



ELECTROMECHANICAL ACTUATORS

**EA Series for flexibility and high performance
solutions**

www.step-lab.com



STEP Lab is specialized in the production of electrically operated mechanical testing machines for static and dynamic tests.

STEP Lab è specializzata nella realizzazione di macchine per test meccanici ad azionamento elettrico per prove statiche e dinamiche.

STEP Lab offers a complete range of solutions for mechanical testing of products and materials. STEP Lab's technical skills in the field of data acquisition and high-performance controls are offered to satisfy the different test requirements even the custom ones.

STEP Lab has been manufacturing electromechanical actuators for static and dynamic applications for many years and has dedicated its work to applications where reliability and precision are required.

STEP Lab offre una gamma completa di soluzioni per i test meccanici di prodotti e materiali. Le competenze tecniche di STEP Lab nel settore dell'acquisizione dati e dei controlli ad alte prestazioni sono a disposizione del cliente per soddisfare anche le esigenze di test custom.

STEP Lab realizza da molti anni attuatori elettromeccanici per applicazioni statiche e dinamiche dedicate ad applicazioni dove viene richiesta affidabilità e precisione.

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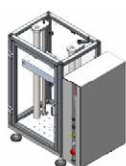
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VARIANTE BI-ASSIALE: ATTUATORE TORSIONALE



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TIPI DI STRUTTURA

➤ About STEP Lab

STEP Lab is your global partner for product and material testing systems.

STEP Lab specializes in electrical systems to be used in areas that until now had been reserved for hydraulic systems.

Today STEP Lab is able to offer the widest range of electric actuators on the market. These systems are completed by an electronic and software platform that allows you to manage any type of test both on single or multiple actuators.

STEP Lab proposes itself as the main partner in the realization of testing systems. STEP Lab directly develops, produces and sells all the accessories necessary to satisfy the customer's needs.

- ➔ Structures for loads from 1 kN up to 268 kN
- ➔ Climatic chambers is equipped with refrigerant circuit with a temperature range -70/+250 °C
- ➔ Grips
- ➔ Torsional actuators

STEP Lab è il vostro partner globale nella realizzazione di sistemi di prova per prodotti e materiali.

STEP Lab è specializzato in sistemi elettrici da impiegare in ambiti che fino ad oggi erano stati riservati a sistemi idraulici.

Oggi STEP Lab è in grado di proporre la più ampia gamma di attuatori elettrici sul mercato. Questi sistemi sono completati da una piattaforma elettronica e software che permette di gestire qualunque tipologia di prova sia su attuatori singoli o multipli.

STEP Lab si propone come partner principale nella realizzazione dei sistemi di prova e per questo sviluppa e produce e commercializza direttamente tutti gli accessori necessari a soddisfare le esigenze del cliente.

- ➔ Strutture per carichi da 1 a 268 kN
- ➔ Camere climatiche dotate di circuito frigorifero con range di temperatura da -70 a +250°C
- ➔ Griffe
- ➔ Attuatori torsionali

➤ Electro-mechanical Actuators / Attuatori Elettromeccanici

STEP Lab presents the new series of EA electromechanical actuators, the result of 10 years of experience in the global market and technological challenges in the field of dynamic applications.

The EA series was created to meet the needs of dynamic applications even in cyclic applications with a high number of cycles and short stroke.

The actuators have been designed to operate both alone on structures and on production lines for quality control.

Compared to the previous series STEP Lab has significantly reduced weights and dimensions but, at the same time, has expanded the Dynamic load range up to 200kN.

To accompany the birth of this important product range, this technical catalog has been prepared. This catalog has the function of guiding the customer in choosing the right product for his needs. STEP Lab will propose a series of standard configurations created to cover the most common needs of the market both in the testing and industrial fields.

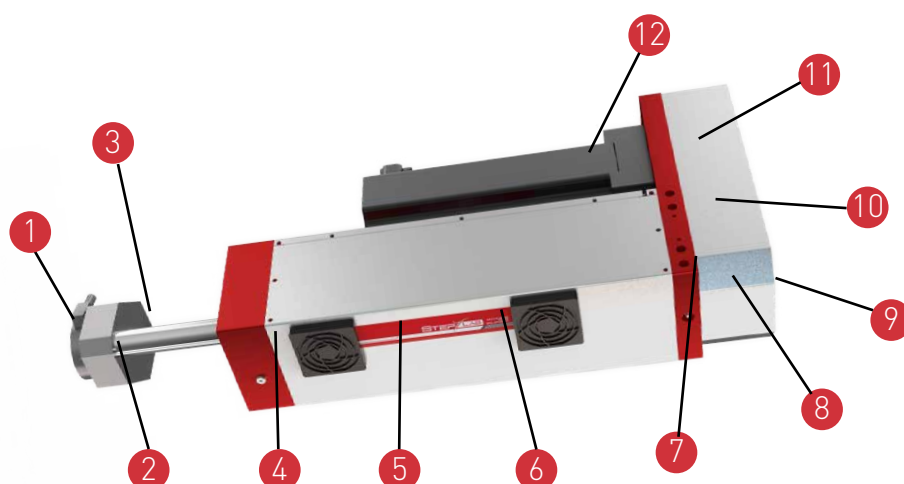
STEP Lab presenta la nuova serie di attuatori elettromeccanici EA frutto dell'esperienza di 10 anni nel mercato globale e sfide tecnologiche nell'ambito delle applicazioni dinamiche.

La serie EA nasce per soddisfare le esigenze delle applicazioni dinamiche anche in applicazioni cicliche con elevato numero di cicli e corsa breve.

Gli attuatori sono stati concepiti per operare sia da soli su strutture sia su linee produttive per il controllo qualità.

Rispetto alla serie precedente sono stati diminuiti significativamente pesi ed ingombri e contestualmente è stata ampliata la gamma. I carichi dinamici arrivano fino a 200 kN

Per accompagnare la nascita di questa importante gamma di prodotto è stato preparato questo catalogo tecnico che ha la funzione di guidare il cliente nella scelta del prodotto più giusto per le sue esigenze. A tal fine STEP Lab proporrà una serie di configurazioni standard create per coprire le più comuni necessità del mercato sia in ambito testing che industriali.



General Description

The EA series is not only a electromechanical actuators but real electrical machines able to carry out any type of application where high performance is required. The EA series compared to the main competitors is born with unique intrinsic characteristics:

- 1 Connection with a precision centering and a preload pin
- 2 Hardened and anti-corrosion rod
- 3 Rod guide based on ball recirculation systems
- 4 Liquid / air cooling screw systems
- 5 Anti-rotation system based on recirculating ball guides to withstand both side and torsional loads
- 6 Special screws dedicated to long term cyclic applications
- 7 Special bearings dedicated to long term cyclic applications
- 8 Lubrification point with special greases for long maintenance intervals
- 9 Special belts to eliminate effects of hysteresis
- 10 Posterear anchor points for application flexibility
- 11 Special system for precise and repeatable positioning of the belt and for supporting the lateral load of the belt
- 12 Highly dynamic motors with absolute encoder and electromagnetic safety brake

Descrizione generale

La serie EA non sono semplici attuatori elettromeccanici ma vere e proprie macchine elettriche per effettuare qualunque tipo di applicazione dove siano richieste prestazioni elevate. La serie EA rispetto ai principali concorrenti nasce con caratteristiche intrinseche uniche:

- 1 Collegamento con centraggio di precisione e pin di precarico
- 2 Stelo temprato e anti-corrosione
- 3 Guida stelo basata su sistemi a ricircolo di sfera
- 4 Sistemi di viti a ricircolo raffreddati ad liquido/aria
- 5 Sistema anti-rotazione basato su guide a ricircolo di sfere per sopportare sia carichi laterali che torsionali
- 6 Viti speciali dedicate ad applicazioni cicliche a lunga durata
- 7 Cuscinetti speciali dedicati alle applicazioni cicliche a lunga durata
- 8 Punto di lubrificazione con impiego di grassi speciali per lunghi intervalli di manutenzione
- 9 Cinghie speciali per eliminare giochi e effetti di isteresi
- 10 Punti di ancoraggio posteriori per flessibilità di applicazione
- 11 Sistema speciale per un posizionamento preciso e ripetibile della cinghia e per il supporto del carico laterale della cinghia
- 12 Motori ad alta dinamica con encoder assoluto e freno elettromagnetico di sicurezza

➤ Applications / Applicazioni

The EA series actuators are specifically developed for applications in the testing field (both materials and products) and in the industrial field and in general in all those applications where performance with high reliability and precision are required.

➔ *Material testing laboratories: used together with our standard structures, the controller and the Test Center software, highly reliable and flexible test machines are created, perfect for testing all types of materials to characterize them from a static and dynamic point of view.*

➔ *Product test laboratories and quality certification laboratories: used together with the controller and the Test Center software, they can be mounted alone or together with other actuators on structures built by STEP Lab or directly by the customer to carry out even complex tests on products.*

➔ *In the production line to carry out pressings or to carry out quality checks: thanks to the combination of sophisticated control, software dedicated to quality control and high precision mechanical components, the actuators are perfect for carrying out repeated tests for large numbers of cycles even in the case of applications H24.*

Gli attuatori della serie EA sono specificatamente sviluppati per applicazioni in ambito testing (sia materiali che prodotto) che in ambito industriale ed in generale in tutte quelle applicazioni dove siano richieste prestazioni con affidabilità e precisione elevata.

➔ Laboratori di test materiali: impiegati insieme alle nostre strutture standard, al controllore e il software Test Center si realizzano macchine di prova ad altissima affidabilità e flessibilità perfette per testare tutte le tipologie di materiali per caratterizzarli dal punto di vista statico e dinamico.

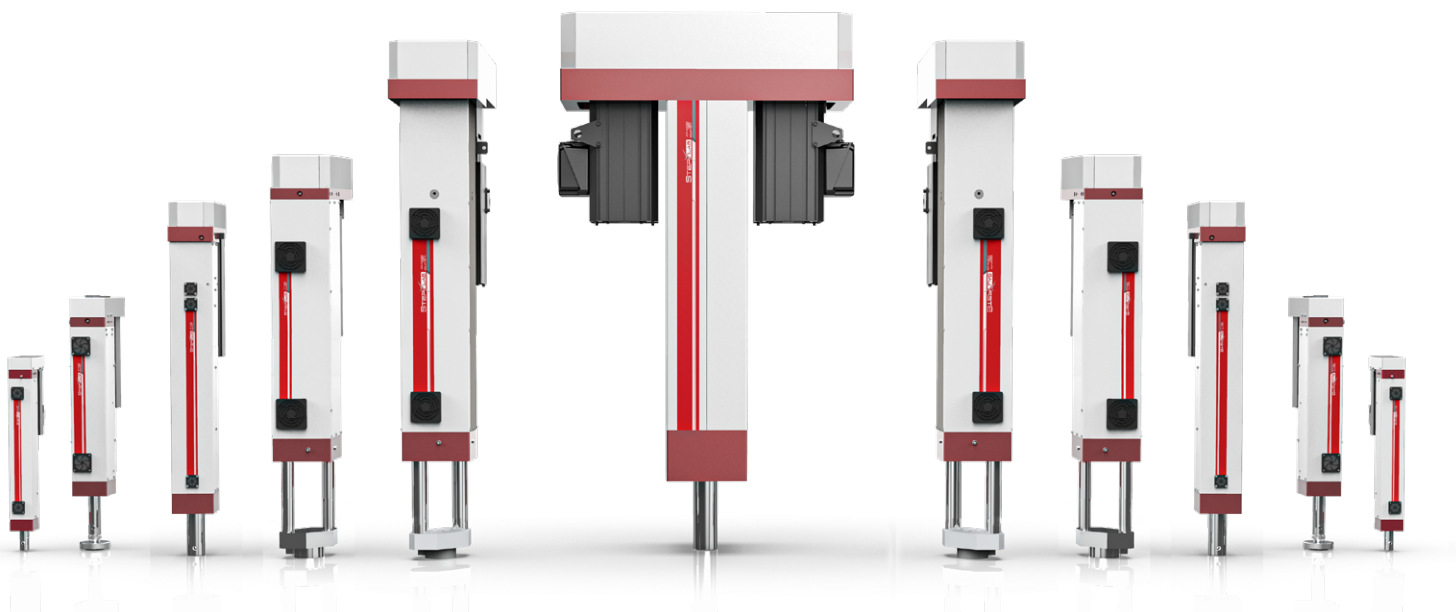
➔ Laboratori di test prodotto, laboratori di certificazione qualità: impiegati insieme al controllore e software Test Center possono essere montati da soli o insieme ad altri attuatori su strutture realizzate da STEP Lab o direttamente dal cliente per realizzare test, anche complessi, su prodotti.

➔ In linea di produzione per effettuare piantaggi o per effettuare controlli qualità: gli attuatori grazie alla combinazione di controllo sofisticato, software dedicato al controllo qualità e componenti meccanici di elevata precisione sono perfetti per effettuare test ripetuti per grandi numeri di cicli anche nel caso di applicazioni H24.



➤ EA Series / Serie EA

Measurement and Performance / Dimensione e Prestazioni



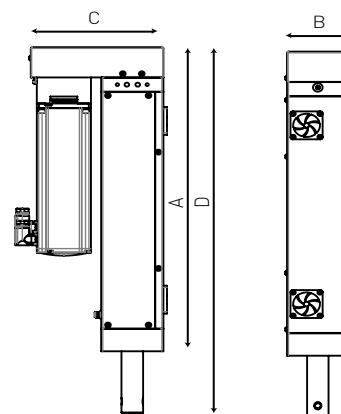
	EA05 *	EA025	EA050	EA100	EA200
Max. Dynamic force (sinusoidal fatigue) Max. Forza dinamica (fatica sinusoidale) [kN]	5.50	25.0	50.0	100	200
Max. Static force Massima forza statica [kN]	15.0	18.0	65.0	134	268
Max. Test speed Massima velocità di prova [mm/s]	1250	1600	1400	1600	535
Standard stroke Corsa standard [mm] **	250	250	200	200	200
Test frequency Frequenza di prova [Hz]	30	30	20	20	20
Dimensions (L x W x D) Dimensioni (L x W x D) [mm]	686x115x252	775x130x300	800x185x415	1343x250x500	1391x420x840
Length with piston Lunghezza con pistone [mm]	826	900	1018	1603	1676
Working temperature Temperatura di lavoro [°C]	5 - 35				

* EA05 is no longer part of our standard range. Now available only on request for special applications/
EA05 non fa più parte della nostra gamma standard. Ora è disponibile solo su richiesta per
applicazioni speciali.

** Other values available under request / Altri valori disponibili su richiesta

NOTES / NOTE: Force and speed values aren't the values for a particular configuration. They are the
maximum reachable values in different configurations. Please contact us for more information. /
I valori di forza e velocità riportati non rappresentano una configurazione specifica, ma i valori
massimi ottenibili in differenti configurazioni. Contattaci per ulteriori informazioni.

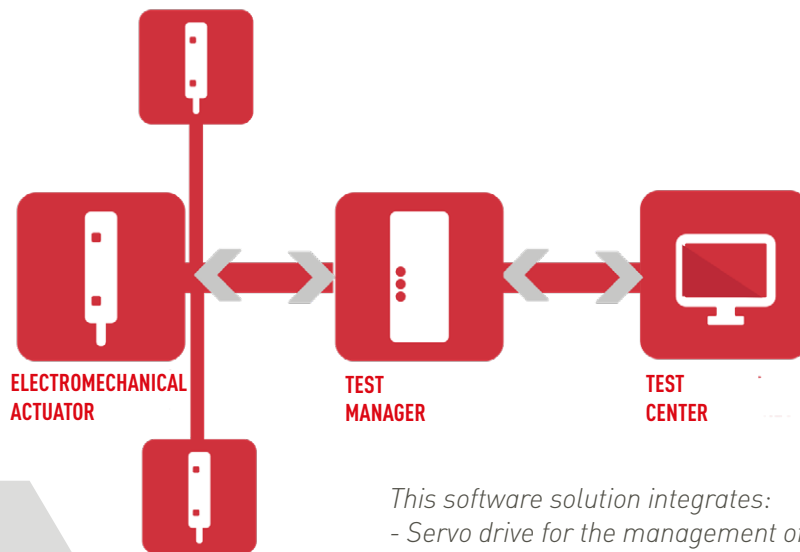
Details and dimensions may differ, in function of the configuration. / Dettagli e dimensioni possono
differire, in funzione della configurazione.



➤ Integration with Test Center / Integrazione con Test Center

STEP Lab provides a complete software and electronic solution for the management of the EA series actuators. The solution offered by the Test Center Software is extremely flexible and can manage multi-axis systems, safety devices, and other accessories such as climatic cells, grips, optical and contact extensometers, automated support structures, as well as interfacing with third-party company management systems.

STEP Lab fornisce una soluzione software ed elettronica completa per la gestione degli assi della serie EA. La soluzione è estremamente flessibile e può gestire anche sistemi multi asse, sicurezze, ed ulteriori accessori quali celle climatiche, griffe, estensometri ottici e a contatto, strutture di supporto automatizzate, oltre ad interfacciarsi con gestionali aziendali di terze parti.



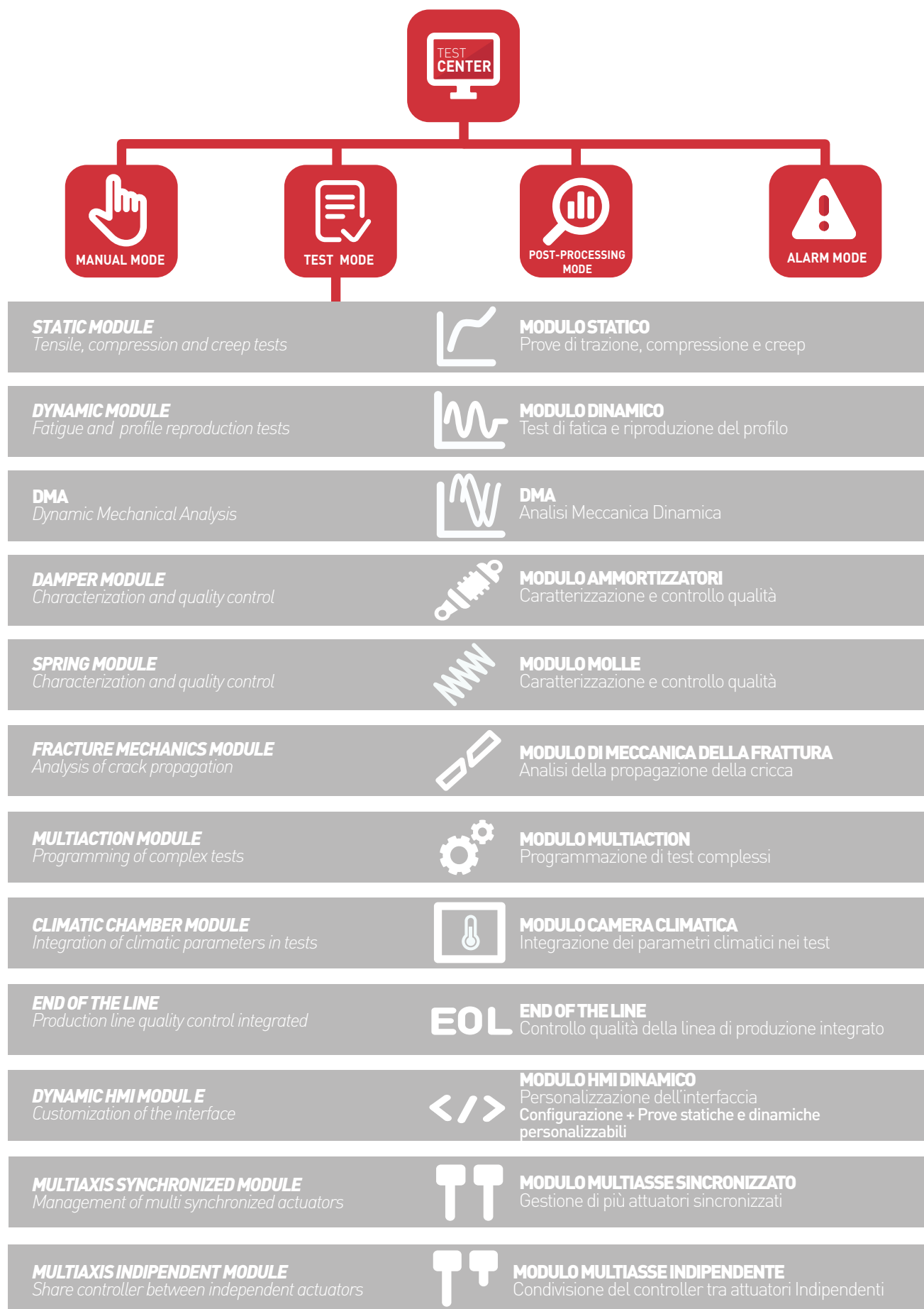
This software solution integrates:

- Servo drive for the management of brushless motors to flexibly manage all types of applications in both low and high dynamics.
- A real-time controller for advanced motor management with the ability to run applications in:
 - ➔ Position control
 - ➔ Load control
 - ➔ Control on a transducer other than the load cell, such as pressure sensors, strain gauges, optical extensometers
 - ➔ Synchronized and non-synchronized multi-actuator mode.
- Windows-based user interface software for setting up, acquiring, and evaluating tests on products and materials.

