

# ISO/TS 13399-150:2008-12 (E)

## Cutting tool data representation and exchange - Part 150: Usage guidelines

---

<b>Contents</b>		<b>Page</b>
Foreword .....		vi
<b>1</b>	<b>Scope .....</b>	<b>1</b>
<b>2</b>	<b>Normative references .....</b>	<b>1</b>
<b>3</b>	<b>Usage guidelines .....</b>	<b>1</b>
3.1	Legend .....	1
3.2	Fundamental assumptions .....	2
3.2.1	Item representation .....	2
3.2.2	Reference data library .....	2
3.3	Representing basic item information .....	3
3.3.1	Required cutting_tool_schema entities .....	3
3.3.2	Representation .....	3
3.3.3	ISO 10303-21 example .....	5
3.4	Representing information in multiple languages .....	5
3.4.1	Required cutting_tool_schema entities .....	5
3.4.2	Representation .....	5
3.4.3	ISO 10303-21 example .....	6
3.5	Representing person and organization .....	7
3.5.1	Required cutting_tool_schema entities .....	7
3.5.2	Representation .....	7
3.5.3	ISO 10303-21 example .....	8
3.6	Representing a classification based on P-Lib .....	8
3.6.1	Required cutting_tool_schema entities .....	8
3.6.2	Representation .....	8
3.6.3	ISO 10303-21 example .....	10
3.7	Representing a classification based on a general external library .....	10
3.7.1	Required cutting_tool_schema entities .....	10
3.7.2	Representation .....	10
3.7.3	ISO 10303-21 example .....	12
3.8	Representing a classification without external references .....	12
3.8.1	Required cutting_tool_schema entities .....	12
3.8.2	Representation .....	12
3.8.3	ISO 10303-21 example .....	13
3.9	Representing classification relationships .....	14
3.9.1	Required cutting_tool_schema entities .....	14
3.9.2	Representation .....	14
3.9.3	ISO 10303-21 example .....	15
3.10	Representing ownership of classifications .....	15
3.10.1	Required cutting_tool_schema entities .....	15
3.10.2	Representation .....	16
3.10.3	ISO 10303-21 example .....	17
3.11	Representing a property based on P-Lib .....	17
3.11.1	Required cutting_tool_schema entities .....	17
3.11.2	Representation .....	18
3.11.3	ISO 10303-21 example .....	20
3.12	Representing a property based on a general external library .....	20
3.12.1	Required cutting_tool_schema entities .....	20
3.12.2	Representation .....	20
3.12.3	ISO 10303-21 example .....	21
3.13	Representing a property without external references .....	22

