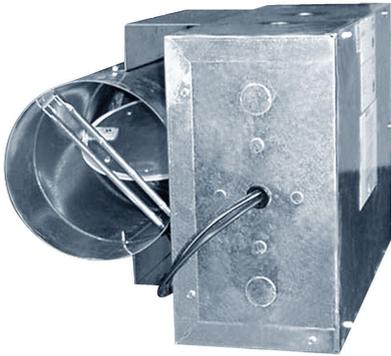




شركة مصنع عالم الناصريه المحدودة
AL NASSERIAH WORLD FACTORY COMPANY LTD

VARIABLE AIR VOLUME



ANA Variable Air Volume :

VAV units are mainly designed to supply sufficient air volume for each zone individually, this way cooling and heating can be controlled without interrupting the other zones and to avoid overheating and overcooling scenarios not to mention that it reduces the HVAC system energy consumption as well as it reduces noise level.



ANA VAV Construction

Case :

Constructed from galvanized steel sheet **G90**, with a thickness of (**gauge 22**), round, oval or rectangular (depends on type and amount of airflow) inlet with several sizes to fit the amount of airflow inside duct. A control box to contain and protect the actuator and the electrical circuit. Well sealed by anti-microbial sealant to avoid leakage. Control box has an inlet through power glands (for power supply) and an outlet for pressure measurement pipes (for NVAV-PI).

Insulation :

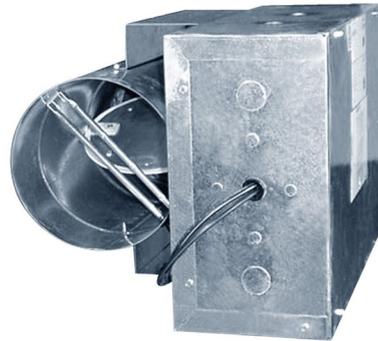
Fiber Glass with a thickness of (**25 mm**) and a density of (**24 Kg/m³**) for noise absorption. Fiber glass is covered by perforated sheet to reduce the turbulence of the airflow.

Finish :

Mill galvanized steel **G90**.

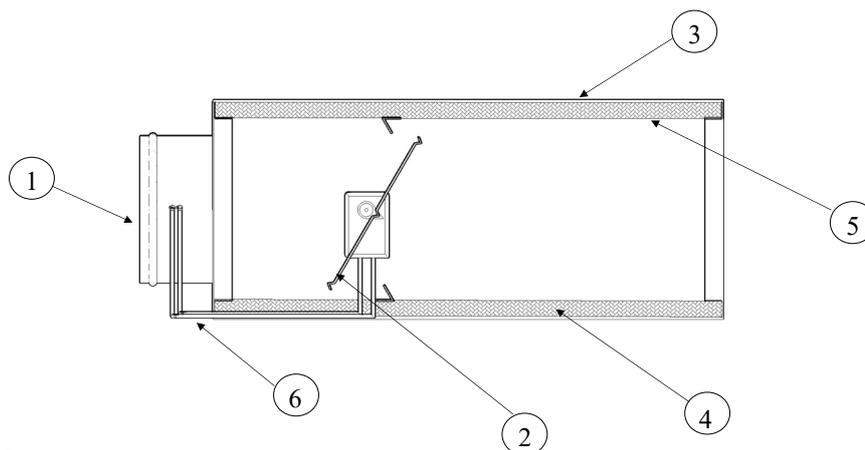
ANA Pressure Independent VAV

Model : NVAV-PI



- Constructed from galvanized steel sheet **G90**, with a thickness of (**gauge 22**).
- Used in variable speed fan HVAC systems.
- Fiber Glass with a thickness of (**25 mm**) and a density of (**24 Kg/m³**) for noise absorption.
- Perforated sheet to cover the fiberglass and to reduce the airflow turbulence, with a thickness of (**0.8 mm**), (**5 mm**) perforation diameter and a (**3mm**) pitch.
- Heater can be added to the VAV unit upon request.
- Calibration is done in factory to the VAV upon the required maximum flow.
- Siemens GDB181.1E actuator is used to modulate the blade position to control the airflow.
- Siemens RDG400 room thermostat is used to measure room temperature and to provide the control circuit with the desired temperature and the actual temperature.

