



MTS Roehrig SYD Damper Test Systems

Portable, easy-to-use electro-mechanical crank dynamometers

be certain.

HIGHLY PORTABLE, EASY-TO-USE AND QUICK, **MTS ROEHRIG SYD**
(SCOTCH YOKE DYNAMOMETER) CRANK DYNOS ARE THE SINUSOIDAL
DAMPER CHARACTERIZATION TOOLS OF CHOICE FOR AUTOMOTIVE
RACING TEAMS, TIER 1 SUPPLIERS AND AUTOMOTIVE OEMS.



MTS Roehrig SYD crank dynos were born of the racing industry's need for a trackside tool to rapidly test and tune vehicle dampers for optimal performance.

Perform Single-specimen Sinusoidal Damper Characterization with Speed and Ease

Responding to industry demands for cleaner, quieter and more economical mechanical testing, MTS now offers MTS Roehrig SYD Damper Test Systems, a complete family of electro-mechanical crank dynos for performing single-specimen sinusoidal damper testing.

Highly portable, easy-to-use and quick, MTS Roehrig SYD (Scotch Yoke Dynamometer) crank dynos are the damper characterization tools of choice for automotive racing teams, ranging from garage racers and hobbyists to many NASCAR Nextel Cup, Busch and ARCA teams. They are also used by many of the world's leading Tier 1 suppliers and automotive OEMs to support damper production and vehicle ride and handling activities, respectively.

MTS Roehrig SYD crank dynos were born of the racing industry's need for a tool to rapidly test and tune vehicle dampers for optimal performance on a given track, under the specific conditions occurring that day. To meet this need, Roehrig Engineering, Inc. developed a line of portable electric "crank-type" dynamometers, featuring a scotch-yoke and belt-drive system to subject dampers to sine wave motions. These dynos proved easy to use and capable of delivering the fast, accurate test results teams needed to re-valve and tune shock absorbers based on input gathered from the driver during practice sessions. Economically priced and simple to maintain, they quickly gained popularity among NASCAR racing teams.

Contact MTS today and learn how MTS Roehrig SYD crank dynos can help you meet your specific damper performance testing requirements with ease, efficiency and confidence.

BENEFITS

- » Easy-to-use
- » Portable, lightweight designs
- » Quick, accurate and repeatable results
- » Energy-efficient operation
- » Clean, eco-friendly
- » Low maintenance requirements



3



With the addition of all-electric MTS Roehrig Damper Test Systems, MTS now offers the industry's most comprehensive portfolio of damper test solutions.

The MTS Roehrig SYD System Family

Featuring the widest range of crank dynos available for damper testing, the MTS Roehrig SYD family comprises eight standard models of varying performance (m/sec @ kN) capacities. These models are deployed worldwide for performing single-specimen, sinusoidal damper

characterization by a broad range of users, including hobby racers, professional race teams and Tier 1 automotive suppliers. Several custom SYD solutions have also been developed, including rotating frame and multi-specimen durability configurations.

OPTIONAL FEATURES*

- » Longer stroke
- » Various load cell configurations
- » Longer columns
- » Movement assisted crossbar
- » Ball screw actuated crossbar
- » Safety enclosure
- » CE safety enclosure with door interlock
- » 720 Pulse / Rev encoder for low-speed accuracy

