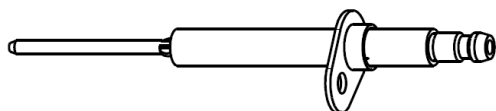
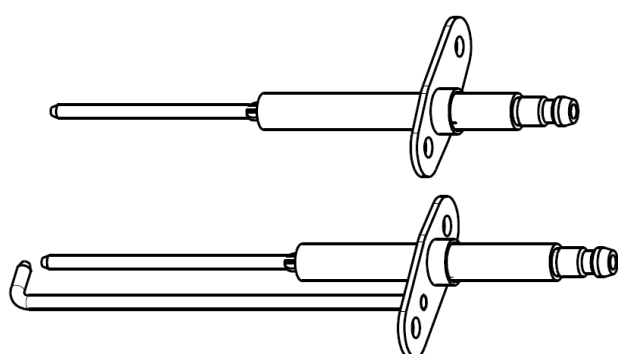


IGNITION AND FLAME DETECTION ELECTRODES

SALV Series



S2ALV Series



ALV Series



DESCRIPTION

The characteristics and the type of materials used to manufacture these electrodes make them suitable for use as ignition electrodes in general, but also as flame sensors in gas burners (the **SALV**, **S2ALV** and **ALV** series can be used in applications where the temperature can be close to 300°C).

Their use as flame detection electrodes is based on the electrical conductivity of the flame, as well as on the fact that a substantial difference between the electrode mass in contact with the flame and the burner mass enables the current to flow mainly from the electrode to the burner housing. In order to obtain a good flame signal, the burner housing should be well connected to earth.

The generated current, usually amounting to some μA , depends on the electrode-mass-to-burner-mass ratio, on the position of the electrode in relation to the flame and on the combustion quality.

Warning: make sure the flame detection electrode is placed at a suitable distance from the ignition electrode, in order to prevent the electrical discharges produced during burner ignition from striking the ground through the detection electrode, thus damaging the connected flame detection device.

FEATURES

SALV and S2ALV series

The electrodes of this series consist of a kanthal metal rod (flame detection electrodes) or an AISI steel rod (ignition electrodes), a glazed alumina insulating part and a galvanized iron fixing bracket.

The electrical wiring is carried out by means of $\varnothing 6,35$ mm terminals (standard) and $\varnothing 4$ mm terminals (non-standard).

These electrodes enable to get some advantages as described below:

- resistance in high-temperature rooms ($< 350^{\circ}C$);
- excellent insulation between the ceramic and the fixing bracket;
- excellent insulation between the fixing bracket and the connection terminals;
- high tensile and torsional strength.

ALV series

The electrodes of this series consist of a kanthal metal rod (flame detection electrodes) or an AISI steel rod (ignition electrodes) and a glazed alumina insulating part.

The electrical wiring is carried out by means of $\varnothing 6,35$ mm terminals (standard) and $\varnothing 4$ mm terminals (non-standard).

These electrodes can be used in rooms with high temperatures $< 350^{\circ}C$.

In general, the electrodes are used in gas and oil burners.

THE ELECTRODES CONSIST OF THE FOLLOWING PARTS:

Ceramic

Glazed alumina with Ø 6 mm	(ALV series)
Glazed alumina with Ø 8 mm	(SALV, S2ALV and ALV series)
Glazed alumina with Ø 10 mm	(SALV, S2ALV and ALV series)
Glazed alumina with Ø 11 mm	(ALV series)
Glazed alumina with Ø 14 mm	(ALV series)

Bracket

Galvanized iron	(SALV and S2ALV series)
-----------------	-------------------------

Rod

Kanthal D Ø 2,5 / 3 mm	(SALV, S2ALV and ALV series)
AISI steel AISI Ø 2,5 / 3 mm	(SALV, S2ALV and ALV series)

Connection terminals

Cylindrical Ø 4 mm	(SALV, S2ALV and ALV series)
Cylindrical Ø 6,35 mm	(SALV, S2ALV and ALV series)

Max. operating temperature

SALV, S2ALV and ALV series	350° C
-----------------------------------	---------------

Standard Brahma dimensions and/or characteristics are shown in Table .1, and Table .2.