Components

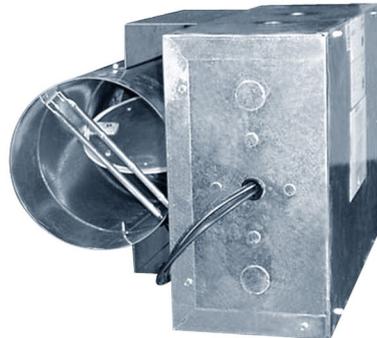


Components :

- 1.Round or oval Inlet.
- 2.Volume control Blade.
- 3.Galvanized steel casing.
- 4.Fiber glass.
5. Perforated Sheet.
6. Differential pressure sensor

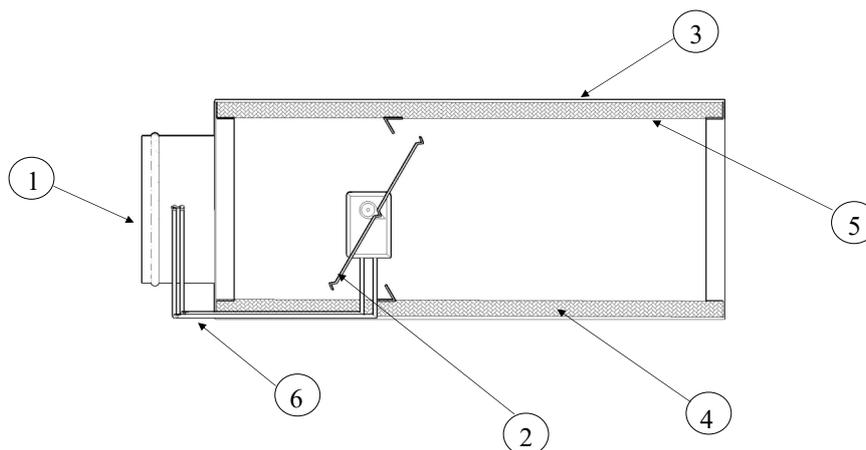
ANA Constant Air Volume

Model : NVAV-CAV



- Constructed from galvanized steel sheet **G90**, with a thickness of **(gauge 22)**.
- Used in variable speed fan HVAC systems.
- Fiber Glass with a thickness of **(25 mm)** and a density of **(24 Kg/m³)** for noise absorption.
- Perforated sheet to cover the fiberglass and to reduce the airflow turbulence, with a thickness of **(0.8 mm)**, **(5 mm)** perforation diameter and a **(3mm)** pitch.
- Heater can be added to the VAV unit upon request.
- Calibration is done in factory to the VAV upon the required constant flow.
- Siemens GDB181.1E actuator is used to modulate the blade position to control the airflow.
- Siemens RDG400 room thermostat is used to measure room temperature and to provide the control circuit with the desired temperature and the actual temperature.

Dimensions and Sizes



Components :

- 1.Round or oval Inlet.
- 2.Volume control Blade.
- 3.Galvanized steel casing.
- 4.Fiber glass.
5. Perforated Sheet.
6. Differential pressure sensor

