

VDCS

VAPING DEVICE CLASSIFICATION SYSTEM

Table of Contents

Background.....	4
Introduction.....	5
1. Overall Device Attributes (Group 1).....	13
1.1 Category (Symbol 1-1).....	13
1.1.1 Vaporizers / Evaporators (Es).....	14
1.1.2 Power Supply (Ps) Assemblies	15
1.1.3 Conventional-Look Devices (CLs).....	15
1.1.4 Advanced Personal Vaporizers (APVs)	15
1.1.5 E-Hookahs (EHs)	16
1.1.6 Herbal, Wax and Oil Vaporizers (HWOVs)	17
1.2 Architecture (Symbol 1-2)	18
1.2.1 Architecture of Vaporizers (Es)	19
1.2.2 Architecture of Power Supplies (Ps).....	20
1.2.3 Architecture of CLs, APVs, EHs and HWOVs	21
1.3 Summary	22
2. Vaporizer Attributes of Cig-a-likes (CLs), Advanced Personal Vaporizers (APVs), E-Hookahs (EHs) and Herbal Vaporizers (HWOVs) (Group 2).....	23
2.1 Tank Type of CLs, APVs and EHs and Vaporizer and Filling Types for HWOVs (Symbol 2-1)	23
2.1.1 Tank Type of CLs, APVs and EHs	24
2.1.2 Vaporizer and Filling Types of HWOVs	26
2.2 Performance (Symbol 2-2)	27
2.2.1 Performance of APVs and EHs	28
2.2.2 Performance of CLs and HWOVs	29
2.3 Controls (Symbol 2-3)	29
2.3.1 Controls of APVs and EHs	30
2.3.2 Controls of HWOVs.....	31
2.4 Coil Configuration and Heater Type (Symbol 2-4)	32

2.4.1 Coil Configuration of CLs, APVs and EHs	32
2.4.2 Heater Type of HWOVs	33
2.5 Summary	34
3. Power Supply Attributes of Cig-a-likes (CLs), Advanced Personal Vaporizers (APVs), E-Hookahs (EHs) and Herbal Vaporizers (HWOVs) (Group 3).....	35
3.1 Power Supply Configuration (Symbol 3-1).....	35
3.1.1 Power Supply Configuration of CLs	36
3.1.2 Power Supply Configuration of APVs and EHs	36
3.1.3 Power Supply Configuration of HWOVs	37
3.2 Charging Features (Symbol 3-2)	38
3.2.1 Charging Features of CLs and HWOVs	38
3.2.2 Charging Features of APVs and EHs	39
3.3 Shape (Symbol 3-3)	40
3.4 Display (Symbol 3-4).....	42
3.5 Power Feed Features (Symbol 3-5)	42
3.5.1 Power Feed Features of CLs	43
3.5.2 Power Feed Features of APVs	44
3.5.3 Power Feed Features of HWOVs	45
3.6 Summary	46
4. Classifier Application Examples	47
4.1 Code B1/A1X1-A1AXA (Non-refillable single-piece CL)	47
4.2 Code M6/D1A4-B1C1P (Refillable APV with non-serviceable coil).....	47
4.3 Code H1/C6A2-F3I1N (Non-refillable EH with non-serviceable coil).....	48
4.4 Code V1/N2A1-A2G1N (Herbal vaporizer)	48
4.5 Code G7/G4H2-XXXXX (Vaporizer with a serviceable coil)	49
4.6 Code P5/XXXX-E4H2Q (Power supply)	49

Background

Rapid advancement of electronic vaping devices witnessed in the early 2010s brought about the creation of multiple new concepts and ideas and an incredible variety of devices featuring hitherto unimaginable shapes, sizes or purposes. The market became saturated with torrential flow of novelties and technical rollouts. Many of the innovations soon became an integral part of the mainstream, while some others proved to be a developmental dead end and were soon archived as history.

This explosive development continued for a while and after several years of the rigorous engineering activity, underpinned by the ever increasing interest from the users, neither the developers themselves, nor the most sophisticated of the users could confidently indicate what type of device a specific model could be referred to. The confusion was further exacerbated by the regional differences in the identifiers / names of assemblies, parts or even entire articles.

The variety of gadgets existing on today's market gives a customer freedom of finding what suits one best. On the other hand, such a great number of choices can be overwhelming. This report provides a clear and comprehensive structure of vaping device types and classes, their definitions and descriptions presented as a unified classification system. It is designed to help the industry participants to improve understanding of the differences existing among the vaping device models and to make the end user's product choice easier.

The scope of this document encompasses devices currently manufactured worldwide. The unified classification system shown below is expandable and designed so as to incorporate both specific existing units as well as devices to be developed and manufactured in the future.

VISUALIZATION

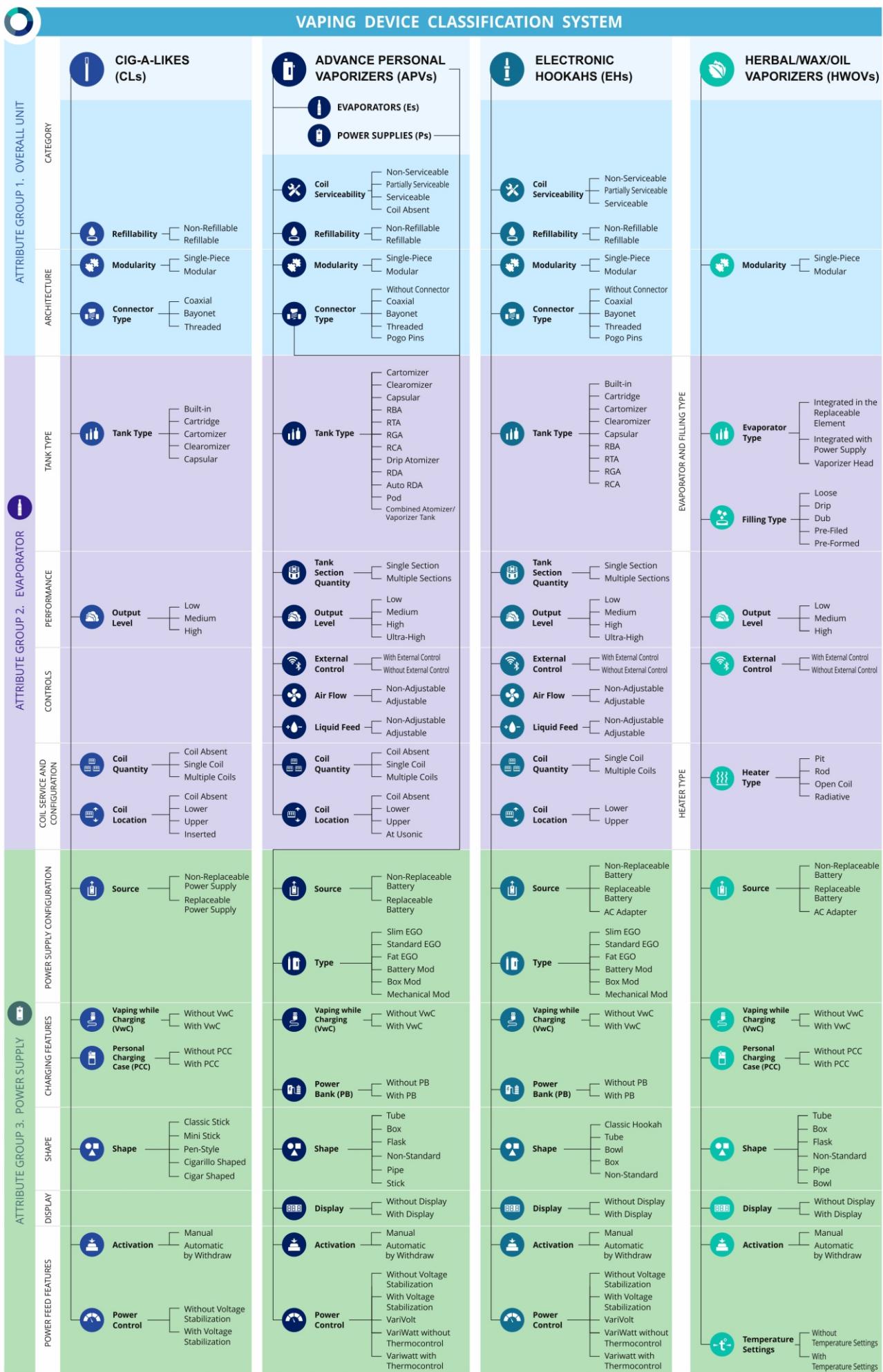


Figure 1

Introduction

The Vaping Device Classification System encompasses **four** classes of devices including three electronic nicotine delivery systems (ENDS):

- conventional-look devices (**CLs**); hereinafter, cig-a-likes;
- advance personal vaporizers (**APVs**), mods falling under this category;
- electronic hookahs (**EHs**); and
- herbal / wax / oil vaporizers (**HWOVs**).