MANUFACTURING FEATURES

Table .1 (**SALV** and **S2ALV** series) and Table .2 (**ALV** series) show the possible solutions for the connection of the electrodes to an ignition transformer or to a board and are a key to electrode designations.

ELECTRODES X₁ X₂ X₃ ALV X₄ X₅ X₆ (with BRACKET)

X₁=	DET.	Flame Detection Electrode (see Fig. 1 - 2)
	IGN.	Ignition Electrode (see Fig. 1 - 2)
X₂=	K3,0	KANTHAL rod Ø 3 mm
	A3,0	AISI STEEL rod Ø 3 mm
X₃=	S	Fixing bracket with 10 mm centre distance (see Fig. 1)
	S2	Two-hole fixing bracket (see Fig. 2)
ALV		Glazed alumina ceramic
X₄=	8. .60.	Ceramic Ø 8 mm and 60 mm length for rods Ø 3 mm (ØC - HT see Fig. 1 - 2) Ceramic length from the bracket 40 mm (H see Fig. 1 - 2)
	8. .80.	Ceramic Ø 8 mm and 80 mm length for rods Ø 3 mm (ØC - HT see Fig. 1 - 2) Ceramic length from the bracket 60 mm (H see Fig. 1 e 2)
	8. .120.	Ceramic Ø 8 mm and 120 mm length for rods Ø 3 mm (ØC - HT see Fig. 1 - 2) Ceramic length from the bracket 100 mm (H see Fig. 1 e 2)
	10. .84.	Ceramic Ø 10 mm and 84 mm length for rods Ø 3 mm (ØC - HT see Fig. 1 - 2) Ceramic length from the bracket 64 mm (H see Fig. 1 e 2)
	10. .120.	Ceramic Ø 10 mm and 120 mm length for rods Ø 3 mm (ØC - HT see Fig. 1 - 2) Ceramic length from the bracket 100 mm (H see Fig. 1 - 2)
X₅=	No letter	(standard) Ø 6,35 mm terminal (T see Fig. 1 - 2)
	T4	(not standard) Ø 4 mm terminal (T see Fig. 1 - 2)
X₆=		Length of the straight rod out of the ceramic in mm (L see Fig. 1)
	P	Bent rod out of the ceramic (to customer's drawing)

Table .1

For example, the designation "**DET. ELECTR. K3,0 SALV 8..60.140**" (see Table .1) refers to an electrode manufactured as follows:

- Flame Detection Electrode..... **DET.**
- KANTHAL rod Ø 3 mm **K3,0**
- Electrode with glazed alumina ceramic, standard fixing bracket with 10 mm centre distance **SALV**
- Ceramic Ø 8 mm and 60 mm length Ceramic length from the bracket 40 mm (see Fig.1) **8. .60.**
- Ø 6,35 mm terminal (standard) **No letter**
- 140 mm straight rod out of the ceramic..... **140**

ELECTRODES X₁ X₂ ALV X₃ X₄ X₅ (without BRACKET)

