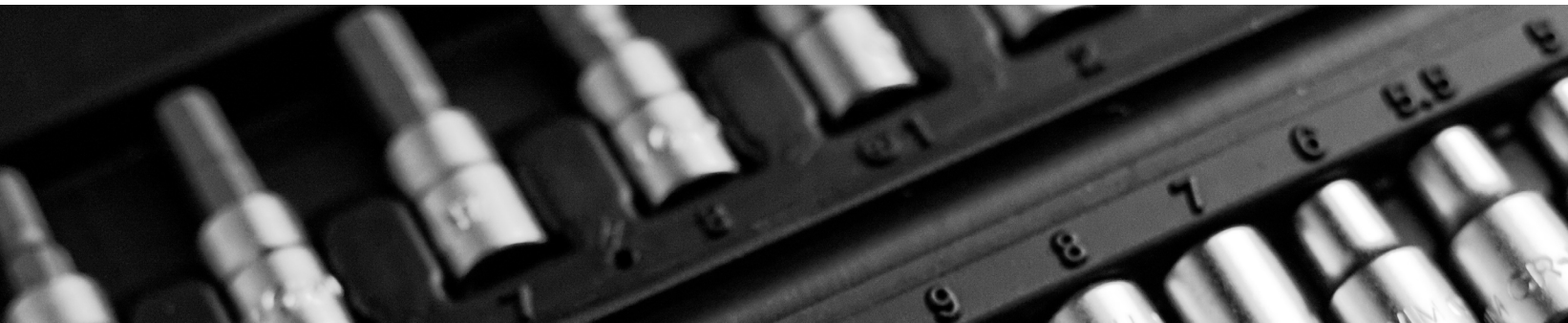




# PLM ESSENTIALS

## 3. PART NOMENCLATURE



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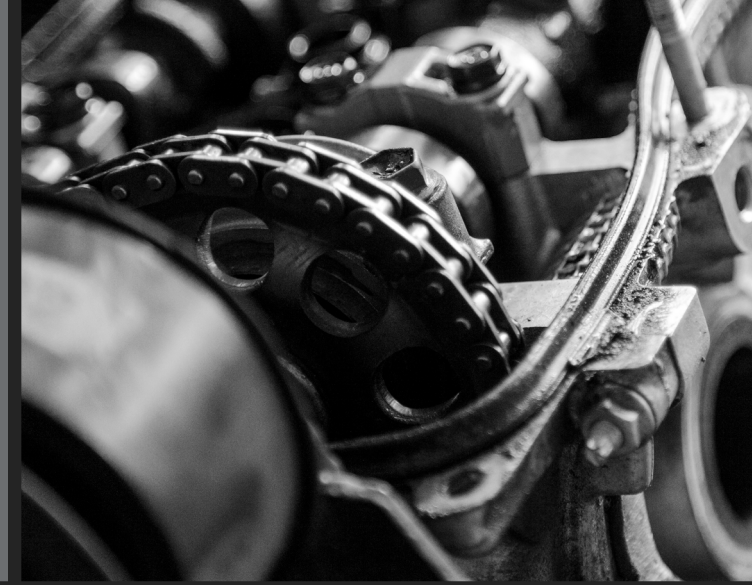
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# 3 PART NOMENCLATURE



**At the heart of all complex engineering and associated manufacturing processes is Product Data Management (PDM) - the business function that organises, maintains and reports all product data.**

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PLM captures and tracks information on the individual parts, components and modules that constitute a finished product throughout its lifecycle, including changes made during development.

This includes part numbers, supplier details, CAD drawings and more, with everything stored in a database easily accessible to the likes of project managers, engineers, salespeople, purchasing and QA teams.

Efficient management of product data helps develop products quicker, get them to market faster, and push costs down.

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## *PART NOMENCLATURE THE EASIER PARTS DESCRIPTORS*

Part numbers are the DNA of part designs. But for anyone involved in a complex manufacturing process who doesn't know how the part numbering system works, part descriptions can save the day.

Consistent nomenclature gives you a quick and easy way of describing (and identifying) a part. But you need a good system to guide you and avoid confusion.

To show you what a good part nomenclature system looks like, we've put together a detailed case study of one we built for a leading electric vehicle manufacturer.

# WHAT IS PART NOMENCLATURE?

Nomenclature refers to the physical description of a part. Also called the 'part description', this is usually a string of abbreviations that form a more easily identifiable counterpart to the part number.

This makes it quick and simple for somebody to find out the use and location of a part without knowing the intricacies of a more complex part number.

