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Form reference: SC-A-064B (Ver 11 – 10/23)

ANNEX A - PRODUCT QUESTIONNAIRE
A-2 MACHINE TOOLS
(Based on SGCO 2023)

SECTION A BASIC PRODUCT INFORMATION

(1) Name of the Manufacturer:

(2) Product Details	(a) Brand	(b) Model No.	(c) Serial No.
Machine Tool			
Numerical Control Unit *(To be used with machine tool, if any)*			

SECTION B FUNCTIONALITY OF PRODUCT

(3) Machine Function(s):
(You may select more than one)

☐ Turning

☐ Milling

☐ Grinding

☐ Electrical Discharge Machine of the non-wire type

☐ Others, please specify:

(4) Is the machine tool a special purpose machine tool?

☐ Yes ☐ No

If 'Yes', please specify if it is limited to the manufacture of the following:

(a) Gears

☐ Yes ☐ No

(b) Crankshafts or camshafts

☐ Yes ☐ No

(c) Tools or cutters

☐ Yes ☐ No

(d) Extruder worms

☐ Yes ☐ No

(e) Engraved or facetted jewellery parts

☐ Yes ☐ No

(f) Dental prostheses

☐ Yes ☐ No

SECTION C TECHNICAL QUESTIONS

Please answer specifically based on the machine function(s) in (3).

The terms in quotation marks (“”) and abbreviations used in this Section are defined in Section D.

(5) Please state the axis specifications for machine with turning, milling and / or grinding function.

Number of Linear Axis	Number of Rotary Axis	Maximum Travel		“Unidirectional Positioning Repeatability” in accordance with ISO 230-2:2014	Positioning accuracy with “all compensations available” in accordance with ISO 230-2:1988
		X-axis	mm	µm	µm
		Y-axis	mm	µm	µm
		Z-axis	mm	µm	µm
Others (*if any*):			mm	µm	µm
			mm	µm	µm

For Turning

(6) Does the machine tool have two or more axes which can be coordinated simultaneously for “contouring control”?

☐ Yes ☐ No

(7) Is the machine tool specially designed for the production of contact lenses?

☐ Yes ☐ No

If ‘Yes’, please state the following:

(a) Is the machine controller limited to using ophthalmic based software for part programming data input?

☐ Yes ☐ No

(b) Does the machine tool have vacuum chucking?

☐ Yes ☐ No

(8) Is the machine tool capable of machining diameters greater than 35 mm?

☐ Yes ☐ No

(9) Is the machine tool a bar machine (Swissturn) limited to machining only bar feed through?

☐ Yes ☐ No

If 'Yes', please state the following:

(a) Does the bar machine have a maximum bar diameter equal to or less than 42 mm?

☐ Yes ☐ No

(b) Does the bar machine have the capability of mounting chucks?

☐ Yes ☐ No

For Milling

(10) Does the machine have three linear axes plus one rotary axis which can be coordinated simultaneously for "contouring control"?

☐ Yes ☐ No

(11) Does the machine tool have five or more axes which can be coordinated simultaneously for "contouring control"?

☐ Yes ☐ No

(12) Is the machine tool a jig boring machine?

☐ Yes ☐ No

(13) Is the machine tool a fly cutting machine?

☐ Yes ☐ No

If 'Yes', please state the following:

(a) Is the spindle "run-out" and "camming" less (better) than 0.0004 mm TIR?

☐ Yes ☐ No

(b) Is the angular deviation of slide movement (yaw, pitch and roll) less (better) than 2 seconds of arc, TIR over 300 mm of travel?

☐ Yes ☐ No

(14) Does the machine tool have two or more contouring rotary axes?

☐ Yes ☐ No

(15) Is the machine based on parallel linear kinematic design (e.g. hexapods) that have 5 or more axes none of which are rotary axes?

☐ Yes ☐ No

For Grinding

(16) Does the machine tool have three or four axes which can be coordinated simultaneously for “contouring control”?

☐ Yes ☐ No

(17) Does the machine tool have five or more axes which can be coordinated simultaneously for “contouring control”?

☐ Yes ☐ No

(18) Does the machine tool have two or more contouring rotary axes?

☐ Yes ☐ No

(19) Is the machine tool a cylindrical external, internal or external-internal grinding machine?

☐ Yes ☐ No

If ‘Yes’, please state the following:

(a) Is the machine tool limited to cylindrical grinding?

☐ Yes ☐ No

(b) Is the machine tool limited to a maximum workpiece capacity of 150 mm outside diameter or length?

☐ Yes ☐ No

(c) Are the machine tool axes limited to x, z and c?

☐ Yes ☐ No

(20) Is the machine tool designed specifically as jig grinders that do not have a z-axis or a w-axis?

☐ Yes ☐ No

(21) Is the machine tool a surface grinder?

☐ Yes ☐ No

(22) Is the machine based on parallel linear kinematic design (e.g. hexapods) that have 5 or more axes none of which are rotary axes?

☐ Yes ☐ No

For Electrical Discharge Machine of the non-wire type

(23) Does the machine tool have two or more rotary axes which can be coordinated simultaneously for “contouring control”?

☐ Yes ☐ No

For Numerical Control Unit *(to be used with machine tool, if any)*

(24) Is the software residing in the “numerical control” unit capable of coordinating simultaneously more than four axes for “contouring control”?

☐ Yes ☐ No

SECTION D DEFINITION OF TERMS / ABBREVIATIONS

“all compensations available” means after all feasible measures available to the manufacturer to minimise all systematic positioning errors for the particular machine-tool model are considered.

“camming” means axial displacement in one revolution of the main spindle measured in a plane perpendicular to the spindle faceplate, at a point next to the circumference of the spindle faceplate. (Ref. ISO 230-1:1986, paragraph 5.63)

“contouring control” means two or more “numerically controlled” motions operating in accordance with instructions that specify the next required position and the required feed rates to that position. These feed rates are varied in relation to each other so that a desired contour is generated. (Ref. ISO/DIS 2806-1980)

“numerical control” means the automatic control of a process performed by a device that makes use of numeric data usually introduced as the operation is in progress. (Ref. ISO 2382)

“run-out” (out-of-true running) means radial displacement in one revolution of the main spindle measured in a plane perpendicular to the spindle axis at a point on the external or internal roving surface to be tested. (Ref. ISO 230-1:1986, paragraph 5.61)

“Unidirectional Positioning Repeatability” means the smaller of values R↑ and R↓ (forward and backward), as defined by 3.21 of Ref. ISO 230-2:2014 or national equivalents, of an individual machine tool axis.

TIR means Total Indicated Reading.