FIAT CHRYSLER AUTOMOBILES

REQUIREMENTS FOR MACHINERY EQUIPMENT

FPWMEM028

REQUEST FOR QUOTE ATTACHMENTS

Rel. 6.2
Original Date: 01- April - 2011
Revision Date: 14 - March - 2019

EMEA Region – Powertrain Manufacturing Engineering

REVISION HISTORY

Release	Date	Description	Approved by
~~3~~	~~05/11/2007~~	~~Document creation~~	~~Panniello~~
~~4~~	~~17/06/2009~~	~~Check list added~~	~~Leonardi~~
~~4.1~~	~~31/07/2009~~	~~Check list update~~	~~Leonardi~~
1.0	31/03/2011	Document numbering reset due to new scope Check list update, harmonization with FP-CPT joint specification, logo and company name change	G. Leonardi F. Panniello
2.0	02/07/2012	Annex to RfQ have been grouped within this document. Ergonomics reference norms added.	G. Leonardi
2.1	03/02/2014	Company Logo	G. Leonardi
3.0	12/01/2015	Company Logo FCA ergonomy reference norm included	G. Leonardi
4.0	12/01/2016	Company Logo General update to new Technical Specification Set	G. Leonardi
5.0 only draft	01/10/2018	General upgrade Overall Equipment Effectiveness (OEE) table modification Running Cost modification Deviation module added	G. Leonardi G. Carletto C. D'Agostino
6.0	17/10/2018	General upgrade Vendor list inquiry more detailed Deviation module added Overall Equipment Effectiveness (OEE) table modification Running Cost modification 3D models Machine installation Noise Level measurement new norm	G. Leonardi G. Carletto-C. D'Agostino P.Panessa G. Torrano P. Saccarola
6.1	28/01/2019	Sample values in the blu field (FCA competence) have been better sized, in order to do not invalidate data declared by the supplier	G. Leonardi G. Carletto C. D'Agostino
6.2	14/03/2019	Removed sample values from OEE and introduced MTTR for assembly and machining Semplified and clarified requirements from sheet 9 to 12	G. Carletto G. Leonardi

Summary and Competences

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1 Scope

1.1 This document is an attachment to the FCA Powertrain Request for Quote (RfQ) and collects technical and economical information that machine supplier is requested to return, properly filled-in, together with bid, to FCA.

1.2 Technical and economical information in this document have priority over the bid; failure in delivery this document or part of the document, determines the supplier elimination.

1.3 This document is cross among several FCA Powertrain department; supplier can identify the specialist in charge of the item in the Summary and References sheet of this document.

1.4 Supplier is requested to return the document in:
- Adobe Acrobat (pdf)
- Excel. (xls).

Technical Specifications referred in the tables attached are available on FCA web site:
https://supplierinfo.powertrain.fcagroup.com/ .

1.5 Fields to be filled by in are in yellow. See following legenda:

blu	Filled in with the data received by FCA
yellow	Filled in by Supplier
green	Automatic output, not to be filled in
gray	Not used
white	Not used

1.6 The values present in the sheets tables 6, 7, 8 are sample to check the formulas. They do not have to be considered as definitive.
In particular Project Data are declared by FCA in the Request for Quote received by the supplier.

2 Delivery Scope

2.1	**Last fill-in date**	
2.2	**Request for Quote Nr.**	
2.3	**Project**	
2.4	**Applied Technical Specification Set (see par. 3.1 and 3.2 of Request for Quote)**	
2.5	**Part / OP. / Line**	
2.6	**Supplier name**	
2.7	**Bid Nr.**	
2.8	**Machine Type**	
2.9	**Purchasing Order Number**	
2.10	**Machine Plate Number (Technical Identification Number)**	

3 Utility Data

REMEMBER TO UPDATE LAST FILL-IN DATE INTO SHEET 2

8.1 The supplier shall fill out the PT_TS_EC_EM_Plant Utilities Data specification.

8.2 It includes - for each plant - a table with two sections:

- DATA SUPPLIED BY PURCHASER
  plant characteristics necessary to adapt the machine on plant destination

- SECTION TO BE FILLED IN BY VENDOR
  machine characteristics necessary to design the plant utilities.

8.3 Table relevant to the delivery location plant shall be properly filled out, signed and then returned to FCA with this document.

ATTACH HERE THE XLS FILE SHEET RELEVANT TO THE DELIVERY PLANT DESTINATION

4 Machine Installation

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ATTACH HERE THE SCREEN SHOT OF THE RELEVANT MACHINE MANUAL SHEET

5 Safety and Ergonomics Conformity

Following list of references shall not be considered exhaustive full: it is on supplier side to know and point out all relevant regulations and norms for the proper machine design. Supplier is here required to answer what - among the following references - is applied to the machine.