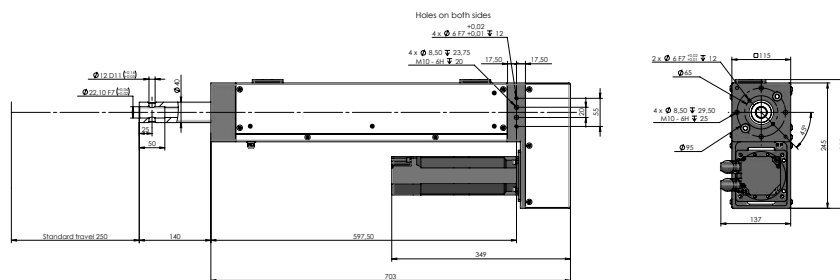
Questa soluzione software integra:

- Un servo drive per la gestione di motori brushless per gestire in modo flessibile tutte le tipologie di applicazioni sia in bassa che alta dinamica.
- Un controllore real time per la gestione avanzata dei motori con la possibilità di eseguire applicazioni in:
 - ➔ Controllo di posizione
 - ➔ Controllo di carico
 - ➔ Controllo su trasduttore diverso dalla cella di carico, quale ad esempio sensori di pressione estensimetri, estensometri ottici.
 - ➔ Modalità multi-attuatore sincronizzato e non
- Software di interfaccia utente basato su sistema Windows per l'impostazione, l'acquisizione e la valutazione di test su prodotti e materiali.

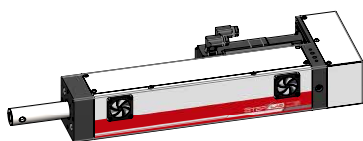




EA05



Configuration and Codes / Configurazioni e Codici



Main Features *

- + Maximum Dynamic Force: 10.5 kN
- + Maximum Static Force: 15 kN

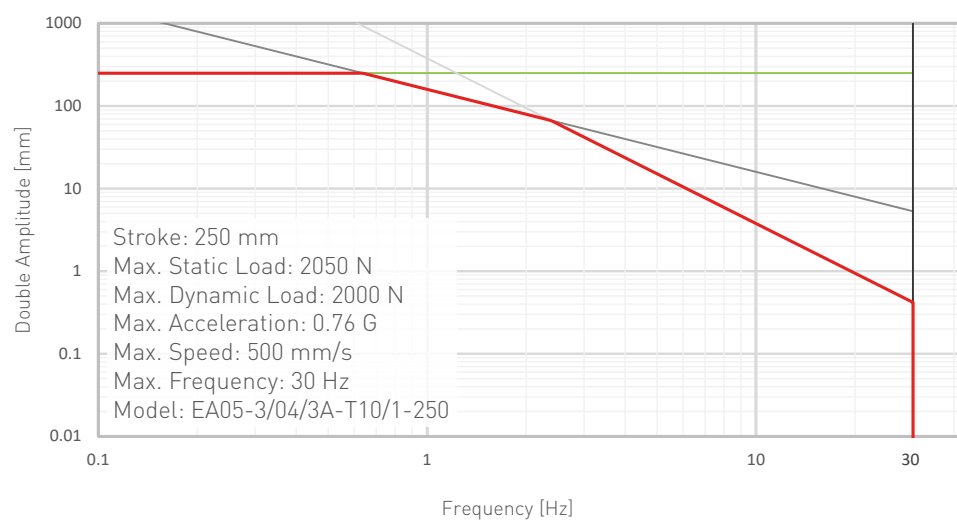
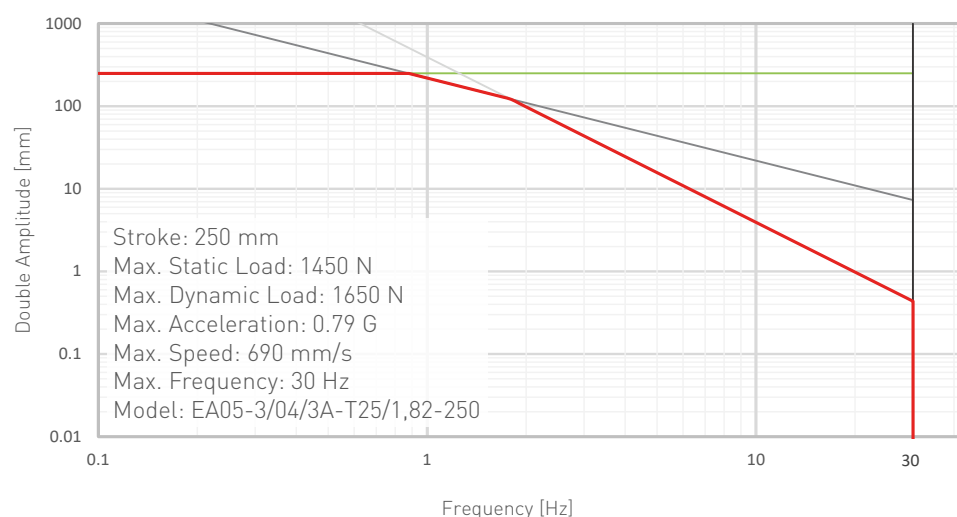
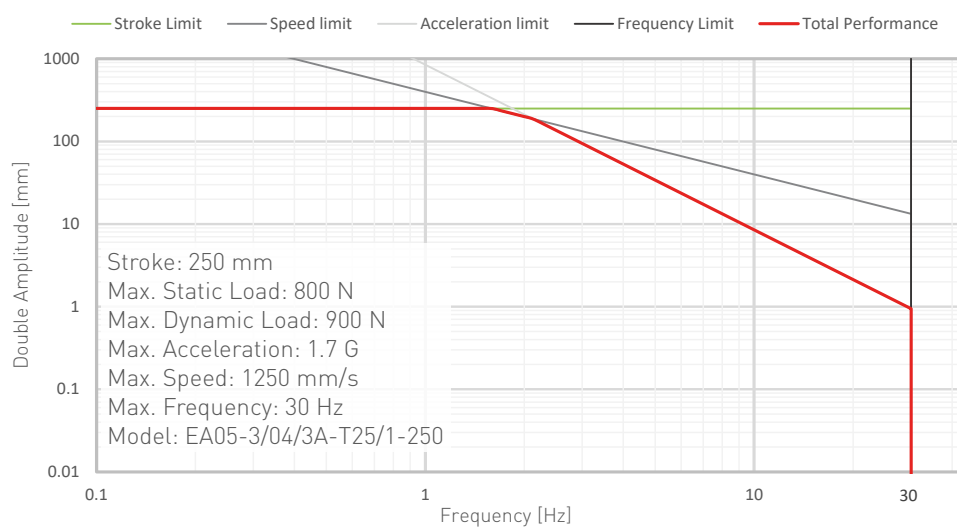
	Code	Static Force (N)**	Dynamic Force (N)	Acceleration (g)	Max. Speed (mm/s)	Standard Stroke (mm)
EA05	EA05-3/04/3A-T25/1-250	800	900	1.70	1250	250
	EA05-3/04/3A-T25/1,82-250	1450	1650	0.79	690	
	EA05-3/04/3A-T10/1-250	2050	2000	0.77	500	
	EA05-3/04/3A-T5/1-250	4050	2350	0.39	250	
	EA05-3/04/3A-T5/1,82-250	7350	2350	0.17	140	
	EA05-3/04/3A-T5/2,29-250***	9250	2350	0.22	110	
	EA05-3/04/3A-B10/1,42-250	2850	3250	0.44	355	
	EA05-3/04/3A-B10/1,82-250	3700	4200	0.33	275	
	EA05-3/04/3A-B10/2,29-250***	4650	5250	0.43	220	
	EA05-5/12/6A-T25/1,42-250	3550	1800	2.00	880	
	EA05-5/12/6A-T5/1-250	9900	2350	0.88	250	
	EA05-5/12/6A-B25/1-250	2500	3500	2.00	1250	
	EA05-5/12/6A-B25/1,42-250	3550	3500	2.00	880	
	EA05-5/12/6A-B5/1,33-250	15000	3550	0.56	190	
	EA05-5/12/3A-S10/1,67-250	5250	5500	0.40	300	
	EA05-5/12/6A-S10/1-250	6250	5500	1.75	500	
	EA05-5/12/6A-S10/1,67-250	10400	5500	0.80	300	
	EA05-5/12/12A-B3210/1-250	8100	8800	1.35	500	
	EA05-5/12/6A-B3210/1,55-250	9700	10500	0.98	325	
	EA05-5/12/12A-B3210/1,55-250	12500	10500	0.98	325	

* Other configurations available upon request. / Altre configurazioni disponibili su richiesta.

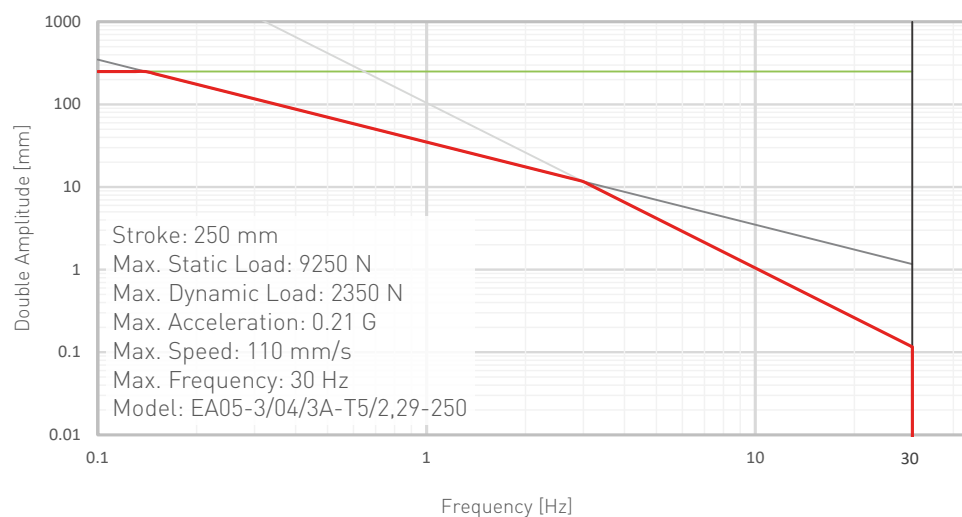
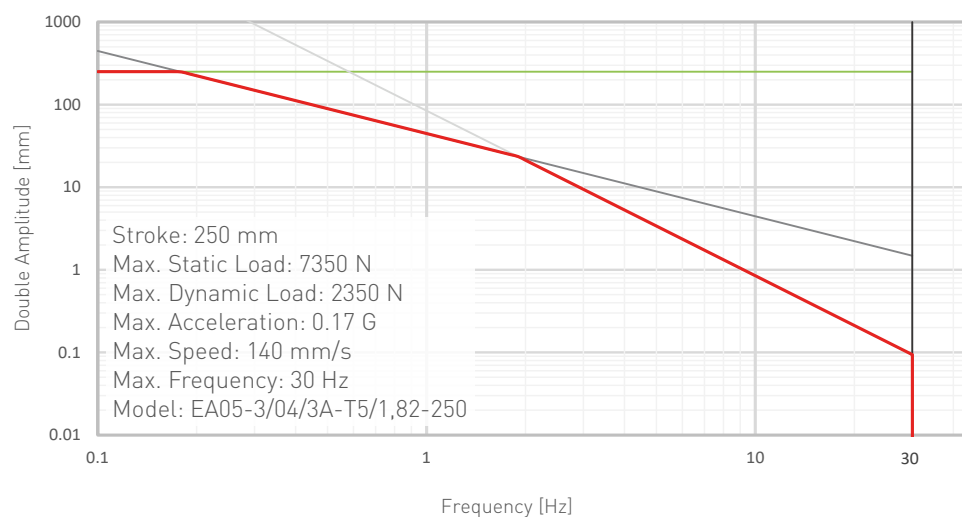
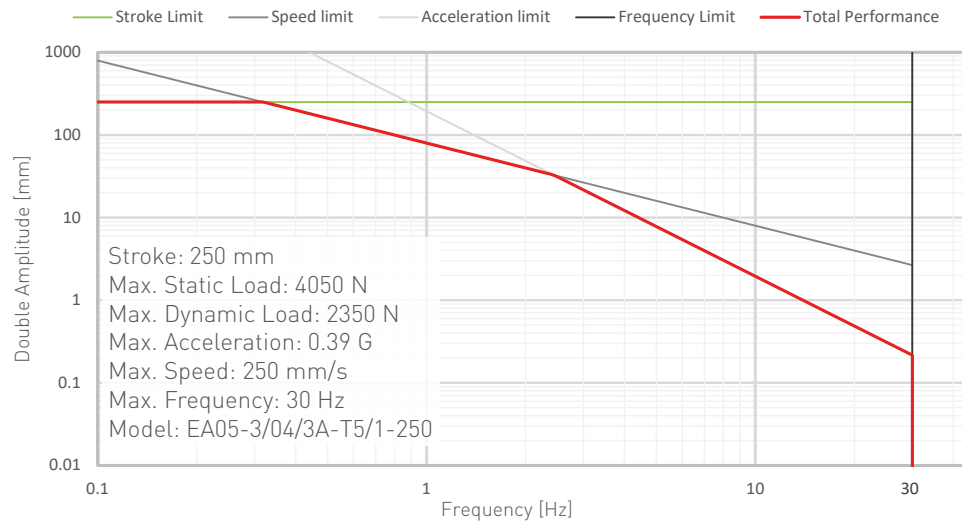
** Static force values available for test duration up to 5 minutes. To evaluate the maximum creep force (related to test with duration longer than 24h) consider 90% of the static force value. Example: If static force is 100kN, creep force is 90 kN. / I valori di prova statica sono validi per test con durata fino a 5 minuti. Per valutare i massimi valori di forza per prove a creep (test di durata maggiore di 24h), considerare il 90% del valore di forza statica. Esempio: Se la forza statica è 100kN, la forza di creep è 90 kN.

*** Configuration with increased backlash 0.02mm detectable if the cyclic load passes through zero. / Configurazione con gioco maggiorato 0.02mm rilevabile se il carico ciclico passa per lo zero.

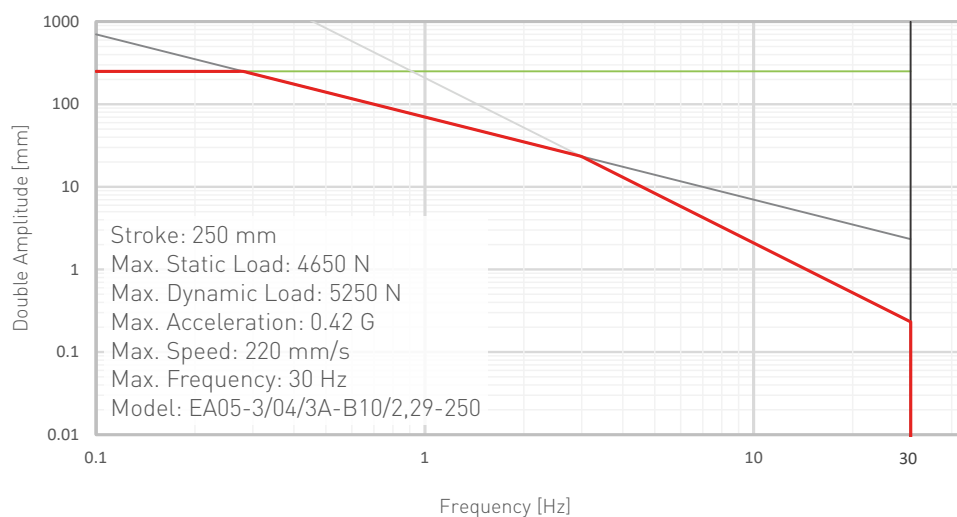
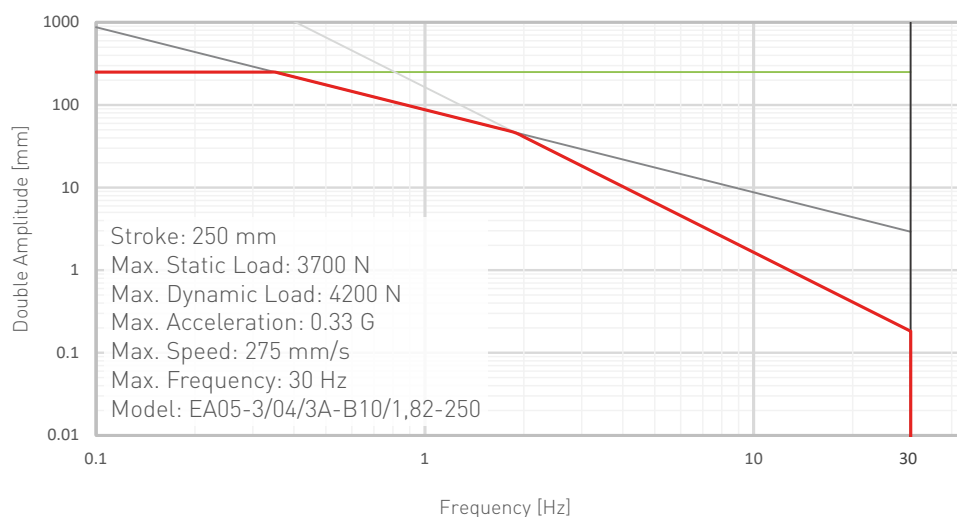
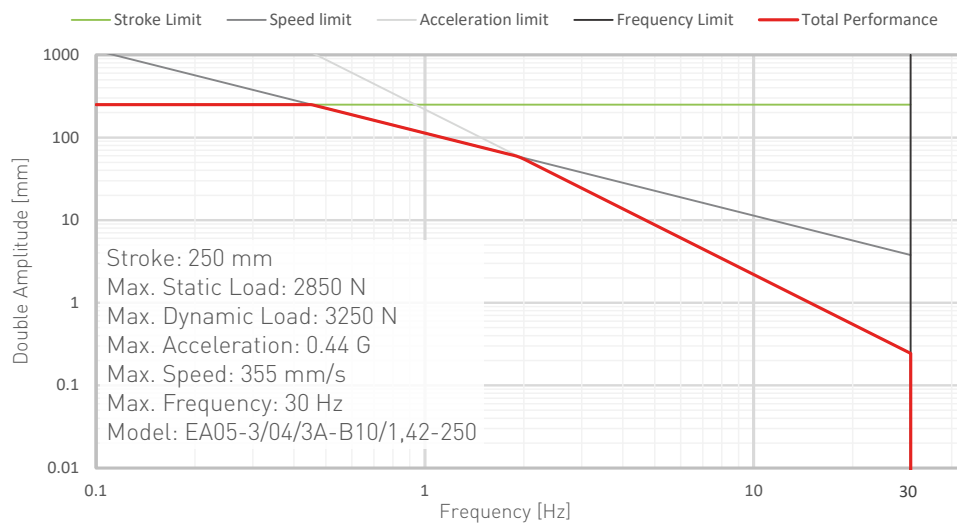
Performance Graph