Components and Diagram

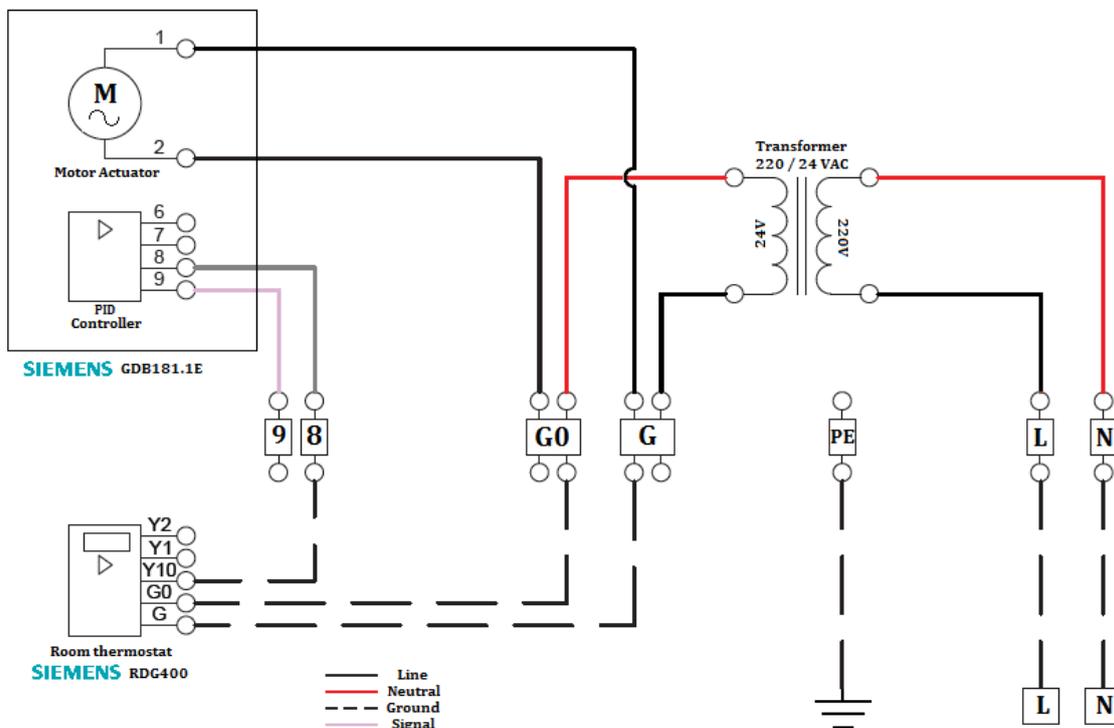
Pressure Independent VAV and the CAV share the same components, the difference is in programming only.

Components :

- Round or oval Inlet.
- Volume control Blade.
- Galvanized steel casing.
- Fiber glass.
- Perforated Sheet.
- Differential Pressure Sensor.
- Plastic pipes.
- Control Box.

Control box components :

- Siemens actuator and Thermostat.
- Primary and Secondary Protection Fuse
- Terminal block.
- Transformer.
- Electric wires.
- Power glands



Pressure Independent VAV & CAV Operation Principle :

The main component of the PI-VAV includes the flow sensor (front holed pressure pipes) which measures the flow that enters the VAV unit, the thermostat (Inside room) that measures the room temperature and sets the set point (desired room temperature by the end-user) and a controller that receives those signals and convert the result of the required blade change position to the actuator that changes the blade position. If the system or the zoon requires more air (the heat exchange is high, more people entered the room or the thermostat has been set to less temperature) the HVAC unit fans will operate faster to fulfil the required amount of air, if the system or the zoon requires less air (the room temperature reached the desired amount, people left the room or the thermostat has been set to higher temperature) the HVAC unit fans will operate slower to reduce the pressure in ducts.

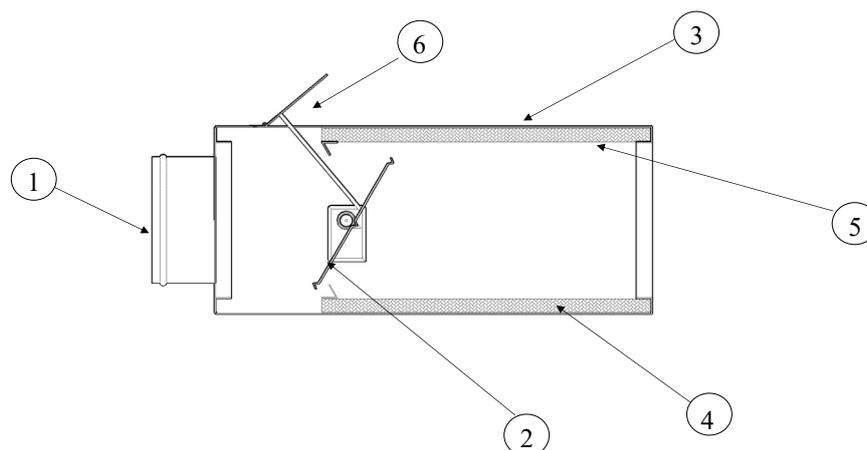
The CAV has the same operation and the only difference is that the amount of air is fixed.

