

Kęty, 20.10.2009

Re: Inquiry for the equipment for ultrasonic flaw detection of aluminium products from hard alloys as part of project of Creating of Research and Development Centre in Company Grupa Kęty S.A., co-financed with European Union with funds of The Regional Development Fund within The Operational Programme “Innovative Economy” (IE OP 2007-2013).

We kindly ask to send us your detailed offer for **equipment for ultrasonic flaw detection of aluminium products from hard alloys**, according to below mentioned conditions:

I. Main technical characteristics of the equipment:

1. Subject of the offer (exact same wording necessary): **equipment for ultrasonic flaw detection of aluminium products from hard alloys**

Material to be tested: aluminium alloys of series: 1xxx, 2xxx, 3xxx, 4xxx, 5xxx, 6xxx, 7xxx, 8xxx, according to standard EN 573-3.

2. Shapes and basic parameters of the material to be tested

2.1. Round bars with diameters: ϕ 30 – 200 mm and lengths:

- ϕ 30 – 145 mm: 2 – 7 m
- ϕ 145 – 180 mm: 2 – 6,5 m
- ϕ 180 – 200 mm: 2 – 3 m

For the whole range of diameters ϕ 30 – 200 mm straightness within 3 mm/m and within 15 mm / 7 m, surface condition: extruded or drawn, roughness of the surface Ra parameter $\leq 1,5 \mu\text{m}$.

2.2. Round tubes with diameters: ϕ 30 – 200 mm, wall thickness 0,9 – 50 mm and lengths: 2 – 7 m, straightness within 3 mm/m and within 15 mm / 7 m, surface condition: extruded or drawn, roughness of the surface Ra parameter $\leq 1,5 \mu\text{m}$

2.3. Square bars with dimensions: 8 x 8 mm – 150 x 150 mm and lengths: 2 – 7 m, straightness within 3 mm/m and within 15 mm / 7 m, surface condition: extruded or drawn, roughness of the surface Ra parameter $\leq 1,5 \mu\text{m}$.

2.4. Rectangular bars with dimensions: 4 x 15 mm - 150 x 280 mm and lengths: 2 – 7 m, straightness within 3 mm/m and within 15 mm / 7 m, surface condition: extruded or drawn, roughness of the surface Ra parameter $\leq 1,5 \mu\text{m}$.

2.5. Hexagonal bars with dimensions: 15 – 80 mm of opening of the spanner and lengths: 2 – 7 m, straightness within 3 mm/m and within 15 mm / 7 m, surface condition: extruded or drawn, roughness of the surface Ra parameter $\leq 1,5 \mu\text{m}$.

2.6. Profiles of irregular shapes with dimensions within circumscribing circle of 200 mm - and lengths: 2 – 7 m, straightness within 3 mm/m and within 15 mm / 7 m, surface condition: extruded or drawn, roughness of the surface Ra parameter $\leq 1,5 \mu\text{m}$.

- 2.7. Billets with diameters: ϕ 145 mm \pm 3 mm and lengths: 700 – 1400 mm, straightness within 1 mm/m, surface condition: machined, Ra parameter \leq 10 – 19 μ m, typically 11-12 μ m.
- 2.8. Billets with diameters: ϕ 175 mm \pm 3 mm and lengths: 700 – 1400 mm, straightness within 1 mm/m, surface condition: machined, Ra parameter \leq 10 – 19 μ m, typically 11-12 μ m.
- 2.9. Billets with diameters: ϕ 218 mm \pm 3 mm and lengths: 700 – 1400 mm, straightness within 1 mm/m, surface condition: machined, Ra parameter \leq 10 – 19 μ m, typically 11-12 μ m.
- 2.10. Billets with diameters: ϕ 246 mm \pm 3 mm and lengths: 700 – 1400 mm, straightness within 1 mm/m, surface condition: machined, Ra parameter \leq 10 – 19 μ m, typically 11-12 μ m.
- 2.11. Billets with diameters: ϕ 295 mm \pm 3 mm and lengths: 700 – 1400 mm, straightness within 1 mm/m, surface condition: machined, Ra parameter \leq 10 – 19 μ m, typically 11-12 μ m.
- 2.12. Billets with diameters: ϕ 305 mm \pm 3 mm and lengths: 700 – 1400 mm, straightness within 1 mm/m, surface condition: cast, Ra parameter \leq 10 – 19 μ m, typically 11-12 μ m.
- 2.13. Billets with diameters: ϕ 330 mm \pm 3 mm and lengths: 700 – 1400 mm (in case 1400 mm length is too much due to mechanical load on the system, you may limit to 700 – 900 mm), straightness within 1 mm/m, surface condition: machined, Ra parameter \leq 10 – 19 μ m, typically 11-12 μ m.

