INTERNATIONAL STANDARD

ISO 11639

First edition
2010-06-01

Aerospace — Part numbering for hose assemblies

Aéronautique et espace — Numerotation des éléments de systèmes de tuyauterie

Reference number
ISO 11639:2010(E)

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Published in Switzerland

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Foreword

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 11639 was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 10, *Aerospace fluid systems and components*.

Aerospace — Part numbering for hose assemblies

1 Scope

This International Standard specifies a hose-assembly designation system and presents a part numbering scheme for aerospace fluid-system hose assemblies.

Standardization on certain numbering systems provides for numbering simplicity, ease of interchangeability, and the suppression (as required), standardization and limitation of usable codes.

2 Terms and definitions

For the purposes of this document the following terms and definitions apply.

2.1
basic standard number
stem number
number that is the drawing specification or standard number for a part or family of parts

2.2
dash number
all digits of a part number, other than the basic standard number, used to define and differentiate individual part configurations with the standard

2.3
non-significant dash number
dash number that is numerical, sequential and contains no coding

2.4
digit
number, alpha character or symbol that occupies a space within a part number

3 Construction of part numbers

3.1 Part number length

To the maximum extent possible, part numbers should be limited in length to 15 digits. Part numbers up to 20 digits in length are acceptable, if required to fully differentiate part numbers.

3.2 Basic numbers

It is recommended that the basic standard number be a maximum of seven digits in length.

3.3 Size codes

Size codes for hose assemblies shall be in accordance with Table 1. Hose assembly size codes shall be alphabetic.

Table 1 — Size codes

Hose or fitting size		Size code
Metric[a]	Imperial[b]	
DN05	–03	D
DN06	–04	E
DN08	–05	F
DN10	–06	G
DN12	–08	H
DN16	–10	J
DN20	–12	K
DN25	–16	M
DN32	–20	N
DN40	–24	P
DN50	–32	R

[a] DN size in millimetres, example: DN05; 5 mm.

[b] Dash size in 1/16 inch, example: –05 = 5/16 inch diameter.

3.4 Assembly length codes

— **15-digit part numbers**

Metric = three-digit code as given in Table 2.

Inch = three digits in inches: first two digits in whole inches, last digit in 1/8 inch.

— **20-digit part numbers**

Metric = four digits in millimetres.

Inch = four digits in inches: first three digits in whole inches, last digit in 1/8 inch.

Hose assembly lengths shall be coded in whole millimetres.

The length code of a hose assembly shall always be three digits long, using zeros when necessary.

For hose assemblies length $\geqslant$ 1 m, the length code shall be defined using a prefix letter.

Table 2 — Three-digit metric assembly length codes

Length mm	Three-digit metric code
0 to 999	000 to 999
1 000 to 1 099	A00 to A99
1 100 to 1 199	B00 to B99
1 200 to 1 299	C00 to C99
1 300 to 1 399	D00 to D99
1 400 to 1 499	E00 to E99
1 500 to 1 599	F00 to F99
1 600 to 1 699	G00 to G99
1 700 to 1 799	H00 to H99
1 800 to 1 899	J00 to J99
1 900 to 1 999	K00 to K99
2 000 to 2 099	L00 to L99
2 100 to 2 199	M00 to M99
2 200 to 2 299	N00 to N99
2 300 to 2 399	P00 to P99
2 400 to 2 499	R00 to R99
2 500 to 2 599	S00 to S99
2 600 to 2 699	T00 to T99
2 700 to 2 799	U00 to U99
2 800 to 2 899	V00 to V99
2 900 to 2 999	W00 to W99
3 000 to 3 099	Y00 to Y99

3.5 Assembly length tolerances

The tolerances on assembly lengths shall be as follows.

a) ±3,2 mm for lengths under 0,46 m;

   ±0,125 in for lengths under 18 in.

b) ±6,4 mm for lengths from 0,46 to 0,91 m exclusive;

   ±0,125 in for lengths under 18 in.

c) ±12,7 mm for lengths from 0,91 to 1,3 m exclusive;

   ±0,500 in for lengths from 36 to 50 in exclusive.

d) ±1 % for lengths of 1,3 m and over;

   ±1 % for lengths of 50 in and over.