To keep things concise, the majority of Product Lifecycle Management (PLM) and Enterprise Resource Planning (ERP) systems place some form of character limit on descriptions, so it makes sense to use condensed language that accurately conveys each element of the part description it refers to.

But this is rarely as straightforward as it sounds - due to the complex nature of many engineering projects, a weak nomenclature system (or the absence of one altogether) often results in part descriptions becoming too complicated, hard to interpret, or unspecific, which leads to mistakes.

## WHO USES PART NOMENCLATURE?

Every function that in any way interacts with parts will be impacted by the nomenclature chosen, including but not limited to:

- **Engineering**
- **Purchasing**
- **Homologation**
- **R&D**
- **Suppliers**
- **Manufacturing/Production**
- **Logistics**
- **Styling/Concept**
- **Finance**
- **Quality**

## PART NOMENCLATURE AT THE MANUFACTURER

Part naming convention was not well defined, left up to the engineer creating the part to decide the nomenclature. As a result, most part descriptions were logical but lack a common structure, while some with very different functions could be confused.

On top of this, the manufacturer's part descriptions use non-alphanumeric characters. In a robust and well-constructed PLM/ERP system this shouldn't be a problem, but rogue characters could still cause the system to crash or result in unexpected behaviour when exporting data.

FRONT IDS CORNERS ASSEMBLED KIT 3T
BOX BLANK
STEERING SUPPORT
LOWER SECTION

## PART NOMENCLATURE

### INDUSTRY EXAMPLES

Each Original Equipment Manufacturer (OEM) enforces a different naming convention and restricts characters based on the needs of their individual systems.

However, they all follow a similar trend of having defined locations within a part description where various descriptors must be placed, making for quick and accurate part identification.

Usually, part descriptions start with a description of the assembly type, followed by the noun (describing the part) and any necessary modifiers.

Each modifier builds upon the previous one, to narrow down the definition, so ASSY BRAKE HOSE RR FR refers to the front brake hose within the set of rear hoses.

In practice, the only meaningful difference between OEMs when it comes to part naming convention is how consistently it's applied. One large OEM has a list of over 2,300 approved abbreviations for use in part descriptions, where others define only the framework and let engineers get on with it.



## DECISION CRITERIA FOR SELECTING AN ATTRIBUTES SYSTEM

- **Interpretation accuracy** - Part descriptions should make it simple to interpret the function and location of the part
- **Concise** - Descriptions should be short enough to read easily
- **Compatibility** - Description characters and format should be compatible with ERP and PLM systems as well as Excel and other common data software
- **Intuitiveness** - Descriptions and abbreviations should be straightforward to construct to the chosen standard and minimise hassle for anyone generating and checking new part descriptions
- **Standardised** - Descriptions structure and formatting shouldn't vary too much from general industry practice

## THE SYSTEM SELECTED

We proposed a simple, relatively standard part naming convention with a maintained list of commonly accepted abbreviations and permitted characters.

## ACCEPTED CHARACTERS

### LETTERS (UPPER CASE ONLY)

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

### NUMBERS

0 1 2 3 4 5 6 7 8 9

### SPECIAL CHARACTERS

& -

## DESCRIPTION STRUCTURE

Part descriptions should be structured as below:

[ASSY TYPE] [PART] [LOCATION 1] [LOCATION 2] [LOCATION 3] [ASSOCIATED PART] [OTHER]

For locations, order is established in the following priority:

- **Left hand / Right hand**
- **Front / Rear**
- **Other**

Any further location descriptors should provide more detail on where the part is used. For example, BRKT LH FR UPR RH would specify the right-hand bracket within the front left upper set of brackets.

'Other' descriptors may contain traits unique to that particular type of part (for example, Upgrade / Standard on audio equipment) or the colour code of the part.

Assembly type, locations, associated part and other descriptors are all optional.

## PART NOMENCLATURE

A character limitation of 60 characters allows for backwards compatibility with other systems used (e.g. Sage).

