

Vapormist humidifier: Specifications

**Table 1-1:
Vapormist capacities, electrical specifications, and weights**

VM model	Maximum steam capacity		Current draw (amps)											Weights ‡			
			Single-phase						Three-phase					Shipping		Operating	
kW	lbs/hr	kg/h	120V	208V*	240V*	277V	480V†	600V†	208V*	240V†	277V	480V†	600V†	lbs	kg	lbs	kg
2	6	2.7	16.7	9.6	8.3	7.2	4.2	3.3	—	—	—	—	—	80	36	95	43
4	12	5.4	33.3	19.2	16.7	14.4	8.3	6.7	16.7**	14.4**	12.5	7.2**	5.8**	80	36	95	43
6	18	8.2	—	28.8	25.0	21.7	12.5	10.0	25.0**	21.7**	18.8	10.8**	8.7**	88	40	122	55
8	24	10.9	—	38.5	33.3	28.9	16.7	13.3	33.3**	28.9**	25.0	14.4**	11.5**	88	40	122	55
10	30	13.6	—	—	41.7	36.1**	20.8	16.7	29.1**	25.3**	21.9	12.6**	10.1**	93	42	139	63
12	36	16.3	—	—	—	43.3	25.0	20.0	33.3	28.9	25.0	14.4	11.5	93	42	139	63
14	42	19.1	—	—	—	—	29.2	23.3	38.9	33.7	29.2	16.8	13.5	93	42	139	63
16	48	21.8	—	—	—	—	33.3	26.7	44.4	38.5	33.3	19.2	15.4	93	42	139	63
21	63	28.6	—	—	—	—	43.8	35.0	—	—	43.8	25.3	20.2	95	43	152	69
25	75	34.0	—	—	—	—	—	41.7	—	—	—	30.1	24.1	95	43	152	69
30	90	40.9	—	—	—	—	—	—	—	—	—	36.1	28.9	101	46	156	71
34	102	46.3	—	—	—	—	—	—	—	—	—	40.9	32.7	101	46	156	71

* On 208V/240V/single-phase/three-wire and on 208V/three-phase/four-wire supplies, the neutral line provides a separate 120V circuit for the SDU fan unit.

** For wire sizing, the highest leg draw is shown due to current imbalance.

† Add the following to Vapormist weights if using an SDU option (these weights are for additional control components housed within the Vapormist cabinet):

– SDU-I: 12 lbs (5.5 kg) (SDU-I operating weight is 58 lbs [26 kg])

– SDU-E: 9 lbs (4 kg) (SDU-E operating weight is 51 lbs [23 kg])

‡ Add the following if using the SSR option:

– For single-phase or three-phase models drawing ≤ 32.7 amps, add 2 lbs (1 kg).

– For three-phase models drawing > 32.7 amps, add 4 lbs (2 kg).

All Vapormist models operate at 50/60 Hz.

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**Table 1-2:
SDU specifications**

SDU model	Maximum capacity		Shipping weight		Amps at 120V (50/60 Hz)	Horse-power	cfm	m³/s	dB*
	lbs/hr	kg/h	lbs	kg					
SDU-I	30	13.6	68	31	3.20	1/5	760	0.36	58
SDU-E	102	46.3	61	28	2.07	1/8	545	0.26	64

* Measurement taken 6.5' (2 m) in front of SDU cabinet.