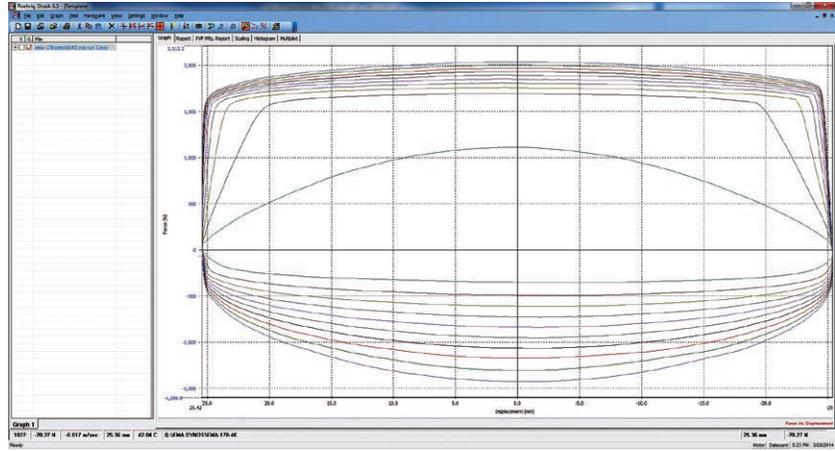
**Availability varies per model*

Model	(m/sec @ kN)
2VS	0.5 @ 3.0
3VS	0.5 @ 4.4
3VS HV	1.0 @ 2.3
5VS	1.0 @ 3.8
10VS	2.0 @ 3.8
10VS HV	2.5 @ 6.0
20VS	2.0 @ 7.5
20VS HV	2.5 @ 6.0

