

|           |                                                          |                                                                                     |
|-----------|----------------------------------------------------------|-------------------------------------------------------------------------------------|
|           | Owner: Salco                                             |  |
|           | Project: 3 Bag filter for Salco                          |                                                                                     |
| Supplier: | <b>Technical Proposal for Bag Filter C-9, C-10, C-11</b> | Date:1405/04/10                                                                     |
| Rev: 00   |                                                          |                                                                                     |

# TECHNICAL PROPOSAL

Inquiry for Bag Filter C-9,C-10,C-11

|        |                 |         |         |
|--------|-----------------|---------|---------|
| 00     | Date:1405/04/10 |         |         |
| Rev no | Rev Date        | Applied | Checked |



|           |                                                         |                                                                                     |
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|           | Owner: Salco                                            |  |
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| Supplier: | <b>Technical Proposal for Bag Filter C-9,C-10 ,C-11</b> | Date:1405/04/10                                                                     |
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## 1. Basic Information:

### 1.1 GENERAL:

This technical Proposal together with the Codes, Standards and Drawings listed herein defines Scope of Vendor for the mechanical design, material, construction, inspection, testing and painting of the Mechanical fabrication of 3 set Bag Filter for Salco.

### 1.2 SITE CONDITION AND DATA:

|               |                                                                              |
|---------------|------------------------------------------------------------------------------|
| Site:         | Hormozgan Province, Iran                                                     |
| Site Level:   | 10 m above sea level                                                         |
| Temperatures: | Max. Ambient air temperature: +45 °C<br>Min. Ambient air temperature: +10 °C |

### 1.3 STANDARD:

The following standards are applied to the all design and works:  
DIN, ASTM, ASME, AWS, AGMA, ANSI/API, and ISO.

### 1.4 SCOPE OF WORK:

- Engineering
- Documentation
- Fabrication and supply
- Factory testing
- Inspection
- Packing, shipping, insurance, custom clearance (if required)
- Supervision activities
- Guarantee package

|                                                                                  |                                                         |                 |
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| <b>Abbreviation:</b><br><b>C - Client: SALCO</b><br><b>Sup - Supplier</b><br><b>OP - Optional</b><br><b>BE - Basic engineering</b><br><b>DE - Detail engineering</b> |                                                                     | <b>SU - Supply, manufacturing and purchasing</b><br><b>ME - Mechanical erection</b><br><b>EE - Electrical erection</b><br><b>SV - Supervision service</b><br><b>CO - Start-up and commissioning</b> |     |     |     |     |     |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|
| No.                                                                                                                                                                  | Description                                                         | BE                                                                                                                                                                                                  | DE  | SU  | ME  | EE  | SV  | CO  |
| <b>1</b>                                                                                                                                                             | <b>Dedusting Package (01)</b>                                       |                                                                                                                                                                                                     |     |     |     |     |     |     |
| <b>1.1</b>                                                                                                                                                           | <b>Bag Filter (C-9,C-10 ,C-11 )</b>                                 |                                                                                                                                                                                                     |     |     |     |     |     |     |
|                                                                                                                                                                      | Filter head                                                         | sup                                                                                                                                                                                                 | sup | sup | sup | sup | sup | sup |
|                                                                                                                                                                      | Casing                                                              | sup                                                                                                                                                                                                 | sup | sup | sup | sup | sup | sup |
|                                                                                                                                                                      | Hopper                                                              | sup                                                                                                                                                                                                 | sup | sup | sup | sup | sup | sup |
|                                                                                                                                                                      | Bag                                                                 | sup                                                                                                                                                                                                 | sup | sup | sup | sup | sup | sup |
|                                                                                                                                                                      | Cage                                                                | sup                                                                                                                                                                                                 | sup | sup | sup | sup | sup | sup |
|                                                                                                                                                                      | Solenoid Valve                                                      | sup                                                                                                                                                                                                 | sup | sup | sup | sup | sup | sup |
|                                                                                                                                                                      | In/Out Damper                                                       | C                                                                                                                                                                                                   | C   | C   | sup | sup | sup | sup |
|                                                                                                                                                                      | In/Outlet Expansion Joints                                          | sup                                                                                                                                                                                                 | sup | sup | sup | sup | sup | sup |
|                                                                                                                                                                      | Handrail                                                            | sup                                                                                                                                                                                                 | sup | sup | sup | sup | sup | sup |
|                                                                                                                                                                      | Ladder                                                              | sup                                                                                                                                                                                                 | sup | sup | sup | sup | sup | sup |
|                                                                                                                                                                      | Stack                                                               | C                                                                                                                                                                                                   | C   | C   | C   | C   | C   | C   |
|                                                                                                                                                                      | Ducting (Duct connection to new hopper is with SUP)                 | C                                                                                                                                                                                                   | C   | C   | C   | C   | C   | C   |
|                                                                                                                                                                      | Structure                                                           | sup                                                                                                                                                                                                 | sup | sup | sup | sup | sup | sup |
|                                                                                                                                                                      | Instrument                                                          | sup                                                                                                                                                                                                 | sup | sup | sup | sup | sup | sup |
|                                                                                                                                                                      | Compressed air piping from compressed room to package battery limit | sup                                                                                                                                                                                                 | sup | sup | sup | sup | sup | sup |
|                                                                                                                                                                      | Painting                                                            | sup                                                                                                                                                                                                 | sup | sup | -   | -   | sup | sup |
| <b>1.2</b>                                                                                                                                                           | <b>Fan and Motor (FN01, FN02, FN03)</b>                             |                                                                                                                                                                                                     |     |     |     |     |     |     |
|                                                                                                                                                                      | foundations for fans                                                | C                                                                                                                                                                                                   | C   | C   | C   | C   | C   | C   |
|                                                                                                                                                                      | embedded steel structures                                           | C                                                                                                                                                                                                   | C   | C   | C   | C   | C   | C   |
|                                                                                                                                                                      | fan technological parts                                             | C                                                                                                                                                                                                   | C   | C   | C   | C   | C   | C   |
|                                                                                                                                                                      | Fan Inlet louver damper                                             | C                                                                                                                                                                                                   | C   | C   | C   | C   | C   | C   |
|                                                                                                                                                                      | Fan inlet expansion joint                                           | sup                                                                                                                                                                                                 | sup | sup | sup | sup | sup | sup |
|                                                                                                                                                                      | Fan Outlet expansion joint                                          | sup                                                                                                                                                                                                 | sup | sup | sup | sup | sup | sup |
|                                                                                                                                                                      | fan casing                                                          | C                                                                                                                                                                                                   | C   | C   | C   | C   | C   | C   |
|                                                                                                                                                                      | fan base frame                                                      | C                                                                                                                                                                                                   | C   | C   | C   | C   | C   | C   |