3. Mode of ultrasonic testing: automatic within immersion tank and ultrasonic probes fixed to manipulator moving along the immersion tank.
4. Areas of inspection: 100 % of the material to be inspected, including core of material, surface and subsurface area of the material
5. Type of flaws to be detected

Discontinuities of the material, like: Cracks, holes, pits, voids, air bubbles, porosity, inclusions, delaminations (splits), notches

In general, we plan to detect :

Longitudinal and transversal flaws – for bars, billets and tubes

Transversal flaws will not be detected every time, but the system must be prepared for detecting them.

Therefore the system must be prepared to cover detection of both longitudinal defects as well as transversal defects

6. Mode of loading / unloading procedure manual with general overhead crane of the building
7. Capacity of the system

System should make possible to test simultaneously up to 6 parallel lines of products placed in the tank, depending of the diameter.

For acceptance test, we plan to use up to 5 lines simultaneously for detection of longitudinal defects and up to 3 lines simultaneously for detection of longitudinal and transversal defects – as per the table below.

Comment:

We intend to have from the beginning 6 lines available for simultaneous inspection from the mechanical point of view. This is because in the future, we consider possibility of upgrading the system for use of 32 probes. Therefore possible future upgrading (which is not scope of the offer

we ask you to present), we will have the system already prepared for inspection of up to 6 lines simultaneously for detection of longitudinal and transversal defects

Capacity of the system should be enough to test the following quantity of below mentioned bars and billets:

Type of material	Outside diameter - [mm]	Surface condition	Length - [m]	[Kg/ piece]	Number of pieces tested simultaneously	Inspection for flaws	Loading / unloading time for complete tank - [min]	Expected approximate capacity - [kg/hour]	Expected approximate capacity - [t / month / 1 shift]
round bar	30	extruded/drawn	6	11,4	5	longitudinal	4	320,0	56,0
round bar	60	extruded/drawn	6	45,8	5	longitudinal	4	1 300,0	220,0
round bar	90	extruded/drawn	6	103,0	3	longitudinal and transversal	3	1 900,0	330,0
round bar	120	extruded/drawn	6	183,1	3	longitudinal and transversal	3	3 400,0	590,0
round bar	150	extruded/drawn	6	286,1	3	longitudinal and transversal	3	4 500,0	780,0
round bar	180	extruded/drawn	6	412,0	3	longitudinal and transversal	3	5 300,0	920,0
billet	145	machined	0,7	31,2	1	longitudinal and transversal	3	500,0	90,0
billet	175	machined	1,3	84,4	1	longitudinal and transversal	3	1 100,0	190,0
billet	218	machined	1,3	127,4	1	longitudinal and transversal	3	1 600,0	280,0
billet	246	machined	1,3	166,7	1	longitudinal and transversal	3	1 800,0	310,0
billet	295	machined	1,3	239,8	1	longitudinal and transversal	3	2 300,0	400,0
billet	305	cast	1,3	256,3	1	longitudinal and transversal	3	2100,0	365,0
billet	330	machined	1,3	300,1	1	longitudinal and transversal	3	1900,0	330,0

Loading / unloading times we indicate as above, on our responsibility and we ask to assume for calculation of capacity of the system the values for loading / unloading time as specified in the above table.

