ROMANIAN ENGINEERING AND DESIGN INSTITUTE FOR OIL REFINERIES PLOIESTI - ROMANIA

MATERIAL REQUISITION

ULTRASONIC FLOWMETERS

NO. 1168.00-36-6005.MR.E REV. 00

SHEET 1 OF 4

REV.	DATE	BY	CH'D	APP'D
0	04.2016	CGI	AMA	MDV
1				
2				
3				
4				

JOB: 1168/2015
CUSTOMER: S.C. PETROTEL LUKOIL S.A.
UNIT: COOLING TOWERS

SHOP INSPECTION YES ☐, NOT ☐

ATTACHMENTS

1. VENDOR'S DRAWINGS AND DATA REQUIREMENTS	
NO. 1168.00-36-6005.MR.E SHEETS 2/4 ÷ 3/4	
2. DESIGNER REQUEST NO. 1168.00-36-6005.MR.E	
SHEET 4/4	
3. FLOWMETERS – PROJECT SPECIFICATION	
NO. 1168.00-36-6006.SP.E SHEETS 1/2 ÷ 2/2	

FURNISH AND DELIVER THE ITEMS BELOW TO: _____
_____

MATERIAL REQUIRED AT: ____
NOT LATER THAN: ____

ITEM No.	QUANTITY AND UNIT	SIZE AND DESCRIPTION	CODE	
1.	1 SET	VENDOR'S DRAWINGS AND DATA REQUIREMENTS ACC.		
2.		TO NO. 1168.00-36-6005.MR.E SHEETS 2/4 ÷ 3/4		
1.				
2.	1 LOT	FLOWMETERS AS PER PROJECT SPECIFICATION		
3.		NO. 1168.00-36-6006.SP.E SHEETS 1/2 ÷ 2/2		
4.				
5.	1 SET*	SPARE PARTS LIST FOR TWO YEARS OPERATION		
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				

NOTES: *WILL BE CONFIRMED BY THE CUSTOMER

MINISTERUL ECONOMIEI
VERIFICATOR DE PROIECTE LUCRĂRI DE MONTAJ
TUDORACHE IONUȚ - ANGEL
Seria A Nr. 0590
ROMÂNIA

VENDOR'S DRAWINGS AND DATA REQUIREMENTS

TYPE OF DRAWINGS/DOCUMENTS		DWG. REQ'D. (YES/NOT)	REQ'D NO. OF		NO. OF WEEKS
DWG. CODE	DESCRIPTION		CD's	PRINTS	
A1	Arrangement drawings with outline dimensions including details for foundation design	-	-	-	-
B	Cross sections and lists of components	-	-	-	-
C1	Hydrostatic and leak test certificates	YES	1	6	6
C2	Calibration certificates and documents	YES	1	6	6
D1	Interconnection diagrams (electrical)	YES	1	3*/6	2*/4
D2	Wire and cable layouts	-	-	-	-
D3	Piping and instrument diagrams (P&ID)	-	-	-	-
D4	Fabrication acceptance tests (FAT) certificates	YES	1	6	6
E1	Certificates & declarations of conformity (see Notes)	YES	1	3*/6	2*/6
E2	Operating instructions	YES	1	6	4
F	Assembly and installation details	YES	1	3*/6	2*/4
G	Handling drawings (weights and weight centers)	YES	1	3*/6	2*/4
H1	List of recommended priced spare parts	YES	1	6	4
H2	Specifications	YES	1	3*/6	2*/4
J1	Material specifications	YES	1	3*/6	2*/4
J2	Calculation sheets	-	-	-	-
J3	Index of documents	YES	1	3*/6	4
K	Rivet and bolt schedule	-	-	-	-
L	List of special tools and devices	-	-	-	-
M	Store instructions	YES	1	6	4
P	Shipment, installation and start up instructions	YES	1	6	4
Q	Maintenance instructions	YES	1	6	4
R	Trouble shooting manual	YES	1	6	4
T	Vendor data book	-	-	-	-
V					
W					
Z					
Y					

NOTES:

EC marking, declarations of conformity and certificates should comply with:
- Directive for machinery 98/37/EEC
- Certification module H
- Declaration of conformity and examination certificate ATEX:94/9/EC
- Declaration of conformity EMC:89/336/EEC with amendments 91/263/EEC, 92/31/EEC, 93/68/EEC
- Declaration of conformity LV:73/23/EEC with amendment 93/68/EEC
- Material certificate: EN 10204 type as per project spec.
- Declaration of conformity PED:97/23/EC

