



DC-0858-26.11.15

ROMANIAN ENGINEERING AND DESIGN
INSTITUTE FOR OIL REFINERIES
PLOIESTI - ROMANIA

MATERIAL REQUISITION

Sewage treatment Plant
Rotary Metering /
Progressing Cavity / Pump
Polyelectrolite Pump / 45/2D-P1

NO. 1204.00 - 34 - 3000. MR.E

REV.
0

SHEET. 1

OF 4

| REV. | DATE | BY | CH'D | APP'D |
|------|--------|-----|------|-------|
| 0 | Nov 15 | GIC | MCE | BCM |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

JOB: 1204/2015
CUSTOMER: SC PETROTEL LUKOIL SA / PLOIESTI, ROMANIA
UNIT: INSTALATIE DE EPURARE / SEWAGE TRATAMENT PLANT

SHOP INSPECTION

YES ☒, NO ☐

ATTACHMENTS

VENDOR DRAWINGS AND DATA REQUIREMENTS
1204.00 - 34 - 3000. MR.E-Sheets 2/4 ÷ 3/4NOTES - DESIGNER REQUEST 1204.00 - 34 - 3000. MR.E -
Sheet 4 of 4

ROTARY METERING PUMP DATA SHEET:

No. 1204.00-34-3000.DS.E_rev.0

ELECTRIC MOTOR DATA SHEET:

No. 1204.00-37-7001.DS.E_rev.0

FURNISH AND DELIVER THE ITEMS BELOW TO: SC PETROTEL LUKOIL SA

MATERIAL REQUIRED AT:
NOT LATER THAN:

| ITEM No. | QUANTITY AND UNIT | SIZE AND DESCRIPTION | CODE | |
|-------------|----------------------|---|------|--|
| | | | | |
| 1. | 1 SET | VENDOR DRAWINGS AND DATA REQUIREMENTS TO NO1204.00-34-3000.MR.E - Sheets 2/4 ÷ 3/4 | | |
| 2. | 2 SET | 45/2D-P1 ASSEMBLIES : PUMP & COUPLING & MOTOR & BASEPLATE | | |
| 3. | 2 SET* | PARTS & SPARE PARTS FOR 45/2D-P1 FOR COMMISSIONING PERIOD | | |
| 4. | 2 SET* | SPARE PARTS FOR 45/2D-P1 FOR 2 YEARS OPERATION | | |
| 5. | | | | |
| 6. | | | | |
| 7. | | | | |
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| 10. | | | | |
| 11. | | | | |
| 12. | | | | |
| 13. | | | | |
| 14. | | | | |

NOTES: *WILL BE CONFIRMED BY THE CUSTOMER

Ing. Calbu 19
26.11.15



VENDOR'S DRAWINGS AND DATA REQUIREMENTS

NO. 1204.00-34-3000.MR.E

REV

0

SHEET

2

OF

4

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. PETROTEL-LUKOIL S.A

235, MIHAI BRAVU STR.

PLOIESTI-ROMANIA.


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.
5. CORRESPONDENCE ACCOMPANYING 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.

| TYPE OF DRAWINGS/DOCUMENTS | | DWG. REQ'D. (YES/NOT) | REQ'D NO. OF | | NO. OF WEEKS |
|----------------------------|--|-----------------------|--------------|--------|--------------|
| DWG. CODE | DESCRIPTION | | CD's | PRINTS | |
| | GENERAL | | | | |
| | LIST OF VENDOR'S DOCUMENTS AND DWGS | YES | 1 | 3/6 | 4 |
| | OPERATING INSTRUCTIONS | YES | 1 | 6 | 8 |
| | MACHINERY | | | | |
| | ASSEMBLY GENERAL ARRANGEMENT DWG | Yes | 1 | 3*/6 | 5 |
| | DRIVER (ELECTRIC MOTOR) OUTLINE DRAWING | Yes | 1 | 6 | 5 |
| | PUMP CROSS SECTIONAL DRAWING | Yes | 1 | 3*/6 | 5 |
| | PUMP PART LIST | Yes | 1 | 6 | 5 |
| | CERTIFIED PUMP PERFORMANCES CURVES | Yes | 1 | 3*/6 | 8 |
| | ROTARY METERING PUMP DATA SHEET | Yes | 1 | 3*/6 | 4 |
| | MATERIAL QUALITY CERTIFICATES | Yes | 1 | 6 | 8 |
| | RECOMMENDED SPARE PARTS LIST, PUMP, MOTOR (INCLUDING PRICE) | Yes | 1 | 3*/6 | 5 |
| | STORAGE, INSTALLATION, OPERATION, MAINTENANCE INSTRUCTIONS / MANUAL (documentation shall contain IOM both in English and Romanian language). | Yes | 1 | 6 | 5 |
| | PIPING DRAWINGS AUXILIARY PIPING (P&ID) | Yes | 1 | 6 | 5 |
| | INSPECTION AND TEST PLAN | Yes | 1 | *6 | 5 |
| | INSPECTION AND TEST DOCUMENTS ACCORDING TO INSPECTION PLAN | Yes | 1 | *6 | 8 |
| | SPEED / TORQUE CURVES | Yes | 1 | *6 | 8 |
| | MANUFACTURING DATA RECORD | Yes | 1 | 6 | |
| | OTHER DRAWINGS/DOCUMENTS CONSIDERED NECESSARY BY VENDOR | | | | |
| | ELECTRICAL | | | | |
| | ELECTRICAL MOTORS | | | | |
| | DOCUMENTS AND DRAWINGS INDEX | YES | 1 | 6 | 4 |
| | ARRG 'T DRAWINGS WITH OUTLINE DIMENSIONS INCLUDING DETAILS FOR FOUNDATION DESIGN AND SPACE REQUIREMENTS FOR ROTOR REMOVAL. | YES | 1 | 3/6 | 4 |
| | DATA SHEETS FILLED WITH VENDOR INFORMATION | YES | 1 | 3/6 | 4 |
| | PARTS LISTS | YES | 1 | 6 | 4 |
| | TERMINAL BOXES DIAGRAMS AND LAYOUT | YES | 1 | 6 | 4 |

(**) FINAL DRAWINGS SHALL INCLUDE ALL DIMENSIONS FOR INSTALLATIONS, ALLOWABLE LOADS ON NOZZLES AND BASE PLATE DETAILS.