ANA By Pass VAV Model : NVAV-BP



- constructed from galvanized steel sheet **G90**, with a thickness of (**gauge 22**).
- Used in constant speed fan HVAC systems.
- Fiber Glass with a thickness of (**25 mm**) and a density of (**24 Kg/m³**) for noise absorption.
- Perforated sheet to cover the fiberglass and to reduce the airflow turbulence, with a thickness of (**0.8 mm**), (**5 mm**) perforation diameter and a (**3mm**) pitch.
- Heater can be added to the VAV unit upon request.
- Calibration is done in factory to the VAV upon the required flow.
- Siemens GDB161.1E actuator is used to modulate the blade position to control the airflow.
- Siemens RDG400 room thermostat is used to measure room temperature and to provide the control circuit with the desired temperature and the actual temperature.

Components



Components :

- 1.Round or oval Inlet.
- 2.Volume control Blade.
- 3.Galvanized steel casing.
- 4.Fiber glass.
- 5.Perforated Sheet.
- 6.By-Pass opening.

Components and Diagram

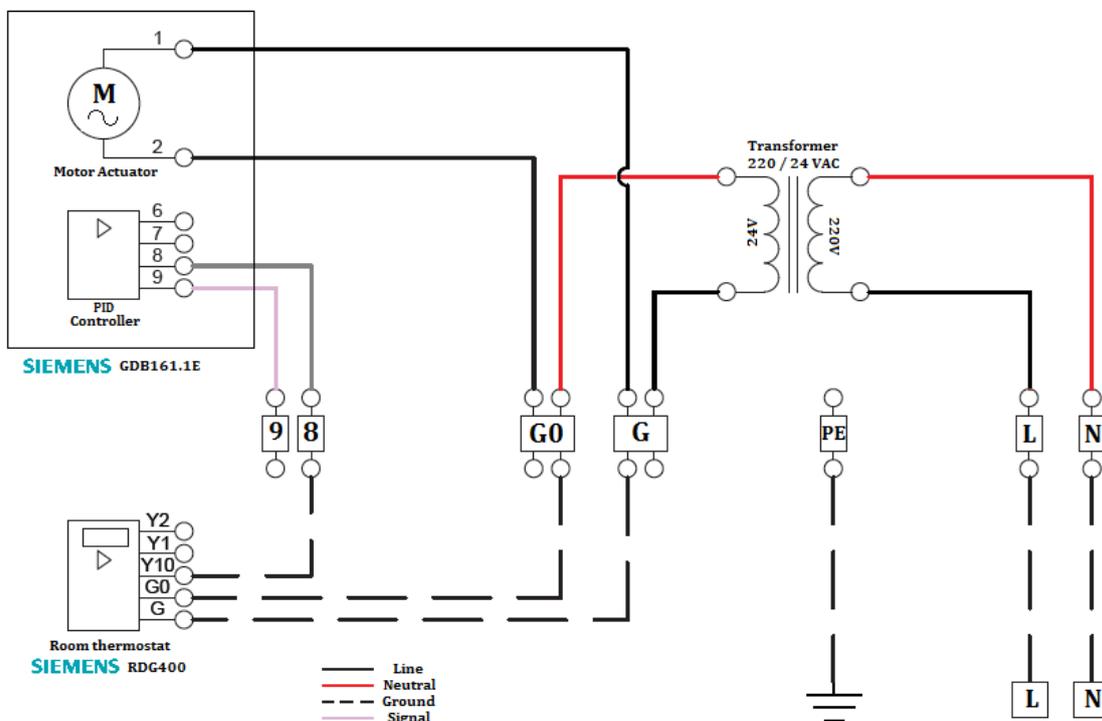
By Pass VAV has different construction than other types of VAV.

Components :

- Round, rectangular or oval Inlet.
- Rectangular outlet.
- By pass outlet.
- Volume control Blade.
- By pass blade.
- Galvanized steel casing.
- Fiber glass.
- Perforated Sheet.
- Control Box.

Control box components :

- Siemens actuator.
- Terminal block.
- Transformer.
- Wires inlet.
- Wires.

