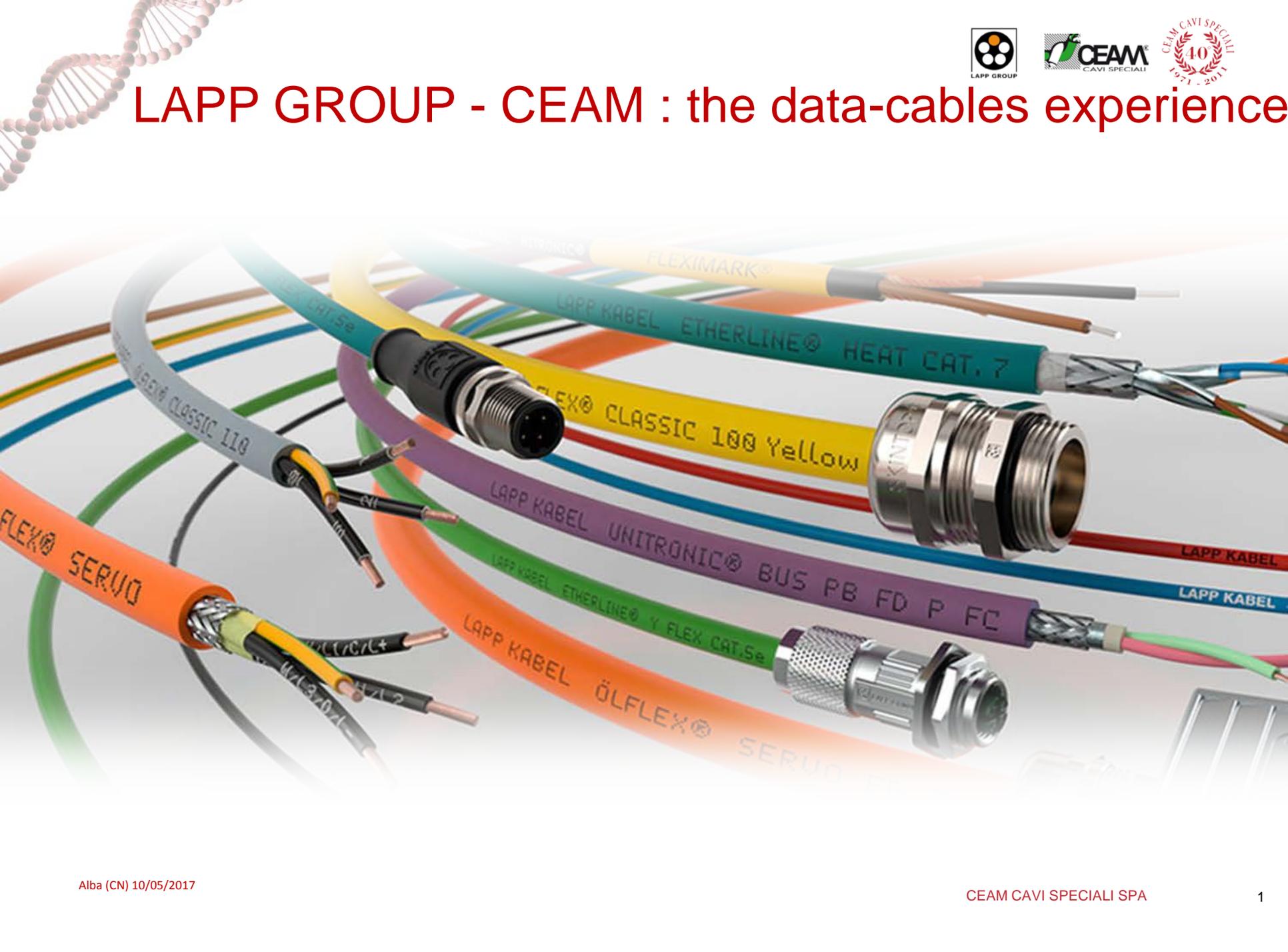
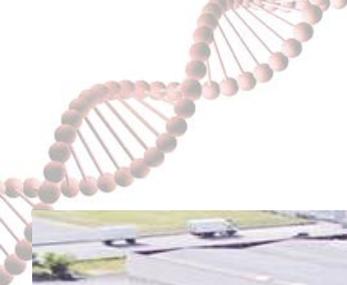