X ₁ =	DET.	Flame Detection Electrode (see Fig. 3)
	IGN.	Ignition Electrode (see Fig. 3)
X ₂ =	K2,5	KANTHAL rod Ø 2,5 mm (ØA see Fig. 3)
	A2,5	AISI STEEL rod Ø 2,5 mm (ØA see Fig. 3)
	K3,0	KANTHAL rod Ø 3 mm (ØA see Fig. 3)
	A3,0	AISI STEEL rod Ø 3 mm (ØA see Fig. 3)
ALV		Glazed alumina ceramic
X ₃ =	6. .55.	Ceramic Ø 6 mm and 55 mm length for rods Ø 2,5 mm (ØC – HT see Fig. 3)
	8. .60.	Ceramic Ø 6 mm and 60 mm length for rods Ø 2,5 mm (ØC – HT see Fig. 3)
	8. .60.	Ceramic Ø 8 mm and 60 mm length for rods Ø 3 mm (ØC – HT see Fig. 3)
	8. .80.	Ceramic Ø 8 mm and 80 mm length for rods Ø 3 mm (ØC – HT see Fig. 3)
	8. .120.	Ceramic Ø 8 mm and 120 mm length for rods Ø 3 mm (ØC – HT see Fig. 3)
	10. .84.	Ceramic Ø 10 mm and 84 mm length for rods Ø 3 mm (ØC – HT see Fig. 3)
	10. .120.	Ceramic Ø 10 mm and 120 mm length for rods Ø 3 mm (ØC – HT see Fig. 3)
	11. .67.	Ceramic Ø 11 mm and 67 mm length for rods Ø 3 mm (ØC – HT see Fig. 3)
	11. .102.	Ceramic Ø 11 mm and 102 mm length for rods Ø 3 mm (ØC – HT see Fig. 3)
	14. .67.	Ceramic Ø 14 mm and 67 mm length for rods Ø 3 mm (ØC – HT see Fig. 3)
	14. .102.	Ceramic Ø 14 mm and 102 mm length for rods Ø 3 mm (ØC – HT see Fig. 3)
	14. .120.	Ceramic Ø 14 mm and 120 mm length for rods Ø 3 mm (ØC – HT see Fig. 3)
	14. .152.	Ceramic Ø 14 mm and 152 mm length for rods Ø 3 mm (ØC – HT see Fig. 3)
	14. .230.	Ceramic Ø 14 mm and 230 mm length for rods Ø 3 mm (ØC – HT see Fig. 3)
	14. .350.	Ceramic Ø 14 mm and 350 mm length for rods Ø 3 mm (ØC – HT see Fig. 3)
X ₄ =	No letter	(standard) Ø 6,35 mm terminal (T see Fig. 3)
	T4	Ø 4 mm terminal (not standard, for electrodes with rod Ø 3 mm only) (T see Fig. 3)
X ₅ =		Length of the straight rod out of the ceramic in mm (L see Fig. 3)
	P	Bent rod out of the ceramic (to customer's drawing)

Table .2

For example, the designation **"DET. ELECTR. K3,0 ALV 8..60.140"** (see Table .2) refers to an electrode manufactured as follows:

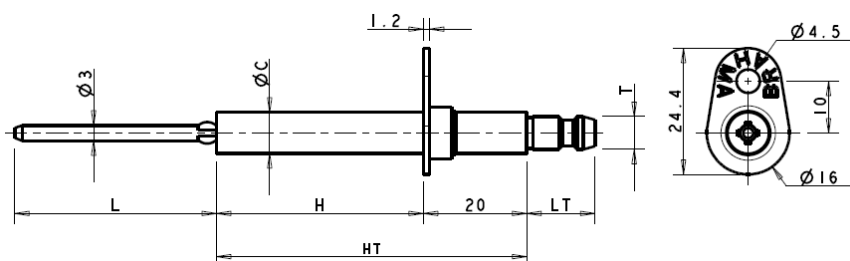
- Flame Detection Electrode..... **DET.**
- KANTHAL rod Ø 3 mm **K3,0**
- Electrode with glazed alumina ceramic, without fixing bracket **ALV**
- Ceramic Ø 8 mm and 60 mm length **8. .60.**
- Ø 6,35 mm terminal (standard) **No letter**
- 140 mm straight rod out of the ceramic..... **140**

Note: The **"SALV"**, **"S2ALV"** and **"ALV"** series electrodes with a particularly long rod can be supplied on demand with 2 or 3 ceramics.

OVERALL DIMENSIONS

Figures 1, 2 and 3 show examples of the main fixed and variable overall dimensions of the electrodes, as well as the available fixing brackets.