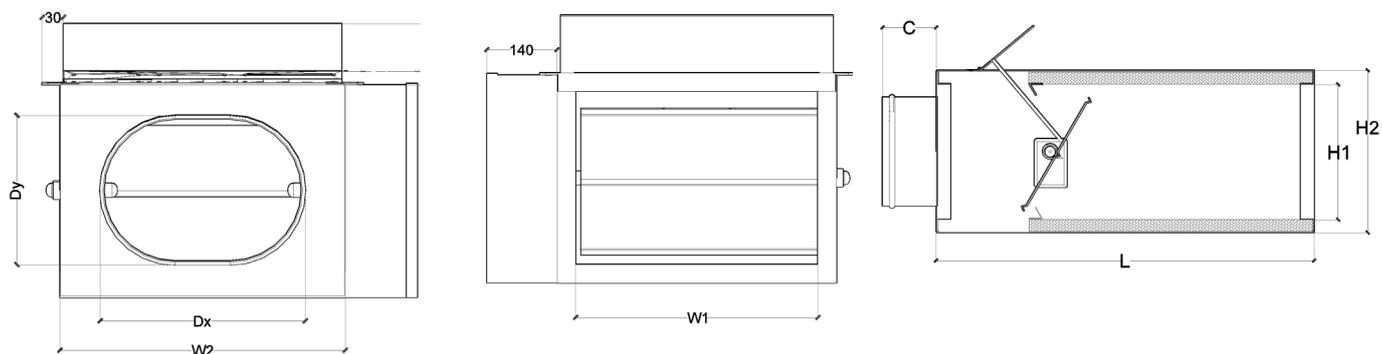


By Pass VAV Operation Principle :

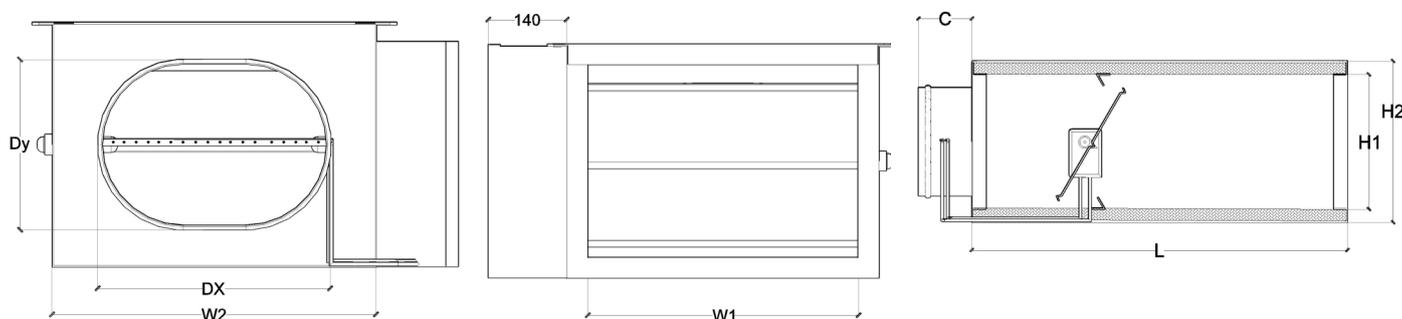
The main component of BP-VAV includes a the thermostat (Inside room) that measures the room temperature and sets the set point (desired room temperature by the end-user) and a controller that receives thermostat signals and convert the result of the required blade change position to the actuator that changes the blade position. If the system or the zoon requires more air (the heat exchange is high, more people entered the room or the thermostat has been set to less temperature) the actuator blades will open in a larger angle to allow more air to flow which in return it closes the by-pass blade with the same angle of the opening, if the system or the zoon requires less air (the room temperature reached the desired amount, people left the room or the thermostat has been set to higher temperature) the actuator will close the blade to reduce the amount of air entering the room which in return will cause the by-pass blade to open in the same angle allowing the air to pass through the return duct or to exhaust outside the whole system.

VARIABLE AIR VOLUME

ANA VAV Dimensions



NVAV-BP



NVAV-PI & CAV

Nominal Size D		Inlet Shape	D _x (mm)	D _y (mm)	C (mm)	W ₁ (mm)	H ₁ (mm)	W ₂ (mm)	H ₂ (mm)	L (mm)
125 mm	5 inch	Round	127	127	150	250	200	300	250	600
150 mm	6 inch	Round	152	152	150	250	200	300	250	600
175 mm	7 inch	Round	178	178	150	250	250	300	300	700
200 mm	8 inch	Round	203	203	150	250	250	300	300	700
225 mm	9 inch	Flat Oval	240	203	150	300	250	350	300	700
250 mm	10 inch	Flat Oval	280	203	150	350	250	400	300	700
300 mm	12 inch	Flat Oval	360	203	150	450	250	500	300	700
350 mm	14 inch	Flat Oval	410	258	150	500	300	550	350	800
400 mm	16 inch	Flat Oval	490	258	150	600	300	650	350	800
450 mm	18 inch	Flat Oval	540	305	200	650	350	700	400	900
500 mm	20 inch	Flat Oval	620	305	200	800	350	850	400	900
550 mm	22 inch	Flat Oval	670	356	200	800	400	850	450	1000
600 mm	24 inch	Flat Oval	750	356	200	950	400	1000	450	1000

