

ZÖLLNER GMBH
ENGINE TEST BED DYNAMOMETERS
SOUND SIGNAL EQUIPMENT



ZÖLLNER-MAKROFON M 75 + M 125 compressed air operated

General Features of the ZÖLLNER Makrofon Whistle

Makrofon whistles are diaphragm sound transmitters. In water navigation as well as in road and rail-borne traffics, these whistles are unsurpassed because of their great sound intensity and audibility range. Besides, they are widely used in industrial plants as general and specific danger alarm systems and as rest indicating systems. Compressed air, carbonic acid etc. may be used to power the Makrofon.

The ZÖLLNER Makrofon is a reliable whistle distinguished by its low air consumption. Many thousands of Makrofon have been in service all over the world for decades. Owing to its simple construction the Makrofon is almost maintenance-free. It produces a pure note of wide range and its broad frequency spectrum shows many high harmonics. Please consider that signals containing many higher harmonics are able to penetrate an existing noise level even at a stage where the fundamental frequency proper is being absorbed. It is the residual sound that builds up the keynote in the human ear. Already two or three harmonics make the human ear perceive the fundamental frequency.

The electro-pneumatic Makrofon valve is provided with a heating with thermostatic regulator to heat its own body as well as the Makrofon casing.

Furthermore, this valve is equipped with a lever to attach the customer-provided hand pullrope. The expensive installation of a pullrope, which must be guided by pulleys and through tubes may be avoided. A second electromagnet working on the ship's emergency power supply should be installed instead, on the Makrofon valve ZVE. Please note that this release type meets SOLAS 1960 and SOLAS 1974 regulations.

The ZÖLLNER Makrofon is type-approved and meets the International Regulations for Preventing Collisions at Sea (IMO) 1972.

Certificates of ABS, BV, DOT, BSH, GL, LR, NV, RINA, PRS, etc. may be made available.

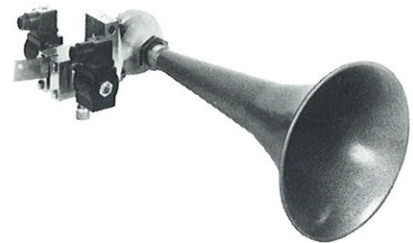
Positioning and Installation

It is absolutely necessary to place the Makrofon whistle as high as practical on a vessel to reduce interception of emitted sound by obstructions and to avoid hearing damage to the personnel. The sound pressure level of a vessel's own signal at listening posts must not exceed 110 dB (A).

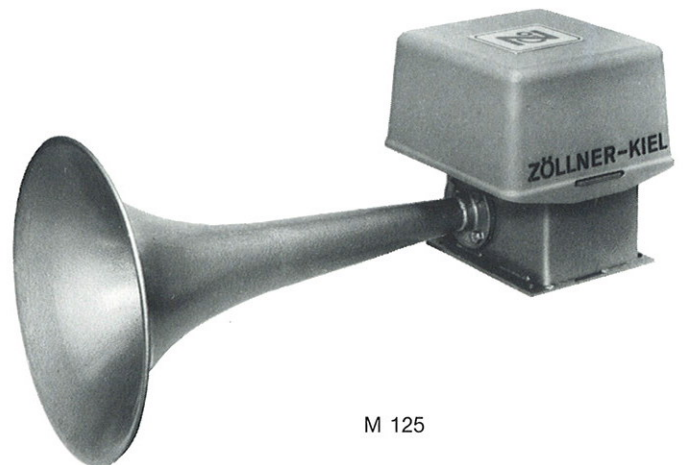
Where possible, the compressed air pipe should be made of copper. If steel tubes are used instead, have an air filter directly precede the Makrofon valve in the pipe. Pipings of more than 10 m in length should have inside diameters (ID), which are larger than those shown on the tables hereafter (see applicable rules of the classification society/societies involved). Purge the pipe inside before applying compressed air. Only then link the line up.