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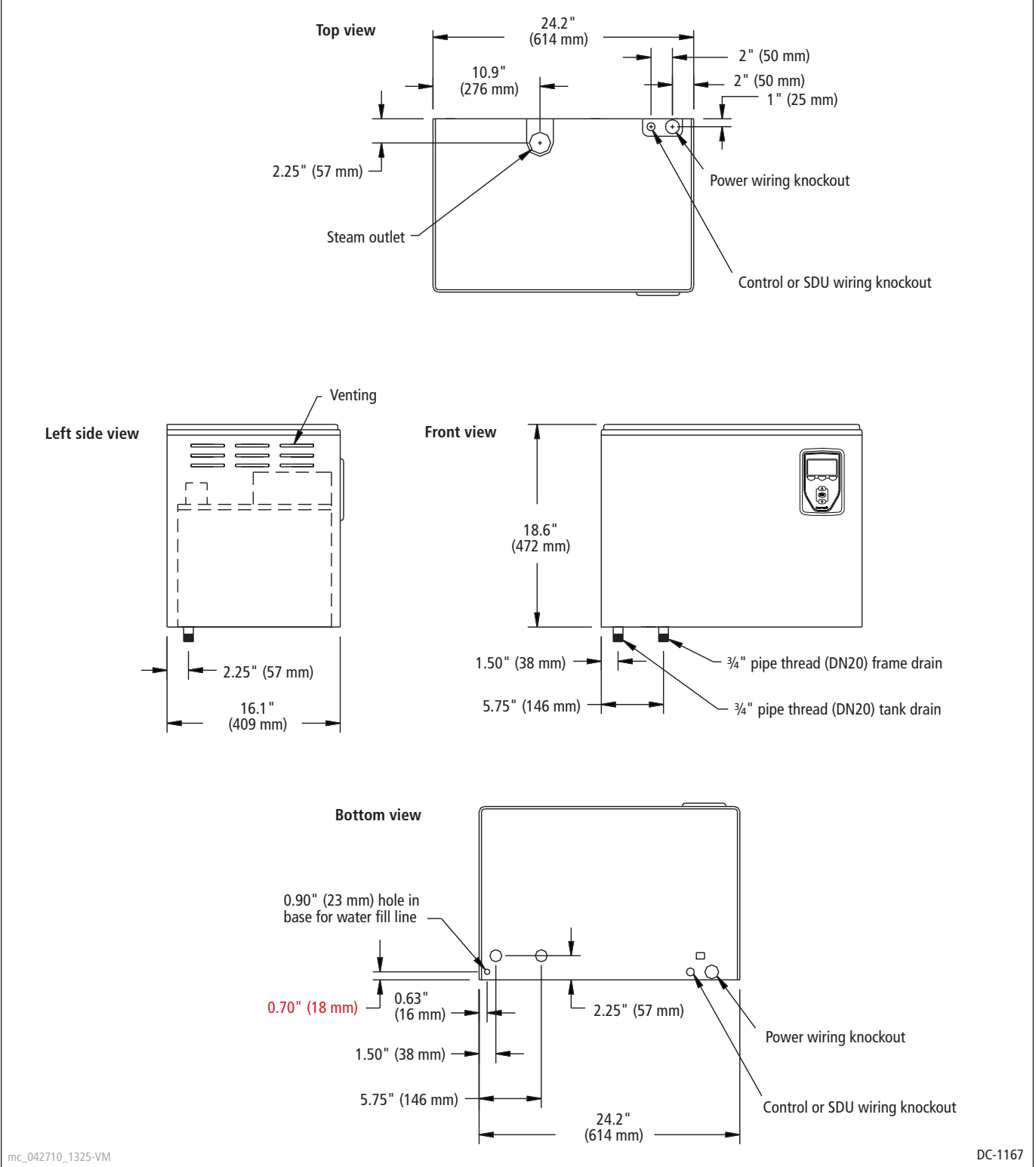
SDU-I is available for all VM-2 through VM-10 models with or without SSR control.

SDU-E is available for all single-phase Vapormist humidifiers except VM-2 and models using 240V, 277V, and 480V three-phase power with the SSR control option and drawing more than 32.7 amps.

SDUs ship separate from the Vapormist humidifier.

Vapormist humidifier: Dimensions

**Figure 2-1:
Vapormist dimensions**



Vapormist humidifier: Dispersion

Installing Space Distribution Units (SDUs)

Provide at least 6" (150 mm) clearance on each side of the SDU.