Ing. Calin M. [Signature]
26-11-15

| | | | | | | |
|---|--|--|----------|----------------------------------|----------|------------------|
|  | | VENDOR'S DRAWINGS AND DATA REQUIREMENTS | | NO. 1204.00-34-3000, MR.E | | REV. 0 |
| | | SHEET. | 3 | OF | 4 | |


| TYPE OF DRAWINGS/DOCUMENTS | | DWG. REQ'D. (YES/NOT) | REQ'D NO. OF | | NO. OF WEEKS |
|----------------------------|---|--------------------------|--------------|--------|--------------|
| DWG. CODE | DESCRIPTION | | CD's | PRINTS | |
| | TYPE TESTS CERTIFICATES | YES | 1 | 6 | 4 |
| | ROUTINE TEST CERTIFICATES | YES | 1 | 6 | 4 |
| | MATERIAL SPECIFICATIONS | YES | 1 | 6 | 4 |
| | ATEX EXPLOSION PROOF CERTIFICATES | YES | 1 | 6 | 4 |
| | COMMISSIONING AND START-UP SPARE PARTS LIST | YES | 1 | 6 | 4 |
| | TWO YEAR OPERATION PRICED RECOMMENDED SPARE PARTS LIST | YES | 1 | 6 | 4 |
| | SPECIAL TOOLS LIST | YES | 1 | 6 | 4 |
| | BOLTS TORQUE SCHEDULE | YES | 1 | 6 | 4 |
| | TRANSPORTATION, INSTALLATION, START-UP MANUALS | YES | 1 | 6 | 4 |
| | OPERATION MANUAL INCLUDING DETAILS ABOUT OPERATION SEQUENCES, LOAD TRANSFER PROCEDURES, INTERLOCKS ETC. | YES | 1 | 6 | 4 |
| | MAINTENANCE MANUAL | YES | 1 | 6 | 4 |
| | TROUBLE SHOOTING MANUAL | YES | 1 | 6 | 4 |
| | VENDOR DATA BOOK | YES | 1 | 6 | 4 |
| | WAREHOUSING INSTRUCTION | YES | 1 | 6 | 4 |
| | INSTRUMENTATION | | | | |
| | LIST OF INSTRUMENTS | Yes | 1 | 3/6 | 4 |
| | LIST OF JUNCTION BOXES, CONTROL BOXES, CAB.TS & PANELS | Yes | 1 | 6 | 4 |
| | INSTRUMENT DATA SHEETS | Yes | 1 | 3/6 | 4 |
| | CALIBRATION/SETTING DATA SHEETS, CURVES, PROCEDURE | Yes | 1 | 6 | 4 |
| | INSTRUMENT DOCUMENTATION | Yes | 1 | 6 | 4 |
| | JUNCT BOXES, TERMINAL BLOCK, PLUG, CONNECTOR WIRING DWGS | Yes | 1 | 6 | 4 |
| | INSTR.JUNCT., CONTROL BOXES, CAB.TS & PANEL LOCATION DWGS | Yes | 1 | 6 | 4 |
| | INSTRUMENT HOOK-UP DWGS | Yes | 1 | 6 | 4 |
| | INSTRUMENT LOCATION DWGS | Yes | 1 | 6 | 4 |

NOTES:

FC marking, declarations of conformity and certificates should comply with:

- Declaration of conformity and examination certificate ATEX:94/9/EC
- Directive for machinery 98/37/EEC
- 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
- Certification Module H

Manufacturing callu
26.11.15

| | | | | | | |
|---|---|--|--------------------------------|---|----|-----------|
|  | NOTES DESIGNER REQUEST | | NO. 1204.00 - 34 - 3000. MR .E | | | REV. 0 |
| | | | SHEET | 4 | OF | 4 |

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 |
|-----|-------------------------------------|------------------------|------------|----------------|
| 1. | | | | |
| 2. | | | | |
| 3. | | | | |
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| 10. | | | | |


BIDDER'S NAME:

DATE:

BIDDER'S SIGNATURE

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

Handwritten signature and date:
 26-11-10

| | | | | | | |
|---|--|--|---------------|-----------------------|-----------------------|-----------|
|  ROMANIAN ENGINEERING AND DESIGN INSTITUTE FOR OIL REFINERIES PLOIESTI - ROMANIA | Instalatia de epurare / Sewage treatment Plant ROTARY Metering PUMP DATA SHEET (API 676-3rd EDITION) | | No. | 1204.00-34-3000.DS.E | | REV. 0 |
| | | | 22/10/2015 | | S. Gheorghiu | M. Balan |
| | | | Data/ Date | Intocmit/ Designer | Verificat/ Checked | |
| | | | Pag/Pag. | 1 | din/from 5 | |

Rotary Metering Pump Data Sheet

DOCUMENT TITLE: Inlocuire pompa de dozare manuala cu pompa de dozare cu debit variabil /
Replacement manual dosing pump with metering pump with variable flow

ITEM NUMBER: 45/2D-P1

PROJECT UNIT: Instalatia de epurare / Sewage treatment Plant

PROJECT NUMBER: 1204/2015

CUSTOMER: SC PETROTEL LUKOIL SA / PLOIESTI, ROMANIA

| 04 | | | | |
|---------|--|-------------|-------------------|-------------------|
| 03 | | | | |
| 02 | | | | |
| 01 | | | | |
| 00 | Prima Emisie / First Issued | 22-Oct-2015 | S. Gheorghiu | M. Balan |
| Rev/Rev | Denumirea modificarii/Change description | Data/Date | Intocmit/Designer | Verificat/Checked |

Handwritten signatures and dates:
 S. Gheorghiu (signature)
 M. Balan (signature)
 26.11.15

