1,1(2,7,13)
2,2
Alternate_process_plan
alternate_plan S[1:?]
12,1
Part_shape
physical_form
2,1
Process_plan_version
fabrication_defined_by
Part_version
nomenclature
STRING
part_number
STRING
revision_level
STRING
effectivity
STRING
acquires
STRING
address
Company
STRING
name
binding_agreement
(INV) issues S[1:?]
Contract
project_number
STRING
contract_number
STRING
contract_document
14,1
Document_assignment
ATTRIBUTE_1
STRING
role
Company_contract_assignment

Special_instruction
activity_information
4,1 Activity
instruction_type
STRING
instruction_text
STRING
Process_plan_security
identified_by_activity
4,1 Activity
declassification_date
STRING
security_code
STRING
classification_code
STRING
process_plan_information
identified_by_process_plan
Revision
approved_by L[1:?]
3,5 Status_authority
description
relating_to
reason_for_revision
STRING
related_to
revision_level
STRING
2,1(1,11)
relating_activity
id
STRING
quantity_of_parts
STRING
description
STRING
related_activity
manufacturing_GT_code
STRING
6,1 Manufacturing_process
activities_contained L[1:?]
activity_select
Process_plan_version
required_material
11,1 Material
4,2 Setup_activity
(INV) defines_fabrication_for FOR fabrication_defined_by
1,1 Part_version
auxilary_header_information S[0:?]
3,1 Property_parameter
feature_sequence
16,1 Feature_tree
high_value
REAL
quantity_range
Range_of_parts
low_value
REAL
plan_substitute
2,2(1)
Alternate_process_plan
alternate_ranking
STRING

3,4(4)
1
Generic_manufacturing_resource
name
STRING
quantity
STRING
description
STRING
units
STRING
(INV) used_in FOR resources
4,1
Activity
3,5(2)
Status_authority
approval_title
STRING
date
STRING
resource_with_representation
resource_documetation
15,1
Externally_defined_representatiion
resource_with_material
resource_material
11,1
Material
is_given_by
Planning_group_member
name
STRING
department
STRING
id
STRING
phone_number
STRING
employed_by
Organization
address_of_site
STRING
name
STRING
3,1(2,5,8,9,11,12)
Property_parameter
parameter_name
STRING
3,2(16)
Numeric_parameter
parameter_unit
STRING
parameter_value
REAL
Descriptive_parameter
descriptive_string
STRING
3,3(4)
Performance_rate
source
STRING
(INV) used_in FOR duration
4,1
Activity
Allowed_time
standard_time
STRING
allowance_factor
STRING
allowed_type L[1:?]
STRING
Production_rate
unit_quantity
STRING
time_per_unit
STRING

inside_tolerance
STRING
outside_tolerance
STRING
total_tolerance
STRING
Machining_tolerance
tolerances
(INV) specified_by
3,4
Generic_manufacturing_resource
resources S[1:?]
activity_number
STRING
description
STRING
name
STRING
organization_id
STRING
(ABS)
Activity
graphics_representation S[1:?]
SELECT_2
13,3
Illustration
13,4
View_reference
13,1
Drawing
references
11,1
Material
frequency
REAL
constrained_by S[1:?]
duration S[1:?]
3,3
Performance_rate
(INV) work_cell_reference FOR referenced_by S[0:2]
8,3
Work_cell
feature_definition
13,2
internal_or_external_definition
4,1(2,3,8,11,13)
5,1
Manufacturing_activity
id
STRING
description
STRING
revision_level
STRING
subclass
STRING
title
STRING
Supplemental_document
1
primary_activity
(ABS)
Setup_activity
4,2(2,6)
Alternate_activity
document
4,3(6)
1
14,1
Document_assignment
setyup_type
STRING
Ancillary_setup
9,3
Tool_setup
8,4
Machine_setup
10,4
Fixture_setup

(ABS)
Manufacturing_activity
5,1(4,6)
5,2(7)
accomplished_by
7,2
controller_program
10,3
Part_loading
7,1
Validation
Part_unloading
Part_fixture_unmounting
Part_machining_unmounting
STRING
method
Part_handling
Process_activity
identifies_fixture
10,1
Fixture_assembly
uses_to_perform
9,1
Tool_assembly
described_by
12,2
Shape_aspect
identifies
8,4
Machine_setup
process_parameters S[0:?]
3,1
Property_parameter
Ancilliary_process
Library_of_processes
action_type
STRING
processes
process_types