3.6 Fitting type codes

Fitting type codes shall be in accordance with Table 3.

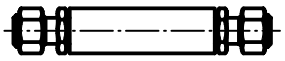
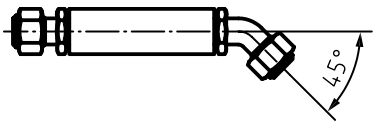
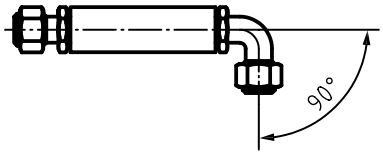
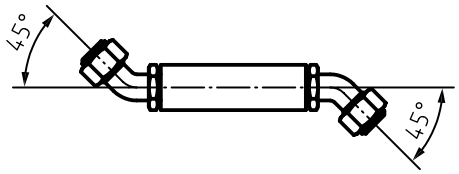
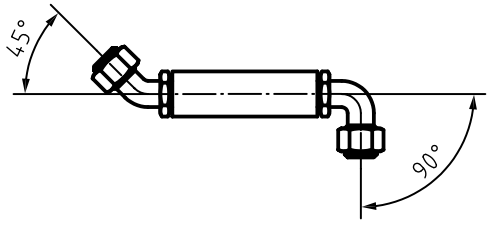
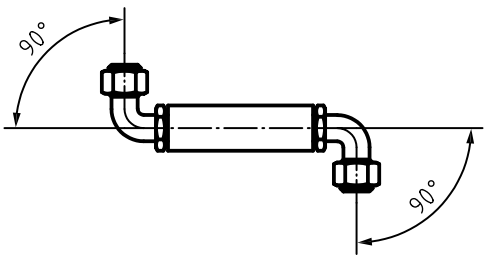
Table 3 — Fitting type codes

Code	Fitting thread type
M	Metric (mm)
E	Imperial (inch)

3.7 Fitting configuration codes

Fitting configuration codes for hose assemblies shall be in accordance with Table 4.

Table 4 — Fitting configuration codes

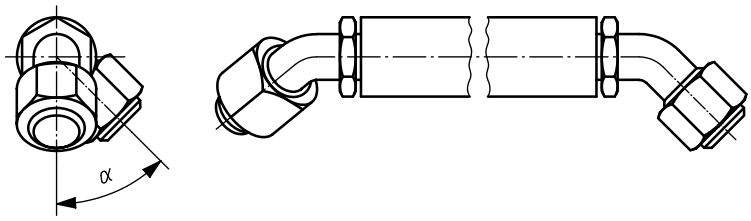
Assembly[a]	Code
	**A**
	**B**
	**C**
	**D**
	**E**
	**F**

[a] The fitting shape is given for information only.

3.8 Orientation codes

Double-elbow hose assemblies or other hose assemblies requiring end coupling orientation shall have a three-digit orientation code, given in whole degrees, using zeros when necessary. The angle is determined with anti-clockwise orientation form the datum position given by the end coupling nearest to the observer.

See Figure 1 and Table 5.



The angle, α, shall be in accordance with Table 5.

Figure 1 — Angle determining end coupling orientation code

Table 5 — Orientation codes

Angle α degrees	**Code letter**	**Angle α** degrees	**Code letter**
0,0		165,0	L
15,0	A	180,0	M
30,0	B	195,0	N
45,0	C	210,0	P
60,0	D	225,0	R
75,0	E	240,0	S
90,0	F	255,0	T
105,0	G	270,0	U
120,0	H	285,0	V
135,0	J	300,0	W
150,0	K	330,0	Y

3.9 General requirements

Whenever possible, a hyphen (-) should be used to separate numbers from each other (in lieu of a space) but should not be used to separate letter codes from numbers. Running letter or number codes consecutively should be avoided but is not prohibited. A hyphen shall constitute one digit.

If consecutive number codes or letter codes are used, no more than four successive number or letter codes shall be used, and adjacent codes shall not be ambiguous in meaning.