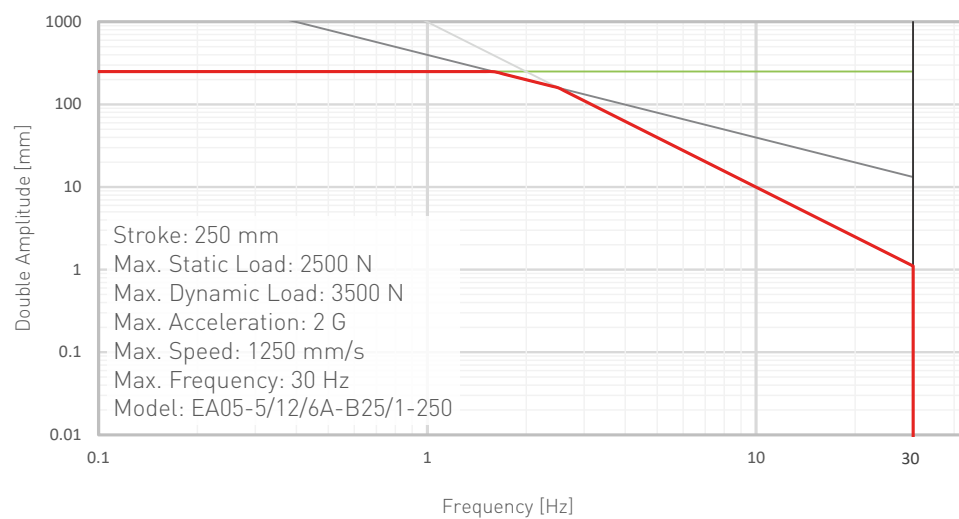
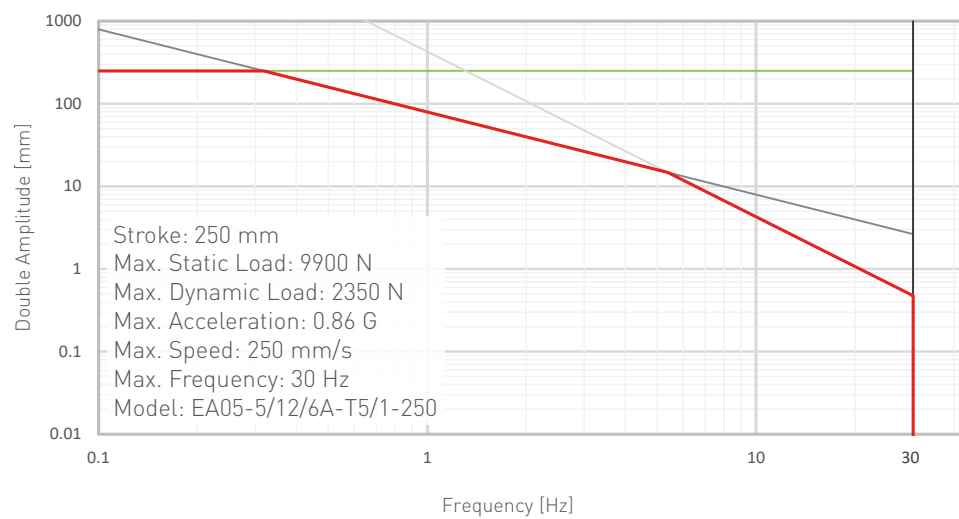
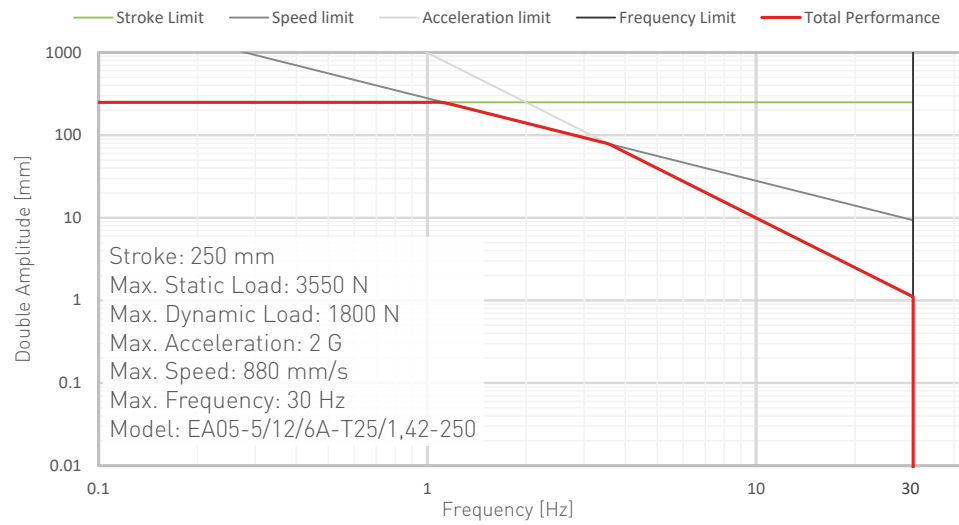
Performance Graph



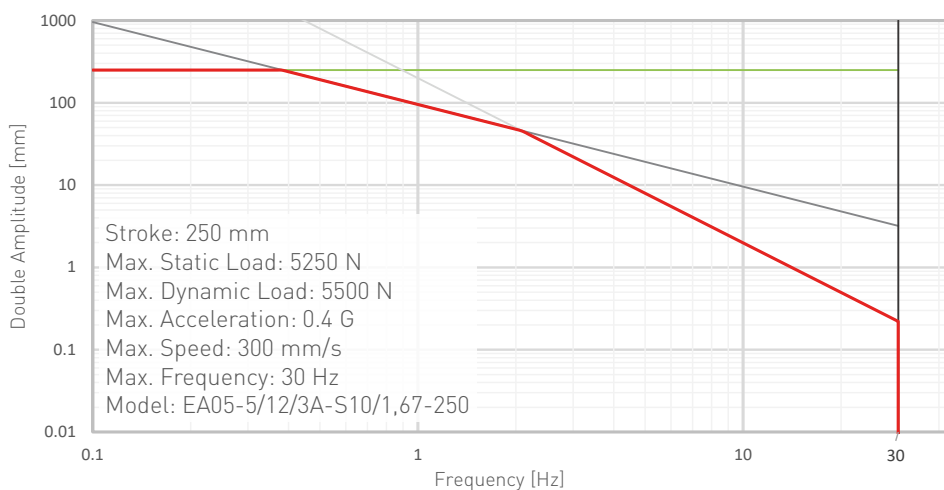
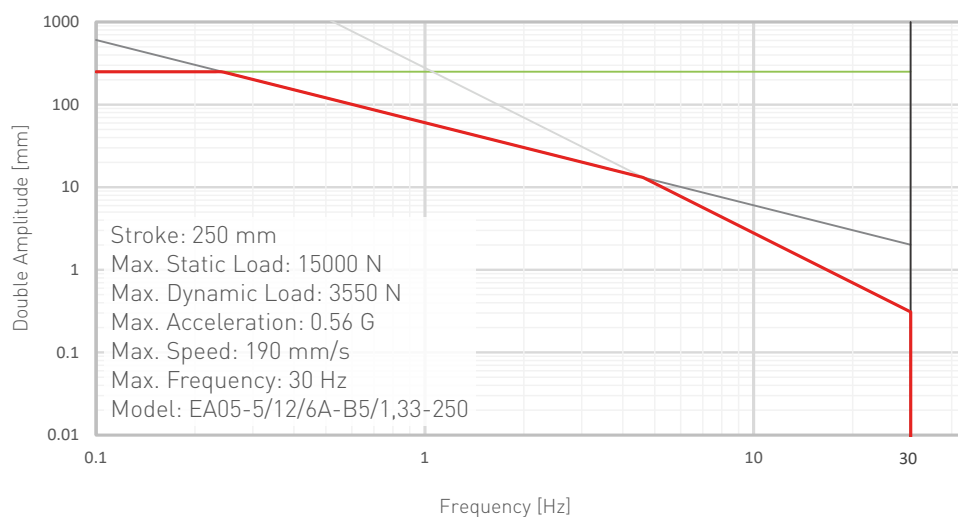
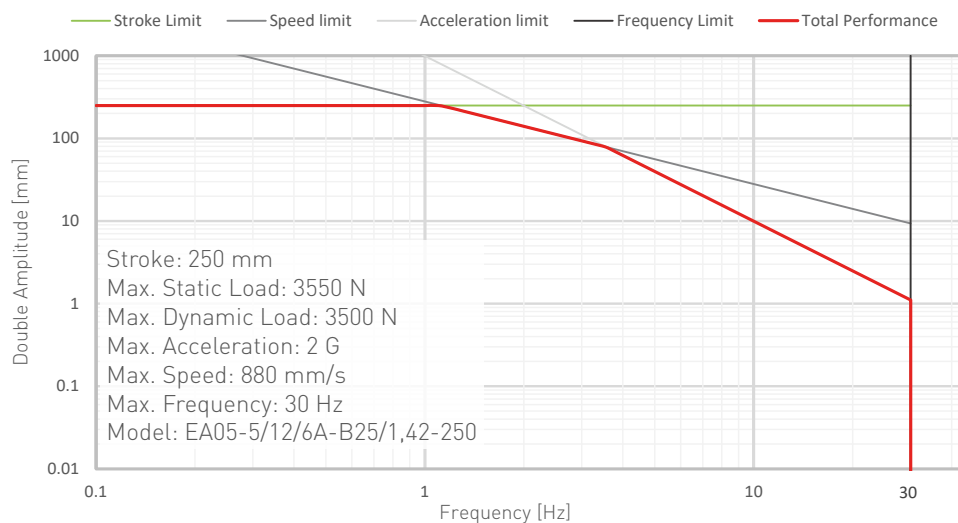
Performance Graph



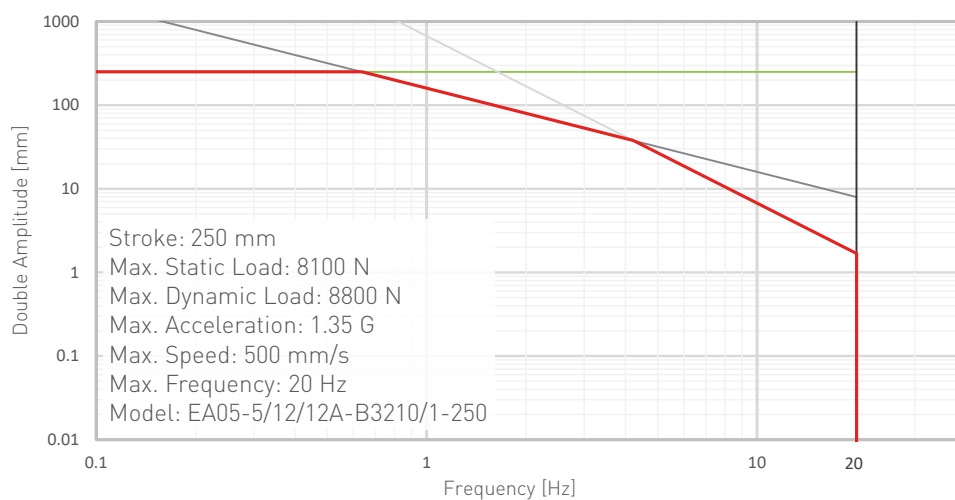
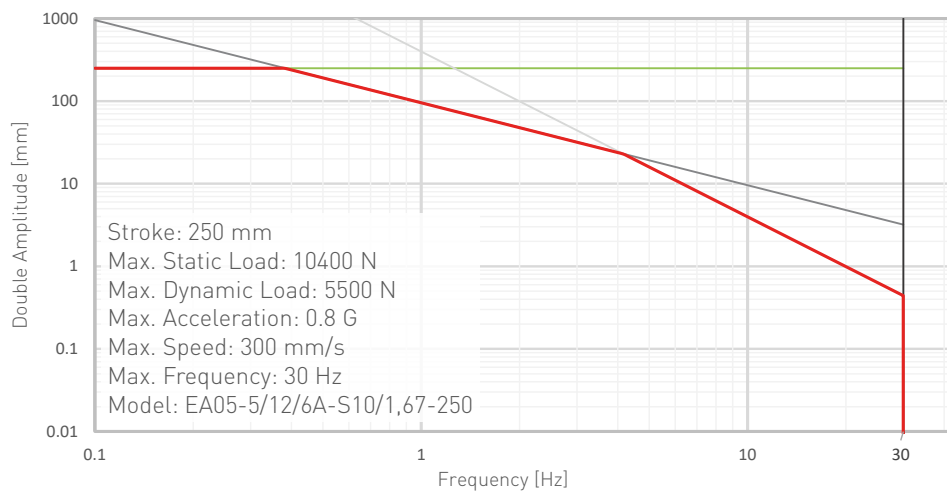
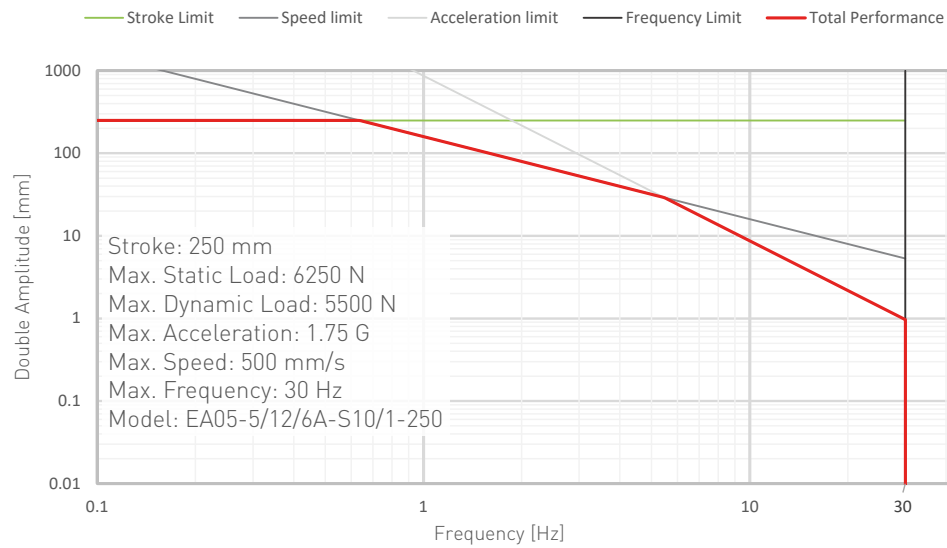
Performance Graph



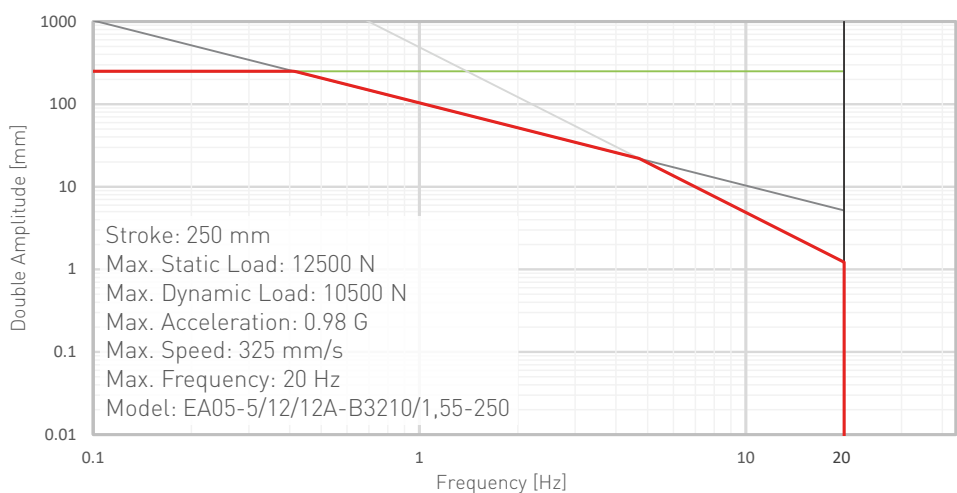
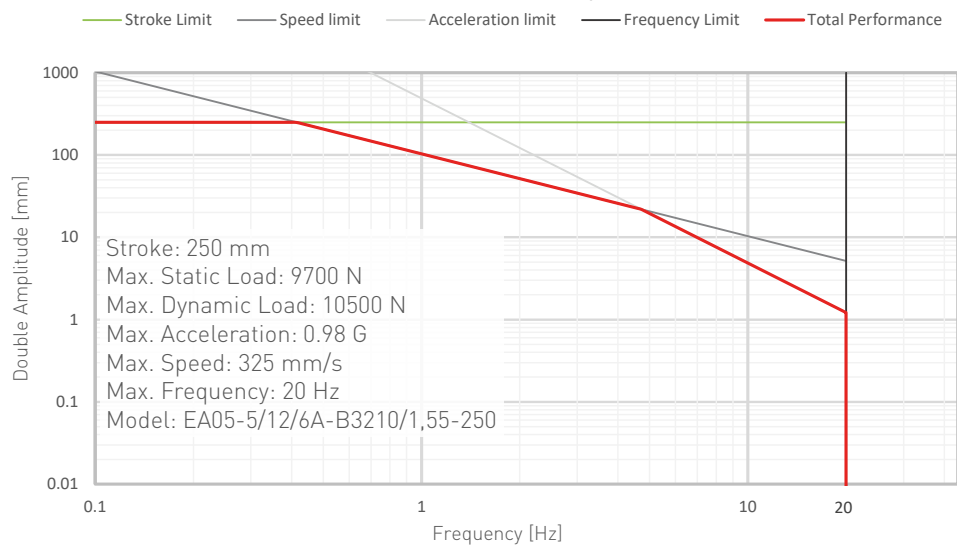
Performance Graph



Performance Graphs

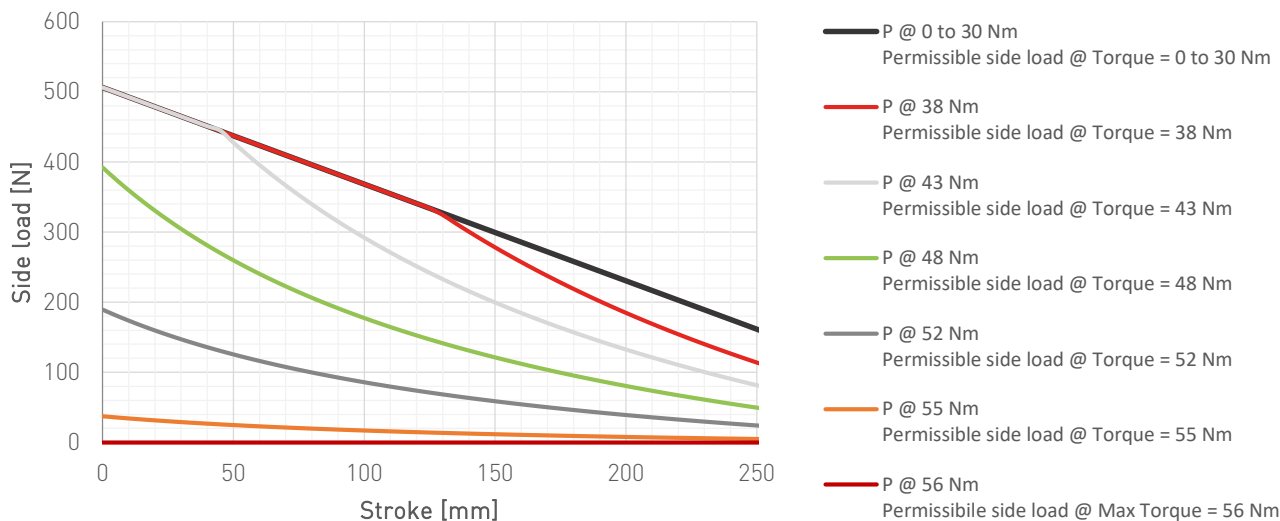


Performance Graphs

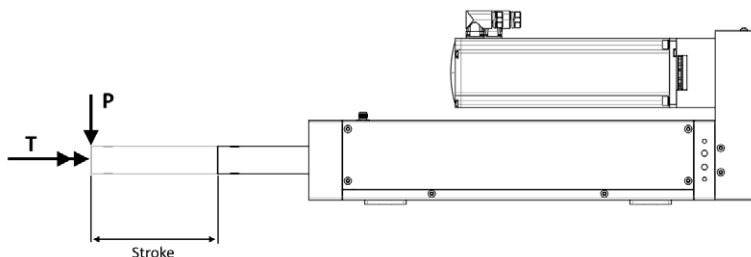
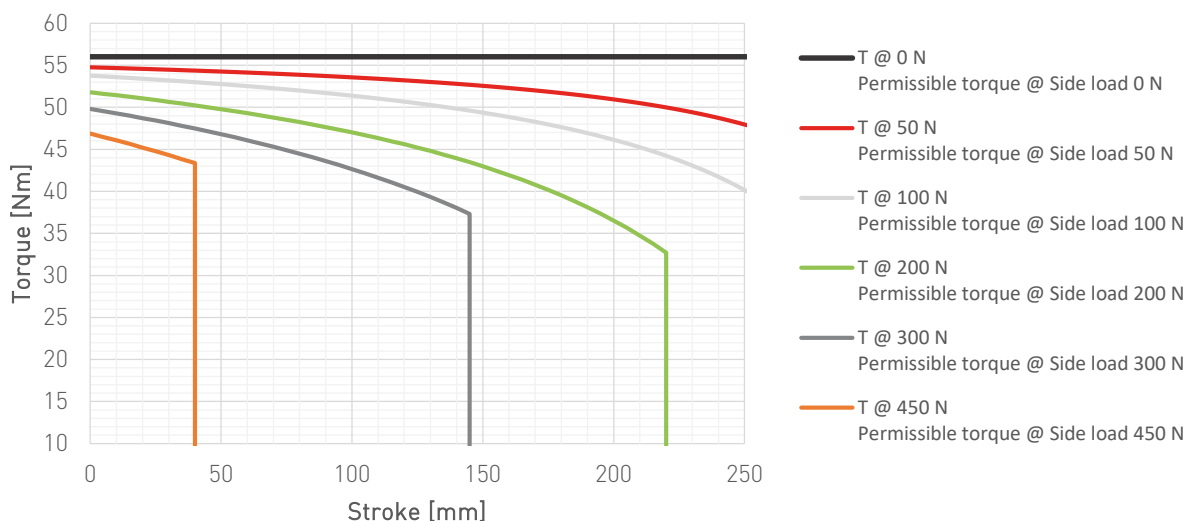