6,1(2)
(ABS)
Manufacturing_process
5,1
Manufacturing_activity
non_machining_activity L[1:?]
Non_machining_process
4,3
Ancillary_setup
setups L[1:?]
8,1
Machine
identities
Machining_process
processes L[1:?]
name
STRING
4,2
Setup_activity
single_machine_setup
Single_setup_process
description
STRING
organizes_for_setup L[1:?]
activity_type_select
5,1
Manufacturing_activity
Manufacture_single_feature
assigned_process L[1:?]
5,1
Manufacturing_activity
assigned_feature
12,4
Manufacturing_process_features

7,2(5)
5,2
Process_activity
accomplishes
identified_on
1,1
Part_version
9,1
Tool_assembly
references S[1:?]
program_format
STRING
revision
controller_
program
controller_type
STRING
STRING
id
validation_date
STRING
14,1
Document_assignment
controller_data_file S[1:?]
validation_time
STRING
evaluates
uses_for_validation
12,1
Part_shape
7,1(5)
Validation
identifies
10,1
Fixture_assembly
uses_to_perform
9,1
Tool_assembly

Special_capability
name
STRING
specification
STRING
possessed_by
In_facility_location
location_code
STRING
building_or_area
STRING
sublocation
STRING
locates
STRING
description
STRING
id
Workstation
contains S[1:?]
(INV) contained_in
8,2(9)
referenced_by
4,1
Activity
Work_cell
description
STRING
id
STRING
8,3(4)
8,1(6,9,10)
possessed_by
8,4(4,5)
identifies
Machine_setup
setup_instruction
STRING
Machine
company_model
STRING
company_name
STRING
located_by S[1:?]
10,5
Part_machining_mounting
identified_for
controlled_by
classifies
STRING
machine_class
Machine_usage
14,1
Document_assignment
machine_specification
3,1
Property_parameter
machine_parameters S[0:?]
Controller
company_name
STRING
company_model
STRING
controller_specification
14,1
Document_assignment

STRING
fabrication_order
STRING
design_order
STRING
part_number
STRING
contract_number
14,1
Document_assignment
contract_document
Tool_contract
identified
9,2(12)
Tool_assembly_element
catalogue_number
STRING
company_number
STRING
description
STRING
name
STRING
id
STRING
tool_property S[1:?]
14,1
Document_assignment
(INV) identifies
plays_role
(INV) is_a
tool_representation
decomposition_of
15,1
Externally_defined_representatiion
tool_components S[1:?]
8,1
Machine
identifies_machine
identifies_tool
Tool_setup
9,3(4)
Tool_assembly
id
STRING
Tool_parameters S[0:?]
3,1
Property_parameter
9,1(5,7,12,13)
tool_placement
identifies
8,2
Workstation
used_in
Tool_magazine_turret_carousel
tool_capacity
STRING
configures
id
STRING
tool_position
STRING
Tool_data
instruction_document
14,1
Document_assignment
axis_displacement_name
STRING
axis_placement_value
STRING
axis_displacement_units
STRING
Tool_compensation
adjust
(INV) adjusted_by

STRING
id
STRING
assembly_instruction
STRING
configuration
Fixture_assembly
10,1(5,7,12,13)
10,4(4)
Fixture_setup
identifies
8,1
Machine
fixture_to_machine_orientation
STRING
fixture_to_machine_location
STRING
fixture_to_machine_reference_plane
STRING
identifies_fixture S[1:?]
decomposes_into S[1:?]
(INV) decompositions_of
comprised_of S[0:?]
10,2(12)
identified_by S[1:?]
(INV) plays_role
(INV) identifies
located_by S[1:?]
(INV) identifies
Fixture_contract
part_number
STRING
design_number
STRING
fabrication_order
STRING
contract_number
STRING
Fixture_assembly_element
weight
STRING
company_name
STRING
description
STRING
catalogue_number
STRING
name
STRING
id
STRING
contract_document
14,1
Document_assignment
Part_fixture_mounting
is_located_on
12,1
Part_shape
fixture_location_origin
STRING
fixture_orientation
STRING
fixture_reference_plane
STRING
10,3(5)
STRING
part_location_origin
Part_loading
10,5(8)
12,1
Part_shape
is_located_on
Part_machining_mounting
machine_orientation
STRING
machine_reference_plane
STRING
machine_location_origin
STRING
8,1
Machine
(INV) identifies FOR located_by