5.1 New Equipment

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ITEMS		ANSWER (Machine / Partly Completed Machine)	NOTE
5.1.1	**CE MARKING**		
ITEMS		**APPLIED (YES / NO)**	**NOTE**
5.1.2	**Machine Directive 2006/42 EC** and Harmonized EC Standards		
5.1.3	**Directive 2014/30/UE** (Electromagnetic Compatibility)		
5.1.4	**Directive 2006/95 EC** (Low Voltage)		
5.1.5	**Directive 2014/68/UE** (Pressure Equipment)		
5.1.6	**Directive 2014/34/UE** (ATEX, Explosive Atmosphere)		

5.2 Machine to be modified

ITEMS		APPLIED (YES / NO)	NOTE
5.2.1	**New CE Marking**		
5.2.3	**CE Mark Requalification**		
5.2.4	**Maintenance Activities** (ordinary or extraordinary) with Conformity Declaration as per EN ISO / IEC 17050-1		

5.3 Risk Analysis

ITEMS		APPLIED (YES / NO)	NOTE
5.3.1	**UNI EN ISO 13849-1:2016** (Machine Safety: list all the safety circuits of the machine and for each of them the relevant PL data; calculation to be available for verification if required)		
5.3.2	**NOISE LEVEL (Leq. 8h) ≤78 dB (A)** (measurement method in compliance with relevant UNI/TR 11727:2018)		

5.4 Ergonomics

ITEMS		APPLIED (YES / NO)	NOTE
5.4.1	**Manual Workplace** **FCA Norm 9.01111 available at** ***https://norme.orange.fiat.it/login.htm?step=1***		
5.4.2	**Architecture of workplace station ISO 14738 EN 894-1/2**		
5.4.3	**Manual handling of loading EN1005-2 ISO 11228-1 ISO 11228-2**		
5.4.4	**Force EN 1005-3 UNI EN 894-3**		
5.4.5	**Posture EN 1005-4 ISO 11226**		
5.4.6	**Handling of low loads at high frequency EN 1005-5 ISO 11338-3**		

6 Project Data

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FCA PROJECT REQUIREMENTS DATA (as per FCA Request for Quote)

Project			**Capacity (parts/year)**		**Shifts per Week**	
Workpiece			**Workpiece type**		**Working Weeks per Year**	
Hours per Shift			**Shifts per Day**		**Working Days per Year**	
				Planned Production Time	**(h/year)**	0

SUPPLIER PROJECT DELIVERY DATA

Supplier		**Machine model**		**Machine type**	
		Machine Quantity		**Operation (#)**	
Notes					

7 - Overall Equipment Effectiveness

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Note: see PT_TS_MR_EM_OEE Guide.doc_2.2 to fill in the table below								Loss [%]	Loss [h/y]	Partial Loss (%)
PRODUCING	Real Production Time					h/y	#DIV/0!			
	Active Machine Time (1.1)					sec				
	Loading and Unloading Time (1.2)					sec				
	Machine Time Not Producing (1.3)					sec	0,00			
	Total Cycle Time (1.4)					sec	**0,00**			
	Recurring Activities (eg. Zeroing Cycle)	Activity	#	1	2	3				
		Frequency (1.3.1)	pcs							
		Activity time (1.3.2)	sec							
		Time per piece (1.3.3)	sec	0,00	0,00	0,00				
		Total Activities Time per piece (1.3.4)					sec	0,00			
	Wheel dressing time (for grinding only)	Wheels	#	1	2	3				
		Sharpening frequency (1.3.5)	pcs							
		Sharpening time (1.3.6)	sec							
		Sharpening time per piece (1.3.7)	sec	0,00	0,00	0,00				
		Total Sharpening time per piece (1.3.8)					sec	0,00			
		Pieces processed simultaneously (1.5)					#			
		Equivalent Cycle Time (1.6)					sec	**#DIV/0!**		
AVAILABILITY (Losses)	Breakdown - BM	MTBF (2.1)					h			
		MTTR FCA (maintenance operations+spare part provision+first good part) (2.2)					h		**#DIV/0!**	**#DIV/0!**
		MTTR SUPPLIER (diagnosis+repair) (2.3)					h			
		Workers (2.4)					#			
	Tool Change (without sister tools, including wheels)	Average Change Frequency (3.1)					pcs		**#DIV/0!**	**#DIV/0!**
		Average Standstill Time (3.2)					h			
		Workers (3.3)					#			
	Changeover	Changeover time (4.1)					h			
	Setup	Warmup time (5.1)					h		**#DIV/0!**	**0,00**
	CIRL Activities - AM	Average Action Frequency (6.1)					days		**#DIV/0!**	**#DIV/0!**
		Average Standstill Time (6.2)					min			
		Workers (6.3)					#			
	PM Activities - TBM (Time Based Maintenance)	Average action period (7.1)					days		**#DIV/0!**	**#DIV/0!**
		Average standstill time (7.2)					min			
		Workers (7.3)					#			
	PM Activities - CBM (Condition Based Maintenance)	Average Action Frequency					days			
		Average Standstill Time					min			
		Workers					#			
PERFORMANCE	Micro stoppages	Mean Downtime (MDT) (to be considered only the mahine stop, not the machine re-start) (8.1)					min		**#DIV/0!**	
		Average Event Frequency (8.2)					#/year			**#DIV/0!**
	Speed Reduction	Current Cycle time (9.1)					sec		**#DIV/0!**	
		Over-Cycle events percentage (9.2)					%			
QUALITY	Scraps and reworking	First Time Quality (FTQ)					%			**0,00%**