ROTARY Metering PUMP DATA SHEET (API 676-3rd EDITION)

| | | | | | |
|----------|----------------------|----|------------------|-------------------------------|-----------|
| No. | 1204.00-34-3000.DS.E | | | | REV. 0 |
| REVISION | 0 | 1 | 2 | 3 | 4 |
| DATE | 22/10/2015 | | | | |
| BY | S. Gheorghiu | | | | |
| REVIEWED | M. Balan | | | | |
| JOB NO. | 1204/2015 | | ITEM NO 45/2D-P1 | | |
| PAGE | 2 | OF | 5 | REQ'N NO: API 676_3rd EDITION | |

| | |
|----|---|
| 1 | APPLICABLE TO: <input checked="" type="radio"/> PROPOSALS <input type="radio"/> PURCHASE <input type="radio"/> AS BUILT |
| 2 | FOR SC PETROTEL LUKOIL SA |
| 3 | SITE PLOIESTI, ROMANIA |
| 4 | SERVICE POMPA DOZARE POLIELECTROLIT / POLYELECTROLITE PUMP |
| 5 | MANUFACTURER |
| 6 | NOTES: INFORMATION BELOW TO BE COMPLETED BY: <input type="radio"/> PURCHASER <input type="radio"/> BY MANUFACTURER <input checked="" type="radio"/> BY MANUFACTURER OR PURCHASE |
| 7 | UNIT Instalatie de Epurare / Sewage treatment Plant |
| 8 | NO. OF PUMP REQUIRED 1 (one) |
| 9 | SIZE AND TYPE POMPA DOZARE / METERING PUMP |
| 10 | SERIAL NO. |

| | | |
|----|----------------------------|---------------------|
| 11 | GENERAL | |
| 12 | NO. MOTOR DRIVEN 1 (ONE) | OTHER DRIVEN TYPE |
| 13 | PUMP ITEM NO'S 45/2D-P1 | PUMP ITEM NO'S |
| 14 | MOTOR ITEM NO'S 45/2D-M-P1 | DRIVER ITEM NO'S |
| 15 | MOTOR PROVIDED BY Vendor | GEAR ITEM NO'S |
| 16 | MOTOR MOUNTED BY Vendor | GEAR PROVIDED BY |
| 17 | MOTOR DATA SHEET NO. | GEAR MOUNTED BY |
| 18 | DRIVER DATA SHEET NO. | GEAR DATA SHEET NO. |

| | | | | | |
|----|---|---------------------------|----|---|--|
| 19 | OPERATING CONDITIONS (NOTE 1) | | 20 | PUMPED FLUID (SEE PAGE 5) | |
| 21 | CAPACITY @ PT: (l/h) | Mln. Normal Rated Max.(l) | 21 | TYPE OR NAME OF LIQUID polielectrolit / polyelectrolyte (FR 1424) | |
| 22 | OTHER OPER. CONDITIONS (l/h) | 50 3000 | 22 | TEMPERATURE (°C) NORMAL 15 MAX 40 MIN. -29 | |
| 23 | DISCHARGE PRESSURE: (barG) | 3.5 | 23 | VAPOR PRESS. (bar G) | |
| 24 | SUCTION PRESSURE: (barG) | 0 0.4 | 24 | RELATIVE DENSITY (SG) | |
| 25 | DIFFERENTIAL PRESSURE (bar): | 3.5 | 25 | VISCOSITY (Cp) | |
| 26 | NPSH AVAILABLE (m) ~ 0.5 | | 26 | SPECIFIC HEAT Cp (KJ/kg°C) | |
| 27 | NPIPAVAILABLE (bar a) | | 27 | CORROSIVE/EROSIVE AGENT DESCRIPTION | |
| 28 | NPSH a / NPIUP DATUM | | 28 | EROSIVE <input checked="" type="radio"/> CORROSIVE | |
| 29 | C.I. SUCTION NOZZLE | | 29 | CHLORIDE CONCENTRATION (ppm) | |
| 30 | TOP OF FOUNDATION | | 30 | H2S CONCENTRATION (ppm) | |
| 31 | DUTY CYCLE <input type="radio"/> CONTINUOUS <input checked="" type="radio"/> INTERMITTENT | | 31 | FLUID <input type="radio"/> TOXIC <input type="radio"/> FLAMMABLE <input type="radio"/> OTHER | |
| 32 | (1) Maximum-mechanical design | | 32 | GAS <input type="radio"/> ENTRAINED <input type="radio"/> SLUG FLOW % BY VOLUME or GRF | |
| 33 | PERFORMANCE | | 33 | SOLIDS PARTICLE SIZE DISTRIBUTION & MIN/MAX (µ) | |
| 34 | RATED CAPACITY (m³/h) | | 34 | SHARE <input type="radio"/> CONCENTRATION <input type="radio"/> HARDNESS | |
| 35 | NPSH / NPIP REQUIRED (m) (barA) | | | | |
| 36 | RATED SPEED (rpm) | | | | |
| 37 | RATED VOLUMETRIC EFFICIENCY (%) | | | | |
| 38 | RATED PUMP EFFICIENCY (%) | | | | |
| 39 | REQUIRED POWER @ MAXIMUM VISCOSITY (BKW) | | | | |
| 40 | REQUIRED POWER @ PRESS. LIMITING VAL. (BKW) | | | | |
| 41 | REQUIRED POWER @ RATED CONDITION (BKW) | | | | |
| 42 | MAXIMUM ALLOWABLE SPEED (rpm) | | | | |

