

SYSTEM DATA

LDS Standard Head Expanders

The LDS® standard range of high-quality head expanders increases the capability of existing shaker systems by allowing users to increase the effective mounting surface compared to that of the armature, and thus accommodate larger payloads.

The head expanders have been designed using advanced finite element (FE) analysis modelling techniques and are cast from a high-strength magnesium alloy with excellent damping properties.

Each head expander is supplied complete with fasteners and fitting tools for immediate testing capability.

To enable use with environmental chambers, thermal barriers are available for each size in the range. Other insert patterns can be supplied to special order.

Uses

- Increase the effective mounting surface of the shaker armature
- Accommodate larger payloads
- Increase the quantity of test items in one test to reduce testing time
- Provide increased flexibility in fixture design

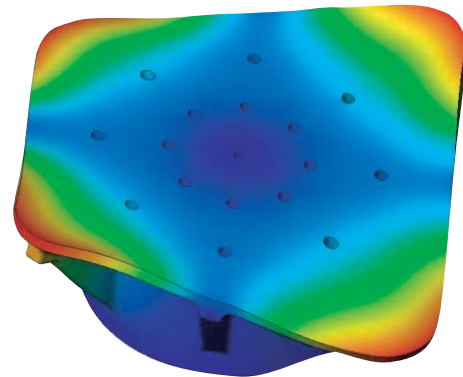
Features

- High-quality aerospace-grade magnesium alloy structure with excellent damping properties
- Usable frequency range up to 2 kHz*
- Standard insert pattern in M8, M10 or 3/8 UNC insert sizes
- Accurate, in-house tested dynamic performance (first mode data supplied)
- Includes full mounting kit with tools
- Corrosion resistant: Non-machined parts are painted; machined parts are coated with lubricant
- Standard off-the-shelf design for short lead time
- Full technical support
- Accelerometer options

* Head expanders can be used at frequencies up to 2 kHz subject to the control strategy (for example, multipoint), payload characteristics and test profile.

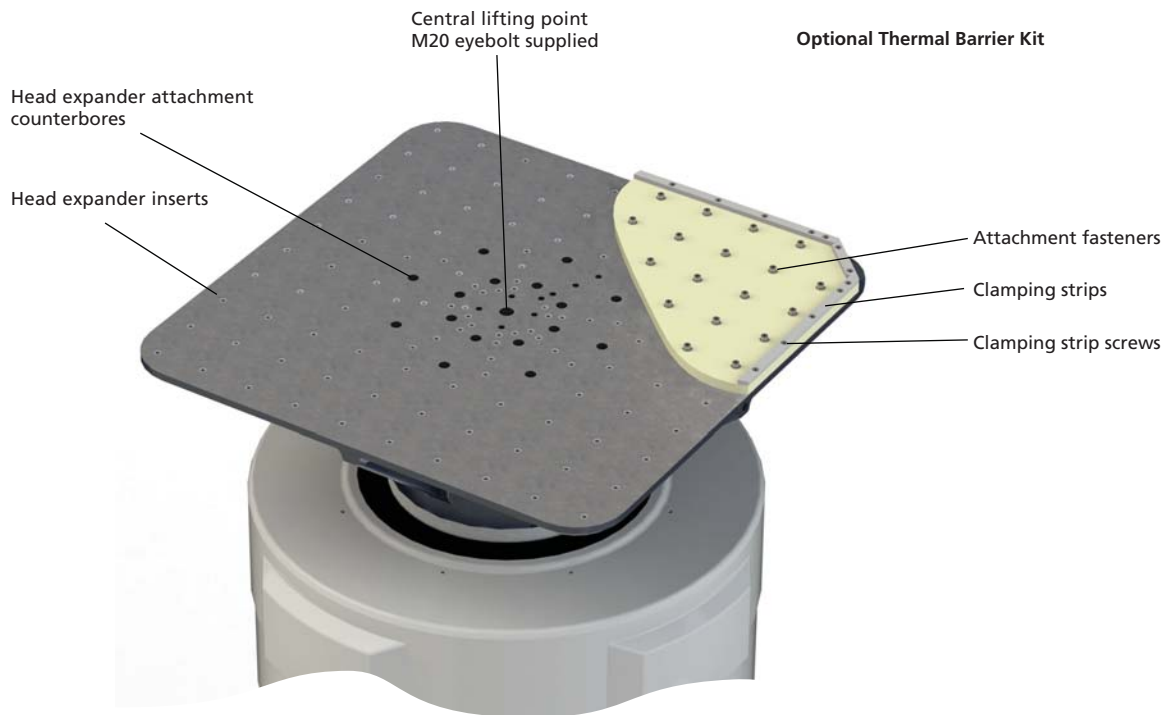


100112
1000 mm square head expander
mounted on V875LS Lin-E-Air shaker



100113/1
FE analysis of standard head expander
(1st vertical resonance)

Standard Head Expander Range – Features

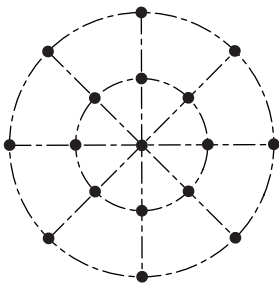


Standard head expander configuration

150452

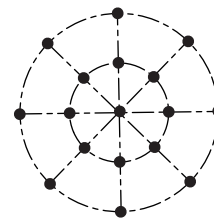
Counter-bore Positions

Counter-bore Positions for V850-440, V875-440, V875-640, V875LS, V8 and V9



- 17 counter-bored holes as follows:
- 1 hole in centre
 - 8 equispaced on 203.4 mm (8 in) PCD*
 - 8 equispaced on 406.4 mm (16 in) PCD

Counter-bore Positions for V830-335



- 17 counter-bored holes as follows:
- 1 hole in centre
 - 8 equispaced on 152.4 mm (6 in) PCD*
 - 8 equispaced on 304.8 mm (12 in) PCD

*PCD = Pitch Circle Diameter

140101/2

Standard Thermal Barrier Option

The optional thermal barrier reduces thermal conductivity between the payload and the shaker during operation in conjunction with a climatic chamber. The barrier has clearance holes corresponding to the expander's insert pattern and M6 helicoil inserts along the edges for the clamping strips.

