



Your customised production process management suite





Manufacturing Execution System



The ESI **MES** suite is composed of **modules** that handle the different functionalities necessary for the operation of the entire MES.



The use of the **Event Sourcing** architectural pattern makes it easy to **integrate a large number of modules** in order to have a highly **scalable** and easily **maintainable** solution.



PROCESSES MANAGED



ESI | MES MODULS

MASTER DATA AND CONFIGURATION

MASTER DATA MANAGEMENT	(MDM) → REGISTERS
BOM MANAGER	IMPORT/BOM CONFIGURATION
CYCLE MANAGER	IMPORT/CONFIGURATION Processing cycle
AUTH MANAGER	Setting Users, Roles, Permissions

ORDER MANAGEMENT - DATA COLLECTION

LINE MANAGER	Production data collection and quality control
BOX MANAGER	Management of production logistics and material traceability
DESKTOP MANAGER	Allows machine time justifications to be entered, payments to be managed and errors to be corrected online
MONITOR	Monitoring the status of the modules and their proper functioning
WORKBENCH	Definition of complex cycles for assembly and control activities, with the help of parametric checklists

PLANNING

PLANNER	Planning management via Gantt with real time advancement
PLANNER LIGHT	Planning management in light mode without the aid of Gantt

REPORT AND STATISTICS

REPORT	Management of production-related reporting and KPIs
ADVANCED REPORT	Advanced reporting on the data of all entities managed by the MES

INTEGRATION

INTEGRATION MANAGER	Two-way communication middleware for interconnecting plants and other production devices
IMEX MANAGER	Integration layer with all existing legacy systems, in particular with ERP

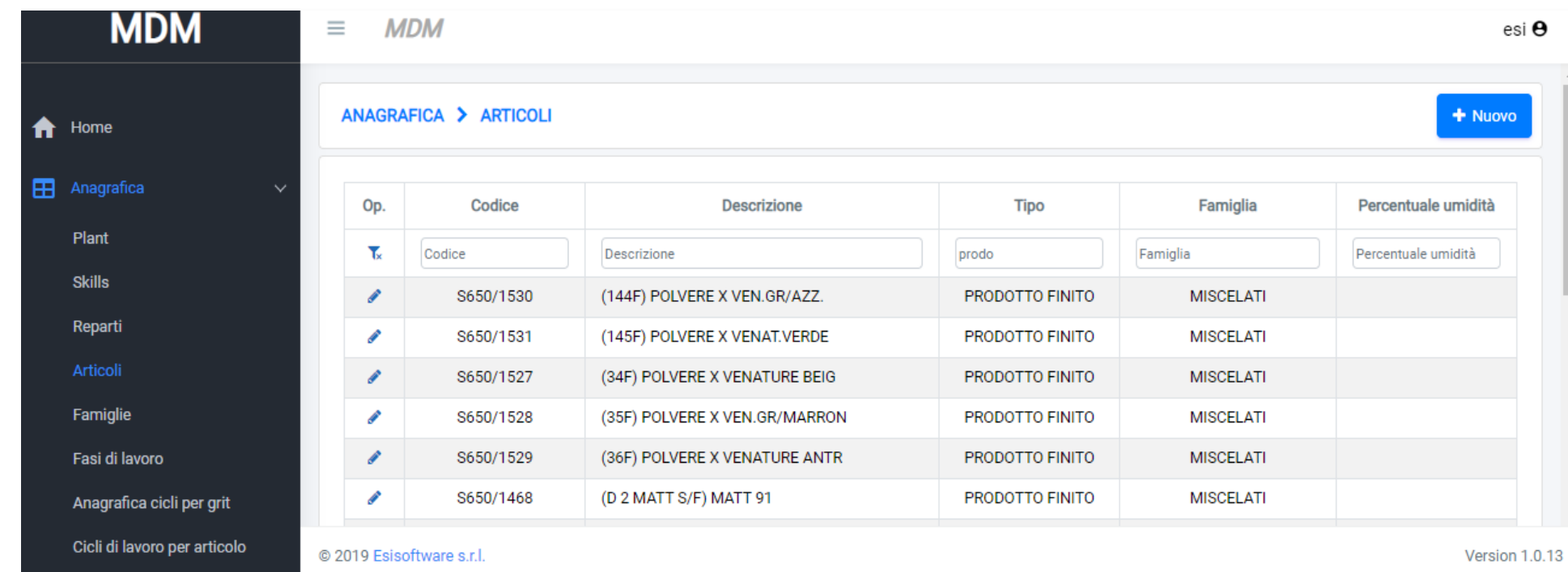
EFFICIENCY

ANDON MANAGER	View an online dashboard to monitor production efficiency (OEE)
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Master Data Management (MDM)

Using the MES - MDM module, it is possible to configure all the entities to be managed by the system.