Performance Charts with Torque and Side Force / Tabelle Prestazioni con Carico Torsionale e Laterale*

Permissible side load for a given torque
EA05 - stroke 250 mm

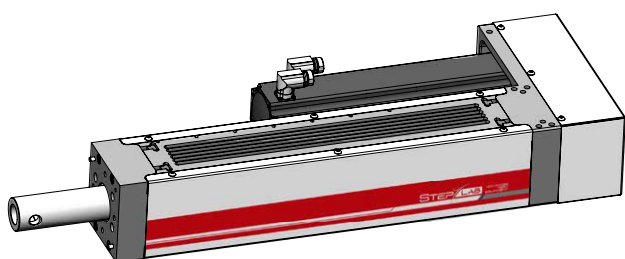
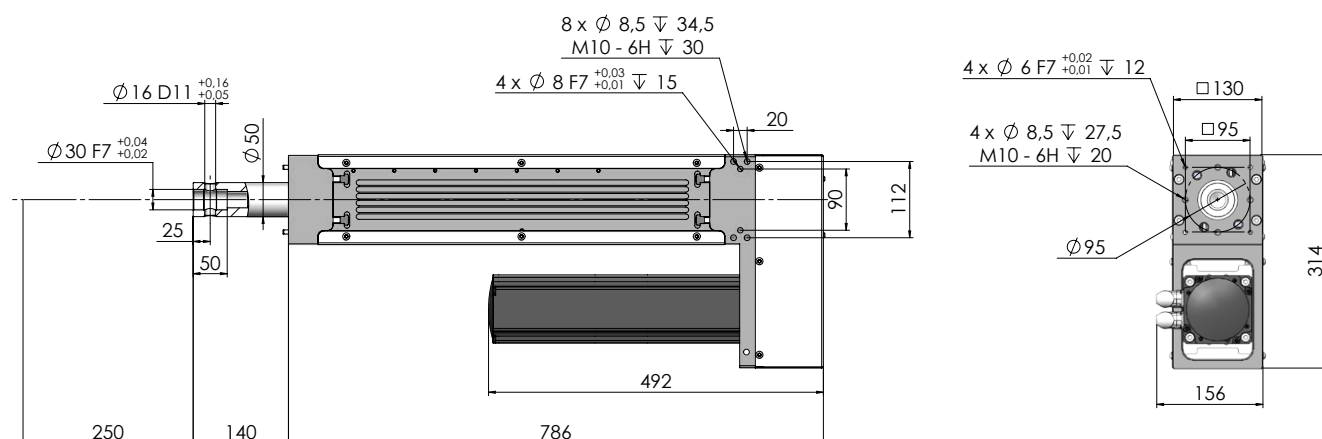


Permissible torque for a given side load
EA05 - stroke 250 mm



* These tables are intended for an indicative sizing. The final sizing will be provided by STEP Lab based on the request. / Queste tabelle sono da usare per un dimensionamento indicativo. Il dimensionamento finale verrà fornito da STEP Lab in base alla richiesta.

EA025



Main Features *

- + Maximum Dynamic Force: 25.0 kN
- + Maximum Static Force: 18.0 kN

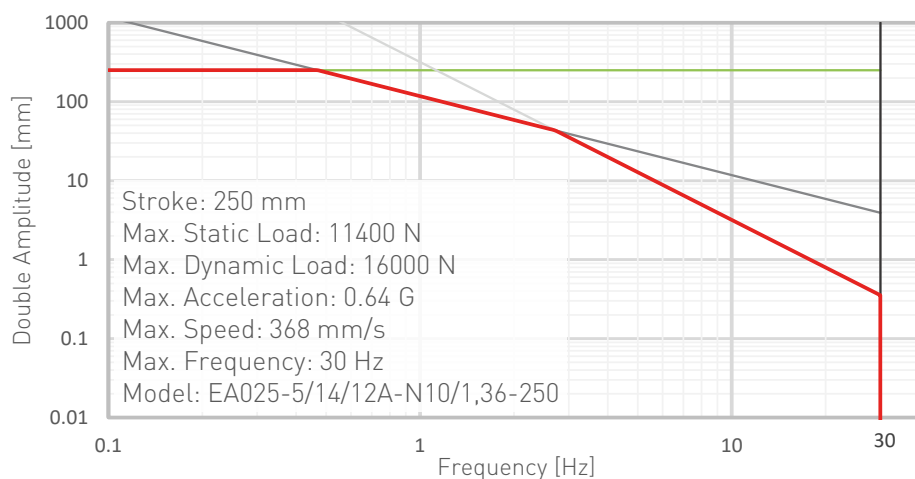
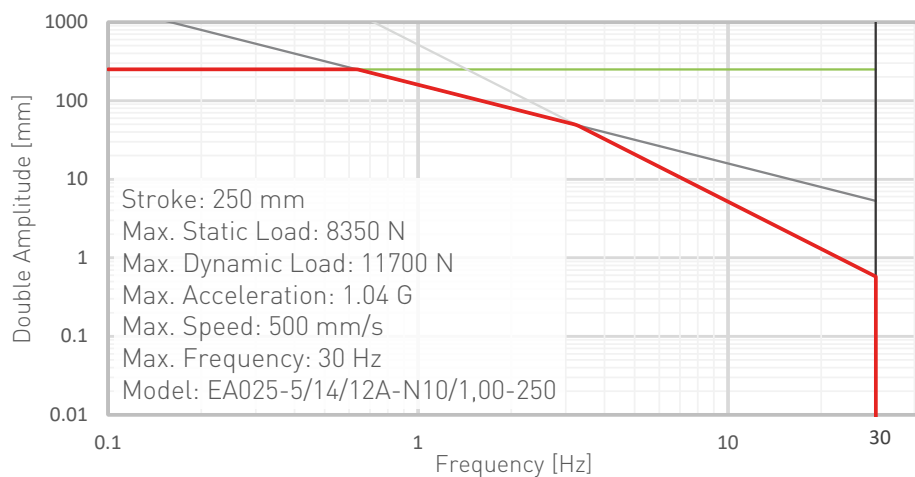
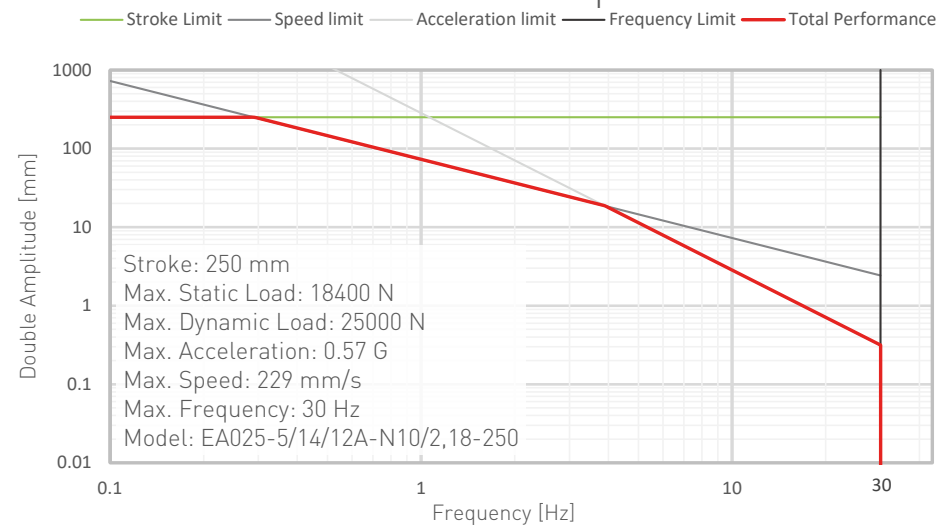
Configuration and Codes / Configurazioni e Codici

Code	Static Force** (N)	Dynamic Force (N)	Acceleration (G)	Max. Speed (mm/s)	Peak acceleration (G)	Peak force (N)	Speed at peak force (mm/s)	Standard Stroke (mm)
EA025-5/14/12A-N10/2,18-250	18400	25000	0.57	229	-	-	-	250
EA025-5/14/12A-N10/1,00-250	8350	11700	1.04	500	-	-	-	
EA025-5/14/12A-N10/1,36-250	11400	16000	0.64	368	-	-	-	
EA025-5/14/12A-N10/1,14-250	9600	13400	0.78	437	-	-	-	
EA025-5/14/1230A-N10/1,00-250	8350	11700	0.74	500	1.81	28600	370	
EA025-5/14/1230A-N32/1,85-250	4800	6750	1.43	866	3.50	16400	640	
EA025-5/14/1230A-N32/1,57-250	4050	5700	1.46	1018	3.58	14000	755	
EA025-5/14/1230A-N32/1,14-250	2900	4150	2.01	1400	4.93	10100	1040	
EA025-5/14/1230A-N32/1,00-250	2550	3600	2.22	1600	5.46	8850	1190	
EA025-5/14/2448A-N32/1,71-250	4450	6250	1.32	933	4.37	20200	530	

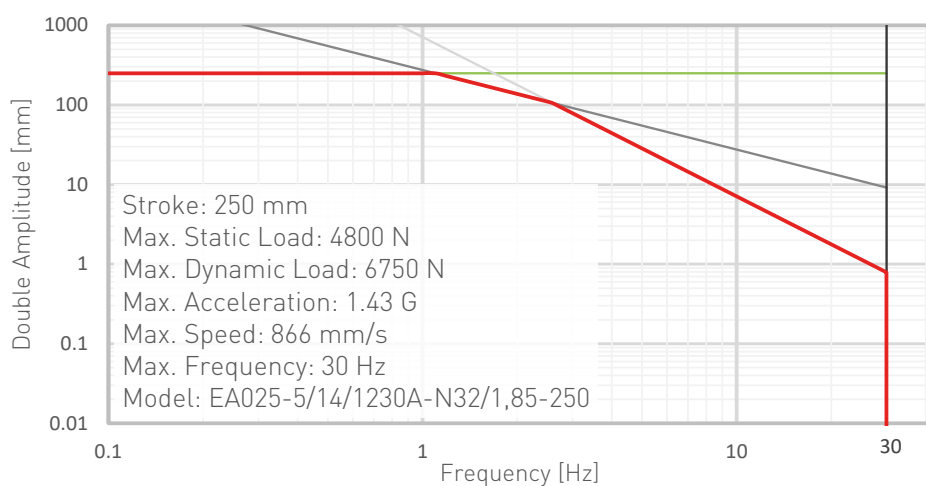
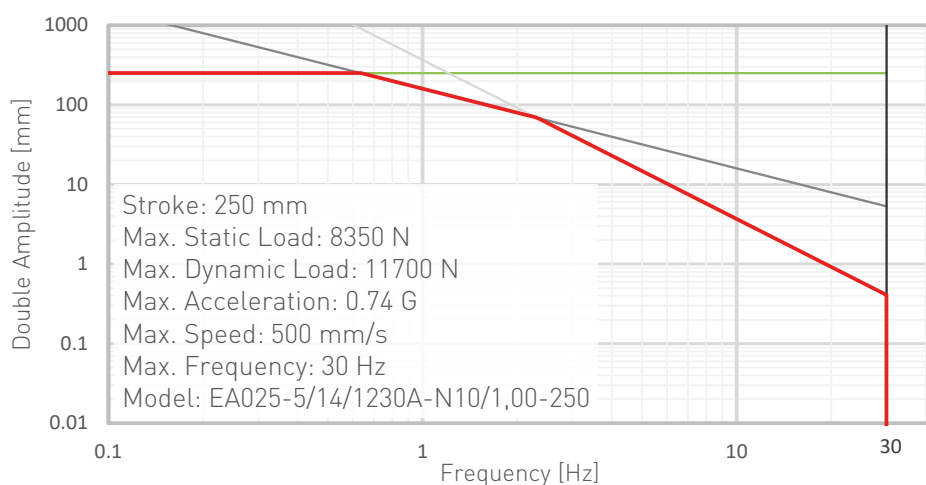
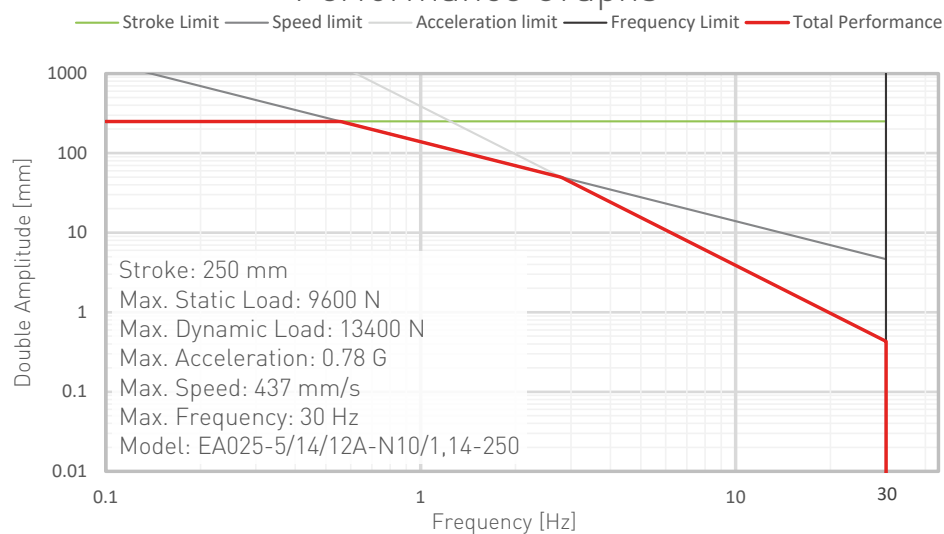
* Other configurations available upon request. / Altre configurazioni disponibili su richiesta.

** Static force values available for test duration up to 5 minutes. To evaluate the maximum creep force (related to test with duration longer than 24h) consider 90% of the static force value. Example: If static force is 100kN, creep force is 90 kN. / I valori di prova statica sono validi per test con durata fino a 5 minuti. Per valutare i massimi valori di forza per prove a creep (test di durata maggiore di 24h), considerare il 90% del valore di forza statica. Esempio: Se la forza statica è 100kN, la forza di creep è 90 kN.

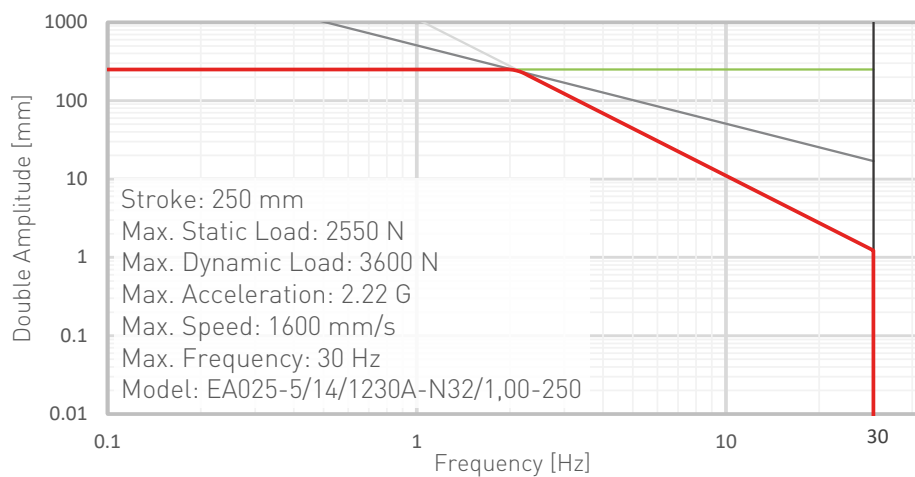
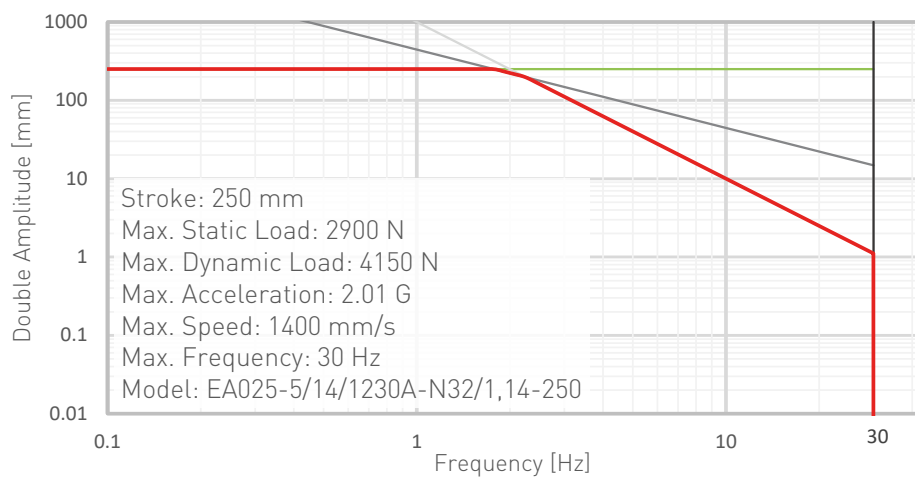
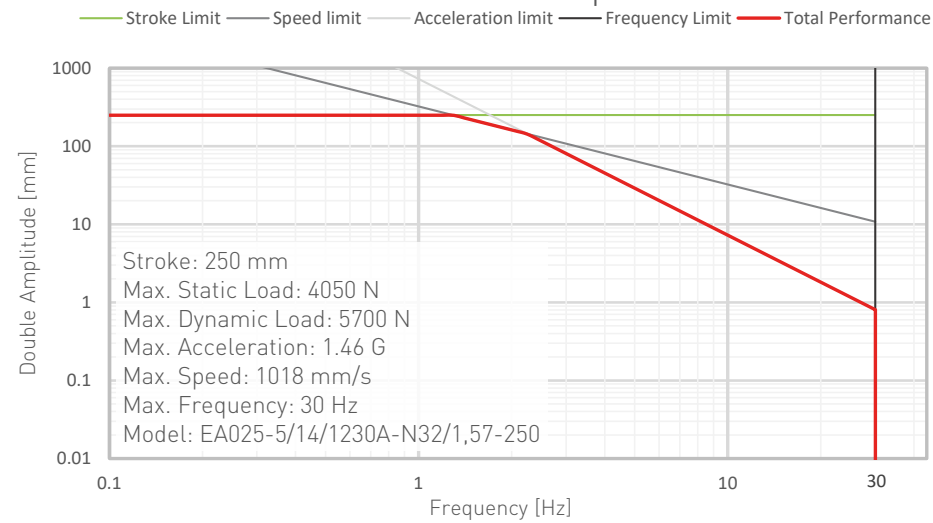
Performance Graphs