| | | | | | |
|----|---|------|-------------|-----------------------|----------|
| 43 | CONSTRUCTION (NOTE 2) | | 44 | SITE AND UTILITY DATA | |
| 44 | CONNECTIONS | SIZE | ANSI RATING | FACING | POSITION |
| 45 | SUCTION | | 150 | RF | TOP |
| 46 | DISCHARGE | | 150 | RF | END |
| 47 | GLAND FLUSH | | | | |
| 48 | DRAINS* | | | | |
| 49 | VENTS* | | | | |
| 50 | JACKET | | | | |
| 51 | * PIPE VENTS & DRAINS TO EDGE OF BASEPLATE | | | | |
| 52 | PUMP TYPE | | | | |
| 53 | INTERNAL GEAR <input checked="" type="radio"/> TWIN-SCREW <input type="radio"/> VANE <input type="radio"/> LOBE | | | | |
| 54 | EXTERNAL GEAR <input type="radio"/> 3-SCREW <input checked="" type="radio"/> PROGRESSING CAVITY | | | | |
| 55 | ROTARY GEAR TYPE | | | | |
| 56 | REMARKS | | | | |
| 57 | The blind flanges shall be also included in the scope of supply for transportation. | | | | |
| 58 | | | | | |
| 59 | | | | | |
| 60 | | | | | |

| | | | | |
|----|--|---------|---------|---------|
| 61 | UNUSUAL CONDITIONS | | | |
| 62 | DUST <input type="radio"/> FUMES <input type="radio"/> SALT ATMOSPHERE | | | |
| 63 | OTHER | | | |
| 64 | UTILITY CONDITIONS | | | |
| 65 | ELECTRICITY | DRIVERS | HEATING | CONTROL |
| 66 | VOLTAGE | 400 | | |
| 67 | HERTZ | 50 | | |
| 68 | PHASE | 3 | | |
| 69 | COOLING WATER | INLET | RETURN | DESIGN |
| 70 | TEMP (°C) | | MAX. | |
| 71 | PRESS. (barG) | | MIN. | |
| 72 | SOURCE | | | |
| 73 | INSTRUMENT AIR | | MAX. | MIN |
| 74 | PRESS. (bar g) | | | |

| | | |
|----|--|--|
| 75 | APPLICABLE SPECIFICATION | |
| 76 | API 676 POSITIVE DISPLACEMENT PUMPS - ROTARY | |
| 77 | GOVERNING SPECIFICATION (IF DIFFERENT) | |
| 78 | NACE MR0103(6.13.2.13) <input type="radio"/> NACE MR0175 | |
| 79 | OTHER | |

Handwritten signature and date: 16.11.15

ROTARY Metering PUMP DATA SHEET (API 676-3rd EDITION)

| | | | | | | |
|-----------|----------------------|---|-------------------------------|---|----------|---|
| No. | 1204.00-34-3000.DS.E | | | | REV. | 0 |
| REVISION | 0 | 1 | 2 | 3 | 4 | |
| DATE | 22/10/2015 | | | | | |
| BY | S. Gheorghiu | | | | | |
| REVAPP'D. | M. Balan | | | | | |
| JOB NO. | 1204/2015 | | ITEM NO. | | 45/2D-P1 | |
| PAGE | 3 | | OF | | 5 | |
| | | | REQN NO : API 676_3rd EDITION | | | |