- Plant master data
- Department master file
- Line master data
- Station master file
- Management of configuration parameters for automatic station management (integration with a machine)
- Master work phases
- Article coding (finished products, semi-finished products, raw materials)
- Cycle time management



The screenshot displays the MDM software interface. On the left is a dark sidebar menu with the following items: Home, Anagrafica (expanded), Plant, Skills, Reparti, Articoli (highlighted), Famiglie, Fasi di lavoro, Anagrafica cicli per grit, and Cicli di lavoro per articolo. The main content area shows a breadcrumb path 'ANAGRAFICA > ARTICOLI' and a '+ Nuovo' button. Below this is a table with columns: Op., Codice, Descrizione, Tipo, Famiglia, and Percentuale umidità. The table contains six rows of data, each with a pencil icon for editing. At the bottom of the interface, there is a copyright notice '© 2019 Esissoftware s.r.l.' and the version number 'Version 1.0.13'.

Op.	Codice	Descrizione	Tipo	Famiglia	Percentuale umidità
	<input type="text" value="Codice"/>	<input type="text" value="Descrizione"/>	<input type="text" value="prodo"/>	<input type="text" value="Famiglia"/>	<input type="text" value="Percentuale umidità"/>
	S650/1530	(144F) POLVERE X VEN.GR/AZZ.	PRODOTTO FINITO	MISCELATI	
	S650/1531	(145F) POLVERE X VENAT.VERDE	PRODOTTO FINITO	MISCELATI	
	S650/1527	(34F) POLVERE X VENATURE BEIG	PRODOTTO FINITO	MISCELATI	
	S650/1528	(35F) POLVERE X VEN.GR/MARRON	PRODOTTO FINITO	MISCELATI	
	S650/1529	(36F) POLVERE X VENATURE ANTR	PRODOTTO FINITO	MISCELATI	
	S650/1468	(D 2 MATT S/F) MATT 91	PRODOTTO FINITO	MISCELATI	

CYCLE MANAGER

The MES-CYCLE MANAGER module enables the management of work cycles and their phases. It is through this module that the characteristics of the work steps are defined, which are then used for planning within the PLANNER.

CICLI TEMPLATE

	Chiave gruppo	Contatore gruppo
	Chiave gruppo	Contatore gruppo
	88R15010	14
	88415971	1
	88R15350	27
	88R15350	5
	88R15353	25
	88R15300	4
	88R15353	28
	88R15400	13
	88R15051	3
	88R15353	31
	88R15010	17
	88R15353	29
	88R15010	7
	88R15350	28
	88R15152	1

FASI

[← Indietro](#) [+ Nuovo](#)

Op.	Num. operazione	Descrizione	Chiave di controllo	MES/ERP	Tipologia fase	ODL	CL	Stazione di default	Tipo relazione
	Num. operazione	Descrizione	Chiave di controllo	MES/ERP	Tipologia fase	ALL	ALL	Stazione di default	Tipo relazione
	20	RT - ASSEMBLAGGIO	PP01	ERP	ASSEMBLAGGIO TAPPO	<input checked="" type="checkbox"/>	<input type="checkbox"/>	-	Inizio-Inizio
	30	RT - SALDOBRASATURA	PP01	ERP	SALDOBRASATURA TAPPO	<input checked="" type="checkbox"/>	<input type="checkbox"/>	-	Inizio-Inizio
	40	RT - SIGILLATURA	PP03	ERP	SIGILLATURA TAPPO	<input checked="" type="checkbox"/>	<input type="checkbox"/>	-	Inizio-Inizio

Per Pagina: 10 Num. operazione Record: 3

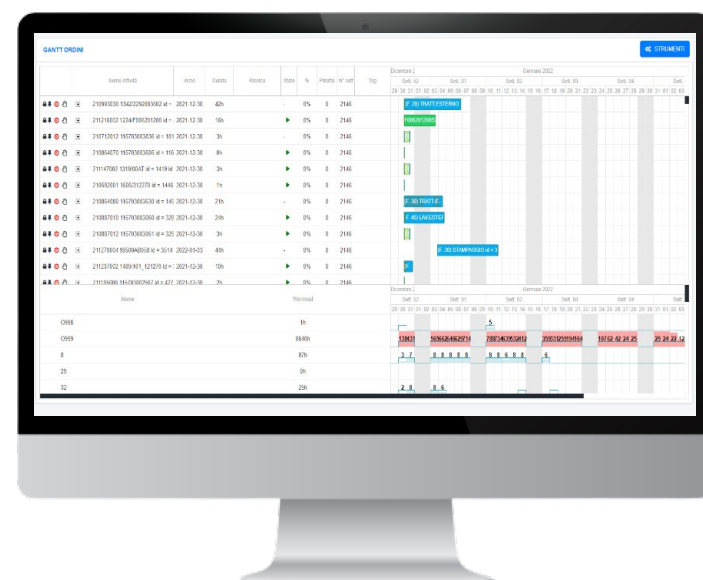
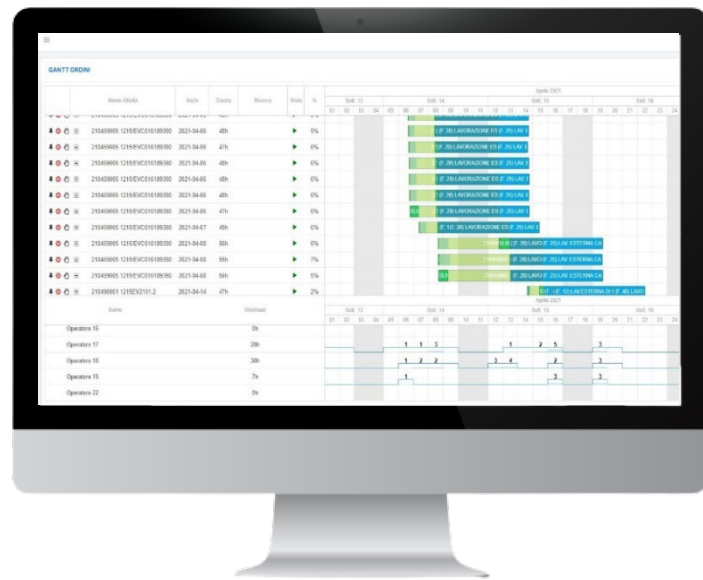
BOM MANAGER

