

# Shared production data

## Database access: technical information

|                        |                                        |
|------------------------|----------------------------------------|
| <b>DB Server</b>       | 10.100.145.20 (fkt20g.fa.franke.world) |
| <b>DB Server Port</b>  | 5432                                   |
| <b>DBMS</b>            | Postgresql                             |
| <b>ODBC Driver</b>     | 32bit, 64bit                           |
| <b>Database name</b>   | andon_FWK                              |
| <b>Database schema</b> | sharedprod                             |
| <b>Username</b>        | ... michael.lehmann (readonly)         |
| <b>Password</b>        | ... Swh2Rj6Q                           |

## E-R diagram



## Data dictionary

### Entities

| Entity   |                                           |               |                                                                      |         |            |
|----------|-------------------------------------------|---------------|----------------------------------------------------------------------|---------|------------|
| Name     | Description                               | Attributes    |                                                                      |         |            |
|          |                                           | Name          | Description                                                          | Type    | Identifier |
| prodline | Production resources list                 | <u>codice</u> | Production resource unique identifier                                | varchar | Yes        |
|          |                                           | descrizio     | Production resource name                                             | varchar |            |
|          |                                           | codrep        | Department unique identifier                                         | varchar |            |
|          |                                           | descrep       | Department description                                               | varchar |            |
|          |                                           | codstab       | Plant identifier                                                     | varchar |            |
|          |                                           | descstab      | Plant description                                                    | varchar |            |
| unitprod | Unique unit of production, produced items | <u>codice</u> | Produced item unique identifier                                      | varchar | YES        |
|          |                                           | codart        | Product code                                                         | varchar |            |
|          |                                           | dart          | Product description                                                  | varchar |            |
|          |                                           | procord       | Work order (from ERP)                                                | varchar |            |
|          |                                           | qtaprev       | Work order total quantity to be produced                             | double  |            |
|          |                                           | unita         | Produced items for each work cycle (generally 1)                     | double  |            |
|          |                                           | tmcrr         | Time Epoch of the tracked production unit (seconds since 01/01/1970) | long    |            |
|          |                                           | datacr        | Date of the tracked production unit (YYYYMMGG)                       | varchar |            |
|          |                                           | oracr         | Time of the tracked production unit (HH:MM:SS)                       | varchar |            |
| qcausanc | Non compliant causes list                 | <u>codice</u> | Cause unique identifier                                              | varchar | YES        |
|          |                                           | descrizio     | Cause description                                                    | varchar |            |
| qcausafm | Downtime causes list                      | <u>codice</u> | Downtime unique identifier                                           | varchar | YES        |

| Entity |             |            |                                                                            |         |            |
|--------|-------------|------------|----------------------------------------------------------------------------|---------|------------|
| Name   | Description | Attributes |                                                                            |         |            |
|        |             | Name       | Description                                                                | Type    | Identifier |
|        |             | descrizio  | Downtime description of the monitored resource                             | varchar |            |
|        |             | tipofm     | Downtime type: F = unplanned downtime, M = microstop, P = planned downtime | varchar |            |
|        |             | setup      | Downtime for setup reason (flag): 1 = setup kind, 0 = general downtime     | integer |            |