☐ INDICATES DATA COMPLETED BY PURCHASER
☒ BY MANUF. OR PURCHASER

☐ BY MANUFACTURER

| CONSTRUCTION | | MATERIALS (NOTE 5) | | |
|--------------|---|---|--|--|
| 2 | CASING | <input type="checkbox"/> | CASING | |
| 3 | <input type="checkbox"/> MAXIMUM ALLOWABLE CASING PRESS (6.3.1) (barG) @ (°C) | <input type="checkbox"/> | STATOR / LINER | |
| 4 | <input type="checkbox"/> MAXIMUM ALLOWABLE SUCTION PRESSURE (barG) @ (°C) | <input type="checkbox"/> | END PLATES | |
| 5 | <input type="checkbox"/> HYDROSTATIC TEST PRESSURE-Suct / Disch. / (barG) | <input type="checkbox"/> | ROTOR (S) | |
| 6 | ROTATING ELEMENTS | <input type="checkbox"/> | VANES | |
| 7 | ROTOR MOUNT <input type="checkbox"/> BETWEEN BEARINGS <input type="checkbox"/> OVERHUNG | <input type="checkbox"/> | SHAFT | |
| 8 | TIMING GEAR <input type="checkbox"/> YES <input type="checkbox"/> NOT <input type="checkbox"/> TYPE | <input type="checkbox"/> | SLEEVE (S) | |
| 9 | BEARING TYPE <input type="checkbox"/> RADIAL <input type="checkbox"/> THRUST | <input type="checkbox"/> | GLAND (S) | |
| 10 | BEARING NUMBER <input type="checkbox"/> RADIAL <input type="checkbox"/> THRUST | <input type="checkbox"/> | BEARING HOUSING | |
| 11 | LUBRICATION TYPE: <input checked="" type="radio"/> CONSTANT LEVEL OILER | <input type="checkbox"/> | TIMING GEARS | |
| 12 | <input type="radio"/> PUMPED FLUID <input checked="" type="radio"/> RING OIL <input checked="" type="radio"/> OIL MIST | <input type="checkbox"/> | ELASTOMERS / GASKETS | |
| 13 | <input type="radio"/> EXTERNAL <input type="radio"/> OIL FLOOD <input type="radio"/> GREASE | <input type="checkbox"/> | MIN DESIGN METAL TEMP. (6.13.6.1) -29 (°C) | |
| 14 | <input type="checkbox"/> LUBRICANT Info (Visc., etc) | | | |
| 15 | <input checked="" type="radio"/> MECHANICAL SEALS | QA INSPECTION AND TEST | | |
| 16 | <input checked="" type="checkbox"/> MANUFACTURER AND MODEL John Crane or equivalent | <input checked="" type="radio"/> SPECIAL MATERIAL TEST (See design codes + weld + inspection sheet) | | |
| 17 | <input type="checkbox"/> MANUFACTURER CODE | <input type="radio"/> LOW AMBIENT TEMP. MATERIALS TESTS (6.13.6.5) | | |
| 18 | <input checked="" type="radio"/> API 682 SEAL FLUSH PLAN (NOTE 3) | <input checked="" type="radio"/> COMPLIANCE WITH INSPECTORS CHECKLIST | | |
| 19 | <input type="checkbox"/> API 682 SEAL CODE | <input checked="" type="radio"/> CERTIFICATION OF MATERIALS (user to define affected components in remarks) | | |
| 20 | | <input checked="" type="radio"/> SURFACE/SUBSURFACE EXAMS (user to define affected components in remarks) | | |
| 21 | DRIVE TYPE | <input type="radio"/> RADIOGRAPHY | | |
| 22 | <input checked="" type="radio"/> INDUCTION MOTOR <input type="radio"/> STEAM TURBINE <input type="radio"/> GEAR <input type="radio"/> OTHER | <input type="radio"/> ULTRASONIC | | |
| 23 | DRIVE MECHANISM | <input checked="" type="radio"/> MAGNETIC PARTICLE | | |
| 24 | <input checked="" type="radio"/> DIRECT-COUPLED <input type="radio"/> ASD <input type="radio"/> OTHER | <input type="radio"/> LIQUID PENETRATE | | |
| 25 | <input checked="" type="checkbox"/> COUPLING MANUFACTURER | <input type="radio"/> COMPONENT PMI | | |
| 26 | <input checked="" type="checkbox"/> COUPLING TYPE | <input checked="" type="radio"/> HARDNESS OF PARTS, WELDS & HEAT AFFECTED ZONES | | |
| 27 | <input type="checkbox"/> RATING (MAX. TORQUE) <input checked="" type="checkbox"/> MODEL | <input checked="" type="radio"/> VENDOR SUBMIT TEST PROCEDURES (6.3.1.2) | | |
| 28 | <input checked="" type="checkbox"/> SPACER LENGTH (IN) <input checked="" type="checkbox"/> S.F. | <input checked="" type="radio"/> SUPPLIER TO KEEP REPAIR AND HT RECORDS (6.2.1.1) | | |
| 29 | <input type="radio"/> COUPLING BALANCED <input type="radio"/> MANF STD <input type="radio"/> AGMA 9000 CLASS 10 (7.2.3) | | | |
| 30 | <input type="radio"/> COUPLING PER API 671 (7.2) | NON-WIT WIT OBSERV | | |
| 31 | <input type="radio"/> COUPLING HUB ATTACHME | <input checked="" type="radio"/> SHOP INSPECTION (8.1) | | |
| 32 | <input type="radio"/> STRAIGHT <input type="radio"/> KEYED <input type="radio"/> TAPERED | <input checked="" type="radio"/> HYDROSTATIC (8.3.2) | | |
| 33 | COUPLING GUARD TYPE | <input type="radio"/> WITH WETTING AGENT | | |
| 34 | <input type="radio"/> STEEL <input type="radio"/> BRASS <input type="radio"/> NON-METALLIC <input type="radio"/> OTHER | <input type="radio"/> PERFORMANCE (8.3.4) | | |
| 35 | <input checked="" type="checkbox"/> NON SPARK COUPLING GUARD (7.2.15) | <input type="radio"/> RETEST ON SEAL LEAKAGE | | |
| 36 | | <input type="radio"/> NPSH / NP1P (8.3.7.1) | | |
| 37 | <input checked="" type="radio"/> MOTOR DRIVER (SEE MOTOR DATA SHEET) | <input type="radio"/> TRUE PEAK VELOCITY DATA | | |
| 38 | <input type="radio"/> IEEE 841 <input type="radio"/> API 541 <input type="radio"/> API 546 <input type="radio"/> OTHER | <input type="radio"/> COMPLETE UNIT TEST (8.3.7.2) | | |
| 39 | <input type="radio"/> ASD SUPPLIED BY <input type="radio"/> PURCHASER <input type="radio"/> MOTOR SUPPLIER | <input type="radio"/> SOUND LEVEL TEST (8.3.7.3) | | |
| 40 | <input type="checkbox"/> MANUFACTURER <input type="checkbox"/> TYPE | <input checked="" type="radio"/> CLEANLINESS PRIOR TO | | |
| 41 | <input type="checkbox"/> FRAME <input checked="" type="checkbox"/> ENCLOSURE | <input type="radio"/> FINAL ASSEMBLY (8.2.3.3) | | |
| 42 | <input checked="" type="checkbox"/> HORIZONTAL <input type="checkbox"/> VERTICAL | <input checked="" type="radio"/> HIGH DISCHARGE PRESSURE @ PIV | | |
| 43 | <input type="checkbox"/> (k w) (rpm) | <input type="radio"/> CHECK FOR CO-PLANAR AT | | |
| 44 | <input checked="" type="radio"/> VOLTS 400 PHASE 3 HERTZ 50 SERVICE FACTOR | <input type="radio"/> MOUNTING PAD SURFACES (7.4.7) | | |
| 45 | <input checked="" type="radio"/> VARIABLE SPEED RANGE (NOTE 4) (rpm) | <input type="radio"/> 1 HR. MECHANICAL RUN TEST AFTER | | |
| 46 | <input type="radio"/> MINIMUM STARTING VOLTAGE (7.1.2.2) | <input type="radio"/> OIL TEMP. STABLE (8.3.5.1) | | |
| 47 | <input checked="" type="checkbox"/> INSULATION <input type="checkbox"/> TEMP RISE | <input type="radio"/> 4 HR MECH. RUN AFTER | | |
| 48 | <input checked="" type="checkbox"/> FULL LOAD AMPS | <input type="radio"/> OIL TEM. STABLE (8.3.5.2) | | |
| 49 | <input checked="" type="checkbox"/> LOCKED ROTOR AMPS | <input checked="" type="radio"/> AUXILIARY EQUIPMENT TEST (8.3.4.3) | | |
| 50 | <input checked="" type="checkbox"/> STARTING METHOD VSD (VARIABLE SPEED DRIVE) | <input type="radio"/> OTHER | | |
| 51 | <input checked="" type="checkbox"/> LUBE | <input type="radio"/> TEST WITH SUBSTITUTE SEAL (8.3.5.3) | | |
| 52 | BEARING (TYPE / NUMBER) (NOTE 5) | <input checked="" type="radio"/> SUPPLIER SUBMIT TEST DATA WITHIN 24 HOURS | | |
| 53 | <input type="checkbox"/> RADIAL | <input type="radio"/> INCLUDE PLOTTED VIBRATION SPECTRA | | |
| 54 | <input type="checkbox"/> THRU/ST | <input checked="" type="radio"/> RECORD FINAL ASSEMBLY RUNNING CLEARANCES (8.2.1.1) | | |
| 55 | | <input checked="" type="radio"/> PERFORMANCE CURVE & DATA APPROVAL PRIOR TO SHIPMENT (8.3.9) | | |
| 56 | REMARKS: | | | |
| 57 | Certifications of material required for: rotor, casing, stator etc. | | | |
| 58 | | | | |
| 59 | | | | |
| 60 | | | | |