The MES - BOM MANAGER module allows the display of BOMs imported from external systems.

BOM ITEMS > RES.HFS208/AP2008V 1000/240 - (VERSIONE: 0 . 0)

Codice	Descrizione	Quantità	Unità di misura	Tipo approvvigionamento
▼ 025570207700	RES.FO.HFS208/AP2008V 1000/240 IMBALL	1	NR	F
008527100099	SIGILLANTE CAF 1 EXTRA	0.25	ML	F
▼ 025503001400	EL.PIEG.RES.FO.HFS2008 1000/240	1	NR	E
▼ 025503002400	EL.COMP.RES.FO.HFS2008 1000/240	1	NR	E
▼ 025500300800	SP.COMP.RES.FO.HFS2008-2004 1000/240	1	NR	E
000100213100	DOWCLEN 1601 SAFE TAINER-SYSTEM	0.15	ML	F
008560400000	FILO SPIRALI 0,35 80/20	5.45	G	F
025500110007	TERM SUP LB 6,25	1	NR	F
025500305006	CAPPUCCIO CUCINE	1	NR	F
025511064001	TERM INF Ø2,3 L=70	1	NR	F
025500305006	CAPPUCCIO CUCINE	1	NR	F
▼ 025502369000	TUBO TAGL.AISI 7,5X0,4 L=1130	1	NR	E
008041400345	COIL AISI 321 22,6 X 0,40	0.086	KG	F
000000101800	SFRIDO + SCARTO ACCIAIO INOX	-0.001	KG	F
166010000400	ISOLAMENTO MGO TIPO 3 NO SILICON	0.094	KG	F
025524016000	ANELLO CER CUC ALTO BIANC	2	NR	F
025532015602	FASTON MASCH. S.BAT. B.T.	2	NR	F
085502030301	BRIDA 73 X 22 AISI 409	1	NR	F
440050058500	SCATOLA NEUTRA 600X400X400	0.016	NR	F

PLANNER



The MES - PLANNER module enables production planning with data advancement in real time.



Goals

Have a system interconnected with ERP and plant management to organise your production department by defining the resources to be employed (materials, machines and roles) and manage the automatic progress of production.



Results

Scheduling ensures reduced lead times through scheduling, reduced time-to-market through automatic production tracking and reduced set-up times.

PLANNER LITE

The MES - PLANNER LITE module is an alternative to the planner and gives the possibility to plan faster and more intuitively. The user assigns the machine with an estimated planning date.

