



# HyperCyl-EMA<sup>®</sup>

Electro-Mechanical Actuators



Aries Engineering Company





### Standard Features

**HyperCyl-ema** (electro-mechanical actuator) is a robust, servo driven actuator designed for precision assembly applications or applications not suited for standard HyperCyl or IntelliCyl products.

Available on both roller screw and ball screw configurations in load ratings from 5 kN to 230 kN (1 – 25 tons), HyperCyl-ema provides a new level of price/performance in the automotive, aerospace, DOD, appliance, medical, electronics and transportation industries in a wide range of applications.

Capable of .0025mm (.0001”) repeatability and up to 500mm/sec ram speeds, HyperView-ema provides

the performance and flexibility required in both current and future manufacturing environments and, it’s built in the USA.

When mated with the optional HyperView-Press signature analysis controller, precise force/distance monitoring, trending, data logging, Cpk and data analysis capability improves finished product quality and substantially reduces manufacturing costs. HyperCyl-ema is available as an actuator only/ actuator and drive/actuator, drive and HyperView-Press package. Complete turnkey press stations are also available.

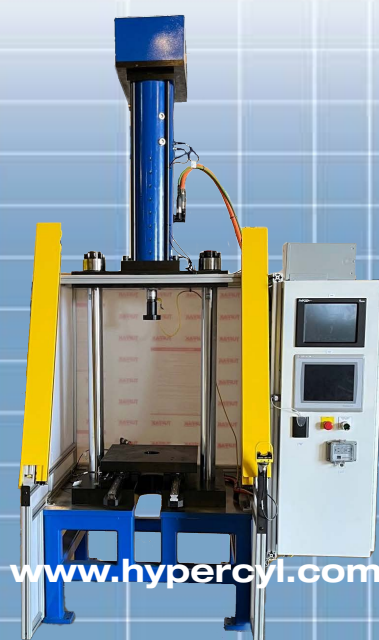
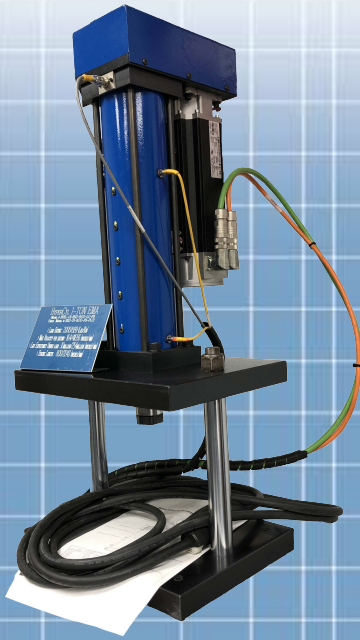


## Performance Data

Roller Screw	ITEM	HPEL-01-RS	HPEL-02-RS	HPEL-04-RS	HPEL-08-RS
Pressing Capacity	Range (Lbs.)	225 (Lbs.) - 2,000 (Lbs.)	250 (Lbs.) - 4,000 (Lbs.)	500 (Lbs.) - 8,000 (Lbs.)	1,000 (Lbs.) - 16,000 (Lbs.)
	Range (kN)	1 (kN) - 8.9 (kN)	1.1 (kN) - 17.8 (kN)	2.2 (kN) - 35.6 (kN)	3.8 (kN) - 71.2 (kN)
	Load Cell Safe Overload (Ultimate)	150% F.S. (200%)	150% F.S. (200%)	150% F.S. (200%)	150% F.S. (200%)
Ram Stroke	Standard Length	8.00"	8.00"	8.00"	8.00"
	Long-Stroke Length (2" Increments if other)	14.00"	14.00"	14.00"	14.00"
	Stroke Sensing Increments	0.001"	0.001"	0.001"	0.001"
Ram Speeds	Descending - Ascending	16.4 in/sec	12.3 in/sec	10.5 in/sec	8.0 in/sec
	Pressing	1.15 in/sec	1.30 in/sec	1.4 in/sec	1.52 in/sec
	Increments	0.0005 in/sec	0.0005 in/sec	0.0005 in/sec	0.0005 in/sec
Motor	Model # (Standard)	115U3E300	142U3E300	190U3D300	190U3F300
	Model # (Brake)	115U3E305	142U3E305	190U3D305	190U3F305
	Rated RPM (MAX)	4,000	4,000	3,000	3,000
	Inertia	13.8 (kgcm <sup>2</sup> )	35.4 (kgcm <sup>2</sup> )	86.4 (kgcm <sup>2</sup> )	123.1 (kgcm <sup>2</sup> )
	Rated Power @ 2,000-3,000-4,000	2.93 (kW) - 3.96 (kW) - 3.64 (kW)	4.46 (kW) - 5.65 (kW) - 5.11 (kW)	7.73 (kW) - 10.4 (kW) - NA	10.6 (kW) - 11.0 (kW) - NA
Drive	Incremental Encoder Standard (Absolute avail)	Incremental (CA) Absolute (EC)	Incremental (CA) Absolute (EC)	Incremental (CA) Absolute (EC)	Incremental (CA) Absolute (EC)
	Model # - Max Cont. Current - Power	SP1405 - 8.8 (A) - 4.0 (kW)	SP3401 - 35 (A) - 18.5 (kW)	SP2403 - 29 (A) - 15 (kW)	SP3401 - 35 (A) - 18.5 (kW)
	Power/Feedback Cable Length	5 meters (7, 10, 15, 25 available)	5 meters (7, 10, 15, 25 available)	5 meters (7, 10, 15, 25 available)	5 meters (7, 10, 15, 25 available)
Repeatability	3 Phase, 48-65 Hz	380-480VAC +/- 10%	380-480VAC +/- 10%	380-480VAC +/- 10%	380-480VAC +/- 10%
Max Hanging Weight @ Ram (no Brake)		+ 0.0002"	+ 0.0002"	+ 0.0002"	+ 0.0002"
Roller Screw	Size	25 x 10	25 x 10	39 x 10	48 x 10
	Backlash	0.03mm	0.03mm	0.03mm	0.03mm
	Dynamic Load per Million Rev's	19696	19696	31771	57309
	Efficiency	89%	89%	88%	87%
Weight of Actuator	Includes Motor Lbs. (kg)	147 (66 kg)	167 (75 kg)	339 (153 kg)	460 (208 kg)

