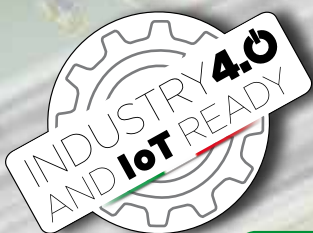


ENGINEERING CEM[®]

Comerio Ercole provides the coordination and the integration of different specific levels of plant engineering (electricity, hydraulic, pneumatic)

**PLANT ENGINEERING
FROM BASIC
TO MASTER PLUS**



COMERIO ERCOLE

MECHANICAL CONSTRUCTIONS SINCE 1885 - ITALY



CEM® means **COMERC ENGINEERING Modeling**.

COMERC ENGINEERING is an engineering company owned and fully integrated 100% by COMERIO ERCOLE with an experienced team.

MAIN PURPOSE:

- ❑ Through **CEM®**, Comerio Ercole provides the coordination and the integration of different specific levels of plant engineering (electrical, hydraulic, pneumatic, etc)
- ❑ With **CEM®** solution offers a wide range of solutions with precise and detailed definitions of the plant
- ❑ **CEM®** is developed by Comerc Engineering team using 2DAUTOCAD® and-or 3D INVENTOR® representation

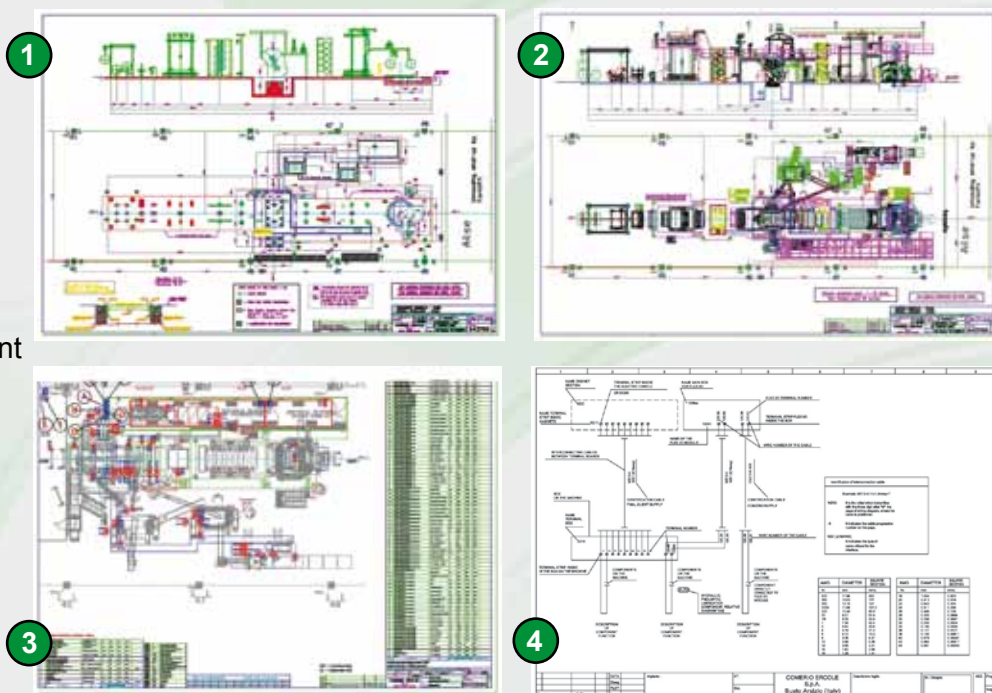
DIFFERENT ENGINEERING PACKAGES ARE FORESEEN ON OPTIONAL BASE AND TO BE CONTRACTUALLY AGREED:

- **LEVEL 1 – BASIC PACKAGE:** Engineering plant without integration of supplies from other partners
- **LEVEL 2 – BASIC PLUS PACKAGE:** Engineering plant including 2D line engineering
- **LEVEL 3 – MASTER PACKAGE:** Engineering plant including 3D plant with integration of supplies from other partners but only at project level
- **LEVEL 4 – MASTER PLUS PACKAGE:** Engineering plant with complete and executive integration of supplies from other partners

PACKAGE:

LEVEL 1 "BASIC"

- 1 Lay out – 2D foundation
- 2 Lay out – 2D machine arrangement
- 3 Lay out – 2D different connecting points to utilities (realization at customer care)
- 4 Scheme of Equipments on MACHINE BOARD

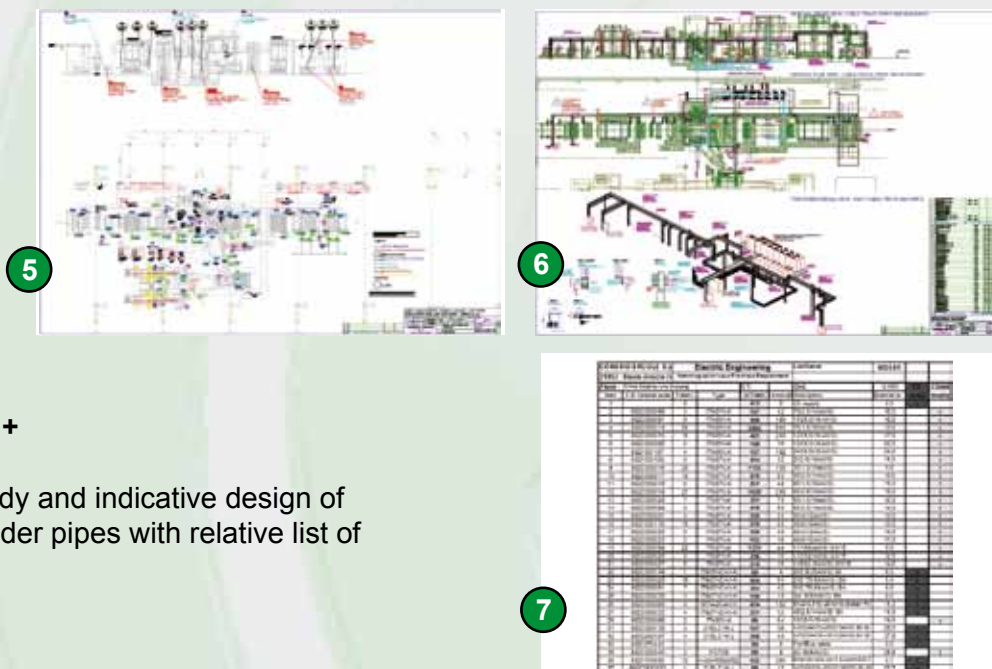


PACKAGE:

LEVEL 2 "BASIC PLUS"

All what foreseen in Level 1 BASIC +

- 5 Terminal boxes layout
- 6 **2D PLANT ENGINEERING** – study and indicative design of cable trays of the plant and calender pipes with relative list of material
- 7 List of cables for procurement



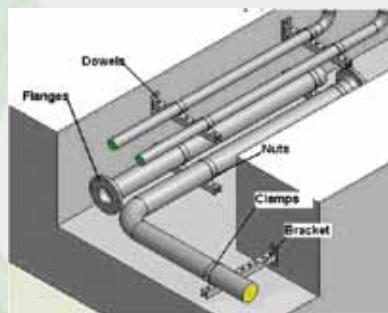
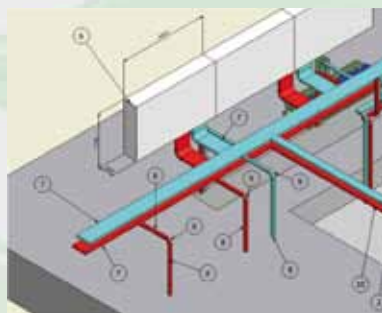
PACKAGE:

LEVEL 3 "MASTER"

REAL 3D PLANT MODEL ON OPTIONAL BASE



8



9



All what foreseen in Level 2 BASIC +

- 8 **3D PLANT ENGINEERING for Electrics / Fluidics** – study and design of runways: conducts-cables-pipelines (related to components of direct supply) - real 3D model on optional base
- 9 List of line engineering materials (pipes, cables, etc) for procurement
- 10 Optimization of arrival point of utilities (at customer charge)

A specific handbook or self explaining drawings are included in the **MASTER** package, the handbook states the interpretation rules of all drawings, lists, tables and diagrams, referred to the electric plant engineering. The handbook is ordered according to the logic sequence utilized for the engineering activity.

All drawings are carried out with 2D AUTOCAD® and/or 3D INVENTOR®.

Information – drawings and list supplied:

- ☐ Interpretation modalities of terminal board diagrams
- ☐ Bi-dimensional general assembly of electric components of single machines
- ☐ Bi-dimensional general assembly of terminal boards for the whole plant.
- ☐ Print form for the different lists
- ☐ List of interfaces with cable length calculation
- ☐ Cable list for type
- ☐ Cable list for each single terminal board on the machine
- ☐ Cable list for each single terminal board in equipment
- ☐ Dimensioning of cable trays
- ☐ Three-dimensional general assembly of cable tray run
- ☐ Procedure for the choice of interconnecting cables (international codes)
- ☐ List of motors and components and List Cable Trays and accessories

PACKAGE:

LEVEL 4 "MASTER PLUS"

All what foreseen in Level 3 MASTER +

- 11. Extension of the **3D LINE ENGINEERING** for machines not of Comerio Ercole direct supply
- 12. **3D FACTORY ENGINEERING** – utilities distribution starting from single points supplied by the customer



COMERC ENGINEERING



ENGINEERING CEM®
FROM BASIC TO MASTER PLUS

With CEM® solution, COMERIO ERCOLE offers a wide range of solutions and detailed levels of the plant engineering (electricity, hydraulic, pneumatic, etc); the production of elaborate graphics results to be automated granting the highest precision. **FOUR ENGINEERING PACKAGES ARE AVAILABLE ON OPTIONAL BASE AND TO BE CONTRACTUALLY AGREED:**

ACCESSIBLE SERVICES

LEVEL 1 "BASIC"

- Lay out - machine arrangement
- Lay out - foundation
- Scheme of **EQUIPMENTS ON MACHINE BOARD**
- Lay out - different connecting points to utilities (at customer charge)

Supervision to mechanical assembly
Mechanical assembly
Check of electric and fluidic service pipe connections

LEVEL 2 "BASIC PLUS"

- All what foreseen in **LEVEL 1**
- 2D LINE ENGINEERING**
- List of line engineering materials for procurement
- Terminal box lay out

LEVEL 3 "MASTER"

- All what foreseen in **LEVEL 2**
- 3D Electrics / fluidics LINE ENGINEERING**
- Study and design of runways: conducts-cables-pipelines (related to components of direct supply)
- List of line engineering materials for procurement
- Optimization of arrival point of utilities (at customer charge)

Supervision and/or execution of electric and fluidics wiring of the line
Supply of cables, conducts, pipes, insulations and accessories
Check of line engineering (performed on our engineering drawings)

LEVEL 4 "MASTER PLUS"

- All what foreseen in **LEVEL 3**
- Extension of the **LINE ENGINEERING** for machines not of direct supply
- FACTORY ENGINEERING**
Utilities distribution starting from single points supplied by the customer

Extension for supply of cables, conducts, pipes, insulations and accessories for the factory engineering
Extension for factory engineering check (performed on our engineering drawings)



COMERIO ERCOLE
MECHANICAL CONSTRUCTIONS



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