MTTR for machining= 1,7 h
MTTR for assembly= 0,8 h

OEE	**#DIV/0!**
HOURLY OUTPUT	**#DIV/0!**

REMEMBER TO UPDATE LAST FILL-IN DATE INTO SHEET 2

8 Running Costs

Parameters	Consumption		Description
Energy Consumption during Machine Not Working in one hour	kWh		Machine working is when "System Working" or "Cycle Time Exceeded" signals are active. For further explanation see: - energy metering in the PT_TS_ES_GL_Energy Saving specification par. 7.4.3 - definitions in the PT_TS_ES_EM_Monitoring par. 3.3.3, 3.3.4 and 3.6.1
Energy Consumption during Machine Working	kWh/parts		
Air consumption in Machine Not Working	Nm3/h		
Air consumption during Machine Working	Nm3/piece		
Lubrication consumption	l/year		Calculated starting from lubrication circuit design
Spare parts	€/year		Calculated starting on the base of the information included into the machine ledger
Maintenance - Machine Operator MR	hour/shift		Calculated starting on the base of the relevant maintennce forms

9 VENDORS LIST

REMEMBER TO UPDATE LAST FILL-IN DATE INTO SHEET 2

9.1 The supplier shall comply with the list of standardized components and relevant allowed brands listed in PT_TS_CR_GL_Vendors_List_Controls_&_Fluids specification.

9.2 The supplier shall verify in the web site if there is any project addendum specification, because additional restriction may be applied for a specific project.

9.3 The supplier shall comply with the available Project Books, which are published in the Standardization section of the Technical Specification web site.

9.4 For the below listed Project Books, the supplier shall technically and economically evaluate the options proposed.In order to fill in the table, the supplier shall:
- (column "D") put a mark ("**X**") in corrispondence of the brand included in the bid, without additional costs
- (column "E") indicate in the option column the "cost difference" (write zero for no difference), for the alternative brands
- (column "F") give an explanation in terms of technical, timing or costs reasons, if a brand is not applicable (NA).

9.5

	PROJECT BOOKS	INCLUDED IN THE BID *(put a mark)*	OPTION *(put Δ cost in €)*	NOT APPLICABLE
9.5.1	*Controls*			
	Fanuc (CNC only)			
	Rockwell (for assembly line only			
	Siemens			
9.5.2	*Tightening Systems*			
	Atlas			
	Bosch-Rexroth			
	Apex			
6.5.3	*Electromechanic presses*			
	Promess			
	Kistler			

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9 VENDORS LIST

9.6 Following list is required as a general machine overview; the supplier shall fill in on the base of the real machine architecture.

BEWARE
Nothing in this sheet, in any case, supersedes applicable "Vendor List" and "Project Book" available in the website http://supplierinfo.powertrain.fcagroup.com

FILL IN SAMPLE:

COMPONENTS DETAILS		*BRAND/ TYPE/ NA*	*NOTE*
	HMI	*Siemens / TP1200*	
	Hydraulic	*Bosch*	
	Label Printer	*NA*	

9.6 All fields in column "D" shall be filled in. For "TYPE" information it is not mandatory to specify the ordering code.

