

# ISO/TS 13399-312:2016-02 (E)

## Cutting tool data representation and exchange - Part 312: Creation and exchange of 3D models - Reamers for indexable inserts

---

<b>Contents</b>		<b>Page</b>
Foreword .....		v
Introduction .....		vii
1	Scope .....	1
2	Normative references .....	1
3	Starting elements, coordinate systems, planes .....	2
3.1	General .....	2
3.2	Reference system .....	2
3.3	Primary coordinate system and mounting coordinate system .....	2
3.4	Coordinate system at the cutting part .....	3
3.5	Planes .....	3
3.6	Design of the pocket seat and cutting reference point (CRP) of the insert .....	4
3.7	Adjustment coordinate system on workpiece side .....	6
3.7.1	General .....	6
3.7.2	Designation of the coordinate system workpiece side .....	6
4	Design of the model .....	7
4.1	General .....	7
4.2	Necessary parameters for the connection interface feature .....	8
4.3	Necessary properties for inserts .....	8
4.3.1	General .....	8
4.3.2	Properties of inserts for reaming operations .....	9
4.3.3	Design of the pocket seat feature .....	9
5	Cylindrical reamer .....	9
5.1	General .....	9
5.2	Necessary properties .....	10
5.3	Basic geometry .....	11
5.4	Determination of the position of the mounting coordinate system of insert .....	11
5.5	Chip flute and pocket seat .....	12
5.6	Cylindrical reamer -- Assembly .....	13
6	Tapered reamer .....	14
6.1	General .....	14
6.2	Necessary properties .....	14
6.3	Basic geometry .....	15
6.4	Determination of the position of the mounting coordinate system of insert .....	15
6.5	Chip flute and pocket seat .....	16
6.6	Tapered reamer, assembled .....	17
7	Stepped(profile)reamer .....	17
7.1	General .....	17
7.2	Necessary properties .....	18
7.3	Basic geometry .....	19
7.4	Determination of the position of the mounting coordinate system of insert .....	20
7.5	Chip flute and pocket seat .....	21
7.6	Assembled stepped (profile) reamer .....	23

8	<b>Bell style reamer .....</b>	<b>23</b>
8.1	<b>General .....</b>	<b>23</b>
8.2	<b>Necessary properties .....</b>	<b>24</b>
8.3	<b>Basic geometry .....</b>	<b>25</b>
8.4	<b>Determination of the position of the mounting coordinate system of insert .....</b>	<b>26</b>
8.5	<b>Chip flute and pocket seats .....</b>	<b>28</b>
8.6	<b>Assembled bell style reamer .....</b>	<b>29</b>
9	<b>Shell reamer .....</b>	<b>29</b>
9.1	<b>General .....</b>	<b>29</b>
9.2	<b>Necessary properties .....</b>	<b>30</b>
9.3	<b>Basic geometry .....</b>	<b>30</b>
9.4	<b>Determination of the position of the mounting coordinate system of insert .....</b>	<b>31</b>
9.5	<b>Chip flute and pocket seats .....</b>	<b>32</b>
9.6	<b>Assembled shell reamer .....</b>	<b>33</b>
10	<b>Design of details .....</b>	<b>34</b>
10.1	<b>Basics for modelling .....</b>	<b>34</b>
10.2	<b>Contact/clamping surfaces -- Orientation .....</b>	<b>34</b>
10.3	<b>Chamfers and roundings .....</b>	<b>35</b>
11	<b>Attributes of surfaces -- Visualization of the model features .....</b>	<b>35</b>
12	<b>Structure of the design elements (tree of model) .....</b>	<b>35</b>
13	<b>Data exchange model .....</b>	<b>36</b>
	<b>Annex A (informative) Information about nominal dimensions .....</b>	<b>38</b>
	<b>Bibliography .....</b>	<b>39</b>