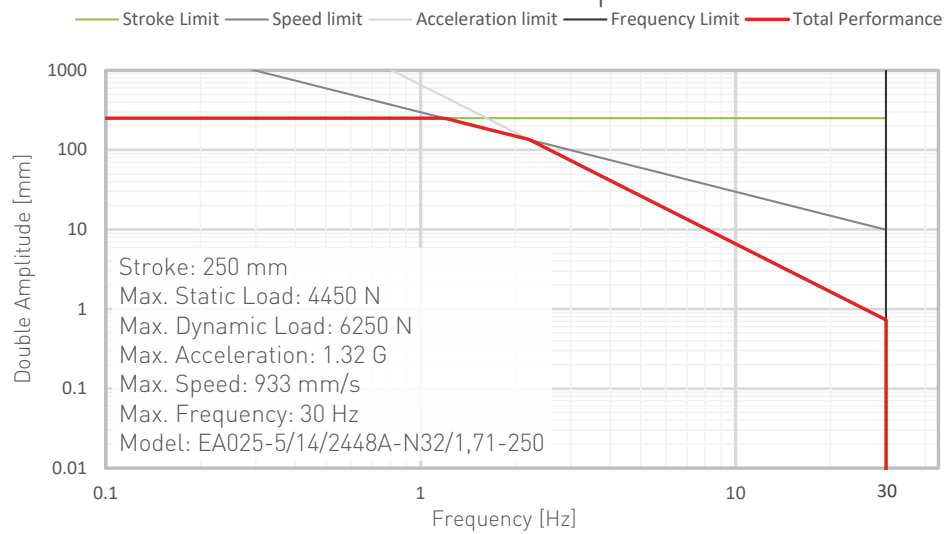
Performance Graphs



Performance Graphs

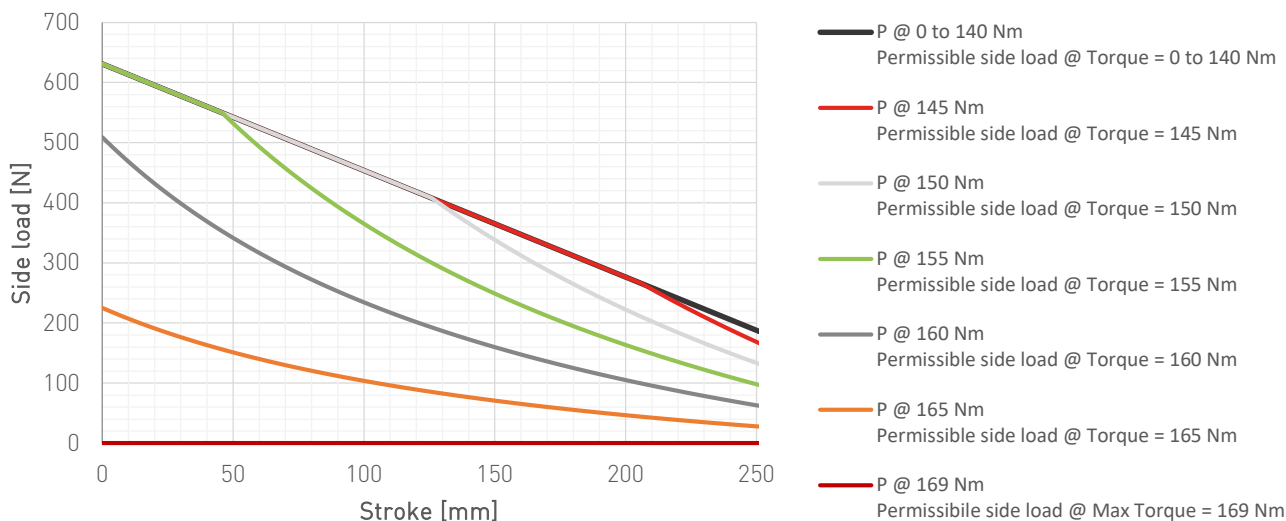


Performance Graphs

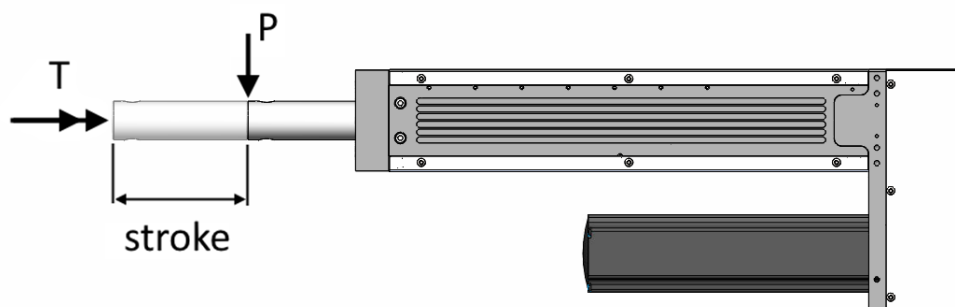
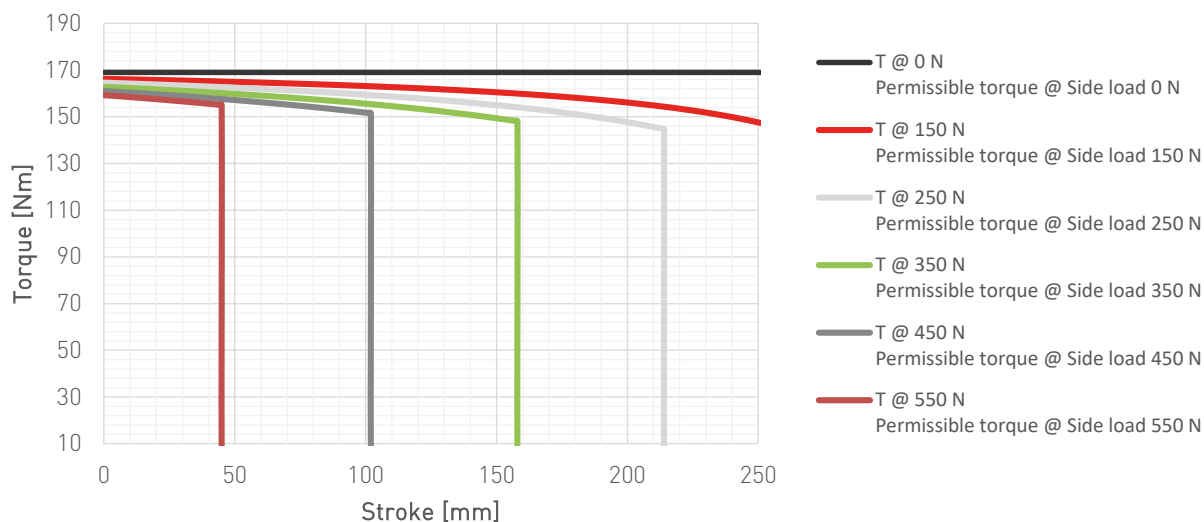


Performance Charts with Torque and Side Force / Tabelle Prestazioni con Carico Torsionale e Laterale*

Permissible side load for a given torque
EA025 - stroke 250 mm

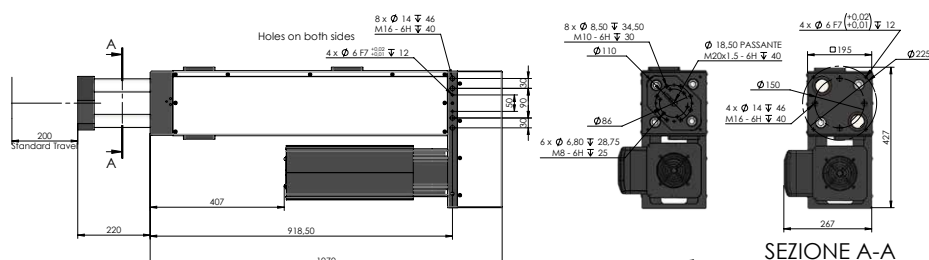


Permissible torque for a given side load
EA025 - stroke 250 mm

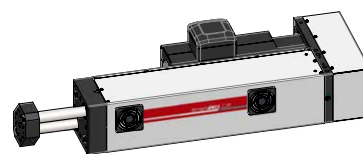
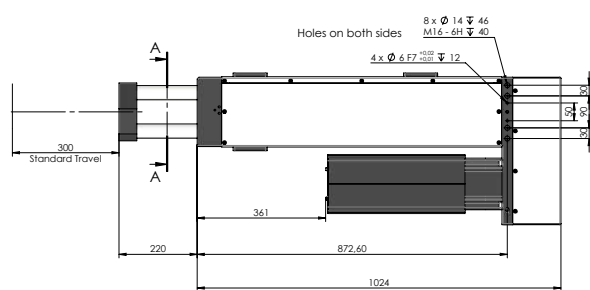


* These tables are intended for an indicative sizing. The final sizing will be provided by STEP Lab based on the request. / Queste tabelle sono da usare per un dimensionamento indicativo. Il dimensionamento finale verrà fornito da STEP Lab in base alla richiesta.

EA050 - Standard Configuration



EA050 - End-of-Line Configuration (EOL)



Main Features *

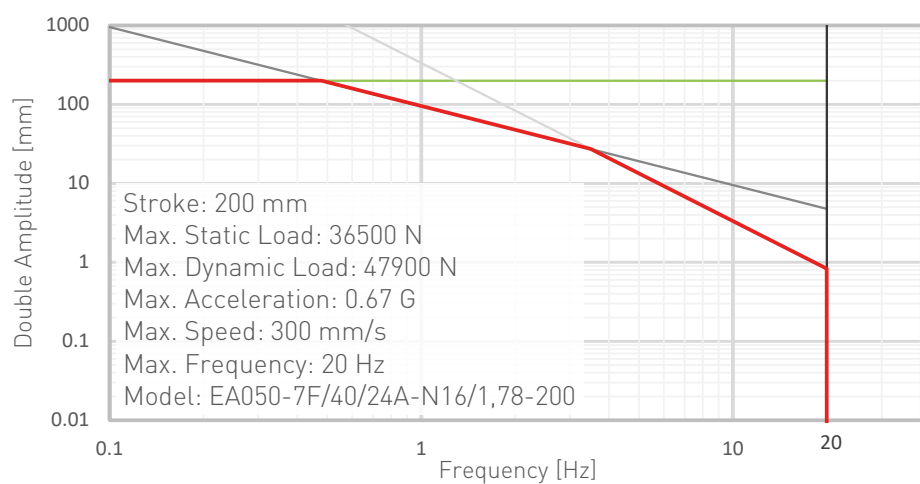
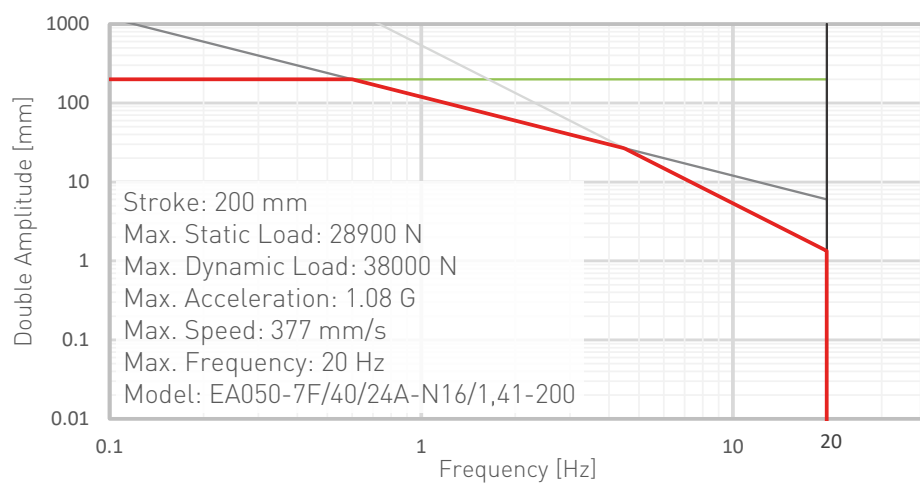
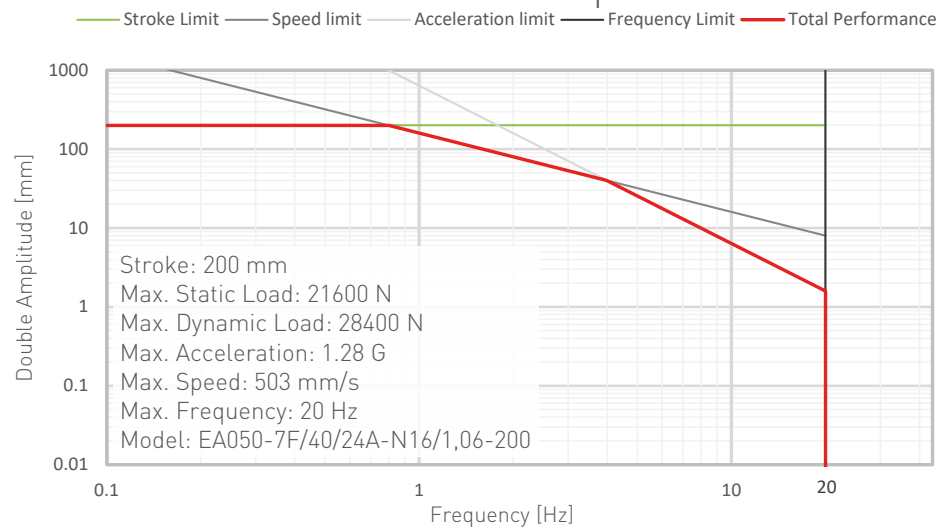
- + Maximum Dynamic Force: 50.0 kN
- + Maximum Static Force: 65.0 kN

Configuration and Codes / Configurazioni e Codici

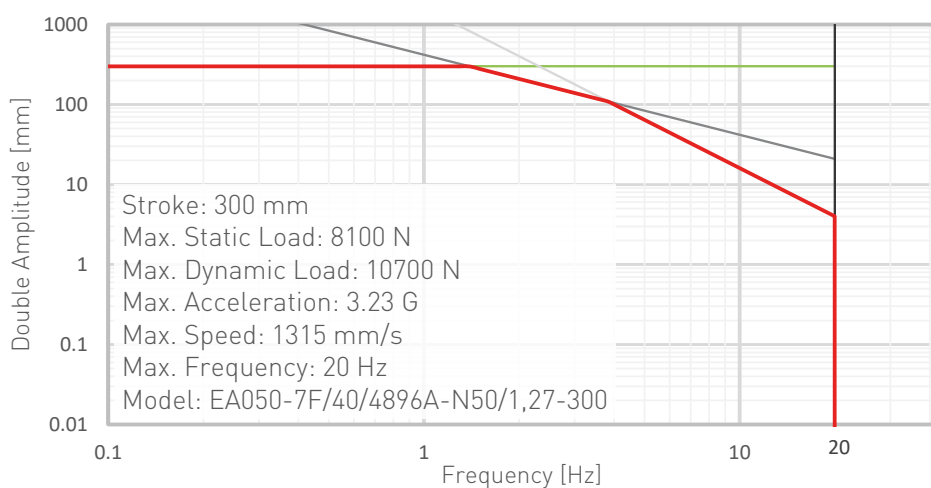
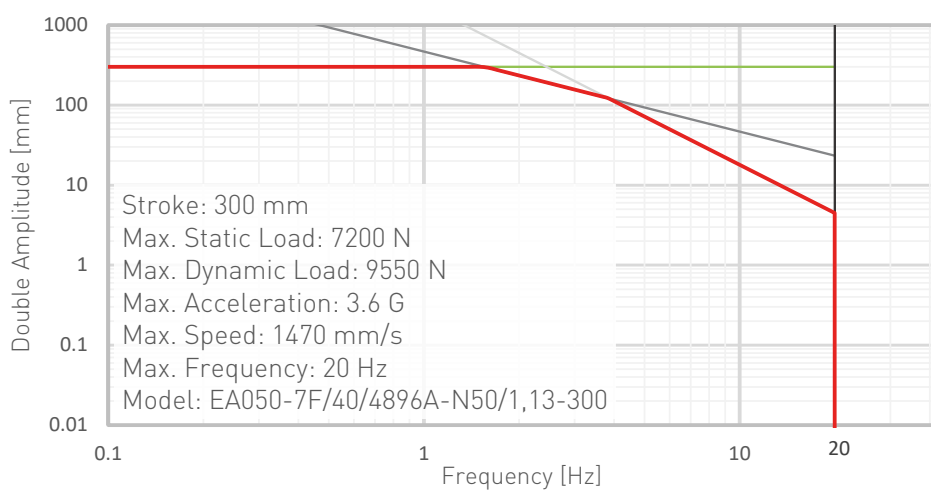
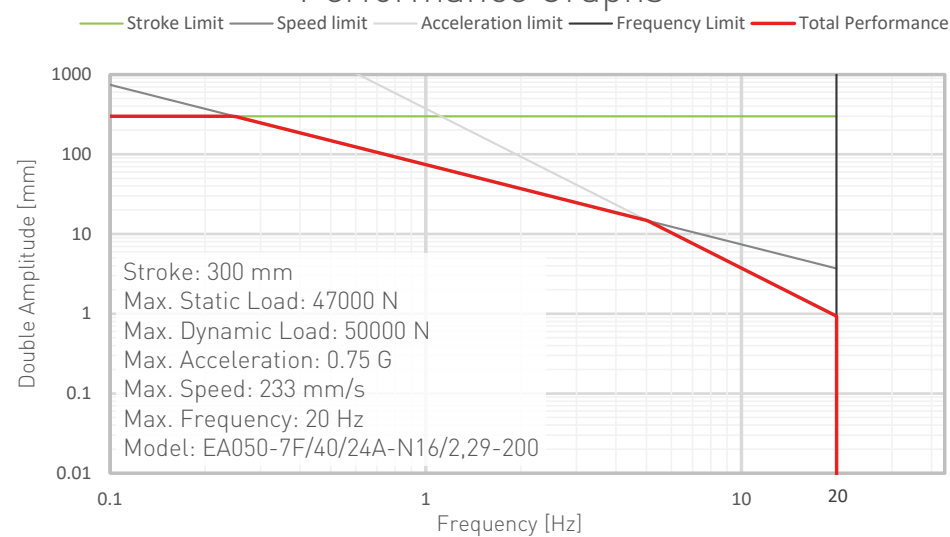
Code	Static Force** (N)	Dynamic Force (N)	Acceleration (G)	Max. Speed (mm/s)	Peak acceleration (G)	Peak force (N)	Speed at peak force (mm/s)	Standard Stroke (mm)
EA050-7F/40/24A-N16/1,06-200	21600	28400	1.28	503	-	-	-	200
EA050-7F/40/24A-N16/1,41-200	28900	38000	1.08	377	-	-	-	
EA050-7F/40/24A-N16/1,78-200	36500	47900	0.67	300	-	-	-	
EA050-7F/40/24A-N16/2,29-200	47000	50000	0.75	233	-	-	-	
EA050-7F/40/4896A-N50/1,13-300	7200	9550	3.60	1470	5.50	15200	1115	300
EA050-7F/40/4896A-N50/1,27-300	8100	10700	3.23	1315	5.16	17000	1000	
EA050-7F/40/4896A-N50/1,60-300	10300	13600	2.74	1041	4.36	21600	790	
EA050-7F/40/4896A-N50/2,13-300	13800	18200	1.99	781	3.17	28900	590	

* Static force values available for test duration up to 5 minutes. To evaluate the maximum creep force (related to test with duration longer than 24h) consider 90% of the static force value. Example: If static force is 100kN, creep force is 90 kN. / I valori di prova statica sono validi per test con durata fino a 5 minuti. Per valutare i massimi valori di forza per prove a creep (test di durata maggiore di 24h), considerare il 90% del valore di forza statica. Esempio: Se la forza statica è 100kN, la forza di creep è 90 kN.