The thermal barrier option includes the thermal barrier, lifting eyebolts, clamping strips, corner clamping strips, and attachment screws

- **Thickness:** 20 mm (0.75 in)
- **Conductivity:** 0.25 W/m²K
- **Thermal Limits:** -70 to +230 °C (-94 to +446 °F)
- **Attachment Inserts for Environmental Chamber Seals:** M6 inserts on pitch of 100 mm, 9.5 mm in from edge

Standard Head Expander Range – Specifications

V830-335 with M8 Armature Inserts							
Head Expander Kit						Thermal Barrier Kit	
Size mm	Head Expander Inserts	1st Vertical fn* Hz	Height mm	Mass [†] kg (lb)	Kit Number	Mass kg (lb)	Kit Number
610 square	M8	1580	220	50.9 (112.2)	4038290	12.7 (27.9)	4039470

* Nominal frequency

† ±5%

V830-335 with 3/8 UNC Armature Inserts							
Head Expander Kit						Thermal Barrier Kit	
Size mm	Head Expander Inserts	1st Vertical fn* Hz	Height mm	Mass [†] kg (lb)	Kit Number	Mass kg (lb)	Kit Number
610 square	3/8 UNC	1580	220	50.9 (112.2)	4038310	12.7 (27.9)	4039480

* Nominal frequency

† ±5%

V850-440*, V875-440, V875-640, V875LS, V8, V9 with M8 Armature Inserts							
Head Expander Kit						Thermal Barrier Kit	
Size mm	Head Expander Inserts	1st Vertical fn [†] Hz	Height mm	Mass [‡] kg (lb)	Kit Number	Mass kg (lb)	Kit Number
610 square	M8	2047	220	57.4 (126.5)	4038260	12.7 (27.9)	4039410
762 square	M8	1161	255	83.9 (184.9)	4038320	20.5 (45.1)	4039420
1000 square	M8	685	325	135.4 (298.5)	4038350	34.5 (76.0)	4039430
1220 square	M8	537	385	239.3 (527.5)	4063520	56.4 (124.3)	4063580

* For the V850-440, the 1220 mm square head expander is not recommended and not offered as a standard option

† Nominal frequency

‡ ±5%

V850-440*, V875-440, V875-640, V875LS, V8, V9 with 3/8 UNC Armature Inserts							
Head Expander Kit						Thermal Barrier Kit	
Size mm	Head Expander Inserts	1st Vertical fn [†] Hz	Height mm	Mass [‡] kg (lb)	Kit Number	Mass kg (lb)	Kit Number
610 square	3/8 UNC	2047	220	57.4 (126.5)	4038280	12.7 (27.9)	4039440
762 square	3/8 UNC	1161	255	83.9 (184.9)	4038340	20.5 (45.1)	4039450
1000 square	3/8 UNC	685	325	135.4 (298.5)	4038370	34.5 (76.0)	4039460
1220 square	3/8 UNC	537	385	239.0 (527.0)	4063540	56.2 (123.9)	4063600

* For the V850-440, the 1220 mm square head expander is not recommended and not offered as a standard option

† Nominal frequency

‡ ±5%

V875LS, V8, V9 with M10 Armature Inserts							
Head Expander Kit						Thermal Barrier Kit	
Size mm	Head Expander Inserts	1st Vertical fn* Hz	Height mm	Mass [†] kg (lb)	Kit Number	Mass kg (lb)	Kit Number
610 square	M10	2047	220	57.4 (126.5)	4038270	12.7 (27.9)	4039940
762 square	M10	1161	255	83.9 (184.9)	4038330	20.5 (45.1)	4039960
1000 square	M10	685	325	135.4 (298.5)	4038360	34.5 (76.0)	4039970
1220 square	M10	537	385	239.7 (528.4)	4063530	56.2 (123.9)	4063590

* Nominal frequency

† ±5%

Standard Configuration

HEAD EXPANDER COMPONENTS

All head expander kits comprise:

- Head expander with keyed payload attachment inserts in grid and armature patterns
- Armature screws, dedicated wrench key and torque wrench
- Lifting eye-bolt (attachment point top-centre)
- Hazard warning labels
- User manual

Accessories and Options

THERMAL BARRIER OPTION

All thermal barrier kits comprise:

- Thermal barrier with clearance holes corresponding to the head expander insert pattern and M6 inserts for clamping plates
- Attachment screws for securing thermal barrier to head expander
- Clamping strips for climatic chamber integration
- Screws for clamping strips
- Lifting eye-bolts

COMPATIBLE CABLES

Single screen coaxial, 10–32 UNF (M) to BNC (M), max. +70 °C (+158 °F) cables, such as:

- AO-0531-D-050: 5 m (16.7 ft)
- AO-0531-D-070: 7 m (23.3 ft)
- AO-0531-D-100: 10 m (33.3 ft)

ACCELEROMETER OPTIONS

A selection of CCLD accelerometers with TEDS, side connector, insulated base (without cable) are available, such as:

- Type 4533-B: 10 mV/g, handles up to 700 g
- Type 4533-B-001: 100 mV/g, handles up to 70 g

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