Each device consists of **two** major components:

- an vaporizer (**E**); and
- power supply (**P**)

attached to each other by a connector. The vaporizer includes an atomizer (a unit for liquid vaporization and atomization), a tank, air ducts, wires, controls and a mouthpiece. The power supply assembly includes one or more batteries, displays, wires and controls. Each connector has two interfaces, one mated to a vaporizer and the other to the power supply.

Overall view of our classification system is shown in Figure 1 where the **four vaping device classes** are depicted along each other.

Our classification system is based on a set of attributes defined for each unit. Each attribute has its individual pictogram and serves as a connecting link between a unit and its options. For example, 'Refillability,' which is the first attribute for CLs (shown on the left in Figure 1), has two options: Refillable and Non-Refillable.

Selecting an option for each attribute, a user can uniquely define a unit. As each device (with the exception of vaporizer heads) consists of an vaporizer and a power supply integrated into a single structure, attributes selected for each device class can be broken down into three groups of attributes defined for the overall device, its vaporizer and its power supply. These groups are highlighted in blue, purple and green respectively in Figure 1. The opposite is true also: by assigning an option to each attribute of each major component, we uniquely define a device built of these components as a combined set of vaporizer and power supply options defines the entire device. The latter fact allows us to apply the same classification procedure to each unit category: vaporizers (**Es**), power supplies (**Ps**), CLs, APVs, EHs and HWOVs.

The entire system is presented in Figure 1 above in four columns. Each of these columns can be used individually for description of the vaporizer and the power supply assembly of the relevant vaping device. Therefore, the classification system shown in Figure 1 includes **four vaping device classes**. In addition, individual pictograms are assigned to **two major components** of APVs (vaporizer and power supply). Term '**unit**' is used below as a general term encompassing both classes of vaping devices and their major components.

Our ultimate task is to use a set of options selected for all attributes as an input for assigning a multi-symbol alphanumeric code to each unit. This code uniquely defines a specific option for each attribute of each unit category. The most straightforward approach to developing such a code would be to assign an individual symbol to each attribute. However, this approach would lead to an unacceptably long code. Our classification system includes 5, 9 and 9 attributes for overall units, vaporizers and power supplies, respectively. Therefore, a combined vaping device code based on the "one attribute – one symbol" concept would be 23-symbol long and impractically cumbersome.

We overcome this obstacle by merging several attributes into a single symbol of our coding system as shown in Table 1 for vaping devices and APV major components (vaporizers (Es) and power supplies (Ps)). This allows us to cut a number of symbols used in our system to **eleven**.

In our alphanumeric classification system, the first group of **two** symbols defines overall unit attributes (a unit category (i.e., vaping device class, vaporizer, or power supply), coil serviceability, refillability, and modularity and connector type, if any). Technically, coil serviceability and refillability are characteristics of a vaporizer rather than the overall vaping device. However, since these attribute are primary characteristics that determine the entire design of a vaping device, we include them in this group.

Since our classification system supports coding of APVs and their major components (vaporizers or power supplies), it is indicated in the APV column of Table 1, if any specific parameter of Group 1 is applicable to APV, E or P. Specifically, coil serviceability, refillability and modularity are applicable to APVs and Es only while connector type is applicable to APVs, Es and Ps. A special notice should be given to the modularity parameter that is formulated similarly for APVs and Es, but it means modularity of APV or E, respectively. This is explained in more details in Section 1.2.

The second group of not more than **four** symbols (specifically, **three** for CLs, or **four** for APVs, EHs, or HWOVs) defines vaporizer attributes and the third and last group of not more than **five** symbols (specifically, **four** for CLs, or **five** for APVs, EHs or HWOVs) defines power attributes. A unique code assigned to each unit includes not

more than eleven symbols (specifically, **nine** for CLs, **eleven** for APVs, EHs or HWOVs) and completely defines a set of options selected for each attribute of the said unit.

Coding for any given vaporizer should begin with Group 1 symbols and, then, continued with Group 2 symbols. Coding for any given power supply should begin with Group 1 symbols and then continue with Group 3 symbols. Coding for any given vaping device should begin with Group 1 symbols and then continue with Group 2 and Group 3 symbols.

In order to bring each code to the 11-symbol format, inapplicable options (symbol 3 of Group 2 and symbol 4 of Group 2 for CLs; all five Group 3 symbols for Es; and all four Group 2 symbols for Ps) are indicated as “X,” and this symbol is not used anywhere else in our coding system.

In the first column of Table 1, a two-digit numeric designation is given to each individual symbol. The first digit represents a number of the group that the symbol falls under and the second digit represents a consecutive number of the symbol within each group. Both digits are divided by a hyphen. Numbering of sections in this report corresponds to this two-digit numeric designation.

The following sections contain a detailed description of our classification system. Each description can serve as a reference guide and help the end users in choosing the options which suit best their individual needs.

**Table 1. Merging Attributes into Individual Symbols of our Classification System
for Vaping Devices and Their Major Components (Es and Ps)**

Vaping Devices and Their Major Components										
Attribute Group 1. Overall Unit										
Symbols		Attributes								
No.	Name	Icon	Options	Icon	Options	Icon	Options	Icon	Options	Icon
1-1	Category		Cig-a-Likes (CLs)		Advance personal vaporizers (APVs) and their major components: vaporizers (Es) and power supplies (Ps)		Electronic hookahs (EHs)		Herbal vaporizers (HWOVs)	
		Icon	Attribute	Options	Icon	Attribute	Options	Icon	Attribute	Options
					Coil Serviceability (for APVs and Es)		Non-Serviceable Partially Serviceable Serviceable		Coil Serviceability	
			Refillability	Non-Refillable Refillable		Refillability (for APVs and Es)	Non-Refillable Refillable		Refillability	
1-2	Architecture		Modularity	Single-Piece Modular		Modularity (for APVs and Es)	Single-Piece Modular		Modularity	
			Connector Type	Without Connector Coaxial Bayonet Threaded Pogo Pins		Connector Type (for APVs , Es and Ps)	Without Connector Coaxial Bayonet Threaded Pogo Pins		Connector Type	



Attribute Group 2. Vaporizer

Symbols		Attributes											
No.	Name	Icon	Attribute	Options	Icon	Attribute	Options	Icon	Attribute	Options	Icon	Attribute	Options
2-1	Tank/ Vaporizer Type		Tank Type	Built-in Cartridge Cartomizer Clearomizer Capsular		Tank Type	Cartomizer Clearomizer Capsular RBA RTA RGA RCA Drip Atomizer RDA Auto RDA Combined Atomizer/ Vaporizer Tank Pre-filled POD		Tank Type	Cartomizer Clearomizer Capsular RBA RTA RGA RCA		Vaporizer Type	Integrated Power Supply Vaporizer head Integrated in replaceable element
	Filling Type											Filling Type	Loose Pre-Formed Dab Drip Cartridge Pre-filled POD Pre-filled Capsule
2-2	Performance				Tank Section Quantity	Single Section Multiple Sections		Tank Section Quantity	Single Section Multiple Sections				
			Output Level	Low Medium High		Output Level	Low Medium High Ultra-High		Output Level	Low Medium High Ultra-High		Output Level	Low Medium High
2-3	Controls					External Control	With External Control Without External		External Control	With External Control Without External		External Control	With External Control Without External

						Control			Control			Control
					Air Flow	Non-Adjustable Adjustable		Air Flow	Non-Adjustable Adjustable			
					Liquid Feed	Non-Adjustable Adjustable		Liquid Feed	Non-Adjustable Adjustable			
2-4	Coil Configuration		Coil Quantity	Single Coil Multiple Coils Coil Absent (U-sonic device)		Coil Quantity	Single Coil Multiple Coils Coil Absent (U-sonic device)		Coil Quantity	Single Coil Multiple Coils		Heater Type
			Coil Location	Lower Upper Inserted Coil absent (U-sonic device)		Coil Location	Lower Upper Coil Absent (U-sonic device) At U-sonic Membrane		Coil Location	Lower Upper		



Attribute Group 3. Power Supply

Symbols		Attributes											
No.	Name	Icon	Attribute	Options	Icon	Attribute	Options	Icon	Attribute	Options	Icon	Attribute	Options
3-1	Power Supply Configuration		Source	Non-Replaceable Power Supply		Source	Non-Replaceable Battery Replaceable Battery		Source	Non-Replaceable Battery Replaceable Battery AC Adapter		Source	Non-Replaceable Power Supply Replaceable Power Supply AC Adapter
						Type	Slim EGO Standard EGO Fat EGO Battery Mod Box Mod Mechanical Mod		Type	Slim EGO Standard EGO Fat EGO Battery Mod Box Mod Mechanical Mod			
3-2	Charging Features		Vaping while Charging (VwC)	Without VwC With VwC		Vaping while Charging (VwC)	Without VwC With VwC		Vaping while Charging (VwC)	Without VwC With VwC		Vaping while Charging (VwC)	Without VwC With VwC