M 75



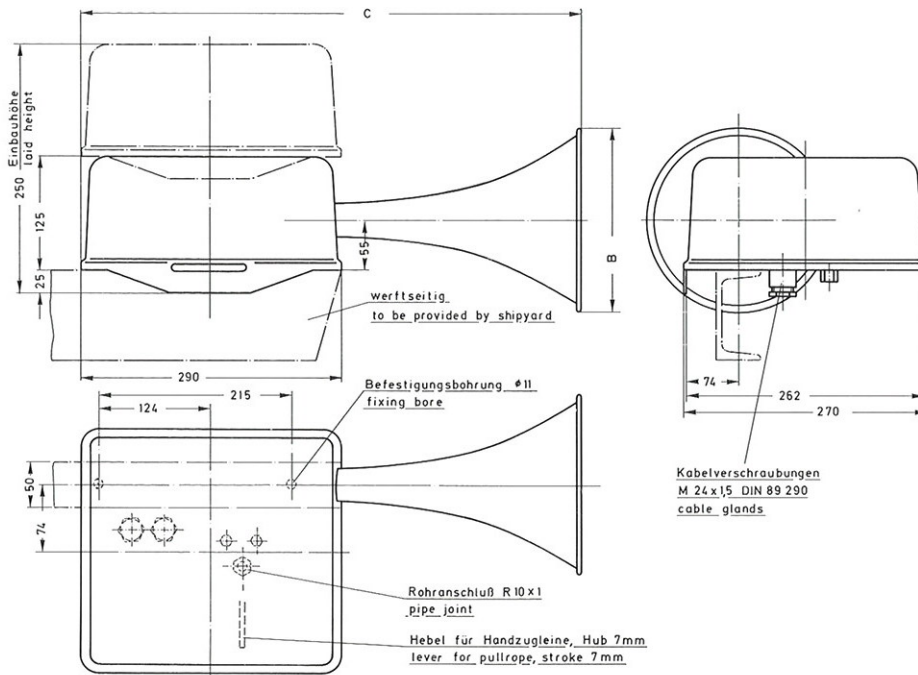
M 75



M 125

Marine Application according to COLREG 72
Ships less than 75 m in length (Class III + IV)

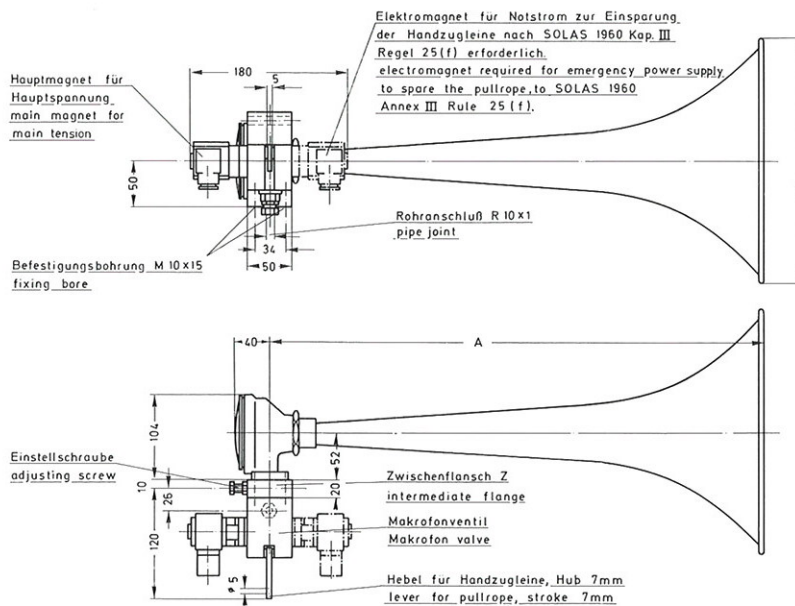
For these ships, a basic sound frequency of 250 - 700 Hz is required by COLREG 1972 rules. Makrofons providing this frequency range have a straight sound horn made of sheet steel or, if requested, of sheet copper. And they may be furnished provided with electric heating and cover. If you want to spare the hand pullrope, a second magnet coil is required. This must be ordered separately by the customer.



ship length metres	BSH class	type	basic frequency Hz	sound level at 1 m distance dB		consumpt. (free air) ltr/sec	air* pressure bar	pipe joint mm	dimensions mm			weight kg with			type test No. BSH
				1/3rd. oct.	min. level to IMO				A	B	C	1 valve	2 valves	2 valv. + heat.	
< 75	III + IV	M 75/370	370	132	130	8-12	6-40	Ø 10/8	380	200	560	4,4	5,0	7,1	49/04P/78
< 75	III + IV	M 75/320	310	138	130	8-12	6-40	Ø 10/8	480	225	660	4,8	5,4	8,0	49/04P/02/78
< 75**	III + IV	M 75/260	260	138	130	8-12	6-40	Ø 10/8	550	268	730	4,9	5,5	8,1	49/04P/03/82