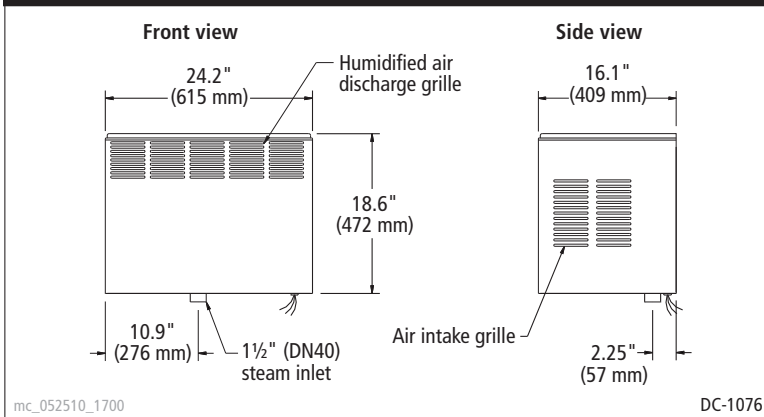
Field wiring is required to connect the SDU fan and airflow proving switch terminals to Vapormist electrical panel terminals. Refer to the external connections diagram in the package shipped with your unit.

When performing Vapormist maintenance

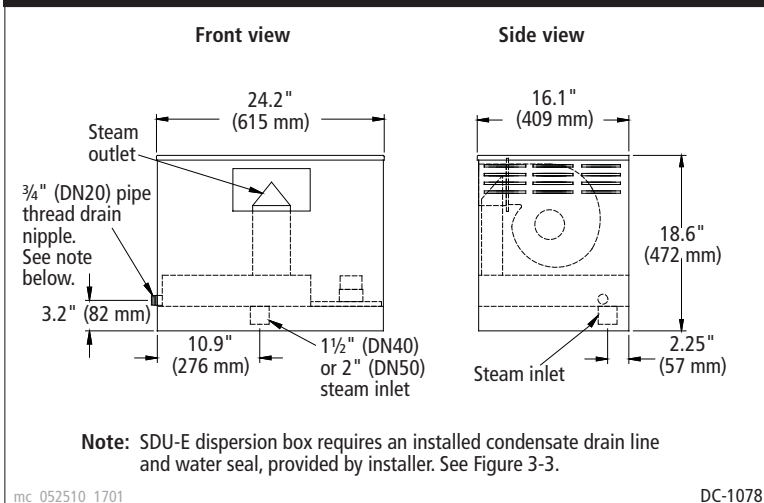
If the SDU-E or SDU-I is installed immediately above the Vapormist, disconnect both hose clamps on the steam hose, grip the hose and rotate it to break it loose from the tubing, and then slide the hose up onto the SDU steam tube until sufficient clearance is provided to move the tank.

Important: Maximum ambient RH must not exceed 45% for the SDU-I to operate properly.

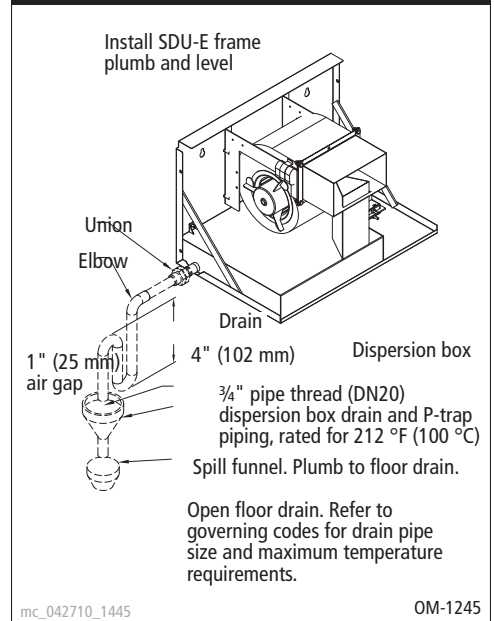
**Figure 3-1:
SDU-I mechanical detail**



**Figure 3-2:
SDU-E mechanical detail**



**Figure 3-3:
SDU-E drain line piping**



Note: If using Vapormist models VM-10, VM-12, VM-14, or VM-16 with an SDU-E, the Vapormist steam outlet must be 2" to match the SDU-E steam inlet.