- **SALV series electrodes with bracket and cylindrical terminal** (see Table 1)



Key:

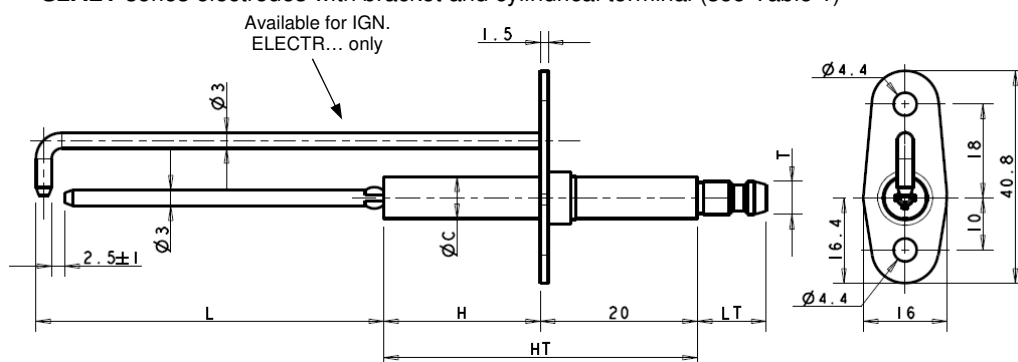
H	= Ceramic length from the bracket
HT	= Ceramic length
ØC	= Ceramic diameter
L	= Rod length out of the ceramic
T	= Type of terminal
LT	= Length of terminal
Ø 6,35	13,2 mm (standard)
Ø 4	21,2 mm (not standard)

Note:

Standard position of the bracket on the terminal side: 20 mm (different position possible on demand)

Fig. 1

- **S2ALV series electrodes with bracket and cylindrical terminal** (see Table 1)



Key:

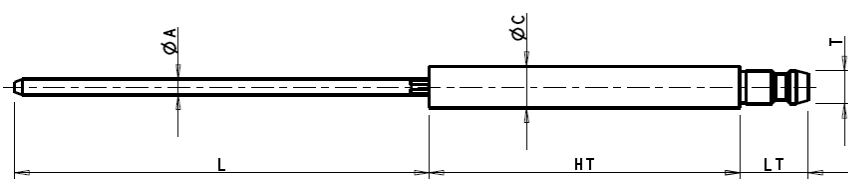
H	= Ceramic length from the bracket
HT	= Ceramic length
ØC	= Ceramic diameter
L	= Rod length out of the ceramic
T	= Type of terminal
LT	= Length of terminal
Ø 6,35	13,2 mm (standard)
Ø 4	21,2 mm (not standard)

Note:

Standard position of the bracket on the terminal side: 20 mm (different position possible on demand)

Fig. 2

- **ALV series electrodes without bracket with cylindrical terminal** (see Table 2)



Key:

HT	= Ceramic length
ØC	= Ceramic diameter
L	= Rod length out of the ceramic
ØA	= Rod diameter
T	= Type of terminal
LT	= Length of terminal
Ø 6,35	13,2 mm (standard)
Ø 4	21,2 mm (not standard)

Fig. 3

ACCESSORIES

- Accessories

In case the electrodes are used for ignition, a resistor may be necessary to reduce electromagnetic interference.

In this case we recommend using electrodes with "T" terminal (Fig. 1, 2 and 3), to be coupled to high voltage cables with straight or 90° connection, which can be equipped with 1 kΩ, 2,7 kΩ and 4,7 kΩ resistors.

For more detailed information see data sheets about BRAHMA high voltage cables.



NOTES ABOUT PRODUCT DISPOSAL

Electrodes cannot be disposed of as normal household waste. For the disposal procedure please refer to the local rules in force for special waste.

ATTENTION -> Company Brahma S.p.A. takes no responsibility for any damage resulting from Customer tampering with the product.

BRAHMA S.p.A.

Via del Pontiere, 31
37045 Legnago (VR)
Tel. +39 0442 635211 - Telefax +39 0442 25683
<http://www.brahma.it>
E-mail : brahma@brahma.it

24/06/2021 Subject to amendments without notice