SAE Aerospace
An SAE International Group

AEROSPACE INFORMATION REPORT

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RECOMMENDED PART NUMBERING GUIDELINES FOR FLUID SYSTEM COMPONENTS INCH SYSTEM OF MEASUREMENTS

RATIONALE

This document has been reaffirmed to comply with the SAE 5-year Review policy.

1.0 PURPOSE

THIS STANDARD PRESENTS A RECOMMENDED PART NUMBERING SCHEME FOR FLUID SYSTEM COMPONENT PARTS WHICH MAY REQUIRE COMPLEX STANDARD NUMBERS. STANDARDIZING ON CERTAIN NUMBERING SYSTEMS PROVIDES FOR NUMBERING SIMPLICITY, EASE OF INTERCHANGEABILITY AND SUPERSESSION (WHEN REQUIRED) AND STANDARDIZATION AND LIMITATION OF USABLE CODES WITHIN A FIFTEEN-CHARACTER LIMITATION.

2.0 SCOPE

2.1 THIS STANDARD CONSIDERS THE PART NUMBERING SYSTEM FOR HOSE ASSEMBLIES, FITTINGS, AND CLAMPS. OTHER COMPONENT TYPES COULD BE ADDED LATER.

2.1.1 EACH COMPONENT TYPE HAS ESTABLISHED STANDARD CODES WHICH ARE UNIQUE TO THAT TYPE AND CANNOT BE INTERCHANGED WITH OTHER COMPONENT TYPES.

2.2 THE RECOMMENDATIONS SHOWN HEREIN ARE BASED ON THE INCH SYSTEM OF MEASUREMENT. FOR RECOMMENDATIONS BASED ON THE METRIC SYSTEM OF MEASUREMENT, SEE (TBD).

3.0 CONSTRUCTION OF PART NUMBERS

3.1 PART NUMBER CONSTRUCTION SHOULD BE AS SIMPLE AS POSSIBLE. IF PART NUMBERS BECOME VERY COMPLEX, SEPARATION INTO MORE THAN ONE STANDARD SHOULD BE CONSIDERED.

3.2 SIGNIFICANT CODING IN PART NUMBERS SHOULD BE AVOIDED, UNLESS PRECEDENCE HAS BEEN ESTABLISHED, AND STANDARDIZED CODING IS AVAILABLE HEREIN.

3.2.1 PART NUMBERS WITHOUT SIGNIFICANT CODING MAY BE ESTABLISHED FOR ANY PART EVEN THOUGH STANDARDIZED CODING IS AVAILABLE HEREIN.

3.3 THE PART NUMBER CONSTRUCTION SHOULD BE THE BASIC STANDARD NUMBER FOLLOWED BY A DASH NUMBER (WHICH CAN BE FINITE) OR A SERIES OF ALTERNATE LETTER AND NUMBER CODES REQUIRED TO DIFFERENTIATE AND DEFINE ALL PARTS AVAILABLE ON THE STANDARD.

3.3.1 IT IS RECOMMENDED THAT THE BASIC STANDARD NUMBER BE SEVEN (7) DIGITS IN LENGTH EVEN THOUGH THE PART NUMBER EXAMPLES SHOWN HEREIN ALLOW A HIGHER MAXIMUM NUMBER OF DIGITS.

3.3.2 IF A FINITE DASH NUMBER IS USED, IT SHOULD BE TWO (2) DIGITS IN LENGTH UNLESS THE SCOPE OF THE STANDARD REQUIRES MORE THAN TWO DIGITS TO IDENTIFY ALL THE VARIATIONS CONTAINED ON THE STANDARD.