			Personal Charging Case (PCC)	Without PCC With PCC							Personal Charging Case (PCC)	Without PCC With PCC
						Power Bank (PB)	Without PB With PB		Power Bank (PB)	Without PB With PB		
3-3	Shape		Shape	Classic Stick Mini Stick Pen-Style Cigarillo Shaped Cigar Shaped		Shape	Tube Box Flask Non-Standard Pipe Stick		Shape	Tube Box Flask Non-Standard Pipe		Tube Bowl Box Flask Non-Standard Pipe
3-4	Display					Display	Without Display With Display		Display	Without Display With Display		Display Without Display With Display
3-5	Power Feed Features		Activation	Manual Automatic by Inhalation		Activation	Manual Automatic by Inhalation		Activation	Manual Automatic by Inhalation		Activation Manual Automatic by Inhalation
			Power Control	Without Voltage Stabilization With Voltage Stabilization		Power Control	Without Voltage Stabilization With Voltage Stabilization VariVolt VariWatt without Thermocontrol VariWatt with Thermocontrol		Power Control	Without Voltage Stabilization With Voltage Stabilization VariVolt VariWatt without Thermocontrol VariWatt with Thermocontrol		Temperature Settings Without Temperature Settings With Temperature Settings

1 *Overall Device Attributes (Group 1)*

1.1 Category (Symbol 1-1)

In our classification system, power supply is assigned an individual category (P) without breakdown into smaller subtypes while the vaporizer or the vaping device category is determined as a combination of unit type (vaporizer, CL, APV, EH or HWOV) and subtype (refillability for vaporizers, CLs, APVs and EHs; and coil serviceability for vaporizers, APVs and EHs). As discussed in Introduction, both coil serviceability and refillability are characteristics of vaporizers; however, they are included into the overall device attribute category since they are primary factors that determine the entire vaping device design.

The only serviceable part of a serviceable unit is a coil-and-wick assembly and a serviceable unit is a unit with serviceable coil(s). Term “serviceable unit” is used sometimes hereinafter for brevity as a short description of a unit with serviceable coil(s).

Both disposable units and units with disposable cartridges are classified as non-refillable, while all partially serviceable and serviceable units are refillable. Therefore, only four combinations of serviceability and refillability (non-serviceable non-refillable, non-serviceable refillable, partially serviceable (always refillable) and serviceable (always refillable)) are possible for vaporizers, APVs and EHs. All CLs are non-serviceable and all HWOVs are non-serviceable and refillable.

Based on these comments, we introduce three subtypes for vaporizers, 2 subtypes for CLs and 4 subtypes for vaporizers, APVs and EHs. This symbol includes no further breakdown of HWOVs or power supplies into subcategories.

Therefore, ‘Category’ is designated with the following 16 alphabetic options under the first symbol of the Overall Device Attribute group:

- B – Cig-a-like, non-refillable
- C – Cig-a-like, refillable
- D – Vaporizer, with non-serviceable coil(s), non-refillable
- E – Vaporizer, with non-serviceable coil(s), refillable
- F – Vaporizer, with partially serviceable coil(s)
- G – Vaporizer, with serviceable coil(s)
- H – E-hookah, with non-serviceable coil(s), non-refillable
- I – E-hookah, with non-serviceable coil(s), refillable
- J – E-hookah, with partially serviceable coil(s)
- K – E-hookah, with serviceable coil(s)
- L – APV, with non-serviceable coil(s), non-refillable
- M – APV, with non-serviceable coil(s), refillable
- N – APV, with partially serviceable coil(s)
- O – APV, with serviceable coil(s)
- U – APV, without Coil(s), Refillable (Instead of a classical coil, an ultrasonic membrane is used)
- T – APV, with Coil at U-sonic Membrane, Refillable

P – Power supply

V – Herbal vaporizer

W- Wax and Oil vaporizers

Nine alphabetic options (A, Q, R, S, Y and Z) are reserved for any future expansions of our classification system.

As shown in the introduction, “X” is reserved for coding the ‘Inapplicable’ option. This option cannot be used for symbol 1-1 as any device should fall under one or another category. However, we are not going to use “X” in the future for future expansion of the option list for symbol 1-1, because this option is solely allocated for coding the ‘Inapplicable’ option for other symbols.

Description of individual code options is provided below.

1.1.1 Evaporators / Vaporizers (Es)

The *Evaporator* category includes units designed to convert e-liquid into vapor.

D – Vaporizers, with Non-Serviceable Coil(s), Non-Refillable

These devices do not allow for service of their coil(s) or tank refill with e-liquid. When the tank pre-filled by the manufacturer is spent, it can either be replaced, or the entire vaporizer should be disposed of.

E – Vaporizers, with Non-Serviceable Coil(s), Refillable

These devices do not allow for service of their coil(s) and allow for tank refill with e-liquid.

F – Vaporizers, with Partially Serviceable Coil(s) (always Refillable)

When a coil element of this unit loses its functionality after expiration of its service life, a unit atomizer can be replaced and unit service may continue. These devices allow for tank refill with e-liquid.

G – Vaporizers, with Serviceable Coil(s) (always Refillable)

These devices allow both for service of its coil(s) and/or tank refill with e-liquid.

1.1.2 Power Supply (Ps) Assemblies

P - Power Supplies

The *Power Supply* category includes modules designed to supply electric power to vaporizers. A vaping device can be powered by a variety of power supplies. For example, the most common APVs involve the use of 3.7 V rechargeable lithium batteries, which deliver a noticeably higher voltage than that found in a typical cig-a-like battery. It is also possible to use multiple batteries and controls to increase voltage even higher. These multiple batteries are usually connected to a push button switch that controls power delivery to the connector that a vaporizer is joined to.

1.1.3 Conventional-Look Devices (CLs)

Conventional-look ENDS (cig-a-likes) are devices that, in their appearance, resemble conventional tobacco products such as cigarettes, cigars, cigarillos and/or little cigars.

B - Conventional-Look Devices (CLs), Non-Refillable

These devices do not allow for tank refill with e-liquid. When the tank pre-filled by the manufacturer is spent, it can either be replaced, or the entire CL should be disposed of.

C - Conventional-Look Devices (CLs), Refillable

These devices allow for tank refill with e-liquid.

1.1.4 Advance Personal Vaporizers (APVs)

APVs are the devices that combine a vaporizer and a power supply assembly within a single housing and do not resemble, in their appearance, conventional tobacco products such as cigarettes, cigars, cigarillos and/or little cigars.

L - Advance Personal Vaporizers (APVs), with Non-Serviceable Coil(s), Non-Refillable

These devices do not allow for service of their coil(s) and do not allow for tank refill with e-liquid. When the tank pre-filled by the manufacturer is spent, it can either be replaced or the entire unit should be disposed of.

M - Advance Personal Vaporizers (APVs), with Non-Serviceable Coil(s), Refillable

These devices do not allow for service of their coil(s) and allow for tank refill with e-liquid.

N - Advance Personal Vaporizers (APVs) with Partially Serviceable Coil(s) (always Refillable)

When a coil element of this unit loses its functionality after expiration of its service life, a unit atomizer can be replaced and unit service can continue. These devices allow for tank refill with e-liquid.

O - Advance Personal Vaporizers (APVs), with Serviceable Coil(s) (always Refillable)

These devices allow both for service of their coil(s) and/or tank refill with e-liquid.

U - Advance Personal Vaporizers (APVs), without Coil(s), Refillable

This option includes devices that do not have a classic coil or a wick. As a vapor generator, an ultrasonic membrane is used that converts the liquid into an aerosol. These devices allow for tank refill with liquid.

T - Advance Personal Vaporizers (APVs), with Non-Serviceable Coil at U-sonic Membrane, Refillable

This option includes devices that do not have a classic coil or a wick. As a vapor generator, an ultrasonic membrane is used that converts the liquid into an aerosol. To spray a viscous liquid with an ultrasonic membrane, it is heated by means of a coil. The coil is not serviceable. These devices allow for filling the reservoir with e-liquid.

1.1.5 E-Hookahs (EHs)

E-Hookahs are devices that resemble, in their function, conventional hookahs.

H - E-Hookahs (EHs), with Non-Serviceable Coil(s), Non-Refillable

These devices do not allow for service of their coil(s) or tank refill with e-liquid. When the tank pre-filled by the manufacturer is spent, it can either be replaced or the entire EH should be disposed of.

I - E-Hookahs (EHs), with Non-Serviceable Coil(s), Refillable

These devices do not allow for service of their coil(s) and allow for tank refill with e-liquid.

J - E-Hookahs (EHs), with Partially Serviceable Coil(s) (always Refillable)

When a coil element of this unit loses its functionality after expiration of its service life, unit atomizer can be replaced and unit service can continue. These devices allow for tank refill with e-liquid.

K - E-Hookahs (EHs), with Serviceable Coil(s) (always Refillable)

These devices allow both for service of their coil(s) and/or tank refill with e-liquid.

1.1.6 Herbal, Wax and Oil Vaporizers (HWOVs)

V - Herbal Vaporizers

This code is assigned to Herbal vaporizers of various types. A Herbal Vaporizer is a device designed for vaping a dry herbal or floral blend. Various mechanisms of heat transfer (thermal conductivity, convection or thermal radiation) are used in herbal vaporizers to heat herbal or floral blends.