When establishing a new basic series of numbering, issuance of the short basic standard number series should be limited to those parts requiring long, complex dash numbers, their use being justified in order to stay within the 15-digit limitation. Typical fluid system parts requiring this would be hose assemblies and reducer/expander tee fittings. A short basic standard number may also be needed to stay within the 20-digit limitation.

3.10 Limitations

The following limitations apply.

— Letters, “I”, “O”, “Q”, “X”, and “Z” shall not be used. Other letters shall be upper-case (capitalized).

— Numbers shall be Arabic numerals.

— Blank spaces are not permitted.

— Symbols such as parentheses ( ), asterisk *, degree °, plus + and minus – shall not be used, except when referencing a government or industry document whose identification contains such a symbol.

— The total length of the part number, including the dash number(s), shall not exceed 15 digits, except under special circumstances, where the part number length may be a maximum of 20 digits.

— The dash number shall have the same characteristics as the basic standard number and may be composed of numbers, letters or any combination thereof.

— Part standard drawing revision letters (if any) shall not be included in the part number.

4 Complex numbers

4.1 General

The following option codes, sleeving codes, numeric size codes, letter size codes, length codes, and angular orientation codes are established standards for use in the construction of significant part numbers.

Use of these codes is not mandatory if a non-significant numbering discipline is used.

4.2 Hose assembly option codes

Option code letters to be used in the part number shall be in accordance with Table 6.

Table 6 — Option codes

Code letter	Options
L	Tie wire holes
N	Dry film lubricated
H	Tie wire holes and dry film lubricated threads

4.3 Sleeving Codes

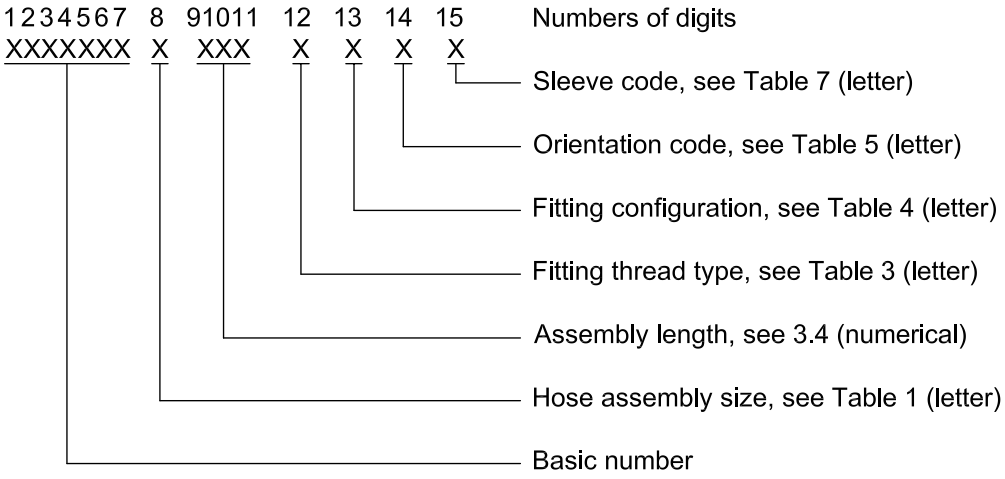
Sleeving code letters for each part standard shall be in accordance with Table 7.