3.13.1	Required cutting_tool_schema entities .....	22
3.13.2	Representation .....	22
3.13.3	ISO 10303-21 example .....	23
3.14	Representing property values .....	24
3.14.1	Required cutting_tool_schema entities .....	24
3.14.2	Representation .....	24
3.14.3	ISO 10303-21 example .....	26
3.15	Representing property value lists .....	27
3.15.1	Required cutting_tool_schema entities .....	27
3.15.2	Representation .....	27
3.15.3	ISO 10303-21 example .....	28
3.16	Representing property value limitations .....	29
3.16.1	Required cutting_tool_schema entities .....	29
3.16.2	Representation .....	29
3.16.3	ISO 10303-21 example .....	31
3.17	Representing property value relationships based on P-Lib .....	32
3.17.1	Required cutting_tool_schema entities .....	32
3.17.2	Representation .....	32
3.17.3	ISO 10303-21 example .....	33
3.18	Representing property versions .....	34
3.18.1	Required cutting_tool_schema entities .....	34
3.18.2	Representation .....	34
3.18.3	ISO 10303-21 example .....	35
3.19	Representing alias identification .....	35
3.19.1	Required cutting_tool_schema entities .....	35
3.19.2	Representation .....	35
3.19.3	ISO 10303-21 example .....	36
3.20	Representing assembly structure (Bill of Material) .....	37
3.20.1	Required cutting_tool_schema entities .....	37
3.20.2	Representation .....	37
3.20.3	ISO 10303-21 example .....	38
3.21	Representing mating structure .....	39
3.21.1	Required cutting_tool_schema entities .....	39
3.21.2	Representation .....	39
3.21.3	ISO 10303-21 example .....	41
3.22	Representing relationships between different versions of an item .....	42
3.22.1	Required cutting_tool_schema entities .....	42
3.22.2	Representation .....	42
3.22.3	ISO 10303-21 example .....	43
3.23	Representing derived relationship between different item_versions .....	43
3.23.1	Required cutting_tool_schema entities .....	43
3.23.2	Representation .....	43
3.23.3	ISO 10303-21 example .....	45
3.24	Representing supplied relationship between different item_versions .....	45
3.24.1	Required cutting_tool_schema entities .....	45
3.24.2	Representation .....	45
3.24.3	ISO 10303-21 example .....	46
3.25	Representing multiple views or functions .....	47
3.25.1	Required cutting_tool_schema entities .....	47
3.25.2	Representation .....	47
3.25.3	ISO 10303-21 example .....	49
3.26	Representing effectivity .....	50
3.26.1	Required cutting_tool_schema entities .....	50
3.26.2	Representation .....	50
3.26.3	ISO 10303-21 example .....	51
3.27	Representing effectivity relationships .....	51
3.27.1	Required cutting_tool_schema entities .....	51
3.27.2	Representation .....	51
3.27.3	ISO 10303-21 example .....	53
3.28	Representing compatible relationship between items .....	53
3.28.1	Required cutting_tool_schema entities .....	53
3.28.2	Representation .....	53

3.28.3	ISO 10303-21 example .....	55
3.29	Representing substitutable relationship between items .....	55
3.29.1	Required cutting_tool_schema entities .....	55
3.29.2	Representation .....	55
3.29.3	ISO 10303-21 example .....	57
3.30	Representing digital documents .....	57
3.30.1	Required cutting_tool_schema entities .....	57
3.30.2	Representation .....	58
3.30.3	ISO 10303-21 example .....	59
3.31	Representing DMU structures with 3D models .....	59
3.31.1	Required cutting_tool_schema entities .....	59
3.31.2	Representation .....	60
3.31.3	ISO 10303-21 example .....	61
3.32	Representing DMU structures with 2D models .....	62
3.32.1	Required cutting_tool_schema entities .....	62
3.32.2	Representation .....	62
3.32.3	ISO 10303-21 example .....	64
3.33	Representing external models as 3D .....	65
3.33.1	Required cutting_tool_schema entities .....	65
3.33.2	Representation .....	65
3.33.3	ISO 10303-21 example .....	66
3.34	Representing external model as 2D .....	66
3.34.1	Required cutting_tool_schema entities .....	66
3.34.2	Representation .....	67
3.34.3	ISO 10303-21 example .....	68
3.35	Representing physical items .....	68
3.35.1	Required cutting_tool_schema entities .....	68
3.35.2	Representation .....	69
3.35.3	ISO 10303-21 example .....	70
3.36	Representing physical items based on an item .....	70
3.36.1	Required cutting_tool_schema entities .....	70
3.36.2	Representation .....	71
3.36.3	ISO 10303-21 example .....	72
3.37	Representing realized item definition relationship .....	72
3.37.1	Required cutting_tool_schema entities .....	72
3.37.2	Representation .....	73
3.37.3	ISO 10303-21 example .....	74
3.38	Representing physical item structures .....	74
3.38.1	Required cutting_tool_schema entities .....	74
3.38.2	Representation .....	74
3.38.3	ISO 10303-21 example .....	75
3.39	Representing work piece feature .....	76
3.39.1	Required cutting_tool_schema entities .....	76
3.39.2	Representation .....	76
3.39.3	ISO 10303-21 example .....	77
3.40	Representing grade .....	77
3.40.1	Required cutting_tool_schema entities .....	77
3.40.2	Representation .....	77
3.40.3	ISO 10303-21 example .....	79
Annex A (informative) Complete ISO 10303-21 file of the examples .....		80