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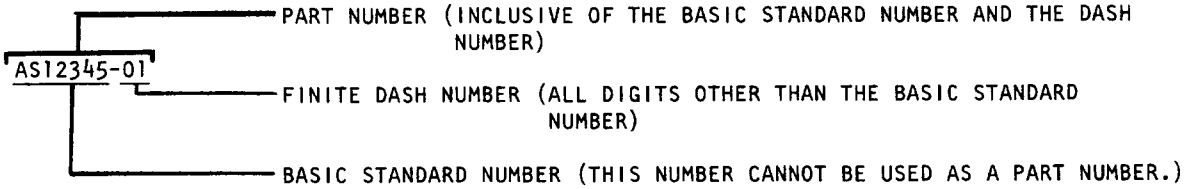
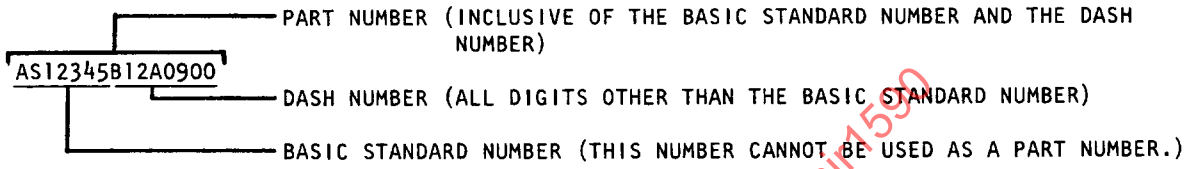
3.3.3 EXAMPLE OF A SIMPLE PART NUMBER



3.3.4 EXAMPLE OF A COMPLEX PART NUMBER



3.4 WHENEVER POSSIBLE, A DASH SHOULD BE USED TO SEPARATE FINITE NUMBERS FROM EACH OTHER (IN LIEU OF A SPACE) BUT SHOULD NOT BE USED TO SEPARATE LETTER CODES FROM NUMBERS. RUNNING NUMBER OF LETTER CODES CONSECUTIVELY SHOULD BE AVOIDED BUT IS NOT PROHIBITED. (SEE 4.2.3.1 AND 4.2.3.2.)

3.4.1 IF CONSECUTIVE NUMBER CODES OR LETTER CODES ARE USED, NO MORE THAN FOUR (4) SUCCESSIVE LETTER CODES OR NUMBER CODES SHALL BE USED, AND ADJACENT CODES SHALL NOT BE AMBIGUOUS IN MEANING.

3.5 WHEN ESTABLISHING A NEW BASIC SERIES OF NUMBERING, ISSURANCE OF THE SHORT BASIC STANDARD NUMBER SERIES SHOULD BE LIMITED TO THOSE PARTS REQUIRING LONG, COMPLEX DASH NUMBERS AND JUSTIFY THEIR USE TO STAY WITHIN THE 15-DIGIT LIMITATION. TYPICAL FLUID SYSTEM PARTS REQUIRING THIS WOULD BE HOSE ASSEMBLIES AND REDUCER/EXPANDER TEE FITTINGS.

EXAMPLE: BASIC STANDARD NUMBERS AS1 THRU AS999 SHOULD BE RESERVED FOR USE IN THIS MANNER.

3.6 EXAMPLES OF CODED PART NUMBERS

AS12345B12A090
AS12345-12A090
AS12345-12-090
AS12345B-A090
AS12345BA090

3.7 LIMITATIONS

3.7.1 LETTERS "I", "O", "Q", "X", AND "Z" SHALL NOT BE USED. LETTERS SHALL BE UPPER CASE (CAPITALIZED).

3.7.2 NUMBERS SHALL BE ARABIC NUMERALS. FRACTIONAL, DECIMAL, AND ROMAN NUMERALS SHALL NOT BE USED.

3.7.3 BLANK SPACES ARE NOT PERMITTED.

3.7.4 SYMBOLS SUCH AS PARENTHESIS ( ), ASTERISK *, DEGREE °, PLUS +, AND MINUS - SHALL NOT BE USED EXCEPT WHEN REFERENCING THE GOVERNMENT OR INDUSTRY DOCUMENT WHOSE IDENTIFICATION CONTAINS SUCH A SYMBOL.

3.7.5 THE TOTAL LENGTH OF THE PART NUMBER INCLUDING THE DASH NUMBER SHALL NOT EXCEED 15 CHARACTERS.

3.7.6 THE DASH NUMBER SHALL HAVE THE SAME CHARACTERISTICS AS THE BASIC STANDARD NUMBERS AND MAY BE COMPOSED OF NUMBERS, LETTERS, OR ANY COMBINATION THEREOF.

3.7.7 PART NUMBER$ SHALL NOT INCLUDE THE STANDARD REVISION LETTER.

4.0 RECOMMENDATIONS FOR COMPLEX NUMBER REQUIREMENTS

THE FOLLOWING PARAGRAPHS ARE PART NUMBERING RECOMMENDATIONS FOR CERTAIN TYPES OF PARTS WHERE INCONSISTENCIES AND PROBLEMS IN DEVELOPMENT OF PART NUMBERS ARE KNOWN TO EXIST.