|                                                                                  |                                                          |                 |
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|            |                                                                                                                                                                                                                                                                                                                                       |     |     |     |     |     |     |     |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|
|            | fan bearing temperature detection system                                                                                                                                                                                                                                                                                              | C   | C   | C   | C   | C   | C   | C   |
|            | fan motors                                                                                                                                                                                                                                                                                                                            | C   | C   | C   | C   | C   | C   | C   |
| <b>1.3</b> | <b>Conveyor System (CS01, CS02, CS03)</b>                                                                                                                                                                                                                                                                                             |     |     |     |     |     |     |     |
|            | Rotary Valve (RV01, RV02, RV03)                                                                                                                                                                                                                                                                                                       | C   | C   | C   | C   | C   | C   | C   |
|            |                                                                                                                                                                                                                                                                                                                                       |     |     |     |     |     |     |     |
| <b>1.4</b> | <b>Control System</b>                                                                                                                                                                                                                                                                                                                 |     |     |     |     |     |     |     |
|            | Unit Control                                                                                                                                                                                                                                                                                                                          | sup | sup | sup | sup | sup | sup | sup |
|            | Local control box                                                                                                                                                                                                                                                                                                                     | sup | sup | sup | sup | sup | sup | sup |
|            | Cabling from control panel to equipment                                                                                                                                                                                                                                                                                               | sup | sup | sup | sup | sup | sup | sup |
|            | Cabling from feeder to control panel                                                                                                                                                                                                                                                                                                  | C   | C   | C   | C   | C   | C   | C   |
|            | Tray work, conduit work and connections                                                                                                                                                                                                                                                                                               | sup | sup | sup | sup | sup | sup | sup |
|            | Cabling from control panel to CCR                                                                                                                                                                                                                                                                                                     | C   | C   | C   | C   | C   | C   | C   |
|            | Instrument                                                                                                                                                                                                                                                                                                                            | sup | sup | sup | sup | sup | sup | sup |
| <b>1.5</b> | <b>other</b>                                                                                                                                                                                                                                                                                                                          |     |     |     |     |     |     |     |
|            | Lighting, earthing from main earthing system to main earth terminal of motor, electrical room, fire alarm, UPS systems, tel, Civil Works, Maintenance hoist, Interconnecting control cables between central control room and local control panel, Incoming power supply cable from client's MCC to Local Electrical and Control Panel | C   | C   | C   | C   | C   | C   | C   |

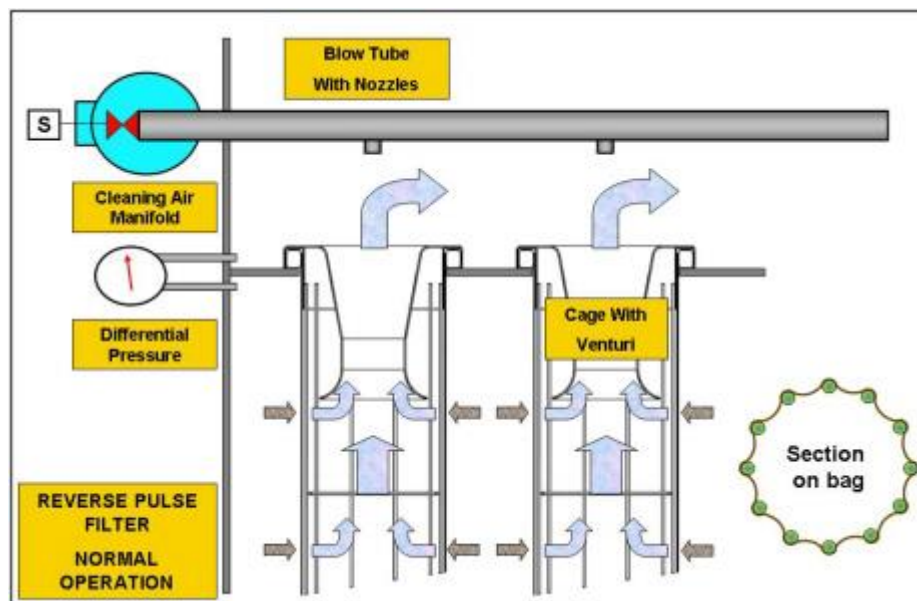
|                                                                                  |                                                          |                 |
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## 2. Control Philosophy & Electrical Information:

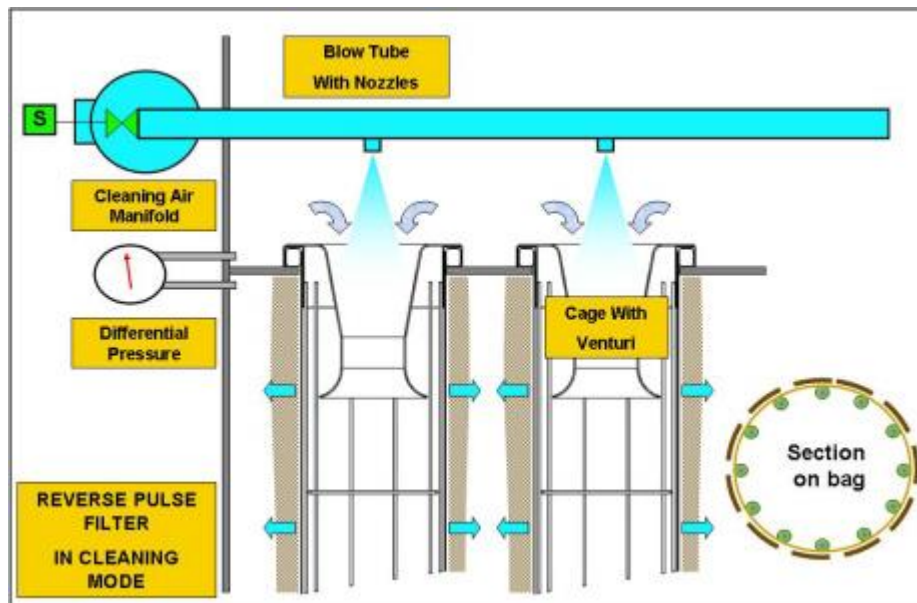
### Control Philosophy:

The Pulse Jet Bag Filter is cleaned by a blast of compressed air. The filter bags are arranged in rows and the number of rows depends on the filter size. A blowpipe is mounted above each row of bags and fed by a compressed air manifold (or tank) mounted on the outside of the filter. The blowpipe contains nozzles to coincide with the center line of each bag. The cage that supports each bag incorporates an internal venturi mounted from the top wires. When each pipe receives a signal to blow, the appropriate diaphragm valve is opened by means of a solenoid valve allowing compressed air into the blowpipe.

An equal amount of compressed air is blown vertically downwards into each bag via the venturis. The venturi is fitted to increase the air entrainment down the bags. The additional air supplements the compressed air and adds to the cleaning process. Each row of bags therefore receives a short pulse of compressed air of approximately 100m sec duration. The high pressure compressed air creates a shockwave down each bag causing it to release the majority of dust formed around the outside. This falls into the hopper below.



|                                                                                  |                                                          |                 |
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Each row of bags is normally cleaned at random so as not to clean one particular area of the filter at any one time. The signal to control the opening of each solenoid/diaphragm valve is instigated by an electronic sequence controller/monitor. The controller is fully adjustable in relation to pulse duration and pulse time i.e. the time to clean the complete number of rows of bags. Also within the controller is a differential pressure transducer. This is piped up to the inlet and outlet side of the bag filter and measures the differential pressure or pressure loss across the filter. This value is displayed on the monitor and also has a 4-20mA output signal.

The controller is configured to operate the compressed air system between two set limits i.e. a 'clean' limit and a 'dirty' limit. When the controller has cleaned the filter down such that the differential pressure is below the clean limit, the compressor will offload until the filter pressure differential has increased up to the dirty limit, at which point the cleaning cycle will recommence. The pressure differential control is a means of saving energy as it will only use compressed air when the filter is dirty and requires cleaning down. It is ideally suited for plants that may not operate on a continuous production run or where the dust carryover to the bag filter is not particularly high and continuous cleaning is not required.

Various additions can be added to the controller to allow for remote monitoring of the pressure loss across the filter. This would involve converting a 4-20mA signal to pass to a PLC.

|                                                                                  |                                                          |                 |
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### 3. Dedusting System (01,02,03):

#### 3.1 DESIGN DATA (Bag Filter C-9, C-10, C-11):

| GENERAL DATA                        |                                   |                                              |                         |
|-------------------------------------|-----------------------------------|----------------------------------------------|-------------------------|
| Qty                                 |                                   | 3 Set                                        |                         |
| UNIT Weight (without Fan)           |                                   | 13000 kg                                     |                         |
| MATERIAL SPECIFICATION OF EQUIPMENT |                                   |                                              |                         |
| Framework                           |                                   | S235JR (ST37)                                |                         |
| Nut & Bolt                          |                                   | According ISO 4017 & 4032 (8.8)              |                         |
| Painting                            |                                   | See Painting Specification in this Document. |                         |
| OPERATING DATA                      |                                   |                                              |                         |
| Item                                | Description                       | Unit                                         | Quantity/ Remark        |
| 1                                   | Capacity                          | Am <sup>3</sup> /hr                          | 25000                   |
| 2                                   | Gas Type                          | -                                            | Dusty Gas               |
| 3                                   | Gas density                       | Kg/m <sup>3</sup>                            | 1.2                     |
| 4                                   | Gas Temperature                   | ° C                                          | 45                      |
| 5                                   | Max Gas Temperature               | ° C                                          | 45                      |
| 6                                   | Inlet Dust                        | g/Nm <sup>3</sup>                            | 100                     |
| 7                                   | Dust                              | -                                            | -                       |
| 8                                   | Out Let Dust                      | mg/Nm <sup>3</sup>                           | 50                      |
| Design Data                         |                                   |                                              |                         |
| Item                                | Description                       | Unit                                         | Quantity/ Remark        |
| 1                                   | Filter bag cleaning system        | -                                            | Online                  |
| 2                                   | Filter Arrangement                | -                                            | Single line compartment |
| 3                                   | Air-to- Cloth ratio (online)      | m <sup>3</sup> /m <sup>2</sup> .min          | 1.23                    |
| 4                                   | Min Filtration Area               | m <sup>2</sup>                               | 340                     |
| 5                                   | Number of Compartments            | -                                            | 2                       |
| 6                                   | Number of Bag in each Compartment | Pcs                                          | 112                     |
| 7                                   | Number of bags in each row        | Pcs                                          | 15                      |
| 8                                   | Total Bag                         | Pcs                                          | 225                     |
| Cleaning Method                     |                                   |                                              |                         |
| Item                                | Description                       | Unit                                         | Quantity/ Remark        |
| 1                                   | Method                            | -                                            | Pulse Jet               |
| 2                                   | Cleaning Gas                      | -                                            | Air                     |
| 3                                   | compressed Air flowrate           | Nm <sup>3</sup> /h                           | 60-65                   |
| 4                                   | Working Pressure                  | bar                                          | 6                       |

|                                                                                  |                                                          |                 |
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| Filter Specification                   |                   |      |                                   |
|----------------------------------------|-------------------|------|-----------------------------------|
| Filter Dimension                       |                   |      |                                   |
| Item                                   | Description       | Unit | Quantity/ Remark                  |
| 1                                      | Width             | mm   | 3400                              |
| 2                                      | Length            | mm   | 3400                              |
| 3                                      | Height            | mm   | 9000                              |
| Filter Weight                          |                   |      |                                   |
| Item                                   | Description       | Unit | Quantity/ Remark                  |
| 1                                      | Filter Head       | kg   | 2300                              |
| 2                                      | Casing            | kg   | 4200                              |
| 3                                      | Hopper            | kg   | 2500                              |
| 4                                      | Structure         | kg   | 1800                              |
| 5                                      | Handrail          | kg   | 700                               |
| 6                                      | Ladder            | kg   | 800                               |
| Bag (See Data Sheet)                   |                   |      |                                   |
| Item                                   | Description       | Unit | Quantity/ Remark                  |
| 1                                      | Diameter          | mm   | φ 160                             |
| 2                                      | Length            | mm   | 3000                              |
| 3                                      | Fabric Material   | -    | Polyster Fiber with PTFE membrane |
| 4                                      | Qty               | pcs  | 225                               |
| Cage (See Data Sheet)                  |                   |      |                                   |
| Item                                   | Description       | Unit | Quantity/ Remark                  |
| 1                                      | Diameter          | mm   | φ 155                             |
| 2                                      | Length            | mm   | 2980                              |
| 3                                      | Material          | -    | St37 (with coat of PVC)           |
| 4                                      | Type of Cage      | -    | 12 wire                           |
| 5                                      | Coat of Cage      | -    | PVC                               |
| 6                                      | Qty               | pcs  | 225                               |
| Venturi                                |                   |      |                                   |
| Item                                   | Description       | Unit | Quantity/ Remark                  |
| 1                                      | Qty               | Set  | 225                               |
| 2                                      | Inlet Diameter    | mm   | 125                               |
| 3                                      | Outlet Diameter   | mm   | 112                               |
| 4                                      | Material          | -    | Aluminum                          |
| 5                                      | Thickness         | mm   | 1                                 |
| Diaphragm & Air Tank (See Data Sheet): |                   |      |                                   |
| Item                                   | Description       | Unit | Quantity/ Remark                  |
| 1                                      | Type              | -    | 2 Way Diagram                     |
| 2                                      | Qty               | Set  | 15                                |
| 3                                      | Voltage           | V    | 24VDC / 240VAC                    |
| 4                                      | Size              | inch | 2 ½"                              |
| 5                                      | Air Tank Quantity | Set  | 2                                 |

|                                                                                  |                                                          |                  |
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| Duct                                                    |                                              |        |                           |
|---------------------------------------------------------|----------------------------------------------|--------|---------------------------|
| Duct modification and connection to Bagfilter by vendor |                                              |        |                           |
| Stack                                                   |                                              |        |                           |
| Duct modification and connection to Bagfilter by vendor |                                              |        |                           |
| Rotary Air Lock (By Salco):                             |                                              |        |                           |
| Item                                                    | Description                                  | Unit   | Quantity/ Remark          |
| 1                                                       | Qty                                          | Set    | 3 (1 For each bag filter) |
| 2                                                       | Tag                                          | -      |                           |
| 3                                                       | Location                                     | -      |                           |
| 4                                                       | Capacity                                     | Ton/hr | 6-8                       |
| 5                                                       | Size                                         | mm     | -                         |
| 6                                                       | Gear Motor Power                             | kw     | 2.2/ 400v/ 50 HZ/ 3 Phase |
| 7                                                       | Speed                                        | RPM    | 1400                      |
| 8                                                       | Bearing Type                                 | -      | -                         |
| 9                                                       | Body material                                | -      | -                         |
| Instrument                                              |                                              |        |                           |
| Item                                                    | Description                                  | Unit   | Quantity/ Remark          |
| 1                                                       | Air Maintenance Unit                         | Set    | 3 (1 For each bag filter) |
| 2                                                       | ΔP Switch                                    | Set    | 3 (1 For each bag filter) |
| 3                                                       | Pressure Switch                              | Set    | 3 (1 For each bag filter) |
| 4                                                       | piping (compressor to Bag filter connection) | meter  | 150 (HDG Carbon Steel)    |
|                                                         |                                              |        |                           |
|                                                         |                                              |        |                           |
| Unit Control                                            |                                              |        |                           |
| Item                                                    | Description                                  | Unit   | Quantity/ Remark          |
| 1                                                       | Unit Controller (Sequence Controller)        | Set    | 3 (1 For each bag filter) |
| 2                                                       | Local Control Box                            | Set    | -                         |

|                                                                                  |                                                          |                 |
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### 3.2 DESIGN DATA (Fan and Motor (FN01, FN02, FN03):

| Fan(By Salco) |                       |                    |                      |
|---------------|-----------------------|--------------------|----------------------|
| Item          | Description           | Unit               | Quantity/ Remark     |
| 1             | Type                  | -                  | Centrifugal Backward |
| 2             | Capacity (Fan)        | m <sup>3</sup> /hr | 25000                |
| 3             | Differential Pressure | mbar               | 35                   |
| 4             | Gas Temperature       | ° C                | 45                   |
| 5             | Air Density           | kg/m <sup>3</sup>  | 1.2                  |
| 6             | Speed                 | rpm                | 1478                 |
| 7             | Power Transmission    | -                  | Pully and Belt       |
| 8             | Recommended Motor     | Kw                 | 37                   |
| 9             | Impeller Material     | -                  | ST52                 |
| 10            | Shaft Material        | -                  | CK45                 |
| 11            | Casing Material       | -                  | ST37                 |

|                                                                                  |                                                   |                 |
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#### 4. Vendor List:

| Project    | Item No. | Description         | Vendor                    |
|------------|----------|---------------------|---------------------------|
| BAG FILTER | 1        | Plate (ST 37&ST 52) | Mobarakeh Steel Complex   |
|            |          |                     | foulad saba & oxin&Kavian |
|            | 2        | Bearing             | FAG                       |
|            |          |                     | NKE                       |
|            |          |                     | SkF                       |
|            | 3        | Housing             | SKF                       |
|            |          |                     | SDFR                      |
|            | 4        | Electrical Panel    | RITTAL دنا                |
|            |          |                     | RITTAL طراح تابلو فارس    |
|            | 5        | FAN                 | -                         |
|            | 6        | rotary              | -                         |
|            | 7        | Pulse Valve         | TURBO                     |
|            |          |                     | ASCO                      |
|            |          |                     | SBFEE                     |
|            | 8        | الکتروود            | AMA                       |
|            |          |                     | PARS                      |
|            |          |                     | WIEM                      |
|            |          |                     | MICA                      |
|            |          |                     | ZANJAN                    |
|            | 9        | CAGE                |                           |
|            | 10       | BOLT & NUT          | روان پیچ کار              |
|            |          |                     | آلن پیچ                   |
|            |          |                     | پولاد پیچ کار             |
|            |          |                     | NICAN TAK                 |

|                                                                                  |                                                          |                  |
|----------------------------------------------------------------------------------|----------------------------------------------------------|------------------|
|  | Owner: Salco                                             |                  |
|                                                                                  | Project: 3 Bag filter for Salco                          |                  |
| Supplier:                                                                        | <b>Technical Proposal for Bag Filter C-9, C-10, C-11</b> | Date: 1405/04/10 |
| Rev: 00                                                                          |                                                          |                  |

|  |    |                                   |                 |
|--|----|-----------------------------------|-----------------|
|  |    |                                   | IRAN PICH       |
|  |    |                                   | IRAN TECHNIC    |
|  | 11 | PAINT                             | FIROOZEH        |
|  |    |                                   | NEGIN ZEREH     |
|  | 12 | Electrical Equipment              | SIEMENS         |
|  |    |                                   | HYUNDAI         |
|  |    |                                   | SCHNEIDER       |
|  |    |                                   | PHOENIX         |
|  |    |                                   | FINDER          |
|  |    |                                   | LS              |
|  |    |                                   | ABB             |
|  |    |                                   | PARS FANAL      |
|  |    |                                   | kaveh           |
|  | 13 | INSTRUMENT                        | Danfoss         |
|  | 14 | PNEUMATIC Valve                   | Danfoss         |
|  | 15 | CYLINDER                          | Danfoss         |
|  | 16 | Miniature circuit breaker         | Siemens         |
|  | 17 | Contactor                         | Siemens         |
|  | 18 | Circuit breaker                   | Siemens         |
|  | 19 | HMI                               | Siemens         |
|  | 20 | PLC                               | Siemens S7      |
|  | 21 | Panel                             | Rittal Type دتا |
|  | 22 | Speed Switch                      | -               |
|  | 23 | Pressure Switch                   | WIKA            |
|  | 24 | PT 100                            | -               |
|  | 25 | Differential Pressure Transmitter | Rosemount       |
|  | 26 | Pressure Gauge                    | -               |
|  | 27 | Level Transmitter                 | -               |
|  |    |                                   | -               |
|  | 28 | Lighting                          | -               |

|                                                                                  |                                                          |                 |
|----------------------------------------------------------------------------------|----------------------------------------------------------|-----------------|
|  | Owner: Salco                                             |                 |
|                                                                                  | Project: 3 Bag filter for Salco                          |                 |
| Supplier:                                                                        | <b>Technical Proposal for Bag Filter C-9, C-10, C-11</b> | Date:1405/04/10 |
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## 5. Spare Part List:

| Project | Spare item           | Unit | Spare quantity |
|---------|----------------------|------|----------------|
|         | Bags                 | Pcs  | 225            |
|         | Cage                 | Pcs  | 225            |
|         | Venturi              | Pcs  | 225            |
|         | Pulse valve          | Pcs  | 15             |
|         | Air maintenance unit | Pcs  | —              |

\*. The contractor is required for providing the spare parts list according to the table above.

## 6. Painting:

### 6.1 Painting Standards:

Painting and surface protection shall be carried out and tested as per the standards laid down in this specification. Detailed instructions on such aspects as are not indicated herein shall be as per the codes and practices indicated in the latest specifications of SSPC or DIN or as per the National Standards Institution of the country of origin or the codes of practices recommended by the paint manufacturers of the country of origin.

### 6.2 Surface Preparation:

1. Surface preparation being a pre - requisite for any paint application, shall be such as to clean the surface thoroughly of any materials which will be conducive to premature failure of the paint.
2. All surfaces shall be cleaned of loose substances and foreign materials, such as dirt, rust, scale, oil, grease, welding flux, etc. irrespective of whether the same has been spelt out in the standards in order that the primer coat is rigidly anchored to the virgin metal surface.

**Standards of Surface Preparation Grade: SA 2 ½ DIN 55928-(part4)**

\*. The internal surface of the bag filter must be applied with one coat of primer with a minimum thickness of 70 microns.

|                                                                                  |                                                          |                 |
|----------------------------------------------------------------------------------|----------------------------------------------------------|-----------------|
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|                                                                                  | Project: 3 Bag filter for Salco                          |                 |
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| <b>Primer Paint</b><br>Primer paint products shall be applied only on dry and clean surface.                                                                                                          |                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| A two-pack air drying Epoxy Polyamide resin base zinc rich epoxy primer .                                                                                                                             |                                                            |
| Epoxy content (%wt) -                                                                                                                                                                                 | up to 85%-zinc                                             |
| Air drying time -                                                                                                                                                                                     | About 30 minutes<br>(Touch dry) Overnight (hard dry)       |
| DFT/Coat -                                                                                                                                                                                            | 75 microns (min)                                           |
| Temperature resistance-                                                                                                                                                                               | Up to 120 deg.C dry heat                                   |
| <b>Intermediate Paint</b><br>These paints are formulated with micaceous iron oxide (MIO) and shall be applied over prime coats as an intermediate layer to provide weather proof seal of prime coats. |                                                            |
| A two-pack air drying high build epoxy resin-based paint with H.B                                                                                                                                     |                                                            |
| Air drying time -                                                                                                                                                                                     | 6 to 8 hours (touch dry)<br>7 days (full cure)             |
| DFT/Coat -                                                                                                                                                                                            | 125 microns                                                |
| Temperature resistance -                                                                                                                                                                              | Up to 180 deg.C dry heat                                   |
| Compatible with -                                                                                                                                                                                     | Primer should Epoxy based                                  |
| <b>Finish (Top Coat) Paint</b><br>Finish paint coats shall be applied over prime coats and intermediate coats after proper cleaning and touchup of primed surface.                                    |                                                            |
| A two-pack air drying polyurethan top coat suitably pigmented.                                                                                                                                        |                                                            |
| Air drying time –                                                                                                                                                                                     | to 3 hours (touch dry)<br>7 days (full cure)               |
| DFT/Coat -                                                                                                                                                                                            | 50 microns (min)                                           |
| Compatible with -                                                                                                                                                                                     | Primers (Epoxy based), intermediate<br>(Epoxy resin based) |
| Ral -                                                                                                                                                                                                 | 3005                                                       |

## 7. Deviation List:

**No Deviation.**

|                                                                                  |                                                          |                  |
|----------------------------------------------------------------------------------|----------------------------------------------------------|------------------|
|  | Owner: Salco                                             |                  |
|                                                                                  | Project: 3 Bag filter for Salco                          |                  |
| Supplier:                                                                        | <b>Technical Proposal for Bag Filter C-9, C-10, C-11</b> | Date: 1405/04/10 |
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## 8. Data Sheet:

### Cage:

Data Sheet

### Cage

#### Filter Supporting Cages

#### Technical Data for Design, Control and Inspection

The production is generally made according to the drawings and materials indicated in the order.

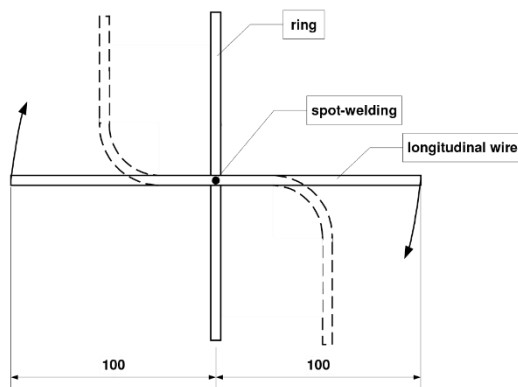
- Welding Design

- Spot-welding for the connection of longitudinal wires and rings
- Butt-welding for the rings

- Control of the weld marks

- 1) spot welding:

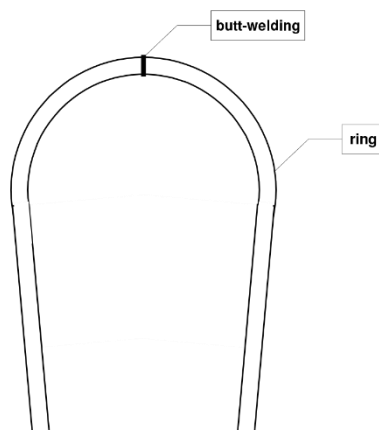
The weld seam must be resistant when turning the ends of the longitudinal wires at the sample by 90°  
(force attack at the same time)



For the control of the weld seam quality, a longitudinal wire has to be turned as far as it tears off. The fracture at the weld seam then shows the following:

- If the weld seam is torn off like a crater, a good straight-through welding can be assumed.
- If the fracture is rather smooth, however, the welding may be inefficient.

- 2) butt-welding:



The weld seam should not break during folding rupture test as shown in the sketch.

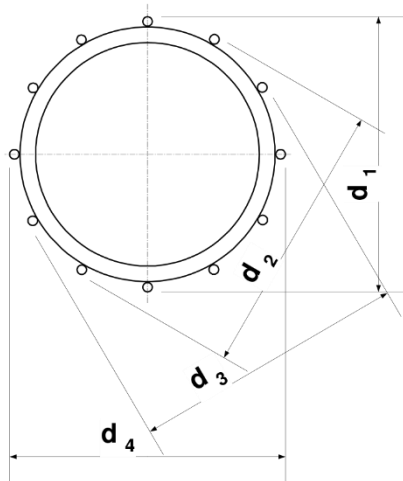
|                                                                                  |                                                          |                  |
|----------------------------------------------------------------------------------|----------------------------------------------------------|------------------|
|  | Owner: Salco                                             |                  |
|                                                                                  | Project: 3 Bag filter for Salco                          |                  |
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- General Design of the Supporting Cages

- manufacturer's mark at the upper ring
- smooth surface after surface treatment, without faults
- no sharp weld burs
- no sharp edges at the separating points of the wires, which can lead to damages of the filter material or injuries during handling
- weld seams at cross rings must be finished

- Manufacturing Tolerances

1) outer diameter:



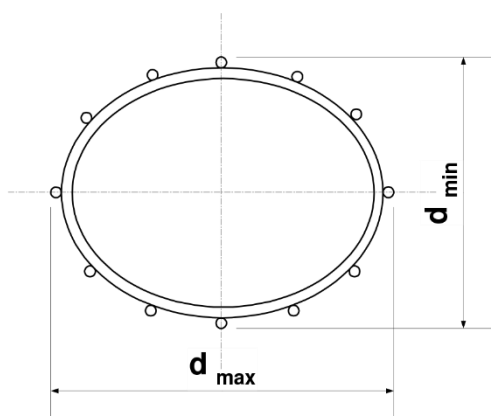
$$\frac{d_1 + d_2 + d_3 + d_4 + \dots + d_n}{n} = d$$

$$d = + 0 \text{ mm}$$

$$d = - 2 \text{ mm}$$

The outer edge is measured at two opposite longitudinal wires at the level of the center line of the cross ring.

2) out-of-round



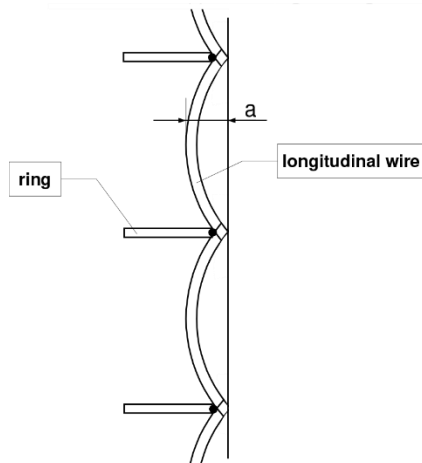
maximum out-of-round

$$d_{\max} - d_{\min} = 3 \text{ mm}$$

The outer edge is measured at two opposite longitudinal wires at the level of the center line of the cross ring.

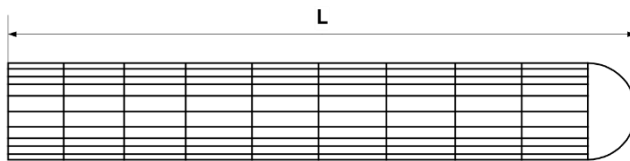
|                                                                                  |                                                          |                 |
|----------------------------------------------------------------------------------|----------------------------------------------------------|-----------------|
|  | Owner: Salco                                             |                 |
|                                                                                  | Project: 3 Bag filter for Salco                          |                 |
| Supplier:                                                                        | <b>Technical Proposal for Bag Filter C-9, C-10, C-11</b> | Date:1405/04/10 |
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3) deviation from the straight line at the longitudinal wires



max. deviation towards outer side = 0 mm  
max. deviation towards inner side a = 3 mm

4) length:



length  
L = + 0 mm  
L = - 3 mm

5) angles:



max. deviation angel  $\alpha = 0^\circ 15'$

6) deviation for all other dimensions:

For dimensions in the drawings without tolerance indication, tolerances according to DIN 7168, page 1, degree of accuracy „coarse“ are valid. For wires and sheets, tolerances of the technical terms of delivery according to DIN are valid.

7) max. tolerable reject rate according to the actual control condntions < 3 %.

|                                                                                  |                                                   |                  |
|----------------------------------------------------------------------------------|---------------------------------------------------|------------------|
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## Pulse Jet:

### Data Sheet

# Solenoid Valve

### Features

- Specially designed for reverse jet-type dust collector systems
- High flow Cv(s) to 140 for effective bag cleaning
- High cycle life
- Fast opening/closing

### Construction

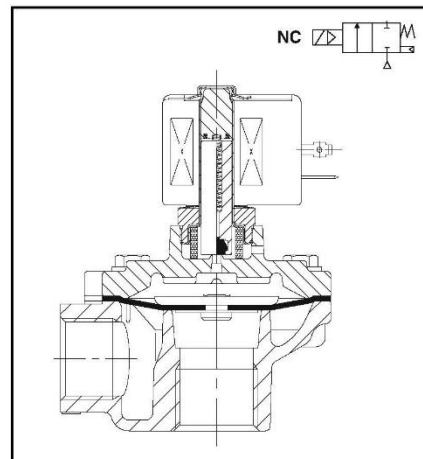
| Valve Parts in Contact with Fluids |                         |
|------------------------------------|-------------------------|
| Body                               | Aluminum                |
| Seals                              | NBR                     |
| Diaphragm                          | NBR, HYT or CR as noted |
| Discs                              | NBR or PA, as noted     |



### Electrical

| Standard Coil and Class of Insulation | Watt Rating and Power Consumption |            |           | Spare Coil Part Number |                |
|---------------------------------------|-----------------------------------|------------|-----------|------------------------|----------------|
|                                       | AC                                |            |           | General Purpose        | Explosionproof |
|                                       | Watts                             | VA Holding | VA Inrush | AC                     | AC             |
| F                                     | 6.1                               | 16         | 30        | 238210                 | 238214         |
| F                                     | 10.1                              | 25         | 50        | 238610                 | 238614         |
| F                                     | 17.1                              | 40         | 70        | 238610                 | 238614         |

Standard Voltages: 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz), Consult factory for DC voltage. Other voltages available when required.



### Solenoid Enclosures

**Standard:** Watertight, Types 1, 2, 3, 3S, 4, and 4X.

**Optional:** Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9. (To order, add prefix "EF" to catalog number.)

### Nominal Temp. Ranges

**Ambient:** AC constructions: 0°F to 185°F (-18°C to 85°C); 150°F (66°C) for valves with HYT diaphragms  
Consult local sales office for DC constructions.

