



**Oil –Gas**

**OH2**  
**Chemical process pump**  
**Model**  
**FS-ZE50-4400**  
**((4-P13 A/B))**  
**SR. NO.FS-ZE 19811017**

EBARA pumps Europe S.P.A  
SEDE LEGALE  
38023 CLES (TN)- italy -via Campo Sportivo ,30 Telefono +39 0463 660411  
PART. IVA IT 01234660221  
R.E.A.N. 124581 TRENTO

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Oil –Gas

### 4- P 13 A/B

|                                |                              |
|--------------------------------|------------------------------|
| Requested flow rate            | 25.76 m <sup>3</sup> /h      |
| Requested developed head       | 174.1 m                      |
| Pumped medium                  | raw water                    |
| Temperature                    | 25.0 ° C                     |
| Fluid density                  | 1004 kg/m <sup>3</sup>       |
| Fluid viscosity (cP)           | 0.89                         |
| Vapour pressure                | 0.03 kg/cm <sup>2</sup> a    |
| Suction pressure max.          | .1 kg/cm <sup>2</sup> g      |
| Efficiency                     | 30.00%                       |
| Power Absorbed                 | 55                           |
| Pump speed of rotation         | 2900rpm                      |
| NPSH required                  | 2m                           |
| Discharge press.               | 12.95 kg/cm <sup>2</sup> . g |
| Stuffing box press.            | VTA                          |
| Shutoff head                   | 200m                         |
| Shutoff pressure               | 21kg/cm <sup>2</sup>         |
| Differential pressure          | 12.85 kg/cm <sup>2</sup>     |
| NPSH available                 | 10.95 m                      |
| Ratio Q/Qbep                   | 88.00%                       |
| Max. power on curve            | 54KW                         |
| low for continuous stab        | VTA                          |
| Suction Flange Size & Rating   | DN100 5MPa                   |
| Discharge Flange Size & Rating | DN50 5MPa                    |
| Shaft seal                     | As Per API 682               |
| Shaft seal manufacture         | EBARA                        |
| Sealing plan                   | API plan 11+61 (VTC)         |
| Bearing bracket size           | No. 4 bearing box            |
| Coupling Manufacturer          | EBARA                        |
| Coupling type                  | Diaphragm coupling           |
| Spacer length                  | 140mm                        |
| Driver type                    | Electric Motor               |
| Drive standard mech.           | 3-phase Electric Motor       |
| Motor const. type              | IBM-250M-2-55                |
| Motor speed                    | 2985                         |
| Frequency                      | 50 Hz                        |
| Rated voltage                  | 380                          |
| Rated power P2                 | 55KW                         |
| Type of protection             | EEx de IIB T3                |
| Motor enclosure                | IP55                         |
| Volute casing (102)            | Cast Steel                   |
| Casing cover (161)             | Cast Steel                   |
| Shaft (210)                    | 2Cr13                        |
| Impeller (230)                 | Cast Steel                   |