NOTE: FOR VERY SPECIAL PARTS, CONSIDERATION SHOULD BE GIVEN TO ESTABLISHING INDIVIDUAL DRAWINGS FOR EACH PART NUMBER.

4.1 STANDARD NUMBERING SYSTEM FOR HOSE ASSEMBLIES

4.1.1 GENERAL CODES

THE FOLLOWING OPTION CODES, SLEEVING CODES, NUMERIC SIZE CODES, LETTER SIZE CODES, LENGTH CODES, AND ANGULAR ORIENTATION CODES ARE ESTABLISHED STANDARDS FOR USE IN CONSTRUCTION OF SIGNIFICANT PART NUMBERS.

USAGE OF THESE CODES IS NOT MANDATORY IF A NON-SIGNIFICANT PART NUMBERING DISCIPLINE IS USED.

4.1.1.1 OPTION CODES

HOSE ASSEMBLIES HAVING AT LEAST ONE STRAIGHT END FITTING SHALL HAVE OPTION CODE LETTERS TO BE USED IN THE PART NUMBER AS FOLLOWS:

CODE LETTER	OPTION
L	DRILLED FOR LOCKWIRING
N	DRY FILM LUBRICATED
H	BOTH LOCKWIRING AND DRY FILM LUBRICANT PROVISIONS

BECAUSE OF PART NUMBER LENGTH LIMITATIONS, THESE OPTION CODES ARE NOT AVAILABLE FOR HOSE ASSEMBLIES WITH TWO ELBOW END FITTINGS. SEPARATE STANDARDS FOR THESE PROVISIONS WOULD BE NECESSARY IN THIS CASE.

4.1.1.2 SLEEVING CODES

SLEEVING CODE LETTERS FOR EACH PART STANDARD SHALL BE SELECTED FROM ARP1785, "STANDARD CODES FOR SLEEVING ON PTFE HOSE ASSEMBLIES."

4.1.1.3 SIZE CODES

HOSE ASSEMBLY SIZE CODES SHALL BE NUMERIC FOR HOSE ASSEMBLIES HAVING AT LEAST ONE STRAIGHT END FITTING AND, BECAUSE OF PART NUMBER LENGTH LIMITATIONS, ALPHABETICAL FOR DOUBLE ELBOW ASSEMBLIES OR ASSEMBLIES REQUIRING END FITTING ORIENTATION.

4.1.1.3.1 NUMERIC SIZE CODES

SIZES ARE CODED IN 1/16THS OF AN INCH. SIZES SMALLER THAN 5/8 SHALL HAVE THE NUMBER PRECEDED BY A ZERO.

EXAMPLE: 08 = 1/2 INCH FITTING.

4.1.1.3.2 LETTER SIZE CODES

LETTER SIZE CODES SHALL BE USED IN THE HOSE ASSEMBLY PART NUMBER AS FOLLOWS:

CODE LETTER	EQUIVALENT NUMERIC CODE IN 1/16THS OF AN INCH
A	-01
B	-02
C	-03
E	-04
F	-05
G	-06
H	-08
J	-10
K	-12
M	-16
N	-20
P	-24
R	-32

4.1.2 HOSE ASSEMBLIES WITH AT LEAST ONE STRAIGHT END FITTING

XXXXXXXH08-0244

- ADDITIONAL LENGTH IN 1/8 INCH INCREMENTS (4 = 1/2 INCH; USE "0" IF LENGTH IS IN WHOLE INCHES.)
- LENGTH IN WHOLE INCHES (3 DIGITS)
- SLEEVING CODE [USE DASH (-) IF NO SLEEVING.] CODES USED HERE SHALL BE UNIQUE TO THE PART STANDARD (SELECT FROM ARP1785. SEE 4.1.1.2.)
- HOSE ASSEMBLY NUMERIC SIZE CODE IN 1/16THS OF AN INCH.
- OPTION CODE LETTER
- BASIC HOSE ASSEMBLY STANDARD NUMBER (7 DIGITS MAXIMUM) DEFINING:

a. TYPE OF HOSE ASSEMBLY (BASIC CONSTRUCTION, MATERIALS, PRESSURE RATING, ETC.) AS COVERED BY THE APPLICABLE PART SPECIFICATION.

b. STYLE OF HOSE ASSEMBLY (END FITTING CONFIGURATIONS INCLUDING SEALING TECHNIQUE.)