W - Wax and Oil Vaporizers

This code is assigned to Oil and Wax vaporizers of various types. This is a device designed for vaping a wax or oil blend. Various mechanisms of heat transfer (thermal conductivity, convection or thermal radiation) are used in the wax vaporizers to heat wax and oils blends.

1.2 Architecture (Symbol 1-2)

We define architecture as a combination of device modularity (single-piece or modular) for vaporizers and all the four vaping device classes (CLs, APVs, EHs and HWOVs) and a type of connector between the unit vaporizer and power supply for vaporizers, power supplies, CLs, APVs and EHs. It is designated with ten numeric options assigned to the second symbol of the Overall Device Attribute group.

The meaning of the “Single-Piece” and “Modular” terms is different for vaporizers and each class of the vaping devices. Specifically, when this option is selected for a vaporizer, it means that this vaporizer is built as a single-piece unit. When the same option is selected for a vaping device, it means that this vaping device is built as a single-piece unit. For example, a refillable single-piece vaporizer with non-serviceable coil and a coaxial connector of subcategory E2 can be used as a major component of a refillable modular single-piece APV with non-serviceable coil and a coaxial connector of subcategory M5.

Since the coding system is different for different major components and vaping device classes, we begin code description with listing codes for each device category:

Es

- 1 – Single-Piece, Without Connector
- 2 – Single-Piece, with Coaxial Connector
- 3 – Single-Piece, with Bayonet Connector
- 4 – Single-Piece, with Threaded Connector
- 5 – Modular, with Coaxial Connector
- 6 – Modular, with Bayonet Connector
- 7 – Modular, with Threaded Connector
- 8 – Modular with contact pads for Pogo Pin Connector

Ps

- 1 – Single-Piece, Without Connector
- 5 – With Coaxial Connector
- 6 – With Bayonet Connector
- 7 – With Threaded Connector
- 8 – Modular with Pogo Pin Connector

CLs, APVs, EHs and HWOVs

- 1 – Single-Piece, Without Connector
- 5 – Modular, with Coaxial Connector
- 6 – Modular, with Bayonet Connector
- 7 – Modular, with Threaded Connector
- 8 – Modular with Pogo Pins Connector and Contact Pads

Options (0 and 9) are reserved for any future expansions of our classification system.

Description of individual code options is provided below.

1.2.1 Architecture of Evaporators (Es)

1 - Single-Piece without Connector

A *single-piece vaporizer without connector* is built of components that cannot be separated from each other, removed or replaced. It is integrated with a power supply into a vaping device that cannot be disassembled.

2 - Single-Piece with Coaxial Connector

A *single-piece vaporizer with a coaxial connector* is built of components that cannot be separated from each other, removed or replaced. Its *coaxial connector* can be integrated with a mating power supply connector by inserting the circular outer rim of the former into the receptacle of the latter. This connector includes two electric contacts: one located at the outer rim and the other centered inside it. The central contact is insulated from the outer one. Fastening of the vaporizer to the power supply is secured with magnets.

3 - Single-Piece with Bayonet Connector

A *single-piece vaporizer with a bayonet connector* is built of components that cannot be separated from each other, removed or replaced. Its *bayonet connector* uses the ‘insert and turn’ method to secure the connection.

4 - Single-Piece with Threaded Connector

A *single-piece vaporizer with a threaded connector* is built of components that cannot be separated from each other, removed or replaced. Its *threaded connector* is used for integrating a vaporizer with a mating power supply.

5 - Modular with Coaxial Connector

A *modular vaporizer with a coaxial connector* is built of components can be separated from each other, removed or replaced. Its *coaxial connector* can be integrated with a mating power supply connector by inserting the circular outer rim of the former into the receptacle of the latter. This connector includes two electric contacts: one located at the outer rim and the other centered inside it. The central contact is insulated from the outer one. Fastening of the vaporizer to the power supply is secured with magnets.

6 - Modular with Bayonet Connector

A *modular vaporizer with a bayonet connector* is a device that can be disassembled and its battery / power supply and vaporizer modules can be removed and replaced. Its *bayonet connector* uses the ‘insert and turn’ method to secure the connection.

7 - Modular with Threaded Connector

A *modular device with a threaded connector* is a device that can be disassembled and its battery / power supply and vaporizer modules can be removed and replaced. It incorporates a *threaded connector* that is used for connecting the vaporizer module with the battery.

8 - Modular with contact pads for Pogo Pin Connector

The contact pads are located at the removable element (cartridge or pod). When installing a removable element, the contact pads are adjacent to the spring-loaded pins. This allows for creating a reliable electrical connection.

1.2.2 Architecture of Power Supplies (Ps)

1 - Without Connector

A *power supply without connector* is integrated with a vaporizer into a vaping device that cannot be disassembled.

5 - With Coaxial Connector

A *power supply with a coaxial connector* can be integrated with a mating vaporizer connector by inserting the circular outer rim of the latter into the receptacle of the former. This connector includes two electric contacts: one located at the outer rim and the other centered inside it. The central contact is insulated from the outer one. Fastening of the power supply to the vaporizer is secured with magnets.

6 - With Bayonet Connector

A *power supply with a bayonet connector* can be integrated with a mating vaporizer connector by using the ‘insert and turn’ method to secure integration of a vaporizer and a power supply into a vaping device.

7 - With Threaded Connector

A *power supply with a threaded connector* can be integrated with a mating vaporizer connector by using a threaded connector.

8 - Modular with Pogo Pin Connector

Pogo Pin connector means spring-loaded pins, which are usually located in the housing of a device in which the power source is accommodated. The contact pads are located at the removable element (cartridge or pod). When installing a removable element, the contact

pads are adjacent to the spring-loaded pins. This allows for creating a reliable electrical connection.

1.2.3 Architecture of CLs, APV, EHs and HWOVs

1 - Single-Piece without Connector

A *single-piece device* contains a built-in vaporizer and a power supply assembly that cannot be separated from each other and their parts cannot be removed or replaced.

5 - Modular with Coaxial Connector

A *modular device with a coaxial connector* is a device that can be disassembled and its power supply and/or vaporizer modules can be removed or replaced. Its vaporizer can be integrated with a mating power supply by inserting the circular outer rim of the latter into the receptacle of the former. This connector includes two electric contacts: one located at the outer rim and the other centered inside it. The central contact is insulated from the outer one. Fastening of the power supply to the vaporizer is secured with magnets.

6 - Modular with Bayonet Connector

A *modular device with a bayonet connector* is a device that can be disassembled and its power supply and/or vaporizer modules can be removed or replaced. Its *bayonet connector* uses the ‘insert and turn’ method to secure integration of a vaporizer and a power supply into a vaping device.

7 - Modular with Threaded Connector

A *modular device with a threaded connector* is a device that can be disassembled and its power supply and/or vaporizer modules can be removed or replaced. Its *threaded connector* is used for integrating a vaporizer with a mating power supply.

8 - Modular with Pogo Pins Connector and Contact Pads

A modular device with a Pogo pins connector is a device that can be disassembled and its power supply and/or vaporizer modules can be removed or replaced. The Pogo Pin usually takes the form of a slender cylinder containing two sharp, spring-loaded pins. Pressed between two electronic circuits, the sharp points at each end of the Pogo Pin make secure contacts with the two circuits and thereby connect them together.

1.3 Summary

This chapter includes description of the first attribute group that is applicable to all the devices of each class. The first three symbols of our coding system are allocated to this attribute group for each device class. The other two attribute groups are discussed in Chapters 2 and 3 for CLs, APVs, EHs and HWOVs. Attributes of vaporizers and power supplies discussed in Chapters 2 and 3, respectively and coded as individual units are identical to their attributes, when coded as major components of vaping devices.

Forward slash (/) is used in our classification system as a divider between the first and second group of symbols. For example, the first code group with a divider from the second group for a modular APV with a serviceable coil and a threaded connector is

07/...

Codes presented in this chapter allow us for distinguishing between disposable and multiple-use devices. Specifically, single-piece non-refillable devices are disposable, while single-piece refillable and modular devices are multiple-use ones.

In the next two chapters, we discuss attributes of vaporizers and power supplies for all the four vaping device classes (CLs, APVs, EHs and HWOVs). Following the concept outlined in Introduction, when coding vaporizers or power supplies as individual units, we use the same codes when coding them within APV coding procedure as major APV components.

2 Vaporizer Attributes of Cig-a-likes (CLs), Advanced Personal Vaporizers (APVs), E-Hookahs (EHs) and Herbal / Wax / Oil Vaporizers (HWOVs) (Group 2)

Coding systems of the Group 2 options for APVs and Es are identical and for Ps the entire Group 2 is substituted with “XXXX.”

