BRIEF INFORMATION

Electromechanical horns

- They are resistant to vibrations, moisture, and temperature fluctuations
- Horns can be easily integrated into existing vehicle architectures without complex control electronics
- Compared to electronic variants, electromechanical horns are cheaper to maintain

PRODUCT FEATURES

Application
Horns are a mandatory part of the safety equipment of every vehicle. A particularly perceptible signal is necessary so that other road users can be warned effectively in dangerous situations. Our signal horns offer you a high level of functional reliability.

Design and function
Horns are powered by battery current, which is normally controlled by the steering wheel via a control current. This is directed to a relay, which transmits the entire control current so that no voltage drops occur.

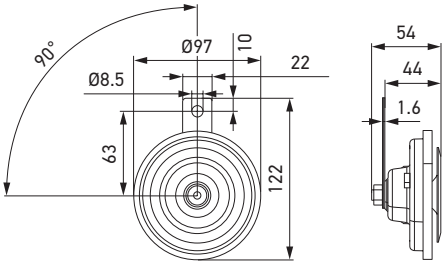
The control current activates the solenoid in the horn and generates a magnetic field that attracts a metal core (armature) to which the steel diaphragm of the horn is fastened. In an attracted state, the power supply is interrupted, the magnetic field breaks down, the armature and diaphragm move back to the rest position and the power supply is re-established. The process then begins again. This causes an oscillation, which can be heard as a low or high sound.

TECHNICAL DETAILS
M26

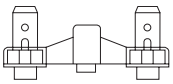
High corrosion protection: Diaphragm to protect against moisture/humidity penetration

Technical data	
Operating voltage range	Single-voltage (9.5 – 15 V or 21 – 29 V)
Rated voltage	12 or 24 V
Current consumption	**12 V horns** Max. 5.5 A (-811, -861) Max. 6 A (-841, -917, -907) Max 4.5 A (-827) Max. 5 A (-857) **24 V horns** Max. 3.5 A (-871, -821, -927)
Power consumption	**12 V horns** 66 W (-811, -861) 72 W (-841, -917, -907) 54 W (-827), 60 W (-857) **24 V horns** 84 W (-871, -821, -927)
Diameter	97 mm
Material	Housing: Metal
Temperature range	-40 °C to +60 °C
Protection class	IP X9K IP X7 (-841, -827, 917, -871, -927)
Lifetime	50,000 cycles
Approved	UN-R28
Sound pressure level at 2 m	115 dB (A)
Frequnecy range	335 Hz (low tone) 400 Hz (high tone)

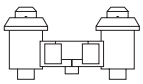
Dimensional sketch



Pin assignment / electrical connection



A
6.3 mm flat connector



B
6.3 mm splash-proof flat connector in conjunction with rubber grommet

PROGRAM OVERVIEW

Product picture	Description	Teflon pellet	Connection	Part number	PU*
	12 V, 400 Hz	X	**A**	**3AL 002 952-811**	1
	12 V, 335 Hz, low tone	X	**A**	**3AL 002 952-861**	1
	24 V, 335 Hz, low tone	–	**A**	**3AL 002 952-871**	1
	12 V, 335 Hz, low tone	X	**B**	**3AL 002 952-841**	1
	12 V, 400 Hz, high tone	–	**B**	**3AL 002 952-827**	40
	12 V, 400 Hz, high tone	X	**A**	**3AL 002 952-857**	40
	12 V, 335 Hz, low tone	–	**B**	**3AL 002 952-917**	40
	12 V, 400 Hz, high tone	X	**A**	**3AL 002 952-907**	40
	24 V, 400 Hz, high tone	X	**A**	**3AL 006 958-821**	1
	24 V, 335 Hz, low tone	–	**A**	**3AL 002 952-927**	40