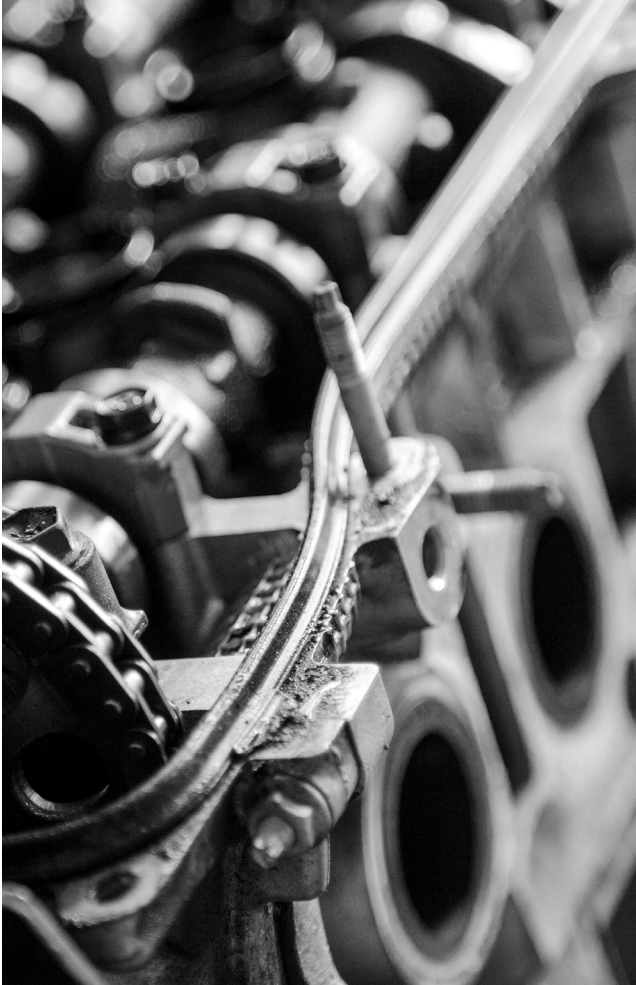
Examples of accepted abbreviations to be used to aid with this limitation are:

<b>ASSY TYPE</b>	MA		ASSY
<b>PART</b>	ROOF	BOLT	SPEAKER
<b>LOCATION 1</b>		LH	LH
<b>LOCATION 2</b>			UPR
<b>ASSOCIATED PART</b>		OUTRIGGER	DOOR
<b>OTHER</b>			UPGRADE



## DESCRIPTION STRUCTURE

While it's impossible to provide an exhaustive list, it makes sense to include and maintain a list of standard abbreviations for common parts or descriptors to provide consistency across projects.



### ACCEPTED ABBREVIATIONS INCLUDE:

FULL NAME	ABBREVIATION
A Pillar	APLR
Accelerator	ACCEL
Adjustable	ADJ
Advance	ADV
Air Conditioning	ACON
Alignment	ALIGN
Alternating Current	AC
Aluminium	ALUM
Antenna	ANT
Armature	ARM
Assembly	ASSY
Automatic	AUTO
Auxillary	AUX
B Pillar	BPLR
Back	BK
Battery	BATT
Bottom	BTM
Bracket	BRKT
Button	BTN
C Pillar	CPLR
Centre	CTR
Channel	CHNL
Compressor	COMPR
Cylinder/Cylindrical	CYL
Damper	DMPR
Deflector	DEFLCTR
Differential	DIFF
Door	DR
Driver	DRIV
Electric	ELEC
Exhaust	EXH
Extension	EXTN
Fender	FNDR

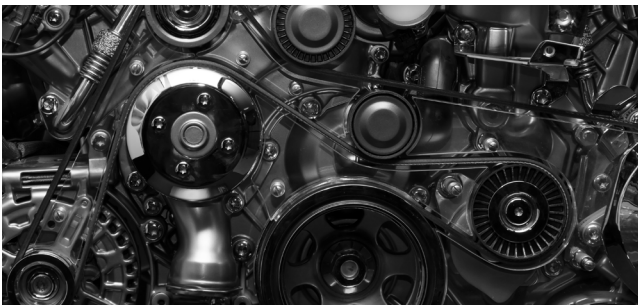
### PART NOMENCLATURE

FULL NAME	ABBREVIATION
A Pillar	APLR
Accelerator	ACCEL
Floor	FLR
Forward	FWD
Front	FR
Hardware	HW
Harness	HARN
Header	HDR
Injection	INJ
Inner	INR
Instrument Panel	IPNL
Insulation	INSLN
Interior	INT
Leather	LTHR
Left	LT
Left Hand	LH
Left Hand Drive	LHD
Long	LG
Lower	LWR
Luggage	LUG
Manual	MAN
Manufacturing Assembly	MA
Mechanism	MECH
Middle	MDL
Moulding	MLDG
Mounting	MTG
Negative	NEG
Noise Vibration Harshness	NVH
Outer	OTR
Panel	PNL
Passenger	PASS
Pillar	PLR
Positive	POS