\*specifications subject to change without notice

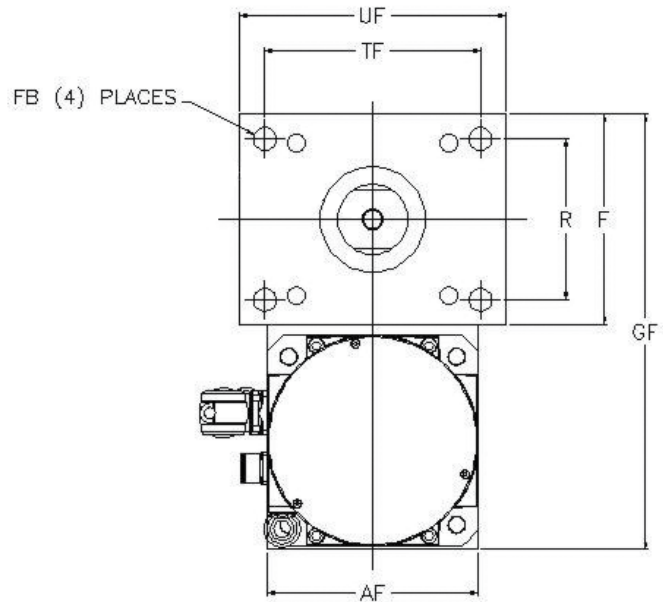
	ITEM	HPEL-10-RS	HPEL-15-RS	HPEL-20-RS	HPEL-25-RS
Pressing Capacity	Range (Lbs.)	1,250 (Lbs.) - 20,000 (Lbs.)	1,250 (Lbs.) - 30,000 (Lbs.)	1,250 (Lbs.) - 40,000 (Lbs.)	1,500 (Lbs.) - 50,000 (Lbs.)
	Range (kN)	5.6 (kN) - 89.0 (kN)	5.6 (kN) - 133.0 (kN)	5.6 (kN) - 177.0 (kN)	6.6 (kN) - 222.0 (kN)
	Load Cell Safe Overload (Ultimate)	150% F.S. (200%)	150% F.S. (200%)	150% F.S. (200%)	150% F.S. (200%)
Ram Stroke	Standard Length	8.00"	8.00"	8.00"	8.00"
	Long-Stroke Length (2" Increments if other)	14.00"	14.00"	14.00"	14.00"
	Stroke Sensing Increments	0.001"	0.001"	0.001"	0.001"
Ram Speeds	Descending - Ascending	6.3 in/sec	6.7 in/sec	4.8 in/sec	4.0 in/sec
	Pressing	1.20 in/sec	1.27 in/sec	0.95 in/sec	0.76 in/sec
	Increments	0.0005 in/sec	0.0005 in/sec	0.0005 in/sec	0.0005 in/sec
Motor	Model # (Standard)	190U3F300	ESM190-21.5kW/24E (IIS)	ESM190-21.5kW/24E (IIS)	ESM190-21.5kW/24E (IIS)
	Model # (Brake)	190U3F305	ESM190-21.5kW/24EB (IIS)	ESM190-21.5kW/24EB (IIS)	ESM190-21.5kW/24EB (IIS)
	Rated RPM (MAX)	3,000	2,400	2,400	2,400
	Inertia	123.1 (kgcm <sup>2</sup> )	122.2 (kgcm <sup>2</sup> )	122.2 (kgcm <sup>2</sup> )	122.2 (kgcm <sup>2</sup> )
	Rated Power @ 2,000-3,000-4,000	10.6 (kW) - 11.0 (kW) - NA	21.5 (kW) @ 2,400	21.5 (kW) @ 2,400	21.5 (kW) @ 2,400
Drive	Incremental Encoder Standard (Absolute avail)	Incremental (CA) Absolute (EC)	Incremental (CA) Absolute (EC)	Incremental (CA) Absolute (EC)	Incremental (CA) Absolute (EC)
	Model # - Max Cont. Current - Power	SP3402 - 43 (A) - 22 (kW)	SP3403 - 56 (A) - 30 (kW)	SP4401 - 68 (A) - 37 (kW)	SP4401 - 68 (A) - 37 (kW)
	Power/Feedback Cable Length	5 meters (7, 10, 15, 25 available)	5 meters (7, 10, 15, 25 available)	5 meters (7, 10, 15, 25 available)	5 meters (7, 10, 15, 25 available)
Repeatability	3 Phase, 48-65 Hz	380-480VAC +/- 10%	380-480VAC +/- 10%	380-480VAC +/- 10%	380-480VAC +/- 10%
Max Hanging Weight @ Ram (no Brake)		+ 0.0002"	+ 0.0002"	+ 0.0002"	+ 0.0002"
Roller Screw	Size	48 x 25	48 x 25	64 x 15	64 x 15
	Maximum Backlash	0.03mm	0.03mm	0.03mm	0.03mm
	Dynamic Load per Million Rev's	51754	51754	96021	96021
	Efficiency	90%	90%	88%	88%
Weight of Actuator	Includes Motor Lbs. (kg)	563 (255 kg)	626 (283 kg)	728 (330 kg)	743 (337 kg)



## Performance Data

Ball Screw		*specifications subject to change without notice					
ITEM		HPEL-01-BS2	HPEL-02-BS2	HPEL-04-BS2	HPEL-08-BS1	HPEL-10-BS1	
Pressing Capacity	Range (Lbs..)	225 (Lbs.) - 2,000 (Lbs.)	250 (Lbs.) - 4,000 (Lbs.)	500 (Lbs.) - 8,000 (Lbs.)	1,000 (Lbs.) - 16,000 (Lbs.)	1,250 (Lbs.) - 20,000 (Lbs.)	
	Range (kN)	1 (kN) - 8.9 (kN)	1.1 (kN) - 17.8 (kN)	2.2 (kN) - 35.6 (kN)	3.8 (kN) - 71.2 (kN)	5.6 (kN) - 89.0 (kN)	
	Load Cell Safe Overload (Ultimate)	150% F.S. (200%)	150% F.S. (200%)	150% F.S. (200%)	150% F.S. (200%)	150% F.S. (200%)	
Ram Stroke	Standard Length	8.00"	8.00"	8.00"	8.00"	8.00"	
	Long-Stroke Length (2" Increments if other)	14.00"	14.00"	14.00"	14.00"	14.00"	
	Stroke Sensing Increments	0.001"	0.001"	0.001"	0.001"	0.001"	
Ram Speeds	Descending - Ascending	18.4 in/sec	7.7 in/sec	13.8 in/sec	7.3 in/sec	6.4 in/sec	
	Pressing	1.15 in/sec	1.30 in/sec	1.4 in/sec	1.25 in/sec	1.25 in/sec	
	Increments	0.0005 in/sec	0.0005 in/sec	0.0005 in/sec	0.0005 in/sec	0.0005 in/sec	
Motor	Model # (Standard)	115U3E300	115U3E300	190U3E300	190U3F300	190U3F300	
	Model # (Brake)	115U3E305	115U3E305	190U3E305	190U3F305	190U3F305	
	Rated RPM (MAX)	3,000	3,000	2,000	2,000	2,000	
	Inertia	13.8 (kgcm <sup>2</sup> )	13.8 (kgcm <sup>2</sup> )	105 (kgcm <sup>2</sup> )	121.1 (kgcm <sup>2</sup> )	121.1 (kgcm <sup>2</sup> )	
	Rated Power @ 2,000-3,000-4,000	2.93 (kW) - 3.98 (kW) - 3.64 (kW)	2.93 (kW) - 3.98 (kW) - 3.64 (kW)	9.2 (kW) - 10.7 (kW) - NA	10.8 (kW) - 11.0 (kW) - NA	10.8 (kW) - 11.0 (kW) - NA	
	Encoder: Incremental is Standard	Incremental (CA) Absolute (EC)	Incremental (CA) Absolute (EC)	Incremental (CA) Absolute (EC)	Incremental (CA) Absolute (EC)	Incremental (CA) Absolute (EC)	
Drive	Model # - Max Cont. Current - Power	M702-034 - 10.0 (A) - 5 (hp)	M702-034 - 10.0 (A) - 5 (hp)	M702-054 27 (A) - 20 (hp)	M702-054 27 (A) - 20 (hp)	M702-054 27 (A) - 20 (hp)	
	Power/Feedback Cable Length	5 meters (7,10,15,25 available)	5 meters (7,10,15,25 available)	5 meters (7,10,15,25 available)	5 meters (7,10,15,25 available)	5 meters (7,10,15,25 available)	
	3 Phase, 48-65 Hz	380-480VAC +/- 10%	380-480VAC +/- 10%	380-480VAC +/- 10%	380-480VAC +/- 10%	380-480VAC +/- 10%	
Repeatability		+/- 0.0002"	+/- 0.0002"	+/- 0.0002"	+/- 0.0002"	+/- 0.0002"	
Max Hanging Weight @ Ram (no Brake)		20 Lbs.	20 Lbs.	40 Lbs.	80 Lbs.	80 Lbs.	
Ball Screw	Size	32 x 10	40 x 10	50 x 20	63 x 20	63 x 20	
	Backlash	0.15mm	0.18mm	0.16mm	0.18mm	0.18mm	
	Dynamic Load per Million Rev's	5,935	14,590	17,715	23,178	23,178	
	Efficiency	90%	90%	90%	90%	90%	
Weight of Actuator	Includes Motor Lbs. (kg)	142 (64 kg)	186 (75 kg)	351 (160 kg)	491 (222 kg)	588 (267 kg)	

Model	UF	TF	R	F	FB
HPEL-01-RS	6.25	5.31	3.32	5.00	0.53
HPEL-02-RS	6.25	5.31	3.32	5.00	0.53
HPEL-04-RS	9.50	7.69	5.73	7.50	0.66
HPEL-08-RS	9.50	7.69	5.73	7.50	0.66
HPEL-10-RS	11.00	9.25	6.00	8.50	0.81
HPEL-15-RS	11.00	9.25	6.00	8.50	0.81
HPEL-20-RS	11.00	9.25	6.00	8.50	0.81
Model	UF	TF	R	F	FB
HPEL-01-BS2	6.25	5.31	3.32	5.00	0.53
HPEL-02-BS2	6.25	5.31	3.32	5.00	0.53
HPEL-04-BS2	9.50	7.69	5.73	7.50	0.66
HPEL-08-BS1	9.50	7.69	5.73	7.50	0.66
HPEL-10-BS1	11.00	9.25	6.00	8.50	0.81



## HyperCyl-EMA Ordering Information

HPEL - [ ] [ ] - [ ] [ ] [ ] - [ ] [ ] - [ ] [ ]

Load Rating (1, 2, 3, 4, 8, 10, 15, 20, 25 tons)

RS - Roller Screw or BS - Ball Screw

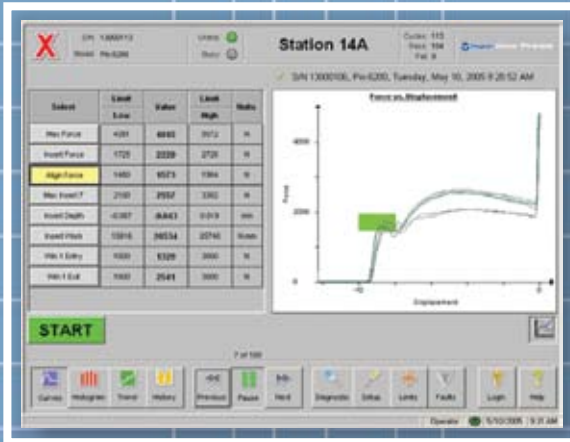
Stroke (8.00" or 14.00")

Options (D = Drive, C = Cable Sets)



## Press Monitoring Best Practices

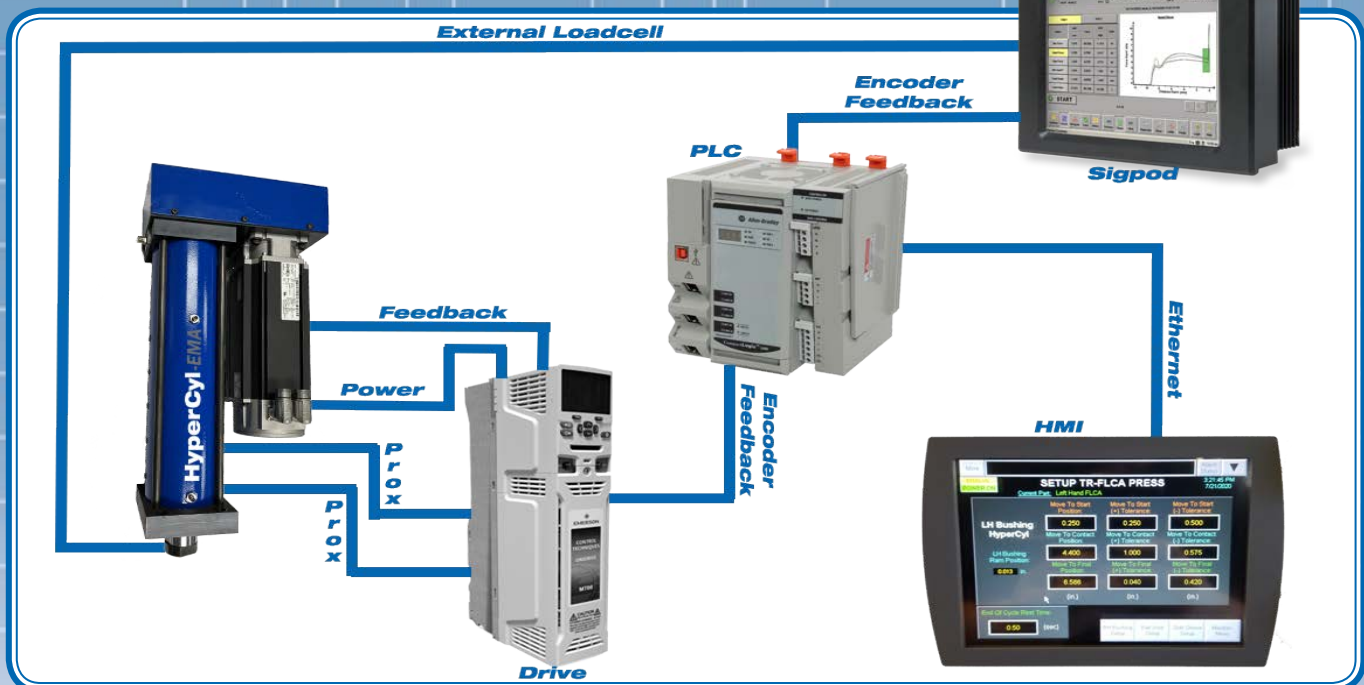
The HyperView-Press® comes out of the box with advanced algorithms designed for the simplest to the most complex press monitoring requirements. Sciometric has embedded press monitoring “best practices” into the system based on decades of experience with press applications. During setup, the HyperView-Press® gathers information from the wizard and automatically makes modifications to the software to fit the specific customer implementation requirements. The wizard provides the best of both worlds: the deployment simplicity of an off-the-shelf solution coupled with the benefits of a custom solution tailored to your exact press monitoring requirements.



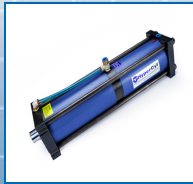
The HyperView-Press® uses Sciometric's advanced signature analysis technology to eliminate false accepts and find more defects than other press monitoring systems.

## BENEFITS

- Out-of-the-box solution for monitoring test and assembly processes.
- Flexible system can be configured to qualify virtually any manufacturing process.
- Powerful data acquisition hardware allows sampling up to 24 analog and 6 quadrature encoder channels.
- Large, user friendly 10.4" touch interface provides detailed results of the manufacturing process.
- Wide library of processing and analysis toolsets available.
- Communication via discrete I/O, or optionally through industry standard hardware (RS232, RS485, 10/100 BaseT) and protocols (Devicenet1, Profibus1, Interbus1, Ethernet I/P, Modbus TCP).



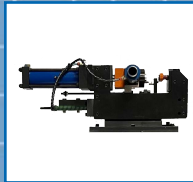




 **HyperCyl**<sup>®</sup>



 **HyperPress**<sup>®</sup>



 **HyperPierce**<sup>®</sup>



 **HyperView-Press**<sup>®</sup>



**HyperCyl Products are  
Environmentally Friendly.**



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Electro-Mechanical Actuators

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