* Min.Control box length is 350mm

ANA VAV Performance Data - Quick Selection Table

Nominal Size D		Outlet Size (mm x mm) (W ₁ x H ₁)	Air Flow Rate		Differential Pressure (Pa)		
			l/s	CFM	Static	Dynamic	Total
125 mm	5 inch	250 x 200	30	65	20	3	23
			60	125	20	6	26
			120	255	35	24	59
150 mm	6 inch	250 x 200	45	95	20	3	23
			100	210	20	17	37
			190	405	30	61	91
175 mm	7 inch	250 x 250	60	125	20	3	23
			130	275	20	15	35
			260	550	35	60	95
200 mm	8 inch	250 x 250	80	170	20	3	23
			170	360	20	13	33
			330	700	20	50	70
225 mm	9 inch	300 x 250	105	220	20	3	23
			220	465	20	12	32
			425	900	30	44	74
250 mm	10 inch	350 x 250	130	275	20	3	23
			260	550	20	10	30
			520	1100	30	40	70
300 mm	12 inch	450 x 250	185	390	20	2	22
			390	825	20	11	31
			775	1640	25	42	67
350 mm	14 inch	500 x 300	255	540	20	2	22
			500	1060	20	9	29
			990	2100	20	34	54
400 mm	16 inch	600 x 300	320	680	20	2	22
			670	1420	20	9	29
			1330	2820	20	36	56
450 mm	18 inch	650 x 350	415	880	20	2	22
			830	1760	20	8	28
			1650	3495	20	32	52
500 mm	20 inch	800 x 350	530	1125	20	2	22
			1050	2225	20	7	27
			2100	4450	20	29	49
550 mm	22 inch	800 x 400	610	1295	20	2	22
			1250	2650	20	8	28
			2500	5295	20	31	51
600 mm	24 inch	950 x 400	745	1580	20	2	22
			1500	3180	20	7	27
			3000	6355	20	28	48