EBARA pumps Europe S.P.A



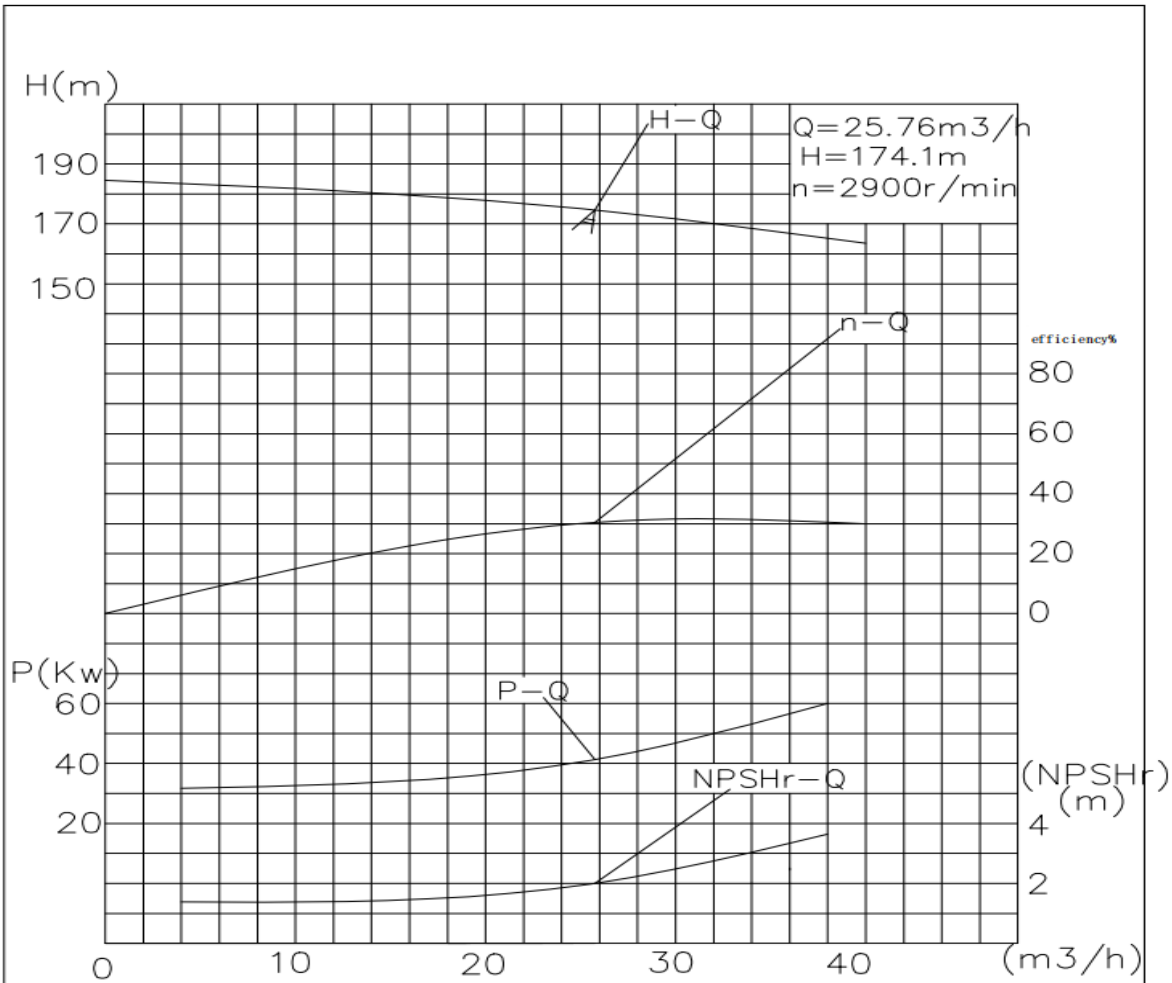
|  |                                      |
|--|--------------------------------------|
| User Name :                            |                                      |
| Device Name :                          |                                      |
| 4-P13 A/B                              | Quantity : 1                         |
| Equipment Name: Chemical Process Pumps | Pump Manufacturer :<br>Ebara oil-Gas |
| Pump Model:FS-ZE50-4400                |                                      |

|   |                   |  |                      |
|---|-------------------|--|----------------------|
| Working Conditions  |                   | Material(s)  |                      |
| Flow rate: 25.76  | m3/h              | Pump body: Cast steel  | Impeller: Cast steel |
| Inlet gauge pressure: (rated/maximum)   | MPa.G             | Shaft: 2Cr13   |                      |
| Outlet gauge pressure:  | MPa.G             | Mechanical seal flushing plan: PLAN11+61   |                      |
| Lift(H,m) 174.1 m   | (NPSH)a : 10.95 m | Bearing: SKF   | Brand: SKF           |
| Usage : <input checked="" type="checkbox"/> Continuous <input type="checkbox"/> intermittent (Number of starts/per day)                                       |                   | Coupling: 180  |                      |
| Medium  |                   |  |                      |
| Name: raw water   |                   |  |                      |
| Working temperature: 25 °C  |                   |  |                      |
| Medium density: 1004 kg/m3  |                   |  |                      |
| Viscosity (CP): 0.89  |                   |  |                      |
| H2S (Hydrogen Sulfide) Concentration (PPM)  |                   | Medium Characteristics: <input type="checkbox"/> Corrosive <input type="checkbox"/> Abrasive<br><input type="checkbox"/> Toxic |                      |
| Pump performance and structure  |                   |  |                      |
| Pump speed of rotation:2985rpm  | Efficiency: 30 %  | Shaft power: 41kW  |                      |
| Impeller diameter (rated): 350mm  |                   | Impeller diameter (maximum): 400 mm  |                      |
| Impeller diameter (minimum): 300 mm   |                   |  |                      |
| MCSF: 12 m3/h   |                   | NPSHr: 2 m   |                      |
| Maximum head at rated diameter: 180 m   |                   |  |                      |
| From rated head to shutoff head: 94%  |                   | Head ratio (rated/maximum): 96%  |                      |
| Flow rate (Best Efficiency Point, BEP): 30 m3/h   |                   | Flow ratio (rated/BEP): 87 %   |                      |
| Installation form: <input type="checkbox"/> Vertical <input checked="" type="checkbox"/> Horizontal   |                   |  |                      |
| Impeller form: <input checked="" type="checkbox"/> Closed <input type="checkbox"/> Open <input checked="" type="checkbox"/> Semi-open                         |                   |  |                      |
| Pump Casing Split: Axial <input checked="" type="checkbox"/> Radial   |                   |  |                      |
| Pump casing type: <input checked="" type="checkbox"/> Single volute <input type="checkbox"/> Double volute <input type="checkbox"/> Guide casing (guide vane) |                   |  |                      |

