

Product Attribute Database (PAdb)

Version 2.06 – January 31, 2016



Prepared by Pricedex Software Inc. on behalf of

TECHNOLOGY STANDARDS COMMITTEE

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What is the Product Attribute Database

The Product Attribute database (PAdb) is an automotive aftermarket industry standard reference database to be used in conjunction with the Product Information Exchange Standard (PIES). The PAdb standardizes the way product-specific performance and physical attributes are exchanged between trading partners. The PAdb defines the way trading partners exchange information about the form, fit and function of thousands of automotive products – making that information consistent across the industry.

Comprehensive, complete and accurate product attribute information is an essential component of marketing any product successfully. All customers – professional shop and retail consumers – rely on robust product attributes to make informed decisions and select the most appropriate product for their needs. Performance and physical attributes provide the information necessary for customers to evaluate the differences between similar products and choose the product that best fulfills individual needs. This information enables customers to make informed and knowledgeable decisions.

The PAdb offers the aftermarket industry the following advantages:

- Consistent product information is more accurate and useful to customers in decision-making
- Standardized product attributes reduce the burden of data management on the supply chain and lower costs
- A robust set of product attribute definitions will contribute to more effective marketing of automotive products, leading to increased sales, reduced returns and more satisfied customers

What does the PAdb Contain

For the more popular and high-volume products in the industry-standard Product Classification database, the PAdb defines one or more “Styles” of the product as well as the valid “Attributes” related to the product. Attributes are further defined by “Type”, “Valid Values” and other Metadata that ensures consistency and accuracy. Specifically, the PAdb contains attributes which deal with the working dimensions, material, color, and performance characteristics of a product. Performance characteristics could be rates of flow, horsepower, electrical characteristics, etc. A table containing a complete set of performance measurements is appended to this document.

What does the PAdb Exclude

The PAdb DOES NOT CONTAIN any attributes which are already defined in other Autocare Association Standards, such as the Aftermarket Catalog Enhanced Standard (ACES) or the Product Information Exchange Standard (PIES).

The PAdb also DOES NOT CONTAIN any attributes which might be considered subjective, such as product features, benefits, comparisons to other products. These types of attributes are considered Market Copy, and, as such, already have their own definitions in the PIES standard.

The PAdb also DOES NOT CONTAIN any attributes which might be considered proprietary, and expose formulations or engineering information.

It is the responsibility of suppliers to populate and provide Attribute information to their trading partners. The PAdb defines the method and data-types by product. The PAdb **does not** include the product attribute values for any specific supplier of automotive product.

PAdb Database Format

The PAdb is published in the following technical formats:

- ASCII, Tab-Delimited Text File
- MS-SQL 2008
- MS ACCESS 2007
- MYSQL 5.5.28

PAdb Publishing Cycle

Licensees to the PAdb will be able to download PAdb updates on a monthly basis, at www.enhancedstandard.com. Each version of the PAdb contains the Date of Publication of the Product Classification database (PCdb) from which it was derived. This information is contained in the Version table.

PAdb Methodology

The PAdb was developed by the Technology Standards Committee of the Autocare Association with the contribution of a large number of industry volunteers and subject matter experts. Project Management and technical support was provided by Pricedex Software after selection through a competitive confidential bid process. Executive oversight and governance was provided by a committee of industry leaders who approved the project methodology.

Existing product attribute definitions in use by industry were solicited, consolidated and normalized to form a candidate database. In the first 12 months of the project 100 logical product groupings were defined and prioritized based on sales volume by dollar and units.

For each product grouping, no fewer than two suppliers of the product and one major reseller were selected to validate the candidate attribute definitions and to propose additional attributes as appropriate. Project oversight by Pricedex and the Auto Care Association ensured that consistent practices were applied to all product groups by all subject matter experts.

A coordinated effort with representatives of the SEMA Data Co-op ensures that the appropriate attributes for popular performance products and accessories are included in the PAdb without a redundant or conflicting effort by the members of that industry segment.

The initial PAdb was published in December 2012, additional product groups and attributes have been and will be added to the standard indefinitely. As of January 2016, the PAdb contains over 109,000 attributes, covering over 11,300 PCdb Part Terminologies.

What Part Terminologies are Defined in the PAdb

The Auto Care Association will continue to update and maintain the PAdb by way of industry contribution and a review and oversight method. Version 2.06 of the PAdb, released in January 2016, will contain over 109,000 attributes covering over 12,300 PCdb Part Terminologies in general categories of products. An up-to-date list of product categories covered can be found at:

<http://www.autocare.org/What-We-Do/Technology/Product-Areas/padb/>

The Auto Care Association's Parts Classification Database (PCdb), a normalized relational database, contains coded hierarchical terminologies describing replacement parts, service items and supplies commonly sold in the Automotive Aftermarket. The PCdb is linked to the Part Attribute Database (PAdb) using the PartTerminologyID which provides the structure and Product Descriptions needed to communicate and understand the part attributes for all part terminologies.

PAdb Summary Attribute Count by Part Terminology

A detailed list of Part Terminologies covered, and the attributes in the PAdb associated with a Part Terminology, can be found at:

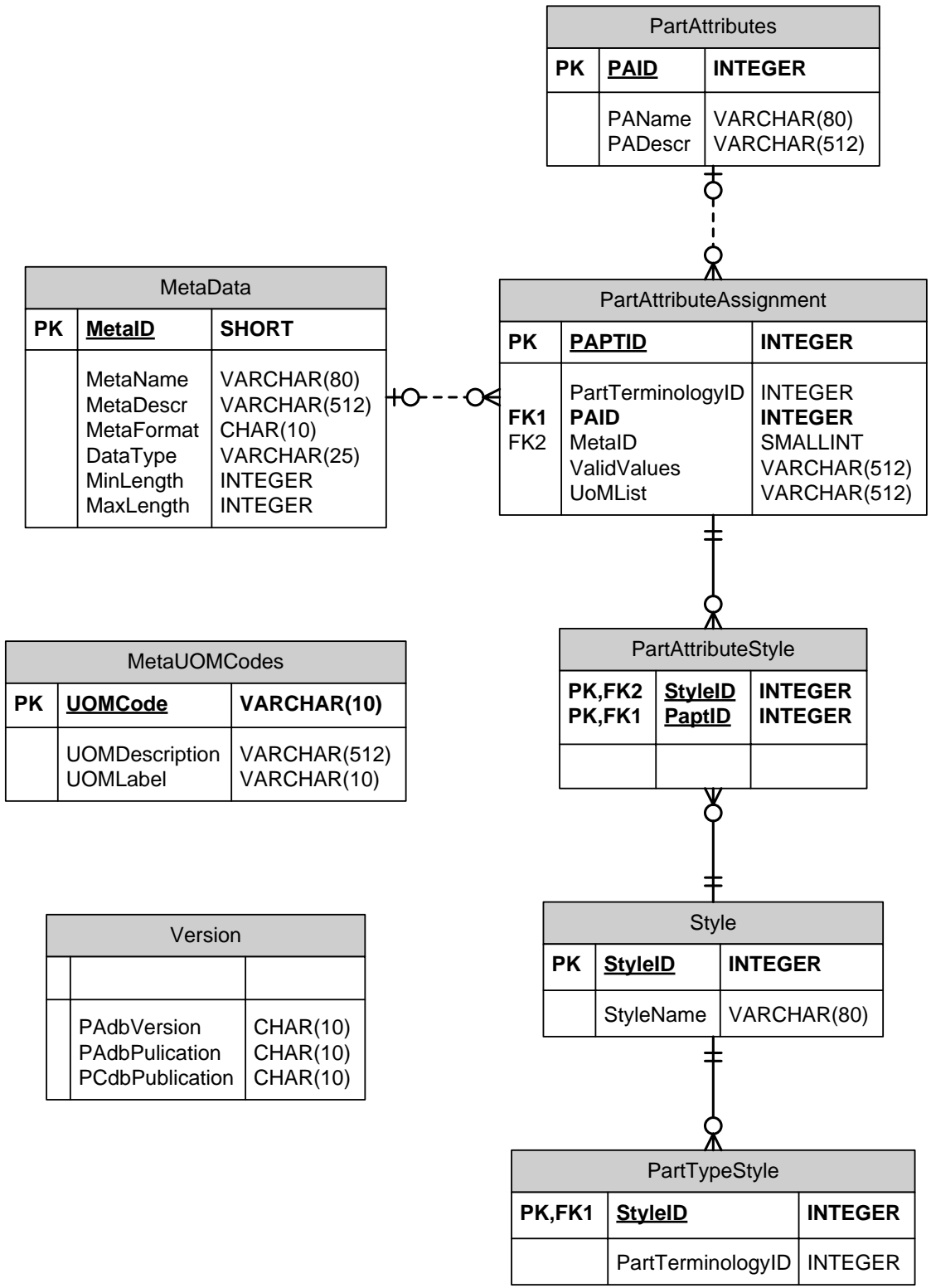
<http://www.autocare.org/What-We-Do/Technology/Product-Areas/padb/>

The PAdb Tables – Entity Relationship

The Product Attribute Database (PAdb) was structured to maintain and convey a library of Product Attributes for Part Terminologies which are contained within the Auto Care Association's PCdb.

The **PartAttributes** table within the PAdb was designed to store the Label Name of the attribute, and associate it to its proper PCdb Code, joined through the **PartAttributeAssignment** Table. Two elements of data were stored along with the PartAttributes table – Valid Values, and UoM List. The design assumed there would be distinct and unique values for the ValidValues field, and the UoMList field.

PAdb ER Diagram



The following MetaFormats, with their associated MetaName and MetaDescription, were removed from the MetaID table:

MetaData							
Meta ID	MetaName	Meta Descr	Meta Format	Data Type	Min Length	Max Length	Decimal Value
1	Numeric measurement or decimal of 6 and decimal 2	NULL	N2-3/6	Numeric measurement or decimal	3	6	2
9	Numeric measurement or decimal of 5 and decimal 3	NULL	N3-4/5	Numeric measurement or decimal	4	5	3
13	Numeric measurement or decimal of 6 and decimal 3	NULL	N3-4/6	Numeric measurement or decimal	4	6	3
14	Numeric measurement or decimal of 5 and decimal 2	NULL	N2-3/5	Numeric measurement or decimal	3	5	2
15	Numeric measurement or decimal of 5 and decimal 4	NULL	N4-5/5	Numeric measurement or decimal	5	5	4
26	Numeric measurement or decimal of 3 and decimal 1	NULL	N1-2/3	Numeric measurement or decimal	2	3	1
28	Numeric measurement or decimal of 4 and decimal 1	NULL	N1-2/4	Numeric measurement or decimal	2	4	1
31	Numeric measurement or decimal of 4 and decimal 2	NULL	N2-3/4	Numeric measurement or decimal	3	4	2
32	Numeric measurement or decimal of 3 and decimal 2	NULL	N2-3/3	Numeric measurement or decimal	3	3	2
33	Numeric measurement or decimal of 6 and decimal 1	NULL	N1-2/6	Numeric measurement or decimal	2	6	1
34	Numeric measurement or decimal of 8 and decimal 2	NULL	N2-3/8	Numeric measurement or decimal	3	8	2
35	Numeric measurement or decimal of 2 and decimal 1	NULL	N1-2/2	Numeric measurement or decimal	2	2	1
44	Numeric measurement or decimal of 4 and decimal 3	NULL	N3-4/4	Numeric measurement or decimal	4	4	3
47	Numeric measurement or decimal of 7 and decimal 4	NULL	N4-5/7	Numeric measurement or decimal	5	7	4
48	Numeric measurement or decimal of 6 and decimal 4	NULL	N4-5/6	Numeric measurement or decimal	5	6	4
67	Numeric measurement or decimal of 8 and decimal 3	NULL	N3-4/8	Numeric measurement or decimal	4	8	3
68	Numeric measurement or decimal of 7 and decimal 3	NULL	N3-4/7	Numeric measurement or decimal	4	7	3
82	Numeric measurement or decimal of 10 and decimal 2	NULL	N2-3/10	Numeric measurement or decimal	3	10	2
100	Numeric measurement or decimal of 7 and decimal 1	NULL	N1-2/7	Numeric measurement or decimal	2	7	1
109	Numeric measurement or decimal of 7 and decimal 2	NULL	N2-3/7	Numeric measurement or decimal	3	7	2
117	Numeric measurement or decimal of 4 and 3 decimal	NULL	N3-1/4	Numeric measurement or decimal	1	4	3
118	Numeric measurement or decimal of 4 and 2 decimal	NULL	N2-1/4	Numeric measurement or decimal	1	4	2
120	Numeric measurement or decimal of 2 and 2 decimal	NULL	N2-1/2	Numeric measurement or decimal	1	2	2