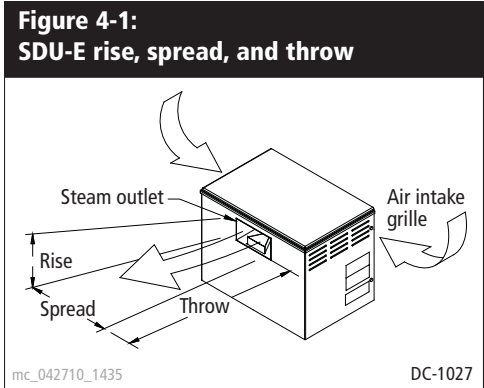
Vapormist humidifier: Dispersion

As steam is discharged from the SDU-E, it quickly cools and turns to a visible fog that is lighter than air. As this fog is carried away from the SDU-E by the airstream, it tends to rise toward the ceiling. If this fog contacts solid surfaces (columns, beams, ceiling, pipes, etc.) before it disappears, it could collect and drip as water. The greater the space relative humidity, the more the fog will rise, throw and spread.

Table 4-1 lists the minimum rise, throw and spread non-wetting distances for SDU-E at 40%, 50% and 60% RH in the space. Surfaces cooler than ambient temperature, or objects located within this minimum dimension, can cause condensation and dripping. To avoid steam impingement on surrounding areas, observe the minimum non-wetting distances in Table 4-1.

The SDU-E contains a blower (120 V, single-phase, 60 Hz) and an airflow proving switch (field-wired to the humidifier electrical panel). A wiring diagram of the SDU-E is included with the unit.

On a call for humidity, the humidifier begins producing steam, and the start relay energizes the SDU-E blower. When the call for humidity is satisfied, the Vapor-logic controller keeps the blower running to disperse residual moisture using a time delay.



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**Table 4-1:
SDU-E minimum nonwetting distances**

kW	Maximum steam capacity		40% RH @ 70 °F (21 °C)						50% RH @ 70 °F (21 °C)						60% RH @ 70 °F (21 °C)					
			Rise		Spread		Throw		Rise		Spread		Throw		Rise		Spread		Throw	
			ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m
2	6	2.7	1.0	0.3	1.0	0.3	5.0	1.5	1.5	0.5	1.5	0.5	6.5	2.0	2.5	0.8	2.5	0.8	7.5	2.3
4	12	5.4	1.0	0.3	1.0	0.3	5.0	1.5	1.5	0.5	1.5	0.5	6.5	2.0	2.5	0.8	2.5	0.8	7.5	2.3
6	18	8.2	1.0	0.3	1.0	0.3	5.0	1.5	1.5	0.5	1.5	0.5	6.5	2.0	2.5	0.8	2.5	0.8	7.5	2.3
8	24	10.9	1.0	0.3	1.0	0.3	5.5	1.7	1.5	0.5	1.5	0.5	6.5	2.0	2.5	0.8	2.5	0.8	7.5	2.3
10	30	13.6	1.5	0.5	1.5	0.5	6.0	1.8	2.0	0.6	2.0	0.6	7.0	2.1	3.0	1.0	3.0	1.0	8.0	2.5
12	36	16.3	1.5	0.5	1.5	0.5	6.0	1.8	2.0	0.6	2.0	0.6	7.0	2.1	3.0	1.0	3.0	1.0	8.0	2.5
14	42	19.1	2.0	0.6	2.0	0.6	7.0	2.1	2.0	0.6	2.0	0.6	7.0	2.1	3.0	1.0	3.0	1.0	9.0	2.7
16	48	21.8	2.0	0.6	2.0	0.6	7.0	2.1	2.0	0.6	2.0	0.6	7.0	2.1	3.0	1.0	3.0	1.0	9.0	2.7
21	63	28.6	2.0	0.6	2.0	0.6	7.5	2.3	2.5	0.8	2.5	0.8	10.0	3.0	3.0	1.0	3.0	1.0	12.0	3.7
25	75	34.0	2.0	0.6	2.0	0.6	8.0	2.5	2.5	0.8	2.5	0.8	10.5	3.2	3.5	1.1	3.5	1.1	12.5	3.8
30	90	40.9	2.0	0.6	2.0	0.6	8.0	2.5	2.5	0.8	2.5	0.8	10.5	3.2	3.5	1.1	3.5	1.1	12.5	3.8
34	102	46.3	2.0	0.6	2.0	0.6	8.0	2.5	2.5	0.8	2.5	0.8	10.5	3.2	3.5	1.1	3.5	1.1	12.5	3.8