* please state in purchase order

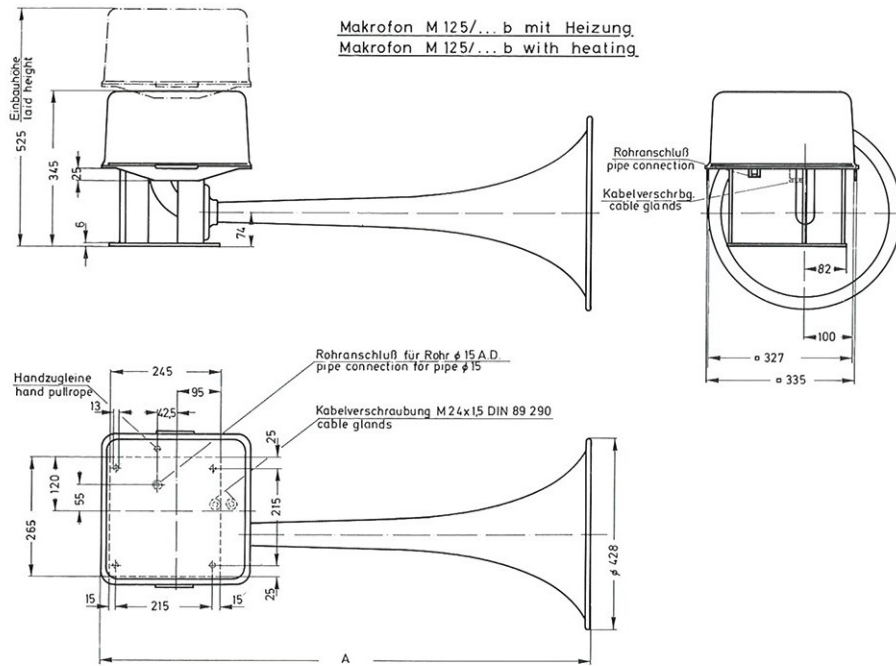
** may also be applied for ships' class II (length 75 - 200 metres)



Marine Application according to COLREG 72

Ships of 75 m but less than 200 m in length (Class II)

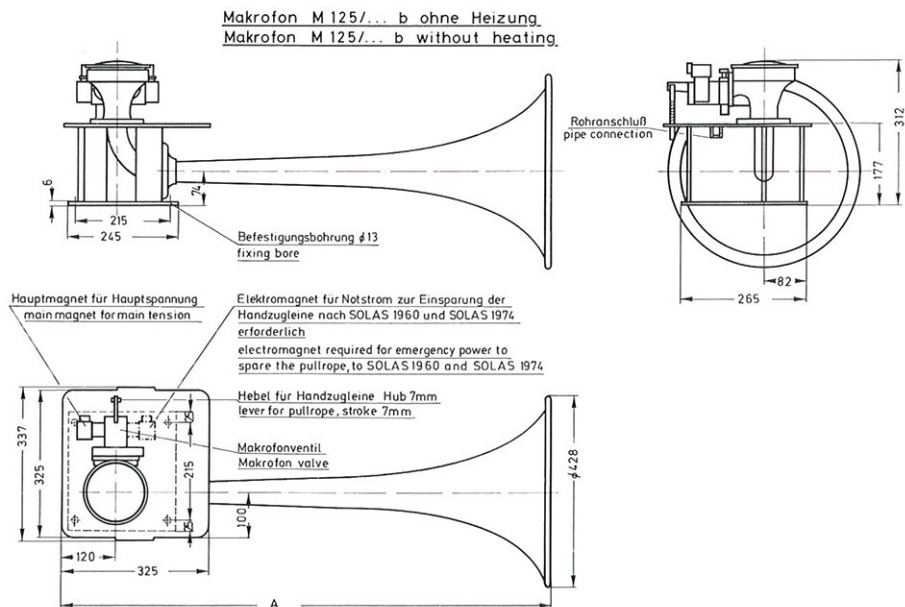
For these ships, a basic sound frequency of 130 - 350 Hz is required by COLREG 1972 rules. Makrofon providing this frequency range have a sound horn bent by 90°. These sound horns are made of sheet aluminium. All of the M-125 b type Makrofon may be furnished provided with electric heating and cover. If you want to spare the hand pullrope, a second magnet coil is required. This must be ordered separately by the customer.



ship length metres	BSH class	type	basic frequency Hz	sound level at 1 m distance dB		consumpt. (free air) ltr/sec	air* pressure bar	pipe joint mm	dimensions mm			weight kg with			type test No. BSH
				1/3rd. oct.	min. level to IMO				A	B	C	1 valve	2 valves	2 valv. + heat.	
75-200	II	M 125/160b	160	140	138	20-30	6-40	Ø 15/12	890	25,2	25,8	27	49/03P/78		
75-200	II	M 125/130b	130	139	138	20-30	6-40	Ø 15/12	1090	25,8	26,4	27,6	49/03P02/78		