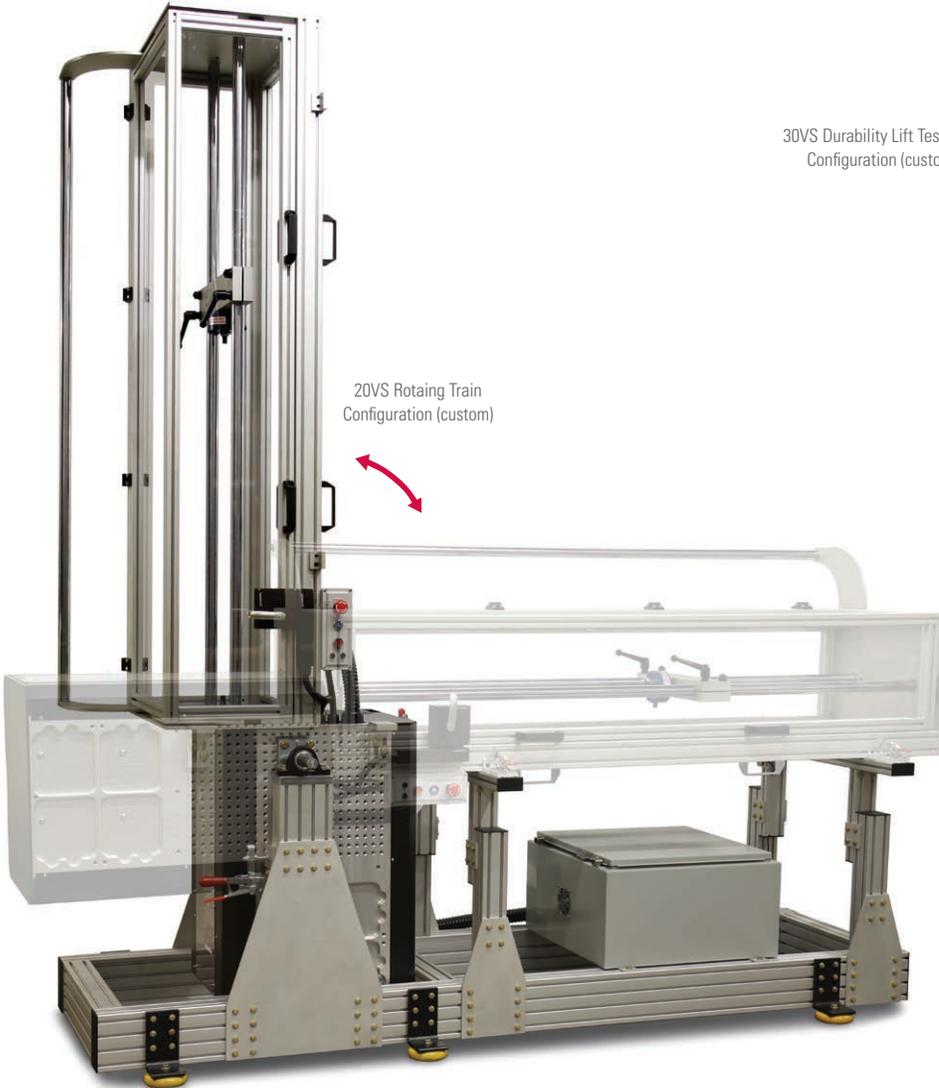


Easy-to-use SHOCK™ Software

Computer-driven SYD crank dynos feature industry-proven, Windows-based Shock Test Control and Damper Analysis Software. Shock software features an intuitive, easy-to-use interface that is tailored for streamlined and efficient sinusoidal damper characterization. A fast IEEE 1394 (FireWire) connection to the system controller enhances quick delivery of test results. Also deployed on MTS Roehrig EMA Damper Test Systems, Shock software provides SYD crank dynamo users a clear upgrade path to performing a far broader spectrum of damper characterization capabilities.



5



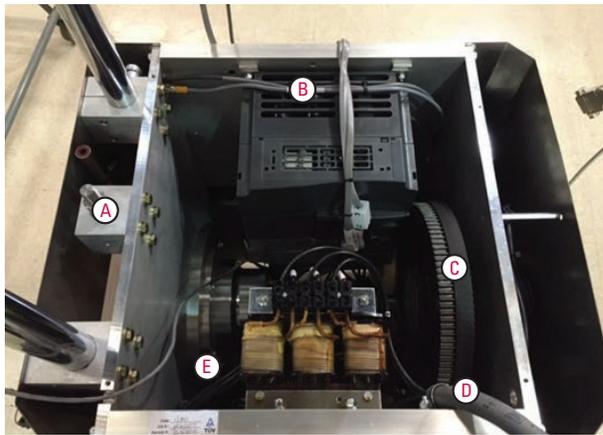
30VS Durability Lift Test (DLT) Configuration (custom)



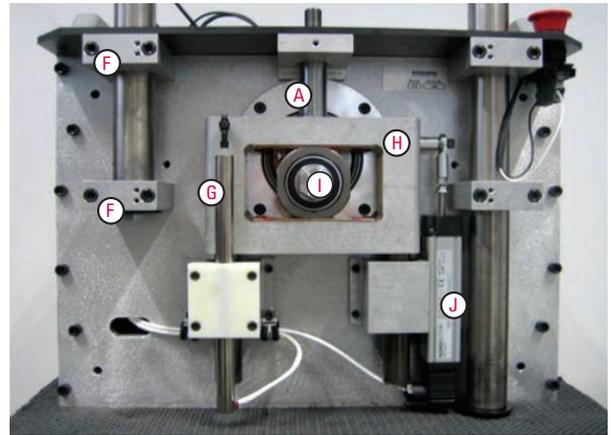
Innovative Electro-magnetic Actuator Technology

SYD systems apply pure sinusoidal inputs to damper specimens using a rotary electric motor driving mechanical linkage through a scotch yoke. This mechanism features a timing belt and pulley drive transmission that eliminates backlash and minimizes noise and vibration. The timing belt also serves as a reliable and an inexpensive “mechanical fuse” against excessive peak damper forces. Displacement is set through adjustments to the scotch yoke.

- A. Actuator shaft
- B. Shock software-driven inverter
- C. Belt drive transmission
- D. Input power
- E. Variable speed motor (not visible)
- F. Column Clamps
- G. Velocity Sensor
- H. Scotch Yoke
- I. Square Bearing
- J. Displacement Sensor



Top View (inner)



Front View

Ideal for Proving Ground and RaceTrack

Highly portable and easy-to-use, MTS Roehrig SYD crank dynos are ideal for deployment in proving ground or race track environments, where test engineers use them to determine a damper's force-velocity curve, tune it accordingly, and then test it in a prototype or race

car. OEMs are measuring vehicle dynamic attributes, while race teams are getting feedback from the driver; either way, time is a factor, so testing must be fast, efficient and repeatable. These tests are typically run in vans or semi-trailers where space is at a premium, so test

system portability and size are also critical. In addition, MTS Roehrig SYD crank dynos are relatively affordable and easy to maintain, making them perfect for garage racers, hobbyists and budget-sensitive test labs that require only sinusoidal inputs.