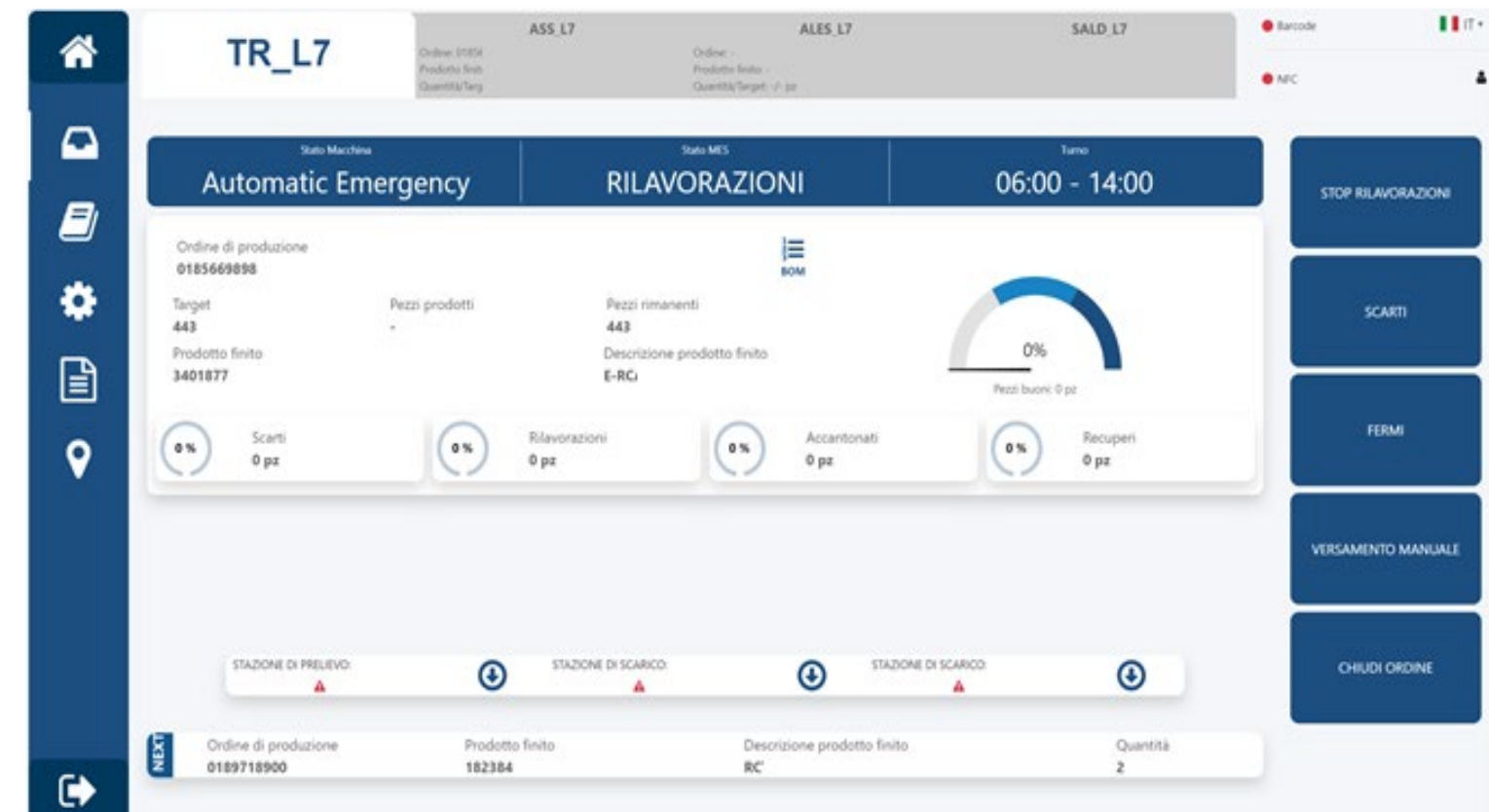
The screenshot displays the 'ORDER PLANNER' interface. It features a main table with columns for WBS, Ordine, Codice articolo, Descrizione articolo, Qtà, Data Importazione, Stato, Stato Configurazione, Articoli completati, and Manuale. Below this is a detailed view of a specific article (L230040BE) with columns for Tipologia, Codice articolo, Descrizione articolo, Qtà, Data Importazione, Stato, and Progresso. A third table shows the production phases (Fase) for the selected article, including FRESATURA, Rettifica, and Elettroerosion. On the right side, there is a panel titled 'Assegna Ciclo Template' which allows users to select a cycle template from a list, such as 'Ciclo Totale' or 'Solo Fresatura'. The interface includes search filters, pagination (Pagina 1 di 14 (350 elementi)), and a footer with the user role 'admin, Ruolo: Administrator' and the copyright notice '© 2023 Eissoftware S.p.A.'.

LINE MANAGER

The MES - LINE module was created to realize the functionality needed by the machine operator while providing customized production dashboards.

The screenshot displays the MES LINE Manager interface. At the top, there are tabs for 'TR_L7', 'ASS_L7', 'ALES_L7', and 'SALD_L7'. Below the tabs, there is a table with columns for 'Ordine', 'Prodotto', and 'Quantità'. The table contains six rows of data. Each row has a status icon (a green 'IN CORSO' label is visible) and a menu icon. The interface also includes a sidebar with navigation icons and a top bar with 'Barcode' and 'NFC' options.

Ordine	Prodotto	Quantità
0188274636	660000462102 RCF DH	12000 pz
0196640324	660000561200	2614 pz
0185437561	660000462102	3720 pz
0195179124	660000461903	5500 pz
0195179120	660000459703	4680 pz
	660000462102	



WORKBENCH - CICLI

MES - WORKBENCH is the module for defining and managing complex and articulated processing cycles with multiple steps (e.g. machinery).