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Ing. Gheorghiu
Mecan
26.11.15

ROTARY Metering PUMP DATA SHEET (API 676-3rd EDITION)

| | | | | | |
|-----------|----------------------|----|---------|--------------------------------|----------|
| No. | 1204.00-34-3000.DS.E | | | | REV 0 |
| REVISION | 0 | 1 | 2 | 3 | 4 |
| DATE | 22/10/2015 | | | | |
| BY | S. Gheorghiu | | | | |
| REV/APP'D | M. Dalan | | | | |
| JOB NO | 1204/2015 | | ITEM NO | | 45/2D-P1 |
| PAGE | 4 | OF | 5 | REQ'N NO : API 676_3rd EDITION | |

☐ INDICATES DATA COMPLETED BY PURCHASER
☒ BY MANUF. OR PURCHASER

☐ BY MANUFACTURER

| | | | | |
|----|--|--|--|--|
| 1 | PIPING & APPURTENANCES | | PREPARATION FOR SHIPMENT | |
| 2 | MANIFOLD PIPING FOR PURCHASER CONNECTION | | <input type="checkbox"/> DOMESTIC <input checked="" type="checkbox"/> EXPORT <input checked="" type="checkbox"/> EXPORT BOXING REQUIRED | |
| 3 | <input checked="" type="checkbox"/> VENT <input checked="" type="checkbox"/> DRAIN <input checked="" type="checkbox"/> STEAM / COOLING WATER | | <input checked="" type="checkbox"/> OUTDOOR STORAGE MORE THEN 6 MONTHS | |
| 4 | <input type="checkbox"/> HEATING JACKET REQ'D. (6.3.6) | | SURFACE PREPARATION AND PAINT | |
| 5 | <input checked="" type="checkbox"/> PIPE <input checked="" type="checkbox"/> TUBING: FITTINGS | | <input checked="" type="checkbox"/> MANUFACTURER'S STANDARD <input type="checkbox"/> OTHER (SEE BELOW) | |
| 6 | <input checked="" type="checkbox"/> C.S. <input checked="" type="checkbox"/> GALVANIZED <input checked="" type="checkbox"/> S.STEEL | | <input type="checkbox"/> SPECIFICATION NO. _____ | |
| 7 | <input checked="" type="checkbox"/> VALVES: <input checked="" type="checkbox"/> CARBON STEEL <input checked="" type="checkbox"/> S.STEEL | | PUMP. (B.4.3.1) | |
| 8 | <input checked="" type="checkbox"/> FLANGES REQUIRED IN PLACE SOCKET WELD UNIONS | | <input type="checkbox"/> PRIMER | |
| 9 | <input checked="" type="checkbox"/> MOUNT SEAL POT OFF BASEPLATE | | <input type="checkbox"/> FINISH COAT | |
| 10 | CONNECTION BOLTING <input type="checkbox"/> CADMIUM PLATED BOLTS PROHIBITED | | BASEPLATE (B.4.3.1) | |
| 11 | <input type="checkbox"/> PTFE COATING <input type="checkbox"/> ASTM A153 GALVANIZED | | <input type="checkbox"/> PRIMER | |
| 12 | <input type="checkbox"/> PAINTED <input type="checkbox"/> S.S. | | <input type="checkbox"/> FINISH COAT | |
| 13 | HEATING AND COOLING (NOTE 7) | | WEIGHT (kg) | |
| 14 | HEATING MEDIUM: <input type="checkbox"/> STEAM <input type="checkbox"/> OTHER | | <input type="checkbox"/> PUMP <input type="checkbox"/> BASE <input type="checkbox"/> GEAR <input type="checkbox"/> DRIVER | |
| 15 | <input checked="" type="checkbox"/> STEAM JACKET / COOLING WATER PRESS _____ (barG) @ _____ (°C) | | TOTAL WEIGHT _____ | |
| 16 | COOLING WATER REQUIREMENTS: | | BASEPLATE (NOTE 9) | |
| 17 | <input type="checkbox"/> BEARING HOUSING _____ (barG) | | <input checked="" type="checkbox"/> BY PUMP MANUFACTURER <input checked="" type="checkbox"/> SUITABLE FOR EPOXY GROUT | |
| 18 | <input type="checkbox"/> LUBE OIL COOLER _____ (barG) | | <input checked="" type="checkbox"/> EXTENDED FOR PUMP AND ELECTRICAL MOTON | |
| 19 | <input type="checkbox"/> SEAL OIL COOLER _____ (barG) | | <input type="checkbox"/> DRAIN RIN <input type="checkbox"/> DRAIN PAN | |
| 20 | <input type="checkbox"/> OTHER _____ (barG) | | <input type="checkbox"/> NON-GROUT CONSTRUCTION (7.4.2) | |
| 21 | TOTAL COOLING WATER _____ (barG) | | OTHER PURCHASER REQUIREMENTS | |
| 22 | INSTRUMENTATION (NOTE 8) | | NAMEPLATE UNITS <input type="checkbox"/> U.S. CUSTOMARY <input checked="" type="checkbox"/> S.I. | |
| 23 | <input checked="" type="checkbox"/> ACCELEROMETER | | <input checked="" type="checkbox"/> RELIEF VALVES BY PUMP MFRG. <input type="checkbox"/> INTERNAL <input checked="" type="checkbox"/> EXTERNAL | |
| 24 | <input type="checkbox"/> PROVISION FOR MTG ONLY | | PIPING FOR SEAL FLUSH FURNISHED BY: | |
| 25 | <input type="checkbox"/> FLAT SURFACE REQUIRED | | <input type="checkbox"/> PUMP VENDOR <input type="checkbox"/> OTHER | |
| 26 | <input type="checkbox"/> RADIAL BEARING TEMPERATURE <input checked="" type="checkbox"/> THRUST BEARING TEMPERATURE | | PIPING FOR COOLING / HEATING FURNISHED BY: | |
| 27 | <input checked="" type="checkbox"/> TEM. GAUGES (WITH TERMOVELLS) | | <input type="checkbox"/> PUMP VENDOR <input type="checkbox"/> OTHER | |
| 28 | <input type="checkbox"/> PRESSURE GAUGE TYPE _____ <input type="checkbox"/> OTHER _____ | | <input type="checkbox"/> PROVIDE TECHNICAL DATA MANUAL | |
| 29 | | | <input checked="" type="checkbox"/> INSTALLATION LIST IN PROPOSAL (9.2.3.1) | |
| 30 | | | | |
| 31 | | | | |
| 32 | NOTES: | | | |