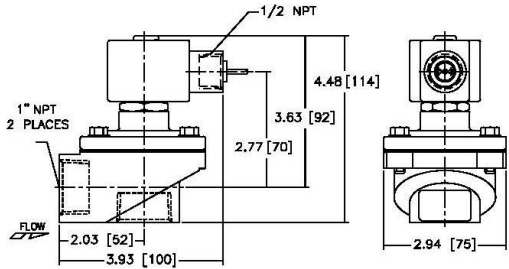
**Fluids:** 0°F to 185°F (-18°C to 85°C), except as noted. For temperatures to 300°F (149°C), specify FPM, suffix "V" (except where noted).

Refer to Engineering Section for details.

|                                                                                  |                                                   |                 |
|----------------------------------------------------------------------------------|---------------------------------------------------|-----------------|
|  | Owner: Salco                                      |                 |
|                                                                                  | Project: 3 Bag filter for Salco                   |                 |
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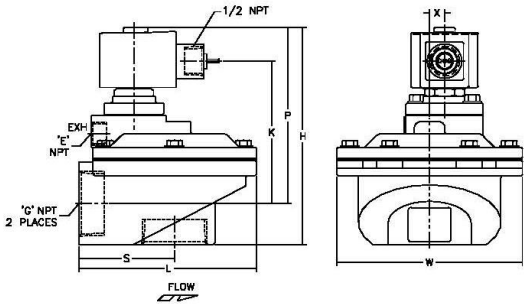
**Dimensions inches (mm)**

**Const. Ref. 4**

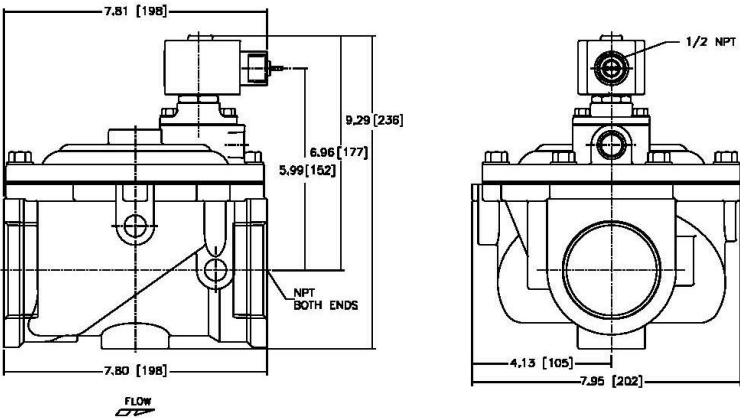


**Const. Ref. 5**

| Cat. No. | "E"<br>NPT | "G"<br>NPT |    | H     | L     | P     | S    | T    | W     | X    |
|----------|------------|------------|----|-------|-------|-------|------|------|-------|------|
| 8353J039 | 3/8        | 1 1/2      | in | 6.28  | 5.16  | 5.08  | 2.78 | 1.61 | 5.38  | 0.44 |
|          |            |            | mm | 159.5 | 131.0 | 129.0 | 70.6 | 40.9 | 136.5 | 11.1 |
| 8353G061 | 3/8        | 1 1/2      | in | 6.28  | 5.16  | 5.08  | 2.78 | 1.61 | 5.38  | 0.44 |
|          |            |            | mm | 159.5 | 131.0 | 129.0 | 70.6 | 40.9 | 136.5 | 11.1 |
| 8353G050 | 3/4        | 2          | in | 8.25  | 6.63  | 6.47  | 3.75 | 2.56 | 6.50  | -    |
|          |            |            | mm | 209.6 | 168.3 | 164.3 | 95.3 | 65.1 | 165.1 | -    |



**Const. Ref. 6**



|                                                                                  |                                                          |                 |
|----------------------------------------------------------------------------------|----------------------------------------------------------|-----------------|
|  | Owner: Salco                                             |                 |
|                                                                                  | Project: 3 Bag filter for Salco                          |                 |
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## 9. Guarantee:

Equipment guaranteed for the period of one year (12 month) after commissioning and delivery.

|                 |                                             |                           |
|-----------------|---------------------------------------------|---------------------------|
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| Rev.: 00        |                                             | Sheet: 1 of 2             |

|                            |                              |
|----------------------------|------------------------------|
| <b>TITLE :</b>             | <b>Filter Bag (160x3000)</b> |
| <b>Data Sheet Number :</b> | <b>SALCO-DS-9011-Mec</b>     |

| Property                           |                                                   | Unit                     | Acceptable Value |
|------------------------------------|---------------------------------------------------|--------------------------|------------------|
| Polyester Fiber with PTFE membrane |                                                   |                          |                  |
| Weight                             |                                                   | [g/m <sup>2</sup> ]      | 550              |
| Air permeability                   |                                                   | [ml/s/5cm <sup>2</sup> ] | 0.7              |
| Thickness                          |                                                   | [mm]                     | 2.1              |
| Tensile strength                   | Vertical                                          | daN/5cm                  | 175              |
|                                    | Horizontal                                        | daN/5cm                  | 185              |
| Elongation at break                | Vertical                                          | %                        | 44               |
|                                    | Horizontal                                        | %                        | 42               |
| Shrinkage at 140 °C                |                                                   | %                        | <1               |
| Heat Resistance dry                | Continuous                                        | °C                       | 80               |
|                                    | Peak                                              | °C                       | 100              |
| Treatment                          | Heat set, singed, glazed, PTFE Membrane Laminated |                          |                  |
| Top Construction                   | Double Beaded Snap Band Top                       |                          |                  |
| Bottom Construction                | Disc Bottom                                       |                          |                  |
| Dimension (Diameter ×Length)       | 160mm×3000mm                                      |                          |                  |

**Suitable for Alumina and Calcined Petroleum Coke Dust**

**Resistant to:Alumina ,CPC Dust ,Marine Humidity**

Date : 7/7/2026

Rev.: 00

**TECHNICAL SPECIFICATION  
DOCUMENT**

**Document Producer:**

Sheet: 2 of 2

**TITLE :**

**Filter Bag (160x3000)**

**Data Sheet Number :**

**SALCO-DS-9011-Mec**