* Packaging unit

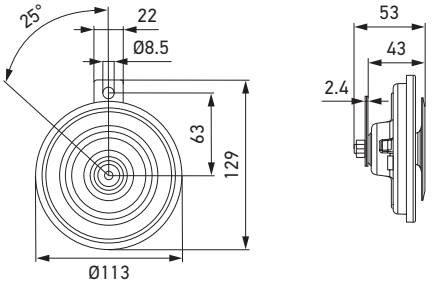
TECHNICAL DETAILS
B36

High quality and rich sound

Technical data	
Operating voltage range	Single-voltage (21 – 29 V or 44 – 60 V or 70 – 90 V)
Rated voltage	24 V or 48 V or 80 V
Current consumption	Max. 3 A (24 V) Max. 1.3 A (48 V) Max. 0.5 A (80 V)
Power consumption	72 W (24 V) 64 W (48 V) 48 W (80 V)
Diameter	113 mm
Material	Housing: Metal
Temperature range	-40 °C to +85 °C
Protection class	IP 6K7, IP X5
Lifetime	100,000 cycles
Approved	UN-R28*
Sound pressure level at 2 m	115 ±3 dB (A)
Frequnecy range	335 Hz (low tone) 400 Hz (high tone)

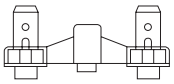
* ECE-R28 is only applicable for 24 V horn.

Dimensional sketch

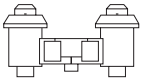


Pin assignment / electrical connection

DEUTSCH DT connector 06-25



6.3 mm flat connector



6.3 mm splash-proof flat connector in conjunction with rubber grommet

PROGRAM OVERVIEW

Product picture	Description	Part number	PU*
	24 V, 335 Hz, low tone, 6.3 mm flat connector	**3BA 002 768-382**	1
	24 V, 400 Hz, high tone, 6.3 mm flat connector	**3BA 002 768-431**	1
	24 V, 335 Hz, low tone, 6.3 mm splash-proof flat connector in conjunction with rubber grommet (9GT 700 452-005)	**3BA 922 200-827**	24
	48 V, 335 Hz, low tone, DEUTSCH DT connector	**3BA 002 768-777**	24
	80 V, 335 Hz, low tone, DEUTSCH DT connector	**3BA 002 768-007**	24

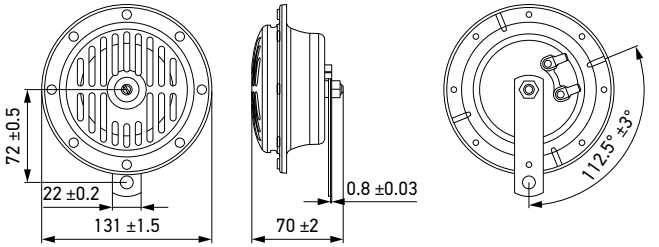
* Packaging unit

TECHNICAL DETAILS
DL50 V2

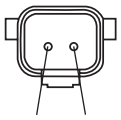
Bolt-free: Riveted assembly in production increases quality and consistency

Technical data	
Operating voltage range	Single-voltage (11 – 15 V or 22 – 28 V)
Rated voltage	12 V or 24 V
Current consumption	Max. 3.5 A (24 V) Max. 6 A (12 V)
Power consumption	84 W (24 V) 72 W (12 V)
Diameter	130 mm
Material	Housing: Metal
Temperature range	-40 °C to +85 °C
Protection class	IP 54
Lifetime	100,000 cycles
Approved	UN-R28
Sound pressure level at 2 m	114 dB (A) ± 4 dB (A)
Frequnecy range	310 Hz (low tone) 380 Hz (high tone)

Dimensional sketch



Pin assignment / electrical connection



Plus (+) Minus (-)

Splashwater-proof
DEUTSCH DT connector 06-25

PROGRAM OVERVIEW

Product picture	Description	Part number	PU*
	12 V, 310 Hz, low tone	**3CA 004 811-001**	1
	12 V, 380 Hz, high tone	**3CA 004 811-011**	1
	24 V, 310 Hz, low tone	**3CA 004 811-021**	1
	24 V, 380 Hz, high tone	**3CA 004 811-031**	1

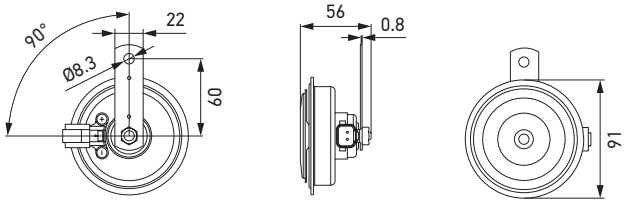
* Packaging unit

TECHNICAL DETAILS
S92

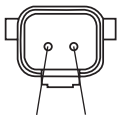
Black coating protection on diaphragm and housing