Notes:

- Surfaces or objects directly in the path of vapor discharge may cause condensation and dripping.
- To avoid steam impingement on surrounding areas, observe the minimum nonwetting dimensions in this table.
- Rise: The minimum nonwetting height above the steam outlet of the SDU-E.
- Spread: The minimum nonwetting width from the steam outlet of the SDU-E.
- Throw: The minimum nonwetting horizontal distance from the steam outlet of the SDU-E.

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Vapormist humidifier: Dispersion

**Table 5-1:
Maximum steam carrying capacity and length of interconnecting steam hose or tubing**

Steam hose ¹						Copper or stainless steel tubing					
Hose I.D.		Maximum capacity		Maximum length ²		Tubing size		Maximum capacity ³		Maximum developed length ⁴	
inches	DN	lbs/hr	kg/h	ft	m	inches	DN	lbs/hr	kg/h	ft	m
1½	40	150	68	10	3	1½	40	150	68	20	6.1
2	50	250	113	10	3	2	50	220	100	30	9.2
<p>1. When using steam hose, use DriSteem steam hose for best results. Field-supplied hose may have shorter life and may cause foaming in the evaporating chamber resulting in condensate discharge at the dispersion assembly. Do not use steam hose for outdoor applications.</p> <p>2. Maximum recommended length for steam hose is 10' (3 m). Longer distances can cause kinking or low spots.</p>						<p>3. Insulate tubing to minimize loss of capacity and efficiency.</p> <p>4. Developed length of tubing equals measured length plus 50% of measured length, to account for fittings. Longer tubing lengths are possible at capacities lower than listed maximums. Consult factory.</p>					
<p>Note: Capacities and lengths in this table are based on total maximum pressure drop in hose or tubing of 5" wc (1250 Pa)</p>											

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**Table 5-2:
Steam loss of interconnecting steam hose or tubing**

Description	Nominal hose or tubing size		Steam loss				Insulation thickness	
			Noninsulated		Insulated			
	inches	DN	lbs/hr/ft	kg/h/m	lbs/hr/ft	kg/h/m	inches	mm
Steam hose	1½	40	0.15	0.22	N/A	N/A	N/A	N/A
	2	50	0.20	0.30	N/A	N/A	N/A	N/A
Tubing	1½	40	0.11	0.16	0.020	0.030	2	50
	2	50	0.14	0.21	0.025	0.037	2	50
<p>Note: These data are based on an ambient air temperature of 80 °F (27 °C), fiberglass insulation, and copper tubing.</p>								

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Vapormist humidifier: Electrical specification reference chart