131	Numeric measurement or Decimal of 3	NULL	N0-1/3	Numeric measurement or decimal	1	3	0
133	Numeric measurement or decimal of 1	NULL	N0-1/1	Numeric measurement or decimal	1	1	0
164	Numeric measurement Or Decimal of 2	NULL	N0-1/2	Numeric measurement or decimal	1	2	NULL
165	Numeric measurement Or Decimal of 4	NULL	N0-1/4	Numeric measurement or decimal	1	4	NULL
167	Numeric measurement Or Decimal of 6	NULL	N0-1/6	Numeric measurement or decimal	1	6	NULL
176	Numeric measurement or decimal of 7	NULL	N0-1/7	Numeric measurement or decimal	1	7	NULL
179	Numeric measurement or decimal of 8 and 4 decimal	NULL	N4-5/8	Numeric measurement or decimal	5	8	4

IDs 163 and 88 were consolidated to a single definition, N0-1/10, which is defined to identify a Numeric Measurement which does NOT require a decimal. This type of measurement is found commonly in Time and Electrical measurements. The decimal length of 1/10 permits a whole number of 1 to 10 digits, without a decimal, to be used as a measurement attribute. While this may appear to be redundant in respect to the encoding N1/10, which represents a Whole Number with a minimum-maximum length of 1 to 10; the appending of a '0' to the 'N' coding, permits the building of a validation script to ensure the attribute has its Unit of Measure (UoMList) data populated in the PartAttributeAssignment table, as a measurement should always have its Unit of Measure defined (PAdb rule).

All the other listed IDs were replaced with a new, single definition, R1/10, depicting a Numeric Measurement with a maximum of 10 digits, and a floating decimal point. This relaxation of the PAdb rules will assist adoption and reduce the number of modifications to the PAdb in the future, by permitting the data provider to determine the accuracy (# of decimal places) to be created in its data.

All attributes in the PAdb library, over 33,500 measurement attributes, had their MetalIDs amended to reflect the new rules.

The PAdb Tables – Definitions

Table: PartAttributes

Objective: This is the attributes master table in the PAdb.

Fields:

Name	Format	Purpose
PAID	Integer	Primary key and identifier of an attribute
PAName	Varchar(80)	Name of the attribute
PADescr	Varchar(512)	Purpose of the attribute

PURPOSE: This table contains the master data of the attribute. The data stored in this table contains the unique Attribute Code (assigned by the PAdb), called the PAID; the Part Attribute Name (assigned by the industry), called the PAName; the description of use of the attribute (assigned by the industry), called PADescr.

Table: PartAttributeAssignment

Objective: This table keeps the many-to-many relationship between attributes, metadata and part terminologies.

Fields:

Name	Format	Purpose
PAPTID	Integer	Primary key and identifier of each record
PartTerminologyID	Integer	PCdb Part terminology
PAID	Integer	Identifier of an attribute record from the PA table
MetaID	Integer	Keeps the relationship with the Metadata table
ValidValues	Varchar(512)	When an attribute has multiple pre-coded values, the list goes in this field with a “ ” as delimiter.
UoMList	Varchar(512)	When an attribute has multiple unit of measure options, the values are stored in this field with a “ ” as delimiter. These values are the UOMCodes drawn from the MetaUoMCodes Table, which is a Reference Table of all valid Unit of Measure Codes.

PURPOSE: This is used to validate that the attribute is valid for use with the particular Part Terminology, and that the Meta Data associated with the attribute is also valid.

If the attribute has been assigned a list of values by the industry; the field “ValidValues” stores those values. An example of Pre-Coded values could be; a ‘Yes|No’ value; or a list of values of the Material of Construction, such as ‘Aluminum|Cast Iron|Steel’; or whether the product is New|Remanufactured. These are examples only, and not an exhaustive list – but when this field is populated, the values listed are the only values which can be conveyed with the attribute. The purpose of this pre-coded list is to maintain consistency in expression for the industry.

Table: MetaData

Objective: This table is the master of all metadata types in the system.

Fields:

Name	Format	Purpose
MetaID	Integer	Primary key and identifier of each record
MetaName	Varchar(80)	Metadata type name
MetaDescr	Varchar(512)	Metadata type purpose
MetaFormat	Varchar(10)	Actual metadata format, which is displayed in the system. Ex: N2-1/5
DataType	Varchar(25)	Brief description of the type of data (Alphanumeric, Numeric, etc)
MinLength	Integer	Minimum Length, usually 1
MaxLength	Integer	Maximum Length

PURPOSE: This table contains metadata information related to the attribute, i.e. its minimum and maximum lengths, and type of attribute. The MetaFormat coding is identical to the PIES standard.