- 1 -Design life of new POLYELECTROLITE PUMP: 15 years.
- 2 -Pump shall have an overcapacity factor of 10% (rated flow) according API
- 3 -The nozzles admissible loads shall be according API values for normal operation.
- 4 -The pump seal shall be provided single acting mechanical seal, in cartrldge design.
- 5 -Electric motor shall be driven by VSD. VSD panel and site parameterization shall be included In scope of supply.
- 6 -Minimum flow rate (50 l/h) will be basis for min. speed of driven motor.
- 7 -Bearing casing seal shall be "INPROSEAL" or equivalent; the manufacturer will be clearly stated in the offer.
- 8 -Pump shall have temperature protection on bearings.
- 9 -The materials will comply with API 676 standard, suitable for the pumped liquid.
- 10 -The heating shall be electric type.
- 11 -The pump bearings shall be provided with temperature devices to stop the pump on high temperature.
- 12 -Pressure Transmitters will be mounted on suction and discharge lines of pump (to stop the pump for pump protection).
- 13 -The baseplate will comply with API676. It will be common for pump and electric motor.
- 14 -All accessories such as leveling screw, anchor etc. shall be provided as specified in API 676.
- 15 -Spare parts list for commissioning & start-up to be Included in offer.
- 16 -Additional the spare parts list for 2 years operation period operation quotations required.
- 17 -The level noise shall be max. 85 dBA.
- 18 -The pump will have the "CE" mark.

Handwritten signatures and date:
26.11.15

**ROTARY Metering PUMP
DATA SHEET
(API 676-3rd EDITION)**

| | | | | | |
|----------|----------------------|----|-----------------|------------------------------|-----------|
| No. | 1204.00-34-3000.DS.E | | | | REV. 0 |
| REVISION | 0 | 1 | 2 | 3 | 4 |
| DATE | 22/10/2015/ | | | | |
| BY | S. Gheorghiu | | | | |
| REV/APPD | M. Balan | | | | |
| JOB NO. | 1204/2015 | | ITEM NO 452D-P1 | | |
| PAGE | 5 | OF | 5 | REQ'N N: API 676_3rd EDITION | |

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☒ BY MANUF. OR PURCHASER

☐ BY MANUFACTURER


| | | |
|----|---|--|
| 1 | Product name: | FR 1424 |
| 2 | Product Type: | Mixture |
| 3 | Identified uses: | Water treatment, adjuvant for industrial applications. |
| 4 | Uses advised against: | No |
| 5 | Information on basic physical and chemical properties of the product F1424 | |
| 6 | Physical State: | Granular solid, white |
| 7 | Smell: | No |
| 8 | Odor threshold: | Not applicable |
| 9 | pH: | 5-9 @ 5 g / l |
| 10 | Melting / freezing point: | > 150 °C |
| 11 | Boiling point: | Not applicable |
| 12 | Flashpoint: | Not applicable |
| 13 | Evaporation Rate: | Not applicable |
| 14 | Flammability (solid, gas): | Not available |
| 15 | Minimum / maximum value of | |
| 16 | flammability or explosion: | Not expected to form explosive atmospheres |
| 17 | Vapor Pressure: | Not applicable |
| 18 | Vapor Density: | Not applicable |
| 19 | Relative density: | 0.6 - 0.9 |
| 20 | Solubility: | Soluble in water |
| 21 | Partition coefficient: | - 2 |
| 22 | n-octanol / water (LogPow) | |
| 23 | Ignition temperature: | Not self-ignition (based on chemical structure) |
| 24 | Decomposition temperature: | > 150 °C |
| 25 | Viscosity: | See product data sheet |
| 26 | Explosive Properties: | Kst = 0 |
| 27 | | Nonflammable for sources of ignition <2.5kJ |
| 28 | Oxidising properties: | Based on chemical structure, the product is not expected to be oxidizing |

POLYELECTROLYTE DATA SHEET

SNF - ZAC of Milieux - 42,163 Andrezieux - France
Phone: +33. (0) 4.77.36.86.00 e-mail: sds@snf.fr
Floch INDUSTRIES
Dr. Mirnescu, 6, Sector 5,
Tel. / Fax: 021 410 78 09; www.snf.ro, e-mail: office@snf.ro
Product name: FR 1424

| | | |
|----|---|------------------|
| 37 | Appearance: | Granular solid |
| 38 | Color: | White |
| 39 | Ionic loading: | Medium |
| 40 | Free monomer (acrylamide) in the polymer: | 999 ppm (0.019%) |
| 41 | Molecular weight: | Very high |
| 42 | Apparent density: | 0.80 |
| 43 | Brookfield Viscosity (cps) **: | |
| 44 | @ 5.0 g / l: | 1715 |
| 45 | @ 2.5 g / l: | 675 |
| 46 | @ 1.0 g / l: | 195 |
| 47 | Recommended working concentration of the solution (g / l): | 3 |
| 48 | The maximum concentration (g / l): | 5 |
| 49 | Dissolution Time (min.) in demineralised water @ 5 g / l, 25°C: | 90 |
| 50 | The stability of solutions prepared with demineralized water (days): 1 | |
| 51 | ** Average values given for preparation and dosing equipment, which can be used 10 times lower viscosities. | |
| 52 | * When stored inside a building, a stable temperature between 5C ° and 30C °. | |
| 53 | Packing: | |
| 54 | Multilayer polyethylene bags | 25 kg |
| 55 | Packaging: | On request |

