	9.69	2,270
	105°F	18,300	14,050	77%	8.51	2,150	19,650	15,200	77%	8.73	2,250	21,000	16,500	79%	8.94	2,350
	110°F	17,250	13,425	78%	7.74	2,230	18,675	14,700	79%	8.02	2,330	20,100	16,150	80%	8.27	2,430
	115°F	16,100	12,800	80%	6.97	2,310	17,600	14,300	81%	7.30	2,410	19,100	15,800	83%	7.61	2,510

*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: TUD24AH2/D-D(U) TUD24W2/D-D(U)

HEATING PERFORMANCE

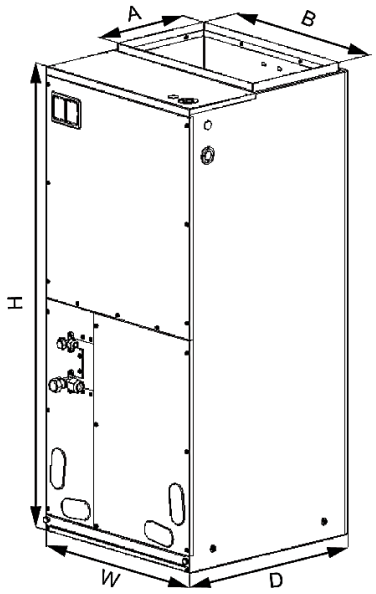
Outdoor Ambient Temperature (DB)		Return Air Temperature								
		70°F (DB) / 59°F (WB)			75°F (DB) / 63°F (WB)			80°F (DB) / 67°F (WB)		
		TC (Btu/h)	COP (W/W)	Power Input (W)	TC (Btu/h)	COP (W/W)	Power Input (W)	TC (Btu/h)	COP (W/W)	Power Input (W)
MAX OUTPUT*	5°F	13,100	1.75	2,190	11,917	1.72	2,205	11,135	1.47	2,220
	10°F	13,500	1.89	2,090	12,600	1.75	2,110	11,700	1.61	2,130
	15°F	14,000	2.07	1,980	13,180	1.93	2,005	12,370	1.79	2,030
	17°F	14,600	2.30	1,860	13,870	2.15	1,890	13,140	2.01	1,920
	20°F	15,500	2.54	1,790	14,720	2.37	1,820	13,950	2.21	1,850
	25°F	15,800	2.54	1,820	15,140	2.39	1,855	14,500	2.25	1,890
	30°F	16,200	2.58	1,840	15,660	2.44	1,880	15,100	2.30	1,920
	35°F	16,700	2.65	1,850	16,280	2.52	1,895	15,860	2.40	1,940
	40°F	19,000	2.83	1,970	18,620	2.70	2,018	18,240	2.59	2,063
	45°F	21,000	2.93	2,100	20,580	2.83	2,131	20,160	2.72	2,176
	47°F	23,000	3.08	2,190	22,770	2.99	2,235	22,540	2.90	2,280
	50°F	24,300	3.22	2,210	24,100	3.13	2,255	23,900	3.05	2,300
	55°F	25,600	3.36	2,230	25,400	3.27	2,275	25,260	3.19	2,320
	60°F	27,000	3.52	2,250	26,850	3.45	2,280	26,730	3.39	2,310
	65°F	27,000	3.72	2,130	26,850	3.63	2,165	26,730	3.58	2,190
	70°F	27,000	3.90	2,030	26,850	3.84	2,050	26,730	3.77	2,080
	75°F	27,000	4.10	1,930	26,850	4.04	1,950	26,730	3.96	1,980

*Maximum Output values are not based on AHRI test conditions

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

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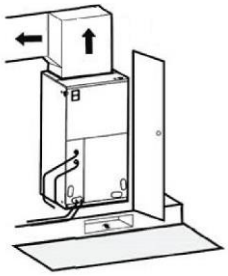
DIMENSIONS & CLEARANCES: TUD24AH2/D-D(U)

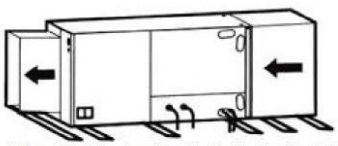


Dimensions	
A	11 5/8
B	16-3/4
H	43-1/2
W	18-1/8
D	21 1/4

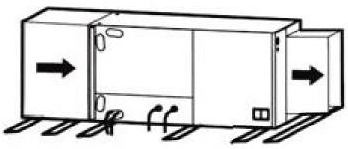
Filter Size	
Supplied	17 x 20 x 1/2
Filter Type	Metal mesh