|  |               |  |                   |                      |                                    |                            |                     |
|--|---------------|--|-------------------|----------------------|------------------------------------|----------------------------|---------------------|
| Flange standard:<br>GB9111.1-2000  | caliber<br>mm | Flange pressure rating   | Sealing Face Type | Orientation position | Electric Motor                     |                            |                     |
|  |               |  |                   |                      | Model: ■                           | IBM-250M-2-55              |                     |
| Suction port   | 100           | 5MPa   | RF                | Horizontal           | Explosion-Proof High-Voltage Motor |                            |                     |
| Discharge port   | 50            | 5MPa   | RF                | Vertical             | Rated power: 55kW                  | Maximum power:             |                     |
| Drain port   | /             | /  | /                 | /                    | Number of Poles:<br>2              | Speed 2985 rpm             | Frequency: 50 Hz    |
| Pump casing design pressure: 5 MPa   |               | Pump Casing Hydrostatic Test: 7.5 MPa  |                   |                      | Voltage: 380 V                     | Number of phases : 3 PH    | Frequency: 50 Hz    |
| Maximum working pressure:<br>1.9MP   |               | Maximum permissible suction pressure: 3.1MPa<br>Maximum permissible working pressure: 5MPa |                   |                      | Protection Rating: IP55            | Explosion proof grade: BT4 | Insulation grade: F |
| Bearing type: <input type="checkbox"/> Sliding bearing <input checked="" type="checkbox"/> Radial rolling                |               |  |                   |                      | Incoming line of junction box:     | Method:                    | Number:             |
| Bearing Lubrication: <input checked="" type="checkbox"/> Oil Bath/Grease <input checked="" type="checkbox"/> Oil Slinger |               |  |                   |                      |                                    |                            |                     |



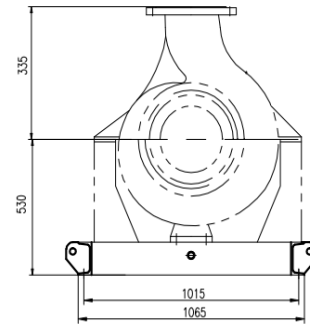
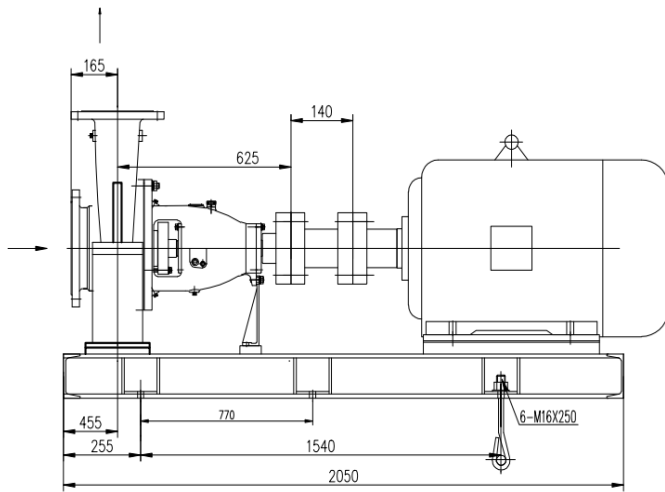
# Oil - Gas



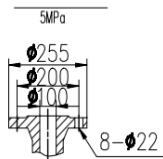
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|-----------|--------------------------------------|---------------|-------|-----------|---|--|
| 4-P13 A/B | (OH2)<br>Chemical<br>Process<br>Pump | FS-2E50-4400  | 25.76 | 174.1     | 2 | API610 standard production, mechanical seal meets API682 standard, material: cast steel, cartridge mechanical seal, mechanical seal flushing solution PLAN 11+61 ( ) SKF bearings, supply scope pump head + base + diaphragm coupling. |
|           | Explosion<br>-proof<br>motor         | IBM-250M-2-55 | 55KW  | 2985r/min | 2 | Drive standard machine: three-phase motor<br>Motor model: IBM-250M-2-55<br>Motor speed: 2985<br>Frequency: 50 Hz<br>Rated voltage: 380V<br>Rated power: 55KW<br>Protection level: Ex de IIB T4<br>Motor protection level: IP55         |



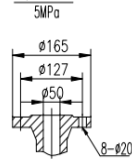
# Oil -Gas



Imported flange



Outlet flange



|           |                                      |               |       |           |   |  |
|-----------|--------------------------------------|---------------|-------|-----------|---|--|
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|           | Explosion<br>-proof<br>motor         | IBM-250M-2-55 | 55KW  | 2985r/min | 2 | Drive standard machine: three-phase motor<br>Motor model: IBM-250M-2-55<br>Motor speed: 2985<br>Frequency: 50 Hz<br>Rated voltage: 380V<br>Rated power: 55KW<br>Protection level: Ex de IIB T4<br>Motor protection level: IP55         |