Performance Graphs

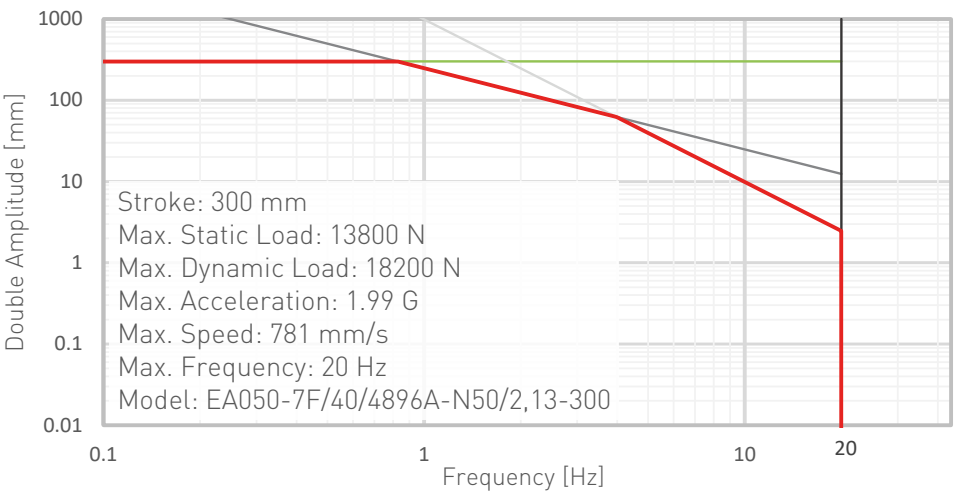
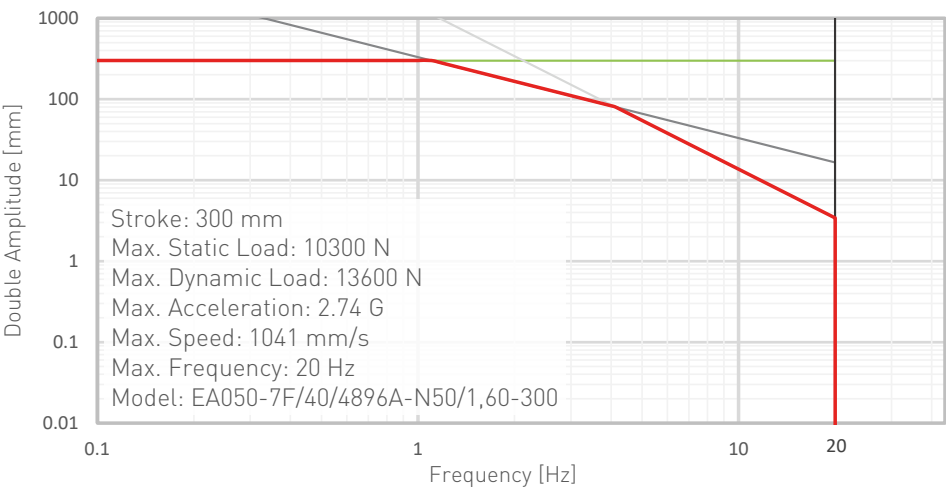


Performance Graphs



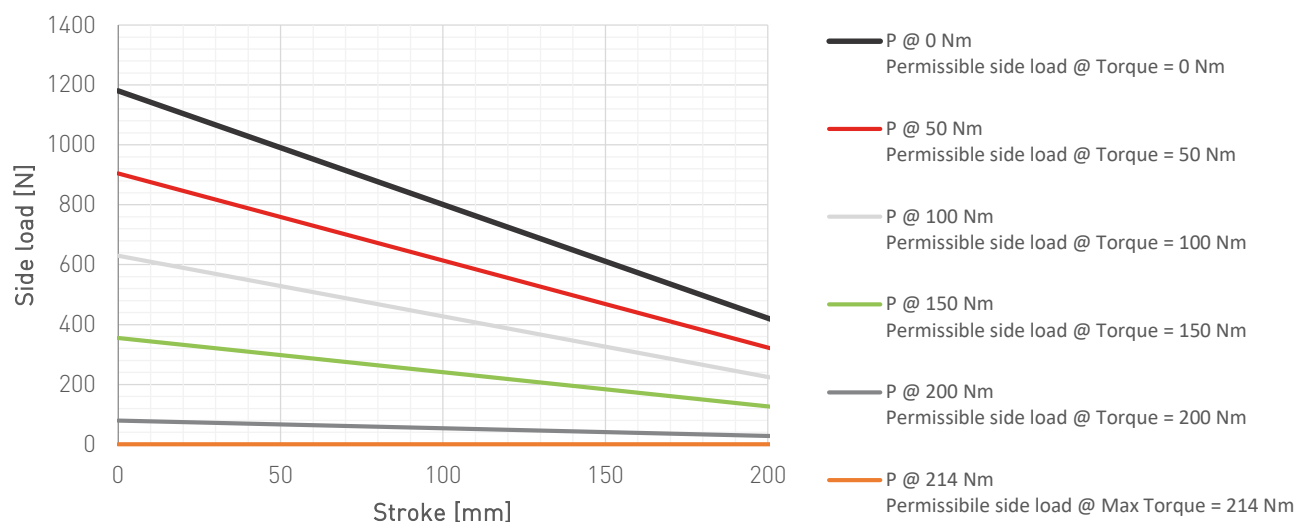
Performance Graphs

Stroke Limit — Speed limit — Acceleration limit — Frequency Limit — Total Performance

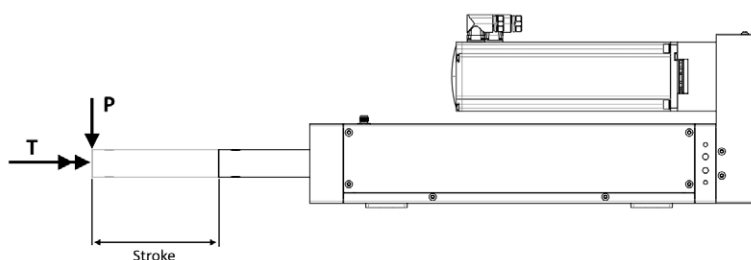
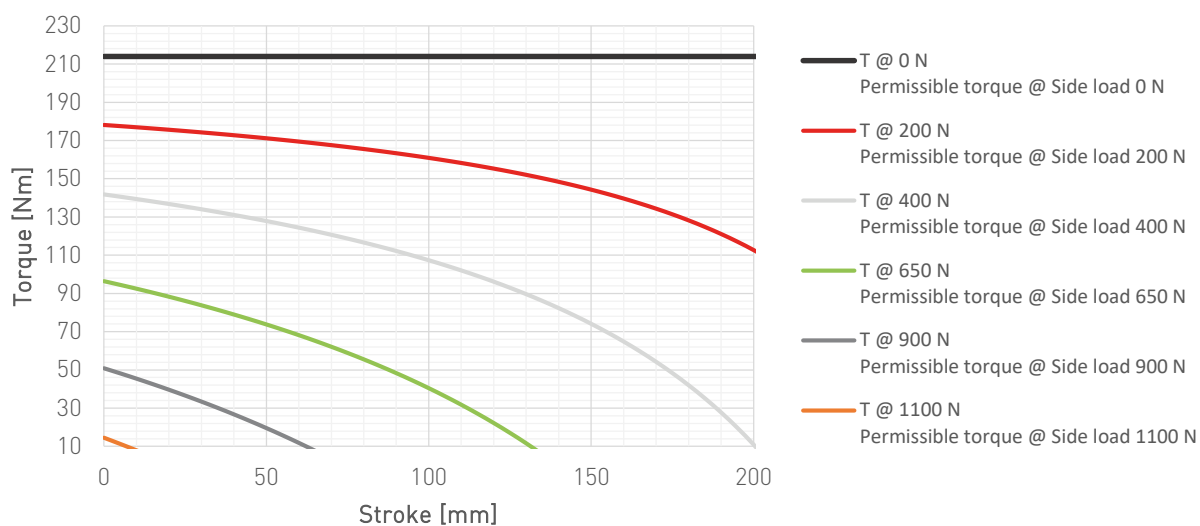


Performance Charts with Torque and Side Force / Tabelle Prestazioni con Carico Torsionale e Laterale*

Permissible side load for a given torque
EA050 - stroke 200 mm

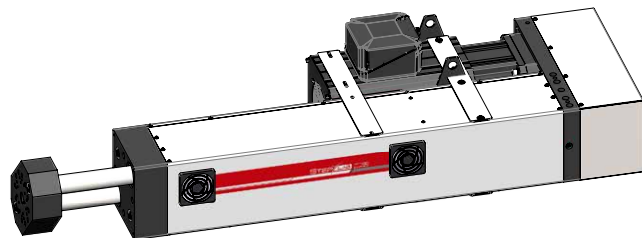
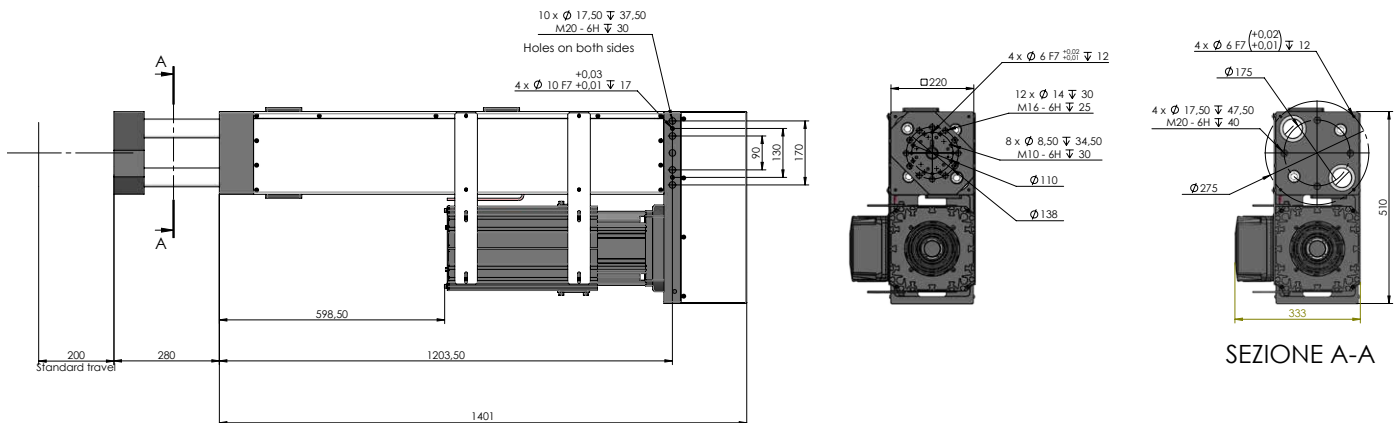


Permissible torque for a given side load
EA050 - stroke 200 mm



* These tables are intended for an indicative sizing. The final sizing will be provided by STEP Lab based on the request. / Queste tabelle sono da usare per un dimensionamento indicativo. Il dimensionamento finale verrà fornito da STEP Lab in base alla richiesta.

EA100



Main Features *

- + Maximum Dynamic Force: 100 kN
- + Maximum Static Force: 134 kN

Configuration and Codes / Configurazioni e Codici

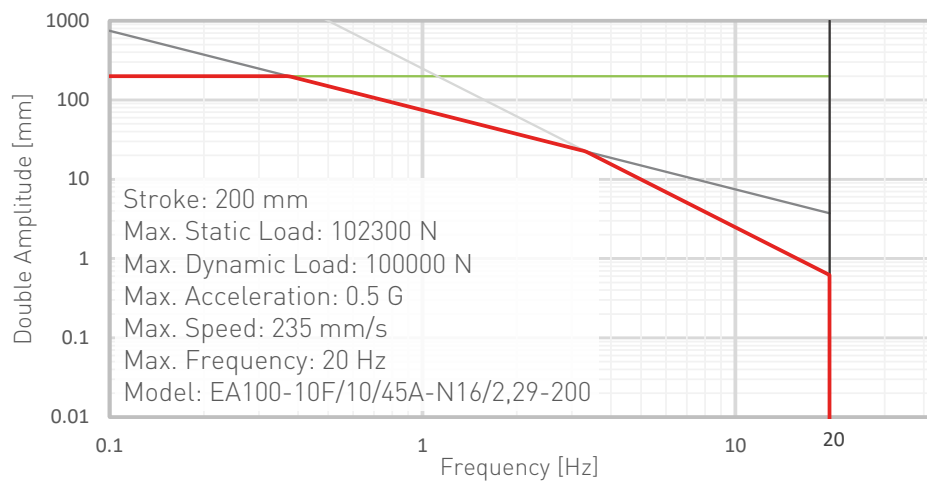
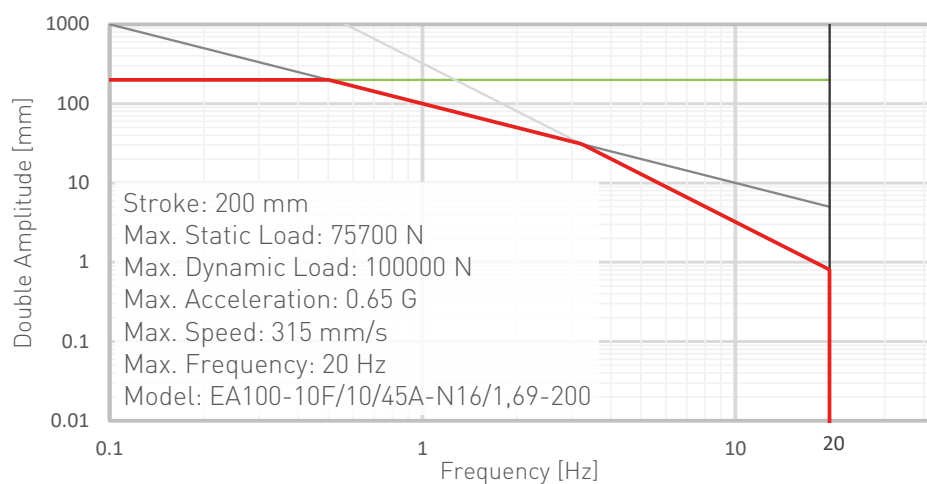
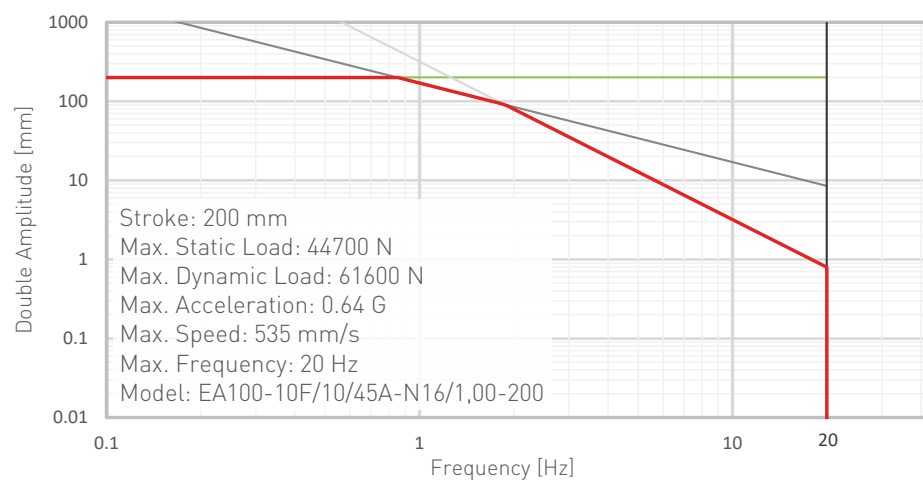
Code	Static Force** (N)	Dynamic Force (N)	Acceleration (G)	Max. Speed (mm/s)	Peak acceleration (G)	Peak force (N)	Speed at peak force (mm/s)	Standard Stroke (mm)
EA100-10F/10/45A-N16/1-200	44700	61600	0.64	535	-	-	-	200
EA100-10F/10/45A-N16/1,69-200	75700	100000	0.65	315	-	-	-	
EA100-10F/10/45A-N16/2,29-200	102300	100000	0.50	235	-	-	-	
EA100-10F/10/45A-N16/3-200	134200	100000	0.44	180	-	-	-	
EA100-10F/10/4896A-N50/1,00-300	13700	19400	2.34	1666	3.08	25500	1355	300
EA100-10F/10/4896A-N50/1,26-300	17400	24600	2.01	1319	2.65	32400	1075	
EA100-10F/10/4896A-N50/1,47-300	20400	28700	1.62	1130	2.13	37800	920	
EA100-10F/10/4896A-N50/1,78-300	24700	34700	1.51	937	1.98	45700	760	
EA100-10F/10/4896A-N50/2,00-300	27800	39100	1.28	833	1.68	51400	675	
EA100-10F/10/4896A-N50/2,40-300	34000	46900	1.21	694	1.59	61800	565	

* Other values available upon request. / Altri valori disponibili su richiesta.

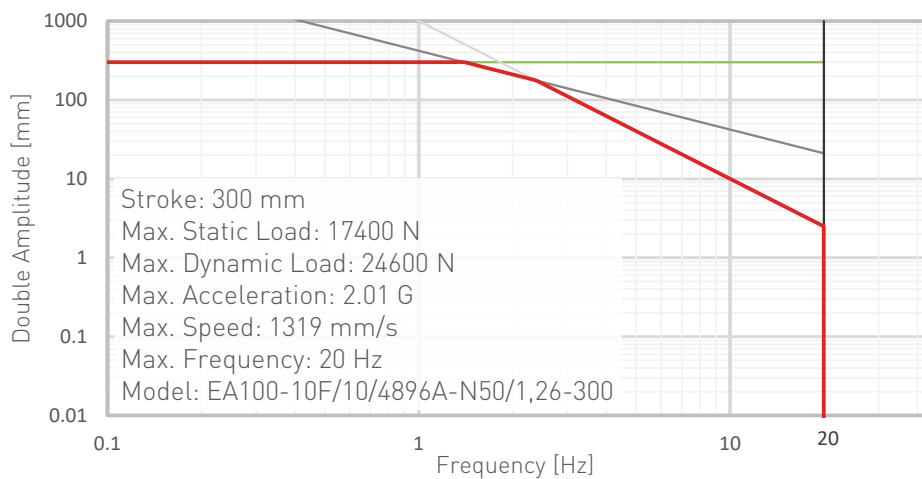
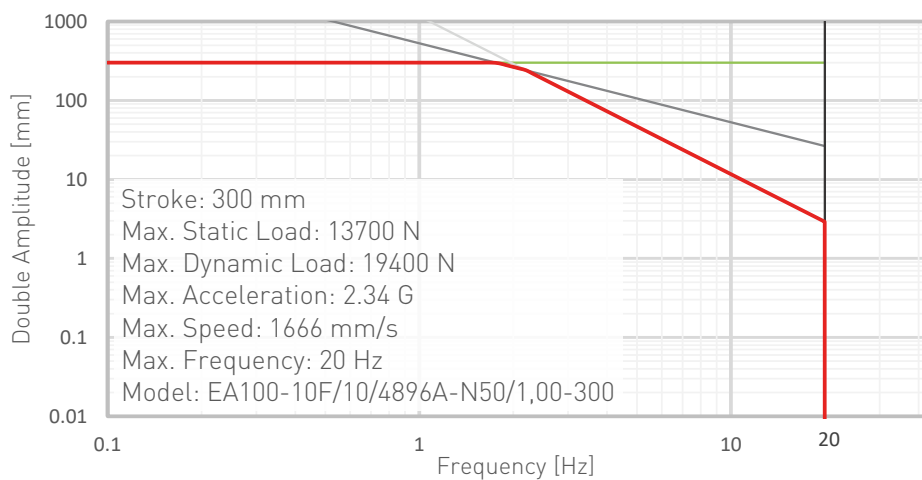
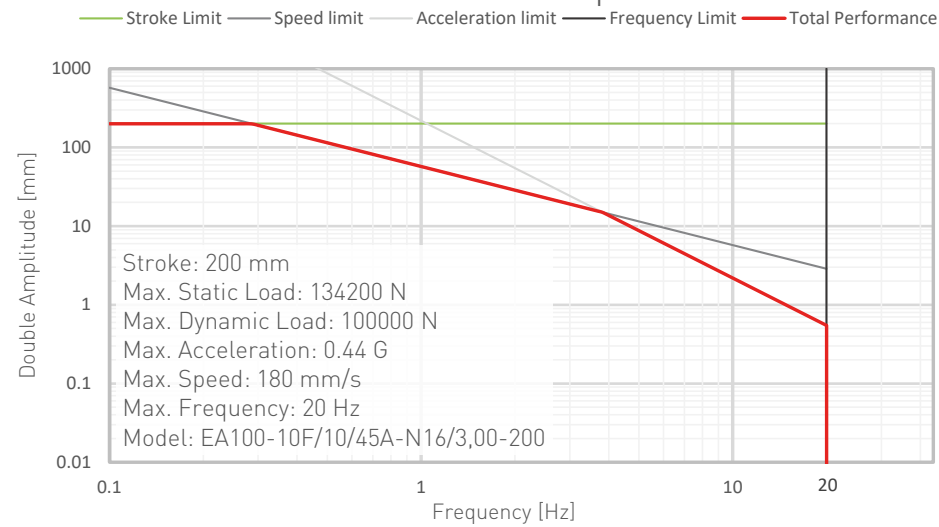
** Static force values available for test duration up to 5 minutes. To evaluate the maximum creep force (related to test with duration longer than 24h) consider 90% of the static force value. Example: If static force is 100kN, creep force is 90 kN. / I valori di prova statica sono validi per test con durata fino a 5 minuti. Per valutare i massimi valori di forza per prove a creep (test di durata maggiore di 24h), considerare il 90% del valore di forza statica. Esempio: Se la forza statica è 100kN, la forza di creep è 90 kN.