We estimate that 3 minutes for loading and unloading time for most of the products and 4 minutes for smaller sizes is enough time for loading / unloading of the complete load of the tank (regardless how many pieces of products in the tank, which in any case are not more than 6 pieces).

8. Expectation about sizes of smallest flaw to be detected and accuracy of flaw detection for the system

8.1. For testing of the core of the material (bars, billets, core of thick wall tubes i.e. midwall discontinuities): Flaw equivalent to Flat Bottom Hole with diameter of 0,79 mm (class AA according to ASTM B 594). If worse class of smallest flaw is to be detected for certain range of products, please specify. In case material conditions will influence it, please specify which conditions of the material will have what influence (for instance for grain size within.... smallest FBH to be detected is).

8.2. For testing of surface and subsurface area of the tubes on inner and outer surface: equivalent flaw of rectangular notch with depth of 5 % of the wall thickness, but not less than 0,13 mm. Width of the notch equals max. 2 x depth of the notch. Length of the notch 12,7 mm. Rules specified in ASTM E 213 – 04 standard apply.

8.3. For testing of surface and subsurface area of bars: equivalent flaw of rectangular notch with depth of 0,13 mm. Width of the notch 0,26 mm. Length of the notch 12,7 mm. Rules specified in ASTM E 213 – 04 standard apply.

8.4. Artificial test flaws in test bars (test bars will be prepared to cover in a representative way full range of sizes as specified under item no. 2) flat bottom holes of 0,79 mm, are to be considered detected if during 20 successive inspections they are detected every single time. Artificial test flaws in test tube (test tubes will be prepared to cover in a representative way full range of sizes as specified under item no. 2) with rectangular notch with depth of 5 % of the wall thickness, but not less than 0,13 mm, width of the notch of max. 2 x depth of the notch, length of the notch 12,7 mm (rules specified in ASTM E 213 – 04 standard apply.), are to be considered detected, if during 20 successive inspections, they are detected every single time.

9. We anticipate 2 probe holder sets,

9.1. one probe holder set with probe holders for round shapes

9.2. one probe holder set with probe holders for shapes other than round

Above mentioned probe holder sets are to be assembled possibly on one mechanical structure of probe holder frame, connected to the manipulator.

10. Removable supporting frame to be put to the bottom of the tank for inspection of shapes other than round.

11. Number of lines for simultaneous inspection :

11.1. Between one to six parallel lines, that can be inspected simultaneously for round bars and tubes (number of lines possible to use for simultaneous inspection will be dependent on diameter of inspected material). The value must be enough to be able to inspect all sizes of round bars and tubes with required capacity.

11.2. One line for inspection of the billets. For inspection of the billets will be used one of 6 parallel lines for inspection of bars and tubes.

11.3. Between one to three parallel lines for inspection of bars with shape other than round, with using of the supporting frame on the bottom of the tank.

There will be no simultaneous inspection of different sizes or shapes of material.

12. Number of probes to be connected to ultrasonic electronics: max 16 probes (16 channel ultrasonic equipment) with possibility to relatively easy extension in the future to 32 probes (relatively easy extension in the future to 32 channel ultrasonic equipment).

13. Material to be used for construction of immersion tank, pipings and fittings of the tank:

Stainless steel or plastic is to be used as general rule.

Copper alloys are not allowed for pipings.

Only some specific fittings are allowed to be done by copper alloys, but it is not desired.

14. Efficient filtration system for close loop water recirculation.

We prefer such type of filter, that can be cleaned after some time of using and does not have to be always replaced. In case you can see significant reasons to use another type of filter (for instance paper filter), please specify.

15. UV lamp for biological treatment of the water to be quoted as an option

16. Possibility to refill the tank with fresh water

17. Overflow on the tank for easier removal of the dust from the surface of the water and to contain overflowing water coming from submerging of the material for inspection.

18. Light barriers for safety from 2 sides

19. Parking position for the manipulator for loading / unloading in order not to damage the manipulator during loading / unloading procedures.