# LAPP GROUP - CEAM : the data-cables experience





# CEAM Italian Plants



Alba (CN) 10/05/2017

CEAM CAVI SPECIALI SPA



## CEAM is ...

... a part of LAPP GROUP

... a producer of a wide range of data-cables

... a tailor-made Company

... an very innovative Company

... a small Company

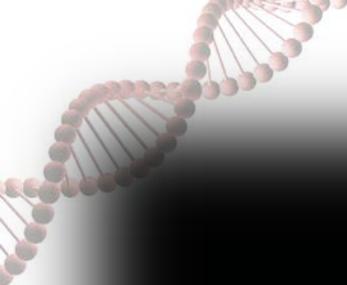


# CEAM HISTORY 1971 +2017 .....



1971	Foundation of the company by Mr. Giovanni Magon
1973	Startup of the production of coax cables
1982	Startup of the production of audio and video cables
1991	Relocation of the plant and headquarters to Monselice
1996	ISO 9001 company certification
2000	Extension of the plants' area up to 36.000 m <sup>2</sup> (16.000 m <sup>2</sup> covered)
2004	Homologation of the cables for Industrial Automation at the UL/CSA Institutes
2012	Industrial Automation project Data & Flexi Land. Fire resistant silicon cables
2014	Fire resistant data cables CEI EN 50200 – Profibus - LAN
2015	Robust data cables – UL listed upgrade of CMX – CMR - CMG for data
2016	Ceam become part of Lapp Group Stuttgart
+2017	Ceam become «Worldwide's Competence Center» for Lapp Group for Data
+2020	<b>Cables Trends</b> – Big Data-ZettaByte Era, PR-personal robots, electrical automotive system & autonomous drive, mobile financial transaction, wearing technology, extended reality, 3d printing ...

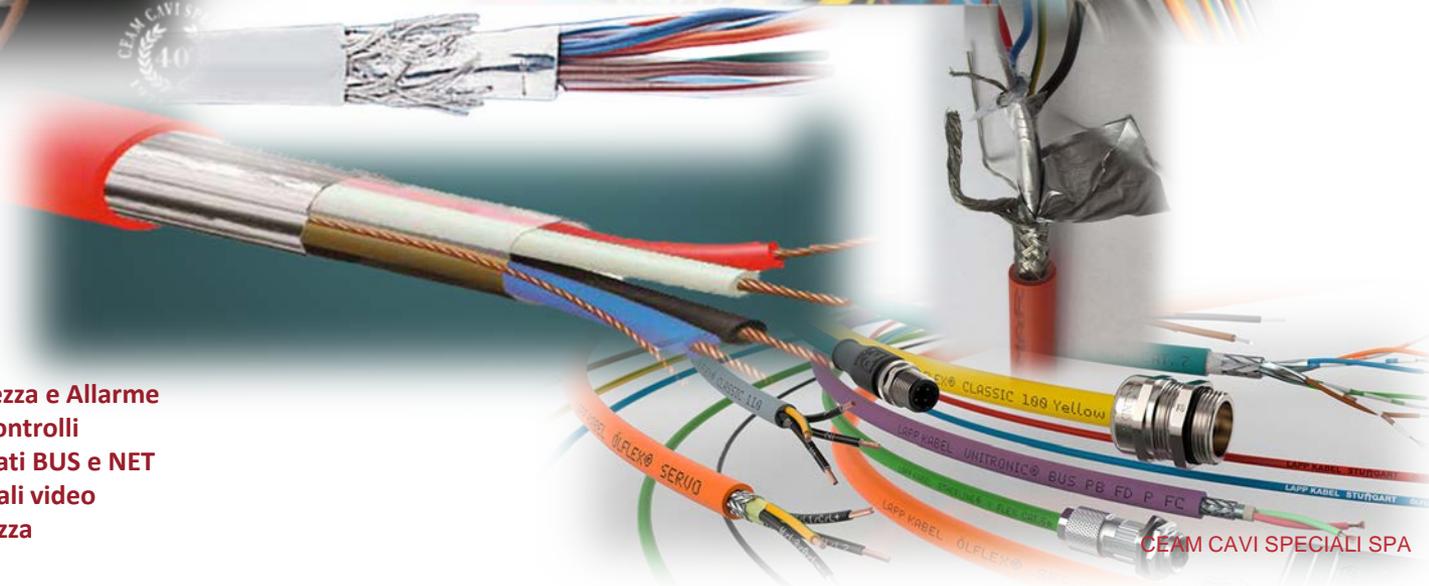




Catalogo generale 2011  
 CEAM  
 DNA italiano



# CEAM PRODUCTS



- CAVI Sicurezza e Allarme
- CAVI per Controlli
- CAVI per Dati BUS e NET
- Cavi coassiali video
- Cavi Sicurezza

CEAM CAVI SPECIALI SPA



## CEAM Overview

Annual Turnover +23 M€

Floor area = 16.000 m<sup>2</sup>.