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	





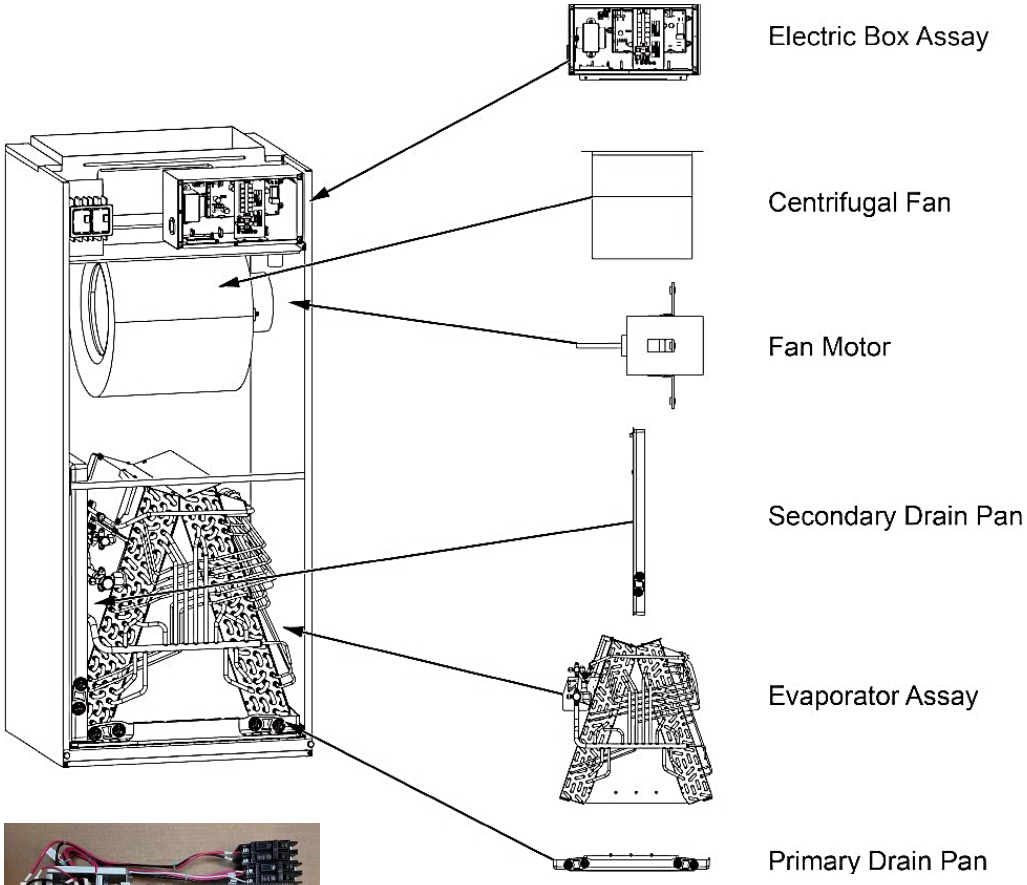
Horizontal Left Configuration - No Modification Needed

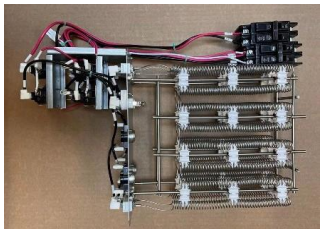


Horizontal Right Configuration - Must Relocate Drain Pan

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ACCESSORY HEATER AND GENERAL INFORMATION: TUD24AH2/D-D(U)



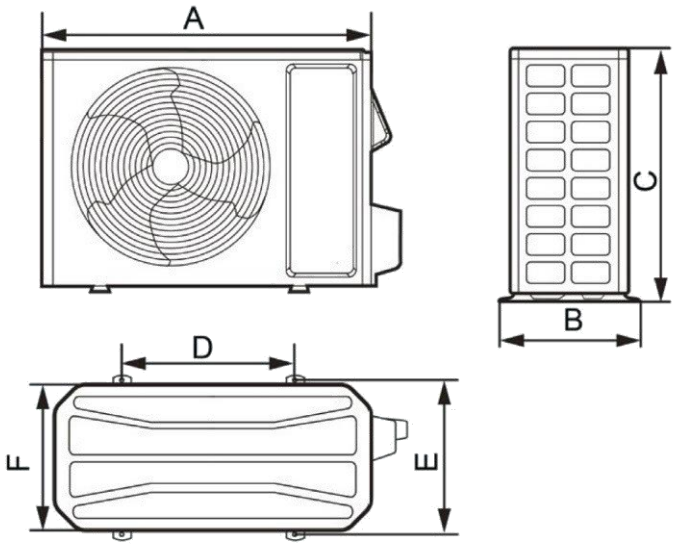


Model	Heat Kit Model	Electric Heat (kW)		Min. Circuit		Max.Fuse or Breaker	
		240V	208V	240V	208V	240V	208V
TUD24AH2/D-D(U)	TUD-HEAT KIT-5KW	5	3.76	26.0	22.6	30	25
	TUD-HEAT KIT-8KW	8	6.00	41.7	36.0	45	40

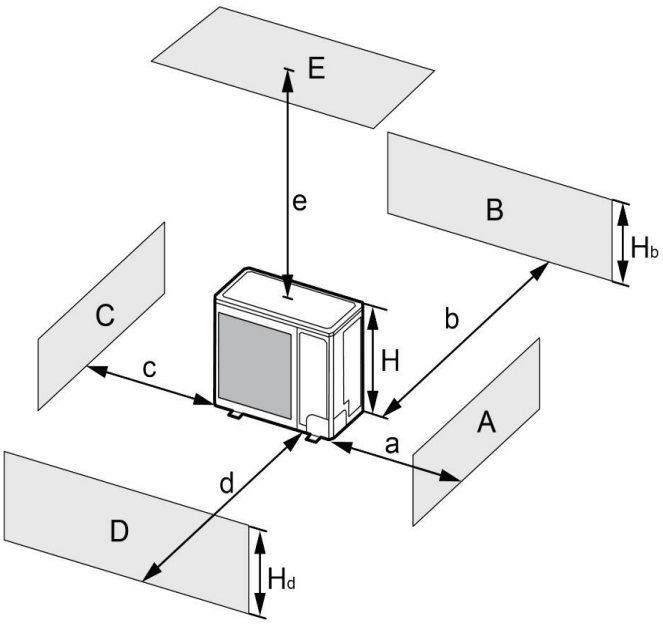
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DIMENSIONS & CLEARANCES: TUD24W2/D-D(U)



Dimensions	
A	35
B	15-13/16
C	25-7/8
D	22-7/16
E	14-9/16
F	13-3/8



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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