Table: MetaUoMCodes

Objective: This table is the UoM Codes master table.

Fields:

Name	Format	Purpose
UoMCode	Varchar(10)	Unit of Measure codes. Ex: MM
UoMDescription	Varchar(512)	Unit of Measure description. Ex: Millimeter
UoMLabel	Char(10)	Labels. Ex. mm

PURPOSE: This is the table of pre-coded values for Units of Measure, issued by the Part Attribute team. This is also used for validation. The Unit of Measure codes, where possible, follow the ISO and ANSI standards established by the PIES Standard.

Group: Linear Measurement

Item [UOMDescription]	CODING [UOMCode]	Reference	Expression label [UOMLabel]
Millimeter	MM	ANSI X.12, 355	mm
Meter	LM	ANSI X.12, 355	m
Kilometer	DK	ANSI X.12, 355	km
Inch	IN	ANSI X.12, 355	in
Foot	FT	ANSI X.12, 355	ft
Yard	YD	ANSI X.12, 355	yd
Mile	DH	ANSI X.12, 355	mi
Degrees	DD	ANSI X.12, 355	deg

Group: Surface Measurement

Item [UOMDescription]	CODING [UOMCode]	Reference	Expression label [UOMLabel]
Square Millimeters	MS	ANSI X.12, 355	sq.mm
Square Centimeters	SC	ANSI X.12, 355	sq.cm
Square Meters	SM	ANSI X.12, 355	sq.m
Square Kilometers	8U	ANSI X.12, 355	sq.km
Square Inches	SI	ANSI X.12, 355	sq.in.
Square Feet	SF	ANSI X.12, 355	sq.ft.
Square Yards	SY	ANSI X.12, 355	sq.yd.
Square Miles	SB	ANSI X.12, 355	sq.mi.

Group: Volume Measurement

Item [UOMDescription]	CODING [UOMCode]	Reference	Expression label [UOMLabel]
Cubic Inches	CI	ANSI X.12, 355	cu.in
Cubic Inches (displacement)	CID	NCMA	CID
Cubic Feet	5I	ANSI X.12, 355	cu.ft
Cubic Yards	CY	ANSI X.12, 355	cu.yd
Cubic Centimeters	CC	ANSI X.12, 355	cu.cm
Cubic Centimeters (displacement)	CCM	NCMA	cc
Cubic Meters	CR	ANSI X.12, 355	cu.m
U.S. Ounce	FO	ANSI X.12, 355	fl.oz
U.S. Pint	PT	ANSI X.12, 355	pt
U.S. Quart	QT	ANSI X.12, 355	qt
U.S. Gallon	GA	ANSI X.12, 355	gal
Imperial Ounce	FZ	ANSI X.12, 355	fl.oz (imp)
Imperial Pint	PX	ANSI X.12, 355	pt (imp)
Imperial Quart	QU	ANSI X.12, 355	qt (imp)
Imperial Gallon	GI	ANSI X.12, 355	gal (imp)
Milliliters	ML	ANSI X.12, 355	ml
Liters	LT	ANSI X.12, 355	L

Group: Weight

Item [UOMDescription]	CODING [UOMCode]	Reference	Expression label [UOMLabel]
Ounce	OZ	ANSI X.12, 355	oz
Pound	LB	ANSI X.12, 355	lb
Pounds	LBS		lbs
Ton	TN	ANSI X.12, 355	T
Milligram	ME	ANSI X.12, 355	mg
Gram	GR	ANSI X.12, 355	g
Kilogram	KG	ANSI X.12, 355	kg
Metric Ton	MP	ANSI X.12, 355	MT

Group: Performance

Item [UOMDescription]	CODING [UOMCode]	Reference	Expression label [UOMLabel]
Decibels	2N	ANSI X.12, 355	dB
Candela	CD	SI	cd
Revolutions per Minute	R3	ANSI X.12, 355	RPM
Lumens	LM	SI	lm
Lux	LX	SI	lx
Ampere	68	ANSI X.12, 355	A
Candlepower	CP	Legacy	C.P.
Pounds per Square Inch	PS	ANSI X.12, 355	PSI
Newton	NW	ANSI X.12, 355	N
Kilopascal	KQ	ANSI X.12, 355	kPa
Miles per Hour	HM	ANSI X.12, 355	mph
Kilometers per Hour	KP	ANSI X.12, 355	km/h
Inch Pounds	1A	ANSI X.12, 355	in-lb
Foot Pounds	85	ANSI X.12, 355	ft-lb
Horsepower	HJ	ANSI X.12, 355	HP
Miles per Gallon	MPG		MPG
Liters per 100 Kilometers	LKM	SI	L/100km
Millimeters of Mercury	HN	ANSI X.12, 355	mmHg
Milliamp – Hours	MAH		mAH
Amp – Hours	AH		AH
Kilowatt – Hours	KH	ANSI X.12, 355	KWH
British Thermal Unit	BY	ANSI X.12, 355	BTU
Kilojoule	ZS	ANSI X.12, 355	KJ
Watts	99	ANSI X.12, 355	W
Kilowatts	K7	ANSI X.12, 355	KW
Cubic Feet per Minute	2L	ANSI X.12, 355	cfm
Inches of Mercury	INHG		inHg

Group: Time

Item [UOMDescription]	CODING [UOMCode]	Reference	Expression label [UOMLabel]
Milliseconds	MS		ms
Seconds	03	ANSI X.12, 355	s
Minutes	MJ	ANSI X.12, 355	min
Hours	HR	ANSI X.12, 355	h
Day	DA	ANSI X.12, 355	d
Month	MO	ANSI X.12, 355	mo
Year	YR	ANSI X.12, 355	yr