VENDOR'S DRAWINGS AND DATA REQUIREMENTS

INSTRUCTIONS

1. THE SUPPLY OF VENDOR DRAWINGS AND DATA CALLED FOR HEREIN SHALL BE COMPLETED BEFORE RENDERING FINAL INVOICES.
2. DOCUMENTS SHALL SHOW EQUIPMENT NUMBERS, PURCHASE ORDER NUMBERS AND VENDOR'S OWN TITLE DRAWING AND REVISION NUMBERS, ALL IN THE LOWER HAND CORNER.
3. DOCUMENTS SHALL BE ACCOMPANIED BY QUADRUPLICATE COPIES OF A LETTER LISTING PURCHASE ORDER NUMBERS, EQUIPMENT NUMBERS, WORK REFERENCE NUMBER, AND SHALL BE DISPATCHED(BY MAIL) IN THE FOLLOWING MANNER :
   a) ONE COPY OF ALL DRAWINGS/DOCUMENTS AS LISTED IN THE TABLE ALONGSIDE TO THE FOLLOWING ADDRESS : **TITULAR OF THE PURCHASE ORDER**
   b) THE REMAINING COPIES OF ALL DRAWINGS/DOCUMENTS TOGETHER WITH THE CD'S AS LISTED IN THE TABLE ALONGSIDE TO THE FOLLOWING ADDRESS:

   S.C. "IPIP S.A."
   18, DILIGENŢEI STR.
   PLOIEŞTI-ROMÂNIA.

   ONE COPY OF ALL DRAWINGS/DOCUMENTS IN ADDITION TO THE NUMBER OF PRINTS LISTED IN THE TABLE ALONGSIDE WILL BE PACKED WITH THE EQUIPMENT / MATERIALS AS PER GENERAL PURCHASE CONDITIONS.
4. DRAWINGS OR DATA RETURNED TO VENDOR FOR REVISION SHALL BE RESUBMITTED WITHIN ONE WEEK. ALL CHANGES INCLUDED IN THE OFFER DURING REVISIONS SHALL BE CLEARLY MARKED WITH REVISION SYMBOL.
5. CORRESPONDENCE ACCOMPANYNG REVISED DRAWINGS AND DATA MUST SHOW PURCHASE ORDER NUMBER.
6. OPERATING INSTRUCTIONS SHALL COVER ALL COMPONENTS OF THE ORDER IF THE VENDOR IS FURNISHING SIMILAR EQUIPMENT ON SEVERAL ORDERS FOR THE PROJECT, A COMPOSITE INSTRUCTION MANUAL SHALL BE PROVIDED.
7. BUYER'S APPROVAL OF DRAWING AND DATA IS REQUIRED PRIOR TO FABRICATION.
8. BUYER'S APPROVAL OF CERTIFIED DRAWINGS IS REQUIRED PRIOR TO SHIPMENT.
9. EXTERN RIGHT HAND COLUMN SPECIFIES THE MAXIMUM NUMBER OF WEEKS DURING WHICH THE FINAL DRAWINGS MUST BE COMPLETED FROM THE DATE OF PURCHASE ORDER.
10. ALL DOCUMENTS TO BE SUBMITTED IN THE ENGLISH LANGUAGE.
11. DIMENSIONS, WEIGHTS AND MEASURES FOR DRAWINGS, ETC., TO BE METRIC UNITS.
12.* DATA REQUIRED WITH BIDS.

DESIGNER REQUEST

THE OFFER MUST FULLY COMPLY WITH THE PROJECT SPECIFICATIONS.

IN CASE OF DEVIATIONS FROM THE PROJECT SPECIFICATIONS, THESE DEVIATIONS SHALL BE LISTED SEPARATELY AND EXPLANATIONS INCLUDED (SEE MODEL BELOW).

NO.	SPECIFICATION NO., ARTICLE, PAGE	SPECIFIED REQUIREMENTS	DEVIATIONS	JUSTIFICATIONS

BIDDER'S NAME:

BIDDER'S SIGNATURE:

DATE:

IF THE ABOVE ARE NOT FULFILLED, THE OFFERS SHALL NOT BE TAKEN INTO CONSIDERATION.