Performance Graphs

— Stroke Limit — Speed limit — Acceleration limit — Frequency Limit — Total Performance

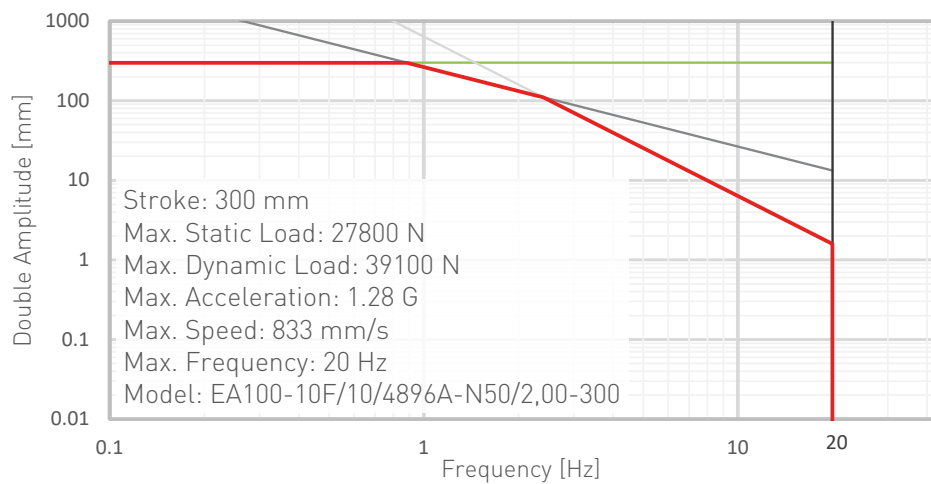
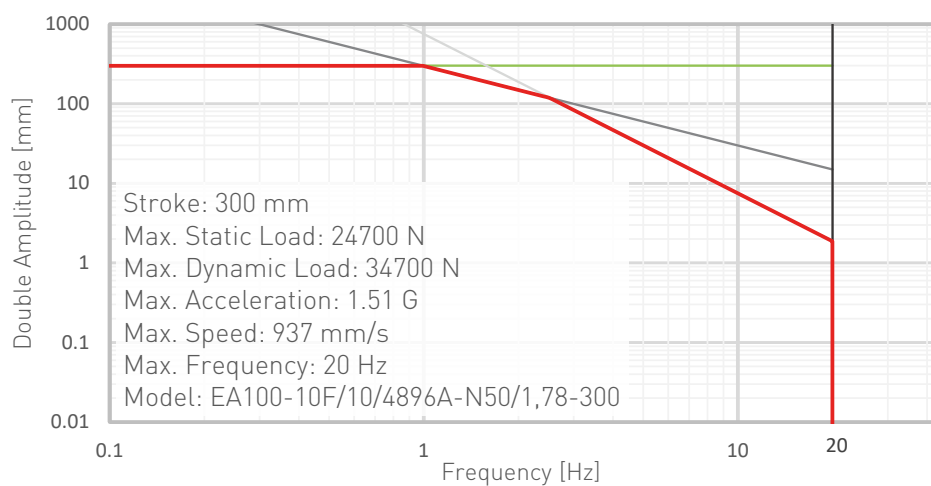
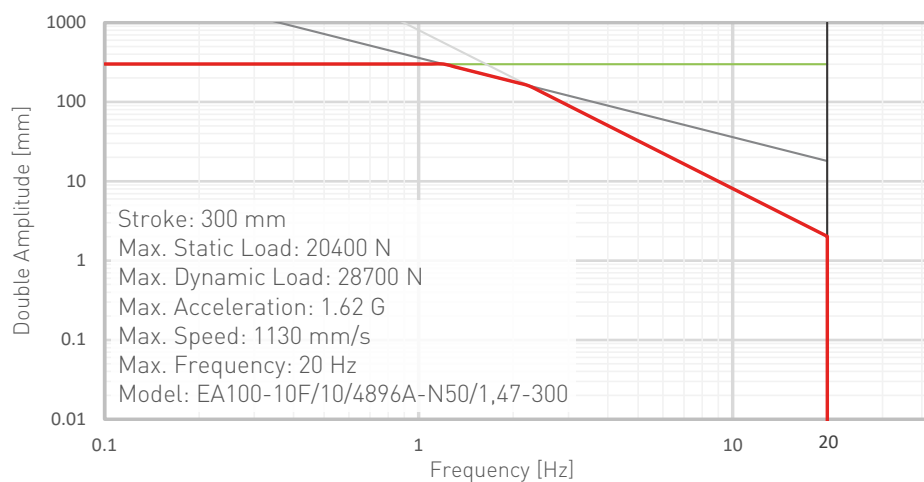


Performance Graphs

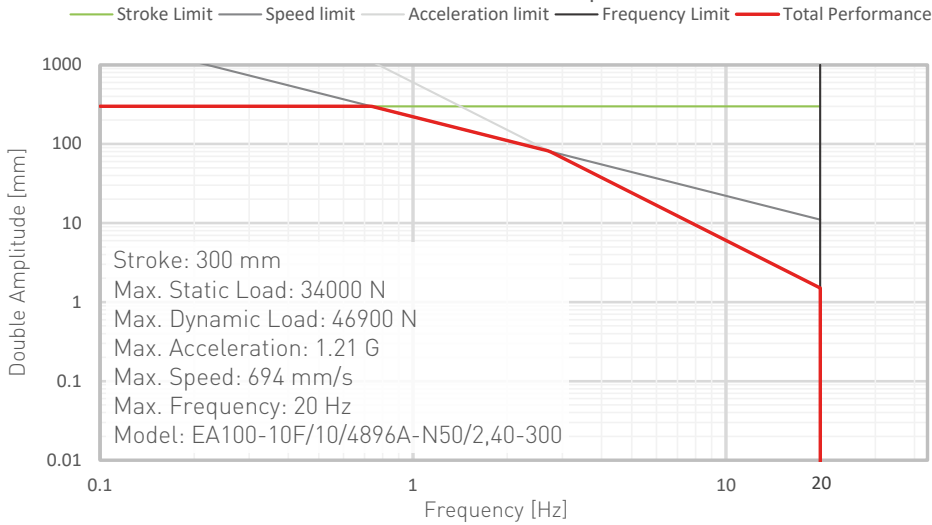


Performance Graphs

— Stroke Limit — Speed limit — Acceleration limit — Frequency Limit — Total Performance

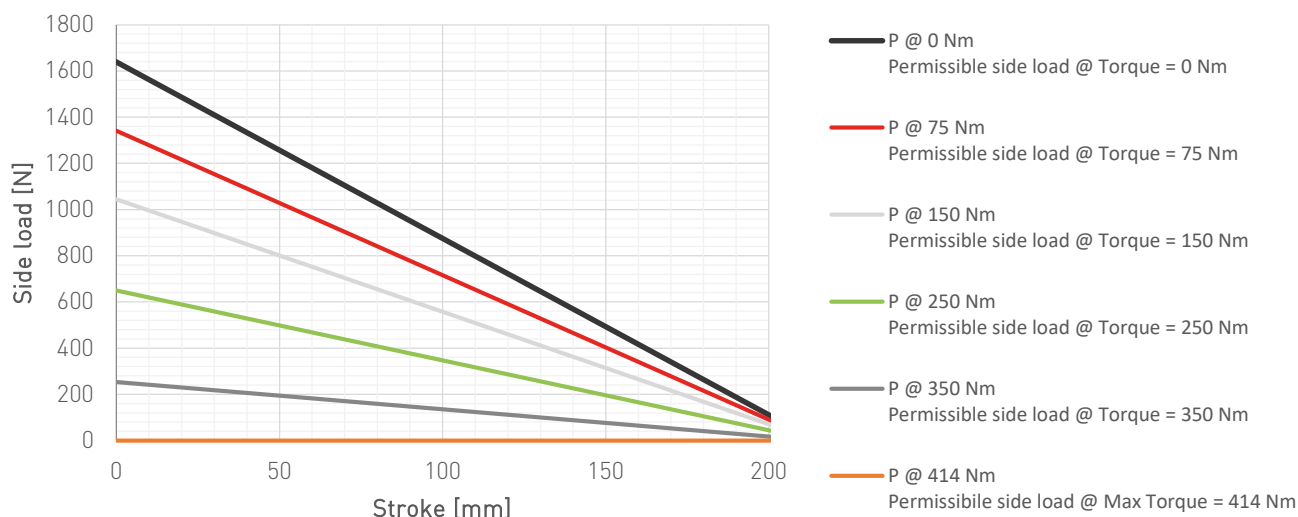


Performance Graphs

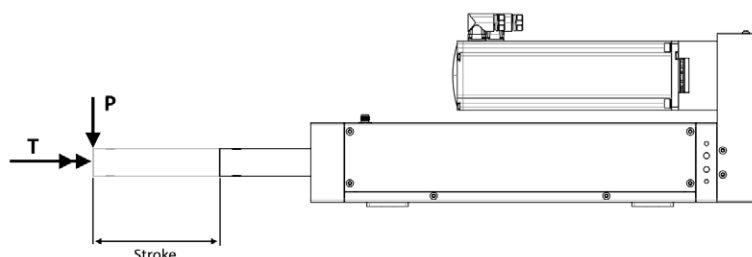
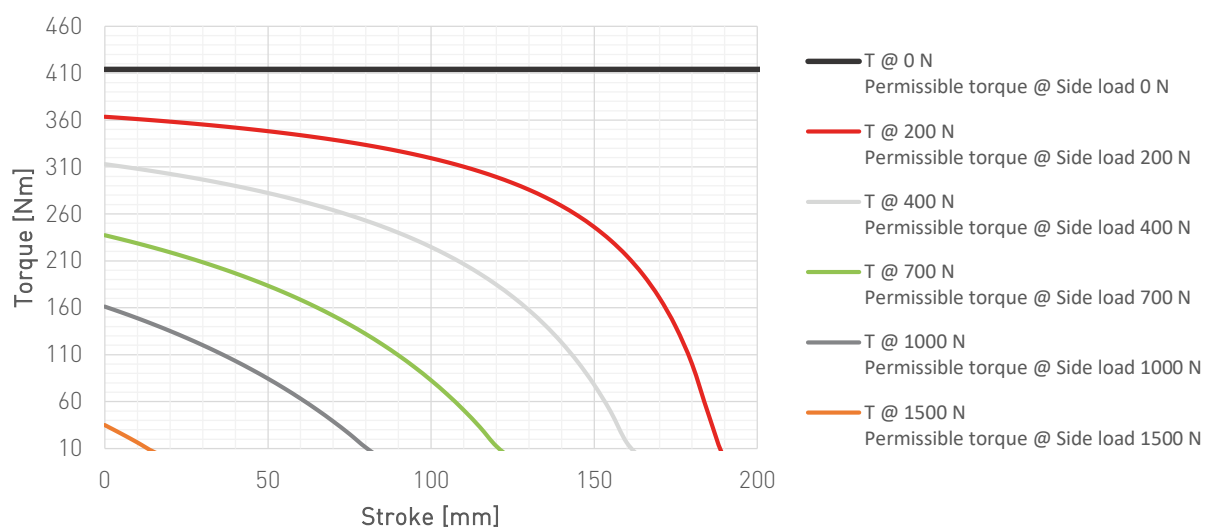


Performance Charts with Torque and Side Force / Tabelle Prestazioni con Carico Torsionale e Laterale*

Permissible side load for a given torque
EA100 - stroke 200 mm

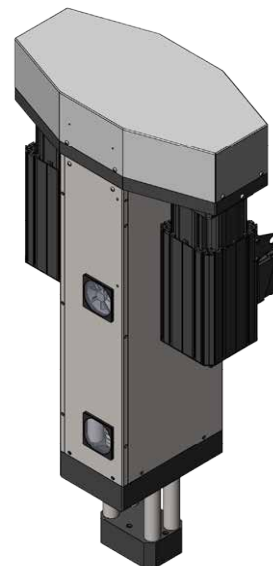
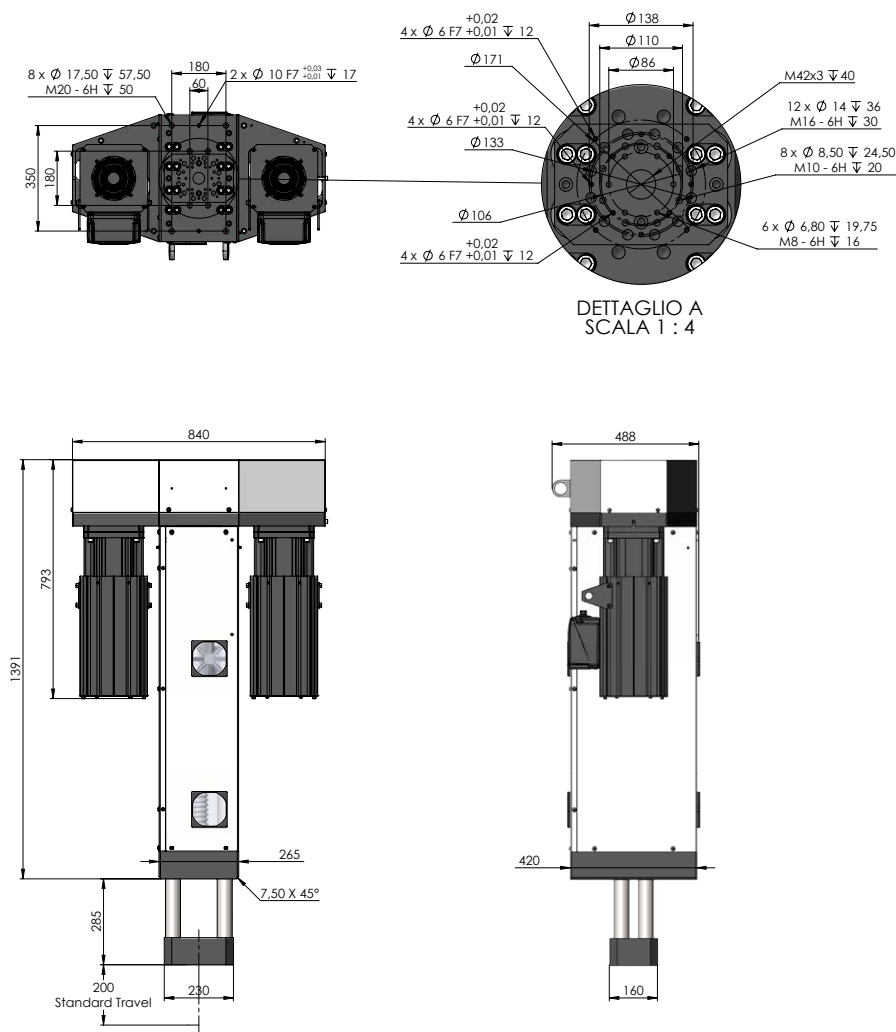


Permissible torque for a given side load
EA100 - stroke 200 mm



* These tables are intended for an indicative sizing. The final sizing will be provided by STEP Lab based on the request. / Queste tabelle sono da usare per un dimensionamento indicativo. Il dimensionamento finale verrà fornito da STEP Lab in base alla richiesta.

EA200



Main Features *

- + Maximum Dynamic Force: 200 kN
- + Maximum Static Force: 268 kN

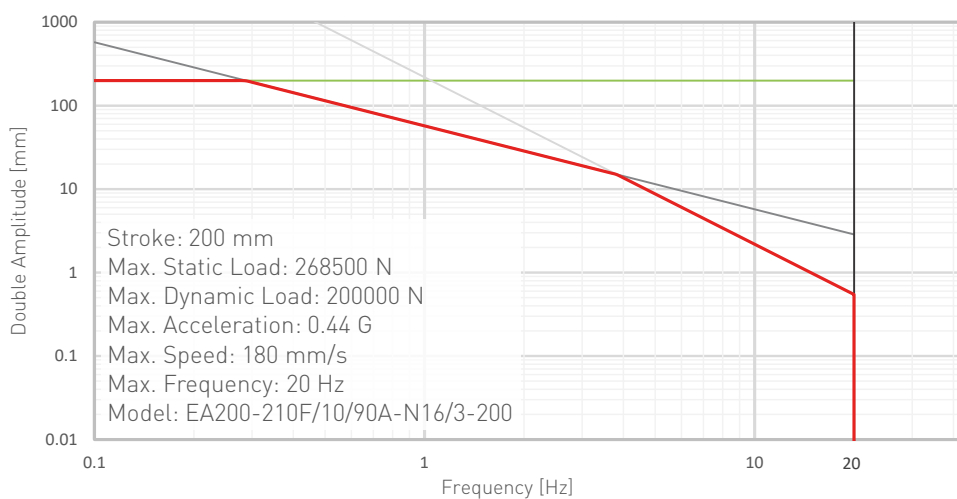
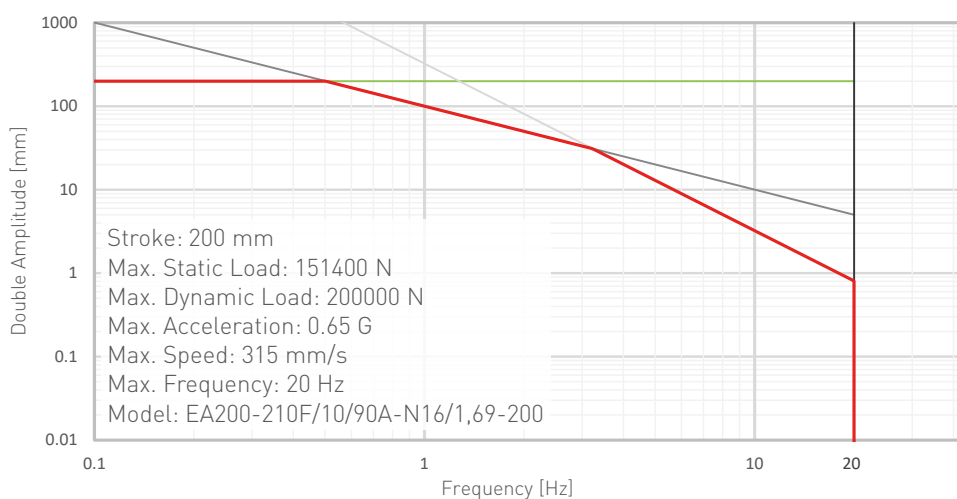
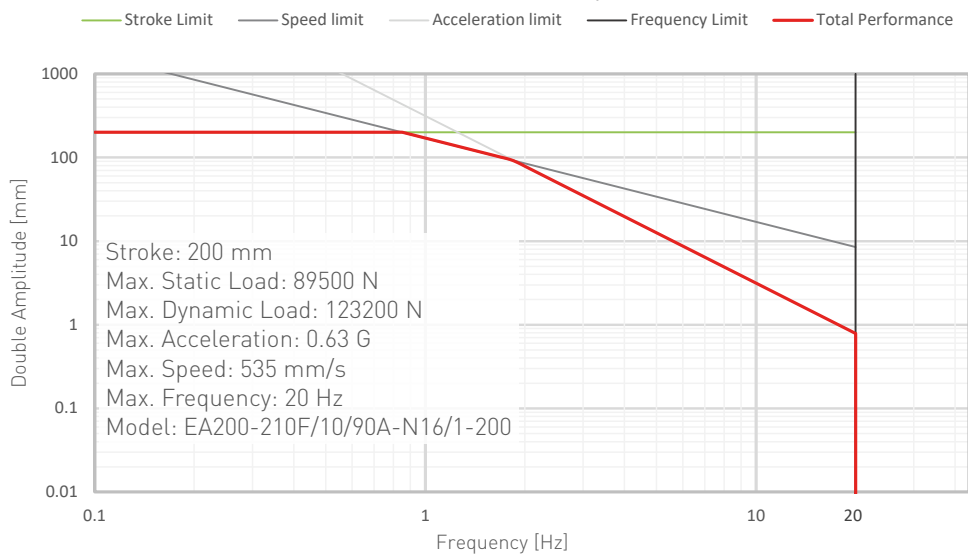
Configuration and Codes / Configurazioni e Codici

	Code	Static Force (N)**	Dynamic Fore (N)	Acceleration (g)	Max. Speed (mm/s)	Standard Stroke (mm)
EA200	EA200-210F/10/90A-N16/1-200	89500	123200	0.63	535	200
	EA200-210F/10/90A-N16/1,69-200	151400	200000	0.65	315	
	EA200-210F/10/90A-N16/3-200	268500	200000	0.44	180	

* Other values available upon request. / Altri valori disponibili su richiesta.