2.1 Tank Type of CLs, APVs and EHs and Evaporator and Filling Types of HWOVs (Symbol 2-1)

For CLs, APVs or EHs, the first symbol in the Vaporizer Attribute group is allocated solely to a single attribute that is tank type. Alphabetic coding is used for this symbol and the following thirteen alphabetic options are available:

- A – Built-in
- B – Cartridge
- C – Cartomizer
- D – Clearomizer
- E – Capsular
- F – RBA
- G – RTA
- H – RGA
- I – RCA
- J – Drip Atomizer
- K – RDA
- L – Auto RDA
- M – Combined Atomizer / Vaporizer Tank
- O - Pod

For the HWOVs, the first symbol of the Vaporizer group is allocated to two different attributes (vaporizer type and filling type) that determine the HWOV configuration:

- N – Vaporizer Integrated with Power Supply, with Loose Filling (Herbal)
- P – Vaporizer Integrated with Power Supply, with Pre-Formed Filling (Herbal)
- Q – Vaporizer Head with Loose Filling (Herbal)
- R – Vaporizer Head with Pre-Formed Filling (Herbal)
- S – Vaporizer Integrated with Power Supply, with Drip or Dub Filling (Oil or Wax)
- T – Vaporizer Head with Drip or Dub Filling (Oil or Wax)
- U – Vaporizer Integrated in the Replaceable Cartridge (Oil or Wax)
- V – Vaporizer Integrated in the Replaceable Pod (Oil or Wax)
- W – Vaporizer Integrated with Power Supply, with Pre-Filled Capsule (Oil or Wax)

Options A and B are applicable to CLs and EHs, only. Options C through E are applicable to CLs, APVs and EHs. Options F through I are applicable to APVs and EHs, only. Options J

through M are applicable to APVs, only. Options N, P, Q, R, S, T, U and V are applicable to HWOVs, only.

Alphabetic options (X, Y and Z) are reserved for any future expansions of our classification system.

Description of individual code options is provided below.

2.1.1 Tank Type of CLs, APVs and EHs

A - Built-in Tank

Built-in tank is used for a vaporizer that is an integral part of the device with no replacement option.

B - Cartridge

Historically, for different types of the electronic vaping devices, the term cartridge has different meanings.

For CLs, *Cartridge* is a prefilled replaceable tank that holds the liquid "juice," with no evaporating coil.

For APVs, EHs, HWOVs (Wax and Oil, only), *Cartridge* is a replaceable tank with an evaporating coil and a wick, into which the user can pour liquid "juice" on its own.

C - Cartomizer

Cartomizer is a disposable tank pre-filled with synthetic fibers or foam soaked in a liquid. Evaporating coil(s) represent(s) an integral part of the cartomizer.

D - Clearomizer

Clearomizer is a low- or medium-power vaporizer containing a small amount of liquid. Unlike cartomizers, they have a transparent body that allows users to check the liquid level visually. Disposable clearomizers are pre-filled by the manufacturer. They also come in refillable versions and allow for atomizer replacement.

E - Capsular

Capsular tank is a replaceable capsule-shaped vessel. The capsule systems are available both with and without a built-in coil.

F - RBA (Rebuildable Atomizer)

RBAs are intended only for experienced end-users and safety measures need to be closely observed, while building an RBA. Such an atomizer can be assembled and re-assembled many times over and its coil and wick can be replaced by a user. RBA design supports installation of either atomizers built independently by users or factory-manufactured RCAs. An RBA is outfitted with a liquid container. It is, essentially, a vaporizer module with a large- or medium-size vessel designed for holding an e-liquid.

G – RTA (Rebuildable Tank Atomizer)

An RTA is outfitted with a liquid container similarly to an RBA. However, its design supports just installation of atomizers built independently by users and does not support installation of factory-manufactured atomizers.

H – RGA (Rebuildable Genesis Atomizer)

An RGA is outfitted with a liquid container similarly to an RBA and its design also supports just installation of atomizers built independently by users and does not support installation of factory-manufactured atomizers. A specific feature of the RGA is a metal mesh or a wire used as a wick.

I – RCA (Replaceable Atomizer)

RCA is an atomizer with a replaceable head. A vaporizer module includes a big- or medium-size liquid container and its design enables replacement of the atomizer head element by the user.

J – Drip Atomizer

Drip Atomizer is a vaporizer module without a vessel holding an e-liquid. A few drops of the e-liquid are “dripped” directly onto the coil of an atomizer, or rather onto a bridge installed over the coil. It requires frequent refills and doesn’t allow for replacement of the atomizer element.

K – RDA (Rebuildable Drip Atomizer)

Typically, “re-building” an atomizer involves removing the bridge hanging over the coil(s). The bridge is a small steel mesh that is positioned above the coil(s). It allows the e-liquid dispersed onto the coil to move evenly. The RDAs have wicks and coils that can be made and replaced by a user and these atomizers are gaining popularity throughout the industry.

L – Auto RDA (RDTA)

An *Auto RDA (RDTA)* is a serviceable vaporizer module that combines the RDA and RBA features. The liquid drips onto the wick or coil from a vessel positioned above.

M - Combined Atomizer/Vaporizer

A *Combined Atomizer/Vaporizer Tank* is a device designed both for e-liquids and herbal / floral blends. It allows a user to switch between the materials by replacing the respective assembly.

O - POD

POD - cartridge, which is pre-filled with liquid in the factory. Has an evaporator and a wick. The user can not fill the liquid by himself.

2.1.2 Vaporizer and Filling Types of HWOVs

N - Vaporizer Integrated with Power Supply, with Loose Filling

This option includes stand-alone devices having vaporizers integrated with power supplies. These devices are designed for using traditional dry-herb materials.

P - Vaporizer Integrated with Power Supply, with Pre-Formed Filling

This option includes stand-alone devices having vaporizers integrated with power supplies. These devices are designed for using pre-formed vaping materials.

Q - Vaporizer Head with Loose Filling

This option includes vaporizer heads designed for traditional dry-herb materials. These devices have no power supplies and should be operated with external power supply units.

R - Vaporizer Head with Pre-Formed Filling

This option includes devices designed to use pre-formed materials. These devices have a built-in power supply. Also, there are some devices that can only work with external power sources.

S - Vaporizer Integrated with Power Supply, with Drip or Dub Filling (Oil or Wax)

This option includes stand-alone devices with vaporizers integrated with power supplies. These devices are designed to use easily flowing oily materials or wax.

T - Vaporizer Head with Drip or Dub Filling (Oil or Wax)

This option includes vaporizer heads designed for oils and wax-like materials for evaporation. These devices have no power supplies and should be operated with external power supplies.

U - Vaporizer Integrated in a Replaceable Cartridge (Oil or Wax)

This option includes a vaporizer built-in into a replaceable cartridge. The cartridge is designed for repeated use. Filling the cartridge with oil or a wax-like substance is done by the user. Cartridges should be used in conjunction with portable or desktop vaporizers.

V - Vaporizer Integrated in a Replaceable POD (Oil or Wax)

This option includes a vaporizer built-in into a pre-filled replaceable cartridge (POD). The cartridge is designed for single use. PODs should be used in combination with portable or desktop vaporizers.

W - Vaporizer Integrated with Power Supply, with Pre-Filled Replaceable Capsule (Oil or Wax)

This option includes stand-alone devices having vaporizers integrated with their power supplies. These devices are designed for using a pre-filled capsule with waxy or oily materials.

2.2 Performance (Symbol 2-2)

We define performance as a combination of tank section quantity and output level attributes. The former of these two attributes determines quantity of liquid-holding tank cavities or sections and the latter is a major performance characteristic of the vaping device. Numeric coding is used for this symbol and the following eight options are available:

- 1 – Single Section, Low Output for APVs or EHs
or
Low Output for CLs or HWOVs
- 2 – Single Section, Medium Output for APVs or EHs
or
Medium Output for CLs or HWOVs
- 3 – Single Section, High Output for APVs or EHs
or
High Output for CLs or HWOVs
- 4 – Single Section, Ultra-High Output

- 5 – Multiple Sections, Low Output
- 6 – Multiple Sections, Medium Output
- 7 – Multiple Sections, High Output
- 8 – Multiple Sections, Ultra-High Output

Options 1 through 3 are applicable to all the four vaping device classes under consideration in this chapter. Options 4 through 8 are applicable to APVs and EHs, only.

Two numerical options (0 and 9) are reserved for any future expansions of our classification system.

Description of individual code options is provided below.

2.2.1 Performance of APVs and EHs

1 – Single-Section, Low Output

This option includes vaping devices with tanks comprising a single cavity / section and low evaporation output (of 4 to 6.9 W).

2 – Single-Section, Medium Output

This option includes vaping devices with tanks comprising a single cavity / section and medium evaporation output (of 7 to 14.9 W).

3 – Single-Section, High Output

This option includes vaping devices with tanks comprising a single cavity / section and high evaporation output (of 15 to 40 W).

4 – Single-Section, Ultra-High Output

This option includes vaping devices with tanks comprising a single cavity / section and ultra-high evaporation output (of 40.1 to 200 W).

5 – Multiple-Section, Low Output

This option includes vaping devices with tanks comprising multiple cavities / sections and low evaporation output (of 4 to 6.9 W).

6 – Multiple-Section, Medium Output

This option includes vaping devices with tanks comprising multiple cavities / sections and medium evaporation output (of 7 to 14.9 W).

7 – Multiple-Section, High Output

This option includes vaping devices with tanks comprising multiple cavities / sections and high evaporation output (of 15 to 40 W).

8 – Multiple-Section, Ultra-High Output

This option includes vaping devices with tanks comprising multiple cavities / sections and ultra-high evaporation output (of 40.1 to 200 W).