ROMANIAN ENGINEERING AND DESIGN INSTITUTE FOR OIL REFINERIES
PLOIESTI – ROMANIA

PROJECT SPECIFICATION

FLOWMETERS

NO. 1168.00-36-6006.SP.E REV. 00

SHEET 1 OF 2

REV.	DATE	BY	CH'D	APP'D
0	04.2016	CGI	AMA	MDV
1				
2				
3				
4				

JOB: 1168/2015

CUSTOMER: S.C. PETROTEL-LUKOIL S.A.

UNIT: COOLING TOWERS

1		Tag no.:	20-FE/FT-001	20-FE/FT-002	20-FE/FT-003
2	GENERAL	Manufacturer:	LATER	LATER	LATER
3		Application:	PROCESS CONTROL	PROCESS CONTROL	PROCESS CONTROL
4		Service:	COOLING WATER RETURN HEADER TO 20-T-1 AND 20-T-2	COOLING WATER RETURN HEADER TO 20-T-3 AND 20-T-4	MAKE-UP WATER TO COOLING TOWERS BASINS
5		Degree of protection:	IP65	IP65	IP65
6		Explosion protection:	CE Ex II 2G EEx d IIB T4	CE Ex II 2G EEx d IIB T4	CE Ex II 2G EEx d IIB T4
7		Accuracy:	± 1% full scale	± 1% full scale	± 1% full scale
8		Process line symbol:	20-1000-AC-006-C301	20-1000-AC-001-C301	20-300-AA-001-C301
9		Process line size, O.D.xThickness: [mm]	1016 x 11	1016 x 11	323.9 x 8
10					
11	BODY / SENSOR	Model:	LATER	LATER	LATER
12		Measuring principle:	ULTRASONIC	ULTRASONIC	ULTRASONIC
13		Installation type:	CLAMP ON	CLAMP ON	CLAMP ON
14		Pressure rating:	NP40	NP40	NP40
15		Housing material:	316 SS	316 SS	316 SS
16		Sensor material:	MFR. STD.	MFR. STD.	MFR. STD.
17		Process connection:	-	-	-
18		Direction of flow:	STANDARD	STANDARD	STANDARD
19					
20	TRANSMITTER	Model:	LATER	24VDC LATER	24VDC LATER
21		Power supply:	~~220 VAC, 50Hz (External)~~ 24VDC	~~220 VAC, 50Hz (External)~~	~~220 VAC, 50Hz (External)~~
22		Outputs:	4÷20 mA, HART	4÷20 mA, HART	4÷20 mA, HART
23		Local digital display:	Yes	Yes	Yes
24		Scale range:	0÷5400 m3/h	0÷5400 m3/h	0÷325 m3/h
25		Units of registration:	m3/h	m3/h	m3/h
26		Electr. conn.: Signal / Power	9÷13 mm	9÷13 mm	9÷13 mm
27	OPERATING CONDITIONS	Fluid:	WATER	WATER	WATER
28	LIQUID m³/h at 15°C GAS (Nm³/h) at 760 mmHg and 0°C	Flow: max. / norm. / min.	4771 / 3976 / 1988	4771 / 3976 / 1988	287 / 239 / 120
29		Flow Temp. (FT) °C: / Design. Temp. °C	38 / 80	38 / 80	30 / 80
30		Flow Pressure (barg): / Design. Press. (barg)	1.5 / 2	1.5 / 2	3 / 8
31		Density @ 15°C(LIQUID)Kg/m³	998.9	998.9	998.9
32		Density @ F.T.(LIQUID)Kg/m³	992.8	992.8	995.6
33		Density @1ata,0°C(GAS)Kg/Nm³	-	-	-
34		Viscosity @ F.T. Cp	0.677	0.677	0.797
35		Full scale differential pressure:	-	-	-
36	ACCESSORIES	Strainer / Deaerator	- / -	- / -	- / -
37		Electr. Tracing / Steam Tracing	- / -	- / -	- / -
38		Flow computer	-	-	-
39		Integrated temperature sensor	-	-	-
40		Integrated pressure sensor	-	-	-
41		Connection Cable	-	-	-
42		Notes:	-	-	-

DETAILS

1. BATCHING, LOADING, BLENDING, INVENTORY, PROCESS CONTROL
2. M3/H, KG/H, BARRELS/H, L/H, DEKALITERS/H, KG
3. STRAIGHT-THROUGH, ANGLE TYPE, IN-LINE, INSERTION TYPE, CLAMP-ON TYPE
4. AS PER EN, ANSI
5. LEFT TO RIGHT IS STANDARD, RIGHT TO LEFT OR BIDIRECTIONAL IF REQUIRED