Technical data	
Operating voltage range	Single-voltage (11 – 15 V or 22 – 28 V)
Rated voltage	12 V or 24 V
Current consumption	Max. 5.0 A (12 V) Max. 3.0 A (24 V)
Power consumption	60 W (12 V) 72 W (24 V)
Diameter	92 mm
Material	Housing: Metal
Temperature range	-40 °C to +85 °C
Protection class	IP 54
Lifetime	100,000 cycles
Approved	UN-R28
Sound pressure level at 2 m	112 dB (A) ± 5 dB (A)
Frequnecy range	335 Hz (low tone) 435 Hz (high tone)

Dimensional sketch



Pin assignment / electrical connection



Plus (+) Minus (-)

Splashwater-proof
DEUTSCH DT connector 06-25

PROGRAM OVERVIEW

Product picture	Description	Part number	PU*
	24 V, 335 Hz, low tone	**3AL 012 588-097**	48
	24 V, 435 Hz, high tone	**3AL 012 588-087**	48

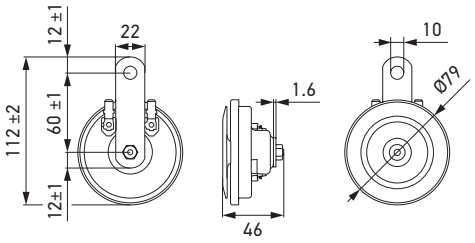
* Packaging unit
Single packaging on request.

TECHNICAL DETAILS
M28

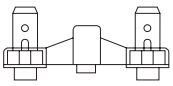
Compact horn with Teflon pellet as humidity protection

Technical data	
Operating voltage range	Single-voltage (9–14.5 V)
Rated voltage	12 V
Test voltage	13 ± 0.1 V
Current consumption	Max. 6 A
Power consumption	72 W
Diameter	79 mm
Material	Housing: Metal
Temperature range	-40 °C to +80 °C
Protection class	IP 67
Lifetime	50,000 cycles
Approved	UN-R28
Sound pressure level at 2 m	105–118 dB (A)
Frequnecy range	335 Hz (low tone) 400 Hz (high tone)

Dimensional sketch



Pin assignment / electrical connection



6.3 mm flat connector

PROGRAM OVERVIEW

Product picture	Description	Part number	PU*
	12 V, 335 Hz, low tone, flat connector	**3AL 007 425-427**	**32**
	12 V, 400 Hz, high tone, flat connector	**3AL 007 425-791**	**1**

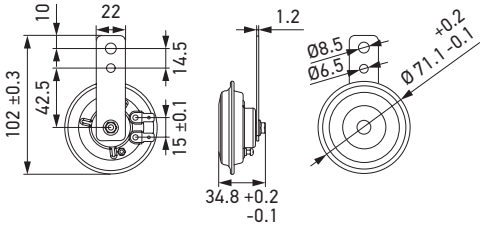
* Packaging unit

TECHNICAL DETAILS
S70

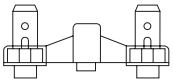
The smallest horn in our electromechanical horn product family

Technical data	
Operating voltage range	Single-voltage (10–14.5 V)
Rated voltage	12 V
Current consumption	Max. 2.5 A
Power consumption	30 W
Diameter	70 mm
Material	Housing: CRCS class EDD
Temperature range	-40 °C to +90 °C
Protection class	IP X7, IP X9K
Lifetime	100,000 cycles
Approved	UN-R28
Sound pressure level at 2 m	112 dB (A)
Frequnecy range	420 Hz

Dimensional sketch



Pin assignment/electrical connection



6.3 mm flat connector

PROGRAM OVERVIEW

Product picture	Description	Part number	PU*
	12 V, 420 Hz, 6.3 mm flat connector	**3AL 922 196-011**	1