Handwritten signature and date:
26.11.15

| | | | | | | |
|--|------------------|-----|--------------------------|-----|----------|-------|
|  <p>HUMANIAN ENGINEERING AND DESIGN INSTITUTE FOR OIL REFINERIES PLOIESTI - ROMANIA</p> | DATA SHEET | | No 1204.00-37-7001 D.S.E | | REV 0 | |
| | ELECTRICAL MOTOR | | SHEET 1 OF 2 | | | |
| | | REV | DATE | BY | CH'D | APP'D |
| | | 0 | 19.11.2015 | NTA | MPF | TS |
| JOB 1204/2015 | | 1 | | | | |
| CUSTOMER S.C. PETROTEL-LUKOIL PLOIESTI | | 2 | | | | |
| UNIT Instalatie de Epurare / Sewage treatment Plant | | 3 | | | | |
| | | 4 | | | | |

PROJECT REQUIREMENTS

| | | |
|----------|---|---|
| A | GENERAL | |
| 1 | Motor Tag | 45/2D-M-P1 |
| 2 | Driven equipment Tag | 45/2D-P1 |
| 3 | Driven equipment description | Metering pump |
| 4 | Quantity (pcs.) | 1 pc. |
| 5 | Standards and codes | IEC |
| 6 | General specification | Later |
| 7 | Ambient temperature (max/min) | 40°C/-30°C |
| 8 | Humidity | 90% |
| 3 | Indoor/outdoor/under roof installation | Outdoor |
| 10 | Climate/others environment conditions | Temperate |
| 11 | Altitude | <1000m |
| B | CONSTRUCTION | |
| 1 | Mechanical protection (IP) | IP 55 |
| 2 | Hazardous area classification | Zone 2 (3G), IIB T4 |
| 3 | Ex proof protection | Exde |
| 4 | Connections diagram | - |
| 5 | Motor type (synchronous, asynchronous) | Asynchronous squirrel cage |
| 6 | Duty type (as per IEC 60034-1) | S1 (Continuous) |
| 7 | Cooling method | Air |
| 8 | Starting and control method | VSD (VSD panel IP41 for indoor, unclassified area shall be included in offer) |
| 9 | Rotation direction (view from DE) | By Vendor |
| 10 | Painting color | By Vendor |
| 11 | Greasing system | Yes |
| 12 | Efficiency class | IE3 |
| 13 | Insulation class | F |
| C | SUPPLY NETWORK | |
| 1 | Voltage | 400/230V± 5% |
| 2 | Frequency | 50Hz± 2% |
| 3 | Neutral system | TNS |
| D | CONNECTION CABLE DATA | |
| 1 | Power (section/outside dia./armor) | Later |
| 2 | Anticondensation (section/outside dia./armor) | NA |
| 3 | RTD's (section/outside dia./armor) | Later |
| 4 | Double sealed glands for all cable entries | Yes (to be provided with motor) |
| E | AUXILIARIES | |
| 1 | Anticondensation heaters (yes/no) | No |
| 2 | Windings thermoelements type (yes/no) | Yes (PTC types)-thermistors |
| 3 | Bearings thermoelements type (yes/no) | No |

Ing Nikielov N. A



DATA SHEET
ELECTRICAL MOTOR

No. 1204.00-37-7001.DS.E

REV.

0

SHEET 2 OF 2

DRIVEN EQUIPMENT DATA (BY DRIVEN EQPT. VENDOR)

| | | |
|---|---|--|
| 1 | Manufacturer's name | |
| 2 | Rated/Maximum required power (kW) | |
| 3 | Rated speed (rpm) | |
| 4 | Torque/speed curve drawing no. | |
| 5 | Full load torque (Nm) | |
| 6 | Starting torque (% of FLT) | |
| 7 | Coupling system (Belt/direct) | |
| 8 | Inertia moment GD^2 (kgm ²) | |

MOTOR VENDOR INFORMATION

| | | |
|----|---|--|
| 1 | Manufacturer's name | |
| 2 | Rated output (kW) | |
| 3 | Voltage/phases | |
| 4 | Synchronous/full load speed (rpm) | |
| 5 | Frame size | |
| 6 | Full/No load current (A) | |
| 7 | Starting current (% of FLC) | |
| 8 | Efficiency @ 100/75/50% load | |
| 9 | Power factor @ 100/75/50% load | |
| 10 | Ramp-up time I_E (s) | |
| 11 | Cold/hot allowed starts per hour | |
| 12 | Torque/speed curve drawing no. | |
| 13 | Full load torque (Nm) | |
| 14 | Starting torque (% of FLT) | |
| 15 | Starting time @ 80% load | |
| 16 | Motor inertia moment GD^2 (kgm ²) | |
| 17 | Insulation class / Temperature rise limit | |
| 18 | Explosion proof protection type | |
| 19 | Explosion proof Certifying authority | |
| 20 | Climatic protection | |
| 21 | Mechanical protection | |
| 22 | Rotor withdrawal space (m) | |
| 23 | Weight (kg) | |
| 24 | Noise level | |
| 25 | Bearings DE/NDE | |
| 26 | Lubrication type | |
| 27 | Greasing period | |
| 28 | Thermoelements type | |
| 29 | Anticondensation heaters voltage/power (V/W) | |

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CODE: 04.010E-0

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