4.1.3 HOSE ASSEMBLIES WITH ELBOW FITTINGS AT BOTH ENDS

NOTE: BECAUSE OF PART NUMBER LENGTH LIMITATIONS, THE OPTION CODE IS NOT AVAILABLE ON THESE HOSE ASSEMBLIES.

XXXXXXXE244-000

- ANGULAR ORIENTATION OF END FITTINGS IN 1° INCREMENTS.
- SLEEVING CODE [USE DASH (-) IF NO SLEEVING.]
  CODES USED HERE SHALL BE UNIQUE TO THE PART STANDARD (SELECT FROM ARP1785. SEE 4.1.1.2.)
- ADDITIONAL LENGTH IN 1/8 INCH INCREMENTS (4 = 1/2 INCH; USE "0" IF LENGTH IS IN WHOLE INCHES.)
- LENGTH IN WHOLE INCHES (2 DIGITS)
- HOSE ASSEMBLY SIZE LETTER CODE
- BASIC HOSE ASSEMBLY STANDARD NUMBER (7 DIGITS MAXIMUM) DEFINING:
  a. TYPE OF HOSE ASSEMBLY (BASIC CONSTRUCTION, MATERIALS, PRESSURE RATING, ETC.) AS COVERED BY THE APPLICABLE PART SPECIFICATION.
  b. STYLE OF HOSE ASSEMBLY (END FITTING CONFIGURATIONS INCLUDING SEALING TECHNIQUE).
  c. LOCKWIRING AND DRY FILM LUBRICANT REQUIREMENTS.

4.2 STANDARD NUMBERING SYSTEM FOR FLUID FITTINGS

4.2.1 GENERAL CODES

THE FOLLOWING MATERIAL CODES, OPTION CODES, AND SIZE CODES ARE ESTABLISHED STANDARDS FOR USE IN CONSTRUCTION OF SIGNIFICANT PART NUMBERS. USAGE OF THESE CODES IS NOT MANDATORY IF A NON-SIGNIFICANT PART NUMBERING DISCIPLINE IS USED.

4.2.1.1 MATERIAL CODES: MATERIAL CODES ARE ESTABLISHED AS FOLLOWS:

CODE LETTER	MATERIAL
NO CODE LETTER (-)	1137 STEEL
D	2014 ALUM ALLOY FORGINGS OR 2024 ALUM ALLOY BAR
F	4130 STEEL
J	304 CRES
K	316 CRES
P	17-4PH CRES
R	321 CRES
S	347 CRES
T	6AL-4V TITANIUM ALLOY
V	15-5PH CRES
W	7075 ALUMINUM ALLOY

4.2.1.2 OPTION CODES: ADDITIONAL OPTION CODES ARE ESTABLISHED AS FOLLOWS:

CODE LETTER	OPTIONS
L	DRILLED FOR LOCKWIRING
N	DRY FILM LUBRICATED
H	BOTH OF THE ABOVE

4.2.1.3 SIZE CODES: SIZES ARE CODED IN 1/16THS OF AN INCH. SIZES SMALLER THAN 5/8 SHALL HAVE THE NUMBER PRECEDED BY A ZERO.

EXAMPLE: 08 = 1/2 INCH FITTING.

4.2.2 NUMBERING SYSTEM FOR NOMINAL SIZE FITTINGS ⚠1

4.2.2.1 FITTINGS WHICH ARE NOT ASSEMBLIES OR FITTING ASSEMBLIES OF ONE MATERIAL

XXXXXXXXXXJ08L

- ADDITIONAL OPTION CODE LETTER
- FITTING SIZE (ALL PORTS) IN 1/16THS OF AN INCH
- MATERIAL CODE LETTER
- BASIC FITTING STANDARD NUMBER (11 DIGITS MAXIMUM IF ENDING IN A NUMBER; 10 DIGITS MAXIMUM FOLLOWED BY A DASH IF ENDING IN A LETTER).