## ABBREVIATIONS CONTINUED:

FULL NAME	ABBREVIATION
A Pillar	APLR
Accelerator	ACCEL
Quarter	QTR
Radiator	RAD
Rear	RR
Regulator	REG
Reinforcement	REINF
Right	RT
Right Hand	RH
Right Hand Drive	RHD

FULL NAME	ABBREVIATION
A Pillar	APLR
Accelerator	ACCEL
Sheet	SH
Shield	SHLD
Standard	STD
Support	SUPT
Surface	SURF
Temperature	TEMP
Upper	UPR
Windscreen Surround	WSS



# JUSTIFICATION & EVIDENCE FOR THE NEW SYSTEM

## CHARACTERS

Part descriptions are used in almost all systems that relate to parts in any way, from PLM to ERP and even supplier systems. While most systems on the market can handle all common characters, some are still vulnerable to special characters as they're used within the system to delimit fields (for example the comma in CSV files) or denote data types (such as the single quote mark in SQL).

While the exact architecture of the manufacturer's systems is undefined (as well as its supply base) it's well worth adopting a restricted range of allowable special characters to make sure that descriptions are compatible with as wide a range of software as is possible to prevent future issues.

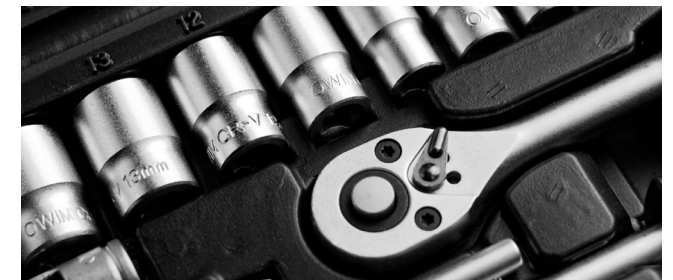
## STRUCTURE

Having a clearly defined structure enables unfamiliar users to easily identify parts within a different project. By placing emphasis on the assembly type and part as the first items in a description, it's easy to identify the function of that part, and avoids any potential confusion with associated parts in the description.

Establishing a convention for the part location within the description means there's no confusion if the same descriptor is needed twice (eg. FR FR). The hand, or side of the vehicle, is prioritised above other location descriptors as there tends to be more symmetry between the sides, as opposed to the ends of a vehicle. But ultimately, this ordering doesn't matter as much as the consistency of it being used.

Further location descriptors provide more specificity, making the location clearer the further you read.

This part naming structure closely reflects the structure found at many other OEMs, and this broadly similar structure will help new employees and suppliers who might be familiar with other systems.



## ABBREVIATIONS

Abbreviations within part names are a necessity for keeping the character length of part descriptions to a manageable level. This will help in a programmatic sense (descriptions won't be truncated by less capable software and search functions will be able to return data faster), and also in a physical sense (the description will fit on the part / label).

Left unchecked, abbreviations can lead to confusion when it comes to part descriptions, particularly in specialist areas. As such, we recommend maintaining a list of accepted abbreviations (this is to maintain a high degree of commonality with other OEMs).



## RISKS OF THE NEW SYSTEM

Part naming guidelines are a way of standardising the language we use to refer to parts.

But since the above guidelines have been designed with automotive design in mind, any departure from automotive design may well call for a review or even drastic change in part nomenclature.





## ABOUT QUICK RELEASE\_

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Quick Release\_ is the leading Product Lifecycle Management consultancy. QR\_ has 350+ professionals across three continents working alongside some of the largest, most innovative and prestigious vehicle manufacturers, aerospace technologists and Tier 1 suppliers.

Our mission is to enhance competitive advantage by bringing products to market faster and more efficiently. We do this by improving product data quality and flow through every part of a business from concept to manufacture, working with senior management teams to tackle the biggest blockers of productivity; we release engineers to focus on the product, not the data.

Leveraging bespoke tools, methodologies and benchmarking, our professionals offer the full spectrum of PLM services designed to guide start-ups through the unknown unknowns, take businesses looking to scale to the next level, and facilitate transformation in established manufacturing and technology OEMs. Read more: [Why does PDM matter?](#)

## YOU NAME IT...

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If you'd like to know more about part nomenclature, or any other aspect of PLM, we'd love to hear from you.

QR\_ have advised on and implemented part nomenclature systems for EV start-ups, specialist, volume, and commercial vehicle manufacturers.

Our SMEs would love to hear your part nomenclature headaches and explore quick, unobtrusive solutions that deliver lasting, whole-business value.

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