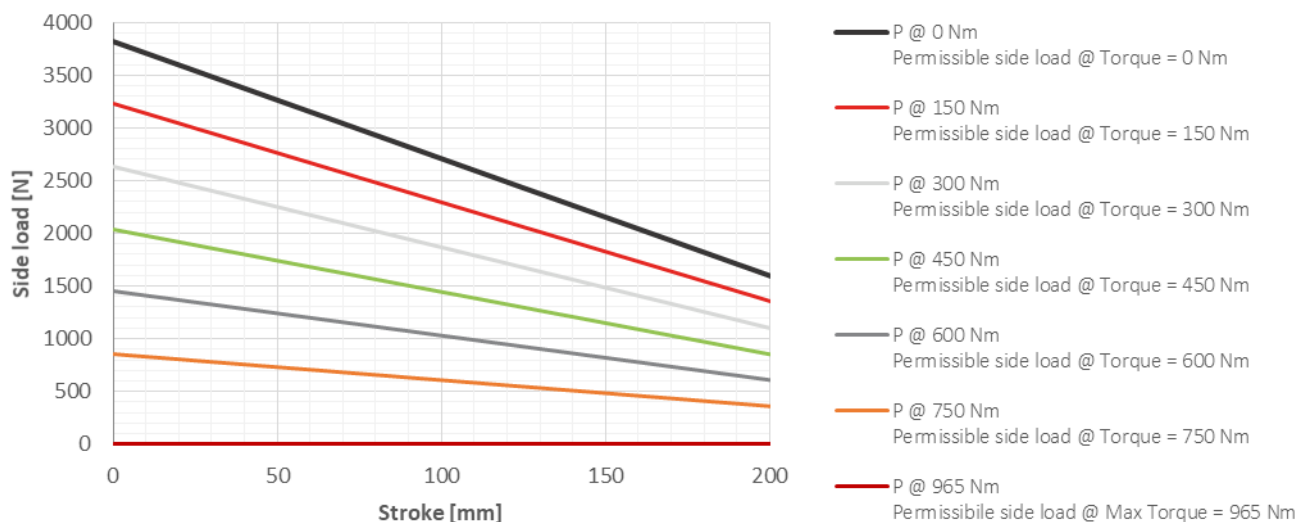
** Static force values available for test duration up to 5 minutes. To evaluate the maximum creep force (related to test with duration longer than 24h) consider 90% of the static force value. Example: If static force is 100kN, creep force is 90 kN. / I valori di prova statica sono validi per test con durata fino a 5 minuti. Per valutare i massimi valori di forza per prove a creep (test di durata maggiore di 24h), considerare il 90% del valore di forza statica. Esempio: Se la forza statica è 100kN, la forza di creep è 90 kN.

Performance Graphs

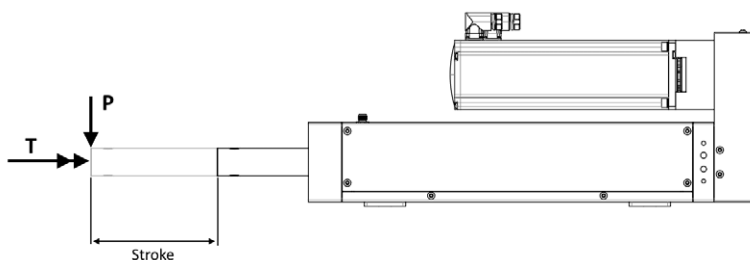
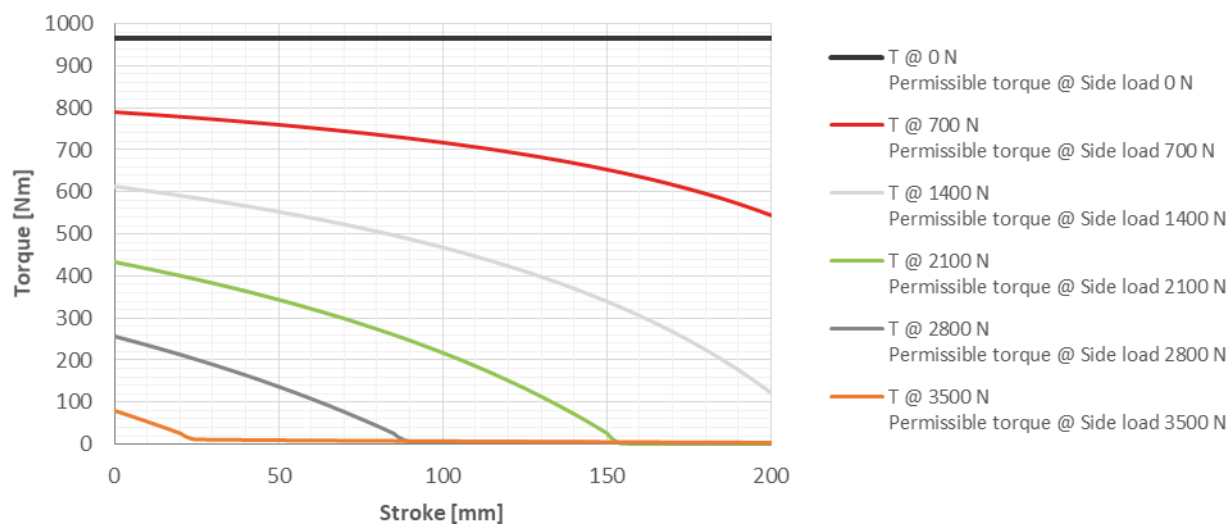


Performance Charts with Torque and Side Force /
Tabelle Prestazioni con Carico Torsionale e Laterale*

Permissible side load for a given torque
EA200 - stroke 200 mm

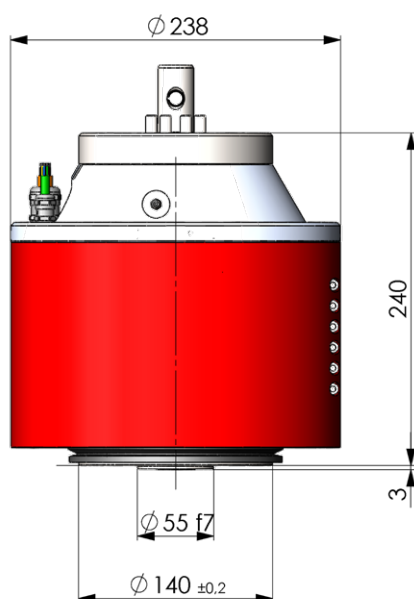


Permissible torque for a given side load
EA200 - stroke 200 mm



* These tables are intended for an indicative sizing. The final sizing will be provided by STEP Lab based on the request. / Queste tabelle sono da usare per un dimensionamento indicativo. Il dimensionamento finale verrà fornito da STEP Lab in base alla richiesta.

Bi-axial Variant: Torsional Actuator / **Variante Bi-assiale: Attuatore Torsionale**



BV170 - Dimensions



BV170



EA050 with BV170 variant

General description

Technical solutions for electromechanical axis and for axis based on linear motors.

Descrizione generale

Soluzioni tecniche per assi elettromeccanici e assi basati su motori lineari.

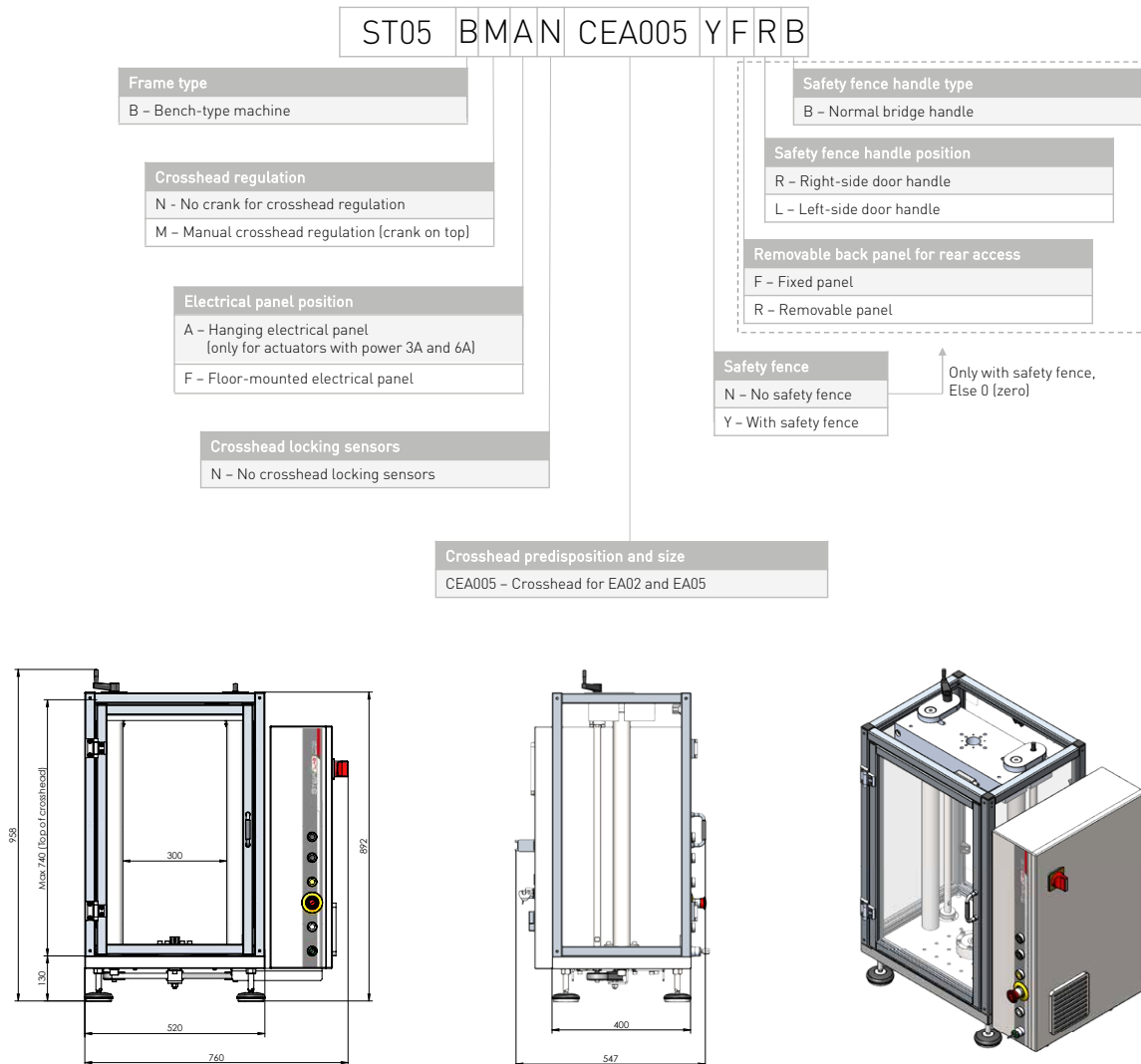
	BV020	BV035	BV060	BV080	BV100	BV110	BV170	BV230
Continuous torque Coppia continua [Nm]	15	25	45	55	80	100	135	160
Dynamic torque (sinusoidal fatigue) Coppia dinamica (fatica sinusoidale) [Nm]	20	35	60	80	100	110	170	230
Test speed Velocità di prova [rpm]	350	350	200	150	200	300	200	100
Static axial load (Max. Admissible) [kN] * Carico statico assiale (Max. Ammissibile)	15	50	50	50	50	50	50	50
Dynamic axial load (Max. Admissible) [kN] * Carico dinamico assiale (Max. Ammissibile)	10.5	35	35	35	35	35	35	35
Cooling Raffreddamento	Air Aria	Air Aria	Air Aria	Air Aria	Water Acqua	Air Aria	Water Acqua	Water Acqua
Max. Number of revolutions Max. Numero di rivoluzioni	± 10000 *							
Rotational absolute encoder Encoder rotativo assoluto	Integrated Integrato							

All the solutions is comprehensive of biaxial load cell. / Tutte le soluzioni sono comprensive di cella di carico biassiale.

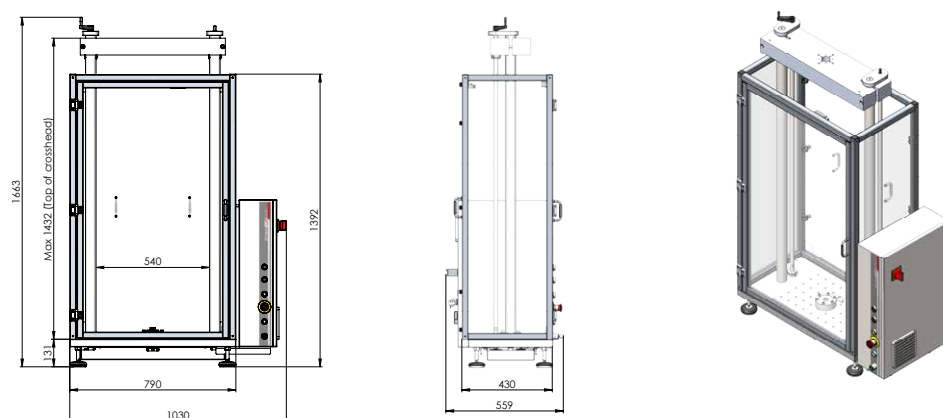
* Higher value on request / Valori maggiori su richiesta

Structure Types / Tipi di struttura

Configurations of ST05 Frames / Configurazioni delle Strutture ST05



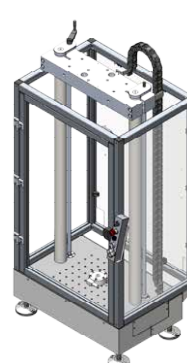
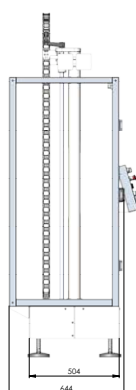
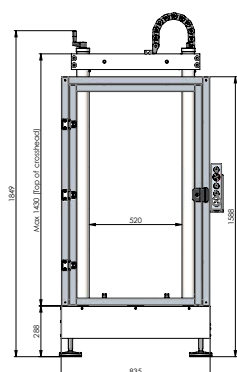
Example of ST05 Manual Bench-type Frame: ST05 BMAN CEA005 YFRB



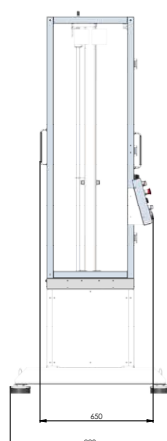
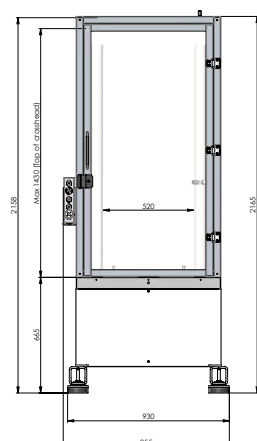
Example of ST05L Manual Bench-type Frame: ST05L BMAN CEA005 YFRB

Configurations of ST015 Frames / Configurazioni delle Strutture ST015

ST015 F E F N LEA050 N 0 0 0									
Frame type									
B - Bench-type machine									
F - Floor-type machine									
Crosshead regulation									
M - Manual crosshead regulation (crank on top)									
L - Manual crosshead regulation (lateral crank)									
E - Electrical crosshead regulation									
Electrical panel position									
A - Hanging electrical panel (only for actuators with power 3A and 6A)									
F - Floor-mounted electrical panel									
Crosshead locking sensors									
N - No crosshead locking sensors									
Y - Crosshead with locking sensors									
Safety fence handle type									
B - Normal bridge handle									
L - Lighted handle									
I - Interlocked lighted handle									
Safety fence handle position									
R - Right-side door handle									
L - Left-side door handle									
Removable back panel for rear access									
F - Fixed panel									
R - Removable panel									
Safety fence									
N - No safety fence									
Y - With safety fence									
Crosshead predisposition and size									
SEA005 - For EA05, Crosshead with thickness 89 mm									
SEA050 - For EA050, Crosshead with thickness 89 mm									
LEA050 - For EA050, Crosshead with thickness 150 mm									



Example of ST015 Manual Bench-type Frame: ST015 BMAN SEA050 YFRB



Example of ST015 Electric Floor-type Frame: ST015 SXXXXX YLRB

Frame / Struttura	Actuator / Asse
ST05	EA05 - EA025
ST05L	EA05 - EA025
ST015 (89 mm crosshead th.) *	EA05 - EA025 - EA050
ST015 (150 mm crosshead th.) **	EA050 - EA100
ST100	EA050 - EA100 - EA200

* Suggested for loads up to 20 kN / Suggerito per carichi fino a 20 kN

** Suggested for loads over 20 kN / Suggerito per carichi oltre 20 kN

Accessories / Accessori

Item / Articolo	Fmax [kN]
Load cell / Cella di carico ¹	0,1
	0,5
	1
	2,5
	5
	10
	25
	50
	100
	200
	300

¹ The standard accuracy class is 1 (ISO 376). The accuracy class 05 and 00 are available upon request.

¹ L'accuratezza delle celle di carico fornite è 1 (ISO 376). A richiesta sono disponibili celle di carico con accuratezza 05 e 00.

Item / Articolo

Control for two or more synchronized electro-mechanical actuator
Controllo per due o più assi sincronizzati

Climatic temperature chambers integrated on the structure and managed by Test Center
Camere climatiche integrate nella struttura e gestite da Test Center

Remote control
Controllo a distanza

Wedge grips for tests on plane specimen
Griffe a cuneo per test su provini piani

Wedge grips for tests on cylindrical specimen
Griffe a cuneo per test su provini cilindrici

Mechanical customized grips for materials and products mono-axial testing
Afferraggi personalizzati per test monoassiali di materiali e prodotti

Mechanical customized grips for materials and products multi-axial testing
Afferraggi personalizzati per test multiassiali di materiali e prodotti



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