Table 7 — Sleeving codes

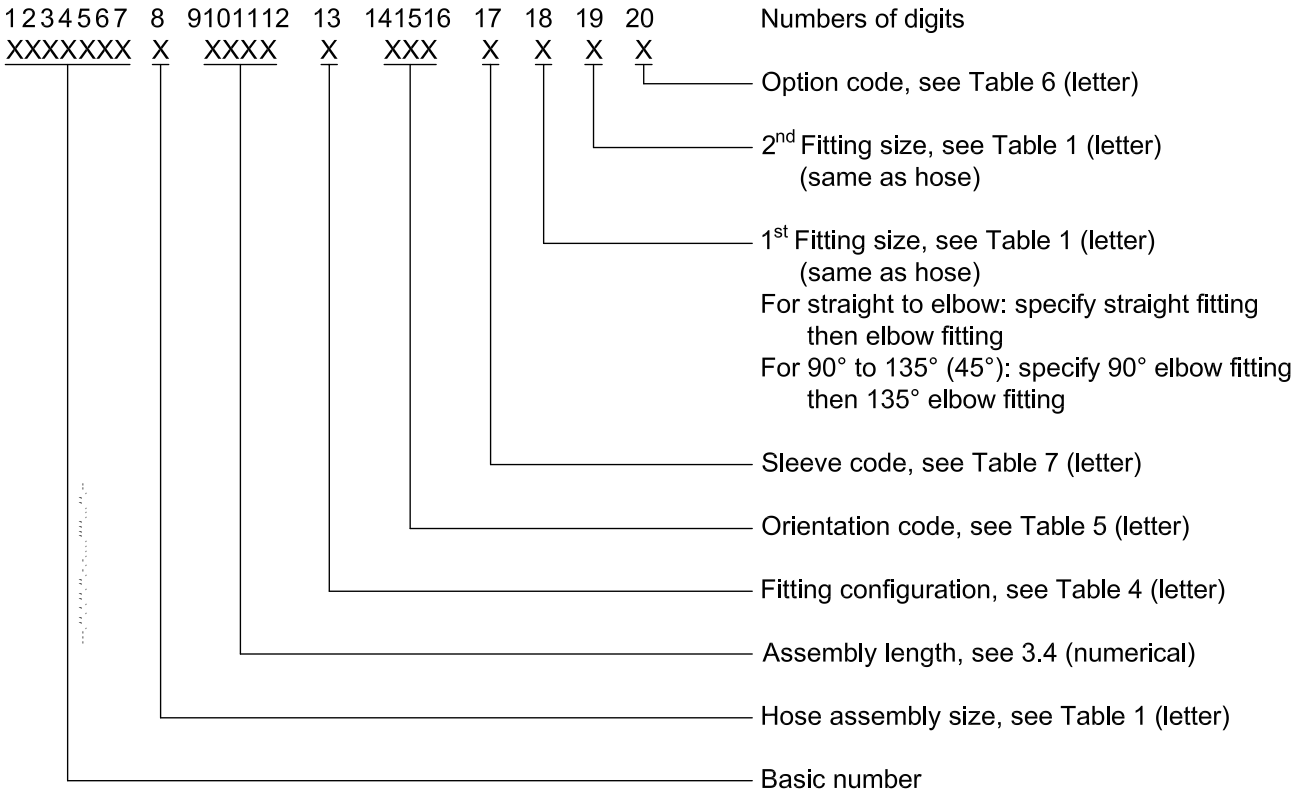
Sleeve code	Sleeve description	Temperature limits	
		°C	°C
	Hose only	Hose specification limits	
A	Abrasion sleeve, tubular, PTFE, black	−54 to 232	−65 to 450
B	Abrasion sleeve, spiral coil, nylon, black	−54 to 135	−65 to 275
C	Firesleeve, tubular, silicone, fibreglass, 15 min duration, fireproof Sil-FG	−54 to 232	−65 to 450
D	Abrasion sleeve, internal, silicone	−54 to 177	−65 to 350
		Inactive for new design superseded by code K	
E	Abrasion sleeve, heat shrink, FEP	−54 to 177	−65 to 350
F	Abrasion sleeve, heat shrink polyolefin, black	−54 to 135	−65 to 275
G	Firesleeve, tubular, silicone fibreglass, 5 min duration, fire resistant Sil-FG	−54 to 232	−65 to 450
H	Firesleeve, integral, silicone, 15 min duration, fire proof	−54 to 232	−65 to 450
J	Firesleeve, integral, silicone, 5 min duration, fire resistant	−54 to 232	−65 to 450
K	Abrasion sleeve, integral braided, polyester	−54 to 149	−65 to 300
L	Abrasion sleeve, spiral coil, PTFE	−54 to 232	−65 to 450
M	Abrasion sleeve, spiral coil, butyrate, black	−18 to 93	0 to 200
		Inactive for new design	
N	Firesleeve, tubular, silicone fibreglass, snug-fit, 15 min duration, fire proof Sil-FG	−54 to 232	−65 to 450
		Inactive for new design	

5 Hose assembly part numbering guidelines

5.1 15-digit part numbers



5.2 20-digit part numbers



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