* please state in purchase order

** may also be applied for ships' class II (length 75 - 200 metres)



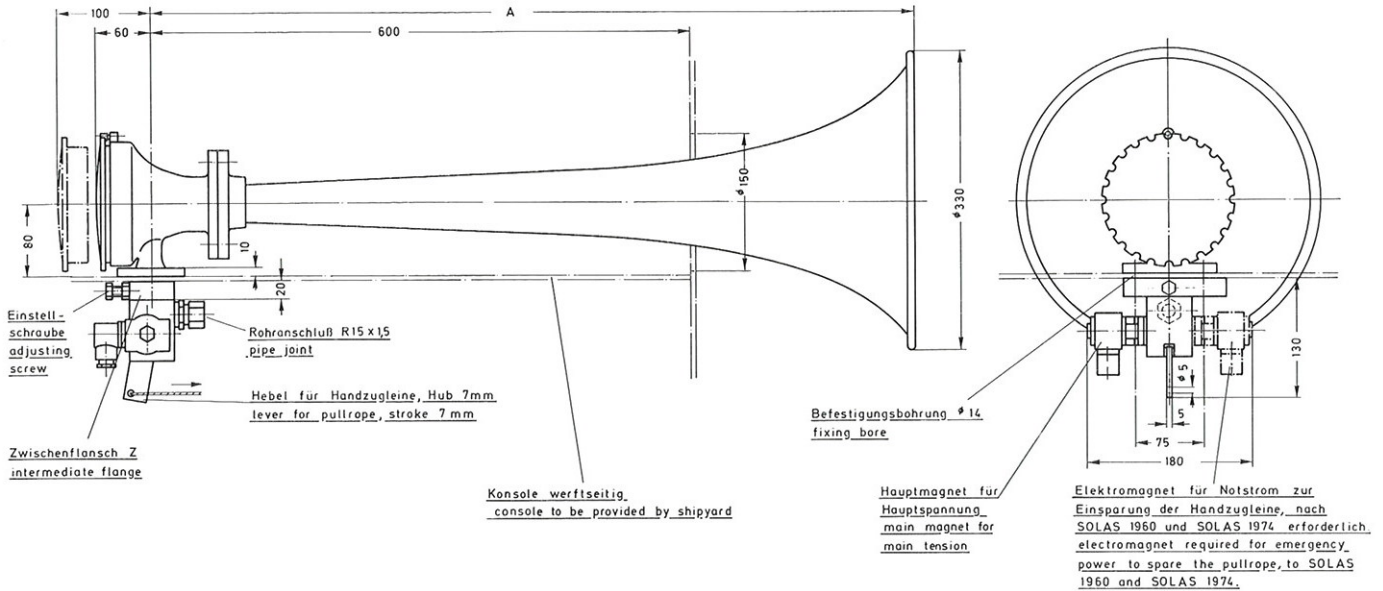
Marine Application according to COLREG 72

Ships of 75 m but less than 200 m in length (Class II)

For these ships, a basic sound frequency of 130 - 350 Hz is required by COLREG 1972 rules. Makrofon providing this frequency range have a straight sound horn. These horns are made of sheet aluminium. If you want to spare the hand pullrope, a second magnet coil is required. This must be ordered separately by the customer.

Makrofon M 125/... s ohne Heizung
(nur für geschützten Einbau)

Makrofon M 125/... s without heating
(only for indoor installation)

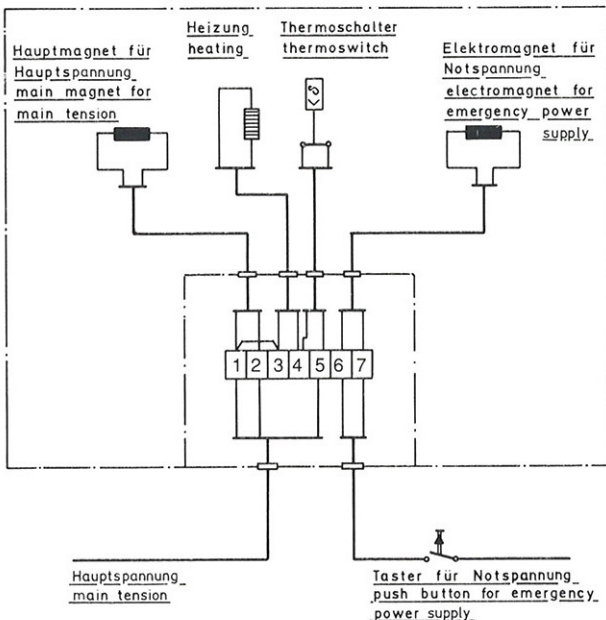


ship length metres	BSH class	type	basic frequency Hz	sound level at 1 m distance		consumpt. (free air) ltr/sec	air* pressure bar	dimension mm A	weight kg with	
				dB 1/3rd oct.	min. level to IMO				1 valve	2 valves
75-200	II	M 125/160s	160	139	138	20-30	6-40	840	12	12,5
75-200	II	M 125/140s	140	139	138	20-30	6-40	920	12,5	13

* please indicate with purchase order

**Kabelplan für Makrofon M 75 + M 125
mit Heizung**

wiring diagram for Makrofon M 75 + M 125 with heating



**Kabelplan für Makrofon M 75 + M 125
ohne Heizung**

wiring diagram for Makrofon M 75 + M 125
without heating