Employees = 106 (Italy) +3600 (Worldwide)

10 Engineers in R&D Division

Over 1.000 std items always available on stock

More than 600 articles manufactured monthly

300 new articles produced every year

8% of the annual turnover invested on R&D and new technologies



## CEAM Overview

- +1500km copper insulated daily
- +50 orders processed daily
- +1500 info-batch upload daily
- +2000 quality-check upload daily
- +200h training per month
- +10 SFM-group managed by weeks
- Industry 4.0 - focus improvements



# CEAM SHOP FLOOR



# INDUSTRY 4.0 for CEAM is ...

## - topics-

Process control and informations to share – process overview, feedback managements

Strong quality control needed – projects input & attributes, shopfloor control

Continuous traceability needed – processes, materials, machines & maintenances, trainings

# INDUSTRY 4.0 for CEAM is ...

## - Initial ideas-

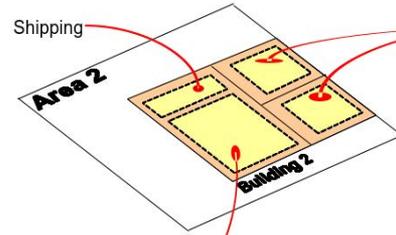
Computerize the process control and the information, shared every-time, -where, -body... the born of GPA (automatic production management)

Real time / On line Quality control

Production per period and Cycle traceability available on line



- Shipping



- Packaging
- Finished Products Warehouse

- Packaging
- Finished Products Warehouse

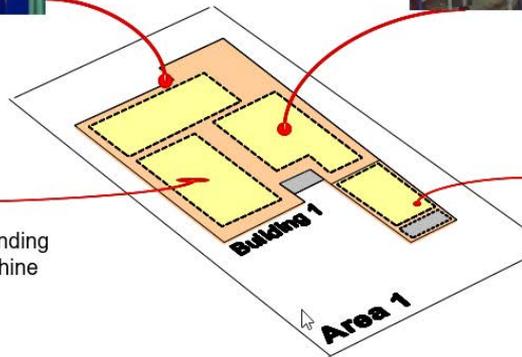


- Braiding

- Extrusion



- Stranding machine



- Raw Material Warehouse



# INDUSTRY 4.0 for CEAM is ...

## - On course -

### IT architecture –

- FAST2GPA – from concepts to production
- BM2JOL – from area allocation matrix to single PO traceability
- APS upgrade

#### ASSEGNARE UN UDC/BM AD UN JOL

L'udc/bm selezionato viene assegnato al jol, viene inserito in un elenco di materiale da movimentare e non può più essere assegnato ad altri jol dalla procedura di evasione delle richieste materiali, fino a quando non viene restituito.



**Elenco Udc/Bm Mat. - 26- LogLog by**

Lotto: P033344 Op: 10  
 Articolo: 1001205  
 Materiale: 6020050083  
 Pvc//VCA86N- FK86/10- E/7008-PM NATU  
 Qtà rimanente: 31,838