2.2.2 Performance of CLs and HWOVs

1 – Low Output (for CLs or HWOVs)

This option includes vaping devices with low evaporation output (of 4 to 6.9 W).

2 – Medium Output (for CLs or HWOVs)

This option includes vaping devices with medium evaporation output (of 7 to 14.9 W).

3 – High Output (for CLs or HWOVs)

This option includes vaping devices with high evaporation output (of 15 to 40 W).

2.3 Controls (Symbol 2-3)

There are currently 8 alphabetic options defining controls including external control features and absence or presence of means for air flow and liquid feed adjustment.

- A – without External Control, with Non-Adjustable Air Flow and Non-Adjustable Liquid Feed for APVs or EHs
 - or
 - Without External Control for HWOVs
- B – without External Control, with Non-Adjustable Air Flow and Adjustable Liquid Feed
- C – without External Control, with Adjustable Air Flow and Non-Adjustable Liquid Feed
- D – without External Control, with Adjustable Air Flow and Adjustable Liquid Feed
- E – with External Control, Non-Adjustable Air Flow and Non-Adjustable Liquid Feed for APVs or EHs

or

With External Control for HWOVs

F – with External Control, Non-Adjustable Air Flow and Adjustable Liquid Feed

G – with External Control, Adjustable Air Flow and Non-Adjustable Liquid Feed

H – with External Control, Adjustable Air Flow and Adjustable Liquid Feed

Options A and E are applicable to APVs, EHs and HWOVs. Options B through D and F through H are applicable to APVs and EHs, only.

None of these options is inapplicable to CLs and this symbol should be designated with "X" for CLs.

Seventeen alphabetic options (I to W, Y and Z) are reserved for any future expansions of our classification system.

Description of individual code options is provided below.

2.3.1 Controls of APVs and EHs

A – Without External Control, with Non-Adjustable Air Flow and Non-Adjustable Liquid Feed

This option includes devices with no external controls, non-adjustable air flow and non-adjustable liquid feed.

B – Without External Control, with Non-Adjustable Air Flow and Adjustable Liquid Feed

This option includes devices without external control, without adjustable air flow and with adjustable liquid feed.

C – Without External Control, with Adjustable Air Flow and Non-Adjustable Liquid Feed

This option includes devices without external control, with adjustable liquid feed and without adjustable air flow.

D - Without External Control, with Adjustable Air Flow and Adjustable Liquid Feed

This option includes devices without external control and with adjustable liquid feed and adjustable air flow.

E - With External Control, Non-Adjustable Air Flow and Non- Adjustable Liquid Feed

This option includes devices with external control, without adjustable air flow and without adjustable liquid feed.

F - With External Control, Non-Adjustable Air Flow and Adjustable Liquid Feed

This option includes devices with external control, without adjustable air flow and with adjustable liquid feed.

G - With External Control, with Adjustable Air Flow and Non-Adjustable Liquid Feed

This option includes devices with external control and adjustable air flow and without adjustable liquid feed.

H - With External Control, Adjustable Air Flow and Adjustable Liquid Feed

This option includes devices with external control, adjustable liquid feed and adjustable air flow.

2.3.2 Controls of HWOVs

A - Without External Control (for HWOVs)

This option includes HWOVs with no external controls.

E - With External Control (for HWOVs)

This option includes HWOVs with external controls.

2.4 Coil Configuration and Heater Type (Symbol 2-4)

There are currently 4 numeric options defining coil quantity and location that are assigned to the fourth and last symbol of the Vaporizer group code:

- 1 – Single Lower Coil for CLs, APVs or EHs
 - or
 - Pit Heater for HWOVs
- 2 – Multiple Lower Coils for CLs, APVs or EHs
 - or
 - Rod Heater for HWOVs
- 3 – Single Upper Coil for CLs, APVs or EHs
 - or
 - Open Coil for HWOVs
- 4 – Multiple Upper Coils for CLs, APVs or EHs
 - or
 - Irradiative Heater for HWOVs
- 5 – Single Inserted Coil for CLs
- 6 – Multiple Inserted Coils for CLs
- 7 – Coils absent for CLs or APVs (Instead of a classical coil an ultrasonic membrane is used)
- 8 – Coil and Ultrasonic membrane for APVs

This symbol is applicable to all the four vaping device classes.

Numeric options (0 and 9) are reserved for any future expansions of our classification system.

Description of individual code options is provided below.

2.4.1 Coil Configuration of CLs, APVs and EHs

Applicability of these options is determined by their tank type coded with symbol 2-1. For example, options 1 through 4 are applicable to clearomizers and capsules and options 5 and 6 are applicable to built-in tanks, cartomizers and capsular tanks.

1 – Single Lower Coil

This option includes devices with a single coil submerged into the tank liquid.

2 – Multiple Lower Coils

This option includes devices with multiple coils submerged into the tank liquid.

3 - Single Upper Coil

This option includes devices with a single coil located above the liquid level in the tank and soaked with an e-liquid through a wick.

4 - Multiple Upper Coils

This option includes devices with multiple coils located above the liquid level in the tank and soaked with an e-liquid through a wick.

5 - Single Inserted Coil

This option includes devices with a single coil inserted from the power supply side in a porous tank filling material soaked with an e-liquid.

6 - Multiple Inserted Coils

This option includes devices with multiple coils inserted from the power supply side in a porous tank filling material soaked with an e-liquid.

7 - Coils absent (Instead of a classical coil, an ultrasonic membrane is used)

This option includes devices in which there is no classic coil or wicking. As a vapor generator, an ultrasonic membrane is used that converts the liquid into an aerosol.

8 - Coil and Ultrasonic membrane

This option includes devices that do not have a classic coil or wicking. As a vapor generator, an ultrasonic membrane is used that converts the liquid into an aerosol. To liquefy a viscous fluid, a pre-heating coil is used.

2.4.2 Heater Type of HWOVs

1 - Pit Heater

This heater is made in the form of a block with a recess. Herbal or floral blend subject to vaporization is placed into this recess and, therefore, is in direct contact with the heater. Thermal conductivity is the primary mechanism for heating herbal or floral blends with these heaters.

This heater is usually made of ceramic material that surrounds a heating element and can be metal-plated.

2 - Rod Heater

This heater is made in the form of a thin rod or a needle. A capsule of herbal or floral blend subject to vaporization is impaled with this heater and is in direct contact with it. Thermal conductivity is the primary mechanism for heating herbal or floral blends with these heaters, too.

This heater is usually made of a ceramic material that surrounds a heating element and can be metal-plated.

3 - Open Coil

This heater is made in the form of an open Nichrome or Kanthal coil surrounded with a screen that prevents a direct contact of the heater with the herbal or floral blend subject to vaporization. Convection is the primary mechanism for heating herbal or floral blends with these heaters.

4 - Irradiative Heater

This heater is made in the form of a thermal radiation source that heats the herbal or floral blend subject to vaporization without a direct contact with it. Thermal radiation is the primary mechanism for heating the herbal or floral blends with these heaters.

2.5 Summary

This section includes description of the second group of attributes applicable to vaporizers of CLs, APVs, EHs and HWOVs. This group is coded using **three** alphanumeric symbols for CLs or **four** alphanumeric symbols for APVs, EHs, or HWOVs.

Hyphen (-) is used in our classification system as a divider between the second and third groups of symbols. Continuing the example shown in Section 1.4 for a modular APV with a serviceable coil and a threaded connector, the first and second code groups (with the dividers between the first and the second and the second and the third groups) for APV of this category with a single-section clearomizer and high output, with external control, adjustable air flow, non-adjustable liquid feed and multiple upper coils, we designate this device with the following first two code groups and respective dividers:

O7/D3G4-...

3. Power Supply Attributes of Cig-a-Likes (CLs), Advanced Personal Vaporizers (APVs), E-Hookahs (EHs) and Herbal / Wax / Oil Vaporizers (HWOVs) (Group 3)

3.1 Power Supply Configuration (Symbol 3-1)

There are currently 10 alphabetic options assigned to the first group of the Power Supply Subsystem classification code to define a power supply type:

- A – Slim EGO power supply with a non-replaceable battery for APVs or EHs
 - or
 - Non-replaceable power supply for CLs or HWOVs
- B – Standard EGO power supply with a non-replaceable battery for APVs or EHs
 - or
 - Replaceable battery for CLs or HWOVs
- C – Fat EGO power supply with a non-replaceable battery for APVs or EHs
- D – Battery Mod power supply with a non-replaceable battery for APVs or EHs
- E – Battery Mod power supply with a replaceable battery for APVs or EHs
- F – Box Mod power supply with a non-replaceable battery for APVs or EHs
- G – Box Mod power supply with a replaceable battery for APVs or EHs
- H – Mechanical Mod power supply with a non-replaceable battery for APVs or EHs
- I – Mechanical Mod power supply with a replaceable battery for APVs or EHs
- J – AC adapter for EHs or HWOVs

Option A is applicable to all the four device classes. Option B is applicable to APVs, EHs and HWOVs. Options D through I are applicable to APVs and EHs. Option J is applicable to EHs and HWOVs.