## Relationships

| Relationship |                                                     |                             |            |                                                             |         |
|--------------|-----------------------------------------------------|-----------------------------|------------|-------------------------------------------------------------|---------|
| Name         | Description                                         | Components                  | Attributes |                                                             |         |
|              |                                                     |                             | Name       | Description                                                 | Type    |
| regprod      | Each row refers to a production event               | prodline, unitprod          | data       | Event date (YYYYMMGG)                                       | varchar |
|              |                                                     |                             | ora        | Event time (HH:MM:SS)                                       | varchar |
|              |                                                     |                             | tm         | Event Time Epoch                                            | long    |
|              |                                                     |                             | qta        | Number of produced items                                    | double  |
| regnc        | Each row refers to a non compliant production event | prodline, unitprod, causanc | data       | Event date (YYYYMMGG)                                       | varchar |
|              |                                                     |                             | ora        | Event time (HH:MM:SS)                                       | varchar |
|              |                                                     |                             | tm         | Event Time Epoch                                            | long    |
|              |                                                     |                             | qta        | Number of non compliant produced items                      | double  |
| regfm        | Each row refers to a begin or an end of a downtime  | prodline, causafm           | data       | Event date (YYYYMMGG)                                       | varchar |
|              |                                                     |                             | ora        | Event time (HH:MM:SS)                                       | varchar |
|              |                                                     |                             | tm         | Event Time Epoch                                            | long    |
|              |                                                     |                             | tmdiff     | Time difference from end and begin of the downtime events   | long    |
|              |                                                     |                             | tipoevento | Downtime event type: INFM=downtime start, FIFM=downtime end | long    |

## Logical scheme

| Table                                                                                         | Foreign keys                                                                                                                 |
|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <b>prodline</b> ( <u>codice</u> , descrizio, codrep, descprep, codstab, descstab)             |                                                                                                                              |
| <b>unitprod</b> ( <u>codice</u> , codart, dart, procord, qtaprev, unita, tmcr, datacr, oracr) |                                                                                                                              |
| <b>causanc</b> ( <u>codice</u> , descrizio)                                                   |                                                                                                                              |
| <b>causafm</b> ( <u>codice</u> , descrizio, tipofm, setup)                                    |                                                                                                                              |
| <b>regprod</b> ( <u>codice</u> , data, ora, tm, qta, codlot, codubi)                          | - codlot foreign key on unitprod.codice<br>- codubi foreign key on prodline.codice                                           |
| <b>regnc</b> ( <u>codice</u> , data, ora, tm, qta, codlot, codubi, caudef)                    | - codlot foreign key on unitprod.codice<br>- codubi foreign key on prodline.codice<br>- caudef foreign key on causanc.codice |

| Table                                                                            | Foreign keys                                                                                                 |
|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>regfm</b> ( <u>codice</u> , data, ora, tm, tmdiff, tipoevento, codubi, caufm) | - <i>codubi</i> foreign key on <i>prodline.codice</i><br>- <i>caufm</i> foreign key on <i>causafm.codice</i> |

## Quering samples

Produced items on June 18th 2018 with date, time, unique identifier, production resource description, department description, article code (model) and work order, sorted by event time epoch

```
SELECT DATA, ora, codlot, prodline.descrizio AS linea, prodline.descrep,
unitprod.dart, unitprod.procord FROM sharedprod.regprod
INNER JOIN sharedprod.prodline ON prodline.codice=sharedprod.regprod.codubi
INNER JOIN sharedprod.unitprod ON unitprod.codice=sharedprod.regprod.codlot
WHERE DATA='20180618'
ORDER BY tm
```

Count produced items after June 18th 2018 (included) grouped by day, article code and work order on production resource 821102A (DMG LB)

```
SELECT DATA, unitprod.dart, unitprod.procord, SUM(qta) AS pezzi FROM
sharedprod.regprod
INNER JOIN sharedprod.unitprod ON
sharedprod.unitprod.codice=sharedprod.regprod.codlot
WHERE regprod.codubi='821102A' AND regprod.data>='20180618'
GROUP BY DATA, dart, procord
```

Get the DMG LB (821102A) downtime events list from 06:00 to 14:00 of June 18th 2018 with date, time, duration in minutes, event type, downtime cause description, downtime kind, changeover time flag

```
SELECT DATA, ora, tmdiff/60 AS dtm, tipoevento, qcausafm.descrizio AS dfermo,
qcausafm.tipofm, qcausafm.setup FROM sharedprod.regfm
INNER JOIN sharedprod.qcausafm ON sharedprod.qcausafm.codice=regfm.caufm
WHERE codubi='821102A' AND DATA='20180618' AND ora>='06:00' AND ora<='14:00'
ORDER BY tm
```