**Assegna** Assegna e movimentata

UDC/BM	Locazione	Quantità
U35123	1 - 1/ACB/MAT/A/1/1	60

Simula compatibilità Esci

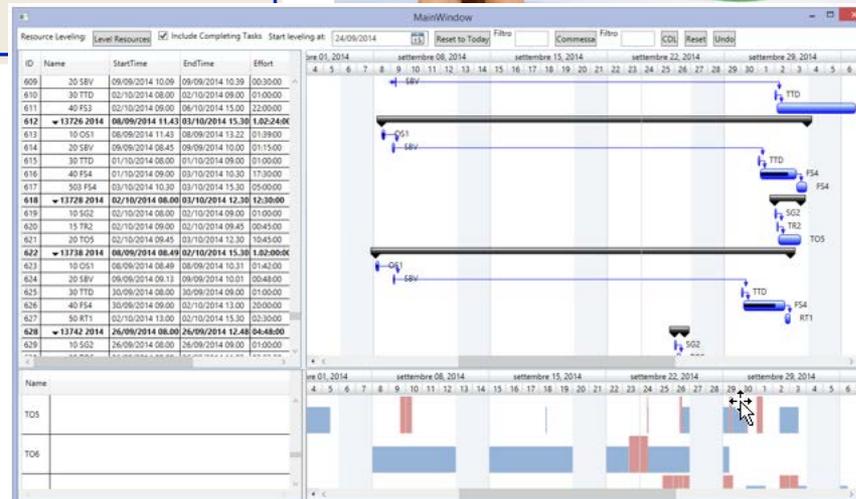
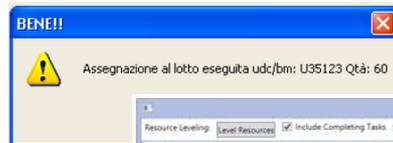
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Simula compatibilità Esci



# INDUSTRY 4.0 for CEAM is ...

## - On course-

PO, Quality annex, Control plan in paperless way

- MOTOROLA ET1 wifi tablet

**Attenzione esistono dei controlli. Vuoi effettuarli subito?**

**SI** **NO**

BM	Q	OK Prod [km]	Q	OK Saldo [km]	Q	Scarto [km]	Q	Att Def [km]	Colore	Q	Q	Q
Totale [km]										Q	Q	Q
602020010	0	0	0	0	0	0	0	0	No colore	FIC	COMPLETA	X
602020010	0	0	0	0	0	0	0	0	No colore	FIC	COMPLETA	X
602020010	0	0	0	0	0	0	0	0	No colore	FIC	COMPLETA	X

**Elenco controlli per il materiale 602020010**

Tipo controllo	Controllo
Qualitativo	Verifica colore
Quantitativo	Centrataura isolamento
Qualitativo	Materiale integro

**CAVO NUOVO - LOTTO STANDARD**

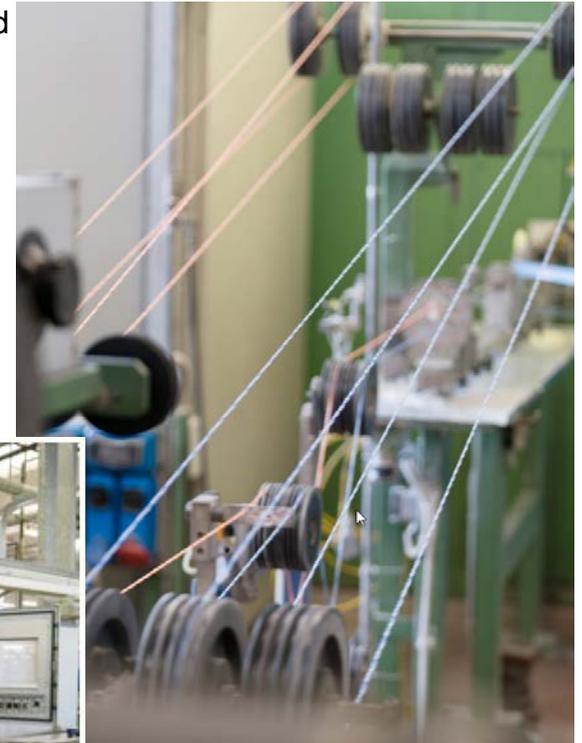
Rilev. Media Diametro Cap | Scheda Attributi | Rilevaz. Tempi Setup e Fermo | Riepilogo tempi JOL | Torna