The screenshot shows the 'Cicli Master' interface with a sidebar on the left containing navigation options like 'Anagrafica', 'Linee logiche', 'Linee fisiche', 'Area Produttive', 'Risorse per linea', 'Risorse', 'Articoli', 'Non conformita', 'Tipologie certificati collaudo', 'Cicli di lavoro', 'Cicli master', 'Moduli', 'CheckList', and 'Configurazione'. The main area displays a table of cycle groups with the following data:

Codice	Titolo	Codice Revisione	Stato	Creato da	Data di Creazione	Notifiche
10L017614C_OLD	10L017614C	1	BOZZA	abagnoli	23/02/2023 09:47	...
2936230056F - ELETTRMANDR. HSK63F 6,6KW E3 NC GRAS./ARIA -2007-	2936230056F - ELETTRMANDR. HSK63F 6,6KW E3 NC GRAS./ARIA -2007-	1	RILASCIATO	abagnoli	18/04/2023 17:07	...
29L011094E In3_OLD	29L011094E	1	BOZZA	abagnoli	08/05/2023 16:02	...
29L012170H e simili_COPY_20230427_OLD	29L012170H e simili	1	BOZZA	abagnoli	27/04/2023 09:47	...
29L0340755F e simili_OLD	29L0340755F e simili	1	BOZZA	abagnoli	12/04/2023 17:28	...
29L0371539F_OLD	29L0371539F	1	BOZZA	industrializzatore	16/06/2022 14:48	...
29L0482967H_OLD	29L0482967H	1	BOZZA	industrializzatore	25/06/2022 09:26	...
29L0793614f aggregato rinvio_OLD	29L0793614f aggregato rinvio	1	BOZZA	abagnoli	29/06/2023 12:17	...
Aggregato D-side	Aggregato D-side	1	RILASCIATO	abagnoli	10/11/2022 16:26	...
AGGREGATO FORATRICE	AGGREGATO FORATRICE	1	RILASCIATO	abagnoli	12/01/2023 17:32	...

This screenshot shows the detailed configuration for a cycle master. It includes a header with the cycle ID and status (BOZZA), and a table of steps. An orange arrow points from the '29L0482967H_OLD' entry in the main table to this detailed view.

Fase	Risorsa assemblaggio	Risorsa materiale	Checklist	Abilita conferma	Abilita NA	Abilita Fase
Fase	Risorsa	Risorsa	Checklist	Abilita conferma	Abilita NA	Abilita Fase

Fase	Postazione	Risorsa assemblaggio	Checklist	Checklist tags	Abilita conferma	Abilita NA	Abilita Fase	Notifiche
Fase	Postazione	Risorsa assem	Checklist	Checklist t	Abilita con	Abilita N	Abilita F	...
1 - KITTAGGIO								
1 - Completamento kit								
2 - L3-B1								
Fase	Postazione	Risorsa assem	Checklist	Checklist t	Abilita con	Abilita F	Abilita F	...
1 - Leggi barcode corpo	L5-B1	KIT-LSU			✓	✓	✓	...
2 - Prova scorrimento aste di guida (SAG)	L5-B1	PO0078U			✓	✓	✓	...

WORKBENCH - CHECKLIST

Check-lists linked to the individual cycle phases guide the operator step by step in carrying out his production and quality control activities.

The screenshot shows the ESIMES software interface. On the left is a navigation menu with items like 'Anagrafica', 'Linee logiche', 'Linee fisiche', 'Aree Produttive', 'Risorse per linea', 'Risorse', 'Articoli', 'Non conformità', 'Tipologie certificati collaudo', 'Cicli di lavoro', 'Cicli master', 'Moduli', 'CheckList', 'CheckTags', and 'Elenco checkbox'. The main area is titled 'Elenco Checklist' and contains a table with the following data:

Codice	Descrizione	Stato	Creato da	Data di creazione	
2 teste	2 teste	RILASCIATO	abagnoli	24/10/2023 15:50	...
a		BOZZA	abagnoli	10/04/2024 12:37	...
Altezza pacco molle RD	Altezza pacco molle RD	RILASCIATO	iiannetta	06/09/2024 16:18	...
Assorbimento (%)	Assorbimento (%)	RILASCIATO	abagnoli	26/10/2022 18:23	...
Assorbimento Assi a 10000°/min [%]	Assorbimento Assi a 10000°/min [%]	BOZZA	iiannetta	08/04/2024 08:34	...
Assorbimento Assi a 7000°/min [%]	Assorbimento Assi a 7000°/min [%]	RILASCIATO	industrializzatore	26/07/2022 19:07	...
Assorbimento Assi a 7000°/min [%] OIKOS XS	Assorbimento Assi a 7000°/min [%] OIKOS XS	RILASCIATO	iiannetta	13/05/2024 16:53	...
Assorbimento Assi a 8000°/min [%]	Assorbimento Assi a 8000°/min [%]	RILASCIATO	abagnoli	07/10/2022 17:59	...
Assorbimento Assi GENERICO	Assorbimento Assi GENERICO	RILASCIATO	iiannetta	02/09/2024 16:42	...
Assorbimento Assi OIKOS	Assorbimento Assi OIKOS	RILASCIATO	abagnoli	13/10/2022 16:35	...