MTS Roehrig SYD System Specifications

SYD Specification¹

Description	Units	SYD-2VS	SYD-3VS	SYD-3VS HV	SYD-5VS	SYD-10VS	SYD-10VS HV	SYD-20VS	SYD-20VS HV
Peak Force	kN	5.5	8.9	8.9	13.2	15.5	15.5	20	20
	lbf	1250	2000	2000	3000	3500	3500	4500	4500
Maximum Displacement	mm	50	50	50	50	150	150	150	150
	in	2.0	2.0	2.0	2.0	6.0	6.0	6.0	6.0
Maximum Velocity	m/sec	0.5	0.5	1.0	1.0	2.0	2.5	2.0	2.5
	in/sec	20	20	39	39	78	98	78	98
Stated Performance	m/sec @ kN force	0.5 @ 3.0	0.5 @ 4.4	1.0 @ 2.3	1.0 @ 3.8	2.0 @ 3.8	2.5 @ 6.0	2.0 @ 7.5	2.5 @ 6.0

1. Specifications subject to change

7

Power Supplies²

Model	Voltage	Phase	A in	A out
SYD-2VS	200-240	1	17.8	8
SYD-3VS	200-240	1	24	11
	200-240	3	14.9	11
	380-500	3	8.8	5.5
SYD-5VS	200-240	3	23.8	17.5
SYD-10VS	200-240	3	46.1	33
	380-500	3	26.6	17
SYD-20VS	380-500	3	41	28

2. Assumes 90 degree C insulation on all cables

Regional Business Centers

THE AMERICAS

MTS Systems Corporation

14000 Technology Drive
Eden Prairie, MN 55344-2290
USA

Telephone: 952-937-4000
Toll Free: 800-328-2255
Fax: 952-937-4515
E-mail: info@mts.com
Internet: www.mts.com

EUROPE

MTS Systems France

BAT EXA 16
16/18 rue Eugène Dupuis
94046 Créteil Cedex

France
Telephone: +33-(0)1-58 43 90 00
Fax: +33-(0)1-58 43 90 01
E-mail: contact.france@mts.com

MTS Systems GmbH

Hohentwielsteig 3
14163 Berlin

Germany
Telephone: +49-(0)30 81002-0
Fax: +49-(0)30 81002-100
E-mail: euroinfo@mts.com

MTS Systems S.R.L. a socio unico

Strada Pianezza 289
10151 Torino

Italy
Telephone: +39-(0)11 45175 11 sel. pass.
Fax: +39-(0)11 45175 00-01
E-mail: mtstorino@mts.com

MTS Systems Norden AB

Datavägen 37b
SE-436 32 Askim

Sweden
Telephone: +46-(0)31-68 69 99
Fax: +46-(0)31-68 69 80
E-mail: norden@mts.com

MTS Systems Ltd. UK

Unit 9, Cirencester Office Park
Tetbury Road
Cirencester
Gloucestershire

GL7 6JJ
United Kingdom
Telephone: +44-(0)1285-648800
Fax: +44-(0)1285-658052
E-mail: mtsuksales@mts.com

ASIA/PACIFIC

MTS Japan Ltd.

ArcaCentral Bldg. 8F
1-2-1 Kinshi, Sumida-ku
Tokyo 130-0013

Japan
Telephone: 81-3-6658-0901
Fax: 81-3-6658-0904
E-mail: mtsj-info@mts.com

MTS Korea, Inc.

4th F., ATEC Tower, 289,
Pankyo-ro, Bundang-gu
Seongnam-si
Gyeonggi-do 463-400,

Korea
Telephone: 82-31-728-1600
Fax: 82-31-728-1699
E-mail: mtsk-info@mts.com

MTS China Hechuan Office

Room 703 Building #B,
Venture International Park,
No. 2679 Hechuan Road,
Minhang District,
Shanghai 201103,

P.R.China
Telephone: +86-21-5427 1122
Fax: +86-21-6495 6330
E-mail: info@mtschina.com



MTS Systems Corporation

14000 Technology Drive
Eden Prairie, MN 55344-2290 USA