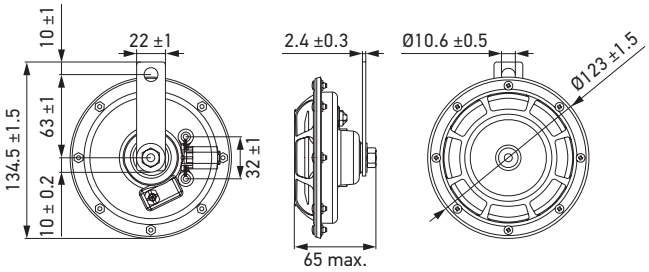
* Packaging unit

TECHNICAL DETAILS
B133

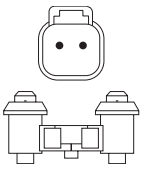
Robust housing in first-class design with distinctive grill

Technical data	
Operating voltage range	Single-voltage (9.5–15 V or 21–29 V)
Rated voltage	12 V or 24 V
Current consumption	Max. 6.5 A (12 V) Max. 2.5 A (24 V)
Power consumption	78 W (12 V) 84 W (24 V)
Diameter	123 mm
Material	Housing: CRCS-Klasse EDD
Temperature range	- 40 °C to +60 °C
Protection class	IP X9K, IP X7
Lifetime	50,000 cycles
Approved	UN-R28
Sound pressure level at 2 m	105–118 dB (A)
Frequnecy range	300 ± 20 Hz (low tone) 450 ± 20 Hz (high tone)

Dimensional sketch



Pin assignment / electrical connection



Splash-proof DEUTSCH DT connector 06-25

6.3 mm splashwater-proof copper flat plug in conjunction with rubber grommet 9GT 700 452-005

PROGRAM OVERVIEW

Product picture	Description	Part number	PU*
	12 V, 300 ± 20 Hz/450 ± 20 Hz, strong tone, with Teflon pellet, 6.3 mm splash-proof flat connector with rubber grommet	**3AG 003 399-081**	1 set
	24 V, 300 ± 20 Hz/450 ± 20 Hz, strong tone, with Teflon pellet, 6.3 mm splash-proof flat connector with rubber grommet	**3AG 003 399-101**	1 set
	12 V, 300 ± 20 Hz, strong tone, with Teflon pellet, 6.3 mm splash-proof flat connector with rubber grommet	**3AF 003 399-041**	1
	12 V, 450 ± 20 Hz, strong tone, with Teflon pellet, 6.3 mm splash-proof flat connector with rubber grommet	**3AF 003 399-051**	1
	24 V, 300 ± 20 Hz, strong tone, with Teflon pellet, 6.3 mm splash-proof flat connector with rubber grommet	**3AF 003 399-061**	1
	24 V, 450 ± 20 Hz, strong tone, with Teflon pellet, 6.3 mm splash-proof flat connector with rubber grommet	**3AF 003 399-071**	1
	24 V, 300 ± 20 Hz, strong tone, with Teflon pellet, 6.3 mm splash-proof flat connector with rubber grommet	**3AF 003 399-327**	24
	24 V, 450 ± 20 Hz, strong tone, with Teflon pellet, 6.3 mm splash-proof flat connector	**3AF 003 399-337**	24
	24 V, 300 ± 20 Hz, strong tone, splash-proof DEUTSCH DT connector	**3AF 003 399-347**	24
	24 V, 450 ± 20 Hz, strong tone, splash-proof DEUTSCH DT connector	**3AF 003 399-357**	24

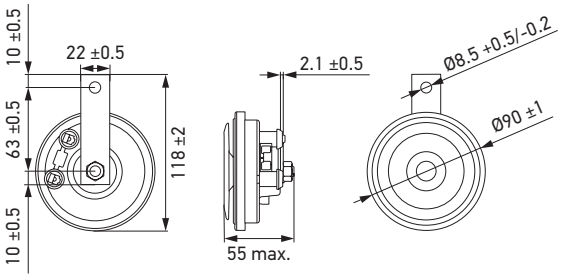
* Packaging unit

TECHNICAL DETAILS
S90

Fully shaped oscillator for optimal sound dispersion

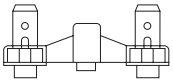
Technical data	
Operating voltage range	Single-voltage (9–14.5 V)
Rated voltage	12 V
Current consumption	Max. 3.5 A
Power consumption	42 W
Diameter	90 mm
Material	Housing: CRCS class EDD
Temperature range	-40 °C to +90 °C
Protection class	IP X9K, IP X7
Lifetime	50,000 cycles
Approved	UN-R28
Sound pressure level at 2 m	113 dB (A)
Frequnecy range	350/415 Hz