Group: Temperature and Energy

Item [UOMDescription]	CODING [UOMCode]	Reference	Expression label [UOMLabel]
Degrees Fahrenheit	FA	ANSI X.12, 355	Deg. F
Degrees Celsius, Centigrade	CE	ANSI X.12, 355	Deg. C
Degrees Kelvin	KV	ANSI X.12, 355	Deg. K
Joules	86	ANSI X.12, 355	J
Calorie	R4	ANSI X.12, 355	Cal
Calories per Gram	93	ANSI X.12, 355	Cal/g

Group :Electrical

Item [UOMDescription]	CODING [UOMCode]	Reference	Expression label [UOMLabel]
Millivolts	2Z	ANSI X.12, 355	mV
Volts AC	2G	ANSI X.12, 355	VAC
Volts DC	2H	ANSI X.12, 355	VDC
Milliwatts	MW		mW
Watts	99	ANSI X.12, 355	W
Kilowatts	K7	ANSI X.12, 355	KW
Milliamps	4K	ANSI X.12, 355	mA
Ampere	68	ANSI X.12, 355	A
Ohm	82	ANSI X.12, 355	Ohms
Siemens	67	ANSI X.12, 355	S
Microfarad	4O	ANSI X.12, 355	mF

Group:Frequency

Item [UOMDescription]	CODING [UOMCode]	Reference	Expression label [UOMLabel]
Hertz	HZ	ANSI X.12, 355	Hz
Kilohertz	KHZ		KHz
Megahertz	N6	ANSI X.12, 355	MHz
Gigahertz	GHZ		GHz

Group:Computer Storage and Memory

Item [UOMDescription]	CODING [UOMCode]	Reference	Expression label [UOMLabel]
Kilobytes	2F	ANSI X.12, 355	KB
Megabytes	4L	ANSI X.12, 355	MB
Gigabytes	G9	ANSI X.12, 355	GB
Terabytes	3Z	ANSI X.12, 355	TB

Group: Velocity and Flow

Item [UOMDescription]	CODING [UOMCode]	Reference	Expression label [UOMLabel]
Cubic Feet per Minute	2L	ANSI X.12, 355	cfm
Cubic Feet per second			cfs
Cubic Feet per hour	2K	ANSI X.12, 355	cfh
Inches per second per second	IV	ANSI X.12, 355	i/s/s
Feet per second per second	FSS		ft/s/s
Meters per second per second	4J	ANSI X.12, 355	m/s ²
U.S. Gallons per minute	G2	ANSI X.12, 355	gpm
Cubic meters per second	M3S	SI	M ³ /s
Imperial Gallons per minute	G3	ANSI X.12, 355	gpm (imp)
Cubic meters per minute	CMM	SI	m ³ /m
U.S. Gallons per hour	GPH		gph
Imperial Gallons per hour	GPHI	IMP	gph (imp)
Cubic meters per hour	4V	ANSI X.12, 355	m ³ /h
Milliliters per second	40	ANSI X.12, 355	ml/s
Milliliters per minute	41	ANSI X.12, 355	ml/m

Group: Density and Thickness

Item [UOMDescription]	CODING [UOMCode]	Reference	Expression label [UOMLabel]
Parts per Million	59	ANSI X.12, 355	ppm
Grams per cubic centimeter	23	ANSI X.12, 355	g/cm ³
Mil	77	ANSI X.12, 355	Mil
Thou	TH	SI	Thou
Gauge	GA	IMP	ga.

Style: A Part Terminology may have more than one 'Style'. The concept of 'style', in the context of the Part Attribute Database, is to provide a means to identify which attributes should be associated to the Part Type in the 'Style' use case. A 'Style' should be considered a 'Qualifier' to the Part Terminology. In this instance of use, Style = Passenger Vehicle, Heavy Duty, Agricultural, Lawn and Garden, etc., style is a grouping of attributes that should be used to describe the product.

Alternatively, 'Style' can describe a variant type of construction, or purpose for the Part Type (Style = Replacement, Performance, Racing, etc.), and the grouping of attributes should be used to describe the product.

'Style' is defined and agreed upon by the industry Subject Matter Experts, and is applied to the Part Terminology. Style is not maintained in the PCdb, and is strictly a reference point to group appropriate attributes to a 'Style' qualifier for a Part Terminology. The table of Style definitions can be added to, but a defined Style may not be deleted.

Table: PartAttributeStyle

Objective: This table keeps the many-to-many relationship between Style, attributes and part terminologies.

Fields:

Name	Format	Purpose
StyleID	Integer	From Style table
PAPTID	Integer	From PartAttributeAssignment table

Table: Style

Objective: This is the Style master table.

Fields:

Name	Format	Purpose
StyleID	Integer	Primary key and identifier of each record
StyleName	Varchar(80)	Style Name. Ex: Passenger Car

Table: PartTypeStyle

Objective: This table keeps the relationship between Style and part terminologies.

Fields:

Name	Format	Purpose
StyleID	Integer	From PartAttributeStyle table
PartTerminologyID	Integer	PCdb Part terminology

Table: Version

Objective: This table supplies Version information about the PAdb.

Fields:

Name	Format	Purpose
PAdbVersion	Float	PAdb database version number
PAdbPublication	Varchar(10)	Date of PartAttribute database publication
PCdbPublication	Varchar(10)	Date of PCdb publication in use at time of PAdb publication

Style - Example of Use

The table below shows how 'Style' is used for a part terminology's product attributes. 'Style' provides the flexibility to assign different product attributes for each 'Style' of the single part terminology, allowing more precise assignments of product attributes.