At the bottom of the table, there are navigation controls: '< < 1 2 3 4 > >' and 'Per Page: 10'. An orange arrow points from the row 'Assorbimento Assi a 7000°/min [%]' to the detailed view on the right.

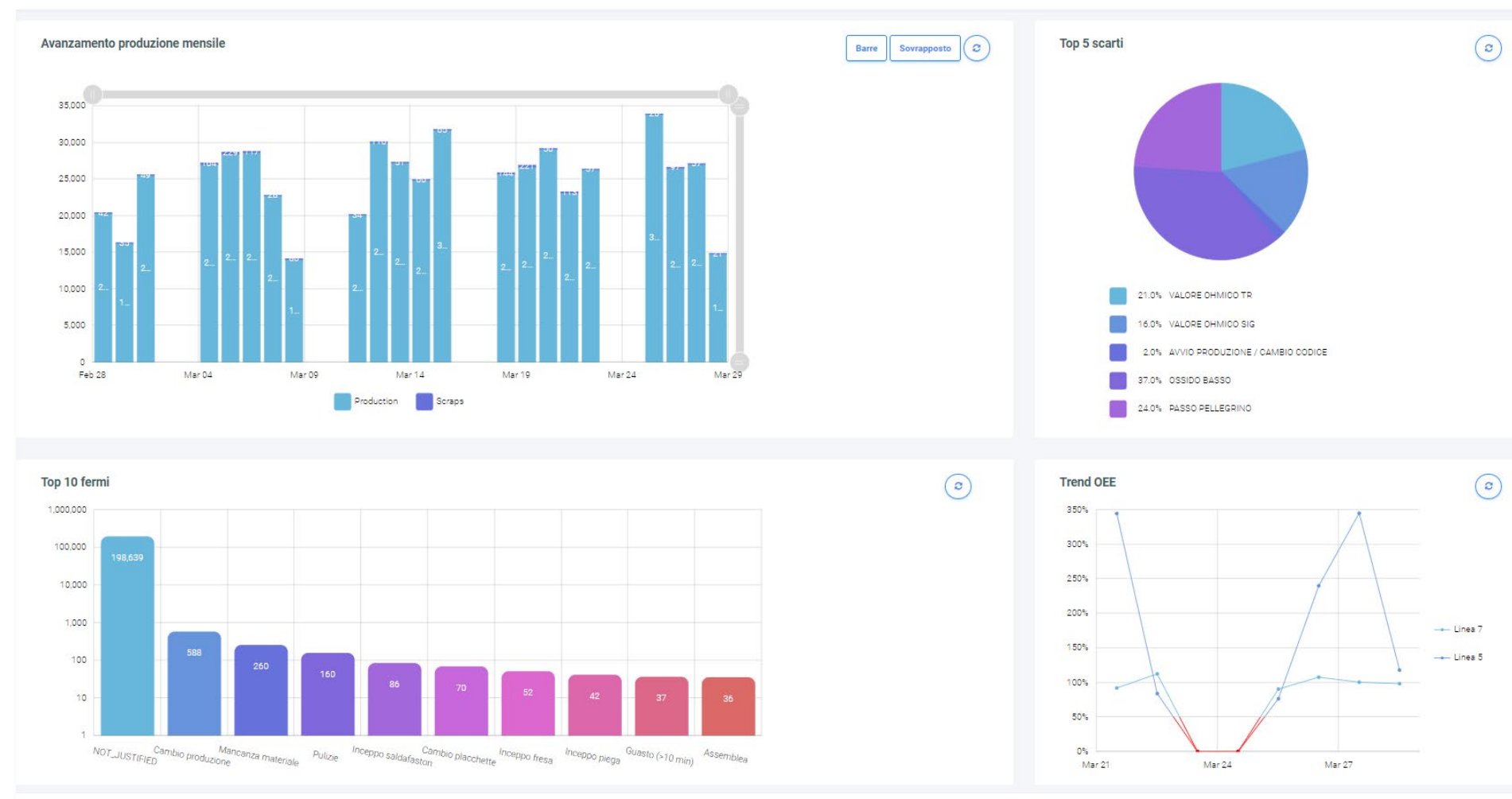
The detailed view shows the following information:

- Check Item:** Assorbimento Assi a 7000°/min [%]
- Descrizione:** Assorbimento Assi a 7000°/min [%]
- Metodo di controllo:** Rilevare MAX Assorbimento Assi a 7000°/min [%]
- Valore ammesso:** ASSE B < 80 %
ASSE C < 80 %
- Non applicabile
- Descrizione Strumento:**
- Richiedi matricola strumento
- Tipologia:** Manuale

Buttons for 'Esporta', 'Nuovo', and 'Salva' are visible.

REPORT

The MES - REPORT module allows the display of statistics, reports, progress and all other data collected by the MES.



Some of the reports that ESI|MES can show are:

- Production order history
- Work orders
- Reports for machine
- Reporting by stations

ADVANCED REPORT

MES - ADVANCED REPORT enables advanced reporting on the data of all entities managed by the MES.