VARIABLE AIR VOLUME



ANA VAV Performance Data

Nominal Size D	Air Flow Rate		Discharge Sound Power Level (dB) at ΔPst=100Pa								Discharge Sound Power Level (dB) at ΔPst=200Pa								Discharge Sound Power Level (dB) at ΔPst=500Pa								
	l/s	CFM	125	250	500	1000	2000	4000	dB(A)	NC	125	250	500	1000	2000	4000	dB(A)	NC	125	250	500	1000	2000	4000	dB(A)	NC	
125 mm	5 inch	30	65	45	31	27	16	19	15	6	<20	39	38	35	24	27	25	2	<20	48	47	45	34	37	34	11	<20
		60	125	50	36	32	21	24	20	11	<20	44	43	40	29	32	30	7	<20	53	52	50	39	42	39	16	<20
		120	255	55	46	45	26	26	22	17	<20	56	53	48	34	34	32	19	<20	65	62	58	44	44	41	28	21
150 mm	6 inch	45	95	47	33	35	19	21	17	8	<20	41	40	37	27	29	27	4	<20	50	49	47	37	39	36	13	<20
		100	210	50	37	40	22	24	20	11	<20	46	44	40	30	32	30	9	<20	55	53	50	40	42	39	18	<20
		190	405	55	53	47	33	31	24	18	<20	63	60	55	41	39	34	26	<20	72	69	65	51	49	43	35	30
175 mm	7 inch	60	125	43	34	30	21	23	18	5	<20	42	41	38	29	31	28	6	<20	51	50	48	39	41	37	15	<20
		130	275	48	38	47	33	31	24	10	<20	46	45	58	45	41	37	13	<20	55	54	73	60	54	48	27	<20
		260	550	51	40	48	34	32	31	13	<20	48	47	59	46	42	47	15	<20	57	56	74	61	55	60	28	<20
200 mm	8 inch	80	170	51	34	31	21	23	18	12	<20	42	41	39	29	31	28	6	<20	51	50	49	39	41	37	15	<20
		170	360	53	45	51	38	36	35	15	<20	43	54	64	52	48	53	20	<20	52	65	80	69	63	69	34	<20
		330	700	60	54	56	40	38	36	22	<20	48	64	70	54	50	54	27	<20	58	77	87	71	65	70	42	29
225 mm	9 inch	105	220	51	34	35	25	26	21	12	<20	44	43	41	33	34	31	8	<20	53	52	51	43	44	40	17	<20
		220	465	52	45	52	40	38	35	14	<20	44	57	61	52	49	51	20	<20	53	68	75	67	63	65	32	<20
		425	900	59	51	57	45	42	39	21	<20	49	64	66	58	54	56	26	<20	59	70	81	74	69	71	36	22
250 mm	10 inch	130	275	51	36	32	25	26	21	12	<20	44	43	40	33	34	31	8	<20	53	52	50	43	44	40	17	<20
		260	550	53	45	54	45	44	42	15	<20	45	53	67	59	57	62	23	<20	54	64	83	77	73	80	39	20
		520	1100	58	52	56	50	47	43	20	<20	49	61	69	65	60	63	26	<20	58	73	85	84	76	81	41	26
300 mm	12 inch	185	390	53	39	34	27	28	23	14	<20	49	46	42	35	36	33	12	<20	58	55	52	45	46	42	21	<20
		390	825	58	49	50	42	40	38	20	<20	54	57	61	54	51	54	21	<20	63	68	75	69	65	68	33	21
		775	1640	61	57	52	50	50	49	24	<20	56	66	63	64	63	69	29	<20	65	78	77	81	80	86	43	30
350 mm	14 inch	255	540	51	53	35	28	29	24	16	<20	51	48	43	36	37	34	14	<20	60	57	53	46	47	43	23	<20
		500	1060	58	59	50	40	40	39	23	<20	58	52	61	51	51	54	21	<20	68	61	75	65	64	68	33	25
		990	2100	63	66	54	50	48	45	29	20	63	58	65	63	61	62	27	<20	73	68	79	80	76	78	38	31
400 mm	16 inch	320	680	51	52	35	29	30	25	16	<20	55	50	43	37	38	35	17	<20	64	59	53	47	48	44	26	20
		670	1420	58	57	50	42	41	39	22	<20	62	54	61	53	51	54	24	<20	72	63	75	67	64	67	35	30
		1330	2820	64	65	60	51	50	46	29	21	68	61	73	64	62	63	32	25	78	71	76	69	65	68	40	37
450 mm	18 inch	415	880	53	53	34	36	33	29	17	<20	57	50	42	44	41	39	19	<20	66	59	52	54	51	48	28	22
		830	1760	58	59	53	43	42	41	23	<20	62	56	65	52	52	55	25	<20	71	66	74	65	64	63	34	29
		1650	3495	67	65	61	53	51	50	30	24	71	61	74	64	63	67	34	28	72	67	74	65	65	62	35	30
500 mm	20 inch	530	1125	56	53	35	36	33	29	19	<20	59	51	43	44	41	39	21	<20	68	60	53	54	51	48	30	25
		1050	2225	64	60	51	46	45	44	26	20	67	57	62	56	55	59	29	23	77	67	76	68	68	72	39	36
		2100	4450	71	68	61	55	53	52	34	29	74	64	74	66	64	69	36	32	79	75	80	80	79	84	44	38
550 mm	22 inch	610	1295	63	56	36	38	36	30	25	<20	61	52	44	46	44	40	22	<20	70	61	54	56	54	49	31	27
		1250	2650	66	62	51	46	45	45	28	22	63	57	62	55	54	59	26	<20	72	66	76	66	66	72	36	30
		2500	5295	76	69	62	56	54	53	38	34	72	63	75	66	64	69	35	30	82	72	91	79	78	84	47	42
600 mm	24 inch	745	1580	64	59	37	38	36	30	26	20	62	53	45	46	44	40	23	<20	71	62	55	56	54	49	32	28
		1500	3180	68	64	59	45	43	42	31	25	65	57	71	54	52	55	29	21	74	66	86	65	63	67	41	33
		3000	6355	75	71	68	56	53	52	38	33	71	63	81	67	64	68	37	29	80	72	98	80	77	82	52	41