MINISTERUL ECONOMIEI
VERIFICATOR DE PROIECTE
LUCRĂRI DE MONTAJ
TUDORACHE
IONUȚ - ANGEL
Seria A
Nr. 0590
ROMÂNIA

1. INSTRUMENTS SHALL COMPLY WITH IPIP-S.A. STD. SPEC. No. _____ OR _____
2. INSTRUMENTS TO BE INSTALLED ACCORD. TO IPIP-SA STD. DWG.No. _____ OR _____
3. INSTRUMENTS ARE ACCORDING TO PIPING & INST. DIAGRAM No. 1168.00-32-2503.01

NOTES: 1. Material Certificate Acc. EN 10204 Type 3.1
2. Site conditions: Min. ambient design temp.: -26.6°C; Max. ambient design temp. 39.9° C.
3. In complete with signal cables.

File: 1168.00-36-6006.SP.E-00_Flowmeters.xls

ROMANIAN ENGINEERING AND DESIGN INSTITUTE FOR OIL REFINERIES
PLOIESTI – ROMANIA

PROJECT SPECIFICATION

FLOWMETERS

NO.	1168.00-36-6006.SP.E	REV. 00
SHEET	2 OF 2	

REV.	DATE	BY	CH'D	APP'D
0	04.2016	CGI	AMA	MDV
1				
2				
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JOB: 1168/2015

CUSTOMER: S.C. PETROTEL-LUKOIL S.A.

UNIT: COOLING TOWERS

1		**Tag no.:**	20-FE/FT-004		
2	GENERAL	Manufacturer:	LATER		
3		Application:	PROCESS CONTROL		
4		Service:	TO COOLING WATER SUPPLY EXISTING HEADER		
5		Degree of protection:	IP65		
6		Explosion protection:	CE Ex II 2G EEx d IIB T4		
7		Accuracy:	± 1% full scale		
8		Process line symbol:	20-1200-AR-016-C301		
9		Process line size, O.D.xThickness: [mm]	1219 x 11		
10					
11	BODY / SENSOR	Model:	LATER		
12		Measuring principle:	ULTRASONIC		
13		Installation type:	CLAMP ON		
14		Pressure rating:	NP40		
15		Housing material:	316 SS		
16		Sensor material:	MFR. STD.		
17		Process connection:	-		
18		Direction of flow:	STANDARD		
19					
20	TRANSMITTER	Model:	LATER		
21		Power supply: 24VDC	~~220 VAC, 50Hz (External)~~		
22		Outputs:	4÷20 mA, HART		
23		Local digital display:	Yes		
24		Scale range:	0÷10850 m3/h		
25		Units of registration:	m3/h		
26		Electr. conn.: Signal / Power	9÷13 mm		
27	OPERATING CONDITIONS LIQUID m³/h at 15°C GAS (Nm³/h) at 760 mmHg and 0°C	Fluid:	WATER		
28		Flow: max. / norm. / min.	9575 / 7980 / 3990		
29		Flow Temp. (FT) °C: / Design. Temp. °C	28 / 80		
30		Flow Pressure (barg): / Design. Press. (barg)	6 / 8.3		
31		Density @ 15°C(LIQUID)Kg/m³	998.9		
32		Density @ F.T.(LIQUID)Kg/m³	996.3		
33		Density @1ata,0°C(GAS)Kg/Nm³	-		
34		Viscosity @ F.T. Cp	0.833		
35		Full scale differential pressure:	-		
36	ACCESSORIES	Strainer / Deaerator	- / -		
37		Electr. Tracing / Steam Tracing	- / -		
38		Flow computer	-		
39		Integrated temperature sensor	-		
40		Integrated pressure sensor	-		
41		Connection Cable	-		
42		Notes:	-		

DETAILS

1. BATCHING, LOADING, BLENDING, INVENTORY, PROCESS CONTROL
2. M3/H, KG/H, BARRELS/H, L/H, DEKALITERS/H, KG
3. STRAIGHT-THROUGH, ANGLE TYPE, IN-LINE, INSERTION TYPE, CLAMP-ON TYPE
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NOTES: 1. Material Certificate Acc. EN 10204 Type 3.1
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