**Table 6-1:
Recommended fusing, line current, and element placement for Vapormist**

VM model	Phase	Volts	Line amps			Min. cabinet wire gauge	Recommended fusing amps DE710	Heater location by kW		
			L1	L2	L3			Left	Center	Right
2	1	120	16.7	—	—	8	25	—	2	—
		208	9.6	9.6	—	12	15			
		240	8.3	8.3	—	12	15			
		277	7.2	7.2	—	12	10			
		480	4.2	4.2	—	12	10			
		600	3.3	3.3	—	12	10			
4	1	120	33.3	—	—	8	45	2	—	2
		208	19.2	19.2	—	8	25			
		240	16.7	16.7	—	8	25			
		277	14.4	14.4	—	12	20			
		480	8.3	8.3	—	12	15			
		600	6.7	6.7	—	12	10			
	3	208	9.6	16.7	9.6	8	25			
		240	8.3	14.4	8.3	12	20			
		277	7.2	12.5	7.2	12	20			
		480	4.2	7.2	4.2	12	10			
6	1	208	28.8	28.8	—	8	40	3	—	3
		240	25.0	25.0	—	8	35			
		277	21.7	21.7	—	8	30			
		480	12.5	12.5	—	12	20			
		600	10.0	10.0	—	12	15			
	3	208	14.4	25	14.4	8	35			
		240	12.5	21.7	12.5	8	30			
		277	7.2	12.5	7.2	12	20			
		480	6.3	10.8	6.3	12	15			
		600	5.0	8.7	5.0	12	15			
8	1	208	38.5	38.5	—	8	50	4	—	4
		240	33.3	33.3	—	8	45			
		277	28.9	28.9	—	8	40			
		480	16.7	16.7	—	8	25			
		600	13.3	13.3	—	12	20			
	3	208	19.2	33.3	19.2	8	45			
		240	16.7	28.9	16.7	8	40			
		277	14.4	28.9	14.4	8	35			
		480	8.3	14.4	8.3	12	20			
		600	6.7	11.5	6.7	12	15			
10	1	240	41.7	41.7	—	6	60	3	4	3
		277	36.1	36.1	—	8	50			
		480	20.8	20.8	—	8	30			
		600	16.7	16.7	—	8	25			
	3	208	25.0	29.1	29.1	8	40			
		240	21.7	25.3	25.3	8	35			
		277	18.8	21.9	18.8	8	30			
		480	10.8	12.6	12.6	12	20			
		600	8.7	10.1	10.1	12	15			

Continued

**Table 6-1:
Recommended fusing, line current, and element placement for Vapormist (continued)**

VM model	Phase	Volts	Line amps			Min. cabinet wire gauge	Recommended fusing amps DE710	Heater location by kW		
			L1	L2	L3			Left	Center	Right
12	1	277	43.3	43.3	—	6	60	4	4	4
		480	25.0	25.0	—	8	35			
		600	20.0	20.0	—	8	25			
	3	208	33.3	33.3	33.3	8	45			
		240	28.9	28.9	28.9	8	40			
		277	25.0	25.0	25.0	8	35			
		480	14.4	14.4	14.4	12	20			
		600	11.5	11.5	11.5	12	15			
14	1	480	29.2	29.2	—	8	40	4.67	4.67	4.67
		600	23.3	23.3	—	8	30			
	3	208	38.9	38.9	38.9	8	50			
		240	33.7	33.7	33.7	8	45			
		277	29.2	29.2	29.2	8	40			
		480	16.8	16.8	16.8	8	25			
		600	13.5	13.5	13.5	12	20			
16	1	480	33.3	33.3	—	8	45	5.3	5.3	5.3
		600	26.7	26.7	—	8	35			
	3	208	44.4	44.4	44.4	6	60			
		240	38.5	38.5	38.5	8	50			
		277	33.3	33.3	33.3	8	45			
		480	19.2	19.2	19.2	8	25			
600	15.4	15.4	15.4	12	20					
21	1	480	43.8	43.8	—	6	60	7	7	7
		600	35	35	—	8	45			
	3	277	43.8	43.8	43.8	6	60			
		480	25.3	25.3	25.3	8	35			
		600	20.2	20.2	20.2	8	30			
25	1	600	41.7	41.7	—	6	60	8.3	8.3	8.3
		3	480	30.1	30.1	30.1	8			
	600	24.1	24.1	24.1	8	35				
30	3	480	36.1	36.1	36.1	8	50	3	3	3
		600	28.9	28.9	28.9	8	40			
34	3	480	40.9	40.9	40.9	6	60	3	3	3
		600	32.7	32.7	32.7	8	45			