11,1(2,3,4)
Material
identified_by_drawing
13,1
Drawing
source_controlled
STRING
name
STRING
raw_material_shape
base_shape
12,3
Geometric_model
AP224_base_shapes
shape_description
STRING
order_source
STRING
description
STRING
is_resource_for
4,1
Activity
identified_by
2,1
Process_plan_version
material_characteristics S[0:?]
Material_property
material_parameters S[0:?]
3,1
Property_parameter
documented_by
Material_specification
revision
STRING
number_id
STRING
description
STRING
procurement_data
STRING
title
STRING
subclass
STRING
specification_document
14,1
Document_assignment
material_hardness S[0:?]
Hardness
scale
STRING
high_value
REAL
low_value
REAL
nominal
REAL

12,1(1,7,10)
Geometric_tolerance
12,5(16)
Surface_property
property_characteristics S[0:?]
3,1
Property_parameter
surface_finish
BOOLEAN
Part_shape
applied_shape S[1:?]
is_shown_on
elements S[0:?]
12,4(6,13,16)
STRING
element
required_geometry
Manufacturing_process_features
Advanced_B_rep
defines_fixture_shape
10,1
Fixture_assembly
Machining_features entity will map to AIC522 Machining_features
12,2(5)
defines_tool_shape
9,1
Tool_assembly
Shape_aspect
representation_form S[1:?]
Shape_aspect_representation
shape_definition
representation_shape S[0:?]
Model_element
element
representation_form S[0:?]
representation_type
representation_type
shape_representation_type
Object_element_shape_representation
defines_tool_shape
9,2
Tool_assembly_element
defines_fixture_shape
10,2
Fixture_assembly_element
shape_definition
12,3(11)
Geometric_model

13,3(4)
STRING
id
STRING
description
Illustration
is_owned_by
View_reference
identifies S[0:?]
4,1
Activity
sheet
STRING
view
STRING
zone
STRING
13,4(4)
(INV) clarifies FOR clarified_by S[1:?]
4,1
Activity
owned_by
13,1(4,11)
9,1
Tool_assembly
documents_tool
documents_version
1,1
Part_version
10,1
Fixture_assembly
documents_fixture
Drawing
drawing_type
STRING
revision_level
STRING
id
STRING
drawing_data_file
14,1
Document_assignment
13,2(4)
internal_or_external_definition
12,4
Manufacturing_process_features
EXPRESS_entity_identifier S[1:?]
STRING
External_schema_definition
14,1
Document_assignment
STEP_schema

Document_file_relationship
succeeding_file
previous_file
14,1(1,4,7,8,9,10,11,13)
Document_assignment
role
STRING
assigned_document
Partial_document_assignment
version_id
identifier
file_id
(ABS)
Document_file
document_portion
STRING
STRING
1
Hardcopy
Digital_file
document_properties
STRING
creating_system
STRING
creating_operating_system
STRING
content_detail_level
STRING
content_country_code
STRING
content_geometry_type
STRING
content_language_code
STRING
document_type
Document_file_properties
creating_interface
STRING
format_character_code
STRING
external_file_location
STRING
file_size
REAL
page_count
INTEGER
data_format
STRING
external_file_id
STRING

15,1(3,9)
Externally_defined_representatiion
location
REAL
placement
REAL
identified_by
Library_part_assignment
definitional_property_value_pairs S[0:?]
property_value
value_amount
STRING
definitional_class_bsu
property_bsu
name_scope
property_BSU
code
STRING
version
STRING
class_BSU
code
STRING
version
STRING
defined_by
supplier_BSU
code
STRING

16,1(2)
Feature_tree
description
STRING
name
STRING
feature_structure S[1:?]
feature_tree_select
Surface_finish_identification
description
STRING
surface_finish
12,5
Surface_property
remarks_on_surface_finish S[0:?]
Removal_volume_identification
description
STRING
offset_length
3,2
Numeric_parameter
remark_on_removal_volume
Feature_identification_item
feature_relation S[0:?]
Feature_interaction
description
STRING
related_feature
feature
12,4
Manufacturing_process_features
feature_type
Manufacturing_process_feature_type
The feature must match the featurea_type. For example if the feature is a Boss then the feature_type is a Boss
1
base_feature_identifiecation
1
parent_feature_identification
(RT) feature_type
volumetric_feature_identification
(RT) feature_type
Element_feature_identification
(RT) feature_type