4.2.2.2 FITTINGS WHICH ARE ASSEMBLIES OF DIFFERENT MATERIALS

XXXXXXXXXXJT08L

- ADDITIONAL OPTION CODE LETTER
- FITTING SIZE (ALL PORTS) IN 1/16THS OF AN INCH
- NUT MATERIAL CODE LETTER
- BODY MATERIAL CODE LETTER
- BASIC FITTING STANDARD NUMBER (10 DIGITS MAXIMUM IF ENDING IN A NUMBER; 9 DIGITS MAXIMUM FOLLOWED BY A DASH IF ENDING IN A LETTER).

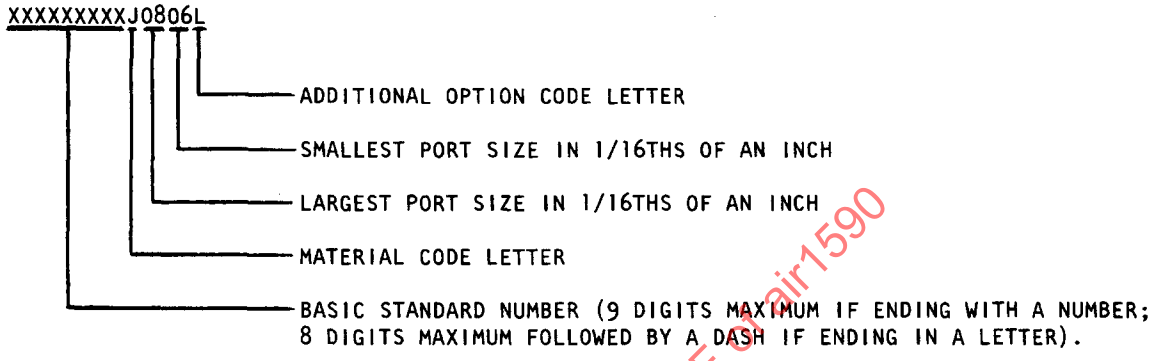
⚠1 NOMINAL SIZE FITTINGS WHICH WOULD NORMALLY USE A SIMPLE SIZE DESIGNATION WILL USE THE MULTIPLE SIZE DESIGNATION FOR REDUCER/EXPANDER FITTINGS IF INCLUDED ON A STANDARD THAT CONTAINS REDUCER/EXPANDER FITTING CONFIGURATIONS.

EXAMPLE OF PART NUMBER IN THIS CASE: AXXXXXXJ080808L.

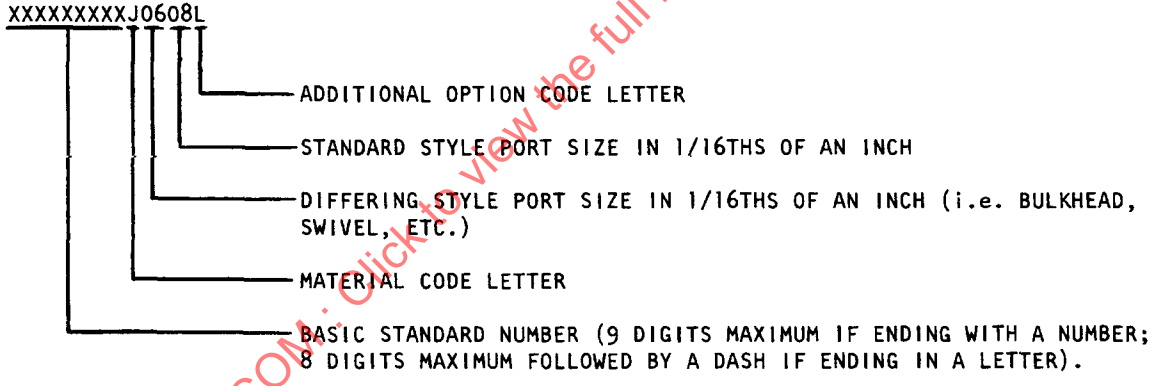
4.2.3 NUMBERING SYSTEM FOR REDUCER/EXPANDER FITTINGS

4.2.3.1 UNION, ADAPTER, AND ELBOW FITTINGS WHICH ARE NOT ASSEMBLIES, OR FITTING ASSEMBLIES OF ONE MATERIAL

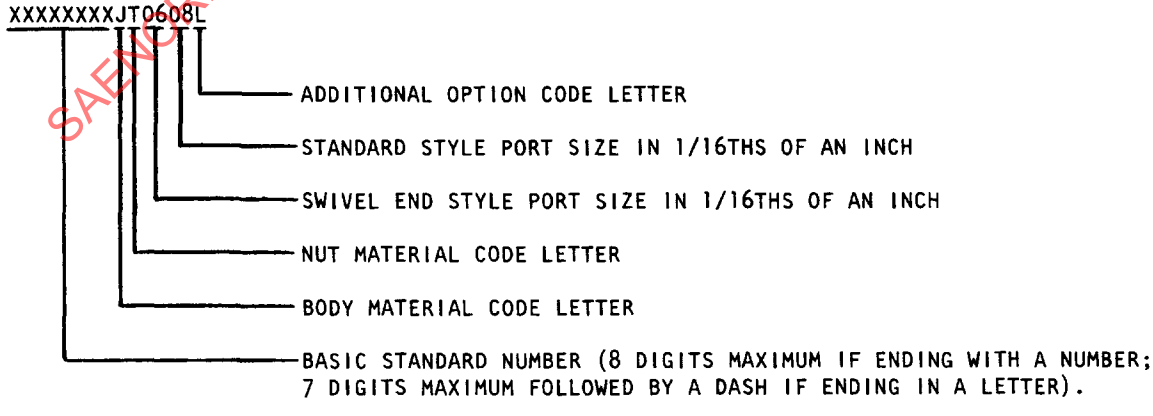
4.2.3.1.1 BOTH PORTS HAVING THE SAME STYLE:



4.2.3.1.2 DIFFERENT PORT STYLES:



4.2.3.2 UNION, ADAPTER, AND ELBOW FITTING ASSEMBLIES OF DIFFERENT MATERIALS



4.2.3.3 TEES

THE NUMERICAL DESIGNATION OF PORTS SHALL BE IN ACCORDANCE WITH FIGURE 1.

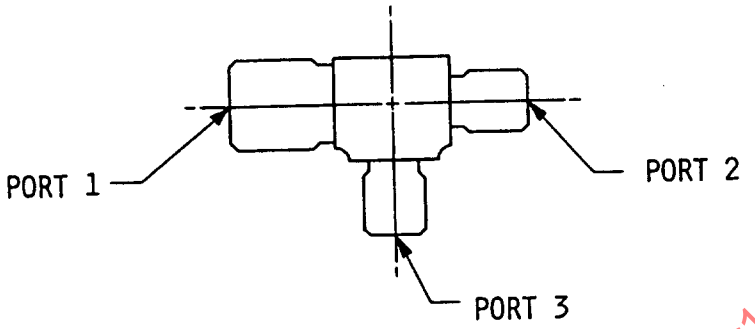


FIGURE 1

4.2.3.3.1 ALL THREE PORTS HAVING THE SAME STYLE OR WHEN DIFFERING PORT STYLE IS THE SIDE PORT:

XXXXXXXJ060404L

- ADDITIONAL OPTION CODE LETTER
- PORT #3, SIDE PORT SIZE IN 1/16THS OF AN INCH
- PORT #2, SMALLER PORT SIZE ON RUN IN 1/16THS OF AN INCH
- PORT #1, LARGEST PORT SIZE ON RUN IN 1/16THS OF AN INCH
- MATERIAL CODE LETTER
- BASIC FITTING STANDARD NUMBER (7 DIGITS MAXIMUM)

4.2.3.3.2 WHEN DIFFERING PORT STYLE IS A RUN PORT:

XXXXXXXJ060806L

- ADDITIONAL OPTION CODE LETTER
- PORT #3, SIDE PORT SIZE IN 1/16THS OF AN INCH
- PORT #2, STANDARD PORT SIZE IN 1/16THS OF AN INCH
- PORT #1, DIFFERING STYLE PORT SIZE ON RUN IN 1/16THS OF AN INCH (i.e. BULKHEAD, SWIVEL, ETC.)
- MATERIAL CODE LETTER
- BASIC FITTING STANDARD NUMBER (7 DIGITS MAXIMUM)

4.2.3.3.3 TEE ASSEMBLIES:

BECAUSE OF PART NUMBER LENGTH LIMITATIONS, STANDARDS FOR REDUCER TEES WITH SWIVEL NUTS SHOULD BE LIMITED TO THOSE HAVING NUT AND BODY OF THE SAME MATERIAL. PART NUMBERING WOULD THEN BE IN ACCORDANCE WITH PARAGRAPHS 4.2.3.2.1 AND 4.2.3.2.2 ABOVE.