20. Air conditioning for electrical / electronics cabinets.

21. Downholder for small weight of the tubes in order to avoid slippage on the driving system.

22. System to compensate for bending of the bars and tubes for up to 3 mm / m and 15 mm/ 7 m and assure following of centrelines of the products during the inspection by the probes.

23. Please specify untested areas during inspection for all the products to be checked, specified in point no. 2.

24. Please specify maximum time of interval between necessary standardization checks equipment with calibration products including test flaws.

25. Distance amplitude correction for compensating for the reduction in ultrasonic signal amplitude as a function of material sound-path distance is to be integrated in the system.

26. In the scope of supply should be included a manual device for checking the conductivity of the tested material, by eddy current method, according to standards: EN 2004 –1 (frequency approx 2 – 800 kHz, accuracy 0,2 MS/m) and ASTM 1004 02. Test pieces to check if the equipment works correctly - to be included in the scope of supply as well.

27. HMI system for the operator with PC. In the HMI of ultrasonic system should be integrated possibility to read the data from the above mentioned device, regarding results of conductivity

inspection of the tested material, in automatic manner, by some interface like RS 232, without the necessity for the operator to introduce results of conductivity test manually into HMI on the PC of ultrasonic control system. Data with the results of conductivity test for specific product should be in the database together with data of the ultrasonic inspection of this specific product.

28. HMI system should be able to record to its local database for instance Oracle, Sybase data regarding each inspected product. This should including the graphics / diagrams from inspection.

29. HMI system should enable to record files with results of each inspected product on our server.

30. Control system based on Siemens S7 PLC series 300 or 400, with possibility of connection to local ethernet network and remote service by VPN connection, which we will provide.

31. If communication of PLC with executing devices (like frequency converters, etc) is necessary Profibus DP should be used for it. Exchange of the data between the PLC's (if applicable) - to be done by ethernet.

32. Recepties available for inspection of the products to be recalled from the database of recepties. Each new product should have possibility to record for it a receptie in the database.

33. All the data from the inspection should be available in the data base in the PC for pick up by Production Data Management System (inspection data collection). We do not need separate Production Data Management System to be offered. We already have Process Data Management System for extruded profiles and we will adapt it to be able to collect the data from ultrasonic inspection system. It is only to make sure that data will be available in the data base in the PC for pick up by our Production Data Management System. Details of the table of data for data exchange with Production Data Management System and structure of this table - to be agreed at later stage).

II. Exclusions from the scope of supply – for clarity reasons, what items should not be offered

1. Any civil works
2. Electrical supply lines for electrical cabinets
3. Supply line for other utilities (for instance: water, compressed air) up to the connection points on the equipment
4. Lifting equipment for assembling of the equipment and for regular operation (like for instance crane for handling of inspected material)
5. Manpower for assembling and commissioning
6. The costs of board and lodging as well as local transport (airport – hotel – plant) specialised, supervising personnel.

III Conditions of the presentation of the offer

We kindly ask to deliver to us the offer only in written form with signature, within 25.11.2009. - 2.00 p.m. in closed, not transparent envelope marked:

“The offer for equipment for ultrasonic flaw detection of aluminium products from hard alloys”

We kindly ask not to send the offer by e-mail or fax.

We ask to send it enough time in advance (preferably by courier service) to be sure it reaches us before 25.11.2009. - 2.00 p.m

The offer should be addressed to
GRUPA KĘTY S.A.
Ul. Kościuszki 111
PL 32-650 Kęty
Poland
To the attention of Mr Adam Miarka

The offer should be presented in English language and be structured according to the below presented pattern:

- 1. Subject of the offer: equipment for ultrasonic flaw detection of aluminium products from hard alloys**
- 2. Price in EUR, including delivery DDU Kęty and supervision to commissioning**
- 3. Warranty period defined from Final Acceptance Test, completed with positive result:**

Warranty period: (min. 18 months)

- 4. Time schedule of delivery and commissioning**

4.1. Delivery date DDU Kęty: weeks from signing the contract (in anyway not later than August 2010)

4.2. First inspection to be performed: weeks from signing the contract

4.3. Final Acceptance Test, completed with positive result: weeks from signing the contract (in anyway not later than November 2010)

- 5. Payment conditions**

If payment conditions assume the advance payment installments, the payment will be covered by bank or insurance payment guarantee in the amount of each payment and valid till the end of delivery.