9.8	**COMPONENTS DETAILS**	**BRAND/ TYPE/ NA**	**NOTE**
9.4.1	HMI (BRAND / TYPE)		
9.4.2	Hand held pushbuttons or mobile panel (BRAND / TYPE)		
9.4.3	CNC (BRAND / TYPE)		
9.4.4	PLC (BRAND / TYPE)		
9.4.5	Robot (BRAND / TYPE)		
9.4.6	Marking Pin Stamp (BRAND / TYPE)		
9.4.7	Label Printer (BRAND / TYPE)		
9.4.8	Vision System (BRAND)		
9.4.9	2D Code Laser marking (BRAND / TYPE)		
9.4.10	2D Code Reader (BRAND / TYPE)		
9.4.11	Pneumatic (BRAND)		
9.4.12	Hydraulic (BRAND)		
9.4.13	Cooling system (Air Air Exchanger / Air Water Exchanger / Chiller)		
9.4.14	Electromechanic (BRAND)		

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EMEA Region – Powertrain Manufacturing Engineering AME – Controls & EEM

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10.1 Deviation Request Form

Deviations shall be asked jointly with the bid presentation: they will be accepted without any refund request only in case of technical reasons.

One deviation form per each deviation component proposal shall be filled in. Add, to this file, as many sheets as the deviations are.

Please declare the following:

Requested by:	Reviewed by:
Date:	Date:

a - REASON (put a mark "X" in one of the four choices)

TECHNICAL	
TIMING	
COST	
OTHER	

b - SAVING (FCA saving amount if deviation is allowed to be deducted from the machine quotation)

€

Deviation REASON explanation:	FCA Comment
Deviation REASON explanation:	FCA Comment

FIAT CHRYSLER AUTOMOBILES
EMEA Region – Powertrain Manufacturing Engineering AME – Controls & EEM

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10.(n+1) Deviation Request Form

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Please declare the following:

Requested by:	Reviewed by:
Date:	Date:

a - REASON (put a mark "X" in one of the four choices)

TECHNICAL	
TIMING	
COST	
OTHER	

b - SAVING (FCA saving amount if deviation is allowed to be deducted from the machine quotation)

€

Deviation REASON explanation:	FCA Comment

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11 11 Technical Specification Check List

			CONFIRM (YES / NO)	NOTE
11.1	**MACHINE CERTIFICATION (MACHINE DIRECTIVE)**			
	11.1.1	For the automation, confirm whether the "area" certification is provided.		
	11.1.2	For assembly line confirm CE certification for each of the following: - complete line - automatic station - "control zone" (conveyor, manual and backup station)		
	11.1.3	In case you act as part of an area certified by a third party, confirm whether accessible part of your machine are safe, in case the are interlocked with an automatic loader.		
	11.1.4	Confirm whether machine set-up operating mode allows the manual movements while doors are open and safety circuits are active.		
11.2	**FCA PT REGULATION**		CONFIRM (YES / NO)	NOTE
	11.2.1	Supplier is required to attach to this excel document (sheet 12) the web site "export to excel" software pushbutton the "Specification Documents List" applied and used for the economical quotation.		
11.3	**FCA PT REGULATION - INDUSTRY 4.0**		CONFIRM (YES / NO)	NOTE
	11.3.1	Supplier shall partecipate to the technical meetings organized by Controls&Standards department about Industry 4.0 items. The supplier shall specify in the "Note" column the name of the reference person in charge of: - plant ethernet interconnection - monitoring diagnostic & speaking machine - memory tag layout - part marking and reading - part flow control - electrical interconnection - HMI. The confirmation of the name of the person shall be formalized within 30 days from order date. Such person will be in charge to partecipate to the technical meetings mentioned above.		
11.4	**FCA PT REGULATION - DRAWINGS**		CONFIRM (YES / NO)	NOTE
	11.4.1	Supplier is required to send to FCA powertrain the 2D Autocad design drawing (single machine or layout) according to the technical specification "PT_TS_DR_EM_LAYOUT"		
	11.4.2	Supplier is required to send to FCA powertrain the 3D drawing in .prt or .jt format according to the technical specification "PT_TS_DR_EM_Machine_and Equipment_3D_CAD_ Requirements"		
11.5	**FCA PT REGULATION - MAINTENANCE DOCUMENTATION**		CONFIRM (YES / NO)	NOTE
	11.5.1	Is the maintenance documentation realized by a third party company? If yes, specify the supplier in the note column.		

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12 Specification Documents List

List below the applied document and the release at the bid delivery date.

Document	Description	Release

LIST IS DOWNLOADABLE FROM THE SPECIFICATION WEB SITE

FIAT CHRYSLER AUTOMOBILES
FCA Italy S.p.A. Powertrain

13 - ACCEPTANCE FORM

All Requirements and Technical Specifications of the Request for Quote and its Attachments are to be strictly complied with for design and construction of equipment.

This sheet to be undersigned by Supplier in acceptance of above requirements.

Supplier:

Date:

Company Stamp

Legal Representative Name:

Legal Representative Signature:

Position within Company: