



# HyperCyl-ema<sup>®</sup>

Electro-Mechanical Actuators

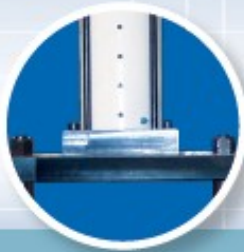


Alan Williams  
763 274 8174 cell



[763 757 0198 office](tel:7637570198) [763 757 4724 fax](tel:7637574724)

[awilliams@MachineAutomationProducts.net](mailto:awilliams@MachineAutomationProducts.net)  
10744 Yellow Pine Street Coon Rapids, MN 55433



Aries Engineering Company





 **HyperCyl®**



 **HyperPress®**



 **HyperPierce®**



 **HyperClinchTech®**



 **HyperView-Press®**



**HyperCyl Products are  
Environmentally Friendly.**



**Aries Engineering Company**  
Electro-Mechanical Actuators

130 Aries Drive  
P.O. Box 110  
Dundee, MI 48131

Ph. 734.529.8855  
Fax 734.529.8844  
[www.hypercyl.com](http://www.hypercyl.com)

Alan Williams  
763 274 8174 cell



763 757 0198 office 763 757 4724 fax

[awilliams@MachineAutomationProducts.net](mailto:awilliams@MachineAutomationProducts.net)  
10744 Yellow Pine Street Coon Rapids, MN 55433

ISO 9001-2000 Registered



**Alan Williams**  
763 274 8174 cell



763 757 0198 office 763 757 4724 fax

[awilliams@MachineAutomationProducts.net](mailto:awilliams@MachineAutomationProducts.net)  
10744 Yellow Pine Street Coon Rapids, MN 55433

### 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

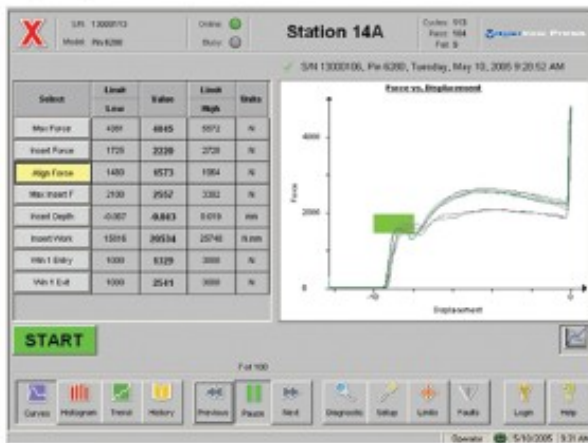
the performance and flexibility required in both current and future manufacturing environments and, it's built in the USA.

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.

## 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 best practices used by the HyperView-Press® include Sciometric's advanced signature analysis methodology. Algorithms find specific features on a press waveform and conduct advanced analysis on those key features (e.g. initial contact point, point of bottom out, point of absolute maximum force, etc.). The analysis does not rely on the waveform's position on the result grid as the features are identified dynamically and the full feature characteristics are evaluated. This technique yields increased accuracy and better repeatability than conventional methods. Conventional press monitoring systems use basic 'postage stamp', 'box function', 'fitting window' or 'peak detection' to determine quality. These older approaches collect a limited sample of data and verify that the waveform correctly enters and exits static windows on the waveform. These approaches yield unreliable results as they fail to fully analyze each waveform feature



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

## Advanced Limit Management

### Auto-Learn

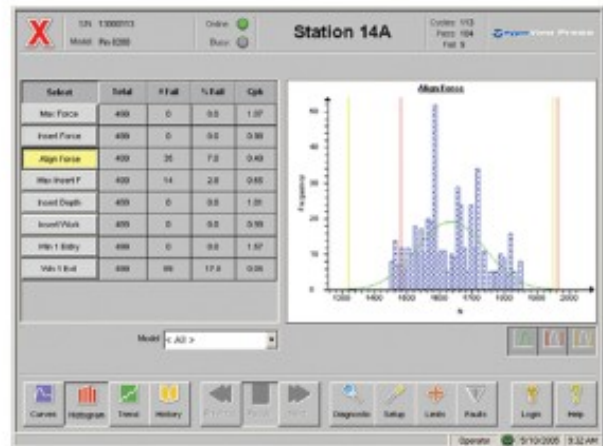
Any manufacturing test system is only as good as the limits that have been set. If limits are set too wide then a manufacturer runs the risk of shipping faulty product. If limits are too stringent then yield is compromised and manufacturing personnel lose confidence in the system. Therefore, HyperView-Press® includes Sciometric's proprietary Advanced Limit Management System which consists of both auto-learn and maintain functions.

The auto-learn function "suggests" optimal statistically derived limits for the press monitoring system. As manufacturing processes experience normal process variation, the limits of any press monitoring system will require maintenance to avoid creeping in to a "false fail" or "false pass" scenario. Sciometric's proprietary maintain function is designed to help in this process by using production statistics to continuously calculate optimal test limits and propose new limits that the user has the option of accepting.

The auto-learn and maintain functions have a very significant impact on the integrity of the monitoring system and on its total cost of ownership.

### Process Variability Compensation™

All production facilities are subject to normal variations in operation. These variances may be the result of slight differences in pallet dimensions, sub-components or fixtures. To maximize productivity it is imperative that a test system be capable of identifying and addressing normal process variability, while alerting operators of abnormal or harmful variability. The HyperView-Press® uses Process Variability Compensation™ to accommodate for inevitable process variability and minimize false rejects.



The photos above show a front and back view of the HyperView-Press® mounted on the optional desktop stand with an optional TFT display.

Most press monitoring systems are triggered by an absolute start. The starting point could be a PLC trigger or when the press starts. The HyperView-Press® analyzes test results based on the initial point of contact between the ram and the part. Over time the amount of displacement required to press a part will vary.

This variability would confuse other press monitoring systems into believing that less or more displacement was required depending on the pallet dimensions. Press monitoring systems that rely on an absolute start require constant calibration. These conventional press monitoring systems tend to generate numerous false failures and manufacturing personnel lose confidence in them.

Alan Williams  
763 274 8174 cell



763 757 0198 office 763 757 4724 fax

awilliams@MachineAutomationProducts.net  
10744 Yellow Pine Street Coon Rapids, MN 55433

## Performance Data

### ROLLER SCREW:

Model	Load Rating (lb)	Max Velocity (in/s)	Standard Stroke Length (in)	Roller Screw Dia. (mm)	Lead (mm)	Motor Size	Rated Motor Torque (in-lb)	Drive Ratio	Dynamic Load Rating per Million Revs (lbs)	Life Expectancy Under Load (in x 10 <sup>6</sup> )
HPEL-01-RS	2000	8	8	25	10	095U2E (CT)	50.4	2:1	9644	22
HPEL-02-RS	4000	8	8	25	10	115U2E (CT)	111.5	2:1	19130	15
HPEL-04-RS	8000	8	8	39	10	190U2D (CT)	292.1	2:1	27965	18
HPEL-08-RS	16000	5.3	8	48	10	190U2F (CT)	300.9	2.5:1	46668	10
HPEL-10-RS	20000	5	8	48	20	190U2F (CT)	300.9	7.35:1*	50205	13
HPEL-15-RS	30000	5	8	48	25	ESM190-21.5kW (IIS)	757	7.4:1*	54060	5.8
HPEL-20-RS	40000	5	8	60	30	ESM190-26.7kW (IIS)	939	9.3:1*	63955	4.8
HPEL-25-RS	50000	4	8	60	30	ESM190-26.7kW (IIS)	939	11:1*	63955	2.5

CT=Control Techniques Motor  
 IIS-Industrial Indexing System Motor  
 \* = Combination Gear & Belt

The L<sub>10</sub> expected life of a roller/ball screw actuator is expressed as a linear travel distance that 90% of properly lubricated and maintained roller/ball screws manufactured are expected to meet or exceed. This is not a guarantee and the data shown in this catalog should be used for estimation purposes only.

### BALL SCREW:

Model	Load Rating (lb)	Max Velocity (in/s)	Standard Stroke Length (in)	Ball Screw Dia. (mm)	Lead (mm)	Motor Size (Control Techniques)	Rated Motor Torque (in-lb)	Drive Ratio	Dynamic Load Rating per Million Revs (lbs)	Life Expectancy Under Load (in x 10 <sup>6</sup> )
HPEL-01-BS1	2000	20	8	25	10	095U2E	50.4	2:1	6270	8.0
HPEL-01-BS2	2000	16	8	32	10	115U2D	92	2:1	9780	15
HPEL-02-BS1	4000	16	8	32	10	115U2D	92	3:1	9780	3.2
HPEL-02-BS2	4000	12	8	40	10	115U2E	111.5	2.33:1	17640	15
HPEL-04-BS1	8000	12	8	40	10	142U2E	159.3	3:1	17640	5.9
HPEL-04-BS2	8000	14	8	50	20	190U2E	300.9	2.86:1	25160	8.0
HPEL-06-BS1	12000	14	8	50	20	142U2E	159.3	9.4:1*	25160	1.3
HPEL-08-BS1	16000	14	8	63	20	190U2C	221.3	9:1*	28910	7.4
HPEL-10-BS1	20000	14	8	63	20	190U2D	292.1	8.4:1*	28910	1.5

Please consult the factory for 14.00" stroke actuators.

\* Planetary gear used in conjunction with drive ratio.

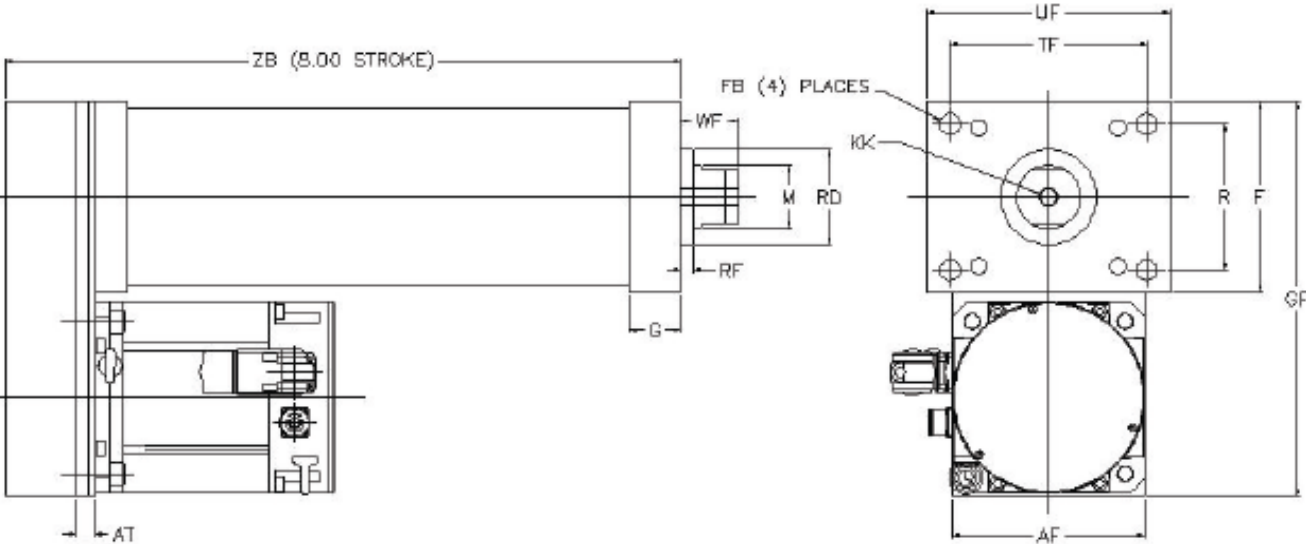


**Dimensional Data**

Model	F	FB	G	GF	UF	TF	KK	M	R	RD	RF	WF	ZB	AF	AT
HPEL-01-RS	5.00	0.53	1.25	10.75	6.25	5.31	3/4-16	2.00	3.32	3.00	0.38	2.25	25.00	5.50	0.63
HPEL-02-RS	5.00	0.53	1.25	10.75	6.25	5.31	3/4-16	2.00	3.32	3.00	0.38	2.25	25.00	5.50	0.63
HPEL-04-RS	7.50	0.81	2.00	17.50	9.50	7.69	3/4-16	2.50	5.73	3.75	0.50	2.75	27.50	8.75	0.75
HPEL-08-RS	8.50	0.81	2.00	17.50	11.00	9.25	1-14	3.00	6.00	4.25	0.50	2.75	30.50	8.75	1.00
HPEL-10-RS	8.50	0.81	2.00	17.50	11.00	9.25	1-14	3.00	6.00	4.25	0.50	2.75	30.50	8.75	1.00
HPEL-15-RS	8.50	0.81	2.00	17.50	11.00	9.25	1-14	3.00	6.00	4.25	0.50	2.75	34.44	8.75	1.00
HPEL-20-RS	8.50	0.81	2.00	23.50	11.00	9.25	1-1/2-12	3.50	6.00	4.75	0.50	3.00	32.81	12.75	1.00
HPEL-25-RS	8.50	0.81	2.00	21.25	11.00	9.25	1-1/2-12	3.50	6.00	4.75	0.50	3.00	36.32	11.25	1.00

Model	F	FB	G	GF	UF	TF	KK	M	R	RD	RF	WF	ZB	AF	AT
HPEL-01-BS1	5.00	0.53	1.25	10.75	6.25	5.31	3/4-16	2.00	3.32	3.00	0.38	2.25	23.00	5.50	0.63
HPEL-01-BS2	5.00	0.53	1.25	10.75	6.25	5.31	3/4-16	2.00	3.32	3.00	0.38	2.25	25.00	5.50	0.63
HPEL-02-BS1	5.00	0.53	1.25	13.50	6.25	5.31	3/4-16	2.00	3.32	3.00	0.38	2.25	25.00	8.00	0.63
HPEL-02-BS2	5.00	0.53	1.25	12.00	6.25	5.31	3/4-16	2.50	3.32	3.50	0.38	2.25	27.00	6.25	0.63
HPEL-04-BS1	5.00	0.53	1.25	13.50	6.25	5.31	3/4-16	2.50	3.32	3.50	0.38	2.25	27.00	8.00	0.63
HPEL-04-BS2	7.50	0.81	2.00	17.50	9.50	7.69	1-14	3.00	5.73	4.25	0.50	2.75	26.63	8.75	0.75
HPEL-06-BS1	7.50	0.81	2.00	16.25	9.50	7.69	1-14	3.00	5.73	4.25	0.50	2.75	27.63	8.75	0.75
HPEL-08-BS1	7.50	0.81	2.00	16.25	9.50	7.69	1-14	3.50	5.73	4.75	0.50	2.75	28.00	8.75	0.75
HPEL-10-BS1	8.50	0.81	2.00	17.50	11.00	9.25	1-14	3.50	6.00	4.75	0.50	2.75	30.50	8.75	1.00

NOTE: All models are of reverse-parallel design.



**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, S = HyperView Press, C = Cable Sets) ————

Alan Williams  
763 274 8174 cell



763 757 0198 office 763 757 4724 fax

awilliams@MachineAutomationProducts.net  
10744 Yellow Pine Street Coon Rapids, MN 55433