- 6. Validity of the offer (in any case not shorter till 15.01.2010)**

7. Appendix no. 1 – Technical specification to the offer, presenting technical side of the equipment.

We ask to present in the offer in details the following issues:

7.1. Detailed description of the equipment and its individual items / units / subunits, illustrated with pictures from most similar installation you have done and as much technical data as you can provide. Please include as much as possible some drawings, sketches, pictures - for better explanation

7.2. Lay out drawing of the equipment as top view and other views and cross section drawings in most important areas

8. Appendix no. 2 – Other conditions of the offer (for instance detailed commercial conditions)

9. Appendix no. 3 - Up to date reference list for all ultrasonic systems (not portable units) for last 20 years, specifying which of them are for what kind of material (systems for testing of aluminium products to be clearly identified)

10. Appendix no. 4 - List of patented solutions to be used in the equipment, if any. Please attach copies of respective documents, which would confirm obtaining the patent or declare, that no patented solutions will be used.

11. Appendix no. 5 - List of brands for commercial components for electrical, mechanical, hydraulic, pneumatic systems (identifying which brand of for instance: frequency converters, pneumatic valves, bearings, etc is offered)

12. Appendix no. 6 - Declaration, confirming that you meet formal conditions to present the offer and you are able to be chosen as the supplier, due to procedures related with co financing by European Union with funds of The Regional Development Fund within The Operational Programme “Innovative Economy” (IE OP 2007-2013). Pattern of the declaration to be filled in is attached to this inquiry.

The evaluation of the complying with the formal conditions will be done accordance with the formula: comply or not comply. If the Bidder does not comply with any of the formal criteria, his offer will be excluded from evaluation and excluded from possibility of attaining the order.

13. Appendix no. 7 – Declaration, confirming that you meet environmental criteria, if any such criteria are applicable. Pattern of the declaration to be filled in is attached to this inquiry. Please attach of copies of respective documents, which would confirm complying the environmental criteria.

The evaluation of the complying with the formal conditions will be done accordance with the formula: comply or not comply. If the Bidder does not comply with any of the formal criteria, his offer will be excluded from evaluation and excluded from possibility of attaining the order.

14. Appendix no. 8 – List of deviations of detailed parameters between the offer and inquiry.

In case in your quotation, you are not able to offer equipment with certain detailed specifications (parameters) as indicated in the inquiry or from your experience you would advise as better or more workable other specific data or parameters, than included in our inquiry, please prepare list of deviations of detailed parameters between the offer and inquiry.

Any corrections of the original inquiry, that we sent to you before you present the offer, will be considered as integral part of our inquiry and are not to be treated as deviations from original inquiry.

Please include some comments why you change certain parameters in your offer, from the parameters in the inquiry.

In case no deviation from the inquiry is included in the offer, please state in this appendix, that there are no deviations from the inquiry.

IV. Addition information regarding how the offer will be processed:

Due to the formal reasons, connected with co-financing of this project by European Union with funds of The Regional Development Fund within The Operational Programme “Innovative Economy” (IE OP 2007-2013), we need to follow certain rules in the processing the offers and choosing of the supplier for this project.

We would like to inform you therefore how the offer, presented by, you according to above mentioned conditions, will be evaluated and on what basis the decision regarding the final choice of the supplier will be made.

Each presented offer will be evaluated with the use of assigned points, against bellowed mentioned criteria. Each criterion will be evaluated independently.

The points for each individual criterion will be assigned to each bidder, depending on the rank of his offer after comparison with all the other presented offers. Ranking of sum of all individual points will be decisive for the choice of the supplier.