# INDUSTRY 4.0 for CEAM is ...

## - On course-

On line improvements – bidirectional interactions

- kaizen group activities = SMED, 5S, Ishikawa – foto and

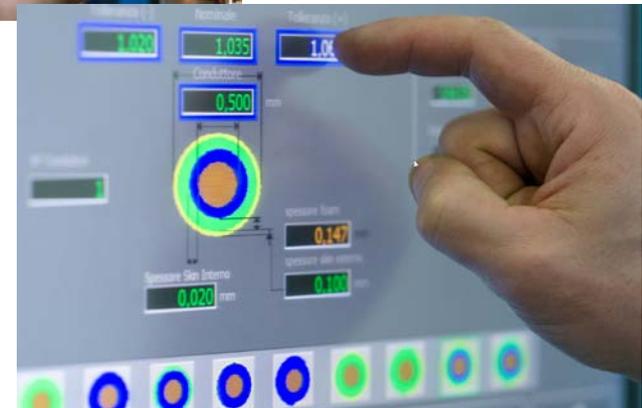
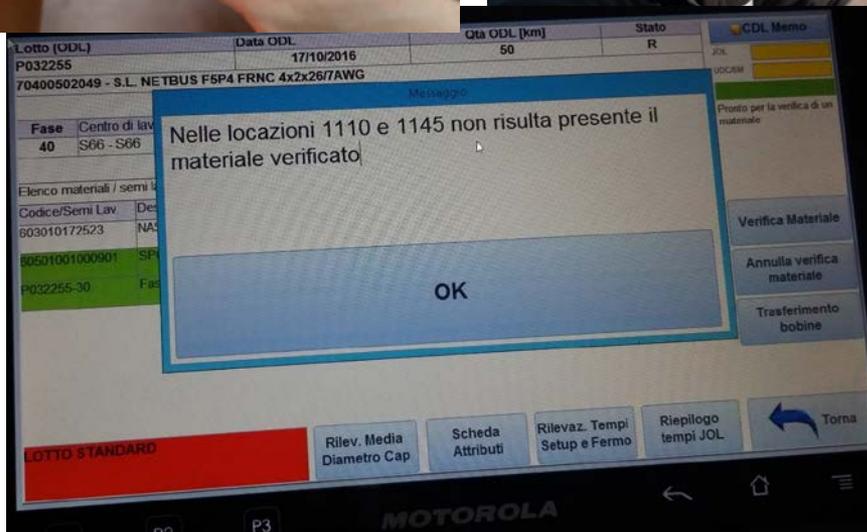


# INDUSTRY 4.0 for CEAM is ...

## - On course-

### MES

- on line, shared GPA front end-data storage



# INDUSTRY 4.0 for CEAM is ...

## - On course-

GPA backend

- PC dashboard with PO-infos

The screenshot displays the GPA backend interface with several sections:

- Navigation Bar:** GPA - Logo, GPA - Dettaglio Bobine di Manovra, TEC - Olio/Cole, TEC - Ambiente, Transazioni - BETA TEST, Variabile data and Lotti CONFIRMATI P.
- Oper Cicko:** A table with columns for Oper Cicko, Wc, Desfase, Generale, and Cordatura - Passo/Senso. It lists various production steps like CONFEZ, CORDE, ESTRUSORI, REPRERO, and SCHEMATRICI.
- Colori Anime:** Fields for Nr. Anima and Colore Anima.
- Anima / Colore:** A list of article codes such as 1-AR0000-M, 1-AR2003-M, 1-AR2009-M, 1-ARFLUC-M, 1-AV1014-M, 1-AZ0000-M, 1-BE1001-M, 1-BI0000-A-AR0000, 1-BI0000-A-BL0000, 1-BI0000-A-NE0000, 1-BI0000-A-RO0000, 1-BI0000-B-BL0000, 1-BI0000-M, 1-BI1013-M, 1-BI0003-M, 1-BI0010-M, 1-BI0016-M, 1-BI0018-M, 1-BL0000-A-DI0000, 1-BL0000-M, 1-BL5000-M, 1-BL5001-M.
- Diámetro Última Fase:** A table with columns for Artículo, Diam, and Desfase. It lists articles like 1P00033-DATASLIM 2Y11Y 7x0,25 and their corresponding diameters.
- Schematura:** Fields for Materiale, Passo, and Formazione.
- Diámetro Externo:** A table with columns for Artículo, Diam, and Desfase. It lists articles like 1P00034-DATASLIM 2Y11Y 4x0,34 and their diameters.
- Spessore Minimo Guaina:** A table with columns for Artículo, Diam, and Desfase. It lists articles like 1P00035-DATASLIM 2YC11Y UL 7x0,25 and their diameters.
- Spessore Medio Guaina:** A table with columns for Artículo, Diam, and Desfase. It lists articles like 1P00036-DATASLIM 2YC11Y UL 4x0,34 and their diameters.
- Capacità:** A table with columns for Artículo, Diam, and Desfase. It lists articles like 1P00033-DATASLIM 2Y11Y 7x0,25 and their capacities.
- Tolleranza Diámetro:** A table with columns for Artículo, Diam, and Desfase. It lists articles like 1P00034-DATASLIM 2Y11Y 4x0,34 and their tolerances.
- Tolleranza Capacità:** A table with columns for Artículo, Diam, and Desfase. It lists articles like 1P00033-DATASLIM 2Y11Y 7x0,25 and their tolerances.