Data can be filtered and aggregated to obtain the desired result.

Reports can be duplicated, edited and deleted.

The screenshot displays the 'ADVANCED REPORT' interface for 'REPORT PROD CONTROLLO FEBB'. It features a filter bar with options for 'Pezzi Buoni', 'Scarti', and 'Recuperi', and date filters for '2024', 'Q1', and 'febbraio'. The main table lists various entities (e.g., ALES_L7, ASS_L1, CR_15) and their performance metrics across 15 days. The table columns are grouped by day (1-15) and include sub-columns for 'Pezzi Buoni', 'Scarti', and 'Recuperi'. A 'Stazione: Codice' filter is also present on the left.

Stazione: Codice	1			2			3			5			6			7			8			9			12			13			14			15			
	Pezzi Buoni	Scarti	Recuperi	Pezzi Buoni	Scarti	Recuperi	Pezzi Buoni	Scarti	Recuperi	Pezzi Buoni	Scarti	Recuperi	Pezzi Buoni	Scarti	Recuperi	Pezzi Buoni	Scarti	Recuperi	Pezzi Buoni	Scarti	Recuperi	Pezzi Buoni	Scarti	Recuperi	Pezzi Buoni	Scarti	Recuperi	Pezzi Buoni	Scarti	Recuperi	Pezzi Buoni	Scarti	Recuperi				
ALES_L7	9911	0	0	7860	0	0	3092	0	0	6080	0	0	11563	0	0	9813	0	0	12015	0	0	12129	0	0	9603	0	0	10546	0	0	8616	0	0	7708	0		
ASS_L1				490	0	0										442	1	0										2140	2	0	1002	3	0	1976	7		
ASS_L3	6702	12	0	4951	0	0							137	0	0	5152	11	0							4452	35	0	8862	6	0	24388	15	0	4558	-11		
ASS_L4	2458	10	0	2900	-7	0							0	22	0	1360	0	0						1196	0	0	3720	0	0				7140	39	0	7221	12
ASS_L5																																					
ASS_L7	9827	0	0	7685	0	0	3063	0	0	5995	0	0	11469	0	0	9639	0	0	11774	0	0	12002	0	0	9563	10	0	10520	0	0	8521	0	0	7436	0		
CR_15				8100	0	0				11080	5	0	17880	29	0							10100	0	0	7520	13	0	17890	19	0	14770	8	0	14426	8		
CR_16	4350	23	0	14350	23	0	5800	7	0	8650	0	0	8186	0	0	2000	0	0																			
CR_17																																					
CR_18	8770	0	0	14540	0	0	4320	0	0	5130	5	0	6940	0	0	6000	0	0																			
SALD_L1																																					
SALD_L3	5645	0	0	7364	0	0									706	0	0	4226	0	0																	
SALD_L4	2458	0	0	2900	21	0				11674	0	0	1810	0	0																						
SALD_L5	9390	0	0	6103	0	0				1200	0	0	7009	0	0	1800	0	0																			
SALD_L7	19680	0	0	15026	4	0	6116	0	0	11954	0	0	22948	0	0	19507	0	0	23730	0	0	24170	0	0	19132	0	0	20972	0	0	17092	0	0	14866	0		
SIG1	41461	45	0	41810	25	0	6823	0	0	22254	4	0	27964	24	0	31890	0	0	37884	16	0	35165	31	0	30073	0	0	46299	12	0	31654	116	0	38550	9		
SIG2	2441	13	0	15271	14	0				12205	30	0	8080	0	0	17897	146	0																			
SPG1	2753	11	0	3626	13	0				654	0	0	430	0	0																						
SPG2	5750	8	0	4484	0	0				1226	0	0	734	0	0	4860	21	0																			
SPG_L7	11097	10	0	9268	26	0	916	0	0	2045	3	0				4245	2	0																			
SPG_T	7424	0	0	4873	17	0										1284	0	0																			
TR_L1	3550	0	0	1991	14	0				3005	14	0	4980	29	0	3485	18	0																			
TR_L2	774	19	0																																		
TR_L3	3001	38	0	484	0	0				13576	61	0	4738	13	0	4214	0	0																			

MONITOR

MES - MONITOR provides a single dashboard where the status of the various MES modules can be viewed.