Fifteen (15) alphabetic options (from K to W, Y and Z) are reserved for any future expansions of our classification system.

This symbol determines device portability. Specifically, all devices with non-replaceable or replaceable batteries (coded A through I) are portable and all devices with AC adapters (coded J) are stationary.

Description of individual code options is provided below.

3.1.1 Power Supply Configuration of CLs

A - Non-Replaceable Power Supply (for CLs)

This option includes devices with a power supply that cannot be repaired or replaced.

B - Replaceable Power Supply (for CLs)

This option includes devices with a power source that can be replaced.

3.1.2 Power Supply Configuration of APVs and EHs

A - Slim EGO with Non-Replaceable Battery

This option includes devices with a cylindrically shaped power supply module and with a non-replaceable battery. It is sized as 5 to 12 mm in the lateral direction and outfitted with an electronic PCB chip that controls the battery discharge and charge levels. Some models support user's control of voltage applied to the evaporation module.

B - Standard EGO with Non-Replaceable Battery

This option includes devices with a cylindrically shaped power supply module and with a non-replaceable battery. It is sized as 12 to 16 mm in the lateral direction and outfitted with an electronic PCB chip that controls the battery discharge and charge levels. Some models support user's control of voltage applied to the evaporation module.

C - Fat EGO with Non-Replaceable Battery

This option includes devices with a cylindrically shaped power supply module and with a non-replaceable battery. It is sized as 16 to 20 mm in the lateral direction and outfitted with an electronic PCB chip that controls the battery discharge and charge levels. Some models support user's control of voltage applied to the evaporation module.

D - Battery Mod with Non-Replaceable Battery(ies)

This option includes devices with power supply module and with one or several non-replaceable batteries and outfitted with an electronic PCB chip that controls the battery discharge and charge levels.

E - Battery Mod with Replaceable Battery(ies)

This option includes devices with a cylindrically shaped power supply module and with one or several replaceable batteries. It is sized as 20 mm or more in the lateral direction and

outfitted with an electronic PCB chip that controls the battery discharge and charge levels. This device supports user's control of voltage applied to the evaporation module.

F – Box Mod with Non-Replaceable Battery(ies)

This option includes devices with a power supply for evaporation modules configured as a 3D box, cube, prism, flask or any similar shape. It has one or several non-replaceable batteries and is outfitted with an electronic PCB chip that controls the battery discharge and charge levels. This device supports user's control of voltage applied to the evaporation module.

G – Box Mod with Replaceable Battery(ies)

This option includes devices with a power supply for evaporation modules configured as a 3D box, cube, prism, flask or any similar shape. It has one or several replaceable batteries and is outfitted with an electronic PCB chip that controls the battery discharge and charge levels. This device supports user's control of voltage applied to the evaporation module.

H – Mechanical Mod with Non-Replaceable Battery(ies)

This option includes devices with a power supply of optional shape and with one or several non-replaceable batteries and has no PCB.

I – Mechanical Mod with Replaceable Battery(ies)

This option includes devices with a power supply of optional shape and with one or several replaceable batteries and has no PCB.

J – AC Adapter

This option includes EHs devices powered from the AC mains supply.

3.1.3 Power Supply Configuration of HWOVs

A – Power Supply with Non-Replaceable Battery(ies)

This option includes HWOVs with a power supply module featuring one or several non-replaceable batteries

B - Power Supply with Replaceable Battery(ies)

This option includes HWOVs with a power supply module featuring one or several replaceable batteries.

J - AC Adapter

This option includes HWOVs powered from the AC mains supply.

3.2 Charging Features (Symbol 3-2)

The second symbol of the third (Power Supply Attributes) group of our classification code currently includes 4 numeric options defining availability of such features of power supplies as Vaping while Charging (VwC) for all the four vaping device classes, Personal Charging Case (PCC) for CLs and EVs and Power Bank (PB) for APVs and EHs:

- 1 – without VwC and PCC for CLs and HWOVs
 - or
 - without VwC and PB for APVs and EHs
- 2 – with VwC and without PCC for CLs and HWOVs
 - or
 - with VwC and without PB for APVs and EHs
- 3 – without VwC and with PCC for CLs and HWOVs
 - or
 - without VwC and with PB for APVs and EHs
- 4 – with VwC and PCC for CLs and HWOVs
 - or
 - with VwC and PB for APVs and EHs

Each option is available for all the four vaping device classes.

Six numeric options (0 and 5 to 9) are reserved for any future expansions of our classification system.

Description of individual code options is provided below.

3.2.1 Charging Features of CLs and HWOVs

1 - Without VwC and PCC

This option includes units that cannot be charged during vaping and PCC is not included in their original or starter kit.

2 - With VwC and without PCC

This option includes units that can be charged during vaping and PCC is not included in their original or starter kit.

3 - Without VwC and with PCC

This option includes units that cannot be charged during vaping. A PCC included in their original or starter kit allows for power transfer from the device's battery to another electronic device.

4 - With VwC and PCC

This option includes devices that can be charged during vaping. A PCC included in their original or starter kit allows for power transfer from the device's battery to another electronic device.

3.2.2 Charging Features of APVs and EHs

1 - Without VwC and PB

This option includes units that cannot be charged during vaping and do not allow for power transfer from the device's battery to another electronic device.

2 - With VwC and without PB

This option includes units that can be charged during vaping and do not allow for power transfer from the device's battery to another electronic device.

3 - Without VwC and with PB

This option includes units that cannot be charged during vaping and allow for power transfer from the device's battery to another electronic device.

4 - With VwC and PB

This option includes devices that can be charged during vaping and allow for power transfer from the device's battery to another electronic device.

3.3 Shape (Symbol 3-3)

In contrast to the other symbols of our classification system, the 3rd symbol in the group is allocated solely to a single attribute that is the overall device shape. Eleven options with alphabetic coding are available:

- A – Classic Stick
- B – Mini Stick
- C – Pen-Style
- D – Cigarillo-Shaped
- E – Cigar-Shaped
- F – Tube
- G – Box
- H – Flask
- I – Non-Standard
- J – Pipe
- K – Bowl
- L – Stick
- M – Classical Hookah

Options A through E are applicable to CLs only.

Options F, G and I is applicable to APVs, EHs and HWOVs.

Option H is applicable to APVs, only.

Options J are applicable to APVs and HWOVs.

Options K are applicable to EHs and HWOVs.

Option L is applicable to APVs, only.

Option M is applicable to EHs, only.

Alphabetic options (N through W, Y and Z) are reserved for any future expansions of our classification system.

Description of individual code options is provided below.

A – Classic Stick (for CLs only)

A *Classic-stick* device looks like a conventional cigarette in terms of its shape and size.

B – Mini Stick (for CLs only)

A *Mini-stick* device looks like a conventional slim cigarette.

C – Pen Style (for CLs only)

A *Pen-Style* device is larger in size than a conventional cigarette and looks more like a ball point pen or a marker.

D - Cigarillo-Shaped (for CLs only)

A *Cigarillo-shaped* device looks very similar to a conventional cigarillo in terms of its shape.

E - Cigar-Shaped (for CLs only)

A *Cigar-shaped* device looks very similar to a conventional cigar in terms of its shape and size.

F - Tube (for APVs, EHs and HWOVs)

A *Tube* device has a cylindrical or similar shape.

G - Box (for APV, EHs and HWOVs)

A *Box* device is shaped as a brick or a similar object.

H - Flask (for APVs and HWOVs)

A *Flask* device has a housing that is concave on the one side and convex on the other side.

I - Non-Standard (for APVs, EHs and HWOVs)

A *Non-standard* device has a complex geometric shape.

J - Pipe (for APVs and HWOVs)

A *Pipe* device resembles a smoking pipe in terms of its shape.

K - Bowl (for EHs and HWOVs)

A *Bowl* device is similar in its shape to a conventional hookah bowl and can be purchased as a part of the kit, along with a water vessel (similar to a conventional hookah kit).

L - Stick (for APVs only)

The device has a simple form that looks like a flat stick.

M - Classical hookah (for EHs only)

Externally similar to the classical hookah.

3.4 Display (Symbol 3-4)

The fourth symbol of the third (Power Supply Attributes) group of our classification code is dedicated to a single parameter which is its availability of a display.

- 1 – Without a display for APVs, EHs or HWOVs
- 2 – With a display for APVs, EHs or HWOVs

This symbol is inapplicable to CLs and should be marked as “X” as all CLs available today have no display. Both options 1 and 2 are applicable to APVs, EHs and HWOVs.

Eight (8) numeric options (0 and 3 to 9) are reserved for any future expansions of our classification system.

Description of individual code options is provided below.

1 – Without Display

This option includes devices that have no display.

2 – With Display

This option includes devices that have a display.