Part TerminologyID	PartTerminology Name	StyleName	PAName
14262	Air Freshener	Hanging	Air Freshener Scent
14262	Air Freshener	Hanging	Color
14262	Air Freshener	Hanging	Disposable
14262	Air Freshener	Hanging	Dual Scent
14262	Air Freshener	Hanging	Hypoallergenic
14262	Air Freshener	Hanging	Package Material
14262	Air Freshener	Hanging	Shape
14262	Air Freshener	Hanging	Shelf Life After Opening
14262	Air Freshener	Refill	Air Freshener Scent
14262	Air Freshener	Refill	Application Method
14262	Air Freshener	Refill	Color
14262	Air Freshener	Refill	Hypoallergenic
14262	Air Freshener	Refill	Package Material
14262	Air Freshener	Refill	Refillable
14262	Air Freshener	Refill	Shelf Life After Opening

The PAdb and the Product Information Exchange Standard (PIES)

PIES 6.6, was released May 2016, with no changes to the Attribute Segment. It continues to support the ability to send Industry Standard PAdb encoded attributes, or standard uncoded attributes as it previously did in PIES 6.5.

The following section discusses how to send PAdb Attributes in the PIES 6.6 format.

PIES 6.6 Product Attribute Segment

Ref #	Segment	Field Name	Req	XSD Rule	Format	XML Elements and Attributes	Example	Coded Values	External Code	Comment
F01	ATRB	Product Attributes Segment	O	O		<ProductAttributes>		N	N	Product Attribute Segment - A Loop of ITEM
F02	ATRB	Maintenance Type	M	R	ID1	MaintenanceType	A	Y	N	
F05	ATRB	Attribute ID (Type)	KM	R	AN1/80	AttributeID	1141	Y	Y	When F07 is 'Y' this field uses the PAID Number from the PADB, otherwise it uses the manufacturer assigned attribute label
F07	ATRB	PADB Attribute	M	R	ID1	PADBAttribute	Y	N	Y	Flag indicating if Product Attribute is standardized in the PADB
F08	ATRB	Attribute UOM	O	O	AN1/20	AttributeUOM	mm	N	Y	UOM Code, NOT UOM LABEL, UOM associated with Product Attribute - When F07 is 'Y' this field uses the METAUOMCODES table in the PADB.
F10	ATRB	Attribute Data	M	R	AN1/2000	<ProductAttribute>	7	N	Y	Required if "Attribute ID (Type)" specified. Supplier assigned value corresponding to "Attribute ID" or drawn from Valid Values field in the PADB. Each ProductAttribute record can have only a single value. Multi-valued attributes are handled by creating multiple ProductAttribute records with the same ID and different MultiValueSequence.
F11	ATRB	PADB StyleID	O	O	N1/5	StyleID	1	N	Y	Optional when F07 is 'Y'. The Style ID represents the the Style of the part to which the attribute applies.
F15	ATRB	Record Sequence	O	O	N1/3	RecordNumber	1	N	Y	Logical Attribute sequence
F17	ATRB	Multi Value Quantity	O	O	N1/3	MultiValueQuantity	4	N	Y	Number of values for a multi-valued attribute
F18	ATRB	Multi Value Sequence	KO	O	N1/3	MultiValueSequence	1	N	Y	Sequence of values for a multi-valued attribute
F20	ATRB	Language Code	KO	O	ID2	LanguageCode	EN	Y	N	Defaults to HEAD record

Use of PIES Fields in the Product Attribute Segment

F02 – Maintenance Type – This field indicates whether you are (A) adding this record; (C) Changing this record; (D) Deleting this record; or (N) sending this record with No Change from the previous record.

F05 – Attribute ID (Type) – Premised upon the type of record you are sending, this Key Mandatory field will be filled with either the PAdb Attribute ID Number, or, if the attribute being sent is not part of the PAdb, the Attribute Label. For validation purposes, the Field F07 must indicate whether the attribute being sent is included in the PAdb

F07 – PAdb Attribute – This Mandatory Field indicates whether the attribute sent is from the PAdb or whether it is a custom attribute.

F08 – Attribute UOM – This optional field allows you to send the Unit of Measure suffix associated with your attribute, if the attribute is of a measurement type. If the attribute is from the PAdb, you should send the relevant MetaUOMCode from the PAdb tables. If the attribute is custom, a best practice would be to use the appropriate ANSI UOM Code. **SPECIAL NOTE: The PAdb defines the appropriate Unit of Measure for its attributes which require them. It is not necessary to populate this field when sending a PAdb Attribute.**

F10 – Attribute Data – this alphanumeric field is used to send the attribute value, or sequence of attribute values, associated with the attribute. NOTE: The attribute value should be created

and conveyed in the proper format associated with it in the PAdb (ie Numeric, with the proper decimal points, text, etc. Its meta format should be validated against the PAdb, not by PIES).

F11 PAdb StyleID – If an attribute relates to a specific ‘Style’ of a Part Terminology as defined within the PAdb, this field should be populated with the appropriate Style ID code from the PAdb. If the attribute is applied generically across all styles defined for a Part Terminology within the PAdb, do not convey the StyleID.

F15 Record Sequence – This optional field is used if you are sending more than one attribute for the Item in the Attribute sub-loop. Record Sequence is used to tell the receiving party the order in which the attributes should be published. **EXAMPLE: If you are sending specific measurements of an item, such as Length, Height, and Width, you would likely code the publishing sequence of these three attributes to read Length, Width and Height. In this example, the attribute ‘Length’ would have a Record Sequence of ‘1’; Width would have a Record Sequence of ‘2’, and Height would have a Record Sequence of ‘3’. See the Examples of Use, below.**

About Attributes having Multiple Values

In certain circumstances, an Item Attribute may have more than one value. An example of this would be an item which has a Range of electrical operating values (i.e. 6, 12 or 24 Volt), or a Range of Resolutions (ie. 600, 1200, 2400 dpi). In these circumstances, the PIES standard can accommodate a further looping of values, transmitting each value in its own tag. The Attribute segment of PIES accommodates this through the use of two special fields – *F17, Multi Value Quantity*, and *F18, Multi Value Sequence*.

F17 Multi Value Quantity – This optional field identifies how many values are to be included with the record for this particular attribute.

F18 Multi Value Sequence – This optional field is used to tell the receiving party the order in which the attribute values contained in this sub-loop should be published.

F20 – Language Code – The use of the Language Code, within this loop enables the sender to send alternate languages for attribute data. This field, if left empty, defaults to the Language Code identified in the Header element of PIES. Codes used in this field are drawn from ISO Table 6390-1, 2 character Language Codes.

PIES - Examples of Use:

Example 1 – Custom attributes sent in PIES

Sending three non-PADB attributes for an Item (Part Number 1234 - Widget), using the following custom attributes:

Widget Length = 12.5 inches

Widget Width = 4.25 inches

Widget Height = 3.5 inches

Sample PIES XML

```
...
<Items>
  <Item MaintenanceType="A">
    ...
    <PartNumber>1234</PartNumber>
    ...
    <ProductAttributes>
      <ProductAttribute
        MaintenanceType="A"
        AttributeID="Length"
        PADBAttribute="N"
        AttributeUOM="IN"
        RecordNumber="1">12.5</ProductAttribute>
      <ProductAttribute
        MaintenanceType="A"
        AttributeID="Width"
        PADBAttribute="N"
        AttributeUOM="IN"
        RecordNumber="2">4.25</ProductAttribute>
      <ProductAttribute
        MaintenanceType="A"
        AttributeID="Height"
        PADBAttribute="N"
        AttributeUOM="IN"
        RecordNumber="3">3.5</ProductAttribute>
    </ProductAttributes>
    ...
  </Item>
</Items>
...
```

Example 2 – PAdb attributes sent in PIES

2a) Sending multiple PAdb Attributes for an Item (Part Number 9876 – Brake Caliper), using the PAdb definitions for Brake Caliper attributes:

Example PAdb Data

PAID	Attribute Name (PAName)	Description of Use (PA Descr)	Attribute Type (From MetaData Table)	Unit of Measure Code (From UoMList)	Value (Actual Value or from Valid Values Field)
54321	Mounting Hardware Included	Does this product include its mounting Hardware	Text	-	Yes No are the Valid Values from the PAdb Table. <Yes> is the desired value
54322	Caliper Type	Describes how the Caliper is designed	Alphanumeric	-	These are the Valid Values from the PAdb Table. Anette Design Fixed Monoblock Fixed 2pc Fixed 3pc Slider Slider w/ Mechanical Parking Brake Slider w/ Electric Parking Brake Mechanical Parking Brake Only <Slider> is the desired value
54323	Inlet Port Diameter		Numeric measurement, Floating Decimal	IN	0.750
54324	Piston Quantity		Numeric, length 2	-	1
54325	Piston Size 1	Piston Diameter	Numeric measurement, Floating decimal	IN	1.375
54326	Bleeder Thread Size	Size of the thread on the bleeder port and diameter. Examples 7/16x20 - 3/8x24 - 10x1.0 - 10x1.5	Alphanumeric, length 10		3/8x24
54327	Caliper Casting Material	Defines the casting material	Text	-	These are the Valid Values from the PAdb Table. Cast Iron Aluminum Magnesium Composite <Aluminum> is the desired value

2 a) Sample PIES XML

```
...
<Items>
  <Item MaintenanceType="A">
    ...
    <PartNumber>9876</PartNumber>
    ...
    <ProductAttributes>
      <ProductAttribute
        MaintenanceType="A"
        AttributeID="54321"
        PADBAttribute="Y" RecordNumber="1">Yes</ProductAttribute>
      <ProductAttribute
        MaintenanceType="A"
        AttributeID="54322"
        PADBAttribute="Y"
        RecordNumber="2">Slider</ProductAttribute>
      <ProductAttribute
        MaintenanceType="A"
        AttributeID="54323"
        PADBAttribute="Y"
        AttributeUOM="IN"
        RecordNumber="3">0.750</ProductAttribute>
      <ProductAttribute
        MaintenanceType="A"
        AttributeID="54324"
        PADBAttribute="Y"
        RecordNumber="4">1</ProductAttribute>
      <ProductAttribute
        MaintenanceType="A"
        AttributeID="54325"
        PADBAttribute="Y"
        AttributeUOM="IN"
        RecordNumber="5">1.375</ProductAttribute>
      <ProductAttribute
        MaintenanceType="A"
        AttributeID="54326"
        PADBAttribute="Y"
        RecordNumber="6">3/8x24</ProductAttribute>
      <ProductAttribute
        MaintenanceType="A"
        AttributeID="54327"
        PADBAttribute="Y"
        RecordNumber="7">Aluminum</ProductAttribute>
    </ProductAttributes>
    ...
  </Item>
</Items>
...
```

2b) Sending PAdb Attributes for two Styles of Tire (Passenger Tire, Racing Slick) for Part Number 192837 – Passenger Tire, and 292837 – Racing Slick.

Example PAdb Data

PAID	Attribute Name	Attribute Type	Style Name	Style ID	Unit of Measure Code	Value
12345	Tread Depth	Numeric Measurement, Floating Decimal	Passenger Tire	20	IN	0.375
23456	Mud/Snow Rated	Text	Passenger Tire	20	-	Yes No are the Valid Values from the PAdb Table. <Yes> is the desired value
34567	Revolutions Per Mile	Numeric Measurement, Floating Decimal	Racing Slick	22	-	854
45678	Compound Type		Racing Slick	22	-	Rain Qualifying Hillclimb Night Sprint Endurance are the Valid Values from the PAdb Table. <Endurance> is the desired value
56789	Sidewall Type	Text	Passenger Tire, Racing Slick	20, 22	-	Blackwall Whitewall Raised Letters are the Valid Values from the PAdb Table. <Whitewall> is the desired value for the Passenger Tire, <Raised Letters> is the desired value for the Racing Slick.
67890	Rim Diameter	Numeric, length 2	Passenger Tire, Racing Slick	20, 22	IN	15 is the desired value for Racing Slick 14 is the desired value for Passenger Tire

2 b) Sample PIES XML

```
...
<Items>
  <Item MaintenanceType="A">
    ...
    <PartNumber>192837</PartNumber>
    ...
    <ProductAttributes>
      <ProductAttribute
        MaintenanceType="A"
        AttributeID="12345"
        PADBAttribute="Y"
        StyleID="20"
        AttributeUOM="IN"
        RecordNumber="1">0.375</ProductAttribute>
      <ProductAttribute
        MaintenanceType="A"
        AttributeID="23456"
        PADBAttribute="Y"
        StyleID="20"
        RecordNumber="2">0.375</ProductAttribute>
      <ProductAttribute
        MaintenanceType="A"
        AttributeID="56789"
        PADBAttribute="Y"
        StyleID="20"
        RecordNumber="3">Whitewall</ProductAttribute>
      <ProductAttribute
        MaintenanceType="A"
        AttributeID="67890"
        PADBAttribute="Y"
        StyleID="20"
        AttributeUOM="IN"
        RecordNumber="4">14</ProductAttribute>
    </ProductAttributes>
    ...
  </Item>
  <Item MaintenanceType="A">
    ...
    <PartNumber>292837</PartNumber>
    ...
    <ProductAttributes>
      <ProductAttribute
        MaintenanceType="A"
        AttributeID="34567"
        PADBAttribute="Y"
        StyleID="22"
        RecordNumber="1">854</ProductAttribute>
      <ProductAttribute
        MaintenanceType="A"
        AttributeID="45678"
        PADBAttribute="Y"
        StyleID="22"
        RecordNumber="2">Endurance</ProductAttribute>
      <ProductAttribute
        MaintenanceType="A"
        AttributeID="56789"
        PADBAttribute="Y"
        StyleID="22"
        RecordNumber="3">Raised Letters</ProductAttribute>
      <ProductAttribute
        MaintenanceType="A"
        AttributeID="67890"
        PADBAttribute="Y"
        StyleID="22"
        AttributeUOM="IN"
        RecordNumber="4">15</ProductAttribute>
    </ProductAttributes>
    ...
  </Item>
</Items>
...
```

2c) Sending PAdb Attributes for a Drill Bit which has a drilling diameter range of .125 to .75 inches, in increments of .125 inches for Part Number 5463782 – Drill Bit

Example PAdb Data

PAID	Attribute Name	Attribute Type	Unit of Measure Code	Value
12345	Shank Diameter	Numeric Measurement, Floating Decimal	IN	0.3125
12346	Bit Length	Numeric Measurement, Floating Decimal	IN	3.375
12347	Bit Material	Alphanumeric, 25 characters	-	Cobalt
12348	Cut Diameter	Numeric Measurement, Floating Decimal	IN	0.125,0.250,0.375,0.500,0.625,0.750

2 c) Sample PIES XML

```

...
<Items>
<Item MaintenanceType="A">
...
<PartNumber>5463782 </PartNumber>
...
<ProductAttributes>
  <ProductAttribute
    MaintenanceType="A"
    AttributeID="12345"
    PADBAttribute="Y"
    AttributeUOM="IN"
    RecordNumber="1">0.3125</ProductAttribute>
  <ProductAttribute
    MaintenanceType="A"
    AttributeID="12346"
    PADBAttribute="Y"
    AttributeUOM="IN"
    RecordNumber="2">3.375</ProductAttribute>
  <ProductAttribute
    MaintenanceType="A"
    AttributeID="12347"
    PADBAttribute="Y"
    RecordNumber="3">Cobalt</ProductAttribute>
  <ProductAttribute
    MaintenanceType="A"
    AttributeID="12348"
    PADBAttribute="Y"
    AttributeUOM="IN"
    RecordNumber="4"
    MultiValueQuantity="6"
    MultiValueSequence="1">0.125</ProductAttribute>
  <ProductAttribute
    MaintenanceType="A"
    AttributeID="12348"
    PADBAttribute="Y"
    AttributeUOM="IN"
    RecordNumber="4"
    MultiValueQuantity="6"
    MultiValueSequence="2">0.250</ProductAttribute>

```



```

<ProductAttribute
  MaintenanceType="A"
  AttributeID="12348"
  PADBAttribute="Y"
  AttributeUOM="IN"
  RecordNumber="4"
  MultiValueQuantity="6"
  MultiValueSequence="3">0.375</ProductAttribute>
<ProductAttribute
  MaintenanceType="A"
  AttributeID="12348"
  PADBAttribute="Y"
  AttributeUOM="IN"
  RecordNumber="4"
  MultiValueQuantity="6"
  MultiValueSequence="4">0.500</ProductAttribute>
<ProductAttribute
  MaintenanceType="A"
  AttributeID="12348"
  PADBAttribute="Y"
  AttributeUOM="IN"
  RecordNumber="4"
  MultiValueQuantity="6"
  MultiValueSequence="5">0.625</ProductAttribute>
<ProductAttribute
  MaintenanceType="A"
  AttributeID="12348"
  PADBAttribute="Y"
  AttributeUOM="IN"
  RecordNumber="4"
  MultiValueQuantity="6"
  MultiValueSequence="6">0.750</ProductAttribute>
</ProductAttributes>
...
</Item>
</Items>
...

```

Appendix A

Version 2.06 Changes

Version 2.06 was modified slightly by removing the specific inclusion of the number of decimals on an attribute depicting a measurement when creating attributes for defining measurements.

The MetaData table, which provides a series of definitions to identify the Attribute Type (Data Type), the Minimum and Maximum lengths of an attribute data type, and the number of decimal spaces related to an attribute, was modified to remove the MetaID “Decimals”.