The screenshot shows the CEAM GPA - Menu interface for 'Gestione Produzione Automatizzata'. The menu is organized into several categories:

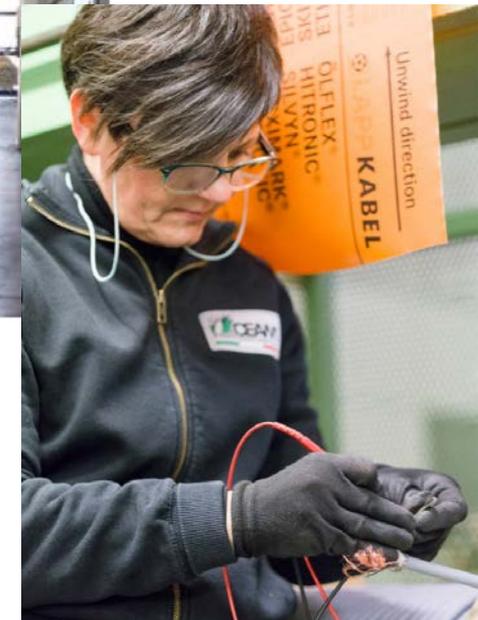
- Gestione lotto:**
  - Diba LIDL
  - Animi
  - Jol effettivi
    - Schematico
    - Corde / Estrusori
  - Riattivazione lotto/fare sospeso
  - Tolleranza chiusura Jol
  - Accoppiamento Jol
    - Crea accoppiamento estrusione
    - Fusione di accoppiamenti in late di estrusione
    - Cerca accoppiamento
    - Crea accoppiamento binaria
  - Ripetitive in stato WIP un lotto/fase terminato
  - Chiudi lotto
  - Documenti pezzature
  - Gestione messaggi
- Confezionamento:**
  - Invio lotti al confezionamento
  - Stato lotti rinviati al confezionamento
  - Elenco lotti non approvati dal confezionamento
  - Elenco jol parziali da stampare
- Confezionamento:**
  - Controllo qualità
  - Lancio in produzione massivo
  - Gestione tempi
  - Anagrafica Colori
  - Dati tecnici
    - Diba STD
    - Scheda attributi
    - Ordinamento fasi articolo
- Gestione bobine:**
  - Informazioni bobine
  - Bobine attese definizione
  - Modifica qb e stato pezzature / elimina bobine
  - Realizza pezzature bobina
  - Certifica pezzature
  - Riattiva bobina
  - Completa bobina
  - Raggi gestione bobina
  - Stampa bobine inventariate
  - Scepa bobine presenti nella lavorazione
- Magazzino:**
  - Stampa etichette
  - Gestione utenti
  - Gestione LIDL
  - Documenti terminali

# INDUSTRY 4.0 for CEAM is ...

## - On course-

### WIP Management and line-loading perfect fulfillment

- Apps to manage and to mark the single Loading Unit (BM)
- Shopfloor's material supply chain and attribute's control
- On line material inspection interface



# INDUSTRY 4.0 for CEAM is ...

## - 1<sup>st</sup> Quad-Goals -

Topic	UM	2016	2017 1° Quad	Trend
Efficiency	Kg/h	10,4	11,8	↑
Inventory turnover	times/y	5,38	6,94	↑
Scraps ratio	$\frac{\text{Kg scraps}}{\text{Kg tot}}$	9,08	7,01	↑
Lead time	<u>wks</u>	8,00	7,50	↑
OEE	<u>%</u>	67,6	72,8	↑

## INDUSTRY 4.0 for CEAM is ...

### - The next future -

- Maintenance masterplan and on-line breakdown analysis
- APS development
- Stock management and Group e-kanban
- HR – safety, environment & training

## INDUSTRY 4.0 for CEAM is ...

### - The Road MAP -

- GPA – to become reliable & widespread
- GPA – to upload and update on line
- To complete the Training
- Computerize the reports – the BI experience



**THANK YOU !**