3.5 Power Feed Features (Symbol 3-5)

There are currently 10 alphabetic symbols defining Activation and Power Control features of the power supplies that are assigned to the fifth and final symbol of the Power Supply Subsystem classification code:

- A – with Automatic Activation by Inhalation and without Voltage Stabilization for CLs, APVs and EHs
 - or
 - with Manual Activation and without Temperature Settings for HWOVs
- B – with Automatic Activation by Inhalation and Voltage Stabilization for CLs, APVs and EHs
 - or
 - with Manual Activation and with Temperature Settings for HWOVs
- C – with Automatic Activation by Inhalation and VariVolt for APVs and EHs
- D – with Automatic Activation by Inhalation and VariWatt without Thermocontrol for APVs and EHs
- E – with Automatic Activation by Inhalation and VariWatt with Thermocontrol for APVs and EHs

- M – with Manual Activation and without Voltage Stabilization for CLs, APVs and EHs
 - or
 - with Manual Activation and without Temperature Settings for HWOVs
- N – with Manual Activation and Voltage Stabilization for CLs, APVs and EHs
 - or
 - with Manual Activation and with Temperature Settings for HWOVs
- P – with Manual Activation and VariVolt for APVs and EHs
- Q – with Manual Activation and VariWatt without Thermocontrol for APVs and EHs
- R – with Manual Activation and VariWatt with Thermocontrol for APVs and EHs

Options A, B, M and N are applicable to CLs, APVs, EHs and HWOVs; options C, D, E, P, R and Q are applicable to APVs and EHs.

Fifteen alphabetic options (F through L, O, S through W, Y and Z) are reserved for any future expansions of our classification system.

Description of individual code options is provided below.

3.5.1 Power Feed Features of CLs

A – With Automatic Activation by Inhalation and without Voltage Stabilization

This option includes units that are activated when the user inhales air through the device. These units do not provide for any voltage stabilization.

B – With Automatic Activation by Inhalation and Voltage Stabilization

This option includes units that are activated when the user inhales air through the device. These units provide voltage stabilization at various battery charge levels within its operational range.

M – With Manual Activation and without Voltage Stabilization

This option includes units that are activated when the button located on the side of the unit is pressed. These units do not provide for any voltage stabilization. The battery is usually directly connected to the vaporizer.

N - With Manual Activation and Voltage Stabilization

This option includes units that are activated when the button located on the side of the unit is pressed. These units do not provide for voltage stabilization at various battery charge levels within its operational range.

3.5.2 Power Feed Features of APVs and EHs

A - With Automatic Activation by Inhalation and without Voltage Stabilization

This option includes units that are activated when the user inhales air through the device. These units do not provide for any voltage stabilization. The battery is usually directly connected to the vaporizer.

B - With Automatic Activation by Inhalation and Voltage Stabilization

This option includes units that are activated when the user inhales air through the device. These units provide for voltage stabilization at a battery charge level selected by the manufacturer within its operational range.

C - With Automatic Activation by Inhalation and VariVolt

This option includes units that are activated when the user inhales air through the device. These units provide for selected voltage adjustment and stabilization.

D - With Automatic Activation by Inhalation and VariWatt without Thermocontrol

This option includes units that are activated when the user inhales air through the device. These units provide for selected wattage adjustment and stabilization without thermocontrol.

E - With Automatic Activation by Inhalation and VariWatt with Thermocontrol

This option includes units that are activated when the user inhales air through the device. These units provide for selected wattage adjustment and stabilization with thermocontrol.

M – With Manual Activation and without Voltage Stabilization

This option includes units that are activated when the button located on the side of the unit is pressed. These units do not provide for any voltage stabilization. The battery is usually directly connected to the vaporizer.

N – With Manual Activation and Voltage Stabilization

This option includes units that are activated when the button located on the side of the unit is pressed. These units provide for voltage stabilization at a battery charge level selected by the manufacturer within its operational range.

P – With Manual Activation and VariVolt

This option includes units that are activated when the button located on the side of the unit is pressed. These units provide for selected voltage adjustment and stabilization.

Q – With Manual Activation and VariWatt without Thermocontrol

This option includes units that are activated when the button located on the side of the unit is pressed. These units provide for selected wattage adjustment and stabilization without thermocontrol.

R – With Manual Activation and VariWatt with Thermocontrol

This option includes units that are activated when the button located on the side of the unit is pressed. These units provide for selected wattage adjustment and stabilization with thermocontrol.

3.5.3 Power Feed Features of HWOVs

A – With Automatic Activation by Inhalation and without Temperature Settings

This option includes units that are activated when the user inhales air through the device. These units do not provide for various temperature settings to be selected by a user.

B - With Automatic Activation by Inhalation and Temperature Settings

This option includes units that are activated when the user inhales air through the device. These units provide for various temperature settings to be selected by their user.

M - With Manual Activation and without Temperature Settings

This option includes units that are activated when the button located on the side of the unit is pressed. These units do not provide for various temperature settings to be selected by their user.

N - With Manual Activation and Temperature Settings

This option includes units that are activated when the button located on the side of the unit is pressed. These units provide for various temperature settings to be selected by their user.

3.6 Summary

This section includes description of the third group of attributes applicable to power supplies of CLs, APVs, EHs and HWOVs. This group is coded using three alphanumeric symbols for CLs, or five alphanumeric symbols APVs, EHs or HWOVs.

Continuing the example shown in Section 2.5 (modular APV with a serviceable coil and a threaded connector, with a single-section clearomizer and high output, with external control, adjustable air flow, non-adjustable liquid feed and multiple upper coils) and assuming that this device has a box mod power supply shaped as a flask with replaceable battery(ies), has vaping-while-charging and power bank features, has a display, is automatically activated by Inhalation and has voltage stabilization, we designate the following complete code for this APV: **O7/D3G4-G4H2B**.

4. Classifier Application Examples

4.1 Code B1/A1X1-A1AXA (Non-refillable single-piece CL)

Symbol	Code	Description
1-1	B	Cig-a-Like, non-refillable
1-2	1	Single-piece
2-1	A	With a built-in tank
2-2	1	With low output
2-3	X	Inapplicable
2-4	1	With a single lower coil
3-1	A	Non-replaceable power supply
3-2	1	Without vaping while charging and personal charging case features
3-3	A	Shape: Classic stick
3-4	X	Inapplicable
3-5	A	With automatic activation by Inhalation and without voltage stabilization

4.2 Code M6/D1A4-B1F1P (Refillable APV with non-serviceable coil)

Symbol	Code	Description
1-1	M	APV with non-serviceable coils, refillable
1-2	6	Modular with a bayonet connector
2-1	D	With a clearomizer tank
2-2	1	With a single-section tank and low output
2-3	A	Without external control, with non-adjustable air flow and non-adjustable liquid feed
2-4	4	With multiple upper coils
3-1	B	Standard EGO power supply with a non-replaceable battery
3-2	1	Without vaping while charging and power bank features
3-3	F	Shape: Tube
3-4	1	Without a display
3-5	P	With manual activation and varivolt

4.3 Code H1/C6A2-F3M1N (Non-refillable EH with non-serviceable coil)

Symbol	Code	Description
1-1	H	E-hookah with non-serviceable coil, non-refillable
1-2	1	Single-piece
2-1	C	With a cartomizer tank
2-2	6	With a multiple-section tank and high output
2-3	A	Without external control, with non-adjustable air flow and non-adjustable liquid feed
2-4	2	With multiple lower coils
3-1	F	A box mod power supply with a non-replaceable battery
3-2	3	Without vaping while charging and with power bank features
3-3	M	Shape: Classical Hookah
3-4	1	Without a display
3-5	N	With manual activation and voltage stabilization

4.4 Code V1/N2A1-A2G1N (Herbal vaporizer)

Symbol	Code	Description
1-1	V	Herbal vaporizer
1-2	1	Single-piece
2-1	N	Integrated with power supply, with loose filling
2-2	2	With a single-section tank and medium output
2-3	A	Without external control
2-4	1	With a pit heater
3-1	A	With a non-replaceable power supply
3-2	2	With vaping while charging and without personal charging case features
3-3	G	Shape: Box
3-4	1	Without a display
3-5	N	With manual activation and temperature settings

4.5 Code G7/G4H2-XXXXX (Vaporizer with a serviceable coil)

Symbol	Code	Description
1-1	G	Vaporizer, with serviceable coils
1-2	7	Modular, with a threaded connector
2-1	G	With an RTA tank
2-2	4	With a single-section tank and ultra-high output
2-3	H	With external control, adjustable air flow and adjustable liquid feed
2-4	2	With multiple lower coils
3-1	X	Inapplicable
3-2	X	Inapplicable
3-3	X	Inapplicable
3-4	X	Inapplicable
3-5	X	Inapplicable

4.6 Code P5/XXXX-E4H2Q (Power supply)

Symbol	Code	Description
1-1	P	Power supply
1-2	5	With a coaxial connector
2-1	X	Inapplicable
2-2	X	Inapplicable
2-3	X	Inapplicable
2-4	X	Inapplicable
3-1	E	A battery mod power supply with a replaceable battery
3-2	4	With vaping while charging and power bank features
3-3	H	Shape: Flask
3-4	2	With a display
3-5	Q	With manual activation and variwatt without thermocontrol



Dmitri Churakov,
CEO Wingle Group

Phone: +852 51759256
E-mail: dev@winglegroup.com

www.winglegroup.com