Criteria for evaluation of the offers:

1. **The criterion „the Price of the Offer”** will be calculated according to the following formula:

$$W_{\text{PRICE}} = (\text{PRICE}_{\text{min}} / \text{PRICE}_{\text{bidder}}) * \text{the coefficient of the importance} * 100 \text{ points}$$

where:

W_{PRICE} – means the quantity of points obtained in the category

$\text{PRICE}_{\text{min}}$ – means the minimum-amount offered among estimated offers

$\text{PRICE}_{\text{bidder}}$ – means the amount offered by the bidder

- the coefficient of the importance fixed in the category and expressed in percentage
- For this criterion we can give maximum **51 points**

2. **The Criterion the technical „Value of the offer ”** will be calculated according to the following formula:

$$W_{\text{TECH}} = (W_{\text{tech bidder}} / W_{\text{tech max}}) * \text{the coefficient of the importance} * 100 \text{ points}$$

where:

W_{TECH} – means the quantity of points obtained in technical evaluation in the category

$W_{\text{tech max}}$ – means the maximum points in technical evaluation among estimated offers gave in the category.

$W_{\text{tech bidder}}$ – means the quantity of points gave to the bidder offer.

- the coefficient of the importance fixed in the category and expressed in percentage
- for this criterion we can give maximum **35 points**

3. **The criterion „Time schedule of the contract ”** - will be calculated according to the following formula:

$$W_{\text{PERIOD}} = (W_{\text{min period}} / W_{\text{bidder period}}) * \text{the coefficient of the importance} * 100 \text{ points}$$

where:

W_{PERIOD} – means the quantity of points obtained in the category

$W_{\text{min period}}$ – means the shorter time of the final acceptance test offered among estimated offers

$W_{\text{bidder period}}$ – means the time of the final acceptance test offered by the bidder

- the coefficient of the importance fixed in the category and expressed in percentage

- the time of final acceptance test will be expressed in whole months starting from the date of order.
- For this criterion we can assigned maximum **4 points**

4. **The Criterion „Warranty period”** ” will be calculated according to the following formula:

$$W_{\text{warranty}} = (W_{\text{warranty bidder}} / W_{\text{warranty max}}) * \text{the coefficient of the importance} * 100 \text{ points}$$

where:

W_{warranty} – means the quantity of points obtained in the category

$W_{\text{warranty max}}$ – means the maximum period of given warranty offered in the category

$W_{\text{warranty bidder}}$ – means the period of given warranty offered by the bidder

- the coefficient of the importance fixed in the category and expressed in percentage
- the period of the offered warranty will be expressed in whole months starting from the positive final acceptance protocol
- for this criterion we can assigned maximum **4 points**

5. **The Criterion „Payment condition”** ” will be evaluated as following:

- During estimation of this criterion we can assigned from **0 to 6 points**. The better terms of the payment will receive properly biggest quantity of points.
- for this criterion we can assigned maximum **6 points**

6. The maximum quantity of points to the obtainment: **100**.

7. The Offers will be estimated according to the following formula:

$$W = W_{\text{PRICE}} + W_{\text{TECH}} + W_{\text{PERIOD}} + W_{\text{Warranty}}$$

8. The coefficient of the importance:

Serial	Condition	The coefficient of the importance	The condition of given points	Maximum points to be assigned
1	Price of the Offer	51%	According to rules described in point 1	51
2	Value of the offer	35 %	According to rules described in point 2	35
3	Time schedule of the Contract	4%	According to rules described in point 3	4
4	Warranty period	4%	According to rules described in point 4	4
5	Payment conditions	6%	According to rules described in point 5	6

9. The offer which obtained biggest quantity of points will be chosen. Remaining offers will be classified in accordance with a quantity of obtained points.

10. After process of evaluation of the offers is completed, each bidder will be informed about the status of his offer.

GRUPA KĘTY S.A.

Ul. Kościuszki 111, 32-650 Kęty