Dimensional sketch



Pin assignment / electrical connection

Splash-proof DEUTSCH DT connector 06-25



6.3 mm flat connector

PROGRAM OVERVIEW

Product picture	Description	Part number	PU*
	12 V, 415 Hz, high tone, 6.3 mm flat connector	**3AM 922 200-617**	24
	12 V, 350 Hz, low tone, DEUTSCH DT connector	**3AM 922 200-761**	1
	12 V, 350 Hz, low tone, DEUTSCH DT connector	**3AM 922 200-767**	24

* Packaging unit

VEHICLE APPLICATION OVERVIEW

CARAVANS AND MOTORHOMES

	B36	12/24/ 48/80 V	Ø97/ 113 mm	115 ±3 dB (A)
	DL50 V2	12/24 V	Ø130 mm	114 ±5 dB (A)
	S92	12/24 V	Ø92 mm	112 ±5 dB (A)
	B133	12/24 V	Ø123 mm	118 dB (A)

BUSES AND COACHES

	B36	12/24/ 48/80 V	Ø97/ 113 mm	115 ±3 dB (A)
	DL50 V2	12/24 V	Ø130 mm	114 ±5 dB (A)
	S92	12/24 V	Ø92 mm	112 ±5 dB (A)
	B133	12/24 V	Ø123 mm	118 dB (A)

MUNICIPAL VEHICLES

	B36	12/24/ 48/80 V	Ø97/ 113 mm	115 ±3 dB (A)
	DL50 V2	12/24 V	Ø130 mm	114 ±5 dB (A)
	S92	12/24 V	Ø92 mm	112 ±5 dB (A)
	B133	12/24 V	Ø123 mm	118 dB (A)

TRUCKS

	B36	12/24/ 48/80 V	Ø97/ 113 mm	115 ±3 dB (A)
	DL50 V2	12/24 V	Ø130 mm	114 ±5 dB (A)
	B133	12/24 V	Ø123 mm	118 dB (A)

E-MOBILITY AND PREMIUM VEHICLES

	M28	12 V	Ø80 mm	105–118 dB (A)
	S70	12 V	Ø70 mm	112 dB (A)
	S90	12 V	Ø90 mm	113 dB (A)
	M26	12/24 V	Ø97/ 113 mm	115 dB (A)
	B133	12/24 V	Ø123 mm	118 dB (A)

AGRICULTURAL MACHINERY

	B36	12/24/ 48/80 V	Ø97/ 113 mm	115 ±3 dB (A)
	S90	12 V	Ø90 mm	113 dB (A)
	M26	12/24 V	Ø97/ 113 mm	115 dB (A)

VEHICLE APPLICATION OVERVIEW

POWER SPORT VEHICLES

	**M28**	12 V	Ø80 mm	105–118 dB (A)
	**S70**	12 V	Ø70 mm	112 dB (A)
	**S90**	12 V	Ø90 mm	113 dB (A)
	**M26**	12/24 V	Ø97/ 113 mm	115 dB (A)

CONSTRUCTION MACHINERY

	**B36**	12/24/ 48/80 V	Ø97/ 113 mm	115 ±3 dB (A)
	**DL50 V2**	12/24 V	Ø130 mm	114 ±5 dB (A)
	**M26**	12/24 V	Ø97/ 113 mm	115 dB (A)

MATERIAL HANDLING

	**B36**	12/24/ 48/80 V	Ø97/ 113 mm	115 ±3 dB (A)
	**DL50 V2**	12/24 V	Ø130 mm	114 ±5 dB (A)
	**S92**	12/24 V	Ø92 mm	112 ±5 dB (A)
	**S90**	12 V	Ø90 mm	113 dB (A)
	**M26**	12/24 V	Ø97/ 113 mm	115 dB (A)