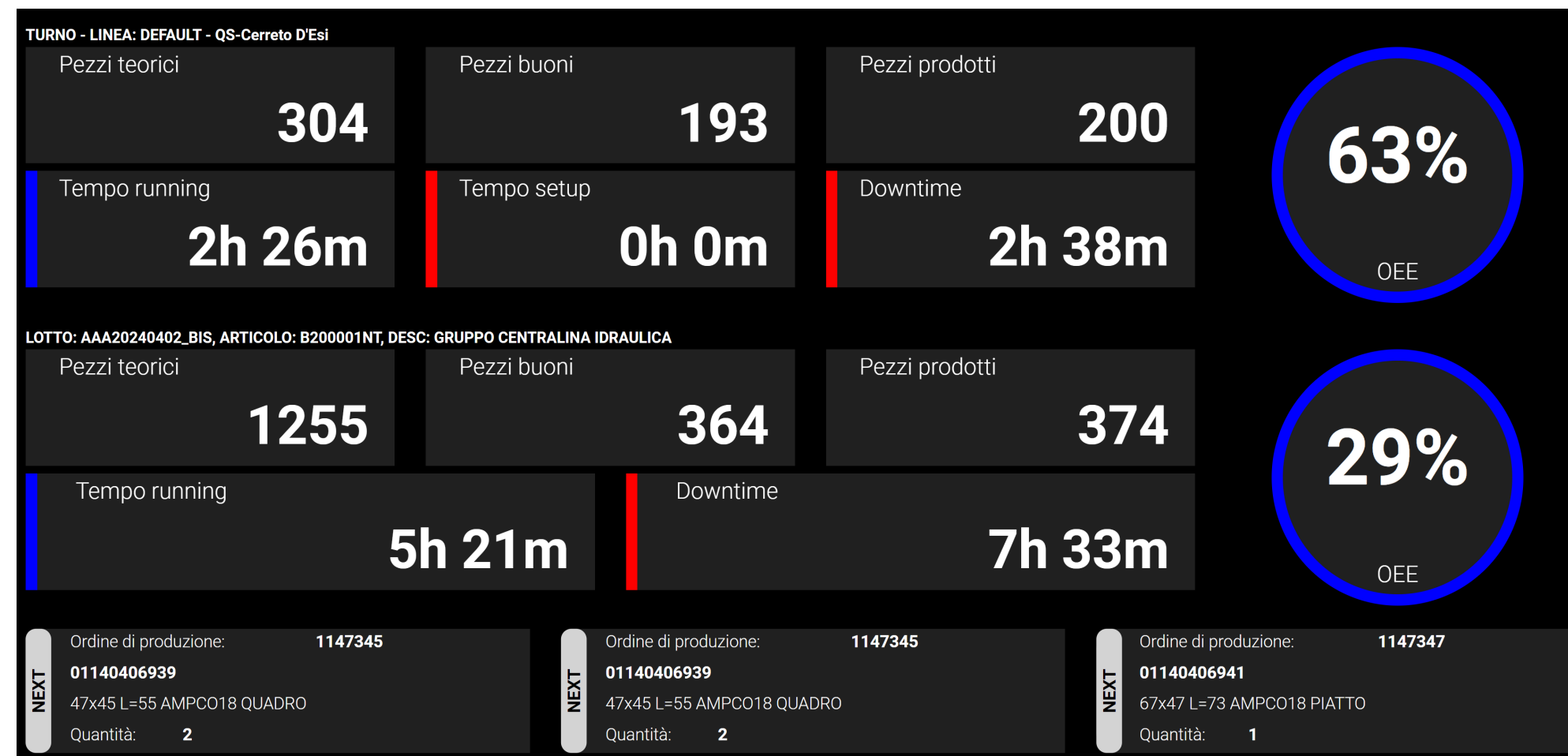
It makes it possible to monitor and receive an alert if there are malfunctions in production, such as the shutdown or misalignment of one of the modules with the others. The alert is sent via a message on Telegram or possibly by e-mail.

EsiSOFTWARE MANUFACTURING SOLUTIONS						
		Servizi OK: 19		Servizi KO: 1		Data: 03/04/2024
Name	Service	Ip	State	Aligned	Last Update	First Run
Cycle Manager	-	127.0.0.1	Ok	true	4/3/24, 3:19 PM	2/21/24, 8:25 AM
Production Planner	-	127.0.0.1	Ok	true	4/3/24, 3:19 PM	2/21/24, 8:25 AM
EsiProductionManager	-		Ko	false		2/21/24, 8:25 AM
ORDERMNG	-	127.0.0.1	Ok	true	4/3/24, 3:19 PM	2/21/24, 8:25 AM
Justification Manager	-	127.0.0.1	Ok	true	4/3/24, 3:19 PM	2/21/24, 8:25 AM
MPIImport	-	127.0.0.1	Ok	true	4/3/24, 3:19 PM	2/21/24, 8:25 AM
EsiMes	-	127.0.0.1	Ok	true	4/3/24, 3:19 PM	2/21/24, 8:25 AM
EsiMesCube	-	127.0.0.1	Ok	true	4/3/24, 3:19 PM	2/21/24, 8:25 AM
Esi Analytics	-	192.168.5.139	Ok	true	4/3/24, 3:19 PM	2/21/24, 8:25 AM
EsiMdm	-	127.0.0.1	Ok	true	4/3/24, 3:19 PM	2/21/24, 8:25 AM

ANDON

MES - ANDON consists of a monitor inside the plant.

It displays production efficiency (OEE) KPIs and production progress.



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